



August 29th, 2018

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

Re: Notice of Exempt Modification – Antenna and RRU Add
Property Address: 670 Captain Neville Drive, Waterbury, CT 06705
Applicant: AT&T Mobility, LLC

Dear Ms. Bachman:

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

AT&T currently maintains a wireless telecommunications facility consisting of nine (9) wireless telecommunication antennas at an antenna center line height of 155-feet on an existing 150-foot monopole, owned by Crown Castle at 3 Corporate Park Drive, Suite 101, Clifton Park, NY 12065. AT&T now intends to add two (2) 8' Kathrein 800-10966 Panel Antennas and (1) 6' Kathrein 800-10965 Panel Antenna, each to be installed in position [3] all sectors. In addition, AT&T also intends to add three (3) RRUs 4478 B5, three (3) RRU 4426 B66 and three (3) B14 4478, one of each in each sector, for a total of nine (9) new RRUs. In addition, AT&T is proposing to add two (2) Kaelus DBCT108F1V92-1 Low Band Combiners in each sector, for a total of six (6) new combiners. Lastly, AT&T is also proposing to add (1) Raycap Squid and (2) DC Power Cables to their equipment configuration. All of the changes will take place on the existing antenna mount.

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

Please accept this letter pursuant to Regulation of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent to James A. Sequin – City Planner, City of Waterbury, 235 Grand St. Waterbury, CT 06702 and Neil M. O'Leary – Mayor, City of Waterbury, 235 Grand St. Waterbury, CT 06702. A copy of this letter is being sent to the property owner, M B Realty LLC at 670 Captain Neville Dr. Waterbury, CT and to the tower company, Crown Castle at 3 Corporate Park Drive, Suite 101, Clifton Park, NY 12065.

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

- **EM-CING-079-138-151-155-164-070815** - New Cingular Wireless PCS, LLC notice of intent to modify existing telecommunications facilities located at 45 North Main Street, Marlborough; 623-627 Honeyspot Road, Stratford; 670 Captain Neville Road, **Waterbury**; 401 New Britain Avenue, West Hartford; and 50 Pine Lane, Windsor, Connecticut.
- **EM-CING-008-049-080-132-151-070904** - New Cingular Wireless PCS, LLC notice of intent to modify existing telecommunications facilities located at 719 Amity Road, Bethany; Bright Meadow Boulevard, Enfield; 462 (a/k/a 450-478) West Main Street, Meriden; 300 Governors Highway, South Windsor; and 670 Captain Neville Drive, **Waterbury**, Connecticut.
- **EM-CING-151-120511** - New Cingular Wireless PCS, LLC (AT&T) notice of intent to modify an existing telecommunications facility located at 670 Captain Neville Road, **Waterbury**, Connecticut.
- **EM-CING-151-140523** – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 670 Captain Neville Drive, **Waterbury**, Connecticut. Decision. Completion Letter.
- **EM-AT&T-151-160922** - AT&T notice of intent to modify an existing telecommunications facility located at 670 Captain Neville Drive, **Waterbury**, Connecticut.



The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72(b) (2).

1. The proposed modifications will not result in an increase in the height of the existing tower. AT&T's replacement antennas will be installed at the 155-foot level of the 150-foot monopole.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require an extension of the site boundary.
3. The proposed modifications will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in [Tab 2](#).
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in [Tab 3](#)).

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

Sincerely,

Romina Kirchmaier

CC w/enclosures:
James A. Sequin – City Planner, City of Waterbury, CT
Neil M. O'Leary – Mayor, City of Waterbury, CT
M B Realty LLC – Property Owners
Crown Castle – Tower Company



8618 Westwood Center Drive, Suite 315, Vienna, VA 22182
703.276.1100 • 703.276.1169 fax
info@sitesafe.com • www.sitesafe.com



**Smartlink on behalf of
AT&T Mobility, LLC
Site FA – 10035324
Site ID – CT1127 (MRCTB031786-
MRCTB031320-MRCTB031377)
USID – 46003
Site Name – Waterbury East**

**670 Captain Neville Drive
Waterbury, CT 06705**

Latitude: N41-32-03.57
Longitude: W72-58-08.40
Structure Type: Monopole

Report generated date: August 28, 2018
Report by: Zyotty Thamsil
Customer Contact: Romina Kirchmaier

**AT&T Mobility, LLC will be compliant when the
remediation recommended in Section 5.2 or
other appropriate remediation is implemented.**

Sitesafe logo is a registered trademark of Site Safe, LLC. All rights reserved.

Table of Contents

1	GENERAL SITE SUMMARY.....	2
1.1	REPORT SUMMARY	2
1.2	SIGNAGE SUMMARY	2
1.3	FALL ARREST ANCHOR POINT SUMMARY	2
2	SCALE MAPS OF SITE.....	3
3	ANTENNA INVENTORY	5
4	EMISSION PREDICTIONS	7
5	SITE COMPLIANCE	10
5.1	SITE COMPLIANCE STATEMENT	10
5.2	ACTIONS FOR SITE COMPLIANCE	10
6	REVIEWER CERTIFICATION	11
	APPENDIX A – STATEMENT OF LIMITING CONDITIONS	12
	APPENDIX B – REGULATORY BACKGROUND INFORMATION	13
	FCC RULES AND REGULATIONS	13
	OSHA STATEMENT.....	14
	APPENDIX C – SAFETY PLAN AND PROCEDURES.....	15
	APPENDIX D – RF EMISSIONS.....	16
	APPENDIX E – ASSUMPTIONS AND DEFINITIONS	17
	GENERAL MODEL ASSUMPTIONS	17
	USE OF GENERIC ANTENNAS.....	17
	DEFINITIONS	18
	APPENDIX F – REFERENCES	20

1 General Site Summary

1.1 Report Summary

AT&T Mobility, LLC	Summary
Access to Antennas Locked?	No
Max Cumulative Simulated RFE Level on the Ground	<1% General Public Limit
FCC & AT&T Compliant?	Will Be Compliant
Optional AT&T Mitigation Items?	No








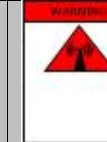

The following documents were provided by the client and were utilized to create this report:

RFDS: NYC-NNJ_NYC_NWL00577_2019-New-Site_LTE_hv456p_2191A0CHZ3_14209077_205201_04-08-2018_Preliminary-Submitted-for-Approval_v1.00

CD's: 18056.00 W-577 Roxbury - NSB - CONCEPTUAL DRAWING - REV C_18.04.13

RF Powers Used: NYC-NNJ_NYC_NWL00577_2019-New-Site_LTE_hv456p_2191A0CHZ3_14209077_205201_04-08-2018_Preliminary-Submitted-for-Approval_v1.00

1.2 Signage Summary

AT&T Signage Locations									
	Information 1	Information 2	Notice	Notice 2	Caution	Caution 2	Warning	Warning 2	Barriers
Access Point(s)	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]
Alpha	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]
Beta	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]
Gamma	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]

1.3 Fall Arrest Anchor Point Summary

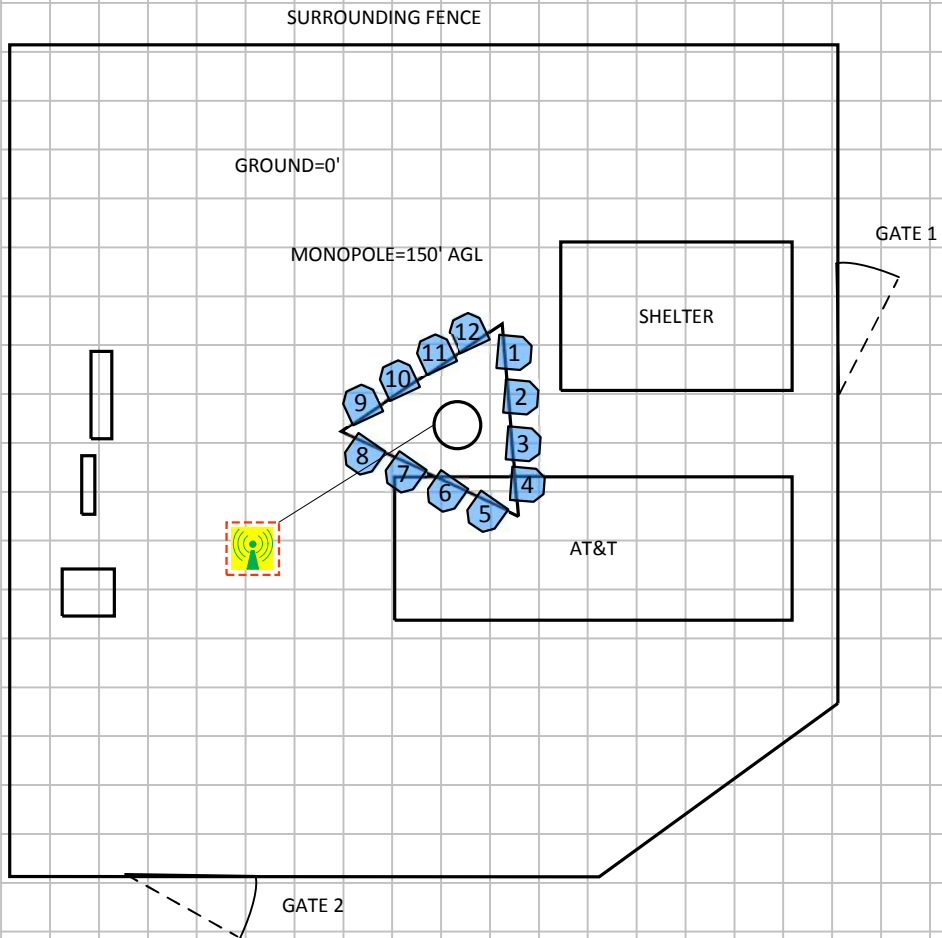
Fall Arrest Anchor & Parapet Info	Parapet Available (Y/N)	Parapet Height (inches)	Fall Arrest Anchor Available (Y/N)
Roof Safety Info	N	N/A	N

2 Scale Maps of Site

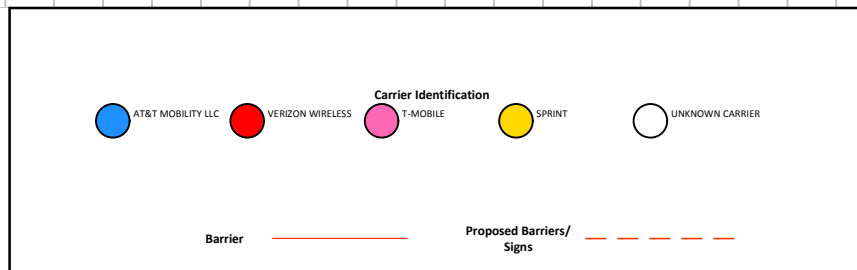
The following diagrams are included:

-) Site Scale Map
-) RF Exposure Diagram
-) RF Exposure Diagram – Elevation View

Site Scale Map For: Waterbury East



(Feet)
 0 7.4 14.7
 www.sitesafe.com
 Site Name: Waterbury East
 8/27/2018 1:33:09 PM



3 Antenna Inventory

The following antenna inventory was obtained by the customer and was 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)	3G UMTS Radio(s)	4G Radio(s)	Total ERP (Watts)	X	Y	Z (AGL)
1	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	850	23	87.6	4.5	11.35	1	0	252.9	103.7'	142.4'	152.7'
2	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H8	Panel	737	23	63.9	7.7	12.26	0	1	1475.7	104.2'	139'	151.1'
2	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H8	Panel	2300	23	63.7	7.7	14.66	0	1	1285.3	104.2'	139'	151.1'
3	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	5G 850	23	66	8	14.25	0	1	500	104.4'	135.4'	151'
3	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	763	23	67.9	8	13.55	0	1	2951.4	104.4'	135.4'	151'
3	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	850	23	66	8	14.25	0	1	500	104.4'	135.4'	151'
4	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	1900	23	68.2	8	13.86	0	1	3664.4	104.7'	132.3'	151'
4	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	1900	23	68.2	8	13.86	0	1	3664.4	104.7'	132.3'	151'
4	AT&T MOBILITY LLC (PROPOSED)	CCI Antennas TPA-65R-LCUUUU-H8	Panel	2100	23	65.2	8	13.96	0	1	3837.1	104.7'	132.3'	151'
5	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	850	143	87.6	4.5	11.35	1	0	253.5	101.4'	130.1'	152.7'
6	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H8	Panel	737	143	63.9	7.7	12.26	0	1	1475.7	98.4'	131.6'	151.1'
6	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H8	Panel	2300	143	63.7	7.7	14.66	0	1	1285.3	98.4'	131.6'	151.1'
7	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	5G 850	143	66	8	14.25	0	1	500	95.2'	133.1'	151'
7	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	763	143	67.9	8	13.55	0	1	2951.4	95.2'	133.1'	151'
7	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	850	143	66	8	14.25	0	1	500	95.2'	133.1'	151'
8	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	1900	143	68.2	8	13.86	0	1	3664.4	92.1'	134.5'	151'
8	AT&T MOBILITY LLC	CCI Antennas TPA-65R-LCUUUU-H8	Panel	1900	143	68.2	8	13.86	0	1	3664.4	92.1'	134.5'	151'
8	AT&T MOBILITY LLC (PROPOSED)	CCI Antennas TPA-65R-LCUUUU-H8	Panel	2100	143	65.2	8	13.96	0	1	3837.1	92.1'	134.5'	151'
9	AT&T MOBILITY LLC	Kathrein-Scala 800-10121	Panel	850	263	87.6	4.5	11.35	1	0	252.9	91.9'	138.5'	152.7'
10	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H6	Panel	737	263	66	6	11.66	0	1	1475.7	94.8'	140.4'	152'
10	AT&T MOBILITY LLC	CCI Antennas OPA-65R-LCUU-H6	Panel	2300	263	60	6	15.46	0	1	1285.3	94.8'	140.4'	152'
11	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	5G 850	263	66	8	14.25	0	1	500	97.6'	142.4'	151'
11	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	763	263	67.9	8	13.55	0	1	2951.4	97.6'	142.4'	151'
11	AT&T MOBILITY LLC (PROPOSED)	Kathrein-Scala 800-10966	Panel	850	263	66	8	14.25	0	1	500	97.6'	142.4'	151'

Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Ant Gain (dBd)	3G UMTS Radio(s)	4G Radio(s)	Total ERP (Watts)	X	Y	Z (AGL)
12	AT&T MOBILITY LLC	Quintel QS66512-2	Panel	1900	263	68	6	14.16	0	1	3664.4	100.1'	144'	152'
12	AT&T MOBILITY LLC	Quintel QS66512-2	Panel	1900	263	68	6	14.16	0	1	3664.4	100.1'	144'	152'
12	AT&T MOBILITY LLC (PROPOSED)	Quintel QS66512-2	Panel	2100	263	57	6	14.76	0	1	3837.1	100.1'	144'	152'

NOTE: X, Y and Z indicate relative position of the bottom 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. The distance to the bottom of the antenna is calculated by subtracting half of the length of the antenna from the antenna centerline. 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.

Note: The 2100 MHz LTE technology is being added to an existing antenna.

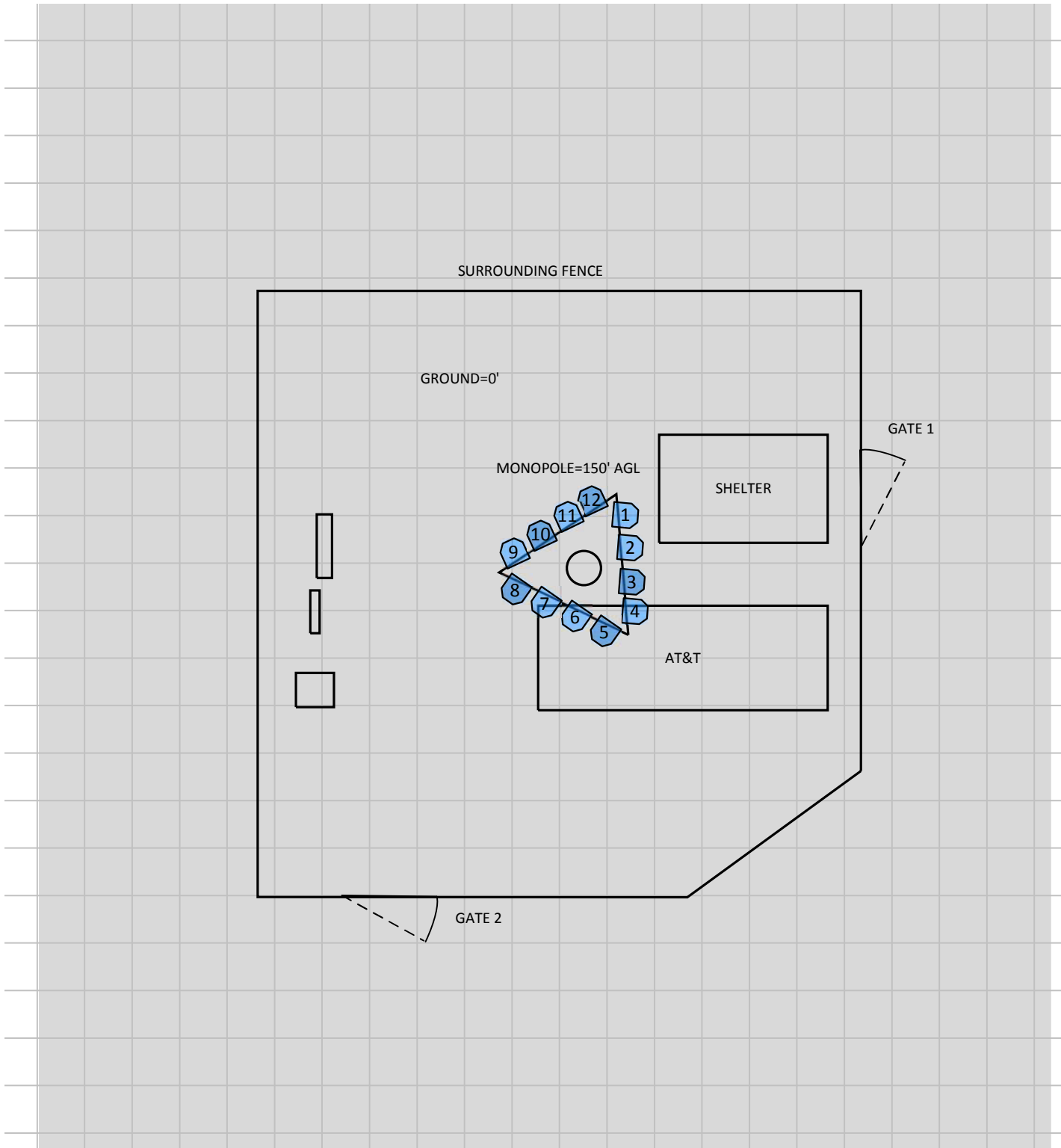
4 Emission Predictions

In the RF Exposure Simulations below all heights are reflected with respect to main site level. In most rooftop cases this is the height of the main rooftop and in other cases this can be ground level. Each different height area, rooftop, or platform level is labeled with its height relative to the main site level. Emissions are calculated appropriately based on the relative height and location of that area to all antennas. The total analyzed elevations in the below RF Exposure Simulations are listed below.

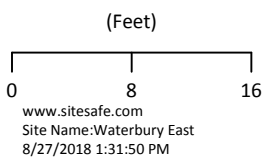
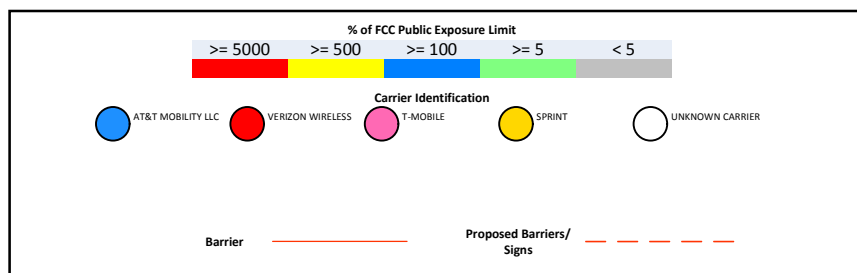
) Ground = 0'

The Antenna Inventory heights are referenced to the same level.

RF Exposure Simulation For: Waterbury East

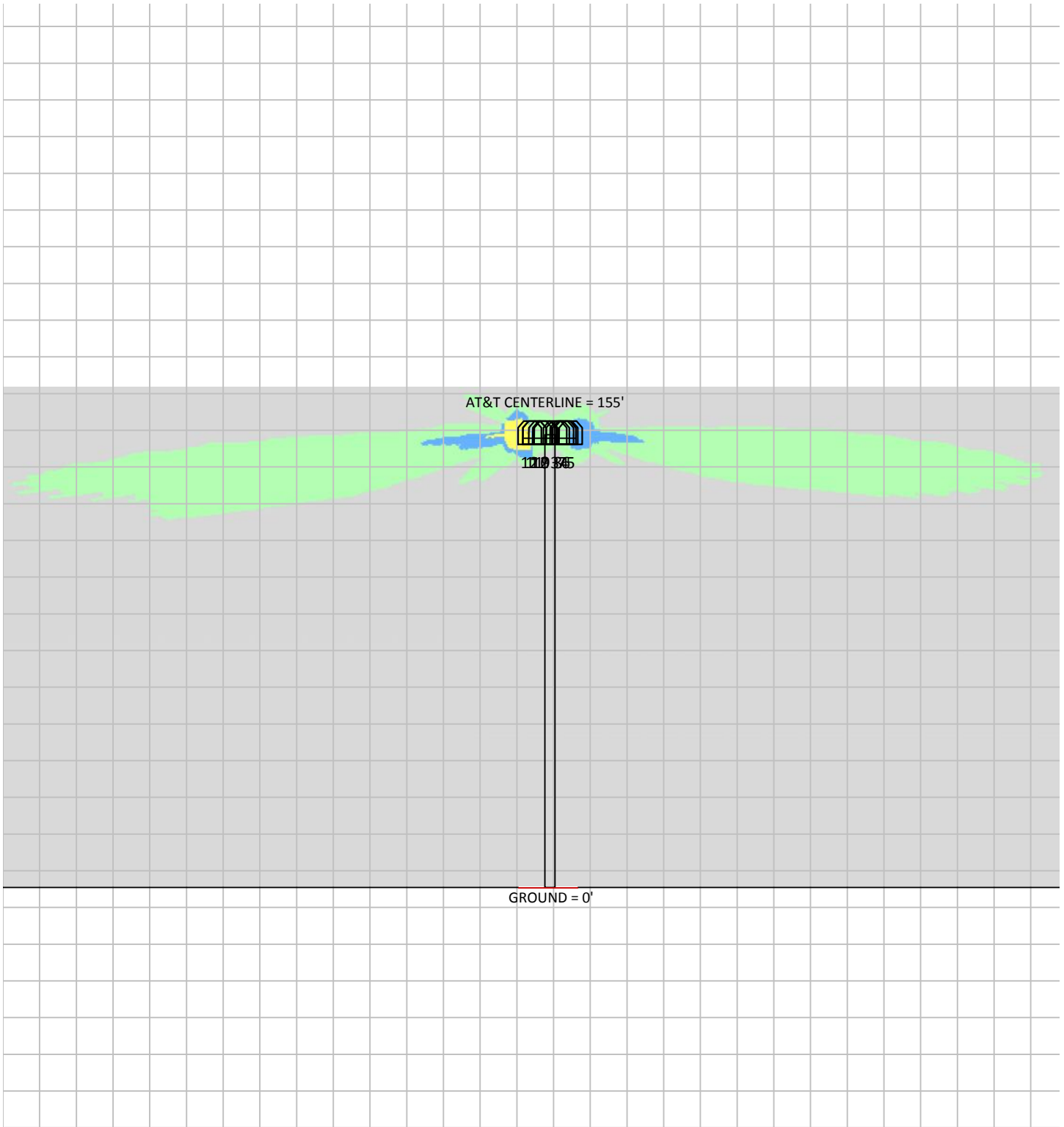


% of FCC Public Exposure Limit
Spatial average 0' - 6'

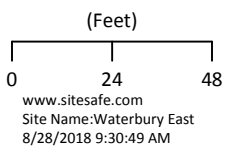
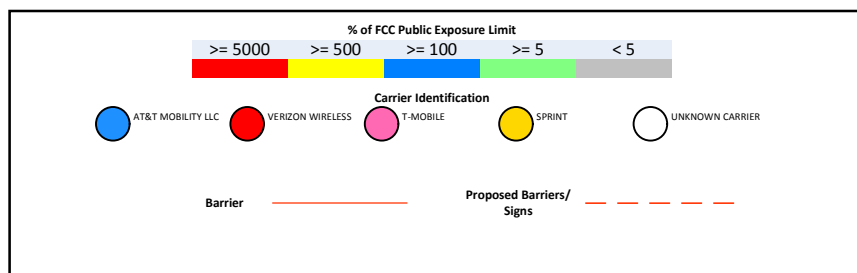


Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Spatially Averaged

RF Exposure Simulation For: Waterbury East Elevation View



% of FCC Public Exposure Limit



Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Single Level (0)

5 Site Compliance

5.1 Site Compliance Statement

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

AT&T Mobility, LLC will be compliant when the remediation recommended in Section 5.2 or other appropriate remediation is implemented.

The compliance determination is based on General Public RFE levels derived from theoretical modeling, RF signage placement, and the level of restricted access to the antennas at the site.

Modeling is used for determining compliance and the percentage of MPE contribution.

5.2 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. Recommendations have been proposed based on our understanding of existing access restrictions, signage, and an analysis of predicted RFE levels.

AT&T Mobility, LLC will be made compliant if the following changes are implemented:

Site Access Location

(1) Caution 2B sign(s) is required to be installed on the base of the pole.

Notes:

-) Data concerning all other carriers on site was unavailable and therefore not included in this report.
-) Signage may already be in place. Sitesafe does not have record of any existing signage because there were no previous visits or data supplied regarding them. All remediation is based on a worst-case scenario.

6 Reviewer Certification

The reviewer whose signature appears below hereby certifies and affirms:

That I am an employee of Sitesafe, LLC., in Vienna, 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 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 Zyotty Thamsil.

August 28, 2018



Appendix A – Statement of Limiting Conditions

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, that Sitesafe became aware of during the normal research involved in creating this report. 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 collected by Sitesafe provided by a second party and data collected by Sitesafe, the data will be used.

Appendix B – Regulatory Background Information

FCC Rules and Regulations

In 1996, the Federal Communications 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.

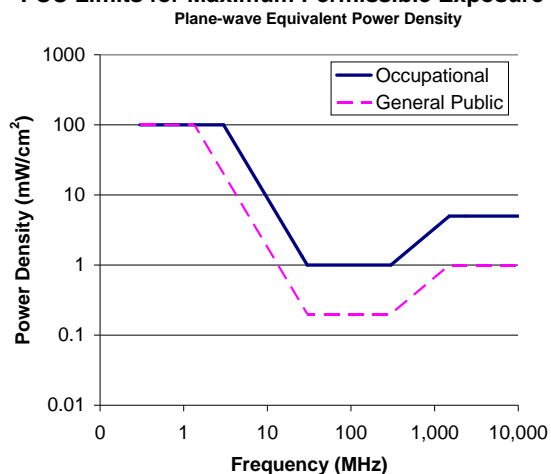
Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

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:

FCC Limits for Maximum Permissible Exposure (MPE)



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 4 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

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

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

- J Areas indicated as Gray are predicted to be below 5% of the MPE limits. Gray represents areas more than 20 times below the most conservative exposure limit.
- J Green represents areas are predicted to be between 5% and 100% of the MPE limits. **Green areas are accessible to anyone.**
- J Blue represents areas predicted to exceed the General Public MPE limits but are less than Occupational limits. **Blue areas should be accessible only to RF trained workers.**
- J Yellow represents areas predicted to exceed Occupational MPE limits. Yellow areas should be accessible only to RF trained workers able to assess current exposure levels.
- J Red represents areas predicted to have exposure more than 10 times the Occupational MPE limits. **Red indicates that the RF levels must be reduced prior to access.** An RF Safety Plan is required which outlines how to reduce the RF energy in these areas prior to access.

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 modeling is based on recommendations from the FCC's OET-65 bulletin with the following variances per AT&T guidance. Reflection has not been considered in the modeling, i.e. the reflection factor is 1.0. The near / far field boundary has been set to 1.5 times the aperture height of the antenna and modeling beyond that point is the lesser of the near field cylindrical model and the far field model taking into account the gain of the antenna.

The site has been modeled with these assumptions to show the maximum RF energy density. Areas modeled with exposure greater than 100% of the General Public MPE level may not actually occur, but are shown as a prediction that could be realized. Sitesafe believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor).

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 exposure to RF energy 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 maximum levels of RF exposure a person may be exposed to 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 (RF) – The frequencies of electromagnetic waves which are used for radio communications. Approximately 3 kHz to 300 GHz.

Radio Frequency Exposure (RFE) – The amount of RF power density that a person is or might be exposed to.

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 power density an average sized human will be exposed to at a location.

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, LLC.

<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?sitearea=PED

European Commission Scientific Committee on Emerging and Newly Identified Health Risks

http://ec.europa.eu/health/ph_risk/committees/04_scenihp/docs/scenihp_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>

Location: 670 CAPT NEVILLE DR **Owner:** M B REALTY LLC

Property Information:			
Map Block Lot:	0450-0490-0070	Acres:	8.88
Primary Use:	Light Industrial	Zone:	IP
Neighborhood:	85000-Industrial Park	Vol/Page:	3298
Mailing Address:	M B REALTY LLC 670 CAPTAIN NEVILLE DR WATERBURY CT 067050000		
Property Values:			
	Appraised Value	Assessed Value (70%)	
Building	2298424	1608900	
Land	477464	334220	
OutBuilding	48610	34030	
Total	2824498	1977150	
Building Information:			
Bldg Style:		Living Area:	69700sq.ft
Construction:	Average	Year Built:	1990
Exterior Wall:	Concrete Precast Panel	Stories:	2
Roof Cover:		Heating:	Space Heater
Condition:	Good	Heat Fuel:	Gas
Rooms:	0	Bedrooms:	0
Full Baths:	0	Half Baths:	0
Outbuilding Information:			
Type	Area (sq.ft)	Year Built	Condition
Canopy Canopy	400sq.ft	2001	Average
Concrete Paving	340sq.ft	1996	Average
Concrete Block/Frame Shed	176sq.ft	1996	Average
Asphalt Paving	25452sq.ft	1996	Average

[Close](#)



Date: **August 1, 2018**

Denice Nicholson
Crown Castle
3 Corporate Park Drive Suite 101
Clifton Park, NY 12065

MasTec Network Solutions
1000 Centregreen Way, Suite 300
Cary, NC 27513
(919) 674-5866

Subject: Structural Analysis Report

Carrier Designation:

AT&T Mobility Co-Locate

Carrier Site Number:

CTL01127

Carrier Site Name:

Waterbury Tower

Crown Castle Designation:

Crown Castle BU Number:

881534

Crown Castle Site Name:

WATERBURY TOWER

Crown Castle JDE Job Number:

519599

Crown Castle Work Order Number:

1605083

Crown Castle Order Number:

451001 Rev. 0

Engineering Firm Designation:

MasTec Network Solutions Project Number: 16077-SAR2

Site Data:

670 Captain Neville Drive, Waterbury, New Haven County, CT

Latitude 41° 32' 3.6", Longitude -72° 58' 8.4"

150 Foot - Monopole Tower

Dear Denice Nicholson,

MasTec Network Solutions is pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural ‘Statement of Work’ and the terms of Crown Castle Purchase Order Number 1224136, in accordance with order 451001, revision 0.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Existing + Reserved + Proposed Equipment

Sufficient Capacity

Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category C with a maximum topographic factor, Kzt, of 1.000 and Risk Category II were used in this analysis.

We at MasTec Network Solutions appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: PDH

Respectfully submitted by:

Raphael I. Mohamed, PE, PEng
Senior Director of Engineering
CT PE License No. 25112



TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

Table 1 - Proposed Antenna and Cable Information

Table 2 - Existing and Reserved Antenna and Cable Information

Table 3 - Design Antenna and Cable Information

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

3.1) Analysis Method

3.2) Assumptions

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Table 6 – Tower Component Stresses vs. Capacity

4.1) Recommendations

5) APPENDIX A

tnxTower Output

6) APPENDIX B

Base Level Drawing

7) APPENDIX C

Additional Calculations

1) INTRODUCTION

This tower is a 150 ft Monopole tower designed by Engineered Endeavors, Inc. in November of 2011. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standard for Antenna Supporting Structures and Antennas using a 3-second gust wind speed of 97 mph with no ice, 50 mph with 0.75 inch ice thickness and 60 mph under service loads, exposure category C with topographic category 1 and crest height of 0 feet.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
150.0	151.0	1	cci antennas	OPA-65R-LCUU-H6 w/ Mount Pipe	1 4	3/8* 3/4*	-
		2	cci antennas	TPA-65R-LCUUUU-H8 w/ Mount Pipe			
		1	quintel technology	QS66512-2 w/ Mount Pipe			
		6	cci antennas	TPX-070821			
		3	ericsson	RRUS 32			
		1	raycap	DC6-48-60-18-8F			
	150.0	2	cci antennas	OPA-65R-LCUU-H8 w/ Mount Pipe			
		2	kathrein	80010966 w/ Mount Pipe			
		1	kathrein	80010965K w/ Mount Pipe			
		3	ericsson	RRUS 4426 B66			
		3	ericsson	RRUS 4478 B14			
		3	ericsson	RRUS 4478 B5			
		6	kaelus	DBCT108F1V92-1			
		3	powerwave tech	LGP21401			
1	raycap	DC6-48-60-18-8F					

*Feedlines To Be Installed in Conduit

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note	
150.0	151.0	3	kathrein	800 10121	-	-	3	
		3	cci antennas	OPA-65R-LCUU-H6				
		1	powerwave tech	LGP21401				
		4	powerwave tech	LGP13519				
		3	cci antennas	DTMABP7819VG12A				
		3	ericsson	RRUS 12 W/O SOLAR SHIELD				
		3	kathrein	800 10121				
		3	ericsson	RRUS 11				
		3	ericsson	RRUS 12 W/O SOLAR SHIELD				
		3	ericsson	RRUS A2 MODULE				
		3	powerwave tech	LGP21401				
	1	raycap	DC6-48-60-18-8F					
	150.0	1	tower mounts	Platform Mount [LP 1301-1]	2	3/4*	1	
140.0	142.0	4	andrew	VHLP2-11	3	1/2		
		1	motorola	TIMING 2000				
	140.0	140.0	4	dragonwave	HORIZON COMPACT	4		1-1/4
			3	rfs celwave	APXVTM14-ALU-I20 w/ Mount Pipe			
			3	commscope	NNVV-65B-R4 w/ Mount Pipe			
			6	alcatel lucent	RRH2X50-800			
			3	alcatel lucent	PCS 1900MHZ 4X45W-65MHZ			
			3	alcatel lucent	TD-RRH8X20-25			
	1	tower mounts	Platform Mount [LP 712-1]					

Notes:
 1) Existing Equipment
 2) Reserved Equipment
 3) Existing Equipment To Be Removed. Was Not Considered In This Analysis.
 *Feedlines Installed in Conduit

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
150.0	150.0	12	allgon	A-800-110 Panel Antennas		-
140.0	140.0	12	allgon	A-800-110 Panel Antennas		-
130.0	130.0	12	allgon	A-800-110 Panel Antennas		-
120.0	120.0	9	allgon	A-800-110 Panel Antennas		-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Clarence Welti Assoc., Inc.	1405752	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Candid Communications	1406237	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Engineered Endeavors, Inc.	1405785	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.2.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. MasTec Network Solutions should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	150 - 123.29	Pole	TP23.17x17x0.1875	1	-7.89	936.21	96.7	Pass
L2	123.29 - 87.79	Pole	TP30.86x22.005x0.3125	2	-13.54	2176.98	88.6	Pass
L3	87.79 - 43.21	Pole	TP40.4x29.2294x0.375	3	-23.66	3398.73	83.6	Pass
L4	43.21 - 0	Pole	TP49.5x38.3779x0.4375	4	-26.25	4045.46	74.2	Pass
							Summary	
						Pole (L1)	96.7	Pass
						RATING =	96.7	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	74.4	Pass
1	Base Plate	0	93.4	Pass
1	Base Foundation	0	90.9	Pass
1	Base Foundation Soil Interaction	0	48.2	Pass

Structure Rating (max from all components) =	96.7%
---	--------------

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

SHEET INDEX

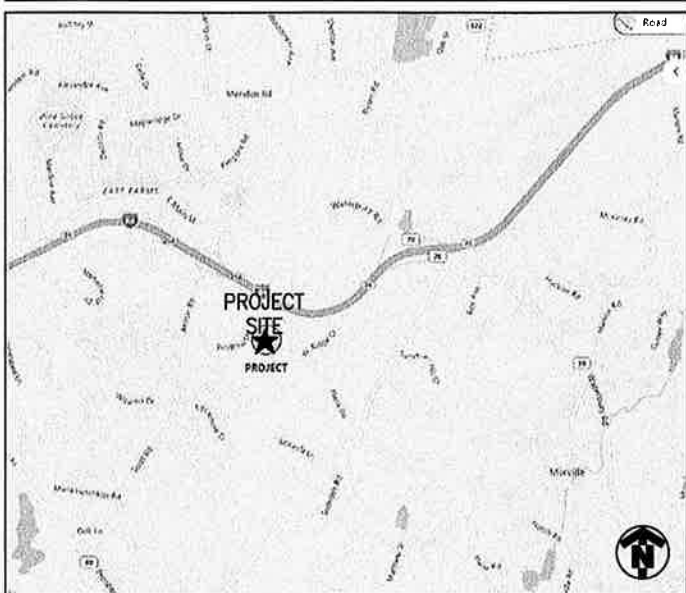
NO.	DESCRIPTION
T1	TITLE SHEET
C1	GENERAL NOTES
C2	OVERALL & ENLARGED SITE PLAN
C3	ELEVATION VIEW
C4	ANTENNA ORIENTATION PLAN
C5	EQUIPMENT DETAILS
C6	PLUMBING DIAGRAM
C7	GROUNDING DETAILS

DRIVING DIRECTIONS

FROM 550 COCHITUATE RD.:

DEPART RT-30 W / COCHITUATE RD TOWARD BURR ST, TURN BACK ON RT-30 E / COCHITUATE RD, TAKE RAMP RIGHT FOR I-90 WEST TOWARD SPRINGFIELD / WORCESTER, AT EXIT 9, TAKE RAMP RIGHT FOR I-84 TOWARD HARTFORD / NEW YORK CITY, AT EXIT 25A, TAKE RAMP RIGHT AND FOLLOW SIGNS FOR AUSTIN RD, TURN LEFT ONTO AUSTIN RD, TURN LEFT ONTO CAPTAIN NEVILLE DR, TURN RIGHT ONTO PROGRESS LN, ARRIVE AT 670 CAPTAIN NEVILLE DRIVE, WATERBURY, CT 06705.

LOCATION MAP



PROJECT
LTE 4C/5C/6C
SITE NAME
WATERBURY EAST
CELL SITE ID
CTL01127
FA SITE NUMBER
10035324
PAGE ID
MRCTB031786/MRCTB031320/
MRCTB031377
SITE ADDRESS
670 CAPTAIN NEVILLE DRIVE
WATERBURY, CT 06705
STRUCTURE TYPE
MONOPOLE
PROJECT TEAM

PROJECT MANAGER

1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

ENGINEER

SCOPE OF WORK (PER LTE RFDS, DATED: 6/13/2018, V2.00):

- HANDICAP ACCESS REQUIREMENTS ARE NOT REQUIRED.
- FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.
- FACILITY HAS NO PLUMBING OR REFRIGERANTS.
- THIS FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REGULATORY REQUIREMENTS.
- ALL NEW MATERIAL SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR UNLESS NOTED OTHERWISE. EQUIPMENT, ANTENNAS/RRU AND CABLES FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR.

TOWER SCOPE

- INSTALL (3) PANEL ANTENNAS
- INSTALL (3) 4478 B5
- INSTALL (3) 4426 B66
- INSTALL (3) B14 4478
- INSTALL (6) DIPLEXER
- INSTALL (1) DC6 SQUID W/(2) DC CABLES

GROUND SCOPE

- UPGRADE DUS WITH 5216 AND IDLE
- ADD XMU
- ADD 6630

PROJECT SUMMARY

SITE NAME:	WATERBURY EAST		
CELL SITE ID:	CT01127		
FA SITE #:	10035324		
SITE ADDRESS:	670 CAPTAIN NEVILLE DRIVE WATERBURY, CT 06705		
COUNTY:	NEW HAVEN		
SITE COORDINATES:			
LATITUDE:	41.5343250° N	(NAD 83)	
LONGITUDE:	72.9689989° W	(NAD 83)	
ELEVATION:	±629'	(AMSL)	
RAD CENTER	±155'	(AGL)	
LANDLORD:	CROWN CASTLE 3 CORPORATE PARK DRIVE, SUITE 101 CLIFTON PARK, NY 12065 BU#: 881534		
APPLICANT:	AT&T MOBILITY 550 COCHITUATE RD. FRAMINGHAM, MA 01701		
CLIENT REPRESENTATIVE:	SMARTLINK, LLC 85 RANGEWAY RD. SUITE 102 NORTH BILLERICA, MA 01862		
CONTACT:	ED WEISSMAN (917) 528-1857		
ENGINEER:	INFINIGY 1033 WATERVLIET SHAKER ROAD ALBANY, NY 12205		
CONTACT:	ALEX WELLER (518) 690-0790		
BUILDING CODE:	CT BUILDING CODE UNIFORM BUILDING CODE BUILDING OFFICIALS & CODE ADMINISTRATORS UNIFORM MECHANICAL CODE UNIFORM PLUMBING CODE LOCAL BUILDING CODE CITY/COUNTY ORDINANCES		
ELECTRICAL CODE:	NATIONAL ELECTRICAL CODE (LATEST EDITION)		

Know what's below. Call before you dig.

TO OBTAIN LOCATION OF PARTICIPANTS UNDERGROUND FACILITIES BEFORE YOU DIG IN CONNECTICUT, CONTACT CALL BEFORE YOU DIG TOLL FREE: 1-800-922-4455 OR www.ctbyd.com

CONNECTICUT STATUTE REQUIRES MIN OF 2 WORKING DAYS NOTICE BEFORE YOU EXCAVATE

INFINIGY

1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

1	ISSUED FOR PERMIT	ASW	08/03/18
0	ISSUED FOR REVIEW	ASW	07/09/18
No.	Submital / Revision	App'd	Date
Drawn:	ASW	Date:	07/09/18
Designed:	ASW	Date:	07/09/18
Checked:	A.W.	Date:	07/19/18
Project Number: 499-006			
Project Title: WATERBURY EAST CTL01127 FA# 10035324 670 CAPTAIN NEVILLE DRIVE WATERBURY, CT 06705			
Prepared For: 			
Drawing Scale:	AS NOTED		
Date:	08/03/18		
Drawing Title:	CD		
TITLE PAGE			
Drawing Number:	T1		

GENERAL NOTES

PART 1 – GENERAL REQUIREMENTS

- 1.1 THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
- A. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
 - B. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
 - C. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC"), AND NFPA 101 (LIFE SAFETY CODE).
 - D. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM).
 - F. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE).
- 1.2 DEFINITIONS:
- A: WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.
 - B: COMPANY: AT&T CORPORATION
 - C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
 - D: CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.
 - E: THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.
- 1.3 POINT OF CONTACT: COMMUNICATION BETWEEN THE COMPANY AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE COMPANY SITE DEVELOPMENT SPECIALIST OR OTHER PROJECT COORDINATOR APPOINTED TO MANAGE THE PROJECT FOR THE COMPANY.
- 1.4 ON-SITE SUPERVISION: THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.
- 1.5 DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE: THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS, STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES, AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.
- A. THE JOBSITE DRAWINGS, SPECIFICATIONS AND DETAILS SHALL BE CLEARLY MARKED DAILY IN PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS.
- 1.6 USE OF JOB SITE: THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.
- 1.7 NOTICE TO PROCEED:
- A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED.
 - B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE AT&T WITH AN OPERATIONAL WIRELESS FACILITY.

PART 2 – EXECUTION

- 2.1 TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE, POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.
- 2.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.
- 2.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HERewith, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD-PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.

- 2.4 COMPANY FURNISHED MATERIAL AND EQUIPMENT: ALL HANDLING, STORAGE AND INSTALLATION OF COMPANY FURNISHED MATERIAL AND EQUIPMENT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
- A. CONTRACTOR SHALL PROCURE ALL OTHER REQUIRED WORK RELATED MATERIALS NOT PROVIDED BY AT&T TO SUCCESSFULLY CONSTRUCT A WIRELESS FACILITY.
- 2.5 DIMENSIONS: VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.
- 2.6 EXISTING CONDITIONS: NOTIFY THE COMPANY REPRESENTATIVE OF EXISTING CONDITIONS DIFFERING FROM THOSE INDICATED ON THE DRAWINGS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND ENGINEER.

PART 3 – RECEIPT OF MATERIAL & EQUIPMENT

- 3.1 RECEIPT OF MATERIAL AND EQUIPMENT: CONTRACTOR IS RESPONSIBLE FOR AT&T PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:
- A. ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.
 - B. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.
 - C. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.
 - D. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO AT&T OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.
 - E. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.
 - F. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

PART 4 – GENERAL REQUIREMENTS FOR CONSTRUCTION

- 4.1 CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.
- 4.2 EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.
- 4.3 CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.
- A. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
 - B. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.
- 4.4 CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION.
- 4.5 CONDUCT TESTING AS REQUIRED HEREIN.

PART 5 – TESTS AND INSPECTIONS

- 5.1 TESTS AND INSPECTIONS:
- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.
 - B. CONTRACTOR SHALL COORDINATE TEST AND INSPECTION SCHEDULES WITH COMPANY'S REPRESENTATIVE WHO MUST BE ON SITE TO WITNESS SUCH TESTS AND INSPECTIONS.
 - C. WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
 - D. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.
 - E. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.

- F. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
- G. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

PART 6 – TRENCHING AND BACKFILLING

- 6.1 TRENCHING AND BACKFILLING: THE CONTRACTOR SHALL PERFORM ALL EXCAVATION OF EVERY DESCRIPTION AND OF WHATEVER SUBSTANCES ENCOUNTERED, TO THE DEPTHS INDICATED ON THE CONSTRUCTION DRAWINGS OR AS OTHERWISE SPECIFIED.
- A. PROTECTION OF EXISTING UTILITIES: THE CONTRACTOR SHALL CHECK WITH THE LOCAL UTILITIES AND THE RESPECTIVE UTILITY LOCATOR COMPANIES PRIOR TO STARTING EXCAVATION OPERATIONS IN EACH RESPECTIVE AREA TO ASCERTAIN THE LOCATIONS OF KNOWN UTILITY LINES. THE LOCATIONS, NUMBER AND TYPES OF EXISTING UTILITY LINES DETAILED ON THE CONSTRUCTION DRAWINGS ARE APPROXIMATE AND DO NOT REPRESENT EXACT INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ALL LINES DAMAGED DURING EXCAVATION AND ALL ASSOCIATED OPERATIONS. ALL UTILITY LINES UNCOVERED DURING THE EXCAVATION OPERATIONS, SHALL BE PROTECTED FROM DAMAGE DURING EXCAVATION AND ASSOCIATED OPERATIONS. ALL REPAIRS SHALL BE APPROVED BY THE UTILITY COMPANY.
 - B. HAND DIGGING: UNLESS APPROVED IN WRITING OTHERWISE, ALL DIGGING WITHIN AN EXISTING CELL SITE COMPOUND IS TO BE DONE BY HAND.
 - C. DURING EXCAVATION, MATERIAL SUITABLE FOR BACKFILLING SHALL BE STOCKPILED IN AN ORDERLY MANNER A SUFFICIENT DISTANCE FROM THE BANKS OF THE TRENCH TO AVOID OVERLOADING AND TO PREVENT SLIDES OR CAVE-INS. ALL EXCAVATED MATERIALS NOT REQUIRED OR SUITABLE FOR BACKFILL SHALL BE REMOVED AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
 - D. GRADING SHALL BE DONE AS MAY BE NECESSARY TO PREVENT SURFACE WATER FROM FLOWING INTO TRENCHES OR OTHER EXCAVATIONS, AND ANY WATER ACCUMULATING THEREIN SHALL BE REMOVED BY PUMPING OR BY OTHER APPROVED METHOD.
 - E. SHEETING AND SHORING SHALL BE DONE AS NECESSARY FOR THE PROTECTION OF THE WORK AND FOR THE SAFETY OF PERSONNEL. UNLESS OTHERWISE INDICATED, EXCAVATION SHALL BE BY OPEN CUT, EXCEPT THAT SHORT SECTIONS OF A TRENCH MAY BE TUNNELED IF, THE CONDUIT CAN BE SAFELY AND PROPERLY INSTALLED AND BACKFILL CAN BE PROPERLY TAMPED IN SUCH TUNNEL SECTIONS. EARTH EXCAVATION SHALL COMPRISE ALL MATERIALS AND SHALL INCLUDE CLAY, SILT, SAND, MUCK, GRAVEL, HARDPAN, LOOSE SHALE, AND LOOSE STONE.
 - F. TRENCHES SHALL BE OF NECESSARY WIDTH FOR THE PROPER LAYING OF THE CONDUIT OR CABLE, AND THE BANKS SHALL BE AS NEARLY VERTICAL AS PRACTICABLE. THE BOTTOM OF THE TRENCHES SHALL BE ACCURATELY GRADED TO PROVIDE UNIFORM BEARING AND SUPPORT FOR EACH SECTION OF THE CONDUIT OR CABLE ON UNDISTURBED SOIL AT EVERY POINT ALONG ITS ENTIRE LENGTH. EXCEPT WHERE ROCK IS ENCOUNTERED, CARE SHALL BE TAKEN NOT TO EXCAVATE BELOW THE DEPTHS INDICATED. WHERE ROCK EXCAVATIONS ARE NECESSARY, THE ROCK SHALL BE EXCAVATED TO A MINIMUM OVER DEPTH OF 6 INCHES BELOW THE TRENCH DEPTHS INDICATED ON THE CONSTRUCTION DRAWINGS OR SPECIFIED. OVER DEPTHS IN THE ROCK EXCAVATION AND UNAUTHORIZED OVER DEPTHS SHALL BE THOROUGHLY BACK FILLED AND TAMPED TO THE APPROPRIATE GRADE. WHENEVER WET OR OTHERWISE UNSTABLE SOIL THAT IS INCAPABLE OF PROPERLY SUPPORTING THE CONDUIT OR CABLE IS ENCOUNTERED IN THE BOTTOM OF THE TRENCH, SUCH SOLID SHALL BE REMOVED TO A MINIMUM OVER DEPTH OF 6 INCHES AND THE TRENCH BACKFILLED TO THE PROPER GRADE WITH EARTH OF OTHER SUITABLE MATERIAL, AS HEREINAFTER SPECIFIED.
 - G. BACKFILLING OF TRENCHES. TRENCHES SHALL NOT BE BACKFILLED UNTIL ALL SPECIFIED TESTS HAVE BEEN PERFORMED AND ACCEPTED. WHERE COMPACTED BACKFILL IS NOT INDICATED THE TRENCHES SHALL BE CAREFULLY BACKFILLED WITH SELECT MATERIAL SUCH AS EXCAVATED SOILS THAT ARE FREE OF ROOTS, SOD, RUBBISH OR STONES, DEPOSITED IN 6 INCH LAYERS AND THOROUGHLY AND CAREFULLY RAMMED UNTIL THE CONDUIT OR CABLE HAS A COVER OF NOT LESS THAN 1 FOOT. THE REMAINDER OF THE BACKFILL MATERIAL SHALL BE GRANULAR IN NATURE AND SHALL NOT CONTAIN ROOTS, SOD, RUBBING, OR STONES OF 2-1/2 INCH MAXIMUM DIMENSION. BACKFILL SHALL BE CAREFULLY PLACED IN THE TRENCH AND IN 1 FOOT LAYERS AND EACH LAYER TAMPED. SETTling THE BACKFILL WITH WATER WILL BE PERMITTED. THE SURFACE SHALL BE GRADED TO A REASONABLE UNIFORMITY AND THE MOUNDING OVER THE TRENCHES LEFT IN A UNIFORM AND NEAT CONDITION.

SYMBOL	DESCRIPTION
	CIRCUIT BREAKER
	NON-FUSIBLE DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
	SURFACE MOUNTED PANEL BOARD
	TRANSFORMER
	KILOWATT HOUR METER
	JUNCTION BOX
	PULL BOX TO NEC/TELCO STANDARDS
	UNDERGROUND UTILITIES
	EXOTHERMIC WELD CONNECTION
	MECHANICAL CONNECTION
	GROUND ROD
	GROUND ROD WITH INSPECTION SLEEVE
	GROUND BAR
	120AC DUPLEX RECEPTACLE
	GROUND CONDUCTOR
	DC POWER AND FIBER OPTIC TRUNK CABLES
	DC POWER CABLES
	REPRESENTS DETAIL NUMBER
	REF. DRAWING NUMBER

ABBREVIATIONS

CIGBE	COAX ISOLATED GROUND BAR EXTERNAL
MIGB	MASTER ISOLATED GROUND BAR
SST	SELF SUPPORTING TOWER
GPS	GLOBAL POSITIONING SYSTEM
TYP.	TYPICAL
DWG	DRAWING
BCW	BARE COPPER WIRE
BFG	BELOW FINISH GRADE
PVC	POLYVINYL CHLORIDE
CAB	CABINET
C	CONDUIT
SS	STAINLESS STEEL
G	GROUND
AWG	AMERICAN WIRE GAUGE
RGS	RIGID GALVANIZED STEEL
AHJ	AUTHORITY HAVING JURISDICTION
TTLNA	TOWER TOP LOW NOISE AMPLIFIER
UNO	UNLESS NOTED OTHERWISE
EMT	ELECTRICAL METALLIC TUBING
AGL	ABOVE GROUND LEVEL

INFINIGY

1033 Waterford Shaker Rd
Albany, NY 12205
Office # (518) 860-0790
Fax # (518) 860-0793



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

1	ISSUED FOR PERMIT	ASW	08/03/18
0	ISSUED FOR REVIEW	ASW	07/09/18
No.	Submittal / Revision	App'd	Date
Drawn: RCD		Date: 07/29/18	
Designed: ASW		Date: 07/29/18	
Checked: A&E		Date: 07/19/18	

Project Number:
499-006

Project Title:
WATERBURY EAST
CTL01127
FA# 10035324
670 CAPTAIN NEVILLE DRIVE
WATERBURY, CT 06705

Prepared For:



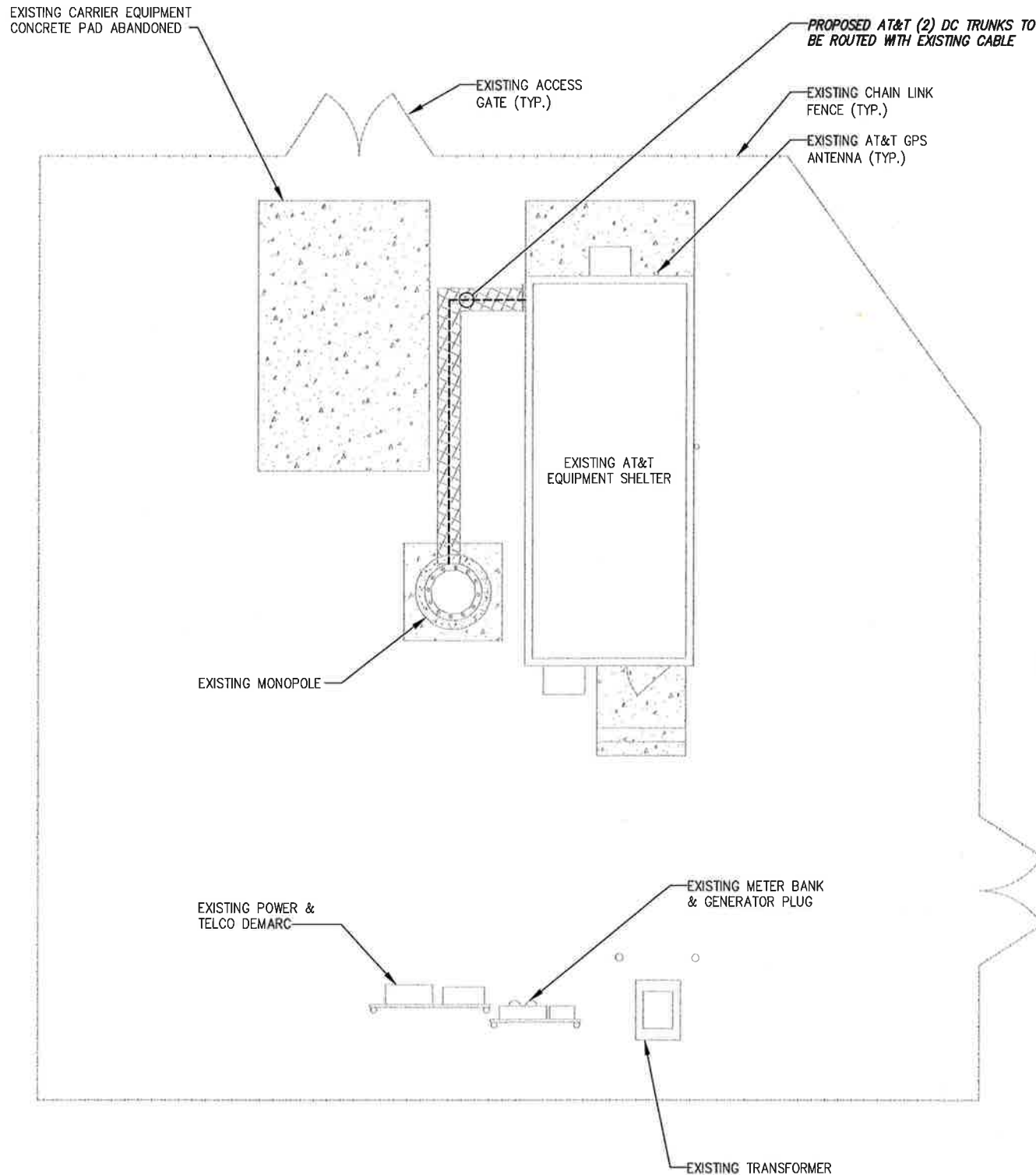
Drawing Scale:
AS NOTED

Date:
09/03/18

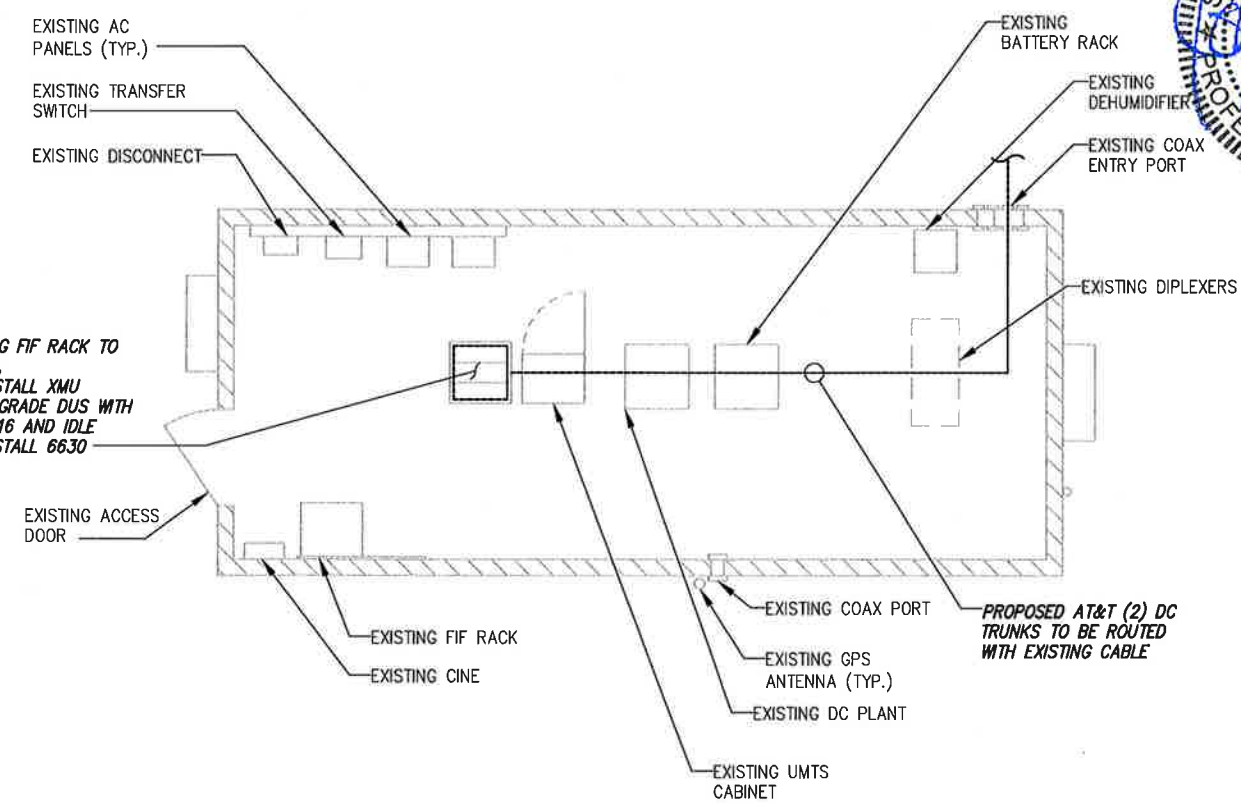
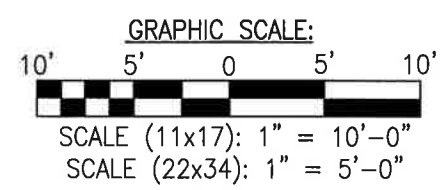
CD

Drawing Title:
GENERAL NOTES

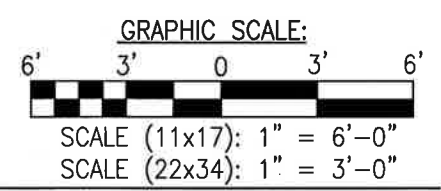
Drawing Number:
C1



1 OVERALL COMPOUND PLAN
SCALE: AS NOTED



2 ENLARGED EQUIPMENT PLAN
SCALE: AS NOTED



BASEMAPPING PREPARED FROM A SITE WALK PERFORMED BY INFINIGY ENGINEERING ON 05/22/18 AND PROVIDED INFORMATION, AND DOES NOT REPRESENT AN ACTUAL FIELD SURVEY.



No.	Submital / Revision	App'd	Date
1	ISSUED FOR PERMIT	ASW	08/03/18
0	ISSUED FOR REVIEW	RCD	07/09/18

Drawn: RCP Date: 07/09/18
 Designed: ASW Date: 07/09/18
 Checked: AD Date: 07/18/18

Project Number: 499-008

Project Title:
WATERBURY EAST
 CTL01127
 FA# 10035324
 670 CAPTAIN NEVILLE DRIVE
 WATERBURY, CT 06705



Drawing Scale: AS NOTED
CD
 Date: 08/03/18

Drawing Title:
OVERALL & ENLARGED SITE PLAN

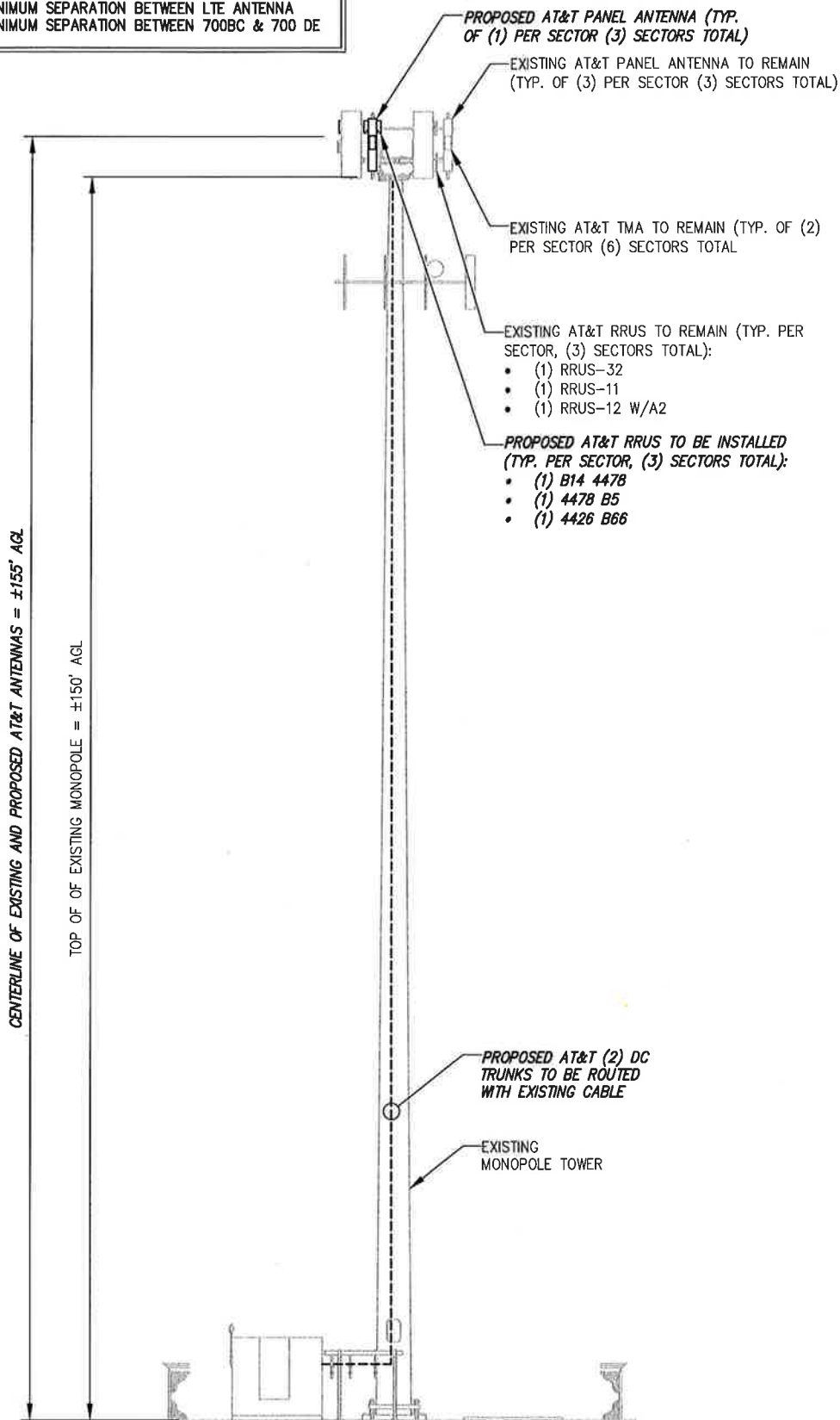
Drawing Number:
C2

SEPARATION NOTE:

- 3 FEET MINIMUM SEPARATION BETWEEN LTE ANTENNA
- 6 FEET MINIMUM SEPARATION BETWEEN 700BC & 700 DE

NOTE:

- INFINIGY ENGINEERING HAS NOT EVALUATED THE EXISTING TOWER FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS EXISTING OR PROPOSED LOADING. FINAL INSTALLATION TO COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSIS.
- FOR ADDITIONAL STRUCTURAL INFORMATION PERTAINING TO THE ANTENNA MOUNT, SEE 'MOUNT ANALYSIS REPORT' COMPLETED BY INFINIGY, DATED 7/13/18.



FINAL ANTENNA CONFIGURATION & CABLE SCHEDULE BASED ON LTE RFDS DATED 6/13/18, V 2.00

SECTOR	ANTENNA POSITION	ANTENNA STATUS & TECHNOLOGY	ANTENNA MANF/MODEL	TMA/DIPLEXER	RRUS	AZIMUTH	ANTENNA HEIGHT	CABLE FEEDER		RAYCAP UNIT
								TYPE	LENGTH	
ALPHA	B-1	(E) UMTS 850	KATHREIN 800-10121	(2) LGP21401	---	143°	±155'	(2) (E) 1-5/8" COAX CABLES	±184'	(2) (E) DC6 (1) (P) DC6
	A-2	(E) LTE 700/WCS	CCI ANTENNAS OPA-65R-LCUU-H8	---	(1) (E) RRUS-11 (1) (E) RRUS-32	23°	±155'	(1) (E) FIBER CABLE (2) (E) DC CABLES	±184'	
	A-3	(E) LTE 700/850/5G 850	KATHREIN 800-10966	(2) DBCT108FV92-1	(1) (P) RRUS-4478 B5 (1) (P) RRUS-B14 4478	23°	±155'	SEE A-2 FOR CABLE INFORMATION	±183'	
	A-4	(E) LTE 1900/AWS	CCI ANTENNAS TPA-65R-LCUUUU-H8	(4) TPX-070821	(1) (E) RRUS-12+A2 (1) (P) RRUS-4426 B66	23°	±155'	(2) (E) 1-5/8" COAX CABLES SEE A-2 FOR FIBER/DC INFORMATION	±184'	
BETA	G-1	(E) UMTS 850	KATHREIN 800-10121	(2) LGP21401	---	263°	±155'	(2) (E) 1-5/8" COAX CABLES	±184'	(2) (E) DC6 (1) (P) DC6
	B-2	(E) LTE 700/WCS	CCI ANTENNAS OPA-65R-LCUU-H8	---	(1) (E) RRUS-11 (1) (E) RRUS-32	143°	±155'	(2) (E) DC CABLES	±184'	
	B-3	(E) LTE 700/850/5G 850	KATHREIN 800-10966	(2) DBCT108FV92-1	(1) (P) RRUS-4478 B5 (1) (P) RRUS-B14 4478	143°	±155'	SEE B-2 FOR FIBER/DC INFORMATION	±184'	
	B-4	(E) LTE 1900/AWS	CCI ANTENNAS TPA-65R-LCUUUU-H8	(4) TPX-070821	(1) (E) RRUS-12+A2 (1) (P) RRUS-4426 B66	143°	±155'	(2) (E) 1-5/8" COAX CABLES SEE B-2 FOR FIBER/DC INFORMATION	±184'	
GAMMA	A-1	(E) UMTS 850	KATHREIN 800-10121	(2) LGP21401	---	23°	±155'	(2) (E) 1-5/8" COAX CABLES	±184'	(2) (E) DC6 (1) (P) DC6
	G-2	(E) LTE 700/WCS	CCI ANTENNAS OPA-65R-LCUU-H8	---	(1) (E) RRUS-11 (1) (E) RRUS-32	263°	±155'	SEE A-2 FOR CABLE INFORMATION	±184'	
	G-3	(E) LTE 700/850/5G 850	KATHREIN 800-10965	(2) DBCT108FV92-1	(1) (P) RRUS-4478 B5 (1) (P) RRUS-B14 4478	263°	±155'	SEE G-2 FOR CABLE INFORMATION (2) (P) DC CABLES	±184'	
	G-4	(E) LTE 1900/AWS	QUINTEL QS66512-2	(4) TPX-070821	(1) (E) RRUS-12+A2 (1) (P) RRUS-4426 B66	263°	±155'	(2) (E) 1-5/8" COAX CABLES SEE A-2 FOR FIBER/DC INFORMATION	±184'	

*CABLE LENGTH FROM RFDS (CONTRACTOR TO VERIFY PRIOR TO ORDERING)

1 ELEVATION VIEW
NOT TO SCALE

2 AT&T ANTENNA SCHEDULE
NOT TO SCALE

INFINIGY
1033 Waterliet Shaker Rd
Albany, NY 12205
Office # (518) 680-0780
Fax # (518) 680-0780

at&t

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
09/03/2018
LICENSED PROFESSIONAL ENGINEER

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

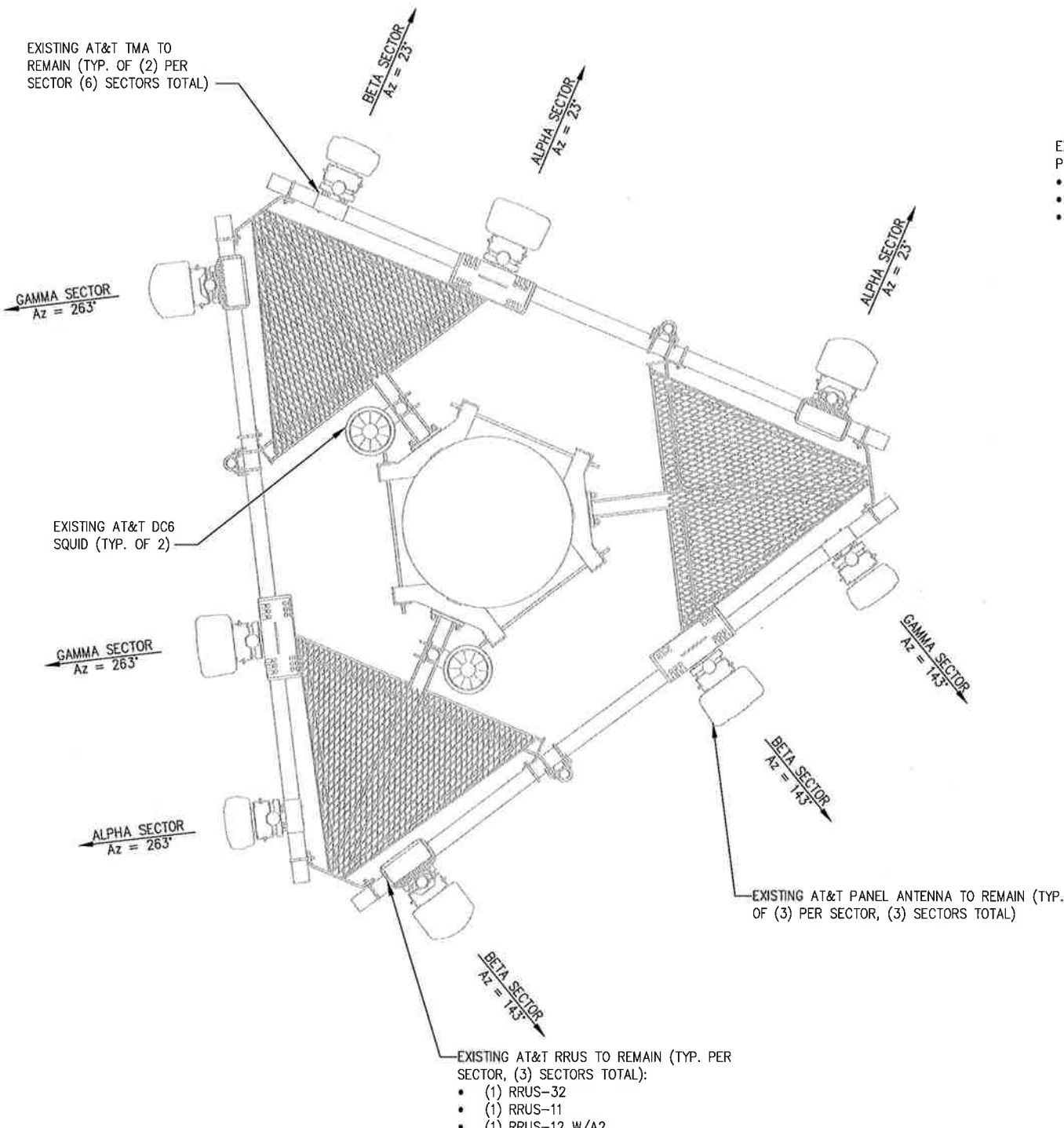
1	ISSUED FOR PERMIT	ASW	08/03/18
0	ISSUED FOR REVIEW	ROD	07/09/18
No.	Submittal / Revision	App'd	Date
Drawn:	ROD	Date:	07/29/18
Designed:	ASW	Date:	07/29/18
Checked:	ASW	Date:	07/29/18

Project Number: 499-006

Project Title: WATERBURY EAST
CTL01127
FA# 10035324
670 CAPTAIN NEVILLE DRIVE
WATERBURY, CT 06705

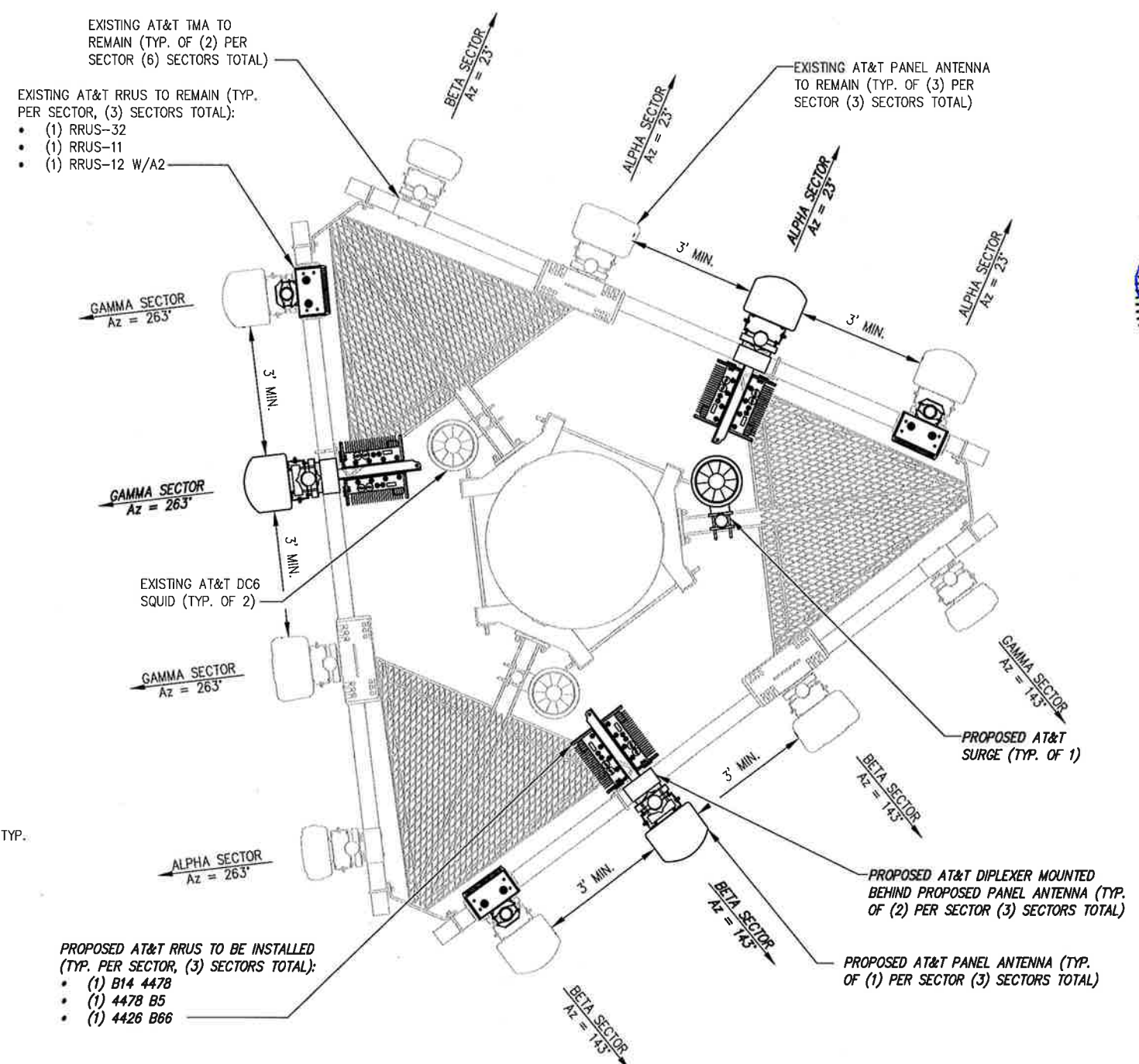
Prepared For: smartlink

Drawing Scale: AS NOTED
Date: 08/03/18
Drawing Title: ELEVATION VIEW
Drawing Number: C3



1 ANTENNA ORIENTATION PLAN (EXISTING)
 NOT TO SCALE

TRUE NORTH



2 ANTENNA ORIENTATION PLAN (PROPOSED)
 NOT TO SCALE

TRUE NORTH

SEPARATION NOTE:

- 3 FEET MINIMUM SEPARATION BETWEEN LTE ANTENNA
- 6 FEET MINIMUM SEPARATION BETWEEN 700BC & 700 DE

NOTE:

- INFINIGY ENGINEERING HAS NOT EVALUATED THE EXISTING TOWER FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS EXISTING OR PROPOSED LOADING. FINAL INSTALLATION TO COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSIS.
- FOR ADDITIONAL STRUCTURAL INFORMATION PERTAINING TO THE ANTENNA MOUNT, SEE 'MOUNT ANALYSIS REPORT' COMPLETED BY INFINIGY, DATED 7/13/18.

INFINIGY
 1033 Waterliet Shaker Rd
 Albany, NY 12205
 Office # (518) 660-0790
 Fax # (518) 660-0795



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

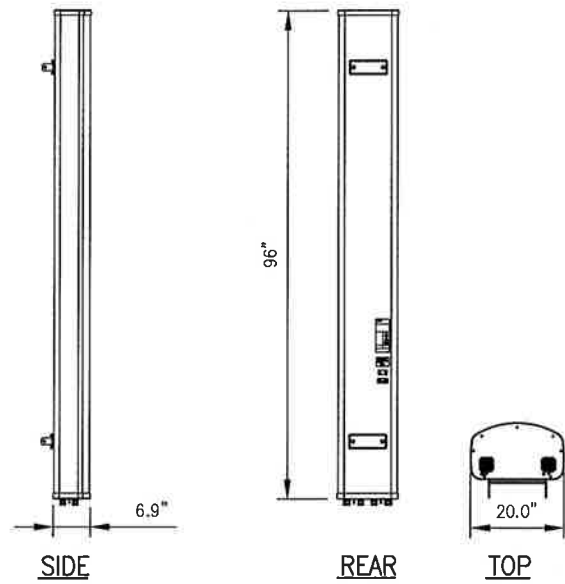
1	ISSUED FOR PERMIT	ASW	06/03/18
0	ISSUED FOR REVIEW	RCO	07/09/18
No.	Submittal / Revision	App'd	Date
Drawn:	RCO	Date:	07/09/18
Designed:	ASW	Date:	07/09/18
Checked:	ASW	Date:	07/18/18
Project Number:	499-008		
Project Title:	WATERBURY EAST CTL01127 FA# 10035324 670 CAPTAIN NEVILLE DRIVE WATERBURY, CT 06705		

smartlink

Drawing Scale: AS NOTED
 Date: 06/03/18
CD

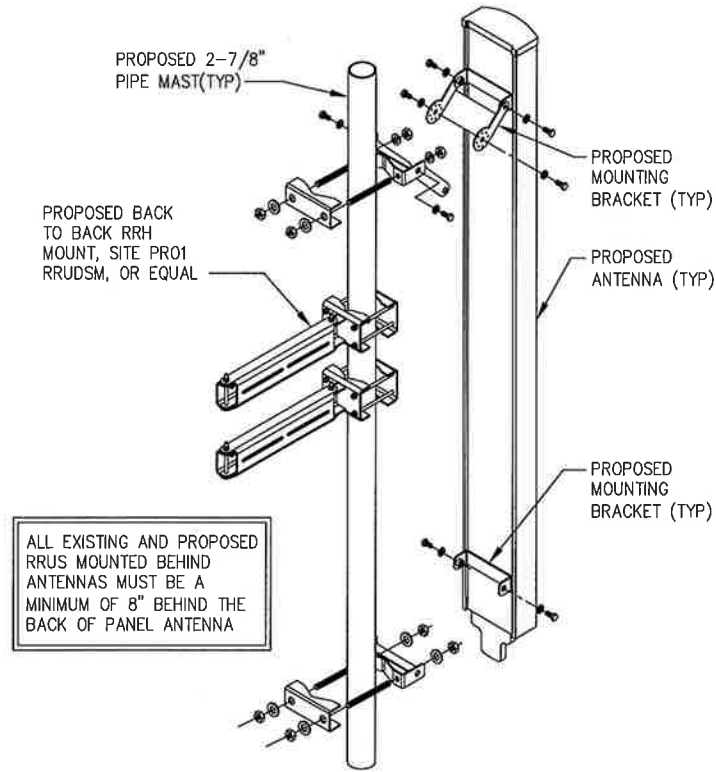
Drawing Title
ANTENNA ORIENTATION PLAN

Drawing Number
C4

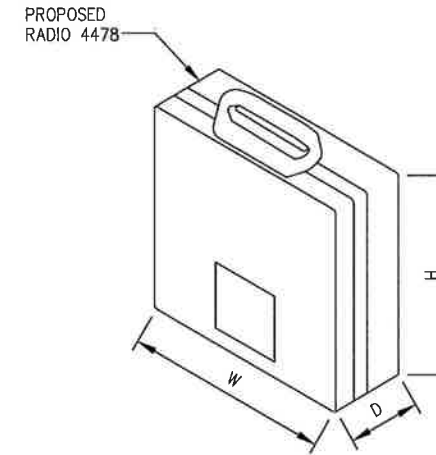


KATHREIN MODEL NO.: 800-10966	
RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD:	(96"x20.0"x6.9")
WEIGHT, W/ PRE-MOUNTED BRACKETS:	114.6 LBS
CONNECTOR:	7-16 DIN FEMALE

1 ANTENNA DETAIL
NOT TO SCALE

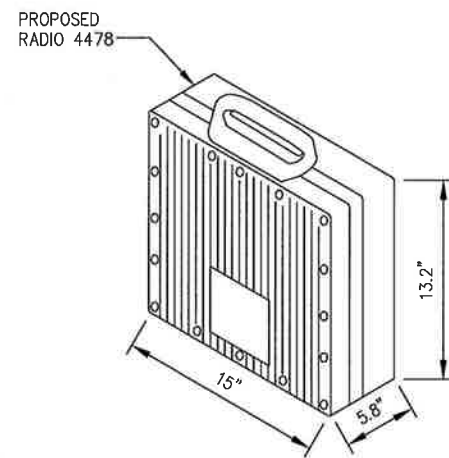


2 MOUNTING DETAIL
NOT TO SCALE



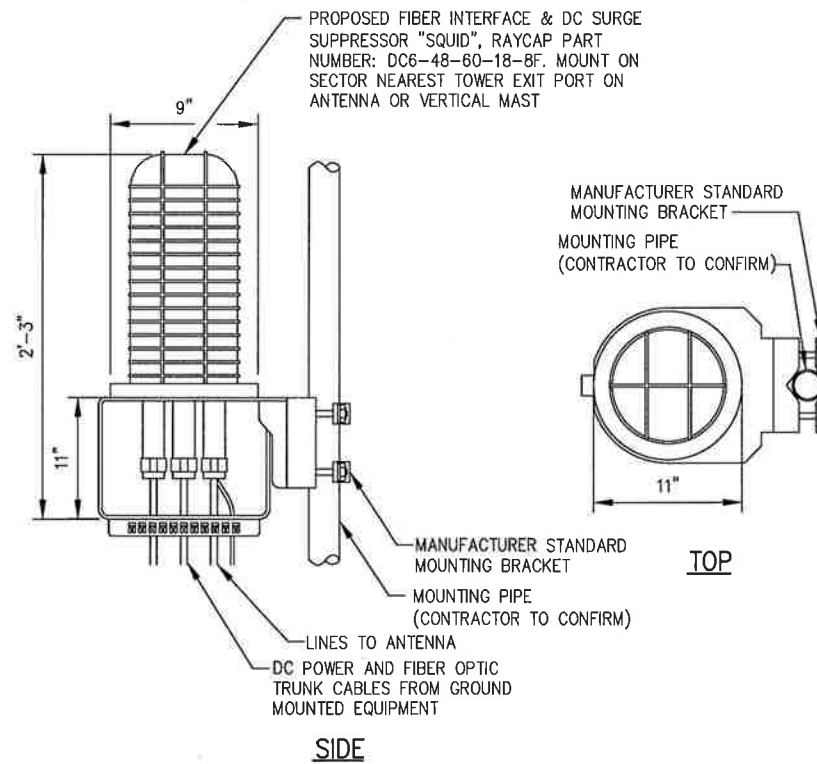
RADIO 4478 SPECIFICATIONS	
• HxWxD, (INCHES) :	TBD
• WEIGHT (LBS) :	59.5
• COLOR :	GRAY

3 ERICSSON RADIO 4478 DETAIL
NOT TO SCALE

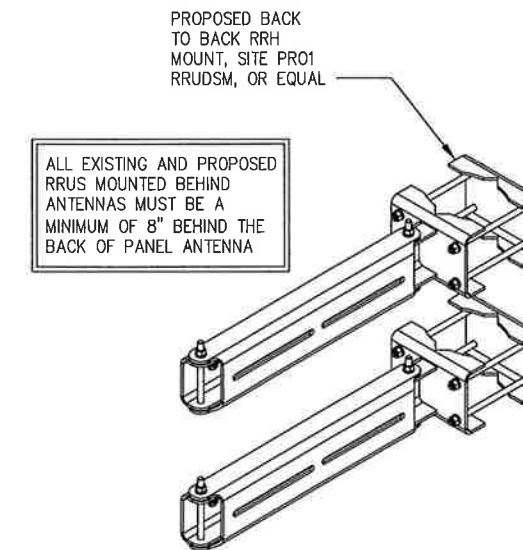


RADIO 4426-B66 SPECIFICATIONS	
• HxWxD, (INCHES) :	15"x13.2"x5.8"
• WEIGHT (LBS) :	48.5
• COLOR :	GRAY

3 ERICSSON RADIO 4426 DETAIL
NOT TO SCALE



5 SQUID DETAIL
NOT TO SCALE



6 BACK TO BACK PIPE MOUNT DETAIL
NOT TO SCALE

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 890-0790
Fax # (518) 890-0793

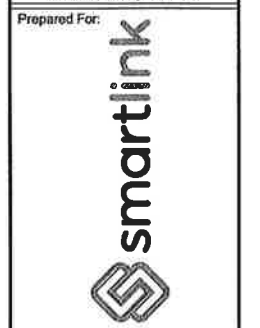


14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND/OR LOCAL LAWS.

1	ISSUED FOR PERMIT	ASW	08/03/18
0	ISSUED FOR REVIEW	ASW	07/09/18
No.	Submittal / Revision	App'd	Date
Drawn:	ASW	Date:	07/09/18
Designed:	ASW	Date:	07/09/18
Checked:	ASW	Date:	07/09/18

Project Number: 499-006

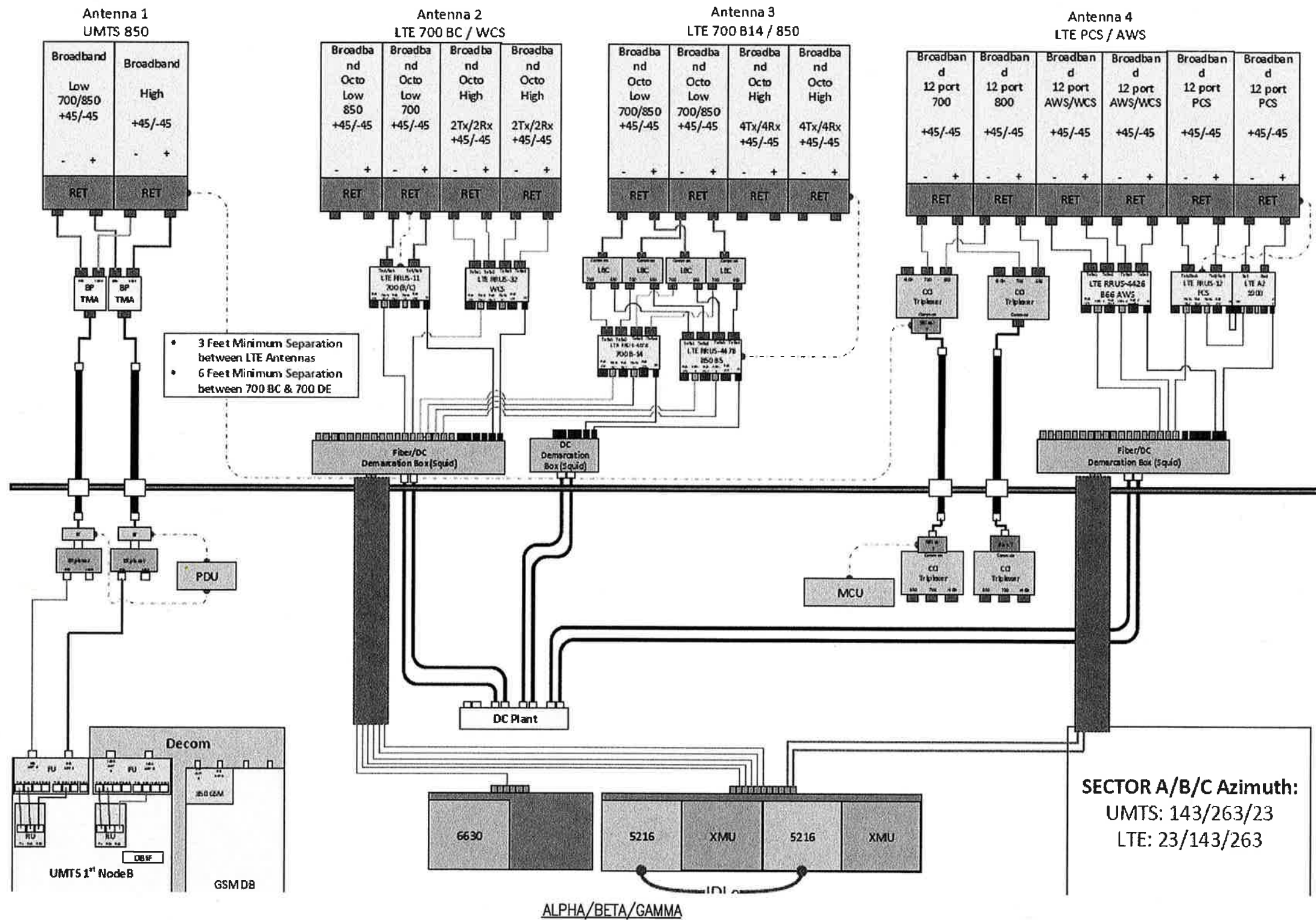
Project Title:
WATERBURY EAST
CTL01127
FA# 10035324
870 CAPTAIN NEVILLE DRIVE
WATERBURY, CT 06705



Drawing Scale:	AS NOTED
Date:	08/03/18

Drawing Title:
EQUIPMENT DETAILS

Drawing Number:
C5



• 3 Feet Minimum Separation between LTE Antennas
 • 6 Feet Minimum Separation between 700 BC & 700 DE

SECTOR A/B/C Azimuth:
 UMTS: 143/263/23
 LTE: 23/143/263

1 PLUMBING DIAGRAM (FINAL CONFIGURATION)
 NOT TO SCALE

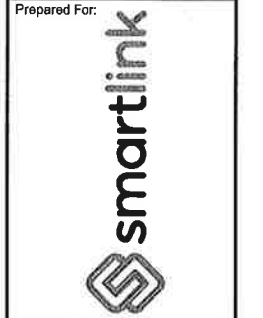


THIS DRAWING IS A VIOLATION OF APPLICABLE STATE AND/OR LOCAL LAWS

1	ISSUED FOR PERMIT	ASW	08/03/18
0	ISSUED FOR REVIEW	ROD	07/09/18
No.	Submital / Revision	Appr.	Date

Drawn: ROD Date: 07/09/18
 Designed: ASW Date: 07/09/18
 Checked: AJD Date: 07/19/18

Project Number: 499-006
 Project Title:
WATERBURY EAST
 CTL01127
 FA# 10035324
 670 CAPTAIN NEVILLE DRIVE
 WATERBURY, CT 06705

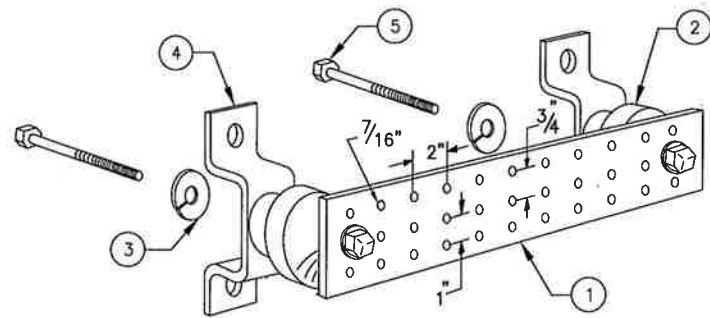


Drawing Scale: AS NOTED
 Date: 08/03/18
CD

Drawing Title
PLUMBING DIAGRAM

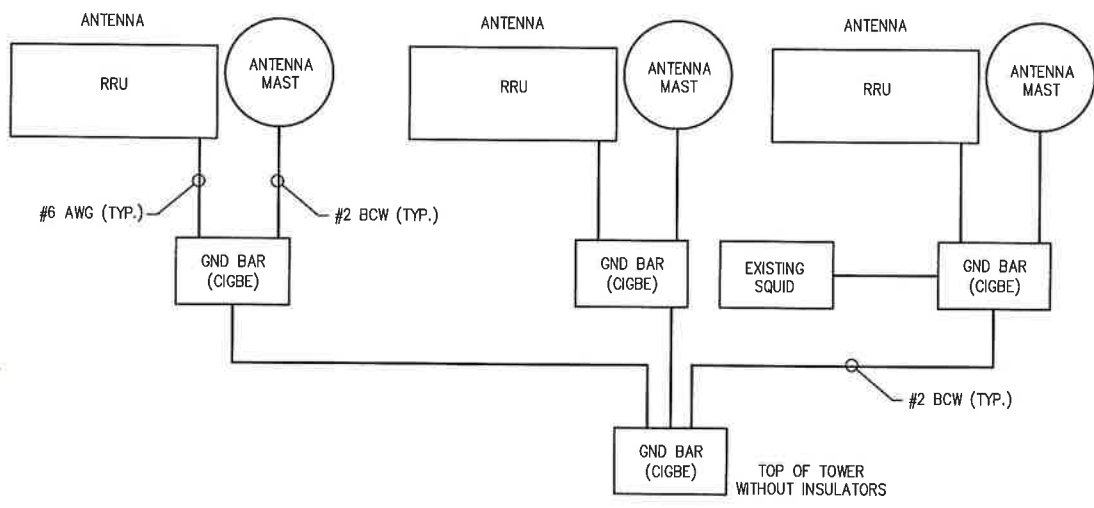
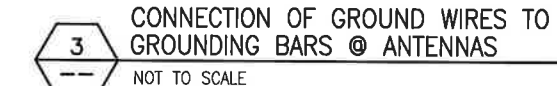
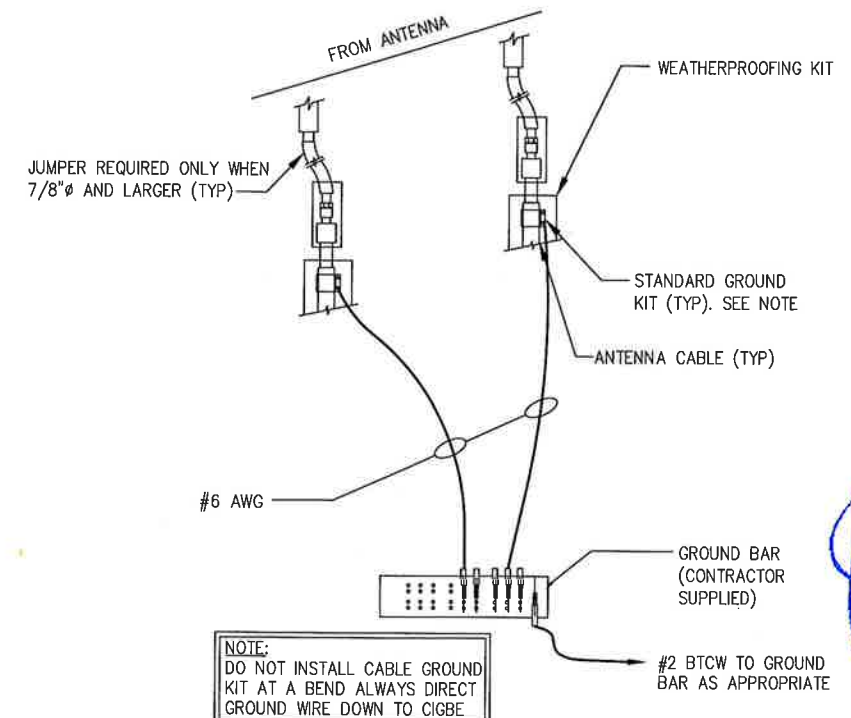
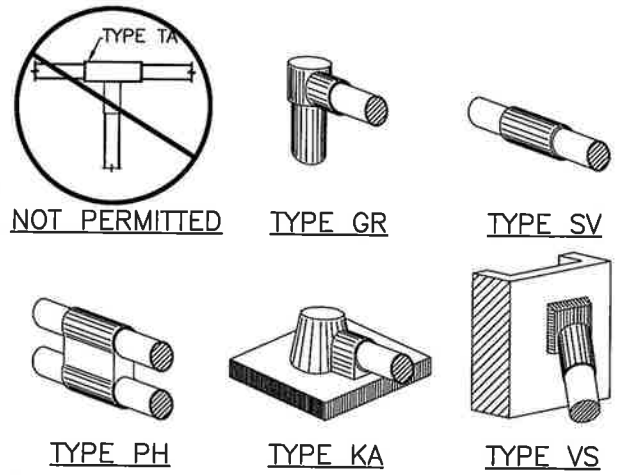
Drawing Number
C6

*BASED ON LTE RFDS, V. 2.0, DATED 6/13/18



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 ACCOMMODATE 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"



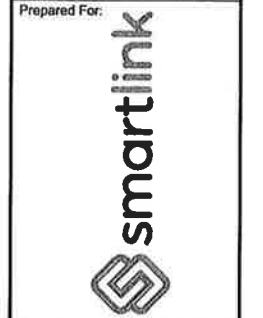
INFINIGY
 1033 Waterlief Shaker Rd
 Albany, NY 12205
 Office # (518) 690-0790
 Fax # (518) 690-0793



1	ISSUED FOR PERMIT	ASW	08/03/18
0	ISSUED FOR REVIEW	RCO	07/09/18
No.	Submittal / Revision	App'd	Date
Drawn:	RCO	Date:	07/09/18
Designed:	ASW	Date:	07/09/18
Checked:	A.D.	Date:	07/18/18

Project Number: 499-006

Project Title:
WATERBURY EAST
 CTL01127
 FA# 10035324
 670 CAPTAIN NEVILLE DRIVE
 WATERBURY, CT 06705



Drawing Scale: AS NOTED
 Date: 08/03/18
CD

Drawing Title:
GROUNDING DETAILS

Drawing Number:
C7