August 1, 2023

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

Re:	**Notice of Exempt Modification – Antenna and RRU Add**
Property Address:	**104 Prospect Hill Road, East Windsor, CT 06088**
Applicant:	**AT&T Mobility, LLC**

Dear Ms. Bachman:

On behalf of AT&T, please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16- 50j-72(b) (2).

AT&T currently maintains a wireless telecommunications facility consisting of nine (9) wireless telecommunication antennas at an antenna center line height of 78-feet on an existing 110-foot Water Tank, owned by owner Connecticut Water Company at 93 W. Main Street, Clinton, CT 06413.. AT&T now intends to remove three (3) 4' Kathrein 800-10121 Panel Antennas, each currently installed in position [2]. AT&T then swap these for Six (6) 8' CCI OPA65R-BU8DA Panel Antennas, each to be installed in position [3+4], all sectors. In addition, AT&T intends to remove six (6) Remote Radio Units add one (1) RRUS-4478 B14, one (1) RRUS-4449 B5/B12 and (1) RRUS-2012 B29 in positions [2+3+4], all sectors, for a total of nine (9) new RRUs. All of the changes will take place on the existing antenna mount. This modification/proposal includes B2, B5, and B12 hardware that is both 4G(LTE) and 5GNR capable through remote software configuration and either or both services may be turned on or off at various times

Attached is a summary of the planned modifications including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

Please accept this letter pursuant to Regulation of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-5I0j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent to Kenneth Rich – Town Building Official, Town of East Windsor, CT at 11 Rye Street, Broad Brook, East Windsor, CT 06016 and Jason E. Bowsza – First Selectman, Town of East Windsor, CT at 11 Rye Street, Broad Brook, East Windsor, CT 06016. A copy of this letter is being sent to the property owner Connecticut Water Company at 93 W. Main Street, Clinton, CT 06413.

The following is a list of subsequent decisions by the Connecticut Siting Council:

- **EM-AT&T-047-170130 -** AT&T notice of intent to modify an existing telecommunications facility located at 104 Prospect Hill Road, East Windsor, Connecticut
- **EM-AT&T-047-180116 –** AT&T notice of intent to modify an existing telecommunications facility located at 104 Prospect Hill Road, East Windsor, Connecticut
- **EM-AT&T-047-190522** - AT&T Mobility notice of intent to modify an existing telecommunications facility located at 104 Prospect Hill Road, East Windsor, Connecticut

The planned modifications to AT&T's 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 tower. AT&T's replacement antennas will be installed at the 78-foot level of the 110-foot Water Tank.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require and extension of the site boundary.

3. The proposed modifications will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in Tab 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in Tab 3).

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

Sincerely,

Kristina Cottone Robinson

CC w/enclosures:
Kenneth Rich– Town Building Official, Town of East Windsor, CT
Jason E. Bowsza – First Selectman, Town of East Windsor, CT
Connecticut Water Co - Property Owner

104 PROSPECT HILL RD

Location	104 PROSPECT HILL RD	**Mblu**	102/ 17/ 038/ /
Acct#	01232500	**Owner**	CONN WATER CO
Assessment	$1,190,000	**Appraisal**	$1,700,000
PID	2858	**Building Count**	1

Current Value

Appraisal					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2022	$0	$0	$0	$1,700,000	$1,700,000
Assessment					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2022	$0	$0	$0	$1,190,000	$1,190,000

Owner of Record

Owner	CONN WATER CO	**Sale Price**	$0
Co-Owner		**Certificate**	
Care Of		**Book & Page**	0073/0029
Address	93 W MAIN ST CLINTON, CT 06413	**Sale Date**	05/22/1958
		Instrument	

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
CONN WATER CO	$0		0073/0029		05/22/1958

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0

Building Attributes	
Field	**Description**
Style	Outbuildings

Model:	
Grade:	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Floor 2	
Heat Type:	
Heat Fuel	
AC Percent	
Cooling Type	
Total Bedrooms:	
Full Bthrms:	
Half Baths:	
Extra Fixtures	
Total Rooms:	
Bath Style	
Kitchen Style	
Extra Kitchens	
Bsmt Gar(s)	
SF Fin. Bsmt.	
Fin Bsmt Qual	
Wood Stoves	
Fireplace(s)	
Attic Access	
Finished Area	
Above Ground Area	

Building Photo

(https://images.vgsi.com/photos/EastWindsorCTPhotos//\0013\P1010002_

Building Layout


Building Layout (ParcelSketch.ashx?pid=2858&bid=2858)

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	402
Description	Util Vac w/OB
Zone	B-1
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.65
Assessed Value	$1,190,000
Appraised Value	$1,700,000

Outbuildings

Outbuildings					Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Bldg #**
TNK5	Elevated Tank			3.00 GALS	1
SHD1	Shed	FR	Frame	360.00 S.F.	1
SHD1	Shed	FR	Frame	360.00 S.F.	1
SHD1	Shed	FR	Frame	240.00 S.F.	1
FN2	Fence-5' Chain			600.00 L.F.	1

Valuation History

Appraisal					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2020	$0	$0	$0	$1,700,000	$1,700,000
2019	$0	$0	$0	$1,700,000	$1,700,000
2018	$0	$0	$0	$1,700,000	$1,700,000

Assessment					
Valuation Year	**Building**	**Extra Features**	**Outbuildings**	**Land**	**Total**
2020	$0	$0	$0	$1,190,000	$1,190,000
2019	$0	$0	$0	$1,190,000	$1,190,000
2018	$0	$0	$0	$1,190,000	$1,190,000

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

Site Name:	WINDSOR LOCKS NORTH
AT&T Mobility FA#	10071335
Crown Castle Site#:	NA
Site ID:	CTL05192
Project Name:	LTE
Address:	104 PROSPECT HILL ROAD, EAST WINDSOR, CT 06088
County:	HARTFORD
Latitude:	41.9266919
Longitude:	-72.6046989
Structure Type:	WATER TANK
Property Owner:	NA
Property Contact:	NA

AT&T Existing Facility

Report Information

Report Writer: Monti Kumar **Report Generated Date:** 03-30-2023

Site Compliance Statement

Compliance Status	Compliant
Cumulative General Population % MPE (Ground Level)	0.7902%

March 30, 2023

Emissions Analysis for Site: **CTL05192– WINDSOR LOCKS NORTH**

MobileComm Professionals, Inc was directed to analyze the proposed AT&T facility located at **104 PROSPECT HILL ROAD, EAST WINDSOR, CT 06088**, 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 milliwatts per square centimeter (mW/cm^2) or microwatts per square centimeter (µW/cm2). The number of mW/cm^2 or µW/cm2 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 milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the 700 and 850 MHz Bands are approximately 0.467 mW/cm^2 and 0.567 mW/cm^2 respectively or 466.667 µW/cm2 and 566.667 µW/cm2 respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS), 2300 MHz (WCS), 3540 MHz (DoD Band) and 3840 MHz (C-Band) bands is 1 mW/cm^2 or 1000 µW/cm2. 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.

1. Theoretical Calculations: Methods and Procedures

MobileComm Professionals, Inc has performed theoretical modeling of the site using a software tool, RoofMaster® Version 40.12.23.2022, which incorporates calculation methodologies detailed in FCC OET 65. RoofMaster® uses a cylindrical model for conservative power density predictions within the near field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations, the power decreases inversely with the square of the distance. The modeling is based on worst-case assumptions in terms of transmitter power and duty cycle. No losses were included in the power calculations unless they were specifically provided for the project.

In OET 65, a far field model is presented to calculate the spatial peak power density. The RoofMaster® implementation of this model incorporates antenna manufacturer's horizontal and vertical pattern data to determine the power density in all directions. This model yields the power density at a single point in space. In order to determine the spatial power density for comparison to the FCC limits, the average of several points calculated within the human profile (0-6') must be conducted. RoofMaster® calculates seven power density values between 0-6' above the specified study plane and performs a linear spatial average.

The following table details the antennas and operating parameters for the AT&T antenna system as well as any other antenna systems at the site. This is based on antenna information provided by the client and data compiled from other sources where necessary. The data below was input into Roofmaster® to perform the theoretical exposure calculations at the ground.

The theoretical calculations performed in Roofmaster® determine the cumulative exposure at all sample points at ground level (0-6' spatial average). The results from highest cumulative sample point at ground level surrounding the site are displayed in the table below. The contribution from directional antennas to the maximum cumulative totals varies greatly depending on location; therefore, the contribution from one antenna sector at the highest calculated exposure point may be greater or less than other sectors since sectorized directional antennas are pointed in different directions and there is not much overlapping exposure.

The contribution to the cumulative power density and % MPE for each antenna/frequency band is listed in the table. The cumulative power density and cumulative % MPE are displayed at the bottom of the table.

2. Antenna Inventory & Power Data

Sector	Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (^{0})	HBW (^{0})	Antenna Gain (dBd)	Antenna Aperture (ft)	#of Channels	Transmitter Power Per Channel (Watts)	Total ERP (Watts)	Total EIRP (Watts)	Height (ft)	Calculated Power Density ($\mu W/cm^2$)	Allowable MPE ($\mu W/cm^2$)	Calculated MPE%
A	1	AT&T	CCI	TPA-65R-LCUUUU-H8	Panel	700(B29)	LTE	353	66	12.95	8	2	40.00	1406.34	2307.23	78.00	0.000111	466.67	0.000024
A	1	AT&T	CCI	TPA-65R-LCUUUU-H8	Panel	2300	LTE	353	59	14.45	8	4	25.00	2483.13	4073.80	78.00	0.000136	1000.00	0.000014
A	2	AT&T	CCI	OPA65R-BU8D	Panel	700(FN)	LTE	353	75	13.55	8	4	40.00	3229.39	5298.10	78.00	0.000071	466.67	0.000015
A	2	AT&T	CCI	OPA65R-BU8D	Panel	2100	LTE	353	75	13.55	8	4	40.00	5742.75	9421.50	78.00	0.000071	466.67	0.000015
A	3	AT&T	CCI	OPA65R-BU8D	Panel	700(B12)	LTE	353	75	13.55	8	4	40.00	3229.39	5298.10	78.00	0.000071	466.67	0.000015
A	3	AT&T	CCI	OPA65R-BU8D	Panel	850	5G	353	63	14.45	8	4	40.00	3973.01	6518.08	78.00	0.000070	566.67	0.000012
A	3	AT&T	CCI	OPA65R-BU8D	Panel	1900	LTE/5G	353	67	15.75	8	4	40.00	5359.45	8792.65	78.00	0.000040	1000.00	0.000004
B	4	AT&T	CCI	TPA-65R-LCUUUU-H8	Panel	700(B29)	LTE	107	66	12.95	8	2	40.00	1406.34	2307.23	78.00	0.087046	466.67	0.018653
B	4	AT&T	CCI	TPA-65R-LCUUUU-H8	Panel	2300	LTE	107	59	14.45	8	4	25.00	2483.13	4073.80	78.00	0.115747	1000.00	0.011575
B	5	AT&T	CCI	OPA65R-BU8D	Panel	700(FN)	LTE	107	75	13.55	8	4	40.00	3229.39	5298.10	78.00	0.225111	466.67	0.048238
B	5	AT&T	CCI	OPA65R-BU8D	Panel	2100	LTE	107	69	16.05	8	4	40.00	5742.75	9421.50	78.00	0.217005	1000.00	0.021700
B	6	AT&T	CCI	OPA65R-BU8D	Panel	700(B12)	LTE	107	75	13.55	8	4	40.00	3229.39	5298.10	78.00	0.211826	466.67	0.045391
B	6	AT&T	CCI	OPA65R-BU8D	Panel	850	5G	107	63	14.45	8	4	40.00	3973.01	6518.08	78.00	0.261891	566.67	0.046216
B	6	AT&T	CCI	OPA65R-BU8D	Panel	1900	LTE/5G	107	67	15.75	8	4	40.00	5359.45	8792.65	78.00	0.222964	1000.00	0.022296
C	7	AT&T	CCI	TPA-65R-LCUUUU-H8	Panel	700(B29)	LTE	235	66	12.95	8	2	40.00	1406.34	2307.23	78.00	0.000144	466.67	0.000031
C	7	AT&T	CCI	TPA-65R-LCUUUU-H8	Panel	2300	LTE	235	59	14.45	8	4	25.00	2483.13	4073.80	78.00	0.000504	1000.00	0.000050
C	8	AT&T	CCI	OPA65R-BU8D	Panel	700(FN)	LTE	235	75	13.55	8	4	40.00	3229.39	5298.10	78.00	0.000011	466.67	0.000002
C	8	AT&T	CCI	OPA65R-BU8D	Panel	2100	LTE	235	69	16.05	8	4	40.00	5742.75	9421.50	78.00	0.000044	1000.00	0.000004
C	9	AT&T	CCI	OPA65R-BU8D	Panel	700(B12)	LTE	235	75	13.55	8	4	40.00	3229.39	5298.10	78.00	0.000019	466.67	0.000004
C	9	AT&T	CCI	OPA65R-BU8D	Panel	850	5G	235	63	14.45	8	4	40.00	3973.01	6518.08	78.00	0.000052	566.67	0.000009
C	9	AT&T	CCI	OPA65R-BU8D	Panel	1900	LTE/5G	235	67	15.75	8	4	40.00	5359.45	8792.65	78.00	0.000072	1000.00	0.000007
A	10	Verizon	Samsung	XXDWMM-12.5-65-8T-C	Panel	3500	LTE	90	65	10.85	1	4	5.00	216.79	355.66	87.00	0.027298	1000.00	0.002730
A	11	Verizon	Commscope	SBNHH-1D65B	Panel	700	LTE	90	68	12.75	6.1	4	40.00	2686.09	4406.77	87.00	0.224528	466.67	0.048113
A	11	Verizon	Commscope	SBNHH-1D65B	Panel	850	LTE	90	66	12.55	6.1	4	40.00	2565.19	4208.43	87.00	0.212440	566.67	0.037489
A	12	Verizon	Commscope	SBNHH-1D65B	Panel	1900	LTE	90	66	16.05	6.1	4	40.00	5742.75	9421.50	87.00	0.189034	1000.00	0.018903
A	12	Verizon	Commscope	SBNHH-1D65B	Panel	2100	LTE	90	63	16.45	6.1	4	40.00	6296.80	10330.47	87.00	0.191312	1000.00	0.019131
A	13	Verizon	Samsung	MT6407-77A	Panel	3700	5G	90	17	22.85	2.92	4	35.00	26985.35	44271.89	87.00	1.942426	1000.00	0.194243
B	14	Verizon	Samsung	XXDWMM-12.5-65-8T-C	Panel	3500	LTE	210	65	10.85	1	4	5.00	216.79	355.66	87.00	0.000061	1000.00	0.000006
B	15	Verizon	Commscope	SBNHH-1D65B	Panel	700	LTE	210	68	12.75	6.1	4	40.00	2686.09	4406.77	87.00	0.000479	466.67	0.000103
B	15	Verizon	Commscope	SBNHH-1D65B	Panel	850	LTE	210	66	12.55	6.1	4	40.00	2565.19	4208.43	87.00	0.000024	566.67	0.000004
B	16	Verizon	Commscope	SBNHH-1D65B	Panel	1900	LTE	210	66	16.05	6.1	4	40.00	5742.75	9421.50	87.00	0.000042	1000.00	0.000004
B	16	Verizon	Commscope	SBNHH-1D65B	Panel	2100	LTE	210	63	16.45	6.1	4	40.00	6296.80	10330.47	87.00	0.000077	1000.00	0.000008
B	17	Verizon	Samsung	MT6407-77A	Panel	3700	5G	210	17	22.85	2.92	4	35.00	26985.35	44271.89	87.00	0.016228	1000.00	0.001623
C	18	Verizon	Samsung	XXDWMM-12.5-65-8T-C	Panel	3500	LTE	330	65	10.85	1	4	5.00	216.79	355.66	87.00	0.000109	1000.00	0.000011
C	19	Verizon	Commscope	SBNHH-1D65B	Panel	700	LTE	330	68	12.75	6.1	4	40.00	2686.09	4406.77	87.00	0.000436	466.67	0.000093
C	19	Verizon	Commscope	SBNHH-1D65B	Panel	850	LTE	330	66	12.55	6.1	4	40.00	2565.19	4208.43	87.00	0.000596	566.67	0.000105
C	20	Verizon	Commscope	SBNHH-1D65B	Panel	1900	LTE	330	66	16.05	6.1	4	40.00	5742.75	9421.50	87.00	0.000123	1000.00	0.000012
C	20	Verizon	Commscope	SBNHH-1D65B	Panel	2100	LTE	330	63	16.45	6.1	4	40.00	6296.80	10330.47	87.00	0.000035	1000.00	0.000004
C	21	Verizon	Samsung	MT6407-77A	Panel	3700	5G	330	17	22.85	2.92	4	35.00	26985.35	44271.89	87.00	0.015937	1000.00	0.001594

Table 2.1: Antenna Inventory & Power Data

**NOTE: 75% Duty Cycle and adjusted power reduction factor of 0.32 was applied to the AIR6449 & AIR6449 antennas per guidance from AT&T. Specifications were not available for the Ericsson AIR 6449 antenna. Per AT&T, specifications for the AIR 6449 antenna were used to model the 6449 due to its similarity.*

Sector	Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (^{0})	HBW (^{0})	Antenna Gain (dBd)	Antenna Aperture (ft)	#of Channels	Transmitter Power Per Channel (Watts)	Total ERP (Watts)	Total EIRP (Watts)	Height (ft)	Calculated Power Density ($\mu W/cm^2$)	Allowable MPE ($\mu W/cm^2$)	Calculated MPE%
A	22	T-Mobile	Ericsson	AIR6449_LTE_B41	Panel	2500	LTE	0	12.5	22.65	2.75	1	40.76	7485.61	12280.81	98.00	0.486008	1000.00	0.048601
A	22	T-Mobile	Ericsson	AIR6449_NR_B41	Panel	2500	5G	0	12.5	22.65	2.75	1	67.78	12476.02	20468.02	98.00	0.810011	1000.00	0.081001
A	23	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	600	LTE	0	64.3	12.95	8	2	30	1054.75	1730.42	98.00	0.047536	400.00	0.011884
A	23	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	600	5G	0	64.3	12.95	8	1	80	1406.34	2307.23	98.00	0.063382	400.00	0.015845
A	23	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	700	LTE	0	63.3	14.05	8	2	30	1358.79	2229.21	98.00	0.051965	466.67	0.011135
A	24	T-Mobile	Ericsson	KRD901146-1_A	Panel	1900	LTE	0	63.3	15.35	4.94	1	80	2742.14	4498.73	98.00	0.091854	1000.00	0.009185
A	24	T-Mobile	Ericsson	KRD901146-1_A	Panel	2100	LTE	0	63.3	15.35	4.94	2	80	5484.28	8997.46	98.00	0.202781	1000.00	0.020278
B	25	T-Mobile	Ericsson	AIR6449_LTE_B41	Panel	2500	LTE	120	12.5	22.65	2.75	1	40.76	7485.61	12280.81	98.00	0.004403	1000.00	0.000440
B	25	T-Mobile	Ericsson	AIR6449_NR_B41	Panel	2500	5G	120	12.5	22.65	2.75	1	67.78	12476.02	20468.02	98.00	0.007339	1000.00	0.000734
B	26	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	600	LTE	120	64.3	12.95	8	2	30	1054.75	1730.42	98.00	0.000264	400.00	0.000066
B	26	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	600	5G	120	64.3	12.95	8	1	80	1406.34	2307.23	98.00	0.000353	400.00	0.000088
B	26	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	700	LTE	120	63.3	14.05	8	2	30	1358.79	2229.21	98.00	0.000046	466.67	0.000010
B	27	T-Mobile	Ericsson	KRD901146-1_A	Panel	1900	LTE	120	63.3	15.35	4.94	1	80	2742.14	4498.73	98.00	0.000149	1000.00	0.000015
B	27	T-Mobile	Ericsson	KRD901146-1_A	Panel	2100	LTE	120	63.3	15.35	4.94	2	80	5484.28	8997.46	98.00	0.000223	1000.00	0.000022
C	28	T-Mobile	Ericsson	AIR6449_LTE_B41	Panel	2500	LTE	240	12.5	22.65	2.75	1	40.76	7485.61	12280.81	98.00	0.009853	1000.00	0.000985
C	28	T-Mobile	Ericsson	AIR6449_NR_B41	Panel	2500	5G	240	12.5	22.65	2.75	1	67.78	12476.02	20468.02	98.00	0.016422	1000.00	0.001642
C	29	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	600	LTE	240	64.3	12.95	8	2	30	1054.75	1730.42	98.00	0.000326	400.00	0.000082
C	29	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	600	5G	240	64.3	12.95	8	1	80	1406.34	2307.23	98.00	0.000435	400.00	0.000109
C	29	T-Mobile	RFS	APXVAALL24_43-U-NA20	Panel	700	LTE	240	63.3	14.05	8	2	30	1358.79	2229.21	98.00	0.000483	466.67	0.000104
C	30	T-Mobile	Ericsson	KRD901146-1_A	Panel	1900	LTE	240	63.3	15.35	4.94	1	80	2742.14	4498.73	98.00	0.000334	1000.00	0.000033
C	30	T-Mobile	Ericsson	KRD901146-1_A	Panel	2100	LTE	240	63.3	15.35	4.94	2	80	5484.28	8997.46	98.00	0.000329	1000.00	0.000033
A	31	Sprint	Generic	PANEL 6FT	Panel	850	LTE	0	60	13.11045	6	1	90	1719.048	2820.2523	78.00	0.154075	566.67	0.027190
A	32	Sprint	Generic	PANEL 6FT	Panel	1900	LTE	0	61	15.71957	6	1	90	3134.722	5142.7928	78.00	0.000038	1000.00	0.000004
A	33	Sprint	Generic	PANEL 6FT	Panel	850	LTE	120	60	13.11045	6	1	90	1719.048	2820.2523	78.00	0.154076	566.67	0.001180
A	34	Sprint	Generic	PANEL 6FT	Panel	1900	LTE	120	61	15.71957	6	1	90	3134.722	5142.7928	78.00	0.000034	1001.00	0.000005
A	35	Sprint	Generic	PANEL 6FT	Panel	850	LTE	240	60	13.11045	6	1	90	1719.048	2820.2523	78.00	0.154074	566.67	0.021160
A	36	Sprint	Generic	PANEL 6FT	Panel	1900	LTE	240	61	15.71957	6	1	90	3134.722	5142.7928	78.00	0.000039	1003.00	0.000006
																Calculated Power Density ($\mu W/cm^2$)	6.421023%	Calculated MPE%	0.7902%

Table 2.2: Antenna Inventory & Power Data

**NOTE: 75% Duty Cycle and adjusted power reduction factor of 0.32 was applied to the AIR6449 & AIR6449 antennas per guidance from AT&T. Specifications were not available for the Ericsson AIR 6449 antenna. Per AT&T, specifications for the AIR 6449 antenna were used to model the 6449 due to its similarity.*

3. Compliance Summary

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

The anticipated composite MPE value for this site assuming all carriers present is 0.7902% of the allowable FCC established general public limit sampled at the ground level.

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 within the allowable 100% threshold standard per the federal government.

(REVISED)
STRUCTURAL ANALYSIS REPORT

For

AT&T Site Number: CTL05192

TEP Project Number: 317894.754389

AT&T Site Name: WINDSOR LOCKS NORTH

104 Prospect Hill Road
East Windsor, CT 06088

Antennas Mounted to Steel Frames on Water Tank

Prepared for:

smartlink at&t

Dated: May 2, 2023 (Rev.2)
January 6, 2023 (Rev.1)
August 25, 2022

Prepared by:

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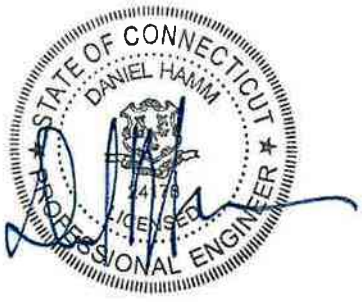

SCOPE OF WORK:

TEP Northeast (TEP NE) has been authorized by AT&T to conduct a structural evaluation of the structure supporting the proposed AT&T equipment located in the areas depicted in the latest TEP NE construction drawings.

This report represents this office's findings, conclusions and recommendations pertaining to the support of AT&T's proposed equipment.

TEP NE's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mounts on July 05, 2022.

The following documents were used for our reference:

- Partial Water Tank Drawings prepared by Chicago Bridge & Iron Company dated June 3, 1963.
- Previous Structural Analysis Report prepared by Hudson Design Group, LLC dated April 9, 2019.
- Mount Mapping Report prepared by ProVertic dated August 9, 2022.

CONCLUSION SUMMARY:

Based on our evaluation, we have determined that the existing structure **IS CAPABLE** of supporting the proposed equipment loading.

	Controlling Load Case	Stress Ratio	Pass/Fail
Water Tank	Overturning	40%	**PASS**

Based on our evaluation, we have determined that the existing mounts **ARE CAPABLE** of supporting the proposed equipment loading with the following modifications.

- **Install proposed HHS 4x4x1/4 standoff for proposed position 1 antenna secured to the existing water tank façade (typ. of 2 per sector, total of 6).**
- **Install proposed 2-1/2" std. (2.88" O.D.) pipe mast behind proposed position 3 antenna secured to the existing mount (typ. of 1 per sector, total of 3).**

	Member	Controlling Load Case	Stress Ratio	Pass/Fail
Antenna Mount	32	LC1	92%	**PASS**

Based on our evaluation, we have determined that the existing and proposed connections **ARE CAPABLE** of supporting the proposed equipment loading.

	Member	Stress Ratio	Pass/Fail
Existing Connection	5/16-18 Stud Weld	25%	**PASS**
Proposed Connection	5/16-18 Stud Weld	52%	**PASS**

A condition assessment on the existing water tank was not part of the scope of work.

APPURTENANCE CONFIGURATION (BASED ON RFDS V2.0 DATED 7/5/2022):

Appurtenances	Dimensions	Weight	**Elevation	Mount
(3) TPA-65R-LCUUUU-H8 Antennas	96.0"x14.4"x8.6"	75 lbs	78'-0"	Steel Frame
(3) RRUS-32 B30 RRH's	27.2"x12.1"x7.0"	60 lbs	-	Steel Frame
(3) 8843 B2/B66A RRH's	14.9"x13.2"x10.9"	72 lbs	-	Steel Frame
(3) DC6-48-60-18-8F Surge Arrestors	31.4"x10.2"Ø	29 lbs	-	Steel Frame
(6) OPA65R-BU8DA Antennas	96.0"x20.7"x7.7"	79 lbs	78'-0"	Steel Frame
(3) RRUS-2012 B29 RRH's	16.5"x13.4"x6.4"	46 lbs	-	Steel Frame
(3) 4478 B14 RRH's	18.1"x13.4"x8.3"	60 lbs	-	Steel Frame
(3) 4449 B5/B12 RRH's	17.9"x13.2"x9.4"	73 lbs	-	Steel Frame

** Proposed equipment shown in bold.*
*** Elevation to antenna centerline.*

DESIGN CRITERIA:

International Building Code (IBC) 2021 with 2022 Connecticut State Building Code Amendments, and ASCE 7-16 (Minimum Design Loads for Buildings and Other Structures).		
Wind		
Reference Wind Speed:	135 mph	(2022 CSBC Appendix P)
Exposure Category:	B	(ASCE 7-16 Chapter 26)
Risk Category:	IV	(ASCE 7-16 Table 1.5-1)
Snow		
Ground Snow, P_g:	30	(2022 CSBC Appendix P)
Importance Factor (I_s):	1.2	(ASCE 7-16 Table 1.5-2)
Exposure Factor (C_e):	1.0	(Fully Exposed, Table 7.3-1)
Thermal Factor (C_t):	1.0	(ASCE 7-16 Table 7.3-2)
Flat Roof Snow Load:	26.5 psf	(ASCE 7-16 Equation 7.3-1)
Min. Flat Roof Snow Load:	30 psf	
EIA/TIA-222-H Structural Standards for Steel Antenna Towers and Antenna Supporting Structures		
Wind		
City/Town:	East Windsor	
County:	Hartford	
Wind Load:	135 mph	(TIA-222-H Figure B-2)
Ice		
Design Ice Thickness (t_i):	1.5 in	(TIA-222-H Figure B-9)
Structure Class:	II	(TIA-222-H Table 2-1)
Importance Factor (I_i):	1.25	(TIA-222-H Table 2-3)
Factored Thickness of Radial Ice (t_{iz}):	2.22 in	(TIA-222-H Sec. 2.6.10)

ANTENNA/RRH SUPPORT RECOMMENDATIONS:

The proposed antennas and RRH's are to be mounted on the existing and proposed pipes masts installed on the existing and proposed steel frames secured to the existing water tank façade with capacity discharge (CD) stud welds.

Limitations and assumptions:

1. Reference the latest TEP NE construction drawings for all the equipment locations and details.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer requirements.
4. TEP NE is not responsible for any modifications completed prior to and hereafter which TEP NE was not directly involved.
5. If field conditions differ from what is assumed in this report, then the engineer of record is to be notified as soon as possible.
6. A condition assessment on the existing water tank was not part of the scope of work.

Wind and Ice Calculations

Date: 12/29/2022
Project Name: WINDSOR LOCKS NORTH
Project No.: CT5192
Designed By: KSBM **Checked By:** MSC

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01\ (z/z_g)^{2/\alpha}$

z=	78.00	(ft)
z_g=	1200	(ft)
α=	7	

K_z= 0.921

Kzmin ≤ Kz ≤ 2.01

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_c K_t/K_h)]^2$

$K_h = e^{(f*z/H)}$

K_{zt}= 1.260800579

(If Category 1 then K_{zt}=1.0)

Category= **3**

K_h=	3.8826649	
K_c=	0.9	(from Table 2-4)
K_t=	0.53	(from Table 2-5)
f=	2	(from Table 2-5)
z=	78.00	
z_s=	206	(Mean elevation of base of structure above sea level)
H=	115	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.26	(from 2.6.6.2.1)
K_e=	0.99	(from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness =	t_i =	1.50	in
Importance Factor =	I=	1.25	(from Table 2-3)
	K_{iz} =	1.09	(from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$

t_{iz} = 2.22 in

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Designed By: KSBM Checked By: MSC

2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

G_h = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	110	G_h=	0.85
2.6.9.2 Guyed Masts		G_h=	0.85
2.6.9.3 Pole Structures		G_h=	1.1
2.6.9 Appurtenances		G_h=	1.0

2.6.9.4 Structures Supported on Other Structures
(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

G_h=	1.35	**Gh=**	**1.00**

2.6.11.2 Design Wind Force on Appurtenances

$F = q_z * G_h * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

q_z=	**51.06**	K_z=	0.921	(from 2.6.5.2)
$q_{z\ (ice)}$=	**7.00**	K_{zt}=	1.3	(from 2.6.6.2.1)
$q_{z\ (30)}$=	**2.52**	K_s=	1.0	(from 2.6.7)
		K_e=	0.99	(from 2.6.8)
		K_d=	0.95	(from Table 2-2)
		V_{max}=	135	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

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Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		1.2 - 2.8(r_s) ≥ 0.85	1.4 - 4.0(r_s) ≥ 0.90	2.0 - 6.0(r_s) ≥ 1.25
Round	C < 39 (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance,

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **2.22** in | **Angle =** **0 (deg)** | **Equivalent Angle =** **180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)
TPA-65R-LCUUUU-H8 Antenna	96.0	14.4	8.6	9.60	6.67	1.39	679	127
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	4.64	1.30	912	159
RRUS-2012 B29 RRH	16.5	13.4	6.4	1.54	1.23	1.20	94	22
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	2.25	1.20	140	31
4478 B14 RRH	18.1	13.4	8.3	1.68	1.35	1.20	103	23
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.36	1.20	101	23
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.20	84	20
DC6-48-60-18-8F Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	79	18
2" Pipe	2.4	12.0		0.20	0.20	1.20	12	
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	15	
HSS 4x4	4.0	12.0		0.33	0.33	1.25	21	

Date: 12/29/2022
Project Name: WINDSOR LOCKS NORTH
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Designed By: KSBM Checked By: MSC

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	2.22	in.	Equivalent Angle =	240	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
TPA-65R-LCUUUU-H8 Antenna	96.0	14.4	8.6	9.60	5.73	6.67	11.16	1.39	1.54	679	450	508
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	912	415	539
RRUS-2012 B29 RRH	16.5	13.4	6.4	1.54	0.73	1.23	2.58	1.20	1.20	94	45	57
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	140	85	99
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	103	64	74
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	101	72	79
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	84	69	73

WIND LOADS WITH ICE:

TPA-65R-LCUUUU-H8 Antenna	100.4	18.8	13.0	13.13	9.09	5.33	7.71	1.33	1.42	122	91	98
OPA65R-BU8DA Antenna	100.4	25.1	12.1	17.53	8.46	4.00	8.28	1.27	1.44	155	85	103
RRUS-2012 B29 RRH	20.9	17.8	10.8	2.59	1.57	1.17	1.93	1.20	1.20	22	13	15
RRUS-32 B30 RRH	31.6	16.5	11.4	3.63	2.51	1.91	2.77	1.20	1.21	31	21	24
4478 B14 RRH	22.5	17.8	12.7	2.79	1.99	1.26	1.77	1.20	1.20	23	17	18
4449 B5/B12 RRH	22.3	17.6	13.8	2.73	2.15	1.27	1.61	1.20	1.20	23	18	19
8843 B2/B66A RRH	19.3	17.6	15.3	2.37	2.06	1.10	1.26	1.20	1.20	20	17	18

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WIND LOADS

Angle =	90	(deg)	Ice Thickness =	2.22	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
TPA-65R-LCUUUU-H8 Antenna	96.0	14.4	8.6	9.60	5.73	6.67	11.16	1.39	1.54	679	450	450
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	912	415	415
RRUS-2012 B29 RRH	16.5	13.4	6.4	1.54	0.73	1.23	2.58	1.20	1.20	94	45	45
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	140	85	85
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	103	64	64
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	101	72	72
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	84	69	69

WIND LOADS WITH ICE:

TPA-65R-LCUUUU-H8 Antenna	100.4	18.8	13.0	13.13	9.09	5.33	7.71	1.33	1.42	122	91	91
OPA65R-BU8DA Antenna	100.4	25.1	12.1	17.53	8.46	4.00	8.28	1.27	1.44	155	85	85
RRUS-2012 B29 RRH	20.9	17.8	10.8	2.59	1.57	1.17	1.93	1.20	1.20	22	13	13
RRUS-32 B30 RRH	31.6	16.5	11.4	3.63	2.51	1.91	2.77	1.20	1.21	31	21	21
4478 B14 RRH	22.5	17.8	12.7	2.79	1.99	1.26	1.77	1.20	1.20	23	17	17
4449 B5/B12 RRH	22.3	17.6	13.8	2.73	2.15	1.27	1.61	1.20	1.20	23	18	18
8843 B2/B66A RRH	19.3	17.6	15.3	2.37	2.06	1.10	1.26	1.20	1.20	20	17	17

Date: 12/29/2022
Project Name: WINDSOR LOCKS NORTH
Project No.: CT5192
Designed By: KSBM **Checked By:** MSC

ICE WEIGHT CALCULATIONS

Thickness of ice:	2.22	in.
Density of ice:	56	pcf

TPA-65R-LCUUUU-H8 Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	14.4	
Depth (in):	8.6	
Total weight of ice on object:	412	lbs
Weight of object:	75.0	lbs
Combined weight of ice and object:	487	lbs

OPA65R-BU8DA Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:	527	lbs
Weight of object:	79.0	lbs
Combined weight of ice and object:	606	lbs

RRUS-2012 B29 RRH

Weight of ice based on total radial SF area:

Height (in):	16.5	
Width (in):	13.4	
Depth (in):	6.4	
Total weight of ice on object:	64	lbs
Weight of object:	46.0	lbs
Combined weight of ice and object:	110	lbs

RRUS-32 B30 RRH

Weight of ice based on total radial SF area:

Height (in):	27.2	
Width (in):	12.1	
Depth (in):	7.0	
Total weight of ice on object:	100	lbs
Weight of object:	60.0	lbs
Combined weight of ice and object:	160	lbs

4478 B14 RRH

Weight of ice based on total radial SF area:

Height (in):	18.1	
Width (in):	13.4	
Depth (in):	8.3	
Total weight of ice on object:	74	lbs
Weight of object:	60.0	lbs
Combined weight of ice and object:	134	lbs

4449 B5/B12 RRH

Weight of ice based on total radial SF area:

Height (in):	17.9	
Width (in):	13.2	
Depth (in):	9.4	
Total weight of ice on object:	75	lbs
Weight of object:	73.0	lbs
Combined weight of ice and object:	148	lbs

8843 B2/B66A RRH

Weight of ice based on total radial SF area:

Height (in):	14.9	
Width (in):	13.2	
Depth (in):	10.9	
Total weight of ice on object:	65	lbs
Weight of object:	72.0	lbs
Combined weight of ice and object:	137	lbs

DC6-48-60-18-8F Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	31.4	
Diameter(in):	10.2	
Total weight of ice on object:	88	lbs
Weight of object:	29	lbs
Combined weight of ice and object:	117	lbs

2" pipe

Per foot weight of ice:

diameter (in):	2.38	
Per foot weight of ice on object:	12	plf

HSS 4x4

Weight of ice based on total radial SF area:

Height (in):	4	
Width (in):	4	
Per foot weight of ice on object:	21	plf

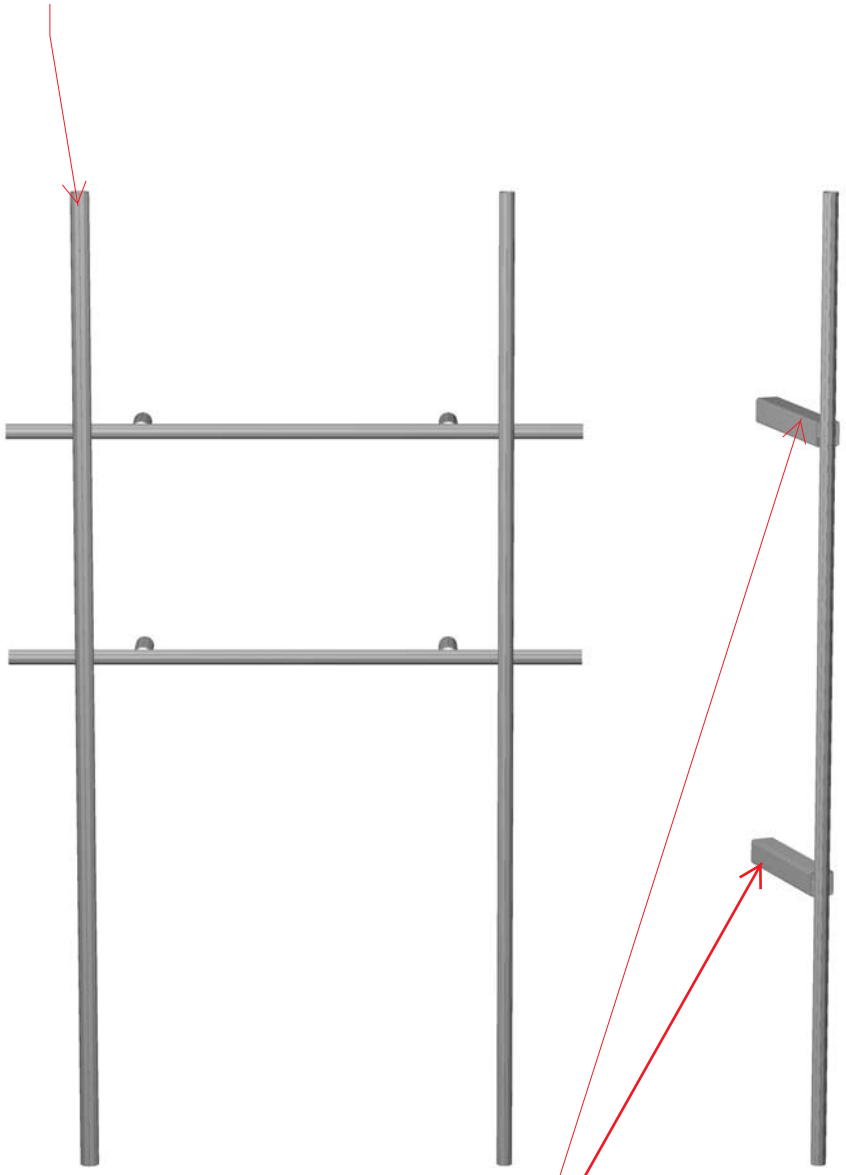
2-1/2" pipe

Per foot weight of ice:

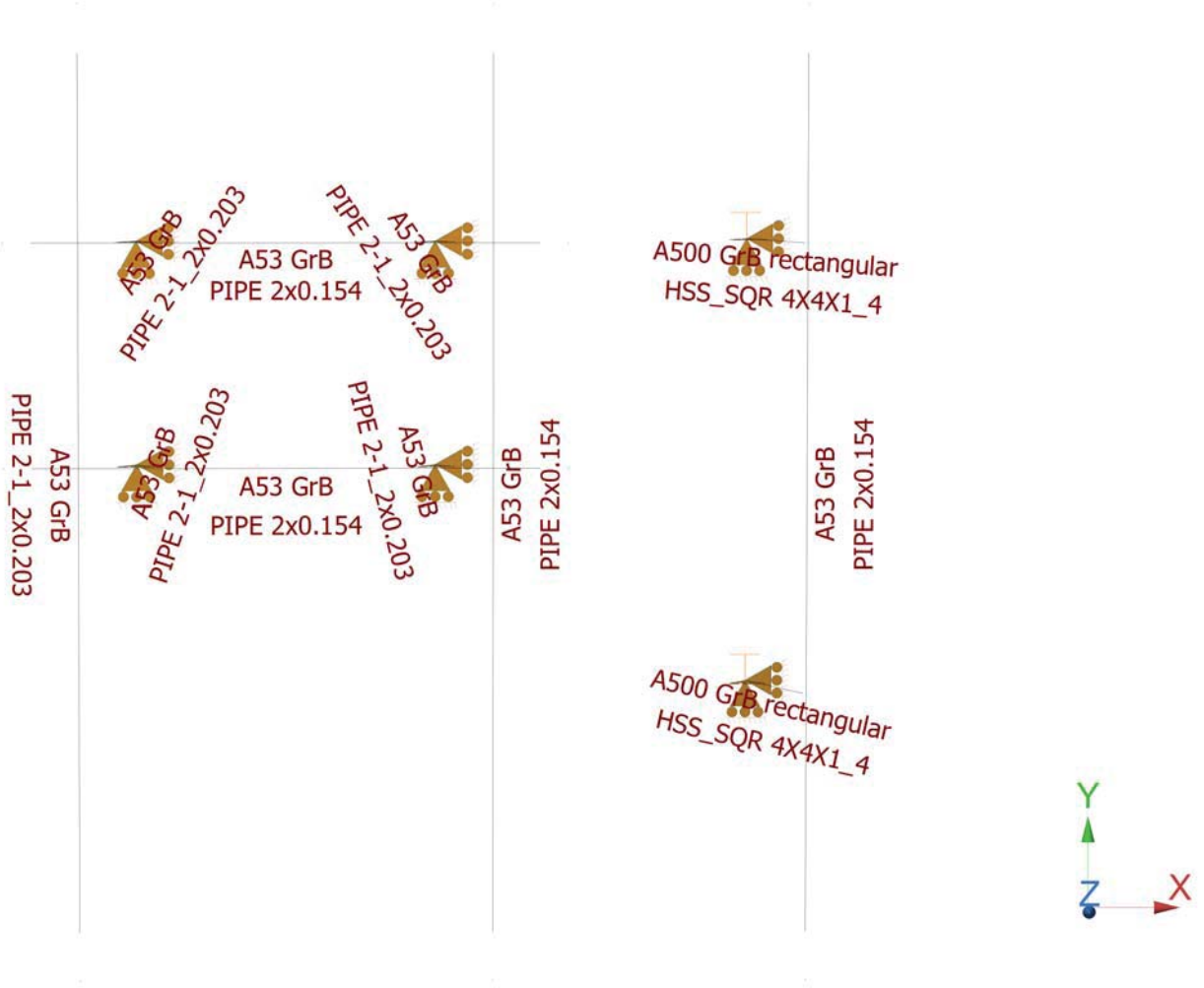
diameter (in):	2.88	
Per foot weight of ice on object:	14	plf

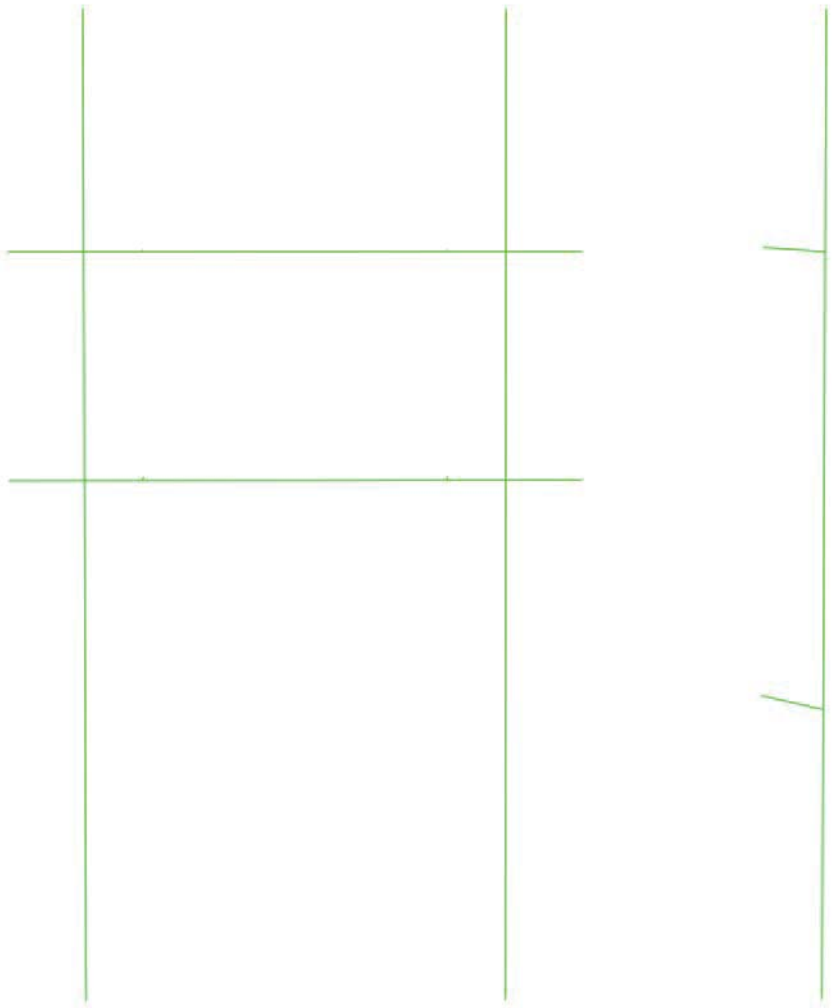
Antenna Mount
Calculations

Install proposed 2-1/2” std. (2.88” O.D.) pipe mast behind proposed position 3 antenna secured to the existing mount (typ. of 1 per sector, total of 3).



Install proposed HHS 4x4x1/4 standoffs for proposed position 1 antenna secured to the existing water tank façade (typ. of 2 per sector, total of 6).


A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2-1_2x0.203
A500 GrB rectangular
HSS_SQR 4X4X1_4
A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2x0.154
A500 GrB rectangular
HSS_SQR 4X4X1_4
Y
Z
X


Y
Z
X


26
16
28
29
23
17
24
32
31
33
30
Y
Z
X

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Load data

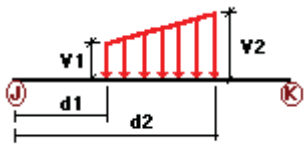
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

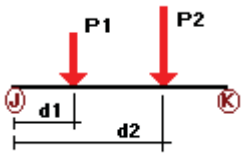
Condition	Description	Comb.	Category
DL	Dead Load	No	DL
Wf	Wind Load (FRONT)	No	WIND
Ws	Wind Load (SIDE)	No	WIND
Wfice	Wind ICE (FRONT)	No	WIND
Wsice	Wind ICE (SIDE)	No	WIND
Di	Ice Load	No	LL

Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wf	16	z	-0.012	0.00	0.00	No	0.00	No
	17	z	-0.012	0.00	0.00	No	0.00	No
	29	z	-0.021	0.00	0.00	No	0.00	No
	30	z	-0.021	0.00	0.00	No	0.00	No
Ws	23	x	-0.015	0.00	0.00	No	0.00	No
	24	x	-0.015	0.00	0.00	No	0.00	No
	26	x	-0.015	0.00	0.00	No	0.00	No
	28	x	-0.015	0.00	0.00	No	0.00	No
	29	x	-0.021	0.00	0.00	No	0.00	No
	30	x	-0.021	0.00	0.00	No	0.00	No
	31	x	-0.012	0.00	0.00	No	0.00	No
	32	x	-0.012	0.00	0.00	No	0.00	No
	33	x	-0.015	0.00	0.00	No	0.00	No
Di	16	y	-0.012	0.00	0.00	No	0.00	No
	17	y	-0.012	0.00	0.00	No	0.00	No
	23	y	-0.014	0.00	0.00	No	0.00	No
	24	y	-0.014	0.00	0.00	No	0.00	No
	26	y	-0.014	0.00	0.00	No	0.00	No
	28	y	-0.014	0.00	0.00	No	0.00	No
	29	y	-0.021	0.00	0.00	No	0.00	No
	30	y	-0.021	0.00	0.00	No	0.00	No
	31	y	-0.012	0.00	0.00	No	0.00	No
	32	y	-0.012	0.00	0.00	No	0.00	No
	33	y	-0.014	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	31	y	-0.038	0.50	No
		y	-0.038	7.50	No
		y	-0.046	85.00	Yes
		y	-0.06	85.00	Yes
	32	y	-0.04	0.50	No
		y	-0.04	7.50	No
		y	-0.06	85.00	Yes
	33	y	-0.04	0.50	No
		y	-0.04	7.50	No
		y	-0.073	85.00	Yes
		y	-0.072	85.00	Yes
		y	-0.029	75.00	Yes
Wf	31	z	-0.34	0.50	No
		z	-0.34	7.50	No
		z	-0.045	85.00	Yes
		z	-0.085	85.00	Yes
	32	z	-0.457	0.50	No
		z	-0.457	7.50	No
		z	-0.103	85.00	Yes
	33	z	-0.457	0.50	No
		z	-0.457	7.50	No
		z	-0.072	85.00	Yes
		z	-0.069	85.00	Yes
		z	-0.079	75.00	Yes
Ws	31	x	-0.226	0.50	No
		x	-0.226	7.50	No
		x	-0.14	85.00	Yes
	32	x	-0.208	0.50	No
		x	-0.208	7.50	No
		x	-0.064	85.00	Yes
	33	x	-0.208	0.50	No
		x	-0.208	7.50	No
		x	-0.101	85.00	Yes
		x	-0.079	75.00	Yes
Wfice	31	z	-0.064	0.50	No
		z	-0.064	7.50	No
		z	-0.013	85.00	Yes
		z	-0.022	85.00	Yes
	32	z	-0.08	0.50	No
		z	-0.08	7.50	No
		z	-0.023	85.00	Yes
	33	z	-0.08	0.50	No
		z	-0.08	7.50	No
		z	-0.018	85.00	Yes
		z	-0.017	85.00	Yes

		z	-0.018	75.00	Yes
Wsice	31	x	-0.049	0.50	No
		x	-0.049	7.50	No
		x	-0.031	85.00	Yes
	32	x	-0.047	0.50	No
		x	-0.047	7.50	No
		x	-0.017	85.00	Yes
	33	x	-0.047	0.50	No
		x	-0.047	7.50	No
		x	-0.023	85.00	Yes
		x	-0.018	75.00	Yes
Di	31	y	-0.207	0.50	No
		y	-0.207	7.50	No
		y	-0.064	85.00	Yes
		y	-0.10	85.00	Yes
	32	y	-0.264	0.50	No
		y	-0.264	7.50	No
		y	-0.074	85.00	Yes
	33	y	-0.264	0.50	No
		y	-0.264	7.50	No
		y	-0.075	85.00	Yes
		y	-0.065	85.00	Yes
		y	-0.088	75.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
Wf	Wind Load (FRONT)	No	0.00	0.00	0.00
Ws	Wind Load (SIDE)	No	0.00	0.00	0.00
Wfice	Wind ICE (FRONT)	No	0.00	0.00	0.00
Wsice	Wind ICE (SIDE)	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
Wf	0.00	0.00	0.00
Ws	0.00	0.00	0.00
Wfice	0.00	0.00	0.00
Wsice	0.00	0.00	0.00
Di	0.00	0.00	0.00

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Units system: English

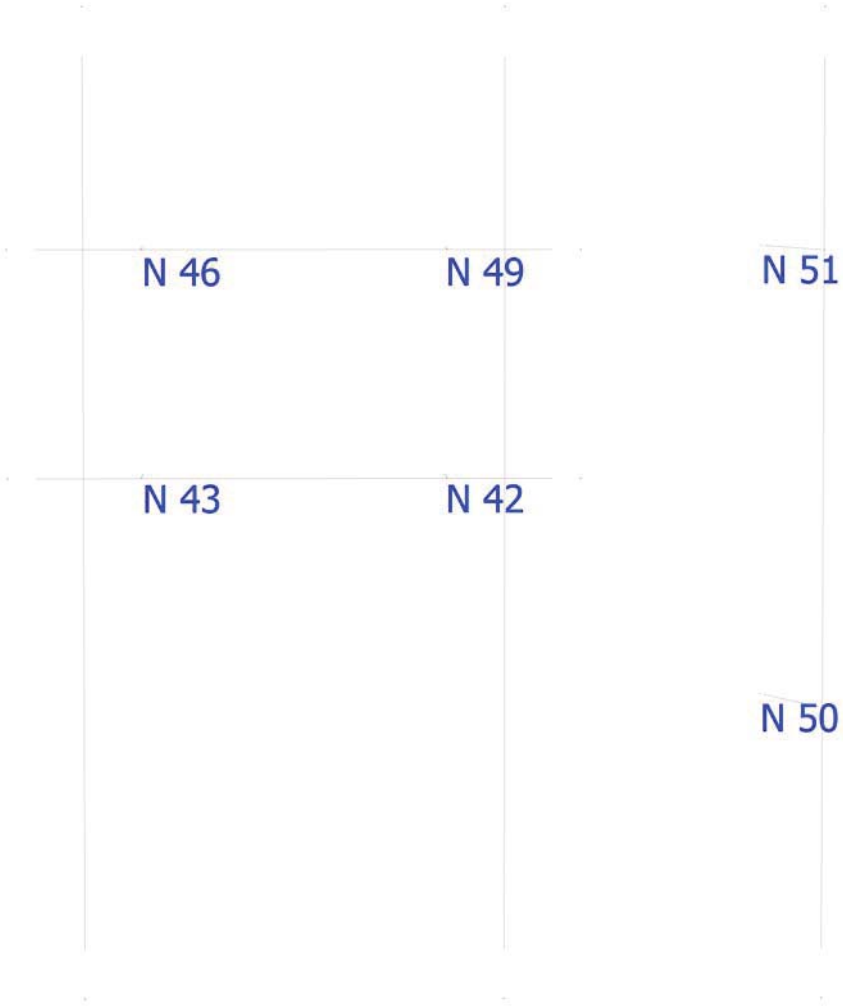
Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+Wf
LC2=1.2DL+Ws
LC3=0.9DL+Wf
LC4=0.9DL+Ws
LC5=1.2DL+Wfice+Di
LC6=1.2DL+Wsice+Di
LC7=1.4DL
LC8=0.9DL

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	**29**	LC5 at 100.00%	**0.09**	**OK**	
		30	LC6 at 100.00%	0.09	OK	
	PIPE 2-1_2x0.203	**23**	LC5 at 0.00%	0.27	OK	
		24	LC3 at 0.00%	0.29	OK	
		26	LC5 at 0.00%	0.26	OK	
		28	LC1 at 0.00%	0.29	OK	
		33	LC3 at 47.92%	**0.64**	**OK**	
	PIPE 2x0.154	**16**	LC3 at 77.50%	0.43	OK	
		17	LC2 at 23.75%	0.63	OK	
		31	LC6 at 68.75%	0.91	OK	
		32	LC1 at 22.92%	**0.92**	**OK**	


N 46
N 49
N 51
N 43
N 42
N 50
Y
Z
X

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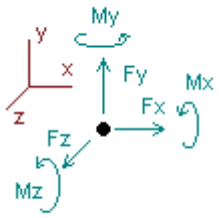
Current Date: 1/6/2023 8:48 AM
Units system: English

Analysis result

Envelope for nodal reactions

Note.- **Ic** is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :
LC1=1.2DL+Wf
LC2=1.2DL+Ws
LC3=0.9DL+Wf
LC4=0.9DL+Ws
LC5=1.2DL+Wfice+Di
LC6=1.2DL+Wsice+Di
LC7=1.4DL
LC8=0.9DL

		Forces						Moments					
Node		**Fx** [Kip]	**Ic**	**Fy** [Kip]	**Ic**	**Fz** [Kip]	**Ic**	**Mx** [Kip*ft]	**Ic**	**My** [Kip*ft]	**Ic**	**Mz** [Kip*ft]	**Ic**
42	Max	0.636	LC2	0.467	LC6	0.632	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	0.036	LC8	-0.436	LC3	-0.162	LC4	0.00000	LC1	0.00000	LC1	0.00000	LC1
43	Max	0.508	LC4	0.666	LC6	0.989	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.616	LC1	-0.224	LC3	0.097	LC8	0.00000	LC1	0.00000	LC1	0.00000	LC1
46	Max	0.271	LC6	0.731	LC5	0.288	LC3	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.315	LC3	0.040	LC4	-0.372	LC6	0.00000	LC1	0.00000	LC1	0.00000	LC1
49	Max	0.353	LC3	0.671	LC1	0.474	LC3	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.145	LC6	0.096	LC8	-0.330	LC6	0.00000	LC1	0.00000	LC1	0.00000	LC1
50	Max	0.406	LC2	0.483	LC6	0.373	LC1	0.00000	LC1	0.66427	LC4	0.00000	LC1
	Min	0.026	LC8	-0.049	LC3	0.070	LC8	0.00000	LC1	-0.18793	LC3	0.00000	LC1
51	Max	0.429	LC4	0.531	LC5	0.490	LC3	0.00000	LC1	0.81617	LC2	0.00000	LC1
	Min	-0.105	LC5	0.122	LC8	-0.288	LC6	0.00000	LC1	-0.37629	LC1	0.00000	LC1

Date: 1/6/2023
Project Name: WINDSOR LOCKS NORTH
Project No.: CT5192
Designed By: KSBM **Checked By:** MSC

CHECK STUD WELD CAPACITY → EXISTING CONNECTION (Worst Case)

Reference: Cox Industries

Stud Material =	Low Carbon Copper Flashed Steel		
Stud Weld Size =	5/16 - 18		
Ultimate Tensile Load =	2900	lbs.	
Maximum Shear Load =	2200	lbs.	
Safety Factor =	4		

Testing Torque	Max. Fastening Torque
11.9 ft. lbs	6.0 ft/lbs

Allowable Tensile Load =

F_{Tall} = 725 lbs.

Allowable Shear Load =

F_{Vall} = 550 lbs.

TENSILE FORCES

Reaction **F =** 989 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 616 lbs. (See Bentley Output)
Reactions in Y direction: 666 lbs. (See Bentley Output)

Resultant: 907 lbs.

No. of Supports = 1
No. of Studs / Support = 12

Tension Design Load / Stud =

f_t = 82.42 lbs. < 725 lbs. **Therefore, OK !**

Shear Design Load / Stud=

f_v = 75.60 lbs. < 550 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.114	+	0.137	=	0.251	<	1.0	**Therefore, OK !**

Date: 1/6/2023
Project Name: WINDSOR LOCKS NORTH
Project No.: CT5192
Designed By: KSBM **Checked By:** MSC

CHECK STUD WELD CAPACITY → PROPOSED CONNECTION (Worst Case)

Reference: Cox Industries

Stud Material =	Low Carbon Copper Flashed Steel	
Stud Weld Size =	5/16 - 18	
Ultimate Tensile Load =	2900	lbs.
Maximum Shear Load =	2200	lbs.
Safety Factor =	4	

Testing Torque	Max. Fastening Torque
11.9 ft. lbs	6.0 ft/lbs

Allowable Tensile Load =

F_{Tall} = 725 lbs.

Allowable Shear Load =

F_{Vall} = 550 lbs.

TENSILE FORCES

Moment about Y axis:	816	lbs-ft.	(See Bentley Output)
Moment arm:	6	in	
Reaction:	1632.0	lbs	
Reactions in Z direction:	490	lbs.	(See Bentley Output)
Resultant Tensile Force:	2122	lbs.	

SHEAR FORCES

Reactions in X direction:	429	lbs.	(See Bentley Output)
Reactions in Y direction:	531	lbs.	(See Bentley Output)
Resultant:	683	lbs.	
No. of Supports =	1		
No. of Studs / Support =	8	(Min)	

Tension Design Load / Stud =

f_t = 265.25 lbs. < 725 lbs. **Therefore, OK !**

Shear Design Load / Stud=

f_v = 85.33 lbs. < 550 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.366	+	0.155	=	0.521	<	1.0	**Therefore, OK !**

Water Tank
Calculations

Date: 5/1/2023
Project Name: WINDSOR LOCKS NORTH
Project No.: CT5192
Designed By: KSBM **Checked By:** MSC

Wind Analysis → Water Tank

Reference Codes:

-2022 Connecticut State Building Code

-International Building Code 2021 (IBC 2021)

-Minimum Design Loads for Buildings and Other Structures (ASCE 7-16)

-American Water Works Association Design Standard (AWWA D100-21)

Structure Classification	IV		(ASCE 7-16 Table 1.5-1)
Basic Wind Speed, V	135	mph	(ASCE 7-16 Figure 26.5-1C)
Exposure Category	C		(AWWA Section 3.1.6.2.1)
Topographic Category	3		(ASCE 7-16 Table 1.5-2)
Strength-to-Service Factor, λ_w	0.60		(AWWA Section 3.1.6)
Height Above Ground Level, z	93.5	ft	(Top of Water Tank)
Topographic Factor, K_{zt}	1.07		(AWWA Section 3.1.6.3)
Wind Directionality Coef., K_d	1.00		(AWWA Section 3.1.6.5)

Section ID	EL_{TOP}	Kz	q_z	G	Cf	$p_{w, CALC}$	$p_{w, LIMIT}$	$p_{w, DESIGN}$
Section 1	7.60	0.85	25.40	0.85	0.71	15.27	21.22	**21.22**
Section 2	15.20	0.85	25.46	0.85	0.71	15.31	21.22	**21.22**
Section 3	22.80	0.92	27.56	0.85	0.71	16.57	21.22	**21.22**
Section 4	30.40	0.98	29.35	0.85	0.71	17.65	21.22	**21.22**
Section 5	38.00	1.03	30.72	0.85	0.71	18.47	21.22	**21.22**
Section 6	45.60	1.07	31.91	0.85	0.71	19.19	21.22	**21.22**
Section 7	53.20	1.10	32.95	0.85	0.71	19.81	21.22	**21.22**
Section 8	60.80	1.13	33.86	0.85	0.71	20.36	21.22	**21.22**
Section 9	68.40	1.16	34.77	0.85	0.71	20.90	21.22	**21.22**
Section 10	76.00	1.19	35.68	0.85	0.71	21.45	21.22	**21.45**
Section 11	83.60	1.22	36.48	0.85	0.71	21.93	21.22	**21.93**
Section 12	93.60	1.25	37.27	0.85	0.71	22.40	21.22	**22.40**

Date: 12/30/2022
Project Name: WINDSOR LOCKS NORTH
Project No.: CT5192
Designed By: KSBM **Checked By:** MSC

T-MOBILE EQUIPMENT WIND LOAD

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01 (z/z_g)^{2/\alpha}$

z=	97.00	(ft)
z_g=	1200	(ft)
α=	7	
K_z=	**0.980**	

Kzmin ≤ Kz ≤ 2.01

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_c K_t/K_h)]^2$

$K_h = e^{(f*z/H)}$

K_{zt}=	**1.184362272**	
K_h=	5.4030117	
K_c=	0.9	(from Table 2-4)
K_t=	0.53	(from Table 2-5)
f=	2	(from Table 2-5)
z=	97.00	
z_s=	206	(Mean elevation of base of structure above sea level)
H=	115	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.18	(from 2.6.6.2.1)
K_e=	0.99	(from 2.6.8)

(If Category 1 then K_{zt} =1.0)

Category=	**3**

2.6.10 Design Ice Thickness

Max Ice Thickness = t_i =	1.50	in
Importance Factor = I=	1.25	(from Table 2-3)
K_{iz} =	1.11	(from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$

t_{iz} = 2.22 in

Date: 12/30/2022
Project Name: WINDSOR LOCKS NORTH
Project No.: CT5192
Designed By: KSBM Checked By: MSC

2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

G_h = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	110	G_h=	0.85
2.6.9.2 Guyed Masts		G_h=	0.85
2.6.9.3 Pole Structures		G_h=	1.1
2.6.9 Appurtenances		G_h=	1.0

2.6.9.4 Structures Supported on Other Structures
(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

G_h=	1.35	**Gh=**	**1.00**

2.6.11.2 Design Wind Force on Appurtenances

$F = q_z * G_h * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

		K_z=	0.980	(from 2.6.5.2)
		K_{zt}=	1.2	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**51.05**	K_e=	0.99	(from 2.6.8)
$q_{z\ (ice)}$=	**7.00**	K_d=	0.95	(from Table 2-2)
$q_{z\ (30)}$=	**2.52**	V_{max}=	135	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

Date: 12/30/2022
Project Name: WINDSOR LOCKS NORTH
Project No.: CT5192
Designed By: KSBM Checked By: MSC

Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		**Aspect Ratio ≤ 2.5**	**Aspect Ratio = 7**	**Aspect Ratio ≥ 25**
		Ca	**Ca**	**Ca**
Flat		1.2	1.4	2.0
Square/Rectangular HSS		$1.2 - 2.8(r_s) \geq 0.85$	$1.4 - 4.0(r_s) \geq 0.90$	$2.0 - 6.0(r_s) \geq 1.25$
Round	**C < 39** (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance,

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **2.22** in | **Angle =** **0 (deg)** | **Equivalent Angle =** **180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)
AIR 6449 B41 Antenna	33.1	20.5	8.5	4.71	1.61	1.20	**289**	**55**
APXVAA24_43-U-A20 Antenna	95.9	24.0	8.7	15.98	4.00	1.27	**1033**	**176**
AIR 32 B66A B2A Antenna	56.6	12.9	8.7	5.07	4.39	1.28	**332**	**66**
4449 B71+B85 RRH	17.9	13.2	9.5	1.64	1.36	1.20	**101**	**23**
4415 B25 RRH	16.5	13.5	6.3	1.55	1.22	1.20	**95**	**22**

Date: 12/30/2022
Project Name: WINDSOR LOCKS NORTH
Project No.: CT5192
Designed By: KSBM Checked By: MSC

TEP NORTHEAST

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	2.22	in.	Equivalent Angle =	240	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
AIR 6449 B41 Antenna	33.1	20.5	8.5	4.71	1.95	1.61	3.89	1.20	1.26	289	126	167
APXVAA24_43-U-A20 Antenna	95.9	24.0	8.7	15.98	5.79	4.00	11.02	1.27	1.53	1033	454	599
AIR 32 B66A B2A Antenna	56.6	12.9	8.7	5.07	3.42	4.39	6.51	1.28	1.38	332	241	263
4449 B71+B85 RRH	17.9	13.2	9.5	1.64	1.18	1.36	1.88	1.20	1.20	101	72	79
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	95	44	57

Date: 12/30/2022
Project Name: WINDSOR LOCKS NORTH
Project No.: CT5192
Designed By: KSBM **Checked By:** MSC

VERIZON EQUIPMENT WIND LOAD

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01\ (z/z_g)^{2/\alpha}$

z=	86.00	(ft)
z_g=	1200	(ft)
α=	7	
K_z=	**0.947**	

Kzmin ≤ Kz ≤ 2.01

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_c\ K_t/K_h)]^2$ $K_h = e^{(f*z/H)}$

K_{zt}=	**1.225220629**	
K_h=	4.4622458	
K_c=	0.9	(from Table 2-4)
K_t=	0.53	(from Table 2-5)
f=	2	(from Table 2-5)
z=	86.00	
z_s=	206	(Mean elevation of base of structure above sea level)
H=	115	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.23	(from 2.6.6.2.1)
K_e=	0.99	(from 2.6.8)

(If Category 1 then K_{zt} =1.0)

Category= **3**

2.6.10 Design Ice Thickness

Max Ice Thickness = t_i =	1.50	in
Importance Factor = I=	1.25	(from Table 2-3)
K_{iz} =	1.10	(from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$ t_{iz} = 2.22 in

Date: 12/30/2022
Project Name: WINDSOR LOCKS NORTH
Project No.: CT5192
Designed By: KSBM Checked By: MSC

2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

G_h = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	110	G_h=	0.85
2.6.9.2 Guyed Masts		G_h=	0.85
2.6.9.3 Pole Structures		G_h=	1.1
2.6.9 Appurtenances		G_h=	1.0

2.6.9.4 Structures Supported on Other Structures
(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

G_h=	1.35	**Gh=**	**1.00**

2.6.11.2 Design Wind Force on Appurtenances

$F = q_z * G_h * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

		K_z=	0.947	(from 2.6.5.2)
		K_{zt}=	1.2	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**51.02**	K_e=	0.99	(from 2.6.8)
$q_{z\ (ice)}$=	**7.00**	K_d=	0.95	(from Table 2-2)
$q_{z\ (30)}$=	**2.52**	V_{max}=	135	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

Date: 12/30/2022
Project Name: WINDSOR LOCKS NORTH
Project No.: CT5192
Designed By: KSBM Checked By: MSC

Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		$1.2 - 2.8(r_s) \geq 0.85$	$1.4 - 4.0(r_s) \geq 0.90$	$2.0 - 6.0(r_s) \geq 1.25$
Round	**C < 39** (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance,

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **2.22** in | **Angle =** **0 (deg)** | **Equivalent Angle =** **180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)
MT6407-77A Antenna	35.1	16.1	5.5	3.92	2.19	1.20	**240**	**47**
NHH-65B-R2B Antenna	72.0	11.9	7.1	5.95	6.05	1.36	**412**	**82**
XXDWMM-12.5-65-8T-CBRS Antenna	16.2	11.4	5.5	1.28	1.42	1.20	**79**	**19**
RF4439d-25A RRH	15.0	15.0	10.0	1.56	1.00	1.20	**96**	**22**
RF4440d-13A RRH	15.0	15.0	8.1	1.56	1.00	1.20	**96**	**22**
OVP Box	28.9	15.7	10.3	3.15	1.84	1.20	**193**	**39**

Date: 12/30/2022
Project Name: WINDSOR LOCKS NORTH
Project No.: CT5192
Designed By: KSBM Checked By: MSC

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	2.22	in.	Equivalent Angle =	240	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
MT6407-77A Antenna	35.1	16.1	5.5	3.92	1.34	2.19	6.37	1.20	1.37	240	94	131
NHH-65B-R2B Antenna	72.0	11.9	7.1	5.95	3.55	6.05	10.14	1.36	1.50	412	273	307
XXDWMM-12.5-65-8T-CBRS Antenr	16.2	11.4	5.5	1.28	0.62	1.42	2.95	1.20	1.22	79	39	49
RF4439d-25A RRH	15.0	15.0	10.0	1.56	1.04	1.00	1.50	1.20	1.20	96	64	72
RF4440d-13A RRH	15.0	15.0	8.1	1.56	0.84	1.00	1.85	1.20	1.20	96	52	63
OVP Box	28.9	15.7	10.3	3.15	2.07	1.84	2.81	1.20	1.21	193	128	144

Date: 5/3/2023
Project Name: WINDSOR LOCKS NORTH
Project No.: CT5192
Designed By: KSBM **Checked By:** MSC

CHECK FOR OVERTURNING MOMENT - WATER TANK

Existing and Proposed Dead Loads:

Item	Dead Load (lbs. plf)	Linear ft.	Qty.	Total (kips)
Tank Base Plate	43656	--	1	43.656
Tank Section 1	10838	7.60	1	82.372
Tank Section 2	10016	7.60	1	76.118
Tank Section 3	9201	7.60	1	69.926
Tank Section 4	8378	7.60	1	63.669
Tank Section 5	7554	7.60	1	57.411
Tank Section 6	6730	7.60	1	51.151
Tank Section 7	5906	7.60	1	44.889
Tank Section 8	5082	7.60	1	38.626
Tank Section 9	4266	7.60	1	32.425
Tank Section 10	3386	7.60	1	25.731
Tank Section 11	2605	7.60	1	19.796
Lid Section 1	13023	--	1	13.023
8" Overflow Pipe	29	92.50	1	2.646
Cage Ladder	20	83.50	1	1.670
Antenna	103	--	3	0.309
Antenna	119	--	3	0.357
Antenna	133	--	3	0.399
RRH	71	--	3	0.213
RRH	44	--	3	0.132
Pipe Mast	6	8.0	9	0.418
Pipe Mast	9	15.0	9	1.231
Steel Banding	5	204.0	2	2.081
Panel Antenna 1	87	--	3	0.261
Panel Antenna 2	44	--	6	0.264
Panel Antenna 3	24	--	3	0.072
RRH 1	75	--	3	0.225
RRH 2	71	--	3	0.213
OVP	32	--	6	0.192
Pipe Mast	6	11.0	9	0.574
Pipe Mast	10	11.0	9	1.020
Panel Antenna 4	75	--	3	0.225
Panel Antenna 5	79	--	6	0.474
RRH 3	46	--	3	0.138
RRH 4	60	--	3	0.180
RRH 5	60	--	3	0.180
RRH 6	73	--	3	0.219
RRH 7	72	--	3	0.216
Surge Arrestor	29	--	3	0.087
Pipe Mast	4	13.0	6	0.285
Pipe Mast	6	13.0	3	0.226
Pipe	4	7.5	6	0.165
Pipe	6	0.7	12	0.046
HSS	12	2.0	6	0.147
		Total, T_{weight}	**=**	**633.66 kips**

Date: 5/3/2023
Project Name: WINDSOR LOCKS NORTH
Project No.: CT5192
Designed By: KSBM Checked By: MSC

CHECK FOR OVERTURNING MOMENT - WATER TANK

Existing and Proposed Wind Loads:

Item	Wind Load (lbs, plf, psf)	(sf, lf)	Qty.	Elev.	Total (kips)
Tank Section 1	21.22	494.0	1	Elev. 1	10.483
Tank Section 2	21.22	494.0	1	Elev. 2	10.483
Tank Section 3	21.22	494.0	1	Elev. 3	10.483
Tank Section 4	21.22	494.0	1	Elev. 4	10.483
Tank Section 5	21.22	494.0	1	Elev. 5	10.483
Tank Section 6	21.22	494.0	1	Elev. 6	10.483
Tank Section 7	21.22	494.0	1	Elev. 7	10.483
Tank Section 8	21.22	494.0	1	Elev. 8	10.483
Tank Section 9	21.22	494.0	1	Elev. 9	10.483
Tank Section 10	21.45	494.0	1	Elev. 10	10.596
Tank Section 11	21.93	494.0	1	Elev. 11	10.833
Lid Section 1	22.40	433.3	1	Elev. 12	9.707
AT&T Antenna (0)	679	--	1	AT&T	0.679
AT&T Antenna (60)	508	--	2	AT&T	1.016
AT&T Antenna (0)	912	--	2	AT&T	1.824
AT&T Antenna (60)	539	--	4	AT&T	2.156
AT&T RRH (0)	94	--	1	AT&T	0.094
AT&T RRH (60)	57	--	2	AT&T	0.114
AT&T RRH (0)	140	--	1	AT&T	0.140
AT&T RRH (60)	99	--	2	AT&T	0.198
AT&T RRH (0)	103	--	1	AT&T	0.103
AT&T RRH (60)	74	--	2	AT&T	0.148
AT&T RRH (0)	101	--	1	AT&T	0.101
AT&T RRH (60)	79	--	2	AT&T	0.158
AT&T RRH (0)	84	--	1	AT&T	0.084
AT&T RRH (60)	73	--	2	AT&T	0.146
AT&T Surge Arrestor	79	--	3	AT&T	0.237
VZW Antenna (0)	240	--	1	Verizon	0.240
VZW Antenna (60)	131	--	2	Verizon	0.262
VZW Antenna (0)	412	--	2	Verizon	0.824
VZW Antenna (60)	307	--	4	Verizon	1.228
VZW Antenna (0)	79	--	1	Verizon	0.079
VZW Antenna (60)	49	--	2	Verizon	0.098
VZW RRH (0)	96	--	1	Verizon	0.096
VZW RRH (60)	72	--	2	Verizon	0.144
VZW RRH (0)	96	--	1	Verizon	0.096
VZW RRH (60)	63	--	2	Verizon	0.126
VZW OVP (0)	193	--	1	Verizon	0.193
VZW OVP (60)	144	--	2	Verizon	0.288
T-Mobile Antenna (0)	289	--	1	T-Mobile	0.289
T-Mobile Antenna (60)	167	--	2	T-Mobile	0.334
T-Mobile Antenna (0)	1033	--	1	T-Mobile	1.033
T-Mobile Antenna (60)	599	--	2	T-Mobile	1.198
T-Mobile Antenna (0)	332	--	1	T-Mobile	0.332
T-Mobile Antenna (60)	263	--	2	T-Mobile	0.526
T-Mobile RRH (0)	101	--	1	T-Mobile	0.101
T-Mobile RRH (60)	79	--	2	T-Mobile	0.158
T-Mobile RRH (0)	95	--	1	T-Mobile	0.095
T-Mobile RRH (60)	57	--	2	T-Mobile	0.114

Date: 5/3/2023
Project Name: WINDSOR LOCKS NORTH
Project No.: CT5192
Designed By: KSBM Checked By: MSC

CHECK FOR OVERTURNING MOMENT - WATER TANK

Calculate Overturning Moment

Location	Total Wind Load (kip)	Elevation (ft)	Moment (kip-ft)
Elev. 1	10.48	7.60	79.67
Elev. 2	10.48	15.20	159.34
Elev. 3	10.48	22.80	239.01
Elev. 4	10.48	30.40	318.67
Elev. 5	10.48	38.00	398.34
Elev. 6	10.48	45.60	478.01
Elev. 7	10.48	53.20	557.68
Elev. 8	10.48	60.80	637.35
Elev. 9	10.48	68.40	717.02
Elev. 10	10.60	76.00	805.32
AT&T	7.20	78.00	561.44
Elev. 11	10.83	83.60	905.67
Verizon	3.67	86.00	315.96
Elev. 12	9.71	93.50	907.57
T-Mobile	4.18	97.00	405.46

Total Moment, M = Σ (Total Wind x Elevation)

= **7486.51 kip-ft.**

Calculate Minimum Weight to Resist Overturning

Resisting Arm, L (ft.) 32.50

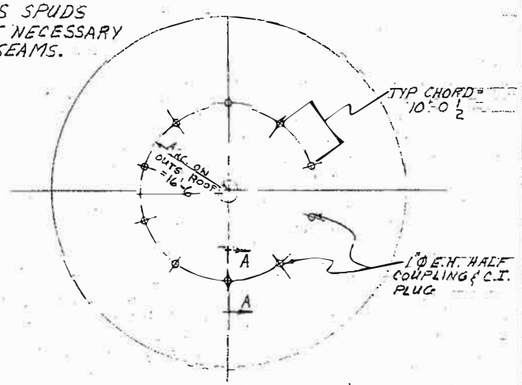
F_w = M/L

F_w < 0.9 * T_{weight}

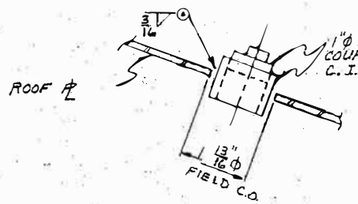
230.35 kips		<	**570.29 kips**	**O.K!**

Reference Documents

NOTE: PAINTERS SPUDS CAN BE MOVED IF NECESSARY TO MISS ROOF ℄ SEAMS.



PLAN VIEW OF PAINTER'S SPUDS IN ROOF



SECTION A-A

LIST OF FITTINGS FURNISHED & INSTALLED BY CB&I CO.

No	DESCRIPTION
1	18"x24" SHELL MANHOLE W/DAVIT
1	24"ϕ ROOF MANHOLE
1	12"ϕ VENT
1	12"ϕ INLET-OUTLET PIPE W/C.I. FOOT ELBOW
1	12"ϕ REMOVABLE SILT STOP 6" HIGH
1	FIXED ROOF LADDER
1	OUTSIDE SHELL LADDER W/ SAFETY CAGE
1	8"ϕ OVERFLOW TO GROUND
10	PAINTERS' SPUDS 1"ϕ E.H. HALF COUPLING & C.I. PLUG
1	OUTSIDE PAINTERS' ANGLE W/ TROLLEY
1	INSIDE PAINTERS' ANGLE W/ TROLLEY

EXAMINED BY ... DATE 6/4/63

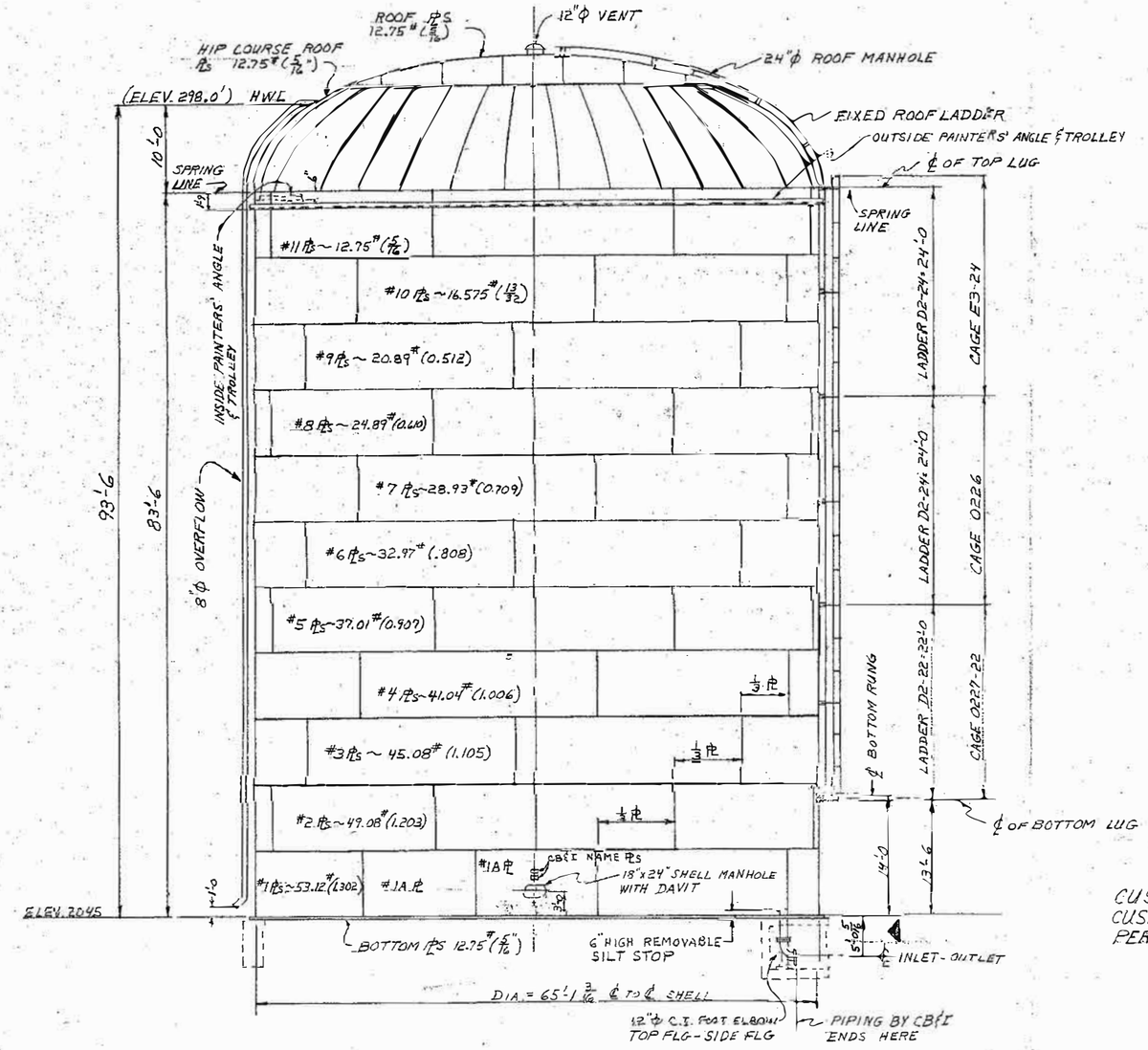
APPROVED ... M. Conrad

BUCK, SEIFERT AND JOST

BY ...

GENERAL NOTES

ALL JOINTS TO BE SECTIONED AS REQ'D BY CODE.
SERVICE: MUNICIPAL
CAPACITY: 2,225,000 GALS.
SPECIFICATIONS: AWWA & ENGINEERS
INSPECTION: MILL-NO SHOP-NO FIELD-YES, BY CUSTM. REP.
ERECTION: BY CB&I CO. FOUNDATION: BY CUSTOMER
STEEL: PLATES-A283 GR.C STRUCTURAL - A36
CLEANING: COMMERCIAL SANDBLASTING IN FIELD-SEE PAINT
PAINTING: SEE PAINT SHEETS P1 & P2 SHEETS
CORROSION ALLOWANCE = 1/16"
FITTINGS: TO BE LOCATED AS SHOWN OR TO SUIT CUSTOMER IN FIELD



ELEVATION

CUSTOMER TO FURNISH OILED SAND FOR SAND CUSHION. CB&I CO. TO SPREAD OILED SAND PER DWG. F.

DETAILS & MAT'L FOR ONE TANK ~ ONE REQ'D

NO.	DATE	BY	REVISIONS	REMARKS
1	5-21-63	FJT	CHG'D DIAM. TO ℄ OF SHELL	
2	6-3-63	CC	ADDED DEPTH & PSIG	

CHICAGO BRIDGE & IRON COMPANY
GREENVILLE, PA

GENERAL PLAN
55'-0ϕ x 93'-6 to HWL STANDPIPE
CONNECTICUT WATER CO.
WAREHOUSE POINT CONNECTICUT

PURCHASER'S NO. ... CONTRACT NO. 8-8132
DRAWN BY ETJ DATE 5-6-63
CHECKED BY MA DATE 5-8-63
DESIGN ENGR GAFFEY DWG NO. 1 REV 2

Kristina Robinson

From: TrackingUpdates@fedex.com
Sent: Thursday, August 3, 2023 10:00 AM
To: Kristina Robinson
Subject: FedEx Shipment 772913085767: Your package has been delivered

Hi. Your package was delivered Thu, 08/03/2023 at 9:51am.

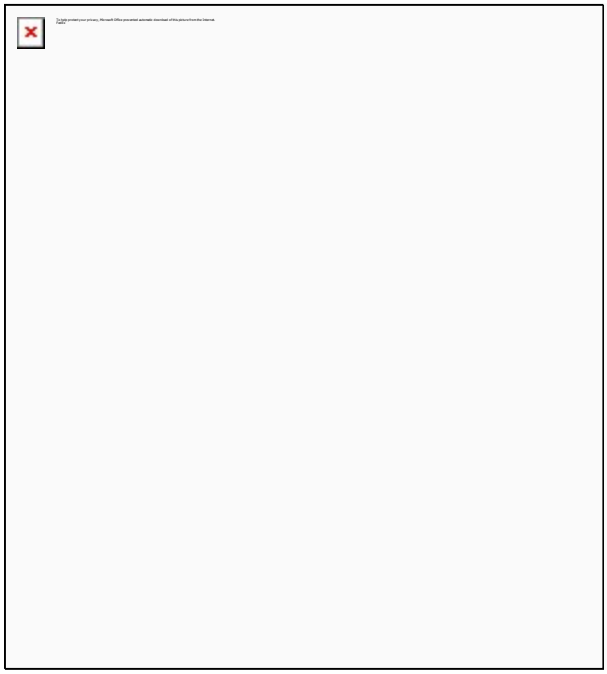
Delivered to 93 W MAIN ST, CLINTON, CT 06413

OBTAIN PROOF OF DELIVERY

How was your delivery ?

TRACKING NUMBER 772913085767

FROM	Smartlink LLC 85 Rangeway Road Building 3 Suite 102 NORTH BILLERICA, MA, US, 01862
TO	Connecticut Water Company 93 W Main Street CLINTON, CT, US, 06413
REFERENCE	CTL05192 - East Windsor
SHIPPER REFERENCE	CTL05192 - East Windsor
SHIP DATE	Tue 8/01/2023 05:51 PM
PACKAGING TYPE	FedEx Envelope
ORIGIN	NORTH BILLERICA, MA, US, 01862
DESTINATION	CLINTON, CT, US, 06413
NUMBER OF PIECES	1
SERVICE TYPE	FedEx 2Day



Kristina Robinson

From: TrackingUpdates@fedex.com
Sent: Thursday, August 3, 2023 11:16 AM
To: Kristina Robinson
Subject: FedEx Shipment 772912965616: Your package has been delivered

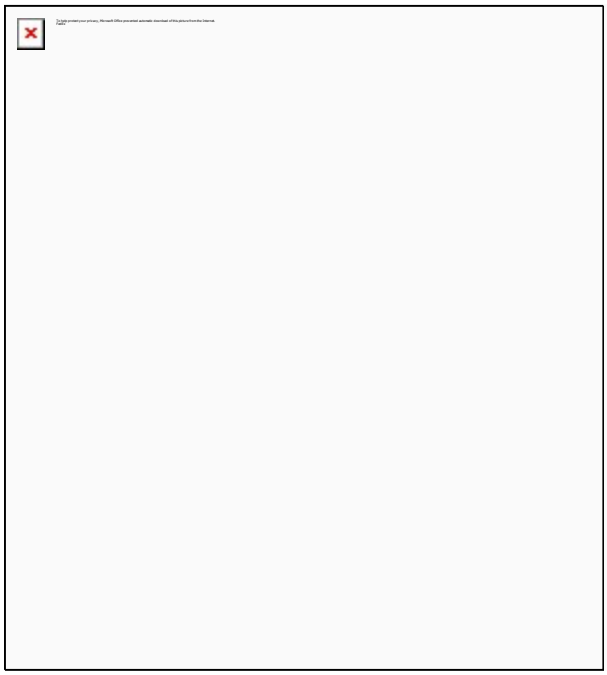
Hi. Your package was delivered Thu, 08/03/2023 at 11:07am.

Delivered to 11 RYE ST, EAST WINDSOR, CT 06016
Received by M.ANGELA

OBTAIN PROOF OF DELIVERY

How was your delivery ?

TRACKING NUMBER	772912965616
FROM	Smartlink LLC 85 Rangeway Road Building 3 Suite 102 NORTH BILLERICA, MA, US, 01862
TO	Town of East Windsor ATTN: Building Department Kenneth R 11 Rye Street Broad Brook EAST WINDSOR, CT, US, 06016
REFERENCE	CTL05192 - East Windsor
SHIPPER REFERENCE	CTL05192 - East Windsor
SHIP DATE	Tue 8/01/2023 05:51 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	NORTH BILLERICA, MA, US, 01862
DESTINATION	EAST WINDSOR, CT, US, 06016
NUMBER OF PIECES	1
SERVICE TYPE	FedEx 2Day



Kristina Robinson

From: TrackingUpdates@fedex.com
Sent: Thursday, August 3, 2023 11:16 AM
To: Kristina Robinson
Subject: FedEx Shipment 772913047538: Your package has been delivered

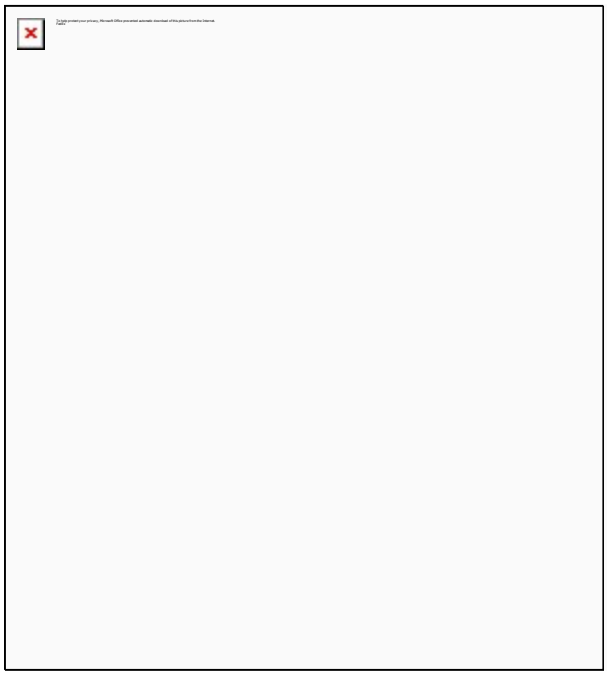
Hi. Your package was delivered Thu, 08/03/2023 at 11:07am.

Delivered to 11 RYE ST, EAST WINDSOR, CT 06016
Received by M.ANGELA

OBTAIN PROOF OF DELIVERY

How was your delivery ?

TRACKING NUMBER	772913047538
FROM	Smartlink LLC 85 Rangeway Road Building 3 Suite 102 NORTH BILLERICA, MA, US, 01862
TO	Town of East Windsor ATTN: Jason E. Bowsza First Selecma 11 Rye Street Broad Brook EAST WINDSOR, CT, US, 06016
REFERENCE	CTL05192 - East Windsor
SHIPPER REFERENCE	CTL05192 - East Windsor
SHIP DATE	Tue 8/01/2023 05:51 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	NORTH BILLERICA, MA, US, 01862
DESTINATION	EAST WINDSOR, CT, US, 06016
NUMBER OF PIECES	1
SERVICE TYPE	FedEx 2Day



PROJECT INFORMATION

SCOPE OF WORK:

ITEMS TO BE MOUNTED ON THE EXISTING WATER TANK:
- INSTALL PROPOSED MOUNT MODIFICATIONS (SEE "S" SHEETS)
- INSTALL ANTENNA (OPA65R-BU8DA) @ POS. 3 & POS. 4 (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- INSTALL RRUS 4478 B14 (700) @ POS. 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL RRUS 2012 B29 (700) @ POS. 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL RRUS 4449 B5/B12 (700/850) @ POS. 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL (6) Y-CABLES (TYP. OF 2 PER SECTOR, TOTAL OF 6).

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:
- FINAL: 5216+1xXMU/6630+IDLe.
- ADD (8) 7100 UPC.

ITEMS TO BE REMOVED:
- DECOMMISSION EXISTING AT&T UMTS ANTENNA (800-10121) (TYP. OF 1 PER SECTOR TOTAL OF 3).
- DECOMMISSION EXISTING LTE AT&T ANTENNA (HPA-65R-BUU-H8) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- DECOMMISSION EXISTING RRUS-11 B12 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- DECOMMISSION EXISTING RRUS 4478 B5 (850) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- DECOMMISSION EXISTING DIPLEXERS (LGP 21901) (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- DECOMMISSION EXISTING TMA (LGP21401) (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- DECOMMISSION EXISTING (3) LINES OF 1-5/8" COAX

ITEMS TO REMAIN:
- (3) ANTENNAS, (6) RRHs, (3) SURGE ARRESTORS, (6) 1-5/8" COAX, (6) DC POWER & (3) FIBER.

RFDS:	FINAL APPROVED V2 RFDS 07/05/22
SITE ADDRESS:	104 PROSPECT HILL ROAD EAST WINDSOR, CT 06088
LATITUDE:	41.9266919° N, 41° 55' 36.09" N
LONGITUDE:	72.6046989° W, 72° 36' 16.91" W
TYPE OF SITE:	WATER TANK / INDOOR EQUIPMENT
STRUCTURE HEIGHT:	110'-0"±
RAD CENTER:	78'-0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
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GN-1	GENERAL NOTES	3
A-1	COMPOUND & EQUIPMENT PLAN	3
A-2	ANTENNA LAYOUT PLANS	3
A-3	ELEVATION	3
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SN-1	STRUCTURAL NOTES	3
SN-2	STRUCTURAL NOTES	3
S-1	STRUCTURAL DETAILS	3
G-1	GROUNDING DETAILS	3
RF-1	RF PLUMBING DIAGRAM	3

NOTE TO GENERAL CONTRACTOR: (PRIOR TO CONSTRUCTION COMPLETION)

- TEP NORTHEAST (TEP OPCO, LLC.) TO PERFORM POST/CLIMB AND INSPECTION TO CONFIRM PROPOSED INSTALLATION COMPLIES WITH THE RECORD STAMPED DRAWINGS AND STRUCTURAL REPORTS PRIOR TO SUBMITTING FCCA (FINAL CONSTRUCTION CONTROL AFFIDAVIT). GC IS RESPONSIBLE FOR COORDINATING INSPECTIONS WITH TEP NORTHEAST (TEP OPCO, LLC.) PRIOR TO CONSTRUCTION BEING COMPLETED.

SITE NUMBER: CTL05192

SITE NAME: WINDSOR LOCKS NORTH

FA CODE: 10071335

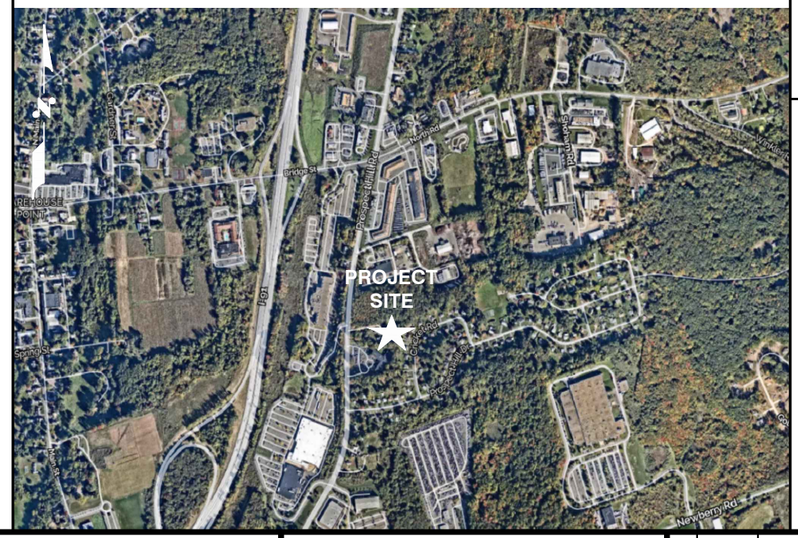
PACE ID: MRCTB062587, MRCTB062640, MRCTB062458, MRCTB062542

PROJECT: LTE 6C, LTE 7C, 4TXRX ANTENNA RETROFIT,4TX4RX SOFTWARE RETROFIT, 2023 UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

HEAD SOUTH TOWARD ENTERPRISE DR, TURN LEFT ONTO ENTERPRISE DR, TURN LEFT ONTO CAPITAL BLVD, USE THE LEFT LANE TO TURN LEFT ONTO STATE HWY 411, TURN LEFT TO MERGE WITH I-91 N, MERGE WITH I-91 N PARTS OF THIS ROAD MAY BE CLOSED AT CERTAIN TIMES OR DAYS, TAKE EXIT 44 FOR US-5 S TOWARD E.WINDSOR, USE THE LEFT 2 LANES TO TURN LEFT ONTO US-5 N, TURN RIGHT ONTO PROSPECT HILL DR, TURN LEFT ONTO CRICKET RD EAST WINDSOR, CT 06088.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

72 HOURS

CALL
BEFORE YOU DIG
CALL TOLL FREE 1-800-922-4455
OR CALL 811

UNDERGROUND SERVICE ALERT

TEP NORTHEAST
TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

smartlink
SMARTLINK
1997 ANNAPOLIS EXCHANGE PKWY SUITE 200
ANNAPOLIS, MD 21401

SITE NUMBER: CTL05192
SITE NAME: WINDSOR LOCKS NORTH

104 PROSPECT HILL ROAD
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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: GD

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
(2022 UPGRADE)

SITE NUMBER	DRAWING NUMBER	REV
CTL05192	T-1	3

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81 STANDARDS) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR – SMARTLINK
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. **APPLICABLE BUILDING CODES:**
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

    BUILDING CODE: IBC 2021 WITH 2022 CT STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: 2020 NATIONAL ELECTRICAL CODE (NFPA 70-2020)

    SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

    AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

    AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

    TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL

    FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

TEP NORTHEAST
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45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

SMARTLINK
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ANNAPOLIS, MD 21401

SITE NUMBER: CTL05192
SITE NAME: WINDSOR LOCKS NORTH

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EAST WINDSOR, CT 06088
HARTFORD COUNTY

500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: GD

STATE OF CONNECTICUT
DANIEL PAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
(2022 UPGRADE)

SITE NUMBER	DRAWING NUMBER	REV
CTL05192	GN-1	3

NOTE TO GENERAL CONTRACTOR: (PRIOR TO CONSTRUCTION COMPLETION)

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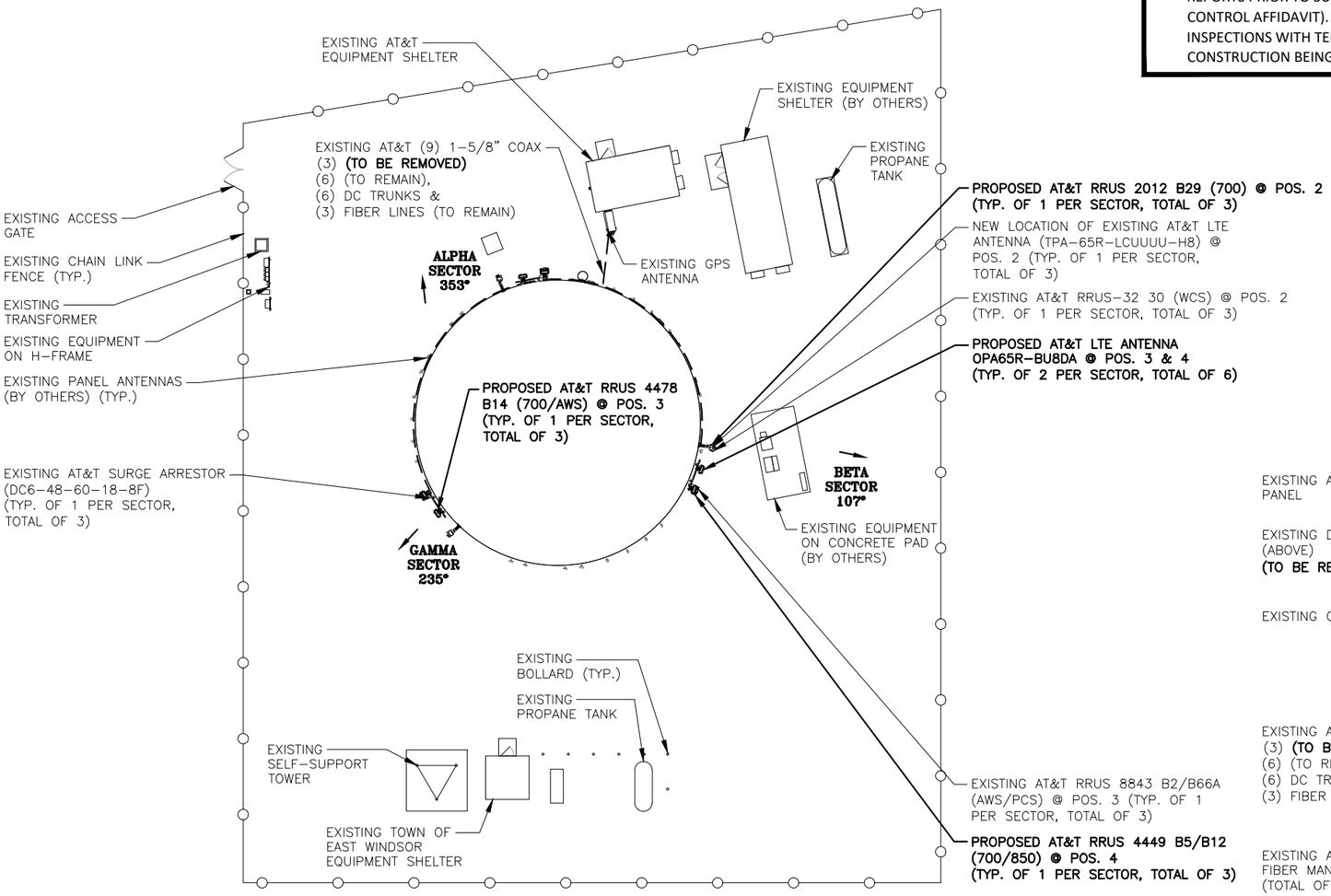
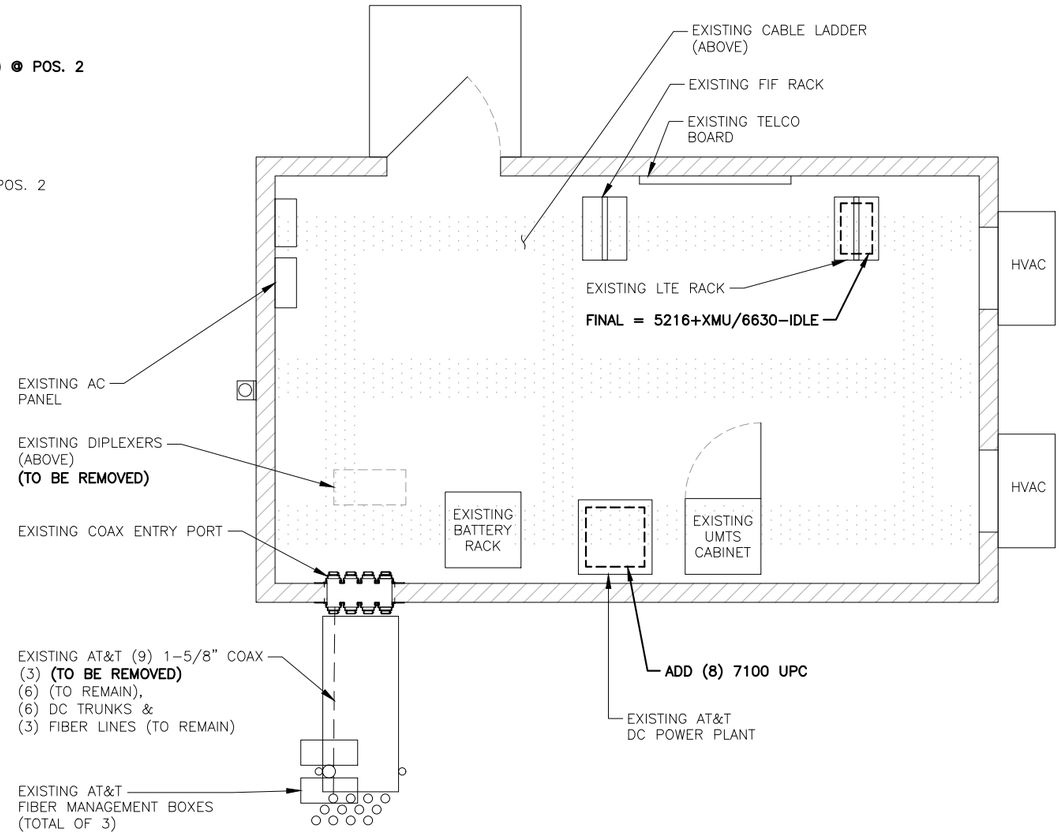
NOTE:
REFER TO STRUCTURAL ANALYSIS BY: TEP NE., DATED: MAY 2, 2023, (REV. 2), FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:

REFER TO FINAL APPROVED V2 RFDS 07/05/22





COMPOUND PLAN (1 / A-1)
22x34 SCALE: 1/16"=1'-0"
11x17 SCALE: 1/32"=1'-0"
0 8'-0" 16'-0" 32'-0" 48'-0"

EQUIPMENT PLAN
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"
0 1'-0" 2'-0" 4'-0" 6'-0"

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COMPOUND & EQUIPMENT PLANS
(2022 UPGRADE)

SITE NUMBER	DRAWING NUMBER	REV
CTL05192	A-1	3

NOTE:

1.) 3' MINIMUM SEPARATION BETWEEN ALL ANTENNAS.
2.) 6' MINIMUM SEPARATION BETWEEN 700BC & 700 DE.
3.) 12" VERTICAL SEPARATION BETWEEN DOD & C–BAND ANTENNA.
4.) USE "Y" CABLE FOR DUAL BAND RRHs.

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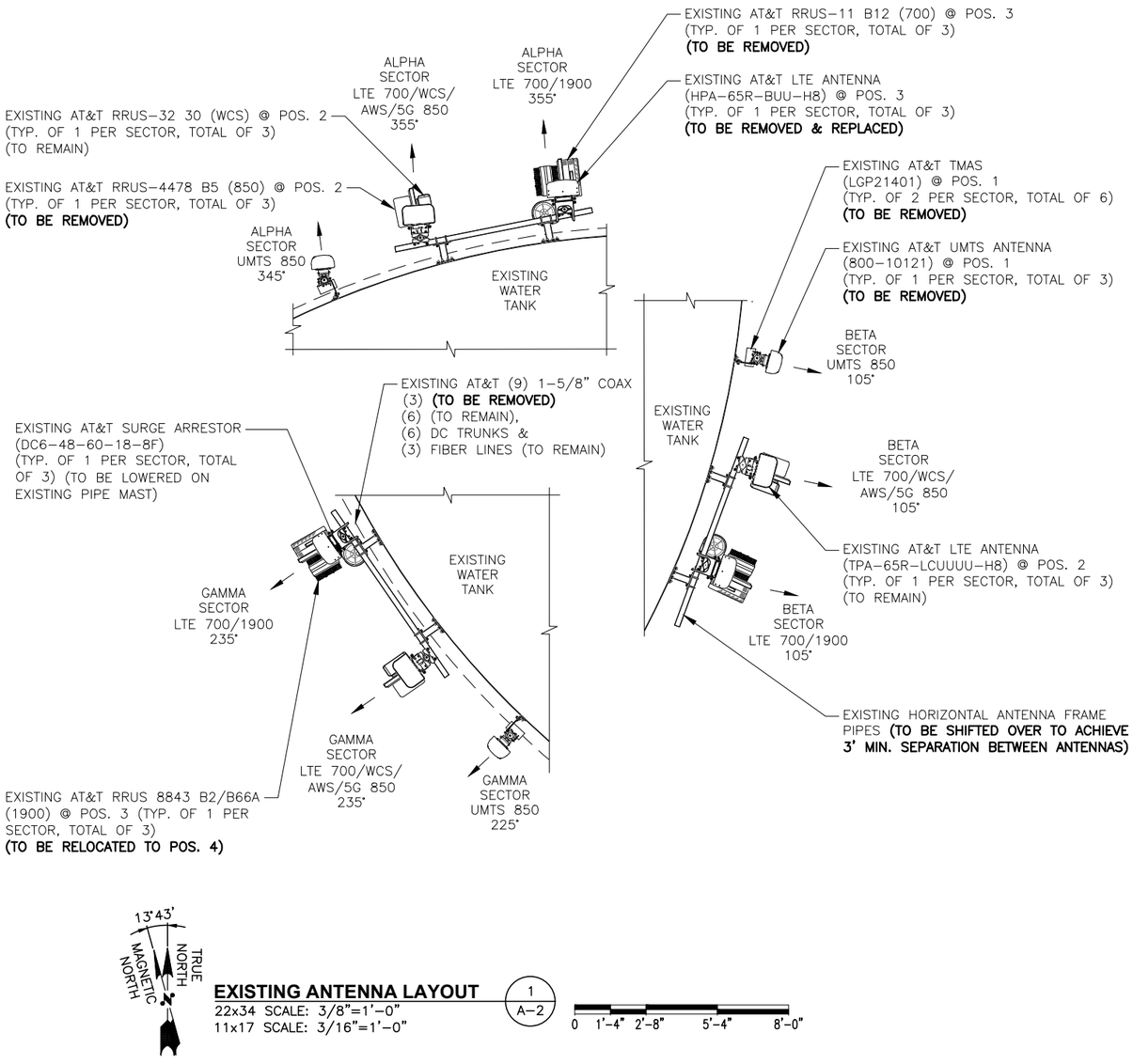
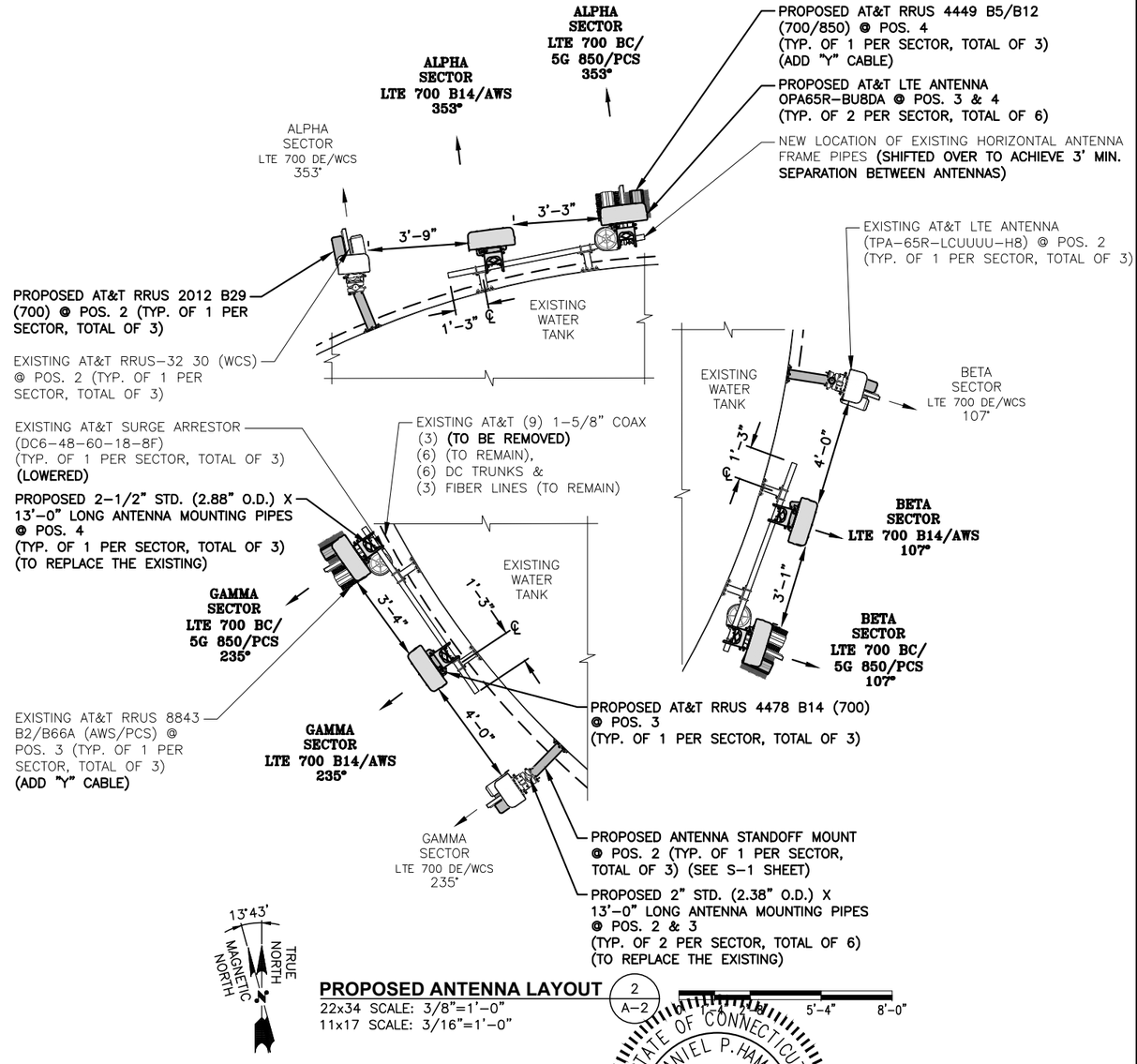


EXISTING ANTENNA LAYOUT

1 / A–2

22x34 SCALE: 3/8"=1'–0"
11x17 SCALE: 3/16"=1'–0"

0 1'–4" 2'–8" 5'–4" 8'–0"



PROPOSED ANTENNA LAYOUT

2 / A–2

22x34 SCALE: 3/8"=1'–0"
11x17 SCALE: 3/16"=1'–0"

0 1'–4" 2'–8" 5'–4" 8'–0"

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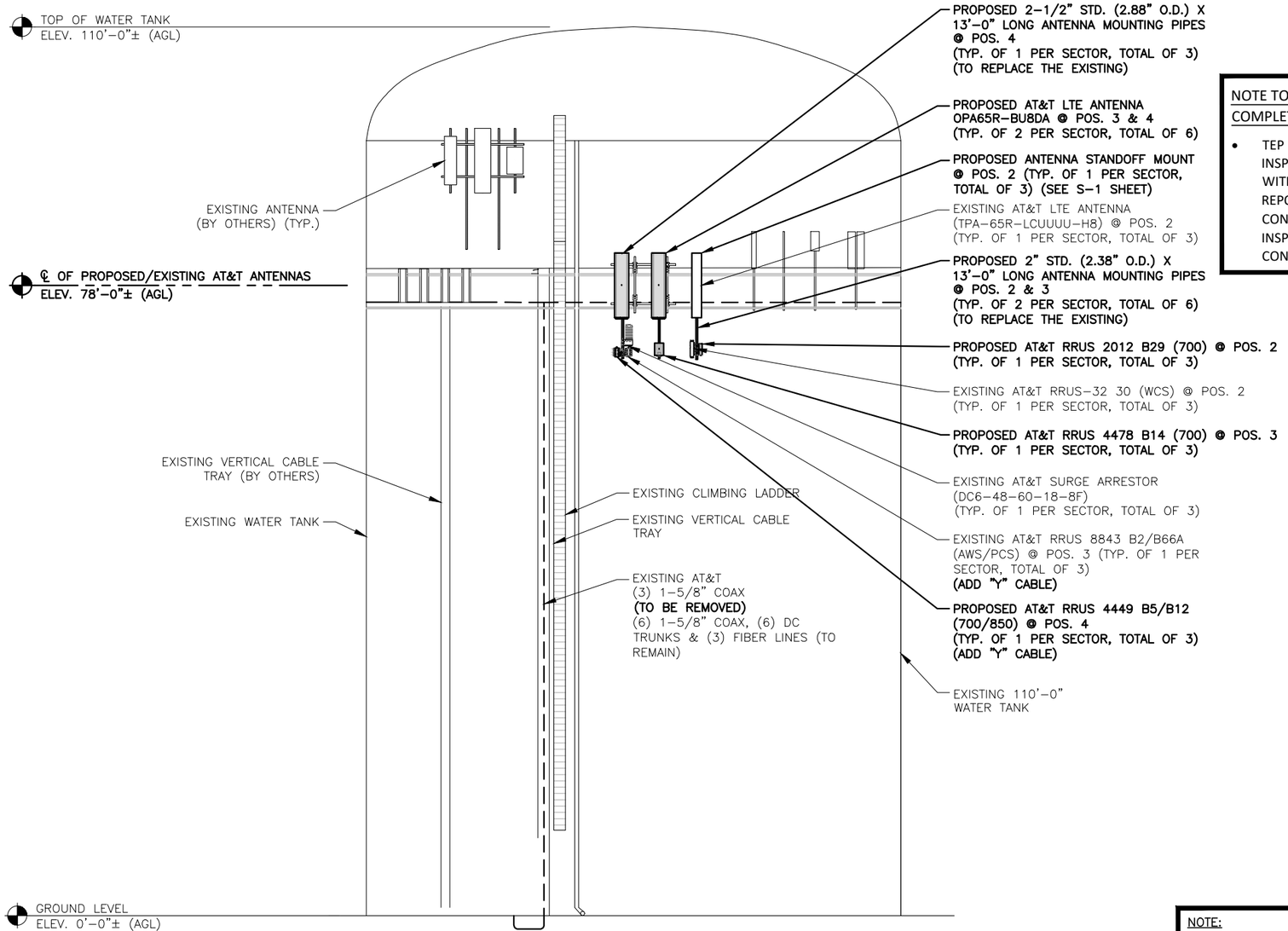
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: GD

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

AT&T

ANTENNA LAYOUT PLANS
(2022 UPGRADE)

SITE NUMBER	DRAWING NUMBER	REV
CTL05192	A–2	3



ELEVATION (1 / A-3)
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-0"

NOTE:

REFER TO FINAL APPROVED V2 RFDS 07/05/22

NOTE:
REFER TO STRUCTURAL ANALYSIS BY: TEP NE., DATED: MAY 2, 2023, (REV. 2), FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE TO GENERAL CONTRACTOR: (PRIOR TO CONSTRUCTION COMPLETION)

- TEP NORTHEAST (TEP OPCO, LLC.) TO PERFORM POST/CLIMB AND INSPECTION TO CONFIRM PROPOSED INSTALLATION COMPLIES WITH THE RECORD STAMPED DRAWINGS AND STRUCTURAL REPORTS PRIOR TO SUBMITTING FCCA (FINAL CONSTRUCTION CONTROL AFFIDAVIT). GC IS RESPONSIBLE FOR COORDINATING INSPECTIONS WITH TEP NORTHEAST (TEP OPCO, LLC.) PRIOR TO CONSTRUCTION BEING COMPLETED.

NOTE:

1.) 3' MINIMUM SEPARATION BETWEEN ALL ANTENNAS.
2.) 6' MINIMUM SEPARATION BETWEEN 700BC & 700 DE.
3.) 12" VERTICAL SEPARATION BETWEEN DOD & C-BAND ANTENNA.
4.) USE "Y" CABLE FOR DUAL BAND RRHs.

NOTE:

EXISTING GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

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ANNAPOLIS, MD 21401

SITE NUMBER: CTL05192
SITE NAME: WINDSOR LOCKS NORTH

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ELEVATION
(2022 UPGRADE)

SITE NUMBER	DRAWING NUMBER	REV
CTL05192	A-3	3

ANTENNA SCHEDULE

FINAL APPROVED V2 RFDS 07/05/22

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	–	–	–	–	–	–	–	–	–	–	(E) (1) RAYCAP DC6-48-60-18-8F
A2	EXISTING	LTE 700DE /WCS	TPA-65R-LCUUUU-H8	96"X14.4"X8.6"	78'-0"±	353°	–	(P)(1) RRUS-2012 B29 (700) (E)(1) RRUS-32 B30 (WCS)	20.4"x18.5"x7.5" –	(E)(2) DC POWER & (E)(1) FIBER	
A3	**PROPOSED**	**LTE 700B14 /AWS**	**OPA65R-BU8DA**	**96"X21"X7.8"**	**78'-0"±**	**353°**	–	**(P)(1) 4478 B14 (700)**	**18.1"x13.4"x8.3"**	–	
A4	**PROPOSED**	**LTE 700BC /5G 850/PCS**	**OPA65R-BU8DA**	**96"X21"X7.8"**	**78'-0"±**	**353°**	–	**(P)(1) 4449 B5/B12 (700/850)** (E)(1) 8843 B2/B66A (PCS/AWS)	**17.9"x13.2"x10.4"** –	**(P)(2) Y-CABLE**	
B1	–	–	–	–	–	–	–	–	–	–	(E) (1) RAYCAP DC6-48-60-18-8F
B2	EXISTING	LTE 700DE /WCS	TPA-65R-LCUUUU-H8	96"X21"X7.8"	78'-0"±	107°	–	(P)(1) RRUS-2012 B29 (700) (E)(1) RRUS-32 B30 (WCS)	20.4"x18.5"x7.5" –	(E)(2) DC POWER & (E)(1) FIBER	
B3	**PROPOSED**	**LTE 700B14 /AWS**	**OPA65R-BU8DA**	**96"X21"X7.8"**	**78'-0"±**	**107°**	–	**(P)(1) 4478 B14 (700)**	**18.1"x13.4"x8.3"**	–	
B4	**PROPOSED**	**LTE 700BC /5G 850/PCS**	**OPA65R-BU8DA**	**96"X21"X7.8"**	**78'-0"±**	**107°**	–	**(P)(1) 4449 B5/B12 (700/850)** (E)(1) 8843 B2/B66A (PCS/AWS)	**17.9"x13.2"x10.4"** –	**(P)(2) Y-CABLE**	
C1	–	–	–	–	–	–	–	–	–	–	(E) (1) RAYCAP DC6-48-60-18-8F
C2	EXISTING	LTE 700DE /WCS	TPA-65R-LCUUUU-H8	96"X21"X7.8"	78'-0"±	235°	–	(P)(1) RRUS-2012 B29 (700) (E)(1) RRUS-32 B30 (WCS)	20.4"x18.5"x7.5" –	(E)(2) DC POWER & (E)(1) FIBER	
C3	**PROPOSED**	**LTE 700B14 /AWS**	**OPA65R-BU8DA**	**96"X21"X7.8"**	**78'-0"±**	**235°**	–	**(P)(1) 4478 B14 (700)**	**18.1"x13.4"x8.3"**	–	
C4	**PROPOSED**	**LTE 700BC /5G 850/PCS**	**OPA65R-BU8DA**	**96"X21"X7.8"**	**78'-0"±**	**235°**	–	**(P)(1) 4449 B5/B12 (700/850)** (E)(1) 8843 B2/B66A (PCS/AWS)	**17.9"x13.2"x10.4"** –	**(P)(2) Y-CABLE**	

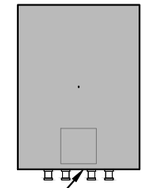
FINAL ANTENNA CONFIGURATION (1 / A-4)
SCALE: N.T.S

RRU CHART

QUANTITY	MODEL	SIZE (L x W x D)
(3)(P)	**4478 B14 (700/AWS)**	**18.1"x13.4"x8.3"**
(3)(P)	**RRUS-2012 B27 (700)**	**17.0"x13.0"x5.0"**
(3)(P)	**4449 B5/B12 (850/700)**	**17.9"x13.2"x10.4"**
(3)(E)	8843 B2/B66A (PCS/AWS)	14.9"x13.2"x10.9"
(3)(E)	RRUS-32 B30 (WCS)	27.2"x12.1"x7.0"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL (2 / A-4)
SCALE: N.T.S

NOTE:
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NOTE:
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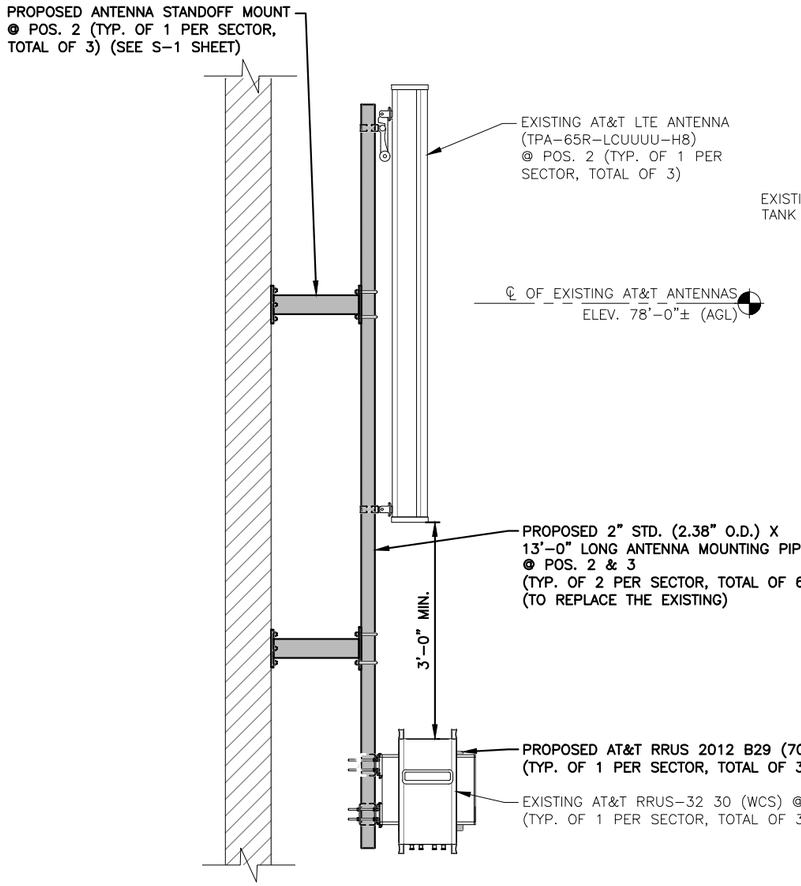
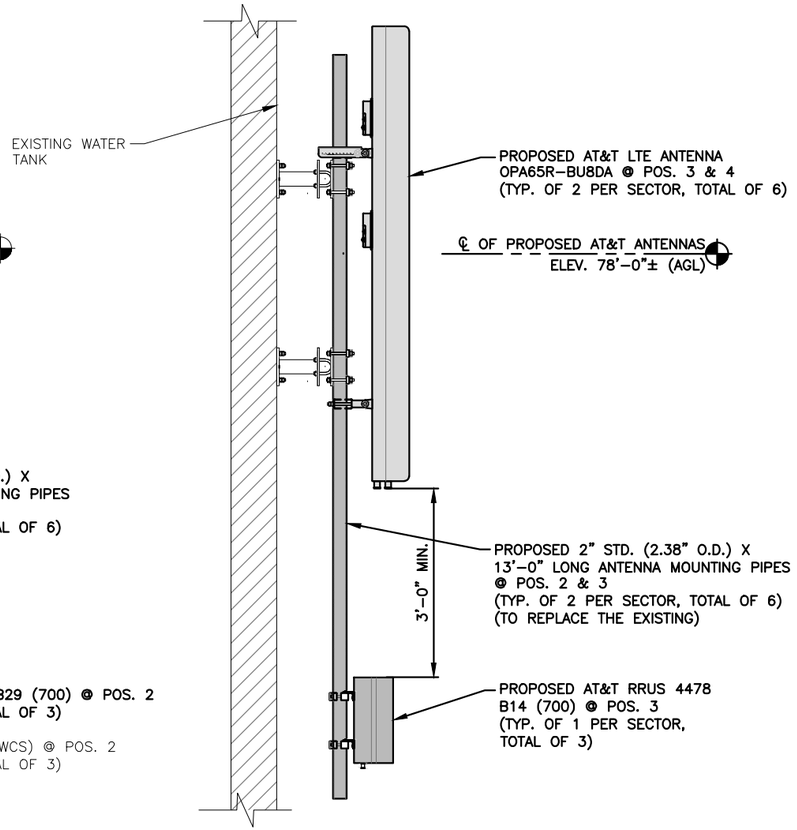
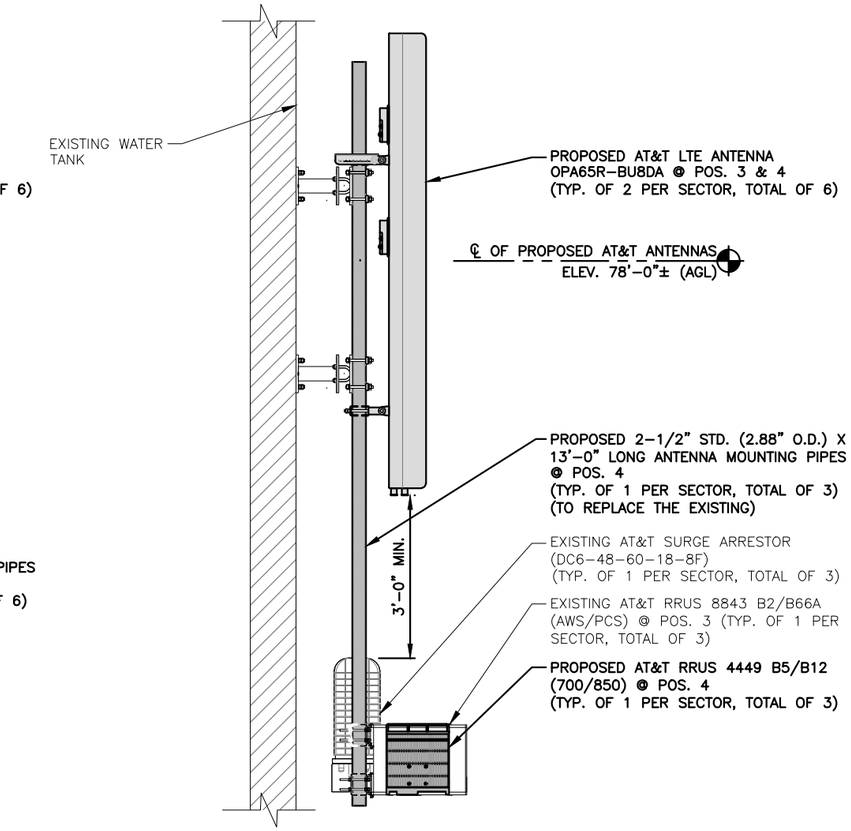


PROPOSED ANTENNA & RRU MOUNTING DETAIL @ POS. 2 (1 / A-5)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"
0 8" 1'-4" 2'-8" 4'-0"



PROPOSED ANTENNA & RRU MOUNTING DETAIL @ POS. 3 (2 / A-5)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"
0 8" 1'-4" 2'-8" 4'-0"



PROPOSED ANTENNA & RRU MOUNTING DETAIL @ POS. 4 (3 / A-5)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"
0 8" 1'-4" 2'-8" 4'-0"

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STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-H STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND DI.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

SPECIAL INSPECTION CHECKLIST	
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
N/A	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS [3]
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS [4]
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION [5]
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS [6]
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTES:

1. REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
2. PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
3. PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
4. HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
5. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
6. AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

NOTES:

1. ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
2. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
3. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
4. VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
5. CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
6. EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: GD

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

AT&T

STRUCTURAL NOTES
(2022 UPGRADE)

SITE NUMBER	DRAWING NUMBER	REV
CTL05192	SN-1	3

STUD WELDING NOTES

GENERAL:

1. WELDING STUDS SHALL BE FLANGED THREADED LOW CARBON COPPER FLASHED STEEL STUDS, GRADE 1010 THROUGH 1020, CONFORMING TO ASTM A-108 "STEEL BARS, CARBON, COLD FINISHED, STANDARD QUALITY". ALL STUDS SHALL BE 5/16"-18 UNC DIAMETER BY 1-3/4" LONG, UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS.
2. STUDS MUST BE WELDED BY THE CAPACITOR DISCHARGE METHOD, NELSON NCD 100 SYSTEM, AS MANUFACTURED AND MARKETED BY NELSON STUD WELDING, ELYRIA OHIO, (800) 635-9353 OR (440) 329-0400, OR APPROVED EQUAL. FILLET WELDS ARE NOT ACCEPTABLE.
3. CONTRACTOR SHALL RECEIVE IN WRITING THE OWNERS REQUIREMENTS FOR TANK INSPECTIONS PRIOR TO COMMENCING WITH THE WORK ON THE TANK. UPON THE COMPLETION OF CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A WRITTEN RELEASE FROM THE OWNER STATING THAT ALL WORK WAS PERFORMED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND THE OWNERS WRITTEN REQUIREMENTS AND RELEASES ALL LIABILITY TO THE CONTRACTOR, THE ENGINEER, THE APPLICANT, AND THE STUD MANUFACTURER.
4. CONTRACTOR SHALL COMPLY WITH AWS D1.1 AND AWS C5.4 FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". CONTRACTOR SHALL ADHERE TO AWS RECOMMENDED "SAFE PRACTICES FOR WELDING".
5. WELDING PARAMETERS, MACHINE POWER AND DWELL TIME SHALL BE QUALIFIED FOR THE WELDING POSITION, MATERIAL THICKNESS AND STUD SIZE TO BE USED. IF CHANCES IN THE SET-UP OCCUR AS DEFINED IN AWS D1.1, THE PROCEDURE MUST BE REQUALIFIED. CONTRACTOR SHALL SUBMIT CERTIFICATION OF WELDERS FOR STUD WELDING TO THE ENGINEER PRIOR TO COMMENCEMENT OF THE WORK.

SURFACE PREPARATION:

1. CLEANING PROCEDURES SHALL BE VERIFIED AS MEETING THE MINIMUM REQUIREMENTS PER THE AWS WELDING HANDBOOK, VOLUME 2, "QUALITY CONTROL AND INSPECTION" FOR STUD WELDING, IF THE EXISTING COATING SYSTEM CONTAINS LEAD OR OTHER POTENTIALLY HAZARDOUS MATERIALS, SPECIAL PROCEDURES FOR REMOVAL AND DISPOSAL WILL BE REQUIRED.
2. PREPARE SURFACE TO BE WELDED BY SPOT REMOVING PAINT TO A SSPC-SP11 CONDITION, UTILIZING NEW TECHNOLOGIES SUCH AS THE BRISTLE BLASTER OR EQUAL TO DEVELOP A MINIMUM SURFACE PROFILE OF 1.0 MIL.
3. FOLLOW POWER TOOL CLEANING WITH A NON-FLAMMABLE SOLVENT CLEANING TO REMOVE ANY OILS, CONTAMINANTS, RUST OR DIRT PRIOR TO STUD WELDING. (SSPC-SP1 BY STEEL STRUCTURES PAINTING COUNCIL, SSPC-VIS 1-67T)

STUD QUALIFICATION TESTING AND SAMPLING:

1. THE QUALIFICATION OF STUD APPLICATION AND PRE-PRODUCTION TESTING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 7 "STUD WELDING" OF AWS D1.1 INITIAL QUALIFICATION TESTING SHALL BE PERFORMED UNDER INSPECTION BY THE ENGINEER.
2. STUD APPLICATION SHALL BE QUALIFIED BY STUD WELDING TEN (10) SPECIMENS CONSECUTIVELY TO ASTM A-36 STEEL BASE MATERIALS USING RECOMMENDED PROCEDURES AND SETTINGS FOR EACH DIAMETER, POSITION, AND SURFACE GEOMETRY. THE TEN SPECIMENS SHALL BE TORQUE TESTED TO FAILURE. STUD APPLICATION SHALL BE CONSIDERED QUALIFICATION IF ALL TEST SPECIMENS ARE TORQUED TO DESTRUCTION WITHOUT FAILURE IN THE WELD. IN ADDITION, PRIOR TO PRODUCTION, CONTRACTOR SHALL PREPARE SIX (6) STUD WELDED SAMPLES USING A-36 STEEL PLATES AT THICKNESS EQUAL TO EACH OF THE PLATE THICKNESS OF THE WATER TANK TO BE WELDED TO. THE SIDE OPPOSITE THE STUD WELD SHALL HAVE A SIMILAR COATING (MINIMUM DFT-6MIL) TO THE EXISTING INTERIOR COATING OF THE WATER TANK. GENERAL CONTRACTOR SHALL SUPPLY SAMPLES AND COPIES OF THE STUD TESTING REPORTS SHALL BE SUBMITTED TO THE ENGINEER AND THE ASHLAND DPW FOR RECORD PURPOSES.
3. BEFORE PRODUCTION, AT THE START OF EVERY SHIFT AND FOR EACH PARTICULAR SETUP, TESTING SHALL BE PERFORMED ON THE FIRST TWO STUDS THAT ARE WELDED. IN PLACE OF THE ACTUAL PRODUCTION STUD, TESTING MAY BE PERFORMED ON A MATERIAL SIMILAR TO THE PRODUCTION MEMBER IN THICKNESS AND PROPERTIES. TESTING SHALL INCLUDE A VISUAL EXAMINATION OF THE STUD WELD FOR A FULL 360 DEGREE FLASH. IN ADDITION, THE TEST SHALL INCLUDE TORQUE TESTING THE STUDS IN ACCORDANCE WITH THE FOLLOWING CRITERIA.

STUD DIAMETER (IN.)	TESTING TORQUE (FT. LB)	MAX FASTENING TORQUE (FT. LB)
5/16" - 18 UNC	11.9	6.0

4. IF FAILURE OCCURS, THE PROCEDURE SHALL BE CORRECTED AND TWO MORE STUDS SHALL BE WELDED AND TESTED.
5. PRIOR TO PRODUCTION, CONTRACTOR SHALL PERFORM THREE (3) TEST WELDS ON THE WATER TANK IN A LOCATION SPECIFIED BY THE TANK OWNER TO VERIFY THAT NO DAMAGE WILL OCCUR TO THE COATING SYSTEM ON THE INTERIOR OF THE TANK. ANY AND ALL DAMAGE TO THE INTERIOR COATING SHALL BE REPAIRED TO THE OWNER'S SATISFACTION. IF DAMAGE DOES OCCUR, THE PROCEDURE SHALL BE REEVALUATED BY THE ENGINEER, CONSTRUCTION AUTHORIZED REPRESENTATIVE, AND OWNER BEFORE COMMENCING WITH THE WORK.

REPAINTING:

1. ALL PAINTING SURFACES AFFECTED BY WELDING OPERATIONS SHALL BE REPAINTED TO MATCH ADJACENT EXISTING SURFACES. PAINTING SHALL INCLUDE COATING OF THE STUDS.
2. PRIOR TO REPAINTING, SURFACES SHALL BE SOLVENT CLEANED TO REMOVE ANY OILS, CONTAMINANTS, RUST OR DIRT PRIOR TO REPAINTING (SSPC-SP1 BY STEEL STRUCTURES PAINTING COUNCIL, SSPC-VIS 1-67T)
3. PAINT USED TO REPAIR INTERIOR COATING SHALL MATCH THE EXISTING COATING SYSTEM OF THE TANK OR SHALL BE A SIMILAR SYSTEM COMPATIBLE WITH THE EXISTING SYSTEM AND ACCEPTABLE TO THE OWNER. VERIFY EXISTING COATING SYSTEM WITH THE TANK OWNER.
4. EXTERIOR STEEL SHALL BE SPOT REPAIRED UTILIZING SERIES 1 IMNITHANE (3.5 10 4.5 MILS) INTERMEDIATE - SERIES 1029 ENDURATONE (2.5 TO 3.0 MILS) FINISH - SERIES 1029 ENDURTONE (2.5 - 3.0MILS).CONTRACTOR TO VERIFY COATING SYSTEMS ARE COMPATIBLE WITH THE EXISTING SYSTEMS BY ADHESION TESTING PER ASTM D3359 "MEASURING ADHESION BY TAPE TEST".
5. CONTRACTOR TO VERIFY THAT CANS OF THE PRODUCT ARE NOT BEYOND MANUFACTURER RECOMMENDED SHELF LIFE. ASSURE THROUGH MIXING OF PREMEASURED TWO COMPONENT COATING SYSTEMS.
6. SURFACE CLEANING SHALL BE FOLLOWED WITH PRIMER COAT ON THE SAME DAY.
7. PAINT MUST BE APPLIED AT SURFACE AND AMBIENT TEMPERATURES BETWEEN 50 DEGREES TO 120 DEGREES FAHRENHEIT. NO PAINTING SHALL BE DONE ABOVE 80% RELATIVE HUMIDITY. THE AMBIENT TEMPERATURE BEFORE THE START OF COATING APPLICATION MUST AT BE LEAST 5 DEGREES FAHRENHEIT ABOVE THE DEW POINT AS DETERMINED BY CONVENTIONAL ACCEPTED STANDARDS.
8. PAINT SHALL BE APPLIED USING A NATURAL BRISTLE BRUSH FOR A SMOOTH BRUSH FINISH. THE REPAIR COATINGS SHALL OVERLAP THE UNDERCOAT BY A MINIMUM OF 1-INCH AND APPLIED IN RECTANGULAR AND/OR SQUARE GEOMETRIC PATTERN FOR AESTHETIC PURPOSES.
9. PAINT SHALL BE FEATHERED OUT AT TIE-IN AREAS OF EXISTING COATING. PAINT SHALL BE WORKED IN AND AROUND IRREGULARITIES IN THE SURFACE.
10. ANY GALVANIZED FABRICATION DAMAGED OR CUT IN THE FIELD THAT IS NOT SCHEDULED TO BE PAINTED IS TO BE SURFACE PREPARED IN ACCORDANCE WITH THE COATING MANUFACTURER'S RECOMMENDATIONS AND TWO COATS OF AN APPROVED COLD GALVANIZING COMPOUND BE APPLIED.
11. PRIMER ON BARE PREPARED STEEL- SERIES 1 IMNITHANE (3.5 10 4.5 MILS) INTERMEDIATE - SERIES 1029 ENDURATONE (2.5 TO 3.0 MILS) FINISH - SERIES 1029 ENDURTONE (2.5 - 3.0MILS).

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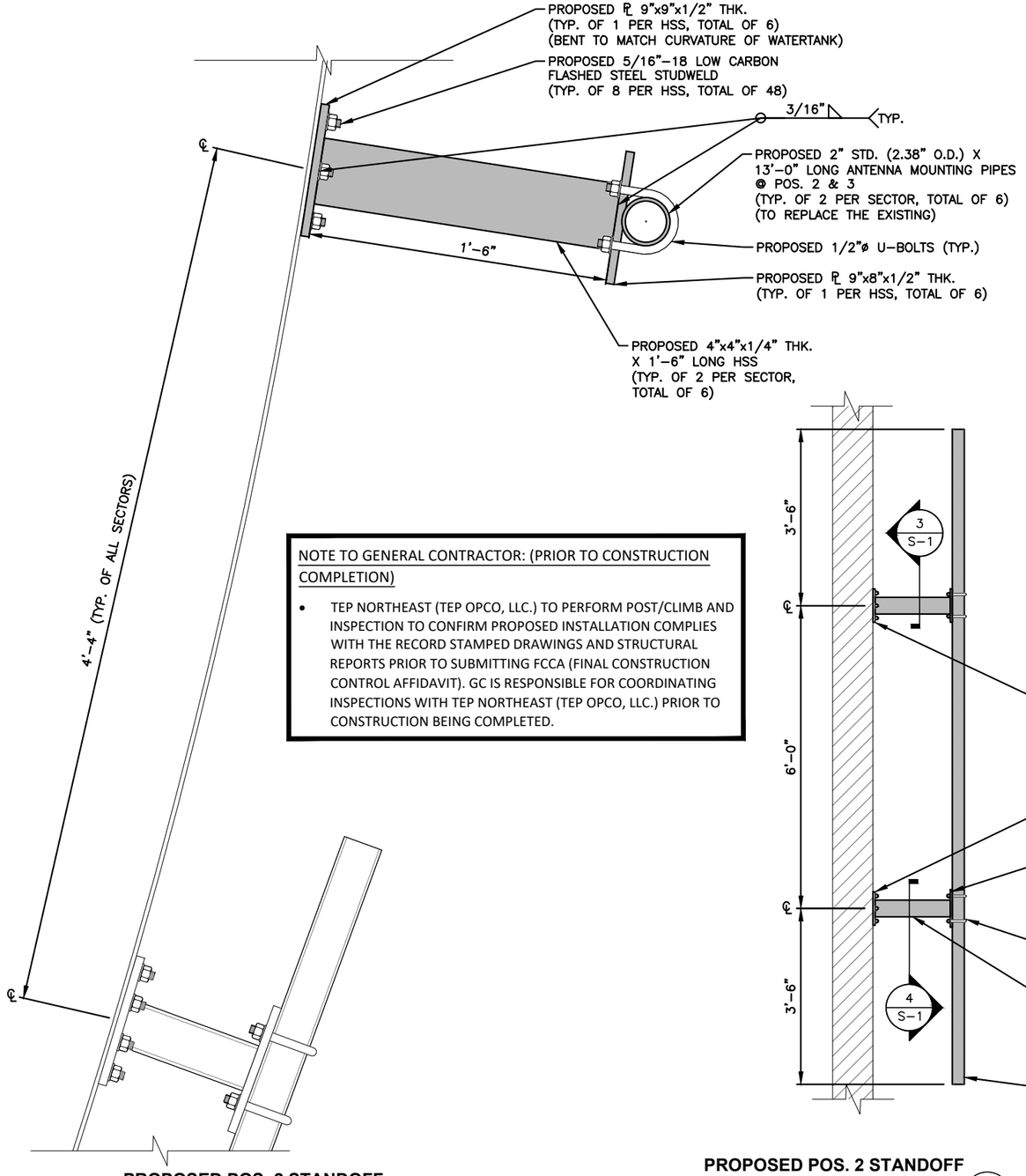
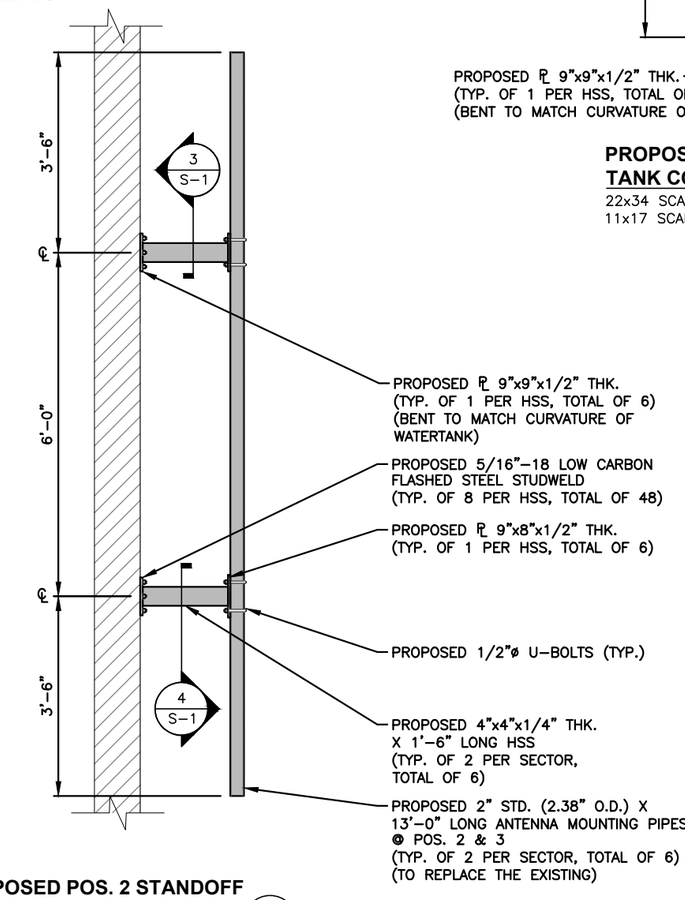
CTL05192	SN-2	3



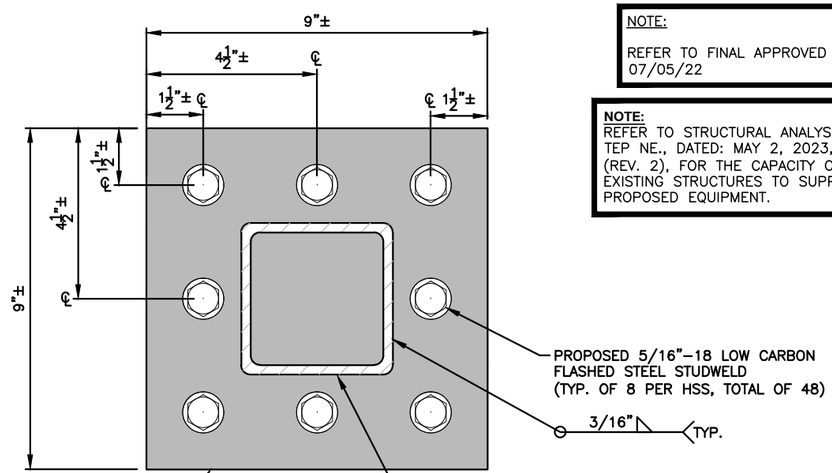
NOTE TO GENERAL CONTRACTOR: (PRIOR TO CONSTRUCTION COMPLETION)

- TEP NORTHEAST (TEP OPCO, LLC.) TO PERFORM POST/CLIMB AND INSPECTION TO CONFIRM PROPOSED INSTALLATION COMPLIES WITH THE RECORD STAMPED DRAWINGS AND STRUCTURAL REPORTS PRIOR TO SUBMITTING FCCA (FINAL CONSTRUCTION CONTROL AFFIDAVIT). GC IS RESPONSIBLE FOR COORDINATING INSPECTIONS WITH TEP NORTHEAST (TEP OPCO, LLC.) PRIOR TO CONSTRUCTION BEING COMPLETED.

PROPOSED POS. 2 STANDOFF MOUNT PLAN DETAIL (1 / S–1)
22x34 SCALE: 3"=1'–0"
11x17 SCALE: 1–1/2"=1'–0"
0 0'–2" 0'–4" 0'–8" 1'–0"



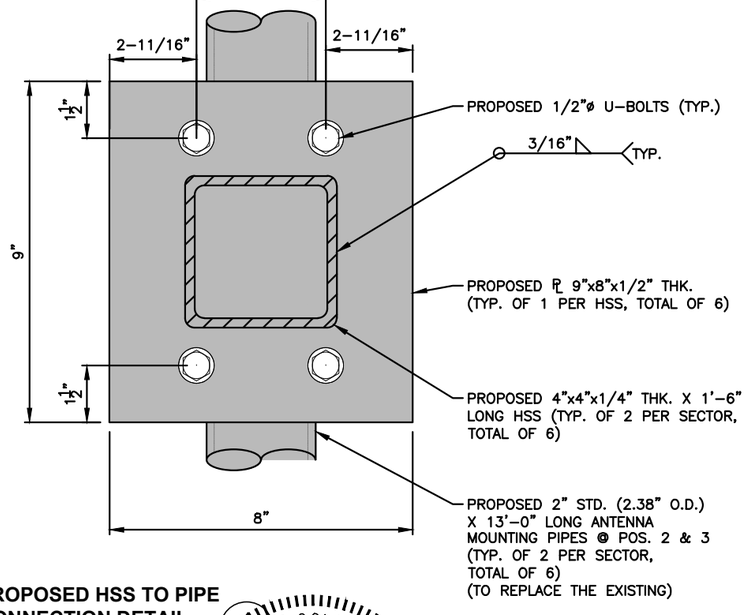
PROPOSED POS. 2 STANDOFF MOUNT SIDE DETAIL (2 / S–1)
22x34 SCALE: 3/4"=1'–0"
11x17 SCALE: 3/8"=1'–0"
0 8" 1'–4" 2'–8" 4'–0"



PROPOSED HSS TO WATER TANK CONNECTION DETAIL (3 / S–1)
22x34 SCALE: 6"=1'–0"
11x17 SCALE: 3"=1'–0"
0 0'–1" 0'–2" 0'–4" 0'–6"

NOTE:
REFER TO FINAL APPROVED V2 RFDS 07/05/22

NOTE:
REFER TO STRUCTURAL ANALYSIS BY: TEP NE., DATED: MAY 2, 2023, (REV. 2), FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



PROPOSED HSS TO PIPE CONNECTION DETAIL
22x34 SCALE: 3"=1'–0"
11x17 SCALE: 1–1/2"=1'–0"
0 0'–2" 0'–4" 0'–8" 1'–0"

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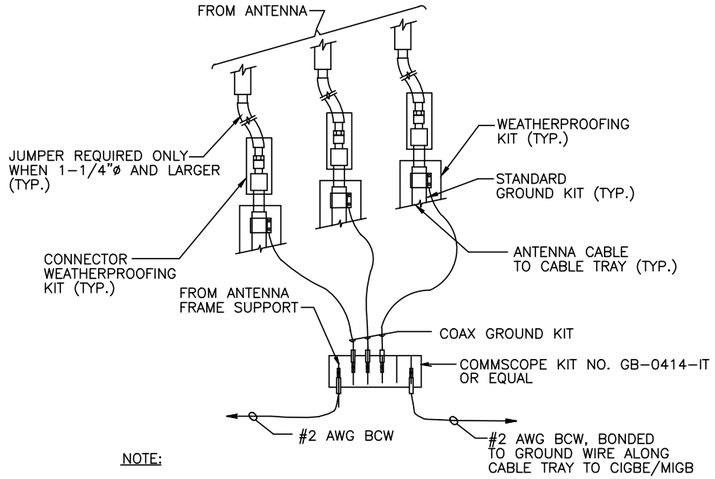
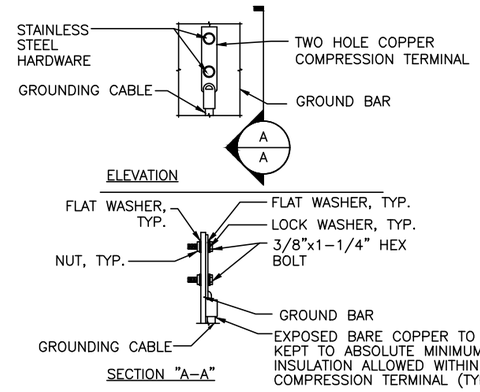


NOTE:

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

GROUND WIRE TO GROUND BAR CONNECTION DETAIL (1 / G-1)

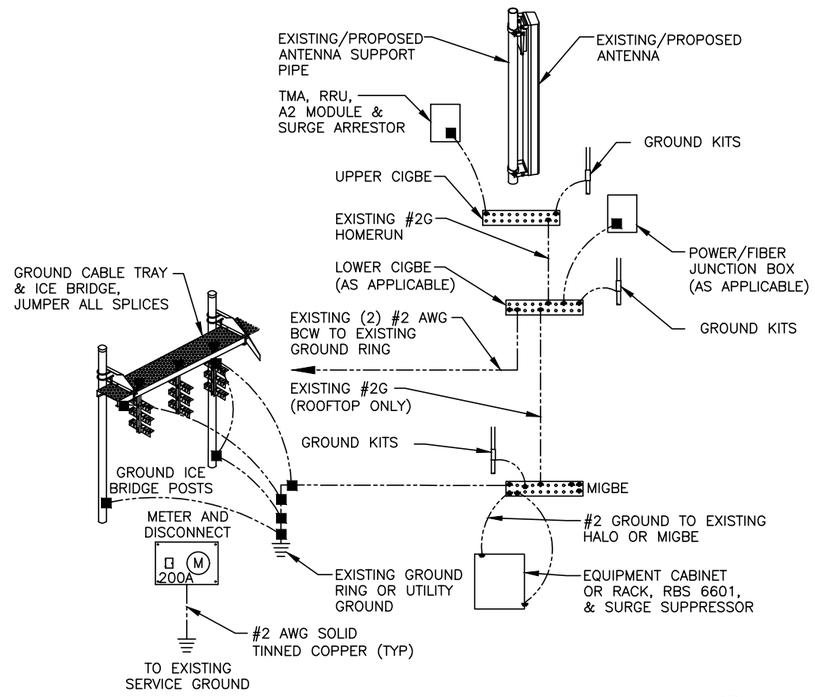
SCALE: N.T.S



NOTES:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

TYPICAL GROUND BAR CONNECTION DETAIL (3 / G-1)

SCALE: N.T.S



GROUNDING RISER DIAGRAM (2 / G-1)

SCALE: N.T.S

AT&T GROUNDING STANDARDS TO BE FOLLOWED:

ATT-TP-76416
ATT-TP-76300
ATT-CEM-18002
ATT-002-290-531
ATT-002-290-701
ATT-CEM-23001

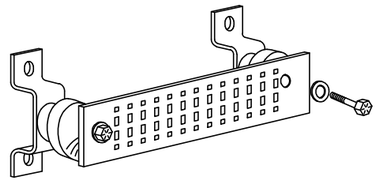
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

CABLE ENTRY PORTS (HATCH PLATES) (#2 AWG)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2 AWG)
+24V POWER SUPPLY RETURN BAR (#2 AWG)
-48V POWER SUPPLY RETURN BAR (#2 AWG)
RECTIFIER FRAMES.

SECTION "A" – SURGE ABSORBERS

INTERIOR GROUND RING (#2 AWG)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2 AWG)
BUILDING STEEL (IF AVAILABLE) (#2 AWG)



GROUND BAR - DETAIL (AS REQUIRED)

SCALE: N.T.S

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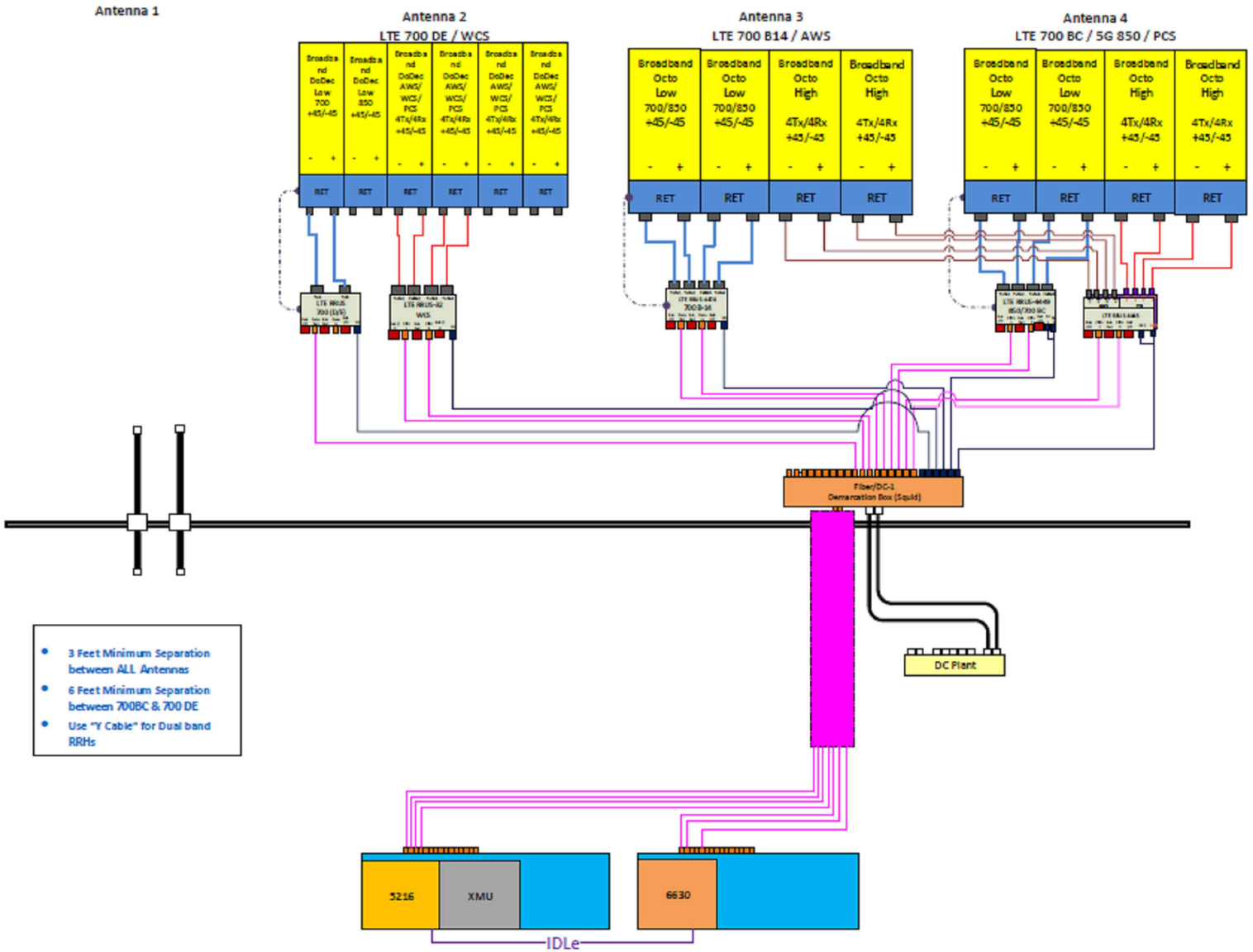

RF PLUMBING DIAGRAM (1 / RF–1)
SCALE: N.T.S

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

NOTE:

REFER TO FINAL APPROVED V2 RFDS 07/05/22

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RF PLUMBING DIAGRAM
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