COHEN and WOLF P.C.
ATTORNEYS AT LAW

RACHEL A. SCHWARTZMAN

Please Reply To: Bridgeport
Writer's Direct Dial: (203) 337-4110
E-Mail: rschwartzman@cohenandwolf.com

August 28, 2014

Attorney Melanie Bachman
Acting Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06501

Re: Notice of Exempt Modification
Crown Castle/T-Mobile co-location
T-Mobile Site ID CT11274A
102 Dyer Avenue, Canton, CT

Dear Attorney Bachman:

This office represents T-Mobile Northeast LLC ("T-Mobile") and has been retained to file exempt modification filings with the Connecticut Siting Council on its behalf.

In this case, Crown Castle owns the existing monopole flagpole telecommunications tower and related facility at 102 Dyer Avenue, Canton, CT (41.831614/-72.919818). T-Mobile intends to replace 2 existing antennas with 6 new antennas and related equipment at this existing telecommunications facility in Canton ("Canton Facility"). Please accept this letter as notification, pursuant to R.C.S.A. §16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R. C.S.A. § 16-50j-73, a copy of this letter is being sent to the First Selectman, Richard Barlow, and the property owner, New Horizon Incorporated.

The existing Canton Facility consists of a 68.5 foot monopole flagpole tower.[1] T-Mobile plans to replace 2 existing antennas with 6 new antennas on cluster mounts at a centerline of 65.5 feet and replace 2 existing tower mounted amplifiers ("TMAs") with 3 TMAs on an existing S800 cabinet. (See the plans revised to July 28, 2014 attached hereto as **Exhibit A**). T-Mobile will also install coax cables inside the flagpole and replace a RF transparent 24" diameter canister. The existing Canton Facility is structurally capable of supporting T-Mobile's proposed modifications, as indicated in the structural analysis dated June 25, 2014, and attached hereto as **Exhibit B**.

The planned modifications to the Canton Facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

[1] The Canton Facility is listed neither as a docket nor a petition in the Connecticut Siting Council's database.

The planned modifications to the Canton Facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modification will not increase the height of the tower. T-Mobile's existing antennas are at a centerline of 65.5 feet; the replacement antennas will be installed at the same 65.5 foot level. The enclosed tower drawing confirms that the proposed modification will not increase the height of the tower.

2. The proposed modifications will not require an extension on the site boundaries or lease area, as depicted on Sheet 1 of Exhibit A. T-Mobile's equipment will be located entirely within the existing compound area.

3. The proposed modification to the Facility will not increase the noise levels at the existing facility by six decibels or more.

4. The operation of the replacement antennas will not increase the total radio frequency (RF) power density, measured at the base of the tower, to a level at or above the applicable standard. According to a Radio Frequency Emissions Analysis Report prepared by EBI dated July 14, 2014. T-Mobile's operations would add 1.53% of the FCC Standard. Therefore, the calculated "worst case" power density for the planned combined operation at the site including all of the proposed antennas would be 1.53% of the FCC Standard as calculated for a mixed frequency site as evidenced by the engineering exhibit attached hereto as **Exhibit C.**

For the foregoing reasons, T-Mobile respectfully submits that the proposed replacement antennas and equipment at the Canton Facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Upon acknowledgement of this exempt modification, T-Mobile shall commence construction approximately sixty days from the receipt of the Council's decision.

Sincerely,

Rachel Schwartzman

Rachel A. Schwartzman, Esq.

cc: Town of Canton, First Selectman Richard Barlow
Crown Castle
New Horizon Incorporated
Halene Fujimoto, HPC Wireless Services

EXHIBIT A

CROWN CASTLE
BU # 822915

T-Mobile

NORTHEAST LLC.

SITE NAME: **CANTON /RT. 10**

SITE NUMBER: **CT11274A**

SITE ADDRESS: 102 DYER AVE.
CANTON, CT 06019

PROJECT SUMMARY

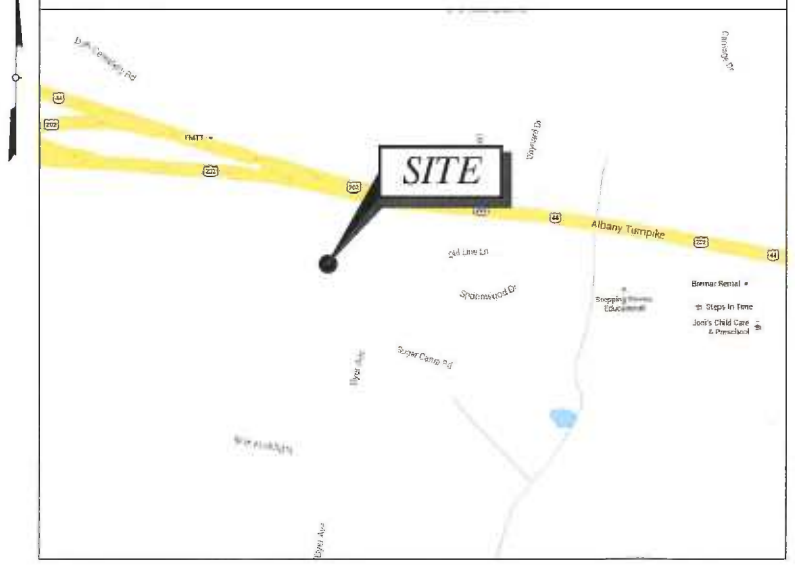
SITE NUMBER:	CT11274A
SITE NAME:	CANTON/ RT. 10
SITE ADDRESS:	102 DYER AVE. CANTON, CT 06019
COUNTY:	HARTFORD
PROPERTY OWNER:	CROWN CASTLE
APPLICANT:	T-MOBILE NORTHEAST LLC. 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 (860) 692-7100
ENGINEER:	TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C. 1279 ROUTE 300 NEWBURGH, NY 12550
CONTACT:	JAMES QUICKSELL (845) 567-6656 EXT. 2835
PHONE: SITE ACQUISITION:	HPC WIRELESS 22 SHELTER ROCK LANE, BLDG C DANBURY, CT 06810
CONTACT: PHONE:	PAUL SAENZ 914-447-3581
LATITUDE: (NAD 83)	41.831614° N
LONGITUDE: (NAD 83)	72.919818° W

SITE DIRECTIONS

HEAD NORTHEAST ON GRIFFIN RD S TOWARD W NEWBERRY RD. TAKE THE 1ST RIGHT ONTO W NEWBERRY RD. TURN RIGHT ONTO WOODLAND AVE. TURN RIGHT ONTO WINTONBURY AVE. TURN LEFT ONTO CT-189 S. TAKE THE FIRST RIGHT ONTO CT-178 W. TURN RIGHT ONTO CT-185 W. TURN RIGHT ONTO HOPMEADOW ST. TURN LEFT ONTO CANAL ST. CONTINUE ONTO DEER PARK RD. SLIGHT LEFT ONTO CT-167 S/BUSHY HILL RD. TURN RIGHT ONTO US-202 W/ALBANY TURNPIKE. TURN LEFT ONTO DYER AVE. DESTINATION WILL BE ON THE RIGHT.

LOCATION MAP

SCALE: NTS



SHEET INDEX

SHEET NO	DESCRIPTION	REV NO
T-1	TITLE SHEET	0
A-1	SITE PLAN & EQUIPMENT PLAN	0
A-2	ELEVATION & ANTENNA PLAN	0
A-3	GROUNDING DIAGRAM	0
A-4	NOTES	0
A-5	NOTES	0
A-6	NOTES	0

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".

0 1 2 3
ORIGINAL SIZE IN INCHES

TECTONIC
• PLANNING • SURVEYING
• ENGINEERING • CONSTRUCTION MANAGEMENT
TECTONIC Engineering & Surveying Consultants P.C.
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-6656
Fax: (845) 567-8703

T-Mobile
NORTHEAST LLC.

T-MOBILE NORTHEAST, LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

APPROVALS

T-MOBILE _____
LANDLORD _____
RF _____
CONSTRUCTION _____

PROJECT NUMBER	DESIGNED BY
6646.CT11274A	JQ

REV	DATE	REVISION	DRAWN BY
0	07/28/14	FOR COMMENT	KA

ISSUED BY | DATE

SITE INFORMATION

CT11274A
CANTON/RT. 10
102 DYER AVE.
CANTON, CT 06019

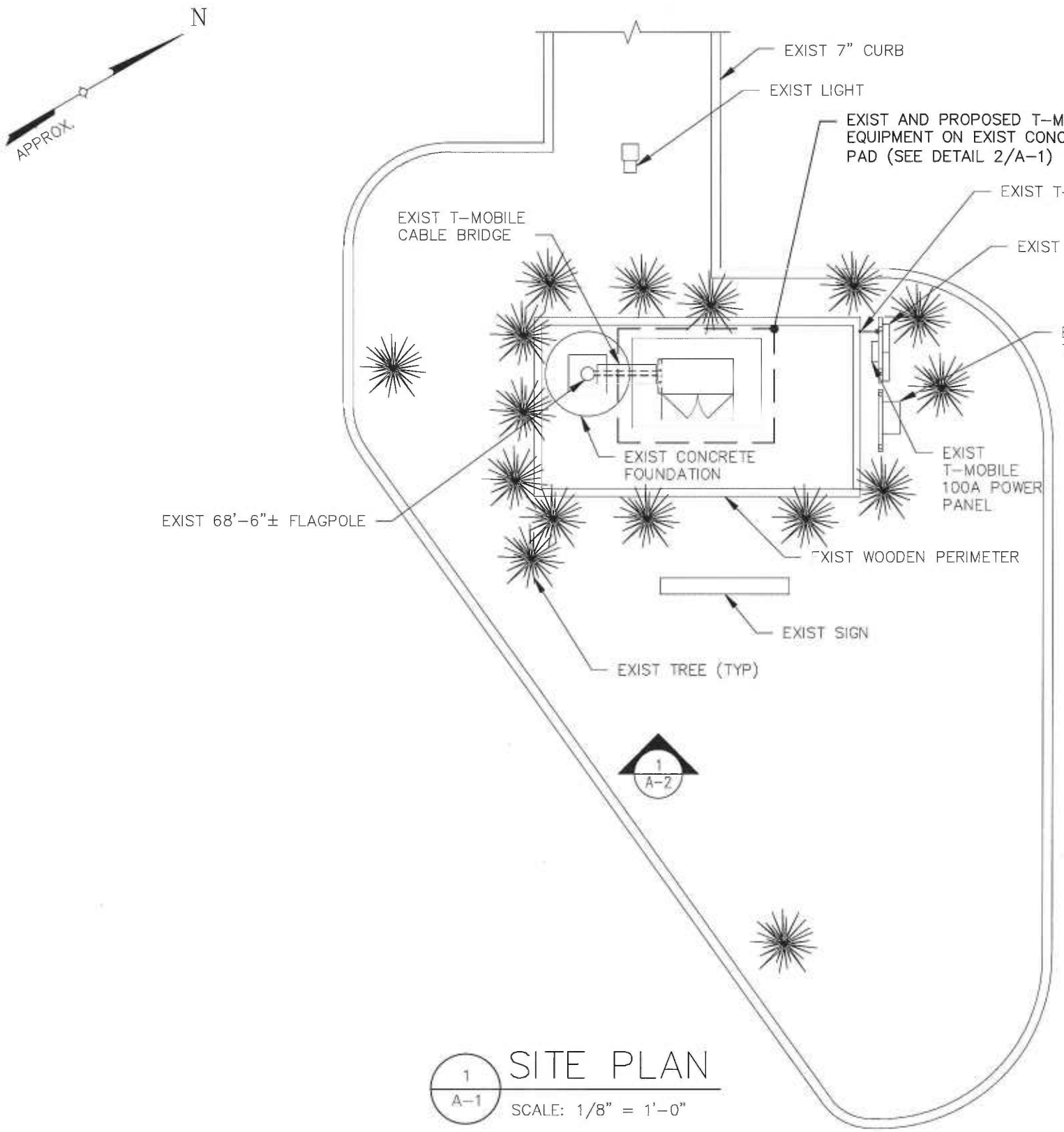
SHEET TITLE

TITLE SHEET

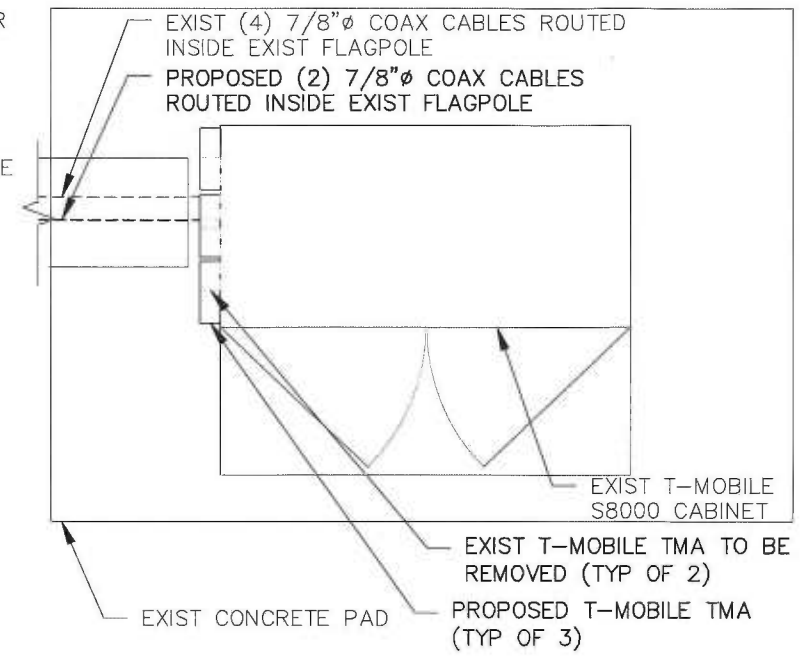
SHEET NUMBER

T-1

STRUCTUAL NOTE:
PROPOSED CANISTER, PROPOSED MOUNTS AND EXIST FLAGPOLE TO BE STRUCTURALLY ANALYZED BY A STATE LICENSED P.E. (TO BE COORDINATED BY OTHERS)



1 / A-1 SITE PLAN
SCALE: 1/8" = 1'-0"



2 / A-1 EQUIPMENT PLAN
SCALE: 1/2" = 1'-0"

NOTES:
1. CONTRACTOR TO MATCH ANTENNA AZIMUTHS AND DOWNTILTS TO EXISTING CONDITION AND NOTIFY RF ENGINEER FOR ANY DISCREPANCY.
2. CONTRACTOR TO RE-VERIFY CABLE LENGTHS PRIOR TO CONSTRUCTION.
3. LOCK & TAG BREAKERS FOR ALL EQUIPMENT BEING TURNED OFF (WHEN APPLICABLE).

0 1 2 3
ORIGINAL SIZE IN INCHES

TECTONIC
• PLANNING • ENGINEERING • SURVEYING • CONSTRUCTION MANAGEMENT
TECTONIC Engineering & Surveying Consultants P.C.
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-6656
Fax: (845) 567-8703

T-Mobile NORTHEAST LLC.

T-MOBILE NORTHEAST, LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

APPROVALS
T-MOBILE
LANDLORD
RF
CONSTRUCTION

PROJECT NUMBER	DESIGNED BY
6646.CT11274A	JQ

REV	DATE	REVISION	DRAWN BY
0	07/28/14	FOR COMMENT	KA

ISSUED BY | DATE

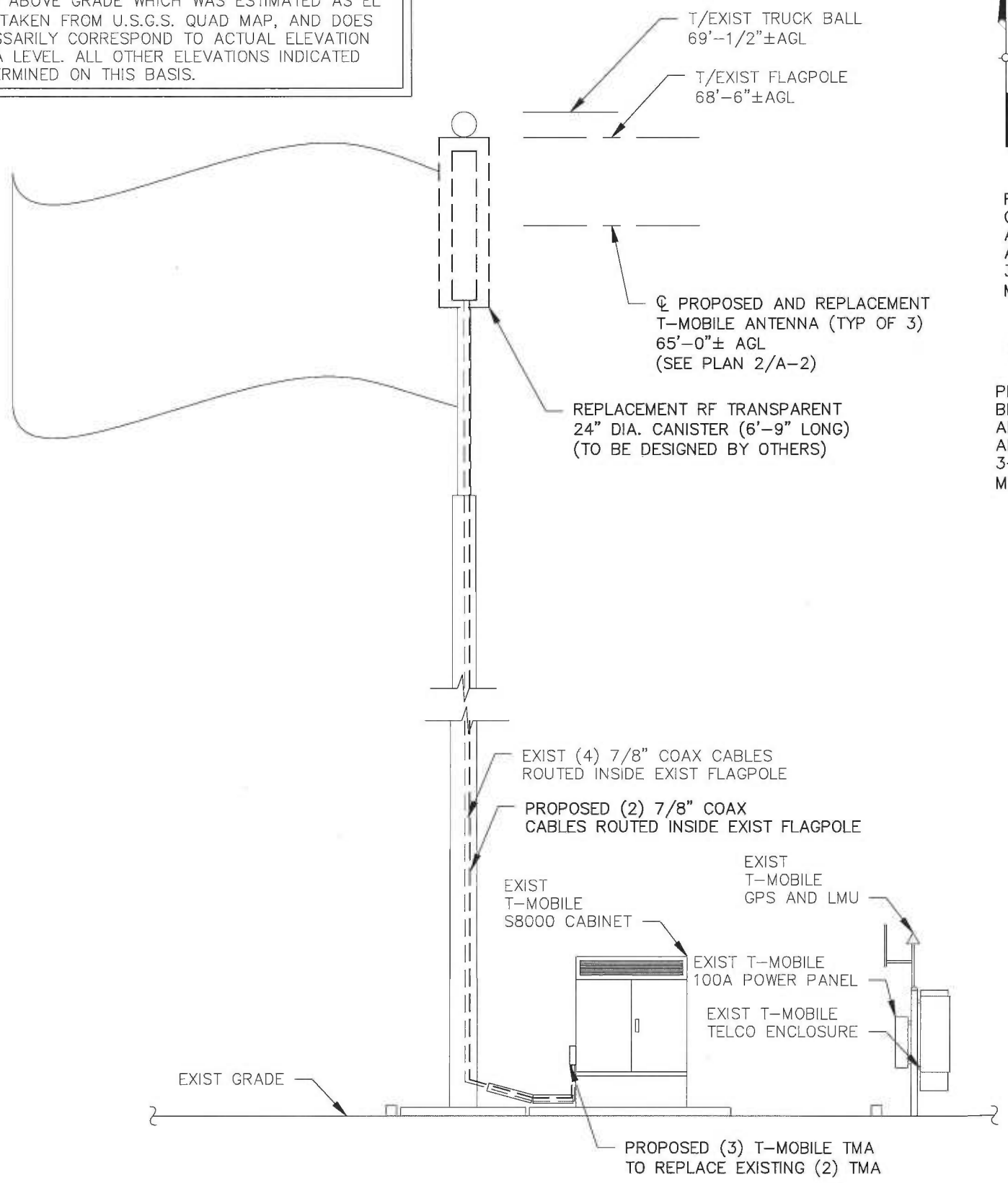
SITE INFORMATION
CT11274A
CANTON/RT. 10
102 DYER AVE.
CANTON, CT 06019

SHEET TITLE
SITE & EQUIPMENT PLANS

SHEET NUMBER
A-1

ELEVATION NOTE:

ELEVATION OF EXIST FLAG POLE HAS BEEN ARBITRARILY ASSIGNED AS EL 509'-6"±. THIS IS APPROXIMATELY 69'-1/2"± ABOVE GRADE WHICH WAS ESTIMATED AS EL 439'-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.



1/A-2 ELEVATION

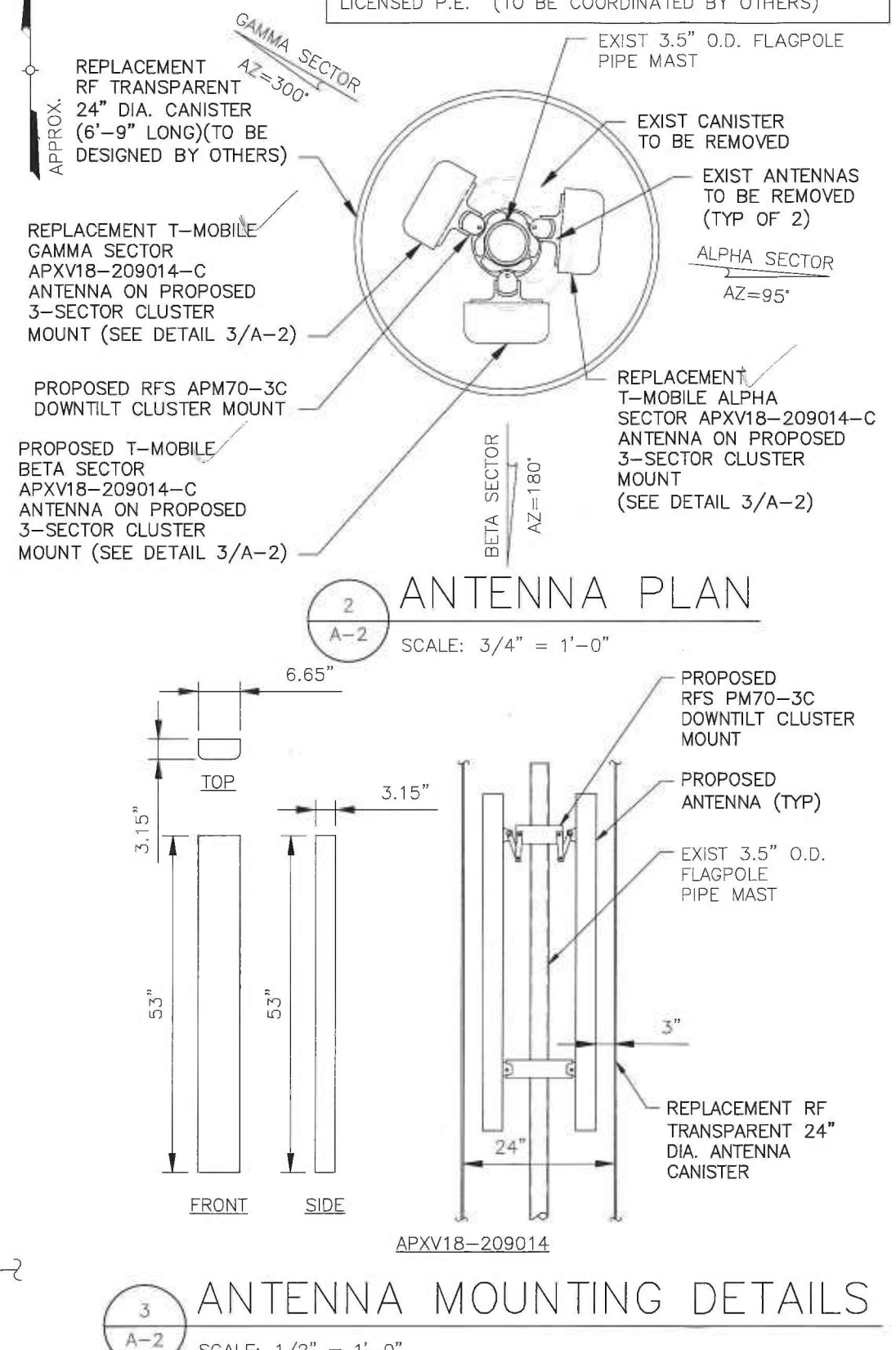
SCALE: 3/16" = 1'-0"

N

APPROX.

STRUCTUAL NOTE:

PROPOSED CANISTER, PROPOSED MOUNTS AND EXIST FLAGPOLE TO BE STRUCTURALLY ANALYZED BY A STATE LICENSED P.E. (TO BE COORDINATED BY OTHERS)



2/A-2 ANTENNA PLAN

SCALE: 3/4" = 1'-0"

3/A-2 ANTENNA MOUNTING DETAILS

SCALE: 1/2" = 1'-0"

0 1 2 3

ORIGINAL SIZE IN INCHES

TECTONIC
- PLANNING
- ENGINEERING
- SURVEYING
- CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C.
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-6656
Fax: (845) 567-8703

T-Mobile NORTHEAST LLC.

T-MOBILE NORTHEAST, LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

APPROVALS

T-MOBILE _____
LANDLORD _____
RF _____
CONSTRUCTION _____

PROJECT NUMBER	DESIGNED BY
6646.CT11274A	JQ

REV	DATE	REVISION	DRAWN BY
0	07/28/14	FOR COMMENT	KA

ISSUED BY | DATE

SITE INFORMATION

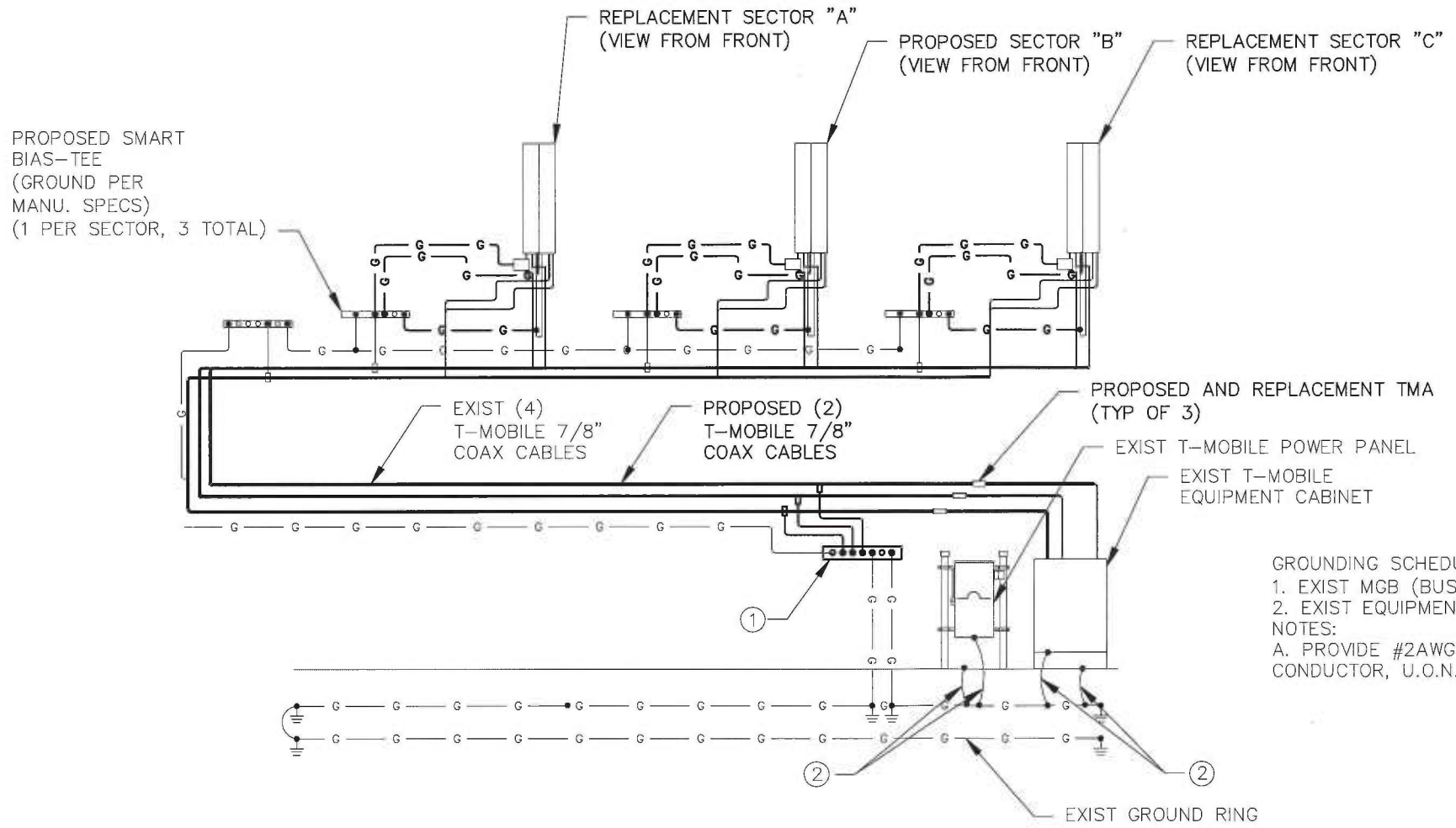
CT11274A
CANTON/RT. 10
102 DYER AVE.
CANTON, CT 06019

SHEET TITLE

ELEVATION & ANTENNA PLAN

SHEET NUMBER

A-2



1/A-3 GROUNDING DIAGRAM

SCALE: NTS

0 1 2 3

ORIGINAL SIZE IN INCHES

TECTONIC

- PLANNING
- ENGINEERING
- SURVEYING
- CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C.

1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-6656
Fax: (845) 567-8703

T-Mobile NORTHEAST LLC.

T-MOBILE NORTHEAST, LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

APPROVALS

T-MOBILE _____
LANDLORD _____
RF _____
CONSTRUCTION _____

PROJECT NUMBER	DESIGNED BY
6646.CT11274A	JQ

REV	DATE	REVISION	DRAWN BY
0	07/28/14	FOR COMMENT	KA

ISSUED BY	DATE

SITE INFORMATION

CT11274A
CANTON/RT. 10
102 DYER AVE.
CANTON, CT 06019

SHEET TITLE

GROUNDING DIAGRAM

SHEET NUMBER

A-3

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 DIP 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.

GENERAL NOTES

20. 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.
21. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ALL PRODUCTS OR ITEMS NOTED AS "EXISTING" WHICH ARE NOT FOUND TO BE IN THE FIELD.
22. 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 LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
23. 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.
24. 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.
25. 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.
26. THE CONTRACTOR SHALL REPAIR ALL EXISTING SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND WITH ADJACENT SURFACES.
27. 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.
28. BEFORE FINAL ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT, TEMPORARY WORK, UNUSED AND USELESS MATERIALS, RUBBISH AND TEMPORARY STRUCTURES.
29. CONSTRUCTION SHALL BE IN ACCORDANCE WITH INTERNATIONAL BUILDING CODE & THE 2005 STATE OF CONNECTICUT BUILDING CODE INCLUDING SUBSEQUENT AMENDMENTS.

0 1 2 3

ORIGINAL SIZE IN INCHES

TECTONIC
- PLANNING
- ENGINEERING
- SURVEYING
- CONSTRUCTION MANAGEMENT

TECTONIC Engineering & Surveying Consultants P.C.
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-6656
Fax: (845) 567-8703

T-Mobile NORTHEAST LLC.

T-MOBILE NORTHEAST, LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

APPROVALS

T-MOBILE _____
LANDLORD _____
RF _____
CONSTRUCTION _____

PROJECT NUMBER	DESIGNED BY
6646.CT11274A	JQ

REV	DATE	REVISION	DRAWN BY
0	07/28/14	FOR COMMENT	KA

ISSUED BY	DATE

SITE INFORMATION

CT11274A
CANTON/RT. 10
102 DYER AVE.
CANTON, CT 06019

SHEET TITLE

NOTES

SHEET NUMBER

A-4

STRUCTURAL STEEL NOTES

1. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN".
2. STRUCTURAL STEEL WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A992, "STEEL FOR STRUCTURAL SHAPES FOR USE IN BUILDING FRAMING", GRADE 50, UNLESS OTHERWISE INDICATED. IF THE MEMBER SIZES INDICATED ARE NOT AVAILABLE IN THIS GRADE, ASTM A572 "HIGH-STRENGTH LOW-ALLOY COLUMBIUM-VANADIUM STRUCTURAL STEEL", GRADE 50, MAY BE SUBSTITUTED.
3. HOLLOW STRUCTURAL SECTIONS (HSS) SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING IN ROUNDS AND SHAPES", GRADE B.
4. MISCELLANEOUS STEEL, INCLUDING CHANNELS, ANGLES, PLATES, AND BARS SHALL CONFORM TO ASTM A36 "CARBON STRUCTURAL STEEL", UNLESS OTHERWISE INDICATED.
5. ANCHOR BOLTS SHALL CONFORM TO ASTM F1554 "ANCHOR BOLTS, STEEL, 36, 55, AND 105-KSI YIELD STRENGTH", GRADE 36.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS CONFORMING TO ASTM A325 "STRUCTURAL BOLTS, STEEL, HEAT TREATED, 120/105 KSI MINIMUM TENSILE STRENGTH". BOLTS SHALL BE 3/4 INCH DIAMETER, TYPE X, UNLESS OTHERWISE NOTED.
7. MATCHING NUTS SHALL BE HEAVY HEX TYPE, CONFORMING TO ASTM A563 "CARBON AND ALLOY STEEL NUTS".
   WASHERS, WHERE REQUIRED, SHALL CONFORM TO ASTM F436 "HARDENED STEEL WASHERS".
8. FIELD CONNECTIONS SHALL BE BOLTED UNLESS OTHERWISE INDICATED. ALL BOLTED CONNECTIONS SHALL BE MADE WITH NOT LESS THAN TWO (2) HIGH STRENGTH BOLTS, OR EQUIVALENT WELD.
9. STRUCTURAL CONNECTIONS SHALL BE SNUG TIGHT IN ACCORDANCE WITH THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", UNLESS OTHERWISE NOTED.
10. BOLTS IN SLIP-CRITICAL CONNECTIONS SHALL BE FULLY PRETENSIONED BY THE TURN-OF-NUT METHOD IN ACCORDANCE WITH THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS".
11. ANCHOR BOLTS SHALL BE TENSIONED BY THE TURN-OF-NUT METHOD AFTER GROUTING OF BASE PLATES.
12. CONTRACTOR SHALL COMPLY WITH AWS D1.1 "STRUCTURAL WELDING CODE - STEEL" FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES".
13. GRATING SHALL BE TYPE "W/B" GALVANIZED WELDED STEEL BAR GRATING AS MANUFACTURED BY IKG BORDEN, OR APPROVED EQUAL. BEARING BARS SHALL BE AS FOLLOWS:

    GRATING 1" x 3/16" SERRATED

    BAND ALL EDGES, AND ATTACH TO SUPPORTING MEMBERS AT 18" ON CENTER WITH MODEL GG GALVANIZED G-CLIPS AS MANUFACTURED BY GRATING FASTENERS INC.
14. EXPANSION ANCHORS SHALL BE HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MINIMUM EMBEDMENT SHALL BE 4-3/4" UNLESS OTHERWISE NOTED.

STRUCTURAL STEEL NOTES

15. EPOXY ANCHOR ASSEMBLIES SHALL BE AS MANUFACTURED BY HILTI OR ENGINEER APPROVED EQUAL, AS FOLLOWS:

BASE MATERIAL	ANCHOR SYSTEM
CONCRETE OR GROUTED CMU	HIT HY-200
HOLLOW CMU	HIT HY-70

    INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
16. ALL INTERIOR STRUCTURAL STEEL SHALL BE SHOP PRIME COATED WITH A RUST-INHIBITIVE PRIMER EXCEPT AREAS TO BE FIREPROOFED NEED NOT BE PAINTED. SURFACE PREPARATION SHALL BE IN ACCORDANCE WITH THE PAINT MANUFACTURER'S RECOMMENDATIONS. AREAS WHICH MAY BE INACCESSIBLE AFTER INSTALLATION SHALL RECEIVE TWO (2) COATS OF PRIMER. SEE ARCHITECTURAL DRAWINGS FOR FINISH PAINT.
17. FIELD CONNECTIONS AND DAMAGED OR ABRADED AREAS OF SHOP PRIME COAT SHALL BE TOUCH-UP PAINTED WITH COMPATIBLE FIELD PRIMER.
18. ALL EXTERIOR STEEL SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
19. ALL EXTERIOR BOLTS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
20. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780 "REPAIR OF DAMAGED AND UNCOATED AREAS OF HOT-DIP GALVANIZED COATINGS".
21. ALL STEEL WORK SHALL BE SUBJECT TO SPECIAL INSPECTIONS DURING CONSTRUCTION.
22. THE NOTES CONTAINED HEREIN ARE NOT PROJECT SPECIFIC. THE CONTRACTOR SHALL UTILIZE ALL NOTES WHICH SOLELY PERTAIN TO THE WORK DEPICTED ON THESE DRAWINGS.

0 1 2 3

ORIGINAL SIZE IN INCHES

TECTONIC
• PLANNING • ENGINEERING • SURVEYING • CONSTRUCTION MANAGEMENT
TECTONIC Engineering & Surveying Consultants P.C.
1279 Route 300
Newburgh, NY 12550
Phone: (845) 567-6656
Fax: (845) 567-8703

T-Mobile NORTHEAST LLC.

T-MOBILE NORTHEAST, LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

APPROVALS

T-MOBILE _____
LANDLORD _____
RF _____
CONSTRUCTION _____

PROJECT NUMBER	DESIGNED BY
6646.CT11274A	JQ

REV	DATE	REVISION	DRAWN BY
0	07/28/14	FOR COMMENT	KA

ISSUED BY _____ DATE _____

SITE INFORMATION

CT11274A
CANTON/RT. 10
102 DYER AVE.
CANTON, CT 06019

SHEET TITLE

NOTES

SHEET NUMBER

A-6

EXHIBIT B

Date: **June 25, 2014**

Veronica Harris
Crown Castle
1200 McArthur Blvd
Mahwah, NJ 07430

Crown Castle
2000 Corporate Drive
Canonsburg, PA
(724) 416-2000

Subject: **Structural Analysis Report**

Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11274A
	Carrier Site Name:	Canton/Rt 10
Crown Castle Designation:	**Crown Castle BU Number:**	822915
	Crown Castle Site Name:	Canton/Rt 10
	Crown Castle JDE Job Number:	269898
	Crown Castle Work Order Number:	739262
	Crown Castle Application Number:	218324 Rev. 1
Engineering Firm Designation:	**Crown Castle Project Number:**	739262
Site Data:	**102 Dyer Ave., Canton, Hartford County, CT** **Latitude *41° 49' 53.75"*, Longitude *-72° 55' 11.41"*** **68.5 Foot - Flagpole Tower**	

Dear Veronica Harris,

Crown Castle 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 739262, in accordance with application 218324, revision 1.

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

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

The analysis has been performed in accordance with the TIA/EIA-222-F standard and the 2005 CT State Building Code based upon a wind speed of 80 mph fastest mile.

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

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

Structural analysis prepared by: Mitchell Prust, EIT / MRC

Respectfully submitted by:

Aaron C. Poot, P.E.
Manager Engineering

STATE OF CONNECTICUT
AARON C. POOT
No. 25050
LICENSED
PROFESSIONAL ENGINEER

tnxTower Report - version 6.1.4.1

6/25/14

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 68.5 ft Monopole tower designed by STEALTH NETWORK TECHNOLOGIES INC. in October of 2000. The tower was originally designed for a wind speed of 80 mph per TIA/EIA-222-F.

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 80 mph with no ice, 28.1 mph with 1 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)	Note
65.5	65.5	3	ericsson	KRY 112 144/1	2	7/8	-
		3	rfs celwave	APXV18-209014-C w/ Mount Pipe			

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
65.5	65.5	-	-	-	4	7/8	1
		-	-	-	7	1-5/8	3
		2	huber and suhner	1319.41.0069 w/ Mount Pipe	-	-	2

Notes:
1) Existing Equipment
2) Equipment to be Removed; Not Considered in this Analysis
3) MLA Equipment; Considered in this Analysis

Table 3 - Design Antenna and Cable Information

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

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-TOWER MANUFACTURER DRAWINGS	Tower Engineering Professionals (Mapping) / Stealth Network Technologies, Inc.	3491150	CCISITES
4-TOWER MAPPING	Tower Engineering Professionals	-	ONFILE

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. Crown Castle should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	68.5 - 54.75	Pole	P3.5x0.438	1	-0.765	117.945	78.9	Pass
L2	54.75 - 0	Pole	P10.75x0.365	2	-3.454	333.349	77.3	Pass
							Summary	
						Pole (L1)	78.9	Pass
						Rating =	78.9	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	11.2	Pass
1	Base Plate	0	24.6	Pass
1	Flange Bolts	54.75	50.9	Pass
1, 2	Base Foundation (Compared w/ Design Loads)	0	26.0	Pass

Structure Rating (max from all components) =	78.9%

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
2) Foundation capacity determined by comparing analysis reactions to original design reactions.

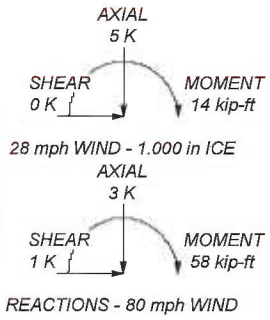
4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the existing and proposed loads. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Size	Length (ft)	Grade	Weight (K)
1	P3.5x0.438	13'9"	A53-B-35	0.2
2	P10.75x0.365	54'9"		2.2
				2.4



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Truck Ball	69.0417	APXV18-209014-C w/ Mount Pipe	65.5
Canister Load1	68.5	APXV18-209014-C w/ Mount Pipe	65.5
Flag	68.5	APXV18-209014-C w/ Mount Pipe	65.5
KRY 112 144/1	65.5	Canister Load2	61.75
KRY 112 144/1	65.5	Canister Load3	54.75
KRY 112 144/1	65.5		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	63 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 28 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 78.9%

CROWN CASTLE
We Are Solutions
Crown Castle
2000 Corporate Drive
Canonsburg, PA
Phone: (724) 416-2000
FAX:

Job: BU# 822915			
Project:			
Client: Crown Castle	Drawn by: Mitchell Prust		App'd:
Code: TIA/EIA-222-F	Date: 06/23/14		Scale: NTS
Path: X:\ENG Work Area\MPrust\822915\822915 - flagpole.eri			Dwg No. E-1

Tower Input Data

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

4) Tower is located in Hartford County, Connecticut.
5) Basic wind speed of 80 mph.
6) Nominal ice thickness of 1.000 in.
7) Ice thickness is considered to increase with height.
8) Ice density of 56.000 pcf.
9) A wind speed of 28 mph is used in combination with ice.
10) Temperature drop of 50.000 °F.
11) Deflections calculated using a wind speed of 50 mph.
12) A non-linear (P-delta) analysis was used.
13) Pressures are calculated at each section.
14) Stress ratio used in pole design is 1.333.
15) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		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		

Pole Section Geometry

Section	*Elevation*	*Section Length*	*Pole Size*	*Pole Grade*	*Socket Length*
	ft	*ft*			*ft*
L1	68'6"-54'9"	13'9"	P3.5x0.438	A53-B-35 (35 ksi)	
L2	54'9"-0'	54'9"	P10.75x0.365	A53-B-35 (35 ksi)	

Tower Elevation	*Gusset Area (per face)*	*Gusset Thickness*	*Gusset Grade*	*Adjust. Factor A_f*	*Adjust. Factor A_r*	*Weight Mult.*	*Double Angle Stitch Bolt Spacing Diagonals*	*Double Angle Stitch Bolt Spacing Horizontals*
ft	*ft²*	*in*					*in*	*in*
L1 68'6"-54'9"				1	0	1		
L2 54'9"-0'				1	1	1		

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
*****										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
AL5-50(7/8)	A	No	Inside Pole	65'6" - 0'	4	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000
LDF7-50A(1-5/8")	A	No	Inside Pole	65'6" - 0'	7	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
AL5-50(7/8)	A	No	Inside Pole	65'6" - 0'	2	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000
*****								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	68'6"-54'9"	A	0.000	0.000	0.000	0.000	0.078
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
L2	54'9"-0'	A	0.000	0.000	0.000	0.000	0.400
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	68'6"-54'9"	A	1.078	0.000	0.000	0.000	0.000	0.078
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
L2	54'9"-0'	A	1.000	0.000	0.000	0.000	0.000	0.400
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	68'6"-54'9"	0.000	0.000	0.000	0.000
L2	54'9"-0'	0.000	0.000	0.000	0.000

User Defined Loads

Description	Elevation	Offset From Centroid	Azimuth Angle		Weight	F_x	F_z	Wind Force	C_AA_C
	ft	ft	°		K	K	K	K	ft^2
Flag	68'6"	0'	0.000	No Ice	0.262	0.000	0.000	0.245	**7.176**
				Ice	0.463	0.000	0.000	0.044	**10.545**
				Service	0.262	0.000	0.000	0.109	**8.165**

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
APXV18-209014-C w/ Mount Pipe	A	From Leg	0.500 0' 0'	0.000	65'6"	No Ice 1/2" Ice Ice 1" Ice 2" Ice 4" Ice	0.000 0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000 0.000	0.038 0.072 0.112 0.212 0.523
APXV18-209014-C w/ Mount Pipe	B	From Leg	0.500 0' 0'	0.000	65'6"	No Ice 1/2" Ice Ice 1" Ice 2" Ice 4" Ice	0.000 0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000 0.000	0.038 0.072 0.112 0.212 0.523
APXV18-209014-C w/ Mount Pipe	C	From Leg	0.500 0' 0'	0.000	65'6"	No Ice 1/2" Ice Ice 1" Ice 2" Ice 4" Ice	0.000 0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000 0.000	0.038 0.072 0.112 0.212 0.523
KRY 112 144/1	A	From Leg	0.500 0' 0'	0.000	65'6"	No Ice 1/2" Ice Ice 1" Ice 2" Ice 4" Ice	0.000 0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000 0.000	0.011 0.014 0.019 0.032 0.082
KRY 112 144/1	B	From Leg	0.500 0' 0'	0.000	65'6"	No Ice 1/2" Ice Ice 1" Ice 2" Ice 4" Ice	0.000 0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000 0.000	0.011 0.014 0.019 0.032 0.082
KRY 112 144/1	C	From Leg	0.500 0' 0'	0.000	65'6"	No Ice 1/2" Ice Ice 1" Ice	0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000	0.011 0.014 0.019 0.032

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	0.000	0.000	0.082
						4" Ice			
*****									
Canister Load1	C	None		0.000	68'6"	No Ice	1.556	1.556	0.017
						1/2" Ice	1.722	1.722	0.037
						1" Ice	1.888	1.888	0.059
						2" Ice	2.219	2.219	0.110
						4" Ice	2.883	2.883	0.237
Canister Load2	C	None		0.000	61'9"	No Ice	3.255	3.255	0.037
						1/2" Ice	3.593	3.593	0.080
						1" Ice	3.931	3.931	0.126
						2" Ice	4.607	4.607	0.233
						4" Ice	5.959	5.959	0.495
Canister Load3	C	None		0.000	54'9"	No Ice	1.699	1.699	0.051
						1/2" Ice	1.871	1.871	0.074
						1" Ice	2.043	2.043	0.098
						2" Ice	2.388	2.388	0.153
						4" Ice	3.076	3.076	0.289
Truck Ball	C	None		0.000	69'1/2"	No Ice	0.737	0.737	0.050
						1/2" Ice	0.855	0.855	0.059
						1" Ice	0.982	0.982	0.070
						2" Ice	1.261	1.261	0.096
						4" Ice	1.924	1.924	0.170
*****									

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+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp

Comb. No.	Description
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
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 Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	68.5 - 54.75	Pole	Max Tension	15	0.000	0.000	-0.000
			Max. Compression	14	-1.514	0.000	0.000
			Max. Mx	5	-0.765	-5.780	0.000
			Max. My	2	-0.765	0.000	5.780
			Max. Vy	5	0.480	-2.763	0.000
			Max. Vx	2	-0.480	0.000	2.763
			Max. Torque	4			0.000
L2	54.75 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-5.020	0.000	0.000
			Max. Mx	5	-3.454	-58.472	0.000
			Max. My	2	-3.454	0.000	58.472
			Max. Vy	5	1.321	-58.472	0.000
			Max. Vx	2	-1.321	0.000	58.472
			Max. Torque	4			0.000

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	18	5.020	-0.327	0.000
	Max. H_x	11	3.458	1.312	0.000
	Max. H_z	2	3.458	0.000	1.312
	Max. M_x	2	58.472	0.000	1.312
	Max. M_z	5	58.472	-1.312	0.000
	Max. Torsion	4	0.000	-1.137	0.656
	Min. Vert	1	3.458	0.000	0.000
	Min. H_x	5	3.458	-1.312	0.000
	Min. H_z	8	3.458	0.000	-1.312
	Min. M_x	8	-58.472	0.000	-1.312
	Min. M_z	11	-58.472	1.312	0.000
	Min. Torsion	6	-0.000	-1.137	-0.656

Tower Mast Reaction Summary

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead Only	3.458	0.000	0.000	0.000	0.000	0.000
Dead+Wind 0 deg - No Ice	3.458	0.000	-1.312	-58.472	0.000	0.000
Dead+Wind 30 deg - No Ice	3.458	0.656	-1.137	-50.638	-29.236	0.000
Dead+Wind 60 deg - No Ice	3.458	1.137	-0.656	-29.236	-50.638	-0.000
Dead+Wind 90 deg - No Ice	3.458	1.312	0.000	0.000	-58.472	0.000
Dead+Wind 120 deg - No Ice	3.458	1.137	0.656	29.236	-50.638	0.000
Dead+Wind 150 deg - No Ice	3.458	0.656	1.137	50.638	-29.236	-0.000
Dead+Wind 180 deg - No Ice	3.458	0.000	1.312	58.472	0.000	0.000
Dead+Wind 210 deg - No Ice	3.458	-0.656	1.137	50.638	29.236	0.000
Dead+Wind 240 deg - No Ice	3.458	-1.137	0.656	29.236	50.638	-0.000
Dead+Wind 270 deg - No Ice	3.458	-1.312	0.000	0.000	58.472	0.000
Dead+Wind 300 deg - No Ice	3.458	-1.137	-0.656	-29.236	50.638	0.000
Dead+Wind 330 deg - No Ice	3.458	-0.656	-1.137	-50.638	29.236	-0.000
Dead+Ice+Temp	5.020	0.000	0.000	0.000	0.000	0.000
Dead+Wind 0 deg+Ice+Temp	5.020	0.000	-0.327	-13.552	0.000	0.000
Dead+Wind 30 deg+Ice+Temp	5.020	0.164	-0.283	-11.737	-6.776	0.000
Dead+Wind 60 deg+Ice+Temp	5.020	0.283	-0.164	-6.776	-11.737	-0.000
Dead+Wind 90 deg+Ice+Temp	5.020	0.327	0.000	0.000	-13.552	0.000
Dead+Wind 120 deg+Ice+Temp	5.020	0.283	0.164	6.776	-11.737	0.000
Dead+Wind 150 deg+Ice+Temp	5.020	0.164	0.283	11.737	-6.776	-0.000
Dead+Wind 180 deg+Ice+Temp	5.020	0.000	0.327	13.552	0.000	0.000
Dead+Wind 210 deg+Ice+Temp	5.020	-0.164	0.283	11.737	6.776	0.000
Dead+Wind 240 deg+Ice+Temp	5.020	-0.283	0.164	6.776	11.737	-0.000
Dead+Wind 270 deg+Ice+Temp	5.020	-0.327	0.000	0.000	13.552	0.000
Dead+Wind 300 deg+Ice+Temp	5.020	-0.283	-0.164	-6.776	11.737	0.000
Dead+Wind 330 deg+Ice+Temp	5.020	-0.164	-0.283	-11.737	6.776	-0.000
Dead+Wind 0 deg - Service	3.458	0.000	-0.711	-29.240	0.000	0.000
Dead+Wind 30 deg - Service	3.458	0.355	-0.615	-25.323	-14.620	0.000
Dead+Wind 60 deg - Service	3.458	0.615	-0.355	-14.620	-25.323	-0.000
Dead+Wind 90 deg - Service	3.458	0.711	0.000	0.000	-29.240	0.000
Dead+Wind 120 deg - Service	3.458	0.615	0.355	14.620	-25.323	0.000
Dead+Wind 150 deg - Service	3.458	0.355	0.615	25.323	-14.620	-0.000
Dead+Wind 180 deg - Service	3.458	0.000	0.711	29.240	0.000	0.000
Dead+Wind 210 deg - Service	3.458	-0.355	0.615	25.323	14.620	0.000
Dead+Wind 240 deg - Service	3.458	-0.615	0.355	14.620	25.323	-0.000
Dead+Wind 270 deg - Service	3.458	-0.711	0.000	0.000	29.240	0.000
Dead+Wind 300 deg - Service	3.458	-0.615	-0.355	-14.620	25.323	0.000
Dead+Wind 330 deg - Service	3.458	-0.355	-0.615	-25.323	14.620	-0.000

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.000	-3.458	0.000	0.000	3.458	0.000	0.000%
2	0.000	-3.458	-1.312	0.000	3.458	1.312	0.000%
3	0.656	-3.458	-1.137	-0.656	3.458	1.137	0.000%
4	1.137	-3.458	-0.656	-1.137	3.458	0.656	0.000%
5	1.312	-3.458	0.000	-1.312	3.458	0.000	0.000%
6	1.137	-3.458	0.656	-1.137	3.458	-0.656	0.000%
7	0.656	-3.458	1.137	-0.656	3.458	-1.137	0.000%
8	0.000	-3.458	1.312	0.000	3.458	-1.312	0.000%
9	-0.656	-3.458	1.137	0.656	3.458	-1.137	0.000%
10	-1.137	-3.458	0.656	1.137	3.458	-0.656	0.000%
11	-1.312	-3.458	0.000	1.312	3.458	0.000	0.000%
12	-1.137	-3.458	-0.656	1.137	3.458	0.656	0.000%
13	-0.656	-3.458	-1.137	0.656	3.458	1.137	0.000%
14	0.000	-5.020	0.000	0.000	5.020	0.000	0.000%
15	0.000	-5.020	-0.327	0.000	5.020	0.327	0.000%
16	0.164	-5.020	-0.283	-0.164	5.020	0.283	0.000%
17	0.283	-5.020	-0.164	-0.283	5.020	0.164	0.000%
18	0.327	-5.020	0.000	-0.327	5.020	0.000	0.000%
19	0.283	-5.020	0.164	-0.283	5.020	-0.164	0.000%
20	0.164	-5.020	0.283	-0.164	5.020	-0.283	0.000%
21	0.000	-5.020	0.327	0.000	5.020	-0.327	0.000%
22	-0.164	-5.020	0.283	0.164	5.020	-0.283	0.000%
23	-0.283	-5.020	0.164	0.283	5.020	-0.164	0.000%
24	-0.327	-5.020	0.000	0.327	5.020	0.000	0.000%
25	-0.283	-5.020	-0.164	0.283	5.020	0.164	0.000%
26	-0.164	-5.020	-0.283	0.164	5.020	0.283	0.000%
27	0.000	-3.458	-0.711	0.000	3.458	0.711	0.000%
28	0.355	-3.458	-0.615	-0.355	3.458	0.615	0.000%
29	0.615	-3.458	-0.355	-0.615	3.458	0.355	0.000%
30	0.711	-3.458	0.000	-0.711	3.458	0.000	0.000%
31	0.615	-3.458	0.355	-0.615	3.458	-0.355	0.000%
32	0.355	-3.458	0.615	-0.355	3.458	-0.615	0.000%
33	0.000	-3.458	0.711	0.000	3.458	-0.711	0.000%
34	-0.355	-3.458	0.615	0.355	3.458	-0.615	0.000%
35	-0.615	-3.458	0.355	0.615	3.458	-0.355	0.000%
36	-0.711	-3.458	0.000	0.711	3.458	0.000	0.000%
37	-0.615	-3.458	-0.355	0.615	3.458	0.355	0.000%
38	-0.355	-3.458	-0.615	0.355	3.458	0.615	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00000001
3	Yes	5	0.00000001	0.00036934
4	Yes	5	0.00000001	0.00036934
5	Yes	5	0.00000001	0.00000001
6	Yes	5	0.00000001	0.00036934
7	Yes	5	0.00000001	0.00036934
8	Yes	5	0.00000001	0.00000001
9	Yes	5	0.00000001	0.00036934
10	Yes	5	0.00000001	0.00036934
11	Yes	5	0.00000001	0.00000001
12	Yes	5	0.00000001	0.00036934
13	Yes	5	0.00000001	0.00036934
14	Yes	4	0.00000001	0.00000001
15	Yes	5	0.00000001	0.00006914
16	Yes	5	0.00000001	0.00007815
17	Yes	5	0.00000001	0.00007815

18	Yes	5	0.00000001	0.00006914
19	Yes	5	0.00000001	0.00007815
20	Yes	5	0.00000001	0.00007815
21	Yes	5	0.00000001	0.00006914
22	Yes	5	0.00000001	0.00007815
23	Yes	5	0.00000001	0.00007815
24	Yes	5	0.00000001	0.00006914
25	Yes	5	0.00000001	0.00007815
26	Yes	5	0.00000001	0.00007815
27	Yes	5	0.00000001	0.00000001
28	Yes	5	0.00000001	0.00000001
29	Yes	5	0.00000001	0.00000001
30	Yes	5	0.00000001	0.00000001
31	Yes	5	0.00000001	0.00000001
32	Yes	5	0.00000001	0.00000001
33	Yes	5	0.00000001	0.00000001
34	Yes	5	0.00000001	0.00000001
35	Yes	5	0.00000001	0.00000001
36	Yes	5	0.00000001	0.00000001
37	Yes	5	0.00000001	0.00000001
38	Yes	5	0.00000001	0.00000001

Maximum Tower Deflections - Service Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
L1	68.5 - 54.75	15.616	27	2.222	0.000
L2	54.75 - 0	10.054	27	1.318	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
69'1/2"	Truck Ball	27	15.616	2.222	0.000	3418
68'6"	Canister Load1	27	15.616	2.222	0.000	3418
65'6"	APXV18-209014-C w/ Mount Pipe	27	14.339	2.013	0.000	3418
61'9"	Canister Load2	27	12.772	1.757	0.000	2532
54'9"	Canister Load3	27	10.054	1.318	0.000	1344

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
L1	68.5 - 54.75	32.762	5	4.851	0.000
L2	54.75 - 0	20.734	5	2.759	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
69'1/2"	Truck Ball	5	32.762	4.851	0.000	1532
68'6"	Canister Load1	5	32.762	4.851	0.000	1532
65'6"	APXV18-209014-C w/ Mount Pipe	5	29.996	4.366	0.000	1532
61'9"	Canister Load2	5	26.602	3.772	0.000	1134
54'9"	Canister Load3	5	20.734	2.759	0.000	601

Compression Checks

Pole Design Data

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 $\frac{P}{P_a}$
L1	68.5 - 54.75 (1)	P3.5x0.438	13'9"	0'	0.0	21.000	4.213	-0.765	88.481	0.009
L2	54.75 - 0 (2)	P10.75x0.365	54'9"	0'	0.0	21.000	11.908	-3.454	250.074	0.014

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	68.5 - 54.75 (1)	P3.5x0.438	5.780	24.088	23.100	1.043	0.000	0.000	23.100	0.000
L2	54.75 - 0 (2)	P10.75x0.365	58.472	23.464	23.100	1.016	0.000	0.000	23.100	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	68.5 - 54.75 (1)	P3.5x0.438	0.471	0.223	14.000	0.016	0.000	0.000	14.000	0.000
L2	54.75 - 0 (2)	P10.75x0.365	1.321	0.222	14.000	0.016	0.000	0.000	14.000	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	68.5 - 54.75 (1)	0.009	1.043	0.000	0.016	0.000	1.052 ✔	1.333	H1-3+VT ✔
L2	54.75 - 0 (2)	0.014	1.016	0.000	0.016	0.000	1.030 ✔	1.333	H1-3+VT ✔

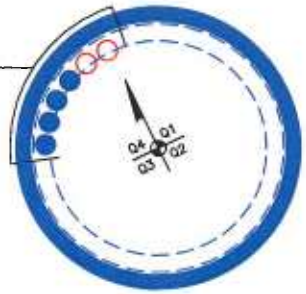
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	68.5 - 54.75	Pole	P3.5x0.438	1	-0.765	117.945	78.9	Pass
L2	54.75 - 0	Pole	P10.75x0.365	2	-3.454	333.349	77.3	Pass
							Summary	
						Pole (L1)	78.9	Pass
						RATING =	**78.9**	**Pass**

APPENDIX B

BASE LEVEL DRAWING

(MLA)
(7) 1-5/8" TO 62 FT LEVEL
(PROPOSED)
(2) 1-5/8" TO 62 FT LEVEL
(INSTALLED)
(4) 1-5/8" TO 62 FT LEVEL



BUSINESS UNIT: 822915 TOWER ID: C_BASELEVEL

APPENDIX C

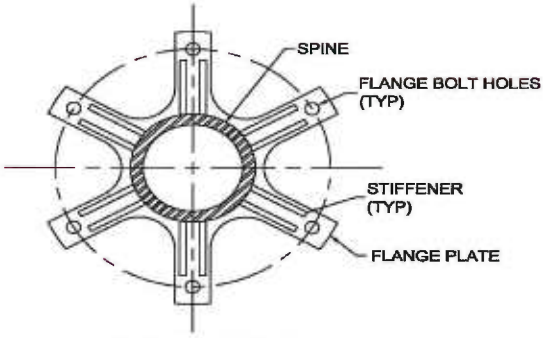
ADDITIONAL CALCULATIONS

CCI Flagpole Tool

Site Data	
BU#:	822915
Site Name:	Canton/Rt 10
App #:	218324 Rev. 1

Code		
Code:	TIA/EIA 222-F	
Ice Thickness:	1	in
Windspeed (V):	80	mph
Ice Wind Speed (V):	28.1	mph

Tower Information		
Total Tower Height:	68.5	ft
Base Tower Height:	54.75	ft
Total Canister Length:	13.75	ft
Number of Canister Assembly Sections:	2	



FLANGE PLATE
(TYPE 3: SOLIDITY RATIO 0.5)

Canister Section Number *:	Canister Assembly Length (ft):	Canister Assembly Diameter (in):	Number of Sides Canister Section	Plate Type:	Mating Flange Plate Thickness (in)**:	Mating Flange Plate Diameter (in):	Solidity Ratio	Plate Weight (Kip):	Canister Weight (Kip)
1	6.75	9.375	Round	1	0.16	9	0.45	0.003	0.033
2	7	9.875	Round	3	1.75	9.25	0.5	0.033	0.036

* Sections are numbered from the top of the tower down

** Mating Flange Plate Thickness at the bottom of canister section

Flag on Tower:	Yes	
Flag Width:	18	ft
Flag Height:	12	ft
Flag Elevation(z):	68.5	ft

Truck Ball on Tower:	Yes	
Diameter of Ball:	13	in

Geometry : Base Tower + Spine — 822915.eri *(last saved 06/23 12:55 pm)*

Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material	Delete
68.5	13.75	0	0	3.5	3.5	0.438	n/a	A53-B-35	[x]
54.75	54.75	0	0	10.75	10.75	0.365	n/a	A53-B-35	[x]

Discrete Loads: Truck Ball	Apply C_AA_A at Elevation(z) (ft)	C_AA_A No Ice (ft^2)	C_AA_A 1/2" Ice (ft^2)	C_AA_A 1" Ice (ft^2)	C_AA_A 2" Ice (ft^2)	C_AA_A 4" Ice (ft^2)	Weight No Ice (Kip)	Weight 1/2" Ice (Kip)
	69.04166667	0.737	0.855	0.982	1.261	1.924	0.05	0.059

Discrete Loads : C_FA_F for Canister Assembly								
Canister Loading	Apply C_FA_F at Elevation(z) (ft)	C_FA_F No Ice (ft^2)	C_FA_F 1/2" Ice (ft^2)	C_FA_F 1" Ice (ft^2)	C_FA_F 2" Ice (ft^2)	C_FA_F 4" Ice (ft^2)	Canister Assembly Weight No Ice (Kip)	Canister Assembly Weight 1/2" Ice (Kip)
Canister Load 1	68.5	1.556	1.722	1.888	2.219	2.883	0.017	0.037
Canister Load 2	61.75	3.255	3.593	3.931	4.607	5.959	0.037	0.080
Canister Load 3	54.75	1.699	1.871	2.043	2.388	3.076	0.051	0.074

User Forces: Flag Force Calculation Per ANSI/NAAMM FP 1001-07	
$Wind_{FORCE}$=	0.245 Kip
Weight=	0.262 Kip
$Wind_{FORCE, ICE}$=	0.044 Kip
$Weight_{ICE}$=	0.463 Kip
$W_{FORCE, SERVICE WIND}$=	0.109 Kip
Weight=	0.262 Kip

←Flag force should be included at the top of the flag attachment elevation. If the attachment of the flag to the halyard distributes forces equally to the pole, apply flag forces accordingly in tnx file.

Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev F

Site Data

BU#: *822915*
Site Name: *Canton/RT 10*
App #: *218324 Rev. 1*

Pole Manufacturer:	Other

Reactions		
Moment:	5.78	ft-kips
Axial:	0.77	kips
Shear:	0.47	kips
Elevation:	54.75	feet

If No stiffeners, Criteria:	AISC ASD	<-Only Applcable to Unstiffened Cases

Bolt Data			
Qty:	3		
Diameter (in.):	0.75	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	100	<-- Disregard	Bolt Fty:
N/A:	75	<-- Disregard	44.00
Circle (in.):	6.875		

Flange Bolt Results

			Rigid
Bolt Tension Capacity, **B**:	25.91	kips	Service, ASD
Max Bolt directly applied T:	13.20	Kips	Fty*ASIF
Min. PL "tc" for **B** cap. **w/o** Pry:	1.244	in	
Min PL "treq" for actual **T w/ Pry**:	0.666	in	
Min PL "t1" for actual **T w/o Pry**:	0.888	in	
T allowable w/o Prying:	25.91	kips	α'<0 case
Prying Force, Q:	0.00	kips	
Total Bolt Tension=T+Q:	13.20	kips	
Non-Prying Bolt Stress Ratio, T/B:	50.9%	Pass	

Plate Data		
Diam:	9.25	in
Thick, t:	1.75	in
Grade (Fy):	36	ksi
Strength, Fu:	58	ksi
Single-Rod B-eff:	3.67	in

Stiffener Data (Welding at Both Sides)		
Config:	0	*
Weld Type:		
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	3.5	in
Thick:	0.438	in
Grade:	35	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

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

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

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

Site Data

BU#: *822915*
Site Name: *Canton/RT 10*
App #: *218324 Rev. 1*

Anchor Rod Data		
Eta Factor, η	0.5	TIA G (Fig. 4-4)
Qty:	4	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, Fy:	75	ksi
Strength, Fu:	100	ksi
Bolt Circle:	31	in

Plate Data		
W=Side:	28.5	in
Thick:	2	in
Grade:	50	ksi
Clip Distance:	0	in

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

Pole Data		
Diam:	10.75	in
Thick:	0.365	in
Grade:	35	ksi
# of Sides:	0	"0" IF Round

Stress Increase Factor		
ASD ASIF:	1.333	

Base Reactions		
TIA Revision:	F	
Unfactored Moment, M:	58	ft-kips
Unfactored Axial, P:	3	kips
Unfactored Shear, V:	1	kips

Anchor Rod Results

TIA F --> Maximum Rod Tension	21.8 Kips
Allowable Tension:	195.0 Kips
Anchor Rod Stress Ratio:	11.2% **Pass**

Base Plate Results Flexural Check

Base Plate Stress:	12.3 ksi
Allowable PL Bending Stress:	50.0 ksi
Base Plate Stress Ratio:	24.6% **Pass**

PL Ref. Data	
Yield Line (in):	29.08
Max PL Length:	29.56

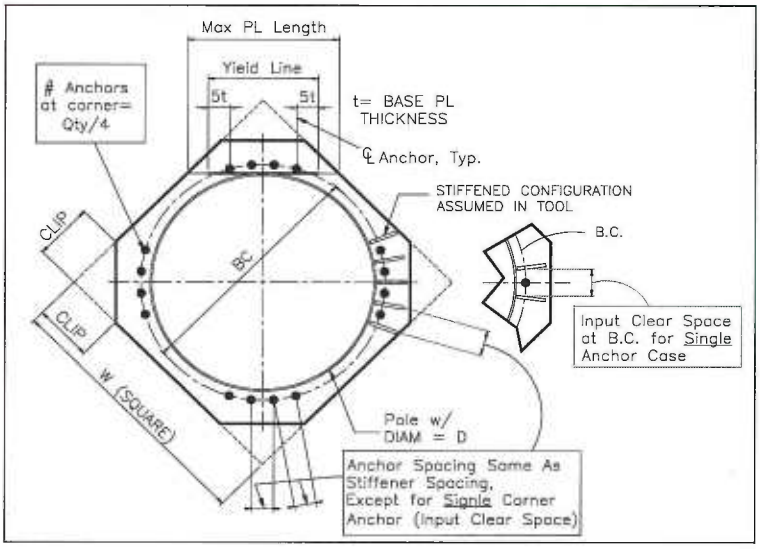
N/A - Unstiffened

Stiffener Results

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

Pole Results

Pole Punching Shear Check:	N/A



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

	REACTIONS	REACTIONS	
MOMENT (kip-ft)	225.0	58.47	26.0%
SHEAR (kips)	6.0	1.32	22.0%

Design loads from: CCIsites Doc # 3491150

EXHIBIT C

EBI Consulting
environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CT11274A

Canton / Route 10

102 Dyer Avenue
Canton, CT 06019

July 14, 2014

EBI Project Number: 62143860

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

EBI Consulting
environmental | engineering | due diligence

July 14, 2014

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

Re: Emissions Values for Site: **CT11274A – Canton / Route 10**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at 102 Dyer Avenue, Canton, 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 102 Dyer Avenue, Canton, 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 (1935.000 MHz—to 1945.000 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 RFS APXV18-209014-C for LTE, UMTS and GSM. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 15.5 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 **65.5 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	CT11274A - Canton / Route 10
Site Address	102 Dyer Avenue, Canton, CT 06019
Site Type	Monopole

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	RFS	APXV18-209014-C	Passive	PCS - 1950 MHz	GSM / UMTS	30	2	60	-5.15	65.5	59.5	7/8"	1.2	0	13.904368	1.411963	0.14120%
1B	RFS	APXV18-209014-C	Passive	AWS - 2100 MHz	UMTS/LTE	40	4	160	-5.15	65.5	59.5	7/8"	1.2	0	37.078314	3.765235	0.37652%
														Sector total Power Density Value:			0.518%

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	RFS	APXV18-209014-C	Passive	PCS - 1950 MHz	GSM / UMTS	30	2	60	-5.15	65.5	59.5	7/8"	1.2	0	13.904368	1.411963	0.14120%
1B	RFS	APXV18-209014-C	Passive	AWS - 2100 MHz	UMTS/LTE	40	4	160	-5.15	65.5	59.5	1-5/8"	1.2	0	37.078314	3.765235	0.37652%
														Sector total Power Density Value:			0.518%

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	RFS	APXV18-209014-C0	Passive	PCS - 1950 MHz	GSM / UMTS	30	2	60	-5.15	65.5	59.5	7/8"	1.2	0	13.904368	1.411963	0.14120%
1B	RFS	APXV18-209014-C	Passive	AWS - 2100 MHz	UMTS/LTE	40	4	160	-5.15	65.5	59.5	1-5/8"	1.2	0	37.078314	3.765235	0.37652%
														Sector total Power Density Value:			0.518%

Site Composite MPE %	
Carrier	MPE %
T-Mobile	1.553%
Total Site MPE %	**1.553%**

EBI Consulting
environmental | engineering | due diligence

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 **1.553% (0.518% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **1.553%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803