



Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

February 24, 2017

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

RE: Request of SmartSky Networks LLC for an Order to Approve the Shared Use of an Existing Tower at 280 Ross Road, Killingly, CT 06239

Dear Ms. Bachman:

Pursuant to Connecticut General Statutes (“C.G.S.”) §16-50aa, as amended, SmartSky Networks LLC (“SmartSky”) hereby requests an order from the Connecticut Siting Council (“Council”) to approve the shared use by SmartSky of an existing telecommunication tower at 280 Ross Road in Killingly, Connecticut (the “Property”). The existing 119-foot monopole is owned by Crown Castle International Corp. (“Crown Castle”), the underlying property is owned by Snake Meador Club Inc. SmartSky requests that the Council find that the proposed shared use of the Crown Castle tower satisfies the criteria of C.G.S. §16-50aa and issue an order approving the proposed shared use. A copy of this filing is being mailed to Town Manager Sean Hendricks and Director of Planning & Development Ann-Marie Aubrey.

Background

The existing Crown Castle facility consists of a 119-foot monopole tower on a 10,000 square foot parcel along the northeast side of Ross Road. AT&T maintains antennas at the 119-foot level. Equipment associated with the AT&T antennas is located southeast of the tower. T-Mobile maintains antennas at the 107-foot level. Equipment associated with the T-Mobile antennas is located east of the tower. Verizon maintains antennas at the 100-foot level. Equipment associated with the Verizon antennas is located northeast of the tower.

SmartSky is licensed by the Federal Communications Commission (“FCC”) to provide wireless services throughout the State of Connecticut. SmartSky and Crown Castle have agreed to the proposed shared use of the Ross Road tower pursuant to mutually acceptable terms and conditions. Likewise, SmartSky and Crown Castle have agreed to the proposed installation of equipment cabinets on the ground on the southwest side of the tower. Crown Castle has authorized SmartSky to apply for all necessary permits and approvals that may be required to share the existing tower. (See Owner’s authorization letter).

SmartSky proposes to install six (6) antennas at a height of 60 feet above ground level. SmartSky will also install six (6) surge protectors, one (1) raycap distribution panel, one (1) 7/8” hybrid cable, a GPS antenna installed on the ground, and an equipment cabinet on a 5’x5’ concrete pad. Included in the

The Foundation for a Wireless World.

CrownCastle.com

Construction Drawings are SmartSky's project specifications for locations of all proposed site improvements.

C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the Council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such a shared use." SmartSky respectfully submits that the shared use of the tower satisfies these criteria.

A. Technical Feasibility. The existing Crown Castle tower is structurally capable of supporting SmartSky's proposed improvements. The proposed shared use of this tower is, therefore, technically feasible. A Feasibility Structural Analysis Report ("Structural Report") prepared for this project confirms that this tower can support SmartSky's proposed loading. A copy of the Structural Report has been included in this application. Please note that the antenna models on the original Structural Report have been swapped for a smaller antennas model. Per my conversation with the Council, an Engineer letter has been provided stating that the change in antenna model did not warrant the need for another Structural Analysis to be performed.

B. Legal Feasibility. Under C.G.S. § 16-50aa, the Council has been authorized to issue order approving the shared use of an existing tower such as the Crown Castle tower. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. In addition, § 16-50x(a) directs the Council to "give such consideration to the other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under the statutory authority vested in the Council, an order by the Council approving the requested shared use would permit the Applicant to obtain a building permit for the proposed installations.

C. Environmental Feasibility. The proposed shared use of the Crown Castle tower would have a minimal environmental effect for the following reasons:

1. The proposed installation of six (6) antennas and one (1) raycap, at a height of 60 feet above ground level, would have no visual impact on the area of the tower. SmartSky's cabinet will be installed within the facility compound. SmartSky's shared use of this tower therefore, does not cause any significant change or alteration in the physical or environmental characteristics of the existing site.
2. Operation of SmartSky's antennas at this site would not exceed the RF emissions standard adopted by the Federal Communications Commission ("FCC"). Included in the EME report of this filing are the approximation tables that demonstrate that SmartSky's proposed facility will operate well within the FCC RF emissions safety standards.

3. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete the proposed installations would not generate any increased traffic to the Crown Castle facility other than periodic maintenance. The proposed shared use of the Crown Castle tower, would, therefore, have a minimal environmental effect, and is environmentally feasible.

D. Economic Feasibility. As previously mentioned, SmartSky has entered into an agreement with Crown Castle for the shared use of the existing facility subject to mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible. (Please see included authorization.)

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting SmartSky's full array of six (6) antennas, one (1) raycap, one (1) hybrid cable and all related equipment. SmartSky is not aware of any public safety concerns relative to the proposed sharing of the existing Crown Castle tower.

Conclusion

For the reasons discussed above, the proposed shared use of the existing Crown Castle tower at 280 Ross Road satisfies the criteria state in C.G.S. §16-50aa and advances the General Assembly's and the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant, therefore, respectfully requests that the Council issue an order approving the proposed shared use.

Sincerely,

Amanda Cornwall
Real Estate Specialist
12 Gill Street, Suite 5800,
Woburn, MA 01801
339-205-7017
Amanda.Cornwall@crowncastle.com

Attachments:

Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes

Melanie A. Bachman

February 24, 2017

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Tab 2: Exhibit-2: Structural Modification Report

Tab 3: Exhibit-3: General Power Density Table report (RF Emissions Analysis Report)

Copies to:

Sean Hendricks-Town Manager

172 Main Street

Second Floor

Killingly, CT 06239

Ann-Marie Aubrey- Director of Planning & Development

172 Main Street

Second Floor

Killingly, CT 06239

Crown Castle (Tower Owner)

12 Gill Street, Suite 5800

Worburn, MA 01801

Snake Meadow Club Inc.

561 Snake Meadow Road

PO Box 236

Central Village, CT 06332

Connecticut Siting Council

Decisions

DOCKET NO. 283 – New Cingular Wireless PCS,LLC Certificate of Environmental Compatibility and Public need for the construction, maintenance and operation of a wireless telecommunications facility at 280 Ross Road in Killingly, Connecticut.	}	Connecticut
	}	Siting
	}	Council
		June 23, 2004

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to AT&T Wireless PCS, LLC d/b/a AT&T Wireless for the construction, maintenance and operation of a wireless telecommunications facility at Site C, located at 280 Ross Road, Killingly, Connecticut. The Council denies certification of Site A and Site B located at 25 Klocek Road, Killingly, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of AT&T Wireless and other entities, both public and private, but such tower shall not exceed a height of 120 feet above ground level. The height at the top of the antennas shall not exceed 123 feet above ground level.
2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Killingly, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
 - a. comments from the Town of Killingly regarding the type of tower to be constructed;
 - b. a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment building, access road, utility line, and landscaping; and
 - c. construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of electromagnetic radio frequency power density is submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.
4. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental,

or economic reasons precluding such tower sharing.

- 6. The Certificate Holder shall provide reasonable space on the tower for no compensation for any municipal antennas, provided such antennas are compatible with the structural integrity of the tower.
- 7. If the facility does not initially provide wireless services within one year of completion of construction or ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
- 8. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.
- 9. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved. Any request for extension of this period shall be filed with the Council not later than sixty days prior to expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list. Any proposed modifications to this Decision and Order shall likewise be so served.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the Norwich Bulletin.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

<u>Applicant</u>	<u>Its Representative</u>
AT&T Wireless PCS, LLC d/b/a AT&T Wireless	Christopher B. Fisher, Esq. Lucia Chiochio, Esq. Cuddy & Feder LLP

Content Last Modified on 6/14/2005 1:23:58 PM

Situs : 280 ROSS RD

Map ID: 001365

Class: PA 490 FOREST

Card: 1 of 1

Printed: August 31, 2016

CURRENT OWNER
SNAKE MEADOW CLUB INC
% PAUL CHASE
PO BOX 236
CENTRAL VILLAGE CT 06332-0236

GENERAL INFORMATION
Living Units
Neighborhood 113
Alternate Id 256-2
Vol / Pg 625/206
District 7
Zoning RURAL DEVELOPMENT
Class 600

Property Notes
MONOPOLE & TELECOM FACILITY

Land Information

Type	Size	Influence Factors	Influence %	Value
Primary	AC 0.5000			34,000
Excess	AC 7.3000			12,780

Total Acres: 7.8
Spot: Location:

Assessment Information

	Assessed	Appraised	Cost	Income	
Land	25,030	46,800	46,800	0	46,800
Building	108,150	154,500	154,500	0	154,500
Total	133,180	201,300	201,300	0	201,300

Manual Override Reason
Base Date of Value 10/01/2013
Effective Date of Value 10/01/2016

Value Flag COST APPROACH
MONOPOLE BLDG 154500

Entrance Information

Date	ID	Entry Code	Source
07/27/07	AD	Complete	Other

Permit Information

Date Issued	Number	Price	Purpose	% Complete
07/14/15	23754	15,000	97 BPP Install 3 New Antennaes, 3 New E	995
07/13/15	23750	15,000	BLDG Reface Antenna Panels W/New M	995
11/30/12	22123	75,000	BLDG At&T Site Modifications- Add 3 An	995
04/13/09	19933	4,500	31 ELEC Nvc New 200 Amp Svc	997
03/13/09	19903	53,000	51 BLDG Modify Tow ers, Add Antennas, Pl	995

Sales/Ownership History

Transfer Date	Price	Type	Validity	Deed Reference	Deed Type	Grantee
04/01/95	40,000	Land Only				

Situs : 280 ROSS RD

Parcel Id: 001365

Class: PA 490 FOREST

Card: 1 of 1

Printed: August 31, 2016

Dwelling Information

Style	Year Built
Story height	Eff Year Built
Attic	Year Remodeled
Exterior Walls	Amenities
Masonry Trim x	
Color	In-law Apt No

Basement

Basement	# Car Bsm t Gar
FBLA Size x	FBLA Type
Rec Rm Size x	Rec Rm Type

Heating & Cooling

Fireplaces

Heat Type	Stacks
Fuel Type	Openings
System Type	Pre-Fab

Room Detail

Bedrooms	Full Baths
Family Rooms	Half Baths
Kitchens	Extra Fixtures
Total Rooms	
Kitchen Type	Bath Type
Kitchen Remod	Bath Remod

Adjustments

Int vs Ext	Unfinished Area
Cathedral Ceiling x	Unheated Area

Grade & Depreciation

Grade	Market Adj
Condition	Functional
CDU	Economic
Cost & Design % Complete 0	% Good Ovr

Dwelling Computations

Base Price	% Good
Plumbing	% Good Override
Basement	Functional
Heating	Economic
Attic	% Complete
Other Features 0	C&D Factor
	Adj Factor
Subtotal	Additions

Ground Floor Area	Dwelling Value
Total Living Area	

Building Notes

Outbuilding Data

Type	Size 1	Size 2	Area	Qty	Yr Blt	Grade	Condition	Value
------	--------	--------	------	-----	--------	-------	-----------	-------

Condominium / Mobile Home Information

Complex Name	
Condo Model	
Unit Number	
Unit Level	Unit Location
Unit Parking	Unit View
Model (MH)	Model Make (MH)

Addition Details

Line #	Low	1st	2nd	3rd	Value
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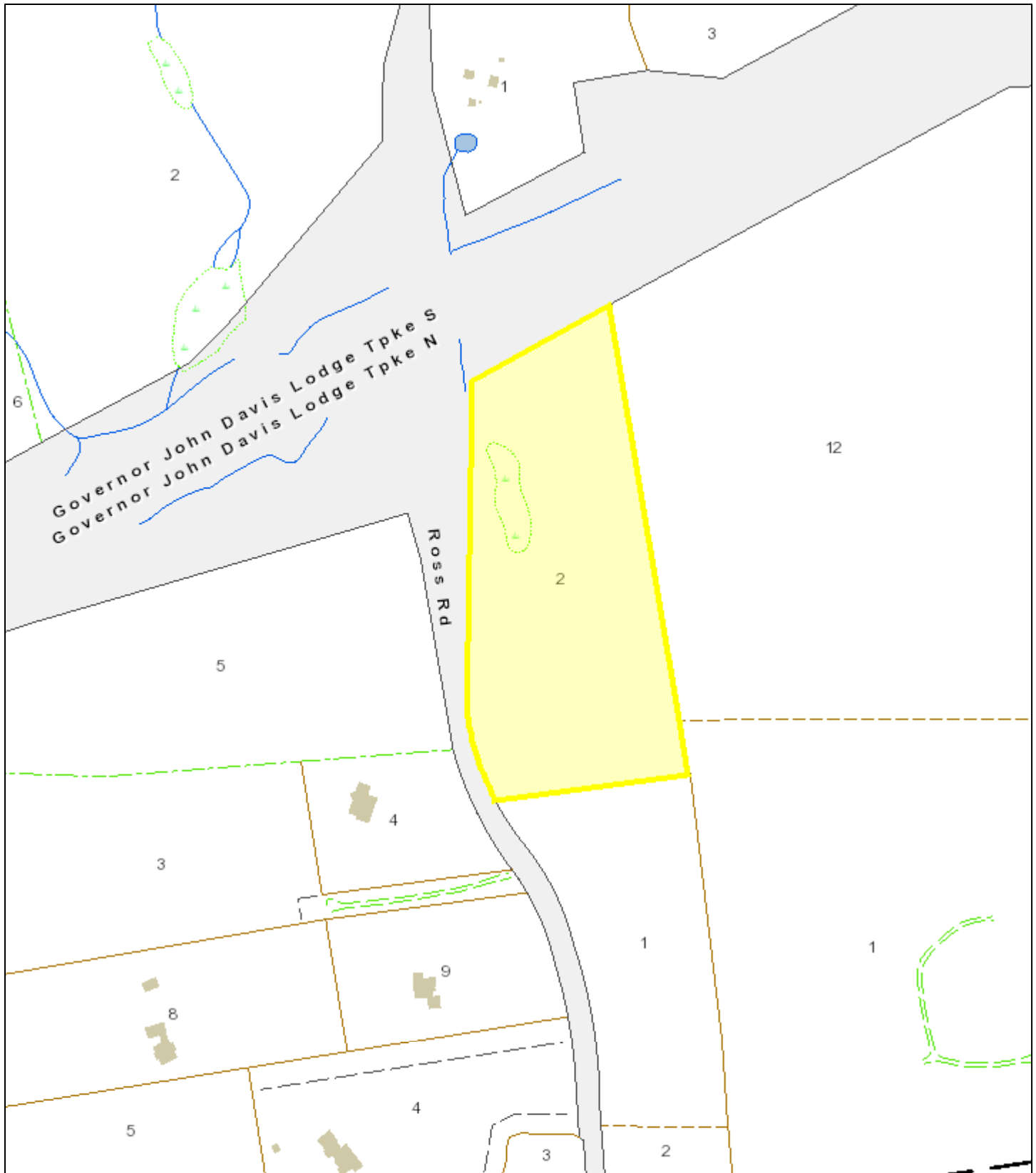
Killingly, CT



February 2, 2017

1 inch = 268 Feet

www.cai-tech.com



Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.



Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

Crown Castle, does hereby authorize SmartSky Networks LLC and its authorized contractors/agents to act as “Applicant” in the processing of all applications, permits, research and other related activities associated with the processing, planning, design review, permitting, entitlement and construction of additional equipment, antennas and site improvements for the Crown Castle existing wireless communications facility described as follows:

Customer Site Name:	CT100A	Crown Castle Site ID Number:	857013
Site Address:	280 Ross Road – Killingly, CT 06239	Crown Castle Site Name:	KILLINGLY ROSS ROAD

This authorization is fully contingent upon SmartSky authorized contractors/agents’ compliance with the following conditions:

1. Crown Castle must review the application prior to submittal. Crown Castle must be provided all applications, narratives, drawings and attachments at least 72 hours in advance of their submittal to the locality. Use of email and electronic attachments is encouraged. A Crown Castle Zoning Subject Matter Expert (SME) will review and provide written comment to the customer within 48 hours of receipt of a complete set of application materials. If Crown Castle indicates that changes are required, submissions shall be altered in accordance with Crown Castle comments prior to submission to the locality. Verification of corrections should also be accomplished via emails and attachments.
2. In no event may SmartSky encourage, suggest, participate in, or permit the imposition of any restrictions or additional obligations whatsoever on the tower site or Crown Castle’s current or future use or ability to license space at the tower site as part of or in exchange for obtaining any approval, permit, exception or variance.
3. A copy of the final permit and/or a written summary of the zoning/entitlement decision rendered by the locality and any/all conditions placed on that decision shall be communicated in detail to Crown Castle well within the appeal period provided by the locality (typically 10-15 days).
4. All conditions of approval pertinent to the construction of the proposed project must be included in the construction drawings for the project. The conditions of approval pertinent to the construction of the project shall be copied verbatim from the zoning permit approval language, and shall be present in the drawings prior to submission for building permits and contractor bidding. Crown Castle shall verify the inclusion of appropriate conditions of approval in the construction drawing redline process.
5. Crown Castle will provide a Notice To Proceed (NTP) to construction to the customer upon receipt of the final approved zoning permit and the approved Building Permit.

By Crown Castle:

Signature: Amanda Cornwall

Printed Name: Amanda Cornwall

Title: Real Estate Specialist – East Area

Date: February 24, 2017



3530 Toringdon Way Suite 300
Charlotte, NC 28277

Phone: (980) 430-8568
www.crowncastle.com

November 16, 2016

VIA FedEx

SNAKE MEADOW CLUB INC
58 Old North Road
Mystic, CT 06355

Re: BU 857013 / KILLINGLY ROSS ROAD / 280 ROSS ROAD, KILLINGLY, CT 06239 ("Site")
Option & Lease Agreement, dated July 26, 2005 ("Lease")
Notice of Sublease (SmartSky Networks)

Dear SNAKE MEADOW CLUB INC,

Pursuant to an agreement between NCWPCS MPL 32 - Year Sites Tower Holdings LLC ("AT&T") and CCATT LLC ("CCATT"), CCATT subleased and operates the tower site that is subject to the Lease on behalf of AT&T. CCATT is a Crown Castle company. CCATT and its affiliates and subsidiaries own, manage and operate shared wireless communication facilities.

Pursuant to the terms of the agreement, CCATT has been authorized by AT&T to notify you of any Sublease at the tower site. Please be advised that in accordance with paragraph 16 of the Lease, CCATT plans to sublease to SmartSky Networks LLC. The sublease will not alter the character or use of the site, nor will it change the nature of either CCATT's or AT&T's occupancy of the site.

As used in this letter, the term "sublease" may include any arrangement by which a third party can install and operate its equipment on the property subject to the Lease. CCATT will continue to be responsible for performing all of the obligations under the Lease.

Thank you for your continued cooperation with AT&T and CCATT. If you have any questions concerning this issue, please contact Julie Hough at (980) 430-8568 or Julie.Hough@crowncastle.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'Julie'.

Julie Hough
Real Estate Project Coordinator



SMARTSKY SITE NUMBER: CT100A **CROWN CASTLE BU #:** 857013
SMARTSKY SITE NAME: KILLINGLY ROSS RD **SITE ADDRESS:** 280 ROSS ROAD
SITE TYPE: MONOPOLE **COUNTY:** WINDHAM
TOWER HEIGHT: 119'-0" **JURISDICTION:** TOWN OF KILLINGLY

SMARTSKY FIRST TIME INSTALL



4690 FIRST FLIGHT DRIVE
 CHARLOTTE, NC 28208



3 CORPORATE PARK DRIVE, SUITE 101
 CLIFTON PARK, NY 12065

SMARTSKY SITE NUMBER:
CT100A

BU #: **857013**
KILLINGLY ROSS ROAD

280 ROSS ROAD
 KILLINGLY, CT 06239

EXISTING 119'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	1/3/17	ZTK	PRELIMINARY	ZTK
B	1/27/17	ZTK	PRELIMINARY	ZTK
C	2/2/17	ZTK	PRELIMINARY	ZTK
0	2/17/17	ZTK	CONSTRUCTION	ZTK

DocuSigned by:

Justin Linette

1B40058254791D



2/21/2017 | 8:42:49 AM EST

Justin Peter Linette, P.E.
 Professional Engineer License: #31965
 Crown Castle USA, Inc. Certificate of Registration #PEC.0001101

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: REVISION:

T-1 **0**

SITE INFORMATION

CROWN CASTLE SITE NAME: KILLINGLY ROSS ROAD
 SITE ADDRESS: 280 ROSS ROAD
 KILLINGLY, CT 06239
 COUNTY: WINDHAM
 MAP/PARCEL #: KILL-000000-000000-001365
 AREA OF CONSTRUCTION: EXISTING
 LATITUDE: 41° 46' 17.59"
 LONGITUDE: -71° 51' 20.39"
 LAT/LONG TYPE: NAD83
 GROUND ELEVATION: 452.0 FT.
 CURRENT ZONING: RURAL DEVELOPMENT
 JURISDICTION: TOWN OF KILLINGLY
 OCCUPANCY CLASSIFICATION: U
 TYPE OF CONSTRUCTION: VB
 A.D.A. COMPLIANCE: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
 PROPERTY OWNER: SNAKE MEADOW CLUB INC
 PO BOX 236
 CENTRAL VILLAGE, CT 06332
 TOWER OWNER: CCATT LLC
 2000 CORPORATE DRIVE
 CANONSBURG, PA 15317
 CARRIER/APPLICANT: SMARTSKY
 4690 FIRST FLIGHT DRIVE
 CHARLOTTE, NC 28208
 CROWN CASTLE APPLICATION ID: 368303
 ELECTRIC PROVIDER: NORTHEAST UTILITIES
 (800) 286-2000
 TELCO PROVIDER: AT&T
 (866) 620-6900

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	SITE PLAN & TOWER ELEVATION
C-2	ANTENNA PLANS AND SCHEMATIC
C-3	DETAILS
C-4	DETAILS
E-1	ELECTRICAL SCHEMATIC
G-1	GROUNDING DETAILS
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 11X17. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT DESCRIPTION

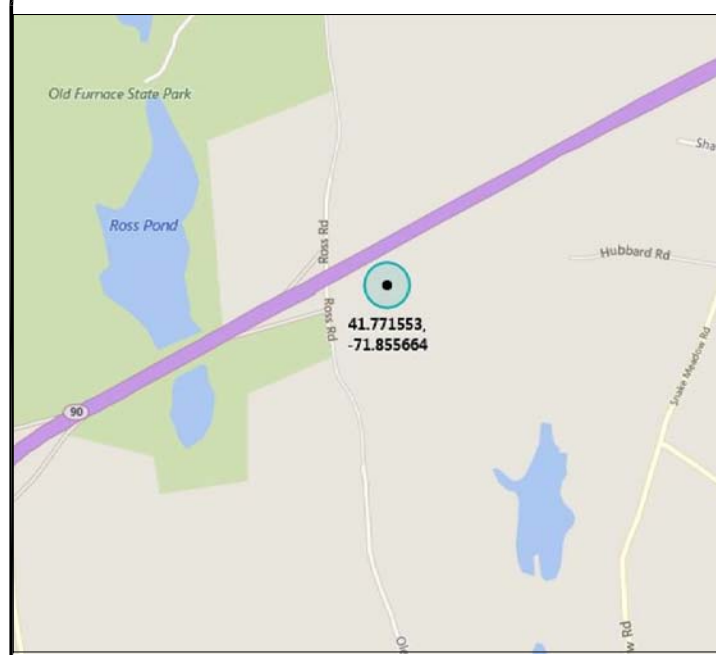
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE

- INSTALL (2) SECTOR MOUNTS
- INSTALL (6) PANEL ANTENNAS W/ SURGE PROTECTORS
- INSTALL (1) DISTRIBUTION PANEL
- INSTALL (1) 7/8" FEEDLINE
- INSTALL NEW ICE BRIDGE
- INSTALL (1) SMARTSKY UTILITY FRAME
- INSTALL (1) SMARTSKY OUDOOR CABINET ON A NEW 5'-0"x5'-0" CONCRETE PAD
- INSTALL GPS ANTENNA ON NEW CABINET
- INSTALL POWER & FIBER TO CABINET

DESIGN PACKAGE BASED ON THE APPLICATION
 ID: 368303
 REVISION: 0

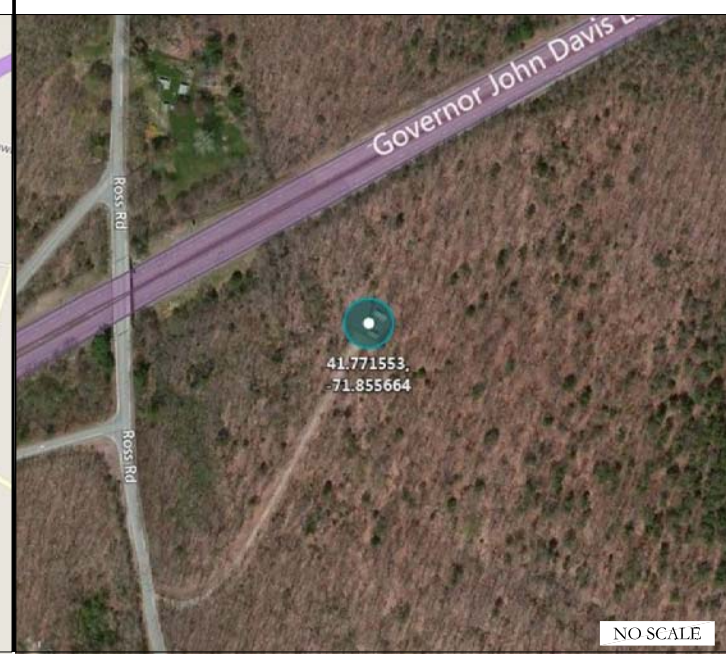
THE PARTIES ABOVE HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL CONSTRUCTION DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND ANY CHANGES AND MODIFICATIONS THEY MAY IMPOSE.

VICINITY MAP



DRIVING DIRECTIONS FROM LOCAL SMARTSKY OFFICE: DEPART FIRST FLIGHT DR TOWARD MINUTEMAN WAY. KEEP STRAIGHT ONTO MINUTEMAN WAY. TURN LEFT ONTO MORRIS FIELD DR. TURN LEFT ONTO BILLY GRAHAM PKWY. TAKE RAMP RIGHT FOR I-85 NORTH TOWARD CONCORD. AT EXIT 38, TAKE RAMP RIGHT FOR US-21 NORTH / I-77 NORTH TOWARD STATESVILLE. KEEP STRAIGHT ONTO I-74 W / I-77 N / CHARLES M SHELTON PKWY. AT EXIT 32, TAKE RAMP RIGHT FOR I-81 NORTH TOWARD ROANOKE. KEEP STRAIGHT ONTO I-64 E / I-81 N. AT EXIT 89, TAKE RAMP RIGHT FOR I-78 EAST TOWARD ALLENTOWN. TAKE RAMP RIGHT FOR I-95 TOWARD METLIFE SPORTS COMPLEX / GEO WASHINGTON BR / EXITS 15W-18W. KEEP RIGHT ONTO I-95 N / NEW JERSEY TPKE. KEEP LEFT TO STAY ON I-95 N. AT EXIT 76, TAKE RAMP LEFT FOR I-395 NORTH TOWARD PLAINFIELD / NORWICH. AT EXIT 35, TAKE RAMP RIGHT FOR GOVERNOR JOHN DAVIS LODGE TPKE TOWARD PROVIDENCE. ARRIVE AT GOVERNOR JOHN DAVIS LODGE TPKE ON THE RIGHT. IF YOU REACH US-6 E / PROVIDENCE PIKE, YOU'VE GONE TOO FAR.

AERIAL MAP



NO SCALE

APPLICABLE CODES/REFERENCE DOCUMENTS

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED 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:

CODE TYPE	CODE
BUILDING	IBC 2012
MECHANICAL	IMC 2012
ELECTRICAL	NEC 2011

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS: BY OTHERS

MOUNT ANALYSIS: BY OTHERS

NOTES:

PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT 800-788-7011 & CROWN CONSTRUCTION MANAGER



CALL CONNECTICUT ONE CALL
 (800) 922-4455
 CALL 3 WORKING DAYS
 BEFORE YOU DIG!

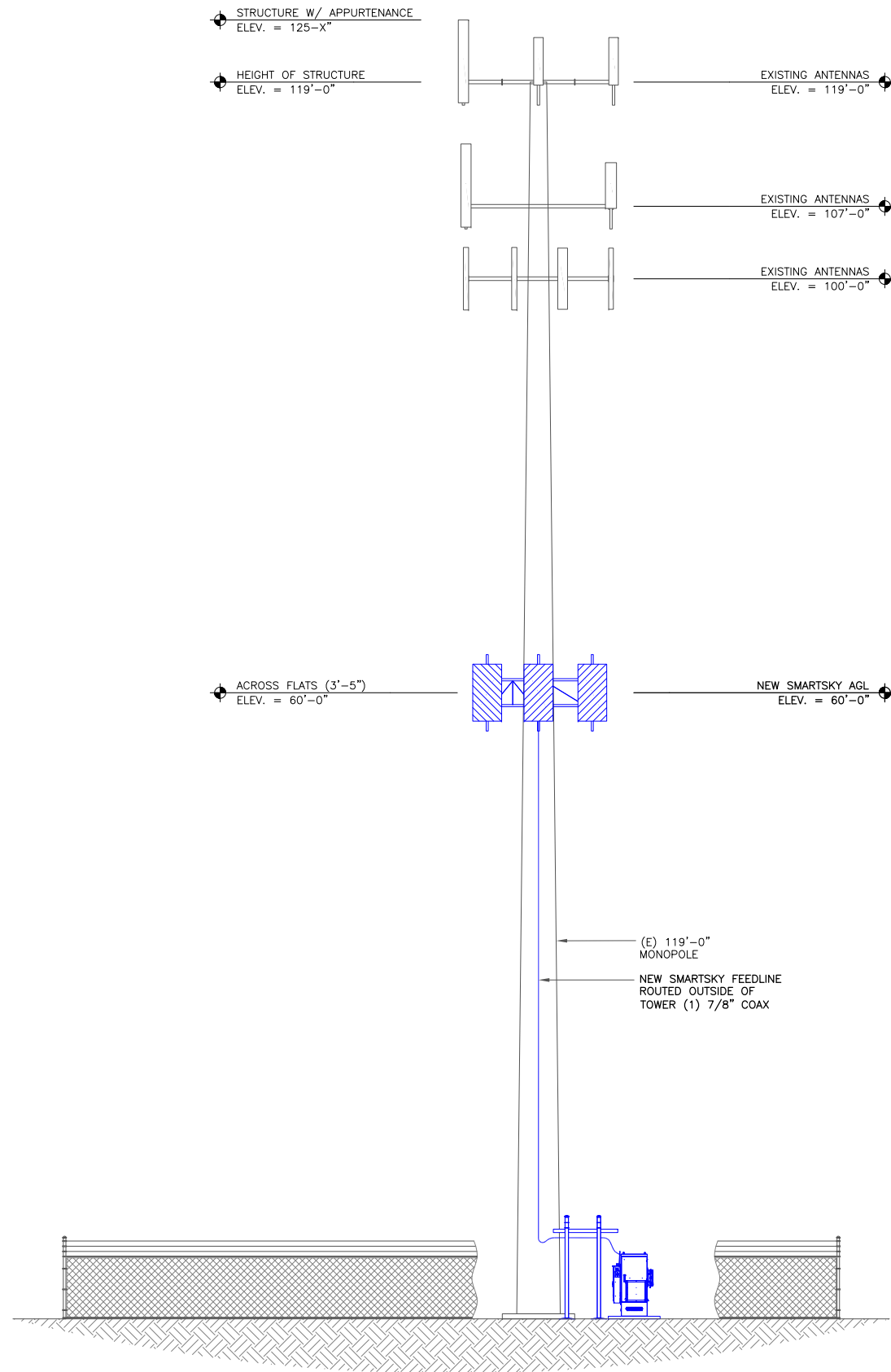
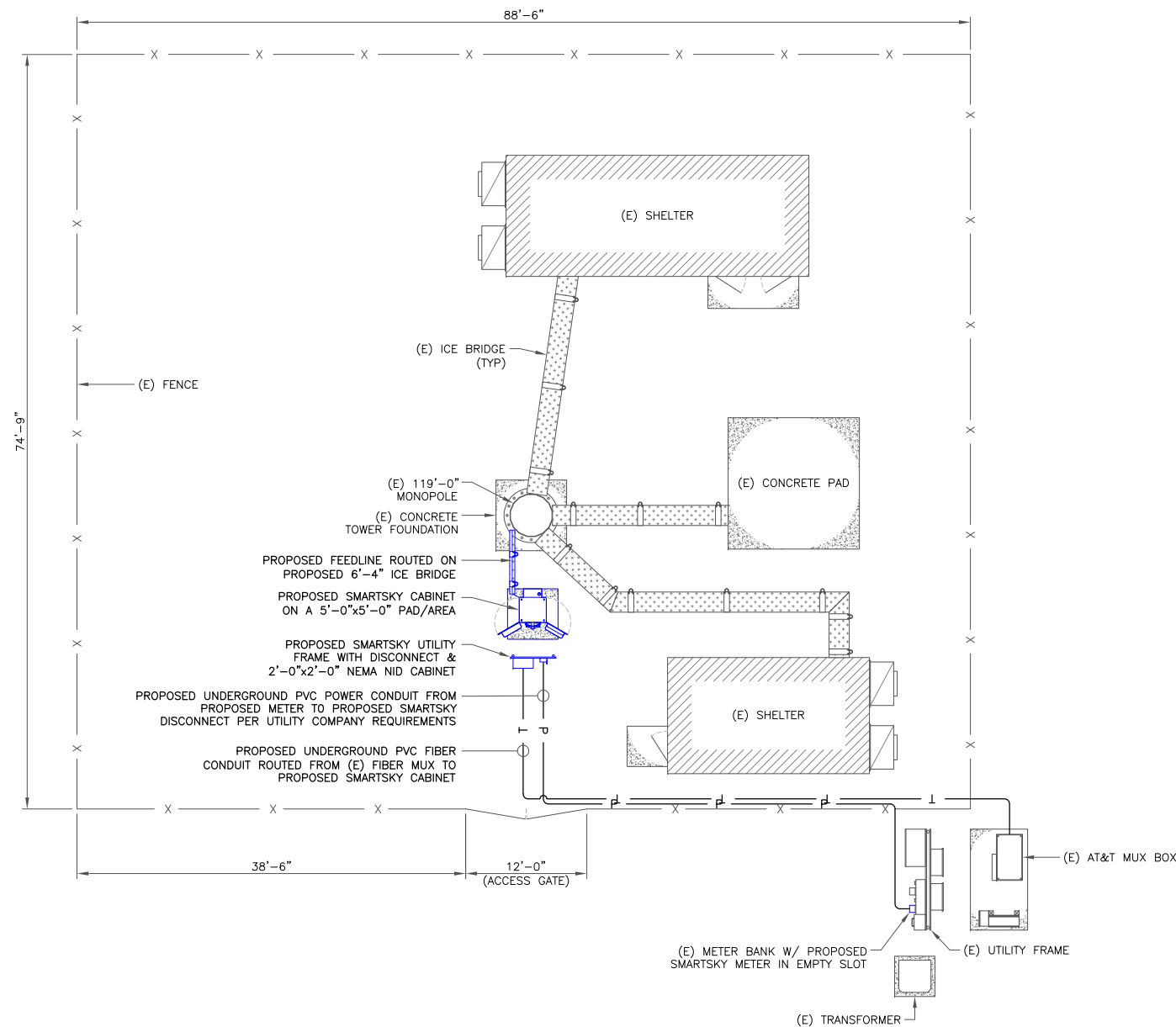


PROJECT TEAM

CROWN CASTLE A&E FIRM:
 CROWN CASTLE
 2000 CORPORATE DRIVE
 CANONSBURG, PA 15317
 CROWN.AE.APPROVAL@CROWNCastle.COM
 CROWN CASTLE CONTACTS:
 3 CORPORATE PARK DRIVE, SUITE 101
 CLIFTON PARK, NY 12065
 MIKE CHIRICO - PROJECT MANAGER
 (919) 465-3522
 JASON D'AMICO - CONSTRUCTION MANAGER
 (860) 209-0104
 AMANDA BROWN - A&E PROJECT MANAGER
 AMANDA.BROWN@CROWNCastle.COM
 (704) 405-6575
 SMARTSKY CONTACT:
 TAMMY WEST - PROGRAM MANAGER
 (954) 261-9040

SITE PLAN NOTES:

1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE CROWN CASTLE SPECIFICATIONS.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE CROWN CASTLE CONSTRUCTION MANAGER AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.
4. USE EXISTING WAVEGUIDE LADDER/MOUNT FOR VERTICAL CABLE RUN WHERE FEASIBLE. COAX ATTACHMENT TO THE TOWER CANNOT BE INSTALLED ON THE CLIMBING LADDER. QUICK TIES ARE NOT AN ACCEPTABLE METHOD OF COAX ATTACHMENT.
5. INSTALLATION OF ICE BRIDGE SHALL NOT OBSTRUCT GPS ANTENNA ON TOP OF CABINET.
6. PULL BOX(S) ARE REQUIRED WHEN THE EQUIVALENT OF FOUR 90 BENDS, INCLUDING THE BENDS LOCATED AT AN OUTLET OR FITTING, ARE USED BETWEEN PULL POINTS; 150 FT OF CONDUIT LENGTH IS EQUIVALENT TO AN ADDITIONAL 90 DEGREES.



1 SITE PLAN
SCALE: 1/8"=1'-0" (FULL SIZE)
1/16"=1'-0" (11x17)



2 TOWER ELEVATION
SCALE: NOT TO SCALE



4690 FIRST FLIGHT DRIVE
CHARLOTTE, NC 28208



3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

SMARTSKY SITE NUMBER:
CT100A

BU #: **857013**
KILLINGLY ROSS ROAD

280 ROSS ROAD
KILLINGLY, CT 06239

EXISTING 119'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	1/3/17	ZTK	PRELIMINARY	ZTK
B	1/27/17	ZTK	PRELIMINARY	ZTK
C	2/2/17	ZTK	PRELIMINARY	ZTK
0	2/17/17	ZTK	CONSTRUCTION	ZTK

DocuSigned by:

Justin Linette

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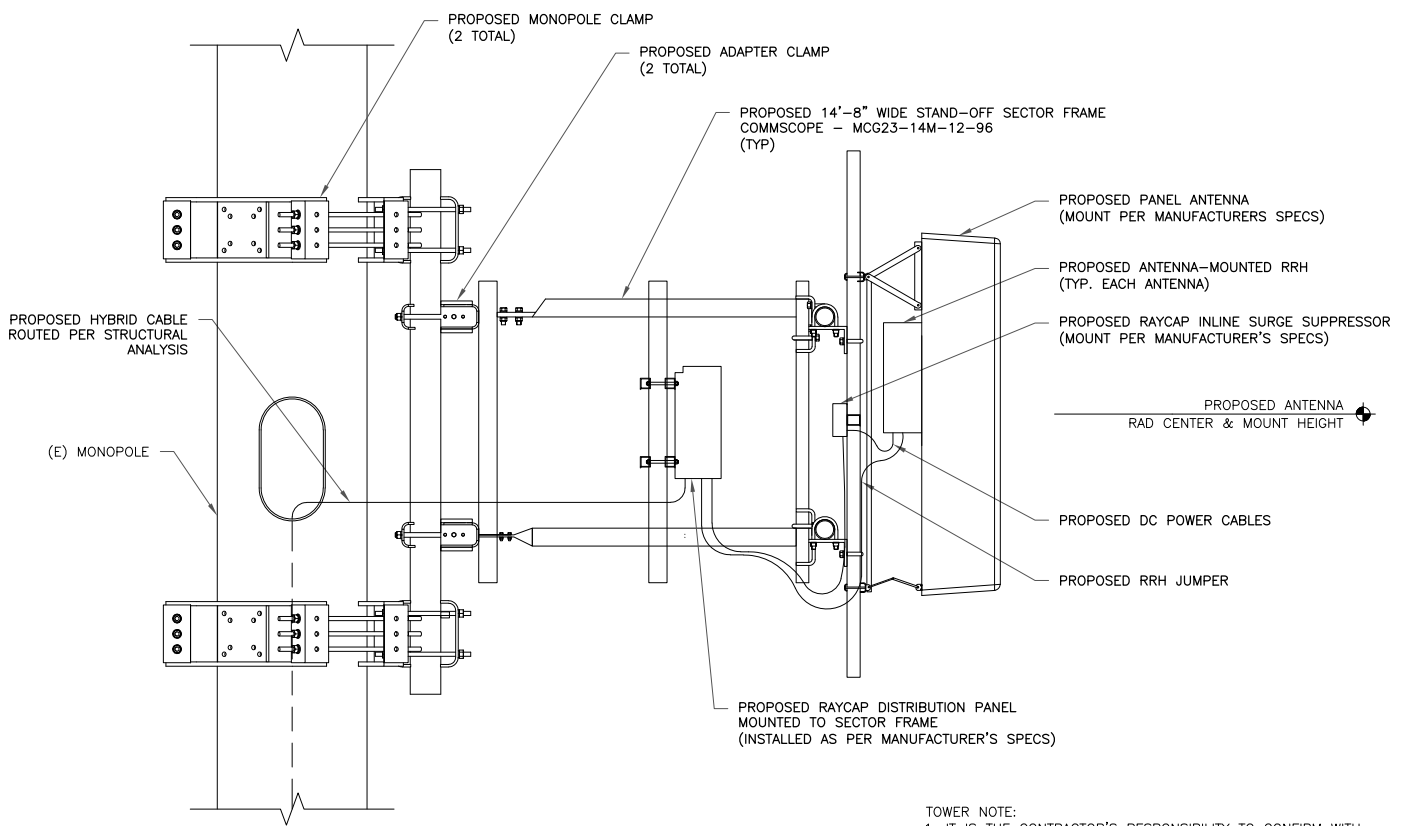
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SHEET NUMBER: **C-1** REVISION: **0**

RF SCHEDULE & B.O.M.									
ITEM	MANUFACTURER	PART NUMBER	SUPPLIER	QUANTITY	LENGTH	RAD CENTER	AZIMUTH (TRUE NORTH)	MECH TILT	COMMENTS
PANEL ANTENNA	CCI ANTENNAS	BFA8F-A5A	CUSTOMER	6	N/A	60'-0"	15°/45°/75°/105°/135°/165°	-	-
RRH	HARRIS	RRH	CUSTOMER	6	N/A	60'-0"	N/A	-	-
DISTRIBUTION PANEL (1390)	RAYCAP	RHCDC-1390-PF-48	CUSTOMER	1	N/A	60'-0"	N/A	-	-
RRH DC SURGE SUPPRESSOR (3441)	RAYCAP	RHCDC-3441-P-48-NA	CUSTOMER	6	N/A	60'-0"	N/A	-	INLINE DC SURGE SUPPRESSION
HYBRID CABLE (FIBER & POWER)	EUCA HYBRID	78-12C6-24MM5	CUSTOMER	1	120'-0"±	60'-0"	N/A	-	-
FIBER JUMPER (1390 TO RRH)	EUPEN	HF2M900LCA-A/A	CUSTOMER	6	29' (SEE NOTE 2)	60'-0"	N/A	-	2 FIBERS MULTI-MODE, LC/UPC
DC JUMPER (3441 TO RRH)	CHOGORI	1IZ00116061701	CUSTOMER	6	15' (SEE NOTE 2)	60'-0"	N/A	-	2x14 AWG CONDUCTORS (B/W)
DC JUMPER (1390 TO 3441)	EUPEN	HP206	CUSTOMER	6	75' (SEE NOTE 2)	N/A	N/A	-	SPOOL OF 75' CUT TO LENGTH ON SITE

1. BASED ON APPROVED CROWN CASTLE APPLICATION DATED 05/23/2016. CONFIRM WITH CROWN CASTLE CONSTRUCTION MANAGER FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS.
 2. JUMPER AND DC POWER CABLE LENGTH SHOWN REFERS TO SHORTEST PRECUT LENGTH THAT WILL REACH RRH/INLINE SURGE SUPPRESSOR.
 3. THE ANTENNAS LISTED IN THIS B.O.M. ARE ONLY USED TO REPRESENT A BASIS OF DESIGN DIMENSIONS FOR THE ANTENNA AND MOUNT ORIENTATION PER THE APPLICATION. THE CUSTOMER WILL PROVIDE ANTENNA MODELS AFTER PRELIMINARY DRAWINGS ARE SUBMITTED.
 4. EXCESS COAX TO BE COILED.

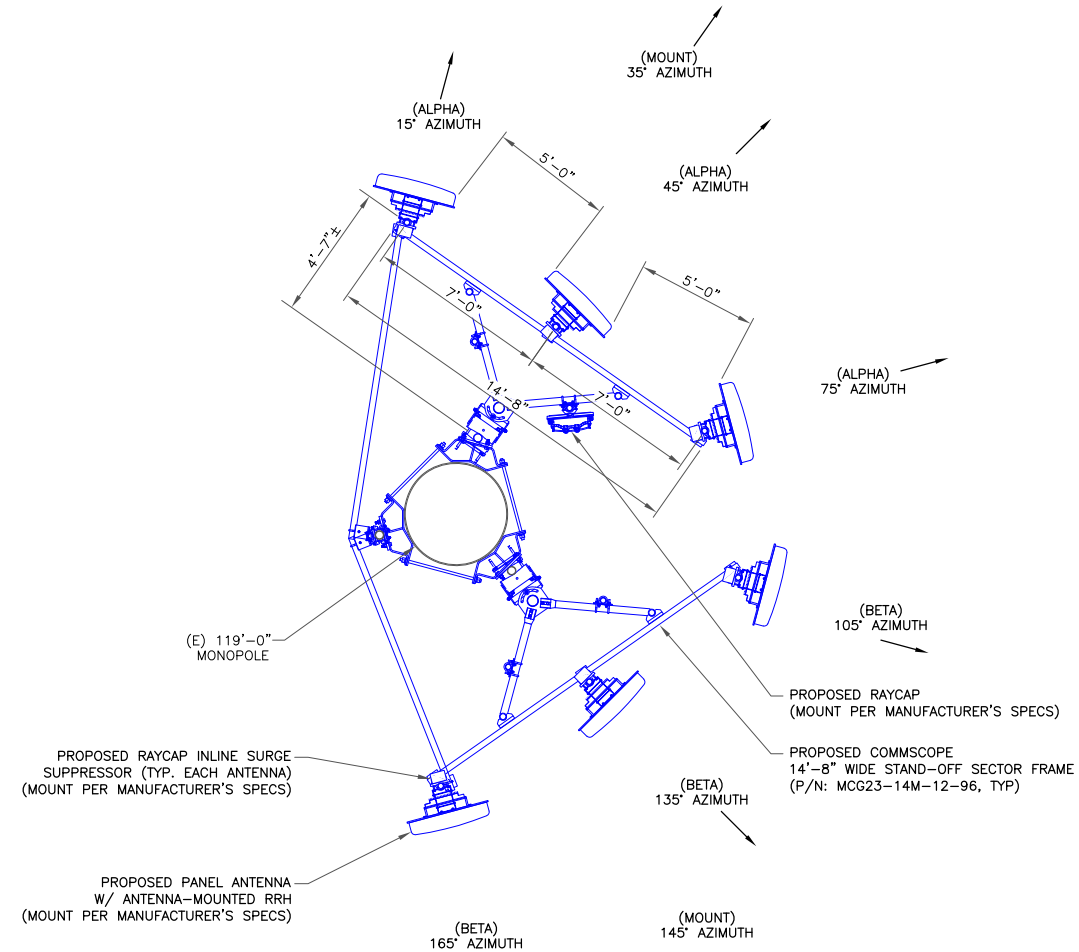
1 RF SCHEDULE
SCALE: NOT TO SCALE



TOWER NOTE:
 1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE CROWN CASTLE CONSTRUCTION MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, FEEDLINES, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
 2. ALL PROPOSED EQUIPMENT INCLUDING ANTENNAS, CABLES, ETC. SHALL BE MOUNTED IN ACCORDANCE THE TOWER STRUCTURAL ANALYSIS ON FILE WITH THE CROWN CASTLE CM.
 3. USE EXISTING WAVEGUIDE LADDER/MOUNT FOR VERTICAL CABLE RUN WHERE FEASIBLE. CABLE ATTACHMENT TO THE TOWER CANNOT BE INSTALLED ON THE CLIMBING LADDER. QUICK TIES ARE NOT AN ACCEPTABLE METHOD OF CABLE ATTACHMENT.

2 PROPOSED ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTE:
 DIRECT TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ CLIMBING PEGS/STEPS AND SAFETY CLIMB.



NOTE: ORIENT MOUNTS TO PROVIDE ADEQUATE SEPARATION BETWEEN ANTENNAS AND TO AVOID CAUSING RF INTERFERENCE (MOUNT AZIMUTHS ARE SHOWN FOR REFERENCE ONLY)

3 PROPOSED ANTENNA LAYOUT
SCALE: NOT TO SCALE



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BU #: **857013**
KILLINGLY ROSS ROAD

280 ROSS ROAD
KILLINGLY, CT 06239

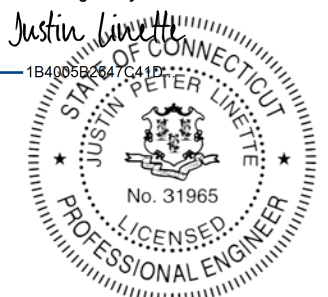
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1840058267C41D



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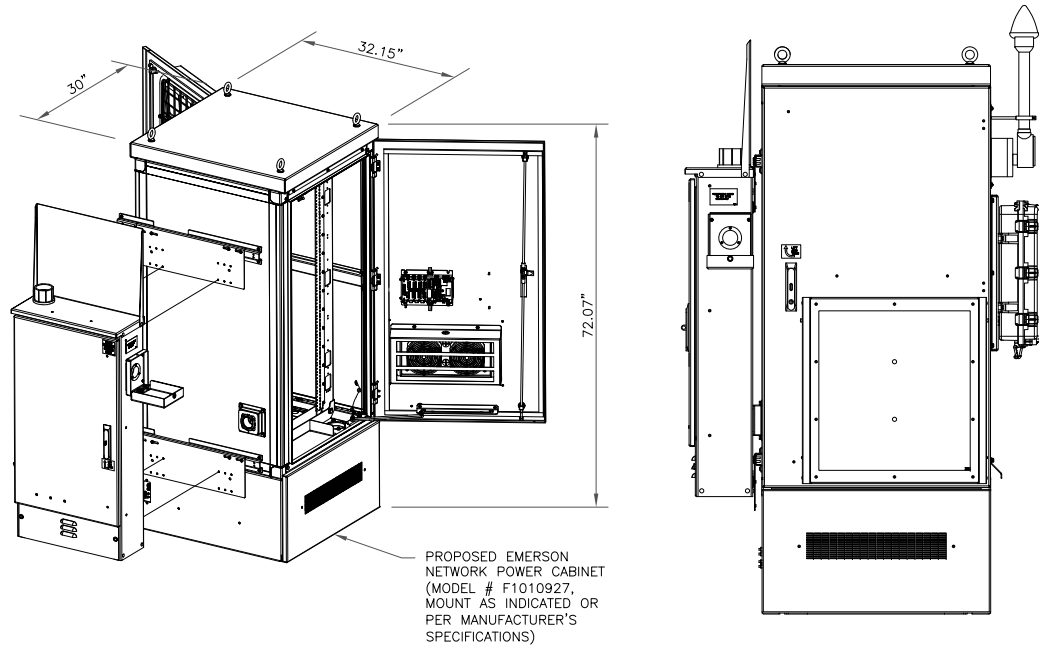
C-2

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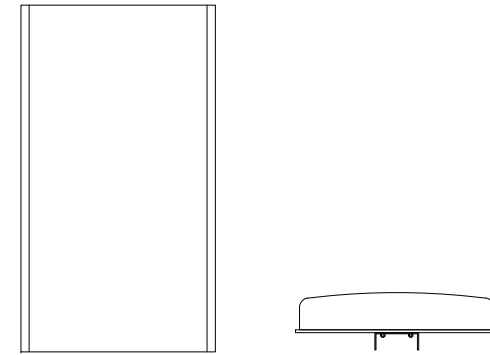
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INSTALLER NOTES:

1. ATTACH CABINET TO CONCRETE PAD USING 1/2" STAINLESS STEEL ISO 898-1 CLASS 5.8 CONCRETE ANCHOR W/HIT-RE-500SD EPOXY. 2 13/16" EMBEDDED IN 1/2"x3-1/2" DEEP HOLE. ICC ESR-1990.
2. INSTALL 2" SQUARE GALVANIZED STEEL SHIM PLATE WHERE REQUIRED TO LEVEL EQUIPMENT.
3. INSTALL AC NID INSIDE CABINET BEFORE CONVERTING TO DC POWER.

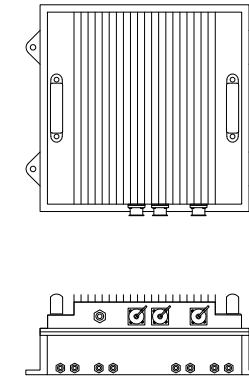


1 EMERSON NETWORK POWER CABINET
SCALE: NOT TO SCALE



CCI ANTENNAS - BFA8F-A5A
WEIGHT (WITHOUT MOUNTING HARDWARE): 84 LBS
SIZE (HxWxD): 57.8x32.4x6.2 IN.
RATED WIND VELOCITY: 150.0 MPH

2 CCI ANTENNAS - BFA8F-A5A
SCALE: NOT TO SCALE



HARRIS - RRH
WEIGHT (WITHOUT MOUNTING HARDWARE): 51.5 LBS
SIZE (HxWxD): 17.22x17.45x6.67 IN.

3 HARRIS - RRH
SCALE: NOT TO SCALE



4690 FIRST FLIGHT DRIVE
CHARLOTTE, NC 28208



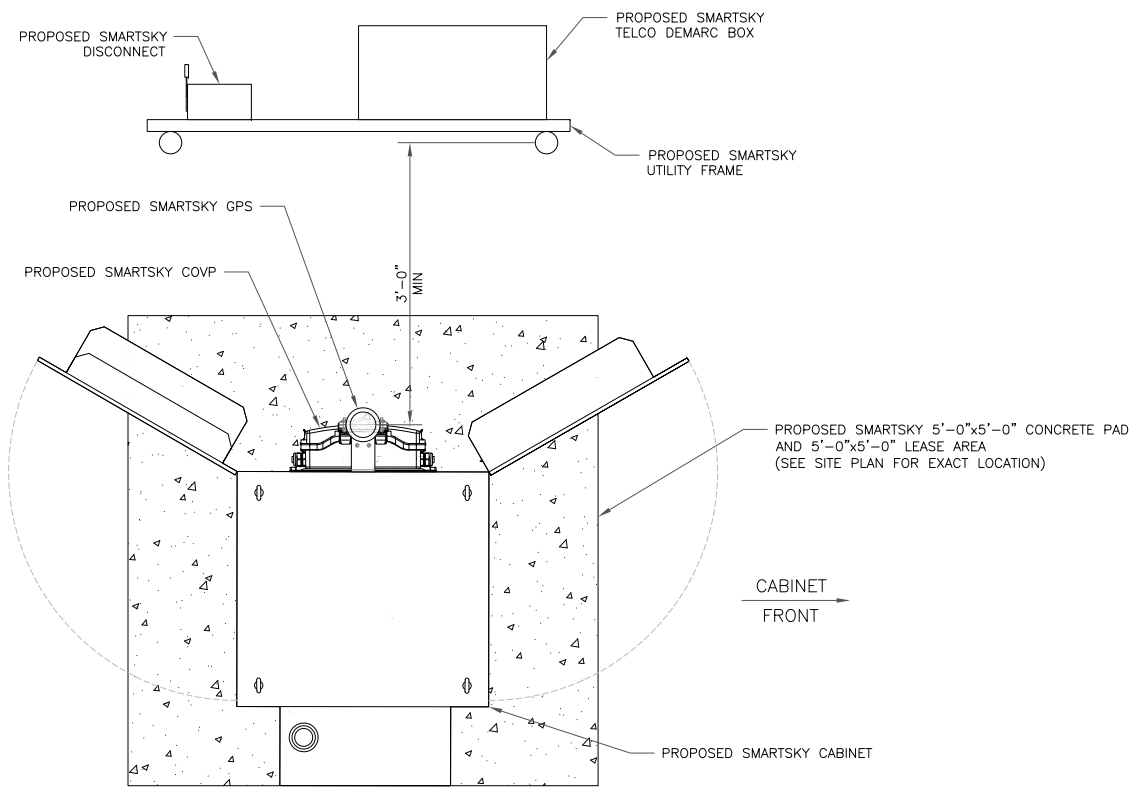
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

SMARTSKY SITE NUMBER:
CT100A

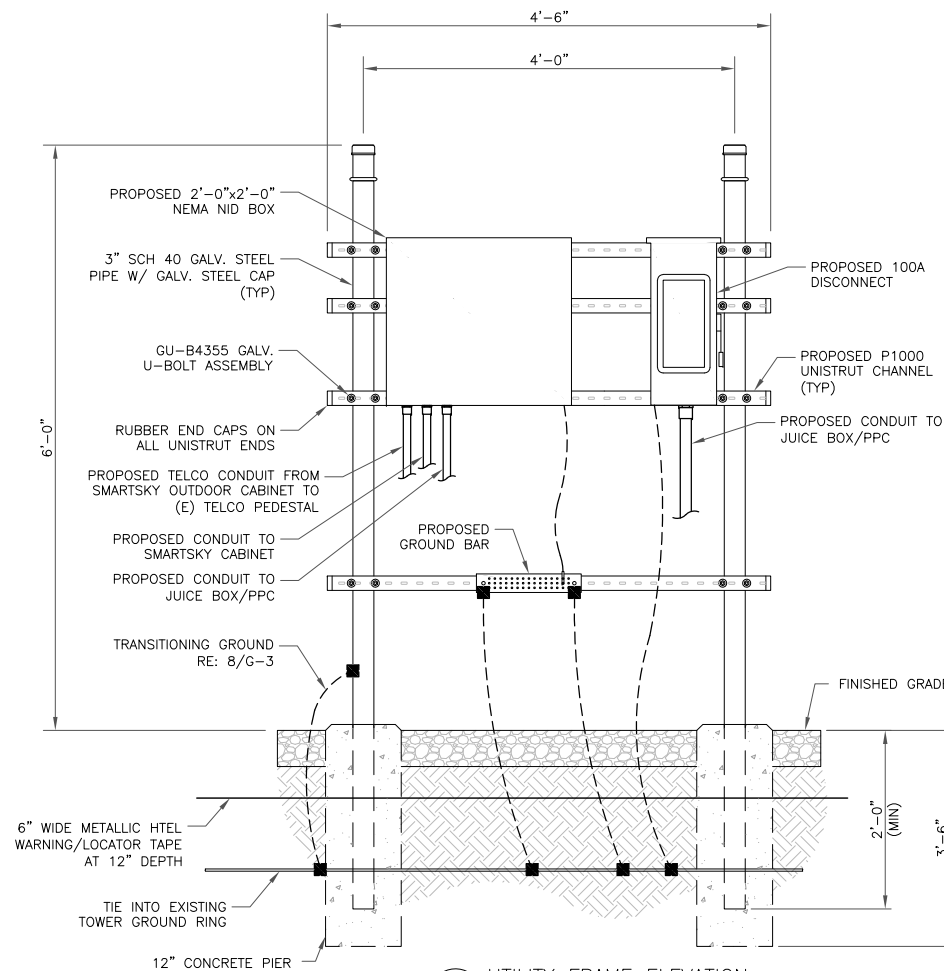
BU #: **857013**
KILLINGLY ROSS ROAD

280 ROSS ROAD
KILLINGLY, CT 06239

EXISTING 119'-0" MONOPOLE



4 DETAILED EQUIPMENT LAYOUT
SCALE: NOT TO SCALE



5 UTILITY FRAME ELEVATION
SCALE: NOT TO SCALE

NOTE:
1. ALL EXPOSED ELECTRICAL CONDUIT MUST BE GALVANIZED STEEL RIGID CONDUIT.
2. THREADLESS CONNECTORS ARE NOT ALLOWED.
3. EMT CONDUIT CAN ONLY BE USED INSIDE.
4. USE ONLY COMPRESSION TYPE FITTINGS ON EMT CONDUIT.
5. USE ONLY STRANDED CONDUCTORS FOR ALL ELECTRICAL WIRING. (EXCEPT TELCO AND THERMOSTAT)
6. USE SCHEDULE 80 CONDUIT UNDER DRIVEWAYS AND/OR ANY VEHICLE CROSSING AREA.

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SHEET NUMBER:

C-3

REVISION:

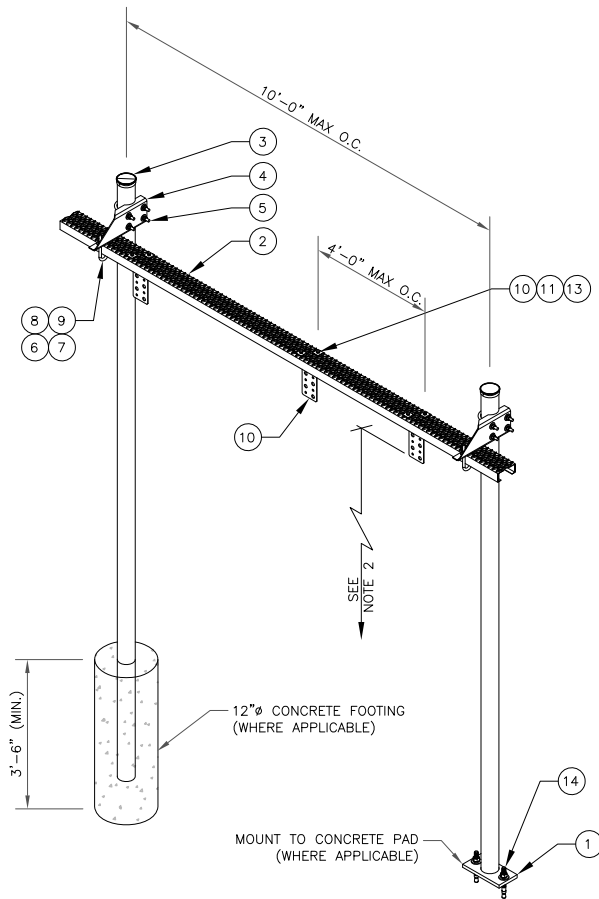
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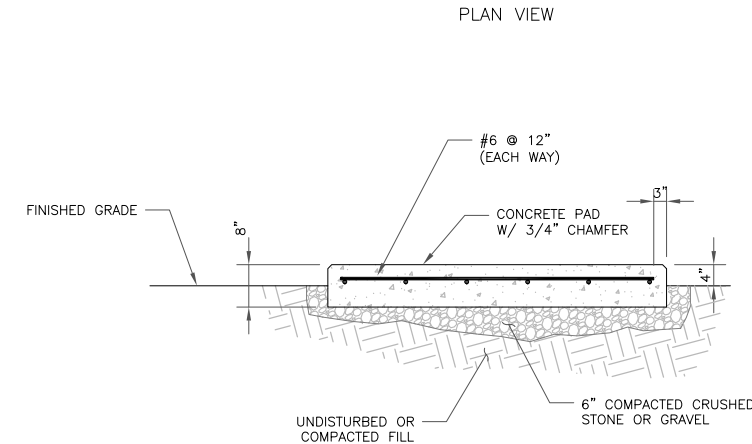
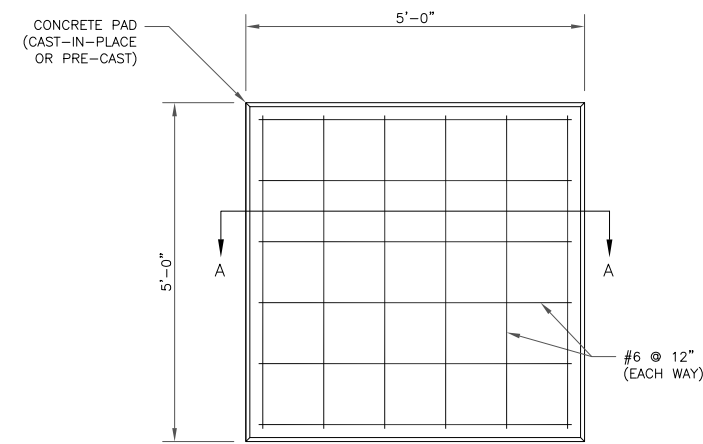
- WHERE POSSIBLE AND AS APPLICABLE, THE CONTRACTOR SHALL UTILIZE EXISTING ICE BRIDGE, CABLE LADDER, COAX SUPPORTS, AND COAX PORTS. BEFORE UTILIZING, CONTRACTOR SHALL VERIFY THAT ALL ASPECTS OF THE COMPONENTS MEET THE CROWN CASTLE SPECIFICATIONS. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF NEW ICE BRIDGE, CABLE LADDER, COAX SUPPORT, AND COAX PORT, AS REQUIRED, WITH THE CROWN CASTLE CONSTRUCTION MANAGER.
- INSTALL ICE BRIDGE TO ALLOW 7 FEET CLEARANCE ABOVE GRADE TO LOWEST APPURTENANCE (CONTRACTOR TO FIELD VERIFY INSTALLATION AND NOTIFY ENGINEER OF RECORD OF ANY DISCREPANCIES).

CABLE LADDER - BILL OF MATERIALS					
ITEM	COMMSCOPE PART NUMBER	DESCRIPTION	ITEM	PART NUMBER	DESCRIPTION
1	MF126.01	BASE SHOE	8	GWL-04	1/2" GALV LOCK WASHER
2	WB-CY0510	SAFETY GRATING 5" X 10'	9	GN-04	1/2" GALV HEX NUT
3	PC-034	PIPE CAP 3-1/2"	10	ZBV601	SINGLE 6 CABLE BRACKET
4	WBLB0501	5" WAVEGUIDE BRIDGE SUPPORT BRACKET	11	MT-387	SQUARE WASHER, 1-1/2" X 1-1/2" W/ 7/16" HOLE
5	GUB-4356	1/2" X 3-5/8" X 6" GALV U-BOLT	12	GWF-03	3/8" GALV FLAT WASHER
6	WB-JB-6	1/2" J-BOLT	13	GB-03205	3/8" X 2" GALV BOLT KIT
7	GWF-04	1/2" GALV FLAT WASHER	14	MT-287	3/4" X 7" WEDGE ANCHOR

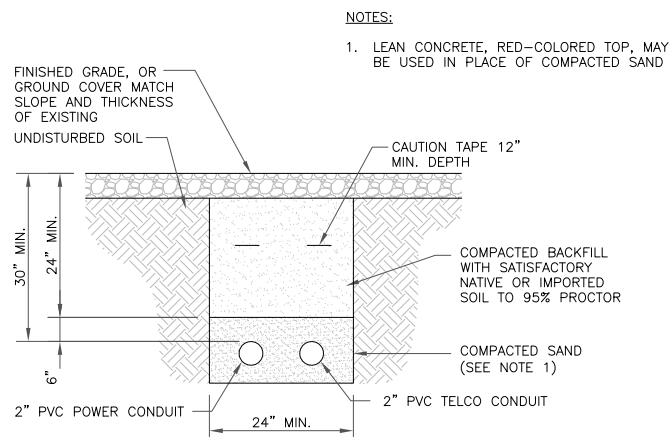
NOTE: CONTRACTOR SHALL USE PARTS MANUFACTURED BY COMMSCOPE AS SHOWN OR APPROVED EQUIVALENT.



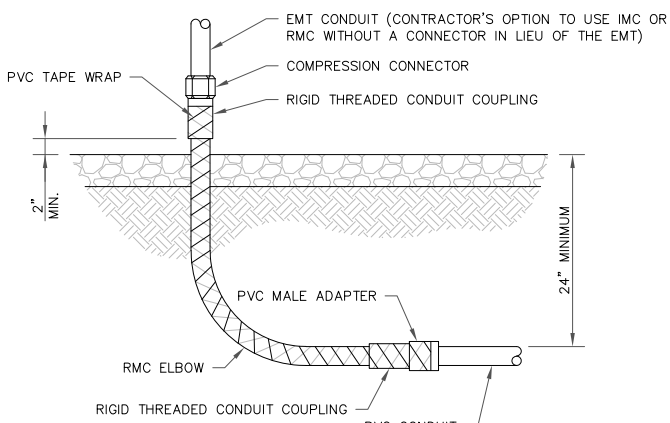
1 COMMSCOPE WAVEGUIDE BRIDGE KIT
SCALE: NOT TO SCALE



2 CONCRETE PAD FOR MINOR EQUIPMENT
SCALE: NOT TO SCALE



3 TYP TRENCH DETAIL
SCALE: NOT TO SCALE



4 CONDUIT STUB UP DETAIL
SCALE: NOT TO SCALE

ALL METAL CONDUIT INSTALLED IN DIRECT CONTACT WITH THE EARTH SHALL BE CONSIDERED TO BE INSTALLED IN A SEVERELY CORROSIVE ENVIRONMENT AND IS REQUIRED TO HAVE SUPPLEMENTAL PROTECTION AGAINST CORROSION (NEC ARTICLE 342.10(B) & 344.10(B)(1)). THIS PROTECTION SHALL EITHER BE AN APPROVED MANUFACTURER INSTALLED PROTECTIVE COATING ON THE CONDUIT OR SHALL BE (2) LAYERS OF 10 MIL PVC PIPE WRAP TAPE INSTALLED USING OPPOSING SPIRAL WRAPS. ON VERTICAL PIPE THE OUTSIDE LAYER OF TAPE SHALL BE WRAPPED SO AS TO PROVIDE SHEDDING OF WATER (i.e. TAPE SHOULD WRAP IN AN UPWARD DIRECTION WITH LOWER WRAP BEING BENEATH THE WRAP ABOVE). SPIRAL WRAPS SHALL HAVE A MINIMUM OF 1/4" OVERLAP WITH THE PRECEDING TAPE WRAP. ANY OTHER METHODS OF CORROSION PROTECTION SHALL REQUIRE APPROVAL BY THE ENGINEER OF RECORD PRIOR TO BEING USED.



4690 FIRST FLIGHT DRIVE
CHARLOTTE, NC 28208



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CLIFTON PARK, NY 12065

SMARTSKY SITE NUMBER:
CT100A

BU #: 857013
KILLINGLY ROSS ROAD

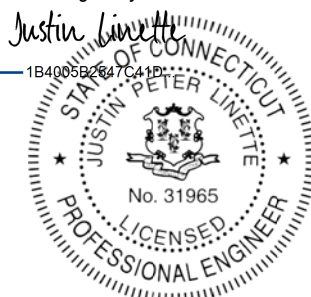
280 ROSS ROAD
KILLINGLY, CT 06239

EXISTING 119'-0" MONOPOLE

ISSUED FOR:

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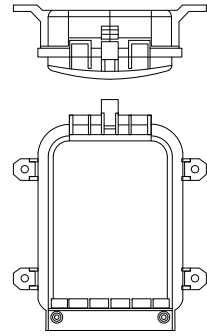


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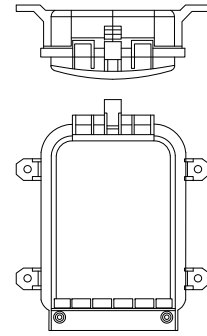
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SHEET NUMBER: **C-4** REVISION: **0**



RAYCAP -- RHCDC-3441-P-48-NA
 WEIGHT: 2.9 LBS
 SIZE (HxWxD): 8.25x7.06x2.75 IN.
 OPERATING TEMPERATURE: -40° C TO +80° C
 NOMINAL OPERATING DC VOLTAGE: 48 VDC
 VOLTAGE PROTECTION RATING (VRP): 400V

1 RAYCAP -- RHCDC-3441-P-48-NA
 SCALE: NOT TO SCALE



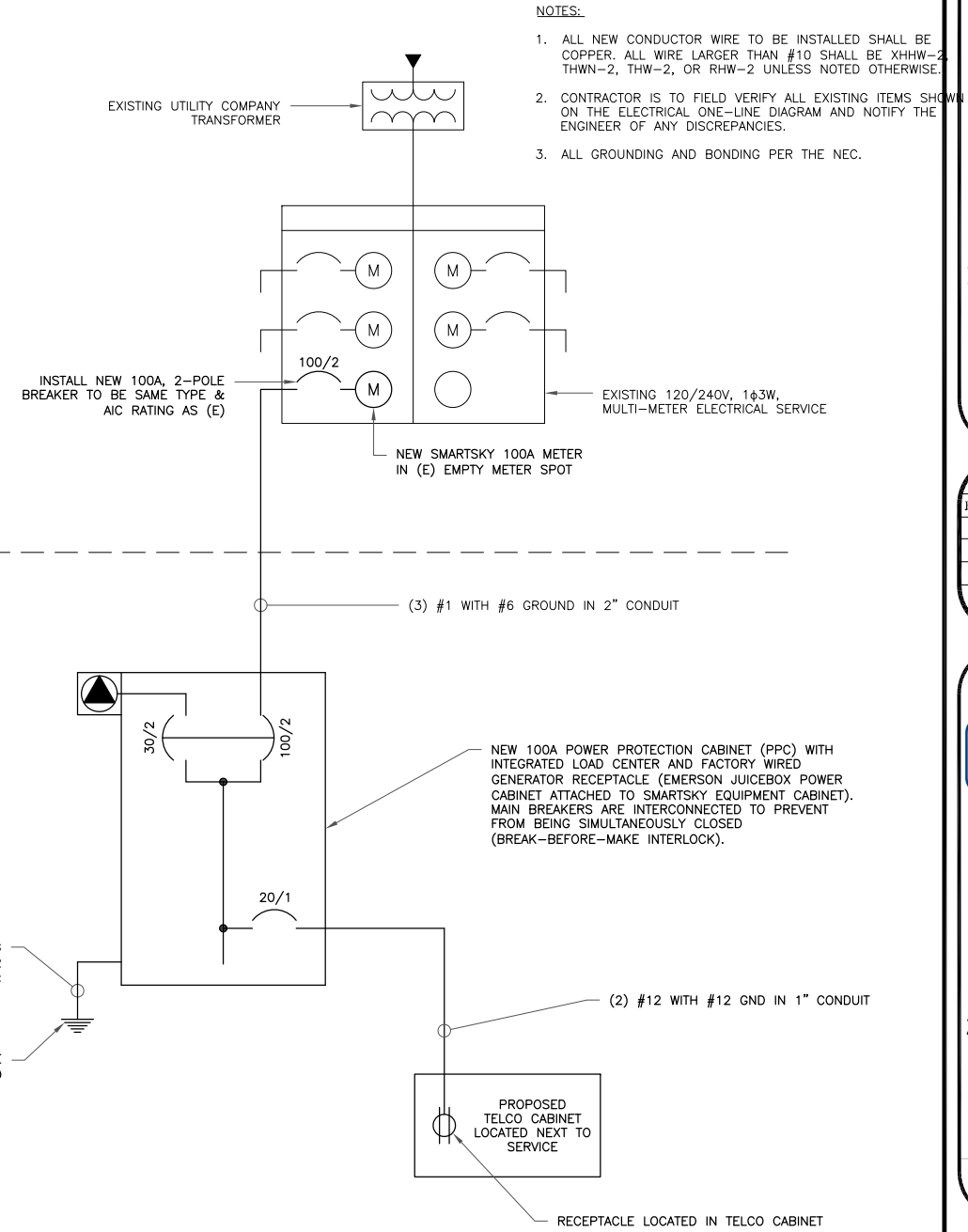
RAYCAP -- RHCDC-1390-PF-48
 WEIGHT: 19.95 LBS
 SIZE (HxWxD): 20.22x18.9x7.02 IN.
 OPERATING TEMPERATURE: -40° C TO +80° C
 NOMINAL OPERATING DC VOLTAGE: 48 VDC
 VOLTAGE PROTECTION RATING (VRP): 400V

2 RAYCAP -- RHCDC-1390-PF-48
 SCALE: NOT TO SCALE

SMART SKY PANEL SCHEDULE

MAIN: 100 AMP MAIN BREAKER		VOLTAGE/PHASE: 120/240V, 1-PHASE, 3-WIRE		SHORT CIRCUIT CURRENT RATING: 22,000 AMPS							
MOUNTING: INSIDE PPC ENCLOSURE		ENCLOSURE: NEMA 3R		SURGE PROTECTION DEVICE: YES							
SERVICE FROM: N/A		MANUFACTURER: SCHNEIDER ELECTRIC (SQUARE D)		MODEL NUMBER: QO PANEL WITH VH-TYPE BREAKERS							
DESCRIPTION	LOAD (VA)	C or NC	C/B	CIR No.	LOAD (VA)		CIR No.	C/B	C or NC	LOAD (VA)	DESCRIPTION
					A-PHASE	B-PHASE					
SURGE PROTECTION DEVICE	0	NC	30	1	900		2	15	NC	900	HEATER OUTLET
	0	NC		3		1440		4		C	1440
SPARE	0	NC	60	5	1440		6		C	1440	POWER SUPPLY
	0	NC		7		1440		8		C	1440
BLANK				9	1440		10		C	1440	
RECEPTACLE IN TELCO BOX	180	NC	20	11		360	12	20	NC	180	GFCI RECEPTACLE (INTERNAL)
BASE LOAD (VA) =					3780	3240					
25% OF CONTINUOUS LOAD (VA) =					720	720	"C" DESIGNATION IDENTIFIES CONTINUOUS LOADS AND MOTOR LOADS AS REQUIRED BY SECTIONS 230.42 AND 430.24 OF THE NEC				
TOTAL LOAD (VA) =					4500	3960					
TOTAL LOAD (A) =					38	33					

3 WIRING DIAGRAM
 SCALE: NOT TO SCALE



NOTES:

- ALL NEW CONDUCTOR WIRE TO BE INSTALLED SHALL BE COPPER. ALL WIRE LARGER THAN #10 SHALL BE XHHW-2, THWN-2, THW-2, OR RHW-2 UNLESS NOTED OTHERWISE.
- CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- ALL GROUNDING AND BONDING PER THE NEC.

2 ONE LINE DIAGRAM
 SCALE: NOT TO SCALE



4690 FIRST FLIGHT DRIVE
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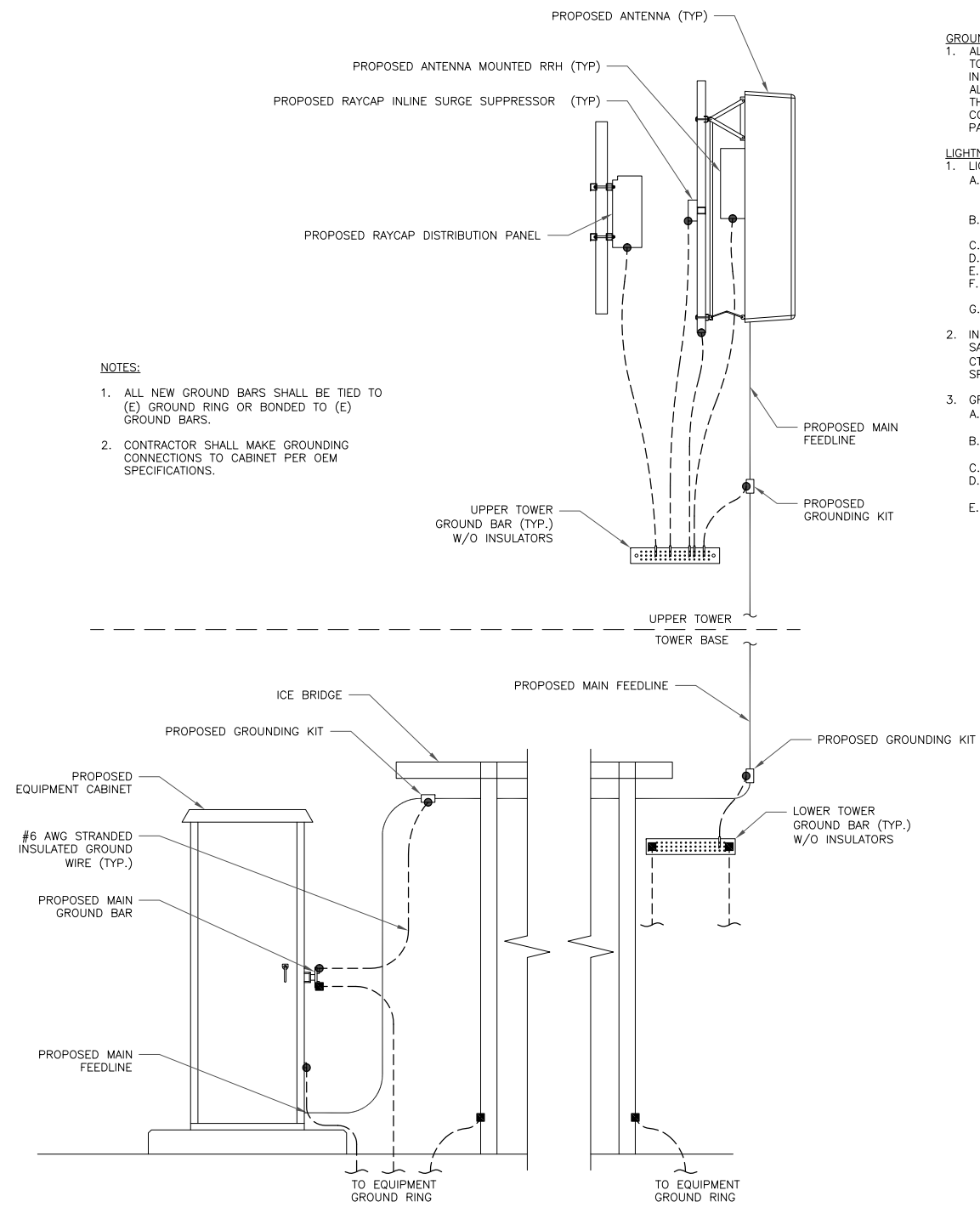
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E-1

REVISION:

0



NOTES:

1. ALL NEW GROUND BARS SHALL BE TIED TO (E) GROUND RING OR BONDED TO (E) GROUND BARS.
2. CONTRACTOR SHALL MAKE GROUNDING CONNECTIONS TO CABINET PER OEM SPECIFICATIONS.

GROUNDING NOTES:

1. ALL EQUIPMENT ENCLOSURES, DEVICES AND CONDUITS SHALL BE GROUNDED TO CONFORM WITH THE LATEST REQUIREMENTS OF THE NEC BY THE INSTALLATION OF A SEPARATE, GREEN, INSULATED GROUND CONDUCTOR FOR ALL FEEDER AND BRANCH CIRCUITS. GROUND CONDUCTORS SHALL BE OF THE SIZE INDICATED ON THE DRAWINGS. GROUND CONDUCTORS SHALL BE CONTINUOUS IN LENGTH AND SHALL BE BONDED TO EACH ENCLOSURE THEY PASS THROUGH. CONDUIT SHALL NOT BE USED AS A GROUNDING CIRCUIT.

LIGHTNING AND SURGE PROTECTION:

1. LIGHTNING AND SURGE PROTECTION:
 - A. BE #2 AWG SOLID BARE TINNED COPPER (SBTC) FOR ALL GROUNDING SYSTEM WIRE UNLESS OTHERWISE NOTED, OR OTHERWISE REQUIRED BY CODE.
 - B. BE MINIMUM 12" BEND RADIUS. KEEP NUMBER OF BENDS TO A MINIMUM.
 - C. AVOID LONG BONDING CONNECTION RUNS. MAKE DIRECT AS POSSIBLE.
 - D. NOT HAVE ANY U-SHAPED RUNS.
 - E. BE IN NON-METALLIC CONDUIT ONLY, IF IN CONDUIT.
 - F. BE PLACED THROUGH NON-METALLIC SLEEVES IN FLOORS, WALLS, CEILINGS, ETC.
 - G. PROTECTED IN NON-METALLIC CONDUIT WHERE EXPOSED ABOVE GRADE.
2. INSTALL ALL GROUNDING RINGS AND RADIALS WITH CONDUCTIVE CEMENT, SANKOSHA AS DISTRIBUTED BY ELECTRIC MOTION COMPANY, INC., WINSTED, CT 06098, OR AS SPECIFICALLY INDICATED. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
3. GROUND RINGS SHALL BE:
 - A. MINIMUM 30" ABOVE GRADE OR BELOW FROST LINE WHICHEVER IS DEEPER.
 - B. MINIMUM 2'-0" FROM FOUNDATIONS, FOOTINGS, OTHER GROUNDING SYSTEMS AND ALL CONDUCTIVE OBJECTS.
 - C. WITH MINIMUM 12" BEND RADII.
 - D. WITH ALL CONNECTIONS IN CONTACT WITH EARTH, BONDED BY EXOTHERMIC WELDING.
 - E. BONDED TO A SINGLE POINT GROUND (SPG) WITH A SINGLE WIRE AS INDICATED ON DRAWINGS.

GROUND RODS SHALL BE:

- A. MINIMUM 5/8" DIAMETER
- B. MINIMUM 10'-0" LONG
- C. COPPER-CLAD GALVANIZED STEEL OR STAINLESS STEEL.
- D. PLACED IN UNDISTURBED SOIL AND BELOW THE FROST LINE.
- E. INSTALLED WITH MINIMUM SEPARATION DISTANCE OF TWICE THE DEPTH OF THE ROD(S), OR AS INDICATED ON DRAWINGS.
- F. MINIMUM TWO (2) RODS ON THE TOWER RING OR ONE (1) PER LEG WHICHEVER IS LARGER, MINIMUM FOUR (4) RODS ON EVERY EQUIPMENT BUILDING RING WITH ONE AT EACH CORNER OR AS INDICATED, MINIMUM ONE (1) ROD FOR POWER SERVICE GROUNDING ELECTRODE, AND MINIMUM ONE (1) ROD AT END OF EACH RADIAL.

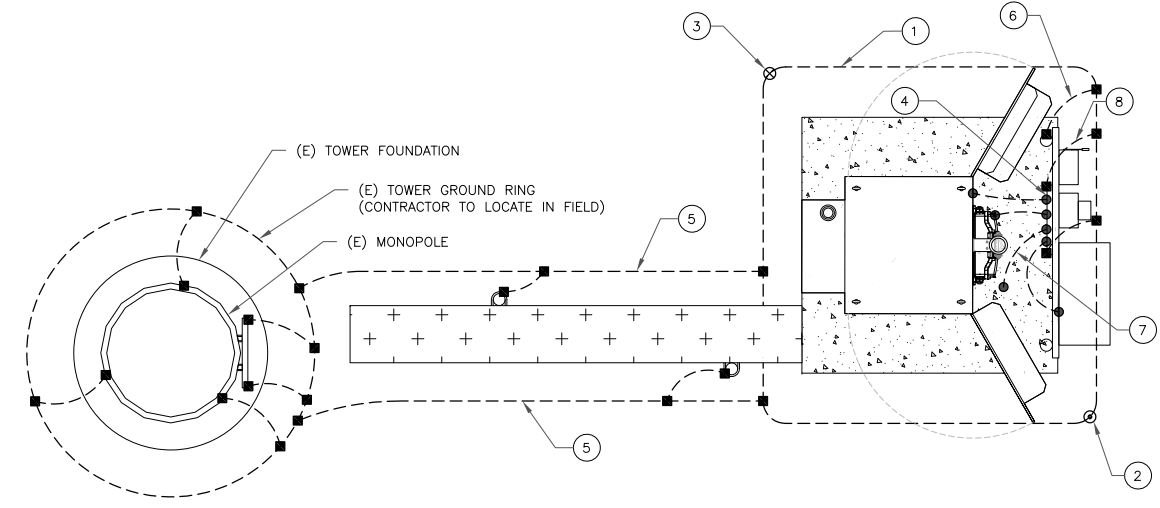
5. CONDUCTIVE OBJECTS, SUCH AS FENCES, SHALL BE BONDED TO THE GROUNDING SYSTEM IF WITHIN 20'-0" OF THE TOWER GROUNDING SYSTEM, OR 5'-0" OF ANY OTHER GROUNDED COMPONENT OF ANY OTHER GROUNDED COMPONENT.
6. INSTALL ADDITIONAL TOWER GROUND BAR SO AS NOT TO EXCEED 300' BETWEEN GROUND BARS.

GROUNDING KEYED NOTES:

- 1 #2 SBTC EQUIPMENT PAD GROUND RING.
- 2 5/8" x 10'-0" GROUND ROD
- 3 5/8" x 10'-0" GROUND ROD WITH TEST WELL.
- 4 MAIN GROUND BAR ATTACHED TO H-FRAME.
- 5 #2 SBTC BOND FROM TOWER GROUND RING TO EQUIPMENT PAD GROUND RING.
- 6 #2 SBTC BOND FROM H-FRAME POSTS TO EQUIPMENT PAD GROUND RING (TYP. EVERY POST).
- 7 #6 SBTC BOND FROM GPS ANTENNA TO GROUND BAR ON H-FRAME
- 8 #2 SBTC BOND FROM MAIN GROUND BAR TO EQUIPMENT PAD GROUND RING.

INSTALLER NOTE:
REFER TO SITE PLAN DRAWING FOR EXACT LOCATION OF CABLE BRIDGE AND ANTENNA SUPPORT STRUCTURE.

1 TYPICAL GROUNDING RISER DIAGRAM
SCALE: NOT TO SCALE



2 DETAILED GROUNDING PLAN SCHEMATIC
SCALE: NOT TO SCALE

GROUNDING PLAN LEGEND:

---	GROUND WIRE	⊙	COPPER GROUND ROD
■	EXOTHERMIC WELD	●	MECHANICAL CONNECTION
⊗	TEST WELL		



4690 FIRST FLIGHT DRIVE
CHARLOTTE, NC 28208



3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

SMARTSKY SITE NUMBER:
CT100A

BU #: 857013
KILLINGLY ROSS ROAD

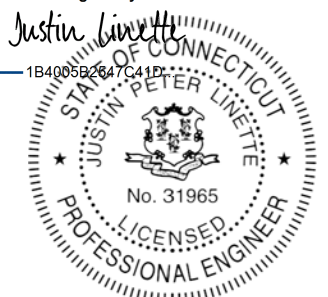
280 ROSS ROAD
KILLINGLY, CT 06239

EXISTING 119'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	1/3/17	ZTK	PRELIMINARY	ZTK
B	1/27/17	ZTK	PRELIMINARY	ZTK
C	2/2/17	ZTK	PRELIMINARY	ZTK
0	2/17/17	ZTK	CONSTRUCTION	ZTK

DocuSigned by:



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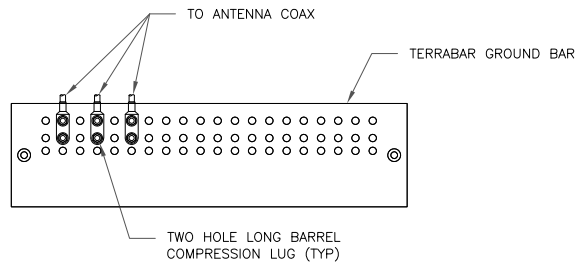
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SHEET NUMBER:

G-1

REVISION:

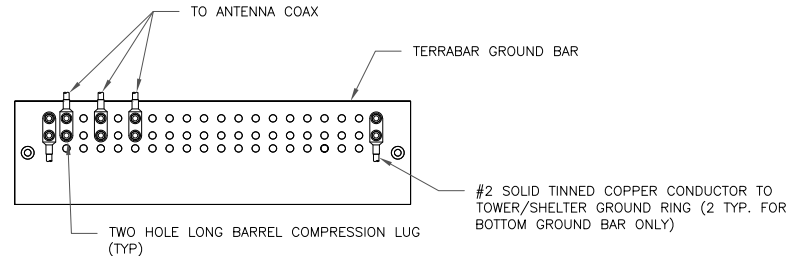
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NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL.

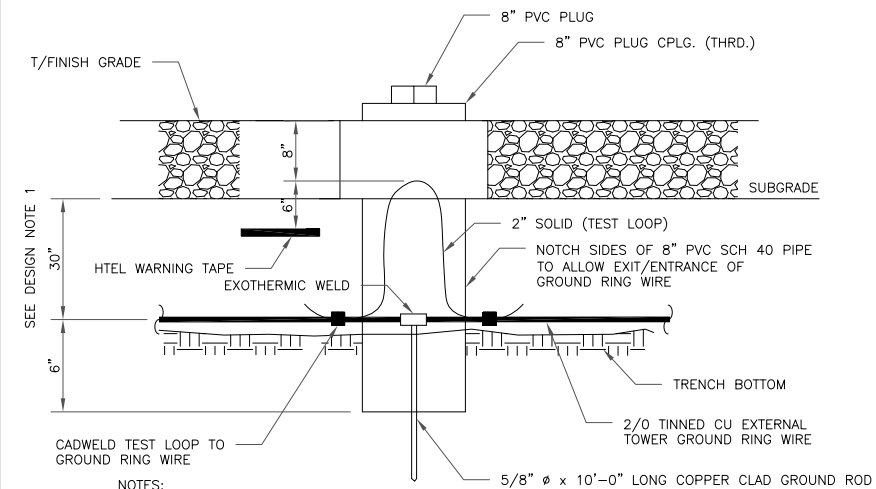
1 ANTENNA GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. INSTALL GROUND BARS AT 75 FT. INTERVAL MAXIMUM.
4. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

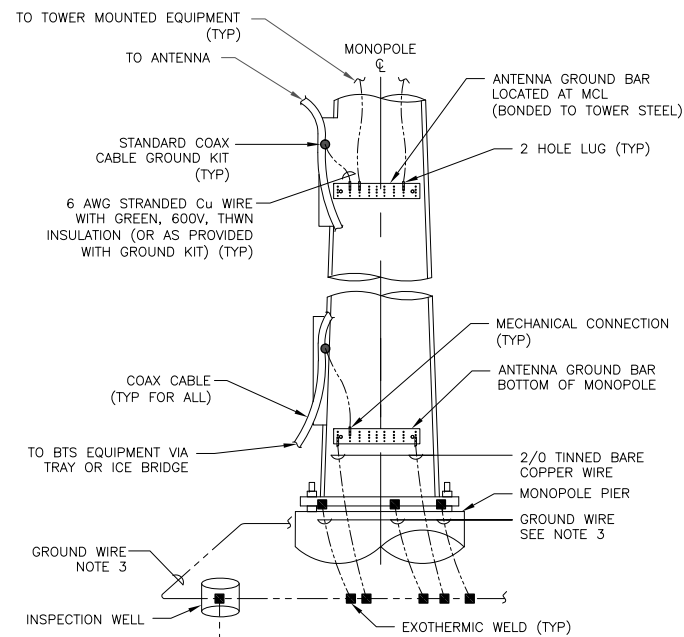
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

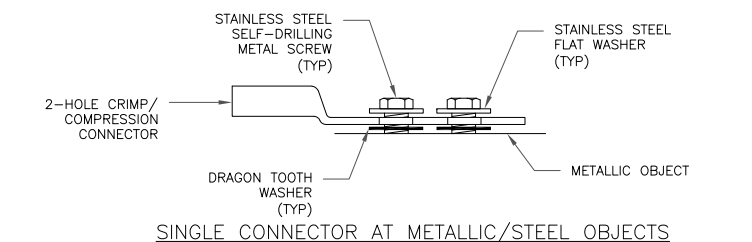
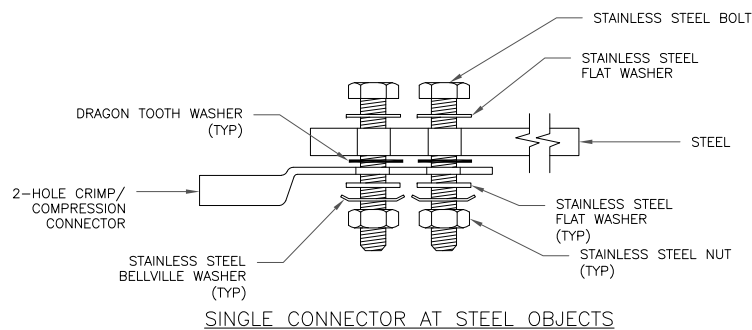
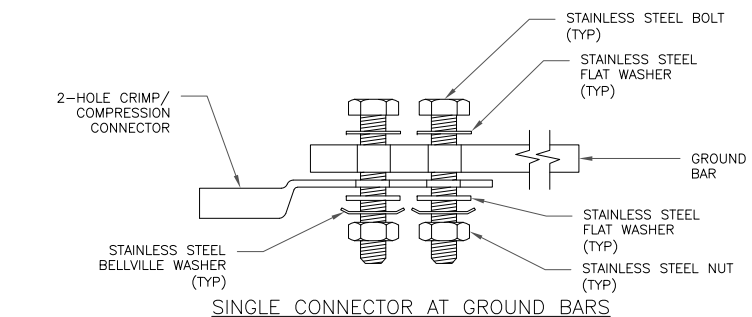
3 INSPECTION PORT DETAIL
SCALE: NOT TO SCALE



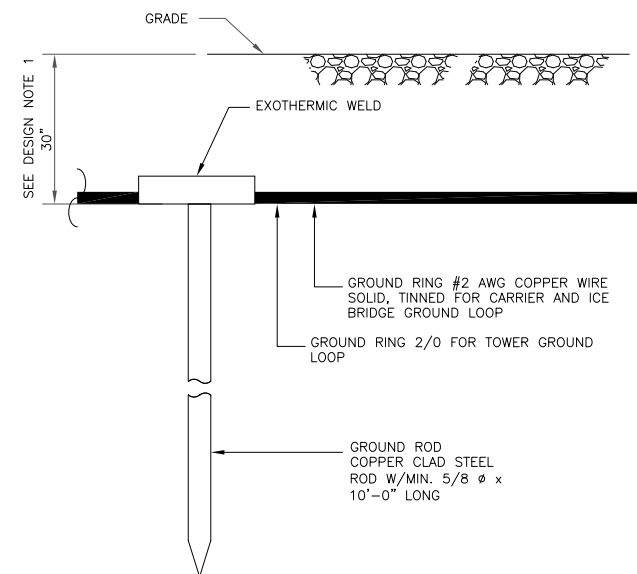
NOTES:

1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
2. ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
3. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE



4690 FIRST FLIGHT DRIVE
CHARLOTTE, NC 28208



3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

SMARTSKY SITE NUMBER:
CT100A

BU #: **857013**
KILLINGLY ROSS ROAD

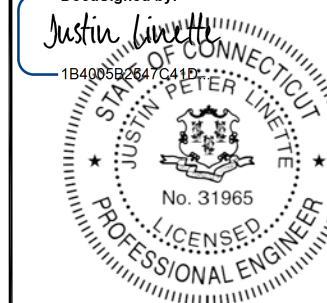
280 ROSS ROAD
KILLINGLY, CT 06239

EXISTING 119'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	1/3/17	ZTK	PRELIMINARY	ZTK
B	1/27/17	ZTK	PRELIMINARY	ZTK
C	2/2/17	ZTK	PRELIMINARY	ZTK
0	2/17/17	ZTK	CONSTRUCTION	ZTK

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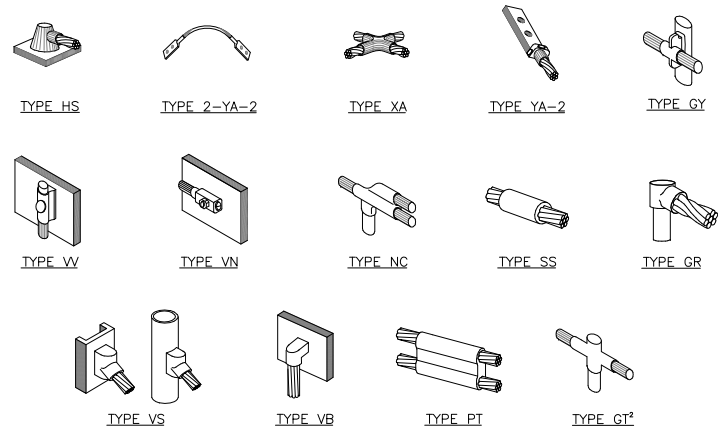


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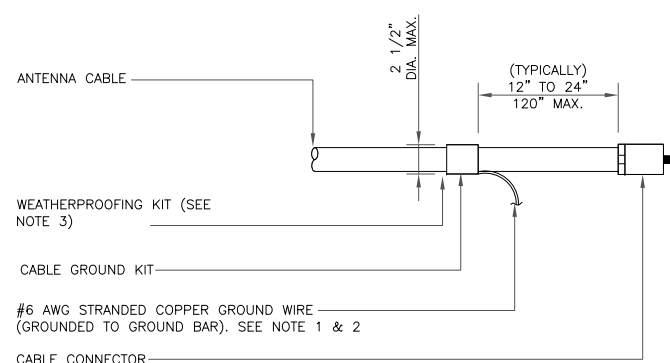
SHEET NUMBER: **G-2** REVISION: **0**



NOTE:

1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

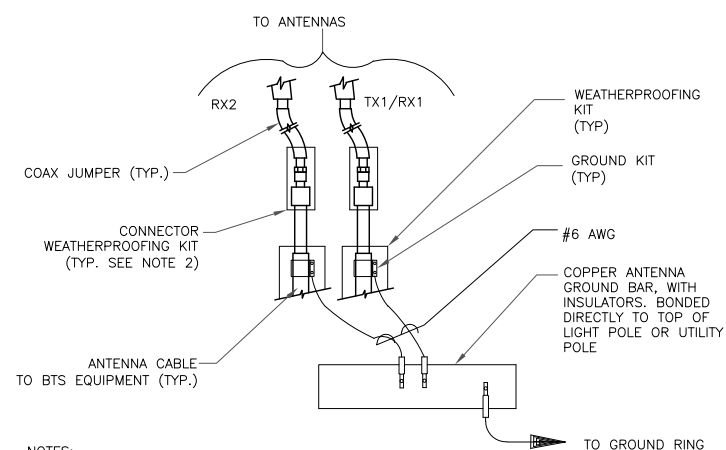
1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

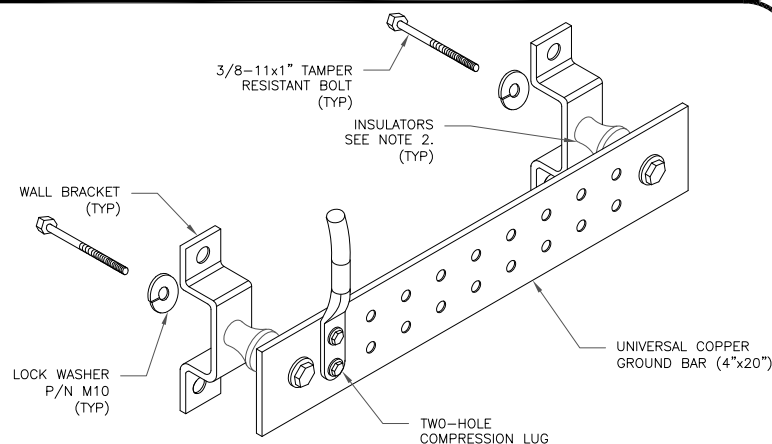
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

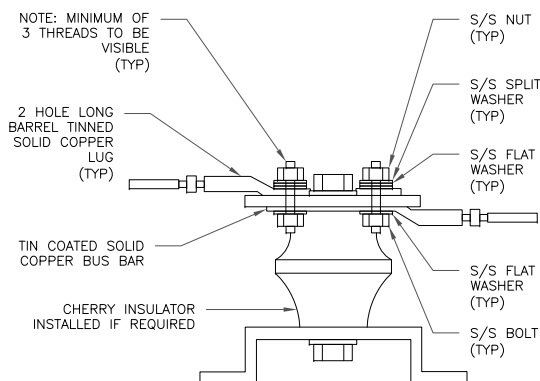
4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



NOTES:

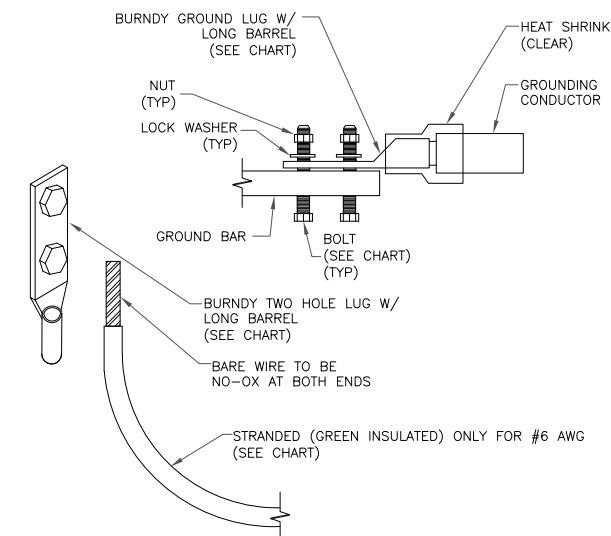
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY GAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL. USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

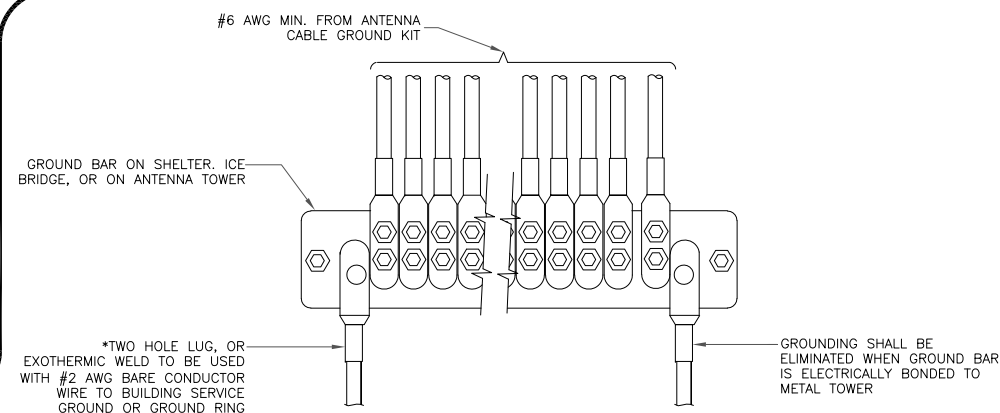
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



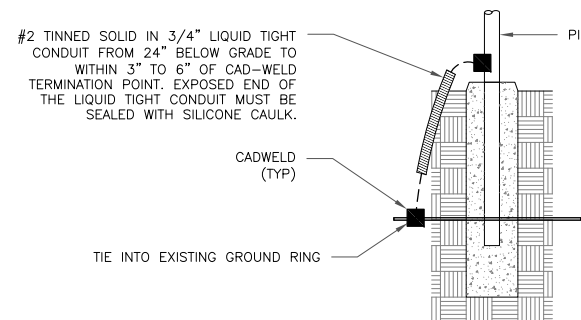
NOTES:

1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE



4690 FIRST FLIGHT DRIVE
CHARLOTTE, NC 28208



3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

SMARTSKY SITE NUMBER:
CT100A

BU #: 857013
KILLINGLY ROSS ROAD

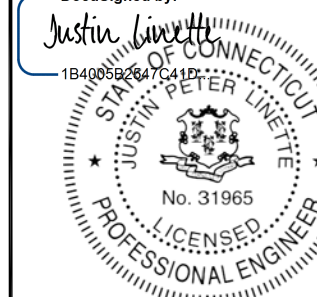
280 ROSS ROAD
KILLINGLY, CT 06239

EXISTING 119'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	1/3/17	ZTK	PRELIMINARY	ZTK
B	1/27/17	ZTK	PRELIMINARY	ZTK
C	2/2/17	ZTK	PRELIMINARY	ZTK
0	2/17/17	ZTK	CONSTRUCTION	ZTK

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#PEC.0001101

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SHEET NUMBER: **G-3** REVISION: **0**



B+T Group
 1717 S. Boulder, Suite 300
 Tulsa, OK 74119
 (918) 587-4630
 btwo@btgrp.com

February 23, 2017

Sean Dempsey
 Crown Castle
 3530 Toringdon Way Suite 300
 Charlotte, NC 28277
 (704) 405-6565

Subject: **Structural Opinion Letter**

Carrier Designation: **SmartSky Networks LLC Co-Locate**

Carrier Site Number: CT100A
Carrier Site Name: Killingly Ross Rd

Crown Castle Designation:

Crown Castle BU Number: 857013
Crown Castle Site Name: Killingly Ross Road
Crown Castle JDE Job Number: 408184
Crown Castle Work Order Number: 1367513
Crown Castle Application Number: 368303 Rev. 3

Engineering Firm Designation: **B+T Group Project Number:** 102936.003.01

Site Data: **280 Ross Road, Killingly, Windham County, CT**
Latitude 41° 46' 17.59", Longitude -71° 51' 20.39"
119 Foot - Monopole Tower

Dear Sean Dempsey,

B+T Group is pleased to submit this “**Structural Opinion Letter**” for the structural integrity of the aforementioned tower.

The purpose of the opinion letter is to determine the suitability of the tower with the proposed and existing loading as specified in Tables 1 & 2 on the next page. This opinion is consistent with the guidelines as stated in the 2012 International Building Code based upon an ultimate 3-second gust wind speed of 130 mph converted to a nominal 3-second gust wind speed of 101 mph per section 1609.3.1 as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1.

Based on a comparison of the original design loads (including wind speeds), the current loads, and the proposed loads, we have determined the tower structure and foundation ARE sufficient for the proposed loading.

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

Respectfully submitted by:
 B+T Engineering, Inc.

Jason Brock, E.I.
 Project Engineer

Scott S. Vance, P.E.
 Engineer of Record
 COA: PEC.0001564 Expires: 02/10/2017



Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
60.0	60.0	6	CCI	BFA8F-A5A w/ RRH	1	7/8	--
		1	Raycap	RHCDC-1390-PF-48			
		6	Raycap	RHCDC-3441-P-48-NA			
		2	Commscope	SFG23-14-3-96			

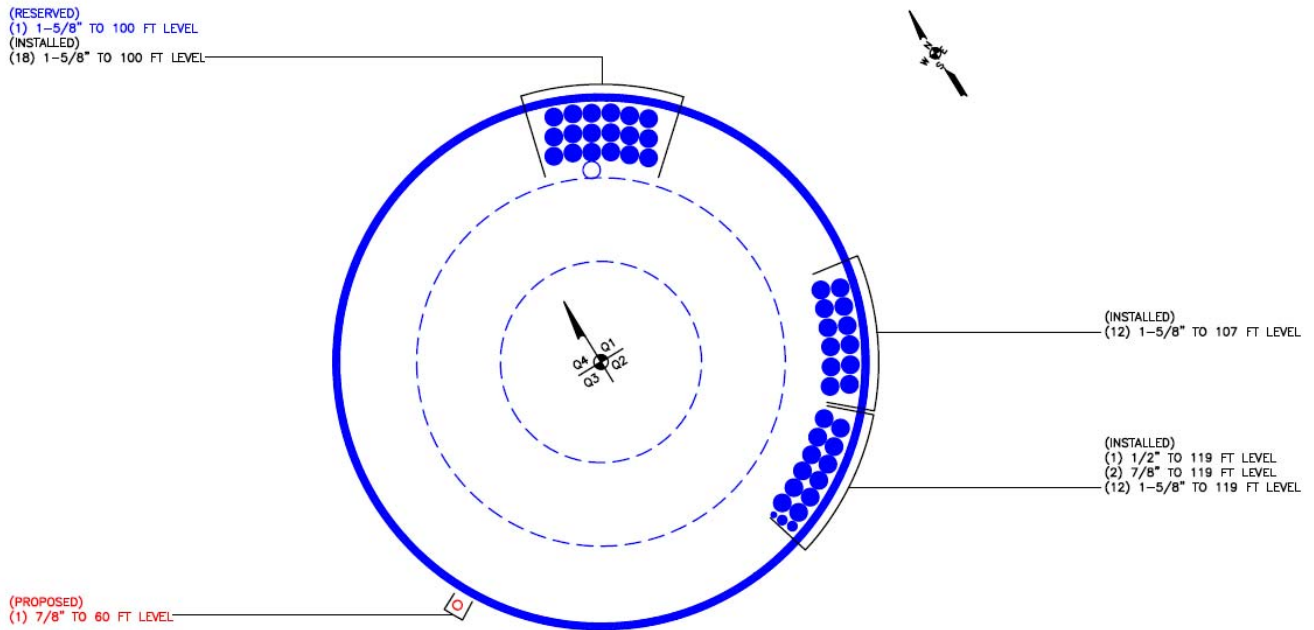
Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
119.0	121.0	6	Andrew	E15S08P77	12 2 1	1-5/8 7/8 1/2	1
		6	Ericsson	RBS 6601			
		3	Kmw Com.	AM-X-CD-17-65-00T-RET			
		6	Nextnet Wireless	BTS-2500			
		6	Powerwave Tech	7770.00			
		6	Powerwave Tech	LGP21401			
	1	Raycap	DC6-48-60-18-8F				
	119.0	1	--	Platform Mount [LP 1202-1]			
107.0	109.0	3	Allgon	LGP 13903	12	1-5/8	1
		3	Commscope	ATBT-BOTTOM-24V			
		3	Commscope	LNx-6515DS-VTM			
		3	Rfs Celwave	APX16PV-16PVL			
		107.0	1	--			
100.0	100.0	3	Alcatel Lucent	RRH2X60-AWS	1	1-5/8	2
		3	Alcatel Lucent	RRH2X60-PCS			
		3	Alcatel Lucent	RRH2x60-700			
		6	Andrew	SBNHH-1D65B			
		6	Antel	LPA-80080/6CF			
		1	Rfs Celwave	DB-T1-6Z-8AB-0Z			
	1	--	Platform Mount [LP 303-1]	18			

Notes:

- 1) Existing Equipment
- 2) Reserved Equipment

Attachment: Base Level Drawing



BUSINESS UNIT: 857013



November 23, 2016

Sean Dempsey
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277
(704) 405-6565

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
btwo@btgrp.com

Subject: **Structural Analysis Report**

Carrier Designation: **SmartSky Networks LLC Co-Locate**
Carrier Site Number: CT100A
Carrier Site Name: Killingly Ross Rd

Crown Castle Designation: **Crown Castle BU Number:** 857013
Crown Castle Site Name: Killingly Ross Road
Crown Castle JDE Job Number: 408184
Crown Castle Work Order Number: 1326330
Crown Castle Application Number: 368303 Rev. 0

Engineering Firm Designation: **B+T Group Project Number:** 102936.002.01

Site Data: **280 Ross Road, Killingly, Windham County, CT**
Latitude 41° 46' 17.59", Longitude -71° 51' 20.39"
119 Foot - Monopole Tower

Dear Sean Dempsey,

B+T Group is pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural ‘Statement of Work’ and the terms of Crown Castle Purchase Order Number 972868, in accordance with application 368303, revision 0.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table 1 and Table 2 for the proposed and existing/reserved loading, respectively.

This analysis has been performed in accordance with the 2012 International Building Code based upon an ultimate 3-second gust wind speed of 130 mph converted to a nominal 3-second gust wind speed of 101 mph per section 1609.3.1 as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B and Risk Category II were used in this analysis.

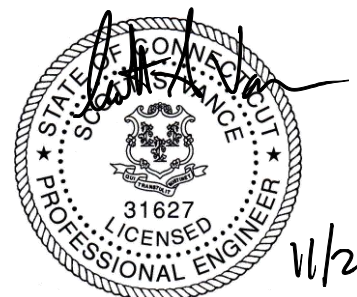
All equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

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

Respectfully submitted by:
B+T Engineering, Inc.

Jason Brock, E.I.
Project Engineer

Scott S. Vance, P.E.
Engineer of Record
COA: PEC.0001564 Expires: 02/10/2017



11/23/16

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7) APPENDIX C

Additional Calculations

1) INTRODUCTION

This tower is a 119 ft. Monopole tower mapped by GPD in January of 2009. The original design standard and Wind speed are not available.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a 3-second gust wind speed of 101 mph with no ice, 50 mph with 0.75 inch ice thickness and 60 mph under service loads, exposure category B with topographic category 1 and crest height of 0 feet.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
60.0	60.0	6	Harris	3261375-211	1	7/8	--
		1	Raycap	RHCDC-1390-PF-48			
		6	Raycap	RHCDC-3441-P-48-NA			
		2	Commscope	SFG23-14-3-96			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
119.0	121.0	6	Andrew	E15S08P77	12 2 1	1-5/8 7/8 1/2	1
		6	Ericsson	RBS 6601			
		3	Kmw Com.	AM-X-CD-17-65-00T-RET			
		6	Nextnet Wireless	BTS-2500			
		6	Powerwave Tech	7770.00			
		6	Powerwave Tech	LGP21401			
	1	Raycap	DC6-48-60-18-8F				
	119.0	1	--	Platform Mount [LP 1202-1]			
107.0	109.0	3	Allgon	LGP 13903	12	1-5/8	1
		3	Commscope	ATBT-BOTTOM-24V			
		3	Commscope	LNx-6515DS-VTM			
	3	Rfs Celwave	APX16PV-16PVL				
	107.0	1	--	Platform Mount [LP 304-1]			
100.0	100.0	3	Alcatel Lucent	RRH2X60-AWS	1	1-5/8	2
		3	Alcatel Lucent	RRH2X60-PCS			
		3	Alcatel Lucent	RRH2x60-700			
		6	Andrew	SBNHH-1D65B			
		6	Antel	LPA-80080/6CF			
		1	Rfs Celwave	DB-T1-6Z-8AB-0Z			
	1	--	Platform Mount [LP 303-1]	18			

Notes:

- 1) Existing Equipment
- 2) Reserved Equipment

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
<i>Information Not Available</i>						

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Online Application	SmartSky Networks, LLC Co-Locate Rev# 0	368303	CCI Sites
Tower Mapping	GPD Associates, Date: 01/19/2009	4908008	CCI Sites
Exposure Category Determination	Crown Castle, Date: 11/02/2015	5962344	CCI Sites
Foundation Drawing	WEI, Project No. 2009-872	4908012	CCI Sites
Geotech Report	WEI, Project No. 2009-872	4908007	CCI Sites
Antenna Configuration	Crown CAD Package	Date: 11/14/2016	CCI Sites

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 4) Mount areas and weights are assumed based on photographs provided.

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	119 - 84.33	Pole	TP29.03x19.1x0.5	1	-15.818	2493.290	23.9	Pass
L2	84.33 - 45.5	Pole	TP39.15x26.99x0.625	2	-30.767	4208.870	32.0	Pass
L3	45.5 - 0	Pole	TP50.93x36.5x0.688	3	-54.395	6265.660	36.0	Pass
							Summary	
						Pole (L3)	36.0	Pass
						RATING =	36.0	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	Base	60.8	Pass
1	Base Plate	Base	64.8	Pass
1	Base Foundation(Structure)	Base	54.9	Pass
1	Base Foundation (Soil Interaction)	Base	30.4	Pass

Structure Rating (max from all components) =	64.8%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the final load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 5/8" x 8' (E)	119	LGP 13903 (E)	107
(2) 7770.00 w/ Mount Pipe (E)	119	ATBT-BOTTOM-24V (E)	107
(2) 7770.00 w/ Mount Pipe (E)	119	ATBT-BOTTOM-24V (E)	107
(2) 7770.00 w/ Mount Pipe (E)	119	ATBT-BOTTOM-24V (E)	107
AM-X-CD-17-65-00T-RET w/ Mount Pipe (E)	119	Platform Mount [LP 304-1] (E)	107
AM-X-CD-17-65-00T-RET w/ Mount Pipe (E)	119	(2) SBNHH-1D65B w/ Mount Pipe (R)	100
AM-X-CD-17-65-00T-RET w/ Mount Pipe (E)	119	(2) SBNHH-1D65B w/ Mount Pipe (R)	100
AM-X-CD-17-65-00T-RET w/ Mount Pipe (E)	119	(2) SBNHH-1D65B w/ Mount Pipe (R)	100
(2) RBS 6601 (E)	119	(2) LPA-80080/6CF w/ Mount Pipe (R)	100
(2) RBS 6601 (E)	119	(2) LPA-80080/6CF w/ Mount Pipe (R)	100
(2) RBS 6601 (E)	119	(2) LPA-80080/6CF w/ Mount Pipe (R)	100
(3) BTS-2500 (E)	119	RRH2x60-700 (R)	100
(3) BTS-2500 (E)	119	RRH2x60-700 (R)	100
(3) LGP21401 (E)	119	RRH2x60-700 (R)	100
(3) LGP21401 (E)	119	RRH2X60-AWS (R)	100
(3) LGP21401 (E)	119	RRH2X60-AWS (R)	100
(3) E15S08P77 (E)	119	RRH2X60-AWS (R)	100
(3) E15S08P77 (E)	119	RRH2X60-PCS (R)	100
DC6-48-60-18-8F (E)	119	RRH2X60-PCS (R)	100
7' x 2" Pipe Mount (E-Per Sector)	119	RRH2X60-PCS (R)	100
7' x 2" Pipe Mount (E-Per Sector)	119	RRH2X60-PCS (R)	100
7' x 2" Pipe Mount (E-Per Sector)	119	DB-T1-6Z-8AB-0Z (R)	100
Platform Mount [LP 1202-1] (E)	119	Platform Mount [LP 303-1] (E)	100
APX16PV-16PVL w/ Mount Pipe (E)	107	(3) 3261375-211 w/ Mount Pipe (P)	60
APX16PV-16PVL w/ Mount Pipe (E)	107	(3) 3261375-211 w/ Mount Pipe (P)	60
APX16PV-16PVL w/ Mount Pipe (E)	107	(3) RHCDC-3441-P-48-NA (P)	60
APX16PV-16PVL w/ Mount Pipe (E)	107	(3) RHCDC-3441-P-48-NA (P)	60
LNX-6515DS-VTM w/ Mount Pipe (E)	107	RHCDC-1390-PF-48 (P)	60
LNX-6515DS-VTM w/ Mount Pipe (E)	107	RHCDC-1390-PF-48 (P)	60
LNX-6515DS-VTM w/ Mount Pipe (E)	107	Sector Mount [SM 504-1] (SFG23-14-3-96)	60
LGP 13903 (E)	107	Sector Mount [SM 504-1] (SFG23-14-3-96)	60
LGP 13903 (E)	107		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi			

TOWER DESIGN NOTES

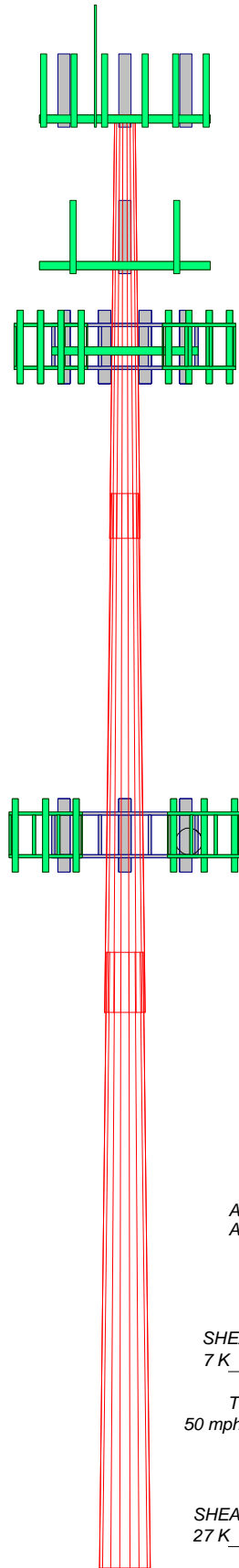
1. Tower is located in Windham County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 101 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 36%

119.0 ft

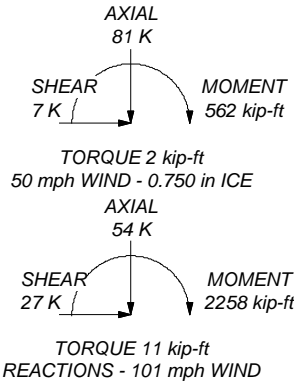
84.3 ft

45.5 ft

0.0 ft



ALL REACTIONS
ARE FACTORED



Section	1	2	3
Length (ft)	34.670	42.460	50.390
Number of Sides	18	18	18
Thickness (in)	0.500	0.625	0.688
Socket Length (ft)	3.630	4.890	36.500
Top Dia (in)	19.100	26.990	50.930
Bot Dia (in)	29.030	39.150	
Grade	A572-50	A572-50	A572-50
Weight (K)	4.4	9.3	16.1
			29.8

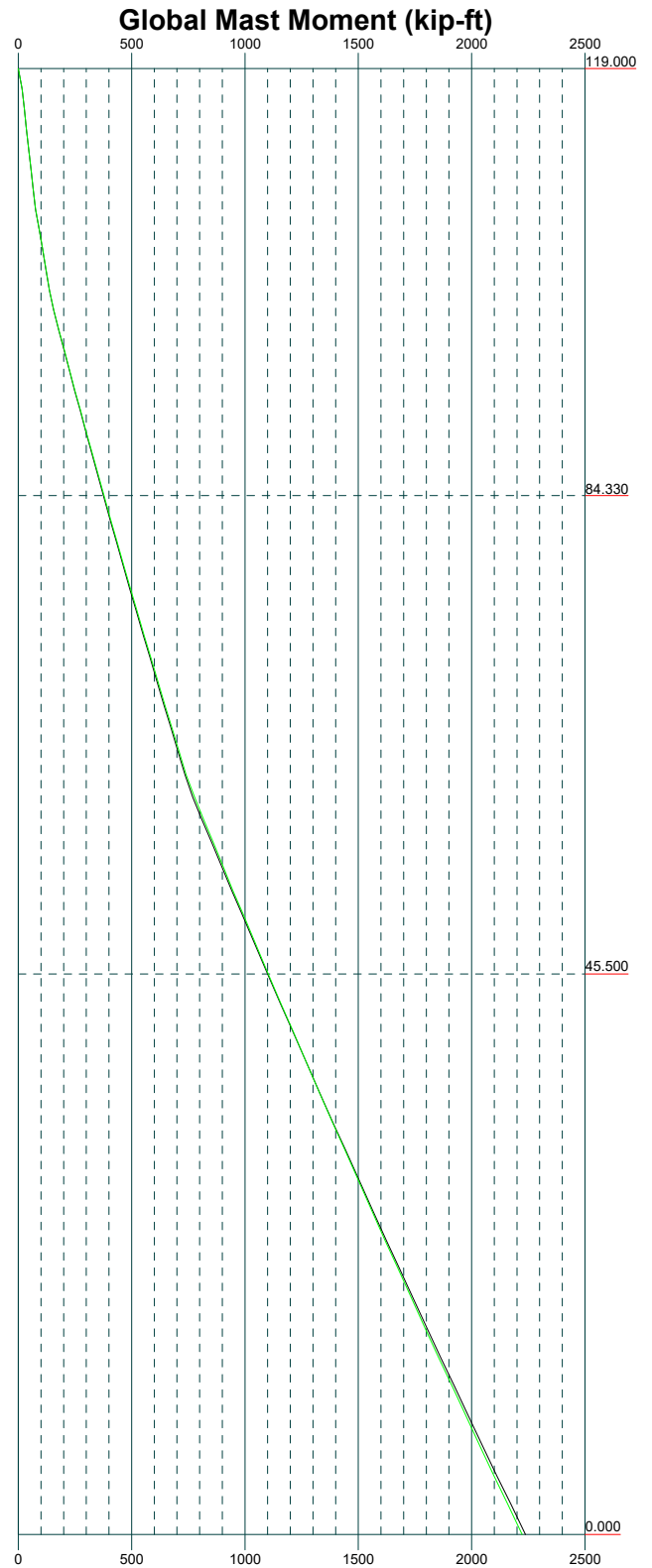
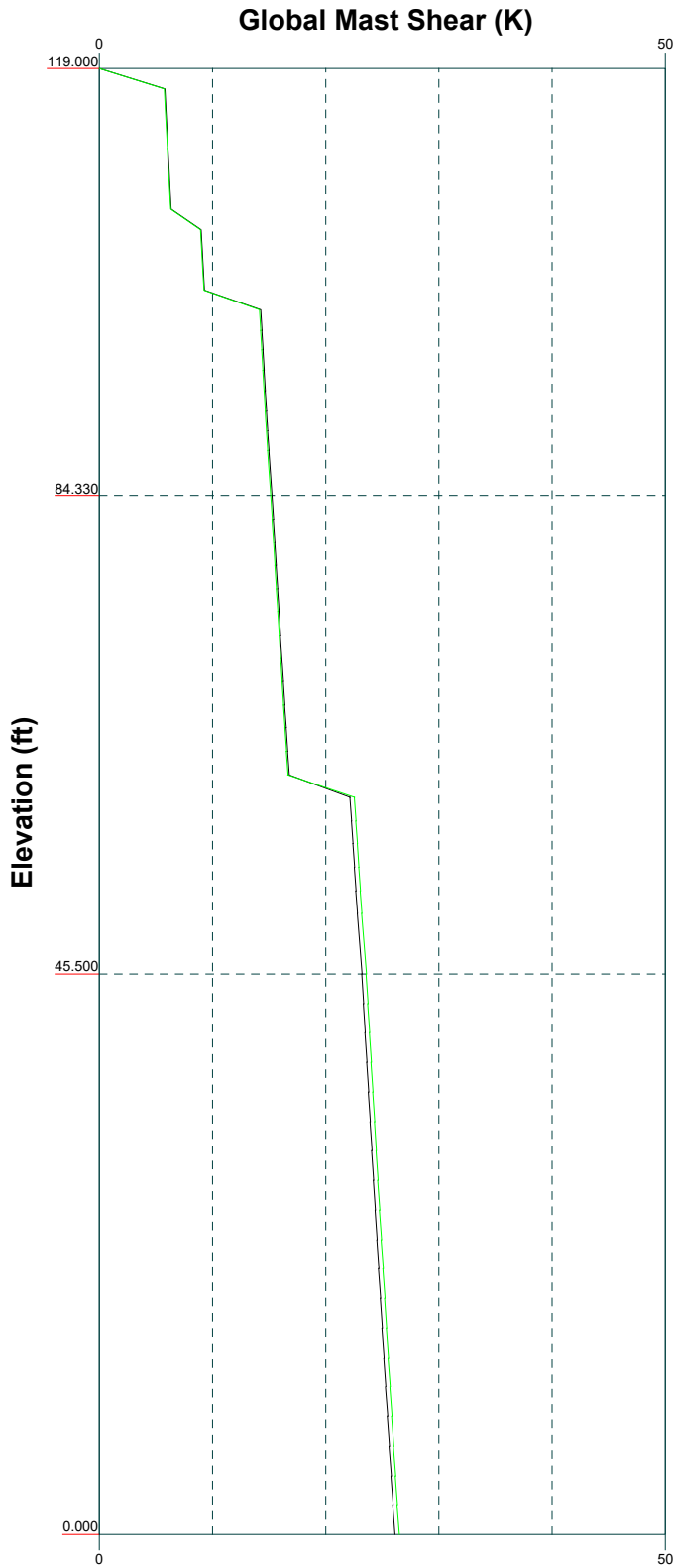
 B+T Group 1717 South Boulder Ave. Tulsa, Ok. 74119 Phone: 918-587-4630 FAX:	Job: 102936.002.01- KILLINGLY ROSS ROAD, CT (BU# 85701)		
	Project:		
	Client: Crown Castle	Drawn by: jbrock	App'd:
	Code: TIA-222-G	Date: 11/23/16	Scale: NTS
Path:		Dwg No: E-1	

Vx

Vz

Mx

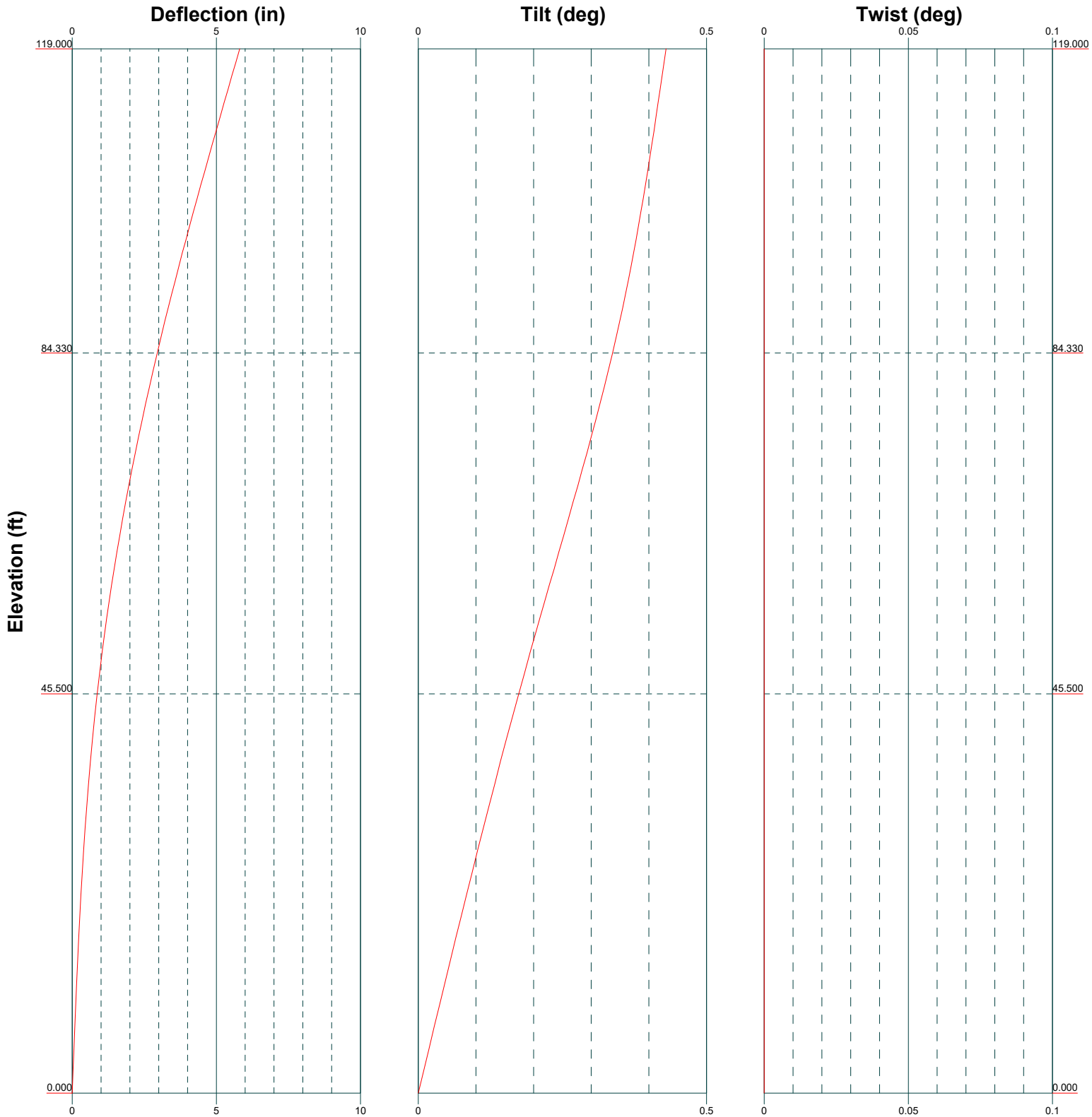
Mz




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 1717 South Boulder Ave.
 Tulsa, Ok. 74119
 Phone: 918-587-4630
 FAX:

Job: 102936.002.01- KILLINGLY ROSS ROAD, CT (BU# 85701)		
Project:		
Client: Crown Castle	Drawn by: jbrock	App'd:
Code: TIA-222-G	Date: 11/23/16	Scale: NTS
Path:	Dwg No. E-4	

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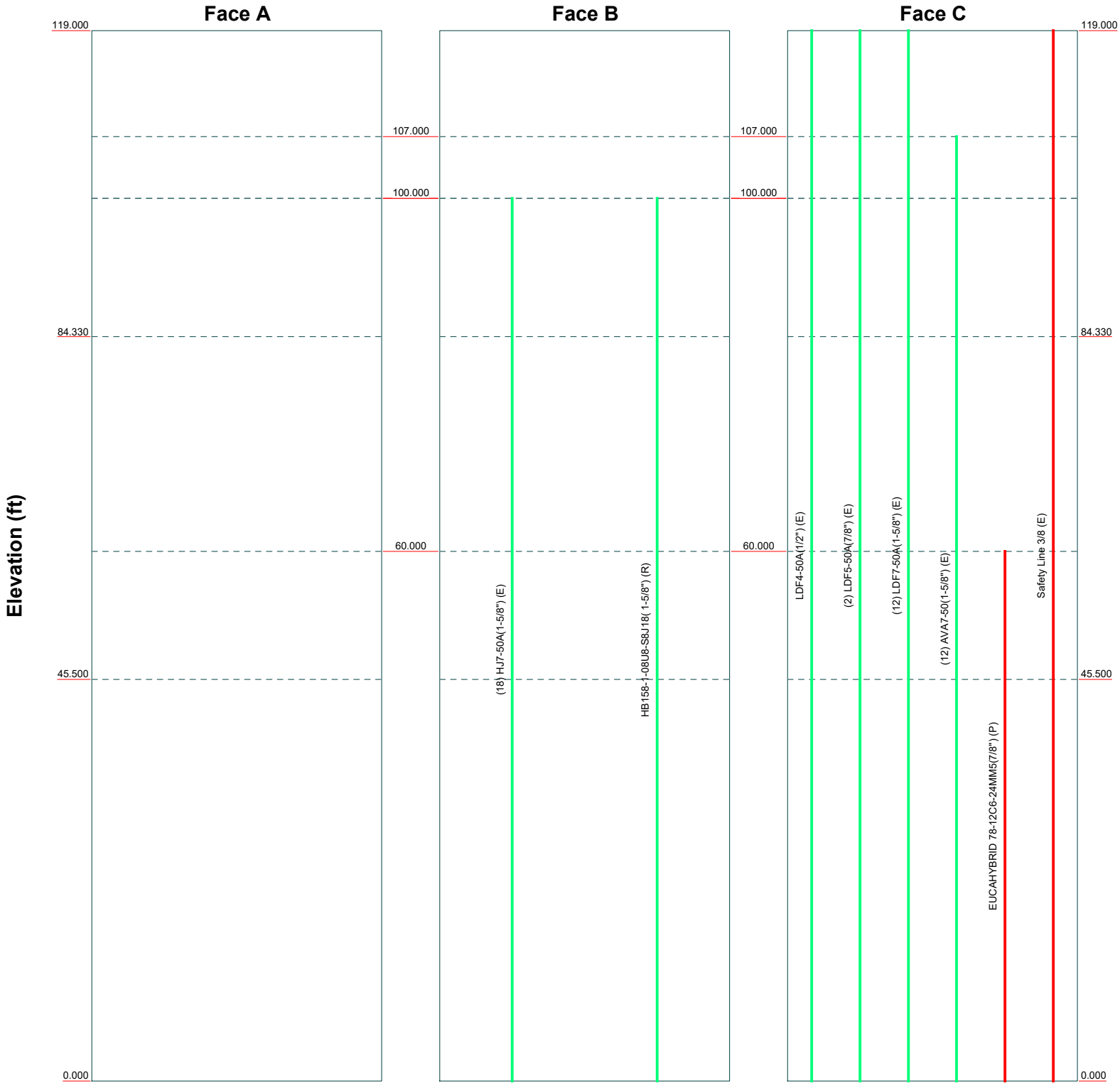
 <p>B+T Group 1717 South Boulder Ave. Tulsa, Ok. 74119 Phone: 918-587-4630 FAX:</p>	Job: 102936.002.01- KILLINGLY ROSS ROAD, CT (BU# 85701)		
	Project:		
	Client: Crown Castle	Drawn by: jbrock	App'd:
	Code: TIA-222-G	Date: 11/23/16	Scale: NTS
	Path:	Dwg No: E-5	

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Feed Line Distribution Chart

0' - 119'

— Round
 — Flat
 — App In Face
 — App Out Face
 — Truss Leg



<p>B+T Group 1717 South Boulder Ave. Tulsa, Ok. 74119 Phone: 918-587-4630 FAX:</p>	Job: 102936.002.01- KILLINGLY ROSS ROAD, CT (BU# 85701)		
	Project:		
	Client: Crown Castle	Drawn by: jbrock	App'd:
	Code: TIA-222-G	Date: 11/23/16	Scale: NTS
	Path:	Dwg No: E-7	

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tnxTower B+T Group 1717 South Boulder Ave. Tulsa, Ok. 74119 Phone: 918-587-4630 FAX:	Job 102936.002.01- KILLINGLY ROSS ROAD, CT (BU# 857013)	Page 1 of 15
	Project	Date 10:15:43 11/23/16
	Client Crown Castle	Designed by jbrock

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 0.000 ft.

Nominal ice thickness of 0.750 in.

Ice thickness is considered to increase with height.

Ice density of 56.000 pcf.

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

Temperature drop of 50.000 °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
--	--	--

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	119.000-84.330	34.670	3.630	18	19.100	29.030	0.500	2.000	A572-50 (50 ksi)
L2	84.330-45.500	42.460	4.890	18	26.990	39.150	0.625	2.500	A572-50 (50 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	45.500-0.000	50.390		18	36.500	50.930	0.688	2.750	A572-50 (50 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	19.395	29.518	1290.189	6.603	9.703	132.971	2582.075	14.762	2.482	4.963
	29.478	45.277	4656.072	10.128	14.747	315.725	9318.271	22.643	4.229	8.459
L2	28.462	52.302	4593.283	9.360	13.711	335.005	9192.611	26.156	3.650	5.84
	39.754	76.424	14330.203	13.676	19.888	720.538	28679.261	38.219	5.790	9.265
L3	38.485	78.146	12662.124	12.713	18.542	682.896	25340.908	39.081	5.214	7.584
	51.716	109.635	34964.780	17.836	25.872	1351.430	69975.567	54.828	7.754	11.278

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 119.000-84.330				1	1	1			
L2 84.330-45.500				1	1	1			
L3 45.500-0.000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
*_*_*_*_ EUCAHYBRID 78-12C6-24MM5(7/8") (P) *_*_*_*_	C	Surface Ar (CaAa)	60.000 - 0.000	1	1	0.480 0.490	1.100		0.001
*_*_*_*_ Safety Line 3/8 (E) *_*_*_*_	C	Surface Ar (CaAa)	119.000 - 0.000	1	1	-0.160 -0.150	0.375		0.000

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _A A _A	Weight klf
LDF4-50A(1/2") (E)	C	No	Inside Pole	119.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000

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Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_{AA}	Weight
							ft^2/ft	klf
LDF5-50A(7/8") (E)	C	No	Inside Pole	119.000 - 0.000	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000
LDF7-50A(1-5/8") (E)	C	No	Inside Pole	119.000 - 0.000	12	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001
*_*_*_*_*								
AVA7-50(1-5/8") (E)	C	No	Inside Pole	107.000 - 0.000	12	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001
*_*_*_*_*								
HJ7-50A(1-5/8") (E)	B	No	Inside Pole	100.000 - 0.000	18	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001
HB158-1-08U8-S8J18(1-5/8") (R)	B	No	Inside Pole	100.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001
*_*_*_*_*								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R	A_F	C_{AA}	C_{AA}	Weight
			ft^2	ft^2	In Face ft^2	Out Face ft^2	
L1	119.000-84.330	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.314
		C	0.000	0.000	1.300	0.000	0.567
L2	84.330-45.500	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.777
		C	0.000	0.000	3.051	0.000	0.759
L3	45.500-0.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.911
		C	0.000	0.000	6.711	0.000	0.910

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R	A_F	C_{AA}	C_{AA}	Weight
				ft^2	ft^2	In Face ft^2	Out Face ft^2	
L1	119.000-84.330	A	1.677	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.314
		C		0.000	0.000	12.928	0.000	0.713
L2	84.330-45.500	A	1.603	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.777
		C		0.000	0.000	20.938	0.000	1.005
L3	45.500-0.000	A	1.439	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.911
		C		0.000	0.000	35.893	0.000	1.327

Feed Line Center of Pressure

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	Client Crown Castle	Designed by jbrock

Section	Elevation	CP _x	CP _z	CP _x	CP _z
	ft	in	in	Ice in	Ice in
L1	119.000-84.330	0.018	0.052	0.135	0.402
L2	84.330-45.500	-0.040	0.087	-0.046	0.524
L3	45.500-0.000	-0.119	0.135	-0.300	0.663

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L1	13	Safety Line 3/8	84.33 - 119.00	1.0000	1.0000
L1	11	EUCAHYBRID	84.33 - 60.00	1.0000	1.0000
		78-12C6-24MM5(7/8")			
L2	11	EUCAHYBRID	45.50 - 60.00	1.0000	1.0000
		78-12C6-24MM5(7/8")			
L2	13	Safety Line 3/8	45.50 - 84.33	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K	
Lightning Rod 5/8" x 8' (E)	C	From Leg	2.000	0.000	119.000	No Ice	0.500	0.500	0.031
			0.000			1/2" Ice	1.314	1.314	0.037
			4.000			1" Ice	2.144	2.144	0.047
*_*_*_*									
(2) 7770.00 w/ Mount Pipe (E)	A	From Leg	4.000	0.000	119.000	No Ice	5.746	4.254	0.055
			0.000			1/2" Ice	6.179	5.014	0.103
			2.000			1" Ice	6.607	5.711	0.157
(2) 7770.00 w/ Mount Pipe (E)	B	From Leg	4.000	0.000	119.000	No Ice	5.746	4.254	0.055
			0.000			1/2" Ice	6.179	5.014	0.103
			2.000			1" Ice	6.607	5.711	0.157
(2) 7770.00 w/ Mount Pipe (E)	C	From Leg	4.000	0.000	119.000	No Ice	5.746	4.254	0.055
			0.000			1/2" Ice	6.179	5.014	0.103
			2.000			1" Ice	6.607	5.711	0.157
AM-X-CD-17-65-00T-RET w/ Mount Pipe (E)	A	From Leg	4.000	0.000	119.000	No Ice	11.549	8.938	0.092
			0.000			1/2" Ice	12.267	10.450	0.177
			2.000			1" Ice	12.995	11.986	0.272
AM-X-CD-17-65-00T-RET w/ Mount Pipe (E)	B	From Leg	4.000	0.000	119.000	No Ice	11.549	8.938	0.092
			0.000			1/2" Ice	12.267	10.450	0.177
			2.000			1" Ice	12.995	11.986	0.272
AM-X-CD-17-65-00T-RET w/ Mount Pipe (E)	C	From Leg	4.000	0.000	119.000	No Ice	11.549	8.938	0.092
			0.000			1/2" Ice	12.267	10.450	0.177
			2.000			1" Ice	12.995	11.986	0.272
(2) RBS 6601 (E)	A	From Leg	4.000	0.000	119.000	No Ice	0.480	0.348	0.022
			0.000			1/2" Ice	0.625	0.459	0.034

tnxTower

B+T Group
 1717 South Boulder Ave.
 Tulsa, Ok. 74119
 Phone: 918-587-4630
 FAX:

Job
 102936.002.01- KILLINGLY ROSS ROAD, CT (BU# 857013)

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Project

Date
 10:15:43 11/23/16

Client
 Crown Castle

Designed by
 jbrock

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight		
			Horz	Lateral						°	ft
(2) RBS 6601 (E)	B	From Leg	2.000		0.000	119.000	1" Ice 0.778	0.578	0.049		
			4.000						No Ice 0.480	0.348	0.022
			0.000						1/2" Ice 0.625	0.459	0.034
(2) RBS 6601 (E)	C	From Leg	2.000		0.000	119.000	1" Ice 0.778	0.578	0.049		
			4.000						No Ice 0.480	0.348	0.022
			0.000						1/2" Ice 0.625	0.459	0.034
(3) BTS-2500 (E)	B	From Leg	2.000		0.000	119.000	1" Ice 0.778	0.578	0.049		
			4.000						No Ice 1.817	0.859	0.035
			0.000						1/2" Ice 1.991	0.994	0.048
(3) BTS-2500 (E)	C	From Leg	2.000		0.000	119.000	1" Ice 2.172	1.135	0.064		
			4.000						No Ice 1.817	0.859	0.035
			0.000						1/2" Ice 1.991	0.994	0.048
(3) LGP21401 (E)	A	From Leg	2.000		0.000	119.000	1" Ice 2.172	1.135	0.064		
			4.000						No Ice 1.104	0.207	0.014
			0.000						1/2" Ice 1.239	0.274	0.021
(3) LGP21401 (E)	B	From Leg	2.000		0.000	119.000	1" Ice 1.381	0.348	0.030		
			4.000						No Ice 1.104	0.207	0.014
			0.000						1/2" Ice 1.239	0.274	0.021
(3) E15S08P77 (E)	A	From Leg	2.000		0.000	119.000	1" Ice 1.381	0.348	0.030		
			4.000						No Ice 0.461	0.202	0.008
			0.000						1/2" Ice 0.548	0.266	0.012
(3) E15S08P77 (E)	C	From Leg	2.000		0.000	119.000	1" Ice 0.641	0.337	0.017		
			4.000						No Ice 0.461	0.202	0.008
			0.000						1/2" Ice 0.548	0.266	0.012
DC6-48-60-18-8F (E)	C	From Leg	2.000		0.000	119.000	1" Ice 0.641	0.337	0.017		
			3.000						No Ice 0.917	0.917	0.019
			0.000						1/2" Ice 1.458	1.458	0.037
7' x 2" Pipe Mount (E-Per Sector)	A	From Leg	2.000		0.000	119.000	1" Ice 1.643	1.643	0.057		
			4.000						No Ice 1.663	1.663	0.026
			0.000						1/2" Ice 2.391	2.391	0.038
7' x 2" Pipe Mount (E-Per Sector)	B	From Leg	0.000		0.000	119.000	1" Ice 2.825	2.825	0.055		
			4.000						No Ice 1.663	1.663	0.026
			0.000						1/2" Ice 2.391	2.391	0.038
7' x 2" Pipe Mount (E-Per Sector)	C	From Leg	0.000		0.000	119.000	1" Ice 2.825	2.825	0.055		
			4.000						No Ice 1.663	1.663	0.026
			0.000						1/2" Ice 2.391	2.391	0.038
Platform Mount [LP 1202-1] (E)	C	None	0.000		0.000	119.000	1" Ice 2.825	2.825	0.055		
									No Ice 37.400	37.400	3.400
									1/2" Ice 42.200	42.200	3.940
*_*_*_*_*											
APX16PV-16PVL w/ Mount Pipe (E)	A	From Leg	4.000		0.000	107.000	1" Ice 7.129	4.639	0.156		
			0.000						No Ice 6.274	3.268	0.059
			2.000						1/2" Ice 6.703	3.974	0.105
APX16PV-16PVL w/ Mount Pipe (E)	B	From Leg	4.000		0.000	107.000	1" Ice 7.129	4.639	0.156		
			0.000						No Ice 6.274	3.268	0.059
			2.000						1/2" Ice 6.703	3.974	0.105
APX16PV-16PVL w/ Mount Pipe (E)	C	From Leg	4.000		0.000	107.000	1" Ice 7.129	4.639	0.156		
			0.000						No Ice 6.274	3.268	0.059
			2.000						1/2" Ice 6.703	3.974	0.105
LNX-6515DS-VTM w/ Mount Pipe (E)	A	From Leg	4.000		0.000	107.000	1" Ice 7.129	4.639	0.156		
			0.000						No Ice 11.683	9.842	0.083
			2.000						1/2" Ice 12.404	11.366	0.173
LNX-6515DS-VTM w/ Mount Pipe (E)	B	From Leg	4.000		0.000	107.000	1" Ice 13.135	12.914	0.273		
			0.000						No Ice 11.683	9.842	0.083
			2.000						1/2" Ice 12.404	11.366	0.173
LNX-6515DS-VTM w/	C	From Leg	4.000		0.000	107.000	1" Ice 13.135	12.914	0.273		
			0.000						No Ice 11.683	9.842	0.083
			2.000						1/2" Ice 12.404	11.366	0.173

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
Mount Pipe (E)			0.000			1/2" Ice 12.404	11.366	0.173
LGP 13903 (E)	A	From Leg	2.000			1" Ice 13.135	12.914	0.273
			4.000	0.000	107.000	No Ice 0.586	0.280	0.010
			0.000			1/2" Ice 0.692	0.363	0.015
			2.000			1" Ice 0.807	0.455	0.020
LGP 13903 (E)	B	From Leg	4.000	0.000	107.000	No Ice 0.586	0.280	0.010
			0.000			1/2" Ice 0.692	0.363	0.015
			2.000			1" Ice 0.807	0.455	0.020
LGP 13903 (E)	C	From Leg	4.000	0.000	107.000	No Ice 0.586	0.280	0.010
			0.000			1/2" Ice 0.692	0.363	0.015
			2.000			1" Ice 0.807	0.455	0.020
ATBT-BOTTOM-24V (E)	A	From Leg	4.000	0.000	107.000	No Ice 0.121	0.075	0.003
			0.000			1/2" Ice 0.172	0.119	0.004
			2.000			1" Ice 0.232	0.172	0.006
ATBT-BOTTOM-24V (E)	B	From Leg	4.000	0.000	107.000	No Ice 0.121	0.075	0.003
			0.000			1/2" Ice 0.172	0.119	0.004
			2.000			1" Ice 0.232	0.172	0.006
ATBT-BOTTOM-24V (E)	C	From Leg	4.000	0.000	107.000	No Ice 0.121	0.075	0.003
			0.000			1/2" Ice 0.172	0.119	0.004
			2.000			1" Ice 0.232	0.172	0.006
Platform Mount [LP 304-1] (E)	C	None		0.000	107.000	No Ice 17.460	17.460	1.349
						1/2" Ice 22.440	22.440	1.625
						1" Ice 27.420	27.420	1.900
*_*_*_*								
(2) SBNHH-1D65B w/ Mount Pipe (R)	A	From Leg	4.000	0.000	100.000	No Ice 8.637	7.071	0.066
			0.000			1/2" Ice 9.293	8.260	0.135
			0.000			1" Ice 9.917	9.170	0.212
(2) SBNHH-1D65B w/ Mount Pipe (R)	B	From Leg	4.000	0.000	100.000	No Ice 8.637	7.071	0.066
			0.000			1/2" Ice 9.293	8.260	0.135
			0.000			1" Ice 9.917	9.170	0.212
(2) SBNHH-1D65B w/ Mount Pipe (R)	C	From Leg	4.000	0.000	100.000	No Ice 8.637	7.071	0.066
			0.000			1/2" Ice 9.293	8.260	0.135
			0.000			1" Ice 9.917	9.170	0.212
(2) LPA-80080/6CF w/ Mount Pipe (R)	A	From Leg	4.000	0.000	100.000	No Ice 4.564	10.259	0.046
			0.000			1/2" Ice 5.105	11.427	0.113
			0.000			1" Ice 5.612	12.312	0.187
(2) LPA-80080/6CF w/ Mount Pipe (R)	B	From Leg	4.000	0.000	100.000	No Ice 4.564	10.259	0.046
			0.000			1/2" Ice 5.105	11.427	0.113
			0.000			1" Ice 5.612	12.312	0.187
(2) LPA-80080/6CF w/ Mount Pipe (R)	C	From Leg	4.000	0.000	100.000	No Ice 4.564	10.259	0.046
			0.000			1/2" Ice 5.105	11.427	0.113
			0.000			1" Ice 5.612	12.312	0.187
RRH2x60-700 (R)	A	From Leg	4.000	0.000	100.000	No Ice 3.957	1.816	0.060
			0.000			1/2" Ice 4.272	2.075	0.083
			0.000			1" Ice 4.596	2.360	0.109
RRH2x60-700 (R)	B	From Leg	4.000	0.000	100.000	No Ice 3.957	1.816	0.060
			0.000			1/2" Ice 4.272	2.075	0.083
			0.000			1" Ice 4.596	2.360	0.109
RRH2x60-700 (R)	C	From Leg	4.000	0.000	100.000	No Ice 3.957	1.816	0.060
			0.000			1/2" Ice 4.272	2.075	0.083
			0.000			1" Ice 4.596	2.360	0.109
RRH2X60-AWS (R)	A	From Leg	4.000	0.000	100.000	No Ice 3.500	1.816	0.060
			0.000			1/2" Ice 3.761	2.052	0.083
			0.000			1" Ice 4.029	2.289	0.109
RRH2X60-AWS (R)	B	From Leg	4.000	0.000	100.000	No Ice 3.500	1.816	0.060
			0.000			1/2" Ice 3.761	2.052	0.083
			0.000			1" Ice 4.029	2.289	0.109

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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	K	
RRH2X60-AWS (R)	C	From Leg	4.000	0.000	0.000	100.000	No Ice	3.500	1.816	0.060
			0.000	0.000			1/2" Ice	3.761	2.052	0.083
			0.000	0.000			1" Ice	4.029	2.289	0.109
RRH2X60-PCS (R)	A	From Leg	4.000	0.000	0.000	100.000	No Ice	2.567	2.011	0.055
			0.000	0.000			1/2" Ice	2.791	2.218	0.075
			0.000	0.000			1" Ice	3.025	2.435	0.099
RRH2X60-PCS (R)	B	From Leg	4.000	0.000	0.000	100.000	No Ice	2.567	2.011	0.055
			0.000	0.000			1/2" Ice	2.791	2.218	0.075
			0.000	0.000			1" Ice	3.025	2.435	0.099
RRH2X60-PCS (R)	C	From Leg	4.000	0.000	0.000	100.000	No Ice	2.567	2.011	0.055
			0.000	0.000			1/2" Ice	2.791	2.218	0.075
			0.000	0.000			1" Ice	3.025	2.435	0.099
DB-T1-6Z-8AB-0Z (R)	B	From Leg	4.000	0.000	0.000	100.000	No Ice	5.600	2.333	0.044
			0.000	0.000			1/2" Ice	5.915	2.558	0.080
			0.000	0.000			1" Ice	6.240	2.791	0.120
Platform Mount [LP 303-1] (E)	C	None			0.000	100.000	No Ice	14.660	14.660	1.250
							1/2" Ice	18.870	18.870	1.481
							1" Ice	23.080	23.080	1.713
*_*_*_*										
(3) 3261375-211 w/ Mount Pipe (P)	A	From Leg	4.000	0.000	0.000	60.000	No Ice	21.496	15.400	0.200
			0.000	0.000			1/2" Ice	22.145	15.988	0.353
			0.000	0.000			1" Ice	22.803	16.584	0.514
(3) 3261375-211 w/ Mount Pipe (P)	B	From Leg	4.000	0.000	0.000	60.000	No Ice	21.496	15.400	0.200
			0.000	0.000			1/2" Ice	22.145	15.988	0.353
			0.000	0.000			1" Ice	22.803	16.584	0.514
(3) RHCDC-3441-P-48-NA (P)	A	From Leg	4.000	0.000	0.000	60.000	No Ice	0.566	0.221	0.003
			0.000	0.000			1/2" Ice	0.670	0.296	0.007
			0.000	0.000			1" Ice	0.782	0.380	0.012
(3) RHCDC-3441-P-48-NA (P)	B	From Leg	4.000	0.000	0.000	60.000	No Ice	0.566	0.221	0.003
			0.000	0.000			1/2" Ice	0.670	0.296	0.007
			0.000	0.000			1" Ice	0.782	0.380	0.012
RHCDC-1390-PF-48 (P)	A	From Leg	4.000	0.000	0.000	60.000	No Ice	3.715	1.380	0.020
			0.000	0.000			1/2" Ice	3.973	1.561	0.043
			0.000	0.000			1" Ice	4.240	1.750	0.069
Sector Mount [SM 504-1] (SFG23-14-3-96)	A	From Leg	2.000	0.000	0.000	60.000	No Ice	16.440	14.000	0.569
			0.000	0.000			1/2" Ice	22.730	20.810	0.762
			0.000	0.000			1" Ice	29.020	27.620	0.955
Sector Mount [SM 504-1] (SFG23-14-3-96)	B	From Leg	2.000	0.000	0.000	60.000	No Ice	16.440	14.000	0.569
			0.000	0.000			1/2" Ice	22.730	20.810	0.762
			0.000	0.000			1" Ice	29.020	27.620	0.955
*_*_*_*										

Load Combinations

Comb. No.	Description
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

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Comb. No.	Description
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 Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	119 - 84.33	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-30.884	-0.801	-1.728
			Max. Mx	8	-15.822	-323.082	-2.535
			Max. My	14	-15.828	-2.185	-321.133
			Max. Vy	8	14.988	-323.082	-2.535
			Max. Vx	2	-14.879	1.695	319.844
			Max. Torque	8			-0.760
L2	84.33 - 45.5	Pole	Max Tension	1	0.000	0.000	0.000

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L3	45.5 - 0	Pole	Max. Compression	26	-53.363	-16.102	7.373
			Max. M _x	8	-30.779	-990.192	-6.133
			Max. M _y	2	-30.772	3.071	985.409
			Max. V _y	8	22.814	-990.192	-6.133
			Max. V _x	2	-23.199	3.071	985.409
			Max. Torque	12			11.299
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-81.491	-15.914	6.790
			Max. M _x	8	-54.396	-2222.783	-28.452
			Max. M _y	2	-54.396	25.341	2237.443
			Max. V _y	8	26.122	-2222.783	-28.452
			Max. V _x	2	-26.507	25.341	2237.443
			Max. Torque	12			11.295

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	81.491	-0.000	0.000
	Max. H _x	20	54.406	26.101	0.438
	Max. H _z	2	54.406	0.438	26.486
	Max. M _x	2	2237.443	0.438	26.486
	Max. M _z	8	2222.783	-26.101	-0.438
	Max. Torsion	12	11.292	-13.430	-23.156
	Min. Vert	19	40.804	22.385	-12.863
	Min. H _x	8	54.406	-26.101	-0.438
	Min. H _z	14	54.406	-0.438	-26.486
	Min. M _x	14	-2232.182	-0.438	-26.486
	Min. M _z	20	-2211.292	26.101	0.438
	Min. Torsion	24	-11.288	13.430	23.156

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	45.338	0.000	0.000	-2.142	-4.657	0.000
1.2 Dead+1.6 Wind 0 deg - No Ice	54.406	-0.438	-26.486	-2237.443	25.342	10.021
0.9 Dead+1.6 Wind 0 deg - No Ice	40.804	-0.438	-26.486	-2224.386	26.668	10.009
1.2 Dead+1.6 Wind 30 deg - No Ice	54.406	12.671	-22.718	-1922.505	-1087.348	6.069
0.9 Dead+1.6 Wind 30 deg - No Ice	40.804	12.671	-22.718	-1911.176	-1079.824	6.061
1.2 Dead+1.6 Wind 60 deg - No Ice	54.406	22.385	-12.863	-1093.126	-1910.223	0.491
0.9 Dead+1.6 Wind 60 deg - No Ice	40.804	22.385	-12.863	-1086.383	-1898.125	0.489
1.2 Dead+1.6 Wind 90 deg - No Ice	54.406	26.101	0.438	28.452	-2222.783	-5.220
0.9 Dead+1.6 Wind 90 deg - No Ice	40.804	26.101	0.438	28.982	-2208.960	-5.216

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Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Ice						
1.2 Dead+1.6 Wind 120 deg - No Ice	54.406	22.823	13.622	1141.694	-1941.285	-9.533
0.9 Dead+1.6 Wind 120 deg - No Ice	40.804	22.823	13.622	1136.047	-1929.049	-9.524
1.2 Dead+1.6 Wind 150 deg - No Ice	54.406	13.430	23.156	1948.311	-1141.167	-11.292
0.9 Dead+1.6 Wind 150 deg - No Ice	40.804	13.430	23.156	1938.182	-1133.404	-11.280
1.2 Dead+1.6 Wind 180 deg - No Ice	54.406	0.438	26.486	2232.182	-36.816	-10.024
0.9 Dead+1.6 Wind 180 deg - No Ice	40.804	0.438	26.486	2220.463	-35.212	-10.012
1.2 Dead+1.6 Wind 210 deg - No Ice	54.406	-12.671	22.718	1917.238	1075.866	-6.069
0.9 Dead+1.6 Wind 210 deg - No Ice	40.804	-12.671	22.718	1907.250	1071.274	-6.061
1.2 Dead+1.6 Wind 240 deg - No Ice	54.406	-22.385	12.863	1087.864	1898.733	-0.488
0.9 Dead+1.6 Wind 240 deg - No Ice	40.804	-22.385	12.863	1082.460	1889.569	-0.485
1.2 Dead+1.6 Wind 270 deg - No Ice	54.406	-26.101	-0.438	-33.706	2211.292	5.223
0.9 Dead+1.6 Wind 270 deg - No Ice	40.804	-26.101	-0.438	-32.898	2200.404	5.219
1.2 Dead+1.6 Wind 300 deg - No Ice	54.406	-22.823	-13.622	-1146.942	1929.802	9.533
0.9 Dead+1.6 Wind 300 deg - No Ice	40.804	-22.823	-13.622	-1139.960	1920.498	9.524
1.2 Dead+1.6 Wind 330 deg - No Ice	54.406	-13.430	-23.156	-1953.563	1129.693	11.288
0.9 Dead+1.6 Wind 330 deg - No Ice	40.804	-13.430	-23.156	-1942.097	1124.859	11.276
1.2 Dead+1.0 Ice+1.0 Temp	81.491	0.000	-0.000	-6.790	-15.914	-0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	81.491	-0.067	-6.576	-555.929	-11.056	2.058
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	81.491	3.201	-5.661	-479.888	-284.946	1.245
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	81.491	5.612	-3.230	-277.092	-486.774	0.100
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	81.491	6.519	0.067	-1.879	-562.461	-1.073
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	81.491	5.679	3.346	272.007	-491.725	-1.958
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	81.491	3.317	5.729	471.179	-293.522	-2.319
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	81.491	0.067	6.576	542.268	-20.958	-2.058
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	81.491	-3.201	5.661	466.227	252.931	-1.246
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	81.491	-5.612	3.230	263.431	454.759	-0.100
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	81.491	-6.519	-0.067	-11.781	530.445	1.073
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	81.491	-5.679	-3.346	-285.667	459.710	1.958
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	81.491	-3.317	-5.729	-484.839	261.507	2.318
Dead+Wind 0 deg - Service	45.338	-0.086	-5.227	-441.663	1.348	1.978
Dead+Wind 30 deg - Service	45.338	2.501	-4.483	-379.726	-217.458	1.198
Dead+Wind 60 deg - Service	45.338	4.418	-2.539	-216.627	-379.275	0.096

Load Combination	Vertical	Shear _x	Shear _z	Overturning Moment, M _x	Overturning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 90 deg - Service	45.338	5.151	0.086	3.931	-440.742	-1.031
Dead+Wind 120 deg - Service	45.338	4.504	2.688	222.851	-385.390	-1.882
Dead+Wind 150 deg - Service	45.338	2.650	4.570	381.473	-228.051	-2.228
Dead+Wind 180 deg - Service	45.338	0.086	5.227	437.294	-10.883	-1.978
Dead+Wind 210 deg - Service	45.338	-2.501	4.483	375.357	207.923	-1.198
Dead+Wind 240 deg - Service	45.338	-4.418	2.539	212.258	369.740	-0.096
Dead+Wind 270 deg - Service	45.338	-5.151	-0.086	-8.300	431.207	1.031
Dead+Wind 300 deg - Service	45.338	-4.504	-2.688	-227.220	375.855	1.882
Dead+Wind 330 deg - Service	45.338	-2.650	-4.570	-385.841	218.516	2.228

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-45.338	0.000	0.000	45.338	0.000	0.000%
2	-0.438	-54.406	-26.486	0.438	54.406	26.486	0.000%
3	-0.438	-40.804	-26.486	0.438	40.804	26.486	0.000%
4	12.671	-54.406	-22.718	-12.671	54.406	22.718	0.000%
5	12.671	-40.804	-22.718	-12.671	40.804	22.718	0.000%
6	22.385	-54.406	-12.863	-22.385	54.406	12.863	0.000%
7	22.385	-40.804	-12.863	-22.385	40.804	12.863	0.000%
8	26.101	-54.406	0.438	-26.101	54.406	-0.438	0.000%
9	26.101	-40.804	0.438	-26.101	40.804	-0.438	0.000%
10	22.823	-54.406	13.622	-22.823	54.406	-13.622	0.000%
11	22.823	-40.804	13.622	-22.823	40.804	-13.622	0.000%
12	13.430	-54.406	23.156	-13.430	54.406	-23.156	0.000%
13	13.430	-40.804	23.156	-13.430	40.804	-23.156	0.000%
14	0.438	-54.406	26.486	-0.438	54.406	-26.486	0.000%
15	0.438	-40.804	26.486	-0.438	40.804	-26.486	0.000%
16	-12.671	-54.406	22.718	12.671	54.406	-22.718	0.000%
17	-12.671	-40.804	22.718	12.671	40.804	-22.718	0.000%
18	-22.385	-54.406	12.863	22.385	54.406	-12.863	0.000%
19	-22.385	-40.804	12.863	22.385	40.804	-12.863	0.000%
20	-26.101	-54.406	-0.438	26.101	54.406	0.438	0.000%
21	-26.101	-40.804	-0.438	26.101	40.804	0.438	0.000%
22	-22.823	-54.406	-13.622	22.823	54.406	13.622	0.000%
23	-22.823	-40.804	-13.622	22.823	40.804	13.622	0.000%
24	-13.430	-54.406	-23.156	13.430	54.406	23.156	0.000%
25	-13.430	-40.804	-23.156	13.430	40.804	23.156	0.000%
26	0.000	-81.491	0.000	-0.000	81.491	0.000	0.000%
27	-0.067	-81.491	-6.576	0.067	81.491	6.576	0.000%
28	3.201	-81.491	-5.661	-3.201	81.491	5.661	0.000%
29	5.612	-81.491	-3.230	-5.612	81.491	3.230	0.000%
30	6.518	-81.491	0.067	-6.519	81.491	-0.067	0.000%
31	5.679	-81.491	3.346	-5.679	81.491	-3.346	0.000%
32	3.317	-81.491	5.729	-3.317	81.491	-5.729	0.000%
33	0.067	-81.491	6.576	-0.067	81.491	-6.576	0.000%
34	-3.201	-81.491	5.661	3.201	81.491	-5.661	0.000%
35	-5.612	-81.491	3.230	5.612	81.491	-3.230	0.000%
36	-6.518	-81.491	-0.067	6.519	81.491	0.067	0.000%
37	-5.679	-81.491	-3.346	5.679	81.491	3.346	0.000%
38	-3.317	-81.491	-5.729	3.317	81.491	5.729	0.000%
39	-0.086	-45.338	-5.227	0.086	45.338	5.227	0.000%
40	2.501	-45.338	-4.483	-2.501	45.338	4.483	0.000%
41	4.418	-45.338	-2.539	-4.418	45.338	2.539	0.000%
42	5.151	-45.338	0.086	-5.151	45.338	-0.086	0.000%
43	4.504	-45.338	2.688	-4.504	45.338	-2.688	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
44	2.650	-45.338	4.570	-2.650	45.338	-4.570	0.000%
45	0.086	-45.338	5.227	-0.086	45.338	-5.227	0.000%
46	-2.501	-45.338	4.483	2.501	45.338	-4.483	0.000%
47	-4.418	-45.338	2.539	4.418	45.338	-2.539	0.000%
48	-5.151	-45.338	-0.086	5.151	45.338	0.086	0.000%
49	-4.504	-45.338	-2.688	4.504	45.338	2.688	0.000%
50	-2.650	-45.338	-4.570	2.650	45.338	4.570	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00038199
3	Yes	4	0.00000001	0.00025835
4	Yes	4	0.00000001	0.00083522
5	Yes	4	0.00000001	0.00055766
6	Yes	4	0.00000001	0.00065903
7	Yes	4	0.00000001	0.00043674
8	Yes	4	0.00000001	0.00016489
9	Yes	4	0.00000001	0.00011159
10	Yes	4	0.00000001	0.00064988
11	Yes	4	0.00000001	0.00043045
12	Yes	4	0.00000001	0.00099274
13	Yes	4	0.00000001	0.00066374
14	Yes	4	0.00000001	0.00041595
15	Yes	4	0.00000001	0.00028122
16	Yes	4	0.00000001	0.00059338
17	Yes	4	0.00000001	0.00039465
18	Yes	4	0.00000001	0.00070129
19	Yes	4	0.00000001	0.00046782
20	Yes	4	0.00000001	0.00019568
21	Yes	4	0.00000001	0.00013248
22	Yes	4	0.00000001	0.00092639
23	Yes	4	0.00000001	0.00061976
24	Yes	4	0.00000001	0.00064950
25	Yes	4	0.00000001	0.00043221
26	Yes	4	0.00000001	0.00001478
27	Yes	4	0.00000001	0.00040787
28	Yes	4	0.00000001	0.00043118
29	Yes	4	0.00000001	0.00043196
30	Yes	4	0.00000001	0.00041556
31	Yes	4	0.00000001	0.00043261
32	Yes	4	0.00000001	0.00043053
33	Yes	4	0.00000001	0.00039882
34	Yes	4	0.00000001	0.00040167
35	Yes	4	0.00000001	0.00039849
36	Yes	4	0.00000001	0.00038588
37	Yes	4	0.00000001	0.00041279
38	Yes	4	0.00000001	0.00041731
39	Yes	4	0.00000001	0.00001569
40	Yes	4	0.00000001	0.00001431
41	Yes	4	0.00000001	0.00000706
42	Yes	4	0.00000001	0.00000753
43	Yes	4	0.00000001	0.00001348
44	Yes	4	0.00000001	0.00002066

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45	Yes	4	0.00000001	0.00001582
46	Yes	4	0.00000001	0.00000986
47	Yes	4	0.00000001	0.00000805
48	Yes	4	0.00000001	0.00000755
49	Yes	4	0.00000001	0.00001744
50	Yes	4	0.00000001	0.00001596

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	119 - 84.33	5.810	43	0.429	0.002
L2	87.96 - 45.5	3.214	43	0.349	0.002
L3	50.39 - 0	1.043	43	0.195	0.002

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
119.000	Lightning Rod 5/8" x 8'	43	5.810	0.429	0.002	89395
107.000	APX16PV-16PVL w/ Mount Pipe	43	4.763	0.402	0.002	37248
100.000	(2) SBNHH-1D65B w/ Mount Pipe	43	4.170	0.384	0.002	23525
60.000	(3) 3261375-211 w/ Mount Pipe	43	1.467	0.237	0.002	11742

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	119 - 84.33	29.366	10	2.171	0.011
L2	87.96 - 45.5	16.241	10	1.764	0.013
L3	50.39 - 0	5.279	12	0.985	0.009

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
119.000	Lightning Rod 5/8" x 8'	10	29.366	2.171	0.011	17681
107.000	APX16PV-16PVL w/ Mount Pipe	10	24.069	2.033	0.012	7367
100.000	(2) SBNHH-1D65B w/ Mount Pipe	10	21.072	1.944	0.012	4652
60.000	(3) 3261375-211 w/ Mount Pipe	12	7.417	1.196	0.011	2326

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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 K	φP _n K	Ratio P _u / φP _n
L1	119 - 84.33 (1)	TP29.03x19.1x0.5	34.670	0.000	0.0	43.627	-15.818	2493.290	0.006
L2	84.33 - 45.5 (2)	TP39.15x26.99x0.625	42.460	0.000	0.0	73.646	-30.767	4208.870	0.007
L3	45.5 - 0 (3)	TP50.93x36.5x0.688	50.390	0.000	0.0	109.635	-54.395	6265.660	0.009

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{nx} kip-ft	Ratio M _{ux} / φM _{nx}	M _{uy} kip-ft	φM _{ny} kip-ft	Ratio M _{uy} / φM _{ny}
L1	119 - 84.33 (1)	TP29.03x19.1x0.5	324.455	1395.133	0.233	0.000	1395.133	0.000
L2	84.33 - 45.5 (2)	TP39.15x26.99x0.625	995.267	3184.700	0.313	0.000	3184.700	0.000
L3	45.5 - 0 (3)	TP50.93x36.5x0.688	2257.917	6436.183	0.351	0.000	6436.183	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V _u K	φV _n K	Ratio V _u / φV _n	Actual T _u kip-ft	φT _n kip-ft	Ratio T _u / φT _n
L1	119 - 84.33 (1)	TP29.03x19.1x0.5	15.041	1246.650	0.012	0.580	2793.683	0.000
L2	84.33 - 45.5 (2)	TP39.15x26.99x0.625	23.298	2104.430	0.011	9.536	6377.191	0.001
L3	45.5 - 0 (3)	TP50.93x36.5x0.688	26.790	3132.830	0.009	11.292	12888.083	0.001

Pole Interaction Design Data

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
L1	119 - 84.33 (1)	0.006	0.233	0.000	0.012	0.000	0.239	1.000	4.8.2 ✓
L2	84.33 - 45.5 (2)	0.007	0.313	0.000	0.011	0.001	0.320	1.000	4.8.2 ✓
L3	45.5 - 0 (3)	0.009	0.351	0.000	0.009	0.001	0.360	1.000	4.8.2 ✓

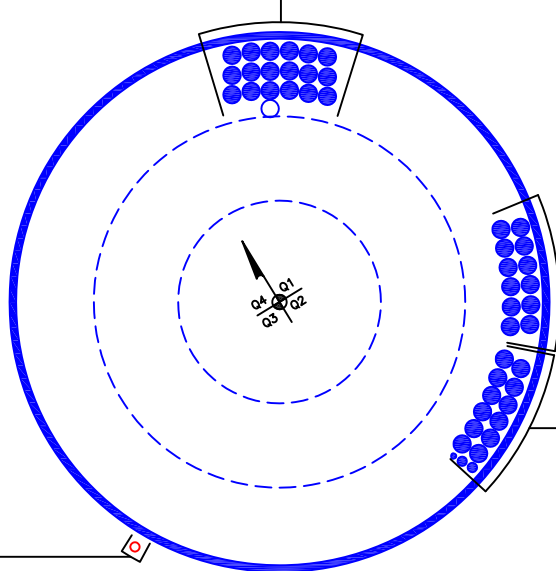
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Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail	
L1	119 - 84.33	Pole	TP29.03x19.1x0.5	1	-15.818	2493.290	23.9	Pass	
L2	84.33 - 45.5	Pole	TP39.15x26.99x0.625	2	-30.767	4208.870	32.0	Pass	
L3	45.5 - 0	Pole	TP50.93x36.5x0.688	3	-54.395	6265.660	36.0	Pass	
							Summary		
							Pole (L3)	36.0	Pass
							RATING =	36.0	Pass

APPENDIX B
BASE LEVEL DRAWING

(RESERVED)
(1) 1-5/8" TO 100 FT LEVEL
(INSTALLED)
(18) 1-5/8" TO 100 FT LEVEL



(INSTALLED)
(12) 1-5/8" TO 107 FT LEVEL

(INSTALLED)
(1) 1/2" TO 119 FT LEVEL
(2) 7/8" TO 119 FT LEVEL
(12) 1-5/8" TO 119 FT LEVEL

(PROPOSED)
(1) 7/8" TO 60 FT LEVEL

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APPENDIX C
ADDITIONAL CALCULATIONS

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

TIA Rev G Assumption: Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: 857013
Site Name: KILLINGLY ROSS ROAD, CT
App #: 368303 Rev# 0
Pole Manufacturer: <i>Other</i>

Anchor Rod Data

Qty:	16	
Diam:	2	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	59	in

Plate Data

Diam:	65	in
Thick:	2	in
Grade:	50	ksi
Single-Rod B-eff:	10.10	in

Stiffener Data (Welding at both sides)

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

Pole Data

Diam:	50.93	in
Thick:	0.6875	in
Grade:	50	ksi
# of Sides:	18	"0" IF Round
Fu	65	ksi
Reinf. Fillet Weld	0	"0" if None

Reactions

Mu:	2258	ft-kips
Axial, Pu:	54	kips
Shear, Vu:	27	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

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

Anchor Rod Results

Max Rod (Cu+ Vu/η): 121.6 Kips
 Allowable Axial, Φ^*Fu^*Anet : 200.0 Kips
 Anchor Rod Stress Ratio: 60.8% **Pass**

Rigid
AISC LRFD
ϕ^*Tn

Base Plate Results

Base Plate Stress: 29.2 ksi
 Allowable Plate Stress: 45.0 ksi
 Base Plate Stress Ratio: 64.8% **Pass**

Flexural Check

Rigid
AISC LRFD
ϕ^*Fy
Y.L. Length: 29.78

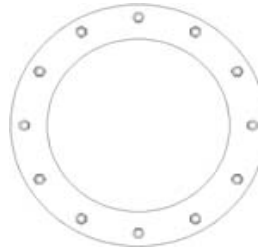
n/a

Stiffener Results

Horizontal Weld : n/a
 Vertical Weld: n/a
 Plate Flex+Shear, $f_b/F_b+(f_v/F_v)^2$: n/a
 Plate Tension+Shear, $f_t/F_t+(f_v/F_v)^2$: n/a
 Plate Comp. (AISC Bracket): n/a

Pole Results

Pole Punching Shear Check: n/a



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

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

PROJECT	857013 - KILLINGLY ROSS ROAD, CT		
SUBJECT	Foundation Analysis		
DATE	11/23/16	PAGE	1 OF 1

Monopole Pad & Pier Foundation Analysis

Rev. Type: **G**

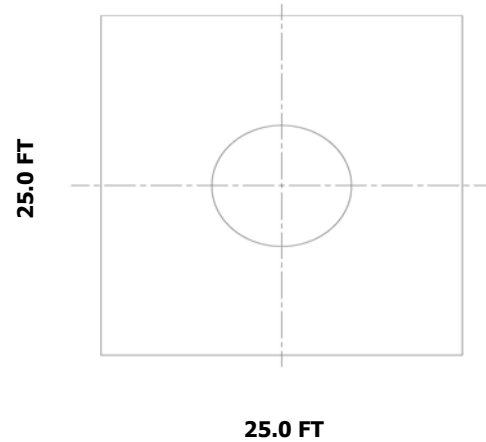
Design Loads:

Input factored loads

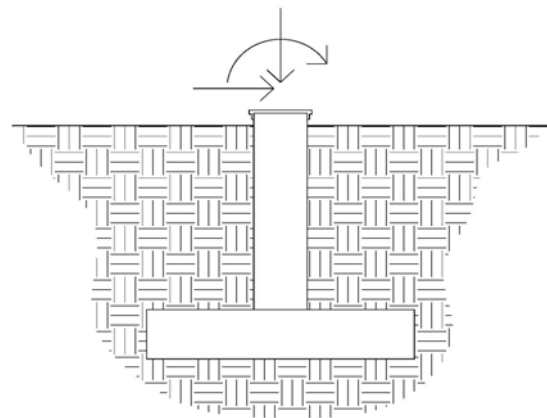
Shear:	<u>27.0</u>	kips
Moment:	<u>2,258.0</u>	ft-kips
Tower Height:	<u>119.0</u>	ft
Tower Weight:	<u>54.0</u>	kips

Pad & Pier Dimensions / Properties:

Pole Diameter at Base:	<u>50.93</u>	in
Bearing Depth:	<u>7.0</u>	ft
Pad Width:	<u>25.0</u>	ft
Neglected Depth:	<u>3.3</u>	ft
Thickness:	<u>3.0</u>	ft
Pier Diameter:	<u>7.0</u>	ft
Pier Height Above Grade:	<u>0.5</u>	ft
BP Dist. Above Pier:	<u>3.0</u>	in
Clear Cover:	<u>3.0</u>	in
Pier Rebar Size:	<u>10</u>	
Pier Rebar Quantity:	<u>39</u>	
Pad Rebar Size:	<u>8</u>	
Pad Rebar Quantity:	<u>13</u>	
Pier Tie Size:	<u>3</u>	
Tie Quantity:	<u>5</u>	
Rebar Yield Strength:	<u>60000</u>	psi
Concrete Strength:	<u>3000</u>	psi
Concrete Unit Weight:	<u>0.15</u>	kcf



Elevation Overview



Soil Data:

Allowable Values

Soil Unit Weight:	<u>0.128</u>	kcf
Ult. Bearing Capacity:	<u>15.000</u>	ksf
Angle of Friction:	<u>38.000</u>	deg
Cohesion:	<u>0.000</u>	ksf
Passive Pressure:	<u>0.000</u>	ksf
Base Friction:	<u>0.450</u>	

** Notes:

Pad rebar details assumed.

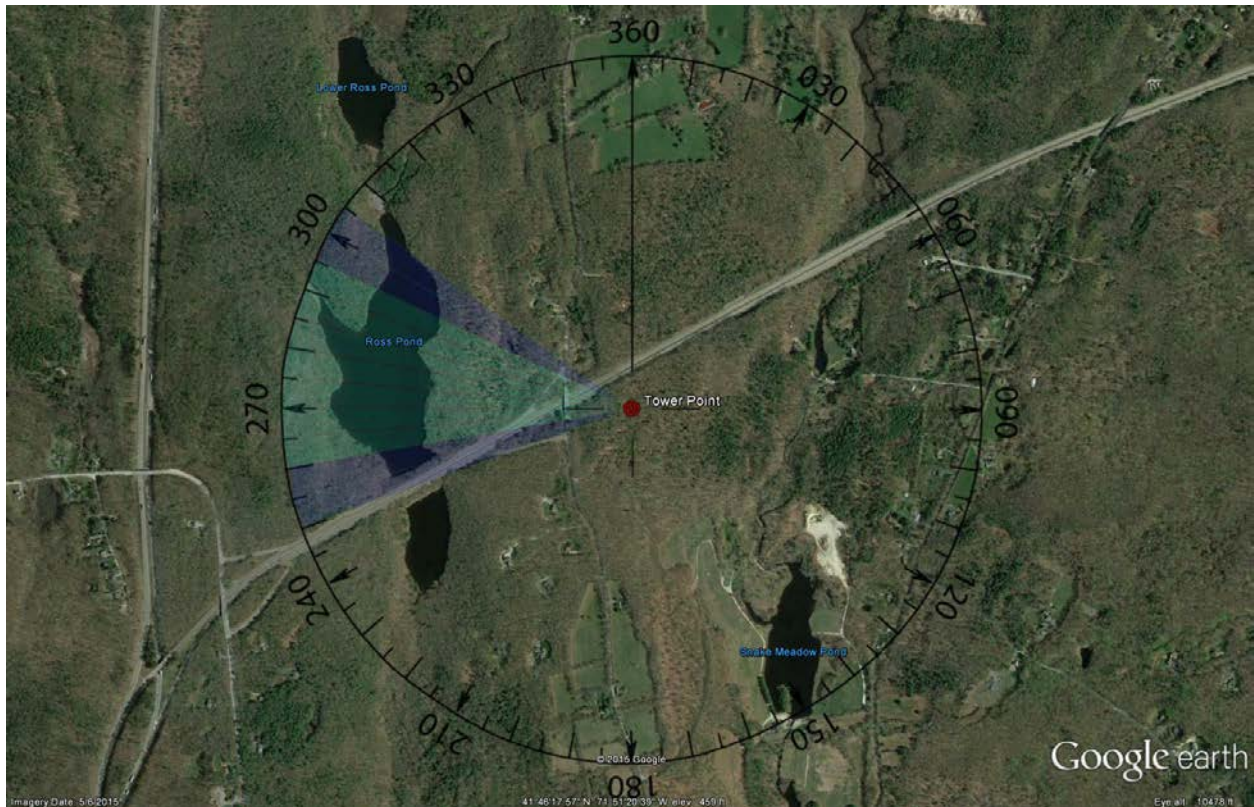
Summary of Results

Req'd Pier Diam.	OK
Overtuning	30.4%
Shear Capacity	10.7%
Bearing	16.7%
Pad Shear - 1-way	37.4%
Pad Shear - 2-way	5.0%
Pad Moment Capacity	54.9%
Pier Moment Capacity	31.2%

Exposure Category Determination BU#857013



- Latitude/Longitude = 41° 46' 17.59", -71° 51' 20.39"
- Tower Height = 119 ft
- Upwind Fetch Radius = Greater of 25 x Tower Height or 3250 ft = 3250 ft
- Minimum Open Patch = 164 ft x 164 ft
- Maximum continuous surface roughness category C arc angle = 35 degrees
- Kmz file saved in folder ... R:\SA Models - Letters\Work Area\Exposure_Topo_KMZ



Exposure Category for this site is **B**.

The determination is based on Crown Castle standard ENG-PRC-10202, Determination of Exposure Category, revision C.

Completed by: Erin Doyle

Approved by: Jason Hedrich

Date: 11/2/2015

Date: 11/04/2015



Unmitigated Percentage (B/C)

Inputs

Tower Height (ft):	119'
Starting Azimuth:	260°
Upwind Fetch Radius (ft):	3250'
20% Unmitigated Limit (ft):	650'
Overlay Size Selected:	35°

Subsector (Degrees)	Total Unmitigated Length (ft)	Percentage of Subsector Unmitigated
245°		0.0%
250°	'	0.0%
255°	420'	12.9%
260°	670'	20.6%
265°	845'	26.0%
270°	885'	27.2%
275°	875'	26.9%
280°	945'	29.1%
285°	830'	25.5%
290°	685'	21.1%
295°	585'	18.0%
300°	530'	16.3%
305°		0.0%
310°		0.0%

THIS SITE IS EXPOSURE:	B
------------------------	----------

Length measurements should be taken to the nearest 5' increment.

The determination is based on Crown Castle standard ENG-PRC-10202, Determination of Exposure Category, revision C.

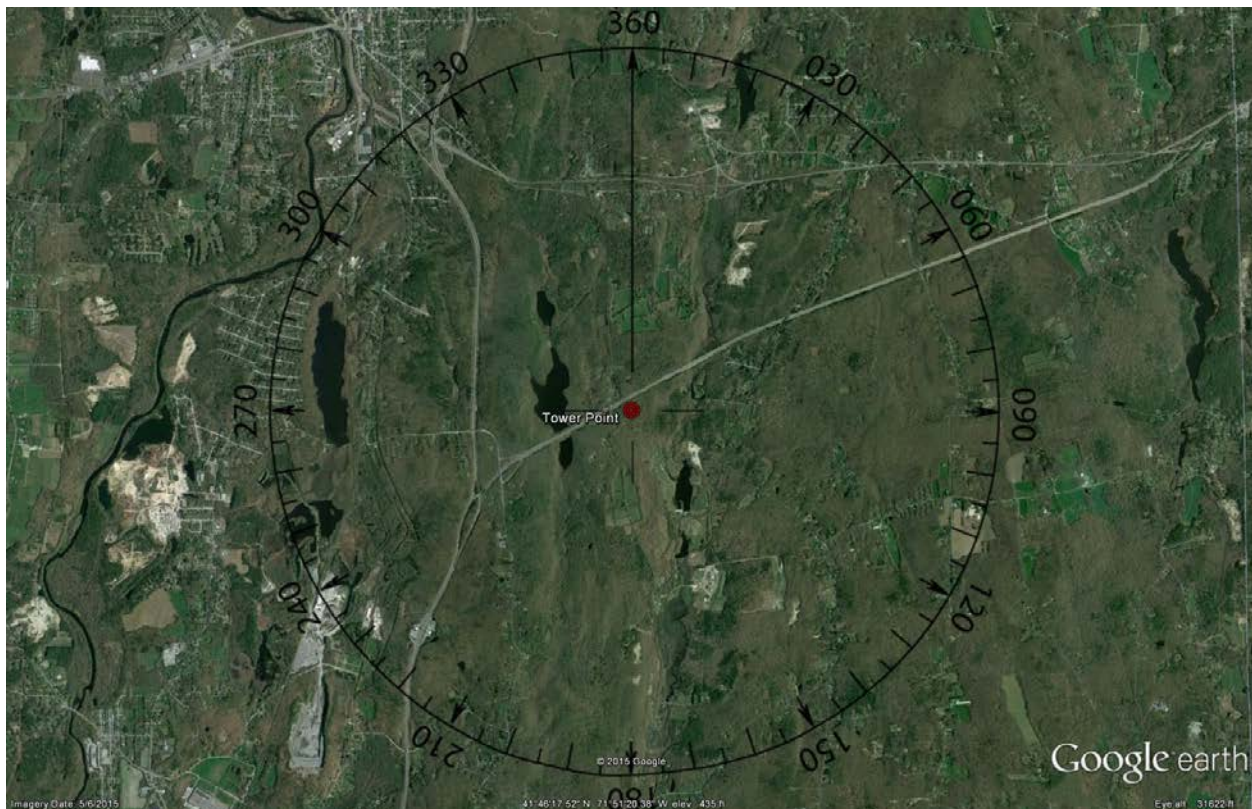
This chart is intended only for use with Exposures B and C and is Not applicable for Exposure D.

LEGEND	
	Considered Subsector
	Bookending Subsector

Topographic Factor Determination BU#857013



- Latitude/Longitude = 41° 46' 17.59", -71° 51' 20.39"
- Tower Height = 119 ft
- Topo Radius = 10,560 ft
- Maximum continuous effective topo arc angle = 0 degrees
- Critical wind azimuth used in topo tool = 0
- Kmz file saved in folder ... R:\SA Models - Letters\Work Area\Exposure_Topo_KMZ



Exposure Category for this site is **B**.
No topo feature.
Topographic Factor (K_{ZT}) at base is 1.0.

The determination is based on Crown Castle standard ENG-PRC-10040, Determination of Topographic Factor, initial release.

Completed by: Erin Doyle

Approved by: Jason Hedrich

Date: 11/2/2015

Date: 11/04/2015



[ASCE 7 Windspeed](#)
[ASCE 7 Ground Snow Load](#)
[Related Resources](#)
[Sponsors](#)
[About ATC](#)
[Contact](#)

Search Results

Query Date: Sat Nov 19 2016

Latitude: 41.7716

Longitude: -71.8557

**ASCE 7-10 Windspeeds
(3-sec peak gust in mph*):**

Risk Category I: 120

Risk Category II: 130

Risk Category III-IV: 140

MRI 10-Year:** 79

MRI 25-Year:** 89

MRI 50-Year:** 97

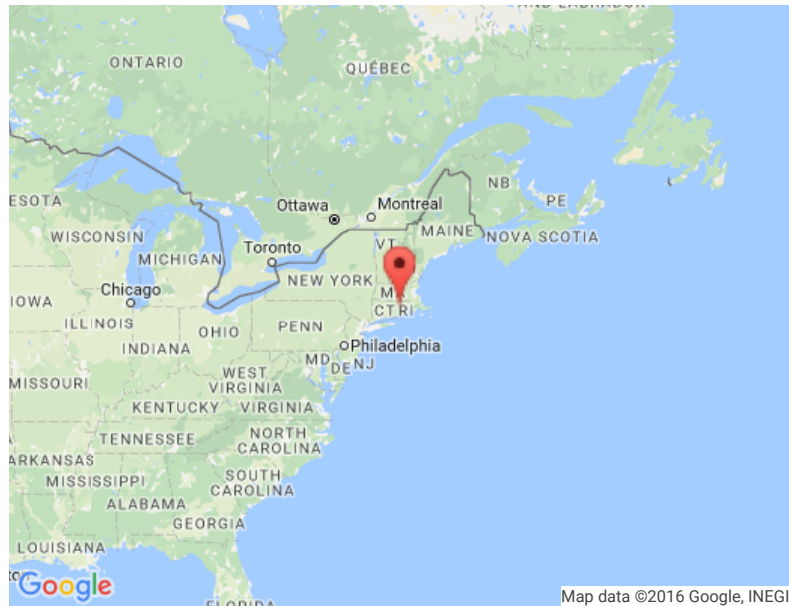
MRI 100-Year:** 105

ASCE 7-05 Windspeed:

107 (3-sec peak gust in mph)

ASCE 7-93 Windspeed:

84 (fastest mile in mph)



*Miles per hour

**Mean Recurrence Interval

Users should consult with local building officials to determine if there are community-specific wind speed requirements that govern.



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RF EMISSIONS COMPLIANCE REPORT

Crown Castle on behalf of SmartSky Networks, LLC

**Crown Castle BUN: 857013
Application ID: 368303
Site Name: Killingly Ross Road
280 Ross Road
Killingly, CT 06239
2/8/2017**

Report Status:

SmartSky Networks, LLC Is Compliant.

Prepared By:

Sitesafe, Inc.

Engineering Statement in Re:
Electromagnetic Energy Analysis
Killingly, CT 06239

My signature on the cover of this document indicates:

That I am registered as a Professional Engineer in the jurisdiction indicated; and

That I have extensive professional experience in the wireless communications engineering industry; and

That I am an employee of Sitesafe, Inc. in Arlington, Virginia; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission ("the FCC" and "the FCC Rules") both in general and specifically as they apply to the FCC's Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; and

That the technical information serving as the basis for this report was supplied by Crown Castle (See attached Site Summary and Carrier documents), and that SmartSky Networks, LLC's installations involve communications equipment, antennas and associated technical equipment at a location referred to as the "Killingly Ross Road" ("the site"); and

That SmartSky Networks, LLC proposes to operate at the site with transmit antennas listed in the carrier summary and with a maximum effective radiated power as specified by SmartSky Networks, LLC and shown on the worksheet, and that worst-case 100% duty cycle have been assumed; and

That this analysis has been performed with the assumption that the ground immediately surrounding the tower is primarily flat or falling; and

That at this time, the FCC requires that certain licensees address specific levels of radio-frequency energy to which workers or members of the public might possibly be exposed (at §1.1307(b) of the FCC Rules); and

That such consideration of possible exposure of humans to radio-frequency radiation must utilize the standards set by the FCC, which is the Federal Agency having jurisdiction over communications facilities; and

That the FCC rules define two tiers of permissible exposure guidelines: 1) "uncontrolled environments," defined as situations in which persons may not be aware of (the "general public"), or may not be able to control their exposure to a transmission facility; and (2) "controlled environments," which defines situations in which persons are aware of their potential for exposure (industry personnel); and

That this statement specifically addresses the uncontrolled environment (which is more conservative than the controlled environment) and the limit set forth in the FCC rules for licensees of SmartSky Networks, LLC's operating frequency as shown on the attached antenna worksheet; and

That when applying the uncontrolled environment standards, the predicted Maximum Power Density at two meters above ground level from the proposed SmartSky Networks, LLC operation is no more than 0.042% of the maximum in any accessible area on the ground and

That it is understood per FCC Guidelines and OET65 Appendix A, that regardless of the existent radio-frequency environment, only those licenses whose contributions exceed five percent of the exposure limit pertinent to their operation(s) bear any responsibility for bringing any non-compliant area(s) into compliance; and

That when applying the uncontrolled environment standards, the cumulative predicted energy density from the proposed operation is no more than 2.489% of the maximum in any accessible area up to two meters above the ground per OET-65; and

That the calculations provided in this report are based on data provided by the client and antenna pattern data supplied by the antenna manufacturer, in accordance with FCC guidelines listed in OET-65. Horizontal and vertical antenna patterns are combined for modeling purposes to accurately reflect the energy two meters above ground level where on-axis energy refers to maximum energy two meters above the ground along the azimuth of the antenna and where area energy refers to the maximum energy anywhere two meters above the ground regardless of the antenna azimuth, accounting for cumulative energy from multiple antennas for the carrier and frequency range indicated; and

That the Occupational Safety and Health Administration has policies in place which address worker safety in and around communications sites, thus individual companies will be responsible for their employees' training regarding Radio Frequency Safety.

In summary, it is stated here that the proposed operation at the site would not result in exposure of the Public to excessive levels of radio-frequency energy as defined in the FCC Rules and Regulations, specifically 47 CFR 1.1307 and that SmartSky Networks, LLC's proposed operation is completely compliant.

Finally, it is stated that access to the tower should be restricted to communication industry professionals, and approved contractor personnel trained in radio-frequency safety; and that the instant analysis addresses exposure levels at two meters above ground level and does not address exposure levels on the tower, or in the immediate proximity of the antennas.

Crown Castle BUN: 857013
Killingly Ross Road
Site Summary

Carrier	Area Maximum Percentage MPE
AT&T Mobility, LLC	0.185 %
AT&T Mobility, LLC	0.177 %
AT&T Mobility, LLC	0.154 %
AT&T Mobility, LLC	0.175 %
SmartSky Networks, LLC (Proposed)	0.042 %
T-Mobile	0.089 %
T-Mobile	0.154 %
T-Mobile	0.116 %
Verizon Wireless	0.42 %
Verizon Wireless	0.352 %
Verizon Wireless	0.28 %
Verizon Wireless	0.346 %
 Composite Site MPE:	 2.489 %

AT&T Mobility, LLC Killingly Ross Road Carrier Summary

Frequency: 2100 MHz
Maximum Permissible Exposure (MPE): 1000 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 1.84911 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.18491 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
KMW	AM-X-CD-17-65-00T	121	30	2033	1.131243	0.113124	1.144013	0.114401
KMW	AM-X-CD-17-65-00T	121	150	2033	1.12767	0.112767	1.144013	0.114401
KMW	AM-X-CD-17-65-00T	121	270	2033	1.131243	0.113124	1.144013	0.114401

AT&T Mobility, LLC Killingly Ross Road Carrier Summary

Frequency:	737	MHz
Maximum Permissible Exposure (MPE):	491.33	μW/cm ²
Maximum power density at ground level:	0.86821	μW/cm ²
Highest percentage of Maximum Permissible Exposure:	0.1767	%

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density (μW/cm ²)	Percent of MPE	Max Power Density (μW/cm ²)	Percent of MPE
KMW	AM-X-CD-17-65-00T	121	30	1750	0.709554	0.144414	0.724821	0.147521
KMW	AM-X-CD-17-65-00T	121	150	1750	0.709735	0.144451	0.724821	0.147521
KMW	AM-X-CD-17-65-00T	121	270	1750	0.709735	0.144451	0.724821	0.147521

AT&T Mobility, LLC Killingly Ross Road Carrier Summary

Frequency: 1900 MHz
Maximum Permissible Exposure (MPE): 1000 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 1.53944 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.15394 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
Powerwave	7770	121	30	1755	0.64925	0.064925	1.360598	0.13606
Powerwave	7770	121	150	1755	0.64925	0.064925	1.360598	0.13606
Powerwave	7770	121	270	1755	0.64925	0.064925	1.360598	0.13606

AT&T Mobility, LLC Killingly Ross Road Carrier Summary

Frequency: 850 MHz
Maximum Permissible Exposure (MPE): 566.67 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 0.992 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.17506 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
Powerwave	7770	121	30	821	0.552771	0.097548	0.850117	0.150021
Powerwave	7770	121	150	821	0.552067	0.097424	0.850117	0.150021
Powerwave	7770	121	270	821	0.552067	0.097424	0.850117	0.150021

SmartSky Networks, LLC (Proposed)
Killingly Ross Road
Carrier Summary

Frequency: 2445.7 MHz
 Maximum Permissible Exposure (MPE): 1000 $\mu\text{W}/\text{cm}^2$
 Maximum power density at ground level: 0.41906 $\mu\text{W}/\text{cm}^2$
 Highest percentage of Maximum Permissible Exposure: 0.04191 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
CCi Products	BFA8F-A5A	60	15	35	0.053707	0.005371	0.127301	0.01273
CCi Products	BFA8F-A5A	60	45	35	0.053707	0.005371	0.127301	0.01273
CCi Products	BFA8F-A5A	60	75	35	0.053707	0.005371	0.127301	0.01273
CCi Products	BFA8F-A5A	60	105	35	0.053707	0.005371	0.127301	0.01273
CCi Products	BFA8F-A5A	60	135	35	0.053707	0.005371	0.127301	0.01273
CCi Products	BFA8F-A5A	60	165	35	0.053707	0.005371	0.127301	0.01273

T-Mobile Killingly Ross Road Carrier Summary

Frequency: 728 MHz
Maximum Permissible Exposure (MPE): 485.33 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 0.43255 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.08912 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
Andrew	LNX-6515DS-A1M	109	60	611	0.385984	0.07953	0.401928	0.082815
Andrew	LNX-6515DS-A1M	109	180	611	0.385984	0.07953	0.401928	0.082815
Andrew	LNX-6515DS-A1M	109	300	611	0.385984	0.07953	0.401928	0.082815

T-Mobile Killingly Ross Road Carrier Summary

Frequency: 2100 MHz
Maximum Permissible Exposure (MPE): 1000 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 1.54237 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.15424 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
RFS	APX16PV-16PVL-T0	109	60	2878	1.068614	0.106861	1.426672	0.142667
RFS	APX16PV-16PVL-T0	109	180	2878	1.068614	0.106861	1.426671	0.142667
RFS	APX16PV-16PVL-T0	109	300	2878	1.069882	0.106988	1.426672	0.142667

T-Mobile Killingly Ross Road Carrier Summary

Frequency: 1900 MHz
Maximum Permissible Exposure (MPE): 1000 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 1.15678 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.11568 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
RFS	APX16PV-16PVL-T0	109	60	2159	0.801462	0.080146	1.070006	0.107001
RFS	APX16PV-16PVL-T0	109	180	2159	0.801462	0.080146	1.070006	0.107001
RFS	APX16PV-16PVL-T0	109	300	2159	0.802413	0.080241	1.070006	0.107001

Verizon Wireless Killingly Ross Road Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu\text{W}/\text{cm}^2$
Maximum power density at ground level:	4.20024	$\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure:	0.42002	%

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
Antel	BXA-185085-12CF-0ET	100	60	2389	1.386843	0.138684	2.395114	0.239511
Antel	BXA-185085-12CF-0ET	100	180	2389	1.391178	0.139118	2.395114	0.239511
Antel	BXA-185085-12CF-0ET	100	300	2389	1.391178	0.139118	2.395114	0.239511

Verizon Wireless Killingly Ross Road Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu\text{W}/\text{cm}^2$
Maximum power density at ground level:	3.5168	$\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure:	0.35168	%

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
Antel	BXA-185085-12CF-0ET	100	60	2000	1.161184	0.116118	2.005395	0.20054
Antel	BXA-185085-12CF-0ET	100	180	2000	1.164814	0.116481	2.005395	0.20054
Antel	BXA-185085-12CF-0ET	100	300	2000	1.164814	0.116481	2.005395	0.20054

Verizon Wireless Killingly Ross Road Carrier Summary

Frequency: 751 MHz
Maximum Permissible Exposure (MPE): 500.67 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 1.39973 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.27957 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
Antel	BXA-70063-6CF	100	60	1691	1.333163	0.266278	1.398628	0.279353
Antel	BXA-70063-6CF	100	180	1691	1.334002	0.266445	1.398628	0.279353
Antel	BXA-70063-6CF	100	300	1691	1.334001	0.266445	1.398628	0.279353

Verizon Wireless Killingly Ross Road Carrier Summary

Frequency: 850 MHz
Maximum Permissible Exposure (MPE): 566.67 $\mu\text{W}/\text{cm}^2$
Maximum power density at ground level: 1.9621 $\mu\text{W}/\text{cm}^2$
Highest percentage of Maximum Permissible Exposure: 0.34625 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE	Max Power Density ($\mu\text{W}/\text{cm}^2$)	Percent of MPE
Antel	LPA-80080-6CF	100	60	1507	0.957694	0.169005	1.618084	0.285544
Antel	LPA-80080-6CF	100	180	1507	0.957694	0.169005	1.618083	0.285544
Antel	LPA-80080-6CF	100	300	1507	0.957694	0.169005	1.618083	0.285544