



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

VIA ELECTRONIC MAIL

April 15, 2019

David Ford
Centerline Communications, LLC
750 West Center Street, Suite 301
West Bridgewater, MA 02379

RE: **EM-CING-084-190301** – New Cingular Wireless PCS, LLC (AT&T) notice of intent to modify an existing telecommunications facility located at 528 Wheelers Farm Road, Milford, Connecticut.

Dear Mr. Ford:

The Connecticut Siting Council (Council) is in receipt of your correspondence of March 18, 2019 and April 12, 2019 submitted in response to the Council's March 14, 2019 and March 19, 2019 notifications of an incomplete request for exempt modification with regard to the above-referenced matter.

The submissions render the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/IN/emr



CONNECTICUT SITING COUNCIL

Affirmative Action / Equal Opportunity Employer

Robidoux, Evan

From: David Ford <dford@clinellc.com>
Sent: Friday, April 12, 2019 10:45 AM
To: Robidoux, Evan
Cc: CSC-DL Siting Council; Aaron Meyers; David Ford
Subject: RE: Council Incomplete Letter for EM-CING-084-190301-WheelersFarmRd-Milford // CT2083
Attachments: CT2083 (LTE 3C-4C) Mount Analysis Rev1 04082019.pdf; CT2083_10035336_LTE_3C_4C_CD_REV2_04.11.19.pdf; em-cing-084-190301_incompletelettr_WheelersFarmRd.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Evan,

In response to the CSC memo dated March 19, 2019, attached please find the revised drawings and mount analysis.

Thank you

David Ford
Centerline Communications
(508) 821-6509

From: Robidoux, Evan <Evan.Robidoux@ct.gov>
Sent: Monday, March 18, 2019 1:41 PM
To: David Ford <dford@clinellc.com>
Cc: CSC-DL Siting Council <Siting.Council@ct.gov>
Subject: RE: Council Incomplete Letter for EM-CING-084-190301-WheelersFarmRd-Milford // CT2083

Hi David,

Thank you for your email. A single hard copy of the response is sufficient. Thank you and have a good day.

Sincerely,
Evan Robidoux

From: David Ford [<mailto:dford@clinellc.com>]
Sent: Monday, March 18, 2019 1:24 PM
To: Robidoux, Evan <Evan.Robidoux@ct.gov>
Cc: CSC-DL Siting Council <Siting.Council@ct.gov>; Aaron Meyers <ameyers@clinellc.com>; David Ford <dford@clinellc.com>
Subject: RE: Council Incomplete Letter for EM-CING-084-190301-WheelersFarmRd-Milford // CT2083

Evan,

In response to the CSC memo dated March 14, 2019, attached please find the revised drawings and mount letter.

Please advise if you'd like hard copies submitted or if the council requires any further information.

Thank you

From: Robidoux, Evan <Evan.Robidoux@ct.gov>

Sent: Monday, March 18, 2019 8:27 AM

To: Aaron Meyers <ameyers@clinellc.com>

Cc: CSC-DL Siting Council <Siting.Council@ct.gov>

Subject: Council Incomplete Letter for EM-CING-084-190301-WheelersFarmRd-Milford

Please see the attached correspondence.

Evan Robidoux
Clerk Typist
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

April 17, 2018
April 8, 2019 (Rev.1)



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

RE: Site Number: CT2083 (LTE 3C/4C)
 FA Number: 10035336
 PACE Number: MRCTB022765
 PT Number: 2051A0ACJZ
 Site Name: MILFORD WHEELERS FARM
 Site Address: 528 Wheelers Farm Road
 Milford, CT 06460

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 mount to determine its capability of supporting the following additional loading:

- (3) 7770 Antennas (55.0"x11.0"x5.0" – Wt. = 35 lbs. /each)
- (3) OPA-65R-LCUU-H6 Antennas (72.0"x14.8"x7.4" – Wt. = 73 lbs. /each)
- (3) QS66512-2 Antennas (72.0"x12.0"x9.6" – Wt. = 111 lbs. /each)
- (3) RRUS-11 RRH's (19.7"x17.0"x7.2" – Wt. = 51 lbs. /each) (Tower Mounted)
- (3) RRUS-32 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each) (Tower Mounted)
- (3) RRUS-32 B2 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (6) LGP21401 TMA's (14.4"x9.0"x2.7" – Wt. = 19 lbs. /each)
- (2) Squid Surge Arrestors (24.0"x9.7" Ø – Wt. = 33 lbs. /each) (Tower Mounted)
- **(3) DBC0061F1V51-2 Diplexers (8.0"x6.2"x6.5" – Wt. = 26 lbs. /each)**

**Proposed equipment shown in bold.*

No original structural design documents or fabrication drawings were available for the existing mount. HDG's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mount on March 11, 2015. A ground audit was performed on June 5, 2017.

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 124 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 1.11 in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- 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 2.
- 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 monopole with a ring mount. The connection is considered OK by visual inspection.

Based on our evaluation, we have determined that the existing mount **IS CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing (LTE 3C/4C) Mount Rating	68	LC4	64%	PASS

Reference Documents:

- Mount mapping report prepared by ProVertic LLC dated July 12, 2016.

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

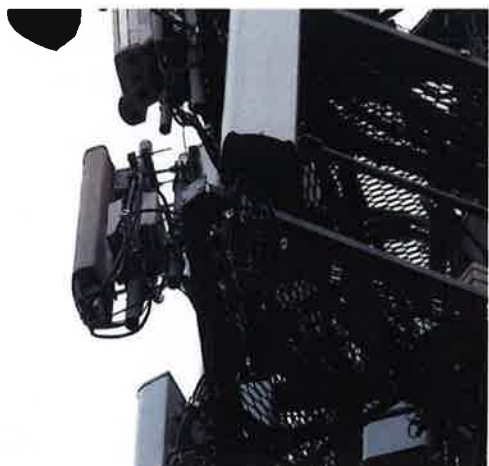


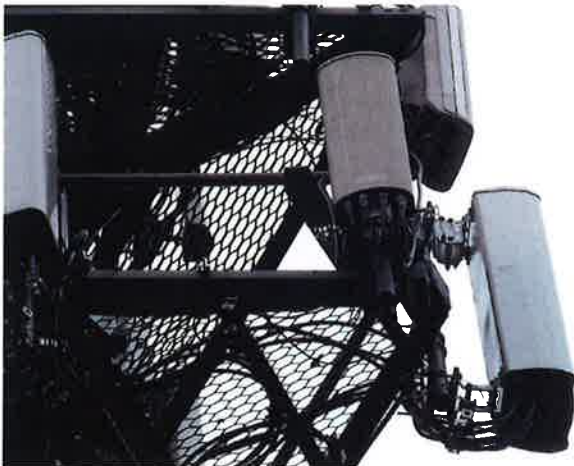
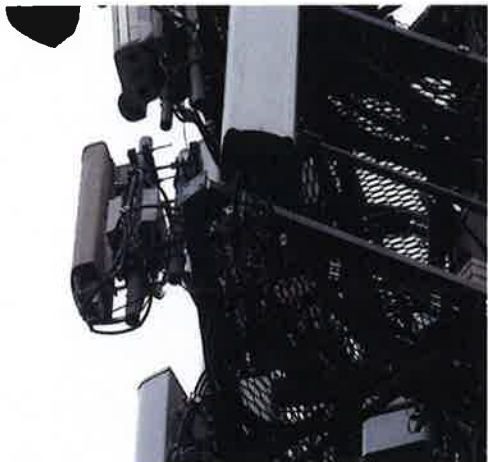
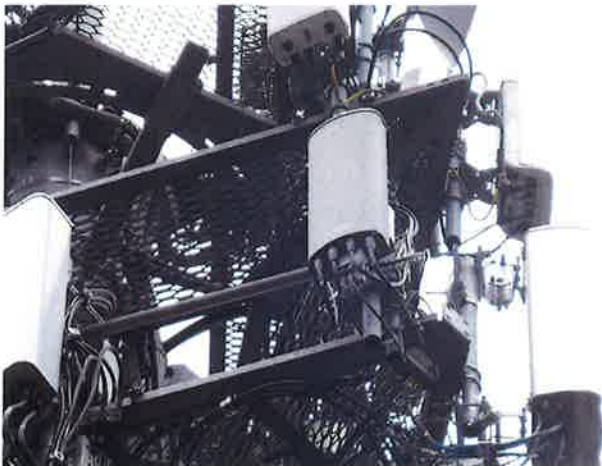
Michael Cabral
Structural Dept. Head



Daniel P. Hamm, PE
Principal

FIELD PHOTOS:







HUDSON
Design Group LLC

**Wind & Ice
Calculations**

Date: 4/8/2019
 Project Name: MILFORD WHEELERS FARM
 Project No.: CT2083
 Designed By: BD Checked By: MSC



2.6.5.2 Velocity Pressure Coeff:

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

z = 98 (ft)
 z_g = 1200 (ft)
 α = 7.0

K_z = 0.983

K_{zmin} ≤ K_z ≤ 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

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

$$K_h = e^{(fz/H)}$$

K_{zt} = #DIV/0!

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

Category = 1

K_h = #DIV/0!
 K_c = 0.9 (from Table 2-4)
 K_t = (from Table 2-5)
 f = (from Table 2-5)
 z = 98
 z_s = 221 (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 = 0.99 (from 2.6.8)

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} = 1.11 (from Sec. 2.6.10)

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

t_{iz} = 1.11 in

Date: 4/8/2019
 Project Name: MILFORD WHEELERS FARM
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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

$h = 120$

$G_h = 0.85$

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

(Cantilvered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

$G_h = 1.35$

$G_h = 1.00$

2.6.11.2 Design Wind Force on Appurtenances

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

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

$q_z = 36.45$

$q_z (ice) = 5.93$

$q_z (30) = 2.13$

$K_z = 0.983$ (from 2.6.5.2)

$K_{zt} = 1.0$ (from 2.6.6.2.1)

$K_s = 1.0$ (from 2.6.7)

$K_e = 0.99$ (from 2.6.8)

$K_d = 0.95$ (from Table 2-2)

$V_{max} = 124$ mph (Ultimate Wind Speed)

$V_{max (ice)} = 50$ mph

$V_{30} = 30$ mph

Table 2-2

Structure Type	Wind Direction Probability Factor, K_d
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: 4/8/2019
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Determine Ca:

Table 2-9

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

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
 (Aspect ratio is independent of the spacing between support points of a linear appurtenance,
 Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = 1.11 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)
7770 Antenna	55.0	11.0	5.0	4.20	5.00	1.31	201	41	12
OPA-65R-LCUU-H6 Antenna	72.0	14.8	7.4	7.40	4.86	1.31	352	68	21
QS66512-2 Antenna	72.0	12.0	9.6	6.00	6.00	1.36	296	59	17
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	2.25	1.20	100	21	6
RRUS-32 B2 RRH (Shielded)	27.2	0.0	7.0	0.00	0.00	1.20	0	0	0
RRUS-32 RRH	27.2	12.1	7.0	2.29	2.25	1.20	100	21	6
RRUS-11 RRH	19.7	17.0	7.2	2.33	1.16	1.20	102	21	6
LGP21401 TMA	14.4	2.7	9.0	0.27	5.33	1.33	13	4	1
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	1.29	1.20	15	4	1
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	41	9	2
2" Pipe	2.4	12.0		0.20	0.20	1.20	9	3	1
L 2x2 Angle	2.0	12.0		0.17	0.17	2.00	12	5	1
L 2-1/2x2-1/2 Angle	2.5	12.0		0.21	0.21	2.00	15	6	1
L 3x3 Angle	3.0	12.0		0.25	0.25	2.00	18	6	1
PL 4x1/4	4.0	12.0		0.33	0.33	1.25	15	5	1
HSS 3-1/2x2-1/2	3.5	12.0		0.29	0.29	1.25	13	4	1
HSS 4-1/2x4-1/2	4.5	12.0		0.38	0.38	1.25	17	5	1

Date: 4/8/2019
 Project Name: MILFORD WHEELERS FARM
 Project No.: CT2083
 Designed By: BD Checked By: MSC



WIND LOADS

Angle = 30 (deg)

Ice Thickness = 1.11 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) [normal]	Force (lbs) [side]	Force (lbs) [angle]
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	201	107	177
OPA-65R-LCUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	352	201	314
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	296	248	284
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	100	61	90
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	54	61	55
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	100	61	90
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	102	43	87
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	13	39	20
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	15	16	15

WIND LOADS WITH ICE:

7770 Antenna	57.2	13.2	7.2	5.26	2.87	4.33	7.92	1.28	1.43	40	24	36
OPA-65R-LCUU-H6 Antenna	74.2	17.0	9.6	8.78	4.96	4.36	7.71	1.28	1.42	67	42	61
QS66512-2 Antenna	74.2	14.2	11.8	7.34	6.10	5.22	6.27	1.32	1.37	57	49	55
RRUS-32 B2 RRH	29.4	14.3	9.2	2.93	1.89	2.05	3.19	1.20	1.23	21	14	19
RRUS-32 B2 RRH (Shielded)	29.4	7.2	9.2	1.46	1.89	4.11	3.19	1.27	1.23	11	14	12
RRUS-32 RRH	29.4	14.3	9.2	2.93	1.89	2.05	3.19	1.20	1.23	21	14	19
RRUS-11 RRH	21.9	19.2	9.4	2.93	1.44	1.14	2.33	1.20	1.20	21	10	18
LGP21401 TMA	16.6	4.9	11.2	0.57	1.30	3.37	1.48	1.24	1.20	4	9	5
DBC0061F1V51-2 Diplexer	10.2	8.4	8.7	0.60	0.62	1.21	1.17	1.20	1.20	4	4	4

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	12	6	10
OPA-65R-LCUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	21	12	18
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	17	15	17
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	5
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	3	4	3
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	5
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	6	3	5
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	2	1
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	1	1	1

Date: 4/8/2019
 Project Name: MILFORD WHEELERS FARM
 Project No.: CT2083
 Designed By: BD Checked By: MSC



WIND LOADS

Angle = 60 (deg) Ice Thickness = 1.11 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) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	201	107	130
OPA-65R-LCUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	352	201	239
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	296	248	260
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	100	61	71
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	76	61	65
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	100	61	71
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	102	43	58
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	13	39	33
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	15	16	16

WIND LOADS WITH ICE:

7770 Antenna	57.2	13.2	7.2	5.26	2.87	4.33	7.92	1.28	1.43	40	24	28
OPA-65R-LCUU-H6 Antenna	74.2	17.0	9.6	8.78	4.96	4.36	7.71	1.28	1.42	67	42	48
QS66512-2 Antenna	74.2	14.2	11.8	7.34	6.10	5.22	6.27	1.32	1.37	57	49	51
RRUS-32 B2 RRH	29.4	14.3	9.2	2.93	1.89	2.05	3.19	1.20	1.23	21	14	16
RRUS-32 B2 RRH (Shielded)	29.4	10.7	9.2	2.20	1.89	2.74	3.19	1.21	1.23	16	14	14
RRUS-32 RRH	29.4	14.3	9.2	2.93	1.89	2.05	3.19	1.20	1.23	21	14	16
RRUS-11 RRH	21.9	19.2	9.4	2.93	1.44	1.14	2.33	1.20	1.20	21	10	13
LGP21401 TMA	16.6	4.9	11.2	0.57	1.30	3.37	1.48	1.24	1.20	4	9	8
DBC0061F1V51-2 Diplexer	10.2	8.4	8.7	0.60	0.62	1.21	1.17	1.20	1.20	4	4	4

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	12	6	8
OPA-65R-LCUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	21	12	14
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	17	15	15
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	4	4	4
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	6	3	3
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	2	2
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	1	1	1

Date: 4/8/2019
 Project Name: MILFORD WHEELERS FARM
 Project No.: CT2083
 Designed By: BD Checked By: MSC



WIND LOADS

Angle = 90 (deg) Ice Thickness = 1.11 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) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	201	107	107
OPA-65R-LCUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	352	201	201
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	296	248	248
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	100	61	61
RRUS-32 B2 RRH (Shielded)	27.2	0.0	7.0	0.00	1.32	0.00	3.89	1.20	1.26	0	61	61
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	100	61	61
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	102	43	43
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	13	39	39
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	15	16	16

WIND LOADS WITH ICE:

7770 Antenna	57.2	13.2	7.2	5.26	2.87	4.33	7.92	1.28	1.43	40	24	24
OPA-65R-LCUU-H6 Antenna	74.2	17.0	9.6	8.78	4.96	4.36	7.71	1.28	1.42	67	42	42
QS66512-2 Antenna	74.2	14.2	11.8	7.34	6.10	5.22	6.27	1.32	1.37	57	49	49
RRUS-32 B2 RRH	29.4	14.3	9.2	2.93	1.89	2.05	3.19	1.20	1.23	21	14	14
RRUS-32 B2 RRH (Shielded)	29.4	2.2	9.2	0.46	1.89	13.20	3.19	1.61	1.23	4	14	14
RRUS-32 RRH	29.4	14.3	9.2	2.93	1.89	2.05	3.19	1.20	1.23	21	14	14
RRUS-11 RRH	21.9	19.2	9.4	2.93	1.44	1.14	2.33	1.20	1.20	21	10	10
LGP21401 TMA	16.6	4.9	11.2	0.57	1.30	3.37	1.48	1.24	1.20	4	9	9
DBC0061F1V51-2 Diplexer	10.2	8.4	8.7	0.60	0.62	1.21	1.17	1.20	1.20	4	4	4

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	12	6	6
OPA-65R-LCUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	21	12	12
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	17	15	15
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-32 B2 RRH (Shielded)	27.2	0.0	7.0	0.00	1.32	0.00	3.89	1.20	1.26	0	4	4
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	6	3	3
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	2	2
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	1	1	1

Date: 4/8/2019
 Project Name: MILFORD WHEELERS FARM
 Project No.: CT2083
 Designed By: BD Checked By: MSC



WIND LOADS

Angle = 120 (deg)

Ice Thickness = 1.11 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) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	201	107	130
OPA-65R-LCUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	352	201	239
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	296	248	260
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	100	61	71
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	76	61	65
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	100	61	71
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	102	43	58
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	13	39	33
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	15	16	16

WIND LOADS WITH ICE:

7770 Antenna	57.2	13.2	7.2	5.26	2.87	4.33	7.92	1.28	1.43	40	24	28
OPA-65R-LCUU-H6 Antenna	74.2	17.0	9.6	8.78	4.96	4.36	7.71	1.28	1.42	67	42	48
QS66512-2 Antenna	74.2	14.2	11.8	7.34	6.10	5.22	6.27	1.32	1.37	57	49	51
RRUS-32 B2 RRH	29.4	14.3	9.2	2.93	1.89	2.05	3.19	1.20	1.23	21	14	16
RRUS-32 B2 RRH (Shielded)	29.4	10.7	9.2	2.20	1.89	2.74	3.19	1.21	1.23	16	14	14
RRUS-32 RRH	29.4	14.3	9.2	2.93	1.89	2.05	3.19	1.20	1.23	21	14	16
RRUS-11 RRH	21.9	19.2	9.4	2.93	1.44	1.14	2.33	1.20	1.20	21	10	13
LGP21401 TMA	16.6	4.9	11.2	0.57	1.30	3.37	1.48	1.24	1.20	4	9	8
DBC0061F1V51-2 Diplexer	10.2	8.4	8.7	0.60	0.62	1.21	1.17	1.20	1.20	4	4	4

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	12	6	8
OPA-65R-LCUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	21	12	14
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	17	15	15
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	4	4	4
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	6	3	3
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	2	2
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	1	1	1

Date: 4/8/2019
 Project Name: MILFORD WHEELERS FARM
 Project No.: CT2083
 Designed By: BD Checked By: MSC



WIND LOADS

Angle = 150 (deg)

Ice Thickness = 1.11 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) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	201	107	177
OPA-65R-LCUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	352	201	314
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	296	248	284
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	100	61	90
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	54	61	55
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	100	61	90
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	102	43	87
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	13	39	20
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	15	16	15

WIND LOADS WITH ICE:

7770 Antenna	57.2	13.2	7.2	5.26	2.87	4.33	7.92	1.28	1.43	40	24	36
OPA-65R-LCUU-H6 Antenna	74.2	17.0	9.6	8.78	4.96	4.36	7.71	1.28	1.42	67	42	61
QS66512-2 Antenna	74.2	14.2	11.8	7.34	6.10	5.22	6.27	1.32	1.37	57	49	55
RRUS-32 B2 RRH	29.4	14.3	9.2	2.93	1.89	2.05	3.19	1.20	1.23	21	14	19
RRUS-32 B2 RRH (Shielded)	29.4	7.2	9.2	1.46	1.89	4.11	3.19	1.27	1.23	11	14	12
RRUS-32 RRH	29.4	14.3	9.2	2.93	1.89	2.05	3.19	1.20	1.23	21	14	19
RRUS-11 RRH	21.9	19.2	9.4	2.93	1.44	1.14	2.33	1.20	1.20	21	10	18
LGP21401 TMA	16.6	4.9	11.2	0.57	1.30	3.37	1.48	1.24	1.20	4	9	5
DBC0061F1V51-2 Diplexer	10.2	8.4	8.7	0.60	0.62	1.21	1.17	1.20	1.20	4	4	4

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	12	6	10
OPA-65R-LCUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	21	12	18
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	17	15	17
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	5
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	3	4	3
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	5
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	6	3	5
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	2	1
DBC0061F1V51-2 Diplexer	8.0	6.2	6.5	0.34	0.36	1.29	1.23	1.20	1.20	1	1	1

Date: 4/8/2019

Project Name: MILFORD WHEELERS FARM

Project No.: CT2083

Designed By: BD Checked By: MSC



HUDSON
Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.11 in.
Density of ice: 56 pcf

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: 82 lbs
Weight of object: 35.0 lbs
Combined weight of ice and object: 117 lbs

OPA-65R-LCUU-H6 Antenna

Weight of ice based on total radial SF area:
Height (in): 72.0
Width (in): 14.8
Depth (in): 7.4
Total weight of ice on object: 144 lbs
Weight of object: 73.0 lbs
Combined weight of ice and object: 217 lbs

QS66512-2 Antenna

Weight of ice based on total radial SF area:
Height (in): 72.0
Width (in): 12.0
Depth (in): 9.6
Total weight of ice on object: 134 lbs
Weight of object: 111.0 lbs
Combined weight of ice and object: 245 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: 44 lbs
Weight of object: 51.0 lbs
Combined weight of ice and object: 95 lbs

RRUS-32 RRH

Weight of ice based on total radial SF area:
Height (in): 27.2
Width (in): 12.1
Depth (in): 7.0
Total weight of ice on object: 46 lbs
Weight of object: 60.0 lbs
Combined weight of ice and object: 106 lbs

RRUS-32 B2 RRH

Weight of ice based on total radial SF area:
Height (in): 27.2
Width (in): 12.1
Depth (in): 7.0
Total weight of ice on object: 46 lbs
Weight of object: 60.0 lbs
Combined weight of ice and object: 106 lbs

LGP21401 TMA

Weight of ice based on total radial SF area:
Height (in): 14.4
Width (in): 2.7
Depth (in): 9.0
Total weight of ice on object: 17 lbs
Weight of object: 19.0 lbs
Combined weight of ice and object: 36 lbs

DBC0061F1V51-2 Diplexer

Weight of ice based on total radial SF area:
Height (in): 8.0
Width (in): 6.2
Depth (in): 6.5
Total weight of ice on object: 9 lbs
Weight of object: 26.0 lbs
Combined weight of ice and object: 35 lbs

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: 29 lbs
Weight of object: 33 lbs
Combined weight of ice and object: 62 lbs

L 2x2 Angles

Weight of ice based on total radial SF area:
Height (in): 2
Width (in): 2
Per foot weight of ice on object: 5 plf

2" pipe

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

L 2-1/2x2-1/2 Angles

Weight of ice based on total radial SF area:
Height (in): 2.5
Width (in): 2.5
Per foot weight of ice on object: 6 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: 7 plf

PL 4x1/4

Weight of ice based on total radial SF area:
Height (in): 4
Width (in): 0.25
Per foot weight of ice on object: 7 plf

HSS 3-1/2x3-1/2

Weight of ice based on total radial SF area:
Height (in): 3.5
Width (in): 3.5
Per foot weight of ice on object: 8 plf

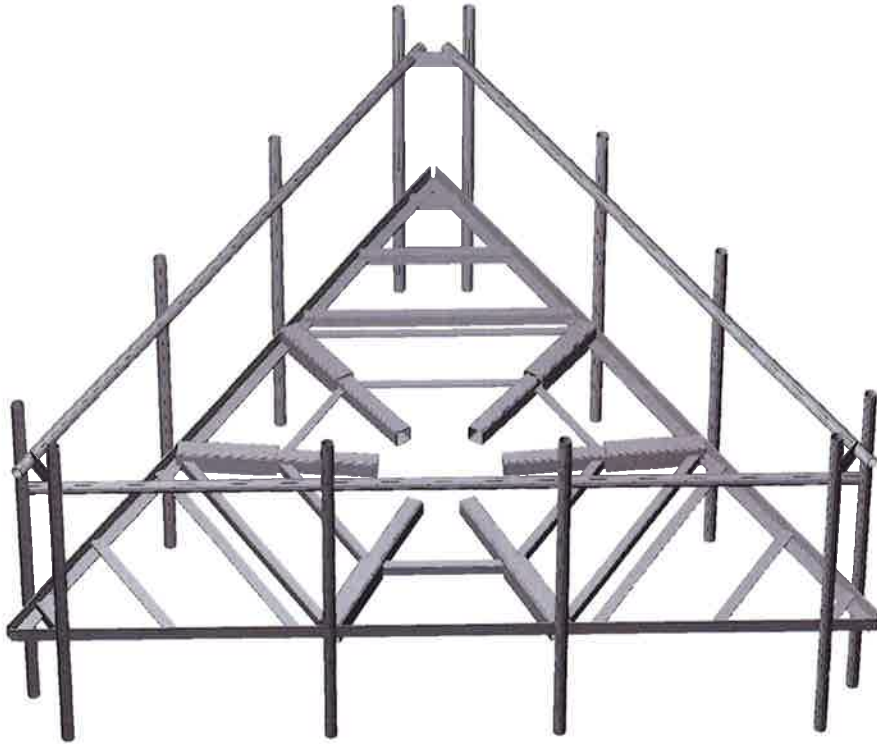
HSS 4-1/2x4-1/2

Weight of ice based on total radial SF area:
Height (in): 4.5
Width (in): 4.5
Per foot weight of ice on object: 10 plf







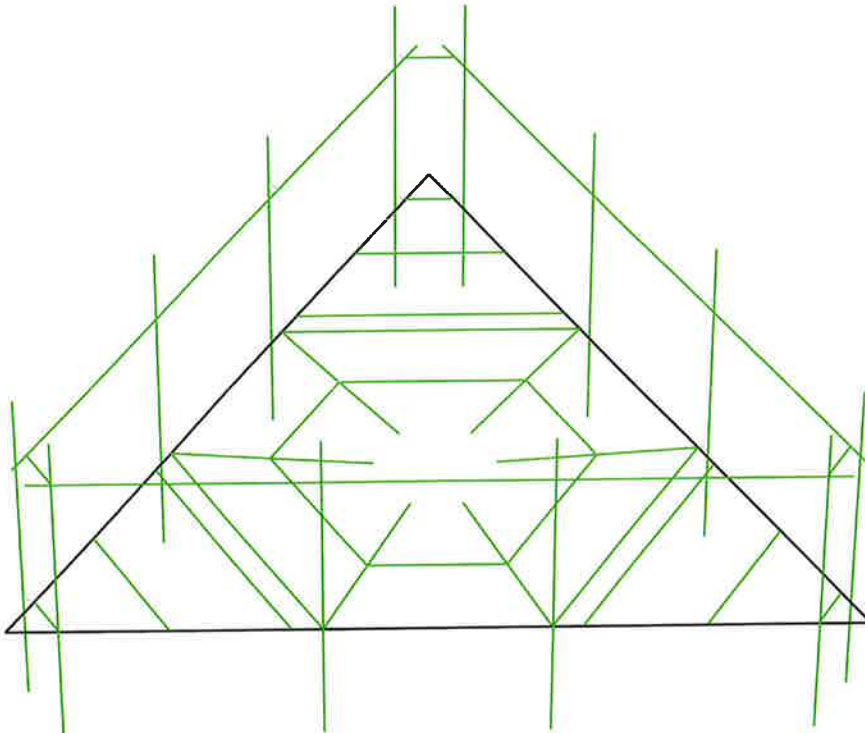
HUDSON
Design Group LLC

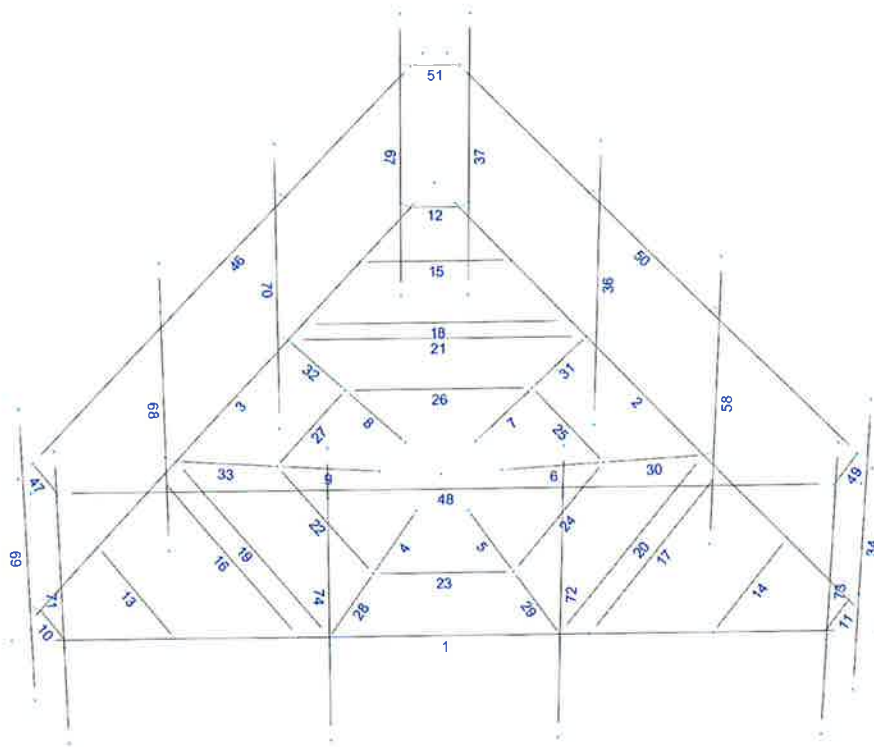
Mount Calculations



Design status

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





Current Date: 4/8/2019 3:58 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2083\Centerline\CT2083 (LTE 3C-4C).etx\

Load data

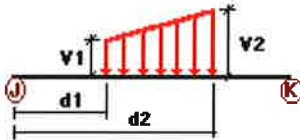
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
W0	Wind Load 0/60/120 deg	No	WIND
W30	Wind Load 30/90/150 deg	No	WIND
Di	Ice Load	No	LL
Wi0	Ice Wind Load 0/60/120 deg	No	WIND
Wi30	Ice Wind Load 30/90/150 deg	No	WIND
WL0	WL 30 mph 0/60/120 deg	No	WIND
WL30	WL 30 mph 30/90/150 deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load 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]	%	
DL	13	Y	-0.01	0.00	0.00	No	0.00	No	
	14	Y	-0.01	0.00	0.00	No	0.00	No	
	15	Y	-0.01	0.00	0.00	No	0.00	No	
	16	Y	-0.01	0.00	0.00	No	0.00	No	
	17	Y	-0.01	0.00	0.00	No	0.00	No	
	18	Y	-0.01	0.00	0.00	No	0.00	No	
	22	Y	-0.01	0.00	0.00	No	0.00	No	
	23	Y	-0.01	0.00	0.00	No	0.00	No	
	24	Y	-0.01	0.00	0.00	No	0.00	No	
	25	Y	-0.01	0.00	0.00	No	0.00	No	
	26	Y	-0.01	0.00	0.00	No	0.00	No	
	27	Y	-0.01	0.00	0.00	No	0.00	No	
	W0	1	Z	-0.018	-0.018	0.00	Yes	100.00	Yes
		2	Z	-0.018	-0.018	0.00	Yes	100.00	Yes
3		Z	-0.018	-0.018	0.00	Yes	100.00	Yes	

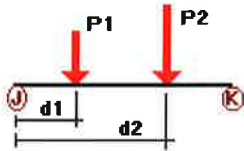
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5	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
6	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
7	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
8	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
9	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
10	Z	-0.015	-0.015	0.00	Yes	100.00	Yes
11	Z	-0.015	-0.015	0.00	Yes	100.00	Yes
12	Z	-0.015	-0.015	0.00	Yes	100.00	Yes
13	Z	-0.015	-0.015	0.00	Yes	100.00	Yes
14	Z	-0.015	-0.015	0.00	Yes	100.00	Yes
15	Z	-0.015	-0.015	0.00	Yes	100.00	Yes
16	Z	-0.015	-0.015	0.00	Yes	100.00	Yes
17	Z	-0.015	-0.015	0.00	Yes	100.00	Yes
18	Z	-0.015	-0.015	0.00	Yes	100.00	Yes
19	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
20	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
21	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
22	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
23	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
24	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
25	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
26	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
27	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
28	Z	-0.017	-0.017	0.00	Yes	100.00	Yes
29	Z	-0.017	-0.017	0.00	Yes	100.00	Yes
30	Z	-0.017	-0.017	0.00	Yes	100.00	Yes
31	Z	-0.017	-0.017	0.00	Yes	100.00	Yes
32	Z	-0.017	-0.017	0.00	Yes	100.00	Yes
33	Z	-0.017	-0.017	0.00	Yes	100.00	Yes
34	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
36	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
37	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
46	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
48	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
50	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
58	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
67	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
68	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
69	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
74	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
70	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
2	X	-0.018	-0.018	0.00	Yes	100.00	Yes
3	X	-0.018	-0.018	0.00	Yes	100.00	Yes
4	X	-0.013	-0.013	0.00	Yes	100.00	Yes
5	X	-0.013	-0.013	0.00	Yes	100.00	Yes
6	X	-0.013	-0.013	0.00	Yes	100.00	Yes
7	X	-0.013	-0.013	0.00	Yes	100.00	Yes
8	X	-0.013	-0.013	0.00	Yes	100.00	Yes
9	X	-0.013	-0.013	0.00	Yes	100.00	Yes
10	X	-0.015	-0.015	0.00	Yes	100.00	Yes
11	X	-0.015	-0.015	0.00	Yes	100.00	Yes
13	X	-0.015	-0.015	0.00	Yes	100.00	Yes
14	X	-0.015	-0.015	0.00	Yes	100.00	Yes
16	X	-0.015	-0.015	0.00	Yes	100.00	Yes
17	X	-0.015	-0.015	0.00	Yes	100.00	Yes
19	X	-0.012	-0.012	0.00	Yes	100.00	Yes
20	X	-0.012	-0.012	0.00	Yes	100.00	Yes
22	X	-0.012	-0.012	0.00	Yes	100.00	Yes
24	X	-0.012	-0.012	0.00	Yes	100.00	Yes

W30

	25	X	-0.012	-0.012	0.00	Yes	100.00	Yes
	27	X	-0.012	-0.012	0.00	Yes	100.00	Yes
	28	X	-0.017	-0.017	0.00	Yes	100.00	Yes
	29	X	-0.017	-0.017	0.00	Yes	100.00	Yes
	30	X	-0.017	-0.017	0.00	Yes	100.00	Yes
	31	X	-0.017	-0.017	0.00	Yes	100.00	Yes
	32	X	-0.017	-0.017	0.00	Yes	100.00	Yes
	33	X	-0.017	-0.017	0.00	Yes	100.00	Yes
	34	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	36	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	37	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	46	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	50	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	58	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	67	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	68	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	69	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	71	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	72	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	73	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	74	X	-0.009	-0.009	0.00	Yes	100.00	Yes
Di	70	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	1	Y	-0.007	-0.007	0.00	Yes	100.00	Yes
	2	Y	-0.007	-0.007	0.00	Yes	100.00	Yes
	3	Y	-0.007	-0.007	0.00	Yes	100.00	Yes
	4	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
	5	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
	6	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
	7	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
	8	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
	9	Y	-0.008	-0.008	0.00	Yes	100.00	Yes
	10	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	11	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	12	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	13	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	14	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	15	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	16	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	17	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	18	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	19	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	20	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	21	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	22	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	23	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	24	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	25	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	26	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	27	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	28	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	29	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	30	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	31	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	32	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	33	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	34	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	36	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	37	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	46	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	47	Y	-0.007	-0.007	0.00	Yes	100.00	Yes

48	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
49	Y	-0.007	-0.007	0.00	Yes	100.00	Yes
50	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
51	Y	-0.007	-0.007	0.00	Yes	100.00	Yes
58	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
67	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
68	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
69	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
71	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
72	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
73	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
74	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
70	Y	-0.005	-0.005	0.00	Yes	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	34	y	-0.056	0.50	No
		y	-0.056	5.50	No
	36	y	-0.037	0.50	No
		y	-0.037	5.50	No
	37	y	-0.06	2.00	No
		y	-0.026	3.50	No
		y	-0.018	0.50	No
		y	-0.018	5.08	No
		y	-0.038	3.00	No
		y	-0.038	3.00	No
	67	y	-0.056	0.50	No
		y	-0.056	5.50	No
	68	y	-0.037	0.50	No
		y	-0.037	5.50	No
	69	y	-0.06	2.00	No
		y	-0.026	3.50	No
		y	-0.018	0.50	No
		y	-0.018	5.08	No
		y	-0.038	3.00	No
		y	-0.038	3.00	No
	71	y	-0.056	0.50	No
		y	-0.056	5.50	No
	72	y	-0.037	0.50	No
		y	-0.037	5.50	No
73	y	-0.06	2.00	No	
	y	-0.026	3.50	No	
	y	-0.018	0.50	No	
	y	-0.018	5.08	No	
	y	-0.038	3.00	No	
	y	-0.038	3.00	No	
W0	34	z	-0.13	0.50	No
		z	-0.13	5.50	No
36	z	-0.12	0.50	No	
	z	-0.12	5.50	No	
37	z	-0.065	0.50	No	

		z	-0.065	5.08	No
67		z	-0.13	0.50	No
		z	-0.13	5.50	No
68		z	-0.12	0.50	No
		z	-0.12	5.50	No
69		z	-0.065	0.50	No
		z	-0.065	5.08	No
71		z	-0.148	0.50	No
		z	-0.148	5.50	No
72		z	-0.176	0.50	No
		z	-0.176	5.50	No
73		z	-0.101	0.50	No
		z	-0.101	5.08	No
W30	34	x	-0.142	0.50	No
		x	-0.142	5.50	No
36		x	-0.157	0.50	No
		x	-0.157	5.50	No
		x	-0.055	2.00	No
		x	-0.015	3.50	No
37		x	-0.089	0.50	No
		x	-0.089	5.08	No
		x	-0.02	3.00	No
67		x	-0.142	0.50	No
		x	-0.142	5.50	No
68		x	-0.157	0.50	No
		x	-0.157	5.50	No
		x	-0.055	2.00	No
		x	-0.015	3.50	No
69		x	-0.089	0.50	No
		x	-0.089	5.08	No
		x	-0.02	3.00	No
71		x	-0.124	0.50	No
		x	-0.124	5.50	No
72		x	-0.101	0.50	No
		x	-0.101	5.50	No
		x	-0.061	2.00	No
		x	-0.016	3.50	No
73		x	-0.054	0.50	No
		x	-0.054	5.08	No
		x	-0.039	3.00	No
Di	34	y	-0.067	0.50	No
		y	-0.067	5.50	No
36		y	-0.072	0.50	No
		y	-0.072	5.50	No
		y	-0.046	2.00	No
		y	-0.009	3.50	No
37		y	-0.041	0.50	No
		y	-0.041	5.08	No
		y	-0.034	3.00	No
67		y	-0.067	0.50	No
		y	-0.067	5.50	No
68		y	-0.072	0.50	No
		y	-0.072	5.50	No
		y	-0.046	2.00	No
		y	-0.009	3.50	No
69		y	-0.041	0.50	No
		y	-0.041	5.08	No
		y	-0.034	3.00	No
71		y	-0.067	0.50	No
		y	-0.067	5.50	No

	72	y	-0.072	0.50	No
		y	-0.072	5.50	No
		y	-0.046	2.00	No
		y	-0.009	3.50	No
	73	y	-0.041	0.50	No
		y	-0.041	5.08	No
		y	-0.034	3.00	No
Wi0	34	z	-0.026	0.50	No
		z	-0.026	5.50	No
	36	z	-0.024	0.50	No
		z	-0.024	5.50	No
	37	z	-0.014	0.50	No
		z	-0.014	5.08	No
	67	z	-0.026	0.50	No
		z	-0.026	5.50	No
	68	z	-0.024	0.50	No
		z	-0.024	5.50	No
	69	z	-0.014	0.50	No
		z	-0.014	5.08	No
	71	z	-0.03	0.50	No
		z	-0.03	5.50	No
	72	z	-0.034	0.50	No
		z	-0.034	5.50	No
	73	z	-0.021	0.50	No
		z	-0.021	5.08	No
Wi30	34	x	-0.028	0.50	No
		x	-0.028	5.50	No
	36	x	-0.031	0.50	No
		x	-0.031	5.50	No
		x	-0.012	2.00	No
		x	-0.004	3.50	No
	37	x	-0.018	0.50	No
		x	-0.018	5.08	No
		x	-0.005	3.00	No
	67	x	-0.028	0.50	No
		x	-0.028	5.50	No
	68	x	-0.031	0.50	No
		x	-0.031	5.50	No
		x	-0.012	2.00	No
		x	-0.004	3.50	No
	69	x	-0.018	0.50	No
		x	-0.018	5.08	No
		x	-0.005	3.00	No
	71	x	-0.025	0.50	No
		x	-0.025	5.50	No
	72	x	-0.021	0.50	No
		x	-0.021	5.50	No
		x	-0.014	2.00	No
		x	-0.004	3.50	No
	73	x	-0.012	0.50	No
		x	-0.012	5.08	No
		x	-0.009	3.00	No
WLO	34	z	-0.008	0.50	No
		z	-0.008	5.50	No
	36	z	-0.007	0.50	No
		z	-0.007	5.50	No
	37	z	-0.004	0.50	No
		z	-0.004	5.08	No
	67	z	-0.008	0.50	No
		z	-0.008	5.50	No

	68	z	-0.007	0.50	No
		z	-0.007	5.50	No
	69	z	-0.004	0.50	No
		z	-0.004	5.08	No
	71	z	-0.009	0.50	No
		z	-0.009	5.50	No
	72	z	-0.011	0.50	No
		z	-0.011	5.50	No
	73	z	-0.006	0.50	No
		z	-0.006	5.08	No
WL30	34	x	-0.009	0.50	No
		x	-0.009	5.50	No
	36	x	-0.009	0.50	No
		x	-0.009	5.50	No
		x	-0.003	2.00	No
		x	-0.001	3.50	No
	37	x	-0.005	0.50	No
		x	-0.005	5.08	No
		x	-0.001	3.00	No
	67	x	-0.009	0.50	No
		x	-0.009	5.50	No
	68	x	-0.009	0.50	No
		x	-0.009	5.50	No
		x	-0.003	2.00	No
		x	-0.001	3.50	No
	69	x	-0.005	0.50	No
		x	-0.005	5.08	No
		x	-0.001	3.00	No
	71	x	-0.008	0.50	No
		x	-0.008	5.50	No
	72	x	-0.006	0.50	No
		x	-0.006	5.50	No
		x	-0.004	2.00	No
		x	-0.001	3.50	No
	73	x	-0.003	0.50	No
		x	-0.003	5.08	No
		x	-0.002	3.00	No
LL1	1	y	-0.25	50.00	Yes
LL2	1	y	-0.25	0.00	No
LLa1	73	y	-0.25	50.00	Yes
LLa2	72	y	-0.25	50.00	Yes
LLa3	71	y	-0.25	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
W0	Wind Load 0/60/120 deg	No	0.00	0.00	0.00
W30	Wind Load 30/90/150 deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wi0	Ice Wind Load 0/60/120 deg	No	0.00	0.00	0.00
Wi30	Ice Wind Load 30/90/150 deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0/60/120 deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30/90/150 deg	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 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. [%]
DL	0.00	0.00	0.00
W0	0.00	0.00	0.00
W30	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
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	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

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

- LC1=1.2DL+W0
- LC2=1.2DL+W30
- LC3=1.2DL-W0
- LC4=1.2DL-W30
- LC5=0.9DL+W0
- LC6=0.9DL+W30
- LC7=0.9DL-W0
- LC8=0.9DL-W30
- LC9=1.2DL+Di+W0
- LC10=1.2DL+Di+W30
- LC11=1.2DL+Di-W0
- LC12=1.2DL+Di-W30
- LC13=1.2DL
- LC15=1.2DL+1.5LL1
- LC16=1.2DL+1.5LL2
- LC17=1.2DL+W0+1.5LLa1
- LC18=1.2DL+W30+1.5LLa1
- LC19=1.2DL-W0+1.5LLa1
- LC20=1.2DL-W30+1.5LLa1
- LC21=1.2DL+W0+1.5LLa2
- LC22=1.2DL+W30+1.5LLa2
- LC23=1.2DL-W0+1.5LLa2
- LC24=1.2DL-W30+1.5LLa2
- LC25=1.2DL+W0+1.5LLa3
- LC26=1.2DL+W30+1.5LLa3
- LC27=1.2DL-W0+1.5LLa3
- LC28=1.2DL-W30+1.5LLa3

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 3-1_2X3-1_2X1_4	4	LC11 at 0.00%	0.43	OK	Eq. H1-1b
		5	LC11 at 0.00%	0.49	OK	Eq. H1-1b
		6	LC12 at 0.00%	0.43	OK	Eq. H1-1b
		7	LC9 at 0.00%	0.49	OK	Eq. H1-1b
		8	LC9 at 0.00%	0.43	OK	Eq. H1-1b
		9	LC10 at 0.00%	0.49	OK	Eq. H1-1b
	HSS_SQR 4-1_2X4-1_2X1_4	28	LC11 at 0.00%	0.12	OK	Eq. H1-1b
		29	LC11 at 0.00%	0.14	OK	Eq. H1-1b
		30	LC4 at 0.00%	0.13	OK	Eq. H1-1b
		31	LC12 at 0.00%	0.14	OK	Eq. H1-1b
		32	LC10 at 0.00%	0.12	OK	Eq. H1-1b
		33	LC10 at 0.00%	0.14	OK	Eq. H1-1b
	L 2-1_2X2-1_2X1_4	10	LC3 at 100.00%	0.19	OK	Eq. H2-1
		11	LC1 at 0.00%	0.22	OK	Sec. F1
		12	LC2 at 0.00%	0.29	OK	Eq. H3-8
		13	LC3 at 0.00%	0.16	OK	Eq. H2-1
		14	LC3 at 100.00%	0.15	OK	Eq. H2-1
		15	LC2 at 0.00%	0.19	OK	Eq. H2-1
		16	LC3 at 0.00%	0.09	OK	Eq. H2-1

	17	LC4 at 0.00%	0.09	OK	Eq. H2-1
	18	LC1 at 0.00%	0.08	OK	Eq. H2-1
L 2X2X1_4	19	LC2 at 0.00%	0.17	OK	Eq. H2-1
	20	LC4 at 100.00%	0.18	OK	Eq. H2-1
	21	LC1 at 0.00%	0.19	OK	Eq. H2-1
	22	LC11 at 100.00%	0.19	OK	Sec. F1
	23	LC10 at 0.00%	0.25	OK	Sec. F1
	24	LC12 at 100.00%	0.19	OK	Sec. F1
	25	LC12 at 0.00%	0.25	OK	Sec. F1
	26	LC10 at 100.00%	0.19	OK	Sec. F1
	27	LC9 at 0.00%	0.25	OK	Sec. F1
L 3X3X3_8	1	LC11 at 36.11%	0.47	With warnings	Eq. H2-1
	2	LC4 at 93.75%	0.47	With warnings	Eq. H2-1
	3	LC2 at 6.25%	0.50	With warnings	Eq. H2-1
PIPE 2x0.154	34	LC2 at 64.58%	0.39	OK	Eq. H1-1b
	36	LC4 at 64.58%	0.64	OK	Eq. H1-1b
	37	LC11 at 64.58%	0.36	OK	Eq. H1-1b
	46	LC11 at 35.00%	0.31	OK	Eq. H1-1b
	48	LC12 at 35.00%	0.31	OK	Eq. H1-1b
	50	LC10 at 35.00%	0.31	OK	Eq. H1-1b
	58	LC2 at 64.58%	0.44	OK	Eq. H1-1b
	67	LC11 at 64.58%	0.38	OK	Eq. H1-1b
	68	LC4 at 64.58%	0.64	OK	Eq. H1-1b
	69	LC12 at 64.58%	0.35	OK	Eq. H1-1b
	70	LC2 at 64.58%	0.48	OK	Eq. H1-1b
	71	LC12 at 64.58%	0.37	OK	Eq. H1-1b
	72	LC1 at 64.58%	0.47	OK	Eq. H1-1b
	73	LC10 at 64.58%	0.36	OK	Eq. H1-1b
	74	LC3 at 64.58%	0.34	OK	Eq. H1-1b
PL 4x1/4	47	LC1 at 0.00%	0.37	OK	Eq. H1-1b
	49	LC3 at 100.00%	0.35	OK	Eq. H1-1b
	51	LC4 at 0.00%	0.46	OK	Eq. H1-1b

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	-1.7915	0.00	0.00	0
2	-2.2726	0.00	0.00	0
3	-1.109	0.00	-1.4846	0
4	-0.4177	0.00	-2.9885	0
5	-4.1971	0.00	0.00	0
6	-0.9957	0.00	-3.9897	0
7	-0.578	0.00	-4.7131	0
8	-5.9291	0.00	0.00	0
9	-2.6438	0.00	-4.1429	0
10	-6.75	0.00	0.00	0
11	-6.3396	0.00	-0.7109	0
12	-1.5348	0.00	-6.0638	0
13	-5.4735	0.00	-2.2109	0
14	-4.5113	0.00	-3.8776	0
15	-4.2707	0.00	-4.2942	0
16	-2.4793	0.00	-7.3971	0
17	-2.2387	0.00	-7.8138	0
18	-1.2765	0.00	-9.4804	0
19	-0.4104	0.00	-10.9804	0
20	0.00	0.00	-11.6913	0
21	1.7915	0.00	0.00	0

22	2.2726	0.00	0.00	0
23	1.109	0.00	-1.4846	0
24	0.4177	0.00	-2.9885	0
25	4.1971	0.00	0.00	0
26	0.9957	0.00	-3.9897	0
27	0.578	0.00	-4.7131	0
28	5.9291	0.00	0.00	0
29	2.6438	0.00	-4.1429	0
30	6.75	0.00	0.00	0
31	6.3396	0.00	-0.7109	0
32	1.5348	0.00	-6.0638	0
33	5.4735	0.00	-2.2109	0
34	4.5113	0.00	-3.8776	0
35	4.2707	0.00	-4.2942	0
36	2.4793	0.00	-7.3971	0
37	2.2387	0.00	-7.8138	0
38	1.2765	0.00	-9.4804	0
39	0.4104	0.00	-10.9804	0
41	2.6524	4.00	-7.4971	0
42	0.5836	4.00	-11.0804	0
43	6.5127	4.00	-0.8109	0
53	2.6524	-2.00	-7.4971	0
54	0.5836	-2.00	-11.0804	0
55	6.5127	-2.00	-0.8109	0
64	-5.9291	3.00	0.00	0
65	-6.3396	3.00	-0.7109	0
66	5.9291	3.00	0.00	0
67	6.3396	3.00	-0.7109	0
68	-0.4104	3.00	-10.9804	0
72	0.4104	3.00	-10.9804	0
73	-6.3396	3.00	0.00	0
74	-6.5448	3.00	-0.3555	0
75	6.3396	3.00	0.00	0
76	6.5448	3.00	-0.3555	0
77	0.2052	3.00	-11.3359	0
78	-0.2052	3.00	-11.3359	0
82	0.00	0.00	-3.8971	0
83	6.5127	3.00	-0.8109	0
84	6.5127	0.00	-0.8109	0
86	2.6524	0.00	-7.4971	0
87	0.5836	3.00	-11.0804	0
88	0.5836	0.00	-11.0804	0
89	2.4792	3.00	-7.3971	0
90	2.6524	3.00	-7.4971	0
92	4.4439	4.00	-4.3942	0
93	4.4439	-2.00	-4.3942	0
95	4.2707	3.00	-4.2942	0
96	4.4439	3.00	-4.3942	0
97	4.4439	0.00	-4.3942	0
130	-4.4439	-2.00	-4.3942	0
131	-6.5127	-2.00	-0.8109	0
132	-0.5836	-2.00	-11.0804	0
133	-2.6524	-2.00	-7.4971	0
134	-4.4439	4.00	-4.3942	0
135	-6.5127	4.00	-0.8109	0
136	-0.5836	4.00	-11.0804	0
137	-2.6524	4.00	-7.4971	0
138	-6.5127	0.00	-0.8109	0
139	-4.4439	0.00	-4.3942	0
140	-6.5127	3.00	-0.8109	0

141	-4.4439	3.00	-4.3942	0
142	-2.6524	3.00	-7.4971	0
143	-2.6524	0.00	-7.4971	0
144	-0.5836	0.00	-11.0804	0
145	-0.5836	3.00	-11.0804	0
146	1.7915	-2.00	0.20	0
147	5.9291	-2.00	0.20	0
148	-5.9291	-2.00	0.20	0
149	-1.7915	-2.00	0.20	0
150	1.7915	4.00	0.20	0
151	5.9291	4.00	0.20	0
152	-5.9291	4.00	0.20	0
153	-1.7915	4.00	0.20	0
154	5.9291	0.00	0.20	0
155	1.7915	0.00	0.20	0
156	5.9291	3.00	0.20	0
157	1.7915	3.00	0.20	0
158	-1.7915	3.00	0.20	0
159	-1.7915	0.00	0.20	0
160	-5.9291	0.00	0.20	0
161	-5.9291	3.00	0.20	0
166	-4.2707	3.00	-4.2942	0
167	-2.4792	3.00	-7.3971	0
168	1.7915	3.00	0.00	0
169	-1.7915	3.00	0.00	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
4	1	1	1	1	1	1
6	1	1	1	1	1	1
7	1	1	1	1	1	1
24	1	1	1	1	1	1
26	1	1	1	1	1	1
27	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	10	30		L 3X3X3_8	A36	0.00	0.00	0.00
2	30	20		L 3X3X3_8	A36	0.00	0.00	0.00
3	20	10		L 3X3X3_8	A36	0.00	0.00	0.00
4	4	3		HSS_SQR 3-1_2X3-1_2...	A36	0.00	0.00	0.00
5	24	23		HSS_SQR 3-1_2X3-1_2...	A36	0.00	0.00	0.00
6	26	29		HSS_SQR 3-1_2X3-1_2...	A36	0.00	0.00	0.00
7	27	32		HSS_SQR 3-1_2X3-1_2...	A36	0.00	0.00	0.00
8	7	12		HSS_SQR 3-1_2X3-1_2...	A36	0.00	0.00	0.00
9	6	9		HSS_SQR 3-1_2X3-1_2...	A36	0.00	0.00	0.00
10	8	11		L 2-1_2X2-1_2X1_4	A36	0.00	0.00	0.00
11	28	31		L 2-1_2X2-1_2X1_4	A36	0.00	0.00	0.00

12	19	39	L 2-1_2X2-1_2X1_4	A36	0.00	0.00	0.00
13	13	5	L 2-1_2X2-1_2X1_4	A36	0.00	0.00	0.00
14	25	33	L 2-1_2X2-1_2X1_4	A36	0.00	0.00	0.00
15	38	18	L 2-1_2X2-1_2X1_4	A36	0.00	0.00	0.00
16	14	2	L 2-1_2X2-1_2X1_4	A36	0.00	0.00	0.00
17	22	34	L 2-1_2X2-1_2X1_4	A36	0.00	0.00	0.00
18	37	17	L 2-1_2X2-1_2X1_4	A36	0.00	0.00	0.00
19	15	1	L 2X2X1_4	A36	0.00	0.00	0.00
20	21	35	L 2X2X1_4	A36	0.00	0.00	0.00
21	36	16	L 2X2X1_4	A36	0.00	0.00	0.00
22	9	3	L 2X2X1_4	A36	0.00	0.00	0.00
23	3	23	L 2X2X1_4	A36	0.00	0.00	0.00
24	23	29	L 2X2X1_4	A36	0.00	0.00	0.00
25	29	32	L 2X2X1_4	A36	0.00	0.00	0.00
26	32	12	L 2X2X1_4	A36	0.00	0.00	0.00
27	12	9	L 2X2X1_4	A36	0.00	0.00	0.00
28	3	1	HSS_SQR 4-1_2X4-1_2...	A36	0.00	0.00	0.00
29	23	21	HSS_SQR 4-1_2X4-1_2...	A36	0.00	0.00	0.00
30	29	35	HSS_SQR 4-1_2X4-1_2...	A36	0.00	0.00	0.00
31	32	36	HSS_SQR 4-1_2X4-1_2...	A36	0.00	0.00	0.00
32	12	16	HSS_SQR 4-1_2X4-1_2...	A36	0.00	0.00	0.00
33	9	15	HSS_SQR 4-1_2X4-1_2...	A36	0.00	0.00	0.00
34	43	55	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
36	41	53	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
37	42	54	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
46	78	74	PIPE 2x0.154	A36	0.00	0.00	0.00
47	64	65	PL 4x1/4	A36	0.00	0.00	0.00
48	73	75	PIPE 2x0.154	A36	0.00	0.00	0.00
49	66	67	PL 4x1/4	A36	0.00	0.00	0.00
50	76	77	PIPE 2x0.154	A36	0.00	0.00	0.00
51	68	72	PL 4x1/4	A36	0.00	0.00	0.00
58	92	93	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
67	136	132	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
68	134	130	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
69	135	131	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
71	152	148	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
72	150	146	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
73	151	147	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
74	153	149	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
70	137	133	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
1	270.00	0	0.00	0.00	0.00
2	270.00	0	0.00	0.00	0.00
3	270.00	0	0.00	0.00	0.00
10	90.00	0	0.00	0.00	0.00
11	90.00	0	0.00	0.00	0.00
12	180.00	0	0.00	0.00	0.00
13	90.00	0	0.00	0.00	0.00
14	90.00	0	0.00	0.00	0.00
15	90.00	0	0.00	0.00	0.00
16	90.00	0	0.00	0.00	0.00
17	90.00	0	0.00	0.00	0.00

18	90.00	0	0.00	0.00	0.00
19	180.00	0	0.00	0.00	0.00
20	180.00	0	0.00	0.00	0.00
21	180.00	0	0.00	0.00	0.00
22	180.00	0	0.00	0.00	0.00
23	180.00	0	0.00	0.00	0.00
24	180.00	0	0.00	0.00	0.00
25	180.00	0	0.00	0.00	0.00
26	180.00	0	0.00	0.00	0.00
27	180.00	0	0.00	0.00	0.00
34	0.00	2	-0.50	0.00	-0.866
36	0.00	2	-0.50	0.00	-0.866
37	0.00	2	-0.50	0.00	-0.866
46	270.00	0	0.00	0.00	0.00
48	270.00	0	0.00	0.00	0.00
50	270.00	0	0.00	0.00	0.00
58	0.00	2	-0.50	0.00	-0.866
67	0.00	2	-0.50	0.00	0.866
68	0.00	2	-0.50	0.00	0.866
69	0.00	2	-0.50	0.00	0.866
70	0.00	2	-0.50	0.00	0.866

PROJECT INFORMATION

SCOPE OF WORK: ITEMS TO BE MOUNTED ON THE MONOPOLE:
 • NEW LOW BAND COMBINERS (DBC0061F1V51-2) (TYP. OF 1 PER SECTOR, TOTAL OF 3).

ITEMS TO BE MOUNTED @ EXISTING EQUIPMENT SHELTER:
 • SWAP DUS WITH 5216 & ADD 2ND XMU.
 • NEW LOW BAND COMBINERS (DBC0061F1V51-2) (TOTAL OF 3) (TO REPLACE EXISTING DIPLEXERS FOR LTE ANTENNA @ POS. 2).
 • NEW AT&T RRUS-E2 (700) (TOTAL OF 3) TO BE INSTALLED ON EXISTING RRU RACK.
 • NEW AT&T RRUS-12 (850) (TOTAL OF 3) TO BE INSTALLED ON EXISTING RRU RACK.
 • NEW SURGE ARRESTORS (ABT-DFDM-ADBH) (TOTAL OF 12) TO BE INSTALLED WITH NEW RRH'S.

SITE ADDRESS: 528 WHEELERS FARM RD.
 MILFORD, CT 06460

LATITUDE: 41.24841° N 41° 14' 54.27" N
 LONGITUDE: 73.07908° W 73° 04' 44.69" W

TYPE OF SITE: MONOPOLE, INDOOR EQUIPMENT

MONOPOLE HEIGHT: 120'± A.G.L
 RAD CENTER: 98'± A.G.L

CURRENT USE: TELECOMMUNICATIONS FACILITY
 PROPOSED USE: TELECOMMUNICATIONS FACILITY



SITE NUMBER: CT2083

SITE NAME: MILFORD WHEELERS FARM

FA CODE: 10035336

PACE ID: MRCTB022765, MRCTB022833

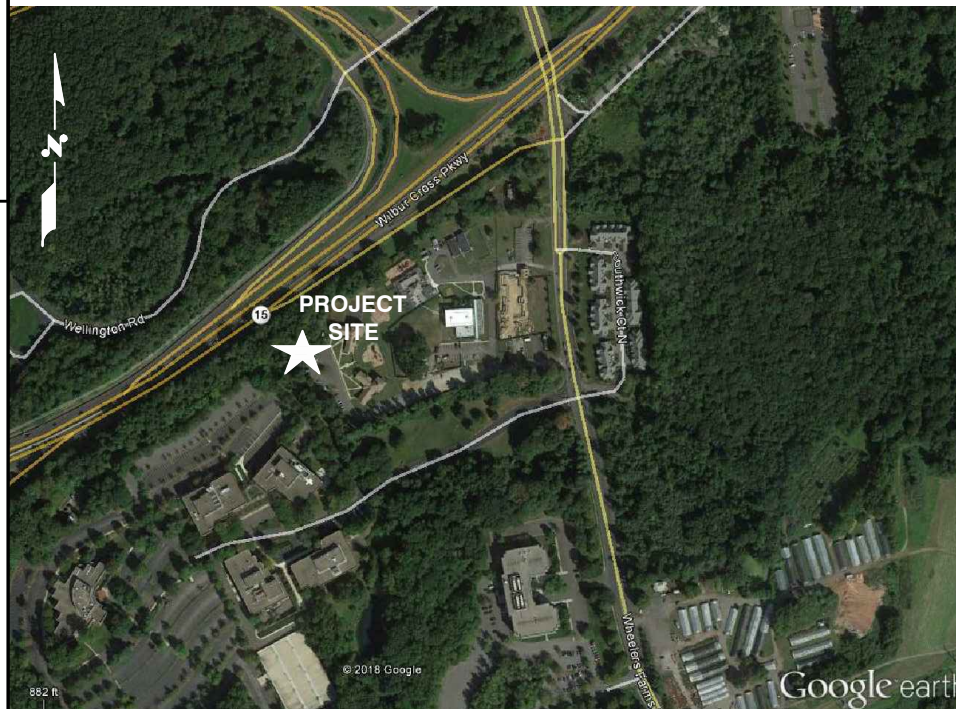
PROJECT: LTE 3C_4C 2018 UPGRADE

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	2
GN-1	GENERAL NOTES	2
A-1	COMPOUND & EQUIPMENT PLANS	2
A-2	ANTENNA PLANS & ELEVATION	2
A-3	DETAILS	2
G-1	GROUNDING DETAILS	2
RF-1	RF PLUMBING DIAGRAM (ALPHA & BETA)	2
RF-2	RF PLUMBING DIAGRAM (GAMMA)	2

VICINITY MAP

DIRECTIONS TO SITE:
 2083 MILFORD WHEELERS FARM MERRITT PARKWAY NORTH. GET OFF AT EXIT 55-A WHEELERS FARM ROAD. TAKE A RIGHT OFF THE EXIT, JUST BEFORE YOU GET TO THE FIRST LIGHT YOU WILL TURN RIGHT INTO BOYS VILLAGE. FOLLOW DRIVEWAY STRAIGHT BACK PAST DUMPSTER TO COMPOUND. IT IS A SHELTER TELCO IS INSIDE . CHARLIE 2033866245 MAIN CONTACT FOR IN BUILDING SYSTEM IN SIKORSKY ADDRESS: 528 WHEELERS FARM ROAD, MILFORD CT 06460 ACCESS: 24/7 COMBO (0043) CONTACT: SPRINT NOC (800) 859-1400 SECURITY: NONEPOWER COMPANY: UNITED ILLUMINATING (800) 722-5584 FIRE: (203) 877-1465 POLICE: (203) 878-5991T-1 CIRCUIT NUMBERS DHPV //931005 DHPV //931006 DHXV //238856 DHXV// 238857 AND HCGS 716959 SNET: (800) 448-1008 AND (203) 420-3131 (24-HR REPAIR) METER 19 917 026 POTS 203 878-6090.



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 OR 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

CROWN CASTLE SITE #: 876320
CROWN CASTLE SITE NAME: 528 WHEELERS FARM RD.

UNDERGROUND SERVICE ALERT

<p>45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845 TEL: (978) 557-5553 FAX: (978) 336-5586</p>	<p>750 WEST CENTER STREET SUITE #301 WEST BRIDGEWATER, MA 02379</p>	<p>SITE NUMBER: CT2083 SITE NAME: MILFORD WHEELERS FARM CCI SITE #876320 528 WHEELERS FARM RD. MILFORD, CT 06460 NEW HAVEN COUNTY</p>	<p>550 COCHITUATE ROAD FRAMINGHAM, MA 01701</p>	2 04/11/19 ISSUED FOR CONSTRUCTION SG AT DPH		<p>AT&T TITLE SHEET (LTE 3C_4C)</p>
				1 02/25/19 ISSUED FOR CONSTRUCTION AM AT DPH		

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		

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

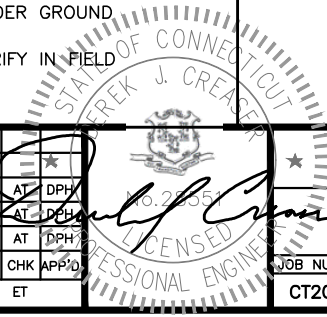
750 WEST CENTER STREET
SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT2083
SITE NAME: MILFORD WHEELERS FARM
CCI SITE #876320
 528 WHEELERS FARM RD.
 MILFORD, CT 06460
 NEW HAVEN COUNTY

550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	04/11/19	ISSUED FOR CONSTRUCTION	SG	AT	DPH
1	02/25/19	ISSUED FOR CONSTRUCTION	AM	AT	DPH
A	02/12/18	ISSUED FOR REVIEW	ET	AT	DPH

SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: ET



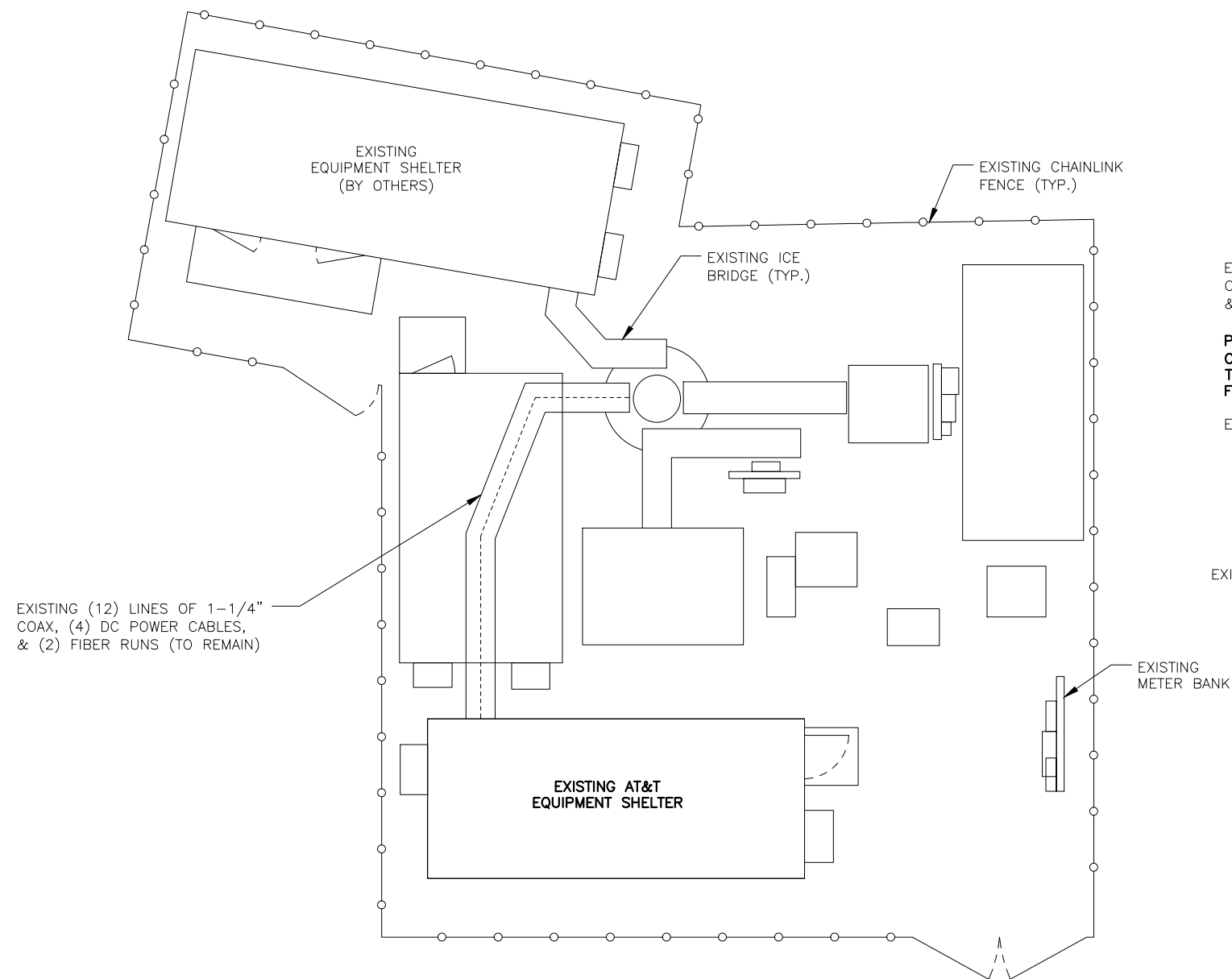
AT&T		
GENERAL NOTES (LTE 3C_4C)		
JOB NUMBER	DRAWING NUMBER	REV
CT2083	GN-1	2

NOTE:
ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL AT&T RF DATA SHEET.

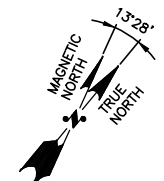
NOTE:
REFER TO STRUCTURAL ANALYSIS BY: TOWER ENGINEERING PROFESSIONALS, DATED: JANUARY 29, 2019 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

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

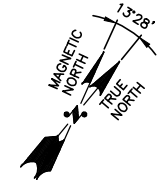
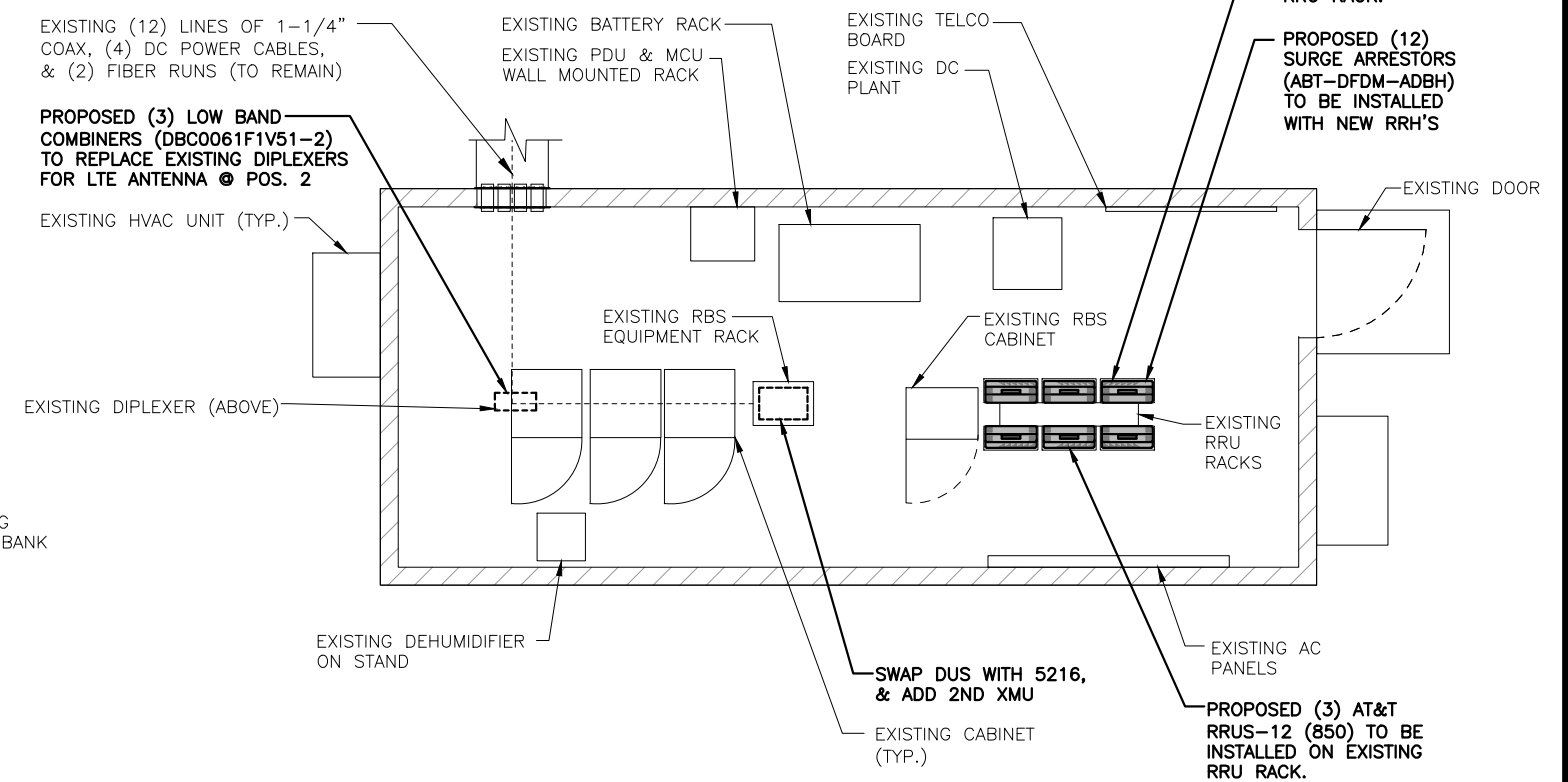
NOTE:
AN ASSESSMENT FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: APRIL 8, 2019 (REV.1)



EXISTING (12) LINES OF 1-1/4" COAX, (4) DC POWER CABLES, & (2) FIBER RUNS (TO REMAIN)



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



EQUIPMENT PLAN
22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"
2 A-1



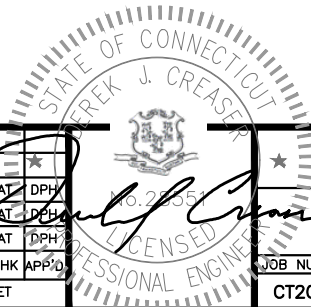
HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

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

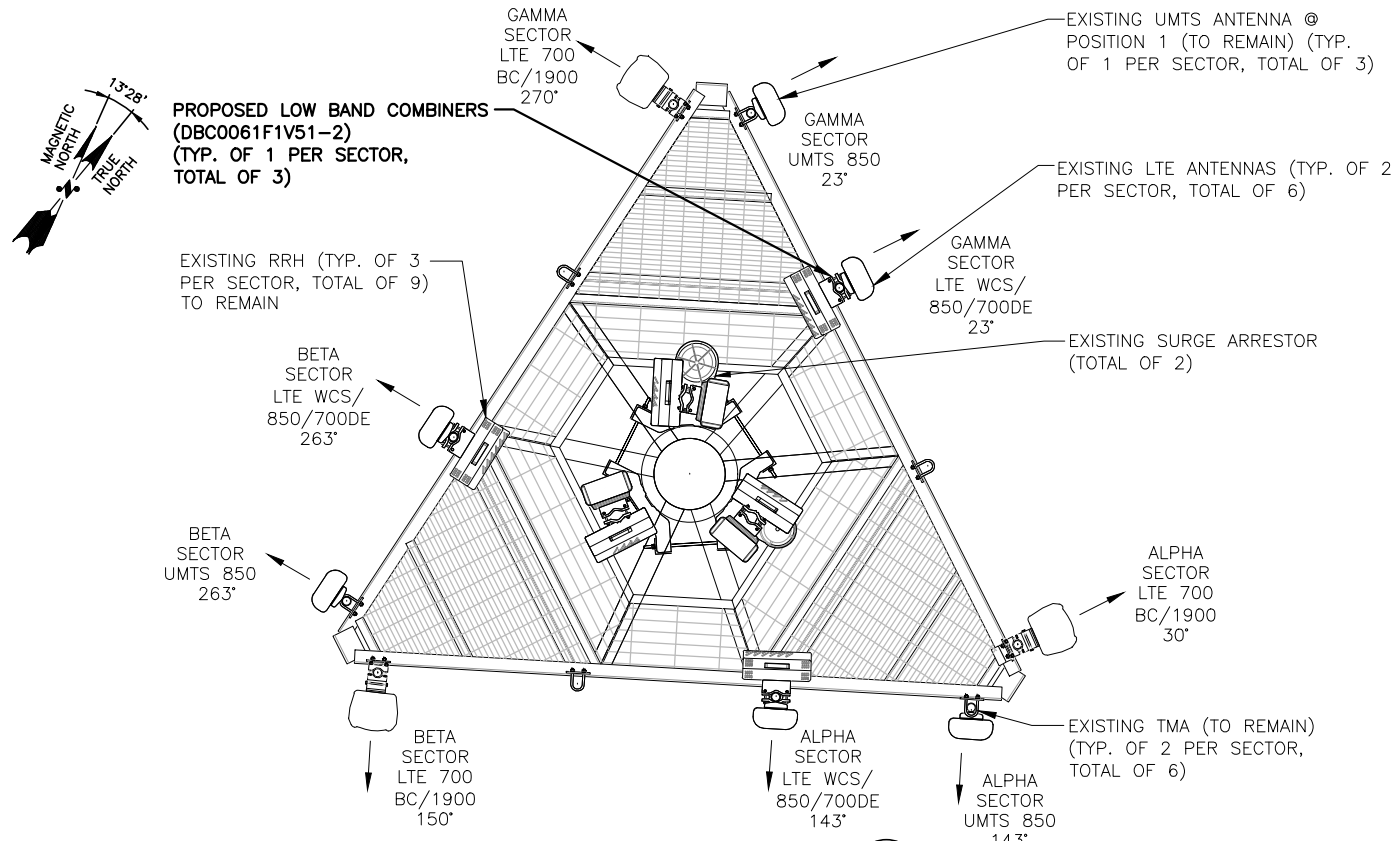
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SITE NAME: MILFORD WHEELERS FARM
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NEW HAVEN COUNTY

at&t
550 COCHITUATE ROAD
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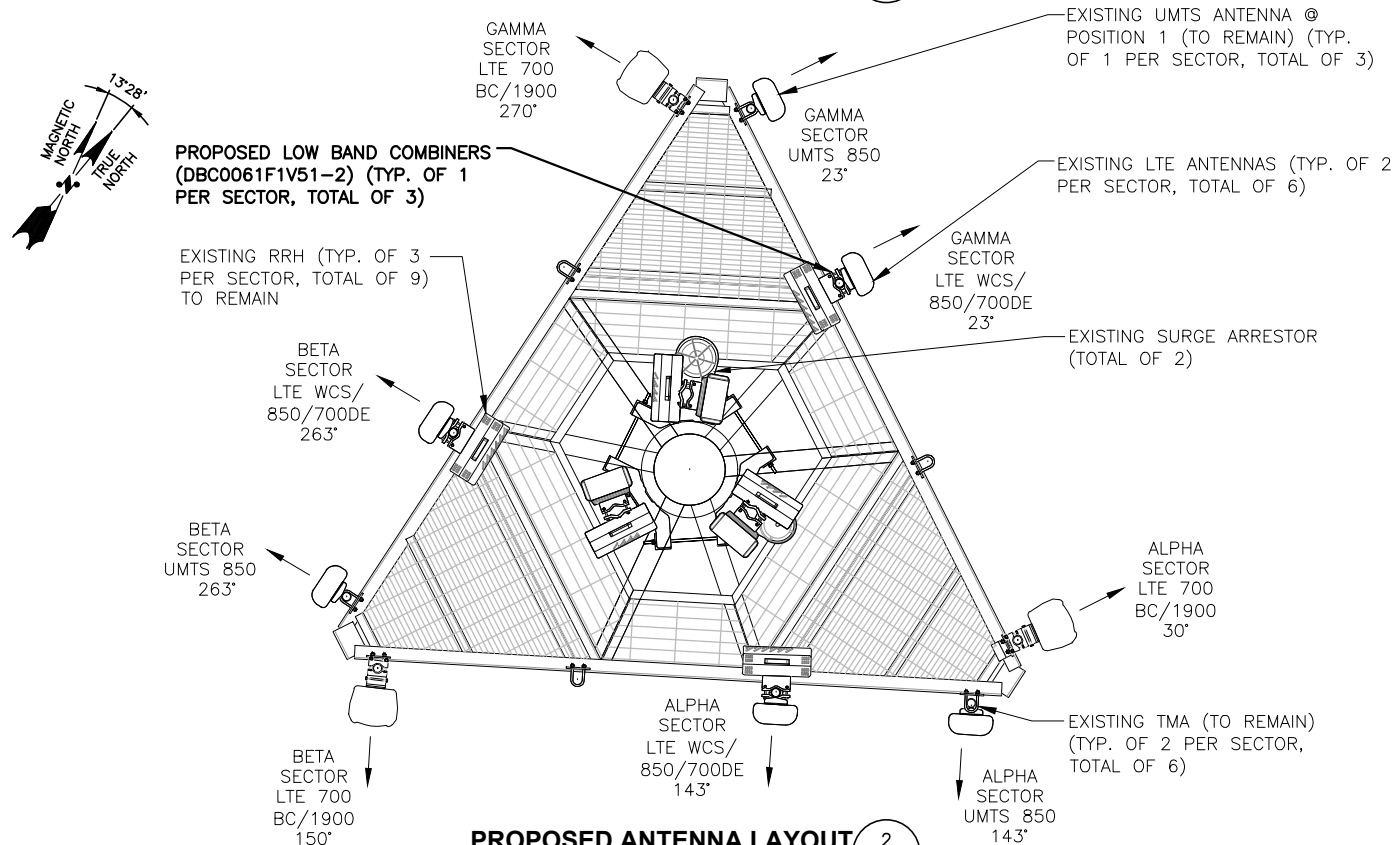
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1	02/25/19	ISSUED FOR CONSTRUCTION	AM	AT	DPH
A	02/12/18	ISSUED FOR REVIEW	ET	AT	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: ET		



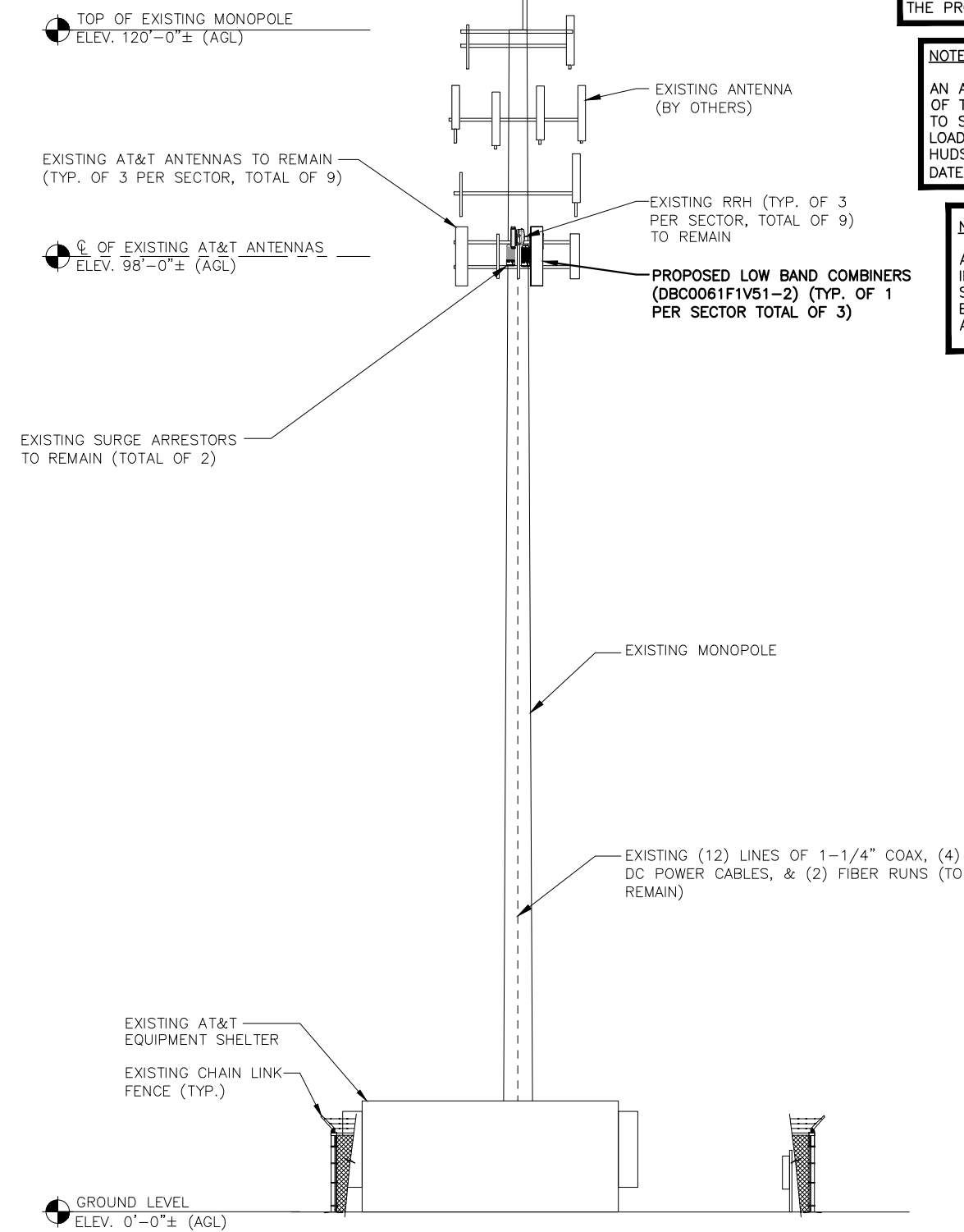
AT&T
COMPOUND AND EQUIPMENT PLAN
(LTE 3C_4C)
JOB NUMBER: CT2083
DRAWING NUMBER: A-1
REV: 2



EXISTING ANTENNA LAYOUT 1
SCALE: N.T.S. A-2



PROPOSED ANTENNA LAYOUT 2
SCALE: N.T.S. A-2



SOUTH ELEVATION 3
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0" A-2

NOTE:
REFER TO STRUCTURAL ANALYSIS BY: TOWER ENGINEERING PROFESSIONALS, DATED: JANUARY 29, 2019 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

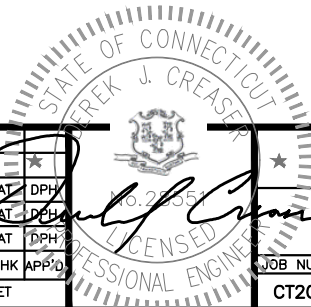
NOTE:
AN ASSESSMENT FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: APRIL 8, 2019 (REV.1)

NOTE:
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NOTE:
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NO.	DATE	REVISIONS	BY	CHK	APP'D
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A	02/12/18	ISSUED FOR REVIEW	ET	AT	DPH

SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: ET



NOTE:
REFER TO STRUCTURAL ANALYSIS BY: TOWER ENGINEERING PROFESSIONALS, DATED: JANUARY 29, 2019 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:
AN ASSESSMENT FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: APRIL 8, 2019 (REV.1)

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

FINAL ANTENNA SCHEDULE											
SECTOR	EXISTING/PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L X W X D)	RAD CENTER	AZIMUTH	TMA/DIPLEXER	RRU	SIZE (INCHES) (L X W X D)	FEEDER	COAX
A1	EXISTING	UMTS 850	7770	55X11X5	98'-0"±	143°	(E)(2) LGP21401	-	-	(2) 1-1/4 COAX (LENGTH 150' ±)	-
A2	EXISTING	LTE WCS/850/700DE	OPA-65R-LCUU-H6	72X14.8X7.4	98'-0"±	143°	(P)(1) DBC0061F1V51-2	(E)(1) RRUS-32 (WCS) (P)(G)(1) RRUS-E2 (700) (P)(G)(1) RRUS-12 (850)	-	(2) 1-1/4 COAX (LENGTH 250' ±)	(E) (1) RAYCAP DC6-48-60-18-8C
A3	-	-	-	-	-	-	-	-	-	-	
A4	EXISTING	LTE 700 BC/1900	QS66512-2	72.0X12.0X9.6	98'-0"±	30°	-	(E)(1) RRUS-11 (700) (E)(1) RRUS-32 B2 (PCS)	-	-	
B1	EXISTING	UMTS 850	7770	55X11X5	98'-0"±	263°	(E)(2) LGP21401	-	-	(2) 1-1/4 COAX (LENGTH 150' ±)	-
B2	EXISTING	LTE WCS/850/700DE	OPA-65R-LCUU-H6	72X14.8X7.4	98'-0"±	263°	(P)(1) DBC0061F1V51-2	(E)(1) RRUS-32 (WCS) (P)(G)(1) RRUS-E2 (700) (P)(G)(1) RRUS-12 (850)	-	(2) 1-1/4 COAX (LENGTH 250' ±)	(E) (1) RAYCAP DC6-48-60-18-8C
B3	-	-	-	-	-	-	-	-	-	-	
B4	EXISTING	LTE 700 BC/1900	QS66512-2	72.0X12.0X9.6	98'-0"±	150°	-	(E)(1) RRUS-11 (700) (E)(1) RRUS-32 B2 (PCS)	-	-	
C1	EXISTING	UMTS 850	7770	55X11X5	98'-0"±	23°	(E)(2) LGP21401	-	-	(2) 1-1/4 COAX (LENGTH 150' ±)	-
C2	EXISTING	LTE WCS/850/700DE	OPA-65R-LCUU-H6	72X14.8X7.4	98'-0"±	23°	(P)(1) DBC0061F1V51-2	(E)(1) RRUS-32 (WCS) (P)(G)(1) RRUS-E2 (700) (P)(G)(1) RRUS-12 (850)	-	(2) 1-1/4 COAX (LENGTH 250' ±)	SHARED
C3	-	-	-	-	-	-	-	-	-	-	
C4	EXISTING	LTE 700 BC/1900	QS66512-2	72.0X12.0X9.6	98'-0"±	270°	-	(E)(1) RRUS-11 (700) (E)(1) RRUS-32 B2 (PCS)	-	-	

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

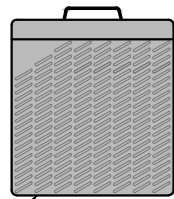
RRU CHART				
QUANTITY	MODEL	L	W	D
6(E)	RRUS-11	19.7"	17.0"	7.2"
6(E)	RRUS-32	27.2"	12.1"	7.0"
3(P)(G)	RRUS-E2	20.4"	18.5"	7.5"
3(P)(G)	RRUS-12	20.4"	18.5"	7.5"

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.

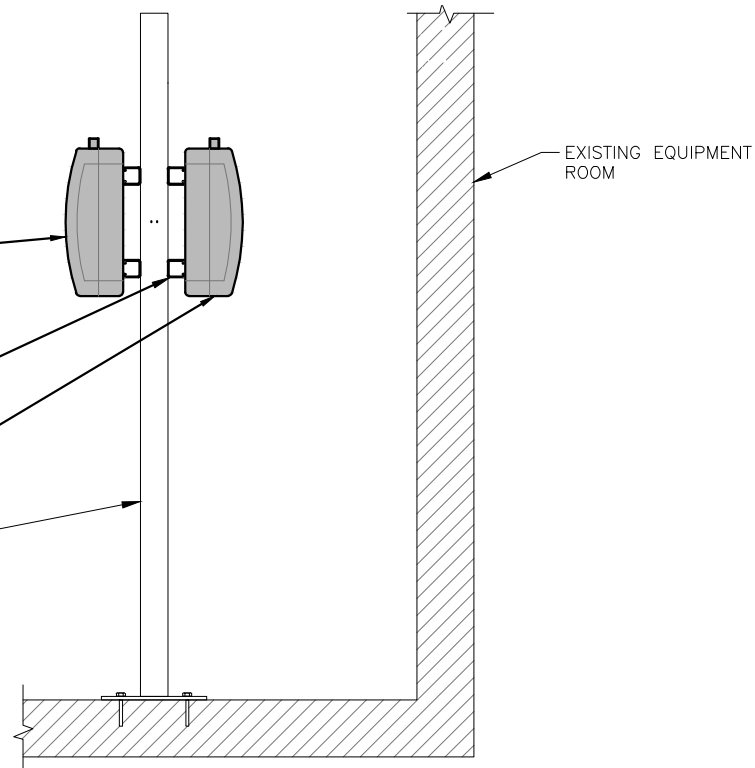


PROPOSED (3) AT&T RRUS-12 (850) TO BE INSTALLED ON EXISTING RRU RACK.

PROPOSED HORIZONTAL P1000 UNISTRUT (TYP.)

PROPOSED (3) AT&T RRUS-E2 (700) TO BE INSTALLED ON EXISTING RRU RACK.

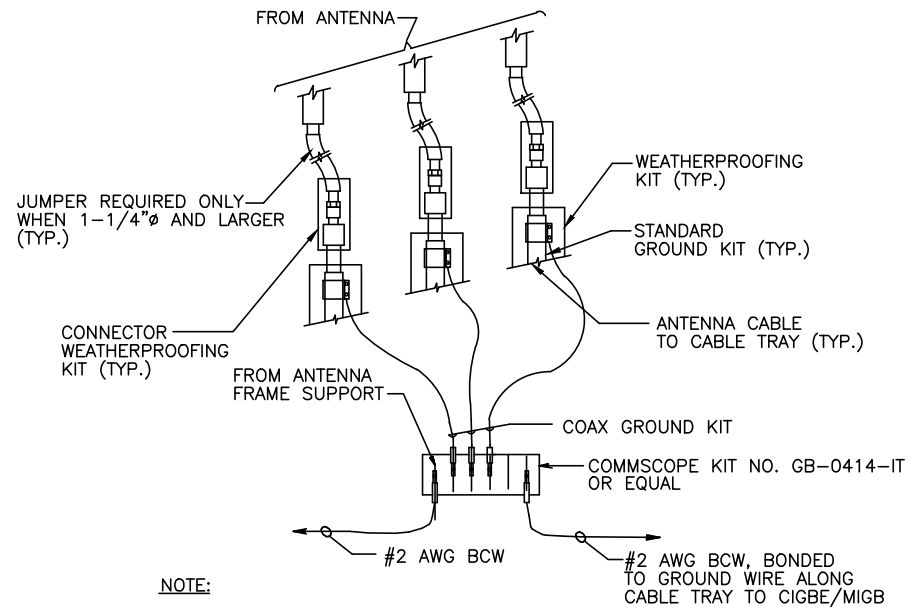
EXISTING EQUIPMENT RACK



PROPOSED RRUS MOUNTING 3
DETAIL ON EXISTING RACK A-3

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

PROPOSED RRUS DETAIL 2
SCALE: N.T.S. A-3

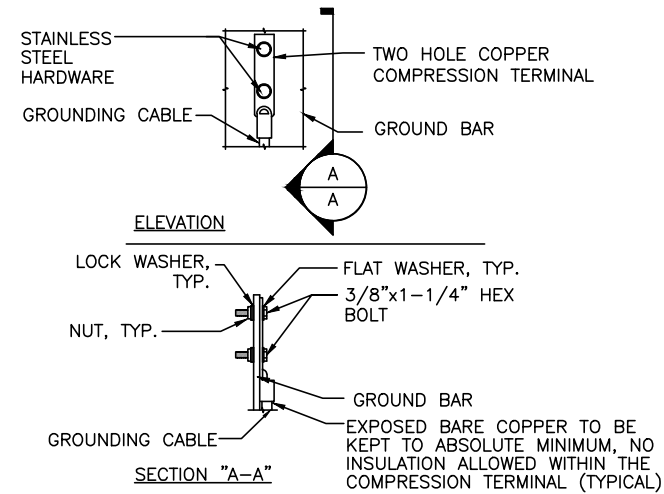


NOTE:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

1
G-1

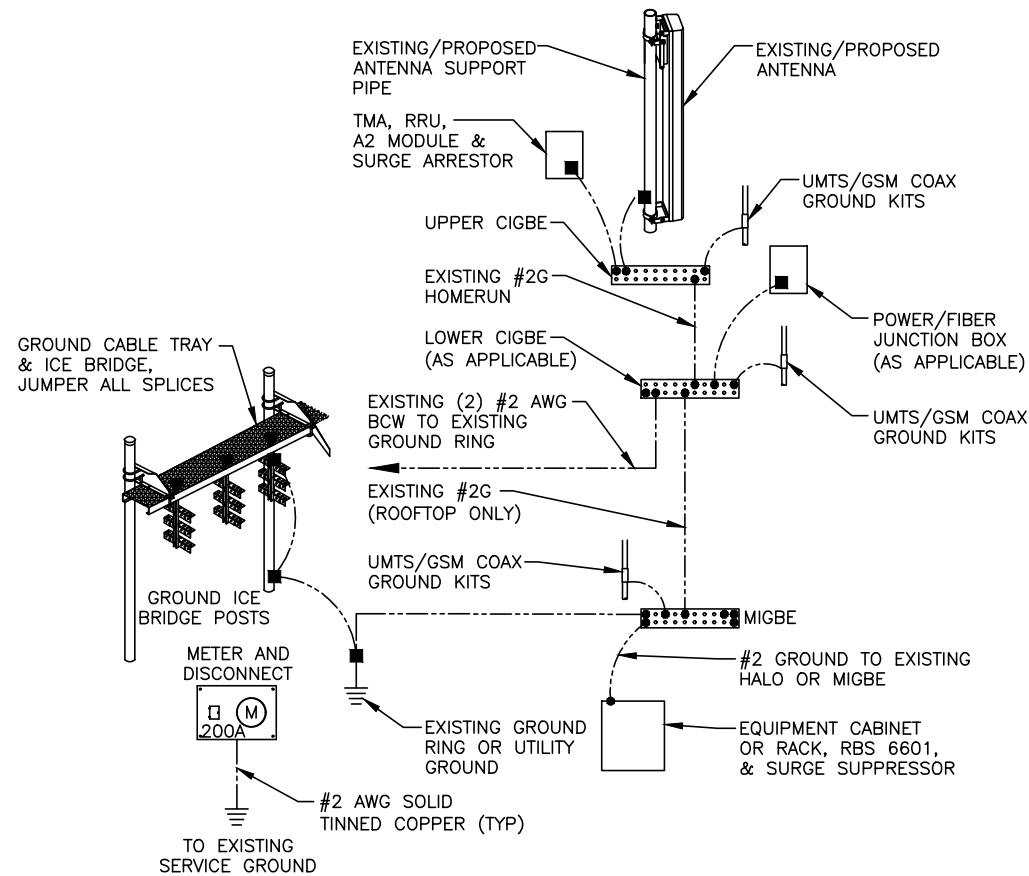


NOTE:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3
G-1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2
G-1

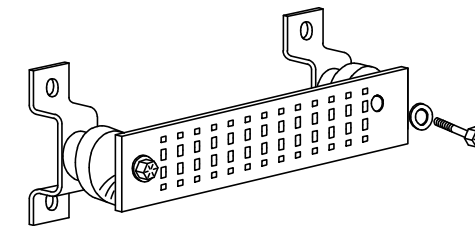
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

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



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



750 WEST CENTER STREET
SUITE #301
WEST BRIDGEWATER, MA 02379

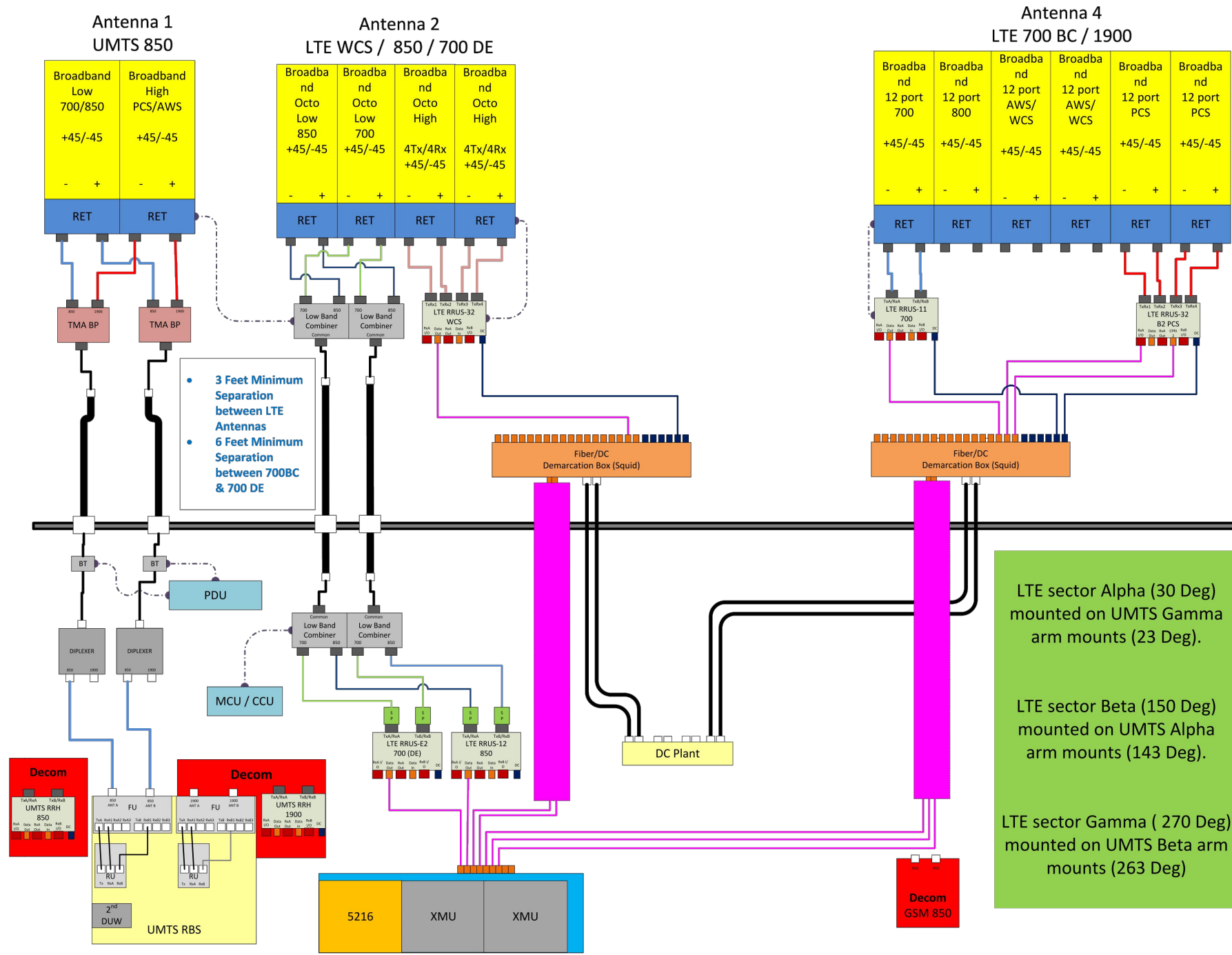
SITE NUMBER: CT2083
SITE NAME: MILFORD WHEELERS FARM
CCI SITE #876320
528 WHEELERS FARM RD.
MILFORD, CT 06460
NEW HAVEN COUNTY



550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

				AT&T	
				GROUNDING DETAILS (LTE 3C_4C)	
NO.	DATE	REVISIONS	BY	CHK	APP'D
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SCALE: AS SHOWN		DESIGNED BY: AT		DRAWN BY: ET	
JOB NUMBER			DRAWING NUMBER		REV
CT2083			G-1		2

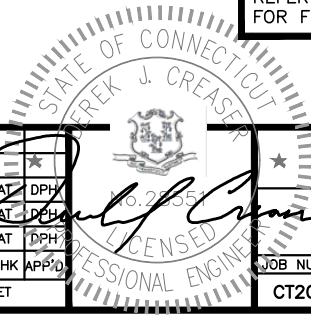
ALPHA & BETA SECTORS



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.

RF PLUMBING DIAGRAM
SCALE: N.T.S.

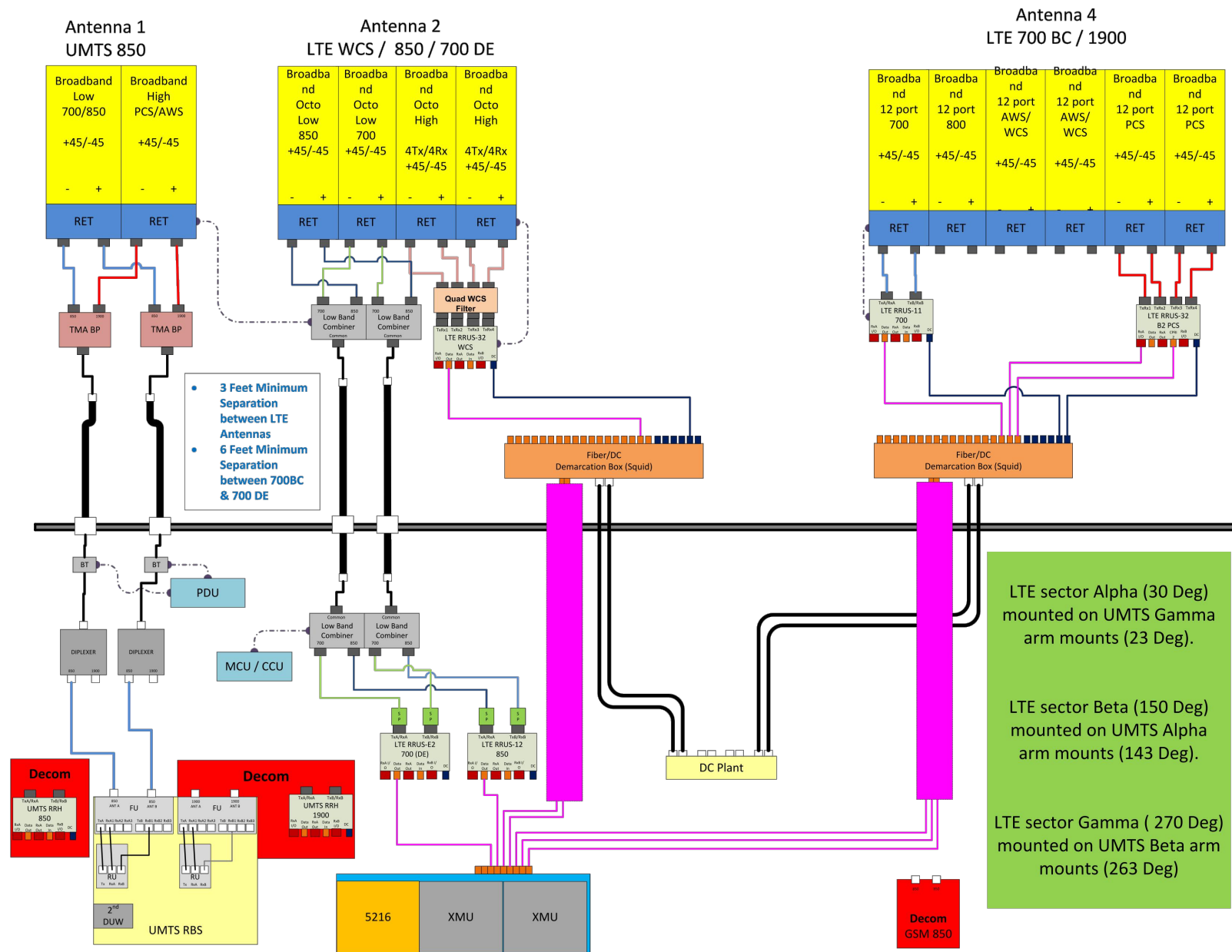


NO.	DATE	REVISIONS	BY	CHK	APP'D
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A	02/12/18	ISSUED FOR REVIEW	ET	AT	DPH

SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: ET

AT&T		
RF PLUMBING DIAGRAM (LTE 3C_4C)		
JOB NUMBER	DRAWING NUMBER	REV
CT2083	RF-1	2

GAMMA SECTOR



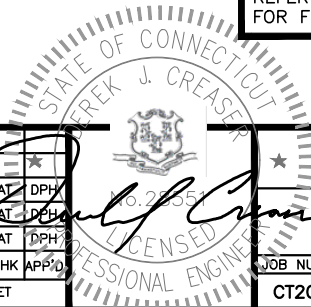
RF PLUMBING DIAGRAM
SCALE: N.T.S.

1
RF-2

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.

2	04/11/19	ISSUED FOR CONSTRUCTION	SG	AT	DPH
1	02/25/19	ISSUED FOR CONSTRUCTION	AM	AT	DPH
A	02/12/18	ISSUED FOR REVIEW	ET	AT	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: ET		



AT&T		
RF PLUMBING DIAGRAM (LTE 3C_4C)		
JOB NUMBER	DRAWING NUMBER	REV
CT2083	RF-2	2