April 1st, 2019

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

Re:	**Notice of Exempt Modification – Antenna and RRU Add**
Property Address:	**768 GILEAD STREET, Hebron, CT 06248**
Applicant:	**AT&T Mobility, LLC**

Dear Ms. Bachman:

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

AT&T currently maintains a wireless telecommunications facility consisting of three (3) wireless telecommunication antennas at an antenna center line height of 145 feet inside an existing 160-foot stealth flagpole, owned by SBA Properties Inc., 5901 Broken Sound Parkway NW, 2nd Floor, Boca Raton, FL 33487. AT&T now intends to add (3) 6' Quintel QS66512-2 Panel Antennas and (6) TMA2117F00V1-1 Twin TMA's at a centerline of 135 feet, directly below the existing antennas. In addition, AT&T intends to add (12) 1-1/4" Coax Cables. All the proposed additions will take place inside the existing stealth shroud enclosures.

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

Please accept this letter pursuant to Regulation of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-5I0j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent to:

Andrew Tierney – Town Manager, Town of Hebron, CT at 15 Gilead St, Hebron CT 06248
Michael O'Leary – Town Planner, Town of Hebron, CT at 15 Gilead St, Hebron CT 06248
Edward A. and Renee J. Ellis -- Property Owners, at 768 Gilead St, Hebron CT 06248
SBA Properties Inc. – Structure Owner, at 5901 Broken Sounds Pkwy NW, 2nd Floor, Boca Raton FL 33487

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

- EM-AT&T-067-020619 - AT&T Wireless notice of intent to modify an existing telecommunications facility located at 107 Buck Road, Hebron, Connecticut.
- EM-CING-067-081202- New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 768 Gilead Street, Hebron, Connecticut.
- EM-CING-067-090114 - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 66 Wall Street, Hebron, Connecticut.
- EM-CING-067-090121 - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 107 Buck Road, Hebron, Connecticut.
- EM-CING-067-090511 – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 66 Wall Street, Hebron, Connecticut.
- EM-AT&T-064-120910A – AT&T Mobility notice of intent to modify an existing telecommunications facility located at 768 Gilead Street, Hebron, Connecticut.
- EM-AT&T-064-120910B – AT&T Mobility notice of intent to modify an existing telecommunications facility located at 66 Wall Street, Hebron, Connecticut.
- EM-CING-067-121116 – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 107 Buck Road, Hebron, Connecticut.

- EM-AT&T-067-131230 - American Telephone and Telegraph Company notice of intent to modify an existing telecommunications facility located at 107 Buck Road, Hebron, Connecticut.
- EM-AT&T-067-140106 – American Telephone and Telegraph Company notice of intent to modify an existing telecommunications facility located at 66 Wall Street, Hebron, Connecticut.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. AT&T's additional antennas will be installed at the 135-foot level of the 160-foot stealth flagpole.
2. The proposed modifications will involve changes to ground-mounted equipment, however these changes will not require an extension of the site boundary.
3. The proposed modifications will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in Tab 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in Tab 3).

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

Sincerely,

Ryan Burgdorfer

CC w/enclosures:

Andrew Tierney – Town Manager, Town of Hebron, CT
Michael O'Leary – Town Planner, Town of Hebron, CT
Edward A. and Renee J. Ellis -- Property Owners
SBA Properties Inc. – Structure Owner

85 Rangeway Road • Building 3, Suite 102 • North Billerica, MA 01862
p: 978-215-9990 • f: 443.221.2962
www.smartlinkllc.com

PROJECT:	LTE RETROFIT/5G/4C/5C
SITE NUMBER:	CTL05866
FA NUMBER:	10071077
PTN NUMBER:	2051A0HA81/2051A0HA82/2051A0DB6J/2051A0HA67
PACE NUMBER:	MRCTB032613/MRCTB032612/MRCTB025558/MRCTB032614
SBA#:	CTO01001
SITE NAME:	HEBRON NORTH CENTRAL
SITE ADDRESS:	768 GILEAD STREET HEBRON, CT 06248

PROJECT INFORMATION

SITE NAME:	HEBRON NORTH CENTRAL
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PACE NUMBER:	MRCTB032613/MRCTB032612/MRCTB025558/MRCTB032614
USID NUMBER:	26173
SBA NUMBER:	CTO01001
APPLICANT:	AT&T WIRELESS 550 COCHITUATE ROAD SUITE 550 13 AND 14 FRAMINGHAM, MA 01701
TOWER OWNER:	SBA COMMUNICATIONS CORPORATION 8051 CONGRESS AVENUE BOCA RATON, FL 33487
JURISDICTION:/ ZONING:	HEBRON / R1
COUNTY:	TOLLAND
SITE COORDINATES FROM	(RFDS)
LATITUDE:	41.6862919° / 41° 41' 10.6512"
LONGITUDE:	−72.4150989° / −72° 24' 54.3558"
GROUND ELEV.:	633'
PROPOSED USE:	TELECOMMUNICATIONS FACILITY
AT&T RF MANAGER:	DEEPAK RATHORE
PHONE:	(860) 965−3068
EMAIL:	dr701e@att.com

PROJECT CONSULTANTS

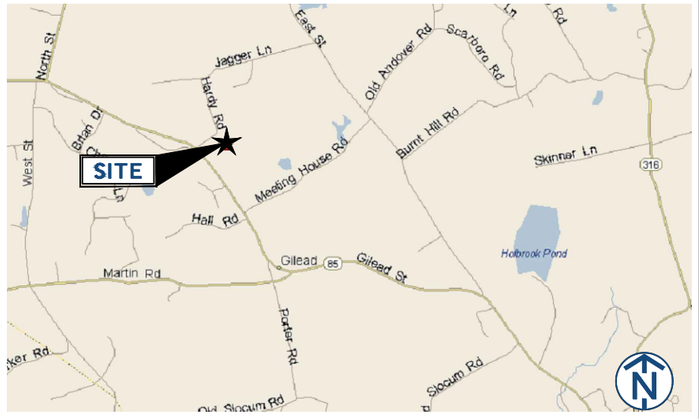
PROJECT MANAGER:	SMARTLINK
ADDRESS:	85 RANGEWAY ROAD, SUITE 102 NORTH BILLERICA, MA 01862
CONTACT:	EDWARD WEISSMAN (917) 528−1857
EMAIL:	Edward.Weissman@smartlinkllc.com
SITE AQUISITION:	SMARTLINK
ADDRESS:	85 RANGEWAY ROAD, SUITE 102 NORTH BILLERICA, MA 01862
CONTACT:	SHARON KEEFE (978) 930−3918
EMAIL:	Sharon.Keefe@smartlinkllc.com
ENGINEER/ARCHITECT:	FULLERTON ENGINEERING
ADDRESS:	1100 E. WOODFIELD ROAD, SUITE 500 SCHAUMBURG, IL 60173
CONTACT:	MILEN DIMITROV (847) 908−8439
EMAIL:	MDimitrov@FullertonEngineering.com
CONSTRUCTION:	SMARTLINK
ADDRESS:	85 RANGEWAY ROAD, SUITE 102 NORTH BILLERICA, MA 01862
CONTACT:	MARK DONNELLY (617) 515−2080
EMAIL:	mark.donnelly@smartlinkllc.com

SCOPE OF WORK

LTE 1900/850/WCS/700 WILL BE RETROFIT/5G/4C/5C AT THE SITE WITH BRONZE CONFIGURATION. PROPOSED RETROFIT/5G/4C/5C PROJECT SCOPE HEREIN BASED ON RFDS ID # 2315063, VERSION 3.00 LAST UPDATED 08/13/18.

- (3) NEW ANTENNAS
- (2) NEW RRUS−4478 B14
- (3) NEW RRUS−4478 B5
- (3) NEW RRUS−4415 B25
- (3) NEW RRUS−32
- (12) NEW 1−1/4" COAX CABLES
- (6) NEW TWIN TMA UNITS
- (12) NEW QUADPLEXER UNITS
- INSTALL 2ND XMU CARD
- INSTALL (1) 6630 FOR 5G
- CONTRACTOR SHALL FURNISH ALL MATERIAL WITH THE EXCEPTION OF AT&T SUPPLIED MATERIAL.
- ALL MATERIAL SHALL BE INSTALLED BY THE CONTRACTOR, UNLESS STATED OTHERWISE.

SITE LOCATION MAP



NO SCALE

DIRECTIONS

SCAN QR CODE FOR LINK TO SITE LOCATION MAP

APPLICABLE BUILDING CODES AND STANDARDS

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES.

BUILDING CODE:	2012 INTERNATIONAL BUILDING CODE 2018 CONNECTICUT STATE BUILDING CODE SUPPLEMENT
ELECTRICAL CODE:	2014 NATIONAL ELECTRIC CODE

- FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.
- ADA ACCESS REQUIREMENTS ARE NOT REQUIRED.
- THIS FACILITY DOES NOT REQUIRE POTABLE WATER AND WILL NOT PRODUCE ANY SEWAGE

DRAWING INDEX

T1	TITLE SHEET
SP1	NOTES AND SPECIFICATIONS
SP2	NOTES AND SPECIFICATIONS
A1	COMPOUND PLAN
A2	EQUIPMENT PLAN
A3	ELEVATIONS
A4	ANTENNA PLANS
A5	EQUIPMENT DETAILS
A6	ANTENNA & CABLE CONFIGURATION
A7	CABLE NOTES AND COLOR CODING
A8	GROUNDING DETAILS
A9	PLUMBING DIAGRAMS

NOTE: DRAWING SCALES ARE FOR 11"x17" SHEETS UNLESS OTHERWISE NOTED

at&t
550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701

smartlink
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076

FULLERTON
ENGINEERING · DESIGN
1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

REV	DATE	DESCRIPTION	BY
0	08/20/18	90% REVIEW	AM
1	09/25/18	FOR PERMIT	KC
2	10/23/18	FOR CONSTRUCTION	KC
3	03/13/19	FOR CONSTRUCTION	EB

I HEREBY CERTIFY THAT THESE DRAWINGS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.

SITE NAME
HEBRON NORTH CENTRAL

SITE NUMBER:
CTL05866

SITE ADDRESS
768 GILEAD STREET
HEBRON, CT 06248

SHEET NAME
TITLE SHEET

SHEET NUMBER
T1

GENERAL CONSTRUCTION

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR/CM – SMARTLINK
   OWNER – AT&T WIRELESS

2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND AT&T PROJECT SPECIFICATIONS.

3. GENERAL CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, DIMENSIONS, AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.

4. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. GENERAL CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.

5. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.

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

7. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ENGINEER PRIOR TO PROCEEDING WITH WORK.

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

9. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE ENGINEER PRIOR TO PROCEEDING.

10. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFIRM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.

11. GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.

12. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMAN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.

13. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. CONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.

14. WORK PREVIOUSLY COMPLETED IS REPRESENTED BY LIGHT SHADED LINES AND NOTES. THE SCOPE OF WORK FOR THIS PROJECT IS REPRESENTED BY DARK SHADED LINES AND NOTES. CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEVIATE FROM THE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.

15. CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO COMMENCEMENT OF WORK.

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

17. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.

18. GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND CONTRACTORS TO THE SITE AND/OR BUILDING.

19. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.

20. THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.

21. THE GENERAL CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2–A OT 2–A:10–B:C AND SHALL BE WITHIN 25 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.

22. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS SHALL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.

23. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.

24. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.

25. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.

26. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUNDING. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

27. THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE–APPROVED BY THE LOCAL JURISDICTION.

28. ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.

29. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.

30. CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS–BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.

31. CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.

32. THE PROPOSED FACILITY WILL BE UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE, AND IS NOT FOR HUMAN HABITAT (NO HANDICAP ACCESS REQUIRED).

33. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY AT&T TECHNICIANS.

34. NO OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.

35. ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST REVISION AT&T MOBILITY GROUNDING STANDARD "TECHNICAL SPECIFICATION FOR CONSTRUCTION OF GSM/GPRS WIRELESS SITES" AND "TECHNICAL SPECIFICATION FOR FACILITY GROUNDING". IN CASE OF A CONFLICT BETWEEN THE CONSTRUCTION SPECIFICATION AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.

36. CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION. IF CONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR IMMEDIATELY.

37. CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.

38. INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE VISITS AND/OR DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTORS SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

39. NO WHITE STROBE LIGHTS ARE PERMITTED. LIGHTING IF REQUIRED, WILL MEET FAA STANDARDS AND REQUIREMENTS.

ANTENNA MOUNTING

40. DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSI/TIA–222 OR APPLICABLE LOCAL CODES.

41. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT–DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS NOTED OTHERWISE.

42. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC–COATING (HOT–DIP) ON IRON AND STEEL HARDWARE", UNLESS NOTED OTHERWISE.

43. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.

44. ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.

45. CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.

46. ALL UNUSED PORTS ON ANY ANTENNAS SHALL BE TERMINATED WITH A 50–OHM LOAD TO ENSURE ANTENNAS PERFORM AS DESIGNED.

47. PRIOR TO SETTING ANTENNA AZIMUTHS AND DOWNTILTS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA MOUNT FOR TIGHTNESS AND ENSURE THAT THEY ARE PLUMB. ANTENNA AZIMUTHS SHALL BE SET FROM TRUE NORTH AND BE ORIENTED WITHIN +/– 5% AS DEFINED BY THE RFDS. ANTENNA DOWNTILTS SHALL BE WITHIN +/– 0.5% AS DEFINED BY THE RFDS. REFER TO ND–00246.

48. JUMPERS FROM THE TMA'S MUST TERMINATE TO OPPOSITE POLARIZATION'S IN EACH SECTOR.

49. CONTRACTOR SHALL RECORD THE SERIAL #, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE INFORMATION TO AT&T.

50. TMA'S SHALL BE MOUNTED ON PIPE DIRECTLY BEHIND ANTENNAS AS CLOSE TO ANTENNA AS FEASIBLE IN A VERTICAL POSITION.

TORQUE REQUIREMENTS

51. ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.

52. ALL RF CONNECTIONS, GROUNDING HARDWARE AND ANTENNA HARDWARE SHALL HAVE A TORQUE MARK INSTALLED IN A CONTINUOUS STRAIGHT LINE FROM BOTH SIDES OF THE CONNECTION.
   A. RF CONNECTION BOTH SIDES OF THE CONNECTOR.
   B. GROUNDING AND ANTENNA HARDWARE ON THE NUT SIDE STARTING FROM THE THREADS TO THE SOLID SURFACE. EXAMPLE OF SOLID SURFACE: GROUND BAR, ANTENNA BRACKET METAL.

FIBER & POWER CABLE MOUNTING

53. THE FIBER OPTIC TRUNK CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY. WHEN INSTALLING FIBER OPTIC TRUNK CABLES INTO A CABLE TRAY SYSTEM, THEY SHALL BE INSTALLED INTO AN INTER DUCT AND A PARTITION BARRIER SHALL BE INSTALLED BETWEEN THE 600 VOLT CABLES AND THE INTER DUCT IN ORDER TO SEGREGATE CABLE TYPES. OPTIC FIBER TRUNK CABLES SHALL HAVE APPROVED CABLE RESTRAINTS EVERY (60) SIXTY FEET AND SECURELY FASTENED TO THE CABLE TRAY SYSTEM. NFPA 70 (NEC) ARTICLE 770 RULES SHALL APPLY.

54. THE TYPE TC–ER CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY AND SHALL BE SECURED AT INTERVALS NOT EXCEEDING (6) SIX FEET. AN EXCEPTION; WHERE TYPE TC–ER CABLES ARE NOT SUBJECT TO PHYSICAL DAMAGE, CABLES SHALL BE PERMITTED TO MAKE A TRANSITION BETWEEN CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY WHICH ARE SERVING UTILIZATION EQUIPMENT OR DEVICES, A DISTANCE (6) SIX FEET SHALL NOT BE EXCEEDED WITHOUT CONTINUOUS SUPPORTING. NFPA 70 (NEC) ARTICLES 336 AND 392 RULES SHALL APPLY.

55. WHEN INSTALLING OPTIC FIBER TRUNK CABLES OR TYPE TC–ER CABLES INTO CONDUITS, NFPA 70 (NEC) ARTICLE 300 RULES SHALL APPLY.

COAXIAL CABLE NOTES

62. TYPES AND SIZES OF THE ANTENNA CABLE ARE BASED ON ESTIMATED LENGTHS. PRIOR TO

    ORDERING CABLE, CONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.

63. CONTRACTOR SHALL VERIFY THE DOWN–TILT OF EACH ANTENNA WITH A DIGITAL LEVEL.

64. CONTRACTOR SHALL CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION.

65. ALL JUMPERS TO THE ANTENNAS FROM THE MAIN TRANSMISSION LINE SHALL BE 1/2" DIA. LDF AND SHALL NOT EXCEED 6'–0".

66. ALL COAXIAL CABLE SHALL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE, IN AN APPROVED MANNER, AT DISTANCES NOT TO EXCEED 4'–0" OC.

67. CONTRACTOR SHALL FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS REGARDING BOTH THE INSTALLATION AND GROUNDING OF ALL COAXIAL CABLES, CONNECTORS, ANTENNAS, AND ALL OTHER EQUIPMENT.

68. CONTRACTOR SHALL GROUND ALL EQUIPMENT. INCLUDING ANTENNAS, RET MOTORS, TMA'S, COAX CABLES, AND RET CONTROL CABLES AS A COMPLETE SYSTEM. GROUNDING SHALL BE EXECUTED BY QUALIFIED WIREMEN IN COMPLIANCE WITH MANUFACTURER'S SPECIFICATION AND RECOMMENDATION.

69. CONTRACTOR SHALL PROVIDE STRAIN–RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES, COAX CABLES, AND RET CONTROL CABLES. CABLE STRAIN–RELIEFS AND CABLE SUPPORTS SHALL BE APPROVED FOR THE PURPOSE. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

70. CONTRACTOR TO VERIFY THAT EXISTING COAX HANGERS ARE STACKABLE SNAP IN HANGERS. IF EXISTING HANGERS ARE NOT STACKABLE SNAP IN HANGERS THE CONTRACTOR SHALL REPLACE EXISTING HANGERS WITH NEW SNAP IN HANGERS IF APPLICABLE.

GENERAL CABLE AND EQUIPMENT NOTES

71. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ANTENNA, TMAS, DIPLEXERS, AND COAX CONFIGURATION, MAKE AND MODELS PRIOR TO INSTALLATION.

72. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S RECOMMENDATIONS.

73. CONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.

74. ALL OUTDOOR RF CONNECTORS/CONNECTIONS SHALL BE WEATHERPROOFED, EXCEPT THE RET CONNECTORS, USING BUTYL TAPE AFTER INSTALLATION AND FINAL CONNECTIONS ARE MADE. BUTYL TAPE SHALL HAVE A MINIMUM OF ONE–HALF TAPE WIDTH OVERLAP ON EACH TURN AND EACH LAYER SHALL BE WRAPPED THREE TIMES. WEATHERPROOFING SHALL BE SMOOTH WITHOUT BUCKLING. BUTYL BLEEDING IS NOT ALLOWED.

75. IF REQUIRED TO PAINT ANTENNAS AND/OR COAX:
   A. TEMPERATURE SHALL BE ABOVE 50° F.
   B. PAINT COLOR MUST BE APPROVED BY BUILDING OWNER/LANDLORD.
   C. FOR REGULATED TOWERS, FAA/FCC APPROVED PAINT IS REQUIRED.
   D. DO NOT PAINT OVER COLOR CODING OR ON EQUIPMENT MODEL NUMBERS

76. ALL CABLES SHALL BE GROUNDED WITH COAXIAL CABLE GROUND KITS. FOLLOW THE MANUFACTURER'S RECOMMENDATIONS.
   A. GROUNDING AT THE ANTENNA LEVEL.
   B. GROUNDING AT MID LEVEL, TOWERS WHICH ARE OVER 200'–0", ADDITIONAL CABLE GROUNDING REQUIRED.
   C. GROUNDING AT BASE OF TOWER PRIOR TO TURNING HORIZONTAL.
   D. GROUNDING OUTSIDE THE EQUIPMENT SHELTER AT ENTRY PORT.
   E. GROUNDING INSIDE THE EQUIPMENT SHELTER AT THE ENTRY PORT.

77. ALL PROPOSED GROUND BAR DOWNLEADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUND BAR DOWNLEADS A MINIMUM DISTANCE OF 4'–0" BELOW GROUND BAR. TERMINATIONS MAY BE EXOTHERMIC OR COMPRESSION.

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STATE OF CONNECTICUT · HENRY M. BELLAGAMBA · 25358 · LICENSED PROFESSIONAL ENGINEER

SITE NAME
HEBRON NORTH CENTRAL

SITE NUMBER:
CTL05866

SITE ADDRESS
768 GILEAD STREET
HEBRON, CT 06248

SHEET NAME
NOTES AND SPECIFICATIONS

SHEET NUMBER
SP1

NOTICE

Beyond This Point you are entering a controlled area where RF emissions *may exceed* the FCC General Population Exposure Limits.

Follow all posted signs and site guidelines for working in a RF environment.

at&t

Ref: 47CFR 1.1307(b)

CAUTION

Beyond This Point you are entering a controlled area where RF emissions *may exceed* the FCC Occupational Exposure Limits.

Obey all posted signs and site guidelines for working in a RF environment.

at&t

Ref: 47CFR 1.1307(b)

ALERTING SIGNS

ALERTING SIGN
(FOR CELL SITE BATTERIES)

ALERTING SIGN
(FOR DIESEL FUEL)

ALERTING SIGN
(FOR PROPANE)

WARNING!

DANGER DO NOT TOUCH TOWER!

SERIOUS "RF" BURN HAZARD!

MAINTAIN AN ADEQUATE CLEARANCE BETWEEN TOWER SUPPORTS AND GUY WIRES

FAILURE TO OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN A RADIO FREQUENCY ENVIRONMENT COULD RESULT IN SERIOUS INJURY. CONTACT CURRENT MAY EXCEED LIMITS PRESCRIBED IN ANSI/EEE C95.1-1992 FOR CONTROLLED ENVIRONMENTS.

at&t

ALERTING SIGN

PROPERTY OF AT&T

at&t

AUTHORIZED
PERSONNEL ONLY

IN CASE OF EMERGENCY, OR PRIOR TO PERFORMING MAINTENANCE ON THIS SITE, CALL 800-638-2822 AND REFERENCE CELL SITE NUMBER_____

INFO SIGN #4

INFORMATION

AT&T operates telecommunications antennas at this location. Remain at least 3 feet away from any antenna and obey all posted signs.

Contact the owner(s) of the antenna(s) before working closer than 3 feet from the antenna.

Contact AT&T at _____ prior to performing any maintenance or repairs near AT&T antennas. This is Site#_____

Contact the management office if this door/hatch/gate is found unlocked.

INFORMACION

En esta propiedad se ubican antenas de telecomunicaciones operadas por AT&T. Favor mantener una distancia de no menos de 3 pies y obedecer todos los avisos.

Comuniquese con el propictario o los propicatarios de las antenas antes de trabajar o caminar a una distancia de menos de 3 pies de la antena.

Comuniquese con AT&T _____ antes de realizar cualquier mantenimiento o reparaciones cerca de la antenas de AT&T.

Esta es la estacion base numero_____

Favor comunicarse con la oficina de la administracion del edificio si esta puerta o compuerta se encuentra sin candado.

at&t

INFO SIGN #1

INFORMATION

ACTIVE ANTENNAS ARE MOUNTED

- ☐ ON THE OUTSIDE OF THIS BUILDING
- ☐ BEHIND THIS PANEL
- ☐ ON THIS STRUCTURE

STAY BACK A MINIMUM OF 3 FEET FROM THESE ANTENNAS

Contact AT&T at _____ and follow their instructions prior to performing any maintenance or repairs closer than 3 feet from the antennas.

This is AT&T site# _____

at&t

INFO SIGN #2

STAY BACK 3 FEET FROM ANTENNA

at&t

INFO SIGN #3

GENERAL SIGNAGE GUIDELINES

STRUCTURE TYPE	INFO SIGN #1	INFO SIGN #2	INFO SIGN #3	INFO SIGN #4	STRIPING	NOTICE SIGN	CAUTION SIGN
TOWERS							
MONOPOLE/MONOPINE/MONOPALM	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	CLIMBING SIDE OF THE TOWER	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS			AT THE HEIGHT OF THE FIRST CLIMBING STEP, MIN 9 FT ABOVE GROUND
SEC TOWERS/TOWERS WITH HIGH VOLTAGE	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	CLIMBING SIDE OF THE TOWER	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS			
LIGHT POLES/FLAG POLES	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	ON THE POLE, NO LESS THAN 3FT BELOW THE ANTENNA AND LESS THAN 9FT ABOVE GROUND	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS			
UTILITY WOOD POLES (JPA)	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	ON THE POLE, NO LESS THAN 3FT BELOW THE ANTENNA AND LESS THAN 9FT ABOVE GROUND	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS		IF GP MAX VALUE OF MPE AT ANTENNA LEVEL IS: 0-99%; NOTICE SIGN; OVER 99%: CAUTION SIGN AT NO LESS THAN 3FT BELOW ANTENNA AND 9FT ABOVE GROUND	
MICROCELLS MOUNTED ON NON-JPA POLES	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	ON THE POLE, NO LESS THAN 3FT BELOW THE ANTENNA AND LESS THAN 9FT ABOVE GROUND	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS		NOTICE OR CAUTION SIGN AT NO LESS THAN 9FT ABOVE GROUND: ONLY IF THE EXPOSURE EXCEEDS 90% OF THE GENERAL PUBLIC EXPOSURE AT EXPOSURE AT 6FT ABOVE GROUND OR AT OUTSIDE OF SURFACE OF ADJACENT BUILDING	
TOWERS							
AT ALL ACCESS POINTS TO THE ROOF	X			X			
ON ANTENNAS	X		X	X			
CONCEALED ANTENNAS	X	X		X			
ANTENNAS MOUNTED FACING OUTSIDE THE BUILDING	X	X		X			
ANTENNAS ON SUPPORT STRUCTURE	X	X		X			
ROOFVIEW GRAPH							
RADIATION AREA IS WITHIN 3FT FROM ANTENNA	X	ADJACENT TO EACH ANTENNA		X		EITHER NOTICE OR CAUTION SIGN (BASED ON ROOFVIEW RESULTS) AT ANTENNA /BARRIER	
RADIATION AREA IS BEYOND 3FT FROM ANTENNA	X	ADJACENT TO EACH ANTENNA		X	DIAGONAL, YELLOW STRIPING AS TO ROOFVIEW GRAPH		
CHURCH STEEPLES	ACCESS TO STEEPLE	ADJACENT TO ANTENNAS IF ANTENNAS ARE CONCEALED	ON BACKSIDE OF ANTENNAS	ACCESS TO STEEPLE			CAUTION SIGN AT THE ANTENNAS
WATER STATIONS	ACCESS TO LADDER	ADJACENT TO ANTENNAS IF ANTENNAS ARE CONCEALED	ON BACKSIDE OF ANTENNAS	ACCESS TO LADDER			CAUTION SIGN BESIDE INFO SIGN #1, MIN. 9FT ABOVE GROUND

NOTES FOR ROOFTOP SITES:

1. EITHER NOTICE OR CAUTION SIGNS NEED TO BE POSTED AT EACH SECTOR AS CLOSE AS POSSIBLE TO: THE OUTER EDGE OF THE STRIPED OFF AREA OR THE OUTER ANTENNAS OF THE SECTOR

2. IF ROOFVIEWS SHOWS: ONLY BLUE = NOTICE SIGN, BLUE AND YELLOW = CAUTION SIGN, ONLY YELLOW = CAUTION SIGN TO BE INSTALLED

3. SHOULD THE REQUIRED STRIPING AREAS INTERFERE WITH ANY STRUCTURE OR EQUIPMENT (A/C, VENTS, ROOF HATCH, DOORS, OTHER ANTENNAS, DISHES, ETC.). PLEASE NOTIFY AT&T TO MODIFY THE STRIPING AREA, PRIOR TO STARTING THE WORK.

SIGNAGE GUIDELINES CHART

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HEBRON NORTH CENTRAL

SITE NUMBER:
CTL05866

SITE ADDRESS
768 GILEAD STREET
HEBRON, CT 06248

SHEET NAME
NOTES AND SPECIFICATIONS

SHEET NUMBER
SP2

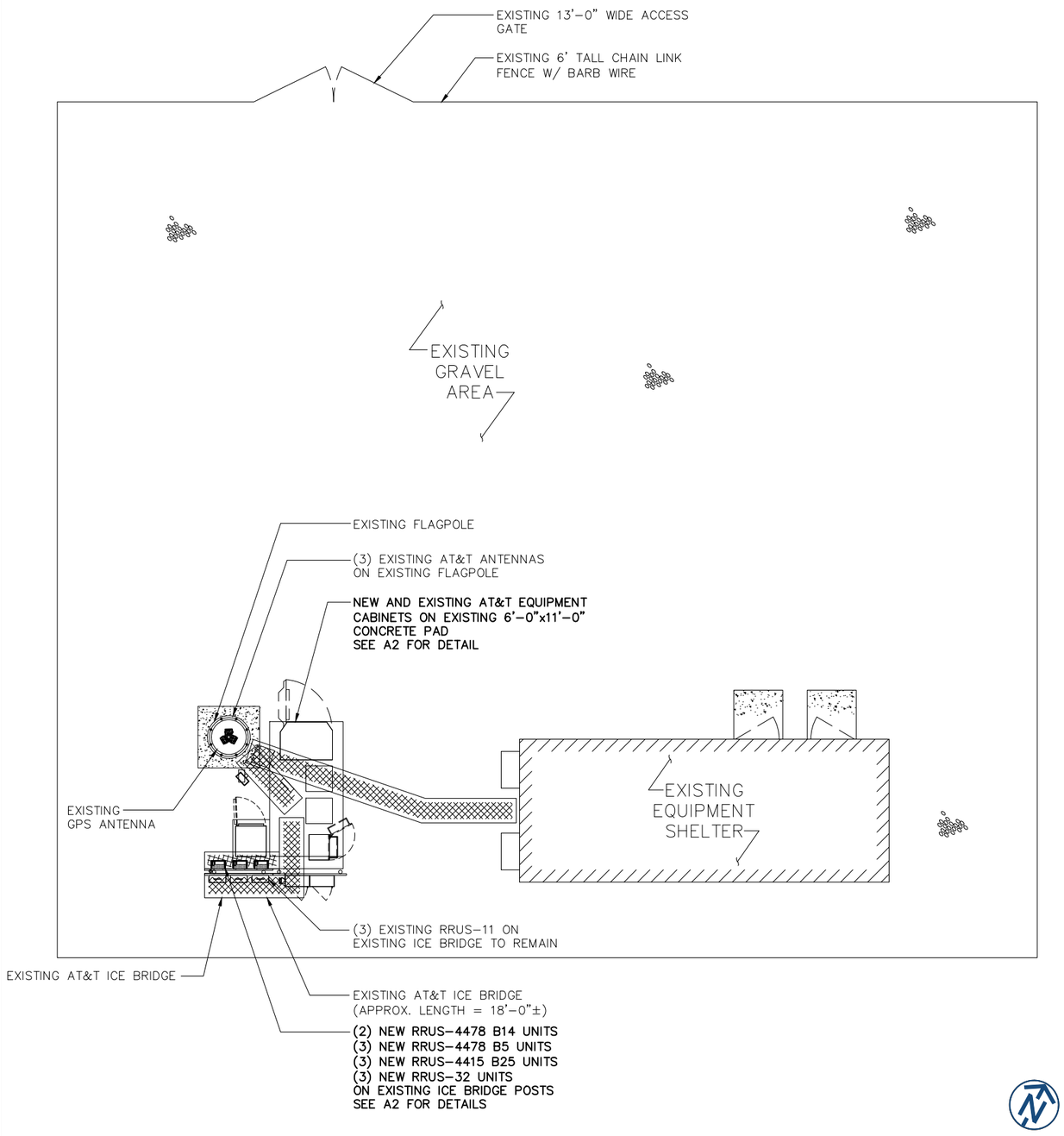
PROJECT# 2018.0171. 0016

ABBREVIATIONS

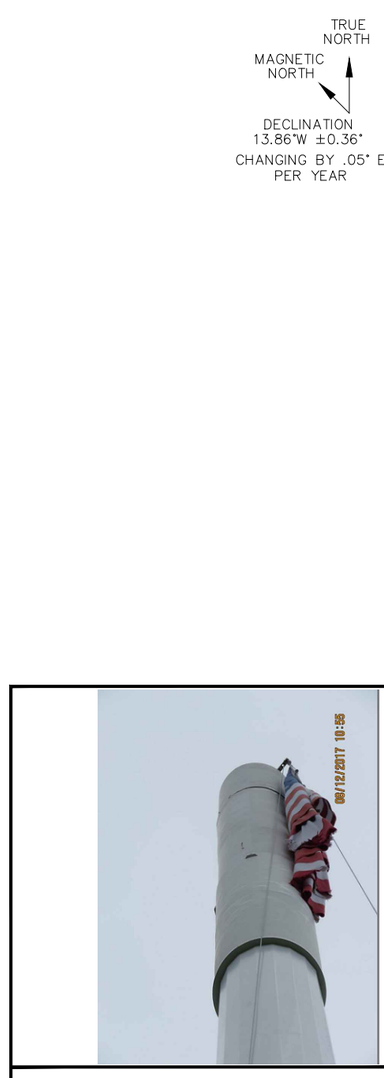
AFF	ABOVE FINISHED FLOOR
AGL	ABOVE GRADE LEVEL
AMSL	ABOVE MEAN SEA LEVEL
APPROX	APPROXIMATE
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
BTS	BASE TRANSMISSION STATION
℄	CENTERLINE
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CND	CONDUIT
DWG	DRAWING
FT	FOOT(FEET)
EGB	EQUIPMENT GROUND BAR
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ELEV	ELEVATION
EQUIP	EQUIPMENT
(E)	EXISTING
EXT	EXTERIOR
FND	FOUNDATION
F	FIBER
FIF	FACILITY INTERFACE FRAME
GA	GAUGE
GALV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
GND	GROUND
GSM	GLOBAL SYSTEM FOR MOBILE COMMUNICATION
LTE	LONG TERM EVOLUTION
MAX	MAXIMUM
MCPA	MULTI-CARRIER POWER AMPLIFIER
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MTS	MANUAL TRANSFER SWITCH
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
OE/OT	OVERHEAD ELECTRIC/TELCO
PPC	POWER PROTECTION CABINET
PL	PROPERY LINE
RBS	RADIO BASED STATION
RET	REMOTE ELECTRIC TILT
RRU	REMOTE RADIO UNIT
RGS	RIGID GALVANIZED STEEL
IN	INCH(ES)
INT	INTERIOR
LB(S), #	POUND(S)
SF	SQUARE FOOT
STL	STEEL
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UE/UT	UNDERGROUND ELECTRIC/TELCO
UNO	UNLESS NOTED OTHERWISE
UMTS	UNIVERSAL MOBILE TELE-COMMUNICATION SYSTEM
VIF	VERIFY IN FIELD
W/	WITH
XFMR	TRANSFORMER

SYMBOLS

- REVISION
- WORK POINT
- UTILITY POLE
- COMPRESSED STONE
- BRICK
- CONCRETE
- EARTH
- GRAVEL
- MASONRY
- STEEL
- CENTERLINE
- PROPERTY LINE
- LEASE LINE
- EASEMENT LINE
- CHAIN LINK FENCE
- WOOD FENCE
- UE — BELOW GRADE ELECTRIC
- UT — BELOW GRADE TELEPHONE
- OE/OT — OVERHEAD ELECTRIC/TELEPHONE
- SECTION REFERENCE (L A S-1 L A)



COMPOUND PLAN — 0 2' 4' 8' 16' — SCALE: 3/32" = 1'-0" — 1



SITE PHOTO 1 — SCALE: N.T.S. — 2

SITE PHOTO 2 — SCALE: N.T.S. — 3

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SITE NUMBER:
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SITE ADDRESS
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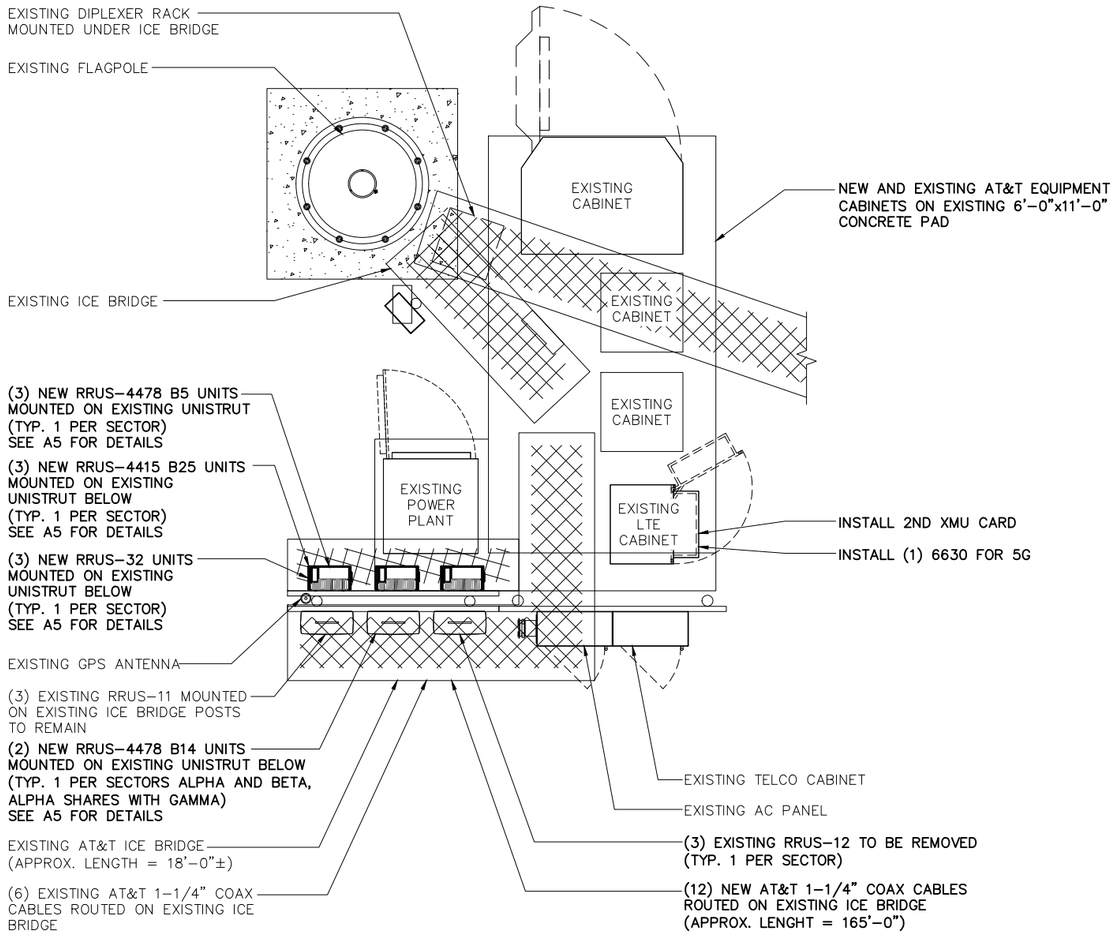
HEBRON, CT 06248

SHEET NAME
COMPOUND PLAN

SHEET NUMBER
A1

PROJECT# 2018.0171. 0016



TRUE NORTH
MAGNETIC NORTH
DECLINATION 13.86°W ±0.36°
CHANGING BY .05° E PER YEAR

EQUIPMENT PLAN

0 1' 2' 4' 6'

SCALE: 1/4" = 1'–0"

1

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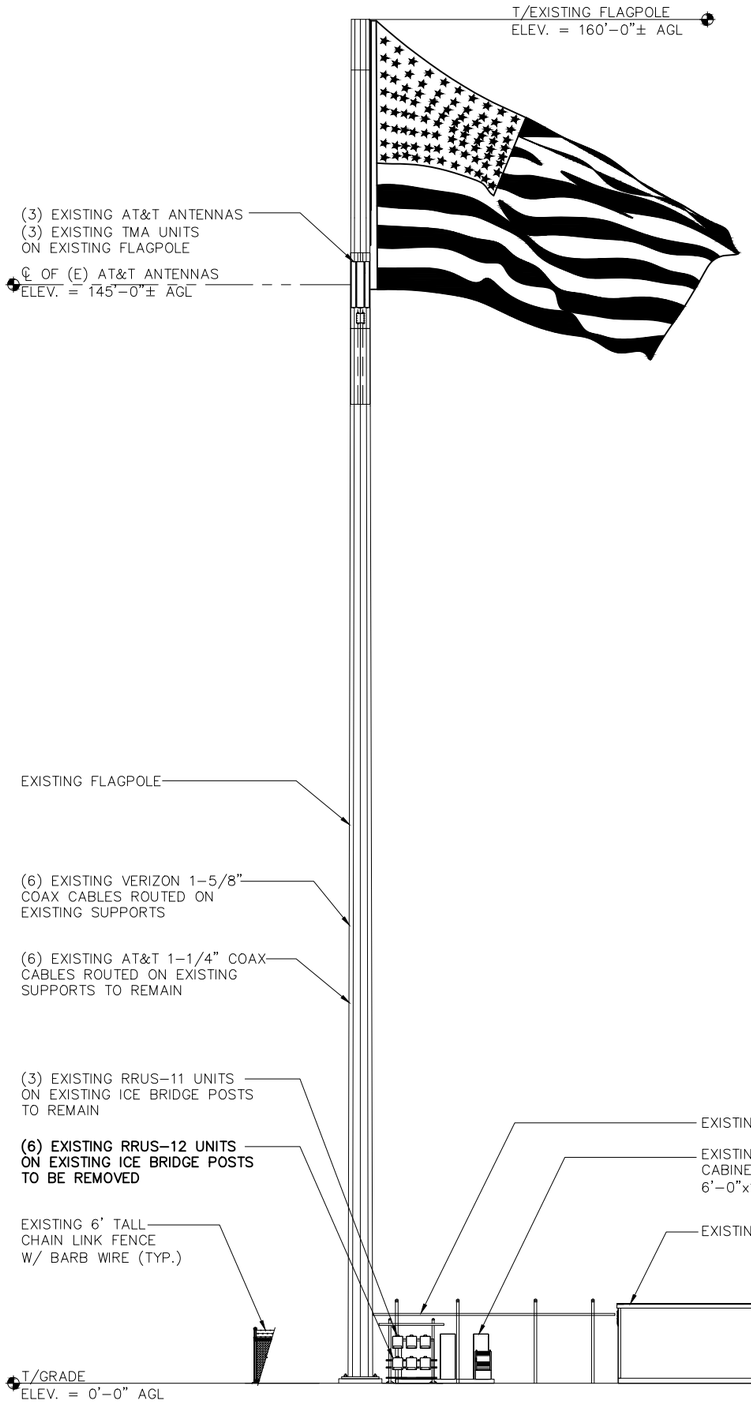
SHEET NAME
EQUIPMENT PLAN

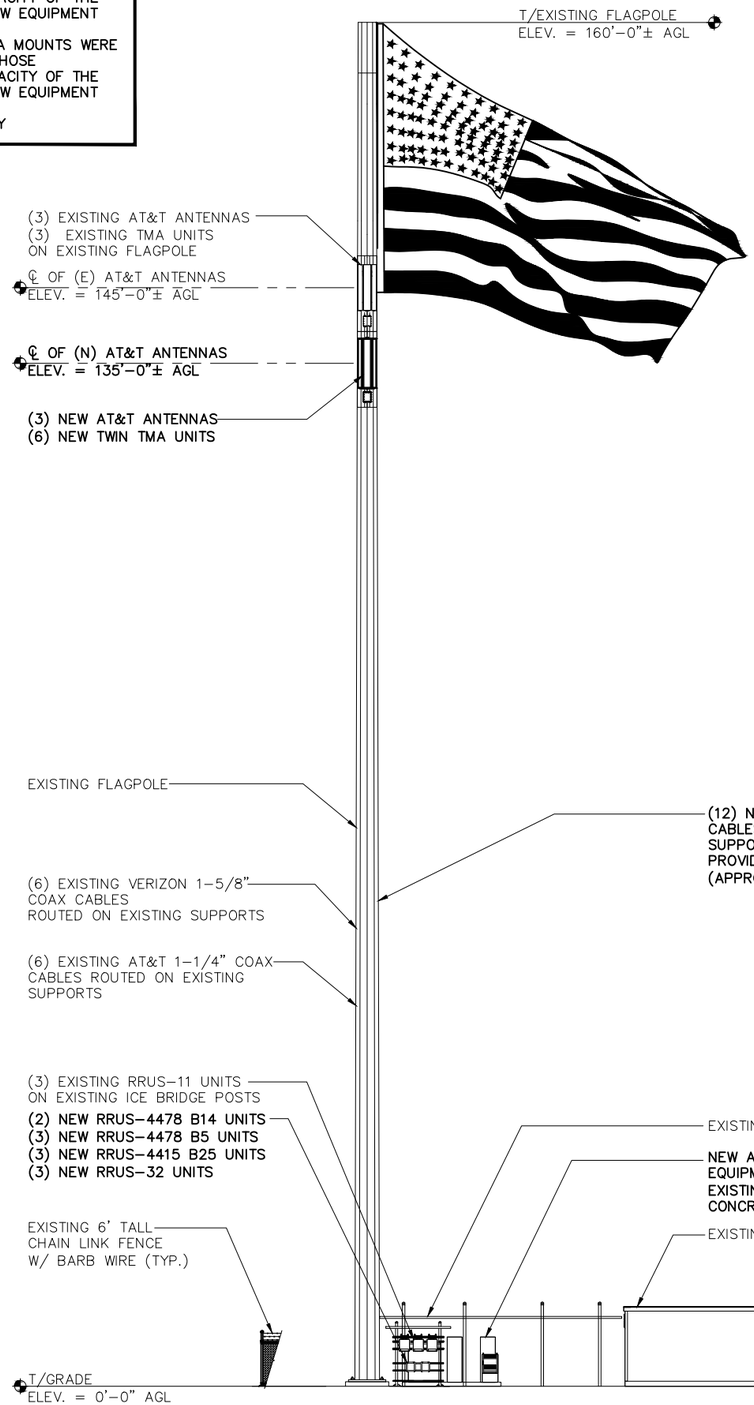
SHEET NUMBER
A2

NOTES:

1. CALCULATIONS FOR THE STRUCTURE WERE PREPARED BY OTHERS AND THOSE CALCULATIONS CERTIFY THE CAPACITY OF THE STRUCTURE TO SUPPORT THE NEW EQUIPMENT
2. CALCULATIONS FOR THE ANTENNA MOUNTS WERE PREPARED BY FULLERTON AND THOSE CALCULATIONS CERTIFY THE CAPACITY OF THE STRUCTURE TO SUPPORT THE NEW EQUIPMENT
3. CABLES NOT SHOWN FOR CLARITY



EXISTING ELEVATION — SCALE: 1" = 20'-0" — 1



NEW ELEVATION — SCALE: 1" = 20'-0" — 2

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768 GILEAD STREET
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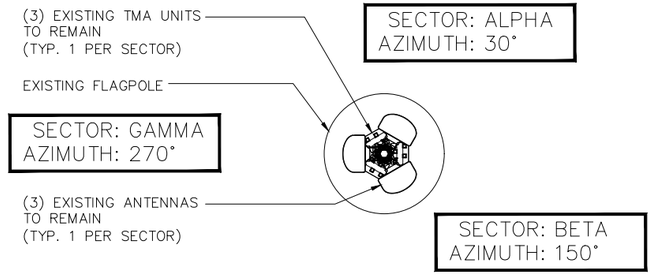
SHEET NAME
ELEVATIONS

SHEET NUMBER
A3

PROJECT# 2018.0171. 0016



EXISTING ELEVATION @ 145'

TRUE NORTH
MAGNETIC NORTH
DECLINATION
13.86°W ±0.36°
CHANGING BY .05° E
PER YEAR

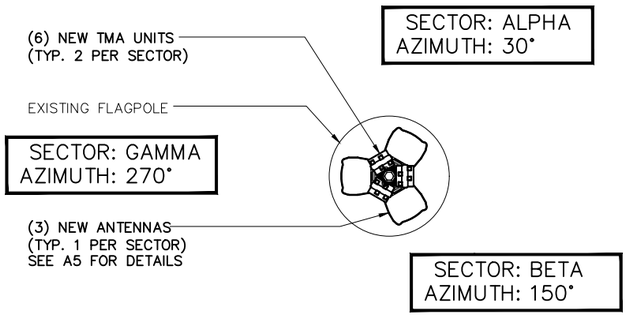
EXISTING ANTENNA PLAN

0 1' 2' 4' 6'

SCALE: 1/4" = 1'-0"

1

NOTES:
1. EXISTING ANTENNA MOUNTING PIPE TO BE REUSED, RELOCATED OR REPLACED AS REQUIRED
2. IF REQUIRED INSTALL NEW GALV. MOUNTING PIPE(S) 2.5 STD. (2-7/8" O.D.)



NEW ELEVATION @ 135'

TRUE NORTH
MAGNETIC NORTH
DECLINATION
13.86°W ±0.36°
CHANGING BY .05° E
PER YEAR

FINAL ANTENNA PLAN

0 1' 2' 4' 6'

SCALE: 1/4" = 1'-0"

2

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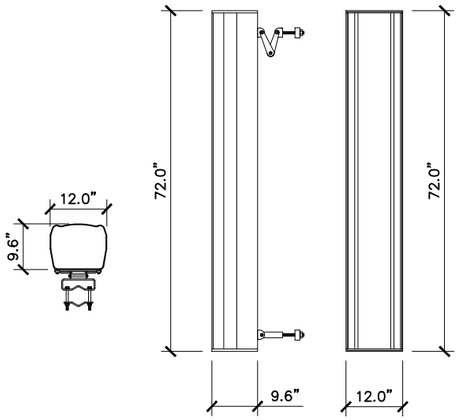
SHEET NAME
ANTENNA PLANS

SHEET NUMBER
A4

PROJECT# 2018.0171. 0016



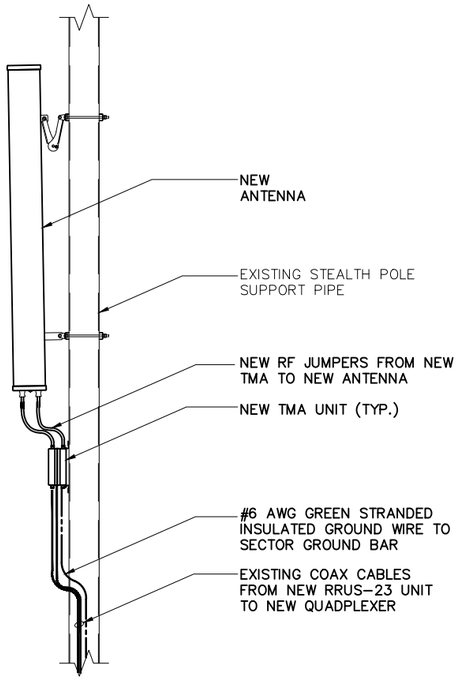
PLAN VIEW SIDE VIEW FRONT VIEW

QUINTEL – QS66512-2

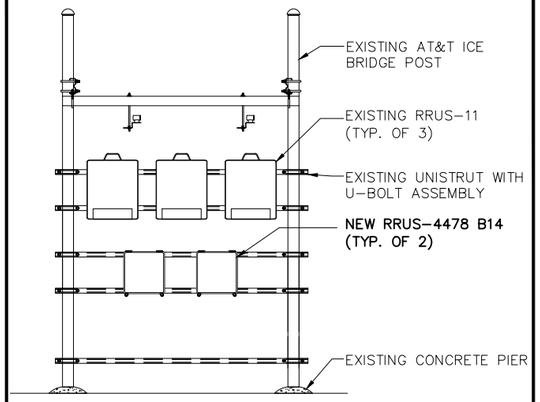
MULTISERVE MULITBAND 12 PORT ANTENNA
WITH QTILT AND INTERNAL RET

FREQUENCY RANGE	2x698–806 MHz 2x824–894 MHz 4x1850–1990 MHz 4x1695–1780 +2110–2400 MHz
ANTENNA	111 Lbs
BRACKET	15 Lbs
TOTAL WEIGHT	126 Lbs

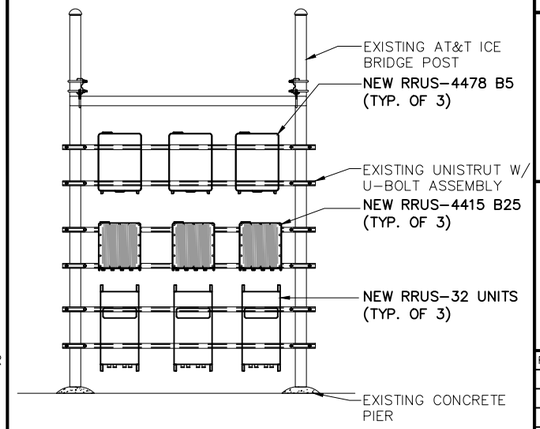
ANTENNA SPEC SCALE: N.T.S. 1



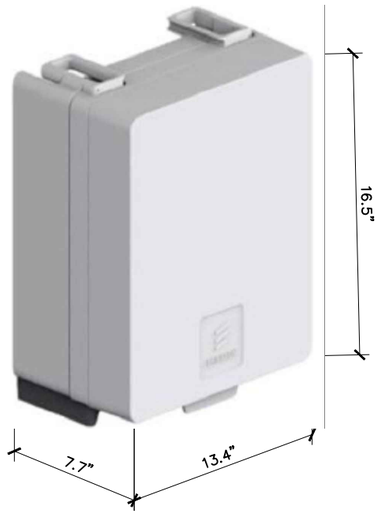
ANTENNA SCHEMATIC SCALE: N.T.S. 2



RRU DETAIL - SOUTH ELEVATION SCALE: N.T.S. 3



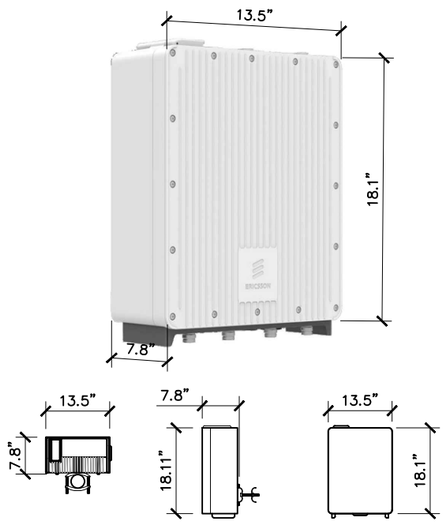
RRU DETAIL - NORTH ELEVATION SCALE: N.T.S. 4



ERICSSON – RRUS 4478 B14

FREQUENCY RANGE	TX 758–768 MHz RX 788–798 MHz
TOTAL WEIGHT	59.9 Lbs

RRU SPEC SCALE: N.T.S. 5

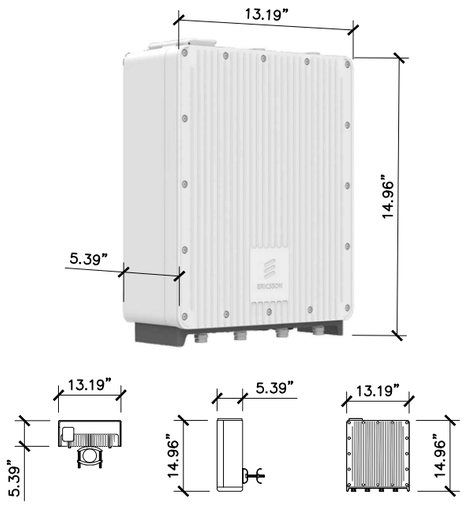


PLAN VIEW SIDE VIEW FRONT VIEW

Ericsson – RRUS 4478 B5

FREQUENCY RANGE	TX = 869–894 MHz RX = 824–849 MHz
TOTAL WEIGHT	56.1 Lbs

RRU SPEC SCALE: N.T.S. 6

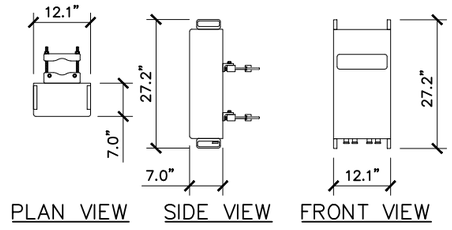


PLAN VIEW SIDE VIEW FRONT VIEW

ERICSSON – RRUS 4415 B25

FREQUENCY RANGE	TX = 1930–1995 MHz RX = 1850–1915 MHz
TOTAL WEIGHT	46.0 Lbs

RRU SPEC SCALE: N.T.S. 7



PLAN VIEW SIDE VIEW FRONT VIEW

ERICSSON – RRUS 32

UNIT WEIGHT 60 Lbs

RRU SPEC SCALE: N.T.S. 8

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3	03/13/19	FOR CONSTRUCTION	EB

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SITE NAME
HEBRON NORTH CENTRAL

SITE NUMBER:
CTL05866

SITE ADDRESS
768 GILEAD STREET
HEBRON, CT 06248

SHEET NAME
EQUIPMENT DETAILS

SHEET NUMBER
A5

PROJECT# 2018.0171. 0016

FINAL ANTENNA CONFIGURATION AND CABLE SCHEDULE
SUPPLIED BY AT&T WIRELESS, FROM RF CONFIG. DATED (08/13/18)

SECTOR	ANTENNA NUMBER	ANTENNA STATUS & TYPE	ANTENNA MODEL NUMBER	ANTENNA VENDOR	TMA/RRU UNIT (BY ANTENNAS)	TMA/RRU UNIT (BY EQUIPMENT)	AZIMUTH	ANTENNA CL FROM GROUND	CABLE FEEDER		RAYCAP UNIT
									TYPE	LENGTH	
ALPHA	A-1	(E) UMTS/ LTE1C ANTENNA	AM-X-CD-16-65-00T-RET	KMW	(1) EXISTING TMA UNIT (DTMABP7819VG12A)	(2) EXISTING TPX-070821 TRIPLEXER UNIT (1) EXISTING RRUS-11 UNIT	30°	145'-0"	1-1/4"ø LDF5-50A	165'-0"	
									1-1/4"ø LDF5-50A	165'-0"	
	A-2	**(N) 5G/4C/5C LTE ANTENNA**	**QS66512-2**	**QUINTEL**	**(2) NEW TWIN TMA UNITS (TMA2117F00V1-1)**	**(1) NEW RRUS-4478 B14 UNIT (1) NEW RRUS-4478 B5 UNIT (1) NEW RRUS-4415 B25 UNIT (1) NEW RRUS-32 UNIT (4) NEW QBC0007F1V51-1**	**30°**	**135'-0"**	**(2) (N) 1-1/4"ø LDF5-50A**	**165'-0"**	
									(2) (N) 1-1/4"ø LDF5-50A	**165'-0"**	
	A-3										
	A-4										
BETA	B-1	(E) UMTS/ LTE1C ANTENNA	AM-X-CD-16-65-00T-RET	KMW	(1) EXISTING TMA UNIT (DTMABP7819VG12A)	(2) EXISTING TPX-070821 TRIPLEXER UNIT	150°	145'-0"	1-1/4"ø LDF5-50A	165'-0"	
									1-1/4"ø LDF5-50A	165'-0"	
	B-2	**(N) 5G/4C/5C LTE ANTENNA**	**QS66512-2**	**QUINTEL**	**(2) NEW TWIN TMA UNITS (TMA2117F00V1-1)**	**(1) NEW RRUS-4478 B14 UNIT (1) NEW RRUS-4478 B5 UNIT (1) NEW RRUS-4415 B25 UNIT (1) NEW RRUS-32 UNIT (4) NEW QBC0007F1V51-1**	**150°**	**135'-0"**	**(2) (N) 1-1/4"ø LDF5-50A**	**165'-0"**	
									(2) (N) 1-1/4"ø LDF5-50A	**165'-0"**	
	B-3										
	B-4										
GAMMA	C-1	(E) UMTS/ LTE1C ANTENNA	AM-X-CD-16-65-00T-RET	KMW	(1) EXISTING TMA UNIT (DTMABP7819VG12A)	(2) EXISTING TPX-070821 TRIPLEXER UNIT	270°	145'-0"	1-1/4"ø LDF5-50A	165'-0"	
									1-1/4"ø LDF5-50A	165'-0"	
	C-2	**(N) 5G/4C/5C LTE ANTENNA**	**QS66512-2**	**QUINTEL**	**(2) NEW TWIN TMA UNITS (TMA2117F00V1-1)**	**RRUS-4478 B14 SHARED W/ALPHA (1) NEW RRUS-4478 B5 UNIT (1) NEW RRUS-4415 B25 UNIT (1) NEW RRUS-32 UNIT (4) NEW QBC0007F1V51-1**	**270°**	**135'-0"**	**(2) (N) 1-1/4"ø LDF5-50A**	**165'-0"**	
									(2) (N) 1-1/4"ø LDF5-50A	**165'-0"**	
	C-3										
	C-4										

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STATE OF CONNECTICUT · HENRY M. BELLAGAMBA · 25358 · LICENSED PROFESSIONAL ENGINEER

SITE NAME
HEBRON NORTH CENTRAL

SITE NUMBER:
CTL05866

SITE ADDRESS
768 GILEAD STREET
HEBRON, CT 06248

SHEET NAME
ANTENNA & CABLE CONFIGURATION

SHEET NUMBER
A6

1. CONTRACTOR IS TO REFER TO AT&T'S MOST CURRENT RADIO FREQUENCY DATA SHEET (RFDS) PRIOR TO CONSTRUCTION.
2. THE SIZE, HEIGHT, AND DIRECTION OF THE ANTENNAS SHALL BE ADJUSTED TO ACHIEVE THE AZIMUTHS SPECIFIED AND LIMIT SHADOWING AND TO MEET THE SYSTEM REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY THE HEIGHT OF THE ANTENNA WITH THE AT&T WIRELESS PROJECT MANAGER.
4. VERIFY TYPE AND SIZE OF TOWER LEG PRIOR TO ORDERING ANY ANTENNA MOUNT.
5. UNLESS NOTED OTHERWISE THE CONTRACTOR MUST PROVIDE ALL MATERIAL NECESSARY.
6. ANTENNA AZIMUTHS ARE DEGREES OFF OF TRUE NORTH, BEARING CLOCKWISE, IN WHICH ANTENNA FACE IS DIRECTED. ALL ANTENNAS (AND SUPPORTING STRUCTURES AS PRACTICAL) SHALL BE ACCURATELY ORIENTED IN THE SPECIFIED DIRECTION.
7. CONTRACTOR SHALL VERIFY ALL RF INFORMATION PRIOR TO CONSTRUCTION.
8. SWEEP TEST SHALL BE PERFORMED BY GENERAL CONTRACTOR AND SUBMITTED TO AT&T WIRELESS CONSTRUCTION SPECIALIST. TEST SHALL BE PERFORMED PER AT&T WIRELESS STANDARDS.
9. CABLE LENGTHS WERE DETERMINED BASED ON THE DESIGN DRAWING. CONTRACTOR TO VERIFY ACTUAL LENGTH DURING PRE-CONSTRUCTION WALK.
10. CONTRACTOR TO USE ROSENBERGER FIBER LINE HANGER COMPONENTS (OR ENGINEER APPROVED EQUAL).

ANTENNA AND CABLING NOTES

SCALE: N.T.S. | 1

RF, DC, & COAX CABLE MARKING LOCATIONS TABLE	
NO	LOCATIONS
1	EACH TOP-JUMPER SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS.
2	EACH MAIN COAX SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS NEAR THE TOP-JUMPER CONNECTION AND WITH (1) SET OF 3/4" WIDE COLOR BANDS JUST PRIOR TO ENTERING THE BTS OR TRANSMITTER BUILDING.
3	CABLE ENTRY PORT ON THE INTERIOR OF THE SHELTER.
4	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.
5	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.

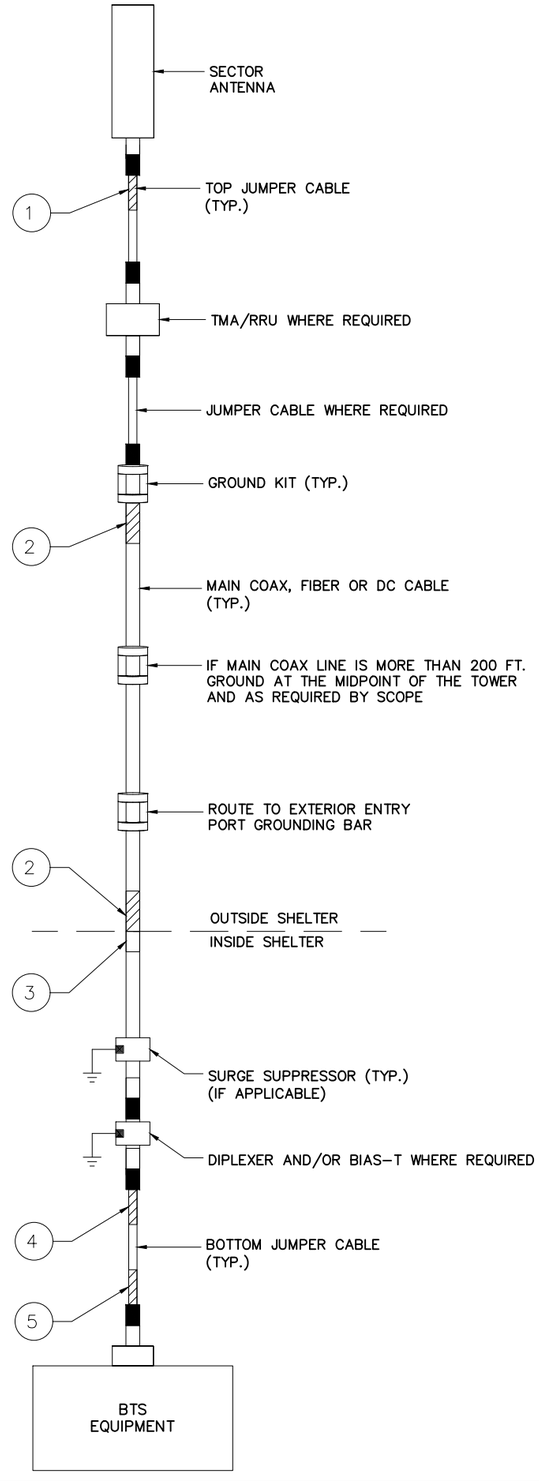
CABLE MARKING DIAGRAM

SCALE: N.T.S. | 2

1. THE ANTENNA SYSTEM COAX SHALL BE LABELED WITH VINYL TAPE.
2. THE STANDARD IS BASED ON EIGHT COLORED TAPES-RED, BLUE, GREEN, YELLOW, ORANGE, BROWN, WHITE, AND VIOLET. THESE TAPES MUST BE 3/4" WIDE & UV RESISTANT SUCH AS SCOTCH 35 VINYL ELECTRICAL COLOR CODING TAPE AND SHOULD BE READILY AVAILABLE TO THE ELECTRICIAN OR CONTRACTOR ON SITE.
3. USING COLOR BANDS ON THE CABLES, MARK ALL RF CABLE BY SECTOR AND CABLE NUMBER AS SHOWN ON "CABLE COLOR CHART".
4. WHEN AN EXISTING COAXIAL LINE THAT IS INTENDED TO BE A SHARED LINE BETWEEN TECHNOLOGIES IS ENCOUNTERED, THE CONTRACTOR SHALL REMOVE THE EXISTING COLOR CODING SCHEME AND REPLACE IT WITH THE COLOR CODING STANDARD. IN THE ABSENCE OF AN EXISTING COLOR CODING AND TAGGING SCHEME, OR WHEN INSTALLING PROPOSED COAXIAL CABLES, THIS GUIDELINE SHALL BE IMPLEMENTED AT THAT SITE REGARDLESS OF TECHNOLOGY.
5. ALL COLOR CODE TAPE SHALL BE 3M-35 AND SHALL BE INSTALLED USING A MINIMUM OF (3) THREE WRAPS OF TAPE AND SHALL BE NEATLY TRIMMED AND SMOOTHED OUT SO AS TO AVOID UNRAVELING.
6. ALL COLOR BANDS INSTALLED AT THE TOP OF THE TOWER SHALL BE A MINIMUM OF 3" WIDE, AND SHALL HAVE A MINIMUM OF 3/4" OF SPACE BETWEEN EACH COLOR.
7. ALL COLOR CODES SHALL BE INSTALLED SO AS TO ALIGN NEATLY WITH ONE ANOTHER FROM SIDE-TO-SIDE.
8. IF EXISTING CABLES AT THE SITE ALREADY HAVE A COLOR CODING SCHEME AND THEY ARE NOT INTENDED TO BE REUSED OR SHARED WITH THE NEW TECHNOLOGY, THE EXISTING COLOR CODING SCHEME SHALL REMAIN UNTOUCHED.

CABLE MARKING NOTES

SCALE: N.T.S. | 3



CABLE COLOR CODING DIAGRAM

SCALE: N.T.S. | 4

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STATE OF CONNECTICUT · HENRY M. BELLAGAMBA · 25358 · LICENSED PROFESSIONAL ENGINEER

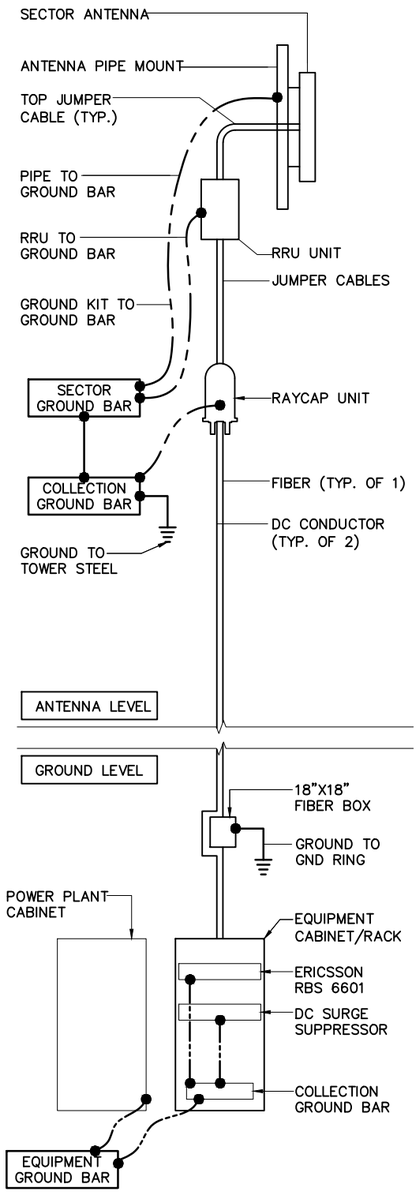
SITE NAME
HEBRON NORTH CENTRAL

SITE NUMBER:
CTL05866

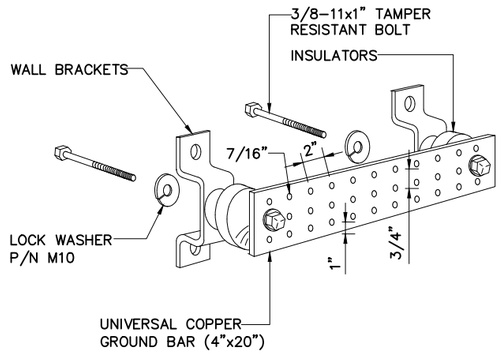
SITE ADDRESS
768 GILEAD STREET
HEBRON, CT 06248

SHEET NAME
CABLE NOTES AND COLOR CODING

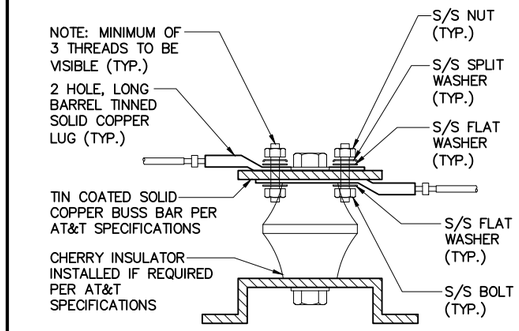
SHEET NUMBER
A7



GROUNDING SCHEMATIC SCALE: N.T.S. 1



GROUND BAR DETAIL SCALE: N.T.S. 2

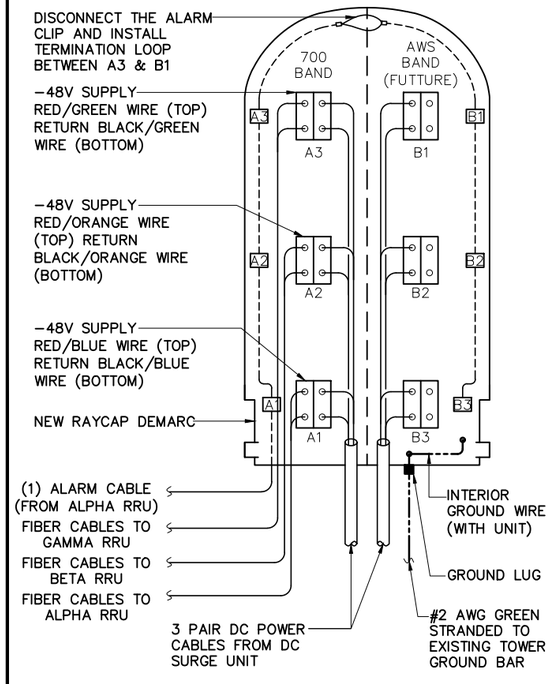


NOTES:

1. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING SPLIT WASHERS.
2. COAT WIRE END WITH ANTI-OXIDATION COMPOUND PRIOR TO INSERTION INTO LUG BARREL AND CRIMPING.
3. APPLY ANTI-OXIDATION COMPOUND BETWEEN ALL LUGS AND BUSS BARS PRIOR TO MATING AND BOLTING.

LUG DETAIL SCALE: N.T.S. 3

EXOTHERMIC WELD DETAILS SCALE: N.T.S. 4



RAYCAP DC POWER AND ALARM DET. SCALE: N.T.S. 5

NOT USED SCALE: N.T.S. 6

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HEBRON NORTH CENTRAL

SITE NUMBER:
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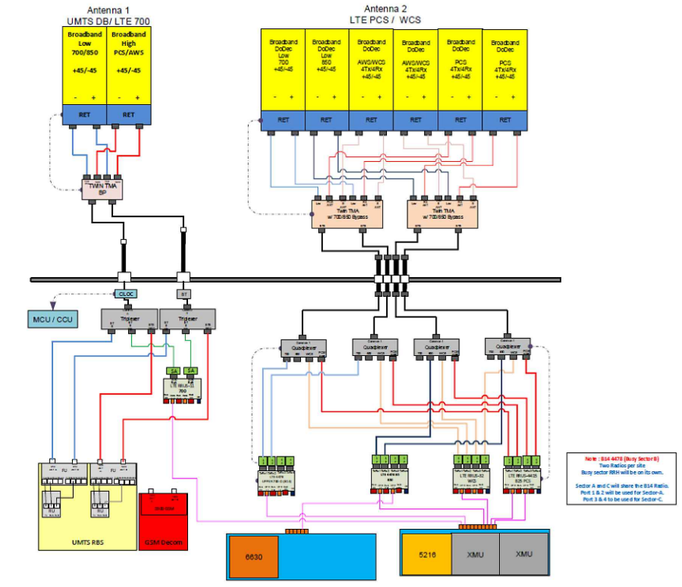
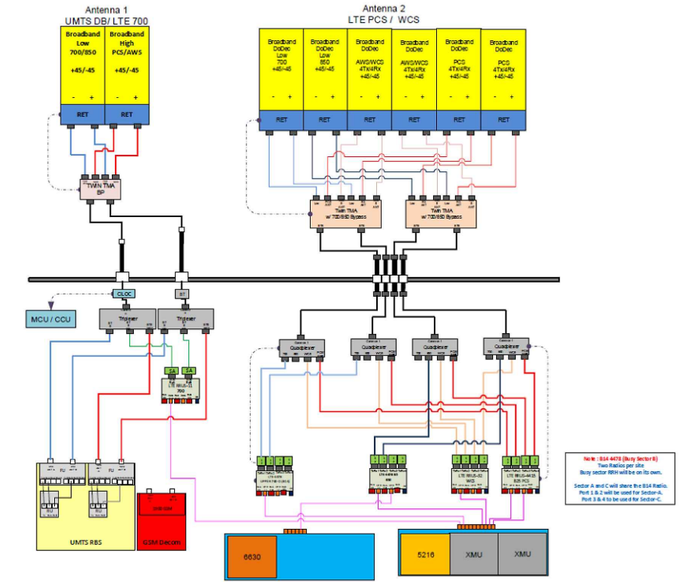
SITE ADDRESS
768 GILEAD STREET
HEBRON, CT 06248

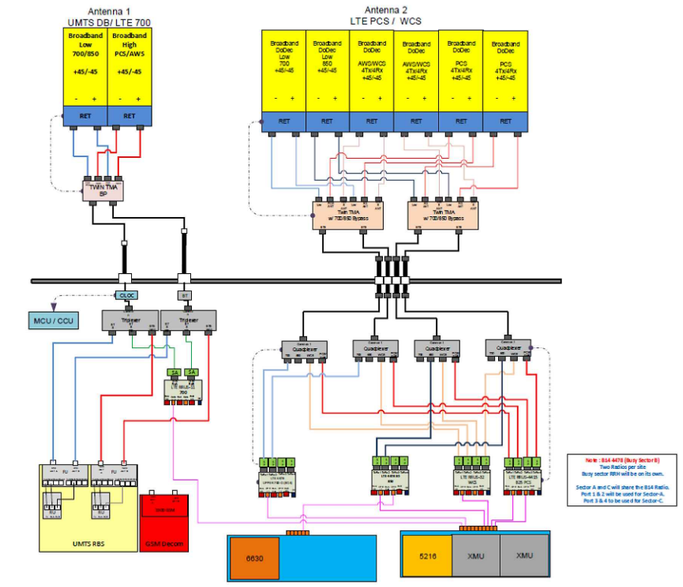
SHEET NAME
GROUNDING DETAILS

SHEET NUMBER
A8

PROJECT# 2018.0171. 0016







*BASED ON RFDS V3.0, DATED (08/13/18)

PLUMBING DIAGRAMS

SCALE: N.T.S. | 1

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LICENSED PROFESSIONAL ENGINEER

SITE NAME
HEBRON NORTH CENTRAL

SITE NUMBER:
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HEBRON, CT 06248

SHEET NAME
PLUMBING DIAGRAMS

SHEET NUMBER
A9

PROJECT# 2018.0171. 0016

RF EMISSIONS COMPLIANCE REPORT

Smartlink on behalf of AT&T Mobility, LLC

Site Name: Hebron North Central
AT&T Mobility, LLC Site FA #: 10071077
AT&T Mobility, LLC Site USID: 26173
AT&T Mobility, LLC Site ID: CT5866
768 Gilead Street
Hebron, CT
2/26/2019

Report Status:

AT&T Mobility, LLC Is Compliant

sealed 27feb2019 mike@h2dc.com
H2DC PLLC CT CoA#: 0001714

Prepared By:

Sitesafe, LLC

8618 Westwood Center Drive,
Suite 315
Vienna, VA 22182
Voice 703-276-1100
Fax 703-276-1169

Engineering Statement in Re:
Electromagnetic Energy Analysis
Smartlink
Hebron, CT

My signature on the cover of this document indicates:

That I, Michael A McGuire, am currently and actively licensed to provide (in this state/jurisdiction as indicated within the professional electrical engineering seal on the cover of this document) professional electrical engineering services, as an employee of Hurricane Hill Development Company, PLLC , a duly authorized/registered engineering firm (in this state, as applicable) on behalf of SiteSafe, LLC; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission ("the FCC" and "the FCC Rules") both in general and specifically as they apply to the FCC's Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; and

That the technical information serving as the basis for this report was supplied by Smartlink (See attached Site Summary and Carrier documents), and that AT&T Mobility, LLC's installations involve communications equipment, antennas and associated technical equipment at a location referred to as the "Hebron North Central" ("the site"); and

That AT&T Mobility, LLC proposes to operate at the site with transmit antennas listed in the carrier summary and with a maximum effective radiated power as specified by AT&T Mobility, LLC and shown on the worksheet, and that worst-case 100% duty cycle have been assumed; and

That this analysis has been performed with the assumption that the ground immediately surrounding the tower is primarily flat or falling; and

That at this time, the FCC requires that certain licensees address specific levels of radio-frequency energy to which workers or members of the public might possibly be exposed (at §1.1307(b) of the FCC Rules); and

That such consideration of possible exposure of humans to radio-frequency radiation must utilize the standards set by the FCC, which is the Federal Agency having jurisdiction over communications facilities; and

That the FCC rules define two tiers of permissible exposure guidelines: 1) "uncontrolled environments," defined as situations in which persons may not be aware of (the "general public"), or may not be able to control their exposure to a transmission facility; and (2) "controlled environments," which defines situations in which persons are aware of their potential for exposure (industry personnel); and

That this statement specifically addresses the uncontrolled environment (which is more conservative than the controlled environment) and the limit set forth in the FCC rules for licensees of AT&T Mobility, LLC's operating frequency as shown on the attached antenna worksheet; and

That when applying the uncontrolled environment standards, the predicted Maximum Power Density at two meters above ground level from the proposed AT&T Mobility, LLC operation is no more than 2.207% of the maximum in any accessible area on the ground and

That it is understood per FCC Guidelines and OET65 Appendix A, that regardless of the existent radio-frequency environment, only those licenses whose contributions exceed five percent of the exposure limit pertinent to their operation(s) bear any responsibility for bringing any non-compliant area(s) into compliance; and

That when applying the uncontrolled environment standards, the cumulative predicted energy density from the proposed operation is no more than 2.207% of the maximum in any accessible area up to two meters above the ground per OET-65; and

That the calculations provided in this report are based on data provided by the client and antenna pattern data supplied by the antenna manufacturer, in accordance with FCC guidelines listed in OET-65. Horizontal and vertical antenna patterns are combined for modeling purposes to accurately reflect the energy two meters above ground level where on-axis energy refers to maximum energy two meters above the ground along the azimuth of the antenna and where area energy refers to the maximum energy anywhere two meters above the ground regardless of the antenna azimuth, accounting for cumulative energy from multiple antennas for the carrier and frequency range indicated; and

That the Occupational Safety and Health Administration has policies in place which address worker safety in and around communications sites, thus individual companies will be responsible for their employees' training regarding Radio Frequency Safety.

In summary, it is stated here that the proposed operation at the site would not result in exposure of the Public to excessive levels of radio-frequency energy as defined in the FCC Rules and Regulations, specifically 47 CFR 1.1307 and that AT&T Mobility, LLC's proposed operation is completely compliant.

Finally, it is stated that access to the tower should be restricted to communication industry professionals, and approved contractor personnel trained in radio-frequency safety; and that the instant analysis addresses exposure levels at two meters above ground level and does not address exposure levels on the tower, or in the immediate proximity of the antennas.

Smartlink
Hebron North Central
Site Summary

Carrier	Area Maximum Percentage MPE
AT&T Mobility, LLC	0.163 %
AT&T Mobility, LLC	0.282 %
AT&T Mobility, LLC (Proposed)	0.353 %
AT&T Mobility, LLC (Proposed)	0.382 %
AT&T Mobility, LLC (Proposed)	0.491 %
AT&T Mobility, LLC (Proposed)	0.535 %
Composite Site MPE:	2.207 %

AT&T Mobility, LLC
Hebron North Central
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	µW/cm^2
Maximum power density at ground level:	0.92625	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.16346	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
KMW	AM-X-CD-16-65-00T	145	30	971	0.920847	0.162502	0.920995	0.162529
KMW	AM-X-CD-16-65-00T	145	150	971	0.920847	0.162502	0.920995	0.162529
KMW	AM-X-CD-16-65-00T	145	270	971	0.920847	0.162502	0.920995	0.162529

AT&T Mobility, LLC
Hebron North Central
Carrier Summary

Frequency:	737	MHz
Maximum Permissible Exposure (MPE):	491.33	µW/cm^2
Maximum power density at ground level:	1.38511	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.28191	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
KMW	AM-X-CD-16-65-00T	145	30	1239	1.375912	0.280036	1.381348	0.281143
KMW	AM-X-CD-16-65-00T	145	150	1239	1.372409	0.279324	1.381348	0.281143
KMW	AM-X-CD-16-65-00T	145	270	1239	1.375912	0.280036	1.381348	0.281143

AT&T Mobility, LLC (Proposed)
Hebron North Central
Carrier Summary

Frequency:	2300	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	3.53367	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.35337	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Quintel	QS66512-2	135	30	4572	1.982468	0.198247	3.397988	0.339799
Quintel	QS66512-2	135	150	4572	1.980407	0.198041	3.397988	0.339799
Quintel	QS66512-2	135	270	4572	1.980407	0.198041	3.397989	0.339799

AT&T Mobility, LLC (Proposed)
Hebron North Central
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	3.8197	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.38197	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Quintel	QS66512-2	135	30	4170	2.847927	0.284793	3.618643	0.361864
Quintel	QS66512-2	135	150	4170	2.445529	0.244553	3.246878	0.324688
Quintel	QS66512-2	135	270	4170	2.847927	0.284793	3.618643	0.361864

AT&T Mobility, LLC (Proposed)
Hebron North Central
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	µW/cm^2
Maximum power density at ground level:	2.78079	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.49073	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Quintel	QS66512-2	135	30	998	1.084149	0.19132	1.372952	0.242286
Quintel	QS66512-2	135	30	998	1.084149	0.19132	1.372952	0.242286
Quintel	QS66512-2	135	150	998	1.079438	0.190489	1.372952	0.242286
Quintel	QS66512-2	135	150	998	1.079438	0.190489	1.372952	0.242286
Quintel	QS66512-2	135	270	998	1.084149	0.19132	1.372952	0.242286
Quintel	QS66512-2	135	270	998	1.084149	0.19132	1.372952	0.242286

AT&T Mobility, LLC (Proposed)
Hebron North Central
Carrier Summary

Frequency:	763	MHz
Maximum Permissible Exposure (MPE):	508.67	µW/cm^2
Maximum power density at ground level:	2.72284	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.53529	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Quintel	QS66512-2	135	30	2239	2.435275	0.478756	2.693144	0.529452
Quintel	QS66512-2	135	150	2239	2.434686	0.478641	2.693144	0.529452
Quintel	QS66512-2	135	270	2239	2.434686	0.478641	2.693144	0.529452

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 160 ft Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT01001-S

Customer Site Name: Hebron

Carrier Name: AT&T (App#: 96265, V#2)

Carrier Site ID / Name: CTL05866 / AWE-Hebron North

Site Location: 768 Gilead Street

Hebron, Connecticut

Tolland County

Latitude: 41.686314

Longitude: -72.415106

3/26/19

Analysis Result:

Max Structural Usage: 96.1% [Pass]

Max Foundation Usage: 41% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Mariana Franco

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Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Mariana Franco

Introduction

The purpose of this report is to summarize the analysis results on the 160 ft Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Original structure drawings by Armor Tower, Inc. Job#CT01001-S Dated:12/02/2001
Foundation Drawing	Original foundation drawings by Armor Tower, Inc. Job#CT01001-S Dated:10/24/2001
Geotechnical Report	Geotechnical Report by Jaworski Geotech, Inc. Job#: 00839G Dated:08/31/2001
Modification Drawings	N/A

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-G**.** In accordance with this standard, the structure was analyzed using **TESPoles,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 130.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 101.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.177g, S_1 = 0.063g

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	150.0	3	Amphenol QXW-634X638XBF-EDIN - Panel	Inside 36" Concealment Canister	(12) 1 5/8"	Verizon
2		6	RFS FD9R6004-2C-3L - Diplexer			
-	145.0	3	KMW AM-X-CD-16-65-00T - Panel	Inside 36" Concealment Canister	(6) 1 5/8"	AT&T
-		6	Cci DTMABP7819VG12A TMA			

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
3	145.0	3	KMW AM-X-CD-16-65-00T-RET - Panel	Inside 36" Concealment Canister	(18) 1 1/4"	AT&T
4		6	Cci DTMABP7819VG12A TMA			
5	135.0	6	Kaelus TMA2117F00V1-1			
6		3	Quintel QS66512-2 - Panel			

All transmission lines are considered running inside of the pole shafts.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate	Flange
Max. Usage:	**52.6%**	**38.7%**	**43.5%**	**96.1%**
Pass/Fail	**Pass**	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	1456.0	16.0
Analysis Reactions	1603.9	18.3
Factored Reactions*	1965.6	21.6
% of Design Reactions	81.6%	84.5%

* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.6557 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the ANSI/TIA/EIA 222-G Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Ratio 52.62% at 110.0ft

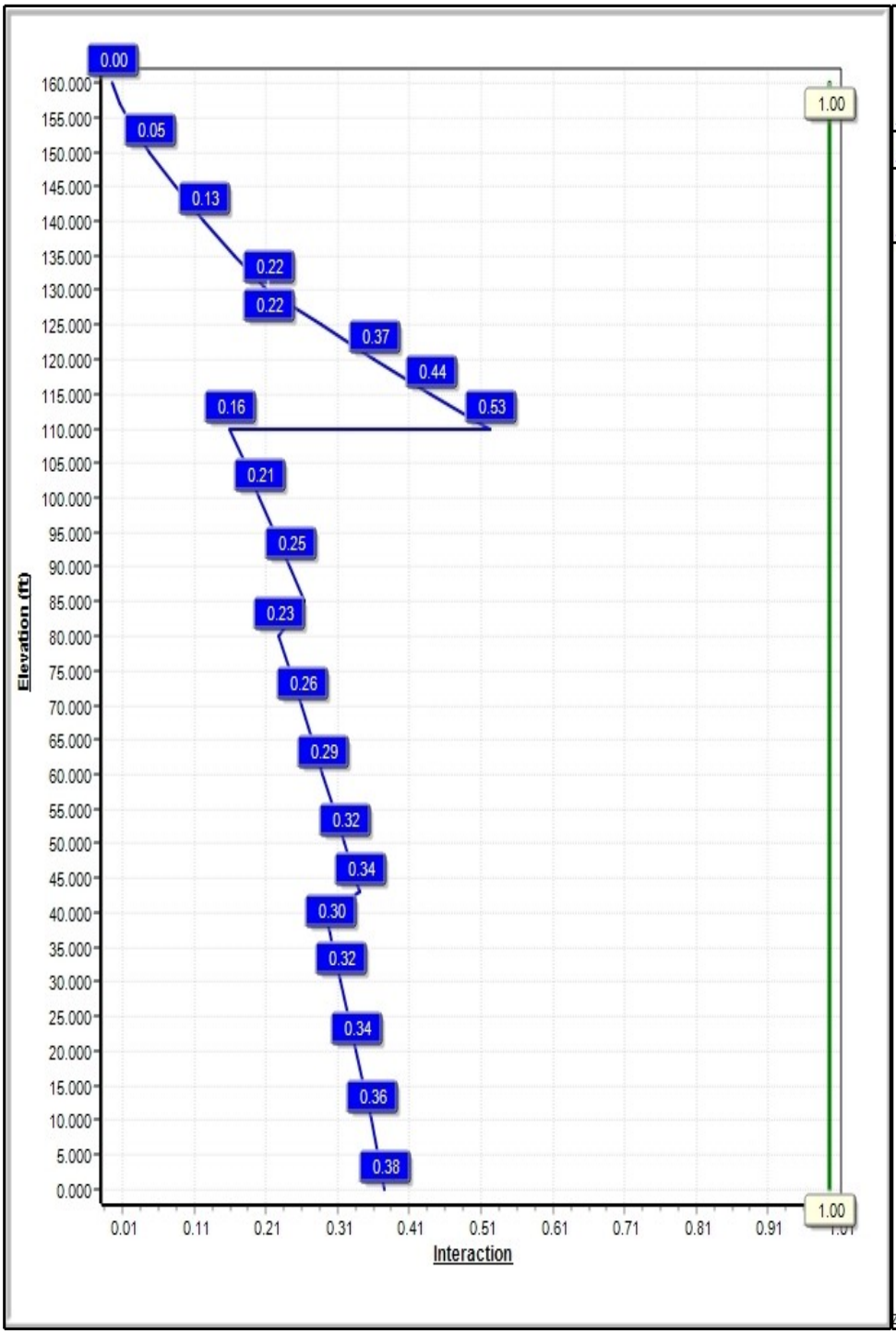
Structure:	CT01001-S-SBA	**Code:**	EIA/TIA-222-G	3/26/2019
Site Name:	Hebron	**Exposure:**	C	
Height:	160.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

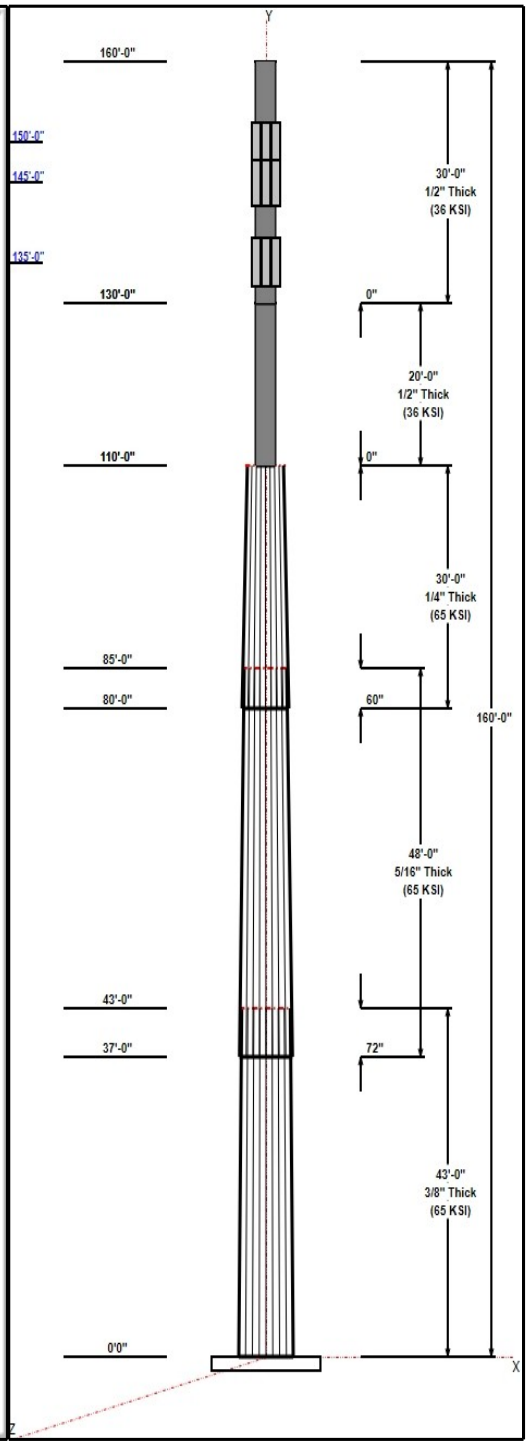
Tower Engineering Solutions

Dead Load Factor:	1.20
Wind Load Factor:	1.60

Load Case : 1.2D + 1.6W 101 mph Wind

Iterations: 25





Structure: CT01001-S-SBA

Type: Custom
Site Name: Hebron
Height: 160.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.20383

3/26/2019

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	43.00	44.30	51.60	0.375		0.20383	65
2	48.00	37.78	45.95	0.313	Slip	0.20383	65
3	30.00	34.00	39.14	0.250	Slip	0.20383	65
4	20.00	17.00	17.00	0.500	Butt	0.00000	36
5	30.00	17.00	17.00	0.500	Butt	0.00000	36

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
160.00	160.00	1	Canister	
157.00	157.00	1	Flag	AT&T
150.00	150.00	3	QXW-634X638XBF-EDIN	Verizon
150.00	150.00	6	FD9R6004-2C-3L	Verizon
145.00	145.00	3	AM-X-CD-16-65-00T	AT&T
145.00	145.00	6	DTMABP7819VG12A TMA	AT&T
135.00	135.00	6	TMA2093F00V1-1	AT&T
135.00	135.00	3	QS66512-2	AT&T
130.00	130.00	1	Canister	
110.00	110.00	1	Canister	

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	150.00	Inside	1 5/8" Coax	Verizon
0.00	145.00	Inside	1 1/4" Coax	AT&T

Anchor Bolts

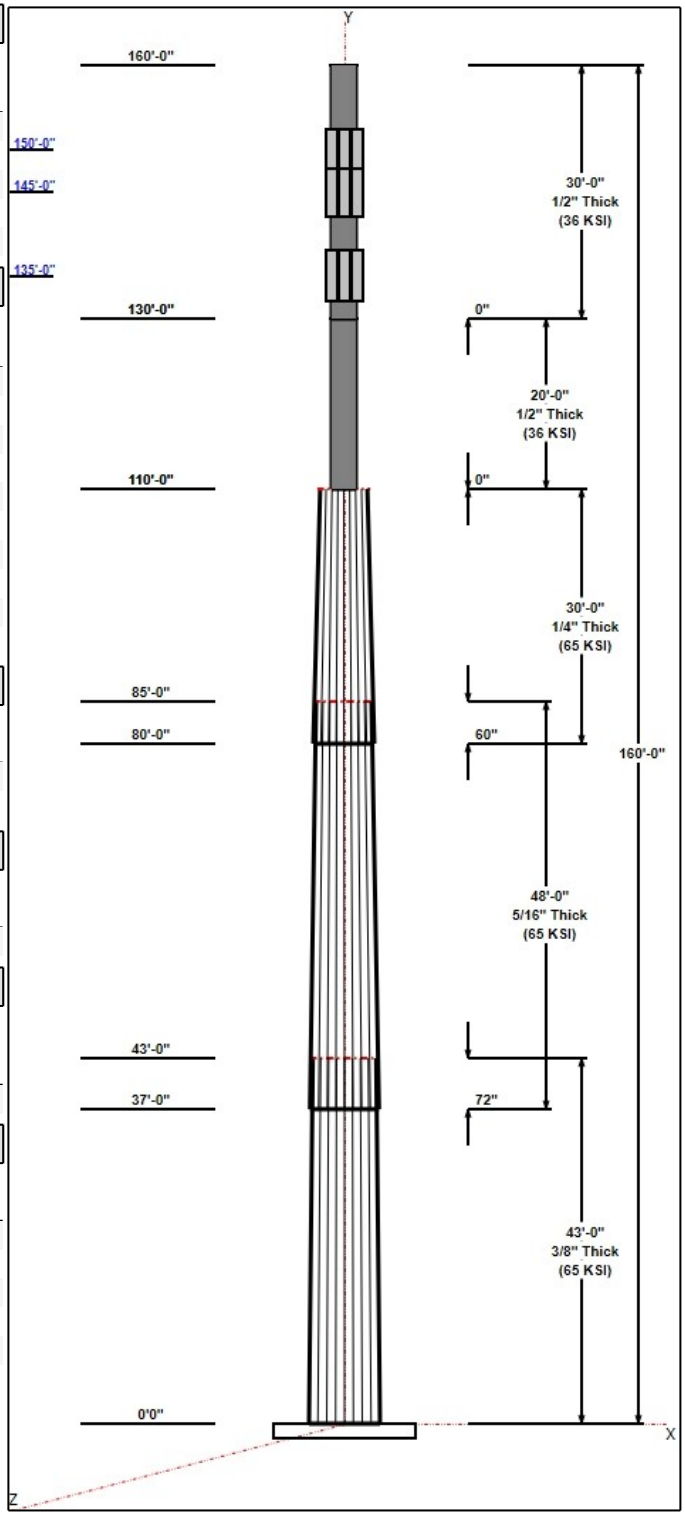
Qty	Specifications	Grade (ksi)	Arrangement
12	2.00" A687	105.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.0000	62.0	36.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 101 mph Wind	1603.9	18.3	33.7
0.9D + 1.6W 101 mph Wind	1591.1	18.3	25.3
1.2D + 1.0Di + 1.0Wi 50 mph Wind	778.2	7.5	52.3
1.2D + 1.0E	111.5	1.0	33.7
0.9D + 1.0E	110.4	1.0	25.3
1.0D + 1.0W 60 mph Wind	351.9	4.0	28.1



Structure: CT01001-S-SBA - Coax Line Placement

Type: Monopole
Site Name: Hebron
Height: 160.00 (ft)

3/26/2019

Tower Engineering Solutions

Shaft Properties

Structure:	CT01001-S-SBA		**Code:**	EIA/TIA-222-G	3/26/2019
Site Name:	Hebron		**Exposure:**	C	
Height:	160.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 4

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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	R	43.000	0.3750	65		0.00	8,158
2	R	48.000	0.3125	65	Slip	72.00	6,600
3	R	30.000	0.2500	65	Slip	60.00	2,902
4	R	20.000	0.5000	36	Flange	0.00	1,764
5	R	30.000	0.5000	36	Flange	0.00	2,646
					Total Shaft Weight:		**22,070**

	Bottom						Top						
Sec. No.	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Taper**
1	51.60	0.00	60.97	20212.57	22.85	137.60	44.30	43.00	50.54	11511.4	18.73	118.1	0.203827
2	45.95	37.00	45.26	11908.97	24.51	147.03	37.78	85.00	35.56	5774.18	18.99	120.9	0.203827
3	39.14	80.00	30.86	5896.55	26.20	156.56	34.00	110.00	26.01	3529.55	21.88	136.0	0.203827
4	17.00	110.0	25.92	882.70	0.00	34.00	17.00	130.00	25.92	882.70	0.00	34.00	0.000000
5	17.00	130.0	25.92	882.70	0.00	34.00	17.00	160.00	25.92	882.70	0.00	34.00	0.000000

Load Summary

Structure:	CT01001-S-SBA	**Code:**	EIA/TIA-222-G	3/26/2019	
Site Name:	Hebron	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 5	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	**Elev (ft)**	**Description**	**Qty**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Hor. Ecc. (ft)**	**Vert Ecc (ft)**
1	160.00	Canister	1	500.00	15.00	1.00	546.84	57.156	1.00	0.00	0.00
2	157.00	Flag	1	200.00	11.49	1.00	218.70	36.179	1.00	0.00	0.00
3	150.00	QXW-634X638XBF-EDIN	3	29.80	0.00	0.79	218.27	0.000	0.79	0.00	0.00
4	150.00	FD9R6004-2C-3L	6	2.60	0.00	0.62	13.30	0.000	0.62	0.00	0.00
5	145.00	AM-X-CD-16-65-00T	3	48.50	0.00	0.75	264.14	0.000	0.75	0.00	0.00
6	145.00	DTMABP7819VG12A TMA	6	19.20	0.00	0.67	53.11	0.000	0.67	0.00	0.00
7	135.00	TMA2093F00V1-1	6	23.10	0.00	1.00	72.84	1.550	1.00	0.00	0.00
8	135.00	QS66512-2	3	111.00	0.00	0.00	427.78	9.880	0.00	0.00	0.00
9	130.00	Canister	1	500.00	25.50	1.00	545.88	44.828	1.00	0.00	0.00
10	110.00	Canister	1	400.00	10.50	1.00	436.09	30.397	1.00	0.00	0.00
		Totals:	**31**	**2,437.30**			**5,313.61**				

Linear Appurtenances

Bottom Elev. (ft)	**Top Elev. (ft)**	**Description**	**Exposed Width**	**Exposed**
0.00	150.00	(12) 1 5/8" Coax	0.00	Inside
0.00	145.00	(18) 1 1/4" Coax	0.00	Inside

Shaft Section Properties

Structure:	CT01001-S-SBA	**Code:**	EIA/TIA-222-G	3/26/2019	
Site Name:	Hebron	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3750	51.600	60.968	20212.6	22.85	137.60	74.5	771.5	0.0
5.00		0.3750	50.581	59.755	19030.0	22.37	134.88	75.1	741.0	1027.0
10.00		0.3750	49.562	58.542	17894.5	21.89	132.16	75.6	711.1	1006.4
15.00		0.3750	48.543	57.329	16805.1	21.41	129.45	76.2	681.9	985.7
20.00		0.3750	47.523	56.116	15760.8	20.94	126.73	76.8	653.2	965.1
25.00		0.3750	46.504	54.903	14760.7	20.46	124.01	77.3	625.2	944.4
30.00		0.3750	45.485	53.690	13803.8	19.98	121.29	77.9	597.7	923.8
35.00		0.3750	44.466	52.477	12889.2	19.50	118.58	78.5	570.9	903.2
37.00	Bot - Section 2	0.3750	44.058	51.992	12535.0	19.31	117.49	78.7	560.4	355.5
40.00		0.3750	43.447	51.264	12015.9	19.02	115.86	79.0	544.7	986.0
43.00	Top - Section 1	0.3125	44.724	44.049	10977.0	23.82	143.12	0.0	0.0	972.4
45.00		0.3125	44.316	43.645	10677.4	23.59	141.81	73.6	474.6	298.4
50.00		0.3125	43.297	42.634	9952.6	23.02	138.55	74.3	452.8	734.0
55.00		0.3125	42.278	41.623	9261.4	22.44	135.29	75.0	431.5	716.8
60.00		0.3125	41.259	40.612	8602.9	21.87	132.03	75.7	410.7	699.6
65.00		0.3125	40.240	39.602	7976.4	21.29	128.77	76.4	390.4	682.4
70.00		0.3125	39.221	38.591	7381.0	20.72	125.51	77.0	370.7	665.2
75.00		0.3125	38.202	37.580	6816.1	20.14	122.25	77.7	351.4	648.0
80.00	Bot - Section 3	0.3125	37.182	36.569	6280.7	19.57	118.98	78.4	332.7	630.8
85.00	Top - Section 2	0.2500	38.121	30.049	5445.0	25.48	152.48	0.0	0.0	1131.7
90.00		0.2500	37.102	29.241	5017.2	24.76	148.41	72.3	266.3	504.4
95.00		0.2500	36.083	28.432	4612.3	24.04	144.33	73.1	251.8	490.6
100.00		0.2500	35.063	27.623	4229.9	23.32	140.25	74.0	237.6	476.9
105.00		0.2500	34.044	26.815	3869.1	22.60	136.18	74.8	223.8	463.1
110.00	Top - Section 3	0.2500	33.025	26.006	3529.6	21.88	132.10	75.7	210.5	449.3
110.00	Bot - Section 4	0.5000	17.000	25.918	882.7	10.94	66.05	36.0	103.8	
115.00		0.5000	17.000	25.918	882.7	0.00	34.00	36.0	103.8	441.0
120.00		0.5000	17.000	25.918	882.7	0.00	34.00	36.0	103.8	441.0
125.00		0.5000	17.000	25.918	882.7	0.00	34.00	36.0	103.8	441.0
130.00	Top - Section 4	0.5000	17.000	25.918	882.7	0.00	34.00	36.0	103.8	441.0
130.00	Bot - Section 5	0.5000	17.000	25.918	882.7	0.00	34.00	36.0	103.8	
135.00		0.5000	17.000	25.918	882.7	0.00	34.00	36.0	103.8	441.0
140.00		0.5000	17.000	25.918	882.7	0.00	34.00	36.0	103.8	441.0
145.00		0.5000	17.000	25.918	882.7	0.00	34.00	36.0	103.8	441.0
150.00		0.5000	17.000	25.918	882.7	0.00	34.00	36.0	103.8	441.0
155.00		0.5000	17.000	25.918	882.7	0.00	34.00	36.0	103.8	441.0
157.00		0.5000	17.000	25.918	882.7	0.00	34.00	36.0	103.8	176.4
160.00		0.5000	17.000	25.918	882.7	0.00	34.00	36.0	103.8	264.6
										22070.1

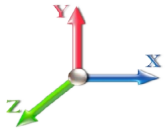
Wind Loading - Shaft

Structure: CT01001-S-SBA
Site Name: Hebron
Height: 160.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1 **Topography:** 1

Code: EIA/TIA-222-G 3/26/2019
Exposure: C
Crest Height: 0.00
Site Class: D - Stiff Soil
Struct Class: II

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind
Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	21.088	23.20	406.58	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	398.55	0.650	0.000	5.00	21.616	14.05	521.5	0.0	1232.4
10.00		1.00	0.85	21.088	23.20	390.52	0.650	0.000	5.00	21.185	13.77	511.1	0.0	1207.6
15.00		1.00	0.85	21.088	23.20	382.49	0.650	0.000	5.00	20.754	13.49	500.7	0.0	1182.9
20.00		1.00	0.90	22.375	24.61	385.72	0.650	0.000	5.00	20.323	13.21	520.2	0.0	1158.1
25.00		1.00	0.95	23.451	25.80	386.42	0.650	0.000	5.00	19.891	12.93	533.6	0.0	1133.3
30.00		1.00	0.98	24.369	26.81	385.27	0.650	0.000	5.00	19.460	12.65	542.5	0.0	1108.6
35.00		1.00	1.01	25.172	27.69	382.80	0.650	0.000	5.00	19.029	12.37	548.0	0.0	1083.8
37.00	Bot - Section 2	1.00	1.03	25.469	28.02	381.52	0.650	0.000	2.00	7.491	4.87	218.3	0.0	426.6
40.00		1.00	1.04	25.890	28.48	379.32	0.650	0.000	3.00	11.586	7.53	343.2	0.0	1183.2
43.00	Top - Section 1	1.00	1.06	26.287	28.92	376.84	0.650	0.000	3.00	11.431	7.43	343.8	0.0	1166.8
45.00		1.00	1.07	26.540	29.19	391.74	0.650	0.000	2.00	7.535	4.90	228.8	0.0	358.1
50.00		1.00	1.09	27.135	29.85	387.00	0.650	0.000	5.00	18.534	12.05	575.4	0.0	880.8
55.00		1.00	1.12	27.685	30.45	381.70	0.650	0.000	5.00	18.103	11.77	573.4	0.0	860.1
60.00		1.00	1.14	28.197	31.02	375.93	0.650	0.000	5.00	17.672	11.49	570.1	0.0	839.5
65.00		1.00	1.16	28.676	31.54	369.75	0.650	0.000	5.00	17.241	11.21	565.6	0.0	818.8
70.00		1.00	1.17	29.127	32.04	363.20	0.650	0.000	5.00	16.810	10.93	560.1	0.0	798.2
75.00		1.00	1.19	29.553	32.51	356.34	0.650	0.000	5.00	16.378	10.65	553.7	0.0	777.6
80.00	Bot - Section 3	1.00	1.21	29.958	32.95	349.20	0.650	0.000	5.00	15.947	10.37	546.5	0.0	756.9
85.00	Top - Section 2	1.00	1.22	30.342	33.38	341.81	0.650	0.000	5.00	16.344	10.62	567.3	0.0	1358.1
90.00		1.00	1.24	30.710	33.78	352.79	0.650	0.000	5.00	15.913	10.34	559.1	0.0	605.3
95.00		1.00	1.25	31.061	34.17	345.06	0.650	0.000	5.00	15.482	10.06	550.1	0.0	588.7
100.00		1.00	1.27	31.399	34.54	337.13	0.650	0.000	5.00	15.051	9.78	540.6	0.0	572.2
105.00		1.00	1.28	31.723	34.89	329.01	0.650	0.000	5.00	14.620	9.50	530.6	0.0	555.7
110.00	Top - Section 3	1.00	1.29	32.035	35.24	320.73	0.650	0.000	5.00	14.188	9.22	520.0	0.0	539.2
115.00		1.00	1.30	32.336	35.57	163.35	0.600	0.000	5.00	7.083	4.25	241.9	0.0	529.2
120.00		1.00	1.32	32.627	35.89	164.09	0.600	0.000	5.00	7.083	4.25	244.1	0.0	529.2
125.00		1.00	1.33	32.909	36.20	164.79	0.600	0.000	5.00	7.083	4.25	246.2	0.0	529.2
130.00	Top - Section 4	1.00	1.34	33.182	36.50	165.48	0.600	0.000	5.00	7.083	4.25	248.2	0.0	529.2
135.00	Appurtenance(s)	1.00	1.35	33.446	36.79	166.13	0.600	0.000	5.00	7.083	4.25	250.2	0.0	529.2
140.00		1.00	1.36	33.703	37.07	166.77	0.600	0.000	5.00	7.083	4.25	252.1	0.0	529.2
145.00	Appurtenance(s)	1.00	1.37	33.953	37.35	167.39	0.600	0.000	5.00	7.083	4.25	254.0	0.0	529.2
150.00	Appurtenance(s)	1.00	1.38	34.196	37.62	167.99	0.600	0.000	5.00	7.083	4.25	255.8	0.0	529.2
155.00		1.00	1.39	34.433	37.88	168.57	0.600	0.000	5.00	7.083	4.25	257.6	0.0	529.2
157.00	Appurtenance(s)	1.00	1.39	34.526	37.98	168.80	0.600	0.000	2.00	2.833	1.70	103.3	0.0	211.7
160.00	Appurtenance(s)	1.00	1.40	34.664	38.13	169.13	0.600	0.000	3.00	4.250	2.55	155.6	0.0	317.5
								Totals:	**160.00**			**14,532.7**		**26,484.2**

Discrete Appurtenance Forces

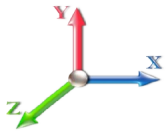
Structure:	CT01001-S-SBA	**Code:**	EIA/TIA-222-G	3/26/2019	
Site Name:	Hebron	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	160.00	Canister	1	34.664	38.131	1.00	1.00	15.00	600.00	0.000	0.000	915.14	0.00	0.00
2	157.00	Flag	1	34.526	37.979	1.00	1.00	11.49	240.00	0.000	0.000	698.21	0.00	0.00
3	150.00	QXW-634X638XBF-EDIN	3	34.196	37.616	0.79	1.00	0.00	107.28	0.000	0.000	0.00	0.00	0.00
4	150.00	FD9R6004-2C-3L	6	34.196	37.616	0.62	1.00	0.00	18.72	0.000	0.000	0.00	0.00	0.00
5	145.00	AM-X-CD-16-65-00T	3	33.953	37.349	0.75	1.00	0.00	174.60	0.000	0.000	0.00	0.00	0.00
6	145.00	DTMABP7819VG12A	6	33.953	37.349	0.67	1.00	0.00	138.24	0.000	0.000	0.00	0.00	0.00
7	135.00	TMA2093F00V1-1	6	33.446	36.791	1.00	1.00	0.00	166.32	0.000	0.000	0.00	0.00	0.00
8	135.00	QS66512-2	3	33.446	36.791	0.00	1.00	0.00	399.60	0.000	0.000	0.00	0.00	0.00
9	130.00	Canister	1	33.182	36.500	1.00	1.00	25.50	600.00	0.000	0.000	1489.19	0.00	0.00
10	110.00	Canister	1	32.035	35.238	1.00	1.00	10.50	480.00	0.000	0.000	592.01	0.00	0.00
							Totals:		**2,924.76**			**3,694.54**		

Total Applied Force Summary

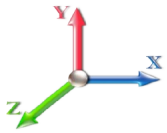
Structure:	CT01001-S-SBA		**Code:**	EIA/TIA-222-G	3/26/2019
Site Name:	Hebron		**Exposure:**	C	
Height:	160.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 9

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		521.47	1378.55	0.00	0.00
10.00		511.07	1353.78	0.00	0.00
15.00		500.66	1329.02	0.00	0.00
20.00		520.19	1304.25	0.00	0.00
25.00		533.64	1279.49	0.00	0.00
30.00		542.50	1254.72	0.00	0.00
35.00		547.98	1229.96	0.00	0.00
37.00		218.25	485.05	0.00	0.00
40.00		343.17	1270.89	0.00	0.00
43.00		343.76	1254.54	0.00	0.00
45.00		228.76	416.55	0.00	0.00
50.00		575.36	1026.92	0.00	0.00
55.00		573.36	1006.28	0.00	0.00
60.00		570.06	985.65	0.00	0.00
65.00		565.60	965.01	0.00	0.00
70.00		560.12	944.37	0.00	0.00
75.00		553.74	923.73	0.00	0.00
80.00		546.54	903.10	0.00	0.00
85.00		567.34	1504.22	0.00	0.00
90.00		559.06	751.41	0.00	0.00
95.00		550.14	734.90	0.00	0.00
100.00		540.62	718.39	0.00	0.00
105.00		530.55	701.88	0.00	0.00
110.00	(1) attachments	1111.98	1165.37	0.00	0.00
115.00		241.87	675.32	0.00	0.00
120.00		244.05	675.32	0.00	0.00
125.00		246.16	675.32	0.00	0.00
130.00	(1) attachments	1737.39	1275.32	0.00	0.00
135.00	(9) attachments	250.18	1241.24	0.00	0.00
140.00		252.10	675.32	0.00	0.00
145.00	(9) attachments	253.97	988.16	0.00	0.00
150.00	(9) attachments	255.79	730.04	0.00	0.00
155.00		257.56	529.16	0.00	0.00
157.00	(1) attachments	801.51	451.66	0.00	0.00
160.00	(1) attachments	1070.71	917.50	0.00	0.00
	Totals:	**18,227.21**	**33,722.44**	**0.00**	**0.00**

Calculated Forces

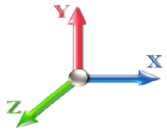
Structure:	CT01001-S-SBA	**Code:**	EIA/TIA-222-G	3/26/2019	
Site Name:	Hebron	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 25

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-33.70	-18.26	0.00	-1603.8	0.00	1603.85	4089.17	2044.59	8611.68	4312.24	0.00	0.000	0.000	0.380
5.00	-32.29	-17.80	0.00	-1512.5	0.00	1512.55	4038.13	2019.07	8333.76	4173.08	0.06	-0.110	0.000	0.371
10.00	-30.91	-17.34	0.00	-1423.5	0.00	1423.56	3985.86	1992.93	8057.66	4034.82	0.23	-0.219	0.000	0.361
15.00	-29.55	-16.89	0.00	-1336.8	0.00	1336.85	3932.35	1966.18	7783.54	3897.56	0.52	-0.329	0.000	0.351
20.00	-28.22	-16.42	0.00	-1252.3	0.00	1252.38	3877.61	1938.81	7511.55	3761.36	0.93	-0.439	0.000	0.340
25.00	-26.91	-15.92	0.00	-1170.3	0.00	1170.30	3821.65	1910.82	7241.85	3626.31	1.44	-0.548	0.000	0.330
30.00	-25.63	-15.42	0.00	-1090.6	0.00	1090.68	3764.45	1882.23	6974.60	3492.48	2.08	-0.657	0.000	0.319
35.00	-24.39	-14.89	0.00	-1013.5	0.00	1013.59	3706.02	1853.01	6709.94	3359.96	2.82	-0.765	0.000	0.308
37.00	-23.89	-14.68	0.00	-983.82	0.00	983.82	3682.31	1841.15	6604.84	3307.33	3.15	-0.809	0.000	0.304
40.00	-22.61	-14.35	0.00	-939.77	0.00	939.77	3646.36	1823.18	6448.04	3228.81	3.68	-0.875	0.000	0.297
43.00	-21.35	-14.00	0.00	-896.72	0.00	896.72	2909.03	1454.52	5312.97	2660.44	4.26	-0.940	0.000	0.344
45.00	-20.92	-13.80	0.00	-868.71	0.00	868.71	2892.96	1446.48	5234.78	2621.28	4.66	-0.984	0.000	0.339
50.00	-19.88	-13.24	0.00	-799.72	0.00	799.72	2851.91	1425.95	5040.14	2523.81	5.75	-1.095	0.000	0.324
55.00	-18.86	-12.68	0.00	-733.51	0.00	733.51	2809.63	1404.81	4846.84	2427.02	6.96	-1.205	0.000	0.309
60.00	-17.86	-12.13	0.00	-670.09	0.00	670.09	2766.12	1383.06	4655.04	2330.98	8.28	-1.312	0.000	0.294
65.00	-16.89	-11.57	0.00	-609.46	0.00	609.46	2721.38	1360.69	4464.89	2235.77	9.71	-1.418	0.000	0.279
70.00	-15.94	-11.01	0.00	-551.62	0.00	551.62	2675.40	1337.70	4276.56	2141.46	11.25	-1.522	0.000	0.264
75.00	-15.01	-10.46	0.00	-496.56	0.00	496.56	2628.20	1314.10	4090.19	2048.13	12.90	-1.623	0.000	0.248
80.00	-14.11	-9.91	0.00	-444.26	0.00	444.26	2579.77	1289.88	3905.94	1955.87	14.65	-1.721	0.000	0.233
85.00	-12.61	-9.32	0.00	-394.70	0.00	394.70	1931.95	965.98	3010.11	1507.29	16.50	-1.816	0.000	0.268
90.00	-11.86	-8.75	0.00	-348.11	0.00	348.11	1902.21	951.11	2883.49	1443.89	18.45	-1.907	0.000	0.247
95.00	-11.13	-8.20	0.00	-304.34	0.00	304.34	1871.24	935.62	2757.57	1380.83	20.50	-2.000	0.000	0.226
100.00	-10.42	-7.65	0.00	-263.36	0.00	263.36	1839.04	919.52	2632.50	1318.21	22.64	-2.087	0.000	0.206
105.00	-9.73	-7.10	0.00	-225.13	0.00	225.13	1805.60	902.80	2508.44	1256.08	24.87	-2.170	0.000	0.185
110.00	-8.60	-5.96	0.00	-189.61	0.00	189.61	1770.94	885.47	2385.54	1194.54	27.19	-2.246	0.000	0.164
110.00	-8.60	-5.96	0.00	-189.61	0.00	189.61	839.75	419.87	560.01	367.65	27.19	-2.246	0.000	0.526
115.00	-7.92	-5.71	0.00	-159.82	0.00	159.82	839.75	419.87	560.01	367.65	29.58	-2.316	0.000	0.444
120.00	-7.24	-5.47	0.00	-131.26	0.00	131.26	839.75	419.87	560.01	367.65	32.13	-2.551	0.000	0.366
125.00	-6.56	-5.21	0.00	-103.93	0.00	103.93	839.75	419.87	560.01	367.65	34.90	-2.740	0.000	0.291
130.00	-5.36	-3.42	0.00	-77.89	0.00	77.89	839.75	419.87	560.01	367.65	37.85	-2.887	0.000	0.218
130.00	-5.36	-3.42	0.00	-77.89	0.00	77.89	839.75	419.87	560.01	367.65	37.85	-2.887	0.000	0.218
135.00	-4.13	-3.12	0.00	-60.79	0.00	60.79	839.75	419.87	560.01	367.65	40.94	-2.998	0.000	0.170
140.00	-3.47	-2.83	0.00	-45.21	0.00	45.21	839.75	419.87	560.01	367.65	44.12	-3.084	0.000	0.127
145.00	-2.49	-2.53	0.00	-31.05	0.00	31.05	839.75	419.87	560.01	367.65	47.39	-3.145	0.000	0.087
150.00	-1.78	-2.23	0.00	-18.41	0.00	18.41	839.75	419.87	560.01	367.65	50.70	-3.185	0.000	0.052
155.00	-1.26	-1.95	0.00	-7.25	0.00	7.25	839.75	419.87	560.01	367.65	54.05	-3.206	0.000	0.021
157.00	-0.86	-1.12	0.00	-3.36	0.00	3.36	839.75	419.87	560.01	367.65	55.39	-3.209	0.000	0.010
160.00	0.00	-1.07	0.00	0.00	0.00	0.00	839.75	419.87	560.01	367.65	57.41	-3.211	0.000	0.000

Wind Loading - Shaft

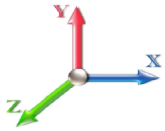
Structure:	CT01001-S-SBA	**Code:**	EIA/TIA-222-G	3/26/2019	
Site Name:	Hebron	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	21.088	23.20	406.58	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	398.55	0.650	0.000	5.00	21.616	14.05	521.5	0.0	924.3
10.00		1.00	0.85	21.088	23.20	390.52	0.650	0.000	5.00	21.185	13.77	511.1	0.0	905.7
15.00		1.00	0.85	21.088	23.20	382.49	0.650	0.000	5.00	20.754	13.49	500.7	0.0	887.1
20.00		1.00	0.90	22.375	24.61	385.72	0.650	0.000	5.00	20.323	13.21	520.2	0.0	868.6
25.00		1.00	0.95	23.451	25.80	386.42	0.650	0.000	5.00	19.891	12.93	533.6	0.0	850.0
30.00		1.00	0.98	24.369	26.81	385.27	0.650	0.000	5.00	19.460	12.65	542.5	0.0	831.4
35.00		1.00	1.01	25.172	27.69	382.80	0.650	0.000	5.00	19.029	12.37	548.0	0.0	812.8
37.00	Bot - Section 2	1.00	1.03	25.469	28.02	381.52	0.650	0.000	2.00	7.491	4.87	218.3	0.0	319.9
40.00		1.00	1.04	25.890	28.48	379.32	0.650	0.000	3.00	11.586	7.53	343.2	0.0	887.4
43.00	Top - Section 1	1.00	1.06	26.287	28.92	376.84	0.650	0.000	3.00	11.431	7.43	343.8	0.0	875.1
45.00		1.00	1.07	26.540	29.19	391.74	0.650	0.000	2.00	7.535	4.90	228.8	0.0	268.6
50.00		1.00	1.09	27.135	29.85	387.00	0.650	0.000	5.00	18.534	12.05	575.4	0.0	660.6
55.00		1.00	1.12	27.685	30.45	381.70	0.650	0.000	5.00	18.103	11.77	573.4	0.0	645.1
60.00		1.00	1.14	28.197	31.02	375.93	0.650	0.000	5.00	17.672	11.49	570.1	0.0	629.6
65.00		1.00	1.16	28.676	31.54	369.75	0.650	0.000	5.00	17.241	11.21	565.6	0.0	614.1
70.00		1.00	1.17	29.127	32.04	363.20	0.650	0.000	5.00	16.810	10.93	560.1	0.0	598.7
75.00		1.00	1.19	29.553	32.51	356.34	0.650	0.000	5.00	16.378	10.65	553.7	0.0	583.2
80.00	Bot - Section 3	1.00	1.21	29.958	32.95	349.20	0.650	0.000	5.00	15.947	10.37	546.5	0.0	567.7
85.00	Top - Section 2	1.00	1.22	30.342	33.38	341.81	0.650	0.000	5.00	16.344	10.62	567.3	0.0	1018.5
90.00		1.00	1.24	30.710	33.78	352.79	0.650	0.000	5.00	15.913	10.34	559.1	0.0	453.9
95.00		1.00	1.25	31.061	34.17	345.06	0.650	0.000	5.00	15.482	10.06	550.1	0.0	441.6
100.00		1.00	1.27	31.399	34.54	337.13	0.650	0.000	5.00	15.051	9.78	540.6	0.0	429.2
105.00		1.00	1.28	31.723	34.89	329.01	0.650	0.000	5.00	14.620	9.50	530.6	0.0	416.8
110.00	Top - Section 3	1.00	1.29	32.035	35.24	320.73	0.650	0.000	5.00	14.188	9.22	520.0	0.0	404.4
115.00		1.00	1.30	32.336	35.57	163.35	0.600	0.000	5.00	7.083	4.25	241.9	0.0	396.9
120.00		1.00	1.32	32.627	35.89	164.09	0.600	0.000	5.00	7.083	4.25	244.1	0.0	396.9
125.00		1.00	1.33	32.909	36.20	164.79	0.600	0.000	5.00	7.083	4.25	246.2	0.0	396.9
130.00	Top - Section 4	1.00	1.34	33.182	36.50	165.48	0.600	0.000	5.00	7.083	4.25	248.2	0.0	396.9
135.00	Appurtenance(s)	1.00	1.35	33.446	36.79	166.13	0.600	0.000	5.00	7.083	4.25	250.2	0.0	396.9
140.00		1.00	1.36	33.703	37.07	166.77	0.600	0.000	5.00	7.083	4.25	252.1	0.0	396.9
145.00	Appurtenance(s)	1.00	1.37	33.953	37.35	167.39	0.600	0.000	5.00	7.083	4.25	254.0	0.0	396.9
150.00	Appurtenance(s)	1.00	1.38	34.196	37.62	167.99	0.600	0.000	5.00	7.083	4.25	255.8	0.0	396.9
155.00		1.00	1.39	34.433	37.88	168.57	0.600	0.000	5.00	7.083	4.25	257.6	0.0	396.9
157.00	Appurtenance(s)	1.00	1.39	34.526	37.98	168.80	0.600	0.000	2.00	2.833	1.70	103.3	0.0	158.7
160.00	Appurtenance(s)	1.00	1.40	34.664	38.13	169.13	0.600	0.000	3.00	4.250	2.55	155.6	0.0	238.1
								Totals:	**160.00**			**14,532.7**		**19,863.1**

Discrete Appurtenance Forces

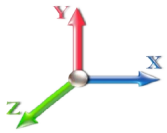
Structure:	CT01001-S-SBA	**Code:**	EIA/TIA-222-G	3/26/2019	
Site Name:	Hebron	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	160.00	Canister	1	34.664	38.131	1.00	1.00	15.00	450.00	0.000	0.000	915.14	0.00	0.00
2	157.00	Flag	1	34.526	37.979	1.00	1.00	11.49	180.00	0.000	0.000	698.21	0.00	0.00
3	150.00	QXW-634X638XBF-EDIN	3	34.196	37.616	0.79	1.00	0.00	80.46	0.000	0.000	0.00	0.00	0.00
4	150.00	FD9R6004-2C-3L	6	34.196	37.616	0.62	1.00	0.00	14.04	0.000	0.000	0.00	0.00	0.00
5	145.00	AM-X-CD-16-65-00T	3	33.953	37.349	0.75	1.00	0.00	130.95	0.000	0.000	0.00	0.00	0.00
6	145.00	DTMABP7819VG12A	6	33.953	37.349	0.67	1.00	0.00	103.68	0.000	0.000	0.00	0.00	0.00
7	135.00	TMA2093F00V1-1	6	33.446	36.791	1.00	1.00	0.00	124.74	0.000	0.000	0.00	0.00	0.00
8	135.00	QS66512-2	3	33.446	36.791	0.00	1.00	0.00	299.70	0.000	0.000	0.00	0.00	0.00
9	130.00	Canister	1	33.182	36.500	1.00	1.00	25.50	450.00	0.000	0.000	1489.19	0.00	0.00
10	110.00	Canister	1	32.035	35.238	1.00	1.00	10.50	360.00	0.000	0.000	592.01	0.00	0.00
							Totals:		**2,193.57**			**3,694.54**		

Total Applied Force Summary

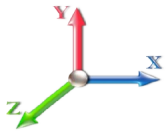
Structure:	CT01001-S-SBA		**Code:**	EIA/TIA-222-G	3/26/2019
Site Name:	Hebron		**Exposure:**	C	
Height:	160.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 13

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		521.47	1033.91	0.00	0.00
10.00		511.07	1015.34	0.00	0.00
15.00		500.66	996.76	0.00	0.00
20.00		520.19	978.19	0.00	0.00
25.00		533.64	959.62	0.00	0.00
30.00		542.50	941.04	0.00	0.00
35.00		547.98	922.47	0.00	0.00
37.00		218.25	363.79	0.00	0.00
40.00		343.17	953.17	0.00	0.00
43.00		343.76	940.91	0.00	0.00
45.00		228.76	312.41	0.00	0.00
50.00		575.36	770.19	0.00	0.00
55.00		573.36	754.71	0.00	0.00
60.00		570.06	739.24	0.00	0.00
65.00		565.60	723.76	0.00	0.00
70.00		560.12	708.28	0.00	0.00
75.00		553.74	692.80	0.00	0.00
80.00		546.54	677.32	0.00	0.00
85.00		567.34	1128.17	0.00	0.00
90.00		559.06	563.56	0.00	0.00
95.00		550.14	551.18	0.00	0.00
100.00		540.62	538.80	0.00	0.00
105.00		530.55	526.41	0.00	0.00
110.00	(1) attachments	1111.98	874.03	0.00	0.00
115.00		241.87	506.49	0.00	0.00
120.00		244.05	506.49	0.00	0.00
125.00		246.16	506.49	0.00	0.00
130.00	(1) attachments	1737.39	956.49	0.00	0.00
135.00	(9) attachments	250.18	930.93	0.00	0.00
140.00		252.10	506.49	0.00	0.00
145.00	(9) attachments	253.97	741.12	0.00	0.00
150.00	(9) attachments	255.79	547.53	0.00	0.00
155.00		257.56	396.87	0.00	0.00
157.00	(1) attachments	801.51	338.75	0.00	0.00
160.00	(1) attachments	1070.71	688.12	0.00	0.00
	Totals:	**18,227.21**	**25,291.83**	**0.00**	**0.00**

Calculated Forces

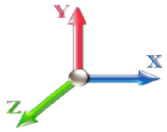
Structure:	CT01001-S-SBA	**Code:**	EIA/TIA-222-G	3/26/2019	
Site Name:	Hebron	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 25

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-25.27	-18.25	0.00	-1591.1	0.00	1591.10	4089.17	2044.59	8611.68	4312.24	0.00	0.000	0.000	0.375
5.00	-24.21	-17.78	0.00	-1499.8	0.00	1499.85	4038.13	2019.07	8333.76	4173.08	0.06	-0.109	0.000	0.365
10.00	-23.16	-17.31	0.00	-1410.9	0.00	1410.97	3985.86	1992.93	8057.66	4034.82	0.23	-0.218	0.000	0.356
15.00	-22.13	-16.84	0.00	-1324.4	0.00	1324.45	3932.35	1966.18	7783.54	3897.56	0.52	-0.326	0.000	0.346
20.00	-21.13	-16.35	0.00	-1240.2	0.00	1240.24	3877.61	1938.81	7511.55	3761.36	0.92	-0.435	0.000	0.335
25.00	-20.14	-15.85	0.00	-1158.4	0.00	1158.47	3821.65	1910.82	7241.85	3626.31	1.43	-0.543	0.000	0.325
30.00	-19.18	-15.33	0.00	-1079.2	0.00	1079.21	3764.45	1882.23	6974.60	3492.48	2.06	-0.651	0.000	0.314
35.00	-18.24	-14.80	0.00	-1002.5	0.00	1002.54	3706.02	1853.01	6709.94	3359.96	2.80	-0.758	0.000	0.303
37.00	-17.87	-14.59	0.00	-972.94	0.00	972.94	3682.31	1841.15	6604.84	3307.33	3.13	-0.802	0.000	0.299
40.00	-16.91	-14.26	0.00	-929.16	0.00	929.16	3646.36	1823.18	6448.04	3228.81	3.65	-0.867	0.000	0.292
43.00	-15.96	-13.91	0.00	-886.40	0.00	886.40	2909.03	1454.52	5312.97	2660.44	4.22	-0.931	0.000	0.339
45.00	-15.63	-13.70	0.00	-858.57	0.00	858.57	2892.96	1446.48	5234.78	2621.28	4.62	-0.974	0.000	0.333
50.00	-14.85	-13.14	0.00	-790.08	0.00	790.08	2851.91	1425.95	5040.14	2523.81	5.70	-1.084	0.000	0.318
55.00	-14.08	-12.58	0.00	-724.39	0.00	724.39	2809.63	1404.81	4846.84	2427.02	6.89	-1.192	0.000	0.304
60.00	-13.33	-12.01	0.00	-661.51	0.00	661.51	2766.12	1383.06	4655.04	2330.98	8.20	-1.299	0.000	0.289
65.00	-12.60	-11.45	0.00	-601.44	0.00	601.44	2721.38	1360.69	4464.89	2235.77	9.61	-1.403	0.000	0.274
70.00	-11.89	-10.90	0.00	-544.17	0.00	544.17	2675.40	1337.70	4276.56	2141.46	11.14	-1.505	0.000	0.259
75.00	-11.19	-10.34	0.00	-489.68	0.00	489.68	2628.20	1314.10	4090.19	2048.13	12.77	-1.605	0.000	0.243
80.00	-10.51	-9.80	0.00	-437.95	0.00	437.95	2579.77	1289.88	3905.94	1955.87	14.50	-1.702	0.000	0.228
85.00	-9.39	-9.21	0.00	-388.97	0.00	388.97	1931.95	965.98	3010.11	1507.29	16.33	-1.795	0.000	0.263
90.00	-8.83	-8.65	0.00	-342.92	0.00	342.92	1902.21	951.11	2883.49	1443.89	18.26	-1.885	0.000	0.242
95.00	-8.28	-8.09	0.00	-299.69	0.00	299.69	1871.24	935.62	2757.57	1380.83	20.29	-1.977	0.000	0.222
100.00	-7.75	-7.54	0.00	-259.23	0.00	259.23	1839.04	919.52	2632.50	1318.21	22.40	-2.063	0.000	0.201
105.00	-7.24	-7.00	0.00	-221.52	0.00	221.52	1805.60	902.80	2508.44	1256.08	24.61	-2.144	0.000	0.180
110.00	-6.40	-5.87	0.00	-186.50	0.00	186.50	1770.94	885.47	2385.54	1194.54	26.89	-2.219	0.000	0.160
110.00	-6.40	-5.87	0.00	-186.50	0.00	186.50	839.75	419.87	560.01	367.65	26.89	-2.219	0.000	0.515
115.00	-5.89	-5.62	0.00	-157.16	0.00	157.16	839.75	419.87	560.01	367.65	29.25	-2.288	0.000	0.435
120.00	-5.37	-5.38	0.00	-129.05	0.00	129.05	839.75	419.87	560.01	367.65	31.77	-2.518	0.000	0.358
125.00	-4.86	-5.12	0.00	-102.17	0.00	102.17	839.75	419.87	560.01	367.65	34.51	-2.705	0.000	0.284
130.00	-3.99	-3.35	0.00	-76.57	0.00	76.57	839.75	419.87	560.01	367.65	37.42	-2.849	0.000	0.213
130.00	-3.99	-3.35	0.00	-76.57	0.00	76.57	839.75	419.87	560.01	367.65	37.42	-2.849	0.000	0.213
135.00	-3.06	-3.06	0.00	-59.83	0.00	59.83	839.75	419.87	560.01	367.65	40.47	-2.959	0.000	0.166
140.00	-2.57	-2.78	0.00	-44.55	0.00	44.55	839.75	419.87	560.01	367.65	43.61	-3.043	0.000	0.124
145.00	-1.84	-2.49	0.00	-30.64	0.00	30.64	839.75	419.87	560.01	367.65	46.83	-3.103	0.000	0.086
150.00	-1.30	-2.20	0.00	-18.20	0.00	18.20	839.75	419.87	560.01	367.65	50.10	-3.143	0.000	0.051
155.00	-0.92	-1.93	0.00	-7.17	0.00	7.17	839.75	419.87	560.01	367.65	53.40	-3.163	0.000	0.021
157.00	-0.63	-1.11	0.00	-3.32	0.00	3.32	839.75	419.87	560.01	367.65	54.73	-3.167	0.000	0.010
160.00	0.00	-1.07	0.00	0.00	0.00	0.00	839.75	419.87	560.01	367.65	56.72	-3.168	0.000	0.000

Wind Loading - Shaft

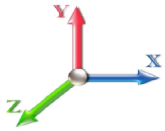
Structure:	CT01001-S-SBA	**Code:**	EIA/TIA-222-G	3/26/2019	
Site Name:	Hebron	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.656	5.00	22.996	27.60	156.9	536.3	1768.7
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.775	5.00	22.664	27.20	154.6	564.9	1772.5
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.848	5.00	22.294	26.75	152.1	577.4	1760.3
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.902	5.00	21.908	26.29	158.6	582.9	1741.0
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.945	5.00	21.512	25.81	163.2	584.2	1717.6
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.981	5.00	21.111	25.33	166.4	582.9	1691.5
35.00		1.00	1.01	6.169	6.79	0.00	1.200	2.012	5.00	20.705	24.85	168.6	579.6	1663.4
37.00	Bot - Section 2	1.00	1.03	6.242	6.87	0.00	1.200	2.023	2.00	8.165	9.80	67.3	231.1	657.7
40.00		1.00	1.04	6.345	6.98	0.00	1.200	2.039	3.00	12.606	15.13	105.6	359.2	1542.4
43.00	Top - Section 1	1.00	1.06	6.442	7.09	0.00	1.200	2.054	3.00	12.458	14.95	105.9	357.3	1524.1
45.00		1.00	1.07	6.504	7.15	0.00	1.200	2.063	2.00	8.222	9.87	70.6	237.2	595.3
50.00		1.00	1.09	6.650	7.32	0.00	1.200	2.085	5.00	20.272	24.33	177.9	586.5	1467.2
55.00		1.00	1.12	6.785	7.46	0.00	1.200	2.105	5.00	19.857	23.83	177.8	579.0	1439.2
60.00		1.00	1.14	6.910	7.60	0.00	1.200	2.123	5.00	19.441	23.33	177.3	570.9	1410.4
65.00		1.00	1.16	7.028	7.73	0.00	1.200	2.140	5.00	19.024	22.83	176.5	562.2	1381.1
70.00		1.00	1.17	7.138	7.85	0.00	1.200	2.156	5.00	18.606	22.33	175.3	553.0	1351.2
75.00		1.00	1.19	7.243	7.97	0.00	1.200	2.171	5.00	18.188	21.83	173.9	543.3	1320.8
80.00	Bot - Section 3	1.00	1.21	7.342	8.08	0.00	1.200	2.185	5.00	17.768	21.32	172.2	533.2	1290.1
85.00	Top - Section 2	1.00	1.22	7.436	8.18	0.00	1.200	2.198	5.00	18.176	21.81	178.4	549.4	1907.4
90.00		1.00	1.24	7.526	8.28	0.00	1.200	2.211	5.00	17.756	21.31	176.4	538.7	1144.0
95.00		1.00	1.25	7.612	8.37	0.00	1.200	2.223	5.00	17.334	20.80	174.2	527.7	1116.5
100.00		1.00	1.27	7.695	8.46	0.00	1.200	2.234	5.00	16.913	20.30	171.8	516.5	1088.7
105.00		1.00	1.28	7.774	8.55	0.00	1.200	2.245	5.00	16.491	19.79	169.2	505.0	1060.7
110.00	Top - Section 3	1.00	1.29	7.851	8.64	0.00	1.200	2.256	5.00	16.068	19.28	166.5	493.2	1032.4
115.00		1.00	1.30	7.925	8.72	0.00	1.200	2.266	5.00	8.972	10.77	93.8	266.7	795.8
120.00		1.00	1.32	7.996	8.80	0.00	1.200	2.276	5.00	8.980	10.78	94.8	267.9	797.1
125.00		1.00	1.33	8.065	8.87	0.00	1.200	2.285	5.00	8.987	10.78	95.7	269.2	798.3
130.00	Top - Section 4	1.00	1.34	8.132	8.95	0.00	1.200	2.294	5.00	8.995	10.79	96.6	270.4	799.5
135.00	Appurtenance(s)	1.00	1.35	8.197	9.02	0.00	1.200	2.303	5.00	9.002	10.80	97.4	271.5	800.7
140.00		1.00	1.36	8.260	9.09	0.00	1.200	2.311	5.00	9.009	10.81	98.2	272.6	801.8
145.00	Appurtenance(s)	1.00	1.37	8.321	9.15	0.00	1.200	2.319	5.00	9.016	10.82	99.0	273.7	802.8
150.00	Appurtenance(s)	1.00	1.38	8.381	9.22	0.00	1.200	2.327	5.00	9.022	10.83	99.8	274.7	803.9
155.00		1.00	1.39	8.439	9.28	0.00	1.200	2.335	5.00	9.029	10.83	100.6	275.7	804.9
157.00	Appurtenance(s)	1.00	1.39	8.462	9.31	0.00	1.200	2.338	2.00	3.613	4.34	40.3	110.5	322.1
160.00	Appurtenance(s)	1.00	1.40	8.495	9.34	0.00	1.200	2.342	3.00	5.421	6.51	60.8	166.0	483.5
								Totals:	**160.00**			**4,714.3**		**41,454.8**

Discrete Appurtenance Forces

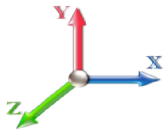
Structure:	CT01001-S-SBA	**Code:**	EIA/TIA-222-G	3/26/2019	
Site Name:	Hebron	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	160.00	Canister	1	8.495	9.345	1.00	1.00	57.16	600.00	0.000	0.000	534.12	0.00	0.00
2	157.00	Flag	1	8.462	9.308	1.00	1.00	36.18	458.70	0.000	0.000	336.74	0.00	0.00
3	150.00	QXW-634X638XBF-EDIN	3	8.381	9.219	0.79	1.00	0.00	551.20	0.000	0.000	0.00	0.00	0.00
4	150.00	FD9R6004-2C-3L	6	8.381	9.219	0.62	1.00	0.00	69.13	0.000	0.000	0.00	0.00	0.00
5	145.00	AM-X-CD-16-65-00T	3	8.321	9.153	0.75	1.00	0.00	682.01	0.000	0.000	0.00	0.00	0.00
6	145.00	DTMABP7819VG12A	6	8.321	9.153	0.67	1.00	0.00	297.91	0.000	0.000	0.00	0.00	0.00
7	135.00	TMA2093F00V1-1	6	8.197	9.016	1.00	1.00	9.30	464.75	0.000	0.000	83.87	0.00	0.00
8	135.00	QS66512-2	3	8.197	9.016	0.00	1.00	29.64	1349.95	0.000	0.000	267.25	0.00	0.00
9	130.00	Canister	1	8.132	8.945	1.00	1.00	144.83	1145.88	0.000	0.000	1295.51	0.00	0.00
10	110.00	Canister	1	7.851	8.636	1.00	1.00	30.40	916.09	0.000	0.000	262.51	0.00	0.00
							Totals:		**6,535.63**			**2,780.00**		

Total Applied Force Summary

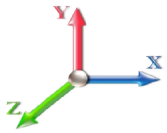
Structure:	CT01001-S-SBA		**Code:**	EIA/TIA-222-G	3/26/2019
Site Name:	Hebron		**Exposure:**	C	
Height:	160.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 17

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		156.87	1914.89	0.00	0.00
10.00		154.61	1918.68	0.00	0.00
15.00		152.08	1906.44	0.00	0.00
20.00		158.57	1887.13	0.00	0.00
25.00		163.20	1863.73	0.00	0.00
30.00		166.42	1837.62	0.00	0.00
35.00		168.61	1809.57	0.00	0.00
37.00		67.27	716.20	0.00	0.00
40.00		105.58	1630.13	0.00	0.00
43.00		105.94	1611.83	0.00	0.00
45.00		70.59	653.79	0.00	0.00
50.00		177.95	1613.40	0.00	0.00
55.00		177.84	1585.33	0.00	0.00
60.00		177.34	1556.57	0.00	0.00
65.00		176.48	1527.21	0.00	0.00
70.00		175.32	1497.34	0.00	0.00
75.00		173.88	1467.00	0.00	0.00
80.00		172.20	1436.25	0.00	0.00
85.00		178.41	2053.60	0.00	0.00
90.00		176.39	1290.13	0.00	0.00
95.00		174.18	1262.65	0.00	0.00
100.00		171.79	1234.88	0.00	0.00
105.00		169.23	1206.86	0.00	0.00
110.00	(1) attachments	429.03	2094.68	0.00	0.00
115.00		93.85	942.00	0.00	0.00
120.00		94.78	943.27	0.00	0.00
125.00		95.68	944.50	0.00	0.00
130.00	(1) attachments	1392.06	2091.56	0.00	0.00
135.00	(9) attachments	448.52	2761.53	0.00	0.00
140.00		98.23	947.93	0.00	0.00
145.00	(9) attachments	99.03	1928.92	0.00	0.00
150.00	(9) attachments	99.81	1499.10	0.00	0.00
155.00		100.57	804.90	0.00	0.00
157.00	(1) attachments	377.09	780.82	0.00	0.00
160.00	(1) attachments	594.91	1083.53	0.00	0.00
	Totals:	**7,494.33**	**52,303.94**	**0.00**	**0.00**

Calculated Forces

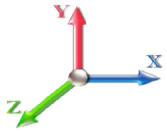
Structure:	CT01001-S-SBA	**Code:**	EIA/TIA-222-G	3/26/2019	
Site Name:	Hebron	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-52.30	-7.52	0.00	-778.19	0.00	778.19	4089.17	2044.59	8611.68	4312.24	0.00	0.000	0.000	0.193
5.00	-50.38	-7.41	0.00	-740.60	0.00	740.60	4038.13	2019.07	8333.76	4173.08	0.03	-0.053	0.000	0.190
10.00	-48.45	-7.30	0.00	-703.56	0.00	703.56	3985.86	1992.93	8057.66	4034.82	0.11	-0.107	0.000	0.187
15.00	-46.54	-7.18	0.00	-667.08	0.00	667.08	3932.35	1966.18	7783.54	3897.56	0.26	-0.162	0.000	0.183
20.00	-44.65	-7.06	0.00	-631.16	0.00	631.16	3877.61	1938.81	7511.55	3761.36	0.45	-0.217	0.000	0.179
25.00	-42.78	-6.93	0.00	-595.85	0.00	595.85	3821.65	1910.82	7241.85	3626.31	0.71	-0.272	0.000	0.176
30.00	-40.93	-6.80	0.00	-561.18	0.00	561.18	3764.45	1882.23	6974.60	3492.48	1.03	-0.328	0.000	0.172
35.00	-39.12	-6.64	0.00	-527.20	0.00	527.20	3706.02	1853.01	6709.94	3359.96	1.40	-0.384	0.000	0.167
37.00	-38.40	-6.59	0.00	-513.91	0.00	513.91	3682.31	1841.15	6604.84	3307.33	1.57	-0.407	0.000	0.166
40.00	-36.77	-6.50	0.00	-494.14	0.00	494.14	3646.36	1823.18	6448.04	3228.81	1.83	-0.441	0.000	0.163
43.00	-35.15	-6.39	0.00	-474.66	0.00	474.66	2909.03	1454.52	5312.97	2660.44	2.12	-0.476	0.000	0.191
45.00	-34.50	-6.34	0.00	-461.87	0.00	461.87	2892.96	1446.48	5234.78	2621.28	2.33	-0.499	0.000	0.188
50.00	-32.88	-6.18	0.00	-430.16	0.00	430.16	2851.91	1425.95	5040.14	2523.81	2.88	-0.558	0.000	0.182
55.00	-31.29	-6.02	0.00	-399.24	0.00	399.24	2809.63	1404.81	4846.84	2427.02	3.50	-0.618	0.000	0.176
60.00	-29.73	-5.86	0.00	-369.13	0.00	369.13	2766.12	1383.06	4655.04	2330.98	4.18	-0.677	0.000	0.169
65.00	-28.20	-5.69	0.00	-339.84	0.00	339.84	2721.38	1360.69	4464.89	2235.77	4.92	-0.735	0.000	0.162
70.00	-26.70	-5.52	0.00	-311.39	0.00	311.39	2675.40	1337.70	4276.56	2141.46	5.72	-0.793	0.000	0.155
75.00	-25.23	-5.35	0.00	-283.77	0.00	283.77	2628.20	1314.10	4090.19	2048.13	6.58	-0.851	0.000	0.148
80.00	-23.79	-5.18	0.00	-257.01	0.00	257.01	2579.77	1289.88	3905.94	1955.87	7.50	-0.907	0.000	0.141
85.00	-21.73	-4.99	0.00	-231.10	0.00	231.10	1931.95	965.98	3010.11	1507.29	8.48	-0.962	0.000	0.165
90.00	-20.44	-4.81	0.00	-206.15	0.00	206.15	1902.21	951.11	2883.49	1443.89	9.52	-1.016	0.000	0.154
95.00	-19.18	-4.63	0.00	-182.09	0.00	182.09	1871.24	935.62	2757.57	1380.83	10.61	-1.071	0.000	0.142
100.00	-17.94	-4.45	0.00	-158.93	0.00	158.93	1839.04	919.52	2632.50	1318.21	11.76	-1.124	0.000	0.130
105.00	-16.74	-4.27	0.00	-136.66	0.00	136.66	1805.60	902.80	2508.44	1256.08	12.97	-1.174	0.000	0.118
110.00	-14.65	-3.81	0.00	-115.29	0.00	115.29	1770.94	885.47	2385.54	1194.54	14.22	-1.220	0.000	0.105
110.00	-14.65	-3.81	0.00	-115.29	0.00	115.29	839.75	419.87	560.01	367.65	14.22	-1.220	0.000	0.331
115.00	-13.70	-3.72	0.00	-96.23	0.00	96.23	839.75	419.87	560.01	367.65	15.52	-1.262	0.000	0.278
120.00	-12.75	-3.63	0.00	-77.63	0.00	77.63	839.75	419.87	560.01	367.65	16.92	-1.403	0.000	0.226
125.00	-11.81	-3.53	0.00	-59.47	0.00	59.47	839.75	419.87	560.01	367.65	18.45	-1.513	0.000	0.176
130.00	-9.75	-2.10	0.00	-41.81	0.00	41.81	839.75	419.87	560.01	367.65	20.08	-1.595	0.000	0.125
130.00	-9.75	-2.10	0.00	-41.81	0.00	41.81	839.75	419.87	560.01	367.65	20.08	-1.595	0.000	0.125
135.00	-7.00	-1.57	0.00	-31.34	0.00	31.34	839.75	419.87	560.01	367.65	21.78	-1.654	0.000	0.094
140.00	-6.06	-1.45	0.00	-23.47	0.00	23.47	839.75	419.87	560.01	367.65	23.54	-1.698	0.000	0.071
145.00	-4.13	-1.30	0.00	-16.20	0.00	16.20	839.75	419.87	560.01	367.65	25.33	-1.730	0.000	0.049
150.00	-2.64	-1.15	0.00	-9.71	0.00	9.71	839.75	419.87	560.01	367.65	27.16	-1.751	0.000	0.030
155.00	-1.83	-1.03	0.00	-3.94	0.00	3.94	839.75	419.87	560.01	367.65	29.00	-1.762	0.000	0.013
157.00	-1.06	-0.63	0.00	-1.88	0.00	1.88	839.75	419.87	560.01	367.65	29.73	-1.763	0.000	0.006
160.00	0.00	-0.59	0.00	0.00	0.00	0.00	839.75	419.87	560.01	367.65	30.84	-1.764	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT01001-S-SBA	**Code:**	EIA/TIA-222-G	3/26/2019	
Site Name:	Hebron	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E							**Iterations**	22
Gust Response Factor	1.10				**Sds**	0.19		**Ss**	0.18
Dead Load Factor	1.20	**Seismic Load Factor**	1.00		**Sd1**	0.10		**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.41		**SA**	0.04	**Seismic Importance Factor**		1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1026.9	0.00	0.03	0.02	15.86	
10.00		1006.3	0.01	0.05	0.03	23.33	
15.00		985.71	0.02	0.06	0.04	26.90	
20.00		965.08	0.03	0.07	0.04	28.50	
25.00		944.44	0.05	0.07	0.04	29.13	
30.00		923.80	0.07	0.07	0.04	29.33	
35.00		903.16	0.09	0.07	0.04	29.40	
37.00	Bot - Section 2	355.49	0.10	0.07	0.04	11.68	
40.00		985.99	0.12	0.07	0.03	32.84	
43.00	Top - Section 1	972.37	0.14	0.07	0.03	32.79	
45.00		298.40	0.15	0.07	0.03	10.13	
50.00		733.97	0.18	0.06	0.03	25.18	
55.00		716.77	0.22	0.06	0.02	24.39	
60.00		699.57	0.27	0.05	0.02	22.87	
65.00		682.37	0.31	0.04	0.01	20.35	
70.00		665.18	0.36	0.03	0.01	16.61	
75.00		647.98	0.42	0.01	0.01	11.58	
80.00	Bot - Section 3	630.78	0.47	-0.01	0.01	5.49	
85.00	Top - Section 2	1131.7	0.53	-0.03	0.01	-2.00	
90.00		504.38	0.60	-0.05	0.01	-6.18	
95.00		490.62	0.67	-0.08	0.02	-10.40	
100.00		476.86	0.74	-0.10	0.04	-13.00	
105.00		463.10	0.81	-0.11	0.06	-13.69	
110.00	Top - Section 3	849.35	0.89	-0.12	0.08	-23.47	
115.00		440.97	0.98	-0.12	0.12	-9.39	
120.00		440.97	1.06	-0.09	0.17	-4.63	
125.00		440.97	1.15	-0.03	0.22	2.10	
130.00	Top - Section 4	940.97	1.25	0.05	0.29	23.01	
135.00	Appurtenance(s)	912.57	1.35	0.19	0.38	44.38	
140.00		440.97	1.45	0.38	0.48	34.11	
145.00	Appurtenance(s)	701.67	1.55	0.64	0.61	77.64	
150.00	Appurtenance(s)	545.97	1.66	0.98	0.76	81.15	
155.00		440.97	1.77	1.42	0.93	84.40	
157.00	Appurtenance(s)	376.39	1.82	1.63	1.01	78.99	
160.00	Appurtenance(s)	764.58	1.89	1.98	1.14	182.74	
	Totals:	**24,507.4**				**922.1**	**Total Wind:** **18,227.2**

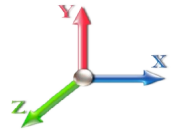
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT01001-S-SBA	**Code:**	EIA/TIA-222-G	3/26/2019	
Site Name:	Hebron	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case: 1.2D + 1.0E



Gust Response Factor	1.10			**Sds**	0.19			**Ss**	0.18
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.41	**SA**	0.04	**Seismic Importance Factor**			1.00

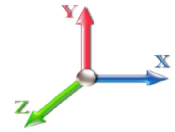
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-33.72	-1.01	0.00	-111.49	0.00	111.49	4089.17	2044.59	8611.68	4312.24		0.00	0.00	0.034
5.00	-32.34	-0.99	0.00	-106.46	0.00	106.46	4038.13	2019.07	8333.76	4173.08		0.00	-0.01	0.034
10.00	-30.99	-0.98	0.00	-101.49	0.00	101.49	3985.86	1992.93	8057.66	4034.82		0.02	-0.02	0.033
15.00	-29.66	-0.95	0.00	-96.61	0.00	96.61	3932.35	1966.18	7783.54	3897.56		0.04	-0.02	0.032
20.00	-28.36	-0.93	0.00	-91.85	0.00	91.85	3877.61	1938.81	7511.55	3761.36		0.07	-0.03	0.032
25.00	-27.08	-0.90	0.00	-87.22	0.00	87.22	3821.65	1910.82	7241.85	3626.31		0.10	-0.04	0.031
30.00	-25.82	-0.87	0.00	-82.72	0.00	82.72	3764.45	1882.23	6974.60	3492.48		0.15	-0.05	0.031
35.00	-24.59	-0.85	0.00	-78.35	0.00	78.35	3706.02	1853.01	6709.94	3359.96		0.20	-0.06	0.030
37.00	-24.11	-0.84	0.00	-76.65	0.00	76.65	3682.31	1841.15	6604.84	3307.33		0.23	-0.06	0.030
40.00	-22.84	-0.80	0.00	-74.15	0.00	74.15	3646.36	1823.18	6448.04	3228.81		0.27	-0.06	0.029
43.00	-21.58	-0.77	0.00	-71.74	0.00	71.74	2909.03	1454.52	5312.97	2660.44		0.31	-0.07	0.034
45.00	-21.16	-0.76	0.00	-70.19	0.00	70.19	2892.96	1446.48	5234.78	2621.28		0.34	-0.07	0.034
50.00	-20.14	-0.74	0.00	-66.38	0.00	66.38	2851.91	1425.95	5040.14	2523.81		0.42	-0.08	0.033
55.00	-19.13	-0.72	0.00	-62.69	0.00	62.69	2809.63	1404.81	4846.84	2427.02		0.51	-0.09	0.033
60.00	-18.15	-0.69	0.00	-59.10	0.00	59.10	2766.12	1383.06	4655.04	2330.98		0.61	-0.10	0.032
65.00	-17.18	-0.68	0.00	-55.63	0.00	55.63	2721.38	1360.69	4464.89	2235.77		0.72	-0.11	0.031
70.00	-16.24	-0.66	0.00	-52.25	0.00	52.25	2675.40	1337.70	4276.56	2141.46		0.84	-0.12	0.030
75.00	-15.31	-0.65	0.00	-48.95	0.00	48.95	2628.20	1314.10	4090.19	2048.13		0.97	-0.13	0.030
80.00	-14.41	-0.64	0.00	-45.71	0.00	45.71	2579.77	1289.88	3905.94	1955.87		1.11	-0.14	0.029
85.00	-12.90	-0.64	0.00	-42.49	0.00	42.49	1931.95	965.98	3010.11	1507.29		1.27	-0.15	0.035
90.00	-12.15	-0.64	0.00	-39.27	0.00	39.27	1902.21	951.11	2883.49	1443.89		1.43	-0.16	0.034
95.00	-11.42	-0.64	0.00	-36.06	0.00	36.06	1871.24	935.62	2757.57	1380.83		1.60	-0.17	0.032
100.00	-10.70	-0.64	0.00	-32.85	0.00	32.85	1839.04	919.52	2632.50	1318.21		1.78	-0.18	0.031
105.00	-10.00	-0.64	0.00	-29.64	0.00	29.64	1805.60	902.80	2508.44	1256.08		1.98	-0.19	0.029
110.00	-8.83	-0.64	0.00	-26.43	0.00	26.43	1770.94	885.47	2385.54	1194.54		2.19	-0.20	0.027
110.00	-8.83	-0.64	0.00	-26.43	0.00	26.43	839.75	419.87	560.01	367.65		2.19	-0.20	0.082
115.00	-8.16	-0.64	0.00	-23.23	0.00	23.23	839.75	419.87	560.01	367.65		2.40	-0.21	0.073
120.00	-7.48	-0.64	0.00	-20.03	0.00	20.03	839.75	419.87	560.01	367.65		2.64	-0.25	0.063
125.00	-6.81	-0.64	0.00	-16.82	0.00	16.82	839.75	419.87	560.01	367.65		2.92	-0.28	0.054
130.00	-5.53	-0.61	0.00	-13.62	0.00	13.62	839.75	419.87	560.01	367.65		3.22	-0.30	0.044
130.00	-5.53	-0.61	0.00	-13.62	0.00	13.62	839.75	419.87	560.01	367.65		3.22	-0.30	0.044
135.00	-4.29	-0.56	0.00	-10.55	0.00	10.55	839.75	419.87	560.01	367.65		3.55	-0.32	0.034
140.00	-3.61	-0.53	0.00	-7.74	0.00	7.74	839.75	419.87	560.01	367.65		3.89	-0.33	0.025
145.00	-2.63	-0.44	0.00	-5.11	0.00	5.11	839.75	419.87	560.01	367.65		4.25	-0.35	0.017
150.00	-1.90	-0.36	0.00	-2.89	0.00	2.89	839.75	419.87	560.01	367.65		4.61	-0.35	0.010
155.00	-1.37	-0.27	0.00	-1.11	0.00	1.11	839.75	419.87	560.01	367.65		4.98	-0.35	0.005
157.00	-0.92	-0.19	0.00	-0.56	0.00	0.56	839.75	419.87	560.01	367.65		5.13	-0.36	0.003
160.00	0.00	-0.18	0.00	0.00	0.00	0.00	839.75	419.87	560.01	367.65		5.35	-0.36	0.000

Seismic Segment Forces (Factored)

Structure:	CT01001-S-SBA	**Code:**	EIA/TIA-222-G	3/26/2019	
Site Name:	Hebron	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 21	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E



Gust Response Factor	1.10			**Sds**	0.19	**Iterations**	22		
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10	**Ss**	0.18		
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.41	**SA**	0.04	**S1**	0.06		
						Seismic Importance Factor	1.00		

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1026.9	0.00	0.03	0.02	15.86	
10.00		1006.3	0.01	0.05	0.03	23.33	
15.00		985.71	0.02	0.06	0.04	26.90	
20.00		965.08	0.03	0.07	0.04	28.50	
25.00		944.44	0.05	0.07	0.04	29.13	
30.00		923.80	0.07	0.07	0.04	29.33	
35.00		903.16	0.09	0.07	0.04	29.40	
37.00	Bot - Section 2	355.49	0.10	0.07	0.04	11.68	
40.00		985.99	0.12	0.07	0.03	32.84	
43.00	Top - Section 1	972.37	0.14	0.07	0.03	32.79	
45.00		298.40	0.15	0.07	0.03	10.13	
50.00		733.97	0.18	0.06	0.03	25.18	
55.00		716.77	0.22	0.06	0.02	24.39	
60.00		699.57	0.27	0.05	0.02	22.87	
65.00		682.37	0.31	0.04	0.01	20.35	
70.00		665.18	0.36	0.03	0.01	16.61	
75.00		647.98	0.42	0.01	0.01	11.58	
80.00	Bot - Section 3	630.78	0.47	-0.01	0.01	5.49	
85.00	Top - Section 2	1131.7	0.53	-0.03	0.01	-2.00	
90.00		504.38	0.60	-0.05	0.01	-6.18	
95.00		490.62	0.67	-0.08	0.02	-10.40	
100.00		476.86	0.74	-0.10	0.04	-13.00	
105.00		463.10	0.81	-0.11	0.06	-13.69	
110.00	Top - Section 3	849.35	0.89	-0.12	0.08	-23.47	
115.00		440.97	0.98	-0.12	0.12	-9.39	
120.00		440.97	1.06	-0.09	0.17	-4.63	
125.00		440.97	1.15	-0.03	0.22	2.10	
130.00	Top - Section 4	940.97	1.25	0.05	0.29	23.01	
135.00	Appurtenance(s)	912.57	1.35	0.19	0.38	44.38	
140.00		440.97	1.45	0.38	0.48	34.11	
145.00	Appurtenance(s)	701.67	1.55	0.64	0.61	77.64	
150.00	Appurtenance(s)	545.97	1.66	0.98	0.76	81.15	
155.00		440.97	1.77	1.42	0.93	84.40	
157.00	Appurtenance(s)	376.39	1.82	1.63	1.01	78.99	
160.00	Appurtenance(s)	764.58	1.89	1.98	1.14	182.74	
	Totals:	**24,507.4**				**922.1**	**Total Wind:** **18,227.2**

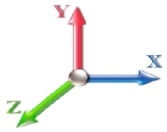
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT01001-S-SBA	**Code:**	EIA/TIA-222-G	3/26/2019	
Site Name:	Hebron	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E



Gust Response Factor	1.10			**Sds**	0.19	**Iterations**	22		
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10	**Ss**	0.18		
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.41	**SA**	0.04	**S1**	0.06	**Seismic Importance Factor**	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-25.29	-1.01	0.00	-110.42	0.00	110.42	4089.17	2044.59	8611.68	4312.24		0.00	0.00	0.032
5.00	-24.26	-0.99	0.00	-105.39	0.00	105.39	4038.13	2019.07	8333.76	4173.08		0.00	-0.01	0.031
10.00	-23.24	-0.97	0.00	-100.43	0.00	100.43	3985.86	1992.93	8057.66	4034.82		0.02	-0.02	0.031
15.00	-22.25	-0.95	0.00	-95.57	0.00	95.57	3932.35	1966.18	7783.54	3897.56		0.04	-0.02	0.030
20.00	-21.27	-0.92	0.00	-90.83	0.00	90.83	3877.61	1938.81	7511.55	3761.36		0.06	-0.03	0.030
25.00	-20.31	-0.90	0.00	-86.21	0.00	86.21	3821.65	1910.82	7241.85	3626.31		0.10	-0.04	0.029
30.00	-19.37	-0.87	0.00	-81.74	0.00	81.74	3764.45	1882.23	6974.60	3492.48		0.15	-0.05	0.029
35.00	-18.44	-0.84	0.00	-77.40	0.00	77.40	3706.02	1853.01	6709.94	3359.96		0.20	-0.06	0.028
37.00	-18.08	-0.83	0.00	-75.72	0.00	75.72	3682.31	1841.15	6604.84	3307.33		0.22	-0.06	0.028
40.00	-17.13	-0.80	0.00	-73.23	0.00	73.23	3646.36	1823.18	6448.04	3228.81		0.26	-0.06	0.027
43.00	-16.19	-0.76	0.00	-70.84	0.00	70.84	2909.03	1454.52	5312.97	2660.44		0.30	-0.07	0.032
45.00	-15.87	-0.76	0.00	-69.31	0.00	69.31	2892.96	1446.48	5234.78	2621.28		0.33	-0.07	0.032
50.00	-15.10	-0.73	0.00	-65.54	0.00	65.54	2851.91	1425.95	5040.14	2523.81		0.41	-0.08	0.031
55.00	-14.35	-0.71	0.00	-61.88	0.00	61.88	2809.63	1404.81	4846.84	2427.02		0.50	-0.09	0.031
60.00	-13.61	-0.69	0.00	-58.34	0.00	58.34	2766.12	1383.06	4655.04	2330.98		0.60	-0.10	0.030
65.00	-12.89	-0.67	0.00	-54.91	0.00	54.91	2721.38	1360.69	4464.89	2235.77		0.71	-0.11	0.029
70.00	-12.18	-0.65	0.00	-51.57	0.00	51.57	2675.40	1337.70	4276.56	2141.46		0.83	-0.12	0.029
75.00	-11.48	-0.64	0.00	-48.32	0.00	48.32	2628.20	1314.10	4090.19	2048.13		0.96	-0.13	0.028
80.00	-10.81	-0.63	0.00	-45.12	0.00	45.12	2579.77	1289.88	3905.94	1955.87		1.10	-0.14	0.027
85.00	-9.68	-0.63	0.00	-41.95	0.00	41.95	1931.95	965.98	3010.11	1507.29		1.25	-0.15	0.033
90.00	-9.11	-0.63	0.00	-38.78	0.00	38.78	1902.21	951.11	2883.49	1443.89		1.41	-0.16	0.032
95.00	-8.56	-0.63	0.00	-35.61	0.00	35.61	1871.24	935.62	2757.57	1380.83		1.58	-0.17	0.030
100.00	-8.02	-0.63	0.00	-32.45	0.00	32.45	1839.04	919.52	2632.50	1318.21		1.76	-0.18	0.029
105.00	-7.50	-0.63	0.00	-29.28	0.00	29.28	1805.60	902.80	2508.44	1256.08		1.96	-0.19	0.027
110.00	-6.62	-0.63	0.00	-26.11	0.00	26.11	1770.94	885.47	2385.54	1194.54		2.16	-0.20	0.026
110.00	-6.62	-0.63	0.00	-26.11	0.00	26.11	839.75	419.87	560.01	367.65		2.16	-0.20	0.079
115.00	-6.12	-0.63	0.00	-22.96	0.00	22.96	839.75	419.87	560.01	367.65		2.37	-0.21	0.070
120.00	-5.61	-0.63	0.00	-19.80	0.00	19.80	839.75	419.87	560.01	367.65		2.61	-0.24	0.061
125.00	-5.10	-0.63	0.00	-16.63	0.00	16.63	839.75	419.87	560.01	367.65		2.88	-0.27	0.051
130.00	-4.15	-0.61	0.00	-13.47	0.00	13.47	839.75	419.87	560.01	367.65		3.18	-0.30	0.042
130.00	-4.15	-0.61	0.00	-13.47	0.00	13.47	839.75	419.87	560.01	367.65		3.18	-0.30	0.042
135.00	-3.22	-0.56	0.00	-10.45	0.00	10.45	839.75	419.87	560.01	367.65		3.50	-0.32	0.032
140.00	-2.71	-0.52	0.00	-7.66	0.00	7.66	839.75	419.87	560.01	367.65		3.84	-0.33	0.024
145.00	-1.97	-0.44	0.00	-5.06	0.00	5.06	839.75	419.87	560.01	367.65		4.20	-0.34	0.016
150.00	-1.42	-0.35	0.00	-2.87	0.00	2.87	839.75	419.87	560.01	367.65		4.56	-0.35	0.009
155.00	-1.03	-0.27	0.00	-1.10	0.00	1.10	839.75	419.87	560.01	367.65		4.92	-0.35	0.004
157.00	-0.69	-0.19	0.00	-0.56	0.00	0.56	839.75	419.87	560.01	367.65		5.07	-0.35	0.002
160.00	0.00	-0.18	0.00	0.00	0.00	0.00	839.75	419.87	560.01	367.65		5.29	-0.35	0.000

Wind Loading - Shaft

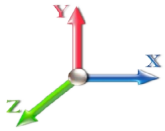
Structure:	CT01001-S-SBA	**Code:**	EIA/TIA-222-G	3/26/2019	
Site Name:	Hebron	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	241.53	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	236.76	0.650	0.000	5.00	21.616	14.05	115.0	0.0	1027.0
10.00		1.00	0.85	7.442	8.19	231.99	0.650	0.000	5.00	21.185	13.77	112.7	0.0	1006.4
15.00		1.00	0.85	7.442	8.19	227.22	0.650	0.000	5.00	20.754	13.49	110.4	0.0	985.7
20.00		1.00	0.90	7.896	8.69	229.14	0.650	0.000	5.00	20.323	13.21	114.7	0.0	965.1
25.00		1.00	0.95	8.276	9.10	229.56	0.650	0.000	5.00	19.891	12.93	117.7	0.0	944.4
30.00		1.00	0.98	8.600	9.46	228.88	0.650	0.000	5.00	19.460	12.65	119.7	0.0	923.8
35.00		1.00	1.01	8.883	9.77	227.41	0.650	0.000	5.00	19.029	12.37	120.9	0.0	903.2
37.00	Bot - Section 2	1.00	1.03	8.988	9.89	226.65	0.650	0.000	2.00	7.491	4.87	48.1	0.0	355.5
40.00		1.00	1.04	9.137	10.05	225.34	0.650	0.000	3.00	11.586	7.53	75.7	0.0	986.0
43.00	Top - Section 1	1.00	1.06	9.277	10.20	223.87	0.650	0.000	3.00	11.431	7.43	75.8	0.0	972.4
45.00		1.00	1.07	9.366	10.30	232.72	0.650	0.000	2.00	7.535	4.90	50.5	0.0	298.4
50.00		1.00	1.09	9.576	10.53	229.90	0.650	0.000	5.00	18.534	12.05	126.9	0.0	734.0
55.00		1.00	1.12	9.770	10.75	226.75	0.650	0.000	5.00	18.103	11.77	126.5	0.0	716.8
60.00		1.00	1.14	9.951	10.95	223.32	0.650	0.000	5.00	17.672	11.49	125.7	0.0	699.6
65.00		1.00	1.16	10.120	11.13	219.65	0.650	0.000	5.00	17.241	11.21	124.8	0.0	682.4
70.00		1.00	1.17	10.279	11.31	215.76	0.650	0.000	5.00	16.810	10.93	123.5	0.0	665.2
75.00		1.00	1.19	10.430	11.47	211.69	0.650	0.000	5.00	16.378	10.65	122.1	0.0	648.0
80.00	Bot - Section 3	1.00	1.21	10.572	11.63	207.45	0.650	0.000	5.00	15.947	10.37	120.5	0.0	630.8
85.00	Top - Section 2	1.00	1.22	10.708	11.78	203.05	0.650	0.000	5.00	16.344	10.62	125.1	0.0	1131.7
90.00		1.00	1.24	10.838	11.92	209.58	0.650	0.000	5.00	15.913	10.34	123.3	0.0	504.4
95.00		1.00	1.25	10.962	12.06	204.99	0.650	0.000	5.00	15.482	10.06	121.3	0.0	490.6
100.00		1.00	1.27	11.081	12.19	200.27	0.650	0.000	5.00	15.051	9.78	119.2	0.0	476.9
105.00		1.00	1.28	11.195	12.31	195.45	0.650	0.000	5.00	14.620	9.50	117.0	0.0	463.1
110.00	Top - Section 3	1.00	1.29	11.305	12.44	190.53	0.650	0.000	5.00	14.188	9.22	114.7	0.0	449.3
115.00		1.00	1.30	11.412	12.55	97.04	0.600	0.000	5.00	7.083	4.25	53.3	0.0	441.0
120.00		1.00	1.32	11.514	12.67	97.48	0.600	0.000	5.00	7.083	4.25	53.8	0.0	441.0
125.00		1.00	1.33	11.614	12.78	97.90	0.600	0.000	5.00	7.083	4.25	54.3	0.0	441.0
130.00	Top - Section 4	1.00	1.34	11.710	12.88	98.30	0.600	0.000	5.00	7.083	4.25	54.7	0.0	441.0
135.00	Appurtenance(s)	1.00	1.35	11.803	12.98	98.69	0.600	0.000	5.00	7.083	4.25	55.2	0.0	441.0
140.00		1.00	1.36	11.894	13.08	99.07	0.600	0.000	5.00	7.083	4.25	55.6	0.0	441.0
145.00	Appurtenance(s)	1.00	1.37	11.982	13.18	99.44	0.600	0.000	5.00	7.083	4.25	56.0	0.0	441.0
150.00	Appurtenance(s)	1.00	1.38	12.068	13.27	99.79	0.600	0.000	5.00	7.083	4.25	56.4	0.0	441.0
155.00		1.00	1.39	12.152	13.37	100.14	0.600	0.000	5.00	7.083	4.25	56.8	0.0	441.0
157.00	Appurtenance(s)	1.00	1.39	12.185	13.40	100.27	0.600	0.000	2.00	2.833	1.70	22.8	0.0	176.4
160.00	Appurtenance(s)	1.00	1.40	12.233	13.46	100.47	0.600	0.000	3.00	4.250	2.55	34.3	0.0	264.6
								Totals:	**160.00**			**3,205.4**		**22,070.1**

Discrete Appurtenance Forces

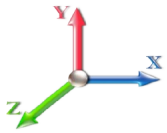
Structure:	CT01001-S-SBA	**Code:**	EIA/TIA-222-G	3/26/2019	
Site Name:	Hebron	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	160.00	Canister	1	12.233	13.457	1.00	1.00	15.00	500.00	0.000	0.000	201.85	0.00	0.00
2	157.00	Flag	1	12.185	13.403	1.00	1.00	11.49	200.00	0.000	0.000	154.00	0.00	0.00
3	150.00	QXW-634X638XBF-EDIN	3	12.068	13.275	0.79	1.00	0.00	89.40	0.000	0.000	0.00	0.00	0.00
4	150.00	FD9R6004-2C-3L	6	12.068	13.275	0.62	1.00	0.00	15.60	0.000	0.000	0.00	0.00	0.00
5	145.00	AM-X-CD-16-65-00T	3	11.982	13.181	0.75	1.00	0.00	145.50	0.000	0.000	0.00	0.00	0.00
6	145.00	DTMABP7819VG12A	6	11.982	13.181	0.67	1.00	0.00	115.20	0.000	0.000	0.00	0.00	0.00
7	135.00	TMA2093F00V1-1	6	11.803	12.984	1.00	1.00	0.00	138.60	0.000	0.000	0.00	0.00	0.00
8	135.00	QS66512-2	3	11.803	12.984	0.00	1.00	0.00	333.00	0.000	0.000	0.00	0.00	0.00
9	130.00	Canister	1	11.710	12.881	1.00	1.00	25.50	500.00	0.000	0.000	328.47	0.00	0.00
10	110.00	Canister	1	11.305	12.436	1.00	1.00	10.50	400.00	0.000	0.000	130.58	0.00	0.00
							Totals:		**2,437.30**			**814.89**		

Total Applied Force Summary

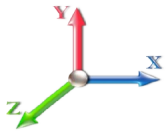
Structure:	CT01001-S-SBA		**Code:**	EIA/TIA-222-G	3/26/2019
Site Name:	Hebron		**Exposure:**	C	
Height:	160.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 25

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		115.02	1148.79	0.00	0.00
10.00		112.72	1128.15	0.00	0.00
15.00		110.43	1107.51	0.00	0.00
20.00		114.74	1086.88	0.00	0.00
25.00		117.70	1066.24	0.00	0.00
30.00		119.66	1045.60	0.00	0.00
35.00		120.87	1024.96	0.00	0.00
37.00		48.14	404.21	0.00	0.00
40.00		75.69	1059.07	0.00	0.00
43.00		75.82	1045.45	0.00	0.00
45.00		50.46	347.12	0.00	0.00
50.00		126.91	855.77	0.00	0.00
55.00		126.47	838.57	0.00	0.00
60.00		125.74	821.37	0.00	0.00
65.00		124.75	804.17	0.00	0.00
70.00		123.54	786.98	0.00	0.00
75.00		122.14	769.78	0.00	0.00
80.00		120.55	752.58	0.00	0.00
85.00		125.14	1253.52	0.00	0.00
90.00		123.31	626.18	0.00	0.00
95.00		121.34	612.42	0.00	0.00
100.00		119.24	598.66	0.00	0.00
105.00		117.02	584.90	0.00	0.00
110.00	(1) attachments	245.27	971.15	0.00	0.00
115.00		53.35	562.77	0.00	0.00
120.00		53.83	562.77	0.00	0.00
125.00		54.29	562.77	0.00	0.00
130.00	(1) attachments	383.21	1062.77	0.00	0.00
135.00	(9) attachments	55.18	1034.37	0.00	0.00
140.00		55.61	562.77	0.00	0.00
145.00	(9) attachments	56.02	823.47	0.00	0.00
150.00	(9) attachments	56.42	608.37	0.00	0.00
155.00		56.81	440.97	0.00	0.00
157.00	(1) attachments	176.79	376.39	0.00	0.00
160.00	(1) attachments	236.16	764.58	0.00	0.00
	Totals:	**4,020.31**	**28,102.04**	**0.00**	**0.00**

Calculated Forces

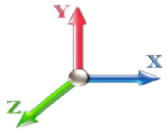
Structure:	CT01001-S-SBA	**Code:**	EIA/TIA-222-G	3/26/2019	
Site Name:	Hebron	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 26	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-28.10	-4.03	0.00	-351.87	0.00	351.87	4089.17	2044.59	8611.68	4312.24	0.00	0.000	0.000	0.088
5.00	-26.95	-3.92	0.00	-331.75	0.00	331.75	4038.13	2019.07	8333.76	4173.08	0.01	-0.024	0.000	0.086
10.00	-25.82	-3.82	0.00	-312.14	0.00	312.14	3985.86	1992.93	8057.66	4034.82	0.05	-0.048	0.000	0.084
15.00	-24.71	-3.72	0.00	-293.05	0.00	293.05	3932.35	1966.18	7783.54	3897.56	0.11	-0.072	0.000	0.081
20.00	-23.62	-3.61	0.00	-274.46	0.00	274.46	3877.61	1938.81	7511.55	3761.36	0.20	-0.096	0.000	0.079
25.00	-22.56	-3.50	0.00	-256.40	0.00	256.40	3821.65	1910.82	7241.85	3626.31	0.32	-0.120	0.000	0.077
30.00	-21.51	-3.39	0.00	-238.90	0.00	238.90	3764.45	1882.23	6974.60	3492.48	0.46	-0.144	0.000	0.074
35.00	-20.48	-3.27	0.00	-221.96	0.00	221.96	3706.02	1853.01	6709.94	3359.96	0.62	-0.168	0.000	0.072
37.00	-20.08	-3.22	0.00	-215.42	0.00	215.42	3682.31	1841.15	6604.84	3307.33	0.69	-0.177	0.000	0.071
40.00	-19.02	-3.15	0.00	-205.74	0.00	205.74	3646.36	1823.18	6448.04	3228.81	0.81	-0.192	0.000	0.069
43.00	-17.97	-3.07	0.00	-196.29	0.00	196.29	2909.03	1454.52	5312.97	2660.44	0.93	-0.206	0.000	0.080
45.00	-17.63	-3.03	0.00	-190.14	0.00	190.14	2892.96	1446.48	5234.78	2621.28	1.02	-0.216	0.000	0.079
50.00	-16.77	-2.91	0.00	-175.00	0.00	175.00	2851.91	1425.95	5040.14	2523.81	1.26	-0.240	0.000	0.075
55.00	-15.93	-2.78	0.00	-160.48	0.00	160.48	2809.63	1404.81	4846.84	2427.02	1.52	-0.264	0.000	0.072
60.00	-15.11	-2.66	0.00	-146.57	0.00	146.57	2766.12	1383.06	4655.04	2330.98	1.81	-0.287	0.000	0.068
65.00	-14.30	-2.53	0.00	-133.28	0.00	133.28	2721.38	1360.69	4464.89	2235.77	2.13	-0.311	0.000	0.065
70.00	-13.52	-2.41	0.00	-120.60	0.00	120.60	2675.40	1337.70	4276.56	2141.46	2.46	-0.333	0.000	0.061
75.00	-12.75	-2.29	0.00	-108.54	0.00	108.54	2628.20	1314.10	4090.19	2048.13	2.83	-0.355	0.000	0.058
80.00	-11.99	-2.17	0.00	-97.09	0.00	97.09	2579.77	1289.88	3905.94	1955.87	3.21	-0.377	0.000	0.054
85.00	-10.74	-2.04	0.00	-86.25	0.00	86.25	1931.95	965.98	3010.11	1507.29	3.62	-0.398	0.000	0.063
90.00	-10.12	-1.92	0.00	-76.05	0.00	76.05	1902.21	951.11	2883.49	1443.89	4.04	-0.418	0.000	0.058
95.00	-9.50	-1.79	0.00	-66.47	0.00	66.47	1871.24	935.62	2757.57	1380.83	4.49	-0.438	0.000	0.053
100.00	-8.90	-1.67	0.00	-57.51	0.00	57.51	1839.04	919.52	2632.50	1318.21	4.96	-0.457	0.000	0.048
105.00	-8.32	-1.55	0.00	-49.15	0.00	49.15	1805.60	902.80	2508.44	1256.08	5.45	-0.475	0.000	0.044
110.00	-7.35	-1.30	0.00	-41.39	0.00	41.39	1770.94	885.47	2385.54	1194.54	5.95	-0.491	0.000	0.039
110.00	-7.35	-1.30	0.00	-41.39	0.00	41.39	839.75	419.87	560.01	367.65	5.95	-0.491	0.000	0.121
115.00	-6.79	-1.25	0.00	-34.88	0.00	34.88	839.75	419.87	560.01	367.65	6.48	-0.507	0.000	0.103
120.00	-6.22	-1.19	0.00	-28.65	0.00	28.65	839.75	419.87	560.01	367.65	7.04	-0.558	0.000	0.085
125.00	-5.66	-1.14	0.00	-22.68	0.00	22.68	839.75	419.87	560.01	367.65	7.64	-0.599	0.000	0.068
130.00	-4.60	-0.74	0.00	-17.00	0.00	17.00	839.75	419.87	560.01	367.65	8.29	-0.631	0.000	0.052
130.00	-4.60	-0.74	0.00	-17.00	0.00	17.00	839.75	419.87	560.01	367.65	8.29	-0.631	0.000	0.052
135.00	-3.57	-0.68	0.00	-13.28	0.00	13.28	839.75	419.87	560.01	367.65	8.96	-0.656	0.000	0.040
140.00	-3.01	-0.62	0.00	-9.88	0.00	9.88	839.75	419.87	560.01	367.65	9.66	-0.674	0.000	0.030
145.00	-2.18	-0.55	0.00	-6.80	0.00	6.80	839.75	419.87	560.01	367.65	10.37	-0.688	0.000	0.021
150.00	-1.58	-0.49	0.00	-4.03	0.00	4.03	839.75	419.87	560.01	367.65	11.10	-0.697	0.000	0.013
155.00	-1.14	-0.43	0.00	-1.59	0.00	1.59	839.75	419.87	560.01	367.65	11.83	-0.701	0.000	0.006
157.00	-0.76	-0.25	0.00	-0.74	0.00	0.74	839.75	419.87	560.01	367.65	12.13	-0.702	0.000	0.003
160.00	0.00	-0.24	0.00	0.00	0.00	0.00	839.75	419.87	560.01	367.65	12.57	-0.702	0.000	0.000

Final Analysis Summary

Structure:	CT01001-S-SBA	**Code:**	EIA/TIA-222-G	3/26/2019	
Site Name:	Hebron	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 101 mph Wind	18.3	0.00	33.70	0.00	0.00	1603.85
0.9D + 1.6W 101 mph Wind	18.3	0.00	25.27	0.00	0.00	1591.10
1.2D + 1.0Di + 1.0Wi 50 mph Wind	7.5	0.00	52.30	0.00	0.00	778.19
1.2D + 1.0E	1.0	0.00	33.72	0.00	0.00	111.49
0.9D + 1.0E	1.0	0.00	25.29	0.00	0.00	110.42
1.0D + 1.0W 60 mph Wind	4.0	0.00	28.10	0.00	0.00	351.87

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 101 mph Wind	-8.60	-5.96	0.00	-189.61	0.00	-189.61	1770.94	885.47	2385.54	1194.54	110.00	0.526
0.9D + 1.6W 101 mph Wind	-6.40	-5.87	0.00	-186.50	0.00	-186.50	1770.94	885.47	2385.54	1194.54	110.00	0.515
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-14.65	-3.81	0.00	-115.29	0.00	-115.29	1770.94	885.47	2385.54	1194.54	110.00	0.331
1.2D + 1.0E	-8.83	-0.64	0.00	-26.43	0.00	-26.43	1770.94	885.47	2385.54	1194.54	110.00	0.082
0.9D + 1.0E	-6.62	-0.63	0.00	-26.11	0.00	-26.11	1770.94	885.47	2385.54	1194.54	110.00	0.079
1.0D + 1.0W 60 mph Wind	-7.35	-1.30	0.00	-41.39	0.00	-41.39	1770.94	885.47	2385.54	1194.54	110.00	0.121

Base Plate Summary

Structure:	CT01001-S-SB		**Code:**	EIA/TIA-222-G	3/26/2019
Site Name:	Hebron		**Exposure:**	C	
Height:	160.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 28

Tower Engineering Solutions

Reactions		Base Plate		Anchor Bolts	
Original Design		**Yield (ksi):**	36.00	**Bolt Circle:**	59.00
Moment (kip-ft):	1456.00	**Width (in):**	62.00	**Number Bolts:**	12.00
Axial (kip):	33.00	**Style:**	Round	**Bolt Type:**	2.00" A687
Shear (kip):	16.00	**Polygon Sides:**	0.00	**Bolt Diameter (in):**	2.00
Analysis		**Clip Length (in):**	0.00	**Yield (ksi):**	105.00
Moment (kip-ft):	1603.85	**Effective Len (in):**	29.67	**Ultimate (ksi):**	150.00
Axial (kip):	52.30	**Moment (kip-in):**	418.45	**Arrangement:**	Radial
Shear (kip):	18.26	**Allow Stress (ksi):**	48.60	**Cluster Dist (in):**	0.00
		Applied Stress (ksi):	0.00	**Start Angle (deg):**	0.00
Moment Design %:	110.15	**Stress Ratio:**	0.44	Compression	
				Force (kip):	113.09
				Allowable (kip):	300.00
				Ratio:	0.39
				Tension	
				Force (kip):	104.38
				Allowable (kip):	300.00
				Ratio:	0.36

Last revised on 11/28/2017

Monopole Mat Foundation Design

			Date
			3/26/2019
Customer Name:	AT&T	**EIA/TIA Standard:**	EIA-222-G
Site Name:		**Structure Height (Ft.):**	160
Site Number:	CT01001-S-SBA	**Engineer Name:**	M. Franco
Engr. Number:	72238	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

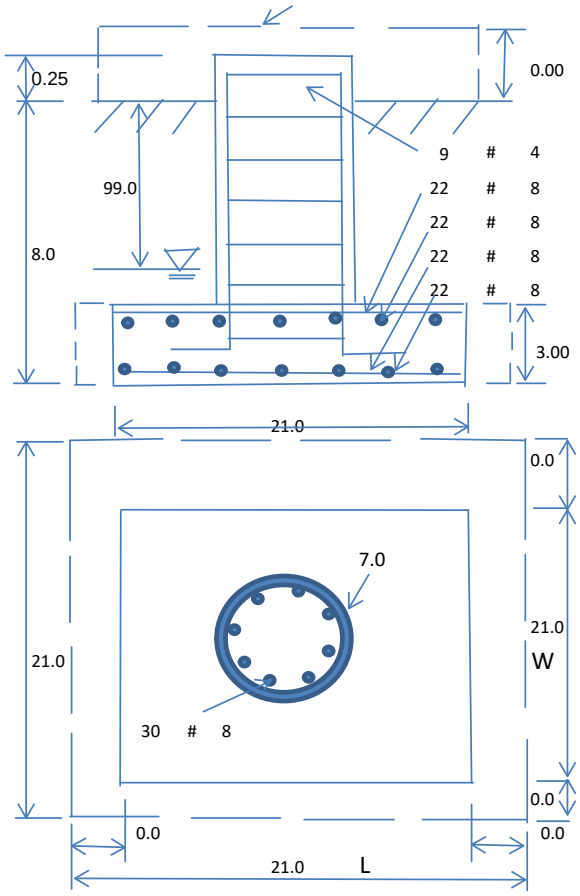
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	33.7	Shear Force (Kips):	18.3
Uplift Force (Kips):	0.0	Moment (Kips-ft):	1603.9
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	7.0	Depth of Base BG (ft.):	8.0
Pier Height A. G. (ft.):	0.25	Thickness of Pad (ft):	3.00
Length of Pad (ft.):	21	Width of Pad (ft.):	21
Final Length of pad (ft)	21.0	Final width of pad (ft):	21.0
Control Value for Cell D18:	0	Control Value for Cell F18:	0



Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	8	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	30	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	22	Qty. of Rebar in Pad (W):	22	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	22	Qty. of Rebar in Pad (W):	22	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	120.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	16000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	No	Reduction factor on the maximum soil bearing pressure:	1.00			

Foundation Analysis and Design: Uplift Strength Reduction Factor: 0.75 — Compression Strength Reduction Factor: 0.75

Total Dry Soil Volume (cu. Ft.):	2012.58	Total Dry Soil Weight (Kips):	241.51
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	241.51	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	1525.04	Total Dry Concrete Weight (Kips):	228.76
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	228.76	Total Vertical Load on Base (Kips):	503.97

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	2164	<	Allowable Factored Soil Bearing (psf):	12000	0.18	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	4797.9	>	Design Factored Momont (kips-ft):	1755	0.37	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	2.73	OK!				

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75			
Strength reduction factor (Axial compresion):	0.65	Wind Load Factor on Concrete Design:	1.00			
					Load/ Capacity Ratio	
(1) Concrete Pier:						
Vertical Steel Rebar Area (sq. in./each):	0.79		Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	4107.6	>	Design Factored Moment (Mu, Kips-Ft	1700.0	0.41	OK!
Calculated Shear Capacity (Kips):	660.1	>	Design Factored Shear (Kips):	18.3	0.03	OK!
Calculated Tension Capacity (Tn, Kips):	1279.8	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	9755.9	>	Design Factored Axial Load (Pu Kips):	33.7	0.00	OK!
Moment & Axial Strength Combination:	0.41	OK!	Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.004		Reinforcement Ratio is too small			
(2).Concrete Pad:						
One-Way Design Shear Capacity (L-Direction, Kips):	777.0	>	One-Way Factored Shear (L-D. Kips):	124.3	0.16	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	777.0	>	One-Way Factored Shear (W-D., Kips)	124.3	0.16	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	639.4	>	One-Way Factored Shear (C-C, Kips):	115.9	0.18	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0021	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0021		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	2494.2	>	Moment at Bottom (L-Dir. K-Ft):	607.1	0.24	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	2494.2	>	Moment at Bottom (W-Dir. K-Ft):	607.1	0.24	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	3506.6	>	Moment at Bottom (C-C Dir. K-Ft):	858.6	0.24	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0021	OK!	Upper Steel Reinf. Ratio (W-Dir.):	0.0021		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	2494.2	>	Moment at the top (L-Dir K-Ft):	237.1	0.10	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	2494.2	>	Moment at the top (W-Dir K-Ft):	237.1	0.10	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	3506.6	>	Moment at the top (C-C Dir. K-Ft):	224.6	0.06	OK!
(3).Check Punching Shear Capacity due to Moment in the Pier:						
Moment transferred by punching shear:	641.6	k-ft.	Max. factored shear stress v_{u_CD}:		0.9	Psi
Max. factored shear stress v_{u_AB}:	5.3	Psi	Factored shear Strength ϕv_n:		189.7	Psi
Max. factored shear stress v_u:	5.3	Psi	Check Usage of Punching Shear Capacity:		0.03	OK!

FULLERTON
ENGINEERING · DESIGN

Fullerton Engineering Consultants, Inc.
1100 E. Woodfield Road, Suite 500
Schaumburg, IL 60173
Tel: 847.908.8400
www.fullertonengineering.com

September 21, 2018

RE:	**AT&T LTE Retrofit/5G/4C/5C**
Prepared For:	Smartlink / AT&T
Site Number:	CTL05866
FA Location:	10071077
Pace Number:	MRCTB032613/MRCTB032612/MRCTB025558/MRCTB032614
Site Name:	HEBRON NORTH CENTRAL
Site Address:	768 Gilead Street Hebron, CT 06248

To Whom It May Concern,

This structural assessment is in regards to the adequacy of the existing Ice Bridge Post and antenna mount in Flagpole for the AT&T LTE Retrofit/5G/4C/5C project. The purpose was to determine conformance of the existing flag pole under the 2012 International Building Code and the industry standard ANSI/TIA-222-G (Structural Standards for Steel Antenna Towers and Antenna Supporting Structures).

Based on collected information via site visit photos dated 8/12/2017, existing and proposed loading presented in the RFDS by AT&T dated 08/13/2018 Ver. 3, structural opinion letter by Fullerton Engineering dated 11/08/2017, comparison of the existing and proposed loading, and engineering judgment, it our professional opinion that the existing Ice Bridge Post and antenna mount in flagpole are **adequate** to support the proposed installation for the above-referenced program. Detailed calculations and analysis have not been performed to verify this opinion, however, such calculations can be performed under an expanded scope of work, if required.

This PE certification completed by Fullerton Engineering Consultants is inclusive of the existing flag pole that will support the existing and proposed loading provided by the client.

This certification assumes that all the existing structural members of the mounting structure is in good condition and have not been altered from the manufacturer's original design. Prior to installation of new equipment, contractor shall inspect the condition of all relevant members and connectors. The contractor shall be responsible for the means and methods of construction.

Respectfully,

Henry M. Bellagamba, P.E.

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2016.

Information on the Property Records for the Municipality of Hebron was last updated on 2/20/2019.

Parcel Information

Location:	768 GILEAD ST	Property Use:	Residential	Primary Use:	Residential
Unique ID:	837	Map Block Lot:	44-27	Acres:	93.42
490 Acres:	91.91	Zone:	R-1	Volume / Page:	0167/0653
Developers Map / Lot:	26/38	Census:	5261		

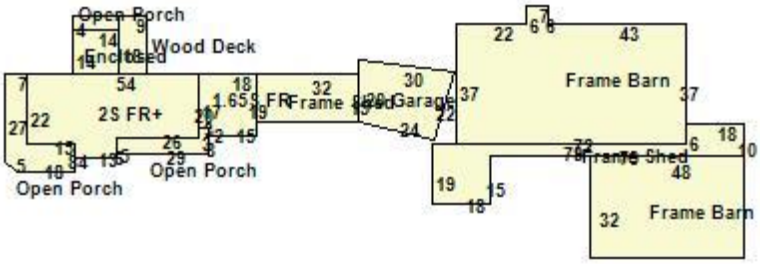
Value Information

	Appraised Value	Assessed Value
Land	97,558	68,290
Buildings	230,669	161,470
Detached Outbuildings	240,652	168,460
Total	568,879	398,220

Owner's Information

Owner's Data
ELLIS EDWARD A & RENEE J 768 GILEAD ST HEBRON CT 06248

Building 1



Building Use:	Single Family	Style:	Colonial	Living Area:	2,930
Stories:	2.00	Construction:	Wood Frame	Year Built:	1850
Total Rooms:	10	Bedrooms:	4	Full Baths:	2

Half Baths:	0	Fireplaces:	0	Heating:	Caste Iron
Fuel:	Oil	Cooling Percent:	0	Basement Area:	1,188
Basement Finished Area:	0	Basement Garages:	0	Roof Material:	Arch Shingles
Siding:	Vinyl Siding	Units:	One w/In Law		

Special Features

Solar Panels	200

Attached Components

Type:	Year Built:	Area:
Frame Barn	1850	1,536
Frame Barn	1850	2,706
Wood Deck	1850	162
Garage	1850	556
Enclosed Porch	1850	196
Open Porch	1850	154
Open Porch	1850	56
Open Porch	1850	329
Frame Shed	1850	766
Frame Shed	1850	480

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Frame Shed	1850	0.00	0.00	4,800

Type:	Year Built:	Length:	Width:	Area:
Frame Shed	1950	0.00	0.00	8,736
Frame Shed	1950	0.00	0.00	720
Frame Shed	2008	0.00	0.00	4,000
Frame Shed	1951	0.00	0.00	154
Frame Shed	1982	0.00	0.00	3,888
Frame Shed	2004	0.00	0.00	2,080
Frame Shed	1951	0.00	0.00	1,430
Frame Shed	1967	0.00	0.00	14,644

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Valid Sale	Sale Price
ELLIS EDWARD A & RENEE J	0167	0653	08/08/1994		No	$0
ELLIS KENNETH W	0128	0107	08/17/1987		No	$0

Building Permits

Permit Number	Permit Type	Date Opened	Date Closed	Permit Status	Reason
27404	Heating	12/18/2018		Closed	PROPANE GAS HEATER IN GARAGE
26917	Solar Panels	02/22/2018		Closed	200 PANEL SOLAR SYSTEM; INSTALLED ON FARM ROOF
25545	Outbuilding/Yard Item	08/05/2015		Closed	
21084	Outbuilding/Yard Item	05/16/2013		Closed	
2011-20526	Electrical	06/15/2011		Closed	UPGRADE SERVICE
2011-20457	Roof	05/18/2011		Closed	INSTLL PV SYSTEM
2010-1522	Mechanical	02/24/2010		Closed	RMV UG TANK

Permit Number	Permit Type	Date Opened	Date Closed	Permit Status	Reason
08-0476	Outbuilding/Yard Item	05/20/2008		Closed	
11766	Mechanical	07/30/2002		Closed	

Information Published With Permission From The Assessor

Ryan Burgdorfer

From: TrackingUpdates@fedex.com
Sent: Thursday, April 4, 2019 9:35 AM
To: Ryan Burgdorfer
Subject: FedEx Shipment 774847652884 Delivered

Your package has been delivered

Tracking # 774847652884

Ship date:
Wed, 4/3/2019

Ryan Burgdorfer
Smartlink LLC
NORTH BILLERICA, MA 01862
US

Delivery date:
Thu, 4/4/2019 9:34 am

Michael O'Leary
TOWN OF HEBRON
15 GILEAD ST
TOWN PLANNER
HEBRON, CT 06248150115
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	774847652884
Status:	Delivered: 04/04/2019 09:34 AM Signed for By: Signature on File
Reference:	CTL05866 Zoning Official
Signed for by:	Signature on File
Service type:	FedEx Ground
Packaging type:	Package
Number of pieces:	1
Weight:	1.00 lb.
Standard transit:	4/4/2019

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 8:35 AM CDT on 04/04/2019.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

Ryan Burgdorfer

From: TrackingUpdates@fedex.com
Sent: Monday, April 8, 2019 5:23 PM
To: Ryan Burgdorfer
Subject: FedEx Shipment 774847724214 Delivered

Your package has been delivered

Tracking # 774847724214

Ship date:
Wed, 4/3/2019

Ryan Burgdorfer
Smartlink LLC
NORTH BILLERICA, MA 01862
US

Delivery date:
Mon, 4/8/2019 5:18 pm

Carla Shorter
SBA COMMUNICATIONS CORP.
8051 CONGRESS AVE
BOCA RATON, FL
33487131099
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	774847724214
Status:	Delivered: 04/08/2019 5:18 PM Signed for By: LMETZ
Reference:	CTL05866 Structure Owner
Signed for by:	LMETZ
Delivery location:	Boca Raton, FL
Service type:	FedEx Ground
Packaging type:	Package
Number of pieces:	1
Weight:	1.00 lb.
Standard transit:	4/8/2019

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 4:22 PM CDT on 04/08/2019.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

Ryan Burgdorfer

From: TrackingUpdates@fedex.com
Sent: Thursday, April 4, 2019 1:31 PM
To: Ryan Burgdorfer
Subject: FedEx Shipment 774847684342 Delivered

Your package has been delivered

Tracking # 774847684342

Ship date:
Wed, 4/3/2019

Ryan Burgdorfer
Smartlink LLC
NORTH BILLERICA, MA 01862
US

Delivery date:
Thu, 4/4/2019 1:29 pm

Edward A. and Renee J. Ellis
EDWARD A. AND RENEE J. ELLIS
768 GILEAD ST
HEBRON, CT 06248131768
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	774847684342
Status:	Delivered: 04/04/2019 1:29 PM Signed for By: Signature Not Req
Reference:	CTL05866 Property Owner
Signed for by:	Signature Not Req
Service type:	FedEx Home Delivery
Packaging type:	Package
Number of pieces:	1
Weight:	1.00 lb.
Standard transit:	4/4/2019

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 12:31 PM CDT on 04/04/2019.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

Ryan Burgdorfer

From: TrackingUpdates@fedex.com
Sent: Thursday, April 4, 2019 9:35 AM
To: Ryan Burgdorfer
Subject: FedEx Shipment 774847633341 Delivered

Your package has been delivered

Tracking # 774847633341

Ship date:
Wed, 4/3/2019

Ryan Burgdorfer
Smartlink LLC
NORTH BILLERICA, MA 01862
US

Delivery date:
Thu, 4/4/2019 9:33 am

Andrew Tierney
TOWN OF HEBRON
15 GILEAD ST
TOWN MANAGER
HEBRON, CT 06248150115
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	774847633341
Status:	Delivered: 04/04/2019 09:33 AM Signed for By: Signature on File
Reference:	CTL05866 Elected Official
Signed for by:	Signature on File
Delivery location:	Hebron, CT
Service type:	FedEx Ground
Packaging type:	Package
Number of pieces:	1
Weight:	1.00 lb.
Standard transit:	4/4/2019

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 8:34 AM CDT on 04/04/2019.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.