STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

September 27, 2013

John Lawrence
New Cingular Wireless PCS, LLC
95 Ryan Drive, Suite #1
Raynham, MA 02767

RE: **EM-CING-019-130911** – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 198 Tatnic Hill Road, Brooklyn, Connecticut.

Dear Mr. Lawrence:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- Any deviation from the proposed modification as specified in this notice and supporting materials with the Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter;
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;
- Prior to antenna installation, the tower modifications depicted in the modification drawings attached as Appendix G of the Structural Analysis Report with Modification Design prepared by GPD Group dated August 21, 2013, and stamped by John Kabak shall be implemented; and
- Within 45 days following completion of the antenna installation, AT&T shall provide documentation certified by a professional engineer that its installation complied with the requirements of the structural analysis.

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated September 11, 2013. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-

case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

Melanie A. Bachman
Acting Executive Director

MAB/CDM/cm

c: The Honorable Austin T. Tanner, First Selectman, Town of Brooklyn
Chester Dobrowski, Zoning Enforcement Officer, Town of Brooklyn
SBA

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September 11, 2013

The Honorable Austin T. Tanner
First Selectman
Town of Brooklyn
P. O. Box 356
Brooklyn, CT 06234-0356

RE: **EM-CING-019-130911** – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 198 Tanic Hill Road, Brooklyn, Connecticut.

Dear First Selectman Tanner:

The Connecticut Siting Council (Council) received a request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72, a copy of which has already been provided to you.

If you have any questions or comments regarding the proposal, please call me or inform the Council by September 25, 2013.

Thank you for your cooperation and consideration.

Very truly yours,

Melanie Bachman
Acting Executive Director

MB/cm

c: Chester Dobrowski, Zoning Enforcement Officer, Town of Brooklyn

New Cingular Wireless PCS, LLC
500 Enterprise Drive
Rocky Hill, Connecticut 06067

John Lawrence
Real Estate Consultant
95 Ryan Drive, Suite #1
Raynham, MA 02767
Phone: (781) 715-5532
jlawrence@clinellc.com

August 26, 2013

Austin Tanner, First Selectman
Town of Brooklyn
PO Box 356
Brooklyn, CT 06234

Re: Notice of Exempt Modification – Existing Telecommunications Facility at 198 Tatnic Hill Rd., Brooklyn, CT 06234

Dear Mr. Tanner and Members of the Board;

New Cingular Wireless PCS, LLC ("AT&T") intends to replace telecommunications antennas and associated equipment at an existing telecommunications tower, owned and operated by SBA Communications Corp.

A Notice of Exempt Modification has been filed with the Connecticut Siting Council as required by Regulations of Connecticut State Agencies ("R.C.S.A.") Section 16-50j-73. Please accept this letter as notification to the Town of Brooklyn under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The attached letter fully sets forth the AT&T proposal. However, if you have any questions or require any further information on the plans for the site or the Siting Council's procedures, please contact John Lawrence at (781) 715-5532 or Linda Roberts, Executive Director of the Connecticut Siting Council, at (860) 827-2935.

Sincerely,

John Lawrence
Real Estate Consultant

Enclosure
CC: Honorable Robert Stein, Chairmen of the Connecticut Siting Council

Existing Facility

The Brooklyn facility is located at 198 Tatnic Hill Rd., Brooklyn, CT 06234.

The facility is owned by AT&T Towers.

The existing facility consists of a 79'8" foot Guyed Tower with an existing chain link fence around the tower compound fenced in compound. AT&T currently operates wireless communications equipment at the facility and has six (6) antennas mounted at the tower centerline height of 82'.

Statutory Considerations

The changes to the Danielson tower facility do not constitute a modification as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2) because they will not result in any substantial adverse environmental effect.

1. The height of the overall structure will be unaffected.

2. The proposed changes will not affect the property boundaries. All new construction will take place inside the existing fenced compound.

3. The proposed additions will not increase the noise level at the existing facility by six decibels or more.

4. LTE will utilize additional radio frequencies newly licensed by the FCC for cellular mobile communications. However, the changes will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

For the foregoing reasons, New Cingular Wireless respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A Section §16-50j-72(b)(2).

Respectfully yours,

John Lawrence
Real Estate Consultant
Enclosures:
Austin Tanner, First selectman, Town of Brooklyn

EM-CING-019-130911

at&t
Your world. Delivered.

New Cingular Wireless PCS, LLC
500 Enterprise Drive
Rocky Hill, Connecticut 06067

John Lawrence
Real Estate Consultant
95 Ryan Drive, Suite #1
Raynham, MA 02767
Phone: (781) 715-5532
jlawrence@slinedllc.com

January 25, 2013

Honorable Robert Stein, Chairman,
and Members of the Connecticut Siting Council
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: Notice of Exempt Modification – Existing Telecommunications Facility at 198 Tatnic Hill Rd., Brooklyn, CT 06234

Dear Chairman Stein and Members of the Council:

New Cingular Wireless PCS, LLC ("AT&T") intends to modify the existing telecommunications antennas and associated equipment at an existing multicarrier telecommunications tower at 198 Tatnic Hill Rd., Brooklyn, CT. AT&T operates under licenses issued by the Federal Communications Commission ("FCC") to provide cellular and PCS mobile telephone service in Windham County, which includes the area to be served by AT&T's proposed installation.

In order to accommodate technological changes, implement Long Term Evolution ("LTE") capabilities, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") plans to modify the equipment configurations at many of its existing cell sites. LTE is a new high-performance air interface for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks.

Please accept this letter as notification to the Council, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter is being sent to Austin Tanner, First Selectman.

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.

C Squared Systems, LLC
65 Dartmouth Drive, Unit A3
Auburn, NH 03032
(603) 644-2800
support@csquaredsystems.com

Calculated Radio Frequency Emissions

at&t

CT2075

(Brooklyn)

Tatnic Hill Road, Brooklyn, CT 06234

August 27, 2013

Table of Contents

List of Tables

List of Figures

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modifications to the existing AT&T antenna arrays mounted on the guyed tower located off Tatnic Hill Road in Brooklyn, CT. The coordinates of the tower are 41° 46' 05.20" N, 71° 58' 17.12" W.

AT&T is proposing the following modifications:

1) Install three multi-band (700/850/1900/2100 MHz) antennas for their LTE network (one per sector).

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{1.6^2 \times EIRP}{4\pi \times R^2} \right) \text{x Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{(H^2 + V^2)}$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

These calculations assume that the antennas are operating at 100 percent capacity and power, and that all channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the finished modifications.

4. Calculation Results

Table 1 below outlines the power density information for the site. Because the proposed AT&T antennas are directional in nature, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical pattern of the proposed AT&T antennas. The calculated results for AT&T in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	%MPE
Cingular UMTS	*82*	*880*	*1*	*500*	*0.0267*	*0.5867*	*4.56%*
Cingular GSM	*82*	*880*	*4*	*296*	*0.0633*	*0.5867*	*10.79%*
Cingular GSM	*82*	*1930*	*2*	*427*	*0.0457*	*1.0000*	*4.57%*
AT&T UMTS	82	880	2	565	0.0060	0.5867	1.03%
AT&T UMTS	82	1900	2	875	0.0094	1.0000	0.94%
AT&T LTE	82	734	1	1771	0.0095	0.4893	1.94%
AT&T GSM	82	880	1	283	0.0015	0.5867	0.26%
AT&T GSM	82	1900	4	525	0.0112	1.0000	1.12%
						Total	**5.28%**

Table 1: Carrier Information[1] [2] [3]

[1] The existing CSC filing for Cingular should be removed and replaced with the updated AT&T technologies and values provided in Table 1. Please note that %MPE values listed are rounded to two decimal points. The total %MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not reflect the total value listed in the table.

[2] In the case where antenna models are not uniform across all 3 sectors for the same frequency band, the antenna model with the highest gain was used for the calculations to present a worse-case scenario.

[3] Antenna height listed for AT&T is in reference to the GPD Group Structural Analysis dated August 21, 2013.

5. Conclusion

The above analysis verifies that emissions from the existing site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed transmit antennas at the existing facility is well below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at ground level is **5.28% of the FCC limit**.

As noted previously, obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels will be from the finished modifications.

6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.

Daniel L. Goulet
C Squared Systems, LLC

August 27, 2013
Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

ANSI C95.1-1982, American National Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz. IEEE-SA Standards Board

IEEE Std C95.3-1991 (Reaff 1997), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave. IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[4]

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

(B) Limits for General Population/Uncontrolled Exposure[5]

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

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

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

[4] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

[5] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

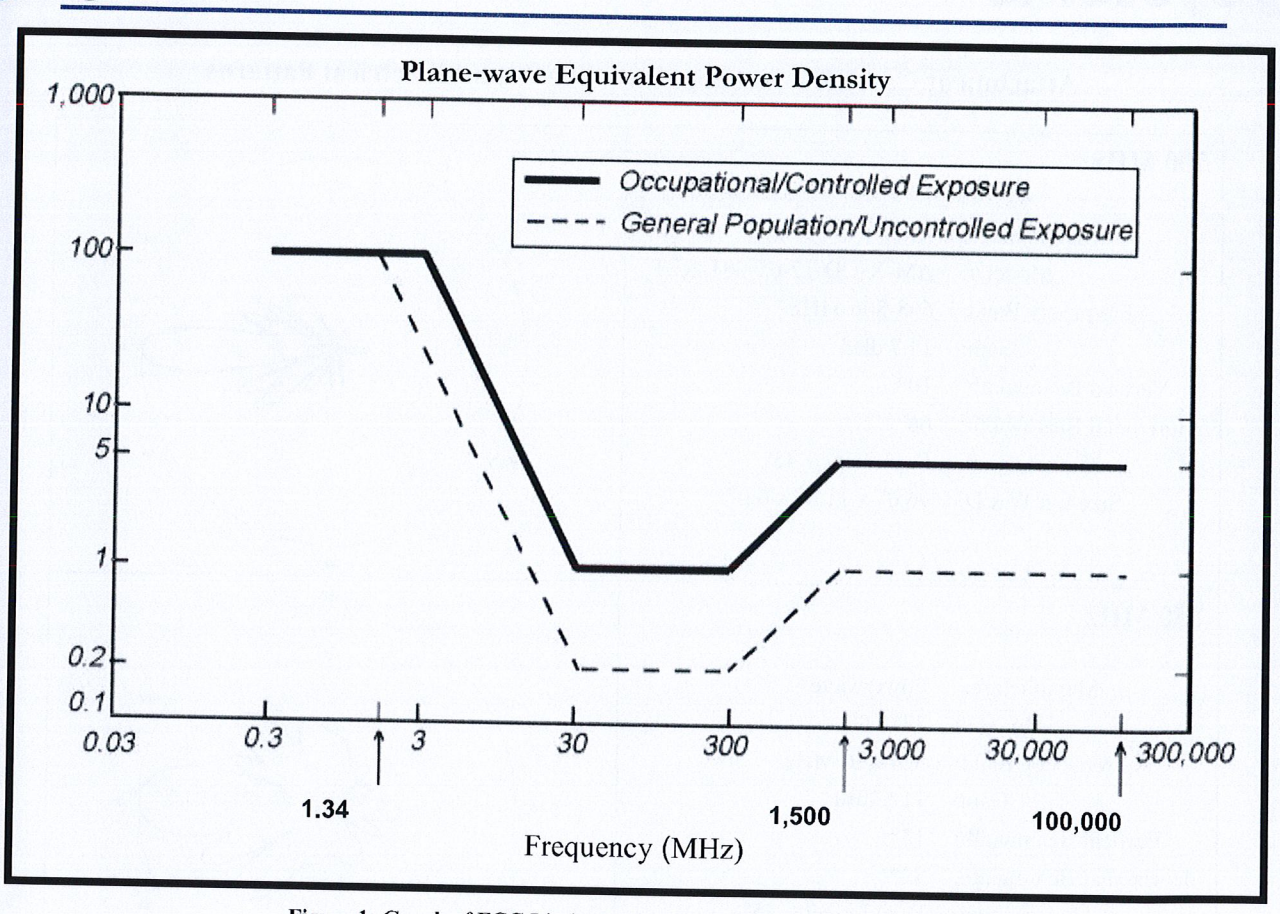
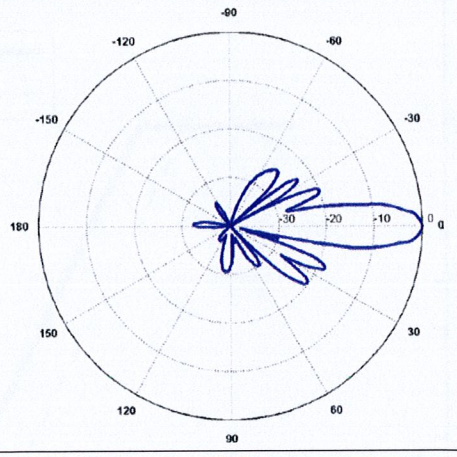


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: AT&T Antenna Data Sheets and Electrical Patterns

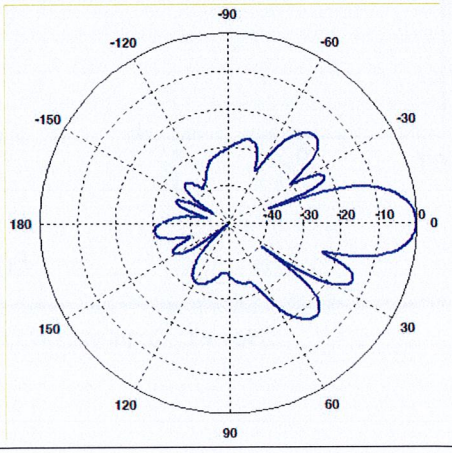
700 MHz

Manufacturer:	KMW
Model #:	AM-X-CD-17-65-00T-RET
Frequency Band:	698-806 MHz
Gain:	14.7 dBd
Vertical Beamwidth:	10°
Horizontal Beamwidth:	66°
Polarization:	Dual Slant ± 45°
Size L x W x D:	96.0" x 11.8" x 6.0"



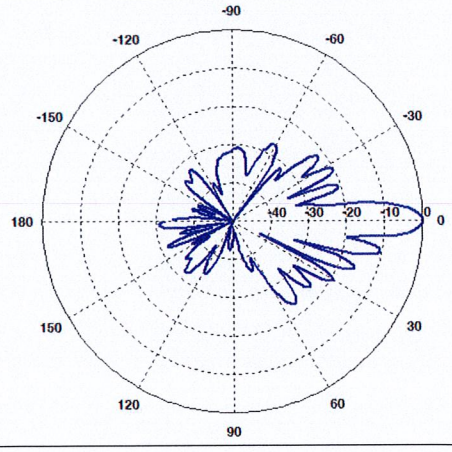
850 MHz

Manufacturer:	Powerwave
Model #:	7770.00
Frequency Band:	824-896 MHz
Gain:	11.5 dBd
Vertical Beamwidth:	15°
Horizontal Beamwidth:	82°
Polarization:	Dual Linear ± 45°
Size L x W x D:	55.0" x 11.0" x 5.0"



1900 MHz

Manufacturer:	Powerwave
Model #:	7770.00
Frequency Band:	1850-1990 MHz
Gain:	13.4 dBd
Vertical Beamwidth:	7°
Horizontal Beamwidth:	86°
Polarization:	Dual Linear ± 45°
Size L x W x D:	55.0" x 11.0" x 5.0"



PROJECT INFORMATION

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY MODIFICATIONS 1. INSTALL (3) NEW LTE ANTENNAS, (6) RRH'S, (1) SURGE ARRESTOR, (1) FIBER LINE & (2) DC POWER LINES & (1) GPS ANTENNA 2. INSTALL LTE 6601 CABINET
SITE ADDRESS:	TATNIC HILL ROAD BROOKLYN, CT 06234
LATITUDE: LONGITUDE:	41.76810 N 41° 46' 05.2" N 71.97140 W 71° 58' 17.0' W
CURRENT USE: PROPOSED USE:	TELECOMMUNICATIONS FACILITY TELECOMMUNICATIONS FACILITY

at&t

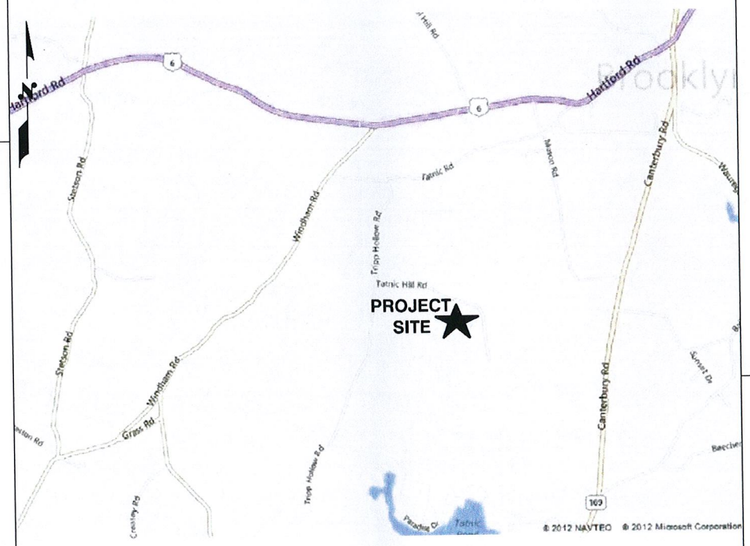
SITE NUMBER: CT2075
SITE NAME: BROOKLYN

DRAWING INDEX

VICINITY MAP

DIRECTIONS TO SITE:

START OUT GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITOL BLVD. TURN LEFT ONTO CAPITOL BLVD. TURN LEFT ONTO WEST ST. MERGE ONTO I-91 N VIA THE RAMP ON THE LEFT TOWARD HARTFORD. MERGE ONTO CT-3 N VIA EXIT 25 TOWARD GLASTONBURY. MERGE ONTO CT-2 E TOWARD NORWICH. TAKE THE CT-66 EXIT, EXIT 13, TOWARD WILLIMANTIC/MARLBOROUGH. TURN LEFT ONTO HEBRON RD/CT-66. CONTINUE TO FOLLOW CT-66. CT-66 becomes US-6 E. TURN RIGHT ONTO WINDHAM RD. TURN LEFT ONTO TATNIC RD. TURN RIGHT ONTO TRIPP HOLLOW RD. TURN LEFT ONTO TATNIC HILL RD. END AT TATNIC HILL RD BROOKLYN, CT 06234.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CALL

BEFORE YOU DIG

CALL TOLL FREE 800-922-4455 OR DIAL 811

UNDERGROUND SERVICE ALERT

Hudson Design Group LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

Pinnacle Wireless
a UniTek GLOBAL SERVICES company
800 MARSHALL PHELPS ROAD UNIT# 2A
WINDSOR, CT 06095

SITE NUMBER: CT2075
SITE NAME: BROOKLYN

TATNIC HILL ROAD
BROOKLYN, CT 06234
WINDHAM COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	09/04/13	ISSUED FOR CONSTRUCTION	DC	DPH	
1	10/22/12	ISSUED FOR PERMITTING	MJS	DC	DPH
0	08/09/12	ISSUED FOR REVIEW	CG	DC	DPH

SCALE: AS SHOWN | DESIGNED BY: DC | DRAWN BY: CG

STATE OF CONNECTICUT DANIEL P. HAMM No. 24178 LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET (LTE)

JOB NUMBER	DRAWING NUMBER	REV
2075.01	T-1	2

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR – NEXLINK
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
OWNER – AT&T MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH UMTS SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. APPLICABLE BUILDING CODES:
SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
BUILDING CODE: 2003 IBC WITH 2005 CT SUPPLEMENT & 2009 CT AMENDMENTS
ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-F, STRUCTURAL STANDARDS FOR STEEL

ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	G.C.	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
AWG	AMERICAN WIRE GAUGE	MGB	MASTER GROUND BUS		
BCW	BARE COPPER WIRE	MIN	MINIMUM	TBD	TO BE DETERMINED
BTS	BASE TRANSCEIVER STATION	PROPOSED	NEW	TBR	TO BE REMOVED
EXISTING	EXISTING	N.T.S.	NOT TO SCALE	TBRR	TO BE REMOVED AND REPLACED
EG	EQUIPMENT GROUND	REF	REFERENCE	TYP	TYPICAL
EGR	EQUIPMENT GROUND RING	REQ	REQUIRED		

Hudson Design Group LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

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a UniTek GLOBAL SERVICES company
800 MARSHALL PHELPS ROAD UNIT# 2A
WINDSOR, CT 06095

SITE NUMBER: CT2075
SITE NAME: BROOKLYN

TATNIC HILL ROAD
BROOKLYN, CT 06234
WINDHAM COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

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0	08/09/12	ISSUED FOR REVIEW	CG	DC	DPH

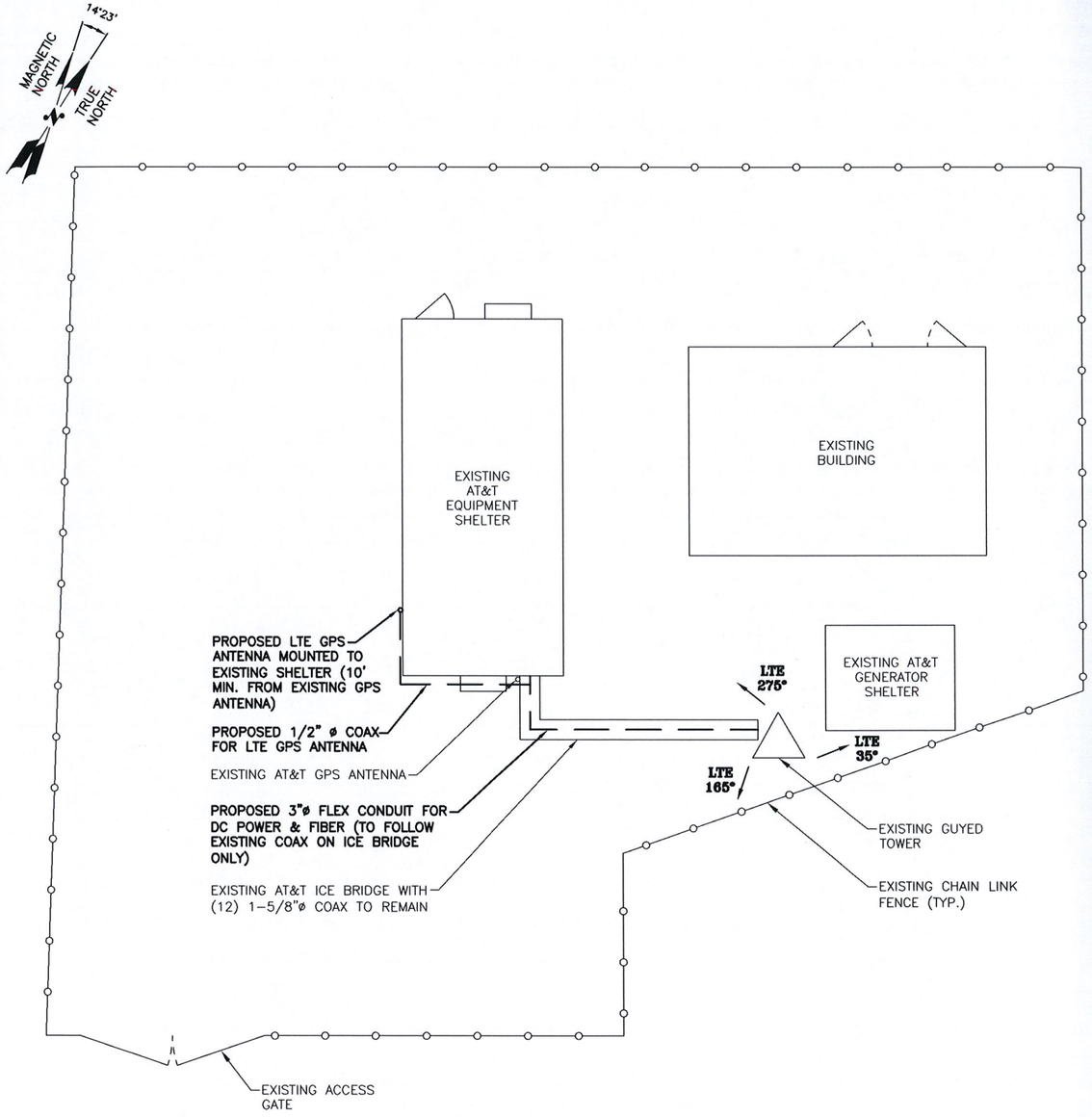
SCALE: AS SHOWN | DESIGNED BY: DC | DRAWN BY: CG

DANIEL P. HAMM No. 24178 LICENSED PROFESSIONAL ENGINEER STATE OF CONNECTICUT

AT&T

GENERAL NOTES (LTE)

JOB NUMBER	DRAWING NUMBER	REV
2075.01	GN-1	2



COMPOUND PLAN

SCALE: 3/16"=1'-0"

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

NOTE:

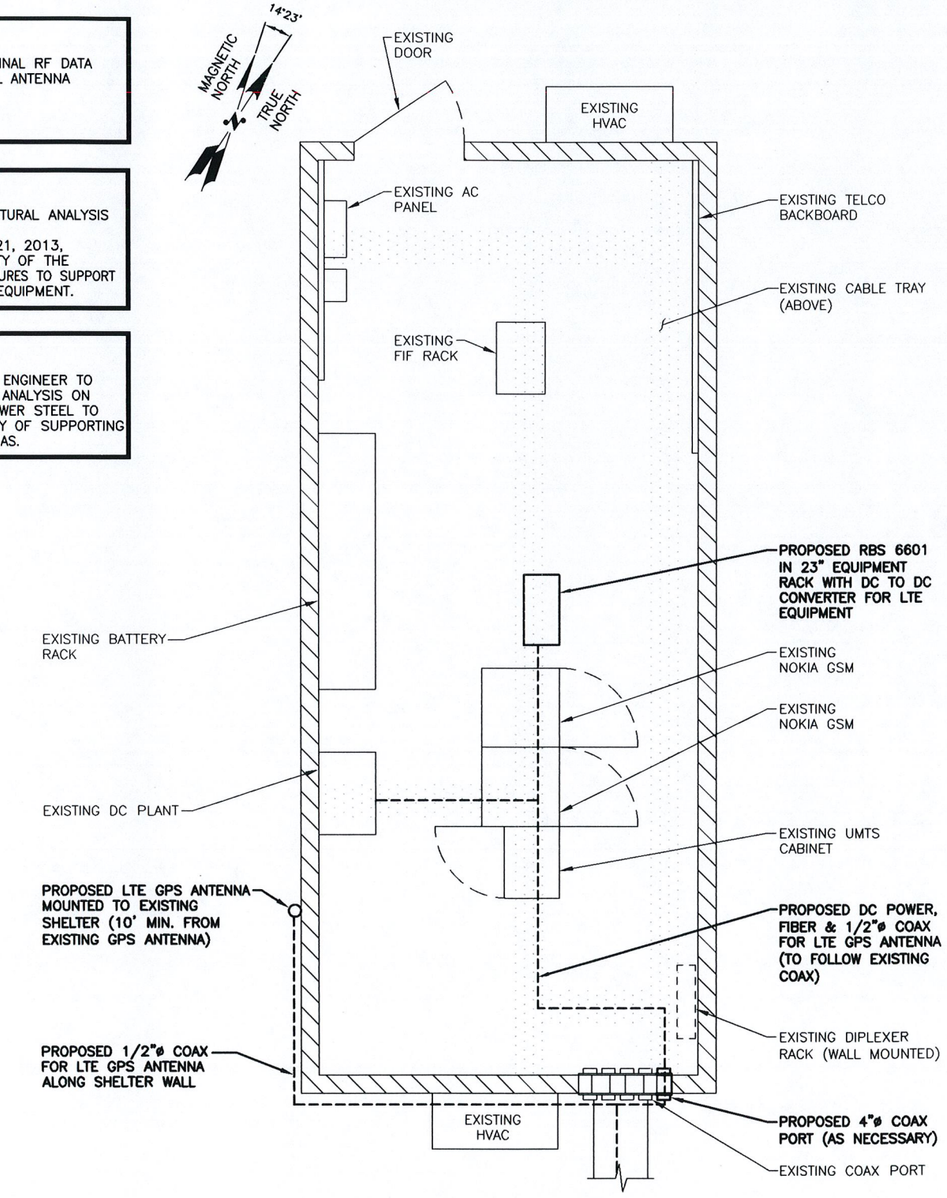
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

REFER TO STRUCTURAL ANALYSIS BY: GPD GROUP, DATED: AUGUST 21, 2013, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:

TOWER OWNER'S ENGINEER TO PERFORM LOCAL ANALYSIS ON THE EXISTING TOWER STEEL TO VERIFY CAPABILITY OF SUPPORTING NEW LTE ANTENNAS.



EQUIPMENT PLAN

SCALE: 1/2"=1'-0"

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

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SCALE: AS SHOWN | DESIGNED BY: DC | DRAWN BY: CG

STATE OF CONNECTICUT DANIEL P. HAMM No. 24178 LICENSED PROFESSIONAL ENGINEER

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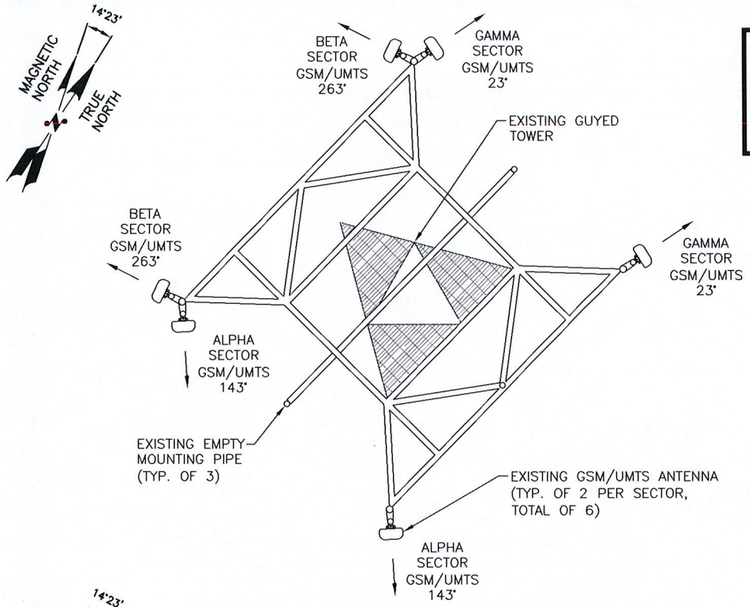
COMPOUND PLAN & EQUIPMENT PLAN (LTE)

JOB NUMBER	DRAWING NUMBER	REV
2075.01	A-1	2



EXISTING GSM/UMTS ANTENNA PLAN

SCALE: N.T.S.

NOTE:

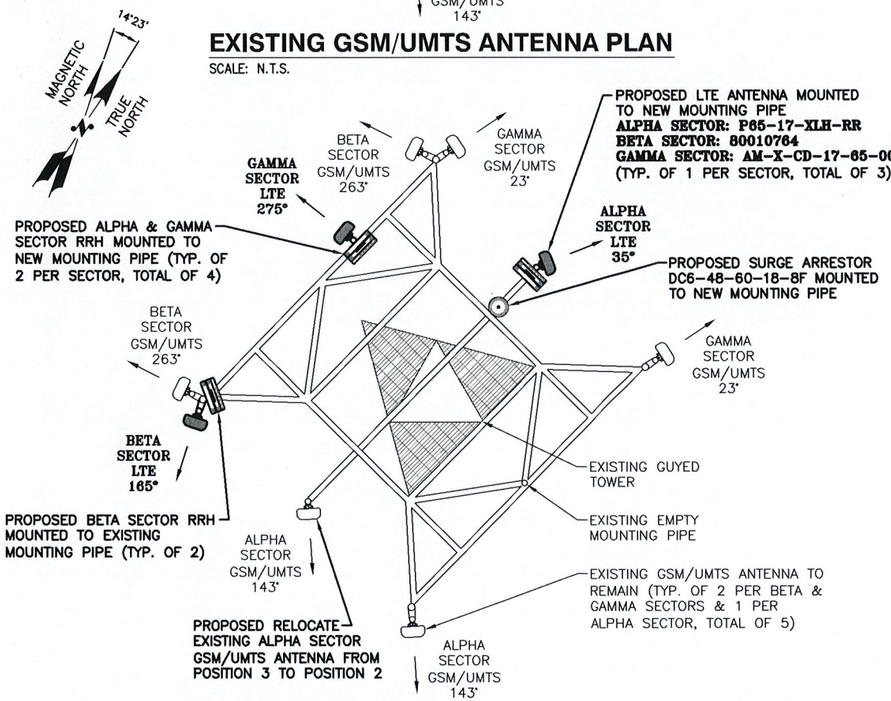
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

TOWER OWNER'S ENGINEER TO PERFORM LOCAL ANALYSIS ON THE EXISTING TOWER STEEL TO VERIFY CAPABILITY OF SUPPORTING NEW LTE ANTENNAS.

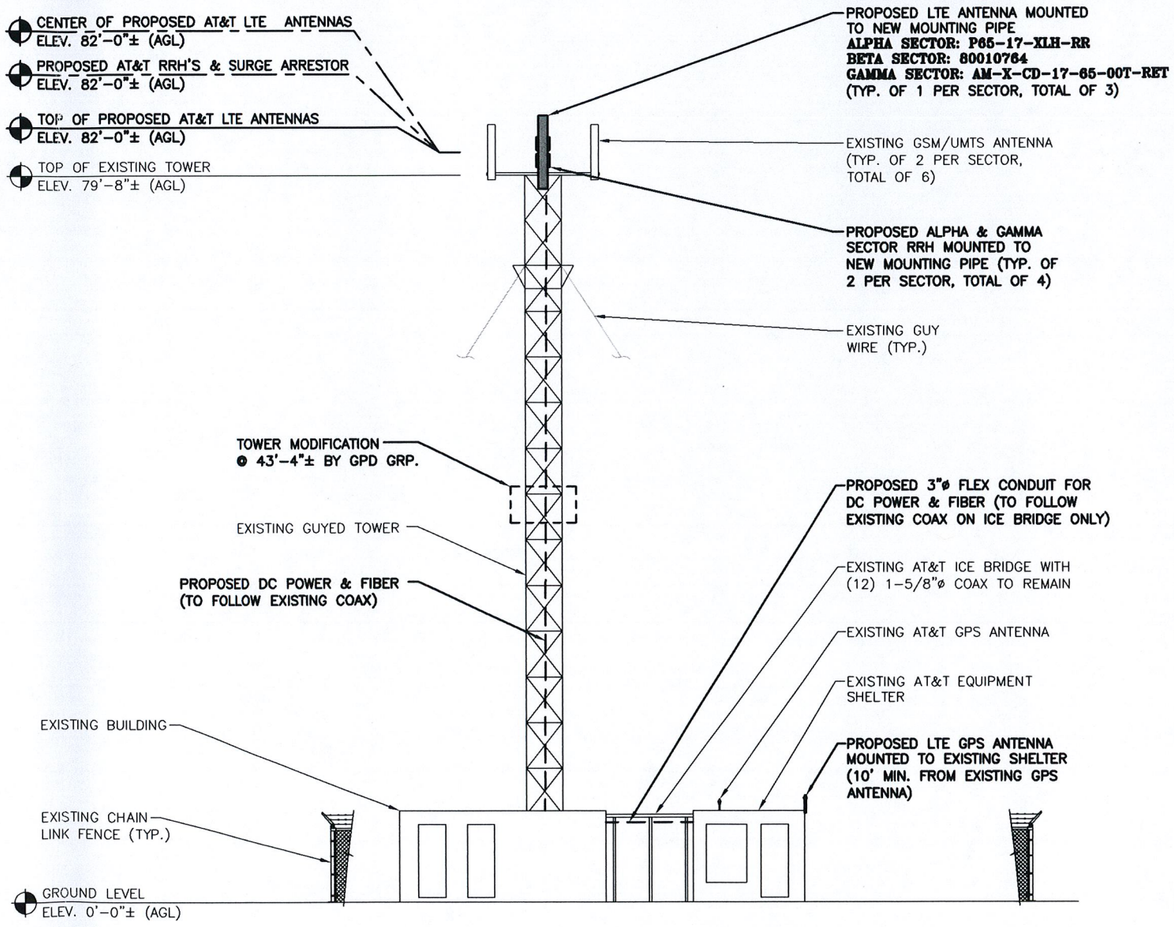
NOTE:

REFER TO STRUCTURAL ANALYSIS BY: GPD GROUP, DATED: AUGUST 21, 2013, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



PROPOSED LTE ANTENNA PLAN

SCALE: N.T.S.



NORTH ELEVATION

SCALE: 1/8"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-0"

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SCALE: AS SHOWN | DESIGNED BY: DC | DRAWN BY: CG

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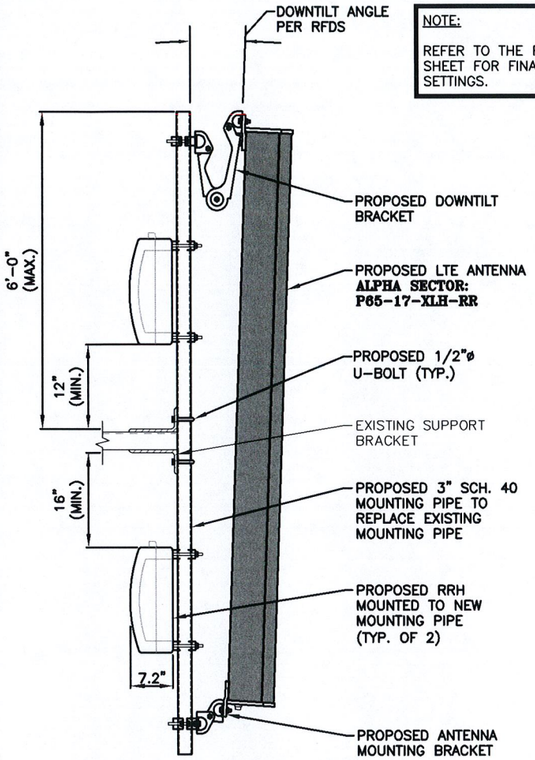
ANTENNA PLAN & ELEVATION (LTE)

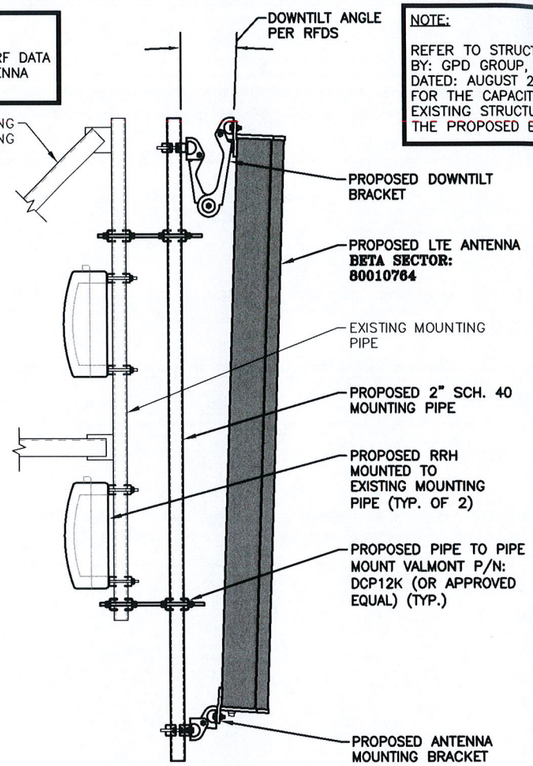
JOB NUMBER	DRAWING NUMBER	REV
2075.01	A-2	2



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

PROPOSED ALPHA SECTOR LTE ANTENNA & RRH MOUNTING DETAIL

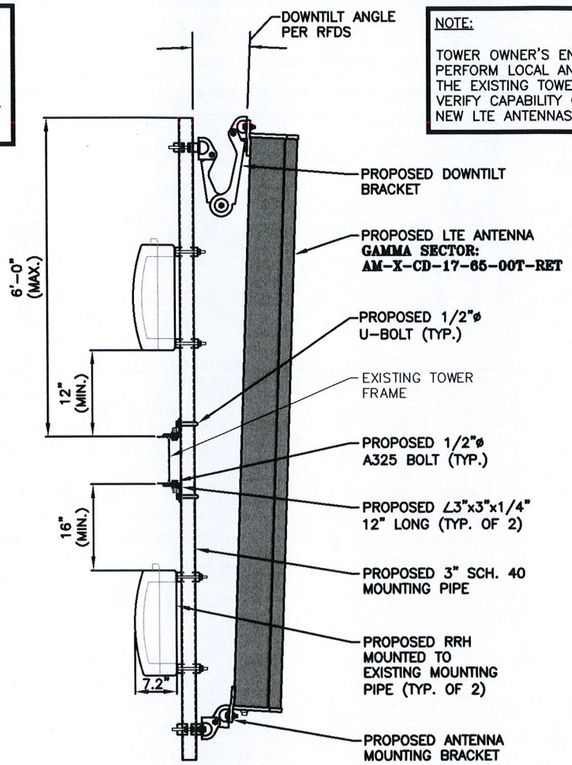
SCALE: N.T.S.



NOTE:
REFER TO STRUCTURAL ANALYSIS BY: GPD GROUP, DATED: AUGUST 21, 2013, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

PROPOSED BETA SECTOR LTE ANTENNA & RRH MOUNTING DETAIL

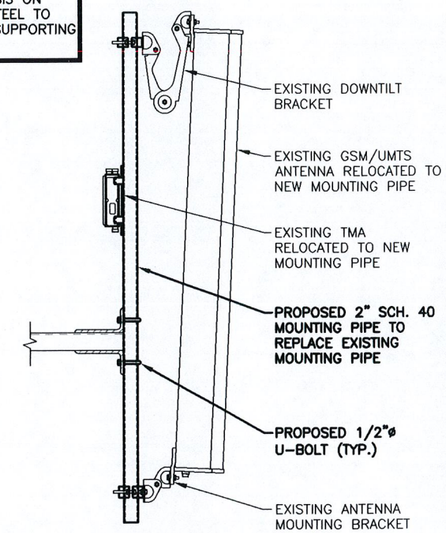
SCALE: N.T.S.



NOTE:
TOWER OWNER'S ENGINEER TO PERFORM LOCAL ANALYSIS ON THE EXISTING TOWER STEEL TO VERIFY CAPABILITY OF SUPPORTING NEW LTE ANTENNAS.

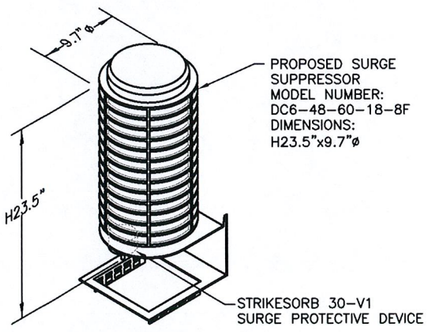
PROPOSED GAMMA SECTOR LTE ANTENNA & RRH MOUNTING DETAIL

SCALE: N.T.S.



PROPOSED GSM/UMTS ANTENNA MOUNTING DETAIL

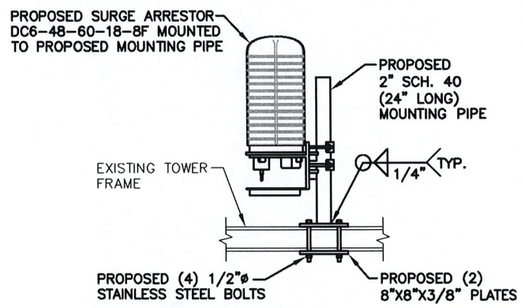
SCALE: N.T.S.



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

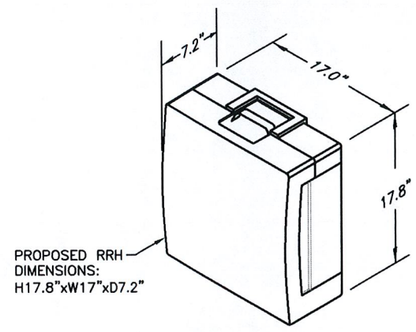
DC SURGE SUPPRESSOR DETAIL

SCALE: N.T.S.



PROPOSED SURGE SUPPRESSOR MOUNTING DETAIL

SCALE: N.T.S.

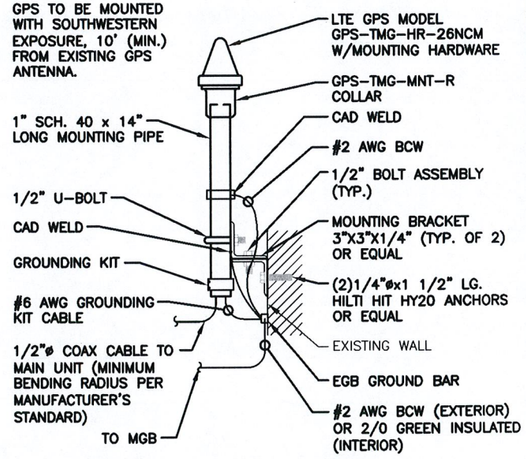


NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

RRH DETAIL

SCALE: N.T.S.

NOTE:
GPS TO BE MOUNTED WITH SOUTHWESTERN EXPOSURE, 10' (MIN.) FROM EXISTING GPS ANTENNA.



GPS MOUNTING DETAIL

SCALE: N.T.S.

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1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
N. ANDOVER, MA 01845
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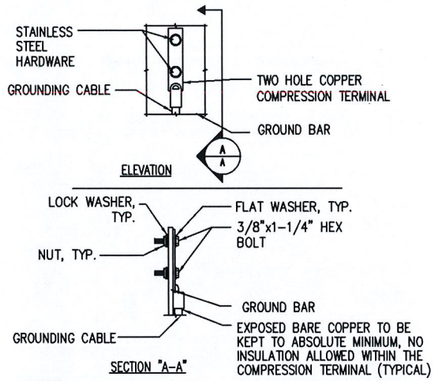
DETAILS (LTE)

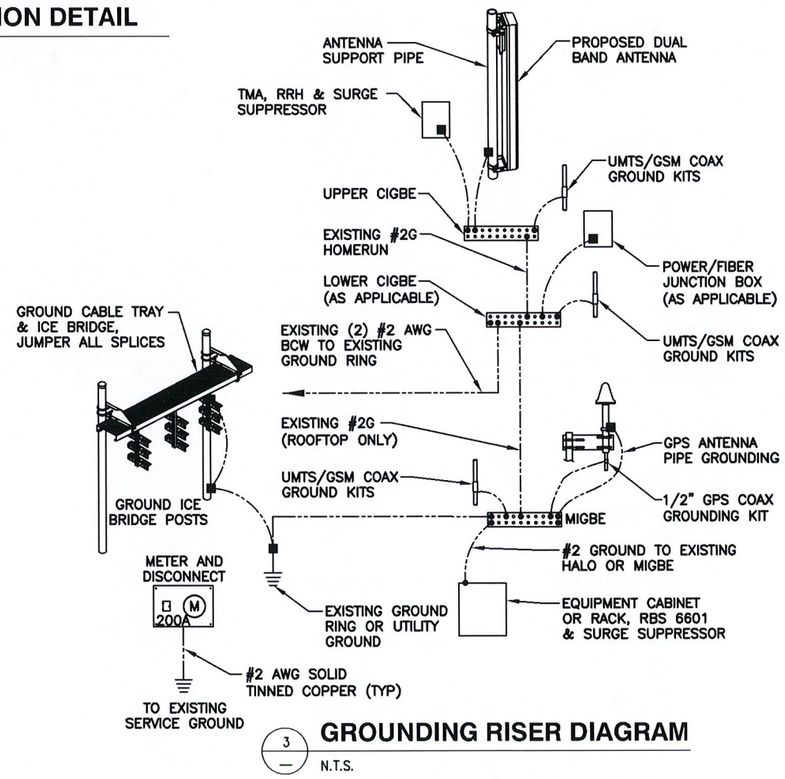
JOB NUMBER	DRAWING NUMBER	REV
2075.01	A-3	2



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

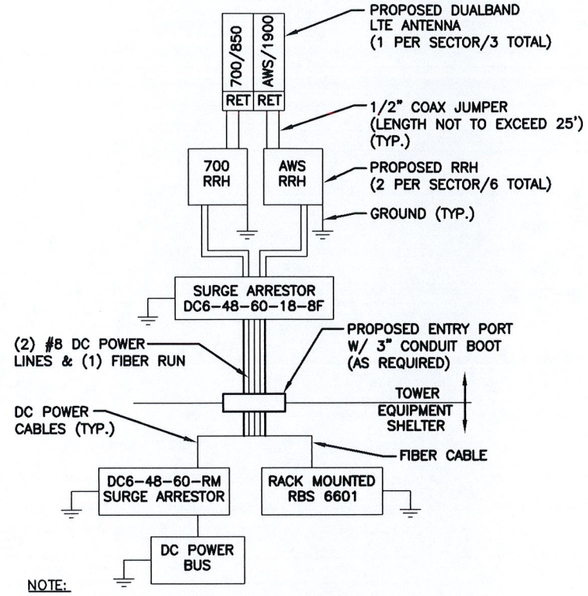
TYPICAL GROUND BAR CONNECTION DETAIL

1 — N.T.S.



GROUNDING RISER DIAGRAM

3 — N.T.S.



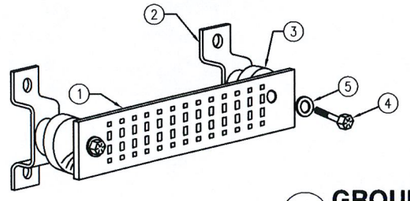
NOTE:

CONTRACTOR TO CONFIRM ALL PARTS & INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS.

LTE PLUMBING DIAGRAM

2 — N.T.S.

WIRELESS SOLUTIONS INC.			
NO.	REQ.	PART NO.	DESCRIPTION
1	1	HLGB-0420-IS	SOLID GND. BAR (20"x4"x1/4")
2	2	———	WALL MTG. BRKT.
3	2	———	INSULATORS
4	4	———	5/8"-11x1" H.H.C.S.
5	4	———	5/8 LOCKWASHER



GROUND BAR DETAIL

4 — N.T.S.

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

SECTION "P" – SURGE PRODUCERS

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

SECTION "A" – SURGE ABSORBERS

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

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PLUMBING DIAGRAM & GROUNDING DETAILS (LTE)

JOB NUMBER	DRAWING NUMBER	REV
2075.01	G-1	2

AT&T Towers
2300 Northlake Center Dr Ste 405
Tucker, GA 30084-4032
(404) 532-5855

Kevin Clements
520 South Main Street, Suite 2531
Akron, OH 44311
(678) 781-5061
kclements@gpdgroup.com

GPD #: 2013723.4.02
August 21, 2013

STRUCTURAL ANALYSIS REPORT WITH MODIFICATION DESIGN

AT&T DESIGNATION:	**Site USID:**	**SNET004**
	Site FA:	**10137471**
	Site Name:	**BROOKLYN**
	AT&T Project:	**Wireline Cingular Tower Only Modification 12-4-2012**
ANALYSIS CRITERIA:	**Codes:**	**TIA/EIA-222-F, ASCE 7-05, 2003 IBC & 2005 CTBC** **85-mph Fastest Mile with 0" ice** **38-mph Fastest Mile with 3/4" ice**
SITE DATA:		**198 Tatnic Hill Rd., Brooklyn, CT 06234, Windham County** **Latitude 41° 46' 0.012" N, Longitude 71° 58' 0.3" W** **Market: NEW ENGLAND** **79.75' Modified Guyed Tower**

Mr. Marty Jelleme,

GPD is pleased to submit this Structural Analysis Report with Modification Design to determine the structural integrity of the aforementioned tower. The purpose of the analysis is to determine the suitability of the tower with the existing and proposed loading configuration detailed in the analysis report.

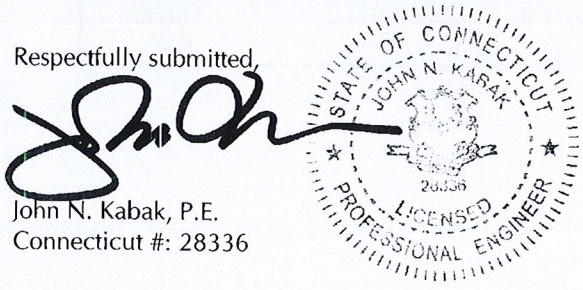
Analysis Results

Tower Stress Level with Proposed Equipment:	62.4%	Pass
Foundation Ratio with Proposed Equipment:	97.7%	Pass

Note: In order for the analysis results to be valid for the existing, proposed, and reserved loading in Appendix A, the modifications referenced in the design drawings by GPD (Project #: 2013723.4.02, dated 8/21/2013) must be installed.

We at GPD appreciate the opportunity of providing our continuing professional services to you and AT&T Mobility. If you have any questions or need further assistance on this or any other projects please do not hesitate to call.

Respectfully submitted,



John N. Kabak, P.E.
Connecticut #: 28336

SUMMARY & RESULTS

The purpose of this analysis was to verify whether the existing modified structure is capable of carrying the proposed loading configuration as specified by AT&T. This report was commissioned by Mr. Marty Jelleme of AT&T.

Modifications reported in the tower mapping by GPD (Project #: 2013723.4.01 Rev 1, dated 8/12/2013), were taken into consideration in this analysis.

In order for the analysis results to be valid for the existing, proposed, and reserved loading in Appendix A, the modifications referenced in the design drawings by GPD (Project #: 2013723.4.02, dated 8/21/2013) must be installed.

TOWER SUMMARY AND RESULTS

Member	Capacity	Results
Tower Legs	48.3%	Pass
Diagonals	55.2%	Pass
Horizontals	19.4%	Pass
Guy Wires	33.4%	Pass
Torque Arms	55.7%	Pass
Member Bolts	62.4%	Pass
Anchor Rods	18.1%	Pass
Tower Base Foundation	82.9%	Pass
Anchor Foundation	97.7%	Pass

ANALYSIS METHOD

tnxTower (Version 6.3.1.1) and RISA 3D (Version 9.1.1), commercially available software programs, were used to create a three-dimensional model of the tower and calculate primary member stresses for various dead, live, wind, and ice load cases. Selected output from the analyses is included in Appendices B and C. The following table details the information provided to complete this structural analysis. This analysis is solely based on this information.

DOCUMENTS PROVIDED

Document	Remarks	Source
Notice of Co-location Form	Not Provided	N/A
Site Lease Application	AT&T Application dated, 5/19/2012	Siterra
Tower Design	Not Provided	N/A
Foundation Design	Not Provided	N/A
Geotechnical Report	GPD Project #: 2012801.84, dated 11/15/2012	Siterra
Foundation Mapping	GPD Project #: 2012801.84 Rev 1, dated 8/9/2013	Siterra
Previous Structural Analysis	GPD Project #: 2013723.4.01 Rev 1, dated 8/12/2013	Siterra
Tower Mapping	GPD Project #: 2013723.4.01 Rev 1, dated 8/12/2013	Siterra
Modification Drawings	GPD Project #: 2013723.4.02, dated 8/21/2013	GPD

ASSUMPTIONS

This structural analysis is based on the theoretical capacity of the members and is not a condition assessment of the tower. This analysis is from information supplied, and therefore, its results are based on and are as accurate as that supplied data. GPD has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural analysis.

1. The tower member sizes and shapes are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated in the materials section.
2. The appurtenance configuration is as supplied, determined from available photos, and/or as modeled in the analysis. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements.
3. All mounts, if applicable, are considered adequate to support the loading. No actual analysis of the mount(s) is performed. This analysis is limited to analyzing the tower only.
4. The soil parameters are as per data supplied or as assumed and stated in the calculations.
5. Foundations are properly designed and constructed to resist the original design loads indicated in the documents provided.
6. The tower and structures have been properly maintained in accordance with TIA Standards and/or with manufacturer's specifications.
7. All welds and connections are assumed to develop at least the member capacity unless determined otherwise and explicitly stated in this report.
8. All prior structural modifications, if applicable, are assumed to be as per data supplied/available and to have been properly installed.
9. All existing loading was taken from the provided Site Lease Application, the recent Tower Mapping by GPD (Project #: 2013723.4.01 Rev 1, dated 8/12/2013), and site photos and is assumed to be accurate.
10. Foundation steel was not able to be determined through testing. Therefore it was assumed that the foundation steel in place is equal to or in excess of the soil failure criteria in the foundation analysis.
11. Leg A is assumed to be at 330° based on the tower mapping by GPD (Project #: 2013723.4.01 Rev 1, dated 8/12/2013).

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and GPD Group should be allowed to review any new information to determine its effect on the structural integrity of the tower.

DISCLAIMER OF WARRANTIES

GPD GROUP has performed a site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD GROUP in connection with this Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. All tower components have been assumed to only resist dead loads when no other loads are applied. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

GPD GROUP does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD GROUP provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD GROUP, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

GPD GROUP makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD GROUP will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of GPD GROUP pursuant to this report will be limited to the total fee received for preparation of this report.

APPENDIX A

Tower Analysis Summary Form

Tower Analysis Summary Form

General Info

Site Name	BROOKLYN
Site Number	SNET004
FA Number	10137471
Date of Analysis	8/21/2013
Company Performing Analysis	GPD

The information contained in this summary report is not to be used independently from the PE stamped tower analysis.

Tower Info	Description	Date
Tower Type (G, SST, MP)	G	
Tower Height (top of steel AGL)	79.75'	
Tower Manufacturer	Unknown	
Tower Model	N/A	
Tower Design	N/A	
Foundation Design	N/A	
Geotech Report	GPD Job #: 2012801.84	11/15/2012
Tower Mapping	GPD Project #:2013723.4.01 Rev 1	8/9/2013
Previous Structural Analysis	N/A	
Foundation Mapping	GPD Job #: 2012801.84 Rev 1	8/9/2013

Design Parameters

Design Code Used	TIA/EIA-222-F, ASCE 7-05 2003 IBC & 2005 CTBC
Location of Tower (County, State)	Windham, CT
Basic Wind Speed (mph)	85 (Fastest Mile)
Ice Thickness (in)	0.75
Structure Classification (I, II, III)	
Exposure Category (B, C, D)	
Topographic Category (1 to 5)	

Analysis Results (% Maximum Usage)

Existing/Reserved + Future + Proposed Condition	
Tower (%)	62.4%
Guy Wires (%)	33.4%
Foundation (%)	97.7%
Foundation Adequate?	Yes

Steel Yield Strength (ksi)

Legs	50
Bracing	36
Member Bolts	A325N

Note: Steel grades have been assumed based on previous experience with similar towers.

In order for the analysis results to be valid for the existing, proposed, and reserved loading in Appendix A, the modifications referenced in the design drawings by GPD (Project #: 2013723.4.02, dated 8/21/2013) must be installed.

Existing / Reserved Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Leg/Face
AT&T Mobility	80	82	6	Panel	Powerwave	RA21.7770.00	50/160/265	1	Unknown	12' x 6' Rectangular Moun	12	Unknown	1-5/8"	Face B
AT&T Mobility	80	82	6	RET	Powerwave	8220.1				On the same mount				
AT&T Mobility	80	82	6	Diplexer	Powerwave	LGP 21901				On the same mount				
AT&T Mobility	80	82	6	TMA	Powerwave	LGP 17201				On the same mount				
Unknown	80	90	1	Omni	Unknown	20' Omni				On the same mount	1	Unknown	1/2"	Leg C
Unknown	80	85	1	Dipole	Unknown	10' Dipole				On the same mount	1	Unknown	1/2"	Face A
Unknown	80	85	1	Pipe	Unknown	10' Vacant Pipe				Leg Mounted				

Note: All existing/reserved loading shall remain and be reused.

Proposed Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Leg/Face
AT&T Mobility	80	82	3	Panel	KMW	AM-X-CD-16-65-00T	30/150/270			on the existing mount				
AT&T Mobility	80	82	6	RRU	Ericsson	RBS 6601				on the existing mount				

Note: The proposed loading shall be in addition to the existing/reserved loading at the same elevation.

Future Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Leg/Face

APPENDIX B

tnxTower Output File (Top Section & Tower Loading)

tnxTower	Job	Page
	SNET004 BROOKLYN	1 of 4
GPD 520 South Main Street, Ste 2531 Akron, OH Phone: (330) 572-2100 FAX: (330) 572-2101	Project 2013723.4.02	Date 09:34:21 08/21/13
	Client AT&T Mobility	Designed by bbrookbank

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 79.75 ft above the ground line.
The base of the tower is set at an elevation of 70.00 ft above the ground line.
The face width of the tower is 7.00 ft at the top and 7.00 ft at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Windham County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
LDF7-50A (1-5/8 FOAM)	A	No	Ar (Leg)	79.75 - 70.00	0.0000	0.2	12	3	0.5000	1.9800		0.82
LDF4-50A (1/2 FOAM)	C	Yes	Ar (CfAe)	79.75 - 70.00	0.0000	0	1	1	0.6300	0.6300		0.15
LDF4-50A (1/2 FOAM)	C	No	Ar (Leg)	79.75 - 70.00	0.0000	0	1	1	0.6300	0.6300		0.15

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
12' x 6' Platform Mount	B	From Leg	0.00 0.00	0.0000	80.00	No Ice 1/2" Ice	41.99 53.82	34.16 43.83	1020.74 1554.99
			0.00			1" Ice	65.66	53.50	2089.24
						2" Ice	89.33	72.84	3157.75
						4" Ice	136.66	111.52	5294.76
20' x 2" Omni	A	From Face	0.00 0.00	0.0000	80.00	No Ice 1/2" Ice	4.00 6.03	4.00 6.03	20.00 50.77
			10.00			1" Ice	8.07	8.07	94.12
						2" Ice	12.20	12.20	219.14
						4" Ice	20.59	20.59	626.79
10' Dipole	C	From Face	0.00 0.00	0.0000	80.00	No Ice 1/2" Ice	2.00 3.02	2.00 3.02	20.00 35.50
			5.00			1" Ice	4.07	4.07	57.47

tnxTower	Job: SNET004 BROOKLYN	Page: 2 of 4
GPD 520 South Main Street, Ste 2531 Akron, OH Phone: (330) 572-2100 FAX: (330) 572-2101	Project: 2013723.4.02	Date: 09:34:21 08/21/13
	Client: AT&T Mobility	Designed by: bbrookbank

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
						2" Ice	5.70	5.70	121.40
						4" Ice	8.26	8.26	333.58
Pipe Mount 10'x2.375"	C	From Face	3.00 0.00 5.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.38 3.40 4.45 5.91 8.47	2.38 3.40 4.45 5.91 8.47	41.30 59.15 83.51 152.34 374.76
RA21.7770.00 w/ 6' Mount Pipe	A	From Face	4.11 6.13 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.92 7.46 8.00 9.11 11.44	4.90 5.79 6.55 8.14 11.57	61.90 114.83 174.75 318.84 734.61
RA21.7770.00 w/ 6' Mount Pipe	A	From Face	4.11 -6.13 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.92 7.46 8.00 9.11 11.44	4.90 5.79 6.55 8.14 11.57	61.90 114.83 174.75 318.84 734.61
(2) RA21.7770.00 w/ 6' Mount Pipe	B	From Leg	2.09 6.13 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.92 7.46 8.00 9.11 11.44	4.90 5.79 6.55 8.14 11.57	61.90 114.83 174.75 318.84 734.61
(2) RA21.7770.00 w/ 6' Mount Pipe	B	From Leg	2.09 -6.13 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.92 7.46 8.00 9.11 11.44	4.90 5.79 6.55 8.14 11.57	61.90 114.83 174.75 318.84 734.61
LGP17201 TMA	A	From Face	4.11 6.13 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.95 2.13 2.33 2.75 3.69	0.52 0.64 0.77 1.06 1.73	31.00 41.95 55.17 89.19 193.00
LGP17201 TMA	A	From Face	4.11 -6.13 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.95 2.13 2.33 2.75 3.69	0.52 0.64 0.77 1.06 1.73	31.00 41.95 55.17 89.19 193.00
(2) LGP17201 TMA	B	From Leg	2.09 6.13 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.95 2.13 2.33 2.75 3.69	0.52 0.64 0.77 1.06 1.73	31.00 41.95 55.17 89.19 193.00
(2) LGP17201 TMA	B	From Leg	2.09 -6.13 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.95 2.13 2.33 2.75 3.69	0.52 0.64 0.77 1.06 1.73	31.00 41.95 55.17 89.19 193.00
LGP21901	A	From Face	4.11 6.13 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.18 0.25 0.32 0.49 0.94	5.50 7.92 11.41 22.43 66.02
LGP21901	A	From Face	4.11 -6.13 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.18 0.25 0.32 0.49 0.94	5.50 7.92 11.41 22.43 66.02

tnxTower	Job: SNET004 BROOKLYN	Page: 3 of 4
GPD 520 South Main Street, Ste 2531 Akron, OH Phone: (330) 572-2100 FAX: (330) 572-2101	Project: 2013723.4.02	Date: 09:34:21 08/21/13
	Client: AT&T Mobility	Designed by: bbrookbank

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft²	C_AA_A Side ft²	Weight lb
(2) LGP21901	B	From Leg	2.09 6.13 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.18 0.25 0.32 0.49 0.94	5.50 7.92 11.41 22.43 66.02
(2) LGP21901	B	From Leg	2.09 -6.13 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.18 0.25 0.32 0.49 0.94	5.50 7.92 11.41 22.43 66.02
8220.10 RET	A	From Face	4.11 6.13 0.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.40 0.49 0.59 0.82 1.37	0.20 0.27 0.36 0.55 1.04	2.20 5.14 9.29 22.00 70.58
8220.10 RET	A	From Face	4.11 -6.13 0.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.40 0.49 0.59 0.82 1.37	0.20 0.27 0.36 0.55 1.04	2.20 5.14 9.29 22.00 70.58
(2) 8220.10 RET	B	From Leg	2.09 6.13 0.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.40 0.49 0.59 0.82 1.37	0.20 0.27 0.36 0.55 1.04	2.20 5.14 9.29 22.00 70.58
(2) 8220.10 RET	B	From Leg	2.09 -6.13 0.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.40 0.49 0.59 0.82 1.37	0.20 0.27 0.36 0.55 1.04	2.20 5.14 9.29 22.00 70.58
AM-X-CD-16-65-00T-RET w/ 6' Mount Pipe	B	From Face	3.28 -3.06 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.26 8.81 9.36 10.50 12.88	6.37 7.18 8.00 9.70 13.33	83.24 148.46 222.18 393.50 871.17
AM-X-CD-16-65-00T-RET w/ 6' Mount Pipe	B	From Leg	2.09 0.00 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.26 8.81 9.36 10.50 12.88	6.37 7.18 8.00 9.70 13.33	83.24 148.46 222.18 393.50 871.17
AM-X-CD-16-65-00T-RET w/ 6' Mount Pipe	C	From Face	3.28 3.06 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.26 8.81 9.36 10.50 12.88	6.37 7.18 8.00 9.70 13.33	83.24 148.46 222.18 393.50 871.17
(2) RBS 6601	C	From Face	3.28 -3.06 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.55 0.70 0.86 1.19 1.97	0.40 0.52 0.64 0.91 1.55	22.00 34.88 50.27 89.38 206.33
(2) RBS 6601	B	From Leg	2.09 0.00 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.55 0.70 0.86 1.19 1.97	0.40 0.52 0.64 0.91 1.55	22.00 34.88 50.27 89.38 206.33
(2) RBS 6601	C	From Face	3.28 3.06	0.0000	80.00	No Ice 1/2" Ice	0.55 0.70	0.40 0.52	22.00 34.88

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			2.00			1" Ice	0.86	0.64	50.27
						2" Ice	1.19	0.91	89.38
						4" Ice	1.97	1.55	206.33
Pipe Mount 4'x2.875"	B	From Face	3.28	0.0000	80.00	No Ice	0.97	0.97	24.10
			-3.06			1/2" Ice	1.22	1.22	32.73
			0.00			1" Ice	1.48	1.48	44.25
						2" Ice	2.02	2.02	76.56
						4" Ice	3.38	3.38	182.57
Pipe Mount 4'x2.875"	C	From Face	3.28	0.0000	80.00	No Ice	0.97	0.97	24.10
			3.06			1/2" Ice	1.22	1.22	32.73
			0.00			1" Ice	1.48	1.48	44.25
						2" Ice	2.02	2.02	76.56
						4" Ice	3.38	3.38	182.57

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
80.00	12' x 6' Platform Mount	31	0.014	0.0038	0.0101	Inf

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T1	79.75 - 70	Leg	P4 STD	2	-4859.52	82543.30	5.9	Pass
T1	79.75 - 70	Diagonal	L2x2x3/16	7	-3205.02	5807.43	55.2	Pass
T1	79.75 - 70	Secondary Horizontal	L3 1/2x2x1/4 w/ L2x2x1/8	13	-84.17	25606.80	0.3	Pass
T1	79.75 - 70	Top Girt	L2x2x3/16	6	-491.00	2795.56	17.6	Pass

Summary	ELC:	Existing/Proposed/Future
Leg (T1)	5.9	Pass
Diagonal (T1)	55.2	Pass
Secondary Horizontal (T1)	0.3	Pass
Top Girt (T1)	17.6	Pass
Bolt Checks	29.8	Pass
Rating =	55.2	Pass

APPENDIX C

tnxTower Output File (Tower)

tnxTower	Job	Page
	SNET004 BROOKLYN	1 of 6
GPD 520 South Main Street, Ste 2531 Akron, OH Phone: (330) 572-2100 FAX: (330) 572-2101	Project 2013723.4.02	Date 09:06:10 08/21/13
	Client AT&T Mobility	Designed by bbrookbank

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 79.75 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 3.10 ft at the top and 3.10 ft at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Windham County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
Note: Tower rating is for 0' - 70' only, top section is analyzed separately and is shown here for visual representation only..
Pressures are calculated at each section.
Safety factor used in guy design is 2.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
LDF7-50A (1-5/8 FOAM)	B	Yes	Ar (CfAe)	79.75 - 8.00	0.0000	0	12	12	0.5000	1.9800		0.82
LDF4-50A (1/2 FOAM)	C	No	Ar (Leg)	79.75 - 8.00	0.0000	0.1	1	1	0.6300	0.6300		0.15
LDF4-50A (1/2 FOAM)	A	Yes	Ar (CfAe)	79.75 - 8.00	0.0000	0.4	1	1	0.6300	0.6300		0.15

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
12' x 6' Platform Mount	C	From Face	0.00 0.00 0.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	41.99 53.82 65.66 89.33 136.66	34.16 43.83 53.50 72.84 111.52	1020.74 1554.99 2089.24 3157.75 5294.76
20' x 2" Omni	A	From Leg	0.00 0.00 10.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.00 6.03 8.07 12.20 20.59	4.00 6.03 8.07 12.20 20.59	20.00 50.77 94.12 219.14 626.79
10' Dipole	A	From Leg	0.00	0.0000	80.00	No Ice	2.00	2.00	20.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00				1/2" Ice	3.02	3.02	35.50
			5.00				1" Ice	4.07	4.07	57.47
							2" Ice	5.70	5.70	121.40
							4" Ice	8.26	8.26	333.58
Pipe Mount 10'x2.375"	C	From Face	3.00		0.0000	80.00	No Ice	2.38	2.38	41.30
			0.00				1/2" Ice	3.40	3.40	59.15
			5.00				1" Ice	4.45	4.45	83.51
							2" Ice	5.91	5.91	152.34
							4" Ice	8.47	8.47	374.76
RA21.7770.00 w/ 6' Mount Pipe	A	From Leg	4.11		0.0000	80.00	No Ice	6.92	4.90	61.90
			6.13				1/2" Ice	7.46	5.79	114.83
			2.00				1" Ice	8.00	6.55	174.75
							2" Ice	9.11	8.14	318.84
							4" Ice	11.44	11.57	734.61
RA21.7770.00 w/ 6' Mount Pipe	A	From Leg	4.11		0.0000	80.00	No Ice	6.92	4.90	61.90
			-6.13				1/2" Ice	7.46	5.79	114.83
			2.00				1" Ice	8.00	6.55	174.75
							2" Ice	9.11	8.14	318.84
							4" Ice	11.44	11.57	734.61
(2) RA21.7770.00 w/ 6' Mount Pipe	C	From Face	2.09		0.0000	80.00	No Ice	6.92	4.90	61.90
			6.13				1/2" Ice	7.46	5.79	114.83
			2.00				1" Ice	8.00	6.55	174.75
							2" Ice	9.11	8.14	318.84
							4" Ice	11.44	11.57	734.61
(2) RA21.7770.00 w/ 6' Mount Pipe	C	From Face	2.09		0.0000	80.00	No Ice	6.92	4.90	61.90
			-6.13				1/2" Ice	7.46	5.79	114.83
			2.00				1" Ice	8.00	6.55	174.75
							2" Ice	9.11	8.14	318.84
							4" Ice	11.44	11.57	734.61
LGP17201 TMA	A	From Leg	4.11		0.0000	80.00	No Ice	1.95	0.52	31.00
			6.13				1/2" Ice	2.13	0.64	41.95
			2.00				1" Ice	2.33	0.77	55.17
							2" Ice	2.75	1.06	89.19
							4" Ice	3.69	1.73	193.00
LGP17201 TMA	A	From Leg	4.11		0.0000	80.00	No Ice	1.95	0.52	31.00
			-6.13				1/2" Ice	2.13	0.64	41.95
			2.00				1" Ice	2.33	0.77	55.17
							2" Ice	2.75	1.06	89.19
							4" Ice	3.69	1.73	193.00
(2) LGP17201 TMA	C	From Face	2.09		0.0000	80.00	No Ice	1.95	0.52	31.00
			6.13				1/2" Ice	2.13	0.64	41.95
			2.00				1" Ice	2.33	0.77	55.17
							2" Ice	2.75	1.06	89.19
							4" Ice	3.69	1.73	193.00
(2) LGP17201 TMA	C	From Face	2.09		0.0000	80.00	No Ice	1.95	0.52	31.00
			-6.13				1/2" Ice	2.13	0.64	41.95
			2.00				1" Ice	2.33	0.77	55.17
							2" Ice	2.75	1.06	89.19
							4" Ice	3.69	1.73	193.00
LGP21901	A	From Leg	4.11		0.0000	80.00	No Ice	0.00	0.18	5.50
			6.13				1/2" Ice	0.00	0.25	7.92
			2.00				1" Ice	0.00	0.32	11.41
							2" Ice	0.00	0.49	22.43
							4" Ice	0.00	0.94	66.02
LGP21901	A	From Leg	4.11		0.0000	80.00	No Ice	0.00	0.18	5.50
			-6.13				1/2" Ice	0.00	0.25	7.92
			2.00				1" Ice	0.00	0.32	11.41

tnxTower	Job: SNET004 BROOKLYN	Page: 3 of 6
GPD 520 South Main Street, Ste 2531 Akron, OH Phone: (330) 572-2100 FAX: (330) 572-2101	Project: 2013723.4.02	Date: 09:06:10 08/21/13
	Client: AT&T Mobility	Designed by: bbrookbank

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
						2" Ice	0.00	0.49	22.43
						4" Ice	0.00	0.94	66.02
(2) LGP21901	C	From Face	2.09 6.13 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.18 0.25 0.32 0.49 0.94	5.50 7.92 11.41 22.43 66.02
(2) LGP21901	C	From Face	2.09 -6.13 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.18 0.25 0.32 0.49 0.94	5.50 7.92 11.41 22.43 66.02
8220.10 RET	A	From Leg	4.11 6.13 0.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.40 0.49 0.59 0.82 1.37	0.20 0.27 0.36 0.55 1.04	2.20 5.14 9.29 22.00 70.58
8220.10 RET	A	From Leg	4.11 -6.13 0.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.40 0.49 0.59 0.82 1.37	0.20 0.27 0.36 0.55 1.04	2.20 5.14 9.29 22.00 70.58
(2) 8220.10 RET	C	From Face	2.09 6.13 0.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.40 0.49 0.59 0.82 1.37	0.20 0.27 0.36 0.55 1.04	2.20 5.14 9.29 22.00 70.58
(2) 8220.10 RET	C	From Face	2.09 -6.13 0.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.40 0.49 0.59 0.82 1.37	0.20 0.27 0.36 0.55 1.04	2.20 5.14 9.29 22.00 70.58
AM-X-CD-16-65-00T-RET w/ 6' Mount Pipe	B	From Face	3.28 -3.06 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.26 8.81 9.36 10.50 12.88	6.37 7.18 8.00 9.70 13.33	83.24 148.46 222.18 393.50 871.17
AM-X-CD-16-65-00T-RET w/ 6' Mount Pipe	B	From Leg	2.09 0.00 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.26 8.81 9.36 10.50 12.88	6.37 7.18 8.00 9.70 13.33	83.24 148.46 222.18 393.50 871.17
AM-X-CD-16-65-00T-RET w/ 6' Mount Pipe	C	From Face	3.28 3.06 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.26 8.81 9.36 10.50 12.88	6.37 7.18 8.00 9.70 13.33	83.24 148.46 222.18 393.50 871.17
(2) RBS 6601	B	From Leg	3.28 -3.06 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.55 0.70 0.86 1.19 1.97	0.40 0.52 0.64 0.91 1.55	22.00 34.88 50.27 89.38 206.33
(2) RBS 6601	C	From Face	2.09 0.00 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.55 0.70 0.86 1.19 1.97	0.40 0.52 0.64 0.91 1.55	22.00 34.88 50.27 89.38 206.33

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(2) RBS 6601	C	From Leg	3.28 3.06 2.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.55 0.70 0.86 1.19 1.97	0.40 0.52 0.64 0.91 1.55	22.00 34.88 50.27 89.38 206.33
Pipe Mount 4'x2.875"	B	From Leg	3.28 -3.06 0.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.97 1.22 1.48 2.02 3.38	0.97 1.22 1.48 2.02 3.38	24.10 32.73 44.25 76.56 182.57
Pipe Mount 4'x2.875"	C	From Leg	3.28 3.06 0.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.97 1.22 1.48 2.02 3.38	0.97 1.22 1.48 2.02 3.38	24.10 32.73 44.25 76.56 182.57
Top Section Wind Area	C	None		0.0000	74.88	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	21.63 29.32 37.00 52.38 83.13	21.63 29.32 37.00 52.38 83.13	0.00 0.00 0.00 0.00 0.00

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	79.75	Diagonal	A325N	0.5000	2	184.81	4123.34	0.045 ✔	1	Bolt Shear
		Top Girt	A325N	0.6250	1	90.18	4553.91	0.020 ✔	1	Member Block Shear
T2	70	Leg	A325N	0.6250	12	1971.67	6442.72	0.306 ✔	1	Bolt SS
		Diagonal	A325N	0.5000	1	1565.58	4123.34	0.380 ✔	1.333	Bolt Shear
		Horizontal	A325N	0.5000	1	285.82	1828.13	0.156 ✔	1.333	Member Block Shear
T3	60	Leg	A325N	0.6250	12	1959.43	6442.72	0.304 ✔	1	Bolt SS
		Diagonal	A325N	0.5000	1	848.65	4123.34	0.206 ✔	1.333	Bolt Shear
		Horizontal	A325N	0.5000	1	335.26	1828.13	0.183 ✔	1.333	Member Block Shear
T4	50	Leg	A325N	0.6250	12	2609.94	6442.72	0.405 ✔	1	Bolt SS
		Diagonal	A325N	0.5000	1	1374.89	4123.34	0.333 ✔	1.333	Bolt Shear
		Horizontal	A325N	0.5000	1	271.23	1828.13	0.148 ✔	1	Member Block Shear
		Top Guy Pull-Off@43.333 3	A325X	0.6250	1	3349.85	9203.88	0.364 ✔	1	Bolt Shear
T5	40	Leg	A325N	0.6250	12	2571.37	6442.72	0.399 ✔	1	Bolt SS
		Diagonal	A325N	0.5000	1	972.95	4123.34	0.236 ✔	1.333	Bolt Shear
		Horizontal	A325N	0.5000	1	331.73	1828.13	0.181 ✔	1	Member Block Shear
T6	30	Leg	A325N	0.6250	12	2603.70	6442.72	0.404 ✔	1	Bolt SS

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
		Diagonal	A325N	0.5000	1	1222.48	4123.34	0.296 ✔	1.333	Bolt Shear
		Horizontal	A325N	0.5000	1	336.58	1828.13	0.184 ✔	1	Member Block Shear
T7	26.6667	Diagonal	A325N	0.5000	1	1928.02	4123.34	0.468 ✔	1.333	Bolt Shear
		Horizontal	A325N	0.5000	1	349.83	1828.13	0.191 ✔	1	Member Block Shear
T8	20	Leg	A325N	0.6250	12	2773.59	6442.72	0.431 ✔	1	Bolt SS
		Diagonal	A325N	0.5000	1	3070.60	4123.34	0.745 ✔	1.333	Bolt Shear
		Horizontal	A325N	0.5000	1	361.30	1828.13	0.198 ✔	1	Member Block Shear
T9	10	Leg	A325N	0.7500	12	4808.04	9277.52	0.518 ✔	1.333	Bolt SS
		Diagonal	A325N	0.5000	1	3431.38	4123.34	0.832 ✔	1.333	Bolt Shear
		Horizontal	A325N	0.5000	1	499.67	2132.81	0.234 ✔	1.333	Member Block Shear

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T1	79.75 - 70	Leg	P4 STD	2	-1948.10	82543.30	2.4	Pass
T2	70 - 60	Leg	V3x3x1/4	17	-11841.10	33239.50	35.6	Pass
T3	60 - 50	Leg	V3x3x1/4	38	-11811.80	33239.50	35.5	Pass
T4	50 - 40	Leg	V3x3x1/4	59	-15659.70	33239.50	47.1	Pass
T5	40 - 30	Leg	V3x3x1/4	80	-15570.60	33239.50	46.8	Pass
T6	30 - 26.6667	Leg	V3x3x1/4	102	-15622.20	33239.50	47.0	Pass
T7	26.6667 - 20	Leg	V3x3x1/4	111	-16041.20	33239.50	48.3	Pass
T8	20 - 10	Leg	V3x3x1/4 w/3 1/4 x 1/4 Plate	126	-16641.60	73540.70	22.6	Pass
T9	10 - 0	Leg	V3x3x1/4 w/3 1/4 x 1/4 Plate	147	-28848.20	98029.75	29.4	Pass
T1	79.75 - 70	Diagonal	L2x2x3/16	8	-369.63	5187.46	7.1	Pass
T2	70 - 60	Diagonal	L2x2x3/16	29	-1565.58	8121.77	19.3	Pass
T3	60 - 50	Diagonal	L1 1/2x1 1/2x3/16	56	-848.65	3320.64	25.6	Pass
T4	50 - 40	Diagonal	L1 1/2x1 1/2x3/16	72	-1374.89	3320.64	41.4	Pass
T5	40 - 30	Diagonal	L1 1/2x1 1/2x3/16	86	-972.95	3320.64	29.3	Pass
T6	30 - 26.6667	Diagonal	L1 1/2x1 1/2x3/16	107	-1222.48	3320.64	36.8	Pass
T7	26.6667 - 20	Diagonal	L2x2x3/16	116	-1928.02	8121.77	23.7	Pass
T8	20 - 10	Diagonal	L2x2x3/16	131	-3070.60	7395.79	41.5	Pass
T9	10 - 0	Diagonal	L2x2x3/16	158	-3431.38	7395.79	46.4	Pass
T2	70 - 60	Horizontal	L1 1/4x1 1/4x1/8	25	-205.09	2217.06	9.3	Pass
T3	60 - 50	Horizontal	L1 1/4x1 1/4x1/8	40	-205.09	2217.06	9.3	Pass
T4	50 - 40	Horizontal	L1 1/4x1 1/4x1/8	61	-271.23	2217.06	12.2	Pass
T5	40 - 30	Horizontal	L1 1/4x1 1/4x1/8	82	-271.23	2217.06	12.2	Pass
T6	30 - 26.6667	Horizontal	L1 1/4x1 1/4x1/8	104	-270.58	2217.06	12.2	Pass
T7	26.6667 - 20	Horizontal	L1 1/4x1 1/4x1/8	114	-277.84	2217.06	12.5	Pass
T8	20 - 10	Horizontal	L1 1/4x1 1/4x1/8	129	-288.24	1929.44	14.9	Pass
T9	10 - 0	Horizontal	L1 1/4x1 1/4x1/8	149	-499.67	2571.94	19.4	Pass
T1	79.75 - 70	Secondary Horizontal	L3 1/2x2x1/4 w/ L2x2x1/8	13	-33.74	34398.20	0.1	Pass
T1	79.75 - 70	Top Girt	L2x2x3/16	4	90.18	12492.70	0.7	Pass
T2	70 - 60	Guy A@70	5/8	178	6264.78	21200.00	29.6	Pass
T4	50 - 40	Guy A@43.3333	5/8	186	6739.11	21200.00	31.8	Pass
T2	70 - 60	Guy B@70	5/8	173	6574.27	21200.00	31.0	Pass
T4	50 - 40	Guy B@43.3333	5/8	185	7089.49	21200.00	33.4	Pass
T2	70 - 60	Guy C@70	5/8	166	6321.53	21200.00	29.8	Pass
T4	50 - 40	Guy C@43.3333	5/8	184	6824.59	21200.00	32.2	Pass
T2	70 - 60	Top Guy	L3x2x1/4 LLH	21	682.98	38584.08	1.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T4	50 - 40	Pull-Off@70 Top Guy Pull-Off@43.3333	L2x2x3/8	67	3349.85	26294.50	12.7	Pass
T2	70 - 60	Bottom Guy Pull-Off@70	L2x2x3/16	31	540.89	23231.66	2.3	Pass
T2	70 - 60	Torque Arm Top@70	L2 1/2x2 1/2x1/2	175	*	*	*	Pass
T2	70 - 60	Torque Arm Bottom@70	L2 1/2x2 1/2x1/2	177	*	*	*	Pass

Summary	ELC:	Existing/Proposed/Future
Leg (T7)	48.3	Pass
Diagonal (T9)	46.4	Pass
Horizontal (T9)	19.4	Pass
Secondary Horizontal (T1)	0.1	Pass
Top Girt (T1)	0.7	Pass
Guy A (T4)	31.8	Pass
Guy B (T4)	33.4	Pass
Guy C (T4)	32.2	Pass
Top Guy Pull-Off (T4)	12.7	Pass
Bottom Guy Pull-Off (T2)	2.3	Pass
Torque Arm Top (T2)	13.6	Pass
Torque Arm Bottom (T2)	24.9	Pass
Bolt Checks	62.4	Pass
Rating =	62.4	Pass

*See Appendix D for torque arm calculations.

APPENDIX D

RISA-3D Output File

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A572-50	29000	11200	.295	.65	.49	50	1.1	58	1.2
2	A36	29000	11200	.295	.65	.49	36	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	TWR_LEG_T1	P4 STD	Column	Pipe	A572-50	Typical	3.174	7.233	7.233	14.465
2	TWR_TOP_GIRT_T1	L2x2x3/16	Beam	Single An...	A36	Typical	.715	.272	.272	.009
3	TWR_DIAG_T1	L2x2x3/16	Column	Single An...	A36	Typical	.715	.272	.272	.009
4	TWR_PULLOFFTOP_T2	L3x2x1/4 LLH	Beam	Single An...	A572-50	Typical	1.188	1.087	.392	.025
5	TWR_DIAG_T2	L2x2x3/16	Column	Single An...	A36	Typical	.715	.272	.272	.009
6	TWR_HORZ_T2	L1 1/4x1 1/4x1/8	Beam	Single An...	A572-50	Typical	.297	.044	.044	.002
7	TWR_PULLOFFBOT_T2	L2x2x3/16	Beam	Single An...	A572-50	Typical	.715	.272	.272	.009
8	TWR_HORZ_T3	L1 1/4x1 1/4x1/8	Beam	Single An...	A572-50	Typical	.297	.044	.044	.002
9	TWR_DIAG_T3	L1 1/2x1 1/2x3/16	Column	Single An...	A36	Typical	.527	.11	.11	.006
10	TWR_HORZ_T4	L1 1/4x1 1/4x1/8	Beam	Single An...	A572-50	Typical	.297	.044	.044	.002
11	TWR_DIAG_T4	L1 1/2x1 1/2x3/16	Column	Single An...	A36	Typical	.527	.11	.11	.006
12	TWR_PULLOFFTOP_T4	L2x2x3/8	Beam	Single An...	A572-50	Typical	1.36	.479	.479	.064
13	TWR_HORZ_T5	L1 1/4x1 1/4x1/8	Beam	Single An...	A572-50	Typical	.297	.044	.044	.002
14	TWR_DIAG_T5	L1 1/2x1 1/2x3/16	Column	Single An...	A36	Typical	.527	.11	.11	.006
15	TWR_HORZ_T6	L1 1/4x1 1/4x1/8	Beam	Single An...	A572-50	Typical	.297	.044	.044	.002
16	TWR_DIAG_T6	L1 1/2x1 1/2x3/16	Column	Single An...	A36	Typical	.527	.11	.11	.006
17	TWR_HORZ_T7	L1 1/4x1 1/4x1/8	Beam	Single An...	A572-50	Typical	.297	.044	.044	.002
18	TWR_DIAG_T7	L2x2x3/16	Column	Single An...	A36	Typical	.715	.272	.272	.009
19	TWR_HORZ_T8	L1 1/4x1 1/4x1/8	Beam	Single An...	A572-50	Typical	.297	.044	.044	.002
20	TWR_DIAG_T8	L2x2x3/16	Column	Single An...	A36	Typical	.715	.272	.272	.009
21	TWR_HORZ_T9	L1 1/4x1 1/4x1/8	Beam	Single An...	A572-50	Typical	.297	.044	.044	.002
22	TWR_DIAG_T9	L2x2x3/16	Column	Single An...	A36	Typical	.715	.272	.272	.009
23	TWR_TORQARMTOP_T2	L2 1/2x2 1/2x1/2	Beam	Single An...	A36	Typical	2.25	1.23	1.23	.185
24	TWR_TORQARMBOT_T2	L2 1/2x2 1/2x1/2	Beam	Single An...	A36	Typical	2.25	1.23	1.23	.185

General Section Sets

	Label	Shape	Type	Material	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	TWR_STEP_T1	L3 1/2x2x1/4 w/...	Beam	A36_Gen	1.811	1.561	1.397	.033
2	TWR_LEG_T2	V3x3x1/4	Column	A572-50_Gen	1.438	.693	1.367	.03
3	TWR_LEG_T3	V3x3x1/4	Column	A572-50_Gen	1.438	.693	1.367	.03
4	TWR_LEG_T4	V3x3x1/4	Column	A572-50_Gen	1.438	.693	1.367	.03
5	TWR_LEG_T5	V3x3x1/4	Column	A572-50_Gen	1.438	.693	1.367	.03
6	TWR_LEG_T6	V3x3x1/4	Column	A572-50_Gen	1.438	.693	1.367	.03
7	TWR_LEG_T7	V3x3x1/4	Column	A572-50_Gen	1.438	.693	1.367	.03
8	TWR_LEG_T8	V3x3x1/4 w/3 1...	Column	A572-50_Gen	3.063	4.031	1.817	10
9	TWR_LEG_T9	V3x3x1/4 w/3 1...	Column	A572-50_Gen	3.063	4.031	1.817	10
10	TWR_GUYC_T2	Guy 5/8	Beam	EHS Cable_Gen	.236	.014	.014	.0001
11	TWR_GUYB_T2	Guy 5/8	Beam	EHS Cable_Gen	.236	.014	.014	.0001
12	TWR_GUYA_T2	Guy 5/8	Beam	EHS Cable_Gen	.236	.014	.014	.0001
13	TWR_GUYC_T4	Guy 5/8	Beam	EHS Cable_Gen	.236	.014	.014	.0001
14	TWR_GUYB_T4	Guy 5/8	Beam	EHS Cable_Gen	.236	.014	.014	.0001
15	TWR_GUYA_T4	Guy 5/8	Beam	EHS Cable_Gen	.236	.014	.014	.0001

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Dead	None		-1		24				
4	No Ice Wind 30 deg	None				12				

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
5	No Ice Wind 60 deg	None				12				
6	No Ice Wind 90 deg	None				6				
7	No Ice Wind 120 deg	None				12				
8	No Ice Wind 150 deg	None				12				
9	No Ice Wind 180 deg	None				6				
10	No Ice Wind 210 deg	None				12				
11	No Ice Wind 240 deg	None				12				
12	No Ice Wind 270 deg	None				6				
13	No Ice Wind 300 deg	None				12				
14	No Ice Wind 330 deg	None				12				
15	Ice	None				9		12		
16	Temperature Drop	None						12		
17	Ice Wind 0 deg	None				6				
18	Ice Wind 30 deg	None				12				
19	Ice Wind 60 deg	None				12				
20	Ice Wind 90 deg	None				6				
21	Ice Wind 120 deg	None				12				
22	Ice Wind 150 deg	None				12				
23	Ice Wind 180 deg	None				6				
24	Ice Wind 210 deg	None				12				
25	Ice Wind 240 deg	None				12				
26	Ice Wind 270 deg	None				6				
27	Ice Wind 300 deg	None				12				
28	Ice Wind 330 deg	None				12				
29	Service Wind 0 deg	None				6				
30	Service Wind 30 deg	None				12				
31	Service Wind 60 deg	None				12				
32	Service Wind 90 deg	None				6				
33	Service Wind 120 deg	None				12				
34	Service Wind 150 deg	None				12				
35	Service Wind 180 deg	None				6				
36	Service Wind 210 deg	None				12				
37	Service Wind 240 deg	None				12				
38	Service Wind 270 deg	None				6				
39	Service Wind 300 deg	None				12				
40	Service Wind 330 deg	None				12				
41	Superimposed Self W...	None						12		

Load Combinations

	Description	Solve	PD...	SR...	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	Dead Only	Yes	Y		1	1	2	1	41	1	42	1	0		0		0		0	
2	Dead+Wind 0 deg - No Ice+...		Y		1	1	3	1	2	1	41	1	42	1	0		0		0	
3	Dead+Wind 30 deg - No Ice...		Y		1	1	4	1	2	1	41	1	42	1	0		0		0	
4	Dead+Wind 60 deg - No Ice...		Y		1	1	5	1	2	1	41	1	42	1	0		0		0	
5	Dead+Wind 90 deg - No Ice...		Y		1	1	6	1	2	1	41	1	42	1	0		0		0	
6	Dead+Wind 120 deg - No Ic...		Y		1	1	7	1	2	1	41	1	42	1	0		0		0	
7	Dead+Wind 150 deg - No Ic...		Y		1	1	8	1	2	1	41	1	42	1	0		0		0	
8	Dead+Wind 180 deg - No Ic...		Y		1	1	9	1	2	1	41	1	42	1	0		0		0	
9	Dead+Wind 210 deg - No Ic...		Y		1	1	10	1	2	1	41	1	42	1	0		0		0	
10	Dead+Wind 240 deg - No Ic...		Y		1	1	11	1	2	1	41	1	42	1	0		0		0	
11	Dead+Wind 270 deg - No Ic...		Y		1	1	12	1	2	1	41	1	42	1	0		0		0	
12	Dead+Wind 300 deg - No Ic...		Y		1	1	13	1	2	1	41	1	42	1	0		0		0	
13	Dead+Wind 330 deg - No Ic...		Y		1	1	14	1	2	1	41	1	42	1	0		0		0	
14	Dead+Ice+Temp+Guy		Y		1	1	15	1	16	1	2	1	41	1	42	1	0		0	
15	Dead+Wind 0 deg+Ice+Tem...		Y		1	1	17	1	15	1	16	1	2	1	41	1	42	1	0	
16	Dead+Wind 30 deg+Ice+Te...		Y		1	1	18	1	15	1	16	1	2	1	41	1	42	1	0	

Load Combinations (Continued)

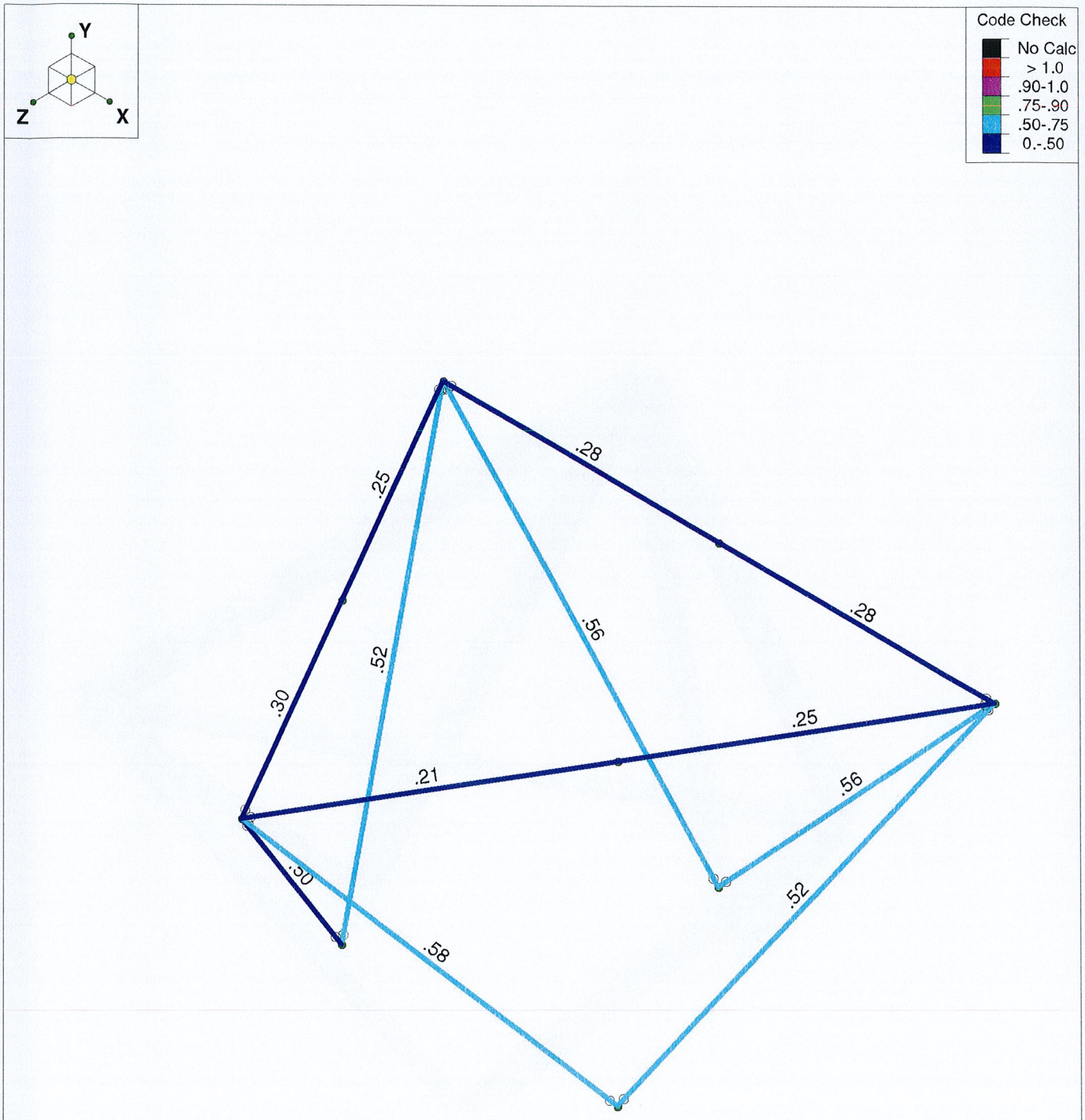
	Description	Solve	PD...	SR...	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
17	Dead+Wind 60 deg+Ice+Te...		Y		1	1	19	1	15	1	16	1	2	1	41	1	42	1	0	
18	Dead+Wind 90 deg+Ice+Te...		Y		1	1	20	1	15	1	16	1	2	1	41	1	42	1	0	
19	Dead+Wind 120 deg+Ice+T...		Y		1	1	21	1	15	1	16	1	2	1	41	1	42	1	0	
20	Dead+Wind 150 deg+Ice+T...		Y		1	1	22	1	15	1	16	1	2	1	41	1	42	1	0	
21	Dead+Wind 180 deg+Ice+T...		Y		1	1	23	1	15	1	16	1	2	1	41	1	42	1	0	
22	Dead+Wind 210 deg+Ice+T...		Y		1	1	24	1	15	1	16	1	2	1	41	1	42	1	0	
23	Dead+Wind 240 deg+Ice+T...		Y		1	1	25	1	15	1	16	1	2	1	41	1	42	1	0	
24	Dead+Wind 270 deg+Ice+T...		Y		1	1	26	1	15	1	16	1	2	1	41	1	42	1	0	
25	Dead+Wind 300 deg+Ice+T...		Y		1	1	27	1	15	1	16	1	2	1	41	1	42	1	0	
26	Dead+Wind 330 deg+Ice+T...		Y		1	1	28	1	15	1	16	1	2	1	41	1	42	1	0	
27	Dead+Wind 0 deg - Service...		Y		1	1	29	1	2	1	41	1	42	1	0		0		0	
28	Dead+Wind 30 deg - Servic...		Y		1	1	30	1	2	1	41	1	42	1	0		0		0	
29	Dead+Wind 60 deg - Servic...		Y		1	1	31	1	2	1	41	1	42	1	0		0		0	
30	Dead+Wind 90 deg - Servic...		Y		1	1	32	1	2	1	41	1	42	1	0		0		0	
31	Dead+Wind 120 deg - Servi...		Y		1	1	33	1	2	1	41	1	42	1	0		0		0	
32	Dead+Wind 150 deg - Servi...		Y		1	1	34	1	2	1	41	1	42	1	0		0		0	
33	Dead+Wind 180 deg - Servi...		Y		1	1	35	1	2	1	41	1	42	1	0		0		0	
34	Dead+Wind 210 deg - Servi...		Y		1	1	36	1	2	1	41	1	42	1	0		0		0	
35	Dead+Wind 240 deg - Servi...		Y		1	1	37	1	2	1	41	1	42	1	0		0		0	
36	Dead+Wind 270 deg - Servi...		Y		1	1	38	1	2	1	41	1	42	1	0		0		0	
37	Dead+Wind 300 deg - Servi...		Y		1	1	39	1	2	1	41	1	42	1	0		0		0	
38	Dead+Wind 330 deg - Servi...		Y		1	1	40	1	2	1	41	1	42	1	0		0		0	

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	1	N19	-.161	18.022	-.276	0	0	0
2	1	N20	-.493	19.428	.861	0	0	0
3	1	N21	0	19.769	-.003	0	0	0
4	1	N2	-1.195	.047	-2.094	0	0	0
5	1	N4	-.886	.043	1.487	0	0	0
6	1	N6	.004	.084	.024	0	0	0
7	1	Totals:	-2.73	57.393	0			
8	1	COG (ft):	X: 0	Y: 69.994	Z: 0			

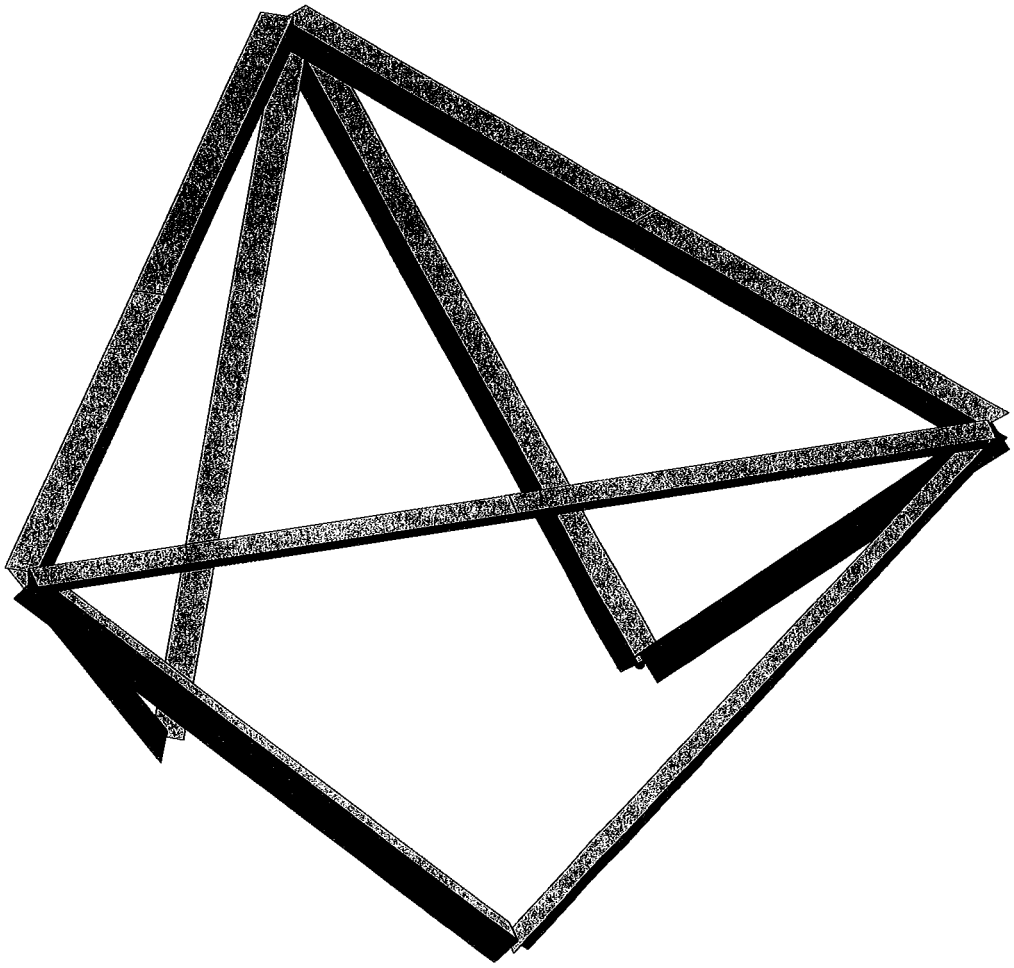
Member AISC 13th(360-05): ASD Steel Code Checks

	LC	Member	Shape	UC Max	Loc[ft]	Shear UC	Loc[ft]	Dir	Pnc/om [k]	Pnt/om [k]	Mnyy/om...	Mnzz/om...	Cb	Eqn
1	1	M168	L2 1/2x2 1/2...	.245	1.39	.001	3.104	z	35.647	48.503	.846	3.055	1	H2-1
2	1	M169	L2 1/2x2 1/2...	.277	0	.002	0	z	35.647	48.503	.846	3.055	1	H2-1
3	1	M170	L2 1/2x2 1/2...	.518	2.23	.001	4.554	z	24.991	48.503	.846	3.055	1	H2-1
4	1	M171	L2 1/2x2 1/2...	.557	2.23	.001	4.555	z	24.991	48.503	.846	3.055	1	H2-1
5	1	M174	L2 1/2x2 1/2...	.295	1.39	.001	3.104	z	35.647	48.503	.846	3.055	1	H2-1
6	1	M175	L2 1/2x2 1/2...	.213	1.229	.001	3.104	z	35.647	48.503	.846	3.055	1	H2-1
7	1	M176	L2 1/2x2 1/2...	.499	2.23	.001	4.555	z	24.991	48.503	.846	3.055	1	H2-1
8	1	M177	L2 1/2x2 1/2...	.576	2.23	.001	4.555	z	24.991	48.503	.846	3.055	1	H2-1
9	1	M180	L2 1/2x2 1/2...	.248	1.229	.001	3.104	z	35.647	48.503	.846	3.055	1	H2-1
10	1	M181	L2 1/2x2 1/2...	.277	0	.002	0	z	35.647	48.503	.846	3.055	1	H2-1
11	1	M182	L2 1/2x2 1/2...	.518	2.23	.001	4.554	z	24.991	48.503	.846	3.055	1	H2-1
12	1	M183	L2 1/2x2 1/2...	.557	2.23	.001	4.555	z	24.991	48.503	.846	3.055	1	H2-1



Member Code Checks Displayed
Results for LC 1, Dead Only

GPD	SNET004 BROOKLYN	SK - 3
bbrookbank		Aug 21, 2013 at 10:05 AM
2013723.SNET004.02		SNET004 BROOKLYN.rt3



GPD	SNET004 BROOKLYN	SK - 1
bbrookbank		Aug 21, 2013 at 9:59 AM
2013723.SNET004.02		SNET004 BROOKLYN.rt3

APPENDIX E

Tower Elevation Drawings

DESIGNED APPURTENANCE LOADING

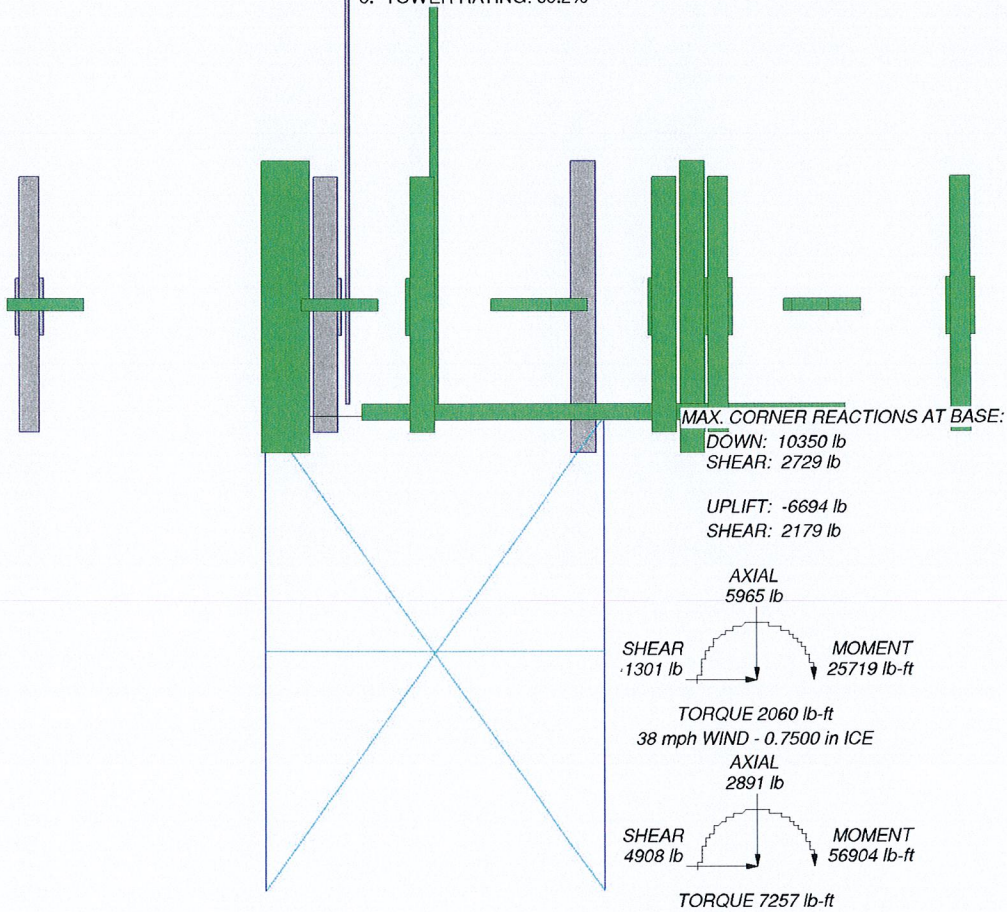
TYPE	ELEVATION	TYPE	ELEVATION
12' x 6' Platform Mount	80	8220.10 RET	80
20' x 2" Omni	80	8220.10 RET	80
10' Dipole	80	(2) 8220.10 RET	80
Pipe Mount 10'x2.375"	80	(2) 8220.10 RET	80
RA21.7770.00 w/ 6' Mount Pipe	80	AM-X-CD-16-65-00T-RET w/ 6' Mount Pipe	80
RA21.7770.00 w/ 6' Mount Pipe	80		
(2) RA21.7770.00 w/ 6' Mount Pipe	80	AM-X-CD-16-65-00T-RET w/ 6' Mount Pipe	80
(2) RA21.7770.00 w/ 6' Mount Pipe	80		
LGP17201 TMA	80	AM-X-CD-16-65-00T-RET w/ 6' Mount Pipe	80
LGP17201 TMA	80		
(2) LGP17201 TMA	80	(2) RBS 6601	80
(2) LGP17201 TMA	80	(2) RBS 6601	80
LGP21901	80	(2) RBS 6601	80
LGP21901	80	Pipe Mount 4'x2.875"	80
(2) LGP21901	80	Pipe Mount 4'x2.875"	80
(2) LGP21901	80		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

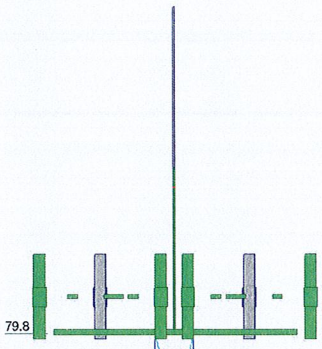
1. Tower is located in Windham County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 55.2%

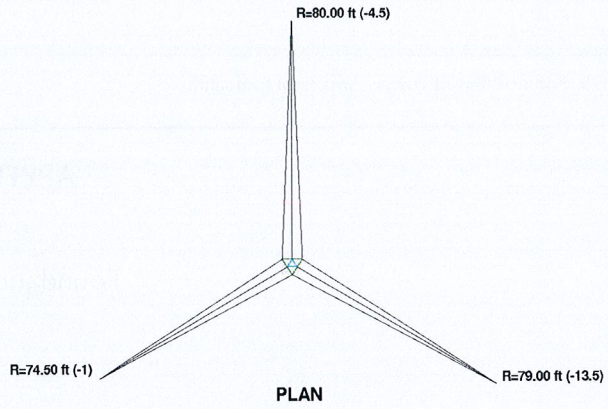


Section	T1
Legs	P4 STD
Leg Grade	A572-50
Diagonals	L2x2x3/16
Diagonal Grade	A36
Top Girts	L2x2x3/16
Sec. Horizontals	L3 1/2x2x1/4 w/ L2x2x1/8
Face Width (ft)	7
# Panels @ (ft)	1 @ 9.75
Weight (lb)	705.2

GPD
520 South Main Street, Ste 2531
Akron, OH
Phone: (330) 572-2100
FAX: (330) 572-2101

Job: SNET004 BROOKLYN			
Project: 2013723.4.01			
Client: AT&T Mobility	Drawn by: bbrookbank	App'd:	
Code: TIA/EIA-222-F	Date: 08/21/13	Scale: NTS	
Path:		Dwg No. E-1	





PLAN

Section	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	V3x3x1/4 w/3 1/4 x 1/4 Plate					V3x3x1/4			P4 STD
Leg Grade						A572-50			
Diagonals		L2x2x3/16				L1 1/2x1 1/2x3/16		L2x2x3/16	
Diagonal Grade						A36			
Top Girts					N.A.				L2x2x3/16
Horizontals					L1 1/4x1 1/4x1/8				N.A.
Sec. Horizontals					N.A.				A
Top Guy Pull-Offs			N.A.			L2x2x3/8	N.A.	L3x2x1/4 LLH	N.A.
Bot Guy Pull-Offs				N.A.				L2x2x3/16	N.A.
Face Width (ft)					3.104				
# Panels @ (ft)					21 @ 3.33333				1 @ 9.75
Weight: (lb)	3429.4	482.7	152.3	67.0	261.0	256.3	251.6	761.4	705.1

MAX. CORNER REACTIONS AT BASE:
DOWN: 30342 lb
SHEAR: 1351 lb

UPLIFT: -6014 lb
SHEAR: 1869 lb

AXIAL
50431 lb

SHEAR 978 lb

MOMENT 18375 lb-ft

TORQUE 212 lb-ft
38 mph WIND - 0.7500 in ICE

AXIAL
37222 lb

SHEAR 2847 lb

MOMENT 49303 lb-ft

TORQUE 1156 lb-ft
REACTIONS - 85 mph WIND

13280 lb
19665 lb
14503 lb
R=79.00 ft

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L3 1/2x2x1/4 w/ L2x2x1/8		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Windham County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. Note: Tower rating is for 0' - 70' only, top section is analyzed separately and is shown here for visual representation only.
6. TOWER RATING: 62.4%

GPD
520 South Main Street, Ste 2531
Akron, OH
Phone: (330) 572-2100
FAX: (330) 572-2101
GPD

Job: SNET004 BROOKLYN		
Project: 2013723.SNET004.01		
Client: AT&T Mobility	Drawn by: bbrookbank	App'd:
Code: TIA/EIA-222-F	Date: 08/21/13	Scale: NTS
Path: N:\2011\ATandT\SNET004 and 713111-08 2013723.01 SNET004 08 AT&T Models\mx\SNET004 BROOKLYN.eri		Dwg No. E-1

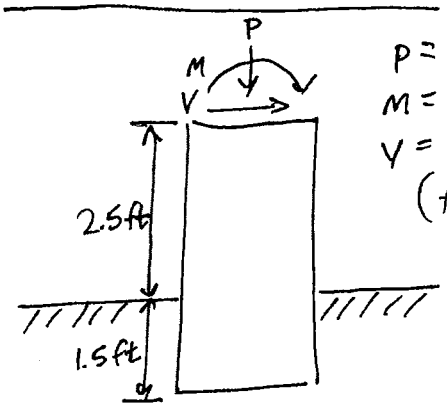
APPENDIX F

Foundation Analysis

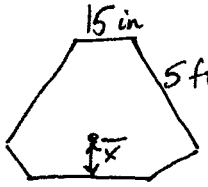
GPD GROUP
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.

Job 2013723.4.02 SNET004 Brooklyn
Sheet No. 1 of 1
Calculated by BB Date 8/21/2013
Checked by _____ Date _____

Foundation Calcs



P = 37.222 k
M = 49.303 k·ft
V = 2.847 k
(from tnx)



$\bar{x}$ = 2.165'
(from CAD)

$M_{resist} = P(2.165\,ft) + W_c(2.165\,ft)$

$W_c = V_c \times 150\,pcf = (22.33\,ft^2)(4\,ft)(150\,pcf)$

$= 13.398\,k$

$M_{resist} = 37.222\,k(2.165\,ft) + 13.398\,k(2.165\,ft)$

$= 109.59\,k\cdot ft$

$M_{overturn} = M + V(4\,ft) = 49.303\,k\cdot ft + 2.847\,k(4\,ft)$

$= 60.691\,k\cdot ft$

$F.S. = \frac{109.59\,k\cdot ft}{60.691\,k\cdot ft} = 1.81$

F.S. req'd = 1.5

$\frac{1.5}{1.81} = \underline{82.9\%}$ ∴ O.K.

Guyed Tower Anchor Foundation TIA/EIA-222-F
SNET004 BROOKLYN
2013723.4.02

Guy Anchor Location	
Azimuth/Leg	*30*
Radius	*80'*

Tower Reactions		
Vertical	13.28	k
Horizontal	14.503	k

Anchor Block Geometry		
Width	4	ft
Height	5	ft
Length	5	ft
Depth	6.5	ft

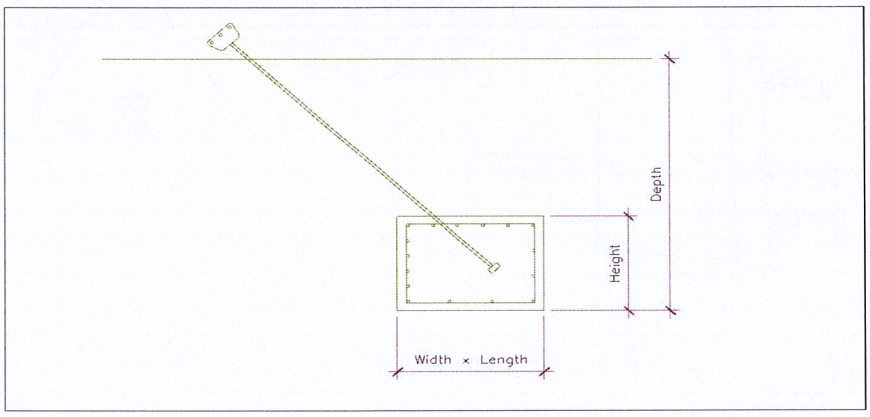
Soil Capacity Calcualtions		
W_s	5.40 k	
W_c	15.00 k	
$(W_s+W_c)/1.5$	13.60 k	
$(W_s/2)+(W_c/1.25)$	14.70 k	
Uplift Resistance	13.60 k	
Horizontal Resistance	22.45 k	
Uplift Capacity=	97.7%	OK
Horizontal Capacity=	64.6%	OK

Anchor Block Reinformement	
Is Reinforcement Known?	no

Capacity Summary		
Soil Capacity=	97.7%	OK
Controlling Capacity=	**97.7%**	**OK**

<--- Reinforcement capacity not verified

Soil Properties						
Layer	C, psf	ϕ, degrees	γ_{soil}, pcf	$\gamma_{concrete}$, pcf	μ	d, ft
1	0	0	125	150	0	1.5
2	0	36	125	150	0	5
3	0	0	0	0	0	0
4	0	0	0	0	0	0
Add'l Horizontal Frictional Resistance (Ultimate)				0	k	



[redacted]

[redacted]

APPENDIX G

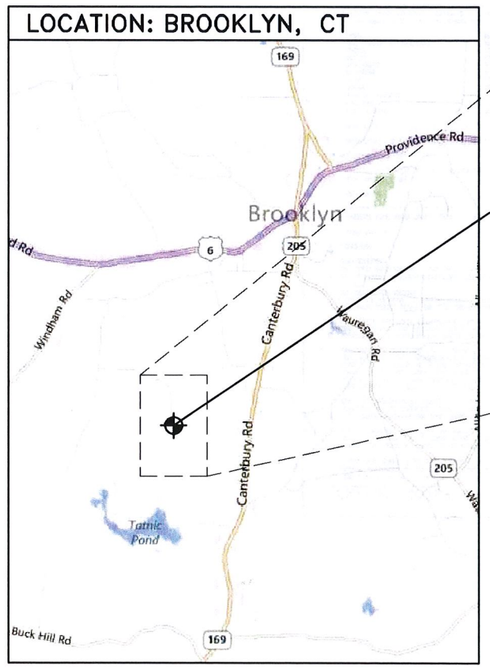
Modification Drawings

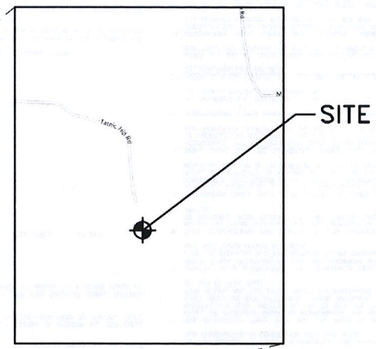
BROOKLYN

USID #: SNET004

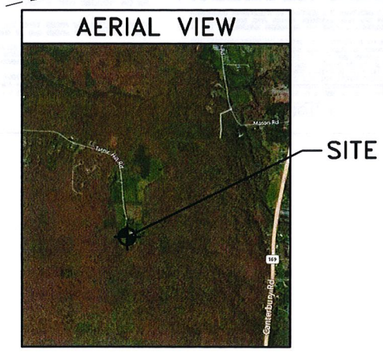
79.75' MODIFIED GUYED TOWER

LOCATION: BROOKLYN, CT





AERIAL VIEW



PROJECT SUMMARY

TOWER OWNER:	AT&T MOBILITY
TOWER TYPE:	GUYED TOWER
GOVERNING CODE:	TIA/EIA-222-F, ASCE 7-05, 2003 IBC, & 2005 CTBC
LATITUDE:	41° 46' 0.012" N
LONGITUDE:	71° 58' 0.3" W
OWNER CONTACT:	MR. MARTIN JELLEME 2300 NORTHLAKE CENTER DRIVE, SUITE 405 TUCKER, GA 30084 (404) 532-5855 OFFICE (678) 735-8038 CELL
ENGINEER CONTACT:	MR. JIBRIL SHEHU 520 SOUTH MAIN STREET, SUITE 2531 AKRON, OH 44311 (330) 572-2216

PROJECT OVERVIEW:
THE LISTED DRAWINGS REPRESENT MODIFICATIONS TO THE EXISTING TOWER BY REPLACING EXISTING GUY WIRES WITH NEW LARGER GUY WIRES, INSTALLING NEW GUY WIRES, REPLACING EXISTING HORIZONTAL MEMBERS WITH NEW LARGER MEMBERS, AND REPAIRING CRACKS IN THE EXISTING FOUNDATION.

DRAWING INDEX

CO-LOCATOR:

cingular

GPD GROUP
520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2101

at&t

REV	DATE	DESCRIPTION

SNET004 - BROOKLYN
198 TATNIC HILL ROAD
BROOKLYN, CT 06234

TITLE SHEET

ISSUED FOR:	
PERMIT	08/21/13
BID	-
CONSTRUCTION	-
RECORD	-

PROJECT MANAGER	DESIGNER
JS	BAB

JOB NO.
2013723.4.02

T-01

GENERAL NOTES

1. THE MODIFICATIONS REPRESENTED WITHIN THESE DRAWINGS ARE BASED ON A STRUCTURAL ANALYSIS REPORT BY GPD GROUP (PROJECT #: 2013723.4.01 REV. 1, DATED AUGUST 12, 2013). ALL MODIFICATIONS MUST BE INSTALLED TO BRING THE TOWER INTO CONFORMANCE WITH TIA/EIA-222-F, ASCE 7-05, 2003 IBC, AND 2005 CTBC.
2. THESE MODIFICATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF TIA/EIA-222-F, ASCE 7-05, 2003 IBC, 2005 CTBC, AWS, AND AISC. MATERIALS AND SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE ABOVE MENTIONED CODES AND THE CONTRACT SPECIFICATIONS.
3. ALL TOWER INFORMATION WAS OBTAINED IN THE FORM OF TOWER MAPPING BY GPD GROUP & ELEVATED SERVICES (PROJECT #: 2013723.4.01 REV. 1, DATED AUGUST 12, 2013). CONTRACTOR SHALL OBTAIN AND BECOME FAMILIAR WITH THE REFERENCED TOWER DOCUMENTS.
4. THIS DESIGN ASSUMES THE TOWER AND FOUNDATIONS HAVE BEEN WELL MAINTAINED, IN GOOD CONDITION, AND ARE WITHOUT DEFECT. BENT MEMBERS, CORRODED MEMBERS, LOOSE BOLTS, CRACKED WELDS AND OTHER MEMBER DEFECTS HAVE NOT BEEN CONSIDERED. THE TOWER IS ASSUMED TO BE PLUMB AND THE SITE IS ASSUMED TO BE LEVEL. THIS DESIGN IS BEING PROVIDED WITHOUT THE BENEFIT OF A CONDITION ASSESSMENT BY GPD GROUP. **CONTRACTOR SHALL COMMISSION A COMPLETE CONDITION ASSESSMENT PRIOR TO ORDERING ANY REINFORCING MATERIALS. CONTRACTOR SHALL SUPPLY CONDITION ASSESSMENT TO ENGINEER FOR REVIEW, SEE CONTRACTOR NOTES.**
5. MANUFACTURER TOLERANCES, FIELD ADJUSTMENTS, INCORRECT STACKING, AND TEMPERATURE CAN CAUSE DIMENSION DISCREPANCIES. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO ORDERING MATERIALS. ALL FIELD MEASUREMENTS MUST BE REPORTED TO ENGINEER.
6. ALL NEW STEEL SHALL BE HOT DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. IN ADDITION ALL NEW STEEL SHALL BE PAINTED TO MATCH EXISTING STEEL. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
7. ALL EXISTING PAINTED/GALVANIZED SURFACES DAMAGED DURING REHAB SHALL BE WIRE BRUSHED CLEAN, REPAIRED BY COLD GALVANIZING BRUSH APPLIED PAINT (ZRC OR EQUAL), AND REPAINTED TO MATCH THE EXISTING FINISH (IF APPLICABLE).
8. LOADINGS:

   WIND LOADS:

   FASTEST MILE WIND SPEED (PER: TIA/EIA-222-F, ASCE 7-05, 2003 IBC, & 2005 CTBC) 85 MPH
   (WINDHAM COUNTY, CONNECTICUT)

   ICE LOADS:

   3/4" RADIAL BASE ICE
   FASTEST MILE WIND SPEED (CONCURRENT W/ ICE) 38 MPH
9. STRUCTURAL STEEL:

   SPECIFICATIONS (LATEST EDITION OF AISC)

   MATERIALS

BENT PLATES	ASTM A572 (GR 50)
GUY EAR	ASTM A572 (GR 50)
BRACING ANGLES	ASTM A36 (GR 36)
BOLTS	A325 (ALL BOLT HOLES STANDARD SIZE U.N.O.)
NUTS	LOCKING (STRUCTURAL GRADE)
WASHERS	ASTM F436
GUY WIRES	EHS GUY STRANDS
WELDS	E70XX
EPOXY	SIKADUR CRACK FIX EPOXY
HOT DIPPED GALVANIZING	ASTM A123
PAINT	NEW STEEL TO BE PAINTED TO MATCH EXISTING TOWER

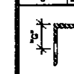
10. ALL MATERIAL INCLUDING GUY WIRES UTILIZED FOR THIS PROJECT MUST BE NEW AND FREE OF ANY DEFECTS. ANY MATERIAL SUBSTITUTIONS, INCLUDING BUT NOT LIMITED TO ALTERED SIZES AND/OR STRENGTHS, MUST BE APPROVED BY THE OWNER AND ENGINEER IN WRITING.
11. ALL BOLT ASSEMBLIES FOR STRUCTURAL MEMBERS REPRESENTED IN THIS DRAWING REQUIRE LOCKING DEVICES TO BE INSTALLED IN ACCORDANCE WITH TIA/EIA-222-F SECTION 1.1.3 REQUIREMENTS.
12. ALL SUBSTITUTES PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER FOR DETERMINING IF SUBSTITUTE IS SUITABLE FOR USE AND MEETS THE ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED.
13. PROVIDE STRUCTURAL STEEL SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
14. UNLESS NOTED OTHERWISE, ALL NEW MEMBERS SHALL MAINTAIN THE EXISTING MEMBER WORK LINES AND NOT INTRODUCE ECCENTRICITIES INTO THE STRUCTURE.
15. THE ENGINEER (GPD GROUP) SHALL MAKE POST INSTALLATION OBSERVATION FOR TOWER AND FOUNDATION. CONTRACTOR SHALL COORDINATE THE ON-SITE INSTALLATION OBSERVATION W/ ENGINEER (GPD GROUP) AT LEAST 5 BUSINESS DAYS PRIOR TO THE CONCRETE POUR FOR EACH FOUNDATION MODIFICATION. CONTRACTOR SHALL COORDINATE W/ENGINEER (GPD GROUP) WITHIN 72 HOURS AFTER 100% COMPLETION OF THE TOWER MODIFICATION INSTALLATION. INSTALLATION OF PROPOSED LOADING WITHOUT ENGINEER APPROVAL IS PROHIBITED. INSTALLATION OF THE PROPOSED LOADING IS BY OTHERS, AND IS BEYOND THE SCOPE OF THESE DRAWINGS.

CONTRACTOR NOTES

1. ALL CONTRACTORS AND LOWER TIER CONTRACTORS MUST ACKNOWLEDGE IN WRITING TO TOWER OWNER AND GPD GROUP THAT THEY HAVE OBTAINED, UNDERSTAND, AND WILL FOLLOW TOWER OWNER STANDARDS OF PRACTICE, CONSTRUCTION GUIDELINES, ALL SITE AND TOWER SAFETY PROCEDURES, ALL PRODUCT LIMITATIONS AND INSTALLATION PROCEDURES USED ON SITE, AND PROPOSED MODIFICATIONS DESCRIBED. RECEIPT OF ACKNOWLEDGMENT MUST OCCUR PRIOR TO BEGINNING CONSTRUCTION OR CLIMBING. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE THIS DOCUMENTATION FOR TOWER OWNER AND GPD GROUP ON COMPANY LETTERHEAD AND THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN THIS DOCUMENTATION FROM LOWER TIER SUBCONTRACTORS (ON SUBCONTRACTOR LETTERHEAD) AND DELIVER IT TO TOWER OWNER AND GPD GROUP.
2. IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS, OR ANY CONDITIONS THAT WOULD INTERFERE WITH THE INSTALLATION OF THE MODIFICATIONS, GPD GROUP SHALL BE CONTACTED IMMEDIATELY TO EVALUATE THE SIGNIFICANCE OF THE DEVIATION.
3. IT IS ASSUMED THAT ANY STRUCTURAL MODIFICATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE. THIS INCLUDES PROVIDING THE NECESSARY CERTIFICATIONS TO THE TOWER OWNER AND ENGINEER.
4. THESE DRAWINGS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES, AND PROCEDURES.
5. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PROGRAMS AND PRECAUTIONS IN CONNECTION WITH THIS WORK.
6. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING; ANY PROBLEMS WITH ACCESS, INTERFERENCE, ETC. SHALL BE RESOLVED PRIOR TO MOBILIZATION. THE CONTRACTOR MUST VISIT THE SITE PRIOR TO ORDERING ANY MATERIAL AND MUST RESOLVE ALL ISSUES WITH THE OWNER PREVENTING A CONTINUOUS INSTALLATION. CONTRACTOR SHALL NOTE ALL GUY ATTACHMENT POINTS, ANTENNAS, MOUNTS, COAX, LIGHTING, CLIMBING SUPPORTS, STEP BOLTS, PORT HOLES, AND ANY OTHER TOWER APPURTENANCES IN THE REGION OF THE MODIFICATIONS. SEE GENERAL NOTES #4 AND #5 THIS SHEET.
7. CONTRACTOR IS RESPONSIBLE FOR TEMPORARILY REMOVING ALL COAX, T-BRACKETS, ANTENNA MOUNTS, AND ANY OTHER TOWER APPURTENANCE THAT MAY INTERFERE WITH THE TOWER MODIFICATIONS. ALL TOWER APPURTENANCES MUST BE REPLACED AND/OR RESTORED TO ITS ORIGINAL LOCATION. ANY CARRIER DOWNTIME MUST BE COORDINATED WITH THE TOWER OWNER IN WRITING.
8. SOME ATTACHMENTS MAY REQUIRE CUSTOM MODIFICATIONS TO PROPERLY FIT THE MODIFIED REGION OF THE STRUCTURE. THESE CUSTOMIZATIONS ARE DESIGNED BY OTHERS AND MUST BE APPROVED BY THE ENGINEER PRIOR TO REMOVING SUCH ATTACHMENTS. ANY CARRIER DOWNTIME MUST BE COORDINATED WITH THE TOWER OWNER IN WRITING.
9. CONTRACTOR SHALL ONLY WORK WITHIN THE LIMITS OF THE TOWER OWNER'S PROPERTY OR LEASE AREA AND APPROVED EASEMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY WORK IS WITHIN THESE BOUNDARIES. CONTRACTOR SHALL EMPLOY A SURVEYOR AS REQUIRED. ANY WORK OUTSIDE THESE BOUNDARIES SHALL BE APPROVED IN WRITING BY THE LAND OWNER PRIOR TO MOBILIZATION. CONSTRUCTION STAKING AND BOUNDARY MARKING IS THE RESPONSIBILITY OF THE CONTRACTOR.
10. **WORK SHALL ONLY BE PERFORMED DURING CALM DRY DAYS (WINDS LESS THAN 10-MPH). CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY LOCAL TOWER SHORING, TEMPORARY GLOBAL TOWER SHORING, AND ALL SHORING OF SURROUNDING BUILDINGS, PADS, AND OTHER OUTDOOR SITE OBSTRUCTIONS. ALL SHORING, TEMPORARY BRACING, AND TEMPORARY SUPPORTS ARE THE RESPONSIBILITY OF THE CONTRACTOR.**
11. MODIFICATIONS SHOWN SHALL BE INSTALLED ON ALL THREE (3) TOWER LEGS/FACES.
12. ALL MODIFICATIONS PERFORMED ON THIS TOWER SHALL BE COMPLETED IN ACCORDANCE WITH THE REQUIREMENTS OF TIA-1019-A CONSTRUCTION STANDARDS.
13. **ABSOLUTELY NO WELDING, TORCH CUTTING, OR OPEN FLAME OF ANY TYPE IS PERMITTED ON THIS STRUCTURE AND ON THIS CONSTRUCTION SITE.**
14. AFTER ANY AND ALL GUYED TOWER MODIFICATIONS, CONTRACTOR SHALL VERIFY THAT THE TOWER IS PLUMB AND ALL GUY WIRES ARE TENSIONED AS SPECIFIED ON SHEETS S-01 AND S-03.
15. CONTRACTOR SHALL SUPPLY NEW SHACKLES, TURNBUCKLES, JAWS, EYES, ANCHOR RODS, AND ALL OTHER MISCELLANEOUS GUY ANCHOR HARDWARE FOR EACH NEW GUY WIRE. NEW GUY ANCHOR HARDWARE MUST EXCEED THE ULTIMATE BREAKING STRENGTH OF EACH NEW GUY WIRE.
16. CONTRACTOR SHALL PROVIDE PROPERLY SIZED PREFORMS, END SLEEVES, THIMBLES, AND ALL OTHER SIZE DEPENDANT HARDWARE FOR EACH NEW GUY WIRE.
17. CONTRACTOR SHALL PROVIDE PROPER SAFETY LOOPS/ FIGURE 8'S AT ALL NEW GUY ANCHOR POINTS. ALL EXISTING AND NEW COTTER PINS SHALL BE STAINLESS STEEL.
18. NEW GUY WIRES SHALL HAVE NEW GROUNDING INSTALLED AT ANCHOR ROD IN LIKE AND KIND.
19. PRIOR TO REPLACEMENT OF ANY GUY WIRES CONTRACTOR SHALL VERIFY THAT EXISTING GUY LUG AND ANCHOR HEAD HOLES HAVE ADEQUATE SIZE TO ALLOW FOR NEW GUY HARDWARE. IF REQUIRED, CONTACT ENGINEER PRIOR TO MODIFYING THE GUY LUG AND/OR ANCHOR HEAD TO ACCOMMODATE THE NEW HARDWARE. ALL HARDWARE MUST EXCEED ULTIMATE BREAKING STRENGTH OF ITS RESPECTIVE GUY WIRE.
20. ALL FAIL SAFE GUY WIRE INSULATORS PRESENT ON GUY WIRES TO BE REPLACED SHALL BE REPLACED IN KIND ON NEW GUY WIRES. CONTRACTOR SHALL COORDINATE WITH TOWER OWNER. DESIGN OF NON-FAIL SAFE INSULATORS THAT REQUIRE REPLACEMENT IS BEYOND THE SCOPE OF THIS DESIGN AND SHALL BE COMMISSIONED BY THE CONTRACTOR.
21. THE GENERAL CONTRACTOR SHALL TENSION THE GUY WIRE TO WITHIN A RANGE FROM THE TARGET TENSION LISTED WITHIN THE GUY WIRE SCHEDULE TO + OR - 10% OF THE TARGET TENSION LISTED FOR GUY WIRES <= 1" AND WITHIN + OR - 5% FOR GUY WIRES >1" IN DIAMETER. THE GENERAL CONTRACTOR SHOULD TENSION TO THE UPPER 75TH PERCENTILE OF THE LIMITS.

WORKABLE GAGES

LEG	4	3-1/2	3	2-1/2	2	1-3/4
G	2-1/2	2	1-3/4	1-3/8	1-1/8	1

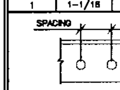


-DIMENSIONS GIVEN IN INCHES

-MATCH EXISTING WHEN APPLICABLE

BOLT SCHEDULE

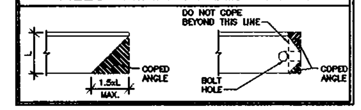
BOLT DIAMETER	STANDARD HOLE	SHORT SLOT	MIN. EDGE DISTANCE	SPACING
1/2	9/16	9/16x11/16	7/8	1-1/2
5/8	11/16	11/16x7/8	1-1/8	1-7/8
3/4	13/16	13/16x1	1-1/4	2-1/4
7/8	15/16	15/16x1-1/8	1-1/2	2-5/8
1	1-1/16	1-1/16x1-5/16	1-3/4	3



-DIMENSIONS GIVEN IN INCHES

-SHORT SLOT HOLES SHALL ONLY BE USED WHEN DEPICTED ON THE PLANS

ALLOWABLE ANGLE COPE



1. ALL DIMENSIONS REPRESENTED IN THE ABOVE TABLES ARE AISC MINIMUM REQUIREMENTS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF DISTANCES ARE LESS THAN THOSE PROVIDED.
2. THE DIMENSIONS PROVIDED ARE MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS OF PROPOSED MEMBERS WITHIN THESE DRAWINGS MAY VARY FROM THE AISC MINIMUM REQUIREMENTS.

at&t

REV.	DATE	DESCRIPTION

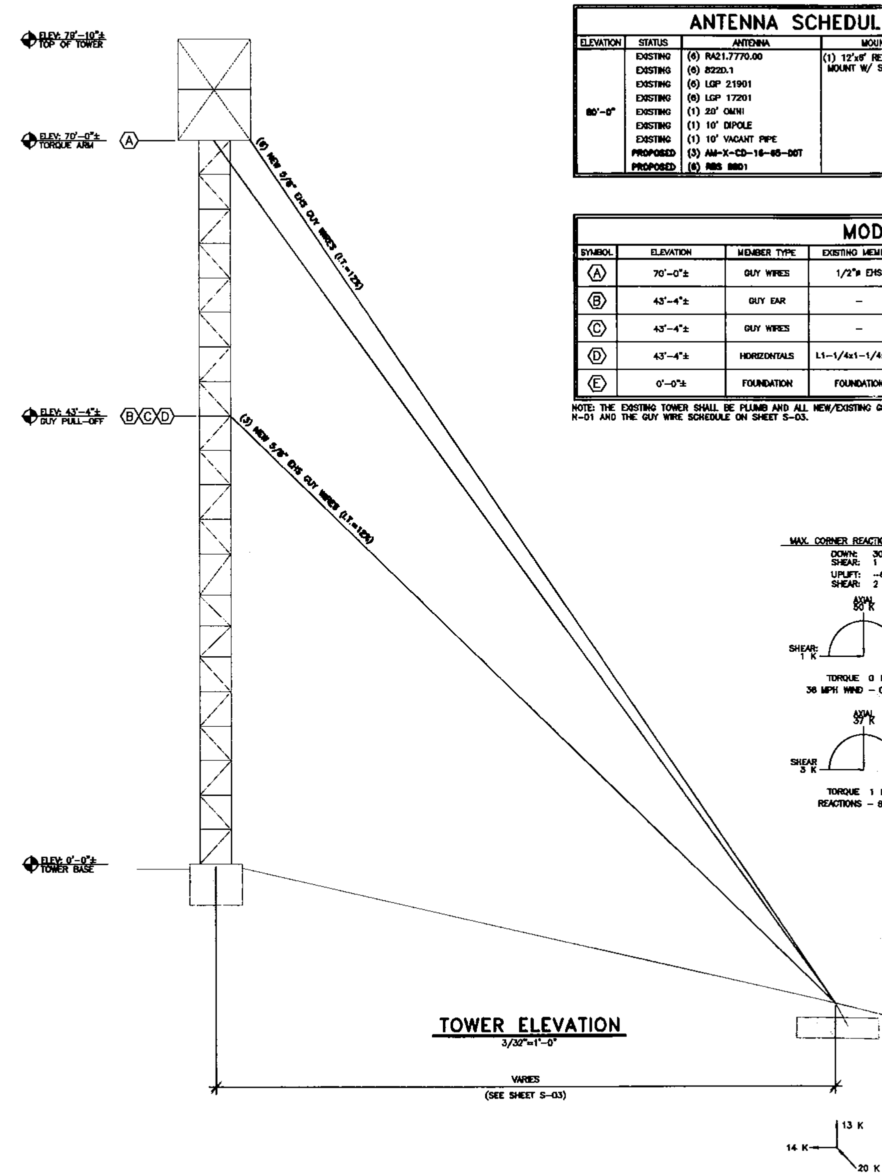
SNET004 - BROOKLYN
198 TATNIC HILL ROAD
BROOKLYN, CT 06234

PROJECT NOTES

ISSUED FOR	
PERMIT	08/21/13
BID	-
CONSTRUCTION	-
RECORD	-
PROJECT MANAGER	DESIGNER
JS	DAB

JOB NO.
2013723.4.02

N-01



TOWER ELEVATION
3/32"=1'-0"

ANTENNA SCHEDULE				
ELEVATION	STATUS	ANTENNA	MOUNT	COAX
80'-0"	EXISTING	(6) RA21.7770.00	(1) 12'x6' RECTANGULAR MOUNT W/ STANDOFFS	(12) 1-5/8"
	EXISTING	(6) 822D.1		
	EXISTING	(6) LGP 21901		
	EXISTING	(6) LGP 17201		
	EXISTING	(1) 20' OMNI		(2) 1/2"
	EXISTING	(1) 10' DIPOLE		
	EXISTING	(1) 10' VACANT PIPE		
	PROPOSED	(3) AM-X-CD-16-65-00T		
	PROPOSED	(6) RRS 8801		

MODIFICATION SCHEDULE					
SYMBOL	ELEVATION	MEMBER TYPE	EXISTING MEMBER	NEW MEMBER	NOTES
A	70'-0"±	GUY WIRES	1/2"ø EHS	5/8"ø EHS (TENSIONED @ 12%)	REPLACE EXISTING GUY WIRES WITH NEW LARGER MEMBERS. SEE TOWER ELEVATION AND SHEET S-03 FOR MORE INFORMATION.
B	43'-4"±	GUY EAR	–	1" THICK PLATE	INSTALL NEW EAR TO EXISTING TOWER. SEE DETAILS 1/S-02 AND 2/S-02 FOR MORE INFORMATION.
C	43'-4"±	GUY WIRES	–	5/8"ø EHS (TENSIONED @ 12%)	INSTALL NEW GUY WIRES TO THE EXISTING TOWER. SEE TOWER ELEVATION AND SHEET S-03 FOR MORE INFORMATION.
D	43'-4"±	HORIZONTALS	L1-1/4x1-1/4x1/8	L2x2x3/8	REPLACE EXISTING HORIZONTAL MEMBERS WITH NEW LARGER MEMBERS. SEE DETAIL 1/S-02 FOR MORE INFORMATION.
E	0'-0"±	FOUNDATION	FOUNDATION	EPOXY	REPAIR EXISTING FOUNDATION CRACKS BY PRESSURE INJECTING GROUT. SEE SHEET S-02 FOR MORE INFORMATION.

NOTE: THE EXISTING TOWER SHALL BE PLUMB AND ALL NEW/EXISTING GUY WIRES SHALL BE TENSIONED IN ACCORDANCE WITH THESE PLANS. SEE CONTRACTOR NOTES ON SHEET N-01 AND THE GUY WIRE SCHEDULE ON SHEET S-03.

MAX. CORNER REACTIONS AT BASE

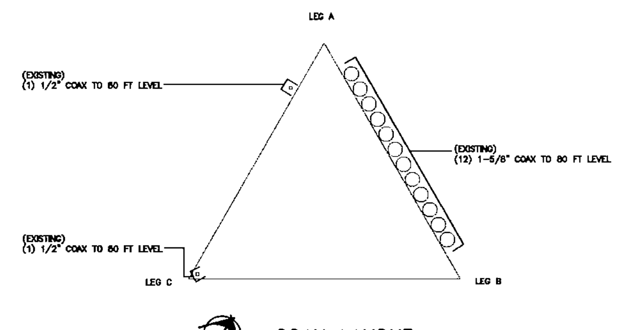
DOWN: 30 K
SHEAR: 1 K
UPLIFT: -6 K
SHEAR: 2 K

AXIAL 50 K
SHEAR: 1 K
MOMENT: 18 kip-ft

TORQUE 0 kip-ft
38 MPH WIND - 0.750 IN. ICE

AXIAL 37 K
SHEAR 3 K
MOMENT 49 kip-ft

TORQUE 1 kip-ft
REACTIONS - 85 mph



COAX LAYOUT
N.T.S.

at&t

SNET004 - BROOKLYN
198 TATNIC HILL ROAD
BROOKLYN, CT 06234

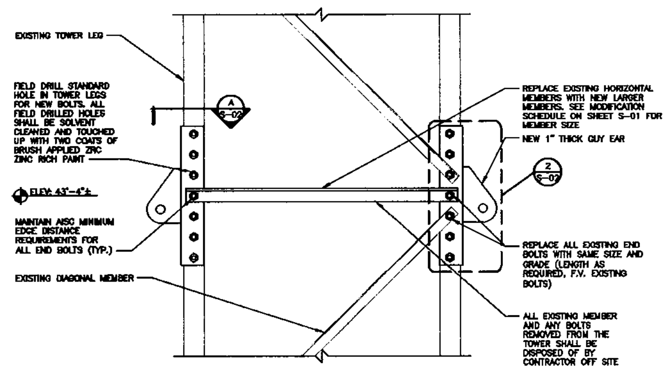
TOWER ELEVATION & MODIFICATION SCHEDULE

ISSUED FOR	
PERMIT	08/21/13
BID	-
CONSTRUCTION	-
RECORD	-

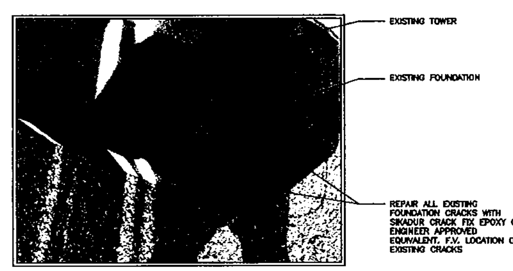
PROJECT MANAGER	DESIGNER
JS	BAB

JOB NO.
2013723.4.02

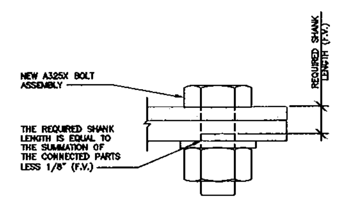
S-



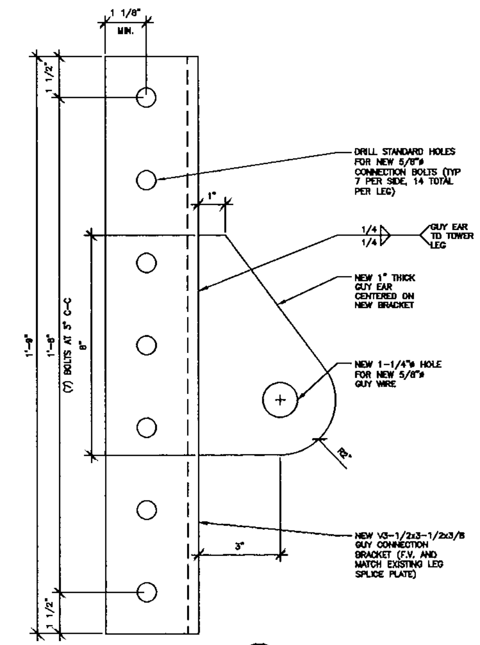
DETAIL 1 (S-02)
1-1/2"=1'-0"



FOUNDATION REPAIR
N.T.S.

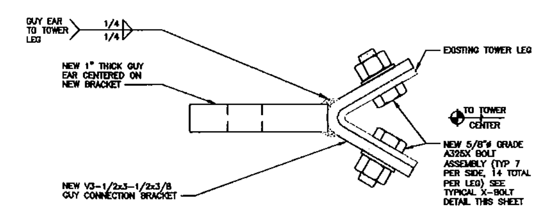


TYPICAL X-BOLT DETAIL
N.T.S.



DETAIL 2 (S-02)
6"=1'-0"

NOTE: DETAIL TYPICAL FOR ALL 3 LEGS.



SECTION A (S-02)
6"=1'-0"

NOTE: SECTION TYPICAL FOR ALL 3 LEGS.

at&t

REV.	DATE	DESCRIPTION

SNET004 - BROOKLYN
198 TATNIC HILL ROAD
BROOKLYN, CT 06234

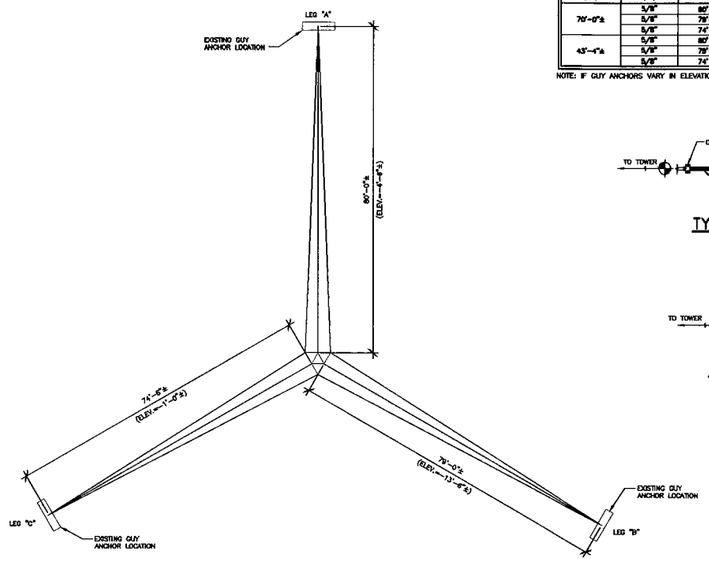
MODIFICATION DETAILS & SECTIONS

ISSUED FOR	
PERMIT	08/21/13
BID	-
CONSTRUCTION	-
RECORD	-

PROJECT MANAGER	DESIGNER
JS	DAB

JOB NO.
2013723.4.02

S-



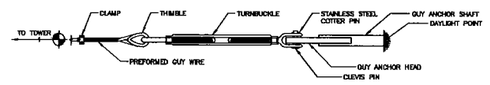
NORTH

GUY ANCHOR PLAN
3/32"=1'-0"

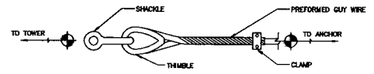
GUY WIRE SCHEDULE

GUY ELEVATION (FT.)	GUY WIRE SIZE (IN.)	GUY ANCHOR RADIUS (FT.)	TOWER LEG	WIRE QTY PER LEG	% INITIAL TENSION	TARGET TENSION (LBS)					
						0'	20'	40'	60'	80'	100'	120'
70'-0"±	5/16"	80'-0"±	A	2	12	8278.1	5888.0	5494.0	5088.0	4662.0	4268.0	3868.9
	5/16"	78'-0"±	B	2	12	8283.5	5871.7	5478.8	5088.0	4686.8	4304.3	3912.5
	5/16"	74'-6"±	C	2	12	8208.8	5833.9	5480.9	5088.0	4715.1	4342.1	3968.2
43'-4"±	5/16"	80'-0"±	A	1	12	8883.0	6158.0	5623.0	5088.0	4553.0	4018.0	3483.0
	5/16"	78'-0"±	B	1	12	8847.8	6127.9	5607.9	5088.0	4568.1	4048.1	3538.2
	5/16"	74'-6"±	C	1	12	8857.1	6134.1	5611.0	5088.0	4565.0	4041.9	3518.9

NOTE: IF GUY ANCHORS VARY IN ELEVATION BY MORE THAN 10'± CONTACT ENGINEER IMMEDIATELY. SEE CONTRACTOR NOTES ON SHEET N-01.



TYP. ANCHOR CONNECTION DETAIL
1-1/2" = 1'-0"



TYP. TOWER CONNECTION DETAIL
3" = 1'-0"

CPG CONSULTANTS

at&t

NO.	DATE	DESCRIPTION

SNET004 - BROOKLYN
198 TATNIC HILL ROAD
BROOKLYN, CT 06234

GUY ANCHOR PLAN
& GUY WIRE SCHEDULE

ISSUED FOR	
PERMIT	09/21/13
BID	-
CONSTRUCTION	-
RECORD	-

PROJECT MANAGER	DESIGNER
JS	DAB

JOB NO.
2013723.4.02

MODIFICATION INSPECTION CHECKLIST

BEFORE CONSTRUCTION		DURING CONSTRUCTION		AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM	CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM	CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
X	MODIFICATION INSPECTION CHECKLIST DRAWING	X	CONSTRUCTION INSPECTIONS	X	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWING(S)
X	ENGINEER OF RECORD APPROVED SHOP DRAWINGS	–	FOUNDATION INSPECTIONS	–	POST INSTALLED ANCHOR ROD PULL–OUT TESTING
X	FABRICATION INSPECTION	–	CONCRETE COMP. STRENGTH AND SLUMP TESTS	X	PHOTOGRAPHS
X	FABRICATOR CERTIFIED WELD INSPECTION	–	POST INSTALLED ANCHOR ROD VERIFICATION	ADDITIONAL TESTING AND INSPECTIONS:	
X	MATERIAL TEST REPORT	–	BASE PLATE GROUT VERIFICATION		
X	FABRICATOR NDE INSPECTION	–	THIRD PARTY CERTIFIED WELD INSPECTION		
–	NDE REPORT OF MONOPOLE BASE PLATE (AS REQUIRED)	–	EARTHWORK: LIFT AND DENSITY (REPORT REQUIRED)		
X	PACKING SLIPS	X	ON SITE COLD GALVANIZING VERIFICATION		
ADDITIONAL TESTING AND INSPECTIONS:		X	GUY WIRE TENSION REPORT		
		X	QC AS–BUILT DOCUMENTS		
		ADDITIONAL TESTING AND INSPECTIONS:			

NOTE: X DENOTES A DOCUMENT NEEDED FOR THE MODIFICATION INSPECTION REPORT
– DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE MODIFICATION INSPECTION REPORT

MODIFICATION INSPECTION NOTES:

GENERAL

1. THE MODIFICATION INSPECTION IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD.
2. THE MODIFICATION INSPECTION IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE MODIFICATION INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTENT RESIDES WITH THE ENGINEER OF RECORD AT ALL TIMES.
3. **TO ENSURE THAT THE REQUIREMENTS OF THE MODIFICATION INSPECTION ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MODIFICATION INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO OR PAYMENT IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. CONTACT LISTED ON THE TITLE SHEET SHALL BE CONTACTED IF SPECIFIC INSPECTOR CONTACT INFORMATION IS NOT KNOWN.**

MODIFICATION INSPECTOR

1. THE MODIFICATION INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO OR PAYMENT FOR THE MODIFICATION INSPECTION TO:
   - REVIEW THE REQUIREMENTS OF THE MODIFICATION INSPECTION CHECKLIST
   - WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON–SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS
   - DISCUSS ANY SITE SPECIFIC INSPECTIONS OR CONCERNS
2. THE MODIFICATION INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR (GC) INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN–FIELD INSPECTIONS, AND SUBMITTING THE MODIFICATION INSPECTION REPORT.

GENERAL CONTRACTOR

1. THE GC IS REQUIRED TO CONTACT THE MODIFICATION INSPECTOR AS SOON AS RECEIVING A PO OR PAYMENT FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO:
   - REVIEW THE REQUIREMENTS OF THE MODIFICATION INSPECTION CHECKLIST
   - WORK WITH THE MI INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON–SITE MODIFICATION INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS
   - BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS
2. THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MODIFICATION INSPECTION CHECKLIST.

RECOMMENDATIONS

1. THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING A MODIFICATION INSPECTION REPORT:
   - IT IS SUGGESTED THAT THE GC PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10, TO THE MODIFICATION INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MODIFICATION INSPECTION TO BE CONDUCTED.
   - THE GC AND MODIFICATION INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
   - WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MODIFICATION INSPECTOR ON–SITE SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR RE–TENSIONING OPERATIONS.
   - IT MAY BE BENEFICIAL TO INSTALL ALL TOWER MODIFICATIONS PRIOR TO CONDUCTING THE FOUNDATION INSPECTIONS TO ALLOW FOUNDATION AND MODIFICATION INSPECTION(S) TO COMMENCE WITH ONE SITE VISIT.
   - WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MODIFICATION INSPECTOR ON–SITE DURING THE MODIFICATION INSPECTION TO HAVE ANY DEFICIENCIES CORRECTED DURING THE INITIAL MODIFICATION INSPECTION. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MODIFICATION INSPECTION CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.

CANCELLATION OR DELAYS IN SCHEDULED MODIFICATION INSPECTION

1. IF THE GC AND MODIFICATION INSPECTOR AGREE TO A DATE ON WHICH THE MODIFICATION INSPECTION WILL BE CONDUCTED, AND EITHER PARTY CANCELS OR DELAYS, THE TOWER OWNER SHALL NOT BE RESPONSIBLE FOR ANY COSTS, FEES, LOSS OF DEPOSITS AND/OR OTHER PENALTIES RELATED TO THE CANCELLATION OR DELAY INCURRED BY EITHER PARTY FOR ANY TIME (E.G. TRAVEL AND LODGING, COSTS OF KEEPING EQUIPMENT ON–SITE, ETC.). EXCEPTIONS MAY BE MADE IN THE EVENT THAT THE DELAY/CANCELLATION IS CAUSED BY WEATHER OR OTHER CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

CORRECTION OF FAILING MODIFICATION INSPECTION

1. IF THE MODIFICATION INSTALLATION WOULD FAIL THE MODIFICATION INSPECTION ("FAILED MODIFICATION INSPECTION"), THE GC SHALL WORK WITH MODIFICATION INSPECTOR TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:
   - CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MODIFICATION INSPECTION.
   - OR, WITH TOWER OWNER'S APPROVAL, THE GC MAY WORK WITH THE ENGINEER OF RECORD TO RE–ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS–BUILT CONDITION.

VERIFICATION INSPECTIONS

1. TOWER OWNER RESERVES THE RIGHT TO CONDUCT A VERIFICATION INSPECTION TO VERIFY THE ACCURACY AND COMPLETENESS OF PREVIOUSLY COMPLETED MODIFICATION INSPECTION(S) ON TOWER MODIFICATION PROJECTS.
2. VERIFICATION INSPECTION MAY BE CONDUCTED BY AN INDEPENDENT FIRM AFTER A MODIFICATION PROJECT IS COMPLETED, AS MARKED BY THE DATE OF AN ACCEPTED 'PASSING MODIFICATION INSPECTION' OR 'PASS AS NOTED MODIFICATION INSPECTION' REPORT FOR THE ORIGINAL PROJECT.

REQUIRED PHOTOS

1. BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS ARE TO BE TAKEN AND INCLUDED IN THE MODIFICATION INSPECTION REPORT:
   - PRE–CONSTRUCTION GENERAL SITE CONDITION
   - PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION
     - RAW MATERIALS
     - PHOTOS OF ALL CRITICAL DETAILS
     - FOUNDATION MODIFICATIONS
     - WELD PREPARATION
     - BOLT INSTALLATION AND TORQUE
     - FINAL INSTALLED CONDITION
     - SURFACE COATING REPAIR
   - POST CONSTRUCTION PHOTOGRAPHS
   - FINAL INFIELD CONDITION
   - ANY OTHER PHOTOS DEEMED RELEVANT TO SHOW COMPLETE DETAILS OF MODIFICATIONS
2. PHOTOS OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

CENTEK engineering
Centered on Solutions
(203) 488-0580
Fax (203) 488-8587
www.centekeng.com

at&t

REV	DATE	DESCRIPTION

SNET004 – BROOKLYN
198 TATNIC HILL ROAD
BROOKLYN, CT 06234

MODIFICATION INSPECTION CHECKLIST

ISSUED FOR:	
PERMIT	08/21/13
BID	-
CONSTRUCTION	-
RECORD	-

PROJECT MANAGER	DESIGNER
JS	BAB

CAD NO.
2013723.4.02

MI