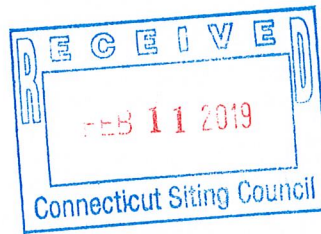




January 31, 2019

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



ORIGINAL

**Re:** Notice of Exempt Modification – Antenna and RRU Add  
**Property Address:** 4 Beaver Road Branford, CT 06405  
**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 113-feet on an existing 125 -foot self-support tower, owned by American Tower Corporation at 10 Presidential Way, Woburn, MA 01801. AT&T now intends to remove (3) KMW AM-X-CD-14-65-00T-RET panel antennas on position 4 all sectors, while retaining three (3) Powerwave 7770 panel antennas on position 1 all sectors, three (3) Andrew SSBNHH-1D65A panel antennas on position 2 all sectors and install six (6) new Kathrein 800-10964 panel antennas on position 3 & 4 all sectors (for a total of (12) panel antenna, at the 113-foot level. AT&T also intends to install one DC-6 surge suppressor, 3 RRU-8843 B2, B66A, and 3 RRU-4449 B5, B12's on the existing antenna masts.

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 B. Cosgrove, First Selectman of Branford, Town of Branford, 1019 Main Street, Branford, CT 06405. A copy of this letter is being sent to Harry Smith, Town Planner, Town of Branford, 1019 Main Street, Branford, CT 06405. A copy of this letter is also being sent to Joyce Tipping (Co Trustees), 36 Goodsell Point Road Branford, CT 06405, owner of the property and the tower owner, American Tower Corporation c/o Ryan Tierney, Project Manager, American Tower Corporation, 10 Presidential Way, Woburn, MA 01801.

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

- **EM-CING-084-148-014-060623** - New Cingular Wireless PCS, LLC notice of intent to modify existing telecommunications facilities located at 185 Research Drive, Milford; 100 Northrop Road, Wallingford; 90 North Plains Industrial Road, Wallingford; and 4 Beaver Road, Branford, Connecticut. See EM-CING-014-080917 (re-acknowledgement)
- **EM-CING-014-080917** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 4 Beaver Road, Branford, Connecticut.
- **EM-CING-014-110314** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 4 Beaver Road, Branford, Connecticut.



- **EM-AT&T-014-160222** - AT&T Mobility, LLC notice of intent to modify an existing telecommunications facility located at 4 Beaver Road, Branford, Connecticut
- **EM-AT&T-014-170317** - AT&T notice of intent to modify an existing telecommunications facility located at 4 Beaver Road, Branford, 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 113-foot level of the 125-foot self-support tower.
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,

Kristina Cottone

CC w/enclosures:

James B. Cosgrove – First Selectman, Town of Branford, CT  
Harry Smith – Town Planner and Zoning, Town of Branford, CT  
Property Owner- Joyce Tipping (C/O Trustees)  
Structure Owner, American Tower Corporation LLC C/O  
Ryan Tierney-Project Manager- American Tower Corporation

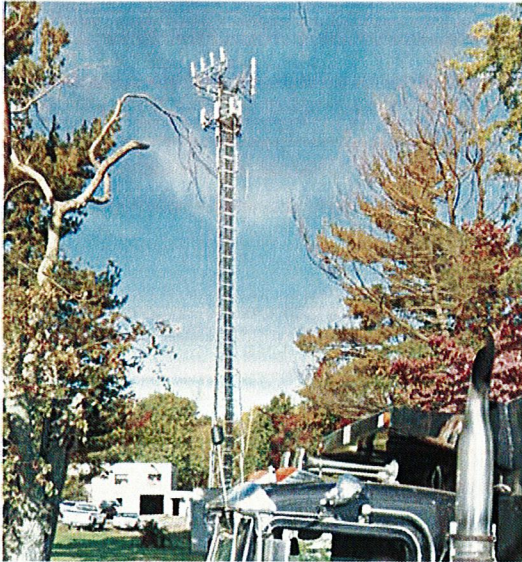




**SITESAFE**  
RF COMPLIANCE EXPERTS

®

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 – 10035093  
Site ID – CT2175  
(MRCTB034842-MRCTB034853)  
USID – 61194  
Site Name – Branford West**

**4 Beaver Road  
Branford, CT 06405**

Latitude: N41-16-48.54  
Longitude: W72-50-30.26  
Structure Type: Monopole

Report generated date: January 29, 2019  
Report by: Scott Broyles  
Customer Contact: Kristina Cottone

---

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

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# 1 General Site Summary

## 1.1 Report Summary

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


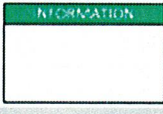







The following documents were provided by the client and were utilized to create this report:

**RFDS:** NEW-ENGLAND\_CONNECTICUT\_CTL02175\_2019-LTE-Next-Carrier\_LTE\_rx855w\_2051A0KG4B\_10035093\_61194\_10-01-2018\_Final-Approved\_v2.00 (1)

**CD's:** 10035093\_AE201\_190123\_CTL02175\_REV1

**RF Powers Used:** RFDS and AT&T Default Powers

## 1.2 Signage Summary

AT&T Signage Locations										
	Access Point(s)	Information 1	Information 2	Notice	Notice 2	Caution	Caution 2	Warning	Warning 2	Barriers
<b>Alpha</b>										
<b>Beta</b>										
<b>Gamma</b>										

## 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)
<b>Roof Safety Info</b>	N	N/A	N





## 2 Scale Maps of Site

The following diagrams are included:

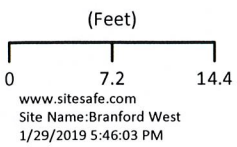
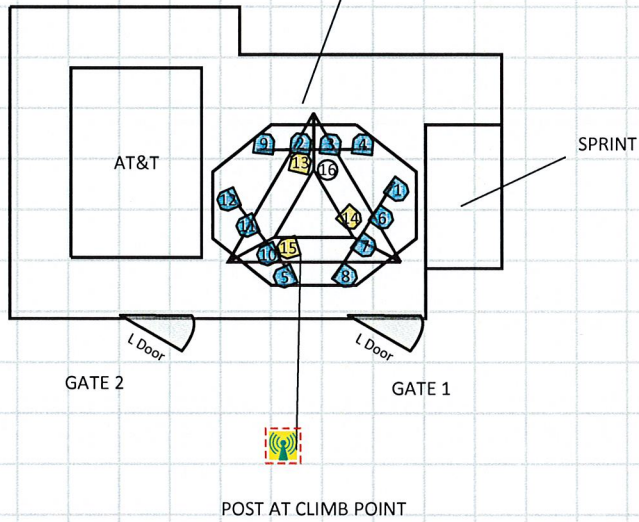
- Site Scale Map
- RF Exposure Diagram
- RF Exposure Diagram – Elevation View
- AT&T Mobility, LLC Contribution

# Site Scale Map For: Branford West



GROUND LEVEL

TOWER= 125' (AGL)



Carrier Identification

- AT&T MOBILITY LLC (Blue circle)
- VERIZON WIRELESS (Red circle)
- T-MOBILE (Pink circle)
- SPRINT (Yellow circle)
- UNKNOWN CARRIER (White circle)

Sign Legend

- Caution 1 (Yellow antenna icon)
- Caution 2 (Yellow antenna icon)
- Notice 2 (Blue antenna icon)
- Notice 1 (Blue antenna icon)
- Warning (Orange antenna icon)
- Warning 2 (Orange antenna icon)
- Info 1 (Green antenna icon)
- Info 2 (Green antenna icon)

Barrier (Red line)

Proposed Barriers/ Signs (Red dashed line)

RSP RF Safety Plan



### 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)	Technology	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Power	Power Type	Power Unit	Radio Count	Total ERP (Watts)	Ant Gain (dBd)	Z AGL	MDT	EDT
1	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	UMTS	143	82	4.6	40	TPO	Watt	1	566.3	11.51	110.7'	2'	7'
2	AT&T MOBILITY LLC	Andrew SBNHH-1D65A	Panel	2300	LTE	23	61	4.6	100	TPO	Watt	1	2691.5	14.3	110.7'	0'	3'
3	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10964	Panel	1900	LTE	23	63.7	4.9	160	TPO	Watt	1	5153.7	15.08	110.5'	0'	4'
4	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10964	Panel	850	LTE	23	62.4	4.9	80	TPO	Watt	1	1315.5	12.16	110.5'	0'	5'
4	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10964	Panel	5G 850	LTE	23	62.4	4.9	80	TPO	Watt	1	1315.5	12.16	110.5'	0'	5'
4	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10964	Panel	2100	LTE	23	60.7	4.9	160	TPO	Watt	1	5273.8	15.18	110.5'	0'	6'
4	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10964	Panel	737	LTE	23	64.9	4.9	160	TPO	Watt	1	2208.6	11.4	110.5'	0'	5'
5	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	UMTS	263	82	4.6	40	TPO	Watt	1	566.3	11.51	110.7'	3'	1'
6	AT&T MOBILITY LLC	Andrew SBNHH-1D65A	Panel	2300	LTE	143	61	4.6	100	TPO	Watt	1	2691.5	14.3	110.7'	0'	3'
7	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10964	Panel	1900	LTE	143	63.7	4.9	160	TPO	Watt	1	5153.7	15.08	110.5'	0'	3'
8	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10964	Panel	850	LTE	143	62.4	4.9	80	TPO	Watt	1	1315.5	12.16	110.5'	0'	2'
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8	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10964	Panel	2100	LTE	143	60.7	4.9	160	TPO	Watt	1	5273.8	15.18	110.5'	0'	6'
8	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10964	Panel	737	LTE	143	64.9	4.9	160	TPO	Watt	1	2208.6	11.4	110.5'	0'	2'
9	AT&T MOBILITY LLC	Powerwave 7770	Panel	850	UMTS	23	82	4.6	40	TPO	Watt	1	566.3	11.51	110.7'	2'	8'
10	AT&T MOBILITY LLC	Andrew SBNHH-1D65A	Panel	2300	LTE	263	61	4.6	100	TPO	Watt	1	2691.5	14.3	110.7'	0'	3'
11	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10964	Panel	1900	LTE	263	63.7	4.9	160	TPO	Watt	1	5153.7	15.08	110.5'	0'	4'
12	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10964	Panel	737	LTE	263	64.9	4.9	160	TPO	Watt	1	2208.6	11.4	110.5'	0'	2'
12	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10964	Panel	850	LTE	263	62.4	4.9	80	TPO	Watt	1	1315.5	12.16	110.5'	0'	2'
12	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10964	Panel	5G 850	LTE	263	62.4	4.9	80	TPO	Watt	1	1315.5	12.16	110.5'	0'	2'
12	AT&T MOBILITY LLC (Proposed)	Kathrein-Scala 800-10964	Panel	2100	LTE	263	60.7	4.9	160	TPO	Watt	1	5273.8	15.18	110.5'	0'	4'





Ant ID	Operator	Antenna Make & Model	Type	TX Freq (MHz)	Technology	Az (Deg)	Hor BW (Deg)	Ant Len (ft)	Power	Power Type	Power Unit	Radio Count	Total ERP (Watts)	Ant Gain (dBd)	Z AGL	MDT	EDT
13	SPRINT	Generic	Panel	862		30	65	6.3	40	TPO	Watt	0	881.2	13.43	99.9'	0'	0'
13	SPRINT	Generic	Panel	1900		30	65	6.3	60	TPO	Watt	0	2536	16.26	99.9'	0'	0'
14	SPRINT	Generic	Panel	862		150	65	6.3	40	TPO	Watt	0	881.2	13.43	99.9'	0'	0'
14	SPRINT	Generic	Panel	1900		150	65	6.3	60	TPO	Watt	0	2536	16.26	99.9'	0'	0'
15	SPRINT	Generic	Panel	1900		270	65	6.3	60	TPO	Watt	0	2536	16.26	99.9'	0'	0'
15	SPRINT	Generic	Panel	862		270	65	6.3	40	TPO	Watt	0	881.2	13.43	99.9'	0'	0'
16	UNKNOWN	Generic	Omni	450		0	360	9.5	100	ERP	Watt	0	100	5.97	95.3'	0'	0'

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.



## 4 Emission Predictions

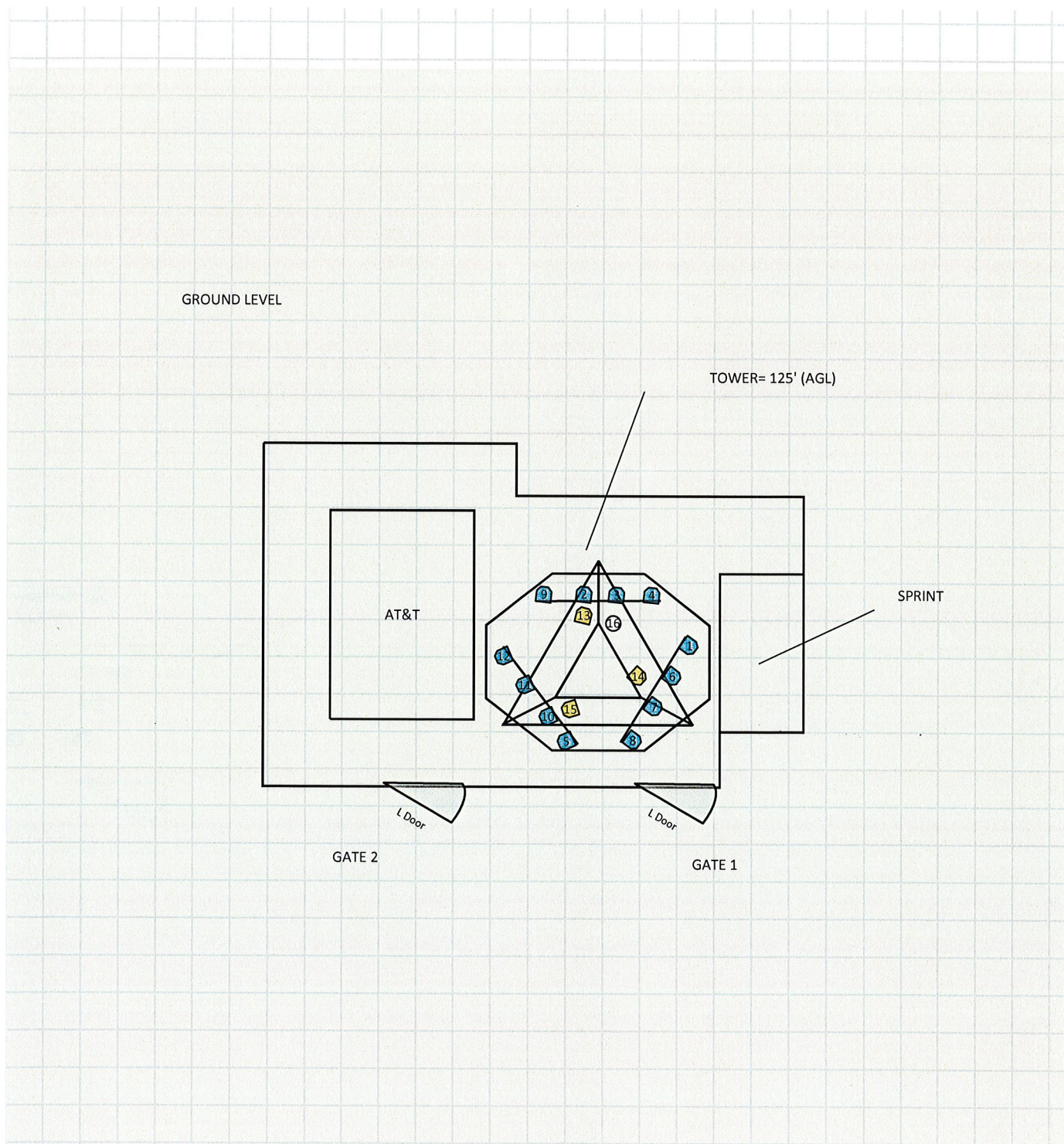
In the RF Exposure Simulations below all heights are reflected with respect to main site level. In most rooftop cases this is the height of the main rooftop and in other cases this can be ground level. Each different height area, rooftop, or platform level is labeled with its height relative to the main 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'

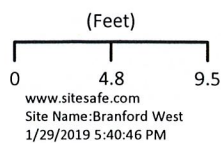
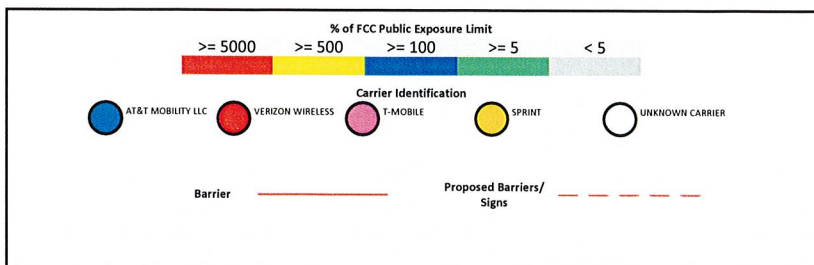
The Antenna Inventory heights are referenced to the same level.



# RF Exposure Simulation For: Branford West Composite View



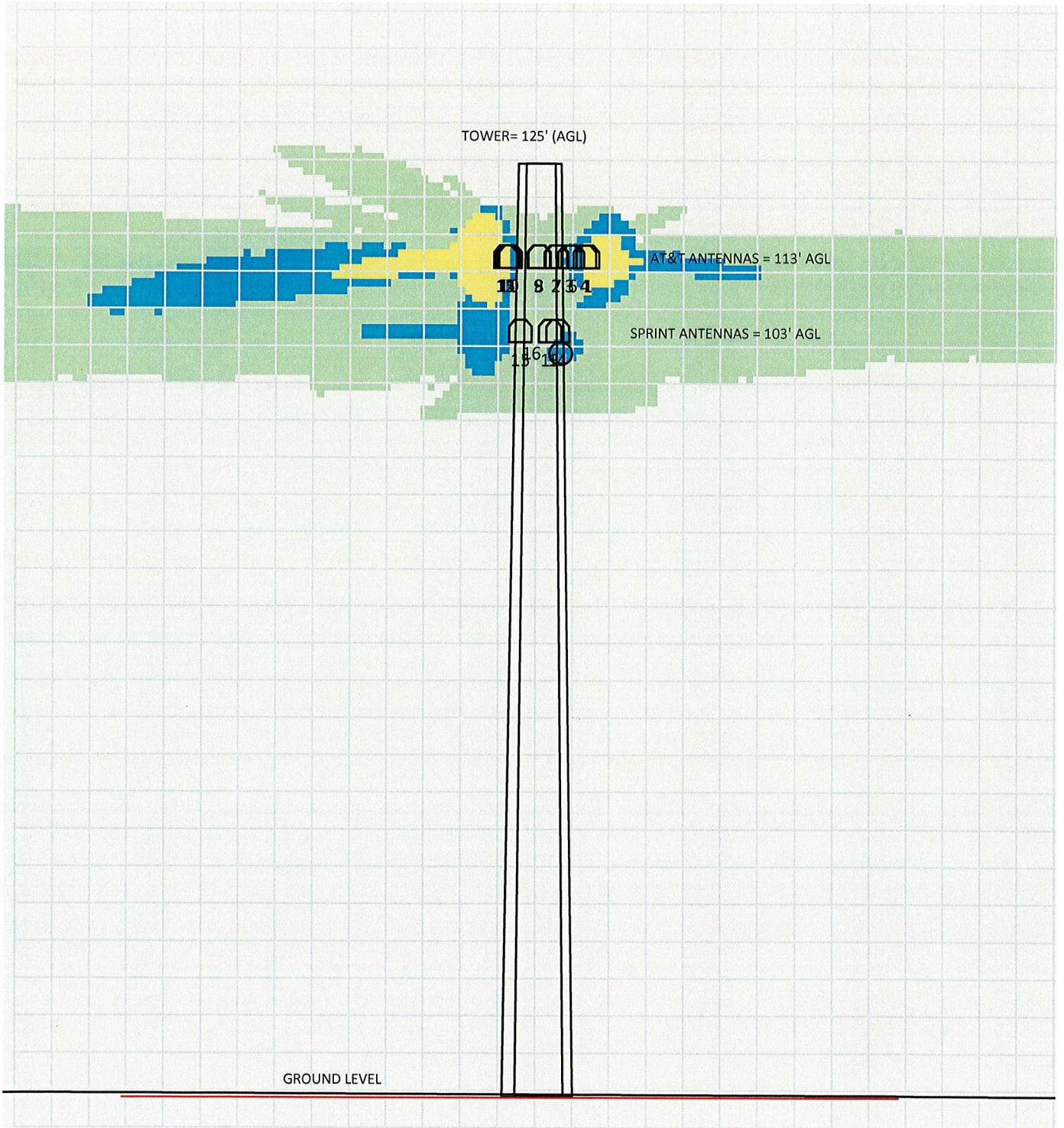
% of FCC Public Exposure Limit  
Spatial average 0' - 6'



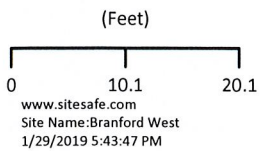
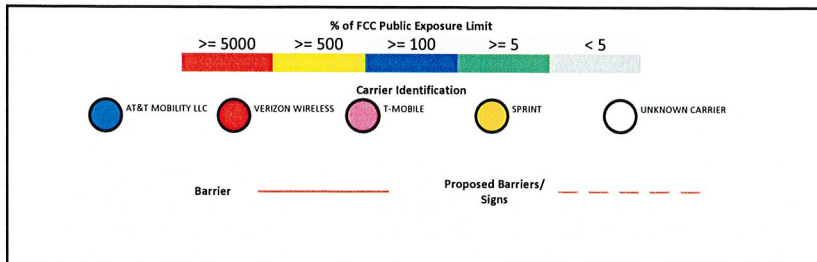
Sitesafe OET-65 Model  
Near Field Boundary:  
1.5 \* Aperture  
Reflection Factor: 1  
Spatially Averaged



# RF Exposure Simulation For: Branford West Elevation View



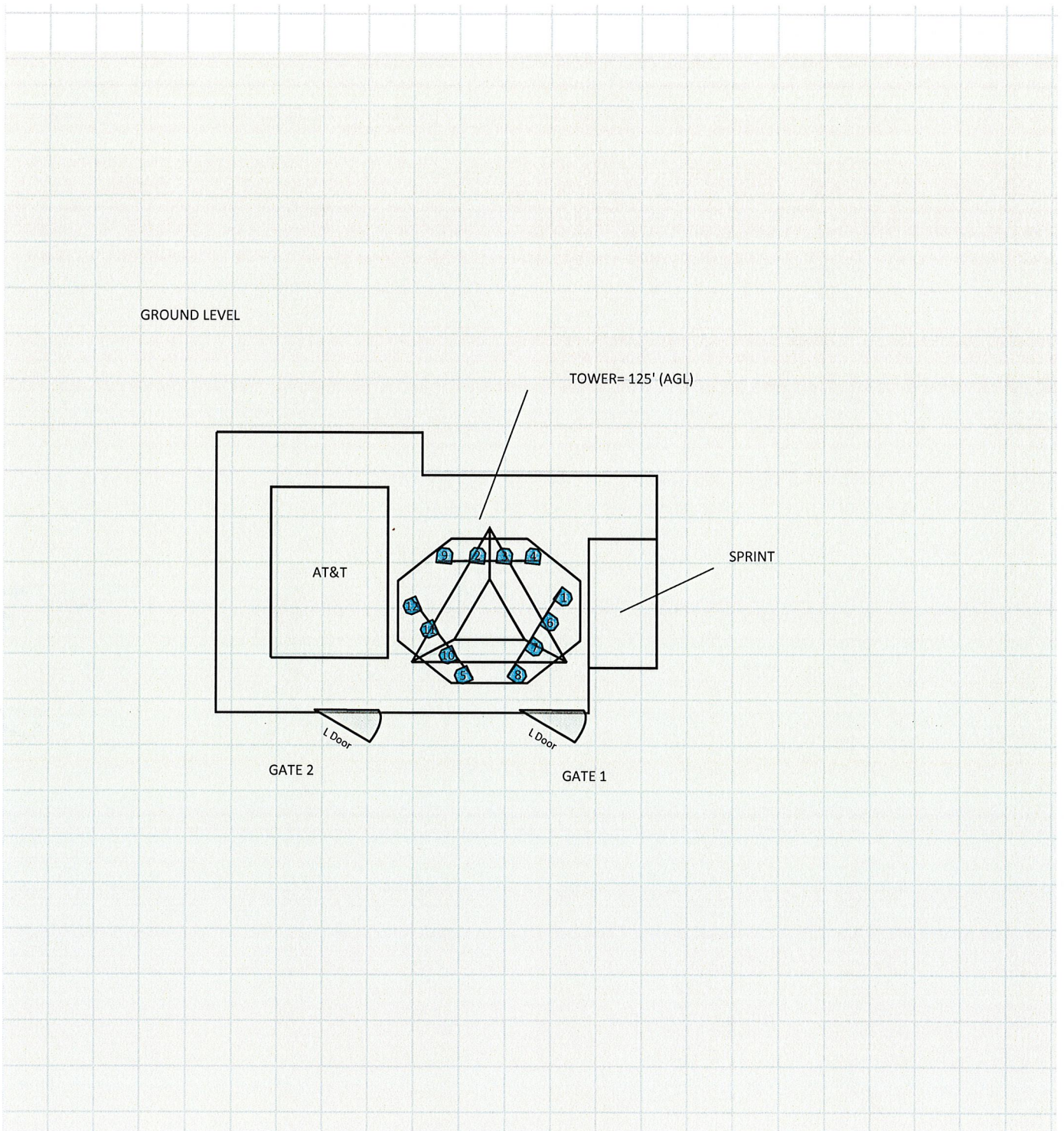
% of FCC Public Exposure Limit  
Spatial average 0' - 6'



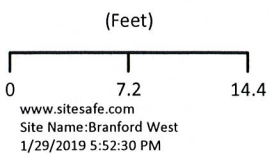
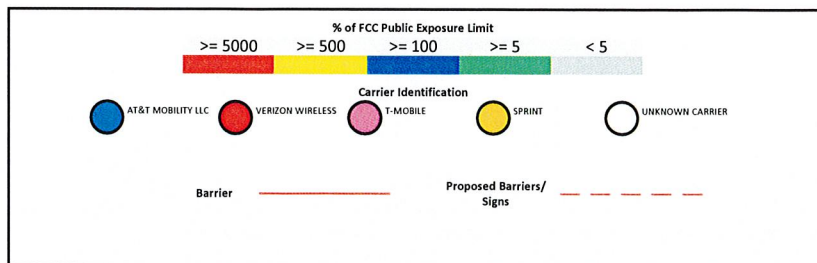
Sitesafe OET-65 Model  
Near Field Boundary:  
1.5 \* Aperture  
Reflection Factor: 1  
Single Level (0)



# RF Exposure Simulation For: Branford West AT&T Mobility, LLC Contribution



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



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



## 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, 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.

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:

#### Tower Access Location

(1) Yellow Caution 2 sign(s) required at climb point.

#### Notes:

- 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 Scott Broyles.

January 29, 2019



## 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.

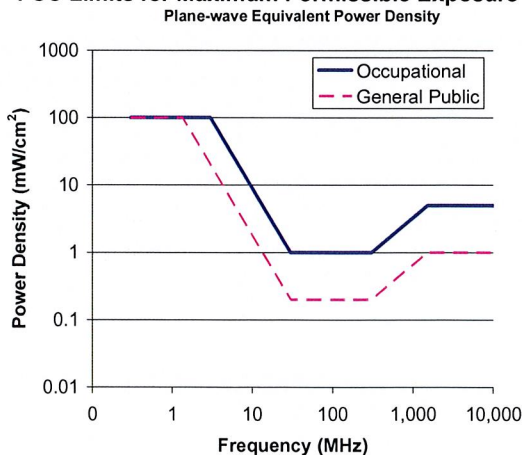
Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

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 <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f <sup>2</sup> )*	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 <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	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:

- 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.
- Green represents areas are predicted to be between 5% and 100% of the MPE limits. **Green areas are accessible to anyone.**
- 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.**
- 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.
- 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](http://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](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\\_scenihr/docs/scenihr\\_o\\_022.pdf](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](http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1317133826368)

Norwegian Institute of Public Health

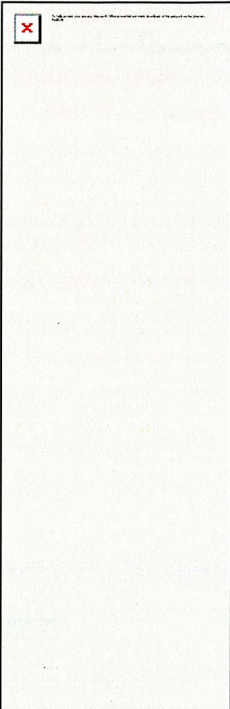
<http://www.fhi.no/dokumenter/545eea7147.pdf>



**Kristina Cottone**

---

**From:** TrackingUpdates@fedex.com  
**Sent:** Friday, February 1, 2019 10:22 AM  
**To:** Kristina Cottone  
**Subject:** FedEx Shipment 774358427436 Delivered



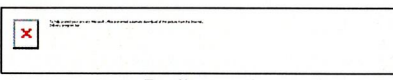
## Your package has been delivered

Tracking # 774358427436

Ship date:  
**Thu, 1/31/2019**

Delivery date:  
**Fri, 2/1/2019 10:18 am**

Kristina Cottone  
Smartlink LLC  
NORTH BILLERICA, MA 01862  
US



**Delivered**

**ATTN: Ryan Tierney**  
American Tower Corporation  
10 Presidential Way  
WOBURN, MA 01801  
US

### Shipment Facts

Our records indicate that the following package has been delivered.

**Tracking number:** [774358427436](#)

**Status:** Delivered: 02/01/2019 10:18 AM  
Signed for By: M.ANCCI

**Reference:** CTL02175 - CSC

**Signed for by:** M.ANCCI

**Delivery location:** WOBURN, MA

**Delivered to:** Receptionist/Front Desk

**Service type:** FedEx Express Saver®

**Packaging type:** FedEx® Envelope

**Number of pieces:** 1

**Weight:** 0.50 lb.

**Special handling/Services:** Deliver Weekday

**Standard transit:** 2/5/2019 by 4:30 pm

 Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 9:22 AM CST on 02/01/2019.

All weights are estimated.

**Kristina Cottone**

---

**From:** TrackingUpdates@fedex.com  
**Sent:** Tuesday, February 5, 2019 3:53 PM  
**To:** Kristina Cottone  
**Subject:** FedEx Shipment 774359765843 Delivered

**Your package has been delivered**

**Tracking # 774359765843**

Ship date:  
**Thu, 1/31/2019**

Delivery date:  
**Tue, 2/5/2019 3:44 pm**

Kristina Cottone  
Smartlink LLC  
NORTH BILLERICA, MA 01862  
US



**Delivered**

Joyce Tipping  
36 Goodsell Point Road  
BRANFORD, CT 06405  
US

**Shipment Facts**

Our records indicate that the following package has been delivered.

**Tracking number:** [774359765843](#)  
**Status:** Delivered: 02/05/2019 3:44 PM  
Signed for By: Signature not required  
**Reference:** CTL02175 - CSC  
**Signed for by:** Signature not required  
**Delivery location:** BRANFORD, CT  
**Delivered to:** Residence  
**Service type:** FedEx Express Saver®  
**Packaging type:** FedEx® Envelope  
**Number of pieces:** 1  
**Weight:** 2.00 lb.  
**Special handling/Services:** Residential Delivery  
Deliver Weekday  
**Standard transit:** 2/5/2019 by 8:00 pm

 Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 2:53 PM CST on 02/05/2019.



**Kristina Cottone**

---

**From:** TrackingUpdates@fedex.com  
**Sent:** Monday, February 4, 2019 9:55 AM  
**To:** Kristina Cottone  
**Subject:** FedEx Shipment 774358582774 Delivered

## Your package has been delivered

Tracking # 774358582774

Ship date:  
Thu, 1/31/2019

Kristina Cottone  
Smartlink LLC  
NORTH BILLERICA, MA 01862  
US



Delivered

Delivery date:  
Mon, 2/4/2019 9:52 am

ATTN: Harry Smith  
Town of Branford  
1019 Main Street  
Zoning Department  
BRANFORD, CT 06405  
US

### Shipment Facts

Our records indicate that the following package has been delivered.

**Tracking number:** 774358582774

**Status:** Delivered: 02/04/2019 09:52 AM  
Signed for By: M.MARTIN

**Reference:** CTL02175 - CSC

**Signed for by:** M.MARTIN

**Delivery location:** BRANFORD, CT

**Delivered to:** Receptionist/Front Desk

**Service type:** FedEx Express Saver®

**Packaging type:** FedEx® Envelope

**Number of pieces:** 1

**Weight:** 1.00 lb.

**Special handling/Services:** Deliver Weekday

**Standard transit:** 2/5/2019 by 4:30 pm

 Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 8:54 AM CST on 02/04/2019.

**Kristina Cottone**

---

**From:** TrackingUpdates@fedex.com  
**Sent:** Monday, February 4, 2019 9:55 AM  
**To:** Kristina Cottone  
**Subject:** FedEx Shipment 774358535492 Delivered

**Your package has been delivered**

**Tracking # 774358535492**

Ship date:  
**Thu, 1/31/2019**

Delivery date:  
**Mon, 2/4/2019 9:53 am**

**Kristina Cottone**  
Smartlink LLC  
NORTH BILLERICA, MA 01862  
US



**Delivered**

**ATTN: James B. Cosgrove**  
Town of Branford  
1019 Main Street  
Selectmans Office  
BRANFORD, CT 06405  
US

**Shipment Facts**

Our records indicate that the following package has been delivered.

**Tracking number:** [774358535492](#)  
**Status:** Delivered: 02/04/2019 09:53 AM  
Signed for By: S.MELLIE  
**Reference:** CTL02175 - CSC  
**Signed for by:** S.MELLIE  
**Delivery location:** BRANFORD, CT  
**Delivered to:** Receptionist/Front Desk  
**Service type:** FedEx Express Saver®  
**Packaging type:** FedEx® Envelope  
**Number of pieces:** 1  
**Weight:** 1.00 lb.  
**Special handling/Services:** Deliver Weekday  
**Standard transit:** 2/5/2019 by 4:30 pm

 Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 8:55 AM CST on 02/04/2019.



## 4-8 BEAVER RD

**Location** 4-8 BEAVER RD

**Mblu** B07/000 006/ 00043/ /

**Acct#** 008882

**Owner** TIPPING JOYCE N ET ALS (CO TRUSTEES)

**Assessment** \$543,180

**Appraisal** \$775,610

**PID** 601

**Building Count** 6

### Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2014	\$321,640	\$453,970	\$775,610
Assessment			
Valuation Year	Improvements	Land	Total
2014	\$225,390	\$317,790	\$543,180

### Owner of Record

**Owner** TIPPING JOYCE N ET ALS (CO TRUSTEES)  
**Co-Owner** C/O JOYCE TIPPING  
**Address** 36 GOODSSELL POINT RD  
 BRANFORD, CT 06405

**Sale Price** \$0  
**Certificate**  
**Book & Page** 1149/0822  
**Sale Date** 12/26/2013  
**Instrument** 25

### Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
TIPPING JOYCE N ET ALS (CO TRUSTEES)	\$0		1149/0822	25	12/26/2013
TIPPING JOYCE N ET ALS (CO TRSTES)	\$0		1127/0558	25	03/05/2013
TIPPING JOYCE N ET ALS (CO TRSTES)	\$0		1012/0883	29	05/22/2008
TIPPING LEROY G REV TRST + VERA	\$0		0554/0406		08/10/1993
TIPPING LEROY G + VERA R	\$0		0147/0186		

### Building Information

#### Building 1 : Section 1

**Year Built:** 1950  
**Living Area:** 7,700  
**Replacement Cost:** \$402,352  
**Building Percent** 30  
**Good:**

#### Building Photo

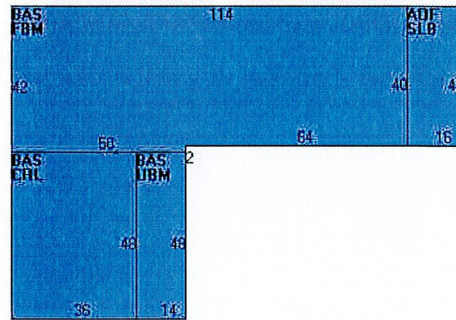
**Replacement Cost**  
**Less Depreciation:** \$120,700

Building Attributes	
Field	Description
STYLE	Lt. Industrial
MODEL	Ind/Comm
Grade	C -
Stories:	1
Occupancy	4
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Minimum/Plywd
Interior Floor 2	Concr-Finished
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	None
Bldg Use	MFRG MDL96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	0400
Heat/AC	NONE
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEILING ONLY
Rooms/Prtns	AVERAGE
Wall Height	14
% Comn Wall	0



(<http://images.vgsi.com/photos/BranfordCTPhotos/\00\01\59\31.jpg>)

**Building Layout**



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	7,060	7,060
AOF	Office	640	640
CRL	Crawl Space	1,728	0
FBM	Basement, Finished	4,660	0
SLB	Slab	640	0
UBM	Basement, Unfinished	672	0
		15,400	7,700

**Building 2 : Section 1**

**Year Built:** 1997  
**Living Area:** 192  
**Replacement Cost:** \$9,928  
**Building Percent Good:** 71  
**Replacement Cost Less Depreciation:** \$7,000

Building Attributes : Bldg 2 of 6	
Field	Description
STYLE	Warehouse
MODEL	Ind/Comm

**Building Photo**

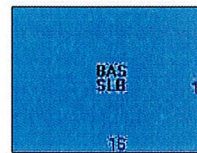


Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Pre-cast Concr
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Concrete Tile
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Hot Air-no Duc
AC Type	Heat Pump
Bldg Use	MFRG MDL96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	0400
Heat/AC	HEAT/AC PKGS
Frame Type	LT STEEL
Baths/Plumbing	NONE
Ceiling/Wall	CEILING ONLY
Rooms/Prtns	AVERAGE
Wall Height	10
% Comn Wall	0



(<http://images.vgsi.com/photos/BranfordCTPhotos//\00\01\58\46.jpg>)

### Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	192	192
SLB	Slab	192	0
		384	192

### Building 3 : Section 1

**Year Built:** 1997  
**Living Area:** 112  
**Replacement Cost:** \$5,389  
**Building Percent Good:** 71  
**Replacement Cost Less Depreciation:** \$3,800

Building Attributes : Bldg 3 of 6	
Field	Description
STYLE	Warehouse
MODEL	Ind/Comm
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Precast Panel

### Building Photo



(<http://images.vgsi.com/photos/BranfordCTPhotos//\00\01\58\47.jpg>)

Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	T&G/Rubber
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Hot Air-no Duc
AC Type	Heat Pump
Bldg Use	MFRG MDL96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	0400
Heat/AC	HEAT/AC PKGS
Frame Type	LT STEEL
Baths/Plumbing	NONE
Ceiling/Wall	CEILING ONLY
Rooms/Prtns	AVERAGE
Wall Height	9
% Comn Wall	0

### Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	112	112
SLB	Slab	112	0
		224	112

### Building 4 : Section 1

**Year Built:** 1974  
**Living Area:** 552  
**Replacement Cost:** \$25,032  
**Building Percent Good:** 50  
**Replacement Cost Less Depreciation:** \$12,500

Building Attributes : Bldg 4 of 6	
Field	Description
Style	Mobile Home
Model	Residential
Grade:	C
Stories:	1 Story
Occupancy	1
Exterior Wall 1	Pre-finish Metl
Exterior Wall 2	
Roof Structure:	Flat
Roof Cover	Metal/Tin
Interior Wall 1	Drywall
Interior Wall 2	Plywood Panel
Interior Flr 1	Carpet

### Building Photo



(<http://images.vgsi.com/photos/BranfordCTPhotos//\00\01\58\48.jpg>)

### Building Layout



Interior Flr 2	
Heat Fuel	Oil
Heat Type:	Forced Air-Duc
AC Type:	None
Total Bedrooms:	1 Bedroom
Total Bthrms:	1
Total Half Baths:	0
Total Xtra Fixtrs:	
Total Rooms:	3 Rooms
Bath Style:	Average
Kitchen Style:	Average
Cottage Cmplx	
Cottage Adj	



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	552	552
FOP	Porch, Open	225	0
		777	552

### Building 5 : Section 1

**Year Built:** 1960  
**Living Area:** 1,124  
**Replacement Cost:** \$134,208  
**Building Percent Good:** 60  
**Replacement Cost Less Depreciation:** \$80,500

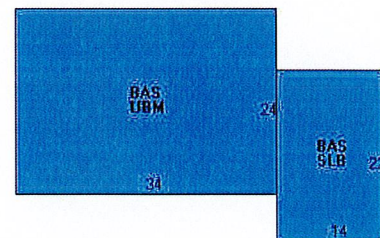
Building Attributes : Bldg 5 of 6	
Field	Description
Style	Ranch
Model	Residential
Grade:	C
Stories:	1 Story
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Carpet
Interior Flr 2	
Heat Fuel	Gas
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	3 Bedrooms
Total Bthrms:	1

### Building Photo



(<http://images.vgsi.com/photos/BranfordCTPhotos//\00\01\58\49.jpg>)

### Building Layout



Building Sub-Areas (sq ft)		Legend
----------------------------	--	--------

Total Half Baths:	0
Total Xtra Fixtrs:	
Total Rooms:	6 Rooms
Bath Style:	Average
Kitchen Style:	Average
Cottage Cmplx	
Cottage Adj	

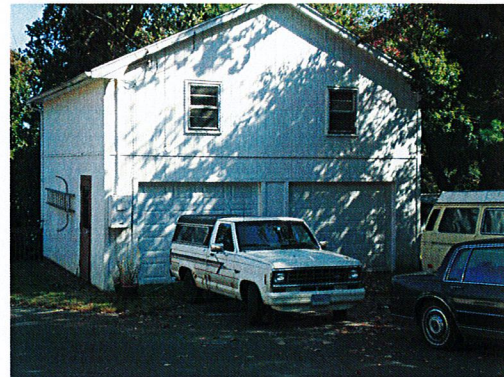
### Building 6 : Section 1

**Year Built:** 1953  
**Living Area:** 576  
**Replacement Cost:** \$102,816  
**Building Percent Good:** 58  
**Replacement Cost Less Depreciation:** \$59,600

Building Attributes : Bldg 6 of 6	
Field	Description
Style	Old Style
Model	Residential
Grade:	C -
Stories:	2 Stories
Occupancy	1
Exterior Wall 1	Pre-Fab Wood
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Carpet
Interior Flr 2	
Heat Fuel	Electric
Heat Type:	Electr Basebrd
AC Type:	None
Total Bedrooms:	1 Bedroom
Total Bthrms:	1
Total Half Baths:	0
Total Xtra Fixtrs:	
Total Rooms:	3 Rooms
Bath Style:	Average
Kitchen Style:	Average
Cottage Cmplx	
Cottage Adj	

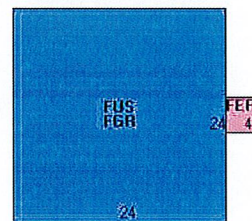
Code	Description	Gross Area	Living Area
BAS	First Floor	1,124	1,124
SLB	Slab	308	0
UBM	Basement, Unfinished	816	0
		2,248	1,124

### Building Photo



(<http://images.vgsi.com/photos/BranfordCTPhotos//\00\01\58\51.jpg>)

### Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
FUS	Upper Story, Finished	576	576
FEP	Porch, Enclosed	16	0
FGR	Garage	576	0
		1,168	576



**Extra Features**

Extra Features	Legend
No Data for Extra Features	

**Land**

**Land Use**

**Use Code** 0400  
**Description** MFRG MDL96  
**Zone** BL  
**Neighborhood** 350  
**Alt Land Appr Category** No

**Land Line Valuation**

**Size (Acres)** 1.28  
**Frontage**  
**Depth**  
**Assessed Value** \$317,790  
**Appraised Value** \$453,970

**Outbuildings**

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAV1	PAVING-ASPHALT			8000 S.F.	\$6,600	1
PAV2	PAVING-CONC			225 S.F.	\$400	1
SHD1	SHED FRAME			80 S.F.	\$500	1
FN4	FENCE-8' CHAIN			140 L.F.	\$800	1

**Valuation History**

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$321,640	\$453,970	\$775,610
2016	\$321,640	\$453,970	\$775,610
2015	\$321,640	\$453,970	\$775,610

Assessment			
Valuation Year	Improvements	Land	Total
2017	\$225,390	\$317,790	\$543,180
2016	\$225,390	\$317,790	\$543,180
2015	\$225,390	\$317,790	\$543,180



**AMERICAN TOWER®**  
CORPORATION

This report was prepared for American Tower Corporation by



**T O W E R**  
**E N G I N E E R I N G**  
**P R O F E S S I O N A L S**

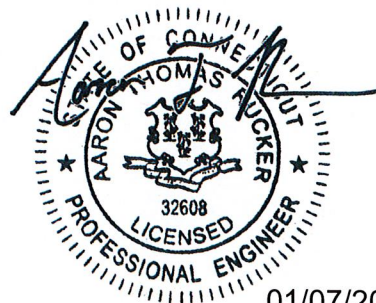
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## Structural Analysis Report

**Structure** : 125 ft Self Supported Tower  
**ATC Site Name** : Cherry Hill-branford, CT  
**ATC Site Number** : 302536  
**Engineering Number** : OAA744361\_C3\_01  
**Proposed Carrier** : AT&T Mobility  
**Carrier Site Name** : Beaver Road - Branford  
**Carrier Site Number** : CTL02175 - FA#10035093  
**Site Location** : 4 Beaver Road  
Branford, CT 06405-3403  
41.280200, -72.841700  
**County** : New Haven  
**Date** : January 7, 2019  
**Max Usage** : 89%  
**Result** : Pass

Prepared By:  
Chris Tahara, E.I.  
TEP

Reviewed By:



01/07/2019

**COA: PEC.0001553**





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Calculations ..... Attached



## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 125 ft self supported tower to reflect the change in loading by AT&T Mobility.

## Supporting Documents

<b>Tower Drawings</b>	Rohn Eng. File # 30329PM, dated November 22, 1993
<b>Foundation Drawing</b>	Rohn Eng. File # 30329PM, dated November 11, 1993
<b>Geotechnical Report</b>	French & Parrello Job # 93N019C, dated June 4, 1993

## Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

<b>Basic Wind Speed:</b>	101 mph (3-Second Gust $V_{ASD}$ ) / 130 mph (3-Second Gust $V_{ULT}$ )
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
<b>Structure Class:</b>	II
<b>Exposure Category:</b>	B
<b>Topographic Category:</b>	1
<b>Spectral Response:</b>	$S_s = 0.18, S_1 = 0.06$
<b>Site Class:</b>	D - Stiff Soil

## Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at [Engineering@americantower.com](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.





**Existing and Reserved Equipment**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
125.0	125.0	12	Decibel DB844H90E-XY	Sector Frames	(12) 7/8" Coax	Sprint Nextel
113.0	113.0	1	Commscope WCS-IMFQ-AMT	Sector Frames	(12) 7/8" Coax (4) 0.78" 8 AWG 6 (2) 3" Conduit (2) 0.74" 8 AWG 7 (2) 0.39" Fiber Trunk (1) 3/8" RET Control Cable	AT&T Mobility
		1	Raycap DC6-48-60-18-8F ("Squid")			
		3	Andrew SBNHH-1D65A (33.5 lbs)			
		3	Ericsson RRUS 32 (50.8 lbs)			
		1	Raycap DC6-48-60-18-8F			
		6	Powerwave LGP21401			
		3	Powerwave 7770.00			
100.0	100.0	3	RFS APXV18-206517S-C	Leg	(6) 1 5/8" Coax	Metro PCS
91.0	91.0	1	10' Omni	Side Arm	(1) 7/8" Coax	Other

**Equipment to be Removed**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
113.0	113.0	3	KMW AM-X-CD-14-65-00T-RET	-	-	AT&T Mobility
		3	Ericsson RRUS-11			
		3	Ericsson RRUS 12			

**Proposed Equipment**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
113.0	113.0	6	Kathrein 80010964	Sector Frame	(2) 0.78" 8 AWG 6	AT&T Mobility
		3	Ericsson RRUS 4449 B5, B12			
		1	Raycap DC6-48-60-18			
		3	Ericsson RRUS 8843 B2, B66A			

<sup>1</sup>Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax alongside existing AT&T Mobility coax.



**Structure Usages**

Structural Component	Controlling Usage	Pass/Fail
Legs	76%	Pass
Diagonals	89%	Pass
Horizontals	11%	Pass
Anchor Bolts	70%	Pass
Leg Bolts	73%	Pass

**Foundations**

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Uplift (Kips)	154.8	209.0	148.2	71%
Axial (Kips)	169.1	228.3	165.8	73%
Total Shear (Kips)	18.3	24.7	18.7	76%

\* The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

**Deflection, Twist and Sway\***

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Twist (°)	Sway (Rotation) (°)
113.0	Raycap DC6-48-60-18-8F	AT&T Mobility	0.303	0.006	0.312
	Ericsson RRUS 8843 B2, B66A				
	Ericsson RRUS 4449 B5, B12				
	Kathrein Scala 80010964				
91.0	10' Omni	Other	0.239		0.319

\*Deflection, Twist and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G





## **Standard Conditions**

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

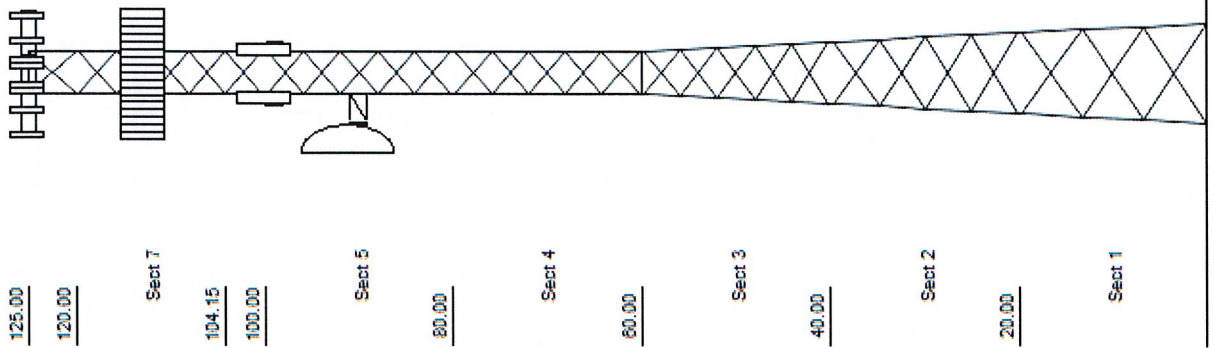
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.



Loads: 101 mph no. ice  
 50 mph w/ 3/4" radial ice  
 Site Class: D Ss: 0.18 S1: 0.06  
 60 mph Serviceability

Job Information	
Tower : 302536	Location : Cherry Hill- Base Width : 10.75 ft
Client : AT&T Mobility	Top Width : 4.56 ft
Code : ANSITIA-222-G	Tower Ht : 125.00 ft
	Shape : Triangle

Sections Properties			
Section	Leg Members	Diagonal Members	Horizontal Members
1	PSP 50 ksi ROHN 5 EH	SAE 36 ksi 1.75X1.75X0.125	
2	PSP 50 ksi ROHN 5EH	SAE 36 ksi 1.5X1.5X0.1875	
3	PX 50 ksi 4" DIA PIPE	SAE 36 ksi 1.5X1.5X0.1875	SAE 36 ksi 1.5X1.5X0.125
4	PX 50 ksi 4" DIA PIPE	SAE 36 ksi 2X2X0.25	
5	PX 50 ksi 3" DIA PIPE	SAE 36 ksi 1.5X1.5X0.1875	
6-7	PST 50 ksi 2-1/2" DIA PIPE	SAE 36 ksi 1.5X1.5X0.1875	
8	PST 50 ksi 2-1/2" DIA PIPE	SAE 36 ksi 1.5X1.5X0.125	SAE 36 ksi 1.5X1.5X0.125

Discrete Appurtenance		
Elev (ft)	Type	Qty Description
125.00	Panel	12 Decibel DB844H90E-XY
125.00	Mounting Frame	3 Flat Light Sector Frame
113.00	Panel	6 Kathrein Scala 80010964
113.00	Panel	1 Raycap DC6-48-60-18
113.00	Panel	3 Ericsson RRUS 4449 B5, B12
113.00	Panel	3 Ericsson RRUS 8843 B2, B66A
113.00	Panel	1 Commscope WCS-IMFQ-AMT
113.00	Panel	1 Raycap DC6-48-60-18-8F ("Squid
113.00	Panel	3 Andrew SBNHH-1D65A (33.5 lbs)
113.00	Panel	3 Ericsson RRUS 32
113.00	Panel	1 Raycap DC6-48-60-18-8F
113.00	Panel	6 Powerwave Alligon LGP21401
113.00	Panel	3 Powerwave Alligon 7770.00
113.00	Mounting Frame	3 Flat Light Sector Frame
100.00	Panel	3 RFS APXV18-206517S-C
91.00	Straight Arm	1 Side Arm
91.00	Dish	1 10' Omni

Linear Appurtenance		
Elev (ft)	From	To Qty Description
10.00	125.00	1 Wave Guide
10.00	125.00	12 7/8" Coax
10.00	113.00	1 Wave Guide
10.00	113.00	12 7/8" Coax
10.00	113.00	1 3/8" RET Control Cab
10.00	113.00	2 3" Conduit
10.00	113.00	2 0.78" 8 AWG 6
10.00	113.00	4 0.78" 8 AWG 6
10.00	113.00	2 0.74" 8 AWG 7
10.00	113.00	2 0.39" Fiber Trunk
10.00	100.00	1 Wave Guide
10.00	100.00	6 1 5/8" Coax
10.00	91.00	1 7/8" Coax

Global Base Foundation Design Loads			
Load Case	Moment (k-ft)	Vertical (kip)	Horizontal (kip)
DL + WL	1,478.95	20.73	18.67
DL + WL + IL	481.97	65.25	6.22



Job Information	
Tower : 302536	Base Width : 10.75 ft
Client : AT&T Mobility	Top Width : 4.56 ft
Code : ANS/TIA-222-G	Tower Ht : 125.00 ft
	Shape : Triangle

Individual Base Foundation Design Loads	
Vertical (kip)	Uplift (kip)
0.00	0.00
	Horizontal (kip)
	0.00

Site Number: 302536

Code: ANSI/TIA-222-G

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Site Name: Cherry Hill-branford, CT

Engineering Number: OAA744361\_C3\_01

1/7/2019 11:14:04 AM

Customer: AT&T Mobility

### Analysis Parameters

Location:	NEW HAVEN County, CT	Height (ft):	125
Code:	ANSI/TIA-222-G	Base Elevation (ft):	0.00
Shape:	Triangle	Bottom Face Width (ft):	10.75
Tower Manufacturer:	Rohn	Top Face Width (ft):	4.56
Tower Type:	Self Support	Anchor Bolt Detail Type	c
Kd:			
Ke:			

### Ice & Wind Parameters

Structure Class:	II	Design Windspeed Without Ice:	101 mph
Exposure Category:	B	Design Windspeed With Ice:	50 mph
Topographic Category:	1	Operational Windspeed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	0.75 in

### Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	1.09		
T <sub>L</sub> (sec):	6	p:	1.3
S <sub>s</sub> :	0.181	S <sub>1</sub> :	0.061
F <sub>a</sub> :	1.600	F <sub>v</sub> :	2.400
S <sub>ds</sub> :	0.193	S <sub>d1</sub> :	0.098
		C <sub>s</sub> :	0.030
		C <sub>s, Max</sub> :	0.030
		C <sub>s, Min</sub> :	0.030

### Load Cases

1.2D + 1.6W Normal - Pat 1	101 mph Normal with No Ice - Pattern 1
1.2D + 1.6W Normal - Pat 2	101 mph Normal with No Ice - Pattern 2
1.2D + 1.6W Normal - Pat 3	101 mph Normal with No Ice - Pattern 3
1.2D + 1.6W 60 deg - Pat 1	101 mph 60 degree with No Ice - Pattern 1
1.2D + 1.6W 60 deg - Pat 2	101 mph 60 degree with No Ice - Pattern 2
1.2D + 1.6W 60 deg - Pat 3	101 mph 60 degree with No Ice - Pattern 3
1.2D + 1.6W 90 deg - Pat 1	101 mph 90 degree with No Ice - Pattern 1
1.2D + 1.6W 90 deg - Pat 2	101 mph 90 degree with No Ice - Pattern 2
1.2D + 1.6W 90 deg - Pat 3	101 mph 90 degree with No Ice - Pattern 3
1.2D + 1.6W 120 deg - Pat 1	101 mph 120 degree with No Ice - Pattern 1
1.2D + 1.6W 120 deg - Pat 2	101 mph 120 degree with No Ice - Pattern 2
1.2D + 1.6W 120 deg - Pat 3	101 mph 120 degree with No Ice - Pattern 3
1.2D + 1.6W 180 deg - Pat 1	101 mph 180 degree with No Ice - Pattern 1
1.2D + 1.6W 180 deg - Pat 2	101 mph 180 degree with No Ice - Pattern 2
1.2D + 1.6W 180 deg - Pat 3	101 mph 180 degree with No Ice - Pattern 3
1.2D + 1.6W 210 deg - Pat 1	101 mph 210 degree with No Ice - Pattern 1
1.2D + 1.6W 210 deg - Pat 2	101 mph 210 degree with No Ice - Pattern 2
1.2D + 1.6W 210 deg - Pat 3	101 mph 210 degree with No Ice - Pattern 3
1.2D + 1.6W 240 deg - Pat 1	101 mph 240 degree with No Ice - Pattern 1



Site Number: 302536  
Site Name: Cherry Hill-branford, CT  
Customer: AT&T Mobility

Code: ANSI/TIA-222-G  
Engineering Number: OAA744361\_C3\_01

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## Analysis Parameters

1.2D + 1.6W 240 deg - Pat 2	101 mph 240 degree with No Ice - Pattern 2
1.2D + 1.6W 240 deg - Pat 3	101 mph 240 degree with No Ice - Pattern 3
1.2D + 1.6W 300 deg - Pat 1	101 mph 300 degree with No Ice - Pattern 1
1.2D + 1.6W 300 deg - Pat 2	101 mph 300 degree with No Ice - Pattern 2
1.2D + 1.6W 300 deg - Pat 3	101 mph 300 degree with No Ice - Pattern 3
1.2D + 1.6W 330 deg - Pat 1	101 mph 330 degree with No Ice - Pattern 1
1.2D + 1.6W 330 deg - Pat 2	101 mph 330 degree with No Ice - Pattern 2
1.2D + 1.6W 330 deg - Pat 3	101 mph 330 degree with No Ice - Pattern 3
0.9D + 1.6W Normal	101 mph Normal with No Ice (Reduced DL)
0.9D + 1.6W 60 deg	101 mph 60 deg with No Ice (Reduced DL)
0.9D + 1.6W 90 deg	101 mph 90 deg with No Ice (Reduced DL)
0.9D + 1.6W 120 deg	101 mph 120 deg with No Ice (Reduced DL)
0.9D + 1.6W 180 deg	101 mph 180 deg with No Ice (Reduced DL)
0.9D + 1.6W 210 deg	101 mph 210 deg with No Ice (Reduced DL)
0.9D + 1.6W 240 deg	101 mph 240 deg with No Ice (Reduced DL)
0.9D + 1.6W 300 deg	101 mph 300 deg with No Ice (Reduced DL)
0.9D + 1.6W 330 deg	101 mph 330 deg with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi Normal	50 mph Normal with 0.75 in Radial Ice
1.2D + 1.0Di + 1.0Wi 60 deg	50 mph 60 deg with 0.75 in Radial Ice
1.2D + 1.0Di + 1.0Wi 90 deg	50 mph 90 deg with 0.75 in Radial Ice
1.2D + 1.0Di + 1.0Wi 120 deg	50 mph 120 deg with 0.75 in Radial Ice
1.2D + 1.0Di + 1.0Wi 180 deg	50 mph 180 deg with 0.75 in Radial Ice
1.2D + 1.0Di + 1.0Wi 210 deg	50 mph 210 deg with 0.75 in Radial Ice
1.2D + 1.0Di + 1.0Wi 240 deg	50 mph 240 deg with 0.75 in Radial Ice
1.2D + 1.0Di + 1.0Wi 300 deg	50 mph 300 deg with 0.75 in Radial Ice
1.2D + 1.0Di + 1.0Wi 330 deg	50 mph 330 deg with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E Normal	Seismic Normal
(1.2 + 0.2Sds) * DL + E 60 deg	Seismic 60 deg
(1.2 + 0.2Sds) * DL + E 90 deg	Seismic 90 deg
(1.2 + 0.2Sds) * DL + E 120 deg	Seismic 120 deg
(1.2 + 0.2Sds) * DL + E 180 deg	Seismic 180 deg
(1.2 + 0.2Sds) * DL + E 210 deg	Seismic 210 deg
(1.2 + 0.2Sds) * DL + E 240 deg	Seismic 240 deg
(1.2 + 0.2Sds) * DL + E 300 deg	Seismic 300 deg
(1.2 + 0.2Sds) * DL + E 330 deg	Seismic 330 deg
(0.9 - 0.2Sds) * DL + E Normal	Seismic (Reduced DL) Normal
(0.9 - 0.2Sds) * DL + E 60 deg	Seismic (Reduced DL) 60 deg
(0.9 - 0.2Sds) * DL + E 90 deg	Seismic (Reduced DL) 90 deg
(0.9 - 0.2Sds) * DL + E 120 deg	Seismic (Reduced DL) 120 deg
(0.9 - 0.2Sds) * DL + E 180 deg	Seismic (Reduced DL) 180 deg
(0.9 - 0.2Sds) * DL + E 210 deg	Seismic (Reduced DL) 210 deg
(0.9 - 0.2Sds) * DL + E 240 deg	Seismic (Reduced DL) 240 deg
(0.9 - 0.2Sds) * DL + E 300 deg	Seismic (Reduced DL) 300 deg
(0.9 - 0.2Sds) * DL + E 330 deg	Seismic (Reduced DL) 330 deg
1.0D + 1.0W Service Normal	Serviceability - 60 mph Wind Normal
1.0D + 1.0W Service 60 deg	Serviceability - 60 mph Wind 60 deg

Site Number: 302536

Code:

ANSI/TIA-222-G

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Site Name: Cherry Hill-branford, CT

Engineering Number: OAA744361\_C3\_01

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Customer: AT&T Mobility

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### Analysis Parameters

1.0D + 1.0W Service 90 deg	Serviceability - 60 mph Wind 90 deg
1.0D + 1.0W Service 120 deg	Serviceability - 60 mph Wind 120 deg
1.0D + 1.0W Service 180 deg	Serviceability - 60 mph Wind 180 deg
1.0D + 1.0W Service 210 deg	Serviceability - 60 mph Wind 210 deg
1.0D + 1.0W Service 240 deg	Serviceability - 60 mph Wind 240 deg
1.0D + 1.0W Service 300 deg	Serviceability - 60 mph Wind 300 deg
1.0D + 1.0W Service 330 deg	Serviceability - 60 mph Wind 330 deg

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Site Number: 302536

Code: ANSI/TIA-222-G

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Site Name: Cherry Hill-branford, CT

Engineering Number: OAA744361\_C3\_01

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Customer: AT&T Mobility

### Tower Loading

#### Discrete Appurtenance Properties 1.2D + 1.6W

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K <sub>a</sub>	Orient. Factor	Vert. Ecc.(ft)	M <sub>u</sub> (lb-ft)	Q <sub>z</sub> (psf)	F <sub>a</sub> (WL) (lb)	P <sub>a</sub> (DL) (lb)
125.0	Decibel DB844H90E-	12	14	3.6	4.0	8.0	6.5	0.80	0.74	0.0	0.0	23.38	815	202
125.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	23.38	960	1440
113.0	Andrew SBNHH-	3	34	5.9	4.6	11.9	7.1	0.80	0.69	0.0	0.0	22.72	301	121
113.0	Commscope WCS-	1	30	1.0	0.9	10.6	6.9	0.80	0.50	0.0	0.0	22.72	12	35
113.0	Ericsson RRUS 32	3	51	2.7	2.2	12.1	6.7	0.80	0.67	0.0	0.0	22.72	134	183
113.0	Ericsson RRUS 4449	3	71	2.0	1.5	13.2	9.4	0.80	0.50	0.0	0.0	22.72	73	256
113.0	Ericsson RRUS 8843	3	72	1.6	1.2	13.2	10.9	0.80	0.50	0.0	0.0	22.72	61	259
113.0	Flat Light Sector	3	400	13.6	0.0	0.0	0.0	0.75	0.67	0.0	0.0	22.72	633	1440
113.0	Kathrein Scala	6	82	10.0	4.9	20.0	6.9	0.80	0.62	0.0	0.0	22.72	919	588
113.0	Powerwave Allgon	3	35	5.5	4.6	11.0	5.0	0.80	0.65	0.0	0.0	22.72	266	126
113.0	Powerwave Allgon	6	14	1.3	1.2	9.2	2.6	0.80	0.50	0.0	0.0	22.72	95	102
113.0	Raycap DC6-48-60-	1	30	3.8	2.3	16.7	5.5	0.80	0.67	0.0	0.0	22.72	63	36
113.0	Raycap DC6-48-60-	1	20	1.1	2.0	9.7	9.7	0.80	1.00	0.0	0.0	22.72	27	24
113.0	Raycap DC6-48-60-	1	32	1.3	2.0	11.0	11.0	0.80	1.00	0.0	0.0	22.72	32	38
100.0	RFS APXV18-	3	26	5.2	6.0	6.8	3.2	1.00	0.80	0.0	0.0	21.94	370	95
91.00	10' Omni	1	25	3.0	10.0	3.0	3.0	1.00	1.00	0.0	0.0	21.35	87	30
91.00	Side Arm	1	150	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	21.35	87	180
<b>Totals</b>		<b>54</b>	<b>4295</b>	<b>287.3</b>									<b>4936</b>	<b>5154</b>

#### Discrete Appurtenance Properties 1.2D + 1.6W

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K <sub>a</sub>	Orient. Factor	Vert. Ecc.(ft)	M <sub>u</sub> (lb-ft)	Q <sub>z</sub> (psf)	F <sub>a</sub> (WL) (lb)	P <sub>a</sub> (DL) (lb)
125.0	Decibel DB844H90E-	12	14	3.6	4.0	8.0	6.5	0.80	0.74	0.0	0.0	23.38	815	202
125.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	23.38	960	1440
113.0	Andrew SBNHH-	3	34	5.9	4.6	11.9	7.1	0.80	0.69	0.0	0.0	22.72	301	121
113.0	Commscope WCS-	1	30	1.0	0.9	10.6	6.9	0.80	0.50	0.0	0.0	22.72	12	35
113.0	Ericsson RRUS 32	3	51	2.7	2.2	12.1	6.7	0.80	0.67	0.0	0.0	22.72	134	183
113.0	Ericsson RRUS 4449	3	71	2.0	1.5	13.2	9.4	0.80	0.50	0.0	0.0	22.72	73	256
113.0	Ericsson RRUS 8843	3	72	1.6	1.2	13.2	10.9	0.80	0.50	0.0	0.0	22.72	61	259
113.0	Flat Light Sector	3	400	13.6	0.0	0.0	0.0	0.75	0.67	0.0	0.0	22.72	633	1440
113.0	Kathrein Scala	6	82	10.0	4.9	20.0	6.9	0.80	0.62	0.0	0.0	22.72	919	588
113.0	Powerwave Allgon	3	35	5.5	4.6	11.0	5.0	0.80	0.65	0.0	0.0	22.72	266	126
113.0	Powerwave Allgon	6	14	1.3	1.2	9.2	2.6	0.80	0.50	0.0	0.0	22.72	95	102
113.0	Raycap DC6-48-60-	1	30	3.8	2.3	16.7	5.5	0.80	0.67	0.0	0.0	22.72	63	36
113.0	Raycap DC6-48-60-	1	20	1.1	2.0	9.7	9.7	0.80	1.00	0.0	0.0	22.72	27	24
113.0	Raycap DC6-48-60-	1	32	1.3	2.0	11.0	11.0	0.80	1.00	0.0	0.0	22.72	32	38
100.0	RFS APXV18-	3	26	5.2	6.0	6.8	3.2	1.00	0.80	0.0	0.0	21.94	370	95
91.00	10' Omni	1	25	3.0	10.0	3.0	3.0	1.00	1.00	0.0	0.0	21.35	87	30
91.00	Side Arm	1	150	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	21.35	87	180
<b>Totals</b>		<b>54</b>	<b>4295</b>	<b>287.3</b>									<b>4936</b>	<b>5154</b>

#### Discrete Appurtenance Properties 1.2D + 1.6W

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K <sub>a</sub>	Orient. Factor	Vert. Ecc.(ft)	M <sub>u</sub> (lb-ft)	Q <sub>z</sub> (psf)	F <sub>a</sub> (WL) (lb)	P <sub>a</sub> (DL) (lb)
125.0	Decibel DB844H90E-	12	14	3.6	4.0	8.0	6.5	0.80	0.74	0.0	0.0	23.38	815	202
125.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	23.38	960	1440
113.0	Andrew SBNHH-	3	34	5.9	4.6	11.9	7.1	0.80	0.69	0.0	0.0	22.72	301	121
113.0	Commscope WCS-	1	30	1.0	0.9	10.6	6.9	0.80	0.50	0.0	0.0	22.72	12	35



Site Number: 302536

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### Tower Loading

113.0	Ericsson RRUS 32	3	51	2.7	2.2	12.1	6.7	0.80	0.67	0.0	0.0	22.72	134	183
113.0	Ericsson RRUS 4449	3	71	2.0	1.5	13.2	9.4	0.80	0.50	0.0	0.0	22.72	73	256
113.0	Ericsson RRUS 8843	3	72	1.6	1.2	13.2	10.9	0.80	0.50	0.0	0.0	22.72	61	259
113.0	Flat Light Sector	3	400	13.6	0.0	0.0	0.0	0.75	0.67	0.0	0.0	22.72	633	1440
113.0	Kathrein Scala	6	82	10.0	4.9	20.0	6.9	0.80	0.62	0.0	0.0	22.72	919	588
113.0	Powerwave Allgon	3	35	5.5	4.6	11.0	5.0	0.80	0.65	0.0	0.0	22.72	266	126
113.0	Powerwave Allgon	6	14	1.3	1.2	9.2	2.6	0.80	0.50	0.0	0.0	22.72	95	102
113.0	Raycap DC6-48-60-	1	30	3.8	2.3	16.7	5.5	0.80	0.67	0.0	0.0	22.72	63	36
113.0	Raycap DC6-48-60-	1	20	1.1	2.0	9.7	9.7	0.80	1.00	0.0	0.0	22.72	27	24
113.0	Raycap DC6-48-60-	1	32	1.3	2.0	11.0	11.0	0.80	1.00	0.0	0.0	22.72	32	38
100.0	RFS APXV18-	3	26	5.2	6.0	6.8	3.2	1.00	0.80	0.0	0.0	21.94	370	95
91.00	10' Omni	1	25	3.0	10.0	3.0	3.0	1.00	1.00	0.0	0.0	21.35	87	30
91.00	Side Arm	1	150	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	21.35	87	180
<b>Totals</b>		<b>54</b>	<b>4295</b>	<b>287.3</b>									<b>4936</b>	<b>5154</b>

### Discrete Appurtenance Properties 0.9D + 1.6W

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K <sub>a</sub>	Orient. Factor	Vert. Ecc.(ft)	M <sub>u</sub> (lb-ft)	Q <sub>z</sub> (psf)	F <sub>a</sub> (WL) (lb)	P <sub>a</sub> (DL) (lb)
125.0	Decibel DB844H90E-	12	14	3.6	4.0	8.0	6.5	0.80	0.74	0.0	0.0	23.38	815	151
125.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	23.38	960	1080
113.0	Andrew SBNHH-	3	34	5.9	4.6	11.9	7.1	0.80	0.69	0.0	0.0	22.72	301	90
113.0	Commscope WCS-	1	30	1.0	0.9	10.6	6.9	0.80	0.50	0.0	0.0	22.72	12	27
113.0	Ericsson RRUS 32	3	51	2.7	2.2	12.1	6.7	0.80	0.67	0.0	0.0	22.72	134	137
113.0	Ericsson RRUS 4449	3	71	2.0	1.5	13.2	9.4	0.80	0.50	0.0	0.0	22.72	73	192
113.0	Ericsson RRUS 8843	3	72	1.6	1.2	13.2	10.9	0.80	0.50	0.0	0.0	22.72	61	194
113.0	Flat Light Sector	3	400	13.6	0.0	0.0	0.0	0.75	0.67	0.0	0.0	22.72	633	1080
113.0	Kathrein Scala	6	82	10.0	4.9	20.0	6.9	0.80	0.62	0.0	0.0	22.72	919	441
113.0	Powerwave Allgon	3	35	5.5	4.6	11.0	5.0	0.80	0.65	0.0	0.0	22.72	266	95
113.0	Powerwave Allgon	6	14	1.3	1.2	9.2	2.6	0.80	0.50	0.0	0.0	22.72	95	76
113.0	Raycap DC6-48-60-	1	30	3.8	2.3	16.7	5.5	0.80	0.67	0.0	0.0	22.72	63	27
113.0	Raycap DC6-48-60-	1	20	1.1	2.0	9.7	9.7	0.80	1.00	0.0	0.0	22.72	27	18
113.0	Raycap DC6-48-60-	1	32	1.3	2.0	11.0	11.0	0.80	1.00	0.0	0.0	22.72	32	29
100.0	RFS APXV18-	3	26	5.2	6.0	6.8	3.2	1.00	0.80	0.0	0.0	21.94	370	71
91.00	10' Omni	1	25	3.0	10.0	3.0	3.0	1.00	1.00	0.0	0.0	21.35	87	23
91.00	Side Arm	1	150	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	21.35	87	135
<b>Totals</b>		<b>54</b>	<b>4295</b>	<b>287.3</b>									<b>4936</b>	<b>3865</b>

### Discrete Appurtenance Properties 1.2D + 1.0Di + 1.0Wi

Elevation (ft)	Description	Qty	Ice Wt (lb)	Ice EPA (sf)	Length (ft)	Width (in)	Depth (in)	K <sub>a</sub>	Orient. Factor	Vert. Ecc.(ft)	M <sub>u</sub> (lb-ft)	Q <sub>z</sub> (psf)	F <sub>a</sub> (WL) (lb)	P <sub>a</sub> (DL) (lb)
125.0	Decibel DB844H90E-	12	122	4.5	4.0	8.0	6.5	0.80	0.74	0.0	0.0	5.73	155	1496
125.0	Flat Light Sector	3	696	32.7	0.0	0.0	0.0	0.75	0.75	0.0	0.0	5.73	269	2327
113.0	Andrew SBNHH-	3	186	6.9	4.6	11.9	7.1	0.80	0.69	0.0	0.0	5.57	54	579
113.0	Commscope WCS-	1	71	1.4	0.9	10.6	6.9	0.80	0.50	0.0	0.0	5.57	3	77
113.0	Ericsson RRUS 32	3	133	3.4	2.2	12.1	6.7	0.80	0.67	0.0	0.0	5.57	26	430
113.0	Ericsson RRUS 4449	3	145	2.5	1.5	13.2	9.4	0.80	0.50	0.0	0.0	5.57	14	479
113.0	Ericsson RRUS 8843	3	143	2.2	1.2	13.2	10.9	0.80	0.50	0.0	0.0	5.57	12	472
113.0	Flat Light Sector	3	693	24.8	0.0	0.0	0.0	0.75	0.67	0.0	0.0	5.57	177	2319
113.0	Kathrein Scala	6	305	11.3	4.9	20.0	6.9	0.80	0.62	0.0	0.0	5.57	159	1925
113.0	Powerwave Allgon	3	165	6.5	4.6	11.0	5.0	0.80	0.65	0.0	0.0	5.57	48	517
113.0	Powerwave Allgon	6	46	1.5	1.2	9.2	2.6	0.80	0.50	0.0	0.0	5.57	18	295
113.0	Raycap DC6-48-60-	1	127	4.6	2.3	16.7	5.5	0.80	0.67	0.0	0.0	5.57	12	133

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### Tower Loading

113.0 Raycap DC6-48-60-	1	98	2.5	2.0	9.7	9.7	0.80	1.00	0.0	0.0	5.57	9	102
113.0 Raycap DC6-48-60-	1	121	2.8	2.0	11.0	11.0	0.80	1.00	0.0	0.0	5.57	11	128
100.0 RFS APXV18-	3	137	6.3	6.0	6.8	3.2	1.00	0.80	0.0	0.0	5.38	70	425
91.00 10' Omni	1	27	3.2	10.0	3.0	3.0	1.00	1.00	0.0	0.0	5.23	14	32
91.00 Side Arm	1	220	4.5	0.0	0.0	0.0	1.00	1.00	0.0	0.0	5.23	20	250
<b>Totals</b>	<b>54</b>	<b>11126</b>	<b>405.8</b>									<b>1070</b>	<b>11985</b>

### Discrete Appurtenance Properties 1.0D + 1.0W Service

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K <sub>a</sub>	Orient. Factor	Vert. Ecc.(ft)	M <sub>u</sub> (lb-ft)	Q <sub>z</sub> (psf)	F <sub>a</sub> (WL) (lb)	P <sub>a</sub> (DL) (lb)
125.0	Decibel DB844H90E-	12	14	3.6	4.0	8.0	6.5	0.80	0.74	0.0	0.0	8.25	180	168
125.0	Flat Light Sector	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	8.25	212	1200
113.0	Andrew SBNHH-	3	34	5.9	4.6	11.9	7.1	0.80	0.69	0.0	0.0	8.02	66	101
113.0	Commscope WCS-	1	30	1.0	0.9	10.6	6.9	0.80	0.50	0.0	0.0	8.02	3	30
113.0	Ericsson RRUS 32	3	51	2.7	2.2	12.1	6.7	0.80	0.67	0.0	0.0	8.02	29	152
113.0	Ericsson RRUS 4449	3	71	2.0	1.5	13.2	9.4	0.80	0.50	0.0	0.0	8.02	16	213
113.0	Ericsson RRUS 8843	3	72	1.6	1.2	13.2	10.9	0.80	0.50	0.0	0.0	8.02	13	216
113.0	Flat Light Sector	3	400	13.6	0.0	0.0	0.0	0.75	0.67	0.0	0.0	8.02	140	1200
113.0	Kathrein Scala	6	82	10.0	4.9	20.0	6.9	0.80	0.62	0.0	0.0	8.02	203	490
113.0	Powerwave Allgon	3	35	5.5	4.6	11.0	5.0	0.80	0.65	0.0	0.0	8.02	59	105
113.0	Powerwave Allgon	6	14	1.3	1.2	9.2	2.6	0.80	0.50	0.0	0.0	8.02	21	85
113.0	Raycap DC6-48-60-	1	30	3.8	2.3	16.7	5.5	0.80	0.67	0.0	0.0	8.02	14	30
113.0	Raycap DC6-48-60-	1	20	1.1	2.0	9.7	9.7	0.80	1.00	0.0	0.0	8.02	6	20
113.0	Raycap DC6-48-60-	1	32	1.3	2.0	11.0	11.0	0.80	1.00	0.0	0.0	8.02	7	32
100.0	RFS APXV18-	3	26	5.2	6.0	6.8	3.2	1.00	0.80	0.0	0.0	7.74	82	79
91.00	10' Omni	1	25	3.0	10.0	3.0	3.0	1.00	1.00	0.0	0.0	7.54	19	25
91.00	Side Arm	1	150	3.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	7.54	19	150
<b>Totals</b>		<b>54</b>	<b>4295</b>	<b>287.3</b>									<b>1089</b>	<b>4295</b>

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Engineering Number: OAA744361\_C3\_01

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Customer: AT&T Mobility

### Tower Loading

#### Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out Of Zone	Spacing (in)	Orientation Factor	Ka Override
10.00	125.0	7/8" Coax	12	1.09	0.33	0	Lin App	Individual	0.00	N	1.00	1.00	0.00
10.00	125.0	Wave Guide	1	1.50	6.00	0	1	Individual	0.00	N	1.00	1.00	0.00
10.00	113.0	0.39" Fiber Trunk	2	0.39	0.06	0	2	Individual	0.00	N	0.01	1.00	0.01
10.00	113.0	0.74" 8 AWG 7	2	0.74	0.49	0	2	Individual	0.00	N	0.01	1.00	0.01
10.00	113.0	0.78" 8 AWG 6	4	0.78	0.59	0	2	Individual	0.00	N	0.01	1.00	0.01
10.00	113.0	0.78" 8 AWG 6	2	0.78	0.59	0	2	Individual	0.00	N	0.01	1.00	0.01
10.00	113.0	3" Conduit	2	3.50	7.58	0	2	Individual	0.00	N	1.00	1.00	0.00
10.00	113.0	3/8" RET Control	1	0.38	0.23	0	Lin App	Individual	0.00	N	1.00	1.00	0.00
10.00	113.0	7/8" Coax	12	1.09	0.33	0	Lin App	Individual	0.00	N	1.00	1.00	0.42
10.00	113.0	Wave Guide	1	1.50	6.00	0	2	Individual	0.00	N	1.00	1.00	0.00
10.00	100.0	1 5/8" Coax	6	1.98	0.82	0	3	Individual	0.00	N	1.00	1.00	0.36
10.00	100.0	Wave Guide	1	1.50	6.00	0	3	Individual	0.00	N	1.00	1.00	0.00
10.00	91.00	7/8" Coax	1	1.09	0.33	0	Lin App	Individual	0.00	N	1.00	1.00	0.00



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### Equivalent Lateral Force Method

(Based on ASCE7-10 Chapters 11, 12 & 15)

Spectral Response Acceleration for Short Period ( $S_g$ ):	0.18
Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.06
Long-Period Transition Period ( $T_L$ - Seconds):	6
Importance Factor ( $I_g$ ):	1.00
Site Coefficient $F_a$ :	1.60
Site Coefficient $F_v$ :	2.40
Response Modification Coefficient (R):	3.00
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.19
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.10
Seismic Response Coefficient ( $C_s$ ):	0.03
Upper Limit $C_s$ :	0.03
Lower Limit $C_s$ :	0.03
Period based on Rayleigh Method (sec):	1.09
Redundancy Factor ( $\rho$ ):	1.30
Seismic Force Distribution Exponent (k):	1.29
Total Unfactored Dead Load:	17.28 k
Seismic Base Shear (E):	0.67 k

#### LoadCase (1.2 + 0.2Sds) \* DL + E

#### Seismic

Section	Height Above Base (ft)	Weight (lb)	$W_z$ (lb-ft)	$C_{vx}$	Horizontal Force (lb)	Vertical Force (lb)
8	122.50	203	102,088	0.022	15	252
7	112.08	958	428,694	0.094	64	1,187
6	102.07	303	120,100	0.026	18	375
5	90.00	1,963	661,265	0.145	98	2,432
4	70.00	2,506	609,720	0.134	90	3,103
3	50.00	2,316	364,682	0.080	54	2,868
2	30.00	2,669	217,078	0.048	32	3,305
1	10.00	2,066	40,588	0.009	6	2,559
Decibel DB844H90E-XY	125.00	168	86,535	0.019	13	208
Flat Light Sector Frame	125.00	1,200	618,109	0.136	92	1,486
Andrew SBNHH-1D65A (33.5 lbs)	113.00	101	45,432	0.010	7	124
Commscope WCS-IMFQ-AMT	113.00	30	13,336	0.003	2	37
Ericsson RRUS 32	113.00	152	68,894	0.015	10	189
Ericsson RRUS 4449 B5, B12	113.00	213	96,289	0.021	14	264
Ericsson RRUS 8843 B2, B66A	113.00	216	97,645	0.021	14	268
Flat Light Sector Frame	113.00	1,200	542,474	0.119	80	1,486
Kathrein Scala 80010964	113.00	490	221,329	0.049	33	606
Powerwave Allgon 7770.00	113.00	105	47,466	0.010	7	130
Powerwave Allgon LGP21401	113.00	85	38,244	0.008	6	105
Raycap DC6-48-60-18	113.00	30	13,562	0.003	2	37
Raycap DC6-48-60-18-8F	113.00	20	9,041	0.002	1	25
Raycap DC6-48-60-18-8F ("Squid")	113.00	32	14,376	0.003	2	39

Site Number: 302536

Code: ANSI/TIA-222-G

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Site Name: Cherry Hill-branford, CT

Engineering Number: OAA744361\_C3\_01

1/7/2019 11:14:05 AM

Customer: AT&T Mobility

**Equivalent Lateral Force Method**

RFS APXV18-206517S-C	100.00	79	30,569	0.007	5	98
10' Omni	91.00	25	8,541	0.002	1	31
Side Arm	91.00	150	51,248	0.011	8	186
		17,279	4,547,305	1.000	674	21,402

**LoadCase (0.9 - 0.2SDs) \* DL + E**

**Seismic (Reduced DL)**

Section	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
8	122.50	203	102,088	0.022	15	175
7	112.08	958	428,694	0.094	64	826
6	102.07	303	120,100	0.026	18	261
5	90.00	1,963	661,265	0.145	98	1,691
4	70.00	2,506	609,721	0.134	90	2,158
3	50.00	2,316	364,682	0.080	54	1,995
2	30.00	2,669	217,078	0.048	32	2,299
1	10.00	2,066	40,588	0.009	6	1,780
Decibel DB844H90E-XY	125.00	168	86,535	0.019	13	145
Flat Light Sector Frame	125.00	1,200	618,109	0.136	92	1,034
Andrew SBNHH-1D65A (33.5 lbs)	113.00	101	45,432	0.010	7	87
Commscope WCS-IMFQ-AMT	113.00	30	13,336	0.003	2	25
Ericsson RRUS 32	113.00	152	68,894	0.015	10	131
Ericsson RRUS 4449 B5, B12	113.00	213	96,289	0.021	14	183
Ericsson RRUS 8843 B2, B66A	113.00	216	97,645	0.021	14	186
Flat Light Sector Frame	113.00	1,200	542,474	0.119	80	1,034
Kathrein Scala 80010964	113.00	490	221,329	0.049	33	422
Powerwave Allgon 7770.00	113.00	105	47,466	0.010	7	90
Powerwave Allgon LGP21401	113.00	85	38,244	0.008	6	73
Raycap DC6-48-60-18	113.00	30	13,562	0.003	2	26
Raycap DC6-48-60-18-8F	113.00	20	9,041	0.002	1	17
Raycap DC6-48-60-18-8F ("Squid")	113.00	32	14,376	0.003	2	27
RFS APXV18-206517S-C	100.00	79	30,569	0.007	5	68
10' Omni	91.00	25	8,541	0.002	1	22
Side Arm	91.00	150	51,248	0.011	8	129
		17,279	4,547,305	1.000	674	14,884

Site Number: 302536

Code: ANSI/TIA-222-G

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Site Name: Cherry Hill-branford, CT

Engineering Number: OAA744361\_C3\_01

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Customer: AT&T Mobility

### Equivalent Modal Analysis Method

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period ( $S_{s1}$ ):	0.18
Spectral Response Acceleration at 1.0 Second Period ( $S_{s1}$ ):	0.06
Importance Factor ( $I_p$ ):	1.00
Site Coefficient $F_a$ :	1.60
Site Coefficient $F_v$ :	2.40
Response Modification Coefficient (R):	3.00
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.19
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.10
Period Based on Rayleigh Method (sec):	1.09
Redundancy Factor ( $\rho$ ):	1.30

#### LoadCase (1.2 + 0.2Sds) \* DL + E

#### Seismic

Section	Height Above Base (ft)	Weight (lb)	a	b	c	$S_{az}$	Horizontal Force (lb)	Vertical Force (lb)
8	122.50	203	1.815	1.608	1.004	0.350	31	252
7	112.08	958	1.519	0.550	0.566	0.192	80	1,187
6	102.07	303	1.260	0.069	0.302	0.092	12	375
5	90.00	1,963	0.980	-0.114	0.122	0.032	28	2,432
4	70.00	2,506	0.593	-0.050	0.014	0.031	34	3,103
3	50.00	2,316	0.302	0.045	0.012	0.045	45	2,868
2	30.00	2,669	0.109	0.071	0.036	0.036	42	3,305
1	10.00	2,066	0.012	0.058	0.034	0.023	21	2,559
Decibel DB844H90E-XY	125.00	168	1.890	1.980	1.140	0.396	29	208
Flat Light Sector Frame	125.00	1,200	1.890	1.980	1.140	0.396	206	1,486
Andrew SBNHH-1D65A (33.5 lbs)	113.00	101	1.545	0.617	0.597	0.204	9	124
Commscope WCS-IMFQ-AMT	113.00	30	1.545	0.617	0.597	0.204	3	37
Ericsson RRUS 32	113.00	152	1.545	0.617	0.597	0.204	13	189
Ericsson RRUS 4449 B5, B12	113.00	213	1.545	0.617	0.597	0.204	19	264
Ericsson RRUS 8843 B2, B66A	113.00	216	1.545	0.617	0.597	0.204	19	268
Flat Light Sector Frame	113.00	1,200	1.545	0.617	0.597	0.204	106	1,486
Kathrein Scala 80010964	113.00	490	1.545	0.617	0.597	0.204	43	606
Powerwave Allgon 7770.00	113.00	105	1.545	0.617	0.597	0.204	9	130
Powerwave Allgon LGP21401	113.00	85	1.545	0.617	0.597	0.204	7	105
Raycap DC6-48-60-18	113.00	30	1.545	0.617	0.597	0.204	3	37
Raycap DC6-48-60-18-8F	113.00	20	1.545	0.617	0.597	0.204	2	25
Raycap DC6-48-60-18-8F ("Squid")	113.00	32	1.545	0.617	0.597	0.204	3	39
RFS APXV18-206517S-C	100.00	79	1.210	0.014	0.262	0.077	3	98
10' Omni	91.00	25	1.002	-0.109	0.132	0.035	0	31
Side Arm	91.00	150	1.002	-0.109	0.132	0.035	2	186
		17,279	32.118	13.393	12.064	4.183	767	21,402

#### LoadCase (0.9 - 0.2Sds) \* DL + E

#### Seismic (Reduced DL)

Section	Height Above Base (ft)	Weight (lb)	a	b	c	$S_{az}$	Horizontal Force (lb)	Vertical Force (lb)
8	122.50	203	1.815	1.608	1.004	0.350	31	175
7	112.08	958	1.519	0.550	0.566	0.192	80	826
6	102.07	303	1.260	0.069	0.302	0.092	12	261



Site Number: 302536

Code:

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Site Name: Cherry Hill-branford, CT

Engineering Number: OAA744361\_C3\_01

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Customer: AT&T Mobility

### Equivalent Modal Analysis Method

5	90.00	1,963	0.980	-0.114	0.122	0.032	28	1,691
4	70.00	2,506	0.593	-0.050	0.014	0.031	34	2,158
3	50.00	2,316	0.302	0.045	0.012	0.045	45	1,995
2	30.00	2,669	0.109	0.071	0.036	0.036	42	2,299
1	10.00	2,066	0.012	0.058	0.034	0.023	21	1,780
Decibel DB844H90E-XY	125.00	168	1.890	1.980	1.140	0.396	29	145
Flat Light Sector Frame	125.00	1,200	1.890	1.980	1.140	0.396	206	1,034
Andrew SBNHH-1D65A (33.5 lbs)	113.00	101	1.545	0.617	0.597	0.204	9	87
Commscope WCS-IMFQ-AMT	113.00	30	1.545	0.617	0.597	0.204	3	25
Ericsson RRUS 32	113.00	152	1.545	0.617	0.597	0.204	13	131
Ericsson RRUS 4449 B5, B12	113.00	213	1.545	0.617	0.597	0.204	19	183
Ericsson RRUS 8843 B2, B66A	113.00	216	1.545	0.617	0.597	0.204	19	186
Flat Light Sector Frame	113.00	1,200	1.545	0.617	0.597	0.204	106	1,034
Kathrein Scala 80010964	113.00	490	1.545	0.617	0.597	0.204	43	422
Powerwave Allgon 7770.00	113.00	105	1.545	0.617	0.597	0.204	9	90
Powerwave Allgon LGP21401	113.00	85	1.545	0.617	0.597	0.204	7	73
Raycap DC6-48-60-18	113.00	30	1.545	0.617	0.597	0.204	3	26
Raycap DC6-48-60-18-8F	113.00	20	1.545	0.617	0.597	0.204	2	17
Raycap DC6-48-60-18-8F ("Squid")	113.00	32	1.545	0.617	0.597	0.204	3	27
RFS APXV18-206517S-C	100.00	79	1.210	0.014	0.262	0.077	3	68
10' Omni	91.00	25	1.002	-0.109	0.132	0.035	0	22
Side Arm	91.00	150	1.002	-0.109	0.132	0.035	2	129
		17,279	32.118	13.393	12.064	4.183	767	14,884

Site Number: 302536

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Site Name: Cherry Hill-branford, CT

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Customer: AT&T Mobility

### Force/Stress Summary

Section: 1		9N39		Bot Elev (ft): 0.00				Height (ft): 20.000				Shear		Bear		Use	
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	phiRnv (kip)	phiRn (kip)	%	Controls		
LEG	PSP - ROHN 5 EH	-163.79	1.2D + 1.6W	6.59	100	100	100	43.0	50.0	240.17	0	0	0.00	0.00	68	Member X	
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0		
DIAG	SAE - 1.75X1.75X0.12	-1.88	1.2D + 1.6W	12.31	48	48	48	204.5	36.0	2.27	1	1	7.95	6.96	82	Member Z	

Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phiRn (kip)	Use %	Controls
LEG	PSP - ROHN 5 EH	148.69	0.9D + 1.6W 60	50	65	274.95	0	0	0.00	0.00		54	Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00	0	
DIAG	SAE - 1.75X1.75X0.12	1.77	1.2D + 1.6W 210	36	58	11.15	1	1	7.95	4.13	3.81	46	Blk Shear

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		138.96	0.9D + 1.6W 60	0.00	0	0	
Top Compression		154.79	1.2D + 1.6W	0.00	0		
Bot Tension		148.69	0.9D + 1.6W 60	242.30	70	4	1" A354-BC
Bot Compression		166.06	1.2D + 1.6W	0.00	0		

Section: 2		8N199		Bot Elev (ft): 20.00				Height (ft): 20.000				Shear		Bear		Use	
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	phiRnv (kip)	phiRn (kip)	%	Controls		
LEG	PSP - ROHN 5 EH	-152.93	1.2D + 1.6W	4.88	100	100	100	31.8	50.0	255.30	0	0	0.00	0.00	59	Member X	
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0		
DIAG	SAE - 1.5X1.5X0.1875	-1.64	1.2D + 1.6W	9.784	50	50	50	200.3	36.0	2.98	1	1	7.95	10.44	55	Member Z	

Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phiRn (kip)	Use %	Controls
LEG	PSP - ROHN 5 EH	138.00	1.2D + 1.6W 60	50	65	274.95	0	0	0.00	0.00		50	Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00	0	
DIAG	SAE - 1.5X1.5X0.1875	1.54	1.2D + 1.6W 210	36	58	13.47	1	1	7.95	6.20	4.69	32	Blk Shear

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		128.91	0.9D + 1.6W 60	0.00	0	0	
Top Compression		142.39	1.2D + 1.6W	0.00	0		
Bot Tension		138.96	0.9D + 1.6W 60	218.07	64	4	1 A325
Bot Compression		154.79	1.2D + 1.6W	0.00	0		

Site Number: 302536

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Site Name: Cherry Hill-branford, CT

Engineering Number: OAA744361\_C3\_01

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Customer: AT&T Mobility

### Force/Stress Summary

Section: 3		7N344		Bot Elev (ft): 40.00				Height (ft): 20.000									
		Pu	Len	Bracing %			F'y	Phic Pn	Num	Shear		Bear		Use			
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	%	Controls	
LEG	PX - 4" DIA PIPE	-141.08	1.2D + 1.6W	3.91	100	100	100	31.7	50.0	184.41	0	0	0.00	0.00	76	Member X	
HORIZ	SAE - 1.5X1.5X0.125	-0.26	1.2D + 1.6W	4.677	100	100	100	189.6	36.0	2.26	1	1	7.95	6.96	11	Member Z	
DIAG	SAE - 1.5X1.5X0.1875	-1.57	1.2D + 1.6W	90	6.268	50	50	50	128.3	36.0	7.21	1	1	7.95	10.44	21	Member Z

		Pu	Fy	Fu	Phit Pn	Num	Num	Shear	Bear	Blk Shear	Use			
Max Tension Member		(kip)	Load Case	(ksi)	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	phit Pn	%	Controls	
LEG	PX - 4" DIA PIPE	129.04	0.9D + 1.6W	60	50	65	198.45	0	0	0.00	0.00	65	Member	
HORIZ	SAE - 1.5X1.5X0.125	0.19	1.2D + 1.6W	60	36	58	9.20	1	1	7.95	4.13	3.13	6	Blk Shear
DIAG	SAE - 1.5X1.5X0.1875	1.45	1.2D + 1.6W	90	36	58	13.47	1	1	7.95	6.20	4.69	31	Blk Shear

Max Splice Forces		Pu	phiRnt	Use	Num		
		(kip)	Load Case	(kip)	%	Bolts	Bolt Type
Top Tension		121.43	0.9D + 1.6W	60	0.00	0	0
Top Compression		132.75	1.2D + 1.6W	60	0.00	0	
Bot Tension		128.91	0.9D + 1.6W	60	218.07	59	4 1 A325
Bot Compression		142.39	1.2D + 1.6W	60	0.00	0	

Section: 4		6N166		Bot Elev (ft): 60.00				Height (ft): 20.000								
		Pu	Len	Bracing %			F'y	Phic Pn	Num	Shear		Bear		Use		
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	%	Controls
LEG	PX - 4" DIA PIPE	-124.94	1.2D + 1.6W	3.90	100	100	100	31.6	50.0	184.46	0	0	0.00	0.00	67	Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG	SAE - 2X2X0.25	-5.79	1.2D + 1.6W	6.090	50	50	50	100.1	36.0	17.97	1	1	7.95	13.92	72	Bolt Shear

		Pu	Fy	Fu	Phit Pn	Num	Num	Shear	Bear	Blk Shear	Use			
Max Tension Member		(kip)	Load Case	(ksi)	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	phit Pn	%	Controls	
LEG	PX - 4" DIA PIPE	121.35	0.9D + 1.6W	60	50	65	198.45	0	0	0.00	0.00	61	Member	
HORIZ		0.00		0	0	0	0.00	0	0	0.00	0.00	0		
DIAG	SAE - 2X2X0.25	5.34	1.2D + 1.6W	60	36	58	25.57	1	1	7.95	8.27	8.97	67	Bolt Shear

Max Splice Forces		Pu	phiRnt	Use	Num		
		(kip)	Load Case	(kip)	%	Bolts	Bolt Type
Top Tension		67.26	0.9D + 1.6W	60	0.00	0	0
Top Compression		74.89	1.2D + 1.6W	60	0.00	0	
Bot Tension		121.43	0.9D + 1.6W	60	166.22	73	4 0.875" A325
Bot Compression		132.75	1.2D + 1.6W	60	0.00	0	



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Customer: AT&T Mobility

### Force/Stress Summary

Section: 5		6N309		Bot Elev (ft): 80.00				Height (ft): 20.000				Shear		Bear		Use	
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	phiRnv (kip)	phiRn (kip)	%	Controls		
LEG	PX - 3" DIA PIPE	-69.81	1.2D + 1.6W	3.90	100	100	100	41.1	50.0	120.14	0	0	0.00	0.00	58	Member X	
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0		
DIAG	SAE - 1.5X1.5X0.1875	-4.29	1.2D + 1.6W	6.084	50	50	50	124.6	36.0	7.59	1	1	7.95	10.44	56	Member Z	

Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls	
LEG	PX - 3" DIA PIPE	66.99	1.2D + 1.6W 60	50	65	135.90	0	0	0.00	0.00		49	Member	
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00	0		
DIAG	SAE - 1.5X1.5X0.1875	4.20	1.2D + 1.6W 210	36	58	13.47	1	1	7.95	6.20	4.69	89	Blk Shear	

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		25.82	0.9D + 1.6W 60	0.00	0	0	
Top Compression		30.55	1.2D + 1.6W 120	0.00	0	0	
Bot Tension		67.26	0.9D + 1.6W 60	166.22	40	4	0.875" A325
Bot Compression		74.89	1.2D + 1.6W	0.00	0		

Section: 6		6N30		Bot Elev (ft): 100.0				Height (ft): 4.150				Shear		Bear		Use	
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	phiRnv (kip)	phiRn (kip)	%	Controls		
LEG	PST - 2-1/2" DIA PIP	-26.78	1.2D + 1.6W	3.90	100	100	100	49.4	50.0	64.14	0	0	0.00	0.00	41	Member X	
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0		
DIAG	SAE - 1.5X1.5X0.1875	-3.04	1.2D + 1.6W 90	6.031	50	50	50	123.5	36.0	7.69	1	1	7.95	10.44	39	Member Z	

Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls	
LEG	PST - 2-1/2" DIA PIP	25.53	1.2D + 1.6W 60	50	65	76.68	0	0	0.00	0.00		33	Member	
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00	0		
DIAG	SAE - 1.5X1.5X0.1875	3.02	1.2D + 1.6W 90	36	58	13.47	1	1	7.95	6.20	4.69	64	Blk Shear	

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		19.23	0.9D + 1.6W 60	0.00	0	0	
Top Compression		23.45	1.2D + 1.6W	0.00	0	0	
Bot Tension		25.82	0.9D + 1.6W 60	120.41	21	4	0.75" A325
Bot Compression		30.55	1.2D + 1.6W 120	0.00	0		

Site Number: 302536

Code: ANSI/TIA-222-G

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Site Name: Cherry Hill-branford, CT

Engineering Number: OAA744361\_C3\_01

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Customer: AT&T Mobility

### Force/Stress Summary

Section: 7		6N30		Bot Elev (ft): 104.1				Height (ft): 15.850							
		Pu		Len	Bracing %			F'y	Phic	Pn	Num	Shear		Bear	Use
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	% Controls
LEG	PST - 2-1/2" DIA PIP	-20.35	1.2D + 1.6W	3.90	100	100	100	49.4	50.0	64.14	0	0	0.00	0.00	31 Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG	SAE - 1.5X1.5X0.1875	-2.78	1.2D + 1.6W	6.024	50	50	50	123.4	36.0	7.71	1	1	7.95	10.44	36 Member Z

		Pu		Fy	Fu	Phit	Pn	Num	Num	Shear		Bear	Blk Shear	Use
Max Tension Member		(kip)	Load Case	(ksi)	(ksi)	(kip)	Bolts	Holes	Holes	phiRnv	phiRn	phiRn	phit Pn	% Controls
LEG	PST - 2-1/2" DIA PIP	16.33	0.9D + 1.6W	60	50	65	76.68	0	0	0.00	0.00			21 Member
HORIZ		0.00			0	0	0.00	0	0	0.00	0.00			0
DIAG	SAE - 1.5X1.5X0.1875	2.77	1.2D + 1.6W	210	36	58	13.47	1	1	7.95	6.20		4.69	59 Blk Shear

Max Splice Forces		Pu		phiRnt	Use	Num		
		(kip)	Load Case	(kip)	%	Bolts	Bolt Type	
Top Tension		2.35	0.9D + 1.6W	60	0.00	0	0	
Top Compression		3.61	1.2D + 1.6W	120	0.00	0		
Bot Tension		19.23	0.9D + 1.6W	60	0.00	0		
Bot Compression		23.45	1.2D + 1.6W		0.00	0		

Section: 8		6N285		Bot Elev (ft): 120.0				Height (ft): 5.000								
		Pu		Len	Bracing %			F'y	Phic	Pn	Num	Shear		Bear	Use	
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	% Controls	
LEG	PST - 2-1/2" DIA PIP	-1.90	1.2D + 1.6W	5.00	100	100	100	63.4	50.0	57.18	0	0	0.00	0.00	3 Member X	
HORIZ	SAE - 1.5X1.5X0.125	-0.28	1.2D + 1.6W	60	4.563	100	100	100	185.0	36.0	2.38	1	1	7.95	6.96	11 Member Z
DIAG	SAE - 1.5X1.5X0.125	-1.13	1.2D + 1.6W	90	6.769	50	50	50	137.2	36.0	4.32	1	1	7.95	6.96	26 Member Z

		Pu		Fy	Fu	Phit	Pn	Num	Num	Shear		Bear	Blk Shear	Use
Max Tension Member		(kip)	Load Case	(ksi)	(ksi)	(kip)	Bolts	Holes	Holes	phiRnv	phiRn	phiRn	phit Pn	% Controls
LEG	PST - 2-1/2" DIA PIP	0.82	0.9D + 1.6W	60	50	65	76.68	0	0	0.00	0.00			1 Member
HORIZ	SAE - 1.5X1.5X0.125	0.29	1.2D + 1.6W		36	58	9.20	1	1	7.95	4.13		3.13	9 Blk Shear
DIAG	SAE - 1.5X1.5X0.125	1.12	1.2D + 1.6W	90	36	58	9.20	1	1	7.95	4.13		3.13	35 Blk Shear

Max Splice Forces		Pu		phiRnt	Use	Num		
		(kip)	Load Case	(kip)	%	Bolts	Bolt Type	
Top Tension		0.00		0.00	0	0		
Top Compression		1.64	1.2D + 1.0Di +	0.00	0			
Bot Tension		2.35	0.9D + 1.6W	60	81.36	3	4	5/8 A325
Bot Compression		3.61	1.2D + 1.6W	120	0.00	0		

Site Number: 302536

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Site Name: Cherry Hill-branford, CT

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### Detailed Reactions

Load Case	Radius (ft)	Elevation (ft)	Azimuth (deg)	Node	FX (kip)	FY (kip)	FZ (kip)	(-) = Uplift (+) = Down
1.2D + 1.6W Normal - Pat 1	6.21	00.00	0	1	0.00	165.77	-12.39	
	6.21	00.00	120	1a	4.64	-72.52	-3.14	
	6.21	00.00	240	1b	-4.64	-72.52	-3.14	
1.2D + 1.6W Normal - Pat 2	6.21	00.00	0	1	0.00	122.09	-8.63	
	6.21	00.00	120	1a	3.13	-50.68	-1.93	
	6.21	00.00	240	1b	-3.13	-50.68	-1.93	
1.2D + 1.6W Normal - Pat 3	6.21	00.00	0	1	0.00	165.77	-12.39	
	6.21	00.00	120	1a	4.64	-72.52	-3.14	
	6.21	00.00	240	1b	-4.64	-72.52	-3.14	
1.2D + 1.6W 60 deg - Pat 1	6.21	00.00	0	1	-0.35	83.84	-6.20	
	6.21	00.00	120	1a	-5.52	83.75	2.84	
	6.21	00.00	240	1b	-9.67	-146.85	-5.61	
1.2D + 1.6W 60 deg - Pat 2	6.21	00.00	0	1	-0.09	63.14	-4.42	
	6.21	00.00	120	1a	-3.85	63.04	2.17	
	6.21	00.00	240	1b	-6.53	-105.45	-3.79	
1.2D + 1.6W 60 deg - Pat 3	6.21	00.00	0	1	-0.35	83.84	-6.20	
	6.21	00.00	120	1a	-5.52	83.75	2.84	
	6.21	00.00	240	1b	-9.67	-146.85	-5.61	
1.2D + 1.6W 90 deg - Pat 1	6.21	00.00	0	1	-0.44	6.98	-0.43	
	6.21	00.00	120	1a	-9.18	141.11	5.11	
	6.21	00.00	240	1b	-8.52	-127.35	-4.69	
1.2D + 1.6W 90 deg - Pat 2	6.21	00.00	0	1	-0.12	6.98	-0.44	
	6.21	00.00	120	1a	-6.40	104.76	3.68	
	6.21	00.00	240	1b	-5.67	-91.00	-3.24	
1.2D + 1.6W 90 deg - Pat 3	6.21	00.00	0	1	-0.44	6.98	-0.43	
	6.21	00.00	120	1a	-9.18	141.11	5.11	
	6.21	00.00	240	1b	-8.52	-127.35	-4.69	
1.2D + 1.6W 120 deg - Pat 1	6.21	00.00	0	1	-0.43	-72.43	5.59	
	6.21	00.00	120	1a	-10.71	165.68	6.21	
	6.21	00.00	240	1b	-5.03	-72.52	-2.46	
1.2D + 1.6W 120 deg - Pat 2	6.21	00.00	0	1	-0.13	-50.59	3.67	
	6.21	00.00	120	1a	-7.46	122.00	4.33	
	6.21	00.00	240	1b	-3.22	-50.68	-1.76	
1.2D + 1.6W 120 deg - Pat 3	6.21	00.00	0	1	-0.43	-72.43	5.59	
	6.21	00.00	120	1a	-10.71	165.68	6.21	
	6.21	00.00	240	1b	-5.03	-72.52	-2.46	
1.2D + 1.6W 180 deg - Pat 1	6.21	00.00	0	1	0.00	-146.76	11.18	
	6.21	00.00	120	1a	-5.20	83.75	3.38	
	6.21	00.00	240	1b	5.20	83.75	3.38	
1.2D + 1.6W 180 deg - Pat 2	6.21	00.00	0	1	0.00	-105.36	7.55	
	6.21	00.00	120	1a	-3.79	63.05	2.27	
	6.21	00.00	240	1b	3.79	63.05	2.27	
1.2D + 1.6W 180 deg - Pat 3	6.21	00.00	0	1	0.00	-146.76	11.18	
	6.21	00.00	120	1a	-5.20	83.75	3.38	



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	6.21	00.00	240	1b	5.20	83.75	3.38
1.2D + 1.6W 210 deg - Pat 1	6.21	00.00	0	1	0.24	-127.26	9.72
	6.21	00.00	120	1a	-0.17	6.89	0.56
	6.21	00.00	240	1b	9.00	141.11	5.42
1.2D + 1.6W 210 deg - Pat 2	6.21	00.00	0	1	0.07	-90.91	6.53
	6.21	00.00	120	1a	-0.34	6.88	0.29
	6.21	00.00	240	1b	6.36	104.76	3.74
1.2D + 1.6W 210 deg - Pat 3	6.21	00.00	0	1	0.24	-127.26	9.72
	6.21	00.00	120	1a	-0.17	6.89	0.56
	6.21	00.00	240	1b	9.00	141.11	5.42
1.2D + 1.6W 240 deg - Pat 1	6.21	00.00	0	1	0.43	-72.43	5.59
	6.21	00.00	120	1a	5.03	-72.52	-2.46
	6.21	00.00	240	1b	10.71	165.68	6.21
1.2D + 1.6W 240 deg - Pat 2	6.21	00.00	0	1	0.13	-50.59	3.67
	6.21	00.00	120	1a	3.22	-50.68	-1.76
	6.21	00.00	240	1b	7.46	122.00	4.33
1.2D + 1.6W 240 deg - Pat 3	6.21	00.00	0	1	0.43	-72.43	5.59
	6.21	00.00	120	1a	5.03	-72.52	-2.46
	6.21	00.00	240	1b	10.71	165.68	6.21
1.2D + 1.6W 300 deg - Pat 1	6.21	00.00	0	1	0.35	83.84	-6.20
	6.21	00.00	120	1a	9.67	-146.85	-5.61
	6.21	00.00	240	1b	5.52	83.75	2.84
1.2D + 1.6W 300 deg - Pat 2	6.21	00.00	0	1	0.09	63.14	-4.42
	6.21	00.00	120	1a	6.53	-105.45	-3.79
	6.21	00.00	240	1b	3.85	63.04	2.17
1.2D + 1.6W 300 deg - Pat 3	6.21	00.00	0	1	0.35	83.84	-6.20
	6.21	00.00	120	1a	9.67	-146.85	-5.61
	6.21	00.00	240	1b	5.52	83.75	2.84
1.2D + 1.6W 330 deg - Pat 1	6.21	00.00	0	1	0.20	141.20	-10.51
	6.21	00.00	120	1a	8.30	-127.35	-5.06
	6.21	00.00	240	1b	0.57	6.89	-0.13
1.2D + 1.6W 330 deg - Pat 2	6.21	00.00	0	1	0.05	104.85	-7.38
	6.21	00.00	120	1a	5.62	-91.00	-3.32
	6.21	00.00	240	1b	0.42	6.88	0.15
1.2D + 1.6W 330 deg - Pat 3	6.21	00.00	0	1	0.20	141.20	-10.51
	6.21	00.00	120	1a	8.30	-127.35	-5.06
	6.21	00.00	240	1b	0.57	6.89	-0.13
0.9D + 1.6W Normal	6.21	00.00	0	1	0.00	163.63	-12.27
	6.21	00.00	120	1a	4.73	-74.04	-3.20
	6.21	00.00	240	1b	-4.73	-74.04	-3.20
0.9D + 1.6W 60 deg	6.21	00.00	0	1	-0.36	81.90	-6.08
	6.21	00.00	120	1a	-5.42	81.83	2.77
	6.21	00.00	240	1b	-9.76	-148.18	-5.66
0.9D + 1.6W 90 deg	6.21	00.00	0	1	-0.44	5.24	-0.31
	6.21	00.00	120	1a	-9.08	139.05	5.05
	6.21	00.00	240	1b	-8.61	-128.73	-4.74
0.9D + 1.6W 120 deg	6.21	00.00	0	1	-0.43	-73.97	5.70
	6.21	00.00	120	1a	-10.61	163.56	6.15
	6.21	00.00	240	1b	-5.13	-74.04	-2.51

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0.9D + 1.6W 180 deg	6.21	00.00	0	1	0.00	-148.12	11.29
	6.21	00.00	120	1a	-5.10	81.83	3.33
	6.21	00.00	240	1b	5.10	81.83	3.33
0.9D + 1.6W 210 deg	6.21	00.00	0	1	0.24	-128.67	9.82
	6.21	00.00	120	1a	-0.07	5.17	0.51
	6.21	00.00	240	1b	8.89	139.05	5.37
0.9D + 1.6W 240 deg	6.21	00.00	0	1	0.43	-73.97	5.70
	6.21	00.00	120	1a	5.13	-74.04	-2.51
	6.21	00.00	240	1b	10.61	163.56	6.15
0.9D + 1.6W 300 deg	6.21	00.00	0	1	0.36	81.90	-6.08
	6.21	00.00	120	1a	9.76	-148.18	-5.66
	6.21	00.00	240	1b	5.42	81.83	2.77
0.9D + 1.6W 330 deg	6.21	00.00	0	1	0.20	139.12	-10.39
	6.21	00.00	120	1a	8.39	-128.73	-5.12
	6.21	00.00	240	1b	0.47	5.17	-0.19
1.2D + 1.0Di + 1.0Wi Normal	6.21	00.00	0	1	0.00	73.52	-4.62
	6.21	00.00	120	1a	1.10	-4.14	-0.80
	6.21	00.00	240	1b	-1.10	-4.14	-0.80
1.2D + 1.0Di + 1.0Wi 60 deg	6.21	00.00	0	1	-0.14	47.50	-2.62
	6.21	00.00	120	1a	-2.33	47.37	1.19
	6.21	00.00	240	1b	-2.86	-29.62	-1.66
1.2D + 1.0Di + 1.0Wi 90 deg	6.21	00.00	0	1	-0.17	21.84	-0.65
	6.21	00.00	120	1a	-3.56	66.26	1.97
	6.21	00.00	240	1b	-2.45	-22.85	-1.33
1.2D + 1.0Di + 1.0Wi 120 deg	6.21	00.00	0	1	-0.15	-4.01	1.35
	6.21	00.00	120	1a	-4.00	73.39	2.32
	6.21	00.00	240	1b	-1.24	-4.14	-0.55
1.2D + 1.0Di + 1.0Wi 180 deg	6.21	00.00	0	1	0.00	-29.49	3.31
	6.21	00.00	120	1a	-2.20	47.37	1.43
	6.21	00.00	240	1b	2.20	47.37	1.43
1.2D + 1.0Di + 1.0Wi 210 deg	6.21	00.00	0	1	0.09	-22.69	2.78
	6.21	00.00	120	1a	-0.48	21.71	0.46
	6.21	00.00	240	1b	3.48	66.23	2.11
1.2D + 1.0Di + 1.0Wi 240 deg	6.21	00.00	0	1	0.15	-4.01	1.35
	6.21	00.00	120	1a	1.24	-4.14	-0.55
	6.21	00.00	240	1b	4.00	73.39	2.32
1.2D + 1.0Di + 1.0Wi 300 deg	6.21	00.00	0	1	0.14	47.50	-2.62
	6.21	00.00	120	1a	2.86	-29.62	-1.66
	6.21	00.00	240	1b	2.33	47.37	1.19
1.2D + 1.0Di + 1.0Wi 330 deg	6.21	00.00	0	1	0.08	66.36	-4.07
	6.21	00.00	120	1a	2.37	-22.82	-1.47
	6.21	00.00	240	1b	0.64	21.71	0.18
(1.2 + 0.2Sds) * DL + E Normal M1	6.21	00.00	0	1	0.00	13.74	-0.90
	6.21	00.00	120	1a	-0.21	3.62	0.13
	6.21	00.00	240	1b	0.21	3.62	0.13
(1.2 + 0.2Sds) * DL + E Normal M2	6.21	00.00	0	1	0.00	15.42	-0.98
	6.21	00.00	120	1a	-0.17	2.78	0.12
	6.21	00.00	240	1b	0.17	2.78	0.12

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(1.2 + 0.2Sds) * DL + E 60 deg M1	6.21	00.00	0	1	0.01	10.37	-0.68
	6.21	00.00	120	1a	-0.59	10.37	0.35
	6.21	00.00	240	1b	0.02	0.24	0.01
(1.2 + 0.2Sds) * DL + E 60 deg M2	6.21	00.00	0	1	0.02	11.12	-0.72
	6.21	00.00	120	1a	-0.61	11.12	0.38
	6.21	00.00	240	1b	-0.04	-1.27	-0.02
(1.2 + 0.2Sds) * DL + E 90 deg M1	6.21	00.00	0	1	0.01	6.99	-0.46
	6.21	00.00	120	1a	-0.73	12.84	0.43
	6.21	00.00	240	1b	0.07	1.15	0.04
(1.2 + 0.2Sds) * DL + E 90 deg M2	6.21	00.00	0	1	0.03	6.99	-0.46
	6.21	00.00	120	1a	-0.78	14.29	0.47
	6.21	00.00	240	1b	0.02	-0.31	0.00
(1.2 + 0.2Sds) * DL + E 120 deg M1	6.21	00.00	0	1	0.01	3.62	-0.24
	6.21	00.00	120	1a	-0.78	13.74	0.45
	6.21	00.00	240	1b	0.22	3.62	0.11
(1.2 + 0.2Sds) * DL + E 120 deg M2	6.21	00.00	0	1	0.02	2.86	-0.21
	6.21	00.00	120	1a	-0.84	15.25	0.49
	6.21	00.00	240	1b	0.19	2.86	0.09
(1.2 + 0.2Sds) * DL + E 180 deg M1	6.21	00.00	0	1	0.00	0.24	-0.02
	6.21	00.00	120	1a	-0.60	10.37	0.33
	6.21	00.00	240	1b	0.60	10.37	0.33
(1.2 + 0.2Sds) * DL + E 180 deg M2	6.21	00.00	0	1	0.00	-1.44	0.06
	6.21	00.00	120	1a	-0.64	11.21	0.34
	6.21	00.00	240	1b	0.64	11.21	0.34
(1.2 + 0.2Sds) * DL + E 210 deg M1	6.21	00.00	0	1	-0.01	1.15	-0.08
	6.21	00.00	120	1a	-0.41	6.99	0.22
	6.21	00.00	240	1b	0.74	12.84	0.42
(1.2 + 0.2Sds) * DL + E 210 deg M2	6.21	00.00	0	1	-0.01	-0.16	-0.02
	6.21	00.00	120	1a	-0.42	6.99	0.21
	6.21	00.00	240	1b	0.79	14.15	0.44
(1.2 + 0.2Sds) * DL + E 240 deg M1	6.21	00.00	0	1	-0.01	3.62	-0.24
	6.21	00.00	120	1a	-0.22	3.62	0.11
	6.21	00.00	240	1b	0.78	13.74	0.45
(1.2 + 0.2Sds) * DL + E 240 deg M2	6.21	00.00	0	1	-0.02	2.86	-0.21
	6.21	00.00	120	1a	-0.19	2.86	0.09
	6.21	00.00	240	1b	0.84	15.25	0.49
(1.2 + 0.2Sds) * DL + E 300 deg M1	6.21	00.00	0	1	-0.01	10.37	-0.68
	6.21	00.00	120	1a	-0.02	0.24	0.01
	6.21	00.00	240	1b	0.59	10.37	0.35
(1.2 + 0.2Sds) * DL + E 300 deg M2	6.21	00.00	0	1	-0.02	11.12	-0.72
	6.21	00.00	120	1a	0.04	-1.27	-0.02
	6.21	00.00	240	1b	0.61	11.12	0.38
(1.2 + 0.2Sds) * DL + E 330 deg M1	6.21	00.00	0	1	-0.01	12.84	-0.85
	6.21	00.00	120	1a	-0.07	1.15	0.05
	6.21	00.00	240	1b	0.40	6.99	0.24
(1.2 + 0.2Sds) * DL + E 330 deg M2	6.21	00.00	0	1	-0.01	14.15	-0.90
	6.21	00.00	120	1a	-0.01	-0.16	0.02
	6.21	00.00	240	1b	0.39	6.99	0.25
(0.9 - 0.2Sds) * DL + E Normal M1	6.21	00.00	0	1	0.00	11.59	-0.76

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	6.21	00.00	120	1a	-0.08	1.50	0.06
	6.21	00.00	240	1b	0.08	1.50	0.06
(0.9 - 0.2Sds) * DL + E Normal M2	6.21	00.00	0	1	0.00	13.26	-0.84
	6.21	00.00	120	1a	-0.04	0.66	0.05
	6.21	00.00	240	1b	0.04	0.66	0.05
(0.9 - 0.2Sds) * DL + E 60 deg M1	6.21	00.00	0	1	0.01	8.23	-0.54
	6.21	00.00	120	1a	-0.46	8.23	0.28
	6.21	00.00	240	1b	-0.10	-1.87	-0.06
(0.9 - 0.2Sds) * DL + E 60 deg M2	6.21	00.00	0	1	0.02	8.98	-0.58
	6.21	00.00	120	1a	-0.49	8.98	0.31
	6.21	00.00	240	1b	-0.16	-3.37	-0.09
(0.9 - 0.2Sds) * DL + E 90 deg M1	6.21	00.00	0	1	0.01	4.86	-0.32
	6.21	00.00	120	1a	-0.61	10.69	0.36
	6.21	00.00	240	1b	-0.05	-0.97	-0.03
(0.9 - 0.2Sds) * DL + E 90 deg M2	6.21	00.00	0	1	0.03	4.86	-0.32
	6.21	00.00	120	1a	-0.66	12.14	0.40
	6.21	00.00	240	1b	-0.10	-2.41	-0.07
(0.9 - 0.2Sds) * DL + E 120 deg M1	6.21	00.00	0	1	0.01	1.50	-0.10
	6.21	00.00	120	1a	-0.66	11.59	0.38
	6.21	00.00	240	1b	0.09	1.50	0.04
(0.9 - 0.2Sds) * DL + E 120 deg M2	6.21	00.00	0	1	0.02	0.74	-0.07
	6.21	00.00	120	1a	-0.72	13.10	0.42
	6.21	00.00	240	1b	0.07	0.74	0.01
(0.9 - 0.2Sds) * DL + E 180 deg M1	6.21	00.00	0	1	0.00	-1.87	0.12
	6.21	00.00	120	1a	-0.48	8.23	0.26
	6.21	00.00	240	1b	0.48	8.23	0.26
(0.9 - 0.2Sds) * DL + E 180 deg M2	6.21	00.00	0	1	0.00	-3.54	0.20
	6.21	00.00	120	1a	-0.52	9.06	0.27
	6.21	00.00	240	1b	0.52	9.06	0.27
(0.9 - 0.2Sds) * DL + E 210 deg M1	6.21	00.00	0	1	-0.01	-0.97	0.06
	6.21	00.00	120	1a	-0.29	4.86	0.15
	6.21	00.00	240	1b	0.61	10.69	0.35
(0.9 - 0.2Sds) * DL + E 210 deg M2	6.21	00.00	0	1	-0.01	-2.27	0.12
	6.21	00.00	120	1a	-0.29	4.86	0.14
	6.21	00.00	240	1b	0.67	12.00	0.37
(0.9 - 0.2Sds) * DL + E 240 deg M1	6.21	00.00	0	1	-0.01	1.50	-0.10
	6.21	00.00	120	1a	-0.09	1.50	0.04
	6.21	00.00	240	1b	0.66	11.59	0.38
(0.9 - 0.2Sds) * DL + E 240 deg M2	6.21	00.00	0	1	-0.02	0.74	-0.07
	6.21	00.00	120	1a	-0.07	0.74	0.01
	6.21	00.00	240	1b	0.72	13.10	0.42
(0.9 - 0.2Sds) * DL + E 300 deg M1	6.21	00.00	0	1	-0.01	8.23	-0.54
	6.21	00.00	120	1a	0.10	-1.87	-0.06
	6.21	00.00	240	1b	0.46	8.23	0.28
(0.9 - 0.2Sds) * DL + E 300 deg M2	6.21	00.00	0	1	-0.02	8.98	-0.58
	6.21	00.00	120	1a	0.16	-3.37	-0.09
	6.21	00.00	240	1b	0.49	8.98	0.31
(0.9 - 0.2Sds) * DL + E 330 deg M1	6.21	00.00	0	1	-0.01	10.69	-0.70
	6.21	00.00	120	1a	0.05	-0.97	-0.02



Site Number: 302536

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	6.21	00.00	240	1b	0.27	4.86	0.17
(0.9 - 0.2Sds) * DL + E 330 deg M2	6.21	00.00	0	1	-0.01	12.00	-0.76
	6.21	00.00	120	1a	0.11	-2.27	-0.05
	6.21	00.00	240	1b	0.27	4.86	0.18
1.0D + 1.0W Service Normal	6.21	00.00	0	1	0.00	40.55	-3.01
	6.21	00.00	120	1a	0.78	-11.63	-0.55
	6.21	00.00	240	1b	-0.78	-11.63	-0.55
1.0D + 1.0W Service 60 deg	6.21	00.00	0	1	-0.08	22.62	-1.64
	6.21	00.00	120	1a	-1.46	22.55	0.76
	6.21	00.00	240	1b	-1.88	-27.89	-1.09
1.0D + 1.0W Service 90 deg	6.21	00.00	0	1	-0.10	5.81	-0.37
	6.21	00.00	120	1a	-2.27	35.10	1.26
	6.21	00.00	240	1b	-1.62	-23.63	-0.89
1.0D + 1.0W Service 120 deg	6.21	00.00	0	1	-0.09	-11.56	0.95
	6.21	00.00	120	1a	-2.60	40.47	1.51
	6.21	00.00	240	1b	-0.86	-11.63	-0.40
1.0D + 1.0W Service 180 deg	6.21	00.00	0	1	0.00	-27.82	2.17
	6.21	00.00	120	1a	-1.38	22.55	0.89
	6.21	00.00	240	1b	1.38	22.55	0.89
1.0D + 1.0W Service 210 deg	6.21	00.00	0	1	0.05	-23.55	1.85
	6.21	00.00	120	1a	-0.28	5.73	0.27
	6.21	00.00	240	1b	2.22	35.10	1.34
1.0D + 1.0W Service 240 deg	6.21	00.00	0	1	0.09	-11.56	0.95
	6.21	00.00	120	1a	0.86	-11.63	-0.40
	6.21	00.00	240	1b	2.60	40.47	1.51
1.0D + 1.0W Service 300 deg	6.21	00.00	0	1	0.08	22.62	-1.64
	6.21	00.00	120	1a	1.88	-27.89	-1.09
	6.21	00.00	240	1b	1.46	22.55	0.76
1.0D + 1.0W Service 330 deg	6.21	00.00	0	1	0.05	35.17	-2.59
	6.21	00.00	120	1a	1.58	-23.63	-0.97
	6.21	00.00	240	1b	0.37	5.73	0.11

Max Uplift:	148.18(kip)	Moment Ice:	481.97 (kip-ft)	Moment:	1,478.95 (kip-ft)	1.2D + 1.6W Normal - Pat 3
Max Down:	165.77(kip)	Total Down Ice:	65.25 (kip)	Total Down:	20.73 (kip)	
Max Shear:	12.39(kip)	Total Shear Ice:	6.22 (kip)	Total Shear:	18.67 (kip)	

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### Deflections and Rotations

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
101 mph Normal with No Ice - Pattern 1	91.95	0.908	0.0000	1.2733	1.2733
101 mph Normal with No Ice - Pattern 1	100.00	1.092	0.0292	1.4572	1.4572
101 mph Normal with No Ice - Pattern 1	111.95	1.383	0.0301	1.4245	1.4248
101 mph Normal with No Ice - Pattern 1	125.00	1.710	0.0303	1.4316	1.4319
101 mph Normal with No Ice - Pattern 2	91.95	0.691	0.0000	0.9967	0.9967
101 mph Normal with No Ice - Pattern 2	100.00	0.835	0.0205	1.1520	1.1520
101 mph Normal with No Ice - Pattern 2	111.95	1.065	0.0211	1.1274	1.1276
101 mph Normal with No Ice - Pattern 2	125.00	1.323	0.0212	1.1346	1.1348
101 mph Normal with No Ice - Pattern 3	91.95	0.908	0.0000	1.2733	1.2733
101 mph Normal with No Ice - Pattern 3	100.00	1.092	0.0292	1.4572	1.4572
101 mph Normal with No Ice - Pattern 3	111.95	1.383	0.0301	1.4245	1.4248
101 mph Normal with No Ice - Pattern 3	125.00	1.710	0.0303	1.4316	1.4319
101 mph 60 degree with No Ice - Pattern 1	91.95	0.883	-0.0318	1.2377	1.2381
101 mph 60 degree with No Ice - Pattern 1	100.00	1.063	0.0329	1.4152	1.4152
101 mph 60 degree with No Ice - Pattern 1	111.95	1.346	0.0325	1.3883	1.3883
101 mph 60 degree with No Ice - Pattern 1	125.00	1.664	0.0326	1.3935	1.3939
101 mph 60 degree with No Ice - Pattern 2	91.95	0.677	-0.0223	0.9765	0.9767
101 mph 60 degree with No Ice - Pattern 2	100.00	0.819	0.0230	1.1274	1.1274
101 mph 60 degree with No Ice - Pattern 2	111.95	1.044	0.0227	1.1071	1.1071
101 mph 60 degree with No Ice - Pattern 2	125.00	1.298	0.0228	1.1128	1.1130
101 mph 60 degree with No Ice - Pattern 3	91.95	0.883	-0.0318	1.2377	1.2381
101 mph 60 degree with No Ice - Pattern 3	100.00	1.063	0.0329	1.4152	1.4152
101 mph 60 degree with No Ice - Pattern 3	111.95	1.346	0.0325	1.3883	1.3883
101 mph 60 degree with No Ice - Pattern 3	125.00	1.664	0.0326	1.3935	1.3939
101 mph 90 degree with No Ice - Pattern 1	91.95	0.889	-0.0354	1.2439	1.2444
101 mph 90 degree with No Ice - Pattern 1	100.00	1.070	-0.0355	1.4100	1.4101
101 mph 90 degree with No Ice - Pattern 1	111.95	1.355	-0.0357	1.3960	1.3961
101 mph 90 degree with No Ice - Pattern 1	125.00	1.675	-0.0358	1.4043	1.4047
101 mph 90 degree with No Ice - Pattern 2	91.95	0.680	-0.0250	0.9795	0.9798
101 mph 90 degree with No Ice - Pattern 2	100.00	0.822	-0.0251	1.1202	1.1202
101 mph 90 degree with No Ice - Pattern 2	111.95	1.049	-0.0252	1.1110	1.1111
101 mph 90 degree with No Ice - Pattern 2	125.00	1.304	-0.0253	1.1195	1.1198
101 mph 90 degree with No Ice - Pattern 3	91.95	0.889	-0.0354	1.2439	1.2444
101 mph 90 degree with No Ice - Pattern 3	100.00	1.070	-0.0355	1.4100	1.4101
101 mph 90 degree with No Ice - Pattern 3	111.95	1.355	-0.0357	1.3960	1.3961
101 mph 90 degree with No Ice - Pattern 3	125.00	1.675	-0.0358	1.4043	1.4047
101 mph 120 degree with No Ice - Pattern 1	91.95	0.908	-0.0299	1.2687	1.2691
101 mph 120 degree with No Ice - Pattern 1	100.00	1.092	0.0297	1.4546	1.4546
101 mph 120 degree with No Ice - Pattern 1	111.95	1.382	0.0307	1.4222	1.4226
101 mph 120 degree with No Ice - Pattern 1	125.00	1.709	0.0310	1.4295	1.4298
101 mph 120 degree with No Ice - Pattern 2	91.95	0.690	-0.0211	0.9929	0.9931
101 mph 120 degree with No Ice - Pattern 2	100.00	0.834	0.0209	1.1495	1.1495
101 mph 120 degree with No Ice - Pattern 2	111.95	1.064	0.0216	1.1252	1.1254
101 mph 120 degree with No Ice - Pattern 2	125.00	1.322	0.0218	1.1325	1.1327
101 mph 120 degree with No Ice - Pattern 3	91.95	0.908	-0.0299	1.2687	1.2691
101 mph 120 degree with No Ice - Pattern 3	100.00	1.092	0.0297	1.4546	1.4546
101 mph 120 degree with No Ice - Pattern 3	111.95	1.382	0.0307	1.4222	1.4226
101 mph 120 degree with No Ice - Pattern 3	125.00	1.709	0.0310	1.4295	1.4298
101 mph 180 degree with No Ice - Pattern 1	91.95	0.883	0.0000	1.2380	1.2380
101 mph 180 degree with No Ice - Pattern 1	100.00	1.062	0.0324	1.4135	1.4135
101 mph 180 degree with No Ice - Pattern 1	111.95	1.344	0.0319	1.3861	1.3861
101 mph 180 degree with No Ice - Pattern 1	125.00	1.662	0.0319	1.3914	1.3918
101 mph 180 degree with No Ice - Pattern 2	91.95	0.676	0.0000	0.9762	0.9762
101 mph 180 degree with No Ice - Pattern 2	100.00	0.818	0.0228	1.1257	1.1257
101 mph 180 degree with No Ice - Pattern 2	111.95	1.042	0.0224	1.1049	1.1049

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101 mph 180 degree with No Ice - Pattern 2	125.00	1.296	0.0224	1.1107	1.1109
101 mph 180 degree with No Ice - Pattern 3	91.95	0.883	0.0000	1.2380	1.2380
101 mph 180 degree with No Ice - Pattern 3	100.00	1.062	0.0324	1.4135	1.4135
101 mph 180 degree with No Ice - Pattern 3	111.95	1.344	0.0319	1.3861	1.3861
101 mph 180 degree with No Ice - Pattern 3	125.00	1.662	0.0319	1.3914	1.3918
101 mph 210 degree with No Ice - Pattern 1	91.95	0.889	0.0163	1.2451	1.2452
101 mph 210 degree with No Ice - Pattern 1	100.00	1.069	0.0196	1.4084	1.4086
101 mph 210 degree with No Ice - Pattern 1	111.95	1.353	0.0188	1.3947	1.3948
101 mph 210 degree with No Ice - Pattern 1	125.00	1.673	0.0188	1.4030	1.4034
101 mph 210 degree with No Ice - Pattern 2	91.95	0.680	0.0116	0.9800	0.9801
101 mph 210 degree with No Ice - Pattern 2	100.00	0.822	0.0136	1.1186	1.1187
101 mph 210 degree with No Ice - Pattern 2	111.95	1.047	0.0131	1.1097	1.1099
101 mph 210 degree with No Ice - Pattern 2	125.00	1.302	0.0131	1.1182	1.1185
101 mph 210 degree with No Ice - Pattern 3	91.95	0.889	0.0163	1.2451	1.2452
101 mph 210 degree with No Ice - Pattern 3	100.00	1.069	0.0196	1.4084	1.4086
101 mph 210 degree with No Ice - Pattern 3	111.95	1.353	0.0188	1.3947	1.3948
101 mph 210 degree with No Ice - Pattern 3	125.00	1.673	0.0188	1.4030	1.4034
101 mph 240 degree with No Ice - Pattern 1	91.95	0.908	0.0299	1.2687	1.2691
101 mph 240 degree with No Ice - Pattern 1	100.00	1.092	0.0294	1.4546	1.4546
101 mph 240 degree with No Ice - Pattern 1	111.95	1.382	0.0302	1.4222	1.4226
101 mph 240 degree with No Ice - Pattern 1	125.00	1.709	0.0304	1.4295	1.4298
101 mph 240 degree with No Ice - Pattern 2	91.95	0.690	0.0211	0.9929	0.9931
101 mph 240 degree with No Ice - Pattern 2	100.00	0.834	0.0207	1.1495	1.1495
101 mph 240 degree with No Ice - Pattern 2	111.95	1.064	0.0212	1.1252	1.1254
101 mph 240 degree with No Ice - Pattern 2	125.00	1.322	0.0214	1.1325	1.1327
101 mph 240 degree with No Ice - Pattern 3	91.95	0.908	0.0299	1.2687	1.2691
101 mph 240 degree with No Ice - Pattern 3	100.00	1.092	0.0294	1.4546	1.4546
101 mph 240 degree with No Ice - Pattern 3	111.95	1.382	0.0302	1.4222	1.4226
101 mph 240 degree with No Ice - Pattern 3	125.00	1.709	0.0304	1.4295	1.4298
101 mph 300 degree with No Ice - Pattern 1	91.95	0.883	0.0318	1.2377	1.2381
101 mph 300 degree with No Ice - Pattern 1	100.00	1.063	0.0326	1.4152	1.4152
101 mph 300 degree with No Ice - Pattern 1	111.95	1.346	0.0321	1.3883	1.3883
101 mph 300 degree with No Ice - Pattern 1	125.00	1.664	0.0321	1.3935	1.3939
101 mph 300 degree with No Ice - Pattern 2	91.95	0.677	0.0223	0.9765	0.9767
101 mph 300 degree with No Ice - Pattern 2	100.00	0.819	0.0228	1.1274	1.1274
101 mph 300 degree with No Ice - Pattern 2	111.95	1.044	0.0224	1.1071	1.1071
101 mph 300 degree with No Ice - Pattern 2	125.00	1.298	0.0224	1.1128	1.1130
101 mph 300 degree with No Ice - Pattern 3	91.95	0.883	0.0318	1.2377	1.2381
101 mph 300 degree with No Ice - Pattern 3	100.00	1.063	0.0326	1.4152	1.4152
101 mph 300 degree with No Ice - Pattern 3	111.95	1.346	0.0321	1.3883	1.3883
101 mph 300 degree with No Ice - Pattern 3	125.00	1.664	0.0321	1.3935	1.3939
101 mph 330 degree with No Ice - Pattern 1	91.95	0.889	0.0192	1.2475	1.2477
101 mph 330 degree with No Ice - Pattern 1	100.00	1.071	0.0200	1.4116	1.4117
101 mph 330 degree with No Ice - Pattern 1	111.95	1.355	0.0193	1.3973	1.3974
101 mph 330 degree with No Ice - Pattern 1	125.00	1.676	0.0193	1.4054	1.4059
101 mph 330 degree with No Ice - Pattern 2	91.95	0.680	0.0134	0.9823	0.9824
101 mph 330 degree with No Ice - Pattern 2	100.00	0.823	0.0139	1.1217	1.1218
101 mph 330 degree with No Ice - Pattern 2	111.95	1.049	0.0135	1.1123	1.1124
101 mph 330 degree with No Ice - Pattern 2	125.00	1.305	0.0135	1.1206	1.1209
101 mph 330 degree with No Ice - Pattern 3	91.95	0.889	0.0192	1.2475	1.2477
101 mph 330 degree with No Ice - Pattern 3	100.00	1.071	0.0200	1.4116	1.4117
101 mph 330 degree with No Ice - Pattern 3	111.95	1.355	0.0193	1.3973	1.3974
101 mph 330 degree with No Ice - Pattern 3	125.00	1.676	0.0193	1.4054	1.4059
101 mph Normal with No Ice (Reduced DL)	91.95	0.905	0.0000	1.2674	1.2674
101 mph Normal with No Ice (Reduced DL)	100.00	1.088	0.0291	1.4500	1.4500
101 mph Normal with No Ice (Reduced DL)	111.95	1.378	0.0300	1.4176	1.4179
101 mph Normal with No Ice (Reduced DL)	125.00	1.703	0.0302	1.4246	1.4249
101 mph 60 deg with No Ice (Reduced DL)	91.95	0.880	-0.0317	1.2321	1.2325
101 mph 60 deg with No Ice (Reduced DL)	100.00	1.059	0.0328	1.4087	1.4087
101 mph 60 deg with No Ice (Reduced DL)	111.95	1.340	0.0323	1.3816	1.3816
101 mph 60 deg with No Ice (Reduced DL)	125.00	1.657	0.0325	1.3873	1.3877
101 mph 90 deg with No Ice (Reduced DL)	91.95	0.886	-0.0352	1.2385	1.2390

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101 mph 90 deg with No Ice (Reduced DL)	100.00	1.066	-0.0354	1.4034	1.4036
101 mph 90 deg with No Ice (Reduced DL)	111.95	1.349	-0.0355	1.3895	1.3897
101 mph 90 deg with No Ice (Reduced DL)	125.00	1.668	-0.0357	1.3980	1.3984
101 mph 120 deg with No Ice (Reduced DL)	91.95	0.905	-0.0298	1.2634	1.2637
101 mph 120 deg with No Ice (Reduced DL)	100.00	1.088	0.0296	1.4480	1.4480
101 mph 120 deg with No Ice (Reduced DL)	111.95	1.377	0.0306	1.4159	1.4162
101 mph 120 deg with No Ice (Reduced DL)	125.00	1.702	0.0309	1.4230	1.4234
101 mph 180 deg with No Ice (Reduced DL)	91.95	0.880	0.0000	1.2329	1.2329
101 mph 180 deg with No Ice (Reduced DL)	100.00	1.058	0.0323	1.4076	1.4076
101 mph 180 deg with No Ice (Reduced DL)	111.95	1.339	0.0317	1.3800	1.3800
101 mph 180 deg with No Ice (Reduced DL)	125.00	1.656	0.0318	1.3857	1.3861
101 mph 210 deg with No Ice (Reduced DL)	91.95	0.886	0.0162	1.2400	1.2401
101 mph 210 deg with No Ice (Reduced DL)	100.00	1.065	0.0195	1.4022	1.4023
101 mph 210 deg with No Ice (Reduced DL)	111.95	1.348	0.0188	1.3885	1.3887
101 mph 210 deg with No Ice (Reduced DL)	125.00	1.667	0.0187	1.3970	1.3974
101 mph 240 deg with No Ice (Reduced DL)	91.95	0.905	0.0298	1.2634	1.2637
101 mph 240 deg with No Ice (Reduced DL)	100.00	1.088	0.0293	1.4480	1.4480
101 mph 240 deg with No Ice (Reduced DL)	111.95	1.377	0.0301	1.4159	1.4162
101 mph 240 deg with No Ice (Reduced DL)	125.00	1.702	0.0303	1.4230	1.4234
101 mph 300 deg with No Ice (Reduced DL)	91.95	0.880	0.0317	1.2321	1.2325
101 mph 300 deg with No Ice (Reduced DL)	100.00	1.059	0.0325	1.4087	1.4087
101 mph 300 deg with No Ice (Reduced DL)	111.95	1.340	0.0319	1.3816	1.3816
101 mph 300 deg with No Ice (Reduced DL)	125.00	1.657	0.0320	1.3873	1.3877
101 mph 330 deg with No Ice (Reduced DL)	91.95	0.886	0.0191	1.2418	1.2419
101 mph 330 deg with No Ice (Reduced DL)	100.00	1.066	0.0199	1.4047	1.4048
101 mph 330 deg with No Ice (Reduced DL)	111.95	1.350	0.0192	1.3905	1.3906
101 mph 330 deg with No Ice (Reduced DL)	125.00	1.669	0.0192	1.3988	1.3992
50 mph Normal with 0.75 in Radial Ice	91.95	0.289	0.0000	0.3991	0.3991
50 mph Normal with 0.75 in Radial Ice	100.00	0.347	0.0095	0.4550	0.4550
50 mph Normal with 0.75 in Radial Ice	111.95	0.438	0.0093	0.4442	0.4443
50 mph Normal with 0.75 in Radial Ice	125.00	0.539	0.0093	0.4468	0.4469
50 mph 60 deg with 0.75 in Radial Ice	91.95	0.287	-0.0099	0.3950	0.3951
50 mph 60 deg with 0.75 in Radial Ice	100.00	0.345	0.0100	0.4470	0.4470
50 mph 60 deg with 0.75 in Radial Ice	111.95	0.434	0.0097	0.4416	0.4416
50 mph 60 deg with 0.75 in Radial Ice	125.00	0.535	0.0096	0.4433	0.4433
50 mph 90 deg with 0.75 in Radial Ice	91.95	0.288	-0.0115	0.3947	0.3949
50 mph 90 deg with 0.75 in Radial Ice	100.00	0.345	-0.0115	0.4457	0.4457
50 mph 90 deg with 0.75 in Radial Ice	111.95	0.434	-0.0113	0.4413	0.4413
50 mph 90 deg with 0.75 in Radial Ice	125.00	0.535	-0.0112	0.4433	0.4434
50 mph 120 deg with 0.75 in Radial Ice	91.95	0.288	-0.0097	0.3957	0.3958
50 mph 120 deg with 0.75 in Radial Ice	100.00	0.346	0.0097	0.4519	0.4519
50 mph 120 deg with 0.75 in Radial Ice	111.95	0.435	0.0095	0.4412	0.4413
50 mph 120 deg with 0.75 in Radial Ice	125.00	0.536	0.0094	0.4439	0.4440
50 mph 180 deg with 0.75 in Radial Ice	91.95	0.286	0.0000	0.3933	0.3933
50 mph 180 deg with 0.75 in Radial Ice	100.00	0.343	0.0098	0.4441	0.4441
50 mph 180 deg with 0.75 in Radial Ice	111.95	0.432	0.0095	0.4386	0.4386
50 mph 180 deg with 0.75 in Radial Ice	125.00	0.532	0.0094	0.4403	0.4403
50 mph 210 deg with 0.75 in Radial Ice	91.95	0.287	0.0055	0.3938	0.3939
50 mph 210 deg with 0.75 in Radial Ice	100.00	0.344	0.0057	0.4436	0.4436
50 mph 210 deg with 0.75 in Radial Ice	111.95	0.433	0.0055	0.4392	0.4392
50 mph 210 deg with 0.75 in Radial Ice	125.00	0.533	0.0054	0.4413	0.4413
50 mph 240 deg with 0.75 in Radial Ice	91.95	0.288	0.0097	0.3957	0.3958
50 mph 240 deg with 0.75 in Radial Ice	100.00	0.346	0.0096	0.4519	0.4519
50 mph 240 deg with 0.75 in Radial Ice	111.95	0.435	0.0094	0.4412	0.4413
50 mph 240 deg with 0.75 in Radial Ice	125.00	0.536	0.0093	0.4439	0.4440
50 mph 300 deg with 0.75 in Radial Ice	91.95	0.287	0.0099	0.3950	0.3951
50 mph 300 deg with 0.75 in Radial Ice	100.00	0.345	0.0099	0.4470	0.4470
50 mph 300 deg with 0.75 in Radial Ice	111.95	0.434	0.0096	0.4416	0.4416
50 mph 300 deg with 0.75 in Radial Ice	125.00	0.535	0.0095	0.4433	0.4433
50 mph 330 deg with 0.75 in Radial Ice	91.95	0.288	0.0058	0.3967	0.3967
50 mph 330 deg with 0.75 in Radial Ice	100.00	0.346	0.0058	0.4471	0.4472
50 mph 330 deg with 0.75 in Radial Ice	111.95	0.436	0.0056	0.4426	0.4427



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50 mph 330 deg with 0.75 in Radial Ice	125.00	0.537	0.0055	0.4447	0.4447
Seismic Normal M1	91.95	0.042	0.0000	0.0619	0.0619
Seismic Normal M1	100.00	0.051	0.0008	0.0722	0.0722
Seismic Normal M1	111.95	0.066	0.0007	0.0712	0.0712
Seismic Normal M1	125.00	0.082	0.0007	0.0722	0.0722
Seismic Normal M2	91.95	0.056	0.0000	0.0872	0.0872
Seismic Normal M2	100.00	0.069	0.0010	0.1036	0.1036
Seismic Normal M2	111.95	0.090	0.0009	0.1039	0.1039
Seismic Normal M2	125.00	0.114	0.0009	0.1060	0.1060
Seismic 60 deg M1	91.95	0.042	-0.0009	0.0617	0.0617
Seismic 60 deg M1	100.00	0.051	0.0009	0.0710	0.0710
Seismic 60 deg M1	111.95	0.066	0.0007	0.0714	0.0714
Seismic 60 deg M1	125.00	0.082	0.0007	0.0724	0.0724
Seismic 60 deg M2	91.95	0.055	-0.0010	0.0856	0.0856
Seismic 60 deg M2	100.00	0.068	0.0009	0.1009	0.1009
Seismic 60 deg M2	111.95	0.088	0.0008	0.1025	0.1025
Seismic 60 deg M2	125.00	0.112	0.0008	0.1037	0.1037
Seismic 90 deg M1	91.95	0.042	-0.0010	0.0617	0.0617
Seismic 90 deg M1	100.00	0.051	-0.0010	0.0712	0.0712
Seismic 90 deg M1	111.95	0.066	-0.0008	0.0713	0.0713
Seismic 90 deg M1	125.00	0.082	-0.0008	0.0723	0.0723
Seismic 90 deg M2	91.95	0.056	-0.0012	0.0870	0.0870
Seismic 90 deg M2	100.00	0.069	-0.0012	0.1021	0.1021
Seismic 90 deg M2	111.95	0.090	-0.0010	0.1041	0.1041
Seismic 90 deg M2	125.00	0.114	-0.0010	0.1058	0.1058
Seismic 120 deg M1	91.95	0.042	-0.0009	0.0618	0.0618
Seismic 120 deg M1	100.00	0.051	0.0009	0.0722	0.0722
Seismic 120 deg M1	111.95	0.066	0.0007	0.0712	0.0712
Seismic 120 deg M1	125.00	0.082	0.0007	0.0722	0.0722
Seismic 120 deg M2	91.95	0.055	-0.0010	0.0856	0.0857
Seismic 120 deg M2	100.00	0.068	0.0009	0.1020	0.1020
Seismic 120 deg M2	111.95	0.088	0.0008	0.1024	0.1024
Seismic 120 deg M2	125.00	0.112	0.0008	0.1044	0.1044
Seismic 180 deg M1	91.95	0.042	0.0000	0.0620	0.0620
Seismic 180 deg M1	100.00	0.051	0.0008	0.0710	0.0710
Seismic 180 deg M1	111.95	0.066	0.0007	0.0714	0.0714
Seismic 180 deg M1	125.00	0.082	0.0007	0.0724	0.0724
Seismic 180 deg M2	91.95	0.056	0.0000	0.0873	0.0873
Seismic 180 deg M2	100.00	0.069	0.0010	0.1025	0.1025
Seismic 180 deg M2	111.95	0.090	0.0009	0.1041	0.1041
Seismic 180 deg M2	125.00	0.114	0.0009	0.1053	0.1053
Seismic 210 deg M1	91.95	0.042	0.0005	0.0619	0.0619
Seismic 210 deg M1	100.00	0.051	0.0005	0.0712	0.0712
Seismic 210 deg M1	111.95	0.066	0.0004	0.0713	0.0713
Seismic 210 deg M1	125.00	0.082	0.0004	0.0723	0.0723
Seismic 210 deg M2	91.95	0.055	0.0006	0.0858	0.0858
Seismic 210 deg M2	100.00	0.068	0.0005	0.1005	0.1005
Seismic 210 deg M2	111.95	0.088	0.0004	0.1025	0.1025
Seismic 210 deg M2	125.00	0.112	0.0004	0.1042	0.1042
Seismic 240 deg M1	91.95	0.042	0.0009	0.0618	0.0618
Seismic 240 deg M1	100.00	0.051	0.0008	0.0722	0.0722
Seismic 240 deg M1	111.95	0.066	0.0007	0.0712	0.0712
Seismic 240 deg M1	125.00	0.082	0.0007	0.0722	0.0722
Seismic 240 deg M2	91.95	0.055	0.0010	0.0856	0.0857
Seismic 240 deg M2	100.00	0.068	0.0009	0.1020	0.1020
Seismic 240 deg M2	111.95	0.088	0.0008	0.1024	0.1024
Seismic 240 deg M2	125.00	0.112	0.0007	0.1044	0.1044
Seismic 300 deg M1	91.95	0.042	0.0009	0.0617	0.0617
Seismic 300 deg M1	100.00	0.051	0.0008	0.0710	0.0710
Seismic 300 deg M1	111.95	0.066	0.0007	0.0714	0.0714
Seismic 300 deg M1	125.00	0.082	0.0007	0.0724	0.0724
Seismic 300 deg M2	91.95	0.055	0.0010	0.0856	0.0856

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Seismic 300 deg M2	100.00	0.068	0.0009	0.1009	0.1009
Seismic 300 deg M2	111.95	0.088	0.0008	0.1025	0.1025
Seismic 300 deg M2	125.00	0.112	0.0007	0.1037	0.1037
Seismic 330 deg M1	91.95	0.042	0.0005	0.0618	0.0618
Seismic 330 deg M1	100.00	0.051	0.0005	0.0712	0.0712
Seismic 330 deg M1	111.95	0.066	0.0004	0.0713	0.0713
Seismic 330 deg M1	125.00	0.082	0.0004	0.0723	0.0723
Seismic 330 deg M2	91.95	0.055	0.0006	0.0857	0.0857
Seismic 330 deg M2	100.00	0.068	0.0005	0.1005	0.1005
Seismic 330 deg M2	111.95	0.088	0.0005	0.1025	0.1025
Seismic 330 deg M2	125.00	0.112	0.0004	0.1042	0.1042
Seismic (Reduced DL) Normal M1	91.95	0.042	0.0000	0.0616	0.0616
Seismic (Reduced DL) Normal M1	100.00	0.051	0.0008	0.0716	0.0716
Seismic (Reduced DL) Normal M1	111.95	0.065	0.0007	0.0708	0.0708
Seismic (Reduced DL) Normal M1	125.00	0.082	0.0007	0.0716	0.0716
Seismic (Reduced DL) Normal M2	91.95	0.056	0.0000	0.0868	0.0868
Seismic (Reduced DL) Normal M2	100.00	0.069	0.0010	0.1029	0.1029
Seismic (Reduced DL) Normal M2	111.95	0.090	0.0009	0.1034	0.1034
Seismic (Reduced DL) Normal M2	125.00	0.113	0.0009	0.1053	0.1053
Seismic (Reduced DL) 60 deg M1	91.95	0.042	-0.0009	0.0614	0.0614
Seismic (Reduced DL) 60 deg M1	100.00	0.051	0.0009	0.0708	0.0708
Seismic (Reduced DL) 60 deg M1	111.95	0.065	0.0007	0.0709	0.0709
Seismic (Reduced DL) 60 deg M1	125.00	0.082	0.0007	0.0716	0.0716
Seismic (Reduced DL) 60 deg M2	91.95	0.055	-0.0010	0.0852	0.0852
Seismic (Reduced DL) 60 deg M2	100.00	0.068	0.0009	0.1005	0.1005
Seismic (Reduced DL) 60 deg M2	111.95	0.088	0.0008	0.1020	0.1020
Seismic (Reduced DL) 60 deg M2	125.00	0.112	0.0008	0.1028	0.1028
Seismic (Reduced DL) 90 deg M1	91.95	0.042	-0.0010	0.0614	0.0614
Seismic (Reduced DL) 90 deg M1	100.00	0.051	-0.0010	0.0707	0.0707
Seismic (Reduced DL) 90 deg M1	111.95	0.065	-0.0008	0.0709	0.0709
Seismic (Reduced DL) 90 deg M1	125.00	0.082	-0.0008	0.0716	0.0716
Seismic (Reduced DL) 90 deg M2	91.95	0.056	-0.0012	0.0865	0.0866
Seismic (Reduced DL) 90 deg M2	100.00	0.069	-0.0012	0.1014	0.1014
Seismic (Reduced DL) 90 deg M2	111.95	0.090	-0.0010	0.1035	0.1035
Seismic (Reduced DL) 90 deg M2	125.00	0.113	-0.0010	0.1053	0.1053
Seismic (Reduced DL) 120 deg M1	91.95	0.042	-0.0009	0.0615	0.0615
Seismic (Reduced DL) 120 deg M1	100.00	0.051	0.0008	0.0716	0.0716
Seismic (Reduced DL) 120 deg M1	111.95	0.065	0.0007	0.0708	0.0708
Seismic (Reduced DL) 120 deg M1	125.00	0.082	0.0007	0.0716	0.0716
Seismic (Reduced DL) 120 deg M2	91.95	0.055	-0.0010	0.0852	0.0852
Seismic (Reduced DL) 120 deg M2	100.00	0.068	0.0009	0.1013	0.1013
Seismic (Reduced DL) 120 deg M2	111.95	0.088	0.0008	0.1018	0.1018
Seismic (Reduced DL) 120 deg M2	125.00	0.112	0.0008	0.1037	0.1037
Seismic (Reduced DL) 180 deg M1	91.95	0.042	0.0000	0.0616	0.0616
Seismic (Reduced DL) 180 deg M1	100.00	0.051	0.0008	0.0708	0.0708
Seismic (Reduced DL) 180 deg M1	111.95	0.065	0.0007	0.0709	0.0709
Seismic (Reduced DL) 180 deg M1	125.00	0.082	0.0007	0.0716	0.0716
Seismic (Reduced DL) 180 deg M2	91.95	0.056	0.0000	0.0868	0.0868
Seismic (Reduced DL) 180 deg M2	100.00	0.069	0.0010	0.1021	0.1021
Seismic (Reduced DL) 180 deg M2	111.95	0.089	0.0009	0.1035	0.1035
Seismic (Reduced DL) 180 deg M2	125.00	0.113	0.0009	0.1044	0.1044
Seismic (Reduced DL) 210 deg M1	91.95	0.042	0.0005	0.0616	0.0616
Seismic (Reduced DL) 210 deg M1	100.00	0.051	0.0005	0.0707	0.0707
Seismic (Reduced DL) 210 deg M1	111.95	0.065	0.0004	0.0709	0.0709
Seismic (Reduced DL) 210 deg M1	125.00	0.082	0.0004	0.0716	0.0716
Seismic (Reduced DL) 210 deg M2	91.95	0.055	0.0006	0.0854	0.0854
Seismic (Reduced DL) 210 deg M2	100.00	0.068	0.0005	0.0998	0.0998
Seismic (Reduced DL) 210 deg M2	111.95	0.088	0.0004	0.1019	0.1019
Seismic (Reduced DL) 210 deg M2	125.00	0.112	0.0004	0.1037	0.1037
Seismic (Reduced DL) 240 deg M1	91.95	0.042	0.0009	0.0615	0.0615
Seismic (Reduced DL) 240 deg M1	100.00	0.051	0.0008	0.0716	0.0716
Seismic (Reduced DL) 240 deg M1	111.95	0.065	0.0007	0.0708	0.0708

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Seismic (Reduced DL) 240 deg M1	125.00	0.082	0.0007	0.0716	0.0716
Seismic (Reduced DL) 240 deg M2	91.95	0.055	0.0010	0.0852	0.0852
Seismic (Reduced DL) 240 deg M2	100.00	0.068	0.0009	0.1013	0.1013
Seismic (Reduced DL) 240 deg M2	111.95	0.088	0.0008	0.1018	0.1018
Seismic (Reduced DL) 240 deg M2	125.00	0.112	0.0007	0.1037	0.1037
Seismic (Reduced DL) 300 deg M1	91.95	0.042	0.0009	0.0614	0.0614
Seismic (Reduced DL) 300 deg M1	100.00	0.051	0.0008	0.0708	0.0708
Seismic (Reduced DL) 300 deg M1	111.95	0.065	0.0007	0.0709	0.0709
Seismic (Reduced DL) 300 deg M1	125.00	0.082	0.0007	0.0716	0.0716
Seismic (Reduced DL) 300 deg M2	91.95	0.055	0.0010	0.0852	0.0852
Seismic (Reduced DL) 300 deg M2	100.00	0.068	0.0009	0.1005	0.1005
Seismic (Reduced DL) 300 deg M2	111.95	0.088	0.0008	0.1020	0.1020
Seismic (Reduced DL) 300 deg M2	125.00	0.112	0.0007	0.1028	0.1028
Seismic (Reduced DL) 330 deg M1	91.95	0.042	0.0005	0.0615	0.0615
Seismic (Reduced DL) 330 deg M1	100.00	0.051	0.0005	0.0707	0.0707
Seismic (Reduced DL) 330 deg M1	111.95	0.065	0.0004	0.0709	0.0709
Seismic (Reduced DL) 330 deg M1	125.00	0.082	0.0004	0.0716	0.0716
Seismic (Reduced DL) 330 deg M2	91.95	0.055	0.0006	0.0853	0.0853
Seismic (Reduced DL) 330 deg M2	100.00	0.068	0.0005	0.0998	0.0998
Seismic (Reduced DL) 330 deg M2	111.95	0.088	0.0005	0.1019	0.1019
Seismic (Reduced DL) 330 deg M2	125.00	0.112	0.0004	0.1037	0.1037
Serviceability - 60 mph Wind Normal	91.95	0.199	0.0000	0.2786	0.2786
Serviceability - 60 mph Wind Normal	100.00	0.239	0.0055	0.3189	0.3189
Serviceability - 60 mph Wind Normal	111.95	0.303	0.0052	0.3119	0.3120
Serviceability - 60 mph Wind Normal	125.00	0.374	0.0050	0.3137	0.3137
Serviceability - 60 mph Wind 60 deg	91.95	0.193	-0.0056	0.2701	0.2702
Serviceability - 60 mph Wind 60 deg	100.00	0.232	0.0055	0.3086	0.3086
Serviceability - 60 mph Wind 60 deg	111.95	0.294	0.0052	0.3036	0.3036
Serviceability - 60 mph Wind 60 deg	125.00	0.363	0.0050	0.3043	0.3043
Serviceability - 60 mph Wind 90 deg	91.95	0.194	-0.0065	0.2712	0.2713
Serviceability - 60 mph Wind 90 deg	100.00	0.233	-0.0063	0.3076	0.3076
Serviceability - 60 mph Wind 90 deg	111.95	0.296	-0.0059	0.3049	0.3049
Serviceability - 60 mph Wind 90 deg	125.00	0.365	-0.0057	0.3062	0.3063
Serviceability - 60 mph Wind 120 deg	91.95	0.198	-0.0057	0.2764	0.2765
Serviceability - 60 mph Wind 120 deg	100.00	0.238	0.0056	0.3170	0.3170
Serviceability - 60 mph Wind 120 deg	111.95	0.301	0.0053	0.3101	0.3102
Serviceability - 60 mph Wind 120 deg	125.00	0.372	0.0051	0.3119	0.3119
Serviceability - 60 mph Wind 180 deg	91.95	0.192	0.0000	0.2690	0.2690
Serviceability - 60 mph Wind 180 deg	100.00	0.231	0.0055	0.3069	0.3069
Serviceability - 60 mph Wind 180 deg	111.95	0.292	0.0051	0.3018	0.3018
Serviceability - 60 mph Wind 180 deg	125.00	0.361	0.0049	0.3025	0.3025
Serviceability - 60 mph Wind 210 deg	91.95	0.194	0.0032	0.2708	0.2709
Serviceability - 60 mph Wind 210 deg	100.00	0.233	0.0032	0.3065	0.3066
Serviceability - 60 mph Wind 210 deg	111.95	0.295	0.0029	0.3038	0.3039
Serviceability - 60 mph Wind 210 deg	125.00	0.364	0.0028	0.3052	0.3052
Serviceability - 60 mph Wind 240 deg	91.95	0.198	0.0057	0.2764	0.2765
Serviceability - 60 mph Wind 240 deg	100.00	0.238	0.0055	0.3170	0.3170
Serviceability - 60 mph Wind 240 deg	111.95	0.301	0.0052	0.3101	0.3102
Serviceability - 60 mph Wind 240 deg	125.00	0.372	0.0050	0.3119	0.3119
Serviceability - 60 mph Wind 300 deg	91.95	0.193	0.0056	0.2701	0.2702
Serviceability - 60 mph Wind 300 deg	100.00	0.232	0.0055	0.3086	0.3086
Serviceability - 60 mph Wind 300 deg	111.95	0.294	0.0051	0.3036	0.3036
Serviceability - 60 mph Wind 300 deg	125.00	0.363	0.0049	0.3043	0.3043
Serviceability - 60 mph Wind 330 deg	91.95	0.195	0.0033	0.2727	0.2727
Serviceability - 60 mph Wind 330 deg	100.00	0.234	0.0032	0.3087	0.3088
Serviceability - 60 mph Wind 330 deg	111.95	0.296	0.0030	0.3059	0.3059
Serviceability - 60 mph Wind 330 deg	125.00	0.366	0.0029	0.3072	0.3073







# 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).
  - E. 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**  
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**at&t**



No.	Sub/Mat / Revision	App'd	Date
1	ISSUED FOR PERMIT	BMJ	01/23/19
0	ISSUED FOR REVIEW	BMJ	01/02/19

Drawn: BMJ Date: 01/22/19  
 Designed: ASW Date: 01/02/19  
 Checked: A&E Date: 01/02/19

Project Number: 1106-A0001-C  
 Project Title:  
**BRANFORD WEST**  
 CTL02175  
 FA# 10035093  
 4 BEAVER ROAD  
 BRANFORD, CT 06405

Prepared For:  
**smartlink**

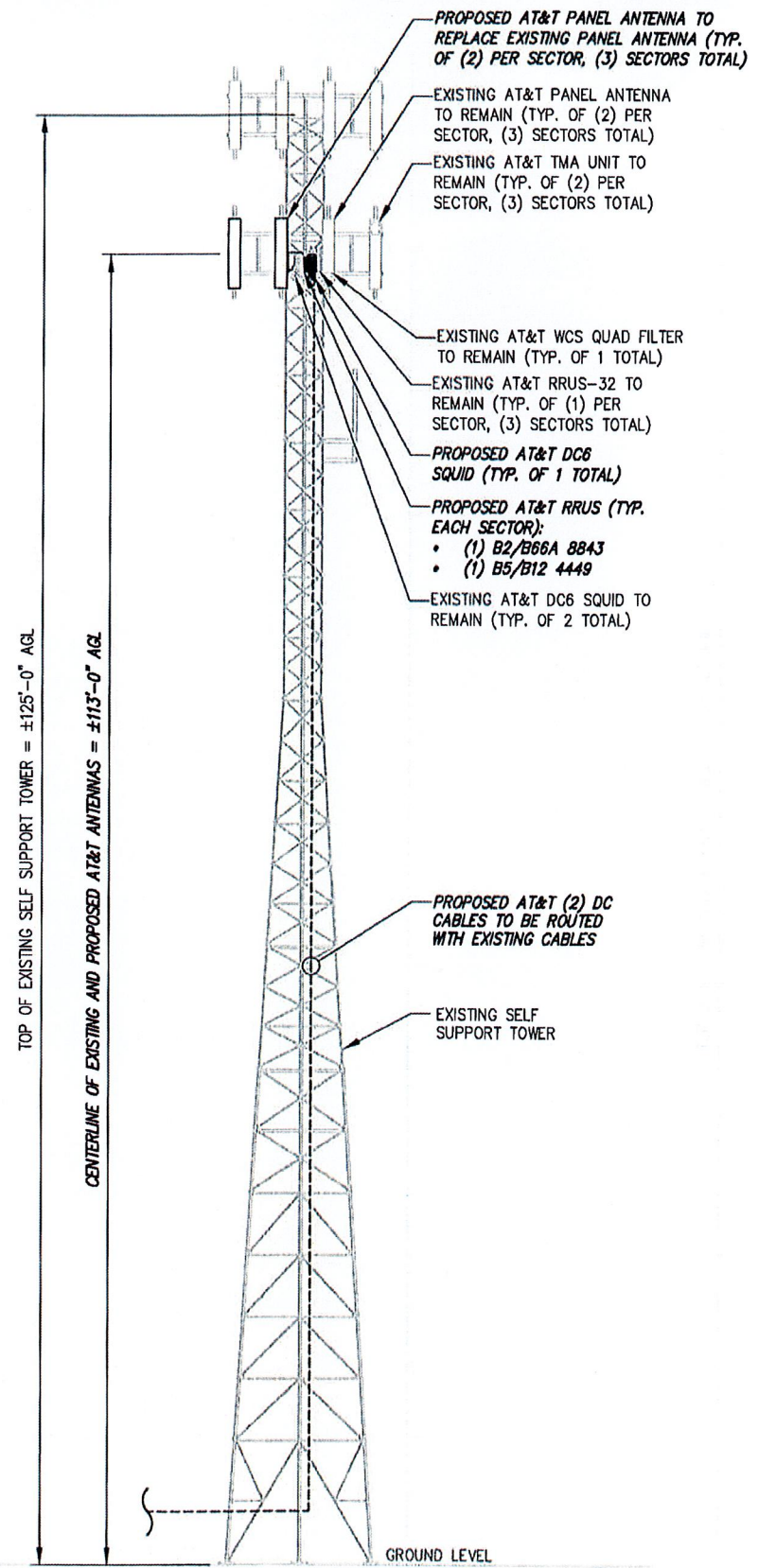
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 AS NOTED  
 Date: 01/23/19  
**CD**

Drawing Title:  
**GENERAL NOTES**  
 Drawing Number:  
**C1**









1 ELEVATION VIEW  
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**NOTE:**

- INFINIGY ENGINEERING HAS NOT EVALUATED THE TOWER LOADING FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY REGARDING 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 'POST MOD MOUNT ANALYSIS REPORT' COMPLETED BY INFINIGY, DATED 01/21/19. SEE SHEETS S1-S2 FOR ADDITIONAL MODIFICATION DETAILS.

**SEPARATION NOTE:**

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

FINAL ANTENNA CONFIGURATION & CABLE SCHEDULE BASED ON LTE RFDS DATED 12/14/18, V 2.00

SECTOR	ANTENNA POSITION	ANTENNA STATUS & TECHNOLOGY	ANTENNA MANF/MODEL	TMA/DIPLEXER	RRUS	AZIMUTH	ANTENNA C HEIGHT	CABLE FEEDER		RAYCAP UNIT
								TYPE	LENGTH	
ALPHA	A-1	(E) UMTS 850	POWERWAVE 7770	(2) (E) LGP21401	--	143°	±113'	(2) (E) 1-5/8" COAX	±125'	(2) (E) DC6 'SQUID' (1) (P) DC6 'SQUID'
	A-2	(E) LTE WCS	ANDREW SBNHH-1D65A	(1) (E) QUAD WCS FILTER	(1) (E) RRUS-32	23°	±113'	(1) (E) FIBER CABLE (2) (E) DC CABLES	--	
	A-3	(P) LTE 1900	KATHREIN 800-10964	--	(1) (P) B2/B66A 8843	23°	±113'	(1) (P) FIBER CABLES (2) (P) DC CABLES	--	
	A-4	(P) LTE 700/850/WCS/5G 850	KATHREIN 800-10964	--	(1) (P) B5/B12 4449	23°	±113'	SEE A-2 FOR CABLE INFORMATION	--	
BETA	B-1	(E) UMTS 850	POWERWAVE 7770	(2) (E) LGP21401	--	263°	±113'	(2) (E) 1-5/8" COAX	±125'	
	B-2	(E) LTE WCS	ANDREW SBNHH-1D65A	--	(1) (E) RRUS-32	143°	±113'	(2) (E) 1-5/8" COAX	--	
	B-3	(P) LTE 1900	KATHREIN 800-10964	--	(1) (P) B2/B66A 8843	143°	±113'	SEE A-2 FOR CABLE INFORMATION	--	
	B-4	(P) LTE 700/850/WCS/5G 850	KATHREIN 800-10964	--	(1) (P) B5/B12 4449	143°	±113'	SEE A-2 FOR CABLE INFORMATION	--	
GAMMA	G-1	(E) UMTS 850	POWERWAVE 7770	(2) (E) LGP21401	--	23°	±113'	(2) (E) 1-5/8" COAX	±125'	
	G-2	(E) LTE WCS	ANDREW SBNHH-1D65A	--	(1) (E) RRUS-32	263°	±113'	(2) (E) 1-5/8" COAX	--	
	G-3	(P) LTE 1900	KATHREIN 800-10964	--	(1) (P) B2/B66A 8843	263°	±113'	(1) (E) FIBER CABLE (2) (E) DC CABLES	--	
	G-4	(P) LTE 700/850/WCS/5G 850	KATHREIN 800-10964	--	(1) (P) B5/B12 4449	263°	±113'	SEE A-2 FOR CABLE INFORMATION	--	

2 AT&T ANTENNA SCHEDULE  
NOT TO SCALE

**INFINIGY**  
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Fax # (518) 890-0793



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No.	Submitted / Revision	App'd	Date
Drawn:	ENR	Date:	01/02/19
Designed:	ASR	Date:	01/02/19
Checked:	ASR	Date:	01/02/19
Project Number:	1106-A0001-C		
Project Title:	BRANFORD WEST CTL02175 FA# 10035093 4 BEAVER ROAD BRANFORD, CT 06405		

Prepared For:  
**smartlink**

Drawing Scale:  
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Date:  
01/23/19  
Drawing Title:  
**ELEVATION VIEW**

Drawing Number:  
**C3**

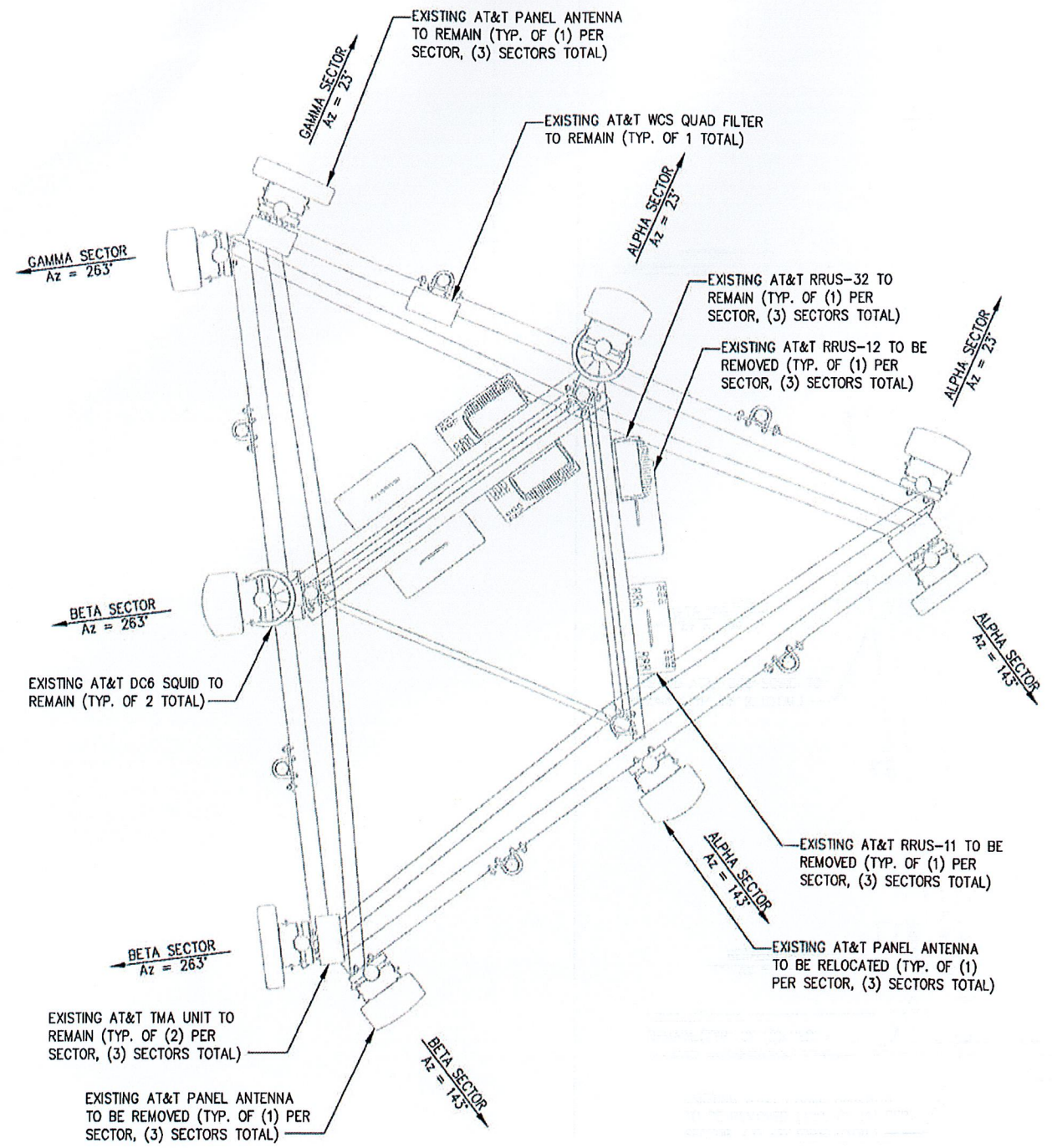


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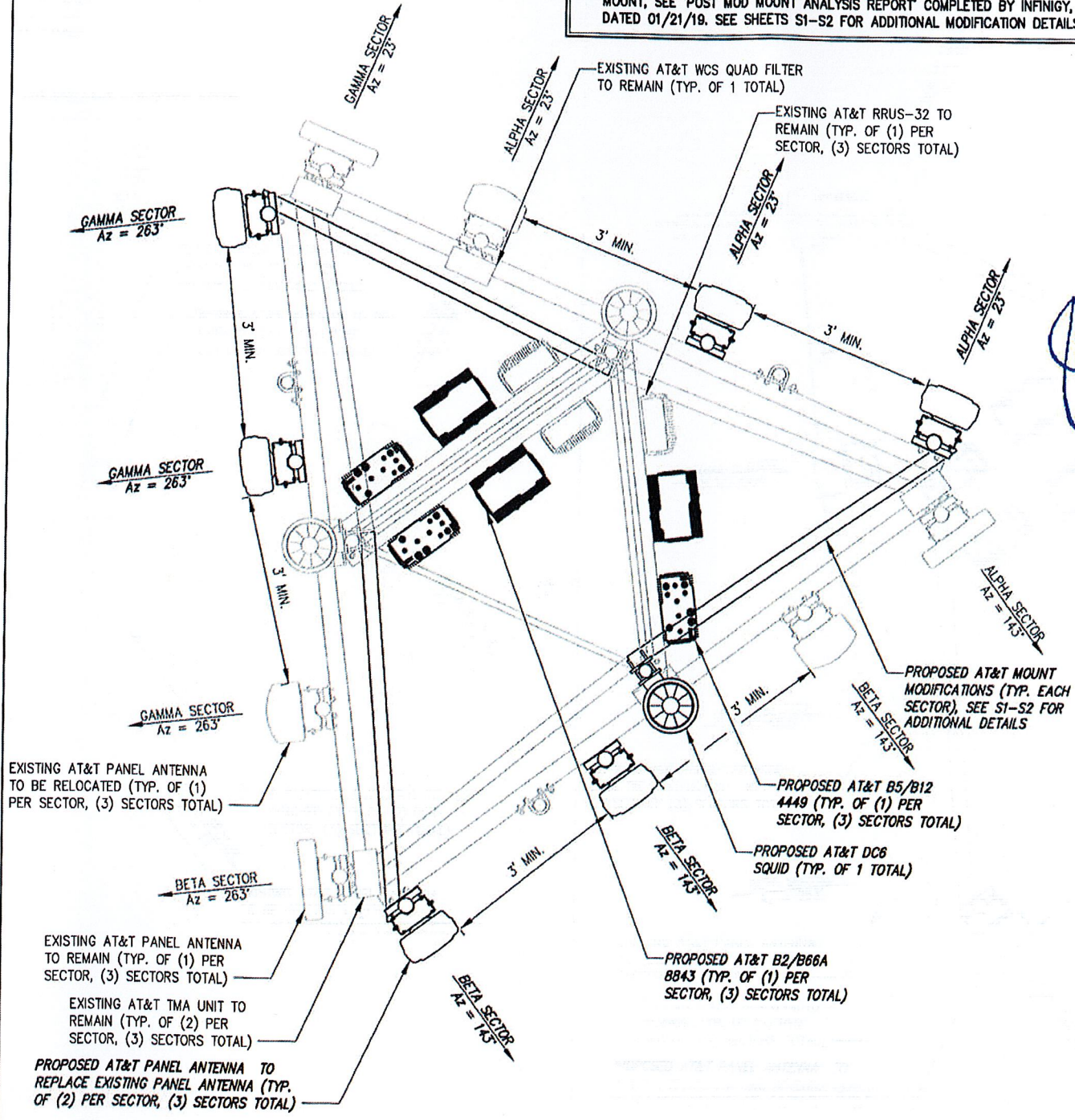
- 3 FEET MINIMUM SEPARATION BETWEEN LTE ANTENNA
- 6 FEET MINIMUM SEPARATION BETWEEN 700BC & 700 DE

**NOTE:**

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- FOR ADDITIONAL STRUCTURAL INFORMATION PERTAINING TO THE ANTENNA MOUNT, SEE "POST MOD MOUNT ANALYSIS REPORT" COMPLETED BY INFINIGY, DATED 01/21/19. SEE SHEETS S1-S2 FOR ADDITIONAL MODIFICATION DETAILS.

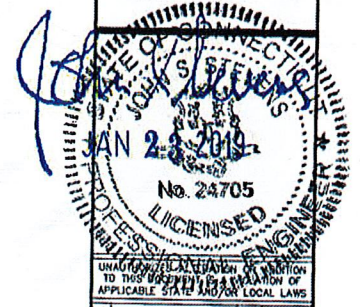


1 ANTENNA ORIENTATION PLAN (EXISTING)  
NOT TO SCALE



2 PROPOSED ANTENNA ORIENTATION PLAN  
NOT TO SCALE

**INFINIGY**  
 1033 Waterlief Street Rd  
 Albany, NY 12205  
 Office # (518) 880-0790  
 Fax # (518) 880-0793



1	ISSUED FOR PERMIT	ESM	01/23/19
0	ISSUED FOR REVIEW	ESM	01/02/19
No.	Submitter / Revision	App'd	Date
Drawn:	ESM	Date:	01/23/19
Designed:	ASW	Date:	01/23/19
Checked:	ASB	Date:	01/23/19
Project Number:	1108-A0001-C		

Project Title:  
**BRANFORD WEST**  
 CTL02175  
 FA# 10035093  
 4 BEAVER ROAD  
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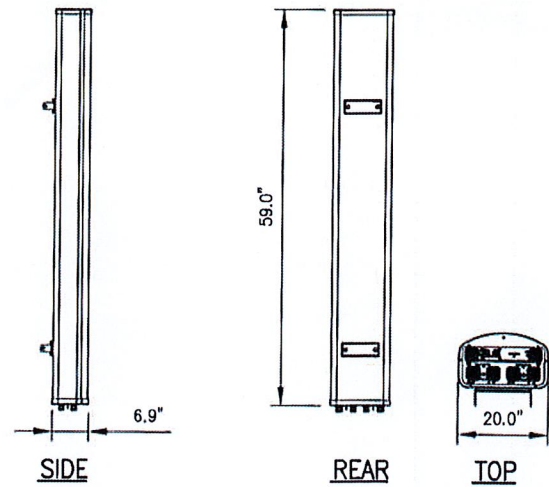


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 AS NOTED  
 Date:  
 01/23/19

Drawing Title:  
**ANTENNA ORIENTATION PLAN**

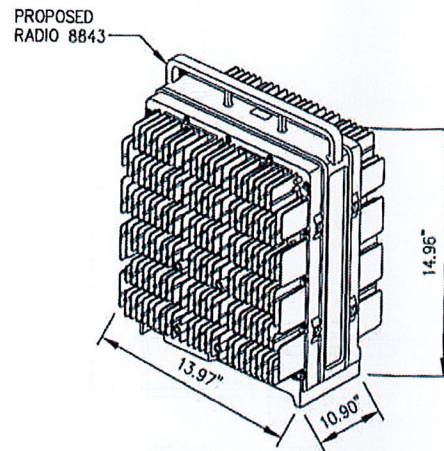
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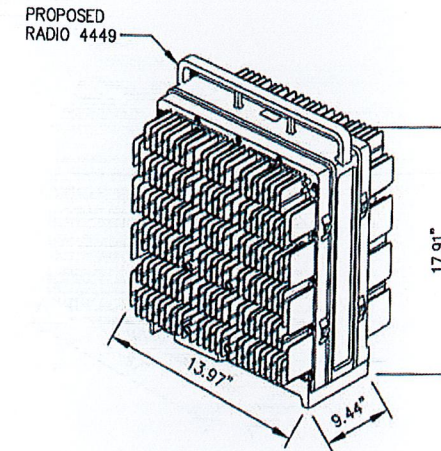
<b>KATHREIN MODEL NO.:</b>	<b>800-10964</b>
RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD:	59.0"x20.0"x6.9"
WEIGHT, W/ PRE-MOUNTED BRACKETS:	113.0 LBS
CONNECTOR:	7-16 DIN FEMALE

**1 ANTENNA DETAIL**  
NOT TO SCALE



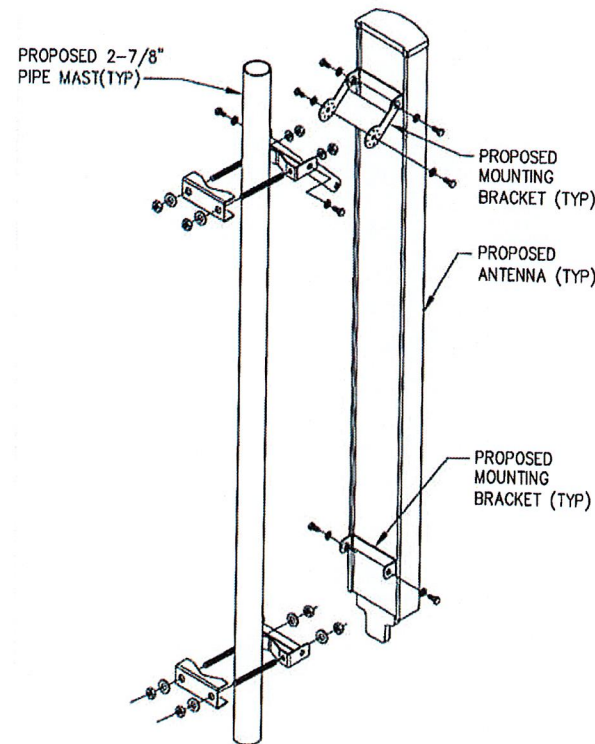
<b>RADIO 8843 SPECIFICATIONS</b>
• HxWxD, (INCHES) : 14.96"x13.97"x10.90"
• WEIGHT (LBS) : 71.87
• COLOR : GRAY

**2 ERICSSON RADIO 8843 DETAIL**  
NOT TO SCALE

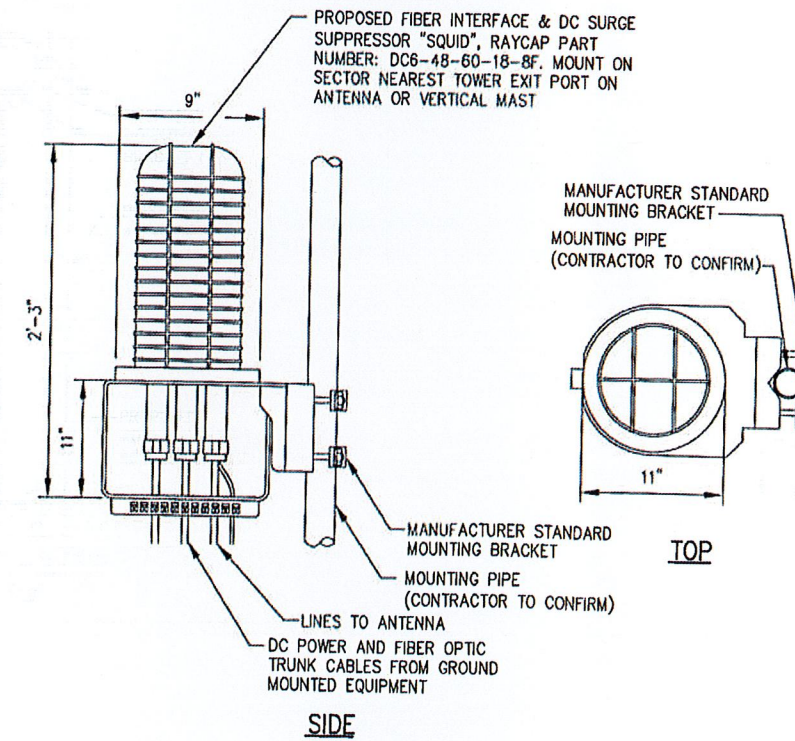


<b>RADIO 4449 SPECIFICATIONS</b>
• HxWxD, (INCHES) : 17.91"x13.97"x9.44"
• WEIGHT (LBS) : 70.54
• COLOR : GRAY

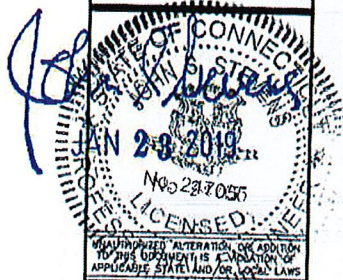
**3 ERICSSON RADIO 4449 DETAIL**  
NOT TO SCALE



**4 MOUNTING DETAIL**  
NOT TO SCALE



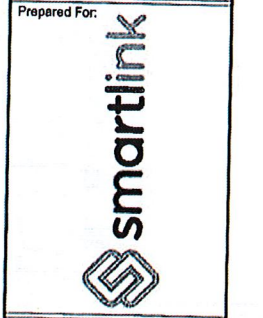
**5 SQUID DETAIL**  
NOT TO SCALE



1	ISSUED FOR PERMIT	ESM	01/23/19
0	ISSUED FOR REVIEW	ESM	01/02/19
No.	Submitted / Revision	App'd	Date
Drawn:	ESM	Date:	01/02/19
Designed:	ASW	Date:	01/02/19
Checked:	ASW	Date:	01/02/19

Project Number:  
**1108-A0001-C**

Project Title:  
**BRANFORD WEST  
CTL02175  
FA# 10035093  
4 BEAVER ROAD  
BRANFORD, CT 06405**



Prepared For:  
**smartlink**

Drawing Scale:  
AS NOTED

Date:  
01/23/19

**CD**

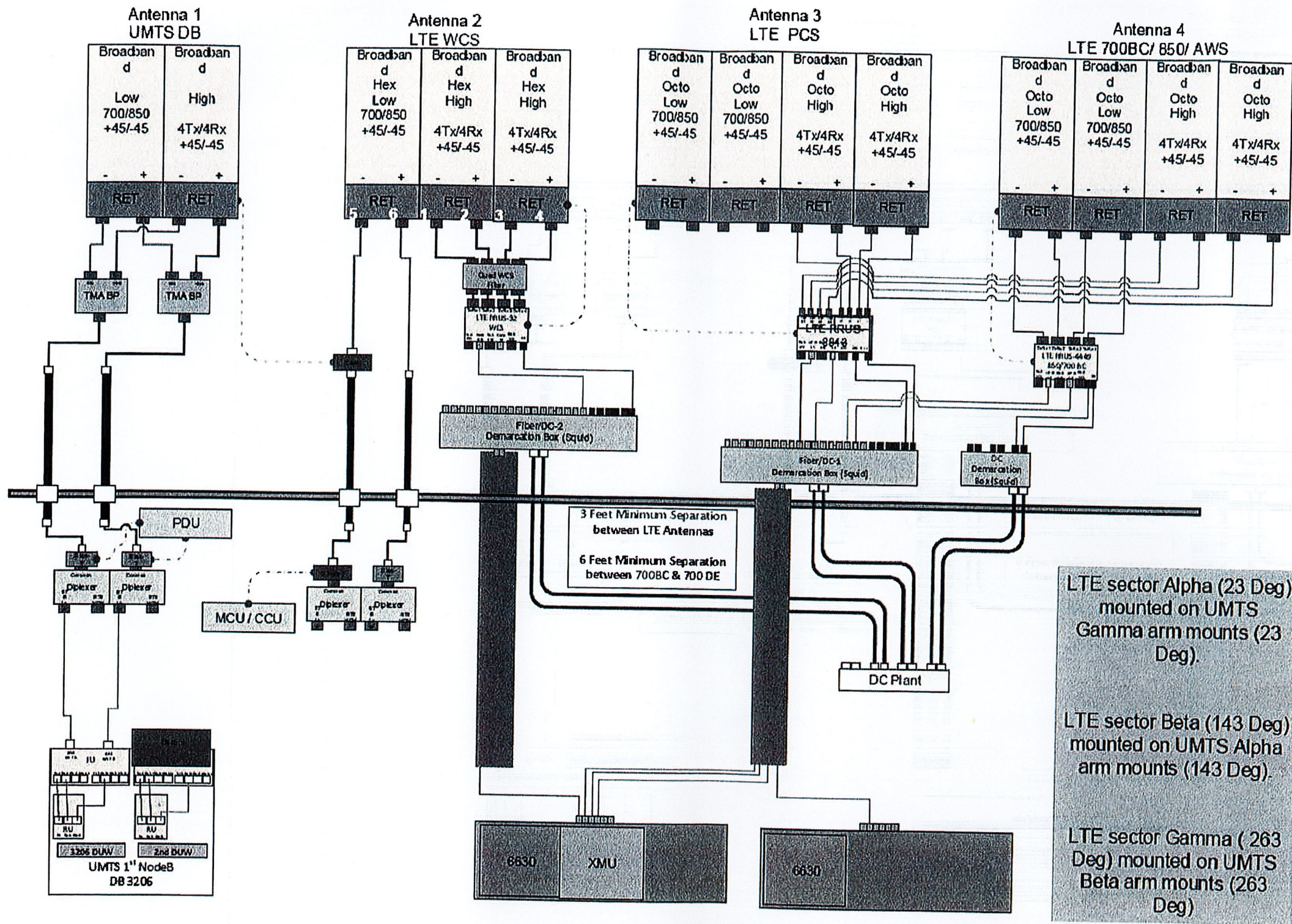
Drawing Title:  
**EQUIPMENT  
DETAILS**

Drawing Number:  
**C5**

**INFINIGY**  
1033 Walenlet Shaker Rd  
Albany, NY 12205  
Office # (518) 880-0786  
Fax # (518) 880-0785







LTE sector Alpha (23 Deg) mounted on UMTS Gamma arm mounts (23 Deg).

LTE sector Beta (143 Deg) mounted on UMTS Alpha arm mounts (143 Deg).

LTE sector Gamma (263 Deg) mounted on UMTS Beta arm mounts (263 Deg)

ALPHA/BETA/GAMMA

1 PLUMBING DIAGRAM (FINAL CONFIGURATION)  
 --- NOT TO SCALE

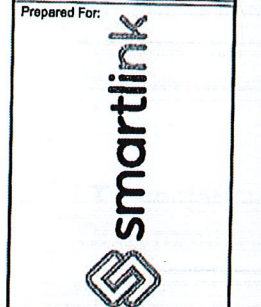


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1	ISSUED FOR PERMIT	Rev	01/23/19
0	ISSUED FOR REVIEW	Rev	01/02/19
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Drawn: *ASW* Date: 01/22/19  
 Designed: *ASW* Date: 01/22/19  
 Checked: *A.D.* Date: 01/22/19

Project Number: 1106-A0001-C  
 Project Title: BRANFORD WEST  
 CTL02175  
 FA# 10035093  
 4 BEAVER ROAD  
 BRANFORD, CT 06405



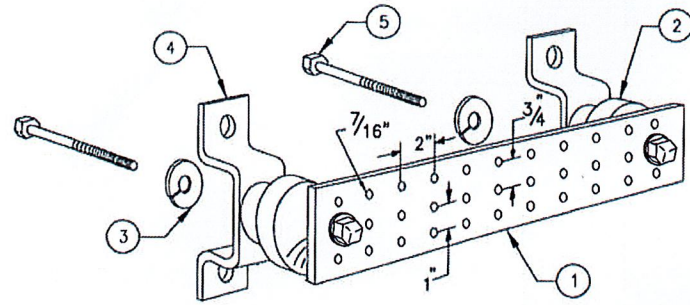
Drawing Scale: AS NOTED  
 Date: 01/23/19  
**CD**

Drawing Title: **PLUMBING DIAGRAM**

Drawing Number: **C6**

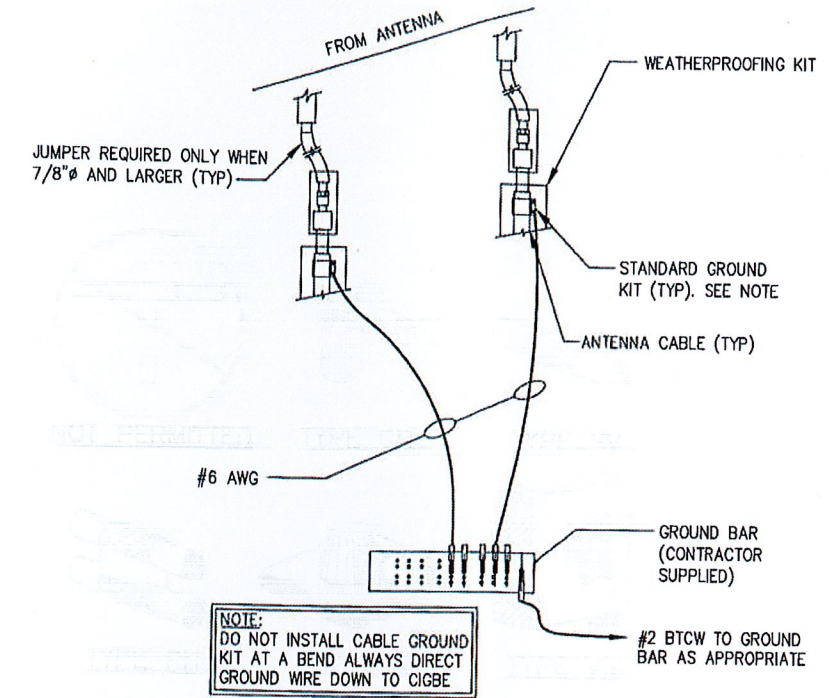
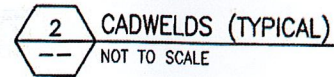
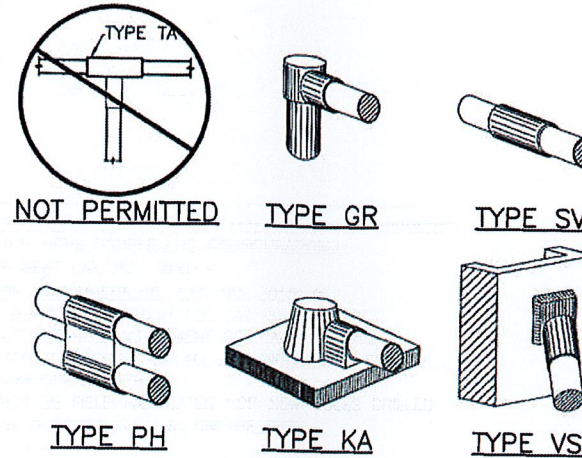
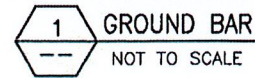
\*BASED ON LTE RFDS, V. 2.0, DATED 12/14/18



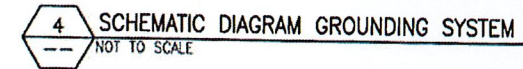
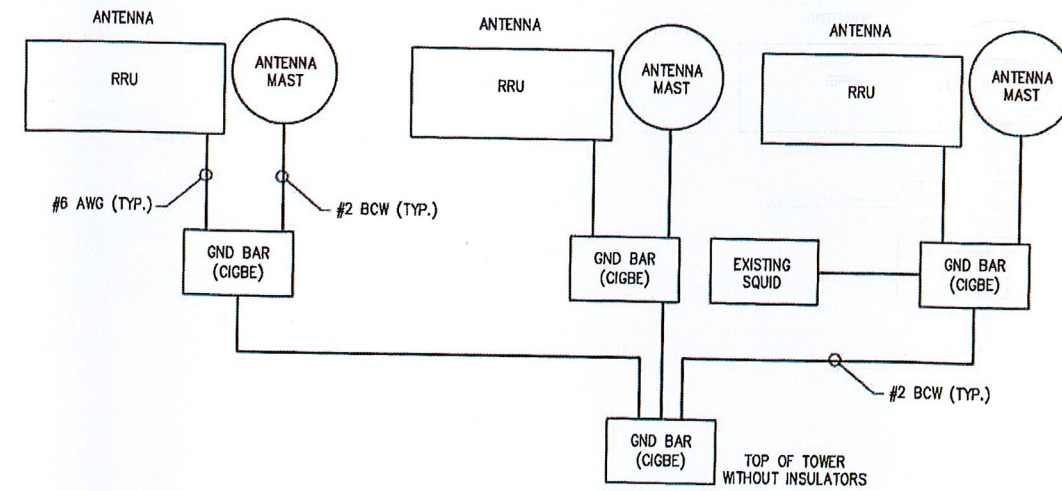
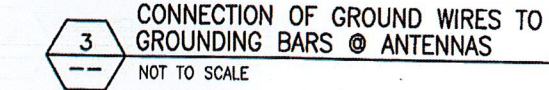


**LEGEND**

- 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"



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



**INFINIGY**  
1033 Westfield Shaker Rd  
Albany, NY 12205  
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Fax # (518) 860-0753



1	ISSUED FOR PERMIT	BSM	01/23/19
0	ISSUED FOR REVIEW	BSM	01/02/19
No.	Submittal / Revision	App'd	Date
Drawn:	BSM	Date:	01/03/19
Designed:	ASW	Date:	01/03/19
Checked:	A.D.	Date:	01/02/19
Project Number:	1100-A0001-G		

Project Title:  
**BRANFORD WEST**  
CTL02175  
FA# 10035093  
4 BEAVER ROAD  
BRANFORD, CT 06405



Drawing Scale:  
AS NOTED  
Date:  
01/23/19

**CD**

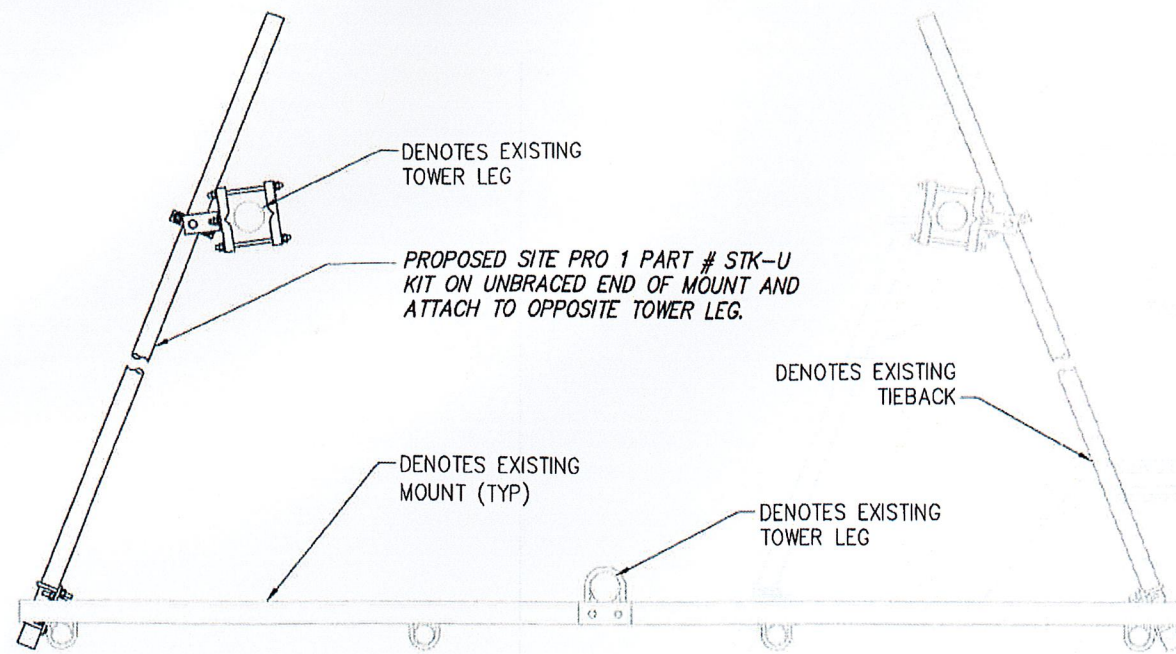
Drawing Title  
**GROUNDING DETAILS**

Drawing Number  
**C7**

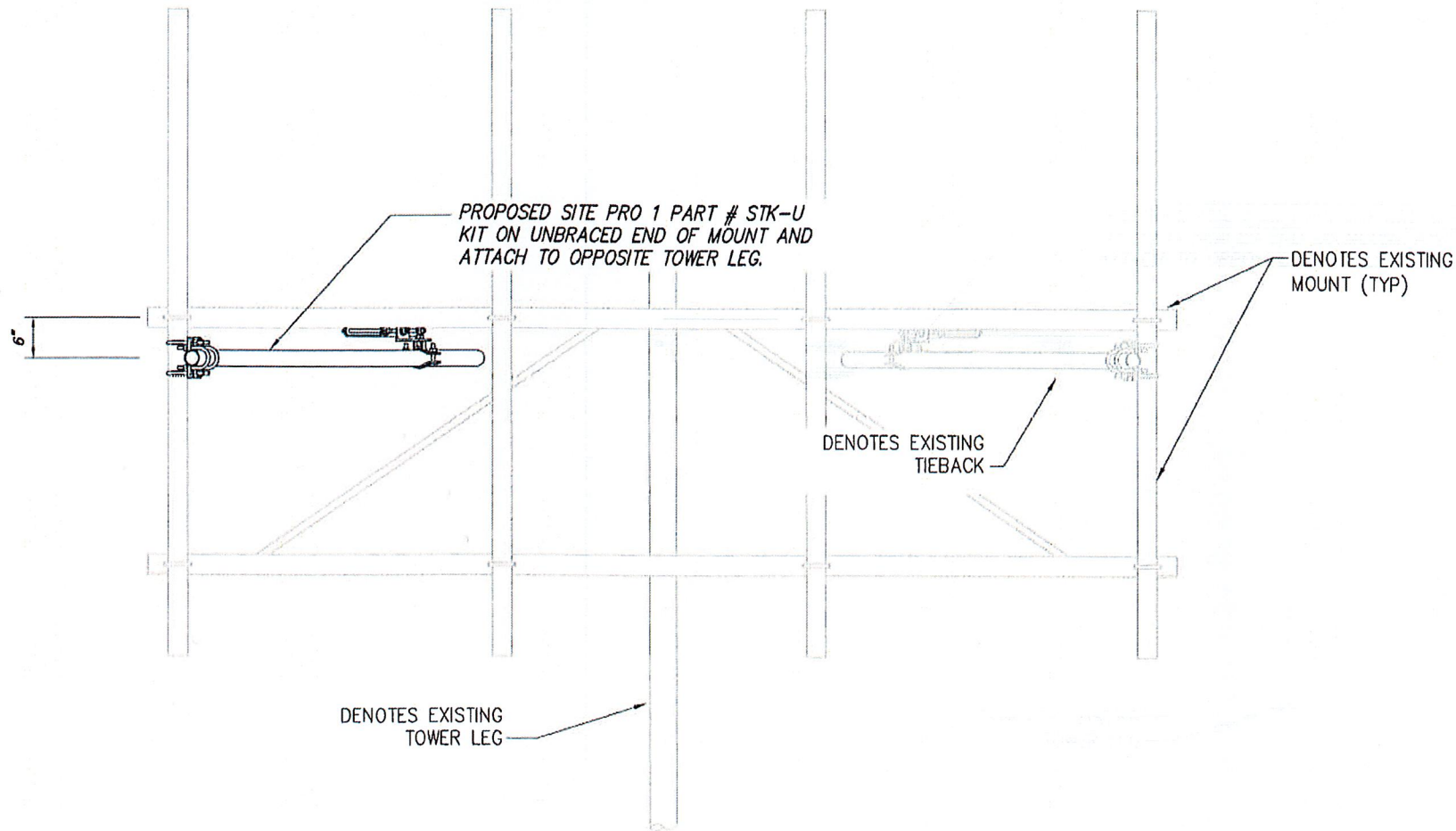








1 PLAN VIEW  
SCALE: NOT TO SCALE



2 ELEVATION VIEW  
SCALE: NOT TO SCALE

**INFINIGY**

1033 Waterlily Shaker Rd  
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Fax # (518) 860-0793



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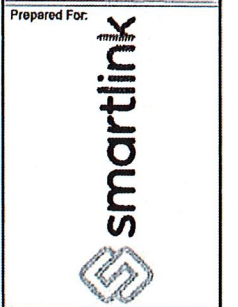
Drawn:    Date:   /  /  

Designed:    Date:   /  /  

Checked:    Date:   /  /  

Project Number: 499-006

Project Title:  
**BRANFORD WEST**  
CTL02175  
FA# 10035093  
4 BEAVER ROAD  
BRANFORD, CT 06405



Drawing Scale: AS NOTED

Date: 01/22/19

Drawing Title:  
**MOUNT MODIFICATION**

Drawing Number:  
**S2**