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

May 22, 2020

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

RE: **Notice of Exempt Modification for AT&T - 806362**
347 East Street, Wolcott, CT 06716
Latitude: 41° 33′ 34.41″ / Longitude: -72° 56′ 49.10″

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 158-foot mount on the existing 185-foot Self-Support Tower, located at 347 East Street, Wolcott, CT. The tower is owned by Crown Castle and the property is owned by Augostinho & Joanne Rodrigues. AT&T now intends to replace three (3) antennas and add three (3) antennas to their existing configuration. The new antennas will be installed at the 158-ft level of the tower. AT&T is also proposing a mount swap pursuant to the enclosed Mount Analysis Report.

The facility was approved by the Connecticut Siting Council in Docket No. 56 on April 14, 1986. Said approval given with conditions which this exempt modification complies with.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Thomas G. Dunn, Mayor for the Town of Wolcott, David Kalinowski, Zoning Inspector, Crown Castle as the tower owner, and Mr. and Mrs. Rodrigues, the property owners.

1. The proposed modifications will not result in an increase in the height of the existing tower.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

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

Anne Marie Zsamba
Network Real Estate Specialist
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
(201) 236-9224
AnneMarie.Zsamba@crowncastle.com

Attachments
cc:

The Honorable Thomas G. Dunn, Mayor (*via email only to tdunn@wolcott.org*)
Town Hall
10 Kenea Avenue
Wolcott, CT 06716

David Kalinowski, Zoning Inspector (*via email only to ehenderson@wolcottct.org*)
Town Hall
10 Kenea Avenue
Wolcott, CT 06716

Augostinho & Joanne Rodrigues
347 East Street
Wolcott, CT 06716

Crown Castle, Tower Owner

From:	Zsamba, Anne Marie
To:	"tdunn@wolcott.org"
Subject:	347 East Street, Wolcott - Notice of Exempt Modification Application
Date:	Friday, May 22, 2020 11:16:00 AM
Attachments:	EM_AT&T_806362_347 East Street_Wolcott_5.22.2020_notice to wolcott.pdf

Dear Mayor Dunn:

Attached please find AT&T's exempt modification application that is being submitted to the Connecticut Siting Council, today May 22, 2020.

In light of the present circumstances with Covid-19, The Council has advised that electronic notification of this filing is acceptable. If you could kindly confirm receipt. Thank you.

Best,
Anne Marie Zsamba

ANNE MARIE ZSAMBA
Site Acquisition Specialist
T: (201) 236-9224
M: (518) 350-3639
F: (724) 416-6112

CROWN CASTLE
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
CrownCastle.com

From:	Zsamba, Anne Marie
To:	ehenderson@wolcottct.org
Subject:	347 East Street, Wolcott - Notice of Exempt Modification Application
Date:	Friday, May 22, 2020 11:17:00 AM
Attachments:	EM_AT&T_806362_347 East Street_Wolcott_5.22.2020_notice to wolcott.pdf

Dear Mr. Kalinowski:

Attached please find AT&T's exempt modification application that is being submitted to the Connecticut Siting Council, today May 22, 2020.

In light of the present circumstances with Covid-19, The Council has advised that electronic notification of this filing is acceptable. If you could kindly confirm receipt. Thank you.

Best,
Anne Marie Zsamba

ANNE MARIE ZSAMBA
Site Acquisition Specialist
T: (201) 236-9224
M: (518) 350-3639
F: (724) 416-6112

CROWN CASTLE
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
CrownCastle.com

ORIGIN ID:SCHA (518) 350-3639
ANNE MARIE ZSAMBA
CROWN CASTLE
21 HEATHER DRIVE

GANSEVOORT, NY 12831
UNITED STATES US

SHIP DATE: 22MAY20
ACTWGT: 2.00 LB
CAD: 104924194/INET4220

BILL SENDER

TO **MELANIE BACHMAN**
CONNECTICUT SITING COUNCIL
10 FRANKLIN SQUARE

NEW BRITAIN CT 06051
(860) 827-2951 REF: 1765.6680
INV:
PO: DEPT:

56BJ3/2925/FE4A

FedEx Express

J201120042401uv

TRK# 0201 **7705 2833 2315**

TUE - 26 MAY 3:00P
STANDARD OVERNIGHT

SE BDLA

06051
CT-US **BDL**

After printing this label:
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Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

ORIGIN ID:SCHA (518) 350-3639
ANNE MARIE ZSAMBA
CROWN CASTLE
21 HEATHER DRIVE

GANSEVOORT, NY 12831
UNITED STATES US

SHIP DATE: 22MAY20
ACTWGT: 1.00 LB
CAD: 104924194/INET4220

BILL SENDER

TO **MR. AND MRS. RODGRIGUES**
347 EAST STREET

WOLCOTT CT 06716
(201) 236-9224 REF: 1734.7680
INV:
PO: DEPT:

56BJ3/2925/FE4A

FedEx Express
J201120042401uv

TUE - 26 MAY 3:00P
STANDARD OVERNIGHT

TRK# 0201 **7705 2832 0790**

06716
BDL
CT-US

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Exhibit A

Original Facility Approval

DOCKET NO. 56

AN APPLICATION OF METRO MOBILE CTS OF NEW HAVEN, INC., FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE, AND OPERATION OF FACILITIES TO PROVIDE CELLULAR SERVICE IN NEW HAVEN COUNTY.	: : :	CONNECTICUT SITING COUNCIL April 14, 1986

DECISION AND ORDER

Pursuant to the foregoing opinion, the Council hereby directs that a certificate of environmental compatibility and public need as required by section 16-50k of the General Statutes of Connecticut (CGS) be issued to Metro Mobile CTS of New Haven, Inc., for the construction, maintenance, and operation of cellular mobile phone telecommunication towers and associated equipment in the towns of Wolcott, Naugatuck, West Haven (existing tower), Milford, Hamden (existing tower), Guilford, and North Branford subject to the conditions below.

1. The proposed and alternate Beacon Falls sites are rejected without prejudice.
2. The Wolcott tower shall be constructed to meet Zone C wind loading with 1" of radial ice and shall not exceed 180' in height excluding antennas.
3. The Naugatuck tower shall not exceed 160' in height, excluding antennas. The certificate holder shall offer to remove the existing privately owned, unused tower now on the site.
4. Any future actions requiring the removal of the existing West Haven or Hamden towers to be shared by the certificate holder shall also apply to the equipment mounted on those towers by the certificate holder, regardless of that equipment's status under Chapter 277a of the CGS.

5. The Milford tower shall be a monopole structure not to exceed 100' in height, excluding antennas.
6. The Guilford tower shall be a monopole structure not to exceed 150' in height, excluding antennas.
7. The North Branford Route 17 site is rejected. The North Branford East Reeds Gap Road tower shall not exceed 160' in height, excluding antennas.
8. The certificate holder shall submit a development and management plan for the Wolcott, Naugatuck, Milford, Hamden, Guilford, and North Branford sites pursuant to sections 16-50j-75 through 16-50j-77 of the RSA, except that irrelevant items in section 16-50j-76 need only be identified as such. In addition to the requirements of section 16-50j-76, the D&M plan shall provide plans for evergreen screening around the fenced perimeter at the Wolcott, Milford, Hamden, Guilford, and North Branford sites. The D&M plan shall include a proposal for painting the approved monopole structures to blend with the sky. Any changes to specifications in the D&M plan must be approved by the Council prior to facility operation.
9. All certified facilities shall be constructed, operated, and maintained as specified in the Council's record and in the site development and management plan required by order 8.
10. The certificate holder shall permit public or private entities to share space on the towers approved herein, for due consideration received, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing. In addition to complying with 16-50j-73, the

certificate holder shall notify the Council of the addition of any equipment to any approved tower.

11. A fence not lower than 8' shall surround each tower and associated equipment.
12. Unless necessary to comply with order 13, below, no lights shall be installed on any of these towers.
13. The facilities' construction and any future tower sharing shall be in accordance with all applicable federal, state, and municipal laws and regulations. Shared uses by entities not subject to jurisdiction pursuant to sections 16-50i and 16-50k of the CGS shall be subject to all applicable federal, state, and municipal laws and regulations.
14. Construction activities shall take place during daylight working hours.
15. This decision and order shall be void and the towers and associated equipment shall be dismantled and removed, or reapplication for any new use shall be made to the CSC before any such new use is made, if the towers do not provide or permanently cease to provide cellular service following completion of construction.
16. This decision and order shall be void if all construction authorized herein is not completed within three years of the issuance of this decision, or within three years of the completion of any appeal if appeal of this decision is taken, unless otherwise approved by the Council.

Pursuant to CGS section 16-50p, we hereby direct that a copy of the decision and order shall be served on each person listed below. A notice of the issuance shall be published in The Record-Journal, The New Haven Register, The Branford Review, The Evening Sentinel, The Waterbury American, and The Waterbury Republican.

The parties to this proceeding are:

Metro Mobile CTS of New Haven, Inc. (Applicant)
5 Eversley Avenue
Norwalk, Connecticut 06855

ATTN: Armand Mascioli
General Manager

Mr. Kevin B. Sullivan, Esq. (its attorneys)
Byrne, Slater, Sandler, Shulman & Rouse, P.C.
111 Pearl Street
P.O. Box 3216
Hartford, Connecticut 06103

Mr. Richard Rubin, Esq.
Fleischman and Walsh, P.C.
1725 N Street, N.W.
Washington, D.C. 20036

Guilford Conservation Commission represented by:

Mr. David B. Damer
Chairman
Guilford Conservation Commission
440 Great Hill Road
Guilford, Connecticut 06437

Mr. Robert W. Griswold, Jr.
100 Rimmon Hill Road
Beacon Falls, Connecticut 06403

Town of Hamden
Memorial Town Hall
2372 Whitney Avenue
Hamden, Connecticut 06518

ATTN: Shirley Gonzales
Town Planner

Guilford Planning and Zoning Commission — represented by:

Mr. David W. Fisher
Chairman
Town Hall
31 Park Street
Guilford, Connecticut 06437

Town of Hamden — represented by:

John DeNicola, Jr.
Mayor
Town of Hamden
Memorial Town Hall
2372 Whitney Avenue
New Haven, Connecticut 06518

Citizens Park Council of New Haven — represented by:

Mr. John J. Ciarleglio
President
Citizens Park Council
of New Haven
36 Elmwood Road
New Haven, Connecticut 06515

Mr. Thomas V. Keating
343 Rimmon Hill Road
Beacon Falls, Connecticut 06403

Ms. Evelyn M. Sirowich
245 Rimmon Hill Road
Beacon Falls, Connecticut 06403

Mr. Jack B. Levine
11 White Birch Lane
Beacon Falls, Connecticut 06403

Southern New England Telephone Company — represented by:

Mr. Peter J. Tyrrell, Esq.
227 Church Street
New Haven, Connecticut 06506

Mr. Dennis Bialecki
96 West Road
Beacon Falls, Connecticut 06403

Brittany Woods Homeowner's Association — represented by:

Mr. Stephen P. Del Sole, Esq.
Del Sole & Del Sole
152 Temple Street
P.O. Box 405
New Haven, Connecticut 06502-0405

Ms. Barbara G. Schlein
Box 2993 Westville Station
New Haven, Connecticut 06515

Mr. & Mrs. Joseph T. Farrell, Jr.
334 Rimmon Hill Road
Beacon Falls, Connecticut 06403

Town of Beacon Falls — represented by:

The Honorable Leonard F. D'Amico
First Selectman
10 Maple Avenue
Beacon Falls, Connecticut 06403

West Rock Ridge Park Association — represented by:

Mr. William L. Doheny Jr., D.D.S.
President
220 Mountain Road
Hamden, Connecticut 06514

Department of Parks, Recreation & Trees — represented by:

Mr. Robert G. Sheeley
Director
Parks, Recreation & Trees
P.O. Box 1416
New Haven, Connecticut 06506

Town of Wallingford — represented by:

William W. Dickinson, Jr.
Mayor
Municipal Building
350 Center Street
P.O. Box 427
Wallingford, Connecticut 06492

New Haven Sierra Club — represented by:

Ms. Laurie Klein
270 Edgewood Avenue
New Haven, Connecticut 06511

Peter M. Lerner
State Representative
8 Merritt Avenue
Woodbridge, Connecticut 06525

Carleton J. Benson
State Representative
161 Scott Road
Prospect, Connecticut 06712

Dr. Stephen Collins (service waived)
Vice Chairman
West Rock State Park
Advisory Council
Bethany, Connecticut

Mr. Louis Melillo (service wavied)
985 Wintergreen Avenue
Hamden, Connecticut

Mr. John McGeever (service waived)
339 Rimmon Hill
Beacon Falls, Connecticut 06403

Senator John Consoli (service waived)
51 Luke Hill Road
Bethany, Connecticut 06525

Representative George P. Bassing (service waived)
14 Oakwood Drive
Seymour, Connecticut 06483

Dr. George D. Whitney (service waived)
858 Oakwood Road
Orange, Connecticut

Mr. Steve Molnar (service waived)
205 West Road
Beacon Falls, Connecticut

Mr. James W. Grandy (service waived)
President
Hamden Land Conservation Trust
Hamden, Connecticut

Senator Richard S. Eaton (service waived)
269 Mulberry Point Road
Guilford, Connecticut 06437

Representative Robert M. Ward
719 Totoket Road
Northford, Connecticut 06472

Town of North Branford	represented by: John Gesmonde, Esquire 3127 Whitney Avenue Hamden, Connecticut 06518
Regina Smith 1887 Middletown Avenue Northford, Connecticut 06472	(service waived)
Richard A. Nizolek The Restland Farm Corporation Route 17 Northford, Connecticut 06472	
Mary Liska 83 Reeds Gap Road Northford, Connecticut 06472	
Ben Bullard 50 Christmas Hill Road Guilford, Connecticut 06437	(service waived)
Roland Robichaud 31 Berncliff Drive North Branford, Connecticut 06471	(service waived)
Irene Flynn 1926 Middletown Avenue Northford, Connecticut 06472	(service waived)
Charles Pope 199 Donalds Road Guilford, Connecticut 06437	
Richard Abate 131 Manor Road Guilford, Connecticut 06437	(service waived)
City of Milford	represented by: Mayor Alberta Jagoe Alderman Maurice Condon Alderman Frederick Lisman City Hall River Street Milford, Connecticut 06460
Thomas Scelfo 81 Berncliff Drive North Branford, Connecticut 06471	(service waived)

Senator Thomas Scott (service waived)
22 Meyers Court
Milford, Connecticut 06460

Helen Moore (service waived)
385 Oronoque Road
Milford, Connecticut 06460

William Barberi (service waived)
298 Oronoque Road
Milford, Connecticut 06460

C E R T I F I C A T I O N

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut, this 14th day of April, 1986.

Council Members	Vote Cast
Gloria Dibble Pond, Chairperson	Yes
Commissioner John Downey, Designee: Commissioner Peter G. Boucher	Absent
Commissioner Stanley Pac, Designee: Christopher Cooper	No
Owen L. Clark	Yes
Mortimer A. Gelston	Yes
James G. Horsfall	Yes
Pamela B. Katz	Yes
William H. Smith	No
Colin C. Tait	No

STATE OF CONNECTICUT)
: ss. New Britain, April 14, 1986
COUNTY OF HARTFORD)

I hereby certify that the foregoing is a true and correct copy of the decision and order issued by the Connecticut Siting Council, State of Connecticut.

ATTEST:

Christopher S. Wood, Executive Director
Connecticut Siting Council

Exhibit B

Property Card

347 EAST ST

Location	347 EAST ST	**Mblu**	131/ 1/ 19/ /
Acct#	R0478100	**Owner**	RODRIGUES AGOSTINHO V &
Assessment	$453,670	**Appraisal**	$648,090
PID	5352	**Building Count**	3

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$401,720	$246,370	$648,090

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$281,210	$172,460	$453,670

Owner of Record

Owner RODRIGUES AGOSTINHO V &
Co-Owner JOANNE
Address 347 EAST ST
WOLCOTT, CT 06716

Sale Price $0
Certificate
Book & Page 0131/0023
Sale Date 06/27/1980
Instrument 25

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
RODRIGUES AGOSTINHO V &	$0		0131/0023	25	06/27/1980

Building Information

Building 1 : Section 1

Year Built: 1930
Living Area: 3,139
Replacement Cost: $339,418
Building Percent Good: 62
Replacement Cost Less Depreciation: $210,440

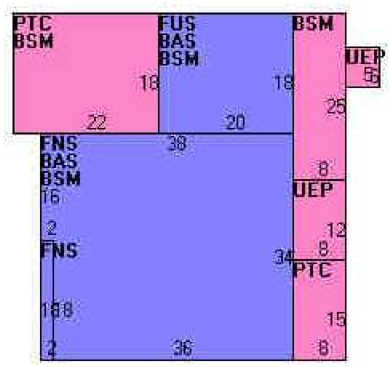
Building Attributes

Field	Description
Style	Colonial
Model	Residential
Grade:	B
Stories	1.9
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gambrel
Roof Cover	Arch Shingles
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Carpet
Interior Flr 2	
Heat Fuel	Oil
Heat Type:	Hot Water
AC Percent	35% CAC
Total Bedrooms:	5 Bedrooms
Full Bthrms:	3
Half Baths:	0
Extra Fixtures	0
Total Rooms:	9
Bath Style:	Average
Kitchen Style:	Average
Num Kitchens	1
Fireplace(s)	0
Usrfld 103	0
Usrfld 104	0
% Attic Fin	0
LF Dormer	12
Foundation	Poured Conc
Bsmt Gar(s)	0
Bsmt %	100
SF FBM	0.00
SF Rec Rm	182
Fin Bsmt Qual	LQ
Bsmt Access	Int & Ext
Usrfld 300	
Usrfld 301	

Building Photo

(http://images.vgsi.com/photos/WolcottCTPhotos/\00\01\17\56.jpg)

Building Layout



(http://images.vgsi.com/photos/WolcottCTPhotos//Sketches/5352_5352.jpg

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,616	1,616
FNS	Finished 90% Story	1,292	1,163
FUS	Finished Upper Story	360	360
BSM	Basement	2,212	0
PTC	Concrete Patio	516	0
UEP	Unfin. Enclosed Porch	126	0
		6,122	3,139

Building 2 : Section 1

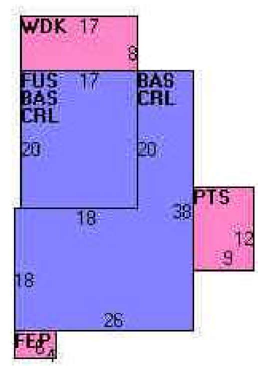
Year Built: 1910
Living Area: 1,308
Replacement Cost: $134,245
Building Percent Good: 60
Replacement Cost Less Depreciation: $80,550

Building Attributes : Bldg 2 of 3	
Field	**Description**
Style	Conventional
Model	Residential
Grade:	D
Stories	1
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Arch Shingles
Interior Wall 1	Plaster
Interior Wall 2	
Interior Flr 1	Carpet
Interior Flr 2	
Heat Fuel	Oil
Heat Type:	Hot Water
AC Percent	None
Total Bedrooms:	2 Bedrooms
Full Bthrms:	1
Half Baths:	0
Extra Fixtures	0
Total Rooms:	5
Bath Style:	Average
Kitchen Style:	Average
Num Kitchens	1
Fireplace(s)	0
Usrfld 103	0
Usrfld 104	0
% Attic Fin	0
LF Dormer	0
Foundation	Poured Conc
Bsmt Gar(s)	0
Bsmt %	0

Building Photo

(http://images.vgsi.com/photos/WolcottCTPhotos//default.jpg)

Building Layout



(http://images.vgsi.com/photos/WolcottCTPhotos//Sketches/5352_20142.jp

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	968	968
FUS	Finished Upper Story	340	340
CRL	Crawl Space	968	0
FEP	Finished Enclosed Porch	24	0
PTS	Stone Patio	108	0
WDK	Deck	136	0
		2,544	1,308

SF FBM	0.00
SF Rec Rm	0
Fin Bsmt Qual	
Bsmt Access	None
Usrfld 300	
Usrfld 301	

Building 3 : Section 1

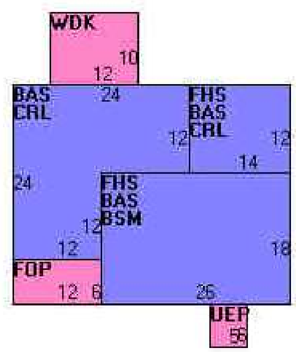
Year Built: 1912
Living Area: 1,481
Replacement Cost: $160,287
Building Percent Good: 60
Replacement Cost Less Depreciation: $96,170

Building Attributes : Bldg 3 of 3	
Field	**Description**
Style	Conventional
Model	Residential
Grade:	D
Stories	1.65
Occupancy	2
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Arch Shingles
Interior Wall 1	Plaster
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	Carpet
Heat Fuel	Oil
Heat Type:	Hot Water
AC Percent	None
Total Bedrooms:	3 Bedrooms
Full Bthrms:	2
Half Baths:	0
Extra Fixtures	0
Total Rooms:	7
Bath Style:	Average
Kitchen Style:	Average
Num Kitchens	2
Fireplace(s)	0
Usrfld 103	0

Building Photo

(http://images.vgsi.com/photos/WolcottCTPhotos//default.jpg)

Building Layout



(http://images.vgsi.com/photos/WolcottCTPhotos//Sketches/5352_20143.jp

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,068	1,068
FHS	Finished Half Story	636	413
BSM	Basement	468	0
CRL	Crawl Space	600	0
FOP	Open Porch	72	0
UEP	Unfin. Enclosed Porch	30	0

Usrfld 104	0
% Attic Fin	0
LF Dormer	0
Foundation	Poured Conc
Bsmt Gar(s)	0
Bsmt %	100
SF FBM	0.00
SF Rec Rm	0
Fin Bsmt Qual	
Bsmt Access	Int & Ext
Usrfld 300	
Usrfld 301	

WDK	Deck	120	0
		2,994	1,481

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
SOL	Solar Array	39.00 UNITS	$0	1

Land

Land Use

Use Code 112
Description Multiple Houses
Zone R-30
Neighborhood 6C
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 2.20
Frontage
Depth
Assessed Value $172,460
Appraised Value $246,370

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
FGR1	Garage	FR	Frame	672.00 S.F.	$5,880	1
FGR1	Garage	FR	Frame	560.00 S.F.	$4,900	1
FOP	Porch			480.00 S.F.	$2,760	1
PTO	Patio	CN	Concrete	408.00 S.F.	$1,020	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2019	$401,720	$246,370	$648,090
2018	$401,720	$246,370	$648,090

2017	$401,720	$246,370	$648,090

Assessment			
Valuation Year	Improvements	Land	Total
2019	$281,210	$172,460	$453,670
2018	$281,210	$172,460	$453,670
2017	$281,210	$172,460	$453,670

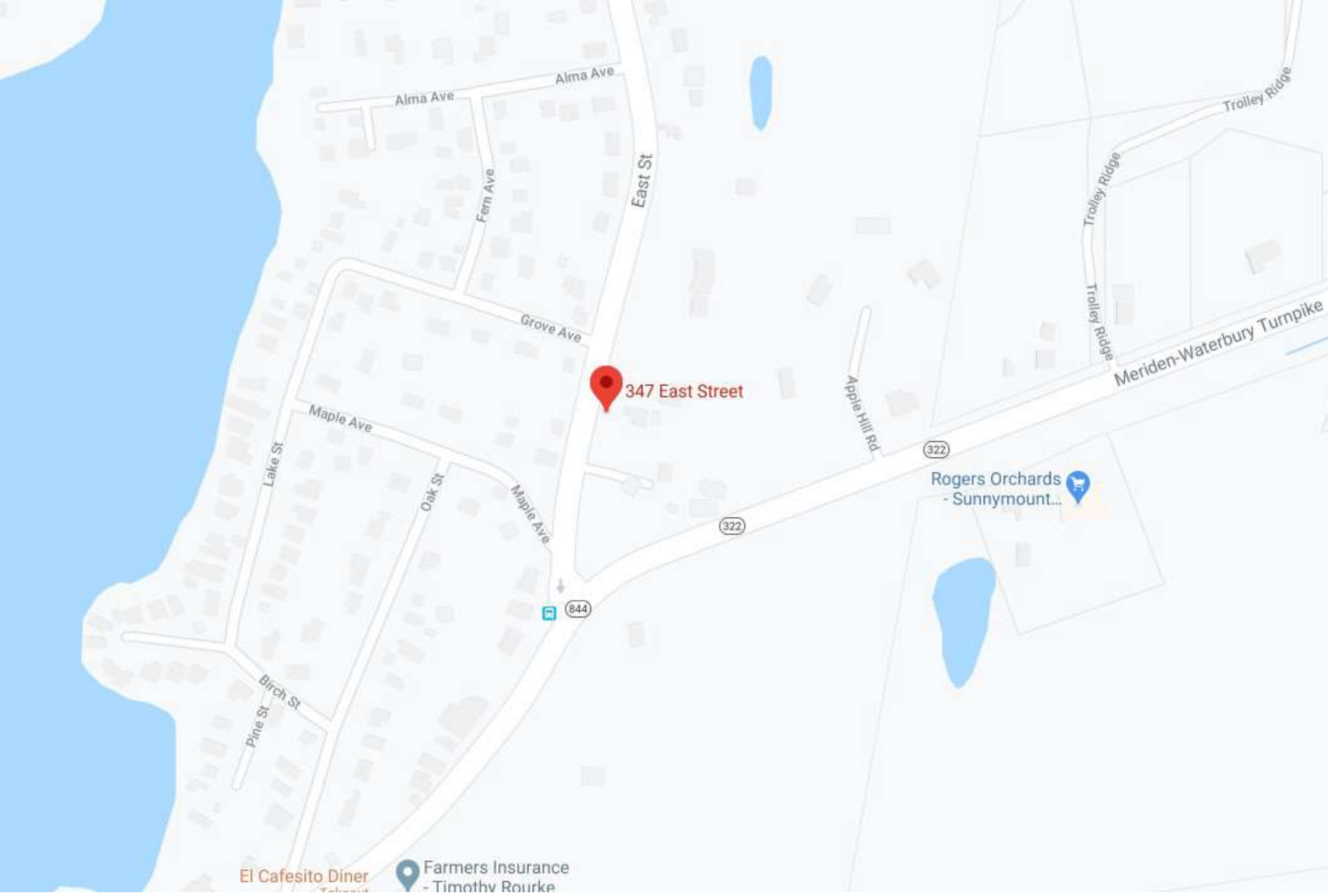

Alma Ave
Alma Ave
Trolley Ridge
East St
Fern Ave
Trolley Ridge
Trolley Ridge
Grove Ave
Meriden-Waterbury Turnpike
347 East Street
Apple Hill Rd
Maple Ave
322
Rogers Orchards - Sunnymount...
Lake St
Oak St
Maple Ave
322
844
Birch St
Pine St
El Cafesito Diner
Farmers Insurance - Timothy Rourke

Exhibit C

Construction Drawings

AT&T SITE NUMBER:	CTV1060
AT&T SITE NAME:	WOLCOTT-EAST ST
AT&T FA CODE:	10035040
AT&T PACE NUMBER:	MRCTB045251, MRCTB045197 MRCTB045178, MRCTB045303, MRCTB045289
SITE TYPE:	SELF-SUPPORT TOWER

BUSINESS UNIT #:	806362
SITE ADDRESS:	347 EAST STREET WOLCOTT, CT 06716
COUNTY:	NEW HAVEN
TOWER HEIGHT:	185'-0"

PROJECT: AT&T LTE 5C/6C/7C/4TX4RX/5G NR

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	NHV 108 943133
SITE ADDRESS:	347 EAST STREET WOLCOTT, CT 06716
COUNTY:	NEW HAVEN
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.5595481
LONGITUDE:	-72.9469711
LAT/LONG TYPE:	NAD83
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	AT&T MOBILITY ONE AT&T WAY BEDMINSTER, NJ 07921
CROWN CASTLE USA INC. APPLICATION ID:	509327

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 SOUTH BOULDER, SUITE 300 TULSA, OK 74119 MIKE OAKES (918) 217-8574
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3200 HORIZON SRIVE, SUITE 150 KING OF PRUSSIA, PA 19406

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	SITE PLAN
C-2	EQUIPMENT PLAN
C-3	TOWER ELEVATIONS
C-4	ANTENNA ORIENTATION
C-5	ANTENNA SCHEDULE
C-6	ANTENNA AND RRH SPECS.
C-7	ANTENNA AND RRH DETAIL
C-8	PLUMBING DIAGRAM
C-9	COLOR CODE STANDARD
G-1	GROUNDING DETAILS
G-2	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 11x17. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT DESCRIPTION

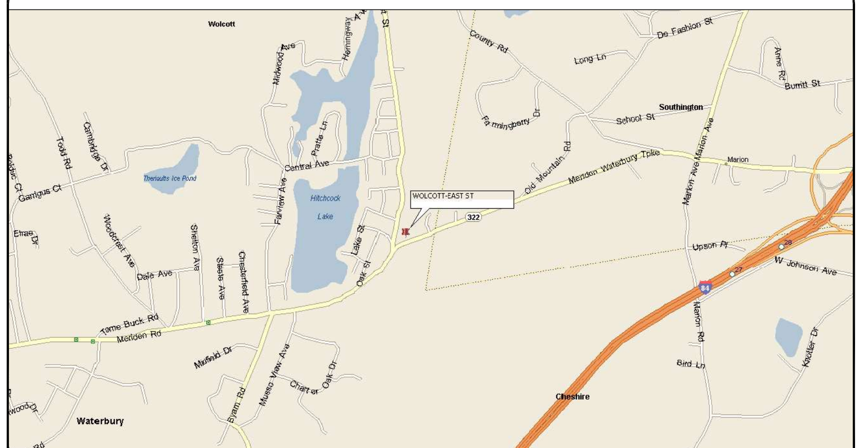
THE PURPOSE OF THIS PROJECT IS TO PROPOSE AN ANTENNA MODIFICATION ON AN EXISTING WIRELESS SITE.

TOWER SCOPE OF WORK
- REMOVE (2) KMW AM-X-CD-17-65-00T-RET ANTENNAS
- REMOVE (1) ANDREW SBNH-1D6565C ANTENNA
- REMOVE (3) ERICSSON RRUS-11 B12 RRHS
- REMOVE (3) SECTOR MOUNTS
- INSTALL (3) NEW SECTOR MOUNTS PER MOUNT REPLACEMENT ANALYSIS REPORT BY B+T GROUP, DATED 3/23/20
- INSTALL (2) CCI OPA65R-BU6DA-K ANTENNAS
- INSTALL (1) CCI OPA65R-BU8DA-K ANTENNA
- INSTALL (2) CCI DMP65R-BU6DA ANTENNAS
- INSTALL (1) CCI DMP65R-BU8DA ANTENNA
- INSTALL (3) ERICSSON 4478 B14 RRHS
- INSTALL (3) ERICSSON RRUS-32 B66A RRHS
- INSTALL (3) ERICSSON 4449 B5/B12 RRHS
- INSTALL (1) RAYCAP DC6-48-60-18-8F SURGE SUPPRESSOR
- INSTALL (2) #6 AWG DC TRUNKS

GROUND SCOPE OF WORK
- REMOVE (3) ERICSSON RRUS-12 B5 RRHS
- INSTALL (3) ERICSSON RRUS-E2 B29 RRHS
- INSTALL (1) 6630 + (1) IDLe

DESIGN PACKAGE BASED ON THE RFDS REVISION: PRELIMINARY DATE: 3/2/20	DESIGN PACKAGE BASED ON THE APPLICATION ID: 509327 REVISION: 0

LOCATION MAP



NO SCALE

APPLICABLE CODES/REFERENCE DOCUMENTS

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE TYPE	CODE
BUILDING	2015 IBC
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	PAUL J. FORD & COMPANY MARCH 26, 2020
MOUNT ANALYSIS:	B+T GROUP MARCH 23, 2020

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER

CALL CONNECTICUT ONE CALL
(800) 922-4455
CALL 3 WORKING DAYS
BEFORE YOU DIG!

AT&T
ONE AT&T WAY
BEDMINSTER, NJ 07921

CROWN CASTLE
3200 HORIZON DRIVE, SUITE 150
KING OF PRUSSIA, PA 19406

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T SITE NUMBER:
CTV1060

BU #: **806362**
NHV 108 943133

347 EAST STREET
WOLCOTT, CT 06716

EXISTING 185'-0"
SELF-SUPPORT TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	4/27/20	BLB	CONSTRUCTION	FWP
1	5/18/20	GEH	CONSTRUCTION	FWP

STATE OF CONNECTICUT 31627 LICENSED PROFESSIONAL ENGINEER
5/18/20

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: T-1
REVISION: 1

SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION.
3. ALL SITE WORK TO COMPLY WITH QAS-STD-10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE" AND LATEST VERSION OF TIA 1019 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
4. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS.
5. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
6. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, OWNER AND/OR LOCAL UTILITIES.
7. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
8. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
9. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
10. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
11. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE PROJECT SPECIFICATIONS.
12. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
13. NOTICE TO PROCEED– NO WORK TO COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF A PURCHASE ORDER.
14. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN STANDARD CED-STD-10253 INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH THE ANSI/TIA-322 (LATEST EDITION).

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND IN ACCORDANCE WITH ASTM A36 UNLESS OTHERWISE NOTED.
2. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4"ø) CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
3. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8"ø ASTM A307 BOLTS UNLESS NOTED OTHERWISE.
4. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. SLAB FOUNDATION DESIGN ASSUMING ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST EARTH..................3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER..................................2 IN.
   #5 AND SMALLER & WWF..................1 1/2 IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALLS...................................3/4 IN.
   BEAMS AND COLUMNS........................1 1/2 IN.
5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE. IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

MASONRY NOTES:

1. HOLLOW CONCRETE MASONRY UNITS SHALL MEET A.S.T.M. SPECIFICATION C90, GRADE N, TYPE 1. THE SPECIFIED DESIGN COMPRESSIVE STRENGTH OF CONCRETE MASONRY (F'm) SHALL BE 1500 PSI.
2. MORTAR SHALL MEET THE PROPERTY SPECIFICATION OF A.S.T.M. C270 TYP. "S" MORTAR AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI.
3. GROUT SHALL MEET A.S.T.M. SPECIFICATION C475 AND HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2000 PSI.
4. CONCRETE MASONRY SHALL BE LAID IN RUNNING (COMMON) BOND.
5. WALL SHALL RECEIVE TEMPORARY BRACING. TEMPORARY BRACING SHALL NOT BE REMOVED UNTIL GROUT IS FULLY CURED.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR– __________
   SUBCONTRACTOR– GENERAL CONTRACTOR (CONSTRUCTION)
   CARRIER– AT&T
   TOWER OWNER– CROWN CASTLE USA INC.
   OEM– ORIGINAL EQUIPMENT MANUFACTURER
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR AND CROWN CASTLE USA INC.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO SCALE AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR AND CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWINGS.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

ABBREVIATIONS AND SYMBOLS:

ABBREVIATIONS:

AGL	ABOVE GRADE LEVEL
BTS	BASE TRANSCEIVER STATION
EXISTING	EXISTING
MIN.	MINIMUM
REF	REFERENCE
RF	RADIO FREQUENCY
T.B.D.	TO BE DETERMINED
T.B.R.	TO BE RESOLVED
TYP	TYPICAL
REQ	REQUIRED
EGR	EQUIPMENT GROUND RING
AWG	AMERICAN WIRE GAUGE
MGB	MASTER GROUND BAR
EG	EQUIPMENT GROUND
BCW	BARE COPPER WIRE
SIAD	SMART INTEGRATED ACCESS DEVICE
GEN	GENERATOR
IGR	INTERIOR GROUND RING (HALO)
RBS	RADIO BASE STATION

SYMBOLS:

S/G	SOLID GROUND BUS BAR
S/N	SOLID NEUTRAL BUS BAR
	SUPPLEMENTAL GROUND CONDUCTOR
	2-POLE THERMAL-MAGNETIC CIRCUIT BREAKER
	SINGLE-POLE THERMAL-MAGNETIC CIRCUIT BREAKER
	CHEMICAL GROUND ROD
	TEST WELL
	DISCONNECT SWITCH
M	METER
■	EXOTHERMIC WELD (CADWELD) (UNLESS OTHERWISE NOTED)
●	MECHANICAL CONNECTION
——	GROUNDING WIRE

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC. HILTI EPOXY ANCHORS ARE REQUIRED BY CROWN CASTLE USA INC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
5. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
6. EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH PLASTIC TAPE PER COLOR SCHEDULE. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (I.E. PANEL BOARD AND CIRCUIT ID'S).
8. PANEL BOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
10. POWER, CONTROL AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET & DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION WITH OUTER JACKET LISTED OR LABELED FOR THE LOCATION USED UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E. RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT) OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
21. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER).
22. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHIN ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
23. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL; SHALL MEET OR EXCEED UL 50 AND RATED NEMA 1 (OR BETTER) INDOORS OR NEMA 3R (OR BETTER) OUTDOORS.
24. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
25. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
26. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
27. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
28. INSTALL PLASTIC LABEL ON THE METER CENTER TO SHOW "AT&T".
29. ALL CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 AWG SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 FT. OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 TINNED SOLID IN 3/4" LIQUID TIGHT CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE LIQUID TIGHT CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).

NEC INSULATOR COLOR CODE

DESCRIPTION	PHASE/CODE LETTER	WIRE COLOR
240/120 1Ø	LEG 1	BLACK
	LEG 2	RED
AC NEUTRAL	N	WHITE
GROUND (EGC)	G	GREEN
VDC POS	+	*RED-POLARITY MARK AT TERMINATION
VDC NEG	–	*BLACK-POLARITY MARK AT TERMINATION
240V OR 208V, 3Ø	PHASE A	BLACK
	PHASE B	RED(ORG. IF HI LEG)
	PHASE C	BLUE
480V, 3Ø	PHASE A	BROWN
	PHASE B	ORANGE OR PURPLE
	PHASE C	YELLOW

* SEE NEC 210.5(C)(1) AND (2)

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AT&T SITE NUMBER:
CTV1060

BU #: **806362**
NHV 108 943133

347 EAST STREET
WOLCOTT, CT 06716

EXISTING 185'-0"
SELF-SUPPORT TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	4/27/20	BLB	CONSTRUCTION	FWP
1	5/18/20	GEH	CONSTRUCTION	FWP

STATE OF CONNECTICUT * LICENSED PROFESSIONAL ENGINEER * 31627
5/18/20

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Expires 2/10/21

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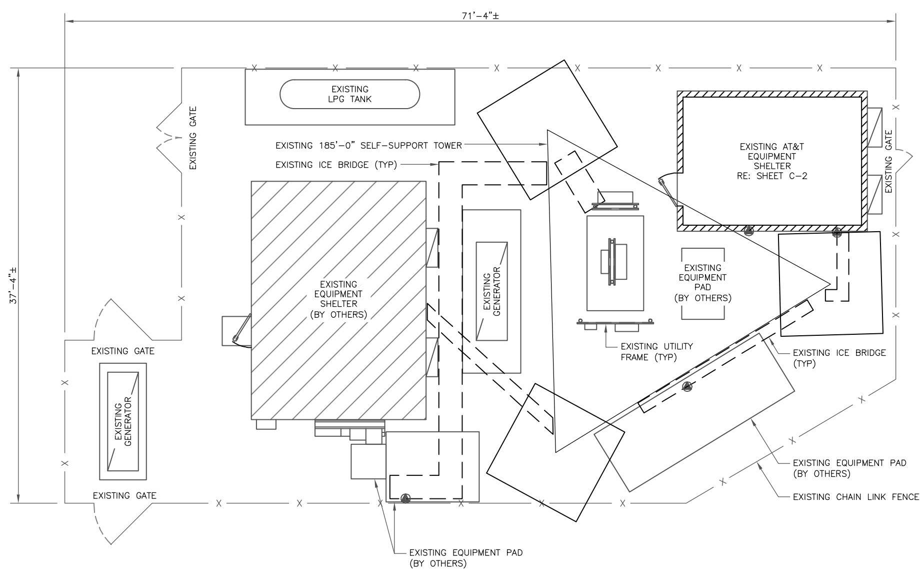
SHEET NUMBER: T-2
REVISION: 1

104053.010_806362_NHV 108 943133.dwg – Sheet:T-2 – User: fperkins – May 19, 2020 – 11:09am



1 SITE PLAN
SCALE: 3/16"=1'-0" (FULL SIZE) 3/32"=1'-0" (11x17)

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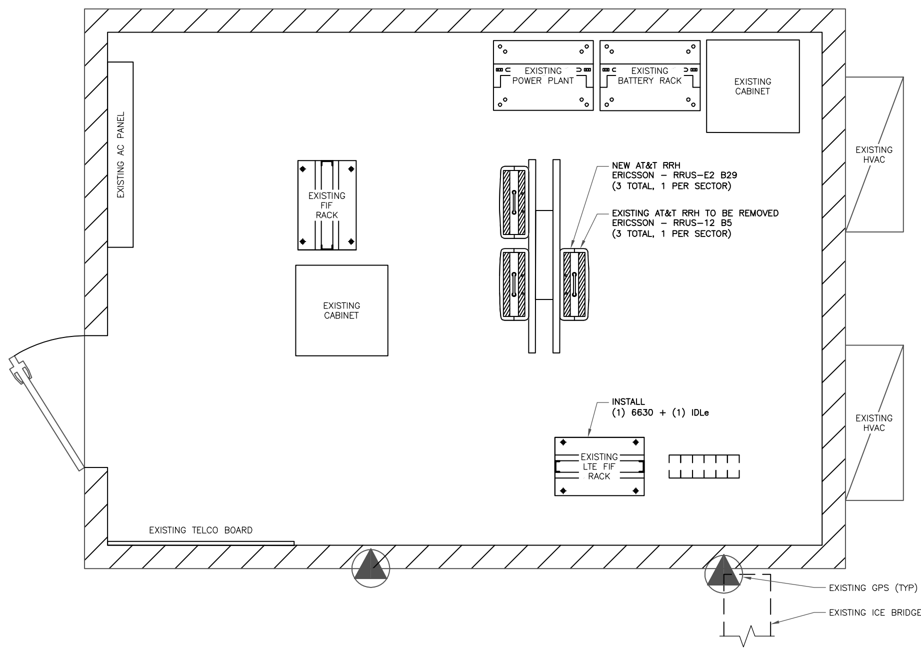
SHEET NUMBER: C-1
REVISION: 1



1 EXISTING EQUIPMENT PLAN
SCALE: 3/4"=1'-0" (FULL SIZE)
3/8"=1'-0" (11x17)

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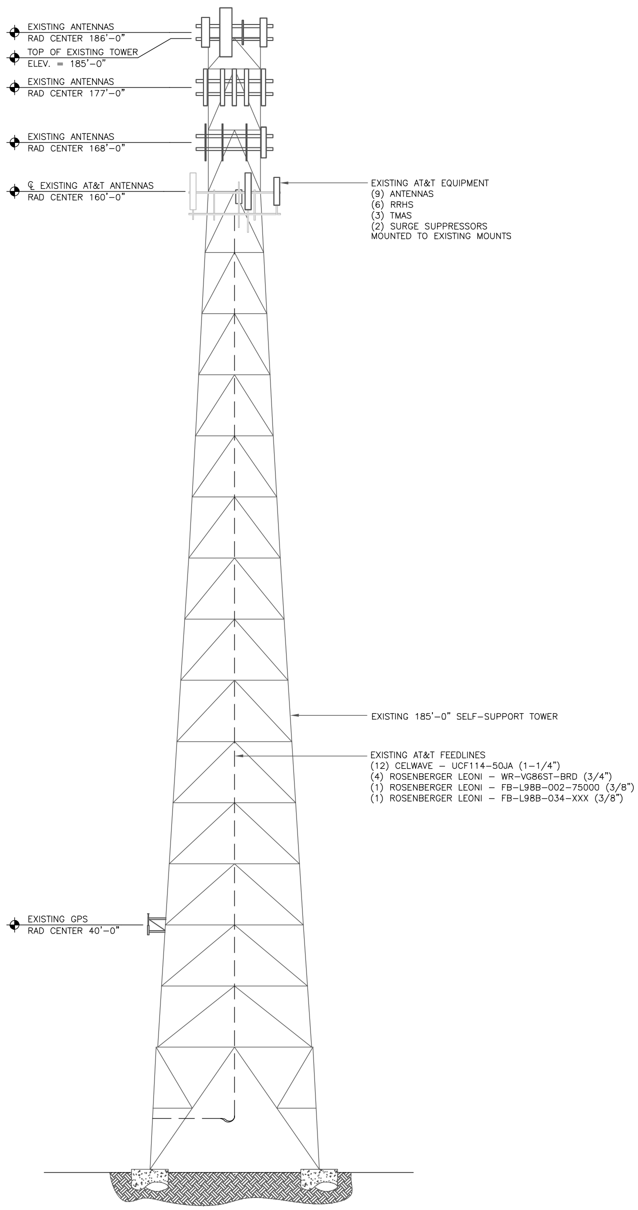
SHEET NUMBER: C-2
REVISION: 1

AT&T EQUIPMENT

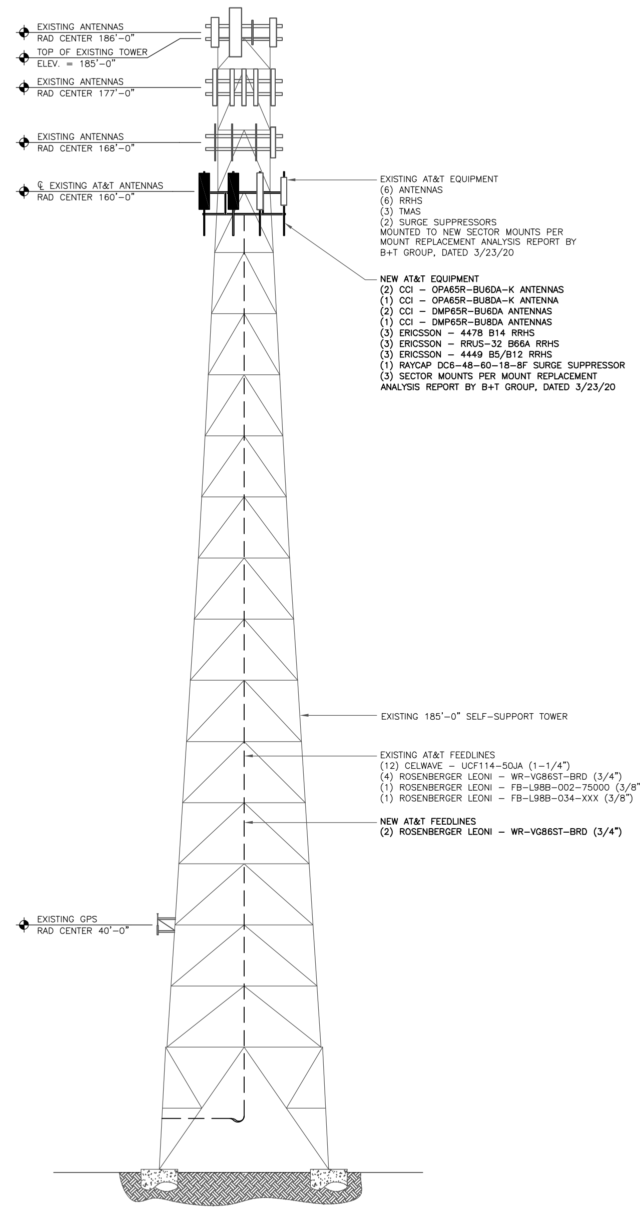
ANTENNA CL: 160'-0"
MOUNT CL: 158'-0"



1 EXISTING ELEVATION
SCALE: NOT TO SCALE

AT&T EQUIPMENT

ANTENNA CL: 160'-0"
MOUNT CL: 158'-0"



2 FINAL ELEVATION
SCALE: NOT TO SCALE

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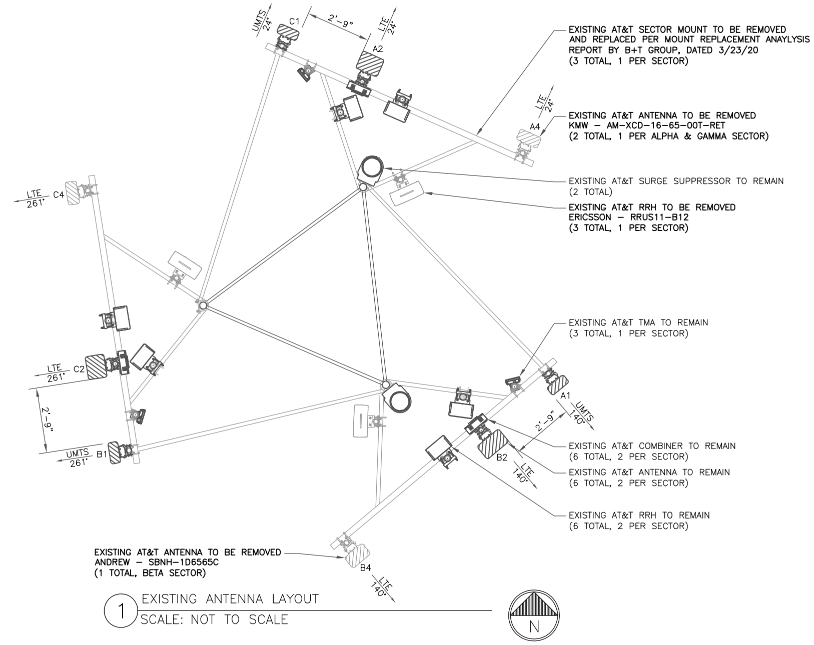
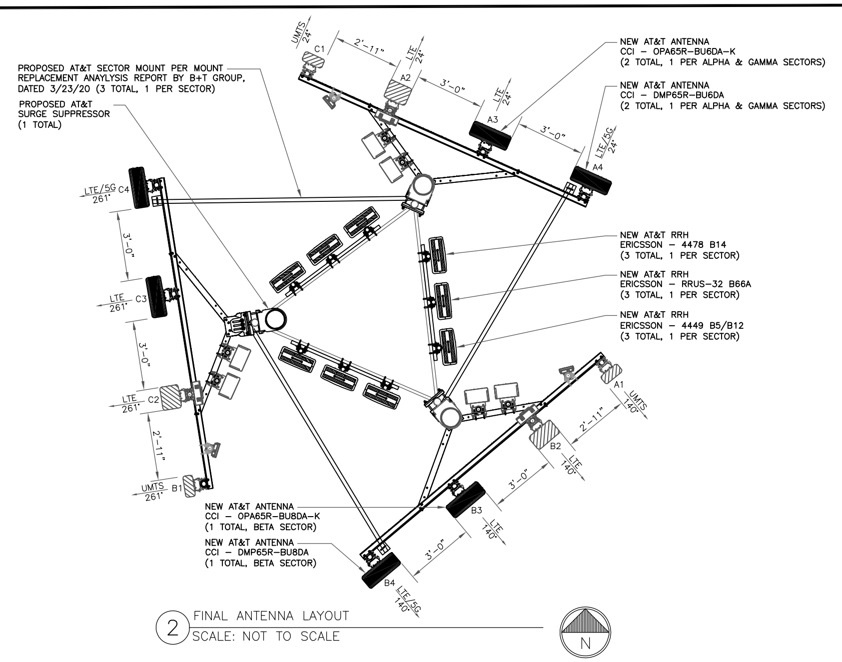
SHEET NUMBER: C-3
REVISION: 1

104053.010_806362_NHV 108 943133.dwg – Sheet:C-3 – User: fperkins – May 19, 2020 – 11:09am



1 EXISTING ANTENNA LAYOUT
SCALE: NOT TO SCALE



2 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE

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SHEET NUMBER: C-4
REVISION: 1

FINAL ANTENNA AND COAXIAL CABLE SCHEDULE

POS.	TECH	STATUS	AZIMUTH	ANTENNA TYPE	ANTENNA RAD CENTER	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	MAIN COAX SIZE	MAIN COAX LENGTH	COAX QTY	TMA QTY AND MODEL	RAYCAP	DC (WR-VG86ST-BRD) FIBER CABLES (FB-L98B-034-XXXXXX)	RRHS	DIPLEXER	RET CABLE
ALPHA SECTOR																
A1	UMTS	EXISTING	140°	POWERWAVE 7770	160'–0"	3°	10°	1–1/4"	216'–0"	2	(1) CCI DTMABP7819VG12A	(1) DC6–48–60–18–8F	(1) FIBER (2) DC LINES		(2) POWERWAVE CM1007–DBPXBC–003 (GROUND)	Y
A2	LTE	EXISTING	24°	QUINTEL QS66512–2	160'–0"	0°	2°/2°/6°	1–1/4"	216'–0"	2	–			(1) RRUS–E2 B29 (GROUND) (1) RRUS–32 B2 (1) RRUS–32 B30	(2) KAELUS DBC0061F1V51–2 (GROUND)	Y
A3	LTE	NEW	24°	CCI OPA65R–BU6DA–K	160'–0"	0°	10°/6°	–	–	–	–			(1) 4478 B14 (1) RRUS–32 B66A	–	Y
A4	LTE/5G	NEW	24°	CCI DMP65R–BU6DA	160'–0"	0°	13°/10°/10°	–	–	–	–			(1) 4449 B5/B12	–	Y
BETA SECTOR																
B1	UMTS	EXISTING	261°	POWERWAVE 7770	160'–0"	0°	7°	1–1/4"	223'–0"	2	(1) CCI DTMABP7819VG12A	(1) DC6–48–60–18–8F	(1) FIBER (2) DC LINES	–	(2) POWERWAVE CM1007–DBPXBC–003 (GROUND)	Y
B2	LTE	EXISTING	140°	CCI TPA–65R–LCUUUU–H8	160'–0"	2°	3°/0°/6°	1–1/4"	216'–0"	2	–			(1) RRUS–E2 B29 (GROUND) (1) RRUS–32 B2 (1) RRUS–32 B30	(2) KAELUS DBC0061F1V51–2 (GROUND)	Y
B3	LTE	NEW	140°	CCI OPA65R–BU8DA–K	160'–0"	0°	9°/6°	–	–	–	–			(1) 4478 B14 (1) RRUS–32 B66A	–	Y
B4	LTE/5G	NEW	140°	CCI DMP65R–BU8DA	160'–0"	0°	9°/9°/9°	–	–	–	–			(1) 4449 B5/B12	–	Y
GAMMA SECTOR																
C1	UMTS	EXISTING	24°	POWERWAVE 7770	160'–0"	2°	10°	1–1/4"	210'–0"	2	(1) CCI DTMABP7819VG12A	(1) DC6–48–60–18–8F	(2) DC LINES	–	(2) POWERWAVE CM1007–DBPXBC–003 (GROUND)	Y
C2	LTE	EXISTING	261°	QUINTEL QS66512–2	160'–0"	0°	2°/2°/6°	1–1/4"	216'–0"	2	–			(1) RRUS–E2 B29 (GROUND) (1) RRUS–32 B2 (1) RRUS–32 B30	(2) KAELUS DBC0061F1V51–2 (GROUND)	Y
C3	LTE	NEW	261°	CCI OPA65R–BU6DA–K	160'–0"	0°	6°/6°	–	–	–	–			(1) 4478 B14 (1) RRUS–32 B66A	–	Y
C4	LTE/5G	NEW	261°	CCI DMP65R–BU6DA	160'–0"	0°	6°/6°/6°	–	–	–	–			(1) 4449 B5/B12	–	Y

NOTE: BOLD DENOTES NEW EQUIPMENT

1 FINAL ANTENNA AND COAXIAL CABLE SCHEDULE
SCALE: NOT TO SCALE

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NHV 108 943133

347 EAST STREET
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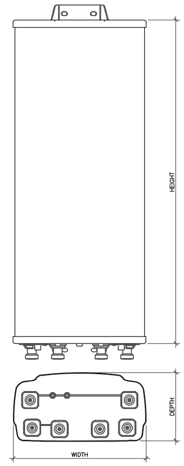
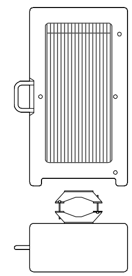
SHEET NUMBER: C-5
REVISION: 1

104053.010_806362_NHV 108 943133.dwg – Sheet:C-5 – User: fperkins – May 19, 2020 – 11:09am



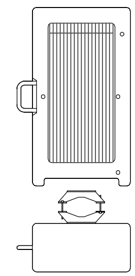
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
OPA65R-BU6DA-K	71.2"	21"	7.8"	60.2 lbs
OPA65R-BU8DA-K	96"	21"	7.8"	76.5 lbs
DMP65R-BU6DA	71.2"	20.7"	7.7"	79.4 lbs
DMP65R-BU8DA	96"	20.7"	7.7"	95.7 lbs

1 ANTENNA DETAIL
SCALE: NOT TO SCALE



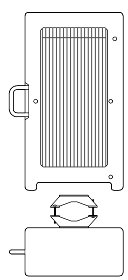
ERICSSON – RRUS-E2 B29
WEIGHT (FULLY EQUIPPED): 60 LBS
SIZE (HxWxD): 20.4x18.5x7.5 IN.

2 RRH DETAIL
SCALE: NOT TO SCALE



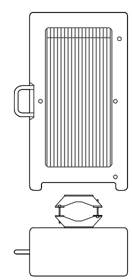
ERICSSON – 4478 B14
WEIGHT (FULLY EQUIPPED): 59.4 LBS
SIZE (HxWxD): 18.1x13.4x8.26 IN.

3 RRH DETAIL
SCALE: NOT TO SCALE



ERICSSON – RRUS-32 B66A
WEIGHT (FULLY EQUIPPED): 55.1 LBS
SIZE (HxWxD): 27.6x12.45x7.41 IN.

4 RRH DETAIL
SCALE: NOT TO SCALE



ERICSSON – 4449 B5/B12
WEIGHT (FULLY EQUIPPED): 71.0 LBS
SIZE (HxWxD): 17.9x13.19x9.44 IN.

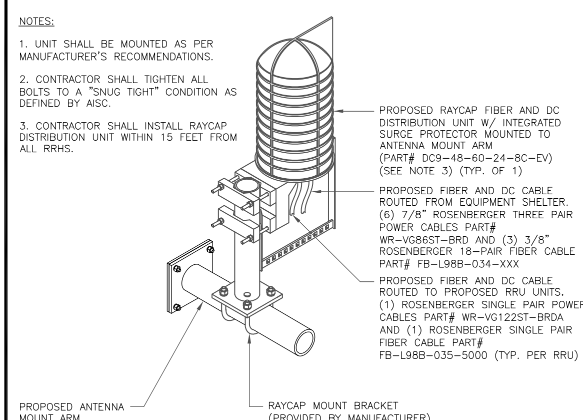
5 RRH DETAIL
SCALE: NOT TO SCALE

NOTES:

1. UNIT SHALL BE MOUNTED AS PER MANUFACTURER'S RECOMMENDATIONS.

2. CONTRACTOR SHALL TIGHTEN ALL BOLTS TO A "SNUG TIGHT" CONDITION AS DEFINED BY AISC.

3. CONTRACTOR SHALL INSTALL RAYCAP DISTRIBUTION UNIT WITHIN 15 FEET FROM ALL RRHS.



6 SURGE SUPPRESSOR DETAIL
SCALE: NOT TO SCALE

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347 EAST STREET
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STATE OF CONNECTICUT 31627 LICENSED PROFESSIONAL ENGINEER
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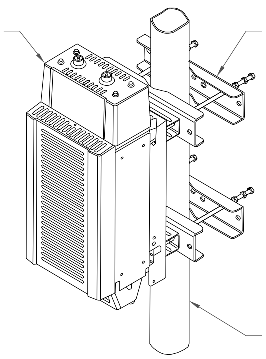
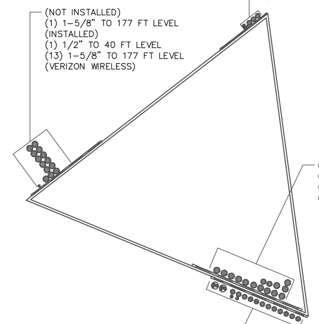
SHEET NUMBER: C-6
REVISION: 1

NOTES:

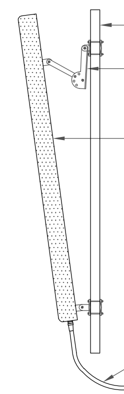
1. ERICSSON VIA AT&T SUPPLIES RRH, RRH POLE–MOUNTING BRACKET. SUBCONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRH POLE–MOUNTING BRACKET. ERICSSON INSTALLS RRH AND MAKES CABLE TERMINATIONS.
2. FOR POLE DIAMETERS FROM 6" TO 15", ERICSSON CAN SUPPLY A PAIR OF POLE MOUNTING METAL BANDS WITH BOLTING WELDMENT.
3. NO PAINTING OF THE RRH OR SOLAR SHIELD IS ALLOWED



1 RRH MOUNTING DETAIL
SCALE: NOT TO SCALE



2 BASE LEVEL DRAWING
SCALE: NOT TO SCALE



3 ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE

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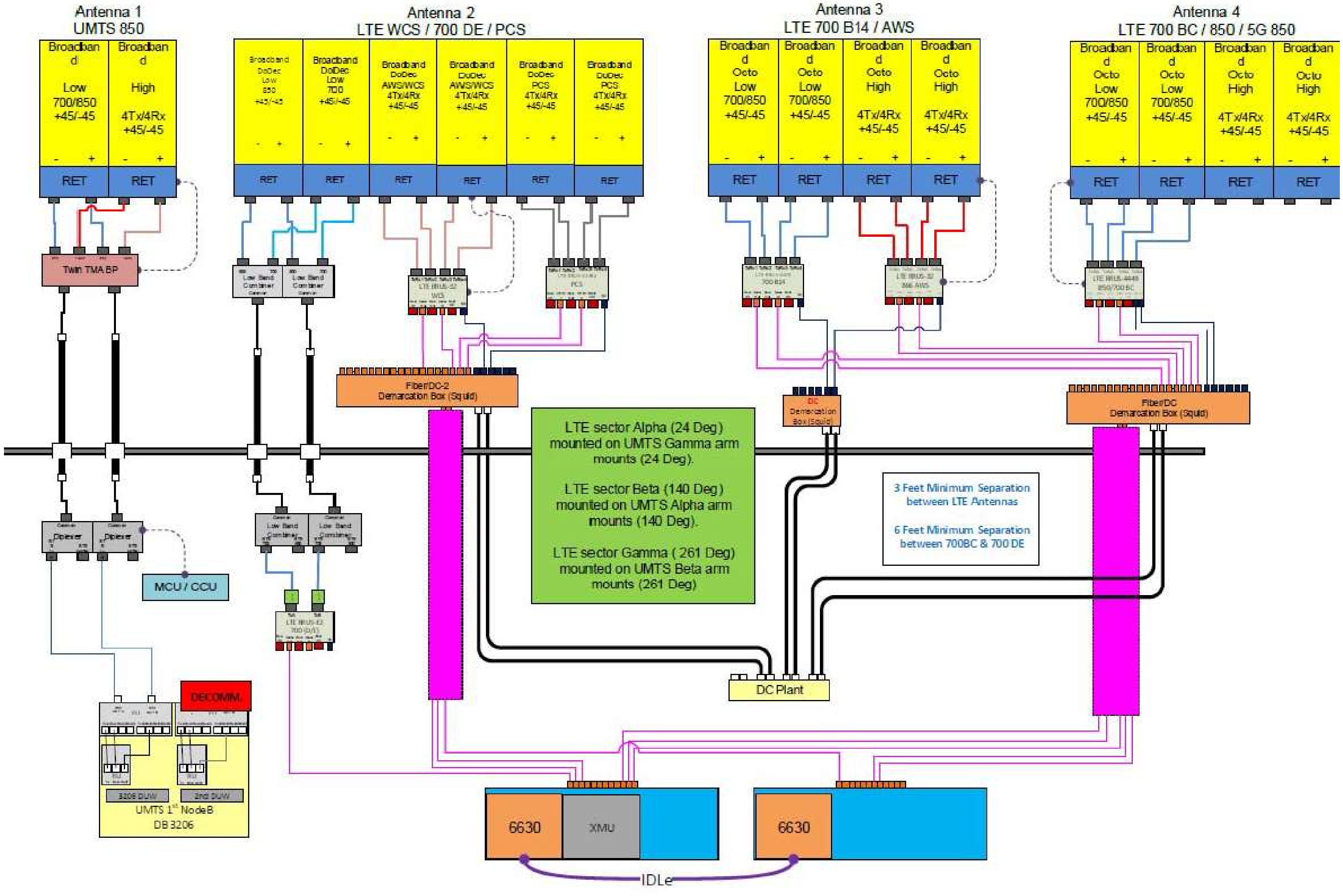
PEC.0001564
Expires 2/10/21

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: C-7
REVISION: 1

104053.010_806362_NHV 108 943133.dwg – Sheet:C-7 – User: fperkins – May 19, 2020 – 11:09am



1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

AT&T
ONE AT&T WAY
BEDMINSTER, NJ 07921

CROWN CASTLE
3200 HORIZON DRIVE, SUITE 150
KING OF PRUSSIA, PA 19406

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T SITE NUMBER:
CTV1060

BU #: **806362**
NHV 108 943133

347 EAST STREET
WOLCOTT, CT 06716

EXISTING 185'-0"
SELF-SUPPORT TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	4/27/20	BLB	CONSTRUCTION	FWP
1	5/18/20	GEH	CONSTRUCTION	FWP

STATE OF CONNECTICUT * 31627 LICENSED PROFESSIONAL ENGINEER
5/18/20

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: C-8
REVISION: 1

104053.010_806362_NHV 108 943133.dwg – Sheet:C-8 – User: fperkins – May 19, 2020 – 11:09am

SECTOR	TECHNOLOGY	FREQUENCY BAND	COLOR CODE – SECTOR DESIGNATION FOR SECTOR SPLIT	COLOR CODE – SECTOR (AMOUNT OF BANDS BASED ON POSITION)	COLOR CODE – FREQUENCY			45 + COAX	45 – COAX
A	LTE	700 (B/C)	BLANK	GREEN	VIOLET		BLANK	YELLOW	BLANK
A	LTE	850	BLANK	GREEN	YELLOW		BLANK	YELLOW	BLANK
A	LTE	850 – 2ND BLOCK	BLANK	GREEN	YELLOW	YELLOW	BLANK	YELLOW	BLANK
A	LTE	1900 (PCS)	BLANK	GREEN	RED		BLANK	YELLOW	BLANK
A	LTE	1900 (PCS) – 2ND BLOCK	BLANK	GREEN	RED	RED	BLANK	YELLOW	BLANK
A	LTE	2100 (AWS)	BLANK	GREEN	ORANGE		BLANK	YELLOW	BLANK
A	LTE	2100 (AWS) – 2ND BLOCK	BLANK	GREEN	ORANGE	ORANGE	BLANK	YELLOW	BLANK
A	LTE	2300 (WCS)	BLANK	GREEN	SLATE		BLANK	YELLOW	BLANK
A	LTE	2300 (WCS) – 2ND BLOCK	BLANK	GREEN	BROWN		BLANK	YELLOW	BLANK
A	LTE	2300 (WCS) – SXM REPEATER	BLANK	GREEN	BROWN	BROWN	BLANK	YELLOW	BLANK
A	LTE	700 (D/E)	BLANK	GREEN	BROWN	BROWN	BROWN	YELLOW	BLANK
A	LTE	700 FIRSTNET	BLANK	GREEN	VIOLET	BLUE	BLANK	YELLOW	BLANK
A	LTE	700 (B/C) / 700 FIRSTNET (DUAL RRH)	BLANK	GREEN	VIOLET	VIOLET	BLUE	YELLOW	BLANK
A	LTE	1900 (PCS) / 2100 (AWS) (DUAL RRH)	BLANK	GREEN	RED	ORANGE	BLANK	YELLOW	BLANK
A	LTE	8500 / 700 D/E (DUAL RRH)	BLANK	GREEN	YELLOW	SLATE	BLANK	YELLOW	BLANK
A – SPLIT	LTE	700 (B/C)	GREEN	ORANGE	VIOLET		BLANK	YELLOW	BLANK
A – SPLIT	LTE	850	GREEN	ORANGE	YELLOW		BLANK	YELLOW	BLANK
A – SPLIT	LTE	850 – 2ND BLOCK	GREEN	ORANGE	YELLOW	YELLOW	BLANK	YELLOW	BLANK
A – SPLIT	LTE	1900 (PCS)	GREEN	ORANGE	RED		BLANK	YELLOW	BLANK
A – SPLIT	LTE	1900 (PCS) – 2ND BLOCK	GREEN	ORANGE	RED	RED	BLANK	YELLOW	BLANK
A – SPLIT	LTE	2100 (AWS)	GREEN	ORANGE	ORANGE		BLANK	YELLOW	BLANK
A – SPLIT	LTE	2100 (AWS) – 2ND BLOCK	GREEN	ORANGE	ORANGE	ORANGE	BLANK	YELLOW	BLANK
A – SPLIT	LTE	2300 (WCS)	GREEN	ORANGE	SLATE		BLANK	YELLOW	BLANK
A – SPLIT	LTE	2300 (WCS) – 2ND BLOCK	GREEN	ORANGE	BROWN		BLANK	YELLOW	BLANK
A – SPLIT	LTE	2300 (WCS) – SXM REPEATER	GREEN	ORANGE	BROWN	BROWN	BLANK	YELLOW	BLANK
A – SPLIT	LTE	700 (D/E)	GREEN	ORANGE	BROWN	BROWN	BROWN	YELLOW	BLANK
A – SPLIT	LTE	700 FIRSTNET	GREEN	ORANGE	VIOLET	BLUE	BLANK	YELLOW	BLANK
A – SPLIT	LTE	700 (B/C) / 700 FIRSTNET (DUAL RRH)	GREEN	ORANGE	VIOLET	VIOLET	BLUE	YELLOW	BLANK
A – SPLIT	LTE	1900 (PCS) / 2100 (AWS) (DUAL RRH)	GREEN	ORANGE	RED	ORANGE	BLANK	YELLOW	BLANK
A – SPLIT	LTE	8500 / 700 D/E (DUAL RRH)	GREEN	ORANGE	YELLOW	SLATE	BLANK	YELLOW	BLANK
B	LTE	700 (B/C)	BLANK	BLUE	VIOLET		BLANK	YELLOW	BLANK
B	LTE	850	BLANK	BLUE	YELLOW		BLANK	YELLOW	BLANK
B	LTE	850 – 2ND BLOCK	BLANK	BLUE	YELLOW	YELLOW	BLANK	YELLOW	BLANK
B	LTE	1900 (PCS)	BLANK	BLUE	RED		BLANK	YELLOW	BLANK
B	LTE	1900 (PCS) – 2ND BLOCK	BLANK	BLUE	RED	RED	BLANK	YELLOW	BLANK
B	LTE	2100 (AWS)	BLANK	BLUE	ORANGE		BLANK	YELLOW	BLANK
B	LTE	2100 (AWS) – 2ND BLOCK	BLANK	BLUE	ORANGE	ORANGE	BLANK	YELLOW	BLANK
B	LTE	2300 (WCS)	BLANK	BLUE	SLATE		BLANK	YELLOW	BLANK
B	LTE	2300 (WCS) – 2ND BLOCK	BLANK	BLUE	BROWN		BLANK	YELLOW	BLANK
B	LTE	2300 (WCS) – SXM REPEATER	BLANK	BLUE	BROWN	BROWN	BLANK	YELLOW	BLANK
B	LTE	700 (D/E)	BLANK	BLUE	BROWN	BROWN	BROWN	YELLOW	BLANK
B	LTE	700 FIRSTNET	BLANK	BLUE	VIOLET	BLUE	BLANK	YELLOW	BLANK
B	LTE	700 (B/C) / 700 FIRSTNET (DUAL RRH)	BLANK	BLUE	VIOLET	VIOLET	BLUE	YELLOW	BLANK
B	LTE	1900 (PCS) / 2100 (AWS) (DUAL RRH)	BLANK	BLUE	RED	ORANGE	BLANK	YELLOW	BLANK
B	LTE	8500 / 700 D/E (DUAL RRH)	BLANK	BLUE	YELLOW	SLATE	BLANK	YELLOW	BLANK
B – SPLIT	LTE	700 (B/C)	BLUE	BROWN	VIOLET		BLANK	YELLOW	BLANK
B – SPLIT	LTE	850	BLUE	BROWN	YELLOW		BLANK	YELLOW	BLANK
B – SPLIT	LTE	850 – 2ND BLOCK	BLUE	BROWN	YELLOW	YELLOW	BLANK	YELLOW	BLANK
B – SPLIT	LTE	1900 (PCS)	BLUE	BROWN	RED		BLANK	YELLOW	BLANK
B – SPLIT	LTE	1900 (PCS) – 2ND BLOCK	BLUE	BROWN	RED	RED	BLANK	YELLOW	BLANK
B – SPLIT	LTE	2100 (AWS)	BLUE	BROWN	ORANGE		BLANK	YELLOW	BLANK
B – SPLIT	LTE	2100 (AWS) – 2ND BLOCK	BLUE	BROWN	ORANGE	ORANGE	BLANK	YELLOW	BLANK
B – SPLIT	LTE	2300 (WCS)	BLUE	BROWN	SLATE		BLANK	YELLOW	BLANK
B – SPLIT	LTE	2300 (WCS) – 2ND BLOCK	BLUE	BROWN	BROWN		BLANK	YELLOW	BLANK
B – SPLIT	LTE	2300 (WCS) – SXM REPEATER	BLUE	BROWN	BROWN	BROWN	BLANK	YELLOW	BLANK
B – SPLIT	LTE	700 (D/E)	BLUE	BROWN	BROWN	BROWN	BROWN	YELLOW	BLANK
B – SPLIT	LTE	700 FIRSTNET	BLUE	BROWN	VIOLET	BLUE	BLANK	YELLOW	BLANK
B – SPLIT	LTE	700 (B/C) / 700 FIRSTNET (DUAL RRH)	BLUE	BROWN	VIOLET	VIOLET	BLUE	YELLOW	BLANK
B – SPLIT	LTE	1900 (PCS) / 2100 (AWS) (DUAL RRH)	BLUE	BROWN	RED	ORANGE	BLANK	YELLOW	BLANK
B – SPLIT	LTE	8500 / 700 D/E (DUAL RRH)	BLUE	BROWN	YELLOW	SLATE	BLANK	YELLOW	BLANK
C	LTE	700 (B/C)	BLANK	WHITE	VIOLET		BLANK	YELLOW	BLANK
C	LTE	850	BLANK	WHITE	YELLOW		BLANK	YELLOW	BLANK
C	LTE	850 – 2ND BLOCK	BLANK	WHITE	YELLOW	YELLOW	BLANK	YELLOW	BLANK
C	LTE	1900 (PCS)	BLANK	WHITE	RED		BLANK	YELLOW	BLANK
C	LTE	1900 (PCS) – 2ND BLOCK	BLANK	WHITE	RED	RED	BLANK	YELLOW	BLANK
C	LTE	2100 (AWS)	BLANK	WHITE	ORANGE		BLANK	YELLOW	BLANK
C	LTE	2100 (AWS) – 2ND BLOCK	BLANK	WHITE	ORANGE	ORANGE	BLANK	YELLOW	BLANK
C	LTE	2300 (WCS)	BLANK	WHITE	SLATE		BLANK	YELLOW	BLANK
C	LTE	2300 (WCS) – 2ND BLOCK	BLANK	WHITE	BROWN		BLANK	YELLOW	BLANK
C	LTE	2300 (WCS) – SXM REPEATER	BLANK	WHITE	BROWN	BROWN	BLANK	YELLOW	BLANK
C	LTE	700 (D/E)	BLANK	WHITE	BROWN	BROWN	BROWN	YELLOW	BLANK
C	LTE	700 FIRSTNET	BLANK	WHITE	VIOLET	BLUE	BLANK	YELLOW	BLANK
C	LTE	700 (B/C) / 700 FIRSTNET (DUAL RRH)	BLANK	WHITE	VIOLET	VIOLET	BLUE	YELLOW	BLANK
C	LTE	1900 (PCS) / 2100 (AWS) (DUAL RRH)	BLANK	WHITE	RED	ORANGE	BLANK	YELLOW	BLANK
C	LTE	8500 / 700 D/E (DUAL RRH)	BLANK	WHITE	YELLOW	SLATE	BLANK	YELLOW	BLANK
C – SPLIT	LTE	700 (B/C)	WHITE	VIOLET	VIOLET		BLANK	YELLOW	BLANK
C – SPLIT	LTE	850	WHITE	VIOLET	YELLOW		BLANK	YELLOW	BLANK
C – SPLIT	LTE	850 – 2ND BLOCK	WHITE	VIOLET	YELLOW	YELLOW	BLANK	YELLOW	BLANK
C – SPLIT	LTE	1900 (PCS)	WHITE	VIOLET	RED		BLANK	YELLOW	BLANK
C – SPLIT	LTE	1900 (PCS) – 2ND BLOCK	WHITE	VIOLET	RED	RED	BLANK	YELLOW	BLANK
C – SPLIT	LTE	2100 (AWS)	WHITE	VIOLET	ORANGE		BLANK	YELLOW	BLANK
C – SPLIT	LTE	2100 (AWS) – 2ND BLOCK	WHITE	VIOLET	ORANGE	ORANGE	BLANK	YELLOW	BLANK
C – SPLIT	LTE	2300 (WCS)	WHITE	VIOLET	SLATE		BLANK	YELLOW	BLANK
C – SPLIT	LTE	2300 (WCS) – 2ND BLOCK	WHITE	VIOLET	BROWN		BLANK	YELLOW	BLANK
C – SPLIT	LTE	2300 (WCS) – SXM REPEATER	WHITE	VIOLET	BROWN	BROWN	BLANK	YELLOW	BLANK
C – SPLIT	LTE	700 (D/E)	WHITE	VIOLET	BROWN	BROWN	BROWN	YELLOW	BLANK
C – SPLIT	LTE	700 FIRSTNET	WHITE	VIOLET	VIOLET	BLUE	BLANK	YELLOW	BLANK
C – SPLIT	LTE	700 (B/C) / 700 FIRSTNET (DUAL RRH)	WHITE	VIOLET	VIOLET	VIOLET	BLUE	YELLOW	BLANK
C – SPLIT	LTE	1900 (PCS) / 2100 (AWS) (DUAL RRH)	WHITE	VIOLET	RED	ORANGE	BLANK	YELLOW	BLANK
C – SPLIT	LTE	8500 / 700 D/E (DUAL RRH)	WHITE	VIOLET	YELLOW	SLATE	BLANK	YELLOW	BLANK
D	LTE	700 (B/C)	BLANK	ORANGE	VIOLET		BLANK	YELLOW	BLANK
D	LTE	850	BLANK	ORANGE	YELLOW		BLANK	YELLOW	BLANK
D	LTE	850 – 2ND BLOCK	BLANK	ORANGE	YELLOW	YELLOW	BLANK	YELLOW	BLANK
D	LTE	1900 (PCS)	BLANK	ORANGE	RED		BLANK	YELLOW	BLANK
D	LTE	1900 (PCS) – 2ND BLOCK	BLANK	ORANGE	RED	RED	BLANK	YELLOW	BLANK
D	LTE	2100 (AWS)	BLANK	ORANGE	ORANGE		BLANK	YELLOW	BLANK
D	LTE	2100 (AWS) – 2ND BLOCK	BLANK	ORANGE	ORANGE	ORANGE	BLANK	YELLOW	BLANK
D	LTE	2300 (WCS)	BLANK	ORANGE	SLATE		BLANK	YELLOW	BLANK
D	LTE	2300 (WCS) – 2ND BLOCK	BLANK	ORANGE	BROWN		BLANK	YELLOW	BLANK
D	LTE	2300 (WCS) – SXM REPEATER	BLANK	ORANGE	BROWN	BROWN	BLANK	YELLOW	BLANK
D	LTE	700 (D/E)	BLANK	ORANGE	BROWN	BROWN	BROWN	YELLOW	BLANK
D	LTE	700 FIRSTNET	BLANK	ORANGE	VIOLET	BLUE	BLANK	YELLOW	BLANK
D	LTE	700 (B/C) / 700 FIRSTNET (DUAL RRH)	BLANK	ORANGE	VIOLET	VIOLET	BLUE	YELLOW	BLANK
D	LTE	1900 (PCS) / 2100 (AWS) (DUAL RRH)	BLANK	ORANGE	RED	ORANGE	BLANK	YELLOW	BLANK
D	LTE	8500 / 700 D/E (DUAL RRH)	BLANK	ORANGE	YELLOW	SLATE	BLANK	YELLOW	BLANK
E	LTE	700 (B/C)	BLANK	BROWN	VIOLET		BLANK	YELLOW	BLANK
E	LTE	850	BLANK	BROWN	YELLOW		BLANK	YELLOW	BLANK
E	LTE	850 – 2ND BLOCK	BLANK	BROWN	YELLOW	YELLOW	BLANK	YELLOW	BLANK
E	LTE	1900 (PCS)	BLANK	BROWN	RED		BLANK	YELLOW	BLANK
E	LTE	1900 (PCS) – 2ND BLOCK	BLANK	BROWN	RED	RED	BLANK	YELLOW	BLANK
E	LTE	2100 (AWS)	BLANK	BROWN	ORANGE		BLANK	YELLOW	BLANK
E	LTE	2100 (AWS) – 2ND BLOCK	BLANK	BROWN	ORANGE	ORANGE	BLANK	YELLOW	BLANK
E	LTE	2300 (WCS)	BLANK	BROWN	SLATE		BLANK	YELLOW	BLANK
E	LTE	2300 (WCS) – 2ND BLOCK	BLANK	BROWN	BROWN		BLANK	YELLOW	BLANK
E	LTE	2300 (WCS) – SXM REPEATER	BLANK	BROWN	BROWN	BROWN	BLANK	YELLOW	BLANK
E	LTE	700 (D/E)	BLANK	BROWN	BROWN	BROWN	BROWN	YELLOW	BLANK
E	LTE	700 FIRSTNET	BLANK	BROWN	VIOLET	BLUE	BLANK	YELLOW	BLANK
E	LTE	700 (B/C) / 700 FIRSTNET (DUAL RRH)	BLANK	BROWN	VIOLET	VIOLET	BLUE	YELLOW	BLANK
E	LTE	1900 (PCS) / 2100 (AWS) (DUAL RRH)	BLANK	BROWN	RED	ORANGE	BLANK	YELLOW	BLANK
E	LTE	8500 / 700 D/E (DUAL RRH)	BLANK	BROWN	YELLOW	SLATE	BLANK	YELLOW	BLANK
F	LTE	700 (B/C)	BLANK	VIOLET	VIOLET		BLANK	YELLOW	BLANK
F	LTE	850	BLANK	VIOLET	YELLOW		BLANK	YELLOW	BLANK
F	LTE	850 – 2ND BLOCK	BLANK	VIOLET	YELLOW	YELLOW	BLANK	YELLOW	BLANK
F	LTE	1900 (PCS)	BLANK	VIOLET	RED		BLANK	YELLOW	BLANK
F	LTE	1900 (PCS) – 2ND BLOCK	BLANK	VIOLET	RED	RED	BLANK	YELLOW	BLANK
F	LTE	2100 (AWS)	BLANK	VIOLET	ORANGE		BLANK	YELLOW	BLANK
F	LTE	2100 (AWS) – 2ND BLOCK	BLANK	VIOLET	ORANGE	ORANGE	BLANK	YELLOW	BLANK
F	LTE	2300 (WCS)	BLANK	VIOLET	SLATE		BLANK	YELLOW	BLANK
F	LTE	2300 (WCS) – 2ND BLOCK	BLANK	VIOLET	BROWN		BLANK	YELLOW	BLANK
F	LTE	2300 (WCS) – SXM REPEATER	BLANK	VIOLET	BROWN	BROWN	BLANK	YELLOW	BLANK
F	LTE	700 (D/E)	BLANK	VIOLET	BROWN	BROWN	BROWN	YELLOW	BLANK
F	LTE	700 FIRSTNET	BLANK	VIOLET	VIOLET	BLUE	BLANK	YELLOW	BLANK
F	LTE	700 (B/C) / 700 FIRSTNET (DUAL RRH)	BLANK	VIOLET	VIOLET	VIOLET	BLUE	YELLOW	BLANK
F	LTE	1900 (PCS) / 2100 (AWS) (DUAL RRH)	BLANK	VIOLET	RED	ORANGE	BLANK	YELLOW	BLANK
F	LTE	8500 / 700 D/E (DUAL RRH)	BLANK	VIOLET	YELLOW	SLATE	BLANK	YELLOW	BLANK

NOTE 1: PRODUCTS ARE ONLY TO BE USED WHEN ADEQUATE PHYSICAL SPACE EXISTS FOR PROPER INSTALLATION.

NOTE 2: HEAT SHRINK MAY ONLY BE USED AT GROUND LEVEL OR ROOFTOP SITES WHEN APPLIED WITH A HEAT GUN. USE ON TOWERS OR INSTALLING WITH AN OPEN FLAME DEVICE, SUCH AS A TORCH, IS PROHIBITED DUE TO POTENTIAL DAMAGE TO CONNECTORS AND CABLES. HEAT SHRINK IS NOT ALLOWED ON CONNECTIONS TO TOWER TOP EQUIPMENT EVEN IF THE HEAT SHRINK IS APPLIED ON THE GROUND PRIOR TO INSTALLING THE EQUIPMENT ON THE TOWER TOP.

NOTE 3: HEAT SHRINK IS NOT TO BE USED ON RET/AISG CONNECTORS FOUND ON RF DEVICES (RRH/RRU, ANTENNAS, ETC.), DUE TO POSSIBLE DAMAGE BEING CAUSED TO THE DEVICE. IT MAY BE USED ON CONNECTORS ATTACHED TO RET SURGE PROTECTORS.

NOTE 4: WHEN GAMMA ELECTRONICS COLD SHRINK IS USED ON FULLY THREADED DIN CONNECTORS THE THREADS MUST HAVE EITHER ROSENBERGER THREAD ADAPTER OR BUTYL APPLIED PRIOR TO THE COLD SHRINK BEING INSTALLED. REFER TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS INCLUDED WITH THE PRODUCT FOR DETAILS.

TABLE 1: E/ PA / S. NJ / DE – COAX COLOR CODE

SECTOR	ALPHA	GREEN		
	A–SPLIT	GREEN	ORANGE	BLANK
	BETA	BLUE		
	B–SPLIT	BROWN	BROWN	BLANK
	GAMMA	WHITE		
	C–SPLIT	WHITE	VIOLET	BLANK
	D	ORANGE		
	E	BROWN		
	F	VIOLET		
DC TRUCNK / DC JUMPER / FIRST FIBER JUMPER				
FREQUENCY BAND	700 (B/C)	VIOLET		
	850	YELLOW		
	850 – 2ND BLOCK	YELLOW	YELLOW	BLANK
	1900 (PCS)	RED		
	1900 (PCS) – 2ND BLOCK	RED	RED	BLANK
	2100 (AWS)	ORANGE		
	2100 (AWS) – 2ND BLOCK	ORANGE	ORANGE	BLANK
	2300 (WCS)	BROWN		
	2300 (WCS) – 2ND BLOCK	BROWN	BROWN	BLANK
	2300 (WCS) – SXM REPEATER	BROWN	BROWN	BROWN
	700 (D/E)	SLATE		
	700 FIRSTNET	VIOLET	BLUE	BLANK
	700 (B/C) / 700 FIRSTNET (DUAL RRH)	VIOLET	VIOLET	BLUE
	1900 (PCS) / 2100 (AWS) (DUAL RRH)	RED	ORANGE	BLANK
	8500 / 700 D/E (DUAL RRH)	YELLOW	SLATE	BLANK

WEATHERPROOFING PRODUCT APPLICATION TABLE

PRODUCT	APPLICATION: HARDLINE TO JUMPER CONNECTION	7–16 DIN RF CONNECTOR	4.3–10 RF CONNECTOR	RRH/RRU DC CONNECTOR	RRH/RRU FIBER CONNECTOR	RET/AISG
TAPE & BUTYL	YES	YES (1)	YES (1)	NO	NO	NO
SELF–FUSING TAPE	YES	YES (1)	YES (1)	YES	NO	YES
JUMPER BOOT	NO	YES	YES	NO	NO	NO

TORQUE VALUES FOR CONNECTORS

CONNECTOR TYPE	TORQUE Ft–lbs	TORQUE In–lbs
7–16 DIN	19–22	221–265
4.3–10	3.67	44
N	1.25	15
SMA	0.42	5
TNC	0.42	5
RET/AISG	HAND TIGHTEN	HAND TIGHTEN

MINIMUM BENDING RADIUS FOR GROUNDING CONDUCTORS

GROUNDING CONDUCTOR SIZE	MINIMUM BENDING RADIUS (INCHES)
6 AWG	2
4 AWG	3
2 AWG	3
1/0 AWG	4
4/0 AWG	4
750 KCML	7

1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

AT&T
ONE AT&T WAY
BEDMINSTER, NJ 07921

CROWN CASTLE
3200 HORIZON DRIVE, SUITE 150
KING OF PRUSSIA, PA 19406

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T SITE NUMBER:
CTV1060

BU #: **806362**
NHV 108 943133

347 EAST STREET
WOLCOTT, CT 06716

EXISTING 185'-0"
SELF-SUPPORT TOWER

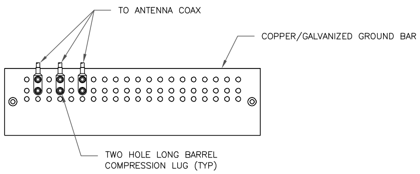
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	4/27/20	BLB	CONSTRUCTION	FWP
1	5/18/20	GEH	CONSTRUCTION	FWP

STATE OF CONNECTICUT
31627 LICENSED PROFESSIONAL ENGINEER
5/18/20

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

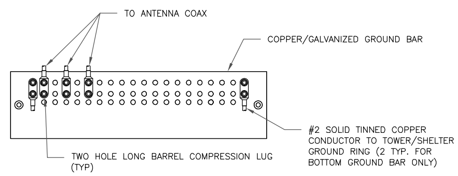
SHEET NUMBER: C-9
REVISION: 1



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL.

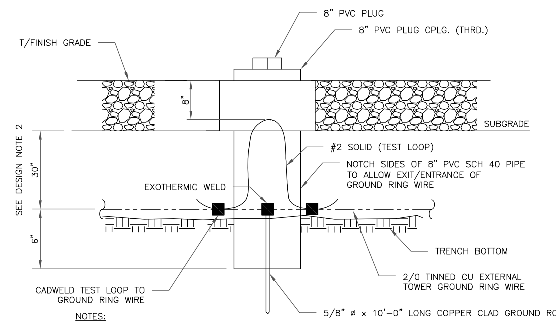
1 ANTENNA GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

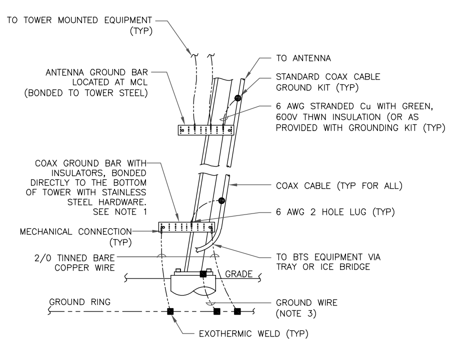
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

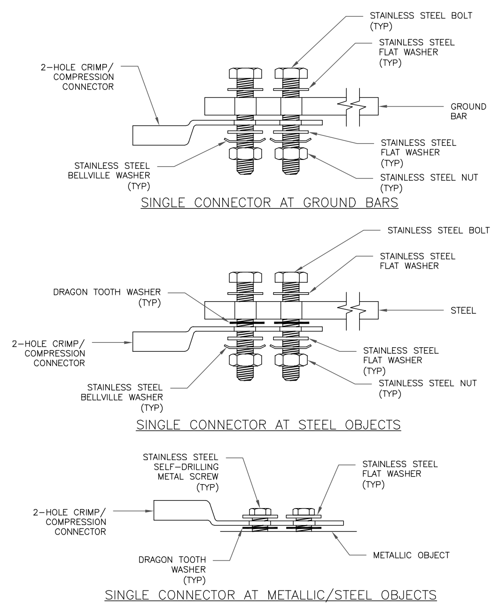
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



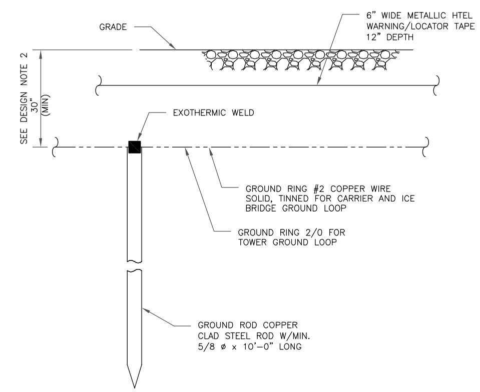
NOTES:

1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
2. ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE USA INC. TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
3. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

AT&T
ONE AT&T WAY
BEDMINSTER, NJ 07921

CROWN CASTLE
3200 HORIZON DRIVE, SUITE 150
KING OF PRUSSIA, PA 19406

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T SITE NUMBER:
CTV1060

BU #: **806362**
NHV 108 943133

347 EAST STREET
WOLCOTT, CT 06716

EXISTING 185'-0"
SELF-SUPPORT TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	4/27/20	BLB	CONSTRUCTION	FWP
1	5/18/20	GEH	CONSTRUCTION	FWP

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PEC.0001564
Expires 2/10/21

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SHEET NUMBER: G-1
REVISION: 1

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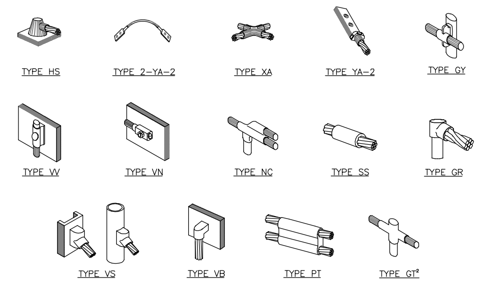
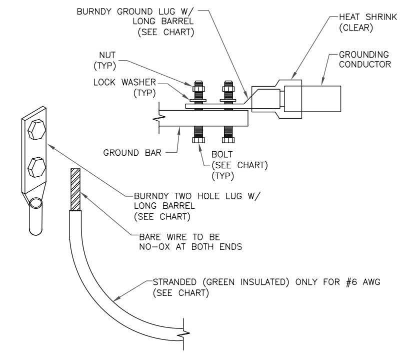


NOTE:

1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE

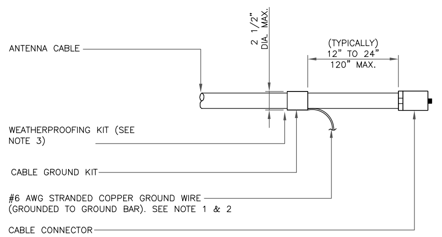
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



NOTES:

1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER,GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

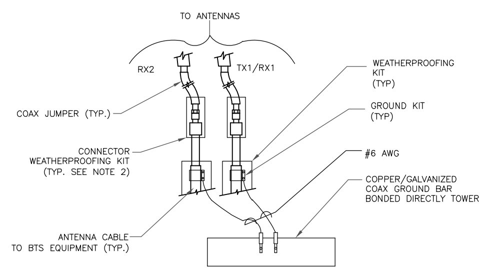
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

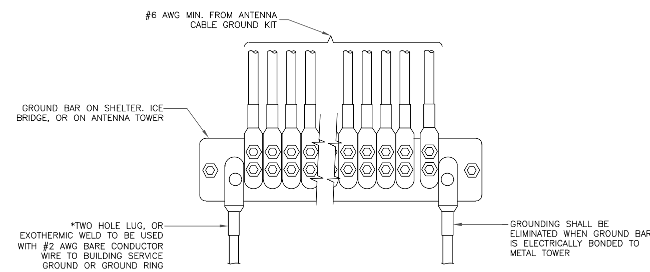
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



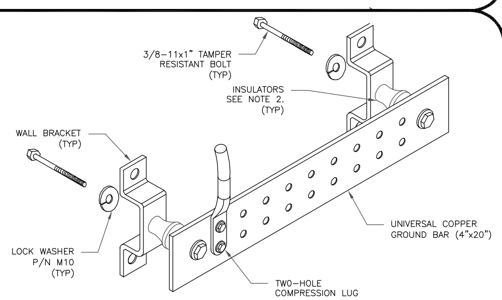
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



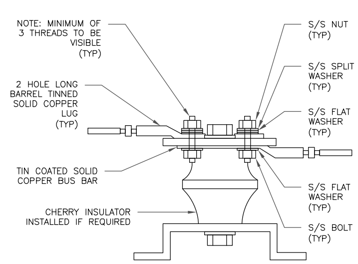
5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



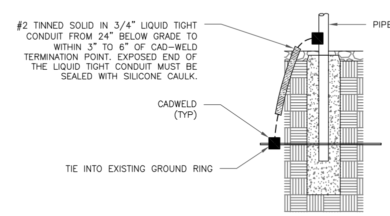
NOTES:

1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

AT&T
ONE AT&T WAY
BEDMINSTER, NJ 07921

CROWN CASTLE
3200 HORIZON DRIVE, SUITE 150
KING OF PRUSSIA, PA 19406

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T SITE NUMBER:
CTV1060

BU #: **806362**
NHV 108 943133

347 EAST STREET
WOLCOTT, CT 06716

EXISTING 185'-0"
SELF-SUPPORT TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	4/27/20	BLB	CONSTRUCTION	FWP
1	5/18/20	GEH	CONSTRUCTION	FWP

STATE OF CONNECTICUT 31627 LICENSED PROFESSIONAL ENGINEER
5/18/20

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/21

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SHEET NUMBER: G-2
REVISION: 1

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Exhibit D

Structural Analysis Report

PAUL J. FORD & COMPANY

Date: **March 26, 2020**

Amanda D Brown
Crown Castle
6325 Ardrey Kell Rd, Suite 600
Charlotte, NC 28277

Paul J. Ford and Company
250 E. Broad St., Ste 600
Columbus, OH 43215
614-221-6679

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	61146
	Carrier Site Name:	N/A
Crown Castle Designation:	**Crown Castle BU Number:**	806362
	Crown Castle Site Name:	NHV 108 943133
	Crown Castle JDE Job Number:	596314
	Crown Castle Work Order Number:	1835064
	Crown Castle Order Number:	509327 Rev. 0
Engineering Firm Designation:	**Paul J. Ford and Company Project Number:**	37520-0048.002.8700
Site Data:	**INTERSECTION OF RTE 322/MERIDIAN RDWOLCOTT SITE, WOLCOTT, New Haven County, CT** **Latitude *41° 33' 34.41"*, Longitude *-72° 56' 49.1"*** **185 Foot - Self Support Tower**	

Dear Amanda D Brown,

Paul J. Ford and Company is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower.

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

LC7: Proposed Equipment Configuration **Sufficient Capacity – 97.3%**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut State Building Code and Appendix N. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:

Rebekah Dorris

Rebekah M. Dorris, PE
Project Engineer
Rdorris@pauljford.com

MTL

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

03.26.2020

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 185-ft Self Support tower designed by Rohn in September of 1986.

2) ANALYSIS CRITERIA

TIA-222 Revision: TIA-222-H
Risk Category: II
Wind Speed: 125 mph
Exposure Category: C
Topographic Factor: 1
Ice Thickness: 1.5 in
Wind Speed with Ice: 50 mph
Service Wind Speed: 60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
158.0	160.0	3	cci antennas	DMP65R-BU8D w/ Mount Pipe	12 2 6	1-1/4 3/8 3/4
		3	cci antennas	OPA65R-BU6D w/ Mount Pipe		
		1	cci antennas	TPA-65R-LCUUUU-H8 w/ Mount Pipe		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		2	quintel technology	QS66512-2 w/ Mount Pipe		
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 32 B30		
		3	ericsson	RRUS 32 B66A		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14_CCIV2		
		6	kaelus	DBC0061F1V51-2		
		1	raycap	DC6-48-60-18-8F		
	158.0	3	communication components inc.	DTMABP7819VG12A		
		3	powerwave technologies	7020.00		
		2	raycap	DC6-48-60-18-8F		
		3	tower mounts	Sabre C10857007C		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
186.0	186.0	3	ericsson	AIR 32 B2A/B66AA w/ Mount Pipe	13 2	1-5/8 1-3/8
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		3	ericsson	AIR 3246 B66 w/ Mount Pipe		
		3	ericsson	KRY 112 144/1		
		3	ericsson	KRY 112 489/2		
		3	ericsson	RADIO 4449 B12/B71		
		3	tower mounts	Site Pro1 VFA12-HD		
177.0	177.0	6	commscope	SBNHH-1D45B w/ Mount Pipe	13	1-5/8
		3	commscope	SBNHH-1D65B w/ Mount Pipe		
		2	andrew	DB846F65ZAXY w/ Mount Pipe		
		2	antel	LPA-80063/6CFx5 w/ Mount Pipe		
		2	swedcom	SC-E 6014 rev2 w/ Mount Pipe		
		3	alcatel lucent	RRH2X60-AWS		
		3	alcatel lucent	RRH2X60-PCS		
		3	alcatel lucent	RRH2x60-700		
		2	rfs celwave	DB-T1-6Z-8AB-0Z		
		1	tower mounts	Sector Mount [SM 504-3]		
168.0	168.0	3	commscope	NNVV-65B-R4 w/ Mount Pipe	1 6 3	1/4 5/16 1-1/4
		3	rfs celwave	APXVTM14-ALU-I20 w/ Mount Pipe		
		1	andrew	VHLP2-11		
		3	samsung telecommunications	FDD_R6_RRH		
		3	nokia	AHCC		
		3	nokia	AHFIB_CCIV2		
		1	dragonwave	HORIZON DUO		
		3	tower mounts	Site Pro 1 VFA12-HD		
40.0	40.0	1	gps	GPS_A	1	1/2
		1	tower mounts	Side Arm Mount [SO 306-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH, 2/4/2008	2303630	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Rohn, 9/9/1986	217670	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Rohn, 9/9/1986	529684	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Jacobs, 10/10/2018	7656058	CCISITES
4-POST-MODIFICATION INSPECTION	ETS, 3/19/2019	8288884	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.5.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were maintained in accordance with the TIA-222 standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	185 - 180	Leg	Pipe 2.875" x 0.203" (2.5 STD)	2	-3.982	40.516	9.8	Pass
T2	180 - 160	Leg	Pipe 2.875" x 0.203" (2.5 STD)	13	-26.983	47.805	56.4	Pass
T3	160 - 140	Leg	Pipe 3.5" x 0.300" (3 XS)	54	-74.320	100.549	73.9	Pass
T4	140 - 120	Leg	Pipe 4.5" x 0.337" (4 XS)	93	-117.223	169.398	69.2	Pass
T5	120 - 100	Leg	Pipe 5.5" x 0.375" (5 EH)	132	-149.632	207.090	72.3	Pass
T6	100 - 80	Leg	Pipe 5.5" x 0.375" (5 EH)	159	-184.489	207.002	89.1	Pass
T7	80 - 60	Leg	Pipe 6.625" x 0.340" (6 EHS)	186	-216.406	256.163	84.5	Pass
T8	60 - 40	Leg	Pipe 6.625" x 0.432" (6 XS)	213	-248.077	318.804	77.8	Pass
T9	40 - 20	Leg	Pipe 6.625" x 0.432" (6 XS)	240	-278.258	318.764	87.3	Pass
T10	20 - 0	Leg	Pipe 8.75" x 0.375" (8 EHS)	267	-291.187	413.697	70.4	Pass
T1	185 - 180	Diagonal	L 2 x 2 x 1/4	10	-1.896	13.742	13.8 18.9 (b)	Pass
T2	180 - 160	Diagonal	Pipe 2.375" x 0.154" (2 STD)	20	-9.782	18.519	52.8	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T3	160 - 140	Diagonal	Pipe 2.375" x 0.154" (2 STD)	60	-10.994	16.359	67.2	Pass
T4	140 - 120	Diagonal	Pipe 2.375" x 0.154" (2 STD)	99	-10.783	14.024	76.9	Pass
T5	120 - 100	Diagonal	Pipe 2.875" x 0.203" (2.5 STD)	138	-13.354	17.183	77.7	Pass
T6	100 - 80	Diagonal	Pipe 2.875" x 0.203" (2.5 STD)	165	-12.236	15.003	81.6	Pass
T7	80 - 60	Diagonal	Pipe 2.875" x 0.203" (2.5 STD)	192	-12.929	13.285	97.3	Pass
T8	60 - 40	Diagonal	Pipe 2.875" x 0.276" (2.5 XS)	219	-13.385	14.663	91.3	Pass
T9	40 - 20	Diagonal	Pipe 3.5" x 0.216" (3 STD)	246	-13.226	20.089	65.8	Pass
T10	20 - 0	Diagonal	Pipe 3.5" x 0.216" (3 STD)	279	-20.935	33.778	62.0	Pass
T2	180 - 160	Horizontal	Pipe 1.9" x 0.145" (1.5 STD)	19	-5.230	23.693	22.1	Pass
T3	160 - 140	Horizontal	Pipe 1.9" x 0.145" (1.5 STD)	58	-6.886	20.062	34.3	Pass
T4	140 - 120	Horizontal	Pipe 2.375" x 0.154" (2 STD)	97	-7.439	28.514	26.1	Pass
T5	120 - 100	Horizontal	Pipe 2.375" x 0.154" (2 STD)	136	-7.898	23.744	33.3	Pass
T6	100 - 80	Horizontal	Pipe 2.375" x 0.154" (2 STD)	163	-8.024	17.591	45.6	Pass
T7	80 - 60	Horizontal	Pipe 2.875" x 0.203" (2.5 STD)	190	-9.026	30.294	29.8 31.3 (b)	Pass
T8	60 - 40	Horizontal	Pipe 2.875" x 0.203" (2.5 STD)	217	-9.761	23.431	41.7	Pass
T9	40 - 20	Horizontal	Pipe 2.875" x 0.203" (2.5 STD)	244	-9.943	18.553	53.6	Pass
T10	20 - 0	Horizontal	Pipe 3.5" x 0.216" (3 STD)	275	-11.239	32.785	34.3	Pass
T1	185 - 180	Top Girt	L 2 x 2 x 1/4	4	-0.390	4.664	8.4	Pass
T10	20 - 0	Redund Horz 1 Bracing	Rohn 1.5" x 11 ga	280	-5.056	5.846	86.5	Pass
T10	20 - 0	Redund Diag 1 Bracing	2L 2 x 2 x 1/4 (1/4)	281	-4.605	11.859	38.8	Pass
T10	20 - 0	Redund Hip 1 Bracing	Pipe 1.9" x 0.145" (1.5 STD)	282	-0.033	12.885	0.3	Pass
T10	20 - 0	Redund Hip Diagonal 1 Bracing	Pipe 2.875" x 0.203" (2.5 STD)	283	-0.079	11.130	0.7	Pass
T2	180 - 160	Inner Bracing	L 2 x 2 x 1/8	27	-0.006	8.787	0.4	Pass
T3	160 - 140	Inner Bracing	L 2 x 2 x 1/8	66	-0.006	6.461	0.5	Pass
T4	140 - 120	Inner Bracing	L 2 x 2 x 1/8	105	-0.007	4.417	0.6	Pass
T5	120 - 100	Inner Bracing	L 2 x 2 x 1/8	144	-0.008	3.339	0.6	Pass
T6	100 - 80	Inner Bracing	L 2.5 x 2.5 x 3/16	171	-0.010	6.987	0.5	Pass
T7	80 - 60	Inner Bracing	L 3 x 3 x 3/16	198	-0.012	9.162	0.6	Pass
T8	60 - 40	Inner Bracing	L 3.5 x 3.5 x 1/4	225	-0.014	14.989	0.5	Pass
T9	40 - 20	Inner Bracing	L 3.5 x 3.5 x 1/4	252	-0.015	11.368	0.6	Pass
T10	20 - 0	Inner Bracing	Pipe 3.5" x 0.216" (3 STD)	296	-0.016	31.107	0.5	Pass
							Summary	
						Leg (T6)	89.1	Pass
						Diagonal (T7)	97.3	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
						Horizontal (T9)	53.6	Pass
						Top Girt (T1)	8.4	Pass
						Redund Horz 1 Bracing (T10)	86.5	Pass
						Redund Diag 1 Bracing (T10)	38.8	Pass
						Redund Hip 1 Bracing (T10)	0.3	Pass
						Redund Hip Diagonal 1 Bracing (T10)	0.7	Pass
						Inner Bracing (T5)	0.6	Pass
						Bolt Checks	64.5	Pass
						Rating =	97.3	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	41.9	Pass
1	Base Foundation Structural Steel	0	63.6	Pass
1	Base Foundation Soil Interaction	0	74.7	Pass

Structure Rating (max from all components) =	97.3%

Notes:

- All structural ratings are per TIA-222-H Section 15.5
- 1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.

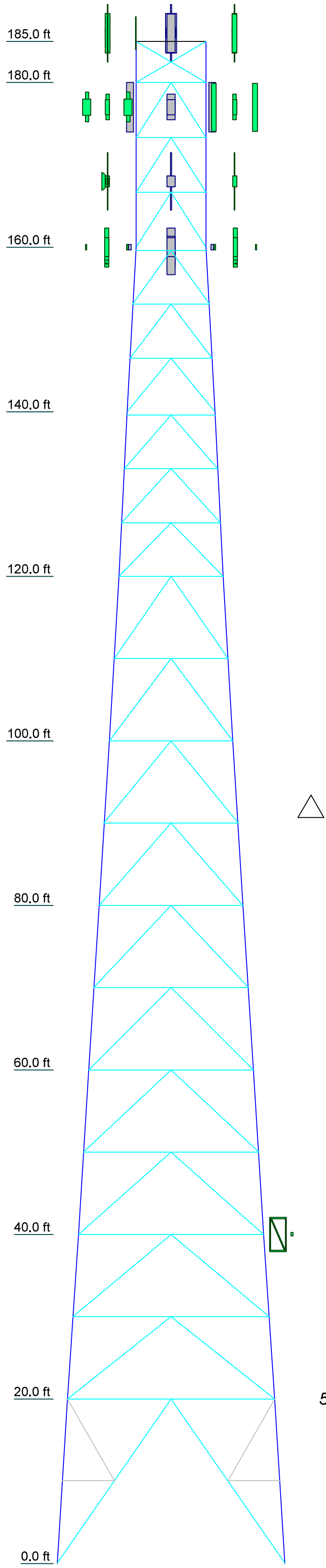
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	Legs	Leg Grade	Diagonals	Diagonal Grade	Top Girts	Horizontals	Red. Horizontals	Red. Diagonals	Red. Hips	Inner Bracing	Face Width (ft)	# Panels @ (ft)	Weight (K)
T1	Pipe 2.875" x 0.203" (2.5 STD)	A53-A	C	E	C	N.A.				N.A.	8.5	1 @ 5	0.4
T2	Pipe 2.875" x 0.203" (2.5 STD)	A618-50	Pipe 2.375" x 0.154" (2 STD)	A618-50	N.A.	Pipe 1.9" x 0.145" (1.5 STD)	N.A.	N.A.	N.A.	L 2 x 2 x 1/8		3 @ 6.66667	1.2
T3	Pipe 3.5" x 0.300" (3 XS)	A618-50	Pipe 2.375" x 0.154" (2 STD)	A618-50	N.A.	Pipe 1.9" x 0.145" (1.5 STD)	N.A.	N.A.	N.A.	L 2 x 2 x 1/8	8.54167	6 @ 6.52778	1.5
T4	Pipe 4.5" x 0.337" (4 XS)	A618-50	Pipe 2.375" x 0.154" (2 STD)	A618-50	N.A.	Pipe 1.9" x 0.145" (1.5 STD)	N.A.	N.A.	N.A.	L 2 x 2 x 1/8	10.625	6 @ 6.52778	2.0
T5	Pipe 5.5" x 0.375" (5 EH)	A618-50	Pipe 2.875" x 0.203" (2.5 STD)	A618-50	N.A.	Pipe 2.375" x 0.154" (2 STD)	N.A.	N.A.	N.A.	L 2.5 x 2.5 x 3/16	12.7083	10 @ 10	2.6
T6	Pipe 5.5" x 0.375" (5 EH)	A618-50	Pipe 2.875" x 0.203" (2.5 STD)	A618-50	N.A.	Pipe 2.375" x 0.154" (2 STD)	N.A.	N.A.	N.A.	L 2.5 x 2.5 x 3/16	14.9583	10 @ 10	2.8
T7	A	A513-50	Pipe 2.875" x 0.203" (2.5 STD)	A618-50	N.A.	Pipe 2.375" x 0.154" (2 STD)	N.A.	N.A.	N.A.	L 3 x 3 x 3/16	17.5417	10 @ 10	3.3
T8	Pipe 6.625" x 0.432" (6 XS)	A500-50	D	A618-50	N.A.	Pipe 2.875" x 0.203" (2.5 STD)	N.A.	N.A.	N.A.	L 3.5 x 3.5 x 1/4	20.0417	10 @ 10	4.4
T9	Pipe 6.625" x 0.432" (6 XS)	A500-50	Pipe 3.5" x 0.216" (3 STD)	A618-50	N.A.	Pipe 2.875" x 0.203" (2.5 STD)	N.A.	N.A.	N.A.	L 3.5 x 3.5 x 1/4	22.5417	10 @ 10	4.6
T10	B	A500-50	Pipe 3.5" x 0.216" (3 STD)	A618-50	N.A.	Pipe 3.5" x 0.216" (3 STD)	Rohn 1.5" x 11 ga	2L 2 x 2 x 1/4 (1/4)	F	Pipe 3.5" x 0.216" (3 STD)	25.1771	1 @ 19.9167	5.0
Base											27.6771		27.8



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	Pipe 6.625" x 0.340" (6 EHS)	D	Pipe 2.875" x 0.276" (2.5 XS)
B	Pipe 8.75" x 0.375" (8 EHS)	E	A572-50
C	L 2 x 2 x 1/4	F	Pipe 1.9" x 0.145" (1.5 STD)

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-A	30 ksi	48 ksi	A513-50	50 ksi	66 ksi
A572-50	50 ksi	65 ksi	A500-50	50 ksi	62 ksi
A618-50	50 ksi	70 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TIA-222-H Annex S
9. TOWER RATING: 97.3%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 321 K
SHEAR: 39 K

UPLIFT: -284 K
SHEAR: 36 K

AXIAL 153 K
SHEAR 18 K
MOMENT 2094 kip-ft
TORQUE 23 kip-ft
50 mph WIND - 1.500 in ICE

AXIAL 66 K
SHEAR 65 K
MOMENT 7218 kip-ft
TORQUE 113 kip-ft
REACTIONS - 125 mph WIND

Paul J. Ford and Company
250 E. Broad St., Ste 600
Columbus, OH 43215
Phone: 614-221-6679
FAX:

Job: **180' SST / Wolcott, CT**	
Project: **BU 806362 / PJF 37520-0048**	
Client: Crown Castle	Drawn by: Rebekah Dorris / App'd:
Code: TIA-222-H	Date: 03/26/20 / Scale: NTS
Path: G:\TOWER\375_Crown_Castle\2020\37520-0048_806362_NHV 108 943133\37520-0048.002.8700_SA_1835064\TNX\37520-0048.002.8700.eri	Dwg No. E-1

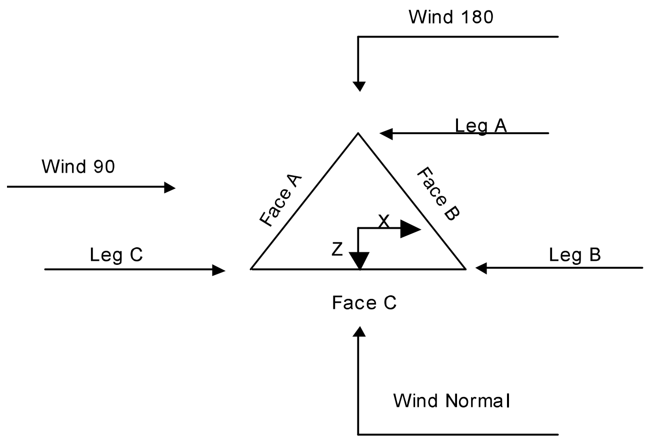
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 185.000 ft above the ground line.
The base of the tower is set at an elevation of 0.000 ft above the ground line.
The face width of the tower is 8.500 ft at the top and 27.677 ft at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

1) Tower is located in New Haven County, Connecticut.
2) Tower base elevation above sea level: 745.000 ft.
3) Basic wind speed of 125 mph.
4) Risk Category II.
5) Exposure Category C.
6) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
7) Topographic Category: 1.
8) Crest Height: 0.000 ft.
9) Nominal ice thickness of 1.500 in.
10) Ice thickness is considered to increase with height.
11) Ice density of 56.000 pcf.
12) A wind speed of 50 mph is used in combination with ice.
13) Deflections calculated using a wind speed of 60 mph.
14) TIA-222-H Annex S.
15) Pressures are calculated at each section.
16) Tower analysis based on target reliabilities in accordance with Annex S.
17) Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
18) Stress ratio used in tower member design is 1.05.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area	√	SR Leg Bolts Resist Compression
	Use Code Stress Ratios	√	Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension	√	Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
√	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		**Poles**
√	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
√	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known



Triangular Tower

Tower Section Geometry

Tower Section	*Tower Elevation* *ft*	*Assembly Database*	*Description*	*Section Width* *ft*	*Number of Sections*	*Section Length* *ft*
T1	185.000-180.000			8.500	1	5.000
T2	180.000-160.000		B054	8.500	1	20.000
T3	160.000-140.000		C039	8.542	1	20.000
T4	140.000-120.000		D061	10.625	1	20.000
T5	120.000-100.000		E075	12.708	1	20.000
T6	100.000-80.000		F023	14.958	1	20.000
T7	80.000-60.000		G043	17.542	1	20.000
T8	60.000-40.000		H014	20.042	1	20.000
T9	40.000-20.000		J021	22.542	1	20.000
T10	20.000-0.000		K029	25.177	1	20.000

Tower Section Geometry *(cont'd)*

Tower Section	*Tower Elevation* *ft*	*Diagonal Spacing* *ft*	*Bracing Type*	*Has K Brace End Panels*	*Has Horizontals*	*Top Girt Offset* *in*	*Bottom Girt Offset* *in*
T1	185.000-180.000	5.000	X Brace	No	Yes	0.000	0.000
T2	180.000-160.000	6.667	K Brace Down	No	Yes	0.000	0.000
T3	160.000-140.000	6.528	K Brace Down	No	Yes	5.000	0.000
T4	140.000-120.000	6.528	K Brace Down	No	Yes	5.000	0.000
T5	120.000-100.000	10.000	K Brace Down	No	Yes	0.000	0.000
T6	100.000-80.000	10.000	K Brace Down	No	Yes	0.000	0.000
T7	80.000-60.000	10.000	K Brace Down	No	Yes	0.000	0.000
T8	60.000-40.000	10.000	K Brace Down	No	Yes	0.000	0.000
T9	40.000-20.000	10.000	K Brace Down	No	Yes	0.000	0.000

Tower Section	*Tower Elevation* *ft*	*Diagonal Spacing* *ft*	*Bracing Type*	*Has K Brace End Panels*	*Has Horizontals*	*Top Girt Offset* *in*	*Bottom Girt Offset* *in*
T10	20.000-0.000	19.917	K1 Down	No	Yes	0.000	1.000

Tower Section Geometry *(cont'd)*

Tower Elevation *ft*	*Leg Type*	*Leg Size*	*Leg Grade*	*Diagonal Type*	*Diagonal Size*	*Diagonal Grade*
T1 185.000-180.000	Pipe	Pipe 2.875" x 0.203" (2.5 STD)	A53-A (30 ksi)	Equal Angle	L 2 x 2 x 1/4	A572-50 (50 ksi)
T2 180.000-160.000	Pipe	Pipe 2.875" x 0.203" (2.5 STD)	A618-50 (50 ksi)	Pipe	Pipe 2.375" x 0.154" (2 STD)	A618-50 (50 ksi)
T3 160.000-140.000	Pipe	Pipe 3.5" x 0.300" (3 XS)	A618-50 (50 ksi)	Pipe	Pipe 2.375" x 0.154" (2 STD)	A618-50 (50 ksi)
T4 140.000-120.000	Pipe	Pipe 4.5" x 0.337" (4 XS)	A618-50 (50 ksi)	Pipe	Pipe 2.375" x 0.154" (2 STD)	A618-50 (50 ksi)
T5 120.000-100.000	Pipe	Pipe 5.5" x 0.375" (5 EH)	A513-50 (50 ksi)	Pipe	Pipe 2.875" x 0.203" (2.5 STD)	A618-50 (50 ksi)
T6 100.000-80.000	Pipe	Pipe 5.5" x 0.375" (5 EH)	A513-50 (50 ksi)	Pipe	Pipe 2.875" x 0.203" (2.5 STD)	A618-50 (50 ksi)
T7 80.000-60.000	Pipe	Pipe 6.625" x 0.340" (6 EHS)	A513-50 (50 ksi)	Pipe	Pipe 2.875" x 0.203" (2.5 STD)	A618-50 (50 ksi)
T8 60.000-40.000	Pipe	Pipe 6.625" x 0.432" (6 XS)	A513-50 (50 ksi)	Pipe	Pipe 2.875" x 0.276" (2.5 XS)	A618-50 (50 ksi)
T9 40.000-20.000	Pipe	Pipe 6.625" x 0.432" (6 XS)	A513-50 (50 ksi)	Pipe	Pipe 3.5" x 0.216" (3 STD)	A618-50 (50 ksi)
T10 20.000-0.000	Pipe	Pipe 8.75" x 0.375" (8 EHS)	A500-50 (50 ksi)	Pipe	Pipe 3.5" x 0.216" (3 STD)	A618-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation *ft*	*Top Girt Type*	*Top Girt Size*	*Top Girt Grade*	*Bottom Girt Type*	*Bottom Girt Size*	*Bottom Girt Grade*
T1 185.000-180.000	Equal Angle	L 2 x 2 x 1/4	A572-50 (50 ksi)	Pipe		A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation *ft*	*No. of Mid Girts*	*Mid Girt Type*	*Mid Girt Size*	*Mid Girt Grade*	*Horizontal Type*	*Horizontal Size*	*Horizontal Grade*
T2 180.000-160.000	None	Pipe		A618-50 (50 ksi)	Pipe	Pipe 1.9" x 0.145" (1.5 STD)	A618-50 (50 ksi)
T3 160.000-140.000	None	Pipe		A618-50 (50 ksi)	Pipe	Pipe 1.9" x 0.145" (1.5 STD)	A618-50 (50 ksi)
T4 140.000-120.000	None	Pipe		A618-50 (50 ksi)	Pipe	Pipe 2.375" x 0.154" (2 STD)	A618-50 (50 ksi)
T5 120.000-100.000	None	Pipe		A618-50 (50 ksi)	Pipe	Pipe 2.375" x 0.154" (2 STD)	A618-50 (50 ksi)
T6 100.000-80.000	None	Pipe		A618-50 (50 ksi)	Pipe	Pipe 2.375" x 0.154" (2 STD)	A618-50 (50 ksi)
T7 80.000-60.000	None	Pipe		A618-50 (50 ksi)	Pipe	Pipe 2.875" x 0.203" (2.5 STD)	A618-50 (50 ksi)
T8 60.000-40.000	None	Pipe		A618-50 (50 ksi)	Pipe	Pipe 2.875" x 0.203" (2.5 STD)	A618-50 (50 ksi)
T9 40.000-20.000	None	Pipe		A618-50 (50 ksi)	Pipe	Pipe 2.875" x 0.203" (2.5 STD)	A618-50 (50 ksi)
T10 20.000-0.000	None	Pipe		A618-50 (50 ksi)	Pipe	Pipe 3.5" x 0.216" (3 STD)	A618-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation *ft*	*Secondary Horizontal Type*	*Secondary Horizontal Size*	*Secondary Horizontal Grade*	*Inner Bracing Type*	*Inner Bracing Size*	*Inner Bracing Grade*
T2 180.000-160.000	Pipe		A618-50 (50 ksi)	Single Angle	L 2 x 2 x 1/8	A36 (36 ksi)
T3 160.000-140.000	Pipe		A618-50 (50 ksi)	Single Angle	L 2 x 2 x 1/8	A36 (36 ksi)
T4 140.000-120.000	Pipe		A618-50 (50 ksi)	Single Angle	L 2 x 2 x 1/8	A36 (36 ksi)
T5 120.000-100.000	Pipe		A618-50 (50 ksi)	Single Angle	L 2 x 2 x 1/8	A36 (36 ksi)
T6 100.000-80.000	Pipe		A618-50 (50 ksi)	Single Angle	L 2.5 x 2.5 x 3/16	A36 (36 ksi)
T7 80.000-60.000	Pipe		A618-50 (50 ksi)	Single Angle	L 3 x 3 x 3/16	A36 (36 ksi)
T8 60.000-40.000	Pipe		A618-50 (50 ksi)	Single Angle	L 3.5 x 3.5 x 1/4	A36 (36 ksi)
T9 40.000-20.000	Pipe		A618-50 (50 ksi)	Single Angle	L 3.5 x 3.5 x 1/4	A36 (36 ksi)
T10 20.000-0.000	Pipe		A618-50 (50 ksi)	Pipe	Pipe 3.5" x 0.216" (3 STD)	A53-B-35 (35 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation *ft*	*Redundant Bracing Grade*		*Redundant Type*	*Redundant Size*	*K Factor*
T10 20.000-0.000	A618-50 (50 ksi)	Horizontal (1)	Pipe	Rohn 1.5" x 11 ga	1
		Diagonal (1)	Double Angle	2L 2 x 2 x 1/4 (1/4)	1
		Hip (1)	Pipe	Pipe 1.9" x 0.145" (1.5 STD)	1
		Hip Diagonal (1)	Pipe	Pipe 2.875" x 0.203" (2.5 STD)	1

Tower Section Geometry *(cont'd)*

Tower Elevation *ft*	*Gusset Area (per face)* ft^2	*Gusset Thickness* *in*	*Gusset Grade*	*Adjust. Factor* A_f	*Adjust. Factor* A_r	*Weight Mult.*	*Double Angle Stitch Bolt Spacing Diagonals* *in*	*Double Angle Stitch Bolt Spacing Horizontals* *in*	*Double Angle Stitch Bolt Spacing Redundants* *in*
T1 185.000-180.000	0.000	0.250	A36 (36 ksi)	1.03	1.03	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T2 180.000-160.000	0.000	0.250	A36 (36 ksi)	1.03	1.03	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T3 160.000-140.000	0.000	0.250	A36 (36 ksi)	1.03	1.03	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T4 140.000-120.000	0.000	0.250	A36 (36 ksi)	1.03	1.03	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T5 120.000-100.000	0.000	0.250	A36 (36 ksi)	1.03	1.03	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T6 100.000-80.000	0.000	0.250	A36 (36 ksi)	1.03	1.03	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T7 80.000-60.000	0.000	0.250	A36 (36 ksi)	1.03	1.03	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T8 60.000-40.000	0.000	0.250	A36 (36 ksi)	1.03	1.03	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T9 40.000-20.000	0.000	0.250	A36 (36 ksi)	1.03	1.03	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T10 20.000-0.000	0.000	0.375	A36 (36 ksi)	1.03	1.03	1.05	Mid-Pt	Mid-Pt	Mid-Pt

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 185.000-180.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 180.000-160.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 160.000-140.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 140.000-120.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 120.000-100.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 100.000-80.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 80.000-60.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T8 60.000-40.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T9 40.000-20.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T10 20.000-0.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1 185.000-180.000	0.000	1	0.000	0.75	0.000	0.75	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T2 180.000-160.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T3 160.000-140.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T4 140.000-120.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T5 120.000-100.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T6 100.000-80.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T7 80.000-60.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T8 60.000-40.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T9 40.000-20.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1
T10 20.000-0.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1	0.000	1

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 185.000-180.000	Flange	0.750 A325N	4	0.500 A325X	1	0.500 A325N	1	0.000 A325N	0	0.625 A325N	0	0.625 A325N	0	0.625 A325N	0
T2 180.000-160.000	Flange	0.750 A325N	4	0.625 A325N	3	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0	0.625 A325N	2	0.625 A325N	0
T3 160.000-140.000	Flange	0.875 A325N	4	0.625 A325N	3	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	2	0.000 A325N	0
T4 140.000-120.000	Flange	1.000 A325N	4	0.625 A325N	3	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	2	0.000 A325N	0
T5 120.000-100.000	Flange	1.000 A325N	4	0.625 A325N	3	0.625 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	2	0.000 A325N	0
T6 100.000-80.000	Flange	1.000 A325N	6	0.625 A325N	3	0.625 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	2	0.000 A325N	0
T7 80.000-60.000	Flange	1.000 A325N	6	0.625 A325N	3	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.625 A325N	2	0.625 A325N	0
T8 60.000-40.000	Flange	1.000 A325N	6	0.625 A325N	3	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.625 A325N	2	0.625 A325N	0
T9 40.000-20.000	Flange	1.000 A325N	8	0.625 A325N	3	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0	0.625 A325N	2	0.625 A325N	0
T10 20.000-0.000	Flange	1.000 A449	0	0.750 A325N	3	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.750 A325N	2	0.625 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
Face A													
LDF4-50A(1/2")	A	No	No	Ar (CaAa)	40.000 - 0.000	0.000	-0.44	1	1	0.500	0.630		0.000
561(1-5/8")	A	No	No	Ar (CaAa)	177.000 - 0.000	0.000	-0.4	12	2	0.500	1.625		0.001
561(1-5/8")	A	No	No	Ar (CaAa)	177.000 - 0.000	0.000	-0.41	1	1	0.500	1.625		0.001
1.5" flat Cable Ladder Rail	A	No	No	Af (CaAa)	177.000 - 0.000	0.000	-0.4	2	2	24.000 1.500	1.500		0.002
*****													
CAT5E(1/4)	A	No	No	Ar (CaAa)	168.000 - 0.000	0.000	0.4	1	1	0.260	0.260		0.000
9207(5/16)	A	No	No	Ar (CaAa)	168.000 - 0.000	0.000	0.4	6	2	0.330	0.330		0.000
HB114-1-0813U4-M5J(1-1/4)	A	No	No	Ar (CaAa)	168.000 - 0.000	0.000	0.43	3	3	1.540	1.540		0.001
1.5" flat Cable Ladder Rail	A	No	No	Af (CaAa)	168.000 - 0.000	0.000	0.45	2	2	24.000 1.500	1.500		0.002
Face C													
LCF158-50JA(1 5/8")	C	No	No	Ar (CaAa)	185.000 - 0.000	-2.500	-0.4	15	12	0.500	2.010		0.001
1.5" flat Cable Ladder Rail	C	No	No	Af (CaAa)	185.000 - 0.000	-2.500	-0.4	2	2	28.000 1.500	1.500		0.002
*****													
2" Rigid Conduit	C	No	No	Ar (CaAa)	158.000 - 0.000	0.000	-0.33	2	2	0.500	2.000		0.003
FB-L98B-034-XXX(3/8")	C	No	No	Ar (CaAa)	158.000 - 0.000	0.000	-0.31	2	2	0.000	0.394		0.000

Description	*Face or Leg*	*Allow Shield*	*Exclude From Torque Calculation*	*Component Type*	*Placement ft*	*Face Offset in*	*Lateral Offset (Frac FW)*	*#*	*# Per Row*	*Clear Spacing in*	*Width or Diameter in*	*Perimeter in*	*Weight klf*
WR-VG86ST-BRD(3/4")	C	No	No	Ar (CaAa)	158.000 - 0.000	0.000	-0.32	4	4	0.500	0.795		0.001
WR-VG86ST-BRD(3/4)	C	No	No	Ar (CaAa)	158.000 - 0.000	0.000	-0.33	2	2	0.795 0.500	0.795		0.001
HB114-1-0813U4-M5J(1-1/4)	C	No	No	Ar (CaAa)	158.000 - 0.000	0.000	-0.35	12	12	0.500	1.540		0.001
1.5" flat Cable Ladder Rail *****	C	No	No	Af (CaAa)	158.000 - 0.000	0.000	-0.35	2	2	28.000 1.500	1.500		0.002
Safety Line 3/8 *****	C	No	No	Ar (CaAa)	180.000 - 0.000	0.000	0.5	1	1	0.500	0.375		0.000

Discrete Tower Loads

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert ft ft ft*	*Azimuth Adjustment °*	*Placement ft*		*C_AA_A Front ft^2*	*C_AA_A Side ft^2*	*Weight K*
Lightning Rod 5/8"x4' *****	C	From Leg	0.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.250 0.664 0.973 1.494	0.250 0.664 0.973 1.494	0.031 0.034 0.039 0.059
AIR 32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.747 7.202 7.648 8.565	6.070 6.867 7.583 9.063	0.153 0.214 0.282 0.441
AIR 32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.747 7.202 7.648 8.565	6.070 6.867 7.583 9.063	0.153 0.214 0.282 0.441
AIR 32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.747 7.202 7.648 8.565	6.070 6.867 7.583 9.063	0.153 0.214 0.282 0.441
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	14.690 15.460 16.230 17.820	6.870 7.550 8.250 9.670	0.186 0.315 0.458 0.788
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	14.690 15.460 16.230 17.820	6.870 7.550 8.250 9.670	0.186 0.315 0.458 0.788
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	14.690 15.460 16.230 17.820	6.870 7.550 8.250 9.670	0.186 0.315 0.458 0.788
RADIO 4449 B12/B71	A	From Leg	4.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.650 1.810 1.978 2.336	1.163 1.301 1.447 1.762	0.074 0.090 0.109 0.155

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft²	C_AA_A Side ft²	Weight K
RADIO 4449 B12/B71	B	From Leg	4.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.650 1.810 1.978 2.336	1.163 1.301 1.447 1.762	0.074 0.090 0.109 0.155
RADIO 4449 B12/B71	C	From Leg	4.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.650 1.810 1.978 2.336	1.163 1.301 1.447 1.762	0.074 0.090 0.109 0.155
KRY 112 489/2	A	From Leg	4.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.559 0.658 0.764 0.998	0.365 0.448 0.542 0.752	0.015 0.020 0.027 0.046
KRY 112 489/2	B	From Leg	4.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.559 0.658 0.764 0.998	0.365 0.448 0.542 0.752	0.015 0.020 0.027 0.046
KRY 112 489/2	C	From Leg	4.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.559 0.658 0.764 0.998	0.365 0.448 0.542 0.752	0.015 0.020 0.027 0.046
KRY 112 144/1	A	From Leg	4.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.350 0.426 0.509 0.698	0.175 0.234 0.301 0.456	0.011 0.014 0.019 0.032
KRY 112 144/1	B	From Leg	4.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.350 0.426 0.509 0.698	0.175 0.234 0.301 0.456	0.011 0.014 0.019 0.032
KRY 112 144/1	C	From Leg	4.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.350 0.426 0.509 0.698	0.175 0.234 0.301 0.456	0.011 0.014 0.019 0.032
AIR 3246 B66 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.177 8.656 9.124 10.086	6.559 7.393 8.128 9.646	0.201 0.272 0.349 0.529
AIR 3246 B66 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.177 8.656 9.124 10.086	6.559 7.393 8.128 9.646	0.201 0.272 0.349 0.529
AIR 3246 B66 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.177 8.656 9.124 10.086	6.559 7.393 8.128 9.646	0.201 0.272 0.349 0.529
VFA12-HD	A	From Leg	2.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	13.200 19.500 25.800 38.400	9.200 14.600 20.000 30.800	0.658 0.804 0.950 1.242
VFA12-HD	B	From Leg	2.000 0.000 0.000	0.000	186.000	No Ice 1/2" Ice 1" Ice 2" Ice	13.200 19.500 25.800 38.400	9.200 14.600 20.000 30.800	0.658 0.804 0.950 1.242

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* ft ft ft	*Azimuth Adjustment* °	*Placement* ft		C_AA_A *Front* ft²	C_AA_A *Side* ft²	*Weight* K
VFA12-HD	C	From Leg	2.000	0.000	186.000	No Ice	13.200	9.200	0.658
			0.000			1/2"	19.500	14.600	0.804
			0.000			Ice	25.800	20.000	0.950
						1" Ice	38.400	30.800	1.242
						2" Ice			
(2) 7'x2" Antenna Mount	A	From Leg	4.000	0.000	186.000	No Ice	1.663	1.663	0.026
Pipe			0.000			1/2"	2.391	2.391	0.039
			0.000			Ice	2.825	2.825	0.056
						1" Ice	3.706	3.706	0.105
						2" Ice			
(2) 7'x2" Antenna Mount	B	From Leg	4.000	0.000	186.000	No Ice	1.663	1.663	0.026
Pipe			0.000			1/2"	2.391	2.391	0.039
			0.000			Ice	2.825	2.825	0.056
						1" Ice	3.706	3.706	0.105
						2" Ice			
(2) 7'x2" Antenna Mount	C	From Leg	4.000	0.000	186.000	No Ice	1.663	1.663	0.026
Pipe			0.000			1/2"	2.391	2.391	0.039
			0.000			Ice	2.825	2.825	0.056
						1" Ice	3.706	3.706	0.105
						2" Ice			
*****									
*****									
(2) DB846F65ZAXY w/	A	From Leg	4.000	0.000	177.000	No Ice	7.271	7.821	0.047
Mount Pipe			0.000			1/2"	7.832	9.010	0.114
			0.000			Ice	8.348	9.912	0.189
						1" Ice	9.402	11.731	0.367
						2" Ice			
(2) LPA-80063/6CFx5 w/	B	From Leg	4.000	0.000	177.000	No Ice	9.805	10.195	0.052
Mount Pipe			0.000			1/2"	10.373	11.363	0.144
			0.000			Ice	10.907	12.246	0.245
						1" Ice	11.998	14.063	0.475
						2" Ice			
(2) SC-E 6014 rev2 w/	C	From Leg	4.000	0.000	177.000	No Ice	3.564	4.223	0.032
Mount Pipe			0.000			1/2"	3.905	4.780	0.071
			0.000			Ice	4.256	5.353	0.116
						1" Ice	4.984	6.548	0.225
						2" Ice			
(2) SBNHH-1D45B w/	A	From Leg	4.000	0.000	177.000	No Ice	8.260	4.390	0.090
Mount Pipe			0.000			1/2"	8.830	4.910	0.168
			0.000			Ice	9.410	5.430	0.257
						1" Ice	10.610	6.530	0.470
						2" Ice			
(2) SBNHH-1D45B w/	B	From Leg	4.000	0.000	177.000	No Ice	8.260	4.390	0.090
Mount Pipe			0.000			1/2"	8.830	4.910	0.168
			0.000			Ice	9.410	5.430	0.257
						1" Ice	10.610	6.530	0.470
						2" Ice			
(2) SBNHH-1D45B w/	C	From Leg	4.000	0.000	177.000	No Ice	8.260	4.390	0.090
Mount Pipe			0.000			1/2"	8.830	4.910	0.168
			0.000			Ice	9.410	5.430	0.257
						1" Ice	10.610	6.530	0.470
						2" Ice			
SBNHH-1D65B w/ Mount	A	From Leg	4.000	0.000	177.000	No Ice	4.090	3.300	0.066
Pipe			0.000			1/2"	4.490	3.680	0.130
			0.000			Ice	4.890	4.070	0.204
						1" Ice	5.720	4.870	0.386
						2" Ice			
SBNHH-1D65B w/ Mount	B	From Leg	4.000	0.000	177.000	No Ice	4.090	3.300	0.066
Pipe			0.000			1/2"	4.490	3.680	0.130
			0.000			Ice	4.890	4.070	0.204
						1" Ice	5.720	4.870	0.386
						2" Ice			
SBNHH-1D65B w/ Mount	C	From Leg	4.000	0.000	177.000	No Ice	4.090	3.300	0.066
Pipe			0.000			1/2"	4.490	3.680	0.130
			0.000			Ice	4.890	4.070	0.204

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	5.720	4.870	0.386
						2" Ice			
RRH2x60-700	A	From Leg	4.000	0.000	177.000	No Ice	3.500	1.816	0.060
			0.000			1/2"	3.761	2.052	0.083
			0.000			Ice	4.029	2.289	0.109
						1" Ice	4.585	2.785	0.173
						2" Ice			
RRH2x60-700	B	From Leg	4.000	0.000	177.000	No Ice	3.500	1.816	0.060
			0.000			1/2"	3.761	2.052	0.083
			0.000			Ice	4.029	2.289	0.109
						1" Ice	4.585	2.785	0.173
						2" Ice			
RRH2x60-700	C	From Leg	4.000	0.000	177.000	No Ice	3.500	1.816	0.060
			0.000			1/2"	3.761	2.052	0.083
			0.000			Ice	4.029	2.289	0.109
						1" Ice	4.585	2.785	0.173
						2" Ice			
RRH2X60-AWS	A	From Leg	4.000	0.000	177.000	No Ice	1.877	1.236	0.044
			0.000			1/2"	2.055	1.386	0.060
			0.000			Ice	2.240	1.544	0.079
						1" Ice	2.632	1.893	0.125
						2" Ice			
RRH2X60-AWS	B	From Leg	4.000	0.000	177.000	No Ice	1.877	1.236	0.044
			0.000			1/2"	2.055	1.386	0.060
			0.000			Ice	2.240	1.544	0.079
						1" Ice	2.632	1.893	0.125
						2" Ice			
RRH2X60-AWS	C	From Leg	4.000	0.000	177.000	No Ice	1.877	1.236	0.044
			0.000			1/2"	2.055	1.386	0.060
			0.000			Ice	2.240	1.544	0.079
						1" Ice	2.632	1.893	0.125
						2" Ice			
RRH2X60-PCS	A	From Leg	4.000	0.000	177.000	No Ice	2.200	1.723	0.055
			0.000			1/2"	2.393	1.901	0.075
			0.000			Ice	2.593	2.087	0.099
						1" Ice	3.015	2.480	0.155
						2" Ice			
RRH2X60-PCS	B	From Leg	4.000	0.000	177.000	No Ice	2.200	1.723	0.055
			0.000			1/2"	2.393	1.901	0.075
			0.000			Ice	2.593	2.087	0.099
						1" Ice	3.015	2.480	0.155
						2" Ice			
RRH2X60-PCS	C	From Leg	4.000	0.000	177.000	No Ice	2.200	1.723	0.055
			0.000			1/2"	2.393	1.901	0.075
			0.000			Ice	2.593	2.087	0.099
						1" Ice	3.015	2.480	0.155
						2" Ice			
(2) DB-T1-6Z-8AB-0Z	C	From Leg	4.000	0.000	177.000	No Ice	4.800	2.000	0.044
			0.000			1/2"	5.070	2.193	0.080
			0.000			Ice	5.348	2.393	0.120
						1" Ice	5.926	2.815	0.213
						2" Ice			
Sector Mount [SM 504-3]	C	None		0.000	177.000	No Ice	31.050	31.050	1.708
						1/2"	43.830	43.830	2.326
						Ice	56.440	56.440	3.143
						1" Ice	81.280	81.280	5.358
						2" Ice			
*****									
FDD_R6_RRH	A	From Leg	4.000	0.000	168.000	No Ice	1.533	0.684	0.033
			0.000			1/2"	1.690	0.800	0.045
			0.000			Ice	1.854	0.923	0.058
						1" Ice	2.204	1.193	0.094
						2" Ice			
FDD_R6_RRH	B	From Leg	4.000	0.000	168.000	No Ice	1.533	0.684	0.033
			0.000				1.690	0.800	0.045

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* *ft* *ft* *ft*	*Azimuth Adjustment* *°*	*Placement* *ft*		*C_AA_A Front* *ft^2*	*C_AA_A Side* *ft^2*	*Weight* *K*
			0.000			1/2" Ice 1" Ice 2" Ice	1.854 2.204	0.923 1.193	0.058 0.094
FDD_R6_RRH	C	From Leg	4.000 0.000 0.000	0.000	168.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.533 1.690 1.854 2.204	0.684 0.800 0.923 1.193	0.033 0.045 0.058 0.094
NNVV-65B-R4 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	168.000	No Ice 1/2" Ice 1" Ice 2" Ice	7.550 8.040 8.530 9.560	4.230 4.670 5.120 6.050	0.110 0.197 0.296 0.529
NNVV-65B-R4 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	168.000	No Ice 1/2" Ice 1" Ice 2" Ice	7.550 8.040 8.530 9.560	4.230 4.670 5.120 6.050	0.110 0.197 0.296 0.529
NNVV-65B-R4 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	168.000	No Ice 1/2" Ice 1" Ice 2" Ice	7.550 8.040 8.530 9.560	4.230 4.670 5.120 6.050	0.110 0.197 0.296 0.529
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	168.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.090 4.480 4.880 5.710	2.860 3.230 3.610 4.400	0.077 0.127 0.185 0.331
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	168.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.090 4.480 4.880 5.710	2.860 3.230 3.610 4.400	0.077 0.127 0.185 0.331
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	168.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.090 4.480 4.880 5.710	2.860 3.230 3.610 4.400	0.077 0.127 0.185 0.331
AHCC	A	From Leg	4.000 0.000 0.000	0.000	168.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.628 1.790 1.959 2.320	1.139 1.281 1.431 1.753	0.045 0.060 0.078 0.121
AHCC	B	From Leg	4.000 0.000 0.000	0.000	168.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.628 1.790 1.959 2.320	1.139 1.281 1.431 1.753	0.045 0.060 0.078 0.121
AHCC	C	From Leg	4.000 0.000 0.000	0.000	168.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.628 1.790 1.959 2.320	1.139 1.281 1.431 1.753	0.045 0.060 0.078 0.121
AHFIB_CCIV2	A	From Leg	4.000 0.000 0.000	0.000	168.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.793 3.014 3.243 3.723	1.526 1.707 1.895 2.293	0.066 0.087 0.111 0.168
AHFIB_CCIV2	B	From Leg	4.000 0.000 0.000	0.000	168.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.793 3.014 3.243 3.723	1.526 1.707 1.895 2.293	0.066 0.087 0.111 0.168
AHFIB_CCIV2	C	From Leg	4.000	0.000	168.000	No Ice	2.793	1.526	0.066

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* *ft ft ft*	*Azimuth Adjustment* *°*	*Placement* *ft*		*C_AA_A Front* *ft^2*	*C_AA_A Side* *ft^2*	*Weight* *K*
			0.000			1/2"	3.014	1.707	0.087
			0.000			Ice	3.243	1.895	0.111
						1" Ice	3.723	2.293	0.168
						2" Ice			
HORIZON DUO	C	From Leg	4.000	0.000	168.000	No Ice	0.469	0.294	0.007
			0.000			1/2"	0.556	0.365	0.012
			0.000			Ice	0.650	0.444	0.018
						1" Ice	0.861	0.624	0.036
						2" Ice			
Site Pro 1 VFA12-HD	A	From Leg	2.000	0.000	168.000	No Ice	13.200	9.200	0.658
			0.000			1/2"	19.500	14.600	0.804
			0.000			Ice	25.800	19.500	1.015
						1" Ice	38.400	30.800	1.242
						2" Ice			
Site Pro 1 VFA12-HD	B	From Leg	2.000	0.000	168.000	No Ice	13.200	9.200	0.658
			0.000			1/2"	19.500	14.600	0.804
			0.000			Ice	25.800	19.500	1.015
						1" Ice	38.400	30.800	1.242
						2" Ice			
Site Pro 1 VFA12-HD	C	From Leg	2.000	0.000	168.000	No Ice	13.200	9.200	0.658
			0.000			1/2"	19.500	14.600	0.804
			0.000			Ice	25.800	19.500	1.015
						1" Ice	38.400	30.800	1.242
						2" Ice			
(2) 7'x2" Antenna Mount	A	From Leg	4.000	0.000	168.000	No Ice	1.663	1.663	0.026
Pipe			0.000			1/2"	2.391	2.391	0.039
			0.000			Ice	2.825	2.825	0.056
						1" Ice	3.706	3.706	0.105
						2" Ice			
(2) 7'x2" Antenna Mount	B	From Leg	4.000	0.000	168.000	No Ice	1.663	1.663	0.026
Pipe			0.000			1/2"	2.391	2.391	0.039
			0.000			Ice	2.825	2.825	0.056
						1" Ice	3.706	3.706	0.105
						2" Ice			
(2) 7'x2" Antenna Mount	C	From Leg	4.000	0.000	168.000	No Ice	1.663	1.663	0.026
Pipe			0.000			1/2"	2.391	2.391	0.039
			0.000			Ice	2.825	2.825	0.056
						1" Ice	3.706	3.706	0.105
						2" Ice			
*****									
*****									
7770.00 w/ Mount Pipe	A	From Leg	4.000	0.000	158.000	No Ice	5.746	4.254	0.055
			0.000			1/2"	6.179	5.014	0.103
			2.000			Ice	6.607	5.711	0.157
						1" Ice	7.488	7.155	0.287
						2" Ice			
7770.00 w/ Mount Pipe	B	From Leg	4.000	0.000	158.000	No Ice	5.746	4.254	0.055
			0.000			1/2"	6.179	5.014	0.103
			2.000			Ice	6.607	5.711	0.157
						1" Ice	7.488	7.155	0.287
						2" Ice			
7770.00 w/ Mount Pipe	C	From Leg	4.000	0.000	158.000	No Ice	5.746	4.254	0.055
			0.000			1/2"	6.179	5.014	0.103
			2.000			Ice	6.607	5.711	0.157
						1" Ice	7.488	7.155	0.287
						2" Ice			
QS66512-2 w/ Mount Pipe	A	From Leg	4.000	0.000	158.000	No Ice	4.040	4.180	0.137
			0.000			1/2"	4.420	4.570	0.206
			2.000			Ice	4.820	4.970	0.287
						1" Ice	5.630	5.790	0.482
						2" Ice			
QS66512-2 w/ Mount Pipe	C	From Leg	4.000	0.000	158.000	No Ice	4.040	4.180	0.137
			0.000			1/2"	4.420	4.570	0.206
			2.000			Ice	4.820	4.970	0.287
						1" Ice	5.630	5.790	0.482

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
TPA-65R-LCUUUU-H8 w/ Mount Pipe	B	From Leg	4.000	0.000	158.000	No Ice	11.850	8.990	0.115
			0.000			1/2"	12.770	9.880	0.210
			2.000			Ice	13.710	10.790	0.319
						1" Ice	15.640	12.660	0.580
						2" Ice			
DTMABP7819VG12A	A	From Leg	4.000	0.000	158.000	No Ice	0.976	0.339	0.019
			0.000			1/2"	1.100	0.419	0.026
			0.000			Ice	1.232	0.510	0.036
						1" Ice	1.517	0.714	0.060
						2" Ice			
DTMABP7819VG12A	B	From Leg	4.000	0.000	158.000	No Ice	0.976	0.339	0.019
			0.000			1/2"	1.100	0.419	0.026
			0.000			Ice	1.232	0.510	0.036
						1" Ice	1.517	0.714	0.060
						2" Ice			
DTMABP7819VG12A	C	From Leg	4.000	0.000	158.000	No Ice	0.976	0.339	0.019
			0.000			1/2"	1.100	0.419	0.026
			0.000			Ice	1.232	0.510	0.036
						1" Ice	1.517	0.714	0.060
						2" Ice			
7020.00	A	From Leg	4.000	0.000	158.000	No Ice	0.102	0.175	0.002
			0.000			1/2"	0.147	0.239	0.005
			0.000			Ice	0.199	0.311	0.009
						1" Ice	0.326	0.476	0.022
						2" Ice			
7020.00	B	From Leg	4.000	0.000	158.000	No Ice	0.102	0.175	0.002
			0.000			1/2"	0.147	0.239	0.005
			0.000			Ice	0.199	0.311	0.009
						1" Ice	0.326	0.476	0.022
						2" Ice			
7020.00	C	From Leg	4.000	0.000	158.000	No Ice	0.102	0.175	0.002
			0.000			1/2"	0.147	0.239	0.005
			0.000			Ice	0.199	0.311	0.009
						1" Ice	0.326	0.476	0.022
						2" Ice			
DC6-48-60-18-8F	A	From Leg	4.000	0.000	158.000	No Ice	1.212	1.212	0.033
			0.000			1/2"	1.892	1.892	0.055
			2.000			Ice	2.105	2.105	0.080
						1" Ice	2.570	2.570	0.138
						2" Ice			
DC6-48-60-18-8F	A	From Leg	4.000	0.000	158.000	No Ice	1.212	1.212	0.033
			0.000			1/2"	1.892	1.892	0.055
			0.000			Ice	2.105	2.105	0.080
						1" Ice	2.570	2.570	0.138
						2" Ice			
(2) DBC0061F1V51-2	A	From Leg	4.000	0.000	158.000	No Ice	0.213	0.413	0.013
			0.000			1/2"	0.279	0.496	0.016
			2.000			Ice	0.353	0.586	0.021
						1" Ice	0.521	0.788	0.036
						2" Ice			
(2) DBC0061F1V51-2	B	From Leg	4.000	0.000	158.000	No Ice	0.213	0.413	0.013
			0.000			1/2"	0.279	0.496	0.016
			2.000			Ice	0.353	0.586	0.021
						1" Ice	0.521	0.788	0.036
						2" Ice			
(2) DBC0061F1V51-2	C	From Leg	4.000	0.000	158.000	No Ice	0.213	0.413	0.013
			0.000			1/2"	0.279	0.496	0.016
			2.000			Ice	0.353	0.586	0.021
						1" Ice	0.521	0.788	0.036
						2" Ice			
RRUS 32 B30	A	From Leg	4.000	0.000	158.000	No Ice	2.743	1.668	0.053
			0.000			1/2"	2.965	1.855	0.074
			2.000			Ice	3.194	2.049	0.098
						1" Ice	3.675	2.458	0.157

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
RRUS 32 B30	B	From Leg	4.000	0.000	158.000	No Ice	2.743	1.668	0.053
			0.000			1/2"	2.965	1.855	0.074
			2.000			Ice	3.194	2.049	0.098
						1" Ice	3.675	2.458	0.157
						2" Ice			
RRUS 32 B30	C	From Leg	4.000	0.000	158.000	No Ice	2.743	1.668	0.053
			0.000			1/2"	2.965	1.855	0.074
			2.000			Ice	3.194	2.049	0.098
						1" Ice	3.675	2.458	0.157
						2" Ice			
RRUS 32 B2	A	From Leg	4.000	0.000	158.000	No Ice	2.743	1.668	0.053
			0.000			1/2"	2.965	1.855	0.074
			2.000			Ice	3.194	2.049	0.098
						1" Ice	3.675	2.458	0.157
						2" Ice			
RRUS 32 B2	B	From Leg	4.000	0.000	158.000	No Ice	2.743	1.668	0.053
			0.000			1/2"	2.965	1.855	0.074
			2.000			Ice	3.194	2.049	0.098
						1" Ice	3.675	2.458	0.157
						2" Ice			
RRUS 32 B2	C	From Leg	4.000	0.000	158.000	No Ice	2.743	1.668	0.053
			0.000			1/2"	2.965	1.855	0.074
			2.000			Ice	3.194	2.049	0.098
						1" Ice	3.675	2.458	0.157
						2" Ice			
OPA65R-BU6D w/ Mount	A	From Leg	4.000	0.000	158.000	No Ice	12.250	6.050	0.089
Pipe			0.000			1/2"	13.000	6.710	0.176
			2.000			Ice	13.760	7.390	0.275
						1" Ice	15.340	8.790	0.508
						2" Ice			
OPA65R-BU6D w/ Mount	B	From Leg	4.000	0.000	158.000	No Ice	12.250	6.050	0.089
Pipe			0.000			1/2"	13.000	6.710	0.176
			2.000			Ice	13.760	7.390	0.275
						1" Ice	15.340	8.790	0.508
						2" Ice			
OPA65R-BU6D w/ Mount	C	From Leg	4.000	0.000	158.000	No Ice	12.250	6.050	0.089
Pipe			0.000			1/2"	13.000	6.710	0.176
			2.000			Ice	13.760	7.390	0.275
						1" Ice	15.340	8.790	0.508
						2" Ice			
DMP65R-BU8D w/ Mount	A	From Leg	4.000	0.000	158.000	No Ice	15.890	7.890	0.139
Pipe			0.000			1/2"	16.810	8.740	0.252
			2.000			Ice	17.760	9.600	0.380
						1" Ice	19.700	11.370	0.679
						2" Ice			
DMP65R-BU8D w/ Mount	B	From Leg	4.000	0.000	158.000	No Ice	15.890	7.890	0.139
Pipe			0.000			1/2"	16.810	8.740	0.252
			2.000			Ice	17.760	9.600	0.380
						1" Ice	19.700	11.370	0.679
						2" Ice			
DMP65R-BU8D w/ Mount	C	From Leg	4.000	0.000	158.000	No Ice	15.890	7.890	0.139
Pipe			0.000			1/2"	16.810	8.740	0.252
			2.000			Ice	17.760	9.600	0.380
						1" Ice	19.700	11.370	0.679
						2" Ice			
DC6-48-60-18-8F	A	From Leg	4.000	0.000	158.000	No Ice	1.212	1.212	0.033
			0.000			1/2"	1.892	1.892	0.055
			0.000			Ice	2.105	2.105	0.080
						1" Ice	2.570	2.570	0.138
						2" Ice			
RRUS 4478 B14_CCIV2	A	From Leg	4.000	0.000	158.000	No Ice	2.021	1.246	0.059
			0.000			1/2"	2.200	1.396	0.077
			2.000			Ice	2.386	1.554	0.097
						1" Ice	2.780	1.891	0.147

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* *ft* *ft* *ft*	*Azimuth Adjustment* *°*	*Placement* *ft*		*C_AA_A Front* *ft^2*	*C_AA_A Side* *ft^2*	*Weight* *K*
						2" Ice			
RRUS 4478 B14_CCIV2	B	From Leg	4.000 0.000 2.000	0.000	158.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.021 2.200 2.386 2.780	1.246 1.396 1.554 1.891	0.059 0.077 0.097 0.147
RRUS 4478 B14_CCIV2	C	From Leg	4.000 0.000 2.000	0.000	158.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.021 2.200 2.386 2.780	1.246 1.396 1.554 1.891	0.059 0.077 0.097 0.147
RRUS 32 B66A	A	From Leg	4.000 0.000 2.000	0.000	158.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.864 3.090 3.323 3.813	1.782 1.973 2.171 2.589	0.055 0.077 0.103 0.165
RRUS 32 B66A	B	From Leg	4.000 0.000 2.000	0.000	158.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.864 3.090 3.323 3.813	1.782 1.973 2.171 2.589	0.055 0.077 0.103 0.165
RRUS 32 B66A	C	From Leg	4.000 0.000 2.000	0.000	158.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.864 3.090 3.323 3.813	1.782 1.973 2.171 2.589	0.055 0.077 0.103 0.165
RRUS 4449 B5/B12	A	From Leg	4.000 0.000 2.000	0.000	158.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.968 2.144 2.328 2.718	1.408 1.564 1.727 2.075	0.071 0.090 0.111 0.163
RRUS 4449 B5/B12	B	From Leg	4.000 0.000 2.000	0.000	158.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.968 2.144 2.328 2.718	1.408 1.564 1.727 2.075	0.071 0.090 0.111 0.163
RRUS 4449 B5/B12	C	From Leg	4.000 0.000 2.000	0.000	158.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.968 2.144 2.328 2.718	1.408 1.564 1.727 2.075	0.071 0.090 0.111 0.163
Sector Mount [SM 502-3]	C	None		0.000	158.000	No Ice 1/2" Ice 1" Ice 2" Ice	29.820 42.210 54.430 78.490	29.820 42.210 54.430 78.490	1.673 2.266 3.052 5.180
***** *****									
GPS_A	B	From Leg	4.000 0.000 0.000	0.000	40.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.255 0.320 0.393 0.561	0.255 0.320 0.393 0.561	0.001 0.005 0.010 0.025
Side Arm Mount [SO 306-1]	B	From Leg	2.000 0.000 0.000	0.000	40.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.410 0.810 1.230 2.080	2.260 3.830 5.480 9.370	0.042 0.062 0.094 0.187
*****									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
VHLP2-11	C	Paraboloid w/o Radome	From Leg	4.000 0.000 0.000	-90.000		168.000	2.175	No Ice 1/2" Ice 1" Ice 2" Ice	3.720 4.010 4.300 4.880	0.027 0.050 0.070 0.110
*****											

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	185 - 180	4.304	45	0.213	0.071
T2	180 - 160	4.078	45	0.213	0.071
T3	160 - 140	3.180	45	0.198	0.066
T4	140 - 120	2.369	45	0.170	0.055
T5	120 - 100	1.683	45	0.140	0.044
T6	100 - 80	1.135	45	0.114	0.035
T7	80 - 60	0.707	45	0.086	0.026
T8	60 - 40	0.391	45	0.060	0.018
T9	40 - 20	0.173	45	0.039	0.012
T10	20 - 0	0.044	39	0.018	0.006

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
186.000	Lightning Rod 5/8"x4'	45	4.304	0.213	0.071	163533
177.000	(2) DB846F65ZAXY w/ Mount Pipe	45	3.942	0.212	0.071	238837
168.000	VHLP2-11	45	3.535	0.206	0.069	95214
158.000	7770.00 w/ Mount Pipe	45	3.094	0.196	0.065	44086
40.000	GPS_A	45	0.173	0.039	0.012	60184

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	185 - 180	17.487	14	0.864	0.294
T2	180 - 160	16.574	14	0.862	0.294
T3	160 - 140	12.932	14	0.804	0.270
T4	140 - 120	9.635	14	0.690	0.227
T5	120 - 100	6.850	14	0.569	0.181
T6	100 - 80	4.625	14	0.464	0.143
T7	80 - 60	2.883	14	0.349	0.106
T8	60 - 40	1.598	14	0.243	0.075
T9	40 - 20	0.712	3	0.158	0.051
T10	20 - 0	0.178	2	0.072	0.026

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
186.000	Lightning Rod 5/8"x4'	14	17.487	0.864	0.294	42142
177.000	(2) DB846F65ZAXY w/ Mount Pipe	14	16.024	0.858	0.292	64769
168.000	VHLP2-11	14	14.370	0.836	0.283	24150
158.000	7770.00 w/ Mount Pipe	14	12.581	0.794	0.266	10957
40.000	GPS_A	3	0.712	0.158	0.051	14873

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	185	Leg	A325N	0.750	4	0.332	30.101	0.011	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	1.637	8.265	0.198	1.05	Gusset Bearing
		Top Girt	A325N	0.500	1	0.562	8.265	0.068	1.05	Gusset Bearing
T2	180	Leg	A325N	0.750	4	4.624	30.101	0.154	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	3.261	13.806	0.236	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	2.632	13.806	0.191	1.05	Bolt Shear
T3	160	Leg	A325N	0.875	4	15.259	41.556	0.367	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	3.665	13.806	0.265	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	3.457	13.806	0.250	1.05	Bolt Shear
T4	140	Leg	A325N	1.000	4	25.450	54.517	0.467	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	3.753	13.806	0.272	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	3.744	13.806	0.271	1.05	Bolt Shear
T5	120	Leg	A325N	1.000	4	33.027	54.517	0.606	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	4.452	13.806	0.322	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	3.968	13.806	0.287	1.05	Bolt Shear
T6	100	Leg	A325N	1.000	6	27.386	54.517	0.502	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	4.079	13.806	0.295	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	4.012	13.806	0.291	1.05	Bolt Shear
T7	80	Leg	A325N	1.000	6	32.213	54.517	0.591	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	4.310	13.806	0.312	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	4.536	13.806	0.329	1.05	Bolt Shear
T8	60	Leg	A325N	1.000	6	36.905	54.517	0.677	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	4.462	13.806	0.323	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	4.955	13.806	0.359	1.05	Bolt Shear
T9	40	Leg	A325N	1.000	8	30.965	54.517	0.568	1.05	Bolt Tension
		Diagonal	A325N	0.625	3	4.409	13.806	0.319	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	5.137	13.806	0.372	1.05	Bolt Shear
T10	20	Diagonal	A325N	0.750	3	6.978	19.880	0.351	1.05	Bolt Shear
		Horizontal	A325N	0.750	2	5.639	19.880	0.284	1.05	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	185 - 180	Pipe 2.875" x 0.203" (2.5 STD)	5.000	5.000	63.3 K=1.00	1.704	-3.982	38.586	0.103 [1]
T2	180 - 160	Pipe 2.875" x 0.203" (2.5 STD)	20.000	6.667	84.4 K=1.00	1.704	-26.983	45.528	0.593 [1]
T3	160 - 140	Pipe 3.5" x 0.300" (3 XS)	20.036	6.540	69.1 K=1.00	3.016	-74.320	95.761	0.776 [1]
T4	140 - 120	Pipe 4.5" x 0.337" (4 XS)	20.036	6.540	53.1 K=1.00	4.407	-117.223	161.331	0.727 [1]
T5	120 - 100	Pipe 5.5" x 0.375" (5 EH)	20.042	10.021	66.2 K=1.00	6.038	-149.632	197.229	0.759 [1]
T6	100 - 80	Pipe 5.5" x 0.375" (5 EH)	20.056	10.028	66.2 K=1.00	6.038	-184.489	197.145	0.936 [1]
T7	80 - 60	Pipe 6.625" x 0.340" (6 EHS)	20.052	10.026	54.1 K=1.00	6.713	-216.406	243.965	0.887 [1]
T8	60 - 40	Pipe 6.625" x 0.432" (6 XS)	20.052	10.026	54.8 K=1.00	8.405	-248.077	303.623	0.817 [1]
T9	40 - 20	Pipe 6.625" x 0.432" (6 XS)	20.058	10.029	54.8 K=1.00	8.405	-278.258	303.585	0.917 [1]
T10	20 - 0	Pipe 8.75" x 0.375" (8 EHS)	20.052	9.984	40.4 K=1.00	9.867	-291.187	393.997	0.739 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	185 - 180	L 2 x 2 x 1/4	9.862	4.667	143.2 K=1.00	0.938	-1.896	13.087	0.145 [1]
T2	180 - 160	Pipe 2.375" x 0.154" (2 STD)	7.917	7.695	117.3 K=1.00	1.075	-9.782	17.637	0.555 [1]
T3	160 - 140	Pipe 2.375" x 0.154" (2 STD)	8.419	8.188	124.8 K=1.00	1.075	-10.994	15.580	0.706 [1]
T4	140 - 120	Pipe 2.375" x 0.154" (2 STD)	9.112	8.843	134.8 K=1.00	1.075	-10.783	13.356	0.807 [1]
T5	120 - 100	Pipe 2.875" x 0.203" (2.5 STD)	12.492	12.109	153.4 K=1.00	1.704	-13.354	16.364	0.816 [1]
T6	100 - 80	Pipe 2.875" x 0.203" (2.5 STD)	13.307	12.959	164.1 K=1.00	1.704	-12.236	14.288	0.856 [1]
T7	80 - 60	Pipe 2.875" x 0.203" (2.5 STD)	14.162	13.772	174.4 K=1.00	1.704	-12.929	12.652	1.022 [1]
T8	60 - 40	Pipe 2.875" x 0.276" (2.5 XS)	15.072	14.703	190.9 K=1.00	2.254	-13.385	13.964	0.959 [1]
T9	40 - 20	Pipe 3.5" x 0.216" (3 STD)	16.082	15.729	162.2 K=1.00	2.228	-13.226	19.132	0.691 [1]
T10	20 - 0	Pipe 3.5" x 0.216" (3 STD)	24.260	12.130	125.1 K=1.00	2.228	-20.935	32.170	0.651 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160	Pipe 1.9" x 0.145" (1.5 STD)	8.528	4.144	79.9 K=1.00	0.799	-5.230	22.564	0.232 [1]
T3	160 - 140	Pipe 1.9" x 0.145" (1.5 STD)	9.945	4.827	93.0 K=1.00	0.799	-6.886	19.107	0.360 [1]
T4	140 - 120	Pipe 2.375" x 0.154" (2 STD)	12.028	5.827	88.8 K=1.00	1.075	-7.439	27.156	0.274 [1]
T5	120 - 100	Pipe 2.375" x 0.154" (2 STD)	13.833	6.688	102.0 K=1.00	1.075	-7.898	22.613	0.349 [1]
T6	100 - 80	Pipe 2.375" x 0.154" (2 STD)	16.250	7.896	120.4 K=1.00	1.075	-8.024	16.753	0.479 [1]
T7	80 - 60	Pipe 2.875" x 0.203" (2.5 STD)	18.792	9.120	115.5 K=1.00	1.704	-9.026	28.852	0.313 [1]
T8	60 - 40	Pipe 2.875" x 0.203" (2.5 STD)	21.292	10.370	131.3 K=1.00	1.704	-9.761	22.315	0.437 [1]
T9	40 - 20	Pipe 2.875" x 0.203" (2.5 STD)	23.859	11.654	147.6 K=1.00	1.704	-9.943	17.669	0.563 [1]
T10	20 - 0	Pipe 3.5" x 0.216" (3 STD)	25.177	12.313	127.0 K=1.00	2.228	-11.239	31.224	0.360 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	185 - 180	L 2 x 2 x 1/4	8.500	8.010	245.8 K=1.00	0.938	-0.390	4.442	0.088 [1]
		KL/R > 200 (C) - 4							

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$

[1] P_u / ϕP_n controls

Redundant Horizontal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	20 - 0	Rohn 1.5" x 11 ga	6.294	5.930	145.3 K=1.00	0.520	-5.056	5.568	0.908 [1]

[1] P_u / ϕP_n controls

Redundant Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	20 - 0	2L 2 x 2 x 1/4 (1/4) 2L 'a' > 63.068 in - 281	11.466	10.909	217.7 K=1.00	1.875	-4.605	11.294	0.408 [1]

[1] P_u / ϕP_n controls

Redundant Hip (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	20 - 0	Pipe 1.9" x 0.145" (1.5 STD)	6.294	6.294	121.3 K=1.00	0.799	-0.033	12.272	0.003 [1]

[1] P_u / ϕP_n controls

Redundant Hip Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	20 - 0	Pipe 2.875" x 0.203" (2.5 STD)	15.046	15.046	190.6 K=1.00	1.704	-0.079	10.600	0.007 [1]

[1] P_u / ϕP_n controls

Inner Bracing Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160	L 2 x 2 x 1/8	4.264	4.264	128.7 K=1.00	0.484	-0.006	8.369	0.001 [1]
T3	160 - 140	L 2 x 2 x 1/8	4.293	4.293	129.6	0.484	-0.009	8.258	0.001 [1]

Section No.	*Elevation* ft	*Size*	*L* ft	L_u ft	*Kl/r*	*A* in^2	P_u K	ϕP_n K	*Ratio* $\frac{P_u}{\phi P_n}$
					K=1.00				
T4	140 - 120	L 2 x 2 x 1/8	6.014	6.014	181.5 K=1.00	0.484	-0.007	4.207	0.002 [1]
T5	120 - 100	L 2 x 2 x 1/8	6.917	6.917	208.8 K=1.00	0.484	-0.008	3.180	0.002 [1]
T6	100 - 80	L 2.5 x 2.5 x 3/16	8.125	8.125	197.0 K=1.00	0.902	-0.010	6.654	0.001 [1]
T7	80 - 60	L 3 x 3 x 3/16	9.396	9.396	189.1 K=1.00	1.090	-0.012	8.725	0.001 [1]
T8	60 - 40	L 3.5 x 3.5 x 1/4	10.646	10.646	184.1 K=1.00	1.690	-0.014	14.275	0.001 [1]
T9	40 - 20	L 3.5 x 3.5 x 1/4	11.930	11.930	206.3 K=1.00	1.690	-0.015	11.368	0.001 [*1]
T10	20 - 0	Pipe 3.5" x 0.216" (3 STD)	12.589	12.589	129.8 K=1.00	2.228	-0.018	29.626	0.001 [1]

[*] DL controls
[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	*Elevation* ft	*Size*	*L* ft	L_u ft	*Kl/r*	*A* in^2	P_u K	ϕP_n K	*Ratio* $\frac{P_u}{\phi P_n}$
T1	185 - 180	Pipe 2.875" x 0.203" (2.5 STD)	5.000	5.000	63.3	1.704	1.307	46.009	0.028 [1]
T2	180 - 160	Pipe 2.875" x 0.203" (2.5 STD)	20.000	6.667	84.4	1.704	18.497	76.682	0.241 [1]
T3	160 - 140	Pipe 3.5" x 0.300" (3 XS)	20.036	6.540	69.1	3.016	61.037	135.717	0.450 [1]
T4	140 - 120	Pipe 4.5" x 0.337" (4 XS)	20.036	6.540	53.1	4.407	101.799	198.335	0.513 [1]
T5	120 - 100	Pipe 5.5" x 0.375" (5 EH)	20.042	10.021	66.2	6.038	132.107	271.699	0.486 [1]
T6	100 - 80	Pipe 5.5" x 0.375" (5 EH)	20.056	10.028	66.2	6.038	164.316	271.699	0.605 [1]
T7	80 - 60	Pipe 6.625" x 0.340" (6 EHS)	20.052	10.026	54.1	6.713	193.280	302.097	0.640 [1]
T8	60 - 40	Pipe 6.625" x 0.432" (6 XS)	20.052	10.026	54.8	8.405	221.427	378.222	0.585 [1]
T9	40 - 20	Pipe 6.625" x 0.432" (6 XS)	20.058	10.029	54.8	8.405	247.717	378.222	0.655 [1]
T10	20 - 0	Pipe 8.75" x 0.375" (8 EHS)	20.052	0.084	0.3	9.867	286.035	443.995	0.644 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	*Elevation* ft	*Size*	*L* ft	L_u ft	*Kl/r*	*A* in^2	P_u K	ϕP_n K	*Ratio* $\frac{P_u}{\phi P_n}$
T1	185 - 180	L 2 x 2 x 1/4	9.862	4.667	94.4	0.586	1.637	28.583	0.057 [1]
T2	180 - 160	Pipe 2.375" x 0.154" (2 STD)	7.917	7.695	117.3	1.075	9.709	48.354	0.201 [1]
T3	160 - 140	Pipe 2.375" x 0.154" (2 STD)	8.419	8.188	124.8	1.075	10.912	48.354	0.226 [1]
T4	140 - 120	Pipe 2.375" x 0.154" (2 STD)	8.651	8.383	127.8	1.075	11.154	48.354	0.231 [1]
T5	120 - 100	Pipe 2.875" x 0.203" (2.5 STD)	12.163	11.781	149.2	1.704	13.186	76.682	0.172 [1]
T6	100 - 80	Pipe 2.875" x 0.203" (2.5 STD)	13.307	12.959	164.1	1.704	12.006	76.682	0.157 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T7	80 - 60	Pipe 2.875" x 0.203" (2.5 STD)	14.162	13.772	174.4	1.704	12.612	76.682	0.164 [1]
T8	60 - 40	Pipe 2.875" x 0.276" (2.5 XS)	15.072	14.703	190.9	2.254	12.931	101.409	0.128 [1]
T9	40 - 20	Pipe 3.5" x 0.216" (3 STD)	16.082	15.729	162.2	2.228	12.700	100.281	0.127 [1]
T10	20 - 0	Pipe 3.5" x 0.216" (3 STD)	24.260	12.130	125.1	2.228	19.975	100.281	0.199 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160	Pipe 1.9" x 0.145" (1.5 STD)	8.528	4.144	79.9	0.799	5.264	35.976	0.146 [1]
T3	160 - 140	Pipe 1.9" x 0.145" (1.5 STD)	9.945	4.827	93.0	0.799	6.913	35.976	0.192 [1]
T4	140 - 120	Pipe 2.375" x 0.154" (2 STD)	12.028	5.827	88.8	1.075	7.488	48.354	0.155 [1]
T5	120 - 100	Pipe 2.375" x 0.154" (2 STD)	13.833	6.688	102.0	1.075	7.936	48.354	0.164 [1]
T6	100 - 80	Pipe 2.375" x 0.154" (2 STD)	16.250	7.896	120.4	1.075	8.024	48.354	0.166 [1]
T7	80 - 60	Pipe 2.875" x 0.203" (2.5 STD)	18.792	9.120	115.5	1.704	9.072	76.682	0.118 [1]
T8	60 - 40	Pipe 2.875" x 0.203" (2.5 STD)	21.292	10.370	131.3	1.704	9.910	76.682	0.129 [1]
T9	40 - 20	Pipe 2.875" x 0.203" (2.5 STD)	23.859	11.654	147.6	1.704	10.274	76.682	0.134 [1]
T10	20 - 0	Pipe 3.5" x 0.216" (3 STD)	25.177	12.313	127.0	2.228	11.277	100.281	0.112 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	185 - 180	L 2 x 2 x 1/4	8.500	8.010	162.8	0.586	0.562	28.583	0.020 [1]

[1] P_u / ϕP_n controls

Redundant Horizontal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	20 - 0	Rohn 1.5" x 11 ga	6.294	5.930	145.3	0.520	5.056	23.411	0.216 [1]

[1] P_u / ϕP_n controls

Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	20 - 0	2L 2 x 2 x 1/4 (1/4) 2L 'a' > 63.068 in - 287	11.466	10.909	215.0	1.875	4.605	84.375	0.055 [1]

[1] P_u / ϕP_n controls

Redundant Hip (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	20 - 0	Pipe 1.9" x 0.145" (1.5 STD)	6.294	6.294	121.3	0.799	0.021	35.976	0.001 [1]

[1] P_u / ϕP_n controls

Redundant Hip Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	20 - 0	Pipe 2.875" x 0.203" (2.5 STD)	15.046	15.046	190.6	1.704	0.072	76.682	0.001 [1]

[1] P_u / ϕP_n controls

Inner Bracing Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160	L 2 x 2 x 1/8	4.264	4.264	81.7	0.484	0.006	15.694	0.000 [1]
T3	160 - 140	L 2 x 2 x 1/8	4.293	4.293	82.3	0.484	0.007	15.694	0.000 [1]
T4	140 - 120	L 2 x 2 x 1/8	5.334	5.334	102.2	0.484	0.006	15.694	0.000 [1]
T5	120 - 100	L 2 x 2 x 1/8	6.354	6.354	121.8	0.484	0.003	15.694	0.000 [1]
T6	100 - 80	L 2.5 x 2.5 x 3/16	7.479	7.479	115.3	0.902	0.001	29.225	0.000 [1]
T7	80 - 60	L 3 x 3 x 3/16	8.771	8.771	112.0	1.090	0.001	35.311	0.000 [1]
T10	20 - 0	Pipe 3.5" x 0.216" (3 STD)	12.589	12.589	129.8	2.228	0.001	70.197	0.000 [1]

[1] P_u / ϕP_n controls

Section Capacity Table

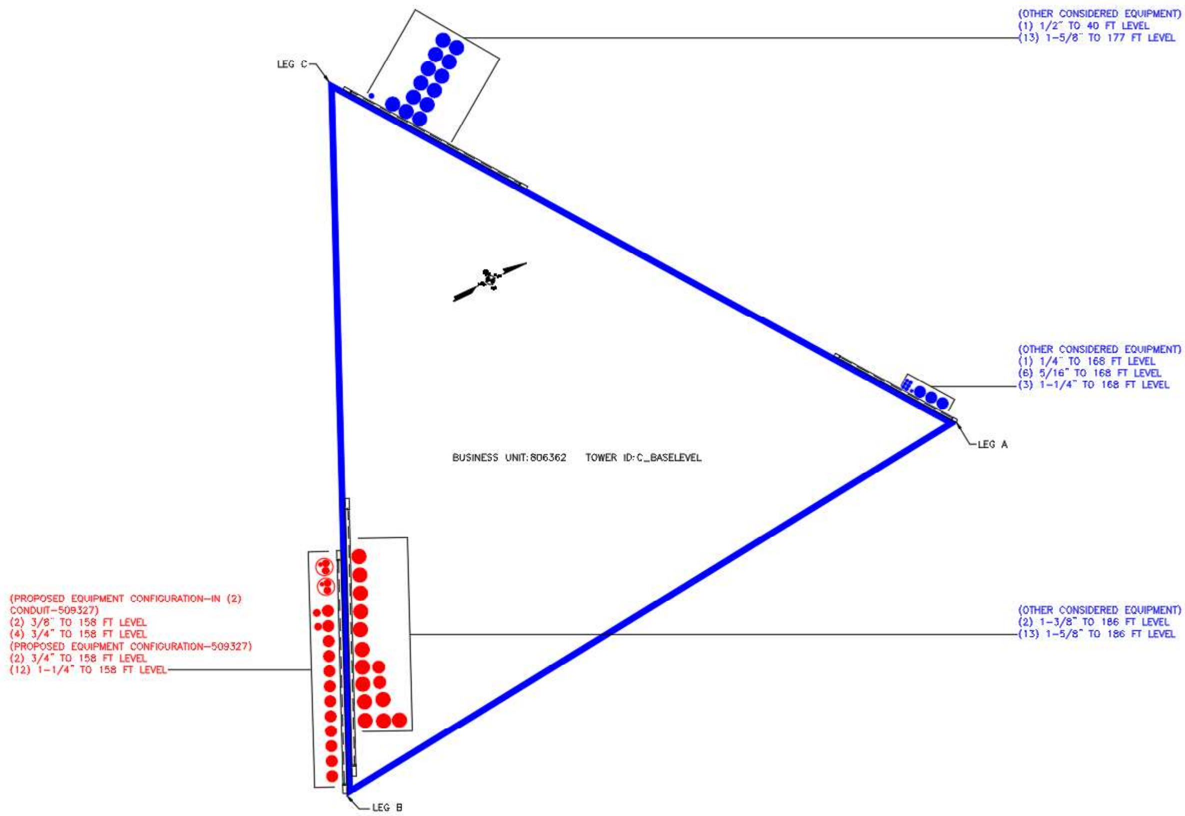
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$øP_{allow}$ K	% Capacity	Pass Fail
T1	185 - 180	Leg	Pipe 2.875" x 0.203" (2.5 STD)	2	-3.982	40.516	9.8	Pass
T2	180 - 160	Leg	Pipe 2.875" x 0.203" (2.5 STD)	13	-26.983	47.805	56.4	Pass
T3	160 - 140	Leg	Pipe 3.5" x 0.300" (3 XS)	54	-74.320	100.549	73.9	Pass
T4	140 - 120	Leg	Pipe 4.5" x 0.337" (4 XS)	93	-117.223	169.398	69.2	Pass
T5	120 - 100	Leg	Pipe 5.5" x 0.375" (5 EH)	132	-149.632	207.090	72.3	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$øP_{allow}$ K	% Capacity	Pass Fail
T6	100 - 80	Leg	Pipe 5.5" x 0.375" (5 EH)	159	-184.489	207.002	89.1	Pass
T7	80 - 60	Leg	Pipe 6.625" x 0.340" (6 EHS)	186	-216.406	256.163	84.5	Pass
T8	60 - 40	Leg	Pipe 6.625" x 0.432" (6 XS)	213	-248.077	318.804	77.8	Pass
T9	40 - 20	Leg	Pipe 6.625" x 0.432" (6 XS)	240	-278.258	318.764	87.3	Pass
T10	20 - 0	Leg	Pipe 8.75" x 0.375" (8 EHS)	267	-291.187	413.697	70.4	Pass
T1	185 - 180	Diagonal	L 2 x 2 x 1/4	10	-1.896	13.742	13.8 18.9 (b)	Pass
T2	180 - 160	Diagonal	Pipe 2.375" x 0.154" (2 STD)	20	-9.782	18.519	52.8	Pass
T3	160 - 140	Diagonal	Pipe 2.375" x 0.154" (2 STD)	60	-10.994	16.359	67.2	Pass
T4	140 - 120	Diagonal	Pipe 2.375" x 0.154" (2 STD)	99	-10.783	14.024	76.9	Pass
T5	120 - 100	Diagonal	Pipe 2.875" x 0.203" (2.5 STD)	138	-13.354	17.183	77.7	Pass
T6	100 - 80	Diagonal	Pipe 2.875" x 0.203" (2.5 STD)	165	-12.236	15.003	81.6	Pass
T7	80 - 60	Diagonal	Pipe 2.875" x 0.203" (2.5 STD)	192	-12.929	13.285	97.3	Pass
T8	60 - 40	Diagonal	Pipe 2.875" x 0.276" (2.5 XS)	219	-13.385	14.663	91.3	Pass
T9	40 - 20	Diagonal	Pipe 3.5" x 0.216" (3 STD)	246	-13.226	20.089	65.8	Pass
T10	20 - 0	Diagonal	Pipe 3.5" x 0.216" (3 STD)	279	-20.935	33.778	62.0	Pass
T2	180 - 160	Horizontal	Pipe 1.9" x 0.145" (1.5 STD)	19	-5.230	23.693	22.1	Pass
T3	160 - 140	Horizontal	Pipe 1.9" x 0.145" (1.5 STD)	58	-6.886	20.062	34.3	Pass
T4	140 - 120	Horizontal	Pipe 2.375" x 0.154" (2 STD)	97	-7.439	28.514	26.1	Pass
T5	120 - 100	Horizontal	Pipe 2.375" x 0.154" (2 STD)	136	-7.898	23.744	33.3	Pass
T6	100 - 80	Horizontal	Pipe 2.375" x 0.154" (2 STD)	163	-8.024	17.591	45.6	Pass
T7	80 - 60	Horizontal	Pipe 2.875" x 0.203" (2.5 STD)	190	-9.026	30.294	29.8 31.3 (b)	Pass
T8	60 - 40	Horizontal	Pipe 2.875" x 0.203" (2.5 STD)	217	-9.761	23.431	41.7	Pass
T9	40 - 20	Horizontal	Pipe 2.875" x 0.203" (2.5 STD)	244	-9.943	18.553	53.6	Pass
T10	20 - 0	Horizontal	Pipe 3.5" x 0.216" (3 STD)	275	-11.239	32.785	34.3	Pass
T1	185 - 180	Top Girt	L 2 x 2 x 1/4	4	-0.390	4.664	8.4	Pass
T10	20 - 0	Redund Horz 1 Bracing	Rohn 1.5" x 11 ga	280	-5.056	5.846	86.5	Pass
T10	20 - 0	Redund Diag 1 Bracing	2L 2 x 2 x 1/4 (1/4)	281	-4.605	11.859	38.8	Pass
T10	20 - 0	Redund Hip 1 Bracing	Pipe 1.9" x 0.145" (1.5 STD)	282	-0.033	12.885	0.3	Pass
T10	20 - 0	Redund Hip Diagonal 1 Bracing	Pipe 2.875" x 0.203" (2.5 STD)	283	-0.079	11.130	0.7	Pass
T2	180 - 160	Inner Bracing	L 2 x 2 x 1/8	27	-0.006	8.787	0.4	Pass
T3	160 - 140	Inner Bracing	L 2 x 2 x 1/8	66	-0.006	6.461	0.5	Pass
T4	140 - 120	Inner Bracing	L 2 x 2 x 1/8	105	-0.007	4.417	0.6	Pass
T5	120 - 100	Inner Bracing	L 2 x 2 x 1/8	144	-0.008	3.339	0.6	Pass
T6	100 - 80	Inner Bracing	L 2.5 x 2.5 x 3/16	171	-0.010	6.987	0.5	Pass
T7	80 - 60	Inner Bracing	L 3 x 3 x 3/16	198	-0.012	9.162	0.6	Pass
T8	60 - 40	Inner Bracing	L 3.5 x 3.5 x 1/4	225	-0.014	14.989	0.5	Pass
T9	40 - 20	Inner Bracing	L 3.5 x 3.5 x 1/4	252	-0.015	11.368	0.6	Pass
T10	20 - 0	Inner Bracing	Pipe 3.5" x 0.216" (3 STD)	296	-0.016	31.107	0.5	Pass
							Summary	
						Leg (T6)	89.1	Pass
						Diagonal (T7)	97.3	Pass
						Horizontal (T9)	53.6	Pass
						Top Girt (T1)	8.4	Pass
						Redund Horz 1 Bracing (T10)	86.5	Pass
						Redund Diag 1 Bracing (T10)	38.8	Pass
						Redund Hip 1 Bracing (T10)	0.3	Pass

Section No.	*Elevation ft*	*Component Type*	*Size*	*Critical Element*	*P K*	*øP$_{allow}$ K*	*% Capacity*	*Pass Fail*
						Redund Hip Diagonal 1 Bracing (T10)	0.7	Pass
						Inner Bracing (T5)	0.6	Pass
						Bolt Checks	64.5	Pass
						RATING =	**97.3**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 40 FT LEVEL
(13) 1-5/8" TO 177 FT LEVEL
LEG C
(OTHER CONSIDERED EQUIPMENT)
(1) 1/4" TO 168 FT LEVEL
(6) 5/16" TO 168 FT LEVEL
(3) 1-1/4" TO 168 FT LEVEL
LEG A
BUSINESS UNIT: 806362 TOWER ID: C_BASELEVEL
(PROPOSED EQUIPMENT CONFIGURATION-IN (2)
CONDUIT-509327)
(2) 3/8" TO 158 FT LEVEL
(4) 3/4" TO 158 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION-509327)
(2) 3/4" TO 158 FT LEVEL
(12) 1-1/4" TO 158 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(2) 1-3/8" TO 186 FT LEVEL
(13) 1-5/8" TO 186 FT LEVEL
LEG B

APPENDIX C

ADDITIONAL CALCULATIONS

CCIplate

Project Information

BU #	806362
Site Name	NHV 108 943133
Order #	509327 Rev 0

Tower Information

Tower Type	Self Support
TIA-222 Rev	H

☑ Apply TIA-222-H Section 15.5

Applied Loads

	Comp.	Uplift
Axial (k)	0.00	284.00
Shear (k)	39.00	36.00

Anchor Rod Data

Quantity:	8	
Diameter (in):	1	
Material Grade:	A449	Fy=92 ksi Fu=120 ksi
Grout Considered:	Yes	Not Considered, Iar<=1(d)
I_{ar} (in):	0	
Eta Factor, η:	0.55	
Thread Type:	N-Included	
Configuration:	Symmetrical	

Anchor Rod Results

Axial, Pu_t (kips)	35.50	
Shear, Vu (kips)	4.50	
Moment, Mu (kip-in)	-	
Axial Cap., φPn_t (kips)	54.54	
Shear Cap., ϕVn (kips)	35.34	
Moment Cap., ϕMn (kip-in)	-	
Stress Rating	41.9%	Pass

Pier and Pad Foundation

BU # :	806362
Site Name:	NHV 108 943133
App. Number:	509327 Rev 0

TIA-222 Revision:	H
Tower Type:	Self Support

Top & Bot. Pad Rein. Different?:	☐
Block Foundation?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	321	kips
Compression Shear, Vu_comp:	39	kips
Uplift, P_{uplift}:	284	kips
Uplift Shear, V_{u_uplift}:	36	kips
Tower Height, **H**:	185	ft
Base Face Width, **BW**:	27.6771	ft
BP Dist. Above Fdn, bp_{dist}:	2.1	in

Foundation Analysis Checks	Capacity	Demand	Rating*	Check
Uplift (kips)	362.09	284.00	**74.7%**	**Pass**
Lateral (Sliding) (kips)	144.82	36.00	**23.7%**	**Pass**
Bearing Pressure (ksf)	18.00	6.11	**32.3%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	1151.39	429.00	**35.5%**	**Pass**
*Pier Flexure (Tension) (kip*ft)*	873.96	396.00	**43.2%**	**Pass**
Pier Compression (kip)	1956.74	335.00	**16.3%**	**Pass**
*Pad Flexure (kip*ft)*	513.41	153.18	**28.4%**	**Pass**
Pad Shear - 1-way (kips)	169.84	45.75	**25.7%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.077	**44.6%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	1026.82	257.40	**23.9%**	**Pass**
Pad Shear - 2-way (Uplift) (ksi)	0.164	0.110	**63.6%**	**Pass**
*Flexural 2-way (Tension) (kip*ft)*	1026.82	237.60	**22.0%**	**Pass**

**Rating per TIA-222-H Section 15.5*

Soil Rating*:	**74.7%**
Structural Rating*:	**63.6%**

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, **dpier**:	3	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	10	
Pier Rebar Quantity, **mc**:	16	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	13	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	12.5	ft
Pad Width, **W**:	8.75	ft
Pad Thickness, **T**:	2	ft
Pad Rebar Size (Bottom), **Sp**:	7	
Pad Rebar Quantity (Bottom), **mp**:	10	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	3	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	120	pcf
Ultimate Gross Bearing, Qult:	24.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	40	degrees
SPT Blow Count, N_{blows}:	50	
Base Friction, μ:	0.4	
Neglected Depth, **N**:	3.34	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

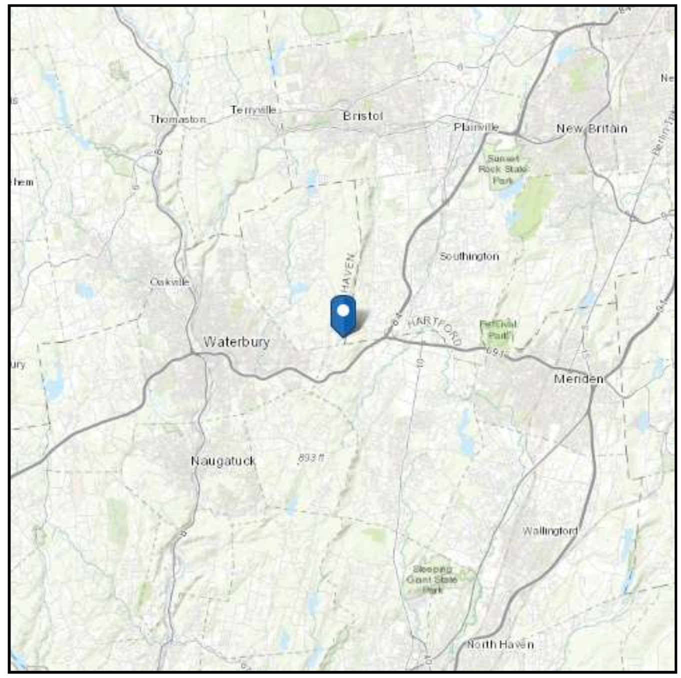
Version 3.3.2

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 745.17 ft (NAVD 88)
Latitude: 41.559558
Longitude: -72.946972



Wind

Results:

Wind Speed:	122 Vmph ← 125 mph per jurisdiction
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph

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

Date Accessed: Fri Dec 06 2019

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

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

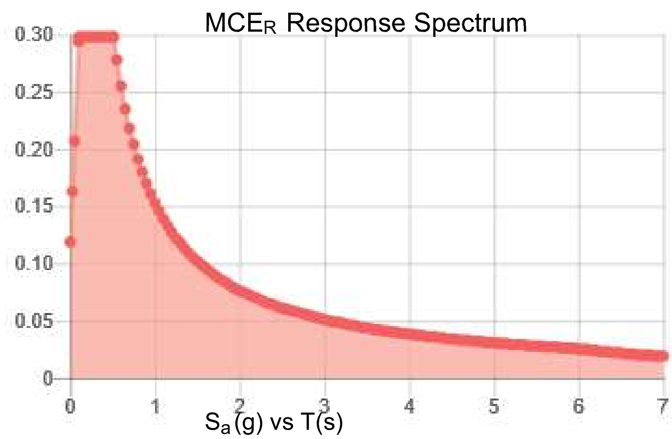
Seismic

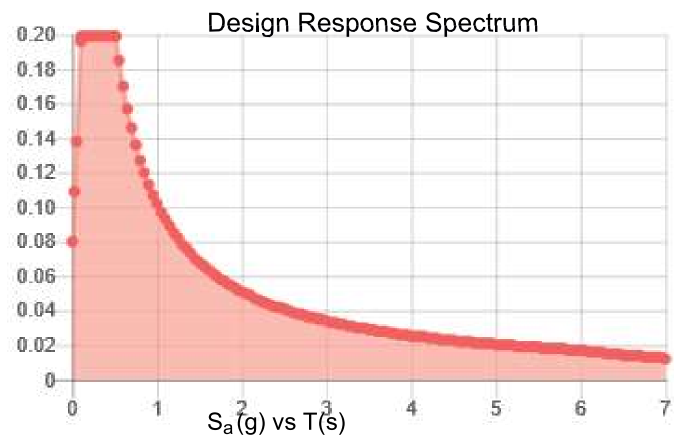
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.186	S_{DS} :	0.199
S_1 :	0.064	S_{D1} :	0.102
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.096
S_{MS} :	0.298	PGA_M :	0.154
S_{M1} :	0.153	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Fri Dec 06 2019

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Fri Dec 06 2019

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Exhibit E

Mount Analysis

Date: March 23, 2020

Kevin Morrow
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
(704) 405-6619

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

Subject:	**Mount Replacement Analysis Report**	
Carrier Designation:	**AT&T Mobility Equipment Change-Out**	
	Carrier Site Number:	61146
	FA Number:	10035040
	Carrier Site Name:	N/A
Crown Castle Designation:	**Crown Castle BU Number:**	806362
	Crown Castle Site Name:	NHV 108 943133
	Crown Castle JDE Job Number:	596314
	Crown Castle Order Number:	509327, Rev.0
Engineering Firm Designation:	**B+T Group Report Designation:**	104053.009.01
Site Data:	**Intersection of RTE 322/ Meridian Rd Wolcott Site, Wolcott, CT, New Haven, 06716** **Latitude 41° 33' 34.41" Longitude -72° 56' 49.10"**	
Structure Information:	**Tower Height & Type:**	**185 ft. Self-Support Tower**
	Mount Elevation:	**158 ft.**
	Mount Type:	**13 ft. Sector Mount**

Dear Mr. Morrow,

B+T Group is pleased to submit this **"Mount Replacement Analysis Report"** to determine the structural integrity of *AT&T Mobility*'s antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

The purpose of the analysis is to determine acceptability of the mount's stress level. Based on our analysis we have determined the stress level to be:

Sector Mount (multiple)	**Sufficient**

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 118 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount structural analysis prepared by: Lokesh Narayanappa, E.I.T.

Respectfully submitted by: B&T Engineering, Inc.
COA: PEC.0001564 Expires: 02/10/2021

3/23/20

Scott S. Vance, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

This is a 13' Sector Mount, designed by Sabre (part# C10857007C)

2) ANALYSIS CRITERIA

Building Code:	2018 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	118 mph
Exposure Category:	C
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.195
Seismic S_1:	0.054
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft.)	Antenna Centerline (ft.)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
158	160	3	CCI	DMP65R-BU8D	13 ft. Sector Mount
		3	CCI	OPA65R-BU6D	
		1	CCI	TPA-65R-LCUUUU-H8	
		3	Powerwave	7770.00	
		2	Quintel	QS66512-2	
		3	Ericsson	RRUS 32 B2	
		3	Ericsson	RRUS 32 B30	
		3	Ericsson	RRUS 32 B66A	
		3	Ericsson	RRUS 4449 B5/ B12	
		3	Ericsson	RRUS 4478 B14_CCIV2	
		6	Kaelus	DBC0061F1V51-2	
		1	Raycap	DC6-48-60-18-8F	
	158	3	Communication Components	DTMABP7819VG12A	
		3	Powerwave	7020.00	
		2	Raycap	DC6-48-60-18-8F	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Order	Existing Loading Proposed Loading	Date: 03/04/2020	Crown Castle
RFDS		Date: 03/02/2020	Crown Castle
Mount Mapping	B+T Group	Date: 12/30/2019	On File
Mount Analysis Report		Date: 03/12/2020	

3.1) Analysis Method

RISA-3D (Version 17.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed by B+T Group, was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B "Software Input Calculations and Analysis Output".

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision C). In addition, this analysis is in accordance with AT&T's Mount Technical Directive – R14.1.

Manufacturers' drawings were used to create the model

3.2) Assumptions

1. The mount was properly fabricated and installed in accordance with its original design and manufacturer's specifications.
2. The mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3. The configuration of antennas, mounts, and other appurtenances are as specified in Table-1.
4. All mount components have been assumed to be in sufficient condition to carry their full design capacity for the analysis.
5. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
   The following assumptions have been included in the analysis of the mount

Component	Section	Length	Note
Proposed Mount Pipe for New Antenna	2" Std. Pipe	10'-6"	In All Positions

6. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
7. All prior structural modifications, if any are assumed to be correctly installed and fully effective.
8. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
9. The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
10. The following material grades were assumed (Unless Noted Otherwise):
    (a) Connection Bolts : ASTM A325
    (b) Steel Pipe : ASTM A53 (GR. 35)
    (c) HSS (Round) : ASTM 500 (GR. B-42)
    (d) HSS (Rectangular) : ASTM 500 (GR. B-46)
    (e) Channel : ASTM A36 (GR. 36)
    (f) Steel Solid Rod : ASTM A36 (GR. 36)
    (g) Steel Plate : ASTM A36 (GR. 36)
    (h) Steel Angle : ASTM A36 (GR. 36)
    (i) UNISTRUT : ASTM A570 (GR. 33)

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

4) ANALYSIS RESULTS

Table 3(a) - Mount Component Stresses vs. Capacity (Sector Mount, Typ. All Sectors)

Notes	Component	Critical Member	Centerline (ft.)	% Capacity	Pass / Fail
1,2	Face Horizontals	M93	158	43.1	Pass
	Mount Pipes	9	158	69.0	Pass
	Supporting Arms	M60	158	17.9	Pass
	Verticals	10	158	56.8	Pass
	Diagonals	3	158	16.7	Pass
	Connection Plates	M61	158	56.2	Pass
	Tieback	M68	158	16.8	Pass

Structure Rating (max from all components) =	69.0%

Notes:
1) See additional documentation in "Appendix B - Software Input Calculations and Analysis Output" for calculations supporting the % capacity consumed.
2) All sectors are typical

Table 4(a) - Tieback Connection Data Table (Sector Mount, Alpha)

Tower Connection Node No.	Existing / Proposed	Resultant End Reaction (lb)	Connected Member Type
70	Proposed	1174.586	Leg
70A		970.749	Leg

Notes:
1) Tieback connection point is within 25% of either end of the connected tower member
2) Tieback connection point is NOT within 25% of either end of the connected tower member
3) Reduced member compressive capacity according to CED-STD-10294 *Standard for Installation of Mounts and Appurtenances*

Table 4(b) - Tieback Connection Data Table (Sector Mount, Beta)

Tower Connection Node No.	Existing / Proposed	Resultant End Reaction (lb)	Connected Member Type
N210	Proposed	1393.799	Leg
N213		1005.631	Leg

Notes:
1) Tieback connection point is within 25% of either end of the connected tower member
2) Tieback connection point is NOT within 25% of either end of the connected tower member
3) Reduced member compressive capacity according to CED-STD-10294 *Standard for Installation of Mounts and Appurtenances*

Table 4(c) - Tieback Connection Data Table (Sector Mount, Gamma)

Tower Connection Node No.	Existing / Proposed	Resultant End Reaction (lb)	Connected Member Type
N139	Proposed	1612.271	Leg
N142		1309.156	Leg

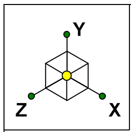
Notes:
1) Tieback connection point is within 25% of either end of the connected tower member
2) Tieback connection point is NOT within 25% of either end of the connected tower member
3) Reduced member compressive capacity according to CED-STD-10294 *Standard for Installation of Mounts and Appurtenances*

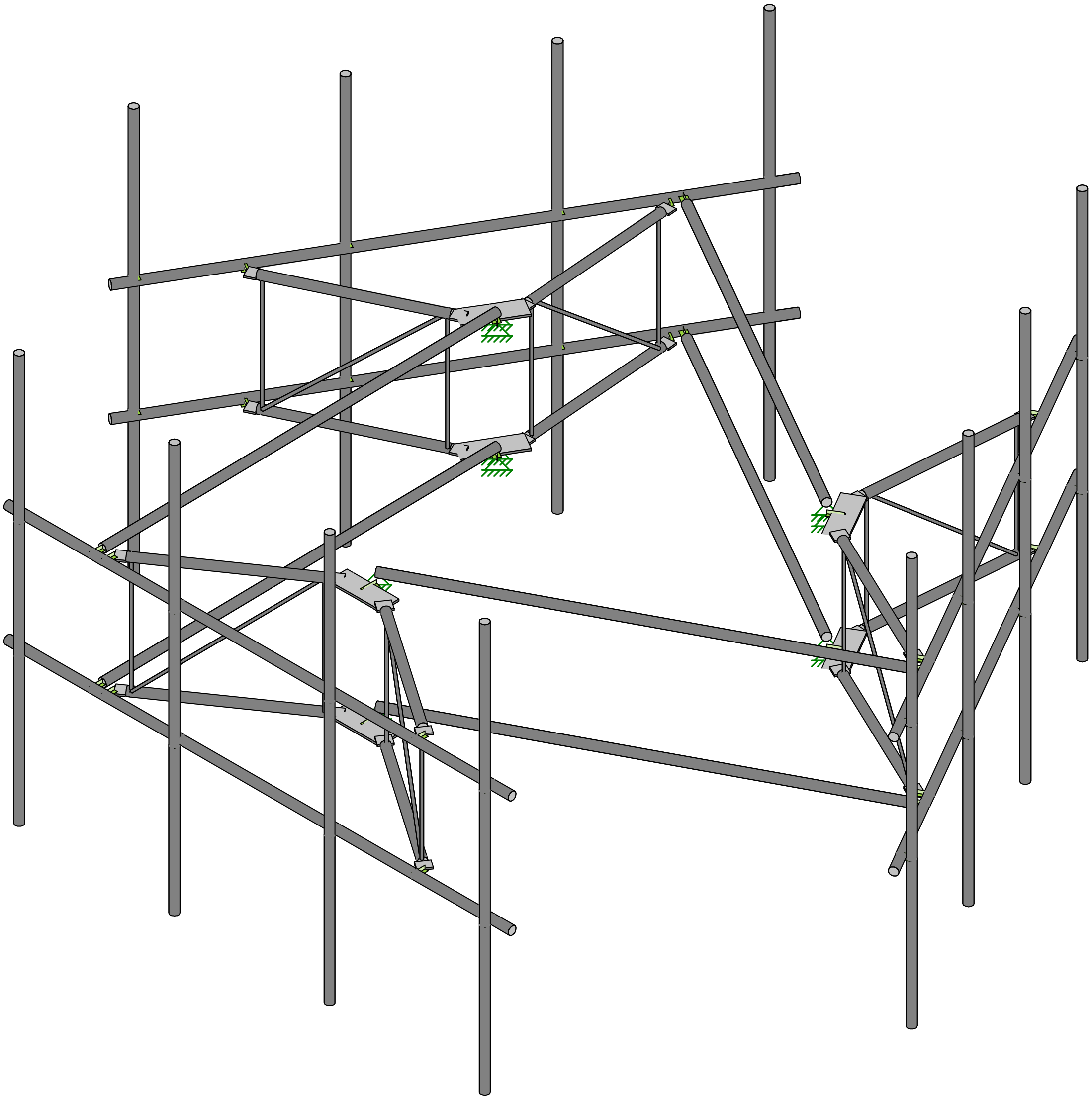
4.1) Recommendations

The proposed mount designed by Sabre (part# C10857007C) has sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

APPENDIX A

WIRE FRAME AND RENDERED MODELS





Envelope Only Solution

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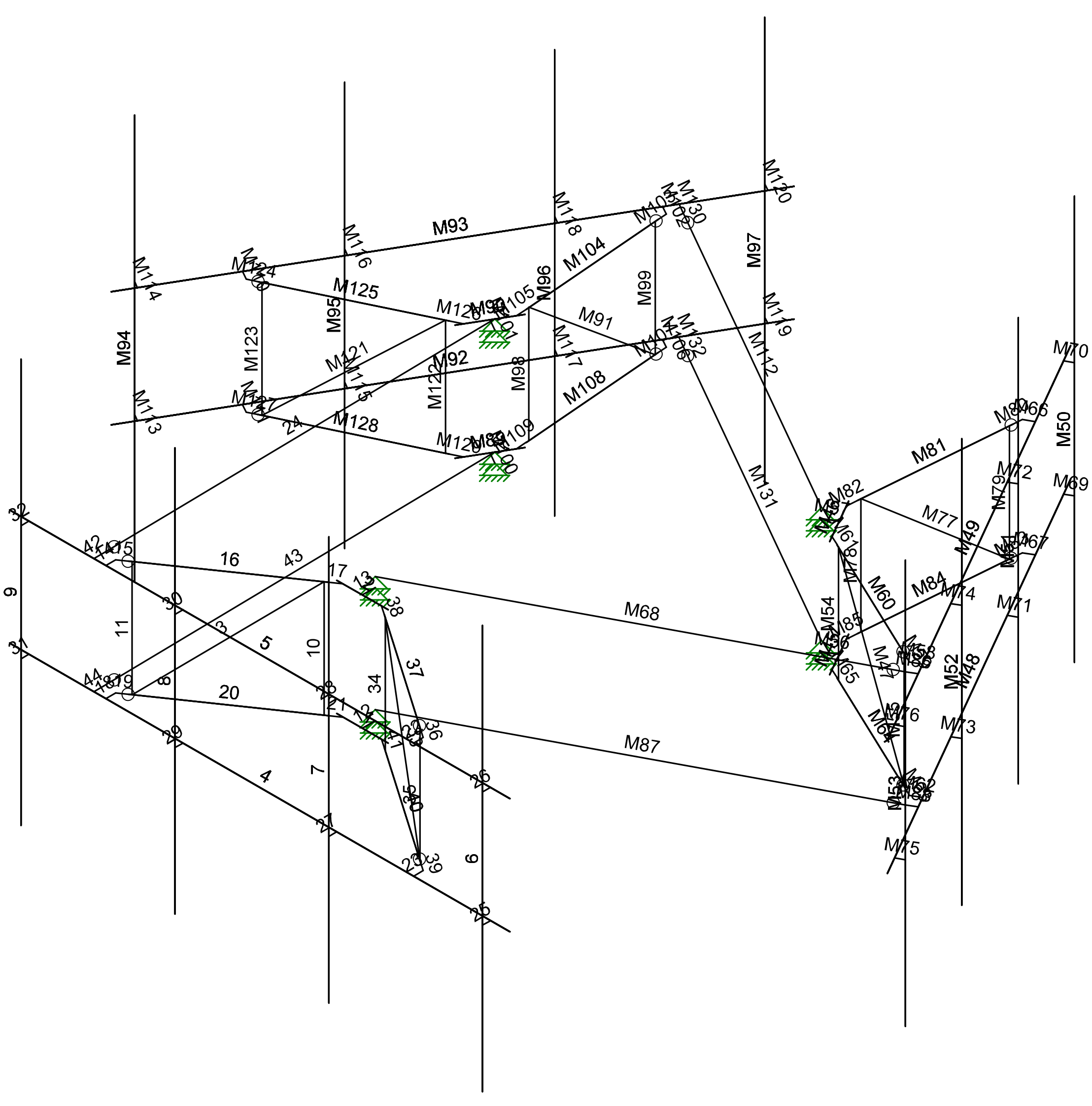

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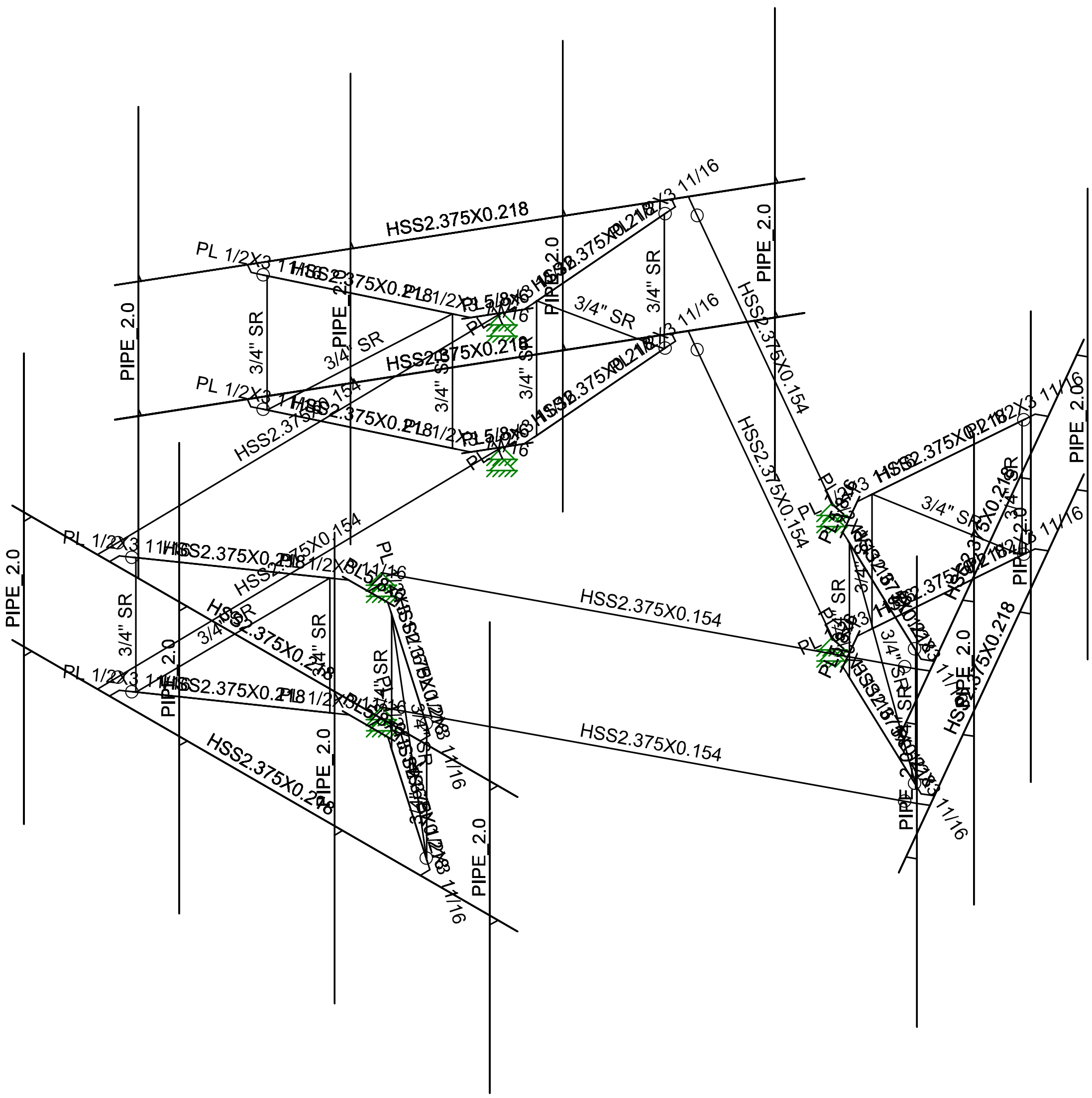

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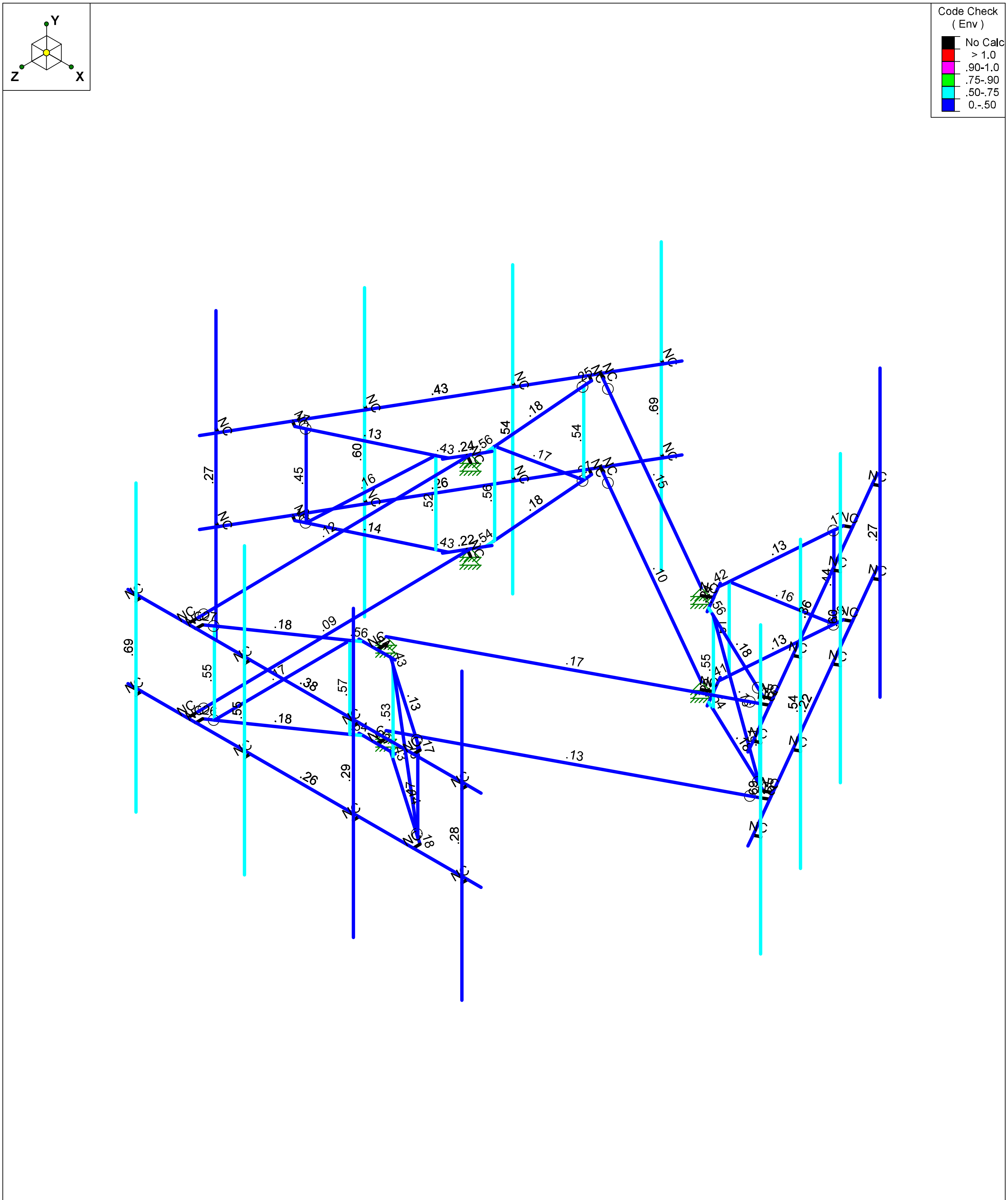

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

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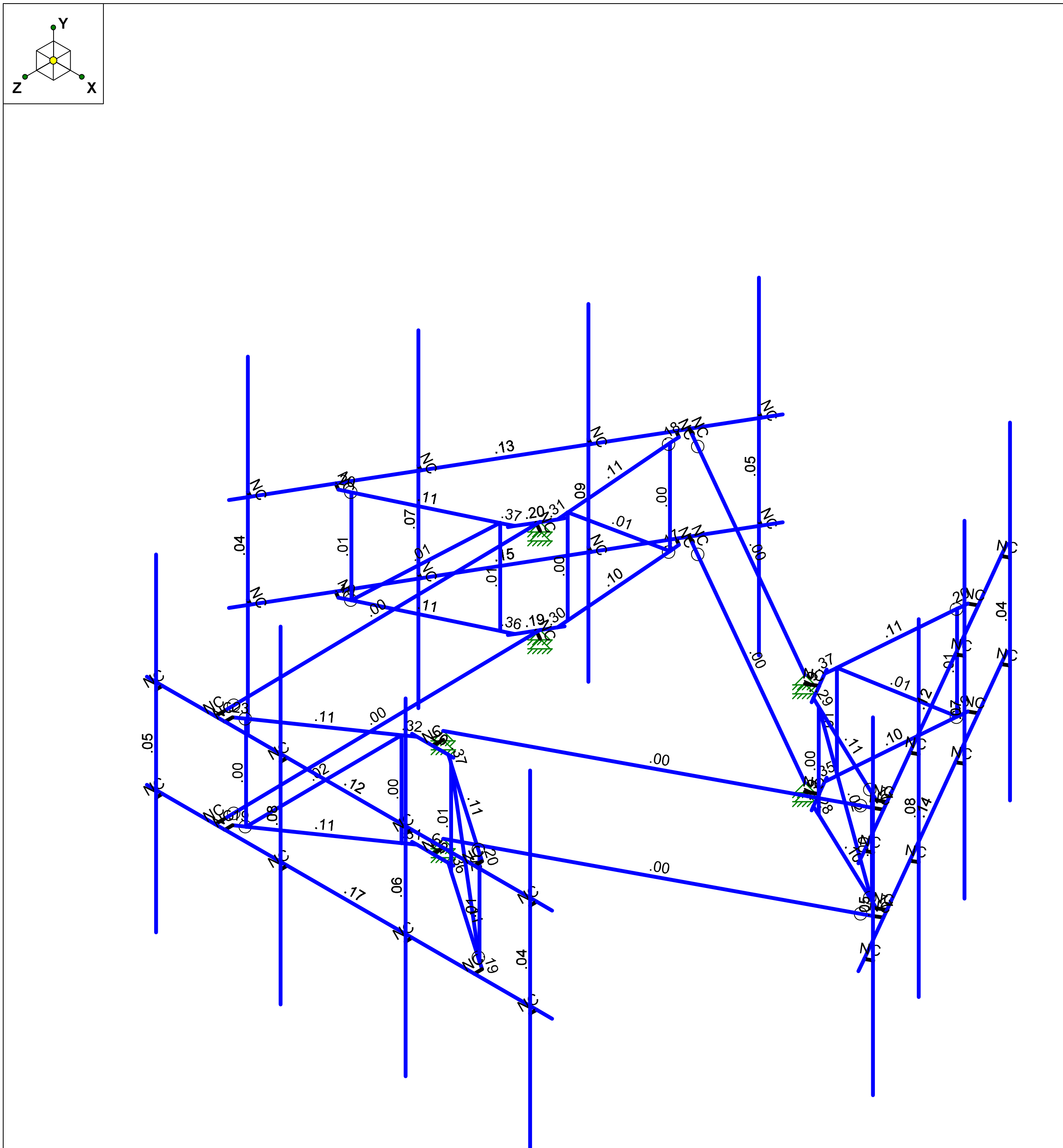

Shear Check
(Env)

- No Calc
- > 1.0
- .90-1.0
- .75-.90
- .50-.75
- 0.-.50

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	806362_NHV 108 943133	SK - 5
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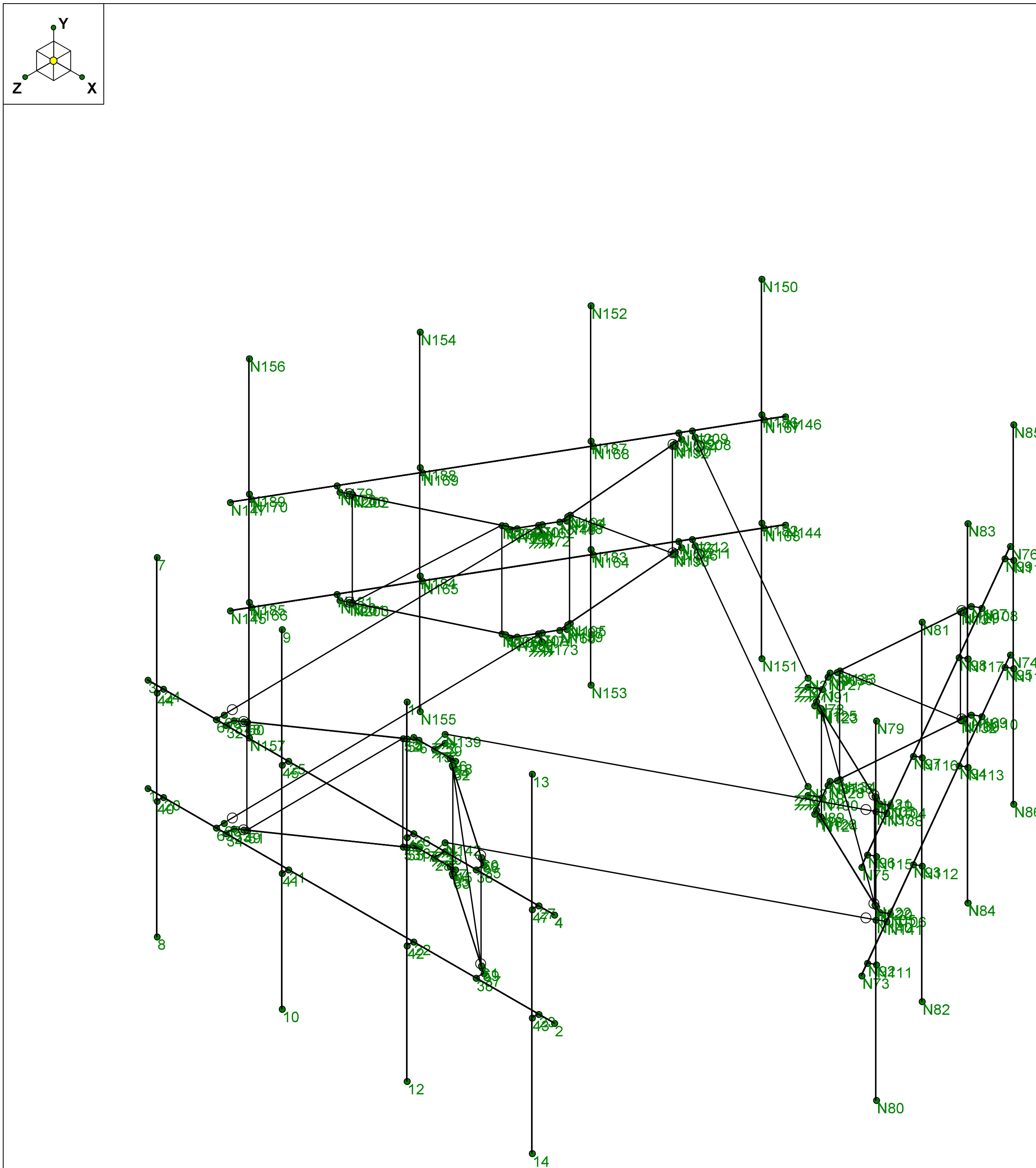

Envelope Only Solution

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APPENDIX B

SOFTWARE INPUT CALCULATIONS AND ANALYSIS OUTPUT

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

INPUT

[REF: ANSI/TIA-222-H]

Tower Type		:	SST		
Ground Elevation	z_s	:	745	ft	[ASCE7 Hazard Tool]
Tower Height		:	185	ft	
Mount Elevation		:	158	ft	
Antenna Elevation		:	160	ft	
Crest Height		:	0	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	C		[Sec. 2.6.5.1.2]
Topography Category		:	1		[Sec. 2.6.6.2]
Wind Velocity	V	:	118	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	:	50	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	:	30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	:	1	in	[ASCE7 Hazard Tool]
Seismic Design Cat.		:	B		[ASCE7 Hazard Tool]
	S_S	:	0.195		
	S_1	:	0.054		
	S_{DS}	:	0.208		
	S_{D1}	:	0.087		

Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	1.40		[Sec. 2.6.5.2]
Topography Factor	K_{zt}	:	1.00		[Sec. 2.6.6]
Elevation Factor	K_e	:	0.97		[Sec. 2.6.8]
Directionality Factor	K_d	:	0.95		[Sec. 16.6]
Shielding Factor	K_a	:	0.90		[Sec. 16.6]
Design Ice Thickness	t_{iz}	:	1.17	in	[Sec. 2.6.10]
Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.10		[Sec. 2.7.7.1]
Amplification	A_s	:	2.42		[Sec. 16.7]

ANTENNAS

	Manufacturer	Model	Height (in)	Front Width (in)	Side Width (in)	Weight (lbs)	Shape	Quantity	Location (%)
Mount Pipe 6									
	POWERWAVE TECHNOLOGIES	7770.00	55.00	11.00	5.00	35.00	Flat	0.5	10
	POWERWAVE TECHNOLOGIES	7770.00	55.00	11.00	5.00	35.00	Flat	0.5	95
	MUNICATION COMPONENTS	DTMABP7819VG12A	10.63	11.02	3.78	19.18	Flat	1	40
	POWERWAVE TECHNOLOGIES	7020	2.50	4.90	8.40	2.20	Flat	1	60
Mount Pipe 7									
	QUINTEL TECHNOLOGY	QS66512-2	72.00	12.00	9.60	111.00	Flat	0.5	5
	QUINTEL TECHNOLOGY	QS66512-2	72.00	12.00	9.60	111.00	Flat	0.5	80
	KAELUS	DBC0061F1V51-2	8.00	6.20	6.50	25.40	Flat	2	50
	ERICSSON	TME-RRUS 32 B30	27.20	7.00	12.10	53.00	Flat	1	30
	ERICSSON	TME-RRUS 32 B2	27.20	12.05	7.00	52.90	Flat	1	30
Mount Pipe 8									
	CCI ANTENNAS	OPA65R-BU6D	71.20	21.00	7.80	63.50	Flat	0.5	5
	CCI ANTENNAS	OPA65R-BU6D	71.20	21.00	7.80	63.50	Flat	0.5	80
	ERICSSON	TME-RRUS 4478 B14	17.90	9.44	13.19	71.00	Flat	1	50
	ERICSSON	RRUS 32 B66A	27.60	7.41	12.45	55.12	Flat	1	50
Mount Pipe 9									
	CCI ANTENNAS	DMP65R-BU8D	96.00	20.70	7.70	105.60	Flat	0.5	5
	CCI ANTENNAS	DMP65R-BU8D	96.00	20.70	7.70	105.60	Flat	0.5	95
	ERICSSON	RRUS 4449 B5/B12	17.90	13.19	9.44	71.00	Flat	1	50
37									
	RAYCAP	TME-DC6-48-60-18-8F	31.25	11.00	11.00	32.80	Round	1	30
M125									
	RAYCAP	TME-DC6-48-60-18-8F	31.25	11.00	11.00	32.80	Round	1	50

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Mount Pipe **M94**

	POWERWAVE TECHNOLOGIES	7770.00	55.00	11.00	5.00	35.00	Flat	0.5	10
	POWERWAVE TECHNOLOGIES	7770.00	55.00	11.00	5.00	35.00	Flat	0.5	95
	MUNICATION COMPONENTS	DTMABP7819VG12A	10.63	11.02	3.78	19.18	Flat	1	40
	POWERWAVE TECHNOLOGIES	7020	2.50	4.90	8.40	2.20	Flat	1	60

Mount Pipe **M95**

	CCI ANTENNAS	TPA-65R-LCUUUU-H8	96.00	14.40	8.60	81.60	Flat	0.5	5
	CCI ANTENNAS	TPA-65R-LCUUUU-H8	96.00	14.40	8.60	81.60	Flat	0.5	70
	KAELUS	DBC0061F1V51-2	8.00	6.20	6.50	25.40	Flat	2	50
	ERICSSON	TME-RRUS 32 B30	27.20	7.00	12.10	53.00	Flat	1	30
	ERICSSON	TME-RRUS 32 B2	27.20	12.05	7.00	52.90	Flat	1	30

Mount Pipe **M96**

	CCI ANTENNAS	OPA65R-BU6D	71.20	21.00	7.80	63.50	Flat	0.5	5
	CCI ANTENNAS	OPA65R-BU6D	71.20	21.00	7.80	63.50	Flat	0.5	80
	ERICSSON	TME-RRUS 4478 B14	17.90	9.44	13.19	71.00	Flat	1	50
	ERICSSON	RRUS 32 B66A	27.60	7.41	12.45	55.12	Flat	1	50

Mount Pipe **M97**

	CCI ANTENNAS	DMP65R-BU8D	96.00	20.70	7.70	105.60	Flat	0.5	5
	CCI ANTENNAS	DMP65R-BU8D	96.00	20.70	7.70	105.60	Flat	0.5	95
	ERICSSON	RRUS 4449 B5/B12	17.90	13.19	9.44	71.00	Flat	1	50

Mount Pipe **M50**

	POWERWAVE TECHNOLOGIES	7770.00	55.00	11.00	5.00	35.00	Flat	0.5	10
	POWERWAVE TECHNOLOGIES	7770.00	55.00	11.00	5.00	35.00	Flat	0.5	95
	MUNICATION COMPONENTS	DTMABP7819VG12A	10.63	11.02	3.78	19.18	Flat	1	40
	POWERWAVE TECHNOLOGIES	7020	2.50	4.90	8.40	2.20	Flat	1	60

Mount Pipe **M51**

	CCI ANTENNAS	TPA-65R-LCUUUU-H8	96.00	14.40	8.60	81.60	Flat	0.5	5
	CCI ANTENNAS	TPA-65R-LCUUUU-H8	96.00	14.40	8.60	81.60	Flat	0.5	70
	KAELUS	DBC0061F1V51-2	8.00	6.20	6.50	25.40	Flat	2	50
	ERICSSON	TME-RRUS 32 B30	27.20	7.00	12.10	53.00	Flat	1	30
	ERICSSON	TME-RRUS 32 B2	27.20	12.05	7.00	52.90	Flat	1	30

Mount Pipe **M52**

	CCI ANTENNAS	OPA65R-BU6D	71.20	21.00	7.80	63.50	Flat	0.5	5
	CCI ANTENNAS	OPA65R-BU6D	71.20	21.00	7.80	63.50	Flat	0.5	80
	ERICSSON	TME-RRUS 4478 B14	17.90	9.44	13.19	71.00	Flat	1	50
	ERICSSON	RRUS 32 B66A	27.60	7.41	12.45	55.12	Flat	1	50

Mount Pipe **M53**

	CCI ANTENNAS	DMP65R-BU8D	96.00	20.70	7.70	105.60	Flat	0.5	5
	CCI ANTENNAS	DMP65R-BU8D	96.00	20.70	7.70	105.60	Flat	0.5	95
	ERICSSON	RRUS 4449 B5/B12	17.90	13.19	9.44	71.00	Flat	1	50

PROJECT	104053.009.01 - NHV 108 943133, CT LHN				
SUBJECT	Sector Mount Mount Analysis				
DATE	03/23/20	PAGE	1	OF	1

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INPUT

[REF: ANSI/TIA-222-H]

	Member Number	Section Set	Wind Projection (in)	Length (in)	Perimeter (in)	Shape	D_c (in)
	1	Connection Plate	0.63	16.00	13.25	Flat	6.03
	2	Connection Plate	0.63	16.00	13.25	Flat	6.03
	3	Diagonals	0.75	56.08	2.36	Round	0.75
	4	Main Horizontals	2.38	156.00	7.46	Round	2.38
	5	Main Horizontals	2.38	156.00	7.46	Round	2.38
	6	Mount-Pipe	2.38	126.00	9.50	Flat	3.36
	7	Mount-Pipe	2.38	126.00	9.50	Flat	3.36
	8	Mount-Pipe	2.38	126.00	9.50	Flat	3.36
	9	Mount-Pipe	2.38	126.00	9.50	Flat	3.36
	10	Verticals	0.75	36.00	2.36	Round	0.75
	11	Verticals	0.75	36.00	2.36	Round	0.75
	15	Plates	0.50	2.72	8.38	Flat	3.72
	16	Supporting Horizontals	2.38	45.00	7.48	Round	2.38
	17	Plates	0.50	3.31	8.38	Flat	3.72
	19	Plates	0.50	2.72	8.38	Flat	3.72
	20	Supporting Horizontals	2.38	45.00	7.48	Round	2.38
	21	Plates	0.50	3.31	8.38	Flat	3.72
	24	Tieback	2.38	121.37	7.46	Round	2.38
	33	Diagonals	0.75	56.08	2.36	Round	0.75
	34	Verticals	0.75	36.00	2.36	Round	0.75
	35	Verticals	0.75	36.00	2.36	Round	0.75
	36	Plates	0.50	2.72	8.38	Flat	3.72
	37	Supporting Horizontals	2.38	45.00	7.48	Round	2.38
	38	Plates	0.50	3.31	8.38	Flat	3.72
	39	Plates	0.50	2.72	8.38	Flat	3.72
	40	Supporting Horizontals	2.38	45.00	7.48	Round	2.38
	41	Plates	0.50	3.31	8.38	Flat	3.72
	43	Tieback	2.38	121.37	7.46	Round	2.38
	M45	Connection Plate	0.63	16.00	13.25	Flat	6.03
	M46	Connection Plate	0.63	16.00	13.25	Flat	6.03
	M47	Diagonals	0.75	56.08	2.36	Round	0.75
	M48	Main Horizontals	2.38	156.00	7.46	Round	2.38
	M49	Main Horizontals	2.38	156.00	7.46	Round	2.38
	M50	Mount-Pipe	2.38	126.00	9.50	Flat	3.36
	M51	Mount-Pipe	2.38	126.00	9.50	Flat	3.36
	M52	Mount-Pipe	2.38	126.00	9.50	Flat	3.36
	M53	Mount-Pipe	2.38	126.00	9.50	Flat	3.36
	M54	Verticals	0.75	36.00	2.36	Round	0.75
	M55	Verticals	0.75	36.00	2.36	Round	0.75
	M59	Plates	0.50	2.72	8.38	Flat	3.72
	M60	Supporting Horizontals	2.38	45.00	7.48	Round	2.38
	M61	Plates	0.50	3.31	8.38	Flat	3.72
	M63	Plates	0.50	2.72	8.38	Flat	3.72
	M64	Supporting Horizontals	2.38	45.00	7.48	Round	2.38
	M65	Plates	0.50	3.31	8.38	Flat	3.72
	M68	Tieback	2.38	121.37	7.46	Round	2.38
	M77	Diagonals	0.75	56.08	2.36	Round	0.75
	M78	Verticals	0.75	36.00	2.36	Round	0.75
	M79	Verticals	0.75	36.00	2.36	Round	0.75
	M80	Plates	0.50	2.72	8.38	Flat	3.72
	M81	Supporting Horizontals	2.38	45.00	7.48	Round	2.38
	M82	Plates	0.50	3.31	8.38	Flat	3.72

	M83	Plates	0.50	2.72	8.38	Flat	3.72
	M84	Supporting Horizontals	2.38	45.00	7.48	Round	2.38
	M85	Plates	0.50	3.31	8.38	Flat	3.72
	M87	Tieback	2.38	121.37	7.46	Round	2.38
	M89	Connection Plate	0.63	16.00	13.25	Flat	6.03
	M90	Connection Plate	0.63	16.00	13.25	Flat	6.03
	M91	Diagonals	0.75	56.08	2.36	Round	0.75
	M92	Main Horizontals	2.38	156.00	7.46	Round	2.38
	M93	Main Horizontals	2.38	156.00	7.46	Round	2.38
	M94	Mount-Pipe	2.38	126.00	9.50	Flat	3.36
	M95	Mount-Pipe	2.38	126.00	9.50	Flat	3.36
	M96	Mount-Pipe	2.38	126.00	9.50	Flat	3.36
	M97	Mount-Pipe	2.38	126.00	9.50	Flat	3.36
	M98	Verticals	0.75	36.00	2.36	Round	0.75
	M99	Verticals	0.75	36.00	2.36	Round	0.75
	M103	Plates	0.50	2.72	8.38	Flat	3.72
	M104	Supporting Horizontals	2.38	45.00	7.48	Round	2.38
	M105	Plates	0.50	3.31	8.38	Flat	3.72
	M107	Plates	0.50	2.72	8.38	Flat	3.72
	M108	Supporting Horizontals	2.38	45.00	7.48	Round	2.38
	M109	Plates	0.50	3.31	8.38	Flat	3.72
	M112	Tieback	2.38	121.37	7.46	Round	2.38
	M121	Diagonals	0.75	56.08	2.36	Round	0.75
	M122	Verticals	0.75	36.00	2.36	Round	0.75
	M123	Verticals	0.75	36.00	2.36	Round	0.75
	M124	Plates	0.50	2.72	8.38	Flat	3.72
	M125	Supporting Horizontals	2.38	45.00	7.48	Round	2.38
	M126	Plates	0.50	3.31	8.38	Flat	3.72
	M127	Plates	0.50	2.72	8.38	Flat	3.72
	M128	Supporting Horizontals	2.38	45.00	7.48	Round	2.38
	M129	Plates	0.50	3.31	8.38	Flat	3.72
	M131	Tieback	2.38	121.37	7.46	Round	2.38

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Tower Type		:	SST		
Ground Elevation	z_s	:	745	ft	[ASCE7 Hazard Tool]
Tower Height		:	185.00	ft	
Mount Elevation		:	158.00	ft	
Antenna Elevation		:	160.00	ft	
Crest Height		:	0	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	C		[Sec. 2.6.5.1.2]
Topography Category		:	1.00		[Sec. 2.6.6.2]
Wind Velocity	V	:	118	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	:	50	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	:	30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	:	1.00	in	[ASCE7 Hazard Tool]
Seismic Design Cat.		:	B		[ASCE7 Hazard Tool]
	S_S	:	0.20		
	S_1	:	0.05		
	S_{DS}	:	0.21		
	S_{D1}	:	0.09		
Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	1.40		[Sec. 2.6.5.2]
Topography Factor	K_{zt}	:	1.00		[Sec. 2.6.6]
Elevation Factor	K_e	:	0.97		[Sec. 2.6.8]
Directionality Factor	K_d	:	0.95		[Sec. 16.6]
Shielding Factor	K_a	:	0.90		[Sec. 16.6]
Design Ice Thickness	t_{iz}	:	1.17	in	[Sec. 2.6.10]
Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.104		[Sec. 2.7.7.1]
Amplification	A_s	:	2.416216		[Sec. 16.7]

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(918) 587-4630

Manufacturer	Model	Qty	Aspect Ratio	C_a flat/round	EPA_N (ft^2)	EPA_T (ft^2)	$EPA_{N\text{-}Ice}$ (ft^2)	$EPA_{T\text{-}Ice}$ (ft^2)	$F_{A\ No\ Ice\ (N)}$	$F_{A\ No\ Ice\ (T)}$	$F_{A\ Ice\ (N)}$	$F_{A\ Ice\ (T)}$
ERWAVE TECHNOLO	7770.00	0.5	5.00	1.31	2.10	0.95	2.66	1.46	0.11	0.05	0.02	0.01
ERWAVE TECHNOLO	7770.00	0.5	5.00	1.31	2.10	0.95	2.66	1.46	0.11	0.05	0.02	0.01
NICATION COMPONE	DTMABP7819VG12A	1	0.96	1.20	0.81	0.28	1.20	0.55	0.04	0.01	0.01	0.00
ERWAVE TECHNOLO	7020	1	0.51	1.20	0.09	0.15	0.24	0.36	0.00	0.01	0.00	0.00
UINTEL TECHNOLOG	QS66512-2	0.5	6.00	1.36	3.00	2.40	3.70	3.08	0.09	0.08	0.02	0.02
UINTEL TECHNOLOG	QS66512-2	0.5	6.00	1.36	3.00	2.40	3.70	3.08	0.09	0.08	0.02	0.02
KAELUS	DBC0061F1V51-2	2	1.29	1.20	0.69	0.72	1.23	1.27	0.03	0.04	0.01	0.01
ERICSSON	TME-RRUS 32 B30	1	3.89	1.26	1.32	2.29	1.92	2.96	0.07	0.12	0.01	0.02
ERICSSON	TME-RRUS 32 B2	1	2.26	1.20	2.28	1.32	2.95	1.92	0.11	0.07	0.02	0.01
CCI ANTENNAS	OPA65R-BU6D	0.5	3.39	1.24	5.19	1.93	5.96	2.59	0.28	0.10	0.06	0.02
CCI ANTENNAS	OPA65R-BU6D	0.5	3.39	1.24	5.19	1.93	5.96	2.59	0.28	0.10	0.06	0.02
ERICSSON	TME-RRUS 4478 B14	1	1.90	1.20	1.17	1.64	1.66	2.18	0.06	0.08	0.01	0.01
ERICSSON	RRUS 32 B66A	1	3.72	1.25	1.42	2.39	2.03	3.07	0.07	0.12	0.01	0.02
CCI ANTENNAS	DMP65R-BU8D	0.5	4.64	1.30	6.90	2.57	7.87	3.43	0.37	0.14	0.07	0.03
CCI ANTENNAS	DMP65R-BU8D	0.5	4.64	1.30	6.90	2.57	7.87	3.43	0.37	0.14	0.07	0.03
ERICSSON	RRUS 4449 B5/B12	1	1.36	1.20	1.64	1.17	2.18	1.66	0.08	0.06	0.01	0.01
RAYCAP	TME-DC6-48-60-18-8F	1	2.84	0.51	2.39	2.39	3.11	3.11	0.05	0.05	0.01	0.01
RAYCAP	TME-DC6-48-60-18-8F	1	2.84	0.51	2.39	2.39	3.11	3.11	0.05	0.05	0.01	0.01

PROJECT	104053.009.01 - NHV 108 943	LHN
SUBJECT	Sector Mount Mount Analysis	
DATE	03/23/20	PAGE 3 OF

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74159
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Manufacturer	Model	Qty	Aspect Ratio	C_a flat/round	EPA_N (ft^2)	EPA_T (ft^2)	$EPA_{N\text{-}Ice}$ (ft^2)	$EPA_{T\text{-}Ice}$ (ft^2)	$F_{A\ No\ Ice\ (N)}$	$F_{A\ No\ Ice\ (T)}$	$F_{A\ Ice\ (N)}$	$F_{A\ Ice\ (T)}$
/ERWAVE TECHNOLO(	7770.00	0.5	5.00	1.31	2.10	0.95	2.66	1.46	0.11	0.05	0.02	0.01
/ERWAVE TECHNOLO(	7770.00	0.5	5.00	1.31	2.10	0.95	2.66	1.46	0.00	0.05	0.02	0.01
NICATION COMPONEI	DTMABP7819VG12A	1	0.96	1.20	0.81	0.28	1.20	0.55	0.00	0.01	0.01	0.00
/ERWAVE TECHNOLO(	7020	1	0.51	1.20	0.09	0.15	0.24	0.36	0.00	0.01	0.00	0.00
CCI ANTENNAS	TPA-65R-LCUUUU-H8	0.5	6.67	1.39	4.80	2.87	5.72	3.74	0.27	0.16	0.06	0.04
CCI ANTENNAS	TPA-65R-LCUUUU-H8	0.5	6.67	1.39	4.80	2.87	5.72	3.74	0.00	0.16	0.06	0.04
KAELUS	DBC0061F1V51-2	2	1.29	1.20	0.69	0.72	1.23	1.27	0.00	0.04	0.01	0.01
ERICSSON	TME-RRUS 32 B30	1	3.89	1.26	1.32	2.29	1.92	2.96	0.00	0.12	0.01	0.02
ERICSSON	TME-RRUS 32 B2	1	2.26	1.20	2.28	1.32	2.95	1.92	0.00	0.07	0.02	0.01
CCI ANTENNAS	OPA65R-BU6D	0.5	3.39	1.24	5.19	1.93	5.96	2.59	0.28	0.10	0.06	0.02
CCI ANTENNAS	OPA65R-BU6D	0.5	3.39	1.24	5.19	1.93	5.96	2.59	0.00	0.10	0.06	0.02
ERICSSON	TME-RRUS 4478 B14	1	1.90	1.20	1.17	1.64	1.66	2.18	0.00	0.08	0.01	0.01
ERICSSON	RRUS 32 B66A	1	3.72	1.25	1.42	2.39	2.03	3.07	0.00	0.12	0.01	0.02
CCI ANTENNAS	DMP65R-BU8D	0.5	4.64	1.30	6.90	2.57	7.87	3.43	0.37	0.14	0.07	0.03
CCI ANTENNAS	DMP65R-BU8D	0.5	4.64	1.30	6.90	2.57	7.87	3.43	0.37	0.14	0.07	0.03
ERICSSON	RRUS 4449 B5/B12	1	1.36	1.20	1.64	1.17	2.18	1.66	0.00	0.06	0.01	0.01
/ERWAVE TECHNOLO(	7770.00	0.5	5.00	1.31	2.10	0.95	2.66	1.46	0.11	0.05	0.02	0.01
/ERWAVE TECHNOLO(	7770.00	0.5	5.00	1.31	2.10	0.95	2.66	1.46	0.11	0.05	0.02	0.01
NICATION COMPONEI	DTMABP7819VG12A	1	0.96	1.20	0.81	0.28	1.20	0.55	0.00	0.01	0.01	0.00
/ERWAVE TECHNOLO(	7020	1	0.51	1.20	0.09	0.15	0.24	0.36	0.00	0.01	0.00	0.00
CCI ANTENNAS	TPA-65R-LCUUUU-H8	0.5	6.67	1.39	4.80	2.87	5.72	3.74	0.27	0.16	0.06	0.04
CCI ANTENNAS	TPA-65R-LCUUUU-H8	0.5	6.67	1.39	4.80	2.87	5.72	3.74	0.00	0.16	0.06	0.04
KAELUS	DBC0061F1V51-2	2	1.29	1.20	0.69	0.72	1.23	1.27	0.00	0.04	0.01	0.01
ERICSSON	TME-RRUS 32 B30	1	3.89	1.26	1.32	2.29	1.92	2.96	0.00	0.12	0.01	0.02
ERICSSON	TME-RRUS 32 B2	1	2.26	1.20	2.28	1.32	2.95	1.92	0.00	0.07	0.02	0.01

B+T GRP
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Manufacturer	Model	Qty	Aspect Ratio	C_a flat/round	EPA_N (ft^2)	EPA_T (ft^2)	$EPA_{N\text{-}Ice}$ (ft^2)	$EPA_{T\text{-}Ice}$ (ft^2)	$F_{A\ No\ Ice\ (N)}$	$F_{A\ No\ Ice\ (T)}$	$F_{A\ Ice\ (N)}$	$F_{A\ Ice\ (T)}$
CCI ANTENNAS	OPA65R-BU6D	0.5	3.39	1.24	5.19	1.93	5.96	2.59	0.28	0.10	0.06	0.02
CCI ANTENNAS	OPA65R-BU6D	0.5	3.39	1.24	5.19	1.93	5.96	2.59	0.28	0.10	0.06	0.02
ERICSSON	TME-RRUS 4478 B14	1	1.90	1.20	1.17	1.64	1.66	2.18	0.06	0.08	0.01	0.01
ERICSSON	RRUS 32 B66A	1	3.72	1.25	1.42	2.39	2.03	3.07	0.07	0.12	0.01	0.02
CCI ANTENNAS	DMP65R-BU8D	0.5	4.64	1.30	6.90	2.57	7.87	3.43	0.37	0.14	0.07	0.03
CCI ANTENNAS	DMP65R-BU8D	0.5	4.64	1.30	6.90	2.57	7.87	3.43	0.37	0.14	0.07	0.03
ERICSSON	RRUS 4449 B5/B12	1	1.36	1.20	1.64	1.17	2.18	1.66	0.08	0.06	0.01	0.01

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Main Horizontals	HSS2.375X0...	Beam	Pipe	A53 Gr.B 50	Typical	1.39	.824	.824	1.65
2	Supporting Horizontals	HSS2.375X0...	Beam	Pipe	A53 Gr.B 50	Typical	1.39	.824	.824	1.65
3	Verticals	3/4" SR	Column	BAR	A572 Gr.50	Typical	.442	.016	.016	.031
4	Diagonals	3/4" SR	HBrace	BAR	A572 Gr.50	Typical	.442	.016	.016	.031
5	Connection Plate	PL5/8x6	Beam	RECT	A572 Gr.50	Typical	3.75	.122	11.25	.456
6	Plates	PL 1/2X3 11/16	Beam	RECT	A572 Gr.50	Typical	1.844	.038	2.089	.141
7	Mount-Pipe	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
8	Tieback	HSS2.375X0...	Beam	Pipe	A53 Gr.B 50	Typical	1	.627	.627	1.25

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(de...	Section/Shape	Type	Design List	Material	Design Rules
1	1	16	15		90	Connection Plate	Beam	RECT	A572 Gr.50	Typical
2	2	5	18		90	Connection Plate	Beam	RECT	A572 Gr.50	Typical
3	3	51	52			Diagonals	HBrace	BAR	A572 Gr.50	Typical
4	4	1	2			Main Horizontals	Beam	Pipe	A53 Gr.B ...	Typical
5	5	3	4			Main Horizontals	Beam	Pipe	A53 Gr.B ...	Typical
6	6	13	14			Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
7	7	11	12			Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
8	8	9	10			Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
9	9	7	8			Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
10	10	52	53			Verticals	Column	BAR	A572 Gr.50	Typical
11	11	50	51			Verticals	Column	BAR	A572 Gr.50	Typical
12	12	30	28			RIGID	None	None	RIGID	Typical
13	13	29	19			RIGID	None	None	RIGID	Typical
14	14	31	32			RIGID	None	None	RIGID	Typical
15	15	31	48		90	Plates	Beam	RECT	A572 Gr.50	Typical
16	16	48	54			Supporting Horizontals	Beam	Pipe	A53 Gr.B ...	Typical
17	17	54	6		90	Plates	Beam	RECT	A572 Gr.50	Typical
18	18	33	34			RIGID	None	None	RIGID	Typical
19	19	33	49		90	Plates	Beam	RECT	A572 Gr.50	Typical
20	20	49	55			Supporting Horizontals	Beam	Pipe	A53 Gr.B ...	Typical
21	21	55	17		90	Plates	Beam	RECT	A572 Gr.50	Typical
22	22	35	36			RIGID	None	None	RIGID	Typical
23	23	37	38			RIGID	None	None	RIGID	Typical
24	24	66	70			Tieback	Beam	Pipe	A53 Gr.B ...	Typical
25	25	43	23			RIGID	None	None	RIGID	Typical
26	26	47	27			RIGID	None	None	RIGID	Typical
27	27	42	22			RIGID	None	None	RIGID	Typical
28	28	46	26			RIGID	None	None	RIGID	Typical
29	29	41	21			RIGID	None	None	RIGID	Typical
30	30	45	25			RIGID	None	None	RIGID	Typical
31	31	40	20			RIGID	None	None	RIGID	Typical
32	32	44	24			RIGID	None	None	RIGID	Typical
33	33	61	62			Diagonals	HBrace	BAR	A572 Gr.50	Typical
34	34	62	63			Verticals	Column	BAR	A572 Gr.50	Typical
35	35	60	61			Verticals	Column	BAR	A572 Gr.50	Typical
36	36	35	58		90	Plates	Beam	RECT	A572 Gr.50	Typical
37	37	58	64			Supporting Horizontals	Beam	Pipe	A53 Gr.B ...	Typical
38	38	64	56		90	Plates	Beam	RECT	A572 Gr.50	Typical
39	39	37	59		90	Plates	Beam	RECT	A572 Gr.50	Typical
40	40	59	65			Supporting Horizontals	Beam	Pipe	A53 Gr.B ...	Typical
41	41	65	57		90	Plates	Beam	RECT	A572 Gr.50	Typical
42	42	66	67			RIGID	None	None	RIGID	Typical
43	43	68	70A			Tieback	Beam	Pipe	A53 Gr.B ...	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(de...	Section/Shape	Type	Design List	Material	Design Rules
44	44	68	69			RIGID	None	None	RIGID	Typical
45	M45	N88	N87		90	Connection Plate	Beam	RECT	A572 Gr.50	Typical
46	M46	N77	N90		90	Connection Plate	Beam	RECT	A572 Gr.50	Typical
47	M47	N122	N123			Diagonals	HBrace	BAR	A572 Gr.50	Typical
48	M48	N73	N74			Main Horizontals	Beam	Pipe	A53 Gr.B ...	Typical
49	M49	N75	N76			Main Horizontals	Beam	Pipe	A53 Gr.B ...	Typical
50	M50	N85	N86			Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
51	M51	N83	N84			Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
52	M52	N81	N82			Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
53	M53	N79	N80			Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
54	M54	N123	N124			Verticals	Column	BAR	A572 Gr.50	Typical
55	M55	N121	N122			Verticals	Column	BAR	A572 Gr.50	Typical
56	M56	N102	N100			RIGID	None	None	RIGID	Typical
57	M57	N71	N91			RIGID	None	None	RIGID	Typical
58	M58	N103	N104			RIGID	None	None	RIGID	Typical
59	M59	N103	N119		90	Plates	Beam	RECT	A572 Gr.50	Typical
60	M60	N119	N125			Supporting Horizontals	Beam	Pipe	A53 Gr.B ...	Typical
61	M61	N125	N78		90	Plates	Beam	RECT	A572 Gr.50	Typical
62	M62	N105	N106			RIGID	None	None	RIGID	Typical
63	M63	N105	N120		90	Plates	Beam	RECT	A572 Gr.50	Typical
64	M64	N120	N126			Supporting Horizontals	Beam	Pipe	A53 Gr.B ...	Typical
65	M65	N126	N89		90	Plates	Beam	RECT	A572 Gr.50	Typical
66	M66	N107	N108			RIGID	None	None	RIGID	Typical
67	M67	N109	N110			RIGID	None	None	RIGID	Typical
68	M68	N137	N139			Tieback	Beam	Pipe	A53 Gr.B ...	Typical
69	M69	N114	N95			RIGID	None	None	RIGID	Typical
70	M70	N118	N99			RIGID	None	None	RIGID	Typical
71	M71	N113	N94			RIGID	None	None	RIGID	Typical
72	M72	N117	N98			RIGID	None	None	RIGID	Typical
73	M73	N112	N93			RIGID	None	None	RIGID	Typical
74	M74	N116	N97			RIGID	None	None	RIGID	Typical
75	M75	N111	N92			RIGID	None	None	RIGID	Typical
76	M76	N115	N96			RIGID	None	None	RIGID	Typical
77	M77	N132	N133			Diagonals	HBrace	BAR	A572 Gr.50	Typical
78	M78	N133	N134			Verticals	Column	BAR	A572 Gr.50	Typical
79	M79	N131	N132			Verticals	Column	BAR	A572 Gr.50	Typical
80	M80	N107	N129		90	Plates	Beam	RECT	A572 Gr.50	Typical
81	M81	N129	N135			Supporting Horizontals	Beam	Pipe	A53 Gr.B ...	Typical
82	M82	N135	N127		90	Plates	Beam	RECT	A572 Gr.50	Typical
83	M83	N109	N130		90	Plates	Beam	RECT	A572 Gr.50	Typical
84	M84	N130	N136			Supporting Horizontals	Beam	Pipe	A53 Gr.B ...	Typical
85	M85	N136	N128		90	Plates	Beam	RECT	A572 Gr.50	Typical
86	M86	N137	N138			RIGID	None	None	RIGID	Typical
87	M87	N140	N142			Tieback	Beam	Pipe	A53 Gr.B ...	Typical
88	M88	N140	N141			RIGID	None	None	RIGID	Typical
89	M89	N159	N158		90	Connection Plate	Beam	RECT	A572 Gr.50	Typical
90	M90	N148	N161		90	Connection Plate	Beam	RECT	A572 Gr.50	Typical
91	M91	N193	N194			Diagonals	HBrace	BAR	A572 Gr.50	Typical
92	M92	N144	N145			Main Horizontals	Beam	Pipe	A53 Gr.B ...	Typical
93	M93	N146	N147			Main Horizontals	Beam	Pipe	A53 Gr.B ...	Typical
94	M94	N156	N157			Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
95	M95	N154	N155			Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
96	M96	N152	N153			Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
97	M97	N150	N151			Mount-Pipe	Column	Pipe	A53 Gr.B	Typical
98	M98	N194	N195			Verticals	Column	BAR	A572 Gr.50	Typical
99	M99	N192	N193			Verticals	Column	BAR	A572 Gr.50	Typical
100	M100	N173	N171			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(de...	Section/Shape	Type	Design List	Material	Design Rules
101	M101	N72	N162			RIGID	None	None	RIGID	Typical
102	M102	N174	N175			RIGID	None	None	RIGID	Typical
103	M103	N174	N190		90	Plates	Beam	RECT	A572 Gr.50	Typical
104	M104	N190	N196			Supporting Horizontals	Beam	Pipe	A53 Gr.B ...	Typical
105	M105	N196	N149		90	Plates	Beam	RECT	A572 Gr.50	Typical
106	M106	N176	N177			RIGID	None	None	RIGID	Typical
107	M107	N176	N191		90	Plates	Beam	RECT	A572 Gr.50	Typical
108	M108	N191	N197			Supporting Horizontals	Beam	Pipe	A53 Gr.B ...	Typical
109	M109	N197	N160		90	Plates	Beam	RECT	A572 Gr.50	Typical
110	M110	N178	N179			RIGID	None	None	RIGID	Typical
111	M111	N180	N181			RIGID	None	None	RIGID	Typical
112	M112	N208	N210			Tieback	Beam	Pipe	A53 Gr.B ...	Typical
113	M113	N185	N166			RIGID	None	None	RIGID	Typical
114	M114	N189	N170			RIGID	None	None	RIGID	Typical
115	M115	N184	N165			RIGID	None	None	RIGID	Typical
116	M116	N188	N169			RIGID	None	None	RIGID	Typical
117	M117	N183	N164			RIGID	None	None	RIGID	Typical
118	M118	N187	N168			RIGID	None	None	RIGID	Typical
119	M119	N182	N163			RIGID	None	None	RIGID	Typical
120	M120	N186	N167			RIGID	None	None	RIGID	Typical
121	M121	N203	N204			Diagonals	HBrace	BAR	A572 Gr.50	Typical
122	M122	N204	N205			Verticals	Column	BAR	A572 Gr.50	Typical
123	M123	N202	N203			Verticals	Column	BAR	A572 Gr.50	Typical
124	M124	N178	N200		90	Plates	Beam	RECT	A572 Gr.50	Typical
125	M125	N200	N206			Supporting Horizontals	Beam	Pipe	A53 Gr.B ...	Typical
126	M126	N206	N198		90	Plates	Beam	RECT	A572 Gr.50	Typical
127	M127	N180	N201		90	Plates	Beam	RECT	A572 Gr.50	Typical
128	M128	N201	N207			Supporting Horizontals	Beam	Pipe	A53 Gr.B ...	Typical
129	M129	N207	N199		90	Plates	Beam	RECT	A572 Gr.50	Typical
130	M130	N208	N209			RIGID	None	None	RIGID	Typical
131	M131	N211	N213			Tieback	Beam	Pipe	A53 Gr.B ...	Typical
132	M132	N211	N212			RIGID	None	None	RIGID	Typical

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Dead	DL		-1			70			
2	0 Wind - No Ice	WLZ					70	84		
3	90 Wind - No Ice	WLX					70	84		
4	0 Wind - Ice	WLZ					70	84		
5	90 Wind - Ice	WLX					70	84		
6	0 Wind - Service	WLZ					70	84		
7	90 Wind - Service	WLX					70	84		
8	Ice	OL1					70	84		
9	0 Seismic	ELZ					70	84		
10	90 Seismic	ELX					70	84		
11	Live Load a	LL				3				
12	Live Load b	LL				3				
13	Live Load c	LL				3				
14	Live Load d	LL				3				
15	Maint LL 1	LL					1			
16	Maint LL 2	LL					1			
17	Maint LL 3	LL					1			
18	Maint LL 4	LL					1			
19	Maint LL 5	LL					1			
20	Maint LL 6	LL					1			

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
21	Maint LL 7	LL					1			
22	Maint LL 8	LL					1			
23	Maint LL 9	LL					1			
24	Maint LL 10	LL					1			
25	Maint LL 11	LL					1			
26	Maint LL 12	LL					1			
27	Maint LL 13	LL					1			
28	Maint LL 14	LL					1			
29	Maint LL 15	LL					1			
30	Maint LL 16	LL					1			
31	Maint LL 17	LL					1			
32	Maint LL 18	LL					1			
33	Maint LL 19	LL					1			
34	Maint LL 20	LL					1			
35	Maint LL 21	LL					1			
36	Maint LL 22	LL					1			
37	Maint LL 23	LL					1			
38	Maint LL 24	LL					1			

Load Combinations

	Description	Sol...	P...	S...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...
1	1.4 Dead	Yes	Y		1	1.4																		
2	1.2 D + 1.0 - 0 W	Yes	Y		1	1.2	2	1																
3	1.2 D + 1.0 - 30 W	Yes	Y		1	1.2	2	.866	3	.5														
4	1.2 D + 1.0 - 60 W	Yes	Y		1	1.2	3	.866	2	.5														
5	1.2 D + 1.0 - 90 W	Yes	Y		1	1.2	3	1																
6	1.2 D + 1.0 - 120 W	Yes	Y		1	1.2	3	.866	2	-.5														
7	1.2 D + 1.0 - 150 W	Yes	Y		1	1.2	2	-.866	3	.5														
8	1.2 D + 1.0 - 180 W	Yes	Y		1	1.2	2	-1																
9	1.2 D + 1.0 - 210 W	Yes	Y		1	1.2	2	-.866	3	-.5														
10	1.2 D + 1.0 - 240 W	Yes	Y		1	1.2	3	-.866	2	-.5														
11	1.2 D + 1.0 - 270 W	Yes	Y		1	1.2	3	-1																
12	1.2 D + 1.0 - 300 W	Yes	Y		1	1.2	3	-.866	2	.5														
13	1.2 D + 1.0 - 330 W	Yes	Y		1	1.2	2	.866	3	-.5														
14	1.2 D + 1.0 - 0 W/Ice	Yes	Y		1	1.2	4	1			8	1												
15	1.2 D + 1.0 - 30 W/Ice	Yes	Y		1	1.2	4	.866	5	.5	8	1												
16	1.2 D + 1.0 - 60 W/Ice	Yes	Y		1	1.2	5	.866	4	.5	8	1												
17	1.2 D + 1.0 - 90 W/Ice	Yes	Y		1	1.2	5	1			8	1												
18	1.2 D + 1.0 - 120 W/Ice	Yes	Y		1	1.2	5	.866	4	-.5	8	1												
19	1.2 D + 1.0 - 150 W/Ice	Yes	Y		1	1.2	4	-.866	5	.5	8	1												
20	1.2 D + 1.0 - 180 W/Ice	Yes	Y		1	1.2	4	-1			8	1												
21	1.2 D + 1.0 - 210 W/Ice	Yes	Y		1	1.2	4	-.866	5	-.5	8	1												
22	1.2 D + 1.0 - 240 W/Ice	Yes	Y		1	1.2	5	-.866	4	-.5	8	1												
23	1.2 D + 1.0 - 270 W/Ice	Yes	Y		1	1.2	5	-1			8	1												
24	1.2 D + 1.0 - 300 W/Ice	Yes	Y		1	1.2	5	-.866	4	.5	8	1												
25	1.2 D + 1.0 - 330 W/Ice	Yes	Y		1	1.2	4	.866	5	-.5	8	1												
26	1.2 D + 1.0 E - 0	Yes	Y		1	1.2	9	1																
27	1.2 D + 1.0 E - 30	Yes	Y		1	1.2	9	.866	10	.5														
28	1.2 D + 1.0 E - 60	Yes	Y		1	1.2	10	.866	9	.5														
29	1.2 D + 1.0 E - 90	Yes	Y		1	1.2	10	1																
30	1.2 D + 1.0 E - 120	Yes	Y		1	1.2	10	.866	9	-.5														
31	1.2 D + 1.0 E - 150	Yes	Y		1	1.2	9	-.866	10	.5														
32	1.2 D + 1.0 E - 180	Yes	Y		1	1.2	9	-1																
33	1.2 D + 1.0 E - 210	Yes	Y		1	1.2	9	-.866	10	-.5														
34	1.2 D + 1.0 E - 240	Yes	Y		1	1.2	10	-.866	9	-.5														

Load Combinations (Continued)

	Description	Sol...	P...	S...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...
35	1.2 D + 1.0 E - 270	Yes	Y		1	1.2	10	-1																
36	1.2 D + 1.0 E - 300	Yes	Y		1	1.2	10	-.866	9	.5														
37	1.2 D + 1.0 E - 330	Yes	Y		1	1.2	9	.866	10	-.5														
38	1.2 D + 1.5 LL a + Ser...	Yes	Y		1	1.2	6	1			11	1.5												
39	1.2 D + 1.5 LL a + Ser...	Yes	Y		1	1.2	6	.866	7	.5	11	1.5												
40	1.2 D + 1.5 LL a + Ser...	Yes	Y		1	1.2	7	.866	6	.5	11	1.5												
41	1.2 D + 1.5 LL a + Ser...	Yes	Y		1	1.2	7	1			11	1.5												
42	1.2 D + 1.5 LL a + Ser...	Yes	Y		1	1.2	7	.866	6	-.5	11	1.5												
43	1.2 D + 1.5 LL a + Ser...	Yes	Y		1	1.2	6	-.866	7	.5	11	1.5												
44	1.2 D + 1.5 LL a + Ser...	Yes	Y		1	1.2	6	-1			11	1.5												
45	1.2 D + 1.5 LL a + Ser...	Yes	Y		1	1.2	6	-.866	7	-.5	11	1.5												
46	1.2 D + 1.5 LL a + Ser...	Yes	Y		1	1.2	7	-.866	6	-.5	11	1.5												
47	1.2 D + 1.5 LL a + Ser...	Yes	Y		1	1.2	7	-1			11	1.5												
48	1.2 D + 1.5 LL a + Ser...	Yes	Y		1	1.2	7	-.866	6	.5	11	1.5												
49	1.2 D + 1.5 LL a + Ser...	Yes	Y		1	1.2	6	.866	7	-.5	11	1.5												
50	1.2 D + 1.5 LL b + Ser...	Yes	Y		1	1.2	6	1			12	1.5												
51	1.2 D + 1.5 LL b + Ser...	Yes	Y		1	1.2	6	.866	7	.5	12	1.5												
52	1.2 D + 1.5 LL b + Ser...	Yes	Y		1	1.2	7	.866	6	.5	12	1.5												
53	1.2 D + 1.5 LL b + Ser...	Yes	Y		1	1.2	7	1			12	1.5												
54	1.2 D + 1.5 LL b + Ser...	Yes	Y		1	1.2	7	.866	6	-.5	12	1.5												
55	1.2 D + 1.5 LL b + Ser...	Yes	Y		1	1.2	6	-.866	7	.5	12	1.5												
56	1.2 D + 1.5 LL b + Ser...	Yes	Y		1	1.2	6	-1			12	1.5												
57	1.2 D + 1.5 LL b + Ser...	Yes	Y		1	1.2	6	-.866	7	-.5	12	1.5												
58	1.2 D + 1.5 LL b + Ser...	Yes	Y		1	1.2	7	-.866	6	-.5	12	1.5												
59	1.2 D + 1.5 LL b + Ser...	Yes	Y		1	1.2	7	-1			12	1.5												
60	1.2 D + 1.5 LL b + Ser...	Yes	Y		1	1.2	7	-.866	6	.5	12	1.5												
61	1.2 D + 1.5 LL b + Ser...	Yes	Y		1	1.2	6	.866	7	-.5	12	1.5												
62	1.2 D + 1.5 LL c + Ser...	Yes	Y		1	1.2	6	1			13	1.5												
63	1.2 D + 1.5 LL c + Ser...	Yes	Y		1	1.2	6	.866	7	.5	13	1.5												
64	1.2 D + 1.5 LL c + Ser...	Yes	Y		1	1.2	7	.866	6	.5	13	1.5												
65	1.2 D + 1.5 LL c + Ser...	Yes	Y		1	1.2	7	1			13	1.5												
66	1.2 D + 1.5 LL c + Ser...	Yes	Y		1	1.2	7	.866	6	-.5	13	1.5												
67	1.2 D + 1.5 LL c + Ser...	Yes	Y		1	1.2	6	-.866	7	.5	13	1.5												
68	1.2 D + 1.5 LL c + Ser...	Yes	Y		1	1.2	6	-1			13	1.5												
69	1.2 D + 1.5 LL c + Ser...	Yes	Y		1	1.2	6	-.866	7	-.5	13	1.5												
70	1.2 D + 1.5 LL c + Ser...	Yes	Y		1	1.2	7	-.866	6	-.5	13	1.5												
71	1.2 D + 1.5 LL c + Ser...	Yes	Y		1	1.2	7	-1			13	1.5												
72	1.2 D + 1.5 LL c + Ser...	Yes	Y		1	1.2	7	-.866	6	.5	13	1.5												
73	1.2 D + 1.5 LL c + Ser...	Yes	Y		1	1.2	6	.866	7	-.5	13	1.5												
74	1.2 D + 1.5 LL d + Ser...	Yes	Y		1	1.2	6	1			14	1.5												
75	1.2 D + 1.5 LL d + Ser...	Yes	Y		1	1.2	6	.866	7	.5	14	1.5												
76	1.2 D + 1.5 LL d + Ser...	Yes	Y		1	1.2	7	.866	6	.5	14	1.5												
77	1.2 D + 1.5 LL d + Ser...	Yes	Y		1	1.2	7	1			14	1.5												
78	1.2 D + 1.5 LL d + Ser...	Yes	Y		1	1.2	7	.866	6	-.5	14	1.5												
79	1.2 D + 1.5 LL d + Ser...	Yes	Y		1	1.2	6	-.866	7	.5	14	1.5												
80	1.2 D + 1.5 LL d + Ser...	Yes	Y		1	1.2	6	-1			14	1.5												
81	1.2 D + 1.5 LL d + Ser...	Yes	Y		1	1.2	6	-.866	7	-.5	14	1.5												
82	1.2 D + 1.5 LL d + Ser...	Yes	Y		1	1.2	7	-.866	6	-.5	14	1.5												
83	1.2 D + 1.5 LL d + Ser...	Yes	Y		1	1.2	7	-1			14	1.5												
84	1.2 D + 1.5 LL d + Ser...	Yes	Y		1	1.2	7	-.866	6	.5	14	1.5												
85	1.2 D + 1.5 LL d + Ser...	Yes	Y		1	1.2	6	.866	7	-.5	14	1.5												
86	1.2 D + 1.5 LL Maint (1)	Yes	Y		1	1.2					15	1.5												
87	1.2 D + 1.5 LL Maint (2)	Yes	Y		1	1.2					16	1.5												
88	1.2 D + 1.5 LL Maint (3)	Yes	Y		1	1.2					17	1.5												
89	1.2 D + 1.5 LL Maint (4)	Yes	Y		1	1.2					18	1.5												
90	1.2 D + 1.5 LL Maint (5)	Yes	Y		1	1.2					19	1.5												
91	1.2 D + 1.5 LL Maint (6)	Yes	Y		1	1.2					20	1.5												

Load Combinations (Continued)

	Description	Sol...	P...	S...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...
92	1.2 D + 1.5 LL Maint (7)	Yes	Y		1	1.2					21	1.5												
93	1.2 D + 1.5 LL Maint (8)	Yes	Y		1	1.2					22	1.5												
94	1.2 D + 1.5 LL Maint (9)	Yes	Y		1	1.2					23	1.5												
95	1.2 D + 1.5 LL Maint (...	Yes	Y		1	1.2					24	1.5												
96	1.2 D + 1.5 LL Maint (...	Yes	Y		1	1.2					25	1.5												
97	1.2 D + 1.5 LL Maint (...	Yes	Y		1	1.2					26	1.5												
98	1.2 D + 1.5 LL Maint (...	Yes	Y		1	1.2					27	1.5												
99	1.2 D + 1.5 LL Maint (...	Yes	Y		1	1.2					28	1.5												
100	1.2 D + 1.5 LL Maint (...	Yes	Y		1	1.2					29	1.5												
101	1.2 D + 1.5 LL Maint (...	Yes	Y		1	1.2					30	1.5												
102	1.2 D + 1.5 LL Maint (...	Yes	Y		1	1.2					31	1.5												
103	1.2 D + 1.5 LL Maint (...	Yes	Y		1	1.2					32	1.5												
104	1.2 D + 1.5 LL Maint (...	Yes	Y		1	1.2					33	1.5												
105	1.2 D + 1.5 LL Maint (...	Yes	Y		1	1.2					34	1.5												
106	1.2 D + 1.5 LL Maint (...	Yes	Y		1	1.2					35	1.5												
107	1.2 D + 1.5 LL Maint (...	Yes	Y		1	1.2					36	1.5												
108	1.2 D + 1.5 LL Maint (...	Yes	Y		1	1.2					37	1.5												
109	1.2 D + 1.5 LL Maint (...	Yes	Y		1	1.2					38	1.5												

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	6	Y	-.018	%10
2	6	Y	-.018	%95
3	6	Y	-.019	%40
4	6	Y	-.002	%60
5	6	Y	0	0
6	7	Y	-.056	%5
7	7	Y	-.056	%80
8	7	Y	-.051	%50
9	7	Y	-.053	%30
10	7	Y	-.053	%30
11	8	Y	-.032	%5
12	8	Y	-.032	%80
13	8	Y	-.071	%50
14	8	Y	-.055	%50
15	8	Y	0	0
16	9	Y	-.053	%5
17	9	Y	-.053	%95
18	9	Y	-.071	%50
19	9	Y	0	0
20	9	Y	0	0
21	37	Y	-.033	%30
22	37	Y	0	0
23	37	Y	0	0
24	37	Y	0	0
25	37	Y	0	0
26	M125	Y	-.033	%50
27	M125	Y	0	0
28	M125	Y	0	0
29	M125	Y	0	0
30	M125	Y	0	0
31	M94	Y	-.018	%10
32	M94	Y	-.018	%95
33	M94	Y	-.019	%40
34	M94	Y	-.002	%60

Member Point Loads (BLC 1 : Dead) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
35	M94	Y	0	0
36	M95	Y	-.041	%5
37	M95	Y	-.041	%70
38	M95	Y	-.051	%50
39	M95	Y	-.053	%30
40	M95	Y	-.053	%30
41	M96	Y	-.032	%5
42	M96	Y	-.032	%80
43	M96	Y	-.071	%50
44	M96	Y	-.055	%50
45	M96	Y	0	0
46	M97	Y	-.053	%5
47	M97	Y	-.053	%95
48	M97	Y	-.071	%50
49	M97	Y	0	0
50	M97	Y	0	0
51	M50	Y	-.018	%10
52	M50	Y	-.018	%95
53	M50	Y	-.019	%40
54	M50	Y	-.002	%60
55	M50	Y	0	0
56	M51	Y	-.041	%5
57	M51	Y	-.041	%70
58	M51	Y	-.051	%50
59	M51	Y	-.053	%30
60	M51	Y	-.053	%30
61	M52	Y	-.032	%5
62	M52	Y	-.032	%80
63	M52	Y	-.071	%50
64	M52	Y	-.055	%50
65	M52	Y	0	0
66	M53	Y	-.053	%5
67	M53	Y	-.053	%95
68	M53	Y	-.071	%50
69	M53	Y	0	0
70	M53	Y	0	0

Member Point Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	6	Z	-.114	%10
2	6	Z	-.114	%95
3	6	Z	-.041	%40
4	6	Z	-.004	%60
5	6	Z	0	0
6	7	Z	-.092	%5
7	7	Z	-.092	%80
8	7	Z	-.034	%50
9	7	Z	-.069	%30
10	7	Z	-.113	%30
11	8	Z	-.281	%5
12	8	Z	-.281	%80
13	8	Z	-.058	%50
14	8	Z	-.074	%50
15	8	Z	0	0
16	9	Z	-.365	%5
17	9	Z	-.365	%95

Member Point Loads (BLC 2 : 0 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
18	9	Z	-.082	%50
19	9	Z	0	0
20	9	Z	0	0
21	37	Z	-.05	%30
22	37	Z	0	0
23	37	Z	0	0
24	37	Z	0	0
25	37	Z	0	0
26	M125	Z	-.05	%50
27	M125	Z	0	0
28	M125	Z	0	0
29	M125	Z	0	0
30	M125	Z	0	0
31	M94	Z	-.114	%10
32	M94	Z	-.114	%95
33	M94	Z	-.041	%40
34	M94	Z	-.004	%60
35	M94	Z	0	0
36	M95	Z	-.273	%5
37	M95	Z	-.273	%70
38	M95	Z	-.034	%50
39	M95	Z	-.069	%30
40	M95	Z	-.113	%30
41	M96	Z	-.281	%5
42	M96	Z	-.281	%80
43	M96	Z	-.058	%50
44	M96	Z	-.074	%50
45	M96	Z	0	0
46	M97	Z	-.365	%5
47	M97	Z	-.365	%95
48	M97	Z	-.082	%50
49	M97	Z	0	0
50	M97	Z	0	0
51	M50	Z	-.114	%10
52	M50	Z	-.114	%95
53	M50	Z	-.041	%40
54	M50	Z	-.004	%60
55	M50	Z	0	0
56	M51	Z	-.273	%5
57	M51	Z	-.273	%70
58	M51	Z	-.034	%50
59	M51	Z	-.069	%30
60	M51	Z	-.113	%30
61	M52	Z	-.281	%5
62	M52	Z	-.281	%80
63	M52	Z	-.058	%50
64	M52	Z	-.074	%50
65	M52	Z	0	0
66	M53	Z	-.365	%5
67	M53	Z	-.365	%95
68	M53	Z	-.082	%50
69	M53	Z	0	0
70	M53	Z	0	0

Member Point Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]

Member Point Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	6	X	-.052	%10
2	6	X	-.052	%95
3	6	X	-.014	%40
4	6	X	-.007	%60
5	6	X	0	0
6	7	X	-.078	%5
7	7	X	-.078	%80
8	7	X	-.036	%50
9	7	X	-.119	%30
10	7	X	-.066	%30
11	8	X	-.105	%5
12	8	X	-.105	%80
13	8	X	-.082	%50
14	8	X	-.124	%50
15	8	X	0	0
16	9	X	-.137	%5
17	9	X	-.137	%95
18	9	X	-.058	%50
19	9	X	0	0
20	9	X	0	0
21	37	X	-.05	%30
22	37	X	0	0
23	37	X	0	0
24	37	X	0	0
25	37	X	0	0
26	M125	X	-.05	%50
27	M125	X	0	0
28	M125	X	0	0
29	M125	X	0	0
30	M125	X	0	0
31	M94	X	-.052	%10
32	M94	X	-.052	%95
33	M94	X	-.014	%40
34	M94	X	-.007	%60
35	M94	X	0	0
36	M95	X	-.162	%5
37	M95	X	-.162	%70
38	M95	X	-.036	%50
39	M95	X	-.119	%30
40	M95	X	-.066	%30
41	M96	X	-.105	%5
42	M96	X	-.105	%80
43	M96	X	-.082	%50
44	M96	X	-.124	%50
45	M96	X	0	0
46	M97	X	-.137	%5
47	M97	X	-.137	%95
48	M97	X	-.058	%50
49	M97	X	0	0
50	M97	X	0	0
51	M50	X	-.052	%10
52	M50	X	-.052	%95
53	M50	X	-.014	%40
54	M50	X	-.007	%60
55	M50	X	0	0
56	M51	X	-.162	%5
57	M51	X	-.162	%70

Member Point Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
58	M51	X	-.036	%50
59	M51	X	-.119	%30
60	M51	X	-.066	%30
61	M52	X	-.105	%5
62	M52	X	-.105	%80
63	M52	X	-.082	%50
64	M52	X	-.124	%50
65	M52	X	0	0
66	M53	X	-.137	%5
67	M53	X	-.137	%95
68	M53	X	-.058	%50
69	M53	X	0	0
70	M53	X	0	0

Member Point Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	6	Z	-.021	%10
2	6	Z	-.021	%95
3	6	Z	-.007	%40
4	6	Z	-.0008	%60
5	6	Z	0	0
6	7	Z	-.02	%5
7	7	Z	-.02	%80
8	7	Z	-.006	%50
9	7	Z	-.012	%30
10	7	Z	-.02	%30
11	8	Z	-.057	%5
12	8	Z	-.057	%80
13	8	Z	-.011	%50
14	8	Z	-.013	%50
15	8	Z	0	0
16	9	Z	-.073	%5
17	9	Z	-.073	%95
18	9	Z	-.015	%50
19	9	Z	0	0
20	9	Z	0	0
21	37	Z	-.009	%30
22	37	Z	0	0
23	37	Z	0	0
24	37	Z	0	0
25	37	Z	0	0
26	M125	Z	-.009	%50
27	M125	Z	0	0
28	M125	Z	0	0
29	M125	Z	0	0
30	M125	Z	0	0
31	M94	Z	-.021	%10
32	M94	Z	-.021	%95
33	M94	Z	-.007	%40
34	M94	Z	-.0008	%60
35	M94	Z	0	0
36	M95	Z	-.057	%5
37	M95	Z	-.057	%70
38	M95	Z	-.006	%50
39	M95	Z	-.012	%30
40	M95	Z	-.02	%30

Member Point Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
41	M96	Z	-.057	%5
42	M96	Z	-.057	%80
43	M96	Z	-.011	%50
44	M96	Z	-.013	%50
45	M96	Z	0	0
46	M97	Z	-.073	%5
47	M97	Z	-.073	%95
48	M97	Z	-.015	%50
49	M97	Z	0	0
50	M97	Z	0	0
51	M50	Z	-.021	%10
52	M50	Z	-.021	%95
53	M50	Z	-.007	%40
54	M50	Z	-.0008	%60
55	M50	Z	0	0
56	M51	Z	-.057	%5
57	M51	Z	-.057	%70
58	M51	Z	-.006	%50
59	M51	Z	-.012	%30
60	M51	Z	-.02	%30
61	M52	Z	-.057	%5
62	M52	Z	-.057	%80
63	M52	Z	-.011	%50
64	M52	Z	-.013	%50
65	M52	Z	0	0
66	M53	Z	-.073	%5
67	M53	Z	-.073	%95
68	M53	Z	-.015	%50
69	M53	Z	0	0
70	M53	Z	0	0

Member Point Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	6	X	-.009	%10
2	6	X	-.009	%95
3	6	X	-.003	%40
4	6	X	-.001	%60
5	6	X	0	0
6	7	X	-.017	%5
7	7	X	-.017	%80
8	7	X	-.006	%50
9	7	X	-.021	%30
10	7	X	-.012	%30
11	8	X	-.024	%5
12	8	X	-.024	%80
13	8	X	-.015	%50
14	8	X	-.022	%50
15	8	X	0	0
16	9	X	-.032	%5
17	9	X	-.032	%95
18	9	X	-.011	%50
19	9	X	0	0
20	9	X	0	0
21	37	X	-.009	%30
22	37	X	0	0
23	37	X	0	0

Member Point Loads (BLC 5 : 90 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
24	37	X	0	0
25	37	X	0	0
26	M125	X	-.009	%50
27	M125	X	0	0
28	M125	X	0	0
29	M125	X	0	0
30	M125	X	0	0
31	M94	X	-.009	%10
32	M94	X	-.009	%95
33	M94	X	-.003	%40
34	M94	X	-.001	%60
35	M94	X	0	0
36	M95	X	-.036	%5
37	M95	X	-.036	%70
38	M95	X	-.006	%50
39	M95	X	-.021	%30
40	M95	X	-.012	%30
41	M96	X	-.024	%5
42	M96	X	-.024	%80
43	M96	X	-.015	%50
44	M96	X	-.022	%50
45	M96	X	0	0
46	M97	X	-.032	%5
47	M97	X	-.032	%95
48	M97	X	-.011	%50
49	M97	X	0	0
50	M97	X	0	0
51	M50	X	-.009	%10
52	M50	X	-.009	%95
53	M50	X	-.003	%40
54	M50	X	-.001	%60
55	M50	X	0	0
56	M51	X	-.036	%5
57	M51	X	-.036	%70
58	M51	X	-.006	%50
59	M51	X	-.021	%30
60	M51	X	-.012	%30
61	M52	X	-.024	%5
62	M52	X	-.024	%80
63	M52	X	-.015	%50
64	M52	X	-.022	%50
65	M52	X	0	0
66	M53	X	-.032	%5
67	M53	X	-.032	%95
68	M53	X	-.011	%50
69	M53	X	0	0
70	M53	X	0	0

Member Point Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	6	Z	-.007	%10
2	6	Z	-.007	%95
3	6	Z	-.003	%40
4	6	Z	-.0003	%60
5	6	Z	0	0
6	7	Z	-.006	%5

Member Point Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
7	7	Z	-.006	%80
8	7	Z	-.002	%50
9	7	Z	-.004	%30
10	7	Z	-.007	%30
11	8	Z	-.018	%5
12	8	Z	-.018	%80
13	8	Z	-.004	%50
14	8	Z	-.005	%50
15	8	Z	0	0
16	9	Z	-.024	%5
17	9	Z	-.024	%95
18	9	Z	-.005	%50
19	9	Z	0	0
20	9	Z	0	0
21	37	Z	-.003	%30
22	37	Z	0	0
23	37	Z	0	0
24	37	Z	0	0
25	37	Z	0	0
26	M125	Z	-.003	%50
27	M125	Z	0	0
28	M125	Z	0	0
29	M125	Z	0	0
30	M125	Z	0	0
31	M94	Z	-.007	%10
32	M94	Z	-.007	%95
33	M94	Z	-.003	%40
34	M94	Z	-.0003	%60
35	M94	Z	0	0
36	M95	Z	-.018	%5
37	M95	Z	-.018	%70
38	M95	Z	-.002	%50
39	M95	Z	-.004	%30
40	M95	Z	-.007	%30
41	M96	Z	-.018	%5
42	M96	Z	-.018	%80
43	M96	Z	-.004	%50
44	M96	Z	-.005	%50
45	M96	Z	0	0
46	M97	Z	-.024	%5
47	M97	Z	-.024	%95
48	M97	Z	-.005	%50
49	M97	Z	0	0
50	M97	Z	0	0
51	M50	Z	-.007	%10
52	M50	Z	-.007	%95
53	M50	Z	-.003	%40
54	M50	Z	-.0003	%60
55	M50	Z	0	0
56	M51	Z	-.018	%5
57	M51	Z	-.018	%70
58	M51	Z	-.002	%50
59	M51	Z	-.004	%30
60	M51	Z	-.007	%30
61	M52	Z	-.018	%5
62	M52	Z	-.018	%80
63	M52	Z	-.004	%50

Member Point Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
64	M52	Z	-.005	%50
65	M52	Z	0	0
66	M53	Z	-.024	%5
67	M53	Z	-.024	%95
68	M53	Z	-.005	%50
69	M53	Z	0	0
70	M53	Z	0	0

Member Point Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	6	X	-.003	%10
2	6	X	-.003	%95
3	6	X	-.0009	%40
4	6	X	-.0005	%60
5	6	X	0	0
6	7	X	-.005	%5
7	7	X	-.005	%80
8	7	X	-.002	%50
9	7	X	-.008	%30
10	7	X	-.004	%30
11	8	X	-.007	%5
12	8	X	-.007	%80
13	8	X	-.005	%50
14	8	X	-.008	%50
15	8	X	0	0
16	9	X	-.009	%5
17	9	X	-.009	%95
18	9	X	-.004	%50
19	9	X	0	0
20	9	X	0	0
21	37	X	-.003	%30
22	37	X	0	0
23	37	X	0	0
24	37	X	0	0
25	37	X	0	0
26	M125	X	-.003	%50
27	M125	X	0	0
28	M125	X	0	0
29	M125	X	0	0
30	M125	X	0	0
31	M94	X	-.003	%10
32	M94	X	-.003	%95
33	M94	X	-.0009	%40
34	M94	X	-.0005	%60
35	M94	X	0	0
36	M95	X	-.01	%5
37	M95	X	-.01	%70
38	M95	X	-.002	%50
39	M95	X	-.008	%30
40	M95	X	-.004	%30
41	M96	X	-.007	%5
42	M96	X	-.007	%80
43	M96	X	-.005	%50
44	M96	X	-.008	%50
45	M96	X	0	0
46	M97	X	-.009	%5

Member Point Loads (BLC 7 : 90 Wind - Service) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
47	M97	X	-.009	%95
48	M97	X	-.004	%50
49	M97	X	0	0
50	M97	X	0	0
51	M50	X	-.003	%10
52	M50	X	-.003	%95
53	M50	X	-.0009	%40
54	M50	X	-.0005	%60
55	M50	X	0	0
56	M51	X	-.01	%5
57	M51	X	-.01	%70
58	M51	X	-.002	%50
59	M51	X	-.008	%30
60	M51	X	-.004	%30
61	M52	X	-.007	%5
62	M52	X	-.007	%80
63	M52	X	-.005	%50
64	M52	X	-.008	%50
65	M52	X	0	0
66	M53	X	-.009	%5
67	M53	X	-.009	%95
68	M53	X	-.004	%50
69	M53	X	0	0
70	M53	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	6	Y	-.043	%10
2	6	Y	-.043	%95
3	6	Y	-.016	%40
4	6	Y	-.003	%60
5	6	Y	0	0
6	7	Y	-.116	%5
7	7	Y	-.116	%80
8	7	Y	-.019	%50
9	7	Y	-.049	%30
10	7	Y	-.049	%30
11	8	Y	-.11	%5
12	8	Y	-.11	%80
13	8	Y	-.037	%50
14	8	Y	-.051	%50
15	8	Y	0	0
16	9	Y	-.154	%5
17	9	Y	-.154	%95
18	9	Y	-.037	%50
19	9	Y	0	0
20	9	Y	0	0
21	37	Y	-.045	%30
22	37	Y	0	0
23	37	Y	0	0
24	37	Y	0	0
25	37	Y	0	0
26	M125	Y	-.045	%50
27	M125	Y	0	0
28	M125	Y	0	0
29	M125	Y	0	0

Member Point Loads (BLC 8 : Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
30	M125	Y	0	0
31	M94	Y	-.043	%10
32	M94	Y	-.043	%95
33	M94	Y	-.016	%40
34	M94	Y	-.003	%60
35	M94	Y	0	0
36	M95	Y	-.124	%5
37	M95	Y	-.124	%70
38	M95	Y	-.019	%50
39	M95	Y	-.049	%30
40	M95	Y	-.049	%30
41	M96	Y	-.11	%5
42	M96	Y	-.11	%80
43	M96	Y	-.037	%50
44	M96	Y	-.051	%50
45	M96	Y	0	0
46	M97	Y	-.154	%5
47	M97	Y	-.154	%95
48	M97	Y	-.037	%50
49	M97	Y	0	0
50	M97	Y	0	0
51	M50	Y	-.043	%10
52	M50	Y	-.043	%95
53	M50	Y	-.016	%40
54	M50	Y	-.003	%60
55	M50	Y	0	0
56	M51	Y	-.124	%5
57	M51	Y	-.124	%70
58	M51	Y	-.019	%50
59	M51	Y	-.049	%30
60	M51	Y	-.049	%30
61	M52	Y	-.11	%5
62	M52	Y	-.11	%80
63	M52	Y	-.037	%50
64	M52	Y	-.051	%50
65	M52	Y	0	0
66	M53	Y	-.154	%5
67	M53	Y	-.154	%95
68	M53	Y	-.037	%50
69	M53	Y	0	0
70	M53	Y	0	0

Member Point Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	6	Z	-.009	%10
2	6	Z	-.009	%95
3	6	Z	-.005	%40
4	6	Z	-.0006	%60
5	6	Z	0	0
6	7	Z	-.028	%5
7	7	Z	-.028	%80
8	7	Z	-.006	%50
9	7	Z	-.013	%30
10	7	Z	-.013	%30
11	8	Z	-.016	%5
12	8	Z	-.016	%80

Member Point Loads (BLC 9 : 0 Seismic) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
13	8	Z	-.018	%50
14	8	Z	-.014	%50
15	8	Z	0	0
16	9	Z	-.026	%5
17	9	Z	-.026	%95
18	9	Z	-.018	%50
19	9	Z	0	0
20	9	Z	0	0
21	37	Z	-.008	%30
22	37	Z	0	0
23	37	Z	0	0
24	37	Z	0	0
25	37	Z	0	0
26	M125	Z	-.008	%50
27	M125	Z	0	0
28	M125	Z	0	0
29	M125	Z	0	0
30	M125	Z	0	0
31	M94	Z	-.009	%10
32	M94	Z	-.009	%95
33	M94	Z	-.005	%40
34	M94	Z	-.0006	%60
35	M94	Z	0	0
36	M95	Z	-.021	%5
37	M95	Z	-.021	%70
38	M95	Z	-.006	%50
39	M95	Z	-.013	%30
40	M95	Z	-.013	%30
41	M96	Z	-.016	%5
42	M96	Z	-.016	%80
43	M96	Z	-.018	%50
44	M96	Z	-.014	%50
45	M96	Z	0	0
46	M97	Z	-.026	%5
47	M97	Z	-.026	%95
48	M97	Z	-.018	%50
49	M97	Z	0	0
50	M97	Z	0	0
51	M50	Z	-.009	%10
52	M50	Z	-.009	%95
53	M50	Z	-.005	%40
54	M50	Z	-.0006	%60
55	M50	Z	0	0
56	M51	Z	-.021	%5
57	M51	Z	-.021	%70
58	M51	Z	-.006	%50
59	M51	Z	-.013	%30
60	M51	Z	-.013	%30
61	M52	Z	-.016	%5
62	M52	Z	-.016	%80
63	M52	Z	-.018	%50
64	M52	Z	-.014	%50
65	M52	Z	0	0
66	M53	Z	-.026	%5
67	M53	Z	-.026	%95
68	M53	Z	-.018	%50
69	M53	Z	0	0

Member Point Loads (BLC 9 : 0 Seismic) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
70	M53	Z	0	0

Member Point Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	6	X	-.009	%10
2	6	X	-.009	%95
3	6	X	-.005	%40
4	6	X	-.0006	%60
5	6	X	0	0
6	7	X	-.028	%5
7	7	X	-.028	%80
8	7	X	-.006	%50
9	7	X	-.013	%30
10	7	X	-.013	%30
11	8	X	-.016	%5
12	8	X	-.016	%80
13	8	X	-.018	%50
14	8	X	-.014	%50
15	8	X	0	0
16	9	X	-.026	%5
17	9	X	-.026	%95
18	9	X	-.018	%50
19	9	X	0	0
20	9	X	0	0
21	37	X	-.008	%30
22	37	X	0	0
23	37	X	0	0
24	37	X	0	0
25	37	X	0	0
26	M125	X	-.008	%50
27	M125	X	0	0
28	M125	X	0	0
29	M125	X	0	0
30	M125	X	0	0
31	M94	X	-.009	%10
32	M94	X	-.009	%95
33	M94	X	-.005	%40
34	M94	X	-.0006	%60
35	M94	X	0	0
36	M95	X	-.021	%5
37	M95	X	-.021	%70
38	M95	X	-.006	%50
39	M95	X	-.013	%30
40	M95	X	-.013	%30
41	M96	X	-.016	%5
42	M96	X	-.016	%80
43	M96	X	-.018	%50
44	M96	X	-.014	%50
45	M96	X	0	0
46	M97	X	-.026	%5
47	M97	X	-.026	%95
48	M97	X	-.018	%50
49	M97	X	0	0
50	M97	X	0	0
51	M50	X	-.009	%10
52	M50	X	-.009	%95

Member Point Loads (BLC 10 : 90 Seismic) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
53	M50	X	-.005	%40
54	M50	X	-.0006	%60
55	M50	X	0	0
56	M51	X	-.021	%5
57	M51	X	-.021	%70
58	M51	X	-.006	%50
59	M51	X	-.013	%30
60	M51	X	-.013	%30
61	M52	X	-.016	%5
62	M52	X	-.016	%80
63	M52	X	-.018	%50
64	M52	X	-.014	%50
65	M52	X	0	0
66	M53	X	-.026	%5
67	M53	X	-.026	%95
68	M53	X	-.018	%50
69	M53	X	0	0
70	M53	X	0	0

Member Point Loads (BLC 15 : Maint LL 1)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	4	Y	-.25	%5

Member Point Loads (BLC 16 : Maint LL 2)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	5	Y	-.25	%5

Member Point Loads (BLC 17 : Maint LL 3)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	4	Y	-.25	%95

Member Point Loads (BLC 18 : Maint LL 4)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	5	Y	-.25	%95

Member Point Loads (BLC 19 : Maint LL 5)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M49	Y	-.25	%5

Member Point Loads (BLC 20 : Maint LL 6)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M48	Y	-.25	%5

Member Point Loads (BLC 21 : Maint LL 7)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M49	Y	-.25	%95

Member Point Loads (BLC 22 : Maint LL 8)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M48	Y	-.25	%95

Member Point Loads (BLC 23 : Maint LL 9)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]

Member Point Loads (BLC 23 : Maint LL 9) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M92	Y	-.25	%5

Member Point Loads (BLC 24 : Maint LL 10)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M93	Y	-.25	%5

Member Point Loads (BLC 25 : Maint LL 11)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M92	Y	-.25	%95

Member Point Loads (BLC 26 : Maint LL 12)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M93	Y	-.25	%95

Member Point Loads (BLC 27 : Maint LL 13)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	16	Y	-.25	%50

Member Point Loads (BLC 28 : Maint LL 14)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	20	Y	-.25	%50

Member Point Loads (BLC 29 : Maint LL 15)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	37	Y	-.25	%50

Member Point Loads (BLC 30 : Maint LL 16)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	40	Y	-.25	%50

Member Point Loads (BLC 31 : Maint LL 17)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M60	Y	-.25	%50

Member Point Loads (BLC 32 : Maint LL 18)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M64	Y	-.25	%50

Member Point Loads (BLC 33 : Maint LL 19)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M81	Y	-.25	%50

Member Point Loads (BLC 34 : Maint LL 20)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M84	Y	-.25	%50

Member Point Loads (BLC 35 : Maint LL 21)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M125	Y	-.25	%50

Member Point Loads (BLC 36 : Maint LL 22)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M128	Y	-.25	%50

Member Point Loads (BLC 37 : Maint LL 23)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M104	Y	-.25	%50

Member Point Loads (BLC 38 : Maint LL 24)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M108	Y	-.25	%50

Member Distributed Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	Z	-.004	-.004	0	0
2	2	Z	-.004	-.004	0	0
3	3	Z	-.003	-.003	0	0
4	4	Z	-.01	-.01	0	0
5	5	Z	-.01	-.01	0	0
6	6	Z	-.016	-.016	0	0
7	7	Z	-.016	-.016	0	0
8	8	Z	-.016	-.016	0	0
9	9	Z	-.016	-.016	0	0
10	10	Z	-.003	-.003	0	0
11	11	Z	-.003	-.003	0	0
12	15	Z	-.002	-.002	0	0
13	16	Z	-.009	-.009	0	0
14	17	Z	-.002	-.002	0	0
15	19	Z	-.002	-.002	0	0
16	20	Z	-.009	-.009	0	0
17	21	Z	-.002	-.002	0	0
18	24	Z	-.01	-.01	0	0
19	33	Z	-.003	-.003	0	0
20	34	Z	-.003	-.003	0	0
21	35	Z	-.003	-.003	0	0
22	36	Z	-.002	-.002	0	0
23	37	Z	-.009	-.009	0	0
24	38	Z	-.002	-.002	0	0
25	39	Z	-.002	-.002	0	0
26	40	Z	-.009	-.009	0	0
27	41	Z	-.002	-.002	0	0
28	43	Z	-.01	-.01	0	0
29	M45	Z	-.004	-.004	0	0
30	M46	Z	-.004	-.004	0	0
31	M47	Z	-.003	-.003	0	0
32	M48	Z	-.01	-.01	0	0
33	M49	Z	-.01	-.01	0	0
34	M50	Z	-.016	-.016	0	0
35	M51	Z	-.016	-.016	0	0
36	M52	Z	-.016	-.016	0	0
37	M53	Z	-.016	-.016	0	0
38	M54	Z	-.003	-.003	0	0
39	M55	Z	-.003	-.003	0	0
40	M59	Z	-.002	-.002	0	0
41	M60	Z	-.009	-.009	0	0
42	M61	Z	-.002	-.002	0	0

Member Distributed Loads (BLC 2 : 0 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
43	M63	Z	-.002	-.002	0	0
44	M64	Z	-.009	-.009	0	0
45	M65	Z	-.002	-.002	0	0
46	M68	Z	-.01	-.01	0	0
47	M77	Z	-.003	-.003	0	0
48	M78	Z	-.003	-.003	0	0
49	M79	Z	-.003	-.003	0	0
50	M80	Z	-.002	-.002	0	0
51	M81	Z	-.009	-.009	0	0
52	M82	Z	-.002	-.002	0	0
53	M83	Z	-.002	-.002	0	0
54	M84	Z	-.009	-.009	0	0
55	M85	Z	-.002	-.002	0	0
56	M87	Z	-.01	-.01	0	0
57	M89	Z	-.004	-.004	0	0
58	M90	Z	-.004	-.004	0	0
59	M91	Z	-.003	-.003	0	0
60	M92	Z	-.01	-.01	0	0
61	M93	Z	-.01	-.01	0	0
62	M94	Z	-.016	-.016	0	0
63	M95	Z	-.016	-.016	0	0
64	M96	Z	-.016	-.016	0	0
65	M97	Z	-.016	-.016	0	0
66	M98	Z	-.003	-.003	0	0
67	M99	Z	-.003	-.003	0	0
68	M103	Z	-.002	-.002	0	0
69	M104	Z	-.009	-.009	0	0
70	M105	Z	-.002	-.002	0	0
71	M107	Z	-.002	-.002	0	0
72	M108	Z	-.009	-.009	0	0
73	M109	Z	-.002	-.002	0	0
74	M112	Z	-.01	-.01	0	0
75	M121	Z	-.003	-.003	0	0
76	M122	Z	-.003	-.003	0	0
77	M123	Z	-.003	-.003	0	0
78	M124	Z	-.002	-.002	0	0
79	M125	Z	-.009	-.009	0	0
80	M126	Z	-.002	-.002	0	0
81	M127	Z	-.002	-.002	0	0
82	M128	Z	-.009	-.009	0	0
83	M129	Z	-.002	-.002	0	0
84	M131	Z	-.01	-.01	0	0

Member Distributed Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	X	-.004	-.004	0	0
2	2	X	-.004	-.004	0	0
3	3	X	-.003	-.003	0	0
4	4	X	-.01	-.01	0	0
5	5	X	-.01	-.01	0	0
6	6	X	-.016	-.016	0	0
7	7	X	-.016	-.016	0	0
8	8	X	-.016	-.016	0	0
9	9	X	-.016	-.016	0	0
10	10	X	-.003	-.003	0	0
11	11	X	-.003	-.003	0	0

Member Distributed Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
12	15	X	-.002	-.002	0	0
13	16	X	-.009	-.009	0	0
14	17	X	-.002	-.002	0	0
15	19	X	-.002	-.002	0	0
16	20	X	-.009	-.009	0	0
17	21	X	-.002	-.002	0	0
18	24	X	-.01	-.01	0	0
19	33	X	-.003	-.003	0	0
20	34	X	-.003	-.003	0	0
21	35	X	-.003	-.003	0	0
22	36	X	-.002	-.002	0	0
23	37	X	-.009	-.009	0	0
24	38	X	-.002	-.002	0	0
25	39	X	-.002	-.002	0	0
26	40	X	-.009	-.009	0	0
27	41	X	-.002	-.002	0	0
28	43	X	-.01	-.01	0	0
29	M45	X	-.004	-.004	0	0
30	M46	X	-.004	-.004	0	0
31	M47	X	-.003	-.003	0	0
32	M48	X	-.01	-.01	0	0
33	M49	X	-.01	-.01	0	0
34	M50	X	-.016	-.016	0	0
35	M51	X	-.016	-.016	0	0
36	M52	X	-.016	-.016	0	0
37	M53	X	-.016	-.016	0	0
38	M54	X	-.003	-.003	0	0
39	M55	X	-.003	-.003	0	0
40	M59	X	-.002	-.002	0	0
41	M60	X	-.009	-.009	0	0
42	M61	X	-.002	-.002	0	0
43	M63	X	-.002	-.002	0	0
44	M64	X	-.009	-.009	0	0
45	M65	X	-.002	-.002	0	0
46	M68	X	-.01	-.01	0	0
47	M77	X	-.003	-.003	0	0
48	M78	X	-.003	-.003	0	0
49	M79	X	-.003	-.003	0	0
50	M80	X	-.002	-.002	0	0
51	M81	X	-.009	-.009	0	0
52	M82	X	-.002	-.002	0	0
53	M83	X	-.002	-.002	0	0
54	M84	X	-.009	-.009	0	0
55	M85	X	-.002	-.002	0	0
56	M87	X	-.01	-.01	0	0
57	M89	X	-.004	-.004	0	0
58	M90	X	-.004	-.004	0	0
59	M91	X	-.003	-.003	0	0
60	M92	X	-.01	-.01	0	0
61	M93	X	-.01	-.01	0	0
62	M94	X	-.016	-.016	0	0
63	M95	X	-.016	-.016	0	0
64	M96	X	-.016	-.016	0	0
65	M97	X	-.016	-.016	0	0
66	M98	X	-.003	-.003	0	0
67	M99	X	-.003	-.003	0	0
68	M103	X	-.002	-.002	0	0

Member Distributed Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
69	M104	X	-.009	-.009	0	0
70	M105	X	-.002	-.002	0	0
71	M107	X	-.002	-.002	0	0
72	M108	X	-.009	-.009	0	0
73	M109	X	-.002	-.002	0	0
74	M112	X	-.01	-.01	0	0
75	M121	X	-.003	-.003	0	0
76	M122	X	-.003	-.003	0	0
77	M123	X	-.003	-.003	0	0
78	M124	X	-.002	-.002	0	0
79	M125	X	-.009	-.009	0	0
80	M126	X	-.002	-.002	0	0
81	M127	X	-.002	-.002	0	0
82	M128	X	-.009	-.009	0	0
83	M129	X	-.002	-.002	0	0
84	M131	X	-.01	-.01	0	0

Member Distributed Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	Z	-.004	-.004	0	0
2	2	Z	-.004	-.004	0	0
3	3	Z	-.002	-.002	0	0
4	4	Z	-.002	-.002	0	0
5	5	Z	-.002	-.002	0	0
6	6	Z	-.006	-.006	0	0
7	7	Z	-.006	-.006	0	0
8	8	Z	-.006	-.006	0	0
9	9	Z	-.006	-.006	0	0
10	10	Z	-.002	-.002	0	0
11	11	Z	-.002	-.002	0	0
12	15	Z	-.004	-.004	0	0
13	16	Z	-.002	-.002	0	0
14	17	Z	-.004	-.004	0	0
15	19	Z	-.004	-.004	0	0
16	20	Z	-.002	-.002	0	0
17	21	Z	-.004	-.004	0	0
18	24	Z	-.002	-.002	0	0
19	33	Z	-.002	-.002	0	0
20	34	Z	-.002	-.002	0	0
21	35	Z	-.002	-.002	0	0
22	36	Z	-.004	-.004	0	0
23	37	Z	-.002	-.002	0	0
24	38	Z	-.004	-.004	0	0
25	39	Z	-.004	-.004	0	0
26	40	Z	-.002	-.002	0	0
27	41	Z	-.004	-.004	0	0
28	43	Z	-.002	-.002	0	0
29	M45	Z	-.004	-.004	0	0
30	M46	Z	-.004	-.004	0	0
31	M47	Z	-.002	-.002	0	0
32	M48	Z	-.002	-.002	0	0
33	M49	Z	-.002	-.002	0	0
34	M50	Z	-.006	-.006	0	0
35	M51	Z	-.006	-.006	0	0
36	M52	Z	-.006	-.006	0	0
37	M53	Z	-.006	-.006	0	0

Member Distributed Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
38	M54	Z	-.002	-.002	0	0
39	M55	Z	-.002	-.002	0	0
40	M59	Z	-.004	-.004	0	0
41	M60	Z	-.002	-.002	0	0
42	M61	Z	-.004	-.004	0	0
43	M63	Z	-.004	-.004	0	0
44	M64	Z	-.002	-.002	0	0
45	M65	Z	-.004	-.004	0	0
46	M68	Z	-.002	-.002	0	0
47	M77	Z	-.002	-.002	0	0
48	M78	Z	-.002	-.002	0	0
49	M79	Z	-.002	-.002	0	0
50	M80	Z	-.004	-.004	0	0
51	M81	Z	-.002	-.002	0	0
52	M82	Z	-.004	-.004	0	0
53	M83	Z	-.004	-.004	0	0
54	M84	Z	-.002	-.002	0	0
55	M85	Z	-.004	-.004	0	0
56	M87	Z	-.002	-.002	0	0
57	M89	Z	-.004	-.004	0	0
58	M90	Z	-.004	-.004	0	0
59	M91	Z	-.002	-.002	0	0
60	M92	Z	-.002	-.002	0	0
61	M93	Z	-.002	-.002	0	0
62	M94	Z	-.006	-.006	0	0
63	M95	Z	-.006	-.006	0	0
64	M96	Z	-.006	-.006	0	0
65	M97	Z	-.006	-.006	0	0
66	M98	Z	-.002	-.002	0	0
67	M99	Z	-.002	-.002	0	0
68	M103	Z	-.004	-.004	0	0
69	M104	Z	-.002	-.002	0	0
70	M105	Z	-.004	-.004	0	0
71	M107	Z	-.004	-.004	0	0
72	M108	Z	-.002	-.002	0	0
73	M109	Z	-.004	-.004	0	0
74	M112	Z	-.002	-.002	0	0
75	M121	Z	-.002	-.002	0	0
76	M122	Z	-.002	-.002	0	0
77	M123	Z	-.002	-.002	0	0
78	M124	Z	-.004	-.004	0	0
79	M125	Z	-.002	-.002	0	0
80	M126	Z	-.004	-.004	0	0
81	M127	Z	-.004	-.004	0	0
82	M128	Z	-.002	-.002	0	0
83	M129	Z	-.004	-.004	0	0
84	M131	Z	-.002	-.002	0	0

Member Distributed Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	X	-.004	-.004	0	0
2	2	X	-.004	-.004	0	0
3	3	X	-.002	-.002	0	0
4	4	X	-.002	-.002	0	0
5	5	X	-.002	-.002	0	0
6	6	X	-.006	-.006	0	0

Member Distributed Loads (BLC 5 : 90 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
7	7	X	-.006	-.006	0	0
8	8	X	-.006	-.006	0	0
9	9	X	-.006	-.006	0	0
10	10	X	-.002	-.002	0	0
11	11	X	-.002	-.002	0	0
12	15	X	-.004	-.004	0	0
13	16	X	-.002	-.002	0	0
14	17	X	-.004	-.004	0	0
15	19	X	-.004	-.004	0	0
16	20	X	-.002	-.002	0	0
17	21	X	-.004	-.004	0	0
18	24	X	-.002	-.002	0	0
19	33	X	-.002	-.002	0	0
20	34	X	-.002	-.002	0	0
21	35	X	-.002	-.002	0	0
22	36	X	-.004	-.004	0	0
23	37	X	-.002	-.002	0	0
24	38	X	-.004	-.004	0	0
25	39	X	-.004	-.004	0	0
26	40	X	-.002	-.002	0	0
27	41	X	-.004	-.004	0	0
28	43	X	-.002	-.002	0	0
29	M45	X	-.004	-.004	0	0
30	M46	X	-.004	-.004	0	0
31	M47	X	-.002	-.002	0	0
32	M48	X	-.002	-.002	0	0
33	M49	X	-.002	-.002	0	0
34	M50	X	-.006	-.006	0	0
35	M51	X	-.006	-.006	0	0
36	M52	X	-.006	-.006	0	0
37	M53	X	-.006	-.006	0	0
38	M54	X	-.002	-.002	0	0
39	M55	X	-.002	-.002	0	0
40	M59	X	-.004	-.004	0	0
41	M60	X	-.002	-.002	0	0
42	M61	X	-.004	-.004	0	0
43	M63	X	-.004	-.004	0	0
44	M64	X	-.002	-.002	0	0
45	M65	X	-.004	-.004	0	0
46	M68	X	-.002	-.002	0	0
47	M77	X	-.002	-.002	0	0
48	M78	X	-.002	-.002	0	0
49	M79	X	-.002	-.002	0	0
50	M80	X	-.004	-.004	0	0
51	M81	X	-.002	-.002	0	0
52	M82	X	-.004	-.004	0	0
53	M83	X	-.004	-.004	0	0
54	M84	X	-.002	-.002	0	0
55	M85	X	-.004	-.004	0	0
56	M87	X	-.002	-.002	0	0
57	M89	X	-.004	-.004	0	0
58	M90	X	-.004	-.004	0	0
59	M91	X	-.002	-.002	0	0
60	M92	X	-.002	-.002	0	0
61	M93	X	-.002	-.002	0	0
62	M94	X	-.006	-.006	0	0
63	M95	X	-.006	-.006	0	0

Member Distributed Loads (BLC 5 : 90 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
64	M96	X	-.006	-.006	0	0
65	M97	X	-.006	-.006	0	0
66	M98	X	-.002	-.002	0	0
67	M99	X	-.002	-.002	0	0
68	M103	X	-.004	-.004	0	0
69	M104	X	-.002	-.002	0	0
70	M105	X	-.004	-.004	0	0
71	M107	X	-.004	-.004	0	0
72	M108	X	-.002	-.002	0	0
73	M109	X	-.004	-.004	0	0
74	M112	X	-.002	-.002	0	0
75	M121	X	-.002	-.002	0	0
76	M122	X	-.002	-.002	0	0
77	M123	X	-.002	-.002	0	0
78	M124	X	-.004	-.004	0	0
79	M125	X	-.002	-.002	0	0
80	M126	X	-.004	-.004	0	0
81	M127	X	-.004	-.004	0	0
82	M128	X	-.002	-.002	0	0
83	M129	X	-.004	-.004	0	0
84	M131	X	-.002	-.002	0	0

Member Distributed Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	Z	-.0003	-.0003	0	0
2	2	Z	-.0003	-.0003	0	0
3	3	Z	-.0001	-.0001	0	0
4	4	Z	-.0003	-.0003	0	0
5	5	Z	-.0003	-.0003	0	0
6	6	Z	-.001	-.001	0	0
7	7	Z	-.001	-.001	0	0
8	8	Z	-.001	-.001	0	0
9	9	Z	-.001	-.001	0	0
10	10	Z	-.0001	-.0001	0	0
11	11	Z	-.0001	-.0001	0	0
12	15	Z	-.0001	-.0001	0	0
13	16	Z	-.0003	-.0003	0	0
14	17	Z	-.0002	-.0002	0	0
15	19	Z	-.0001	-.0001	0	0
16	20	Z	-.0003	-.0003	0	0
17	21	Z	-.0002	-.0002	0	0
18	24	Z	-.0003	-.0003	0	0
19	33	Z	-.0001	-.0001	0	0
20	34	Z	-.0001	-.0001	0	0
21	35	Z	-.0001	-.0001	0	0
22	36	Z	-.0001	-.0001	0	0
23	37	Z	-.0003	-.0003	0	0
24	38	Z	-.0002	-.0002	0	0
25	39	Z	-.0001	-.0001	0	0
26	40	Z	-.0003	-.0003	0	0
27	41	Z	-.0002	-.0002	0	0
28	43	Z	-.0003	-.0003	0	0
29	M45	Z	-.0003	-.0003	0	0
30	M46	Z	-.0003	-.0003	0	0
31	M47	Z	-.0001	-.0001	0	0
32	M48	Z	-.0003	-.0003	0	0

Member Distributed Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
33	M49	Z	-.0003	-.0003	0	0
34	M50	Z	-.001	-.001	0	0
35	M51	Z	-.001	-.001	0	0
36	M52	Z	-.001	-.001	0	0
37	M53	Z	-.001	-.001	0	0
38	M54	Z	-.0001	-.0001	0	0
39	M55	Z	-.0001	-.0001	0	0
40	M59	Z	-.0001	-.0001	0	0
41	M60	Z	-.0003	-.0003	0	0
42	M61	Z	-.0002	-.0002	0	0
43	M63	Z	-.0001	-.0001	0	0
44	M64	Z	-.0003	-.0003	0	0
45	M65	Z	-.0002	-.0002	0	0
46	M68	Z	-.0003	-.0003	0	0
47	M77	Z	-.0001	-.0001	0	0
48	M78	Z	-.0001	-.0001	0	0
49	M79	Z	-.0001	-.0001	0	0
50	M80	Z	-.0001	-.0001	0	0
51	M81	Z	-.0003	-.0003	0	0
52	M82	Z	-.0002	-.0002	0	0
53	M83	Z	-.0001	-.0001	0	0
54	M84	Z	-.0003	-.0003	0	0
55	M85	Z	-.0002	-.0002	0	0
56	M87	Z	-.0003	-.0003	0	0
57	M89	Z	-.0003	-.0003	0	0
58	M90	Z	-.0003	-.0003	0	0
59	M91	Z	-.0001	-.0001	0	0
60	M92	Z	-.0003	-.0003	0	0
61	M93	Z	-.0003	-.0003	0	0
62	M94	Z	-.001	-.001	0	0
63	M95	Z	-.001	-.001	0	0
64	M96	Z	-.001	-.001	0	0
65	M97	Z	-.001	-.001	0	0
66	M98	Z	-.0001	-.0001	0	0
67	M99	Z	-.0001	-.0001	0	0
68	M103	Z	-.0001	-.0001	0	0
69	M104	Z	-.0003	-.0003	0	0
70	M105	Z	-.0002	-.0002	0	0
71	M107	Z	-.0001	-.0001	0	0
72	M108	Z	-.0003	-.0003	0	0
73	M109	Z	-.0002	-.0002	0	0
74	M112	Z	-.0003	-.0003	0	0
75	M121	Z	-.0001	-.0001	0	0
76	M122	Z	-.0001	-.0001	0	0
77	M123	Z	-.0001	-.0001	0	0
78	M124	Z	-.0001	-.0001	0	0
79	M125	Z	-.0003	-.0003	0	0
80	M126	Z	-.0002	-.0002	0	0
81	M127	Z	-.0001	-.0001	0	0
82	M128	Z	-.0003	-.0003	0	0
83	M129	Z	-.0002	-.0002	0	0
84	M131	Z	-.0003	-.0003	0	0

Member Distributed Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	X	-.0003	-.0003	0	0

Member Distributed Loads (BLC 7 : 90 Wind - Service) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
2	2	X	-.0003	-.0003	0	0
3	3	X	-.0001	-.0001	0	0
4	4	X	-.0003	-.0003	0	0
5	5	X	-.0003	-.0003	0	0
6	6	X	-.001	-.001	0	0
7	7	X	-.001	-.001	0	0
8	8	X	-.001	-.001	0	0
9	9	X	-.001	-.001	0	0
10	10	X	-.0001	-.0001	0	0
11	11	X	-.0001	-.0001	0	0
12	15	X	-.0001	-.0001	0	0
13	16	X	-.0003	-.0003	0	0
14	17	X	-.0002	-.0002	0	0
15	19	X	-.0001	-.0001	0	0
16	20	X	-.0003	-.0003	0	0
17	21	X	-.0002	-.0002	0	0
18	24	X	-.0003	-.0003	0	0
19	33	X	-.0001	-.0001	0	0
20	34	X	-.0001	-.0001	0	0
21	35	X	-.0001	-.0001	0	0
22	36	X	-.0001	-.0001	0	0
23	37	X	-.0003	-.0003	0	0
24	38	X	-.0002	-.0002	0	0
25	39	X	-.0001	-.0001	0	0
26	40	X	-.0003	-.0003	0	0
27	41	X	-.0002	-.0002	0	0
28	43	X	-.0003	-.0003	0	0
29	M45	X	-.0003	-.0003	0	0
30	M46	X	-.0003	-.0003	0	0
31	M47	X	-.0001	-.0001	0	0
32	M48	X	-.0003	-.0003	0	0
33	M49	X	-.0003	-.0003	0	0
34	M50	X	-.001	-.001	0	0
35	M51	X	-.001	-.001	0	0
36	M52	X	-.001	-.001	0	0
37	M53	X	-.001	-.001	0	0
38	M54	X	-.0001	-.0001	0	0
39	M55	X	-.0001	-.0001	0	0
40	M59	X	-.0001	-.0001	0	0
41	M60	X	-.0003	-.0003	0	0
42	M61	X	-.0002	-.0002	0	0
43	M63	X	-.0001	-.0001	0	0
44	M64	X	-.0003	-.0003	0	0
45	M65	X	-.0002	-.0002	0	0
46	M68	X	-.0003	-.0003	0	0
47	M77	X	-.0001	-.0001	0	0
48	M78	X	-.0001	-.0001	0	0
49	M79	X	-.0001	-.0001	0	0
50	M80	X	-.0001	-.0001	0	0
51	M81	X	-.0003	-.0003	0	0
52	M82	X	-.0002	-.0002	0	0
53	M83	X	-.0001	-.0001	0	0
54	M84	X	-.0003	-.0003	0	0
55	M85	X	-.0002	-.0002	0	0
56	M87	X	-.0003	-.0003	0	0
57	M89	X	-.0003	-.0003	0	0
58	M90	X	-.0003	-.0003	0	0

Member Distributed Loads (BLC 7 : 90 Wind - Service) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
59	M91	X	-.0001	-.0001	0	0
60	M92	X	-.0003	-.0003	0	0
61	M93	X	-.0003	-.0003	0	0
62	M94	X	-.001	-.001	0	0
63	M95	X	-.001	-.001	0	0
64	M96	X	-.001	-.001	0	0
65	M97	X	-.001	-.001	0	0
66	M98	X	-.0001	-.0001	0	0
67	M99	X	-.0001	-.0001	0	0
68	M103	X	-.0001	-.0001	0	0
69	M104	X	-.0003	-.0003	0	0
70	M105	X	-.0002	-.0002	0	0
71	M107	X	-.0001	-.0001	0	0
72	M108	X	-.0003	-.0003	0	0
73	M109	X	-.0002	-.0002	0	0
74	M112	X	-.0003	-.0003	0	0
75	M121	X	-.0001	-.0001	0	0
76	M122	X	-.0001	-.0001	0	0
77	M123	X	-.0001	-.0001	0	0
78	M124	X	-.0001	-.0001	0	0
79	M125	X	-.0003	-.0003	0	0
80	M126	X	-.0002	-.0002	0	0
81	M127	X	-.0001	-.0001	0	0
82	M128	X	-.0003	-.0003	0	0
83	M129	X	-.0002	-.0002	0	0
84	M131	X	-.0003	-.0003	0	0

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	Y	-.01	-.01	0	0
2	2	Y	-.01	-.01	0	0
3	3	Y	-.003	-.003	0	0
4	4	Y	-.005	-.005	0	0
5	5	Y	-.005	-.005	0	0
6	6	Y	-.006	-.006	0	0
7	7	Y	-.006	-.006	0	0
8	8	Y	-.006	-.006	0	0
9	9	Y	-.006	-.006	0	0
10	10	Y	-.003	-.003	0	0
11	11	Y	-.003	-.003	0	0
12	15	Y	-.007	-.007	0	0
13	16	Y	-.005	-.005	0	0
14	17	Y	-.007	-.007	0	0
15	19	Y	-.007	-.007	0	0
16	20	Y	-.005	-.005	0	0
17	21	Y	-.007	-.007	0	0
18	24	Y	-.005	-.005	0	0
19	33	Y	-.003	-.003	0	0
20	34	Y	-.003	-.003	0	0
21	35	Y	-.003	-.003	0	0
22	36	Y	-.007	-.007	0	0
23	37	Y	-.005	-.005	0	0
24	38	Y	-.007	-.007	0	0
25	39	Y	-.007	-.007	0	0
26	40	Y	-.005	-.005	0	0
27	41	Y	-.007	-.007	0	0

Member Distributed Loads (BLC 8 : Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
28	43	Y	-.005	-.005	0	0
29	M45	Y	-.01	-.01	0	0
30	M46	Y	-.01	-.01	0	0
31	M47	Y	-.003	-.003	0	0
32	M48	Y	-.005	-.005	0	0
33	M49	Y	-.005	-.005	0	0
34	M50	Y	-.006	-.006	0	0
35	M51	Y	-.006	-.006	0	0
36	M52	Y	-.006	-.006	0	0
37	M53	Y	-.006	-.006	0	0
38	M54	Y	-.003	-.003	0	0
39	M55	Y	-.003	-.003	0	0
40	M59	Y	-.007	-.007	0	0
41	M60	Y	-.005	-.005	0	0
42	M61	Y	-.007	-.007	0	0
43	M63	Y	-.007	-.007	0	0
44	M64	Y	-.005	-.005	0	0
45	M65	Y	-.007	-.007	0	0
46	M68	Y	-.005	-.005	0	0
47	M77	Y	-.003	-.003	0	0
48	M78	Y	-.003	-.003	0	0
49	M79	Y	-.003	-.003	0	0
50	M80	Y	-.007	-.007	0	0
51	M81	Y	-.005	-.005	0	0
52	M82	Y	-.007	-.007	0	0
53	M83	Y	-.007	-.007	0	0
54	M84	Y	-.005	-.005	0	0
55	M85	Y	-.007	-.007	0	0
56	M87	Y	-.005	-.005	0	0
57	M89	Y	-.01	-.01	0	0
58	M90	Y	-.01	-.01	0	0
59	M91	Y	-.003	-.003	0	0
60	M92	Y	-.005	-.005	0	0
61	M93	Y	-.005	-.005	0	0
62	M94	Y	-.006	-.006	0	0
63	M95	Y	-.006	-.006	0	0
64	M96	Y	-.006	-.006	0	0
65	M97	Y	-.006	-.006	0	0
66	M98	Y	-.003	-.003	0	0
67	M99	Y	-.003	-.003	0	0
68	M103	Y	-.007	-.007	0	0
69	M104	Y	-.005	-.005	0	0
70	M105	Y	-.007	-.007	0	0
71	M107	Y	-.007	-.007	0	0
72	M108	Y	-.005	-.005	0	0
73	M109	Y	-.007	-.007	0	0
74	M112	Y	-.005	-.005	0	0
75	M121	Y	-.003	-.003	0	0
76	M122	Y	-.003	-.003	0	0
77	M123	Y	-.003	-.003	0	0
78	M124	Y	-.007	-.007	0	0
79	M125	Y	-.005	-.005	0	0
80	M126	Y	-.007	-.007	0	0
81	M127	Y	-.007	-.007	0	0
82	M128	Y	-.005	-.005	0	0
83	M129	Y	-.007	-.007	0	0
84	M131	Y	-.005	-.005	0	0

Member Distributed Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	Z	-.003	-.003	0	0
2	2	Z	-.003	-.003	0	0
3	3	Z	-.0003	-.0003	0	0
4	4	Z	-.001	-.001	0	0
5	5	Z	-.001	-.001	0	0
6	6	Z	-.0009	-.0009	0	0
7	7	Z	-.0009	-.0009	0	0
8	8	Z	-.0009	-.0009	0	0
9	9	Z	-.0009	-.0009	0	0
10	10	Z	-.0003	-.0003	0	0
11	11	Z	-.0003	-.0003	0	0
12	15	Z	-.001	-.001	0	0
13	16	Z	-.001	-.001	0	0
14	17	Z	-.001	-.001	0	0
15	19	Z	-.001	-.001	0	0
16	20	Z	-.001	-.001	0	0
17	21	Z	-.001	-.001	0	0
18	24	Z	-.0009	-.0009	0	0
19	33	Z	-.0003	-.0003	0	0
20	34	Z	-.0003	-.0003	0	0
21	35	Z	-.0003	-.0003	0	0
22	36	Z	-.001	-.001	0	0
23	37	Z	-.001	-.001	0	0
24	38	Z	-.001	-.001	0	0
25	39	Z	-.001	-.001	0	0
26	40	Z	-.001	-.001	0	0
27	41	Z	-.001	-.001	0	0
28	43	Z	-.0009	-.0009	0	0
29	M45	Z	-.003	-.003	0	0
30	M46	Z	-.003	-.003	0	0
31	M47	Z	-.0003	-.0003	0	0
32	M48	Z	-.001	-.001	0	0
33	M49	Z	-.001	-.001	0	0
34	M50	Z	-.0009	-.0009	0	0
35	M51	Z	-.0009	-.0009	0	0
36	M52	Z	-.0009	-.0009	0	0
37	M53	Z	-.0009	-.0009	0	0
38	M54	Z	-.0003	-.0003	0	0
39	M55	Z	-.0003	-.0003	0	0
40	M59	Z	-.001	-.001	0	0
41	M60	Z	-.001	-.001	0	0
42	M61	Z	-.001	-.001	0	0
43	M63	Z	-.001	-.001	0	0
44	M64	Z	-.001	-.001	0	0
45	M65	Z	-.001	-.001	0	0
46	M68	Z	-.0009	-.0009	0	0
47	M77	Z	-.0003	-.0003	0	0
48	M78	Z	-.0003	-.0003	0	0
49	M79	Z	-.0003	-.0003	0	0
50	M80	Z	-.001	-.001	0	0
51	M81	Z	-.001	-.001	0	0
52	M82	Z	-.001	-.001	0	0
53	M83	Z	-.001	-.001	0	0
54	M84	Z	-.001	-.001	0	0
55	M85	Z	-.001	-.001	0	0
56	M87	Z	-.0009	-.0009	0	0
57	M89	Z	-.003	-.003	0	0

Member Distributed Loads (BLC 9 : 0 Seismic) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
58	M90	Z	-.003	-.003	0	0
59	M91	Z	-.0003	-.0003	0	0
60	M92	Z	-.001	-.001	0	0
61	M93	Z	-.001	-.001	0	0
62	M94	Z	-.0009	-.0009	0	0
63	M95	Z	-.0009	-.0009	0	0
64	M96	Z	-.0009	-.0009	0	0
65	M97	Z	-.0009	-.0009	0	0
66	M98	Z	-.0003	-.0003	0	0
67	M99	Z	-.0003	-.0003	0	0
68	M103	Z	-.001	-.001	0	0
69	M104	Z	-.001	-.001	0	0
70	M105	Z	-.001	-.001	0	0
71	M107	Z	-.001	-.001	0	0
72	M108	Z	-.001	-.001	0	0
73	M109	Z	-.001	-.001	0	0
74	M112	Z	-.0009	-.0009	0	0
75	M121	Z	-.0003	-.0003	0	0
76	M122	Z	-.0003	-.0003	0	0
77	M123	Z	-.0003	-.0003	0	0
78	M124	Z	-.001	-.001	0	0
79	M125	Z	-.001	-.001	0	0
80	M126	Z	-.001	-.001	0	0
81	M127	Z	-.001	-.001	0	0
82	M128	Z	-.001	-.001	0	0
83	M129	Z	-.001	-.001	0	0
84	M131	Z	-.0009	-.0009	0	0

Member Distributed Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	X	-.003	-.003	0	0
2	2	X	-.003	-.003	0	0
3	3	X	-.0003	-.0003	0	0
4	4	X	-.001	-.001	0	0
5	5	X	-.001	-.001	0	0
6	6	X	-.0009	-.0009	0	0
7	7	X	-.0009	-.0009	0	0
8	8	X	-.0009	-.0009	0	0
9	9	X	-.0009	-.0009	0	0
10	10	X	-.0003	-.0003	0	0
11	11	X	-.0003	-.0003	0	0
12	15	X	-.001	-.001	0	0
13	16	X	-.001	-.001	0	0
14	17	X	-.001	-.001	0	0
15	19	X	-.001	-.001	0	0
16	20	X	-.001	-.001	0	0
17	21	X	-.001	-.001	0	0
18	24	X	-.0009	-.0009	0	0
19	33	X	-.0003	-.0003	0	0
20	34	X	-.0003	-.0003	0	0
21	35	X	-.0003	-.0003	0	0
22	36	X	-.001	-.001	0	0
23	37	X	-.001	-.001	0	0
24	38	X	-.001	-.001	0	0
25	39	X	-.001	-.001	0	0
26	40	X	-.001	-.001	0	0

Member Distributed Loads (BLC 10 : 90 Seismic) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
27	41	X	-.001	-.001	0	0
28	43	X	-.0009	-.0009	0	0
29	M45	X	-.003	-.003	0	0
30	M46	X	-.003	-.003	0	0
31	M47	X	-.0003	-.0003	0	0
32	M48	X	-.001	-.001	0	0
33	M49	X	-.001	-.001	0	0
34	M50	X	-.0009	-.0009	0	0
35	M51	X	-.0009	-.0009	0	0
36	M52	X	-.0009	-.0009	0	0
37	M53	X	-.0009	-.0009	0	0
38	M54	X	-.0003	-.0003	0	0
39	M55	X	-.0003	-.0003	0	0
40	M59	X	-.001	-.001	0	0
41	M60	X	-.001	-.001	0	0
42	M61	X	-.001	-.001	0	0
43	M63	X	-.001	-.001	0	0
44	M64	X	-.001	-.001	0	0
45	M65	X	-.001	-.001	0	0
46	M68	X	-.0009	-.0009	0	0
47	M77	X	-.0003	-.0003	0	0
48	M78	X	-.0003	-.0003	0	0
49	M79	X	-.0003	-.0003	0	0
50	M80	X	-.001	-.001	0	0
51	M81	X	-.001	-.001	0	0
52	M82	X	-.001	-.001	0	0
53	M83	X	-.001	-.001	0	0
54	M84	X	-.001	-.001	0	0
55	M85	X	-.001	-.001	0	0
56	M87	X	-.0009	-.0009	0	0
57	M89	X	-.003	-.003	0	0
58	M90	X	-.003	-.003	0	0
59	M91	X	-.0003	-.0003	0	0
60	M92	X	-.001	-.001	0	0
61	M93	X	-.001	-.001	0	0
62	M94	X	-.0009	-.0009	0	0
63	M95	X	-.0009	-.0009	0	0
64	M96	X	-.0009	-.0009	0	0
65	M97	X	-.0009	-.0009	0	0
66	M98	X	-.0003	-.0003	0	0
67	M99	X	-.0003	-.0003	0	0
68	M103	X	-.001	-.001	0	0
69	M104	X	-.001	-.001	0	0
70	M105	X	-.001	-.001	0	0
71	M107	X	-.001	-.001	0	0
72	M108	X	-.001	-.001	0	0
73	M109	X	-.001	-.001	0	0
74	M112	X	-.0009	-.0009	0	0
75	M121	X	-.0003	-.0003	0	0
76	M122	X	-.0003	-.0003	0	0
77	M123	X	-.0003	-.0003	0	0
78	M124	X	-.001	-.001	0	0
79	M125	X	-.001	-.001	0	0
80	M126	X	-.001	-.001	0	0
81	M127	X	-.001	-.001	0	0
82	M128	X	-.001	-.001	0	0
83	M129	X	-.001	-.001	0	0

Member Distributed Loads (BLC 10 : 90 Seismic) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
84	M131	X	-.0009	-.0009	0	0

Joint Loads and Enforced Displacements (BLC 11 : Live Load a)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	20	L	Y	-.5
2	N92	L	Y	-.5
3	N163	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 12 : Live Load b)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	21	L	Y	-.5
2	N93	L	Y	-.5
3	N164	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 13 : Live Load c)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	22	L	Y	-.5
2	N94	L	Y	-.5
3	N165	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 14 : Live Load d)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	23	L	Y	-.5
2	N95	L	Y	-.5
3	N166	L	Y	-.5

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	29	max	1.845	41	1.719	14	.502	13	0	109	0	109	0	109
2		min	-1.349	83	.532	8	-3.674	19	0	1	0	1	0	1
3	30	max	1.31	77	1.536	20	3.54	25	0	109	0	109	0	109
4		min	-1.805	47	.51	2	.207	7	0	1	0	1	0	1
5	70	max	.043	5	.05	22	1.174	4	0	109	0	109	0	109
6		min	-.043	11	-.009	4	-1.106	10	0	1	0	1	0	1
7	70A	max	.045	5	.055	22	.898	4	0	109	0	109	0	109
8		min	-.045	11	-.002	4	-.969	10	0	1	0	1	0	1
9	N71	max	1.199	4	1.662	19	2.106	2	0	109	0	109	0	109
10		min	-3.841	10	.536	13	-1.3	8	0	1	0	1	0	1
11	N72	max	2.748	16	1.692	22	4.073	2	0	109	0	109	0	109
12		min	-.509	10	.588	4	-2.233	8	0	1	0	1	0	1
13	N102	max	3.552	16	1.471	24	.379	38	0	109	0	109	0	109
14		min	-.179	10	.536	6	-1.93	80	0	1	0	1	0	1
15	N139	max	1.379	8	.059	3	.793	3	0	109	0	109	0	109
16		min	-1.3	2	-.021	9	-.84	9	0	1	0	1	0	1
17	N142	max	1.029	8	.057	14	.684	2	0	109	0	109	0	109
18		min	-1.115	2	-.01	8	-.635	8	0	1	0	1	0	1
19	N173	max	-.205	3	1.524	15	.781	2	0	109	0	109	0	109
20		min	-2.598	21	.526	9	-2.879	44	0	1	0	1	0	1
21	N210	max	1.164	7	.054	7	.624	7	0	109	0	109	0	109
22		min	-1.227	13	-.015	13	-.661	13	0	1	0	1	0	1
23	N213	max	.891	7	.055	19	.464	7	0	109	0	109	0	109
24		min	-.829	13	-.003	13	-.428	13	0	1	0	1	0	1

Envelope Joint Reactions (Continued)

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
25	Totals:	max	8.251	5	9.691	18	11.437	2						
26		min	-8.251	11	4.248	11	-11.437	8						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*P...	phi*P...	phi*M...	phi*M...	...	Eqn
1	9	PIPE_2.0	.690	3.719	8	.046	3.828		43	8.922	32.13	1.872	1.872	...	H1-1b
2	M53	PIPE_2.0	.690	3.719	8	.047	6.672		38	8.922	32.13	1.872	1.872	...	H1-1b
3	M97	PIPE_2.0	.690	3.719	2	.047	3.828		39	8.922	32.13	1.872	1.872	...	H1-1b
4	M95	PIPE_2.0	.597	3.719	2	.071	3.828		3	8.922	32.13	1.872	1.872	...	H1-1b
5	M51	PIPE_2.0	.597	3.719	8	.069	3.828		12	8.922	32.13	1.872	1.872	...	H1-1b
6	10	3/4" SR	.568	0	20	.005	0		20	2.707	19.88	.249	.249	...	H1-1a
7	M98	3/4" SR	.565	0	15	.005	0		16	2.707	19.88	.249	.249	...	H1-1a
8	M61	PL 1/2X3 11/16	.562	0	21	.288	0	y	18	79.835	82.969	.864	6.374	...	H1-1b
9	M105	PL 1/2X3 11/16	.558	0	14	.311	0	y	21	79.835	82.969	.864	6.374	...	H1-1b
10	17	PL 1/2X3 11/16	.556	0	16	.317	0	y	14	79.835	82.969	.864	6.374	...	H1-1b
11	11	3/4" SR	.551	3	14	.004	0		8	2.707	19.88	.249	.249	...	H1-1a
12	M54	3/4" SR	.549	0	24	.005	0		24	2.707	19.88	.249	.249	...	H1-1a
13	8	PIPE_2.0	.545	3.719	8	.079	3.828		8	8.922	32.13	1.872	1.872	...	H1-1b
14	M96	PIPE_2.0	.545	3.719	2	.085	3.828		4	8.922	32.13	1.872	1.872	...	H1-1b
15	M52	PIPE_2.0	.545	3.719	2	.084	3.828		13	8.922	32.13	1.872	1.872	...	H1-1b
16	M109	PL 1/2X3 11/16	.543	0	25	.298	0	y	16	79.835	82.969	.864	6.374	...	H1-1b
17	M65	PL 1/2X3 11/16	.543	0	20	.284	0	y	25	79.835	82.969	.864	6.374	...	H1-1b
18	21	PL 1/2X3 11/16	.539	0	18	.309	0	y	20	79.835	82.969	.864	6.374	...	H1-1b
19	M99	3/4" SR	.536	3	21	.004	3		10	2.707	19.88	.249	.249	...	H1-1a
20	34	3/4" SR	.530	0	20	.008	0		19	2.707	19.88	.249	.249	...	H1-1a
21	M122	3/4" SR	.525	0	16	.009	0		15	2.707	19.88	.249	.249	...	H1-1a
22	M55	3/4" SR	.515	3	18	.003	0		13	2.707	19.88	.249	.249	...	H1-1a
23	M78	3/4" SR	.506	0	24	.008	0		23	2.707	19.88	.249	.249	...	H1-1a
24	35	3/4" SR	.467	3	14	.006	0		20	2.707	19.88	.249	.249	...	H1-1a
25	M123	3/4" SR	.454	3	21	.006	0		15	2.707	19.88	.249	.249	...	H1-1a
26	M79	3/4" SR	.436	3	18	.006	0		12	2.707	19.88	.249	.249	...	H1-1a
27	38	PL 1/2X3 11/16	.434	0	84	.370	0	y	15	79.835	82.969	.864	6.374	...	H1-1b
28	41	PL 1/2X3 11/16	.433	0	82	.357	0	y	20	79.835	82.969	.864	6.374	...	H1-1b
29	M93	HSS2.375X0....	.431	4.469	2	.128	2.438		8	7.649	62.55	3.6	3.6	...	H1-1a
30	M129	PL 1/2X3 11/16	.426	0	80	.358	0	y	15	79.835	82.969	.864	6.374	...	H1-1b
31	M126	PL 1/2X3 11/16	.426	0	79	.369	0	y	23	79.835	82.969	.864	6.374	...	H1-1b
32	M82	PL 1/2X3 11/16	.418	0	74	.372	0	y	19	79.835	82.969	.864	6.374	...	H1-1b
33	M85	PL 1/2X3 11/16	.413	0	75	.353	0	y	22	79.835	82.969	.864	6.374	...	H1-1b
34	5	HSS2.375X0....	.375	2.573	7	.116	2.167		2	7.649	62.55	3.6	3.6	...	H1-1a
35	M49	HSS2.375X0....	.357	4.469	10	.122	2.302		9	7.649	62.55	3.6	3.6	...	H1-1a
36	7	PIPE_2.0	.288	3.719	8	.059	3.828		8	8.922	32.13	1.872	1.872	...	H1-1b
37	6	PIPE_2.0	.280	3.828	8	.039	6.672		14	8.922	32.13	1.872	1.872	...	H1-1b
38	M50	PIPE_2.0	.271	3.828	85	.038	6.672		18	8.922	32.13	1.872	1.872	...	H1-1b
39	M94	PIPE_2.0	.270	3.828	77	.039	4.266		76	8.922	32.13	1.872	1.872	...	H1-1b
40	M107	PL 1/2X3 11/16	.269	.227	2	.174	.227	y	16	80.831	82.969	.864	6.374	...	H1-1b
41	15	PL 1/2X3 11/16	.268	.227	2	.229	.227	y	2	80.831	82.969	.864	6.374	...	H1-1b
42	19	PL 1/2X3 11/16	.263	.227	7	.191	0	y	8	80.831	82.969	.864	6.374	...	H1-1b
43	M92	HSS2.375X0....	.258	.542	2	.151	2.438		2	7.649	62.55	3.6	3.6	...	H1-1b
44	4	HSS2.375X0....	.257	2.438	8	.168	2.167		8	7.649	62.55	3.6	3.6	...	H1-1b
45	M103	PL 1/2X3 11/16	.248	.227	9	.181	.227	y	21	80.831	82.969	.864	6.374	...	H1-1b
46	M90	PL5/8x6	.240	.667	14	.196	.167	y	24	94.955	168.75	2.197	21.094	...	H1-1b
47	2	PL5/8x6	.239	.667	17	.199	.167	y	15	94.955	168.75	2.197	21.094	...	H1-1b
48	M63	PL 1/2X3 11/16	.237	.227	23	.167	.227	y	25	80.831	82.969	.864	6.374	...	H1-1b
49	M46	PL5/8x6	.236	.667	21	.194	.167	y	20	94.955	168.75	2.197	21.094	...	H1-1b
50	M59	PL 1/2X3 11/16	.228	.227	18	.170	.227	y	18	80.831	82.969	.864	6.374	...	H1-1b

Envelope AISC 15th(360-16): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*P...	phi*P...	phi*M...	phi*M...	...	Eqn
51	1	PL5/8x6	.225	.667	23	.196	.167	y	21	94.955	168.75	2.197	21.094	...	H1-1b
52	M89	PL5/8x6	.225	.667	20	.193	.167	y	18	94.955	168.75	2.197	21.094	...	H1-1b
53	M48	HSS2.375X0....	.224	.542	9	.138	2.302		2	7.649	62.55	3.6	3.6	...	H1-1b
54	M45	PL5/8x6	.222	.667	15	.191	.167	y	14	94.955	168.75	2.197	21.094	...	H1-1b
55	39	PL 1/2X3 11/16	.181	.227	80	.194	.227	y	20	80.831	82.969	.864	6.374	...	H1-1b
56	M83	PL 1/2X3 11/16	.179	.227	85	.189	.227	y	23	80.831	82.969	.864	6.374	...	H1-1b
57	M60	HSS2.375X0....	.179	3.672	21	.106	3.75		18	48.725	62.55	3.6	3.6	...	H1-1b
58	M104	HSS2.375X0....	.178	3.672	14	.111	3.75		21	48.725	62.55	3.6	3.6	...	H1-1b
59	M127	PL 1/2X3 11/16	.177	.227	76	.194	.227	y	15	80.831	82.969	.864	6.374	...	H1-1b
60	20	HSS2.375X0....	.176	3.672	24	.106	3.75		20	48.725	62.55	3.6	3.6	...	H1-1b
61	M64	HSS2.375X0....	.176	3.672	16	.100	3.75		25	48.725	62.55	3.6	3.6	...	H1-1b
62	16	HSS2.375X0....	.176	3.672	17	.113	3.75		14	48.725	62.55	3.6	3.6	...	H1-1b
63	M108	HSS2.375X0....	.175	3.672	20	.104	3.75		15	48.725	62.55	3.6	3.6	...	H1-1b
64	36	PL 1/2X3 11/16	.169	.227	14	.201	.227	y	14	80.831	82.969	.864	6.374	...	H1-1b
65	M68	HSS2.375X0....	.168	0	9	.004	0		3	9.616	45	2.674	2.674	...	H1-...
66	M124	PL 1/2X3 11/16	.167	.227	21	.202	.227	y	22	80.831	82.969	.864	6.374	...	H1-1b
67	3	3/4" SR	.167	0	15	.023	4.673		8	1.116	19.88	.249	.249	...	H1-1b
68	M80	PL 1/2X3 11/16	.167	.227	18	.202	.227	y	18	80.831	82.969	.864	6.374	...	H1-1b
69	M91	3/4" SR	.166	0	23	.013	4.673		4	1.116	19.88	.249	.249	...	H1-1b
70	M47	3/4" SR	.164	0	19	.017	4.673		13	1.116	19.88	.249	.249	...	H1-1b
71	33	3/4" SR	.160	0	25	.016	4.673		8	1.116	19.88	.249	.249	...	H1-1b
72	M121	3/4" SR	.159	4.673	15	.013	4.673		15	1.116	19.88	.249	.249	...	H1-1b
73	M77	3/4" SR	.157	4.673	23	.013	4.673		24	1.116	19.88	.249	.249	...	H1-1b
74	M112	HSS2.375X0....	.145	0	13	.004	10.1...		7	9.616	45	2.674	2.674	...	H1-...
75	40	HSS2.375X0....	.138	3.672	83	.108	3.75		20	48.725	62.55	3.6	3.6	...	H1-1b
76	M128	HSS2.375X0....	.136	3.672	80	.107	3.75		15	48.725	62.55	3.6	3.6	...	H1-1b
77	37	HSS2.375X0....	.134	3.672	82	.113	3.75		14	48.725	62.55	3.6	3.6	...	H1-1b
78	M84	HSS2.375X0....	.132	3.672	75	.104	3.75		25	48.725	62.55	3.6	3.6	...	H1-1b
79	M125	HSS2.375X0....	.131	3.672	79	.112	3.75		22	48.725	62.55	3.6	3.6	...	H1-1b
80	M81	HSS2.375X0....	.129	3.672	74	.111	3.75		19	48.725	62.55	3.6	3.6	...	H1-1b
81	M87	HSS2.375X0....	.126	10.1...	8	.004	10.1...		3	9.616	45	2.674	2.674	...	H1-...
82	24	HSS2.375X0....	.122	10.1...	4	.004	10.1...		11	9.616	45	2.674	2.674	...	H1-...
83	M131	HSS2.375X0....	.099	5.057	13	.004	10.1...		7	9.616	45	2.674	2.674	...	H1-1b
84	43	HSS2.375X0....	.093	10.1...	4	.004	10.1...		11	9.616	45	2.674	2.674	...	H1-...

Exhibit F

Power Density/RF Emissions Report

SITESAFE
RF COMPLIANCE EXPERTS

8618 Westwood Center Drive, Suite 315, Vienna, VA 22182
703.276.1100 ● 703.276.1169 fax
info@sitesafe.com ● www.sitesafe.com

Crown Castle on behalf of AT&T Mobility, LLC
Site BU – 806362
Application ID – ATT order 509327
Site Name – NHV 108 943133
Site Compliance Report

Intersection of Rte 322 / Meridian Road
Wolcott, CT 06716

Latitude: N41-33-34.40
Longitude: W72-56-49.10
Structure Type: Self-Support

Report generated date: March 24, 2020
Report by: Zyotty Thamsil
Customer Contact: Anne Marie Zsamba

AT&T Mobility, LLC will be compliant upon completion of the remediation identified in Section 3.2.

Michael Fischer, P.E.
Registered Professional Engineer (Electrical)
Connecticut License Number 33928
Expires January 31, 2021

Signed 24 March 2020

Crown Castle on behalf of AT&T Mobility, LLC
NHV 108 943133 - 806362
Radio Frequency (RF) Site Compliance Report

Intersection of Rte 322 / Meridian Road, Wolcott, CT 06716

Table of Contents

1 Executive Summary

AT&T Mobility, LLC has contracted with Site Safe, LLC (Sitesafe), an independent Radio Frequency (RF) regulatory and engineering consulting firm, to determine whether the proposed communications site, 806362 - NHV 108 943133, located at Intersection of Rte 322 / Meridian Road, Wolcott, CT, is in compliance with the Federal Communication Commission (FCC) Rules and Regulations for RF emissions.

This report contains a detailed summary of the RF environment at the site including:

- Diagram of the site
- Inventory of the make / model of all antennas
- Theoretical MPE based on modeling

This report addresses exposure to radio frequency electromagnetic fields in accordance with the FCC Rules and Regulations for all individuals, classified in two groups, "Occupational or Controlled" and "General Public or Uncontrolled." **AT&T Mobility, LLC will be compliant** with the FCC Rules and Regulations, as described in OET Bulletin 65, **upon implementation of the proposed remediation.** The corrective actions needed to make this site compliant are located in Section 3.2.

AT&T Mobility, LLC proposes to make modifications to an existing site. The proposed antennas are noted as "proposed" in the antenna table under Section 6.

This document and the conclusions herein are based on the information provided by AT&T Mobility, LLC.

If you have any questions regarding RF safety and regulatory compliance, please do not hesitate to contact Sitesafe's Customer Support Department at (703) 276-1100.

2 Regulatory Basis

2.1 FCC Rules and Regulations

In 1996, the Federal Communications Commission (FCC) adopted regulations for evaluating the effects of RF emissions in 47 CFR § 1.1307 and 1.1310. The guideline from the FCC Office of Engineering and Technology is Bulletin 65 ("OET Bulletin 65"), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996, the FCC periodically reviews these rules and regulations as per their congressional mandate.

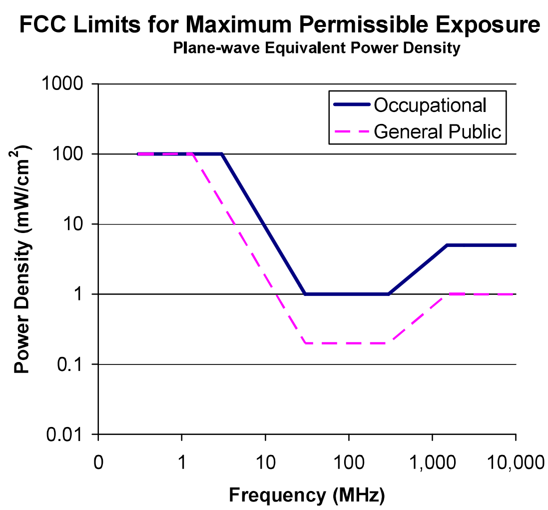
FCC regulations define two separate tiers of exposure limits: Occupational or "Controlled environment" and General Public or "Uncontrolled environment". The General Public limits are generally five times more conservative or restrictive than the Occupational limit. These limits apply to *accessible* areas where workers or the general public may be exposed to Radio Frequency (RF) electromagnetic fields.

Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

An area is considered a Controlled environment when access is limited to these aware personnel. Typical criteria are restricted access (i.e. locked or alarmed doors, barriers, etc.) to the areas where antennas are located coupled with proper RF warning signage. A site with Controlled environments is evaluated with Occupational limits.

All other areas are considered Uncontrolled environments. If a site has no access controls or no RF warning signage it is evaluated with General Public limits.

The theoretical modeling of the RF electromagnetic fields has been performed in accordance with OET Bulletin 65. The Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following diagram:



Limits for Occupational/Controlled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	$(900/f^2)$*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

Limits for General Population/Uncontrolled Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	$(180/f^2)$*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

2.2 OSHA Statement

The General Duty clause of the OSHA Act (Section 5) outlines the occupational safety and health responsibilities of the employer and employee. The General Duty clause in Section 5 states:

(a) Each employer –

(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;

(2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

OSHA has defined Radiofrequency and Microwave Radiation safety standards for workers who may enter hazardous RF areas. Regulation Standards 29 CFR § 1910.147 identify a generic lockout/tagout procedure aimed to control the unexpected energization or startup of machines when maintenance or service is being performed.

3 Site Compliance

3.1 Site Compliance Statement

Upon evaluation of the cumulative RF emission levels from all operators at this site, Sitesafe has determined that:

AT&T Mobility, LLC will be compliant with the FCC Rules and Regulations, as described in OET Bulletin 65, **upon implementation of the proposed remediation.** The corrective actions needed to make this site compliant are located in Section 3.2.

The compliance determination is based on theoretical modeling, RF signage placement recommendations, proposed antenna inventory and the level of restricted access to the antennas at the site. Any deviation from the proposed AT&T Mobility, LLC deployment plan could result in the site being rendered non-compliant.

3.2 Actions for Site Compliance

Based on common industry practice and our understanding of FCC and OSHA requirements, this section provides a statement of recommendations for site compliance. RF alert signage recommendations have been proposed based on theoretical analysis of MPE levels. Where applicable, barriers can consist of locked doors, fencing, railing, rope, chain, paint striping or tape, combined with RF alert signage.

The site will be made compliant if the following changes are implemented:

Self-Support Tower Access Location

Ensure that a Warning sign is installed.
Ensure that a NOC Information sign is installed.
Ensure that the access points to the tower or gates 1 and 2 are locked/restricted.

4 Safety Plan and Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.

Training and Qualification Verification: All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a worker's understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet-based courses).

Physical Access Control: Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:

- Locked door or gate
- Alarmed door
- Locked ladder access
- Restrictive Barrier at antenna (e.g. Chain link with posted RF Sign)

RF Signage: Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.

Assume all antennas are active: Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.

Maintain a 3-foot clearance from all antennas: There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The farther away from an antenna, the lower the corresponding EME field is.

Site RF Emissions Diagram(s): Section 5 of this report contains RF Diagram(s) that outline various theoretical Maximum Permissible Exposure (MPE) areas at the site. The modeling is a worst-case scenario assuming a duty cycle of 100% for each transmitting antenna at full power. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.

5 Analysis

5.1 RF Emissions Diagram

The RF diagram(s) below display theoretical spatially averaged percentage of the Maximum Permissible Exposure for all systems at the site unless otherwise noted. These diagrams use modeling as prescribed in OET Bulletin 65 and assumptions detailed in Appendix B.

The key at the bottom of each diagram indicates if percentages displayed are referenced to FCC **General Public** Maximum Permissible Exposure (MPE) limits. Color coding on the diagram is as follows:

% of FCC Public Exposure Limit

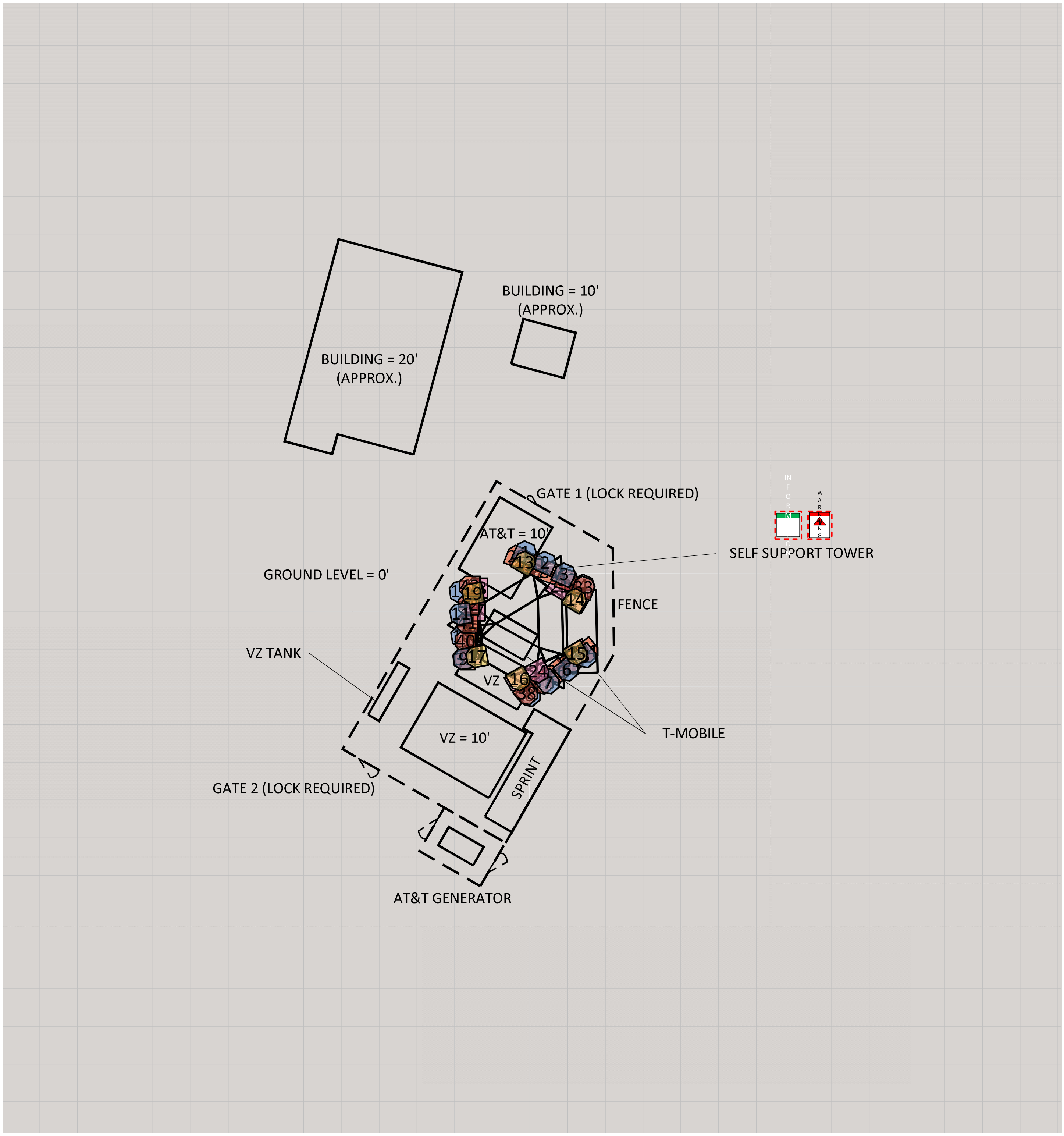
>= 5000	>= 500	>= 100	>= 5	< 5

This table displays the maximum theoretical percentage of the FCC's General Public MPE limits:

	General Public Levels:	
Exposure Type:	**Maximum**	**Spatial Average**
Reference Level:	**Antenna**	**Ground**
AT&T Mobility, LLC:	8,581.8%	<1%
Composite:	13,079.4%	<1%

Note: On the diagrams shown below, each level is marked with a height. For all diagrams that are marked as *Spatial Average 0' – 6'*, the modeling program will spatially average the emissions within the area six feet above each set level. This provides an accurate spatial average of the percentage of the FCC's MPE limits within an accessible area.

RF Exposure Simulation For: NHV 108 943133
Composite Diagram



% of FCC Public Exposure Limit
Spatial Average 0' - 6'

% of FCC Public Exposure Limit

>= 5000	>= 500	>= 100	>= 5	< 5

Carrier Identification

AT&T MOBILITY LLC · VERIZON WIRELESS · T-MOBILE · SPRINT · UNKNOWN CARRIER

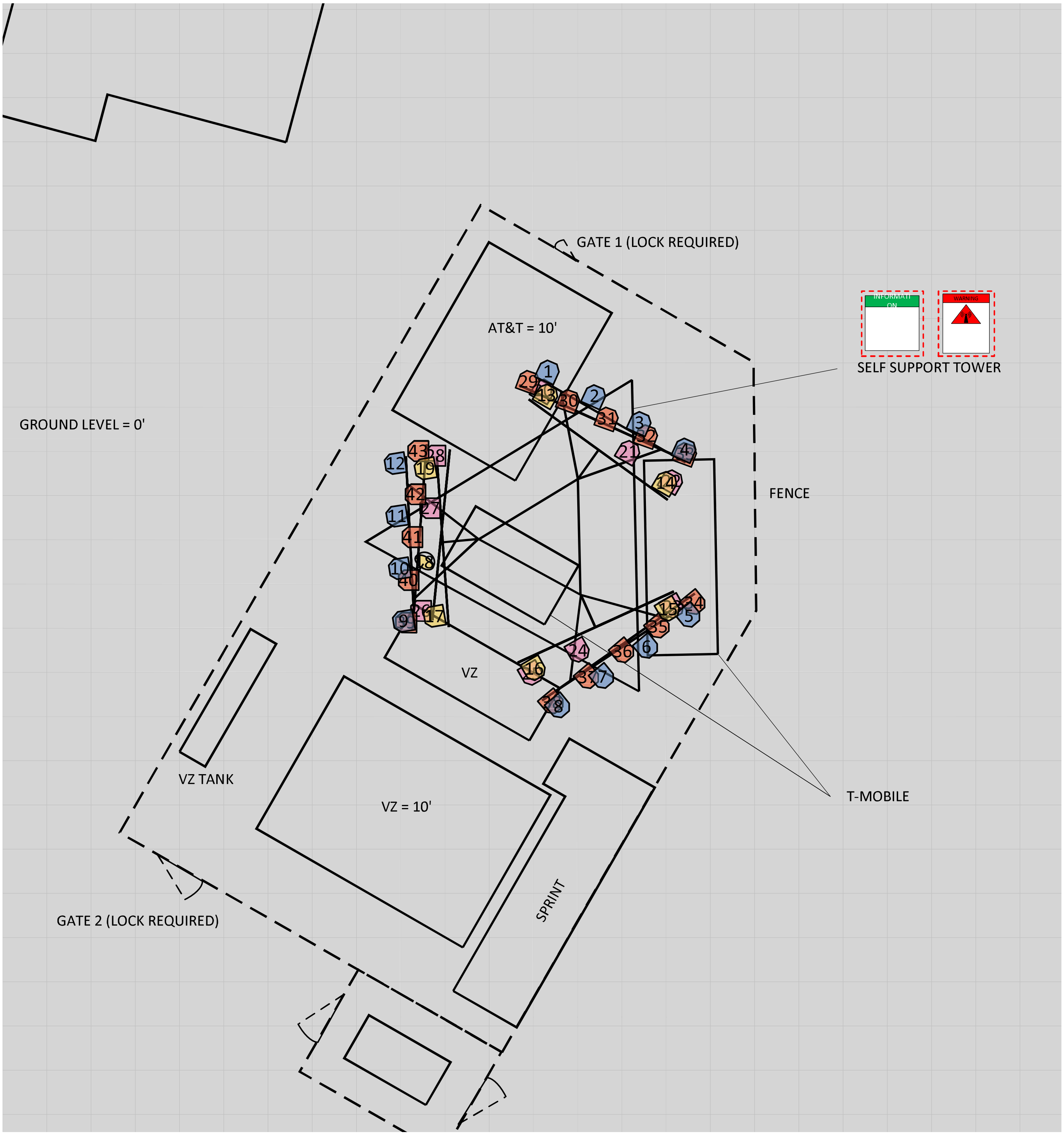
Barrier — Proposed Barriers/ Signs

(Feet)
0 14.9 29.8

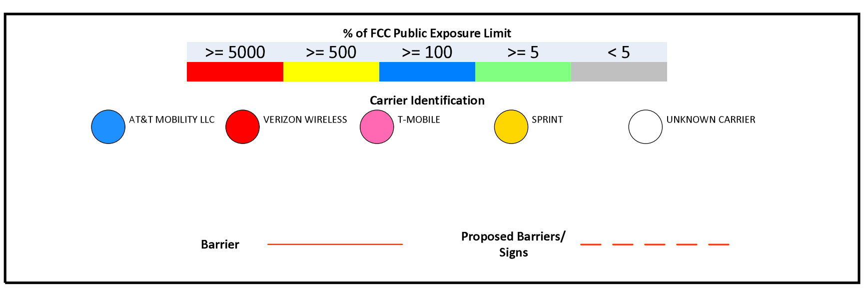
www.sitesafe.com
Site Name:NHV 108 943133
3/24/2020 11:39:26 AM

Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Spatially Averaged

RF Exposure Simulation For: NHV 108 943133
All Sector Detailed View



% of FCC Public Exposure Limit
Spatial Average 0' - 6'



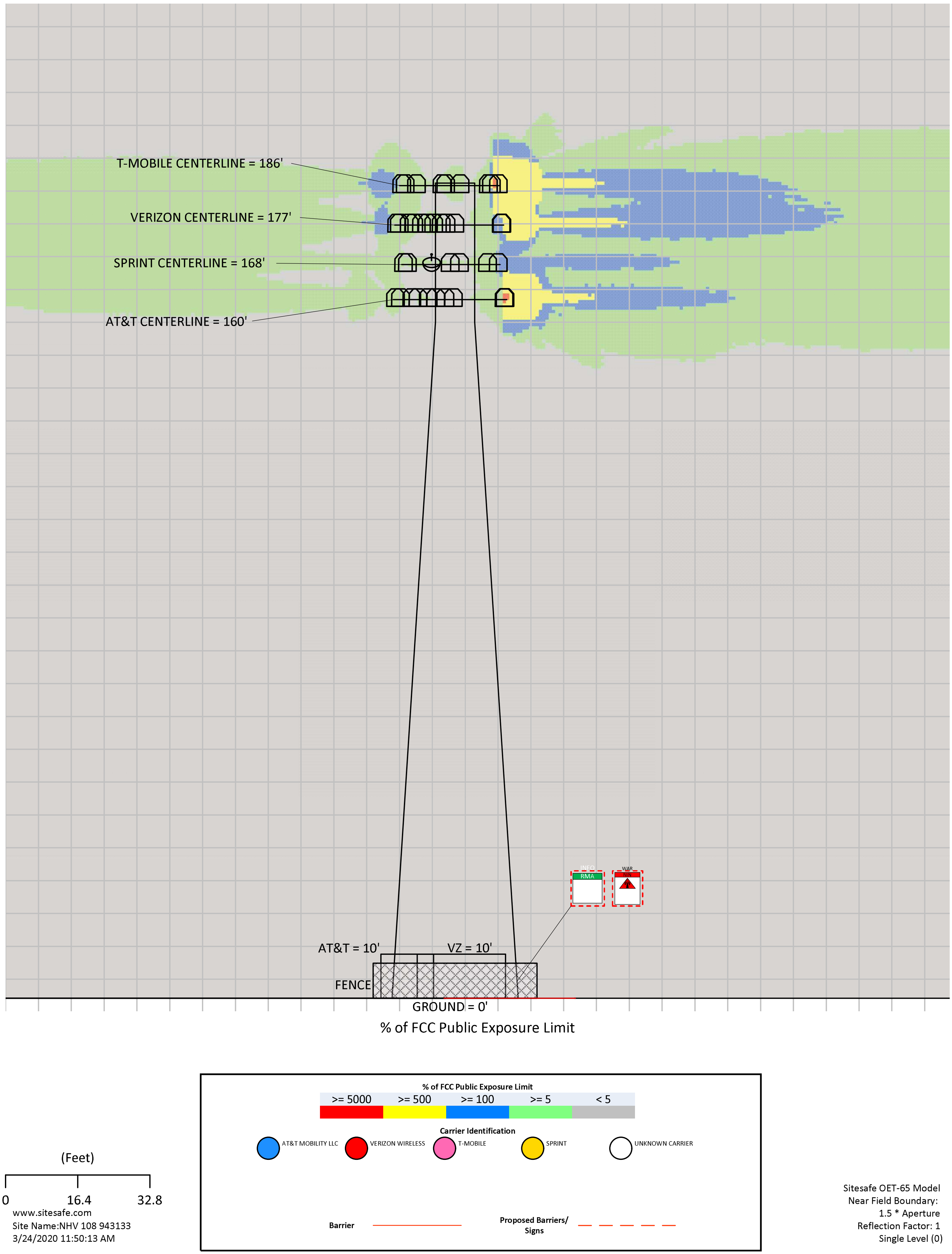
(Feet)

0 7.1 14.2

www.sitesafe.com
Site Name:NHV 108 943133
3/24/2020 11:40:04 AM

Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Spatially Averaged

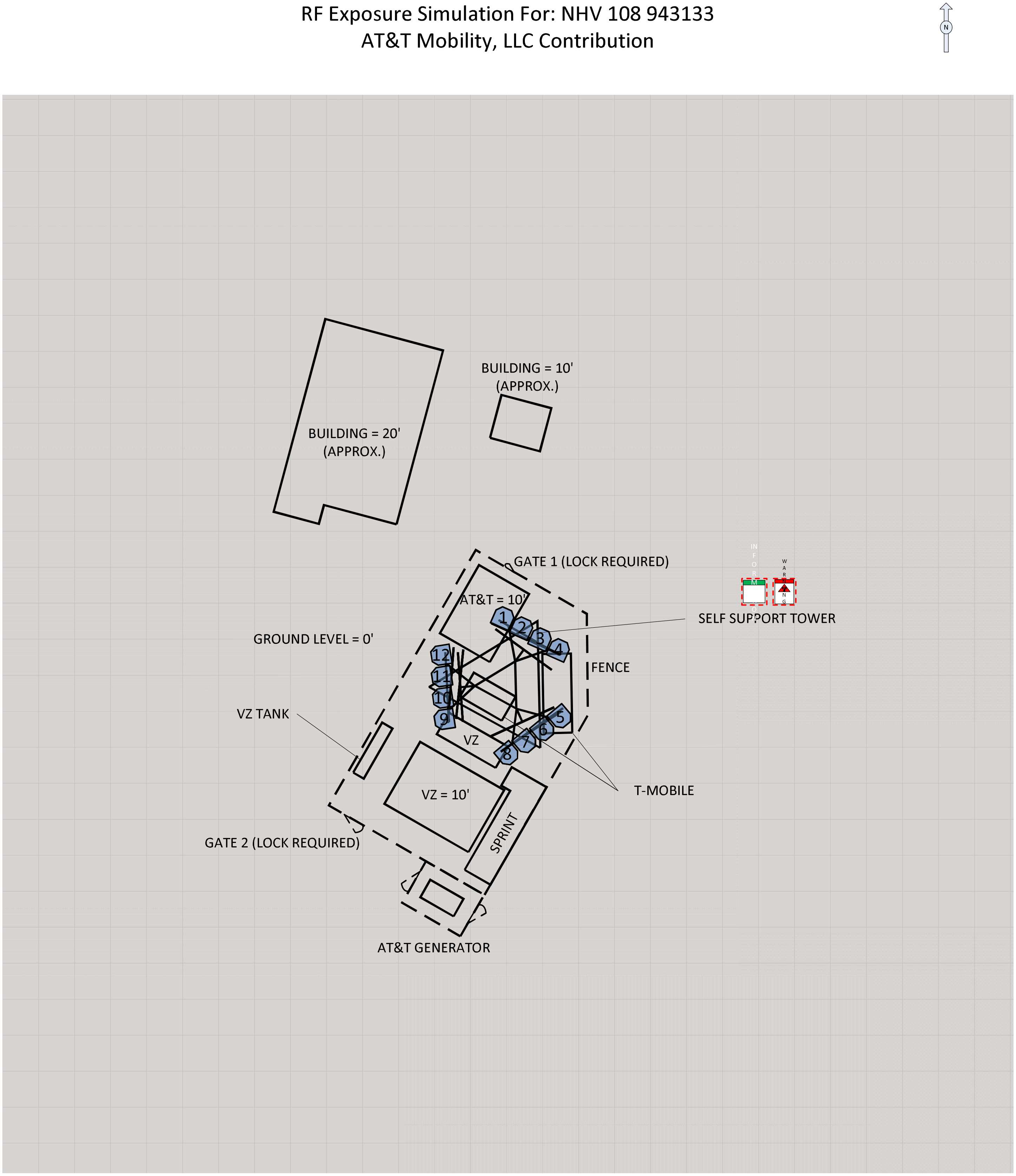
RF Exposure Simulation For: NHV 108 943133
Elevation View



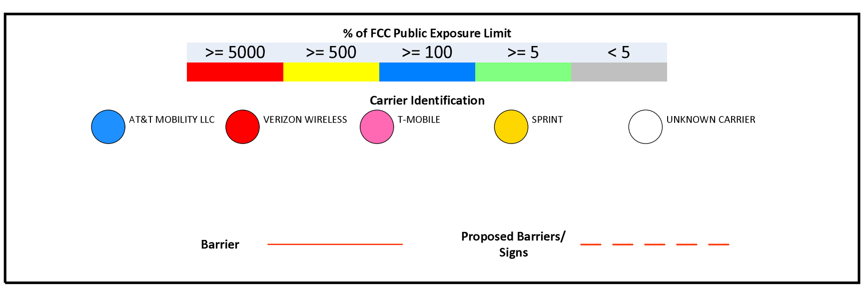
www.sitesafe.com
Site Name:NHV 108 943133
3/24/2020 11:50:13 AM

Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Single Level (0)

RF Exposure Simulation For: NHV 108 943133
AT&T Mobility, LLC Contribution



% of FCC Public Exposure Limit
Spatial Average 0' - 6'



(Feet)
0 14.9 29.8

www.sitesafe.com
Site Name:NHV 108 943133
3/24/2020 11:41:19 AM

Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Spatially Averaged

6 Antenna Inventory

The Antenna Inventory shows all transmitting antennas at the site. This inventory was provided by the customer and was utilized by Sitesafe to perform theoretical modeling of RF emissions. The inventory coincides with the site diagrams in this report, identifying each antenna's location at 806362 - NHV 108 943133. The antenna information collected includes the following information:

- Licensee or wireless operator name
- Frequency or frequency band
- Transmitter power – Transmitter Power Output ("TPO"), Effective Radiated Power ("ERP"), or Equivalent Isotropic Radiated Power ("EIRP")
- Antenna manufacturer make, model, and gain

For other carriers at this site, the use of "Generic" as an antenna model, or "Unknown" for an operator means the information with regard to carrier, their FCC license and/or antenna information was not available nor could it be secured while on site. Equipment, antenna models and nominal transmit power were used for modeling, based on past experience with radio service providers.

The following antenna inventory was provided by the customer and was utilized to create the site model diagrams:

Antenna Inventory

Ant #	Operator	Antenna Make and Model	Ant Type	Len (ft)	TX Freq (MHz)	Tech	Az (Deg)	Antenna Gain (dBd)	Horizontal Half Power BW (Deg)	Power	Power Type	Power Units	# of Trans	ERP (Watts)	Z(ft) (AGL)	MDT	EDT
1	AT&T MOBILITY LLC	Powerwave 7770	Panel	4.6	1930	LTE	24	13.41	86	160	TPO	Watt	1	3508.5	160	0	0
2	AT&T MOBILITY LLC	Quintel QS66512-2	Panel	6	763	LTE	24	11.46	69	160	TPO	Watt	1	2239.3	160	0	0
3	AT&T MOBILITY LLC (PROPOSED)	CCI Antennas OPA65R-BU6D	Panel	5.9	734	LTE	24	11.86	61.1	160	TPO	Watt	1	2455.4	160	0	0
4	AT&T MOBILITY LLC (PROPOSED)	Cci DMP65R-BU8D	Panel	8	2110	LTE	24	15.16	67.1	160	TPO	Watt	1	5249.5	160	0	0
4	AT&T MOBILITY LLC (PROPOSED)	Cci DMP65R-BU8D	Panel	8	2345	LTE	24	14.46	50.6	100	TPO	Watt	1	2792.5	160	0	0
5	AT&T MOBILITY LLC	Powerwave 7770	Panel	4.6	1930	LTE	140	13.41	86	160	TPO	Watt	1	3508.5	160	0	0
6	AT&T MOBILITY LLC	Cci Antennas TPA-65R-LCUUUU-H8	Panel	8	763	LTE	140	13.56	61.9	160	TPO	Watt	1	3631.8	160	0	0
7	AT&T MOBILITY LLC (PROPOSED)	CCI Antennas OPA65R-BU6D	Panel	5.9	734	LTE	140	11.86	61.1	160	TPO	Watt	1	2455.4	160	0	0
8	AT&T MOBILITY LLC (PROPOSED)	Cci DMP65R-BU8D	Panel	8	2110	LTE	140	15.16	67.1	160	TPO	Watt	1	5249.5	160	0	0
8	AT&T MOBILITY LLC (PROPOSED)	Cci DMP65R-BU8D	Panel	8	2345	LTE	140	14.46	50.6	100	TPO	Watt	1	2792.5	160	0	0
9	AT&T MOBILITY LLC	Powerwave 7770	Panel	4.6	1930	LTE	261	13.41	86	160	TPO	Watt	1	3508.5	160	0	0
10	AT&T MOBILITY LLC	Quintel QS66512-2	Panel	6	763	LTE	261	11.46	69	160	TPO	Watt	1	2239.3	160	0	0
11	AT&T MOBILITY LLC (PROPOSED)	CCI Antennas OPA65R-BU6D	Panel	5.9	734	LTE	261	11.86	61.1	160	TPO	Watt	1	2455.4	160	0	0
12	AT&T MOBILITY LLC (PROPOSED)	Cci DMP65R-BU8D	Panel	8	2110	LTE	261	15.16	67.1	160	TPO	Watt	1	5249.5	160	0	0
12	AT&T MOBILITY LLC (PROPOSED)	Cci DMP65R-BU8D	Panel	8	2345	LTE	261	14.46	50.6	100	TPO	Watt	1	2792.5	160	0	0
13	SPRINT	Commscope NNVV-65B-R4	Panel	6	862		30	12.76	64	100	TPO	Watt	1	1888	168	0	0
13	SPRINT	Commscope NNVV-65B-R4	Panel	6	1900		30	15.06	60	90	TPO	Watt	1	2885.6	168	0	0
14	SPRINT	RFS APXVTM14-C-I20	Panel	4.7	2500		30	15.86	68	160	TPO	Watt	1	6167.7	168	0	0

Antenna Inventory

Ant #	Operator	Antenna Make and Model	Ant Type	Len (ft)	TX Freq (MHz)	Tech	Az (Deg)	Antenna Gain (dBd)	Horizontal Half Power BW (Deg)	Power	Power Type	Power Units	# of Trans	ERP (Watts)	Z(ft) (AGL)	MDT	EDT
15	SPRINT	Commscope NNVV-65B-R4	Panel	6	1900		150	15.06	60	90	TPO	Watt	1	2885.6	168	0	0
15	SPRINT	Commscope NNVV-65B-R4	Panel	6	862		150	12.76	64	100	TPO	Watt	1	1888	168	0	0
16	SPRINT	RFS APXVTM14-C-I20	Panel	4.7	2500		150	15.86	68	160	TPO	Watt	1	6167.7	168	0	0
17	SPRINT	Commscope NNVV-65B-R4	Panel	6	1900		260	15.06	60	90	TPO	Watt	1	2885.6	168	0	0
17	SPRINT	Commscope NNVV-65B-R4	Panel	6	862		260	12.76	64	100	TPO	Watt	1	1888	168	0	0
18	SPRINT	Andrew VHLP2-11	Aperture	2	11000		213	32.35	3.3	0.01	TPO	Watt	1	13.1	168	0	0
19	SPRINT	RFS APXVTM14-C-I20	Panel	4.7	2500		260	15.86	68	160	TPO	Watt	1	6167.7	168	0	0
20	T-MOBILE	Ericsson AIR 32 B2A B66AA	Panel	4.9	1900		30	15.86	63	160	TPO	Watt	1	6167.7	186	0	0
21	T-MOBILE	RFS APXVAARR24_43-U-NA20	Panel	8	600		30	13.2	62.76	120	TPO	Watt	1	2507.2	186	0	0
21	T-MOBILE	RFS APXVAARR24_43-U-NA20	Panel	8	700		30	13.39	62	160	TPO	Watt	1	3492.4	186	0	0
22	T-MOBILE	Ericsson AIR 3246	Panel	4.8	2100		30	15.86	65	160	TPO	Watt	1	6167.7	186	0	0
23	T-MOBILE	Ericsson AIR 32 B2A B66AA	Panel	4.9	1900		150	15.86	63	160	TPO	Watt	1	6167.7	186	0	0
24	T-MOBILE	RFS APXVAARR24_43-U-NA20	Panel	8	600		150	13.2	62.76	120	TPO	Watt	1	2507.2	186	0	0
24	T-MOBILE	RFS APXVAARR24_43-U-NA20	Panel	8	700		150	13.39	62	160	TPO	Watt	1	3492.4	186	0	0
25	T-MOBILE	Ericsson AIR 3246	Panel	4.8	2100		150	15.86	65	160	TPO	Watt	1	6167.7	186	0	0
26	T-MOBILE	Ericsson AIR 32 B2A B66AA	Panel	4.9	1900		270	15.86	63	160	TPO	Watt	1	6167.7	186	0	0
27	T-MOBILE	RFS APXVAARR24_43-U-NA20	Panel	8	600		270	13.2	62.76	120	TPO	Watt	1	2507.2	186	0	0
27	T-MOBILE	RFS APXVAARR24_43-U-NA20	Panel	8	700		270	13.39	62	160	TPO	Watt	1	3492.4	186	0	0
28	T-MOBILE	Ericsson AIR 3246	Panel	4.8	2100		270	15.86	65	160	TPO	Watt	1	6167.7	186	0	0

Antenna Inventory

Ant #	Operator	Antenna Make and Model	Ant Type	Len (ft)	TX Freq (MHz)	Tech	Az (Deg)	Antenna Gain (dBd)	Horizontal Half Power BW (Deg)	Power	Power Type	Power Units	# of Trans	ERP (Watts)	Z(ft) (AGL)	MDT	EDT
29	VERIZON WIRELESS	Andrew DB846F65ZAXY	Panel	6	850		20	14.51	65	80	TPO	Watt	1	2259.9	177	0	0
30	VERIZON WIRELESS	Andrew SBNHH-1D45B	Panel	6	751		20	14.65	47	160	TPO	Watt	1	4667.9	177	0	0
31	VERIZON WIRELESS	Andrew SBNHH-1D45B	Panel	6	1900		20	17.72	42	160	TPO	Watt	1	9465	177	0	0
32	VERIZON WIRELESS	Andrew SBNHH-1D65B	Panel	6	2100		20	16.33	63	160	TPO	Watt	1	6872.6	177	0	0
33	VERIZON WIRELESS	Andrew DB846F65ZAXY	Panel	6	850		20	14.51	65	160	TPO	Watt	1	4519.8	177	0	0
34	VERIZON WIRELESS	Antel LPA-80063-6CF	Panel	5.9	850		140	14.51	63	80	TPO	Watt	1	2259.9	177	0	0
35	VERIZON WIRELESS	Andrew SBNHH-1D45B	Panel	6	751		140	14.65	47	160	TPO	Watt	1	4667.9	177	0	0
36	VERIZON WIRELESS	Andrew SBNHH-1D45B	Panel	6	1900		140	17.72	42	160	TPO	Watt	1	9465	177	0	0
37	VERIZON WIRELESS	Andrew SBNHH-1D65B	Panel	6	2100		140	16.33	63	160	TPO	Watt	1	6872.6	177	0	0
38	VERIZON WIRELESS	Antel LPA-80063-6CF	Panel	5.9	850		140	14.51	63	160	TPO	Watt	1	4519.8	177	0	0
39	VERIZON WIRELESS	Swedcom SC 6014	Panel	3.6	850		270	14.01	57	80	TPO	Watt	1	2014.1	177	0	0
40	VERIZON WIRELESS	Andrew SBNHH-1D45B	Panel	6	751		270	14.65	47	160	TPO	Watt	1	4667.9	177	0	0
41	VERIZON WIRELESS	Andrew SBNHH-1D45B	Panel	6	1900		270	17.72	42	160	TPO	Watt	1	9465	177	0	0
42	VERIZON WIRELESS	Andrew SBNHH-1D65B	Panel	6	2100		270	16.33	63	160	TPO	Watt	1	6872.6	177	0	0
43	VERIZON WIRELESS	Swedcom SC 6014	Panel	3.6	850		270	14.01	57	160	TPO	Watt	1	4028.3	177	0	0

Note: The Z reference indicates antenna height **above ground level (AGL)**. ERP values provided by the client and used in the modeling may be greater than are currently deployed. For additional modeling information, refer to Appendix B. Proposed equipment is tagged as *(Proposed)* under *Operator* or *Antenna Make and Model.*

7 Engineer Certification

The professional engineer whose seal appears on the cover of this document hereby certifies and affirms:

That I am registered as a Professional Engineer in the jurisdiction indicated in the professional engineering stamp on the cover of this document; and

That I am an employee of Site Safe, LLC, in Vienna, Virginia, at which place the staff and I provide RF compliance services to clients in the wireless communications industry; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission (FCC) as well as the regulations of the Occupational Safety and Health Administration (OSHA), both in general and specifically as they apply to the FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields; and

That I have thoroughly reviewed this Site Compliance Report and believe it to be true and accurate to the best of my knowledge as assembled by and attested to by Zyotty Thamsil.

March 24, 2020

Appendix A – Statement of Limiting Conditions

Sitesafe will not be responsible for matters of a legal nature that affect the site or property.

Due to the complexity of some wireless sites, Sitesafe performed this analysis and created this report utilizing best industry practices and due diligence. Sitesafe cannot be held accountable or responsible for anomalies or discrepancies due to actual site conditions (i.e. mislabeling of antennas or equipment, inaccessible cable runs, inaccessible antennas or equipment, etc.) or information or data supplied by AT&T Mobility, LLC, the site manager, or their affiliates, subcontractors or assigns.

Sitesafe has provided computer generated model(s) in this Site Compliance Report to show approximate dimensions of the site, and the model is included to assist the reader of the compliance report to visualize the site area, and to provide supporting documentation for Sitesafe's recommendations.

Sitesafe may note in the Site Compliance Report any adverse physical conditions, such as needed repairs, observed during the survey of the subject property or that Sitesafe became aware of during the normal research involved in performing this survey. Sitesafe will not be responsible for any such conditions that do exist or for any engineering or testing that might be required to discover whether such conditions exist. Because Sitesafe is not an expert in the field of mechanical engineering or building maintenance, the Site Compliance Report must not be considered a structural or physical engineering report.

Sitesafe obtained information used in this Site Compliance Report from sources that Sitesafe considers reliable and believes them to be true and correct. Sitesafe does not assume any responsibility for the accuracy of such items that were furnished by other parties. When conflicts in information occur between data provided by a second party and physical data collected by Sitesafe, the physical data will be used.

Appendix B – Assumptions and Definitions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at **full power at all times**. Software modeling was performed for all transmitting antennas located on the site. Sitesafe has further assumed a 100% duty cycle and maximum radiated power.

The site has been modeled with these assumptions to show the maximum RF energy density. Sitesafe believes this to be a *worst-case* analysis, based on best available data. Areas modeled to predict emissions greater than 100% of the applicable MPE level may not actually occur but are shown as a *worst-case* prediction that could be realized real time. Sitesafe believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor).

Thus, at any time, if power density measurements were made, we believe the real-time measurements would indicate levels below those depicted in the RF emission diagram(s) in this report. By modeling in this way, Sitesafe has conservatively shown exclusion areas – areas that should not be entered without the use of a personal monitor, carriers reducing power, or performing real-time measurements to indicate real-time exposure levels.

Use of Generic Antennas

For the purposes of this report, the use of "Generic" as an antenna model, or "Unknown" for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. If more specific information can be obtained for the unknown measurement criteria, Sitesafe recommends remodeling of the site utilizing the more complete and accurate data. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.

Where the frequency is unknown, Sitesafe uses the closest frequency in the antenna's range that corresponds to the highest MPE, resulting in a conservative analysis.

Definitions

5% Rule – The rules adopted by the FCC specify that, in general, at multiple transmitter sites actions necessary to bring the area into compliance with the guidelines are the shared responsibility of all licensees whose transmitters produce field strengths or power density levels at the area in question in excess of 5% of the exposure limits. In other words, any wireless operator that contributes 5% or greater of the MPE limit in an area that is identified to be greater than 100% of the MPE limit is responsible for taking corrective actions to bring the site into compliance.

Compliance – The determination of whether a site complies with FCC standards with regards to Human Exposure to Radio Frequency Electromagnetic Fields from transmitting antennas.

Decibel (dB) – A unit for measuring power or strength of a signal.

Duty Cycle – The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 100% corresponds to continuous operation.

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Effective Radiated Power (ERP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to a half-wave dipole antenna.

Gain (of an antenna) – The ratio, usually expressed in decibels, of the power required at the input of a loss-free reference antenna to the power supplied to the input of the given antenna to produce, in a given direction, the same field strength or the same power density at the same distance. When not specified otherwise, the gain refers to the direction of maximum radiation. Gain may be considered for a specified polarization. Gain may be referenced to an isotropic antenna (dBi) or a half-wave dipole (dBd) antenna.

General Population/Uncontrolled Environment – Defined by the FCC as an area where RF exposure may occur to persons who are *unaware* of the potential for exposure and who have no control over their exposure. General Population is also referenced as General Public.

Generic Antenna – For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use its industry specific knowledge of antenna models to select a worst-case scenario antenna to model the site.

Isotropic Antenna – An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.

Maximum Measurement – This measurement represents the single largest measurement recorded when performing a spatial average measurement.

Maximum Permissible Exposure (MPE) – The rms and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with acceptable safety factor.

Occupational/Controlled Environment – Defined by the FCC as an area where RF exposure may occur to persons who are **aware** of the potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.

OET Bulletin 65 – Technical guideline developed by the FCC's Office of Engineering and Technology to determine the impact of RF exposure on humans. The guideline was published in August 1997.

OSHA (Occupational Safety and Health Administration) – Under the Occupational Safety and Health Act of 1970, employers are responsible for providing a safe and healthy workplace for their employees. OSHA's role is to promote the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual process improvement in workplace safety and health. For more information, visit www.osha.gov.

Radio Frequency Exposure or Electromagnetic Fields – Electromagnetic waves that are propagated from antennas through space.

Spatial Average Measurement – A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average energy a 6-foot tall human body will absorb while present in an electromagnetic field of energy.

Transmitter Power Output (TPO) – The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load.

Appendix C – Rules & Regulations

Explanation of Applicable Rules and Regulations

The FCC has set forth guidelines in OET Bulletin 65 for human exposure to radio frequency electromagnetic fields. Specific regulations regarding this topic are listed in Part 1, Subpart I, of Title 47 in the Code of Federal Regulations. Currently, there are two different levels of MPE - General Public MPE and Occupational MPE. An individual classified as Occupational can be defined as an individual who has received appropriate RF training and meets the conditions outlined below. General Public is defined as anyone who does not meet the conditions of being Occupational. FCC and OSHA Rules and Regulations define compliance in terms of total exposure to total RF energy, regardless of location of or proximity to the sources of energy.

It is the responsibility of all licensees to ensure these guidelines are maintained at all times. It is the ongoing responsibility of all licensees composing the site to maintain ongoing compliance with the FCC Rules and Regulations. Individual licensees that contribute less than 5% MPE to any total area out of compliance are not responsible for corrective actions.

OSHA has adopted and enforces the FCC's exposure guidelines. A building owner or site manager can use this report as part of an overall RF Health and Safety Policy. It is important for building owners/site managers to identify areas in excess of the General Population MPE and ensure that only persons qualified as Occupational are granted access to those areas.

Occupational Environment Explained

The FCC definition of Occupational exposure limits apply to persons who:

- are exposed to RF energy as a consequence of their employment;
- have been made aware of the possibility of exposure; and
- can exercise control over their exposure.

OSHA guidelines go further to state that persons must complete RF Safety Awareness training and must be trained in the use of appropriate personal protective equipment.

In order to consider this site an Occupational Environment, the site must be controlled to prevent access by any individuals classified as the General Public. Compliance is also maintained when any non-occupational individuals (the General Public) are prevented from accessing areas indicated as Red or Yellow in the attached RF Emissions diagram. In addition, a person must be aware of the RF environment into which they are entering. This can be accomplished by an RF Safety Awareness class, and by appropriate written documentation such as this Site Compliance Report.

All AT&T Mobility, LLC employees who require access to this site must complete RF Safety Awareness training and must be trained in the use of appropriate personal protective equipment.

Appendix D – General Safety Recommendations

The following are *general recommendations* appropriate for any site with accessible areas in excess of 100% General Public MPE. These recommendations are not specific to this site. These are safety recommendations appropriate for typical site management, building management, and other tenant operations.

1. All individuals needing access to the main site (or the area indicated to be in excess of General Public MPE) should wear a personal protective monitor (PPM), successfully complete proper RF Safety Awareness training, and have and be trained in the use of appropriate personal protective equipment.

2. All individuals needing access to the main site should be instructed to read and obey all posted placards and signs.

3. The site should be routinely inspected and this or similar report updated with the addition of any antennas or upon any changes to the RF environment including:

- adding new antennas that may have been located on the site
- removing of any existing antennas
- changes in the radiating power or number of RF emitters

4. Post the appropriate **NOTICE**, **CAUTION,** or **WARNING** sign at the main site access point(s) and other locations as required. Note: Please refer to RF Exposure Diagrams in Section 5.1 to inform <u>everyone</u> who has access to this site that beyond posted signs there may be levels in excess of the limits prescribed by the FCC. In addition to RF Advisory Signage, a RF Guideline Signage is recommended to be posted at the main site access point(s). The signs below are examples of signs meeting FCC guidelines.

5. Ensure that the site door remains locked (or appropriately controlled) to deny access to the general public if deemed as policy by the building/site owner.

Keep a copy of this report available for all persons who must access the site. They should read this report and be aware of the potential hazards with regards to RF and MPE limits.

Additional Information

Additional RF information is available at the following sites:
https://www.fcc.gov/general/radio-frequency-safety-0
https://www.fcc.gov/engineering-technology/electromagnetic-compatibility-division/radio-frequency-safety/faq/rf-safety

OSHA has additional information available at:
https://www.osha.gov/SLTC/radiofrequencyradiation/index.html