Transcend Wireless

10 INDUSTRIAL AVE,
SUITE 3
MAHWAH NJ 07430

PHONE: 201.684.0055

April 17, 2017

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

T-Mobile Northeast LLC – CTFF600E
Tower Share Application
80 Lonetown Road, Redding, CT 06896
Latitude- 41.317778
Longitude- -73.383333

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 tower site located at 80 Lonetown Road in Redding, Connecticut.

T-Mobile will install six (6) 700/1900/2100 MHz antennas and six (6) RRUs at the 92' level of the existing 100' lattice tower. One (1) hybrid cable will also be installed. T-Mobile's equipment cabinets will be placed on a 6' X 15' concrete pad within the existing ground facility. Included are plans by Hudson Design Group, dated April 17, 2017, depicting the planned changes and attached as **Exhibit A**. Also included is a structural analysis prepared by Hudson Design Group, dated November 15, 2016, confirming that the existing tower is structurally capable of supporting the proposed equipment. This is 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 Julia Pemberton, First Selectman of the Town of Redding, as well as the tower and property owner, Andrew & Elizabeth Mound. Please see the attached letter from Andrew & Elizabeth Mound authorizing the proposed shared use of this facility attached as **Exhibit C**.

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the lattice tower is 100'; T-Mobile's proposed antennas will be located at a center line height of 92'.

2. The proposed modifications will not result in the increase of the site boundary as depicted on the attached site plan.

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

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, the combined site operations will result in a tower power density of 12.84%, as evidenced by **Exhibit D**.

Connecticut General Statutes 16-50aa indicates that the Council must approve the shared use of a telecommunications facility provided it finds the shared use is technically, legally, environmentally, and economically feasible and meets public safety concerns. As demonstrated in this letter, T-Mobile respectfully submits that the shared use of this facility satisfies these criteria.

A. Technical Feasibility. The existing lattice tower has been deemed structurally capable of supporting T-Mobile's proposed loading. The structural analysis is included in **Exhibit B**.
B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this lattice tower in Redding. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit T-Mobile to obtain a building permit for the proposed installation. Further, a Letter of Authorization is included as **Exhibit C**, authorizing T-Mobile to file this application for shared use.
C. Environmental Feasibility. The proposed shared use of this facility would have minimal environmental impact. The installation of T-Mobile equipment at the 92' level of the existing 100' tower would have an insignificant visual impact on the area around the tower. T-Mobile's ground equipment would be installed within the existing facility compound. T-Mobile's shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by **Exhibit D**, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.
D. Economic Feasibility. T-Mobile has entered into an agreement with the owner of this facility to mutually agreeable terms. As previously mentioned, a Letter of Authorization has been provided by the owner to assist T-Mobile with this tower sharing application.
E. Public Safety Concerns. As discussed above, the lattice tower is structurally capable of supporting T-Mobile's proposed loading. T-Mobile is not aware of any public safety concerns relative to the proposed sharing of the existing lattice tower. T-Mobile's intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through Redding.

Sincerely,

Kyle Richers

Kyle Richers
Transcend Wireless
10 Industrial Ave., Suite 3
Mahwah, New Jersey
krichers@transcendwireless.com
908-447-4716

cc:
Julia Pemberton- First Selectman, Town of Redding
Andrew & Elizabeth Mound- Tower and Property Owner

SITE NUMBER: CTFF600E

80 LONETOWN ROAD
REDDING, CT 06896
FAIRFIELD COUNTY

SITE NAME: CTFF600E

RF DESIGN GUIDELINE: 707B

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.

PROJECT SUMMARY

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY T-MOBILE EQUIPMENT INSTALLATION
ZONING JURISDICTION: (TOWN OF REDDING)	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:	80 LONETOWN ROAD REDDING, CT 06896
LATITUDE:	41° 19' 04.00" N
LONGITUDE:	73° 23' 00.00" W
JURISDICTION:	NATIONAL, STATE & LOCAL CODES OR ORDINANCES
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

APPROVALS

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

72 HOURS

CALL
BEFORE YOU DIG
CALL TOLL FREE 1-800-922-4455
OR CALL 811

UNDERGROUND SERVICE ALERT

DRAWING INDEX

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T-MOBILE NORTHEAST LLC

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BLOOMFIELD, CT 06002
OFFICE: (860) 648-1116

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Hudson Design Group LLC

1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
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FAX: (978) 336-5586

STATE OF CONNECTICUT
DEREK J. CREASER
No. 29554
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: DR

APPROVED BY: DJC

SUBMITTALS

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2	04/17/17	ISSUED FOR CONSTRUCTION	VP
1	09/07/16	ISSUED FOR CONSTRUCTION	SLY
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SITE NUMBER:
CTFF600E

SITE NAME:
CTFF600E

SITE ADDRESS:
80 LONETOWN ROAD
REDDING, CT 06896
FAIRFIELD 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		

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STATE OF CONNECTICUT
DEREK J. CREASER
No. 29554
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: DR

APPROVED BY: DJC

SUBMITTALS

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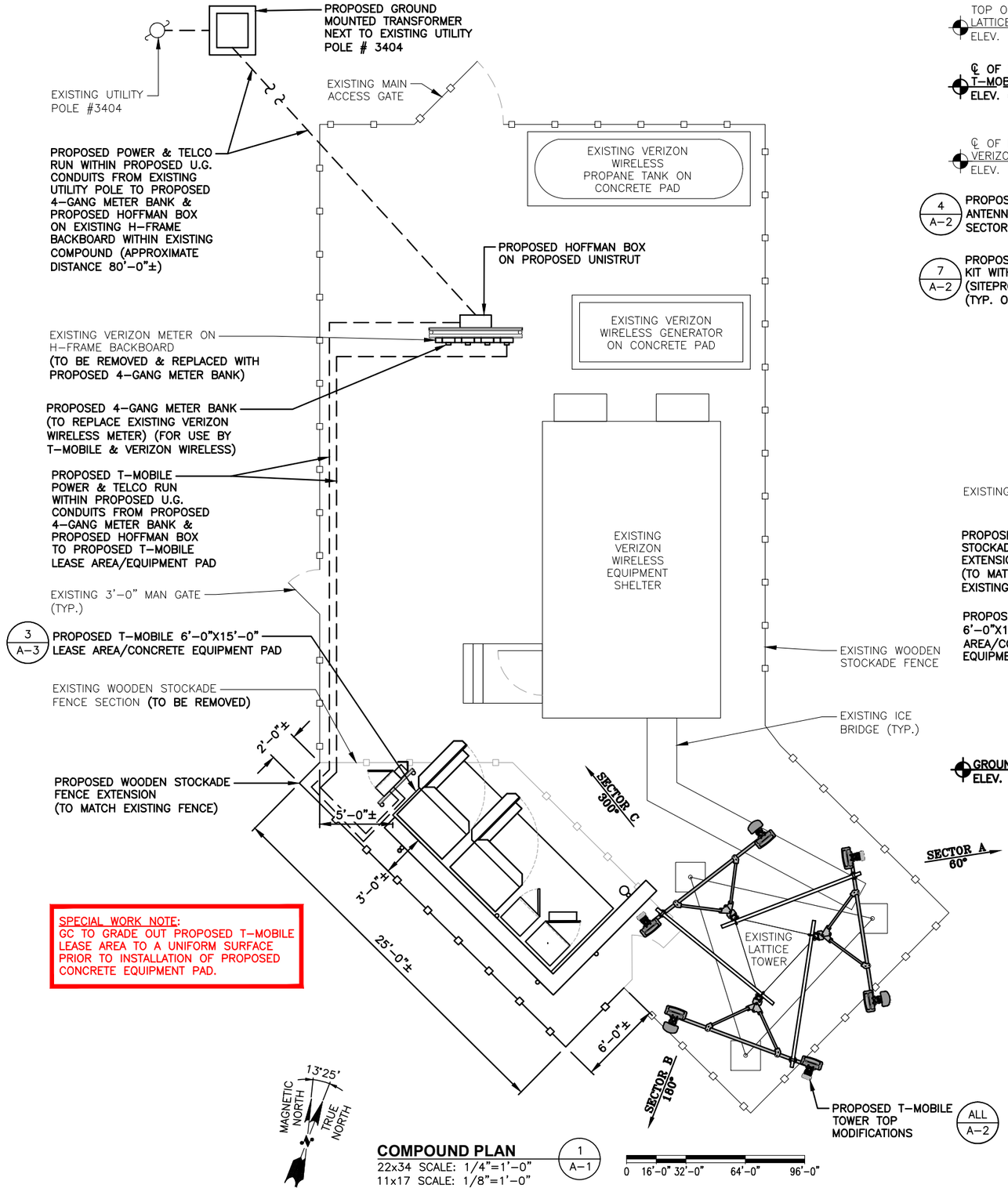
SHEET TITLE
GENERAL NOTES

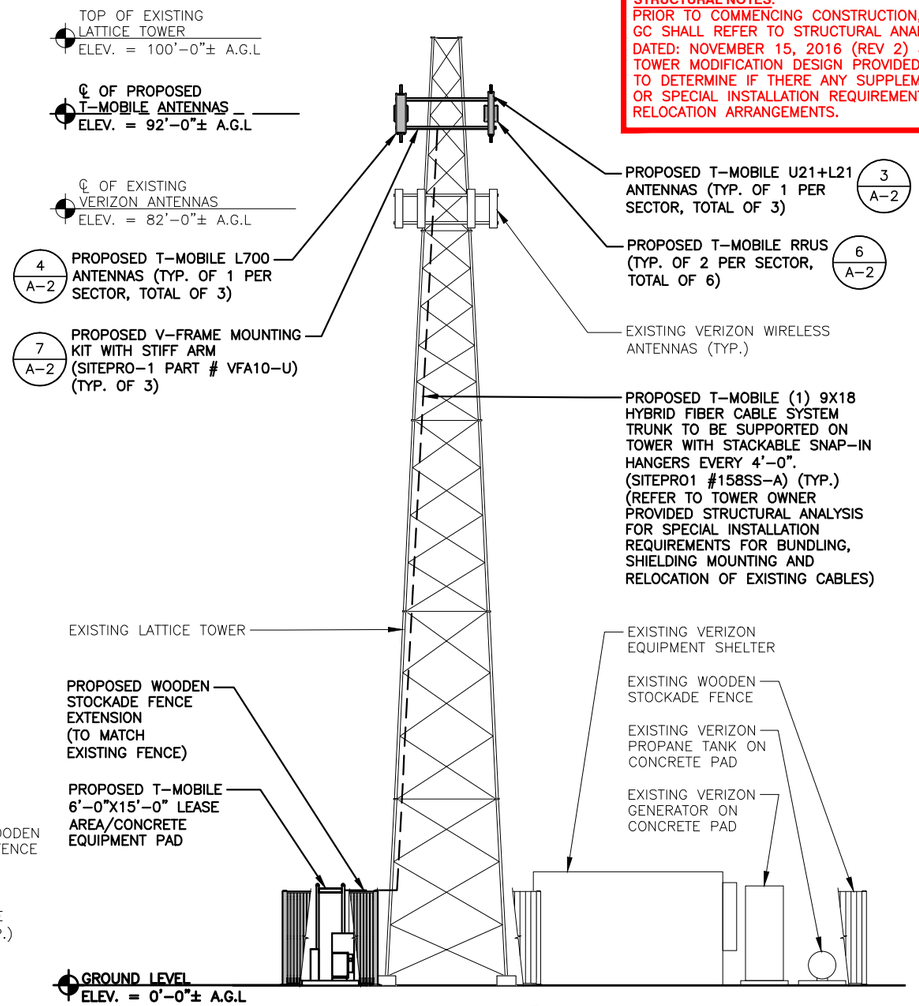
SHEET NUMBER
GN-1



COMPOUND PLAN 1 A-1
22x34 SCALE: 1/4"=1'-0"
11x17 SCALE: 1/8"=1'-0"

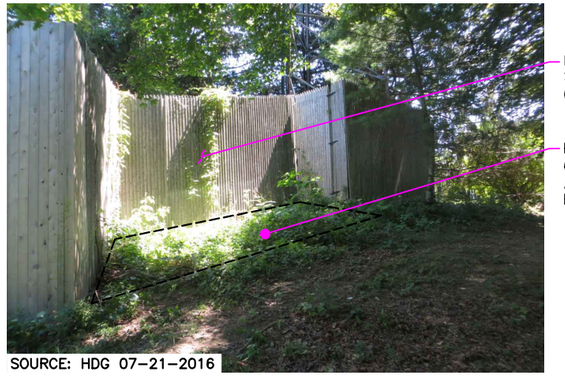
0 16'-0" 32'-0" 64'-0" 96'-0"

SPECIAL WORK NOTE:
GC TO GRADE OUT PROPOSED T-MOBILE LEASE AREA TO A UNIFORM SURFACE PRIOR TO INSTALLATION OF PROPOSED CONCRETE EQUIPMENT PAD.



SOUTH ELEVATION 2 A-1
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"

0 16'-0" 32'-0" 64'-0" 96'-0"



SOURCE: HDG 07-21-2016

EQUIPMENT LOCATION PHOTO DETAIL 3 A-1
SCALE: N.T.S

STRUCTURAL NOTES:
PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO STRUCTURAL ANALYSIS DATED: NOVEMBER 15, 2016 (REV 2) & TOWER MODIFICATION DESIGN PROVIDED BY HDG TO DETERMINE IF THERE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS, OR RELOCATION ARRANGEMENTS.

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
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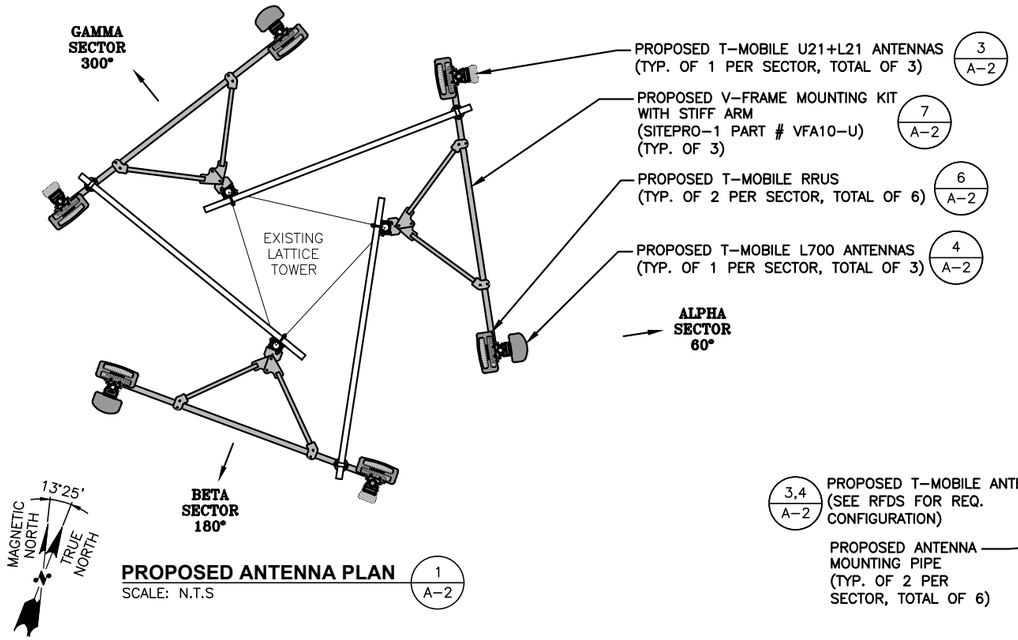

PROPOSED ANTENNA PLAN (1 A-2)
SCALE: N.T.S

STRUCTURAL NOTES:
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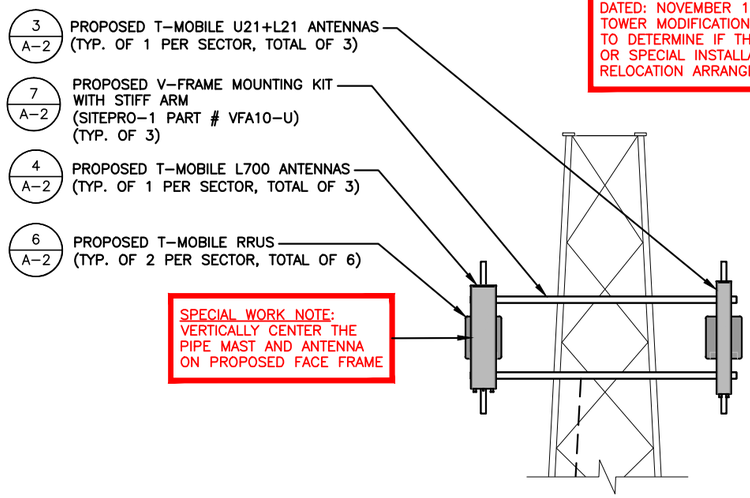
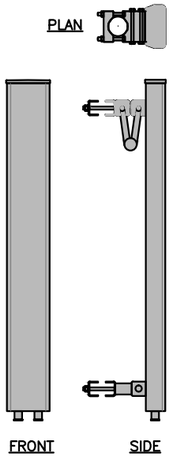


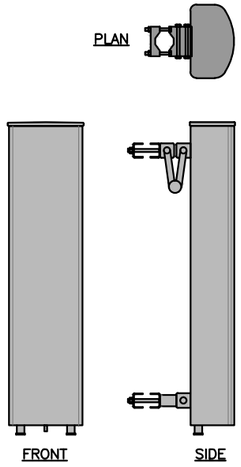
PROPOSED ANTENNA MOUNT ELEVATION DETAIL (2 A-2)
SCALE: N.T.S

U21+L21 ANTENNA DIMENSIONS	
MODEL #	APXV18-206516S-A20
MANUF.	RFS
WIDTH	6.9"
DEPTH	3.15"
HEIGHT	53.1"
WEIGHT	18.7 LBS

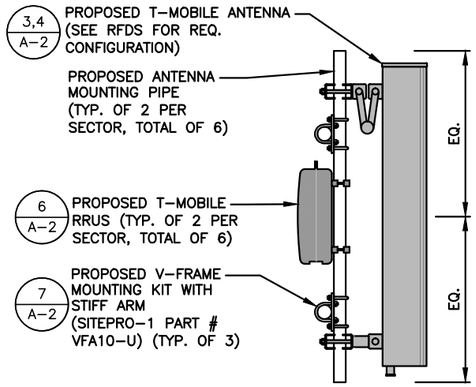


U21+L21 ANTENNA DETAIL (3 A-2)
SCALE: N.T.S

L700 ANTENNA DIMENSIONS	
MODEL #	LNX-6512DS-A1M
MANUF.	COMMSCOPE
WIDTH	11.9"
DEPTH	7.1"
HEIGHT	48.5"
WEIGHT	28.7 LBS

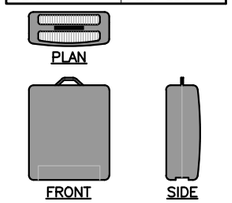


L700 ANTENNA DETAIL (4 A-2)
SCALE: N.T.S

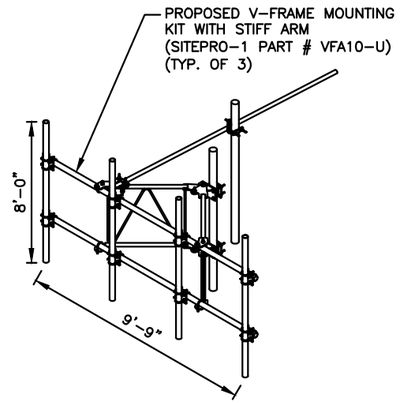


PROPOSED ANTENNA & RRU MOUNTING DETAIL (5 A-2)
SCALE: N.T.S

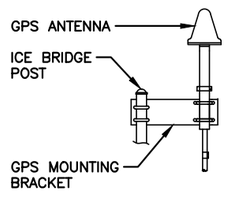
RRU DIMENSIONS	
MODEL #	RRUS11 B4
MODEL #	RRUS11 B12
MANUF.	ERICSSON
WIDTH	17"
DEPTH	7"
HEIGHT	20"
WEIGHT	50.6 LBS



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



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
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FAX: (978) 336-5586

STATE OF CONNECTICUT · DEREK J. CREASER · No. 29055 · LICENSED PROFESSIONAL ENGINEER

CHECKED BY: DR

APPROVED BY: DJC

SUBMITTALS

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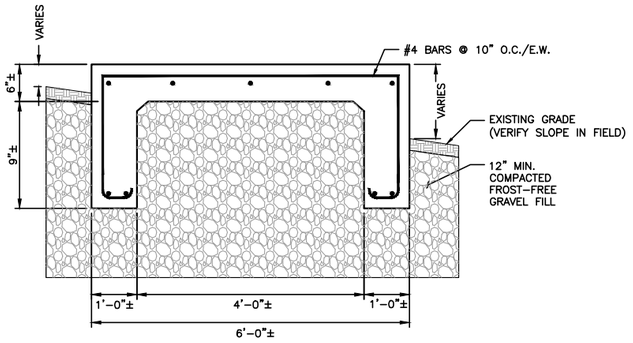
SITE NUMBER:
CTFF600E

SITE NAME:
CTFF600E

SITE ADDRESS:
80 LONETOWN ROAD
REDDING, CT 06896
FAIRFIELD COUNTY

SHEET TITLE
TOWER EQUIPMENT DETAILS

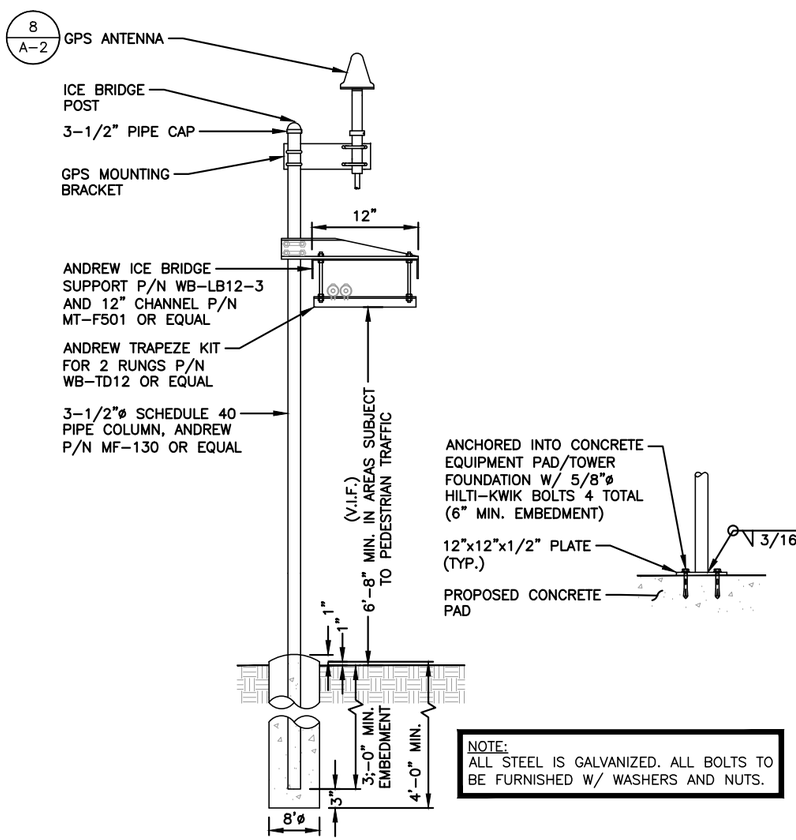
SHEET NUMBER
A-2



FOUNDATION NOTES & CONCRETE SPECIFICATIONS

1. FOUNDATION AREA SHALL BE EXCAVATED TO THE DEPTH AND DIMENSIONS SHOWN ON THE PLANS. EXISTING LEDGE AND ALL OTHER EXISTING UNSUITABLE MATERIAL SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF-SITE. THE SUBGRADE SHALL BE ROLLED WITH A 1-TON, VIBRATORY, WALK-BEHIND ROLLER AT A SPEED OF LESS THAN 2 FPS, 6 PASSES MINIMUM, TO PROVIDE UNYIELDING SURFACE.
2. UNDERCUT SOFT OR "WEAVING" AREAS A MINIMUM OF 12 INCHES DEEP. BACKFILL UNDERCUT AREA WITH FILL MEETING THE SPECIFICATIONS OF STRUCTURAL FILL.
3. CONCRETE TO HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH (f'c)=4000 psi. CONCRETE TO BE AIR ENTRAINED, DESIRED AIR CONTENT TO BE 6% (PLUS OR MINUS 2%)
4. REINFORCING BAR TO BE ASTM A615 GRADE 60.
5. WELDED WIRE FABRIC TO CONFORM TO THE REQUIREMENTS OF ASTM A185. WIRES FOR FABRIC TO CONFORM TO THE REQUIREMENTS OF ASTM A82.
6. COORDINATE WITH MANUFACTURER OF PREFABRICATED SHELTER FOR LOCATION OF ATTACHMENTS TO BASE SLAB.
7. ALL REINFORCING TO HAVE MINIMUM CONCRETE COVER PER ACI SPECIFICATIONS.
8. ALL CONCRETE MATERIALS AND WORKMANSHIP SHALL CONFORM TO LATEST EDITION OF ACI 318 AND APPLICABLE STATE BUILDING CODE.

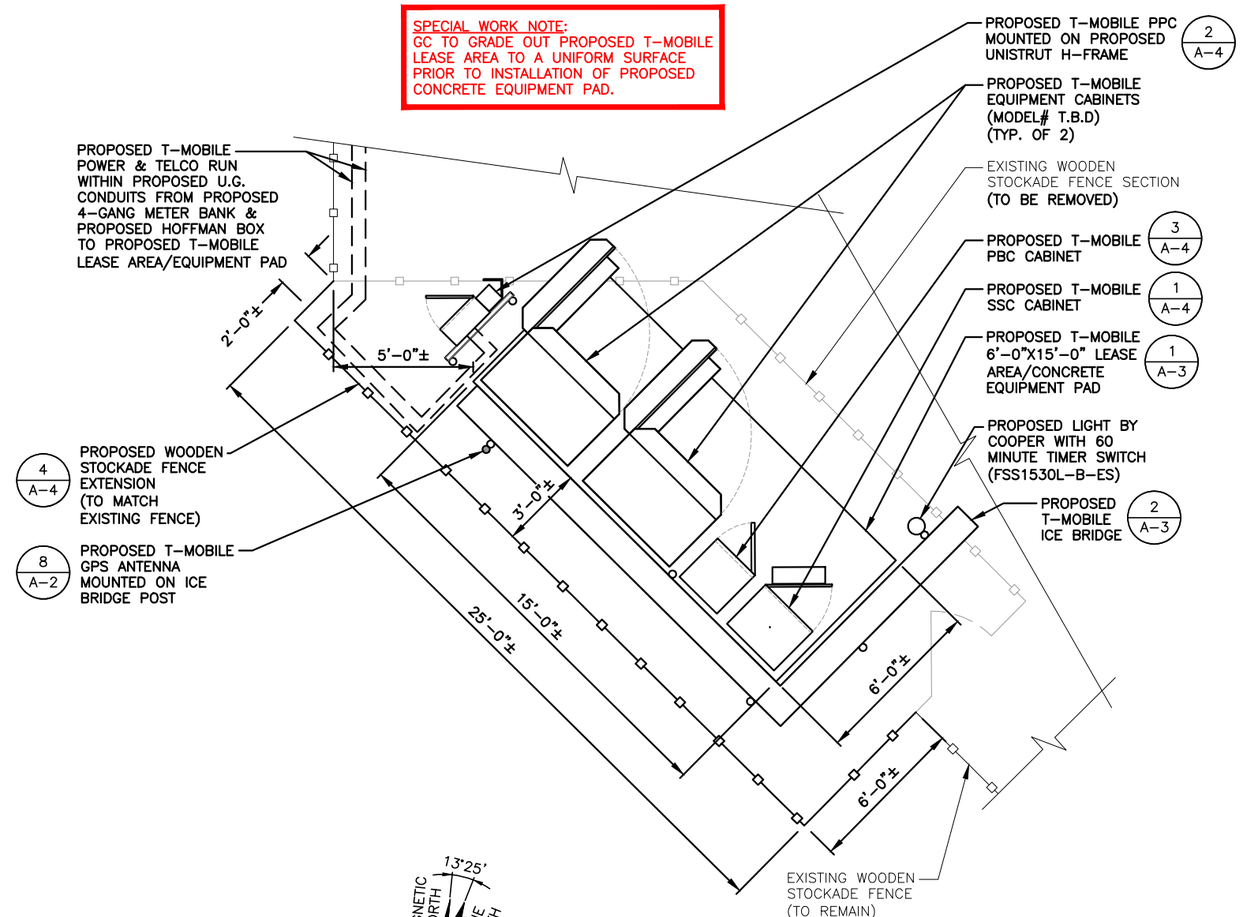
CONCRETE PAD DETAIL (1 / A-3)
SCALE: N.T.S



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

COAX ICE BRIDGE DETAIL (2 / A-3)
SCALE: N.T.S

SPECIAL WORK NOTE:
GC TO GRADE OUT PROPOSED T-MOBILE LEASE AREA TO A UNIFORM SURFACE PRIOR TO INSTALLATION OF PROPOSED CONCRETE EQUIPMENT PAD.



EQUIPEMENT PLAN (3 / A-3)
22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"

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STATE OF CONNECTICUT
DEREK J. CREASER
No. 23554
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: DR

APPROVED BY: DJC

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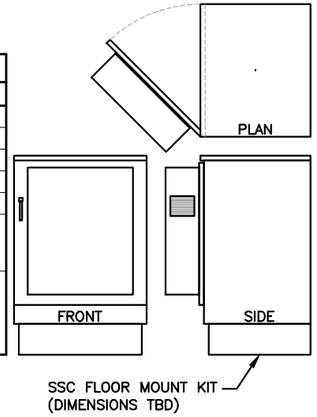
80 LONETOWN ROAD
REDDING, CT 06896
FAIRFIELD COUNTY

SHEET TITLE
GROUND EQUIPMENT DETAILS

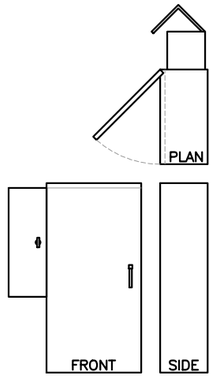
SHEET NUMBER
A-3

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	



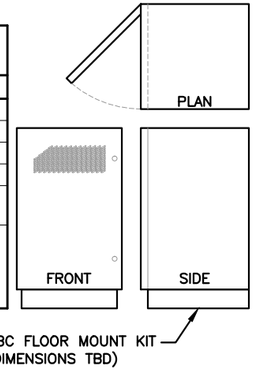
SITE SUPPORT CABINET (SSC) 1/A-4
SCALE: N.T.S

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-4
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	

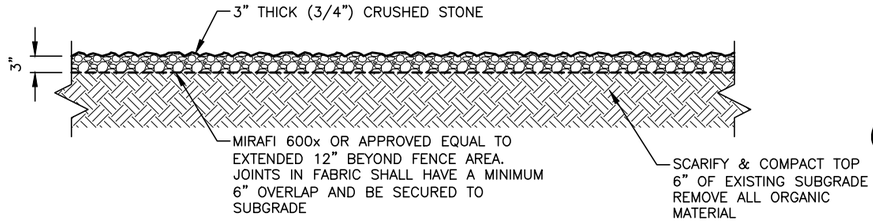


POWER AND BATTERY CABINET (PBC) 3/A-4
SCALE: N.T.S

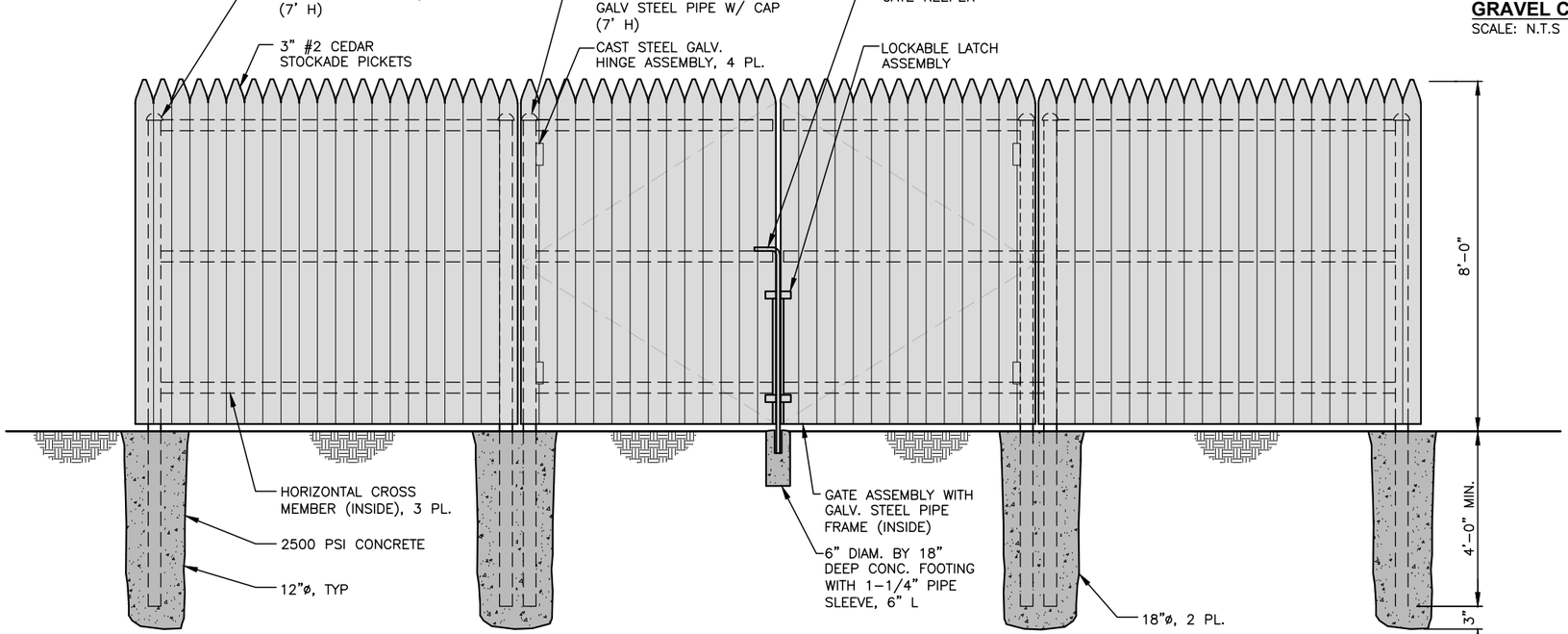
FENCE NOTES

1. ALTERNATE FOOTINGS FOR ALL FENCE POSTS IN LEDGE: IF LEDGE IS ENCOUNTERED AT GRADE, OR AT A DEPTH SHALLOWER THAN 3'-6", CORE DRILL AN 8" DIA HOLE 18" INTO THE LEDGE. CENTER POST IN THE HOLE AND FILL WITH CONCRETE OR GROUT. IF LEDGE IS BELOW FINISH GRADE, COAT BACKFILLED SECTION OF POST WITH COAL TAR, AND BACKFILL WITH WELL-DRAINING GRAVEL.

2. ATTACH EACH GATE WITH 1-1/2 PAIR OF NON-LIFT-OFF TYPE, MALLEABLE IRON OR FORGING, PIN-TYPE HINGES. ASSEMBLIES SHALL ALLOW FOR 180° OF GATE TRAVEL.



GRAVEL COMPOUND DETAIL 5/A-4
SCALE: N.T.S



STOCKADE FENCE DETAIL 4/A-4
SCALE: N.T.S

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STATE OF CONNECTICUT
DEREK J. CREASER
No. 29555
LICENSED PROFESSIONAL ENGINEER

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APPROVED BY: DJC

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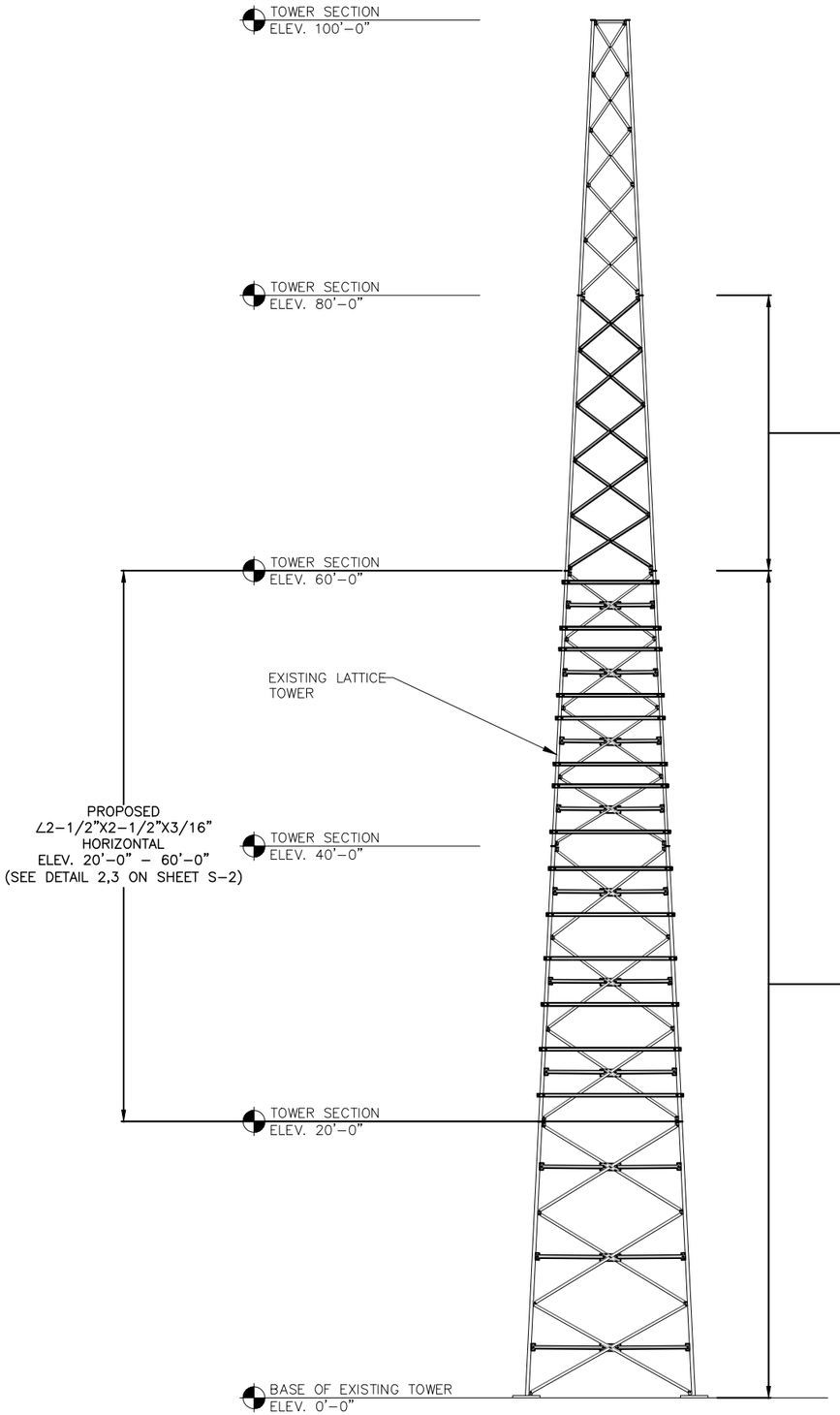
REDDING, CT 06896
FAIRFIELD COUNTY

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4



TOWER ELEVATION (1 / S-1)
SCALE: N.T.S

STRUCTURAL NOTES:
PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO STRUCTURAL ANALYSIS DATED: NOVEMBER 15, 2016 (REV 2) & TOWER MODIFICATION DESIGN PROVIDED BY HDG TO DETERMINE IF THERE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS, OR RELOCATION ARRANGEMENTS.

ALL DIMENSIONS, MEASUREMENTS, QUANTITIES, PART NUMBERS, AND COAX/ANTENNA PLACEMENTS TO BE FIELD VERIFIED BY CONTRACTOR PRIOR TO MATERIAL ORDERS AND CONSTRUCTION.

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

GENERAL NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES AND ORDINANCES. IT IS THE CONTRACTORS RESPONSIBILITY TO OBTAIN ALL PERMITS NECESSARY TO COMPLETE THE PROJECT AND ABIDE BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS, ELEVATIONS, AND EXISTING CONDITIONS AT THE SITE BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE CONSTRUCTION DRAWINGS. ANY SUCH DISCREPANCY IN DIMENSION WHICH MAY BE FOUND SHALL BE SUBMITTED TO HUDSON DESIGN GROUP FOR CONSIDERATION BEFORE THE CONTRACTOR PROCEEDS WITH THE WORK IN THE AFFECTED AREA.
3. INCORRECTLY FABRICATED, DAMAGED, OTHERWISE MISFITTING, OR NON-CONFORMING MATERIALS AND CONDITIONS SHALL BE REPORTED TO HUDSON DESIGN GROUP PRIOR TO ANY REMEDIAL OR CORRECTIVE ACTION. ALL ACTIONS SHALL REQUIRE HUDSON DESIGN GROUP, LLC APPROVAL.
4. IT IS THE CONTRACTORS SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO INSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION AND/OR FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AFTER COMPLETION OF THE PROJECT.
5. CONTRACTOR SHALL PROMPTLY REMOVE ANY AND ALL DEBRIS FROM SITE AND RESTORE AS BEST AS POSSIBLE TO PRE-CONSTRUCTION CONDITION.

STEEL:

1. ALL STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST AISC CODE AND ASTM SPECIFICATIONS.
2. ALL CONNECTIONS Of STRUCTURAL STEEL MEMBERS SHALL BE MADE USING SPECIFIED WELDS WITH WELDING ELECTRODES E-70XX OR SPECIFIED HIGH STRENGTH BOLTS TO BE ASTM A325N, THREAD INCLUDED WITH SHEAR PLANE UNLESS OTHERWISE NOTED.
3. ALL BOLTED CONNECTIONS TO BE INSTALLED TO A SNUG-TIGHTENED CONDITION IN ACCORDANCE WITH AISC 13 PART 16.2, "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", SECTION 8.1, UNLESS OTHERWISE NOTED.
4. ALL STEEL (EXCEPT A490 BOLTS), AFTER FABRICATION, SHALL BE HOT DIPPED GALVANIZED PER ASTM A-123. ALL DAMAGED SURFACES, WELDED AREAS AND AUTHORIZED NON-GALVANIZED MEMBERS OR PARTS (EXISTING OR NEW) SHALL BE PAINTED WITH 2 COATS OF ZRC COLD GALVANIZING COMPOUND.
5. ALL SHOP AND FIELD WELDING SHALL BE DONE BY WELDERS QUALIFIED AS DESCRIBED IN THE "AMERICAN WELDING SOCIETY'S STANDARD QUALIFICATION PROCEDURE" TO PERFORM THE TYPE OF WORK REQUIRED.
6. STRUCTURAL STEEL MAY NOT BE TORCH CUT FOR FABRICATION. ALL STEEL FABRICATION MUST FOLLOW AISC STANDARDS.
7. NEW STEEL MEMBERS AND CONNECTIONS SHALL BE PAINTED TO MATCH EXISTING TOWER.

MISC. NOTES:

1. ALL MODIFICATIONS ARE ASSUMED TO BE MADE ON AN EMPTY TOWER. CONTRACTOR IS RESPONSIBLE TO MAKE PROVISIONS TO SUPPORT OR WORK AROUND EXISTING ANTENNAS AND TRANSMISSION LINES. MODIFICATIONS MUST BE CONTINUOUS THROUGH ALL AREAS SHOWN.
2. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

FABRICATION NOTES:

1. ALL DIMENSIONS ARE PRELIMINARY UNTIL FIELD VERIFIED BY CONTRACTOR. ANY CHANGES MUST BE APPROVED BY ENGINEER OF RECORD IN WRITING PRIOR TO FABRICATION AND INSTALLATION.
2. NEW STEEL MEMBERS MUST HAVE SINGLE DRILLED HOLES. SLOTTED AND DOUBLE DRILLED HOLES ARE NOT ACCEPTABLE MEANS OF FABRICATION.

CONTRACTOR QUALIFICATION NOTES:

1. ALL REPAIRS SHALL BE PERFORMED BY A TOWER CONTRACTOR WITH A MINIMUM OF 5 YEARS EXPERIENCE IN TOWER ERECTION AND RETROFIT AND WITH WORKING KNOWLEDGE OF THE ANSI/TIA-222-G "STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS".
2. CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION MEANS AND METHODS. SHOULD THE CONTRACTOR REQUIRE DIRECT CONSULTATION, HUDSON DESIGN GROUP, LLC IS WILLING TO OFFER SERVICES BASED UPON AN AGREED FEE FOR THE WORK REQUIRED.
3. ALL SUBMITTAL INFORMATION MUST BE SENT TO HUDSON DESIGN GROUP, LLC 1600 OSGOOD ST. BUILDING 20N, SUITE 3090, NORTH ANDOVER, MA 01845 TEL: (978)557-5553, FAX: (978)336-5586. ANY VARIATION OF THESE SPECIFICATIONS OR DRAWINGS WITHOUT CONSENT FROM HUDSON DESIGN GROUP WILL VOID ANY RESPONSIBILITY OR LIABILITY FOR DAMAGE (MATERIAL OR PHYSICAL) TOWARDS HUDSON DESIGN GROUP, LLC.

JOB SITE SAFETY AND NOTES:

NEITHER THE PROFESSIONAL ACTIVITIES OF HUDSON DESIGN GROUP, LLC NOR THE PRESENCE OF HUDSON DESIGN GROUP, LLC OR EMPLOYEES AND SUB-CONSULTANTS AT THE CONSTRUCTION SITE, SHALL RELIEVE THE GENERAL CONTRACTOR AND/OR SUBCONTRACTORS AND ANY OTHER ENTITY OF THEIR OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES, OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. THE GENERAL CONTRACTOR AND/OR SUBCONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SAFETY, AND WARRANTS THAT THIS INTENT IS EVIDENT BY ACCEPTING THIS WORK.

SUBSTITUTES AND/OR EQUALS:

IF CONTRACTOR WISHES TO FURNISH OR USE A SUBSTITUTE ITEM OF MATERIAL OR EQUIPMENT, CONTRACTOR SHALL MAKE WRITTEN APPLICATION TO ENGINEER FOR ACCEPTANCE THEREOF, CERTIFYING THAT THE PROPOSED SUBSTITUTE WILL ADEQUATELY PERFORM THE FUNCTIONS AND ACHIEVE THE RESULTS CALLED FOR BY THE GENERAL DESIGN, BE SIMILAR IN SUBSTANCE TO THAT SPECIFIED, AND SUITED TO THE SAME USE AS THAT SPECIFIED. ALL VARIATIONS OF THE PROPOSED SUBSTITUTE FROM THAT SPECIFIED WILL BE IDENTIFIED IN THE APPLICATION AND AVAILABLE MAINTENANCE, REPAIR, AND REPLACEMENT SERVICE WILL BE INDICATED. THE APPLICATION WILL ALSO CONTAIN AN ITEMIZED ESTIMATE OF ALL COSTS OR CREDITS THAT WILL RESULT DIRECTLY OR INDIRECTLY FROM ACCEPTANCE OF SUCH SUBSTITUTE INCLUDING COSTS OF REDESIGN AND CLAIMS OF OTHER CONTRACTORS AFFECTED BY THE RESULTING CHANGE, ALL OF WHICH WILL BE CONSIDERED BY ENGINEER IN EVALUATION OF THE PROPOSED SUBSTITUTE. ENGINEER MAY REQUIRE CONTRACTOR TO FURNISH ADDITIONAL DATA ABOUT THE PROPOSED SUBSTITUTE.

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STATE OF CONNECTICUT
DEREK J. CREASER
No. 23955
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: DR

APPROVED BY: DJC

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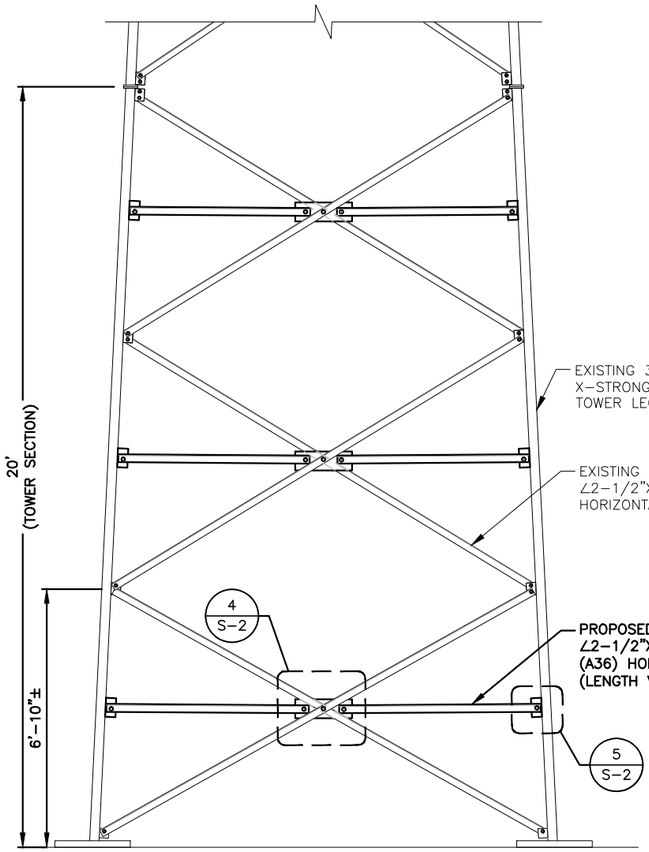
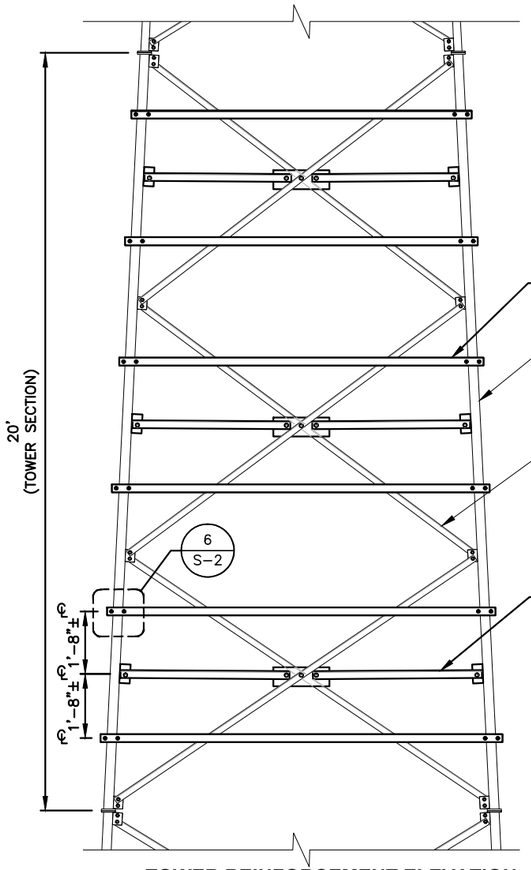
FAIRFIELD COUNTY

SHEET TITLE
TOWER MODIFICATION DETAILS

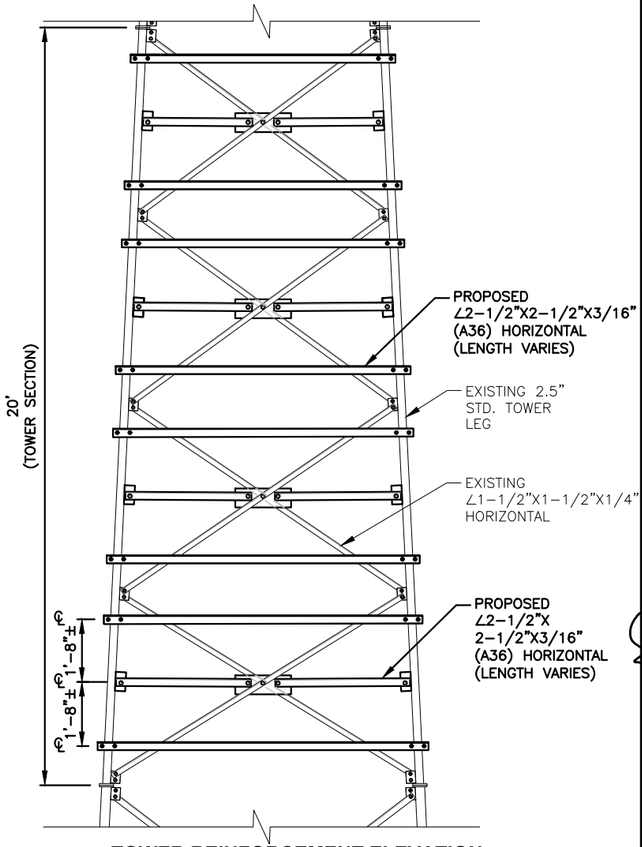
SHEET NUMBER
S-1



TOWER REINFORCEMENT ELEVATION
(ELEV. 0'-0"-20'-0") 1 S-2
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"
0 1'-0" 2'-0" 4'-0" 6'-0"



TOWER REINFORCEMENT ELEVATION
(ELEV. 20'-0"-40'-0") 2 S-2
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"
0 1'-0" 2'-0" 4'-0" 6'-0"



TOWER REINFORCEMENT ELEVATION
(ELEV. 40'-0"-60'-0") 3 S-2
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"
0 1'-0" 2'-0" 4'-0" 6'-0"

STRUCTURAL NOTES:
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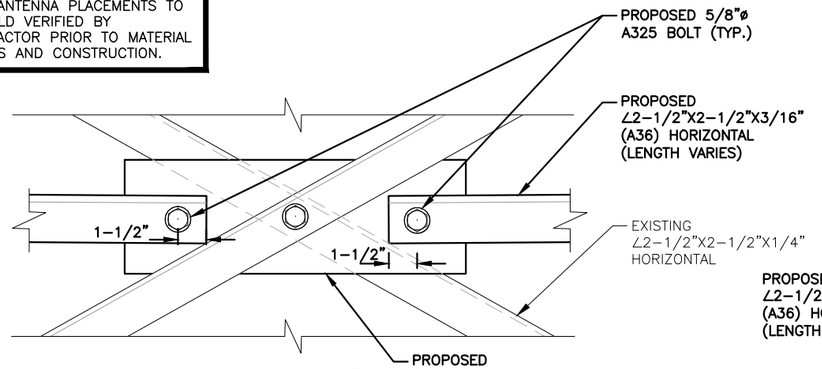
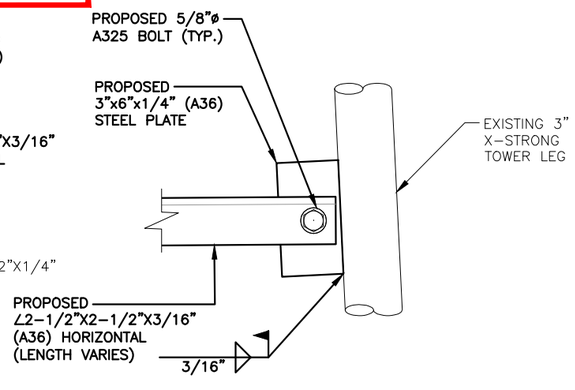
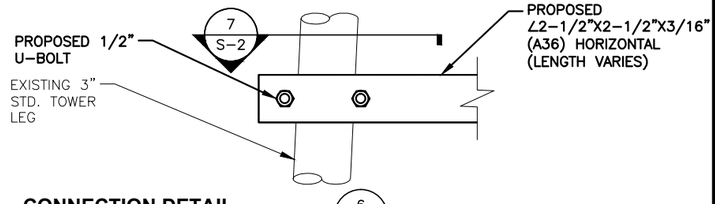


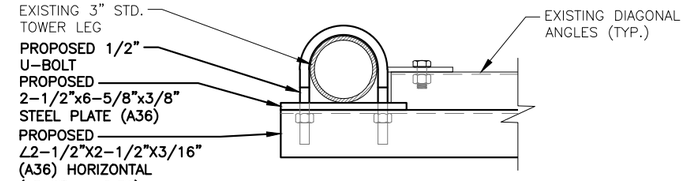
CONNECTION DETAIL 4 S-2
22x34 SCALE: 3"=1'-0"
11x17 SCALE: 1-1/2"=1'-0"
0 0'-2" 0'-4" 0'-8" 1'-0"



CONNECTION DETAIL 5 S-2
22x34 SCALE: 3"=1'-0"
11x17 SCALE: 1-1/2"=1'-0"
0 0'-2" 0'-4" 0'-8" 1'-0"



CONNECTION DETAIL 6 S-2
22x34 SCALE: 3"=1'-0"
11x17 SCALE: 1-1/2"=1'-0"
0 0'-2" 0'-4" 0'-8" 1'-0"



CONNECTION DETAIL 7 S-2
22x34 SCALE: 3"=1'-0"
11x17 SCALE: 1-1/2"=1'-0"
0 0'-2" 0'-4" 0'-8" 1'-0"

T-MOBILE NORTHEAST LLC
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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
DEREK J. CREASER
No. 29554
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: DR

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	04/17/17	ISSUED FOR CONSTRUCTION	VP
1	09/07/16	ISSUED FOR CONSTRUCTION	SLY
0	08/10/16	ISSUED FOR REVIEW	VP

SITE NUMBER:
CTFF600E

SITE NAME:
CTFF600E

SITE ADDRESS:
80 LONETOWN ROAD
REDDING, CT 06896
FAIRFIELD COUNTY

SHEET TITLE
TOWER MODIFICATION DETAILS

SHEET NUMBER
S-2

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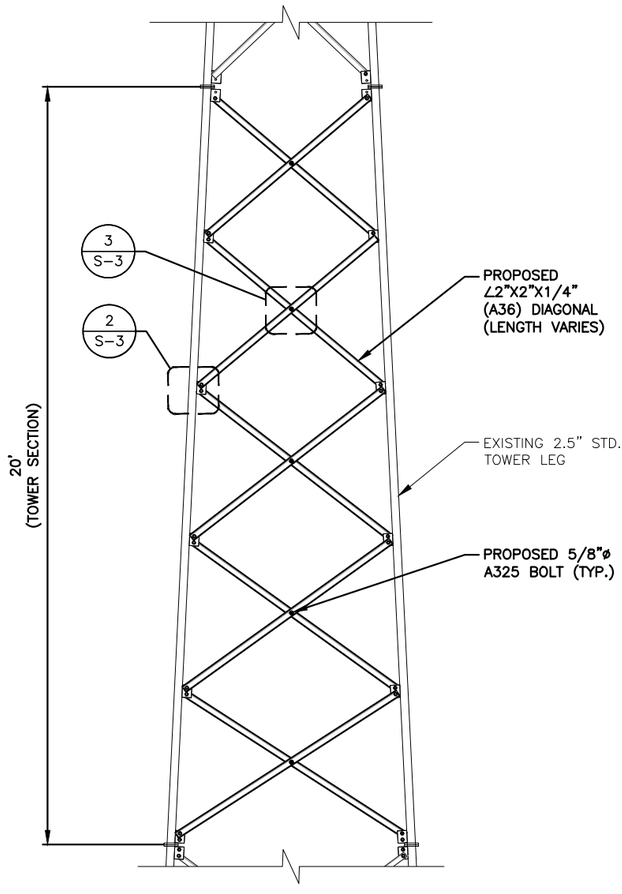
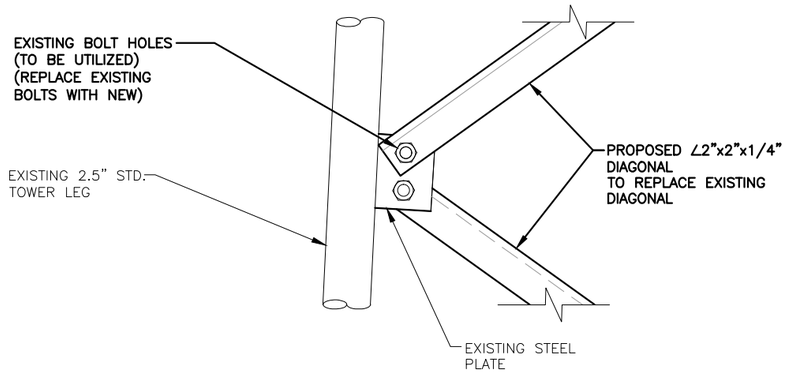
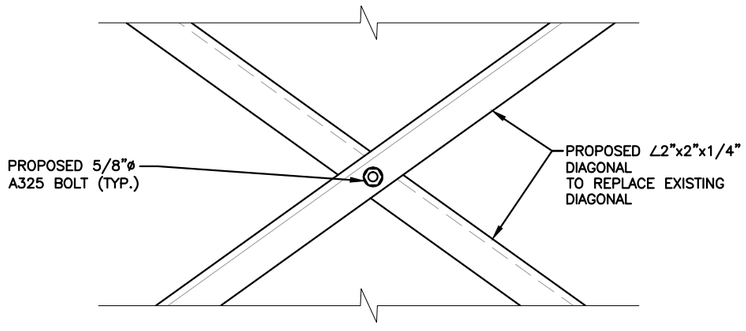


TOWER REINFORCEMENT ELEVATION (ELEV. 60'-0"-80'-0") 1 S-3
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"
0 1'-0" 2'-0" 4'-0" 6'-0"



CONNECTION DETAIL 2 S-3
22x34 SCALE: 3"=1'-0"
11x17 SCALE: 1-1/2"=1'-0"
0 0'-2" 0'-4" 0'-8" 1'-0"



CONNECTION DETAIL 3 S-3
22x34 SCALE: 3"=1'-0"
11x17 SCALE: 1-1/2"=1'-0"
0 0'-2" 0'-4" 0'-8" 1'-0"

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STATE OF CONNECTICUT
DEREK J. CREASER
No. 28954
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: DR

APPROVED BY: DJC

SUBMITTALS

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CTFF600E

SITE NAME:
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SITE ADDRESS:
80 LONETOWN ROAD
REDDING, CT 06896
FAIRFIELD COUNTY

SHEET TITLE
TOWER MODIFICATION DETAILS

SHEET NUMBER
S-3

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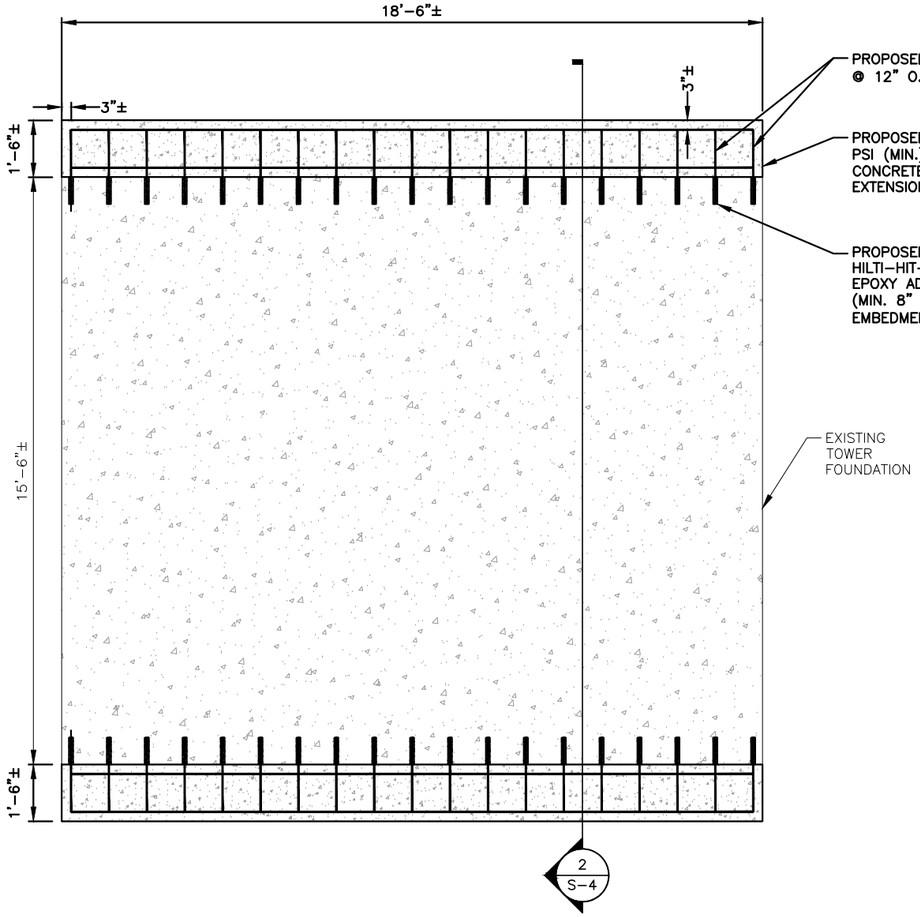
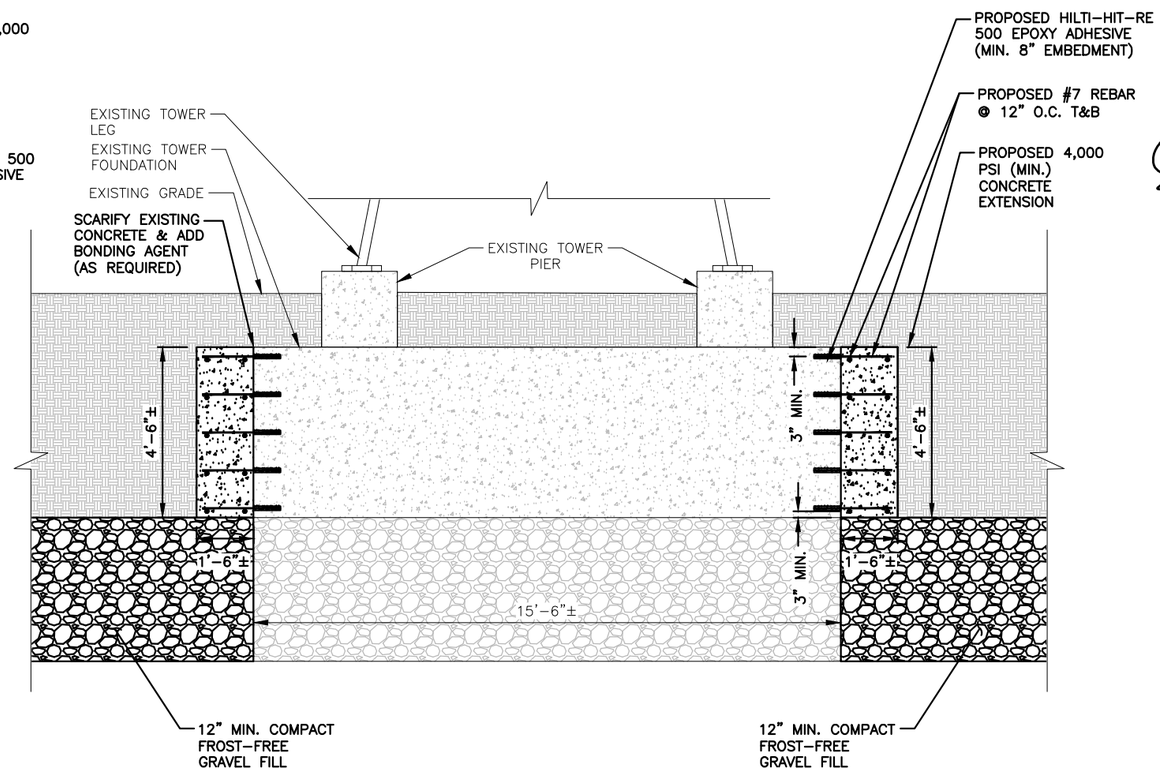


FOUNDATION PLAN 1/S-4
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

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



FOUNDATION MODIFICATION SECTION 2/S-4
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

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

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STATE OF CONNECTICUT
DEREK J. CREASER
No. 29054
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: DR

APPROVED BY: DJC

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80 LONETOWN ROAD
REDDING, CT 06896
FAIRFIELD COUNTY

SHEET TITLE
TOWER MODIFICATION DETAILS

SHEET NUMBER
S-4

ELECTRICAL NOTES

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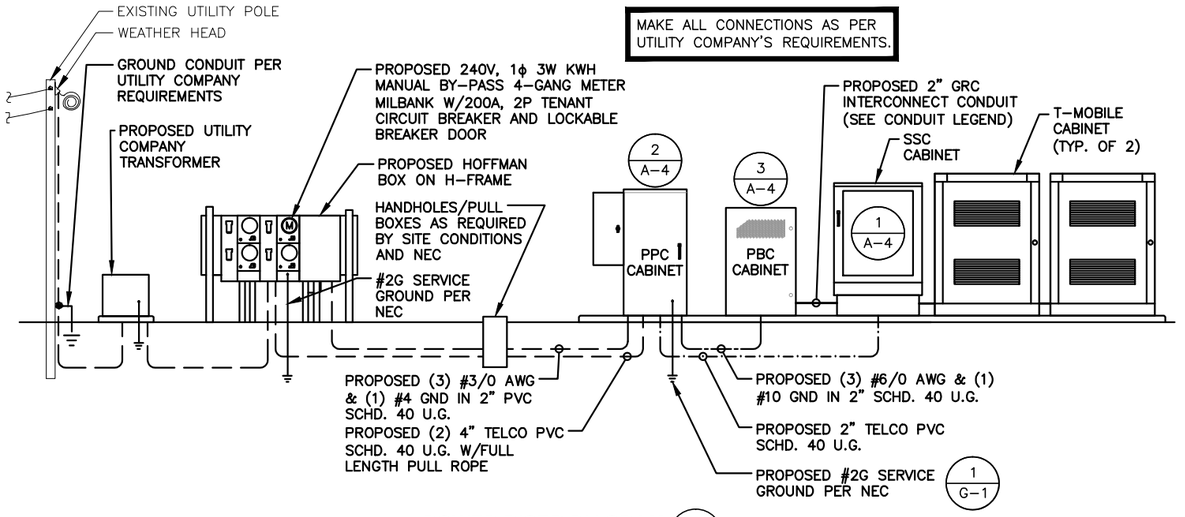
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
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 THHN 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.

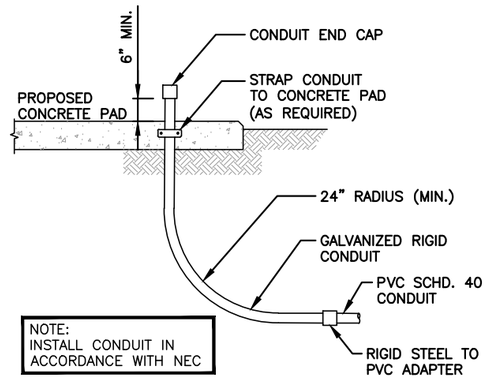
LEGEND

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



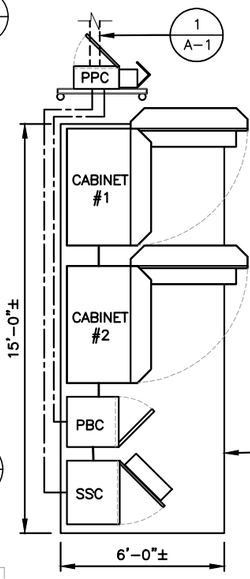
MAKE ALL CONNECTIONS AS PER UTILITY COMPANY'S REQUIREMENTS.

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



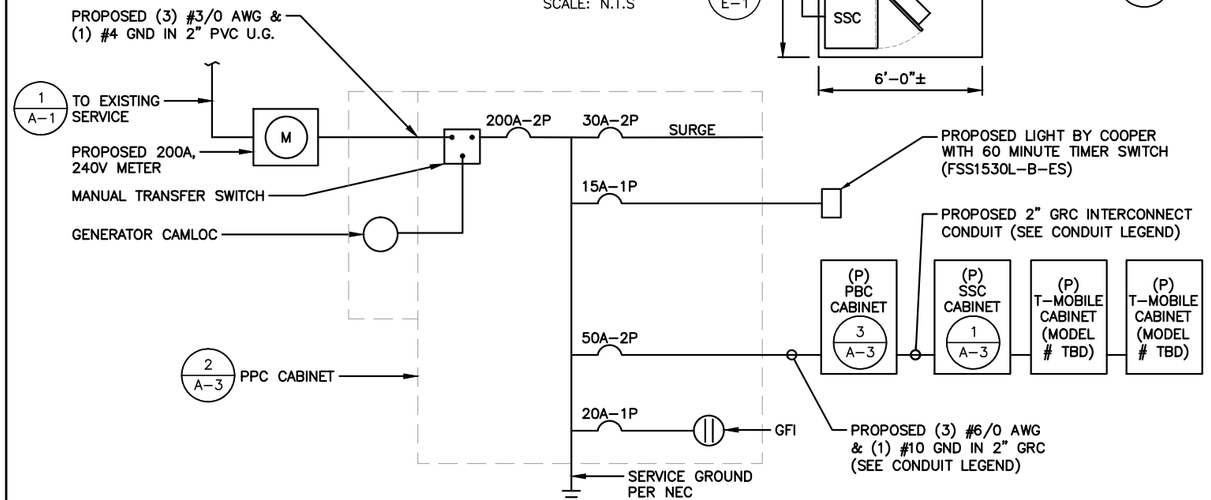
NOTE:
INSTALL CONDUIT IN ACCORDANCE WITH NEC

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

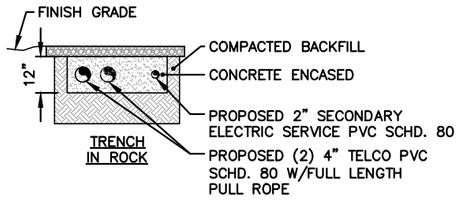


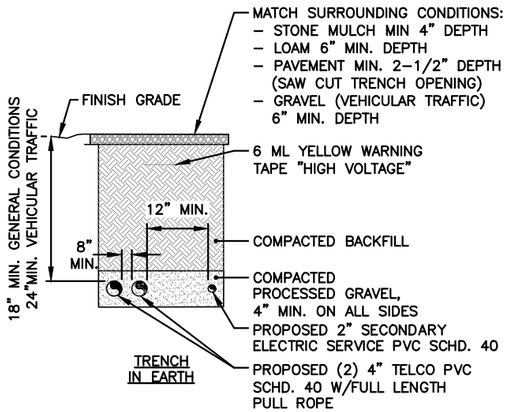
CONDUIT PLAN (3 / E–1)
SCALE: N.T.S

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





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

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N. ANDOVER, MA 01845
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STATE OF CONNECTICUT
DEREK J. CREASER
No. 29855
LICENSED PROFESSIONAL ENGINEER

CHECKED BY: DR

APPROVED BY: DJC

SUBMITTALS

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CTFF600E

SITE NAME:
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SITE ADDRESS:
80 LONETOWN ROAD
REDDING, CT 06896
FAIRFIELD COUNTY

SHEET TITLE
ELECTRICAL DETAILS & NOTES

SHEET NUMBER
E-1

ELECTRICAL NOTES

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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
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———	EXPOSED WIRING
———	#6G AWG INSULATED STRANDED
———	COAXIAL CABLE/HYBRID CABLE
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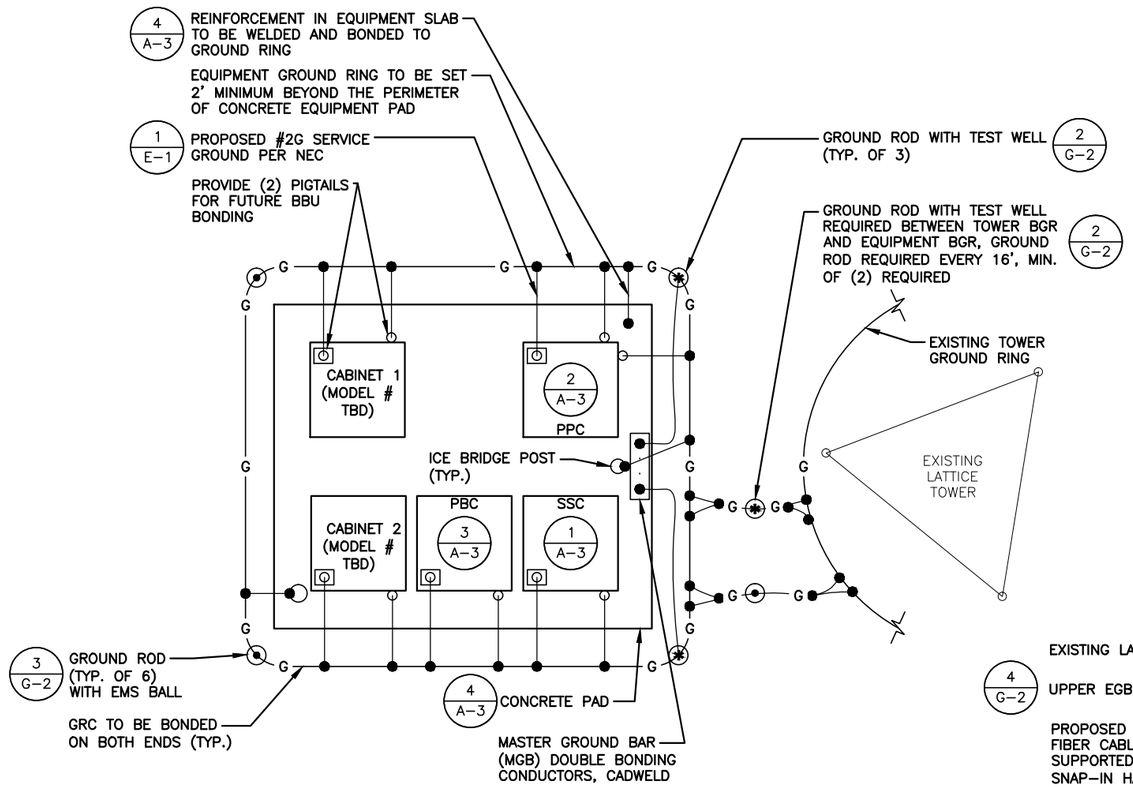
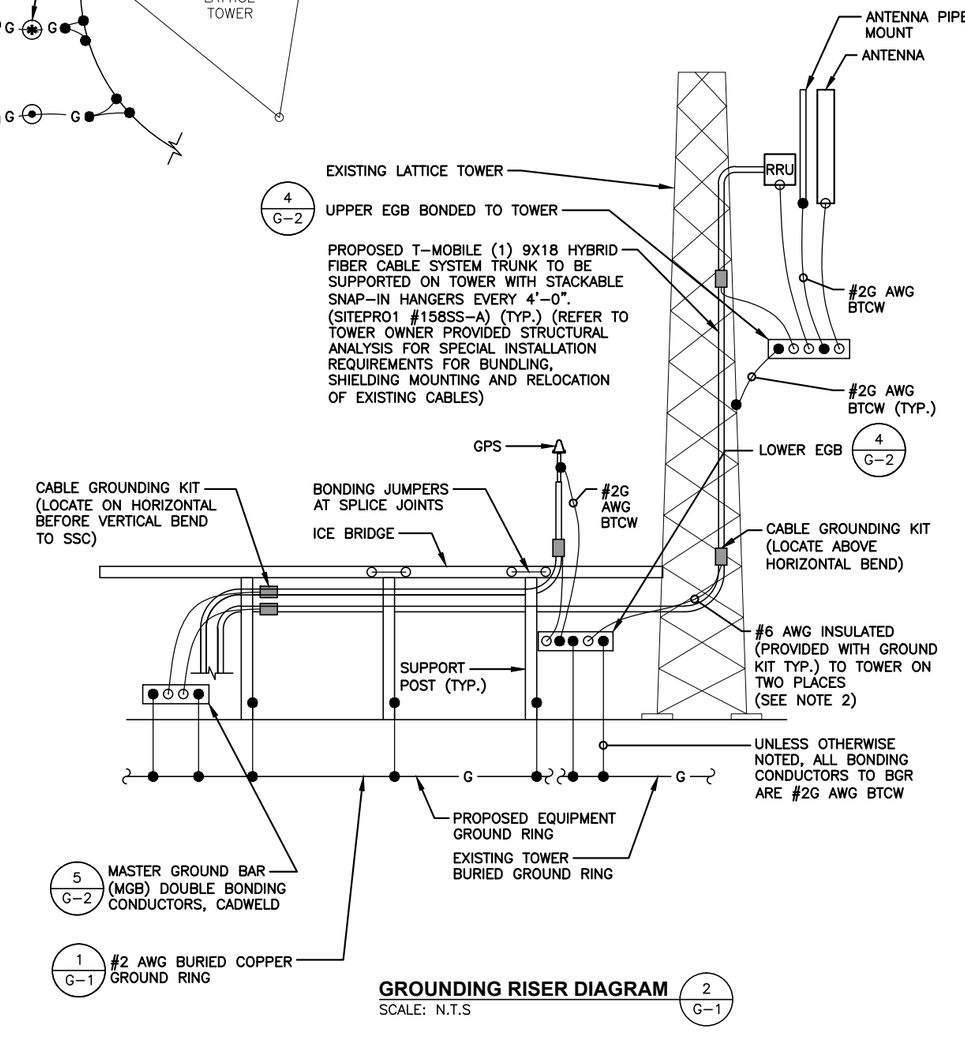


EQUIPMENT PLAN GROUNDING RING SCHEMATIC 1 G–1
SCALE: N.T.S

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

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STATE OF CONNECTICUT
DEREK J. CREASER
No. 29554
LICENSED PROFESSIONAL ENGINEER

CHECKED BY: DR

APPROVED BY: DJC

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CTFF600E

SITE NAME:
CTFF600E

SITE ADDRESS:
80 LONETOWN ROAD
REDDING, CT 06896
FAIRFIELD COUNTY

SHEET TITLE
GROUNDING SCHEMATIC & RISER DIAGRAM

SHEET NUMBER
G-1

ELECTRICAL NOTES

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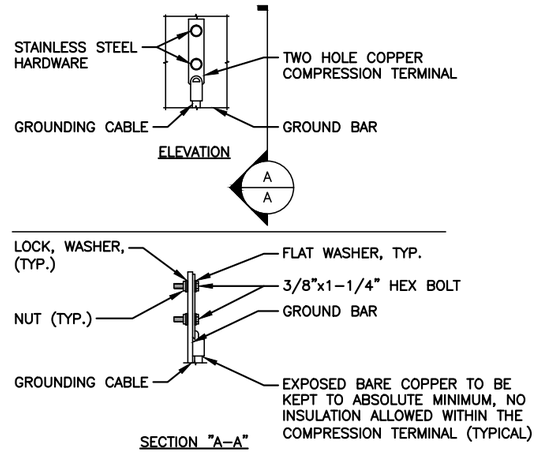
5. ELECTRICAL AND TELCO WIRING EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THHN 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.

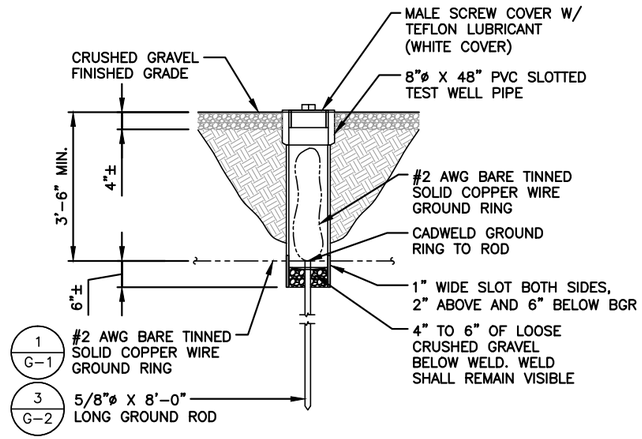
LEGEND

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
-o-●	● EXOTHERMIC (CAD WELD) OR
	○ MECHANICAL (COMPRESSION TYPE) CONNECTION
PPC	POWER PROTECTION CABINET
⊗	OMNI-DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL



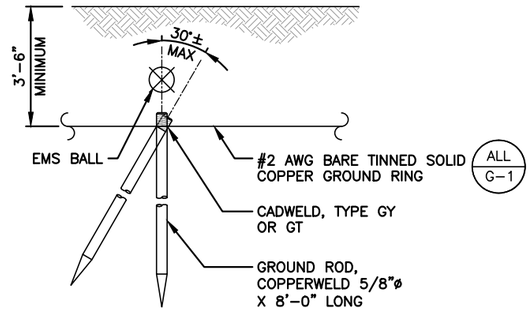
NOTE:
1. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

TYPICAL GROUND BAR CONNECTION DETAIL (1 / G-2)
SCALE: N.T.S



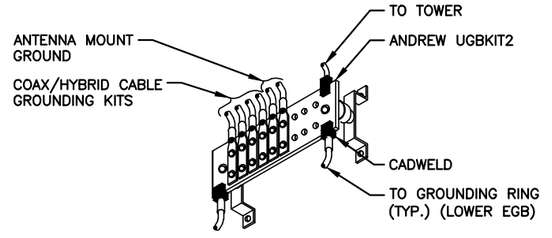
NOTE:
1. PROPOSED BGR TO BE INSTALLED 3'-6" MIN. BELOW GRADE OR BELOW LOCAL FROST DEPTH, WHICHEVER IS GREATER.
2. ONE TEST WELL SHALL BE PROVIDED BETWEEN THE TOWER GROUND LOOP AND TWO ON THE EQUIPMENT GROUND LOOP

GROUND ROD TEST WELL DETAIL (2 / G-2)
SCALE: N.T.S

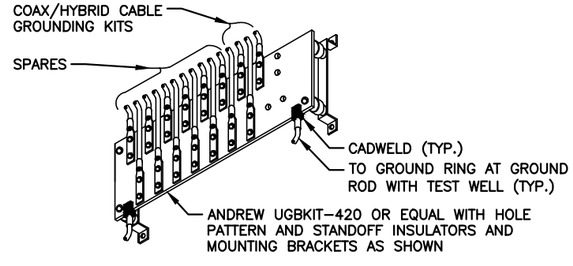


NOTE:
1. PROPOSED BGR TO BE INSTALLED 3'-6" MIN. BELOW GRADE OR BELOW LOCAL FROST DEPTH, WHICHEVER IS GREATER.
2. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 30 DEGREES FROM THE VERTICAL.

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

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TRANSCEND WIRELESS
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TEL: (201) 684-0055
FAX:(201) 684-0066

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

STATE OF CONNECTICUT
DEREK J. CREASER
No. 29554
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: DR

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	04/17/17	ISSUED FOR CONSTRUCTION	VP
1	09/07/16	ISSUED FOR CONSTRUCTION	SLY
0	08/10/16	ISSUED FOR REVIEW	VP

SITE NUMBER:
CTFF600E

SITE NAME:
CTFF600E

SITE ADDRESS:
80 LONETOWN ROAD
REDDING, CT 06896
FAIRFIELD COUNTY

SHEET TITLE
GROUNDING DETAILS & NOTES

SHEET NUMBER
G-2

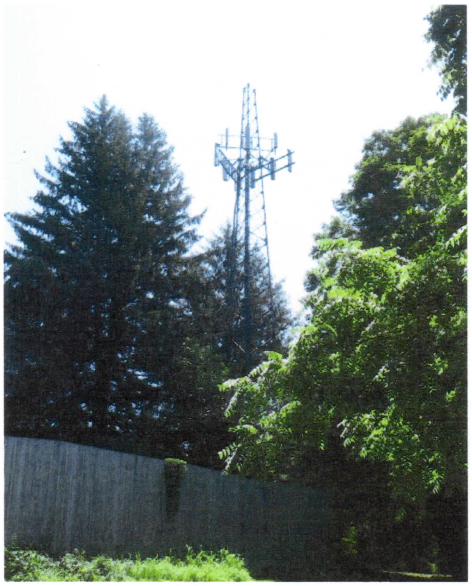
(Revised)
STRUCTURAL ANALYSIS REPORT

For

CTFF600E

80 LONETOWN ROAD
REDDING, CT 06896

Antennas Mounted to the Tower



Prepared for:

Transcend Wireless

T··Mobile·

Dated: November 15, 2016 (Rev 2)
Dated: October 11, 2016 (Rev 1)
Dated: October 5, 2016

Prepared by:

Hudson Design Group LLC

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North Andover, MA 01845
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www.hudsondesigngroupllc.com

STATE OF CONNECTICUT
No. 28220
LICENSED PROFESSIONAL ENGINEER

11/15/2016

SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by T-Mobile to conduct a structural evaluation of the 100' self-supporting tower supporting the proposed T-Mobile's antennas located at elevation 92' above the ground level.

This report represents this office's findings, conclusions and recommendations pertaining to the support of T-Mobile's proposed antennas listed below.

Record drawings of the existing tower were not available for our use. The previous structural analysis report prepared by Centek Engineering, dated September 23, 2013, was available and obtained for our use.

CONCLUSION SUMMARY:

HDG performed structural analysis of the existing tower with the following proposed modifications:

1. **Add horizontal members from El.0' to El.60'.**
2. **Replace existing diagonals from El.60' to El.80'.**
3. **Enlarge existing foundation.**

Based on our evaluation, we have determined that the existing tower and foundation with proposed modifications **are in conformance** with the ANSI/TIA-222-G Standard for the loading considered under the criteria listed in this report. The tower structure is rated at **99.8%** - (Legs at Tower Section T3 from EL.40' to EL.60' Controlling).

APPURTENANCES CONFIGURATION:

Tenant	Appurtenances	Elev.	Mount
T-Mobile	***(3) APXV18-206516-S-A20 Antennas***	***92'***	***T - Frame***
T-Mobile	***(3) LNX-6512DS-A1M Antennas***	***92'***	***T - Frame***
T-Mobile	***(6) RRUS-11***	***92'***	***T - Frame***
VERIZON	(4) BXA-80063-6CF Antennas	82'	T - Frame
VERIZON	(2) BXA-80080-4CF Antennas	82'	T - Frame
VERIZON	(6) FD9R6004 Diplexers	82'	T - Frame
VERIZON	(1) SBNHH-1D65B Antenna	82'	T - Frame
VERIZON	(2) SBNHH-1D45B Antennas	82'	T - Frame
VERIZON	(3) RRH2X60-700	82'	T - Frame
VERIZON	(3) RRH2X60-PCS	82'	T - Frame
VERIZON	DB-T1-6Z-8AB-0Z	82'	T - Frame
VERIZON (FUTURE)	(1) SBNHH-1D65B Antenna	82'	T - Frame
VERIZON (FUTURE)	(2) SBNHH-1D45B Antennas	82'	T - Frame
VERIZON (FUTURE)	(3) RRH4X45-AWS	82'	T - Frame
VERIZON (FUTURE)	DB-T1-6Z-8AB-0Z	82'	T - Frame

****Proposed T-Mobile Appurtenances shown in Bold.***

T-MOBILE EXISTING/PROPOSED COAX CABLES:

Tenant	Coax Cables	Elev.	Mount
T-Mobile	***(1) Fiber Cable***	***92'***	Tower Face

****Proposed T-Mobile Coax Cables shown in Bold.***

ANALYSIS RESULTS SUMMARY:

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
Legs	**99.8 %**	40 – 60	PASS	**Controlling**
Diagonals	96.0 %	40 – 60	PASS	
Secondary Horizontals	16.9 %	0 – 20	PASS	
Top Girts	34.8 %	0 – 20	PASS	

DESIGN CRITERIA:

1. EIA/TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

   City/Town: Redding
   County: Fairfield
   Wind Load: 110 mph (3 second gust)
   Structural Class: II
   Exposure Category: B
   Topographic Category: 1
   Nominal Ice Thickness: 0.75 inch

2. Approximate height above grade to proposed antennas: 92'

***Calculations and referenced documents are attached.**

ASSUMPTIONS:

1. The tower dimensions, member sizes and material strength are as indicated in the previous structural analysis report prepared by Centek Engineering, dated September 23, 2013.

2. The existing appurtenances configuration is as stated in this report. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.

3. The tower and foundation are properly constructed and maintained. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.

4. The support mounts and platforms are not analyzed and are considered adequate to support the loading. The analysis is limited to the primary support structure itself.

5. All prior structural modification, if any, are assumed to be as per the data supplied (if available), and installed properly.

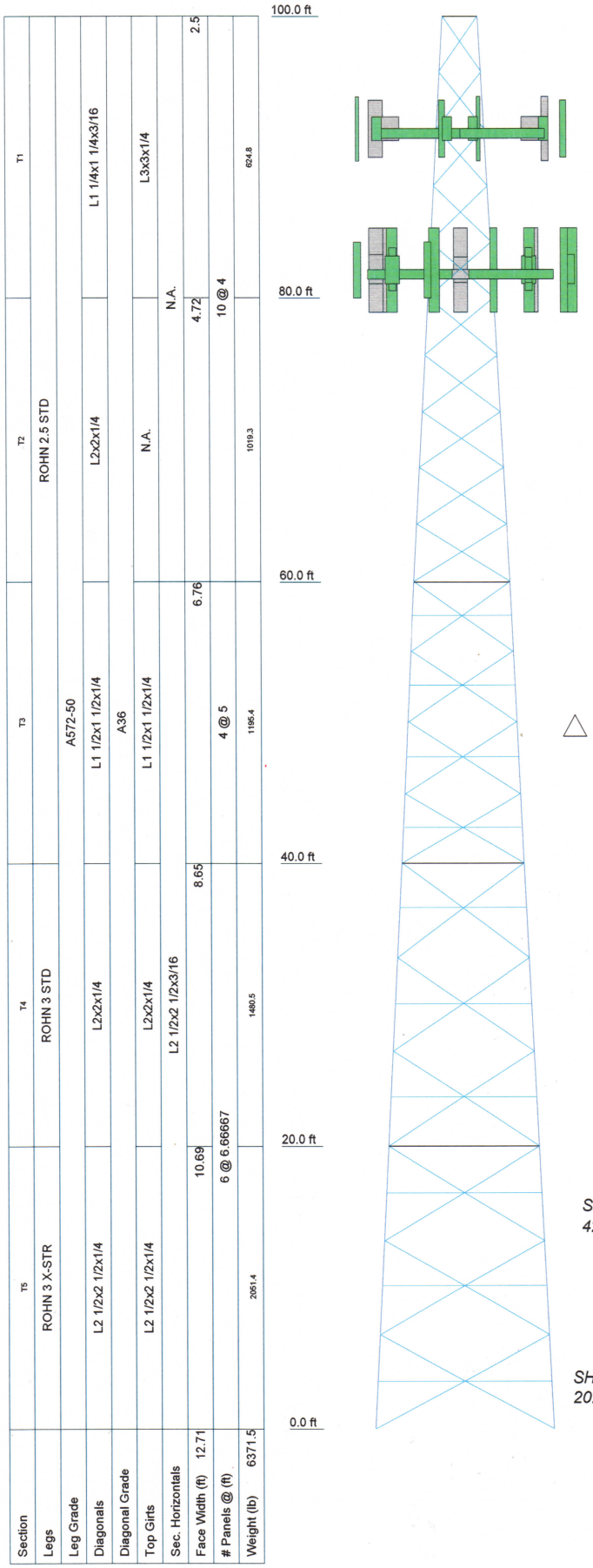
SUPPORT RECOMMENDATIONS:

HDG recommends that the proposed antennas and RRHs be mounted on the proposed T-frame supported by the tower.

Photo 1: Photo illustrating the Tower with Appurtenances shown.

Hudson Design Group LLC

CALCULATIONS



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
PiROD 12' T-Frame (T-Mobile - Proposed)	92	RFS DB-T1-6Z-8AB-0Z	82
PiROD 12' T-Frame	92	SBNHH-1D65B w/ Mount Pipe (Verizon - future)	82
PiROD 12' T-Frame	92	SBNHH-1D45B w/ Mount Pipe	82
APXV18-206516S-C-A20 w/mount pipe	92	SBNHH-1D45B w/ Mount Pipe	82
APXV18-206516S-C-A20 w/mount pipe	92	RRH4X45-19	82
APXV18-206516S-C-A20 w/mount pipe	92	RRH4X45-19	82
LNX-6512DS-VTM w/ Mount Pipe	92	RFS DB-T1-6Z-8AB-0Z	82
LNX-6512DS-VTM w/ Mount Pipe	92	PiROD 12' Lightweight T-Frame (Verizon - existing)	82
LNX-6512DS-VTM w/ Mount Pipe	92	PiROD 12' Lightweight T-Frame	82
(2) RRUS 11	92	PiROD 12' Lightweight T-Frame	82
(2) RRUS 11	92	(2) BXA-80063/6CF w/mount pipe	82
(2) RRUS 11	92	(2) BXA-80063/6CF w/mount pipe	82
RRH2x60-700	82	(2) BXA-80080/4CF w/mount pipe	82
RRH2x60-700	82	(2) FD9R6004 Diplexer	82
RRH2x60-700	82	(2) FD9R6004 Diplexer	82
RRH2x60 PCS	82	(2) FD9R6004 Diplexer	82
RRH2x60 PCS	82	SBNHH-1D65B w/ Mount Pipe (Verizon - proposed)	82
RRH2x60 PCS	82	SBNHH-1D45B w/ Mount Pipe	82
		SBNHH-1D45B w/ Mount Pipe	82

MATERIAL STRENGTH

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

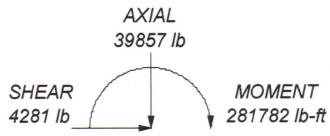
TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 110 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 99.8%

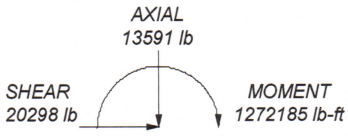
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 120024 lb
SHEAR: 13371 lb

UPLIFT: -107610 lb
SHEAR: 11897 lb



TORQUE 464 lb-ft
50 mph WIND - 0.7500 in ICE



TORQUE 3941 lb-ft
REACTIONS - 110 mph WIND

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FAX: (978) 336-5586

Job: CTFF600E Modifications REDDING, CT		
Project: 100 ft Self Supporting Tower		
Client: T-Mobile	Drawn by: kw	App'd:
Code: TIA-222-G	Date: 11/15/16	Scale: NTS
Path:		Dwg No. E-1

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Job	Page
CTFF600E Modifications REDDING, CT	1 of 10
Project	**Date**
100 ft Self Supporting Tower	14:52:46 11/15/16
Client	**Designed by**
T-Mobile	kw

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 100.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 2.50 ft at the top and 12.71 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 110 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Tower Section Geometry

Tower Section	*Tower Elevation*	*Assembly Database*	*Description*	*Section Width*	*Number of Sections*	*Section Length*
	ft			*ft*		*ft*
T1	100.00-80.00			2.50	1	20.00
T2	80.00-60.00			4.72	1	20.00
T3	60.00-40.00			6.76	1	20.00
T4	40.00-20.00			8.65	1	20.00
T5	20.00-0.00			10.69	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	*Tower Elevation*	*Diagonal Spacing*	*Bracing Type*	*Has K Brace End Panels*	*Has Horizontals*	*Top Girt Offset*	*Bottom Girt Offset*
	ft	*ft*				*in*	*in*
T1	100.00-80.00	4.00	X Brace	No	No	0.0000	0.0000
T2	80.00-60.00	4.00	X Brace	No	No	0.0000	0.0000
T3	60.00-40.00	5.00	X Brace	No	Yes	0.0000	0.0000
T4	40.00-20.00	6.67	X Brace	No	Yes	0.0000	0.0000
T5	20.00-0.00	6.67	X Brace	No	Yes	0.0000	0.0000

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Tower Section Geometry *(cont'd)*

Tower Elevation ft	*Leg Type*	*Leg Size*	*Leg Grade*	*Diagonal Type*	*Diagonal Size*	*Diagonal Grade*
T1 100.00-80.00	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Equal Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)
T2 80.00-60.00	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T3 60.00-40.00	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Equal Angle	L1 1/2x1 1/2x1/4	A36 (36 ksi)
T4 40.00-20.00	Pipe	ROHN 3 STD	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T5 20.00-0.00	Pipe	ROHN 3 X-STR	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	*Top Girt Type*	*Top Girt Size*	*Top Girt Grade*	*Bottom Girt Type*	*Bottom Girt Size*	*Bottom Girt Grade*
T3 60.00-40.00	Equal Angle	L1 1/2x1 1/2x1/4	A36 (36 ksi)	Equal Angle		A36 (36 ksi)
T4 40.00-20.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Equal Angle		A36 (36 ksi)
T5 20.00-0.00	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)	Equal Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	*Secondary Horizontal Type*	*Secondary Horizontal Size*	*Secondary Horizontal Grade*	*Inner Bracing Type*	*Inner Bracing Size*	*Inner Bracing Grade*
T3 60.00-40.00	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T4 40.00-20.00	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T5 20.00-0.00	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	*Face or Leg*	*Allow Shield*	*Component Type*	*Placement ft*	*Total Number*	*Number Per Row*	*Clear Spacing in*	*Width or Diameter in*	*Perimeter in*	*Weight plf*
1 5/8 (Verizon - existing)	B	No	Ar (CaAa)	82.00 - 3.00	6	6	0.0000	1.9800		1.04
1 5/8 ********	C	No	Ar (CaAa)	82.00 - 3.00	6	6	0.0000	1.9800		1.04
1 5/8 Fiber Cable	C	No	Ar (CaAa)	82.00 - 3.00	2	2	0.0000	1.9800		1.04

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Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
(Verizon - proposed)										
**********										
1 5/8 Fiber Cable (T-Mobile - proposed)	A	No	Ar (CaAa)	92.00 - 3.00	1	1	0.0000	1.9800		1.04

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
PiROD 12' Lightweight	A	From Leg	1.50	0.0000	82.00	No Ice	10.20	10.20	253.00
T-Frame			0.00			1/2" Ice	16.20	16.20	355.00
(Verizon - existing)			0.00			1" Ice	22.20	22.20	457.00
PiROD 12' Lightweight	B	From Leg	1.50	0.0000	82.00	No Ice	10.20	10.20	253.00
T-Frame			0.00			1/2" Ice	16.20	16.20	355.00
			0.00			1" Ice	22.20	22.20	457.00
PiROD 12' Lightweight	C	From Leg	1.50	0.0000	82.00	No Ice	10.20	10.20	253.00
T-Frame			0.00			1/2" Ice	16.20	16.20	355.00
			0.00			1" Ice	22.20	22.20	457.00
(2) BXA-80063/6CF	A	From Leg	3.00	0.0000	82.00	No Ice	8.23	5.95	44.10
w/mount pipe			0.00			1/2" Ice	8.99	7.22	107.20
			0.00			1" Ice	9.71	8.33	178.24
(2) BXA-80063/6CF	B	From Leg	3.00	0.0000	82.00	No Ice	8.23	5.95	44.10
w/mount pipe			0.00			1/2" Ice	8.99	7.22	107.20
			0.00			1" Ice	9.71	8.33	178.24
(2) BXA-80080/4CF	C	From Leg	3.00	0.0000	82.00	No Ice	5.48	4.03	32.55
w/mount pipe			0.00			1/2" Ice	5.93	4.65	76.83
			0.00			1" Ice	6.39	5.29	127.02
(2) FD9R6004 Diplexer	A	From Leg	3.00	0.0000	82.00	No Ice	0.37	0.08	2.60
			0.00			1/2" Ice	0.45	0.14	4.90
			0.00			1" Ice	0.54	0.20	8.29
(2) FD9R6004 Diplexer	B	From Leg	3.00	0.0000	82.00	No Ice	0.37	0.08	2.60
			0.00			1/2" Ice	0.45	0.14	4.90
			0.00			1" Ice	0.54	0.20	8.29
(2) FD9R6004 Diplexer	C	From Leg	3.00	0.0000	82.00	No Ice	0.37	0.08	2.60
			0.00			1/2" Ice	0.45	0.14	4.90
			0.00			1" Ice	0.54	0.20	8.29
**********									
SBNHH-1D65B w/ Mount	A	From Leg	3.00	0.0000	82.00	No Ice	8.65	7.09	66.55
Pipe			0.00			1/2" Ice	9.30	8.27	135.68
(Verizon - proposed)			0.00			1" Ice	9.92	9.17	212.84
SBNHH-1D45B w/ Mount	B	From Leg	3.00	0.0000	82.00	No Ice	12.84	6.95	89.95
Pipe			0.00			1/2" Ice	13.53	8.13	174.04
			0.00			1" Ice	14.19	9.02	266.48
SBNHH-1D45B w/ Mount	C	From Leg	3.00	0.0000	82.00	No Ice	12.84	6.95	89.95
Pipe			0.00			1/2" Ice	13.53	8.13	174.04
			0.00			1" Ice	14.19	9.02	266.48
RRH2x60-700	A	From Leg	3.00	0.0000	82.00	No Ice	3.96	1.82	60.00
			0.00			1/2" Ice	4.27	2.08	82.72
			0.00			1" Ice	4.60	2.36	109.06
RRH2x60-700	B	From Leg	3.00	0.0000	82.00	No Ice	3.96	1.82	60.00
			0.00			1/2" Ice	4.27	2.08	82.72
			0.00			1" Ice	4.60	2.36	109.06

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Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* ft ft ft	*Azimuth Adjustment* °	*Placement* ft		C_AA_A *Front* ft^2	C_AA_A *Side* ft^2	*Weight* lb
RRH2x60-700	C	From Leg	3.00	0.0000	82.00	No Ice	3.96	1.82	60.00
			0.00			1/2" Ice	4.27	2.08	82.72
			0.00			1" Ice	4.60	2.36	109.06
RRH2x60 PCS	A	From Leg	3.00	0.0000	82.00	No Ice	2.51	1.55	55.00
			0.00			1/2" Ice	2.73	1.74	72.75
			0.00			1" Ice	2.96	1.94	93.35
RRH2x60 PCS	B	From Leg	3.00	0.0000	82.00	No Ice	2.51	1.55	55.00
			0.00			1/2" Ice	2.73	1.74	72.75
			0.00			1" Ice	2.96	1.94	93.35
RRH2x60 PCS	C	From Leg	3.00	0.0000	82.00	No Ice	2.51	1.55	55.00
			0.00			1/2" Ice	2.73	1.74	72.75
			0.00			1" Ice	2.96	1.94	93.35
RFS DB-T1-6Z-8AB-0Z	C	From Leg	3.00	0.0000	82.00	No Ice	5.60	2.33	44.00
			0.00			1/2" Ice	5.92	2.56	80.13
			0.00			1" Ice	6.24	2.79	120.22
**********									
SBNHH-1D65B w/ Mount Pipe	A	From Leg	3.00	0.0000	82.00	No Ice	8.65	7.09	66.55
			-6.00			1/2" Ice	9.30	8.27	135.68
(Verizon - future)			0.00			1" Ice	9.92	9.17	212.84
SBNHH-1D45B w/ Mount Pipe	B	From Leg	3.00	0.0000	82.00	No Ice	12.84	6.95	89.95
			-6.00			1/2" Ice	13.53	8.13	174.04
			0.00			1" Ice	14.19	9.02	266.48
SBNHH-1D45B w/ Mount Pipe	C	From Leg	3.00	0.0000	82.00	No Ice	12.84	6.95	89.95
			-6.00			1/2" Ice	13.53	8.13	174.04
			0.00			1" Ice	14.19	9.02	266.48
RRH4X45-19	A	From Leg	3.00	0.0000	82.00	No Ice	2.70	2.77	59.50
			-6.00			1/2" Ice	2.94	3.01	83.40
			0.00			1" Ice	3.18	3.26	110.58
RRH4X45-19	B	From Leg	3.00	0.0000	82.00	No Ice	2.70	2.77	59.50
			-6.00			1/2" Ice	2.94	3.01	83.40
			0.00			1" Ice	3.18	3.26	110.58
RFS DB-T1-6Z-8AB-0Z	B	From Leg	3.00	0.0000	82.00	No Ice	5.60	2.33	44.00
			0.00			1/2" Ice	5.92	2.56	80.13
			0.00			1" Ice	6.24	2.79	120.22
**********									
PiROD 12' T-Frame	A	From Leg	1.50	0.0000	92.00	No Ice	12.20	12.20	360.00
(T-Mobile - Proposed)			0.00			1/2" Ice	17.60	17.60	490.00
			0.00			1" Ice	23.00	23.00	620.00
PiROD 12' T-Frame	B	From Leg	1.50	0.0000	92.00	No Ice	12.20	12.20	360.00
			0.00			1/2" Ice	17.60	17.60	490.00
			0.00			1" Ice	23.00	23.00	620.00
PiROD 12' T-Frame	C	From Leg	1.50	0.0000	92.00	No Ice	12.20	12.20	360.00
			0.00			1/2" Ice	17.60	17.60	490.00
			0.00			1" Ice	23.00	23.00	620.00
APXV18-206516S-C-A20 w/mount pipe	A	From Leg	3.00	0.0000	92.00	No Ice	4.00	3.45	41.50
			6.00			1/2" Ice	4.47	4.28	77.56
			0.00			1" Ice	4.96	4.98	119.60
APXV18-206516S-C-A20 w/mount pipe	B	From Leg	3.00	0.0000	92.00	No Ice	4.00	3.45	41.50
			6.00			1/2" Ice	4.47	4.28	77.56
			0.00			1" Ice	4.96	4.98	119.60
APXV18-206516S-C-A20 w/mount pipe	C	From Leg	3.00	0.0000	92.00	No Ice	4.00	3.45	41.50
			6.00			1/2" Ice	4.47	4.28	77.56
			0.00			1" Ice	4.96	4.98	119.60
LNX-6512DS-VTM w/ Mount Pipe	A	From Leg	3.00	0.0000	92.00	No Ice	5.84	4.54	47.25
			-6.00			1/2" Ice	6.29	5.21	95.35
			0.00			1" Ice	6.76	5.89	149.50
LNX-6512DS-VTM w/	B	From Leg	3.00	0.0000	92.00	No Ice	5.84	4.54	47.25

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Mount Pipe			-6.00			1/2" Ice	6.29	5.21	95.35
			0.00			1" Ice	6.76	5.89	149.50
LNX-6512DS-VTM w/ Mount Pipe	C	From Leg	3.00	0.0000	92.00	No Ice	5.84	4.54	47.25
			-6.00			1/2" Ice	6.29	5.21	95.35
			0.00			1" Ice	6.76	5.89	149.50
(2) RRUS 11	A	From Leg	2.00	0.0000	92.00	No Ice	3.25	1.37	50.70
			0.00			1/2" Ice	3.49	1.55	71.50
			0.00			1" Ice	3.74	1.74	95.33
(2) RRUS 11	B	From Leg	2.00	0.0000	92.00	No Ice	3.25	1.37	50.70
			0.00			1/2" Ice	3.49	1.55	71.50
			0.00			1" Ice	3.74	1.74	95.33
(2) RRUS 11	C	From Leg	2.00	0.0000	92.00	No Ice	3.25	1.37	50.70
			0.00			1/2" Ice	3.49	1.55	71.50
			0.00			1" Ice	3.74	1.74	95.33

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp

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Comb. No.	*Description*
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Reactions

Location	*Condition*	*Gov. Load Comb.*	*Vertical lb*	*Horizontal, X lb*	*Horizontal, Z lb*
Leg C	Max. Vert	18	119787.02	11660.28	-6534.06
	Max. H_x	18	119787.02	11660.28	-6534.06
	Max. H_z	7	-107588.44	-10382.93	5808.05
	Min. Vert	7	-107588.44	-10382.93	5808.05
	Min. H_x	7	-107588.44	-10382.93	5808.05
	Min. H_z	18	119787.02	11660.28	-6534.06
Leg B	Max. Vert	10	120024.17	-11594.26	-6659.94
	Max. H_x	23	-107410.81	10312.19	5921.93
	Max. H_z	23	-107410.81	10312.19	5921.93
	Min. Vert	23	-107410.81	10312.19	5921.93
	Min. H_x	10	120024.17	-11594.26	-6659.94
	Min. H_z	10	120024.17	-11594.26	-6659.94
Leg A	Max. Vert	2	119758.76	140.88	13364.50
	Max. H_x	21	3323.26	501.66	337.47
	Max. H_z	2	119758.76	140.88	13364.50
	Min. Vert	15	-107609.64	-132.98	-11896.37
	Min. H_x	11	-54270.44	-508.42	-6119.56
	Min. H_z	15	-107609.64	-132.98	-11896.37

Tower Mast Reaction Summary

Load Combination	*Vertical lb*	*Shear$_x$ lb*	*Shear$_z$ lb*	*Overturning Moment, M_x lb-ft*	*Overturning Moment, M_z lb-ft*	*Torque lb-ft*
Dead Only	11325.71	0.00	-0.00	894.29	-1248.78	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	13590.85	0.00	-20297.71	-1268340.95	-1528.61	3067.51
0.9 Dead+1.6 Wind 0 deg - No Ice	10193.13	0.01	-20297.70	-1267102.11	-1148.70	3060.71
1.2 Dead+1.6 Wind 30 deg - No Ice	13590.85	10116.38	-17522.11	-1099190.82	-636783.92	3940.89
0.9 Dead+1.6 Wind 30 deg - No	10193.13	10116.38	-17522.11	-1098153.00	-635649.20	3937.16

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Load Combination	*Vertical*	*Shear$_x$*	*Shear$_z$*	*Overturning Moment, M$_x$*	*Overturning Moment, M$_z$*	*Torque*
	lb	*lb*	*lb*	*lb-ft*	*lb-ft*	*lb-ft*
Ice						
1.2 Dead+1.6 Wind 60 deg - No Ice	13590.85	16572.29	-9568.01	-610171.53	-1060269.61	3576.42
0.9 Dead+1.6 Wind 60 deg - No Ice	10193.13	16572.29	-9568.01	-609707.59	-1058619.15	3572.75
1.2 Dead+1.6 Wind 90 deg - No Ice	13590.85	20232.78	0.01	1088.68	-1272005.84	2403.42
0.9 Dead+1.6 Wind 90 deg - No Ice	10193.13	20232.78	0.01	819.13	-1270116.46	2400.64
1.2 Dead+1.6 Wind 120 deg - No Ice	13590.85	17578.33	10148.85	635789.59	-1100854.07	649.77
0.9 Dead+1.6 Wind 120 deg - No Ice	10193.13	17578.33	10148.86	634763.85	-1099169.34	647.27
1.2 Dead+1.6 Wind 150 deg - No Ice	13590.85	10116.40	17522.10	1101358.75	-636761.17	-1321.52
0.9 Dead+1.6 Wind 150 deg - No Ice	10193.13	10116.40	17522.10	1099779.80	-635627.76	-1318.25
1.2 Dead+1.6 Wind 180 deg - No Ice	13590.85	0.00	19136.03	1223617.01	-1527.94	-2949.88
0.9 Dead+1.6 Wind 180 deg - No Ice	10193.13	0.00	19136.03	1221878.20	-1149.23	-2945.94
1.2 Dead+1.6 Wind 210 deg - No Ice	13590.85	-10116.40	17522.10	1101377.41	633714.68	-3940.89
0.9 Dead+1.6 Wind 210 deg - No Ice	10193.13	-10116.40	17522.10	1099798.27	633338.52	-3937.16
1.2 Dead+1.6 Wind 240 deg - No Ice	13590.85	-17578.33	10148.86	635808.52	1097828.90	-3742.75
0.9 Dead+1.6 Wind 240 deg - No Ice	10193.13	-17578.33	10148.86	634782.52	1096901.20	-3736.24
1.2 Dead+1.6 Wind 270 deg - No Ice	13590.85	-20232.78	0.01	1089.17	1268991.33	-2403.46
0.9 Dead+1.6 Wind 270 deg - No Ice	10193.13	-20232.78	0.01	819.49	1267858.98	-2400.67
1.2 Dead+1.6 Wind 300 deg - No Ice	13590.85	-16572.29	-9568.01	-610189.16	1057244.60	-604.44
0.9 Dead+1.6 Wind 300 deg - No Ice	10193.13	-16572.29	-9568.01	-609725.14	1056351.31	-604.69
1.2 Dead+1.6 Wind 330 deg - No Ice	13590.85	-10116.38	-17522.11	-1099209.17	633737.27	1321.55
0.9 Dead+1.6 Wind 330 deg - No Ice	10193.13	-10116.38	-17522.11	-1098171.27	633359.86	1318.27
1.2 Dead+1.0 Ice+1.0 Temp	39856.69	-0.00	-0.00	4332.54	-4903.04	-0.03
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	39856.69	0.00	-4281.07	-270985.52	-4929.13	392.24
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	39856.69	2117.07	-3666.87	-232682.26	-141780.85	464.19
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	39856.69	3604.49	-2081.05	-130957.17	-239293.28	409.10
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	39856.69	4234.13	-0.00	4350.95	-278631.37	245.86
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	39856.69	3707.52	2140.54	142018.48	-243375.95	22.00
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	39856.69	2117.07	3666.87	241384.43	-141779.96	-209.41
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	39856.69	0.00	4162.11	274970.76	-4930.37	-387.87
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	39856.69	-2117.07	3666.87	241385.08	131922.20	-464.20
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	39856.69	-3707.52	2140.54	142019.54	233519.50	-415.16
1.2 Dead+1.0 Wind 270	39856.69	-4234.13	-0.00	4350.99	268774.59	-245.92

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Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	39856.69	-3604.49	-2081.05	-130958.80	229435.39	-20.31
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	39856.69	-2117.07	-3666.87	-232682.79	131923.01	209.49
Dead+Wind 0 deg - Service	11325.71	0.00	-3774.37	-234971.41	-1256.13	570.25
Dead+Wind 30 deg - Service	11325.71	1881.15	-3258.24	-203545.69	-119291.56	731.15
Dead+Wind 60 deg - Service	11325.71	3081.62	-1779.18	-112679.64	-197979.37	664.70
Dead+Wind 90 deg - Service	11325.71	3762.29	0.00	898.85	-237324.97	447.90
Dead+Wind 120 deg - Service	11325.71	3268.70	1887.18	118833.13	-205525.28	121.23
Dead+Wind 150 deg - Service	11325.71	1881.15	3258.24	205339.38	-119290.93	-246.64
Dead+Wind 180 deg - Service	11325.71	-0.00	3558.35	228054.17	-1256.39	-548.14
Dead+Wind 210 deg - Service	11325.71	-1881.15	3258.24	205341.57	116779.61	-731.15
Dead+Wind 240 deg - Service	11325.71	-3268.70	1887.18	118832.97	203012.67	-695.91
Dead+Wind 270 deg - Service	11325.71	-3762.29	-0.00	898.91	234814.85	-447.90
Dead+Wind 300 deg - Service	11325.71	-3081.62	-1779.18	-112680.75	195468.57	-112.13
Dead+Wind 330 deg - Service	11325.71	-1881.15	-3258.24	-203545.63	116778.96	246.65

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-11325.71	-0.00	-0.00	11325.71	0.00	0.000%
2	-0.00	-13590.85	-20297.71	-0.00	13590.85	20297.71	0.000%
3	-0.00	-10193.13	-20297.71	-0.01	10193.13	20297.70	0.000%
4	10116.39	-13590.85	-17522.11	-10116.38	13590.85	17522.11	0.000%
5	10116.39	-10193.13	-17522.11	-10116.38	10193.13	17522.11	0.000%
6	16572.29	-13590.85	-9568.01	-16572.29	13590.85	9568.01	0.000%
7	16572.29	-10193.13	-9568.01	-16572.29	10193.13	9568.01	0.000%
8	20232.78	-13590.85	-0.00	-20232.78	13590.85	-0.01	0.000%
9	20232.78	-10193.13	-0.00	-20232.78	10193.13	-0.01	0.000%
10	17578.33	-13590.85	10148.85	-17578.33	13590.85	-10148.85	0.000%
11	17578.33	-10193.13	10148.85	-17578.33	10193.13	-10148.86	0.000%
12	10116.39	-13590.85	17522.11	-10116.40	13590.85	-17522.10	0.000%
13	10116.39	-10193.13	17522.11	-10116.40	10193.13	-17522.10	0.000%
14	0.00	-13590.85	19136.03	-0.00	13590.85	-19136.03	0.000%
15	0.00	-10193.13	19136.03	-0.00	10193.13	-19136.03	0.000%
16	-10116.39	-13590.85	17522.11	10116.40	13590.85	-17522.10	0.000%
17	-10116.39	-10193.13	17522.11	10116.40	10193.13	-17522.10	0.000%
18	-17578.33	-13590.85	10148.85	17578.33	13590.85	-10148.86	0.000%
19	-17578.33	-10193.13	10148.85	17578.33	10193.13	-10148.86	0.000%
20	-20232.78	-13590.85	-0.00	20232.78	13590.85	-0.01	0.000%
21	-20232.78	-10193.13	-0.00	20232.78	10193.13	-0.01	0.000%
22	-16572.29	-13590.85	-9568.01	16572.29	13590.85	9568.01	0.000%
23	-16572.29	-10193.13	-9568.01	16572.29	10193.13	9568.01	0.000%
24	-10116.39	-13590.85	-17522.11	10116.38	13590.85	17522.11	0.000%
25	-10116.39	-10193.13	-17522.11	10116.38	10193.13	17522.11	0.000%
26	0.00	-39856.69	-0.00	0.00	39856.69	0.00	0.000%
27	0.00	-39856.69	-4281.07	-0.00	39856.69	4281.07	0.000%
28	2117.07	-39856.69	-3666.87	-2117.07	39856.69	3666.87	0.000%
29	3604.49	-39856.69	-2081.05	-3604.49	39856.69	2081.05	0.000%
30	4234.13	-39856.69	-0.00	-4234.13	39856.69	0.00	0.000%
31	3707.52	-39856.69	2140.54	-3707.52	39856.69	-2140.54	0.000%
32	2117.07	-39856.69	3666.87	-2117.07	39856.69	-3666.87	0.000%
33	-0.00	-39856.69	4162.11	-0.00	39856.69	-4162.11	0.000%
34	-2117.07	-39856.69	3666.87	2117.07	39856.69	-3666.87	0.000%

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Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
35	-3707.52	-39856.69	2140.54	3707.52	39856.69	-2140.54	0.000%
36	-4234.13	-39856.69	-0.00	4234.13	39856.69	0.00	0.000%
37	-3604.49	-39856.69	-2081.05	3604.49	39856.69	2081.05	0.000%
38	-2117.07	-39856.69	-3666.87	2117.07	39856.69	3666.87	0.000%
39	0.00	-11325.71	-3774.37	-0.00	11325.71	3774.37	0.000%
40	1881.15	-11325.71	-3258.24	-1881.15	11325.71	3258.24	0.000%
41	3081.62	-11325.71	-1779.18	-3081.62	11325.71	1779.18	0.000%
42	3762.29	-11325.71	-0.00	-3762.29	11325.71	0.00	0.000%
43	3268.70	-11325.71	1887.18	-3268.70	11325.71	-1887.18	0.000%
44	1881.15	-11325.71	3258.24	-1881.15	11325.71	-3258.24	0.000%
45	-0.00	-11325.71	3558.35	0.00	11325.71	-3558.35	0.000%
46	-1881.15	-11325.71	3258.24	1881.15	11325.71	-3258.24	0.000%
47	-3268.70	-11325.71	1887.18	3268.70	11325.71	-1887.18	0.000%
48	-3762.29	-11325.71	-0.00	3762.29	11325.71	0.00	0.000%
49	-3081.62	-11325.71	-1779.18	3081.62	11325.71	1779.18	0.000%
50	-1881.15	-11325.71	-3258.24	1881.15	11325.71	3258.24	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	100 - 80	2.440	43	0.1966	0.0091
T2	80 - 60	1.614	43	0.1904	0.0082
T3	60 - 40	0.882	44	0.1486	0.0050
T4	40 - 20	0.366	44	0.0885	0.0023
T5	20 - 0	0.090	44	0.0380	0.0009

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
92.00	PiROD 12' T-Frame	43	2.105	0.1968	0.0090	150558
82.00	PiROD 12' Lightweight T-Frame	43	1.694	0.1924	0.0084	66219

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	100 - 80	Leg	ROHN 2.5 STD	2	-12248.00	63511.40	19.3	Pass
T2	80 - 60	Leg	ROHN 2.5 STD	38	-48368.10	63519.00	76.1	Pass
T3	60 - 40	Leg	ROHN 2.5 STD	71	-75085.60	75206.70	99.8	Pass
T4	40 - 20	Leg	ROHN 3 STD	113	-95647.80	97988.80	97.6	Pass
T5	20 - 0	Leg	ROHN 3 X-STR	146	-116053.00	123303.00	94.1	Pass
T1	100 - 80	Diagonal	L1 1/4x1 1/4x3/16	7	-2970.45	4490.61	66.1	Pass
T2	80 - 60	Diagonal	L2x2x1/4	64	-4328.36	17419.60	24.8	Pass
T3	60 - 40	Diagonal	L1 1/2x1 1/2x1/4	76	-3688.79	3842.72	96.0	Pass

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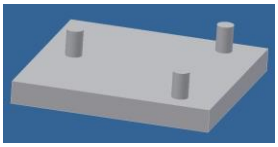
Job	Page
CTFF600E Modifications REDDING, CT	10 of 10
Project	**Date**
100 ft Self Supporting Tower	14:52:46 11/15/16
Client	**Designed by**
T-Mobile	kw

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T4	40 - 20	Diagonal	L2x2x1/4	118	-4304.12	5880.68	73.2	Pass
T5	20 - 0	Diagonal	L2 1/2x2 1/2x1/4	151	-4540.46	9045.76	50.2	Pass
T3	60 - 40	Secondary Horizontal	L2 1/2x2 1/2x3/16	84	-514.47	7149.02	7.2	Pass
T4	40 - 20	Secondary Horizontal	L2 1/2x2 1/2x3/16	135	-747.41	5700.53	13.1	Pass
T5	20 - 0	Secondary Horizontal	L2 1/2x2 1/2x3/16	168	-693.87	4113.28	16.9	Pass
T1	100 - 80	Top Girt	L3x3x1/4	5	-196.61	32489.70	0.6	Pass
T3	60 - 40	Top Girt	L1 1/2x1 1/2x1/4	75	-819.51	3488.88	23.5	Pass
T4	40 - 20	Top Girt	L2x2x1/4	117	-1485.16	5045.13	29.4	Pass
T5	20 - 0	Top Girt	L2 1/2x2 1/2x1/4	150	-2280.36	6556.44	34.8	Pass
							Summary	
						Leg (T3)	99.8	Pass
						Diagonal (T3)	96.0	Pass
						Secondary Horizontal (T5)	16.9	Pass
						Top Girt (T5)	34.8	Pass
						RATING =	**99.8**	**Pass**

Unit Base Foundation

Checks capacity of square mat foundation with raised piers for a self-supporting tower



BU#: CTFF600E
Site Name:
App Number:
TIA-222 Revision: G

Design Reactions		
Shear, **S**:	20.3	kips
Moment, **M**:	1272.0	ft-kips
Compression/leg, **Ca**:	120.0	kips
Uplift/leg, **Ua**:	107.6	kips
Tower Weight, **Wt**:	13.6	kips
Tower Height, **H**:	100	ft
Base Face Width, **w'**:	12.7	ft

Pad Properties		
Depth, **D**:	4.0	ft
Pad Width, **W**:	18.5	ft
Pad Thickness, **T**:	4.5	ft
Ext. Above Grade, **E**:	0.5	ft
Neglected Depth, **N**:	0.0	ft
Pad Rebar Size, **Sp**:		
Pad Rebar Quantity, **mp**:	36	#N/A

Pier Properties		
Pier Shape:	Square	
Pier Width, **di**:	2.0	ft
Pier Rebar Size, **Sc**:		
Pier Rebar Quantity, **mc**:	12	#N/A
Pier Tie Size, **St**:		
Tie Quantity, **mt**:	6	#N/A

Material Properties		
Rebar Tensile, **Fy**:	60000	psi
Concrete Strength, **F'c**:	3500	psi
Concrete Density, **δc**:	150	pcf
Clear Cover, **cc**:	3	in

Soil Properties		
Soil Unit Weight, **γ**:	120	pcf
Ultimate Bearing: **Bc**:	6.000	ksf
Cohesion, **Co**:	0.000	ksf
Friction Angle, **ϕ**:	30	degrees
Base Sliding, **μ**:	0.35	

Design Checks	***Capacity/ Availability***	***Demand/ Limits***	***Check***
Base Sliding (kips):	238.21	20.30	**8.5%**
Overturning (k-ft):	1670.95	1272.00	**76.1%**
Bearing (ksf):	4.50	2.01	**44.7%**
1-way Shear (kips):	#N/A	#N/A	**#N/A**
2-way Shear (kips):	#N/A	120.00	**#N/A**
Pier concrete stress (ksf):	1048.32	120.00	**11.4%**
Pier moment capacity (k-ft):	117.40	0.00	**0.0%**
Pad moment capacity(k-ft):	#N/A	548.02	**#N/A**

☐ Tower centroid is offset from foundation

Transcend Wireless

10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

Letter of Authorization

Site: Self-Support Tower at 80 Lonetown Road, Redding, CT

Owner: Andrew Mound & Elizabeth Mound

Lessee: T-Mobile Northeast LLC

We, Andrew Mound & Elizabeth Mound, owners of the tower facility located at the address identified above (the "Tower Facility), do hereby authorize T-Mobile Northeast LLC, its successors and assigns, and/or its agent, (collectively, the "Lessee") to act as our 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 Lessee's telecommunications' installations.

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

Signature:

Andrew Mound

Print Name: Andrew Mound

Date: 4/15/17

Signature:

Elizabeth Mound

Print Name: Elizabeth Mound

Date: 4/15/17

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: CTFF600E

CTFF600E
80 Lonetown Road
Redding, CT 06896

August 31, 2016

EBI Project Number: 6216003845

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	12.84 %

EBI Consulting
environmental | engineering | due diligence

August 31, 2016

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

Emissions Analysis for Site: **CTFF600E – CTFF600E**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **80 Lonetown Road, Redding, 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 1900 MHz (PCS) and 2100 MHz (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 **80 Lonetown Road, Redding, 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 (AWS Band – 2100 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 6-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 APXV18-206516S-C-A20** for 2100 MHz (AWS) channels and the **Commscope LNX-6512DS-A1M** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **RFS APXV18-206516S-C-A20** has a maximum gain of **16.3 dBd** at its main lobe at 2100 MHz.. The **Commscope LNX-6512DS-A1M** has a maximum gain of **12 dBd** at its main lobe. 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 **90 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.

9) 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 APXV18-206516S-C-A20	Make / Model:	RFS APXV18-206516S-C-A20	Make / Model:	RFS APXV18-206516S-C-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	90	Height (AGL):	90	Height (AGL):	90
Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)	Frequency Bands	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%	3.91	Antenna B1 MPE%	3.91	Antenna C1 MPE%	3.91
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Commscope LNX-6512DS-A1M	Make / Model:	Commscope LNX-6512DS-A1M	Make / Model:	Commscope LNX-6512DS-A1M
Gain:	12 dBd	Gain:	12 dBd	Gain:	12 dBd
Height (AGL):	90	Height (AGL):	90	Height (AGL):	90
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):	475.47	ERP (W):	475.47	ERP (W):	475.47
Antenna A3 MPE%	0.52	Antenna B3 MPE%	0.52	Antenna C3 MPE%	0.52

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**4.43 %**
Verizon Wireless	8.41 %
Site Total MPE %:	**12.84 %**

T-Mobile Sector A Total:	4.43 %
T-Mobile Sector B Total:	4.43 %
T-Mobile Sector C Total:	4.43 %
Site Total:	12.84 %

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 AWS - 2100 MHz UMTS	2	1,279.74	90	13.04	AWS - 2100 MHz	1000	1.30%
T-Mobile AWS - 2100 MHz LTE	2	2,559.48	90	26.08	AWS - 2100 MHz	1000	2.61%
T-Mobile 700 MHz LTE	1	475.47	90	2.42	700 MHz	467	0.52%
						Total:	**4.43%**

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 A:	4.43 %
Sector B:	4.43 %
Sector C:	4.43 %
T-Mobile Per Sector Maximum:	4.43 %
Site Total:	12.84 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **12.84%** 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.