EM-CING-137-140421

VERTICAL DEVELOPMENT

ORIGINAL

20 Commercial St
Branford, CT 06405
Phone: (203) 208-0806
Fax: (203) 488-4820

April 18, 2014

Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051
Attn: Ms. Melanie Bachman, Executive Director

RECEIVED
APR 21 2014
CONNECTICUT
SITING COUNCIL

Re: 7 Broadway Avenue Extension, Stonington, CT

Dear Ms. Bachman,

On behalf of New Cingular Wireless PCS, LLC ("AT&T"), enclosed for filing are an original and two (2) copies of AT&T's Notice of Exempt Modification for Proposed Modifications to an Existing Telecommunications Facility located at the above-referenced site.

I also enclose herewith a check in the amount of $625.00 representing the fee for the Notice of Exempt Modification.

If you have any questions, please feel free to contact me.

Thank you,

By: David Weisman

Name: David Weisman
Vertical Development LLC, an authorized representative of AT&T
Vertical Development LLC
20 Commercial Street
Branford, CT 06405
Phone – 401-743-9011
Fax – 401-633-6202
DWeisman@verticaldevelopmentllc.com

CC: Ed Haberek, Jr., First Selectman
Town of Stonington
Stonington Town Hall
152 Elm St.
Stonington, CT 06378

CC: Planeta Properties
c/o Edward Planeta
4343 Corso Venetia Blvd.
Venice, FL 34293

Notice of Exempt Modification

7 Broadway Avenue Extension, Stonington, CT

New Cingular Wireless PCS, LLC ("AT&T") submits this Notice of Exempt Modification to the Connecticut Siting Council ("Council") pursuant to Sections 16-50j-73 and 16-50j-72(b) of the Regulations of Connecticut State Agencies ("Regulations") in connection with AT&T's planned modification of antennas and associated equipment on an existing 155' water tank located at 7 Broadway Avenue Extension in the Town of Stonington (Mystic). More particularly, AT&T plans to upgrade this site by adding a microwave dish and associated equipment to its facilities. The proposed modifications will not increase the water tank height, extend the boundaries of the site, cause a significant adverse change or alteration in the physical or environmental characteristics of the site, increase noise levels at the site boundary by six (6) decibels, add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the water tank site boundary to or above the standard adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996, as amended, and the State Department of Energy and Environmental Protection, pursuant to Section 22a-162 of the Connecticut General Statutes, or impair the structural integrity of the facility, as determined in a certification provided by a professional engineer licensed in Connecticut.

The 155' water tank located at 7 Broadway Avenue Extension in the Town of Stonington (lat. 41° 20' 58.50", long. 71° 57' 49.50") is owned by Planeta Properties and managed by Message Center Management. It is located on a 4.3 acre parcel. AT&T currently has nine (9) antennas with related appurtenances and transmission lines (three (3) antennas each on three (3) sectors) with a centerline of 140' installed on the water tank. AT&T's base station equipment is located within the fenced compound at the base of the water tank. A site plan depicting this is attached.

AT&T plans to add one (1) Commscope VHLPX4-6W-4WH/B (TR) microwave dish with a centerline of 140'. Connected to this 4' dish will be two (2) TN 6L/2X 143T/64X HP radios, which will be located on a pipe mount next to the microwave dish.

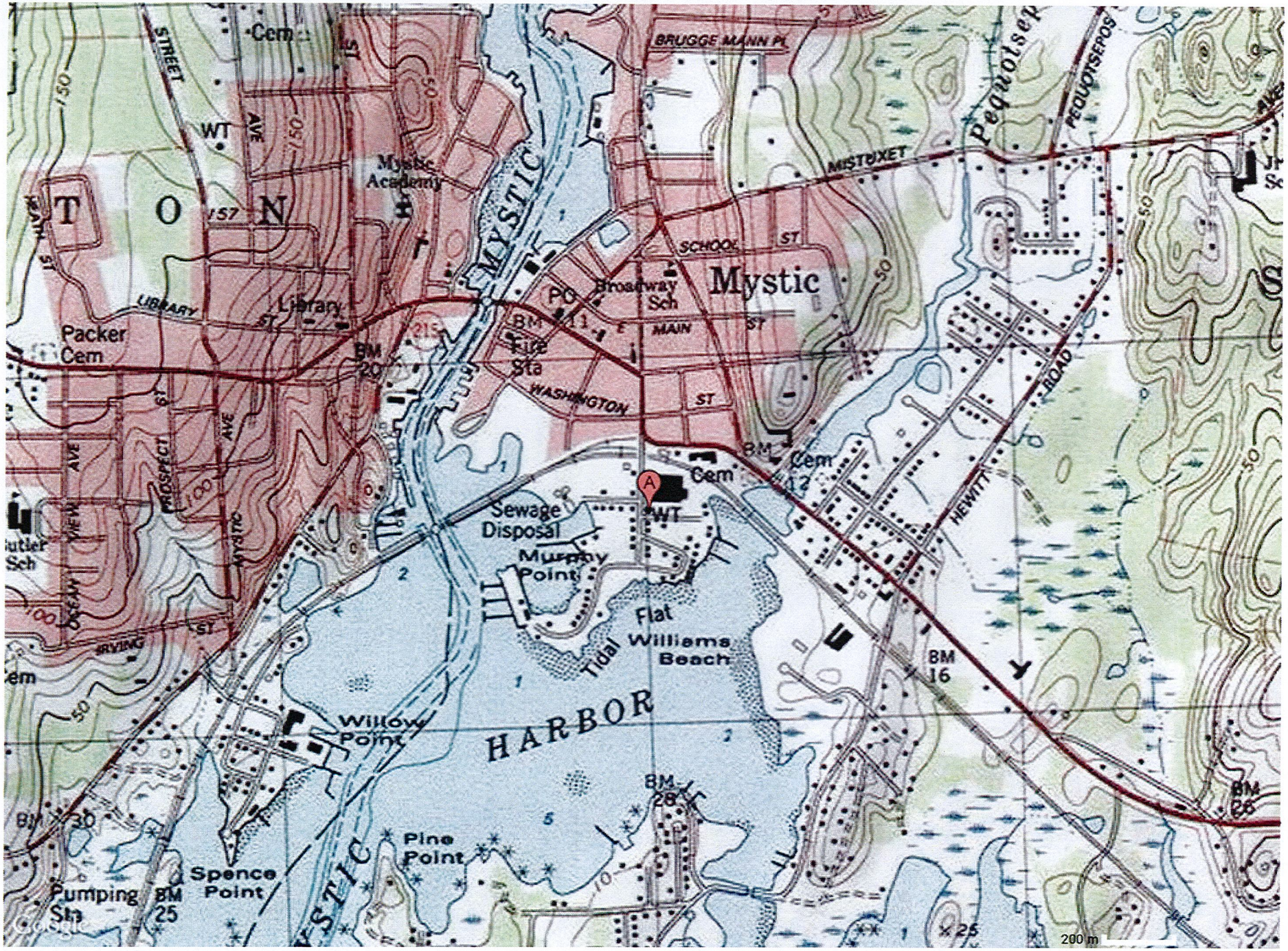
The height of the water tank will not need to be increased. Two (2) 3/8" transmission lines will connect the new equipment on the water tank to a proposed new Purcell cabinet, which will be located on the existing AT&T equipment pad next to the water tank. The compound's boundaries will not need to be extended. The proposed modifications will not cause a significant adverse change or alteration in the physical or environmental characteristics of the site, since it already includes a telecommunications installation and the modifications will be compatible with this. Other than brief, construction-related noise, these modifications will not increase noise levels at the water tank site boundary by six (6) decibels.

The proposed modifications will not add radio frequency sending or receiving capability which increases the total radio frequency electromagnetic radiation power density measured at the water tank site boundary to or above the standard adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996, as amended, and the State Department of Energy and Environmental Protection, pursuant to Section 22a-162 of the Connecticut General Statutes. A radio frequency emissions analysis prepared by Site Safe indicates that the proposed final configuration (including other carriers on the water tank) will emit less than 5% of the allowable FCC established general public limit sampled at the ground level (see Page 2 (the 3rd page) of Site Compliance Report, April 16, 2014).

The proposed modifications will not impair the structural integrity of the facility. AT&T commissioned Infinigy Engineering to perform a Watertank Mount Evaluation to verify that it can support the proposed loading. The Mount Usage Ratio was found to be 5.1% and the tank and pipe mount were deemed to be adequate to support the existing and the proposed loading (see the first page of Watertank Mount Evaluation, January 27, 2014).

In conclusion, AT&T's proposed modifications do not constitute a modification subject to the Council's review because AT&T will not change the height of the water tank, will not extend the boundaries of the compound, will not cause a significant adverse change or alteration in the physical or environmental characteristics of the site, will not increase the noise levels at the site, will not increase the total radio frequency electromagnetic radiation power density at the site to levels above applicable standards,

and will not impair the structural integrity of the facility. Therefore, AT&T respectfully requests that the Council acknowledge that this Notice of Exempt Modification meets the Council's exemption criteria.


BRUGGE MANN PL
Pequotsep
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AVE
Mystic Academy
T O N
MYSTIC
SCHOOL ST
Broadway Sch
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Mystic
MAIN ST
LIBRARY ST
Library
Packer Cem
BM 20
Fire Sta
WASHINGTON ST
ROAD
HEWITT
BM
Cem
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WT
Sewage Disposal
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Tidal
Williams Beach
BM 16
HARBOR
Willow Point
BM 28
Pine Point
Spence Point
Pumping Sta
BM 25
BM 30
Google
200 m


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Edgemont St
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Broadway Avenue Extension
Broadway Avenue Extension
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Stafford St
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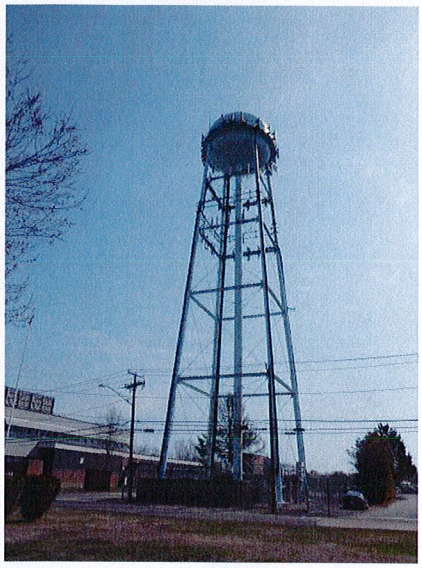
sitesafe
rf compliance experts

200 North Glebe Road, Suite 1000, Arlington, VA 22203-3728
703.276.1100 • 703.276.1169 fax
info@sitesafe.com • www.sitesafe.com



General Dynamics on behalf of AT&T Mobility LLC
Site FA –10035098
Site ID –CT2177
USID –26747
Site Name – Mystic Water Tank - Site CT-2177
Site Compliance Report

7 Broadway Avenue
Mystic, CT 06355

Site visit date: April 14, 2013
Site visit time: 10:30 AM
Site survey by: Scott Gagnon

Latitude: N41-20-58.14
Longitude: W71-57-49.81
Structure Type: Water Tank

Report generated date: April 15, 2014
Report by: Scott Hoy
Customer Contact: Donna Love

AT&T Mobility LLC Will Be Compliant Based on FCC Rules and Regulations.

STATE OF CONNECTICUT
DAVID C. COTTON, JR.
NO. 27481
LICENSED
PROFESSIONAL ENGINEER

David C. Cotton, Jr.
Licensed Professional Engineer (Electrical)
State of Connecticut, PEN.0027481
Date: 2014-April-16

Table of Contents

1 General Site Summary

1.1 Climate Conditions

The weather conditions during our site visit were Sunny. The temperature was 55 degrees Fahrenheit.

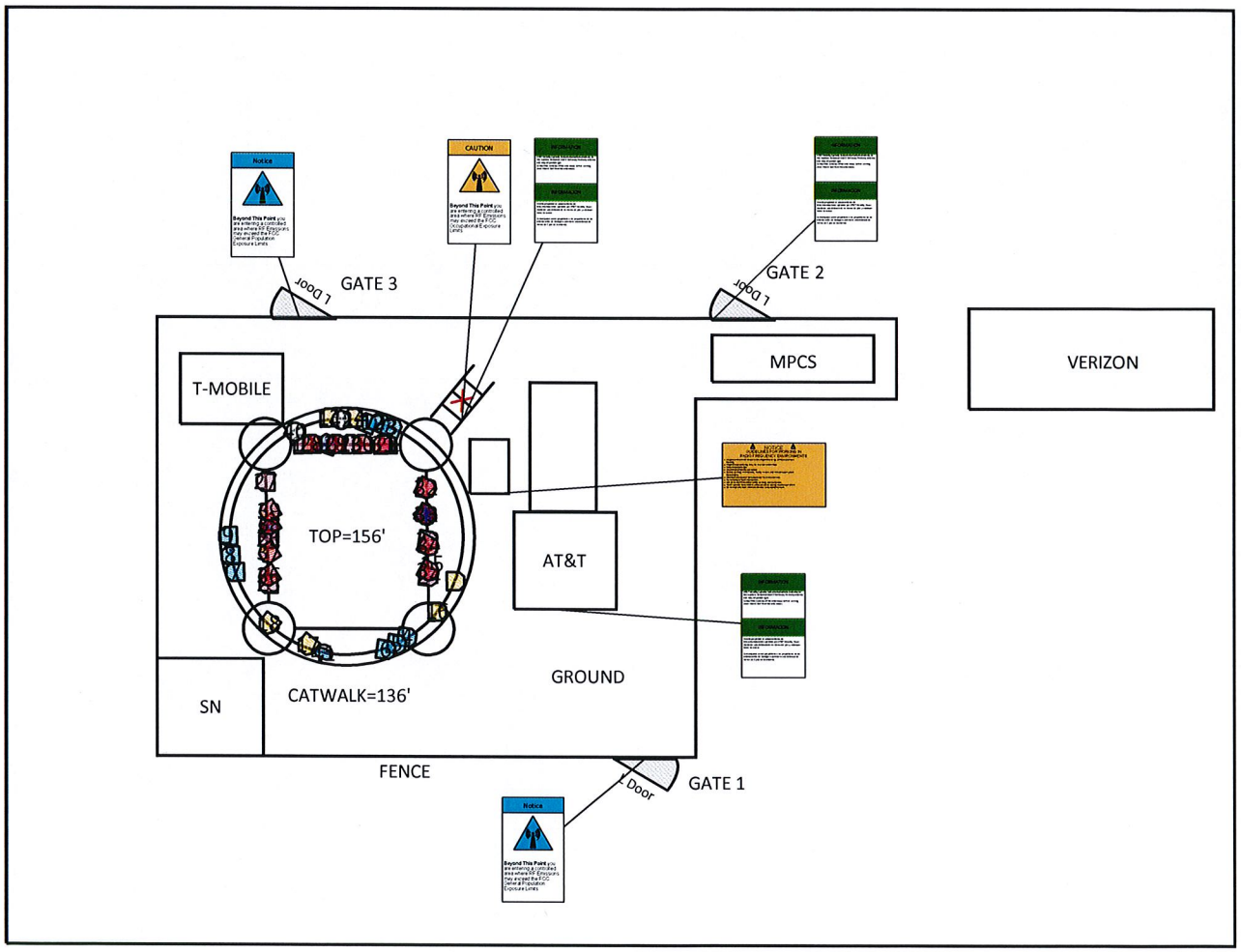
1.2 Access Information

Site access was locked or restricted at the time of the site visit. RF Advisory signage was posted at all site access points.

1.3 Report Summary

General Dynamics	Summary
Access to Antennas Locked?	Yes
RF Sign(s) @ access point(s)	Yes
RF Sign(s) @ antennas	No
Barrier(s) @ sectors	No
Max cumulative measured MPE Level on the Ground	<5% General Public Limit
Max cumulative simulated MPE level on Catwalk	1,302.7% of General Public MPE limit
FCC & AT&T Compliant?	Yes

Site Map For: Mystic Broadway Water Tank – Site CT-2177



(Feet)

0 12.5 25

www.sitesafe.com

Site Name:Mystic Broadway Water Tank – Site

>= 5000	>= 500	>= 100	>= 5	< 5

AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	SPRINT-NEXTEL	METROPCS	CRICKET COMMUNICATIONS	CLEARWIRE

3 Antenna Inventory

The following antenna inventory and representative photographs, on this and the following page, were obtained or verified during the site visit and were utilized to create the site model diagrams:

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Ant Gain (dBd)	2G GSM Radio(s)	3G UMTS Radio(s)	4G Radio(s)	Total ERP (Watts)	X	Y	Z
1	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	23	82	4.6	11.51	0	1	0	306.2	93.6'	147.8'	137.7'
1	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	23	86	4.6	13.41	0	1	0	366.4	93.6'	147.8'	137.7'
2	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	737	23	67	4	11.66	0	0	1	812.8	95.1'	147.8'	138'
3	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	23	86	4.6	13.41	2	0	0	816.6	96.5'	147.3'	137.7'
4	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	100	82	4.6	11.51	0	1	0	304.1	98.2'	123.4'	137.7'
4	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	100	86	4.6	13.41	0	1	0	383.7	98.2'	123.4'	137.7'
5	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	737	100	67	4	11.66	0	0	1	812.8	97'	122.6'	138'
6	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	100	86	4.6	13.41	2	0	0	1213.6	95.8'	122'	137.7'
7	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	270	82	4.6	11.51	0	1	0	295.1	78.4'	130.8'	137.7'
7	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	270	86	4.6	13.41	0	1	0	388.2	78.4'	130.8'	137.7'
8	AT&T MOBILITY LLC	KMW AM-X-CD-14-65-00T	Panel	737	270	67	4	11.66	0	0	1	812.8	77.9'	132.6'	138'
9	AT&T MOBILITY LLC	Powerwave 7770	Panel	1900	270	86	4.6	13.41	2	0	0	1197	77.6'	134.9'	137.7'
10	METROPCS	Generic 4 Ft./65 Deg.	Panel	2130	20	65	4.6	15.23	-	-	-	2000.6	89'	145.4'	107.7'
11	METROPCS	Generic 4 Ft./65 Deg.	Panel	2130	140	65	4.6	15.23	-	-	-	2000.6	100.4'	137.4'	107.7'
12	METROPCS	Generic 4 Ft./65 Deg.	Panel	2130	270	65	4.6	15.23	-	-	-	2000.6	82.4'	135.5'	107.7'
13	SPRINT-NEXTEL	Generic 4 Ft./65 Deg.	Panel	1900	0	65	4.6	15.43	-	-	-	1047.4	89.3'	148.4'	137.7'
14	SPRINT-NEXTEL	Generic 4 Ft./65 Deg.	Panel	1900	0	65	4.6	15.43	-	-	-	1047.4	92.1'	148.4'	137.7'
15	SPRINT-NEXTEL	Generic 4 Ft./65 Deg.	Panel	1900	90	65	4.6	15.43	-	-	-	1047.4	103.8'	129.8'	137.7'
16	SPRINT-NEXTEL	Generic 4 Ft./65 Deg.	Panel	1900	90	65	4.6	15.43	-	-	-	1047.4	101.7'	126.3'	137.7'
17	SPRINT-NEXTEL	Generic 4 Ft./65 Deg.	Panel	1900	220	65	4.6	15.43	-	-	-	1047.4	86.8'	122.5'	137.7'
18	SPRINT-NEXTEL	Generic 4 Ft./65 Deg.	Panel	1900	220	65	4.6	15.43	-	-	-	1047.4	82.3'	124.9'	137.7'
19	T-MOBILE	Generic 4 Ft./65 Deg.	Panel	1900	0	65	4.6	15.43	-	-	-	1396.6	86.3'	145.4'	120.7'
20	T-MOBILE	Generic 4 Ft./65 Deg.	Panel	2100	0	65	4.6	15.23	-	-	-	1333.7	91.8'	145.4'	120.7'
21	T-MOBILE	Generic 4 Ft./65 Deg.	Panel	1900	0	65	4.6	15.43	-	-	-	1396.6	96'	145.4'	120.7'
22	T-MOBILE	Generic 4 Ft./65 Deg.	Panel	1900	100	65	4.6	15.43	-	-	-	1396.6	100.4'	140.4'	120.7'
23	T-MOBILE	Generic 4 Ft./65 Deg.	Panel	2100	100	65	4.6	15.23	-	-	-	1333.7	100.7'	134.5'	120.7'
24	T-MOBILE	Generic 4 Ft./65 Deg.	Panel	1900	100	65	4.6	15.43	-	-	-	1396.6	100.7'	130.3'	120.7'
25	T-MOBILE	Generic 4 Ft./65 Deg.	Panel	1900	270	65	4.6	15.43	-	-	-	1396.6	82.3'	129.4'	120.7'
26	T-MOBILE	Generic 4 Ft./65 Deg.	Panel	2100	270	65	4.6	15.23	-	-	-	1333.7	82.2'	134.5'	120.7'
27	T-MOBILE	Generic 4 Ft./65 Deg.	Panel	1900	270	65	4.6	15.43	-	-	-	1396.6	81.9'	141'	120.7'
28	VERIZON WIRELESS	Generic 4 Ft./65 Deg.	Panel	850	0	65	4.6	12.77	-	-	-	756.9	87.3'	145.4'	93.7'

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Ant Gain (dBd)	2G GSM Radio(s)	3G UMTS Radio(s)	4G Radio(s)	Total ERP (Watts)	X	Y	Z
29	VERIZON WIRELESS	Generic 4 Ft./65 Deg.	Panel	751	0	65	4.6	12.14	-	-	-	982.1	90.1'	145.4'	93.7'
30	VERIZON WIRELESS	Generic 4 Ft./65 Deg.	Panel	1900	0	65	4.6	15.43	-	-	-	2094.8	93.1'	145.4'	93.7'
31	VERIZON WIRELESS	Generic 4 Ft./65 Deg.	Panel	850	0	65	4.6	12.77	-	-	-	756.9	95.5'	145.4'	93.7'
32	VERIZON WIRELESS	Generic 4 Ft./65 Deg.	Panel	850	120	65	4.6	12.77	-	-	-	756.9	100.4'	140.4'	93.7'
33	VERIZON WIRELESS	Generic 4 Ft./65 Deg.	Panel	751	120	65	4.6	12.14	-	-	-	982.1	100.4'	137.4'	93.7'
34	VERIZON WIRELESS	Generic 4 Ft./65 Deg.	Panel	1900	120	65	4.6	15.43	-	-	-	2094.8	100.7'	133.8'	93.7'
35	VERIZON WIRELESS	Generic 4 Ft./65 Deg.	Panel	850	120	65	4.6	12.77	-	-	-	756.9	100.7'	131'	93.7'
36	VERIZON WIRELESS	Generic 4 Ft./65 Deg.	Panel	850	240	65	4.6	12.77	-	-	-	756.9	82.3'	130.3'	93.7'
37	VERIZON WIRELESS	Generic 4 Ft./65 Deg.	Panel	751	240	65	4.6	12.14	-	-	-	982.1	82.3'	133'	93.7'
38	VERIZON WIRELESS	Generic 4 Ft./65 Deg.	Panel	1900	240	65	4.6	15.43	-	-	-	2094.8	82.4'	136.2'	93.7'
39	VERIZON WIRELESS	Generic 4 Ft./65 Deg.	Panel	850	240	65	4.6	12.77	-	-	-	756.9	82.4'	137.7'	93.7'
40	UNKNOWN	Generic 450 MHz/9 Ft. Omni	Omni	450	0	360	9.5	5.97	-	-	-	100	85.3'	146.8'	142.3'
41	AT&T MOBILITY LLC (Proposed)	Andrew VHPLX-6W-4WH	Aperture	6004	203.29	2	4	32.86	0	0	0	1216.5	88.6'	121.5'	140'
42	UNKNOWN	Generic 800 MHz/14Ft. Omni	Omni	850	0	360	14	9.97	-	-	-	100	90.7'	148.2'	139'

NOTE: X, Y and Z indicate relative position of the antenna to the origin location on the site, displayed in the model results diagram. Specifically, the Z reference indicates the bottom of the antenna height above the main site level unless otherwise indicated. Effective Radiated Power (ERP) is provided by the operator or based on Sitesafe experience. The values used in the modeling may be greater than are currently deployed. For other operators at this site the use of "Generic" as an antenna model or "Unknown" for a wireless operator means the information with regard to operator, their FCC license and/or antenna information was not available nor could it be secured while on site. Other operator's equipment, antenna models and powers used for modeling are based on obtained information or Sitesafe experience.

3.1 Site Photographs

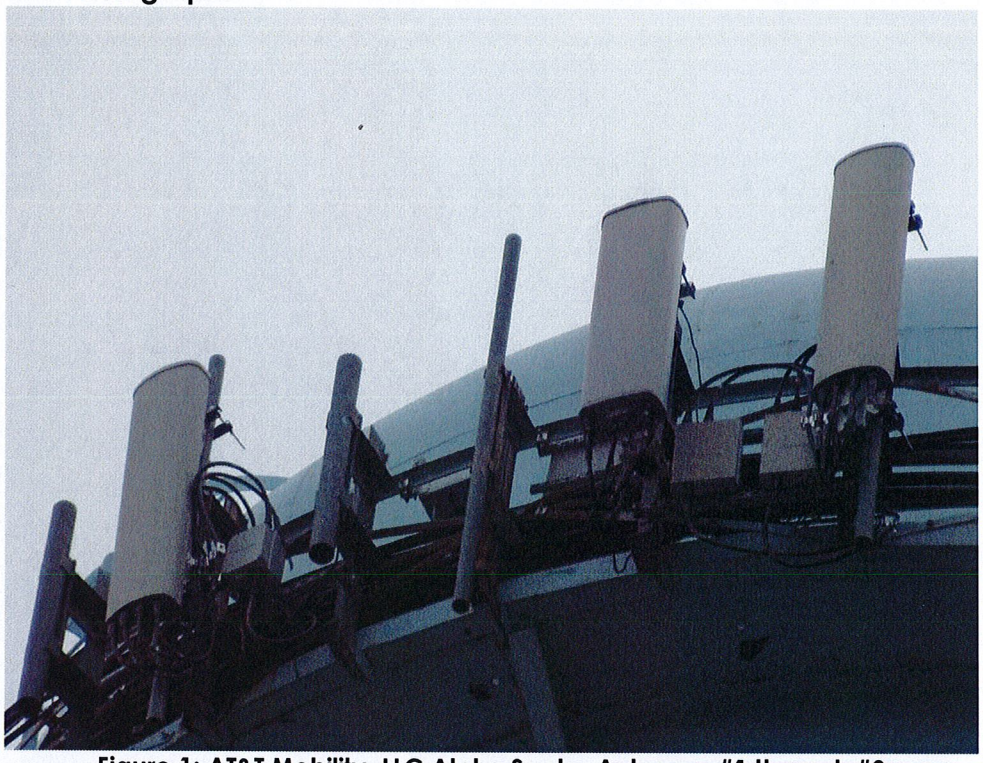


Figure 1: AT&T Mobility, LLC Alpha Sector Antennas #1 through #3

Figure 2: AT&T Mobility, LLC Beta Sector Antennas #4 through #6

Figure 3: AT&T Mobility, LLC Gamma Sector Antennas #7 through #9

Figure 4: AT&T Mobility, LLC Proposed Microwave Antenna #41 (to right)

Figure 5: Metro PCS Antenna #10

Figure 6: Metro PCS Antenna #11

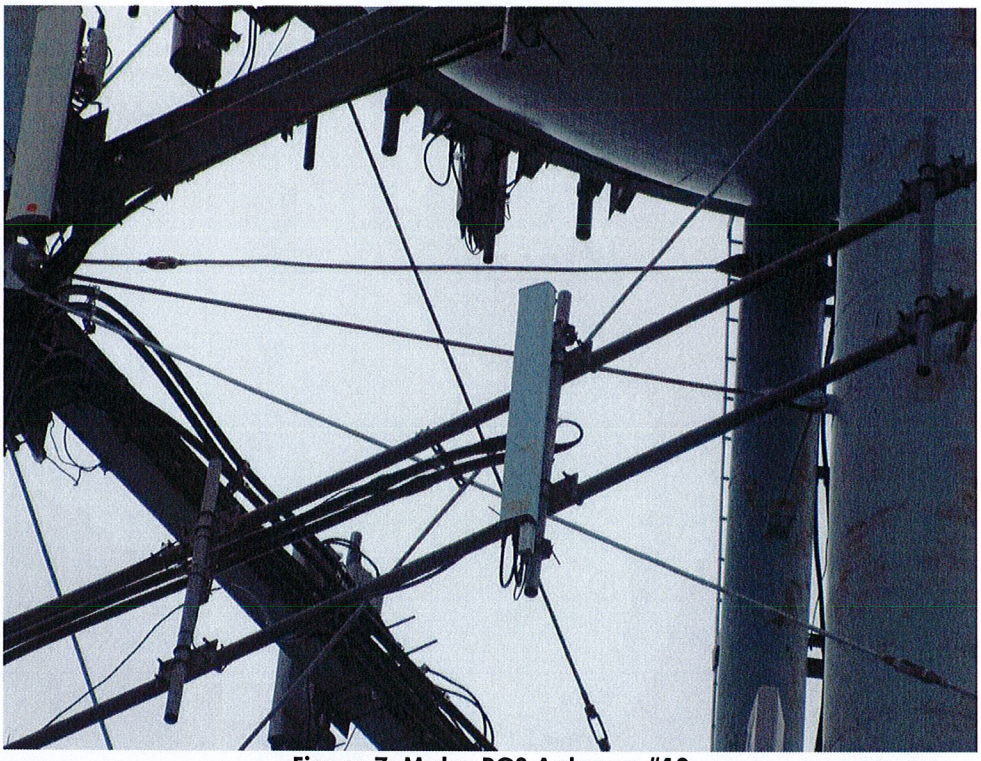


Figure 7: Metro PCS Antenna #12

Figure 8: Sprint Antennas #13 and #14

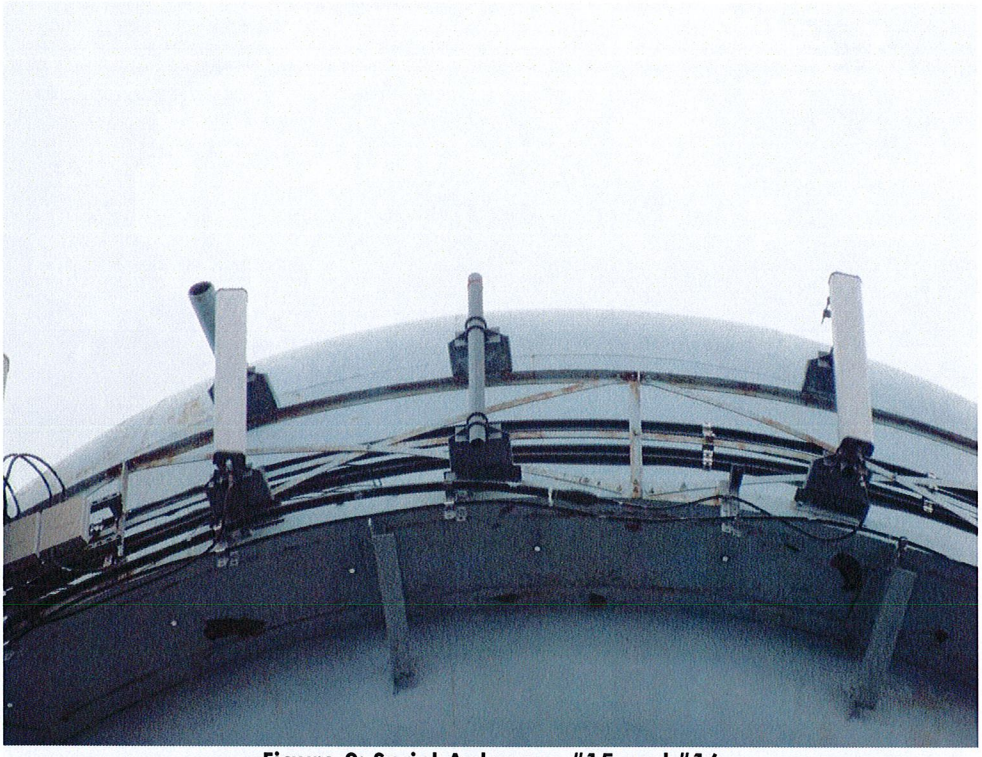


Figure 9: Sprint Antennas #15 and #16

Figure 10: Sprint Antennas #17 and #18

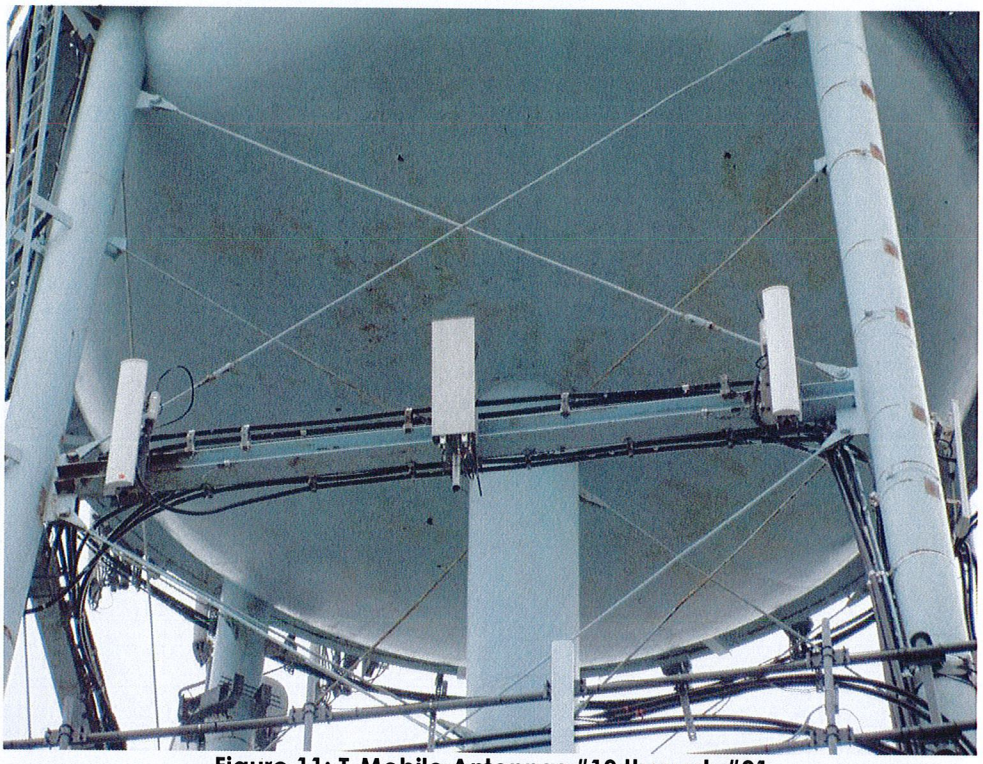


Figure 11: T-Mobile Antennas #19 through #21

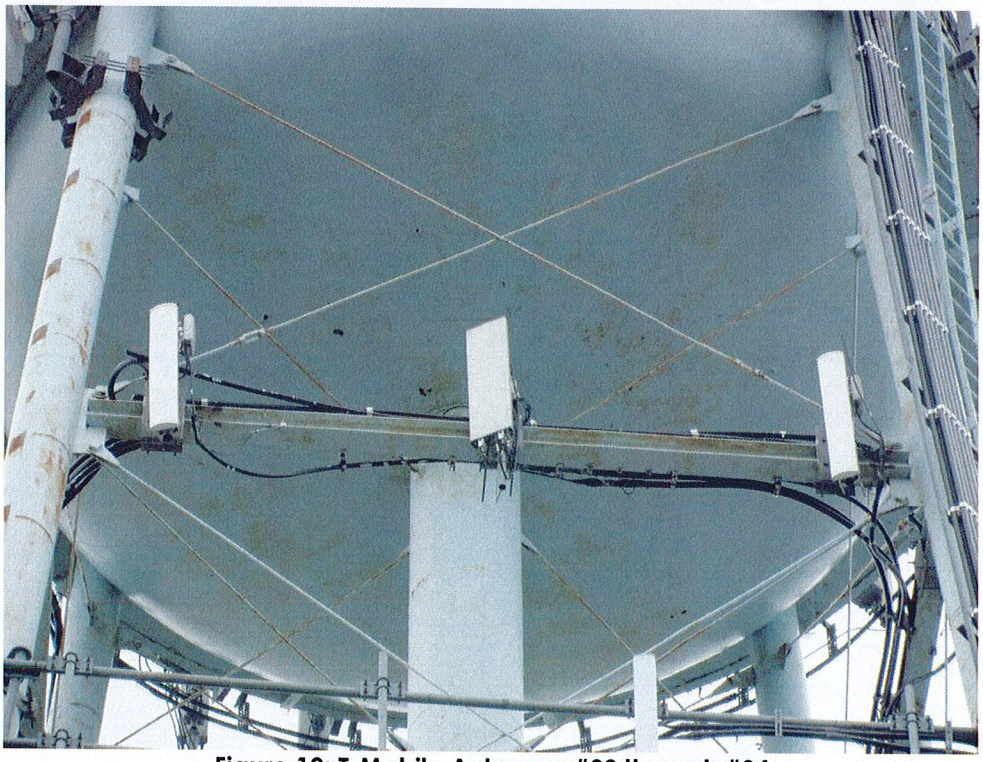


Figure 12: T-Mobile Antennas #22 through #24

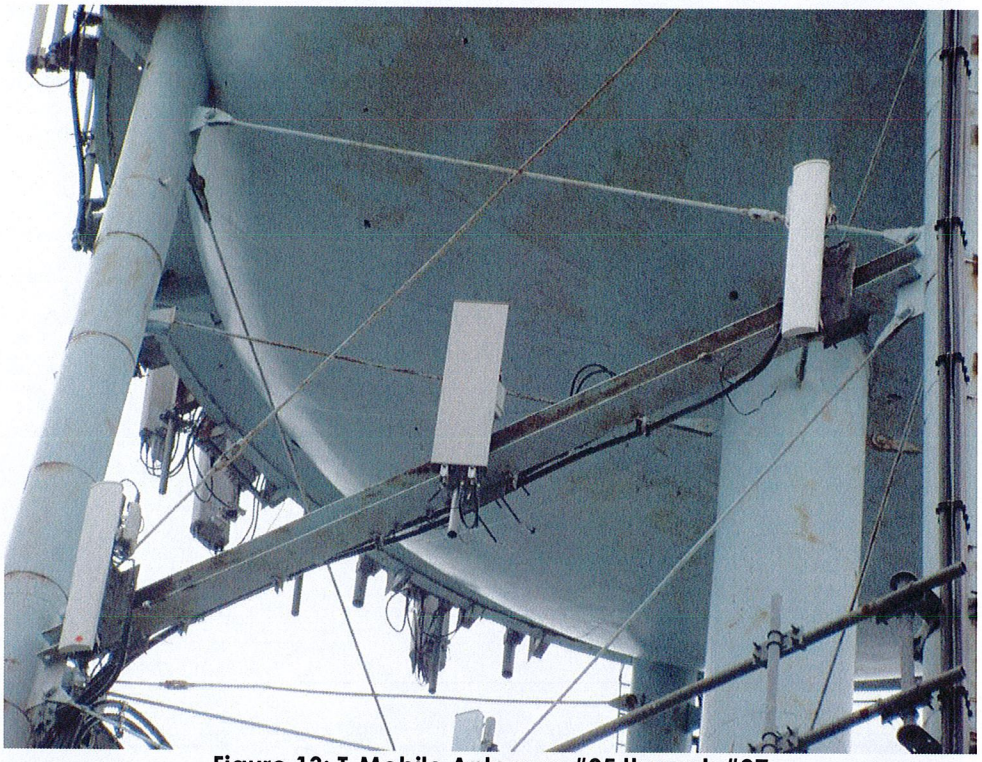


Figure 13: T-Mobile Antennas #25 through #27

Figure 14: Verizon Wireless Antennas #28 through #31

Figure 15: Verizon Wireless Antennas #32 through #35

Figure 16: Verizon Wireless Antennas #36 through #39

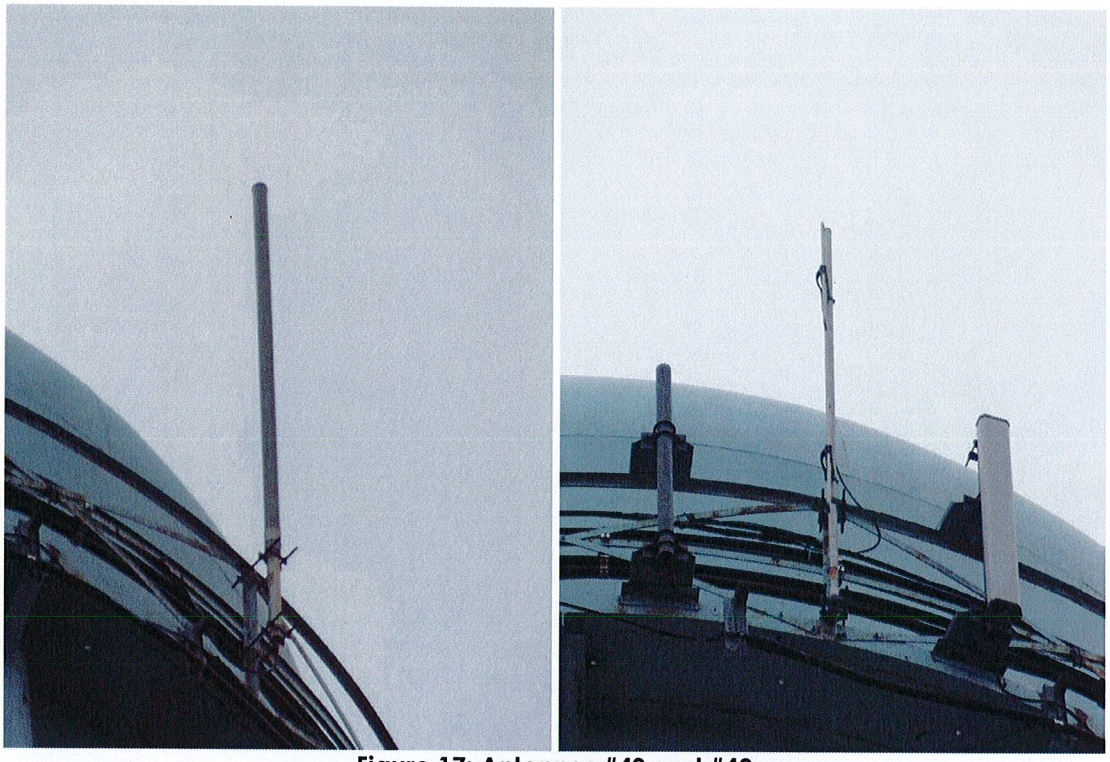
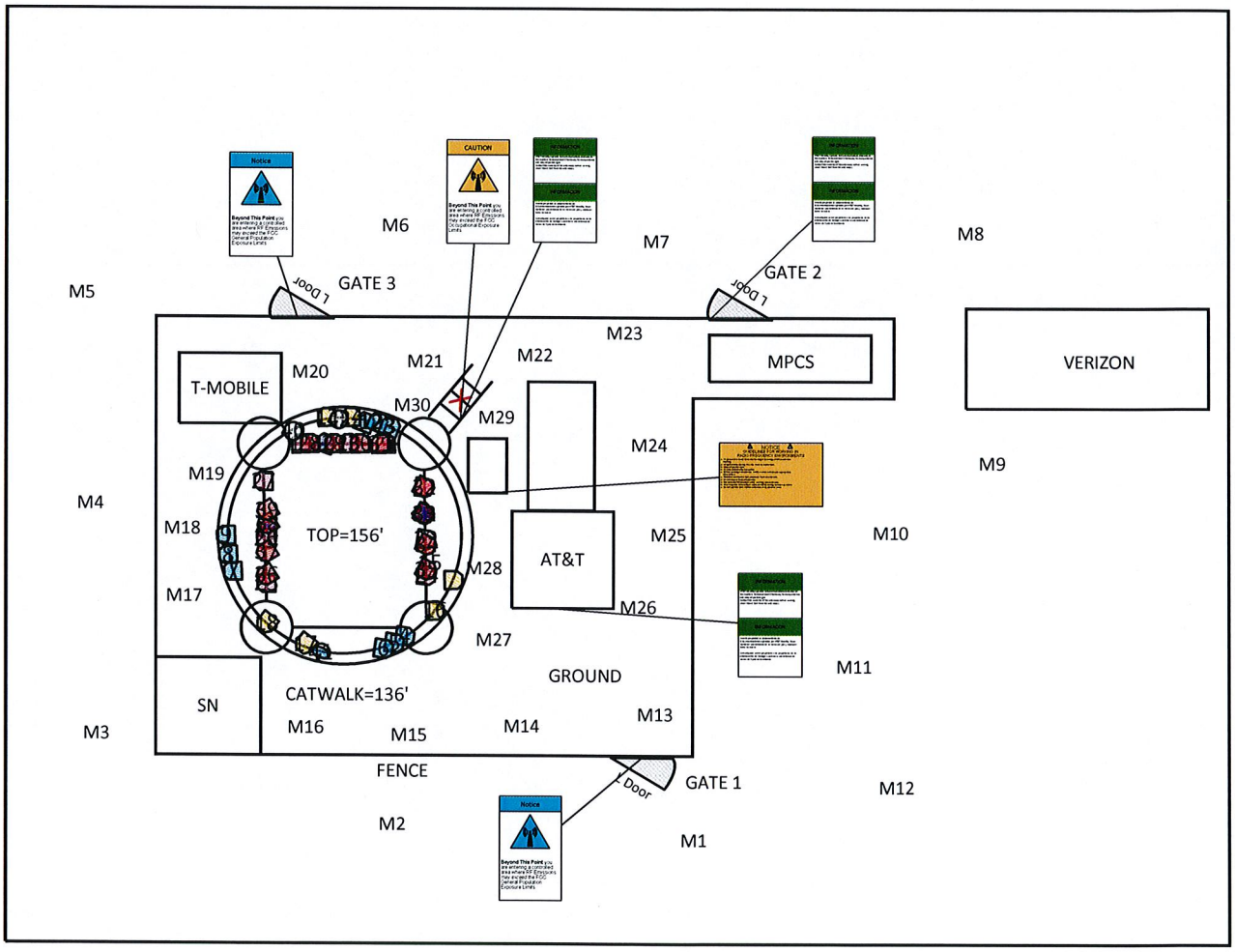


Figure 17: Antennas #40 and #42

Figure 18: Water Tank Access

Site Map with Measurements For: Mystic Broadway Water Tank – Site CT-2177



(Feet)

0 12.5 25

www.sitesafe.com

Site Name:Mystic Broadway Water Tank – Site

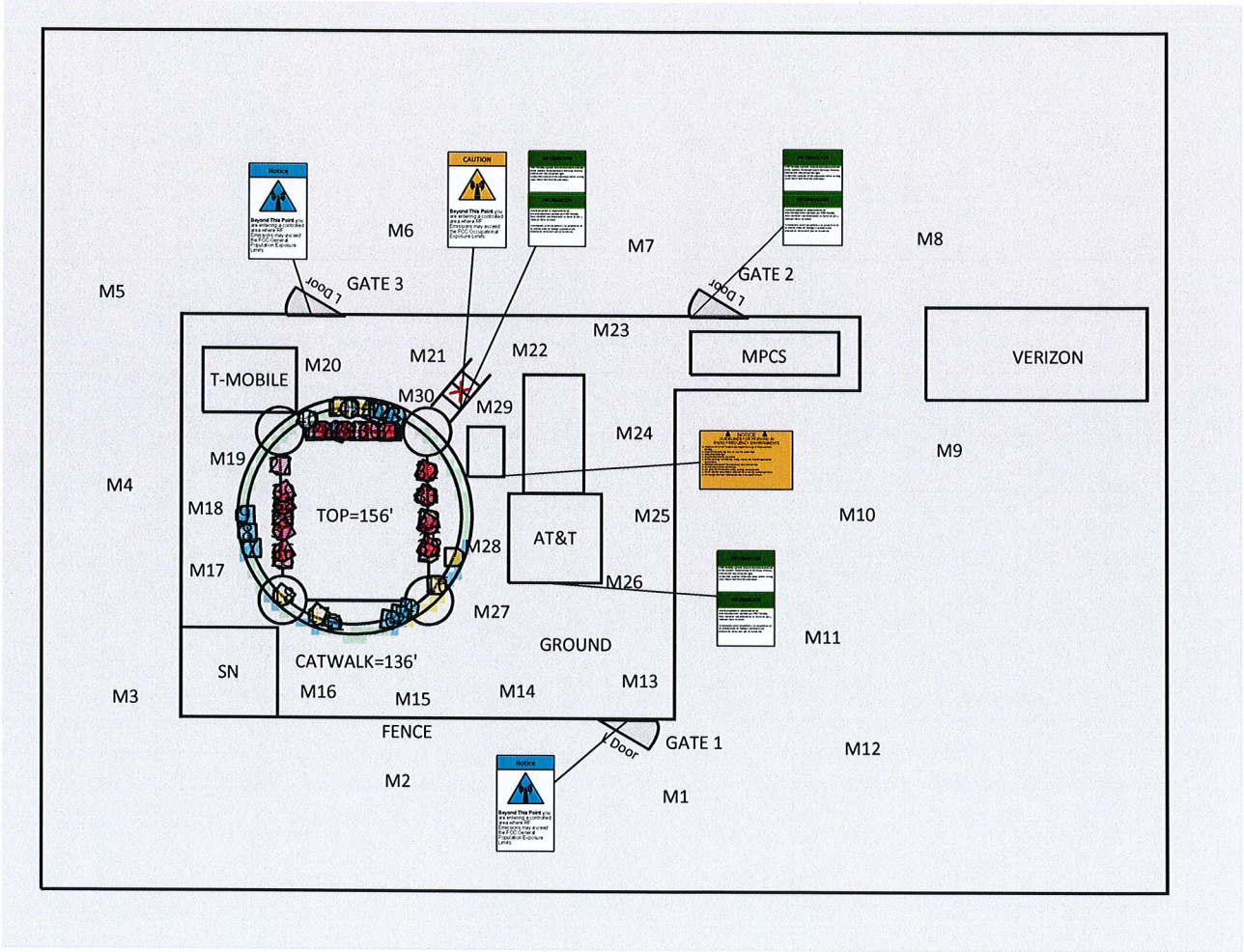
>= 5000 >= 500 >= 100 >= 5 < 5

AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	SPRINT-NEXTEL	METROPCS	CRICKET COMMUNICATIONS	CLEARWIRE

Sitesafe Inc. assumes no responsiblity for modeling results not verified by Sitesafe personnel.
Contact Sitesafe Inc. for modeling assistance at (703) 276-1100
SitesafeTC Version: 1.0.0.0
4/15/2014 10:40:48 AM

Table 3: Spatial Average and Maximum General Public Measurements					
Measurements Points	**Spatial Average**	**Maximum**	**Measurements Points**	**Spatial Average**	**Maximum**
M1	<5 %	<5 %	M16	<5 %	<5 %
M2	<5 %	<5 %	M17	<5 %	<5 %
M3	<5 %	<5 %	M18	<5 %	<5 %
M4	<5 %	<5 %	M19	<5 %	<5 %
M5	<5 %	<5 %	M20	<5 %	<5 %
M6	<5 %	<5 %	M21	<5 %	<5 %
M7	<5 %	<5 %	M22	<5 %	<5 %
M8	<5 %	<5 %	M23	<5 %	<5 %
M9	<5 %	<5 %	M24	<5 %	<5 %
M10	<5 %	<5 %	M25	<5 %	<5 %
M11	<5 %	<5 %	M26	<5 %	<5 %
M12	<5 %	<5 %	M27	<5 %	<5 %
M13	<5 %	<5 %	M28	<5 %	<5 %
M14	<5 %	<5 %	M29	<5 %	<5 %
M15	<5 %	<5 %	M30	<5 %	<5 %

RF Emissions Simulation For: Mystic Broadway Water Tank – Site CT-2177
Composite View



% of FCC Public Exposure Limit
Spatial average 0' - 6'

>= 5000	>= 500	>= 100	>= 5	< 5

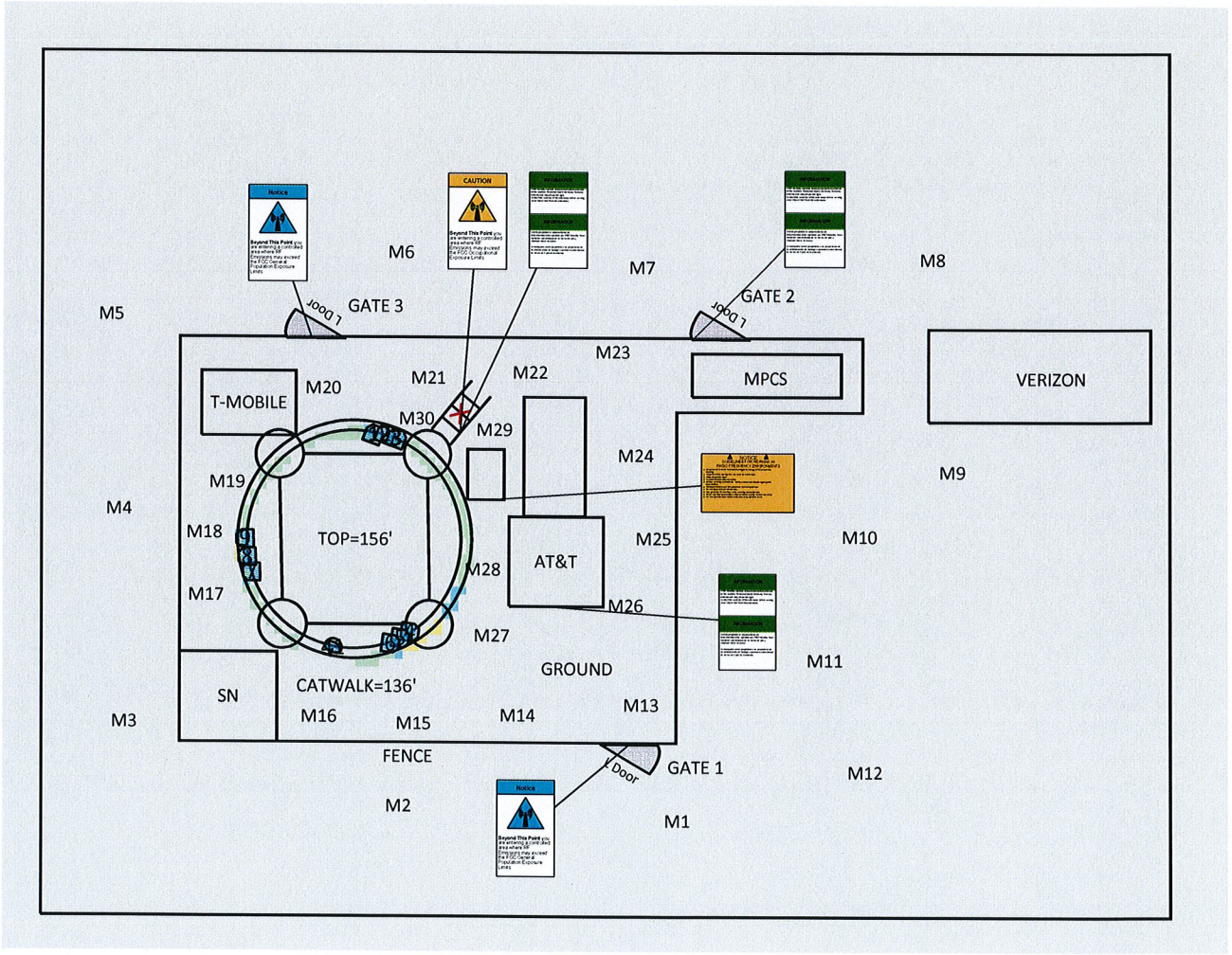
(Feet)

0 12.5 25

www.sitesafe.com
Site Name:Mystic Broadway Water Tank – Site

AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	SPRINT-NEXTEL	METROPCS	CRICKET COMMUNICATIONS	CLEARWIRE

RF Emissions Simulation For: Mystic Broadway Water Tank – Site CT-2177
AT&T Mobility LLC Composite View



% of FCC Public Exposure Limit
Spatial average 0' - 6'

>= 5000 | >= 500 | >= 100 | >= 5 | < 5

(Feet)

0 12.5 25

www.sitesafe.com

Site Name:Mystic Broadway Water Tank – Site

AT&T MOBILITY LLC	VERIZON WIRELESS	T-MOBILE	SPRINT-NEXTEL	METROPCS	CRICKET COMMUNICATIONS	CLEARWIRE

6 Site Compliance

6.1 Site Compliance Statement

Upon evaluation of the cumulative RF emission levels from all operators at this site, and a thorough review of site access procedures, RF hazard signage and visible antenna locations, Sitesafe has determined that:

This site will be compliant with the FCC rules and regulations, as described in OET Bulletin 65.

The compliance determination is based on General Public MPE levels due to theoretical modeling and/or physical measurements, RF signage placement, proposed antenna inventory and the level of restricted access to the antennas at the site. Any deviation from the AT&T Mobility LLC's proposed deployment plan could result in the site being rendered non-compliant. Measurements have also been performed to validate the assumptions used in our theoretical modeling of this site.

Modeling is used for determining compliance and the percentage of MPE contribution. Measurements provide a view of MPE percentage levels at the site at the time of Sitesafe's visit and are used to validate modeling results.

6.2 Actions for Site Compliance

Based on FCC regulations, common industry practice, and our understanding of AT&T Mobility, LLC RF Safety Policy requirements, this section provides a statement of recommendations for site compliance.

This site will be compliant with the FCC rules and regulations, as described in OET Bulletin 65.

Site Access Location

No action required.

AT&T Mobility, LLC Alpha Sector Location

No action required.

AT&T Mobility, LLC Beta Sector Location

No action required.

AT&T Mobility, LLC Gamma Sector Location

No action required.

7 Field Technician Certification

I, Scott Gagnon, state:

That I am an employee of Sitesafe, Inc., in Arlington, Virginia, which provides RF compliance services to clients in the wireless communications industry; and

That I have successfully completed RF Safety Awareness training, am aware of the hazards and, therefore, can be exposed to RF fields classified for "Occupational" exposure;

That I am familiar with the Rules and Regulations of the Federal Communications Commission (FCC) as well as the regulations of the Occupational Safety and Health Administration (OSHA), both in general and specifically as they apply to the FCC Guidelines for Human Exposure to Radio-frequency Radiation; and

That I have been trained in the proper use of measurement equipment, and have successfully completed Sitesafe training in policy, procedure and proper site measurement and modeling; and

That I performed survey measurements of the RF environment at the site identified as 10035098-CT2177-26747 - Mystic Broadway Water Tank – Site CT-2177 on April 14, 2013 at 10:30 AM in order to determine where there might be electromagnetic energy that is in excess of both the Controlled Environment and Uncontrolled Environment levels; and

That the survey measurements were performed with measurement equipment, model Narda NBM-550 2401-01B field intensity meter (serial number E-0553) and model Narda EA 5091 2402-07B field intensity probe, (serial number 01062) calibrated on 2/15/2013; and

That I have prepared this Site Compliance Report and believe it to be true and accurate to the best of my knowledge and based on data gathered.

By: Scott Gagnon

8 Engineer Certification

The professional engineer whose seal appears on the cover of this document hereby certifies and affirms that:

I am registered as a Professional Engineer in the jurisdiction indicated in the professional engineering stamp on the cover of this document; and

That I am an employee of Sitesafe, Inc., in Arlington, Virginia, at which place the staff and I provide RF compliance services to clients in the wireless communications industry; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission (FCC) as well as the regulations of the Occupational Safety and Health Administration (OSHA), both in general and specifically as they apply to the FCC Guidelines for Human Exposure to Radio-frequency Radiation; and

That survey measurements of the site environment of the site identified as 10035098-CT2177-26747 - Mystic Broadway Water Tank – Site CT-2177 have been performed in order to determine where there might be electromagnetic energy that is in excess of both the Controlled Environment and Uncontrolled Environment levels; and

That I have thoroughly reviewed this Site Compliance Report and believe it to be true and accurate to the best of my knowledge as assembled by and attested to by Scott Hoy.

April 15, 2014

Appendix A – Statement of Limiting Conditions

Sitesafe field personnel visited the site and collected data with regard to the RF environment. Sitesafe will not be responsible for matters of a legal nature that affect the site or property. The property was visited under the premise that it is under responsible ownership and management and our client has the legal right to conduct business at this facility.

Due to the complexity of some wireless sites, Sitesafe performed this visit and created this report utilizing best industry practices and due diligence. Sitesafe cannot be held accountable or responsible for anomalies or discrepancies due to actual site conditions (i.e., mislabeling of antennas or equipment, inaccessible cable runs, inaccessible antennas or equipment, etc.) or information or data supplied by General Dynamics, the site manager, or their affiliates, subcontractors or assigns.

Sitesafe has provided computer generated model(s) in this Site Compliance Report to show approximate dimensions of the site, and the model is included to assist the reader of the compliance report to visualize the site area, and to provide supporting documentation for Sitesafe's recommendations.

Sitesafe may note in the Site Compliance Report any adverse physical conditions, such as needed repairs, observed during the survey of the subject property or that Sitesafe became aware of during the normal research involved in performing this survey. Sitesafe will not be responsible for any such conditions that do exist or for any engineering or testing that might be required to discover whether such conditions exist. Because Sitesafe is not an expert in the field of mechanical engineering or building maintenance, the Site Compliance Report must not be considered a structural or physical engineering report.

Sitesafe obtained information used in this Site Compliance Report from sources that Sitesafe considers reliable and believes them to be true and correct. Sitesafe does not assume any responsibility for the accuracy of such items that were furnished by other parties. When conflicts in information occur between data provided by a second party and physical data collected by Sitesafe, the physical data will be used.

Appendix B – Regulatory Background Information

FCC Rules and Regulations

In 1996, the Federal Communication Commission (FCC) adopted regulations for the evaluating of the effects of RF emissions in 47 CFR § 1.1307 and 1.1310. The guideline from the FCC Office of Engineering and Technology is Bulletin 65 ("OET Bulletin 65"), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996 the FCC periodically reviews these rules and regulations as per their congressional mandate.

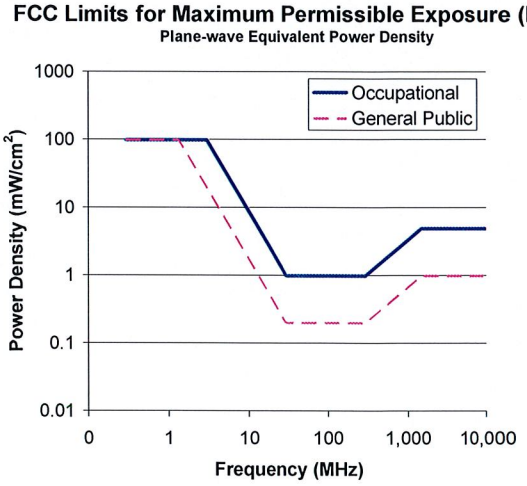
FCC regulations define two separate tiers of exposure limits: Occupational or "Controlled environment" and General Public or "Uncontrolled environment". The General Public limits are generally five times more conservative or restrictive than the Occupational limit. These limits apply to *accessible* areas where workers or the general public may be exposed to Radio Frequency (RF) electromagnetic fields.

Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

An area is considered a Controlled environment when access is limited to these aware personnel. Typical criteria are restricted access (i.e. locked or alarmed doors, barriers, etc.) to the areas where antennas are located coupled with proper RF warning signage. A site with Controlled environments is evaluated with Occupational limits.

All other areas are considered Uncontrolled environments. If a site has no access controls or no RF warning signage it is evaluated with General Public limits.

The theoretical modeling of the RF electromagnetic fields has been performed in accordance with OET Bulletin 65. The Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following diagram:



Limits for Occupational/Controlled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

Limits for General Population/Uncontrolled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

OSHA Statement

The General Duty clause of the OSHA Act (Section 5) outlines the occupational safety and health responsibilities of the employer and employee. The General Duty clause in Section 5 states:

(a) Each employer –

(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;

(2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

OSHA has defined Radiofrequency and Microwave Radiation safety standards for workers who may enter hazardous RF areas. Regulation Standards 29 CFR § 1910.147 identify a generic Lock Out Tag Out procedure aimed to control the unexpected energization or start up of machines when maintenance or service is being performed.

Appendix C – Safety Plan and Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.

Training and Qualification Verification: All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a workers understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet based courses).

Physical Access Control: Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:

- Locked door or gate
- Alarmed door
- Locked ladder access
- Restrictive Barrier at antenna (e.g. Chain link with posted RF Sign)

RF Signage: Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.

Assume all antennas are active: Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.

Maintain a 3 foot clearance from all antennas: There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.

Site RF Emissions Diagram: Section 5 of this report contains an RF Diagram that outlines various theoretical Maximum Permissible Exposure (MPE) areas at the site. The modeling is a worst case scenario assuming a duty cycle of 100% for each transmitting antenna at full power. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.

Appendix D – RF Emissions

RF Emissions Diagram

The RF diagram(s) above display theoretical spatially averaged percentage of the Maximum Permissible Exposure for all systems at the site unless otherwise noted. These diagrams use modeling as recommended in OET Bulletin 65 and assumptions detailed in Appendix E.

The key at the bottom of each diagram indicates if percentages displayed are referenced to FCC General Population Maximum Permissible Exposure (MPE) limits. Color coding on the diagram is as follows:

- Gray represents areas predicted to be at 5% of the MPE limits, or below.
- Green represents areas predicted to be between 5% and 100% of the MPE limits.
- Blue represents areas predicted to be between 100% and 500% of the MPE limits.
- Yellow represents areas predicted to be between 500% and 5000% of the MPE limits.
- Red areas indicated predicted levels greater than 5000% of the MPE limits.

General Population diagrams are specified when an area is accessible to the public; i.e. personnel that do not meet Occupational or RF Safety trained criteria, could gain access.

If trained occupational personnel require access to areas that are delineated as **Blue** or above 100% of the limit, Sitesafe recommends that they utilize the proper personal protection equipment (RF monitors), coordinate with the carriers to reduce or shutdown power, or make real-time power density measurements with the appropriate power density meter to determine real-time MPE levels. This will allow the personnel to ensure that their work area is within exposure limits.

The key at the bottom also indicates the level or height of the modeling with respect to the main level. The origin is typically referenced to the main rooftop level, or ground level for a structure without access to the antenna level. For example:

Average from 0 feet above to 6 feet above origin

and

Average from 20 feet above to 26 feet above origin

The first indicates modeling at the main rooftop (or ground) level averaged over 6 feet. The second indicates modeling at a higher level (possibly a penthouse level) of 20 feet averaged over 6 feet.

Abbreviations used in the RF Emissions Diagrams

PH=##'	Penthouse at ## feet above main roof
M##	Measurement ## taken during a site visit

As discussed in Section 5, site measurement locations for spatial average measurements collected at the time of Sitesafe's visit have been added to the RF emissions diagram. While the theoretical modeling represents worst case MPE levels based on the assumption(s) detailed above, the measurement data is a snapshot of MPE levels at the time of our visit, and dependent on transmitter duty cycle, system implementation and emissions from other RF sources at nearby antenna sites.

Appendix E – Assumptions and Definitions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at **full power at all times**. Software modeling was performed for all transmitting antennas located on the site. Sitesafe has further assumed a 100% duty cycle and maximum radiated power.

The site has been modeled with these assumptions to show the maximum RF energy density. Sitesafe believes this to be a *worst-case* analysis, based on best available data. Areas modeled to predict emissions greater than 100% of the applicable MPE level may not actually occur, but are shown as a *worst-case* prediction that could be realized real time. Sitesafe believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor).

Thus, at any time, if power density measurements were made, we believe the real-time measurements would indicate levels below those depicted in the RF emission diagram(s) in this report. By modeling in this way, Sitesafe has conservatively shown exclusion areas – areas that should not be entered without the use of a personal monitor, carriers reducing power, or performing real-time measurements to indicate real-time exposure levels.

Use of Generic Antennas

For the purposes of this report, the use of "Generic" as an antenna model, or "Unknown" for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. If more specific information can be obtained for the unknown measurement criteria, Sitesafe recommends remodeling of the site utilizing the more complete and accurate data. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.

Where the frequency is unknown, Sitesafe uses the closest frequency in the antenna's range that corresponds to the highest Maximum Permissible Exposure (MPE), resulting in a conservative analysis.

Definitions

5% Rule – The rules adopted by the FCC specify that, in general, at multiple transmitter sites actions necessary to bring the area into compliance with the guidelines are the shared responsibility of all licensees whose transmitters produce field strengths or power density levels at the area in question in excess of 5% of the exposure limits. In other words, any wireless operator that contributes 5% or greater of the MPE limit in an area that is identified to be greater than 100% of the MPE limit is responsible taking corrective actions to bring the site into compliance.

Compliance – The determination of whether a site is safe or not with regards to Human Exposure to Radio Frequency Radiation from transmitting antennas.

Decibel (dB) – A unit for measuring power or strength of a signal.

Duty Cycle – The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 100% corresponds to continuous operation.

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Effective Radiated Power (ERP) – In a given direction, the relative gain of a transmitting antenna with respect to the maximum directivity of a half wave dipole multiplied by the net power accepted by the antenna from the connecting transmitter.

Gain (of an antenna) – The ratio of the maximum intensity in a given direction to the maximum radiation in the same direction from an isotropic radiator. Gain is a measure of the relative efficiency of a directional antennas as compared to an omni directional antenna.

General Population/Uncontrolled Environment – Defined by the FCC, as an area where RFR exposure may occur to persons who are **unaware** of the potential for exposure and who have no control of their exposure. General Population is also referenced as General Public.

Generic Antenna – For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of antenna models to select a worst case scenario antenna to model the site.

Isotropic Antenna – An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.

Maximum Measurement – This measurement represents the single largest measurement recorded when performing a spatial average measurement.

Maximum Permissible Exposure (MPE) – The rms and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with acceptable safety factor.

Occupational/Controlled Environment – Defined by the FCC, as an area where Radio Frequency Radiation (RFR) exposure may occur to persons who are **aware** of the potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.

OET Bulletin 65 – Technical guideline developed by the FCC's Office of Engineering and Technology to determine the impact of Radio Frequency radiation on Humans. The guideline was published in August 1997.

OSHA (Occupational Safety and Health Administration) – Under the Occupational Safety and Health Act of 1970, employers are responsible for providing a safe and healthy workplace for their employees. OSHA's role is to promote the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual process improvement in workplace safety and health. For more information, visit www.osha.gov.

Radio Frequency Radiation – Electromagnetic waves that are propagated from antennas through space.

Spatial Average Measurement – A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average energy an average sized human body will absorb while present in an electromagnetic field of energy.

Transmitter Power Output (TPO) – The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load.

Appendix F – References

The following references can be followed for further information about RF Health and Safety.

Sitesafe, Inc.
http://www.sitesafe.com
FCC Radio Frequency Safety
http://www.fcc.gov/encyclopedia/radio-frequency-safety
National Council on Radiation Protection and Measurements (NCRP)
http://www.ncrponline.org
Institute of Electrical and Electronics Engineers, Inc., (IEEE)
http://www.ieee.org
American National Standards Institute (ANSI)
http://www.ansi.org
Environmental Protection Agency (EPA)
http://www.epa.gov/radtown/wireless-tech.html
National Institutes of Health (NIH)
http://www.niehs.nih.gov/health/topics/agents/emf/
Occupational Safety and Health Agency (OSHA)
http://www.osha.gov/SLTC/radiofrequencyradiation/
International Commission on Non-Ionizing Radiation Protection (ICNIRP)
http://www.icnirp.org
World Health Organization (WHO)
http://www.who.int/peh-emf/en/
National Cancer Institute
http://www.cancer.gov/cancertopics/factsheet/Risk/cellphones
American Cancer Society (ACS)
http://www.cancer.org/docroot/PED/content/PED_1_3X_Cellular_Phone_Towers.asp?siteareа=PED
European Commission Scientific Committee on Emerging and Newly Identified Health Risks
http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_o_022.pdf
Fairfax County, Virginia Public School Survey
http://www.fcps.edu/fts/safety-security/RFEESurvey/
UK Health Protection Agency Advisory Group on Non-ionising Radiation
http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1317133826368
Norwegian Institute of Public Health
http://www.fhi.no/dokumenter/545eea7147.pdf

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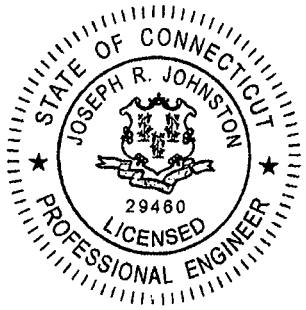
Watertank Mount Evaluation

January 7, 2014

Site Name	Mystic Broadway Extension 10035098
Job Number	343-004
Client	AT&T
Site Location	7 Broadway Ave. EXT., Mystic, CT 06355 New London County 41° 20' 53.88" N NAD83 71° 56' 45.60" W NAD83
Structure Type	Pipe Mount and Water Tank
Mount Usage Ratio	**5.1%**
Overall Result	**Pass**

Upon reviewing the results of this analysis, it is our opinion that the existing tank and proposed mount meets the specified TIA code requirements. The tank and pipe mount are therefore deemed adequate to support the existing and proposed loading as listed in this report.



1-7-14

Maxwell R. Becker, E.I.T.
Structural Engineer I

Table of Contents

Introduction

Infinigy Engineering has been requested to perform a structural analysis on the existing antenna supporting structures. All supporting documents have been obtained from General Dynamics and are assumed to be accurate and applicable to this site. The tower was analyzed using RISA 3-D vs. 11.0.2 software.

Supporting Documentation

Proposed Loading	Site File Review Handoff Package, Site # 10035098, dated November 5, 2013
Construction Drawings	Infinigy Engineering, Site # 343-004, dated January 7, 2014
Structural Letter	All-Points Technology Corporation, P.C., Job # CT2177, dated February 10, 2011

Analysis Code Requirements

Wind Speed	120 mph (3-Second Gust)
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2003 IBC w/ 2005 CT Supplements & 2009 CT Amendment

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the proposed minimum 2.5" OD Sch. 40 pipe mount meets the specified TIA code requirements. The mount is therefore deemed adequate to support the existing and proposed loading as listed in this report.

No structural information on the tank was available at the time of this analysis. Upon reviewing the structural letter by All Points (Job # CT2177, dated February 10, 2011), it is our opinion that the proposed Andrew VHLPX4-6W-4WH/B dish will not significantly increase risk on the existing tank.

If you have any questions, require additional information, or actual conditions differ from those as detailed in this report please contact me via the information below:

Maxwell R. Becker, E.I.T.
Structural Engineer
Infinigy Engineering, PLLC
1033 Watervliet Shaker Road | Albany | NY | 12205
(O) [518] 690-0790 | (M) [518] 221-4665
mbecker@infinigy.com | www.infinigy.com

Existing & Reserved Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax and Lines	Sector
140.0	12	Powerwave 7770	Catwalk Railing	(33) 1-5/8" (2) 7/8"	--
	12	Powerwave LGP21401			
	12	Powerwave LGP13519			
	9	Decibel DB980H90			
	1	Decibel DB809			
	1	Omni Dipole			
135.0	1	Radiowaves SP3-52	Leg	(1) 5/8"	
130.0	3	Decibel DB844H90	Leg	(3) 1-5/8"	
122.0	3	Decibel DB844H90	Leg	(3) 1-5/8"	
117.0	6	EMS RR90-17-02DP	Upper Cross Brace	(6) 1-1/4" (6) 1-5/8"	
	6	Ericsson KRY 112 71/x			
	3	RFS APX16DWV-16 DMV-s			
	3	RFS ATMAA1412D-1A20			
114.0	3	Decibel DB844H90	Leg	(3) 1-5/8"	
103.0	6	Kathrein 800-10504	Cross Brace	(12) 1-5/8"	
	6	Kathrein 86010025/86010118			
93.0	6	Decibel DB844H90	Cross Brace	(12) 1-5/8"	
	6	Decibel DB948F85			
68.0	1	GPS	Leg	(1) ½"	

Proposed Loading

Rad Center (ft)	Qty.	Appurtenance	Mount Type	Carrier	Sector
140.0	1	Andrew VHLPX4-6W-4WH/B	Pipe Mount	(2) CNT-400	--
	2	Ericsson TN 6L/2X 143T/64X HP			

Structure Usages

Pipe Mounts: 5.1%

Anchor Reactions

Per TIA 222-G Section 12.4; resting platforms must be designed to carry a 250 lb. point load. We assume the existing catwalk has been designed to a carry similar load. The proposed equipment has a total weight of 140.8 lbs therefore it is our opinion that the existing catwalk and handrail are adequate to support the proposed loads.

Assumptions and Limitations

All engineering services are completed assuming all information provided to Infinigy Engineering is current and correct. If actual conditions differ from those described in this report we should be notified immediately to complete a revised evaluation.

It is the responsibility of the client to ensure that the information provided to Infinigy Engineering is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the design drawings and specifications that have been supplied.

All calculations are completed in accordance with generally accepted engineering principles and practices. Infinigy Engineering is not responsible the conclusions, opinions, and recommendations made by others based on the information we supply.

Infingy Engineering, PLLC		SK - 1
Maxwell R. Becker	Mystic Broadway 10035098	Jan 7, 2014 at 3:01 PM
343-004	Pipe Profile	pipe mount.r3d

Appurtenance Wind Load Calculation Per TIA-222-G

Windspeed	120	mph		
Exposure	D			
Tower Type	SST			
Wind Direction Factor, K_d	0.85	Table 2-2		
Gust Effect Factor, G_h	1	2.6.9		
Structure Class	2			
Centerline AGL	140	ft		
Topographic Category	1			
Crest Height	0	ft		
Side Face Angle, θ	60	degrees	q_z (psf)	47.61
Mount Member Shape	Round	Flat/Round	$Cf*q_z$ (psf)	57.13
Mount Type	Pipe Mount			
Number of Sectors	1			
Carrier	AT&T			

Input Appurtenance Information

Appurtenance Name	Existing / Proposed?	Quantity	#N	#S1	#S2	#N2	Weight (lb)	Height (in)	Width (in)	Depth (in)	Ka	Panel/ TTA	Shape Front	Shape Side	$(EPA)_N$ (ft^2)	$(EPA)_T$ (ft^2)	$(EPA)_A$ (ft^2)	$(EPA)_A$ (ft^2)	Fa (Front)	Fa (Side)	Fa (Angle) Normal	Fa (Angle) 90°
Commscope VHLPX4-6W-4WH/B	P	1.0	1	1	1	0	88.0	4.0	4.0	2.0	1.0	P	R	R	0.06	0.04	0.04	0.06	3.00	1.85	2.14	2.72
TN 6L/2X 143T/64X HP	P	2.0	2	2	2	0	2.4	10.5	10.0	2.0	1.0	P	F	F	0.88	0.19	0.36	0.70	41.65	9.18	17.30	33.54

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N5			Pipe	Beam	Pipe	A53 GR B	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	Hot Rolled Steel				
2	A53 GR B	PIPE_2.0	1	48	13.9
3	Total HR Steel		1	48	13.9

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Self Weight	DL		-1		2				
2	Wind Load AZI 000	OL1				2		1		
3	Wind Load AZI 090	OL2				2		1		

Load Combinations

	Description	Solve	PD...	SR...	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4D	Yes	Y		DL	1.4														
2	1.2D + 1.6W..	Yes	Y		DL	1.2	OL1	1.6												
3	1.2D + 1.6W..	Yes	Y		DL	1.2	OL2	1.6												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N3	max	165.59	3	75.428	1	199.178	2	0	1	0	1	0	1
2		min	0	1	64.652	2	0	1	0	1	0	1	0	1
3	N4	max	58.154	3	70.569	1	78.326	2	0	1	0	1	0	1
4		min	0	1	60.488	2	0	1	0	1	0	1	0	1
5	Totals:	max	223.744	3	145.997	1	277.504	2						
6		min	0	1	125.14	2	0	1						

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[in]	...Sh...	Lo...	...phi*...	phi*...	phi*...	phi*...	...	Eqn
1	M1	PIPE_...	.051	18	2 .012	18	2 265...	32130	187...	187...	1	H1-...

CODE COMPLIANCE:

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING:

1. STATE BUILDING CODE
2. STATE EXISTING BUILDING CODE
3. STATE FIRE CODE
4. STATE PLUMBING CODE
5. STATE ENERGY CONSERVATION CONSTRUCTION CODE
6. STATE PROPERTY MAINTENANCE CODE
7. STATE FUEL GAS CODE
8. STATE MECHANICAL CODE
9. 2011 NATIONAL ELECTRIC CODE WITH STATE AMENDMENTS

IN THE EVENT OF ANY CONFLICT, THE MORE RESTRICTIVE CODE PROVISION SHALL GOVERN.

PROJECT INFORMATION:

LANDLORD:	MESSAGE CENTER MANAGEMENT INC
ADDRESS:	40 WOODLAND STREET HARTFORD, CT 06105
SITE NAME:	MYSTIC–BROADWAY AVE
SITE NUMBER:	CT2177
FA NUMBER:	10035098
SITE ADDRESS:	7 BROADWAY AVENUE EXTENSION MYSTIC, CT 06355
JURISDICTION:	TOWN OF STONINGTON
COUNTY:	NEW LONDON
LATITUDE:	41° 20' 58.50" N
LONGITUDE:	71° 57' 49.50" W
GROUND ELEVATION:	±6' A.M.S.L.
PROPOSED MW RAD CENTER:	140' AGL
STRUCTURE HEIGHT:	±156' AGL
SCOPE OF WORK:	INSTALLATION OF MW DISH(ES) & EQUIPMENT

PROJECT DIRECTORY:

PROJECT MANAGER:	GENERAL DYNAMICS INFORMATION TECHNOLOGY 661 MOORE ROAD, SUITE 10 KING OF PRUSSIA, PA 19406 CONTACT: MICHAEL REBNER PHONE: (484) 239–9280
ENGINEER:	INFINIGY ENGINEERING 2255 SEWELL MILL ROAD, SUITE 130 MARIETTA, GA 30062 CONTACT: RUSSELL BLACK PHONE: (678) 444–4463
APPLICANT:	at&t MOBILITY CORP. 5841 BRIDGE STREET EAST SYRACUSE, NY 13057

OCCUPANCY NOTE:
THIS FACILITY IS UNMANNED, NOT FOR HUMAN HABITATION, & HANDICAP ACCESS IS NOT REQUIRED. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE; NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED & NO COMMERCIAL SIGNAGE IS PROPOSED.

CALL BEFORE YOU DIG:

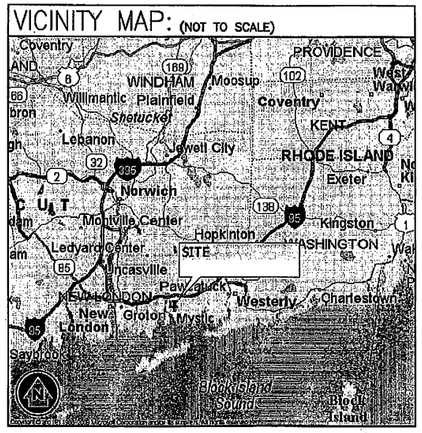
CALL FOR UNDERGROUND UTILITIES PRIOR TO DIGGING:
1–800–922–4455
EMERGENCY:
CALL 911

at&t

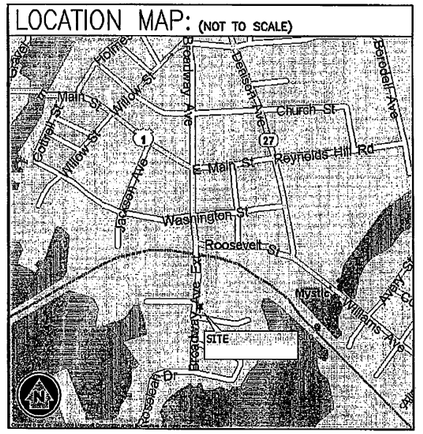
SITE NAME: MYSTIC-BROADWAY AVE
FA NUMBER: 10035098

7 BROADWAY AVENUE EXTENSION
MYSTIC, CT 06355

VICINITY MAP: (NOT TO SCALE)



LOCATION MAP: (NOT TO SCALE)



STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 22544
LICENSED
PROFESSIONAL ENGINEER

APPROVALS:

at&t MOBILITY:
SIGNATURE _____ DATE _____

GENERAL DYNAMICS CONSTRUCTION
SIGNATURE _____ DATE _____

OWNER/OWNER'S AGENT
SIGNATURE _____ DATE _____

SHEET INDEX:

SHEET #	TITLE	REV.#	DATE
T1	TITLE SHEET	1	02/25/14
C1	GENERAL NOTES	1	02/25/14
C2	OVERALL SITE PLAN	1	02/25/14
C3	EQUIPMENT PAD PLAN	1	02/25/14
C4	WATER TANK ELEVATION	1	02/25/14
C5	MW DISH ATTACHMENT DETAILS	1	02/25/14
C6	RADIO MOUNT DETAIL	1	02/25/14
E1	ELECTRICAL DETAILS	1	02/25/14
E2	GROUNDING RISER DIAGRAM	1	02/25/14
E3	GROUNDING DETAILS	1	02/25/14
E4	GROUNDING DETAILS	1	02/25/14

DO NOT SCALE DRAWINGS:

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

at&t
at&t MOBILITY CORP.
5841 BRIDGE STREET
EAST SYRACUSE, NY 13057

No.	Submittal / Revision	Appd.	Date
1	ISSUED FOR REVIEW	DAD	02/25/14
0	ISSUED FOR REVIEW	DAD	01/14/14

Drawn: TWA Date: 01/14/14
Designed: DAD Date: 01/14/14
Checked: RSB Date: 01/14/14

Project Number: 343-004

Project Title:
MYSTIC
BROADWAY AVE
FA #: 10035098
7 BROADWAY AVENUE EXTENSION
MYSTIC, CT 06355

MICROWAVE PROJECT

GENERAL DYNAMICS
Wireless Services

INFINIGY engineering
Design. Intel. Deliver.
2255 SEWELL MILL ROAD
SUITE 130
MARIETTA, GA 30062
678-444-4463

Drawing Scale: AS NOTED
Date: 01/14/14

Drawing Title:
TITLE SHEET

Drawing Number:
T1

GENERAL PROJECT NOTES

1. THE ENGINEER SHALL BE RESPONSIBLE FOR PROVIDING ALL FIELD LAYOUT ON A ONE TIME BASIS.
2. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY CONDITIONS THAT VARY FROM THOSE SHOWN ON THE PLANS. THE CONTRACTOR'S WORK SHALL NOT VARY FROM THE PLANS WITHOUT THE EXPRESSED APPROVAL OF THE ENGINEER.
3. THE CONTRACTOR IS INSTRUCTED TO COOPERATE WITH ANY AND ALL OTHER CONTRACTORS PERFORMING WORK ON THIS JOB SITE DURING THE PERFORMANCE OF THIS CONTRACT.
4. THE CONTRACTOR SHALL RESTORE ALL PUBLIC OR PRIVATE PROPERTY DAMAGED OR REMOVED TO AT LEAST AS GOOD OF CONDITION AS BEFORE DISTURBED AS DETERMINED BY THE ENGINEER.
5. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIRED PERMITS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING, AND INCURRING THE COST OF ALL REQUIRED PERMITS, INSPECTIONS, CERTIFICATES, ETC.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE ALL PLAN SHEETS AND SPECIFICATIONS, AND COORDINATE WORK WITH ALL CONTRACTS FOR THE SITE.
8. ALL TRENCH EXCAVATION AND ANY REQUIRED SHEETING AND SHORING SHALL BE DONE IN ACCORDANCE WITH THE LATEST REVISIONS OF THE STATE/LOCAL CODE AND OSHA REGULATIONS FOR CONSTRUCTION.
9. ALL UTILITY WORK INVOLVING CONNECTIONS TO EXISTING SYSTEMS SHALL BE COORDINATED WITH THE ENGINEER AND THE UTILITY OWNER. NOTIFY THE ENGINEER AND THE UTILITY OWNER 24 HOURS BEFORE EACH AND EVERY CONNECTION TO EXISTING SYSTEMS IS MADE.
10. MAINTAIN FLOW FOR ALL EXISTING UTILITIES.
11. NO OUTSIDE STORAGE ON SITE SHALL BE PERMITTED.
12. SITE GROUNDING SHALL COMPLY WITH AT&T GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH AT&T GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.
13. THE COMPLETE BID PACKAGE INCLUDES THESE CONSTRUCTION DRAWINGS ALONG WITH THE SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR REVIEW OF TOTAL BID PACKAGE PRIOR TO BID SUBMITTAL.
14. FOR ITEMS THAT SHALL BE PROVIDED BY THE OWNER & INSTALLED BY THE CONTRACTOR, SEE "OWNER SUPPLIED MATERIAL LIST" INSERTED IN THIS DRAWING PACKAGE.
15. RECORD DRAWINGS, MAINTAIN A RECORD OF ALL CHANGES, SUBSTITUTIONS BETWEEN WORK AS SPECIFIED AND INSTALLED. RECORD CHANGES ON A CLEAN SET OF CONTRACT DRAWINGS WHICH SHALL BE TURNED OVER TO THE CONSTRUCTION MANAGER UPON COMPLETION OF THE PROJECT.
16. FOR OUTDOOR ATS, SECURE PROPOSED ATS TO EXISTING AT&T EQUIPMENT SHELTER USING UNISTRUT AND 3\8"ø GALV. WEDGE ANCHORS.
17. ALL WORK SHALL BE DONE IN A SATISFACTORY AND PROFESSIONAL WORKMANLIKE MANNER. ALL WORK SHALL BE SUBJECT TO INSPECTION DURING CONSTRUCTION AND FINAL APPROVAL BY THE CONSTRUCTION MANAGER.
18. THE CONTRACTOR SHALL PROVIDE ANY NECESSARY PROTECTION FOR EXISTING UTILITIES DURING CONSTRUCTION
19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL WASTE DEBRIS AND VEGETATION FROM THE SITE. BURIAL AND/OR BURNING OF WASTE MATERIALS IS NOT ACCEPTABLE.

GENERAL CONSTRUCTION NOTES

1. GENERAL
   - A. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.
   - B. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE UNDERGROUND UTILITIES.
   - C. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE OWNER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE APPROVAL.
   - D. EACH CONTRACTOR SHALL COOPERATE WITH THE OWNER'S REPRESENTATIVE, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
   - E. ALL DAMAGED, MARRED, SCRAPED, ABRADED, ETC. AREAS OF EXISTING PAINT SHALL BE REPAIRED PER OWNERS REQUIREMENTS. OWNER SHALL APPROVE COLOR.
2. STRUCTURAL NOTES/DESIGN CRITERIA:
   - A. REFERENCED DESIGN CODES:

   --INTERNATIONAL BUILDING CODE--BUILDING/DWELLING CODE (LATEST EDITION)
   --INTERNATIONAL BUILDING CODE--STRUCTURAL CODE (LATEST EDITION)
   --MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES (ASCE LATEST EDITION)
   --AISC LOAD & RESISTANCE FACTOR DESIGN (LRFD LATEST EDITION)
   --BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI LATEST EDITION)

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED
PROFESSIONAL ENGINEER

THE CONTRACTOR SHALL VISIT THE SITE BEFORE BIDDING ON THE WORK CONTAINED WITHIN THIS DESIGN PACKAGE. DISCREPANCIES AND OMISSIONS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO BIDDING.

at&t
c/o: MOBILITY CORP.
6841 BRIDGE STREET
EAST SYRACUSE, NY 13057

No.	Submittal / Revision	Appr'd	Date
1	ISSUED FOR REVIEW	DAD	02/20/14
0	ISSUED FOR REVIEW	DAD	01/14/14

Drawn: TMA Date: 01/14/14
Designed: DAD Date: 01/14/14
Checked: RGB Date: 01/14/14

Project Number: 343-004

Project Title:
MYSTIC
BROADWAY AVE
FA #: 10035098

7 BROADWAY AVENUE EXTENSION
MYSTIC, CT 06355

MICROWAVE PROJECT

GENERAL DYNAMICS
Wireless Services

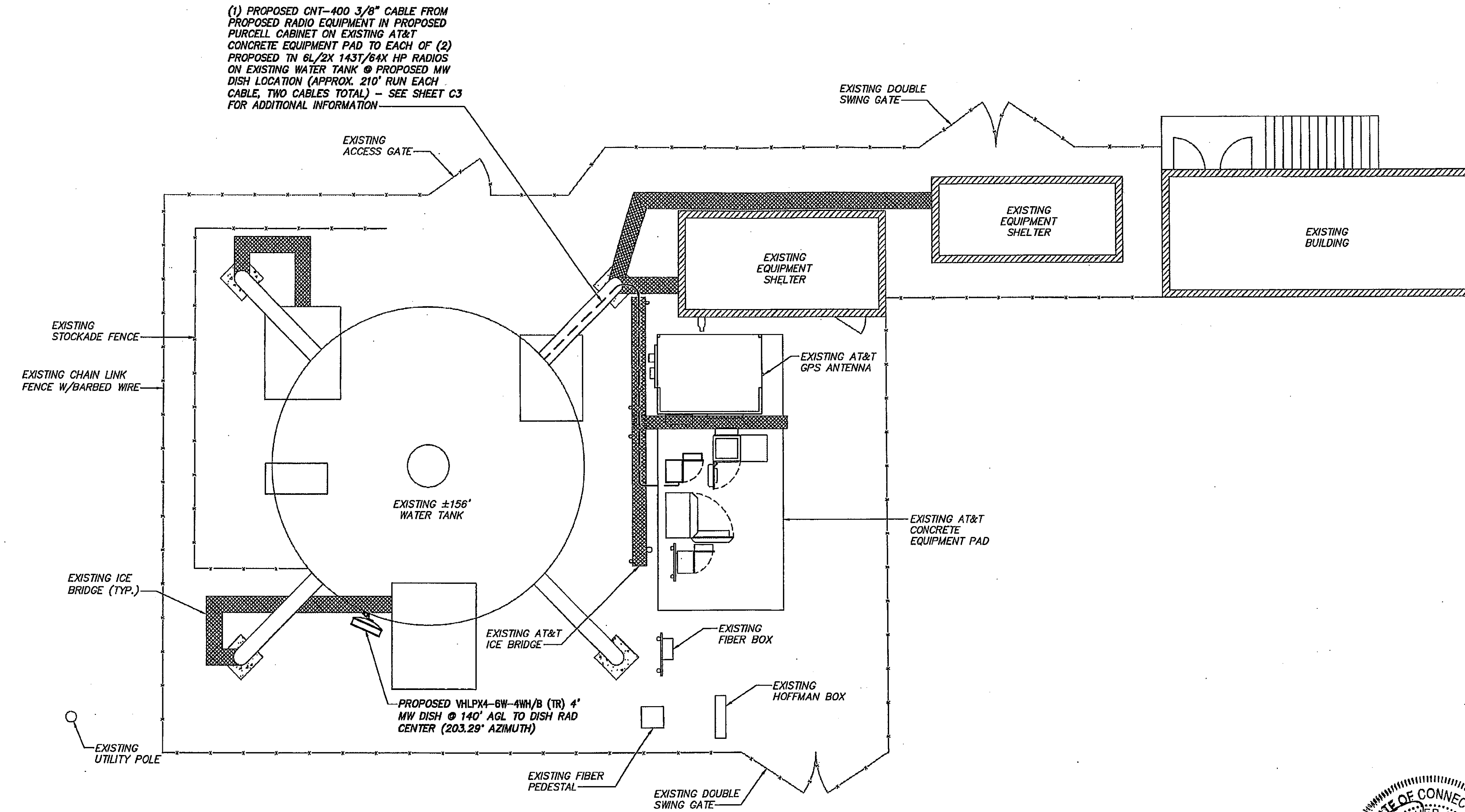
INFINIGY engineering
Design. Build. Deliver.
2255 SEWELL MILL ROAD
SUITE 130
MARIETTA, GA 30062
678-344-1163

Drawing Scale: AS NOTED
Date: 01/14/14

Drawing Title:
GENERAL NOTES

Drawing Number:
C1

INFORMATION SHOWN ON THESE DRAWINGS BASED ON INFORMATION PROVIDED BY OTHERS & HAS NOT BEEN FIELD VERIFIED BY INFINIGY ENGINEERING. INFORMATION SHOWN DOES NOT REPRESENT AN ACTUAL SURVEY & IS APPROXIMATE ONLY.



DISCLAIMER

THESE DRAWINGS WERE PRODUCED WITHOUT THE BENEFIT OF A CURRENT LAND SURVEY. ALL PROPERTY LINES, EASEMENTS, AND SETBACKS SHALL BE VERIFIED PRIOR TO START OF CONSTRUCTION. INFINIGY DOES NOT GUARANTEE THE ACCURACY OF SAID PROPERTY LINES, EASEMENTS AND SETBACKS.

CALLED NORTH

1 OVERALL SITE PLAN
SCALE:
5' 0 5' 10'

STATE OF CONNECTICUT CHRISTOPHER J. WARREN No. 2 LICENSED PROFESSIONAL ENGINEER

at&t MOBILITY CORP.
5841 BRIDGE STREET
EAST SYRACUSE, NY 13057

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF APPLICABLE STATE AND/OR LOCAL LAWS

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MYSTIC
BROADWAY AVE
FA #: 10035098
7 BROADWAY AVENUE EXTENSION
MYSTIC, CT 06355

MICROWAVE PROJECT

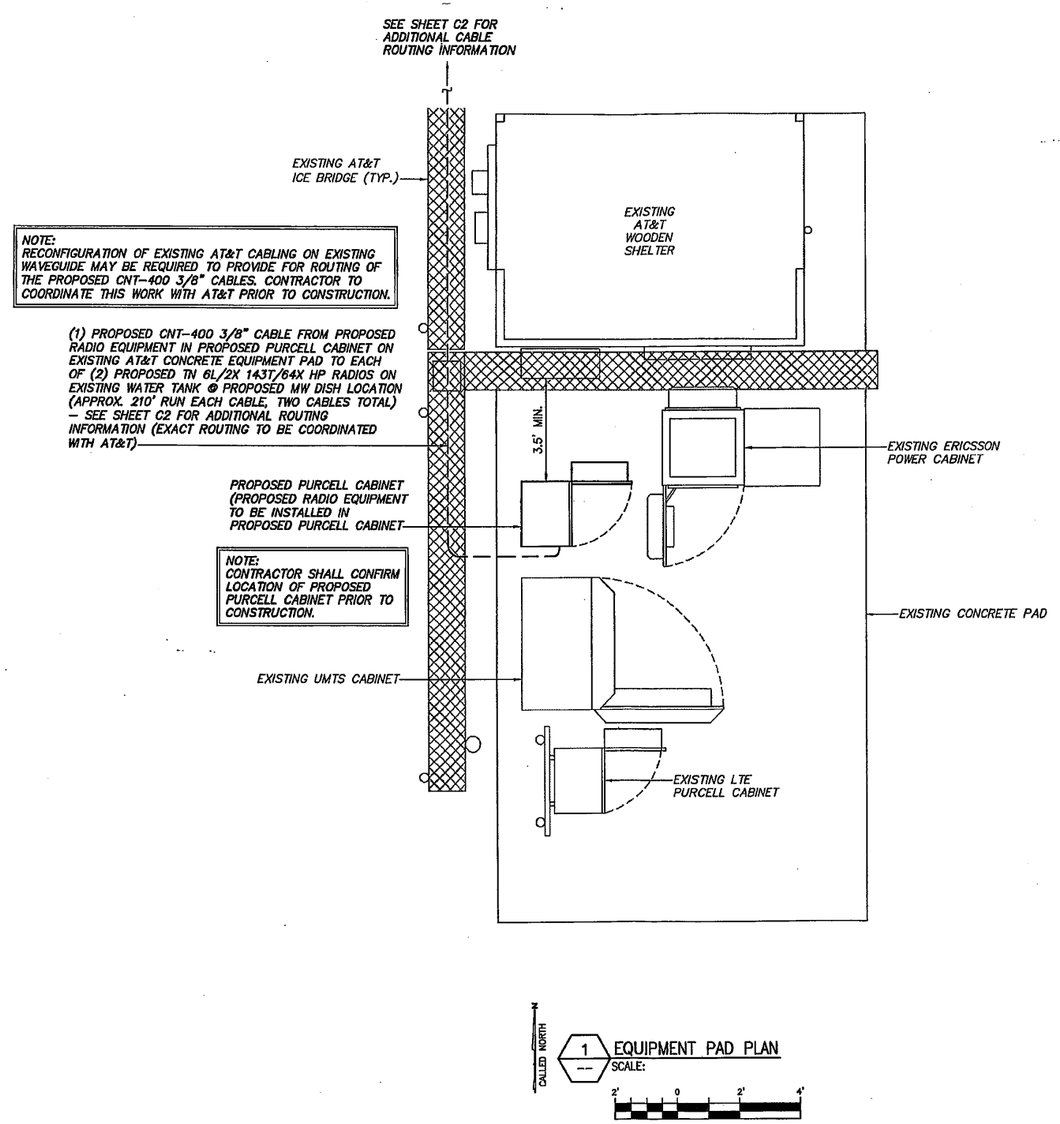
GENERAL DYNAMICS Wireless Services

INFINIGY engineering Design. Build. Deliver.
2255 SEWELL MILL ROAD
SUITE 130
MARIETTA, GA 30062
678-444-4463

Drawing Scale: AS NOTED
Date: 01/14/14

Drawing Title
OVERALL SITE PLAN

Drawing Number
C2



at&t
at&t MOBILITY CORP.
5941 BRIDGE STREET
EAST SYRACUSE, NY 13057

No.	Submittal / Revision	Appd	Date
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0	ISSUED FOR REVIEW	DAD	01/14/14

Drawn: TVA Date: 01/14/14
Designed: DAD Date: 01/14/14
Checked: RSB Date: 01/14/14

Project Number
343-004

Project Title
MYSTIC
BROADWAY AVE
FA #: 10035098
7 BROADWAY AVENUE EXTENSION
MYSTIC, CT 06355

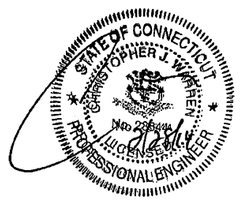
MICROWAVE PROJECT

GENERAL DYNAMICS
Wireless Services
INFINIGY engineering
Design. Build. Deliver.
2235 SEWELL MILL ROAD
SUITE 120
MARIETTA, GA 30062
678-444-4483

Drawing Scale:
AS NOTED
Date:
01/14/14

Drawing Title
EQUIPMENT PAD PLAN

Drawing Number
C3



GENERAL NOTES:

1. ALL VERTICAL TRANSMISSION LINE RUNS FROM THE ANTENNAS SHALL BE GROUNDED NEAR THE TOP AND BOTTOM OF THE WATER TANK (BEFORE THE CABLE MAKES HORIZONTAL TRANSITION AND NEAR THE CABINET LOCATION ON THE EQUIPMENT PAD). ADDITIONAL TRANSMISSION LINE GROUND KITS SHALL BE INSTALLED AS NEEDED TO LIMIT THE DISTANCE BETWEEN GROUND KITS IN ACCORDANCE WITH AT&T STANDARDS.

2. THE CONTRACTOR SHALL CONDUCT A TDR SWEEP TEST ON ALL THE NEWLY INSTALLED TRANSMISSION LINES TO DETERMINE THE CABLE CONDUCTOR RESISTANCE, CABLE INSERTION LOSS, REFLECTION AND STIMULUS RESPONSE MEASUREMENTS (MUST BE DONE WITH PRECISION LOAD).

3. DRIP LOOPS SHALL BE INCORPORATED IN CABLE RUNS TO PREVENT WATER FROM TRICKLING DOWN THE LINES INTO THE EQUIPMENT.

4. FIELD VERIFY MOUNTING HARDWARE OF MW DISH(ES), STAND-OFF BRACKETS, ETC..

5. CONTRACTOR TO CONFIRM MW DISH TYPE(S), CABLE LENGTHS, AZIMUTHS AND HEIGHTS WITH FINAL RF INFORMATION.

PROPOSED MW DISH CONFIGURATION & CABLE SCHEDULE

MODEL #	LOADING HEIGHT (RAD CENTER)	AZIMUTH	CABLE QTY./TYPE	CABLE LENGTH	RADIO QTY./TYPE
VHLPX4-6W-4WH/B (TR)	140' AGL	203.29°	(2) CNT-400	±210' EACH	*(2) TN 6L/2X 143T/64X HP*

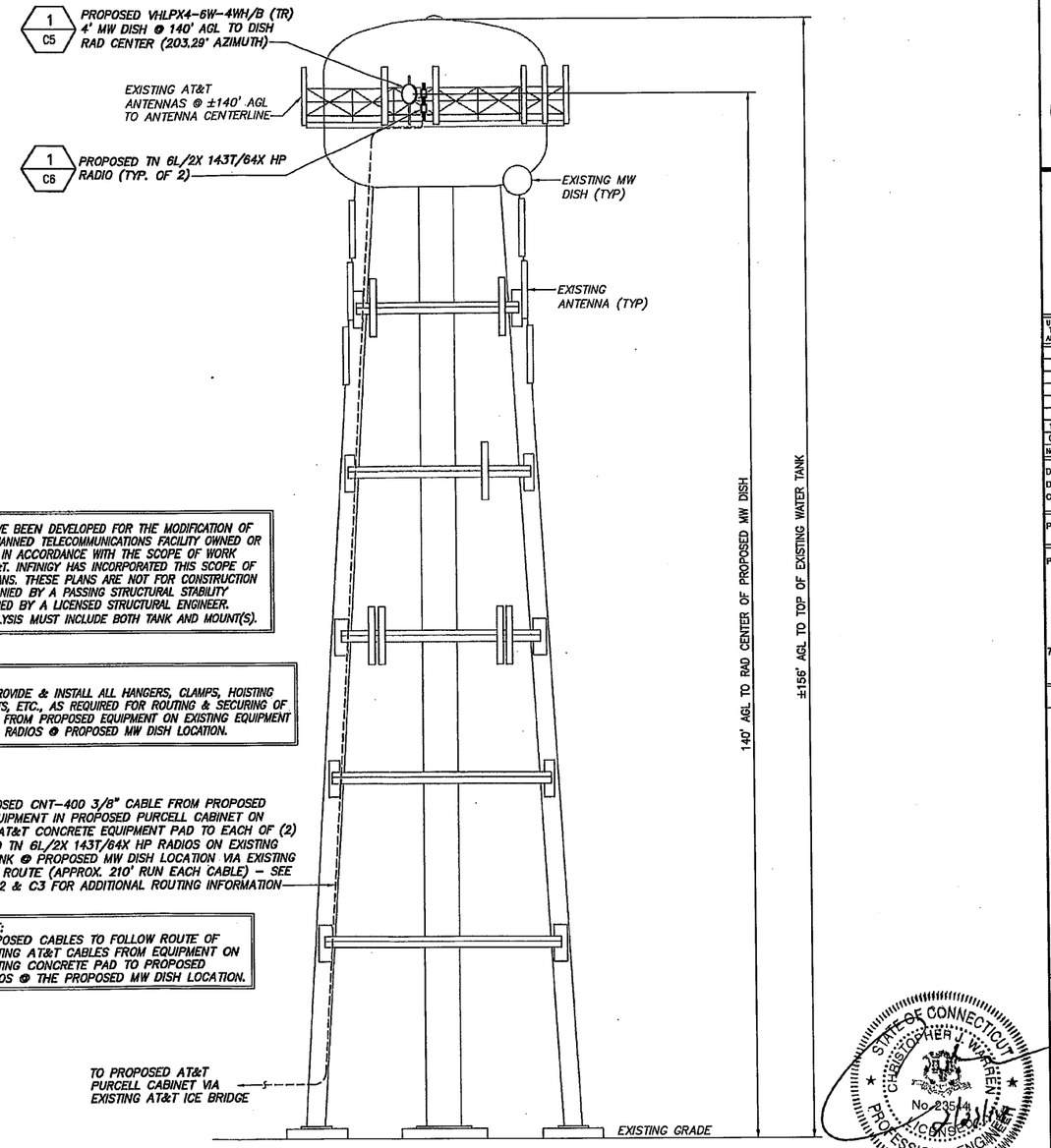
THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY OWNED OR LEASED BY AT&T IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY AT&T. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TANK AND MOUNT(S).

NOTE:
CONTRACTOR TO PROVIDE & INSTALL ALL HANGERS, CLAMPS, HOISTING GRIPS, GROUND KITS, ETC., AS REQUIRED FOR ROUTING & SECURING OF PROPOSED CABLES FROM PROPOSED EQUIPMENT ON EXISTING EQUIPMENT PAD TO PROPOSED RADIOS @ PROPOSED MW DISH LOCATION.

(1) PROPOSED CNT-400 3/8" CABLE FROM PROPOSED RADIO EQUIPMENT IN PROPOSED PURCELL CABINET ON EXISTING AT&T CONCRETE EQUIPMENT PAD TO EACH OF (2) PROPOSED TN 6L/2X 143T/64X HP RADIOS ON EXISTING WATER TANK @ PROPOSED MW DISH LOCATION VIA EXISTING TANK LEG ROUTE (APPROX. 210' RUN EACH CABLE) – SEE SHEETS C2 & C3 FOR ADDITIONAL ROUTING INFORMATION

NOTE:
PROPOSED CABLES TO FOLLOW ROUTE OF EXISTING AT&T CABLES FROM EQUIPMENT ON EXISTING CONCRETE PAD TO PROPOSED RADIOS @ THE PROPOSED MW DISH LOCATION.

TO PROPOSED AT&T PURCELL CABINET VIA EXISTING AT&T ICE BRIDGE



1 WATER TANK ELEVATION
NOT TO SCALE

at&t
at&t MOBILITY CORP.
5841 BRIDGE STREET
EAST SYRACUSE, NY 13057

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Project Number
343-004

Project Title
MYSTIC
BROADWAY AVE
FA #: 10035098
7 BROADWAY AVENUE EXTENSION
MYSTIC, CT 06355

MICROWAVE PROJECT

GENERAL DYNAMICS
Wireless Services

INFINIGY
Engineering
Design-Build-Refine.
2325 SEWELL MILL ROAD
SUITE 130
MARIETTA, GA 30062
678-444-4465

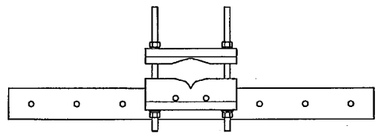
Drawing Scale:
AS NOTED
Date:
01/14/14

Drawing Title
WATER TANK ELEVATION

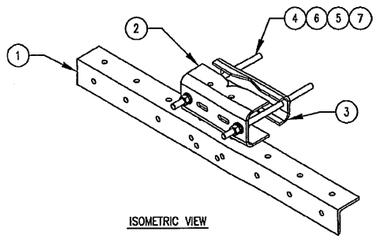
Drawing Number
C4

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23514
LICENSED
PROFESSIONAL ENGINEER

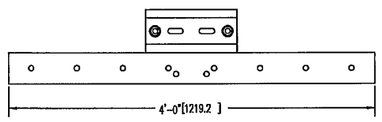
ITEM	PART NO.	DESCRIPTION	QTY.	WEIGHT
1	MD-CSA4	MD-CS 4' Angle	1	37.48 LBS
2	SWUZ08004	MOUNT	1	12.15 LBS
3	SWUZ080.06	CLAMP PLATE	1	6.43 LBS
4	MT-384-16	3/4" X 16" GALV THREADED ROD	2	2.00 LBS
5	SWL-06	3/4" GALV LOCK WASHER	4	0.01 LBS
6	SWF-06	3/4" GALV FLAT WASHER	4	0.04 LBS
7	GN-06	3/4" GALV HEX NUT	6	0.02 LBS
8	GB-05205	5/8" X 2" GALV BOLT KIT	2	0.13 LBS



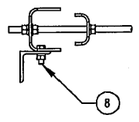
PLAN VIEW



ISOMETRIC VIEW



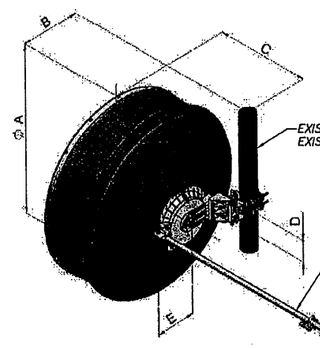
FRONT VIEW



SIDE VIEW

NOTES:
1. METRIC DIMENSIONS ARE IN BRACKETS.
2. FITS ROUND MEMBERS UP TO 5-5/8" OD.
3. ORDER QTY. AS REQUIRED.

1 / -- MW DISH STRUT SUPPORT DETAIL – BY COMMSCOPE
NOT TO SCALE



Dimensions in inches (mm)					
Antenna Size , ft.(m)	A	B	C	D	E
4 (1.2)	49.3 (1251)	17.5 (445)	27.4 (697)	6.3 (160)	11.9 (303)

*SEE DETAIL 1 THIS SHEET FOR STRUT SUPPORT DETAIL.

2 / -- MW DISH DETAIL – BY COMMSCOPE
NOT TO SCALE

NOTES:
TIE-BACK STABILIZATION RODS TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS & PER AZIMUTH ALLOWANCES.

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED
PROFESSIONAL ENGINEER

at&t
at&t MOBILITY CORP.
5841 BRIDGE STREET
EAST SYRACUSE, NY 13057

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FA #: 10035098

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MYSTIC, CT 06355

MICROWAVE PROJECT

GENERAL DYNAMICS
Wireless Services

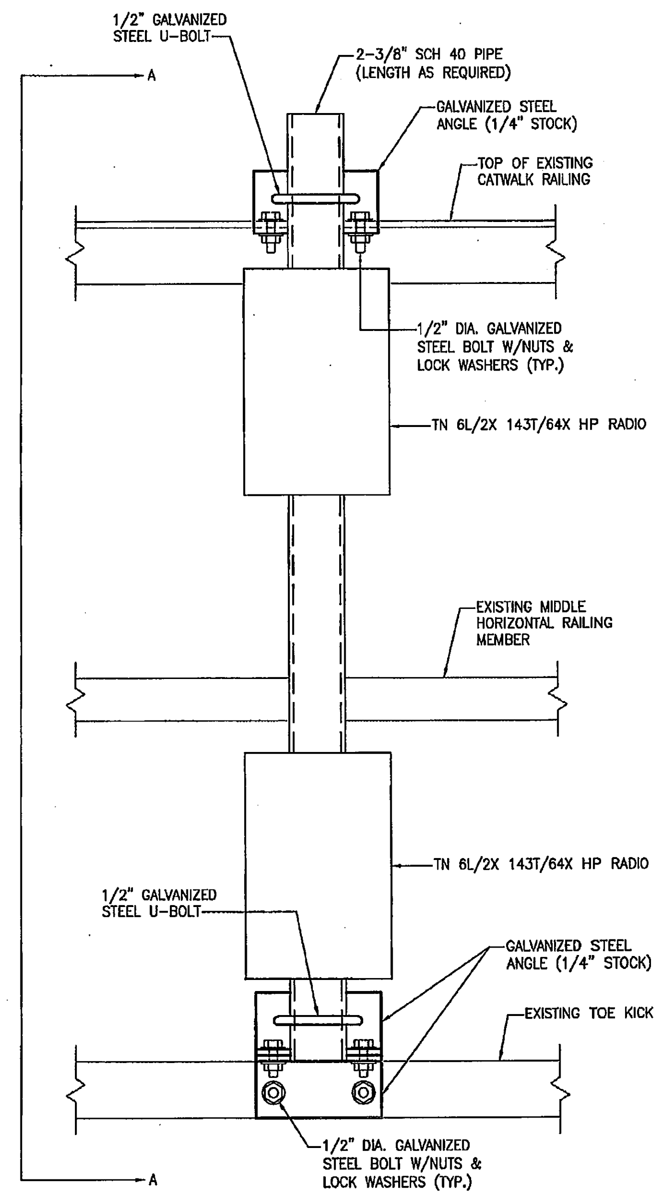
INFINIGY engineering
Design. Build. Deliver.
2235 SEWELL MILL ROAD
SUITE 130
MARIETTA, GA 30062
(770) 421-4463

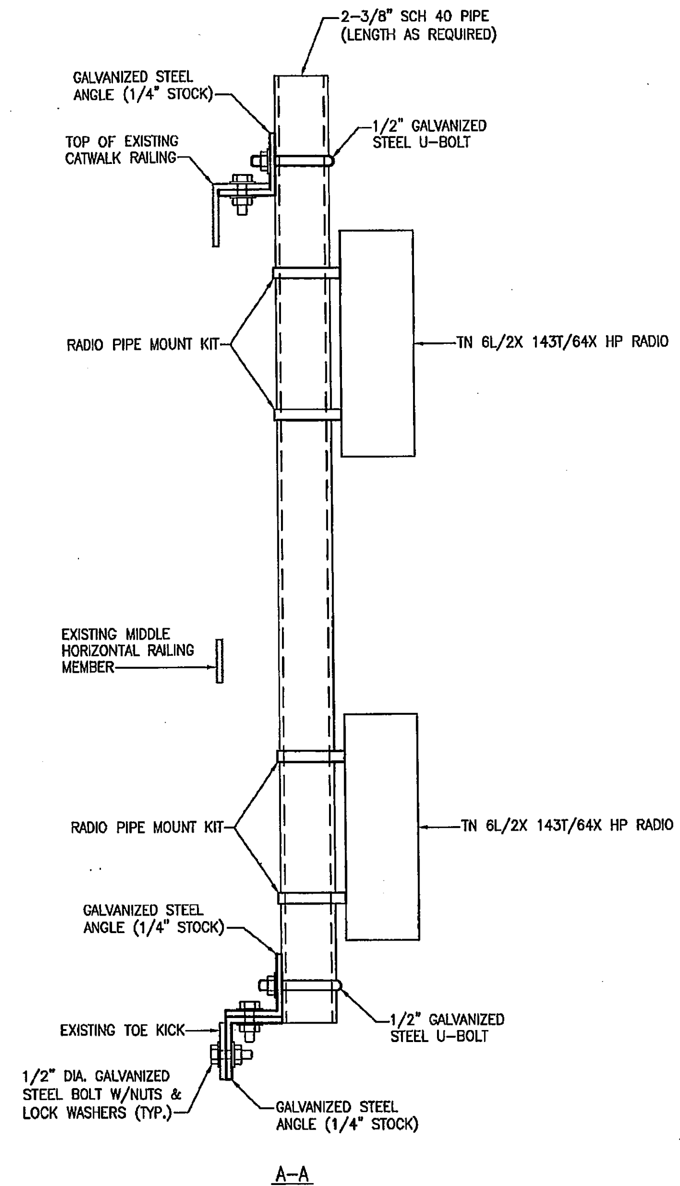
Drawing Scale:
AS NOTED

Date:
01/14/14

Drawing Title
MW DISH ATTACHMENT DETAILS

Drawing Number
C5





A-A

1 RADIO MOUNT DETAIL
NOT TO SCALE

STATE OF CONNECTICUT CHRISTOPHER J. WARD No. 28 LICENSED PROFESSIONAL ENGINEER

at&t

at&t MOBILITY CORP.
5841 BRIDGE STREET
EAST SYRACUSE, NY 13057

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No.	Submittal / Revision	App'd	Date
1	ISSUED FOR REVIEW	DAD	02/25/14
0	ISSUED FOR REVIEW	DAD	01/14/14

Drawn: TMA Date: 01/14/14
Designed: DAD Date: 01/14/14
Checked: BOB Date: 01/14/14

Project Number 343-004

Project Title
MYSTIC BROADWAY AVE
FA #: 10035098
7 BROADWAY AVENUE EXTENSION
MYSTIC, CT 06355

MICROWAVE PROJECT

GENERAL DYNAMICS
Wireless Services

INFINIGY8 engineering
2325 SEWELL MILL ROAD
SUITE 130
MARIETTA, GA 30062
678-444-4463

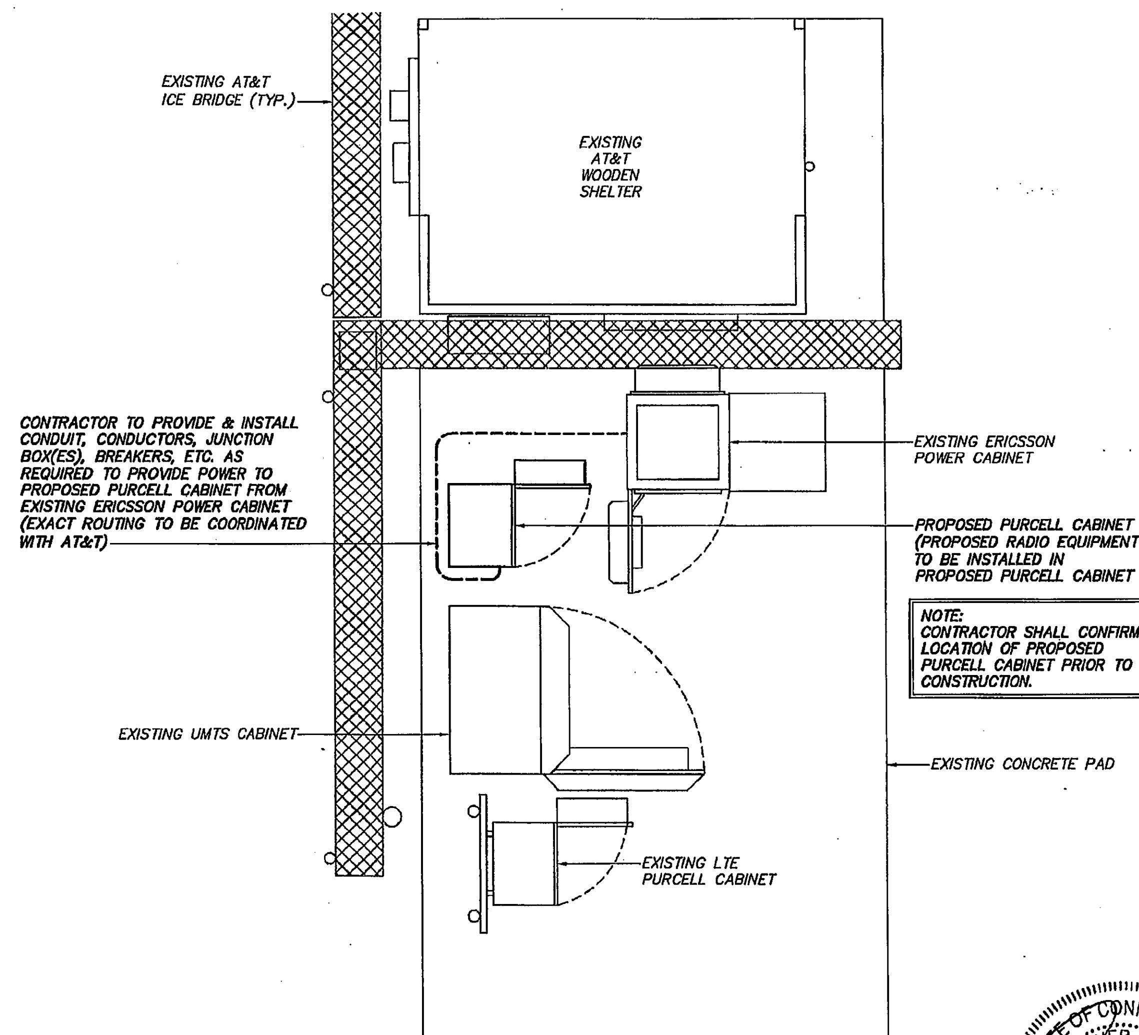
Drawing Scale: AS NOTED
Date: 01/14/14

Drawing Title
RADIO MOUNT DETAIL

Drawing Number
C6

ELECTRICAL INSTALLATION NOTES (AS APPLICABLE)

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND LOCAL ELECTRICAL CODE.
2. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND LOCAL CODE.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND LOCAL CODE.
5. CABLES SHALL NOT BE ROUTED THROUGH LADDER-TYPE CABLE TRAY RUNGS.
6. EACH END OF EVERY POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, ½ INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC, OSHA AND LOCAL CODE.
7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E. PANELBOARD AND CIRCUIT ID'S).
8. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.
9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
10. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#12 AWG OR LARGER), 600 V, OIL RESISTANT, THHN OR THWN-2, CLASS B STRANDED SOPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (16 AWG OR LARGER) 600 V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION, LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#12 AWG OR LARGER) 600 V OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION: WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.
13. ALL POWER CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT) SHALL BE USED FOR ALL INDOOR LOCATIONS.
16. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
17. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
18. CABINETS, BOXES AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
19. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD, SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
20. EQUIPMENT CABINET, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
21. METAL RECEPTACLE SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL 514 A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
22. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
23. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE OWNER BEFORE COMMENCING WORK ON THE POWER DISTRIBUTION PANELS.
24. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.
25. ALL ENCLOSURES TO BE STANDARD NEMA 3R ENCLOSURES.



1 EQUIPMENT PAD PLAN
SCALE: 2' 0 2' 4'

STATE OF CONNECTICUT — CHRISTOPHER J. WARREN — No. 23951 — LICENSED PROFESSIONAL ENGINEER

at&t MOBILITY CORP.
5841 BRIDGE STREET
EAST SYRACUSE, NY 13057

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Checked: RGB Date: 01/14/14

Project Number: 343-004

Project Title:
MYSTIC
BROADWAY AVE
FA #: 10035098
7 BROADWAY AVENUE EXTENSION
MYSTIC, CT 06355

MICROWAVE PROJECT

GENERAL DYNAMICS
Wireless Services

INFINIGY engineering
Design. Build. Deliver.
2255 SEWELL MILL ROAD
SUITE 130
MARIETTA, GA 30062
678-444-4463

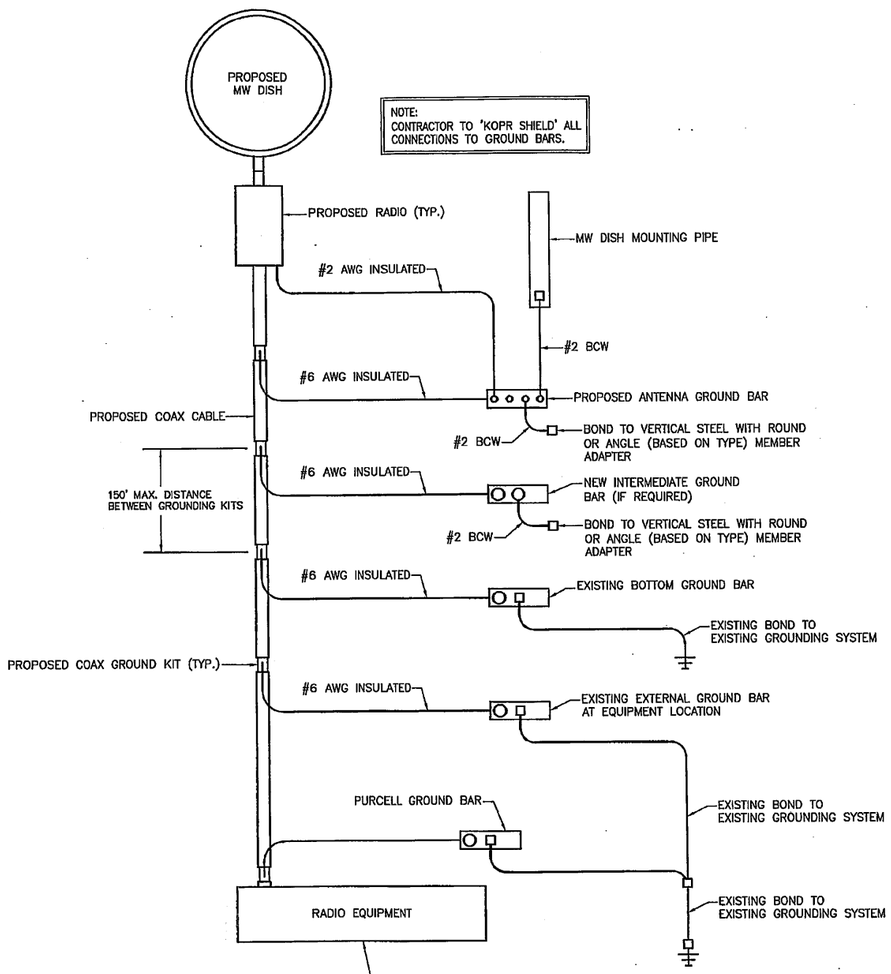
Drawing Scale: AS NOTED
Date: 01/14/14

Drawing Title: ELECTRICAL DETAILS

Drawing Number: E1

GENERAL GROUNDING NOTES:

1. GROUND ALL EXPOSED METALLIC OBJECTS USING A TWO-HOLE NEMA DRILLED CONNECTOR SUCH AS THOMAS & BETTS #32207 OR APPROVED EQUAL.
2. ALL EXTERIOR GROUND CONDUCTORS SHALL BE #2 AWG BARE SOLID TINNED COPPER. MAKE ALL GROUND CONNECTIONS AS SHORT AND DIRECT AS POSSIBLE. AVOID SHARP BENDS. THE RADIUS OF ANY BEND SHALL NOT BE LESS THAN 8" AND THE INCLUSIVE ANGLE OF ANY BEND SHALL NOT EXCEED 90°. GROUNDING CONDUCTORS SHALL BE ROUTED DOWNWARD TOWARD THE BURIED GROUND RING.
3. ALL BELOW GROUND EXTERNAL CONNECTIONS SHALL BE EXOTHERMICALLY WELDED. ALL EXOTHERMIC WELDS TO BURIED GROUND RING SHALL BE THE PARALLEL-TYPE, EXCEPT FOR THE GROUND RODS WHICH ARE TEE-TYPE EXOTHERMIC WELDS. REPAIR ALL GALVANIZED SURFACES THAT HAVE BEEN DAMAGED BY EXOTHERMIC WELDING. USE SPRAY GALVANIZED SUCH AS HOLUB LECTROSOL #15-501.
4. WHERE MECHANICAL CONNECTORS (TWO-HOLE OR CLAMP) ARE USED, APPLY A LIBERAL PROTECTIVE COATING OF A CONDUCTIVE ANTI-OXIDE COMPOUND ON ALL CONNECTORS. PROVIDE LOCK WASHERS ON ALL MECHANICAL CONNECTORS. USE STAINLESS STEEL HARDWARE THROUGHOUT. THOROUGHLY REMOVE ALL PAINT AND CLEAN ALL DIRT FROM SURFACES REQUIRING GROUND CONNECTORS, REPAINT TO MATCH EXISTING AFTER CONNECTION IS MADE TO MAINTAIN CORROSION RESISTANCE. ALL GROUND CONNECTIONS SHALL BE APPROVED FOR THE TYPES OF METALS BEING ATTACHED TO.
5. ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL.
6. THE GROUND CONDUCTORS SHALL BE RUN STRAIGHT FOR MINIMUM INDUCTANCE AND VOLTAGE DROP. SINCE CABLE BENDS INCREASE INDUCTANCE, THE MINIMUM REQUIRED BENDING RADIUS IS 8 INCHES WHEN BENDS ARE UNAVOIDABLE. ALL METAL WORK WITHIN 10 FEET OF THE GROUND RING SHALL BE DIRECTLY BONDED TO THIS GROUND SYSTEM, WITHOUT USING SERIES OR DAISY CHAIN CONNECTION ARRANGEMENTS.
7. PAINT, ENAMEL, LACQUER AND OTHER ELECTRICALLY NON-CONDUCTIVE COATINGS SHALL BE REMOVED FROM THREADS AND SURFACE AREAS WHERE CONNECTIONS ARE MADE TO ENSURE GOOD ELECTRICAL CONTINUITY.
8. CONNECTIONS BETWEEN DISSIMILAR METALS SHALL NOT BE MADE UNLESS THE CONDUCTORS ARE SEPARATED BY A SUITABLE MATERIAL THAT IS A PART OF THE ATTACHMENT DEVICE LISTED AND APPROVED FOR USE WITH THE SPECIFIC DISSIMILAR METALS MAY BE USED FOR THE PURPOSE.
9. ALL ABOVE GRADE GROUNDING TAILS LONGER THAN 36" TO BE ENCLOSED IN 3/4" RIGID PVC CONDUIT SECURED EVERY 36". ALL ABOVE GRADE GROUNDING TAILS LESS THAN 36" OR WHERE BENDS ARE REQUIRED SHALL BE ENCLOSED IN PVC NMLT CONDUIT & SECURED AS REQUIRED. ALL CONDUITS TO EXTEND 6" BELOW FINISH GRADE & THE ABOVE GRADE ENDS SEALED WITH CLEAR SILICONE.
10. INTERMEDIATE COAX GROUNDING TO BE INSTALLED ON VERTICAL RUNS THAT EXCEED 150 FEET IN LENGTH. CONTRACTOR SHALL COORDINATE WITH CONSTRUCTION MANAGER ON LOCATION OF INTERMEDIATE GROUNDING LOCATION.



1 GROUNDING RISER DIAGRAM
NOT TO SCALE

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23564
LICENSED PROFESSIONAL ENGINEER

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5941 BRIDGE STREET
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No.	Submittal / Revision	Appd.	Date
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0	ISSUED FOR REVIEW	DAD	01/14/14

Drawn: TMA Date: 01/14/14
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Project Number: 343-004

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MYSTIC
BROADWAY AVE
FA #: 10035098

7 BROADWAY AVENUE EXTENSION
MYSTIC, CT 06355

MICROWAVE PROJECT

GENERAL DYNAMICS
Wireless Services

INFINIGY engineering
Design. Build. Deliver.
2255 SIDELL RD. ROAD
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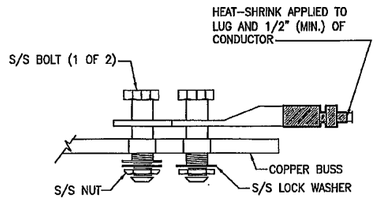
MARIETTA, GA 30062
678-444-4463

Drawing Scale: AS NOTED
Date: 01/14/14

Drawing Title:
GROUNDING
RISER DIAGRAM

Drawing Number:
E2

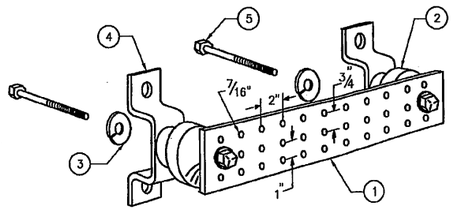


1 LUG DETAIL
NOT TO SCALE

1. ALL HARDWARE 18–8 STAINLESS STEEL INCLUDING BELLEVILLES. COAT ALL SURFACES WITH KOPR–SHEILD BEFORE MATING.

2. FOR GROUND, BOND TO STEEL ONLY: INSERT A LOCK WASHER BETWEEN LUG AND STEEL. COAT ALL SURFACES WITH KOPR–SHEILD.

3. ALL HARDWARE TO BE 3/8" DIAMETER.



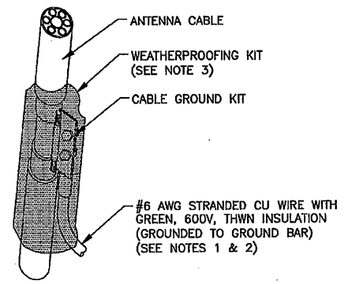
LEGEND

1 – SOLID TINNED COPPER GROUND BAR, 1/4"x 4"x 20" MIN., NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
2 – INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061–4
3 – 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015–8
4 – WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A–6056
5 – 5/8–11 X 1" H.H.C.S. BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012–1
6 – GROUND BAR SHALL BE SIZED TO ACCOMODATE ALL GROUNDING CONNECTIONS REQUIRED PLUS PROVIDE 50% SPARE CAPACITY
7 – GROUND BARS SHALL NEITHER BE FIELD FABRICATED NOR NEW HOLES DRILLED
8 – GROUND LUGS SHALL MATCH THE HOLE SPACING ON THE BAR
9 – HARDWARE DIAMETER SHALL BE MINIMUM 3/8"

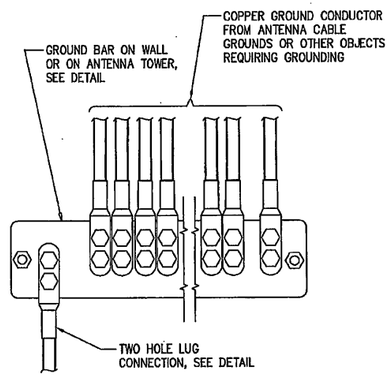
2 GROUND BAR
NOT TO SCALE

NOTES:

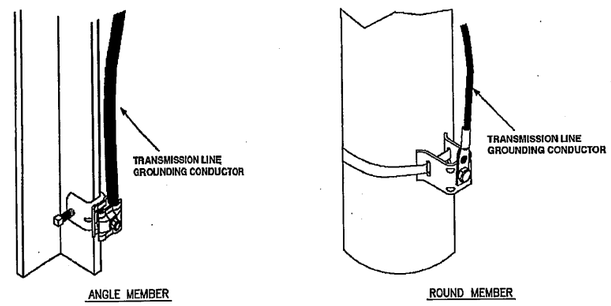
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHERPROOFING SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.



3 CONNECTION OF GROUND KIT TO COAX CABLE
NOT TO SCALE



4 INSTALLATION OF GROUND WIRE TO GROUND BAR
NOT TO SCALE



5 GROUNDING ADAPTER DETAILS
NOT TO SCALE

STATE OF CONNECTICUT
CHRISTOPHER J. WASIELEWSKI
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EAST SYRACUSE, NY 13057

No.	Submittal / Revision	App'd	Date
1	ISSUED FOR REVIEW	DAD	02/28/14
0	ISSUED FOR REVIEW	DAD	01/14/14

Drawn: TMA Date: 01/14/14
Designed: DAD Date: 01/14/14
Checked: RGB Date: 01/14/14

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(678) 441-4453

Drawing Scale:
AS NOTED

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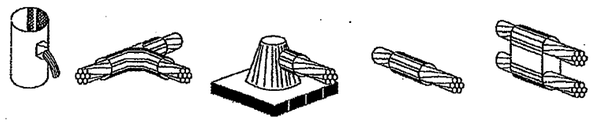
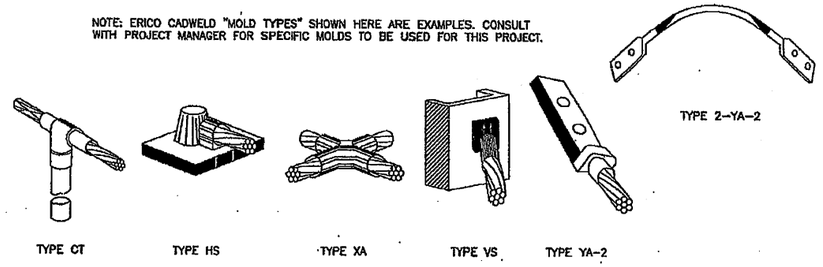
Drawing Title
GROUNDING DETAILS

Drawing Number
E3



TYPE VS TYPE TA TYPE HS TYPE SS TYPE PT

NOTE: ERICO CADWELD "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH PROJECT MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.



TYPE CT TYPE HS TYPE XA TYPE VS TYPE YA-2 TYPE 2-YA-2

1 EXOTHERMIC WELD DETAILS
NOT TO SCALE

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED
PROFESSIONAL ENGINEER
3/31/15

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at&t MOBILITY CORP.
5941 BRIDGE STREET
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