Transcend Wireless

10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

June 2, 2016

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

T-Mobile Northeast LLC – CTNH143C
Tower Share Application
153 E. Haddam Road, Salem, CT 06420
Latitude- 41.46847000
Longitude- -72.27329000

Dear Ms. Bachman,

This letter and attachments are submitted on behalf of T-Mobile Northeast LLC ("T-Mobile"). T-Mobile plans to install antennas and related equipment at the American Tower site located at 153 E. Haddam Road in Salem, CT.

T-Mobile will install six (6) 700/1900/2100 MHz antennas and nine (9) total RRH's at the 175' level of the existing 190' lattice tower. One (1) hybrid cable will also be installed on the lattice tower. T-Mobile's equipment cabinets will be placed on an existing 6' X 10'-6" concrete pad within the existing fenced-in compound. Including are plans prepared by Hudson Design Group dated June 1, 2016, depicting the planned installation and attached as **Exhibit A**. Also included is a structural analysis prepared by A.T. Engineering Service, PLLC, dated April 22, 2016, confirming that the existing tower is structurally capable of supporting T-Mobile's equipment and attached as **Exhibit B**.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of T-Mobile's intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A, a copy of this letter is being sent to Mr. Kevin T. Lyden, First Selectman for the Town of Salem, and tower and property owner, American Tower. Please see the letter from American Tower authorizing the proposed shared use of the facility attached as **Exhibit C**.

The planned modification to the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-89.

1. The proposed modifications will not result in an increase in the height of the existing structure. The top of the lattice tower is approximately 190'; T-Mobile's proposed antennas will be located at a center line height of 175'.
2. The proposed modifications will not require the extension of the site boundary as depicted on the attached site plan. T-Mobile's equipment will be located entirely within the existing compound area.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state or local criteria. The incremental effect of the proposed changes will be negligible.

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations (**Exhibit D**), the combined site operations will result in a total power density of 18.63%.

5. The proposed equipment will not cause a change or alteration in the physical or environmental characteristics of the site. Please see the Programmatic Agreement Letter from American Tower dated April 18, 2016 attached as **Exhibit E**.

Sincerely,

Kyle Richers

Kyle Richers
Transcend Wireless, on behalf of T-Mobile
10 Industrial Ave., Suite 3
Mahwah, New Jersey 07430
krichers@transcendwireless.com
908-447-4716

Attachments:

cc: Kevin T. Lyden, First Selectman, Town of Salem
American Tower – tower/property owner

SITE NUMBER: CTNH143C

153 E. HADDAM ROAD
SALEM, CT 06420
NEW LONDON COUNTY

SITE NAME: SALEM

RF DESIGN GUIDELINE: 707C

T-MOBILE TECHNICIAN SITE SAFETY NOTES	
LOCATION	SPECIAL RESTRICTIONS
SECTOR A: ANTENNA/TMA/RRH	ACCESS NOT PERMITTED
SECTOR B: ANTENNA/TMA/RRH	ACCESS NOT PERMITTED
SECTOR C: ANTENNA/TMA/RRH	ACCESS NOT PERMITTED
GPS/LMU:	UNRESTRICTED CAUTION: OSHA-APPROVED PORTABLE 8' STEP-LADDER REQUIRED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE

GENERAL NOTES

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.

THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T-MOBILE NORTHEAST, LLC REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SPECIAL STRUCTURAL NOTES

TOWER OWNER SHALL PROVIDE GLOBAL STRUCTURAL STABILITY ANALYSIS OF EXISTING ANTENNA SUPPORT STRUCTURE. GENERAL CONTRACTOR SCOPE OF WORK SHALL INCLUDE ALL REQUIRED STRUCTURAL MODIFICATIONS, RE-BUNDLING OF COAXIAL CABLES OR OTHER SPECIAL MODIFICATIONS AS OUTLINED THEREIN.

STRUCTURAL DESIGNS AND DETAILS FOR ANTENNA MOUNTS COMPLETED BY HUDSON DESIGN ON BEHALF OF T-MOBILE ARE INCLUSIVE OF THE ENTIRE ANTENNA SUPPORT STRUCTURE (GLOBAL STRUCTURAL STABILITY ANALYSIS BY OTHERS), EXISTING TOWER PLATFORM, EXISTING ANTENNA MOUNTS AND ALL OTHER ASPECTS OF THE STRUCTURE THAT WILL SUPPORT THE T-MOBILE MODERNIZATION EQUIPMENT DEPLOYMENT AS DEPICTED HEREIN.

HUDSON DESIGN ASSUMES THAT THE TOWER IS PROPERLY CONSTRUCTED AND MAINTAINED. ALL STRUCTURAL MEMBERS AND THEIR CONNECTION ARE ASSUMED TO BE IN GOOD CONDITION AND ARE FREE FROM DEFECTS WITH NO DETERIORATION TO ITS MEMBER CAPACITIES

PROJECT SUMMARY

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY T-MOBILE EQUIPMENT INSTALLATION
ZONING JURISDICTION: (TOWN OF SALEM)	BASED ON INFORMATION PROVIDED BY T-MOBILE, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS AN ELIGIBLE FACILITY UNDER THE TAX RELIEF ACT OF 2012, 47 USC 1455(A), AND IS SUBJECT TO AN EXPEDITED ELIGIBLE FACILITIES REQUEST/REVIEW AND ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW).
SITE ADDRESS:	153 E. HADDAM ROAD SALEM, CT 06420
LATITUDE:	41° 28' 06.49" N
LONGITUDE:	72° 16' 23.84" W
JURISDICTION:	NATIONAL, STATE & LOCAL CODES OR ORDINANCES
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY
TOWER OWNER:	AMERICAN TOWER CORPORATION 116 HUNTINGTON AVENUE 11TH FLOOR BOSTON, MA 02116
ATC SITE ID:	10027

APPROVALS

PROJECT MANAGER	DATE
CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING / SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE

DRIVING DIRECTIONS:

HEAD NORTHEAST ON GRIFFIN RD S AND TURN RIGHT ONTO DAY HILL RD. USE THE RIGHT LANE TO MERGE ONTO I-91 S. USE THE LEFT LANE TO TAKE EXIT 30 OFF I-91 S FOR I-84 E. MERGE ONTO I-84 E. TAKE EXIT 55 FOR CT-2 E. CONTINUE ONTO CT-2 E. KEEP RIGHT AT THE FORK AND CONTINUE ON CT-11 S. CONTINUE ONTO EXIT 4. TURN LEFT ONTO CT-82 E. DESTINATION WILL BE ON THE RIGHT.

ARRIVE AT 153 E. HADDAM ROAD SALEM, CT 06420.

CALL BEFORE YOU DIG
CALL TOLL FREE 888-DIG-SAFE OR CALL 811
UNDERGROUND SERVICE ALERT

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND PLAN, EQUIPMENT PLAN & TOWER ELEVATION	1
A-2	TOWER EQUIPMENT DETAILS	1
A-3	GROUND EQUIPMENT DETAILS	1
E-1	ELECTRICAL DETAILS & NOTES	1
G-1	GROUNDING SCHEMATIC & RISER DIAGRAM	1
G-2	GROUNDING DETAILS & NOTES	1

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 648-1116

Transcend Wireless
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH, NJ 07430
TEL: (201) 684-0055
FAX:(201) 684-0066

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

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

CHECKED BY: DR

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	06/01/16	ISSUED FOR CONSTRUCTION	VP
0	05/02/16	ISSUED FOR REVIEW	VP

SITE NUMBER:
CTNH143C
ATC SITE ID:
10027
SITE NAME:
SALEM
SITE ADDRESS:
153 E. HADDAM ROAD
SALEM, CT 06420
NEW LONDON COUNTY

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

GROUNDING NOTES

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

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

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

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

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

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

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

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

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

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

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

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

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR – TRANSCEND WIRELESS
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – T-MOBILE

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

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

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

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

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

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

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

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

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

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

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

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

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

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

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T-MOBILE SITES."

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

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

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

20. APPLICABLE BUILDING CODES:
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
    BUILDING CODE: 2003 IBC WITH 2005 CT SUPPLEMENT, + 2009 & 2013 CT AMENDMENTS
    ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
    LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS

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

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

    AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

    MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

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

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

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

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 648-1116

Transcend Wireless
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH, NJ 07430
TEL: (201) 684-0055
FAX:(201) 684-0066

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

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

CHECKED BY: DR

APPROVED BY: DPH

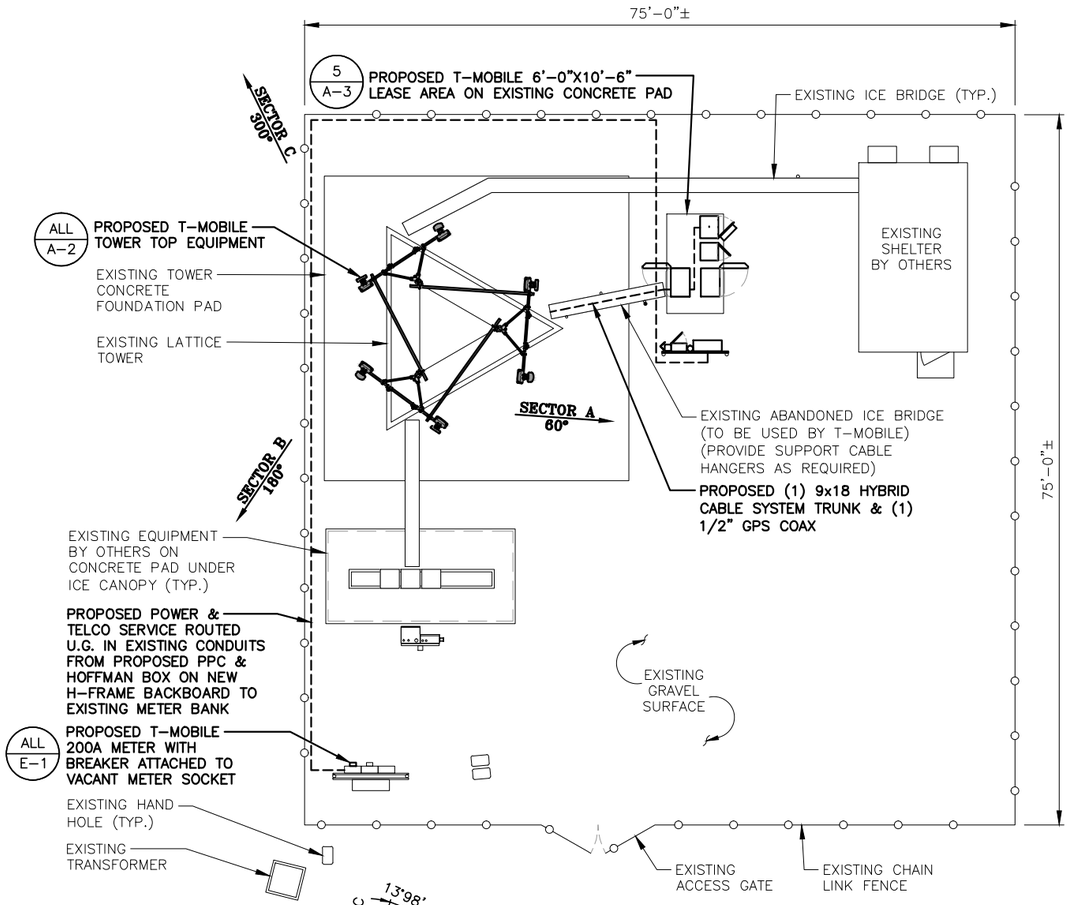
SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	06/01/16	ISSUED FOR CONSTRUCTION	VP
0	05/02/16	ISSUED FOR REVIEW	VP

SITE NUMBER:
CTNH143C
ATC SITE ID:
10027
SITE NAME:
SALEM
SITE ADDRESS:
153 E. HADDAM ROAD
SALEM, CT 06420
NEW LONDON COUNTY

SHEET TITLE
GENERAL NOTES

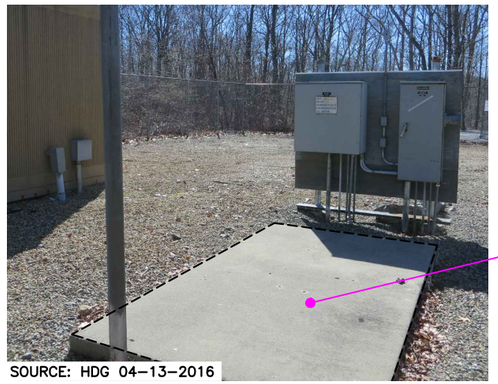
SHEET NUMBER
GN-1



COMPOUND PLAN (1 / A-1)

22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

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

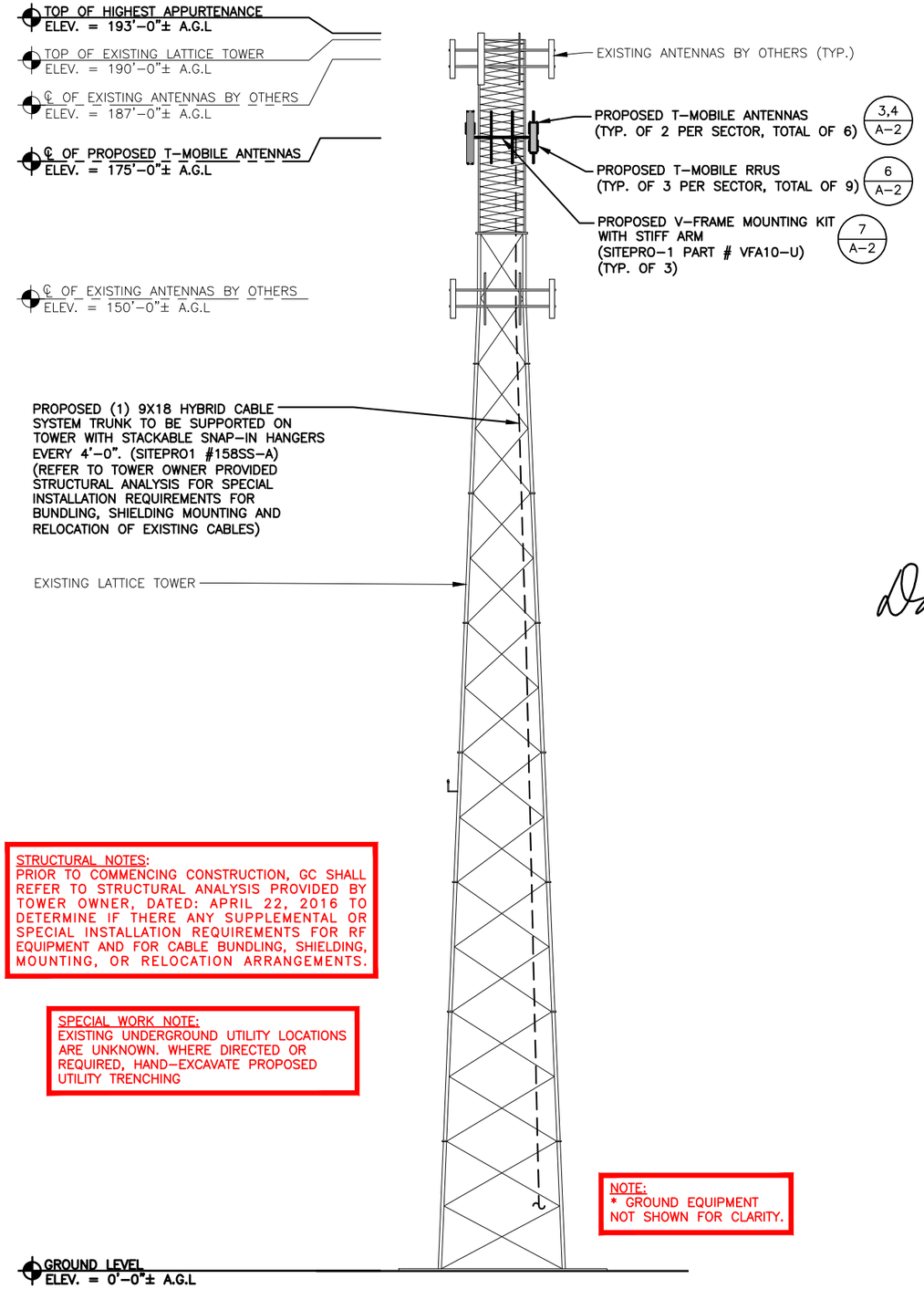


PROPOSED T-MOBILE
GROUND LEASE
6'-0"X10'-6"

SOURCE: HDG 04-13-2016

EQUIPMENT LOCATION PHOTO DETAIL (2 / A-1)

SCALE: N.T.S



STRUCTURAL NOTES:
PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO STRUCTURAL ANALYSIS PROVIDED BY TOWER OWNER, DATED: APRIL 22, 2016 TO DETERMINE IF THERE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS FOR RF EQUIPMENT AND FOR CABLE BUNDLING, SHIELDING, MOUNTING, OR RELOCATION ARRANGEMENTS.

SPECIAL WORK NOTE:
EXISTING UNDERGROUND UTILITY LOCATIONS ARE UNKNOWN. WHERE DIRECTED OR REQUIRED, HAND-EXCAVATE PROPOSED UTILITY TRENCHING

NOTE:
* GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

TOWER ELEVATION (3 / A-1)

22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"

0 5'-4" 10'-8" 21'-4" 32'-0"

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 648-1116

Transcend Wireless
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH, NJ 07430
TEL: (201) 684-0055
FAX:(201) 684-0066

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

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

Daniel P. Hamm

CHECKED BY: DR

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	06/01/16	ISSUED FOR CONSTRUCTION	VP
0	05/02/16	ISSUED FOR REVIEW	VP

SITE NUMBER:
CTNH143C

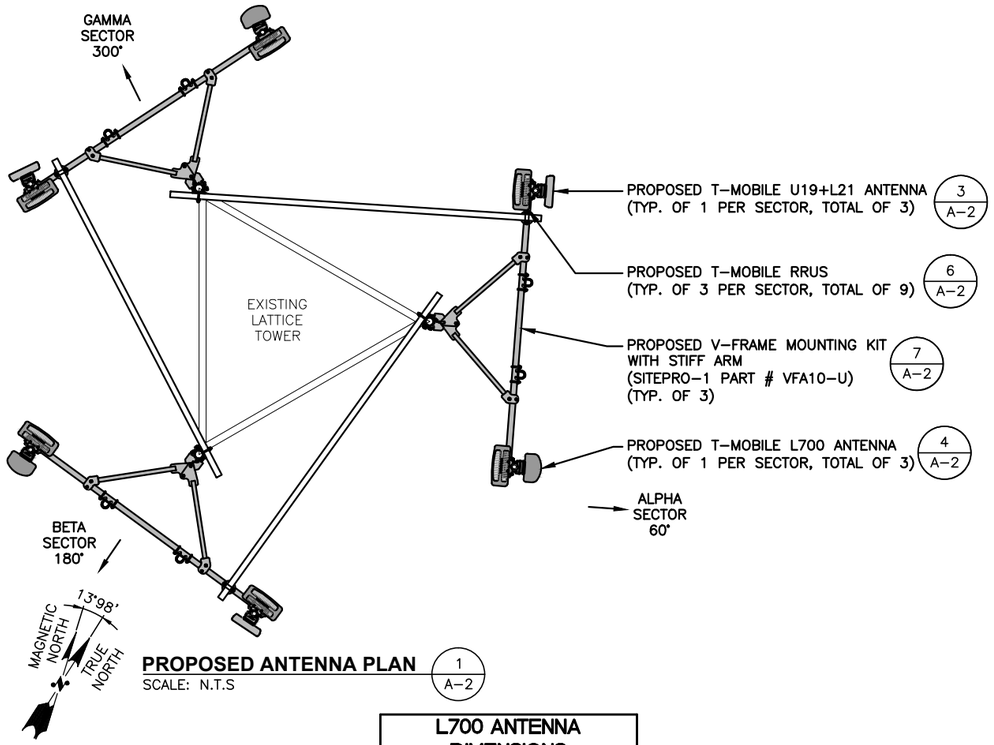
ATC SITE ID:
10027

SITE NAME:
SALEM

SITE ADDRESS:
153 E. HADDAM ROAD
SALEM, CT 06420
NEW LONDON COUNTY

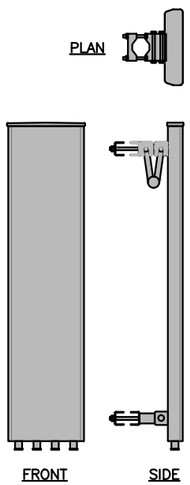
SHEET TITLE
COMPOUND PLAN, EQUIPMENT PLAN & ELEVATION

SHEET NUMBER
A-1



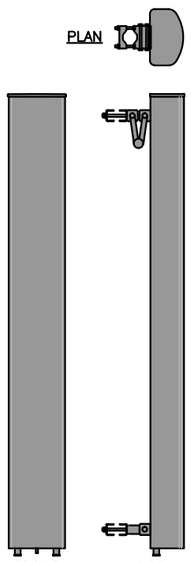
PROPOSED ANTENNA PLAN 1 A-2
SCALE: N.T.S

U19+L21 ANTENNA DIMENSIONS	
MODEL #	APX16DWV-16DWV-S-E-A20
MANUF.	RFS
WIDTH	13"
DEPTH	3.15"
HEIGHT	55.9"
WEIGHT	40.7 LBS

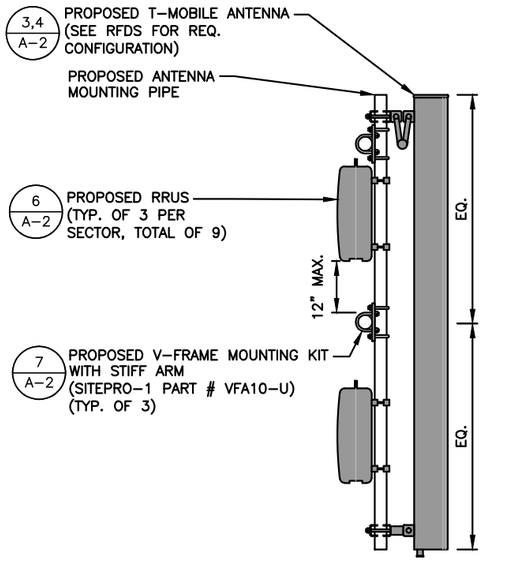


U19+L19 ANTENNA DETAIL 3 A-2
SCALE: N.T.S

L700 ANTENNA DIMENSIONS	
MODEL #	LNX-6515DS-A1M
MANUF.	COMMSCOPE
WIDTH	11.9"
DEPTH	7.1"
HEIGHT	96"
WEIGHT	43.7 LBS

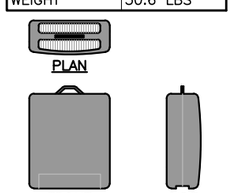


L700 ANTENNA DETAIL 4 A-2
SCALE: N.T.S



PROPOSED ANTENNA & RRU MOUNTING DETAIL 5 A-2
SCALE: N.T.S

RRU DIMENSIONS	
MODEL #	RRUS11 B2
MODEL #	RRUS11 B4
MODEL #	RRUS11 B12
MANUF.	ERICSSON
WIDTH	17"
DEPTH	7"
HEIGHT	20"
WEIGHT	50.6 LBS

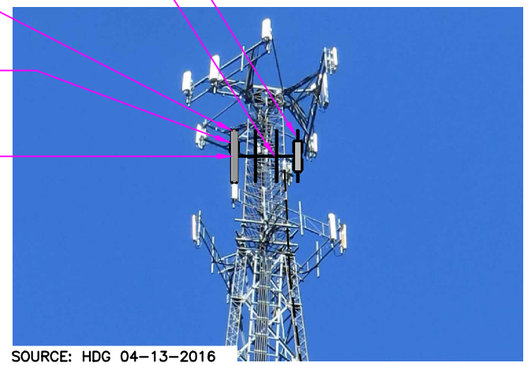


PROPOSED RRU DETAIL 6 A-2
SCALE: N.T.S

STRUCTURAL NOTES:
PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO STRUCTURAL ANALYSIS PROVIDED BY TOWER OWNER, DATED: APRIL 22, 2016 TO DETERMINE IF THERE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS FOR RF EQUIPMENT AND FOR CABLE BUNDLING, SHIELDING, MOUNTING, OR RELOCATION ARRANGEMENTS.

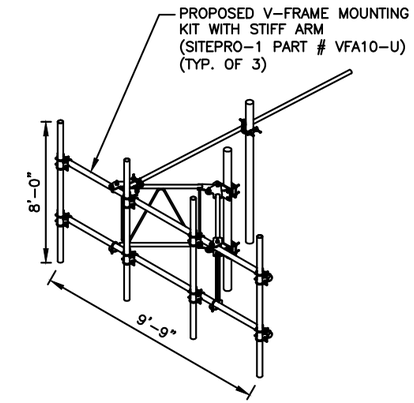
3 A-2 PROPOSED T-MOBILE U19+L21 ANTENNA (TYP. OF 1 PER SECTOR, TOTAL OF 3)
7 A-2 PROPOSED V-FRAME MOUNTING KIT WITH STIFF ARM (SITEPRO-1 PART # VFA10-U) (TYP. OF 3)
4 A-2 PROPOSED T-MOBILE L700 ANTENNA (TYP. OF 1 PER SECTOR, TOTAL OF 3)
6 A-2 PROPOSED T-MOBILE RRUS (TYP. OF 3 PER SECTOR, TOTAL OF 9)

SPECIAL WORK NOTE:
VERTICALLY CENTER THE PIPE MAST AND ANTENNA ON PROPOSED FACE FRAME

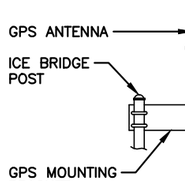


SOURCE: HDG 04-13-2016

PROPOSED ANTENNA MOUNT PHOTO DETAIL 2 A-2
SCALE: N.T.S



ANTENNA MOUNTING KIT 7 A-2
SCALE: N.T.S



GPS DIMENSIONS	
MODEL #	CCAH32ST03
MANUF.	NAIS
HEIGHT	3.9"
WIDTH	3.5"

GPS ANTENNA MOUNTING DETAIL 8 A-2
SCALE: N.T.S

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 648-1116

Transcend Wireless
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH, NJ 07430
TEL: (201) 684-0055
FAX:(201) 684-0066

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

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

Daniel P. Hamm

CHECKED BY: DR

APPROVED BY: DPH

SUBMITTALS

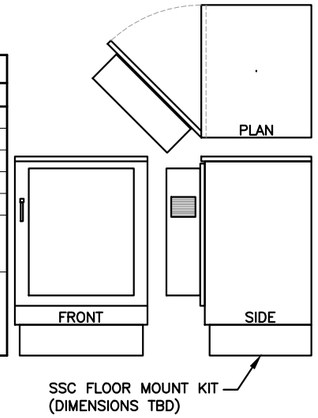
REV.	DATE	DESCRIPTION	BY
1	06/01/16	ISSUED FOR CONSTRUCTION	VP
0	05/02/16	ISSUED FOR REVIEW	VP

SITE NUMBER:
CTNH143C
ATC SITE ID:
10027
SITE NAME:
SALEM
SITE ADDRESS:
153 E. HADDAM ROAD
SALEM, CT 06420
NEW LONDON COUNTY

SHEET TITLE
TOWER EQUIPMENT DETAILS

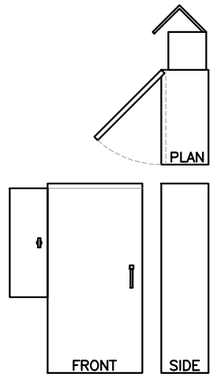
SHEET NUMBER
A-2

SSC DIMENSIONS	
MODEL #	SXF17-2824
MANUF.	PURCELL
WIDTH	28"
DEPTH	23.5"
HEIGHT	35.5"
PLINTH	6.5"
WEIGHT (BASE CONFIGURATION)	70 LBS
NOTE: INSTALL CABINET ANCHORS AND FLOOR MOUNT KIT ANCHORS PER MANUFACTURER'S INSTALLATION GUIDELINES	



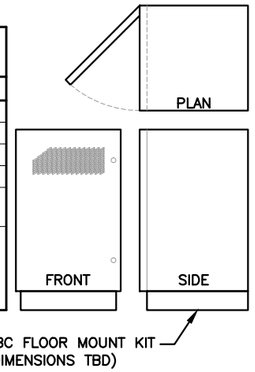
SITE SUPPORT CABINET (SSC) 1/A-3
SCALE: N.T.S

PPC DIMENSIONS	
MODEL #	3799340400
MANUF.	DELTA
WIDTH	20"
DEPTH	10"
HEIGHT	40"
WEIGHT	75 LBS
NOTE: INSTALL CABINET ANCHORS PER MANUFACTURER'S INSTALLATION GUIDELINES	

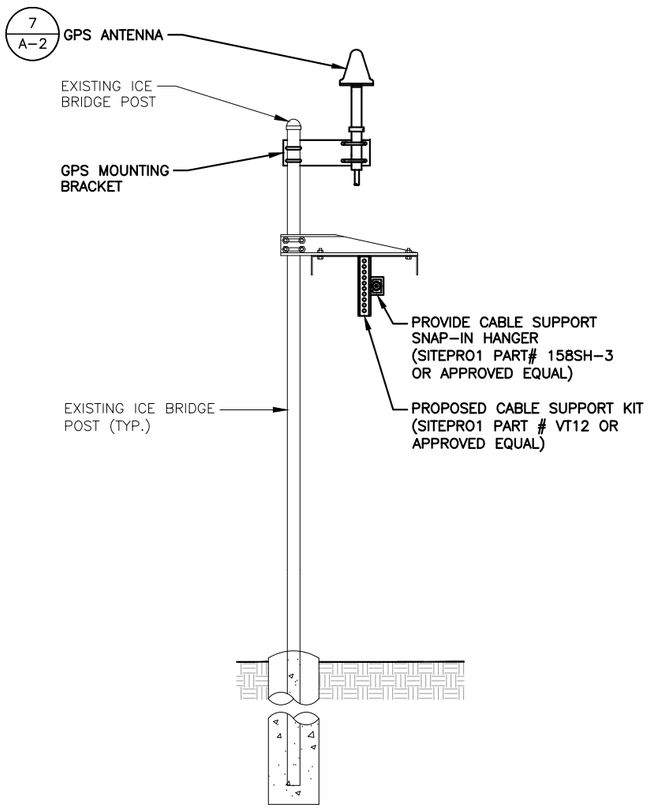


POWER PROTECTION CABINET (PPC) 2/A-3
SCALE: N.T.S

PBC DIMENSIONS	
MODEL #	PBC-05
MANUF.	ERICSSON
WIDTH	22.2"
DEPTH	22.8"
HEIGHT	34.1"
WEIGHT W/O BATTERIES	194 LBS
NOTE: 1. INSTALL CABINET ANCHORS AND FLOOR MOUNT KIT ANCHORS PER MANUFACTURER'S INSTALLATION GUIDELINES	

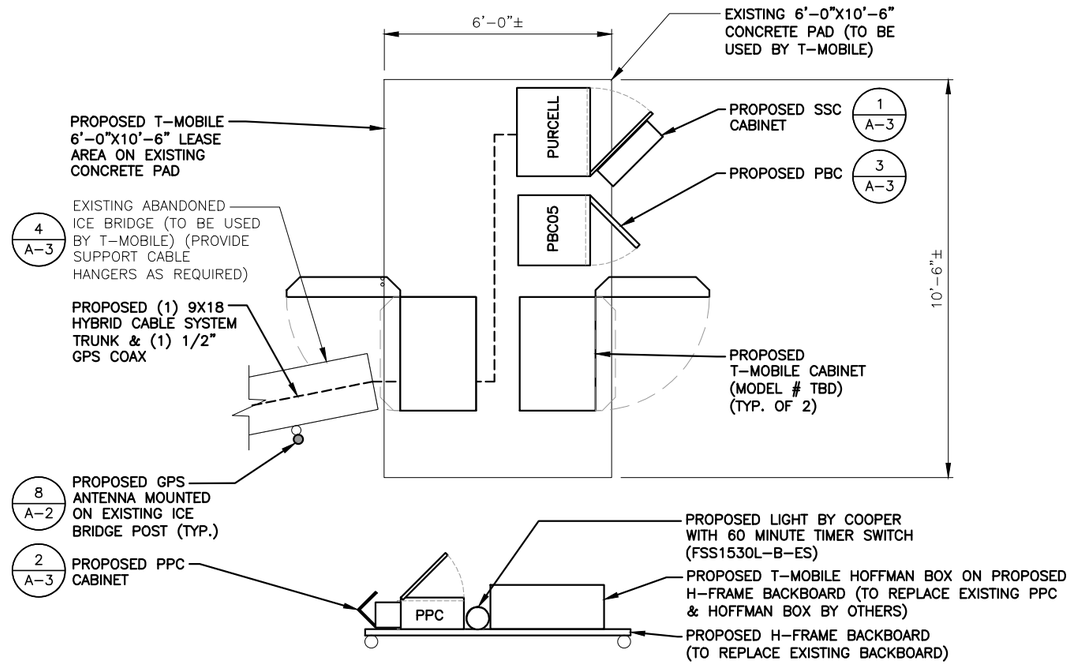


POWER AND BATTERY CABINET (PBC) 3/A-3
SCALE: N.T.S



NOTE:
ALL STEEL IS GALVANIZED. ALL BOLTS TO BE FURNISHED W/ WASHERS AND NUTS.

COAX ICE BRIDGE DETAIL 4/A-3
SCALE: N.T.S



EQUIPMENT PLAN 5/A-3
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

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

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 648-1116

Transcend Wireless
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH, NJ 07430
TEL: (201) 684-0055
FAX:(201) 684-0066

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

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

Daniel P. Hamm

CHECKED BY: DR

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	06/01/16	ISSUED FOR CONSTRUCTION	VP
0	05/02/16	ISSUED FOR REVIEW	VP

SITE NUMBER:
CTNH143C
ATC SITE ID:
10027
SITE NAME:
SALEM
SITE ADDRESS:
153 E. HADDAM ROAD
SALEM, CT 06420
NEW LONDON COUNTY

SHEET TITLE
GROUND EQUIPMENT DETAILS

SHEET NUMBER
A-3

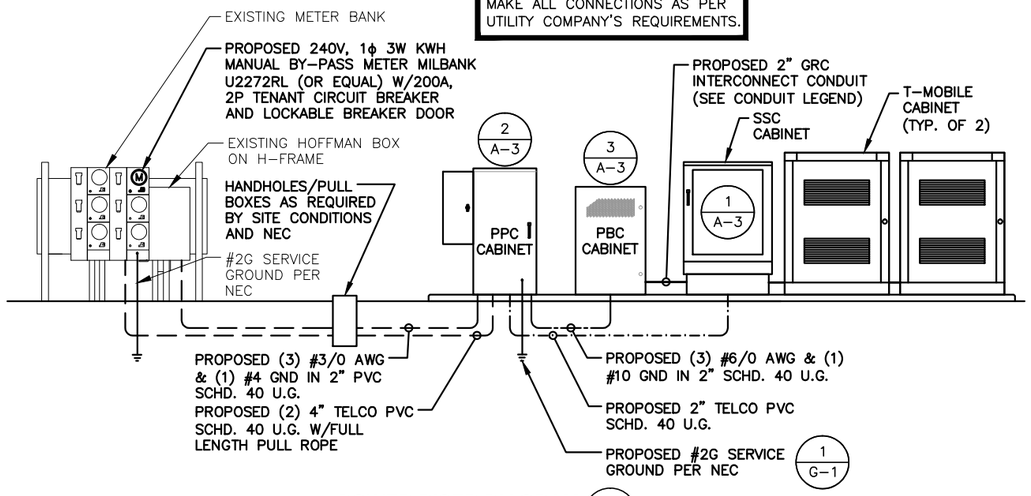
ELECTRICAL NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL METER BANK AND PROPOSED CELL SITE POWER PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON DRAWING A–3. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.

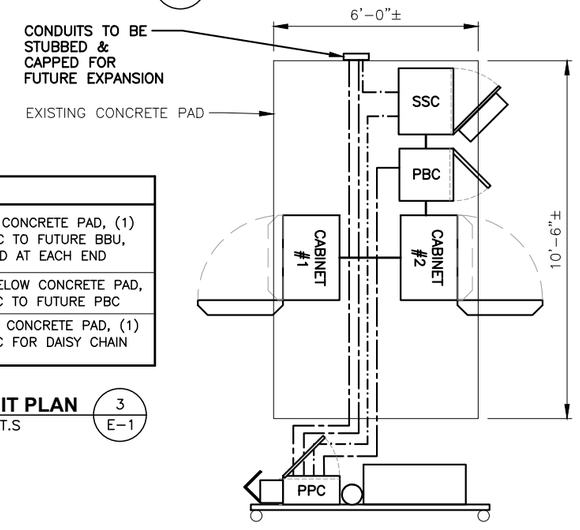
LEGEND

A	AMPERE
V	VOLT
KWH	KILOWATT – HOUR
C	CONDUIT
GRC	GALVANIZED RIGID CONDUIT
BGR	BURIED GROUND RING
BTCW	BARE TINNED SOLID COPPER WIRE
G	GROUND
⏚	GROUND
MGB	MASTER GROUND BAR
	○ MECHANICAL CONNECTION
	● CADWELD CONNECTION
EGB	EQUIPMENT GROUND BAR
—G—	GROUND COPPER WIRE, SIZE AS NOTED
———	EXPOSED WIRING
———	#6G AWG INSULATED STRANDED
———	COAXIAL CABLE/HYBRID CABLE
⊙	5/8"x8' COPPER CLAD STAINLESS STEEL GROUND ROD
⊛	GROUND ROD WITH TEST WELL
⊖—●	● EXOTHERMIC (CAD WELD) OR
	○ MECHANICAL (COMPRESSION TYPE) CONNECTION
PPC	POWER PROTECTION CABINET
⊠	OMNI–DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL

MAKE ALL CONNECTIONS AS PER UTILITY COMPANY'S REQUIREMENTS.



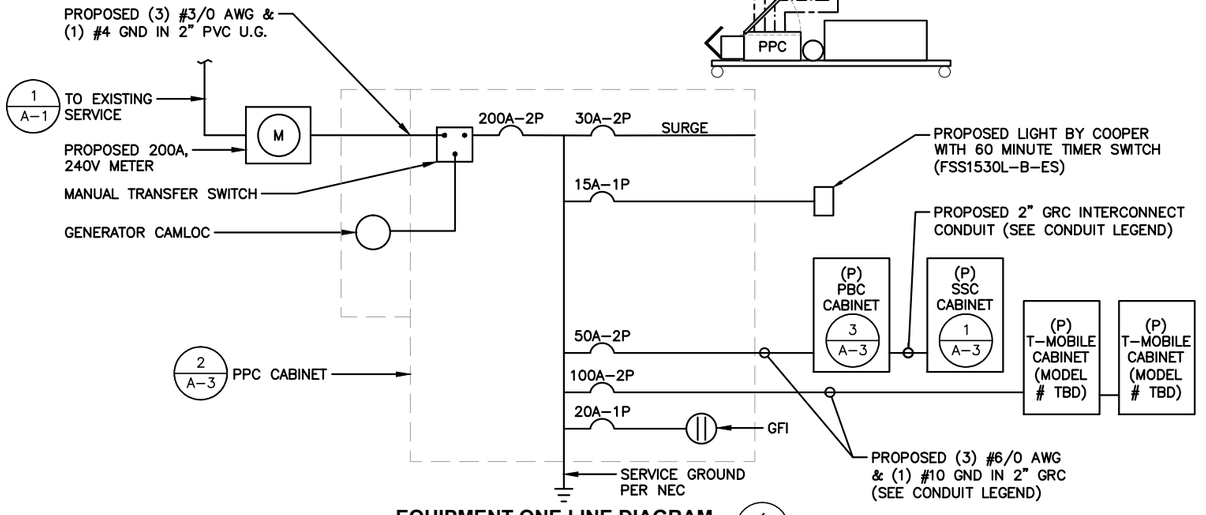
POWER RISER DIAGRAM 1 E–1
SCALE: N.T.S



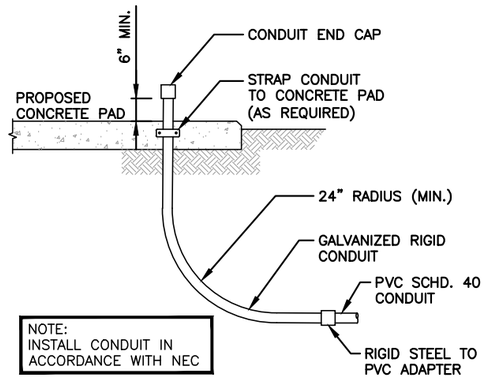
CONDUIT PLAN 3 E–1
SCALE: N.T.S

CONDUIT LEGEND

———	2"ø GRC INETRCONNECT KIT, –48V DC, ON CONCRETE PAD, (1) CONDUIT PBC TO SSC AND (1) CONDUIT PBC TO FUTURE BBU, ANCHOR AT 3' INTERVALS , GROUNDING BOND AT EACH END
– – – –	2"ø PVC SCHD. 40 CONDUIT, AC–POWER, BELOW CONCRETE PAD, (1) CONDUIT PPC TO PBC, (2) CONDUIT PPC TO FUTURE PBC
–·–·–	2"ø PVC SCHD. 40 CONDUIT, TELCO, BELOW CONCRETE PAD, (1) CONDUIT PPC TO SSC AND (1) CONDUIT SSC FOR DAISY CHAIN TO FUTURE SSC

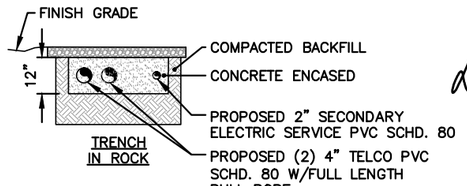


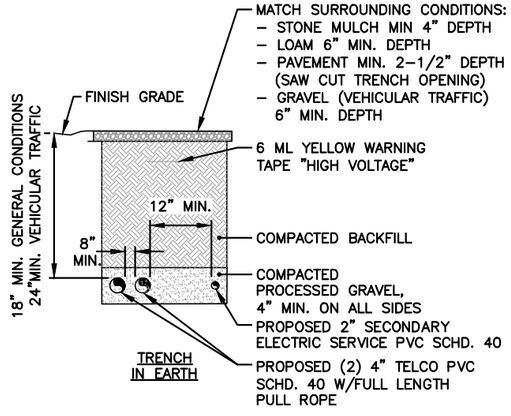
EQUIPMENT ONE LINE DIAGRAM 4 E–1
SCALE: N.T.S



NOTE:
INSTALL CONDUIT IN ACCORDANCE WITH NEC

CONDUIT SWEEP DETAIL 2 E–1
SCALE: N.T.S





SPECIAL WORK NOTE:
EXISTING UNDERGROUND UTILITY LOCATIONS ARE UNKNOWN. WHERE DIRECTED OR REQUIRED, HAND–EXCAVATE PROPOSED UTILITY TRENCHING

BURIED CONDUIT DETAIL 5 E–1
SCALE: N.T.S

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 648-1116

Transcend Wireless
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH, NJ 07430
TEL: (201) 684-0055
FAX:(201) 684-0066

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

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

Daniel P. Hamm

CHECKED BY: DR

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	06/01/16	ISSUED FOR CONSTRUCTION	VP
0	05/02/16	ISSUED FOR REVIEW	VP

SITE NUMBER:
CTNH143C
ATC SITE ID:
10027
SITE NAME:
SALEM
SITE ADDRESS:
153 E. HADDAM ROAD
SALEM, CT 06420
NEW LONDON COUNTY

SHEET TITLE
ELECTRICAL DETAILS & NOTES

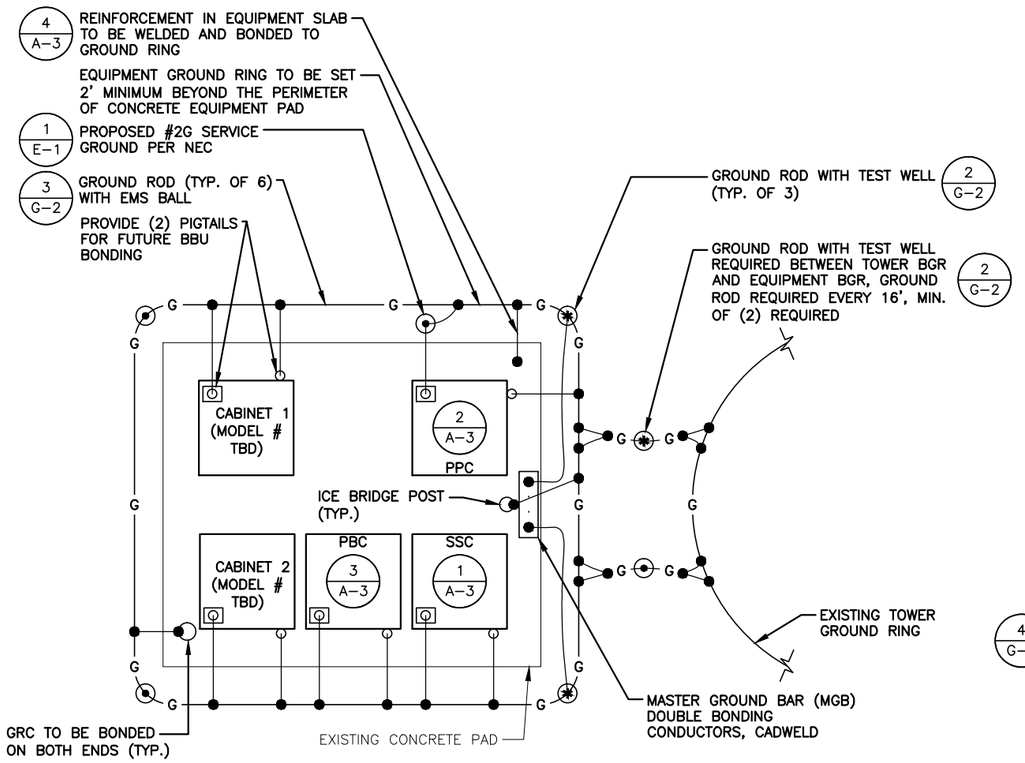
SHEET NUMBER
E-1

ELECTRICAL NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL METER BANK AND PROPOSED CELL SITE POWER PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON DRAWING A–3. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.

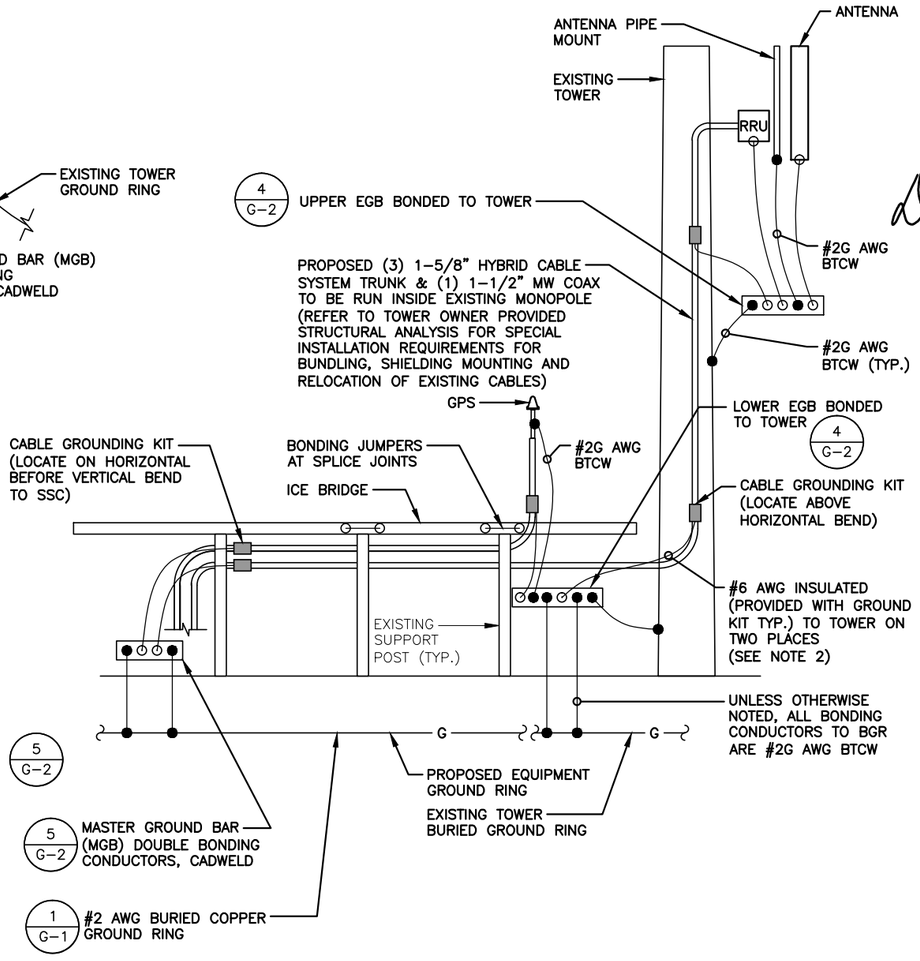
LEGEND

A	AMPERE
V	VOLT
KWH	KILOWATT – HOUR
C	CONDUIT
GRC	GALVANIZED RIGID CONDUIT
BGR	BURIED GROUND RING
BTCW	BARE TINNED SOLID COPPER WIRE
G	GROUND
⏚	GROUND
MGB	MASTER GROUND BAR ○ MECHANICAL CONNECTION ● CADWELD CONNECTION
EGB	EQUIPMENT GROUND BAR
—G—	GROUND COPPER WIRE, SIZE AS NOTED
———	EXPOSED WIRING
———	#6G AWG INSULATED STRANDED
———	COAXIAL CABLE/HYBRID CABLE
⊙	5/8"x8' COPPER CLAD STAINLESS STEEL GROUND ROD
⊛	GROUND ROD WITH TEST WELL
●—○—●	● EXOTHERMIC (CAD WELD) OR ○ MECHANICAL (COMPRESSION TYPE) CONNECTION
PPC	POWER PROTECTION CABINET
⊠	OMNI–DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL



EQUIPMENT PLAN GROUNDING RING SCHEMATIC 1/G–1
SCALE: N.T.S

NOTE:
1. BASE BID TO INCLUDE INSTALLATION OF A BURIED GROUND RING AND (6) GROUND RODS OR SINGLE XIT HORIZONTAL CHEMICAL ROD AS DETERMINED BY FIELD CONDITIONS. ADDITIONAL RODS AS REQUIRED TO ACHIEVE 5 OHMS RESISTANCE.
2. MAXIMUM VERTICAL/HORIZONTAL DISTANCE BETWEEN CABLE GROUNDING KITS SHALL NOT EXCEED 100 FEET. INSTALL ADDITIONAL KITS AS REQUIRED BY FIELD CONDITIONS.
3. ALL CONNECTIONS TO EQUIPMENT PER MANUFACTURER'S GUIDELINES.
4. ALL ABOVE–GRADE DOWNLEADS TO BGR SHALL BE INSTALLED IN 1" NON–METALLIC CONDUIT SECURED EVERY 2' WITH NON–METALLIC CLIPS.



GROUNDING RISER DIAGRAM 2/G–1
SCALE: N.T.S

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 648-1116

Transcend Wireless
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH, NJ 07430
TEL: (201) 684-0055
FAX:(201) 684-0066

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

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

Daniel P. Hamm

CHECKED BY: DR

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	06/01/16	ISSUED FOR CONSTRUCTION	VP
0	05/02/16	ISSUED FOR REVIEW	VP

SITE NUMBER:
CTNH143C
ATC SITE ID:
10027
SITE NAME:
SALEM
SITE ADDRESS:
153 E. HADDAM ROAD
SALEM, CT 06420
NEW LONDON COUNTY

SHEET TITLE
GROUNDING SCHEMATIC & RISER DIAGRAM

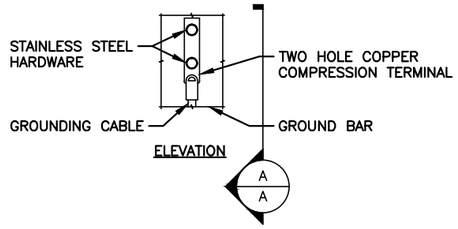
SHEET NUMBER
G-1

ELECTRICAL NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL METER BANK AND PROPOSED CELL SITE POWER PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON DRAWING A–3. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.

LEGEND

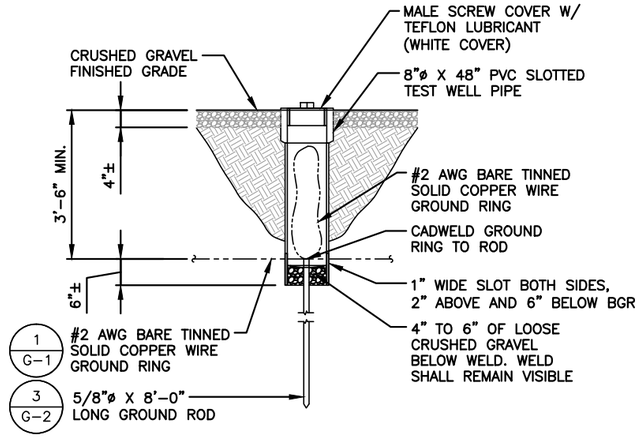
A	AMPERE
V	VOLT
KWH	KILOWATT – HOUR
C	CONDUIT
GRC	GALVANIZED RIGID CONDUIT
BGR	BURIED GROUND RING
BTCW	BARE TINNED SOLID COPPER WIRE
G	GROUND
⏚	GROUND
MGB	MASTER GROUND BAR
	○ MECHANICAL CONNECTION
	● CADWELD CONNECTION
EGB	EQUIPMENT GROUND BAR
—G—	GROUND COPPER WIRE, SIZE AS NOTED
———	EXPOSED WIRING
———	#6G AWG INSULATED STRANDED
———	COAXIAL CABLE/HYBRID CABLE
⊙	5/8"x8' COPPER CLAD STAINLESS STEEL GROUND ROD
✱	GROUND ROD WITH TEST WELL
⊸●⊸	● EXOTHERMIC (CAD WELD) OR
	○ MECHANICAL (COMPRESSION TYPE) CONNECTION
PPC	POWER PROTECTION CABINET
⊗	OMNI–DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL



SECTION "A–A"

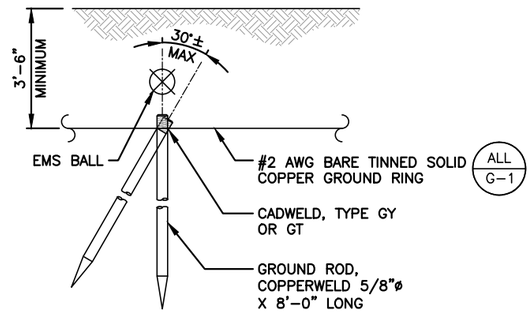
NOTE:
1. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

TYPICAL GROUND BAR CONNECTION DETAIL 1/G–2
SCALE: N.T.S



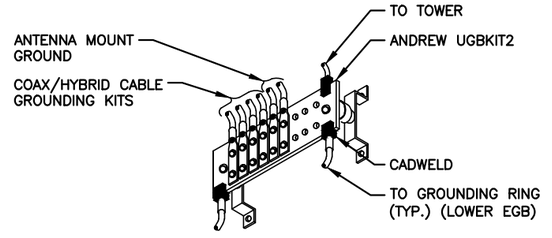
NOTE:
1. PROPOSED BGR TO BE INSTALLED 3'–6" MIN. BELOW GRADE OR BELOW LOCAL FROST DEPTH, WHICHEVER IS GREATER.
2. ONE TEST WELL SHALL BE PROVIDED BETWEEN THE TOWER GROUND LOOP AND TWO ON THE EQUIPMENT GROUND LOOP

GROUND ROD TEST WELL DETAIL 2/G–2
SCALE: N.T.S

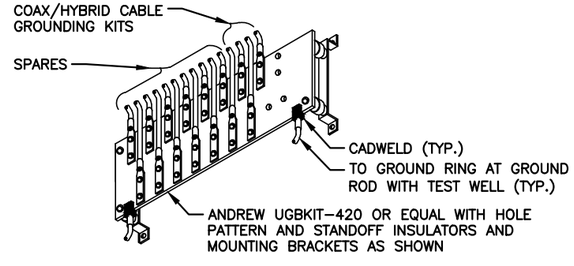


NOTE:
1. PROPOSED BGR TO BE INSTALLED 3'–6" MIN. BELOW GRADE OR BELOW LOCAL FROST DEPTH, WHICHEVER IS GREATER.
2. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 30 DEGREES FROM THE VERTICAL.

GROUND ROD DETAIL 3/G–2
SCALE: N.T.S



EQUIPMENT GROUND BAR (EGB) 4/G–2
SCALE: N.T.S



MASTER GROUND BAR (MGB) 5/G–2
SCALE: N.T.S

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 648-1116

Transcend Wireless
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH, NJ 07430
TEL: (201) 684-0055
FAX:(201) 684-0066

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

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

Daniel P. Hamm

CHECKED BY: DR

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	06/01/16	ISSUED FOR CONSTRUCTION	VP
0	05/02/16	ISSUED FOR REVIEW	VP

SITE NUMBER:
CTNH143C
ATC SITE ID:
10027
SITE NAME:
SALEM
SITE ADDRESS:
153 E. HADDAM ROAD
SALEM, CT 06420
NEW LONDON COUNTY

SHEET TITLE
GROUNDING DETAILS & NOTES

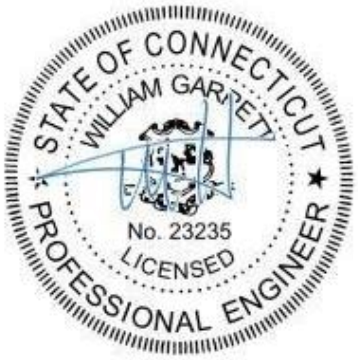
SHEET NUMBER
G-2

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**190 ft Self Supported Tower**
ATC Site Name	:	**Salem CT, CT**
ATC Site Number	:	**10027**
Engineering Number	:	**65998323**
Proposed Carrier	:	**T-Mobile**
Carrier Site Name	:	**N/A**
Carrier Site Number	:	**CTNH143C**
Site Location	:	**Intersection of Connecticut Rt. 82 and Rt. 11** **Salem, CT 06420-3903** **41.468467,-72.273294**
County	:	**New London**
Date	:	**April 22, 2016**
Max Usage	:	**97%**
Result	:	**Pass**

Reviewed by:
William Garrett, PE
Chief Engineer



Prepared By:
Brendan M. Smith, E.I.
Structural Engineer II

Apr 22 2016 4:45 PM

COA: PEC.0001553

AMERICAN TOWER®
CORPORATION

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 190 ft self supported tower to reflect the change in loading by T-Mobile.

Supporting Documents

Tower Drawings	PiRod 204997-B, dated September 21, 1999
Foundation Drawing	PiRod 204997-B, dated September 21, 1999
Geotechnical Report	Tectonic Engineering Consultants P.C 2174.Salem, dated August 27, 1999

Analysis

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

Basic Wind Speed:	90 mph (Fastest Mile)
Basic Wind Speed w/ Ice:	78 mph (Fastest Mile)w/ 1/2" radial ice concurrent
Code:	ANSI/TIA/EIA-222-F / 2003 IBC , Sec. 1609.1.1, Exception (5) & Sec. 3108.4 w/ 2005 CT Supplement & 2009 CT Amendment

Conclusion

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

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

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
187.0	187.0	1	Raycap DC6-48-60-18-8F	Sector Frames	(12) 1 5/8" Coax (2) 0.65" 8 AWG 2C (1) 0.33" Fiber	AT&T Mobility
		3	Ericsson RRUS 11			
		1	Andrew SBNH-1D6565C			
		2	Powerwave P65-17-XLH-RR			
		6	LGP LGP21903			
		6	Powerwave LGP21401			
		6	Allgon 7700.00			
153.0	153.0	12	Decibel DB980F65E-M	Sector Frames	(12) 1 5/8" Coax	Sprint Nextel
75.0	75.0	1	GPS	Stand-Off	(1) 1/2" Coax	

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
No loading considered as to be removed						

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
175.0	175.0	3	Commscope LNX-6515DS-A1M	Sector Frames	(1) 1 5/8" Fiber	T-Mobile
		3	RFS APX16DWV-16DWVS-E-A20			
		3	Ericsson RRUS 11 B2			
		3	Ericsson RRUS 11 B4			
		3	Ericsson RRUS 11 B12			

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

Install proposed coax anywhere on tower.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	78%	Pass
Diagonals	97%	Pass
Horizontals	78%	Pass
Anchor Bolts	47%	Pass
Leg Bolts	57%	Pass

Foundations

Reaction Component	Original Design Reactions	Analysis Reactions	% of Design
Uplift (Kips)	344.3	225.7	66%
Axial (Kips)	385.3	261.5	68%
Moment (Kip&ft)	6318.8	4300.3	68%

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

Deflection, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Twist (°)	Sway (Rotation) (°)
175.0	Ericsson RRUS 11 B12	T-Mobile	0.480	0.007	0.418
	Ericsson RRUS 11 B4				
	Ericsson RRUS 11 B2				
	RFS APX16DWV-16DWVS-E-A20				
	Commscope LNX-6515DS-A1M				

***Deflection, Twist and Sway was evaluated considering a design wind speed of 50 mph (Fastest Mile) per ANSI/TIA/EIA-222-F.**

AMERICAN TOWER®
CORPORATION

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

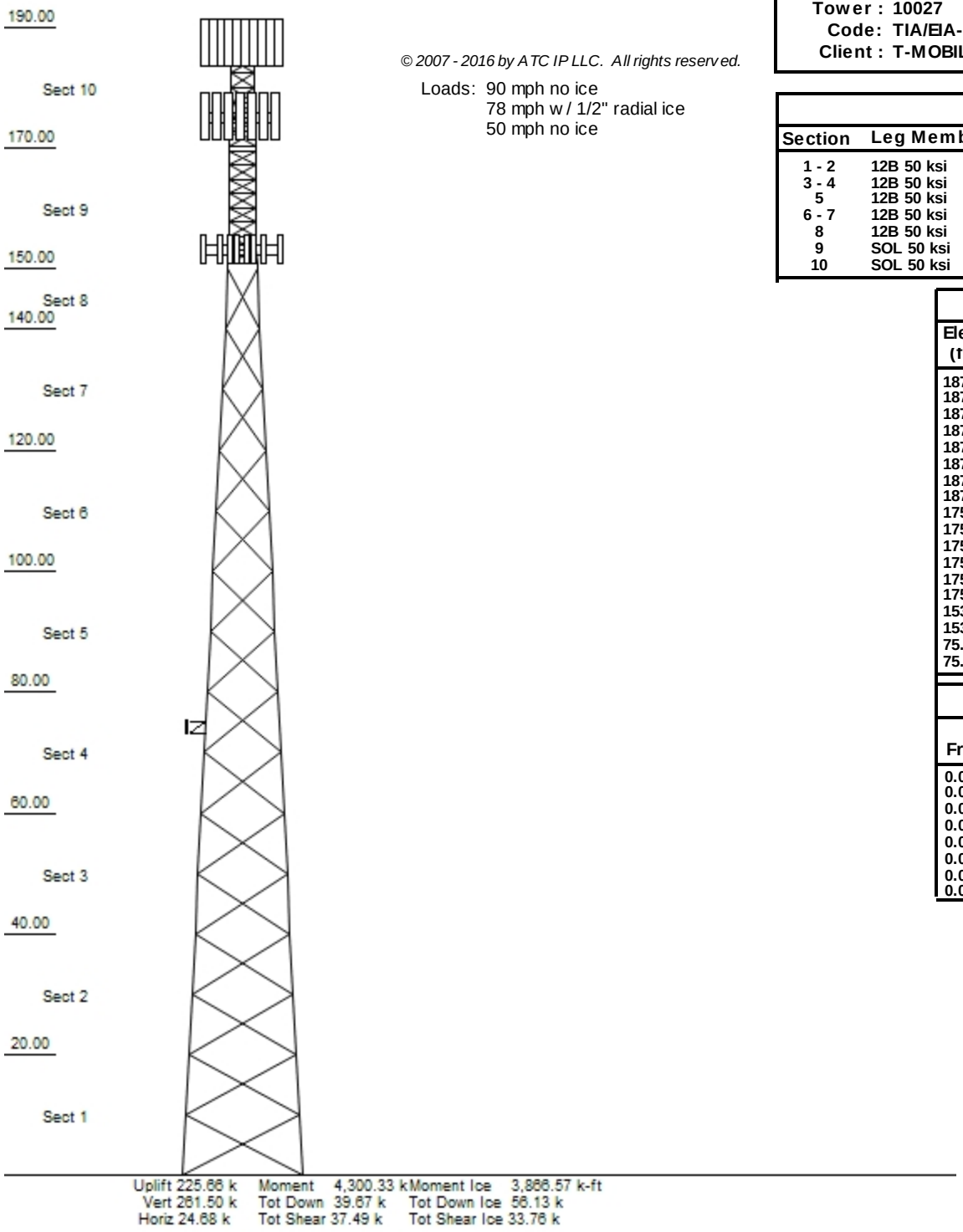
-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

-- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

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



Loads: 90 mph no ice
78 mph w / 1/2" radial ice
50 mph no ice

Job Information

Tower : 10027	Location : Salem CT, CT	
Code: TIA/EIA-222-F	Shape : Triangle	Base Width : 20.00 ft
Client : T-MOBILE		Top Width : 4.00 ft

Sections Properties

Section	Leg Members		Diagonal Members	Horizontal Members
1 - 2	12B 50 ksi	12"BD 2.25"	SAE 36 ksi 3.5X3.5X0.3125	
3 - 4	12B 50 ksi	12"BD 2"	SAE 36 ksi 3X3X0.3125	
5	12B 50 ksi	12"BD 1.75"	SAE 36 ksi 3X3X0.1875	
6 - 7	12B 50 ksi	12"BD 1.5"	SAE 36 ksi 3X3X0.1875	
8	12B 50 ksi	12"BD 1.25"	SAE 36 ksi 2.5X2.5X0.1875	
9	SOL 50 ksi	2" SOLID	SOL 50 ksi 1" SOLID	SOL 50 ksi 1" SOLID
10	SOL 50 ksi	1 1/2" SOLID	SOL 50 ksi 3/4" SOLID	SOL 50 ksi 3/4" SOLID

Discrete Appurtenance

Elev (ft)	Type	Qty	Description
187.00	Panel	1	Ravcap DC6-48-60-18-8F
187.00	Panel	3	Ericsson RRUS 11
187.00	Panel	1	Andrew SBNH-1D6565C
187.00	Panel	2	Powerwave P65-17-XLH-RR
187.00	Panel	6	LGP Allgon LGP21903
187.00		6	Powerwave LGP21401
187.00	Panel	6	Allgon 7700.00
187.00	Mounting Frame	3	Flat Light Sector Frame
175.00	Mounting Frame	3	Flat Light Sector Frame
175.00	Panel	3	Commscope LNX-6515DS-A1M
175.00	Panel	3	RFS APX16DWV-16DWVS-E-A20
175.00	Panel	3	Ericsson RRUS 11 B2
175.00	Panel	3	Ericsson RRUS 11 B4
175.00	Panel	3	Ericsson RRUS 11 B12
153.00	Mounting Frame	3	Round Sector Frame
153.00	Panel	12	Decibel DB980F65E-M
75.00	Straight Arm	1	Stand-Off
75.00	Whip	1	GPS

Linear Appurtenance

Elev (ft) From	To	Qty	Description
0.000	190.00	1	Wave Guide
0.000	187.00	12	1 5/8" Coax
0.000	187.00	2	0.65" (16.4mm) 8 AWG
0.000	187.00	1	0.33" Fiber Cable
0.000	175.00	1	1 5/8" Fiber
0.000	153.00	1	Wave Guide
0.000	153.00	12	1 5/8" Coax
0.000	75.000	1	1/2" Coax

Site Number:	**10027**	**Code:**	**TIA/EIA-222-F**	
Site Name:	**Salem CT, CT**	**Engineering Number:**	**65998323**	4/22/2016 2:16:05 PM
Customer:	**T-MOBILE**			

Analysis Parameters

Location:	**New London County, CT**	**Height:**	**190**
Code:	**TIA/EIA-222-F**	**Base Elevation:**	**0.00 ft**
Shape:	**Triangle**	**Base Face Width:**	**20.00 ft**
Tower Manufacturer:	**Pirod**	**Top Face Width:**	**4.00 ft**
Tower Type:	**Self Support**		

Ice & Wind Parameters

Exposure Category:	**C**	**Design Windspeed Without Ice:**	**90 mph**
Design Ice Thickness:	**0.50 in**	**Design Windspeed With Ice:**	**78 mph**

Load Cases

Normal No Ice	**90.00 mph Wind Normal To Face with No Ice**
60 deg No Ice	**90.00 mph Wind at 60 deg From Face with No Ice**
90 deg No Ice	**90.00 mph Wind at 90 deg From Face with No Ice**
Normal Ice	**77.94 mph Wind Normal To Face with Ice**
60 deg Ice	**77.94 mph Wind at 60 deg From Face with Ice**
90 deg Ice	**77.94 mph Wind at 90 deg From Face with Ice**
Normal Twist/Sway	**50.00 mph Wind Normal To Face with No Ice**
60 deg Twist/Sway	**50.00 mph Wind at 60 deg From Face with No Ice**
90 deg Twist/Sway	**50.00 mph Wind at 90 deg From Face with No Ice**

Tower Loading

Discrete Appurtenance Properties Normal No Ice

Elevation (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Dist. From Face (ft)	X Angle (deg)	Vert Ecc (ft)	Mom (lb-ft)	Qz (psf)	Total Force (lb)	Pu (lb)
187.00	LGP Allgon LGP21903	6	6	0.3	0.67	0.0	0.00	0.0	0.0	34.04	41	33
187.00	Powerwave LGP21401	6	14	1.3	0.67	0.0	0.00	0.0	0.0	34.04	197	85
187.00	Raycap DC6-48-60-18-	1	20	2.2	1.00	0.0	0.00	0.0	0.0	34.04	84	20
187.00	Ericsson RRUS 11	3	54	2.9	0.67	0.0	0.00	0.0	0.0	34.04	225	162
187.00	Allgon 7700.00	6	11	5.9	0.75	0.0	0.00	0.0	0.0	34.04	1006	66
187.00	Andrew SBNH-	1	61	11.4	0.84	0.0	0.00	0.0	0.0	34.04	366	61
187.00	Powerwave P65-17-	2	59	11.5	0.67	0.0	0.00	0.0	0.0	34.04	584	118
187.00	Flat Light Sector	3	400	17.9	0.75	0.0	0.00	0.0	0.0	34.04	1532	1200
175.00	Ericsson RRUS 11 B12	3	51	3.3	0.67	0.0	0.00	0.0	0.0	33.40	245	152
175.00	Ericsson RRUS 11 B4	3	51	3.3	0.67	0.0	0.00	0.0	0.0	33.40	245	152
175.00	Ericsson RRUS 11 B2	3	51	3.3	0.67	0.0	0.00	0.0	0.0	33.40	245	152
175.00	RFS APX16DWV-	3	42	7.6	0.65	0.0	0.00	0.0	0.0	33.40	554	126
175.00	Commscope LNX-	3	44	11.5	0.84	0.0	0.00	0.0	0.0	33.40	1079	131
175.00	Flat Light Sector	3	400	17.9	1.00	0.0	0.00	0.0	0.0	33.40	2004	1200
153.00	Decibel DB980F65E-M	12	9	3.8	0.81	0.0	0.00	0.0	0.0	32.14	1309	108
153.00	Round Sector Frame	3	300	14.4	0.75	0.0	0.00	0.0	0.0	32.14	1163	900
75.00	GPS	1	2	1.0	1.00	0.0	0.00	0.0	0.0	26.22	29	2
75.00	Stand-Off	1	100	3.0	0.67	0.0	0.00	0.0	0.0	26.22	59	100
	Totals	63	4767	376.2								

Discrete Appurtenance Properties Normal Ice

Elevation (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Dist. From Face (ft)	X Angle (deg)	Vert Ecc (ft)	Mom (lb-ft)	Qz (psf)	Total Force (lb)	Pu (lb)
187.00	LGP Allgon LGP21903	6	8	0.4	0.67	0.0	0.00	0.0	0.0	25.53	44	47
187.00	Powerwave LGP21401	6	21	1.5	0.67	0.0	0.00	0.0	0.0	25.53	175	128
187.00	Raycap DC6-48-60-18-	1	35	1.5	1.00	0.0	0.00	0.0	0.0	25.53	42	35
187.00	Ericsson RRUS 11	3	74	3.3	0.67	0.0	0.00	0.0	0.0	25.53	189	223
187.00	Allgon 7700.00	6	35	2.0	0.75	0.0	0.00	0.0	0.0	25.53	262	210
187.00	Andrew SBNH-	1	127	12.4	0.84	0.0	0.00	0.0	0.0	25.53	296	127
187.00	Powerwave P65-17-	2	121	12.4	0.67	0.0	0.00	0.0	0.0	25.53	474	242
187.00	Flat Light Sector	3	510	22.2	0.75	0.0	0.00	0.0	0.0	25.53	1425	1530
175.00	Ericsson RRUS 11 B12	3	72	3.6	0.67	0.0	0.00	0.0	0.0	25.05	203	215
175.00	Ericsson RRUS 11 B4	3	72	3.6	0.67	0.0	0.00	0.0	0.0	25.05	203	215
175.00	Ericsson RRUS 11 B2	3	72	3.6	0.67	0.0	0.00	0.0	0.0	25.05	203	215
175.00	RFS APX16DWV-	3	77	8.3	0.65	0.0	0.00	0.0	0.0	25.05	453	231
175.00	Commscope LNX-	3	0	0.0	0.84	0.0	0.00	0.0	0.0	25.05	0	0
175.00	Flat Light Sector	3	510	22.2	1.00	0.0	0.00	0.0	0.0	25.05	1864	1530
153.00	Decibel DB980F65E-M	12	29	4.5	0.81	0.0	0.00	0.0	0.0	24.10	1178	348
153.00	Round Sector Frame	3	415	19.2	0.75	0.0	0.00	0.0	0.0	24.10	1163	1245
75.00	GPS	1	4	0.8	1.00	0.0	0.00	0.0	0.0	19.66	18	4
75.00	Stand-Off	1	150	4.0	0.67	0.0	0.00	0.0	0.0	19.66	59	150
	Totals	63	6693	379.2								

Tower Loading

Discrete Appurtenance Properties Normal Twist/Sway

Elevation (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Dist. From Face (ft)	X Angle (deg)	Vert Ecc (ft)	Mom (lb-ft)	Qz (psf)	Total Force (lb)	Pu (lb)
187.00	LGP Allgon LGP21903	6	6	0.3	0.67	0.0	0.00	0.0	0.0	10.51	13	33
187.00	Powerwave LGP21401	6	14	1.3	0.67	0.0	0.00	0.0	0.0	10.51	61	85
187.00	Raycap DC6-48-60-18-	1	20	2.2	1.00	0.0	0.00	0.0	0.0	10.51	26	20
187.00	Ericsson RRUS 11	3	54	2.9	0.67	0.0	0.00	0.0	0.0	10.51	69	162
187.00	Allgon 7700.00	6	11	5.9	0.75	0.0	0.00	0.0	0.0	10.51	311	66
187.00	Andrew SBNH-	1	61	11.4	0.84	0.0	0.00	0.0	0.0	10.51	113	61
187.00	Powerwave P65-17-	2	59	11.5	0.67	0.0	0.00	0.0	0.0	10.51	180	118
187.00	Flat Light Sector	3	400	17.9	0.75	0.0	0.00	0.0	0.0	10.51	473	1200
175.00	Ericsson RRUS 11 B12	3	51	3.3	0.67	0.0	0.00	0.0	0.0	10.31	75	152
175.00	Ericsson RRUS 11 B4	3	51	3.3	0.67	0.0	0.00	0.0	0.0	10.31	75	152
175.00	Ericsson RRUS 11 B2	3	51	3.3	0.67	0.0	0.00	0.0	0.0	10.31	75	152
175.00	RFS APX16DWV-	3	42	7.6	0.65	0.0	0.00	0.0	0.0	10.31	171	126
175.00	Commscope LNX-	3	44	11.5	0.84	0.0	0.00	0.0	0.0	10.31	333	131
175.00	Flat Light Sector	3	400	17.9	1.00	0.0	0.00	0.0	0.0	10.31	618	1200
153.00	Decibel DB980F65E-M	12	9	3.8	0.81	0.0	0.00	0.0	0.0	9.92	404	108
153.00	Round Sector Frame	3	300	14.4	0.75	0.0	0.00	0.0	0.0	9.92	359	900
75.00	GPS	1	2	1.0	1.00	0.0	0.00	0.0	0.0	8.09	9	2
75.00	Stand-Off	1	100	3.0	0.67	0.0	0.00	0.0	0.0	8.09	18	100
	Totals	63	4767	376.2								

Tower Loading

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Wind	Spread On Faces	Bundling Arrangement
0.00	190.0	Wave Guide	1	2.00	6.00	100.00	2	Separate
0.00	187.0	0.33" Fiber Cable	1	0.33	0.04	0.00	2	Separate
0.00	187.0	0.65" (16.4mm) 8	2	0.65	0.31	0.00	2	Separate
0.00	187.0	1 5/8" Coax	12	1.98	0.82	50.00	2	Separate
0.00	175.0	1 5/8" Fiber	1	1.63	1.61	100.00	3	Separate
0.00	153.0	1 5/8" Coax	12	1.98	0.82	50.00	1	Separate
0.00	153.0	Wave Guide	1	2.00	6.00	100.00	1	Separate
0.00	75.00	1/2" Coax	1	0.63	0.15	100.00	1	Separate

Gh : 1.12

Section Forces

LoadCase Normal No Ice — 90.00 mph Wind Normal To Face with No Ice

Allow Stress Inc: 1.333

Section	Elev. (ft)	qz (psf)	Af (sf)	Ar (sf)	Ice Ar (sf)	e	Cf	Df	Dr	Rr	Ae (sf)	EPAa (sf)	EPAai (sf)	Wt. (lb)	Ice Wt. (lb)	Fst (lb)	Fa (lb)	Force (lb)	Eff Face
10	180.0	33.67	3.33	28.92	0.00	0.38	2.11	1.00	1.00	0.64	21.94	0.00	0.00	1193	0	1738	0	1738	2
9	160.0	32.55	3.33	36.74	0.00	0.42	2.02	1.00	1.00	0.66	27.61	0.00	0.00	2073	0	2031	0	2031	2
8	145.0	31.65	6.25	17.71	0.00	0.44	2.00	1.00	1.00	0.67	18.06	0.00	0.00	1241	0	1276	0	1276	1
7	130.0	30.68	15.12	37.03	0.00	0.37	2.12	1.00	1.00	0.64	38.85	0.00	0.00	2966	0	2824	0	2824	1
6	110.0	29.25	16.36	37.03	0.00	0.30	2.31	1.00	1.00	0.61	39.12	0.00	0.00	3021	0	2947	0	2947	1
5	90.0	27.62	17.72	38.63	0.00	0.26	2.42	1.00	1.00	0.60	41.03	0.00	0.00	3463	0	3063	0	3063	1
4	70.0	25.71	19.19	42.62	0.00	0.24	2.47	1.00	1.00	0.60	44.71	0.00	0.00	4647	0	3178	0	3178	1
3	50.0	23.35	20.81	42.89	0.00	0.21	2.56	1.00	1.00	0.59	46.24	0.00	0.00	4767	0	3082	0	3082	1
2	30.0	20.74	25.66	44.49	0.00	0.21	2.58	1.00	1.00	0.59	51.98	0.00	0.00	5692	0	3101	0	3101	1
1	10.0	20.74	27.70	44.49	0.00	0.19	2.63	1.00	1.00	0.59	53.88	0.00	0.00	5843	0	3282	0	3282	1
														34905	0			26523	

LoadCase 60 deg No Ice — 90.00 mph Wind at 60 deg From Face with No Ice

Allow Stress Inc: 1.333

Section	Elev. (ft)	qz (psf)	Af (sf)	Ar (sf)	Ice Ar (sf)	e	Cf	Df	Dr	Rr	Ae (sf)	EPAa (sf)	EPAai (sf)	Wt. (lb)	Ice Wt. (lb)	Fst (lb)	Fa (lb)	Force (lb)	Eff Face
10	180.0	33.67	3.33	28.92	0.00	0.38	2.11	0.80	1.00	0.64	21.27	0.00	0.00	1193	0	1685	0	1685	2
9	160.0	32.55	3.33	36.74	0.00	0.42	2.02	0.80	1.00	0.66	26.94	0.00	0.00	2073	0	1982	0	1982	2
8	145.0	31.65	6.25	17.71	0.00	0.44	2.00	0.80	1.00	0.67	16.81	0.00	0.00	1241	0	1188	0	1188	1
7	130.0	30.68	15.12	37.03	0.00	0.37	2.12	0.80	1.00	0.64	35.82	0.00	0.00	2966	0	2604	0	2604	1
6	110.0	29.25	16.36	37.03	0.00	0.30	2.31	0.80	1.00	0.61	35.85	0.00	0.00	3021	0	2701	0	2701	1
5	90.0	27.62	17.72	38.63	0.00	0.26	2.42	0.80	1.00	0.60	37.49	0.00	0.00	3463	0	2798	0	2798	1
4	70.0	25.71	19.19	42.62	0.00	0.24	2.47	0.80	1.00	0.60	40.88	0.00	0.00	4647	0	2905	0	2905	1
3	50.0	23.35	20.81	42.89	0.00	0.21	2.56	0.80	1.00	0.59	42.08	0.00	0.00	4767	0	2805	0	2805	1
2	30.0	20.74	25.66	44.49	0.00	0.21	2.58	0.80	1.00	0.59	46.85	0.00	0.00	5692	0	2795	0	2795	1
1	10.0	20.74	27.70	44.49	0.00	0.19	2.63	0.80	1.00	0.59	48.34	0.00	0.00	5843	0	2945	0	2945	1
														34905	0			24408	

LoadCase 90 deg No Ice — 90.00 mph Wind at 90 deg From Face with No Ice

Allow Stress Inc: 1.333

Section	Elev. (ft)	qz (psf)	Af (sf)	Ar (sf)	Ice Ar (sf)	e	Cf	Df	Dr	Rr	Ae (sf)	EPAa (sf)	EPAai (sf)	Wt. (lb)	Ice Wt. (lb)	Fst (lb)	Fa (lb)	Force (lb)	Eff Face
10	180.0	33.67	3.33	28.92	0.00	0.38	2.11	0.85	1.00	0.64	21.44	0.00	0.00	1193	0	1699	0	1699	2
9	160.0	32.55	3.33	36.74	0.00	0.42	2.02	0.85	1.00	0.66	27.11	0.00	0.00	2073	0	1994	0	1994	2
8	145.0	31.65	6.25	17.71	0.00	0.44	2.00	0.85	1.00	0.67	17.13	0.00	0.00	1241	0	1210	0	1210	1
7	130.0	30.68	15.12	37.03	0.00	0.37	2.12	0.85	1.00	0.64	36.58	0.00	0.00	2966	0	2659	0	2659	1
6	110.0	29.25	16.36	37.03	0.00	0.30	2.31	0.85	1.00	0.61	36.67	0.00	0.00	3021	0	2762	0	2762	1
5	90.0	27.62	17.72	38.63	0.00	0.26	2.42	0.85	1.00	0.60	38.37	0.00	0.00	3463	0	2865	0	2865	1
4	70.0	25.71	19.19	42.62	0.00	0.24	2.47	0.85	1.00	0.60	41.84	0.00	0.00	4647	0	2973	0	2973	1
3	50.0	23.35	20.81	42.89	0.00	0.21	2.56	0.85	1.00	0.59	43.12	0.00	0.00	4767	0	2874	0	2874	1
2	30.0	20.74	25.66	44.49	0.00	0.21	2.58	0.85	1.00	0.59	48.14	0.00	0.00	5692	0	2872	0	2872	1
1	10.0	20.74	27.70	44.49	0.00	0.19	2.63	0.85	1.00	0.59	49.72	0.00	0.00	5843	0	3029	0	3029	1
														34905	0			24937	

Gh : 1.12

Section Forces

LoadCase Normal Ice — 77.94 mph Wind Normal To Face with Ice

Allow Stress Inc: 1.333

Section	Elev. (ft)	qz (psf)	Af (sf)	Ar (sf)	Ice Ar (sf)	e	Cf	Df	Dr	Rr	Ae (sf)	EPAa (sf)	EPAai (sf)	Wt. (lb)	Ice Wt. (lb)	Fst (lb)	Fa (lb)	Force (lb)	Eff Face
10	180.0	25.25	3.33	52.13	23.21	0.65	1.78	1.00	1.00	0.79	44.37	0.00	0.00	1954	761	2229	0	2229	2
9	160.0	24.41	3.33	62.35	25.62	0.69	1.78	1.00	1.00	0.81	54.07	0.00	0.00	3081	1008	2619	0	2619	2
8	145.0	23.74	6.25	27.12	9.41	0.61	1.80	1.00	1.00	0.76	26.80	0.00	0.00	1951	710	1279	0	1279	1
7	130.0	23.01	15.12	56.11	19.08	0.51	1.89	1.00	1.00	0.70	54.51	0.00	0.00	4482	1516	2647	0	2647	1
6	110.0	21.94	16.36	56.52	19.49	0.40	2.05	1.00	1.00	0.65	53.30	0.00	0.00	4575	1554	2684	0	2684	1
5	90.0	20.71	17.72	58.59	19.96	0.35	2.18	1.00	1.00	0.63	54.71	0.00	0.00	5077	1614	2759	0	2759	1
4	70.0	19.28	19.19	64.35	21.72	0.32	2.24	1.00	1.00	0.62	59.26	0.00	0.00	6353	1706	2860	0	2860	1
3	50.0	17.51	20.81	65.57	22.68	0.29	2.33	1.00	1.00	0.61	60.95	0.00	0.00	6526	1759	2777	0	2777	1
2	30.0	15.55	25.66	67.74	23.25	0.27	2.37	1.00	1.00	0.61	66.88	0.00	0.00	7612	1920	2749	0	2749	1
1	10.0	15.55	27.70	68.32	23.83	0.25	2.43	1.00	1.00	0.60	68.86	0.00	0.00	7824	1981	2907	0	2907	1
														49435	14530			25509	

LoadCase 60 deg Ice — 77.94 mph Wind at 60 deg From Face with Ice

Allow Stress Inc: 1.333

Section	Elev. (ft)	qz (psf)	Af (sf)	Ar (sf)	Ice Ar (sf)	e	Cf	Df	Dr	Rr	Ae (sf)	EPAa (sf)	EPAai (sf)	Wt. (lb)	Ice Wt. (lb)	Fst (lb)	Fa (lb)	Force (lb)	Eff Face
10	180.0	25.25	3.33	52.13	23.21	0.65	1.78	0.80	1.00	0.79	43.70	0.00	0.00	1954	761	2195	0	2195	2
9	160.0	24.41	3.33	62.35	25.62	0.69	1.78	0.80	1.00	0.81	53.41	0.00	0.00	3081	1008	2587	0	2587	2
8	145.0	23.74	6.25	27.12	9.41	0.61	1.80	0.80	1.00	0.76	25.55	0.00	0.00	1951	710	1220	0	1220	1
7	130.0	23.01	15.12	56.11	19.08	0.51	1.89	0.80	1.00	0.70	51.48	0.00	0.00	4482	1516	2500	0	2500	1
6	110.0	21.94	16.36	56.52	19.49	0.40	2.05	0.80	1.00	0.65	50.03	0.00	0.00	4575	1554	2519	0	2519	1
5	90.0	20.71	17.72	58.59	19.96	0.35	2.18	0.80	1.00	0.63	51.17	0.00	0.00	5077	1614	2580	0	2580	1
4	70.0	19.28	19.19	64.35	21.72	0.32	2.24	0.80	1.00	0.62	55.42	0.00	0.00	6353	1706	2675	0	2675	1
3	50.0	17.51	20.81	65.57	22.68	0.29	2.33	0.80	1.00	0.61	56.79	0.00	0.00	6526	1759	2587	0	2587	1
2	30.0	15.55	25.66	67.74	23.25	0.27	2.37	0.80	1.00	0.61	61.74	0.00	0.00	7612	1920	2538	0	2538	1
1	10.0	15.55	27.70	68.32	23.83	0.25	2.43	0.80	1.00	0.60	63.33	0.00	0.00	7824	1981	2673	0	2673	1
														49435	14530			24073	

LoadCase 90 deg Ice — 77.94 mph Wind at 90 deg From Face with Ice

Allow Stress Inc: 1.333

Section	Elev. (ft)	qz (psf)	Af (sf)	Ar (sf)	Ice Ar (sf)	e	Cf	Df	Dr	Rr	Ae (sf)	EPAa (sf)	EPAai (sf)	Wt. (lb)	Ice Wt. (lb)	Fst (lb)	Fa (lb)	Force (lb)	Eff Face
10	180.0	25.25	3.33	52.13	23.21	0.65	1.78	0.85	1.00	0.79	43.87	0.00	0.00	1954	761	2204	0	2204	2
9	160.0	24.41	3.33	62.35	25.62	0.69	1.78	0.85	1.00	0.81	53.57	0.00	0.00	3081	1008	2595	0	2595	2
8	145.0	23.74	6.25	27.12	9.41	0.61	1.80	0.85	1.00	0.76	25.86	0.00	0.00	1951	710	1235	0	1235	1
7	130.0	23.01	15.12	56.11	19.08	0.51	1.89	0.85	1.00	0.70	52.24	0.00	0.00	4482	1516	2536	0	2536	1
6	110.0	21.94	16.36	56.52	19.49	0.40	2.05	0.85	1.00	0.65	50.84	0.00	0.00	4575	1554	2560	0	2560	1
5	90.0	20.71	17.72	58.59	19.96	0.35	2.18	0.85	1.00	0.63	52.05	0.00	0.00	5077	1614	2625	0	2625	1
4	70.0	19.28	19.19	64.35	21.72	0.32	2.24	0.85	1.00	0.62	56.38	0.00	0.00	6353	1706	2721	0	2721	1
3	50.0	17.51	20.81	65.57	22.68	0.29	2.33	0.85	1.00	0.61	57.83	0.00	0.00	6526	1759	2635	0	2635	1
2	30.0	15.55	25.66	67.74	23.25	0.27	2.37	0.85	1.00	0.61	63.03	0.00	0.00	7612	1920	2590	0	2590	1
1	10.0	15.55	27.70	68.32	23.83	0.25	2.43	0.85	1.00	0.60	64.71	0.00	0.00	7824	1981	2731	0	2731	1
														49435	14530			24432	

Gh : 1.12

Section Forces

LoadCase Normal — 50.00 mph Wind Normal To Face with No Ice

Allow Stress Inc: 1.333

Section	Elev. (ft)	qz (psf)	Af (sf)	Ar (sf)	Ice Ar (sf)	e	Cf	Df	Dr	Rr	Ae (sf)	EPAa (sf)	EPAai (sf)	Wt. (lb)	Ice Wt. (lb)	Fst (lb)	Fa (lb)	Force (lb)	Eff Face
10	180.0	10.39	3.33	28.92	0.00	0.38	2.11	1.00	1.00	0.64	21.94	0.00	0.00	1193	0	536	0	536	2
9	160.0	10.05	3.33	36.74	0.00	0.42	2.02	1.00	1.00	0.66	27.61	0.00	0.00	2073	0	627	0	627	2
8	145.0	9.77	6.25	17.71	0.00	0.44	2.00	1.00	1.00	0.67	18.06	0.00	0.00	1241	0	394	0	394	1
7	130.0	9.47	15.12	37.03	0.00	0.37	2.12	1.00	1.00	0.64	38.85	0.00	0.00	2966	0	872	0	872	1
6	110.0	9.03	16.36	37.03	0.00	0.30	2.31	1.00	1.00	0.61	39.12	0.00	0.00	3021	0	910	0	910	1
5	90.0	8.52	17.72	38.63	0.00	0.26	2.42	1.00	1.00	0.60	41.03	0.00	0.00	3463	0	945	0	945	1
4	70.0	7.93	19.19	42.62	0.00	0.24	2.47	1.00	1.00	0.60	44.71	0.00	0.00	4647	0	981	0	981	1
3	50.0	7.21	20.81	42.89	0.00	0.21	2.56	1.00	1.00	0.59	46.24	0.00	0.00	4767	0	951	0	951	1
2	30.0	6.40	25.66	44.49	0.00	0.21	2.58	1.00	1.00	0.59	51.98	0.00	0.00	5692	0	957	0	957	1
1	10.0	6.40	27.70	44.49	0.00	0.19	2.63	1.00	1.00	0.59	53.88	0.00	0.00	5843	0	1013	0	1013	1
														34905	0			8186	

LoadCase 60 deg — 50.00 mph Wind at 60 deg From Face with No Ice

Allow Stress Inc: 1.333

Section	Elev. (ft)	qz (psf)	Af (sf)	Ar (sf)	Ice Ar (sf)	e	Cf	Df	Dr	Rr	Ae (sf)	EPAa (sf)	EPAai (sf)	Wt. (lb)	Ice Wt. (lb)	Fst (lb)	Fa (lb)	Force (lb)	Eff Face
10	180.0	10.39	3.33	28.92	0.00	0.38	2.11	0.80	1.00	0.64	21.27	0.00	0.00	1193	0	520	0	520	2
9	160.0	10.05	3.33	36.74	0.00	0.42	2.02	0.80	1.00	0.66	26.94	0.00	0.00	2073	0	612	0	612	2
8	145.0	9.77	6.25	17.71	0.00	0.44	2.00	0.80	1.00	0.67	16.81	0.00	0.00	1241	0	367	0	367	1
7	130.0	9.47	15.12	37.03	0.00	0.37	2.12	0.80	1.00	0.64	35.82	0.00	0.00	2966	0	804	0	804	1
6	110.0	9.03	16.36	37.03	0.00	0.30	2.31	0.80	1.00	0.61	35.85	0.00	0.00	3021	0	834	0	834	1
5	90.0	8.52	17.72	38.63	0.00	0.26	2.42	0.80	1.00	0.60	37.49	0.00	0.00	3463	0	864	0	864	1
4	70.0	7.93	19.19	42.62	0.00	0.24	2.47	0.80	1.00	0.60	40.88	0.00	0.00	4647	0	897	0	897	1
3	50.0	7.21	20.81	42.89	0.00	0.21	2.56	0.80	1.00	0.59	42.08	0.00	0.00	4767	0	866	0	866	1
2	30.0	6.40	25.66	44.49	0.00	0.21	2.58	0.80	1.00	0.59	46.85	0.00	0.00	5692	0	863	0	863	1
1	10.0	6.40	27.70	44.49	0.00	0.19	2.63	0.80	1.00	0.59	48.34	0.00	0.00	5843	0	909	0	909	1
														34905	0			7533	

LoadCase 90 deg — 50.00 mph Wind at 90 deg From Face with No Ice

Allow Stress Inc: 1.333

Section	Elev. (ft)	qz (psf)	Af (sf)	Ar (sf)	Ice Ar (sf)	e	Cf	Df	Dr	Rr	Ae (sf)	EPAa (sf)	EPAai (sf)	Wt. (lb)	Ice Wt. (lb)	Fst (lb)	Fa (lb)	Force (lb)	Eff Face
10	180.0	10.39	3.33	28.92	0.00	0.38	2.11	0.85	1.00	0.64	21.44	0.00	0.00	1193	0	524	0	524	2
9	160.0	10.05	3.33	36.74	0.00	0.42	2.02	0.85	1.00	0.66	27.11	0.00	0.00	2073	0	615	0	615	2
8	145.0	9.77	6.25	17.71	0.00	0.44	2.00	0.85	1.00	0.67	17.13	0.00	0.00	1241	0	373	0	373	1
7	130.0	9.47	15.12	37.03	0.00	0.37	2.12	0.85	1.00	0.64	36.58	0.00	0.00	2966	0	821	0	821	1
6	110.0	9.03	16.36	37.03	0.00	0.30	2.31	0.85	1.00	0.61	36.67	0.00	0.00	3021	0	853	0	853	1
5	90.0	8.52	17.72	38.63	0.00	0.26	2.42	0.85	1.00	0.60	38.37	0.00	0.00	3463	0	884	0	884	1
4	70.0	7.93	19.19	42.62	0.00	0.24	2.47	0.85	1.00	0.60	41.84	0.00	0.00	4647	0	918	0	918	1
3	50.0	7.21	20.81	42.89	0.00	0.21	2.56	0.85	1.00	0.59	43.12	0.00	0.00	4767	0	887	0	887	1
2	30.0	6.40	25.66	44.49	0.00	0.21	2.58	0.85	1.00	0.59	48.14	0.00	0.00	5692	0	886	0	886	1
1	10.0	6.40	27.70	44.49	0.00	0.19	2.63	0.85	1.00	0.59	49.72	0.00	0.00	5843	0	935	0	935	1
														34905	0			7697	

Force/Stress Summary

Section: 1 U20 Bot Elev (ft): 0.00 Height (ft): 20.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG 12B - 12"BD 2.25"	-256.07	Normal No Ice	10.02	100	100	100	24.4	37.1	442.51	0	0	0.00	0.00	57	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3.5X3.5X0.3125	-5.75	Normal No Ice	21.91	50	75	50	190.6	5.5	11.46	0	0	0.00	0.00	50	Member Z

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG 12B - 12"BD 2.25"	222.16	60 deg No Ice	50	477.19	0	0	0.00	0.00	46	Member
HORIZ	0.00		0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3.5X3.5X0.3125	7.04	60 deg Ice	36	60.19	0	0	0.00	0.00	11	Member

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	210.29	60 deg No Ice	0.00	0		
Top Compression	242.10	Normal No Ice	0.00	0		
Bot Tension	227.16	60 deg No Ice	485.99	47	6	1 1/4" A687
Bot Compression	261.82	Normal No Ice	0.00	0		

Section: 2 U18 Bot Elev (ft): 20.00 Height (ft): 20.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG 12B - 12"BD 2.25"	-236.79	Normal No Ice	10.02	100	100	100	24.4	37.1	442.51	0	0	0.00	0.00	53	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3.5X3.5X0.3125	-5.44	90 deg No Ice	20.15	50	75	50	175.3	6.5	13.54	0	0	0.00	0.00	40	Member Z

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG 12B - 12"BD 2.25"	206.81	60 deg No Ice	50	477.19	0	0	0.00	0.00	43	Member
HORIZ	0.00		0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3.5X3.5X0.3125	5.23	90 deg No Ice	36	60.19	0	0	0.00	0.00	8	Member

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	193.74	60 deg No Ice	0.00	0		
Top Compression	220.88	Normal No Ice	0.00	0		
Bot Tension	210.29	60 deg No Ice	431.99	49	6	1 1/4 A325
Bot Compression	242.10	Normal No Ice	0.00	0		

Force/Stress Summary

Section: 3 U16 Bot Elev (ft): 40.00 Height (ft): 20.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG 12B - 12"BD 2"	-215.04	Normal No Ice	10.02	100	100	100	24.4	37.1	349.36	0	0	0.00	0.00	61	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.3125	-5.14	90 deg No Ice	18.44	50	75	50	187.9	5.6	10.04	0	0	0.00	0.00	51	Member Z

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG 12B - 12"BD 2"	190.35	60 deg No Ice	50	376.79	0	0	0.00	0.00	50	Member
HORIZ	0.00		0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.3125	4.91	90 deg No Ice	36	51.26	0	0	0.00	0.00	9	Member

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	176.79	60 deg No Ice	0.00	0		
Top Compression	199.03	Normal No Ice	0.00	0		
Bot Tension	193.74	60 deg No Ice	431.99	45	6	1 1/4 A325
Bot Compression	220.88	Normal No Ice	0.00	0		

Section: 4 U14 Bot Elev (ft): 60.00 Height (ft): 20.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG 12B - 12"BD 2"	-193.11	Normal No Ice	10.02	100	100	100	24.4	37.1	349.36	0	0	0.00	0.00	55	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.3125	-4.86	90 deg No Ice	16.80	50	75	50	171.2	6.8	12.10	0	0	0.00	0.00	40	Member Z

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG 12B - 12"BD 2"	173.00	60 deg No Ice	50	376.79	0	0	0.00	0.00	45	Member
HORIZ	0.00		0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.3125	4.66	90 deg No Ice	36	51.26	0	0	0.00	0.00	9	Member

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	158.82	60 deg No Ice	0.00	0		
Top Compression	176.50	Normal No Ice	0.00	0		
Bot Tension	176.79	60 deg No Ice	431.99	41	6	1 1/4 A325
Bot Compression	199.03	Normal No Ice	0.00	0		

Force/Stress Summary

Section: 5 U12 Bot Elev (ft): 80.00 Height (ft): 20.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG 12B - 12"BD 1.75"	-170.27	Normal No Ice	10.02	100	100	100	26.0	36.8	265.65	0	0	0.00	0.00	64	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.1875	-4.55	90 deg No Ice	15.24	50	75	50	153.4	8.5	9.22	0	0	0.00	0.00	49	Member Z

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG 12B - 12"BD 1.75"	154.74	60 deg No Ice	50	288.39	0	0	0.00	0.00	53	Member
HORIZ	0.00		0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.1875	4.28	90 deg No Ice	36	31.39	0	0	0.00	0.00	13	Member

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	140.08	60 deg No Ice	0.00	0		
Top Compression	153.81	Normal No Ice	0.00	0		
Bot Tension	158.82	60 deg No Ice	276.47	57	6	1 A325
Bot Compression	176.50	Normal No Ice	0.00	0		

Section: 6 U10 Bot Elev (ft): 100.0 Height (ft): 20.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG 12B - 12"BD 1.5"	-147.18	Normal No Ice	10.02	100	100	100	0.0	0.0	190.66	0	0	0.00	0.00	77	User Input
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.1875	-4.60	90 deg No Ice	13.79	50	75	50	138.9	10.3	11.25	0	0	0.00	0.00	40	Member Z

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG 12B - 12"BD 1.5"	135.31	60 deg No Ice	50	190.66	0	0	0.00	0.00	70	User Input
HORIZ	0.00		0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.1875	4.24	90 deg No Ice	36	31.39	0	0	0.00	0.00	13	Member

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	118.38	60 deg No Ice	0.00	0		
Top Compression	128.84	Normal No Ice	0.00	0		
Bot Tension	140.08	60 deg No Ice	276.47	51	6	1 A325
Bot Compression	153.81	Normal No Ice	0.00	0		

Force/Stress Summary

Section: 7 U8 Bot Elev (ft): 120.0 Height (ft): 20.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG 12B - 12"BD 1.5"	-120.98	Normal No Ice	10.02	100	100	100	30.3	36.1	191.59	0	0	0.00	0.00	63	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.1875	-4.85	90 deg No Ice	12.50	50	75	50	125.9	12.6	13.70	0	0	0.00	0.00	35	Member Z

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG 12B - 12"BD 1.5"	112.28	60 deg No Ice	50	211.99	0	0	0.00	0.00	52	Member
HORIZ	0.00		0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 3X3X0.1875	5.26	Normal No Ice	36	31.39	0	0	0.00	0.00	16	Member

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	91.69	60 deg No Ice	0.00	0		
Top Compression	99.23	Normal No Ice	0.00	0		
Bot Tension	118.38	60 deg No Ice	276.47	43	6	1 A325
Bot Compression	128.84	Normal No Ice	0.00	0		

Section: 8 U-6.0 Bot Elev (ft): 140.0 Height (ft): 10.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG 12B - 12"BD 1.25"	-86.11	Normal No Ice	10.02	100	100	100	36.4	35.1	129.19	0	0	0.00	0.00	66	Member X
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 2.5X2.5X0.1875	-7.32	Normal No Ice	11.41	50	75	50	138.4	10.4	9.38	0	0	0.00	0.00	78	Member Z

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG 12B - 12"BD 1.25"	80.83	60 deg No Ice	50	147.20	0	0	0.00	0.00	54	Member
HORIZ	0.00		0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 2.5X2.5X0.1875	6.61	60 deg No Ice	36	25.98	0	0	0.00	0.00	25	Member

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	74.85	60 deg No Ice	0.00	0		
Top Compression	81.33	Normal No Ice	0.00	0		
Bot Tension	91.69	60 deg No Ice	276.47	33	6	1 A325
Bot Compression	99.23	Normal No Ice	0.00	0		

Force/Stress Summary

Section: 9 H-5.0 Bot Elev (ft): 150.0 Height (ft): 20.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SOL - 2" SOLID	-76.58	Normal No Ice	2.33	100	100	100	56.0	31.2	97.96	0	0	0.00	0.00	78	Member X
HORIZ SOL - 1" SOLID	-1.80	Normal No Ice	4.981	100	100	100	167.3	7.1	5.58	0	0	0.00	0.00	32	Member X
DIAG SOL - 1" SOLID	-5.33	90 deg No Ice	5.474	50	50	50	118.2	14.2	11.19	0	0	0.00	0.00	47	Member X

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SOL - 2" SOLID	75.40	60 deg No Ice	50	125.66	0	0	0.00	0.00	60	Member
HORIZ SOL - 1" SOLID	1.92	60 deg No Ice	50	31.42	0	0	0.00	0.00	6	Member
DIAG SOL - 1" SOLID	5.23	90 deg No Ice	50	31.42	0	0	0.00	0.00	16	Member

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	26.85	60 deg No Ice	0.00	0		
Top Compression	30.13	Normal No Ice	0.00	0		
Bot Tension	74.85	60 deg No Ice	0.00	0		
Bot Compression	81.33	Normal No Ice	0.00	0		

Section: 10 S-4.5 Bot Elev (ft): 170.0 Height (ft): 20.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SOL - 1 1/2" SOLID	-26.69	Normal No Ice	2.41	100	100	100	77.2	26.1	46.11	0	0	0.00	0.00	57	Member X
HORIZ SOL - 3/4" SOLID	-1.71	Normal No Ice	4.495	100	100	100	201.3	4.9	2.17	0	0	0.00	0.00	78	Member X
DIAG SOL - 3/4" SOLID	-4.00	90 deg No Ice	5.074	50	50	50	146.1	9.3	4.12	0	0	0.00	0.00	97	Member X

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SOL - 1 1/2" SOLID	26.92	60 deg No Ice	50	70.68	0	0	0.00	0.00	38	Member
HORIZ SOL - 3/4" SOLID	1.68	60 deg No Ice	50	17.67	0	0	0.00	0.00	9	Member
DIAG SOL - 3/4" SOLID	4.03	90 deg No Ice	50	17.67	0	0	0.00	0.00	22	Member

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	0.00		0.00	0		
Top Compression	0.06	Normal Ice	0.00	0		
Bot Tension	26.85	60 deg No Ice	0.00	0		
Bot Compression	30.13	Normal No Ice	0.00	0		

Support Forces Summary

Load Case	Node	FX (kip)	FY (kip)	FZ (kip)
60 deg Ice	1b	-21.13	-198.20	-12.20
	1a	-6.04	127.17	2.55
	1	-0.81	127.17	-6.51
60 deg No Ice	1b	-18.72	-225.66	-10.81
	1a	-11.04	132.66	5.36
	1	-0.88	132.66	-12.24
60 deg	1b	-5.15	-60.20	-2.97
	1a	-4.00	49.93	1.99
	1	-0.28	49.93	-4.46
90 deg Ice	1b	-19.15	-170.51	-10.46
	1a	-12.54	207.93	6.69
	1	-0.99	18.71	3.77
90 deg No Ice	1b	-16.61	-195.69	-8.93
	1a	-18.21	222.13	9.91
	1	-1.09	13.23	-0.98
90 deg	1b	-4.50	-50.99	-2.40
	1a	-6.21	77.43	3.39
	1	-0.34	13.22	-0.99
Normal Ice	1b	-12.07	-92.91	-8.08
	1a	12.07	-92.91	-8.08
	1	0.00	241.95	-17.60
Normal No Ice	1b	-8.91	-110.92	-6.40
	1a	8.91	-110.92	-6.40
	1	0.00	261.50	-24.68
Normal	1b	-2.14	-24.93	-1.62
	1a	2.14	-24.93	-1.62
	1	0.00	89.54	-8.30

(-) = Uplift (+) = Down

Max Uplift:	225.66 (kip)	Moment:	4,300.33 (ft-kip)	Normal No Ice
Max Down:	261.50 (kip)	Total Down:	39.67 (kip)	
Max Shear:	24.68 (kip)	Total Shear:	37.49 (kip)	

Deflections and Rotations

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
50.00 mph Wind at 60 deg From Face with No Ice	70.00	0.0528	0.0024	0.0889
	153.08	0.3260	0.0074	0.3120
	175.03	0.4696	0.0071	0.4125
	187.09	0.5548	0.0062	0.4051
50.00 mph Wind at 90 deg From Face with No Ice	70.00	0.0533	0.0015	0.0896
	153.08	0.3281	0.0044	0.3151
	175.03	0.4722	0.0041	0.4133
	187.09	0.5577	0.0036	0.4067
50.00 mph Wind Normal To Face with No Ice	70.00	0.0550	0.0026	0.0918
	153.08	0.3344	0.0078	0.3171
	175.03	0.4802	0.0073	0.4184
	187.09	0.5668	0.0063	0.4112
77.94 mph Wind at 60 deg From Face with Ice	70.00	0.1575	0.0073	0.2621
	153.08	0.9550	0.0220	0.8953
	175.03	1.3635	0.0254	1.1665
	187.09	1.6050	0.0250	1.1451
77.94 mph Wind at 90 deg From Face with Ice	70.00	0.1578	0.0045	0.2637
	153.08	0.9588	0.0134	0.9040
	175.03	1.3683	0.0149	1.1674
	187.09	1.6102	0.0148	1.1477
77.94 mph Wind Normal To Face with Ice	70.00	0.1593	0.0079	0.2684
	153.08	0.9718	0.0234	0.9068
	175.03	1.3847	0.0261	1.1785
	187.09	1.6287	0.0260	1.1566
90.00 mph Wind at 60 deg From Face with No Ice	70.00	0.1721	0.0079	0.2893
	153.08	1.0625	0.0246	1.0156
	175.03	1.5306	0.0288	1.3442
	187.09	1.8084	0.0284	1.3206
90.00 mph Wind at 90 deg From Face with No Ice	70.00	0.1730	0.0049	0.2917
	153.08	1.0686	0.0152	1.0264
	175.03	1.5380	0.0169	1.3467
	187.09	1.8167	0.0169	1.3247
90.00 mph Wind Normal To Face with No Ice	70.00	0.1785	0.0087	0.2987
	153.08	1.0884	0.0265	1.0338
	175.03	1.5632	0.0299	1.3631
	187.09	1.8448	0.0297	1.3382

AMERICAN TOWER®
CORPORATION

LETTER OF AUTHORIZATION

ATC SITE # / NAME: 10027/ Salem CT
SITE ADDRESS: 153 East Haddam Road, Salem, CT
LICENSEE: T-Mobile Northeast LLC

I, Margaret Robinson, Senior Counsel for American Tower*, owner of the tower facility and property located at the address identified above (the "Tower Facility"), do hereby authorize **T-Mobile Northeast LLC,** successors and assigns, and/or its agent, (collectively, the "Licensee") to act as American Tower's non-exclusive agent for the sole purpose of filing and consummating any land-use or building permit application(s) as may be required by the applicable permitting authorities for Licensee's telecommunications' installation.

We understand that this application may be denied, modified or approved with conditions. The above authorization is limited to the acceptance by Licensee only of conditions related to Licensee's installation and any such conditions of approval or modifications will be Licensee's sole responsibility.

Signature:

Print Name: Margaret Robinson
Senior Counsel
American Tower*

NOTARY BLOCK

Commonwealth of MASSACHUSETTS
County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Senior Counsel for American Tower*, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same.

WITNESS my hand and official seal, this 16th day of May, 2016.

NOTARY SEAL

SUSANA P. RIBEIRO
Notary Public
Commonwealth of Massachusetts
My Commission Expires
March 16, 2018

Notary Public
My Commission Expires: March 16, 2018

*American Tower includes all affiliates and subsidiaries of American Tower Corporation.

SUSANA P. RIBEIRO
Notary Public
Commonwealth of Massachusetts
My Commission Expires
March 16, 2018

EBI Consulting
environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CTNH143C

ATC Salem CT
153 E Haddam Rd
Salem, CT 06420

May 31, 2016

EBI Project Number: 6216002599

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	18.63 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
environmental | engineering | due diligence

May 31, 2016

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CTNH143C – ATC Salem CT**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **153 E Haddam Rd, Salem, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 700 MHz Band is approximately 467 $\mu W/cm^2$, and the general population exposure limit for the PCS and AWS bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **153 E Haddam Rd, Salem, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

3) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

5) For the following calculations the sample point was the top of a six-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

6) The antennas used in this modeling are the **RFS APX16DWV-16DWVS-E-A20** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **RFS APX16DWV-16DWVS-E-A20** have a maximum gain of **16.3 dBd** at their main lobe at 1900 MHz and 2100 MHz. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe at 700 MHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antenna mounting height centerline of the proposed antennas is **175 feet** above ground level (AGL).

8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	175	Height (AGL):	175	Height (AGL):	175
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	180	Total TX Power(W):	180	Total TX Power(W):	180
ERP (W):	7,678.43	ERP (W):	7,678.43	ERP (W):	7,678.43
Antenna A1 MPE%	0.97	Antenna B1 MPE%	0.97	Antenna C1 MPE%	0.97
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	175	Height (AGL):	175	Height (AGL):	175
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	30	Total TX Power(W):	30	Total TX Power(W):	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A2 MPE%	0.23	Antenna B2 MPE%	0.23	Antenna C2 MPE%	0.23

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**1.20 %**
Sprint	7.60 %
AT&T	9.83 %
Site Total MPE %:	**18.63 %**

T-Mobile Sector 1 Total:	1.20 %
T-Mobile Sector 2 Total:	1.20 %
T-Mobile Sector 3 Total:	1.20 %
Site Total:	18.63 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 2100 MHz (AWS) LTE	**2**	**2559.48**	**175**	**6.44**	**2100**	**1000**	**0.64 %**
T-Mobile 1900 MHz (PCS) UMTS	**2**	**1279.74**	**175**	**3.22**	**1900**	**1000**	**0.32 %**
T-Mobile 700 MHz LTE	**1**	**865.21**	**175**	**1.09**	**700**	**467**	**0.23 %**
						Total:	**1.20 %**

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector 1:	1.20 %
Sector 2:	1.20 %
Sector 3:	1.20 %
T-Mobile Per Sector Maximum:	1.20 %
Site Total:	18.63 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **18.63%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

AMERICAN TOWER™
CORPORATION

Compliance Statement:
Nationwide Programmatic Agreement for the Collocation of Wireless Antennas and Nationwide Programmatic Agreement for Review of Effects on Historic Properties for Certain Undertakings Approved by the Federal Communication Commission

4/18/2016

T-MOBILE
OFFICE ADDRESS

Attn: **T-MOBILE**

Re: Proposed collocation or modification of telecommunications equipment by T-MOBILE, or its agents or designees ("Customer") on that certain tower, known as SALEM CT, ATC # 10027 and located at Intersection of Connecticut Rt. 82 and Rt. 11 (41-28-6.480012 N and 72-16-23.859984 W) in the county of NEW LONDON, State of CT (the "Tower"), and constructed on **09/21/1999.**

Dear **T-MOBILE**:

To facilitate Customer's collocation or modification of its telecommunications equipment on the above referenced Tower in compliance with both the Nationwide Programmatic Agreement for the Collocation of Wireless Antennas (the "Collocation Programmatic Agreement") and the Nationwide Programmatic Agreement for Review of Effects on Historic Properties for Certain Undertakings Approved by the Federal Communication Commission ("the Nationwide Programmatic Agreement") executed by the Federal Communication Commission ("FCC"), the National Conference of State Historic Preservation Officers and the Advisory Council On Historic Preservation ("ACHP"), American Tower Corporation ("ATC"), makes the following certifications:

1. The Tower is a structure built for the primary purpose of supporting FCC-licensed antennas and their associated facilities.

2. Tower construction was completed on or before March 16, 2001, OR, if construction was not completed by that date, consultation with a SHPO/THPO has been completed pursuant to Section 106 of the National Historic Preservation Act ("NHPA"), and the SHPO/THPO has concurred that the undertaking will have "no effect" or "no adverse effect" to historic properties, OR, the tower was categorically exempt from SHPO review based on 47 CFR § 1.1306 Note 3 or one of the exemptions outlined in Section III of the Nationwide Programmatic Agreement, OR, SHPO choose to let the 30 day response period close and per Section VII B 2 of the Nationwide Programmatic Agreement the applicant may consider the S106 process complete.

3. Based solely on ATC's review of the plans provided by Customer and statements made by Customer to ATC, the proposed collocation or modification does not require a "substantial increase in the size of the tower," as that phrase is defined in Stipulation I.C. of the Collocation Programmatic Agreement, nor does it require "enhancement of the tower" as that phrase is defined in Stipulation III.A. of the Nationwide Programmatic Agreement; **OR**, if the proposed collocation or modification does require a

"substantial increase" or "enhancement" ATC has completed consultation with a SHPO/THPO pursuant to Section 106 of the NHPA and the Programmatic Agreements. ATC has confirmed the SHPO/THPO has concurred that the undertaking will have "no effect" or "no adverse effect" to historic properties.

4. There has been no "substantial increase in the size of the tower" since March 16, 2001, OR if there has been a "substantial increase, consultation with a SHPO/THPO has been completed pursuant to Section 106 of the NHPA and the Programmatic Agreements, and the SHPO/THPO has concurred that the undertaking will have "no effect" or "no adverse effect" to historic properties.

5. There has been no "enhancement of the tower" since March 7, 2005, OR if there has been an "enhancement", consultation with a SHPO/THPO has been completed pursuant to Section 106 of the NHPA and the Programmatic Agreements, and the SHPO/THPO has concurred that the undertaking will have "no effect" or "no adverse effect" to historic properties.

6. ATC has no knowledge that the FCC has determined that the Tower has an effect on one or more historic properties, or if such an effect has been found, that such effect has been found to be not adverse through a no adverse effect finding, or that an adverse or potentially adverse effect has not been resolved through a conditional no adverse effect determination, a Memorandum of Agreement, a programmatic agreement, or that the Tower is not otherwise in compliance with Section 106 and Subpart B of 36 CFR Part 800.

7. ATC has no knowledge that the Tower is the subject of a pending environmental review or related proceeding before the FCC involving compliance with Section 106 of the NHPA.

8. ATC has no knowledge of having received any written or electronic notification that the FCC is in receipt of a complaint from a member of the public, a SHPO, or the ACHP that the collocation has or will have an adverse effect on one or more historic properties.

Based on the above certifications, the installation of the equipment on the Tower would not require review under the consultation process set forth under Subpart B of 36 CFR Part 800.

Please contact ATC's Environmental Compliance Team at [colo.enviro@americantower.com] with any questions regarding this certification.

AMERICAN TOWER CORPORATION
10 Presidential Way
Woburn, MA 01801

By: Katey Kimball

Title: **Project Specialist**