NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
Denise Sabo
199 Brickyard Rd Farmington, CT 06032
860-209-4690
denise@northeastsitesolutions.com

December 12, 2016

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Tower Share Application
70 HERB ROAD, SHARON, CT 06069
Latitude: 41.791318
Longitude: -73.425683
T-Mobile Site#: CTNH543A-NSD-ROB

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of T-Mobile Northeast LLC ("T-Mobile"). T-Mobile plans to install antennas and related equipment at the tower site located at 70 Herb Road in Sharon, Connecticut.

T-Mobile will install three (3) 700MHz antenna, three (3) 1900/2100 MHz antennas and nine (9) RRUs at the 85-foot level of the existing 111.8-foot monopine. Two (2) hybrid cables will also be installed. T-Mobile's equipment cabinets will be placed within 10x12 lease area. Included are plans by SMW Engineering, dated November 30, 2016. **Exhibit C**. Also included is a structural analysis prepared by American Tower Corporation, dated October 17, 2016, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as **Exhibit D.**

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of T-Mobile's intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Brent M. Colley, First Selectman of the Town of Sharon, as well as the tower owner (ATC) and property owner (Gillespie/Alltell Newco LLC).

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the monopine is 111.8-feet; T-Mobile's proposed antennas will be located at a center line height of 85-feet.

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

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

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total power density of 14.93% as evidenced by **Exhibit E.**

NORTHEAST SITE SOLUTIONS

Turnkey Wireless Development

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

A. Technical Feasibility. The existing monopole has been deemed structurally capable of supporting T-Mobile's proposed loading. The structural analysis is included as **Exhibit D**.

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this monopine in Sharon. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit T-Mobile to obtain a building permit for the proposed installation. Further, a Letter of Authorization is included as **Exhibit F**, authorizing T-Mobile to file this application for shared use.

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of T-Mobile equipment at the 110-foot level of the existing 111.8-foot tower would have an insignificant visual impact on the area around the tower. T-Mobile's ground equipment would be installed within the existing facility compound. T-Mobile's shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by **Exhibit E**, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

D. Economic Feasibility. T-Mobile will be entering into an agreement with the owner of this facility to mutually agreeable terms. As previously mentioned, the Letter of Authorization has been provided by the owner to assist T-Mobile with this tower sharing application.

E. Public Safety Concerns. As discussed above, the guyed tower is structurally capable of supporting T-Mobile's proposed loading. T-Mobile is not aware of any public safety concerns relative to the proposed sharing of the existing guyed tower. T-Mobile's intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through Salisbury.

Sincerely,

Denise Sabo
Mobile: 860-209-4690
Fax: 413-521-0558
Office: 199 Brickyard Rd, Farmington, CT 06032
Email: denise@northeastsitesolutions.com

Attachments

cc: Brent M. Colley, First Selectman, as elected official
American Tower Corporation - as tower owner
Gillespie/Alltell Newco LLC – as property owner

Exhibit A

Filing Guides
Meetings & Minutes
Public Participation
Audio Link to New Britain Hearing Rooms
Programs & Services
Telecommunications Database
Publications
Other Resources
Statutes & Regulations
Electric Transmission Upgrade Projects
Frequently Asked Questions

Robert Stein,
Chairman

Melanie Bachman,
Acting Executive Director

NOTICE TO USERS

The Connecticut Siting Council posts filed documents to this site as a public service.The Council disclaims any liability for the content of submissions made by parties, intervenors, public officials, and the general public. Further, while the Council seeks to be complete in its postings, the Council urges users of this site to confirm with the submitter the completeness of the postings made. The posting of any

DOCKET NO. 185 - An application by Litchfield Acquisition Corporation d/b/a AT&T Wireless Services for a Certificate of Environmental Compatibility and Public Need for construction, maintenance, and operation of a telecommunications tower and associated equipment located at 70 Herb Road, Sharon, Connecticut.

Connecticut Siting Council

November 12, 1998

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility at the proposed site on Herb Road in Sharon, Connecticut, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Litchfield Acquisition Corporation d/b/a AT&T Wireless Services (AT&T) for the construction, operation, and maintenance of a telecommunications tower, associated equipment, and buildings at the proposed site at 70 Herb Road, in the Town of Sharon, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of AT&T, Springwich Cellular Limited Partnership (Springwich), Nextel Communications of the Mid-Atlantic, Inc. (Nextel), the antennas of at least two other wireless providers, and other entities, both public and private, as necessary, but such tower, excluding antennas, shall not exceed a height of 110 feet above ground level (AGL).

2. The tower and antennas shall be camouflaged as an evergreen tree, and the equipment building and compound shall be architecturally treated to resemble agricultural/rustic structures, subject to Council approval through Section 3 of this Decision and Order.

3. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include: a final site plan(s) for site development to include the location and specifications for the tower with antennas, designed to resemble a tree; tower foundation; architecturally-treated equipment buildings and security fence; vegetative screening; access road and underground utilities; site clearing and tree trimming; water drainage; and erosion and sedimentation controls consistent with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

4. The Certificate Holder shall maintain all portions of the access road in a condition accessible for emergency access. Any damage to private roads caused by vehicles accessing the site shall be promptly repaired to pre-existing conditions.

5. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

6. The Certificate Holder shall provide a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels originally calculated and provided in the application.

7. Within six months of operation, the Certificate Holder and each carrier shall provide drive test data depicting signal levels along Route 7 between the intersections of Route 7 with Routes 341 and 128, and along Route 4 between the intersections of Route 4 with Route 125 and Northrup Road.

8. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing. No antenna, other than whip antennas, may be modified or added to the tower, unless approved by the Council.

9. If the facility does not initially provide, or permanently ceases to provide cellular services following completion of construction, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

10. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antenna becomes obsolete and ceases to function, unless such antenna is necessary to maintain the architectural appearance of the tower and is so ordered to remain on the tower by the Council.

11. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the effective date of this Decision and Order or within three years after all appeals to this Decision and Order have been resolved.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Hartford Courant, the Register Citizen, the News Times, and Litchfield County Times.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

Applicant	**Its Representative**
Litchfield Acquisition Corporation d/b/a AT&T Wireless Services Its Representatives	Douglas A. Cohen, Esq. Brown, Rudnick, Freed & Gesmer, P.C. 185 Asylum Street, CityPlace I Hartford, CT 06103-3402 (860) 509-6511 Mitchell Holmgren Site Development Coordinator AT&T Wireless Services 15 East Midland Avenue Paramus, NJ 07652 (203) 967-3130
Party	**Its Representative**
Town of Sharon	Robert Moeller First Selectman P.O. Box 385, 63 Main Street Sharon, CT 06069 (860) 364-5789
Intervenor	**Its Representative**
Springwich Cellular Limited Partnership	Peter J. Tyrrell Senior Counsel Springwich Cellular Limited Partnership 500 Enterprise Drive Rocky Hill, CT 06067-3900 (860) 513-7673
Intervenor	**Its Representative**
Nextel Communications of the Mid-Atlantic, Inc. d/b/a Nextel Communication	Christopher B. Fisher Cuddy, Feder & Worby 90 Maple Avenue White Plains, NY 10601-5196 (914) 761-1300
Intervenors	**Its Representative**
Mary I. Whitehead P.O. Box 1235 Sharon, CT 06069 Hartford, CT 06103	Raymond J. Devlin, Jr. Law Offices of Raymond J. Devlin, Jr. 100 Pearl Street, 14th Floor (860) 249-0691
Laurance and Carol Rand 30 Morey Road **SERVICE WAIVED** Sharon, CT 06069	
Fred and Judith Schwerin 44 Morey Road **SERVICE WAIVED** Sharon, CT 06069	
Toni Tucker 6 Herb Road **SERVICE WAIVED** Sharon, CT 06069	

José and Grace Noyes
12 Herb Road **SERVICE WAIVED**
Sharon, CT 06069

Melvin Elliott
59 Northrop Road **SERVICE WAIVED**
Sharon, CT 06069

Content Last Modified on 8/9/2002 2:13:23 PM

Exhibit B

70 HERB RD

Location	70 HERB RD	**Mblu**	3/ 2/X / /
Acct#	00030730	**Owner**	GILLESPIE/ALLTEL NEWCO LLC
Assessment	$291,400	**Appraisal**	$416,400
PID	2843	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$416,400	$0	$416,400
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$291,400	$0	$291,400

Owner of Record

Owner	GILLESPIE/ALLTEL NEWCO LLC	**Sale Price**	$0
Co-Owner	C/O RASH & ASSOCIATES LP	**Certificate**	
		Book & Page	136/ 646
		Sale Date	10/12/1999
		Instrument	07

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
GILLESPIE/ALLTEL NEWCO LLC	$0		136/ 646	07	10/12/1999

Building Information

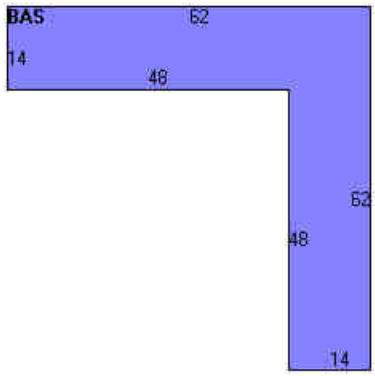
Building 1 : Section 1

Year Built:	2001
Living Area:	1,540
Building Percent Good:	89
Replacement Cost Less Depreciation:	$211,200

Building Attributes	
Field	**Description**

STYLE	Industrial
MODEL	Comm/Ind
Grade	A
Stories:	1
Occupancy	
Exterior Wall 1	Wood on Sheath
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Asphalt Shngl.
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Vinyl/Asphalt
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Hot Air-no Duc
AC Type	Unit/AC
Bldg Use	Commercial
Total Rooms	
Total Bedrms	00
Total Baths	0.0
Extra Fix	
Frame	
1st Floor Use:	201
Heat/AC	Heat A/C Split
Frame Type	Wood Frame
Baths/Plumbing	None
Ceiling/Wall	Ceiling Only
Rooms/Prtns	Light
Wall Height	12
% Comn Wall	

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,540	1,540
		1,540	1,540

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 201
Description Commercial

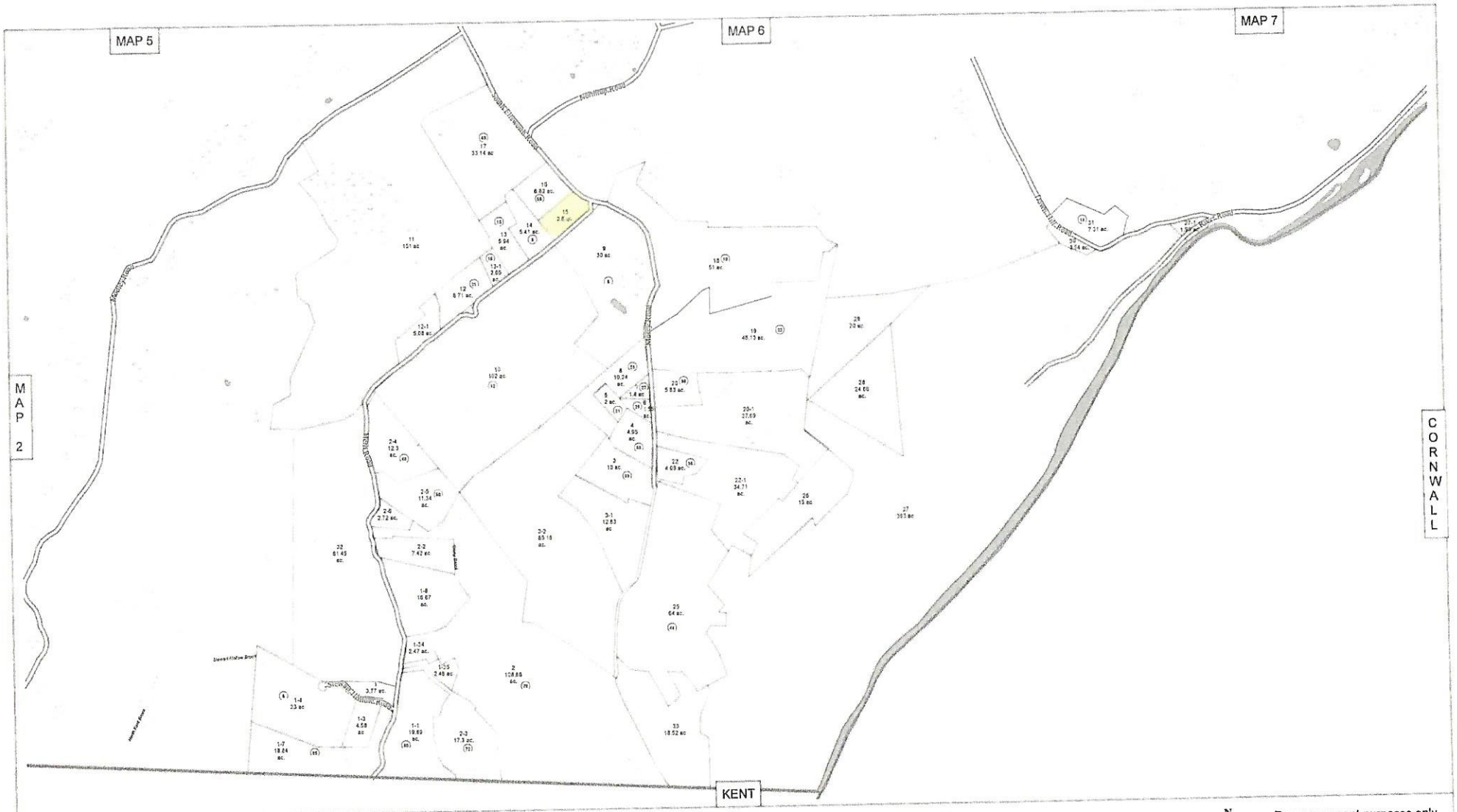
Land Line Valuation

Size (Acres) 0
Frontage

Zone	RR	**Depth**	
Alt Land Appr	No	**Assessed Value**	$0
Category		**Appraised Value**	$0

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
CELL	Cell Tower site			1 UNITS	$205,200	1



Property Map
TOWN OF SHARON
Litchfield County, Connecticut
----------2013----------

MAP 03

Revised October 1, 2013

N
W E
S

For assessment purposes only.
Not to be used for conveyance.

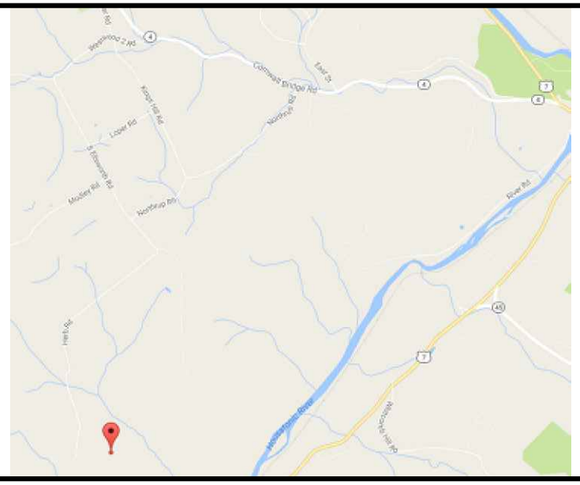
Prepared by
Housatonic Valley Association
PO Box 28, 150 Kent Road
Cornwall Bridge, CT 06754
860-672-6678
maps@hvatoday.org

Exhibit C

GENERAL NOTES

1. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTORS SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
2. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
3. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
4. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
5. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
6. THE SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
7. THE SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
8. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWING MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
9. ALL SAFETY PRECAUTIONS MUCH BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

LOCATION MAP



HANDICAP REQUIREMENTS

FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAP ACCESS IS NOT REQUIRED.

PLUMBING REQUIREMENTS

FACILITY HAS NO SANITARY OR POTABLE WATER

T··Mobile·

2016 INFILL/ROB/GREENFIELD
T-MOBILE SITE NUMBER

CTNH543A

111' MONOPINE
ATC SITE NUMBER

415974
SITE ADDRESS

70 HERB RD
SHARON, CT 06069

CONFIGURATION 707C

SITE SUMMARY

SITE TYPE:	PROPOSED EQUIPMENT INSTALLATION
TECHNOLOGY TYPE:	U1900/L2100/L700
SITE ADDRESS:	70 HERB RD SHARON, CT 06069
SITE LATITUDE:	41° 47' 28.745" N
SITE LONGITUDE:	73° 25' 32.459" W
JURISDICTION:	TOWN OF SHARON
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	AT&T
TOWER OWNER:	AMERICAN TOWER 116 HUNTINGTON AVE, 11TH FLOOR BOSTON, MA 02116 CONTACT: CUSTOMER SERVICE PHONE: 877-518-6937
TOWER MANAGER:	NORTHEAST SITE SOLUTIONS, LLC 199 BRICKYARD ROAD FARMINGTON, CT 06032 SHELDON FREINCLE (201) 776-8521
WIRELESS CARRIER:	T-MOBILE 35 GRIFFIN RD S BLOOMFIELD, CT 06002 OFFICE: 860-692-7100 FAX: 860-692-7159
ENGINEER:	SMW ENGINEERING 158 BUSINESS CENTER DRIVE BIRMINGHAM, AL 35244 PHONE: 205-252-6985 ALVIN A. KRAFT, PE

BUILDING CODES

ALL CONSTRUCTION SHALL COMPLY WITH THE LATEST EDITION OF THE (AS ADOPTED BY LOCAL JURISDICTION):

- 2016 CONNECTICUT BUILDING CODE
- 2012 INTERNATIONAL BUILDING CODE W/AMENDMENTS
- 2009 ICC/ANSI A117.1 W/AMENDMENTS
- 2012 INTERNATIONAL EXISTING BUILDING CODE W/AMENDMENTS
- 2012 INTERNATIONAL PLUMBING CODE WITH AMENDMENTS
- 2012 INTERNATIONAL MECHANICAL CODE W/AMENDMENTS
- 2012 INTERNATIONAL ENERGY CONSERVATION CODE W/AMENDMENTS
- 2014 NFPA 70, NATIONAL ELECTRICAL CODE W/AMENDMENTS
- 2012 INTERNATIONAL RESIDENTIAL CODE W/AMENDMENTS

APPROVALS

DEPARTMENT	NAME/SIGNATURE	DATE
DEVELOPMENT MANAGER		
PROPERTY/TOWER OWNER		
SITE ACQUISITION MANAGER		
CONSTRUCTION MANAGER		
RF ENGINEER		
OPERATIONS MANAGER		

PROJECT SCOPE

THE PROPOSED PROJECT SCOPE WILL CONSIST OF CONSTRUCTING A NEW TELECOMMUNICATIONS BASE STATION INSTALLATION ON AN EXISTING TOWER SITE. THE PROPOSED CONSTRUCTION WILL INCLUDE THE INSTALLATION OF ANTENNA, RADIOS, CABLES AND RELATED EQUIPMENT ON THE TOWER AS WELL AS THE RADIOS, CABINETS, UTILITIES AND ANCILLARY EQUIPMENT ON THE GROUND.

SHEET INDEX

CALL BEFORE YOU DIG

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

CONNECTICUT CALL BEFORE YOU DIG
STATE WIDE
1-800-922-4455 OR 811
HTTP://WWW.CBYD.COM/#

T··Mobile·
35 GRIFFIN RD S
BLOOMFIELD, CT 06002
OFFICE: 860-692-7100
FAX: 860-692-7159

PLANS PREPARED BY:
NSS NORTHEAST SITE SOLUTIONS
NORTHEAST SITE SOLUTIONS, LLC
199 BRICKYARD ROAD
FARMINGTON CT 06032
(860) 677-1999

SMW ENGINEERING GROUP, INC.
TOGETHER PLANNING A BETTER TOMORROW

PRELIMINARY DRAWING
(NOT VALID UNLESS STAMPED AND SIGNED)

SITE INFORMATION:
CTNH543A
70 HERB RD
SHARON, CT 06069

#	DATE	DESCRIPTION:
0	10/31/16	ISSUED FOR CLIENT REV.
1	11/30/16	REISSUED FOR CLIENT REV.

T-MOBILE SITE ID:	ATC SITE ID:
CTNH543A	415974

SHEET NAME:
TITLE SHEET

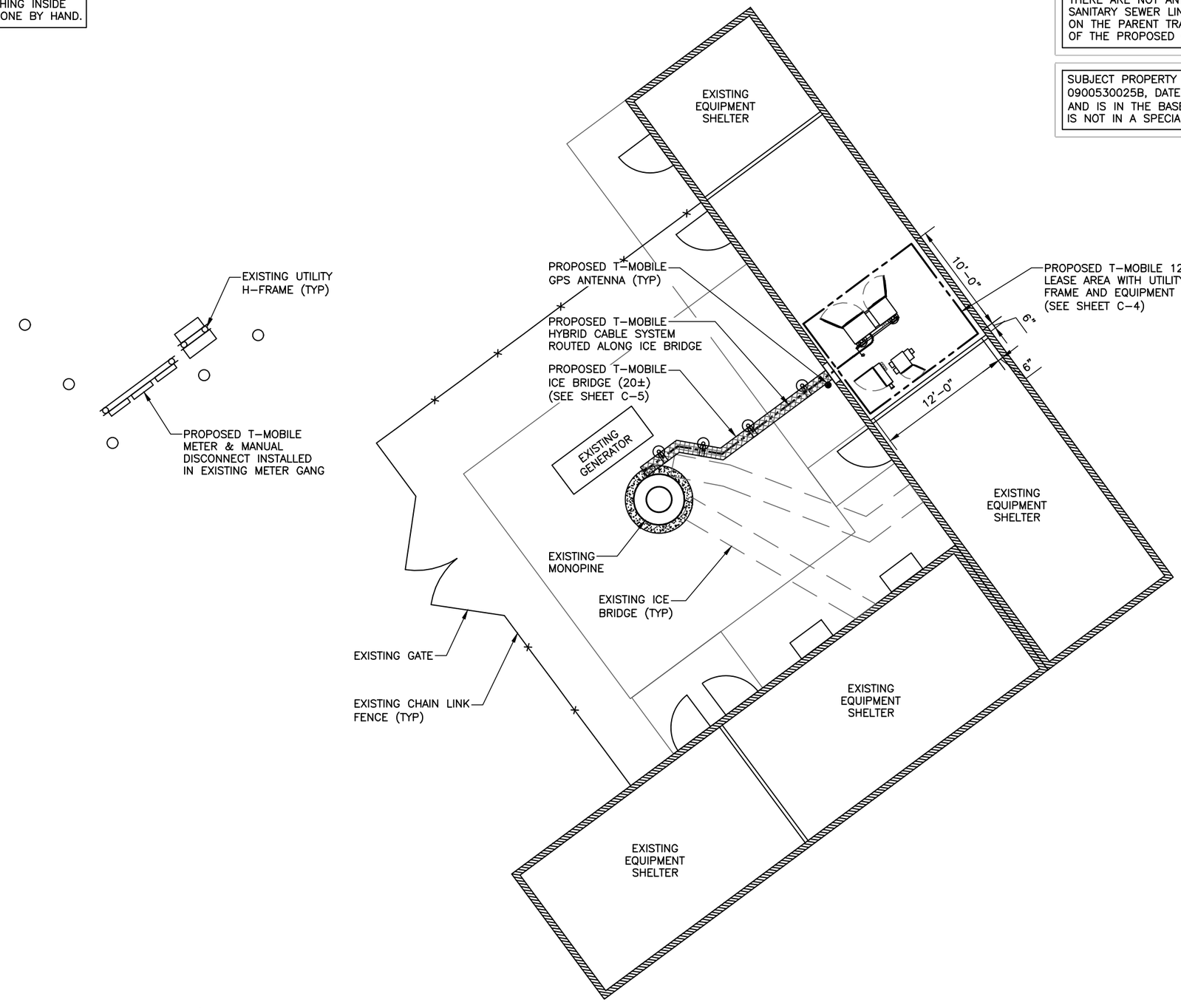
SMW #:	
16-2258	
DESIGNER:	BMD
CHECKED BY:	RTB
ENGINEER:	JDS

SHEET NUMBER:
T-1

NOTE TO CONTRACTORS:
DIGGING AND/OR TRENCHING INSIDE COMPOUND, MUST BE DONE BY HAND.

UTILITY NOTE:
THERE ARE NOT ANY EXISTING STORM OR SANITARY SEWER LINES OR BURIED UTILITIES ON THE PARENT TRACK WITHIN THE VICINITY OF THE PROPOSED CONSTRUCTION.

SUBJECT PROPERTY IS LOCATED IN PANEL # 0900530025B, DATED (AUGUST 16, 1988) AND IS IN THE BASE FLOOD ZONE "X" AND IS NOT IN A SPECIAL FLOOD HAZARD AREA.



1 / C-1 OVERALL SITE PLAN
SCALE: 1" = 10'

T-Mobile
35 GRIFFIN RD S
BLOOMFIELD, CT 06002
OFFICE: 860-692-7100
FAX: 860-692-7159

PLANS PREPARED BY:
NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
NORTHEAST SITE SOLUTIONS, LLC
199 BRICKYARD ROAD
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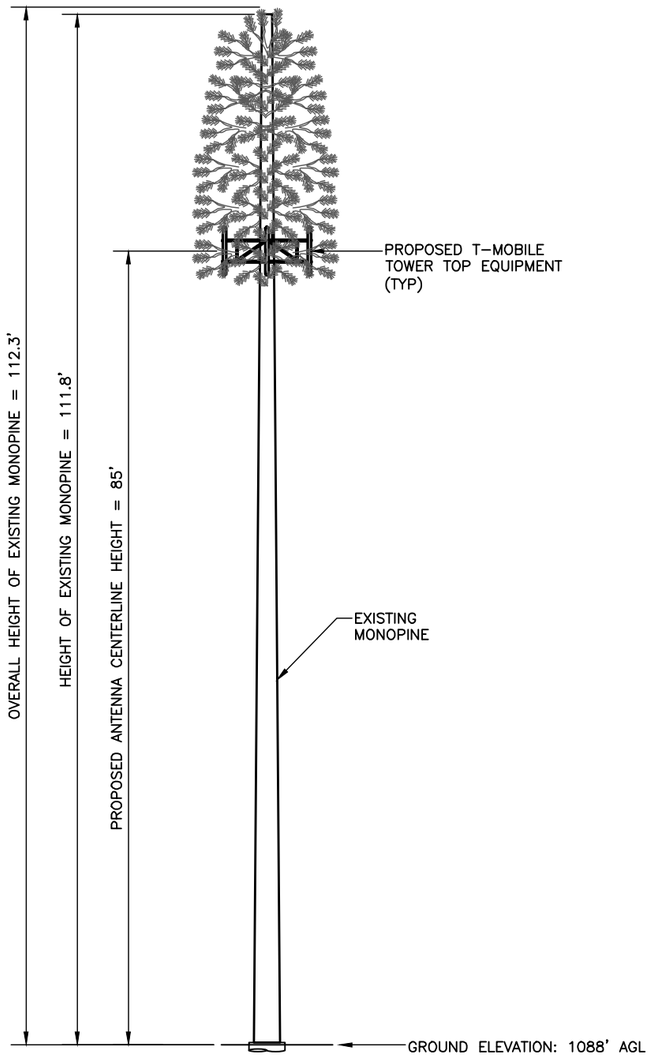
T-MOBILE SITE ID:	ATC SITE ID:
CTNH543A	415974

SHEET NAME:
OVERALL SITE PLAN

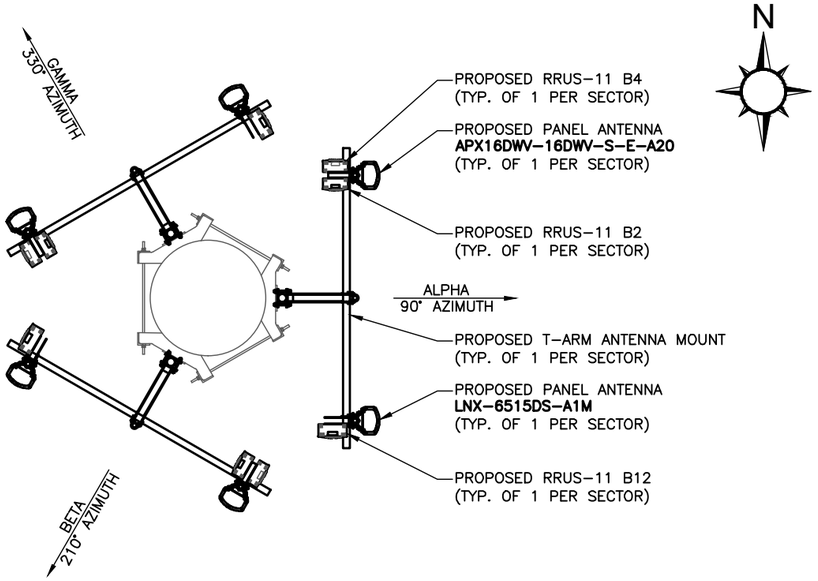
SMW #:	SHEET NUMBER:
16-2258	C-1

DESIGNER:	BMD
CHECKED BY:	RTB
ENGINEER:	JDS

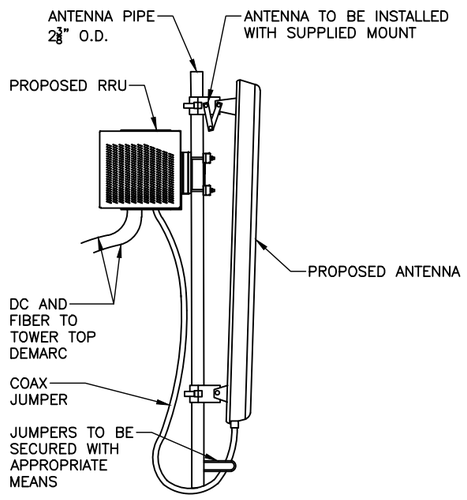


NOTES:
1. SMW HAS NOT PERFORMED A STRUCTURAL ANALYSIS OF THE EXISTING TOWER OR PROPOSED ANTENNA MOUNT. REFER TO STRUCTURAL ANALYSIS OR STRUCTURAL LETTER BY OTHERS FOR ADDITIONAL INFORMATION.
2. IF THE TOWER STRUCTURAL ANALYSIS SHOWS THE NEED FOR TOWER REINFORCEMENT REFER TO TOWER REINFORCEMENT DESIGN PRIOR TO THE INSTALLATION OF ANY PROPOSED EQUIPMENT.
3. REFER TO TOWER STRUCTURAL ANALYSIS FOR PROPOSED CABLE ROUTING AND ATTACHMENT DETAILS.
4. TOWER ELEVATION SHOWN IS NOT DRAWN TO SCALE AND IS INTENDED ONLY FOR REFERENCE PURPOSES. REFER TO ORIGINAL TOWER DESIGN FOR ADDITIONAL INFORMATION.

1 / C-2 TOWER ELEVATION
NOT TO SCALE



2 / C-2 PROPOSED ANTENNA ORIENTATION PLAN
NOT TO SCALE



3 / C-2 ANTENNA MOUNT DETAIL
NOT TO SCALE

T-Mobile
35 GRIFFIN RD S
BLOOMFIELD, CT 06002
OFFICE: 860-692-7100
FAX: 860-692-7159

PLANS PREPARED BY:
NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
NORTHEAST SITE SOLUTIONS, LLC
199 BRICKYARD ROAD
FARMINGTON CT 06032
(860) 677-1999

SMW ENGINEERING GROUP, INC.
TOGETHER PLANNING A BETTER TOMORROW

PRELIMINARY DRAWING
(NOT VALID UNLESS STAMPED AND SIGNED)

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SHARON, CT 06069

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1	11/30/16	REISSUED FOR CLIENT REV.

T-MOBILE SITE ID:	ATC SITE ID:
CTNH543A	415974

SHEET NAME:
TOWER ELEVATION & ANTENNA PLAN

SMW #:	
16-2258	
DESIGNER:	BMD
CHECKED BY:	RTB
ENGINEER:	JDS

SHEET NUMBER:
C-2

707C / U1900/L2100/L700 – TOWER TOP EQUIPMENT SCHEDULE							
ANTENNA SECTOR	ANTENNA MARK	ANTENNA AZIMUTH	ANTENNA MODEL	RRU MODEL	TMA MODEL	TOWER TOP COVP MODEL	ANTENNA CABLE DESCRIPTION
ALPHA	A1	90°	APX16DWV-16DWV-S-E-A20 (QUAD)	(1) RRUS-11 B2 (P) (1) RRUS-11 B4 (P)	--	--	(1) 1 5/8" HYBRID CABLE SYSTEM (P)
	A2	90°	--	--	--	--	--
	A3	90°	LNX-6515DS-A1M (DUAL)	(1) RRUS-11 B12 (P)	--	--	--
BETA	B1	210°	APX16DWV-16DWV-S-E-A20 (QUAD)	(1) RRUS-11 B2 (P) (1) RRUS-11 B4 (P)	--	--	(1) 1 5/8" HYBRID CABLE SYSTEM (R)
	B2	210°	--	--	--	--	--
	B3	210°	LNX-6515DS-A1M (DUAL)	(1) RRUS-11 B12 (P)	--	--	--
GAMMA	C1	330°	APX16DWV-16DWV-S-E-A20 (QUAD)	(1) RRUS-11 B2 (P) (1) RRUS-11 B4 (P)	--	--	--
	C2	330°	--	--	--	--	--
	C3	330°	LNX-6515DS-A1M (DUAL)	(1) RRUS-11 B12 (P)	--	--	--

NOTE:
(P) DENOTES PROPOSED EQUIPMENT
(R) DENOTES RESERVED EQUIPMENT
(E) DENOTES EXISTING EQUIPMENT

NOTE:
1. THE HYBRID CABLE LENGTH SHOWN IS ONLY AN ESTIMATE AND SHOULD NOT BE USED FOR ORDERING MATERIALS. CONFIRM THE REQUIRED HYBRID CABLE LENGTH WITH T-MOBILE PRIOR TO ORDERING OR INSTALLATION.
2. THE CONTRACTOR SHALL TEST THE OPTICAL FIBER AFTER INSTALLATION IN ACCORDANCE WITH T-MOBILE STANDARDS AND SUPPLY THE RESULTS TO T-MOBILE.
3. THE CONTRACTOR SHALL CONFIRM THE TOWER TOP EQUIPMENT LIST ABOVE WITH THE FINAL T-MOBILE RFDS PRIOR TO INSTALLATION.
4. ALL EXISTING AND PROPOSED ANTENNA CABLES SHALL BE COLOR CODED PER T-MOBILE MARKET STANDARDS.
5. REFER MANUFACTURERS INSTALLATION STANDARDS FOR ADDITIONAL INFORMATION.
6. REFER TO EQUIPMENT MANUFACTURER'S SPECIFICATION SHEETS FOR ADDITIONAL INFORMATION NOT LISTED ABOVE.

TOWER LOADING SUMMARY		
EQUIPMENT TYPE	ADD QUANITY	TOTAL QUANITY
PANEL ANTENNA	6	6
COAX CABLE	0	0
RRUS	9	9
HYBRID CABLE	2	2
COVP	0	0

T-Mobile
35 GRIFFIN RD S
BLOOMFIELD, CT 06002
OFFICE: 860-692-7100
FAX: 860-692-7159

PLANS PREPARED BY:
NSS NORTHEAST SITE SOLUTIONS
NORTHEAST SITE SOLUTIONS, LLC
199 BRICKYARD ROAD
FARMINGTON CT 06032
(860) 677-1999

SMW ENGINEERING GROUP, INC.
TOGETHER PLANNING A BETTER TOMORROW

PRELIMINARY DRAWING
(NOT VALID UNLESS STAMPED AND SIGNED)

SITE INFORMATION:
CTNH543A
70 HERB RD
SHARON, CT 06069

#	DATE	DESCRIPTION:
0	10/31/16	ISSUED FOR CLIENT REV.
1	11/30/16	REISSUED FOR CLIENT REV.

T-MOBILE SITE ID: CTNH543A
ATC SITE ID: 415974

SHEET NAME:
TOWER TOP EQUIPMENT SCHEDULE

SMW #: 16-2258

DESIGNER:	BMD
CHECKED BY:	RTB
ENGINEER:	JDS

SHEET NUMBER:
C-3

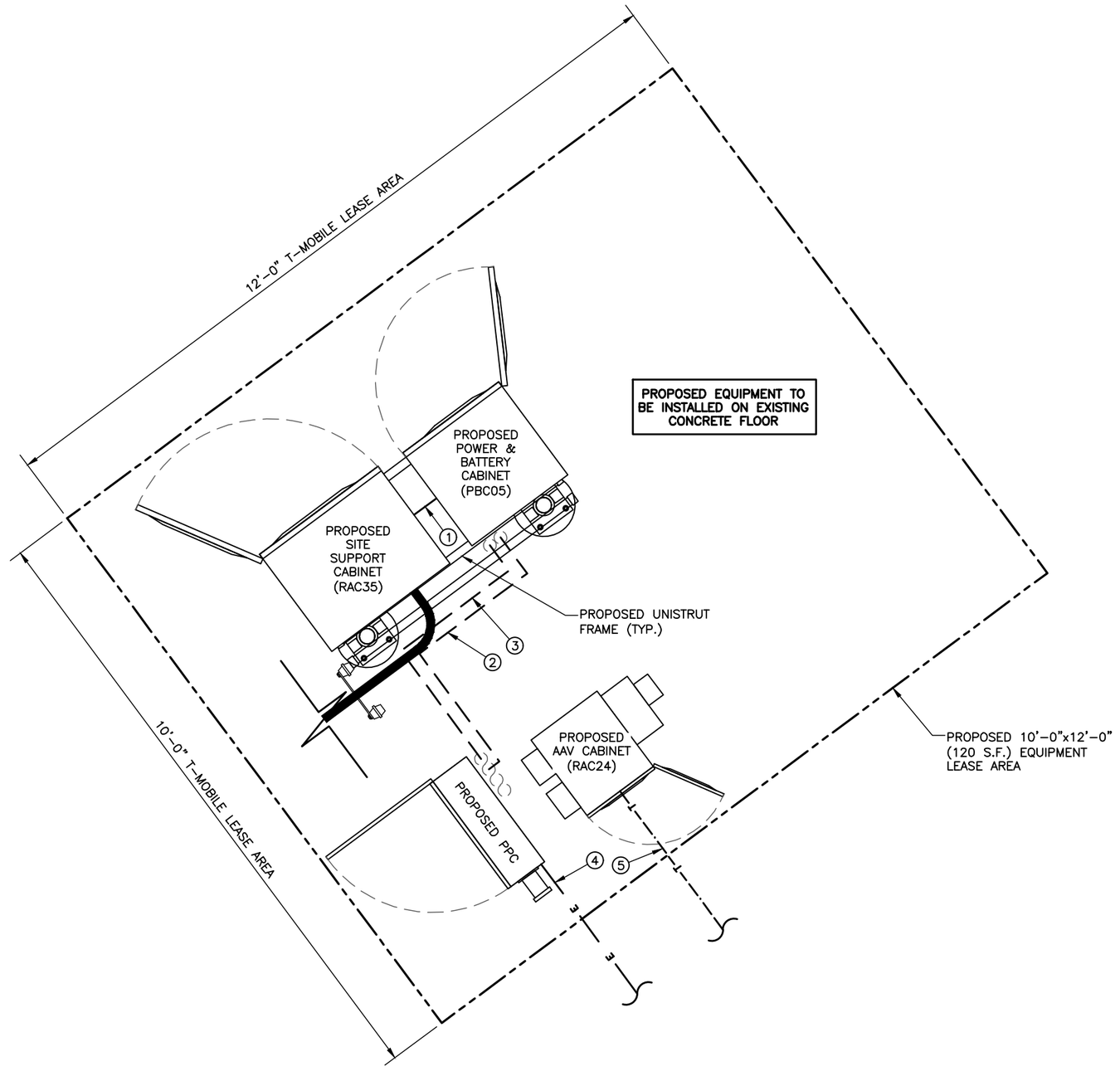
① 2"ø CONDUIT (ABOVE SLAB)

② 2"ø U/G CONDUIT (UNDER CONCRETE) FROM PROPOSED PPC TO PROPOSED PBC CABINETS

③ 2"ø U/G CONDUIT (UNDER CONCRETE) FROM PROPOSED PPC DAISY-CHAINING SSC CAGINETS

④ 2"ø PVC CONDUIT WITH (3) 3/0 + #4G FROM PROPOSED METER TO PPC CABINET. COORDINATE WITH THE LOCAL UTILITY COMPANY REGARDING FINAL SERVICE CONNECTION.

⑤ 2"ø PVC CONDUIT WITH PULLSTRING FOR TELCO FROM PROPOSED AAV CABINET TO EXISTING TELCO SERVICE. COORDINATE WITH THE LOCAL UTILITY COMPANY REGARDING FINAL SERVICE CONNECTION.



N

0' 2' 4' 6'

1" = 2' (11"x17")

1/C-4 GROUND EQUIPMENT DETAIL
SCALE: 1" = 2'

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BLOOMFIELD, CT 06002
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FAX: 860-692-7159

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T-MOBILE SITE ID: CTNH543A

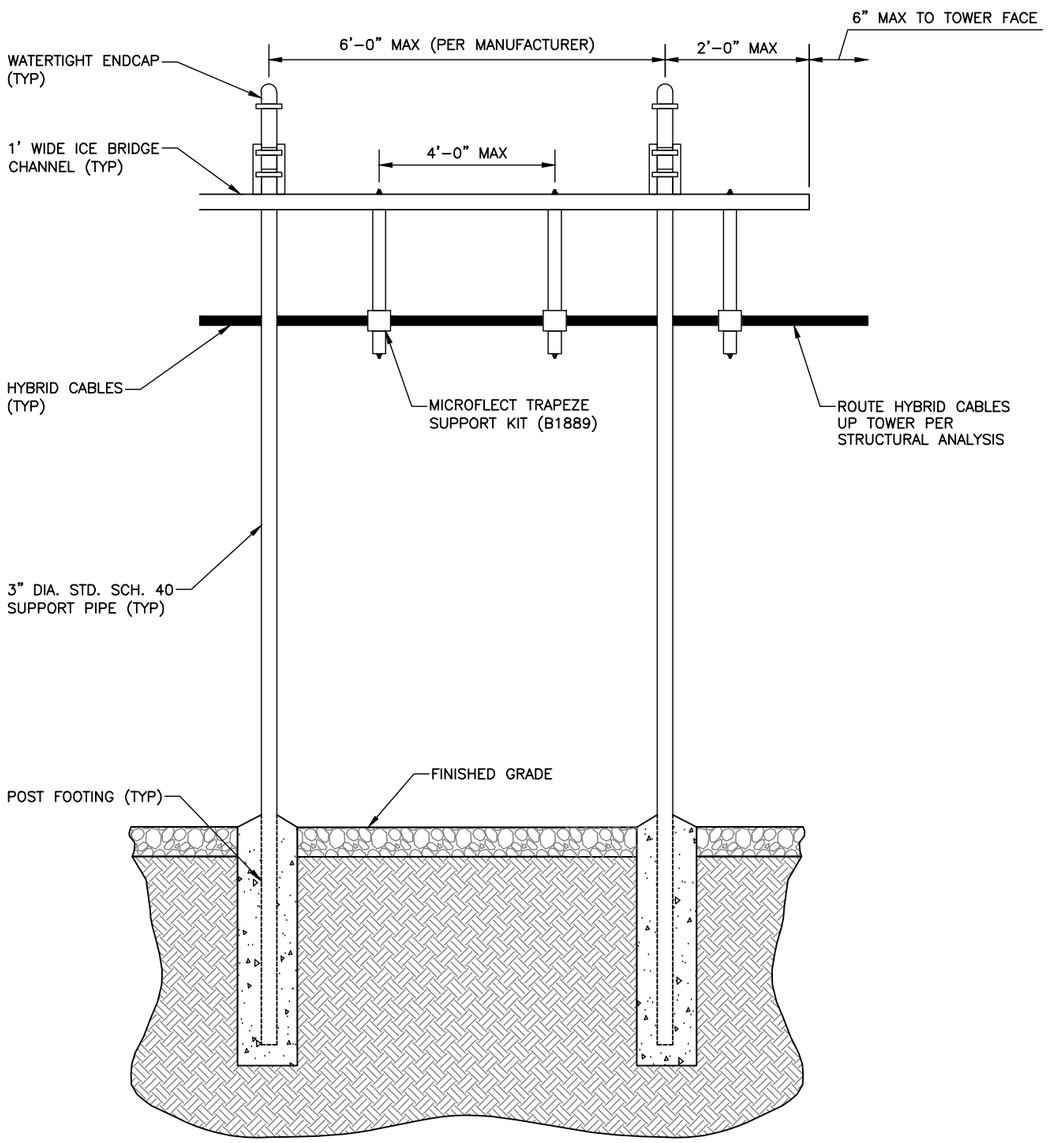
ATC SITE ID: 415974

SHEET NAME: GROUND EQUIPMENT DETAIL

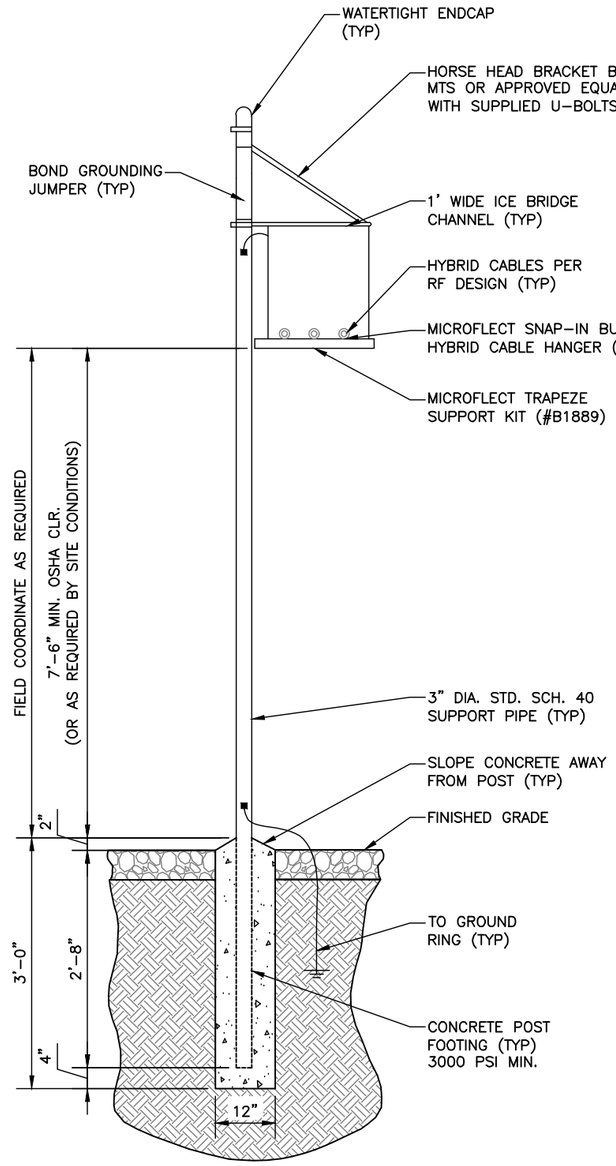
SMW #: 16-2258

DESIGNER:	BMD
CHECKED BY:	RTB
ENGINEER:	JDS

SHEET NUMBER: C-4



1 C-5 ICE BRIDGE ELEVATION
NOT TO SCALE



2 C-5 ICE BRIDGE SECTION (WITH 1 SUPPORT POST)
NOT TO SCALE

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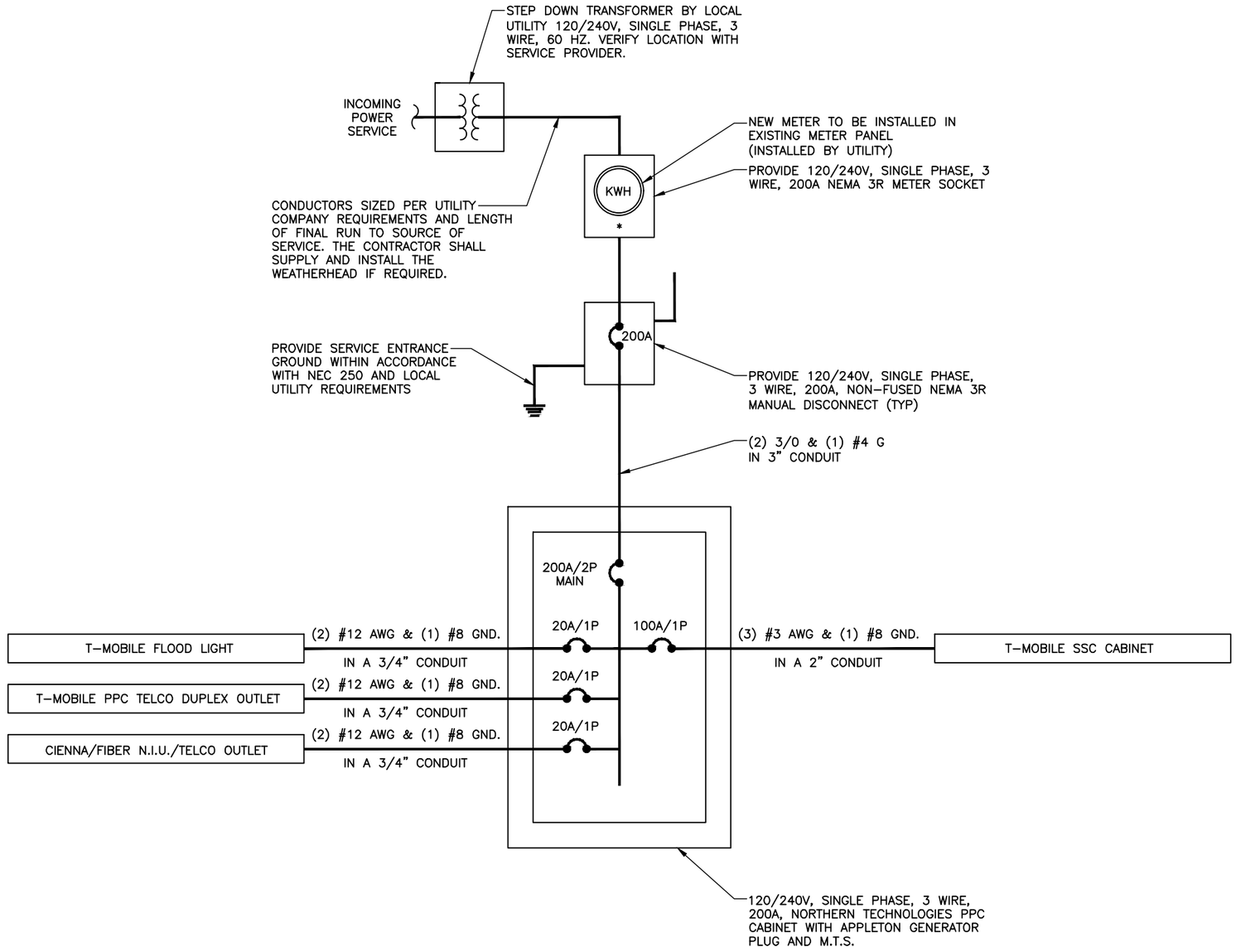
T-MOBILE SITE ID: CTNH543A
ATC SITE ID: 415974

SHEET NAME:
ICE BRIDGE DETAILS

SMW #: 16-2258

DESIGNER:	BMD
CHECKED BY:	RTB
ENGINEER:	JDS

SHEET NUMBER: C-5



1 / E-1 ONE-LINE DIAGRAM
NOT TO SCALE

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PLANS PREPARED BY:
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Turnkey Wireless Development
NORTHEAST SITE SOLUTIONS, LLC
199 BRICKYARD ROAD
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T-MOBILE SITE ID: CTNH543A
ATC SITE ID: 415974

SHEET NAME: ONE-LINE DIAGRAM

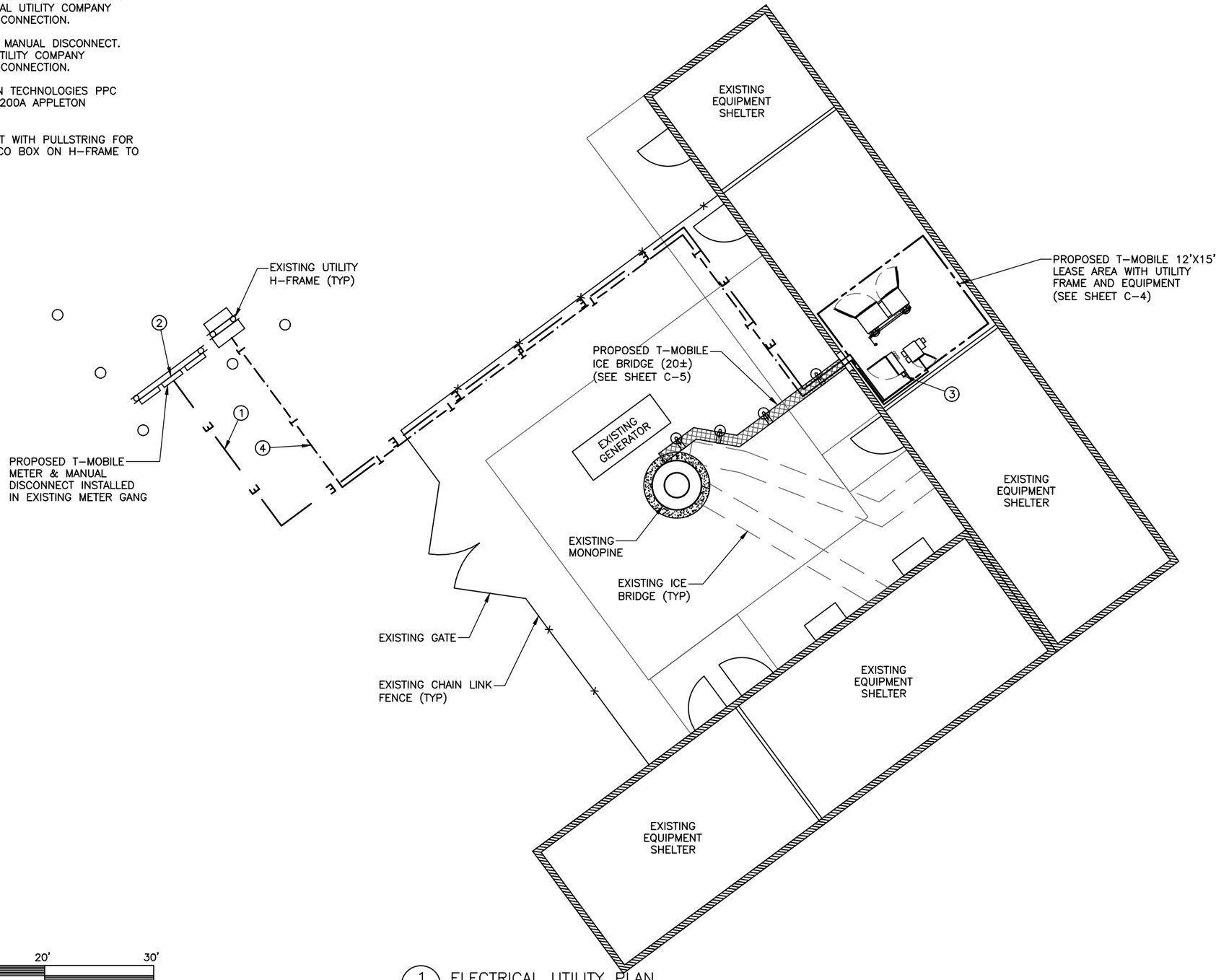
SMW #: 16-2258

DESIGNER:	BMD
CHECKED BY:	RTB
ENGINEER:	JDS

SHEET NUMBER: E-1

ELECTRICAL KEY NOTES:

1. PROPOSED 3" PVC CONDUIT WITH (3) 3/0 + #4G FROM EXISTING UTILITY POLE TO METER BASE. THE CONTRACTOR SHALL PROVIDE AND INSTALL THE WEATHERHEAD WITH COILED EXCESS CONDUCTORS. COORDINATE WITH THE LOCAL UTILITY COMPANY REGARDING FINAL SERVICE CONNECTION.
2. PROPOSED METER & 200A MANUAL DISCONNECT. COORDINATE WITH LOCAL UTILITY COMPANY REGARDING FINAL SERVICE CONNECTION.
3. PROPOSED 200A NORTHERN TECHNOLOGIES PPC CABINET WITH INTEGRATED 200A APPLETON GENERATOR BACKUP PLUG.
4. PROPOSED 2" PVC CONDUIT WITH PULLSTRING FOR TELCO FROM EXISTING TELCO BOX ON H-FRAME TO PROPOSED TELCO BOX



N

0' 10' 20' 30'

1" = 10' (11"x17")

1 / E-2 ELECTRICAL UTILITY PLAN
SCALE: 1" = 10'

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T-MOBILE SITE ID:	ATC SITE ID:
CTNH543A	415974

SHEET NAME:
ELECTRICAL UTILITY PLAN

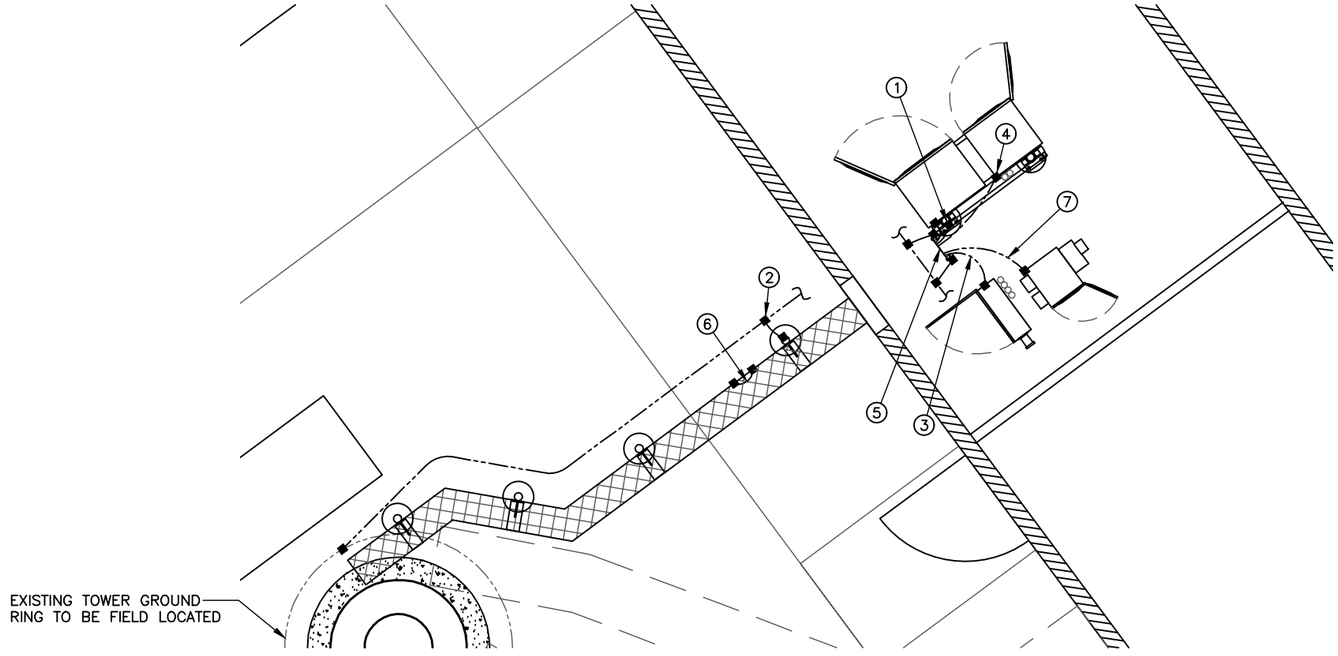
SMW #:	
16-2258	
DESIGNER:	BMD
CHECKED BY:	RTB
ENGINEER:	JDS

SHEET NUMBER:
E-2

GROUNDING KEY NOTES:

1. GROUND PROPOSED UTILITY FRAME POST WITH CADWELD CONNECTION TO BASE PLATE (TYP)
2. GROUND PROPOSED ICE BRIDGE POST WITH CADWELD CONNECTION TO BASE (TYP)
3. GROUND PROPOSED PPC POWER PANEL PER NEC 250 AND LOCAL UTILITY REQUIREMENTS (TYP)
4. GROUND PROPOSED SSC CABINET MAIN GROUND BAR WITH 2-HOLE LUG CONNECTION (TYP)
5. PROVIDE 12 POSITION MAIN EQUIPMENT COLLECTOR GROUND BAR ATTACHED TO UNISTRUT FRAME WITH STANDOFF INSULATORS, GROUND WITH (2) CADWELDED CONNECTIONS, 1 PER SITE (TYP)
6. GROUND ICE BRIDGE CHANNEL SECTIONS WITH 2-HOLE LUG CONNECTION. BOND ADJOINING CHANNEL SECTIONS TOGETHER WITH 2-HOLE LUG JUMPERS (TYP)
7. CADWELD CONNECTION (SEE SHEET E-6)

NOTE TO CONTRACTORS:
DIGGING AND/OR TRENCHING INSIDE COMPOUND, MUST BE DONE BY HAND.



N

1 / E-3 GROUNDING PLAN
NOT TO SCALE

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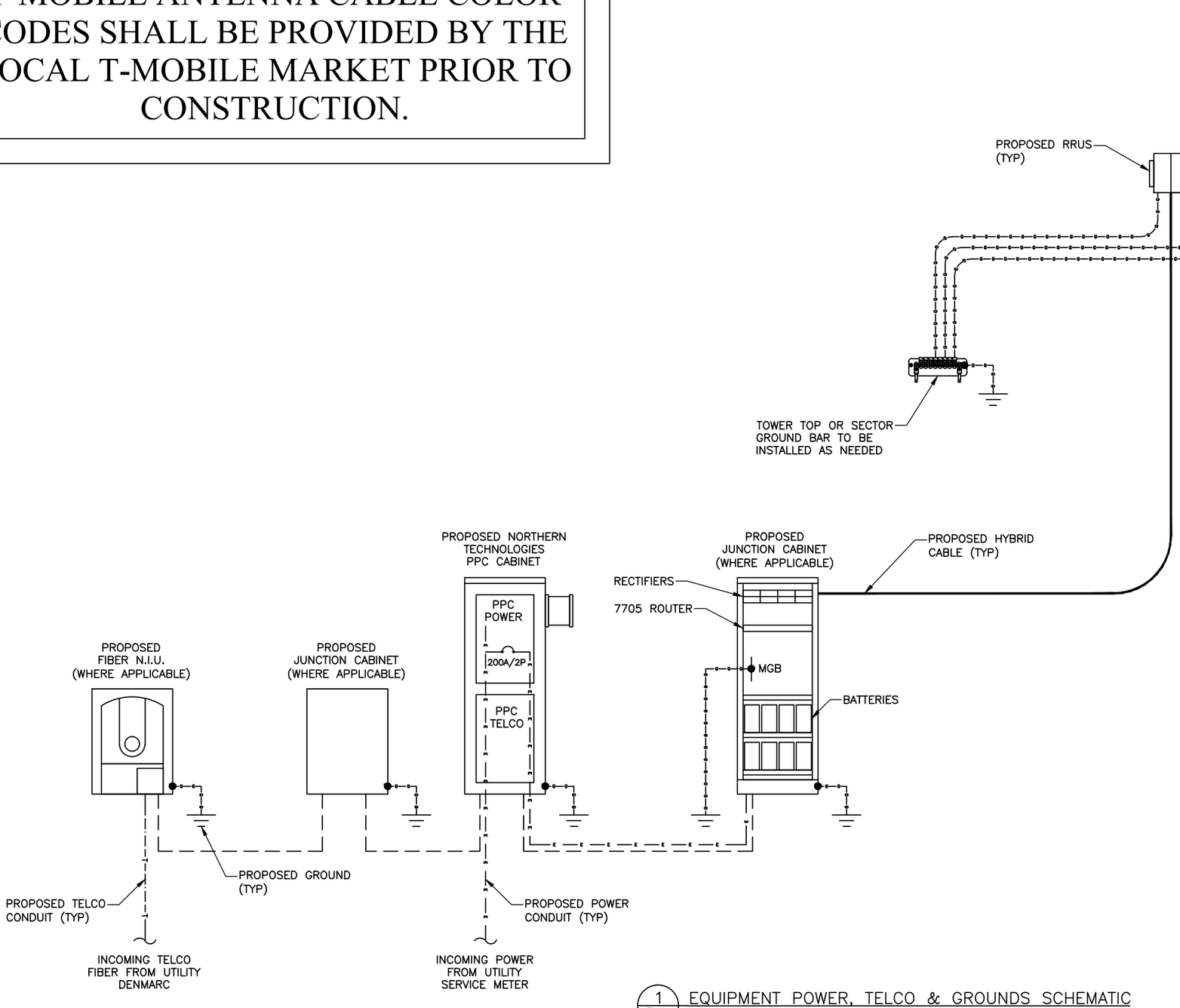
T-MOBILE SITE ID:	ATC SITE ID:
CTNH543A	415974

SHEET NAME:
GROUNDING PLAN

SMW #:	SHEET NUMBER:
16-2258	E-3
DESIGNER: BMD	
CHECKED BY: RTB	
ENGINEER: JDS	

T-MOBILE ANTENNA CABLE COLOR CODES SHALL BE PROVIDED BY THE LOCAL T-MOBILE MARKET PRIOR TO CONSTRUCTION.



1 E-4 EQUIPMENT POWER, TELCO & GROUNDS SCHEMATIC
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ATC SITE ID: 415974

SHEET NAME:
EQUIPMENT SCHEMATIC

SMW #: 16-2258

DESIGNER:	BMD
CHECKED BY:	RTB
ENGINEER:	JDS

SHEET NUMBER: E-4

1. ALL WORK IS TO COMPLY WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE (NEC) AND ANY LOCAL ORDINANCES, CODES, AND ALL OTHER ADMINISTRATIVE AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL FURNISH AND PAY FOR ALL PERMITS AND RELATED FEES.

2. ALL EQUIPMENT AND MATERIAL FURNISHED AND INSTALLED UNDER THIS CONTRACT SHALL BE UNDERWRITERS LABORATORIES (U.L.) LISTED, NEW, FREE FROM DEFECTS, AND SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY OWNER OR HIS REPRESENTATIVE. SHOULD ANY TROUBLE DEVELOP DURING THIS PERIOD DUE TO FAULTY WORKMANSHIP, MATERIAL, OR EQUIPMENT, THE CONTRACTOR SHALL FURNISH ALL NECESSARY MATERIALS AND LABOR TO CORRECT THE TROUBLE WITHOUT COST TO THE OWNER.

3. ALL WORK SHALL BE EXECUTED IN A WORKMAN LIKE MANNER AND SHALL PRESENT A NEAT MECHANICAL APPEARANCE WHEN COMPLETED. CONTRACTOR SHOULD AVOID DAMAGE TO EXISTING UTILITIES WHEREVER POSSIBLE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING RELATED TO ELECTRICAL WORK, AND SHALL RESTORE ALL EXISTING LANDSCAPING, SPRINKLER SYSTEMS, CONDUITS, WIRING, PIPING, ETC. DAMAGED BY THE ELECTRICAL WORK TO MATCH EXISTING CONDITIONS.

4. ELECTRICAL WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO COMPLETE ELECTRICAL POWER AND LIGHTING SYSTEMS, TELEPHONE AND COMMUNICATION SYSTEMS, PANELBOARDS, CONDUIT, CONTROL WIRING, GROUNDING, ETC. AS INDICATED ON ELECTRICAL DRAWINGS AND/OR AS REQUIRED BY GOVERNING CODES.

5. PRIOR TO INSTALLING ANY ELECTRICAL WORK, THE CONTRACTOR SHALL VISIT THE JOB SITE AND VERIFY EXISTING SITE LOCATIONS AND CONDITIONS AND UTILITY SERVICE REQUIREMENTS OF THE JOB, AND BY REFERENCE TO ENGINEERING AND EQUIPMENT SUPPLIERS' DRAWINGS. SHOULD THERE BE ANY QUESTION OR PROBLEM CONCERNING THE NECESSARY PROVISIONS TO BE MADE. PROPER DIRECTIONS SHALL BE OBTAINED BEFORE PROCEEDING WITH ANY WORK.

6. PROVIDE POWER AND TELEPHONE TO SERVICE POINTS PER UTILITY COMPANY REQUIREMENTS. CONTRACTOR SHALL CONTACT UTILITY SERVICE PLANNERS AND OBTAIN ALL SERVICE REQUIREMENTS AND INCLUDE COSTS FOR SUCH IN THEIR BID.

7. SERVICE EQUIPMENT SHALL HAVE A SHORT CIRCUIT WITHSTAND RATING EXCEEDING THE MAXIMUM AVAILABLE FAULT CURRENT AT THE SUPPLY TERMINAL ON THE UTILITY TRANSFORMER SECONDARY, THE INSULATION SHALL BE FREE FROM ANY SHORT CIRCUITS AND GROUNDS. CONTRACTOR TO OBTAIN THE AVAILABLE SHORT CIRCUIT CURRENT FROM THE ELECTRICAL SERVICE PROVIDER.

8. ALL WIRES SHALL BE STRANDED COPPER WITH THHN/THWN AND 600 VOLTS INSULATION. ALL GROUND CONDUCTORS TO BE PROPERLY SIZED COPPER. (STRANDED OR SOLID)

9. IN THE EVENT OF ANY CONFLICT OR INCONSISTENCY BETWEEN ITEMS SHOWN ON THE PLANS AND/OR SPECIFICATIONS, THE NOTE, SPECIFICATION OR CODE WHICH PRESCRIBES AND ESTABLISHES THE HIGHEST STANDARD OF PERFORMANCE SHALL PREVAIL.

10. SERVICE CONDUITS SHALL HAVE NO MORE THAN (4) –50° BENDS IN ANY SINGLE RUN. THE CONTRACTOR SHALL PROVIDE PULL BOXES AS NEEDED WHERE CONDUIT REQUIREMENTS EXCEED THESE CONDITIONS. PULL WIRES AND CAPS SHALL BE PROVIDED AT ALL SPARE CONDUITS FOR FUTURE USE.

11. ALL ELECTRICAL EQUIPMENT SHALL BE ANCHORED TO WITHSTAND LOCAL WIND SPEED REQUIREMENTS AND DESIGNED FOR OUTDOOR EXPOSURE.

12. ALL COAX, POWER AND TELEPHONE SYSTEM CONDUITS SHALL HAVE A MINIMUM 24" SCH. 80 PVC RADIUS SWEEPS TO EQUIPMENT, PULLBOXES, GUY, ETC., UNLESS OTHERWISE NOTED, OR AS REQUIRED BY UTILITY COMPANIES.

13. FUSE TYPE SHALL BE BUSSMAN RKI LOW PEAK FUSE (LPN–RK–140).

14. UPON COMPLETION OF THE JOB, THE CONTRACTOR SHALL FURNISH AS–BUILT DRAWINGS TO THE OWNER.

15. GENERAL GROUNDING CRITERIA
    1ST STEP: GROUND TO EXISTING BUILDING STRUCTURAL STEEL AND TO THE EXISTING COLD WATER METAL PIPE LINE. (WHERE APPLICABLE) THEN TEST GROUNDING RESISTANCE FOR 5 OHMS OR LESS OVERALL GROUND RESISTANCE. WHERE THE EFFECTIVE RESISTANCE DOES NOT MEET THIS CRITERIA, PROVIDE SUPPLEMENTAL GROUNDING AND RE–TEST UNTIL GROUND RESISTANCE FALLS BELOW THIS LEVEL.

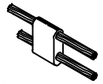
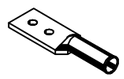
16. SUPPLEMENTAL GROUND MAY CONSIST OF ONE OR MORE OF THE FOLLOWING:
    COUNTERPOISE, USER GROUND, GROUND ROD AND/OR GROUND WELL IN EXTREMELY ADVERSE SOIL CONDITIONS. WHERE THE EXISTING BUILDING STEEL DOES NOT PROVIDE AN EFFECTIVE GROUND RESISTANCE, THEN THE CONTRACTOR SHALL PROVIDE A SEPARATE GROUND CONDUCTOR FROM ROOF MOUNTED BTS EQUIPMENT LOCATIONS EITHER DOWN THROUGH THE INSIDE OF THE BUILDING OR DOWN THE OUTSIDE OF THE BUILDING, DEPENDING UPON OWNER PREFERENCE. WHERE THE GROUND CONDUCTOR FROM THE ROOF MOUNTED EQUIPMENT IS ROUTED IN CONDUIT, THE CONDUIT SHALL BE EFFECTIVELY GROUNDED TO THE GROUND CONDUCTOR AT BOTH ENDS OF THE CONDUIT. (GUY INSTALLATIONS):

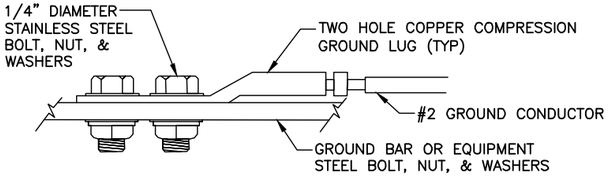
    FOR INSTALLATIONS WHERE WOODEN STRUCTURES, TOWERS, CONCRETE SILOS ETC. ARE ENCOUNTERED A PARATE DOWNLEAD SHALL BE PROVIDED FROM THE 3 ANTENNAS SEPARATED BY A MINIMUM OF 12 INCHES FROM THE COAXIAL CABLES. THE GROUND CONDUCTOR SHALL BE SECURELY FASTENED TO THE EXTERIOR OF OUTSIDE STRUCTURES WITH NONMETALLIC GROUND STRAPS EVERY 10 FEET. AGAIN, AS FOR TENANT IMPROVEMENT PROJECTS, TEST THE GROUND RESISTANCE FOR GUY INSTALLATIONS AND PROCEED PER THE ABOVE STEPS.

17. CONTRACTOR TO COLOR PHASE CONDUCTORS BLACK (B PHASE), RED (A PHASE), WHITE (NEUTRAL), AND GREEN (GROUND).

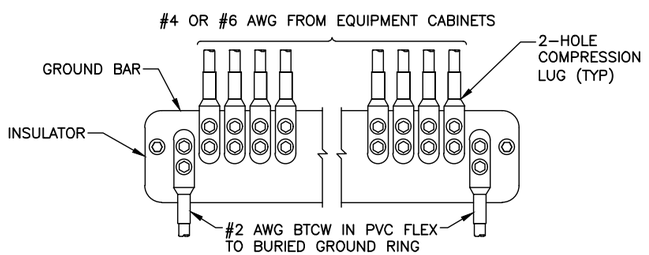
18. CONTRACTOR TO PROVIDE GUTTER TAP.

19. THERE SHALL BE A MINIMUM CLEARANCE OF 48" BETWEEN FRONT OF ELECTRICAL EQUIPMENT AND ANY WALL OR OBSTRUCTION.

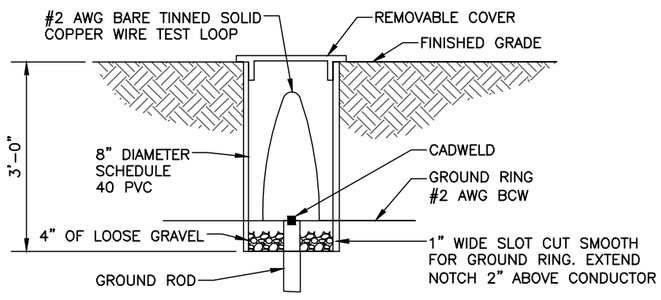
CADWELD CONNECTIONS OR APPROVED EQUAL			BURNDY CONNECTIONS OR APPROVED EQUAL
 PARALLEL HORIZONTAL CONDUCTORS PARALLEL THROUGH CONNECTION OF HORIZONTAL CABLES TYPE PT	 HORIZONTAL STEEL SURFACE TO FLAT STEEL SURFACE OR HORIZONTAL PIPE TYPE HS	 VERTICAL PIPE CABLE DOWN AT 45° TO RANGE OF VERTICAL PIPES TYPE VS	 BOND JUMPER FIELD FABRICATED GREEN STRANDED INSULATED TYPE 2–YA–2
 THROUGH CABLE TO GROUND ROD THROUGH CABLE TO TOP OF GROUND ROD TYPE GT	 VERTICAL STEEL SURFACE CABLE DOWN AT 45° TO VERTICAL STEEL SURFACE INCLUDING PIPE TYPE VS		 COPPER LUGS TWO HOLE – LONG BARREL LENGTH TYPE YA–2



1 / E-5 TWO HOLE LUG CONNECTION DETAIL
NOT TO SCALE



2 / E-5 GROUND BAR DETAIL
NOT TO SCALE



3 / E-5 TEST WELL DETAIL
NOT TO SCALE

T-Mobile
35 GRIFFIN RD S
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CTNH543A	415974

SHEET NAME:
ELECTRICAL & GROUNDING DETAILS

SMW #:	
16–2258	
DESIGNER:	BMD
CHECKED BY:	RTB
ENGINEER:	JDS

SHEET NUMBER:
E-5

Exhibit D

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**108.2 ft Monopine**
ATC Site Name	:	**Sharon CT, CT**
ATC Site Number	:	**415974**
Engineering Number	:	**OAA686580_C3_02**
Proposed Carrier	:	**T-Mobile**
Carrier Site Name	:	**ROB3**
Carrier Site Number	:	**CTNH543A**
Site Location	:	**70 Herb Road** **Sharon, CT 06069-2326** **41.791111,-73.425556**
County	:	**Litchfield**
Date	:	**October 17, 2016**
Max Usage	:	**67%**
Result	:	**Pass**

Prepared By:
Felix Buabeng

Reviewed By:

Reviewed by:
Scott Wirgau, PE
Structural Team Leader

STATE OF CONNECTICUT
SCOTT A. WIRGAU
30575
LICENSED
PROFESSIONAL ENGINEER

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COA: PEC.0001553

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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 108.2 ft monopine to reflect the change in loading by T-Mobile.

Supporting Documents

Tower Drawings	Mapping by TEP #05605, dated July 6, 2005
Foundation Drawing	Summit, PJF Project #29200-1298, dated September 29, 2000
Geotechnical Report	Dr. Clarence Welti Site #415974, dated August 30, 2000

Analysis

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

Basic Wind Speed:	90 mph (3-Second Gust, V_{asd}) / 115 mph (3-Second Gust, V_{ult})
Basic Wind Speed w/ Ice:	40 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
Structure Class:	II
Exposure Category:	C
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.18, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

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

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

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
108.0	110.0	6	RFS FD9R6004/2C-3L	T-Arms	(12) 1 5/8" Coax	Verizon
		3	Amphenol Antel BXA-171085-12BF-EDIN-X			
		3	Amphenol Antel BXA-70063-6CF-EDIN-2			
		6	Antel LPA-80080/6CF ___			
	109.0	1	VZW Unused Reserve: 20,461 sq in			
92.0	92.0	1	Andrew ABT-DFDM-ADB	T-Arms	(12) 1 5/8" Coax (2) 0.78" 8 AWG 6 (1) 0.39" Fiber Trunk (1) 3" conduit	AT&T Mobility
		6	Powerwave Allgon LGP13519			
		6	Powerwave Allgon LGP2140X			
		1	Raycap DC6-48-60-18-8F			
		6	Ericsson RRUS-11 (50 lbs.)			
		6	Powerwave Allgon 7770.00			
		1	Kathrein Scala 800 10764			
		2	KMW AM-X-CD-16-65-00T-RET			

Equipment to be Removed

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

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
84.0	84.0	3	Ericsson RRUS 11 B12	T-Arms	(2) 1 5/8" Hybriflex Cable	T-Mobile
		3	Ericsson RRUS 11 B2			
		3	Ericsson RRUS 11 B4			
		3	RFS APX16DWV-16DWVS-E-A20			
		3	Commscope LNX-6515DS-A1M (50.3 lb)			
50.0	50.0	1	Symmetricom 58532A	Pole Mount	(1) 1/2" Coax	

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

Install proposed coax inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	62%	Pass
Shaft	62%	Pass
Base Plate	33%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	3,300.0	4,455.0	2,977.7	67%
Shear (Kips)	38.0	51.3	34.3	67%

*** The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1**

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
84.0	Ericsson RRUS 11 B12	T-Mobile	0.523	0.717
	Ericsson RRUS 11 B4			
	Ericsson RRUS 11 B2			
	RFS APX16DWV-16DWVS-E-A20			
	Commscope LNX-6515DS-A1M (50.3 lb)			
50.0	Symmetricom 58532A		0.181	0.426

***Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G**

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Standard Conditions

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

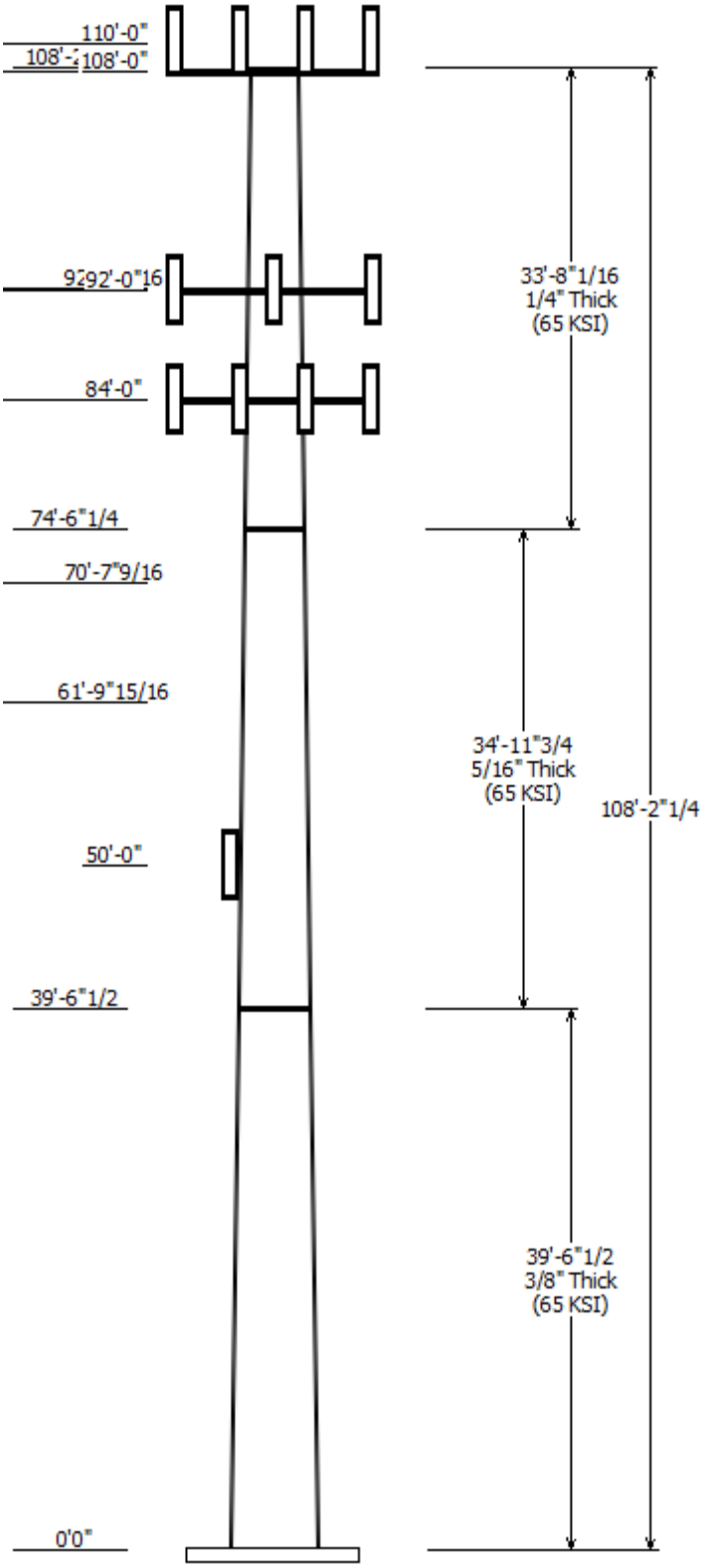
-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

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

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

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

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



Job Information

Pole :	415974	Code:	ANSI/TIA-222-G
Description :	108 ft Monopole		
Client :	T- Mobile	Struct Class :	II
Location :	Sharon CT, CT		
Shape :	18 Sides	Exposure :	C
Height :	108.19 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.266753 (in/ft)		

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
1	39.540	45.31	55.86	0.375		0.000	0.266800	65
2	34.980	35.98	45.31	0.313	Butt Joint	0.000	0.266800	65
3	33.670	27.00	35.98	0.250	Butt Joint	0.000	0.266800	65

Discrete Appurtenance

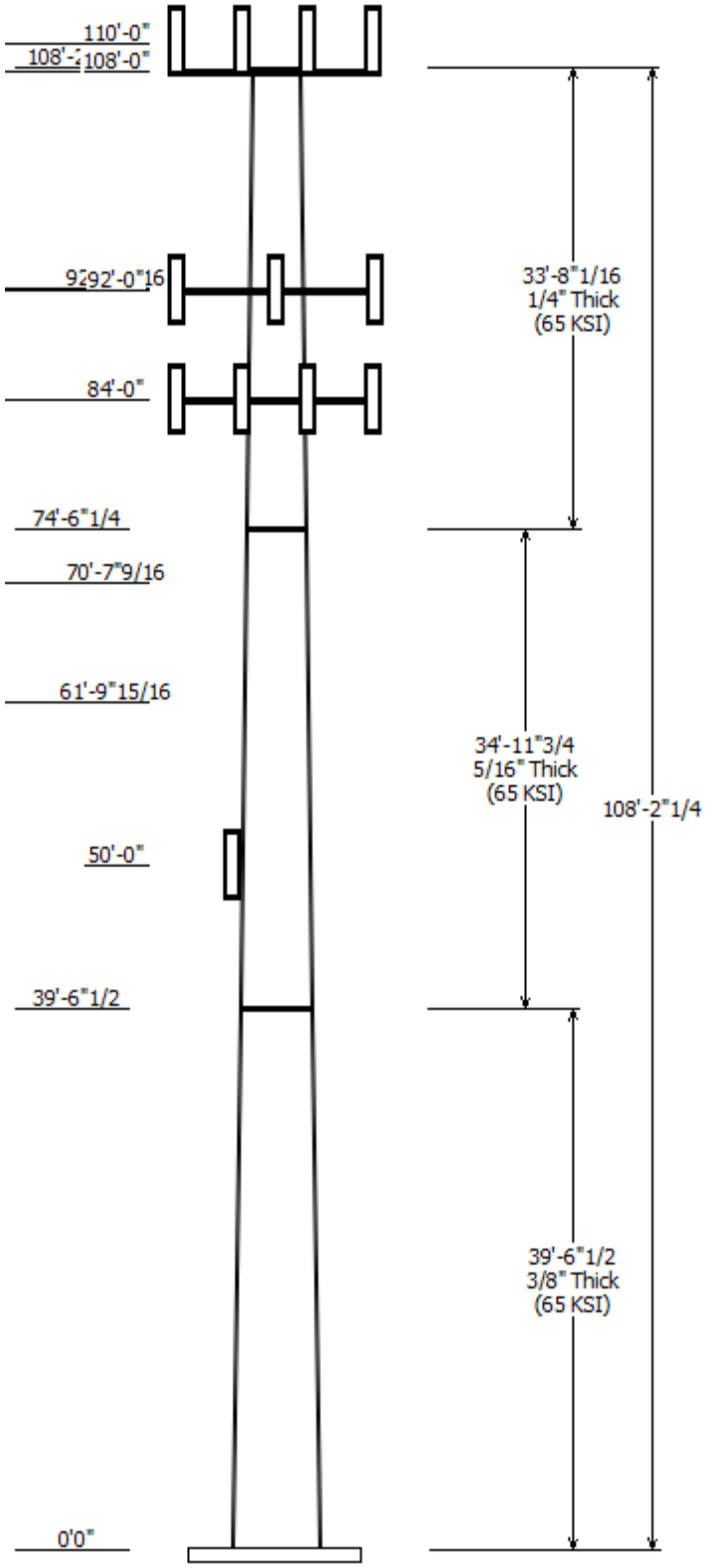
Attach Elev (ft)	Force Elev (ft)	Qty	Description
110.000	110.000	1	4' Pine Tree Branch
108.000	109.000	1	VZW Unused Reserve: 20,461
108.000	108.000	3	Flat T-Arm
108.000	110.000	6	Antel LPA-80080/6CF ___
108.000	110.000	3	Amphenol Antel BXA-70063-
108.000	110.000	3	Amphenol Antel BXA-171085-
108.000	110.000	6	RFS FD9R6004/2C-3L
92.180	92.180	1	6' Pine Tree Branch
92.000	92.000	3	Round T-Arm
92.000	92.000	6	Ericsson RRUS-11 (50 lbs.)
92.000	92.000	1	Raycap DC6-48-60-18-8F
92.000	92.000	2	KMW AM-X-CD-16-65-00T-RET
92.000	92.000	6	Powerwave Allgon 7770.00
92.000	92.000	1	Kathrein Scala 800 10764
92.000	92.000	6	Powerwave Allgon LGP2140X
92.000	92.000	6	Powerwave Allgon LGP13519
92.000	92.000	1	Andrew ABT-DFDM-ADB
84.000	84.000	3	Commscope LNX-6515DS-A1M
84.000	84.000	3	RFS APX16DWV-16DWVS-E-A20
84.000	84.000	3	Ericsson RRUS 11 B2
84.000	84.000	3	Ericsson RRUS 11 B4
84.000	84.000	3	Ericsson RRUS 11 B12
84.000	84.000	3	Flat T-Arm
70.630	70.630	1	8' Pine Tree Branch
61.830	61.830	1	10' Pine Tree Branch
50.000	50.000	1	Symmetricom 58532A

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	50.000	1/2" Coax	No
0.000	84.000	1 5/8" Hybriflex	No
0.000	92.000	0.39" (10mm)	No
0.000	92.000	0.78" (19.7mm) 8	No
0.000	92.000	1 5/8" Coax	No
0.000	92.000	3" conduit	No
0.000	108.0	1 5/8" Coax	No

Load Cases

1.2D + 1.6W	90 mph with No Ice
0.9D + 1.6W	90 mph with No Ice (Reduced DL)



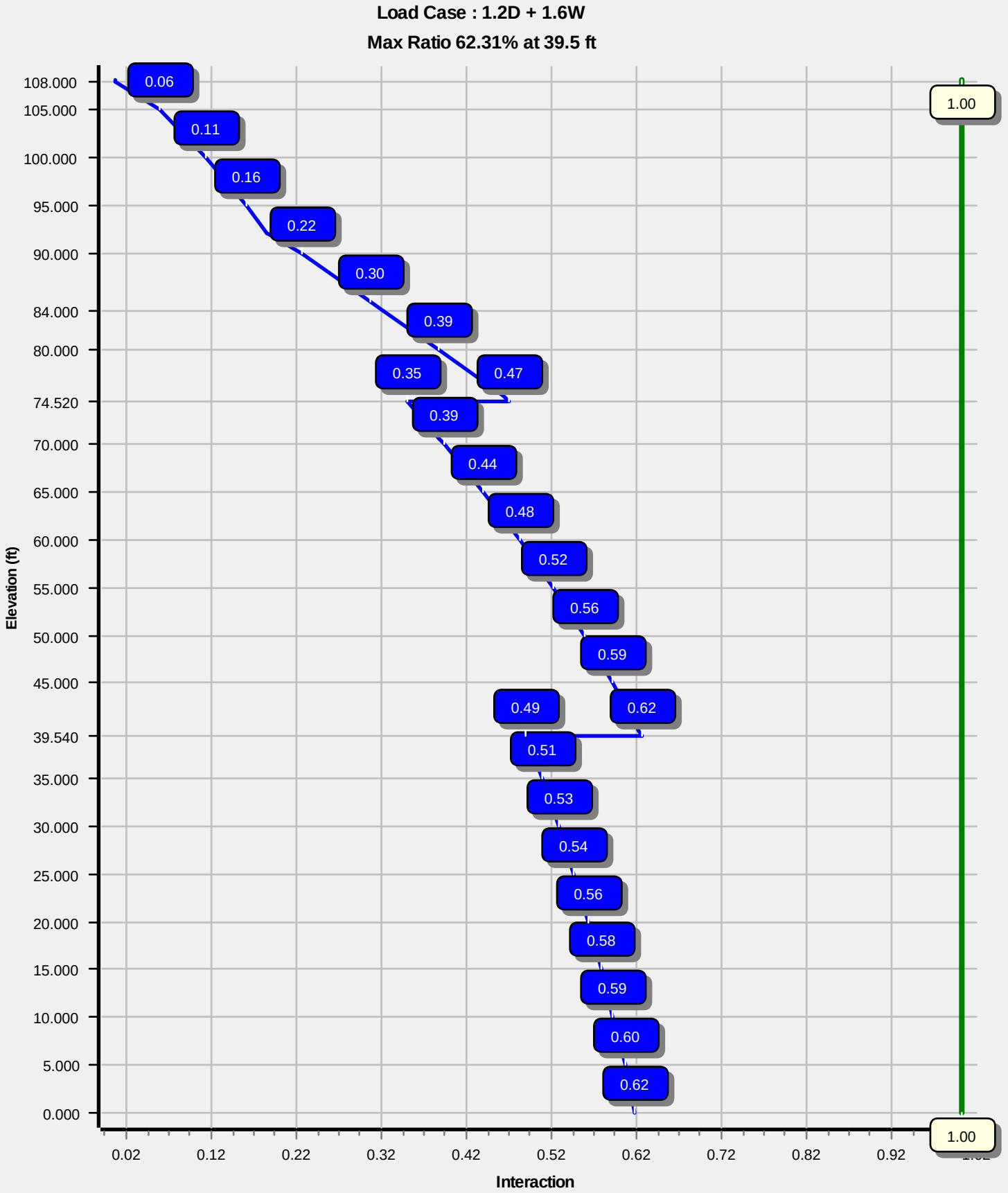
1.2D + 1.0Di + 1.0Wi	40 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	2977.67	34.32	36.16
0.9D + 1.6W	2963.47	34.31	27.11
1.2D + 1.0Di + 1.0Wi	677.83	7.73	75.37
(1.2 + 0.2Sds) * DL + E ELFM	174.74	2.06	35.43
(1.2 + 0.2Sds) * DL + E EMAM	223.97	2.45	35.43
(0.9 - 0.2Sds) * DL + E ELFM	173.80	2.06	24.61
(0.9 - 0.2Sds) * DL + E EMAM	222.68	2.45	24.61
1.0D + 1.0W	824.89	9.53	30.17

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000


Load Case : 1.2D + 1.6W
Max Ratio 62.31% at 39.5 ft
Elevation (ft)
108.000
105.000
100.000
95.000
90.000
84.000
80.000
74.520
70.000
65.000
60.000
55.000
50.000
45.000
39.540
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
0.06
0.11
0.16
0.22
0.30
0.39
0.35
0.47
0.39
0.44
0.48
0.52
0.56
0.59
0.49
0.62
0.51
0.53
0.54
0.56
0.58
0.59
0.60
0.62
1.00
1.00
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number: 415974 Code: ANSI/TIA-222-G

Site Name: Sharon CT, CT Engineering Number:OAA686580_C3_02 10/20/2016 2:56:19 PM

Customer: T- Mobile

Analysis Parameters

Location:	Litchfield County, CT		
Code:	ANSI/TIA-222-G	Height (ft):	108.
Shape:	18 Sides	Base Diameter (in):	55.86
Pole Type:	Taper	Top Diameter (in):	27.00
Pole Manfacturer:	Mapped	Taper (in/ft) :	0.267

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	90 mph
Exposure Category:	C	Design Wind Speed With Ice:	40 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0.0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	1.29				
T_L (sec):	6	p:	1.3	C_s:	0.054
S_s:	0.184	S_1:	0.065	C_s Max:	0.054
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.196	S_{d1}:	0.104		

Load Cases

1.2D + 1.6W	90 mph with No Ice
0.9D + 1.6W	90 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	40 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	39.540	0.3750	65		0.00	8,041	55.86	0.00	66.04	25686.4	24.86	148.96	45.31	39.54	53.49	13646.0	19.90	120.83	0.266753
2-18	34.980	0.3125	65	Butt	0.00	4,762	45.31	39.54	44.63	11419.2	24.16	145.00	35.98	74.52	35.38	5686.8	18.89	115.14	0.266753
3-18	33.670	0.2500	65	Butt	0.00	2,840	35.98	74.52	28.35	4573.4	23.97	143.93	27.00	108.19	21.23	1918.9	17.63	108.00	0.266753
				Shaft Weight		15,643													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor	Distance From Face (ft)	Vert Ecc (ft)
110.00	4' Pine Tree Branch	1	320.00	48.510	1.00	1,275.98	106.321	1.00	0.000	0.000
108.00	Amphenol Antel BXA-171085-	3	15.00	4.730	0.88	106.74	6.995	0.88	0.000	2.000
108.00	Amphenol Antel BXA-70063-	3	17.00	7.570	0.77	160.30	10.241	0.77	0.000	2.000
108.00	Antel LPA-80080/6CF ___	6	21.00	8.630	0.75	208.14	5.467	0.75	0.000	2.000
108.00	Flat T-Arm	3	250.00	12.900	0.67	452.37	20.819	0.67	0.000	0.000
108.00	RFS FD9R6004/2C-3L	6	2.60	0.370	0.50	10.36	0.810	0.50	0.000	2.000
108.00	VZW Unused Reserve:	1	2262.40	142.21	1.00	3,788.57	238.142	1.00	0.000	1.000
92.18	6' Pine Tree Branch	1	3240.00	170.10	1.00	12,765.44	369.591	1.00	0.000	0.000
92.00	Andrew ABT-DFDM-ADB	1	1.10	0.050	0.50	3.22	0.233	0.50	0.000	0.000
92.00	Ericsson RRUS-11 (50 lbs.)	6	50.00	2.570	0.67	114.98	3.570	0.67	0.000	0.000
92.00	Kathrein Scala 800 10764	1	40.80	5.870	0.79	162.10	7.905	0.79	0.000	0.000
92.00	KMW AM-X-CD-16-65-00T-	2	48.50	8.020	0.79	202.87	10.677	0.79	0.000	0.000
92.00	Powerwave Allgon 7770.00	6	35.00	5.510	0.77	162.16	6.510	0.77	0.000	0.000
92.00	Powerwave Allgon LGP13519	6	5.30	0.340	0.50	14.33	0.772	0.50	0.000	0.000
92.00	Powerwave Allgon LGP2140X	6	19.00	1.080	0.50	42.66	1.755	0.50	0.000	0.000
92.00	Raycap DC6-48-60-18-8F	1	20.00	1.110	1.00	70.19	1.663	1.00	0.000	0.000
92.00	Round T-Arm	3	250.00	9.700	0.67	449.22	17.558	0.67	0.000	0.000
84.00	Commscope LNX-6515DS-	3	50.30	11.450	0.84	295.77	13.005	0.84	0.000	0.000
84.00	Ericsson RRUS 11 B12	3	50.70	2.790	0.67	130.95	3.426	0.67	0.000	0.000
84.00	Ericsson RRUS 11 B2	3	50.70	2.790	0.67	130.95	3.426	0.67	0.000	0.000
84.00	Ericsson RRUS 11 B4	3	50.70	2.790	0.67	130.95	3.426	0.67	0.000	0.000
84.00	Flat T-Arm	3	250.00	12.900	0.67	447.15	20.615	0.67	0.000	0.000
84.00	RFS APX16DWV-16DWVS-E-	3	40.70	6.590	0.66	169.20	7.641	0.66	0.000	0.000
70.63	8' Pine Tree Branch	1	900.00	28.620	1.00	3,475.53	61.292	1.00	0.000	0.000
61.83	10' Pine Tree Branch	1	770.00	22.070	1.00	2,942.11	46.905	1.00	0.000	0.000
50.00	Symmetricom 58532A	1	0.40	0.220	1.00	7.53	0.550	1.00	0.000	0.000
	Totals	77	11524.40			35,632.96			Number of Loadings :	26

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
0.00	108.00	12	1 5/8" Coax	1.98	0.82	N	1.98	N	Verizon
0.00	92.00	1	0.39" (10mm) Fiber	0.39	0.06	N	0.39	N	AT&T MOBILITY
0.00	92.00	2	0.78" (19.7mm) 8	0.78	0.59	N	0.78	N	AT&T Mobility
0.00	92.00	12	1 5/8" Coax	1.98	0.82	N	1.98	N	AT&T Mobility
0.00	92.00	1	3" conduit	3.50	7.58	N	3.50	N	AT&T Mobility
0.00	84.00	2	1 5/8" Hybriflex Cable	1.98	1.30	N	0.00	N	T-Mobile
0.00	50.00	1	1/2" Coax	0.63	0.15	N	0.00	N	T-Mobile

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.3750	55.860	66.039	25,686.4	24.86	148.96	72.2	905.7	0.0	0.0
5.00		0.3750	54.526	64.451	23,878.2	24.23	145.40	72.9	862.5	0.0	1,110.1
10.00		0.3750	53.192	62.864	22,156.9	23.60	141.85	73.6	820.4	0.0	1,083.1
15.00		0.3750	51.859	61.276	20,520.4	22.97	138.29	74.4	779.4	0.0	1,056.1
20.00		0.3750	50.525	59.689	18,966.5	22.35	134.73	75.1	739.4	0.0	1,029.0
25.00		0.3750	49.191	58.101	17,493.1	21.72	131.18	75.9	700.4	0.0	1,002.0
30.00		0.3750	47.857	56.514	16,098.1	21.09	127.62	76.6	662.5	0.0	975.0
35.00		0.3750	46.524	54.926	14,779.3	20.47	124.06	77.3	625.7	0.0	948.0
39.54	Top - Section 1	0.3750	45.313	53.485	13,646.0	19.90	120.83	78.0	593.2	0.0	837.4
39.54	Bot - Section 2	0.3125	45.313	44.633	11,419.2	24.16	145.00	73.0	496.4	0.0	
40.00		0.3125	45.190	44.511	11,326.0	24.09	144.61	73.1	493.6	0.0	69.8
45.00		0.3125	43.856	43.188	10,345.9	23.34	140.34	74.0	464.6	0.0	746.1
50.00		0.3125	42.522	41.865	9,424.0	22.58	136.07	74.8	436.5	0.0	723.5
55.00		0.3125	41.189	40.543	8,558.6	21.83	131.80	75.7	409.3	0.0	701.0
60.00		0.3125	39.855	39.220	7,747.8	21.08	127.54	76.6	382.9	0.0	678.5
61.83		0.3125	39.367	38.735	7,464.4	20.80	125.97	76.9	373.5	0.0	242.7
65.00		0.3125	38.521	37.897	6,990.0	20.32	123.27	77.5	357.4	0.0	413.3
70.00		0.3125	37.187	36.574	6,283.2	19.57	119.00	78.4	332.8	0.0	633.5
70.63		0.3125	37.019	36.407	6,197.7	19.48	118.46	78.5	329.8	0.0	78.2
74.52	Top - Section 2	0.3125	35.982	35.378	5,686.8	18.89	115.14	79.2	311.3	0.0	475.1
74.52	Bot - Section 3	0.2500	35.982	28.352	4,573.4	23.97	143.93	73.2	250.3	0.0	
75.00		0.2500	35.854	28.250	4,524.4	23.88	143.41	73.3	248.5	0.0	46.2
80.00		0.2500	34.520	27.192	4,034.8	22.94	138.08	74.4	230.2	0.0	471.6
84.00		0.2500	33.453	26.345	3,669.5	22.18	133.81	75.3	216.1	0.0	364.4
85.00		0.2500	33.186	26.134	3,581.8	22.00	132.74	75.5	212.6	0.0	89.3
90.00		0.2500	31.852	25.075	3,164.0	21.06	127.41	76.6	195.6	0.0	435.6
92.00		0.2500	31.319	24.652	3,006.5	20.68	125.27	77.1	189.1	0.0	169.2
92.18		0.2500	31.271	24.614	2,992.5	20.64	125.08	77.1	188.5	0.0	15.1
95.00		0.2500	30.518	24.017	2,780.1	20.11	122.07	77.7	179.4	0.0	233.3
100.0		0.2500	29.185	22.959	2,428.5	19.17	116.74	78.8	163.9	0.0	399.6
105.0		0.2500	27.851	21.901	2,107.9	18.23	111.40	80.0	149.1	0.0	381.6
108.0		0.2500	27.051	21.266	1,929.8	17.67	108.20	80.6	140.5	0.0	220.3
108.1		0.2500	27.000	21.225	1,918.9	17.63	108.00	80.7	140.0	0.0	13.7
											15,642.6

Site Number: 415974 Code: ANSI/TIA-222-G

Site Name: Sharon CT, CT Engineering Number:OAA686580_C3_02 10/20/2016 2:56:20 PM

Customer: T- Mobile

Load Case: 1.2D + 1.6W 90 mph with No Ice 19 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		223.7	0.0					0.0	0.0	223.7	0.0	0.0	0.0
5.00		441.9	1,332.1					0.0	187.5	441.9	1,519.6	0.0	0.0
10.00		431.1	1,299.7					0.0	187.5	431.1	1,487.2	0.0	0.0
15.00		426.9	1,267.3					0.0	187.5	426.9	1,454.8	0.0	0.0
20.00		433.8	1,234.9					0.0	187.5	433.8	1,422.4	0.0	0.0
25.00		442.9	1,202.4					0.0	187.5	442.9	1,389.9	0.0	0.0
30.00		447.8	1,170.0					0.0	187.5	447.8	1,357.5	0.0	0.0
35.00		429.1	1,137.6					0.0	187.5	429.1	1,325.1	0.0	0.0
39.54	Top - Section 1	225.1	1,004.9					0.0	170.3	225.1	1,175.1	0.0	0.0
40.00		245.0	83.7					0.0	17.2	245.0	101.0	0.0	0.0
45.00		447.1	895.3					0.0	187.5	447.1	1,082.8	0.0	0.0
50.00	Appertunance(s)	443.3	868.3	8.3	0.0	0.0	0.5	0.0	187.5	451.6	1,056.2	0.0	0.0
55.00		438.1	841.2					0.0	186.6	438.1	1,027.8	0.0	0.0
60.00		296.4	814.2					0.0	186.6	296.4	1,000.8	0.0	0.0
61.83		214.2	291.3					0.0	68.3	214.2	359.6	0.0	0.0
65.00		345.6	496.0					0.0	118.3	345.6	614.3	0.0	0.0
70.00		236.5	760.2					0.0	186.6	236.5	946.8	0.0	0.0
70.63		186.4	93.9					0.0	23.5	186.4	117.4	0.0	0.0
74.52	Top - Section 2	179.7	570.1					0.0	145.2	179.7	715.3	0.0	0.0
75.00		220.8	55.5					0.0	17.9	220.8	73.4	0.0	0.0
80.00		358.6	566.0					0.0	186.6	358.6	752.6	0.0	0.0
84.00	Appertunance(s)	196.1	437.2	2,809.8	0.0	0.0	1,775.2	0.0	149.3	3,005.9	2,361.7	0.0	0.0
85.00		229.6	107.1					0.0	34.2	229.6	141.3	0.0	0.0
90.00		265.5	522.8					0.0	171.0	265.5	693.8	0.0	0.0
92.00	Appertunance(s)	81.4	203.1	2,648.0	0.0	0.0	1,877.6	0.0	68.4	2,729.4	2,149.1	0.0	0.0
92.18		110.4	18.1					0.0	2.1	110.4	20.2	0.0	0.0
95.00		282.8	280.0					0.0	33.3	282.8	313.3	0.0	0.0
100.00		352.1	479.5					0.0	59.0	352.1	538.6	0.0	0.0
105.00		273.7	457.9					0.0	59.0	273.7	517.0	0.0	0.0
108.00	Appertunance(s)	107.0	264.4	8,454.9	0.0	10,091.8	3,900.0	0.0	35.4	8,561.9	4,199.8	0.0	0.0
108.19		6.3	16.5					0.0	0.0	6.3	16.5	0.0	0.0
								Totals:		22,939.8	29,930.8	0.00	0.00

Site Number: 415974 Code: ANSI/TIA-222-G

Site Name: Sharon CT, CT Engineering Number:OAA686580_C3_02 10/20/2016 2:56:20 PM

Customer: T- Mobile

Load Case: 1.2D + 1.6W 90 mph with No Ice 19 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-36.16	-34.32	0.00	-2,977.67	0.00	2,977.67	4,289.22	2,144.61	9,789.64	4,902.09	0.00	0.00	0.616
5.00	-34.54	-33.97	0.00	-2,806.07	0.00	2,806.07	4,228.90	2,114.45	9,418.39	4,716.20	0.09	-0.16	0.603
10.00	-32.96	-33.63	0.00	-2,636.21	0.00	2,636.21	4,166.47	2,083.24	9,049.23	4,531.34	0.34	-0.32	0.590
15.00	-31.41	-33.28	0.00	-2,468.07	0.00	2,468.07	4,101.94	2,050.97	8,682.51	4,347.71	0.77	-0.49	0.576
20.00	-29.90	-32.92	0.00	-2,301.66	0.00	2,301.66	4,035.29	2,017.65	8,318.56	4,165.46	1.37	-0.65	0.560
25.00	-28.42	-32.54	0.00	-2,137.06	0.00	2,137.06	3,966.54	1,983.27	7,957.76	3,984.79	2.14	-0.82	0.544
30.00	-26.98	-32.15	0.00	-1,974.34	0.00	1,974.34	3,895.69	1,947.84	7,600.43	3,805.87	3.09	-0.99	0.526
35.00	-25.57	-31.77	0.00	-1,813.58	0.00	1,813.58	3,822.72	1,911.36	7,246.94	3,628.86	4.21	-1.15	0.507
39.54	-24.36	-31.56	0.00	-1,669.34	0.00	1,669.34	3,754.64	1,877.32	6,929.59	3,469.94	5.38	-1.30	0.488
39.54	-24.36	-31.56	0.00	-1,669.34	0.00	1,669.34	2,931.90	1,465.95	5,426.19	2,717.13	5.38	-1.30	0.623
40.00	-24.20	-31.35	0.00	-1,654.83	0.00	1,654.83	2,927.16	1,463.58	5,402.55	2,705.29	5.51	-1.32	0.620
45.00	-23.02	-30.96	0.00	-1,498.06	0.00	1,498.06	2,874.57	1,437.29	5,146.72	2,577.18	7.00	-1.52	0.590
50.00	-21.88	-30.55	0.00	-1,343.26	0.00	1,343.26	2,819.87	1,409.94	4,893.03	2,450.15	8.70	-1.71	0.556
55.00	-20.77	-30.15	0.00	-1,190.50	0.00	1,190.50	2,763.07	1,381.53	4,641.85	2,324.38	10.60	-1.91	0.520
60.00	-19.71	-29.86	0.00	-1,039.74	0.00	1,039.74	2,704.15	1,352.08	4,393.52	2,200.03	12.69	-2.09	0.480
61.83	-18.42	-28.76	0.00	-985.10	0.00	985.10	2,682.06	1,341.03	4,303.42	2,154.91	13.51	-2.16	0.464
65.00	-17.75	-28.43	0.00	-893.94	0.00	893.94	2,643.13	1,321.57	4,148.39	2,077.28	14.98	-2.27	0.438
70.00	-16.77	-28.18	0.00	-751.79	0.00	751.79	2,580.00	1,290.00	3,906.81	1,956.31	17.45	-2.44	0.391
70.63	-15.60	-26.80	0.00	-734.04	0.00	734.04	2,571.90	1,285.95	3,876.65	1,941.20	17.78	-2.46	0.385
74.52	-14.86	-26.61	0.00	-629.79	0.00	629.79	2,521.12	1,260.56	3,691.77	1,848.63	19.83	-2.58	0.347
74.52	-14.86	-26.61	0.00	-629.79	0.00	629.79	1,868.10	934.05	2,745.13	1,374.61	19.83	-2.58	0.467
75.00	-14.75	-26.41	0.00	-617.02	0.00	617.02	1,864.11	932.05	2,729.38	1,366.72	20.09	-2.60	0.460
80.00	-13.95	-26.05	0.00	-484.99	0.00	484.99	1,821.35	910.68	2,566.18	1,285.00	22.91	-2.77	0.386
84.00	-11.71	-22.94	0.00	-380.79	0.00	380.79	1,785.63	892.82	2,436.95	1,220.29	25.29	-2.89	0.319
85.00	-11.55	-22.72	0.00	-357.85	0.00	357.85	1,776.49	888.25	2,404.85	1,204.21	25.90	-2.92	0.304
90.00	-10.84	-22.44	0.00	-244.23	0.00	244.23	1,729.52	864.76	2,245.74	1,124.54	29.03	-3.04	0.224
92.00	-8.84	-19.60	0.00	-199.36	0.00	199.36	1,710.14	855.07	2,182.80	1,093.02	30.31	-3.08	0.188
92.18	-5.33	-11.96	0.00	-195.83	0.00	195.83	1,708.38	854.19	2,177.15	1,090.19	30.42	-3.08	0.183
95.00	-5.02	-11.66	0.00	-162.12	0.00	162.12	1,680.44	840.22	2,089.20	1,046.15	32.26	-3.13	0.158
100.00	-4.49	-11.28	0.00	-103.81	0.00	103.81	1,629.26	814.63	1,935.58	969.23	35.58	-3.20	0.110
105.00	-3.98	-10.98	0.00	-47.39	0.00	47.39	1,575.96	787.98	1,785.22	893.94	38.96	-3.24	0.056
108.00	-0.28	-2.20	0.00	-4.35	0.00	4.35	1,542.97	771.49	1,696.72	849.62	41.00	-3.26	0.005
108.19	0.00	-2.18	0.00	-3.93	0.00	3.93	1,540.86	770.43	1,691.16	846.84	41.13	-3.26	0.005

Site Number: 415974 Code: ANSI/TIA-222-G

Site Name: Sharon CT, CT Engineering Number:OAA686580_C3_02 10/20/2016 2:56:21 PM

Customer: T- Mobile

Load Case: 0.9D + 1.6W — 90 mph with No Ice (Reduced DL) — 18 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		223.7	0.0					0.0	0.0	223.7	0.0	0.0	0.0
5.00		441.9	999.1					0.0	140.6	441.9	1,139.7	0.0	0.0
10.00		431.1	974.8					0.0	140.6	431.1	1,115.4	0.0	0.0
15.00		426.9	950.4					0.0	140.6	426.9	1,091.1	0.0	0.0
20.00		433.8	926.1					0.0	140.6	433.8	1,066.8	0.0	0.0
25.00		442.9	901.8					0.0	140.6	442.9	1,042.5	0.0	0.0
30.00		447.8	877.5					0.0	140.6	447.8	1,018.1	0.0	0.0
35.00		429.1	853.2					0.0	140.6	429.1	993.8	0.0	0.0
39.54	Top - Section 1	225.1	753.7					0.0	127.7	225.1	881.4	0.0	0.0
40.00		245.0	62.8					0.0	12.9	245.0	75.7	0.0	0.0
45.00		447.1	671.4					0.0	140.6	447.1	812.1	0.0	0.0
50.00	Appertunance(s)	443.3	651.2	8.3	0.0	0.0	0.4	0.0	140.6	451.6	792.2	0.0	0.0
55.00		438.1	630.9					0.0	139.9	438.1	770.9	0.0	0.0
60.00		296.4	610.7					0.0	139.9	296.4	750.6	0.0	0.0
61.83		214.2	218.4					0.0	51.2	214.2	269.7	0.0	0.0
65.00		345.6	372.0					0.0	88.7	345.6	460.7	0.0	0.0
70.00		236.5	570.2					0.0	139.9	236.5	710.1	0.0	0.0
70.63		186.4	70.4					0.0	17.6	186.4	88.0	0.0	0.0
74.52	Top - Section 2	179.7	427.6					0.0	108.9	179.7	536.5	0.0	0.0
75.00		220.8	41.6					0.0	13.4	220.8	55.0	0.0	0.0
80.00		358.6	424.5					0.0	139.9	358.6	564.4	0.0	0.0
84.00	Appertunance(s)	196.1	327.9	2,809.8	0.0	0.0	1,331.4	0.0	112.0	3,005.9	1,771.2	0.0	0.0
85.00		229.6	80.4					0.0	25.6	229.6	106.0	0.0	0.0
90.00		265.5	392.1					0.0	128.2	265.5	520.3	0.0	0.0
92.00	Appertunance(s)	81.4	152.3	2,648.0	0.0	0.0	1,408.2	0.0	51.3	2,729.4	1,611.8	0.0	0.0
92.18		110.4	13.6					0.0	1.6	110.4	15.2	0.0	0.0
95.00		282.8	210.0					0.0	25.0	282.8	235.0	0.0	0.0
100.00		352.1	359.7					0.0	44.3	352.1	403.9	0.0	0.0
105.00		273.7	343.5					0.0	44.3	273.7	387.7	0.0	0.0
108.00	Appertunance(s)	107.0	198.3	8,454.9	0.0	10,091.8	2,925.0	0.0	26.6	8,561.9	3,149.9	0.0	0.0
108.19		6.3	12.4					0.0	0.0	6.3	12.4	0.0	0.0
								Totals:		22,939.8	22,448.1	0.00	0.00

Site Number: 415974 Code: ANSI/TIA-222-G

Site Name: Sharon CT, CT Engineering Number:OAA686580_C3_02 10/20/2016 2:56:22 PM

Customer: T- Mobile

Load Case: 0.9D + 1.6W 90 mph with No Ice (Reduced DL) 18 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-27.11	-34.31	0.00	-2,963.47	0.00	2,963.47	4,289.22	2,144.61	9,789.64	4,902.09	0.00	0.00	0.611
5.00	-25.87	-33.93	0.00	-2,791.95	0.00	2,791.95	4,228.90	2,114.45	9,418.39	4,716.20	0.09	-0.16	0.598
10.00	-24.66	-33.57	0.00	-2,622.28	0.00	2,622.28	4,166.47	2,083.24	9,049.23	4,531.34	0.34	-0.32	0.585
15.00	-23.48	-33.20	0.00	-2,454.44	0.00	2,454.44	4,101.94	2,050.97	8,682.51	4,347.71	0.77	-0.48	0.571
20.00	-22.32	-32.82	0.00	-2,288.44	0.00	2,288.44	4,035.29	2,017.65	8,318.56	4,165.46	1.36	-0.65	0.555
25.00	-21.19	-32.43	0.00	-2,124.34	0.00	2,124.34	3,966.54	1,983.27	7,957.76	3,984.79	2.13	-0.81	0.539
30.00	-20.09	-32.02	0.00	-1,962.21	0.00	1,962.21	3,895.69	1,947.84	7,600.43	3,805.87	3.07	-0.98	0.521
35.00	-19.02	-31.63	0.00	-1,802.10	0.00	1,802.10	3,822.72	1,911.36	7,246.94	3,628.86	4.19	-1.15	0.502
39.54	-18.09	-31.41	0.00	-1,658.52	0.00	1,658.52	3,754.64	1,877.32	6,929.59	3,469.94	5.35	-1.30	0.483
39.54	-18.09	-31.41	0.00	-1,658.52	0.00	1,658.52	2,931.90	1,465.95	5,426.19	2,717.13	5.35	-1.30	0.617
40.00	-17.97	-31.20	0.00	-1,644.07	0.00	1,644.07	2,927.16	1,463.58	5,402.55	2,705.29	5.48	-1.31	0.614
45.00	-17.06	-30.79	0.00	-1,488.10	0.00	1,488.10	2,874.57	1,437.29	5,146.72	2,577.18	6.96	-1.51	0.584
50.00	-16.18	-30.37	0.00	-1,334.16	0.00	1,334.16	2,819.87	1,409.94	4,893.03	2,450.15	8.65	-1.70	0.551
55.00	-15.32	-29.96	0.00	-1,182.32	0.00	1,182.32	2,763.07	1,381.53	4,641.85	2,324.38	10.54	-1.89	0.515
60.00	-14.52	-29.67	0.00	-1,032.54	0.00	1,032.54	2,704.15	1,352.08	4,393.52	2,200.03	12.62	-2.08	0.475
61.83	-13.55	-28.56	0.00	-978.26	0.00	978.26	2,682.06	1,341.03	4,303.42	2,154.91	13.43	-2.15	0.459
65.00	-13.04	-28.23	0.00	-887.71	0.00	887.71	2,643.13	1,321.57	4,148.39	2,077.28	14.89	-2.26	0.433
70.00	-12.29	-27.99	0.00	-746.56	0.00	746.56	2,580.00	1,290.00	3,906.81	1,956.31	17.35	-2.42	0.387
70.63	-11.42	-26.61	0.00	-728.93	0.00	728.93	2,571.90	1,285.95	3,876.65	1,941.20	17.67	-2.45	0.380
74.52	-10.86	-26.42	0.00	-625.41	0.00	625.41	2,521.12	1,260.56	3,691.77	1,848.63	19.72	-2.57	0.343
74.52	-10.86	-26.42	0.00	-625.41	0.00	625.41	1,868.10	934.05	2,745.13	1,374.61	19.72	-2.57	0.462
75.00	-10.77	-26.22	0.00	-612.73	0.00	612.73	1,864.11	932.05	2,729.38	1,366.72	19.98	-2.58	0.455
80.00	-10.16	-25.86	0.00	-481.66	0.00	481.66	1,821.35	910.68	2,566.18	1,285.00	22.78	-2.75	0.381
84.00	-8.51	-22.78	0.00	-378.23	0.00	378.23	1,785.63	892.82	2,436.95	1,220.29	25.14	-2.87	0.315
85.00	-8.38	-22.55	0.00	-355.45	0.00	355.45	1,776.49	888.25	2,404.85	1,204.21	25.74	-2.90	0.301
90.00	-7.85	-22.27	0.00	-242.68	0.00	242.68	1,729.52	864.76	2,245.74	1,124.54	28.85	-3.02	0.221
92.00	-6.38	-19.46	0.00	-198.13	0.00	198.13	1,710.14	855.07	2,182.80	1,093.02	30.13	-3.06	0.186
92.18	-3.84	-11.87	0.00	-194.63	0.00	194.63	1,708.38	854.19	2,177.15	1,090.19	30.24	-3.06	0.181
95.00	-3.61	-11.58	0.00	-161.15	0.00	161.15	1,680.44	840.22	2,089.20	1,046.15	32.07	-3.11	0.156
100.00	-3.22	-11.21	0.00	-103.24	0.00	103.24	1,629.26	814.63	1,935.58	969.23	35.36	-3.18	0.109
105.00	-2.84	-10.92	0.00	-47.19	0.00	47.19	1,575.96	787.98	1,785.22	893.94	38.72	-3.22	0.055
108.00	-0.18	-2.19	0.00	-4.35	0.00	4.35	1,542.97	771.49	1,696.72	849.62	40.75	-3.24	0.005
108.19	0.00	-2.18	0.00	-3.93	0.00	3.93	1,540.86	770.43	1,691.16	846.84	40.88	-3.24	0.005

Site Number: 415974 Code: ANSI/TIA-222-G

Site Name: Sharon CT, CT Engineering Number:OAA686580_C3_02 10/20/2016 2:56:22 PM

Customer: T- Mobile

Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph with 0.75 in Radial Ice 18 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor :1.00 Wind Importance Factor :1.00

Dead Load Factor :1.20 Ice Importance Factor :1.00

Wind Load Factor :1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		53.1	0.0					0.0	0.0	53.1	0.0	0.0	0.0
5.00		105.2	1,736.4					0.0	187.5	105.2	1,923.9	0.0	0.0
10.00		103.1	1,741.2					0.0	187.5	103.1	1,928.7	0.0	0.0
15.00		102.4	1,721.1					0.0	187.5	102.4	1,908.6	0.0	0.0
20.00		104.4	1,692.8					0.0	187.5	104.4	1,880.3	0.0	0.0
25.00		106.8	1,660.3					0.0	187.5	106.8	1,847.8	0.0	0.0
30.00		108.3	1,625.2					0.0	187.5	108.3	1,812.7	0.0	0.0
35.00		104.0	1,588.1					0.0	187.5	104.0	1,775.6	0.0	0.0
39.54	Top - Section 1	54.6	1,409.3					0.0	170.3	54.6	1,579.5	0.0	0.0
40.00		59.6	124.9					0.0	17.2	59.6	142.1	0.0	0.0
45.00		109.0	1,332.7					0.0	187.5	109.0	1,520.2	0.0	0.0
50.00	Appertunance(s)	108.4	1,297.7	2.6	0.0	0.0	5.2	0.0	187.5	110.9	1,490.4	0.0	0.0
55.00		107.4	1,262.1					0.0	186.6	107.4	1,448.7	0.0	0.0
60.00		72.8	1,225.8					0.0	186.6	72.8	1,412.4	0.0	0.0
61.83		52.7	441.0					0.0	68.3	52.7	509.3	0.0	0.0
65.00		85.3	751.1					0.0	118.3	85.3	869.4	0.0	0.0
70.00		58.4	1,151.7					0.0	186.6	58.4	1,338.3	0.0	0.0
70.63		46.2	143.2					0.0	23.5	46.2	166.7	0.0	0.0
74.52	Top - Section 2	44.6	867.5					0.0	145.2	44.6	1,012.7	0.0	0.0
75.00		54.9	92.2					0.0	17.9	54.9	110.1	0.0	0.0
80.00		89.3	935.9					0.0	186.6	89.3	1,122.5	0.0	0.0
84.00	Appertunance(s)	49.0	726.1	448.7	0.0	0.0	4,018.8	0.0	149.3	497.7	4,894.2	0.0	0.0
85.00		57.5	179.0					0.0	34.2	57.5	213.2	0.0	0.0
90.00		66.6	869.7					0.0	171.0	66.6	1,040.7	0.0	0.0
92.00	Appertunance(s)	20.5	340.2	468.4	0.0	0.0	3,793.5	0.0	68.4	488.9	4,202.1	0.0	0.0
92.18		27.8	30.4					0.0	2.1	27.8	32.6	0.0	0.0
95.00		71.5	469.2					0.0	33.3	71.5	502.5	0.0	0.0
100.00		89.3	802.5					0.0	59.0	89.3	861.6	0.0	0.0
105.00		69.7	768.6					0.0	59.0	69.7	827.6	0.0	0.0
108.00	Appertunance(s)	27.3	446.5	1,529.5	0.0	1,662.5	9,755.3	0.0	35.4	1,556.9	10,237.1	0.0	0.0
108.19		1.6	28.0					0.0	0.0	1.6	28.0	0.0	0.0
								Totals:		4,660.71	48,639.3	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph with 0.75 in Radial Ice 18 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor :1.00 Wind Importance Factor :1.00
Dead Load Factor :1.20 Ice Importance Factor :1.00
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-75.37	-7.73	0.00	-677.83	0.00	677.83	4,289.22	2,144.61	9,789.64	4,902.09	0.00	0.00	0.156
5.00	-73.44	-7.67	0.00	-639.20	0.00	639.20	4,228.90	2,114.45	9,418.39	4,716.20	0.02	-0.04	0.153
10.00	-71.51	-7.61	0.00	-600.86	0.00	600.86	4,166.47	2,083.24	9,049.23	4,531.34	0.08	-0.07	0.150
15.00	-69.60	-7.55	0.00	-562.82	0.00	562.82	4,101.94	2,050.97	8,682.51	4,347.71	0.18	-0.11	0.146
20.00	-67.71	-7.49	0.00	-525.08	0.00	525.08	4,035.29	2,017.65	8,318.56	4,165.46	0.31	-0.15	0.143
25.00	-65.86	-7.42	0.00	-487.65	0.00	487.65	3,966.54	1,983.27	7,957.76	3,984.79	0.49	-0.19	0.139
30.00	-64.04	-7.34	0.00	-450.57	0.00	450.57	3,895.69	1,947.84	7,600.43	3,805.87	0.70	-0.22	0.135
35.00	-62.26	-7.27	0.00	-413.85	0.00	413.85	3,822.72	1,911.36	7,246.94	3,628.86	0.96	-0.26	0.130
39.54	-60.68	-7.23	0.00	-380.84	0.00	380.84	3,754.64	1,877.32	6,929.59	3,469.94	1.23	-0.30	0.126
39.54	-60.68	-7.23	0.00	-380.84	0.00	380.84	2,931.90	1,465.95	5,426.19	2,717.13	1.23	-0.30	0.161
40.00	-60.54	-7.20	0.00	-377.51	0.00	377.51	2,927.16	1,463.58	5,402.55	2,705.29	1.26	-0.30	0.160
45.00	-59.01	-7.12	0.00	-341.53	0.00	341.53	2,874.57	1,437.29	5,146.72	2,577.18	1.60	-0.35	0.153
50.00	-57.52	-7.05	0.00	-305.91	0.00	305.91	2,819.87	1,409.94	4,893.03	2,450.15	1.98	-0.39	0.145
55.00	-56.06	-6.97	0.00	-270.67	0.00	270.67	2,763.07	1,381.53	4,641.85	2,324.38	2.42	-0.43	0.137
60.00	-54.65	-6.92	0.00	-235.81	0.00	235.81	2,704.15	1,352.08	4,393.52	2,200.03	2.89	-0.48	0.127
61.83	-50.27	-6.61	0.00	-223.16	0.00	223.16	2,682.06	1,341.03	4,303.42	2,154.91	3.08	-0.49	0.122
65.00	-49.40	-6.55	0.00	-202.19	0.00	202.19	2,643.13	1,321.57	4,148.39	2,077.28	3.42	-0.52	0.116
70.00	-48.06	-6.50	0.00	-169.45	0.00	169.45	2,580.00	1,290.00	3,906.81	1,956.31	3.98	-0.56	0.105
70.63	-43.34	-6.11	0.00	-165.36	0.00	165.36	2,571.90	1,285.95	3,876.65	1,941.20	4.05	-0.56	0.102
74.52	-42.33	-6.06	0.00	-141.60	0.00	141.60	2,521.12	1,260.56	3,691.77	1,848.63	4.52	-0.59	0.093
74.52	-42.33	-6.06	0.00	-141.60	0.00	141.60	1,868.10	934.05	2,745.13	1,374.61	4.52	-0.59	0.126
75.00	-42.21	-6.02	0.00	-138.69	0.00	138.69	1,864.11	932.05	2,729.38	1,366.72	4.58	-0.59	0.124
80.00	-41.09	-5.95	0.00	-108.57	0.00	108.57	1,821.35	910.68	2,566.18	1,285.00	5.22	-0.63	0.107
84.00	-36.20	-5.40	0.00	-84.79	0.00	84.79	1,785.63	892.82	2,436.95	1,220.29	5.76	-0.66	0.090
85.00	-35.98	-5.35	0.00	-79.39	0.00	79.39	1,776.49	888.25	2,404.85	1,204.21	5.90	-0.66	0.086
90.00	-34.94	-5.29	0.00	-52.62	0.00	52.62	1,729.52	864.76	2,245.74	1,124.54	6.61	-0.69	0.067
92.00	-30.75	-4.75	0.00	-42.05	0.00	42.05	1,710.14	855.07	2,182.80	1,093.02	6.90	-0.70	0.056
92.18	-14.09	-2.55	0.00	-41.19	0.00	41.19	1,708.38	854.19	2,177.15	1,090.19	6.93	-0.70	0.046
95.00	-13.58	-2.48	0.00	-34.00	0.00	34.00	1,680.44	840.22	2,089.20	1,046.15	7.34	-0.71	0.041
100.00	-12.72	-2.38	0.00	-21.63	0.00	21.63	1,629.26	814.63	1,935.58	969.23	8.09	-0.72	0.030
105.00	-11.90	-2.30	0.00	-9.74	0.00	9.74	1,575.96	787.98	1,785.22	893.94	8.86	-0.73	0.018
108.00	-1.68	-0.61	0.00	-1.18	0.00	1.18	1,542.97	771.49	1,696.72	849.62	9.32	-0.73	0.002
108.19	0.00	-0.59	0.00	-1.06	0.00	1.06	1,540.86	770.43	1,691.16	846.84	9.35	-0.73	0.001

Site Number: 415974 Code: ANSI/TIA-222-G

Site Name: Sharon CT, CT Engineering Number:OAA686580_C3_02 10/20/2016 2:56:23 PM

Customer: T- Mobile

Load Case: 1.0D + 1.0W Serviceability 60 mph 18 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		62.1	0.0					0.0	0.0	62.1	0.0	0.0	0.0
5.00		122.8	1,110.1					0.0	156.3	122.8	1,266.3	0.0	0.0
10.00		119.8	1,083.1					0.0	156.3	119.8	1,239.3	0.0	0.0
15.00		118.6	1,056.1					0.0	156.3	118.6	1,212.3	0.0	0.0
20.00		120.5	1,029.0					0.0	156.3	120.5	1,185.3	0.0	0.0
25.00		123.0	1,002.0					0.0	156.3	123.0	1,158.3	0.0	0.0
30.00		124.4	975.0					0.0	156.3	124.4	1,131.3	0.0	0.0
35.00		119.2	948.0					0.0	156.3	119.2	1,104.3	0.0	0.0
39.54	Top - Section 1	62.5	837.4					0.0	141.9	62.5	979.3	0.0	0.0
40.00		68.1	69.8					0.0	14.4	68.1	84.1	0.0	0.0
45.00		124.2	746.1					0.0	156.3	124.2	902.3	0.0	0.0
50.00	Appertunance(s)	123.1	723.5	2.3	0.0	0.0	0.4	0.0	156.3	125.5	880.2	0.0	0.0
55.00		121.7	701.0					0.0	155.5	121.7	856.5	0.0	0.0
60.00		82.3	678.5					0.0	155.5	82.3	834.0	0.0	0.0
61.83		59.5	242.7					0.0	56.9	59.5	299.6	0.0	0.0
65.00		96.0	413.3					0.0	98.6	96.0	511.9	0.0	0.0
70.00		65.7	633.5					0.0	155.5	65.7	789.0	0.0	0.0
70.63		51.8	78.2					0.0	19.6	51.8	97.8	0.0	0.0
74.52	Top - Section 2	49.9	475.1					0.0	121.0	49.9	596.1	0.0	0.0
75.00		61.3	46.2					0.0	14.9	61.3	61.2	0.0	0.0
80.00		99.6	471.6					0.0	155.5	99.6	627.1	0.0	0.0
84.00	Appertunance(s)	54.5	364.4	780.5	0.0	0.0	1,479.3	0.0	124.4	835.0	1,968.1	0.0	0.0
85.00		63.8	89.3					0.0	28.5	63.8	117.8	0.0	0.0
90.00		73.8	435.6					0.0	142.5	73.8	578.1	0.0	0.0
92.00	Appertunance(s)	22.6	169.2	735.6	0.0	0.0	1,564.7	0.0	57.0	758.2	1,790.9	0.0	0.0
92.18		30.7	15.1					0.0	1.8	30.7	16.9	0.0	0.0
95.00		78.6	233.3					0.0	27.7	78.6	261.1	0.0	0.0
100.00		97.8	399.6					0.0	49.2	97.8	448.8	0.0	0.0
105.00		76.0	381.6					0.0	49.2	76.0	430.8	0.0	0.0
108.00	Appertunance(s)	29.7	220.3	2,348.6	0.0	2,803.3	3,250.0	0.0	29.5	2,378.3	3,499.8	0.0	0.0
108.19		1.7	13.7					0.0	0.0	1.7	13.7	0.0	0.0
								Totals:		6,372.17	24,942.3	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 18 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :1.00
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-30.17	-9.53	0.00	-824.89	0.00	824.89	4,289.22	2,144.61	9,789.64	4,902.09	0.00	0.00	0.175
5.00	-28.89	-9.43	0.00	-777.23	0.00	777.23	4,228.90	2,114.45	9,418.39	4,716.20	0.02	-0.04	0.172
10.00	-27.65	-9.33	0.00	-730.09	0.00	730.09	4,166.47	2,083.24	9,049.23	4,531.34	0.09	-0.09	0.168
15.00	-26.43	-9.23	0.00	-683.44	0.00	683.44	4,101.94	2,050.97	8,682.51	4,347.71	0.21	-0.13	0.164
20.00	-25.24	-9.13	0.00	-637.28	0.00	637.28	4,035.29	2,017.65	8,318.56	4,165.46	0.38	-0.18	0.159
25.00	-24.07	-9.02	0.00	-591.65	0.00	591.65	3,966.54	1,983.27	7,957.76	3,984.79	0.59	-0.23	0.155
30.00	-22.93	-8.91	0.00	-546.56	0.00	546.56	3,895.69	1,947.84	7,600.43	3,805.87	0.86	-0.27	0.150
35.00	-21.82	-8.80	0.00	-502.01	0.00	502.01	3,822.72	1,911.36	7,246.94	3,628.86	1.17	-0.32	0.144
39.54	-20.84	-8.74	0.00	-462.06	0.00	462.06	3,754.64	1,877.32	6,929.59	3,469.94	1.49	-0.36	0.139
39.54	-20.84	-8.74	0.00	-462.06	0.00	462.06	2,931.90	1,465.95	5,426.19	2,717.13	1.49	-0.36	0.177
40.00	-20.75	-8.68	0.00	-458.04	0.00	458.04	2,927.16	1,463.58	5,402.55	2,705.29	1.53	-0.37	0.176
45.00	-19.84	-8.57	0.00	-414.63	0.00	414.63	2,874.57	1,437.29	5,146.72	2,577.18	1.94	-0.42	0.168
50.00	-18.96	-8.46	0.00	-371.77	0.00	371.77	2,819.87	1,409.94	4,893.03	2,450.15	2.41	-0.47	0.158
55.00	-18.09	-8.34	0.00	-329.49	0.00	329.49	2,763.07	1,381.53	4,641.85	2,324.38	2.93	-0.53	0.148
60.00	-17.25	-8.26	0.00	-287.77	0.00	287.77	2,704.15	1,352.08	4,393.52	2,200.03	3.51	-0.58	0.137
61.83	-16.18	-7.96	0.00	-272.65	0.00	272.65	2,682.06	1,341.03	4,303.42	2,154.91	3.74	-0.60	0.133
65.00	-15.67	-7.87	0.00	-247.43	0.00	247.43	2,643.13	1,321.57	4,148.39	2,077.28	4.15	-0.63	0.125
70.00	-14.88	-7.80	0.00	-208.10	0.00	208.10	2,580.00	1,290.00	3,906.81	1,956.31	4.83	-0.68	0.112
70.63	-13.88	-7.42	0.00	-203.18	0.00	203.18	2,571.90	1,285.95	3,876.65	1,941.20	4.92	-0.68	0.110
74.52	-13.28	-7.36	0.00	-174.34	0.00	174.34	2,521.12	1,260.56	3,691.77	1,848.63	5.49	-0.71	0.100
74.52	-13.28	-7.36	0.00	-174.34	0.00	174.34	1,868.10	934.05	2,745.13	1,374.61	5.49	-0.71	0.134
75.00	-13.22	-7.31	0.00	-170.80	0.00	170.80	1,864.11	932.05	2,729.38	1,366.72	5.56	-0.72	0.132
80.00	-12.59	-7.21	0.00	-134.27	0.00	134.27	1,821.35	910.68	2,566.18	1,285.00	6.34	-0.77	0.111
84.00	-10.63	-6.35	0.00	-105.44	0.00	105.44	1,785.63	892.82	2,436.95	1,220.29	7.00	-0.80	0.092
85.00	-10.51	-6.29	0.00	-99.09	0.00	99.09	1,776.49	888.25	2,404.85	1,204.21	7.17	-0.81	0.088
90.00	-9.93	-6.21	0.00	-67.64	0.00	67.64	1,729.52	864.76	2,245.74	1,124.54	8.04	-0.84	0.066
92.00	-8.15	-5.43	0.00	-55.22	0.00	55.22	1,710.14	855.07	2,182.80	1,093.02	8.39	-0.85	0.055
92.18	-4.93	-3.31	0.00	-54.25	0.00	54.25	1,708.38	854.19	2,177.15	1,090.19	8.43	-0.85	0.053
95.00	-4.66	-3.23	0.00	-44.91	0.00	44.91	1,680.44	840.22	2,089.20	1,046.15	8.93	-0.87	0.046
100.00	-4.22	-3.13	0.00	-28.77	0.00	28.77	1,629.26	814.63	1,935.58	969.23	9.85	-0.89	0.032
105.00	-3.79	-3.04	0.00	-13.14	0.00	13.14	1,575.96	787.98	1,785.22	893.94	10.79	-0.90	0.017
108.00	-0.32	-0.61	0.00	-1.21	0.00	1.21	1,542.97	771.49	1,696.72	849.62	11.35	-0.90	0.002
108.19	0.00	-0.60	0.00	-1.09	0.00	1.09	1,540.86	770.43	1,691.16	846.84	11.39	-0.90	0.001

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.18	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.60	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10	
Seismic Response Coefficient (C_s):	0.05	
Upper Limit C_s	0.05	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	1.29	
Redundancy Factor (p):	1.30	
Seismic Force Distribution Exponent (k):	1.40	
Total Unfactored Dead Load:	30.17	k
Seismic Base Shear (E):	2.11	k

Load Case (1.2 + 0.2Sds) * DL + E ELFM

Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
30	108.10	14	9	0.001	2	17
29	106.50	250	168	0.016	34	310
28	102.50	431	275	0.026	55	534
27	97.50	449	267	0.025	53	556
26	93.59	261	147	0.014	29	324
25	92.09	17	9	0.001	2	21
24	91.00	226	122	0.012	24	280
23	87.50	578	296	0.028	59	716
22	84.50	118	57	0.005	11	146
21	82.00	489	229	0.022	46	606
20	77.50	627	271	0.026	54	777
19	74.76	61	25	0.002	5	76
18	72.57	596	235	0.022	47	739
17	70.32	98	37	0.003	7	121
16	67.50	789	281	0.027	56	978
15	63.42	512	167	0.016	33	634
14	60.92	300	93	0.009	18	371
13	57.50	834	238	0.023	47	1,034
12	52.50	857	215	0.020	43	1,061
11	47.50	880	192	0.018	38	1,090
10	42.50	902	169	0.016	34	1,118
9	39.77	84	14	0.001	3	104
8	37.27	979	153	0.014	30	1,214

7	32.50	1,104	142	0.013	28	1,368
6	27.50	1,131	115	0.011	23	1,402
5	22.50	1,158	89	0.008	18	1,435
4	17.50	1,185	64	0.006	13	1,469
3	12.50	1,212	41	0.004	8	1,502
2	7.50	1,239	21	0.002	4	1,536
1	2.50	1,266	5	0.000	1	1,569
4' Pine Tree Branch	110.00	320	226	0.021	45	397
RFS FD9R6004/2C-3L	108.00	16	11	0.001	2	19
Amphenol Antel BXA-1	108.00	45	31	0.003	6	56
Amphenol Antel BXA-7	108.00	51	35	0.003	7	63
Antel LPA-80080/6CF	108.00	126	87	0.008	17	156
Flat T-Arm	108.00	750	515	0.049	103	929
VZW Unused Reserve:	108.00	2,262	1,555	0.147	310	2,804
6' Pine Tree Branch	92.18	3,240	1,785	0.169	356	4,015
Andrew ABT-DFDM-ADB	92.00	1	1	0.000	0	1
Powerwave Allgon LGP	92.00	32	17	0.002	3	39
Powerwave Allgon LGP	92.00	114	63	0.006	13	141
Raycap DC6-48-60-18-	92.00	20	11	0.001	2	25
Ericsson RRUS-11 (50	92.00	300	165	0.016	33	372
Powerwave Allgon 777	92.00	210	115	0.011	23	260
Kathrein Scala 800 1	92.00	41	22	0.002	4	51
KMW AM-X-CD-16-65-00	92.00	97	53	0.005	11	120
Round T-Arm	92.00	750	412	0.039	82	929
Ericsson RRUS 11 B12	84.00	152	74	0.007	15	188
Ericsson RRUS 11 B4	84.00	152	74	0.007	15	188
Ericsson RRUS 11 B2	84.00	152	74	0.007	15	188
RFS APX16DWV-16DWVS-	84.00	122	59	0.006	12	151
Commscope LNX-6515DS	84.00	151	73	0.007	15	187
Flat T-Arm	84.00	750	363	0.034	72	929
8' Pine Tree Branch	70.63	900	342	0.032	68	1,115
10' Pine Tree Branch	61.83	770	243	0.023	49	954
Symmetricom 58532A	50.00	0	0	0.000	0	0
		30,172	10,555	1.000	2,107	37,391

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
30	108.10	14	9	0.001	2	12
29	106.50	250	168	0.016	34	215
28	102.50	431	275	0.026	55	371
27	97.50	449	267	0.025	53	386
26	93.59	261	147	0.014	29	225
25	92.09	17	9	0.001	2	15
24	91.00	226	122	0.012	24	195
23	87.50	578	296	0.028	59	498
22	84.50	118	57	0.005	11	101
21	82.00	489	229	0.022	46	421
20	77.50	627	271	0.026	54	540
19	74.76	61	25	0.002	5	53
18	72.57	596	235	0.022	47	513
17	70.32	98	37	0.003	7	84
16	67.50	789	281	0.027	56	679
15	63.42	512	167	0.016	33	441
14	60.92	300	93	0.009	18	258
13	57.50	834	238	0.023	47	718
12	52.50	857	215	0.020	43	737
11	47.50	880	192	0.018	38	757
10	42.50	902	169	0.016	34	777

9	39.77	84	14	0.001	3	72
8	37.27	979	153	0.014	30	843
7	32.50	1,104	142	0.013	28	950
6	27.50	1,131	115	0.011	23	974
5	22.50	1,158	89	0.008	18	997
4	17.50	1,185	64	0.006	13	1,020
3	12.50	1,212	41	0.004	8	1,043
2	7.50	1,239	21	0.002	4	1,067
1	2.50	1,266	5	0.000	1	1,090
4' Pine Tree Branch	110.00	320	226	0.021	45	275
RFS FD9R6004/2C-3L	108.00	16	11	0.001	2	13
Amphenol Antel BXA-1	108.00	45	31	0.003	6	39
Amphenol Antel BXA-7	108.00	51	35	0.003	7	44
Antel LPA-80080/6CF	108.00	126	87	0.008	17	108
Flat T-Arm	108.00	750	515	0.049	103	646
VZW Unused Reserve:	108.00	2,262	1,555	0.147	310	1,947
6' Pine Tree Branch	92.18	3,240	1,785	0.169	356	2,789
Andrew ABT-DFDM-ADB	92.00	1	1	0.000	0	1
Powerwave Allgon LGP	92.00	32	17	0.002	3	27
Powerwave Allgon LGP	92.00	114	63	0.006	13	98
Raycap DC6-48-60-18-	92.00	20	11	0.001	2	17
Ericsson RRUS-11 (50	92.00	300	165	0.016	33	258
Powerwave Allgon 777	92.00	210	115	0.011	23	181
Kathrein Scala 800 1	92.00	41	22	0.002	4	35
KMW AM-X-CD-16-65-00	92.00	97	53	0.005	11	83
Round T-Arm	92.00	750	412	0.039	82	646
Ericsson RRUS 11 B12	84.00	152	74	0.007	15	131
Ericsson RRUS 11 B4	84.00	152	74	0.007	15	131
Ericsson RRUS 11 B2	84.00	152	74	0.007	15	131
RFS APX16DWV-16DWVS-	84.00	122	59	0.006	12	105
Commscope LNX-6515DS	84.00	151	73	0.007	15	130
Flat T-Arm	84.00	750	363	0.034	72	646
8' Pine Tree Branch	70.63	900	342	0.032	68	775
10' Pine Tree Branch	61.83	770	243	0.023	49	663
Symmetricom 58532A	50.00	0	0	0.000	0	0
		30,172	10,555	1.000	2,107	25,971

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-35.43	-2.06	0.00	-174.74	0.00	174.74	4,289.22	2,144.61	9,789.64	4,902.09	0.00	0.00	0.044
5.00	-33.89	-2.07	0.00	-164.42	0.00	164.42	4,228.90	2,114.45	9,418.39	4,716.20	0.01	-0.01	0.043
10.00	-32.39	-2.06	0.00	-154.09	0.00	154.09	4,166.47	2,083.24	9,049.23	4,531.34	0.02	-0.02	0.042
15.00	-30.92	-2.05	0.00	-143.78	0.00	143.78	4,101.94	2,050.97	8,682.51	4,347.71	0.05	-0.03	0.041
20.00	-29.48	-2.04	0.00	-133.51	0.00	133.51	4,035.29	2,017.65	8,318.56	4,165.46	0.08	-0.04	0.039
25.00	-28.08	-2.02	0.00	-123.31	0.00	123.31	3,966.54	1,983.27	7,957.76	3,984.79	0.13	-0.05	0.038
30.00	-26.71	-2.00	0.00	-113.20	0.00	113.20	3,895.69	1,947.84	7,600.43	3,805.87	0.18	-0.06	0.037
35.00	-25.50	-1.97	0.00	-103.23	0.00	103.23	3,822.72	1,911.36	7,246.94	3,628.86	0.25	-0.07	0.035
39.54	-25.39	-1.97	0.00	-94.29	0.00	94.29	3,754.64	1,877.32	6,929.59	3,469.94	0.31	-0.08	0.034
39.54	-25.39	-1.97	0.00	-94.29	0.00	94.29	2,931.90	1,465.95	5,426.19	2,717.13	0.31	-0.08	0.043
40.00	-24.27	-1.93	0.00	-93.39	0.00	93.39	2,927.16	1,463.58	5,402.55	2,705.29	0.32	-0.08	0.043
45.00	-23.18	-1.90	0.00	-83.71	0.00	83.71	2,874.57	1,437.29	5,146.72	2,577.18	0.41	-0.09	0.041
50.00	-22.12	-1.86	0.00	-74.22	0.00	74.22	2,819.87	1,409.94	4,893.03	2,450.15	0.50	-0.10	0.038
55.00	-21.09	-1.81	0.00	-64.93	0.00	64.93	2,763.07	1,381.53	4,641.85	2,324.38	0.61	-0.11	0.036
60.00	-20.72	-1.80	0.00	-55.86	0.00	55.86	2,704.15	1,352.08	4,393.52	2,200.03	0.73	-0.12	0.033
61.83	-19.13	-1.71	0.00	-52.58	0.00	52.58	2,682.06	1,341.03	4,303.42	2,154.91	0.78	-0.12	0.032
65.00	-18.15	-1.66	0.00	-47.15	0.00	47.15	2,643.13	1,321.57	4,148.39	2,077.28	0.86	-0.13	0.030
70.00	-16.91	-1.58	0.00	-38.86	0.00	38.86	2,580.00	1,290.00	3,906.81	1,956.31	1.00	-0.14	0.026
70.63	-16.17	-1.53	0.00	-37.87	0.00	37.87	2,571.90	1,285.95	3,876.65	1,941.20	1.02	-0.14	0.026
74.52	-16.10	-1.53	0.00	-31.91	0.00	31.91	2,521.12	1,260.56	3,691.77	1,848.63	1.14	-0.14	0.024
74.52	-16.10	-1.53	0.00	-31.91	0.00	31.91	1,868.10	934.05	2,745.13	1,374.61	1.14	-0.14	0.032
75.00	-15.32	-1.47	0.00	-31.18	0.00	31.18	1,864.11	932.05	2,729.38	1,366.72	1.15	-0.15	0.031
80.00	-14.72	-1.43	0.00	-23.81	0.00	23.81	1,821.35	910.68	2,566.18	1,285.00	1.31	-0.15	0.027
84.00	-12.74	-1.27	0.00	-18.11	0.00	18.11	1,785.63	892.82	2,436.95	1,220.29	1.44	-0.16	0.022
85.00	-12.02	-1.21	0.00	-16.84	0.00	16.84	1,776.49	888.25	2,404.85	1,204.21	1.47	-0.16	0.021
90.00	-11.74	-1.18	0.00	-10.80	0.00	10.80	1,729.52	864.76	2,245.74	1,124.54	1.65	-0.17	0.016
92.00	-5.77	-0.64	0.00	-8.43	0.00	8.43	1,710.14	855.07	2,182.80	1,093.02	1.72	-0.17	0.011
92.18	-5.44	-0.61	0.00	-8.32	0.00	8.32	1,708.38	854.19	2,177.15	1,090.19	1.72	-0.17	0.011
95.00	-4.89	-0.55	0.00	-6.61	0.00	6.61	1,680.44	840.22	2,089.20	1,046.15	1.82	-0.17	0.009
100.00	-4.35	-0.49	0.00	-3.85	0.00	3.85	1,629.26	814.63	1,935.58	969.23	2.00	-0.17	0.007
105.00	-4.04	-0.46	0.00	-1.38	0.00	1.38	1,575.96	787.98	1,785.22	893.94	2.19	-0.17	0.004
108.00	0.00	0.00	0.00	0.00	0.00	0.00	1,542.97	771.49	1,696.72	849.62	2.30	-0.18	0.000
108.19	0.00	0.00	0.00	0.00	0.00	0.00	1,540.86	770.43	1,691.16	846.84	2.30	-0.18	0.000

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-24.61	-2.06	0.00	-173.80	0.00	173.80	4,289.22	2,144.61	9,789.64	4,902.09	0.00	0.00	0.041
5.00	-23.54	-2.06	0.00	-163.49	0.00	163.49	4,228.90	2,114.45	9,418.39	4,716.20	0.01	-0.01	0.040
10.00	-22.49	-2.06	0.00	-153.17	0.00	153.17	4,166.47	2,083.24	9,049.23	4,531.34	0.02	-0.02	0.039
15.00	-21.47	-2.05	0.00	-142.88	0.00	142.88	4,101.94	2,050.97	8,682.51	4,347.71	0.04	-0.03	0.038
20.00	-20.48	-2.03	0.00	-132.64	0.00	132.64	4,035.29	2,017.65	8,318.56	4,165.46	0.08	-0.04	0.037
25.00	-19.50	-2.01	0.00	-122.47	0.00	122.47	3,966.54	1,983.27	7,957.76	3,984.79	0.12	-0.05	0.036
30.00	-18.55	-1.99	0.00	-112.41	0.00	112.41	3,895.69	1,947.84	7,600.43	3,805.87	0.18	-0.06	0.034
35.00	-17.71	-1.96	0.00	-102.48	0.00	102.48	3,822.72	1,911.36	7,246.94	3,628.86	0.24	-0.07	0.033
39.54	-17.64	-1.96	0.00	-93.59	0.00	93.59	3,754.64	1,877.32	6,929.59	3,469.94	0.31	-0.08	0.032
39.54	-17.64	-1.96	0.00	-93.59	0.00	93.59	2,931.90	1,465.95	5,426.19	2,717.13	0.31	-0.08	0.040
40.00	-16.86	-1.92	0.00	-92.68	0.00	92.68	2,927.16	1,463.58	5,402.55	2,705.29	0.32	-0.08	0.040
45.00	-16.10	-1.89	0.00	-83.07	0.00	83.07	2,874.57	1,437.29	5,146.72	2,577.18	0.40	-0.09	0.038
50.00	-15.36	-1.85	0.00	-73.63	0.00	73.63	2,819.87	1,409.94	4,893.03	2,450.15	0.50	-0.10	0.036
55.00	-14.65	-1.80	0.00	-64.40	0.00	64.40	2,763.07	1,381.53	4,641.85	2,324.38	0.61	-0.11	0.033
60.00	-14.39	-1.78	0.00	-55.40	0.00	55.40	2,704.15	1,352.08	4,393.52	2,200.03	0.73	-0.12	0.031
61.83	-13.28	-1.70	0.00	-52.14	0.00	52.14	2,682.06	1,341.03	4,303.42	2,154.91	0.77	-0.12	0.029
65.00	-12.60	-1.64	0.00	-46.75	0.00	46.75	2,643.13	1,321.57	4,148.39	2,077.28	0.86	-0.13	0.027
70.00	-11.75	-1.57	0.00	-38.53	0.00	38.53	2,580.00	1,290.00	3,906.81	1,956.31	1.00	-0.14	0.024
70.63	-11.23	-1.52	0.00	-37.55	0.00	37.55	2,571.90	1,285.95	3,876.65	1,941.20	1.01	-0.14	0.024
74.52	-11.18	-1.51	0.00	-31.64	0.00	31.64	2,521.12	1,260.56	3,691.77	1,848.63	1.13	-0.14	0.022
74.52	-11.18	-1.51	0.00	-31.64	0.00	31.64	1,868.10	934.05	2,745.13	1,374.61	1.13	-0.14	0.029
75.00	-10.64	-1.46	0.00	-30.91	0.00	30.91	1,864.11	932.05	2,729.38	1,366.72	1.14	-0.14	0.028
80.00	-10.22	-1.41	0.00	-23.61	0.00	23.61	1,821.35	910.68	2,566.18	1,285.00	1.30	-0.15	0.024
84.00	-8.85	-1.26	0.00	-17.95	0.00	17.95	1,785.63	892.82	2,436.95	1,220.29	1.43	-0.16	0.020
85.00	-8.35	-1.20	0.00	-16.69	0.00	16.69	1,776.49	888.25	2,404.85	1,204.21	1.46	-0.16	0.019
90.00	-8.15	-1.17	0.00	-10.71	0.00	10.71	1,729.52	864.76	2,245.74	1,124.54	1.63	-0.17	0.014
92.00	-4.00	-0.63	0.00	-8.36	0.00	8.36	1,710.14	855.07	2,182.80	1,093.02	1.70	-0.17	0.010
92.18	-3.78	-0.60	0.00	-8.25	0.00	8.25	1,708.38	854.19	2,177.15	1,090.19	1.71	-0.17	0.010
95.00	-3.39	-0.55	0.00	-6.55	0.00	6.55	1,680.44	840.22	2,089.20	1,046.15	1.81	-0.17	0.008
100.00	-3.02	-0.49	0.00	-3.82	0.00	3.82	1,629.26	814.63	1,935.58	969.23	1.99	-0.17	0.006
105.00	-2.81	-0.46	0.00	-1.37	0.00	1.37	1,575.96	787.98	1,785.22	893.94	2.17	-0.17	0.003
108.00	0.00	0.00	0.00	0.00	0.00	0.00	1,542.97	771.49	1,696.72	849.62	2.28	-0.17	0.000
108.19	0.00	0.00	0.00	0.00	0.00	0.00	1,540.86	770.43	1,691.16	846.84	2.29	-0.17	0.000

Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	1.29
Redundancy Factor (p):	1.30

Load Case (1.2 + 0.2Sds) * DL + E EMAM — Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
30	108.10	14	1.887	1.963	1.134	0.392	5	17
29	106.50	250	1.831	1.685	1.032	0.357	77	310
28	102.50	431	1.696	1.109	0.809	0.277	103	534
27	97.50	449	1.535	0.591	0.585	0.192	75	556
26	93.59	261	1.414	0.311	0.447	0.138	31	324
25	92.09	17	1.369	0.228	0.401	0.119	2	21
24	91.00	226	1.337	0.175	0.370	0.107	21	280
23	87.50	578	1.236	0.042	0.283	0.073	37	716
22	84.50	118	1.153	-0.035	0.221	0.050	5	146
21	82.00	489	1.086	-0.078	0.178	0.035	15	606
20	77.50	627	0.970	-0.116	0.117	0.017	9	777
19	74.76	61	0.902	-0.122	0.088	0.012	1	76
18	72.57	596	0.850	-0.119	0.069	0.010	5	739
17	70.32	98	0.798	-0.112	0.053	0.010	1	121
16	67.50	789	0.736	-0.097	0.037	0.012	8	978
15	63.42	512	0.649	-0.070	0.021	0.018	8	634
14	60.92	300	0.599	-0.053	0.014	0.022	6	371
13	57.50	834	0.534	-0.029	0.009	0.029	21	1,034
12	52.50	857	0.445	0.003	0.006	0.037	27	1,061
11	47.50	880	0.364	0.029	0.008	0.042	32	1,090
10	42.50	902	0.292	0.047	0.013	0.044	35	1,118
9	39.77	84	0.255	0.054	0.017	0.044	3	104
8	37.27	979	0.224	0.059	0.020	0.044	37	1,214
7	32.50	1,104	0.171	0.066	0.027	0.042	40	1,368
6	27.50	1,131	0.122	0.070	0.034	0.039	39	1,402
5	22.50	1,158	0.082	0.072	0.039	0.037	37	1,435
4	17.50	1,185	0.049	0.071	0.042	0.034	35	1,469
3	12.50	1,212	0.025	0.067	0.040	0.030	32	1,502
2	7.50	1,239	0.009	0.053	0.031	0.024	26	1,536
1	2.50	1,266	0.001	0.024	0.013	0.011	12	1,569
4' Pine Tree Branch	110.00	320	1.954	2.334	1.265	0.437	121	397
RFS FD9R6004/2C-3L	108.00	16	1.883	1.945	1.127	0.390	5	19
Amphenol Antel BXA-1	108.00	45	1.883	1.945	1.127	0.390	15	56
Amphenol Antel BXA-7	108.00	51	1.883	1.945	1.127	0.390	17	63

Antel LPA-80080/6CF	108.00	126	1.883	1.945	1.127	0.390	43	156
Flat T-Arm	108.00	750	1.883	1.945	1.127	0.390	254	929
VZW Unused Reserve:	108.00	2,262	1.883	1.945	1.127	0.390	765	2,804
6' Pine Tree Branch	92.18	3,240	1.372	0.233	0.403	0.120	338	4,015
Andrew ABT-DFDM-ADB	92.00	1	1.367	0.224	0.398	0.118	0	1
Powerwave Allgon LGP	92.00	32	1.367	0.224	0.398	0.118	3	39
Powerwave Allgon LGP	92.00	114	1.367	0.224	0.398	0.118	12	141
Raycap DC6-48-60-18-	92.00	20	1.367	0.224	0.398	0.118	2	25
Ericsson RRUS-11 (50	92.00	300	1.367	0.224	0.398	0.118	31	372
Powerwave Allgon 777	92.00	210	1.367	0.224	0.398	0.118	22	260
Kathrein Scala 800 1	92.00	41	1.367	0.224	0.398	0.118	4	51
KMW AM-X-CD-16-65-00	92.00	97	1.367	0.224	0.398	0.118	10	120
Round T-Arm	92.00	750	1.367	0.224	0.398	0.118	77	929
Ericsson RRUS 11 B12	84.00	152	1.139	-0.045	0.212	0.047	6	188
Ericsson RRUS 11 B4	84.00	152	1.139	-0.045	0.212	0.047	6	188
Ericsson RRUS 11 B2	84.00	152	1.139	-0.045	0.212	0.047	6	188
RFS APX16DWV-	84.00	122	1.139	-0.045	0.212	0.047	5	151
Commscope LNX-	84.00	151	1.139	-0.045	0.212	0.047	6	187
Flat T-Arm	84.00	750	1.139	-0.045	0.212	0.047	30	929
8' Pine Tree Branch	70.63	900	0.806	-0.113	0.055	0.009	7	1,115
10' Pine Tree Branch	61.83	770	0.617	-0.059	0.017	0.020	14	954
Symmetricom 58532A	50.00	0	0.404	0.017	0.006	0.040	0	0
		30,172	58.213	21.715	19.527	6.613	2,584	37,391

Load Case (0.9 - 0.2Sds) * DL + E EMAM — Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
30	108.10	14	1.887	1.963	1.134	0.392	5	12
29	106.50	250	1.831	1.685	1.032	0.357	77	215
28	102.50	431	1.696	1.109	0.809	0.277	103	371
27	97.50	449	1.535	0.591	0.585	0.192	75	386
26	93.59	261	1.414	0.311	0.447	0.138	31	225
25	92.09	17	1.369	0.228	0.401	0.119	2	15
24	91.00	226	1.337	0.175	0.370	0.107	21	195
23	87.50	578	1.236	0.042	0.283	0.073	37	498
22	84.50	118	1.153	-0.035	0.221	0.050	5	101
21	82.00	489	1.086	-0.078	0.178	0.035	15	421
20	77.50	627	0.970	-0.116	0.117	0.017	9	540
19	74.76	61	0.902	-0.122	0.088	0.012	1	53
18	72.57	596	0.850	-0.119	0.069	0.010	5	513
17	70.32	98	0.798	-0.112	0.053	0.010	1	84
16	67.50	789	0.736	-0.097	0.037	0.012	8	679
15	63.42	512	0.649	-0.070	0.021	0.018	8	441
14	60.92	300	0.599	-0.053	0.014	0.022	6	258
13	57.50	834	0.534	-0.029	0.009	0.029	21	718
12	52.50	857	0.445	0.003	0.006	0.037	27	737
11	47.50	880	0.364	0.029	0.008	0.042	32	757
10	42.50	902	0.292	0.047	0.013	0.044	35	777
9	39.77	84	0.255	0.054	0.017	0.044	3	72
8	37.27	979	0.224	0.059	0.020	0.044	37	843
7	32.50	1,104	0.171	0.066	0.027	0.042	40	950
6	27.50	1,131	0.122	0.070	0.034	0.039	39	974
5	22.50	1,158	0.082	0.072	0.039	0.037	37	997
4	17.50	1,185	0.049	0.071	0.042	0.034	35	1,020
3	12.50	1,212	0.025	0.067	0.040	0.030	32	1,043
2	7.50	1,239	0.009	0.053	0.031	0.024	26	1,067
1	2.50	1,266	0.001	0.024	0.013	0.011	12	1,090
4' Pine Tree Branch	110.00	320	1.954	2.334	1.265	0.437	121	275

RFS FD9R6004/2C-3L	108.00	16	1.883	1.945	1.127	0.390	5	13
Amphenol Antel BXA-1	108.00	45	1.883	1.945	1.127	0.390	15	39
Amphenol Antel BXA-7	108.00	51	1.883	1.945	1.127	0.390	17	44
Antel LPA-80080/6CF	108.00	126	1.883	1.945	1.127	0.390	43	108
Flat T-Arm	108.00	750	1.883	1.945	1.127	0.390	254	646
VZW Unused Reserve:	108.00	2,262	1.883	1.945	1.127	0.390	765	1,947
6' Pine Tree Branch	92.18	3,240	1.372	0.233	0.403	0.120	338	2,789
Andrew ABT-DFDM-ADB	92.00	1	1.367	0.224	0.398	0.118	0	1
Powerwave Allgon LGP	92.00	32	1.367	0.224	0.398	0.118	3	27
Powerwave Allgon LGP	92.00	114	1.367	0.224	0.398	0.118	12	98
Raycap DC6-48-60-18-	92.00	20	1.367	0.224	0.398	0.118	2	17
Ericsson RRUS-11 (50	92.00	300	1.367	0.224	0.398	0.118	31	258
Powerwave Allgon 777	92.00	210	1.367	0.224	0.398	0.118	22	181
Kathrein Scala 800 1	92.00	41	1.367	0.224	0.398	0.118	4	35
KMW AM-X-CD-16-65-00	92.00	97	1.367	0.224	0.398	0.118	10	83
Round T-Arm	92.00	750	1.367	0.224	0.398	0.118	77	646
Ericsson RRUS 11 B12	84.00	152	1.139	-0.045	0.212	0.047	6	131
Ericsson RRUS 11 B4	84.00	152	1.139	-0.045	0.212	0.047	6	131
Ericsson RRUS 11 B2	84.00	152	1.139	-0.045	0.212	0.047	6	131
RFS APX16DWV-	84.00	122	1.139	-0.045	0.212	0.047	5	105
Commscope LNX-	84.00	151	1.139	-0.045	0.212	0.047	6	130
Flat T-Arm	84.00	750	1.139	-0.045	0.212	0.047	30	646
8' Pine Tree Branch	70.63	900	0.806	-0.113	0.055	0.009	7	775
10' Pine Tree Branch	61.83	770	0.617	-0.059	0.017	0.020	14	663
Symmetricom 58532A	50.00	0	0.404	0.017	0.006	0.040	0	0
		30,172	58.213	21.715	19.527	6.613	2,584	25,971

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-35.43	-2.45	0.00	-223.97	0.00	223.97	4,289.22	2,144.61	9,789.64	4,902.09	0.00	0.00	0.054
5.00	-33.89	-2.44	0.00	-211.70	0.00	211.70	4,228.90	2,114.45	9,418.39	4,716.20	0.01	-0.01	0.053
10.00	-32.39	-2.41	0.00	-199.52	0.00	199.52	4,166.47	2,083.24	9,049.23	4,531.34	0.03	-0.02	0.052
15.00	-30.92	-2.38	0.00	-187.47	0.00	187.47	4,101.94	2,050.97	8,682.51	4,347.71	0.06	-0.04	0.051
20.00	-29.48	-2.35	0.00	-175.57	0.00	175.57	4,035.29	2,017.65	8,318.56	4,165.46	0.10	-0.05	0.049
25.00	-28.08	-2.32	0.00	-163.82	0.00	163.82	3,966.54	1,983.27	7,957.76	3,984.79	0.16	-0.06	0.048
30.00	-26.71	-2.28	0.00	-152.25	0.00	152.25	3,895.69	1,947.84	7,600.43	3,805.87	0.23	-0.07	0.047
35.00	-25.50	-2.25	0.00	-140.85	0.00	140.85	3,822.72	1,911.36	7,246.94	3,628.86	0.32	-0.09	0.045
39.54	-25.39	-2.25	0.00	-130.65	0.00	130.65	3,754.64	1,877.32	6,929.59	3,469.94	0.41	-0.10	0.044
39.54	-25.39	-2.25	0.00	-130.65	0.00	130.65	2,931.90	1,465.95	5,426.19	2,717.13	0.41	-0.10	0.057
40.00	-24.27	-2.21	0.00	-129.62	0.00	129.62	2,927.16	1,463.58	5,402.55	2,705.29	0.42	-0.10	0.056
45.00	-23.18	-2.18	0.00	-118.56	0.00	118.56	2,874.57	1,437.29	5,146.72	2,577.18	0.53	-0.12	0.054
50.00	-22.12	-2.16	0.00	-107.63	0.00	107.63	2,819.87	1,409.94	4,893.03	2,450.15	0.66	-0.13	0.052
55.00	-21.08	-2.14	0.00	-96.83	0.00	96.83	2,763.07	1,381.53	4,641.85	2,324.38	0.81	-0.15	0.049
60.00	-20.71	-2.14	0.00	-86.11	0.00	86.11	2,704.15	1,352.08	4,393.52	2,200.03	0.97	-0.16	0.047
61.83	-19.12	-2.12	0.00	-82.19	0.00	82.19	2,682.06	1,341.03	4,303.42	2,154.91	1.04	-0.17	0.045
65.00	-18.15	-2.11	0.00	-75.48	0.00	75.48	2,643.13	1,321.57	4,148.39	2,077.28	1.15	-0.18	0.043
70.00	-16.91	-2.10	0.00	-64.93	0.00	64.93	2,580.00	1,290.00	3,906.81	1,956.31	1.35	-0.19	0.040
70.63	-16.17	-2.09	0.00	-63.61	0.00	63.61	2,571.90	1,285.95	3,876.65	1,941.20	1.37	-0.19	0.039
74.52	-16.09	-2.10	0.00	-55.46	0.00	55.46	2,521.12	1,260.56	3,691.77	1,848.63	1.53	-0.20	0.036
74.52	-16.09	-2.10	0.00	-55.46	0.00	55.46	1,868.10	934.05	2,745.13	1,374.61	1.53	-0.20	0.049
75.00	-15.32	-2.09	0.00	-54.46	0.00	54.46	1,864.11	932.05	2,729.38	1,366.72	1.55	-0.21	0.048
80.00	-14.71	-2.07	0.00	-44.03	0.00	44.03	1,821.35	910.68	2,566.18	1,285.00	1.78	-0.22	0.042
84.00	-12.73	-2.00	0.00	-35.75	0.00	35.75	1,785.63	892.82	2,436.95	1,220.29	1.97	-0.23	0.036
85.00	-12.02	-1.96	0.00	-33.75	0.00	33.75	1,776.49	888.25	2,404.85	1,204.21	2.02	-0.24	0.035
90.00	-11.73	-1.94	0.00	-23.94	0.00	23.94	1,729.52	864.76	2,245.74	1,124.54	2.27	-0.25	0.028
92.00	-5.76	-1.42	0.00	-20.05	0.00	20.05	1,710.14	855.07	2,182.80	1,093.02	2.38	-0.25	0.022
92.18	-5.44	-1.38	0.00	-19.80	0.00	19.80	1,708.38	854.19	2,177.15	1,090.19	2.39	-0.25	0.021
95.00	-4.88	-1.31	0.00	-15.90	0.00	15.90	1,680.44	840.22	2,089.20	1,046.15	2.54	-0.26	0.018
100.00	-4.35	-1.20	0.00	-9.37	0.00	9.37	1,629.26	814.63	1,935.58	969.23	2.81	-0.26	0.012
105.00	-4.04	-1.12	0.00	-3.37	0.00	3.37	1,575.96	787.98	1,785.22	893.94	3.08	-0.27	0.006
108.00	0.00	0.00	0.00	0.00	0.00	0.00	1,542.97	771.49	1,696.72	849.62	3.25	-0.27	0.000
108.19	0.00	0.00	0.00	0.00	0.00	0.00	1,540.86	770.43	1,691.16	846.84	3.26	-0.27	0.000

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-24.61	-2.45	0.00	-222.68	0.00	222.68	4,289.22	2,144.61	9,789.64	4,902.09	0.00	0.00	0.051
5.00	-23.54	-2.43	0.00	-210.41	0.00	210.41	4,228.90	2,114.45	9,418.39	4,716.20	0.01	-0.01	0.050
10.00	-22.49	-2.40	0.00	-198.25	0.00	198.25	4,166.47	2,083.24	9,049.23	4,531.34	0.03	-0.02	0.049
15.00	-21.47	-2.37	0.00	-186.23	0.00	186.23	4,101.94	2,050.97	8,682.51	4,347.71	0.06	-0.04	0.048
20.00	-20.48	-2.34	0.00	-174.36	0.00	174.36	4,035.29	2,017.65	8,318.56	4,165.46	0.10	-0.05	0.047
25.00	-19.50	-2.31	0.00	-162.66	0.00	162.66	3,966.54	1,983.27	7,957.76	3,984.79	0.16	-0.06	0.046
30.00	-18.55	-2.27	0.00	-151.14	0.00	151.14	3,895.69	1,947.84	7,600.43	3,805.87	0.23	-0.07	0.044
35.00	-17.71	-2.23	0.00	-139.80	0.00	139.80	3,822.72	1,911.36	7,246.94	3,628.86	0.32	-0.09	0.043
39.54	-17.63	-2.23	0.00	-129.66	0.00	129.66	3,754.64	1,877.32	6,929.59	3,469.94	0.41	-0.10	0.042
39.54	-17.63	-2.23	0.00	-129.66	0.00	129.66	2,931.90	1,465.95	5,426.19	2,717.13	0.41	-0.10	0.054
40.00	-16.86	-2.20	0.00	-128.63	0.00	128.63	2,927.16	1,463.58	5,402.55	2,705.29	0.42	-0.10	0.053
45.00	-16.10	-2.17	0.00	-117.64	0.00	117.64	2,874.57	1,437.29	5,146.72	2,577.18	0.53	-0.12	0.051
50.00	-15.36	-2.14	0.00	-106.80	0.00	106.80	2,819.87	1,409.94	4,893.03	2,450.15	0.66	-0.13	0.049
55.00	-14.64	-2.13	0.00	-96.08	0.00	96.08	2,763.07	1,381.53	4,641.85	2,324.38	0.80	-0.15	0.047
60.00	-14.38	-2.12	0.00	-85.45	0.00	85.45	2,704.15	1,352.08	4,393.52	2,200.03	0.97	-0.16	0.044
61.83	-13.28	-2.10	0.00	-81.56	0.00	81.56	2,682.06	1,341.03	4,303.42	2,154.91	1.03	-0.17	0.043
65.00	-12.60	-2.09	0.00	-74.91	0.00	74.91	2,643.13	1,321.57	4,148.39	2,077.28	1.14	-0.18	0.041
70.00	-11.74	-2.08	0.00	-64.45	0.00	64.45	2,580.00	1,290.00	3,906.81	1,956.31	1.34	-0.19	0.037
70.63	-11.23	-2.08	0.00	-63.14	0.00	63.14	2,571.90	1,285.95	3,876.65	1,941.20	1.36	-0.19	0.037
74.52	-11.18	-2.08	0.00	-55.06	0.00	55.06	2,521.12	1,260.56	3,691.77	1,848.63	1.52	-0.20	0.034
74.52	-11.18	-2.08	0.00	-55.06	0.00	55.06	1,868.10	934.05	2,745.13	1,374.61	1.52	-0.20	0.046
75.00	-10.64	-2.07	0.00	-54.07	0.00	54.07	1,864.11	932.05	2,729.38	1,366.72	1.54	-0.20	0.045
80.00	-10.22	-2.05	0.00	-43.73	0.00	43.73	1,821.35	910.68	2,566.18	1,285.00	1.77	-0.22	0.040
84.00	-8.84	-1.98	0.00	-35.52	0.00	35.52	1,785.63	892.82	2,436.95	1,220.29	1.96	-0.23	0.034
85.00	-8.34	-1.95	0.00	-33.53	0.00	33.53	1,776.49	888.25	2,404.85	1,204.21	2.00	-0.23	0.033
90.00	-8.15	-1.93	0.00	-23.80	0.00	23.80	1,729.52	864.76	2,245.74	1,124.54	2.26	-0.25	0.026
92.00	-4.00	-1.41	0.00	-19.95	0.00	19.95	1,710.14	855.07	2,182.80	1,093.02	2.36	-0.25	0.021
92.18	-3.78	-1.38	0.00	-19.70	0.00	19.70	1,708.38	854.19	2,177.15	1,090.19	2.37	-0.25	0.020
95.00	-3.39	-1.30	0.00	-15.82	0.00	15.82	1,680.44	840.22	2,089.20	1,046.15	2.52	-0.25	0.017
100.00	-3.02	-1.19	0.00	-9.32	0.00	9.32	1,629.26	814.63	1,935.58	969.23	2.79	-0.26	0.011
105.00	-2.80	-1.12	0.00	-3.35	0.00	3.35	1,575.96	787.98	1,785.22	893.94	3.06	-0.26	0.006
108.00	0.00	0.00	0.00	0.00	0.00	0.00	1,542.97	771.49	1,696.72	849.62	3.23	-0.26	0.000
108.19	0.00	0.00	0.00	0.00	0.00	0.00	1,540.86	770.43	1,691.16	846.84	3.24	-0.26	0.000

Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	34.32	0.00	36.16	0.00	0.00	2977.67	39.54	0.62
0.9D + 1.6W	34.31	0.00	27.11	0.00	0.00	2963.47	39.54	0.62
1.2D + 1.0Di + 1.0Wi	7.73	0.00	75.37	0.00	0.00	677.83	39.54	0.16
(1.2 + 0.2Sds) * DL + E ELFM	2.06	0.00	35.43	0.00	0.00	174.74	0.00	0.04
(1.2 + 0.2Sds) * DL + E EMAM	2.45	0.00	35.43	0.00	0.00	223.97	39.54	0.06
(0.9 - 0.2Sds) * DL + E ELFM	2.06	0.00	24.61	0.00	0.00	173.80	0.00	0.04
(0.9 - 0.2Sds) * DL + E EMAM	2.45	0.00	24.61	0.00	0.00	222.68	39.54	0.05
1.0D + 1.0W	9.53	0.00	30.17	0.00	0.00	824.89	39.54	0.18

Base Summary

Reactions

Original Design			Analysis			
Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment Design %
3,300.00	25.00	38.00	2,977.67	75.37	34.32	66.84

Base Plate

Yield (ksi)	Thick (in)	Width (in)	Style	Poly Sides	Clip Len (in)	Effective Len (in)	Mu (kip-in)	Phi Mn (kip-in)	Ratio
50.0	2.500	58.920	Clipped	4	11.00	11.081	253.23	779.12	0.33

Anchor Bolts

Bolt Circle	Num Bolts	Bolt Type	Bolt Dia (in)	Yield (ksi)	Ultimate (ksi)	Arrange	Cluster Dist (in)	Start Angle (deg)	Compression			Tension		
									Force (kip)	Allow (kip)	Ratio	Force (kip)	Allow (kip)	Ratio
59.11	16	2.25" 18J	2.25	75.00	100.00	Clustered	6.25	45.0	155.84	260.00	0.62	146.41	260.00	0.58

Exhibit E

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: CTNH543A

CTNH543A_ATC Sharon
70 Herb Rd
Sharon, CA 06069

November 5, 2016

EBI Project Number: 6216004990

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	14.93 %

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

EBI Consulting
environmental | engineering | due diligence

November 5, 2016

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

Emissions Analysis for Site: **CTNH543A – CTNH543A_ATC Sharon**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **72 Herb Rd, Sharon, CA**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 700 MHz Band is approximately 467 $\mu W/cm^2$, and the general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **72 Herb Rd, Sharon, CA**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

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

5) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

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

7) The antenna mounting height centerline of the proposed antennas is **84 feet** above ground level (AGL).

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

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	84	Height (AGL):	84	Height (AGL):	84
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	180	Total TX Power(W):	180	Total TX Power(W):	180
ERP (W):	7,678.43	ERP (W):	7,678.43	ERP (W):	7,678.43
Antenna A1 MPE%	4.54	Antenna B1 MPE%	4.54	Antenna C1 MPE%	4.54
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	84	Height (AGL):	84	Height (AGL):	84
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	30	Total TX Power(W):	30	Total TX Power(W):	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A2 MPE%	1.09	Antenna B2 MPE%	1.09	Antenna C2 MPE%	1.09

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**5.63 %**
Verizon Wireless	3.75 %
AT&T	4.35 %
Nextel	0.46 %
CSP	0.74 %
Site Total MPE %:	**14.93 %**

T-Mobile Sector A Total:	5.63 %
T-Mobile Sector B Total:	5.63 %
T-Mobile Sector C Total:	5.63 %
Site Total:	14.93 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile PCS - 1950 MHz UMTS	2	1,279.74	84	15.12	PCS - 1950 MHz	1000	1.51%
T-Mobile AWS - 2100 MHz LTE	2	2,559.48	84	30.25	AWS - 2100 MHz	1000	3.02%
T-Mobile 700 MHz LTE	1	865.21	84	5.11	700 MHz	467	1.09%
						Total:	**5.63%**

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	5.63 %
Sector B:	5.63 %
Sector C:	5.63 %
T-Mobile Per Sector Maximum:	5.63 %
Site Total:	14.93 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **14.93%** 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.

Exhibit F

AMERICAN TOWER®
CORPORATION

LETTER OF AUTHORIZATION

ATC SITE # / NAME: 415974 / Sharon CT
SITE ADDRESS: 70 Herb Road, Sharon, CT
LICENSEE: T-Mobile Northeast LLC d/b/a T-Mobile

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

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

Signature:

Print Name: Margaret Robinson
Senior Counsel
American Tower*

NOTARY BLOCK

Commonwealth of MASSACHUSETTS
County of Middlesex

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

WITNESS my hand and official seal, this 9 day of November, 2016.

NOTARY SEAL

ANGELICA R. LEMOS-BARTHELEMY
Notary Public
COMMONWEALTH OF MASSACHUSETTS
My Commission Expires
April 10, 2020

Notary Public
My Commission Expires: April 10, 2020

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

Exhibit G

SMW Engineering Group, Inc.
158 Business Center Drive
Birmingham, Alabama 35244
Telephone: (205) 252-6985
Fax: (205)320-1504

2-C CERTIFICATION

Date: November 28, 2016

RE:	**Site Name:**	**CTNH543A**
	Address:	**70 Herb Road Sharon, CT 06069**
	Ground Elevation:	**1088' (AMSL)**
	Top of Tower:	**111.8' (AGL)**
	Highest Appurtenance: (Cell Antenna)	**112.3' (AGL)**

City Name: Sharon **County: Litchfield** **State: Connecticut**

I certify that the Latitude of 41 Degrees 47 Min. 28.745 Sec. North and the longitude of 73 Degrees 25 Min. 32.459 Sec. West is accurate to within +/- 50 feet horizontally; and is accurate to within +/- 20 feet vertically. The horizontal datum (coordinates) is in terms of the North America Datum of 1983 (NAD83) and is expressed in degrees, minutes and seconds. The vertical datum (heights) is in terms of the North American Vertical Datum of 1988 (NAVD88).

Decimal Format

41.791318 Latitude
-73.425683 Longitude

State of Connecticut Date: 11/28/16

Alvin A. Kraft
Connecticut Registered No. 20787
SMW Job No. 16-2558
Prepared By: WE