Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

May 23, 2018

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

RE: **Request of T-Mobile Northeast LLC for an Order to Approve the Shared Use of an Existing Tower at 1116 Johnson Road a/k/a 1027 Racebrook Road Woodbridge, CT 06525**

Dear Ms. Bachman:

Pursuant to Connecticut General Statutes ("C.G.S.") §16-50aa, as amended, T-Mobile Northeast LLC ("T-Mobile") hereby requests an order from the Connecticut Siting Council ("Council") to approve the shared use by T-Mobile of an existing telecommunication tower at 1116 Johnson Road in Woodbridge Connecticut (the "Property").[1] The existing 150-foot tower is owned by Crown Castle International Corp. ("Crown Castle"). The underlying property is owned by the Tradition Golf Club at Oak Lane LLC. T-Mobile requests that the Council find that the proposed shared us of the Crown Castle tower satisfies the criteria of C.G.S. §16-50aa and issue an order approving the proposed shared us. A copy of this filing is being sent to First Selectman for the Town of Woodbridge Beth Heller, to the Zoning Enforcement Officer Terry Gilbertson and to the owner of the property the Tradition Golf Club at Oak Lane, LLC.

Background

The existing Crown Castle facility consists of a 150-foot monopole tower on 94.63-acre parcel along the southwest side of Johnson Road. The Town of Woodbridge maintains antennas at the 150-foot level, AT&T currently maintains antennas at the 102-foot level, Verizon antennas are located at the 124-foot level and Sprint antennas are located at the 86-foot level. Metro PCS antennas previously at the 138 level are abandoned and will be removed. AT&T's equipment shelter is located to the northeast of the tower, Verizon's equipment shelter is located to the northwest of the tower, and there is an existing abandoned shelter formerly of Cell One to the southeast as well as an abandoned Nextel Shower north of the tower.

T-Mobile is licensed by the Federal Communications Commission ("FCC") to provide wireless services throughout the State of Connecticut. T-Mobile and Crown Castle have agreed to the proposed shared use of the 1116 Johnson Road tower pursuant to mutually acceptable terms and conditions.

[1] Please note the Town of Woodbridge did not have the original approval for this tower available at the time of this filing and indicated they may not still have a record of it.

Likewise, T-Mobile and Crown Castle have agreed to the proposed installation of equipment cabinets on the ground on the northwest side of the tower. Crown Castle has authorized T-Mobile to apply for all necessary permits and approvals that may be required to share the existing tower.

T-Mobile proposes to twelve (12) antennas, eight (8) lines of coax, four (4) hybrid cables, three (3) TMA's, twelve (12) RRUs, one (1) MW Dish with an associated Line and one (1) GPS. In addition, T-Mobile will install a diesel fueled 220 gallon 25 KW DC back-up generator within a 10'x 20' concrete pad. Included in the Construction Drawings are T-Mobile's project specifications for locations of all proposed site improvements. The Construction Drawings also contain specifications for T-Mobile's proposed antennas and backup generator.

C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the Council finds that het proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such a shared use." T-Mobile respectfully submits that the shared use of the tower satisfies these criteria.

A. Technical Feasibility. The existing Crown Castle tower is structurally capable of supporting T-Mobile's proposed improvements. The prosed shared use of this tower is, therefore, technically feasible. A Feasibility Structural Analysis Report ("Structural Report") prepared for this project confirms that this tower can support T-Mobile's proposed loading. A copy of the Structural Report has been included in this application.

B. Legal Feasibility. Under C.G.S. § 16-50aa, the Council has been authorized to issue order approving the shared use of an existing tower such as the Crown Castle tower. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. In addition, § 16-50x(a) directs the Council to "give such consideration to the other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under the statutory authority vested in the Council, an order by the Council approving the requested shared use would permit the Applicant to obtain a building permit for the proposed installations.

C. Environmental Feasibility. The proposed shared use of the Crown Castle tower would have a minimal environmental effect for the following reasons:

1. The proposed installation of twelve (12) antennas, eight (8) lines of coax, four (4) hybrid cables, three (3) TMA's, twelve (12) RRUs, one (1) MW Dish with an associated Line and one (1) GPS will have no visual impact on the area of the tower. T-Mobile's cabinet and generator would be installed within an expanded facility compound. T-Mobile's shared use of this tower therefore will not cause any significant change or alteration in the physical or environmental characteristics of the existing site.

2. Operation of T-Mobile's antennas at this site would not exceed the RF emissions standard adopted by the Federal Communications Commission ("FCC"). Included in the EME report of this filing are the approximation tables that demonstrate that T-Mobile's proposed facility will operate well within the FCC RF emissions safety standards.

3. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete the proposed installations would not generate any increased traffic to the Crown Castle facility other than periodic maintenance. The proposed shared use of the Crown Castle tower, would, therefore, have a minimal environmental effect, and is environmentally feasible.

D. Economic Feasibility. As previously mentioned, T-Mobile has entered into an agreement with Crown Castle for the shared use of the existing facility subject to mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible. (Please see included authorization.)

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting T-Mobile's full array of twelve (12) antennas and all related equipment. T-Mobile is not aware of any public safety concerns relative to the proposed sharing of the existing Crown Castle tower.

Conclusion

For the reasons discussed above, the proposed shared use of the existing Crown Castle tower at 1116 Johnson Road satisfies the criteria state in C.G.S. §16-50aa and advances the General Assembly's and the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant, therefore, respectfully requests that the Council issue an order approving the prosed shared use.

Sincerely,

Sarah Snell
Real Estate Specialist
12 Gill Street, Suite 5800, Woburn, MA 01801
781-970-0055
sarah.snell.contractor@crowncastle.com

Attachments: Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes Tab 2: Exhibit-2: Structural Modification Report Tab 3: Exhibit-3: General Power Density Table report (RF Emissions Analysis Report)

CC: Beth Heller, First Selectman (Municipality)
11 Meetinghouse Lane
Woodbridge, CT 06525

Terry Gilbertson Zoning Enforcement Officer (Municipal Planning & Zoning Officer)
Town of Woodbridge
11 Meetinghouse Lane
Woodbridge, CT 06525

Tradition Golf Club at Oak Lane LLC (Landowner)
1027 Racebrook Road
Woodbridge, CT 06525

1027 RACEBROOK RD

Location	1027 RACEBROOK RD	**Mblu**	2903/ 1520/ 1027/ /
Owner	THE TRADITIONS GOLF CLUB AT OAK LANE LLC	**Assessment**	$1,861,690
		Appraisal	$3,125,200
PID	633	**Building Count**	4

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$2,109,600	$1,015,600	$3,125,200

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$1,476,720	$384,970	$1,861,690

Owner of Record

Owner	THE TRADITIONS GOLF CLUB AT OAK LANE LLC	**Sale Price**	$1,600,000
Co-Owner		**Certificate**	
Address	1027 RACEBROOK RD WOODBRIDGE, CT 06525	**Book & Page**	773/ 182
		Sale Date	06/15/2016
		Instrument	06

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
THE TRADITIONS GOLF CLUB AT OAK LANE LLC	$1,600,000		773/ 182	06	06/15/2016
BALDWIN WONNELL RACEBROOK LLC	$0		677/ 270	04	11/08/2011
BALDWIN MALCOLM W JR ETAL	$0		156/ 19	04	09/25/1989
BALDWIN CLARENCE F	$0		75/ 293	04	10/04/1963

Building Information

Building 1 : Section 1

Year Built: 1960
Living Area: 20,786

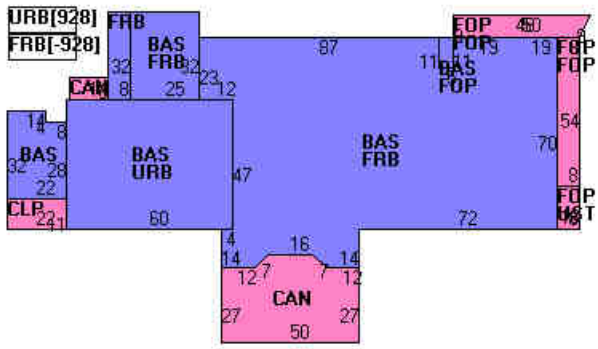
Building Attributes	
Field	**Description**

STYLE	Country Club
MODEL	Commercial
Stories:	1
Occupancy	1
Exterior Wall 1	Stucco/Masonry
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	Inlaid Sht Gds
Heating Fuel	Oil
Heating Type	Hot Water
AC Type	Central
Bldg Use	Golf Course
Total Rooms	
Total Bedrms	00
Total Baths	0
Dormer	
1st Floor Use:	3800
Heat/AC	HEAT/AC SPLIT
Frame Type	STEEL
Baths/Plumbing	AVERAGE
Ceiling/Wall	SUS-CEIL & WL
Rooms/Prtns	AVERAGE
Wall Height	12
% Comn Wall	0

Building Photo

(http://images.vgsi.com/photos/WoodbridgeCTPhotos//\00\00\45

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	13,423	13,423
FRB	Finished Raised Basement	9,204	7,363
CAN	Canopy	1,567	0
CLP	Loading Platform, Covered	242	0
FOP	Open Porch	1,815	0
URB	Unfinished Raised Basement	3,748	0
UST	Utility, Storage, Unfinished	128	0
		30,127	20,786

Building 2 : Section 1

Year Built: 1975
Living Area: 480

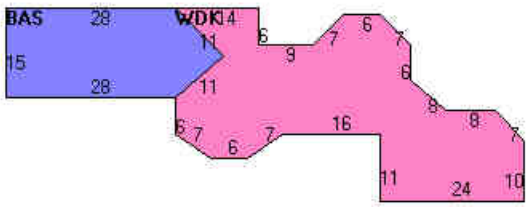
Building Attributes : Bldg 2 of 4	
Field	**Description**
STYLE	Clubs/Lodges

MODEL	Commercial
Stories:	1
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Asph/F Gls/Cmp
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	
Heating Fuel	Coal or Wood
Heating Type	None
AC Type	None
Bldg Use	SFR OPEN MDL-96
Total Rooms	
Total Bedrms	00
Total Baths	0
Dormer	
1st Floor Use:	201I
Heat/AC	NONE
Frame Type	WOOD FRAME
Baths/Plumbing	NONE
Ceiling/Wall	CEIL & MIN WL
Rooms/Prtns	LIGHT
Wall Height	9
% Comn Wall	0

Building Photo

(http://images.vgsi.com/photos/WoodbridgeCTPhotos//\00\00\23

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	480	480
WDK	Wood Deck	1,054	0
		1,534	480

Building 3 : Section 1

Year Built: 1960
Living Area: 3,528

Building Attributes : Bldg 3 of 4	
Field	**Description**
STYLE	Warehouse
MODEL	Commercial
Stories:	1
Occupancy	1
Exterior Wall 1	Reinforc Concr
Exterior Wall 2	

Roof Structure	Flat
Roof Cover	Enam Mtl Shing
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Coal or Wood
Heating Type	None
AC Type	None
Bldg Use	Golf Course
Total Rooms	
Total Bedrms	00
Total Baths	0
Dormer	
1st Floor Use:	380I
Heat/AC	NONE
Frame Type	REINF. CONCR
Baths/Plumbing	NONE
Ceiling/Wall	CEILING ONLY
Rooms/Prtns	AVERAGE
Wall Height	8
% Comn Wall	0

Building Photo

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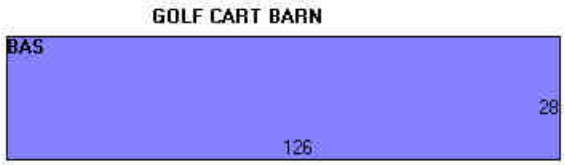
Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	3,528	3,528
		3,528	3,528

Building 4 : Section 1

Year Built: 1985
Living Area: 320

Building Attributes : Bldg 4 of 4	
Field	**Description**
STYLE	Restaurant
MODEL	Commercial
Stories:	1
Occupancy	1
Exterior Wall 1	Below Average
Exterior Wall 2	
Roof Structure	Gable/Hip

Roof Cover	Asph/F Gls/Cmp
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Coal or Wood
Heating Type	None
AC Type	None
Bldg Use	Golf Course
Total Rooms	
Total Bedrms	00
Total Baths	0
Dormer	
1st Floor Use:	3800
Heat/AC	NONE
Frame Type	WOOD FRAME
Baths/Plumbing	LIGHT
Ceiling/Wall	CEIL & MIN WL
Rooms/Prtns	AVERAGE
Wall Height	8
% Comn Wall	0

Building Photo

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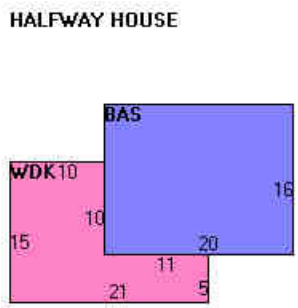
Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	320	320
WDK	Wood Deck	205	0
		525	320

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	3800
Description	Golf Course
Zone	A

Land Line Valuation

Size (Acres)	94.63
Frontage	0
Depth	0

Neighborhood		**Assessed Value**	$384,970
Alt Land Appr	No	**Appraised Value**	$1,015,600
Category			

Outbuildings

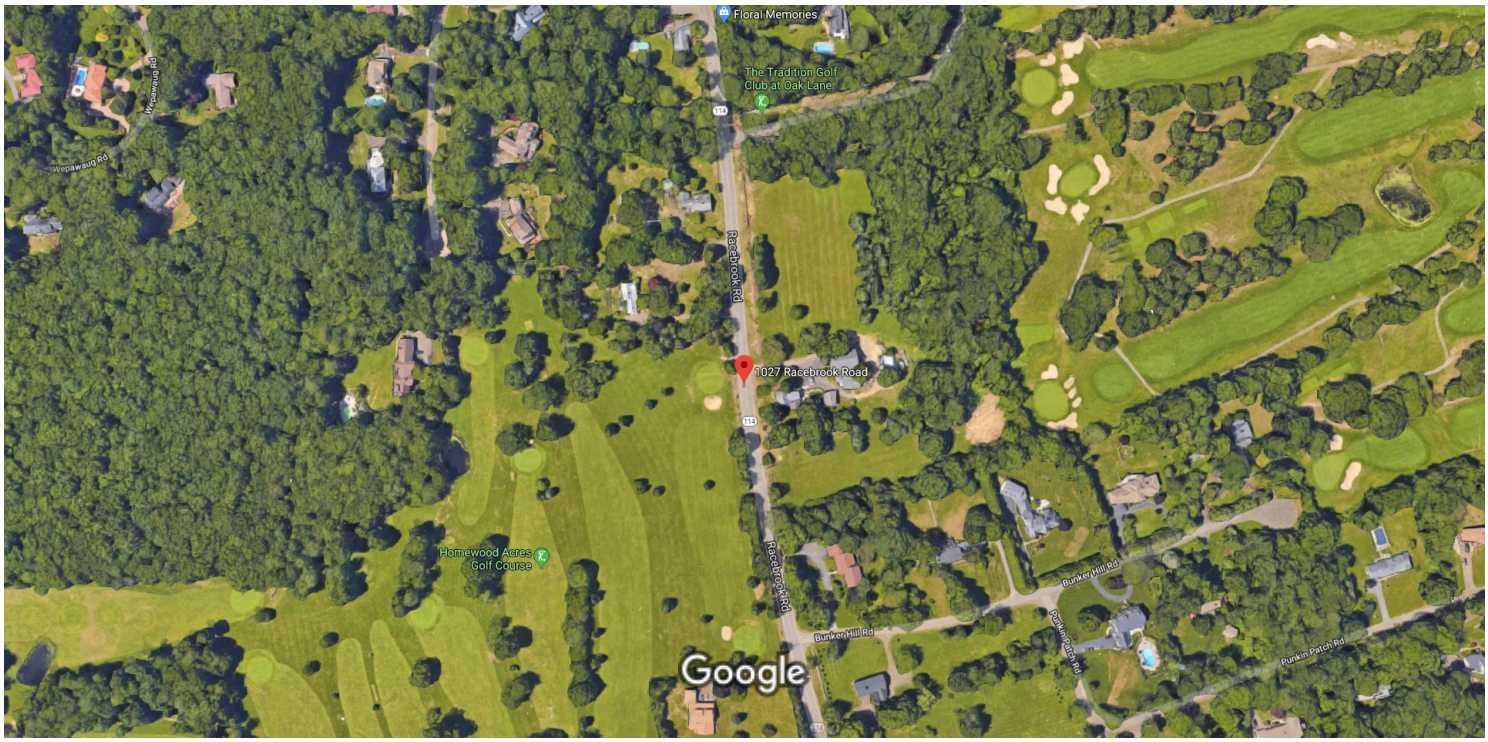
Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
SHD1	Shed			864 S.F.	$2,800	3
TEN	Tennis Court			8 UNIT	$120,000	2
PAT1	Patio Average			1230 S.F.	$1,200	1
PAT1	Patio Average			9500 S.F.	$9,500	1
SHD1	Shed			80 S.F.	$300	2
SHD1	Shed			80 S.F.	$300	2
SHD1	Shed			80 S.F.	$500	2
SHD1	Shed			200 S.F.	$2,000	2
SHD2	Shed Good			3456 S.F.	$20,700	1
PAV1	Paving Asphalt			20000 S.F.	$2,400	2
GAZ	Gazebo			176 S.F	$2,100	1
LT1	Lights Single			7 UNITS	$1,500	1
LT1	Lights Single			2 UNITS	$900	1
LT2	Lights Double			2 UNITS	$1,100	1
PAV1	Paving Asphalt			115200 S.F.	$41,500	1
	GREENS			8	$672,000	1
GAZ	Gazebo			162 S.F	$3,900	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$2,109,600	$1,015,600	$3,125,200
2015	$2,105,700	$643,100	$2,748,800
2013	$2,392,600	$1,581,900	$3,974,500

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$1,476,720	$384,970	$1,861,690
2015	$1,473,990	$384,970	$1,858,960
2013	$1,674,820	$455,390	$2,130,210

1027 Racebrook Rd



Imagery ©2018 Google, Map data ©2018 Google 200 ft

SITE NAME: CTNH085A

1027 RACEBROOK ROAD
WOODBRIDGE, CT 06525
NEW HAVEN COUNTY

T-MOBILE SITE NUMBER: CTNH085A

CROWN BU NUMBER: 876315

RF DESIGN GUIDELINE: 4SEC-67D92DB OUTDOOR

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:	ACCESS NOT PERMITTED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE

GENERAL NOTES

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

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

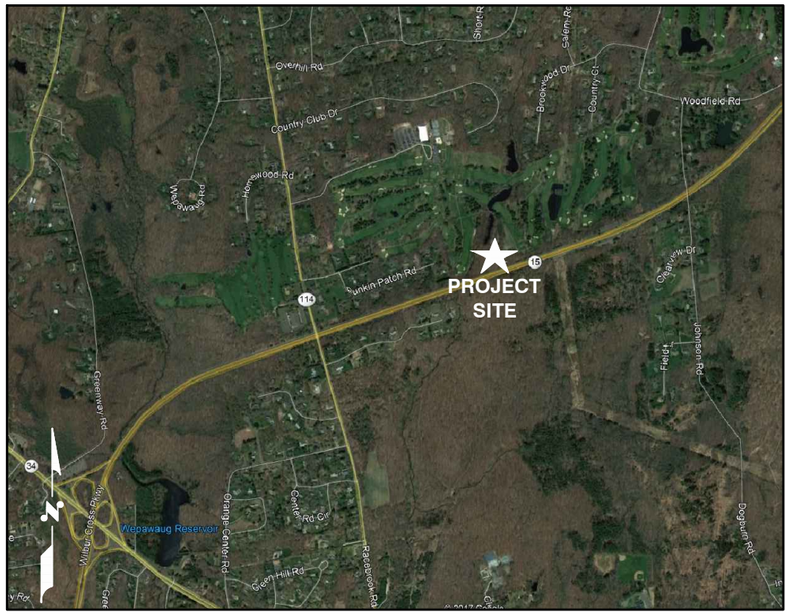
CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T–MOBILE NORTHEAST, LLC REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SPECIAL STRUCTURAL NOTES

CONTRACTOR SCOPE OF WORK SHALL INCLUDE ALL REQUIRED STRUCTURAL MODIFICATIONS, RE–BUNDLING OF COAXIAL CABLES OR OTHER SPECIAL MODIFICATIONS AS OUTLINED THEREIN.

STRUCTURAL DESIGNS AND DETAILS FOR ANTENNA MOUNTS AND GLOBAL STRUCTURAL STABILITY ANALYSIS COMPLETED ON BEHALF OF T–MOBILE ARE INCLUSIVE OF THE ENTIRE SUPPORT STRUCTURE, EXISTING ANTENNA MOUNTS AND ALL OTHER ASPECTS OF THE STRUCTURE THAT WILL SUPPORT THE T–MOBILE G700 EQUIPMENT DEPLOYMENT AS DEPICTED HEREIN.

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



PROJECT SUMMARY

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY T–MOBILE EQUIPMENT MODERNIZATION
ZONING JURISDICTION: TOWN OF WOODBRIDGE	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:	1027 RACEBROOK ROAD WOODBRIDGE, CT 06525
LATITUDE:	41° 19' 0.60"
LONGITUDE:	–73° 0' 41.70"
JURISDICTION:	TOWN OF WOODBRIDGE
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY
CROWN CASTLE SITE NAME:	**OAK LANE CC, INC. TOWER (SSUSA)**
CROWN CASTLE SITE ID:	**876315**

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 1–888–DIG–SAFE
OR CALL 811

UNDERGROUND SERVICE ALERT

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
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A–4	GROUND EQUIPMENT DETAILS	2
A–5	AUXILIARY POWER DETAILS	2
A–6	COMPOUND EXPANSION DETAILS	2
S–1	EQUIPMENT MOUNTING ELEVATION	2
E–1	ELECTRICAL DETAILS AND NOTES	2
G–1	GROUNDING SCHEMATIC AND RISER DIAGRAM	2
G–2	GROUNDING DETAILS AND NOTES	2

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088
(315) 265-1882

CROWN CASTLE
CROWN CASTLE
12 GILL STREET, SUITE 5800
WOBURN, MA 01801

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DEREK J. CREASER
No. 23561
LICENSED PROFESSIONAL ENGINEER

CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: BB

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	05/08/18	CONSTRUCTION REVISED	RP/DM
1	04/12/18	CONSTRUCTION REVISED	DJM
0	10/23/17	ISSUED FOR CONSTRUCTION	DJM

SITE NUMBER:
CTNH085A
CROWN BU NUMBER:
876315
SITE NAME:
CTNH085A
SITE ADDRESS:
1027 RACEBROOK ROAD
WOODBRIDGE, CT 06525
NEW HAVEN COUNTY

SHEET TITLE
TITLE SHEET
(NSD)

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 – CROWN CASTLE
   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: IBC 2012 WITH 2016 CT STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: 2014 NATIONAL ELECTRIC CODE

    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-G, 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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103 MONARCH DRIVE
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CROWN CASTLE
CROWN CASTLE
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WOBURN, MA 01801

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DEREK J. CREASER
No. 23561
LICENSED PROFESSIONAL ENGINEER

CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: BB

APPROVED BY: DJC

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876315
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SITE ADDRESS:
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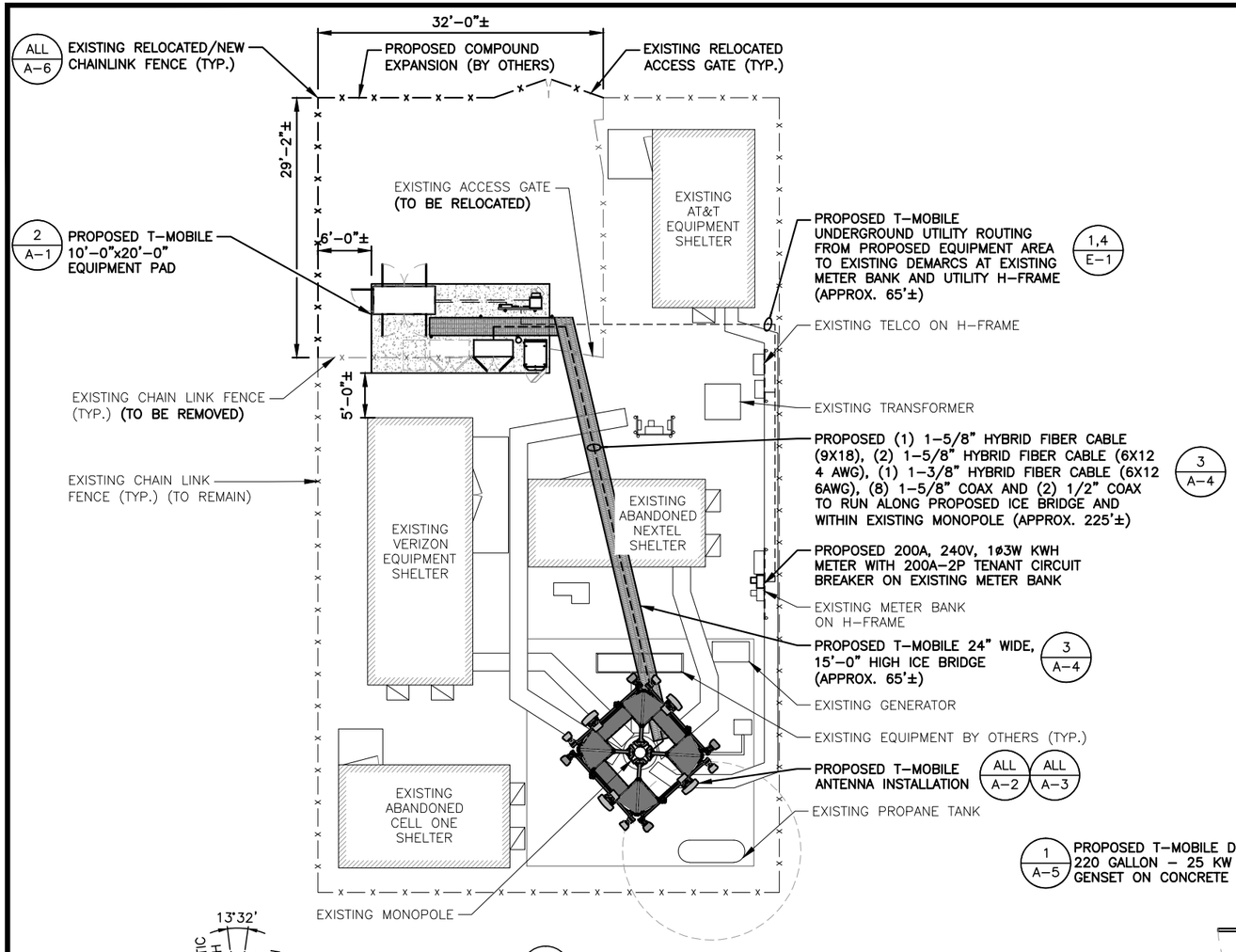
WOODBRIDGE, CT 06525
NEW HAVEN COUNTY

SHEET TITLE
GENERAL NOTES
(NSD)

SHEET NUMBER
GN-1



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

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

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

STRUCTURAL NOTES:
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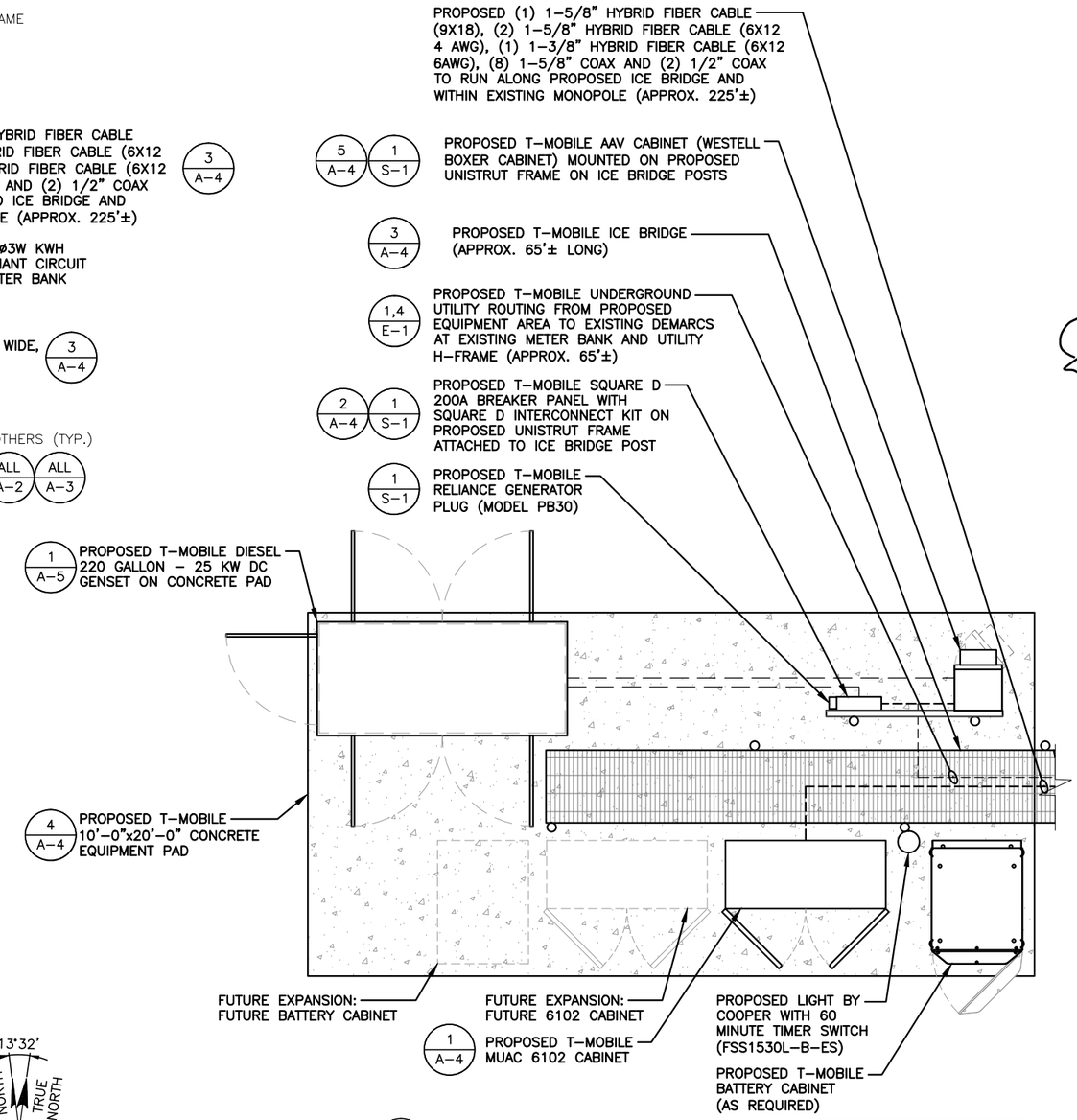

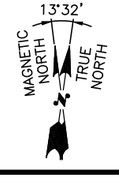

PROPOSED EQUIPMENT PLAN 2 A-1
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

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

NOTE:
SEE CONDUIT PLAN 1/E-1

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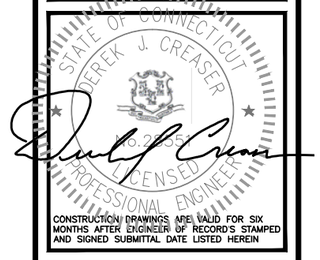

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WOODBRIDGE, CT 06525
NEW HAVEN COUNTY

SHEET TITLE
COMPOUND & EQUIPMENT PLAN
(NSD)

SHEET NUMBER
A-1

STRUCTURAL NOTES:
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NOTE:
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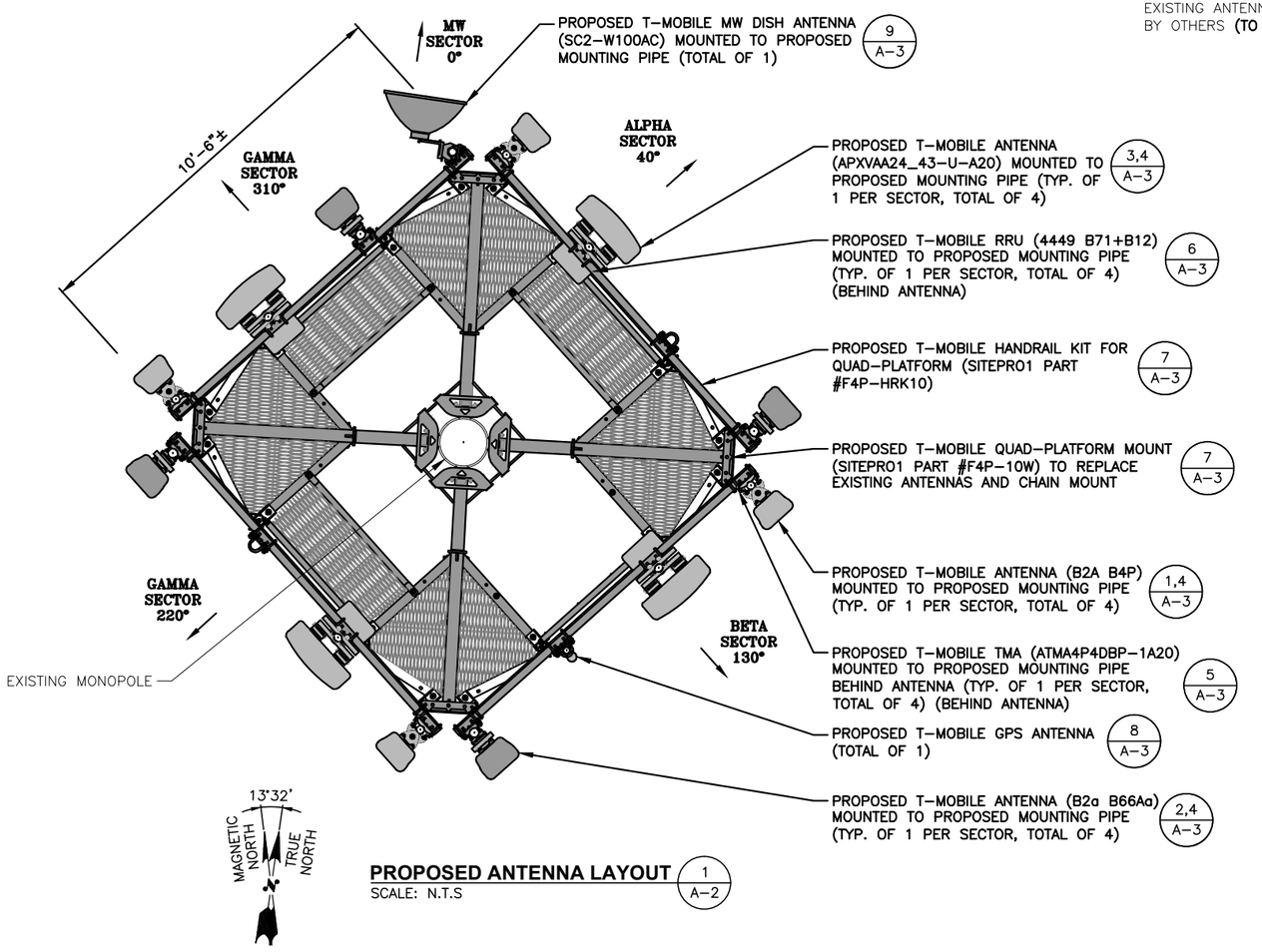


PROPOSED T–MOBILE MW DISH ANTENNA (SC2–W100AC) MOUNTED TO PROPOSED MOUNTING PIPE (TOTAL OF 1) — 9 / A–3

PROPOSED T–MOBILE ANTENNA (APXVAA24_43–U–A20) MOUNTED TO PROPOSED MOUNTING PIPE (TYP. OF 1 PER SECTOR, TOTAL OF 4) — 3,4 / A–3

PROPOSED T–MOBILE RRU (4449 B71+B12) MOUNTED TO PROPOSED MOUNTING PIPE (TYP. OF 1 PER SECTOR, TOTAL OF 4) (BEHIND ANTENNA) — 6 / A–3

PROPOSED T–MOBILE HANDRAIL KIT FOR QUAD–PLATFORM (SITEPRO1 PART #F4P–HRK10) — 7 / A–3

PROPOSED T–MOBILE QUAD–PLATFORM MOUNT (SITEPRO1 PART #F4P–10W) TO REPLACE EXISTING ANTENNAS AND CHAIN MOUNT — 7 / A–3

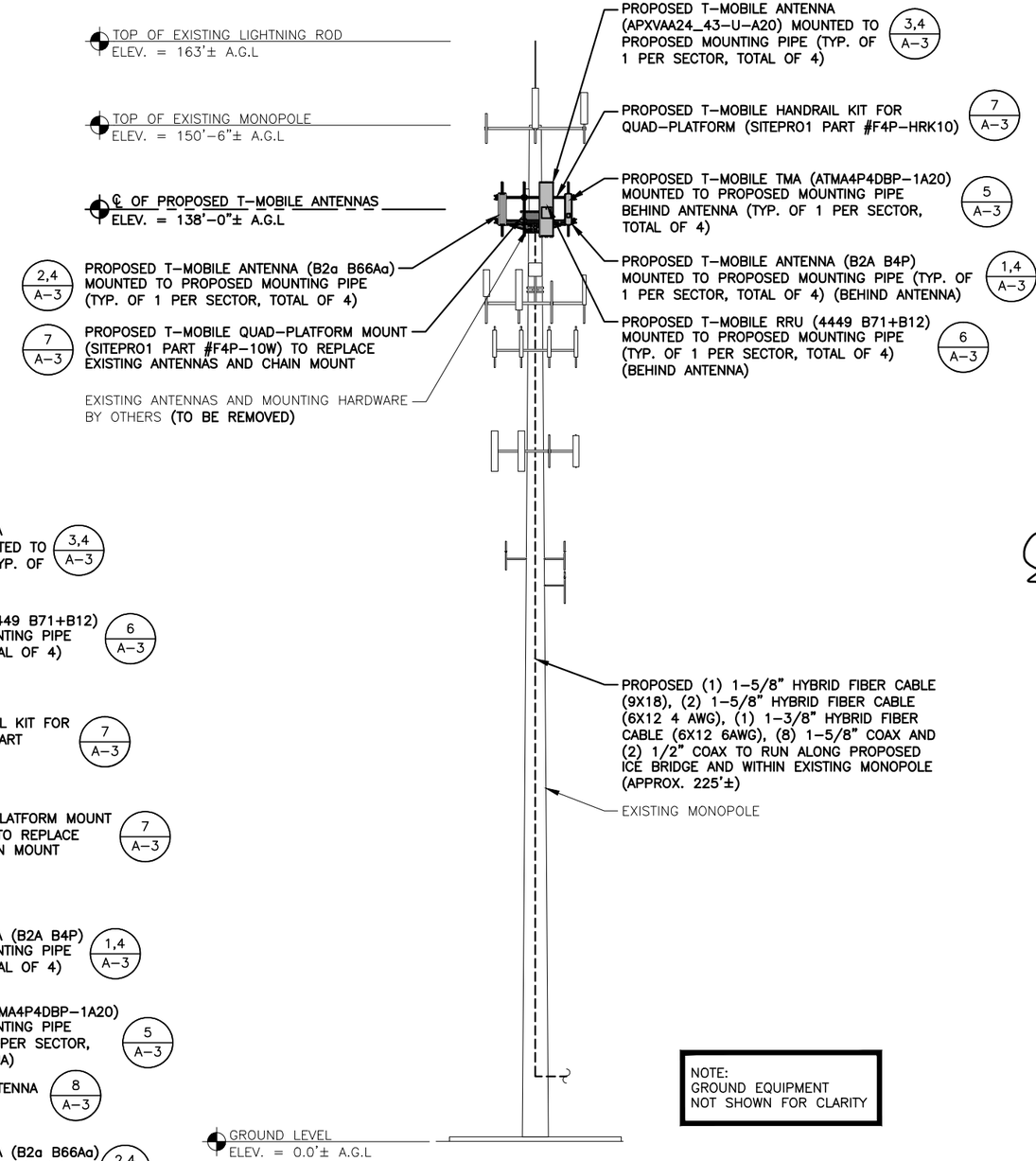
PROPOSED T–MOBILE ANTENNA (B2A B4P) MOUNTED TO PROPOSED MOUNTING PIPE (TYP. OF 1 PER SECTOR, TOTAL OF 4) — 1,4 / A–3

PROPOSED T–MOBILE TMA (ATMA4P4DBP–1A20) MOUNTED TO PROPOSED MOUNTING PIPE BEHIND ANTENNA (TYP. OF 1 PER SECTOR, TOTAL OF 4) (BEHIND ANTENNA) — 5 / A–3

PROPOSED T–MOBILE GPS ANTENNA (TOTAL OF 1) — 8 / A–3

PROPOSED T–MOBILE ANTENNA (B2a B66Aa) MOUNTED TO PROPOSED MOUNTING PIPE (TYP. OF 1 PER SECTOR, TOTAL OF 4) — 2,4 / A–3

PROPOSED ANTENNA LAYOUT — 1 / A–2
SCALE: N.T.S



TOWER ELEVATION — 2 / A–2
22x34 SCALE: 1/8"=1'–0"
11x17 SCALE: 1/16"=1'–0"

0 4'–0" 8'–0" 16'–0" 24'–0"

NOTE:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY

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DEREK J. CREASER — STATE OF CONNECTICUT — No. 25554 — LICENSED PROFESSIONAL ENGINEER

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NEW HAVEN COUNTY

SHEET TITLE
ANTENNA LAYOUT & ELEVATION
(NSD)

SHEET NUMBER
A-2

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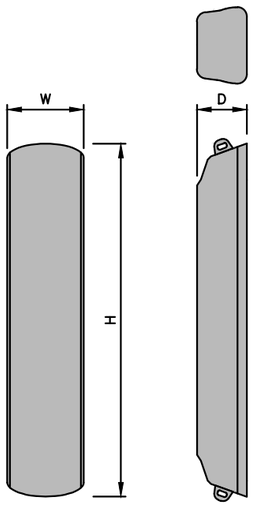
NOTE:
REFER TO FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS

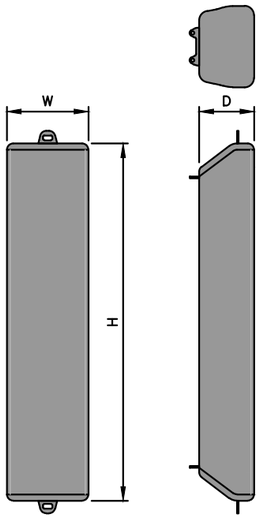
U19/G19 ANTENNA DIMENSIONS	
MODEL #	AIR21 B2A B4P (QUAD)
MANUF.	ERICSSON
HEIGHT	56"
WIDTH	12.1"
DEPTH	7.9"
WEIGHT	96 LBS

L21/L19 ANTENNA DIMENSIONS	
MODEL #	AIR32DB B2a B66Aa (OCTA)
MANUF.	ERICSSON
HEIGHT	56.6"
WIDTH	12.9"
DEPTH	8.7"
WEIGHT	132.2 LBS

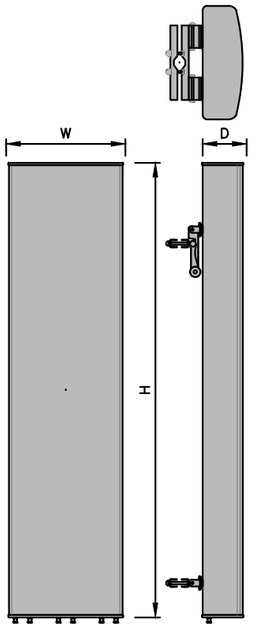
L700/L600 ANTENNA DIMENSIONS	
MODEL #	APXVAA24_43-U-A20 (QUAD)
MANUF.	RFS
HEIGHT	96"
WIDTH	24"
DEPTH	8.5"
WEIGHT	124.4 LBS



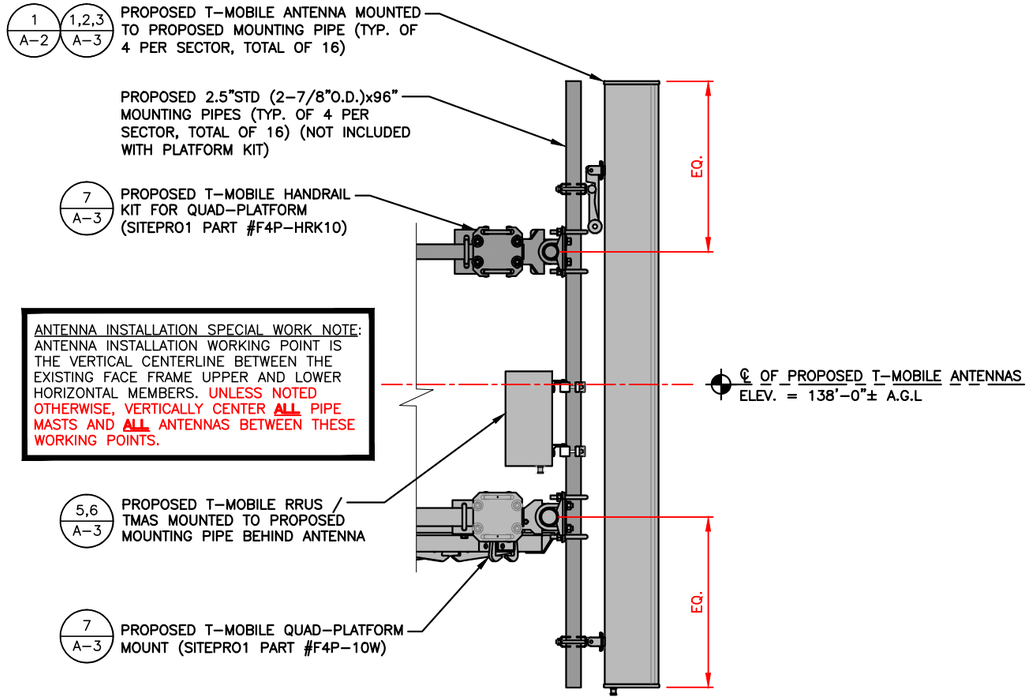
U19/G19 ANTENNA DETAIL (1 / A-3)
SCALE: N.T.S



L21/L19 ANTENNA DETAIL (2 / A-3)
SCALE: N.T.S

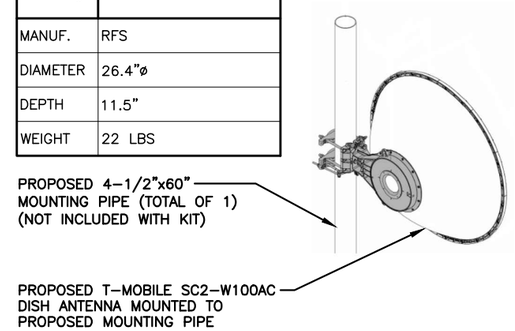


L700/L600 ANTENNA DETAIL (3 / A-3)
SCALE: N.T.S



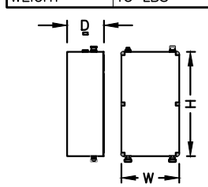
PROPOSED ANTENNA AND RRU MOUNTING DETAIL (4 / A-3)
SCALE: N.T.S

MW ANTENNA DIMENSIONS	
MODEL #	SC2-W100AC
MANUF.	RFS
DIAMETER	26.4"ø
DEPTH	11.5"
WEIGHT	22 LBS



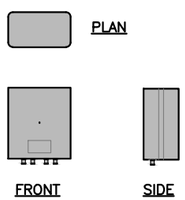
MW DISH ANTENNA DETAIL (9 / A-3)
SCALE: N.T.S

TMA DIMENSIONS	
MODEL #	ATMA4P4DBP-1A20
MANUF.	RFS/CELWAVE
HEIGHT	12"
WIDTH	10"
DEPTH	4"
WEIGHT	13 LBS

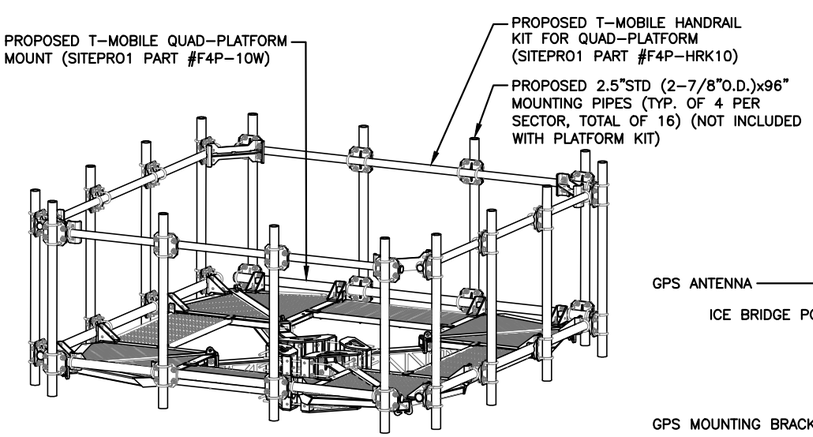


TMA (5 / A-3)
SCALE: N.T.S

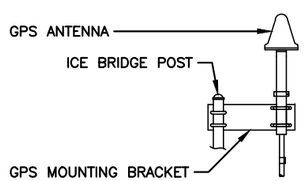
RRUS DIMENSIONS	
MODEL #	RRUS 4449 B71+B12
MANUF.	ERICSSON
HEIGHT	18"
WIDTH	13.2"
DEPTH	9.4"
WEIGHT	70 LBS



RRUS DETAIL (6 / A-3)
SCALE: N.T.S



QUAD-PLATFORM MOUNT (7 / A-3)
SCALE: N.T.S



GPS DIMENSIONS	
MODEL #	58532A
MANUF.	NAIS
HEIGHT	3.9"
WIDTH	3.5"

GPS ANTENNA MOUNTING DETAIL (8 / A-3)
SCALE: N.T.S

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STATE OF CONNECTICUT
DEREK J. CREASER
No. 25561
LICENSED PROFESSIONAL ENGINEER

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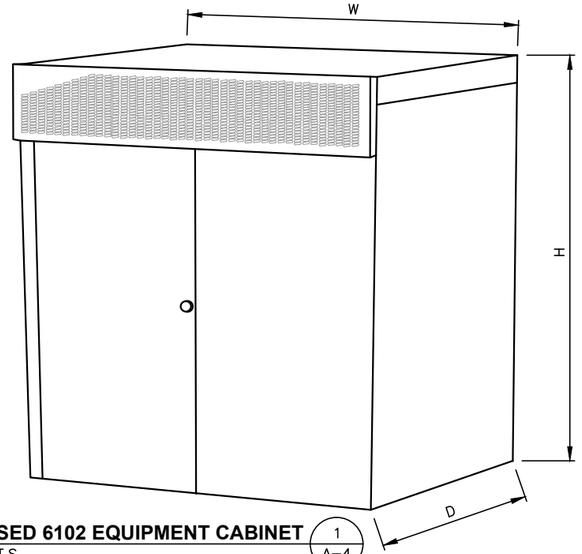
SHEET TITLE
TOWER EQUIPMENT DETAILS
(NSD)

SHEET NUMBER
A-3

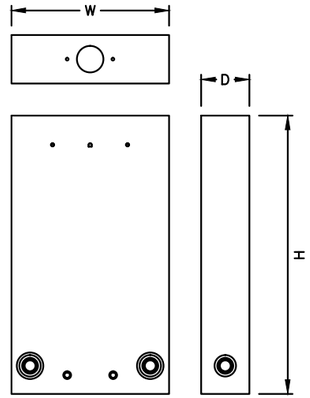
CABINET DIMENSIONS	
MODEL #	**MUAC 6102**
MANUF.	ERICSSON
WIDTH	51.2"
DEPTH	27.6"
HEIGHT	57.1"
WEIGHT (W/O BACKUP BATTERIES)	728 LBS
CABINET CAN BE MOUNTED DIRECTLY TO SITE GROUND (INSTALL PER MANUFACTURER'S INSTALLATION GUIDELINES)	



PROPOSED 6102 EQUIPMENT CABINET (1 / A-4)
SCALE: N.T.S

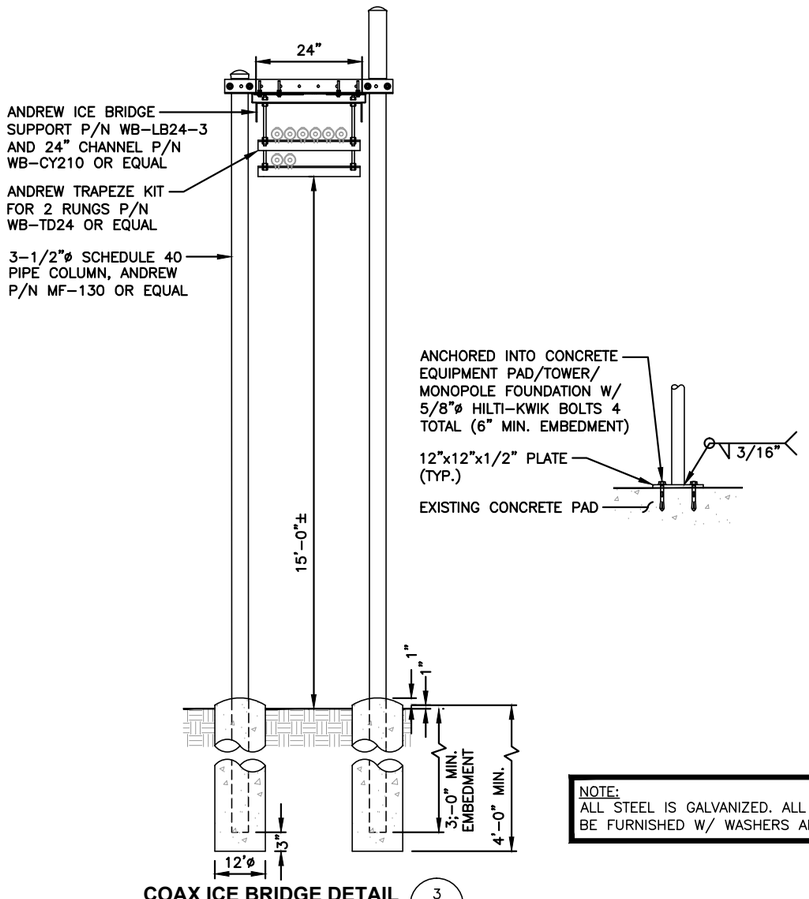
CONTRACTOR TO SUPPLY AND INSTALL THE FOLLOWING:
- SQUARE D MODEL Q012040M200RB 200AMP 20 SPACE OUTDOOR MAIN BREAKER LOAD PANEL
- SQUARE D GENERATOR INTERLOCK KIT MODEL SD-100-00
- RELIANCE 30AMP GENERATOR PLUG MODEL P830

SQUARE D 200A DIMENSIONS	
MODEL #	**Q012040M200RB**
MANUF.	SQUARE D CO.
WIDTH	14.8"
DEPTH	4.5"
HEIGHT	26"
NOTE: INSTALL CABINET ANCHORS PER MANUFACTURER'S INSTALLATION GUIDELINES	



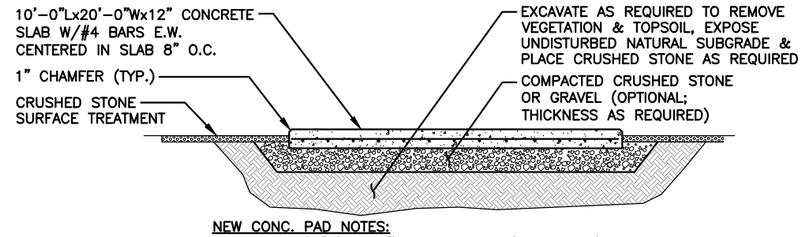
NOTES:
1. METER SOCKET BY THIS CONTRACT. METER TO BE SUPPLIED BY LOCAL UTILITY COMPANY.
2. AC POWER ENCLOSURE.
3. ALL EQUIPMENT SHALL BE GROUNDED PER LATEST EDITION OF NEC AND AS INDICATED.
4. ELECTRICAL EQUIPMENT SHALL BE MIN. 3'-0" FROM ANY STRUCTURE AND AS REQUIRED BY LOCAL UTILITY COMPANIES AND AHJ.
5. CONTRACTOR MUST LABEL ALIKE BREAKERS IN POWER CABINET.
6. REFER TO ACTUAL EQUIPMENT DRAWINGS.

POWER PANEL DETAIL (2 / A-4)
SCALE: N.T.S



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

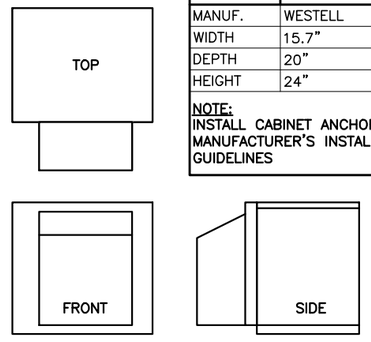
NOTE:
ALL STEEL IS GALVANIZED. ALL BOLTS TO BE FURNISHED W/ WASHERS AND NUTS.



NEW CONC. PAD NOTES:
- REINF. W/ #4's @ 8" O.C. EA. WAY (MID-DEPTH).
- REINF. SHALL BE ASTM A615-GRADE 60. SECURE IN PLACE.
- REINFORCEMENT IN EQUIPMENT SLAB TO BE WELDED AND BONDED TO GROUND RING

CONCRETE PAD DETAIL (4 / A-4)
SCALE: N.T.S

AAV CABINET DIMENSIONS	
MODEL #	**BXM-10N-HE3-20A**
MANUF.	WESTELL
WIDTH	15.7"
DEPTH	20"
HEIGHT	24"
NOTE: INSTALL CABINET ANCHORS PER MANUFACTURER'S INSTALLATION GUIDELINES	



AAV CABINET (5 / A-4)
SCALE: N.T.S

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088
(315) 265-1882

CROWN CASTLE
CROWN CASTLE
12 GILL STREET, SUITE 5800
WOBURN, MA 01801

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DEREK J. CREASER
No. 25[illegible]
LICENSED PROFESSIONAL ENGINEER

CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: BB

APPROVED BY: DJC

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CROWN BU NUMBER:
876315
SITE NAME:
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SITE ADDRESS:
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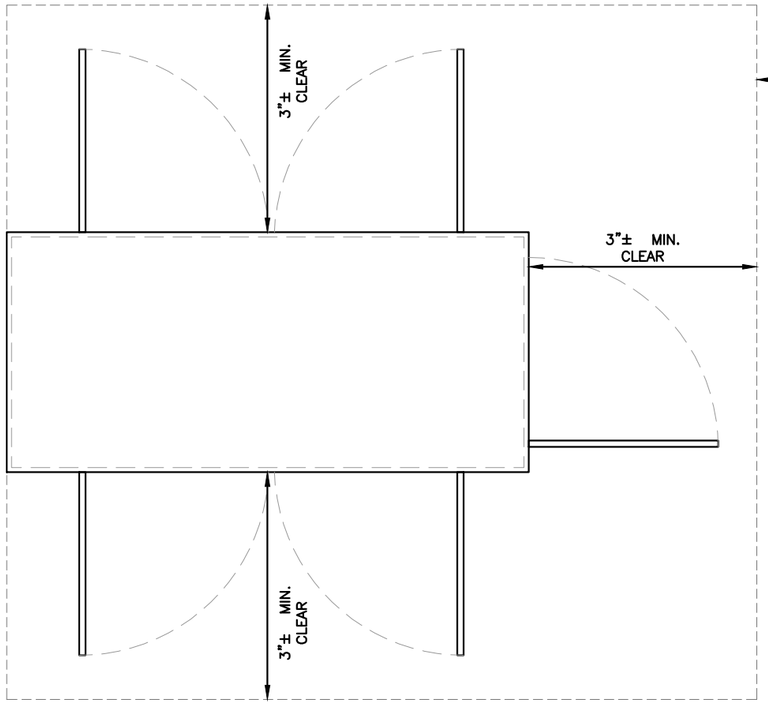
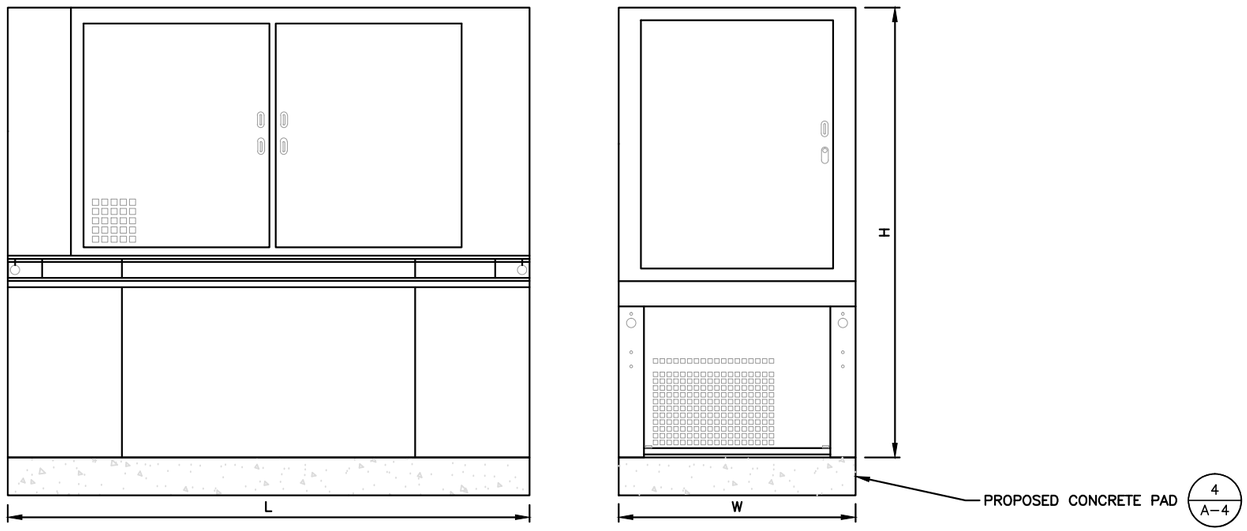
WOODBRIDGE, CT 06525
NEW HAVEN COUNTY

SHEET TITLE
GROUND EQUIPMENT DETAILS
(NSD)

SHEET NUMBER
A-4



25 KW 220 GAL. DIESEL GENERATOR DIMENSIONS	
MODEL #	**CONTRACTOR TO CONFIRM WITH T-MOBILE PRIOR TO ORDERING**
MANUF.	DELTA
HEIGHT	71.26"
WIDTH	37.5"
LENGTH	82.67
WEIGHT	2910 LBS



GENERATOR DETAIL (1 / A-5)
SCALE: N.T.S

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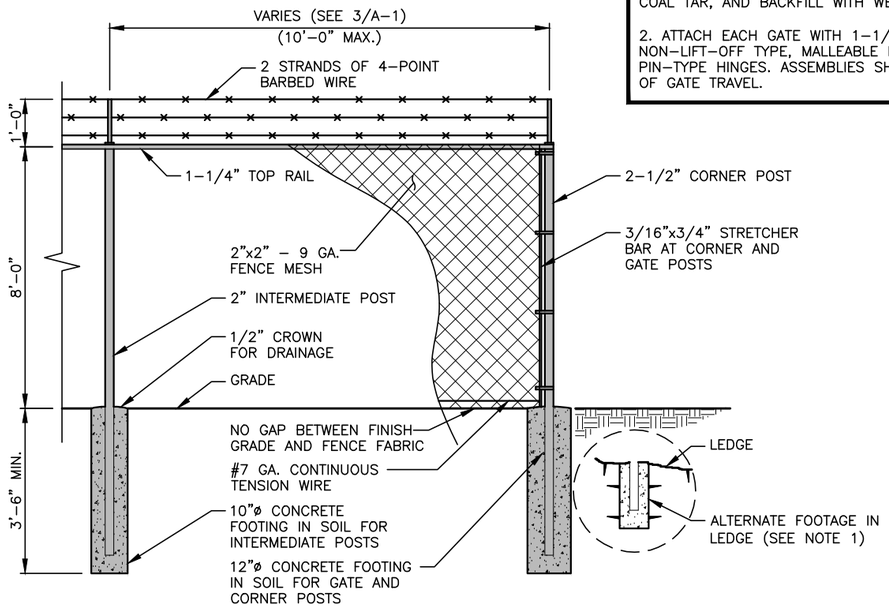
SHEET TITLE
AUXILIARY POWER DETAILS
(NSD)

SHEET NUMBER
A-5

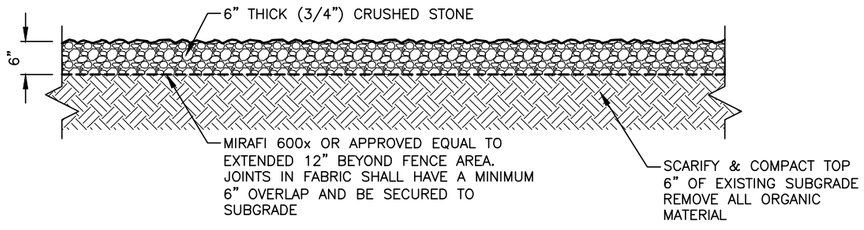
FENCE NOTES

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.



CHAINLINK FENCE DETAIL 1/A–6
SCALE: N.T.S



GRAVEL COMPOUND DETAIL 2/A–6
SCALE: N.T.S

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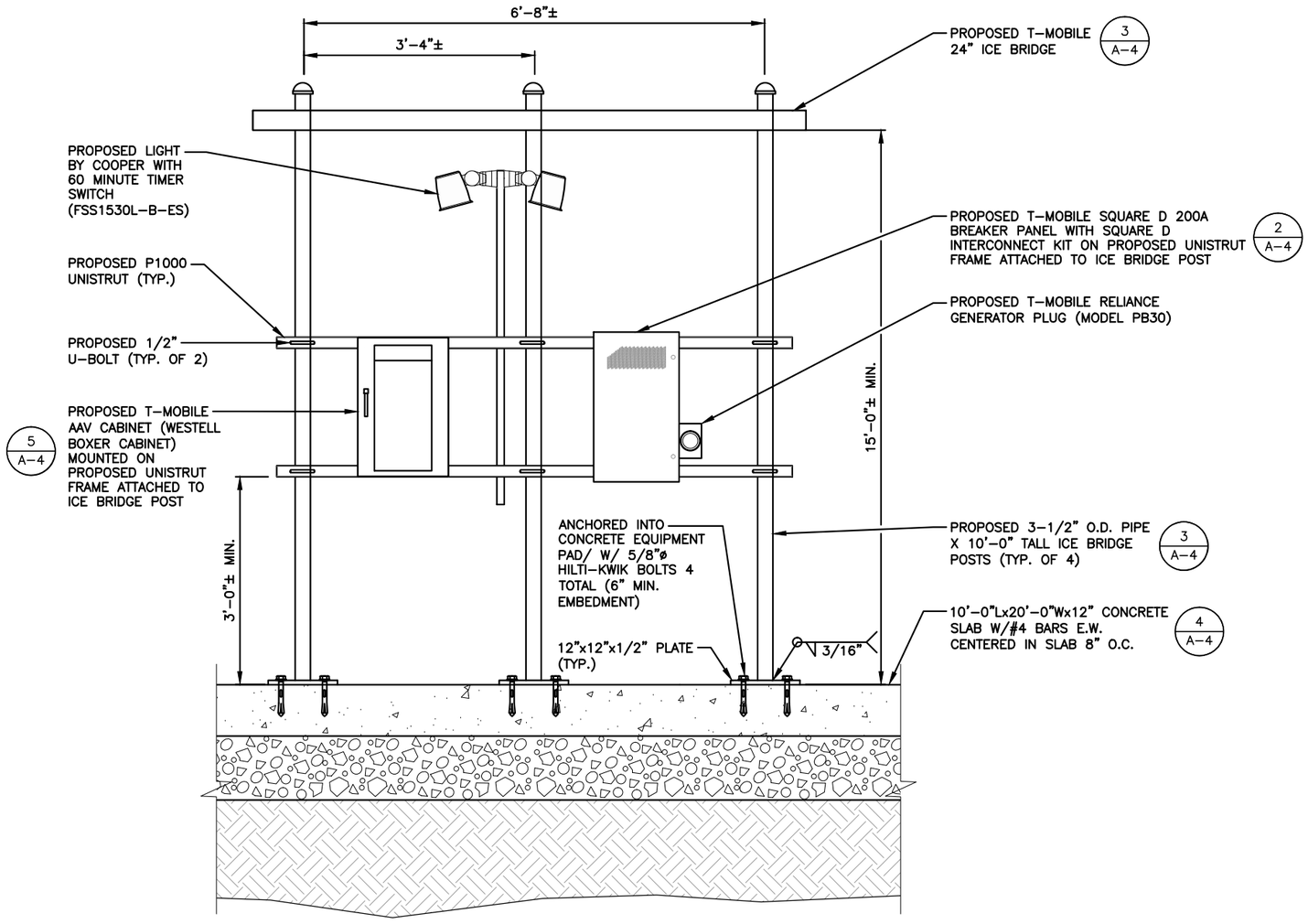
SHEET TITLE
COMPOUND EXPANSION DETAILS
(NSD)

SHEET NUMBER
A-6



EQUIPMENT MOUNTING ELEVATION 1 S-1

22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"

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SHEET TITLE
EQUIPMENT MOUNTING ELEVATION
(NSD)

SHEET NUMBER
S-1

ELECTRICAL NOTES

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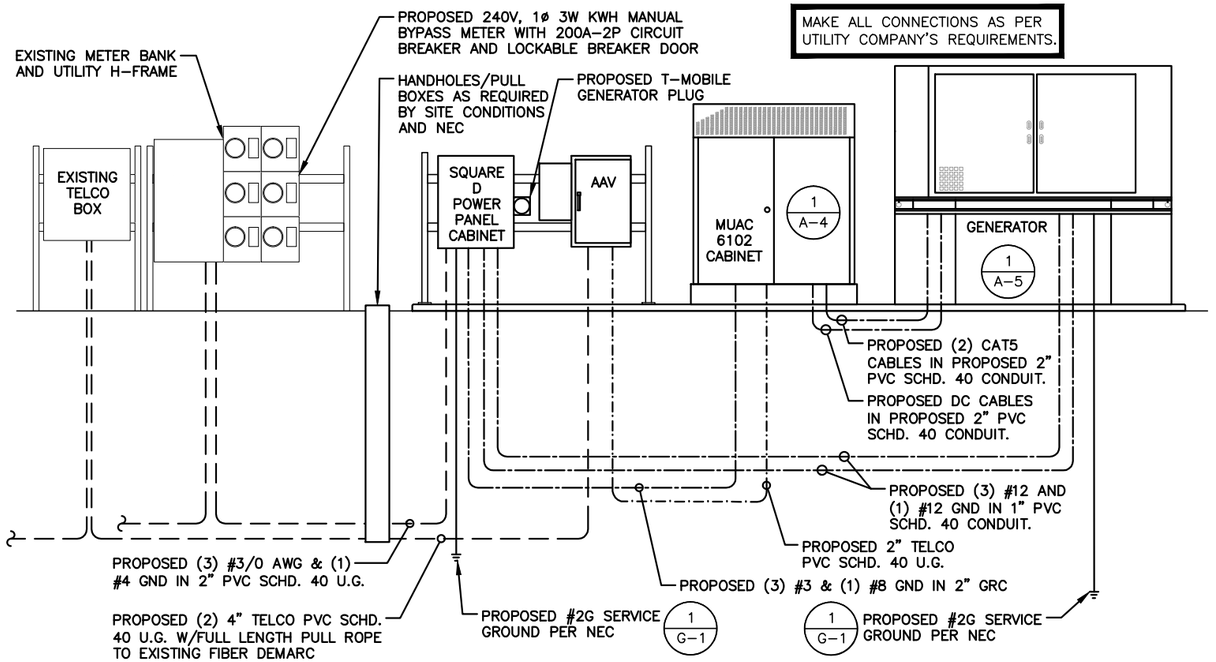
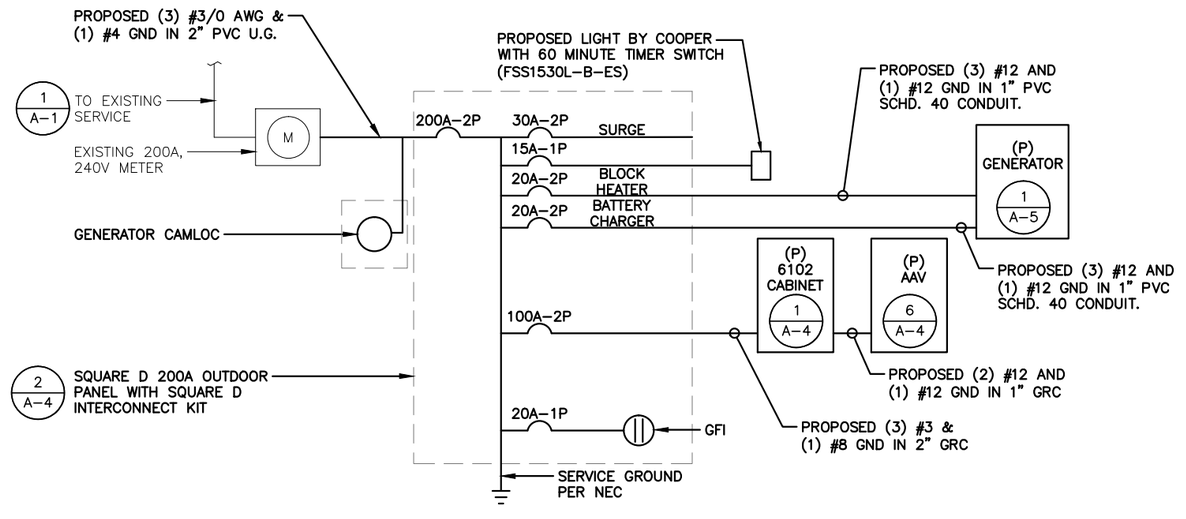
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.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

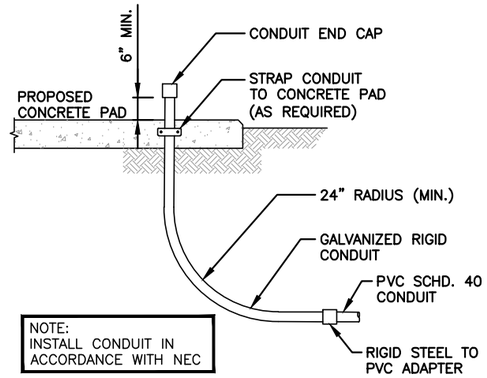
A	AMPERE
V	VOLT
KWH	KILOWATT – HOUR
C	CONDUIT
GRC	GALVANIZED RIGID CONDUIT
BGR	BURIED GROUND RING
BTCW	BARE TINNED SOLID COPPER WIRE
G	GROUND
⏚	GROUND
MGB	MASTER GROUND BAR
	○ MECHANICAL CONNECTION
	● CADWELD CONNECTION
EGB	EQUIPMENT GROUND BAR
—G—	GROUND COPPER WIRE, SIZE AS NOTED
———	EXPOSED WIRING
———	#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



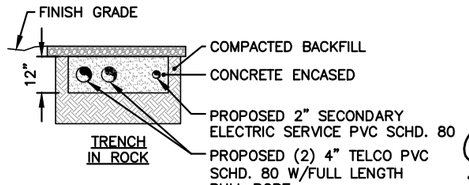
POWER RISER DIAGRAM 1 E–1
SCALE: N.T.S

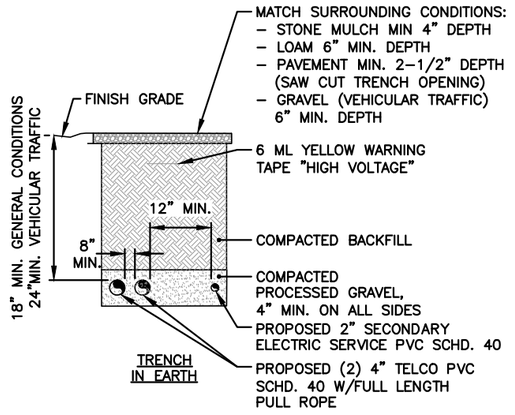


EQUIPMENT ONE LINE DIAGRAM 3 E–1
SCALE: N.T.S



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





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

BURIED CONDUIT DETAIL 4 E–1
SCALE: N.T.S

T-MOBILE NORTHEAST LLC
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LIVERPOOL, NY 13088
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WOBURN, MA 01801

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45 BEECHWOOD DRIVE
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DEREK J. CREASER — STATE OF CONNECTICUT — No. 25561 — LICENSED PROFESSIONAL ENGINEER

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WOODBRIDGE, CT 06525
NEW HAVEN COUNTY

SHEET TITLE
ELECTRICAL DETAILS AND NOTES
(NSD)

SHEET NUMBER
E-1

ELECTRICAL NOTES

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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.
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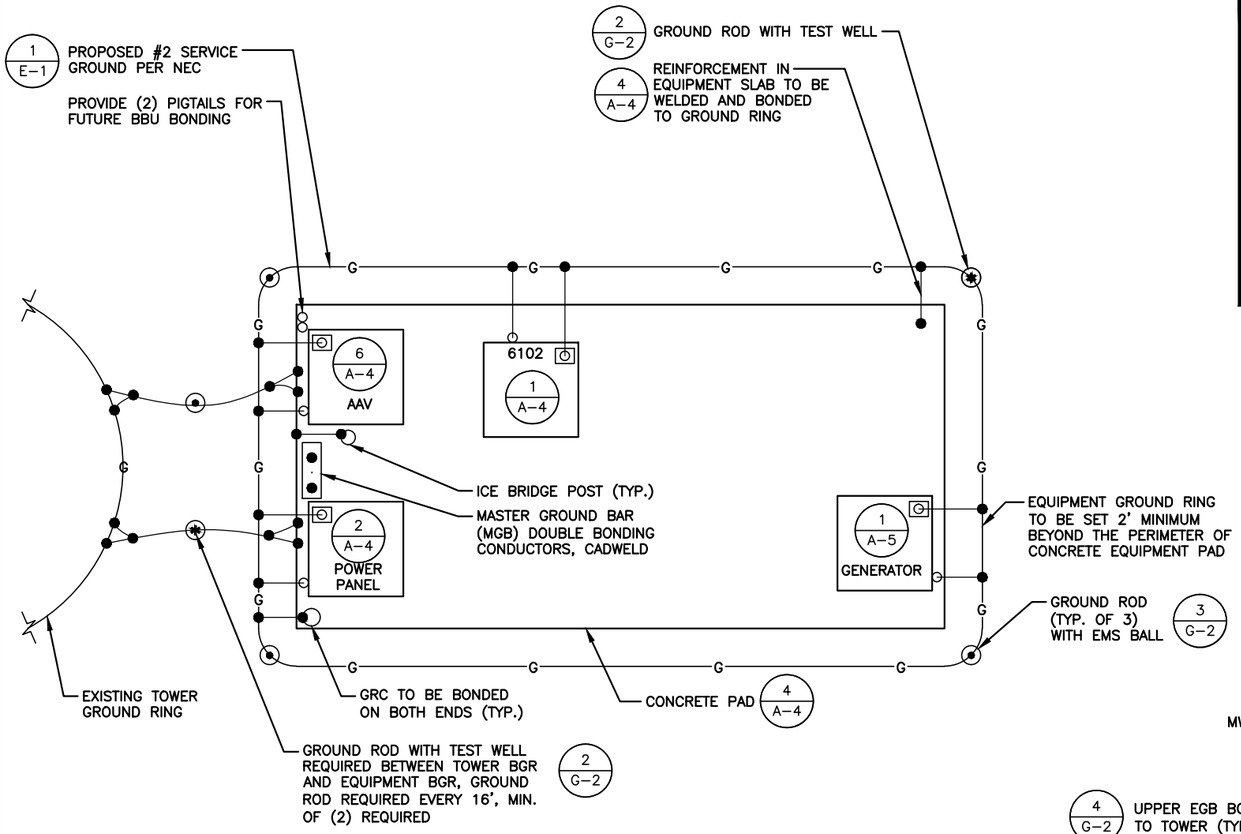
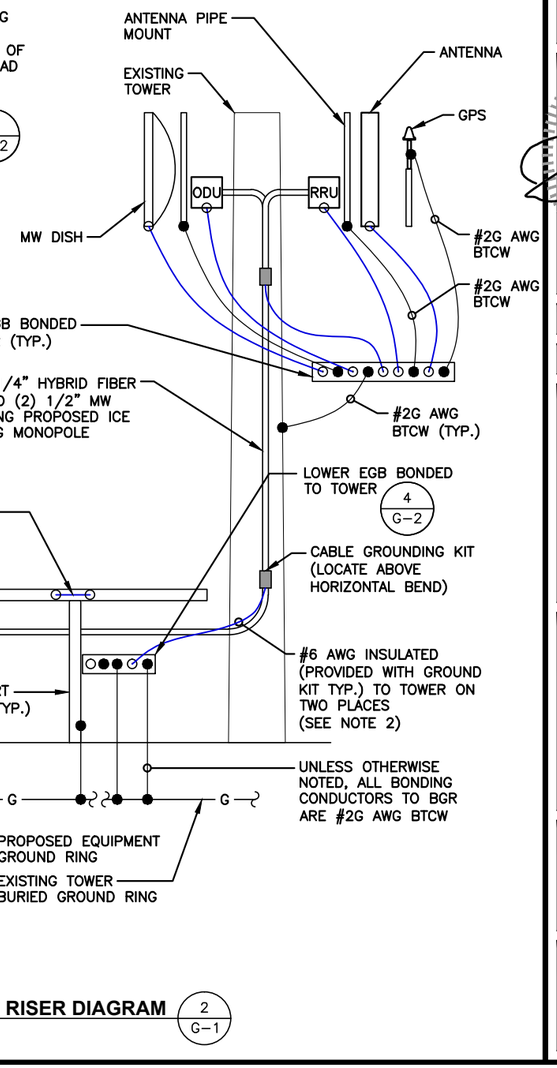
LEGEND

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
—G—	GROUND COPPER WIRE, SIZE AS NOTED
———	EXPOSED WIRING
———	#6G AWG INSULATED STRANDED
———	COAXIAL CABLE/HYBRID CABLE
⦿	5/8"x8' COPPER CLAD STAINLESS STEEL GROUND ROD
✱	GROUND ROD WITH TEST WELL
●—●—	● EXOTHERMIC (CAD WELD) OR ○ MECHANICAL (COMPRESSION TYPE) CONNECTION
PPC	POWER PROTECTION CABINET
⊗	OMNI–DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL



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

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



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

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NEW HAVEN COUNTY

SHEET TITLE
GROUNDING SCHEMATIC AND RISER DIAGRAM
(NSD)

SHEET NUMBER
G-1

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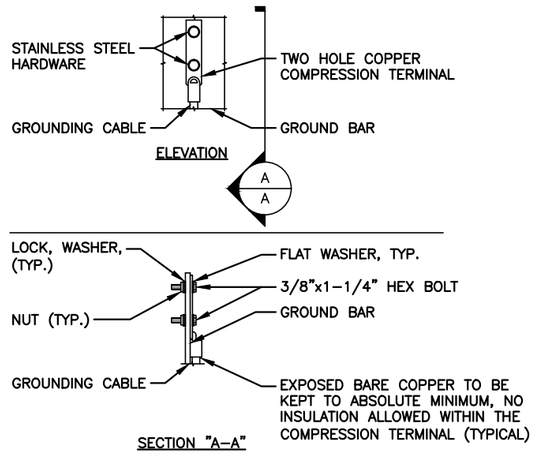
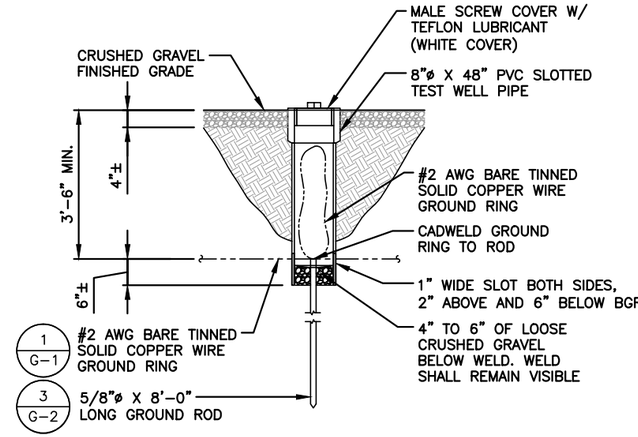
V	VOLT
KWH	KILOWATT – HOUR
C	CONDUIT
GRC	GALVANIZED RIGID CONDUIT
BGR	BURIED GROUND RING
BTCW	BARE TINNED SOLID COPPER WIRE
G	GROUND
⏚	GROUND
MGB	MASTER GROUND BAR
	○ MECHANICAL CONNECTION
	● CADWELD CONNECTION
EGB	EQUIPMENT GROUND BAR
—G—	GROUND COPPER WIRE, SIZE AS NOTED
———	EXPOSED WIRING
———	#6G 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



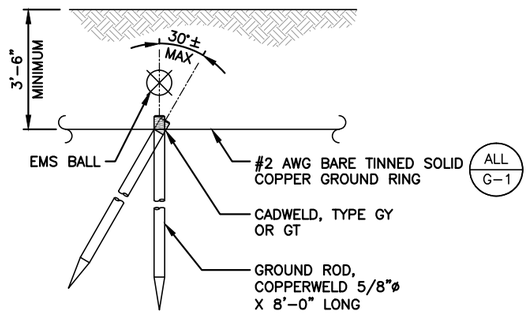
NOTE:
1. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

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



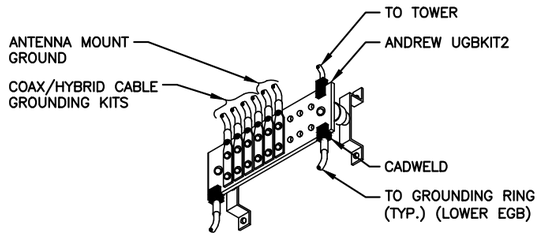
NOTE:
1. PROPOSED BGR TO BE INSTALLED 3'–6" MIN. BELOW GRADE OR BELOW LOCAL FROST DEPTH, WHICHEVER IS GREATER.
2. ONE TEST WELL SHALL BE PROVIDED BETWEEN THE TOWER GROUND LOOP AND TWO ON THE EQUIPMENT GROUND LOOP

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

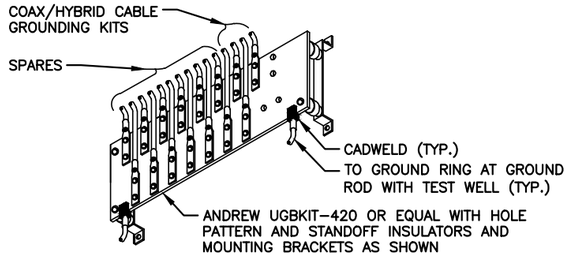


NOTE:
1. PROPOSED BGR TO BE INSTALLED 3'–6" MIN. BELOW GRADE OR BELOW LOCAL FROST DEPTH, WHICHEVER IS GREATER.
2. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 30 DEGREES FROM THE VERTICAL.

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
103 MONARCH DRIVE
LIVERPOOL, NY 13088
(315) 265-1882

CROWN CASTLE
12 GILL STREET, SUITE 5800
WOBURN, MA 01801

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DEREK J. CREASER
No. 23561
LICENSED PROFESSIONAL ENGINEER

CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: BB

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	05/08/18	CONSTRUCTION REVISED	RP/DM
1	04/12/18	CONSTRUCTION REVISED	DJM
0	10/23/17	ISSUED FOR CONSTRUCTION	DJM

SITE NUMBER:
CTNH085A
CROWN BU NUMBER:
876315
SITE NAME:
CTNH085A
SITE ADDRESS:
1027 RACEBROOK ROAD
WOODBRIDGE, CT 06525
NEW HAVEN COUNTY

SHEET TITLE
GROUNDING DETAILS AND NOTES
(NSD)

SHEET NUMBER
G-2

March 26th, 2018

Charles McGuirt
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277
(704) 405-6607

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
btwo@btgrp.com

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CTNH085A
	Carrier Site Name:	CTNH085A
Crown Castle Designation:	**Crown Castle BU Number:**	876315
	Crown Castle Site Name:	Oak Lane CC, INC. Tower (SSUSA
	Crown Castle JDE Job Number:	458256
	Crown Castle Work Order Number:	1540377
	Crown Castle Order Number:	405129 Rev. 5
Engineering Firm Designation:	**B+T Group Project Number:**	81150.004.01
Site Data:	**1027 Racebrook Road, Woodbridge, New Haven County, CT**	
	Latitude *41° 19' 0.3"*, Longitude *-73° 0' 41.8"*	
	150 Foot - Monopole Tower	

Dear Charles McGuirt,

B+T Group is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1161605, in accordance with order 405129, revision 5.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC5: Existing + Proposed Equipment **Sufficient Capacity**
Note: See Table 1 and Table 2 for the proposed and existing loading, respectively.

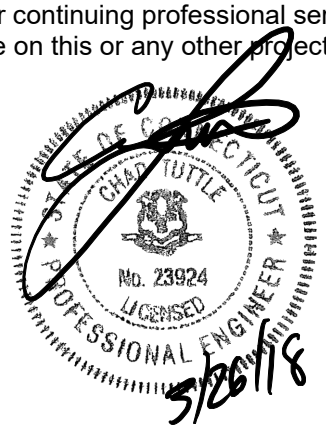
This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B and Risk Category II were used in this analysis.

All equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at *B+T Group* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects, please give us a call.

Structural analysis prepared by: Tharun Cheriyan, E.I.T.

Respectfully submitted by: B&T Engineering, Inc.
COA: PEC.0001564 Expires: 2/10/2019



Chad E. Tuttle, P.E.

tnxTower Report - version 7.0.5.1

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 150 ft. Monopole tower designed by SUMMIT in February of 1998. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F. Additional anchor rods designed by PJF in August of 2012 are considered in this analysis.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a 3-second gust wind speed of 97 mph with no ice, 50 mph with 0.75-inch ice thickness and 60 mph under service loads, exposure category B with topographic category 1 and crest height of 0 feet.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
138.0	138.0	4	Ericsson	AIR 32 B2A/B66AA	11 1 2	1-5/8 1-3/8 1/2	--
		4	Ericsson	ERICSSON AIR 21 B2A B4P			
		8	Ericsson	RADIO 4449			
		3	Ericsson	RRUS 11 B12			
		1	Gps	GPS_A			
		4	Rfs Celwave	APXVAA24_43-U-A20			
		3	Rfs Celwave	ATMA4P4DBP-1A20			
		1	Rfs Celwave	SC2-W100AC			
		1	Site Pro 1	F4P-10W			

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
150.0	156.0	1	Rfs Celwave	201-7	4	1-1/4	1
	153.0	3	Alcatel Lucent	1900MHz RRH (65MHz)			
		3	Alcatel Lucent	800MHZ RRH			
		3	Rfs Celwave	APXVSPP18-C-A20			
		3	Rfs Celwave	APXVTM14-C-120			
	150.0	3	Alcatel Lucent	800 External Notch Filter			
		9	Rfs Celwave	ACU-A20-N			
		1	--	Miscellaneous [NA 507-1]			
		1	--	Platform Mount [LP 1201-1]			
	147.0	3	Alcatel Lucent	TD-RRH8x20-25			
	147.0	1	--	Side Arm Mount [SO 102-3]			
138.0	138.0	**3**	**Rfs Celwave**	**APXV18-206517S-C**	**6**	**1-5/8**	**2**
126.0	129.0	1	Rfs Celwave	TMA-DB-T1-6Z-8AB-0Z	--	--	1
124.0	130.0	1	Gps	GPS_A	13 1	1-1/4 1/2	1
	127.0	1	Antel	BXA-70080/4CF			
		2	Antel	BXA-80063/4CF			
	126.0	3	Alcatel Lucent	RRH2X40-AWS			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		1	Alcatel Lucent	RRH4X45-19			
		3	Powerwave Tech.	P65.16.XL.2			
		3	Rymsa Wireless	MG D3-800TV			
		3	Rymsa Wireless	MG D3-800Tx			
	124.0	1	--	Platform Mount [LP 1201-1]			
102.0	107.0	1	Gps	GPS_A	12 1 2 1	1-5/8 1/2 5/8 3/8	1
	102.0	3	Ericsson	RRUS-11 BAND 12			
		3	Powerwave Tech.	7770.00			
		6	Powerwave Tech.	P65-16-XLH-RR			
		6	Powerwave Tech.	TS07-AWDB111-001			
		1	Raycap	DC6-48-60-18-8F			
		1	--	Platform Mount [LP 1201-1]			
82.0	83.0	1	Lucent	KS24019-L112A	1	1/2	1
	82.0	1	--	Side Arm Mount [SO 701-1]			

Notes:
1) Existing Equipment
2) Equipment to Be Removed; Not Considered in This Analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
Information Not Available						

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Online Order Information	T-Mobile Co-Locate, Revision #5	405129	CCI Sites
Tower Manufacturing Drawings	Summit Manufacturing LLC., Job No. 2249	2134236	CCI Sites
Tower Modification Drawings	PJF, Date: 10/22/2001	2134235	CCI Sites
Tower Modification Drawings	B&T Engineering, Date: 11/25/2008	2414123	CCI Sites
Post Modification Inspection	B&T Engineering, Date: 04/03/2009	2414121	CCI Sites
Tower Modification Drawings	PJF, Date: 06/24/2012	3313096	CCI Sites
Post Modification Inspection	TEP, Date: 11/21/2013	4137621	CCI Sites
Foundation Drawings	Summit Manufacturing LLC., Job No. 2249	2112237	CCI Sites
Geotech Report	Clough, Harbour & Associates, Project No. 5835.07.15	2134233	CCI Sites
Antenna Configuration	Crown CAD Package	Date: 03/12/2018	CCI Sites

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) Mount areas and weights are assumed based on photographs provided.
5) The existing base plate grout was not considered in this analysis.

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	150 - 102.5	Pole	TP30.314x22x0.25	1	-16.139	1459.450	77.0	Pass
L2	102.5 - 62	Pole	TP36.903x29.158x0.313	2	-28.159	2393.150	99.9	Pass
L3	62 - 32.25	Pole	TP41.485x35.447x0.375	3	-38.168	3320.310	97.2	Pass
L4	32.25 - 0	Pole	TP46.38x39.816x0.438	4	-53.359	4464.880	93.2	Pass
							Summary	
						Pole (L2)	99.9	Pass
						Rating =	99.9	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC5

Notes	Component		Elevation	% Capacity	Pass / Fail
1	Anchor Rods		Base	69.5	Pass
1	Base Plate		Base	56.9	Pass
1	Base Foundation	Structure	Base	25.9	Pass
		Soil	Base	82.3	Pass

Structure Rating (max from all components) =	99.9%

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

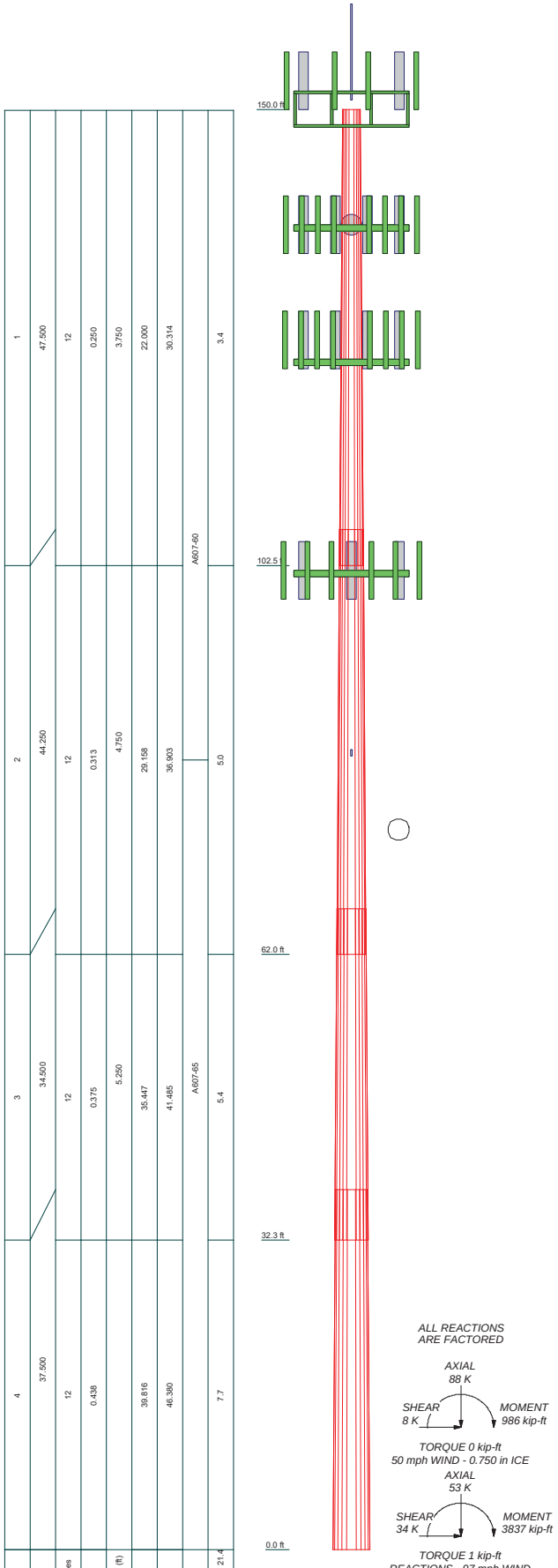
The tower and its foundation have sufficient capacity to carry the final load configuration. No modifications are required at this time.

Table 7 – Proposed Loading Tilt-Sway Results for 50 mph Service Wind – LC5

Elevation (ft)	*Dish Model*	*Diameter (ft)*	*Tilt (°)*	*Twist (°)*
138.0	SC2-W100AC	2.200	1.784	0.002

APPENDIX A

TNXTOWER OUTPUT



Section	1	2	3	4
Length (ft)	47.500	44.250	34.500	37.500
Number of Sides	12	12	12	12
Thickness (in)	0.250	0.313	0.375	0.438
Socket Length (ft)	3.750	4.750	5.250	
Top Dia (in)	22.000	29.158	35.447	39.816
Bot Dia (in)	30.314	36.903	41.485	46.380
Grade	A607-60		A607-65	
Weight (K)	3.4	5.0	5.4	7.7

Total Weight: 21.4 K

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
APXVTM14-C-120 w/ Mount Pipe (E)	150	GPS_A (P)	138
APXVTM14-C-120 w/ Mount Pipe (E)	150	(2) RADIO 4449 (P)	138
APXVTM14-C-120 w/ Mount Pipe (E)	150	(2) RADIO 4449 (P)	138
APXVSPP18-C-A20 w/ Mount Pipe (E)	150	(4) RADIO 4449 (P)	138
APXVSPP18-C-A20 w/ Mount Pipe (E)	150	(3) RRUS 11 B12 (P)	138
APXVSPP18-C-A20 w/ Mount Pipe (E)	150	(3) ATMA4P4DBP-1A20 (P)	138
201-7 (E)	150	6' x 2" Mount Pipe (P-for dish)	138
TD-RRH8x20-25 (E-CL per photo)	150	Platform Mount [LP 701-1] (P-F4P-10W)	138
TD-RRH8x20-25 (E-CL per photo)	150	SC2-W100AC (P)	138
TD-RRH8x20-25 (E-CL per photo)	150	TMA-DB-T1-6Z-8AB-0Z (E-mounted to tower)	126
800MHZ RRH (E-CL per photo-front area reduced)	150	MG D3-800Tx w/ Mount Pipe (E)	124
		MG D3-800Tx w/ Mount Pipe (E)	124
800MHZ RRH (E-CL per photo-front area reduced)	150	MG D3-800TV w/ Mount Pipe (E)	124
		MG D3-800TV w/ Mount Pipe (E)	124
800MHZ RRH (E-CL per photo-front area reduced)	150	MG D3-800TV w/ Mount Pipe (E)	124
		P65.16.XL.2 w/ Mount Pipe (E)	124
800 EXTERNAL NOTCH FILTER (E-front area reduced)	150	P65.16.XL.2 w/ Mount Pipe (E)	124
800 EXTERNAL NOTCH FILTER (E-front area reduced)	150	P65.16.XL.2 w/ Mount Pipe (E)	124
		BXA-70080/4CF w/ Mount Pipe (E)	124
800 EXTERNAL NOTCH FILTER (E-front area reduced)	150	BXA-80063/4CF w/ Mount Pipe (E)	124
		BXA-80063/4CF w/ Mount Pipe (E)	124
(3) ACU-A20-N (E)	150	GPS_A (E)	124
(3) ACU-A20-N (E)	150	RRH2X40-AWS (E-front area reduced)	124
(3) ACU-A20-N (E)	150	RRH2X40-AWS (E-front area reduced)	124
1900MHz RRH (65MHz) (E-CL per photo-front area reduced)	150	RRH2X40-AWS (E-front area reduced)	124
		RRH4X45-19 (E)	124
1900MHz RRH (65MHz) (E-CL per photo-front area reduced)	150	4' x 2" Pipe Mount (E-per photo)	124
		4' x 2" Pipe Mount (E-per photo for GPS)	124
1900MHz RRH (65MHz) (E-CL per photo-front area reduced)	150	Platform Mount [LP 1201-1] (E)	124
		MG D3-800Tx w/ Mount Pipe (E)	124
5' x 2" Pipe Mount (E-per photo)	150	7770.00 w/ Mount Pipe (E)	102
5' x 2" Pipe Mount (E-per photo)	150	7770.00 w/ Mount Pipe (E)	102
5' x 2" Pipe Mount (E-per photo)	150	(2) P65-16-XLH-RR w/ Mount Pipe (E)	102
Miscellaneous [NA 507-1] (E-12.5')	150	(2) P65-16-XLH-RR w/ Mount Pipe (E)	102
Platform Mount [LP 1201-1] (E-12')	150	(2) P65-16-XLH-RR w/ Mount Pipe (E)	102
5' x 3.5" Mount Pipe (E-per photo)	147	GPS_A (E)	102
5' x 3.5" Mount Pipe (E-per photo)	147	(2) TS07-AWDB111-001 (E-front area sheilded)	102
5' x 3.5" Mount Pipe (E-per photo)	147	(2) TS07-AWDB111-001 (E-front area sheilded)	102
Side Arm Mount [SO 102-3] (E-per photo)	147	(2) TS07-AWDB111-001 (E-front area sheilded)	102
(2) ERICSSON AIR 21 B2A B4P w/ Mount Pipe (P)	138	RRUS-11 BAND 12 (E-front area sheilded)	102
		RRUS-11 BAND 12 (E-front area sheilded)	102
(2) ERICSSON AIR 21 B2A B4P w/ Mount Pipe (P)	138	RRUS-11 BAND 12 (E-front area sheilded)	102
AIR 32 B2A/B66AA w/ Mount Pipe (P)	138	DC6-48-60-18-8F (E)	102
(2) AIR 32 B2A/B66AA w/ Mount Pipe (P)	138	3' x 2" Pipe Mount (E-for TME)	102
AIR 32 B2A/B66AA w/ Mount Pipe (P)	138	3' x 2" Pipe Mount (E-for TME)	102
APXVAA24_43-U-A20 w/ Mount Pipe (P)	138	3' x 2" Pipe Mount (E-for TME)	102
(2) APXVAA24_43-U-A20 w/ Mount Pipe (P)	138	Platform Mount [LP 1201-1] (E)	102
APXVAA24_43-U-A20 w/ Mount Pipe (P)	138	7770.00 w/ Mount Pipe (E)	102
		Side Arm Mount [SO 701-1] (E)	82
		KS24019-L112A (E)	82

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-60	60 ksi	75 ksi	A607-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 97 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 0.000 ft
8. TOWER RATING: 99.9%

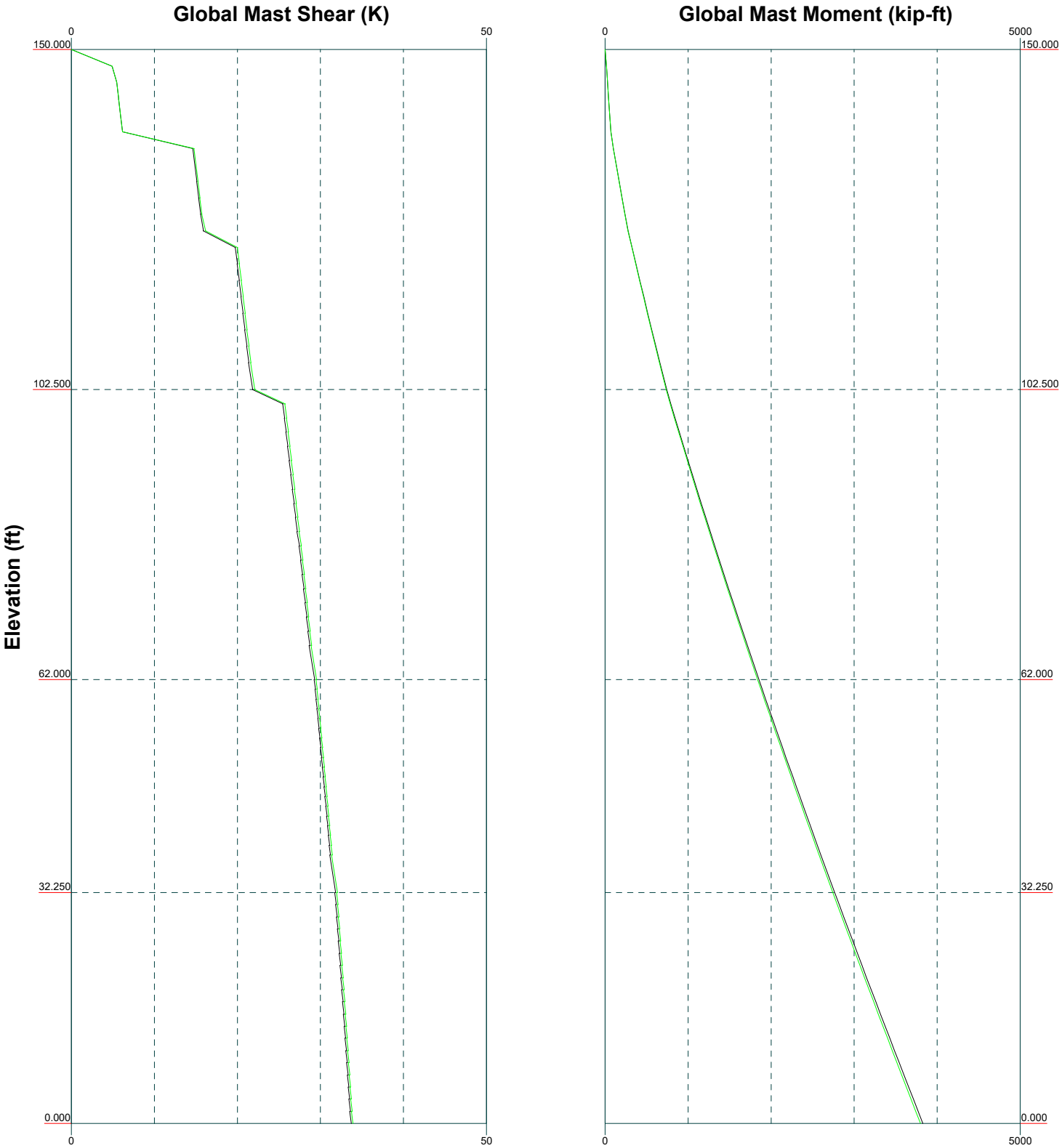
B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 81150.004.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 87631
Project:
Client: Crown Castle | Drawn by: Sinchana | App'd:
Code: TIA-222-G | Date: 03/24/18 | Scale: NTS
Path: | Dwg No. E-1

TIA-222-G - 97 mph/50 mph 0.750 in Ice Exposure B

Maximum Values

Vx Vz Mx Mz

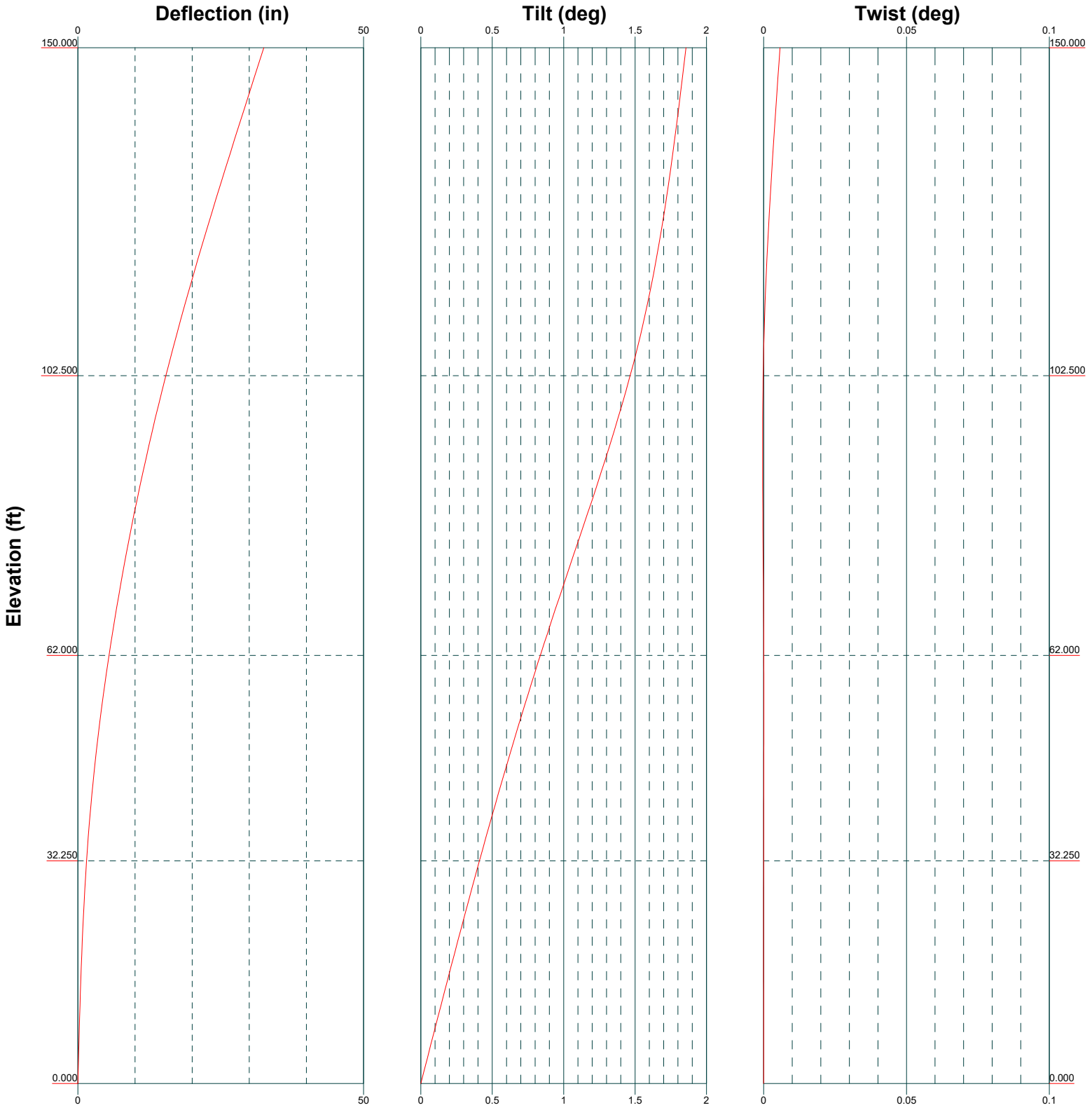


B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 81150.004.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 87631			
Project:			
Client: Crown Castle	Drawn by: Sinchana	App'd:	
Code: TIA-222-G	Date: 03/24/18	Scale: NTS	
Path:		Dwg No. E-4	

TIA-222-G - Service - 60 mph

Maximum Values

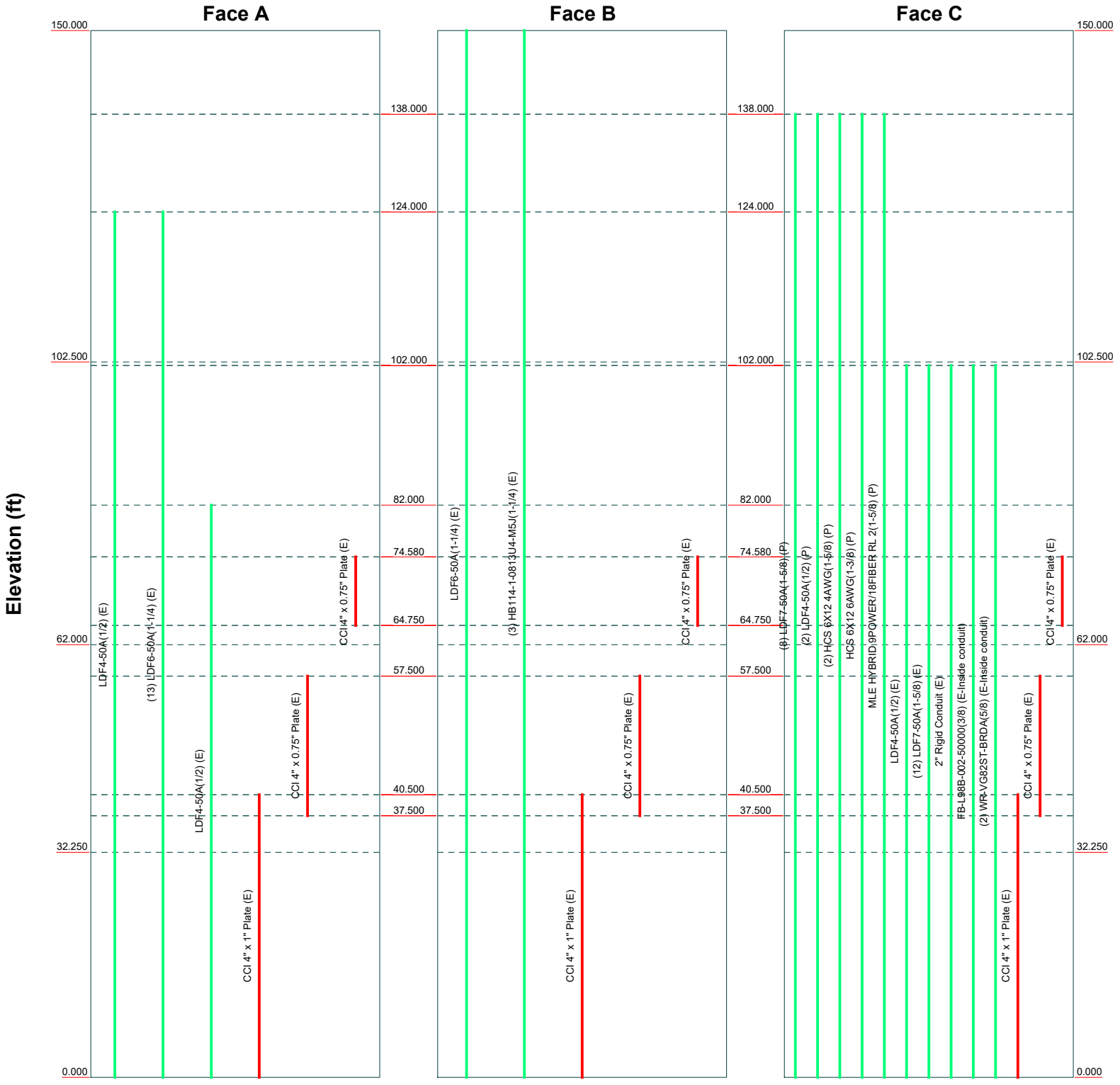


B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: ***81150.004.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 87631***			
Project:			
Client: Crown Castle	Drawn by: Sinchana	App'd:	
Code: TIA-222-G	Date: 03/24/18	Scale: NTS	
Path:		Dwg No. E-5	

Feed Line Distribution Chart
0' - 150'

Round | Flat | App In Face | App Out Face | Truss Leg



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1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 81150.004.01 - OAK LANE CC, INC. TOWER (SSUSA, CT (BU# 87631			
Project:			
Client: Crown Castle	Drawn by: Sinchana	App'd:	
Code: TIA-222-G	Date: 03/24/18	Scale: NTS	
Path:		Dwg No. E-7	

Tower Input Data

There is a pole section.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Basic wind speed of 97 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.000 ft.
Nominal ice thickness of 0.750 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °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 pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric				

Tapered Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Splice Length* *ft*	*Number of Sides*	*Top Diameter* *in*	*Bottom Diameter* *in*	*Wall Thickness* *in*	*Bend Radius* *in*	*Pole Grade*
L1	150.000-102.500	47.500	3.750	12	22.000	30.314	0.250	1.000	A607-60 (60 ksi)
L2	102.500-62.000	44.250	4.750	12	29.158	36.903	0.313	1.250	A607-65 (65 ksi)
L3	62.000-32.250	34.500	5.250	12	35.447	41.485	0.375	1.500	A607-65 (65 ksi)
L4	32.250-0.000	37.500		12	39.816	46.380	0.438	1.750	A607-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	22.776	17.509	1057.206	7.786	11.396	92.770	2142.186	8.617	5.226	20.904
	31.383	24.202	2792.043	10.763	15.703	177.807	5657.436	11.911	7.454	29.817
L2	30.866	29.025	3082.545	10.327	15.104	204.093	6246.072	14.285	6.977	22.326
	38.205	36.819	6292.118	13.099	19.116	329.159	12749.537	18.121	9.053	28.968
L3	37.558	42.349	6648.734	12.556	18.361	362.105	13472.137	20.843	8.495	22.652
	42.948	49.640	10708.176	14.717	21.489	498.304	21697.669	24.431	10.113	26.968
L4	42.172	55.475	10979.966	14.098	20.625	532.369	22248.388	27.303	9.498	21.71
	48.016	64.721	17436.678	16.447	24.025	725.777	35331.437	31.854	11.257	25.731

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 150.000-102.500				1	1	1			
L2 102.500-62.000				1	1	1			
L3 62.000-32.250				1	1	1			
L4 32.250-0.000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
$$									
CCI 4" x 1" Plate (E)	A	Surface Af (CaAa)	40.500 - 0.000	1	1	0.000 0.000	4.000	10.000	0.014
CCI 4" x 1" Plate (E)	B	Surface Af (CaAa)	40.500 - 0.000	1	1	0.000 0.000	4.000	10.000	0.014
CCI 4" x 1" Plate (E)	C	Surface Af (CaAa)	40.500 - 0.000	1	1	0.000 0.000	4.000	10.000	0.014
CCI 4" x 0.75" Plate (E)	A	Surface Af (CaAa)	57.500 - 37.500	1	1	0.000 0.000	4.000	9.500	0.020
CCI 4" x 0.75" Plate (E)	B	Surface Af (CaAa)	57.500 - 37.500	1	1	0.000 0.000	4.000	9.500	0.020
CCI 4" x 0.75" Plate (E)	C	Surface Af (CaAa)	57.500 - 37.500	1	1	0.000 0.000	4.000	9.500	0.020
CCI 4" x 0.75" Plate (E)	A	Surface Af (CaAa)	74.580 - 64.750	1	1	0.000 0.000	4.000	9.500	0.010
CCI 4" x 0.75" Plate (E)	B	Surface Af (CaAa)	74.580 - 64.750	1	1	0.000 0.000	4.000	9.500	0.010
CCI 4" x 0.75" Plate (E)	C	Surface Af (CaAa)	74.580 - 64.750	1	1	0.000 0.000	4.000	9.500	0.010
$$									

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
LDF6-50A(1-1/4) (E)	B	No	Inside Pole	150.000 - 0.000	1	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
HB114-1-0813U4-M5J(1-1/4) (E) *$$*	B	No	Inside Pole	150.000 - 0.000	3	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
LDF7-50A(1-5/8) (P)	C	No	Inside Pole	138.000 - 0.000	8	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
LDF4-50A(1/2) (P)	C	No	Inside Pole	138.000 - 0.000	2	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
HCS 6X12 4AWG(1-5/8) (P)	C	No	Inside Pole	138.000 - 0.000	2	No Ice	0.000	0.002
						1/2" Ice	0.000	0.002
						1" Ice	0.000	0.002
HCS 6X12 6AWG(1-3/8) (P)	C	No	Inside Pole	138.000 - 0.000	1	No Ice	0.000	0.002
						1/2" Ice	0.000	0.002
						1" Ice	0.000	0.002
MLE HYBRID 9POWER/18FIBER RL 2(1-5/8) (P) *$$*	C	No	Inside Pole	138.000 - 0.000	1	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
LDF4-50A(1/2) (E)	A	No	Inside Pole	124.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
LDF6-50A(1-1/4) (E) *$$*	A	No	Inside Pole	124.000 - 0.000	13	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
LDF4-50A(1/2) (E)	C	No	Inside Pole	102.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
LDF7-50A(1-5/8) (E)	C	No	Inside Pole	102.000 - 0.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
2" Rigid Conduit (E)	C	No	Inside Pole	102.000 - 0.000	1	No Ice	0.000	0.003
						1/2" Ice	0.000	0.003
						1" Ice	0.000	0.003
FB-L98B-002-50000(3/8) (E-Inside conduit)	C	No	Inside Pole	102.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
WR-VG82ST-BRDA(5/8) (E-Inside conduit) *$$*	C	No	Inside Pole	102.000 - 0.000	2	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
LDF4-50A(1/2) (E) *$$*	A	No	Inside Pole	82.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	150.000-102.500	A	0.000	0.000	0.000	0.000	0.171
		B	0.000	0.000	0.000	0.000	0.200
		C	0.000	0.000	0.000	0.000	0.512
L2	102.500-62.000	A	0.000	0.000	6.553	0.000	0.425
		B	0.000	0.000	6.553	0.000	0.270
		C	0.000	0.000	6.553	0.000	1.223
L3	62.000-32.250	A	0.000	0.000	18.833	0.000	0.761
		B	0.000	0.000	18.833	0.000	0.645
		C	0.000	0.000	18.833	0.000	1.350
L4	32.250-0.000	A	0.000	0.000	21.500	0.000	0.700
		B	0.000	0.000	21.500	0.000	0.574
		C	0.000	0.000	21.500	0.000	1.338

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	150.000-102.500	A	1.714	0.000	0.000	0.000	0.000	0.171
		B		0.000	0.000	0.000	0.000	0.200
		C		0.000	0.000	0.000	0.000	0.512
L2	102.500-62.000	A	1.643	0.000	0.000	8.791	0.000	0.530
		B		0.000	0.000	8.791	0.000	0.375
		C		0.000	0.000	8.791	0.000	1.328
L3	62.000-32.250	A	1.553	0.000	0.000	28.115	0.000	1.047
		B		0.000	0.000	28.115	0.000	0.931
		C		0.000	0.000	28.115	0.000	1.636
L4	32.250-0.000	A	1.393	0.000	0.000	31.519	0.000	1.009
		B		0.000	0.000	31.519	0.000	0.883
		C		0.000	0.000	31.519	0.000	1.648

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	150.000-102.500	0.000	0.000	0.000	0.000
L2	102.500-62.000	0.000	0.000	0.000	0.000
L3	62.000-32.250	0.000	0.000	0.000	0.000
L4	32.250-0.000	0.000	0.000	0.000	0.000

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	28	CCI 4" x 0.75" Plate	102.50 - 74.58	1.0000	1.0000
L1	29	CCI 4" x 0.75" Plate	102.50 - 74.58	1.0000	1.0000
L1	30	CCI 4" x 0.75" Plate	102.50 - 74.58	1.0000	1.0000
L2	22	CCI 4" x 1" Plate	62.00 - 40.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L2	23	CCI 4" x 1" Plate	62.00 - 40.50	1.0000	1.0000
L2	24	CCI 4" x 1" Plate	62.00 - 40.50	1.0000	1.0000
L2	25	CCI 4" x 0.75" Plate	62.00 - 57.50	1.0000	1.0000
L2	26	CCI 4" x 0.75" Plate	62.00 - 57.50	1.0000	1.0000
L2	27	CCI 4" x 0.75" Plate	62.00 - 57.50	1.0000	1.0000
L3	22	CCI 4" x 1" Plate	32.25 - 40.50	1.0000	1.0000
L3	23	CCI 4" x 1" Plate	32.25 - 40.50	1.0000	1.0000
L3	24	CCI 4" x 1" Plate	32.25 - 40.50	1.0000	1.0000

Discrete Tower Loads

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 K
APXVTM14-C-120 w/ Mount Pipe (E)	A	From Leg	4.000 0.000 3.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	6.580 7.031 7.473	4.959 5.754 6.472	0.077 0.131 0.193
APXVTM14-C-120 w/ Mount Pipe (E)	B	From Leg	4.000 0.000 3.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	6.580 7.031 7.473	4.959 5.754 6.472	0.077 0.131 0.193
APXVTM14-C-120 w/ Mount Pipe (E)	C	From Leg	4.000 0.000 3.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	6.580 7.031 7.473	4.959 5.754 6.472	0.077 0.131 0.193
APXVSPP18-C-A20 w/ Mount Pipe (E)	A	From Leg	4.000 0.000 3.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	8.262 8.822 9.346	6.946 8.127 9.021	0.083 0.151 0.227
APXVSPP18-C-A20 w/ Mount Pipe (E)	B	From Leg	4.000 0.000 3.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	8.262 8.822 9.346	6.946 8.127 9.021	0.083 0.151 0.227
APXVSPP18-C-A20 w/ Mount Pipe (E)	C	From Leg	4.000 0.000 3.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	8.262 8.822 9.346	6.946 8.127 9.021	0.083 0.151 0.227
201-7 (E)	A	From Leg	4.000 0.000 6.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	1.087 1.937 2.802	1.087 1.937 2.802	0.004 0.013 0.028
TD-RRH8x20-25 (E-CL per photo)	A	From Leg	1.000 0.000 -3.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	4.045 4.298 4.557	1.535 1.714 1.901	0.070 0.097 0.128
TD-RRH8x20-25 (E-CL per photo)	B	From Leg	1.000 0.000 -3.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	4.045 4.298 4.557	1.535 1.714 1.901	0.070 0.097 0.128
TD-RRH8x20-25 (E-CL per photo)	C	From Leg	1.000 0.000 -3.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	4.045 4.298 4.557	1.535 1.714 1.901	0.070 0.097 0.128
800MHZ RRH (E-CL per photo-front area reduced)	A	From Leg	1.000 0.000 3.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	2.000 2.100 2.300	1.773 1.946 2.127	0.053 0.074 0.098
800MHZ RRH (E-CL per photo-front area reduced)	B	From Leg	1.000 0.000 3.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	2.000 2.100 2.300	1.773 1.946 2.127	0.053 0.074 0.098
800MHZ RRH (E-CL per photo-front area reduced)	C	From Leg	1.000 0.000 3.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	2.000 2.100 2.300	1.773 1.946 2.127	0.053 0.074 0.098
800 EXTERNAL NOTCH FILTER	A	From Leg	3.000 0.000	0.000	150.000	No Ice 1/2" Ice	0.500 0.600	0.321 0.398	0.011 0.017

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 K
(E-front area reduced)			0.000			1" Ice	0.700	0.483	0.024
800 EXTERNAL NOTCH FILTER	B	From Leg	3.000 0.000	0.000	150.000	No Ice 1/2" Ice	0.500 0.600	0.321 0.398	0.011 0.017
(E-front area reduced)			0.000			1" Ice	0.700	0.483	0.024
800 EXTERNAL NOTCH FILTER	C	From Leg	3.000 0.000	0.000	150.000	No Ice 1/2" Ice	0.500 0.600	0.321 0.398	0.011 0.017
(E-front area reduced)			0.000			1" Ice	0.700	0.483	0.024
(3) ACU-A20-N (E)	A	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	0.067 0.104 0.148	0.117 0.162 0.215	0.001 0.002 0.004
(3) ACU-A20-N (E)	B	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	0.067 0.104 0.148	0.117 0.162 0.215	0.001 0.002 0.004
(3) ACU-A20-N (E)	C	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	0.067 0.104 0.148	0.117 0.162 0.215	0.001 0.002 0.004
1900MHz RRH (65MHz) (E-CL per photo-front area reduced)	A	From Leg	1.000 0.000 3.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	2.100 2.300 2.500	2.375 2.581 2.794	0.060 0.084 0.111
1900MHz RRH (65MHz) (E-CL per photo-front area reduced)	B	From Leg	1.000 0.000 3.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	2.100 2.300 2.500	2.375 2.581 2.794	0.060 0.084 0.111
1900MHz RRH (65MHz) (E-CL per photo-front area reduced)	C	From Leg	1.000 0.000 3.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	2.100 2.300 2.500	2.375 2.581 2.794	0.060 0.084 0.111
5' x 2" Pipe Mount (E-per photo)	A	From Face	0.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	1.000 1.393 1.703	1.000 1.393 1.703	0.029 0.037 0.048
5' x 2" Pipe Mount (E-per photo)	B	From Face	0.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	1.000 1.393 1.703	1.000 1.393 1.703	0.029 0.037 0.048
5' x 2" Pipe Mount (E-per photo)	C	From Face	0.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	1.000 1.393 1.703	1.000 1.393 1.703	0.029 0.037 0.048
Miscellaneous [NA 507-1] (E-12.5')	C	None		0.000	150.000	No Ice 1/2" Ice 1" Ice	4.800 6.700 8.600	4.800 6.700 8.600	0.245 0.294 0.343
Platform Mount [LP 1201-1] (E-12')	C	None		0.000	150.000	No Ice 1/2" Ice 1" Ice	23.100 26.800 30.500	23.100 26.800 30.500	2.100 2.500 2.900
5' x 3.5" Mount Pipe (E-per photo)	A	From Leg	1.000 0.000 0.000	0.000	147.000	No Ice 1/2" Ice 1" Ice	1.495 1.803 2.119	1.495 1.803 2.119	0.038 0.051 0.067
5' x 3.5" Mount Pipe (E-per photo)	B	From Leg	1.000 0.000 0.000	0.000	147.000	No Ice 1/2" Ice 1" Ice	1.495 1.803 2.119	1.495 1.803 2.119	0.038 0.051 0.067
5' x 3.5" Mount Pipe (E-per photo)	C	From Leg	1.000 0.000 0.000	0.000	147.000	No Ice 1/2" Ice 1" Ice	1.495 1.803 2.119	1.495 1.803 2.119	0.038 0.051 0.067
Side Arm Mount [SO 102-3] (E-per photo)	C	None		0.000	147.000	No Ice 1/2" Ice 1" Ice	3.000 3.480 3.960	3.000 3.480 3.960	0.081 0.111 0.141
$$									
(2) ERICSSON AIR 21 B2A B4P w/ Mount Pipe (P)	A	From Leg	4.000 0.000 0.000	0.000	138.000	No Ice 1/2" Ice 1" Ice	6.329 6.775 7.214	5.642 6.426 7.131	0.112 0.169 0.233
(2) ERICSSON AIR 21 B2A	C	From Leg	4.000	0.000	138.000	No Ice	6.329	5.642	0.112

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
B4P w/ Mount Pipe			0.000			1/2" Ice	6.775	6.426	0.169
(P)			0.000			1" Ice	7.214	7.131	0.233
AIR 32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.000	0.000	138.000	No Ice	6.747	6.070	0.153
			0.000			1/2" Ice	7.202	6.867	0.214
(P)			0.000			1" Ice	7.648	7.583	0.282
(2) AIR 32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.000	0.000	138.000	No Ice	6.747	6.070	0.153
			0.000			1/2" Ice	7.202	6.867	0.214
(P)			0.000			1" Ice	7.648	7.583	0.282
AIR 32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.000	0.000	138.000	No Ice	6.747	6.070	0.153
			0.000			1/2" Ice	7.202	6.867	0.214
(P)			0.000			1" Ice	7.648	7.583	0.282
APXVAA24_43-U-A20 w/ Mount Pipe	A	From Leg	4.000	0.000	138.000	No Ice	20.504	10.882	0.134
			0.000			1/2" Ice	21.255	12.408	0.270
(P)			0.000			1" Ice	22.015	13.958	0.416
(2) APXVAA24_43-U-A20 w/ Mount Pipe	B	From Leg	4.000	0.000	138.000	No Ice	20.504	10.882	0.134
			0.000			1/2" Ice	21.255	12.408	0.270
(P)			0.000			1" Ice	22.015	13.958	0.416
APXVAA24_43-U-A20 w/ Mount Pipe	C	From Leg	4.000	0.000	138.000	No Ice	20.504	10.882	0.134
			0.000			1/2" Ice	21.255	12.408	0.270
(P)			0.000			1" Ice	22.015	13.958	0.416
GPS_A	A	From Leg	4.000	0.000	138.000	No Ice	0.255	0.255	0.001
(P)			0.000			1/2" Ice	0.320	0.320	0.005
			0.000			1" Ice	0.393	0.393	0.010
(2) RADIO 4449	A	From Leg	4.000	0.000	138.000	No Ice	1.980	1.410	0.070
(P)			0.000			1/2" Ice	2.157	1.566	0.089
			0.000			1" Ice	2.341	1.729	0.110
(2) RADIO 4449	B	From Leg	4.000	0.000	138.000	No Ice	1.980	1.410	0.070
(P)			0.000			1/2" Ice	2.157	1.566	0.089
			0.000			1" Ice	2.341	1.729	0.110
(4) RADIO 4449	C	From Leg	4.000	0.000	138.000	No Ice	1.980	1.410	0.070
(P)			0.000			1/2" Ice	2.157	1.566	0.089
			0.000			1" Ice	2.341	1.729	0.110
(3) RRUS 11 B12	A	From Leg	4.000	0.000	138.000	No Ice	2.833	1.182	0.051
(P)			0.000			1/2" Ice	3.043	1.330	0.072
			0.000			1" Ice	3.259	1.485	0.095
(3) ATMA4P4DBP-1A20	A	From Leg	4.000	0.000	138.000	No Ice	0.747	0.457	0.017
(P)			0.000			1/2" Ice	0.857	0.550	0.024
			0.000			1" Ice	0.975	0.651	0.032
6' x 2" Mount Pipe	A	From Leg	4.000	0.000	138.000	No Ice	1.425	1.425	0.022
(P-for dish)			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
Platform Mount [LP 701-1]	C	None		0.000	138.000	No Ice	59.150	59.150	2.750
(P-F4P-10W)						1/2" Ice	71.120	71.120	3.424
						1" Ice	83.090	83.090	4.099
$$									
TMA-DB-T1-6Z-8AB-0Z	A	From Leg	1.000	0.000	126.000	No Ice	4.800	2.000	0.044
(E-mounted to tower)			0.000			1/2" Ice	5.070	2.193	0.080
			3.000			1" Ice	5.348	2.393	0.120
$$									
MG D3-800Tx w/ Mount Pipe	A	From Leg	4.000	0.000	124.000	No Ice	3.570	3.418	0.035
			0.000			1/2" Ice	3.979	4.119	0.068
(E)			2.000			1" Ice	4.387	4.784	0.108
MG D3-800Tx w/ Mount Pipe	B	From Leg	4.000	0.000	124.000	No Ice	3.570	3.418	0.035
			0.000			1/2" Ice	3.979	4.119	0.068
(E)			2.000			1" Ice	4.387	4.784	0.108
MG D3-800Tx w/ Mount Pipe	C	From Leg	4.000	0.000	124.000	No Ice	3.570	3.418	0.035
			0.000			1/2" Ice	3.979	4.119	0.068

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 K
(E)			2.000			1" Ice	4.387	4.784	0.108
MG D3-800TV w/ Mount Pipe	A	From Leg	4.000 0.000	0.000	124.000	No Ice 1/2" Ice	3.570 3.979	3.418 4.119	0.037 0.071
(E)			2.000			1" Ice	4.387	4.784	0.111
MG D3-800TV w/ Mount Pipe	B	From Leg	4.000 0.000	0.000	124.000	No Ice 1/2" Ice	3.570 3.979	3.418 4.119	0.037 0.071
(E)			2.000			1" Ice	4.387	4.784	0.111
MG D3-800TV w/ Mount Pipe	C	From Leg	4.000 0.000	0.000	124.000	No Ice 1/2" Ice	3.570 3.979	3.418 4.119	0.037 0.071
(E)			2.000			1" Ice	4.387	4.784	0.111
P65.16.XL.2 w/ Mount Pipe	A	From Leg	4.000	0.000	124.000	No Ice	8.371	5.779	0.059
(E)			0.000 2.000			1/2" Ice 1" Ice	8.931 9.457	6.949 7.833	0.122 0.192
P65.16.XL.2 w/ Mount Pipe	B	From Leg	4.000	0.000	124.000	No Ice	8.371	5.779	0.059
(E)			0.000 2.000			1/2" Ice 1" Ice	8.931 9.457	6.949 7.833	0.122 0.192
P65.16.XL.2 w/ Mount Pipe	C	From Leg	4.000	0.000	124.000	No Ice	8.371	5.779	0.059
(E)			0.000 2.000			1/2" Ice 1" Ice	8.931 9.457	6.949 7.833	0.122 0.192
BXA-70080/4CF w/ Mount Pipe	A	From Leg	4.000 0.000	0.000	124.000	No Ice 1/2" Ice	4.991 5.373	3.997 4.611	0.031 0.075
(E)			3.000			1" Ice	5.763	5.232	0.125
BXA-80063/4CF w/ Mount Pipe	B	From Leg	4.000 0.000	0.000	124.000	No Ice 1/2" Ice	4.945 5.324	3.424 4.022	0.028 0.069
(E)			3.000			1" Ice	5.712	4.637	0.116
BXA-80063/4CF w/ Mount Pipe	C	From Leg	4.000 0.000	0.000	124.000	No Ice 1/2" Ice	4.945 5.324	3.424 4.022	0.028 0.069
(E)			3.000			1" Ice	5.712	4.637	0.116
GPS_A	C	From Leg	4.000	0.000	124.000	No Ice	0.255	0.255	0.001
(E)			0.000 6.000			1/2" Ice 1" Ice	0.320 0.393	0.320 0.393	0.005 0.010
RRH2X40-AWS	A	From Leg	4.000	0.000	124.000	No Ice	2.000	1.420	0.044
(E-front area reduced)			0.000 2.000			1/2" Ice 1" Ice	2.100 2.200	1.590 1.768	0.061 0.082
RRH2X40-AWS	B	From Leg	4.000	0.000	124.000	No Ice	2.000	1.420	0.044
(E-front area reduced)			0.000 2.000			1/2" Ice 1" Ice	2.100 2.200	1.590 1.768	0.061 0.082
RRH2X40-AWS	C	From Leg	4.000	0.000	124.000	No Ice	2.000	1.420	0.044
(E-front area reduced)			0.000 2.000			1/2" Ice 1" Ice	2.100 2.200	1.590 1.768	0.061 0.082
RRH4X45-19	C	From Leg	4.000	0.000	124.000	No Ice	2.313	2.375	0.060
(E)			0.000 2.000			1/2" Ice 1" Ice	2.517 2.728	2.581 2.794	0.083 0.111
4' x 2" Pipe Mount	B	From Leg	4.000	0.000	124.000	No Ice	0.785	0.785	0.029
(E-per photo)			0.000 2.000			1/2" Ice 1" Ice	1.028 1.281	1.028 1.281	0.035 0.044
4' x 2" Pipe Mount	C	From Leg	4.000	0.000	124.000	No Ice	0.785	0.785	0.029
(E-per photo for GPS)			0.000 2.000			1/2" Ice 1" Ice	1.028 1.281	1.028 1.281	0.035 0.044
Platform Mount [LP 1201-1]	C	None		0.000	124.000	No Ice	23.100	23.100	2.100
(E)						1/2" Ice 1" Ice	26.800 30.500	26.800 30.500	2.500 2.900
$$									
7770.00 w/ Mount Pipe	A	From Leg	4.000	0.000	102.000	No Ice	5.746	4.254	0.055
(E)			0.000 0.000			1/2" Ice 1" Ice	6.179 6.607	5.014 5.711	0.103 0.157
7770.00 w/ Mount Pipe	B	From Leg	4.000	0.000	102.000	No Ice	5.746	4.254	0.055

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(E)			0.000			1/2" Ice	6.179	5.014	0.103
			0.000			1" Ice	6.607	5.711	0.157
7770.00 w/ Mount Pipe	C	From Leg	4.000	0.000	102.000	No Ice	5.746	4.254	0.055
(E)			0.000			1/2" Ice	6.179	5.014	0.103
			0.000			1" Ice	6.607	5.711	0.157
(2) P65-16-XLH-RR w/	A	From Leg	4.000	0.000	102.000	No Ice	8.371	6.362	0.079
Mount Pipe			0.000			1/2" Ice	8.931	7.538	0.144
(E)			0.000			1" Ice	9.457	8.427	0.218
(2) P65-16-XLH-RR w/	B	From Leg	4.000	0.000	102.000	No Ice	8.371	6.362	0.079
Mount Pipe			0.000			1/2" Ice	8.931	7.538	0.144
(E)			0.000			1" Ice	9.457	8.427	0.218
(2) P65-16-XLH-RR w/	C	From Leg	4.000	0.000	102.000	No Ice	8.371	6.362	0.079
Mount Pipe			0.000			1/2" Ice	8.931	7.538	0.144
(E)			0.000			1" Ice	9.457	8.427	0.218
GPS_A	C	From Leg	4.000	0.000	102.000	No Ice	0.255	0.255	0.001
(E)			0.000			1/2" Ice	0.320	0.320	0.005
			5.000			1" Ice	0.393	0.393	0.010
(2) TS07-AWDB111-001	A	From Leg	4.000	0.000	102.000	No Ice	0.000	0.500	0.028
(E-front area sheilded)			0.000			1/2" Ice	0.000	0.598	0.037
			0.000			1" Ice	0.000	0.704	0.049
(2) TS07-AWDB111-001	B	From Leg	4.000	0.000	102.000	No Ice	0.000	0.500	0.028
(E-front area sheilded)			0.000			1/2" Ice	0.000	0.598	0.037
			0.000			1" Ice	0.000	0.704	0.049
(2) TS07-AWDB111-001	C	From Leg	4.000	0.000	102.000	No Ice	0.000	0.500	0.028
(E-front area sheilded)			0.000			1/2" Ice	0.000	0.598	0.037
			0.000			1" Ice	0.000	0.704	0.049
RRUS-11 BAND 12	A	From Leg	4.000	0.000	102.000	No Ice	0.000	1.068	0.050
(E-front area sheilded)			0.000			1/2" Ice	0.000	1.211	0.070
			0.000			1" Ice	0.000	1.361	0.092
RRUS-11 BAND 12	B	From Leg	4.000	0.000	102.000	No Ice	0.000	1.068	0.050
(E-front area sheilded)			0.000			1/2" Ice	0.000	1.211	0.070
			0.000			1" Ice	0.000	1.361	0.092
RRUS-11 BAND 12	C	From Leg	4.000	0.000	102.000	No Ice	0.000	1.068	0.050
(E-front area sheilded)			0.000			1/2" Ice	0.000	1.211	0.070
			0.000			1" Ice	0.000	1.361	0.092
DC6-48-60-18-8F	C	From Leg	4.000	0.000	102.000	No Ice	1.212	1.212	0.033
(E)			0.000			1/2" Ice	1.892	1.892	0.055
			0.000			1" Ice	2.105	2.105	0.080
3' x 2" Pipe Mount	A	From Leg	4.000	0.000	102.000	No Ice	0.583	0.583	0.011
(E-for TME)			0.000			1/2" Ice	0.770	0.770	0.017
			1.000			1" Ice	0.967	0.967	0.024
3' x 2" Pipe Mount	B	From Leg	4.000	0.000	102.000	No Ice	0.583	0.583	0.011
(E-for TME)			0.000			1/2" Ice	0.770	0.770	0.017
			1.000			1" Ice	0.967	0.967	0.024
3' x 2" Pipe Mount	C	From Leg	4.000	0.000	102.000	No Ice	0.583	0.583	0.011
(E-for TME)			0.000			1/2" Ice	0.770	0.770	0.017
			1.000			1" Ice	0.967	0.967	0.024
Platform Mount [LP 1201-1]	C	None		0.000	102.000	No Ice	23.100	23.100	2.100
(E)						1/2" Ice	26.800	26.800	2.500
						1" Ice	30.500	30.500	2.900
$$									
KS24019-L112A	A	From Leg	4.000	0.000	82.000	No Ice	0.141	0.141	0.005
(E)			0.000			1/2" Ice	0.198	0.198	0.007
			1.000			1" Ice	0.262	0.262	0.009
Side Arm Mount [SO 701-1]	A	From Leg	2.000	0.000	82.000	No Ice	0.850	1.670	0.065
(E)			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093

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 K
$$* *$$								

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
SC2-W100AC (P)	A	Paraboloid w/Shroud (HP)	From Leg	4.000 0.000 0.000	0.000		138.000	2.200	No Ice 1/2" Ice 1" Ice	3.801 4.095 4.388	0.022 0.043 0.064
$$											

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

Comb. No.	Description
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
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 Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	150 - 102.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-37.491	0.715	2.534
			Max. Mx	20	-16.198	654.233	5.404
			Max. My	2	-16.153	4.921	659.933
			Max. Vy	20	-21.379	654.233	5.404
			Max. Vx	14	21.631	-3.352	-659.921
			Max. Torque	9			1.374
L2	102.5 - 62	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-56.586	1.516	2.911
			Max. Mx	20	-28.203	1699.674	11.661
			Max. My	14	-28.169	-8.328	-1714.568
			Max. Vy	20	-28.729	1699.674	11.661
			Max. Vx	14	28.952	-8.328	-1714.568
			Max. Torque	9			1.223
L3	62 - 32.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-69.100	1.516	2.911
			Max. Mx	20	-38.191	2578.130	16.019
			Max. My	14	-38.173	-12.057	-2599.467
			Max. Vy	20	-31.221	2578.130	16.019
			Max. Vx	14	31.438	-12.057	-2599.467
			Max. Torque	9			1.219
L4	32.25 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-87.507	1.516	2.910
			Max. Mx	20	-53.359	3799.191	21.344
			Max. My	14	-53.359	-16.659	-3828.489
			Max. Vy	20	-33.719	3799.191	21.344
			Max. Vx	14	33.924	-16.659	-3828.489
			Max. Torque	9			1.214

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	87.507	0.016	7.856
	Max. H_x	20	53.390	33.669	0.137
	Max. H_z	2	53.390	0.119	33.834
	Max. M_x	2	3824.378	0.119	33.834
	Max. M_z	8	3797.159	-33.669	-0.100
	Max. Torsion	9	1.213	-33.669	-0.100
	Min. Vert	23	40.043	29.201	17.053
	Min. H_x	8	53.390	-33.669	-0.100
	Min. H_z	14	53.390	-0.119	-33.875
	Min. M_x	14	-3828.489	-0.119	-33.875
	Min. M_z	20	-3799.191	33.669	0.137
	Min. Torsion	21	-1.203	33.669	0.137

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	44.492	0.000	0.000	-0.741	0.779	0.000
1.2 Dead+1.6 Wind 0 deg - No Ice	53.390	-0.119	-33.834	-3824.378	18.719	-0.158
0.9 Dead+1.6 Wind 0 deg - No Ice	40.043	-0.119	-33.834	-3751.578	18.062	-0.162
1.2 Dead+1.6 Wind 30 deg - No Ice	53.390	16.709	-29.254	-3305.385	-1879.351	-0.624
0.9 Dead+1.6 Wind 30 deg - No Ice	40.043	16.709	-29.254	-3242.426	-1844.018	-0.628
1.2 Dead+1.6 Wind 60 deg - No Ice	53.390	29.082	-16.848	-1902.526	-3276.963	-1.039
0.9 Dead+1.6 Wind 60 deg - No Ice	40.043	29.082	-16.848	-1866.194	-3215.104	-1.043
1.2 Dead+1.6 Wind 90 deg - No Ice	53.390	33.669	0.100	14.037	-3797.159	-1.211
0.9 Dead+1.6 Wind 90 deg - No Ice	40.043	33.669	0.100	13.981	-3725.427	-1.213
1.2 Dead+1.6 Wind 120 deg - No Ice	53.390	29.189	17.092	1936.923	-3292.664	-0.807
0.9 Dead+1.6 Wind 120 deg - No Ice	40.043	29.189	17.092	1900.359	-3230.494	-0.806
1.2 Dead+1.6 Wind 150 deg - No Ice	53.390	16.924	29.415	3327.165	-1911.273	-0.374
0.9 Dead+1.6 Wind 150 deg - No Ice	40.043	16.924	29.415	3264.252	-1875.280	-0.371
1.2 Dead+1.6 Wind 180 deg - No Ice	53.390	0.119	33.875	3828.489	-16.659	0.168
0.9 Dead+1.6 Wind 180 deg - No Ice	40.043	0.119	33.875	3756.095	-16.571	0.171
1.2 Dead+1.6 Wind 210 deg - No Ice	53.390	-16.719	29.296	3309.691	1882.817	0.661
0.9 Dead+1.6 Wind 210 deg - No Ice	40.043	-16.719	29.296	3247.135	1846.892	0.665
1.2 Dead+1.6 Wind 240 deg - No Ice	53.390	-29.070	16.887	1906.403	3277.238	0.965
0.9 Dead+1.6 Wind 240 deg -	40.043	-29.070	16.887	1870.477	3214.859	0.968

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
No Ice						
1.2 Dead+1.6 Wind 270 deg - No Ice	53.390	-33.669	-0.137	-21.343	3799.191	1.201
0.9 Dead+1.6 Wind 270 deg - No Ice	40.043	-33.669	-0.137	-20.653	3726.899	1.203
1.2 Dead+1.6 Wind 300 deg - No Ice	53.390	-29.201	-17.053	-1933.022	3296.466	0.871
0.9 Dead+1.6 Wind 300 deg - No Ice	40.043	-29.201	-17.053	-1896.060	3233.694	0.871
1.2 Dead+1.6 Wind 330 deg - No Ice	53.390	-16.915	-29.373	-3322.835	1911.913	0.346
0.9 Dead+1.6 Wind 330 deg - No Ice	40.043	-16.915	-29.373	-3259.527	1875.379	0.344
1.2 Dead+1.0 Ice+1.0 Temp	87.507	-0.000	-0.000	-2.910	1.516	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	87.507	-0.016	-7.856	-985.073	4.270	-0.051
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	87.507	3.893	-6.798	-852.630	-483.328	-0.232
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	87.507	6.764	-3.921	-492.946	-841.745	-0.374
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	87.507	7.824	0.012	-1.065	-974.426	-0.422
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	87.507	6.778	3.958	492.684	-843.993	-0.303
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	87.507	3.924	6.824	850.532	-488.255	-0.146
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	87.507	0.016	7.865	980.277	-1.039	0.052
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	87.507	-3.895	6.807	847.879	486.889	0.235
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	87.507	-6.762	3.929	488.087	844.570	0.354
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	87.507	-7.824	-0.020	-6.373	977.654	0.422
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	87.507	-6.781	-3.949	-497.541	847.625	0.322
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	87.507	-3.922	-6.815	-855.281	491.154	0.143
Dead+Wind 0 deg - Service	44.492	-0.025	-7.239	-811.199	4.595	-0.036
Dead+Wind 30 deg - Service	44.492	3.575	-6.259	-701.179	-397.704	-0.140
Dead+Wind 60 deg - Service	44.492	6.222	-3.605	-403.834	-693.909	-0.230
Dead+Wind 90 deg - Service	44.492	7.204	0.021	2.370	-804.158	-0.265
Dead+Wind 120 deg - Service	44.492	6.245	3.657	409.943	-697.284	-0.174
Dead+Wind 150 deg - Service	44.492	3.621	6.294	704.647	-404.498	-0.080
Dead+Wind 180 deg - Service	44.492	0.025	7.248	810.880	-2.898	0.036
Dead+Wind 210 deg - Service	44.492	-3.577	6.268	700.902	399.707	0.143
Dead+Wind 240 deg - Service	44.492	-6.220	3.613	403.455	695.236	0.210
Dead+Wind 270 deg - Service	44.492	-7.204	-0.029	-5.123	805.854	0.265
Dead+Wind 300 deg - Service	44.492	-6.248	-3.649	-410.321	699.350	0.194
Dead+Wind 330 deg - Service	44.492	-3.619	-6.285	-704.923	405.888	0.078

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-44.492	0.000	0.000	44.492	0.000	0.000%
2	-0.119	-53.390	-33.834	0.119	53.390	33.834	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
3	-0.119	-40.043	-33.834	0.119	40.043	33.834	0.000%
4	16.709	-53.390	-29.254	-16.709	53.390	29.254	0.000%
5	16.709	-40.043	-29.254	-16.709	40.043	29.254	0.000%
6	29.082	-53.390	-16.848	-29.082	53.390	16.848	0.000%
7	29.082	-40.043	-16.848	-29.082	40.043	16.848	0.000%
8	33.669	-53.390	0.100	-33.669	53.390	-0.100	0.000%
9	33.669	-40.043	0.100	-33.669	40.043	-0.100	0.000%
10	29.189	-53.390	17.092	-29.189	53.390	-17.092	0.000%
11	29.189	-40.043	17.092	-29.189	40.043	-17.092	0.000%
12	16.924	-53.390	29.415	-16.924	53.390	-29.415	0.000%
13	16.924	-40.043	29.415	-16.924	40.043	-29.415	0.000%
14	0.119	-53.390	33.875	-0.119	53.390	-33.875	0.000%
15	0.119	-40.043	33.875	-0.119	40.043	-33.875	0.000%
16	-16.719	-53.390	29.296	16.719	53.390	-29.296	0.000%
17	-16.719	-40.043	29.296	16.719	40.043	-29.296	0.000%
18	-29.070	-53.390	16.887	29.070	53.390	-16.887	0.000%
19	-29.070	-40.043	16.887	29.070	40.043	-16.887	0.000%
20	-33.669	-53.390	-0.137	33.669	53.390	0.137	0.000%
21	-33.669	-40.043	-0.137	33.669	40.043	0.137	0.000%
22	-29.201	-53.390	-17.053	29.201	53.390	17.053	0.000%
23	-29.201	-40.043	-17.053	29.201	40.043	17.053	0.000%
24	-16.915	-53.390	-29.373	16.915	53.390	29.373	0.000%
25	-16.915	-40.043	-29.373	16.915	40.043	29.373	0.000%
26	0.000	-87.507	0.000	0.000	87.507	0.000	0.000%
27	-0.016	-87.507	-7.856	0.016	87.507	7.856	0.000%
28	3.893	-87.507	-6.798	-3.893	87.507	6.798	0.000%
29	6.764	-87.507	-3.921	-6.764	87.507	3.921	0.000%
30	7.824	-87.507	0.012	-7.824	87.507	-0.012	0.000%
31	6.778	-87.507	3.958	-6.778	87.507	-3.958	0.000%
32	3.924	-87.507	6.823	-3.924	87.507	-6.824	0.000%
33	0.016	-87.507	7.865	-0.016	87.507	-7.865	0.000%
34	-3.895	-87.507	6.807	3.895	87.507	-6.807	0.000%
35	-6.762	-87.507	3.929	6.762	87.507	-3.929	0.000%
36	-7.824	-87.507	-0.020	7.824	87.507	0.020	0.000%
37	-6.781	-87.507	-3.949	6.781	87.507	3.949	0.000%
38	-3.921	-87.507	-6.815	3.922	87.507	6.815	0.000%
39	-0.025	-44.492	-7.239	0.025	44.492	7.239	0.000%
40	3.575	-44.492	-6.259	-3.575	44.492	6.259	0.000%
41	6.222	-44.492	-3.605	-6.222	44.492	3.605	0.000%
42	7.204	-44.492	0.021	-7.204	44.492	-0.021	0.000%
43	6.245	-44.492	3.657	-6.245	44.492	-3.657	0.000%
44	3.621	-44.492	6.294	-3.621	44.492	-6.294	0.000%
45	0.025	-44.492	7.248	-0.025	44.492	-7.248	0.000%
46	-3.577	-44.492	6.268	3.577	44.492	-6.268	0.000%
47	-6.220	-44.492	3.613	6.220	44.492	-3.613	0.000%
48	-7.204	-44.492	-0.029	7.204	44.492	0.029	0.000%
49	-6.248	-44.492	-3.649	6.248	44.492	3.649	0.000%
50	-3.619	-44.492	-6.285	3.619	44.492	6.285	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00018694
3	Yes	5	0.00000001	0.00007899
4	Yes	6	0.00000001	0.00081921
5	Yes	6	0.00000001	0.00024944

6	Yes	6	0.00000001	0.00083397
7	Yes	6	0.00000001	0.00025480
8	Yes	5	0.00000001	0.00014387
9	Yes	5	0.00000001	0.00006282
10	Yes	6	0.00000001	0.00083237
11	Yes	6	0.00000001	0.00025190
12	Yes	6	0.00000001	0.00084301
13	Yes	6	0.00000001	0.00025568
14	Yes	5	0.00000001	0.00013535
15	Yes	5	0.00000001	0.00005549
16	Yes	6	0.00000001	0.00083190
17	Yes	6	0.00000001	0.00025372
18	Yes	6	0.00000001	0.00081845
19	Yes	6	0.00000001	0.00024891
20	Yes	5	0.00000001	0.00038417
21	Yes	5	0.00000001	0.00017295
22	Yes	6	0.00000001	0.00084750
23	Yes	6	0.00000001	0.00025724
24	Yes	6	0.00000001	0.00083570
25	Yes	6	0.00000001	0.00025297
26	Yes	4	0.00000001	0.00006839
27	Yes	6	0.00000001	0.00040789
28	Yes	6	0.00000001	0.00057105
29	Yes	6	0.00000001	0.00057686
30	Yes	6	0.00000001	0.00040198
31	Yes	6	0.00000001	0.00056858
32	Yes	6	0.00000001	0.00057382
33	Yes	6	0.00000001	0.00040347
34	Yes	6	0.00000001	0.00057278
35	Yes	6	0.00000001	0.00056610
36	Yes	6	0.00000001	0.00040453
37	Yes	6	0.00000001	0.00058616
38	Yes	6	0.00000001	0.00058171
39	Yes	4	0.00000001	0.00031430
40	Yes	5	0.00000001	0.00012775
41	Yes	5	0.00000001	0.00013479
42	Yes	4	0.00000001	0.00033316
43	Yes	5	0.00000001	0.00013053
44	Yes	5	0.00000001	0.00013566
45	Yes	4	0.00000001	0.00031097
46	Yes	5	0.00000001	0.00013370
47	Yes	5	0.00000001	0.00012707
48	Yes	4	0.00000001	0.00035040
49	Yes	5	0.00000001	0.00013947
50	Yes	5	0.00000001	0.00013392

Maximum Tower Deflections - Service Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load Comb.*	*Tilt*	*Twist*
	ft	*in*		°	°
L1	150 - 102.5	32.542	50	1.854	0.003
L2	106.25 - 62	16.573	50	1.513	0.001
L3	66.75 - 32.25	6.345	50	0.908	0.001
L4	37.5 - 0	1.992	50	0.483	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.000	APXVTM14-C-120 w/ Mount Pipe	50	32.542	1.854	0.003	34202
147.000	5' x 3.5" Mount Pipe	50	31.380	1.837	0.003	34202
138.000	SC2-W100AC	50	27.913	1.784	0.002	14250
126.000	TMA-DB-T1-6Z-8AB-0Z	50	23.406	1.703	0.002	7124
124.000	MG D3-800Tx w/ Mount Pipe	50	22.675	1.688	0.002	6576
102.000	7770.00 w/ Mount Pipe	50	15.240	1.459	0.001	3896
82.000	KS24019-L112A	50	9.717	1.156	0.001	3844

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 102.5	152.953	12	8.738	0.013
L2	106.25 - 62	78.085	12	7.143	0.006
L3	66.75 - 32.25	29.937	12	4.290	0.002
L4	37.5 - 0	9.402	12	2.281	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.000	APXVTM14-C-120 w/ Mount Pipe	12	152.953	8.738	0.014	7601
147.000	5' x 3.5" Mount Pipe	12	147.510	8.659	0.013	7601
138.000	SC2-W100AC	12	131.267	8.413	0.011	3165
126.000	TMA-DB-T1-6Z-8AB-0Z	12	110.143	8.034	0.009	1578
124.000	MG D3-800Tx w/ Mount Pipe	12	106.716	7.961	0.009	1456
102.000	7770.00 w/ Mount Pipe	12	71.822	6.888	0.006	855
82.000	KS24019-L112A	12	45.834	5.462	0.004	832

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	150 - 102.5 (1)	TP30.314x22x0.25	47.500	0.000	0.0	23.673	-16.139	1459.450	0.011
L2	102.5 - 62 (2)	TP36.903x29.158x0.313	44.250	0.000	0.0	35.983	-28.159	2393.150	0.012
L3	62 - 32.25 (3)	TP41.485x35.447x0.375	34.500	0.000	0.0	48.531	-38.168	3320.310	0.011
L4	32.25 - 0 (4)	TP46.38x39.816x0.438	37.500	0.000	0.0	64.721	-53.359	4464.880	0.012

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	150 - 102.5 (1)	TP30.314x22x0.25	662.298	873.875	0.758	0.000	873.875	0.000
L2	102.5 - 62 (2)	TP36.903x29.158x0.313	1718.792	1742.017	0.987	0.000	1742.017	0.000
L3	62 - 32.25 (3)	TP41.485x35.447x0.375	2605.633	2714.875	0.960	0.000	2714.875	0.000
L4	32.25 - 0 (4)	TP46.38x39.816x0.438	3837.058	4172.375	0.920	0.000	4172.375	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	150 - 102.5 (1)	TP30.314x22x0.25	21.650	729.725	0.030	0.476	1771.942	0.000
L2	102.5 - 62 (2)	TP36.903x29.158x0.313	29.020	1196.570	0.024	0.377	3532.267	0.000
L3	62 - 32.25 (3)	TP41.485x35.447x0.375	31.504	1660.150	0.019	0.375	5504.917	0.000
L4	32.25 - 0 (4)	TP46.38x39.816x0.438	33.986	2232.440	0.015	0.374	8460.250	0.000

Pole Interaction Design Data

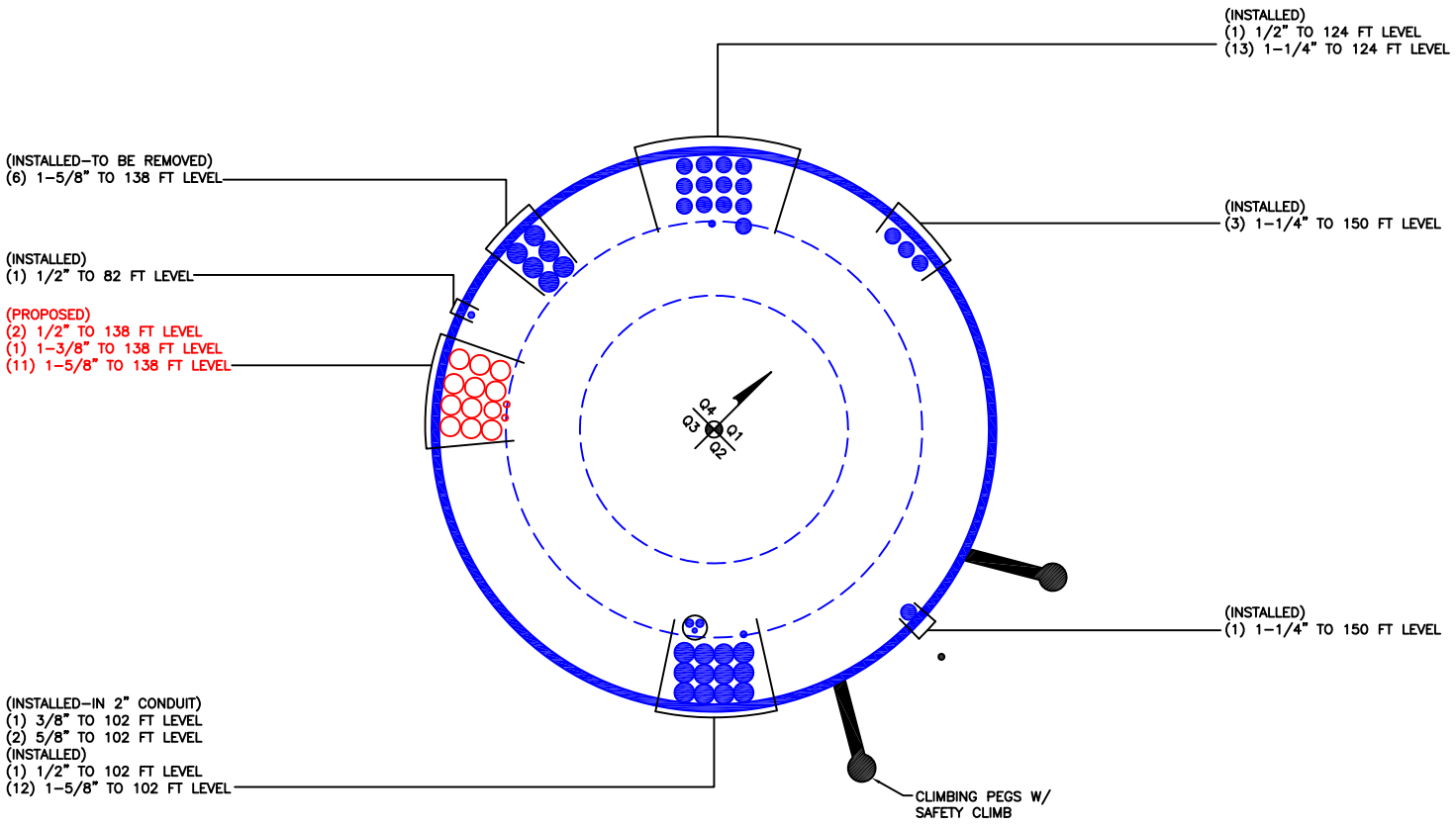
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	150 - 102.5 (1)	0.011	0.758	0.000	0.030	0.000	0.770 ✔	1.000	4.8.2 ✔
L2	102.5 - 62 (2)	0.012	0.987	0.000	0.024	0.000	0.999 ✔	1.000	4.8.2 ✔
L3	62 - 32.25 (3)	0.011	0.960	0.000	0.019	0.000	0.972 ✔	1.000	4.8.2 ✔
L4	32.25 - 0 (4)	0.012	0.920	0.000	0.015	0.000	0.932 ✔	1.000	4.8.2 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	150 - 102.5	Pole	TP30.314x22x0.25	1	-16.139	1459.450	77.0	Pass
L2	102.5 - 62	Pole	TP36.903x29.158x0.313	2	-28.159	2393.150	99.9	Pass
L3	62 - 32.25	Pole	TP41.485x35.447x0.375	3	-38.168	3320.310	97.2	Pass
L4	32.25 - 0	Pole	TP46.38x39.816x0.438	4	-53.359	4464.880	93.2	Pass
							Summary	
						Pole (L2)	99.9	Pass
						RATING =	**99.9**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876315

APPENDIX C

ADDITIONAL CALCULATIONS

Anchor Rod Information for TIA/EIA-222-F and TIA-222-G-2

Site Information	
ID:	876315
Name:	OAK LANE CC- INC. TOWER -SSUSA
App. #:	405129 Rev. 3

AeroSolutions LLC
Optimizing Your Tower Infrastructure

Base Reactions		
Moment:	3837	ft-kip
Axial:	53	kip
Shear:	34	kip
Base Plate Type:	Square	

Design Information	
TIA Code:	G
ASIF:	1.000
Failure:	100%
eta Factor:	0.50

Original Anchor Rod Data

Quantity:	16	
Diameter:	2.25	in
Material:	A615 GR 75	
Bolt Circle:	54.0	in
Bolt Spacing:	6	in
Bolt Group Area:	63.62	in^2
Bolt Group MOIx:	23192	in^4

Reactions Seen by Original AR Group

Moment:	3147.6	kip-ft
Axial:	53.0	kip
Shear:	34.0	kip

Original AR Capacity Check

Combined Load:	180.6	kip
Allowable load:	259.8	kip
AR Capacity:	69.5%	Pass

First Added Anchor Rod Data

Quantity:	3	
Diameter:	2.25	in
Material:	A193 B7	
Bolt Circle:	71.0	in
Bolt Group Area:	11.93	in^2
Bolt Group MOIx:	5079	in^4

Reactions Seen by First Added AR Group

Moment:	689.4	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

First Added AR Capacity Check

Combined Load:	211.5	kip
Allowable load:	324.8	kip
AR Capacity:	65.1%	Pass

Second Added Anchor Rod Data

Quantity:		
Diameter:		in
Material:		
Bolt Circle:		in
Bolt Group Area:	0.00	in^2
Bolt Group MOIx:	0	in^4

Reactions Seen by Second Added AR Group

Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

Second Added AR Capacity Check

Combined Load:	0.0	kip
Allowable load:	0.0	kip
AR Capacity:	0.0%	

Third Added Anchor Rod Data

Quantity:		
Diameter:		in
Material:		
Bolt Circle:		in
Bolt Group Area:	0.00	in^2
Bolt Group MOIx:	0	in^4

Reactions Seen by Second Added AR Group

Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

Second Added AR Capacity Check

Combined Load:	0.0	kip
Allowable load:	0.0	kip
AR Capacity:	0.0%	

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F /G

Assumptions: 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
3) Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: *876315*
Site Name: *OAK LANE CC- INC. TOW*
App #: *405129 Rev. 0*

Base Reactions		
TIA Revision:	G	
Factored Moment, Mu:	3147.6	ft-kips
Factored Axial, Pu:	53	kips
Factored Shear, Vu:	34	kips

Anchor Rod Data		
Eta Factor, η	0.5	TIA G (Fig. 4-4)
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, Fy:	75	ksi
Strength, Fu:	100	ksi
Bolt Circle:	54	in
Anchor Spacing:	6	in

Plate Data		
W=Side:	54	in
Thick:	3	in
Grade:	60	ksi
Clip Distance:	6	in

Stiffener Data (Welding at both sides)		
Configuration:	Unstiffened	
Weld Type:		**
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	46.38	in
Thick:	0.4375	in
Grade:	65	ksi
# of Sides:	12	"0" IF Round

Base Plate Results Flexural Check

Base Plate Stress:	30.7	ksi
PL Design Bending Strength, Φ*Fy:	54.0	ksi
Base Plate Stress Ratio:	56.9%	**Pass**

PL Ref. Data
Yield Line (in):
29.99
Max PL Length:
29.99

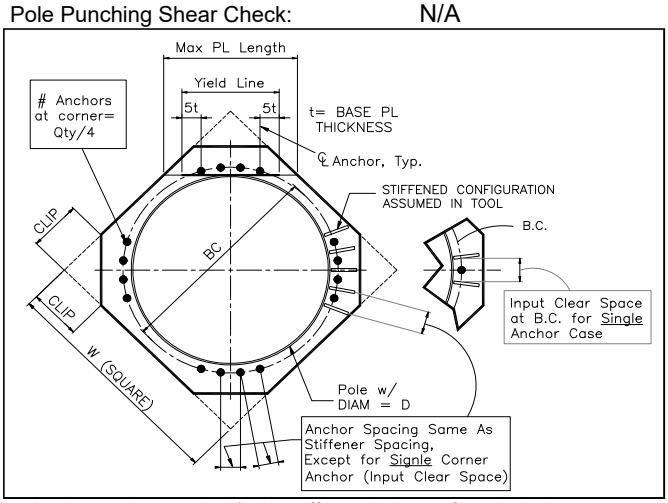
N/A - Unstiffened

Stiffener Results

Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A

Pole Results

Pole Punching Shear Check: N/A



** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Pier and Pad Foundation

BU # :	876315
Site Name:	Oak Lane CC, INC
App. Number:	405129 Rev. 5

TIA-222 Revision:	G
Tower Type:	Monopole

Block Foundation?:	☑

Superstructure Analysis Reactions		
Compression, P_{comp}:	53	kips
Base Shear, Vu_comp:	34	kips
Moment, M_u:	3837	ft-kips
Tower Height, **H**:	150	ft
BP Dist. Above Fdn, bp_{dist}:	3	in
Bolt Circle / Bearing Plate Width, **BC**:	54	in

Foundation Analysis Checks				
	Capacity	**Demand**	**Rating**	**Check**
Lateral (Sliding) (kips)	133.65	34.00	**25.4%**	**Pass**
Bearing Pressure (ksf)	18.00	4.92	**27.3%**	**Pass**
*Overturning (kip*ft)*	4876.99	4015.50	**82.3%**	**Pass**
*Pad Flexure (kip*ft)*	8967.19	2319.47	**25.9%**	**Pass**
Pad Shear - 1-way (kips)	1363.20	289.15	**21.2%**	**Pass**
Pad Shear - 2-way (ksi)	0.16	0.00	**1.3%**	**Pass**

Soil Rating:	**82.3%**
Structural Rating:	**25.9%**

Pad Properties		
Depth, **D**:	4.5	ft
Pad Width, **W**:	25.0	ft
Pad Thickness, **T**:	5.0	ft
Pad Rebar Size, **Sp**:	9	
Pad Rebar Quantity, **mp**:	37	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60000	psi
Concrete Compressive Strength, **F'c**:	3000	psi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	100	pcf
Ultimate Gross Bearing, Qult:	24.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	30	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:		
Neglected Depth, **N**:	3.33	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, **gw**:	3	ft

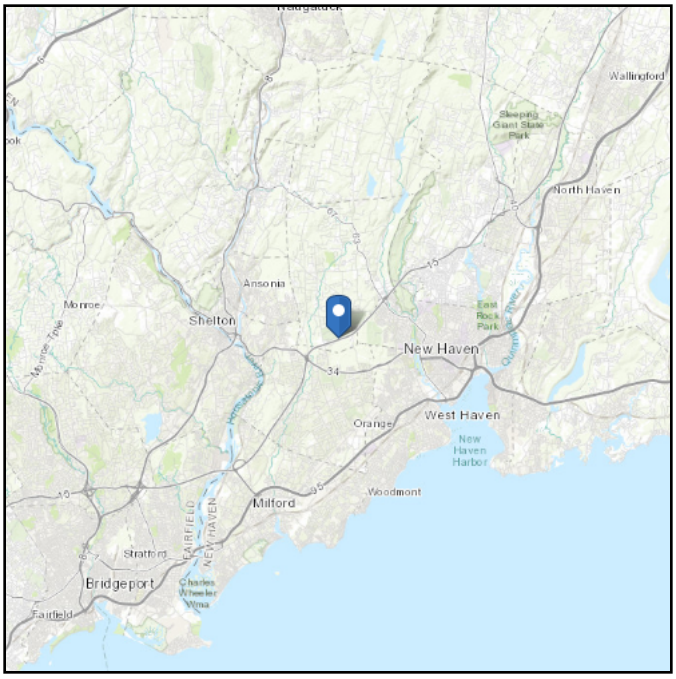
<--Toggle between Gross and Net

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 238.45 ft (NAVD 88)
Latitude: 41.316833
Longitude: -73.011583



Wind

Results:

Wind Speed:	124 Vmph
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	93 Vmph
100-year MRI	100 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed: Sat Mar 24 2018

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

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: CTHA601A

Crown Castle 876352 Richard Wall
94 East High Street
East Hampton, CT 06424

April 14, 2018

EBI Project Number: 6218002976

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	22.88 %

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

EBI Consulting
environmental | engineering | due diligence

April 14, 2018

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

Emissions Analysis for Site: **CTHA601A – Crown Castle 876352 Richard Wall**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **94 East High Street, East Hampton, 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 population 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 population 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 limits for the 600 MHz and 700 MHz Band are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz Microwave 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 **94 East High Street, East Hampton, 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 for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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 (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

3) 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

4) 1 LTE channel (600 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

5) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

6) 1 microwave backhaul channel (11 GHz) was considered for the proposed facility. This channel has a transmit power of 1 Watt.

7) 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.

8) 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 for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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.

9) The antennas used in this modeling are the **Ericsson AIR32 B66A/B2A** & **RFS APX16DWV-16DWVS-E-A20** for 1900 MHz (PCS) and 2100 MHz (AWS) channels, the **RFS APXVAA24-43-U-A20** for 600 MHz and 700 MHz channels and the **Commscope SHPX3-11W** for the proposed 11 GHz microwave backhaul. This is based on feedback from the carrier with regard to anticipated antenna selection. The **Ericsson AIR32 B66A/B2A** has a maximum gain of **15.9 dBd** at its main lobe at 1900 MHz and 2100 MHz. The **RFS APX16DWV-16DWVS-E-A20** has a maximum gain of **16.3 dBd** at its main lobe at 1900 MHz and 2100 MHz. The **RFS APXVAA24-43-U-A20** has a maximum gain of **13.15/ 13.55 dBd** at its main lobe at 600 MHz and 700 MHz respectively. The **Commscope SHPX3-11W** has a maximum gain of **36.25 dBd** at its main lobe at 10 GHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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.

10) The antenna mounting height centerline of the proposed antennas (both panel antennas and microwave dish) is **83 feet** above ground level (AGL).

11) 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.

12) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C	Sector:	D
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Ericsson AIR32 B66A/B2A	Make / Model:	Ericsson AIR32 B66A/B2A	Make / Model:	Ericsson AIR32 B66A/B2A	Make / Model:	Ericsson AIR32 B66A/B2A
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	83	Height (AGL):	83	Height (AGL):	83	Height (AGL):	83
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	9,337.08	ERP (W):	9,337.08	ERP (W):	9,337.08	ERP (W):	9,337.08
Antenna A1 MPE%	**5.66**	Antenna B1 MPE%	**5.66**	Antenna C1 MPE%	**5.66**	Antenna D1 MPE%	**5.66**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	83	Height (AGL):	83	Height (AGL):	83	Height (AGL):	83
Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)
Channel Count	3	Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	61	Total TX Power(W):	60	Total TX Power(W):	60	Total TX Power(W):	60
ERP (W):	6,776.44	ERP (W):	2,559.48	ERP (W):	2,559.48	ERP (W):	2,559.48
Antenna A2 MPE%	**1.81**	Antenna B2 MPE%	**1.55**	Antenna C2 MPE%	**1.55**	Antenna D2 MPE%	**1.55**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	RFS APXVAA24-43-U-A20	Make / Model:	RFS APXVAA24-43-U-A20	Make / Model:	RFS APXVAA24-43-U-A20	Make / Model:	RFS APXVAA24-43-U-A20
Gain:	13.15/ 13.55 dBd	Gain:	13.15/ 13.55 dBd	Gain:	13.15/ 13.55 dBd	Gain:	13.15/ 13.55 dBd
Height (AGL):	83	Height (AGL):	83	Height (AGL):	83	Height (AGL):	83
Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz
Channel Count	2	Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	60	Total TX Power(W):	60	Total TX Power(W):	60	Total TX Power(W):	60
ERP (W):	1,299.01	ERP (W):	1,299.01	ERP (W):	1,299.01	ERP (W):	1,299.01
Antenna A3 MPE%	**1.82**	Antenna B3 MPE%	**1.82**	Antenna C3 MPE%	**1.82**	Antenna D3 MPE%	**1.82**

Microwave Backhaul Data

Make / Model:	Gain	Height (AGL):	Frequency Bands	Channel Count	Total TX Power(W)	ERP (W)	MPE %	Sector
Commscope SHPX3-11W	36.25 dBd	83	11 GHz	1	1	4,216.97	**0.26**	D

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Sector D)	**9.29 %**
Town	1.47 %
Sprint	0.97 %
Verizon Wireless	4.88 %
AT&T	5.61 %
Nextel	0.66 %
Site Total MPE %:	**22.88 %**

T-Mobile Sector A Total:	9.03 %
T-Mobile Sector B Total:	9.03 %
T-Mobile Sector C Total:	9.03 %
T-Mobile Sector C Total:	9.29 %
Site Total:	22.88 %

T-Mobile Max Power Values (Sector D)

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 LTE	2	2,334.27	83	28.31	AWS - 2100 MHz	1000	2.83%
T-Mobile PCS - 1900 MHz LTE	2	2,334.27	83	28.31	PCS - 1900 MHz	1000	2.83%
T-Mobile AWS - 2100 MHz UMTS	2	1,279.74	83	15.52	AWS - 2100 MHz	1000	1.55%
T-Mobile 600 MHz LTE	1	619.61	83	3.76	600 MHz	1000	0.94%
T-Mobile 700 MHz LTE	1	679.39	83	4.12	700 MHz	467	0.88%
T-Mobile 11 GHz Microwave	1	1717.91	140	2.56	11 GHz	1000	0.26%
						Total:	**9.29%**

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population 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 population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	9.03 %
Sector B:	9.03 %
Sector C:	9.03 %
Sector D:	9.29 %
T-Mobile Per Sector Maximum (Sector D):	9.29 %
Site Total:	22.88 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **22.88%** of the allowable FCC established general population 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.

Snell, Sarah (Contractor)

From: TrackingUpdates@fedex.com
Sent: Thursday, May 24, 2018 10:25 AM
To: Snell, Sarah (Contractor)
Subject: FedEx Shipment 772308914281 Delivered

Your package has been delivered

Tracking # 772308914281

Ship date:
Wed, 5/23/2018

Jeff Barbadora
Crown Castle
WOBURN, MA 01801
US

Delivery date:
Thu, 5/24/2018 10:19 am

Attn: Property Manager
Tradition Golf Club at Oak Lane LLC
1027 Racerbrook Road
WOODBRIDGE, CT 06525
US

Personalized Message

1116 Johnson Rd - T-Mobile Tower Share Application copy
Delivered to Landowner

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	772308914281
Status:	Delivered: 05/24/2018 10:19 AM Signed for By: B.BRINTON
Reference:	1766.6680
Signed for by:	B.BRINTON

Delivery location:	WOODBRIDGE, CT
Delivered to:	Receptionist/Front Desk
Service type:	FedEx Priority Overnight
Packaging type:	FedEx Envelope
Number of pieces:	1
Weight:	4.00 lb.
Special handling/Services:	Deliver Weekday
Standard transit:	5/24/2018 by 10:30 am

This tracking update has been requested by:

Company name:	Crown Castle
Name:	Jeff Barbadora
Email:	sarah.snell.contractor@crowncastle.com

Snell, Sarah (Contractor)

From: TrackingUpdates@fedex.com
Sent: Thursday, May 24, 2018 10:20 AM
To: Snell, Sarah (Contractor)
Subject: FedEx Shipment 772308933519 Delivered

Your package has been delivered

Tracking # 772308933519

Ship date:
Wed, 5/23/2018

Jeff Barbadora
Crown Castle
WOBURN, MA 01801
US

Delivery date:
Thu, 5/24/2018 10:17 am

Beth Heller, First Selectman
Town of Woodbridge
11 Meetinghouse Road
WOODBRIDGE, CT 06525
US

Personalized Message

1116 Johnson Road - T-Mobile Tower Share App Delivered to First Selectman.

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	772308933519
Status:	Delivered: 05/24/2018 10:17 AM Signed for By: J.BELINSKI
Reference:	1766.6680
Signed for by:	J.BELINSKI

Delivery location:	WOODBRIDGE, CT
Delivered to:	Receptionist/Front Desk
Service type:	FedEx Priority Overnight
Packaging type:	FedEx Envelope
Number of pieces:	1
Weight:	1.00 lb.
Special handling/Services:	Deliver Weekday
Standard transit:	5/24/2018 by 10:30 am

This tracking update has been requested by:

Company name:	Crown Castle
Name:	Jeff Barbadora
Email:	sarah.snell.contractor@crowncastle.com

Snell, Sarah (Contractor)

From: TrackingUpdates@fedex.com
Sent: Thursday, May 24, 2018 10:20 AM
To: Snell, Sarah (Contractor)
Subject: FedEx Shipment 772308940727 Delivered

Your package has been delivered

Tracking # 772308940727

Ship date:
Wed, 5/23/2018

Jeff Barbadora
Crown Castle
WOBURN, MA 01801
US

Delivery date:
Thu, 5/24/2018 10:17 am

Terry Gilbertson, Zoning Enf.
Town of Woodbridge
11 Meetinghouse Road
WOODBRIDGE, CT 06525
US

Personalized Message

1116 Johnson Road - T-Mobile Tower Share App Delivered to Zoning Officer.

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	772308940727
Status:	Delivered: 05/24/2018 10:17 AM Signed for By: J.BELINSKI
Reference:	1766.6680
Signed for by:	J.BELINSKI

Delivery location:	WOODBRIDGE, CT
Delivered to:	Receptionist/Front Desk
Service type:	FedEx Priority Overnight
Packaging type:	FedEx Envelope
Number of pieces:	1
Weight:	1.00 lb.
Special handling/Services:	Deliver Weekday
Standard transit:	5/24/2018 by 10:30 am

This tracking update has been requested by:

Company name:	Crown Castle
Name:	Jeff Barbadora
Email:	sarah.snell.contractor@crowncastle.com