Aidan Griffin, Site Acquisition Consultant
c/o New Cingular Wireless, PCS LLC (AT&T)
Centerline Communications, LLC
750 W Center St., Suite 301
West Bridgewater, MA 02379
Mobile: (617) 838-6796
agriffin@clinellc.com

June 18, 2019

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

RE: Notice of Exempt Modification // Site Number: CT1264
5 Tyler Drive, North Franklin, CT 06254 (Site Name: Franklin CT Tyler Drive)
N 41.631750 // W -72.143560

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC ("AT&T") currently maintains nine (9) antennas at the 169-foot level of the existing 180-foot self-support tower at 5 Tyler Drive, North Franklin, CT 06254. The tower is owned by the Town of Franklin. The property is also owned by the Town of Franklin. AT&T now intends to swap out and replace (6) antennas for its LTE upgrade. These antennas would be installed at the same 169-foot level of the tower. AT&T also intends to install six (6) new RRUS (radios), add one (1) Surge Arrestor with associated two (2) DC and one (1) fiber cables along existing runs.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Charles Grant, the First Selectman on the Board of Selectman for the town of Franklin, who is also the contact for the tower and ground owner, and to the Town of Franklin Building department and Zoning Enforcement office.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

Attached to accommodate this filing are construction drawings dated 06/12/2019 by Hudson Design Group LLC, a structural analysis dated 05/15/2019 by Hudson Design Group LLC, a mount analysis dated 03/29/2019 by Hudson Design Group, LLC and an Emissions Analysis Report dated 06/04/2019 by Centerline Communications, LLC.

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading as shown in the attached structural analysis by American Tower Engineering, dated 12/20/2018, and the mount analysis by Hudson Design Engineering, dated 11/29/2018.

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

Sincerely,

Aidan Griffin, Site Acquisition Consultant
c/o New Cingular Wireless, PCS LLC (AT&T)
Centerline Communications, LLC
750 W Center St., Suite 301
West Bridgewater, MA 02379
Mobile: (617) 838-6796
agriffin@clinellc.com

Attachments: Structural Analysis, Mount Analysis, Property Card, Emissions Analysis, Construction Drawings

cc: Charles Grant, First Selectman, Town of Franklin- as elected official
Charles Grant, First Selectman, Town of Franklin - as tower owner
Charles Grant, First Selectman, Town of Franklin - as property owner
Building & Zoning, Town of Franklin

Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT1264

Franklin Court Tyler Drive
5 Tyler Drive
North Franklin, CT 06254

June 4, 2019

Centerline Communications Project Number: 950012-219

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**4.14 %**

June 4, 2019

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

Emissions Analysis for Site: **CT1264 – Franklin Court Tyler Drive**

Centerline Communications, LLC ("Centerline") was directed to analyze the proposed AT&T facility located at **5 Tyler Drive in North Franklin, Connecticut** 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu W/cm^2$). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

General population/uncontrolled exposure limits apply to situations in which the general population 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 population 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.

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed AT&T Wireless antenna facility located at **5 Tyler Drive in North Franklin, Connecticut**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
UMTS	850 MHz	2	30
5G	850 MHz	2	25
LTE	700 MHz	2	40
LTE	2100 MHz (AWS)	4	30
LTE	1900 MHz (PCS)	4	40

Table 1: Channel Data Table

The following antennas listed in Table 2 were used in the modeling for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Kathrein 800-10965	169
A	2	CCI HPA-65R-BU6A	169
A	3	Powerwave 7750	169
B	1	Kathrein 800-10965	169
B	2	CCI HPA-65R-BU6A	169
B	3	Powerwave 7750	169
C	1	Kathrein 800-10965	169
C	2	CCI HPA-65R-BU6A	169
C	3	Powerwave 7750	169

Table 2: Antenna Data

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

RESULTS

Per the calculations completed for the proposed AT&T configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX	ERP (W)	MPE %
Antenna A1	Kathrein 800-10965	850 MHz / 700 MHz / 850 MHz / 1900 MHz / 1900 MHz	13.45 dBd / 12.65 dBd / 13.45 dBd / 15.65 dBd / 15.65 dBd	14	530	16,102.67	2.52
Antenna A2	CCI HPA-65R-BU6A	700 MHz / 2100 MHz / 2100 MHz	12.25 dBd / 14.75 dBd / 14.75 dBd	10	320	8,507.96	1.26
Antenna A3	Powerwave 7750	850 MHz	12.5 dBd	2	60	1,066.97	0.24
						Sector A Composite MPE%	**4.02**
Antenna B1	Kathrein 800-10965	850 MHz / 700 MHz / 850 MHz / 1900 MHz / 1900 MHz	13.45 dBd / 12.65 dBd / 13.45 dBd / 15.65 dBd / 15.65 dBd	14	530	16,102.67	2.52
Antenna B2	CCI HPA-65R-BU6A	700 MHz / 2100 MHz / 2100 MHz	12.25 dBd / 14.75 dBd / 14.75 dBd	10	320	8,507.96	1.26
Antenna B3	Powerwave 7750	850 MHz	12.5 dBd	2	60	1,066.97	0.24
						Sector B Composite MPE%	**4.02**
Antenna C1	Kathrein 800-10965	850 MHz / 700 MHz / 850 MHz / 1900 MHz / 1900 MHz	13.45 dBd / 12.65 dBd / 13.45 dBd / 15.65 dBd / 15.65 dBd	14	530	16,102.67	2.52
Antenna C2	CCI HPA-65R-BU6A	700 MHz / 2100 MHz / 2100 MHz	12.25 dBd / 14.75 dBd / 14.75 dBd	10	320	8,507.96	1.26
Antenna C3	Powerwave 7750	850 MHz	12.5 dBd	2	60	1,066.97	0.24
						Sector C Composite MPE%	**4.02**

Table 3: AT&T Emissions Levels

The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum AT&T MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each AT&T Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max Per Sector Value	**4.02 %**
Town of Franklin	0.12 %
Site Total MPE %:	**4.14 %**

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	4.02 %
AT&T Sector B Total:	4.02 %
AT&T Sector C Total:	4.02 %
Site Total:	4.14 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

AT&T _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($i.tW/cm^2$)	Frequency (MHz)	Allowable MPE ($i.tW/cm^2$)	Calculated % MPE
AT&T 850 MHz 5G- Antenna 1	2	553.27	169.0	1.39	850 MHz 5G	567	0.25%
AT&T 700 MHz LTE- Antenna 1	2	736.31	169.0	1.85	700 MHz LTE	467	0.40%
AT&T 850 MHz LTE- Antenna 1	2	885.24	169.0	2.23	850 MHz LTE	567	0.39%
AT&T 1900 MHz LTE- Antenna 1	4	1469.13	169.0	7.40	1900 MHz LTE	1000	0.74%
AT&T 1900 MHz LTE- Antenna 1	4	1469.13	169.0	7.40	1900 MHz LTE	1000	0.74%
AT&T 700 MHz LTE- Antenna 2	2	671.52	169.0	1.69	700 MHz LTE	467	0.36%
AT&T 2100 MHz LTE- Antenna 2	4	895.61	169.0	4.51	2100 MHz LTE	1000	0.45%
AT&T 2100 MHz LTE- Antenna 2	4	895.61	169.0	4.51	2100 MHz LTE	1000	0.45%
AT&T 850 MHz UMTS- Antenna 3	2	533.48	169.0	1.34	850 MHz UMTS	567	0.24%
						Total:	**4.02%**

Table 6: AT&T Maximum Sector MPE Power Values

Summary

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

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

AT&T Sector	Power Density Value (%)
Sector A:	4.02 %
Sector B:	4.02 %
Sector C:	4.02 %
AT&T Maximum Total (per sector):	4.02 %
Site Total:	4.14 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **4.14 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Ryan McManus
Senior RF EME Compliance Manager
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767

March 29, 2019

CENTERLINE COMMUNICATIONS at&t

Centerline Communications
750 West Center Street, Suite #301
West Bridgewater, MA 02379

RE:		
	Site Number:	CT1264 (LTE 2C)
	FA Number:	10065727
	PACE Number:	MRCTB037987
	PT Number:	2101A0MCKQ
	Site Name:	FRANKLIN CT TYLER DR
	Site Address:	5 Tyler Drive North Franklin, CT 06254

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by Centerline Communications to perform a mount analysis on the existing AT&T antenna/RRH mounts to determine their capability of supporting the following additional loading:

- (1) 7750 Antennas (57"x11"x5" - Wt. = 35 lbs. /each)
- (2) 7770 Antennas (55.0"x11.0"x5.0" - Wt. = 35 lbs. /each)
- (3) TT08-19DB111-001 TMA's (14.2"x6.7"x5.4" - Wt. = 22 lbs. /each)
- (1) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each) (Tower Mount)
- **(2) 800-10965 Antennas (78.7"x20.0"x6.9"– Wt. = 109 lbs. /each)**
- **(1) 800-10966 Antennas (96.0"x20.0"x6.9"– Wt. = 115 lbs. /each)**
- **(2) HPA65R-BU6AA Antennas (71.2"x11.7"x8.4" – Wt. = 43 lbs. /each)**
- **(1) HPA65R-BU8AA Antennas (96.0"x11.7"x7.6" – Wt. = 54 lbs. /each)**
- **(3) B5/B12 4449 RRH's (14.9"x13.2"x10.4" – Wt. = 73 lbs. /each)**
- **(3) B2/B66A 8843 RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)**
- **(1) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each) (Tower Mount)**

**Proposed equipment shown in bold*

No original structural design documents or fabrication drawings were available for the existing mounts. HDG's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mounts on March 27, 2019.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R12.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 130 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.18 in was used for this analysis.
- HDG considers this site to be exposure category C; tower is located near large, flat, open, terrain/grasslands.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- The mount has been analyzed with load combinations consisting of 250 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 1.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The existing mount is secured to the existing tower with clamps and threaded rods. The connection is considered OK by visual inspection.

Based on our evaluation, we have determined that the existing mounts **ARE NOT CAPABLE** of supporting the proposed installation. HDG recommends the following modifications:

- **Install new 2" std. (2.38" O.D.) pipe brace secured to the mount and tower (typ. of 1 per sector, total of 3).**
- **Install new 2-1/2" std. (2.88" O.D.) pipe mast behind new 800-10966 Antenna and 800-10965 Antennas (typ. of 1 per sector, total of 3).**
- **Reinforce existing horizontal steel angles with new L3x3x1/4 steel angles (typ. of 2 per sector, total of 6).**
- **Reinforce existing standoff steel angles with new L3x3x1/4 steel angles (typ. of 2 per sector, total of 6).**

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing (LTE 2C) Mount Rating	8	LC13	466%	**FAIL**
Modified (LTE 2C) Mount Rating	1	LC10	91%	**PASS**

Reference Documents:

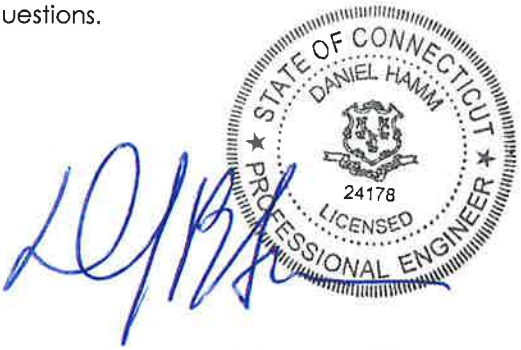
- Mount mapping report prepared by ProVertic LLC.

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
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's requirements.
4. The existing mount has been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,
Hudson Design Group LLC



Michael Cabral
Structural Dept. Head

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:






p: 978.557.5553 f: 978.336.5586 a: 45 Beechwood Drive, N. Andover, MA 01845
p: 203.208.3919 f: 203.234.6398 a: 110 Washington Avenue, 4th Floor, North Haven CT 06473

p: 978.557.5553 f: 978.336.5586 a: 45 Beechwood Drive, N. Andover, MA 01845
p: 203.208.3919 f: 203.234.6398 a: 110 Washington Avenue, 4th Floor, North Haven CT 06473

HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 3/29/2019
Project Name: FRANKLIN CT TYLER DR
Project No.: CT1264
Designed By: LBW **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

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

z=	169	(ft)
z_g=	900	(ft)
α=	9.5	
K_z=	**1.413**	

$K_{zmin} \le K_z \le 2.01$

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}= **#DIV/0!**

K_h=	#DIV/0!	
K_c=	0.9	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	169	
z_s=	430	(Mean elevation of base of structure above sea level)
H=	0	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	(from 2.6.6.2.1)
K_e=	0.98	(from 2.6.8)

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

Category=	1

2.6.10 Design Ice Thickness

Max Ice Thickness =
Importance Factor =

t_i =	1.00	in
I=	1.0	(from Table 2-3)
K_{iz} =	1.18	(from Sec. 2.6.10)

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

t_{iz} = **1.18** in

Date: 3/29/2019
Project Name: FRANKLIN CT TYLER DR
Project No.: CT1264
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

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=	180	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=	1.413	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**51.18**	K_e=	0.98	(from 2.6.8)
$q_{z\,(ice)}$=	**7.57**	K_d=	0.85	(from Table 2-2)
$q_{z\,(30)}$=	**2.73**	V_{max}=	130	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: 3/29/2019
Project Name: FRANKLIN CT TYLER DR
Project No.: CT1264
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

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 = **1.18 in** **Angle = 0 (deg)** **Equivalent Angle = 180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
7750 Antenna	57.0	11.0	5.0	4.35	5.18	1.32	294	55	16
7770 Antenna	55.0	11.0	5.0	4.20	5.00	1.31	282	53	15
800-10965 Antenna	78.7	20.0	6.9	10.93	3.94	1.26	707	120	38
800-10966 Antenna	96.0	20.0	6.9	13.33	4.80	1.30	889	151	47
HPA65R-BU6AA Antenna	71.2	11.7	8.4	5.79	6.09	1.36	402	74	21
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	8.21	1.44	575	105	31
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.13	1.20	84	17	4
B5/B12 44490 RRH (Shielded)	14.9	0.0	10.4	0.00	0.00	1.20	0	3	0
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.20	84	17	4
B2/B66A 8843 RRH (Shielded)	14.9	0.0	10.9	0.00	0.00	1.20	0	3	0
TT08-19DB111-001 TMA	14.2	5.4	6.7	0.53	2.63	1.21	33	8	2
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	58	12	3
2" Pipe	2.4	12.0		0.20	0.20	1.20	12	4	1
3x3 Angle	3.0	12.0		0.25	0.25	2.00	26	8	1
3/4" Roundbar	0.8	12.0		0.06	0.06	1.25	4	3	0

Date: 3/29/2019
Project Name: FRANKLIN CT TYLER DR
Project No.: CT1264
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.18	in.	Equivalent Angle =	210	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
7750 Antenna	57.0	11.0	5.0	4.35	1.98	5.18	11.40	1.32	1.55	294	157	260
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	282	150	249
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	707	299	605
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	889	384	762
HPA65R-BU6AA Antenna	71.2	11.7	8.4	5.79	4.15	6.09	8.48	1.36	1.45	402	308	379
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	575	412	534
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	84	66	79
B5/B12 44490 RRH (Shielded)	14.9	6.6	10.4	0.68	1.08	2.26	1.43	1.20	1.20	42	66	48
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	84	69	80
B2/B66A 8843 RRH (Shielded)	14.9	6.6	10.9	0.68	1.13	2.26	1.37	1.20	1.20	42	69	49
TT08-19DB111-001 TMA	14.2	5.4	6.7	0.53	0.66	2.63	2.12	1.21	1.20	33	41	35
WIND LOADS WITH ICE:												
7750 Antenna	59.4	13.4	7.4	5.50	3.03	4.44	8.07	1.29	1.44	54	33	48
7770 Antenna	57.4	13.4	7.4	5.32	2.93	4.29	7.80	1.28	1.43	52	32	47
800-10965 Antenna	81.1	22.4	9.3	12.58	5.21	3.63	8.76	1.25	1.46	119	58	104
800-10966 Antenna	98.4	22.4	9.3	15.27	6.32	4.40	10.63	1.28	1.52	148	73	130
HPA65R-BU6AA Antenna	73.6	14.1	10.8	7.18	5.49	5.23	6.84	1.32	1.39	72	58	68
HPA65R-BU8AA Antenna	98.4	14.1	10.0	9.60	6.80	7.00	9.88	1.40	1.50	102	77	96
B5/B12 4449 RRH	17.3	15.6	12.8	1.86	1.53	1.11	1.35	1.20	1.20	17	14	16
B5/B12 44490 RRH (Shielded)	17.3	7.8	12.8	0.93	1.53	2.22	1.35	1.20	1.20	8	14	10
B2/B66A 8843 RRH	17.3	15.6	13.3	1.86	1.59	1.11	1.30	1.20	1.20	17	14	16
B2/B66A 8843 RRH (Shielded)	17.3	7.8	13.3	0.93	1.59	2.22	1.30	1.20	1.20	8	14	10
TT08-19DB111-001 TMA	16.6	7.8	9.1	0.89	1.04	2.13	1.83	1.20	1.20	8	9	8
WIND LOADS AT 30 MPH:												
7750 Antenna	57.0	11.0	5.0	4.35	1.98	5.18	11.40	1.32	1.55	16	8	14
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	15	8	13
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	38	16	32
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	47	20	41
HPA65R-BU6AA Antenna	71.2	11.7	8.4	5.79	4.15	6.09	8.48	1.36	1.45	21	16	20
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	31	22	28
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	4	4	4
B5/B12 44490 RRH (Shielded)	14.9	6.6	10.4	0.68	1.08	2.26	1.43	1.20	1.20	2	4	3
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	4	4
B2/B66A 8843 RRH (Shielded)	14.9	6.6	10.9	0.68	1.13	2.26	1.37	1.20	1.20	2	4	3
TT08-19DB111-001 TMA	14.2	5.4	6.7	0.53	0.66	2.63	2.12	1.21	1.20	2	2	2

Date: 3/29/2019
Project Name: FRANKLIN CT TYLER DR
Project No.: CT1264
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	1.18	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)
7750 Antenna	57.0	11.0	5.0	4.35	1.98	5.18	11.40	1.32	1.55	294	157	191
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	282	150	183
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	707	299	401
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	889	384	510
HPA65R-BU6AA Antenna	71.2	11.7	8.4	5.79	4.15	6.09	8.48	1.36	1.45	402	308	332
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	575	412	452
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	84	66	71
B5/B12 44490 RRH (Shielded)	14.9	9.9	10.4	1.02	1.08	1.51	1.43	1.20	1.20	63	66	65
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	84	69	73
B2/B66A 8843 RRH (Shielded)	14.9	9.9	10.9	1.02	1.13	1.51	1.37	1.20	1.20	63	69	68
TT08-19DB111-001 TMA	14.2	5.4	6.7	0.53	0.66	2.63	2.12	1.21	1.20	33	41	39

WIND LOADS WITH ICE:

7750 Antenna	59.4	13.4	7.4	5.50	3.03	4.44	8.07	1.29	1.44	54	33	38
7770 Antenna	57.4	13.4	7.4	5.32	2.93	4.29	7.80	1.28	1.43	52	32	37
800-10965 Antenna	81.1	22.4	9.3	12.58	5.21	3.63	8.76	1.25	1.46	119	58	73
800-10966 Antenna	98.4	22.4	9.3	15.27	6.32	4.40	10.63	1.28	1.52	148	73	92
HPA65R-BU6AA Antenna	73.6	14.1	10.8	7.18	5.49	5.23	6.84	1.32	1.39	72	58	61
HPA65R-BU8AA Antenna	98.4	14.1	10.0	9.60	6.80	7.00	9.88	1.40	1.50	102	77	83
B5/B12 4449 RRH	17.3	15.6	12.8	1.86	1.53	1.11	1.35	1.20	1.20	17	14	15
B5/B12 44490 RRH (Shielded)	17.3	11.7	12.8	1.40	1.53	1.48	1.35	1.20	1.20	13	14	14
B2/B66A 8843 RRH	17.3	15.6	13.3	1.86	1.59	1.11	1.30	1.20	1.20	17	14	15
B2/B66A 8843 RRH (Shielded)	17.3	11.7	13.3	1.40	1.59	1.48	1.30	1.20	1.20	13	14	14
TT08-19DB111-001 TMA	16.6	7.8	9.1	0.89	1.04	2.13	1.83	1.20	1.20	8	9	9

WIND LOADS AT 30 MPH:

7750 Antenna	57.0	11.0	5.0	4.35	1.98	5.18	11.40	1.32	1.55	16	8	10
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	15	8	10
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	38	16	21
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	47	20	27
HPA65R-BU6AA Antenna	71.2	11.7	8.4	5.79	4.15	6.09	8.48	1.36	1.45	21	16	18
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	31	22	24
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	4	4	4
B5/B12 44490 RRH (Shielded)	14.9	9.9	10.4	1.02	1.08	1.51	1.43	1.20	1.20	3	4	3
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	4	4
B2/B66A 8843 RRH (Shielded)	14.9	9.9	10.9	1.02	1.13	1.51	1.37	1.20	1.20	3	4	4
TT08-19DB111-001 TMA	14.2	5.4	6.7	0.53	0.66	2.63	2.12	1.21	1.20	2	2	2

Date: 3/29/2019
Project Name: FRANKLIN CT TYLER DR
Project No.: CT1244
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.18	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)
7750 Antenna	57.0	11.0	5.0	4.35	1.98	5.18	11.40	1.32	1.55	294	157	157
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	282	150	150
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	707	299	299
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	889	384	384
HPA65R-BU6AA Antenna	71.2	11.7	8.4	5.79	4.15	6.09	8.48	1.36	1.45	402	308	308
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	575	412	412
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	84	66	66
B5/B12 44490 RRH (Shielded)	14.9	0.0	10.4	0.00	1.08	0.00	1.43	1.20	1.20	0	66	66
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	84	69	69
B2/B66A 8843 RRH (Shielded)	14.9	0.0	10.9	0.00	1.13	0.00	1.37	1.20	1.20	0	69	69
TT08-19DB111-001 TMA	14.2	5.4	6.7	0.53	0.66	2.63	2.12	1.21	1.20	33	41	41

WIND LOADS WITH ICE:

7750 Antenna	59.4	13.4	7.4	5.50	3.03	4.44	8.07	1.29	1.44	54	33	33
7770 Antenna	57.4	13.4	7.4	5.32	2.93	4.29	7.80	1.28	1.43	52	32	32
800-10965 Antenna	81.1	22.4	9.3	12.58	5.21	3.63	8.76	1.25	1.46	119	58	58
800-10966 Antenna	98.4	22.4	9.3	15.27	6.32	4.40	10.63	1.28	1.52	148	73	73
HPA65R-BU6AA Antenna	73.6	14.1	10.8	7.18	5.49	5.23	6.84	1.32	1.39	72	58	58
HPA65R-BU8AA Antenna	98.4	14.1	10.0	9.60	6.80	7.00	9.88	1.40	1.50	102	77	77
B5/B12 4449 RRH	17.3	15.6	12.8	1.86	1.53	1.11	1.35	1.20	1.20	17	14	14
B5/B12 44490 RRH (Shielded)	17.3	2.4	12.8	0.28	1.53	7.33	1.35	1.41	1.20	3	14	14
B2/B66A 8843 RRH	17.3	15.6	13.3	1.86	1.59	1.11	1.30	1.20	1.20	17	14	14
B2/B66A 8843 RRH (Shielded)	17.3	2.4	13.3	0.28	1.59	7.33	1.30	1.41	1.20	3	14	14
TT08-19DB111-001 TMA	16.6	7.8	9.1	0.89	1.04	2.13	1.83	1.20	1.20	8	9	9

WIND LOADS AT 30 MPH:

7750 Antenna	57.0	11.0	5.0	4.35	1.98	5.18	11.40	1.32	1.55	16	8	8
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	15	8	8
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	38	16	16
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	47	20	20
HPA65R-BU6AA Antenna	71.2	11.7	8.4	5.79	4.15	6.09	8.48	1.36	1.45	21	16	16
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	31	22	22
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	4	4	4
B5/B12 44490 RRH (Shielded)	14.9	0.0	10.4	0.00	1.08	0.00	1.43	1.20	1.20	0	4	4
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	4	4
B2/B66A 8843 RRH (Shielded)	14.9	0.0	10.9	0.00	1.13	0.00	1.37	1.20	1.20	0	4	4
TT08-19DB111-001 TMA	14.2	5.4	6.7	0.53	0.66	2.63	2.12	1.21	1.20	2	2	2

Date: 3/29/2019
Project Name: FRANKLIN CT TYLER DR
Project No.: CT1264
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.18	in.	Equivalent Angle =	300	(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)
7750 Antenna	57.0	11.0	5.0	4.35	1.98	5.18	11.40	1.32	1.55	294	157	191
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	282	150	183
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	707	299	401
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	889	384	510
HPA65R-BU6AA Antenna	71.2	11.7	8.4	5.79	4.15	6.09	8.48	1.36	1.45	402	308	332
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	575	412	452
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	84	66	71
B5/B12 44490 RRH (Shielded)	14.9	9.9	10.4	1.02	1.08	1.51	1.43	1.20	1.20	63	66	65
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	84	69	73
B2/B66A 8843 RRH (Shielded)	14.9	9.9	10.9	1.02	1.13	1.51	1.37	1.20	1.20	63	69	68
TT08-19DB111-001 TMA	14.2	5.4	6.7	0.53	0.66	2.63	2.12	1.21	1.20	33	41	39

WIND LOADS WITH ICE:

7750 Antenna	59.4	13.4	7.4	5.50	3.03	4.44	8.07	1.29	1.44	54	33	38
7770 Antenna	57.4	13.4	7.4	5.32	2.93	4.29	7.80	1.28	1.43	52	32	37
800-10965 Antenna	81.1	22.4	9.3	12.58	5.21	3.63	8.76	1.25	1.46	119	58	73
800-10966 Antenna	98.4	22.4	9.3	15.27	6.32	4.40	10.63	1.28	1.52	148	73	92
HPA65R-BU6AA Antenna	73.6	14.1	10.8	7.18	5.49	5.23	6.84	1.32	1.39	72	58	61
HPA65R-BU8AA Antenna	98.4	14.1	10.0	9.60	6.80	7.00	9.88	1.40	1.50	102	77	83
B5/B12 4449 RRH	17.3	15.6	12.8	1.86	1.53	1.11	1.35	1.20	1.20	17	14	15
B5/B12 44490 RRH (Shielded)	17.3	11.7	12.8	1.40	1.53	1.48	1.35	1.20	1.20	13	14	14
B2/B66A 8843 RRH	17.3	15.6	13.3	1.86	1.59	1.11	1.30	1.20	1.20	17	14	15
B2/B66A 8843 RRH (Shielded)	17.3	11.7	13.3	1.40	1.59	1.48	1.30	1.20	1.20	13	14	14
TT08-19DB111-001 TMA	16.6	7.8	9.1	0.89	1.04	2.13	1.83	1.20	1.20	8	9	9

WIND LOADS AT 30 MPH:

7750 Antenna	57.0	11.0	5.0	4.35	1.98	5.18	11.40	1.32	1.55	16	8	10
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	15	8	10
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	38	16	21
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	47	20	27
HPA65R-BU6AA Antenna	71.2	11.7	8.4	5.79	4.15	6.09	8.48	1.36	1.45	21	16	18
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	31	22	24
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	4	4	4
B5/B12 44490 RRH (Shielded)	14.9	9.9	10.4	1.02	1.08	1.51	1.43	1.20	1.20	3	4	3
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	4	4
B2/B66A 8843 RRH (Shielded)	14.9	9.9	10.9	1.02	1.13	1.51	1.37	1.20	1.20	3	4	4
TT08-19DB111-001 TMA	14.2	5.4	6.7	0.53	0.66	2.63	2.12	1.21	1.20	2	2	2

Date: 3/29/2019
Project Name: FRANKLIN CT TYLER DR
Project No.: CT1264
Designed By: LBW Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.18	in.	Equivalent Angle =	330	(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)
7750 Antenna	57.0	11.0	5.0	4.35	1.98	5.18	11.40	1.32	1.55	294	157	260
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	282	150	249
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	707	299	605
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	889	384	762
HPA65R-BU6AA Antenna	71.2	11.7	8.4	5.79	4.15	6.09	8.48	1.36	1.45	402	308	379
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	575	412	534
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	84	66	79
B5/B12 44490 RRH (Shielded)	14.9	6.6	10.4	0.68	1.08	2.26	1.43	1.20	1.20	42	66	48
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	84	69	80
B2/B66A 8843 RRH (Shielded)	14.9	6.6	10.9	0.68	1.13	2.26	1.37	1.20	1.20	42	69	49
TT08-19DB111-001 TMA	14.2	5.4	6.7	0.53	0.66	2.63	2.12	1.21	1.20	33	41	35

WIND LOADS WITH ICE:

7750 Antenna	59.4	13.4	7.4	5.50	3.03	4.44	8.07	1.29	1.44	54	33	48
7770 Antenna	57.4	13.4	7.4	5.32	2.93	4.29	7.80	1.28	1.43	52	32	47
800-10965 Antenna	81.1	22.4	9.3	12.58	5.21	3.63	8.76	1.25	1.46	119	58	104
800-10966 Antenna	98.4	22.4	9.3	15.27	6.32	4.40	10.63	1.28	1.52	148	73	130
HPA65R-BU6AA Antenna	73.6	14.1	10.8	7.18	5.49	5.23	6.84	1.32	1.39	72	58	68
HPA65R-BU8AA Antenna	98.4	14.1	10.0	9.60	6.80	7.00	9.88	1.40	1.50	102	77	96
B5/B12 4449 RRH	17.3	15.6	12.8	1.86	1.53	1.11	1.35	1.20	1.20	17	14	16
B5/B12 44490 RRH (Shielded)	17.3	7.8	12.8	0.93	1.53	2.22	1.35	1.20	1.20	8	14	10
B2/B66A 8843 RRH	17.3	15.6	13.3	1.86	1.59	1.11	1.30	1.20	1.20	17	14	16
B2/B66A 8843 RRH (Shielded)	17.3	7.8	13.3	0.93	1.59	2.22	1.30	1.20	1.20	8	14	10
TT08-19DB111-001 TMA	16.6	7.8	9.1	0.89	1.04	2.13	1.83	1.20	1.20	8	9	8

WIND LOADS AT 30 MPH:

7750 Antenna	57.0	11.0	5.0	4.35	1.98	5.18	11.40	1.32	1.55	16	8	14
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	15	8	13
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	38	16	32
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	47	20	41
HPA65R-BU6AA Antenna	71.2	11.7	8.4	5.79	4.15	6.09	8.48	1.36	1.45	21	16	20
HPA65R-BU8AA Antenna	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	31	22	28
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	4	4	4
B5/B12 44490 RRH (Shielded)	14.9	6.6	10.4	0.68	1.08	2.26	1.43	1.20	1.20	2	4	3
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	4	4
B2/B66A 8843 RRH (Shielded)	14.9	6.6	10.9	0.68	1.13	2.26	1.37	1.20	1.20	2	4	3
TT08-19DB111-001 TMA	14.2	5.4	6.7	0.53	0.66	2.63	2.12	1.21	1.20	2	2	2

Date: 3/29/2019
Project Name: FRANKLIN CT TYLER DR
Project No.: CT1264
Designed By: LBW **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.18 in.
Density of ice: 56 pcf

7750 Antenna

Weight of ice based on total radial SF area:

Height (in):	57.0	
Width (in):	11.0	
Depth (in):	5.0	
Total weight of ice on object:		91 lbs
Weight of object:	35.0 lbs	
Combined weight of ice and object:		126 lbs

7770 Antenna

Weight of ice based on total radial SF area:

Height (in):	55.0	
Width (in):	11.0	
Depth (in):	5.0	
Total weight of ice on object:		88 lbs
Weight of object:	35.0 lbs	
Combined weight of ice and object:		123 lbs

800-10965 Antenna

Weight of ice based on total radial SF area:

Height (in):	78.7	
Width (in):	20.0	
Depth (in):	6.9	
Total weight of ice on object:		211 lbs
Weight of object:	109.0 lbs	
Combined weight of ice and object:		320 lbs

800-10966 Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	20.0	
Depth (in):	6.9	
Total weight of ice on object:		258 lbs
Weight of object:	115.0 lbs	
Combined weight of ice and object:		373 lbs

HPA65R-BU6AA Antenna

Weight of ice based on total radial SF area:

Height (in):	71.2	
Width (in):	20.0	
Depth (in):	6.9	
Total weight of ice on object:		191 lbs
Weight of object:	109.0 lbs	
Combined weight of ice and object:		300 lbs

HPA65R-BU8AA Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	11.7	
Depth (in):	7.6	
Total weight of ice on object:		175 lbs
Weight of object:	54.0 lbs	
Combined weight of ice and object:		229 lbs

RRUS-11 RRH

Weight of ice based on total radial SF area:

Height (in):	19.7	
Width (in):	17.0	
Depth (in):	7.2	
Total weight of ice on object:		46 lbs
Weight of object:	51.0 lbs	
Combined weight of ice and object:		97 lbs

B5/B12 4449 RRH

Weight of ice based on total radial SF area:

Height (in):	14.9	
Width (in):	13.2	
Depth (in):	10.4	
Total weight of ice on object:		32 lbs
Weight of object:	73.0 lbs	
Combined weight of ice and object:		105 lbs

B2/B66A 8843 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:		33 lbs
Weight of object:	72.0 lbs	
Combined weight of ice and object:		105 lbs

TT08-19DB111-001 TMA

Weight of ice based on total radial SF area:

Height (in):	14.2	
Width (in):	5.4	
Depth (in):	6.7	
Total weight of ice on object:		17 lbs
Weight of object:	22.0 lbs	
Combined weight of ice and object:		39 lbs

2" pipe

Per foot weight of ice:

diameter (in):	2.38	
Per foot weight of ice on object:		5 plf

Squid Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	24.0	
Diameter(in):	9.7	
Total weight of ice on object:		31 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		64 lbs

3/4" Round Bar

Per foot weight of ice:

diameter (in):	0.75	
Per foot weight of ice on object:		3 plf

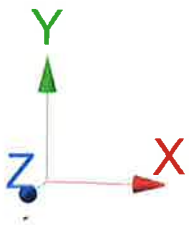
L 3x3 Angles

Weight of ice based on total radial SF area:

Height (in):	3	
Width (in):	3	
Per foot weight of ice on object:		8 plf

HUDSON
Design Group LLC

Mount Calculations
(Existing Conditions)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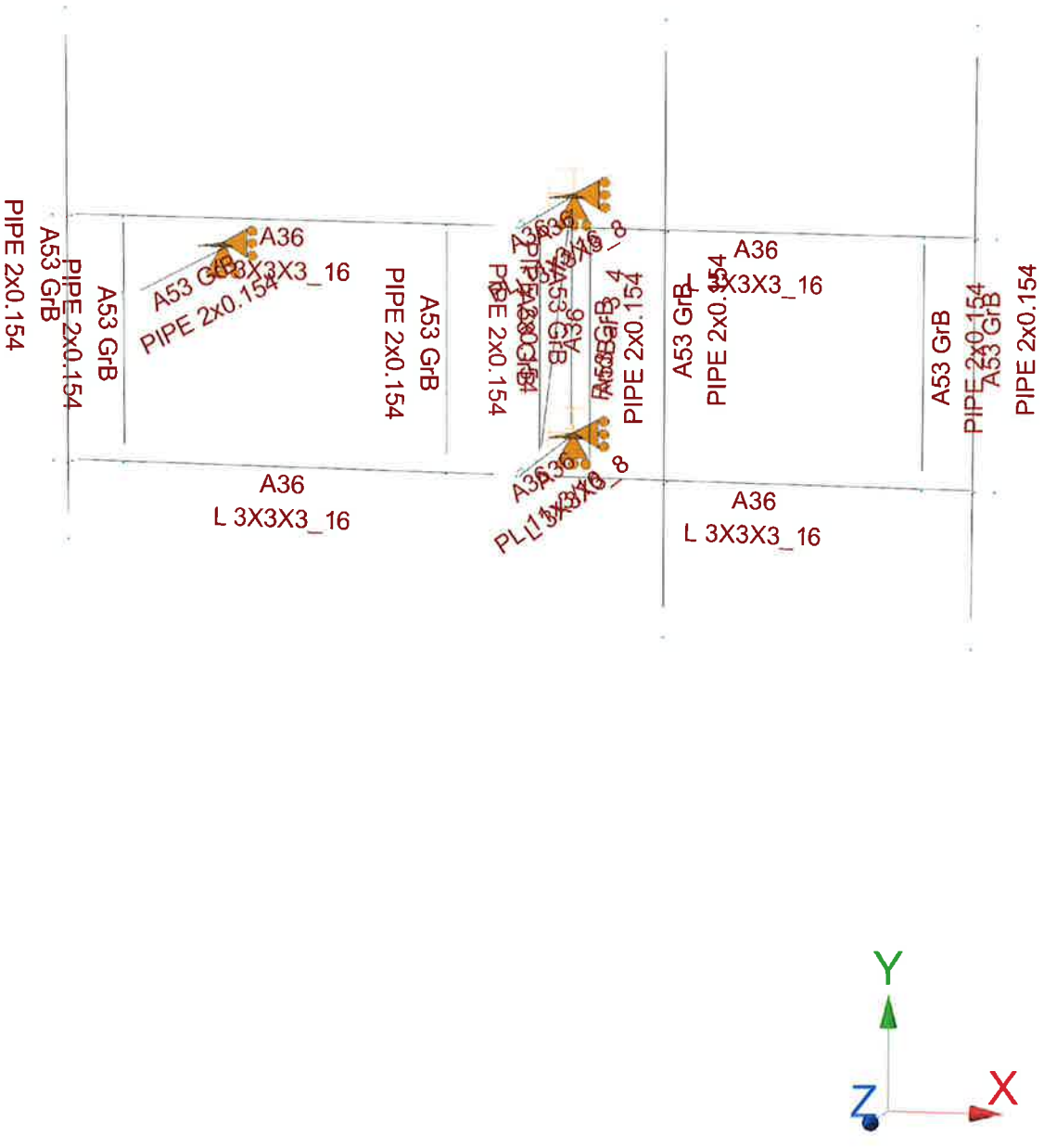
Z
X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PIPE 2x0.154
A53 GrB
PIPE 2x0.154
A36
L 3X3X3_16
A53 GrB
PIPE 2x0.154
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L 3X3X3_16
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2x0.154
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L 3X3X3_16
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PIPE 2x0.154
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PIPE 2x0.154
A36
L 3X3X3_16
Y
Z
X

Bentley

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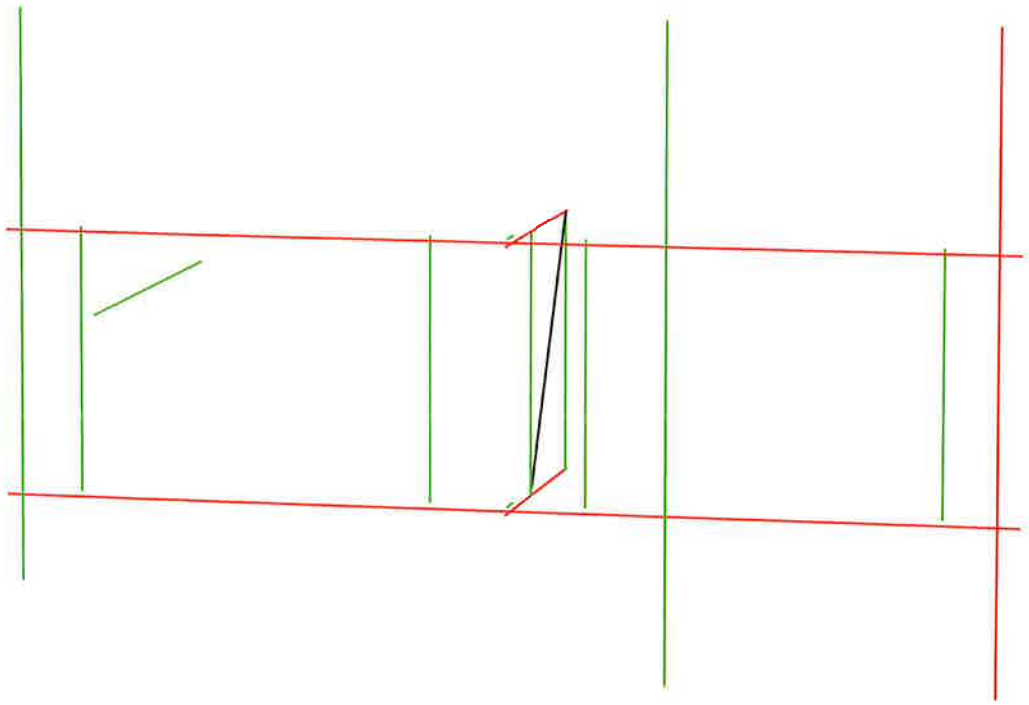
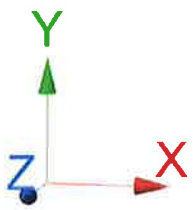
Design status

- Not designed
- Error on design
- Design O.K.
- With warnings





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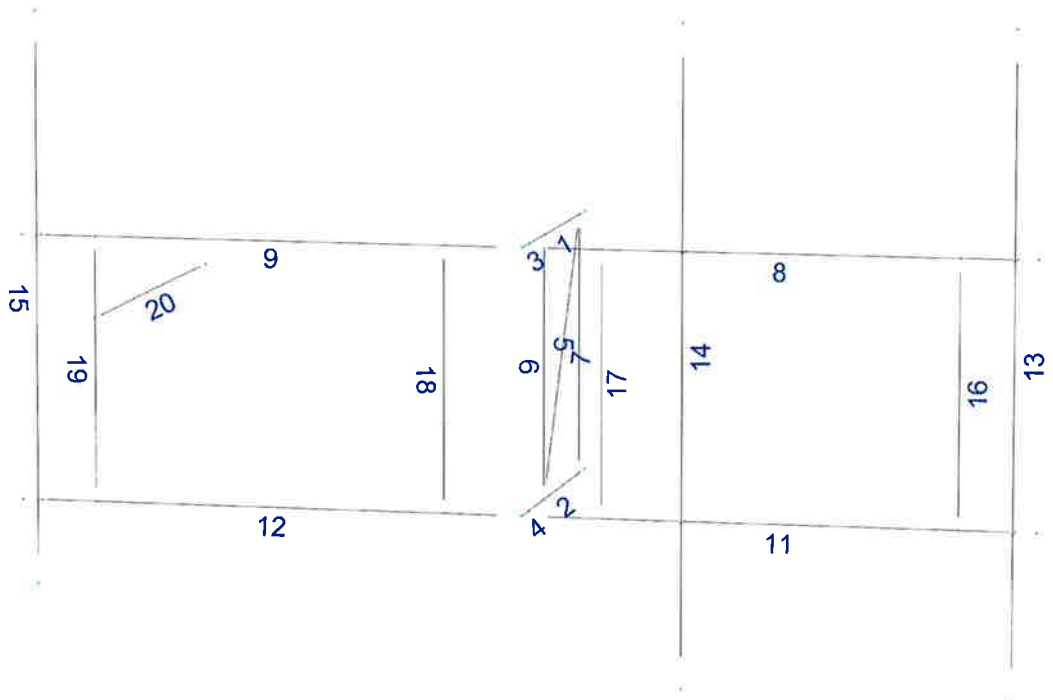

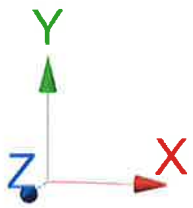

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Units system: English
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Load data

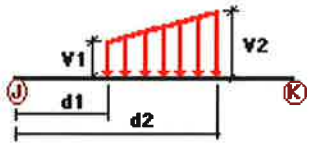
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No	WIND
W150	WL 150deg	No	WIND
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	No	WIND
WI120	WL ICE 120deg	No	WIND
WI150	WL ICE 150deg	No	WIND
WL0	WL 30 mph 0deg	No	WIND
WL30	WL 30 mph 30deg	No	WIND
WL60	WL 30 mph 60deg	No	WIND
WL90	WL 30 mph 90deg	No	WIND
WL120	WL 30 mph 120deg	No	WIND
WL150	WL 30 mph 150deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load Right End of Mount	No	LL
LL3	250 lb Live Load Left End of Mount	No	LL
LLa1	250 lb Live Load Antenna 1	No	LL
LLa2	250 lb Live Load Antenna 2	No	LL
LLa3	250 lb Live Load Antenna 3	No	LL

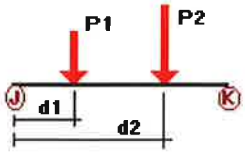
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	1	z	-0.026	0.00	0.00	No	0.00	No
	2	z	-0.026	0.00	0.00	No	0.00	No
	5	z	-0.012	0.00	0.00	No	0.00	No
	6	z	-0.012	0.00	0.00	No	0.00	No
	7	z	-0.004	0.00	0.00	No	0.00	No
	8	z	-0.026	0.00	0.00	No	0.00	No
	9	z	-0.026	0.00	0.00	No	0.00	No
	11	z	-0.026	0.00	0.00	No	0.00	No
	12	z	-0.026	0.00	0.00	No	0.00	No
	16	z	-0.012	0.00	0.00	No	0.00	No
	17	z	-0.012	0.00	0.00	No	0.00	No
	18	z	-0.012	0.00	0.00	No	0.00	No
	19	z	-0.012	0.00	0.00	No	0.00	No
	20	z	-0.012	0.00	0.00	No	0.00	No
W30	1	z	-0.026	0.00	0.00	No	0.00	No
	2	z	-0.026	0.00	0.00	No	0.00	No
	5	z	-0.012	0.00	0.00	No	0.00	No
	6	z	-0.012	0.00	0.00	No	0.00	No
	7	z	-0.004	0.00	0.00	No	0.00	No
	8	z	-0.026	0.00	0.00	No	0.00	No
	9	z	-0.026	0.00	0.00	No	0.00	No
	11	z	-0.026	0.00	0.00	No	0.00	No
	12	z	-0.026	0.00	0.00	No	0.00	No
	16	z	-0.012	0.00	0.00	No	0.00	No
	17	z	-0.012	0.00	0.00	No	0.00	No
	18	z	-0.012	0.00	0.00	No	0.00	No
	19	z	-0.012	0.00	0.00	No	0.00	No
	20	z	-0.012	0.00	0.00	No	0.00	No
W60	1	x	-0.026	0.00	0.00	No	0.00	No
	2	x	-0.026	0.00	0.00	No	0.00	No
	5	x	-0.012	0.00	0.00	No	0.00	No
	6	x	-0.012	0.00	0.00	No	0.00	No
	7	x	-0.004	0.00	0.00	No	0.00	No
	8	x	-0.026	0.00	0.00	No	0.00	No
	9	x	-0.026	0.00	0.00	No	0.00	No
	11	x	-0.026	0.00	0.00	No	0.00	No
	12	x	-0.026	0.00	0.00	No	0.00	No
	13	x	-0.012	0.00	0.00	No	0.00	No
	14	x	-0.012	0.00	0.00	No	0.00	No
	15	x	-0.012	0.00	0.00	No	0.00	No
	16	x	-0.012	0.00	0.00	No	0.00	No
	17	x	-0.012	0.00	0.00	No	0.00	No
	18	x	-0.012	0.00	0.00	No	0.00	No
	19	x	-0.012	0.00	0.00	No	0.00	No
	20	x	-0.012	0.00	0.00	No	0.00	No
W90	1	x	-0.026	0.00	0.00	No	0.00	No
	2	x	-0.026	0.00	0.00	No	0.00	No
	5	x	-0.012	0.00	0.00	No	0.00	No
	6	x	-0.012	0.00	0.00	No	0.00	No
	7	x	-0.004	0.00	0.00	No	0.00	No
	8	x	-0.026	0.00	0.00	No	0.00	No
	9	x	-0.026	0.00	0.00	No	0.00	No
	11	x	-0.026	0.00	0.00	No	0.00	No
	12	x	-0.026	0.00	0.00	No	0.00	No
	13	x	-0.012	0.00	0.00	No	0.00	No
	14	x	-0.012	0.00	0.00	No	0.00	No
	15	x	-0.012	0.00	0.00	No	0.00	No
	16	x	-0.012	0.00	0.00	No	0.00	No
	17	x	-0.012	0.00	0.00	No	0.00	No
	18	x	-0.012	0.00	0.00	No	0.00	No

	19	x	-0.012	0.00	0.00	No	0.00	No
	20	x	-0.012	0.00	0.00	No	0.00	No
W120	1	x	-0.026	0.00	0.00	No	0.00	No
	2	x	-0.026	0.00	0.00	No	0.00	No
	5	x	-0.012	0.00	0.00	No	0.00	No
	6	x	-0.012	0.00	0.00	No	0.00	No
	7	x	-0.004	0.00	0.00	No	0.00	No
	8	x	-0.026	0.00	0.00	No	0.00	No
	9	x	-0.026	0.00	0.00	No	0.00	No
	11	x	-0.026	0.00	0.00	No	0.00	No
	12	x	-0.026	0.00	0.00	No	0.00	No
	13	x	-0.012	0.00	0.00	No	0.00	No
	14	x	-0.012	0.00	0.00	No	0.00	No
	15	x	-0.012	0.00	0.00	No	0.00	No
	16	x	-0.012	0.00	0.00	No	0.00	No
	17	x	-0.012	0.00	0.00	No	0.00	No
	18	x	-0.012	0.00	0.00	No	0.00	No
	19	x	-0.012	0.00	0.00	No	0.00	No
	20	x	-0.012	0.00	0.00	No	0.00	No
W150	1	z	0.026	0.00	0.00	No	0.00	No
	2	z	0.026	0.00	0.00	No	0.00	No
	5	z	0.012	0.00	0.00	No	0.00	No
	6	z	0.012	0.00	0.00	No	0.00	No
	7	z	0.004	0.00	0.00	No	0.00	No
	8	z	0.026	0.00	0.00	No	0.00	No
	9	z	0.026	0.00	0.00	No	0.00	No
	11	z	0.026	0.00	0.00	No	0.00	No
	12	z	0.026	0.00	0.00	No	0.00	No
	16	z	0.012	0.00	0.00	No	0.00	No
	17	z	0.012	0.00	0.00	No	0.00	No
	18	z	0.012	0.00	0.00	No	0.00	No
	19	z	0.012	0.00	0.00	No	0.00	No
	20	z	0.012	0.00	0.00	No	0.00	No
Di	1	y	0.00	0.00	0.00	No	0.00	No
	2	y	0.00	0.00	0.00	No	0.00	No
	5	y	-0.005	0.00	0.00	No	0.00	No
	6	y	-0.005	0.00	0.00	No	0.00	No
	7	y	-0.003	0.00	0.00	No	0.00	No
	8	y	-0.008	0.00	0.00	No	0.00	No
	9	y	-0.008	0.00	0.00	No	0.00	No
	11	y	-0.008	0.00	0.00	No	0.00	No
	12	y	-0.008	0.00	0.00	No	0.00	No
	13	y	-0.005	0.00	0.00	No	0.00	No
	14	y	-0.005	0.00	0.00	No	0.00	No
	15	y	-0.005	0.00	0.00	No	0.00	No
	16	y	-0.005	0.00	0.00	No	0.00	No
	17	y	-0.005	0.00	0.00	No	0.00	No
	18	y	-0.005	0.00	0.00	No	0.00	No
	19	y	-0.005	0.00	0.00	No	0.00	No
	20	y	-0.005	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	13	y	-0.058	0.50	No
		y	-0.058	7.50	No
		y	-0.073	2.00	No
	14	y	-0.054	0.50	No
		y	-0.054	7.50	No
		y	-0.072	2.00	No
	15	y	-0.018	0.50	No
		y	-0.018	5.00	No
		y	-0.022	2.00	No
Wo	13	z	-0.445	0.50	No
		z	-0.445	7.50	No
	14	z	-0.288	0.50	No
		z	-0.288	7.50	No
	15	z	-0.141	0.50	No
		z	-0.141	5.00	No
		z	-0.033	2.00	No
W30	13	3	-0.382	0.50	No
		3	-0.382	7.50	No
		3	-0.048	2.00	No
	14	3	-0.268	0.50	No
		3	-0.268	7.50	No
		3	-0.049	2.00	No
	15	3	-0.125	0.50	No
		3	-0.125	5.00	No
		3	-0.035	2.00	No
W60	13	3	-0.256	0.50	No
		3	-0.256	7.50	No
		3	-0.065	2.00	No
	14	3	-0.227	0.50	No
		3	-0.227	7.50	No
		3	-0.068	2.00	No
	15	3	-0.092	0.50	No
		3	-0.092	5.00	No
		3	-0.039	2.00	No
W90	13	x	-0.192	0.50	No
		x	-0.192	7.50	No
		x	-0.066	2.00	No
	14	x	-0.206	0.50	No
		x	-0.206	7.50	No
		x	-0.069	2.00	No
	15	x	-0.075	0.50	No
		x	-0.075	5.00	No
		x	-0.041	2.00	No
W120	13	2	-0.256	0.50	No
		2	-0.256	7.50	No
		2	-0.065	2.00	No
	14	2	-0.227	0.50	No
		2	-0.227	7.50	No
		2	-0.068	2.00	No
	15	2	-0.092	0.50	No
		2	-0.092	5.00	No
		2	-0.039	2.00	No
W150	13	2	-0.382	0.50	No
		2	-0.382	7.50	No

		2	-0.048	2.00	No
	14	2	-0.268	0.50	No
		2	-0.268	7.50	No
		2	-0.049	2.00	No
	15	2	-0.125	0.50	No
		2	-0.125	5.00	No
		2	-0.035	2.00	No
Di	13	y	-0.129	0.50	No
		y	-0.129	7.50	No
		y	-0.032	2.00	No
	14	y	-0.088	0.50	No
		y	-0.088	7.50	No
		y	-0.033	2.00	No
	15	y	-0.044	0.50	No
		y	-0.044	5.00	No
		y	-0.017	2.00	No
WI0	13	z	-0.076	0.50	No
		z	-0.076	7.50	No
		z	-0.003	2.00	No
	14	z	-0.053	0.50	No
		z	-0.053	7.50	No
		z	-0.003	2.00	No
	15	z	-0.027	0.50	No
		z	-0.027	5.00	No
		z	-0.008	2.00	No
WI30	13	3	-0.065	0.50	No
		3	-0.065	7.50	No
		3	-0.01	2.00	No
	14	3	-0.048	0.50	No
		3	-0.048	7.50	No
		3	-0.01	2.00	No
	15	3	-0.024	0.50	No
		3	-0.024	5.00	No
		3	-0.008	2.00	No
WI60	13	3	-0.046	0.50	No
		3	-0.046	7.50	No
		3	-0.014	2.00	No
	14	3	-0.042	0.50	No
		3	-0.042	7.50	No
		3	-0.014	2.00	No
	15	3	-0.019	0.50	No
		3	-0.019	5.00	No
		3	-0.009	2.00	No
WI90	13	x	-0.037	0.50	No
		x	-0.037	7.50	No
		x	-0.014	2.00	No
	14	x	-0.039	0.50	No
		x	-0.039	7.50	No
		x	-0.014	2.00	No
	15	x	-0.016	0.50	No
		x	-0.016	5.00	No
		x	-0.009	2.00	No
WI120	13	2	-0.046	0.50	No
		2	-0.046	7.50	No
		2	-0.014	2.00	No
	14	2	-0.042	0.50	No
		2	-0.042	7.50	No
		2	-0.014	2.00	No
	15	2	-0.019	0.50	No
		2	-0.019	5.00	No

		2	-0.009	2.00	No
WI150	13	2	-0.065	0.50	No
		2	-0.065	7.50	No
		2	-0.01	2.00	No
	14	2	-0.048	0.50	No
		2	-0.048	7.50	No
		2	-0.01	2.00	No
	15	2	-0.024	0.50	No
		2	-0.024	5.00	No
		2	-0.008	2.00	No
WL0	13	z	-0.024	0.50	No
		z	-0.024	7.50	No
	14	z	-0.016	0.50	No
		z	-0.016	7.50	No
	15	z	-0.008	0.50	No
		z	-0.008	5.00	No
		z	-0.002	2.00	No
WL30	13	3	-0.021	0.50	No
		3	-0.021	7.50	No
		3	-0.003	2.00	No
	14	3	-0.015	0.50	No
		3	-0.015	7.50	No
		3	-0.003	2.00	No
	15	3	-0.007	0.50	No
		3	-0.007	5.00	No
		3	-0.002	2.00	No
WL60	13	3	-0.014	0.50	No
		3	-0.014	7.50	No
		3	-0.003	2.00	No
	14	3	-0.013	0.50	No
		3	-0.013	7.50	No
		3	-0.004	2.00	No
	15	3	-0.005	0.50	No
		3	-0.005	5.00	No
		3	-0.002	2.00	No
WL90	13	x	-0.011	0.50	No
		x	-0.011	7.50	No
		x	-0.004	2.00	No
	14	x	-0.011	0.50	No
		x	-0.011	7.50	No
		x	-0.004	2.00	No
	15	x	-0.004	0.50	No
		x	-0.004	5.00	No
		x	-0.002	2.00	No
WL120	13	2	-0.014	0.50	No
		2	-0.014	7.50	No
		2	-0.003	2.00	No
	14	2	-0.013	0.50	No
		2	-0.013	7.50	No
		2	-0.004	2.00	No
	15	2	-0.005	0.50	No
		2	-0.005	5.00	No
		2	-0.002	2.00	No
WL150	13	2	-0.021	0.50	No
		2	-0.021	7.50	No
		2	-0.003	2.00	No
	14	2	-0.015	0.50	No
		2	-0.015	7.50	No
		2	-0.003	2.00	No
	15	2	-0.007	0.50	No

		2	-0.007	5.00	No
		2	-0.002	2.00	No
LL1	11	y	-0.25	6.23	No
LL2	12	y	-0.25	6.23	No
LL3	11	y	-0.25	0.00	No
LLa1	13	y	-0.25	4.00	No
LLa2	14	y	-0.25	4.00	No
LLa3	15	y	-0.25	3.50	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load Right End of Mount	No	0.00	0.00	0.00
LL3	250 lb Live Load Left End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
D	0.00	0.00	0.00
Wo	0.00	0.00	0.00
W30	0.00	0.00	0.00
W60	0.00	0.00	0.00
W90	0.00	0.00	0.00
W120	0.00	0.00	0.00
W150	0.00	0.00	0.00

Di	0.00	0.00	0.00
WI0	0.00	0.00	0.00
WI30	0.00	0.00	0.00
WI60	0.00	0.00	0.00
WI90	0.00	0.00	0.00
WI120	0.00	0.00	0.00
WI150	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
WL60	0.00	0.00	0.00
WL90	0.00	0.00	0.00
WL120	0.00	0.00	0.00
WL150	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LL3	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00

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Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120
LC36=1.2D+Di-WI150
LC38=1.2D+1.5LL1
LC39=1.2D+1.5LL2
LC40=1.2D+1.5LL3
LC41=1.2D+WL0+1.5LLa1
LC42=1.2D+WL30+1.5LLa1
LC43=1.2D+WL60+1.5LLa1
LC44=1.2D+WL90+1.5LLa1
LC45=1.2D+WL120+1.5LLa1
LC46=1.2D+WL150+1.5LLa1
LC47=1.2D-WL0+1.5LLa1
LC48=1.2D-WL30+1.5LLa1
LC49=1.2D-WL60+1.5LLa1
LC50=1.2D-WL90+1.5LLa1
LC51=1.2D-WL120+1.5LLa1
LC52=1.2D-WL150+1.5LLa1
LC53=1.2D+WL0+1.5LLa2
LC54=1.2D+WL30+1.5LLa2

LC55=1.2D+WL60+1.5LLa2
LC56=1.2D+WL90+1.5LLa2
LC57=1.2D+WL120+1.5LLa2
LC58=1.2D+WL150+1.5LLa2
LC59=1.2D-WL0+1.5LLa2
LC60=1.2D-WL30+1.5LLa2
LC61=1.2D-WL60+1.5LLa2
LC62=1.2D-WL90+1.5LLa2
LC63=1.2D-WL120+1.5LLa2
LC64=1.2D-WL150+1.5LLa2
LC65=1.2D+WL0+1.5LLa3
LC66=1.2D+WL30+1.5LLa3
LC67=1.2D+WL60+1.5LLa3
LC68=1.2D+WL90+1.5LLa3
LC69=1.2D+WL120+1.5LLa3
LC70=1.2D+WL150+1.5LLa3
LC71=1.2D-WL0+1.5LLa3
LC72=1.2D-WL30+1.5LLa3
LC73=1.2D-WL60+1.5LLa3
LC74=1.2D-WL90+1.5LLa3
LC75=1.2D-WL120+1.5LLa3
LC76=1.2D-WL150+1.5LLa3

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	L 3X3X3_16	**8**	LC13 at 100.00%	**4.66**	**N.G.**	Sec. F1
		9	LC12 at 0.00%	3.20	N.G.	Sec. F1
		11	LC1 at 100.00%	4.50	N.G.	Sec. F1
		12	LC7 at 0.00%	2.16	N.G.	Sec. F1
	L 3X3X3_8	**1**	LC11 at 0.00%	**2.29**	**N.G.**	Sec. F1
		2	LC5 at 0.00%	1.57	N.G.	Sec. F1
	PIPE 2x0.154	**5**	LC8 at 0.00%	0.10	OK	Eq. H1-1b
		6	LC12 at 100.00%	0.65	OK	Eq. H3-6
		13	LC7 at 33.33%	**1.10**	**N.G.**	Eq. H1-1b
		14	LC12 at 35.42%	0.83	OK	Eq. H1-1b
		15	LC1 at 37.50%	0.37	OK	Eq. H1-1b
		16	LC1 at 100.00%	0.80	OK	Eq. H1-1b
		17	LC36 at 0.00%	0.56	OK	Eq. H1-1b
		18	LC1 at 0.00%	0.72	OK	Eq. H1-1b
		19	LC12 at 0.00%	0.70	OK	Eq. H3-6
		20	LC7 at 0.00%	0.89	OK	Eq. H1-1b
	PL 11x3/16	**3**	LC8 at 100.00%	**0.32**	**OK**	Eq. H1-1b
		4	LC1 at 100.00%	0.30	OK	Eq. H1-1b
	RndBar 3_4	**7**	LC36 at 0.00%	**0.46**	**With warnings**	Eq. H1-1a

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Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.00	0.00	0.00	0
2	0.00	3.25	0.00	0
3	0.00	0.00	0.33	0
4	0.00	3.25	0.33	0
5	0.00	0.00	2.3717	0
6	0.00	3.25	2.3717	0
7	0.00	0.00	3.1842	0
8	0.00	3.25	3.1842	0
9	0.00	0.00	3.6012	0
10	0.00	3.25	3.6012	0
11	6.23	0.00	3.6012	0
12	6.23	3.25	3.6012	0
27	5.9783	-2.00	3.8012	0
28	1.9783	-2.00	3.8012	0
29	-5.98	-1.00	3.8012	0
30	5.9783	6.00	3.8012	0
31	1.9783	6.00	3.8012	0
32	-5.98	6.00	3.8012	0
33	-5.2925	3.25	3.6012	0
34	-5.2925	0.00	3.6012	0
35	-0.9625	3.25	3.6012	0
36	-0.9625	0.00	3.6012	0

37	5.2925	0.00	3.6012	0
38	5.2925	3.25	3.6012	0
39	0.9625	0.00	3.6012	0
40	0.9625	3.25	3.6012	0
41	-5.2925	2.25	3.6012	0
42	-5.2925	2.25	-1.5446	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
1	1	1	1	1	1	1
2	1	1	1	1	1	1
42	1	1	1	0	0	0

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	2	10		L 3X3X3_8	A36	0.00	0.00	0.00
2	1	9		L 3X3X3_8	A36	0.00	0.00	0.00
3	8	10		PL 11x3/16	A36	0.00	0.00	0.00
4	7	9		PL 11x3/16	A36	0.00	0.00	0.00
5	4	3		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
6	6	5		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
7	5	4		RndBar 3_4	A36	0.00	0.00	0.00
8	12	10		L 3X3X3_16	A36	0.00	0.00	0.00
9	10	14		L 3X3X3_16	A36	0.00	0.00	0.00
11	11	9		L 3X3X3_16	A36	0.00	0.00	0.00
12	9	13		L 3X3X3_16	A36	0.00	0.00	0.00
13	30	27		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
14	31	28		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
15	32	29		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
16	37	38		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
17	39	40		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
18	35	36		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
19	33	34		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
20	41	42		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
1	180.00	0	0.00	0.00	0.00
2	180.00	0	0.00	0.00	0.00
3	90.00	0	0.00	0.00	0.00
4	90.00	0	0.00	0.00	0.00
8	90.00	0	0.00	0.00	0.00

9	90.00	0	0.00	0.00	0.00
11	90.00	0	0.00	0.00	0.00
12	90.00	0	0.00	0.00	0.00
13	315.00	0	0.00	0.00	0.00
14	315.00	0	0.00	0.00	0.00
15	315.00	0	0.00	0.00	0.00

Rigid end offsets

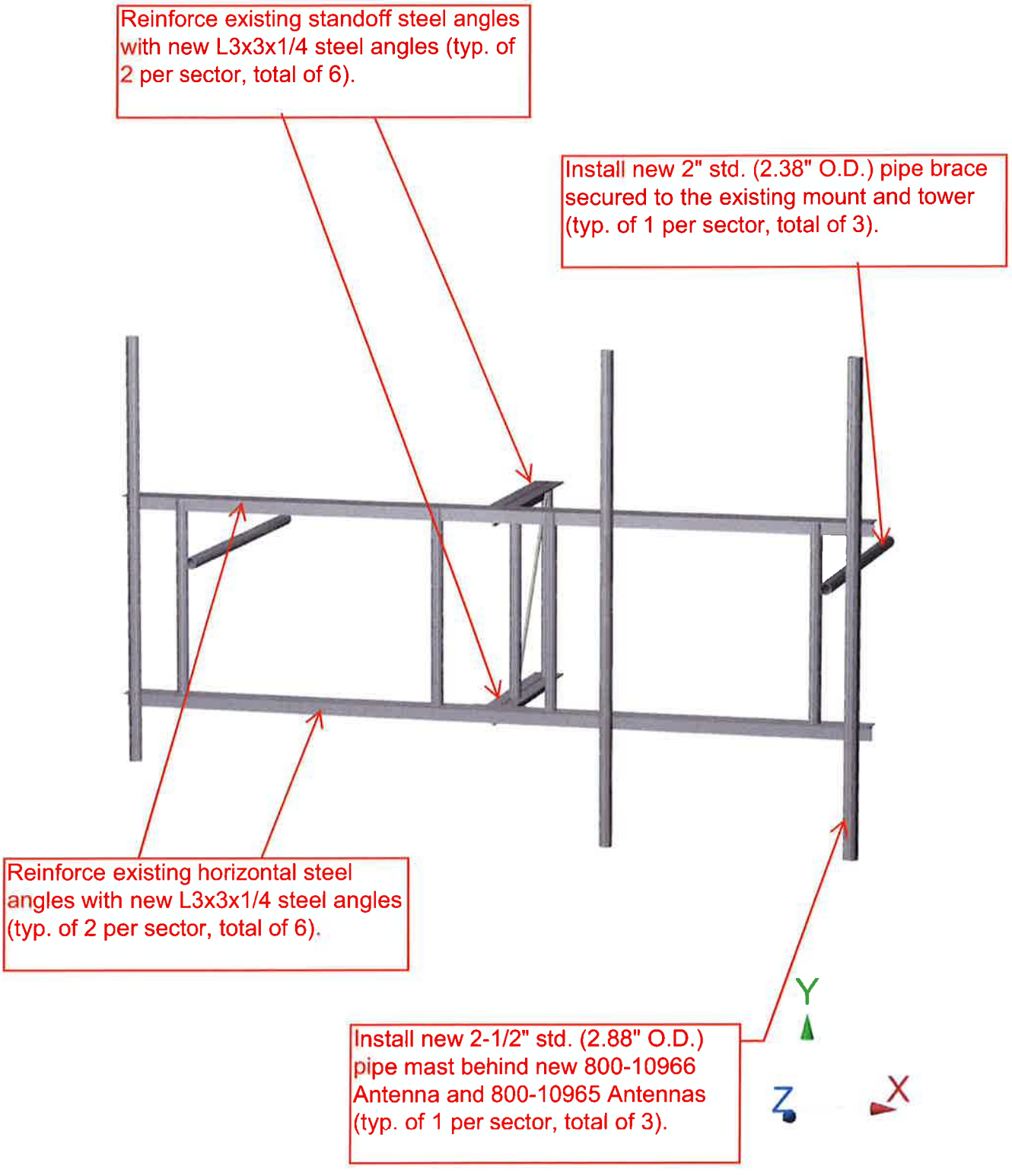
Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
1	0.00	-0.25	0.00	0.00	-0.25	1.00
2	0.00	-0.25	0.00	0.00	-0.25	1.00
3	0.00	0.75	0.00	0.00	0.75	0.00
4	0.00	0.75	0.00	0.00	0.75	0.00
5	0.50	0.00	0.00	0.50	0.00	0.00
6	0.50	0.00	0.00	0.50	0.00	0.00
7	0.50	0.00	0.00	0.50	0.00	0.00
8	0.00	0.25	0.00	0.00	0.25	0.00
9	0.00	0.25	0.00	0.00	0.25	0.00
11	0.00	0.25	0.00	0.00	0.25	0.00
12	0.00	0.25	0.00	0.00	0.25	0.00
16	0.00	1.00	-0.50	0.00	1.00	-0.50
17	0.00	1.00	-0.50	0.00	1.00	-0.50
18	0.00	1.00	-0.50	0.00	1.00	-0.50
19	0.00	1.00	-0.50	0.00	1.00	-0.50
20	2.00	0.00	0.00	2.00	0.00	0.00

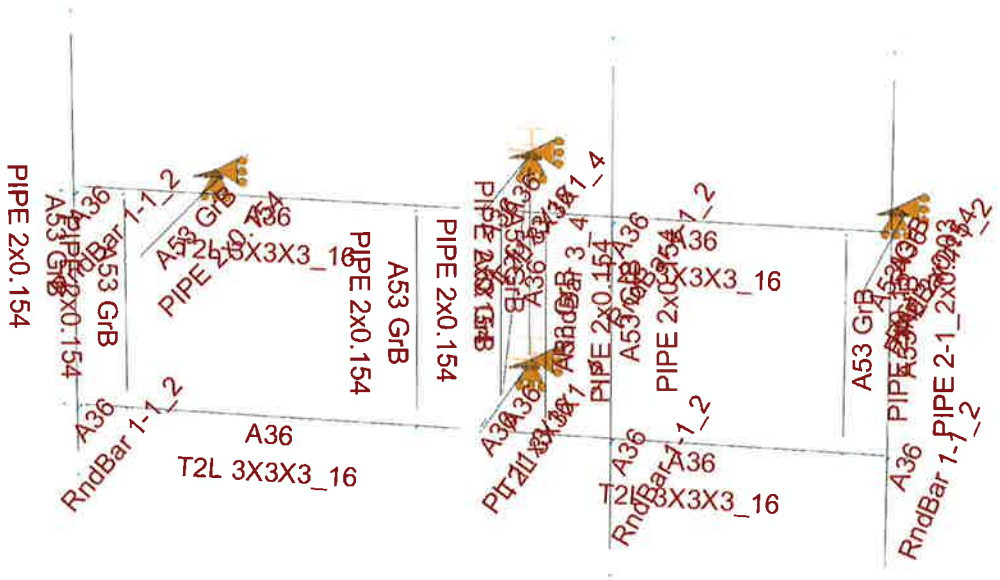
HUDSON
Design Group LLC

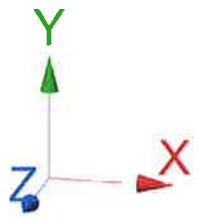
Mount Calculations
(Modified Conditions)

Bentley

Current Date: 3/29/2019 1:19 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1264\LTE 2C 3C 4C 5C\CT1264 (LTE 2C 3C 4C 5C)(M




PIPE 2x0.154
A53 GrB
A36
RndBar 1-1_2
T2L 3X3X3_16
PIPE 2x0.154
A53 GrB
A36
T2L 3X3X3_16
PIPE 2x0.154
A53 GrB
A36
RndBar 1-1_2
T2L 3X3X3_16
PIPE 2x0.154
A53 GrB
A36
RndBar 1-1_2
T2L 3X3X3_16
PIPE 2-1_2x0.203
A53 GrB
A36
RndBar 1-1_2

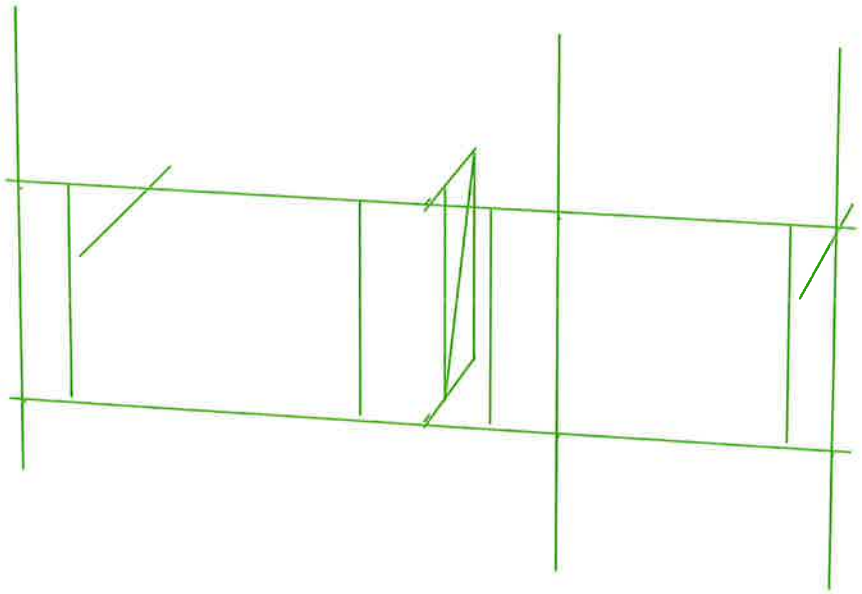

Y
X
Z

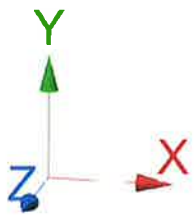
Bentley

Current Date: 3/29/2019 11:52 AM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1264\LTE 2C\CT1264 (LTE 2C)(MODS).etz

Design status

- Not designed
- Error on design
- Design O.K.
- With warnings





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Current Date: 3/29/2019 11:52 AM
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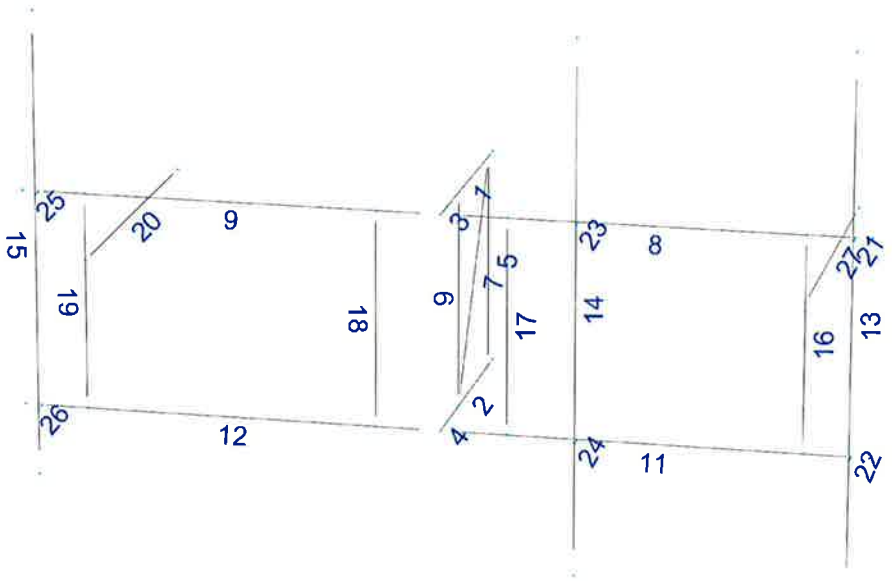
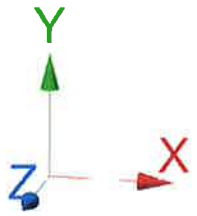




Bentley

Current Date: 3/29/2019 11:52 AM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1264\LTE 2C\CT1264 (LTE 2C)(MODS).etz\

Load data

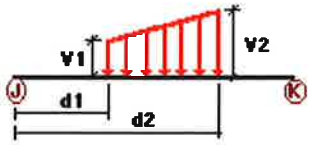
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No	WIND
W150	WL 150deg	No	WIND
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	No	WIND
WI120	WL ICE 120deg	No	WIND
WI150	WL ICE 150deg	No	WIND
WL0	WL 30 mph 0deg	No	WIND
WL30	WL 30 mph 30deg	No	WIND
WL60	WL 30 mph 60deg	No	WIND
WL90	WL 30 mph 90deg	No	WIND
WL120	WL 30 mph 120deg	No	WIND
WL150	WL 30 mph 150deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load Right End of Mount	No	LL
LL3	250 lb Live Load Left End of Mount	No	LL
LLa1	250 lb Live Load Antenna 1	No	LL
LLa2	250 lb Live Load Antenna 2	No	LL
LLa3	250 lb Live Load Antenna 3	No	LL

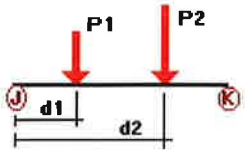
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	1	z	-0.026	0.00	0.00	No	0.00	No
	2	z	-0.026	0.00	0.00	No	0.00	No
	5	z	-0.012	0.00	0.00	No	0.00	No
	6	z	-0.012	0.00	0.00	No	0.00	No
	7	z	-0.004	0.00	0.00	No	0.00	No
	8	z	-0.026	0.00	0.00	No	0.00	No
	9	z	-0.026	0.00	0.00	No	0.00	No
	11	z	-0.026	0.00	0.00	No	0.00	No
	12	z	-0.026	0.00	0.00	No	0.00	No
	16	z	-0.012	0.00	0.00	No	0.00	No
	17	z	-0.012	0.00	0.00	No	0.00	No
	18	z	-0.012	0.00	0.00	No	0.00	No
	19	z	-0.012	0.00	0.00	No	0.00	No
	20	z	-0.012	0.00	0.00	No	0.00	No
	27	z	-0.012	0.00	0.00	No	0.00	No
W30	1	z	-0.026	0.00	0.00	No	0.00	No
	2	z	-0.026	0.00	0.00	No	0.00	No
	5	z	-0.012	0.00	0.00	No	0.00	No
	6	z	-0.012	0.00	0.00	No	0.00	No
	7	z	-0.004	0.00	0.00	No	0.00	No
	8	z	-0.026	0.00	0.00	No	0.00	No
	9	z	-0.026	0.00	0.00	No	0.00	No
	11	z	-0.026	0.00	0.00	No	0.00	No
	12	z	-0.026	0.00	0.00	No	0.00	No
	16	z	-0.012	0.00	0.00	No	0.00	No
	17	z	-0.012	0.00	0.00	No	0.00	No
	18	z	-0.012	0.00	0.00	No	0.00	No
	19	z	-0.012	0.00	0.00	No	0.00	No
	20	z	-0.012	0.00	0.00	No	0.00	No
	27	z	-0.012	0.00	0.00	No	0.00	No
W60	1	x	-0.026	0.00	0.00	No	0.00	No
	2	x	-0.026	0.00	0.00	No	0.00	No
	5	x	-0.012	0.00	0.00	No	0.00	No
	6	x	-0.012	0.00	0.00	No	0.00	No
	7	x	-0.004	0.00	0.00	No	0.00	No
	8	x	-0.026	0.00	0.00	No	0.00	No
	9	x	-0.026	0.00	0.00	No	0.00	No
	11	x	-0.026	0.00	0.00	No	0.00	No
	12	x	-0.026	0.00	0.00	No	0.00	No
	13	x	-0.012	0.00	0.00	No	0.00	No
	14	x	-0.012	0.00	0.00	No	0.00	No
	15	x	-0.012	0.00	0.00	No	0.00	No
	16	x	-0.012	0.00	0.00	No	0.00	No
	17	x	-0.012	0.00	0.00	No	0.00	No
	18	x	-0.012	0.00	0.00	No	0.00	No
	19	x	-0.012	0.00	0.00	No	0.00	No
	20	x	-0.012	0.00	0.00	No	0.00	No
	27	x	-0.012	0.00	0.00	No	0.00	No
W90	1	x	-0.026	0.00	0.00	No	0.00	No
	2	x	-0.026	0.00	0.00	No	0.00	No
	5	x	-0.012	0.00	0.00	No	0.00	No
	6	x	-0.012	0.00	0.00	No	0.00	No
	7	x	-0.004	0.00	0.00	No	0.00	No
	8	x	-0.026	0.00	0.00	No	0.00	No
	9	x	-0.026	0.00	0.00	No	0.00	No
	11	x	-0.026	0.00	0.00	No	0.00	No
	12	x	-0.026	0.00	0.00	No	0.00	No
	13	x	-0.012	0.00	0.00	No	0.00	No
	14	x	-0.012	0.00	0.00	No	0.00	No
	15	x	-0.012	0.00	0.00	No	0.00	No

	16	x	-0.012	0.00	0.00	No	0.00	No
	17	x	-0.012	0.00	0.00	No	0.00	No
	18	x	-0.012	0.00	0.00	No	0.00	No
	19	x	-0.012	0.00	0.00	No	0.00	No
	20	x	-0.012	0.00	0.00	No	0.00	No
	27	x	-0.012	0.00	0.00	No	0.00	No
W120	1	x	-0.026	0.00	0.00	No	0.00	No
	2	x	-0.026	0.00	0.00	No	0.00	No
	5	x	-0.012	0.00	0.00	No	0.00	No
	6	x	-0.012	0.00	0.00	No	0.00	No
	7	x	-0.004	0.00	0.00	No	0.00	No
	8	x	-0.026	0.00	0.00	No	0.00	No
	9	x	-0.026	0.00	0.00	No	0.00	No
	11	x	-0.026	0.00	0.00	No	0.00	No
	12	x	-0.026	0.00	0.00	No	0.00	No
	13	x	-0.012	0.00	0.00	No	0.00	No
	14	x	-0.012	0.00	0.00	No	0.00	No
	15	x	-0.012	0.00	0.00	No	0.00	No
	16	x	-0.012	0.00	0.00	No	0.00	No
	17	x	-0.012	0.00	0.00	No	0.00	No
	18	x	-0.012	0.00	0.00	No	0.00	No
	19	x	-0.012	0.00	0.00	No	0.00	No
	20	x	-0.012	0.00	0.00	No	0.00	No
	27	x	-0.012	0.00	0.00	No	0.00	No
W150	1	z	0.026	0.00	0.00	No	0.00	No
	2	z	0.026	0.00	0.00	No	0.00	No
	5	z	0.012	0.00	0.00	No	0.00	No
	6	z	0.012	0.00	0.00	No	0.00	No
	7	z	0.004	0.00	0.00	No	0.00	No
	8	z	0.026	0.00	0.00	No	0.00	No
	9	z	0.026	0.00	0.00	No	0.00	No
	11	z	0.026	0.00	0.00	No	0.00	No
	12	z	0.026	0.00	0.00	No	0.00	No
	16	z	0.012	0.00	0.00	No	0.00	No
	17	z	0.012	0.00	0.00	No	0.00	No
	18	z	0.012	0.00	0.00	No	0.00	No
	19	z	0.012	0.00	0.00	No	0.00	No
	20	z	0.012	0.00	0.00	No	0.00	No
	27	z	0.012	0.00	0.00	No	0.00	No
Di	1	y	0.00	0.00	0.00	No	0.00	No
	2	y	0.00	0.00	0.00	No	0.00	No
	5	y	-0.005	0.00	0.00	No	0.00	No
	6	y	-0.005	0.00	0.00	No	0.00	No
	7	y	-0.003	0.00	0.00	No	0.00	No
	8	y	-0.008	0.00	0.00	No	0.00	No
	9	y	-0.008	0.00	0.00	No	0.00	No
	11	y	-0.008	0.00	0.00	No	0.00	No
	12	y	-0.008	0.00	0.00	No	0.00	No
	13	y	-0.005	0.00	0.00	No	0.00	No
	14	y	-0.005	0.00	0.00	No	0.00	No
	15	y	-0.005	0.00	0.00	No	0.00	No
	16	y	-0.005	0.00	0.00	No	0.00	No
	17	y	-0.005	0.00	0.00	No	0.00	No
	18	y	-0.005	0.00	0.00	No	0.00	No
	19	y	-0.005	0.00	0.00	No	0.00	No
	20	y	-0.005	0.00	0.00	No	0.00	No
	27	y	-0.005	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	13	y	-0.058	0.50	No
		y	-0.058	7.50	No
		y	-0.073	2.00	No
	14	y	-0.054	0.50	No
		y	-0.054	7.50	No
		y	-0.072	2.00	No
	15	y	-0.018	0.50	No
		y	-0.018	5.00	No
		y	-0.022	2.00	No
Wo	13	z	-0.445	0.50	No
		z	-0.445	7.50	No
	14	z	-0.288	0.50	No
		z	-0.288	7.50	No
	15	z	-0.141	0.50	No
		z	-0.141	5.00	No
		z	-0.033	2.00	No
W30	13	3	-0.382	0.50	No
		3	-0.382	7.50	No
		3	-0.048	2.00	No
	14	3	-0.268	0.50	No
		3	-0.268	7.50	No
		3	-0.049	2.00	No
	15	3	-0.125	0.50	No
		3	-0.125	5.00	No
		3	-0.035	2.00	No
W60	13	3	-0.256	0.50	No
		3	-0.256	7.50	No
		3	-0.065	2.00	No
	14	3	-0.227	0.50	No
		3	-0.227	7.50	No
		3	-0.068	2.00	No
	15	3	-0.092	0.50	No
		3	-0.092	5.00	No
		3	-0.039	2.00	No
W90	13	x	-0.192	0.50	No
		x	-0.192	7.50	No
		x	-0.066	2.00	No
	14	x	-0.206	0.50	No
		x	-0.206	7.50	No
		x	-0.069	2.00	No
	15	x	-0.075	0.50	No
		x	-0.075	5.00	No
		x	-0.041	2.00	No
W120	13	2	-0.256	0.50	No
		2	-0.256	7.50	No
		2	-0.065	2.00	No
	14	2	-0.227	0.50	No
		2	-0.227	7.50	No
		2	-0.068	2.00	No
	15	2	-0.092	0.50	No
		2	-0.092	5.00	No
		2	-0.039	2.00	No
W150	13	2	-0.382	0.50	No
		2	-0.382	7.50	No

		2	-0.048	2.00	No
	14	2	-0.268	0.50	No
		2	-0.268	7.50	No
		2	-0.049	2.00	No
	15	2	-0.125	0.50	No
		2	-0.125	5.00	No
		2	-0.035	2.00	No
Di	13	y	-0.129	0.50	No
		y	-0.129	7.50	No
		y	-0.032	2.00	No
	14	y	-0.088	0.50	No
		y	-0.088	7.50	No
		y	-0.033	2.00	No
	15	y	-0.044	0.50	No
		y	-0.044	5.00	No
		y	-0.017	2.00	No
WI0	13	z	-0.076	0.50	No
		z	-0.076	7.50	No
		z	-0.003	2.00	No
	14	z	-0.053	0.50	No
		z	-0.053	7.50	No
		z	-0.003	2.00	No
	15	z	-0.027	0.50	No
		z	-0.027	5.00	No
		z	-0.008	2.00	No
WI30	13	3	-0.065	0.50	No
		3	-0.065	7.50	No
		3	-0.01	2.00	No
	14	3	-0.048	0.50	No
		3	-0.048	7.50	No
		3	-0.01	2.00	No
	15	3	-0.024	0.50	No
		3	-0.024	5.00	No
		3	-0.008	2.00	No
WI60	13	3	-0.046	0.50	No
		3	-0.046	7.50	No
		3	-0.014	2.00	No
	14	3	-0.042	0.50	No
		3	-0.042	7.50	No
		3	-0.014	2.00	No
	15	3	-0.019	0.50	No
		3	-0.019	5.00	No
		3	-0.009	2.00	No
WI90	13	x	-0.037	0.50	No
		x	-0.037	7.50	No
		x	-0.014	2.00	No
	14	x	-0.039	0.50	No
		x	-0.039	7.50	No
		x	-0.014	2.00	No
	15	x	-0.016	0.50	No
		x	-0.016	5.00	No
		x	-0.009	2.00	No
WI120	13	2	-0.046	0.50	No
		2	-0.046	7.50	No
		2	-0.014	2.00	No
	14	2	-0.042	0.50	No
		2	-0.042	7.50	No
		2	-0.014	2.00	No
	15	2	-0.019	0.50	No
		2	-0.019	5.00	No

		2	-0.009	2.00	No
WI150	13	2	-0.065	0.50	No
		2	-0.065	7.50	No
		2	-0.01	2.00	No
	14	2	-0.048	0.50	No
		2	-0.048	7.50	No
		2	-0.01	2.00	No
	15	2	-0.024	0.50	No
		2	-0.024	5.00	No
		2	-0.008	2.00	No
WL0	13	z	-0.024	0.50	No
		z	-0.024	7.50	No
	14	z	-0.016	0.50	No
		z	-0.016	7.50	No
	15	z	-0.008	0.50	No
		z	-0.008	5.00	No
		z	-0.002	2.00	No
WL30	13	3	-0.021	0.50	No
		3	-0.021	7.50	No
		3	-0.003	2.00	No
	14	3	-0.015	0.50	No
		3	-0.015	7.50	No
		3	-0.003	2.00	No
	15	3	-0.007	0.50	No
		3	-0.007	5.00	No
		3	-0.002	2.00	No
WL60	13	3	-0.014	0.50	No
		3	-0.014	7.50	No
		3	-0.003	2.00	No
	14	3	-0.013	0.50	No
		3	-0.013	7.50	No
		3	-0.004	2.00	No
	15	3	-0.005	0.50	No
		3	-0.005	5.00	No
		3	-0.002	2.00	No
WL90	13	x	-0.011	0.50	No
		x	-0.011	7.50	No
		x	-0.004	2.00	No
	14	x	-0.011	0.50	No
		x	-0.011	7.50	No
		x	-0.004	2.00	No
	15	x	-0.004	0.50	No
		x	-0.004	5.00	No
		x	-0.002	2.00	No
WL120	13	2	-0.014	0.50	No
		2	-0.014	7.50	No
		2	-0.003	2.00	No
	14	2	-0.013	0.50	No
		2	-0.013	7.50	No
		2	-0.004	2.00	No
	15	2	-0.005	0.50	No
		2	-0.005	5.00	No
		2	-0.002	2.00	No
WL150	13	2	-0.021	0.50	No
		2	-0.021	7.50	No
		2	-0.003	2.00	No
	14	2	-0.015	0.50	No
		2	-0.015	7.50	No
		2	-0.003	2.00	No
	15	2	-0.007	0.50	No

		2	-0.007	5.00	No
		2	-0.002	2.00	No
LL1	11	y	-0.25	6.23	No
LL2	12	y	-0.25	6.23	No
LL3	11	y	-0.25	0.00	No
LLa1	13	y	-0.25	4.00	No
LLa2	14	y	-0.25	4.00	No
LLa3	15	y	-0.25	3.50	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load Right End of Mount	No	0.00	0.00	0.00
LL3	250 lb Live Load Left End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
D	0.00	0.00	0.00
Wo	0.00	0.00	0.00
W30	0.00	0.00	0.00
W60	0.00	0.00	0.00
W90	0.00	0.00	0.00
W120	0.00	0.00	0.00
W150	0.00	0.00	0.00

Di	0.00	0.00	0.00
WI0	0.00	0.00	0.00
WI30	0.00	0.00	0.00
WI60	0.00	0.00	0.00
WI90	0.00	0.00	0.00
WI120	0.00	0.00	0.00
WI150	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
WL60	0.00	0.00	0.00
WL90	0.00	0.00	0.00
WL120	0.00	0.00	0.00
WL150	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LL3	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00

Bentley

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Units system: English
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Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120
LC36=1.2D+Di-WI150
LC38=1.2D+1.5LL1
LC39=1.2D+1.5LL2
LC40=1.2D+1.5LL3
LC41=1.2D+WL0+1.5LLa1
LC42=1.2D+WL30+1.5LLa1
LC43=1.2D+WL60+1.5LLa1
LC44=1.2D+WL90+1.5LLa1
LC45=1.2D+WL120+1.5LLa1
LC46=1.2D+WL150+1.5LLa1
LC47=1.2D-WL0+1.5LLa1
LC48=1.2D-WL30+1.5LLa1
LC49=1.2D-WL60+1.5LLa1
LC50=1.2D-WL90+1.5LLa1
LC51=1.2D-WL120+1.5LLa1
LC52=1.2D-WL150+1.5LLa1
LC53=1.2D+WL0+1.5LLa2

LC54=1.2D+WL30+1.5LLa2
LC55=1.2D+WL60+1.5LLa2
LC56=1.2D+WL90+1.5LLa2
LC57=1.2D+WL120+1.5LLa2
LC58=1.2D+WL150+1.5LLa2
LC59=1.2D-WL0+1.5LLa2
LC60=1.2D-WL30+1.5LLa2
LC61=1.2D-WL60+1.5LLa2
LC62=1.2D-WL90+1.5LLa2
LC63=1.2D-WL120+1.5LLa2
LC64=1.2D-WL150+1.5LLa2
LC65=1.2D+WL0+1.5LLa3
LC66=1.2D+WL30+1.5LLa3
LC67=1.2D+WL60+1.5LLa3
LC68=1.2D+WL90+1.5LLa3
LC69=1.2D+WL120+1.5LLa3
LC70=1.2D+WL150+1.5LLa3
LC71=1.2D-WL0+1.5LLa3
LC72=1.2D-WL30+1.5LLa3
LC73=1.2D-WL60+1.5LLa3
LC74=1.2D-WL90+1.5LLa3
LC75=1.2D-WL120+1.5LLa3
LC76=1.2D-WL150+1.5LLa3

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	PIPE 2-1_2x0.203	**13**	LC7 at 33.33%	**0.57**	**OK**	Eq. H1-1b
	PIPE 2x0.154	**5**	LC32 at 0.00%	0.08	OK	Eq. H1-1b
		6	LC31 at 100.00%	0.35	OK	Eq. H1-1b
		14	LC7 at 33.33%	0.72	OK	Eq. H1-1b
		15	LC1 at 37.50%	0.37	OK	Eq. H1-1b
		16	LC7 at 68.75%	**0.85**	**OK**	Eq. H1-1b
		17	LC25 at 100.00%	0.46	OK	Eq. H1-1b
		18	LC71 at 0.00%	0.28	OK	Eq. H1-1b
		19	LC39 at 100.00%	0.42	OK	Eq. H1-1b
		20	LC7 at 0.00%	0.29	OK	Eq. H1-1b
		27	LC40 at 0.00%	0.38	OK	Eq. H1-1b
	PL 11x3/16	**3**	LC10 at 100.00%	**0.25**	**OK**	Eq. H1-1b
		4	LC42 at 0.00%	0.15	OK	Eq. H1-1b
	RndBar 3_4	**7**	LC32 at 0.00%	**0.40**	**OK**	Eq. H1-1a
	T2L 3X3X1_4	**1**	LC10 at 0.00%	**0.91**	**OK**	Eq. H2-1
		2	LC25 at 67.19%	0.56	OK	Eq. H2-1
	T2L 3X3X3_16	**8**	LC32 at 100.00%	0.75	OK	Eq. H2-1
		9	LC11 at 0.00%	0.68	OK	Eq. H2-1
		11	LC26 at 100.00%	**0.81**	**OK**	Eq. H2-1
		12	LC72 at 0.00%	0.56	OK	Eq. H2-1

Bentley

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Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.00	0.00	0.00	0
2	0.00	3.25	0.00	0
3	0.00	0.00	0.33	0
4	0.00	3.25	0.33	0
5	0.00	0.00	2.3717	0
6	0.00	3.25	2.3717	0
7	0.00	0.00	3.1842	0
8	0.00	3.25	3.1842	0
9	0.00	0.00	3.6012	0
10	0.00	3.25	3.6012	0
11	6.23	0.00	3.6012	0
12	6.23	3.25	3.6012	0
13	-6.23	0.00	3.6012	0
14	-6.23	3.25	3.6012	0
15	-5.98	0.00	3.6012	0
16	-5.98	3.25	3.6012	0
17	1.9783	0.00	3.6012	0
18	1.9783	3.25	3.6012	0
19	5.9783	0.00	3.6012	0
20	5.9783	3.25	3.6012	0
21	1.9783	0.00	3.8012	0

22	1.9783	3.25	3.8012	0
23	5.9783	0.00	3.8012	0
24	5.9783	3.25	3.8012	0
25	-5.98	0.00	3.8012	0
26	-5.98	3.25	3.8012	0
27	5.9783	-2.00	3.8012	0
28	1.9783	-2.00	3.8012	0
29	-5.98	-1.00	3.8012	0
30	5.9783	6.00	3.8012	0
31	1.9783	6.00	3.8012	0
32	-5.98	6.00	3.8012	0
33	-5.2925	3.25	3.6012	0
34	-5.2925	0.00	3.6012	0
35	-0.9625	3.25	3.6012	0
36	-0.9625	0.00	3.6012	0
37	5.2925	0.00	3.6012	0
38	5.2925	3.25	3.6012	0
39	0.9625	0.00	3.6012	0
40	0.9625	3.25	3.6012	0
41	-5.2925	2.25	3.6012	0
42	-5.2925	2.25	-1.5446	0
43	5.2925	2.25	3.6012	0
44	5.2925	2.25	-1.5446	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
1	1	1	1	1	1	1
2	1	1	1	1	1	1
42	1	1	1	0	0	0
44	1	1	1	0	0	0

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	2	10		T2L 3X3X1_4	A36	0.00	0.00	0.00
2	1	9		T2L 3X3X1_4	A36	0.00	0.00	0.00
3	8	10		PL 11x3/16	A36	0.00	0.00	0.00
4	7	9		PL 11x3/16	A36	0.00	0.00	0.00
5	4	3		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
6	6	5		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
7	5	4		RndBar 3_4	A36	0.00	0.00	0.00
8	12	10		T2L 3X3X3_16	A36	0.00	0.00	0.00
9	10	14		T2L 3X3X3_16	A36	0.00	0.00	0.00
11	11	9		T2L 3X3X3_16	A36	0.00	0.00	0.00
12	9	13		T2L 3X3X3_16	A36	0.00	0.00	0.00
13	30	27		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
14	31	28		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
15	32	29		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
16	37	38		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

17	39	40	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
18	35	36	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
19	33	34	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
20	41	42	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
21	20	24	RndBar 1-1_2	A36	0.00	0.00	0.00
22	19	23	RndBar 1-1_2	A36	0.00	0.00	0.00
23	18	22	RndBar 1-1_2	A36	0.00	0.00	0.00
24	17	21	RndBar 1-1_2	A36	0.00	0.00	0.00
25	16	26	RndBar 1-1_2	A36	0.00	0.00	0.00
26	15	25	RndBar 1-1_2	A36	0.00	0.00	0.00
27	43	44	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
3	90.00	0	0.00	0.00	0.00
4	90.00	0	0.00	0.00	0.00
8	270.00	0	0.00	0.00	0.00
9	270.00	0	0.00	0.00	0.00
13	315.00	0	0.00	0.00	0.00
14	315.00	0	0.00	0.00	0.00
15	315.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
1	0.00	-0.25	0.00	0.00	-0.25	0.00
2	0.00	-0.25	0.00	0.00	-0.25	0.00
3	0.00	0.75	0.00	0.00	0.75	0.00
4	0.00	0.75	0.00	0.00	0.75	0.00
5	0.50	0.00	0.00	0.50	0.00	0.00
6	0.50	0.00	0.00	0.50	0.00	0.00
7	0.50	0.00	0.00	0.50	0.00	0.00
8	0.00	1.00	0.00	0.00	1.00	0.00
9	0.00	1.00	0.00	0.00	1.00	0.00
11	0.00	0.25	0.00	0.00	0.25	0.00
12	0.00	0.25	0.00	0.00	0.25	0.00
16	0.00	1.00	-0.50	0.00	1.00	-0.50
17	0.00	1.00	-0.50	0.00	1.00	-0.50
18	0.00	1.00	-0.50	0.00	1.00	-0.50
19	0.00	1.00	-0.50	0.00	1.00	-0.50
20	2.00	0.00	0.00	2.00	0.00	0.00
27	2.00	0.00	0.00	2.00	0.00	0.00

STRUCTURAL ANALYSIS REPORT

For

CT1264
FRANKLIN CT TYLER DRIVE

5 TYLER DRIVE
NORTH FRANKLIN, CT 06254

Antennas Mounted to the Tower

Prepared for:

CENTERLINE COMMUNICATIONS

at&t

Dated: May 15, 2019

Prepared by:

HUDSON Design Group LLC

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STATE OF CONNECTICUT
GI KAI WANG
No. 23220
LICENSED PROFESSIONAL ENGINEER
5/15/2019

SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by AT&T to conduct a structural evaluation of the 180' self supporting tower supporting the proposed AT&T antennas located at elevation 169' above the ground level.

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

Record drawings of the existing tower prepared by Valmont Industries, Inc., dated February 4, 2010, were available and obtained for our use. This office conducted an on-site visual survey and tower mapping on August 23, 2012 to record dimensional properties of the existing tower and its appurtenances.

CONCLUSION SUMMARY:

Based on our evaluation, we have determined that the existing tower and foundation **are in conformance** with the ANSI/TIA-222-G Standard for the loading considered under the criteria listed in this report. The tower structure is rated at **69.8%** - (Leg at Tower Section T2 from EL.150' to EL.170' Controlling).

HUDSON Design Group LLC

APPURTENANCES CONFIGURATION:

Tenant	Appurtenances	Elev.	Mount
	Lightning Rod	182'	Side Mount Standoff
	20' Omni	187'	Side Mount Standoff
	20' Omni	186.5'	Side Mount Standoff
	8' Dipole	183'	Side Mount Standoff
AT&T	(3) Powerwave 7750 Antennas	169'	T - Frame
AT&T	(3) TT08-19DB111-001	169'	T - Frame
AT&T	***(2) 800 10965 Antennas***	169'	T - Frame
AT&T	***(1) 800 10966 Antenna***	169'	T - Frame
AT&T	***(2) HPA-65R-BU6AA Antennas***	169'	T - Frame
AT&T	***(1) HPA-65R-BU8AA Antenna***	169'	T - Frame
AT&T	***(3) B5/B12 4449***	169'	T - Frame
AT&T	***(3) B2/B66A 8843***	169'	T - Frame
AT&T	(1) DC6-48-60-18-8F	169'	Tower Leg
AT&T	***(1) DC6-48-60-18-8C***	169'	Tower Leg
	20' Omni	100.5'	Side Mount Standoff

Proposed AT&T Appurtenances shown in Bold.

AT&T EXISTING/PROPOSED COAX CABLES:

Tenant	Coax Cables	Elev.	Mount
AT&T	(6) 1 5/8" Cables	169'	Tower Leg
AT&T	(1) Fiber Cable	169'	Tower Leg
AT&T	(2) DC Power Cables	169'	Tower Leg
AT&T	***(1) Fiber Cable***	169'	Tower Leg
AT&T	***(2) DC Power Cables***	169'	Tower Leg

Proposed AT&T Coax Cables shown in Bold.

ANALYSIS RESULTS SUMMARY:

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
Legs	**69.8 %**	150 – 170	PASS	**Controlling**
Diagonals	64.1 %	150 – 170	PASS	
Top Girt	21.6 %	150 – 170	PASS	
Bottom Girt	10.2 %	150 – 170	PASS	

FOUNDATION ANALYSIS RESULTS SUMMARY:

	Original Design Reactions	Proposed Reactions	Pass/Fail	Comments
COMPRESSION/ Leg	572.0 k	**307.1 k**	PASS	
UPLIFT/Leg	526.0 k	**271.5 k**	PASS	
SHEAR	95.0 k	**50.3 k**	PASS	

DESIGN CRITERIA:

1. EIA/TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

2. 2018 Connecticut State Building Code

   City/Town: Franklin
   County: New London
   Wind Load: 120 mph
   Structural Class: II
   Exposure Category: C
   Topographic Category: 1
   Ice Thickness: 0.75 inch

3. Approximate height above grade to proposed antennas: 169'

ASSUMPTIONS:

1. The appurtenances configuration is as stated in this report. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.

2. The tower and foundation are properly constructed and maintained. 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. The support mounts and platforms are not analyzed and are considered adequate to support the loading. The analysis is limited to the primary support structure itself.

4. All prior structural modification, if any, are assumed to be as per the data supplied (if available), and installed properly.

SUPPORT RECOMMENDATIONS:

HDG recommends that the proposed antennas and RRHs be mounted on the existing T-frame supported by the tower; the proposed surge arrestor be mounted on the tower leg.

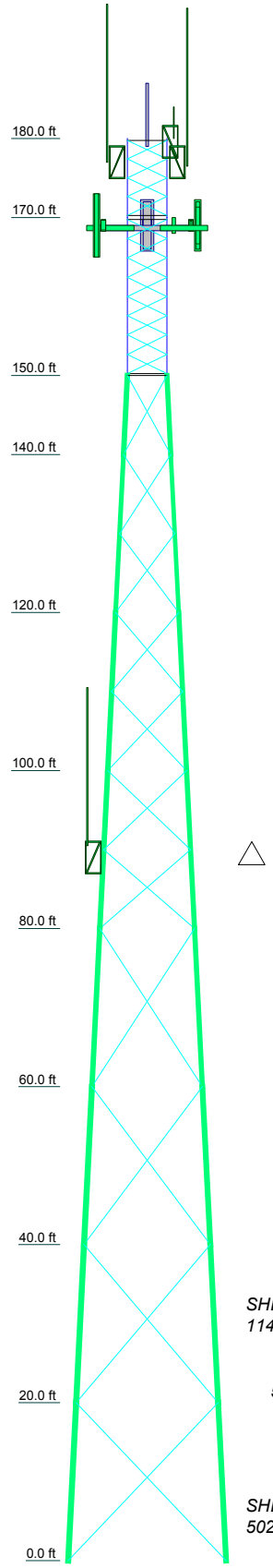
Reference HDG's Latest Construction Drawings for all component and connection requirements.

Photo 1: Photo illustrating the Tower with Appurtenances shown.

HUDSON
Design Group LLC

CALCULATIONS

Section	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	Pirod 105221 (CT1264)		Pirod 105220 (CT1264)	Pirod 105219	Pirod 105218		Pirod 105217	A	SR 1 3/4	
Leg Grade	A572-50									
Diagonals	2L3 1/2x3 1/2x1/4				L3x3x5/16		L3x3x3/16	B	SR 7/8	
Diagonal Grade	A36								A572-50	
Top Girts	N.A.							L3x3x3/16	SR 7/8	
Bottom Girts	N.A.								SR 7/8	
Face Width (ft)	18	16	14	12	10	8	6	5		
# Panels @ (ft)	4 @ 20					7 @ 10			8 @ 2.4375	4 @ 2.375
Weight (lb) 31410.8	5541.7	5449.4	4843.6	4349.0	3240.3	2758.5	2316.3	1234.4	1098.8	578.8



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Omni 3"x20'	187	DC6-48-60-18-8F	169
Omni 3"x20'	186.5	800 10965 w/ Mount Pipe (ATI - Proposed)	169
8' Dipole	183		
Lightning Rod	182	800 10965 w/ Mount Pipe	169
1' Side Mount Standoff	179.6	800 10966 w/ Mount Pipe	169
3' Side Mount Standoff	177	HPA-65R-BU6AA w/mount pipe	169
3' Side Mount Standoff	177	HPA-65R-BU6AA w/mount pipe	169
3' Side Mount Standoff	177	HPA-65R-BU8AA w/mount pipe	169
PiROD 12' T-Frame (ATI - Existing)	169	B5/B12 4449	169
PiROD 12' T-Frame	169	B5/B12 4449	169
PiROD 12' T-Frame	169	B5/B12 4449	169
Powerwave 7750 w/mount pipe	169	B2/B66A 8843	169
Powerwave 7750 w/mount pipe	169	B2/B66A 8843	169
Powerwave 7750 w/mount pipe	169	B2/B66A 8843	169
Powerwave TT08-19DB111-001	169	DC6-48-60-18-8C	169
Powerwave TT08-19DB111-001	169	Omni 3"x20'	100.5
Powerwave TT08-19DB111-001	169	3' Side Mount Standoff	89

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	Pirod 105245	B	L2 1/2x2 1/2x3/16

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 69.8%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 307130 lb
SHEAR: 32207 lb

UPLIFT: -271458 lb
SHEAR: 28700 lb

AXIAL 100187 lb
SHEAR 11468 lb
MOMENT 1214954 lb-ft
TORQUE 14237 lb-ft
50 mph WIND - 0.7500 in ICE

AXIAL 42930 lb
SHEAR 50263 lb
MOMENT 5071803 lb-ft
TORQUE 44026 lb-ft
REACTIONS - 120 mph WIND

Hudson Design Group LLC
45 Beechwood Drive
North Andover, MA 01845
Phone: (978) 557-5553
FAX: (978) 336-5586

Job: **CT1264 North Franklin, CT**			
Project: **180 ft Self Supporting Tower**			
Client: AT&T	Drawn by: kw	App'd:	
Code: TIA-222-G	Date: 05/15/19	Scale: NTS	
Path: C:\Users\kwang\Documents\HUDSON DESIGN GROUP\AAA\CT1264 - SST (AT&T Centerline)\CT1264\CT 1264.eri		Dwg No. E-1	

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 180.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 5.00 ft at the top and 20.00 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in New London County, Connecticut.
Basic wind speed of 120 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Tower Section Geometry

Tower Section	*Tower Elevation*	*Assembly Database*	*Description*	*Section Width*	*Number of Sections*	*Section Length*
	ft			*ft*		*ft*
T1	180.00-170.00			5.00	1	10.00
T2	170.00-150.00			5.00	1	20.00
T3	150.00-140.00			5.00	1	10.00
T4	140.00-120.00			6.00	1	20.00
T5	120.00-100.00			8.00	1	20.00
T6	100.00-80.00			10.00	1	20.00
T7	80.00-60.00			12.00	1	20.00
T8	60.00-40.00			14.00	1	20.00
T9	40.00-20.00			16.00	1	20.00
T10	20.00-0.00			18.00	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	*Tower Elevation*	*Diagonal Spacing*	*Bracing Type*	*Has K Brace End Panels*	*Has Horizontals*	*Top Girt Offset*	*Bottom Girt Offset*
	ft	*ft*				*in*	*in*
T1	180.00-170.00	2.38	X Brace	No	No	3.0000	3.0000
T2	170.00-150.00	2.44	X Brace	No	No	3.0000	3.0000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T3	150.00-140.00	10.00	X Brace	No	No	0.0000	0.0000
T4	140.00-120.00	10.00	X Brace	No	No	0.0000	0.0000
T5	120.00-100.00	10.00	X Brace	No	No	0.0000	0.0000
T6	100.00-80.00	10.00	X Brace	No	No	0.0000	0.0000
T7	80.00-60.00	20.00	X Brace	No	No	0.0000	0.0000
T8	60.00-40.00	20.00	X Brace	No	No	0.0000	0.0000
T9	40.00-20.00	20.00	X Brace	No	No	0.0000	0.0000
T10	20.00-0.00	20.00	X Brace	No	No	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 180.00-170.00	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T2 170.00-150.00	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 150.00-140.00	Truss Leg	Pirod 105245	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T4 140.00-120.00	Truss Leg	Pirod 105217	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T5 120.00-100.00	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T6 100.00-80.00	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T7 80.00-60.00	Truss Leg	Pirod 105219	A572-50 (50 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4	A36 (36 ksi)
T8 60.00-40.00	Truss Leg	Pirod 105220 (CT1264)	A572-50 (50 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4	A36 (36 ksi)
T9 40.00-20.00	Truss Leg	Pirod 105221 (CT1264)	A572-50 (50 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4	A36 (36 ksi)
T10 20.00-0.00	Truss Leg	Pirod 105221 (CT1264)	A572-50 (50 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 180.00-170.00	Solid Round	7/8	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T2 170.00-150.00	Solid Round	7/8	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 150.00-140.00	Equal Angle	L3x3x3/16	A36 (36 ksi)	Pipe		A36 (36 ksi)

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
7/8	A	No	No	Ar (CaAa)	177.00 - 6.00	-3.0000	0.35	3	3	0.0000	1.1100		0.54
7/8 **********	A	No	No	Ar (CaAa)	89.00 - 6.00	-3.0000	0.38	1	1	0.0000	1.1100		0.54
1 5/8 (AT&T - existing)	A	No	No	Ar (CaAa)	169.00 - 6.00	-3.0000	0.43	6	3	0.0000	1.9800		1.04
FB-L98B-002	A	No	No	Ar (CaAa)	169.00 - 6.00	-3.0000	0.46	1	1	0.0000	0.4000		0.25
WR-VG122S T-BRDA **********	A	No	No	Ar (CaAa)	169.00 - 6.00	-3.0000	0.47	2	1	0.0000	0.4000		0.25
FB-L98B-002 (AT&T - proposed)	A	No	No	Ar (CaAa)	169.00 - 6.00	-5.0000	0.46	1	1	0.0000	0.4000		0.25
WR-VG122S T-BRDA	A	No	No	Ar (CaAa)	169.00 - 6.00	-5.0000	0.47	2	2	0.0000	0.4000		0.25

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Lightning Rod	B	From Leg	1.00 0.00	0.0000	182.00	No Ice 1/2" Ice	0.75 1.25	0.75 1.25	10.00 40.00
			0.00			1" Ice	1.75	1.75	70.00
1' Side Mount Standoff	B	From Leg	0.50 0.00	0.0000	179.60	No Ice 1/2" Ice	1.00 1.50	1.00 1.50	30.00 50.00
			0.00			1" Ice	2.00	2.00	70.00
3' Side Mount Standoff	A	From Leg	1.50 0.00	0.0000	177.00	No Ice 1/2" Ice	1.50 2.20	1.50 2.20	45.00 70.00
			0.00			1" Ice	2.90	2.90	95.00
3' Side Mount Standoff	B	From Leg	1.50 0.00	0.0000	177.00	No Ice 1/2" Ice	1.50 2.20	1.50 2.20	45.00 70.00
			0.00			1" Ice	2.90	2.90	95.00
3' Side Mount Standoff	C	From Leg	1.50 0.00	0.0000	177.00	No Ice 1/2" Ice	1.50 2.20	1.50 2.20	45.00 70.00
			0.00			1" Ice	2.90	2.90	95.00
8' Dipole	A	From Leg	3.00 0.00	0.0000	183.00	No Ice 1/2" Ice	2.14 3.19	2.14 3.19	25.00 42.51
			0.00			1" Ice	3.67	3.67	65.37
Omni 3"x20'	B	From Leg	3.00 0.00	0.0000	186.50	No Ice 1/2" Ice	5.33 8.03	5.33 8.03	50.00 93.17
			0.00			1" Ice	10.08	10.08	149.01
Omni 3"x20' **********	C	From Leg	3.00 0.00	0.0000	187.00	No Ice 1/2" Ice	5.33 8.03	5.33 8.03	50.00 93.17
			0.00			1" Ice	10.08	10.08	149.01
PiROD 12' T-Frame (AT&T - Existing)	A	From Leg	2.50 0.00	0.0000	169.00	No Ice 1/2" Ice	12.20 17.60	12.20 17.60	360.00 490.00
			0.00			1" Ice	23.00	23.00	620.00
PiROD 12' T-Frame	B	From Leg	2.50	0.0000	169.00	No Ice	12.20	12.20	360.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1/2" Ice	17.60	17.60	490.00
			0.00			1" Ice	23.00	23.00	620.00
PiROD 12' T-Frame	C	From Leg	2.50	0.0000	169.00	No Ice	12.20	12.20	360.00
			0.00			1/2" Ice	17.60	17.60	490.00
			0.00			1" Ice	23.00	23.00	620.00
Powerwave 7750 w/mount pipe	A	From Leg	4.50	0.0000	169.00	No Ice	5.88	4.33	60.90
			0.00			1/2" Ice	6.36	5.18	109.42
			0.00			1" Ice	6.81	5.90	164.44
Powerwave 7750 w/mount pipe	B	From Leg	4.50	0.0000	169.00	No Ice	5.88	4.33	60.90
			0.00			1/2" Ice	6.36	5.18	109.42
			0.00			1" Ice	6.81	5.90	164.44
Powerwave 7750 w/mount pipe	C	From Leg	4.50	0.0000	169.00	No Ice	5.88	4.33	60.90
			0.00			1/2" Ice	6.36	5.18	109.42
			0.00			1" Ice	6.81	5.90	164.44
Powerwave TT08-19DB111-001	A	From Leg	3.50	0.0000	169.00	No Ice	0.79	0.64	22.00
			0.00			1/2" Ice	0.91	0.75	29.63
			0.00			1" Ice	1.04	0.87	39.15
Powerwave TT08-19DB111-001	B	From Leg	3.50	0.0000	169.00	No Ice	0.79	0.64	22.00
			0.00			1/2" Ice	0.91	0.75	29.63
			0.00			1" Ice	1.04	0.87	39.15
Powerwave TT08-19DB111-001	C	From Leg	3.50	0.0000	169.00	No Ice	0.79	0.64	22.00
			0.00			1/2" Ice	0.91	0.75	29.63
			0.00			1" Ice	1.04	0.87	39.15
DC6-48-60-18-8F	B	From Leg	1.00	0.0000	169.00	No Ice	0.79	0.79	20.00
			0.00			1/2" Ice	1.27	1.27	35.12
			0.00			1" Ice	1.45	1.45	52.57
**********									
800 10965 w/ Mount Pipe (AT&T - Proposed)	A	From Leg	4.50	0.0000	169.00	No Ice	13.92	7.50	134.55
			0.00			1/2" Ice	14.50	8.71	229.58
			0.00			1" Ice	15.07	9.65	333.52
800 10965 w/ Mount Pipe	B	From Leg	4.50	0.0000	169.00	No Ice	13.92	7.50	134.55
			0.00			1/2" Ice	14.50	8.71	229.58
			0.00			1" Ice	15.07	9.65	333.52
800 10966 w/ Mount Pipe	C	From Leg	4.50	0.0000	169.00	No Ice	17.60	9.64	158.55
			0.00			1/2" Ice	18.33	11.15	274.43
			0.00			1" Ice	19.07	12.70	400.76
HPA-65R-BU6AA w/mount pipe	A	From Leg	4.50	0.0000	169.00	No Ice	8.11	7.27	72.45
			0.00			1/2" Ice	8.67	8.45	141.53
			0.00			1" Ice	9.19	9.34	218.55
HPA-65R-BU6AA w/mount pipe	B	From Leg	4.50	0.0000	169.00	No Ice	8.11	7.27	72.45
			0.00			1/2" Ice	8.67	8.45	141.53
			0.00			1" Ice	9.19	9.34	218.55
HPA-65R-BU8AA w/mount pipe	C	From Leg	4.50	0.0000	169.00	No Ice	11.50	10.54	111.11
			0.00			1/2" Ice	12.24	12.24	206.10
			0.00			1" Ice	12.94	13.58	312.19
B5/B12 4449	A	From Leg	3.50	0.0000	169.00	No Ice	1.97	1.40	71.00
			0.00			1/2" Ice	2.15	1.56	89.48
			0.00			1" Ice	2.33	1.72	110.77
B5/B12 4449	B	From Leg	3.50	0.0000	169.00	No Ice	1.97	1.40	71.00
			0.00			1/2" Ice	2.15	1.56	89.48
			0.00			1" Ice	2.33	1.72	110.77
B5/B12 4449	C	From Leg	3.50	0.0000	169.00	No Ice	1.97	1.40	71.00
			0.00			1/2" Ice	2.15	1.56	89.48
			0.00			1" Ice	2.33	1.72	110.77
B2/B66A 8843	A	From Leg	3.50	0.0000	169.00	No Ice	1.65	0.93	40.00
			0.00			1/2" Ice	1.81	1.05	54.37
			0.00			1" Ice	1.98	1.19	71.23

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
B2/B66A 8843	B	From Leg	3.50 0.00 0.00	0.0000	169.00	No Ice 1/2" Ice 1" Ice	1.65 1.81 1.98	0.93 1.05 1.19	40.00 54.37 71.23
B2/B66A 8843	C	From Leg	3.50 0.00 0.00	0.0000	169.00	No Ice 1/2" Ice 1" Ice	1.65 1.81 1.98	0.93 1.05 1.19	40.00 54.37 71.23
DC6-48-60-18-8C	A	From Leg	1.00 0.00 0.00	0.0000	169.00	No Ice 1/2" Ice 1" Ice	0.79 1.27 1.45	0.79 1.27 1.45	20.00 35.12 52.57
**********									
3' Side Mount Standoff	C	From Leg	1.50 0.00 0.00	0.0000	89.00	No Ice 1/2" Ice 1" Ice	1.50 2.20 2.90	1.50 2.20 2.90	45.00 70.00 95.00
Omni 3"x20'	C	From Leg	3.00 0.00 0.00	0.0000	100.50	No Ice 1/2" Ice 1" Ice	5.69 8.03 10.08	5.69 8.03 10.08	50.00 93.17 149.01

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg C	Max. Vert	18	294835.44	26214.45	-16244.79
	Max. H_x	18	294835.44	26214.45	-16244.79
	Max. H_z	7	-258908.33	-23163.82	14486.56
	Min. Vert	7	-258908.33	-23163.82	14486.56
	Min. H_x	7	-258908.33	-23163.82	14486.56
	Min. H_z	18	294835.44	26214.45	-16244.79
Leg B	Max. Vert	10	307130.17	-27361.41	-16989.07
	Max. H_x	23	-271457.60	24318.65	15242.03
	Max. H_z	23	-271457.60	24318.65	15242.03
	Min. Vert	23	-271457.60	24318.65	15242.03
	Min. H_x	10	307130.17	-27361.41	-16989.07
	Min. H_z	10	307130.17	-27361.41	-16989.07
Leg A	Max. Vert	2	295611.28	-192.72	30840.99
	Max. H_x	21	11163.83	3561.07	742.99
	Max. H_z	2	295611.28	-192.72	30840.99
	Min. Vert	15	-258327.01	194.19	-27291.62
	Min. H_x	8	14883.75	-3563.72	1042.81
	Min. H_z	15	-258327.01	194.19	-27291.62

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	35774.65	0.00	0.00	-8165.99	1244.57	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	42929.57	-0.00	-48019.94	-4872283.49	1521.44	-6708.39

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
0.9 Dead+1.6 Wind 0 deg - No Ice	32197.18	-0.00	-48019.94	-4866405.72	1145.92	-6705.63
1.2 Dead+1.6 Wind 30 deg - No Ice	42929.57	22493.26	-38959.47	-4004501.81	-2304791.50	-20036.46
0.9 Dead+1.6 Wind 30 deg - No Ice	32197.18	22493.26	-38959.47	-3999202.07	-2303523.80	-20029.06
1.2 Dead+1.6 Wind 60 deg - No Ice	42929.57	39355.84	-22722.10	-2345355.40	-4043610.14	-33317.08
0.9 Dead+1.6 Wind 60 deg - No Ice	32197.18	39355.83	-22722.10	-2341230.70	-4041104.33	-33306.61
1.2 Dead+1.6 Wind 90 deg - No Ice	42929.57	48003.91	-0.00	-9940.09	-4902106.49	-44025.98
0.9 Dead+1.6 Wind 90 deg - No Ice	32197.18	48003.91	-0.00	-7475.11	-4899016.48	-44014.82
1.2 Dead+1.6 Wind 120 deg - No Ice	42929.57	43529.09	25131.53	2529114.23	-4396221.45	-35878.03
0.9 Dead+1.6 Wind 120 deg - No Ice	32197.18	43529.09	25131.53	2529797.46	-4393520.17	-35869.72
1.2 Dead+1.6 Wind 150 deg - No Ice	42929.57	24001.95	41572.61	4236823.34	-2450309.72	-15556.75
0.9 Dead+1.6 Wind 150 deg - No Ice	32197.18	24001.95	41572.61	4236278.95	-2448956.89	-15553.80
1.2 Dead+1.6 Wind 180 deg - No Ice	42929.57	0.00	45444.20	4661114.01	1524.18	6708.13
0.9 Dead+1.6 Wind 180 deg - No Ice	32197.18	0.00	45444.20	4660245.56	1147.84	6705.38
1.2 Dead+1.6 Wind 210 deg - No Ice	42929.57	-22493.26	38959.47	3984825.04	2307845.21	20036.59
0.9 Dead+1.6 Wind 210 deg - No Ice	32197.18	-22493.26	38959.47	3984441.55	2305832.51	20029.15
1.2 Dead+1.6 Wind 240 deg - No Ice	42929.57	-41586.49	24009.97	2421343.75	4212548.23	33318.41
0.9 Dead+1.6 Wind 240 deg - No Ice	32197.18	-41586.49	24009.97	2422094.78	4209213.36	33307.65
1.2 Dead+1.6 Wind 270 deg - No Ice	42929.57	-48003.91	-0.00	-9936.94	4905105.04	44026.01
0.9 Dead+1.6 Wind 270 deg - No Ice	32197.18	-48003.91	-0.00	-7472.75	4901263.15	44014.85
1.2 Dead+1.6 Wind 300 deg - No Ice	42929.57	-41298.43	-23843.66	-2453131.16	4233281.26	35877.00
0.9 Dead+1.6 Wind 300 deg - No Ice	32197.18	-41298.43	-23843.66	-2448938.36	4229904.65	35868.89
1.2 Dead+1.6 Wind 330 deg - No Ice	42929.57	-24001.96	-41572.61	-4256476.76	2453293.35	15556.56
0.9 Dead+1.6 Wind 330 deg - No Ice	32197.18	-24001.96	-41572.61	-4251016.61	2451180.95	15553.66
1.2 Dead+1.0 Ice+1.0 Temp	100186.93	0.00	0.00	-50873.41	5295.93	-0.22
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	100186.93	-0.00	-11136.43	-1209251.01	5325.48	-1319.19
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	100186.93	5431.98	-9408.46	-1034697.77	-562445.13	-7420.75
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	100186.93	9457.44	-5460.26	-622292.44	-984124.05	-12054.67
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	100186.93	11195.57	-0.00	-50961.18	-1162638.47	-14236.65
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	100186.93	9931.63	5734.03	544124.48	-1025606.40	-12079.52
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	100186.93	5597.79	9695.65	960363.75	-578755.41	-5910.42
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	100186.93	0.00	10920.51	1091490.37	5323.89	1318.85

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	100186.93	-5431.98	9408.46	932513.58	573326.83	7420.69
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	100186.93	-9644.43	5568.22	528051.37	1008404.84	12057.46
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	100186.93	-11195.57	-0.00	-50958.14	1173280.49	14236.66
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	100186.93	-9744.63	-5626.07	-638370.03	1022618.62	12076.79
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	100186.93	-5597.79	-9695.65	-1062540.56	589169.21	5910.48
Dead+Wind 0 deg - Service	35774.65	0.00	-7503.12	-767626.10	1249.32	-1047.70
Dead+Wind 30 deg - Service	35774.65	3514.57	-6087.42	-632093.12	-358969.99	-3132.36
Dead+Wind 60 deg - Service	35774.65	6149.35	-3550.33	-372945.21	-630459.78	-5203.85
Dead+Wind 90 deg - Service	35774.65	7500.61	0.00	-8197.77	-764627.49	-6874.89
Dead+Wind 120 deg - Service	35774.65	6801.42	3926.80	388369.74	-685610.49	-5605.77
Dead+Wind 150 deg - Service	35774.65	3750.31	6495.72	655094.65	-381687.53	-2433.44
Dead+Wind 180 deg - Service	35774.65	-0.00	7100.66	721221.34	1250.34	1048.11
Dead+Wind 210 deg - Service	35774.65	-3514.57	6087.42	615729.95	361461.17	3132.36
Dead+Wind 240 deg - Service	35774.65	-6497.89	3751.56	371535.72	658946.75	5205.00
Dead+Wind 270 deg - Service	35774.65	-7500.61	0.00	-8197.52	767125.23	6874.88
Dead+Wind 300 deg - Service	35774.65	-6452.88	-3725.57	-389779.24	662109.69	5603.95
Dead+Wind 330 deg - Service	35774.65	-3750.31	-6495.72	-671417.85	384161.23	2434.37

Maximum Tower Deflections - Service Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
T1	180 - 170	2.626	43	0.1512	0.0113
T2	170 - 150	2.310	43	0.1499	0.0130
T3	150 - 140	1.697	43	0.1243	0.0156
T4	140 - 120	1.438	43	0.1133	0.0144
T5	120 - 100	1.001	43	0.0885	0.0112
T6	100 - 80	0.657	43	0.0692	0.0077
T7	80 - 60	0.398	43	0.0488	0.0058
T8	60 - 40	0.216	43	0.0331	0.0041
T9	40 - 20	0.100	43	0.0206	0.0026
T10	20 - 0	0.024	43	0.0101	0.0012

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
187.00	Omni 3"x20'	43	2.626	0.1512	0.0113	421842
186.50	Omni 3"x20'	43	2.626	0.1512	0.0113	421842
183.00	8' Dipole	43	2.626	0.1512	0.0113	421842
182.00	Lightning Rod	43	2.626	0.1512	0.0113	421842
179.60	1' Side Mount Standoff	43	2.613	0.1512	0.0113	421842
177.00	3' Side Mount Standoff	43	2.531	0.1514	0.0118	421842
169.00	PiROD 12' T-Frame	43	2.278	0.1493	0.0132	652200
100.50	Omni 3"x20'	43	0.664	0.0696	0.0078	54894
89.00	3' Side Mount Standoff	43	0.505	0.0579	0.0065	60205

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	180 - 170	Leg	1 3/4	2	-4295.61	79364.40	5.4	Pass
T2	170 - 150	Leg	1 3/4	35	-54516.70	78062.10	69.8	Pass
T3	150 - 140	Leg	Pirod 105245	93	-63618.90	214859.00	31.8	Pass
T4	140 - 120	Leg	Pirod 105217	104	-101015.00	214859.00	47.0	Pass
T5	120 - 100	Leg	Pirod 105218	119	-134415.00	300681.00	44.7	Pass
T6	100 - 80	Leg	Pirod 105218	134	-168786.00	300681.00	56.1	Pass
T7	80 - 60	Leg	Pirod 105219	149	-189372.00	356293.00	53.2	Pass
T8	60 - 40	Leg	Pirod 105220 (CT1264)	158	-225569.00	451148.00	50.0	Pass
T9	40 - 20	Leg	Pirod 105221 (CT1264)	167	-258981.00	557267.00	46.5	Pass
T10	20 - 0	Leg	Pirod 105221 (CT1264)	176	-289016.00	557267.00	51.9	Pass
T1	180 - 170	Diagonal	7/8	16	-816.88	7719.11	10.6	Pass
T2	170 - 150	Diagonal	7/8	48	-4899.76	7644.08	64.1	Pass
T3	150 - 140	Diagonal	L2 1/2x2 1/2x3/16	101	-6062.02	12697.80	47.7	Pass
T4	140 - 120	Diagonal	L3x3x3/16	108	-6025.61	16781.00	35.9	Pass
T5	120 - 100	Diagonal	L3x3x3/16	123	-6178.77	14143.40	43.7	Pass
T6	100 - 80	Diagonal	L3x3x5/16	139	-6977.37	18229.00	38.3	Pass
T7	80 - 60	Diagonal	2L3 1/2x3 1/2x1/4	153	-12507.10	44155.80	28.3	Pass
T8	60 - 40	Diagonal	2L3 1/2x3 1/2x1/4	162	-11921.20	40295.10	29.6	Pass
T9	40 - 20	Diagonal	2L3 1/2x3 1/2x1/4	171	-11565.30	36555.10	31.6	Pass
T10	20 - 0	Diagonal	2L3 1/2x3 1/2x1/4	180	-14268.40	33098.70	43.1	Pass
T1	180 - 170	Top Girt	7/8	4	-209.05	3909.80	5.3	Pass
T2	170 - 150	Top Girt	7/8	39	-844.39	3909.80	21.6	Pass
T3	150 - 140	Top Girt	L3x3x3/16	94	-141.46	18672.90	0.8	Pass
T1	180 - 170	Bottom Girt	7/8	9	-38.71	3909.80	1.0	Pass
T2	170 - 150	Bottom Girt	7/8	42	-398.74	3909.80	10.2	Pass
							Summary	
						Leg (T2)	69.8	Pass
						Diagonal (T2)	64.1	Pass
						Top Girt (T2)	21.6	Pass
						Bottom Girt (T2)	10.2	Pass
						RATING =	**69.8**	**Pass**

PROJECT INFORMATION

SCOPE OF WORK:	ITEMS TO BE MOUNTED ON THE EXISTING SELF SUPPORT TOWER: • NEW AT&T ANTENNAS: (800–10965) (TYP. OF 1 PER ALPHA AND BETA SECTORS, TOTAL OF 2). • NEW AT&T ANTENNAS: (800–10966) (TYP. OF 1 PER GAMMA SECTOR, TOTAL OF 1). • NEW AT&T ANTENNAS: (HPA–65R–BU6AA) (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T RRUS: B5/B12 4449 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T RRUS: B2/B66A 8843 (AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T SURGE ARRESTOR: DC6–48–60–18–8F (TOTAL OF 1) WITH (2) DC POWER AND (1) FIBER LINE. • ADD MOUNT MODIFICATIONS (SEE "S" SHEETS) ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION: • SWAP DUS WITH 6630 AND XMU • ADD 2ND 6630 FOR 5G RBS • NEW AT&T RRUS: B14 4478 (700) (TOTAL OF 2) • NEW AT&T COMBINERS, SURGE ARRESTORS (TOTAL OF 8). ITEMS TO REMAIN: • (3) ANTENNAS, (1) SURGE ARRESTOR, (3) TMAS (12) 1–5/8" COAX CABLES, (2) DC POWER & (1) FIBER.
SITE ADDRESS:	5 TYLER DRIVE NORTH FRANKLIN, CT 06254
LATITUDE:	41.631750 N, 41° 38' 12.3" N
LONGITUDE:	72.143560 W, 72° 8' 36.82" W
TYPE OF SITE:	SELF SUPPORT TOWER/ INDOOR EQUIPMENT
STRUCTURE HEIGHT:	180'–0"±
RAD CENTER:	167'–5"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

SITE NUMBER: CT1264

SITE NAME: FRANKLIN CT TYLER DRIVE

FA CODE: 10065727

PACE ID: MRCTB037987, MRCTB038068, MRCTB037937, MRCTB037988, MRCTB038130

PROJECT: LTE 2C/3C/4C/5C/4TX4RX 2019 UPGRADE

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T–1	TITLE SHEET	1
GN–1	GENERAL NOTES	1
A–1	COMPOUND AND EQUIPMENT PLAN	1
A–2	ANTENNA LAYOUTS & ELEVATION	1
A–3	DETAILS	1
SN–1	STRUCTURAL NOTES	1
S–1	STRUCTURAL DETAILS	1
S–2	STRUCTURAL DETAILS	1
RF–1	RF PLUMBING DIAGRAM	1
G–1	GROUNDING DETAILS	1

VICINITY MAP

DIRECTIONS TO SITE:
TAKE I–90 WEST MASS PIKE TOWARD SPRINGFIELD. TAKE EXIT 9 FOR I–84. TAKE EXIT 72 FOR CT–89 TOWARD WESTFORD/ASHFORD. LEFT ONTO CT–89 SOUTH. FOLLOW CT–89S. LEFT ONTO CT–195/STORRS ROAD. STRAIGHT ONTO JACKSON STREET. CONTINUE ONTO SOUTH STREET. LEFT ONTO PLEASANT STREET. CONTINUE ONTO CT–32S/WINDHAM ROAD. LEFT ONTO TYLER STREET TURN RIGHT FOR JANET CARLSON CALVERT LIBRARY.

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

STATE OF CONNECTICUT
DEREK J. CREASEY
No. 29561
LICENSED PROFESSIONAL ENGINEER

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET., SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT1264
SITE NAME: FRANKLIN CT TYLER DRIVE

5 TYLER DRIVE
NORTH FRANKLIN, CT 06254
NEW LONDON COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	06/12/19	ISSUED FOR CONSTRUCTION	SG	AT	DJC
A	03/18/19	ISSUED FOR REVIEW	DJM	AT	DJC

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

AT&T

TITLE SHEET
(LTE 2C/3C/4C/5C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT1264	T–1	1

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) 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 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 AWS 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 – CENTERLINE
   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. TOUCHUP 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 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)

    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-G, 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 (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

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TEL: (978) 557-5553
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CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET., SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT1264
SITE NAME: FRANKLIN CT TYLER DRIVE

5 TYLER DRIVE
NORTH FRANKLIN, CT 06254
NEW LONDON COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	06/12/19	ISSUED FOR CONSTRUCTION	SG	AT	DJC
A	03/18/19	ISSUED FOR REVIEW	DJM	AT	DJC

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

STATE OF CONNECTICUT — DEREK J. CREASER — LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
(LTE 2C/3C/4C/5C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT1264	GN-1	1

NOTE:

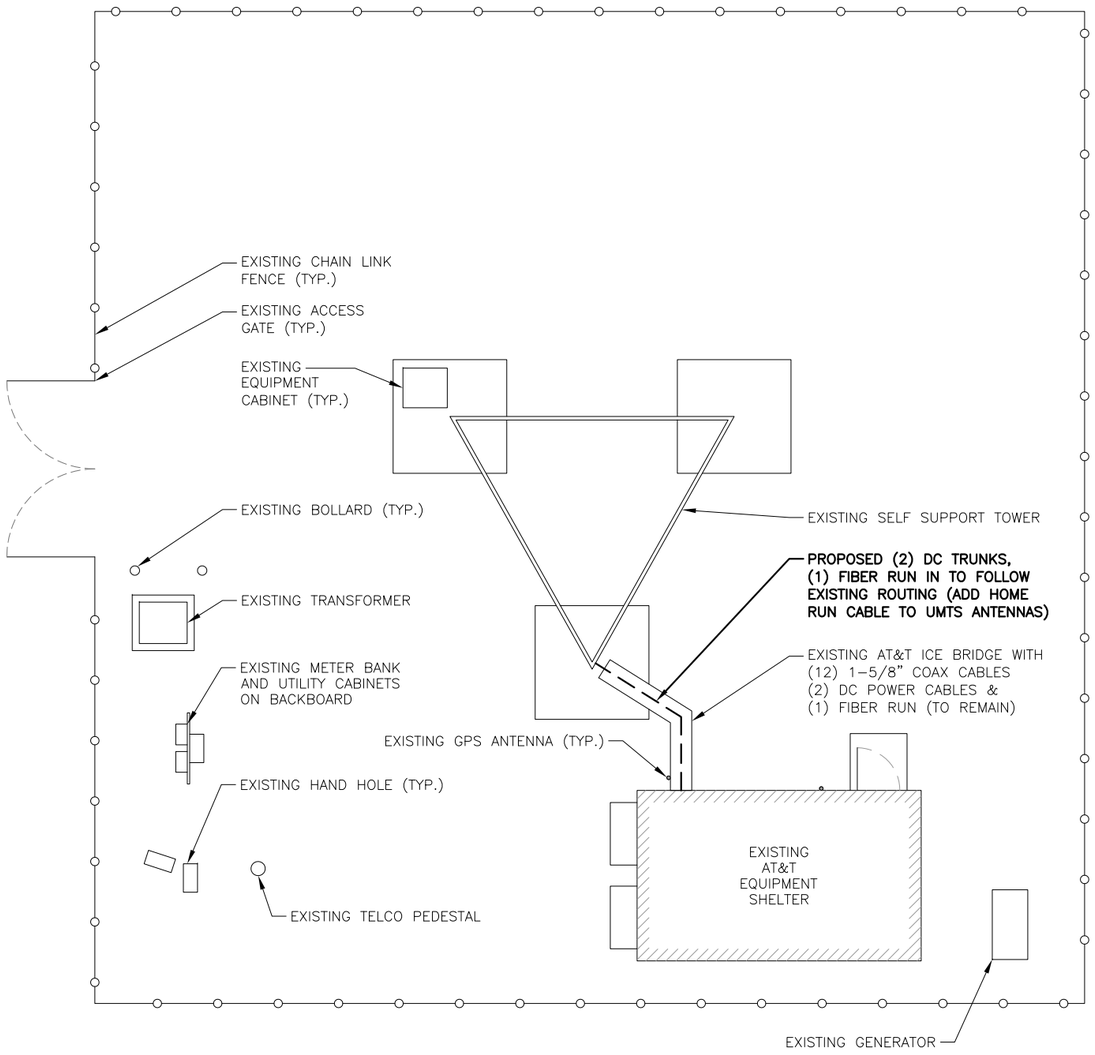
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
HUDSON DESIGN GROUP, LLC.
DATED: JUNE 10, 2019 (REV.1)

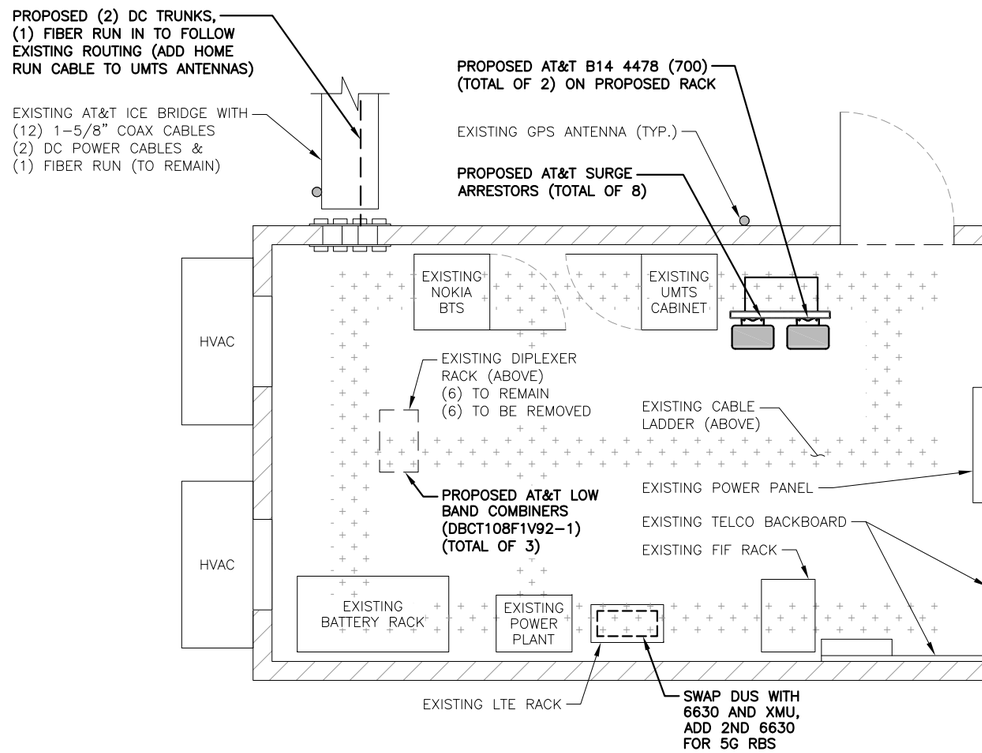
NOTE:

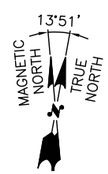
REFER TO STRUCTURAL ANALYSIS BY:
HUDSON DESIGN GROUP, LLC,
DATED: MAY 05, 2019, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



COMPOUND PLAN (1 / A-1)
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"

0 2'-8" 5'-4" 10'-8" 16'-0"





EQUIPMENT PLAN (2 / A-1)
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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CENTERLINE COMMUNICATIONS
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WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT1264
SITE NAME: FRANKLIN CT TYLER DRIVE

5 TYLER DRIVE
NORTH FRANKLIN, CT 06254
NEW LONDON COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	06/12/19	ISSUED FOR CONSTRUCTION	SG	AT	DJC
A	03/18/19	ISSUED FOR REVIEW	DJM	AT	DJC

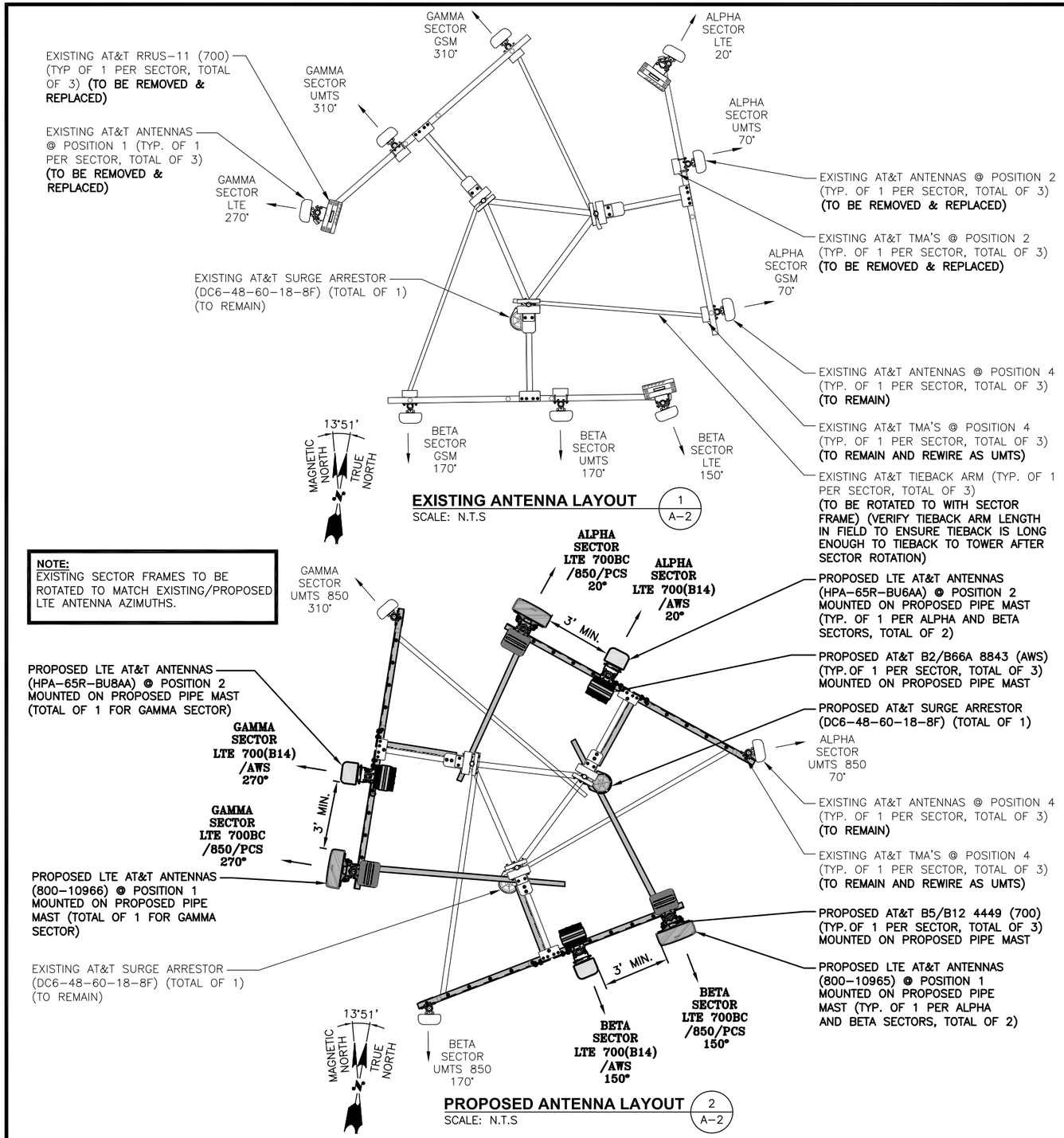
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: DJM

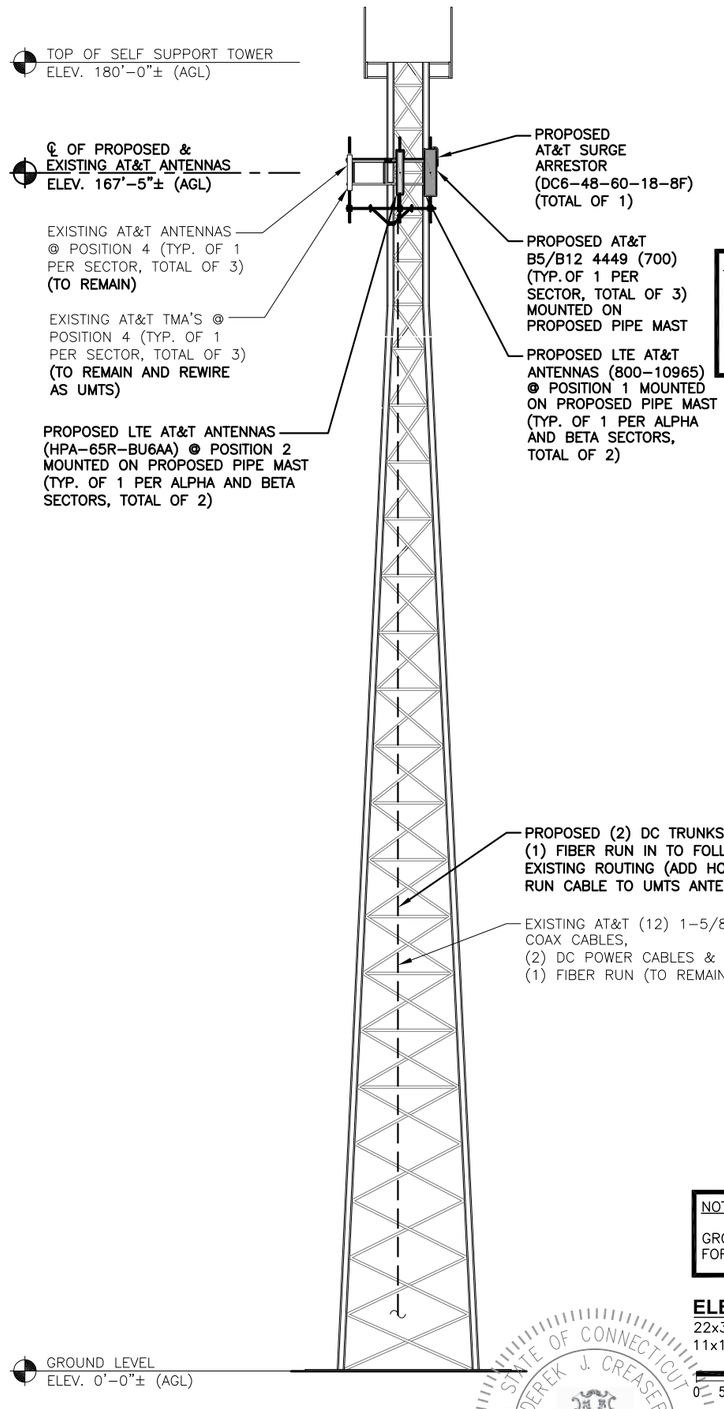
STATE OF CONNECTICUT
DEREK J. CREASER
No. 23,858
LICENSED PROFESSIONAL ENGINEER

AT&T

COMPOUND & EQUIPMENT PLANS
(LTE 2C/3C/4C/5C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT1264	A-1	1





NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: JUNE 10, 2019 (REV.1)

NOTE:

REFER TO STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP, LLC, DATED: MAY 05, 2019, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:

GROUND EQUIPMENT NOT SHOWN FOR CLARITY

ELEVATION 3 / A-2

22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"

0 5'-4" 10'-8" 21'-4" 32'-0"

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WEST BRIDGEWATER, MA 02379

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SITE NAME: FRANKLIN CT TYLER DRIVE

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NO.	DATE	REVISIONS	BY	CHK	APP'D
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A	03/18/19	ISSUED FOR REVIEW	DJM	AT	DJC

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

STATE OF CONNECTICUT
DEREK J. CREASER
No. 25[illegible]
LICENSED PROFESSIONAL ENGINEER

AT&T

ANTENNA LAYOUTS & ELEVATION
(LTE 2C/3C/4C/5C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT1264	A-2	1

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
HUDSON DESIGN GROUP, LLC.
DATED: JUNE 10, 2019 (REV.1)

NOTE:

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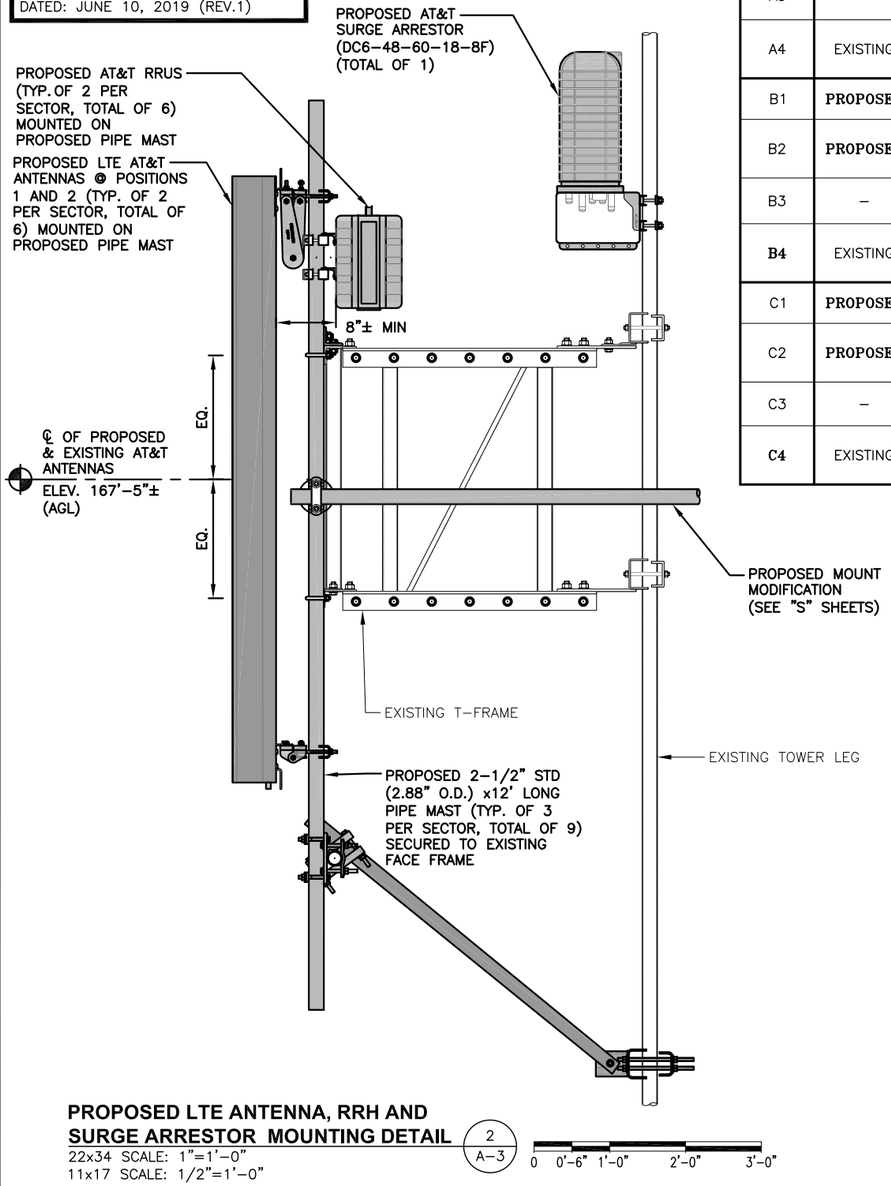


PROPOSED LTE ANTENNA, RRH AND SURGE ARRESTOR MOUNTING DETAIL (2 / A-3)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"

ANTENNA SCHEDULE

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	**PROPOSED**	**LTE 700BC /850/PCS**	**800-10965**	**78.7x20x6.9**	**±167'-5"**	**20°**	**-**	**(P)(1) B5/B12 4449 (700)**	**14.9x13.2x10.4**	-	--
A2	**PROPOSED**	**LTE 700 B14 /AWS**	**HPA-65R-BU6AA**	**71.2x11.7x8.4**	**±167'-5"**	**20°**	**(1)(P)(G) DBCT108F1V92-1**	**(P)(G)(1) B14 4478 (700) (P)(1) B2/B66A 8843 (AWS)**	**18.1x13.4x8.3 14.9x13.2x10.9**	(2)1-5/8 COAX (LENGTH=215' APPROX)	(E) (1) RAYCAP DC6-48-60-18-8F
A3	-	-	-	-	-	-	-	-	-	-	
A4	EXISTING	UMTS 850	7750	57x11x5	±167'-5"	70°	(1)(E) TT08-19DB111-001 (1)(E) LGP 21901	-	-	(2)1-5/8 COAX (LENGTH=215' APPROX)	
B1	**PROPOSED**	**LTE 700BC /850/PCS**	**800-10965**	**78.7x20x6.9**	**±167'-5"**	**150°**	**-**	**(P)(1) B5/B12 4449 (700)**	**14.9x13.2x10.4**	-	--
B2	**PROPOSED**	**LTE 700 B14 /AWS**	**HPA-65R-BU6AA**	**71.2x11.7x8.4**	**±167'-5"**	**150°**	**(1)(P)(G) DBCT108F1V92-1**	**(P)(G)(1) B14 4478 (700) (P)(1) B2/B66A 8843 (AWS)**	**18.1x13.4x8.3 14.9x13.2x10.9**	(2)1-5/8 COAX (LENGTH=215' APPROX)	(P) (1) RAYCAP DC6-48-60-18-8F
B3	-	-	-	-	-	-	-	-	-	-	
B4	EXISTING	UMTS 850	7750	57x11x5	±167'-5"	170°	(1)(E) TT08-19DB111-001 (1)(E) LGP 21901	-	-	(2)1-5/8 COAX (LENGTH=215' APPROX)	
C1	**PROPOSED**	**LTE 700BC /850/PCS**	**800-10966**	**96x20x6.9**	**±167'-5"**	**270°**	**-**	**(P)(1) B5/B12 4449 (700)**	**14.9x13.2x10.4**	-	--
C2	**PROPOSED**	**LTE 700 B14 /AWS**	**HPA-65R-BU8AA**	**96x11.7x8.4**	**±167'-5"**	**270°**	**(1)(P)(G) DBCT108F1V92-1**	**(P)(G)(1) B14 4478 (700) SHARED WITH BETA SECTOR (P)(1) B2/B66A 8843 (AWS)**	**18.1x13.4x8.3 14.9x13.2x10.9**	(2)1-5/8 COAX (LENGTH=215' APPROX)	I
C3	-	-	-	-	-	-	-	-	-	-	
C4	EXISTING	UMTS 850	7750	57x11x5	±167'-5"	310°	(1)(E) TT08-19DB111-001 (1)(E) LGP 21901	-	-	(2)1-5/8 COAX (LENGTH=215' APPROX)	

FINAL ANTENNA SCHEDULE (1 / A-3)
SCALE: N.T.S

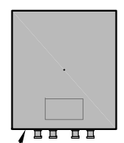
RRU CHART

QUANTITY	MODEL	L	W	D
2(P)(G)	B14 4478 (700)	18.1"	13.4"	8.3"
3(E)	B2/B66A 8843 (AWS)	14.9"	13.2"	10.9"
3(P)	B5/B12 4449 (700)	14.9"	13.2"	10.4"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:

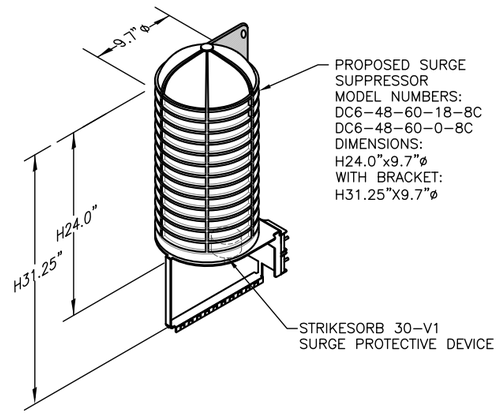
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



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

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL (3 / A-3)
SCALE: N.T.S



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL (4 / A-3)
SCALE: N.T.S

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CENTERLINE COMMUNICATIONS
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WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT1264
SITE NAME: FRANKLIN CT TYLER DRIVE

5 TYLER DRIVE
NORTH FRANKLIN, CT 06254
NEW LONDON COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	06/12/19	ISSUED FOR CONSTRUCTION	SG	AT	DJC
A	03/18/19	ISSUED FOR REVIEW	DJM	AT	DJC

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

STATE OF CONNECTICUT — DANIEL J. CRAIN — 26256 — LICENSED PROFESSIONAL ENGINEER

AT&T

DETAILS
(LTE 2C/3C/4C/5C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT1264	A-3	1

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-G 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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SITE NUMBER: CT1264
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NEW LONDON COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: DJM

STATE OF CONNECTICUT DEREK J. CREASER No. 28551 LICENSED PROFESSIONAL ENGINEER

AT&T

STRUCTURAL NOTES
(LTE 2C/3C/4C/5C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT1264	SN-1	1

NOTE:

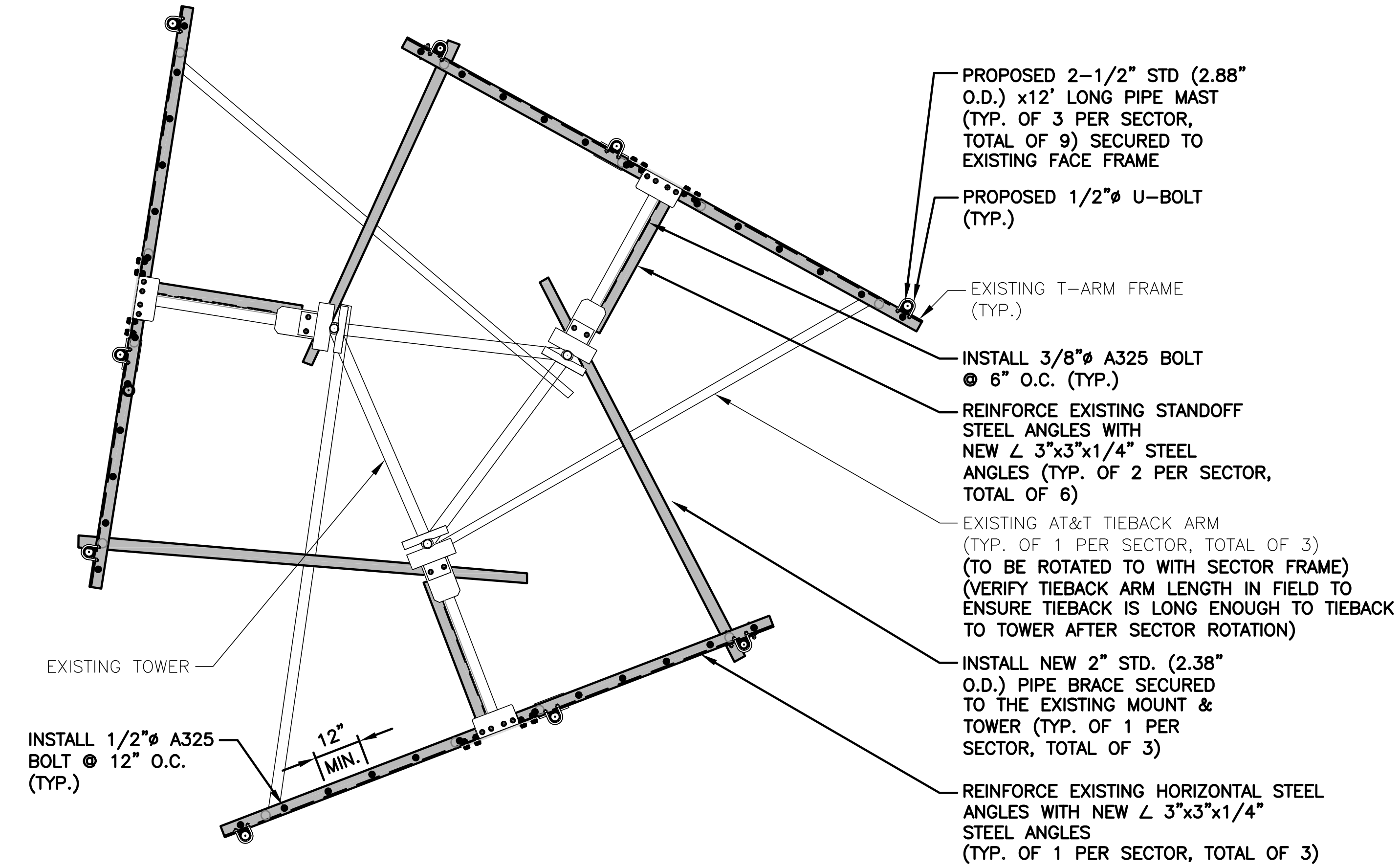
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

REFER TO STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP, LLC, DATED: MAY 05, 2019, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: JUNE 10, 2019 (REV.1)

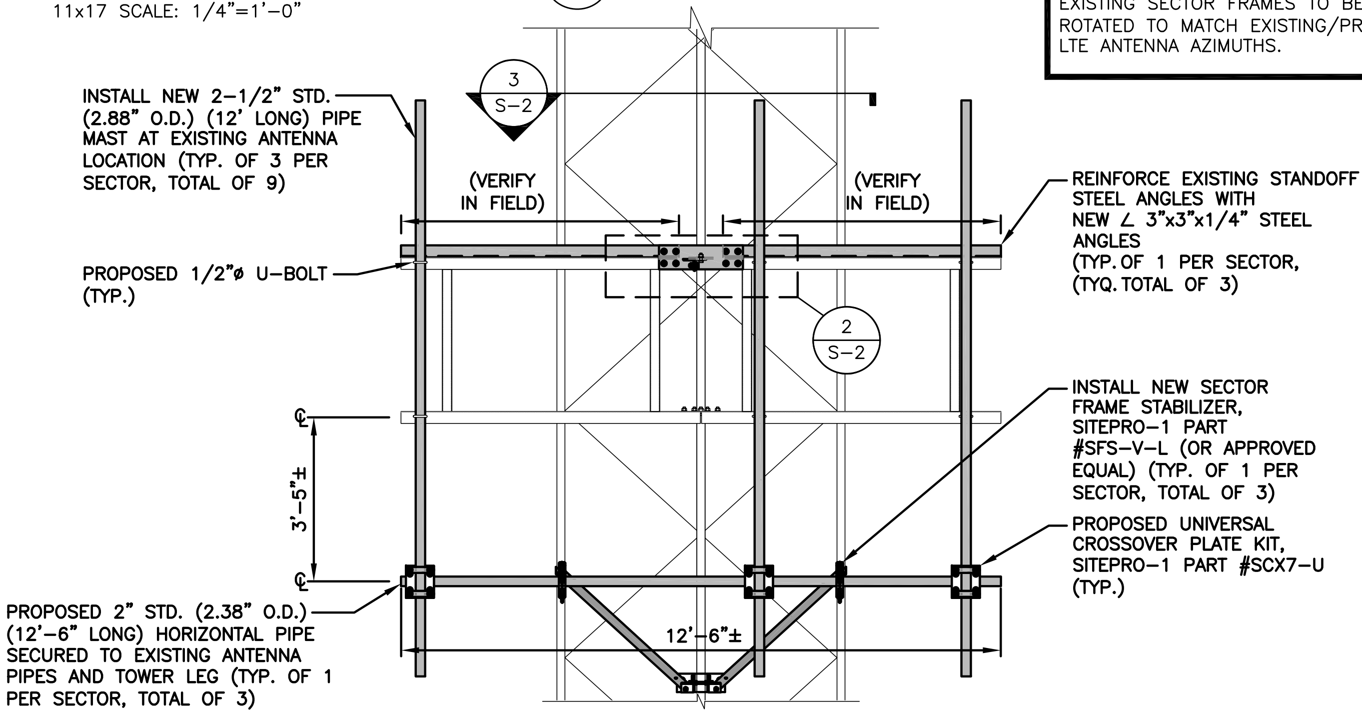


PROPOSED REINFOCEMENT PLAN (1 / S-1)

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

0 1'-0" 2'-0" 4'-0" 6'-0"

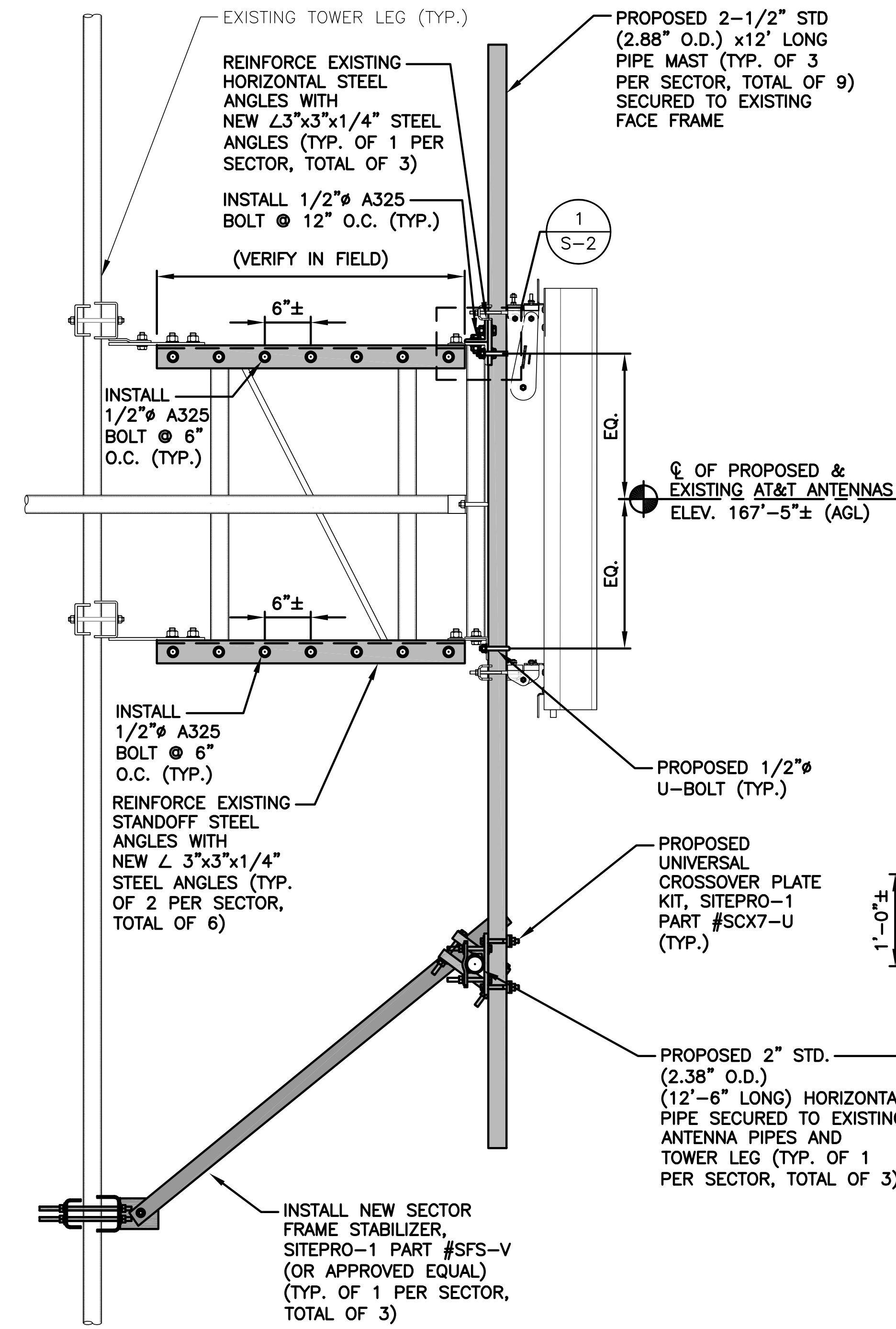
NOTE:
EXISTING SECTOR FRAMES TO BE ROTATED TO MATCH EXISTING/PROPOSED LTE ANTENNA AZIMUTHS.



PROPOSED MOUNT MODIFICATIONS ELEVATION (2 / S-1)

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

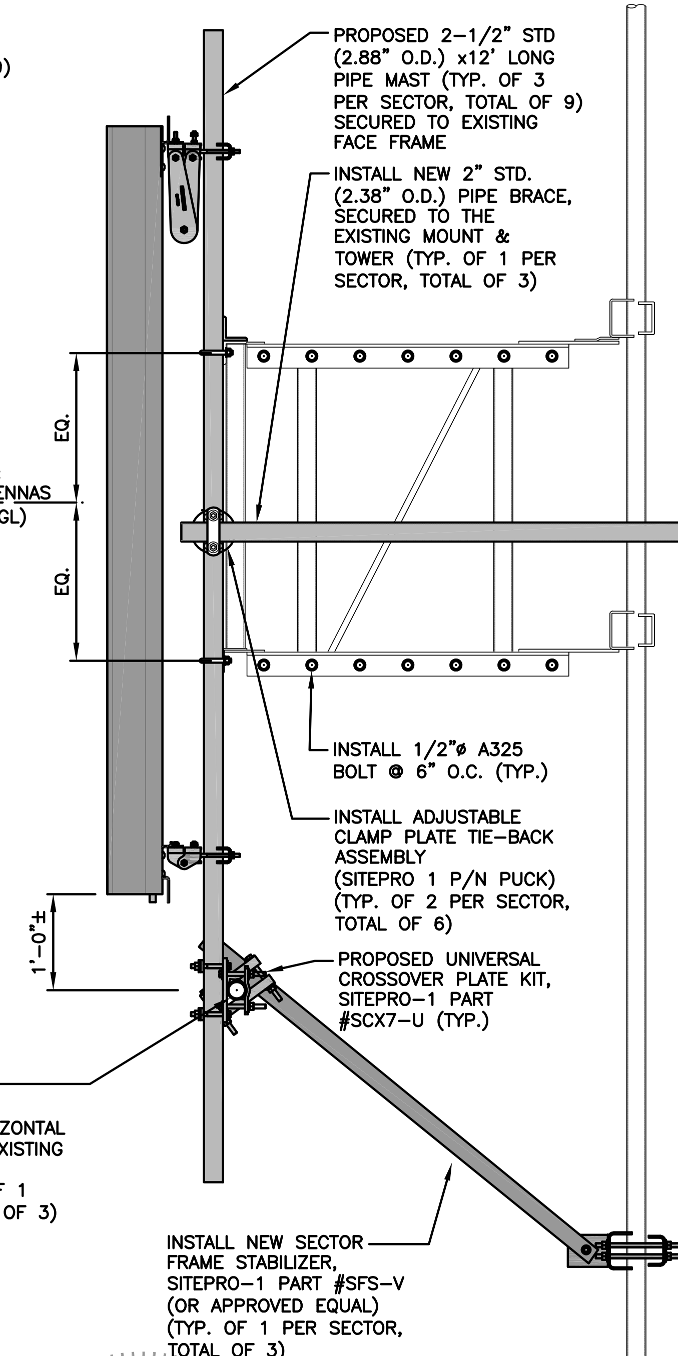
0 1'-0" 2'-0" 4'-0" 6'-0"



PROPOSED MOUNT MODIFICATIONS ELEVATION (3 / S-1)

22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"



PROPOSED MOUNT MODIFICATIONS ELEVATION (4 / S-1)

22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"

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STRUCTURAL DETAILS (LTE 2C/3C/4C/5C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT1264	S-1	1

NOTE:

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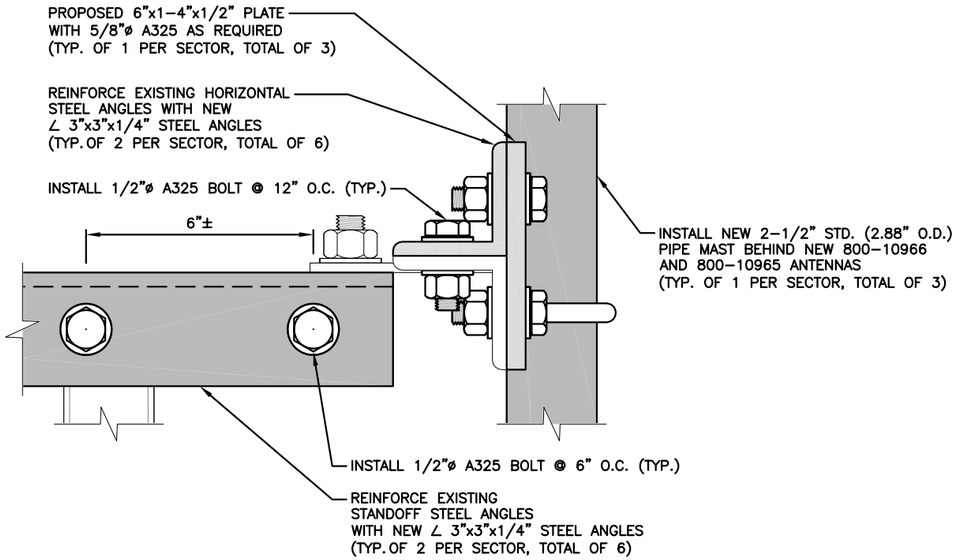
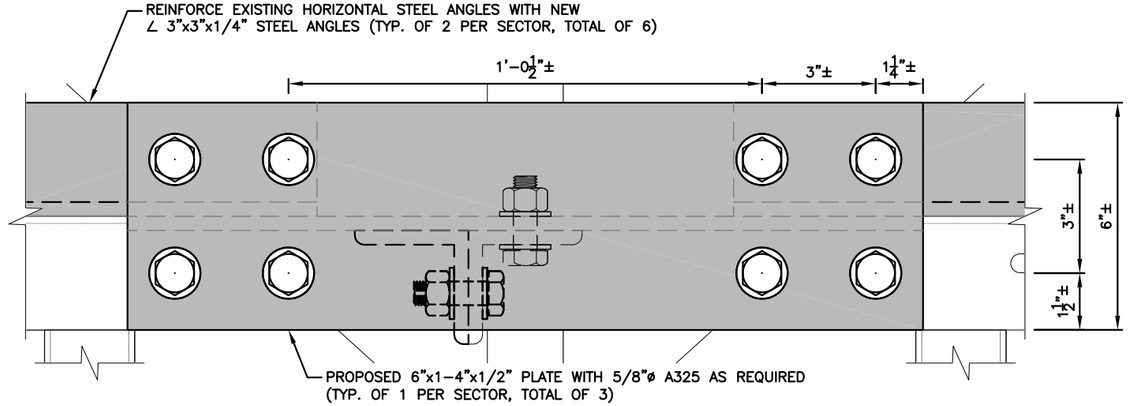


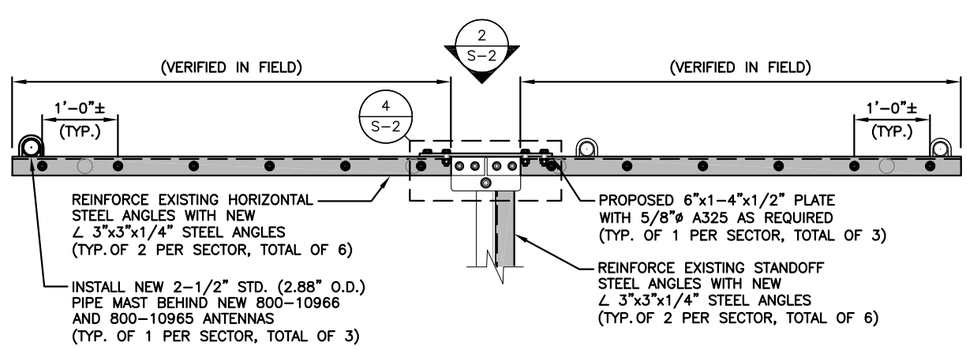
CONNECTION ELEVATION DETAIL (1 / S-2)
22x34 SCALE: 6"=1'-0"
11x17 SCALE: 3"=1'-0"

0 0'-1" 0'-2" 0'-4" 0'-6"



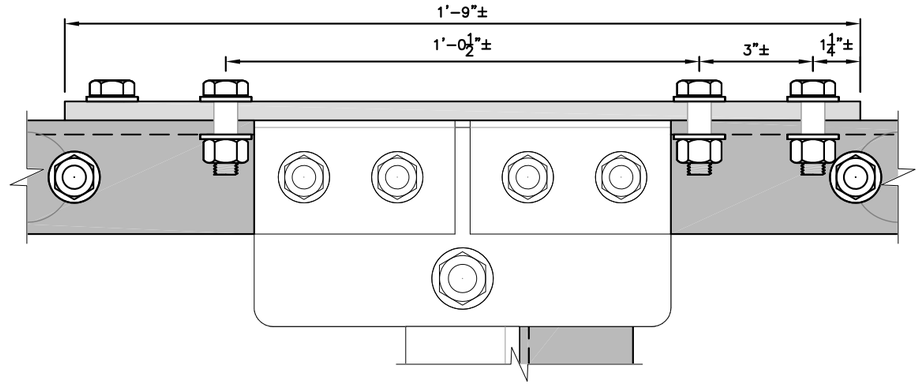
PROPOSED FACE PLATE (2 / S-2)
22x34 SCALE: 6"=1'-0"
11x17 SCALE: 3"=1'-0"

0 0'-1" 0'-2" 0'-4" 0'-6"



PROPOSED MOD PLAN (3 / S-2)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-1" 0'-2" 0'-4" 0'-6"



FACE ELEVATION DETAIL (4 / S-2)
22x34 SCALE: 6"=1'-0"
11x17 SCALE: 3"=1'-0"

0 0'-1" 0'-2" 0'-4" 0'-6"

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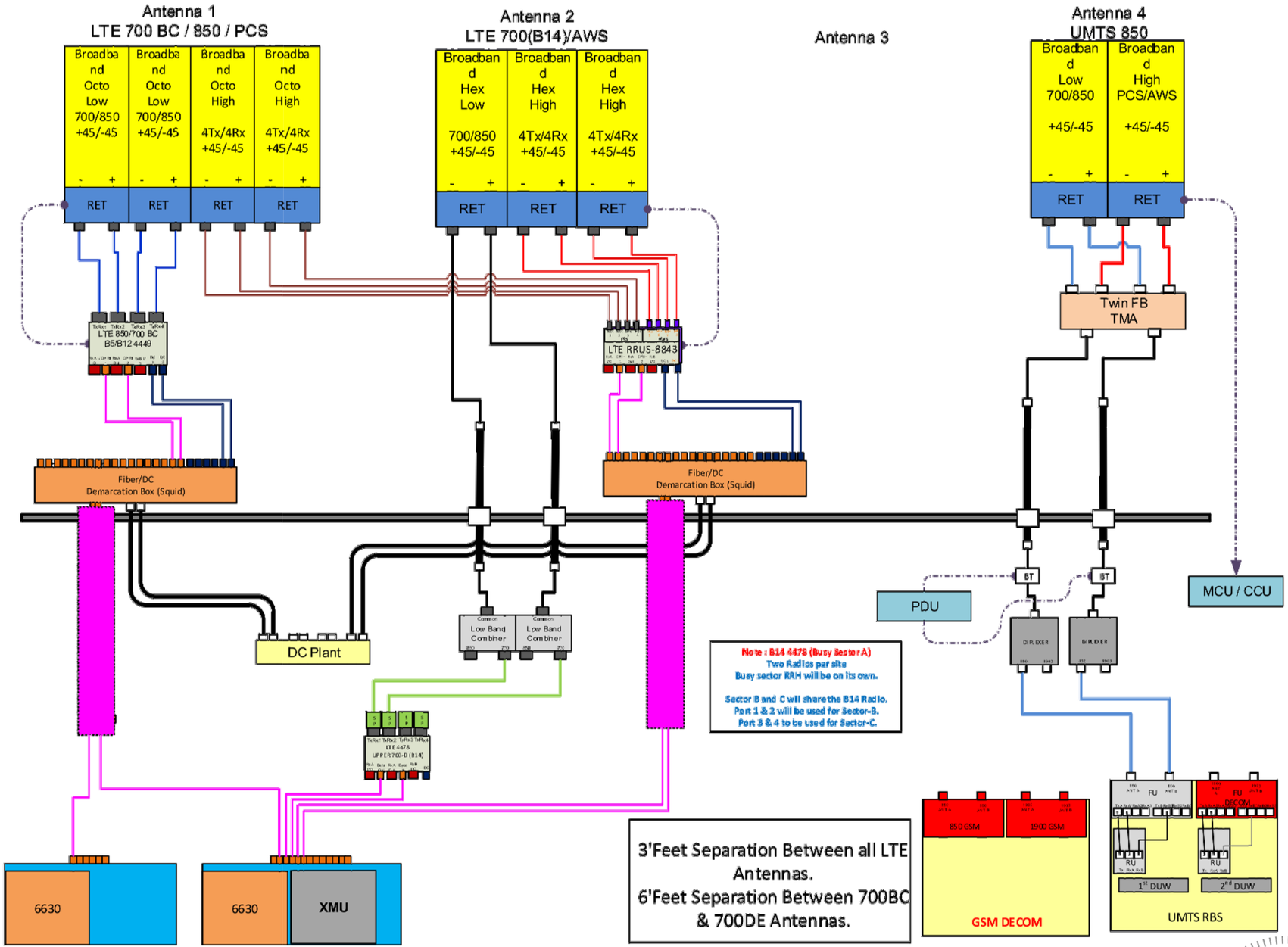
STATE OF CONNECTICUT
DEREK J. CREASER
No. 25[illegible]
LICENSED PROFESSIONAL ENGINEER

AT&T

STRUCTURAL DETAILS
(LTE 2C/3C/4C/5C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT1264	S-2	1



RF PLUMBING DIAGRAM 1
SCALE: N.T.S RF–1

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

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

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STATE OF CONNECTICUT · DEREK J. CREASEY · No. 23561 · LICENSED PROFESSIONAL ENGINEER

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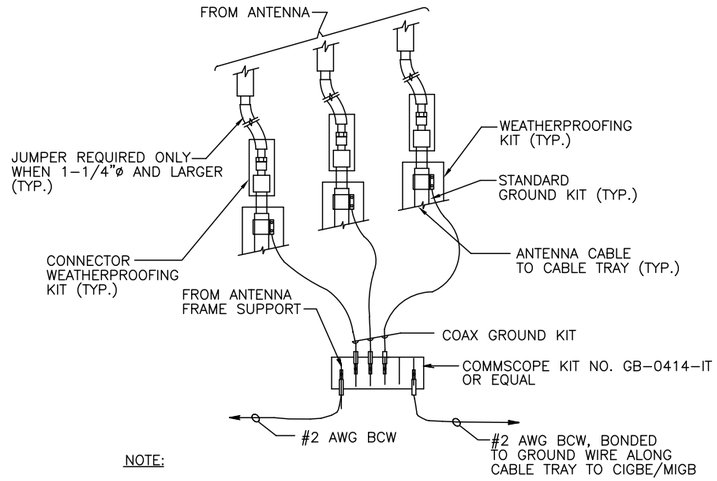
RF PLUMBING DIAGRAM
(LTE 2C/3C/4C/5C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT1264	RF–1	1



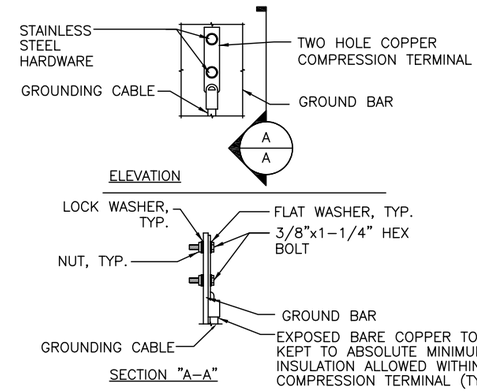
NOTE:

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

SCALE: N.T.S

1 / G–1



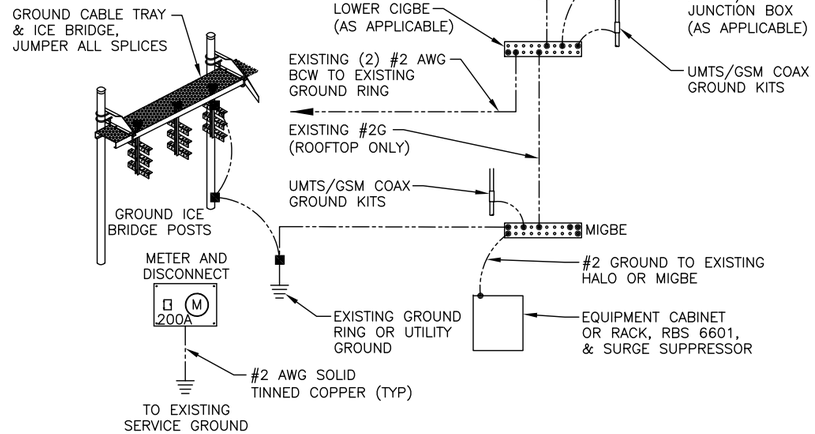
NOTE:

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

SCALE: N.T.S

3 / G–1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / G–1

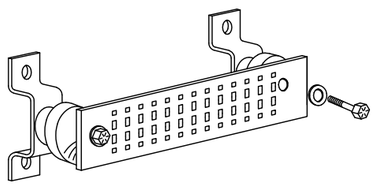
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

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

SECTION "A" – SURGE ABSORBERS

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



GROUND BAR - DETAIL

SCALE: N.T.S

4 / G–1

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STATE OF CONNECTICUT · DEREK J. CREASER · No. 23567 · LICENSED PROFESSIONAL ENGINEER

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GROUNDING DETAILS
(LTE 2C/3C/4C/5C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT1264	G–1	1

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-G 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

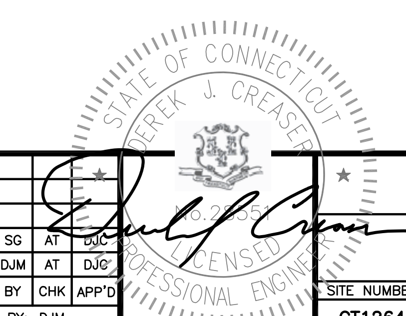
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
N/A	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS [3]
ADDITIONAL TESTING AND INSPECTIONS:	
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.



HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET., SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT1264
SITE NAME: FRANKLIN CT TYLER DRIVE

5 TYLER DRIVE
NORTH FRANKLIN, CT 06254
NEW LONDON COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	06/12/19	ISSUED FOR CONSTRUCTION	SG	AT	DJC
A	03/18/19	ISSUED FOR REVIEW	DJM	AT	DJC

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

AT&T

STRUCTURAL NOTES
(LTE 2C/3C/4C/5C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT1264	SN-1	1

NOTE:

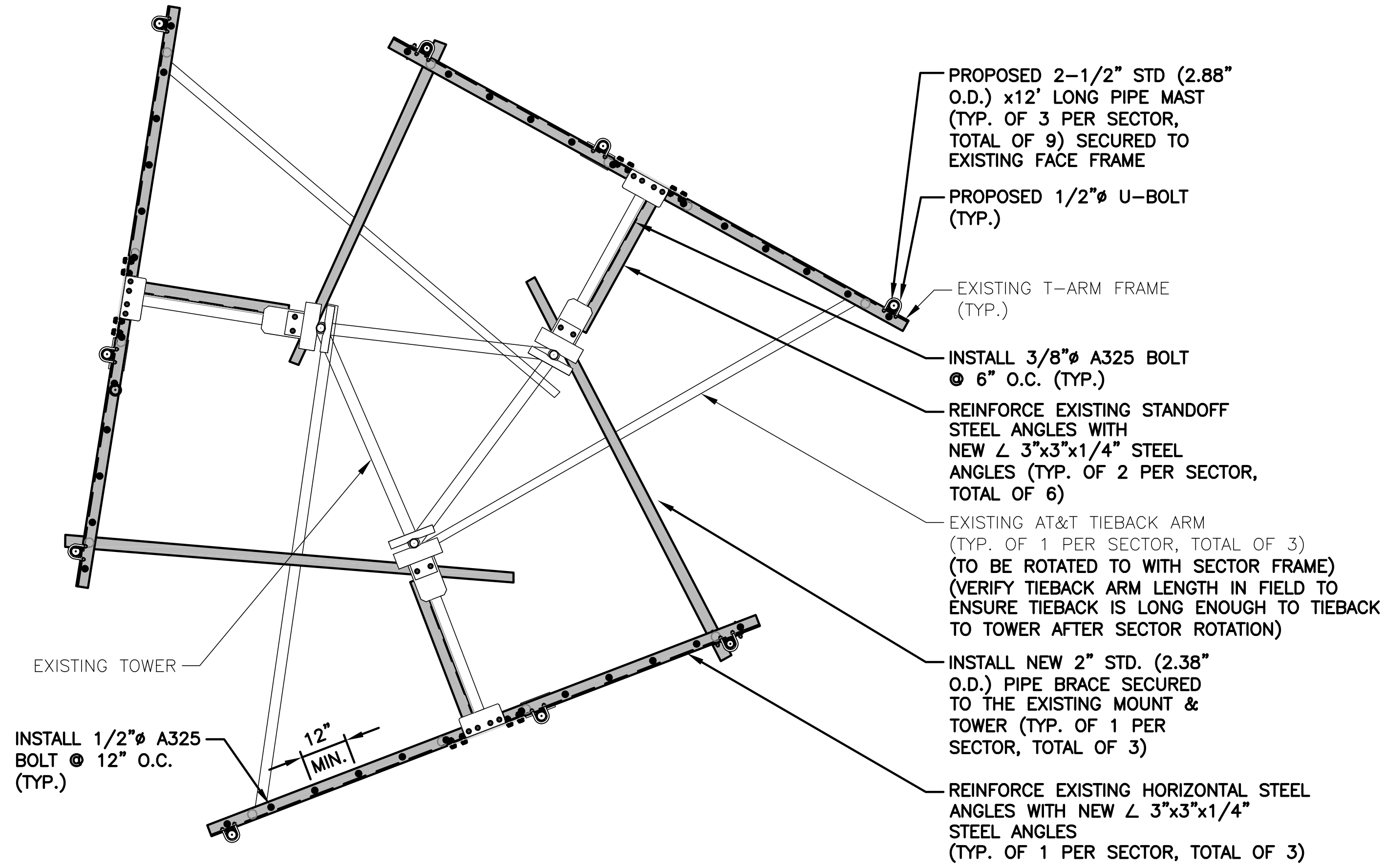
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

REFER TO STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP, LLC, DATED: MAY 05, 2019, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: JUNE 10, 2019 (REV.1)

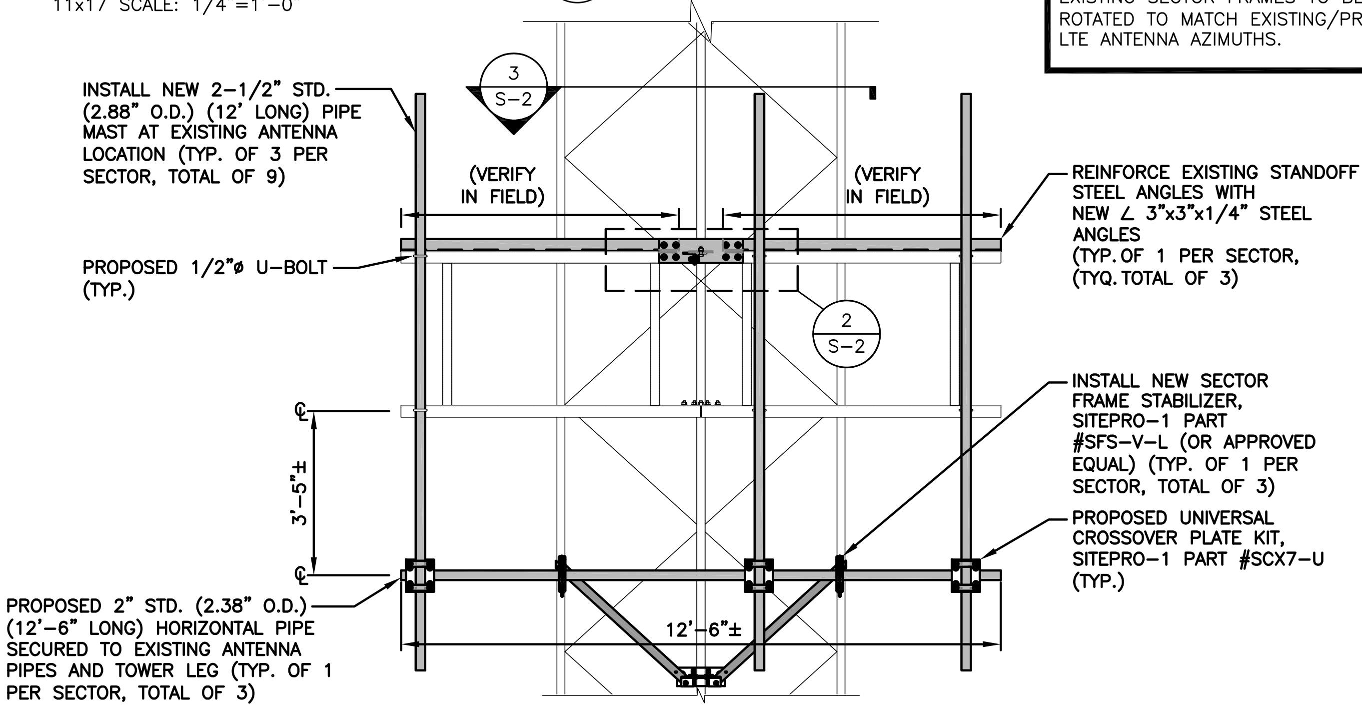


PROPOSED REINFOCEMENT PLAN 1 S-1

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

0 1'-0" 2'-0" 4'-0" 6'-0"

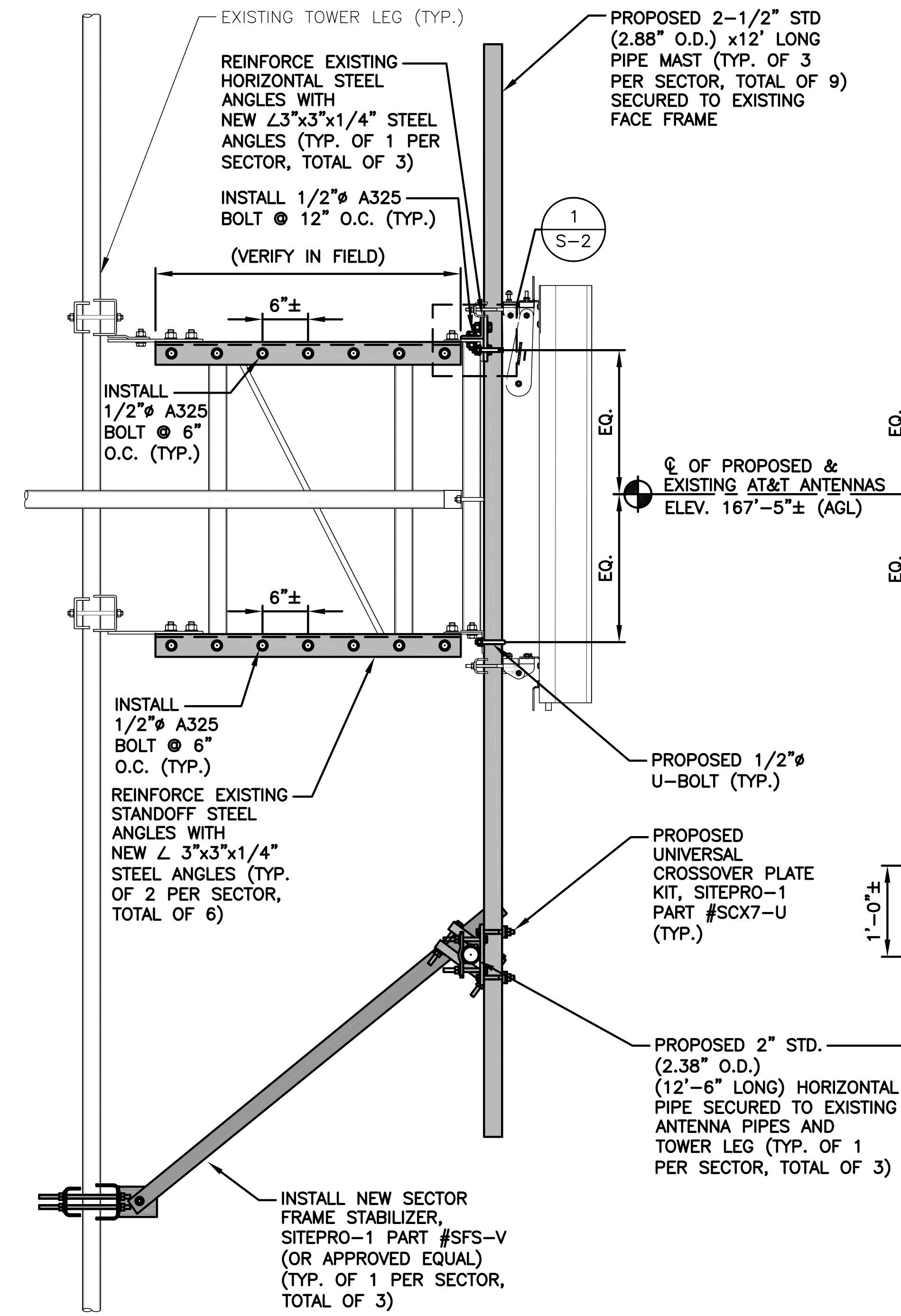
NOTE:
EXISTING SECTOR FRAMES TO BE ROTATED TO MATCH EXISTING/PROPOSED LTE ANTENNA AZIMUTHS.



PROPOSED MOUNT MODIFICATIONS ELEVATION 2 S-1

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

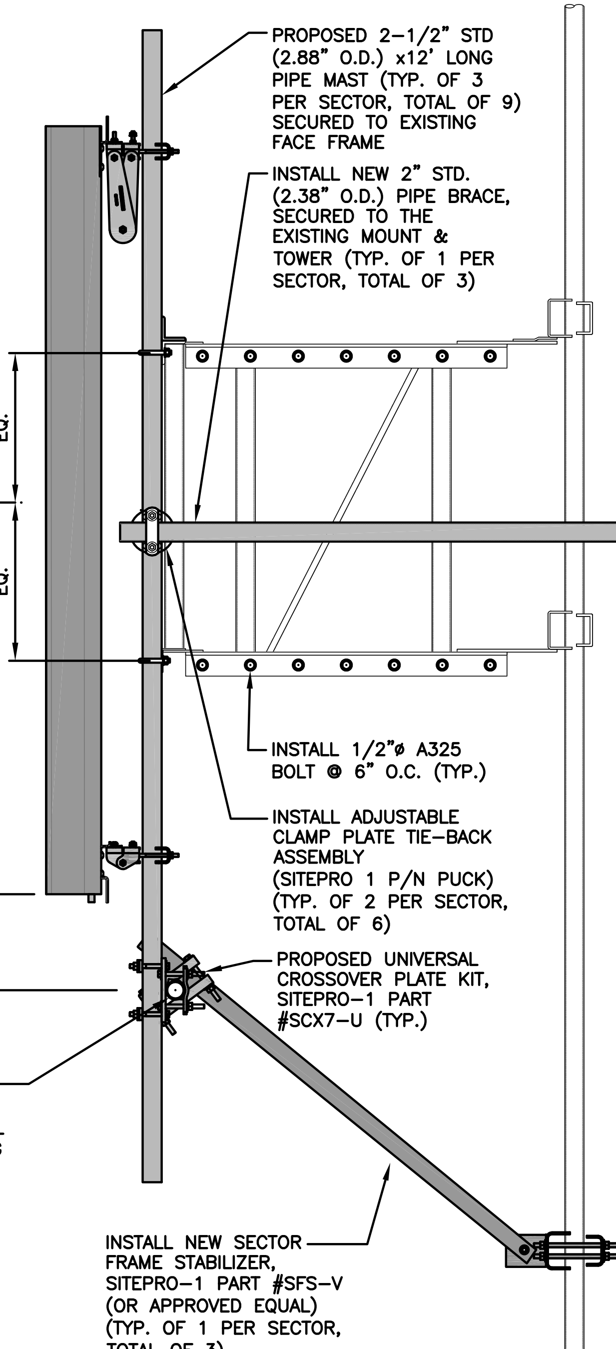
0 1'-0" 2'-0" 4'-0" 6'-0"



PROPOSED MOUNT MODIFICATIONS ELEVATION 3 S-1

22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"



PROPOSED MOUNT MODIFICATIONS ELEVATION 4 S-1

22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"

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45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
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WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT1264
SITE NAME: FRANKLIN CT TYLER DRIVE

5 TYLER DRIVE
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at&t
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NO.	DATE	REVISIONS	BY	CHK	APP'D
1	06/12/19	ISSUED FOR CONSTRUCTION	SG	AT	DJC
A	03/18/19	ISSUED FOR REVIEW	DJM	AT	DJC

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

AT&T

STRUCTURAL DETAILS
(LTE 2C/3C/4C/5C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT1264	S-1	1

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

REFER TO STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP, LLC, DATED: MAY 05, 2019, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

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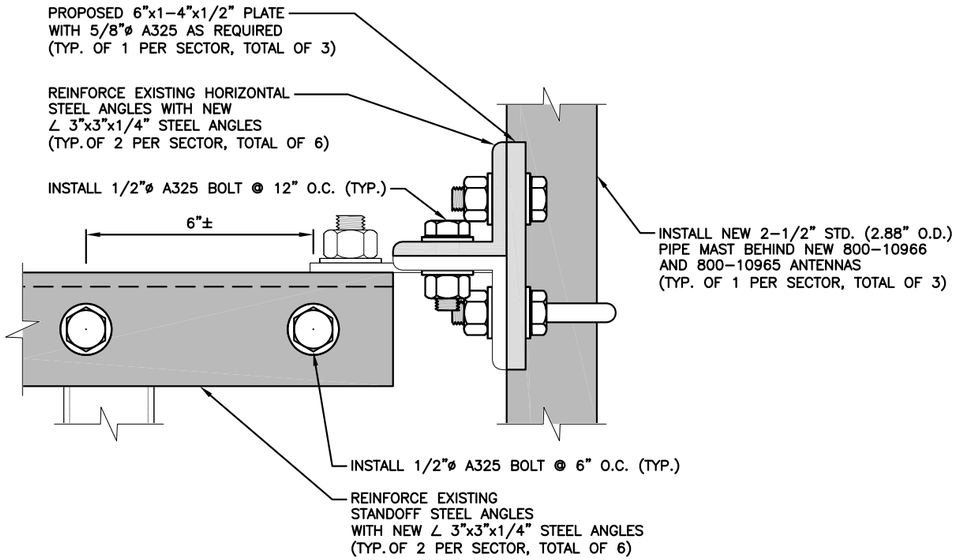
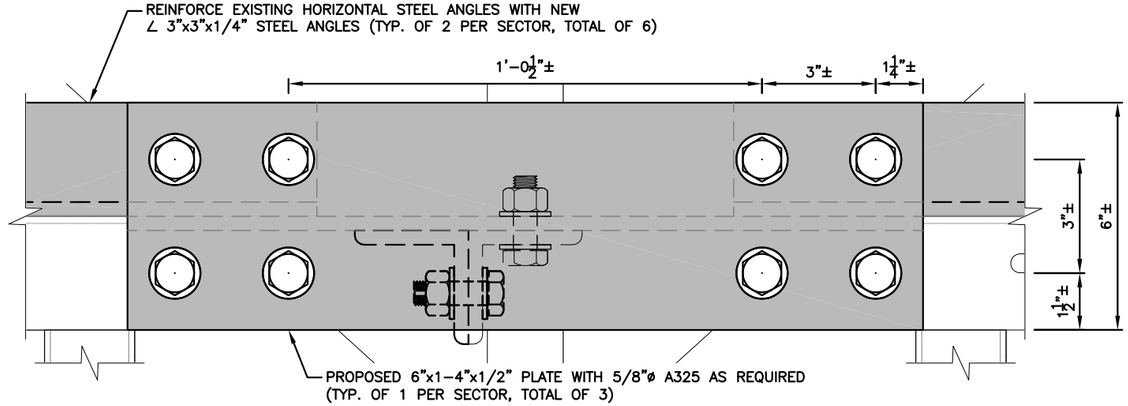
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: JUNE 10, 2019 (REV.1)



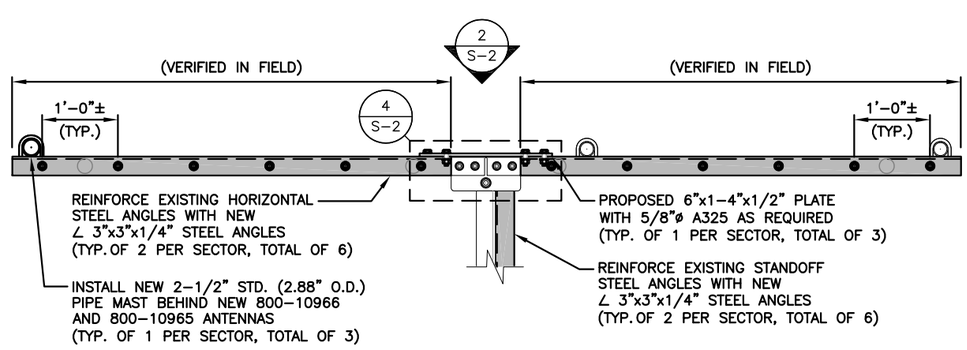
CONNECTION ELEVATION DETAIL (1 / S-2)
22x34 SCALE: 6"=1'-0"
11x17 SCALE: 3"=1'-0"

0 0'-1" 0'-2" 0'-4" 0'-6"



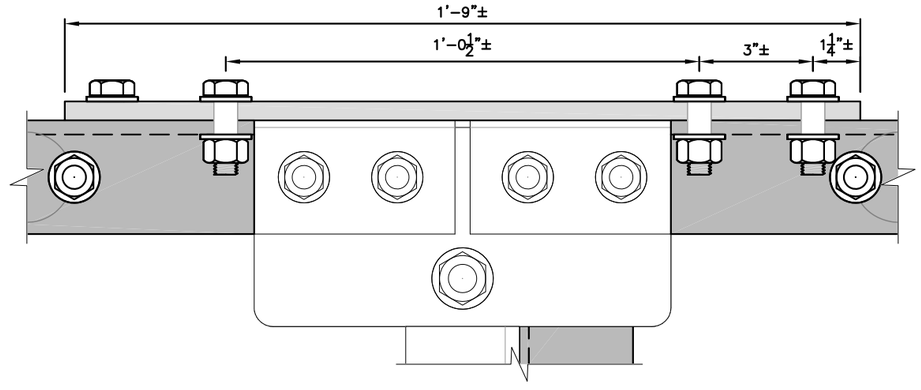
PROPOSED FACE PLATE (2 / S-2)
22x34 SCALE: 6"=1'-0"
11x17 SCALE: 3"=1'-0"

0 0'-1" 0'-2" 0'-4" 0'-6"



PROPOSED MOD PLAN (3 / S-2)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-1" 0'-2" 0'-4" 0'-6"



FACE ELEVATION DETAIL (4 / S-2)
22x34 SCALE: 6"=1'-0"
11x17 SCALE: 3"=1'-0"

0 0'-1" 0'-2" 0'-4" 0'-6"

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

STATE OF CONNECTICUT
DEREK J. CREASER
No. 25[illegible]
LICENSED PROFESSIONAL ENGINEER

AT&T

STRUCTURAL DETAILS
(LTE 2C/3C/4C/5C/4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT1264	S-2	1

Aidan Griffin

From: UPS Quantum View <pkginfo@ups.com>
Sent: Monday, June 17, 2019 5:34 PM
To: Aidan Griffin
Subject: UPS Ship Notification, Tracking Number 1Z9Y45030216453649

You have a package coming.

Scheduled Delivery Date: Tuesday, 06/18/2019

This message was sent to you at the request of CENTERLINE SITE ACQUISITION to notify you that the shipment information below has been transmitted to UPS. The physical package may or may not have actually been tendered to UPS for shipment. To verify the actual transit status of your shipment, click on the tracking link below.

Shipment Details

From:	CENTERLINE SITE ACQUISITION
Tracking Number:	1Z9Y45030216453649
Ship To:	Attn: Thomas Weber Franklin Town Hall 7 Meetinghouse Hill Rd. Building Department FRANKLIN, CT 062541313 US
UPS Service:	UPS 2ND DAY AIR
Number of Packages:	1
Scheduled Delivery:	06/18/2019
Shipment Type:	Letter

Download the UPS mobile app

Aidan Griffin

From: UPS Quantum View <pkginfo@ups.com>
Sent: Monday, June 17, 2019 5:39 PM
To: Aidan Griffin
Subject: UPS Ship Notification, Tracking Number 1Z9Y45030204117669

You have a package coming.

Scheduled Delivery Date: Tuesday, 06/18/2019

This message was sent to you at the request of CENTERLINE SITE ACQUISITION to notify you that the shipment information below has been transmitted to UPS. The physical package may or may not have actually been tendered to UPS for shipment. To verify the actual transit status of your shipment, click on the tracking link below.

Shipment Details

From:	CENTERLINE SITE ACQUISITION
Tracking Number:	1Z9Y45030204117669
Ship To:	Attn: Charles Grant Franklin Town Hall 7 Meetinghouse Hill Rd. FRANKLIN, CT 062541313 US
UPS Service:	UPS 2ND DAY AIR
Number of Packages:	1
Scheduled Delivery:	06/18/2019
Shipment Type:	Letter

Download the UPS mobile app

Aidan Griffin

From: UPS Quantum View <pkginfo@ups.com>
Sent: Monday, June 17, 2019 5:37 PM
To: Aidan Griffin
Subject: UPS Ship Notification, Tracking Number 1Z9Y45030207184653

You have a package coming.

Scheduled Delivery Date: Tuesday, 06/18/2019

This message was sent to you at the request of CENTERLINE SITE ACQUISITION to notify you that the shipment information below has been transmitted to UPS. The physical package may or may not have actually been tendered to UPS for shipment. To verify the actual transit status of your shipment, click on the tracking link below.

Shipment Details

From:	CENTERLINE SITE ACQUISITION
Tracking Number:	1Z9Y45030207184653
Ship To:	Attn: Ronald Chalecki Franklin Town Hall 7 Meetinghouse Hill Rd. Zoning Enforcement Office FRANKLIN, CT 062541313 US
UPS Service:	UPS 2ND DAY AIR
Number of Packages:	1
Scheduled Delivery:	06/18/2019
Shipment Type:	Letter

Download the UPS mobile app