Crown Castle
3530 Toringdon Way
Suite 300
Charlotte, NC 28277

Tel: 704-405-6600

www.crowncastle.com

April 11, 2014

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

RE: **T-Mobile-Exempt Modification - Crown Site BU: 806353**
T-Mobile Site ID: CT11119A
Located at: 128 Mather Street, Wilton, CT 06897

Dear Ms. Bachman:

This letter and exhibits are submitted on behalf of T-Mobile. T-Mobile is making modifications to certain existing sites in its Connecticut system in order to implement their Modernization technology. Please accept this letter and exhibits as notification, pursuant to § 16-50j-73 of the Regulations of Connecticut State Agencies ("R.C.S.A."), of construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In compliance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Mr. William F. Brennan, First Selectman of the Town of Wilton.

T-Mobile plans to modify the existing wireless communications facility owned by Crown Castle and located at **128 Mather Street, Wilton, CT 06897**. Attached are a compound plan and elevation depicting the planned changes (Exhibit-1), and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration (Exhibit-2). Also included is a power density table report reflecting the modification to T-Mobile's operations at the site (Exhibit-3).

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

1. The proposed modifications will not result in an increase in the height of the existing tower. T-Mobile's replacement antennas will be located at the same elevation on the existing tower.

2. There will be no proposed modifications to the ground and no extension of boundaries.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative General Power Density table report for T-Mobile's modified facility is included as Exhibit-3.

5. A Structural Modification Report confirming that the tower and foundation can support Sprint's proposed modifications is included as Exhibit-2.

For the foregoing reasons, T-Mobile respectfully submits the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Donna Neal.

Sincerely,

Jeff Barbadora
Real Estate Specialist

Enclosure

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: Mr. William F. Brennan, First Selectman
Town of Wilton
238 Danbury Road
Wilton, CT 06897

T-Mobile

NORTHEAST LLC.

SITE NAME: WILTON/ MOUNTAIN RD. & BRA

SITE ID NUMBER: CT11119A

SITE ADDRESS: 128 MATHER ST.
(RECYCLE CENTER)
WILTON, CT 06897

PROJECT SUMMARY

SITE ID NUMBER:	CT11119A
SITE NAME:	WILTON/MOUNTAIN RD. & BRA
CROWN BU#:	806353
SITE ADDRESS:	128 MATHER ST. (RECYCLE CENTER) WILTON, CT 06897
COUNTY:	FAIRFIELD
PROPERTY OWNER:	CROWN CASTLE-T3
APPLICANT:	T-MOBILE NORTHEAST, LLC. 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 PHONE: (800) 692-7100
ENGINEER/ SURVEYOR/ STRUCTURAL ENG:	TECTONIC ENGINEERING CONSULTANTS P.C. 1279 ROUTE 300 NEWBURGH, NY 12550
CONTACT:	TAMMY NOSEK
PHONE:	(845) 567-6656 EXT. 2807
SITE ACQUISITION:	CROWN CASTLE 1200 MACARTHUR BLVD SUITE 200 MAHWAH, NJ 07430
CONTACT:	PAUL HUGHES
PHONE:	(585) 259-7604
PARCEL INFO:	23//23//
LATITUDE: (NAD 83)	41.23846° N
LONGITUDE: (NAD 83)	73.42409° W

SITE DIRECTIONS

HEAD NORTHEAST ON GRIFFIN RD S TOWARD W NEWBERRY RD. TAKE THE 1ST RIGHT ONTO W NEWBERRY RD. TURN LEFT ONTO WOODLAND AVE. TAKE THE 1ST RIGHT ONTO CT-187 S/BLUE HILLS AVE. TURN LEFT ONTO CT-178 E/E WINTONBURY AVE. CONTINUE TO FOLLOW CT-178 E. TURN RIGHT TO MERGE ONTO I-91 S TOWARD HARTFORD. TAKE EXIT 17 FOR CT-15 S/W CROSS PKWY. MERGE ONTO CT-15 S. TAKE EXIT 41 TOWARD CT-33 N/WILTON RD. TURN LEFT ONTO CT-33 N/WILTON RD. CONTINUE TO FOLLOW CT-33 N. CONTINUE ONTO US-7 N/DANBURY RD. TURN RIGHT ONTO HONEY HILL RD. TAKE THE 1ST LEFT ONTO MATHER ST. TAKE THE 1ST RIGHT ONTO UNKNOWN RD. DESTINATION WILL BE AT THE END OF THE RD.

LOCATION MAP

SCALE: NTS

SHEET INDEX

SHEET NO	DESCRIPTION	REV NO
T-1	TITLE SHEET	1
A-1	SITE PLAN	1
A-2	EQUIPMENT LAYOUT PLANS	1
A-3	ELEVATION & DETAIL	1
A-4	ANTENNA LAYOUT PLANS & DETAILS	1
A-5	DETAILS	1
A-6	DETAILS	1
A-7	NOTES	1
A-8	NOTES	1

THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL ITEMS HAVE BEEN ADDRESSED AND EACH OF THE DRAWINGS HAS BEEN REVISED AND ISSUED "FOR CONSTRUCTION".

811 Know what's below. Call before you dig.

CONFIGURATION
2C
REFER TO LATEST T-MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

0 1 2 3
ORIGINAL SIZE IN INCHES

TECTONIC
• PLANNING • ENGINEERING • SURVEYING • CONSTRUCTION MANAGEMENT
TECTONIC Engineering & Survey Consultants P.C.
1279 ROUTE 300
NEWBURGH, NY 12550
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Fax: (845) 567-8703

T-Mobile
T-MOBILE NORTHEAST LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
PHONE: (860) 692-7100

CROWN CASTLE

APPROVALS

LANDLORD _____
RF _____
CONSTRUCTION _____
OPERATIONS _____
SITE ACQ. _____

PROJECT NUMBER	DESIGNED BY
7061.CT11119A	JQ

REV	DATE	REVISION	DRAWN BY
0	04/09/14	FOR COMMENT	MP
1	04/11/14	FOR CONSTRUCTION	MJR

ISSUED BY	DATE

STATE OF CONNECTICUT
ANTONIO A. GUALTIERI
No. 25406
LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

CT11119A
WILTON/MOUNTAIN RD.
& BRA
128 MATHER ST.
WILTON, CT 06897

SHEET TITLE

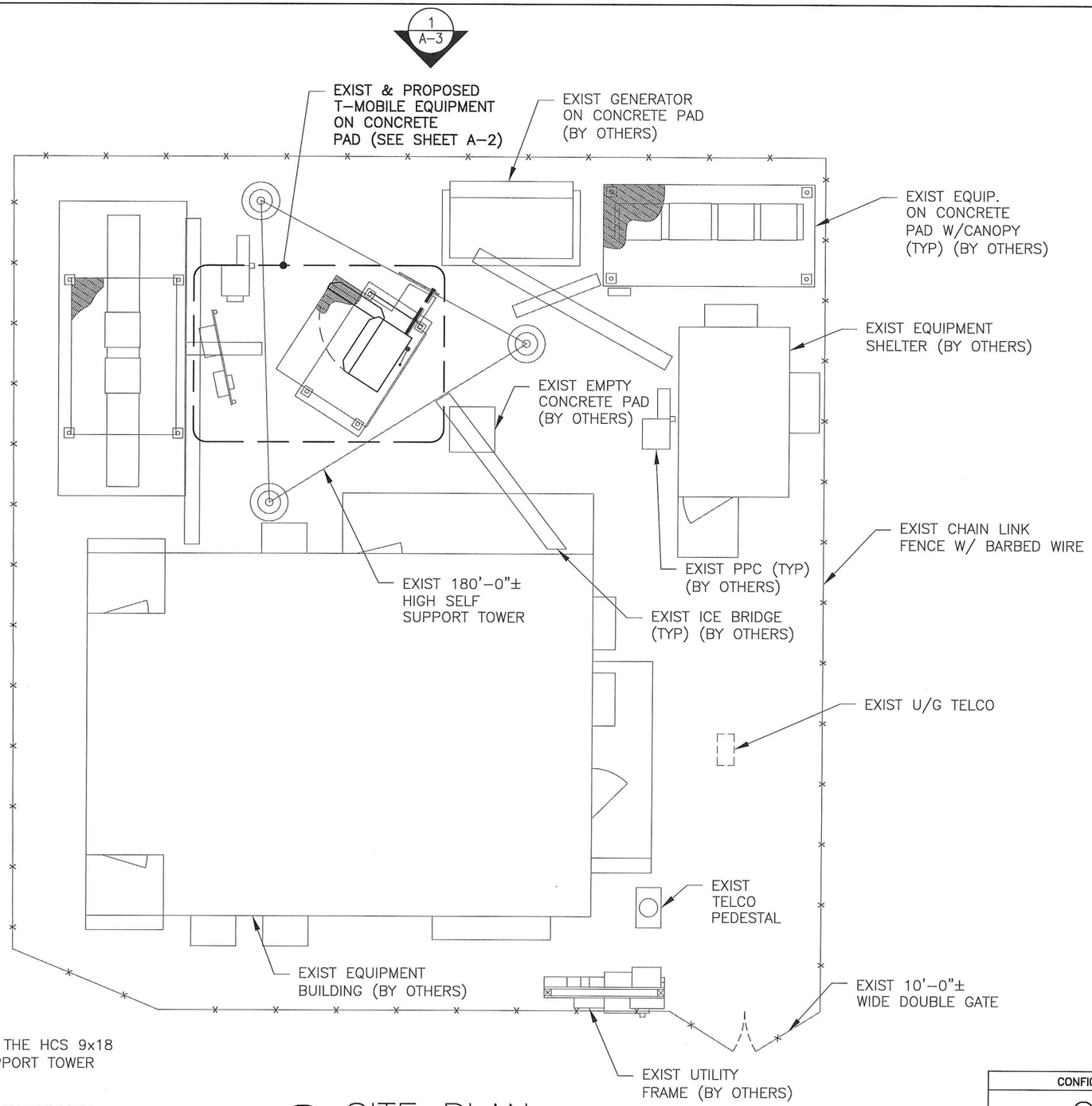
TITLE SHEET

SHEET NUMBER

T-1

N

APPROX



1 / A-1 SITE PLAN

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

NOTES:

1. CONTRACTOR SHALL FIELD VERIFY THE ADEQUACY TO ROUTE THE HCS 9x18 MLE (FIBER) CABLE ALONG THE EXTERIOR OF THE SELF SUPPORT TOWER PRIOR TO CONSTRUCTION.
2. CONTRACTOR TO MATCH ANTENNA AZIMUTHS AND DOWNTILTS TO EXISTING CONDITION AND NOTIFY RF ENGINEER OF ANY DISCREPANCY.
3. LOCK & TAG BREAKERS FOR ALL EQUIPMENT BEING TURNED OFF (WHEN APPLICABLE).
4. CONTRACTOR TO RE-VERIFY CABLE LENGTHS PRIOR TO CONSTRUCTION.
5. SEE RFDS FOR FINAL EQUIPMENT CONFIGURATION.

CONFIGURATION
2C
REFER TO LATEST T-MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

0 1 2 3

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& BRA
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WILTON, CT 06897

SHEET TITLE

SITE PLAN

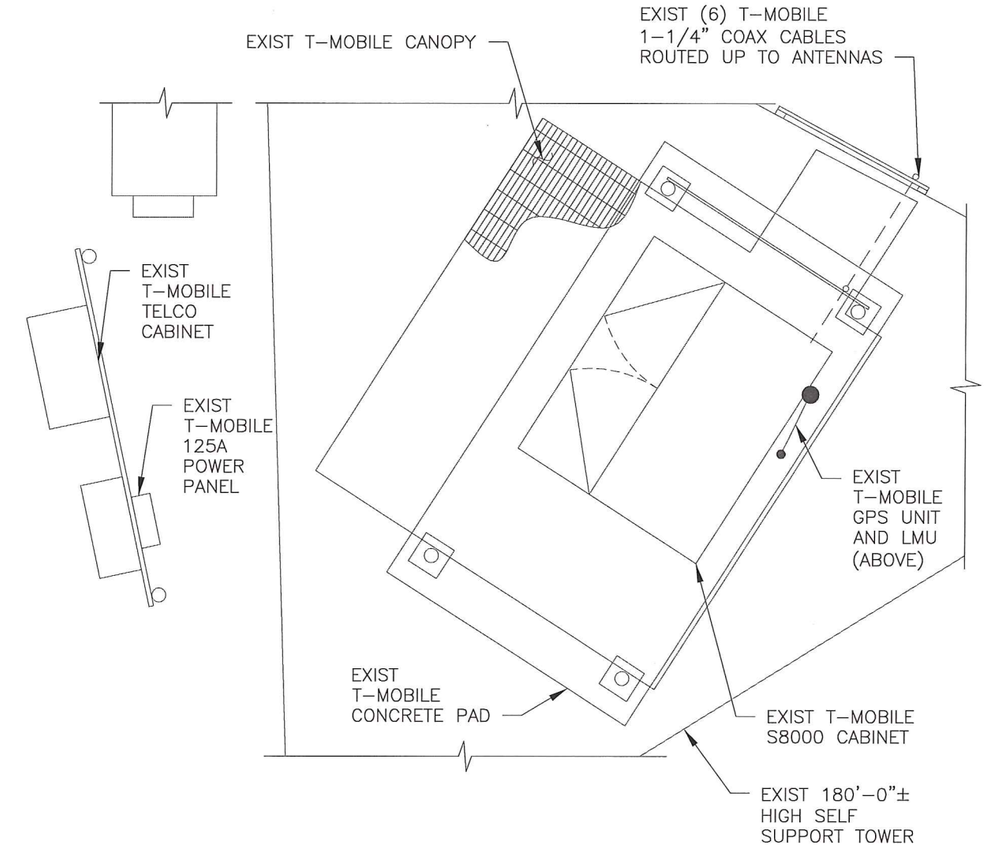
SHEET NUMBER

A-1

N

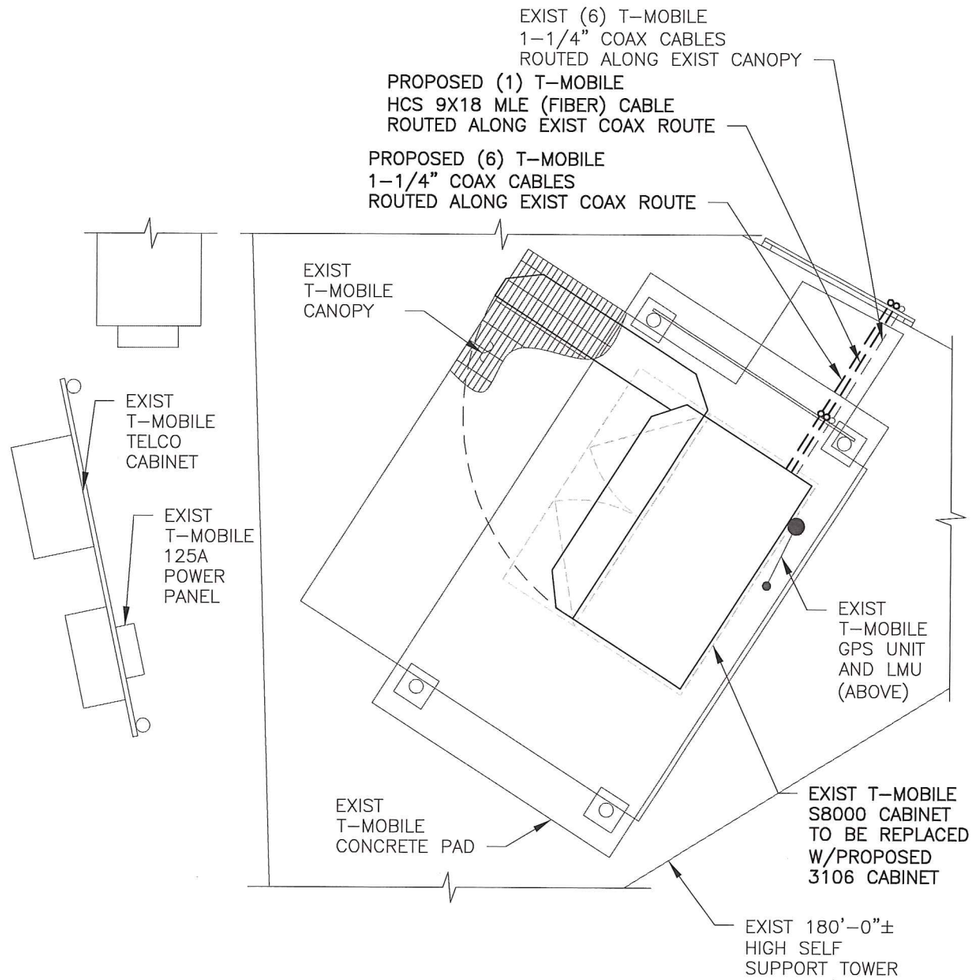
APPROX

HCS LENGTH			
FROM EQUIPMENT CABINET TO ANTENNA			
SECTOR	ALPHA	BETA	GAMMA
LENGTH	120'±	120'±	120'±
SIZE	1"		
HCS 9x18 MLE			



1 / A–2 EXIST EQUIPMENT PLAN

SCALE: 3/8" = 1'–0'



2 / A–2 PROPOSED EQUIPMENT PLAN

SCALE: 3/8" = 1'–0'

CONFIGURATION
2C
REFER TO LATEST T–MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

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& BRA
128 MATHER ST.
WILTON, CT 06897

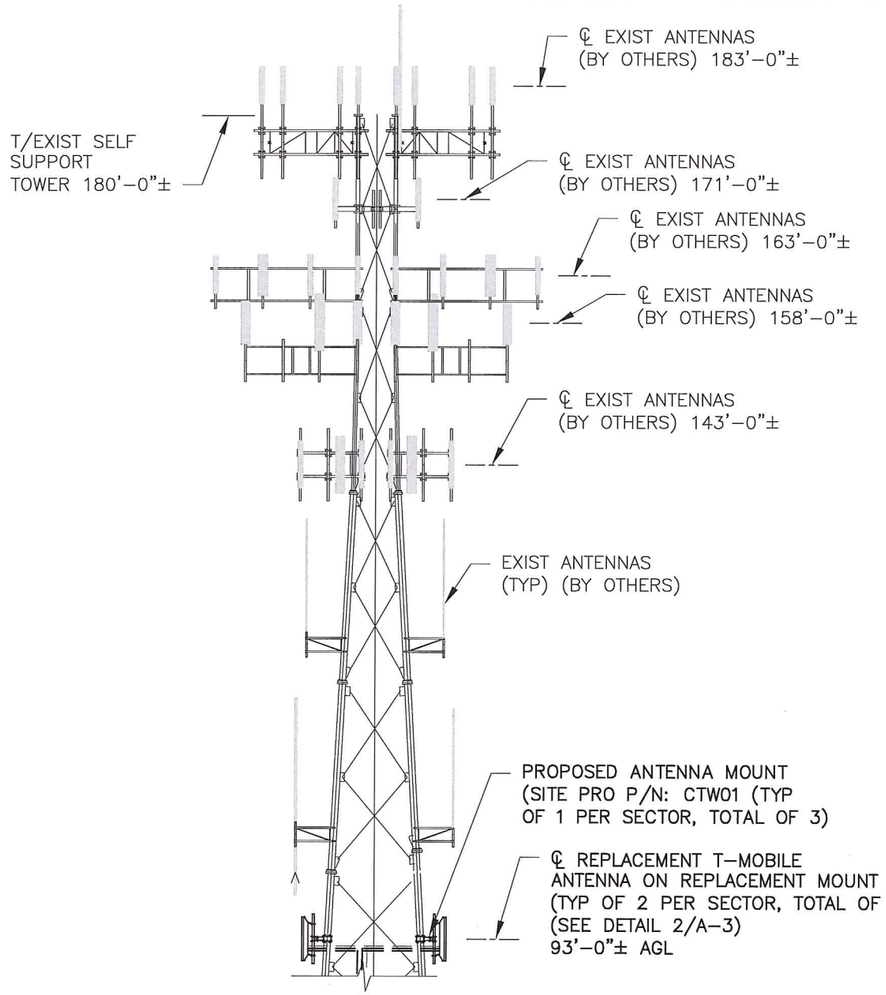
SHEET TITLE

EQUIPMENT LAYOUT PLANS

SHEET NUMBER

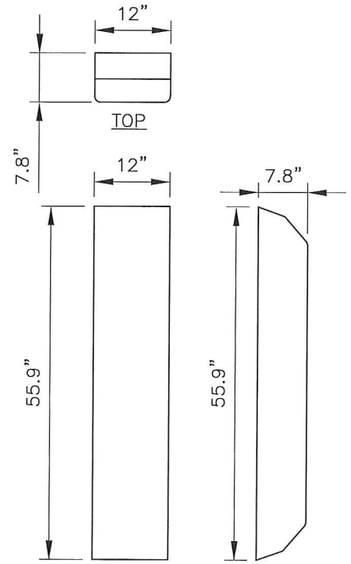
A–2

THE PROPOSED INSTALLATION & EXISTING SELF SUPPORT TOWER SHALL BE STRUCTURALLY ANALYZED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT (TO BE COORDINATED BY OTHERS).



1 / A–3 ELEVATION

SCALE: 1/16" = 1'–0"



AIR 21

2 / A–3 ANTENNA DETAIL

SCALE: 1/2" = 1'–0"

ELEVATION NOTE:

ELEVATION OF EXIST SELF SUPPORT TOWER HAS BEEN ARBITRARILY ASSIGNED AS EL 596'–0"±. THIS IS APPROXIMATELY 180'–0"± ABOVE GRADE WHICH WAS ESTIMATED AS EL 416'–0"± TAKEN FROM U.S.G.S. QUAD MAP, AND DOES NOT NECESSARILY CORRESPOND TO ACTUAL ELEVATION ABOVE SEA LEVEL. ALL OTHER ELEVATIONS INDICATED WERE DETERMINED ON THIS BASIS.

CONFIGURATION

2C

REFER TO LATEST T–MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

0 1 2 3

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PHONE: (860) 692–7100

CROWN CASTLE

APPROVALS

LANDLORD _____
RF _____
CONSTRUCTION _____
OPERATIONS _____
SITE ACQ. _____

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7061.CT11119A	JQ

REV	DATE	REVISION	DRAWN BY
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1	04/11/14	FOR CONSTRUCTION	MJR

ISSUED BY _____ DATE _____

STATE OF CONNECTICUT ANTONIO A. GUALTIERI No. 25406 LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

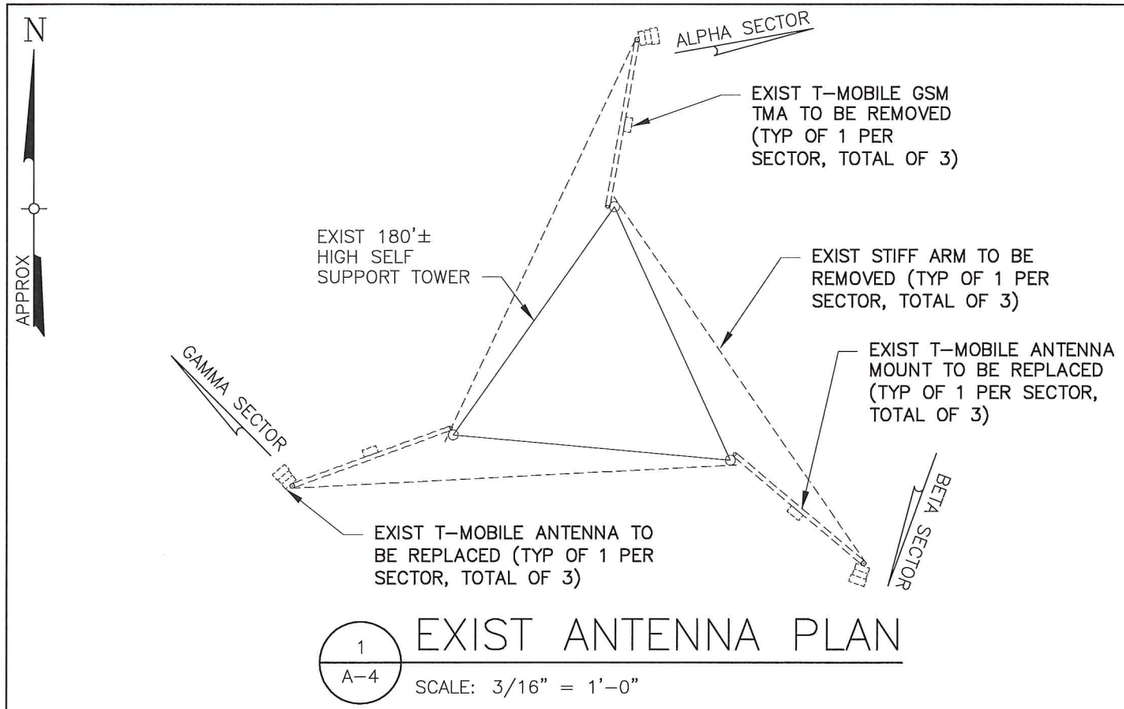
CT11119A
WILTON/MOUNTAIN RD.
& BRA
128 MATHER ST.
WILTON, CT 06897

SHEET TITLE

ELEVATION & DETAIL

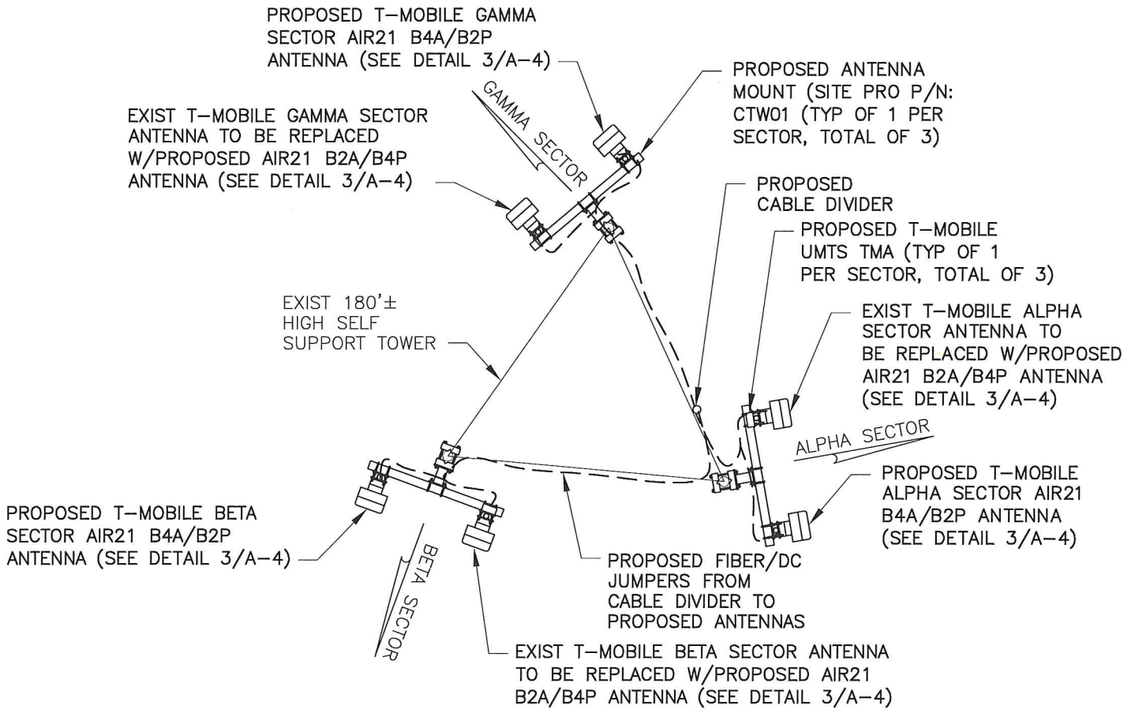
SHEET NUMBER

A–3



1 / A–4 EXIST ANTENNA PLAN

SCALE: 3/16" = 1'–0"



2 / A–4 PROPOSED ANTENNA PLAN

SCALE: 3/16" = 1'–0"

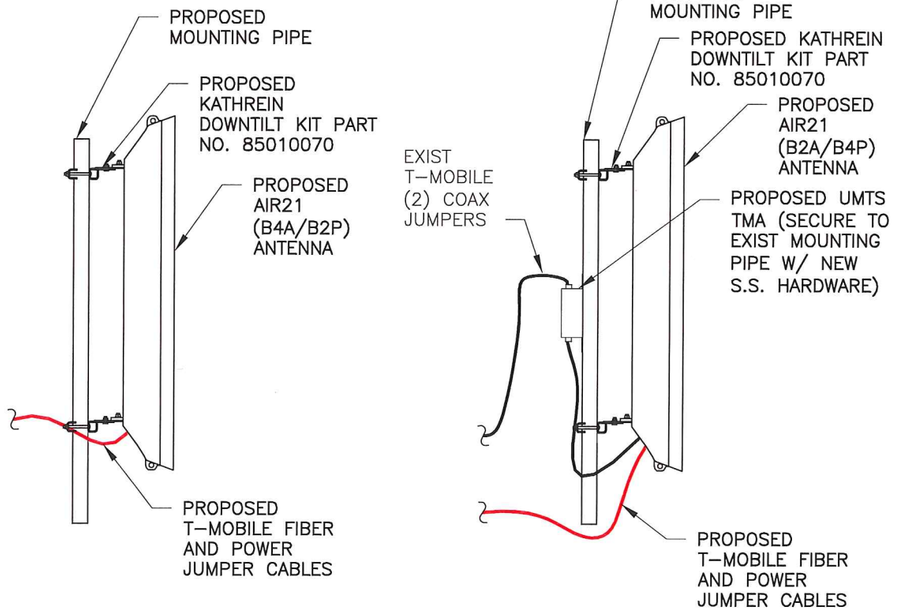
THE PROPOSED INSTALLATION & EXISTING SELF SUPPORT TOWER SHALL BE STRUCTURALLY ANALYZED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT (TO BE COORDINATED BY OTHERS).

EXIST ANTENNA SCHEDULE

SECTOR	MAKE	QUANTITY	MODEL#	SIZE
ALPHA	EMS	1	RR90_17_02DP	56x8x2.8
BETA	EMS	1	RR90_17_02DP	56x8x2.8
GAMMA	EMS	1	RR90_17_02DP	56x8x2.8

PROPOSED ANTENNA SCHEDULE

SECTOR	MAKE	QUANTITY	MODEL#	SIZE
ALPHA	ERICSSON	1	AIR21 B2A/B4P	12x8x56
	ERICSSON	1	AIR21 B4A/B2P	12x8x56
BETA	ERICSSON	1	AIR21 B2A/B4P	12x8x56
	ERICSSON	1	AIR21 B4A/B2P	12x8x56
GAMMA	ERICSSON	1	AIR21 B2A/B4P	12x8x56
	ERICSSON	1	AIR21 B4A/B2P	12x8x56



3 / A–4 ANTENNA DETAIL

SCALE: 1/2" = 1'–0"

CONFIGURATION

2C

REFER TO LATEST T–MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

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ORIGINAL SIZE IN INCHES

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Fax: (845) 567–8703

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T–MOBILE NORTHEAST LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
PHONE: (860) 692–7100

CROWN CASTLE

APPROVALS

LANDLORD _____
RF _____
CONSTRUCTION _____
OPERATIONS _____
SITE ACQ. _____

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STATE OF CONNECTICUT
ANTONIO A. GUALTIERI
No. 25406
LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

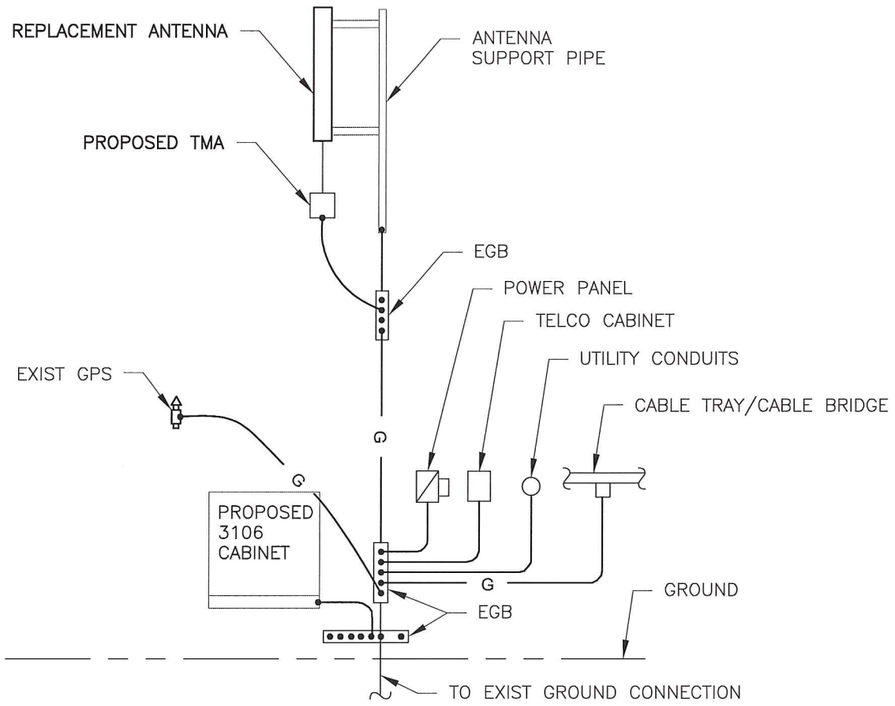
CT11119A
WILTON/MOUNTAIN RD.
& BRA
128 MATHER ST.
WILTON, CT 06897

SHEET TITLE

ANTENNA LAYOUT PLANS & DETAILS

SHEET NUMBER

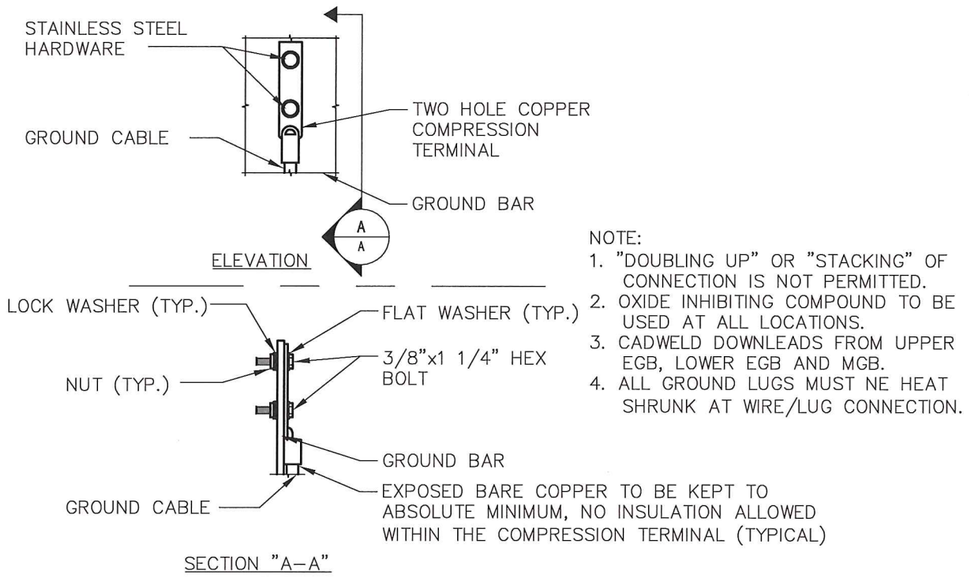
A–4



1 A–5

GROUNDING RISER DIAGRAM

SCALE: NTS

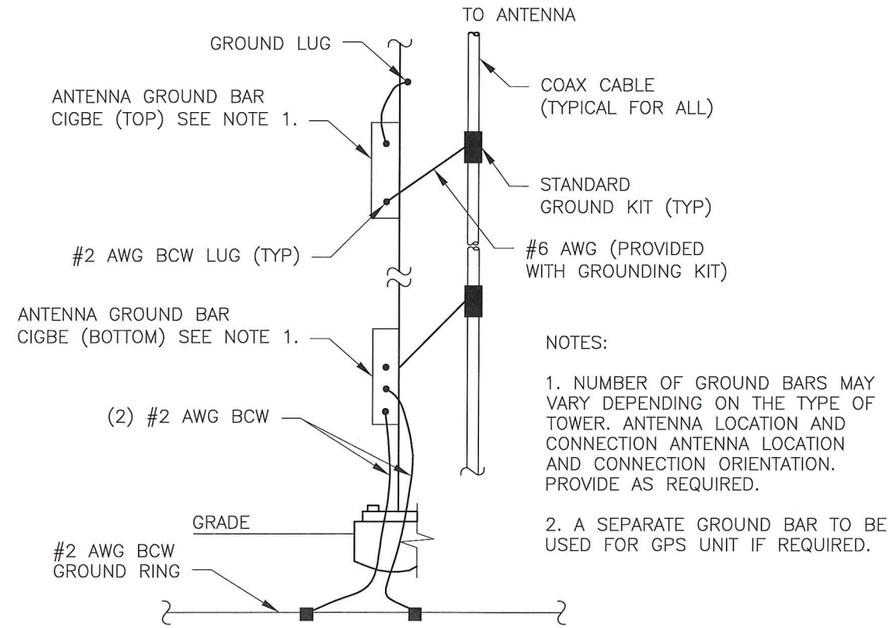


NOTE:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB AND MGB.
4. ALL GROUND LUGS MUST NE HEAT SHRUNK AT WIRE/LUG CONNECTION.

2 A–5

GROUNDING BAR CONN. DETAIL

SCALE: NTS



NOTES:

1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER. ANTENNA LOCATION AND CONNECTION ANTENNA LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.

2. A SEPARATE GROUND BAR TO BE USED FOR GPS UNIT IF REQUIRED.

3 A–5

ANTENNA CABLE GROUNDING

SCALE: NTS

CONFIGURATION
2C
REFER TO LATEST T–MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

0 1 2 3

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CROWN CASTLE

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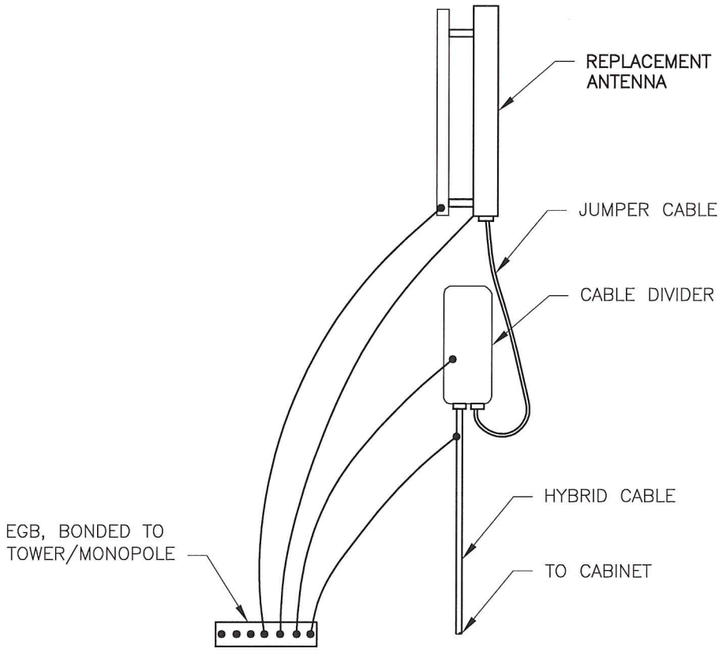
WILTON, CT 06897

SHEET TITLE

DETAILS

SHEET NUMBER

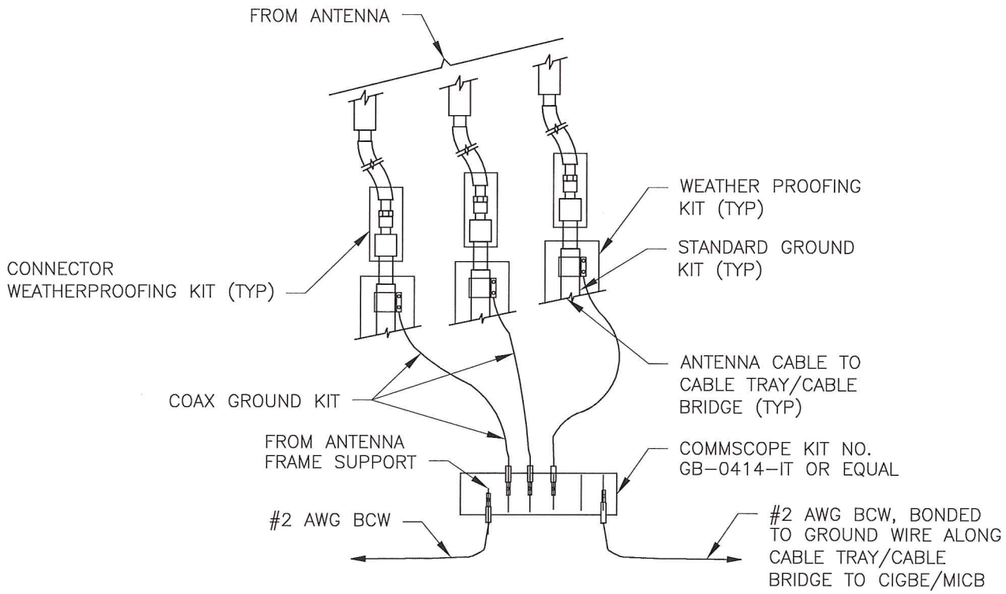
A–5



HYBRID CABLE CONNECTION AND GROUNDING DETAIL

1 / A–6

SCALE: NTS

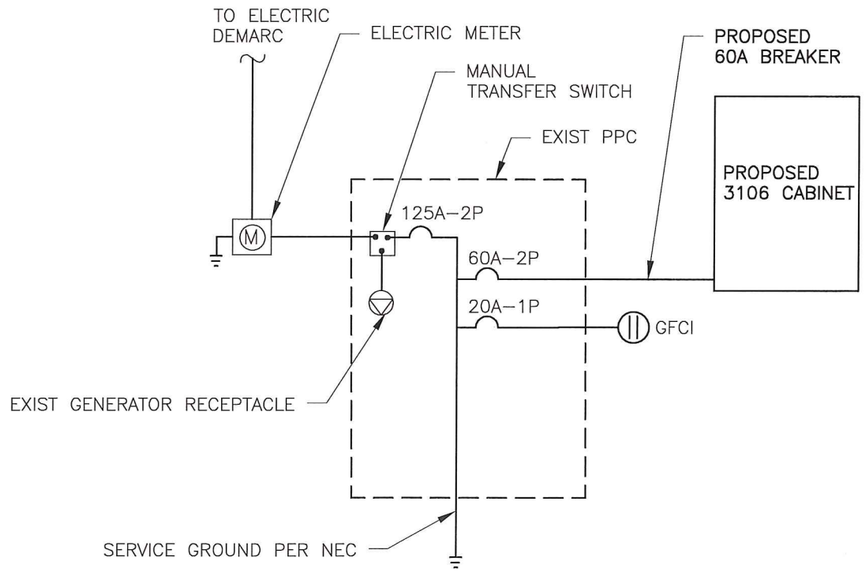


NOTE:
DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

2 / A–6

SCALE: NTS



NOTE: CONTRACTOR TO VERIFY EXISTING CONDUCTORS ARE #6AWG OR LARGER FOR 60A CIRCUIT.

ONE–LINE POWER DIAGRAM

3 / A–6

SCALE: NTS

CONFIGURATION
2C
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0 1 2 3

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SHEET TITLE

DETAILS

SHEET NUMBER

A–6

GENERAL NOTES

1. CONTRACTOR SHALL NOT COMMENCE ANY WORK UNTIL HE OBTAINS, AT HIS OWN EXPENSE, ALL INSURANCE REQUIRED BY T–MOBILE, THE PROPERTY OWNER AND/OR PROPERTY MANAGEMENT COMPANY.
2. THIS SET OF PLANS HAS BEEN PREPARED FOR THE PURPOSES OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED AND EACH OF THE DRAWINGS HAVE BEEN REVISED TO INDICATE "ISSUED FOR PERMIT"
3. THIS PLAN IS SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
4. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES OR OTHER PUBLIC AUTHORITIES.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
6. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THIS PROJECT IN ACCORDANCE WITH THE OVERALL INTENT OF THESE DRAWINGS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.
8. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
9. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
10. POWER TO THE FACILITY IS MONITORED BY AN EXISTING METER.
11. ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
12. CONTRACTOR SHALL MAKE A UTILITY "ONE CALL" TO LOCATE ALL UTILITIES PRIOR TO EXCAVATING.
13. IF ANY PIPING EXISTS BENEATH THE SITE AREA, CONTRACTOR MUST LOCATE IT AND CONTACT OWNER'S REPRESENTATIVE.
14. THE CONSTRUCTION CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ALL CONSTRUCTION MEANS AND METHODS. THE CONSTRUCTION CONTRACTOR IS ALSO RESPONSIBLE FOR ALL JOB SITE SAFETY.
15. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.
16. THE CONTRACTOR IS TO REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. THE CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUB–CONTRACTORS AND RELATED PARTIES. THE SUB–CONTRACTOR SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
17. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
18. ALL MATERIAL PROVIDED BY T–MOBILE IS TO BE REVIEWED BY THE CONTRACTOR AND ALL APPLICABLE SUB–CONTRACTORS PRIOR TO INSTALLATION. ANY DEFICIENCIES TO PROVIDE MATERIALS SHALL BE BROUGHT TO THE CONSTRUCTION MANAGER'S ATTENTION IMMEDIATELY.
19. THE MATERIALS INSTALLED SHALL MEET REQUIREMENTS OF CONTRACTORS DOCUMENTS. NO SUBSTITUTIONS ARE ALLOWED.
20. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER APPROVAL.

GENERAL NOTES

21. THE CONTRACTOR SHALL RECEIVE CLARIFICATION AND AUTHORIZATION IN WRITING TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONSTRUCTION DOCUMENTS.
22. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ALL PRODUCTS OR ITEMS NOTED AS "EXISTING" WHICH ARE NOT FOUND TO BE IN THE FIELD.
23. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMEN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST–ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAND PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
24. THE CONTRACTOR SHALL COORDINATE HIS WORK AND SCHEDULE HIS ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROPERTY OWNER AND/OR PROPERTY MANAGEMENT COMPANY.
25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.
26. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OR WHERE LOCAL CODES OR REGULATIONS MAY TAKE PRECEDENCE.
27. THE CONTRACTOR SHALL REPAIR ALL EXISTING SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND WITH ADJACENT SURFACES.
28. THE CONTRACTOR SHALL KEEP CONTRACT AREA CLEAN, HAZARD FREE AND DISPOSE OF ALL DEBRIS AND RUBBISH. EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY OF THE OWNER SHALL BE REMOVED. LEAVE PREMISES IN CLEAN CONDITIONS AND FREE FROM PAINT SPOTS, DUST OR SMUDGES OF ANY NATURE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.
29. BEFORE FINAL ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT, TEMPORARY WORK, UNUSED AND USELESS MATERIALS, RUBBISH AND TEMPORARY STRUCTURES.
30. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE 2005 CONNECTICUT STATE BUILDING CODE (INCLUDING AMENDMENTS) AND ALL OTHER APPLICABLE CODES AND ORDINANCES.
31. CONTRACTOR SHALL VISIT THE JOB SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
32. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT AND APPURTENANCES, AND LABOR NECESSARY TO EFFECT ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
33. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS.
34. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING THE BEST CONSTRUCTION SKILLS AND ATTENTION. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT, UNLESS OTHERWISE NOTED.

CONFIGURATION

2C

REFER TO LATEST T–MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

0 1 2 3

ORIGINAL SIZE IN INCHES

TECTONIC

- PLANNING
- ENGINEERING
- SURVEYING
- CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Survey Consultants P.C.
1279 ROUTE 300
NEWBURGH, NY 12550
Phone: (845) 567–6656
Fax: (845) 567–8703

T–Mobile
T–MOBILE NORTHEAST LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
PHONE: (860) 692–7100

CROWN CASTLE

APPROVALS

LANDLORD _____
RF _____
CONSTRUCTION _____
OPERATIONS _____
SITE ACQ. _____

PROJECT NUMBER	DESIGNED BY
7061.CT11119A	JQ

REV	DATE	REVISION	DRAWN BY
0	04/09/14	FOR COMMENT	MP
1	04/11/14	FOR CONSTRUCTION	MJR

ISSUED BY	DATE

STATE OF CONNECTICUT
ANTONIO A. GUALTIERI
No. 25406
LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

CT11119A
WILTON/MOUNTAIN RD.
& BRA
128 MATHER ST.
WILTON, CT 06897

SHEET TITLE

NOTES

SHEET NUMBER

A–7

GROUNDING NOTES

1. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY ALL APPLICABLE CODES.
2. ALL GROUNDING WORK SHALL BE IN ACCORDANCE WITH T–MOBILE STANDARD PRACTICE.
3. ALL BUS CONNECTORS SHALL BE TWO–HOLE, LONG–BARREL TYPE COMPRESSION LUGS, T&B OR EQUAL, UNLESS OTHERWISE NOTED ON DRAWINGS. ALL LUGS SHALL BE ATTACHED TO BUSSES USING BOLTS, NUTS, AND LOCK WASHERS. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED.
4. ALL CONNECTORS SHALL BE CRIMPED USING HYDRAULIC CRIMPING TOOLS, T&B #TBM 8 OR EQUIVALENT.
5. ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FILED TO ENSURE PROPER CONTACT. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS ARE TO HAVE A NON–OXIDIZING AGENT APPLIED PRIOR TO INSTALLATION.
6. ALL COPPER BUSSES SHALL BE CLEANED, POLISHED, AND A NON–OXIDIZING AGENT APPLIED. NO FINGERPRINTS OR DISCOLORED COPPER WILL BE PERMITTED.
7. ALL BENDS SHALL BE AS SHALLOW AS POSSIBLE, WITH NO TURN SHORTER THAN AN 8–INCH NOMINAL RADIUS.
8. GROUNDING CONDUCTORS SHALL BE SOLID TINNED COPPER AND ANNEALED #2. ALL GROUNDING CONDUCTORS SHALL RUN THROUGH PVC SLEEVES WHEREVER CONDUCTORS RUN THROUGH WALLS, FLOORS, OR CEILINGS. IF CONDUCTORS MUST RUN THROUGH EMT, BOTH ENDS OF CONDUIT SHALL BE GROUNDED. SEAL BOTH ENDS OF CONDUIT WITH SILICONE CAULK.
9. GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 10 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY THE PROJECT MANAGER FOR FURTHER INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE VALUE.
10. ALL ROOF TOP ANTENNA MOUNTS SHALL BE GROUNDED WITH A #2 GROUND WIRE CONNECTED TO THE NEAREST GROUND BUS. ALL CONNECTIONS ARE TO BE CAD–WELDED IF POSSIBLE.
11. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO THE PROJECT MANAGER.
12. GROUNDING CONNECTION TO TRAVEL IN A DOWNWARD DIRECTION.
13. ALL EXPOSED #2 WIRE MUST BE TINN NOT BTW.
14. TECTONIC TAKES NO RESPONSIBILITY OR LIABILITY FOR THE GROUNDING SYSTEM AS SHOWN ON THIS SITE. THIS IS A STANDARD GROUNDING SYSTEM.

CONFIGURATION

2C

REFER TO LATEST T–MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

0 1 2 3

ORIGINAL SIZE IN INCHES

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CROWN CASTLE

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ISSUED BY	DATE

STATE OF CONNECTICUT
ANTONIO A. GUZZETTI
No. 25406
LICENSED PROFESSIONAL ENGINEER

SITE INFORMATION

CT11119A
WILTON/MOUNTAIN RD.
& BRA
128 MATHER ST.
WILTON, CT 06897

SHEET TITLE

NOTES

SHEET NUMBER

A–8

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street • Suite 600 • Columbus, Ohio 43215-3708

Date: **April 01, 2014**

Mitzi Parker
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Paul J Ford and Company
250 E. Broad Street Suite 600
Columbus, OH 43215
614.221.6679

Subject: Structural Analysis Report

Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11119A
	Carrier Site Name:	Wilton
Crown Castle Designation:	**Crown Castle BU Number:**	806353
	Crown Castle Site Name:	BRG 124 943066
	Crown Castle JDE Job Number:	265551
	Crown Castle Work Order Number:	729167
	Crown Castle Application Number:	222739 Rev. 5
Engineering Firm Designation:	**Paul J Ford and Company Project Number:**	37514-0096_8702
Site Data:	**128 MATHER STREET, WILTON, Fairfield County, CT** **Latitude *41° 14' 18.34"*, Longitude *-73° 25' 26.44"*** **180 Foot - Self Support Tower**	

Dear Mitzi Parker,

Paul J Ford and Company 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 630616, in accordance with application 222739, 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:

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard and the 2005 Connecticut State Building Code based upon a fastest mile wind speed of 85 mph with no ice, 37.6 mph with 0.75 inch ice thickness and 50 mph under service loads.

We at *Paul J Ford and Company* 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.

Respectfully submitted by:

Charles J. Weir, E.I.
Structural Designer

STATE OF CONNECTICUT
JOSEPH PACHICARAH JACOBS
No. PEN 22731
LICENSED
PROFESSIONAL ENGINEER

APR 0 1 2014

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street • Suite 600 • Columbus, Ohio 43215-3708

Date: **April 01, 2014**

Mitzi Parker
Crown Castle
3530 Toringdon Way Suite 300
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250 E. Broad Street Suite 600
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Subject: Structural Analysis Report

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Respectfully submitted by:

Charles J. Weir, E.I.
Structural Designer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 180 ft Self Support tower designed by FWT INC. in May of 1988. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-E.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 85 mph with no ice, 37.6 mph with 0.75 inch ice thickness and 50 mph under service loads.

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)
93.0	93.0	3	Ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	6 1	1-1/4 1-5/8
		3	Ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe		
		3	Ericsson	KRY 112 144/1		
		1	-	CWT01 Mount		

Table 2 - Existing and Reserved 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
178.0	184.0	1	RFS Celwave	PD10017	2	7/8	1
177.0	183.0	12	Decibel	DB844H90E-XY w/ Mount Pipe	12	1-1/4	1
	177.0	1	-	Sector Mount [SM 307-3]			
170.0	171.0	3	Kathrein	800 10504 w/ Mount Pipe	6	1-5/8	1
	170.0	3	Kathrein	860 10025			
		1	-	Side Arm Mount [SO 103-3]			
162.0	163.0	3	Alcatel Lucent	RRH2X40-AWS	7	1-5/8	2
		3	Kathrein	742 213 w/ Mount Pipe			
		1	RFS Celwave	DB-T1-6Z-8AB-0Z			
		6	RFS Celwave	APL868013-42T0 w/ Mount Pipe	6	1-5/8	1
		3	RFS Celwave	APX75-866512-CT2 w/ Mount Pipe			
		3	Rymsa Wireless	MG D3-800Tx w/ Mount Pipe			
	162.0	6	RFS Celwave	FD9R6004/2C-3L			
		1	-	Sector Mount [SM 602-3]			
154.0	158.0	6	Ericsson	RRUS-11	12 2 1	1-5/8 5/8 3/8	1
		6	Powerwave Technologies	7770.00 w/ Mount Pipe			
		6	Powerwave Technologies	LGP21401			
		6	Powerwave Technologies	LGP21901			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		3	Powerwave Technologies	P65-16-XLH-RR w/ Mount Pipe			
	154.0	1	Raycap	DC6-48-60-18-8F			
		1	-	Sector Mount [SM 602-3]			
146.0	146.0	3	Alcatel Lucent	800 EXTERNAL NOTCH FILTER	-	-	1
		3	Alcatel Lucent	TME-800MHZ 2X50W RRH			
143.0	143.0	3	Alcatel Lucent	TME-PCS 1900 MHz 4x45W-65MHz	3	1-1/4	1
		9	RFS Celwave	ACU-A20-N			
		3	RFS Celwave	APXVSPP18-C-A20 w/ Mount Pipe			
		1	-	Sector Mount [SM 701-3]			
124.0	131.0	2	RFS Celwave	1142-2C	2	1/2	1
	124.0	2	-	Side Arm Mount [SO 306-1]			
104.0	111.0	1	RFS Celwave	1142-2C	1	7/8	1
	108.0	1	RFS Celwave	220-3BN	1	1/2	
	104.0	2	-	Side Arm Mount [SO 306-1]			
93.0	93.0	3	EMS Wireless	RR90-17-02DP w/ Mount Pipe	1	5/16	3
		6	Remec	S20057A1			
		1	-	Side Arm Mount [SO 308-3]			
		-	-	-	6	1-1/4	1
62.0	65.0	1	GPS	GPS_A	1	1/2	1
	62.0	1	-	Side Arm Mount [SO 301-1]			
42.0	44.0	1	GPS	GPS_A	1	1/2	1
	42.0	1	-	Side Arm Mount [SO 301-1]			
31.0	32.0	1	GPS	GPS_A	1	1/2	1
	31.0	1	-	Side Arm Mount [SO 301-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Equipment to be Removed

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
GEOTECHNICAL REPORTS	FDH, 09-04219E G1 - 4/29/2009	262283	CCISITES
POST-MODIFICATION INSPECTION	Paul J. Ford, 37509-0801 - 1/11/2010	2575710	CCISITES
TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	FWT, 18888-81 - 5/31/1988	262285	CCISITES
TOWER MANUFACTURER DRAWINGS	FWT, 18888-81 - 5/6/1988	217757	CCISITES
TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Paul J. Ford, 37509-0801 - 12/8/2009	2434484	CCISITES
TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	HEB, 98124A - 1/7/2000	3290324	CCISITES
TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	APT, CT105271 - 1/17/2003	801524	CCISITES
FOUNDATION MAPPING	FDH, 09-11077 E N1 - 8/7/2012	-	-

3.1) Analysis Method

tnxTower (version 6.1.4.1), 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) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.

This analysis may be affected if any assumptions are not valid or have been made in error. Paul J Ford and Company should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	180 - 168	Leg	Pipe 2.375" x 0.154" (2 STD)	2	-11.42	24.25	47.1	Pass
T2	168 - 160	Leg	Pipe 2.375" x 0.154" (2 STD) (GR)	26	-24.24	35.52	68.2	Pass
T3	160 - 140	Leg	Pipe 3.5" x 0.216" (3 STD) (GR)	40	60.73	62.38	97.4	Pass
T4	140 - 120	Leg	Pipe 4" x 0.318" (3.5 XS) (GR)	67	-106.66	112.76	94.6	Pass
T5	120 - 100	Leg	Pipe 4.5" x 0.337" (4 XS) (GR)	88	122.54	123.38	99.3	Pass
T6	100 - 80	Leg	Pipe 5.563" x 0.375" (5 XS) (GR)	109	147.47	171.09	86.2	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T7	80 - 60	Leg	Pipe 6.625" x 0.432" (6 XS) (GR)	130	168.95	235.28	71.8	Pass
T8	60 - 40	Leg	Pipe 6.625" x 0.432" (6 XS) (GR)	145	190.71	235.28	81.1	Pass
T9	40 - 20	Leg	Pipe 6.625" x 0.432" (6 XS) (GR)	160	210.88	235.28	89.6	Pass
T10	20 - 0	Leg	Pipe 8.625" x 0.500" (8 XS) (GR)	181	230.56	357.27	64.5	Pass
T1	180 - 168	Diagonal	L 2 x 1.5 x 3/16 LLV	10	-1.98	11.64	17.0	Pass
T2	168 - 160	Diagonal	L 2 x 1.5 x 3/16 LLV	28	-3.36	11.64	28.8	Pass
T3	160 - 140	Diagonal	L 2 x 1.5 x 3/16 LLV	43	-4.85	8.26	58.8	Pass
T4	140 - 120	Diagonal	L 2 x 2 x 3/16	70	-5.05	7.23	69.8	Pass
T5	120 - 100	Diagonal	L 2.5 x 2 x 3/16 LLV	91	-5.02	7.03	71.4	Pass
T6	100 - 80	Diagonal	L 2.5 x 2.5 x 3/16	112	-5.51	7.87	70.0	Pass
T7	80 - 60	Diagonal	L 3 x 3 x 3/16	133	-6.54	8.53	76.6	Pass
T8	60 - 40	Diagonal	L 3.5 x 3 x 1/4 LLV	148	-6.88	11.26	61.2	Pass
T9	40 - 20	Diagonal	L 3.5 x 3 x 1/4 LLV	163	-7.70	9.07	84.9	Pass
T10	20 - 0	Diagonal	L 3.5 x 3.5 x 1/4	184	-8.13	10.44	77.8	Pass
T9	40 - 20	Secondary Horizontal	L3 1/2x3 1/2x1/4	169	-4.26	15.70	27.2	Pass
T1	180 - 168	Top Girt	L 2 x 1.5 x 3/16 LLH	6	-0.25	7.05	3.5	Pass
							Summary	
						Leg (T5)	99.3	Pass
						Diagonal (T9)	84.9	Pass
						Secondary Horizontal (T9)	27.2	Pass
						Top Girt (T1)	3.5	Pass
						Bolt Checks	94.6	Pass
						Rating =	99.3	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	-	85.2	Pass
1	Base Foundation	-	54.3	Pass
1	Base Foundation Soil Interaction	-	75.8	Pass

Structure Rating (max from all components) =	99.3%

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

APPENDIX A

TNXTOWER OUTPUT

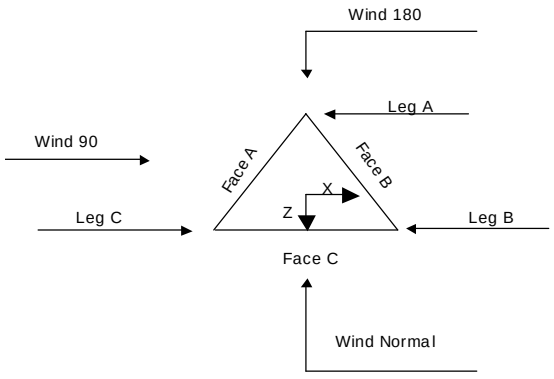
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 180.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 4.00 ft at the top and 20.00 ft at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

1) Tower is located in Fairfield County, Connecticut.
2) Basic wind speed of 85 mph.
3) Nominal ice thickness of 0.75 in.
4) Ice thickness is considered to increase with height.
5) Ice density of 56 pcf.
6) A wind speed of 38 mph is used in combination with ice.
7) Deflections calculated using a wind speed of 50 mph.
8) A non-linear (P-delta) analysis was used.
9) Grouted pipe f'_c is 7 ksi.
10) Pressures are calculated at each section.
11) Stress ratio used in tower member design is 1.333.

Options

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



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	180.00-168.00			4.00	1	12.00
T2	168.00-160.00			4.00	1	8.00
T3	160.00-140.00			4.00	1	20.00
T4	140.00-120.00			6.00	1	20.00
T5	120.00-100.00			8.00	1	20.00
T6	100.00-80.00			10.00	1	20.00
T7	80.00-60.00			12.00	1	20.00
T8	60.00-40.00			14.00	1	20.00
T9	40.00-20.00			16.00	1	20.00
T10	20.00-0.00			18.00	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	180.00-168.00	4.00	X Brace	No	No	0.00	0.00
T2	168.00-160.00	4.00	X Brace	No	No	0.00	0.00
T3	160.00-140.00	5.00	X Brace	No	No	0.00	0.00
T4	140.00-120.00	6.67	X Brace	No	No	0.00	0.00
T5	120.00-100.00	6.67	X Brace	No	No	0.00	0.00
T6	100.00-80.00	6.67	X Brace	No	No	0.00	0.00
T7	80.00-60.00	10.00	X Brace	No	No	0.00	0.00
T8	60.00-40.00	10.00	X Brace	No	No	0.00	0.00
T9	40.00-20.00	10.00	X Brace	No	Yes	0.00	0.00
T10	20.00-0.00	10.00	X Brace	No	No	0.00	0.00

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 180.00-168.00	Pipe	Pipe 2.375" x 0.154" (2 STD)	A53-B-35 (35 ksi)	Single Angle	L 2 x 1.5 x 3/16 LLV	A36 (36 ksi)
T2 168.00-160.00	Grouted Pipe	Pipe 2.375" x 0.154" (2 STD)	A53-B-35 (35 ksi)	Single Angle	L 2 x 1.5 x 3/16 LLV	A36 (36 ksi)
T3 160.00-140.00	Grouted Pipe	Pipe 3.5" x 0.216" (3 STD)	A53-B-35 (35 ksi)	Single Angle	L 2 x 1.5 x 3/16 LLV	A36 (36 ksi)
T4 140.00-120.00	Grouted Pipe	Pipe 4" x 0.318" (3.5 XS)	A53-B-35 (35 ksi)	Single Angle	L 2 x 2 x 3/16	A36 (36 ksi)
T5 120.00-100.00	Grouted Pipe	Pipe 4.5" x 0.337" (4 XS)	A53-B-35 (35 ksi)	Single Angle	L 2.5 x 2 x 3/16 LLV	A36 (36 ksi)
T6 100.00-80.00	Grouted Pipe	Pipe 5.563" x 0.375" (5 XS)	A53-B-35 (35 ksi)	Single Angle	L 2.5 x 2.5 x 3/16	A36 (36 ksi)
T7 80.00-60.00	Grouted Pipe	Pipe 6.625" x 0.432" (6 XS)	A53-B-35 (35 ksi)	Single Angle	L 3 x 3 x 3/16	A36 (36 ksi)
T8 60.00-40.00	Grouted Pipe	Pipe 6.625" x 0.432" (6 XS)	A53-B-35 (35 ksi)	Single Angle	L 3.5 x 3 x 1/4 LLV	A36 (36 ksi)
T9 40.00-20.00	Grouted Pipe	Pipe 6.625" x 0.432" (6 XS)	A53-B-35 (35 ksi)	Single Angle	L 3.5 x 3 x 1/4 LLV	A36 (36 ksi)
T10 20.00-0.00	Grouted Pipe	Pipe 8.625" x 0.500" (8 XS)	A53-B-35 (35 ksi)	Single Angle	L 3.5 x 3.5 x 1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 180.00-	Single Angle	L 2 x 1.5 x 3/16 LLH	A36	Single Angle		A36

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
168.00			(36 ksi)			(36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T9 40.00-20.00	Single Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)	Single Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

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
T1 180.00-168.00	0.00	0.38	A36 (36 ksi)	1	1	1	0.00	0.00
T2 168.00-160.00	0.00	0.38	A36 (36 ksi)	1	1	1	0.00	0.00
T3 160.00-140.00	0.00	0.38	A36 (36 ksi)	1	1	1	0.00	0.00
T4 140.00-120.00	0.00	0.38	A36 (36 ksi)	1	1	1	0.00	0.00
T5 120.00-100.00	0.00	0.38	A36 (36 ksi)	1	1	1	0.00	0.00
T6 100.00-80.00	0.00	0.38	A36 (36 ksi)	1	1	1	0.00	0.00
T7 80.00-60.00	0.00	0.38	A36 (36 ksi)	1	1	1	0.00	0.00
T8 60.00-40.00	0.00	0.38	A36 (36 ksi)	1	1	1	0.00	0.00
T9 40.00-20.00	0.00	0.38	A36 (36 ksi)	1	1	1	0.00	0.00
T10 20.00-0.00	0.00	0.38	A36 (36 ksi)	1	1	1	0.00	0.00

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 180.00-168.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 168.00-160.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 160.00-140.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 140.00-120.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 120.00-100.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 100.00-80.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 80.00-60.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T8 60.00-40.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T9 40.00-	No	No	1	1	1	1	1	1	0.5	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
20.00				1	1	1	1	1	0.5	1
T10 20.00-0.00	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 180.00-168.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T2 168.00-160.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T3 160.00-140.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T4 140.00-120.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T5 120.00-100.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T6 100.00-80.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T7 80.00-60.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T8 60.00-40.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T9 40.00-20.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T10 20.00-0.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation	Connection Offsets							
	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
ft	in	in	in	in	in	in	in	in
T1 180.00-168.00	4.50	4.19	4.50	4.19	0.00	0.00	0.00	0.00
T2 168.00-160.00	4.50	4.19	4.50	4.19	0.00	0.00	0.00	0.00
T3 160.00-140.00	4.60	4.75	4.60	4.75	0.00	0.00	0.00	0.00
T4 140.00-120.00	4.50	5.00	4.00	5.00	0.00	0.00	0.00	0.00
T5 120.00-100.00	3.50	5.25	3.50	5.25	0.00	0.00	0.00	0.00
T6 100.00-80.00	2.50	5.78	2.50	5.78	0.00	0.00	0.00	0.00
T7 80.00-60.00	4.00	6.31	4.00	6.31	0.00	0.00	0.00	0.00
T8 60.00-40.00	4.00	6.31	4.00	6.31	0.00	0.00	0.00	0.00
T9 40.00-20.00	3.90	6.31	3.90	6.31	0.00	0.00	0.00	0.00

Tower Elevation	Connection Offsets							
	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
ft	in	in	in	in	in	in	in	in
T10 20.00-0.00	4.00	7.31	4.00	7.31	0.00	0.00	0.00	0.00

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 180.00-168.00	Flange	0.00 A325N	0	0.63 A325N	1	0.63 A325N	1	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.00 A325N	0
T2 168.00-160.00	Flange	0.63 A325N	4	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.00 A325N	0
T3 160.00-140.00	Flange	0.63 A325N	4	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.00 A325N	0
T4 140.00-120.00	Flange	0.75 A325N	4	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.00 A325N	0
T5 120.00-100.00	Flange	0.88 A325N	4	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.00 A325N	0
T6 100.00-80.00	Flange	0.88 A490N	4	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.00 A325N	0
T7 80.00-60.00	Flange	1.00 A325N	4	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.00 A325N	0
T8 60.00-40.00	Flange	1.13 A325N	4	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.00 A325N	0
T9 40.00-20.00	Flange	1.13 A325N	4	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.50 A325N	1
T10 20.00-0.00	Flange	1.50 F1554-36	6	0.63 A325N	1	0.00 A325N	0	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.00 A325N	0

Grouted Pipe Properties

Size	F_y ksi	A_s in^2	A_c in^2	Wt plf	E_c ksi	E_m ksi	F_{ym} ksi
Pipe 2.375" x 0.154" (2 STD) (GR)	35	1.07	3.36	10.65	4769	40914	54
Pipe 3.5" x 0.216" (3 STD) (GR)	35	2.23	7.39	22.98	4769	41656	55
Pipe 4" x 0.318" (3.5 XS) (GR)	35	3.68	8.89	31.03	4769	38218	49
Pipe 4.5" x 0.337" (4 XS) (GR)	35	4.41	11.50	38.95	4769	38952	51
Pipe 5.563" x 0.375" (5 XS) (GR)	35	6.11	18.19	58.70	4769	40357	53
Pipe 6.625" x 0.432" (6 XS) (GR)	35	8.40	26.07	82.91	4769	40832	53
Pipe 8.625" x 0.500" (8 XS) (GR)	35	12.76	45.66	138.56	4769	42650	56

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
2" flat Cable Ladder Rail	C	Yes	Af (CfAe)	180.00 - 5.00	0.00	0	2	2	2.00	2.00	7.00	2.12

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
5/8" ladder rung (12" long 12" oc)	C	Yes	Ar (CfAe)	180.00 - 5.00	0.00	0	1	1	0.63	0.63		1.04
Safety Line 3/8	C	Yes	Ar (CfAe)	180.00 - 5.00	3.00	0	1	1	0.38	0.38		0.22
***												
1.5" flat Cable Ladder Rail	A	Yes	Af (CfAe)	180.00 - 5.00	0.00	0	2	2	48.00 1.50	1.50	6.00	1.80
FSJ4-50B(1/2")	A	Yes	Ar (CfAe)	42.00 - 5.00	0.00	-0.1	4	4	0.52	0.52		0.14
LDF4-50A(1/2")	A	Yes	Ar (CfAe)	62.00 - 42.00	0.00	-0.1	3	3	0.63	0.63		0.15
LDF4-50A(1/2")	A	Yes	Ar (CfAe)	124.00 - 62.00	0.00	-0.1	2	2	0.63	0.63		0.15
HB114-1-0813U4-M5J(1 1/4")	A	Yes	Ar (CfAe)	143.00 - 5.00	0.00	-0.075	3	3	1.50 0.50	1.54		1.20
LDF5-50A(7/8")	A	Yes	Ar (CfAe)	178.00 - 5.00	0.00	-0.05	2	1	1.09	1.09		0.33
561(1-5/8")	A	Yes	Ar (CfAe)	162.00 - 5.00	0.00	0	6	2	1.00 0.50	1.63		1.35
HB158-1-08U8-S8J18(1-5/8)	A	Yes	Ar (CfAe)	162.00 - 5.00	0.00	0.075	7	4	1.00 0.50	1.98		1.30
***												
1.5" flat Cable Ladder Rail	B	Yes	Af (CfAe)	54.00 - 5.00	0.00	0.12	2	2	36.00 1.50	1.50	6.00	1.80
1.5" flat Cable Ladder Rail	B	Yes	Af (CfAe)	93.00 - 5.00	0.00	0.38	2	2	36.00 1.50	1.50	6.00	1.80
LDF6-50A(1-1/4")	B	Yes	Ar (CfAe)	93.00 - 5.00	0.00	0.15	12	6	1.55 0.50	1.55		0.66
MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	B	Yes	Ar (CfAe)	93.00 - 0.00	0.00	0.1	1	1	1.63	1.63		1.07
LCF158-50JA-A0(1 5/8")	B	Yes	Ar (CfAe)	154.00 - 5.00	0.00	0.35	12	6	1.00 0.50	1.98		0.08
LDF4-50A(1/2")	B	Yes	Ar (CfAe)	104.00 - 5.00	0.00	0.4	1	1	0.63	0.63		0.15
LDF5-50A(7/8")	B	Yes	Ar (CfAe)	104.00 - 5.00	0.00	0.41	1	1	1.09	1.09		0.33
2" Conduit (1 1/2" EMT)	B	Yes	Ar (CfAe)	104.00 - 5.00	0.00	0.43	1	1	1.74	1.74		1.16
FB-L98B-002-75000(3/8")	B	Yes	Ar (CaAa)	154.00 - 5.00	0.00	0.43	1	1	0.39	0.39		0.06
WR-VG82ST-BRDA(5/8")	B	Yes	Ar (CaAa)	154.00 - 5.00	0.00	0.43	2	2	0.65	0.65		0.31
***												
1.5" flat Cable Ladder Rail	C	Yes	Af (CfAe)	180.00 - 5.00	-1.00	-0.35	4	2	36.00 1.50	1.50	6.00	1.80
LDF6-50A(1-1/4")	C	Yes	Ar (CfAe)	177.00 - 5.00	-5.00	-0.35	12	4	1.55 0.50	1.55		0.66
CR 50 1873PE(1-5/8")	C	Yes	Ar (CfAe)	170.00 - 5.00	0.00	-0.35	6	4	1.00 0.50	1.98		0.83
LDF4-50A(1/2")	C	Yes	Ar (CfAe)	31.00 - 5.00	-1.00	-0.32	1	1	0.63	0.63		0.15
***												

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
T1	180.00-168.00	A	0.908	3.000	0.000	0.000	0.05
		B	0.000	0.000	0.000	0.000	0.00
		C	6.970	7.000	0.000	0.000	0.23
T2	168.00-160.00	A	2.588	2.000	0.000	0.000	0.07
		B	0.000	0.000	0.000	0.000	0.00
		C	10.080	4.667	0.000	0.000	0.20
T3	160.00-140.00	A	21.588	5.000	0.000	0.000	0.44
		B	13.860	0.000	2.357	0.000	0.02
		C	25.200	11.667	0.000	0.000	0.51
T4	140.00-120.00	A	28.553	5.000	0.000	0.000	0.50
		B	19.800	0.000	3.367	0.000	0.03
		C	25.200	11.667	0.000	0.000	0.51
T5	120.00-100.00	A	30.233	5.000	0.000	0.000	0.51
		B	20.953	0.000	3.367	0.000	0.04
		C	25.200	11.667	0.000	0.000	0.51
T6	100.00-80.00	A	30.233	5.000	0.000	0.000	0.51
		B	37.402	3.250	3.367	0.000	0.23
		C	25.200	11.667	0.000	0.000	0.51
T7	80.00-60.00	A	30.338	5.000	0.000	0.000	0.51
		B	43.775	5.000	3.367	0.000	0.32
		C	25.200	11.667	0.000	0.000	0.51
T8	60.00-40.00	A	31.315	5.000	0.000	0.000	0.51
		B	43.775	8.500	3.367	0.000	0.37
		C	25.200	11.667	0.000	0.000	0.51
T9	40.00-20.00	A	31.600	5.000	0.000	0.000	0.51
		B	43.775	10.000	3.367	0.000	0.39
		C	25.778	11.667	0.000	0.000	0.51
T10	20.00-0.00	A	23.700	3.750	0.000	0.000	0.38
		B	33.508	7.500	2.526	0.000	0.30
		C	19.688	8.750	0.000	0.000	0.39

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
T1	180.00-168.00	A	0.916	2.434	5.442	0.000	0.000	0.18
		B		0.000	0.000	0.000	0.000	0.00
		C		7.833	20.348	0.000	0.000	0.80
T2	168.00-160.00	A	0.909	3.146	5.544	0.000	0.000	0.22
		B		0.000	0.000	0.000	0.000	0.00
		C		7.869	20.059	0.000	0.000	0.74
T3	160.00-140.00	A	0.899	17.654	29.792	0.000	0.000	1.28
		B		4.409	17.383	9.501	0.000	0.50
		C		19.542	50.062	0.000	0.000	1.84
T4	140.00-120.00	A	0.884	22.979	38.758	0.000	0.000	1.49
		B		6.247	24.833	13.450	0.000	0.71
		C		19.338	49.926	0.000	0.000	1.82
T5	120.00-100.00	A	0.867	25.885	40.360	0.000	0.000	1.52
		B		9.075	24.833	13.310	0.000	0.73
		C		19.104	49.770	0.000	0.000	1.80
T6	100.00-80.00	A	0.846	25.541	40.268	0.000	0.000	1.50
		B		27.452	47.319	13.145	0.000	1.50
		C		18.829	49.586	0.000	0.000	1.77
T7	80.00-60.00	A	0.821	25.122	40.366	0.000	0.000	1.47
		B		30.775	59.315	12.944	0.000	1.81
		C		18.494	49.363	0.000	0.000	1.74
T8	60.00-40.00	A	0.788	24.562	42.212	0.000	0.000	1.46
		B		30.125	65.123	12.684	0.000	1.90
		C		18.061	49.074	0.000	0.000	1.70
T9	40.00-20.00	A	0.750	23.758	42.942	0.000	0.000	1.43
		B		54.775	41.500	12.377	0.000	1.86
		C		34.752	33.233	0.000	0.000	1.68
T10	20.00-0.00	A	0.750	17.819	32.206	0.000	0.000	1.07

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
		B		42.383	31.125	9.283	0.000	1.41
		C		27.263	24.925	0.000	0.000	1.27

Feed Line Shielding

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
T1	180.00-168.00	A	0.000	1.097	0.501	1.167
		B	0.000	0.000	0.000	0.000
		C	0.000	3.694	1.792	3.928
T2	168.00-160.00	A	0.000	1.018	0.541	1.119
		B	0.000	0.000	0.000	0.000
		C	0.000	3.165	1.738	3.482
T3	160.00-140.00	A	0.000	4.226	2.526	4.698
		B	0.000	2.453	1.504	2.727
		C	0.000	6.290	3.503	6.993
T4	140.00-120.00	A	0.000	3.902	2.325	4.414
		B	0.000	2.503	1.566	2.831
		C	0.000	4.484	2.554	5.071
T5	120.00-100.00	A	0.000	3.682	2.745	5.311
		B	0.000	2.353	1.851	3.394
		C	0.000	3.928	2.872	5.666
T6	100.00-80.00	A	0.000	3.351	2.577	4.951
		B	0.000	4.233	3.179	6.255
		C	0.000	3.573	2.697	5.279
T7	80.00-60.00	A	0.000	2.325	2.231	4.249
		B	0.000	3.498	3.256	6.392
		C	0.000	2.470	2.327	4.514
T8	60.00-40.00	A	0.000	2.165	2.547	4.806
		B	0.000	3.392	3.863	7.530
		C	0.000	2.232	2.586	4.954
T9	40.00-20.00	A	0.000	2.838	3.545	6.622
		B	0.000	4.504	5.481	10.509
		C	0.000	2.961	3.627	6.908
T10	20.00-0.00	A	0.000	1.449	1.810	3.381
		B	0.000	2.336	2.843	5.451
		C	0.000	1.545	1.875	3.606

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	180.00-168.00	1.92	3.00	1.01	2.41
T2	168.00-160.00	3.25	4.07	1.83	3.00
T3	160.00-140.00	4.25	3.24	3.02	2.75
T4	140.00-120.00	5.56	4.23	4.14	3.65
T5	120.00-100.00	6.40	5.00	5.21	4.51
T6	100.00-80.00	10.87	5.89	9.88	5.63
T7	80.00-60.00	13.50	6.56	12.82	6.52
T8	60.00-40.00	14.99	6.93	14.48	6.98
T9	40.00-20.00	14.89	6.81	16.00	7.51
T10	20.00-0.00	14.59	6.62	16.63	7.78

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
PD10017	A	From Leg	0.50 0 6	0.000	178.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.11 5.64 7.19 10.32 14.45	4.11 5.64 7.19 10.32 14.45	0.03 0.06 0.09 0.20 0.54
***									
(4) DB844H90E-XY w/ Mount Pipe	A	From Leg	4.00 0 6	0.000	177.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.30 3.69 4.12 5.01 6.92	4.92 5.60 6.28 7.71 10.83	0.03 0.07 0.12 0.23 0.56
(4) DB844H90E-XY w/ Mount Pipe	B	From Leg	4.00 0 6	0.000	177.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.30 3.69 4.12 5.01 6.92	4.92 5.60 6.28 7.71 10.83	0.03 0.07 0.12 0.23 0.56
(4) DB844H90E-XY w/ Mount Pipe	C	From Leg	4.00 0 6	0.000	177.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.30 3.69 4.12 5.01 6.92	4.92 5.60 6.28 7.71 10.83	0.03 0.07 0.12 0.23 0.56
Sector Mount [SM 307-3]	A	None		0.000	177.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	26.22 36.28 46.34 66.46 106.70	26.22 36.28 46.34 66.46 106.70	1.62 2.15 2.68 3.73 5.85
***									
800 10504 w/ Mount Pipe	A	From Leg	2.00 0 1	0.000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.59 4.01 4.42 5.34 7.38	3.18 3.91 4.58 5.98 8.98	0.04 0.07 0.11 0.21 0.51
800 10504 w/ Mount Pipe	B	From Leg	2.00 0 1	0.000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.59 4.01 4.42 5.34 7.38	3.18 3.91 4.58 5.98 8.98	0.04 0.07 0.11 0.21 0.51
800 10504 w/ Mount Pipe	C	From Leg	2.00 0 1	0.000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.59 4.01 4.42 5.34 7.38	3.18 3.91 4.58 5.98 8.98	0.04 0.07 0.11 0.21 0.51
860 10025	A	From Leg	2.00 0 0	0.000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.16 0.23 0.30 0.48 0.93	0.14 0.20 0.27 0.44 0.88	0.00 0.00 0.01 0.01 0.05
860 10025	B	From Leg	2.00 0 0	0.000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.16 0.23 0.30 0.48 0.93	0.14 0.20 0.27 0.44 0.88	0.00 0.00 0.01 0.01 0.05

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*
860 10025	C	From Leg	2.00 0 0	0.000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.16 0.23 0.30 0.48 0.93	0.14 0.20 0.27 0.44 0.88	0.00 0.00 0.01 0.01 0.05
Side Arm Mount [SO 103-3]	A	None		0.000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	9.50 11.80 14.10 18.70 27.90	9.50 11.80 14.10 18.70 27.90	0.22 0.32 0.41 0.60 0.97
***									
(2) APL868013-42T0 w/ Mount Pipe	A	From Leg	4.00 0 1	0.000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.87 3.18 3.52 4.27 5.88	3.73 4.10 4.48 5.25 6.91	0.02 0.05 0.07 0.15 0.35
(2) APL868013-42T0 w/ Mount Pipe	B	From Leg	4.00 0 1	0.000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.87 3.18 3.52 4.27 5.88	3.73 4.10 4.48 5.25 6.91	0.02 0.05 0.07 0.15 0.35
(2) APL868013-42T0 w/ Mount Pipe	C	From Leg	4.00 0 1	0.000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.87 3.18 3.52 4.27 5.88	3.73 4.10 4.48 5.25 6.91	0.02 0.05 0.07 0.15 0.35
APX75-866512-CT2 w/ Mount Pipe	A	From Leg	4.00 0 1	0.000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.43 6.92 7.41 8.43 10.58	3.89 4.59 5.25 6.63 9.77	0.04 0.09 0.14 0.27 0.64
APX75-866512-CT2 w/ Mount Pipe	B	From Leg	4.00 0 1	0.000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.43 6.92 7.41 8.43 10.58	3.89 4.59 5.25 6.63 9.77	0.04 0.09 0.14 0.27 0.64
APX75-866512-CT2 w/ Mount Pipe	C	From Leg	4.00 0 1	0.000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.43 6.92 7.41 8.43 10.58	3.89 4.59 5.25 6.63 9.77	0.04 0.09 0.14 0.27 0.64
MG D3-800Tx w/ Mount Pipe	A	From Leg	4.00 0 1	0.000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.57 3.98 4.39 5.33 7.34	3.42 4.12 4.78 6.16 9.18	0.03 0.07 0.11 0.21 0.52
MG D3-800Tx w/ Mount Pipe	B	From Leg	4.00 0 1	0.000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.57 3.98 4.39 5.33 7.34	3.42 4.12 4.78 6.16 9.18	0.03 0.07 0.11 0.21 0.52
MG D3-800Tx w/ Mount Pipe	C	From Leg	4.00 0 1	0.000	162.00	No Ice 1/2" Ice 1" Ice	3.57 3.98 4.39 5.33	3.42 4.12 4.78 6.16	0.03 0.07 0.11 0.21

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
						2" Ice	7.34	9.18	0.52
						4" Ice			
(2) FD9R6004/2C-3L	A	From Leg	4.00	0.000	162.00	No Ice	0.37	0.08	0.00
			0			1/2"	0.45	0.14	0.01
			0			Ice	0.54	0.20	0.01
						1" Ice	0.75	0.34	0.02
						2" Ice	1.28	0.74	0.06
						4" Ice			
(2) FD9R6004/2C-3L	B	From Leg	4.00	0.000	162.00	No Ice	0.37	0.08	0.00
			0			1/2"	0.45	0.14	0.01
			0			Ice	0.54	0.20	0.01
						1" Ice	0.75	0.34	0.02
						2" Ice	1.28	0.74	0.06
						4" Ice			
(2) FD9R6004/2C-3L	C	From Leg	4.00	0.000	162.00	No Ice	0.37	0.08	0.00
			0			1/2"	0.45	0.14	0.01
			0			Ice	0.54	0.20	0.01
						1" Ice	0.75	0.34	0.02
						2" Ice	1.28	0.74	0.06
						4" Ice			
742 213 w/ Mount Pipe	A	From Leg	4.00	0.000	162.00	No Ice	5.37	4.62	0.05
			0			1/2"	5.95	6.00	0.09
			1			Ice	6.50	6.98	0.15
						1" Ice	7.61	8.85	0.28
						2" Ice	9.93	12.79	0.68
						4" Ice			
742 213 w/ Mount Pipe	B	From Leg	4.00	0.000	162.00	No Ice	5.37	4.62	0.05
			0			1/2"	5.95	6.00	0.09
			1			Ice	6.50	6.98	0.15
						1" Ice	7.61	8.85	0.28
						2" Ice	9.93	12.79	0.68
						4" Ice			
742 213 w/ Mount Pipe	C	From Leg	4.00	0.000	162.00	No Ice	5.37	4.62	0.05
			0			1/2"	5.95	6.00	0.09
			1			Ice	6.50	6.98	0.15
						1" Ice	7.61	8.85	0.28
						2" Ice	9.93	12.79	0.68
						4" Ice			
RRH2X40-AWS	A	From Leg	4.00	0.000	162.00	No Ice	2.98	1.60	0.04
			0			1/2"	3.24	1.82	0.06
			1			Ice	3.50	2.06	0.08
						1" Ice	4.07	2.56	0.14
						2" Ice	5.30	3.66	0.29
						4" Ice			
RRH2X40-AWS	B	From Leg	4.00	0.000	162.00	No Ice	2.98	1.60	0.04
			0			1/2"	3.24	1.82	0.06
			1			Ice	3.50	2.06	0.08
						1" Ice	4.07	2.56	0.14
						2" Ice	5.30	3.66	0.29
						4" Ice			
RRH2X40-AWS	C	From Leg	4.00	0.000	162.00	No Ice	2.98	1.60	0.04
			0			1/2"	3.24	1.82	0.06
			1			Ice	3.50	2.06	0.08
						1" Ice	4.07	2.56	0.14
						2" Ice	5.30	3.66	0.29
						4" Ice			
DB-T1-6Z-8AB-0Z	C	From Leg	4.00	0.000	162.00	No Ice	5.60	2.33	0.04
			0			1/2"	5.92	2.56	0.08
			1			Ice	6.24	2.79	0.12
						1" Ice	6.91	3.28	0.21
						2" Ice	8.37	4.37	0.45
						4" Ice			
Sector Mount [SM 602-3]	A	None		0.000	162.00	No Ice	33.11	33.11	1.54
						1/2"	44.90	44.90	2.16
						Ice	56.69	56.69	2.78

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
						1" Ice	80.27	80.27	4.01
						2" Ice	127.43	127.43	6.49
						4" Ice			
***									
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.00 0 4	0.000	154.00	No Ice	6.12	4.25	0.06
						1/2" Ice	6.63	5.01	0.10
						1" Ice	7.13	5.71	0.16
						2" Ice	8.16	7.16	0.29
						4" Ice	10.36	10.41	0.66
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00 0 4	0.000	154.00	No Ice	6.12	4.25	0.06
						1/2" Ice	6.63	5.01	0.10
						1" Ice	7.13	5.71	0.16
						2" Ice	8.16	7.16	0.29
						4" Ice	10.36	10.41	0.66
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00 0 4	0.000	154.00	No Ice	6.12	4.25	0.06
						1/2" Ice	6.63	5.01	0.10
						1" Ice	7.13	5.71	0.16
						2" Ice	8.16	7.16	0.29
						4" Ice	10.36	10.41	0.66
P65-16-XLH-RR w/ Mount Pipe	A	From Leg	4.00 0 4	0.000	154.00	No Ice	8.64	6.36	0.08
						1/2" Ice	9.29	7.54	0.14
						1" Ice	9.91	8.43	0.22
						2" Ice	11.18	10.24	0.39
						4" Ice	13.83	14.10	0.89
P65-16-XLH-RR w/ Mount Pipe	B	From Leg	4.00 0 4	0.000	154.00	No Ice	8.64	6.36	0.08
						1/2" Ice	9.29	7.54	0.14
						1" Ice	9.91	8.43	0.22
						2" Ice	11.18	10.24	0.39
						4" Ice	13.83	14.10	0.89
P65-16-XLH-RR w/ Mount Pipe	C	From Leg	4.00 0 4	0.000	154.00	No Ice	8.64	6.36	0.08
						1/2" Ice	9.29	7.54	0.14
						1" Ice	9.91	8.43	0.22
						2" Ice	11.18	10.24	0.39
						4" Ice	13.83	14.10	0.89
(2) LGP21901	A	From Leg	4.00 0 4	0.000	154.00	No Ice	0.27	0.18	0.01
						1/2" Ice	0.34	0.25	0.01
						1" Ice	0.43	0.32	0.01
						2" Ice	0.62	0.49	0.02
						4" Ice	1.10	0.94	0.07
(2) LGP21901	B	From Leg	4.00 0 4	0.000	154.00	No Ice	0.27	0.18	0.01
						1/2" Ice	0.34	0.25	0.01
						1" Ice	0.43	0.32	0.01
						2" Ice	0.62	0.49	0.02
						4" Ice	1.10	0.94	0.07
(2) LGP21901	C	From Leg	4.00 0 4	0.000	154.00	No Ice	0.27	0.18	0.01
						1/2" Ice	0.34	0.25	0.01
						1" Ice	0.43	0.32	0.01
						2" Ice	0.62	0.49	0.02
						4" Ice	1.10	0.94	0.07
(2) RRUS-11	A	From Leg	4.00 0 4	0.000	154.00	No Ice	3.25	1.37	0.05
						1/2" Ice	3.49	1.55	0.07
						1" Ice	3.74	1.74	0.09
						2" Ice	4.27	2.14	0.15
						4" Ice	5.43	3.04	0.31
(2) RRUS-11	B	From Leg	4.00	0.000	154.00	No Ice	3.25	1.37	0.05

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
			0			1/2"	3.49	1.55	0.07
			4			Ice	3.74	1.74	0.09
						1" Ice	4.27	2.14	0.15
						2" Ice	5.43	3.04	0.31
						4" Ice			
(2) RRUS-11	C	From Leg	4.00	0.000	154.00	No Ice	3.25	1.37	0.05
			0			1/2"	3.49	1.55	0.07
			4			Ice	3.74	1.74	0.09
						1" Ice	4.27	2.14	0.15
						2" Ice	5.43	3.04	0.31
						4" Ice			
(2) LGP21401	A	From Leg	4.00	0.000	154.00	No Ice	1.29	0.23	0.01
			0			1/2"	1.45	0.31	0.02
			4			Ice	1.61	0.40	0.03
						1" Ice	1.97	0.61	0.05
						2" Ice	2.79	1.12	0.14
						4" Ice			
(2) LGP21401	B	From Leg	4.00	0.000	154.00	No Ice	1.29	0.23	0.01
			0			1/2"	1.45	0.31	0.02
			4			Ice	1.61	0.40	0.03
						1" Ice	1.97	0.61	0.05
						2" Ice	2.79	1.12	0.14
						4" Ice			
(2) LGP21401	C	From Leg	4.00	0.000	154.00	No Ice	1.29	0.23	0.01
			0			1/2"	1.45	0.31	0.02
			4			Ice	1.61	0.40	0.03
						1" Ice	1.97	0.61	0.05
						2" Ice	2.79	1.12	0.14
						4" Ice			
DC6-48-60-18-8F	B	From Leg	4.00	0.000	154.00	No Ice	2.57	2.57	0.02
			0			1/2"	2.80	2.80	0.04
			0			Ice	3.04	3.04	0.07
						1" Ice	3.54	3.54	0.13
						2" Ice	4.66	4.66	0.30
						4" Ice			
Sector Mount [SM 602-3]	A	None		0.000	154.00	No Ice	33.11	33.11	1.54
						1/2"	44.90	44.90	2.16
						Ice	56.69	56.69	2.78
						1" Ice	80.27	80.27	4.01
						2" Ice	127.43	127.43	6.49
						4" Ice			
***									
800 EXTERNAL NOTCH FILTER	A	From Leg	1.00	0.000	146.00	No Ice	0.77	0.37	0.01
			0			1/2"	0.89	0.46	0.02
			0			Ice	1.02	0.56	0.02
						1" Ice	1.30	0.79	0.04
						2" Ice	1.97	1.34	0.11
						4" Ice			
800 EXTERNAL NOTCH FILTER	B	From Leg	1.00	0.000	146.00	No Ice	0.77	0.37	0.01
			0			1/2"	0.89	0.46	0.02
			0			Ice	1.02	0.56	0.02
						1" Ice	1.30	0.79	0.04
						2" Ice	1.97	1.34	0.11
						4" Ice			
800 EXTERNAL NOTCH FILTER	C	From Leg	1.00	0.000	146.00	No Ice	0.77	0.37	0.01
			0			1/2"	0.89	0.46	0.02
			0			Ice	1.02	0.56	0.02
						1" Ice	1.30	0.79	0.04
						2" Ice	1.97	1.34	0.11
						4" Ice			
TME-800MHZ 2X50W RRH	A	From Leg	1.00	0.000	146.00	No Ice	2.49	2.07	0.05
			0			1/2"	2.71	2.27	0.07
			0			Ice	2.93	2.48	0.10
						1" Ice	3.41	2.93	0.16
						2" Ice	4.46	3.93	0.32

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
						4" Ice			
TME-800MHZ 2X50W RRH	B	From Leg	1.00 0 0	0.000	146.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.49 2.71 2.93 3.41 4.46	2.07 2.27 2.48 2.93 3.93	0.05 0.07 0.10 0.16 0.32
TME-800MHZ 2X50W RRH	C	From Leg	1.00 0 0	0.000	146.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.49 2.71 2.93 3.41 4.46	2.07 2.27 2.48 2.93 3.93	0.05 0.07 0.10 0.16 0.32
***									
TME-PCS 1900 MHz 4x45W-65MHz	A	From Leg	2.00 0 0	0.000	143.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.71 2.95 3.20 3.72 4.86	2.61 2.85 3.09 3.61 4.74	0.06 0.08 0.11 0.17 0.35
TME-PCS 1900 MHz 4x45W-65MHz	B	From Leg	2.00 0 0	0.000	143.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.71 2.95 3.20 3.72 4.86	2.61 2.85 3.09 3.61 4.74	0.06 0.08 0.11 0.17 0.35
TME-PCS 1900 MHz 4x45W-65MHz	C	From Leg	2.00 0 0	0.000	143.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.71 2.95 3.20 3.72 4.86	2.61 2.85 3.09 3.61 4.74	0.06 0.08 0.11 0.17 0.35
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	2.00 0 0	0.000	143.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.50 9.15 9.77 11.03 13.68	6.95 8.13 9.02 10.84 14.85	0.08 0.15 0.23 0.41 0.91
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	2.00 0 0	0.000	143.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.50 9.15 9.77 11.03 13.68	6.95 8.13 9.02 10.84 14.85	0.08 0.15 0.23 0.41 0.91
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	2.00 0 0	0.000	143.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.50 9.15 9.77 11.03 13.68	6.95 8.13 9.02 10.84 14.85	0.08 0.15 0.23 0.41 0.91
(3) ACU-A20-N	A	From Leg	2.00 0 0	0.000	143.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.08 0.12 0.17 0.30 0.67	0.14 0.19 0.25 0.40 0.80	0.00 0.00 0.00 0.01 0.04
(3) ACU-A20-N	B	From Leg	2.00 0 0	0.000	143.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.08 0.12 0.17 0.30 0.67	0.14 0.19 0.25 0.40 0.80	0.00 0.00 0.00 0.01 0.04
(3) ACU-A20-N	C	From Leg	2.00 0 0	0.000	143.00	No Ice 1/2" Ice	0.08 0.12 0.17	0.14 0.19 0.25	0.00 0.00 0.00

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
						1" Ice	0.30	0.40	0.01
						2" Ice	0.67	0.80	0.04
						4" Ice			
Sector Mount [SM 701-3]	A	None		0.000	143.00	No Ice	19.73	19.73	0.82
						1/2" Ice	27.41	27.41	1.17
						1" Ice	35.09	35.09	1.51
						2" Ice	50.45	50.45	2.19
						4" Ice	81.17	81.17	3.55
***									
1142-2C	B	From Leg	4.00 0 7	0.000	124.00	No Ice	2.09	2.09	0.02
						1/2" Ice	3.37	3.37	0.04
						1" Ice	4.67	4.67	0.07
						2" Ice	7.32	7.32	0.14
						4" Ice	10.79	10.79	0.39
1142-2C	C	From Leg	4.00 0 7	0.000	124.00	No Ice	2.09	2.09	0.02
						1/2" Ice	3.37	3.37	0.04
						1" Ice	4.67	4.67	0.07
						2" Ice	7.32	7.32	0.14
						4" Ice	10.79	10.79	0.39
Side Arm Mount [SO 306-1]	B	From Leg	2.00 0 0	0.000	124.00	No Ice	0.98	2.18	0.04
						1/2" Ice	1.70	3.80	0.06
						1" Ice	2.42	5.42	0.08
						2" Ice	3.86	8.66	0.12
						4" Ice	6.74	15.14	0.20
Side Arm Mount [SO 306-1]	C	From Leg	2.00 0 0	0.000	124.00	No Ice	0.98	2.18	0.04
						1/2" Ice	1.70	3.80	0.06
						1" Ice	2.42	5.42	0.08
						2" Ice	3.86	8.66	0.12
						4" Ice	6.74	15.14	0.20
***									
220-3BN	B	From Leg	4.00 0 4	0.000	104.00	No Ice	5.72	5.72	0.02
						1/2" Ice	7.83	7.83	0.07
						1" Ice	9.96	9.96	0.12
						2" Ice	14.27	14.27	0.27
						4" Ice	22.63	22.63	0.73
1142-2C	C	From Leg	4.00 0 7	0.000	104.00	No Ice	2.09	2.09	0.02
						1/2" Ice	3.37	3.37	0.04
						1" Ice	4.67	4.67	0.07
						2" Ice	7.32	7.32	0.14
						4" Ice	10.79	10.79	0.39
Side Arm Mount [SO 306-1]	B	From Leg	2.00 0 0	0.000	104.00	No Ice	0.98	2.18	0.04
						1/2" Ice	1.70	3.80	0.06
						1" Ice	2.42	5.42	0.08
						2" Ice	3.86	8.66	0.12
						4" Ice	6.74	15.14	0.20
Side Arm Mount [SO 306-1]	C	From Leg	2.00 0 0	0.000	104.00	No Ice	0.98	2.18	0.04
						1/2" Ice	1.70	3.80	0.06
						1" Ice	2.42	5.42	0.08
						2" Ice	3.86	8.66	0.12
						4" Ice	6.74	15.14	0.20
***									
***									
GPS_A	C	From Leg	2.00 0 3	0.000	62.00	No Ice	0.30	0.30	0.00
						1/2" Ice	0.37	0.37	0.00
						1" Ice	0.46	0.46	0.01
						2" Ice	0.65	0.65	0.02

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
						2" Ice	1.15	1.15	0.08
						4" Ice			
Side Arm Mount [SO 301-1]	C	From Leg	1.00 0 0	0.000	62.00	No Ice	1.00	0.90	0.02
						1/2" Ice	1.39	1.42	0.03
						1" Ice	1.78	1.94	0.04
						2" Ice	2.56	2.98	0.06
						4" Ice	4.12	5.06	0.10
***									
GPS_A	C	From Leg	2.00 0 2	0.000	42.00	No Ice	0.30	0.30	0.00
						1/2" Ice	0.37	0.37	0.00
						1" Ice	0.46	0.46	0.01
						2" Ice	0.65	0.65	0.02
						4" Ice	1.15	1.15	0.08
Side Arm Mount [SO 301-1]	C	From Leg	1.00 0 0	0.000	42.00	No Ice	1.00	0.90	0.02
						1/2" Ice	1.39	1.42	0.03
						1" Ice	1.78	1.94	0.04
						2" Ice	2.56	2.98	0.06
						4" Ice	4.12	5.06	0.10
***									
GPS_A	C	From Leg	2.00 0 1	0.000	31.00	No Ice	0.30	0.30	0.00
						1/2" Ice	0.37	0.37	0.00
						1" Ice	0.46	0.46	0.01
						2" Ice	0.65	0.65	0.02
						4" Ice	1.15	1.15	0.08
Side Arm Mount [SO 301-1]	C	From Leg	1.00 0 0	0.000	31.00	No Ice	1.00	0.90	0.02
						1/2" Ice	1.39	1.42	0.03
						1" Ice	1.78	1.94	0.04
						2" Ice	2.56	2.98	0.06
						4" Ice	4.12	5.06	0.10
***									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.00 0 0	0.000	93.00	No Ice	6.83	5.64	0.11
						1/2" Ice	7.35	6.48	0.17
						1" Ice	7.86	7.26	0.23
						2" Ice	8.93	8.86	0.38
						4" Ice	11.18	12.29	0.81
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.00 0 0	0.000	93.00	No Ice	6.82	5.63	0.11
						1/2" Ice	7.34	6.47	0.17
						1" Ice	7.85	7.25	0.23
						2" Ice	8.92	8.85	0.38
						4" Ice	11.17	12.28	0.81
KRY 112 144/1	A	From Leg	4.00 0 0	0.000	93.00	No Ice	0.41	0.20	0.01
						1/2" Ice	0.50	0.27	0.01
						1" Ice	0.59	0.35	0.02
						2" Ice	0.81	0.53	0.03
						4" Ice	1.36	1.00	0.08
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.00 0 0	0.000	93.00	No Ice	6.83	5.64	0.11
						1/2" Ice	7.35	6.48	0.17
						1" Ice	7.86	7.26	0.23
						2" Ice	8.93	8.86	0.38
						4" Ice	11.18	12.29	0.81
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.00 0 0	0.000	93.00	No Ice	6.82	5.63	0.11
						1/2" Ice	7.34	6.47	0.17
						1" Ice	7.85	7.25	0.23
						2" Ice	8.92	8.85	0.38
						4" Ice	11.17	12.28	0.81

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
KRY 112 144/1	B	From Leg	4.00 0 0	0.000	93.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.41 0.50 0.59 0.81 1.36	0.20 0.27 0.35 0.53 1.00	0.01 0.01 0.02 0.03 0.08
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.00 0 0	0.000	93.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.83 7.35 7.86 8.93 11.18	5.64 6.48 7.26 8.86 12.29	0.11 0.17 0.23 0.38 0.81
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.00 0 0	0.000	93.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.82 7.34 7.85 8.92 11.17	5.63 6.47 7.25 8.85 12.28	0.11 0.17 0.23 0.38 0.81
KRY 112 144/1	C	From Leg	4.00 0 0	0.000	93.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.41 0.50 0.59 0.81 1.36	0.20 0.27 0.35 0.53 1.00	0.01 0.01 0.02 0.03 0.08
Side Arm Mount [SO 101-3]	C	None		0.000	93.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.50 8.90 10.30 13.10 18.70	7.50 8.90 10.30 13.10 18.70	0.25 0.33 0.41 0.58 0.90

Load Combinations

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

Comb. No.	Description
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 168	6.57	31	0.416	0.035
T2	168 - 160	5.55	31	0.397	0.036
T3	160 - 140	4.91	31	0.362	0.035
T4	140 - 120	3.49	31	0.283	0.030
T5	120 - 100	2.39	31	0.215	0.025
T6	100 - 80	1.58	31	0.154	0.019
T7	80 - 60	0.97	31	0.112	0.014
T8	60 - 40	0.53	31	0.081	0.009
T9	40 - 20	0.24	31	0.050	0.006
T10	20 - 0	0.07	35	0.019	0.003

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
178.00	PD10017	31	6.39	0.414	0.035	40803
177.00	(4) DB844H90E-XY w/ Mount Pipe	31	6.31	0.414	0.035	40803
170.00	800 10504 w/ Mount Pipe	31	5.71	0.403	0.036	20929
162.00	(2) APL868013-42T0 w/ Mount Pipe	31	5.06	0.372	0.035	20953
154.00	(2) 7770.00 w/ Mount Pipe	31	4.46	0.336	0.034	19051
146.00	800 EXTERNAL NOTCH FILTER	31	3.89	0.304	0.032	15410
143.00	TME-PCS 1900 MHz 4x45W-65MHz	31	3.68	0.293	0.031	14404
124.00	1142-2C	31	2.59	0.228	0.026	15877
104.00	220-3BN	31	1.73	0.165	0.020	22292
93.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	31	1.35	0.137	0.017	25928
62.00	GPS_A	31	0.57	0.084	0.010	33461
42.00	GPS_A	31	0.26	0.053	0.007	37470
31.00	GPS_A	31	0.14	0.035	0.005	38219

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 168	18.91	10	1.196	0.102
T2	168 - 160	15.97	10	1.142	0.103
T3	160 - 140	14.14	10	1.043	0.101
T4	140 - 120	10.05	10	0.815	0.087
T5	120 - 100	6.89	10	0.619	0.072
T6	100 - 80	4.55	10	0.444	0.056
T7	80 - 60	2.81	10	0.322	0.040
T8	60 - 40	1.54	10	0.233	0.027
T9	40 - 20	0.68	10	0.144	0.018

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T10	20 - 0	0.19	10	0.055	0.009

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
178.00	PD10017	10	18.41	1.192	0.102	14301
177.00	(4) DB844H90E-XY w/ Mount Pipe	10	18.16	1.190	0.102	14301
170.00	800 10504 w/ Mount Pipe	10	16.45	1.159	0.103	7335
162.00	(2) APL868013-42T0 w/ Mount Pipe	10	14.59	1.070	0.102	7350
154.00	(2) 7770.00 w/ Mount Pipe	10	12.83	0.968	0.098	6659
146.00	800 EXTERNAL NOTCH FILTER	10	11.19	0.877	0.092	5351
143.00	TME-PCS 1900 MHz 4x45W-65MHz	10	10.61	0.846	0.090	4991
124.00	1142-2C	10	7.45	0.657	0.075	5504
104.00	220-3BN	10	4.96	0.476	0.059	7726
93.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	10	3.88	0.395	0.050	8983
62.00	GPS_A	10	1.64	0.242	0.028	11622
42.00	GPS_A	10	0.75	0.153	0.019	13044
31.00	GPS_A	10	0.41	0.101	0.014	13307

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	180	Diagonal	A325N	0.63	1	1.91	4.76	0.402 ✔	1.333	Member Block Shear
		Top Girt	A325N	0.63	1	0.19	3.40	0.055 ✔	1.333	Member Block Shear
T2	168	Leg	A325N	0.63	4	5.07	13.50	0.376 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.63	1	3.24	4.76	0.681 ✔	1.333	Member Block Shear
T3	160	Leg	A325N	0.63	4	15.18	13.50	1.125 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.63	1	4.77	4.76	1.002 ✔	1.333	Member Block Shear
T4	140	Leg	A325N	0.75	4	23.69	19.44	1.219 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.63	1	5.33	4.76	1.121 ✔	1.333	Member Block Shear
T5	120	Leg	A325N	0.88	4	30.63	26.46	1.158 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.63	1	5.02	6.44	0.780 ✔	1.333	Bolt Shear
T6	100	Leg	A490N	0.88	4	36.87	32.47	1.135 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.63	1	5.53	6.44	0.859 ✔	1.333	Bolt Shear
T7	80	Leg	A325N	1.00	4	42.24	34.56	1.222 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.63	1	6.54	6.44	1.015 ✔	1.333	Bolt Shear
T8	60	Leg	A325N	1.13	4	47.68	43.74	1.090 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.63	1	6.88	6.44	1.069 ✔	1.333	Bolt Shear
T9	40	Leg	A325N	1.13	4	52.62	43.74	1.203 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.63	1	7.70	6.44	1.195 ✔	1.333	Bolt Shear
		Secondary Horizontal	A325N	0.50	1	4.26	4.12	1.034 ✔	1.333	Bolt Shear
T10	20	Leg	F1554-36	1.50	6	38.43	33.82	1.136 ✔	1.333	Bolt Tension

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
		Diagonal	A325N	0.63	1	8.13	6.44	1.261 ✔	1.333	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio P / P_a
T1	180 - 168	Pipe 2.375" x 0.154" (2 STD)	12.00	4.00	61.0 K=1.00	16.93	1.07	-11.42	18.20	0.628 ✔
T2	168 - 160	Pipe 2.375" x 0.154" (2 STD) (GR)	8.00	4.00	61.0 K=1.00	24.80	1.07	-24.24	26.65	0.910 ✔
T3	160 - 140	Pipe 3.5" x 0.216" (3 STD) (GR)	20.03	5.01	51.7 K=1.00	26.83	2.23	-69.35	59.80	1.160 ✔
T4	140 - 120	Pipe 4" x 0.318" (3.5 XS) (GR)	20.03	6.68	61.3 K=1.00	23.00	3.68	-106.66	84.59	1.261 ✔
T5	120 - 100	Pipe 4.5" x 0.337" (4 XS) (GR)	20.03	6.68	54.3 K=1.00	24.54	4.41	-137.94	108.17	1.275 ✔
T6	100 - 80	Pipe 5.563" x 0.375" (5 XS) (GR)	20.03	6.68	43.6 K=1.00	27.10	6.11	-167.52	165.62	1.011 ✔
T7	80 - 60	Pipe 6.625" x 0.432" (6 XS) (GR)	20.03	10.02	54.8 K=1.00	25.76	8.40	-193.24	216.54	0.892 ✔
T8	60 - 40	Pipe 6.625" x 0.432" (6 XS) (GR)	20.03	10.02	54.8 K=1.00	25.76	8.40	-220.13	216.54	1.017 ✔
T9	40 - 20	Pipe 6.625" x 0.432" (6 XS) (GR)	20.03	5.15	28.2 K=1.00	29.47	8.40	-245.93	247.73	0.993 ✔
T10	20 - 0	Pipe 8.625" x 0.500" (8 XS) (GR)	20.03	10.02	41.8 K=1.00	29.10	12.76	-272.31	371.42	0.733 ✔

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio P / P_a
T1	180 - 168	L 2 x 1.5 x 3/16 LLV	4.63	2.19	91.3 K=1.12	14.05	0.62	-1.98	8.73	0.227 ✔
T2	168 - 160	L 2 x 1.5 x 3/16 LLV	4.63	2.19	91.3 K=1.12	14.05	0.62	-3.36	8.73	0.384 ✔
T3	160 - 140	L 2 x 1.5 x 3/16 LLV	6.52	3.28	122.1 K=1.00	9.97	0.62	-4.85	6.19	0.783 ✔
T4	140 - 120	L 2 x 2 x 3/16	9.07	4.61	140.3 K=1.00	7.59	0.71	-5.05	5.43	0.930 ✔
T5	120 - 100	L 2.5 x 2 x 3/16 LLV	10.69	5.38	151.3 K=1.00	6.52	0.81	-5.02	5.28	0.952 ✔
T6	100 - 80	L 2.5 x 2.5 x 3/16	12.40	6.23	151.0 K=1.00	6.55	0.90	-5.51	5.91	0.934 ✔
T7	80 - 60	L 3 x 3 x 3/16	15.56	7.92	159.4 K=1.00	5.87	1.09	-6.54	6.40	1.021 ✔
T8	60 - 40	L 3.5 x 3 x 1/4 LLV	17.20	8.73	166.1 K=1.00	5.41	1.56	-6.88	8.45	0.815 ✔
T9	40 - 20	L 3.5 x 3 x 1/4 LLV	18.92	9.73	185.1 K=1.00	4.36	1.56	-7.70	6.80	1.132 ✔
T10	20 - 0	L 3.5 x 3.5 x 1/4	20.53	10.38	179.5 K=1.00	4.63	1.69	-8.13	7.83	1.037 ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T9	40 - 20	L3 1/2x3 1/2x1/4	17.49	16.93	146.4 K=0.50	6.97	1.69	-4.26	11.77	0.362 ✔

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	180 - 168	L 2 x 1.5 x 3/16 LLH	4.00	3.55	132.4 K=1.00	8.52	0.62	-0.25	5.29	0.046 ✔

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	180 - 168	Pipe 2.375" x 0.154" (2 STD)	12.00	4.00	61.0	21.00	1.07	9.41	22.57	0.417 ✔
T2	168 - 160	Pipe 2.375" x 0.154" (2 STD) (GR)	8.00	4.00	61.0	21.00	1.07	20.27	22.57	0.898 ✔
T3	160 - 140	Pipe 3.5" x 0.216" (3 STD) (GR)	20.03	5.01	51.7	21.00	2.23	60.73	46.80	1.298 ✔
T4	140 - 120	Pipe 4" x 0.318" (3.5 XS) (GR)	20.03	6.68	61.3	21.00	3.68	94.75	77.25	1.227 ✔
T5	120 - 100	Pipe 4.5" x 0.337" (4 XS) (GR)	20.03	6.68	54.3	21.00	4.41	122.54	92.56	1.324 ✔
T6	100 - 80	Pipe 5.563" x 0.375" (5 XS) (GR)	20.03	6.68	43.6	21.00	6.11	147.47	128.35	1.149 ✔
T7	80 - 60	Pipe 6.625" x 0.432" (6 XS) (GR)	20.03	10.02	54.8	21.00	8.40	168.95	176.50	0.957 ✔
T8	60 - 40	Pipe 6.625" x 0.432" (6 XS) (GR)	20.03	10.02	54.8	21.00	8.40	190.71	176.50	1.080 ✔
T9	40 - 20	Pipe 6.625" x 0.432" (6 XS) (GR)	20.03	4.87	26.6	21.00	8.40	210.88	176.50	1.195 ✔
T10	20 - 0	Pipe 8.625" x 0.500" (8 XS) (GR)	20.03	10.02	41.8	21.00	12.76	230.56	268.02	0.860 ✔

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	180 - 168	L 2 x 1.5 x 3/16 LLV	4.63	2.19	63.2	29.00	0.36	1.91	10.45	0.183 ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T2	168 - 160	L 2 x 1.5 x 3/16 LLV	4.63	2.19	63.2	29.00	0.36	3.24	10.45	0.310 ✔
T3	160 - 140	L 2 x 1.5 x 3/16 LLV	6.52	3.28	92.9	29.00	0.36	4.77	10.45	0.456 ✔
T4	140 - 120	L 2 x 2 x 3/16	8.11	4.14	83.0	29.00	0.43	5.33	12.49	0.427 ✔
T5	120 - 100	L 2.5 x 2 x 3/16 LLV	10.69	5.38	110.7	29.00	0.50	4.86	14.54	0.335 ✔
T6	100 - 80	L 2.5 x 2.5 x 3/16	12.40	6.23	98.2	29.00	0.57	5.40	16.56	0.326 ✔
T7	80 - 60	L 3 x 3 x 3/16	15.56	7.92	103.1	29.00	0.71	6.32	20.65	0.306 ✔
T8	60 - 40	L 3.5 x 3 x 1/4 LLV	17.20	8.73	116.7	29.00	1.03	6.69	29.85	0.224 ✔
T9	40 - 20	L 3.5 x 3 x 1/4 LLV	18.92	9.73	127.9	29.00	1.03	7.05	29.85	0.236 ✔
T10	20 - 0	L 3.5 x 3.5 x 1/4	20.53	10.38	115.8	29.00	1.13	7.64	32.68	0.234 ✔

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T9	40 - 20	L3 1/2x3 1/2x1/4	17.49	16.93	186.4	29.00	1.15	4.26	33.36	0.128 ✔

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	180 - 168	L 2 x 1.5 x 3/16 LLH	4.00	3.55	103.8	29.00	0.36	0.19	10.45	0.018 ✔

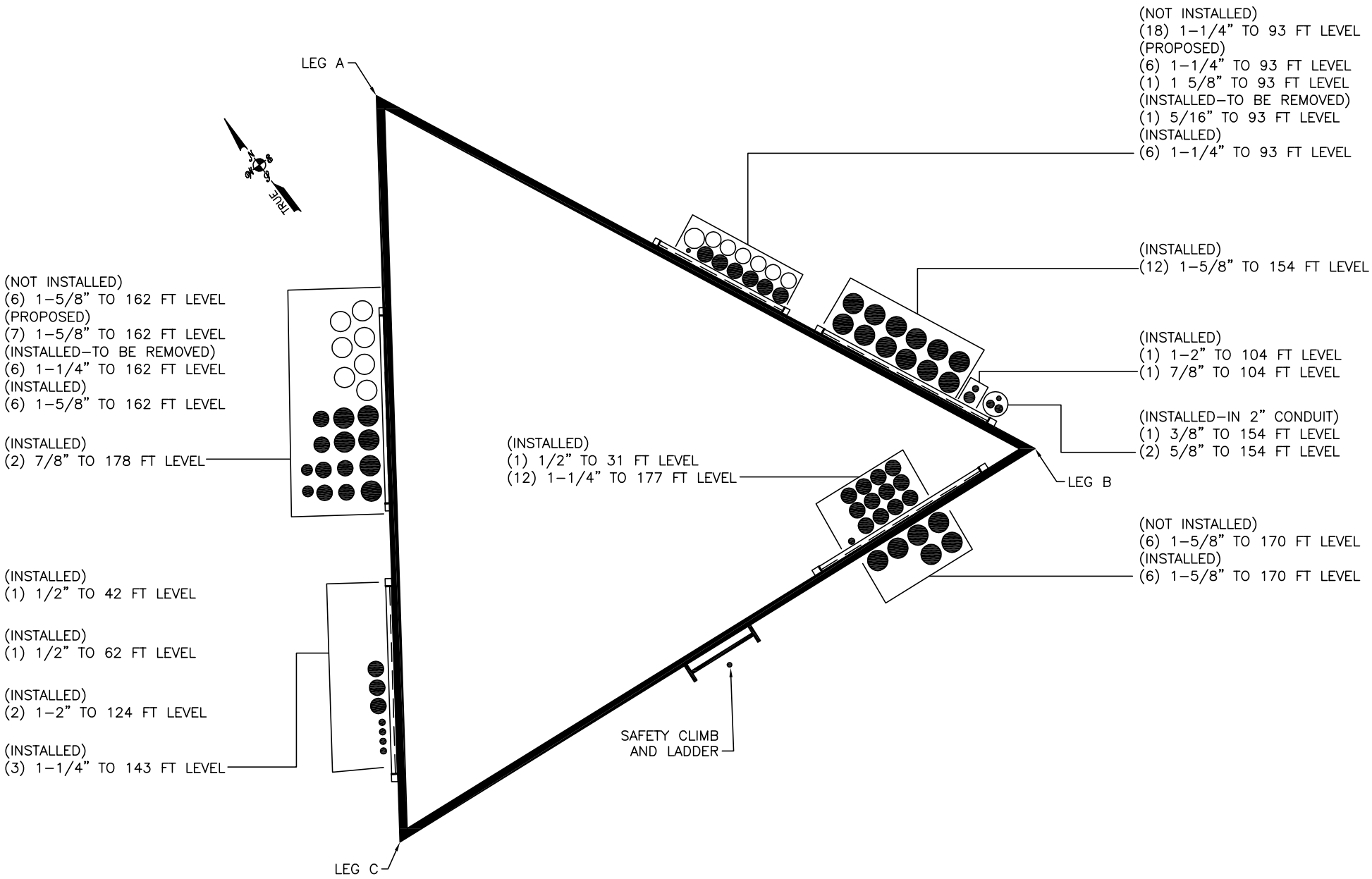
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T1	180 - 168	Leg	Pipe 2.375" x 0.154" (2 STD)	2	-11.42	24.25	47.1	Pass
T2	168 - 160	Leg	Pipe 2.375" x 0.154" (2 STD) (GR)	26	-24.24	35.52	68.2	Pass
T3	160 - 140	Leg	Pipe 3.5" x 0.216" (3 STD) (GR)	40	60.73	62.38	97.4	Pass
T4	140 - 120	Leg	Pipe 4" x 0.318" (3.5 XS) (GR)	67	-106.66	112.76	94.6	Pass
T5	120 - 100	Leg	Pipe 4.5" x 0.337" (4 XS) (GR)	88	122.54	123.38	99.3	Pass
T6	100 - 80	Leg	Pipe 5.563" x 0.375" (5 XS) (GR)	109	147.47	171.09	86.2	Pass
T7	80 - 60	Leg	Pipe 6.625" x 0.432" (6 XS) (GR)	130	168.95	235.28	71.8	Pass
T8	60 - 40	Leg	Pipe 6.625" x 0.432" (6 XS) (GR)	145	190.71	235.28	81.1	Pass
T9	40 - 20	Leg	Pipe 6.625" x 0.432" (6 XS) (GR)	160	210.88	235.28	89.6	Pass
T10	20 - 0	Leg	Pipe 8.625" x 0.500" (8 XS)	181	230.56	357.27	64.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
			(GR)					
T1	180 - 168	Diagonal	L 2 x 1.5 x 3/16 LLV	10	-1.98	11.64	17.0	Pass
T2	168 - 160	Diagonal	L 2 x 1.5 x 3/16 LLV	28	-3.36	11.64	28.8	Pass
T3	160 - 140	Diagonal	L 2 x 1.5 x 3/16 LLV	43	-4.85	8.26	58.8	Pass
T4	140 - 120	Diagonal	L 2 x 2 x 3/16	70	-5.05	7.23	69.8	Pass
T5	120 - 100	Diagonal	L 2.5 x 2 x 3/16 LLV	91	-5.02	7.03	71.4	Pass
T6	100 - 80	Diagonal	L 2.5 x 2.5 x 3/16	112	-5.51	7.87	70.0	Pass
T7	80 - 60	Diagonal	L 3 x 3 x 3/16	133	-6.54	8.53	76.6	Pass
T8	60 - 40	Diagonal	L 3.5 x 3 x 1/4 LLV	148	-6.88	11.26	61.2	Pass
T9	40 - 20	Diagonal	L 3.5 x 3 x 1/4 LLV	163	-7.70	9.07	84.9	Pass
T10	20 - 0	Diagonal	L 3.5 x 3.5 x 1/4	184	-8.13	10.44	77.8	Pass
T9	40 - 20	Secondary Horizontal	L3 1/2x3 1/2x1/4	169	-4.26	15.70	27.2	Pass
T1	180 - 168	Top Girt	L 2 x 1.5 x 3/16 LLH	6	-0.25	7.05	3.5	Pass
							Summary	
						Leg (T5)	99.3	Pass
						Diagonal (T9)	84.9	Pass
						Secondary Horizontal (T9)	27.2	Pass
						Top Girt (T1)	3.5	Pass
						Bolt Checks	94.6	Pass
						RATING =	**99.3**	**Pass**

APPENDIX B

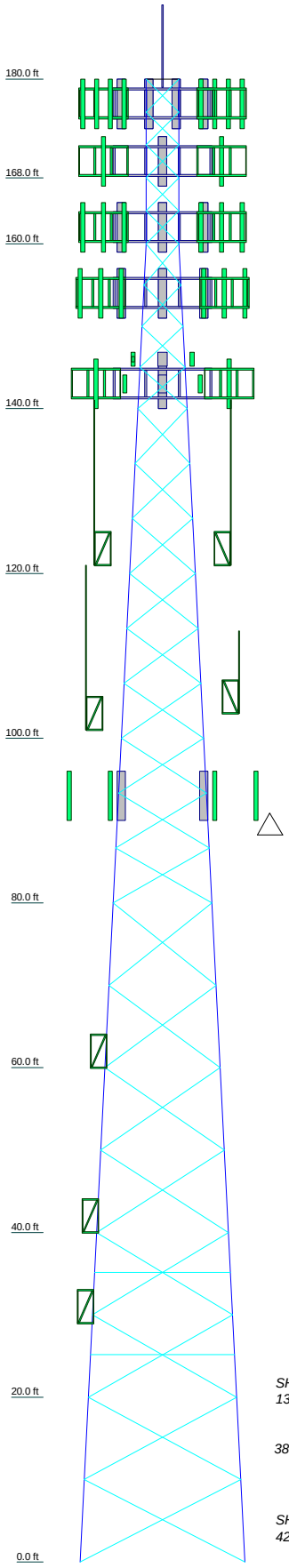
BASE LEVEL DRAWING


LEG A
LEG B
LEG C
TRUE
(NOT INSTALLED)
(18) 1-1/4" TO 93 FT LEVEL
(PROPOSED)
(6) 1-1/4" TO 93 FT LEVEL
(1) 1 5/8" TO 93 FT LEVEL
(INSTALLED-TO BE REMOVED)
(1) 5/16" TO 93 FT LEVEL
(INSTALLED)
(6) 1-1/4" TO 93 FT LEVEL
(INSTALLED)
(12) 1-5/8" TO 154 FT LEVEL
(INSTALLED)
(1) 1-2" TO 104 FT LEVEL
(1) 7/8" TO 104 FT LEVEL
(INSTALLED-IN 2" CONDUIT)
(1) 3/8" TO 154 FT LEVEL
(2) 5/8" TO 154 FT LEVEL
(NOT INSTALLED)
(6) 1-5/8" TO 162 FT LEVEL
(PROPOSED)
(7) 1-5/8" TO 162 FT LEVEL
(INSTALLED-TO BE REMOVED)
(6) 1-1/4" TO 162 FT LEVEL
(INSTALLED)
(6) 1-5/8" TO 162 FT LEVEL
(INSTALLED)
(2) 7/8" TO 178 FT LEVEL
(INSTALLED)
(1) 1/2" TO 31 FT LEVEL
(12) 1-1/4" TO 177 FT LEVEL
(NOT INSTALLED)
(6) 1-5/8" TO 170 FT LEVEL
(INSTALLED)
(6) 1-5/8" TO 170 FT LEVEL
(INSTALLED)
(1) 1/2" TO 42 FT LEVEL
(INSTALLED)
(1) 1/2" TO 62 FT LEVEL
(INSTALLED)
(2) 1-2" TO 124 FT LEVEL
(INSTALLED)
(3) 1-1/4" TO 143 FT LEVEL
SAFETY CLIMB
AND LADDER

APPENDIX C

ADDITIONAL CALCULATIONS

Section		T1	T2	T3	T4	T5	T6	T7	T8	T9	T10		
Legs		A	B	Pipe 3.5" x 0.216" (3 STD) (GR)	Pipe 4" x 0.318" (3.5 XS) (GR)	Pipe 4.5" x 0.337" (4 XS) (GR)	Pipe 5.563" x 0.375" (5 XS) (GR)	Pipe 6.625" x 0.432" (6 XS) (GR)			Pipe 8.625" x 0.500" (8 XS) (GR)		29.1
Leg Grade		A53-B-35											
Diagonals		L 2 x 1.5 x 3/16 LLV			L 2 x 2 x 3/16	L 2.5 x 2 x 3/16 LLV	L 2.5 x 2.5 x 3/16	L 3 x 3 x 3/16		L 3.5 x 3 x 1/4 LLV	L 3.5 x 3.5 x 1/4		
Diagonal Grade		A36											
Top Girts		L 2 x 1.5 x 3/16 LLH					N.A.						
Sec. Horizontals		N.A.				N.A.				L 3 1/2x3 1/2x1/4	N.A.		
Face Width (ft)	20	4			6	8	10	12	14	16	18		
# Panels @ (ft)		5 @ 4		4 @ 5		9 @ 6.66667				8 @ 10			
Weight (K)	29.1	0.3	0.3	1.2	1.7	2.1	3.0	4.0	4.4	5.1	6.9		



MAX. CORNER REACTIONS AT BASE:
DOWN: 279 K
SHEAR: 27 K

UPLIFT: -235 K
SHEAR: 23 K

AXIAL
97 K
SHEAR 13 K *MOMENT 1496 kip-ft*
TORQUE 8 kip-ft
38 mph WIND - 0.75 in ICE

AXIAL
49 K
SHEAR 42 K *MOMENT 4542 kip-ft*
TORQUE 28 kip-ft
REACTIONS - 85 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
PD10017	178	(2) LGP21401	154
(4) DB844H90E-XY w/ Mount Pipe	177	(2) LGP21401	154
(4) DB844H90E-XY w/ Mount Pipe	177	DC6-48-60-18-8F	154
(4) DB844H90E-XY w/ Mount Pipe	177	Sector Mount [SM 602-3]	154
Sector Mount [SM 307-3]	177	800 EXTERNAL NOTCH FILTER	146
800 10504 w/ Mount Pipe	170	800 EXTERNAL NOTCH FILTER	146
800 10504 w/ Mount Pipe	170	800 EXTERNAL NOTCH FILTER	146
800 10504 w/ Mount Pipe	170	TME-800MHZ 2X50W RRH	146
860 10025	170	TME-800MHZ 2X50W RRH	146
860 10025	170	TME-800MHZ 2X50W RRH	146
860 10025	170	TME-PCS 1900 MHz 4x45W-65MHz	143
Side Arm Mount [SO 103-3]	170	TME-PCS 1900 MHz 4x45W-65MHz	143
(2) APL868013-42T0 w/ Mount Pipe	162	TME-PCS 1900 MHz 4x45W-65MHz	143
(2) APL868013-42T0 w/ Mount Pipe	162	APXVSPP18-C-A20 w/ Mount Pipe	143
(2) APL868013-42T0 w/ Mount Pipe	162	APXVSPP18-C-A20 w/ Mount Pipe	143
APX75-866512-CT2 w/ Mount Pipe	162	APXVSPP18-C-A20 w/ Mount Pipe	143
APX75-866512-CT2 w/ Mount Pipe	162	(3) ACU-A20-N	143
APX75-866512-CT2 w/ Mount Pipe	162	(3) ACU-A20-N	143
MG D3-800Tx w/ Mount Pipe	162	(3) ACU-A20-N	143
MG D3-800Tx w/ Mount Pipe	162	Sector Mount [SM 701-3]	143
MG D3-800Tx w/ Mount Pipe	162	1142-2C	124
(2) FD9R6004/2C-3L	162	1142-2C	124
(2) FD9R6004/2C-3L	162	Side Arm Mount [SO 306-1]	124
(2) FD9R6004/2C-3L	162	Side Arm Mount [SO 306-1]	124
742 213 w/ Mount Pipe	162	220-3BN	104
742 213 w/ Mount Pipe	162	1142-2C	104
742 213 w/ Mount Pipe	162	Side Arm Mount [SO 306-1]	104
RRH2X40-AWS	162	Side Arm Mount [SO 306-1]	104
RRH2X40-AWS	162	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	93
RRH2X40-AWS	162	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	93
DB-T1-6Z-8AB-0Z	162	KRY 112 144/1	93
Sector Mount [SM 602-3]	162	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	93
(2) 7770.00 w/ Mount Pipe	154	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	93
(2) 7770.00 w/ Mount Pipe	154	KRY 112 144/1	93
(2) 7770.00 w/ Mount Pipe	154	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	93
P65-16-XLH-RR w/ Mount Pipe	154	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	93
P65-16-XLH-RR w/ Mount Pipe	154	KRY 112 144/1	93
P65-16-XLH-RR w/ Mount Pipe	154	Side Arm Mount [SO 101-3]	93
(2) LGP21901	154	GPS_A	62
(2) LGP21901	154	Side Arm Mount [SO 301-1]	62
(2) LGP21901	154	GPS_A	42
(2) RRUS-11	154	Side Arm Mount [SO 301-1]	42
(2) RRUS-11	154	GPS_A	31
(2) RRUS-11	154	Side Arm Mount [SO 301-1]	31
(2) LGP21401	154		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	Pipe 2.375" x 0.154" (2 STD)	B	Pipe 2.375" x 0.154" (2 STD) (GR)

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	58 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. Grouted pipe f'c is 7 ksi
6. TOWER RATING: 99.3%

Paul J Ford and Company
250 E. Broad Street Suite 600
Columbus, OH 43215
Phone: 614.221.6679
FAX: 614.448.4105

Job: *180-ft S/S Tower - Wilton, CT*		
Project: *PJF# 37514-0096 (BU# 806353)*		
Client: Crown Castle	Drawn by: Charles Weir	App'd:
Code: TIA/EIA-222-F	Date: 04/01/14	Scale: NTS
Path:		Dwg No. E-1

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street • Suite 600 • Columbus, Ohio 43215-3708

Job Number:	37514-0096_8702	**Page:**	1
Site Number:	BU 806353	**By:**	CJW
Site Name:	BRG 124 943066	**Date:**	4/1/2014

DRILLED PIER SOIL AND STEEL ANALYSIS - TIA/EIA-222-F

Unfactored Base Reactions from RISA

	Comp. (+)	Tension (-)	
Moment, M =			k-ft
Shear, V =	27.0	23.0	kips
Axial Load, P =	279.0	-235.0	kips
OTM =	6.8	5.8	k-ft @ Ground

Safety Factors / Load Factors / Φ Factors

Tower Type =	Self-Supported
ACI Code =	ACI 318-02
Seismic Design Category =	D
Reference Standard =	TIA/EIA-222-F
Use 1.3 Load Factor?	Yes
Load Factor =	1.30

Drilled Pier Parameters

Diameter =	2.5	ft
Height Above Grade =	0.25	ft
Depth Below Grade =	13.5	ft
fc' =	3	ksi
εc =	0.003	in/in
Mat Ftdn. Cap Width =	5	ft
Mat Ftdn. Cap Length =	12	ft
Depth Below Grade =	5	ft

	Safety Factor	Φ Factor
Soil Lateral Resistance =	2.00	0.75
Skin Friction =	2.00	0.75
End Bearing =	2.00	0.75
Concrete Wt. Resist Uplift =	1.25	

Load Combinations Checked per TIA/EIA-222-F

1. Ult. Skin Friction/2.00 + Ult. End Bearing/2.00
 + Effective Soil Wt. - Buoyant Conc. Wt. ≥ Comp.
2. Ult. Skin Friction/2.00 + Buoyant Conc. Wt./1.25 ≥ Uplift
3. Ult. Skin Friction/1.50 + Buoyant Conc. Wt./1.50 ≥ Uplift

Steel Parameters

Number of Bars =	14	
Rebar Size =	#8	
Rebar Fy =	60	ksi
Rebar MOE =	29000	ksi
Tie Size =	#4	
Side Clear Cover to Ties =	3	in

Soil Parameters

Water Table Depth =	99.00	ft
Depth to Ignore Soil =	5.00	ft
Depth to Full Cohesion =	0	ft
Full Cohesion Starts at?	Ground	

Above Full Cohesion Lateral Resistance = 4(Cohesion)(Dia)(H)
Below Full Cohesion Lateral Resistance = 8(Cohesion)(Dia)(H)

Direct Embed Pole Shaft Parameters

Dia @ Grade =		in
Dia @ Depth Below Grade =		in
Number of Sides =		
Thickness =		in
Fy =		ksi
Backfill Condition =		

Maximum Capacity Ratios

Maximum Soil Ratio =	100.0%
Maximum Steel Ratio =	100.0%

Define Soil Layers

Note: Cohesion = Undrained Shear Strengh = Unconfined Compressive Strength / 2

Layer	Thickness ft	Unit Weight pcf	Cohesion psf	Friction Angle degrees	Soil Type	Ultimate End Bearing psf	Comp. Ult. Skin Friction psf	Tension Ult. Skin Friction psf	Depth ft
1	5	110	0	30	Sand	0	0	0	5
2	99	140	8000	0	Clay	56000	8000	8000	104
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

Soil Results: Overturning

Depth to COR =	10.16	ft, from Grade	Shear, V =	27.00	kips
Bending Moment, M =	281.00	k-ft, from COR	Resisting Shear, Va =	145.17	kips
Resisting Moment, Ma =	1510.86	k-ft, from COR			

MOMENT RATIO = 18.6% OK **SHEAR RATIO = 18.6% OK**

Soil Results: Uplift

Uplift, T =	235.00	kips
Allowable Uplift Cap., Ta =	309.84	kips

UPLIFT RATIO = 75.8% OK

Soil Results: Compression

Compression, C =	279.00	kips
Allowable Comp. Cap., Ca =	389.81	kips

COMPRESSION RATIO = 71.6% OK

Steel Results (ACI 318-02):

Minimum Steel Area =	2.36	sq in	Axial Load, P =	-179.56	kips @ 6.00 ft Below Grade
Actual Steel Area =	11.06	sq in	Moment, M =	137.41	k-ft @ 6.00 ft Below Grade
			Allowable Moment, Ma =	252.84	k-ft
Allowable Min Axial, Pa =	-459.42	kips, Where Ma = 0 k-ft			
Allowable Max Axial, Pa =	975.15	kips, Where Ma = 0 k-ft	**MOMENT RATIO =**	**54.3%**	**OK**

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

T-Mobile Existing Facility

Site ID: CT11119A
Wilton/Mountain Road

128 Mather Street
Wilton, CT 06897

April 8, 2014

EBI Project Number: 62142277

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

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April 8, 2014

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

Re: Emissions Values for Site: **CT11119A - Wilton/Mountain Road**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at 128 Mather Street, Wilton, 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 µW/cm2 calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter (µW/cm2). The general population exposure limit for the cellular band is 567 µW/cm2, and the general population exposure limit for the PCS and AWS bands is 1000 µW/cm2. 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 128 Mather Street, Wilton, 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, the actual antenna pattern gain value in the direction of the sample area was used. For this report the sample point is a 6 foot person standing at the base of the tower.

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

1) 2 GSM channels (1940.000 MHz—to 1950.000 MHz) were considered for each sector of the proposed installation.
2) 2 UMTS channels (2110.000 MHz to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation.
3) 2 LTE channels (2110.000 MHz to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation.
4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
5) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
6) The antenna used in this modeling is the Ericsson AIR21 for LTE, UMTS and GSM. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 15.6 dBd gain value at its main lobe. Actual antenna gain values were used for all calculations as per the manufacturers specifications.

7) The antenna mounting height centerline of the proposed antennas is **93 feet** above ground level (AGL).
8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

Site ID	CT11119A - Wilton/Mountain Road
Site Addresss	128 Mather Street, Wilton, CT 06897
Site Type	Self Support Tower

Sector 1

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	93	87	None	0	0	48.326044	2.295349	0.22953%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	93	87	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	93	87	1-5/8"	0	0	24.163022	1.147674	0.11477%
2B	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	93	87	1-5/8"	0	0	24.163022	1.147674	0.11477%
														Sector total Power Density Value:			0.459%

Sector 2

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	93	87	None	0	0	48.326044	2.295349	0.22953%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	93	87	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	93	87	1-5/8"	0	0	24.163022	1.147674	0.11477%
2b	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	93	87	1-5/8"	0	0	24.163022	1.147674	0.11477%
														Sector total Power Density Value:			0.459%

Sector 3

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	93	87	None	0	0	48.326044	2.295349	0.22953%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	93	87	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	93	87	1-5/8"	0	0	24.163022	1.147674	0.11477%
2b	Ericsson	AIR21 B2A / B4P	Passive	AWS - 2100 MHz	UMTS	30	2	60	-3.95	93	87	1-5/8"	0	0	24.163022	1.147674	0.11477%
														Sector total Power Density Value:			0.459%

Site Composite MPE %

Carrier	MPE %
T-Mobile	1.377%
Verizon	8.630%
AT&T	8.280%
Metro PCS	1.680%
Sprint	4.040%
Nextel	1.760%
Town	4.620%
Total Site MPE %	**30.387%**

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Summary

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

The anticipated Maximum Composite contributions from the T-Mobile facility are **1.377% (0.459% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously.

The anticipated composite MPE value for this site assuming all carriers present is **30.387%** of the allowable FCC established general public limit. 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 within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director

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