



Filed by:

Kri Pelletier, Property Specialist - SBA Communications
134 Flanders Rd., Suite 125, Westborough, MA 01581
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September 12, 2016

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

Notice of Exempt Modification
95 Country Club Road, New Canaan, CT 06840
41 10 22.3 N
-73 29 46.8 W
AT&T #: 10091783_LTE - CT2282

Dear Ms. Bachman:

AT&T currently maintains three (3) antennas at the 89-foot level of the existing 109-foot Monopole Tower at 95 Country Club Rd in New Canaan, CT. The tower is owned by SBA Monarch Towers III, LLC. The property is owned by The Country Club of New Canaan. AT&T now intends to replace (3) existing antennas with (3) newer antennas. These antennas would be installed at the 87-foot level of the tower. AT&T's full scope of work is as follows:

Remove:

- None

Remove and Replace:

- Remove (3) Existing Panel Powerwave P65-16-XLH-RR antennas and replace with (3) CCI Panel HPA-65R-BUU-H6 antennas

Install:

- (6) 7/8" coax
- (3) TMA CCI DTMABP7819VG12A

Existing Equipment to Remain (Entitlements):

- (6) 7/8" coax
- (3) TMA CCI DTMABP7819VG12A



This facility was approved by the Council in docket # 244 on February 18, 2004. The approval called for a "silhouette structure" not to exceed 110' agl. There was to be reasonable space provided on the tower without charge for municipal antennas. A D&M plan was to be presented. And any future obsolete or non-functioning antennas were to be removed. This modification complies with the aforementioned conditions.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to Robert E. Mallozzi, III, First Selectman for the Town of New Canaan, as well as the property owner. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. §16.50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modification will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modification will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, AT&T respectfully submits that the proposed modifications to the above-referenced telecommunication facility constitute an exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

A handwritten signature in black ink, appearing to read "Kri Pelletier".

Kri Pelletier
Property Specialist
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581

508.251.0720 x3804 + T
508.366.2610 + F
203.446.7700 + C
kpelletier@sbsite.com

Attachments

cc: First Selectman Robert E. Mallozzi III—as elected official

Town of New Canaan Town Hall, 2nd Floor, 77 Main Street, New Canaan, CT 06840
The Country Club of New Canaan – as property owner
95 Country Club Road, New Canaan, CT 06840

POWER DENSITY

AT&T Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	CCI HPA-65R-BUU-H6	Make / Model:	CCI HPA-65R-BUU-H6	Make / Model:	CCI HPA-65R-BUU-H6
Gain:	12.65 / 14.75 / 11.95 dBd	Gain:	12.65 / 14.75 / 11.95 dBd	Gain:	12.65 / 14.75 / 11.95 dBd
Height (AGL):	89 feet	Height (AGL):	89 feet	Height (AGL):	89 feet
Frequency Bands	850 MHz / 1900 MHz (PCS) / 700 MHz	Frequency Bands	850 MHz / 1900 MHz (PCS) / 700 MHz	Frequency Bands	850 MHz / 1900 MHz (PCS) / 700 MHz
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	420 Watts	Total TX Power(W):	420 Watts	Total TX Power(W):	420 Watts
ERP (W):	10,149.48	ERP (W):	10,149.48	ERP (W):	10,149.48
Antenna A1 MPE%	6.86 %	Antenna B1 MPE%	6.86 %	Antenna C1 MPE%	6.86 %

Site Composite MPE%	
Carrier	MPE%
AT&T – Max per sector	6.86 %
T-Mobile	1.35 %
Site Total MPE %:	8.21 %

AT&T Sector A Total:	6.86 %
AT&T Sector B Total:	6.86 %
AT&T Sector C Total:	6.86 %
Site Total:	8.21 %

AT&T _ Max Values Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	552.23	89	5.76	850 MHz	567	1.02%
AT&T 1900 MHz (PCS) GSM	2	895.61	89	9.35	1900 MHz (PCS)	1000	0.93%
AT&T 1900 MHz (PCS) UMTS	2	895.61	89	9.35	1900 MHz (PCS)	1000	0.93%
AT&T 700 MHz LTE	2	940.05	89	9.81	700 MHz	467	2.10%
AT&T 1900 MHz (PCS) LTE	2	1,791.23	89	18.70	1900 MHz (PCS)	1000	1.87%
							Total*: 6.86%

*NOTE: Totals may vary by 0.01% due to summing of remainders

[New Search](#)[Back to Results](#)[View Property](#)[Print](#)[View Map](#)

Location	Owner	Account	MBLU
95 COUNTRY CLUB RD	COUNTRY CLUB OF N C	01297	0033/ 0034/ 0055/

Parcel Value

Item	Appraised Value	Assessed Value
Buildings	8,542,300	5,979,610
Extra Building Features	9,500	6,650
Outbuildings	8,410,700	5,887,490
Land	23,738,600	16,617,020
Total	40,701,100	28,490,770

Owner of Record

COUNTRY CLUB OF N C
 95 COUNTRY CLUB RD
 NEW CANAAN, CT 06840

Owner History

Name	Book/Page	Sale Date	Sale Price
COUNTRY CLUB OF N C	179/ 405	01/01/1966	0
COUNTRY CLUB OF N C	75/ 581	05/20/1945	0
COUNTRY CLUB OF N C	24/ 459	10/23/1902	0

Assessment History

Year	Total Assessment
2015	28,490,770
2014	28,490,770
2013	28,490,770
2012	24,167,710
2011	24,167,710
2010	24,167,800
2009	24,167,800
2008	24,045,700
2007	24,510,300
2006	24,510,300
2005	24,510,300
2004	24,510,300
2003	15,789,400
2002	10,858,120

Building Permits

Permit ID	Issue Date	Amount	Description
12-1355	11/27/2012	450,000	COM ADDS & ALTS
11-1151	01/04/2012	20,000	COM ADDS & ALTS
11-0645	08/04/2011	10,000	DEMO PERMIT
11-0521	08/02/2011	600,000	COM ADDS & ALTS
10-0080	03/01/2010	100,000	COM ADDS & ALTS
09-0154	04/22/2009	100	GENERAL PERMIT
08-1000	12/05/2008	10,500	GENERAL PERMIT
08-0881	10/21/2008	10,000	PADDLE TENNIS HUT
08-0248	06/10/2008	600,000	COM ADDITIONS & ALTERATIONS
07-0965	11/28/2007	159,000	COM ADDITIONS AND ALTERATIONS

06-0509	08/23/2006	3,000	SAND SILO
4-0160	01/18/2005	0	COM ISSUED
04-1362	12/27/2004	28,000	BUILT STORAGE ROOM
03-01195	06/03/2004	0	CO ISSUED
04-0160	05/25/2004	230,000	ADDITIONS AND ALTERATIONS
03-1195	12/09/2003	2,000,000	ALT & ADD
19771A	03/24/2000	70,000	
19940	03/07/2000	15,000	
19868	01/07/2000	2,400	
19771	11/02/1999	700,000	
35-99	10/05/1999	10,500	
20-99	06/15/1999	10,000	
19282	01/04/1999	20,000	
19168	10/06/1998	500,000	COUNTRY CLUB OF N C
1864-0055	10/28/1997	26,000	COUNTRY CLUB OF N C
1778-0055	05/01/1996	7,000	COUNTRY CLUB OF N C
1755-0055	10/12/1995	200,000	COUNTRY CLUB OF N C

Land Line Valuation

Size	Zone	Dev Map #	Appraised Value	Assessed Value
153.35 AC	4 AC	1469	23,738,600	16,617,020

Building Details - Click Buildings Below

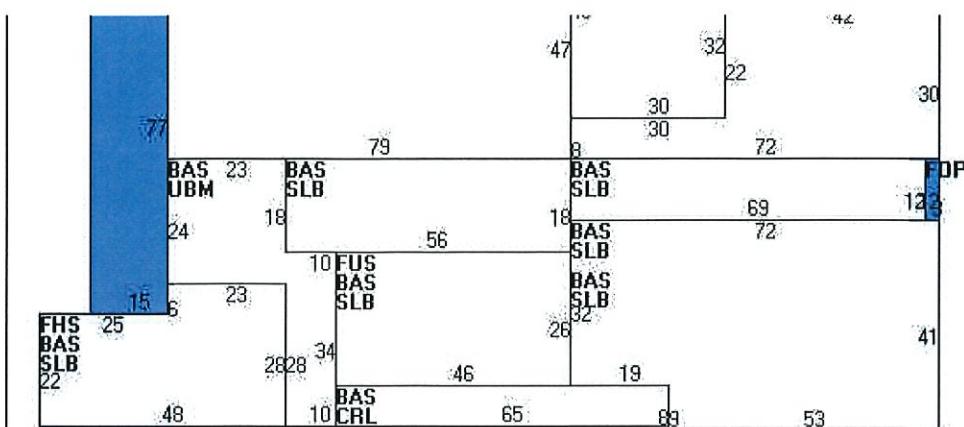
Building 1	Building 2	Building 3	Building 4	Building 5
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Building 1

0033-0034-0055-00000

Item	Value
Style	Country Club
Stories	2.00
Exterior Wall 1	Wood on Sheath
Roof Cover	Asphalt Shngl.
Roof Structure	Gable/Hip
Interior Wall 1	Brick
Interior Floor 1	Average
Heat Fuel	Typical
Heat Type	Hot Water
AC Type	None
Total Bedrooms	00
Total Bathrooms	0
Year Built	1900

Building Sketch

**Outbuildings**

Code	Description	Units
PAV5	Paving	20000 S.F.
GRS1	Golf Greens good	18 UNITS
SHD1	Shed	96 S.F.
SHD2	Shed Good	225 S.F.

Subarea Summary

Code	Description	Gross Area	Living Area
BAS	First Floor	14,914	14,914
CAN	Canopy	1,533	0
CRL	Crawl Space	5,515	0
FHS	Half Story, Finished	1,194	597
FLP	Flagstote Pat	2,111	0
FOP	Open Porch	36	0
FUS	Upper Story, Finished	1,196	1,196
SLB	Slab	8,507	0
UBM	Basement, Unfinished	892	0
Total Living Area:		16,707	



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

AT&T Existing Facility

Site ID: CT2282

New Canaan Country Club
95 Country Club Road
New Canaan, CT 06840

September 1, 2016

EBI Project Number: 6216003844

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	8.21 %



September 1, 2016

AT&T Mobility – New England
Attn: Cameron Syme, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT2282 – New Canaan Country Club**

EBI Consulting was directed to analyze the proposed AT&T facility located at **95 Country Club Road, New Canaan, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately $467 \mu\text{W}/\text{cm}^2$ and $567 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at **95 Country Club Road, New Canaan, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 2 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 2 GSM channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 2 UMTS channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 2 LTE channels (700 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 5) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.



- 6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturers supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antennas used in this modeling are the **CCI HPA-65R-BUU-H6** for transmission in the 700 MHz, 850 MHz and 1900 MHz (PCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturers supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antenna mounting height centerlines of the proposed antennas are **89 feet** above ground level (AGL) for **Sector A**, **89 feet** above ground level (AGL) for **Sector B** and **89 feet** above ground level (AGL) for Sector C.
- 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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



AT&T Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	CCI HPA-65R-BUU-H6	Make / Model:	CCI HPA-65R-BUU-H6	Make / Model:	CCI HPA-65R-BUU-H6
Gain:	12.65 / 14.75 / 11.95 dBd	Gain:	12.65 / 14.75 / 11.95 dBd	Gain:	12.65 / 14.75 / 11.95 dBd
Height (AGL):	89 feet	Height (AGL):	89 feet	Height (AGL):	89 feet
Frequency Bands	850 MHz / 1900 MHz (PCS) / 700 MHz	Frequency Bands	850 MHz / 1900 MHz (PCS) / 700 MHz	Frequency Bands	850 MHz / 1900 MHz (PCS) / 700 MHz
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	420 Watts	Total TX Power(W):	420 Watts	Total TX Power(W):	420 Watts
ERP (W):	10,149.48	ERP (W):	10,149.48	ERP (W):	10,149.48
Antenna A1 MPE%	6.86 %	Antenna B1 MPE%	6.86 %	Antenna C1 MPE%	6.86 %

Site Composite MPE%	
Carrier	MPE%
AT&T – Max per sector	6.86 %
T-Mobile	1.35 %
Site Total MPE %:	8.21 %

AT&T Sector A Total:	6.86 %
AT&T Sector B Total:	6.86 %
AT&T Sector C Total:	6.86 %
Site Total:	8.21 %

AT&T _ Max Values Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	552.23	89	5.76	850 MHz	567	1.02%
AT&T 1900 MHz (PCS) GSM	2	895.61	89	9.35	1900 MHz (PCS)	1000	0.93%
AT&T 1900 MHz (PCS) UMTS	2	895.61	89	9.35	1900 MHz (PCS)	1000	0.93%
AT&T 700 MHz LTE	2	940.05	89	9.81	700 MHz	467	2.10%
AT&T 1900 MHz (PCS) LTE	2	1,791.23	89	18.70	1900 MHz (PCS)	1000	1.87%
Total*:							6.86%

*NOTE: Totals may vary by 0.01% due to summing of remainders



Summary

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

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector A:	6.86 %
Sector B:	6.86 %
Sector C:	6.86 %
AT&T Maximum Total (per sector):	6.86 %
Site Total:	8.21 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **8.21 %** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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



Tower Engineering Solutions

Phone (972) 483-0607, Fax (972) 975-9615
8445 Freeport Parkway, Suite 375, Irving, Texas 75063

Structural Analysis Report

Existing 109 ft. EEI Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT40876-T

Customer Site Name: CT389/New Canaan C C

Carrier Name: AT&T

Carrier Site ID / Name: 10091783 - CT2282

Site Location: 95 Country Club Road

New Canaan, Connecticut

Fairfield County

Latitude: 41.172860

Longitude: -73.496333

Analysis Result:

Max Structural Usage: 93.0% [Pass]

Max Foundation Usage: 32.0% [Pass]

Report Prepared by: Matthew Baker



Introduction

The purpose of this report is to summarize the analysis results on the 109 ft. EEI Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	EEI Job #15040, Drawing #GS56879, Date 09/06/07
Foundation Drawing	EEI Job #15040, Drawing #1504D-110.0, Date 09/06/07
Geotechnical Report	Jaworski Geotech, Inc. Project #04193G
Modification Drawings	Allpro Consulting Job #11-5047, Date 09/15/11

Analysis Criteria

The feasibility analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-F. In accordance with this standard, the structure was analyzed using **TESPoles**, a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Basic Wind Speed Used in the Analysis:

85.0 mph (fastest mile)

Basic Wind Speed with Ice:

74 mph (fastest mile) with 1/2" radial ice concurrent

Operational Wind Speed:

50 mph + 0" Radial ice

Standard/Codes:

ANSI/TIA/EIA 222-F / 2005 Connecticut State Building Code

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	106.0	3	S20045A1 - TMA	Flush Mounted inside existing 18" Concealment Shroud	(6) 1 5/8"	T-Mobile
2		3	Andrew - RR65-19-XXDP - Panel			
3	99.0	3	S20045A1 - TMA	Flush Mounted inside existing 18" Concealment Shroud	(6) 1 5/8"	T-Mobile
4		3	Andrew - RR65-19-XXDP - Panel			
5	89.0	3	Powerwave - P65-16-XLH-RR - Panel	Flush Mounted inside existing 30" Concealment Shroud	(6) 7/8"	AT&T
6		3	CCI - DTMABP7819VG12A - TMA			

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	89.0	3	CCI - HPA-65R-BUU-H6 - Panel	Flush Mounted inside existing 30" Concealment Shroud	(12) 7/8"	AT&T
2		6	CCI - DTMABP7819VG12A - TMA			

All transmission lines are considered running inside of the pole shafts.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate	Concealment mast
Max. Usage:	54.2%	84.2%	71.0%	93.0%*
Pass/Fail	Pass	Pass	Pass	Pass

*Complete information on the concealment mast was not available at the time this analysis was performed. Concealment mast usage was calculated by comparing the analysis reactions with the original design reactions at the elevation of the concealment mast to obtain the results shown here. It is recommended that original drawings of the concealment mast showing complete geometry be obtained for use in any future analyses.

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Original Design Reactions	272.0	4.7	5.9
Analysis Reactions	277.2	4.8	9.1

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-F for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.9173 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the ANSI/TIA/EIA 222-F Standard under the design basic wind speed as specified in the Analysis Criteria.

The existing concealment shrouds at the 89' elevation are currently damaged. This analysis considers that these concealment shrouds are replaced with new shrouds of the same size at that elevation and fully intact. The analysis results are void if the concealment shrouds are not replaced.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The analysis is based on the presumption that the tower members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.
3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion.
4. An initial tension of 10% of the break strength on all the existing guy wires was assumed in all the structural analyses of guyed towers unless different values were provided by the client. **TES** cannot take responsibility for the deviations in the analysis results because of differences in the initial tension forces of the existing guy wires.
5. Secondary component or connection secondary components, welds and bolts are assumed to be able to carry their intended original design loads. **TES** cannot take responsibility for verification of the adequacy on the connections, bolts and welds present in the structure.
6. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed or/and ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
7. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
8. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
9. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Stress 54.2% at 0.0ft

Structure: CT40876-T-SBA
 Site Name: CT389/New Canaan C C
 Height: 109.00 (ft)
 Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
 Exposure: C
 Gh: 1.69

8/19/2016



Page: 1

Dead Load Factor: 1.00
 Wind Load Factor: 1.00

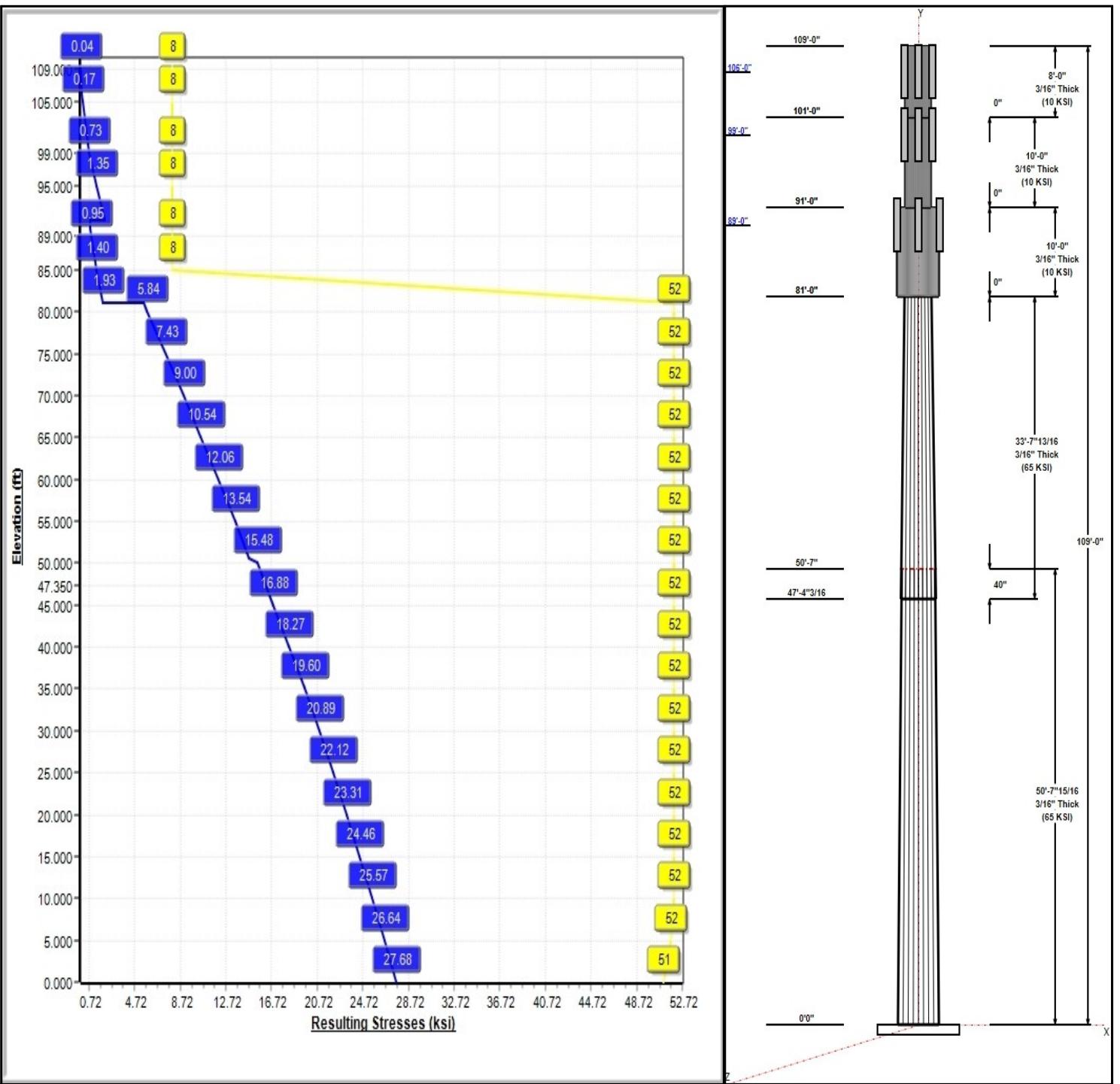
51 Allowable Stress
 28 Resulting Stress

Load Case : 85 mph Wind with 0 in Ice



Iterations: 31

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Structure: CT40876-T-SBA

Type: Custom
 Site Name: CT389/New Canaan C C
 Height: 109.00 (ft)
 Base Elev: 0.00 (ft)

Base Shape: 18 Sided
 Taper: 0.00000

8/19/2016

Page: 2



Shaft Properties						
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Grade (ksi)
1	50.66	21.57	29.00	0.188		0.14660 65
2	33.65	17.50	22.43	0.188	Slip	0.14660 65
3	10.00	30.00	30.00	0.188	Butt	0.00000 10
4	10.00	18.00	18.00	0.188	Butt	0.00000 10
5	8.00	18.00	18.00	0.188	Butt	0.00000 10

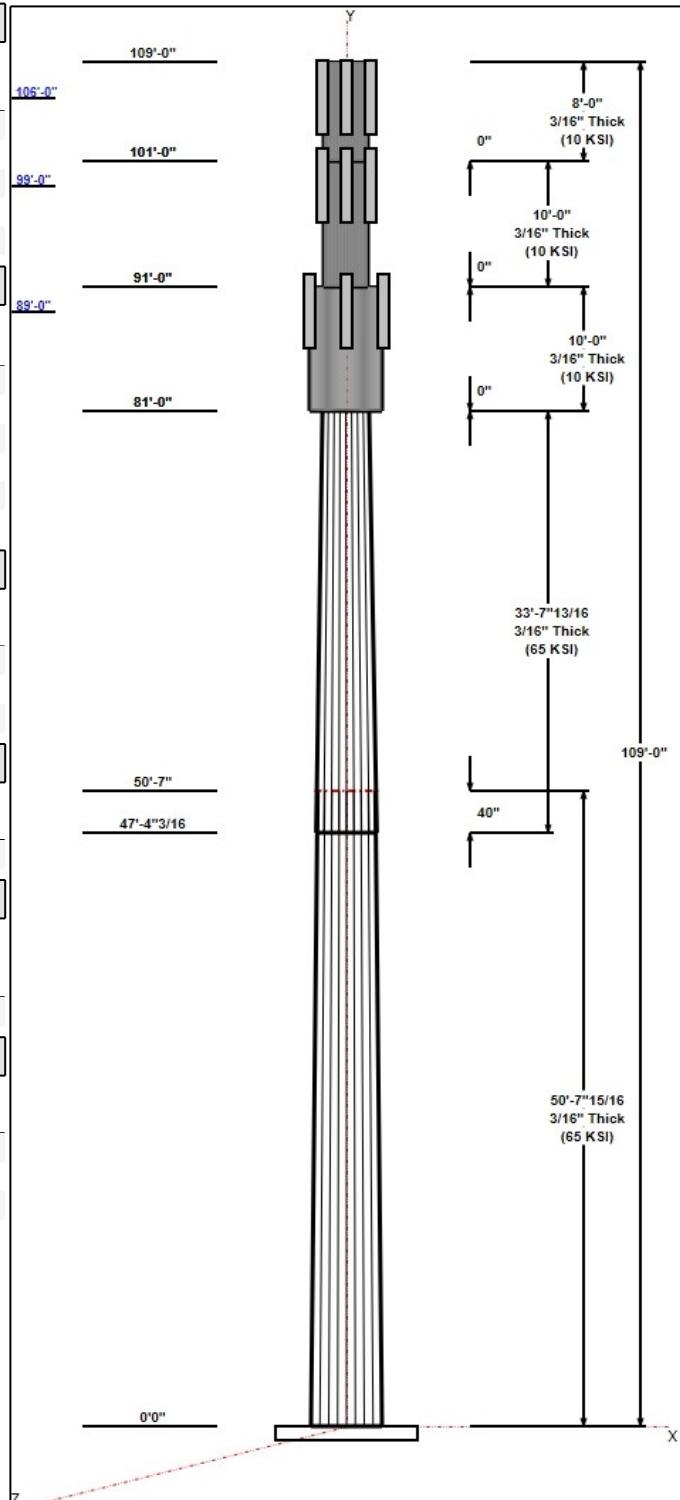
Discrete Appurtenances				
Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
106.00	106.00	3	S20045A1	T-Mobile
106.00	106.00	3	RR65-19-XXDP	T-Mobile
99.00	99.00	3	S20045A1	T-Mobile
99.00	99.00	3	RR65-19-XXDP	T-Mobile
89.00	89.00	3	HPA-65R-BUU-H6	AT&T
89.00	89.00	6	DTMABP7819VG12A	AT&T

Linear Appurtenances				
Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	106.00	Inside	1 5/8" Coax	T-Mobile
0.00	99.00	Inside	1 5/8" Coax	T-Mobile
0.00	89.00	Inside	7/8" Coax	AT&T

Anchor Bolts				
Qty	Specifications	Grade (ksi)	Arrangement	
4	1.75" #18J	75.0	Radial	

Base Plate			
Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.7500	36.0	50.0	Clipped

Reactions				
Load Case	Moment	Shear	Axial	
85 mph Wind with 0" Ice	277.2	4.8	7.4	
73.61 mph Wind with 0.5" Ice	219.4	3.7	9.1	
50 mph Wind with 0" Ice	95.9	1.7	7.4	



Structure: CT40876-T-SBA - Coax Line Placement

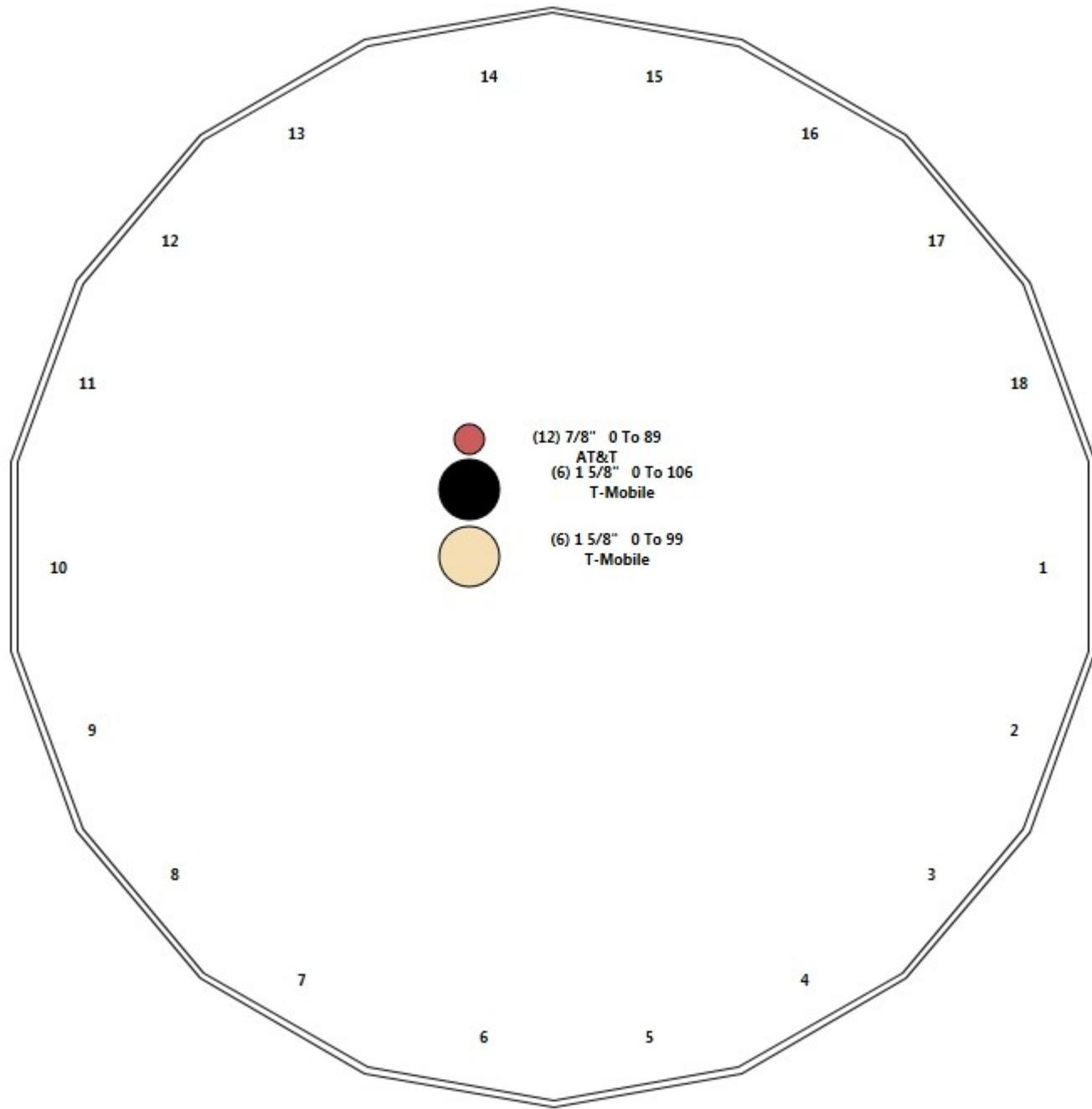
Type: Monopole

8/19/2016

Site Name: CT389/New Canaan C C

Height: 109.00 (ft)

Page: 3



Shaft Properties

Structure: CT40876-T-SBA

Code: EIA/TIA-222-F

8/19/2016

Site Name: CT389/New Canaan C C

Exposure: C

Height: 109.00 (ft)

Gh: 1.69

Base Elev: 0.000 (ft)

Struct Class: II

Page: 4



Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	50.660	0.1875	65		0.00	2,575
2	18	33.650	0.1875	65	Slip	39.72	1,348
3	R	10.000	0.1875	10	Flange	0.00	598
4	R	10.000	0.1875	10	Flange	0.00	357
5	R	8.000	0.1875	10	Flange	0.00	286

Total Shaft Weight: 5,163

Bottom

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	29.00	0.00	17.15	1798.41	25.86	154.67	21.57	50.66	12.73	735.37	18.88	115.06	0.146605
2	22.43	47.35	13.24	827.73	19.69	119.64	17.50	81.00	10.30	390.14	15.05	93.33	0.146605
3	30.00	81.00	17.56	1952.49	0.00	160.00	30.00	91.00	17.56	1952.49	0.00	160.00	0.000000
4	18.00	91.00	10.49	416.46	0.00	96.00	18.00	101.0	10.49	416.46	0.00	96.00	0.000000
5	18.00	101.0	10.49	416.46	0.00	96.00	18.00	109.0	10.49	416.46	0.00	96.00	0.000000

Top

Loading Summary

Structure: CT40876-T-SBA

Code: EIA/TIA-222-F

8/19/2016

Site Name: CT389/New Canaan C C

Exposure: C



Height: 109.00 (ft)

Gh: 1.69

Base Elev: 0.000 (ft)

Struct Class: II

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Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	106.00	S20045A1	3	11.00	0.00	0.00	16.40	0.000	0.00	0.00	0.00
2	106.00	RR65-19-XXDP	3	16.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00
3	99.00	S20045A1	3	11.00	0.00	0.00	16.40	0.000	0.00	0.00	0.00
4	99.00	RR65-19-XXDP	3	16.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00
5	89.00	HPA-65R-BUU-H6	3	51.00	0.00	0.00	108.40	0.000	0.00	0.00	0.00
6	89.00	DTMABP7819VG12A	6	19.20	0.00	0.00	26.50	0.000	0.00	0.00	0.00
Totals:				21	430.20			582.60			

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	No Ice			Ice			Exposed
			Weight (lb/ft)	CaAa (sf/ft)		Weight (lb/ft)	CaAa (sf/ft)		
0.00	106.00	(6) 1 5/8" Coax	6.24	0.00		0.00	0.00		Inside
0.00	99.00	(6) 1 5/8" Coax	6.24	0.00		0.00	0.00		Inside
0.00	89.00	(12) 7/8" Coax	6.24	0.00		0.00	0.00		Inside
Totals:				1,834.56			0.00		

Shaft Section Properties

Structure: CT40876-T-SBA

Code: EIA/TIA-222-F

8/19/2016

Site Name: CT389/New Canaan C C

Exposure: C

Height: 109.00 (ft)

Gh: 1.69

Base Elev: 0.000 (ft)

Struct Class: II

Page: 6



Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)
0.00		0.1875	29.000	17.146	1798.4	25.86	154.67	65	51	0.0
5.00		0.1875	28.267	16.710	1664.6	25.17	150.76	65	52	288.0
10.00		0.1875	27.534	16.274	1537.6	24.48	146.85	65	52	280.6
15.00		0.1875	26.801	15.838	1417.3	23.79	142.94	65	52	273.2
20.00		0.1875	26.068	15.402	1303.3	23.10	139.03	65	52	265.8
25.00		0.1875	25.335	14.965	1195.7	22.41	135.12	65	52	258.3
30.00		0.1875	24.602	14.529	1094.2	21.73	131.21	65	52	250.9
35.00		0.1875	23.869	14.093	998.5	21.04	127.30	65	52	243.5
40.00		0.1875	23.136	13.657	908.7	20.35	123.39	65	52	236.1
45.00		0.1875	22.403	13.220	824.3	19.66	119.48	65	52	228.6
47.35	Bot - Section 2	0.1875	22.058	13.015	786.6	19.33	117.64	65	52	104.9
50.00		0.1875	21.670	12.784	745.4	18.97	115.57	65	52	234.7
50.66	Top - Section 1	0.1875	21.948	12.950	774.7	19.23	117.06	65	52	57.8
55.00		0.1875	21.312	12.571	708.7	18.63	113.66	65	52	188.4
60.00		0.1875	20.579	12.135	637.5	17.94	109.75	65	52	210.2
65.00		0.1875	19.846	11.699	571.2	17.25	105.84	65	52	202.8
70.00		0.1875	19.113	11.262	509.6	16.56	101.93	65	52	195.3
75.00		0.1875	18.380	10.826	452.7	15.87	98.02	65	52	187.9
80.00		0.1875	17.647	10.390	400.1	15.18	94.12	65	52	180.5
81.00	Top - Section 2	0.1875	17.500	10.303	390.1	15.05	93.33	65	52	35.2
81.00	Bot - Section 3	0.1875	30.000	17.561	1952.5	15.05	93.33	10	52	
85.00		0.1875	30.000	17.561	1952.5	0.00	160.00	10	8	239.0
89.00		0.1875	30.000	17.561	1952.5	0.00	160.00	10	8	239.0
90.00		0.1875	30.000	17.561	1952.5	0.00	160.00	10	8	59.8
91.00	Top - Section 3	0.1875	30.000	17.561	1952.5	0.00	160.00	10	8	59.8
91.00	Bot - Section 4	0.1875	18.000	10.492	416.5	0.00	160.00	10	8	
95.00		0.1875	18.000	10.492	416.5	0.00	96.00	10	8	142.8
99.00		0.1875	18.000	10.492	416.5	0.00	96.00	10	8	142.8
100.00		0.1875	18.000	10.492	416.5	0.00	96.00	10	8	35.7
101.00	Top - Section 4	0.1875	18.000	10.492	416.5	0.00	96.00	10	8	35.7
101.00	Bot - Section 5	0.1875	18.000	10.492	416.5	0.00	96.00	10	8	
105.00		0.1875	18.000	10.492	416.5	0.00	96.00	10	8	142.8
106.00		0.1875	18.000	10.492	416.5	0.00	96.00	10	8	35.7
109.00		0.1875	18.000	10.492	416.5	0.00	96.00	10	8	107.1
										5162.8

Wind Loading - Shaft

Structure: CT40876-T-SBA

Code: EIA/TIA-222-F

8/19/2016

Site Name: CT389/New Canaan C C

Exposure: C



Height: 109.00 (ft)

Gh: 1.69

ES
Tower Engineering Solutions

Base Elev: 0.000 (ft)

Struct Class: II

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Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 31

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	18.496	31.26	205.42	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	18.496	31.26	200.22	0.650	0.000	5.00	11.931	7.75	242.4	0.0	288.0
10.00		0.00	1.00	18.496	31.26	195.03	0.650	0.000	5.00	11.625	7.56	236.2	0.0	280.6
15.00		0.00	1.00	18.496	31.26	189.84	0.650	0.000	5.00	11.320	7.36	230.0	0.0	273.2
20.00		0.00	1.00	18.496	31.26	184.65	0.650	0.000	5.00	11.014	7.16	223.8	0.0	265.8
25.00		0.00	1.00	18.496	31.26	179.46	0.650	0.000	5.00	10.709	6.96	217.6	0.0	258.3
30.00		0.00	1.00	18.496	31.26	174.26	0.650	0.000	5.00	10.403	6.76	211.4	0.0	250.9
35.00		0.00	1.02	18.810	31.79	170.50	0.650	0.000	5.00	10.098	6.56	208.6	0.0	243.5
40.00		0.00	1.06	19.541	33.02	168.44	0.650	0.000	5.00	9.793	6.37	210.2	0.0	236.1
45.00		0.00	1.09	20.210	34.15	165.88	0.650	0.000	5.00	9.487	6.17	210.6	0.0	228.6
47.35 Bot - Section 2		0.00	1.11	20.506	34.66	164.52	0.650	0.000	2.35	4.353	2.83	98.1	0.0	104.9
50.00		0.00	1.13	20.827	35.20	162.88	0.650	0.000	2.65	4.911	3.19	112.4	0.0	234.7
50.66 Top - Section 1		0.00	1.13	20.906	35.33	162.46	0.650	0.000	0.66	1.210	0.79	27.8	0.0	57.8
55.00		0.00	1.16	21.402	36.17	162.39	0.650	0.000	4.34	7.823	5.08	183.9	0.0	188.4
60.00		0.00	1.19	21.941	37.08	158.76	0.650	0.000	5.00	8.727	5.67	210.3	0.0	210.2
65.00		0.00	1.21	22.449	37.94	154.87	0.650	0.000	5.00	8.422	5.47	207.7	0.0	202.8
70.00		0.00	1.24	22.929	38.75	150.73	0.650	0.000	5.00	8.116	5.28	204.4	0.0	195.3
75.00		0.00	1.26	23.386	39.52	146.39	0.650	0.000	5.00	7.811	5.08	200.7	0.0	187.9
80.00		0.00	1.29	23.821	40.26	141.85	0.650	0.000	5.00	7.505	4.88	196.4	0.0	180.5
81.00 Top - Section 2		0.00	1.29	23.906	40.40	140.92	0.650	0.000	1.00	1.464	0.95	38.5	0.0	35.2
85.00		0.00	1.31	24.237	40.96	243.25	0.590	0.000	4.00	10.000	5.90	241.7	0.0	239.0
89.00 Appurtenance(s)		0.00	1.33	24.558	41.50	244.86	0.590	0.000	4.00	10.000	5.90	244.9	0.0	239.0
90.00		0.00	1.33	24.636	41.63	245.25	0.590	0.000	1.00	2.500	1.47	61.4	0.0	59.8
91.00 Top - Section 3		0.00	1.34	24.714	41.77	245.64	0.590	0.000	1.00	2.500	1.47	61.6	0.0	59.8
95.00		0.00	1.35	25.020	42.28	148.29	0.590	0.000	4.00	6.000	3.54	149.7	0.0	142.8
99.00 Appurtenance(s)		0.00	1.37	25.316	42.78	149.17	0.590	0.000	4.00	6.000	3.54	151.5	0.0	142.8
100.00		0.00	1.37	25.389	42.91	149.38	0.590	0.000	1.00	1.500	0.89	38.0	0.0	35.7
101.00 Top - Section 4		0.00	1.38	25.461	43.03	149.59	0.590	0.000	1.00	1.500	0.89	38.1	0.0	35.7
105.00		0.00	1.39	25.745	43.51	150.43	0.590	0.000	4.00	6.000	3.54	154.0	0.0	142.8
106.00 Appurtenance(s)		0.00	1.40	25.815	43.63	150.63	0.590	0.000	1.00	1.500	0.89	38.6	0.0	35.7
109.00		0.00	1.41	26.022	43.98	151.23	0.590	0.000	3.00	4.500	2.65	116.8	0.0	107.1
Totals:									109.00			4,767.0		5,162.8

Discrete Appurtenance Forces

Structure: CT40876-T-SB

Code: EIA/TIA-222-F

8/19/2016

Site Name: CT389/New Canaan C C

Exposure: C



Height: 109.00 (ft)

Gh: 1.69

Base Elev: 0.000 (ft)

Struct Class: II

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Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	106.00	S20045A1	3	25.815	43.628	0.00	0.00	33.00	0.000	0.000	0.00	0.00	0.00
2	106.00	RR65-19-XXDP	3	25.815	43.628	0.00	0.00	48.00	0.000	0.000	0.00	0.00	0.00
3	99.00	S20045A1	3	25.316	42.784	0.00	0.00	33.00	0.000	0.000	0.00	0.00	0.00
4	99.00	RR65-19-XXDP	3	25.316	42.784	0.00	0.00	48.00	0.000	0.000	0.00	0.00	0.00
5	89.00	HPA-65R-BUU-H6	3	24.558	41.502	0.00	0.00	153.00	0.000	0.000	0.00	0.00	0.00
6	89.00	DTMABP7819VG12A	6	24.558	41.502	0.00	0.00	115.20	0.000	0.000	0.00	0.00	0.00
Totals:							430.20				0.00		

Total Applied Force Summary

Structure: CT40876-T-SB
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/19/2016

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Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		242.40	381.62	0.00	0.00
10.00		236.20	374.19	0.00	0.00
15.00		229.99	366.77	0.00	0.00
20.00		223.79	359.35	0.00	0.00
25.00		217.58	351.93	0.00	0.00
30.00		211.38	344.51	0.00	0.00
35.00		208.65	337.08	0.00	0.00
40.00		210.21	329.66	0.00	0.00
45.00		210.62	322.24	0.00	0.00
47.35		98.07	148.89	0.00	0.00
50.00		112.36	284.26	0.00	0.00
50.66		27.78	70.15	0.00	0.00
55.00		183.92	269.69	0.00	0.00
60.00		210.35	303.77	0.00	0.00
65.00		207.68	296.35	0.00	0.00
70.00		204.43	288.93	0.00	0.00
75.00		200.65	281.51	0.00	0.00
80.00		196.40	274.08	0.00	0.00
81.00		38.46	53.93	0.00	0.00
85.00		241.67	313.90	0.00	0.00
89.00	(9) appurtenances	244.86	582.10	0.00	0.00
90.00		61.41	72.24	0.00	0.00
91.00		61.61	72.24	0.00	0.00
95.00		149.68	192.73	0.00	0.00
99.00	(6) appurtenances	151.46	273.73	0.00	0.00
100.00		37.97	41.94	0.00	0.00
101.00		38.08	41.94	0.00	0.00
105.00		154.02	167.77	0.00	0.00
106.00	(6) appurtenances	38.61	122.94	0.00	0.00
109.00		116.76	107.11	0.00	0.00
Totals:		4,767.05	7,427.59	0.00	0.00

Resulting Forces and Deflections

Structure: CT40876-T-SB
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

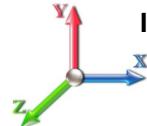
8/19/2016

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Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 31

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-4.780	-7.419	0.000	0.000	0.000	-277.159	0.000	0.000	0.000	0.000	0.000
5.00	-4.563	-7.021	0.000	0.000	0.000	-253.257	-0.113	0.000	0.113	-0.210	0.000
10.00	-4.348	-6.632	0.000	0.000	0.000	-230.444	-0.443	0.000	0.443	-0.416	0.000
15.00	-4.137	-6.253	0.000	0.000	0.000	-208.702	-0.989	0.000	0.989	-0.620	0.000
20.00	-3.929	-5.883	0.000	0.000	0.000	-188.018	-1.745	0.000	1.745	-0.819	0.000
25.00	-3.724	-5.523	0.000	0.000	0.000	-168.373	-2.707	0.000	2.707	-1.013	0.000
30.00	-3.523	-5.171	0.000	0.000	0.000	-149.752	-3.870	0.000	3.870	-1.202	0.000
35.00	-3.322	-4.828	0.000	0.000	0.000	-132.137	-5.228	0.000	5.228	-1.386	0.000
40.00	-3.117	-4.495	0.000	0.000	0.000	-115.527	-6.774	0.000	6.774	-1.562	0.000
45.00	-2.906	-4.172	0.000	0.000	0.000	-99.942	-8.501	0.000	8.501	-1.731	0.000
47.35	-2.809	-4.023	0.000	0.000	0.000	-93.113	-9.372	0.000	9.372	-1.809	0.000
50.00	-2.691	-3.740	0.000	0.000	0.000	-85.669	-10.401	0.000	10.401	-1.895	0.000
50.66	-2.666	-3.667	0.000	0.000	0.000	-83.893	-10.664	0.000	10.664	-1.916	0.000
55.00	-2.481	-3.398	0.000	0.000	0.000	-72.323	-12.467	0.000	12.467	-2.047	0.000
60.00	-2.266	-3.097	0.000	0.000	0.000	-59.919	-14.683	0.000	14.683	-2.180	0.000
65.00	-2.053	-2.805	0.000	0.000	0.000	-48.588	-17.032	0.000	17.032	-2.301	0.000
70.00	-1.841	-2.521	0.000	0.000	0.000	-38.324	-19.500	0.000	19.500	-2.409	0.000
75.00	-1.632	-2.246	0.000	0.000	0.000	-29.119	-22.074	0.000	22.074	-2.503	0.000
80.00	-1.425	-1.980	0.000	0.000	0.000	-20.959	-24.739	0.000	24.739	-2.582	0.000
81.00	-1.385	-1.927	0.000	0.000	0.000	-19.534	-25.281	0.000	25.281	-2.596	0.000
85.00	-1.130	-1.624	0.000	0.000	0.000	-13.993	-27.478	0.000	27.478	-2.645	0.000
89.00	-0.859	-1.054	0.000	0.000	0.000	-9.471	-29.696	0.000	29.696	-2.652	0.000
90.00	-0.794	-0.985	0.000	0.000	0.000	-8.612	-30.252	0.000	30.252	-2.653	0.000
91.00	-0.730	-0.915	0.000	0.000	0.000	-7.818	-30.807	0.000	30.807	-2.655	0.000
95.00	-0.571	-0.730	0.000	0.000	0.000	-4.900	-33.032	0.000	33.032	-2.658	0.000
99.00	-0.407	-0.463	0.000	0.000	0.000	-2.615	-35.264	0.000	35.264	-2.669	0.000
100.00	-0.367	-0.423	0.000	0.000	0.000	-2.208	-35.823	0.000	35.823	-2.670	0.000
101.00	-0.327	-0.383	0.000	0.000	0.000	-1.841	-36.382	0.000	36.382	-2.672	0.000
105.00	-0.166	-0.223	0.000	0.000	0.000	-0.531	-38.621	0.000	38.621	-2.675	0.000
106.00	-0.122	-0.102	0.000	0.000	0.000	-0.365	-39.181	0.000	39.181	-2.675	0.000
109.00	-0.117	0.000	0.000	0.000	0.000	0.000	0.000	0.000	40.861	-2.676	0.000

Resulting Stresses

Structure: CT40876-T-SBA

Code: EIA/TIA-222-F

8/19/2016

Site Name: CT389/New Canaan C C

Exposure: C



Height: 109.00 (ft)

Gh: 1.69

Base Elev: 0.000 (ft)

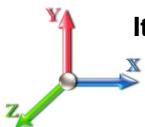
Struct Class: II

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Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 31

Elev (ft)	Applied Stresses							Fb Allow Stress (ksi)	f/Fb Stress Ratio
	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)		
0.00	0.43	0.56	0.00	0.00	0.00	27.23	27.68	51.1	0.542
5.00	0.42	0.55	0.00	0.00	0.00	26.20	26.64	51.7	0.516
10.00	0.41	0.54	0.00	0.00	0.00	25.14	25.57	52.0	0.492
15.00	0.39	0.53	0.00	0.00	0.00	24.05	24.46	52.0	0.471
20.00	0.38	0.51	0.00	0.00	0.00	22.91	23.31	52.0	0.448
25.00	0.37	0.50	0.00	0.00	0.00	21.74	22.12	52.0	0.426
30.00	0.36	0.49	0.00	0.00	0.00	20.51	20.89	52.0	0.402
35.00	0.34	0.48	0.00	0.00	0.00	19.24	19.60	52.0	0.377
40.00	0.33	0.46	0.00	0.00	0.00	17.92	18.27	52.0	0.351
45.00	0.32	0.44	0.00	0.00	0.00	16.55	16.88	52.0	0.325
47.35	0.31	0.44	0.00	0.00	0.00	15.91	16.24	52.0	0.312
50.00	0.29	0.42	0.00	0.00	0.00	15.17	15.48	52.0	0.298
50.66	0.28	0.41	0.00	0.00	0.00	14.48	14.78	52.0	0.284
55.00	0.27	0.40	0.00	0.00	0.00	13.25	13.54	52.0	0.260
60.00	0.26	0.38	0.00	0.00	0.00	11.78	12.06	52.0	0.232
65.00	0.24	0.35	0.00	0.00	0.00	10.29	10.54	52.0	0.203
70.00	0.22	0.33	0.00	0.00	0.00	8.76	9.00	52.0	0.173
75.00	0.21	0.30	0.00	0.00	0.00	7.20	7.43	52.0	0.143
80.00	0.19	0.28	0.00	0.00	0.00	5.63	5.84	52.0	0.112
81.00	0.19	0.27	0.00	0.00	0.00	5.34	5.55	52.0	0.107
81.00	0.19	0.27	0.00	0.00	0.00	5.34	5.55	52.0	0.037
85.00	0.09	0.13	0.00	0.00	0.00	1.29	1.40	8.0	8.0
89.00	0.06	0.10	0.00	0.00	0.00	0.87	0.95	8.0	8.0
90.00	0.06	0.09	0.00	0.00	0.00	0.79	0.86	8.0	8.0
91.00	0.05	0.08	0.00	0.00	0.00	0.72	0.79	8.0	8.0
91.00	0.05	0.08	0.00	0.00	0.00	0.72	0.79	8.0	8.0
95.00	0.07	0.11	0.00	0.00	0.00	1.27	1.35	8.0	8.0
99.00	0.04	0.08	0.00	0.00	0.00	0.68	0.73	8.0	8.0
100.00	0.04	0.07	0.00	0.00	0.00	0.57	0.62	8.0	8.0
101.00	0.04	0.06	0.00	0.00	0.00	0.48	0.53	8.0	8.0
101.00	0.04	0.06	0.00	0.00	0.00	0.48	0.53	8.0	8.0
105.00	0.02	0.03	0.00	0.00	0.00	0.14	0.17	8.0	8.0
106.00	0.01	0.02	0.00	0.00	0.00	0.09	0.11	8.0	8.0
109.00	0.00	0.02	0.00	0.00	0.00	0.00	0.04	8.0	0.005

Wind Loading - Shaft

Structure: CT40876-T-SBA

Code: EIA/TIA-222-F

8/19/2016

Site Name: CT389/New Canaan C C

Exposure: C

Height: 109.00 (ft)

Gh: 1.69

Base Elev: 0.000 (ft)

Struct Class: II

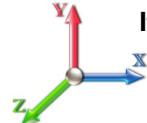
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Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 31

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	13.871	23.44	177.89	0.650	0.500	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	13.871	23.44	173.39	0.650	0.500	5.00	12.347	8.03	188.1	87.9	375.9
10.00		0.00	1.00	13.871	23.44	168.90	0.650	0.500	5.00	12.042	7.83	183.5	85.6	366.2
15.00		0.00	1.00	13.871	23.44	164.40	0.650	0.500	5.00	11.736	7.63	178.8	83.4	356.6
20.00		0.00	1.00	13.871	23.44	159.90	0.650	0.500	5.00	11.431	7.43	174.2	81.1	346.9
25.00		0.00	1.00	13.871	23.44	155.41	0.650	0.500	5.00	11.126	7.23	169.5	78.9	337.2
30.00		0.00	1.00	13.871	23.44	150.91	0.650	0.500	5.00	10.820	7.03	164.9	76.7	327.6
35.00		0.00	1.02	14.106	23.84	147.65	0.650	0.500	5.00	10.515	6.83	162.9	74.4	317.9
40.00		0.00	1.06	14.655	24.77	145.87	0.650	0.500	5.00	10.209	6.64	164.4	72.2	308.3
45.00		0.00	1.09	15.156	25.61	143.65	0.650	0.500	5.00	9.904	6.44	164.9	70.0	298.6
47.35 Bot - Section 2		0.00	1.11	15.379	25.99	142.47	0.650	0.500	2.35	4.549	2.96	76.9	32.4	137.3
50.00		0.00	1.13	15.620	26.40	141.06	0.650	0.500	2.65	5.132	3.34	88.1	36.5	271.2
50.66 Top - Section 1		0.00	1.13	15.678	26.50	140.69	0.650	0.500	0.66	1.265	0.82	21.8	9.1	66.8
55.00		0.00	1.16	16.051	27.13	140.63	0.650	0.500	4.34	8.184	5.32	144.3	57.8	246.3
60.00		0.00	1.19	16.455	27.81	137.49	0.650	0.500	5.00	9.144	5.94	165.3	64.4	274.6
65.00		0.00	1.21	16.836	28.45	134.12	0.650	0.500	5.00	8.838	5.74	163.5	62.1	264.9
70.00		0.00	1.24	17.196	29.06	130.54	0.650	0.500	5.00	8.533	5.55	161.2	59.9	255.2
75.00		0.00	1.26	17.538	29.64	126.77	0.650	0.500	5.00	8.228	5.35	158.5	57.7	245.6
80.00		0.00	1.29	17.865	30.19	122.84	0.650	0.500	5.00	7.922	5.15	155.5	55.4	235.9
81.00 Top - Section 2		0.00	1.29	17.928	30.30	122.04	0.650	0.500	1.00	1.548	1.01	30.5	11.0	46.2
85.00		0.00	1.31	18.177	30.72	210.66	0.590	0.500	4.00	10.333	6.10	187.3	74.5	313.6
89.00 Appurtenance(s)		0.00	1.33	18.417	31.12	212.05	0.590	0.500	4.00	10.333	6.10	189.8	74.5	313.6
90.00		0.00	1.33	18.476	31.22	212.38	0.590	0.500	1.00	2.583	1.52	47.6	18.6	78.4
91.00 Top - Section 3		0.00	1.34	18.534	31.32	212.72	0.590	0.500	1.00	2.583	1.52	47.7	18.6	78.4
95.00		0.00	1.35	18.764	31.71	128.42	0.590	0.500	4.00	6.333	3.74	118.5	45.2	188.0
99.00 Appurtenance(s)		0.00	1.37	18.986	32.09	129.18	0.590	0.500	4.00	6.333	3.74	119.9	45.2	188.0
100.00		0.00	1.37	19.041	32.18	129.36	0.590	0.500	1.00	1.583	0.93	30.1	11.3	47.0
101.00 Top - Section 4		0.00	1.38	19.095	32.27	129.55	0.590	0.500	1.00	1.583	0.93	30.1	11.3	47.0
105.00		0.00	1.39	19.308	32.63	130.27	0.590	0.500	4.00	6.333	3.74	121.9	45.2	188.0
106.00 Appurtenance(s)		0.00	1.40	19.360	32.72	130.44	0.590	0.500	1.00	1.583	0.93	30.6	11.3	47.0
109.00		0.00	1.41	19.515	32.98	130.97	0.590	0.500	3.00	4.750	2.80	92.4	33.9	141.0
Totals:									109.00			3,732.5		6,709.0

Discrete Appurtenance Forces

Structure: CT40876-T-SB

Code: EIA/TIA-222-F

8/19/2016

Site Name: CT389/New Canaan C C

Exposure: C



Height: 109.00 (ft)

Gh: 1.69

ES
Tower Engineering Solutions

Base Elev: 0.000 (ft)

Struct Class: II

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Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00



Wind Load Factor 1.00

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	106.00	S20045A1	3	19.360	32.719	0.00	0.00	49.20	0.000	0.000	0.00	0.00	0.00
2	106.00	RR65-19-XXDP	3	19.360	32.719	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00
3	99.00	S20045A1	3	18.986	32.086	0.00	0.00	49.20	0.000	0.000	0.00	0.00	0.00
4	99.00	RR65-19-XXDP	3	18.986	32.086	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00
5	89.00	HPA-65R-BUU-H6	3	18.417	31.125	0.00	0.00	325.20	0.000	0.000	0.00	0.00	0.00
6	89.00	DTMABP7819VG12A	6	18.417	31.125	0.00	0.00	159.00	0.000	0.000	0.00	0.00	0.00
Totals:							582.60				0.00		

Total Applied Force Summary

Structure: CT40876-T-SB
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/19/2016

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Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		188.14	469.48	0.00	0.00
10.00		183.49	459.82	0.00	0.00
15.00		178.83	450.16	0.00	0.00
20.00		174.18	440.50	0.00	0.00
25.00		169.53	430.84	0.00	0.00
30.00		164.87	421.18	0.00	0.00
35.00		162.93	411.52	0.00	0.00
40.00		164.35	401.85	0.00	0.00
45.00		164.89	392.19	0.00	0.00
47.35		76.85	181.27	0.00	0.00
50.00		88.06	320.76	0.00	0.00
50.66		21.78	79.20	0.00	0.00
55.00		144.31	327.52	0.00	0.00
60.00		165.28	368.15	0.00	0.00
65.00		163.46	358.49	0.00	0.00
70.00		161.18	348.83	0.00	0.00
75.00		158.51	339.17	0.00	0.00
80.00		155.47	329.51	0.00	0.00
81.00		30.48	64.92	0.00	0.00
85.00		187.28	388.43	0.00	0.00
89.00	(9) appurtenances	189.76	872.63	0.00	0.00
90.00		47.59	90.87	0.00	0.00
91.00		47.74	90.87	0.00	0.00
95.00		118.49	237.94	0.00	0.00
99.00	(6) appurtenances	119.90	287.14	0.00	0.00
100.00		30.06	53.24	0.00	0.00
101.00		30.15	53.24	0.00	0.00
105.00		121.93	212.98	0.00	0.00
106.00	(6) appurtenances	30.56	102.44	0.00	0.00
109.00		92.43	141.01	0.00	0.00
Totals:		3,732.49	9,126.16	0.00	0.00

Resulting Forces and Deflections

Structure: CT40876-T-SB

Code: EIA/TIA-222-F

8/19/2016

Site Name: CT389/New Canaan C C

Exposure: C



Height: 109.00 (ft)

Gh: 1.69

ES
Tower Engineering Solutions

Base Elev: 0.000 (ft)

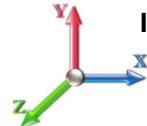
Struct Class: II

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Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 31

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-3.746	-9.121	0.000	0.000	0.000	-219.432	0.000	0.000	0.000	0.000	0.000
5.00	-3.582	-8.641	0.000	0.000	0.000	-200.704	-0.089	0.000	0.089	-0.166	0.000
10.00	-3.419	-8.172	0.000	0.000	0.000	-182.797	-0.351	0.000	0.351	-0.330	0.000
15.00	-3.259	-7.715	0.000	0.000	0.000	-165.700	-0.783	0.000	0.783	-0.491	0.000
20.00	-3.100	-7.267	0.000	0.000	0.000	-149.407	-1.383	0.000	1.383	-0.649	0.000
25.00	-2.943	-6.831	0.000	0.000	0.000	-133.907	-2.146	0.000	2.146	-0.804	0.000
30.00	-2.789	-6.405	0.000	0.000	0.000	-119.191	-3.069	0.000	3.069	-0.955	0.000
35.00	-2.633	-5.990	0.000	0.000	0.000	-105.248	-4.147	0.000	4.147	-1.100	0.000
40.00	-2.474	-5.586	0.000	0.000	0.000	-92.082	-5.376	0.000	5.376	-1.241	0.000
45.00	-2.309	-5.193	0.000	0.000	0.000	-79.712	-6.748	0.000	6.748	-1.375	0.000
47.35	-2.234	-5.012	0.000	0.000	0.000	-74.286	-7.441	0.000	7.441	-1.438	0.000
50.00	-2.141	-4.692	0.000	0.000	0.000	-68.367	-8.258	0.000	8.258	-1.506	0.000
50.66	-2.122	-4.611	0.000	0.000	0.000	-66.954	-8.468	0.000	8.468	-1.523	0.000
55.00	-1.977	-4.284	0.000	0.000	0.000	-57.745	-9.902	0.000	9.902	-1.628	0.000
60.00	-1.807	-3.917	0.000	0.000	0.000	-47.863	-11.664	0.000	11.664	-1.734	0.000
65.00	-1.639	-3.561	0.000	0.000	0.000	-38.826	-13.533	0.000	13.533	-1.831	0.000
70.00	-1.471	-3.216	0.000	0.000	0.000	-30.633	-15.497	0.000	15.497	-1.917	0.000
75.00	-1.304	-2.881	0.000	0.000	0.000	-23.280	-17.546	0.000	17.546	-1.992	0.000
80.00	-1.139	-2.556	0.000	0.000	0.000	-16.759	-19.667	0.000	19.667	-2.055	0.000
81.00	-1.107	-2.492	0.000	0.000	0.000	-15.620	-20.099	0.000	20.099	-2.067	0.000
85.00	-0.907	-2.110	0.000	0.000	0.000	-11.192	-21.848	0.000	21.848	-2.106	0.000
89.00	-0.685	-1.245	0.000	0.000	0.000	-7.566	-23.614	0.000	23.614	-2.111	0.000
90.00	-0.634	-1.156	0.000	0.000	0.000	-6.881	-24.056	0.000	24.056	-2.112	0.000
91.00	-0.583	-1.067	0.000	0.000	0.000	-6.247	-24.499	0.000	24.499	-2.113	0.000
95.00	-0.456	-0.834	0.000	0.000	0.000	-3.914	-26.271	0.000	26.271	-2.116	0.000
99.00	-0.326	-0.551	0.000	0.000	0.000	-2.090	-28.047	0.000	28.047	-2.125	0.000
100.00	-0.294	-0.499	0.000	0.000	0.000	-1.765	-28.492	0.000	28.492	-2.126	0.000
101.00	-0.262	-0.447	0.000	0.000	0.000	-1.471	-28.937	0.000	28.937	-2.127	0.000
105.00	-0.132	-0.239	0.000	0.000	0.000	-0.425	-30.720	0.000	30.720	-2.130	0.000
106.00	-0.098	-0.137	0.000	0.000	0.000	-0.293	-31.166	0.000	31.166	-2.130	0.000
109.00	-0.092	0.000	0.000	0.000	0.000	0.000	0.000	0.000	32.504	-2.130	0.000

Resulting Stresses

Structure: CT40876-T-SBA

Code: EIA/TIA-222-F

8/19/2016

Site Name: CT389/New Canaan C C

Exposure: C

Height: 109.00 (ft)

Gh: 1.69

Base Elev: 0.000 (ft)

Struct Class: II

Page: 16



Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 31

31

Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Fb Allow Stress (ksi)	f/Fb Stress Ratio
0.00	0.53	0.44	0.00	0.00	0.00	21.56	22.10	51.1	0.433
5.00	0.52	0.43	0.00	0.00	0.00	20.76	21.29	51.7	0.412
10.00	0.50	0.42	0.00	0.00	0.00	19.94	20.46	52.0	0.394
15.00	0.49	0.41	0.00	0.00	0.00	19.09	19.59	52.0	0.377
20.00	0.47	0.41	0.00	0.00	0.00	18.21	18.69	52.0	0.360
25.00	0.46	0.40	0.00	0.00	0.00	17.29	17.76	52.0	0.342
30.00	0.44	0.39	0.00	0.00	0.00	16.33	16.78	52.0	0.323
35.00	0.43	0.38	0.00	0.00	0.00	15.33	15.77	52.0	0.303
40.00	0.41	0.37	0.00	0.00	0.00	14.28	14.71	52.0	0.283
45.00	0.39	0.35	0.00	0.00	0.00	13.20	13.61	52.0	0.262
47.35	0.39	0.35	0.00	0.00	0.00	12.69	13.09	52.0	0.252
50.00	0.37	0.34	0.00	0.00	0.00	12.11	12.49	52.0	0.240
50.66	0.36	0.33	0.00	0.00	0.00	11.56	11.93	52.0	0.229
55.00	0.34	0.32	0.00	0.00	0.00	10.58	10.93	52.0	0.210
60.00	0.32	0.30	0.00	0.00	0.00	9.41	9.75	52.0	0.188
65.00	0.30	0.28	0.00	0.00	0.00	8.22	8.54	52.0	0.164
70.00	0.29	0.26	0.00	0.00	0.00	7.00	7.30	52.0	0.140
75.00	0.27	0.24	0.00	0.00	0.00	5.76	6.04	52.0	0.116
80.00	0.25	0.22	0.00	0.00	0.00	4.50	4.76	52.0	0.092
81.00	0.24	0.22	0.00	0.00	0.00	4.27	4.53	52.0	0.087
81.00	0.24	0.22	0.00	0.00	0.00	4.27	4.53	52.0	0.031
85.00	0.12	0.10	0.00	0.00	0.00	1.03	1.17	8.0	8.0
89.00	0.07	0.08	0.00	0.00	0.00	0.70	0.78	8.0	8.0
90.00	0.07	0.07	0.00	0.00	0.00	0.63	0.71	8.0	8.0
91.00	0.06	0.07	0.00	0.00	0.00	0.58	0.65	8.0	8.0
91.00	0.06	0.07	0.00	0.00	0.00	0.58	0.65	8.0	8.0
95.00	0.08	0.09	0.00	0.00	0.00	1.02	1.10	8.0	8.0
99.00	0.05	0.06	0.00	0.00	0.00	0.54	0.60	8.0	8.0
100.00	0.05	0.06	0.00	0.00	0.00	0.46	0.51	8.0	8.0
101.00	0.04	0.05	0.00	0.00	0.00	0.38	0.43	8.0	8.0
101.00	0.04	0.05	0.00	0.00	0.00	0.38	0.43	8.0	8.0
105.00	0.02	0.03	0.00	0.00	0.00	0.11	0.14	8.0	8.0
106.00	0.01	0.02	0.00	0.00	0.00	0.08	0.09	8.0	8.0
109.00	0.00	0.02	0.00	0.00	0.00	0.00	0.03	8.0	0.004

Wind Loading - Shaft

Structure: CT40876-T-SBA

Code: EIA/TIA-222-F

8/19/2016

Site Name: CT389/New Canaan C C

Exposure: C



Height: 109.00 (ft)

Gh: 1.69

Base Elev: 0.000 (ft)

Struct Class: II

Page: 17

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 29

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	6.400	10.82	120.83	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	6.400	10.82	117.78	0.650	0.000	5.00	11.931	7.75	83.9	0.0	288.0
10.00		0.00	1.00	6.400	10.82	114.72	0.650	0.000	5.00	11.625	7.56	81.7	0.0	280.6
15.00		0.00	1.00	6.400	10.82	111.67	0.650	0.000	5.00	11.320	7.36	79.6	0.0	273.2
20.00		0.00	1.00	6.400	10.82	108.62	0.650	0.000	5.00	11.014	7.16	77.4	0.0	265.8
25.00		0.00	1.00	6.400	10.82	105.56	0.650	0.000	5.00	10.709	6.96	75.3	0.0	258.3
30.00		0.00	1.00	6.400	10.82	102.51	0.650	0.000	5.00	10.403	6.76	73.1	0.0	250.9
35.00		0.00	1.02	6.509	11.00	100.29	0.650	0.000	5.00	10.098	6.56	72.2	0.0	243.5
40.00		0.00	1.06	6.762	11.43	99.09	0.650	0.000	5.00	9.793	6.37	72.7	0.0	236.1
45.00		0.00	1.09	6.993	11.82	97.57	0.650	0.000	5.00	9.487	6.17	72.9	0.0	228.6
47.35 Bot - Section 2		0.00	1.11	7.095	11.99	96.77	0.650	0.000	2.35	4.353	2.83	33.9	0.0	104.9
50.00		0.00	1.13	7.207	12.18	95.81	0.650	0.000	2.65	4.911	3.19	38.9	0.0	234.7
50.66 Top - Section 1		0.00	1.13	7.234	12.23	95.56	0.650	0.000	0.66	1.210	0.79	9.6	0.0	57.8
55.00		0.00	1.16	7.406	12.52	95.52	0.650	0.000	4.34	7.823	5.08	63.6	0.0	188.4
60.00		0.00	1.19	7.592	12.83	93.39	0.650	0.000	5.00	8.727	5.67	72.8	0.0	210.2
65.00		0.00	1.21	7.768	13.13	91.10	0.650	0.000	5.00	8.422	5.47	71.9	0.0	202.8
70.00		0.00	1.24	7.934	13.41	88.67	0.650	0.000	5.00	8.116	5.28	70.7	0.0	195.3
75.00		0.00	1.26	8.092	13.68	86.11	0.650	0.000	5.00	7.811	5.08	69.4	0.0	187.9
80.00		0.00	1.29	8.242	13.93	83.44	0.650	0.000	5.00	7.505	4.88	68.0	0.0	180.5
81.00 Top - Section 2		0.00	1.29	8.272	13.98	82.90	0.650	0.000	1.00	1.464	0.95	13.3	0.0	35.2
85.00		0.00	1.31	8.387	14.17	143.09	0.590	0.000	4.00	10.000	5.90	83.6	0.0	239.0
89.00 Appurtenance(s)		0.00	1.33	8.497	14.36	144.03	0.590	0.000	4.00	10.000	5.90	84.7	0.0	239.0
90.00		0.00	1.33	8.525	14.41	144.26	0.590	0.000	1.00	2.500	1.47	21.2	0.0	59.8
91.00 Top - Section 3		0.00	1.34	8.552	14.45	144.49	0.590	0.000	1.00	2.500	1.47	21.3	0.0	59.8
95.00		0.00	1.35	8.657	14.63	87.23	0.590	0.000	4.00	6.000	3.54	51.8	0.0	142.8
99.00 Appurtenance(s)		0.00	1.37	8.760	14.80	87.74	0.590	0.000	4.00	6.000	3.54	52.4	0.0	142.8
100.00		0.00	1.37	8.785	14.85	87.87	0.590	0.000	1.00	1.500	0.89	13.1	0.0	35.7
101.00 Top - Section 4		0.00	1.38	8.810	14.89	88.00	0.590	0.000	1.00	1.500	0.89	13.2	0.0	35.7
105.00		0.00	1.39	8.908	15.06	88.49	0.590	0.000	4.00	6.000	3.54	53.3	0.0	142.8
106.00 Appurtenance(s)		0.00	1.40	8.933	15.10	88.61	0.590	0.000	1.00	1.500	0.89	13.4	0.0	35.7
109.00		0.00	1.41	9.004	15.22	88.96	0.590	0.000	3.00	4.500	2.65	40.4	0.0	107.1
Totals:								109.00		1,649.5		5,162.8		

Discrete Appurtenance Forces

Structure: CT40876-T-SB

Code: EIA/TIA-222-F

8/19/2016

Site Name: CT389/New Canaan C C

Exposure: C



Height: 109.00 (ft)

Gh: 1.69

ES
Tower Engineering Solutions

Base Elev: 0.000 (ft)

Struct Class: II

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Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00



Wind Load Factor 1.00

Iterations: 29

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	106.00	S20045A1	3	8.933	15.096	0.00	0.00	33.00	0.000	0.000	0.00	0.00	0.00
2	106.00	RR65-19-XXDP	3	8.933	15.096	0.00	0.00	48.00	0.000	0.000	0.00	0.00	0.00
3	99.00	S20045A1	3	8.760	14.804	0.00	0.00	33.00	0.000	0.000	0.00	0.00	0.00
4	99.00	RR65-19-XXDP	3	8.760	14.804	0.00	0.00	48.00	0.000	0.000	0.00	0.00	0.00
5	89.00	HPA-65R-BUU-H6	3	8.497	14.361	0.00	0.00	153.00	0.000	0.000	0.00	0.00	0.00
6	89.00	DTMABP7819VG12A	6	8.497	14.361	0.00	0.00	115.20	0.000	0.000	0.00	0.00	0.00
Totals:							430.20				0.00		

Total Applied Force Summary

Structure: CT40876-T-SB
Site Name: CT389/New Canaan C C
Height: 109.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/19/2016

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Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		83.88	381.62	0.00	0.00
10.00		81.73	374.19	0.00	0.00
15.00		79.58	366.77	0.00	0.00
20.00		77.44	359.35	0.00	0.00
25.00		75.29	351.93	0.00	0.00
30.00		73.14	344.51	0.00	0.00
35.00		72.20	337.08	0.00	0.00
40.00		72.74	329.66	0.00	0.00
45.00		72.88	322.24	0.00	0.00
47.35		33.93	148.89	0.00	0.00
50.00		38.88	284.26	0.00	0.00
50.66		9.61	70.15	0.00	0.00
55.00		63.64	269.69	0.00	0.00
60.00		72.78	303.77	0.00	0.00
65.00		71.86	296.35	0.00	0.00
70.00		70.74	288.93	0.00	0.00
75.00		69.43	281.51	0.00	0.00
80.00		67.96	274.08	0.00	0.00
81.00		13.31	53.93	0.00	0.00
85.00		83.62	313.90	0.00	0.00
89.00	(9) appurtenances	84.73	582.10	0.00	0.00
90.00		21.25	72.24	0.00	0.00
91.00		21.32	72.24	0.00	0.00
95.00		51.79	192.73	0.00	0.00
99.00	(6) appurtenances	52.41	273.73	0.00	0.00
100.00		13.14	41.94	0.00	0.00
101.00		13.18	41.94	0.00	0.00
105.00		53.30	167.77	0.00	0.00
106.00	(6) appurtenances	13.36	122.94	0.00	0.00
109.00		40.40	107.11	0.00	0.00
Totals:		1,649.50	7,427.59	0.00	0.00

Resulting Forces and Deflections

Structure: CT40876-T-SB

Code: EIA/TIA-222-F

8/19/2016

Site Name: CT389/New Canaan C C

Exposure: C



Height: 109.00 (ft)

Gh: 1.69

ES
Tower Engineering Solutions

Base Elev: 0.000 (ft)

Struct Class: II

Page: 20

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-1.653	-7.426	0.000	0.000	0.000	-95.858	0.000	0.000	0.000	0.000	0.000
5.00	-1.578	-7.043	0.000	0.000	0.000	-87.592	-0.039	0.000	0.039	-0.073	0.000
10.00	-1.504	-6.667	0.000	0.000	0.000	-79.702	-0.153	0.000	0.153	-0.144	0.000
15.00	-1.431	-6.299	0.000	0.000	0.000	-72.183	-0.342	0.000	0.342	-0.214	0.000
20.00	-1.359	-5.938	0.000	0.000	0.000	-65.030	-0.603	0.000	0.603	-0.283	0.000
25.00	-1.288	-5.585	0.000	0.000	0.000	-58.236	-0.936	0.000	0.936	-0.350	0.000
30.00	-1.218	-5.240	0.000	0.000	0.000	-51.796	-1.338	0.000	1.338	-0.416	0.000
35.00	-1.149	-4.902	0.000	0.000	0.000	-45.704	-1.808	0.000	1.808	-0.479	0.000
40.00	-1.078	-4.572	0.000	0.000	0.000	-39.959	-2.343	0.000	2.343	-0.540	0.000
45.00	-1.005	-4.250	0.000	0.000	0.000	-34.569	-2.940	0.000	2.940	-0.599	0.000
47.35	-0.972	-4.101	0.000	0.000	0.000	-32.207	-3.242	0.000	3.242	-0.626	0.000
50.00	-0.931	-3.817	0.000	0.000	0.000	-29.632	-3.598	0.000	3.598	-0.655	0.000
50.66	-0.922	-3.746	0.000	0.000	0.000	-29.018	-3.689	0.000	3.689	-0.663	0.000
55.00	-0.858	-3.476	0.000	0.000	0.000	-25.015	-4.312	0.000	4.312	-0.708	0.000
60.00	-0.784	-3.173	0.000	0.000	0.000	-20.725	-5.079	0.000	5.079	-0.754	0.000
65.00	-0.710	-2.877	0.000	0.000	0.000	-16.805	-5.891	0.000	5.891	-0.796	0.000
70.00	-0.637	-2.589	0.000	0.000	0.000	-13.255	-6.745	0.000	6.745	-0.833	0.000
75.00	-0.564	-2.308	0.000	0.000	0.000	-10.071	-7.636	0.000	7.636	-0.866	0.000
80.00	-0.493	-2.035	0.000	0.000	0.000	-7.248	-8.558	0.000	8.558	-0.893	0.000
81.00	-0.479	-1.981	0.000	0.000	0.000	-6.755	-8.746	0.000	8.746	-0.898	0.000
85.00	-0.391	-1.669	0.000	0.000	0.000	-4.838	-9.506	0.000	9.506	-0.915	0.000
89.00	-0.297	-1.088	0.000	0.000	0.000	-3.275	-10.273	0.000	10.273	-0.917	0.000
90.00	-0.275	-1.016	0.000	0.000	0.000	-2.978	-10.465	0.000	10.465	-0.918	0.000
91.00	-0.252	-0.944	0.000	0.000	0.000	-2.703	-10.658	0.000	10.658	-0.918	0.000
95.00	-0.197	-0.752	0.000	0.000	0.000	-1.694	-11.427	0.000	11.427	-0.919	0.000
99.00	-0.141	-0.479	0.000	0.000	0.000	-0.904	-12.199	0.000	12.199	-0.923	0.000
100.00	-0.127	-0.438	0.000	0.000	0.000	-0.763	-12.393	0.000	12.393	-0.924	0.000
101.00	-0.113	-0.396	0.000	0.000	0.000	-0.636	-12.586	0.000	12.586	-0.924	0.000
105.00	-0.057	-0.229	0.000	0.000	0.000	-0.183	-13.361	0.000	13.361	-0.925	0.000
106.00	-0.042	-0.106	0.000	0.000	0.000	-0.126	-13.555	0.000	13.555	-0.925	0.000
109.00	-0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.136	-0.925	0.000

Resulting Stresses

Structure: CT40876-T-SBA

Code: EIA/TIA-222-F

8/19/2016

Site Name: CT389/New Canaan C C

Exposure: C

Height: 109.00 (ft)

Gh: 1.69

Base Elev: 0.000 (ft)

Struct Class: II

Page: 21



Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 29

Applied Stresses									
Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Fb Allow Stress (ksi)	f/Fb Stress Ratio
0.00	0.43	0.19	0.00	0.00	0.00	9.42	9.86	51.1	0.193
5.00	0.42	0.19	0.00	0.00	0.00	9.06	9.49	51.7	0.184
10.00	0.41	0.19	0.00	0.00	0.00	8.70	9.11	52.0	0.175
15.00	0.40	0.18	0.00	0.00	0.00	8.32	8.72	52.0	0.168
20.00	0.39	0.18	0.00	0.00	0.00	7.92	8.32	52.0	0.160
25.00	0.37	0.17	0.00	0.00	0.00	7.52	7.90	52.0	0.152
30.00	0.36	0.17	0.00	0.00	0.00	7.10	7.46	52.0	0.144
35.00	0.35	0.16	0.00	0.00	0.00	6.66	7.01	52.0	0.135
40.00	0.33	0.16	0.00	0.00	0.00	6.20	6.54	52.0	0.126
45.00	0.32	0.15	0.00	0.00	0.00	5.72	6.05	52.0	0.116
47.35	0.32	0.15	0.00	0.00	0.00	5.50	5.82	52.0	0.112
50.00	0.30	0.15	0.00	0.00	0.00	5.25	5.55	52.0	0.107
50.66	0.29	0.14	0.00	0.00	0.00	5.01	5.30	52.0	0.102
55.00	0.28	0.14	0.00	0.00	0.00	4.58	4.87	52.0	0.094
60.00	0.26	0.13	0.00	0.00	0.00	4.08	4.34	52.0	0.084
65.00	0.25	0.12	0.00	0.00	0.00	3.56	3.81	52.0	0.073
70.00	0.23	0.11	0.00	0.00	0.00	3.03	3.26	52.0	0.063
75.00	0.21	0.11	0.00	0.00	0.00	2.49	2.71	52.0	0.052
80.00	0.20	0.10	0.00	0.00	0.00	1.95	2.15	52.0	0.041
81.00	0.19	0.09	0.00	0.00	0.00	1.85	2.04	52.0	0.039
81.00	0.19	0.09	0.00	0.00	0.00	1.85	2.04	52.0	0.014
85.00	0.10	0.04	0.00	0.00	0.00	0.45	0.55	8.0	8.0
89.00	0.06	0.03	0.00	0.00	0.00	0.30	0.37	8.0	8.0
90.00	0.06	0.03	0.00	0.00	0.00	0.27	0.34	8.0	8.0
91.00	0.05	0.03	0.00	0.00	0.00	0.25	0.31	8.0	8.0
91.00	0.05	0.03	0.00	0.00	0.00	0.25	0.31	8.0	8.0
95.00	0.07	0.04	0.00	0.00	0.00	0.44	0.52	8.0	8.0
99.00	0.05	0.03	0.00	0.00	0.00	0.23	0.28	8.0	8.0
100.00	0.04	0.02	0.00	0.00	0.00	0.20	0.24	8.0	8.0
101.00	0.04	0.02	0.00	0.00	0.00	0.17	0.21	8.0	8.0
101.00	0.04	0.02	0.00	0.00	0.00	0.17	0.21	8.0	8.0
105.00	0.02	0.01	0.00	0.00	0.00	0.05	0.07	8.0	8.0
106.00	0.01	0.01	0.00	0.00	0.00	0.03	0.05	8.0	8.0
109.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	8.0	0.002

Final Analysis Summary

Structure: CT40876-T-SBA

Code: EIA/TIA-222-F

8/19/2016

Site Name: CT389/New Canaan C C

Exposure: C



Height: 109.00 (ft)

Gh: 1.69

Base Elev: 0.000 (ft)

Struct Class: II

Page: 22

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
85 mph Wind with 0" Ice	4.8	0.00	7.42	0.00	0.00	277.16
73.61 mph Wind with 0.5" Ice	3.7	0.00	9.12	0.00	0.00	219.43
50 mph Wind with 0" Ice	1.7	0.00	7.43	0.00	0.00	95.86

Max Stresses

Load Case	fa Axial (Y) (ksi)	f _{vx} Shear (X) (ksi)	f _{vz} Shear (Z) (ksi)	f _{vt} Torsion (ksi)	f _{bx} Bending (X) (ksi)	f _{bz} Bending (Z) (ksi)	Combined Stress (ksi)	Allowable Stress (ksi)	Elev (ft)	Stress Ratio
85 mph Wind with 0" Ice	0.43	0.56	0.00	0.00	0.00	27.23	27.68	51.1	0.00	0.542
73.61 mph Wind with 0.5" Ice	0.53	0.44	0.00	0.00	0.00	21.56	22.10	51.1	0.00	0.433
50 mph Wind with 0" Ice	0.43	0.19	0.00	0.00	0.00	9.42	9.86	51.1	0.00	0.193

Base Plate Summary

Structure: CT40876-T-SB

Code: EIA/TIA-222-F

8/19/2016

Site Name: CT389/New Canaan C C

Exposure: C



Height: 109.00 (ft)

Gh: 1.69

ES
Tower Engineering Solutions

Base Elev: 0.000 (ft)

Struct Class: II

Page: 23

Reactions		Base Plate		Anchor Bolts	
Original Design		Yield (ksi):	50.00	Bolt Circle:	35.50
Moment (kip-ft):	272.00	Width (in):	36.00	Number Bolts:	4.00
Axial (kip):	5.90	Style:	Clipped	Bolt Type:	1.75" #18J
Shear (kip):	4.70	Polygon Sides:	4.00	Bolt Diameter (in):	1.75
Analysis		Clip Length (in):	6.00	Yield (ksi):	75.00
Moment (kip-ft):	277.16	Effective Len (in):	17.21	Ultimate (ksi):	100.00
Axial (kip):	9.12	Moment (kip-in):	311.90	Arrangement:	Radial
Shear (kip):	4.78	Allow Stress (ksi):	50.00	Cluster Dist (in):	6.00
		Applied Stress (ksi):	35.50	Start Angle (deg):	45.00
Moment Design %:	101.90	Stress Ratio:	0.71	Compression	
				Force (kip):	95.97
				Allowable (kip):	114.00
				Ratio:	0.84
		Tension			
				Force (kip):	91.41
				Allowable (kip):	114.00
				Ratio:	0.80

Check Soil Capacities:

			Usage
Allowable Foundation Overturning Resistance (kips-ft.):	1051.0	> Applied Moment (kips-ft):	337
Factor of Safety of Passive Soil Resistance against Moment:	6.24	OK!	0.32 OK!

Check the capacities of Reinforcing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.30

Reinforcing Concrete Pier:

			Usage
Vertical Steel Rebar Area (sq. in./each):	0.79	Tie / Stirrup Area (sq. in./each):	0.31
Calculated Moment Capacity (Mn, Kips-Ft):	1705.0	> Design Factored Moment (Mu, K-Ft):	382.2
Calculated Shear Capacity (Kips):	562.8	> Design Factored Shear (Kips):	60.3
Calculated Tension Capacity (Tn, Kips):	767.9	> Design Factored Tension (Tu Kips):	0.0
Calculated Compression Capacity (Pn, Kips):	4974	> Design Factored Axial Load (Pu Kips):	11.8
Moment & Axial Strength Combination:	0.22	OK! Max. Allowable Tie/Stirrup Spacing:	12.00
Pier Reinforcement Ratio:	0.005	Reinforcement Ratio is too small	in.



WIRELESS COMMUNICATIONS FACILITY

CT2282 - LTE 2C

NEW CANAAN COUNTRY CLUB

SBA SITE ID.: CT40876

95 COUNTRY CLUB ROAD

NEW CANAAN, CT 06840

GENERAL NOTES

- ALL WORK SHALL BE IN ACCORDANCE WITH THE 2003 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2005 CONNECTICUT SUPPLEMENT AND 2009 AMENDMENTS, INCLUDING THE TIA/EIA-222 REVISION "F" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2005 CONNECTICUT FIRE SAFETY CODE AND 2009 AMENDMENTS, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
- THE COMPOUND, TOWER, PRIMARY GROUND RING, ELECTRICAL SERVICE TO THE METER BANK AND TELEPHONE SERVICE TO THE DEMARCATIION POINT ARE PROVIDED BY SITE OWNER. AS BUILT FIELD CONDITIONS REGARDING THESE ITEMS SHALL BE CONFIRMED BY THE CONTRACTOR. SHOULD ANY FIELD CONDITIONS PRECULE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY Affected WORK.
- CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
- CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
- CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
- CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
- CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELATED PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN 'AS-BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
- LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
- THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING BUILDING'S/PROPERTY'S OPERATIONS, COORDINATE WORK WITH BUILDING/PROPERTY OWNER.

- DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
- ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
- ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
- ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED' ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE AT&T CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
- CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
- THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
- COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
- ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
- THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED PRIOR TO ANY EXCAVATION WORK. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
- CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

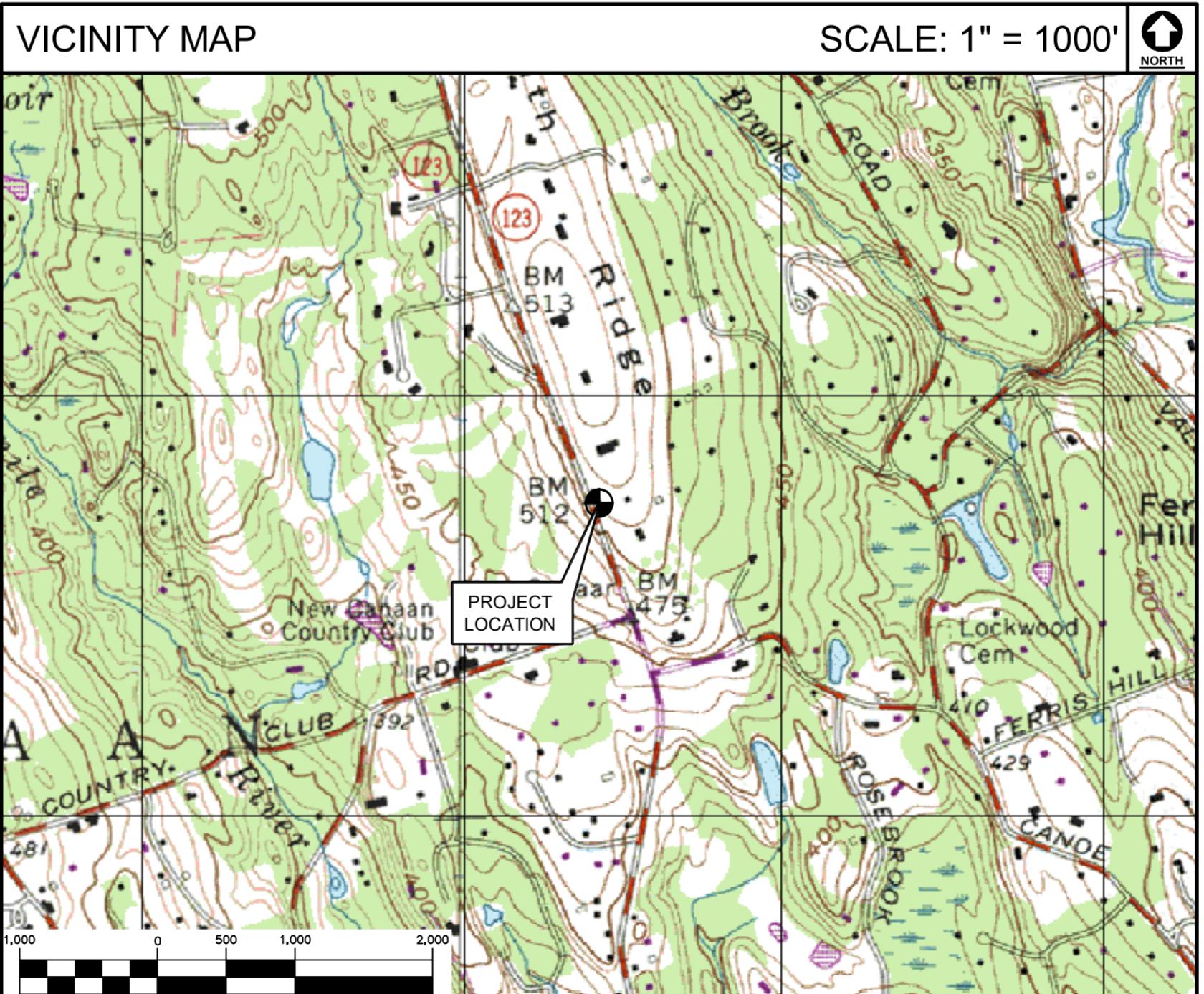
SITE DIRECTIONS

FROM: 500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT

TO: 95 COUNTRY CLUB ROAD
NEW CANAAN, CONNECTICUT

1. START OUT GOING NE ON ENTERPRISE DRIVE TOWARD CAPITAL BLVD; 0.4 MI.
2. TURN LEFT ONTO CAPITAL BLVD; 0.3 MI.
3. TURN LEFT ONTO WEST ST; 0.3 MI.
4. MERGE ONTO CT-123 VIA RAMP ON THE LEFT TOWARD NEW HAVEN; 0.9 MI.
5. MERGE ONTO CT-123 VIA EXIT 17; 4.0 MI.
6. TAKE THE CT-123 /NEW CANAAN AVE EXIT, EXIT 38; 0.08 MI.
7. TURN RIGHT LEFT ONTO CT-123 / NEW CANAAN AVE; 3.5 MI.
8. TURN LEFT ONTO COUNTRY CLUB ROAD; 1.9 MI.
9. 95 COUNTRY CLUB ROAD IS ON THE RIGHT. 0.2 MI.

VICINITY MAP



PROJECT SUMMARY

- THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANAGED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:
 - REMOVE AND REPLACE EXISTING POS. 1 ANTENNA FOR PROPOSED HEXPORT ANTENNA, (1) PER SECTOR.
 - INSTALL (3) NEW RRUS-12+A2 WITHIN EXISTING COMPOUND
 - INSTALL (6) NEW 7/8" COAX CABLES, (2) PER SECTOR WITHIN INTERIOR OF EXISTING FLAGPOLE.

PROJECT INFORMATION

AT&T SITE NUMBER: CT2282
AT&T SITE NAME: NEW CANAAN COUNTRY CLUB
SITE ADDRESS: SBA SITE ID: CT40876
95 COUNTRY CLUB ROAD
NEW CANAAN, CT 06840
LESSEE/APPLICANT: AT&T MOBILITY
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067
ENGINEER: CENTEK ENGINEERING, INC.
63-2 NORTH BRANFORD RD.
BRANFORD, CT 06405
PROJECT COORDINATES: LATITUDE: 41°10'22.30" N
LONGITUDE: 73°29'46.80" W
GROUND ELEVATION: 4498' AMSL
SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
N-1	NOTES, SPECIFICATIONS AND DETAILS	0
C-1	PLANS, ELEVATION AND DETAILS	0
C-2	LTE 2C EQUIPMENT DETAILS	0
E-1	LTE SCHEMATIC DIAGRAM AND NOTES	0
E-2	LTE WIRING DIAGRAM	0
E-3	TYPICAL ELECTRICAL DETAILS	0

AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY
CT2282 - LTE 2C
95 COUNTRY CLUB ROAD
NEW CANAAN, CT 06840

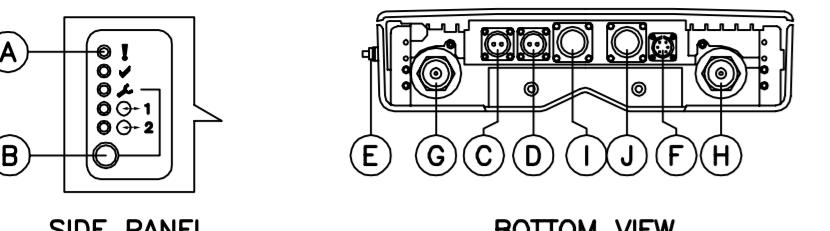
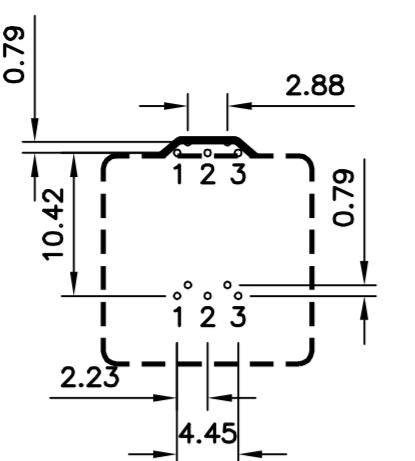
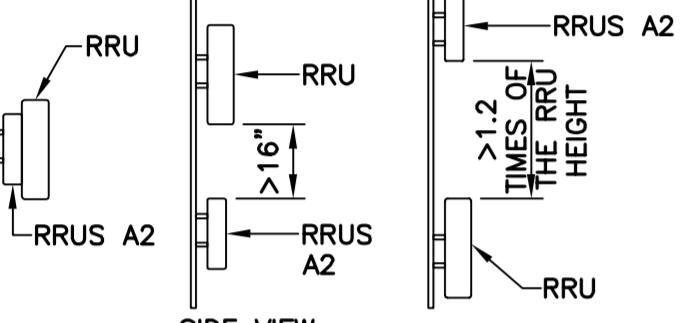
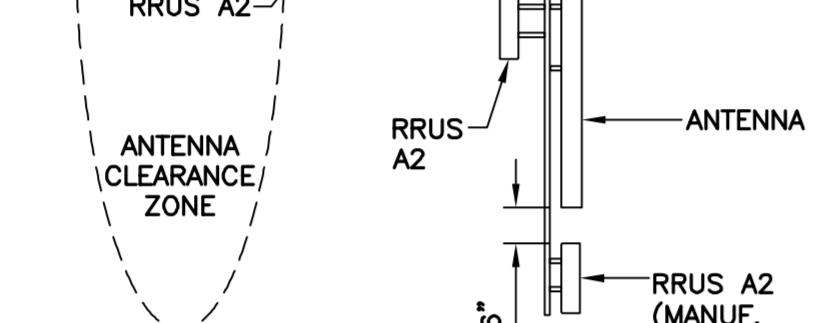
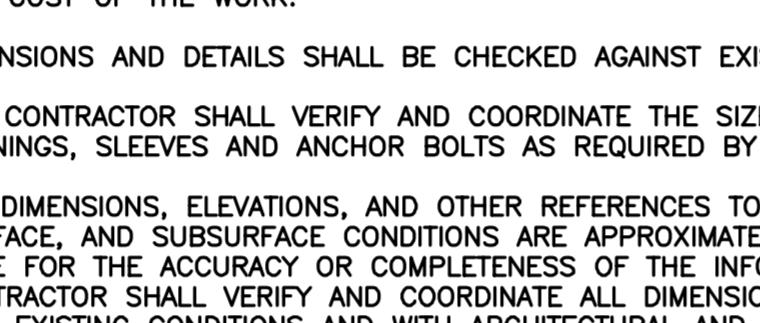
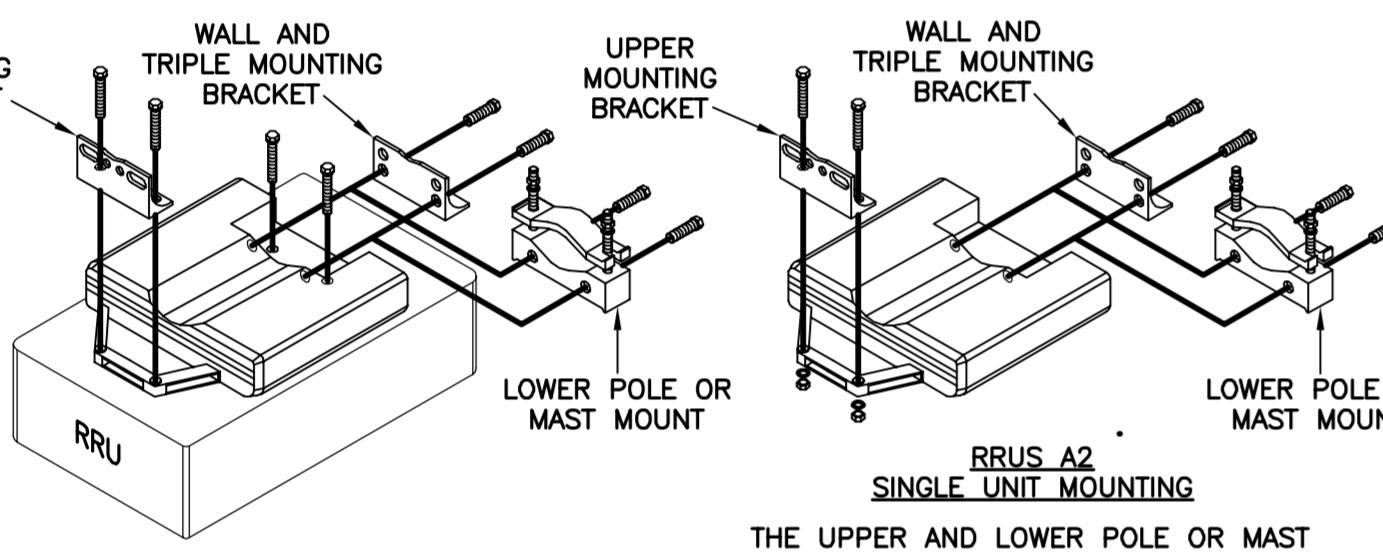
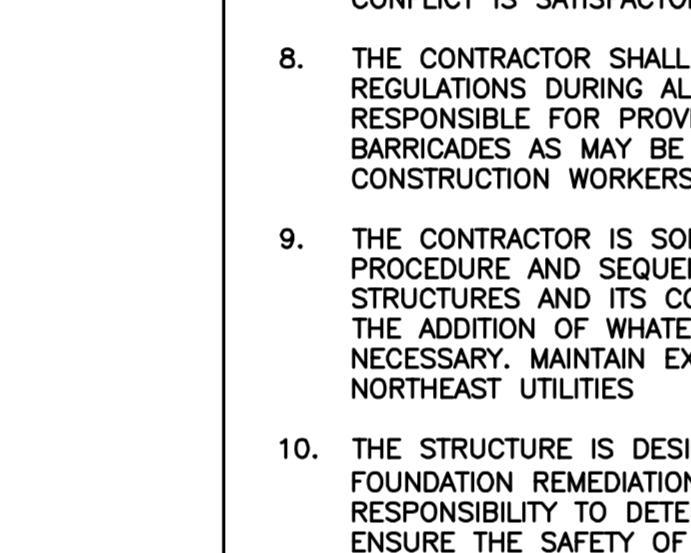
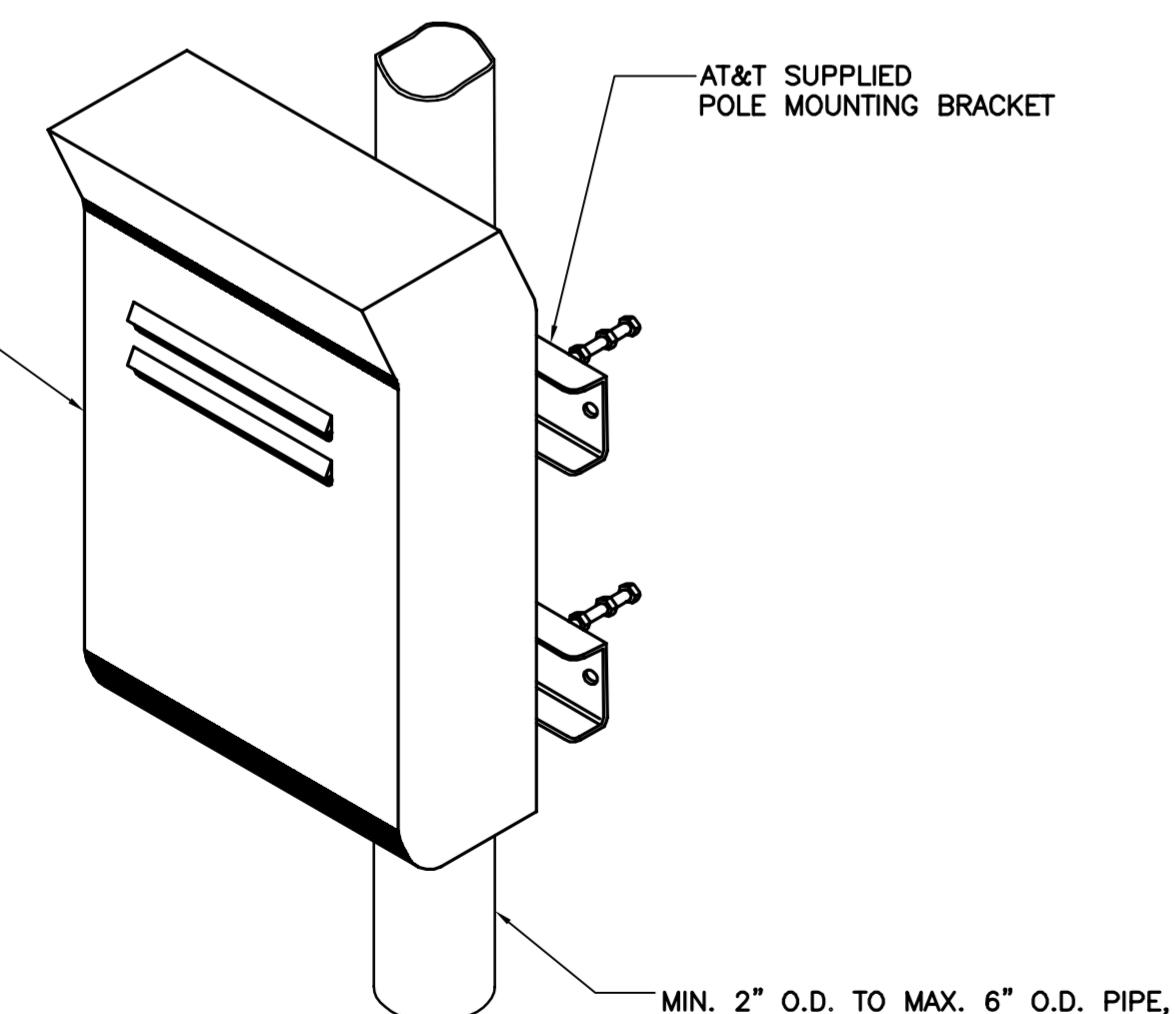
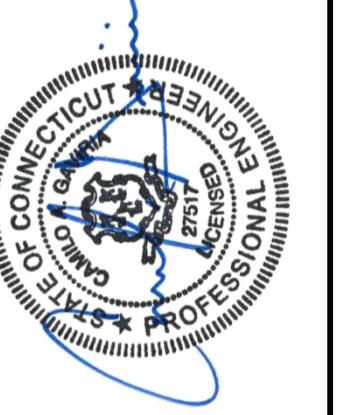
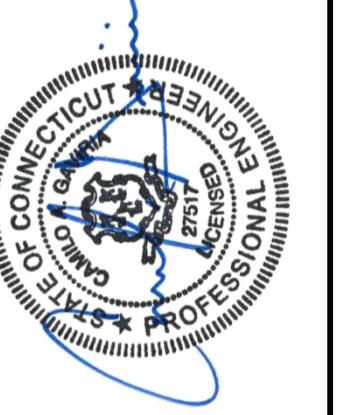
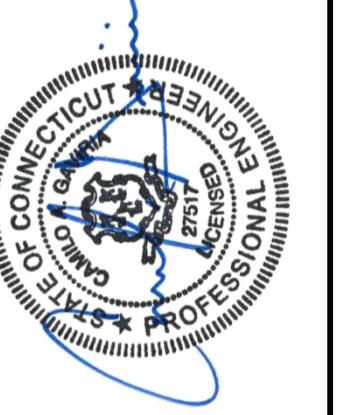
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JOB NO. 16071.37

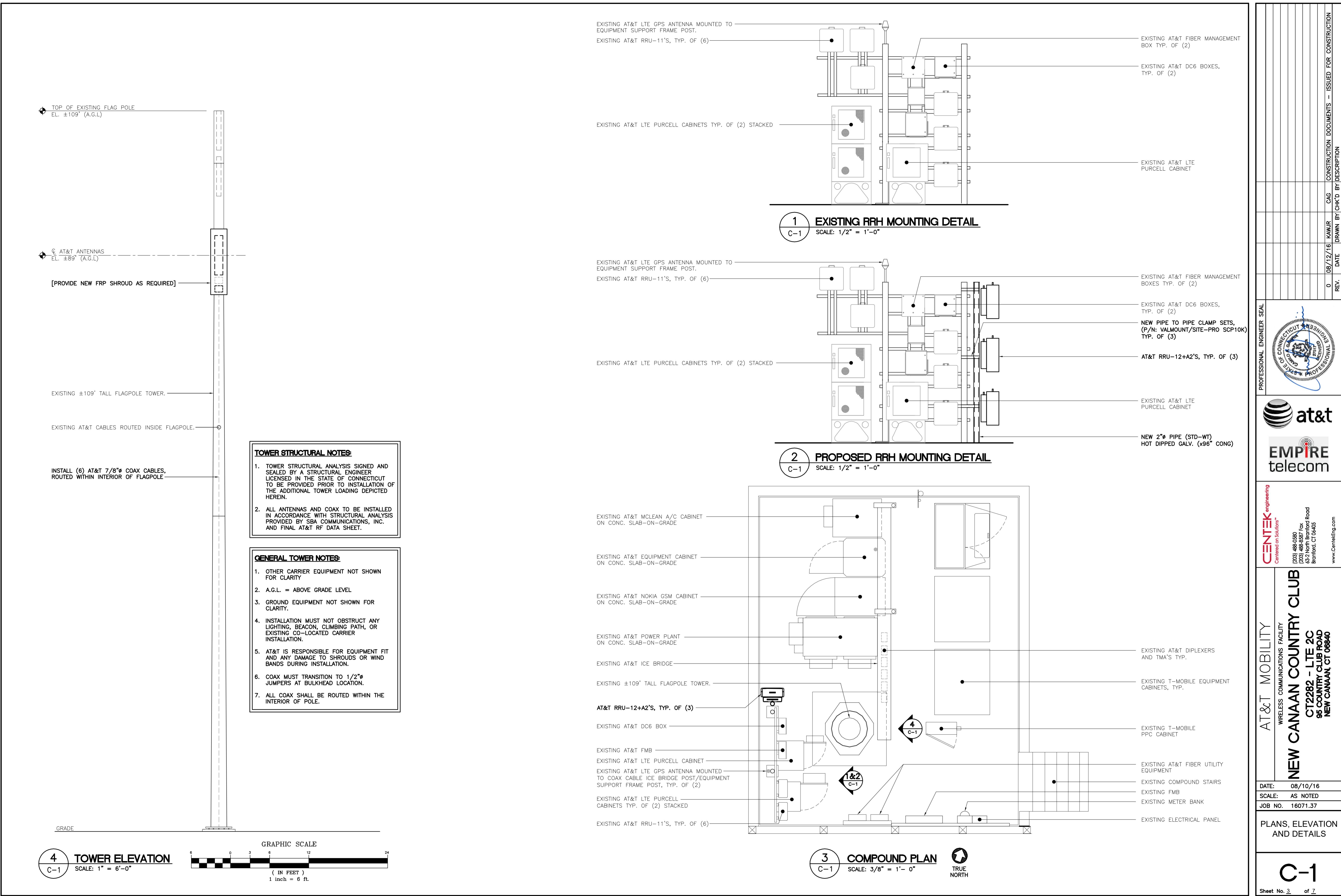
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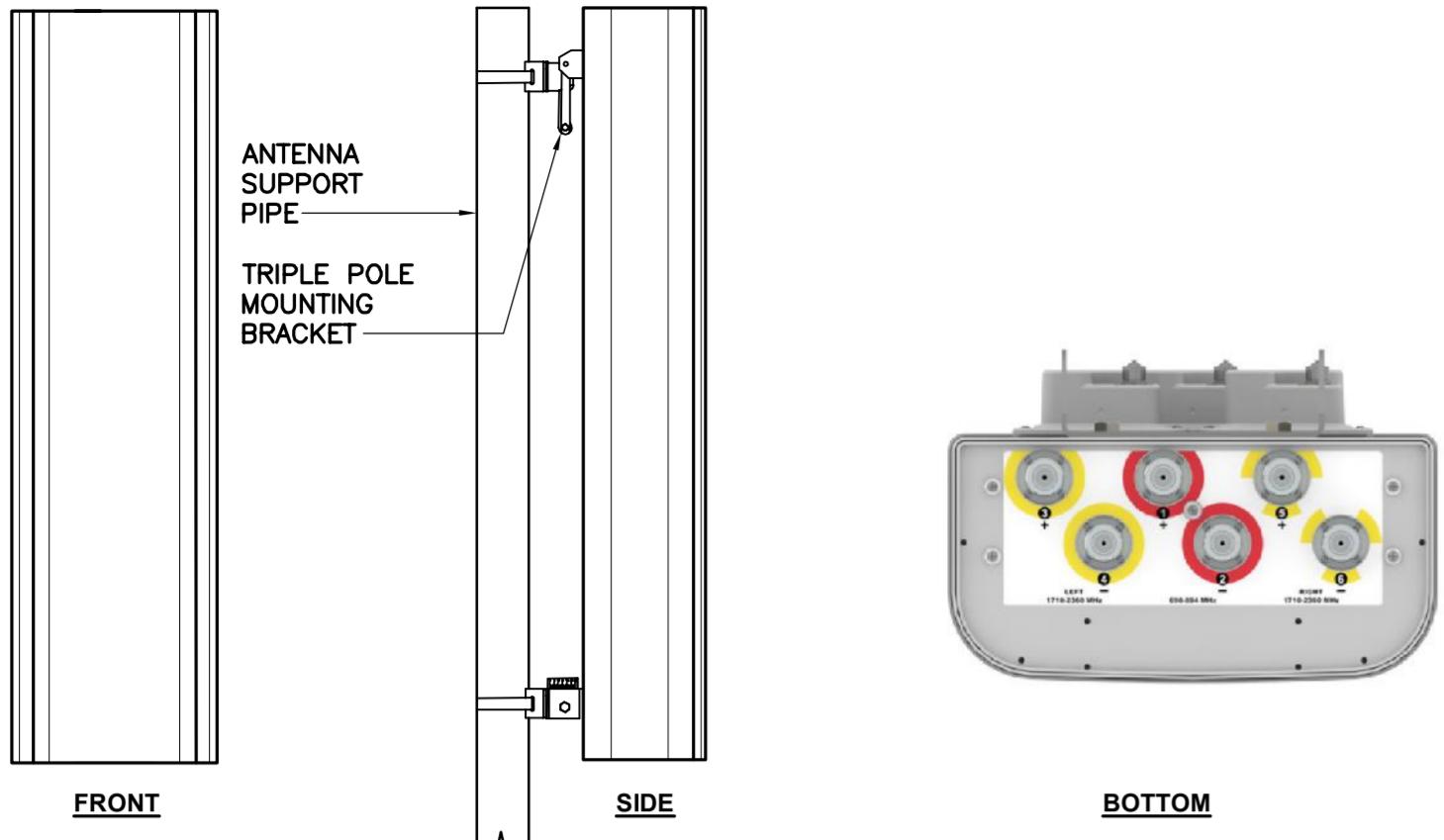
T-1

Sheet No. 1 of 7

PROFESSIONAL ENGINEER SEAL	
REV. DATE	08/12/16
DRAWN BY	KANUR
CONSTRUCTION DOCUMENTS - ISSUED FOR CONSTRUCTION	REV. DATE
(231) 488-1580 (231) 488-5387 fax 63-2 North Branford Road Branford, CT 06405 www.CentekEng.com	

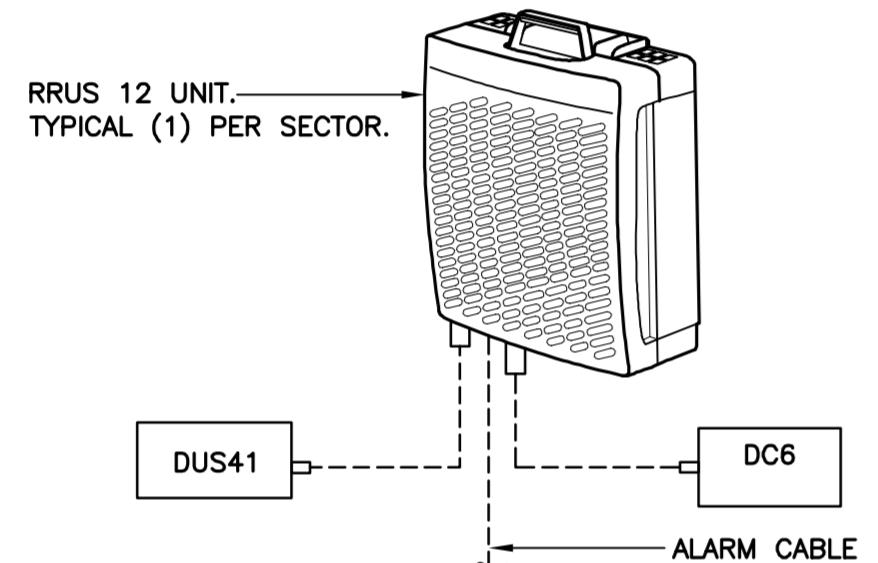
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>SIDE PANEL BOTTOM VIEW</p> </div> <div style="text-align: center;">  <p>10.42 2.88 4.45</p> </div> </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">POSITION (ID)</th> <th style="text-align: left; padding: 2px;">DESCRIPTION</th> <th style="text-align: left; padding: 2px;">MARKING</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">A</td> <td style="padding: 2px;">OPTICAL INDICATORS</td> <td style="padding: 2px;">1, 2, G-1, G-2</td> </tr> <tr> <td style="padding: 2px;">B</td> <td style="padding: 2px;">MAINTENANCE</td> <td style="padding: 2px;">▲</td> </tr> <tr> <td style="padding: 2px;">C</td> <td style="padding: 2px;">-48V DC POWER SUPPLY</td> <td style="padding: 2px;">POW IN</td> </tr> <tr> <td style="padding: 2px;">D</td> <td style="padding: 2px;">-48V DC POWER SUPPLY TO RRU</td> <td style="padding: 2px;">POW OUT</td> </tr> <tr> <td style="padding: 2px;">E</td> <td style="padding: 2px;">GROUNDING</td> <td style="padding: 2px;">—</td> </tr> <tr> <td style="padding: 2px;">F</td> <td style="padding: 2px;">RET</td> <td style="padding: 2px;">RET</td> </tr> <tr> <td style="padding: 2px;">G</td> <td style="padding: 2px;">ANTENNA B</td> <td style="padding: 2px;">▲ - B</td> </tr> <tr> <td style="padding: 2px;">H</td> <td style="padding: 2px;">ANTENNA A</td> <td style="padding: 2px;">▲ - A</td> </tr> <tr> <td style="padding: 2px;">I</td> <td style="padding: 2px;">OPTICAL CABLE 1</td> <td style="padding: 2px;">G-1</td> </tr> <tr> <td style="padding: 2px;">J</td> <td style="padding: 2px;">OPTICAL CABLE 2</td> <td style="padding: 2px;">G-2</td> </tr> </tbody> </table> <p>NOTES:</p> <ol style="list-style-type: none"> 1. STACKING OF RRU'S IS NOT PERMITTED. 2. NO PAINTING OF RRU OR THE SOLAR SHIELD IS ALLOWED. 3. A SINGLE RRUS A2 CAN BE INSTALLED AS A STAND ALONE UNIT OR MOUNTED TO THE BACK OF ITS ASSOCIATED RRU. <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  <p>SIDE VIEW</p> <p>RRUS A2 MANUFACTURER INSTALLATION REQUIREMENTS</p> </div> <div style="text-align: center;">  <p>TOP VIEW</p> <p>THE MINIMUM DISTANCE BETWEEN THE RRUS A2 AND THE ANTENNA MUST BE 8". THE DISTANCE NEEDS TO BE INCREASED IF THE ANTENNA AZIMUTH IS IN THE DIRECTION OF THE RRUS A2.</p> </div> <div style="text-align: center;">  <p>SIDE VIEW</p> <p>ANT. RRUS A2 RRUS A2 RRUS A2 RRUS A2 ANTENNA CLEARANCE ZONE RRUS A2 (MANUF. RECOMMENDED LOCATION)</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  <p>RRUS A2 SINGLE UNIT MOUNTING</p> <p>THE UPPER AND LOWER POLE OR MAST MOUNTS DIFFER, BE SURE TO CORRECTLY POSITION THE MOUNTS BEFORE INSTALLATION.</p> </div> <div style="text-align: center;">  <p>RRUS A2 W/ASSOCIATED RRU MOUNTING</p> </div> </div> <p>1 ERICSSON RRU A2 DETAILS N-1 NOT TO SCALE</p> <div style="text-align: center; margin-top: 20px;">  <p>ERICSSON RRU AT&T SUPPLIED POLE MOUNTING BRACKET</p> <p>MIN. 2" O.D. TO MAX. 6" O.D. PIPE, GALVANIZED</p> <p>ISOMETRIC VIEW</p> </div> <p>NOTES:</p> <ol style="list-style-type: none"> 1. AT&T SHALL SUPPLY RRU, AND RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL INSTALLS RRU AND MAKES CABLE TERMINATIONS. 2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED. <p>2 TYPICAL RRUS MOUNTING DETAILS N-1 SCALE: NTS</p>	POSITION (ID)	DESCRIPTION	MARKING	A	OPTICAL INDICATORS	1, 2, G-1, G-2	B	MAINTENANCE	▲	C	-48V DC POWER SUPPLY	POW IN	D	-48V DC POWER SUPPLY TO RRU	POW OUT	E	GROUNDING	—	F	RET	RET	G	ANTENNA B	▲ - B	H	ANTENNA A	▲ - A	I	OPTICAL CABLE 1	G-1	J	OPTICAL CABLE 2	G-2	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>NOTES AND SPECIFICATIONS</p> <p>DESIGN BASIS:</p> <p>GOVERNING CODE: 2003 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2005 CT STATE BUILDING CODE AND 2009 AMENDMENTS.</p> <ol style="list-style-type: none"> 1. DESIGN CRITERIA: <ul style="list-style-type: none"> • WIND LOAD: PER EIA/TIA 222 F-96 (ANTENNA MOUNTS): 85 MPH (FASTEST MILE), EQUIVALENT TO 105 MPH (3 SECOND GUST) • BUILDING CLASSIFICATION: II (BASED ON IBC TABLE 1604.5) • BASIC WIND SPEED (OTHER STRUCTURE): 100 MPH (3 SECOND GUST) (EXPOSURE B/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-02) PER 2003 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2005 CONNECTICUT SUPPLEMENT AND 2009 AMENDMENT. • SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-02 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES. <p>GENERAL NOTES:</p> <ol style="list-style-type: none"> 1. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING CODE. 2. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS. 3. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK. 4. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST EXISTING FIELD CONDITIONS. 5. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES. 6. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS, ANGLES, WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK. 7. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED. 8. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE SHORING, BRACING, AND BARRICADES AS MAY BE REQUIRED FOR THE PROTECTION OF EXISTING PROPERTY, CONSTRUCTION WORKERS, AND FOR PUBLIC SAFETY. 9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING SITE OPERATIONS, COORDINATE WORK WITH NORTHEAST UTILITIES. 10. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER FOUNDATION REMEDIATION WORK IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING, GUYS OR TIEDOWNS, WHICH MIGHT BE NECESSARY. 11. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES. 12. SHOP DRAWINGS, CONCRETE MIX DESIGNS, TEST REPORTS, AND OTHER SUBMITTALS PERTAINING TO STRUCTURAL WORK SHALL BE FORWARDED TO THE OWNER FOR REVIEW BEFORE FABRICATION AND/OR INSTALLATION IS MADE. SHOP DRAWINGS SHALL INCLUDE ERECTION DRAWINGS AND COMPLETE DETAILS OF CONNECTIONS AS WELL AS MANUFACTURER'S SPECIFICATION DATA WHERE APPROPRIATE. SHOP DRAWINGS SHALL BE CHECKED BY THE CONTRACTOR AND BEAR THE CHECKER'S INITIALS BEFORE BEING SUBMITTED FOR REVIEW. 13. NO DRILLING WELDING OR TAPING ON EVERSOURCE OWNED EQUIPMENT. 14. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS. </div> <div style="width: 50%;"> <p>STRUCTURAL STEEL</p> <ol style="list-style-type: none"> 1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD) <ul style="list-style-type: none"> A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI) B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI) C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI) D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI) E. PIPE---ASTM A53 (FY = 35 KSI) F. CONNECTION BOLTS---ASTM A325-N G. U-BOLTS---ASTM A36 H. ANCHOR RODS---ASTM F 1554 I. WELDING ELECTRODE---ASTM E 70XX <p>PAINT NOTES</p> <p>PAINTING SCHEDULE:</p> <ol style="list-style-type: none"> 1. ANTENNA PANELS: <ul style="list-style-type: none"> A. SHERWIN WILLIAMS POLANE-B B. COLOR TO BE MATCHED WITH EXISTING TOWER STRUCTURE. 2. COAXIAL CABLES: <ul style="list-style-type: none"> A. ONE COAT OF DTM BONDING PRIMER (2-5 MILS. DRY FINISH) B. TWO COATS OF DTM ACRYLIC PRIMER/FINISH (2.5-5 MILS. DRY FINISH) C. COLOR TO BE FIELD MATCHED WITH EXISTING STRUCTURE. <p>EXAMINATION AND PREPARATION:</p> <ol style="list-style-type: none"> 1. DO NOT APPLY PAINT IN SNOW, RAIN, FOG OR MIST OR WHEN RELATIVE HUMIDITY EXCEEDS 85%. DO NOT APPLY PAINT TO DAMP OR WET SURFACES. 2. VERIFY THAT SUBSTRATE CONDITIONS ARE READY TO RECEIVE WORK. EXAMINE SURFACE SCHEDULED TO BE FINISHED PRIOR TO COMMENCEMENT OF WORK. REPORT ANY CONDITION THAT MAY POTENTIALLY AFFECT PROPER APPLICATION. 3. TEST SHOP APPLIED PRIMER FOR COMPATIBILITY WITH SUBSEQUENT COAT MATERIALS. 4. PERFORM PREPARATION AND CLEANING PROCEDURE IN STRICT ACCORDANCE WITH COATING MANUFACTURER'S INSTRUCTIONS FOR EACH SUBSTRATE CONDITION. 5. CORRECT DEFECTS AND CLEAN SURFACES WHICH AFFECT WORK OF THIS SECTION. REMOVE EXISTING COATINGS THAT EXHIBIT LOOSE SURFACE DEFECTS. 6. IMPERVIOUS SURFACE: REMOVE MILDEW BY SCRUBBING WITH SOLUTION OF TRI-SODIUM PHOSPHATE AND BLEACH. RINSE WITH CLEAN WATER AND ALLOW SURFACE TO DRY. 7. ALUMINUM SURFACE SCHEDULED FOR PAINT FINISH: REMOVE SURFACE CONTAMINATION BY STEAM OR HIGH-PRESSURE WATER. REMOVE OXIDATION WITH ACID ETCH AND SOLVENT WASHING. APPLY ETCHING PRIMER IMMEDIATELY FOLLOWING CLEANING. 8. FERROUS METALS: CLEAN UNGALVANIZED FERROUS METAL SURFACES THAT HAVE NOT BEEN SHOP COATED; REMOVE OIL, GREASE, DIRT, LOOSE MILL SCALE, AND OTHER FOREIGN SUBSTANCES. USE SOLVENT OR MECHANICAL CLEANING METHODS THAT COMPLY WITH THE STEEL STRUCTURES PAINTING COUNCIL'S (SSPC) RECOMMENDATIONS. TOUCH UP BARE AREAS AND SHOP APPLIED PRIME COATS THAT HAVE BEEN DAMAGED. WIRE BRUSH, CLEAN WITH SOLVENTS RECOMMENDED BY PAINT MANUFACTURER, AND TOUCH UP WITH THE SAME PRIMER AS THE SHOP COAT. 9. GALVANIZED SURFACES: CLEAN GALVANIZED SURFACES WITH NON-PETROLEUM-BASED SOLVENTS SO SURFACE IS FREE OF OIL AND SURFACE CONTAMINANTS. REMOVE PRETREATMENT FROM GALVANIZED SHEET METAL FABRICATED FROM COIL STOCK BY MECHANICAL METHODS. 10. ANTENNA PANELS: REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION. PANELS MUST BE WIPE WITH METHYL ETHYL KETONE (MEK). 11. COAXIAL CABLES: REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION. <p>CLEANING:</p> <ol style="list-style-type: none"> 1. COLLECT WASTE MATERIAL, WHICH MAY CONSTITUTE A FIRE HAZARD, PLACE IN CLOSED METAL CONTAINERS AND REMOVE DAILY FROM SITE. <p>APPLICATION:</p> <ol style="list-style-type: none"> 1. APPLY PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. 2. DO NOT APPLY FINISHES TO SURFACES THAT ARE NOT DRY. 3. APPLY EACH COAT TO UNIFORM FINISH. 4. APPLY EACH COAT OF PAINT SLIGHTLY DARKER THAN PRECEDING COAT UNLESS OTHERWISE APPROVED. 5. SAND METAL LIGHTLY BETWEEN COATS TO ACHIEVE REQUIRED FINISH. 6. VACUUM CLEAN SURFACES FREE OF LOOSE PARTICLES. USE TACK CLOTH JUST PRIOR TO APPLYING NEXT COAT. 7. ALLOW APPLIED COAT TO DRY BEFORE NEXT COAT IS APPLIED. <p>COMPLETED WORK:</p> <ol style="list-style-type: none"> 1. SAMPLES: PREPARE 24" X 24" SAMPLE AREA FOR REVIEW. 2. MATCH APPROVED SAMPLES FOR COLOR, TEXTURE AND COVERAGE. REMOVE REFINISH OR REPAINT WORK NOT IN COMPLIANCE WITH SPECIFIED REQUIREMENTS. </div> </div>											
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<p>CONSTRUCTION DOCUMENTS - ISSUED FOR CONSTRUCTION</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">REV.</td> <td style="width: 15%;">08/12/16</td> <td style="width: 15%;">KANUR</td> <td style="width: 15%;">CAG</td> <td style="width: 15%;">DRAWN BY CHKD BY</td> </tr> <tr> <td>PROFESSIONAL ENGINEER SEAL</td> <td colspan="4">  </td> </tr> <tr> <td>at&t</td> <td colspan="4"></td> </tr> <tr> <td>EMPIRE telecom</td> <td colspan="4"></td> </tr> <tr> <td>CENTEK engineering</td> <td colspan="4"> <p>Centek Solutions™</p> <p>(203) 484-5580 (203) 484-5587 fax 652 North Bedford Road Branford, CT 06405 www.CentekEng.com</p> </td> </tr> <tr> <td>AT&T MOBILITY</td> <td colspan="4"> <p>WIRELESS COMMUNICATIONS FACILITY</p> <p>NEW CANAAN COUNTRY CLUB CT2282 - LTE 2C 95 COUNTRY CLUB ROAD NEW CANAAN, CT 06840</p> </td> </tr> <tr> <td>DATE: 08/10/16</td> <td>SCALE: AS NOTED</td> <td>JOB NO. 16071.37</td> <td colspan="2"></td> </tr> <tr> <td colspan="5">NOTES, SPECIFICATIONS & DETAILS</td> </tr> <tr> <td colspan="5" style="text-align: right;">N-1</td> </tr> </table> <p>Sheet No. 2 of 7</p>	REV.	08/12/16	KANUR	CAG	DRAWN BY CHKD BY	PROFESSIONAL ENGINEER SEAL					at&t					EMPIRE telecom					CENTEK engineering	<p>Centek Solutions™</p> <p>(203) 484-5580 (203) 484-5587 fax 652 North Bedford Road Branford, CT 06405 www.CentekEng.com</p>				AT&T MOBILITY	<p>WIRELESS COMMUNICATIONS FACILITY</p> <p>NEW CANAAN COUNTRY CLUB CT2282 - LTE 2C 95 COUNTRY CLUB ROAD NEW CANAAN, CT 06840</p>				DATE: 08/10/16	SCALE: AS NOTED	JOB NO. 16071.37			NOTES, SPECIFICATIONS & DETAILS					N-1				
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ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: CCI MODEL: HPA-65R-BUU-H6	72.3" L x 14.4" W x 7.3" D	42.9 LBS.

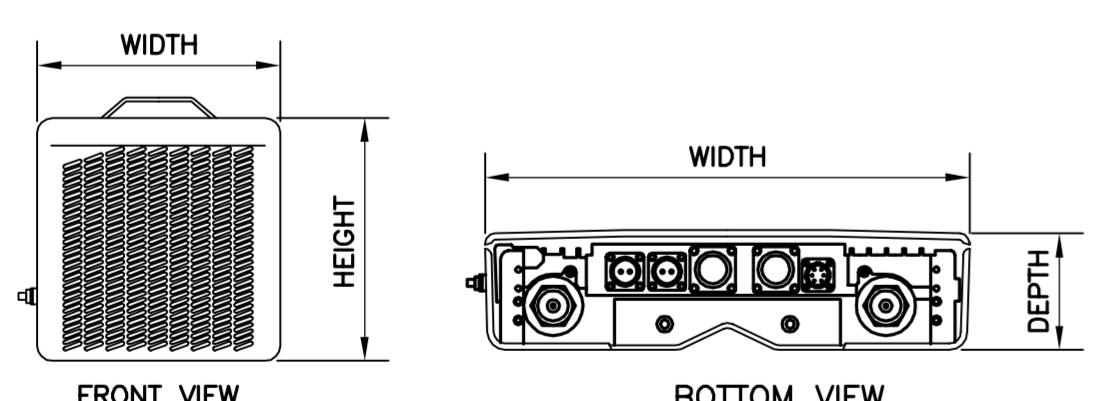
5 PROPOSED ANTENNA DETAIL
C-2
SCALE: 1/2" = 1'-0"



RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS 12	20.4" L x 18.5" W x 7.5" D	50 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

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

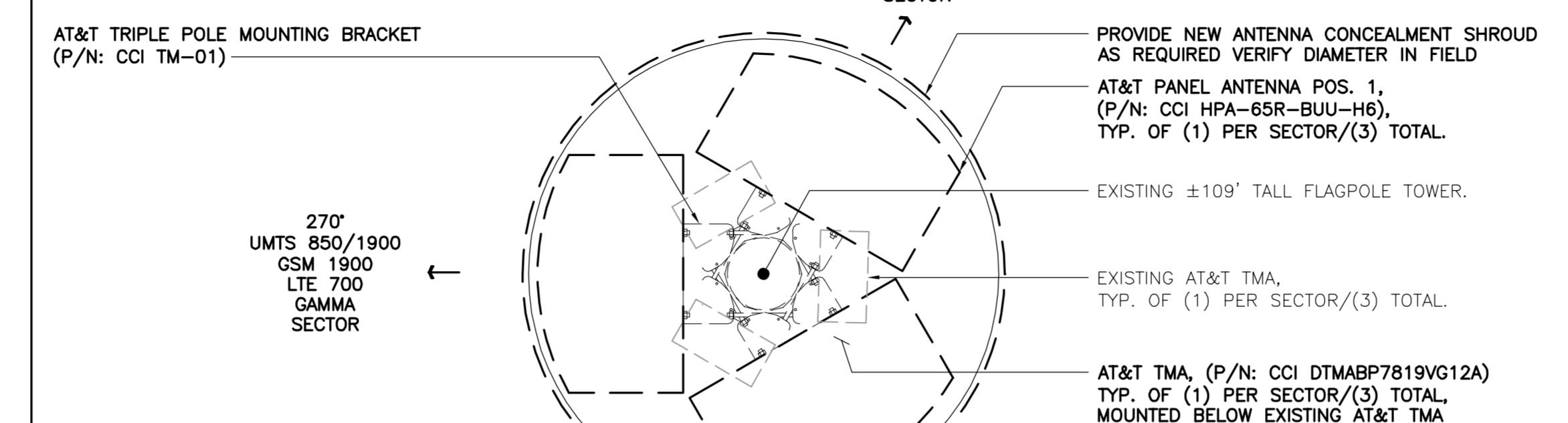
6 ERICSSON RRUS 12 DETAIL
C-2
SCALE: 1" = 1'-0"



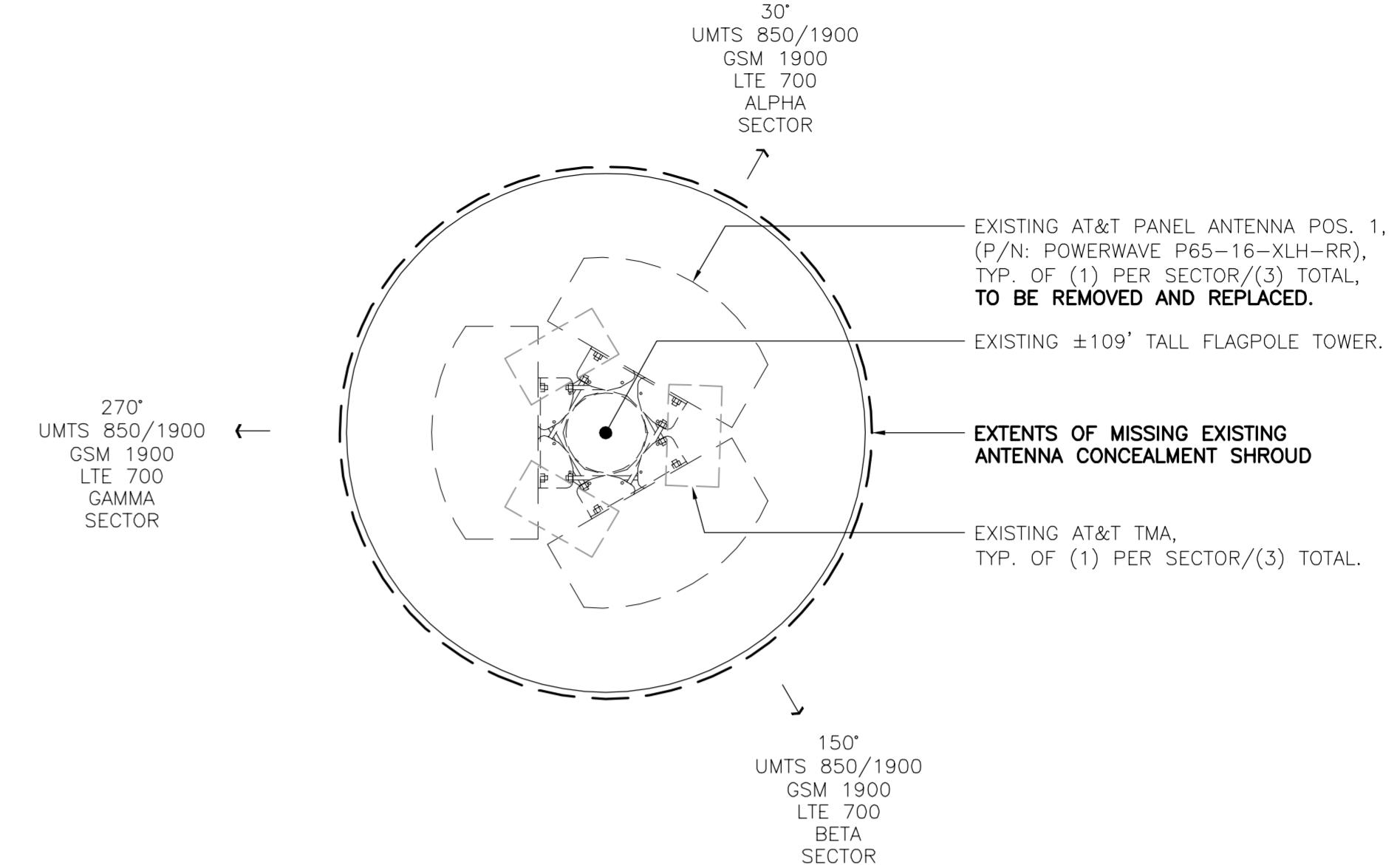
RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS A2	16.42" L x 15.19" W x 3.35" D	22.05 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

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

7 ERICSSON RRUS A2 DETAIL
C-2
SCALE: 1" = 1'-0"



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

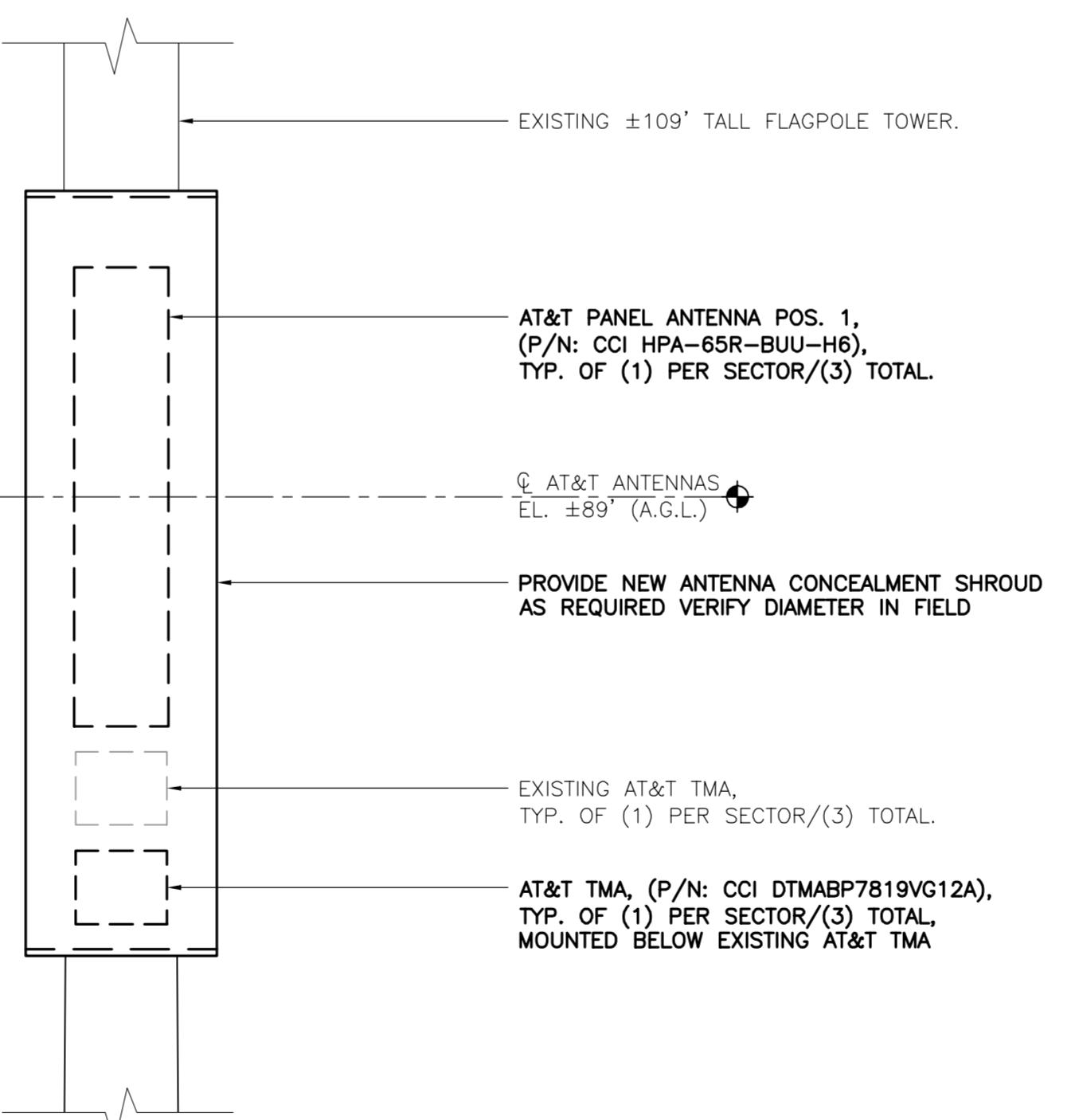


1 EXISTING ANTENNA PLAN
C-2
SCALE: 1 1/2" = 1'-0"

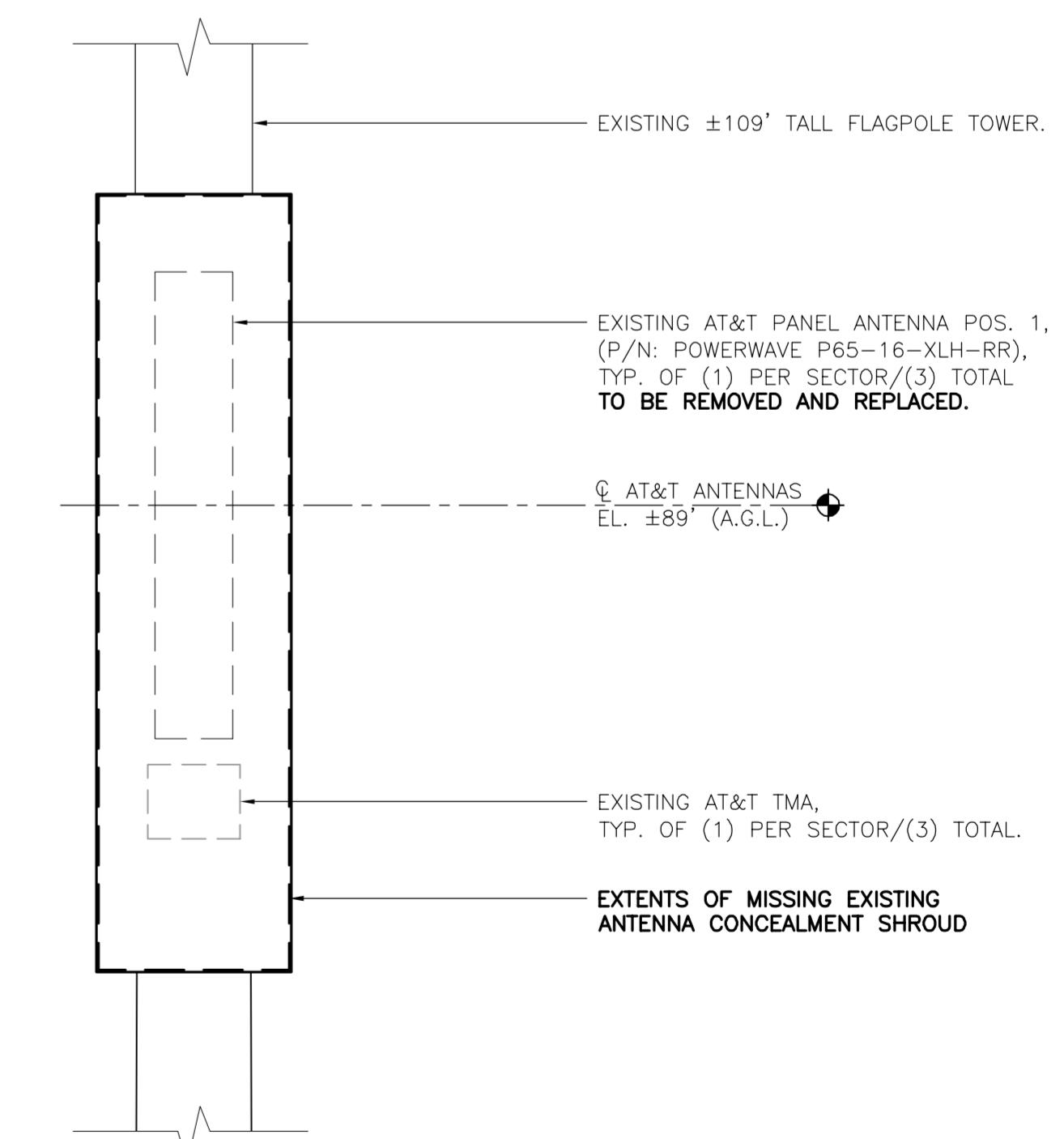


GENERAL TOWER NOTES:

1. A.G.L. = ABOVE GRADE LEVEL
2. INSTALLATION MUST NOT OBSTRUCT ANY LIGHTING, BEACON, CLIMBING PATH, OR EXISTING CO-LOCATED CARRIER INSTALLATION.
3. AT&T IS RESPONSIBLE FOR EQUIPMENT FIT AND ANY DAMAGE TO SHROUDS OR WIND BANDS DURING INSTALLATION.
4. COAX MUST TRANSITION TO 1/2" JUMPERS AT BULKHEAD LOCATION.
5. ALL COAX SHALL BE ROUTED WITHIN THE INTERIOR OF POLE.

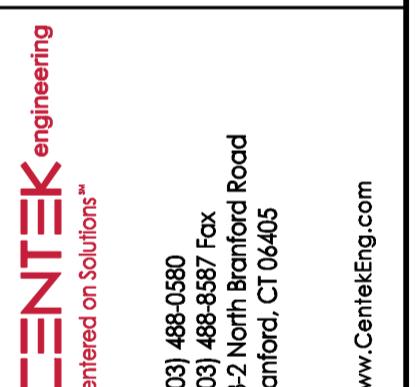


4 PROPOSED FLAG POLE ELEVATION
C-2
SCALE: 1/2" = 1'-0"



3 EXISTING FLAG POLE ELEVATION
C-2
SCALE: 1/2" = 1'-0"

PROFESSIONAL ENGINEER SEAL	
REV. DATE	08/12/16
DRAWN BY	KANUR
CAG	CONSTRUCTION DOCUMENTS - ISSUED FOR CONSTRUCTION
CHKD BY	



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LTE 2C
EQUIPMENT
DETAILS

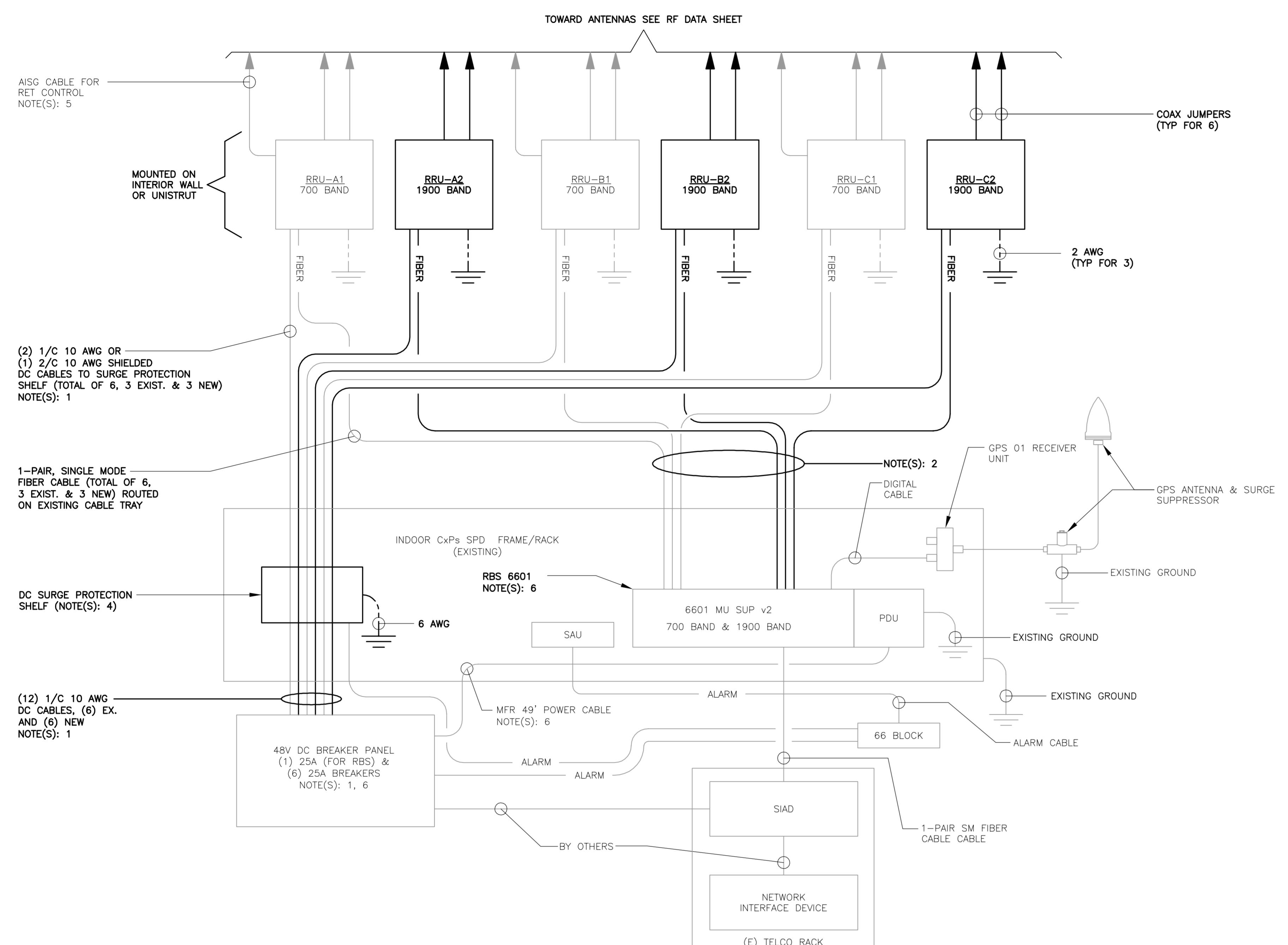
C-2
Sheet No. 4 of 7

ELECTRICAL NOTES

- PRIOR TO START OF CONSTRUCTION CONTRACTOR SHALL COORDINATE WITH OWNER FOR ALL CONSTRUCTION STANDARDS AND SPECIFICATIONS, AND ALL MANUFACTURER DOCUMENTATION FOR ALL EQUIPMENT TO BE INSTALLED.
- INSTALL ALL EQUIPMENT IN ACCORDANCE WITH LOCAL BUILDING CODE, NATIONAL ELECTRIC CODE, OWNER AND MANUFACTURER'S SPECIFICATIONS.
- CONNECT ALL NEW EQUIPMENT TO EXISTING TELCO AS REQUIRED BY MANUFACTURER.
- MAINTAIN ALL CLEARANCES REQUIRED BY NEC AND EQUIPMENT MANUFACTURER.
- PRIOR TO INSTALLATION CONTRACTOR SHALL MEASURE EXISTING ELECTRICAL LOAD AND VERIFY EXISTING AVAILABLE CAPACITY FOR PROPOSED INSTALLATION. IF INADEQUATE CAPACITY IS AVAILABLE, CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRIC UTILITY COMPANY TO UPGRADE EXISTING ELECTRIC SERVICE.
- CONTRACTOR SHALL INSPECT EXISTING GROUNDING AND LIGHTNING PROTECTION SYSTEM AND ENSURE THAT IT IS IN COMPLIANCE WITH NEC, AND SITE OWNER'S SPECIFICATIONS. THE RESULTS OF THIS INSPECTION SHALL BE PRESENTED TO OWNERS REPRESENTATIVE, AND ANY DEFICIENCIES SHALL BE CORRECTED.
- ALL TRANSMISSION TOWER SITES CONTAIN AN EXTENSIVE BURIED GROUNDING SYSTEM. ALL GROUNDING WORK MUST BE COORDINATED WITH, AND APPROVED BY, THE TOWER OWNER'S SITE REPRESENTATIVE. ALL OF THE TOWER OWNER'S SPECIFICATIONS MUST BE STRICTLY FOLLOWED.
- PROVIDE AND INSTALL GROUND KITS FOR ALL NEW COAXIAL CABLES AND BOND TO EXISTING OWNERS GROUNDING SYSTEM PER OWNERS SPECIFICATIONS AND NEC.
- ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS. #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION.
- MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.
- THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.
- THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNER'S REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES AS MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS AS MAY BE REQUIRED BY THE LOCAL AUTHORITY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE SITE AND/OR BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.
- THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.
- DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.
- ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.
- GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.
- EVERY EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122. (MIN. #12 AWG).
- CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 5 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).

TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

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



LTE SCHEMATIC DIAGRAM

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E-1

LTE SCHEMATIC DIAGRAM NOTES:

- BREAKERS TO BE TAGGED AND LOCKED OUT. A 20A (MIN.) OR 30A (MAX.) BREAKER FOR RRUs MAY BE SUBSTITUTED FOR THE RECOMMENDED 25A BREAKER. SIZE 12 CONDUCTORS MAY BE USED ONLY WITH 20A BREAKERS.
- LEAVE COILED AND PROTECTED UNTIL TERMINATED.
- DC AND FIBER CABLE SHALL BE ROUTED WITH THE EXISTING COAX CABLE.
- DC SURGE PROTECTION SHELF SHALL BE RAYCAP DCx-48-60-RM.
- FIBER & DC DISTRIBUTION BOX W/DC SURGE PROTECTION SHALL BE RAYCAP DC6-48-60-18-BF.
- SUPPORT FIBER & DC POWER CABLES WITH SNAP-IN HANGERS SPACED NO GREATER THAN 3 FEET APART ON TOWER. SUPPORT FIBER AND DC POWER CABLES INSIDE MONOPOLE WITH CABLE HOISTING GRIPS AT 250 FT MAXIMUM INTERVALS. DRESS CABLES TO PREVENT CONTACT WITH ENTRANCE AND EXIT OPENINGS.
- CONDUIT TO BE USED ON A TOWER IF THE RRU IS MORE THAN 10' FROM THE DISTRIBUTION UNITS. MAX CABLE LENGTH IS 16 FEET.
- SINGLE-CONDUCTOR DC POWER CABLES SHALL BE TELCOFLEX® OR KS24194™, COPPER, UL LISTED RRHH NON-HALOGEN, LOW SMOKE WITH BRAIDED COVER, TYPE TC (1/0 AND LARGER). UNLESS OTHERWISE NOTED, STRANDING SHALL BE CLASS B (TYPE III) FOR CABLES SIZES 14, 12, & 10 AWG AND CLASS I (TYPE IV) FOR SIZES 8 AWG AND LARGER. CABLES SHALL BE COLOR CODED RED FOR +24V, BLUE FOR -48V AND GRAY FOR 24V AND 48V RETURN CONDUCTORS. MULTI-CONDUCTOR DC POWER CABLES SHALL BE COPPER, CLASS B STRANDING WITH FLAME RETARDANT PVC JACKET, TYPE TC, UL LISTED FOR 90°C DRY/75°C WET INSTALLATION.
- GROUNDING WIRES SHALL BE COPPER, GREEN THHN/THWN UL LISTED FOR 90°C DRY/75°C WET INSTALLATION. MINIMUM SIZE IS 6 AWG UNLESS NOTED OTHERWISE.
- FIBER OPTIC CABLES SHALL BE INSTALLED IN FLEXIBLE CONDUIT AS SCOPED BY MARKET.
- RET CONTROL FROM THE RRU IS AN OPTIONAL METHOD OF CONNECTION. REFER TO RF DATA SHEET FOR APPLICABILITY.
- RBS 6601 VARIANT 2 REQUIRES A 25A BREAKER AND 10 AWG (MIN.) CONDUCTORS. REPLACE EXISTING 15A OR 20A BREAKERS AND 12 AWG CONDUCTORS WHEN UPGRADING AN EXISTING RBS 6601 VARIANT 1.

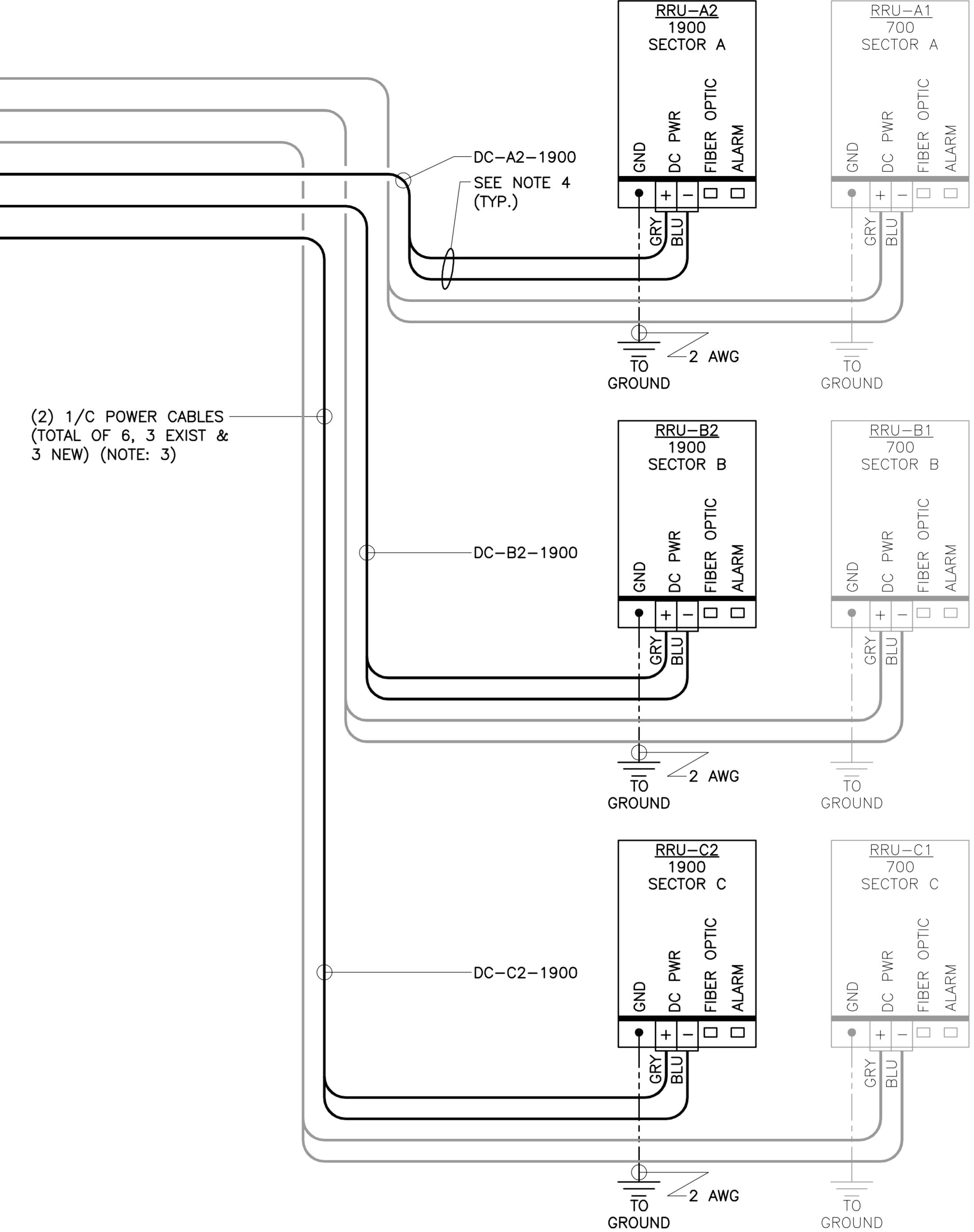
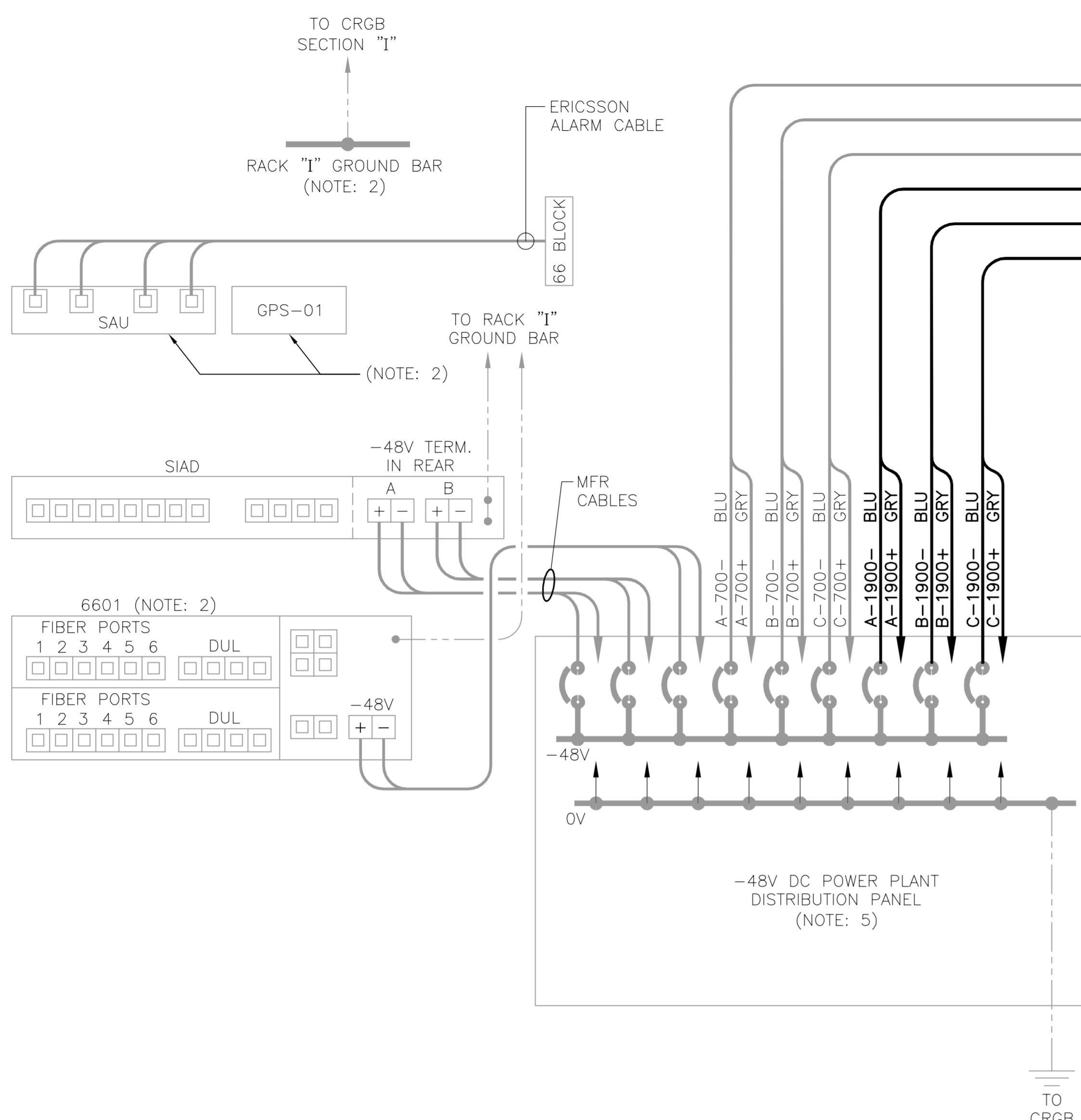


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LTE SCHEMATIC
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LTE WIRING
DIAGRAM

E-2

Sheet No. 6 of 7

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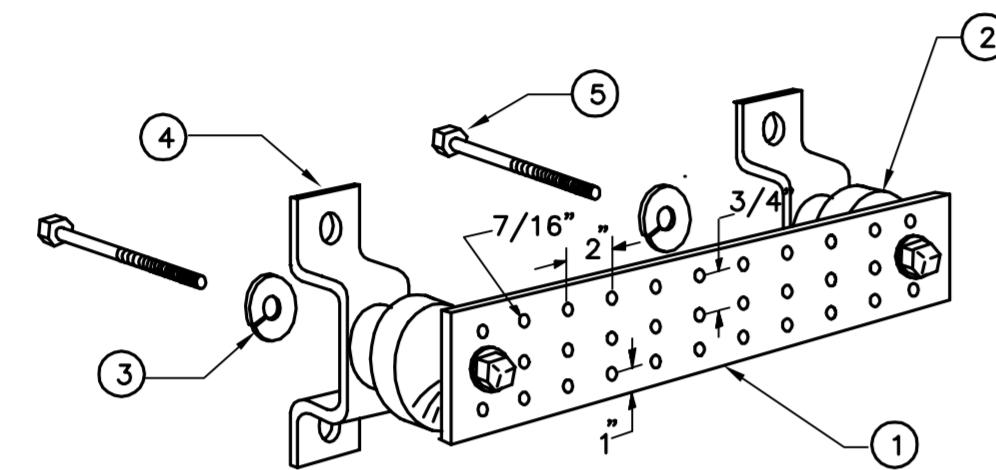
CONSTRUCTION DOCUMENTS - ISSUED FOR CONSTRUCTION

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08/12/16 KANUR CAG

REV. DATE

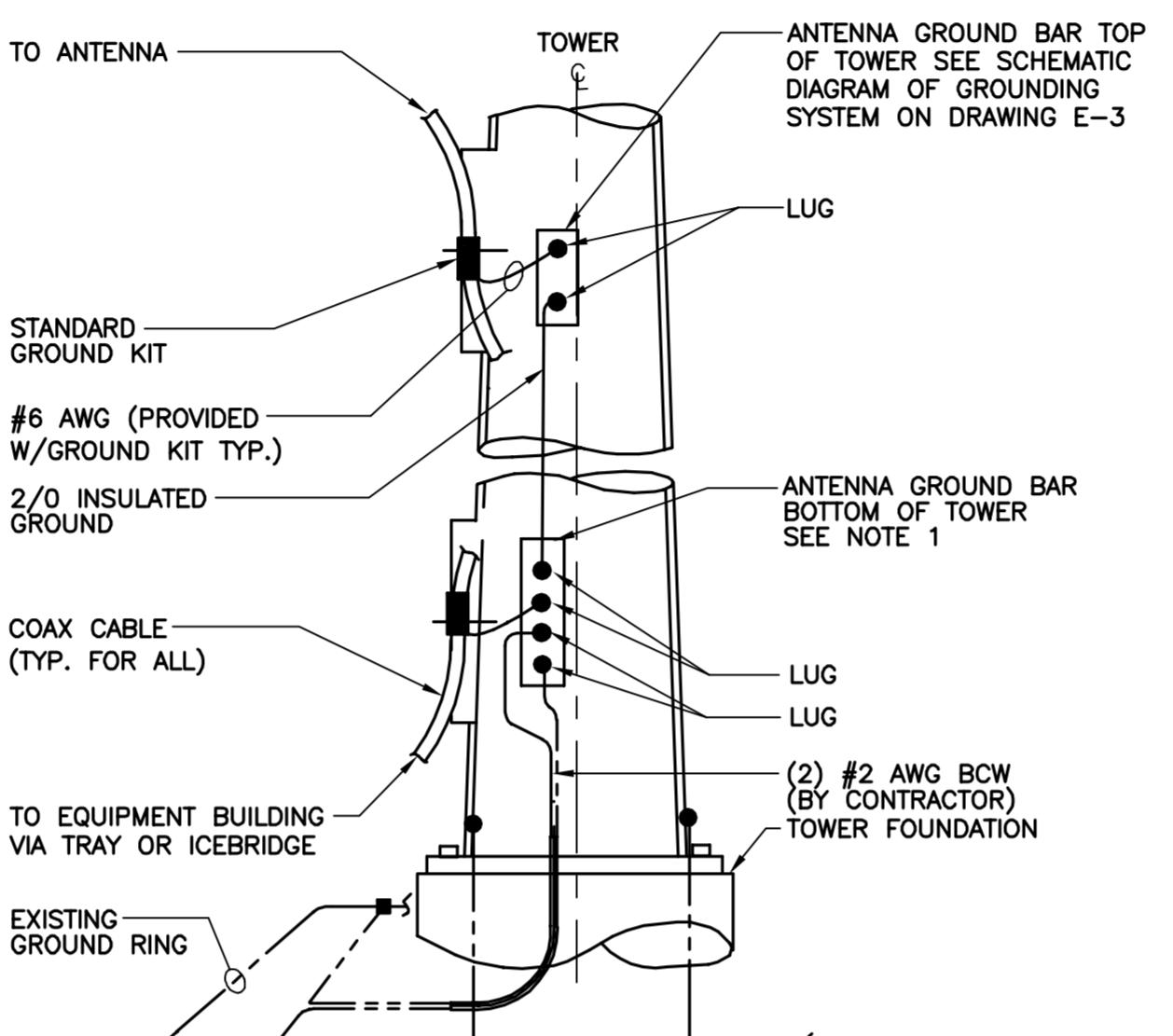
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LEGEND

1. TINNED COPPER GROUND BAR, 1/4" x 4" x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG .
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 2. 3061-4.
3. 3. 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056.
5. STAINLESS STEEL SECURITY SCREWS.

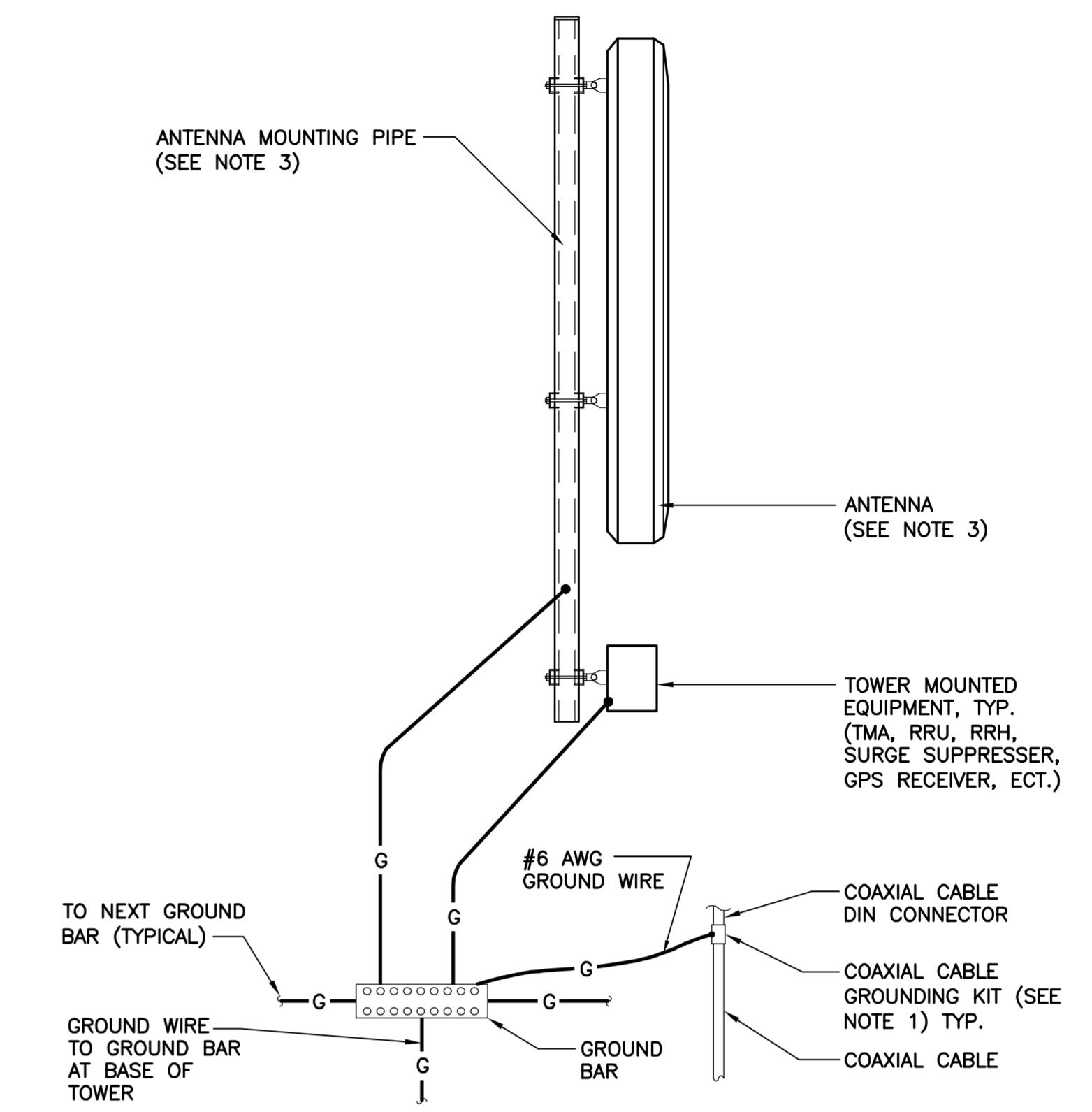
3 GROUND BAR DETAIL
E-3 NOT TO SCALE



NOTES:

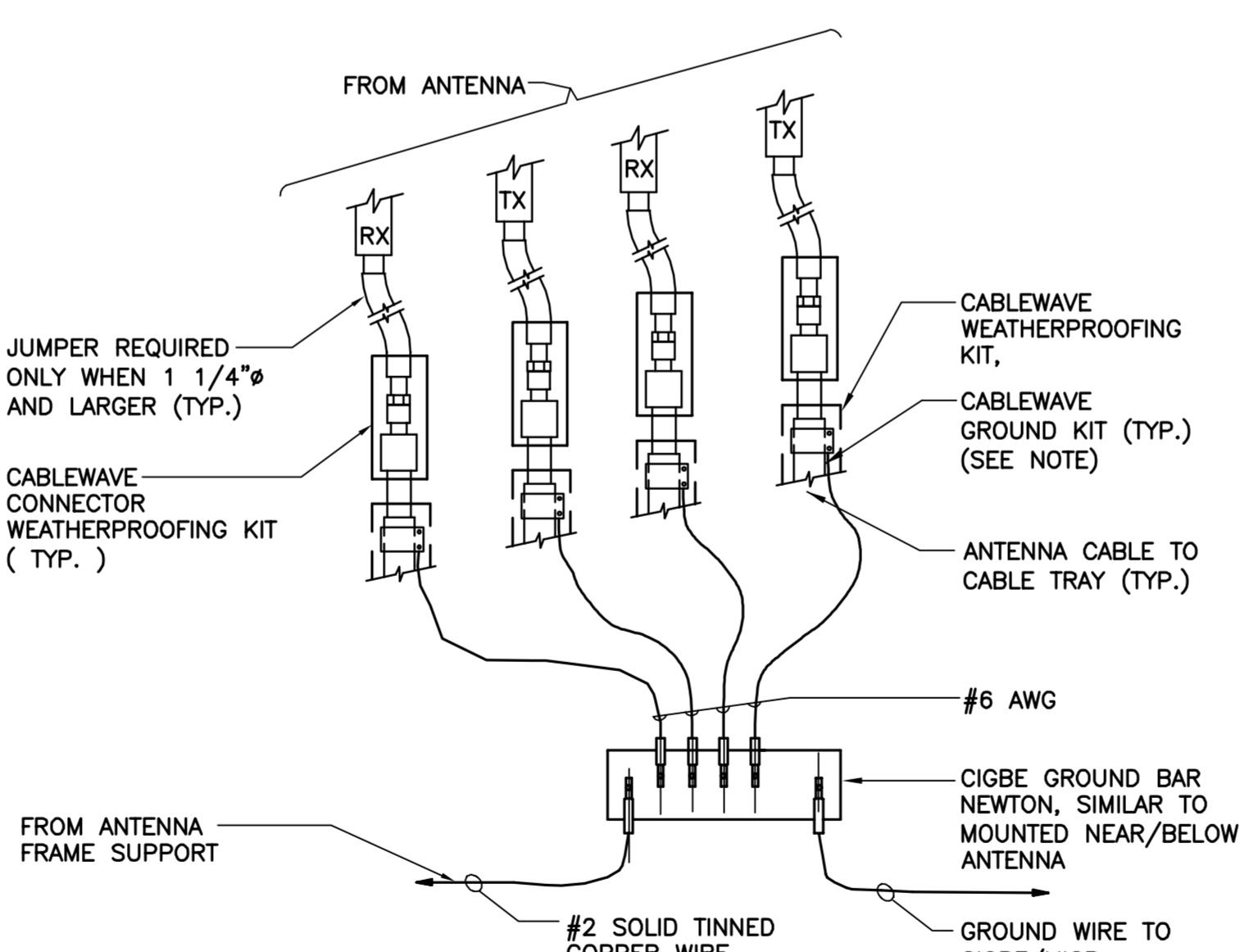
1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

2 ANTENNA CABLE GROUNDING - TOWER
E-3 NOT TO SCALE



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

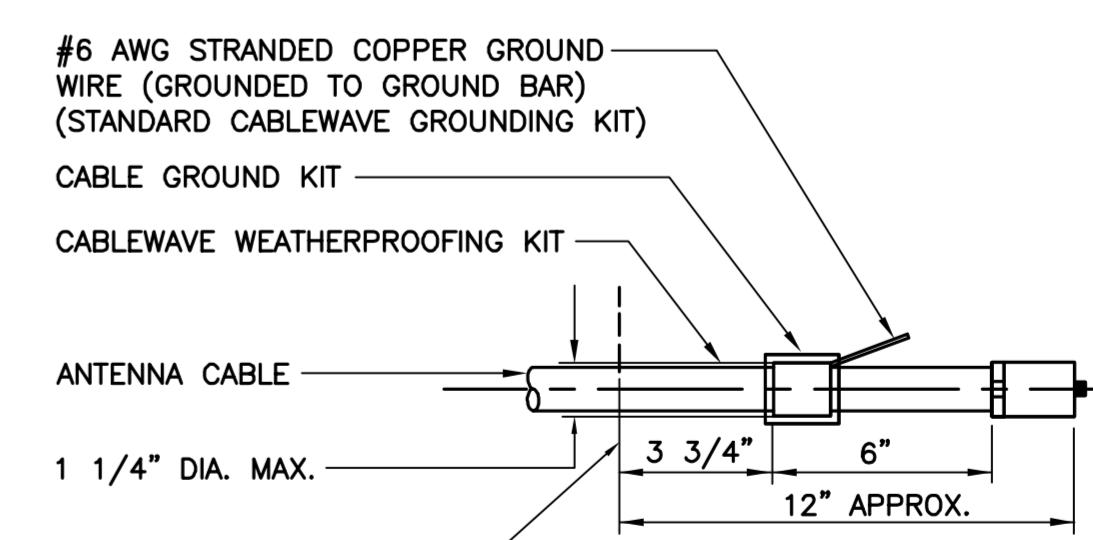
1 TYPICAL ANTENNA GROUNDING DETAIL
E-3 NOT TO SCALE



NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

5 CONNECTION OF GROUND WIRES TO GROUND BAR
E-3 NOT TO SCALE



NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

4 ANTENNA CABLE GROUNDING DETAIL
E-3 NOT TO SCALE

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TYPICAL
ELECTRICAL
DETAILS

E-3

Sheet No. 7 of 7

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