TRURO PLANNING BOARD AGENDA
Wednesday, October 9, 2019 – 6:00 p.m.
Truro Town Hall, 24 Town Hall Road, Truro

Public Comment Period

The Commonwealth's Open Meeting Law limits any discussion by members of the Board of an issue raised to whether that issue should be placed on a future agenda. Speakers are limited to no more than 5 minutes.

Public Hearing

2019-005/PB Truro Center for the Arts at Castle Hill, Inc. seeks the modification of a Definitive Plan of Land for #3 Edgewood Way, Plan Book 662, Page 87, pursuant to G.L. c. 41, §81W and §2.5.5 of the Town of Truro Rules and Regulations Governing the Subdivision of Land with respect to property at #3 & #6 Edgewood Way, Truro MA, Map 51, Parcels 34 and 88.

2019-006/PB Abigail B. Schirmer, Audrey Schirmer, and Joseph M. Schirmer seek approval of a Preliminary Definitive Subdivision Plan of Land, pursuant to G.L. c. 41, §81S and §2.4 of the Town of Truro Rules and Regulations Governing the Subdivision of Land with respect to property at Route 6 and Amity Lane, Truro MA, Map 46, Parcel 8.

Board Action/Review

T-Mobile Northeast LLC and Crown Castle LLC – Pre-application consultation in accordance with §40.5 of the Truro Zoning Bylaw for the proposed modification to an existing wireless communication facility located at 344 Route 6 in Truro, Massachusetts (Map 39, Parcel 172.A). Review and vote on Applicants' request for waiver of Commercial Development Site Plan Review in accordance with §70.3 and §70.9 of the Truro Zoning Bylaw.

Update on past Work Sessions.

Update on Planning Board/Select Board ADU Ad Hoc Subcommittee.

Discussion for setting dates for future Board public workshops.

Discussion and vote on 2020 Hearing Schedule.

Next Meeting

Wednesday, October 23, 2019, at 6:00 p.m.

Adjourn

Site visits: 10/8/2019 at 2:15 p.m. – 3 Edgewood Way

PUBLIC HEARING(S)

TOWN OF TRURO

Planning Department

P.O. Box 2030, Truro, MA 02666
Tel: (508) 349-7004 Fax: (508) 349-5505

To: Planning Board
From: Jess Bardi, Interim Town Planner
Date: October 1, 2019 for October 9th Meeting
Re: 2019-005PB, #3 & #6 Edgewood Way Modification to Definitive Subdivision Plan, Staff Report

2019-005 PB Truro Center for the Arts at Castle Hill, Inc. seeks the modification of a Definitive Plan of Land for #3 Edgewood Way, Plan Book 662, Page 87, pursuant to G.L c. 41, §81W and Section 2.5.5 of the Town of Truro Rules and Regulations Governing the Subdivision of Land with respect to property at #3 & #6 Edgewood Way, Truro MA, Map 51, Parcels 34 and 88.

Project Narrative

The Applicants propose to modify a Definitive Subdivision Plan, entitled "Modified Definitive Subdivision Plan of Land in Truro" made for Malcolm Meldahl, Trustee, dated December 9, 2015, recorded at Barnstable County Registry of Deeds, Plan Book 662, Page 87. The modification before the Board would remove an existing "no construction" section along the road right of way that ends in a cul-de-sac, separating Lot 1, owned by Castle Hill, and #10 Edgewood Way, owned by the Truro Conservation Trust. The modification would relocate the cul-de-sac to in between Lot 1 and 2. Removal of the "no construction" section of the road right of way would permit future building on Lot 1 to not be subject to a 25 ft setback away from the road right of way as shown on the existing Definitive Subdivision Plan. The Applicant has sought the following waivers from the Rules and Regulations Governing Subdivisions in Truro:

- Section 2.5.2(a)(6): Drainage Calculations – No additional construction is requested.
- Section 2.5.2(a)(10): Three Proposed Road Names – Road is already named and no further work is requested.
- Section 2.5.2(a)(11): Written Statement regarding Road and Utility Installation – Road is constructed, utilities are in place and no further work is requested.
- Section 2.5.2(b)(5): Existing and Proposed Method of Providing Drainage – Existing drainage is in place and no further road construction is requested.
- Section 2.5.2(b)(10): Topography – No further road construction work is requested.
- Section 2.5.2(b)(17): Notation requiring concrete bounds – Sufficient concrete bounds are in place, currently, and additional bounds are redundant or not possible due to existing pavement.

- Section 2.5.2(b)(22): Two benchmarks shown on plan – No further construction is proposed.
- Section 2.5.2(b)(30): Location of trees greater than 10" – This is a modification plan of an approved subdivision and no further road construction is proposed.
- Section 2.5.2(c): Plan and Profiles – No additional road construction work is proposed.

Completeness of Application

The Applicants have submitted the following materials:

- Form E, Application for Modification of a Definitive Subdivision Plan, and $250.00 filing fee, received by the Town Clerk on August 19, 2019
- "Modification Definitive Plan of Land #3 Edgewood Way" for Truro Center for the Arts at Castle Hill, Inc., Modification Plan Book 662, Page 87, dated August 5, 2019, prepared by Donald Poole.
- Memorandum and Narrative, prepared by Cherie Mittenthal, dated July 17, 2019
- List of Requested Waivers, prepared by Outermost Land Survey, Inc.
- Certified Abutters List from Truro Assessors Office

Possible Actions of the Planning Board

Pursuant to §2.5.5 of the Rules and Regulations, the Board has the authority to modify its approval of a plan of a subdivision. Therefore, the Board may vote to approve the modified plan, approve the plan with conditions, or disapprove of the plan, citing specific reasons for disapproval.

Pursuant to §1.5 of the Rules and Regulations, the Board may waive strict compliance with the requirements of the Rules and Regulations where, in the judgment of the Board, such action is in the public interest and not inconsistent with the purpose and intent of the Subdivision Control Law. *If the Board determines the requested waivers are not inconsistent with the purpose and intent of the Subdivision Control Law, it should so move.*

Possible Motion:

I move in the matter of 2019-005 PB Truro Center for the Arts at Castle Hill, Inc. to [approve/approve with conditions/deny] the Modification Definitive Plan of Land for #3 Edgewood Way, Truro Center for the Arts at Castle Hill, Inc., pursuant to G.L c. 41, §81W and Section 2.5.5 of the Town of Truro Rules and Regulations Governing the Subdivision of Land with respect to property at #3 & #6 Edgewood Way, Truro MA, Map 51, Parcels 34 and 88.

If approval is conditional, cite conditions. If the motion is to deny, the Board must cite reasons for denial.

FYI - Planning Board

CC: Jess Bardi
Rich Stevens

TOWN OF TRURO

PLANNING BOARD

Office of Town Clerk
Treasurer – Tax Collector
2019-005/PB
AUG 19 2019
$ 250.00 Fee Paid
Received TOWN OF TRURO
By Molly Stevens

FORM E

APPLICATION FOR MODIFICATION, AMENDMENT OR RESCISSION OF DEFINITIVE SUBDIVISION

Date August 9, 2019

To the Planning Board of the Town of Truro, MA

The undersigned, being the applicant as defined under Chapter 41, Section 81-L, for approval of a proposed subdivision shown on a plan entitled Modification Definitive Plan of Land by Outermost Land Survey, Inc. dated August 5, 2019 and described as follows:

Located: #3 &#6 Edgewood Way

Assessor's Map(s) and Parcel(s): Map 51 parcels 34 and 88

Number of Lots Proposed: 2

Total acreage of Tract: 7 .12

Hereby submits said plan for *(circle one)* MODIFICATION AMENDMENT RESCISSION in accordance with the Rules and Regulations of the Truro Planning Board for the following reason(s):

see attached

The undersigned's title to said land is derived under deed from Meldahl Realty Trust

dated 1-7-16, and recorded in the Barnstable Registry of Deeds Book and Page: 29380/47

or by Land Court Certificate of Title No. _____ registered in Barnstable County, and said land is free of encumbrances except for the following:

The undersigned hereby applies for approval of said MODIFICATION, AMENDMENT OR RESCISSION plan by the Board, in belief that the plan conforms to the Board's Rules and Regulations.

Applicant's Signature _____ Telephone Number 508-349-7511

Applicant's Legal Mailing Address P O Box 756, Truro, MA 02666

Owner's Signature if not the applicant
or applicant's authorization if not the owner _____

Owner's Legal Mailing Address _____

Surveyors Name/Address Donald T. Poole PLS 46 Main St. Brewster, MA 02631
(Or Person Responsible for preparation of plan)

File twelve (12) copies each of this form and applicable plan(s) with the Town Clerk

OUTERMOST LAND SURVEY, INC.

August 19, 2019

Truro Planning Board
Truro Town Hall
P.O. Box 2030
Truro, MA 02666

Re: Truro Center for the Arts at Castle Hill, Inc. 3 Edgewood Way

Dear Board Members,

Enclosed please find twelve copies of the modification definitive plan of land #3 Edgewood Way Truro Center for the Arts at Castle Hill, Inc. Deed Book 29380, Page 47 Lots 1&2, Plan Book 569, Page 44 Modification Plan Book 662, Page 87 and the application fee of $250.00.

The applicant is asking for nine waivers (please see enclosed).

I would like to be placed on the next available Planning Board agenda so that we can discuss this.

Sincerely,

Donald T. Poole

Registered Land Surveyor

46 Main Street, Brewster MA 02631 • Ph. 508-255-0477
outermostlandsurvey.com

MEMORANDUM AND NARRATIVE

RE: PRE-SUBMISSION REVIEW WITH THE PLANNING BOARD
FOR TRURO CENTER FOR THE ARTS AT CASTLE HILL, INC.

DATED: JULY 17, 2019

Truro Center for the Arts at Castle Hill, Inc., requests a Pre-submission Review, pursuant to §2.3 of the Truro Subdivision Regulations for modification of a plan entitled, "Modified Definitive Subdivision Plan of Land in Truro," made for Malcolm Meldahl, Trustee, dated December 9, 2015, of record at the Barnstable Registry of Deeds, Plan Book 662, page 87. The property is identified as Assessor Map 51, parcels 34 and 88.

Our title is derived under deed from Malcolm Meldahl, Trustee of the Meldahl Realty Trust, et al, dated December 18, 2015 of record on January 7, 2016, in Deed Book 29380, page 47, Barnstable Registry of Deeds.

The existing subdivision plan provides for a "no construction," section of Edgewood Way, which was specified because no one wanted to build that portion of the road, since no one except Castle Hill has a right to use it (please see attached memo regarding ownership of Edgewood Way). The Planning Board approved the plan with the "no construction" section.

Since that time, Castle Hill's Strategic Planning Committee has considered how the "no construction" section of the road may affect future plans. Because any structure would require a setback 25 feet from the road boundary, Castle Hill loses the use of a significant portion of land, especially in view of the cul-de-sac dimensions.

For this reason, Castle Hill would like to eliminate the "no construction," portion of Edgewood Way. If the Planning Board supports our request, we will proceed with an application for Modified Definitive Plan.

Respectfully submitted,

TRURO CENTER FOR THE ARTS AT CASTLE HILL

Cherie Mitterthal, Executive Artistic Director

OUTERMOST LAND SURVEY, INC.

Re: 3 Edgewood Way Map 51, Parcels 34 and 88

List of Requested Waivers

a) Sec.2.5.2. a.6, Drainage Calculations-no additional construction is requested
b) Sec. 2.5.2.a.10, Three Proposed Road names-Road is already named and no further work is requested
c) Sec 2.5.2.a.11, Written Statement regarding Road and Utility Installation-Road is constructed, utilities are in place and no further work is requested
d) Sec 2.5.2.b.5 Existing and proposed method of providing drainage-existing drainage is in place and no further road construction work is requested
e) Sec 2.5.2.b.10 Topography-No further road construction work is requested
f) Sec 2.5.2.b.17 Notation requiring concrete bounds-sufficient concrete bounds are in place, currently, and additional bounds are redundant or not possible due to existing pavement
g) Sec.2.5.2. b.22 Two benchmarks shown on plan-no further construction is proposed
h) Sec 2.5.2.b.30 Location of Trees greater than 10"-as a modification plan of an approved subdivision and because no further road construction is proposed
i) Sec.2.5.2.c Plan and Profiles-No additional road construction work is proposed

46 Main Street, Brewster MA 02631 • Ph. 508-255-0477 ·
outermostlandsurvey.com

TOWN OF TRURO

Assessors Office
Certified Abutters List
Request Form

RECEIVED
AUG 12 2019
ASSESSOR'S OFFICE
TOWN OF TRURO

DATE: 8/8/19

NAME OF APPLICANT: Truro Center for the Arts at Castle Hill, Inc

NAME OF AGENT (if any): Outermost Land Survey, Inc

MAILING ADDRESS: pick up

CONTACT: HOME/CELL 508 255-0477 **EMAIL** dawn@outermostlandsurvey.com

PROPERTY LOCATION: 3+6 Edgewood Way
(street address)

PROPERTY IDENTIFICATION NUMBER: MAP 51 **PARCEL** 34+88 **EXT.** _____
(if condominium)

ABUTTERS LIST NEEDED FOR: **FEE: $15.00 per checked item**
*(please check **all** applicable)* *(Fee must accompany the application unless other arrangements are made)*

___ Board of Health[5]
___ Cape Cod Commission
___ Conservation Commission[4]
___ Licensing
Type: _____

Planning Board (PB)
___ Special Permit[1]
___ Site Plan[2]
___ Preliminary Subdivision[3]
X Definitive Subdivision[3]
___ Accessory Dwelling Unit (ADU)[2]

Zoning Board of Appeals (ZBA)
___ Special Permit[1]
___ Variance[1]

___ Other _____ ***(Fee: Inquire with Assessors)***
(Please Specify)

Note: Per M.G.L., processing may take up to 10 calendar days. Please plan accordingly.

THIS SECTION FOR ASSESSORS OFFICE USE ONLY

Date request received by Assessors: 8/12/19 Date completed: 8/12/19

List completed by: _____

---

[1]Abutters, owners of land directly opposite on any public or private street or way, and abutters to the abutters within three hundred feet of the property line.

[2]Abutters to the subject property, abutters to the abutters, and owners of properties across the street from the subject property.

[3]Landowners immediately bordering the proposed subdivision, landowners immediately bordering the immediate abutters, and landowners located across the streets and ways bordering the proposed subdivision.

[4]All abutters within 300 feet of parcel, except Beach Point between Knowles Hgts Rd & Provincetown border, in which case it is all abutters within 100 feet. Note: Responsibility of applicant to notify abutters and produce evidence as required.

[5]Abutters sharing any boundary or corner in any direction – including land across a street, river or stream. Note: Responsibility of applicant to notify abutters and produce evidence as required.

TRURO ASSESSORS OFFICE
PO Box 2012 Truro, MA 02666
Telephone: (508) 214-0921
Fax: (508) 349-5506

Date: August 12, 2019

To: Outermost Land Survey Inc.

From: Assessors Department

Certified abutters list variance application for: Map 51 Parcel 34 & Map 51 Parcel 88

Attached is a combined list of abutters for the properties located at 3 Edgewood Way and 6 Edgewood Way. The current owner is the Truro Center for the Arts at Castle Hill, Inc.

The names and addresses of the abutters are as of August 9, 2019 according to the most recent documents received from the Barnstable County Registry of Deeds.

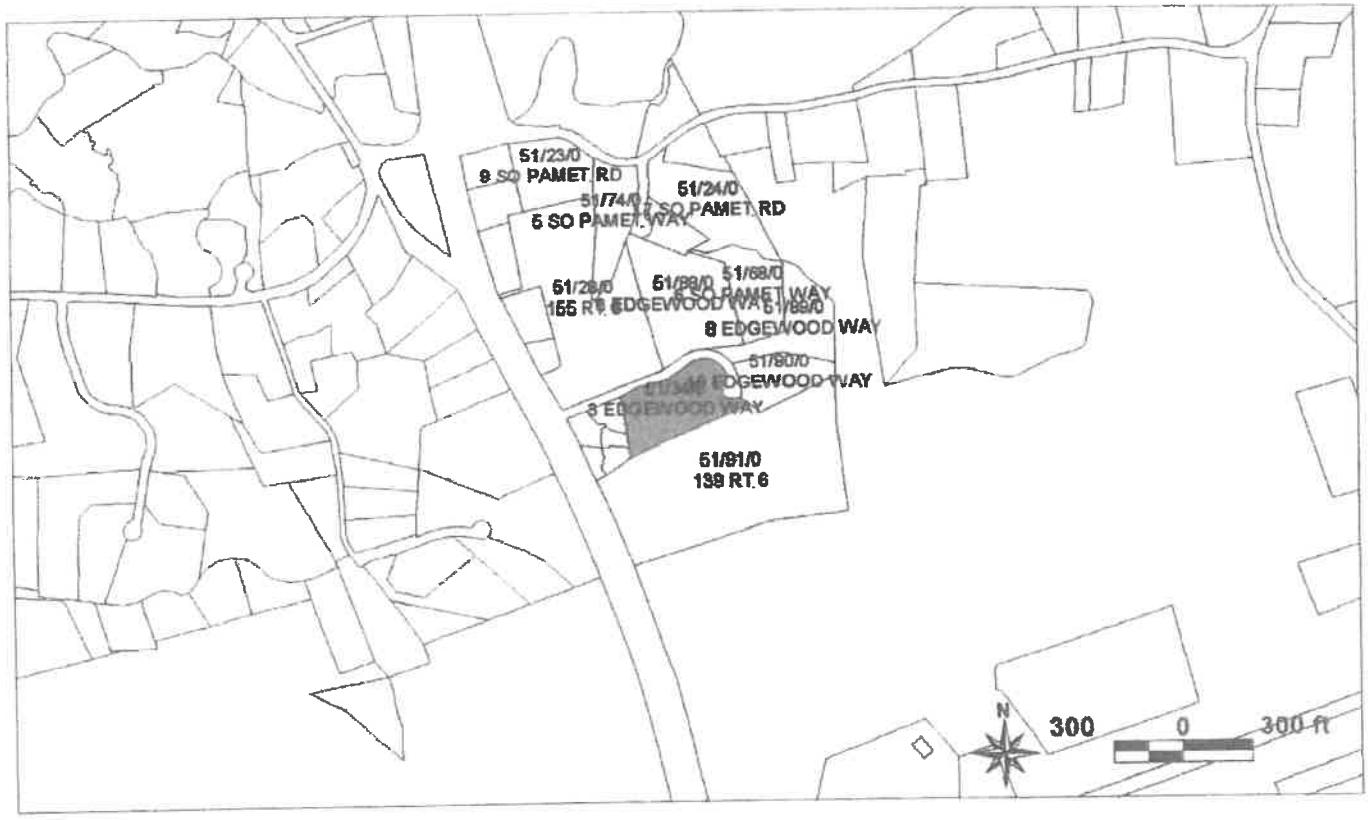
Certified by: _____

Laura Geiges
Assistant Assessor

3 Edgewood Way Map 51 Parcel 34
6 Edgewood Way Map 51 Parcel 88
Planning Board, Definitive Subdivision

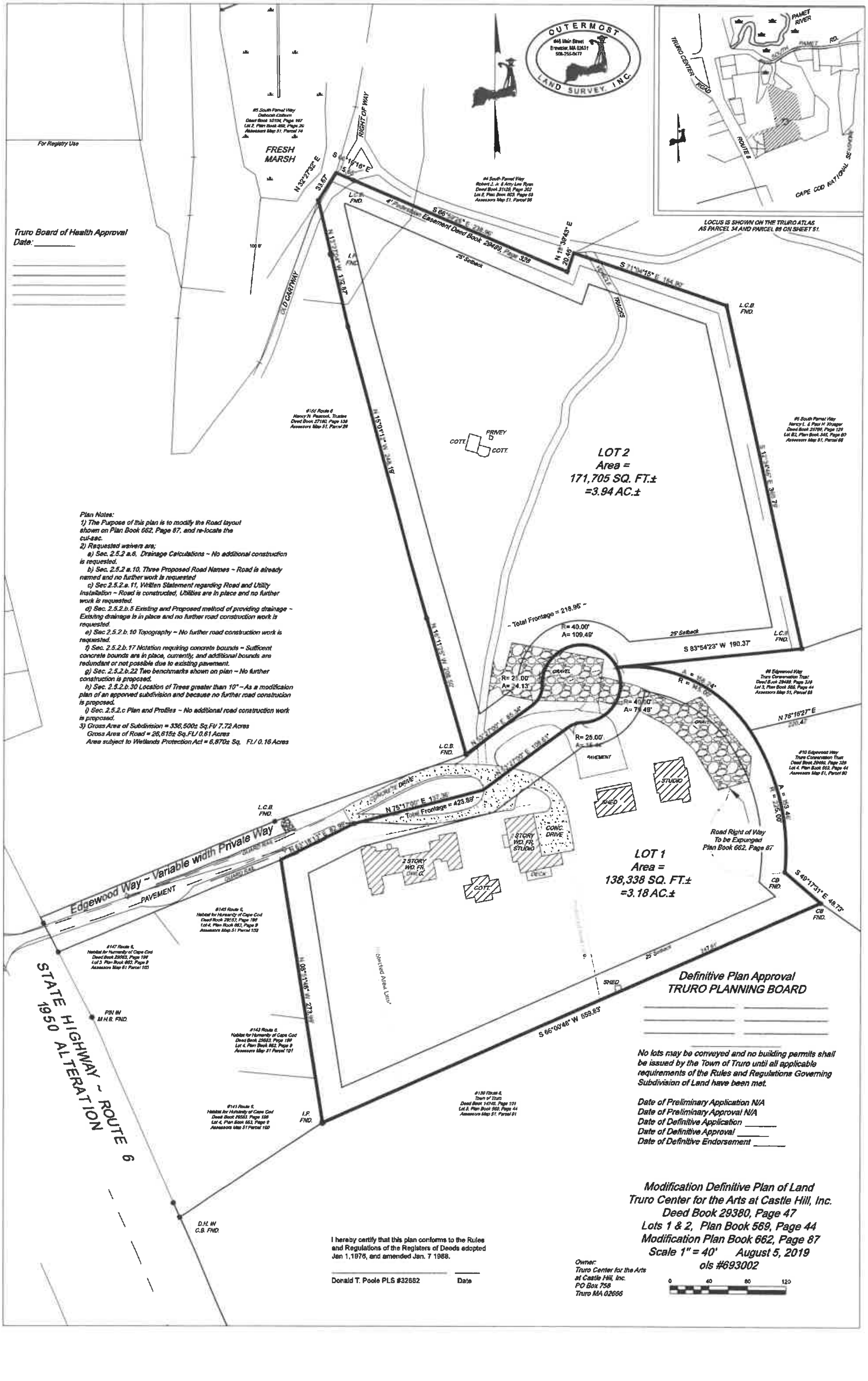
TOWN OF TRURO, MA
BOARD OF ASSESSORS
P.O. BOX 2012, TRURO MA 02666

Custom Abutters List



Key	Parcel ID	Owner	Location	Mailing Street	Mailing City	ST	ZipCd/Country
7292	40-999-0-E	USA-DEPT OF INTERIOR Cape Cod National Seashore	0 XXXXXXXXXXXXXXXXXXX	99 Marconi Site Rd	Wellfleet	MA	02667
3069	51-22-0-R	ENDICH ROBERTA SOLOMON (LE) RMNDR: ROBERTA S ENDICH TRUST	3 OSPREY WAY	PO BOX 2027	TRURO	MA	02666
3070	51-23-0-R	MCARDLE RICHARD F X	9 SO PAMET RD	1511 NORTH ASTOR ST	CHICAGO	IL	60610
3071	51-24-0-R	SNOW JOHN H & FREDA	17 SO PAMET RD	PO BOX 533	TRURO	MA	02666-0533
3073	51-27-0-R	ESTATE OF MARY B AMENTA	1 OSPREY WAY	6A WIGHTMAN PL	CROMWELL	CT	06416
3074	51-28-0-R	PEACOCK NANCY N REV TRUST TRS: PEACOCK NANCY N	155 RT 6	319 US RTE 5 NORTH	NORWICH	VT	05055
3075	51-29-0-R	GRIFFITH ROBERT F C/O HOCKING PETER C	153 RT 6	16 CLARKE LANE	PROVIDENCE	RI	02906
3076	51-30-0-R	COOK MICHAEL	151 RT 6	PO BOX 320	TRURO	MA	02666-0320
3080	51-34-0-E	TRURO CENTER FOR THE ARTS AT CASTLE HILL INC	3 EDGEWOOD WAY	PO BOX 756	TRURO	MA	02666
3114	51-68-0-R	NANCY L KRUEGER TRUST TRS KRUEGER PAUL H	6 SO PAMET WAY	38 RUSSELL AVENUE	WATERTOWN	MA	02472
3119	51-74-0-R	COLBURN DEBORAH	5 SO PAMET WAY	107 PEARL ST	CAMBRIDGE	MA	02139
5594	51-86-0-E	TRURO CENTER FOR THE ARTS AT CASTLE HILL INC	6 EDGEWOOD WAY	PO BOX 756	TRURO	MA	02666
5585	51-89-0-E	TRURO CONSERVATION TRUST TRS BEDNAREK ROBERT	8 EDGEWOOD WAY	PO BOX 327	NO TRURO	MA	02652
5596	51-90-0-E	TRURO CONSERVATION TRUST TRS BEDNAREK ROBERT	10 EDGEWOOD WAY	PO BOX 327	NO TRURO	MA	02652
5597	51-91-0-E	TOWN OF TRURO	139 RT 6	PO BOX 2030	TRURO	MA	02666-2030

Key	Parcel ID	Owner	Location	Mailing Street	Mailing City	ST	ZipCd/Country
6046	51-96-0-R	RYAN ROBERT J JR & AMY LEE	4 SO PAMET WAY	217 OLD ROUTE 209	HURLEY	NY	12443-5920
7143	51-100-0-R	TAYLOR ERICA	141 RT 6	PO BOX 15	WELLFLEET	MA	02667
7144	51-101-0-R	BUTILIER ALYSSA J	143 RT 6	PO BOX 193	TRURO	MA	02666
7145	51-102-0-R	141-147 ROUTE 6 TRURO HOA C/O FIRST PROPERTY MANAGEMENT	145 RT 6	1046 MAIN ST SUITE 11	OSTERVILLE	MA	02655
7147	51-103-0-R	FORANT MATTHW R	147 RT 6	PO BOX 1261	TRURO	MA	02666
7146	51-104-0-R	141-147 ROUTE 6 TRURO HOA C/O FIRST PROPERTY MANAGEMENT	149 RT 6	1046 MAIN ST SUITE 11	OSTERVILLE	MA	02655



Plan Notes:
1) The Purpose of this plan is to modify the Road layout shown on Plan Book 662, Page 87, and re-locate the cul-sac.
2) Requested waivers are;
a) Sec. 2.5.2 a.6, Drainage Calculations ~ No additional construction is requested.
b) Sec. 2.5.2 a.10, Three Proposed Road Names ~ Road is already named and no further work is requested
c) Sec 2.5.2.a.11, Written Statement regarding Road and Utility Installation ~ Road is constructed, Utilities are in place and no further work is requested.
d) Sec. 2.5.2.b.5 Existing and Proposed method of providing drainage ~ Exisitng drainage is in place and no further road construction work is requested.
e) Sec 2.5.2.b.10 Topography ~ No further road construction work is requested.
f) Sec. 2.5.2.b.17 Notation requiring concrete bounds ~ Sufficent concrete bounds are in place, currently, and additional bounds are redundant or not possible due to existing pavement.
g) Sec. 2.5.2.b.22 Two benchmarks shown on plan ~ No further construction is proposed.
h) Sec. 2.5.2.b.30 Location of Trees greater than 10" ~ As a modificaion plan of an apporved subdivision and because no further road construcion is proposed.
i) Sec. 2,5.2.c Plan and Profiles ~ No additional road construction work is proposed.
3) Gross Area of Subdivision = 336,500± Sq.Ft/ 7.72 Acres
Gross Area of Road = 26,615± Sq.Ft./ 0.61 Acres
Area subject to Wetlands Protection Act = 6,870± Sq. Ft./ 0.16 Acres

Definitive Plan Approval
TRURO PLANNING BOARD

No lots may be conveyed and no building permits shall be issued by the Town of Truro until all applicable requirements of the Rules and Regulations Governing Subdivision of Land have been met.

Date of Preliminary Application N/A
Date of Preliminary Approval N/A
Date of Definitive Application _______
Date of Definitive Approval _______
Date of Definitive Endorsement _______

I hereby certify that this plan conforms to the Rules and Regulations of the Registers of Deeds adopted Jan 1,1976, and amended Jan. 7 1988.

Donald T. Poole PLS #32652 Date

Owner:
Truro Center for the Arts at Castle Hill, Inc.
PO Box 758
Truro MA 02666

Modification Definitive Plan of Land
Truro Center for the Arts at Castle Hill, Inc.
Deed Book 29380, Page 47
Lots 1 & 2, Plan Book 569, Page 44
Modification Plan Book 662, Page 87
Scale 1" = 40' August 5, 2019
ols #693002

40-999-0-E

USA-DEPT OF INTERIOR
Cape Cod National Seashore
99 Marconi Site Rd
Wellfleet, MA 02667

51-22-0-R

ENDICH ROBERTA SOLOMON (LE)
RMNDR: ROBERTA S ENDICH TRUST
PO BOX 2027
TRURO, MA 02666

51-23-0-R

MCARDLE RICHARD F X
1511 NORTH ASTOR ST
CHICAGO, IL 60610

51-24-0-R

SNOW JOHN H & FREDA
PO BOX 533
TRURO, MA 02666-0533

51-27-0-R

ESTATE OF MARY B AMENTA
6A WIGHTMAN PL
CROMWELL, CT 06416

51-28-0-R

PEACOCK NANCY N REV TRUST
TRS: PEACOCK NANCY N
319 US RTE 5 NORTH
NORWICH, VT 05055

51-29-0-R

GRIFFITH ROBERT F
C/O HOCKING PETER C
16 CLARKE LANE
PROVIDENCE, RI 02906

51-30-0-R

COOK MICHAEL
PO BOX 320
TRURO, MA 02666-0320

51-34-0-E

TRURO CENTER FOR THE ARTS AT
CASTLE HILL INC
PO BOX 756
TRURO, MA 02666

51-68-0-R

NANCY L KRUEGER TRUST
TRS KRUEGER PAUL H
38 RUSSELL AVENUE
WATERTOWN, MA 02472

51-74-0-R

COLBURN DEBORAH
107 PEARL ST
CAMBRIDGE, MA 02139

51-88-0-E

TRURO CENTER FOR THE ARTS AT
CASTLE HILL INC
PO BOX 756
TRURO, MA 02666

51-89-0-E

TRURO CONSERVATION TRUST
TRS BEDNAREK ROBERT
PO BOX 327
NO TRURO, MA 02652

51-90-0-E

TRURO CONSERVATION TRUST
TRS BEDNAREK ROBERT
PO BOX 327
NO TRURO, MA 02652

51-91-0-E

TOWN OF TRURO
PO BOX 2030
TRURO, MA 02666-2030

51-96-0-R

RYAN ROBERT J JR & AMY LEE
217 OLD ROUTE 209
HURLEY, NY 12443-5920

51-100-0-R

TAYLOR ERICA
PO BOX 15
WELLFLEET, MA 02667

51-101-0-R

BUTILIER ALYSSA J
PO BOX 193
TRURO, MA 02666

51-102-0-R

141-147 ROUTE 6 TRURO HOA
C/O FIRST PROPERTY MANAGEMENT
1046 MAIN ST SUITE 11
OSTERVILLE, MA 02655

51-103-0-R

FORANT MATTHW R
PO BOX 1261
TRURO, MA 02666

51-104-0-R

141-147 ROUTE 6 TRURO HOA
C/O FIRST PROPERTY MANAGEMENT
1046 MAIN ST SUITE 11
OSTERVILLE, MA 02655

BOARD ACTION / REVIEW

TOWN OF TRURO

Planning Department

P.O. Box 2030, Truro, MA 02666
Tel: (508) 349-7004 Fax: (508) 349-5505

To: Planning Board
From: Jess Bardi, Interim Town Planner
Date: October 3, 2019 for October 9th Meeting
Re: 344 Route 6 Wireless Communication Facility Modification Staff Report

T-Mobile Northeast LLC and Crown Castle LLC – Pre-application consultation in accordance with §40.5 of the Truro Zoning Bylaw for the proposed modification to an existing wireless communication facility located at 344 Route 6 in Truro, Massachusetts (Map 39, Parcel 172.A). Review and vote on Applicants' request for waiver of Commercial Development Site Plan Review in accordance with §70.3 and §70.9 of the Truro Zoning Bylaw.

Project Narrative/ Planner Comments

This is a proposal to modify the existing telecommunications tower behind the public safety facility by replacing existing antennas with antennas of similar materials and replacing equipment cabinets. It is my understanding that the proposed work will not increase the number of antennas or equipment cabinets on the existing tower. The Applicant is before the Board seeking a waiver of commercial development site plan review pursuant to §70.3 and §70.9 of the Truro Zoning Bylaw.

Under §70.9 of the Bylaw, the Board may determine, at its discretion, that submission of a commercial site plan review application is not required when the alteration or reconstruction of an existing building or structure will not have a significant impact:

- Within the site or in relation to adjacent properties and streets;
- On pedestrian and vehicular traffic;
- On public services and infrastructure;
- On unique environmental and historic resources, abutting properties; or
- On community needs.

Should the Board determine that waiver of site plan review would not be in the public interest, the Board will need to schedule a public hearing on the Applicant's application for commercial development site plan review (also included within the materials submitted by the Applicant).

It is my opinion the Board cannot deny or delay the proposed work based upon existing federal laws, which preempt Truro's local bylaws governing wireless communications facilities. In my opinion, this application would be exempt from the requirement of applying for either a new or modified special permit under §40.5 of the Bylaw, as it is governed by the Spectrum Act.

As part of the Middle Class Tax Relief and Job Creation Act of 2012, Congress enacted a provision, Section 6409(a), known as the Spectrum Act, which provides, in pertinent part, that (1) . . . a State or local government may not deny, and shall approve, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station." An "eligible facilities request" is defined as any request for modification of an existing wireless tower or base station that involves: "(A) collocation of new transmission equipment; (B) removal of transmission equipment; or (C) replacement of transmission equipment."

The FCC rules define "base station" for purposes of this Act as "the equipment and non-tower supporting structure at a fixed location that enable Commission licensed or authorized wireless communications between user equipment and a communications network" and includes any equipment associated with wireless communications service. An existing base station is a structure supporting or housing, at the time of the application, an antenna, transceiver, or other associated equipment that constitutes part of a "base station," even if the particular structure was not built for the sole or primary purpose of providing such support. Thus, once telecommunications equipment is installed on a support structure that structure becomes an existing "base station" for purposes of the Spectrum Act.

Based on my review of the application materials submitted, it is my opinion that the existing tower at 344 Route 6 constitutes an existing base station for which T-Mobile is seeking to modify and replace transmission equipment, and therefore, this application cannot be subject to discretionary permitting by the Board.

Materials Submitted

The Applicant has submitted the following materials to the Board:

- Planning Board Site Plan Review Waiver and Application
- Eligible Facilities Request Application
- Waiver of Site Plan Review and Eligible Facilities Request Supporting Statement
- Plans:
    - Overall Site Plan, Sheet A-1, dated May 23, 2019
    - Enlarged Site Plan, Sheet A-2, dated May 23, 2019
    - Tower Elevation and Antenna Orientation Plan, Sheet A-3, dated May 23, 2019
    - Antenna, RRH and TMA Detail, Sheet A-4, dated May 23, 2019
    - Final T-Mobile Panel Detail, Sheet E-1, dated May 23, 2019
- Structural Analysis
- Mounting Analysis
- Building Permit Application
- FCC License
- Consent from the Town of Truro

Possible Actions of the Planning Board

If the Board determines the Applicant's waiver of site plan review is warranted under the circumstances, the Board may move as follows:

I move to grant T-Mobile's request for waiver of commercial development site plan review in accordance with Sections 70.3 and 70.9 of the Truro Zoning Bylaw for modifications to antennas and equipment cabinets on the existing wireless telecommunications facility on the existing tower located at 344 Route 6, Truro Massachusetts based upon the finding that the proposed modifications will not have a significant impact:

- Within the site or in relation to adjacent properties and streets;
- On pedestrian and vehicular traffic;
- On public services and infrastructure;
- On unique environmental and historic resources, abutting properties; or
- On community needs.

If the Board determines that commercial site plan review is required under the Bylaw, it may vote to deny the Applicant's request for waiver of site plan review and schedule a public hearing on the application to a date and time certain.

PRINCE LOBEL

VIA OVERNIGHT MAIL

September 12, 2019

Town of Truro Planning Board
Rich Stevens, Town of Truro Building Commissioner
Town of Truro
24 Town Hall Road
Truro, MA 02666

Re:	Application for Building Permit, and to the extent necessary, a Waiver of Site Plan Review pursuant to Section 6409 of the Spectrum Act
Property Address:	344 Route 6, Truro, MA 02652 (the "**Property**")
Applicant:	T-Mobile Northeast LLC and Crown Castle

Dear Mr. Stevens and the Honorable Members of the Planning Board:

This firm represents T-Mobile Northeast LLC and Crown Castle (together, the "**Applicants**"), in connection with an application for a waiver of site plan review from the Town of Truro Planning Board, and a building permit from the Town of Truro Building Department.

The Applicants propose to modify T-Mobile's existing wireless telecommunications facility on the existing tower located on the Property (the "**Tower**"). As more specifically discussed in the application package, the proposed modifications of the Tower comply with the Eligible Facilities Request requirements set forth in Section 6409 of the Spectrum Act. Therefore, the Applicant request an issuance of a Building Permit and to the extent necessary, a waiver of site plan review.

Enclosed herewith, please find one (1) original and fifteen (15) copies of the aforementioned application package. Please contact me directly with any questions on this matter.

Sincerely,

Adam F. Braillard
Direct: 617-456-8153
Email: abraillard@princelobel.com

Prince Lobel Tye LLP
One International Place
Suite 3700
Boston, MA 02110
TEL: 617 456 8000
FAX: 617 456 8100

www.princelobel.com

APPLICATION FOR BUILDING PERMIT
OR RELIEF UNDER SECTION 6409(a) OF THE SPECTRUM ACT
AND WAIVER OF SITE PLAN REVIEW
For a Modification to a
WIRELESS COMMUNICATION FACILITY

T-Mobile Northeast LLC

c/o Adam F. Braillard, Esq.
Prince Lobel Tye LLP
One International Place, Suite 3700
Boston, MA 02110

Applicant

Property Location:
344 Route 6
Truro, MA 02652

Prepared by: **Adam F. Braillard, Esq.**
Prince Lobel Tye LLP
One International Place, Suite 3700
Boston, MA 02110
Telephone: (617) 456-8153
Facsimile: (617) 456-8100

September 10, 2019

TABLE OF CONTENTS

APPLICATION FOR BUILDING PERMIT
OR RELIEF UNDER SECTION 6409(a) OF THE SPECTRUM ACT
AND WAIVER OF SITE PLAN REVIEW
For a Modification to a
WIRELESS COMMUNICATION FACILITY

Property Location:

344 Route 6
Truro, MA 02652

Town of Truro Planning Board

P.O. Box 2030, Truro, MA 02666

COMMERCIAL DEVELOPMENT
APPLICATION FOR SITE PLAN REVIEW

Date September 10, 2019

To the Town Clerk and the Planning Board of the Town of Truro, MA

The undersigned hereby files an application with the Truro Planning Board for the following:

☐ ***Site Plan Review*** pursuant to §70.3 of the Truro Zoning By-law (Complete I, II & III)

☒ ***Waiver of Site Plan Review*** pursuant to §70.9 of the Truro Zoning By-law (Complete I & III)

I. General Information

Description of Property and Proposed Project Modification of an existing telecommunications tower by replacing existing antennas with like-kind antennas, and by replacing equipment cabinets. There will be NO increase in the number of antennas or equipment cabinets.

Property Address 344 Route 6, Truro, MA 02652 Map(s) and Parcel(s) Map 39, Parcel 172.A

Registry of Deeds title reference: Book _____, Page _____, or Certificate of Title Number _____ and Land Ct. Lot # _____ and Plan # _____

Applicant's Name T-Mobile Northeast LLC and Crown Castle LLC

Applicant's Legal Mailing Address 10 Commerce Way, Norton MA 02766

Applicant's Phone(s), Fax and Email 617-456-8153

Applicant is one of the following: *(please check appropriate box)*

☐ Owner ☐ Prospective Buyer* ☒ Other* *Written Permission of the owner is required for submittal of this application.

Owner's Name and Address Town of Truro, 24 Town Hall Road, Truro, MA 02666

Representative's Name and Address Adam F. Braillard, Esq. of Prince Lobel Tye LLP

Representative's Phone(s), Fax and Email One International Place, Boston, MA 02110
617-456-8153, abraillard@princelobel.com

II. Waiver(s) Request – Waivers from any of the items listed in §70.3.D, must be identified below and a separate sheet shall be attached indicating in detail the reason for said waiver(s) pursuant to §70.3.D. *Note that items 1(a-d), 2 and 3.a (1 – 6) of §70.3.D shall not be waived.*

☐ 1.e: 3 copies of drainage calculations

☐ 3.b: Existing Conditions Plan (specific waiver requests and reason must be attached)

☐ 3.c: Proposed Conditions Plan (specific waiver requests and reason must be attached)

☐ 3.d: Proposed Landscaping Plan (specific waiver requests and reason must be attached)

III. Signature(s)

Adam F. Braillard

Applicant(s)/Representative Signature

-see attached Letter of Consent from the Town of Truro.

Owner(s) Signature or written permission

Your signature on this application authorizes the Members of the Planning Board and town staff to visit and enter upon the subject property.

PRINCE LOBEL

September 10, 2019

Rich Stevens
Building Commissioner
Town of Truro
24 Town Hall Road
Truro, MA 02666

Re: Eligible Facilities Request to Modify Transmission Equipment at an Existing Base Station located at **344 Route 6, Truro, MA 02652**

Dear Mr. Stevens:

A. T-Mobile is Filing an Eligible Facilities Request

Prince Lobel Tye LLP, on behalf of T-Mobile Northeast LLC is submitting the attached Eligible Facilities Request application to add, remove, modify, or replace Transmission Equipment at an Existing Base Station located at 344 Route 6, Truro, MA 02652.

This jurisdiction has not yet developed an Eligible Facilities Request permit application form that complies with Section 6409 of the Middle Class Tax Relief and Job Creation Act of 2012, commonly known as the "Spectrum Act" (Pub. Law No. 112-96, 126 Stat 156) (codified at 47 U.S.C. § 1455), therefore, this Eligible Facilities Request is attached to the Building Permit Application form which was customarily used by this jurisdiction when reviewing requests to collocate or modify wireless telecommunications facilities. Federal law now preempts many of the permit application requirements that this jurisdiction would previously have required from an applicant, therefore, this Eligible Facilities Request application provides only the information that federal law allows this jurisdiction to consider when reviewing an Eligible Facilities Request.

Section 6409(a) of the Spectrum Act mandates that state and local governments "*may not deny, and shall approve, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station.*" Under Section 6409(a)(2)(A)-(C) an Eligible Facilities Request is any request to modify a Tower or Base Station that involves "collocations of new Transmission Equipment," "removal," or "replacement" of Transmission Equipment.

Prince Lobel Tye LLP
One International Place
Suite 3700
Boston, MA 02110
TEL: 617 456 8000
FAX: 617 456 8100

www.princelobel.com

B. Why this Eligible Facilities Request Must Be Granted

This Eligible Facilities Request involves an effort to collocate, remove, modify, or replace Transmission Equipment at an existing Base Station operated by a Federal Communications Commission ("**FCC**") licensed wireless carrier. The FCC has defined Base Station as "the equipment and non-tower supporting structure at a fixed location that enable Commission-licensed or authorized wireless communications between user equipment and a communications network . . . the term includes equipment associated with wireless communications service including, but not limited to, radio transceivers, antennas, coaxial or fiber-optic cable, regular and backup power supply, and comparable equipment." The term existing base station also includes a structure that currently houses or supports an antenna, transceiver or other associated equipment that constitutes part of a Base Station at the time the application is filed even if the structure was not built solely or primarily to provide such support. The existing Base Station in this application is approximately one hundred and seventy four feet (174') high and presently contains at least four (4) wireless facilities thereon. The existing Base Station meets the FCC definition of a Base Station.

The list of equipment identified in the Eligible Facilities Request application that will be collocated, removed, or replaced at the Base Station also is Transmission Equipment as determined by the FCC. The FCC has defined Transmission Equipment as "any equipment that facilitates transmission for any Commission-licensed or authorized wireless communication service, including, but not limited to, radio transceivers, antennas and other relevant equipment associated with and necessary to their operation, including coaxial or fiber-optic cable, and regular and back-up power supply. This definition includes equipment used in any technological configuration associated with any Commission-authorized wireless transmission, licensed or unlicensed, terrestrial or satellite, including commercial mobile, private mobile, broadcast and public safety services, as well as fixed wireless services such as microwave backhaul or fixed broadband."

The FCC, in a Report and Order adopted on October 17, 2014, determined that any modification to an existing telecommunications Base Station that meets the following six criteria does not substantially change the physical dimensions of the existing Base Station and therefore is an Eligible Facilities Request which must be granted:

1. ***The modifications to the Transmission Equipment do not increase the height of the Base Station by more than 10 percent (10%) or ten (10) feet, whichever is greater.***

    a. The height of the Base Station is approximately 174' high. The proposed replacement of three (3) panel antennas, three (3) RRUs and three (3) TMAs will not affect the height of the Base Station.

2. ***The modifications to the Transmission Equipment do not protrude from the edge of the support structure by more than six (6) feet.***

    a. The replacement of three (3) panel antennas, three (3) RRUs and three (3) TMAs will not protrude from the edge of the tower further then they are

currently located, and therefore will not exceed the six (6) foot limitation. All of the proposed antennas will be mounted on the existing antenna mounts on the Tower. As such, the proposed modification will not protrude from the edge of the building by more than six (6) feet.

3. ***The modifications to the Transmission Equipment do not involve the installation of more than the standard number of equipment cabinets for the technology involved, not to exceed four.***

    a. There are currently two (2) equipment cabinets existing at the Base Station. The Applicant proposes to replace the two (2) cabinets with two (2) new cabinets, and therefore the net total number of equipment cabinets will remain at two (2).

4. ***The modifications to the Transmission Equipment do not entail any excavation or deployment outside of the Base Station site.***

    a. The Applicant is proposing to replace three (3) panel antennas with like kind panel antennas, three (3) RRUs with like kind RRUs, and three (6) TMAs with three (3) like kind TMAs. There will be no excavation or deployment outside of the Base Station site.

5. ***The modifications to the Transmission Equipment do not defeat any existing concealed or stealth-design.***

    a. All prior decisions in connection with the existing Tower do not provide for conditions with respect to concealed or stealth designs. As such, the proposed modification will not defeat any existing concealed or stealth design.

6. ***The modifications to the Transmission Equipment comply with prior conditions of approval of the Base Station, unless the non-compliance is due to an increase in height, increase in width, addition of equipment cabinets, or new excavation that does not exceed the corresponding "substantial change" thresholds in numbers 1-4.***

    a. Based on the foregoing, the proposed modifications to the Base Station fully conform to Section 6409(a) of the Spectrum Act and comply with the prior conditions of approval of the Base Station.

There is a certification attached to the accompanying Eligible Facilities Request that identifies how each of the six review criteria identified by the FCC is met. The modifications to the Transmission Equipment at the Base Station located at 344 Route 6, Truro, MA contained in this Eligible Facilities Request fully conform to Section 6409(a) as enacted by Congress and as interpreted by the FCC. Accordingly, this Eligible Facilities Request must be approved within sixty (60) days, as required by federal law and FCC implementing regulations.

PRINCE LOBEL

C. Notice of Federal Law Expedited Permit Processing and Deemed Granted

Under federal law, an Eligible Facilities Request is deemed granted sixty (60) days after a complete application is filed with a local jurisdiction. If sixty days pass after the submission of T-Mobile's accompanying Eligible Facilities Request and the Town of Truro has not acted to grant or deny the request, it will be deemed granted. At that time, the applicant may advise the Town that the application has been deemed granted. If the Town wishes to contest whether the Eligible Facilities Request has been deemed granted, the burden is on the Town to file a lawsuit in a court of competent jurisdiction within thirty (30) days after receipt of a written communication notifying it that the Eligible Facilities Request has been deemed granted. Failure to file a lawsuit in a timely manner may forever bar this jurisdiction from contesting that this Eligible Facilities Request has been deemed granted.

T-Mobile is committed to working cooperatively with you, and all jurisdictions around the country, to secure expeditious approval of requests to modify existing personal wireless service facilities. Please do not hesitate to contact me if you have questions.

Sincerely,

Adam F. Braillard

Direct: 617-456-8153
Email: abraillard@princelobel.com

ELIGIBLE FACILITIES REQUEST CERTIFCATION FOR NON-SUBSTANTIAL CHANGES TO AN EXISTING BASE STATION

"Base Station" means the equipment and non-tower supporting structure at a fixed location that allow Commission-licensed or authorized wireless communications between user equipment and a communications network. The term base station includes any equipment associated with wireless communications services including but not limited to radio transceivers, antennas, coaxial or fiber-optic cables, regular or back up power supply, and comparable equipment. The term existing base station also includes a structure that currently houses or supports an antenna, transceiver or other associated equipment that constitutes part of a base station at the time the application is filed even if the structure was not built solely or primarily to provide such support. "Base Station" includes the relevant equipment in any technological configuration, including small cells and DAS. Remember "Base Station" has two separate meanings: (1) the supporting structure that houses FCC licensed or authorized wireless equipment and (2) the wireless equipment itself. Keep this distinction in mind when calculating a substantial change in physical dimensions.

"Transmission Equipment" means any equipment that facilitates transmission for any FCC licensed or authorized wireless communication service, including but not limited to, radio transceivers, antennas and other relevant equipment associated with and necessary to their operation, including coaxial or fiber-optic cable, and regular and back-up power supply. This definition includes equipment used in any technological configuration associated with any Commission-authorized wireless transmission, licensed or unlicensed, terrestrial or satellite, including commercial mobile, private mobile, broadcast and public safety services, as well as fixed wireless services such as microwave backhaul or fixed broadband.

"Collocation" means the addition, removal or replacement of Transmission Equipment to an existing tower or a base station. This means that the existing support structure, be it a tower or a building or some other structure, must presently support FCC licensed or authorized wireless facilities. The FCC further requires that the site (tower, building, or other structure) was previously approved by the appropriate agency of government to house wireless facilities. Illegal wireless installations cannot be the basis for an eligible facilities request. However, if a communications Tower was erected at a time when it was exempt from zoning, the Tower can be modified through the Eligible Facilities Request process even if the Tower is no longer exempt from zoning.

Site Address: 344 Route 6, Truro, MA 02652

Existing Facilities

The Existing Facility is comprised of six (6) panel antennas all mounted to the existing tower, together with supporting equipment.

Height of Base Station

Height above ground level of the tallest point on the existing base station: 174' (feet)

Height above ground level of the tallest point of the existing base station after the installation of the *proposed* equipment: 174' (feet)

1) Does the height above ground level of the proposed equipment exceed the height of the tallest point on the existing base station by more than 10 percent (10%) or ten (10) feet, whichever is greater?

☐ Yes ☒ No

Width of Base Station

2) Will any of the proposed equipment protrude from the edge of the support structure by more than six (6) feet?

☐ Yes ☒ No

Excavation or Equipment Placement

3) Will the proposed changes in Transmission Equipment involve excavation or placement of new equipment outside the existing Base Station site or outside any access or utility easements currently related to the site?
☐ Yes ☒ No

Equipment Cabinets

4) Will the proposed modification in Transmission Equipment involve installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four?
☐ Yes ☒ No

Concealed or Stealth-Designed Wireless Facilities

5)

a) Is the existing wireless facility concealed or stealth- designed?
☐ Yes ☒ No

b) If the answer to 5a) is "Yes," will the proposed modification in Transmission Equipment defeat the existing concealed or stealth-design? **N/A**
☐ Yes ☐ No

Compliance with Preexisting Conditions of Approval for the Base Station

6)

a) Were there any conditions of approval stated in the original government approval of the Base Station?

☐ Yes ☒ No

b) Will the proposed modification in Transmission Equipment comply with conditions of approval imposed on the Base Station prior to February 22, 2012?

☒ Yes ☐ No

c) If the answer to 6b) is "No," is the non-compliance due solely to any of the conditions addressed in Questions 1-5 above? **N/A**

☐ Yes ☐ No

If the answers to questions 1-4 are "No," the answer to either 5a) or b) is "No," and the answers to 6a) is "No" or the answers to either 6b) or 6c) are "Yes," then the proposed modifications do not substantially change the physical dimensions of the existing Base Station.

Explanatory Comments:
N/A

This certification is dated this 10th day of September, 2019.

Signature

Adam F. Braillard, Esq., Attorney for T-Mobile Northeast LLC.
Name & Title

Eligible Facilities Request (EFR) Application Form

[Attach this EFR form to the local jurisdiction form used to process cell site modifications.]

Date of Submittal: September 10, 2019

Submitted by:

Name: Adam F. Braillard, Esq.

Title: Attorney for the Applicants: T-Mobile Northeast LLC and Crown Castle (the "Applicants")

Contact information: 617-456-8153, abraillard@princelobel.com

Name of Jurisdiction: Town of Truro, Massachusetts

Address of Jurisdiction: 24 Town Hall Road, Truro, MA 02666

Contact Name for Jurisdiction: Jessica Bardi, Acting Town Planner, and Rich Stevens, Building Commissioner

Name of Local Government Permit Application: Building Permit and Administrative Site Plan Review

Local Government File #:

Street Address of Site: 344 Route 6

Tax Parcel # of Site:

Latitude/Longitude of Site:

List Each Piece of Transmission Equipment that will be Collocated or Added:

The Applicants propose to modify T-Mobile's existing Wireless Telecommunications Facility located on the existing Tower on the Property by replacing three (3) panel antennas with three (3) like kind panel antennas; by replacing three (3) Remote Radio Units (RRUs) with three (3) like kind RRUs; by replacing six (6) TMAs with three (3) like kind TMAs; and by replacing two equipment cabinets at the base of the Tower, together with supporting equipment. All of the proposed antennas, RRUs and TMAs will be mounted to the existing mounting brackets on the Tower.

List Each Piece of Transmission Equipment that will be Removed:

3 RRUs
6 TMAs
2 Equipment Cabinets

List Cabinets that will be Collocated or Added at the Site:

Replacing 2 Cabinets with 2 like kind cabinets.

List Cabinets that will be Removed at the Site:

Replacing 2 Cabinets with 2 like kind cabinets.

PRINCE LOBEL

September 10, 2019

Town of Truro
Planning Board
24 Town Hall Road
Truro, MA 02666

Re:	Eligible Facilities Request pursuant to Section 6409 of the Spectrum Act and an Application for Waiver of Site Plan Review, in the alternative.
Property Address:	344 Route 6, Truro, MA 02652 (the "**Property**")
Applicant:	T-Mobile Northeast LLC and Crown Castle

Dear Honorable Members of the Planning Board:

This firm represents T-Mobile Northeast LLC ("**T-Mobile**") and Crown Castle ("**Crown**", and together with T-Mobile, the "**Applicant**") in connection with an application for a waiver of site plan review from the Town of Truro Planning Board (the "**Board**"), to modify an existing wireless communications facility on the existing tower located on the Property (the "**Tower**").

As further addressed below, pursuant to Section 70.9 (Waver of Site Plan Review) of the Town of Truro zoning bylaws (the "**Bylaws**"), the Applicant respectfully requests the waiver of site plan review from the Board because the proposed modifications to the Tower "will not have a significant impact within the site or in relation to adjacent properties and streets; on pedestrian and vehicular traffic; on public services and infrastructure, or on unique environmental and historic resources, abutting properties; or community needs." Moreover, to the extent the Board determines site plan review is required, the Applicant submit that its proposal is permitted subject to administrative site plan review from the Board[1].

T-Mobile's Proposed Facility (as defined herein) is subject to Section 6409 of the Middle Class Tax Relief and Job Creation Act of 2012, more commonly known as the "Spectrum Act" (47 U.S.C. § 1455). The compliance with the Spectrum Act is shown on the Eligible Facilities Request permit application form attached hereto in Tab 8 of this application package, and incorporated herein by reference (the "**EFR**"). Nevertheless, we respectfully submit that in the event that the Board determines that the application

[1] Pursuant to Section 6409(a) of the Spectrum Act, state and local governments "may not deny and shall approve, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station." As such, the Applicant submits that they need not apply for a site plan review from the board. To the extent that this Board determines that the Applicants' proposed wireless facility must comply with site plan requirements set forth in Section 70.3 of the Bylaws, the Applicants submit that they have complied with said requirements, without waiving the argument that such relief is not required.

Prince Lobel Tye LLP
One International Place
Suite 3700
Boston, MA 02110
TEL: 617 456 8000
FAX: 617 456 8100

www.princelobel.com

does not comply with the Spectrum Act, the Applicant hereby states that the site plan requirements set forth in the Bylaws are hereby met by the Applicant, and that relief must be granted to the Applicant.

The Applicant seeks to modify its existing wireless communications facility by replacing panel antennas, Remote Radio Head Units ("**RRU**"), and tower mounted amplifiers ("**TMA**") current installed on the Tower, and by replacing radio cabinets and supporting equipment at the base of the Tower (the "**Proposed Facility**"). All of the proposed replacement antennas will be installed in the same location as the removed antennas on the existing Tower. The Applicant's facilities are shown on the Plans attached hereto in Tab 4 of this application package, and incorporated herein by reference (the "**Plans**").

I. Background

T-Mobile licensed by the Federal Communications Commission (the "**FCC**") to construct and operate a wireless telecommunications network in various markets throughout the country, including the Commonwealth of Massachusetts and in particular in the Town of Truro. A copy of the Applicant's FCC license is attached hereto. T-Mobile is in the process of designing and constructing a telecommunications system to serve all of the Commonwealth of Massachusetts. One of the key design objectives of its systems is to provide seamless coverage. Such a system requires a grid of radio transmitting and receiving links located approximately .5 to 2 miles apart, depending on the location of existing and proposed installations in the surrounding area, the existing use of the network and the existing topography. The radio transmitting and receiving facilities operate on a line-of-sight basis, requiring a clear path from the facility to the user on the ground. This dynamic requires the antennas to be located in a location where the signal is not obstructed or degraded by other buildings or by topographical features such as hills.

II. Project Description

As noted above, T-Mobile proposes to modify its existing wireless facility currently operating on the Tower by replacing three (3) panel antennas with three (3) like kind panel antennas, by replacing three (3) RRUs with three (3) like kind RRUs, and by replacing six (6) TMAs with three (3) like kind TMAs. Moreover, T-Mobile proposes to replace two (2) radio cabinets with two (2) like kind radio cabinets currently installed at the base of the Tower. All of the replacement antennas will be installed at the same locations as the replaced antennas on the Tower. All replaced antennas, cabinets, and supporting equipment will be installed to be consistent with all previous decisions of the Board for this facility. Consequently, the visual change to the Applicant's existing facility will be de minimis.

After installation, the Proposed Facility will be unmanned and will only require twice a month maintenance visits per carrier. The only utilities required to operate this Proposed Facility are standard 120-volt electrical power as well as telephone service. These are presently in place at the Property. The traffic generated by the Proposed Facility will be approximately two vehicle trips per month by maintenance personnel who will inspect the Proposed Facility to ensure it remains in good working order. The Proposed Facility will comply with all applicable local, state and federal safety codes.

III. Legal Arguments

A. Section 70.9: Waiver of Site Plan Review

The Planning Board may determine at its discretion without a public hearing that submission of a Commercial or Residential Site Plan review application is not required when the alteration or reconstruction of an existing building or structure or new use or change in use will not have a significant impact: within the site or in relation to adjacent properties and streets; on pedestrian and vehicular traffic; on public services and infrastructure, or on unique environmental and historic resources, abutting properties; or community needs.

A waiver from Commercial or Residential Site Plan Review must be requested by the applicant using the appropriate Site Plan Review Application form. The form, applicable filing fee and supporting documentation to establish that such review is not required shall be filed with the Planning Board Secretary. A waiver request will be considered at a regular session of the Planning Board.

Upon the decision of the Planning Board, a copy of the decision shall be sent to the applicant, the owner, the representative, if any, and the Building Commissioner.

Site plan review is not required because the Proposed Facility on the existing Tower on the Property will not have a significant impact within the site or in relation to adjacent properties and streets; on pedestrian and vehicular traffic; on public services and infrastructure, or on unique environmental and historic resources, abutting properties; or community needs.

All of the replacement antennas will be of like kind design and shape as the existing antennas, and will be located at the same location and on the same mounts as the existing antennas on the Tower. Further, the replacement cabinets will be like kind to the existing cabinets and also installed in the same location as the current radio cabinets at the base of the Tower. Moreover, the Proposed Facility will not increase the height of the Tower or the footprint of the existing equipment platform at the base of the Tower. Therefore, the Proposed Facility will not have a significant impact within the site or in relation to adjacent properties and streets.

As referenced above, there will be no change to the de minimis traffic generated by the Proposed Facility, as this will continue to be approximately two vehicle trips per month by maintenance personnel who will inspect the Proposed Facility to ensure it remains in good working order. These infrequent visits will not result in any material increase in traffic or disruption to patterns of access or egress that will cause congestion hazards or cause a substantial change in the established neighborhood character. Further, the Applicant's maintenance personnel will make use of the existing access roads and parking at the Tower.

As referenced above, the only utilities required to operate this Proposed Facility are standard 120-volt electrical power as well as telephone services. These are presently in place at the Property, and therefore there will be no impact on the Town's public services and infrastructure.

The modifications to the Tower by the Applicant will not change the esthetics of the Tower or the surrounding area and will cause no impact to any unique environmental and historic resources, or to abutting properties. Further, the modification will produce a minimal change in the appearance of the Tower, as the Proposed Facility will blend with the existing characteristics of the Tower and the surrounding neighborhood.

Finally, the Proposed Facility will benefit the Town and promote the safety and welfare of its residents, businesses and drivers by providing reliable state-of-the-art digital wireless voice and data services. Further, the site will improve the reliability of emergency communications with the police and fire departments by eliminating dropped or blocked calls due to inadequate signal strength or insufficient network capacity to handle call volume, particularly important during emergency situations. Therefore, the Proposed Facility will benefit the surrounding properties and the community by providing enhances wireless coverage, while not impacting the Property and surrounding areas.

B. <u>Section 70.3.F: Review Criteria/Design Guidelines</u>

To the extend the Board determines that Site Plan Review is require, the Board will find that the Proposed Facility complies with the following review criteria and design guidelines:

1. **The proposal is in conformity with all applicable provisions of the Zoning Bylaw.**

The Proposed Facility will not change the footprint or the height of the Tower, and will not increase footprint of the ground equipment platforms at the base of the tower. Further, the proposed modifications to the Tower will not impact the Property and surrounding areas, and as referenced above, the Proposed Facility conforms to Section 70.9, Waiver of Site Plan Review, of the Bylaws.

2. **The proposal provides for the protection of abutting properties and the surrounding area from detrimental site characteristics and from adverse impact from excessive noise, dust, smoke, or vibration higher than levels previously experienced from permitted uses.**

The modification to the Tower will blend with the existing characteristics of the Tower and the surrounding neighborhood. Moreover, the proposed installation will not generate any traffic, smoke, dust, heat, glare, discharge of noxious substances, nor will it pollute waterways or groundwater. Conversely, the surrounding properties and general public will benefit from the potential to enjoy improved wireless communication.

3. **The proposal provides for the protection of adjacent properties and the night sky from intrusive lighting, including parking lot and building exterior lighting. Lighting must be consistent with Chapter IV, Section 6 of the General Bylaws of the Town of Truro.**

No additional lighting is proposed as part of the Proposed Facility.

4. **The proposal provides for the protection of significant or important natural, historic, or scenic features.**

As referenced above, the changes to the Tower and site will be de minimis and will not change the esthetics of the Tower or the surrounding area and will not impact unique environmental and historic resources, or to abutting properties.

5. **The building sites shall minimize obstruction of scenic views from publicly accessible locations; minimize tree, vegetation, and soil removal and grade changes; and maximize open space retention.**

The Applicant proposes no additional obstruction of scenic views, and proposes no tree, vegetation or soil removal or grade change as a result of the Proposed Facility.

6. **The proposal adequately provides for refuse disposal.**

The Applicant's proposal complies with this provision of the Bylaws.

7. **The proposed sewage disposal and water supply systems within and adjacent to the site shall be adequate to serve the proposed use.**

Not applicable, as the proposal requires no sewage and water services.

8. **The proposed drainage system within the site shall be adequate to handle the runoff resulting from the development. Drainage run-off from the project shall not: damage any existing wellfield(s) or public water supply; damage adjoining property; overload, silt up or contaminate any marsh, swamp, bog, pond, stream, or other body of water; or interfere with the functioning of any vernal pool.**

There will be no change to the existing footprint of the Tower and the equipment shelters and pads at the base of the Tower, as the Applicant proposes to install its new cabinets in the same location as the existing cabinets.

9. **A soil erosion plan shall adequately protect all steep slopes within the site and control runoff to adjacent properties and streets both during and after construction.**

Not applicable, as the Applicant is not proposing to modify the site's footprint or modify the Property's slops or impervious services in any way.

10. The proposal shall provide for structural and/or landscaped screening or buffers for storage areas, loading docks, dumpsters, rooftop or other exposed equipment, parking areas, utility buildings and similar features viewed from street frontages and residentially used or zoned premises.

As referenced on the Plans, the Applicant proposes no new parking or loading areas, as there will be no change to the site other than the replacement of T-Mobile's antennas and radio cabinets, and ancillary equipment.

11. Buildings and structures within the subject site shall relate harmoniously to each other in architectural style, site location, and building exits and entrances. Building scale, massing, materials, and detailing should be compatible with the surrounding area.

The Proposed Facility complies with this provision of the Bylaws because the proposed replacement antennas, radio cabinet and supporting equipment will be of like kind to the existing equipment, as more particularly described on the Plans.

12. Electric, telephone, cable, and other such utility lines and equipment shall be placed underground.

The Applicant proposes no changes to the existing electric, telephone and cabling current servicing the site.

13. The project shall not place excessive demands on Town services.

As referenced above, after installation, the Proposed Facility will be unmanned and will only require twice a month maintenance visits per carrier. The only utilities required to operate this Proposed Facility are standard 120-volt electrical power as well as telephone service. These are presently in place at the Property.

14. The location and number of curb cuts shall be minimized to reduce turning movements and hazardous exits and entrances. Where appropriate and allowable, access to adjoining properties shall be provided. Joint access driveways between adjoining properties shall be encouraged.

Not applicable. The Applicant proposes no changes to existing curb cuts, adjoining property accesses, joint access driveways and the like.

15. Convenience and safety of vehicular and pedestrian movement within the site and in relation to adjacent and other ways serving the project shall be maximized. Traffic patterns for vehicles and pedestrians must show safe and adequate circulation within and access to and from the site.

The Applicant's proposal complies with these provisions of the Bylaws. The proposed installation will not obstruct existing rights-of-way or pedestrian access and will not change the daily conditions of access, egress, traffic, congestion hazard, or character of the neighborhood. The installation will not require the addition of any new parking or loading spaces. The use is passive and will not change the current conditions or appearance surrounding the Tower. The facility will not produce any odors, fumes, noise or waste. There will be no need for water, sewer, or other municipal services.

16. A bicycle rack(s) shall be provided on the site and shall be located near the entrance to the building(s).

Not applicable. The site will continue to be gated and not accessible to the public.

IV. Summary

The Applicant hereby request that the Board determine that the Town of Truro has the right to authorize the construction of the Proposed Facility through the issuance of a Building Permit, pursuant to Section 6409(a) of the Spectrum Act. Or, in the alternative, its proposed modifications to the existing Tower do not have a significant impact within the site or in relation to adjacent properties and streets; on pedestrian and vehicular traffic; on public services and infrastructure, or on unique environmental and historic resources, abutting properties; or community needs, and therefore no site plan review is required. The findings are made in view of the particular characteristics of the Property and of the Applicant's proposed siting and equipment, as detailed above and herewith. This Property is the most appropriate location for the installation and operation of the wireless communications facility.

For the foregoing reasons the Applicant respectfully requests that the Board grant the foregoing relief pursuant to Section 6409(a) of the Spectrum Act or, in the alternative, zoning relief in the form of a Site Plan Review approval, and such other relief as the Board deems necessary to allow the installation and operation of the Applicant's Proposed Facility.

Sincerely,

Adam F. Braillard
Direct: 617-456-8153
Email: abraillard@princelobel.com

Date: **March 27, 2019**

Denice Nicholson
Crown Castle
46 Broadway
Albany, NY 12204

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

Subject:	**Rigorous Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	4HY0568A
	Carrier Site Name:	HY568/Cingular Truro
Crown Castle Designation:	**Crown Castle BU Number:**	841273
	Crown Castle Site Name:	Truro
	Crown Castle JDE Job Number:	559264
	Crown Castle Work Order Number:	1707955
	Crown Castle Order Number:	479923 Rev. 0
Engineering Firm Designation:	**B+T Group Project Number:**	100736.005.01
Site Data:	**344 Route 6, North Truro, Barnstable County, MA 02652** **Latitude *42° 1' 18.00"*, Longitude *-70° 4' 30.00"*** **170 Foot - Self Support Tower**	

Dear Denice Nicholson,

B+T Group 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**

This analysis utilizes an ultimate 3-second gust wind speed of 139 mph as required by the Massachusetts State Building Code, Ninth Edition. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Saurav Shrestha, E.I.T.

Respectfully submitted by: B+T Engineering, Inc.

John W. Kelly, P.E.

tnxTower Report - version 8.0.5.0

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 170 ft. Self-Support tower designed by Sabre in September of 2000 and mapped by GPD Group in January of 2015. The tower was originally designed for a wind speed of 150 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	139 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)
96.0	97.0	3	Ericsson	ERICSSON AIR 21 B4A B2P	3 6 2	1-1/4 7/8 3/8
		3	Ericsson	RADIO 4449 B12/B71		
		3	Ericsson	RRUS 11 B2		
		3	RFS Celwave	APXVAARR24_43-U-NA20		
		3	RFS Celwave	ATM1900D-1A20		
	96.0	1	--	Sector Mount [SM 403-3]*		

**See Mount Analysis Report by ETS, dated 03/18/2019 for Recommendations on Mount Configuration.*

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)
170.0	174.0	1	Decibel	DB806-XC	1	1/2
169.0	169.0	2	Alcatel Lucent	1900MHZ 4X40W RRH	4	1-1/4
		4	Alcatel Lucent	800MHZ 2X50W RRH W/FILTER		
		2	Alcatel Lucent	TD-RRH8X20-25		
		2	Commscope	DT465B-2XR		
		6	RFS Celwave	ACU-A20-N		
		2	RFS Celwave	APXVSPP18-C-A20		
		2	--	Sector Mount [SM 514-1]		
165.0	173.0	1	Bext	TFC2K	1	7/8
	165.0	1	Bext	TFC2K		
		1	--	Side Arm Mount [SO 203-1]		
151.0	151.0	4	Powerwave Tech.	P65.15.XL.0	2	1-1/4
		2	--	Sector Mount [SM 602-1]		
145.0	145.0	6	Ericsson	RRUS 11	12 4 2	1-5/8 5/8 3/8
		3	Ericsson	RRUS 32		
		3	Ericsson	RRUS 32 B66		
		6	Kaelus	DBC0061F1V51-2		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	Kathrein	800 10122		
		12	Kathrein	860 10025		
		3	KMW Comm.	AM-X-CD-16-65-00T-RET		
		6	Powerwave Tech.	LGP21401		
		3	Quintel Tech.	QS66512-2		
		2	Raycap	DC6-48-60-18-8F		
		1	--	Sector Mount [SM 702-3]		
139.0	138.0	1	Andrew	PAR6-59A	1	EW52
130.0	131.0	3	Alcatel Lucent	RRH2X60-AWS	19	1-5/8
		3	Commscope	HBXX-6516DS-A2M		
		3	Commscope	LNX-6514DS-A1M		
		3	Commscope	SBNHH-1D65B		
		2	CSS	X7C-665-2		
		1	CSS	X7C-680-2		
		2	RFS Celwave	DB-B1-6C-12AB-0Z		
	130.0	1	--	Sector Mount [SM 702-3]		
104.0	117.0	1	RFS Celwave	PD220-5	10 8	7/8 3/8
	116.0	1	Telewave	ANT150F6		
	114.0	1	Sinclair	SRL-210C-4		
	113.0	1	Decibel	DB540K-F		
	112.0	2	RFS Celwave	AO8610-5T0		
	107.0	1	Kathrein	K751221		
	106.0	2	Commscope	VHLPX4-11W-6WH		
		1	RFS Celwave	10191		
		1	Telewave	ANT150F2		
	104.0	1	--	Sabre 30' Specialty Platform		
87.0	87.0	1	Scala	PR-950	1	1/2
		1	--	Side Arm Mount [SO 201-1]		
71.0	73.0	1	Pctel	GPS-TMG-HR-26N	1	1/2
	71.0	1	--	Side Arm Mount [SO 601-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Online Order Information	T-Mobile Co-Locate, Rev# 0	479923	CCI Sites
Tower Manufacturer Drawing	Sabre, Date: 09/05/2000 GPD Group, Date: 01/18/2015	4287353	CCI Sites
Mount Analysis Report	ETS, Date: 03/18/2019	8290341	CCI Sites
Foundation Drawing	Sabre, Job No: 01-06094	4468581	CCI Sites
Geotech Report	CHA, Date: 03/30/2000	4287355	CCI Sites
Antenna Configuration	Crown CAD Package	Date: 03/12/2019	CCI Sites

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) The tower and structures were built and have been maintained in accordance with the manufacturer's specification.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
3) Mount areas and weights are assumed based on photographs provided.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	170 - 160	Leg	Sabre 3.5" x 0.216"	2	-8.195	86.635	9.5	Pass
T2	160 - 140	Leg	Sabre 4.5" x 0.438"	20	-35.238	210.881	16.7	Pass
T3	140 - 120	Leg	Sabre 6.625" x 0.432"	41	-82.613	360.255	22.9	Pass
T4	120 - 100	Leg	Sabre 8.625" x 0.5"	62	-137.862	569.808	24.2	Pass
T5	100 - 80	Leg	Sabre 10.750" x 0.500"	83	-196.730	702.092	28.0	Pass
T6	80 - 60	Leg	Sabre 12.75" x 0.5"	98	-261.799	859.488	30.5	Pass
T7	60 - 40	Leg	Sabre 16" x 0.5"	113	-326.454	1110.690	29.4	Pass
T8	40 - 20	Leg	Sabre 18" x 0.5"	128	-390.333	1263.528	30.9	Pass
T9	20 - 0	Leg	Sabre 18" x 0.5"	144	-435.845	1289.925	33.8	Pass
T1	170 - 160	Diagonal	L2x2x3/8	10	-4.040	18.112	22.3 28.0 (b)	Pass
T2	160 - 140	Diagonal	L3x3x3/8	25	-7.114	40.506	17.6 35.0 (b)	Pass
T3	140 - 120	Diagonal	L3 1/2x3 1/2x3/8	44	-10.677	51.321	20.8 49.8 (b)	Pass
T4	120 - 100	Diagonal	L3 1/2x3 1/2x1/2	65	-12.422	53.678	23.1 43.3 (b)	Pass
T5	100 - 80	Diagonal	L5x5x1/2	86	-16.963	105.471	16.1 61.4 (b)	Pass
T6	80 - 60	Diagonal	L5x5x5/8	104	-18.009	116.354	15.5 52.0 (b)	Pass
T7	60 - 40	Diagonal	L5x5x5/8	118	-19.285	101.338	19.0 57.4 (b)	Pass
T8	40 - 20	Diagonal	L5x5x5/8	133	-20.899	87.432	23.9 62.2 (b)	Pass
T9	20 - 0	Diagonal	L5x5x5/8	153	-27.826	123.179	22.6 37.5 (b)	Pass
T9	20 - 0	Horizontal	2L3 1/2x3 1/2x1/4x3/8	159	-19.745	41.165	48.0	Pass
T1	170 - 160	Top Girt	L2 1/2x2 1/2x3/16	4	-0.448	8.385	5.3	Pass
T9	20 - 0	Redund Horz 1 Bracing	L3x3x5/16	157	-7.565	43.079	17.6	Pass
T9	20 - 0	Redund Diag 1 Bracing	L3x3x1/4	162	-4.805	23.979	20.0	Pass
T9	20 - 0	Inner Bracing	L3x3x3/16	167	-0.030	5.612	0.6	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
							Summary	
						Leg (T9)	33.8	Pass
						Diagonal (T8)	62.2	Pass
						Horizontal (T9)	48.0	Pass
						Top Girt (T1)	5.3	Pass
						Redund Horz 1 Bracing (T9)	17.6	Pass
						Redund Diag 1 Bracing (T9)	20.0	Pass
						Inner Bracing (T9)	0.6	Pass
						Bolt Checks	62.2	Pass
						RATING =	**62.2**	**Pass**

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Redundant Connection	0-20	48.7	Pass
1	Anchor Rods	Base	31.4	Pass
1	Base Foundation (Structure)	Base	6.4	Pass
1	Base Foundation (Soil Interaction)	Base	56.8	Pass

Structure Rating (max from all components) =	62.2%

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
2) Rating per TIA-222-H Section 15.5.

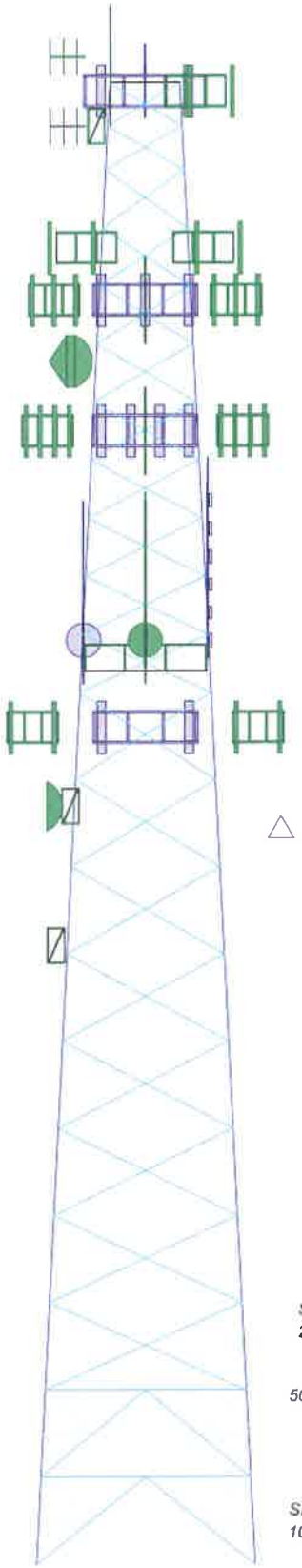
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	T10	18	T7	T6	T5	T4	T3	T2	T1
Legs	Sabre 18" x 0.5"		Sabre 16" x 0.5"	Sabre 12.75" x 0.5"	Sabre 10.750" x 0.500"	Sabre 8.625" x 0.5"	Sabre 6.625" x 0.432"	Sabre 4.5" x 0.438"	A
Leg Grade					A572-50				
Diagonals	L5x5x5/8				L5x5x1/2	L3 1/2x3 1/2x1/2	L3 1/2x3 1/2x3/8	L3x3x38	L2x2x3/8
Diagonal Grade					A36				B
Top Girts					N A				
Horizontals	2L3 1/2x3 1/2x1/4x3/8				N A				
Red. Horizontals	L3x3x5/16				N A				
Red. Diagonals	L3x3x1/4				N A				
Inner Bracing	L3x3x3/16								
Face Width (ft)	2.3	2.3	1.8	1.7	1.5	1.3	1.1	0.9	0.8
# Panels @ (ft)	10 @ 10						9 @ 6.66667		2 @ 5
Weight (K)	65.5	12.9	12.0	9.5	8.3	7.3	4.0	2.8	0.0



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	Sabre 3.5" x 0.216"	B	L2 1/2x2 1/2x3/16

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

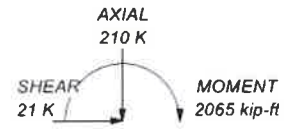
TOWER DESIGN NOTES

1. Tower is located in Barnstable County, Massachusetts.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 139 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'
8. TIA-222-H Annex S
9. TOWER RATING: 62.2%

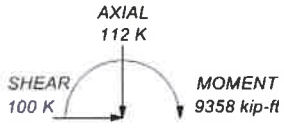
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 469 K
SHEAR: 59 K

UPLIFT: -385 K
SHEAR: 51 K



TORQUE 4 kip-ft
50 mph WIND - 1.500 in ICE

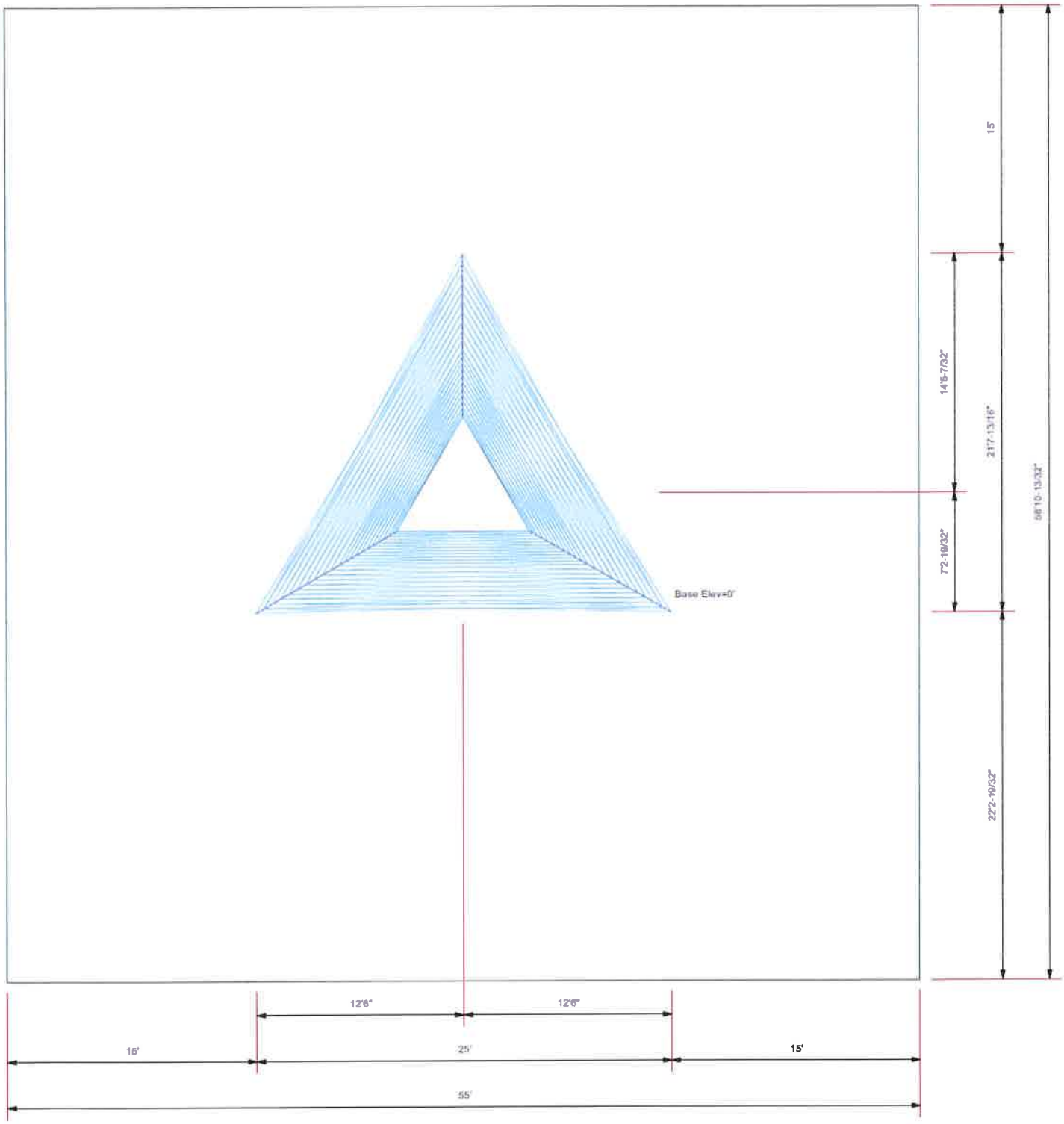


TORQUE 33 kip-ft
REACTIONS - 139 mph WIND

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

Job: 100736.005.01 - TRURO, MA (BU# 841273			
Project:			
Client: Crown Castle	Drawn by: S Shrestha	App'd:	
Code: TIA-222-H	Date: 03/27/19	Scale: NTS	
Path:		Dwg No. E-1	

Plot Plan
Total Area - 0.07 Acres

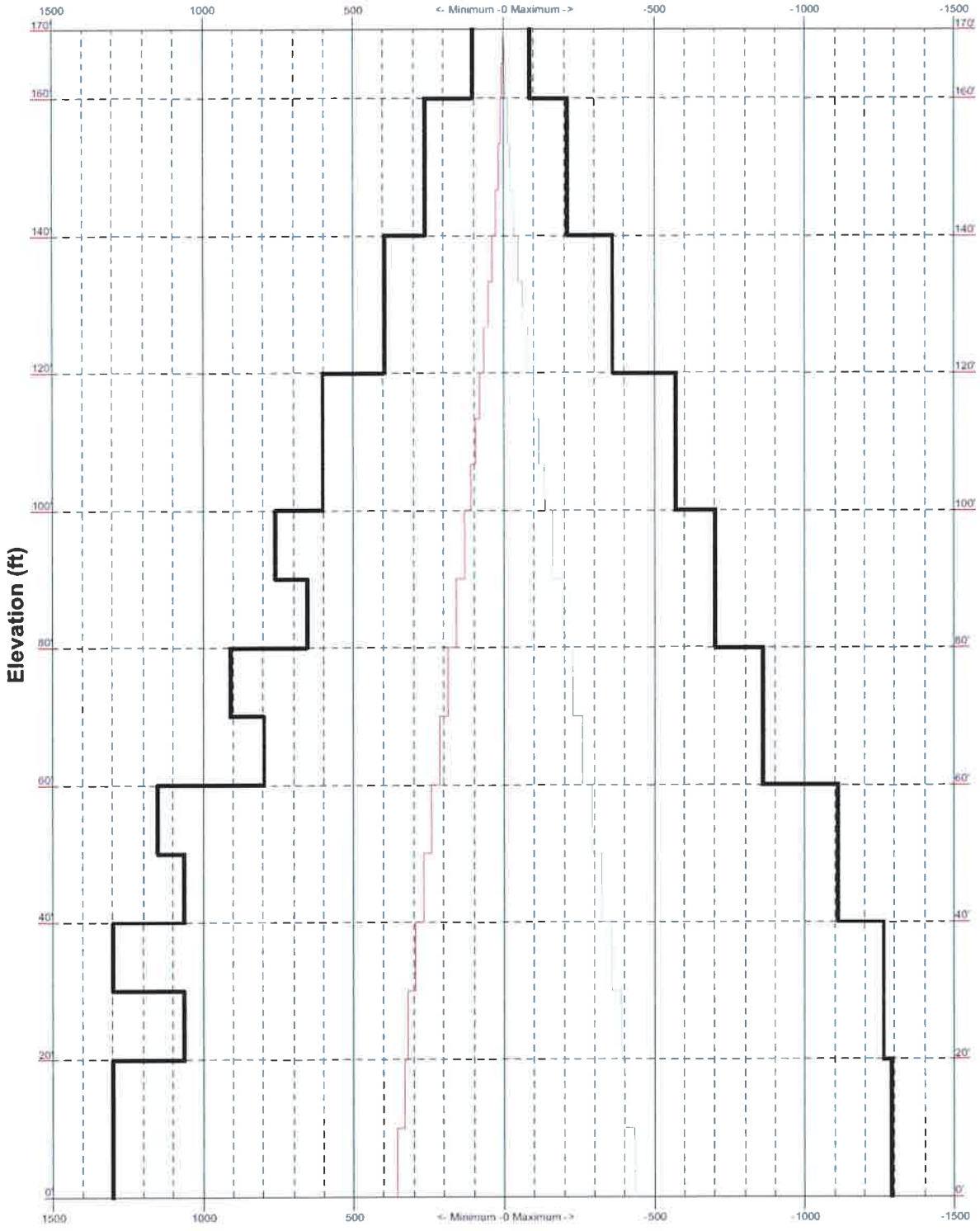


B+T Group
1717 S Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 100736.005.01 - TRURO, MA (BU# 841273			
Project:			
Client: Crown Castle	Drawn by: S Shrestha	App'd:	
Code: TIA-222-H	Date: 03/27/19	Scale: NTS	
Path:		Dwg No. E-2	

TIA-222-H - 139 mph/50 mph 1.500 in Ice Exposure C

Leg Capacity ——— **Leg Compression (K)**



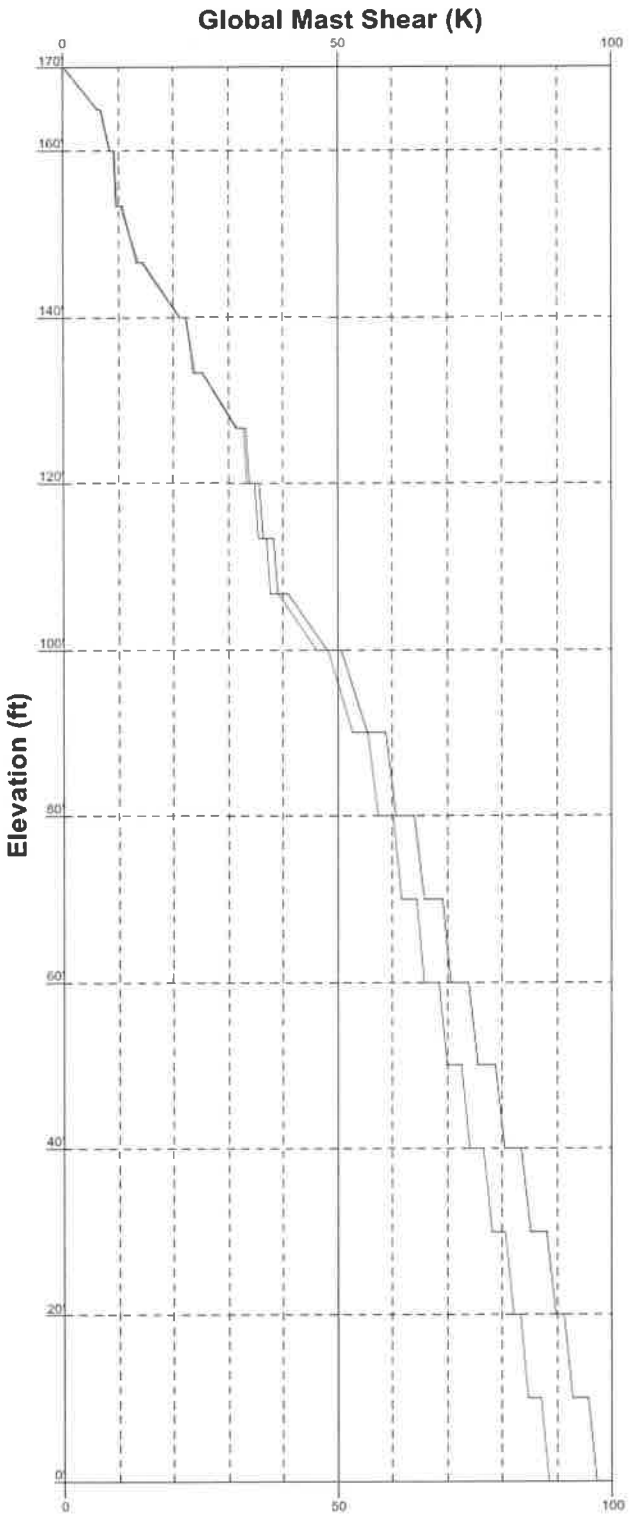
B+T Group
1717 S Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265
B+TLogo

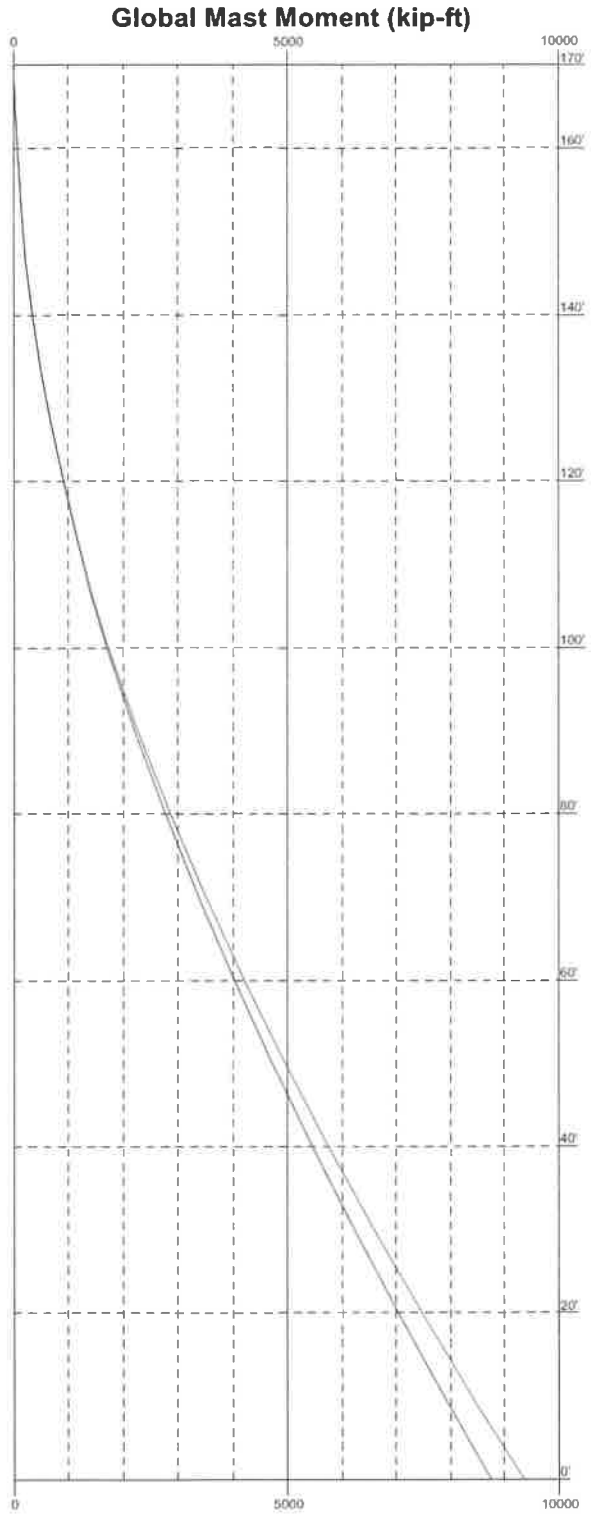
Job: 100736.005.01 - TRURO, MA (BU# 841273			
Project:			
Client: Crown Castle	Drawn by: S Shrestha	App'd:	
Code: TIA-222-H	Date: 03/27/19	Scale: NTS	
Path:		Dwg No. E-3	

TIA-222-H - 139 mph/50 mph 1.500 in Ice Exposure C

Maximum Values

Vx Vz Mx Mz



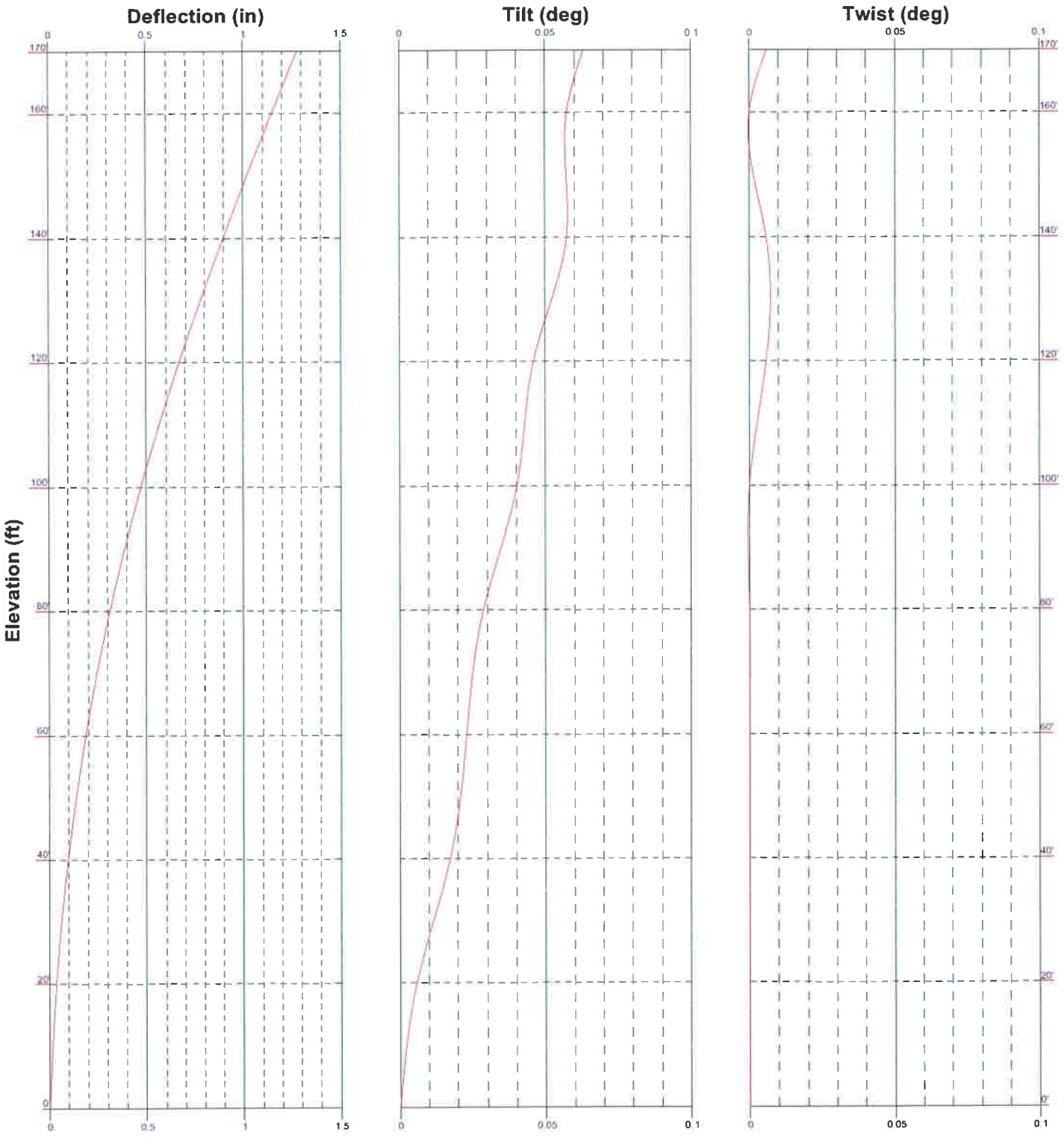


B+T Group
1717 S Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265
B+TLogo

Job: 100736.005.01 - TRURO, MA (BU# 841273			
Project:			
Client: Crown Castle	Drawn by S Shrestha	App'd:	
Code TIA-222-H	Date 03/27/19	Scale: NTS	
Path:		Dwg No. E-4	

TIA-222-H - Service - 60 mph

Maximum Values

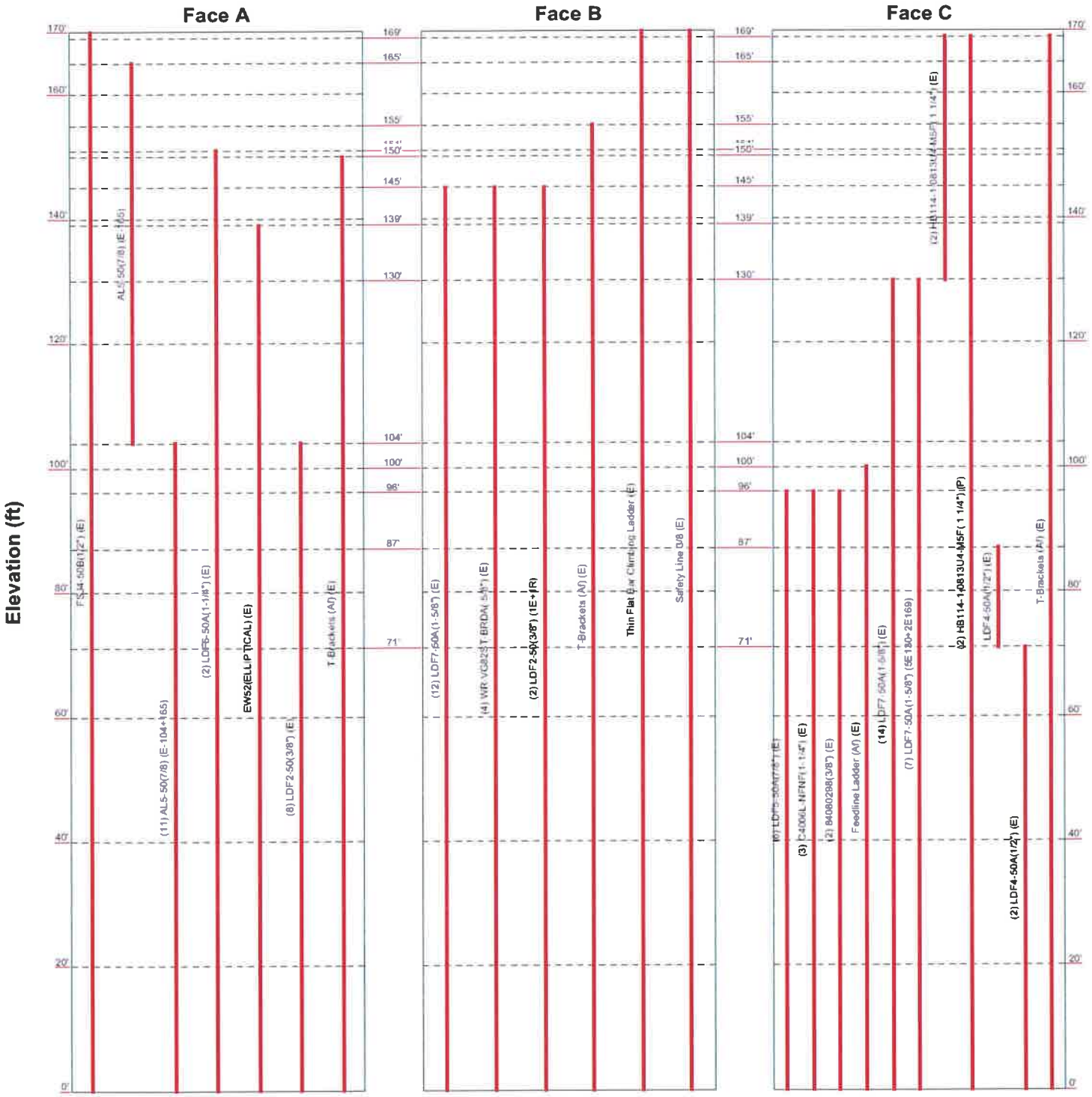


B+T Group
1717 S Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265
B+TLogo

Job: 100736.005.01 - TRURO, MA (BU# 841273			
Project:			
Client: Crown Castle	Drawn by: S Shrestha	App'd:	
Code: TIA-222-H	Date: 03/27/19	Scale: NTS	
Path:		Dwg No E-5	

Feed Line Distribution Chart
0' - 170'

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



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

Job: 100736.005.01 - TRURO, MA (BU# 841273			
Project:			
Client: Crown Castle	Drawn by: S Shrestha	App'd:	
Code: TIA-222-H	Date: 03/27/19	Scale: NTS	
Path:		Dwg No. E-7	

tnxTower	Job	Page
	100736.005.01 - TRURO, MA (BU# 841273)	1 of 35
B+T Group 1717 S Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Project	Date 14:21:33 03/27/19
	Client Crown Castle	Designed by S Shrestha

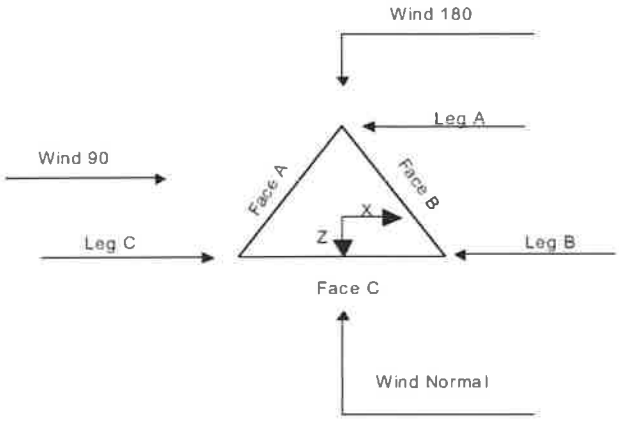
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 170' above the ground line.
The base of the tower is set at an elevation of 0' above the ground line.
The face width of the tower is 8' at the top and 25' at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in Barnstable County, Massachusetts.
Tower base elevation above sea level: 107'.
Basic wind speed of 139 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0'.
Nominal ice thickness of 1.500 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
TIA-222-H Annex S.
Pressures are calculated at each section.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Stress ratio used in tower member design is 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	√ Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	√ SR Leg Bolts Resist Compression
Use Code Stress Ratios	√ Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	√ Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-H Bracing Resist. Exemption
√ Include Bolts In Member Capacity	Autocale 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	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	170'-160'			8'	1	10'
T2	160'-140'			9'	1	20'
T3	140'-120'			11'	1	20'
T4	120'-100'			13'	1	20'
T5	100'-80'			15'	1	20'
T6	80'-60'			17'	1	20'
T7	60'-40'			19'	1	20'
T8	40'-20'			21'	1	20'
T9	20'-0'			23'	1	20'

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	170'-160'	5'	X Brace	No	No	0.000	0.000
T2	160'-140'	6'8"	X Brace	No	No	0.000	0.000
T3	140'-120'	6'8"	X Brace	No	No	0.000	0.000
T4	120'-100'	6'8"	X Brace	No	No	0.000	0.000
T5	100'-80'	10'	X Brace	No	No	0.000	0.000
T6	80'-60'	10'	X Brace	No	No	0.000	0.000
T7	60'-40'	10'	X Brace	No	No	0.000	0.000
T8	40'-20'	10'	X Brace	No	No	0.000	0.000
T9	20'-0'	10'	K1 Down	No	Yes	0.000	0.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 170'-160'	Pipe	Sabre 3.5" x 0.216"	A572-50 (50 ksi)	Equal Angle	L2x2x3/8	A36 (36 ksi)
T2 160'-140'	Pipe	Sabre 4.5" x 0.438"	A572-50 (50 ksi)	Equal Angle	L3x3x3/8	A36 (36 ksi)
T3 140'-120'	Pipe	Sabre 6.625" x 0.432"	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x3/8	A36 (36 ksi)
T4 120'-100'	Pipe	Sabre 8.625" x 0.5"	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/2	A36 (36 ksi)
T5 100'-80'	Pipe	Sabre 10.750" x 0.500"	A572-50 (50 ksi)	Equal Angle	L5x5x1/2	A36 (36 ksi)
T6 80'-60'	Pipe	Sabre 12.75" x 0.5"	A572-50 (50 ksi)	Equal Angle	L5x5x5/8	A36 (36 ksi)
T7 60'-40'	Pipe	Sabre 16" x 0.5"	A572-50 (50 ksi)	Equal Angle	L5x5x5/8	A36 (36 ksi)
T8 40'-20'	Pipe	Sabre 18" x 0.5"	A572-50 (50 ksi)	Equal Angle	L5x5x5/8	A36 (36 ksi)
T9 20'-0'	Pipe	Sabre 18" x 0.5"	A572-50 (50 ksi)	Equal Angle	L5x5x5/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 170'-160'	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Equal Angle		A36 (36 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
T9 20'-0'	None	Flat Bar		A36 (36 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T9 20'-0'	Equal Angle		A36 (36 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
ft					
T9 20'-0'	A36 (36 ksi)	Horizontal (1)	Equal Angle	L3x3x5/16	1
		Diagonal (1)	Equal Angle	L3x3x1/4	1

Tower Section Geometry *(cont'd)*

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft^2	in					in	in	in
T1 170'-160'	0.000	0.375	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T2 160'-140'	0.000	0.375	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T3 140'-120'	0.000	0.375	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T4 120'-100'	0.000	0.625	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T5 100'-80'	0.000	0.625	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T6 80'-60'	0.000	0.625	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T7 60'-40'	0.000	0.625	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T8 40'-20'	0.000	0.625	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T9 20'-0'	0.000	0.625	A36 (36 ksi)	1.05	1	1.05	Mid-Pt	90.450	Mid-Pt

Tower Section Geometry *(cont'd)*

Tower Elevation	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
ft										
T1 170'-160'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 160'-140'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 140'-120'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 120'-100'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 100'-80'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 80'-60'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 60'-40'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors[1] 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
T8 40'-20'	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T9 20'-0'	No	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

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

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Net Width Deduct in	U	Diagonal Net Width Deduct in	U	Top Girt Net Width Deduct in	U	Bottom Girt Net Width Deduct in	U	Mid Girt Net Width Deduct in	U	Long Horizontal Net Width Deduct in	U	Short Horizontal Net Width Deduct in	U
T1 170'-160'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T2 160'-140'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T3 140'-120'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T4 120'-100'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T5 100'-80'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T6 80'-60'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T7 60'-40'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T8 40'-20'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T9 20'-0'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T1 170'-160'	Flange	1.000 A325N	4	0.625 A325N	1	0.625 A325N	1	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T2 160'-140'	Flange	1.250 A325N	4	0.750 A325N	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T3 140'-120'	Flange	1.250 A325N	6	1.000 A325N	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T4 120'-100'	Flange	1.375 A325N	6	1.000 A325N	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T5 100'-80'	Flange	1.375 A325N	6	1.125 A325N	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T6 80'-60'	Flange	1.500 A325N	6	1.125 A325N	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T7 60'-40'	Flange	1.500 A325N	8	1.250 A325N	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T8 40'-20'	Flange	1.500 A325N	8	1.250 A325N	1	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T9 20'-0'	Flange	0.000 A36	0	1.000 A325N	2	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	1.000 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
FSJ4-50B(1/2") (E)	A	No	No	Ar (CaAa)	170' - 0'	-6.000	0.4	1	1	0.850 0.750	0.520		0.000
$RB													
AL5-50(7/8) (E-165)	A	No	No	Ar (CaAa)	165' - 104'	-8.000	0.44	1	1	0.850 0.750	1.100		0.000
AL5-50(7/8) (E-104+165)	A	No	No	Ar (CaAa)	104' - 0'	-8.000	0.44	11	9	0.850 0.750	1.100		0.000
$RB													
LDF6-50A(1-1/4") (E)	A	No	No	Ar (CaAa)	151' - 0'	-9.000	0.4	2	1	0.850 0.750	1.550		0.001
$RB													
EW52(ELLIPTICAL) (E)	A	No	No	Ar (CaAa)	139' - 0'	-12.000	0.4	1	1	0.850 0.750	2.250		0.001
$RB													
LDF2-50(3/8") (E)	A	No	No	Ar (CaAa)	104' - 0'	-6.500	0.43	8	8	0.400	0.440		0.000
T-Brackets (Af) (E)	A	No	No	Af (CaAa)	150' - 0'	-6.000	0.45	1	1	1.000	1.000		0.008
$RB													
LDF7-50A(1-5/8") (E)	B	No	No	Ar (CaAa)	145' - 0'	-16.000	0.4	12	2	0.850 0.750	1.980		0.001
WR-VG82ST-BRDA(5/8") (E)	B	No	No	Ar (CaAa)	145' - 0'	-13.000	0.39	4	1	0.750	0.645		0.000
LDF2-50(3/8") (1E+1R)	B	No	No	Ar (CaAa)	145' - 0'	-11.000	0.39	2	1	0.750	0.440		0.000
T-Brackets (Af) (E)	B	No	No	Af (CaAa)	155' - 0'	-7.000	0.43	1	1	1.000	1.000		0.008
$RB													
LDF5-50A(7/8") (E)	C	No	No	Ar (CaAa)	96' - 0'	0.000	-0.03	6	6	0.850 0.750	1.090		0.000
C4006L-NFNF(1-1/4") (E)	C	No	No	Ar (CaAa)	96' - 0'	0.000	0.01	3	3	0.850 0.750	1.280		0.001
84080298(3/8") (E)	C	No	No	Ar (CaAa)	96' - 0'	0.000	0.03	2	2	0.500	0.276		0.000
Feedline Ladder (Af) (E)	C	No	No	Af (CaAa)	100' - 0'	0.000	0	1	1	3.000	3.000		0.008
$RB													
LDF7-50A(1-5/8") (E)	C	No	No	Ar (CaAa)	130' - 0'	-16.000	0.42	14	8	0.500	1.980		0.001
LDF7-50A(1-5/8") (5E130+2E169)	C	No	No	Ar (CaAa)	130' - 0'	-11.000	0.42	7	2	0.500	1.980		0.001
$RB													
HB114-1-081	C	No	No	Ar (CaAa)	169' - 130'	-11.000	0.42	2	2	0.500	1.540		0.001

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
3U4-M5F(1 1/4") (E)													
HB114-1-081 3U4-M5F(1 1/4") (P)	C	No	No	Ar (CaAa)	169' - 0'	-2.000	0.415	2	1	0.500	1.540		0.001
$RB													
LDF4-50A(1/2") (E)	C	No	No	Ar (CaAa)	87' - 71'	-5.000	0.43	1	1	0.500	0.630		0.000
LDF4-50A(1/2") (E)	C	No	No	Ar (CaAa)	71' - 0'	-5.000	0.43	2	1	0.500	0.630		0.000
T-Brackets (Af) (E)	C	No	No	Af (CaAa)	169' - 0'	-7.000	0.43	1	1	1.000	1.000		0.008
$RB													
Thin Flat Bar Climbing Ladder (E)	B	No	No	Af (CaAa)	170' - 0'	0.000	0	1	1	2.000	2.000		0.004
Safety Line 3/8 (E)	B	No	No	Ar (CaAa)	170' - 0'	1.000	0.01	1	1	0.375	0.375		0.000
$RB													

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight klf
$RB								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	170'-160'	A	0.000	0.000	1.070	0.000	0.003
		B	0.000	0.000	3.708	0.000	0.042
		C	0.000	0.000	7.044	0.000	0.119
T2	160'-140'	A	0.000	0.000	8.317	0.000	0.107
		B	0.000	0.000	23.527	0.000	0.267
		C	0.000	0.000	15.653	0.000	0.264
T3	140'-120'	A	0.000	0.000	17.048	0.000	0.214
		B	0.000	0.000	65.190	0.000	0.477
		C	0.000	0.000	54.153	0.000	0.412
T4	120'-100'	A	0.000	0.000	23.081	0.000	0.227
		B	0.000	0.000	65.190	0.000	0.477
		C	0.000	0.000	92.653	0.000	0.560
T5	100'-80'	A	0.000	0.000	46.313	0.000	0.279
		B	0.000	0.000	65.190	0.000	0.477

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	120.584	0.000	0.789
T6	80'-60'	A	0.000	0.000	46.313	0.000	0.279
		B	0.000	0.000	65.190	0.000	0.477
		C	0.000	0.000	126.468	0.000	0.808
T7	60'-40'	A	0.000	0.000	46.313	0.000	0.279
		B	0.000	0.000	65.190	0.000	0.477
		C	0.000	0.000	127.035	0.000	0.809
T8	40'-20'	A	0.000	0.000	46.313	0.000	0.279
		B	0.000	0.000	65.190	0.000	0.477
		C	0.000	0.000	127.035	0.000	0.809
T9	20'-0'	A	0.000	0.000	46.313	0.000	0.279
		B	0.000	0.000	65.190	0.000	0.477
		C	0.000	0.000	127.035	0.000	0.809

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	170'-160'	A	1.498	0.000	0.000	5.563	0.000	0.063
		B		0.000	0.000	9.699	0.000	0.156
		C		0.000	0.000	22.168	0.000	0.345
T2	160'-140'	A	1.483	0.000	0.000	30.985	0.000	0.449
		B		0.000	0.000	47.779	0.000	0.885
		C		0.000	0.000	49.008	0.000	0.761
T3	140'-120'	A	1.462	0.000	0.000	54.251	0.000	0.826
		B		0.000	0.000	114.053	0.000	2.031
		C		0.000	0.000	86.071	0.000	1.438
T4	120'-100'	A	1.438	0.000	0.000	67.723	0.000	0.969
		B		0.000	0.000	113.274	0.000	2.001
		C		0.000	0.000	122.928	0.000	2.100
T5	100'-80'	A	1.410	0.000	0.000	120.862	0.000	1.547
		B		0.000	0.000	112.356	0.000	1.966
		C		0.000	0.000	197.141	0.000	3.018
T6	80'-60'	A	1.375	0.000	0.000	119.760	0.000	1.510
		B		0.000	0.000	111.232	0.000	1.924
		C		0.000	0.000	218.049	0.000	3.183
T7	60'-40'	A	1.329	0.000	0.000	118.328	0.000	1.462
		B		0.000	0.000	109.772	0.000	1.871
		C		0.000	0.000	218.847	0.000	3.132
T8	40'-20'	A	1.263	0.000	0.000	116.247	0.000	1.394
		B		0.000	0.000	107.649	0.000	1.795
		C		0.000	0.000	215.214	0.000	3.014
T9	0'-0'	A	1.132	0.000	0.000	112.126	0.000	1.264
		B		0.000	0.000	103.442	0.000	1.650
		C		0.000	0.000	208.016	0.000	2.785

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	170'-160'	-2.658	0.663	-4.052	-0.212
T2	160'-140'	0.890	0.535	-0.176	-1.028
T3	140'-120'	0.563	3.452	2.394	0.663
T4	120'-100'	-5.184	3.419	-1.523	0.032
T5	100'-80'	-4.710	-1.406	-1.583	-3.118

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T6	80'-60'	-5.073	-0.955	-2.376	-2.030
T7	60'-40'	-5.249	-0.858	-2.604	-1.955
T8	40'-20'	-5.441	-0.869	-2.752	-2.128
T9	20'-0'	-5.338	-0.839	-2.781	-2.274

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	FSJ4-50B(1/2")	160.00 - 170.00	0.6000	0.6000
T1	3	AL5-50(7/8)	160.00 - 165.00	0.6000	0.6000
T1	28	HB114-1-0813U4-M5F(1 1/4")	160.00 - 169.00	0.6000	0.6000
T1	29	HB114-1-0813U4-M5F(1 1/4")	160.00 - 169.00	0.6000	0.6000
T1	33	T-Brackets (Al)	160.00 - 169.00	0.6000	0.6000
T1	35	Thin Flat Bar Climbing Ladder	160.00 - 170.00	0.6000	0.6000
T1	36	Safety Line 3/8	160.00 - 170.00	0.6000	0.6000
T2	1	FSJ4-50B(1/2")	140.00 - 160.00	0.6000	0.6000
T2	3	AL5-50(7/8)	140.00 - 160.00	0.6000	0.6000
T2	6	LDF6-50A(1-1/4")	140.00 - 151.00	0.6000	0.6000
T2	11	T-Brackets (Al)	140.00 - 150.00	0.6000	0.6000
T2	13	LDF7-50A(1-5/8")	140.00 - 145.00	0.6000	0.6000
T2	14	WR-VG82ST-BRDA(5/8")	140.00 - 145.00	0.6000	0.6000
T2	16	LDF2-50(3/8")	140.00 - 145.00	0.6000	0.6000
T2	17	T-Brackets (Al)	140.00 - 155.00	0.6000	0.6000
T2	28	HB114-1-0813U4-M5F(1 1/4")	140.00 - 160.00	0.6000	0.6000
T2	29	HB114-1-0813U4-M5F(1 1/4")	140.00 - 160.00	0.6000	0.6000
T2	33	T-Brackets (Al)	140.00 - 160.00	0.6000	0.6000
T2	35	Thin Flat Bar Climbing Ladder	140.00 - 160.00	0.6000	0.6000
T2	36	Safety Line 3/8	140.00 - 160.00	0.6000	0.6000
T3	1	FSJ4-50B(1/2")	120.00 - 140.00	0.6000	0.6000
T3	3	AL5-50(7/8)	120.00 - 140.00	0.6000	0.6000
T3	6	LDF6-50A(1-1/4")	120.00 - 140.00	0.6000	0.6000
T3	8	EW52(ELLIPTICAL)	120.00 - 139.00	0.6000	0.6000
T3	11	T-Brackets (Al)	120.00 -	0.6000	0.6000

Tower Section	Feed Line Record No	Description	Feed Line Segment Elev	K_a No Ice	K_a Ice
T3	13	LDF7-50A(1-5/8")	140.00 120.00 - 140.00	0.6000	0.6000
T3	14	WR-VG82ST-BRDA(5/8")	120.00 - 140.00	0.6000	0.6000
T3	16	LDF2-50(3/8")	120.00 - 140.00	0.6000	0.6000
T3	17	T-Brackets (Af)	120.00 - 140.00	0.6000	0.6000
T3	25	LDF7-50A(1-5/8")	120.00 - 130.00	0.6000	0.6000
T3	26	LDF7-50A(1-5/8")	120.00 - 130.00	0.6000	0.6000
T3	28	HB114-1-0813U4-M5F(1 1/4")	130.00 - 140.00	0.6000	0.6000
T3	29	HB114-1-0813U4-M5F(1 1/4")	120.00 - 140.00	0.6000	0.6000
T3	33	T-Brackets (Af)	120.00 - 140.00	0.6000	0.6000
T3	35	Thin Flat Bar Climbing Ladder	120.00 - 140.00	0.6000	0.6000
T3	36	Safety Line 3/8	120.00 - 140.00	0.6000	0.6000
T4	1	FSJ4-50B(1/2")	100.00 - 120.00	0.6000	0.6000
T4	3	AL5-50(7/8)	104.00 - 120.00	0.6000	0.6000
T4	4	AL5-50(7/8)	100.00 - 104.00	0.6000	0.6000
T4	6	LDF6-50A(1-1/4")	100.00 - 120.00	0.6000	0.6000
T4	8	EW52(ELLIPTICAL)	100.00 - 120.00	0.6000	0.6000
T4	10	LDF2-50(3/8")	100.00 - 104.00	0.6000	0.6000
T4	11	T-Brackets (Af)	100.00 - 120.00	0.6000	0.6000
T4	13	LDF7-50A(1-5/8")	100.00 - 120.00	0.6000	0.6000
T4	14	WR-VG82ST-BRDA(5/8")	100.00 - 120.00	0.6000	0.6000
T4	16	LDF2-50(3/8")	100.00 - 120.00	0.6000	0.6000
T4	17	T-Brackets (Af)	100.00 - 120.00	0.6000	0.6000
T4	25	LDF7-50A(1-5/8")	100.00 - 120.00	0.6000	0.6000
T4	26	LDF7-50A(1-5/8")	100.00 - 120.00	0.6000	0.6000
T4	29	HB114-1-0813U4-M5F(1 1/4")	100.00 - 120.00	0.6000	0.6000
T4	33	T-Brackets (Af)	100.00 - 120.00	0.6000	0.6000
T4	35	Thin Flat Bar Climbing Ladder	100.00 - 120.00	0.6000	0.6000
T4	36	Safety Line 3/8	100.00 - 120.00	0.6000	0.6000
T5	1	FSJ4-50B(1/2")	80.00 - 100.00	0.6000	0.6000
T5	4	AL5-50(7/8)	80.00 - 100.00	0.6000	0.6000
T5	6	LDF6-50A(1-1/4")	80.00 - 100.00	0.6000	0.6000
T5	8	EW52(ELLIPTICAL)	80.00 - 100.00	0.6000	0.6000
T5	10	LDF2-50(3/8")	80.00 - 100.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_z No Ice	K_z Ice
T5	11	T-Brackets (AT)	80.00 - 100.00	0.6000	0.6000
T5	13	LDF7-50A(1-5/8")	80.00 - 100.00	0.6000	0.6000
T5	14	WR-VG82ST-BRDA(5/8")	80.00 - 100.00	0.6000	0.6000
T5	16	LDF2-50(3/8")	80.00 - 100.00	0.6000	0.6000
T5	17	T-Brackets (AT)	80.00 - 100.00	0.6000	0.6000
T5	19	LDF5-50A(7/8")	80.00 - 96.00	0.6000	0.6000
T5	20	C4006L-NFNF(1-1/4")	80.00 - 96.00	0.6000	0.6000
T5	22	84080298(3/8")	80.00 - 96.00	0.6000	0.6000
T5	23	Feedline Ladder (AT)	80.00 - 100.00	0.6000	0.6000
T5	25	LDF7-50A(1-5/8")	80.00 - 100.00	0.6000	0.6000
T5	26	LDF7-50A(1-5/8")	80.00 - 100.00	0.6000	0.6000
T5	29	HB114-1-0813U4-M5F(1 1/4")	80.00 - 100.00	0.6000	0.6000
T5	31	LDF4-50A(1/2")	80.00 - 87.00	0.6000	0.6000
T5	33	T-Brackets (AT)	80.00 - 100.00	0.6000	0.6000
T5	35	Thin Flat Bar Climbing Ladder	80.00 - 100.00	0.6000	0.6000
T5	36	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T6	1	FSJ4-50B(1/2")	60.00 - 80.00	0.6000	0.6000
T6	4	AL5-50(7/8)	60.00 - 80.00	0.6000	0.6000
T6	6	LDF6-50A(1-1/4")	60.00 - 80.00	0.6000	0.6000
T6	8	EW52(ELLIPTICAL)	60.00 - 80.00	0.6000	0.6000
T6	10	LDF2-50(3/8")	60.00 - 80.00	0.6000	0.6000
T6	11	T-Brackets (AT)	60.00 - 80.00	0.6000	0.6000
T6	13	LDF7-50A(1-5/8")	60.00 - 80.00	0.6000	0.6000
T6	14	WR-VG82ST-BRDA(5/8")	60.00 - 80.00	0.6000	0.6000
T6	16	LDF2-50(3/8")	60.00 - 80.00	0.6000	0.6000
T6	17	T-Brackets (AT)	60.00 - 80.00	0.6000	0.6000
T6	19	LDF5-50A(7/8")	60.00 - 80.00	0.6000	0.6000
T6	20	C4006L-NFNF(1-1/4")	60.00 - 80.00	0.6000	0.6000
T6	22	84080298(3/8")	60.00 - 80.00	0.6000	0.6000
T6	23	Feedline Ladder (AT)	60.00 - 80.00	0.6000	0.6000
T6	25	LDF7-50A(1-5/8")	60.00 - 80.00	0.6000	0.6000
T6	26	LDF7-50A(1-5/8")	60.00 - 80.00	0.6000	0.6000
T6	29	HB114-1-0813U4-M5F(1 1/4")	60.00 - 80.00	0.6000	0.6000
T6	31	LDF4-50A(1/2")	71.00 - 80.00	0.6000	0.6000
T6	32	LDF4-50A(1/2")	60.00 - 71.00	0.6000	0.6000
T6	33	T-Brackets (AT)	60.00 - 80.00	0.6000	0.6000
T6	35	Thin Flat Bar Climbing Ladder	60.00 - 80.00	0.6000	0.6000
T6	36	Safety Line 3/8	60.00 - 80.00	0.6000	0.6000
T7	1	FSJ4-50B(1/2")	40.00 - 60.00	0.6000	0.6000
T7	4	AL5-50(7/8)	40.00 - 60.00	0.6000	0.6000
T7	6	LDF6-50A(1-1/4")	40.00 - 60.00	0.6000	0.6000
T7	8	EW52(ELLIPTICAL)	40.00 - 60.00	0.6000	0.6000
T7	10	LDF2-50(3/8")	40.00 - 60.00	0.6000	0.6000
T7	11	T-Brackets (AT)	40.00 - 60.00	0.6000	0.6000
T7	13	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.6000
T7	14	WR-VG82ST-BRDA(5/8")	40.00 - 60.00	0.6000	0.6000
T7	16	LDF2-50(3/8")	40.00 - 60.00	0.6000	0.6000
T7	17	T-Brackets (AT)	40.00 - 60.00	0.6000	0.6000
T7	19	LDF5-50A(7/8")	40.00 - 60.00	0.6000	0.6000
T7	20	C4006L-NFNF(1-1/4")	40.00 - 60.00	0.6000	0.6000
T7	22	84080298(3/8")	40.00 - 60.00	0.6000	0.6000
T7	23	Feedline Ladder (AT)	40.00 - 60.00	0.6000	0.6000
T7	25	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.6000
T7	26	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.6000
T7	29	HB114-1-0813U4-M5F(1 1/4")	40.00 - 60.00	0.6000	0.6000
T7	32	LDF4-50A(1/2")	40.00 - 60.00	0.6000	0.6000
T7	33	T-Brackets (AT)	40.00 - 60.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T7	35	Thin Flat Bar Climbing Ladder	40.00 - 60.00	0.6000	0.6000
T7	36	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T8	1	FSJ4-50B(1/2")	20.00 - 40.00	0.6000	0.6000
T8	4	AL5-50(7/8)	20.00 - 40.00	0.6000	0.6000
T8	6	LDF6-50A(1-1/4")	20.00 - 40.00	0.6000	0.6000
T8	8	EW52(ELLIPTICAL)	20.00 - 40.00	0.6000	0.6000
T8	10	LDF2-50(3/8")	20.00 - 40.00	0.6000	0.6000
T8	11	T-Brackets (AI)	20.00 - 40.00	0.6000	0.6000
T8	13	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T8	14	WR-VG82ST-BRDA(5/8")	20.00 - 40.00	0.6000	0.6000
T8	16	LDF2-50(3/8")	20.00 - 40.00	0.6000	0.6000
T8	17	T-Brackets (AI)	20.00 - 40.00	0.6000	0.6000
T8	19	LDF5-50A(7/8")	20.00 - 40.00	0.6000	0.6000
T8	20	C4006L-NFNF(1-1/4")	20.00 - 40.00	0.6000	0.6000
T8	22	84080298(3/8")	20.00 - 40.00	0.6000	0.6000
T8	23	Feedline Ladder (AI)	20.00 - 40.00	0.6000	0.6000
T8	25	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T8	26	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T8	29	HB114-1-0813U4-M5F(1 1/4")	20.00 - 40.00	0.6000	0.6000
T8	32	LDF4-50A(1/2")	20.00 - 40.00	0.6000	0.6000
T8	33	T-Brackets (AI)	20.00 - 40.00	0.6000	0.6000
T8	35	Thin Flat Bar Climbing Ladder	20.00 - 40.00	0.6000	0.6000
T8	36	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T9	1	FSJ4-50B(1/2")	0.00 - 20.00	0.6000	0.6000
T9	4	AL5-50(7/8)	0.00 - 20.00	0.6000	0.6000
T9	6	LDF6-50A(1-1/4")	0.00 - 20.00	0.6000	0.6000
T9	8	EW52(ELLIPTICAL)	0.00 - 20.00	0.6000	0.6000
T9	10	LDF2-50(3/8")	0.00 - 20.00	0.6000	0.6000
T9	11	T-Brackets (AI)	0.00 - 20.00	0.6000	0.6000
T9	13	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T9	14	WR-VG82ST-BRDA(5/8")	0.00 - 20.00	0.6000	0.6000
T9	16	LDF2-50(3/8")	0.00 - 20.00	0.6000	0.6000
T9	17	T-Brackets (AI)	0.00 - 20.00	0.6000	0.6000
T9	19	LDF5-50A(7/8")	0.00 - 20.00	0.6000	0.6000
T9	20	C4006L-NFNF(1-1/4")	0.00 - 20.00	0.6000	0.6000
T9	22	84080298(3/8")	0.00 - 20.00	0.6000	0.6000
T9	23	Feedline Ladder (AI)	0.00 - 20.00	0.6000	0.6000
T9	25	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T9	26	LDF7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T9	29	HB114-1-0813U4-M5F(1 1/4")	0.00 - 20.00	0.6000	0.6000
T9	32	LDF4-50A(1/2")	0.00 - 20.00	0.6000	0.6000
T9	33	T-Brackets (AI)	0.00 - 20.00	0.6000	0.6000
T9	35	Thin Flat Bar Climbing Ladder	0.00 - 20.00	0.6000	0.6000
T9	36	Safety Line 3/8	0.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

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
Lightning Rod 5/8" x 5' (E)	A	From Leg	0.000 0' 2'6"	0.000	170'	No Ice 1/2" Ice 1" Ice 2" Ice	0.313 0.826 1.322 1.957	0.313 0.826 1.322 1.957	0.031 0.035 0.041 0.065
$RB DB806-XC (E)	C	From Leg	0.000 0' 4'	0.000	170'	No Ice 1/2" Ice 1" Ice 2" Ice	1.140 1.675 2.025 2.753	1.140 1.675 2.025 2.753	0.021 0.030 0.043 0.080
8' x 2.375" Mount Pipe (E-Per Photo)	C	From Leg	0.000 0' 0'	0.000	170'	No Ice 1/2" Ice 1" Ice 2" Ice	1.900 2.728 3.401 4.396	1.900 2.728 3.401 4.396	0.061 0.075 0.095 0.150
$RB (3) ACU-A20-N (E)	A	From Leg	4.000 0' 0'	0.000	169'	No Ice 1/2" Ice 1" Ice 2" Ice	0.078 0.121 0.173 0.302	0.136 0.189 0.251 0.400	0.001 0.002 0.004 0.012
(3) ACU-A20-N (E)	B	From Leg	4.000 0' 0'	0.000	169'	No Ice 1/2" Ice 1" Ice 2" Ice	0.078 0.121 0.173 0.302	0.136 0.189 0.251 0.400	0.001 0.002 0.004 0.012
DT465B-2XR w/ Mount Pipe (R-Reserved)	A	From Leg	4.000 0' 0'	-59.000	169'	No Ice 1/2" Ice 1" Ice 2" Ice	9.336 9.905 10.439 11.530	7.634 8.820 9.718 11.543	0.084 0.160 0.245 0.442
DT465B-2XR w/ Mount Pipe (R-Reserved)	B	From Leg	4.000 0' 0'	-59.000	169'	No Ice 1/2" Ice 1" Ice 2" Ice	9.336 9.905 10.439 11.530	7.634 8.820 9.718 11.543	0.084 0.160 0.245 0.442
APXVSPP18-C-A20 w/ Mount Pipe (R-Reserved)	A	From Leg	4.000 0' 0'	51.000	169'	No Ice 1/2" Ice 1" Ice 2" Ice	8.498 9.149 9.767 11.031	6.946 8.127 9.021 10.844	0.083 0.151 0.227 0.406
APXVSPP18-C-A20 w/ Mount Pipe (R-Reserved)	B	From Leg	4.000 0' 0'	51.000	169'	No Ice 1/2" Ice 1" Ice 2" Ice	8.498 9.149 9.767 11.031	6.946 8.127 9.021 10.844	0.083 0.151 0.227 0.406
1900MHZ 4X40W RRH (R-Reserved)	A	From Leg	4.000 0' 0'	0.000	169'	No Ice 1/2" Ice 1" Ice 2" Ice	2.322 2.527 2.739 3.185	2.236 2.439 2.648 3.091	0.060 0.083 0.109 0.172
1900MHZ 4X40W RRH (R-Reserved)	B	From Leg	4.000 0' 0'	0.000	169'	No Ice 1/2" Ice 1" Ice 2" Ice	2.322 2.527 2.739 3.185	2.236 2.439 2.648 3.091	0.060 0.083 0.109 0.172
(2) 800MHZ 2X50W RRH W/FILTER (R-Reserved)	A	From Leg	4.000 0' 0'	0.000	169'	No Ice 1/2" Ice 1" Ice 2" Ice	2.401 2.613 2.833 3.300	2.254 2.460 2.675 3.132	0.064 0.086 0.111 0.172
(2) 800MHZ 2X50W RRH W/FILTER (R-Reserved)	B	From Leg	4.000 0' 0'	0.000	169'	No Ice 1/2" Ice 1" Ice 2" Ice	2.401 2.613 2.833 3.300	2.254 2.460 2.675 3.132	0.064 0.086 0.111 0.172

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
TD-RRH8X20-25	A	From Leg	4.000		0.000	169'	No Ice	4.045	1.535	0.070
(R-Reserved)			0'				1/2" Ice	4.298	1.714	0.097
			0'				1" Ice	4.557	1.901	0.128
							2" Ice	5.098	2.295	0.201
TD-RRH8X20-25	B	From Leg	4.000		0.000	169'	No Ice	4.045	1.535	0.070
(R-Reserved)			0'				1/2" Ice	4.298	1.714	0.097
			0'				1" Ice	4.557	1.901	0.128
							2" Ice	5.098	2.295	0.201
(2) 8' x 2" Pipe Mount	A	From Leg	4.000		0.000	169'	No Ice	1.900	1.900	0.029
(E-Empty)			0'				1/2" Ice	2.728	2.728	0.044
			0'				1" Ice	3.401	3.401	0.063
							2" Ice	4.396	4.396	0.119
(2) 8' x 2" Pipe Mount	B	From Leg	4.000		0.000	169'	No Ice	1.900	1.900	0.029
(E-Empty)			0'				1/2" Ice	2.728	2.728	0.044
			0'				1" Ice	3.401	3.401	0.063
							2" Ice	4.396	4.396	0.119
(2) 4' x 2" Pipe Mount	A	From Leg	4.000		0.000	169'	No Ice	0.785	0.785	0.029
(E-End pipes/Photo)			0'				1/2" Ice	1.028	1.028	0.035
			0'				1" Ice	1.281	1.281	0.044
							2" Ice	1.814	1.814	0.072
(2) 4' x 2" Pipe Mount	B	From Leg	4.000		0.000	169'	No Ice	0.785	0.785	0.029
(E-End pipes/Photo)			0'				1/2" Ice	1.028	1.028	0.035
			0'				1" Ice	1.281	1.281	0.044
							2" Ice	1.814	1.814	0.072
5' x 2" Pipe Mount	B	From Leg	3.000		0.000	169'	No Ice	1.000	1.000	0.029
(E-for TME/Photo)			0'				1/2" Ice	1.393	1.393	0.037
			0'				1" Ice	1.703	1.703	0.048
							2" Ice	2.351	2.351	0.082
5' x 2" Pipe Mount	B	From Leg	3.000		0.000	169'	No Ice	1.000	1.000	0.029
(E-for TME/Photo)			0'				1/2" Ice	1.393	1.393	0.037
			0'				1" Ice	1.703	1.703	0.048
							2" Ice	2.351	2.351	0.082
Pipe Mount [PM 601-1]	A	From Leg	0.500		0.000	169'	No Ice	3.000	0.900	0.065
(E-Mount support/Photo)			0'				1/2" Ice	3.740	1.120	0.079
			0'				1" Ice	4.480	1.340	0.093
							2" Ice	5.960	1.780	0.122
Pipe Mount [PM 601-1]	B	From Leg	0.500		0.000	169'	No Ice	3.000	0.900	0.065
(E-Mount support/Photo)			0'				1/2" Ice	3.740	1.120	0.079
			0'				1" Ice	4.480	1.340	0.093
							2" Ice	5.960	1.780	0.122
Sector Mount [SM 514-1]	A	From Leg	2.000		0.000	169'	No Ice	21.260	27.040	0.448
(E)			0'				1/2" Ice	30.390	40.100	0.747
			0'				1" Ice	39.520	53.160	1.046
							2" Ice	57.780	79.280	1.645
Sector Mount [SM 514-1]	B	From Leg	2.000		0.000	169'	No Ice	21.260	27.040	0.448
(E)			0'				1/2" Ice	30.390	40.100	0.747
			0'				1" Ice	39.520	53.160	1.046
							2" Ice	57.780	79.280	1.645
$RB										
TFC2K	C	From Leg	3.000		0.000	165'	No Ice	11.000	11.000	0.036
(E)			0'				1/2" Ice	19.800	19.800	0.047
			8'				1" Ice	28.600	28.600	0.058
							2" Ice	46.200	46.200	0.079
TFC2K	C	From Leg	3.000		0.000	165'	No Ice	11.000	11.000	0.036
(E)			0'				1/2" Ice	19.800	19.800	0.047
			0'				1" Ice	28.600	28.600	0.058
							2" Ice	46.200	46.200	0.079

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
15' x 2" Pipe Mount (E-Per Photo)	C	From Leg	2.000 0' 0'	0.000	165'	No Ice 1/2" Ice 1" Ice 2" Ice	3.563 5.091 6.635 9.775	3.563 5.091 6.635 9.775	0.120 0.147 0.183 0.284
Side Arm Mount [SO 203-1] (E)	C	From Leg	1.500 0' 0'	0.000	165'	No Ice 1/2" Ice 1" Ice 2" Ice	2.960 4.100 5.240 7.520	3.360 4.680 6.000 8.640	0.125 0.154 0.182 0.239
$RB									
(2) P65-15-XL-0 w/ Mount Pipe (E)	B	From Leg	4.000 0' 0'	0.000	151'	No Ice 1/2" Ice 1" Ice 2" Ice	5.304 5.692 6.087 6.903	3.665 4.278 4.902 6.188	0.040 0.084 0.134 0.254
(2) P65-15-XL-0 w/ Mount Pipe (E)	C	From Leg	4.000 0' 0'	0.000	151'	No Ice 1/2" Ice 1" Ice 2" Ice	5.304 5.692 6.087 6.903	3.665 4.278 4.902 6.188	0.040 0.084 0.134 0.254
Pipe Mount [PM 601-1] (E-Mount support/Photo)	B	From Leg	0.500 0' 0'	0.000	151'	No Ice 1/2" Ice 1" Ice 2" Ice	3.000 3.740 4.480 5.960	0.900 1.120 1.340 1.780	0.065 0.079 0.093 0.122
Pipe Mount [PM 601-1] (E-Mount support/Photo)	C	From Leg	0.500 0' 0'	0.000	151'	No Ice 1/2" Ice 1" Ice 2" Ice	3.000 3.740 4.480 5.960	0.900 1.120 1.340 1.780	0.065 0.079 0.093 0.122
Sector Mount [SM 602-1] (E)	B	From Leg	2.000 0' 0'	0.000	151'	No Ice 1/2" Ice 1" Ice 2" Ice	18.810 24.750 30.690 42.570	10.620 15.160 19.700 28.780	0.513 0.720 0.926 1.338
Sector Mount [SM 602-1] (E)	C	From Leg	2.000 0' 0'	0.000	151'	No Ice 1/2" Ice 1" Ice 2" Ice	18.810 24.750 30.690 42.570	10.620 15.160 19.700 28.780	0.513 0.720 0.926 1.338
$RB									
800 10122 w/ Mount Pipe (E)	A	From Leg	4.000 0' 0'	0.000	145'	No Ice 1/2" Ice 1" Ice 2" Ice	7.855 8.462 9.099 10.388	6.653 7.876 8.848 10.731	0.086 0.150 0.222 0.394
800 10122 w/ Mount Pipe (E)	B	From Leg	4.000 0' 0'	0.000	145'	No Ice 1/2" Ice 1" Ice 2" Ice	7.855 8.462 9.099 10.388	6.653 7.876 8.848 10.731	0.086 0.150 0.222 0.394
800 10122 w/ Mount Pipe (E)	C	From Leg	4.000 0' 0'	0.000	145'	No Ice 1/2" Ice 1" Ice 2" Ice	7.855 8.462 9.099 10.388	6.653 7.876 8.848 10.731	0.086 0.150 0.222 0.394
AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	A	From Leg	4.000 0' 0'	0.000	145'	No Ice 1/2" Ice 1" Ice 2" Ice	8.498 9.149 9.767 11.031	6.304 7.479 8.368 10.179	0.074 0.139 0.212 0.385
AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	B	From Leg	4.000 0' 0'	0.000	145'	No Ice 1/2" Ice 1" Ice 2" Ice	8.498 9.149 9.767 11.031	6.304 7.479 8.368 10.179	0.074 0.139 0.212 0.385
AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	C	From Leg	4.000 0' 0'	0.000	145'	No Ice 1/2" Ice 1" Ice	8.498 9.149 9.767	6.304 7.479 8.368	0.074 0.139 0.212

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
							2" Ice	11.031	10.179	0.385
(2) LGP21401 (E)	A	From Leg	4.000 0' 0'		0.000	145'	No Ice	1.288	0.233	0.014
							1/2" Ice	1.445	0.313	0.021
							1" Ice	1.611	0.403	0.030
							2" Ice	1.969	0.608	0.055
(2) LGP21401 (E)	B	From Leg	4.000 0' 0'		0.000	145'	No Ice	1.288	0.233	0.014
							1/2" Ice	1.445	0.313	0.021
							1" Ice	1.611	0.403	0.030
							2" Ice	1.969	0.608	0.055
(2) LGP21401 (E)	C	From Leg	4.000 0' 0'		0.000	145'	No Ice	1.288	0.233	0.014
							1/2" Ice	1.445	0.313	0.021
							1" Ice	1.611	0.403	0.030
							2" Ice	1.969	0.608	0.055
(4) 860 10025 (E)	A	From Leg	4.000 0' 0'		0.000	145'	No Ice	0.163	0.136	0.001
							1/2" Ice	0.229	0.199	0.003
							1" Ice	0.302	0.270	0.005
							2" Ice	0.476	0.439	0.014
(4) 860 10025 (E)	B	From Leg	4.000 0' 0'		0.000	145'	No Ice	0.163	0.136	0.001
							1/2" Ice	0.229	0.199	0.003
							1" Ice	0.302	0.270	0.005
							2" Ice	0.476	0.439	0.014
(4) 860 10025 (E)	C	From Leg	4.000 0' 0'		0.000	145'	No Ice	0.163	0.136	0.001
							1/2" Ice	0.229	0.199	0.003
							1" Ice	0.302	0.270	0.005
							2" Ice	0.476	0.439	0.014
(2) RRUS 11 (E)	A	From Leg	4.000 0' 0'		0.000	145'	No Ice	3.249	1.373	0.048
							1/2" Ice	3.491	1.551	0.068
							1" Ice	3.741	1.738	0.092
							2" Ice	4.268	2.138	0.150
(2) RRUS 11 (E)	B	From Leg	4.000 0' 0'		0.000	145'	No Ice	3.249	1.373	0.048
							1/2" Ice	3.491	1.551	0.068
							1" Ice	3.741	1.738	0.092
							2" Ice	4.268	2.138	0.150
(2) RRUS 11 (E)	C	From Leg	4.000 0' 0'		0.000	145'	No Ice	3.249	1.373	0.048
							1/2" Ice	3.491	1.551	0.068
							1" Ice	3.741	1.738	0.092
							2" Ice	4.268	2.138	0.150
DC6-48-60-18-8F (E)	A	From Leg	4.000 0' 0'		0.000	145'	No Ice	1.910	1.910	0.033
							1/2" Ice	2.150	2.150	0.055
							1" Ice	2.401	2.401	0.080
							2" Ice	2.938	2.938	0.138
QS66512-2 (R-Area per mail)	A	From Leg	4.000 0' 0'		0.000	145'	No Ice	8.400	6.800	0.111
							1/2" Ice	8.949	7.267	0.168
							1" Ice	9.506	7.795	0.232
							2" Ice	10.647	8.905	0.378
QS66512-2 (R-Area per mail)	B	From Leg	4.000 0' 0'		0.000	145'	No Ice	8.400	6.800	0.111
							1/2" Ice	8.949	7.267	0.168
							1" Ice	9.506	7.795	0.232
							2" Ice	10.647	8.905	0.378
QS66512-2 (R-Area per mail)	C	From Leg	4.000 0' 0'		0.000	145'	No Ice	8.400	6.800	0.111
							1/2" Ice	8.949	7.267	0.168
							1" Ice	9.506	7.795	0.232
							2" Ice	10.647	8.905	0.378
DC6-48-60-18-8F (R-Reserved)	A	From Leg	4.000 0' 0'		0.000	145'	No Ice	1.910	1.910	0.033
							1/2" Ice	2.150	2.150	0.055
							1" Ice	2.401	2.401	0.080
							2" Ice	2.938	2.938	0.138

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RRUS 32 B66 (R-Reserved)	A	From Leg	4.000 0' 0'		0.000	145'	No Ice 1/2" Ice 1" Ice 2" Ice	3.200 3.459 3.727 4.288	1.851 2.077 2.312 2.807	0.053 0.074 0.098 0.157
RRUS 32 B66 (R-Reserved)	B	From Leg	4.000 0' 0'		0.000	145'	No Ice 1/2" Ice 1" Ice 2" Ice	3.200 3.459 3.727 4.288	1.851 2.077 2.312 2.807	0.053 0.074 0.098 0.157
RRUS 32 B66 (R-Reserved)	C	From Leg	4.000 0' 0'		0.000	145'	No Ice 1/2" Ice 1" Ice 2" Ice	3.200 3.459 3.727 4.288	1.851 2.077 2.312 2.807	0.053 0.074 0.098 0.157
RRUS 32 (R-Reserved)	A	From Leg	4.000 0' 0'		0.000	145'	No Ice 1/2" Ice 1" Ice 2" Ice	3.333 3.597 3.869 4.439	1.983 2.214 2.453 2.958	0.055 0.077 0.103 0.165
RRUS 32 (R-Reserved)	B	From Leg	4.000 0' 0'		0.000	145'	No Ice 1/2" Ice 1" Ice 2" Ice	3.333 3.597 3.869 4.439	1.983 2.214 2.453 2.958	0.055 0.077 0.103 0.165
RRUS 32 (R-Reserved)	C	From Leg	4.000 0' 0'		0.000	145'	No Ice 1/2" Ice 1" Ice 2" Ice	3.333 3.597 3.869 4.439	1.983 2.214 2.453 2.958	0.055 0.077 0.103 0.165
(2) DBC0061F1V51-2 (R-Reserved)	A	From Leg	4.000 0' 0'		0.000	145'	No Ice 1/2" Ice 1" Ice 2" Ice	0.413 0.496 0.586 0.788	0.433 0.518 0.609 0.815	0.025 0.031 0.038 0.057
(2) DBC0061F1V51-2 (R-Reserved)	B	From Leg	4.000 0' 0'		0.000	145'	No Ice 1/2" Ice 1" Ice 2" Ice	0.413 0.496 0.586 0.788	0.433 0.518 0.609 0.815	0.025 0.031 0.038 0.057
(2) DBC0061F1V51-2 (R-Reserved)	C	From Leg	4.000 0' 0'		0.000	145'	No Ice 1/2" Ice 1" Ice 2" Ice	0.413 0.496 0.586 0.788	0.433 0.518 0.609 0.815	0.025 0.031 0.038 0.057
(2) 8' x 2" Pipe Mount (E-Empty+Quintel)	A	From Leg	4.000 0' 0'		0.000	145'	No Ice 1/2" Ice 1" Ice 2" Ice	1.900 2.728 3.401 4.396	1.900 2.728 3.401 4.396	0.029 0.044 0.063 0.119
(2) 8' x 2" Pipe Mount (E-Empty+Quintel)	B	From Leg	4.000 0' 0'		0.000	145'	No Ice 1/2" Ice 1" Ice 2" Ice	1.900 2.728 3.401 4.396	1.900 2.728 3.401 4.396	0.029 0.044 0.063 0.119
(2) 8' x 2" Pipe Mount (E-Empty+Quintel)	C	From Leg	4.000 0' 0'		0.000	145'	No Ice 1/2" Ice 1" Ice 2" Ice	1.900 2.728 3.401 4.396	1.900 2.728 3.401 4.396	0.029 0.044 0.063 0.119
Pipe Mount [PM 601-3] (E-Mount support/Photo)	C	None			0.000	145'	No Ice 1/2" Ice 1" Ice 2" Ice	4.390 5.480 6.570 8.750	4.390 5.480 6.570 8.750	0.195 0.237 0.280 0.365
Sector Mount [SM 702-3] (E-14' mount)	C	None			0.000	145'	No Ice 1/2" Ice 1" Ice 2" Ice	37.400 54.200 71.000 104.600	37.400 54.200 71.000 104.600	1.551 2.352 3.153 4.755

$RB

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
$RB									
LNX-6514DS-A1M w/ Mount Pipe (E)	A	From Leg	4.000 0' 1'	0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	8.411 8.975 9.505 10.585	7.082 8.273 9.185 11.023	0.065 0.134 0.211 0.393
LNX-6514DS-A1M w/ Mount Pipe (E)	B	From Leg	4.000 0' 1'	0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	8.411 8.975 9.505 10.585	7.082 8.273 9.185 11.023	0.065 0.134 0.211 0.393
LNX-6514DS-A1M w/ Mount Pipe (E)	C	From Leg	4.000 0' 1'	0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	8.411 8.975 9.505 10.585	7.082 8.273 9.185 11.023	0.065 0.134 0.211 0.393
X7C-665-2 w/ Mount Pipe (E)	A	From Leg	4.000 0' 1'	0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	8.988 9.644 10.266 11.539	6.946 8.127 9.021 10.844	0.053 0.123 0.201 0.384
X7C-665-2 w/ Mount Pipe (E)	B	From Leg	4.000 0' 1'	0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	8.988 9.644 10.266 11.539	6.946 8.127 9.021 10.844	0.053 0.123 0.201 0.384
X7C-680-2 w/ Mount Pipe (E)	C	From Leg	4.000 0' 1'	0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	8.988 9.644 10.266 11.539	7.296 8.480 9.378 11.207	0.055 0.126 0.206 0.393
HBXX-6516DS-A2M w/ Mount Pipe (E)	A	From Leg	4.000 0' 1'	0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	5.656 6.064 6.475 7.322	4.525 5.205 5.857 7.198	0.050 0.099 0.154 0.287
HBXX-6516DS-A2M w/ Mount Pipe (E)	B	From Leg	4.000 0' 1'	0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	5.656 6.064 6.475 7.322	4.525 5.205 5.857 7.198	0.050 0.099 0.154 0.287
HBXX-6516DS-A2M w/ Mount Pipe (E)	C	From Leg	4.000 0' 1'	0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	5.656 6.064 6.475 7.322	4.525 5.205 5.857 7.198	0.050 0.099 0.154 0.287
SBNHH-1D65B w/ Mount Pipe (E)	A	From Leg	4.000 0' 1'	0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	8.637 9.293 9.917 11.190	7.071 8.260 9.170 11.006	0.066 0.135 0.212 0.394
SBNHH-1D65B w/ Mount Pipe (E)	B	From Leg	4.000 0' 1'	0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	8.637 9.293 9.917 11.190	7.071 8.260 9.170 11.006	0.066 0.135 0.212 0.394
SBNHH-1D65B w/ Mount Pipe (E)	C	From Leg	4.000 0' 1'	0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	8.637 9.293 9.917 11.190	7.071 8.260 9.170 11.006	0.066 0.135 0.212 0.394
DB-B1-6C-12AB-0Z (E)	A	From Leg	4.000 0' 1'	0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	3.924 4.197 4.478 5.066	2.557 2.794 3.040 3.557	0.021 0.050 0.082 0.158
DB-B1-6C-12AB-0Z (E)	C	From Leg	4.000 0' 1'	0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	3.924 4.197 4.478 5.066	2.557 2.794 3.040 3.557	0.021 0.050 0.082 0.158

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)
RRH2X60-AWS (E)	A	From Leg	4.000 0' 1'	0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	3.957 4.272 4.596 5.271	1.816 2.075 2.360 2.957	0.060 0.083 0.109 0.173
RRH2X60-AWS (E)	B	From Leg	4.000 0' 1'	0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	3.957 4.272 4.596 5.271	1.816 2.075 2.360 2.957	0.060 0.083 0.109 0.173
RRH2X60-AWS (E)	C	From Leg	4.000 0' 1'	0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	3.957 4.272 4.596 5.271	1.816 2.075 2.360 2.957	0.060 0.083 0.109 0.173
5' x 2" Pipe Mount (E-for TME/Photo)	A	From Leg	4.000 0' 0'	0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	1.000 1.393 1.703 2.351	1.000 1.393 1.703 2.351	0.029 0.037 0.048 0.082
5' x 2" Pipe Mount (E-for TME/Photo)	B	From Leg	4.000 0' 0'	0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	1.000 1.393 1.703 2.351	1.000 1.393 1.703 2.351	0.029 0.037 0.048 0.082
5' x 2" Pipe Mount (E-for TME/Photo)	C	From Leg	4.000 0' 0'	0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	1.000 1.393 1.703 2.351	1.000 1.393 1.703 2.351	0.029 0.037 0.048 0.082
Pipe Mount [PM 601-3] (E-Mount support/Photo)	C	None		0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	4.390 5.480 6.570 8.750	4.390 5.480 6.570 8.750	0.195 0.237 0.280 0.365
Sector Mount [SM 702-3] (E)	C	None		0.000	130'	No Ice 1/2" Ice 1" Ice 2" Ice	37.400 54.200 71.000 104.600	37.400 54.200 71.000 104.600	1.551 2.352 3.153 4.755
$RB ANT150F2 (E)	A	From Face	4.000 0' 2'	0.000	104'	No Ice 1/2" Ice 1" Ice 2" Ice	1.227 1.530 1.842 2.494	1.227 1.530 1.842 2.494	0.013 0.022 0.035 0.072
AO8610-5T0 (E)	A	From Face	4.000 0' 8'	0.000	104'	No Ice 1/2" Ice 1" Ice 2" Ice	3.960 5.638 7.333 10.773	3.960 5.638 7.333 10.773	0.041 0.071 0.111 0.223
K751221 (E)	A	From Face	4.000 0' 3'	0.000	104'	No Ice 1/2" Ice 1" Ice 2" Ice	0.314 0.445 0.585 0.894	0.314 0.445 0.585 0.894	0.004 0.008 0.013 0.028
SRL-210C-4 (E)	B	From Face	4.000 0' 10'	0.000	104'	No Ice 1/2" Ice 1" Ice 2" Ice	1.000 1.800 2.600 4.200	1.000 1.800 2.600 4.200	0.059 0.077 0.094 0.130
ANT150F6 (E)	B	From Face	4.000 0' 12'	0.000	104'	No Ice 1/2" Ice 1" Ice 2" Ice	4.800 6.828 8.873 13.013	4.800 6.828 8.873 13.013	0.030 0.066 0.114 0.249
PD220-5 (E)	B	From Face	4.000 0' 13'	0.000	104'	No Ice 1/2" Ice 1" Ice 2" Ice	6.050 8.281 10.529 15.075	6.050 8.281 10.529 15.075	0.023 0.067 0.125 0.283

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)
AO8610-5T0 (E)	C	From Face	4.000 0' 8'	0.000	104'	No Ice 1/2" Ice 1" Ice 2" Ice	3.960 5.638 7.333 10.773	3.960 5.638 7.333 10.773	0.041 0.071 0.111 0.223
10191 (E)	C	From Face	4.000 0' 2'	0.000	104'	No Ice 1/2" Ice 1" Ice 2" Ice	0.640 0.941 1.191 1.720	0.640 0.941 1.191 1.720	0.005 0.010 0.018 0.043
DB540K-F (E)	C	From Face	4.000 0' 9'	0.000	104'	No Ice 1/2" Ice 1" Ice 2" Ice	4.500 6.329 8.175 11.917	4.500 6.329 8.175 11.917	0.066 0.099 0.144 0.268
(4) 6' x 2" Mount Pipe (E-Per Photo)	A	From Face	4.000 0' 0'	0.000	104'	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
(4) 6' x 2" Mount Pipe (E-Per Photo)	B	From Face	4.000 0' 0'	0.000	104'	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
(4) 6' x 2" Mount Pipe (E-Per Photo)	C	From Face	4.000 0' 0'	0.000	104'	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
6' x 2.375" Mount Pipe (E-For Dish)	C	From Face	4.000 0' 0'	0.000	104'	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.041 0.051 0.066 0.109
6' x 2.375" Mount Pipe (E-For Dish)	A	From Face	4.000 0' 0'	0.000	104'	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.041 0.051 0.066 0.109
Sabre 30' Specialty Platform (E)	C	None		0.000	104'	No Ice 1/2" Ice 1" Ice 2" Ice	75.000 87.000 99.000 123.000	75.000 87.000 99.000 123.000	3.020 3.620 4.220 5.420
$RB									
ERICSSON AIR 21 B4A B2P (E-Installed)	A	From Leg	4.000 0' 1'	0.000	96'	No Ice 1/2" Ice 1" Ice 2" Ice	6.588 7.033 7.488 8.422	4.297 4.703 5.130 6.010	0.092 0.133 0.180 0.290
ERICSSON AIR 21 B4A B2P (E-Installed)	B	From Leg	4.000 0' 1'	0.000	96'	No Ice 1/2" Ice 1" Ice 2" Ice	6.588 7.033 7.488 8.422	4.297 4.703 5.130 6.010	0.092 0.133 0.180 0.290
ERICSSON AIR 21 B4A B2P (E-Installed)	C	From Leg	4.000 0' 1'	0.000	96'	No Ice 1/2" Ice 1" Ice 2" Ice	6.588 7.033 7.488 8.422	4.297 4.703 5.130 6.010	0.092 0.133 0.180 0.290
RRUS 11 B2 (E-Installed)	A	From Leg	4.000 0' 1'	0.000	96'	No Ice 1/2" Ice 1" Ice 2" Ice	2.833 3.043 3.259 3.715	1.182 1.330 1.485 1.826	0.051 0.072 0.095 0.153
RRUS 11 B2 (E-Installed)	B	From Leg	4.000 0' 1'	0.000	96'	No Ice 1/2" Ice 1" Ice 2" Ice	2.833 3.043 3.259 3.715	1.182 1.330 1.485 1.826	0.051 0.072 0.095 0.153

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RRUS 11 B2	C	From Leg	4.000		0.000	96'	No Ice	2.833	1.182	0.051
(E-Installed)			0'				1/2" Ice	3.043	1.330	0.072
			1'				1" Ice	3.259	1.485	0.095
							2" Ice	3.715	1.826	0.153
APXVAARR24_43-U-NA20	A	From Leg	4.000		0.000	96'	No Ice	20.480	11.024	0.161
w/ Mount Pipe			0'				1/2" Ice	21.231	12.550	0.297
(P)			1'				1" Ice	21.990	14.099	0.444
							2" Ice	23.444	16.451	0.775
APXVAARR24_43-U-NA20	B	From Leg	4.000		0.000	96'	No Ice	20.480	11.024	0.161
w/ Mount Pipe			0'				1/2" Ice	21.231	12.550	0.297
(P)			1'				1" Ice	21.990	14.099	0.444
							2" Ice	23.444	16.451	0.775
APXVAARR24_43-U-NA20	C	From Leg	4.000		0.000	96'	No Ice	20.480	11.024	0.161
w/ Mount Pipe			0'				1/2" Ice	21.231	12.550	0.297
(P)			1'				1" Ice	21.990	14.099	0.444
							2" Ice	23.444	16.451	0.775
(3) RADIO 4449 B12/B71	A	From Leg	4.000		0.000	96'	No Ice	1.643	1.152	0.075
(P)			0'				1/2" Ice	1.803	1.291	0.091
			1'				1" Ice	1.971	1.436	0.110
							2" Ice	2.328	1.749	0.156
(3) ATM1900D-1A20	A	From Leg	4.000		0.000	96'	No Ice	0.717	0.192	0.008
(P)			0'				1/2" Ice	0.824	0.255	0.013
			1'				1" Ice	0.938	0.326	0.020
							2" Ice	1.189	0.494	0.039
Sector Mount [SM 403-3]	C	None			0.000	96'	No Ice	19.430	19.430	0.873
(P-(12.5')2TB/sector)							1/2" Ice	27.510	27.510	1.267
							1" Ice	35.590	35.590	1.661
							2" Ice	51.750	51.750	2.448
$RB										
Side Arm Mount [SO 201-1]	C	From Leg	0.500		0.000	87'	No Ice	2.960	2.110	0.096
(E)			0'				1/2" Ice	4.100	2.930	0.117
			0'				1" Ice	5.240	3.750	0.138
							2" Ice	7.520	5.390	0.180
$RB										
GPS-TMG-HR-26N	C	From Leg	3.000		0.000	71'	No Ice	0.138	0.138	0.001
(E)			0'				1/2" Ice	0.187	0.187	0.002
			2'				1" Ice	0.245	0.245	0.005
							2" Ice	0.381	0.381	0.014
6' x 2" Mount Pipe	C	From Leg	3.000		0.000	71'	No Ice	1.425	1.425	0.022
(E-Per Photo)			0'				1/2" Ice	1.925	1.925	0.033
			0'				1" Ice	2.294	2.294	0.048
							2" Ice	3.060	3.060	0.090
Side Arm Mount [SO 601-1]	C	From Leg	1.500		0.000	71'	No Ice	1.220	6.300	0.159
(E)			0'				1/2" Ice	1.850	8.610	0.197
			0'				1" Ice	2.480	10.920	0.234
							2" Ice	3.740	15.540	0.310
$RB										

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 ft²	Weight K
Andrew PAR6-59A (E)	C	Paraboloid w/Radome	From Leg	0.500 0' -1'	11.000		139'	6.000	No Ice 1/2" Ice 1" Ice 2" Ice	28.274 29.065 29.856 31.438	0.143 0.292 0.441 0.740
$RB											
COMMSCOPE VHLPX4-11W-6WH (E-face per photo)	C	Paraboloid w/Shroud (HP)	From Face	4.000 0' 2'	-19.000		104'	4.108	No Ice 1/2" Ice 1" Ice 2" Ice	13.256 13.800 14.343 15.429	0.088 0.159 0.230 0.371
COMMSCOPE VHLPX4-11W-6WH (E-face per photo)	A	Paraboloid w/Shroud (HP)	From Face	4.000 0' 2'	1.000		104'	4.108	No Ice 1/2" Ice 1" Ice 2" Ice	13.256 13.800 14.343 15.429	0.088 0.159 0.230 0.371
$RB											
PR-950 (E)	C	Grid	From Leg	1.500 0' 0'	1.000		87'	5.667	No Ice 1/2" Ice 1" Ice 2" Ice	25.220 25.967 26.714 28.209	0.038 0.171 0.305 0.571
$RB											

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+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp

Comb. No.	Description
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	170 - 160	Leg	Max Tension	7	5.932	0.136	0.035
			Max. Compression	10	-8.195	-0.114	-0.094
			Max. Mx	22	-0.366	1.470	-0.340
			Max. My	3	-0.612	-0.284	2.238
			Max. Vy	22	-1.528	0.000	0.000
			Max. Vx	3	-2.246	0.000	0.000
		Diagonal	Max Tension	12	4.052	0.000	0.000
			Max. Compression	24	-4.040	0.000	0.000
			Max. Mx	30	0.377	0.041	-0.005
			Max. My	24	0.093	0.014	-0.006
			Max. Vy	30	0.039	0.041	-0.005
			Max. Vx	38	0.002	0.000	0.000
		Top Girt	Max Tension	3	0.389	0.000	0.000
			Max. Compression	14	-0.448	0.000	0.000
			Max. Mx	26	-0.080	-0.105	0.000
			Max. My	26	-0.076	0.000	0.003
			Max. Vy	26	0.052	0.000	0.000
			Max. Vx	26	-0.002	0.000	0.000
T2	160 - 140	Leg	Max Tension	7	27.002	-1.492	-0.170
			Max. Compression	10	-35.238	0.874	0.026
			Max. Mx	14	25.884	1.535	0.004
			Max. My	20	-4.220	-0.056	1.633
			Max. Vy	22	-1.810	-1.518	0.178
			Max. Vx	20	-1.690	-0.037	-1.159
		Diagonal	Max Tension	24	6.964	0.000	0.000
			Max. Compression	24	-7.114	0.000	0.000
			Max. Mx	30	1.626	0.086	0.010
			Max. My	2	-6.759	0.025	-0.013
			Max. Vy	29	0.067	0.086	0.010
			Max. Vx	36	-0.004	0.000	0.000
T3	140 - 120	Leg	Max Tension	7	66.146	-1.266	0.022
			Max. Compression	10	-82.613	0.475	-0.046

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	14	48.084	2.117	0.004
			Max. My	20	-6.603	-0.091	2.158
			Max. Vy	14	1.074	-1.306	0.004
			Max. Vx	21	1.108	-0.070	-1.403
		Diagonal	Max Tension	8	10.577	0.000	0.000
			Max. Compression	8	-10.677	0.000	0.000
			Max. Mx	31	1.953	0.139	-0.017
			Max. My	36	-2.702	0.117	0.017
			Max. Vy	29	0.090	0.133	0.016
			Max. Vx	36	-0.005	0.000	0.000
T4	120 - 100	Leg	Max Tension	7	110.811	-1.175	-0.005
			Max. Compression	10	-137.862	3.807	-0.015
			Max. Mx	11	-134.710	3.820	-0.016
			Max. My	12	-10.652	-0.079	-3.314
			Max. Vy	22	1.247	-3.784	0.010
			Max. Vx	24	1.307	-0.008	1.108
		Diagonal	Max Tension	8	12.274	0.000	0.000
			Max. Compression	8	-12.421	0.000	0.000
			Max. Mx	33	2.046	0.192	0.023
			Max. My	30	-2.992	0.174	-0.025
			Max. Vy	33	0.118	0.192	0.023
			Max. Vx	30	0.006	0.000	0.000
T5	100 - 80	Leg	Max Tension	23	160.202	-1.981	0.092
			Max. Compression	10	-196.730	3.154	-0.197
			Max. Mx	11	-158.852	3.820	-0.016
			Max. My	12	-11.132	-0.079	-3.314
			Max. Vy	14	-1.103	-3.802	0.059
			Max. Vx	9	0.938	-0.074	3.219
		Diagonal	Max Tension	8	16.839	0.000	0.000
			Max. Compression	8	-16.963	0.000	0.000
			Max. Mx	31	3.486	0.402	0.047
			Max. My	31	2.635	0.364	-0.048
			Max. Vy	33	0.187	0.378	-0.048
			Max. Vx	31	0.010	0.000	0.000
T6	80 - 60	Leg	Max Tension	15	215.155	-2.818	-0.011
			Max. Compression	10	-261.799	3.814	-0.025
			Max. Mx	10	-261.799	3.814	-0.025
			Max. My	12	-18.478	0.010	-3.689
			Max. Vy	3	-0.342	3.777	0.024
			Max. Vx	12	0.563	-0.191	-3.233
		Diagonal	Max Tension	4	17.811	0.000	0.000
			Max. Compression	4	-18.009	0.000	0.000
			Max. Mx	31	3.431	0.525	-0.063
			Max. My	37	-3.925	0.452	0.064
			Max. Vy	33	0.234	0.513	-0.063
			Max. Vx	37	-0.012	0.000	0.000
T7	60 - 40	Leg	Max Tension	15	269.128	-5.252	0.005
			Max. Compression	10	-326.454	6.185	-0.008
			Max. Mx	10	-326.454	6.185	-0.008
			Max. My	12	-22.008	-0.180	-5.072
			Max. Vy	22	0.457	-5.283	0.045
			Max. Vx	12	0.429	-0.180	-5.072
		Diagonal	Max Tension	24	19.007	0.000	0.000
			Max. Compression	24	-19.285	0.000	0.000
			Max. Mx	33	2.654	0.601	-0.073
			Max. My	37	-4.320	0.552	0.074
			Max. Vy	33	0.255	0.601	-0.073
			Max. Vx	37	-0.013	0.000	0.000
T8	40 - 20	Leg	Max Tension	15	321.447	-7.078	0.023
			Max. Compression	10	-390.333	1.427	0.314
			Max. Mx	14	288.287	-7.135	0.021

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	12	-25.848	-0.273	-9.616
			Max. Vy	2	0.824	7.046	0.015
			Max. Vx	12	0.751	-0.273	-9.616
		Diagonal	Max Tension	24	20.585	0.000	0.000
			Max. Compression	24	-20.899	0.000	0.000
			Max. Mx	33	2.784	0.702	0.084
			Max. My	32	3.112	0.702	-0.086
			Max. Vy	33	0.274	0.702	0.084
			Max. Vx	32	0.014	0.000	0.000
T9	20 - 0	Leg	Max Tension	15	357.005	0.281	-0.058
			Max. Compression	2	-435.845	0.000	0.000
			Max. Mx	10	-435.484	18.070	0.276
			Max. My	12	-30.302	-1.919	-9.205
			Max. Vy	10	-4.466	18.070	0.276
			Max. Vx	12	-2.241	-1.919	-9.205
		Diagonal	Max Tension	25	26.061	0.012	0.021
			Max. Compression	12	-27.826	0.000	0.000
			Max. Mx	12	-13.369	0.339	-0.029
			Max. My	37	-0.917	0.145	0.045
			Max. Vy	30	-0.141	0.219	0.045
			Max. Vx	27	0.010	0.000	0.000
		Horizontal	Max Tension	25	19.533	0.000	0.000
			Max. Compression	2	-19.745	-0.286	-0.042
			Max. Mx	33	0.351	-0.451	-0.003
			Max. My	2	2.612	-0.227	0.106
			Max. Vy	33	-0.192	-0.411	-0.015
			Max. Vx	2	0.011	-0.227	0.106
		Redund Horz 1 Bracing	Max Tension	2	7.647	0.000	0.000
			Max. Compression	2	-7.565	0.000	0.000
			Max. Mx	26	1.213	-0.068	0.000
			Max. My	26	1.293	0.000	0.002
			Max. Vy	26	-0.045	0.000	0.000
			Max. Vx	26	-0.001	0.000	0.000
		Redund Diag 1 Bracing	Max Tension	2	4.891	0.000	0.000
			Max. Compression	2	-4.891	0.000	0.000
			Max. Mx	26	1.455	-0.074	0.000
			Max. My	26	1.506	0.000	-0.003
			Max. Vy	26	-0.039	0.000	0.000
			Max. Vx	26	0.001	0.000	0.000
		Inner Bracing	Max Tension	3	0.010	0.000	0.000
			Max. Compression	14	-0.030	0.000	0.000
			Max. Mx	26	-0.019	-0.218	0.000
			Max. Vy	26	0.073	0.000	0.000

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	451.104	48.447	-27.972
	Max. H_x	18	451.104	48.447	-27.972
	Max. H_z	5	-324.135	-34.594	25.695
	Min. Vert	7	-366.298	-41.410	23.876
	Min. H_x	7	-366.298	-41.410	23.876
	Min. H_z	16	388.868	39.066	-28.191

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg B	Max. Vert	10	468.688	-51.303	-28.759
	Max. H_x	23	-380.632	43.897	24.545
	Max. H_z	25	-338.870	37.260	26.435
	Min. Vert	23	-380.632	43.897	24.545
	Min. H_x	10	468.688	-51.303	-28.759
	Min. H_z	12	406.383	-42.000	-29.126
Leg A	Max. Vert	2	469.395	-0.640	59.476
	Max. H_x	21	29.175	8.832	2.498
	Max. H_z	2	469.395	-0.640	59.476
	Min. Vert	15	-384.503	0.596	-51.070
	Min. H_x	8	34.545	-8.860	2.771
	Min. H_z	15	-384.503	0.596	-51.070

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	93.521	0.000	-0.000	18.775	5.878	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	112.225	-0.161	-100.173	-9352.784	14.424	-28.404
0.9 Dead+1.0 Wind 0 deg - No Ice	84.169	-0.161	-100.173	-9358.416	12.661	-28.404
1.2 Dead+1.0 Wind 30 deg - No Ice	112.225	45.929	-79.816	-7610.347	-4405.931	-11.971
0.9 Dead+1.0 Wind 30 deg - No Ice	84.169	45.929	-79.816	-7615.979	-4407.695	-11.971
1.2 Dead+1.0 Wind 60 deg - No Ice	112.225	76.766	-43.789	-4199.640	-7429.173	0.277
0.9 Dead+1.0 Wind 60 deg - No Ice	84.169	76.766	-43.789	-4205.273	-7430.936	0.277
1.2 Dead+1.0 Wind 90 deg - No Ice	112.225	90.891	0.416	61.998	-8756.239	11.409
0.9 Dead+1.0 Wind 90 deg - No Ice	84.169	90.891	0.416	56.365	-8758.002	11.409
1.2 Dead+1.0 Wind 120 deg - No Ice	112.225	85.629	49.319	4662.286	-8090.224	31.802
0.9 Dead+1.0 Wind 120 deg - No Ice	84.169	85.629	49.319	4656.653	-8091.987	31.802
1.2 Dead+1.0 Wind 150 deg - No Ice	112.225	49.342	84.402	7930.044	-4645.949	32.721
0.9 Dead+1.0 Wind 150 deg - No Ice	84.169	49.342	84.402	7924.411	-4647.712	32.721
1.2 Dead+1.0 Wind 180 deg - No Ice	112.225	0.491	94.480	8937.798	-44.450	27.812
0.9 Dead+1.0 Wind 180 deg - No Ice	84.169	0.491	94.480	8932.165	-46.213	27.812
1.2 Dead+1.0 Wind 210 deg - No Ice	112.225	-45.866	79.279	7588.112	4405.481	11.088
0.9 Dead+1.0 Wind 210 deg - No Ice	84.169	-45.866	79.279	7582.479	4403.718	11.088
1.2 Dead+1.0 Wind 240 deg - No Ice	112.225	-81.147	46.545	4458.098	7768.495	1.167
0.9 Dead+1.0 Wind 240 deg - No Ice	84.169	-81.147	46.545	4452.465	7766.732	1.167
1.2 Dead+1.0 Wind 270 deg - No Ice	112.225	-90.454	-0.421	-18.581	8714.589	-10.902
0.9 Dead+1.0 Wind 270 deg -	84.169	-90.454	-0.421	-24.213	8712.826	-10.902

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
1.2 Dead+1.0 Wind 300 deg - No Ice	112.225	-80.537	-46.501	-4389.348	7681.518	-31.093
0.9 Dead+1.0 Wind 300 deg - No Ice	84.169	-80.537	-46.501	-4394.980	7679.754	-31.093
1.2 Dead+1.0 Wind 330 deg - No Ice	112.225	-49.040	-84.440	-7891.443	4615.542	-32.684
0.9 Dead+1.0 Wind 330 deg - No Ice	84.169	-49.040	-84.440	-7897.076	4613.778	-32.684
1.2 Dead+1.0 Ice+1.0 Temp	210.370	-0.000	-0.000	55.528	14.940	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	210.370	0.172	-21.084	-1992.248	-2.875	-3.320
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	210.370	10.059	-17.184	-1645.037	-984.496	-0.800
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	210.370	16.787	-9.601	-904.068	-1668.019	0.662
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	210.370	19.822	-0.066	48.311	-1956.361	0.823
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	210.370	18.311	10.321	1059.340	-1772.690	2.581
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	210.370	10.506	18.000	1801.913	-1008.741	4.410
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	210.370	0.043	20.351	2044.304	11.962	3.759
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	210.370	-9.913	17.107	1746.542	1000.456	1.548
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	210.370	-17.217	9.887	1036.423	1727.641	-0.402
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	210.370	-19.690	-0.048	52.682	1972.274	-1.559
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	210.370	-17.566	-10.106	-931.965	1740.483	-3.018
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	210.370	-10.449	-18.013	-1692.467	1031.073	-4.402
Dead+Wind 0 deg - Service	93.521	-0.032	-19.647	-1820.027	7.324	-5.571
Dead+Wind 30 deg - Service	93.521	9.008	-15.655	-1478.279	-859.651	-2.348
Dead+Wind 60 deg - Service	93.521	15.056	-8.588	-809.329	-1452.607	0.054
Dead+Wind 90 deg - Service	93.521	17.827	0.082	26.516	-1712.887	2.238
Dead+Wind 120 deg - Service	93.521	16.795	9.673	928.782	-1582.260	6.237
Dead+Wind 150 deg - Service	93.521	9.678	16.554	1569.695	-906.726	6.418
Dead+Wind 180 deg - Service	93.521	0.096	18.531	1767.348	-4.223	5.455
Dead+Wind 210 deg - Service	93.521	-8.996	15.549	1502.631	868.552	2.175
Dead+Wind 240 deg - Service	93.521	-15.915	9.129	888.734	1528.148	0.229
Dead+Wind 270 deg - Service	93.521	-17.741	-0.083	10.712	1713.708	-2.138
Dead+Wind 300 deg - Service	93.521	-15.796	-9.120	-846.537	1511.089	-6.098
Dead+Wind 330 deg - Service	93.521	-9.618	-16.561	-1533.411	909.752	-6.410

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-93.521	0.000	0.000	93.521	0.000	0.000%
2	-0.161	-112.225	-100.173	0.161	112.225	100.173	0.000%
3	-0.161	-84.169	-100.173	0.161	84.169	100.173	0.000%
4	45.929	-112.225	-79.816	-45.929	112.225	79.816	0.000%
5	45.929	-84.169	-79.816	-45.929	84.169	79.816	0.000%
6	76.766	-112.225	-43.789	-76.766	112.225	43.789	0.000%
7	76.766	-84.169	-43.789	-76.766	84.169	43.789	0.000%

Load Comb	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
8	90.891	-112.225	0.416	-90.891	112.225	-0.416	0.000%
9	90.891	-84.169	0.416	-90.891	84.169	-0.416	0.000%
10	85.629	-112.225	49.319	-85.629	112.225	-49.319	0.000%
11	85.629	-84.169	49.319	-85.629	84.169	-49.319	0.000%
12	49.342	-112.225	84.402	-49.342	112.225	-84.402	0.000%
13	49.342	-84.169	84.402	-49.342	84.169	-84.402	0.000%
14	0.491	-112.225	94.480	-0.491	112.225	-94.480	0.000%
15	0.491	-84.169	94.480	-0.491	84.169	-94.480	0.000%
16	-45.866	-112.225	79.279	45.866	112.225	-79.279	0.000%
17	-45.866	-84.169	79.279	45.866	84.169	-79.279	0.000%
18	-81.147	-112.225	46.545	81.147	112.225	-46.545	0.000%
19	-81.147	-84.169	46.545	81.147	84.169	-46.545	0.000%
20	-90.454	-112.225	-0.421	90.454	112.225	0.421	0.000%
21	-90.454	-84.169	-0.421	90.454	84.169	0.421	0.000%
22	-80.537	-112.225	-46.501	80.537	112.225	46.501	0.000%
23	-80.537	-84.169	-46.501	80.537	84.169	46.501	0.000%
24	-49.040	-112.225	-84.440	49.040	112.225	84.440	0.000%
25	-49.040	-84.169	-84.440	49.040	84.169	84.440	0.000%
26	0.000	-210.370	0.000	0.000	210.370	0.000	0.000%
27	0.172	-210.370	-21.084	-0.172	210.370	21.084	0.000%
28	10.059	-210.370	-17.184	-10.059	210.370	17.184	0.000%
29	16.787	-210.370	-9.601	-16.787	210.370	9.601	0.000%
30	19.822	-210.370	-0.066	-19.822	210.370	0.066	0.000%
31	18.311	-210.370	10.321	-18.311	210.370	-10.321	0.000%
32	10.506	-210.370	18.000	-10.506	210.370	-18.000	0.000%
33	0.043	-210.370	20.351	-0.043	210.370	-20.351	0.000%
34	-9.913	-210.370	17.107	9.913	210.370	-17.107	0.000%
35	-17.217	-210.370	9.887	17.217	210.370	-9.887	0.000%
36	-19.690	-210.370	-0.048	19.690	210.370	0.048	0.000%
37	-17.566	-210.370	-10.106	17.566	210.370	10.106	0.000%
38	-10.449	-210.370	-18.013	10.449	210.370	18.013	0.000%
39	-0.032	-93.521	-19.647	0.032	93.521	19.647	0.000%
40	9.008	-93.521	-15.655	-9.008	93.521	15.655	0.000%
41	15.056	-93.521	-8.588	-15.056	93.521	8.588	0.000%
42	17.827	-93.521	0.082	-17.827	93.521	-0.082	0.000%
43	16.795	-93.521	9.673	-16.795	93.521	-9.673	0.000%
44	9.678	-93.521	16.554	-9.678	93.521	-16.554	0.000%
45	0.096	-93.521	18.531	-0.096	93.521	-18.531	0.000%
46	-8.996	-93.521	15.549	8.996	93.521	-15.549	0.000%
47	-15.915	-93.521	9.129	15.915	93.521	-9.129	0.000%
48	-17.741	-93.521	-0.083	17.741	93.521	0.083	0.000%
49	-15.796	-93.521	-9.120	15.796	93.521	9.120	0.000%
50	-9.618	-93.521	-16.561	9.618	93.521	16.561	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	170 - 160	1.276	43	0.062	0.003
T2	160 - 140	1.145	43	0.060	0.002
T3	140 - 120	0.896	43	0.055	0.003
T4	120 - 100	0.668	43	0.047	0.003
T5	100 - 80	0.472	43	0.039	0.002
T6	80 - 60	0.311	43	0.031	0.002
T7	60 - 40	0.187	43	0.023	0.002
T8	40 - 20	0.096	39	0.015	0.001
T9	20 - 0	0.035	39	0.008	0.001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
170'	Lightning Rod 5/8" x 5'	43	1.276	0.062	0.003	394582
169'	(3) ACU-A20-N	43	1.263	0.061	0.003	394582
165'	TFC2K	43	1.210	0.061	0.002	394582
151'	(2) P65-15-XL-0 w/ Mount Pipe	43	1.031	0.058	0.003	239784
145'	800 10122 w/ Mount Pipe	43	0.957	0.056	0.003	265664
138'	Andrew PAR6-59A	43	0.872	0.054	0.003	248872
130'	LNX-6514DS-A1M w/ Mount Pipe	43	0.779	0.051	0.003	182838
106'	COMMSCOPE VHLPX4-11W-6WH	43	0.527	0.042	0.003	137260
104'	ANT150F2	43	0.508	0.041	0.002	137381
96'	ERICSSON AIR 21 B4A B2P	43	0.437	0.038	0.002	135125
87'	PR-950	43	0.363	0.034	0.002	129804
71'	GPS-TMG-HR-26N	43	0.251	0.027	0.002	135749

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	170 - 160	6.464	10	0.307	0.018
T2	160 - 140	5.808	10	0.300	0.012
T3	140 - 120	4.554	10	0.276	0.017
T4	120 - 100	3.398	10	0.239	0.015
T5	100 - 80	2.402	10	0.200	0.012
T6	80 - 60	1.588	3	0.158	0.010
T7	60 - 40	0.958	3	0.114	0.008
T8	40 - 20	0.491	3	0.076	0.006
T9	20 - 0	0.177	2	0.038	0.003

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
170'	Lightning Rod 5/8" x 5'	10	6.464	0.307	0.018	105167
169'	(3) ACU-A20-N	10	6.398	0.306	0.016	105167
165'	TFC2K	10	6.135	0.303	0.012	105167
151'	(2) P65-15-XL-0 w/ Mount Pipe	10	5.234	0.291	0.016	56629
145'	800 10122 w/ Mount Pipe	10	4.860	0.283	0.017	58116
138'	Andrew PAR6-59A	10	4.433	0.272	0.017	52123
130'	LNX-6514DS-A1M w/ Mount Pipe	10	3.960	0.258	0.016	37263
106'	COMMSCOPE VHLPX4-11W-6WH	10	2.682	0.212	0.013	27239
104'	ANT150F2	10	2.587	0.208	0.013	27231
96'	ERICSSON AIR 21 B4A B2P	3	2.224	0.192	0.012	26694
87'	PR-950	3	1.852	0.173	0.011	25587
71'	GPS-TMG-HR-26N	3	1.283	0.138	0.009	26706

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	170	Leg	A325N	1.000	4	1.496	54.517	0.027 ✓	1.05	Bolt Tension
		Diagonal	A325N	0.625	1	4.052	13.806	0.294 ✓	1.05	Bolt Shear
		Top Girt	A325N	0.625	1	0.389	9.914	0.039 ✓	1.05	Member Block Shear
T2	160	Leg	A325N	1.250	4	6.750	87.220	0.077 ✓	1.05	Bolt Tension
		Diagonal	A325N	0.750	1	6.964	18.922	0.368 ✓	1.05	Gusset Bearing
T3	140	Leg	A325N	1.250	6	11.024	87.220	0.126 ✓	1.05	Bolt Tension
		Diagonal	A325N	1.000	1	10.577	20.227	0.523 ✓	1.05	Member Bearing
T4	120	Leg	A325N	1.375	6	18.468	103.939	0.178 ✓	1.05	Bolt Tension
		Diagonal	A325N	1.000	1	12.274	26.970	0.455 ✓	1.05	Member Bearing
T5	100	Leg	A325N	1.375	6	26.700	103.939	0.257 ✓	1.05	Bolt Tension
		Diagonal	A325N	1.125	1	16.839	26.100	0.645 ✓	1.05	Member Bearing
T6	80	Leg	A325N	1.500	6	35.859	126.472	0.284 ✓	1.05	Bolt Tension
		Diagonal	A325N	1.125	1	17.811	32.625	0.546 ✓	1.05	Member Bearing
T7	60	Leg	A325N	1.500	8	33.641	126.472	0.266 ✓	1.05	Bolt Tension
		Diagonal	A325N	1.250	1	19.007	31.538	0.603 ✓	1.05	Member Bearing
T8	40	Leg	A325N	1.500	8	40.181	126.472	0.318 ✓	1.05	Bolt Tension
		Diagonal	A325N	1.250	1	20.585	31.538	0.653 ✓	1.05	Member Bearing
T9	20	Diagonal	A325N	1.000	2	13.913	35.343	0.394 ✓	1.05	Bolt Shear
		Horizontal	A325N	1.000	2	9.767	26.916	0.363 ✓	1.05	Member Block 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 $P_u / \phi P_n$
T1	170 - 160	Sabre 3.5" x 0.216"	10'7/32"	5'3/32"	51.7 K=1.00	2.228	-8.195	82.510	0.099 [1] ✓
T2	160 - 140	Sabre 4.5" x 0.438"	20'13/32"	6'8-1/8"	55.5 K=1.00	5.589	-35.238	200.839	0.175 [1] ✓
T3	140 - 120	Sabre 6.625" x 0.432"	20'13/32"	6'8-1/8"	36.5 K=1.00	8.405	-82.613	343.100	0.241 [1] ✓
T4	120 - 100	Sabre 8.625" x 0.5"	20'13/32"	6'8-1/8"	27.8 K=1.00	12.763	-137.862	542.674	0.254 [1] ✓
T5	100 - 80	Sabre 10.750" x 0.500"	20'13/32"	10'7/32"	33.1 K=1.00	16.101	-196.730	668.659	0.294 [1] ✓
T6	80 - 60	Sabre 12.75" x 0.5"	20'13/32"	10'7/32"	27.7 K=1.00	19.242	-261.799	818.560	0.320 [1] ✓
T7	60 - 40	Sabre 16" x 0.5"	20'13/32	10'7/32"	21.9	24.347	-326.454	1057.800	0.309 [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				✓
T8	40 - 20	Sabre 18" x 0.5"	20'13/32"	10'7/32"	19.4 K=1.00	27.489	-390.333	1203.360	0.324 [1] ✓
T9	20 - 0	Sabre 18" x 0.5"	20'13/32"	5'3/32"	9.7 K=1.00	27.489	-435.845	1228.500	0.355 [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	170 - 160	L2x2x3/8	10'15/16"	4'10-7/16"	150.2 K=1.00	1.360	-4.040	17.250	0.234 [1] ✓
T2	160 - 140	L3x3x3/8	12'6-31/32"	6'1-7/16"	125.1 K=1.00	2.110	-7.114	38.577	0.184 [1] ✓
T3	140 - 120	L3 1/2x3 1/2x3/8	14'3-25/32"	6'10-13/32"	120.0 K=1.00	2.480	-10.677	48.877	0.218 [1] ✓
T4	120 - 100	L3 1/2x3 1/2x1/2	16'1-11/32"	7'8-1/8"	134.9 K=1.00	3.250	-12.422	51.122	0.243 [1] ✓
T5	100 - 80	L5x5x1/2	19'3-9/16"	9'2-13/16"	114.5 K=1.02	4.750	-16.963	100.449	0.169 [1] ✓
T6	80 - 60	L5x5x5/8	21'3/8"	10'5/32"	122.9 K=1.00	5.860	-18.009	110.813	0.163 [1] ✓
T7	60 - 40	L5x5x5/8	22'9-23/32"	10'8-15/16"	131.8 K=1.00	5.860	-19.285	96.513	0.200 [1] ✓
T8	40 - 20	L5x5x5/8	24'7-1/2"	11'6-13/16"	141.9 K=1.00	5.860	-20.899	83.268	0.251 [1] ✓
T9	20 - 0	L5x5x5/8	16'1/8"	15'19/32"	118.8 K=1.00	5.860	-27.826	117.313	0.237 [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 $\frac{P_u}{\phi P_n}$
T9	20 - 0	2L3 1/2x3 1/2x1/4x3/8 2L 'a' > 64.466 in - 159	24'	11'3"	155.5 K=1.00	3.380	-19.745	39.205	0.504 [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	170 - 160	L2 1/2x2 1/2x3/16	8'	7'5"	179.8 K=1.00	0.902	-0.448	7.986	0.056 [1] ✔

[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 $\frac{P_u}{\phi P_n}$
T9	20 - 0	L3x3x5/16	6'	5'3"	107.0 K=1.00	1.780	-7.565	41.028	0.184 [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 $\frac{P_u}{\phi P_n}$
T9	20 - 0	L3x3x1/4	7'7-7/16'	6'7-17/32"	134.3 K=1.00	1.440	-4.805	22.837	0.210 [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 $\frac{P_u}{\phi P_n}$
T9	20 - 0	L3x3x3/16	12'	12'	241.6 K=1.00	1.090	-0.030	5.344	0.006 [1] ✔

[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	170 - 160	Sabre 3.5" x 0.216"	10'7/32"	5'3/32"	51.7	2.228	5.986	100.281	0.060 [1] ✓
T2	160 - 140	Sabre 4.5" x 0.438"	20'13/32"	6'8-1/8"	55.5	5.589	27.002	251.522	0.107 [1] ✓
T3	140 - 120	Sabre 6.625" x 0.432"	20'13/32"	6'8-1/8"	36.5	8.405	66.146	378.222	0.175 [1] ✓
T4	120 - 100	Sabre 8.625" x 0.5"	20'13/32"	6'8-1/8"	27.8	12.763	110.811	574.322	0.193 [1] ✓
T5	100 - 80	Sabre 10.750" x 0.500"	20'13/32"	10'7/32"	33.1	16.101	160.202	724.530	0.221 [1] ✓
T6	80 - 60	Sabre 12.75" x 0.5"	20'13/32"	10'7/32"	27.7	19.242	215.155	865.902	0.248 [1] ✓
T7	60 - 40	Sabre 16" x 0.5"	20'13/32"	10'7/32"	21.9	24.347	269.128	1095.630	0.246 [1] ✓
T8	40 - 20	Sabre 18" x 0.5"	20'13/32"	10'7/32"	19.4	27.489	321.447	1237.000	0.260 [1] ✓
T9	20 - 0	Sabre 18" x 0.5"	20'13/32"	5'3/32"	9.7	27.489	357.005	1237.000	0.289 [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	170 - 160	L2x2x3/8	10'15/16"	4'10-7/16"	101.3	0.809	4.052	35.194	0.115 [1] ✓
T2	160 - 140	L3x3x3/8	12'6-31/32"	6'1-7/16"	82.4	1.336	6.964	58.134	0.120 [1] ✓
T3	140 - 120	L3 1/2x3 1/2x3/8	14'3-25/32"	6'10-13/32"	78.9	1.544	10.577	67.146	0.158 [1] ✓
T4	120 - 100	L3 1/2x3 1/2x1/2	16'1-11/32"	7'8-1/8"	88.8	2.016	12.274	87.680	0.140 [1] ✓
T5	100 - 80	L5x5x1/2	19'3-9/16"	9'2-13/16"	73.4	3.094	16.839	134.578	0.125 [1] ✓
T6	80 - 60	L5x5x5/8	21'3/8"	10'5/32"	80.5	3.809	17.811	165.694	0.107 [1] ✓
T7	60 - 40	L5x5x5/8	22'9-23/32"	10'8-15/16"	86.4	3.750	19.007	163.145	0.117 [1] ✓
T8	40 - 20	L5x5x5/8	24'7-1/2"	11'6-13/16"	92.9	3.750	20.585	163.145	0.126 [1] ✓
T9	20 - 0	L5x5x5/8	16'1/8"	15'19/32"	118.8	3.868	26.061	168.243	0.155 [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 $\frac{P_u}{\phi P_n}$
T9	20 - 0	2L3 1/2x3 1/2x1/4x3/8 2L 'a' > 64.466 in - 152	24'	11'3"	123.9	2.113	19.533	91.921	0.212 [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	170 - 160	L2 1/2x2 1/2x3/16	8'	7'5"	118.9	0.571	0.389	24.840	0.016 [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 $\frac{P_u}{\phi P_n}$
T9	20 - 0	L3x3x5/16	5'9"	5'	65.1	1.780	7.647	57.672	0.133 [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 $\frac{P_u}{\phi P_n}$
T9	20 - 0	L3x3x1/4	7'5-7/32"	6'5-9/32"	83.1	1.440	4.891	46.656	0.105 [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 $\frac{P_u}{\phi P_n}$
T9	20 - 0	L3x3x3/16	12'	12'	153.4	1.090	0.010	35.316	0.000 [1] ✔

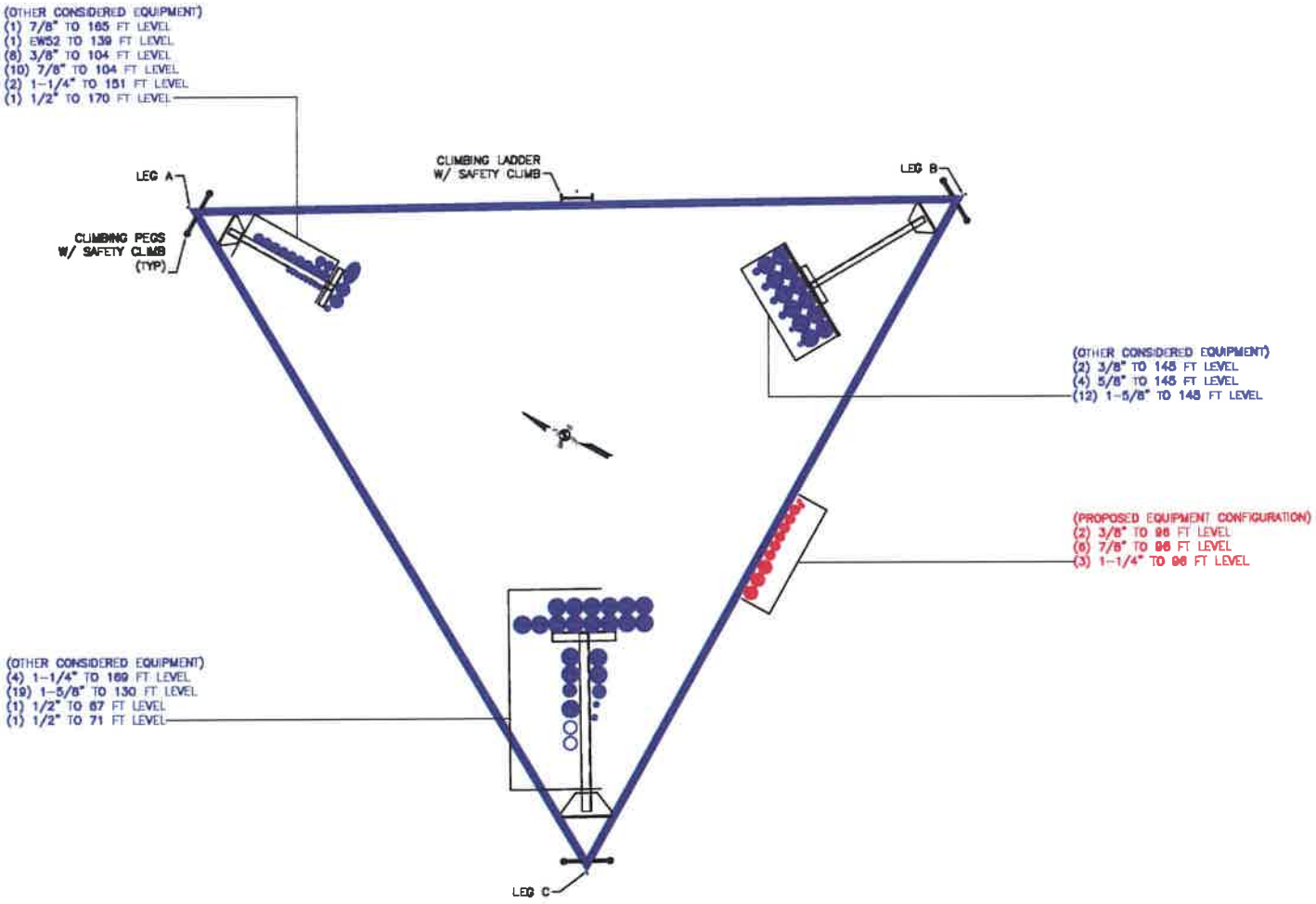
[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	170 - 160	Leg	Sabre 3.5" x 0.216"	2	-8.195	86.635	9.5	Pass
T2	160 - 140	Leg	Sabre 4.5" x 0.438"	20	-35.238	210.881	16.7	Pass
T3	140 - 120	Leg	Sabre 6.625" x 0.432"	41	-82.613	360.255	22.9	Pass
T4	120 - 100	Leg	Sabre 8.625" x 0.5"	62	-137.862	569.808	24.2	Pass
T5	100 - 80	Leg	Sabre 10.750" x 0.500"	83	-196.730	702.092	28.0	Pass
T6	80 - 60	Leg	Sabre 12.75" x 0.5"	98	-261.799	859.488	30.5	Pass
T7	60 - 40	Leg	Sabre 16" x 0.5"	113	-326.454	1110.690	29.4	Pass
T8	40 - 20	Leg	Sabre 18" x 0.5"	128	-390.333	1263.528	30.9	Pass
T9	20 - 0	Leg	Sabre 18" x 0.5"	144	-435.845	1289.925	33.8	Pass
T1	170 - 160	Diagonal	L2x2x3/8	10	-4.040	18.112	22.3 28.0 (b)	Pass
T2	160 - 140	Diagonal	L3x3x3/8	25	-7.114	40.506	17.6 35.0 (b)	Pass
T3	140 - 120	Diagonal	L3 1/2x3 1/2x3/8	44	-10.677	51.321	20.8 49.8 (b)	Pass
T4	120 - 100	Diagonal	L3 1/2x3 1/2x1/2	65	-12.422	53.678	23.1 43.3 (b)	Pass
T5	100 - 80	Diagonal	L5x5x1/2	86	-16.963	105.471	16.1 61.4 (b)	Pass
T6	80 - 60	Diagonal	L5x5x5/8	104	-18.009	116.354	15.5 52.0 (b)	Pass
T7	60 - 40	Diagonal	L5x5x5/8	118	-19.285	101.338	19.0 57.4 (b)	Pass
T8	40 - 20	Diagonal	L5x5x5/8	133	-20.899	87.432	23.9 62.2 (b)	Pass
T9	20 - 0	Diagonal	L5x5x5/8	153	-27.826	123.179	22.6 37.5 (b)	Pass
T9	20 - 0	Horizontal	2L3 1/2x3 1/2x1/4x3/8	159	-19.745	41.165	48.0	Pass
T1	170 - 160	Top Girt	L2 1/2x2 1/2x3/16	4	-0.448	8.385	5.3	Pass
T9	20 - 0	Redund Horz 1 Bracing	L3x3x5/16	157	-7.565	43.079	17.6	Pass
T9	20 - 0	Redund Diag 1 Bracing	L3x3x1/4	162	-4.805	23.979	20.0	Pass
T9	20 - 0	Inner Bracing	L3x3x3/16	167	-0.030	5.612	0.6	Pass
						Summary		
						Leg (T9)	33.8	Pass
						Diagonal (T8)	62.2	Pass
						Horizontal (T9)	48.0	Pass
						Top Girt (T1)	5.3	Pass
						Redund Horz 1 Bracing (T9)	17.6	Pass
						Redund Diag 1 Bracing (T9)	20.0	Pass
						Inner Bracing (T9)	0.6	Pass
						Bolt Checks	62.2	Pass
						RATING =	**62.2**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT : 841273

APPENDIX C

ADDITIONAL CALCULATIONS

PROJECT 100736.005.01 - TRURO, MA

SUBJECT Bolted Angle Connection Analysis

DATE 03/27/19 PAGE 1 OF 1

V2.2.1

B+T GRP
1217 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

TIA-222 Rev. H
Apply TIA-222-H Section 15.5? Yes

Max Rating 48.7%

	Elevation (ft)	Component	Angle			Bolt						Coping Dimensions (in)						Tens. Load (k)	Comp. Load (k)	Tens. Capacity (k)	Comp. Capacity (k)	Rating	Limit State
			Qty	Size	Grade	Qty	Size	Grade	Edge Dist. (in)	Gage (in)	Pitch (in)	Coping	A	B	C	D	E						
1	20 - 0	Redundant Horizontal (1)	1	L3x3x5/16	A36	1	1	A325N	1.25	1.75		Allowable						7.65	7.57	14.85	30.36	48.7%	Tension - Mbr Block Shear
2	20 - 0	Redundant Diagonal (1)	1	L3x3x1/4	A36	1	1	A325N	1.25	1.75		Allowable						4.88	4.81	11.96	24.29	40.8%	Tension - Mbr Bearing

CCIplate

Project Information

BU #	841273
Site Name	TRURO, MA
Order #	479923, 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)	469.00	385.00
Shear (k)	59.00	51.00

Anchor Rod Data

Quantity:	12	
Diameter (in):	2	
Material Grade:	A572-50	Fy=50 ksi Fu=65 ksi
Grout Considered:	No	Not Considered, lar<=1(d)
l_{ar} (in):	1.25	
Eta Factor, η:	0.5	
Thread Type:	N-Included	
Configuration:	Symmetrical	

Anchor Rod Results

Axial, Pu_c (kips)	39.08	
Shear, Vu (kips)	4.92	
Moment, Mu (kip-in)	-	
Axial Cap., φPn_c (kips)	125.00	
Shear Cap., ϕVn (kips)	37.50	
Moment Cap., ϕMn (kip-in)	-	
Stress Rating	31.4%	Pass

Drilled Pier Foundation

BU # :	841273
Site Name:	TRURO, MA
Order Number:	479923, Rev. 0

TIA-222 Revison:	H
Tower Type:	Self Support

Applied Loads	Comp.	Uplift
Moment (kip-ft)		
Axial Force (kips)	469	385
Shear Force (kips)	59	51

Material Properties		
Concrete Strength, f'c	3	ksi
Rebar Strength, Fy	60	ksi

Pier Design Data		
Depth	41.5	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 41.5' below grade		
Pier Diameter	10	ft
Rebar Quantity	46	
Rebar Size	10	
Clear Cover to Ties	3	in
Tie Size	4	

Analysis Results	Compression	Uplift
Soil Lateral Capacity		
D_{ult} (ft from TOC)	23.12	23.12
Soil Safety Factor	48.05	55.58
Max Moment (kip-ft)	940.26	812.77
Rating*	2.6%	2.3%
Soil Vertical Capacity	*Compression*	*Uplift*
Skin Friction (kips)	1274.19	1274.19
End Bearing (kips)	294.52	-
Weight of Concrete (kips)	467.32	350.49
Total Capacity (kips)	1568.72	1624.68
Axial (kips)	936.32	385.00
Rating*	56.8%	22.6%
Reinforced Concrete Capacity	*Compression*	*Uplift*
Critical Depth (ft from TOC)	24.02	22.30
Critical Moment (kip-ft)	938.13	811.25
Critical Moment Capacity	13873.03	13546.96
Rating*	6.4%	5.7%

Soil Interaction Rating*	**56.8%**
Structural Foundation Rating*	**6.4%**

*Rating per TIA-222-H Section 15.5

Check Limitation	
Apply TIA-222-H Section 15.5	☑
N/A	☐

Soil Profile

Groundwater Depth	20	ft	# of Layers: 6

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	5	5	120	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	5	20	15	120	150	0	32	0.000	0.000	2.15	2.15			Cohesionless
3	20	23.5	3.5	60	87.6	0	32	0.000	0.000	2.21	2.21			Cohesionless
4	23.5	28.5	5	60	87.6	0	62	0.000	0.000	2.27	2.27			Cohesionless
5	28.5	31	2.5	60	87.6	2	0	1.100	1.100	1.10	1.10			Cohesive
6	31	41.5	10.5	60	87.6	0	33	0.000	0.000	0.00	0.00	5		Cohesionless

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 107.04 ft (NAVD 88)
Latitude: 42.021667
Longitude: -70.075

Wind

Results:

Wind Speed:	139 Vmph
10-year MRI	81 Vmph
25-year MRI	93 Vmph
50-year MRI	103 Vmph
100-year MRI	115 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:	Tue Mar 26 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 shall be protected against wind-borne debris as specified in Section 26.10.3.

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

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

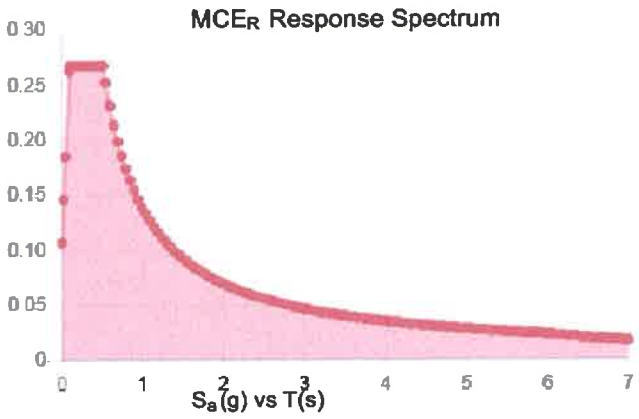
Seismic

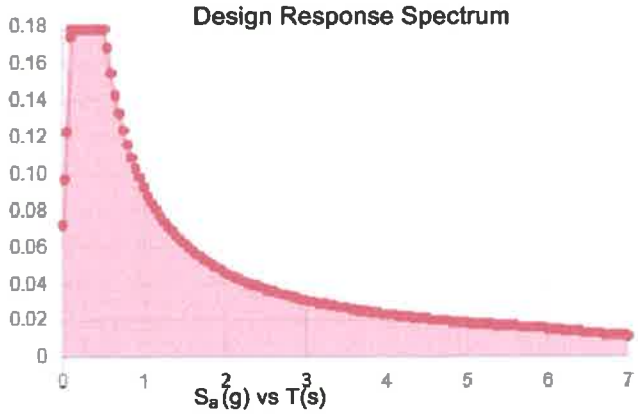
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.168	S_{DS} :	0.179
S_1 :	0.058	S_{D1} :	0.093
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.087
S_{MS} :	0.268	PGA_M :	0.14
S_{M1} :	0.139	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Tue Mar 26 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:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Tue Mar 26 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.

TOWN OF TRURO
Planning Board

COMMONWEALTH OF MASSACHUSETTS
TOWN OF TRURO
PLANNING BOARD

SPECIAL PERMIT

Applicants: **T-Mobile Northeast LLC**

Case No.: 2016-012PB **Map 39 Parcel 172** **344 Route 6, Truro**

Hearing Dates: November 16, 2016 **Decision Date:** November 16, 2016

At a public hearing on November 16, 2016, the Town of Truro Planning Board, acting in the matter of Case No. 2016-012PB, voted to find that the proposed collocation and replacement of wireless communications transmission equipment on an existing tower located at 344 Route 6 (Map 39, Parcel 172) constituted an eligible facilities request under the Spectrum Act, and to **grant with conditions**, a Special Permit pursuant to § 40.5 (Communications Structures, Buildings, appurtenances) of the Truro Zoning By-law.

In its review or the matter the Planning Board considered the following information:

Letter to Truro Planning Board from Edward D. Pare, Jr., dated October 7, 2016 Re: T-Mobile Northeast LLC ("T-Mobile") – Eligible Facilities Request to Modify Transmission Equipment on a Communications Tower located at 344 Route 6, North Truro, MA 02652, (Assessor's Map 39, Parcel 172-A (T- Mobile Site 4HY0568A/Truro) and Renew the Special Permit, with accompanying application materials:

Tab 1: Application for Special Permit and fee payment; Letter from Collin Thompson of Crown Castle dated September 14, 2016 authorizing T-Mobile to seek permits, and certified list of abutters

Tab 2: Sec 6409 (a) from the Middle Class Tax Relief and Job Creation Act of 2012, Wireless Facilities Deployment,

Tab 3: Explanatory Information pertaining to the above cited federal law

Tab 4: Explanatory Information pertaining to the above cited federal law

Tab 5: Letter form Massachusetts Attorney General to Town Clerk of Reading dated February 29, 2016, re: [Special Town Meeting Articles Pertaining to Wireless Service Facilities]

Tab 6: Eligible Facilities Request Certification for Non-substantial changes to a wireless tower not located within a public right of way.

Tab 7: Federal Communications Commission Wireless Telecommunications Bureau Radio Station Authorization to T-Mobile License LLC, dated June 26, 2008
Tab 8: Report of Compliance
Tab 9: Plans entitled: "Site Name: Truro, 344 Route 6, North Truro,, MA 02652, Barnstable County, Site Number: 4HY0568A, prepared for T-Mobile Northeast by Derek J. Creaser, P.E., approved by Ryan Monte de Ramos on May 6, 2016" including the following sheets: T-1: Title sheet, GN-1: General Notes, A-1: Compound and Equipment Plans, A-2: Antennae Layouts & Elevation, A-3 Equipment Details, E-1 One-Line Diagram and Grounding Details.
Tab 10: May 17, 2000 Planning Board Decision

Letter to Truro Planning Board from Edward D. Pare, Jr., dated November 3, 2016, re: Eligible Facilities Request to Modify Transmission Equipment on a Communications Tower located at 344 Route 6, North Truro, MA 02652, (Assessor's Map 39, Parcel 172-A (T- Mobile Site 4HY0568A/Truro) – Supplemental Information, with accompanying application materials:

Initial Construction Control Document concerning code compliance, stamped by Daniel P. Hamm, P.E., dated May 17, 2016.

Structural Analysis Report prepared by Jacobs Engineering Group, Inc., for T-Mobile Co-locate, dated April 13, 2016, submitted by Jonathan N. Rodriguez, EIT, Tower Structural Engineer, and reviewed and stamped by Walter M. Prather, P.E.

Plans entitled: "Site Name: Truro, 344 Route 6, North Truro,, MA 02652, Barnstable County, Site Number: 4HY0568A, prepared for T-Mobile Northeast by Derek J. Creaser, P.E., updated 9/16/16" including the following sheets: T-1: Title sheet, GN-1: General Notes, A-1: Compound and Equipment Plans, A-2: Antennae Layouts & Elevation, A-3 Equipment Details, E-1 One-Line Diagram and Grounding Details.

SPECIAL PERMIT DECISION

On a motion by Mr. Herridge and seconded by Mr. Kiernan, the Board voted that the installation constitutes an eligible facilities request under the Spectrum Act and does not substantially change the physical dimensions of the cell tower or base station located behind the Public Safety Facility at 344 Route 6 based on the following findings of fact:

1. The modifications to the Transmission Equipment do not increase the height of the Tower by 20 feet or ten percent, whichever is greater;

2. The modifications to the Transmission Equipment do not protrude from the edge of the Tower by 20 feet or more than the width of the tower (whichever of these two dimensions is greater) at the level where the transmission equipment modifications is made;

3. The modifications to the Transmission Equipment do not involve the installation of more than the standard number of cabinets for the technology involved, not to exceed four;

4. The modifications to the Transmission Equipment do not entail any excavation or deployment outside of the Tower site;

5. The modifications to the Transmission Equipment do not defeat any existing concealment elements of the Tower;

6. The modifications to the Transmission Equipment comply with prior conditions of approval of the Tower, unless the non-compliance is due to an increase in height, increase in width, addition of equipment cabinets, new excavation that does not exceed the corresponding "substantial change" thresholds in numbers 1-4.

The motion passed on a vote of 5-1-0, with Mr. Sollog, Mr. Riemer, Mr. Herridge, Mr. Boleyn and Mr. Kiernan voting in favor and Mr. Hopkins voting opposed.

Pursuant to § 40.5.B.24, the Planning Board also acted to grant waivers from the requirements of §40.5, finding that the granting of such waivers would not be detrimental to the public interest, cause the Town any expense or be inconsistent with the intent and purpose of the zoning bylaw, as follows:

On a motion by Mr. Herridge and seconded by Mr. Kiernan, the Board voted to approve the following waiver:

- § 40.5 B.17 - Pre-application meeting

The motion passed on a vote of 5-1-0, with Ms. Sollog, Mr. Riemer, Mr. Herridge, Mr. Boleyn and Mr. Kiernan voting in favor, and Mr. Hopkins against.

On a motion by Mr. Herridge and seconded by Mr. Kiernan, the Board voted to approve the following waiver:

- § 40.5 B.19 – Specific written information

The motion passed on a vote of 5-1-0, with Ms. Sollog, Mr. Riemer, Mr. Herridge, Mr. Boleyn and Mr. Kiernan voting in favor, and Mr. Hopkins against.

On a motion by Mr. Herridge and seconded by Mr. Mr. Boleyn, the Board voted to approve the following waiver:

- § 40.5 B. 20 – Specific written information

The motion passed on a vote of 5-1-0, with Ms. Sollog, Mr. Riemer, Mr. Herridge, Mr. Boleyn and Mr. Kiernan voting in favor, and Mr. Hopkins against.

Based on its determination that the proposed activity was an eligible facilities request under the Spectrum Act, and the granting of waivers, the Board voted to approve the Special Permit with conditions, as follows:

On a motion by Mr. Herridge and seconded by Mr. Kiernan, the Board voted to make the determination to grant the Special Permit pursuant to section 40.5 with the following conditions:

1. The 6 existing lines of 7/8" coax shown on plan sheet A-2 to be capped and wrapped, if disconnected, shall be grounded in compliance with all applicable electrical or building codes.
2. T-Mobile Northeast LLC will notify Crown Castle in writing with a copy to the Planning Board to request that they demonstrate full compliance with conditions #3 and #4 in the special permit decision issued for the tower, dated May 17, 2000.

The motion passed on a vote of 5-1-0, with Ms. Sollog, Mr. Riemer, Mr. Herridge, Mr. Boleyn and Mr. Kiernan voting in favor, and Mr. Hopkins against.

This Special Permit is valid for the applicant only and it may not be re-assigned, leased or sold. Pursuant to §30.8 of the Zoning Bylaw, this Special Permit shall lapse after one year if substantial use thereof has not sooner commenced except for good cause or, in the case of permit for construction, if construction has not begun by such date except for good cause.

Any person aggrieved by a decision of the Planning Board may appeal to the Superior or Land Court by bringing action within twenty days after the decision has been filed with the Town Clerk of Truro. (Massachusetts General Laws, Chapter 40A, Section 17.)

Steven Sollog 12/6/2016
Chairman, Truro Planning Board Date

Received, Office of the Town Clerk:

[signature] December 6, 2016
Signature Date

I hereby certify that this decision was filed with the Office of the Town Clerk on
December 6, 2016 and 20 (twenty) days have elapsed since the date of filing, and:

☑ No Appeal has been filed.

☐ ~~An Appeal has been filed and received in this office on:~~

[signature] December 27, 2016
Signature Date

BARNSTABLE REGISTRY OF DEEDS
John F. Meade, Register

Date: **March 18, 2019**

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

Engineered Tower Solutions, PLLC
8120 Sheridan Blvd, Suite A-311
Westminster, CO 80003
(919) 782-2710
brandon.little@ets-pllc.com

Subject:	**Mount Analysis Report**	
Carrier Designation:	**T-Mobile Equipment Change-Out**	
	Carrier Site Number:	4HY0568A
	Carrier Site Name:	HY568/Cingular Truro
Crown Castle Designation:	**Crown Castle BU Number:**	841273
	Crown Castle Site Name:	TRURO
	Crown Castle JDE Number:	559264
	Crown Castle Order Number:	479923 Rev. 0
Engineering Firm Designation:	**ETS Report Designation:**	191474.14
Site Data:	**344 Route 6, North Truro, Barnstable County, MA 02652** **Latitude: 42° 1' 18.00" Longitude: -70° 4' 30.00"**	
Structure Information:	**Tower Height & Type:**	170.0-ft Self-Support Tower
	Mount Elevation:	96.0-ft
	Mount Type:	12.5 ft Sector Mount

Dear Charles McGuirt,

Engineered Tower Solutions, PLLC is pleased to submit this **"Mount Analysis Report"** to determine the structural integrity of *T-Mobile'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 stress level. Based on our analysis we have determined the mount stress level to be:

Sector Mount (Multiple) **Sufficient***
***Sufficient upon completion of the changes listed in the "Recommendations" section of this report**

This analysis utilizes an ultimate 3-second gust wind speed of 139 mph as required by the 2015 IBC as amended by the Massachusetts State Building Code, Ninth Edition. Applicable Standard references and design criteria are listed in Section 2 – Analysis Criteria.

Mount structural analysis prepared by: Brandon R. Little, EI

Respectfully Submitted by:

Frederic G. Bost, PE, CWI, GC
Vice President
(919) 782-2710
Geoff.Bost@ets-pllc.com

COMMONWEALTH OF MASSACHUSETTS
FREDERIC G. BOST
CIVIL
No. 52055
REGISTERED PROFESSIONAL ENGINEER

Geoffrey Bost 3/18/19

TABLE OF CONTENTS

1) INTRODUCTION

This mount is an existing 12.5 ft USF12-3XX-U Sector Mount designed by Site Pro 1. This mount is installed at the 96.0 ft elevation on (3) sectors of the 170.0 ft Self-Support tower.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	139 mph
Exposure Category:	C
Topographic Factor at Base:	1.000
Topographic Factor at Mount:	1.000
Ice Thickness:	1.50 in
Wind Speed with Ice:	50 mph
Seismic Ss:	0.168
Seismic S1:	0.058
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
96.0	97.0	3	Ericsson	RRUS 11 B2	(3) 12.5 ft Site Pro 1 USF12-3XX-U Sector Mounts
		3	Ericsson	Ericsson AIR 21 B4A B2P	
		3	RFS/Celwave	APXVAARR24_43-U-NA20	
		3	RFS/Celwave	ATM1900D-1A20	
		3	Ericsson	Radio 4449 B12/B71	

3) ANALYSIS PROCEDURE

Table 2 – Documents Provided

Document	Remarks	Reference	Source
Structure Level Drawings (Proposed)	T-Mobile Northeast LLC	03/12/2019	CCISites
Carrier Application	T-Mobile	03/11/2019	CCISites
4-Structural Analysis Report	B+T Group	7280600	CCISites
Mount Manufacturer Drawings	Site Pro 1 USF12-3XX-U	04/28/2011	Site Pro 1

3.1) Analysis Method

RISA-3D (version 17.0.2), 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.

A tool internally developed, using Microsoft Excel, by ETS, PLLC was used to calculate wind loading on all appurtenances, dishes, and mount members for various load cases. Selected output from the analysis is included in Appendix B.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision C).

3.2) Assumptions

1) The configuration of antennas, mounts and other appurtenances are as specified in Table 1 and the referenced drawings.
2) 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.
3) This Structural Analysis is not a condition assessment of the mount and is an evaluation of the theoretical structural capacity.
4) This analysis is based from the information supplied, and therefore, this report's results are as accurate as the supplied data.
5) Engineered Tower Solutions, PLLC makes no warranties, expressed and/or implied, in connection with this report, and disclaims any liability associated with material, fabrication, or erection of the mount. Engineered Tower Solutions, PLLC will not be held responsible from any consequential or incidental damages sustained by any person, firm, or organization as a result of the contents of this report. The maximum liability of Engineered Tower Solutions, PLLC pursuant to this report will be limited to the total fee received for compilation of this report.
6) It is the tower owner's responsibility to verify that the mount modeled and analyzed is the correct structure modeled.
7) The use of this report shall be limited to the purpose for which it was commissioned and may not be used for any other purposes without the written consent of Engineered Tower Solutions, PLLC.
8) Steel grades have been assumed as follows:

a)	Channel, Solid Round, Angle, Plate	ASTM A36 (Gr 36)
b)	HSS (Rectangular)	ASTM A500 (Gr B-46)
c)	HSS (Round)	ASTM A500 (Gr B-42)
d)	Pipe	ASTM A53 (Gr 35)
e)	Connection Bolts	ASTM A325

This analysis may be affected if any assumptions are not valid or have been made in error. Engineered Tower Solutions, PLLC should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 3 – Mount Component Stresses vs. Capacity (Sector Mount, All Sectors)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,3	Face Mount	FMBOT	96.0	87.4	PASS
1,3	Mount Pipe	MP1		75.0	PASS
1,3	Sidearm – Horizontal	SABOT		30.0	PASS
1,3	Sidearm – Vertical	SAV2		17.6	PASS
1,3	Tieback	STAB2		32.7	PASS
2,3	Mount to Tower Connection	N2		92.2	PASS

Notes:
1) See additional documentation in "Appendix C – Software Analysis Output" for calculations supporting the % capacity consumed.
2) See additional documentation in "Appendix D – Additional Calculations" for calculations supporting the % capacity consumed.
3) All sectors are typical.

Table 4 - Tieback Connection Data Table

Tower Connection Node No.	Existing / Proposed	Resultant End Reaction (lb)	Connected Member Type	Connected Member Size	Member Compressive Capacity (lb)[2]	Notes
N34	Existing	975	Diagonal	L5x5x1/2	1157	1
N36	Existing	1542	Diagonal	L5x5x1/2	1157	1

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

Tower Mount Rating (max from all components) =	92.2%

4.1) Recommendations

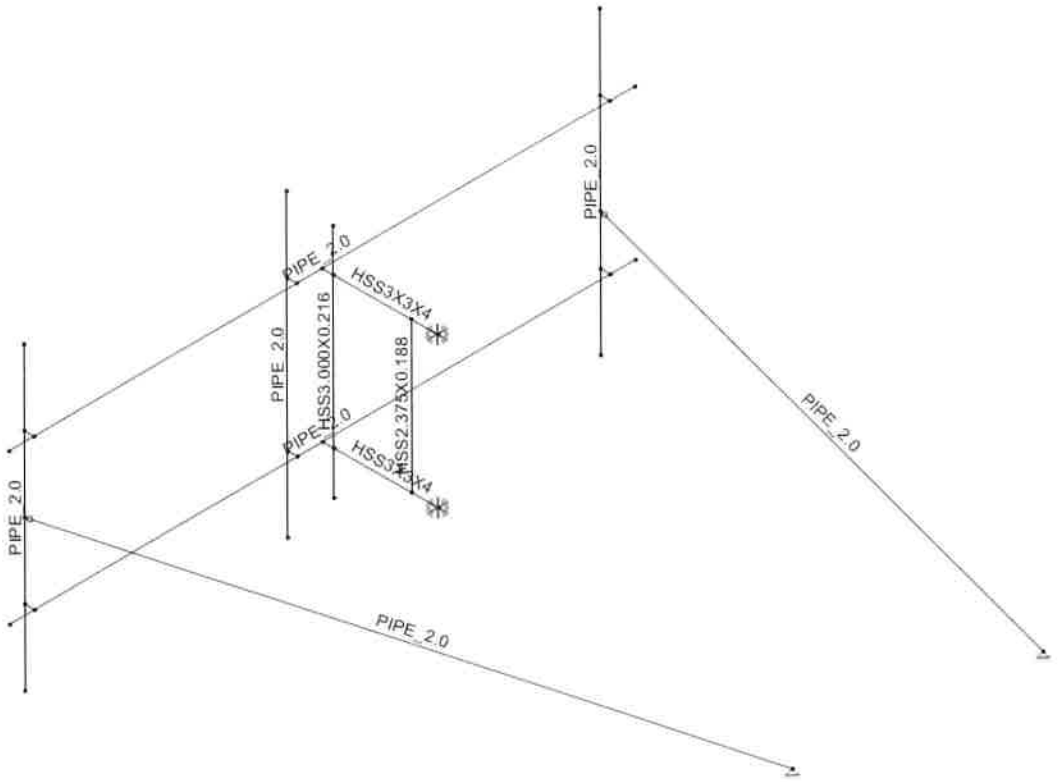
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the modifications listed below must be completed.

1. Shift existing leftmost tieback up to 18 inches above the bottom face mount member (see rendered view in Appendix E for additional details).
2. Shift existing rightmost tieback up to 12 inches above the bottom face mount member (see rendered view in Appendix E for additional details).

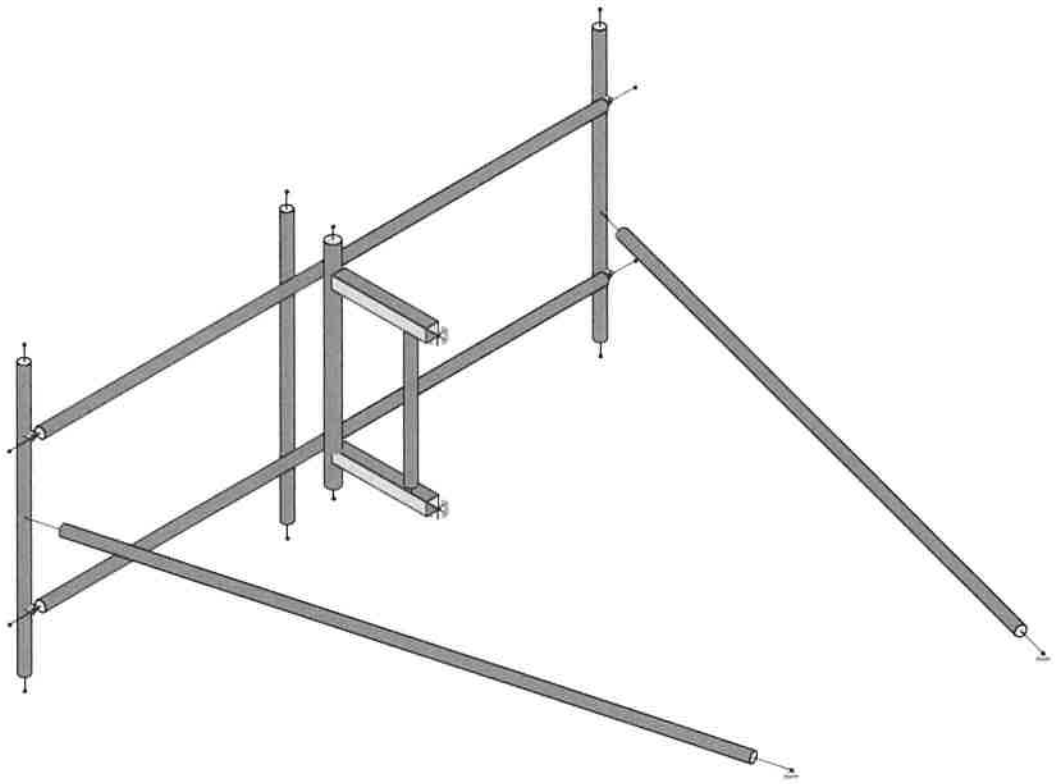
No additional structural modifications are required at this time, provided the above-listed changes are implemented.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



ETS, PLLC	841273 - TRURO Mount Analysis	SK - 1
BRL		Mar 18, 2019 at 8:39 AM
191474.14		TRURO_MODDED.r3d



ETS, PLLC	841273 - TRURO Mount Analysis	SK - 2
BRL		Mar 18, 2019 at 8:39 AM
191474.14		TRURO_MODDED.r3d

APPENDIX B

SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 0 ft (NAVD 88)
Latitude: 42.021667
Longitude: -70.075

Wind

Results:

Wind Speed:	139 Vmph
10-year MRI	81 Vmph
25-year MRI	93 Vmph
50-year MRI	103 Vmph
100-year MRI	115 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 Mar 15 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 shall be protected against wind-borne debris as specified in Section 26.10.3.

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

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

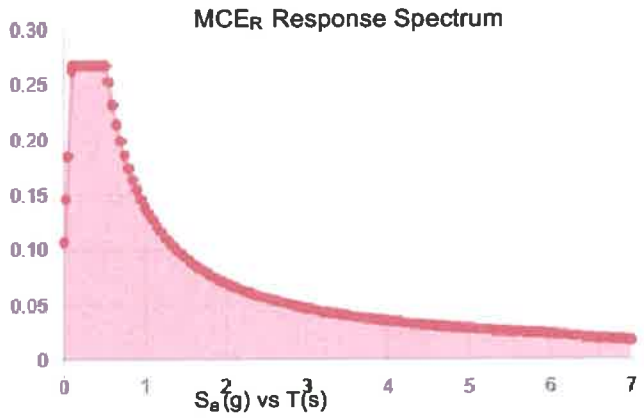
Seismic

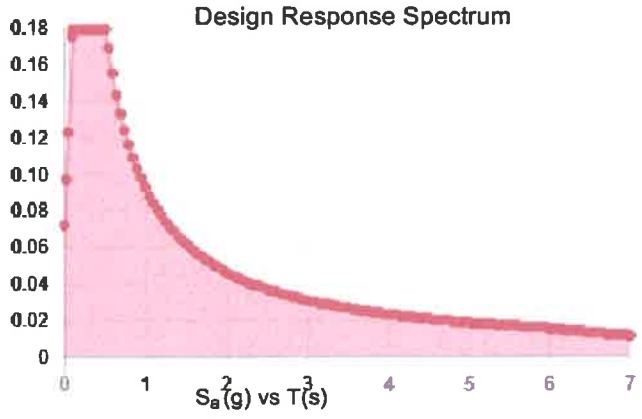
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.168	S_{DS} :	0.179
S_1 :	0.058	S_{D1} :	0.093
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.087
S_{MS} :	0.268	PGA_M :	0.14
S_{M1} :	0.139	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Fri Mar 15 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

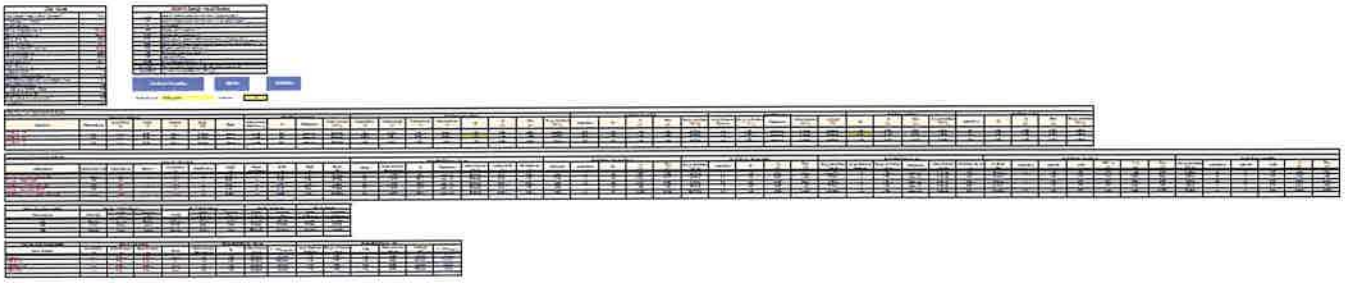
Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Fri Mar 15 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.

ETS
ENGINEERED TOWER SOLUTIONS, PLLC



APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Joint Coordinates and Temperatures

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N2	0	36	0	0	
3	N3	-25	0	0	0	
4	N4	-25	36	0	0	
5	N5	-6.4075	0	0	0	
6	N6	-6.4075	36	0	0	
7	N7	-25	46.25	0	0	
8	N8	-25	-10.25	0	0	
9	N9	-27.6875	0	0	0	
10	N10	-27.6875	36	0	0	
11	N11	-27.6875	0	75	0	
12	N12	-27.6875	36	75	0	
13	N13	-27.6875	0	-75	0	
14	N14	-27.6875	36	-75	0	
15	N15	-27.6875	0	69	0	
16	N16	-27.6875	36	69	0	
17	N17	-27.6875	0	-69	0	
18	N18	-27.6875	36	-69	0	
19	N19	-27.6875	0	6	0	
20	N20	-27.6875	36	6	0	
21	N21	-30.0625	0	69	0	
22	N22	-30.0625	36	69	0	
23	N23	-30.0625	0	-69	0	
24	N24	-30.0625	36	-69	0	
25	N25	-30.0625	0	6	0	
26	N26	-30.0625	36	6	0	
27	N27	-30.0625	54	69	0	
28	N28	-30.0625	54	-69	0	
29	N29	-30.0625	54	6	0	
30	N30	-30.0625	-18	69	0	
31	N31	-30.0625	-18	-69	0	
32	N32	-30.0625	-18	6	0	
33	N33	-30.0625	18	69	0	
34	N34	114.826374	18	30.177143	0	
35	N35	-30.0625	12	-69	0	
36	N36	114.826374	12	-30.177143	0	

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Ru...
1	FMBOT	N11	N13			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
2	FMTOP	N12	N14			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
3	MP1	N30	N27			PIPE 2.0	Column	Pipe	A53 Gr.B	Typical
4	MP2	N32	N29			PIPE 2.0	Column	Pipe	A53 Gr.B	Typical
5	MP3	N31	N28			PIPE 2.0	Column	Pipe	A53 Gr.B	Typical
6	R1	N3	N9			RIGID	None	None	RIGID	Typical
7	R2	N4	N10			RIGID	None	None	RIGID	Typical
8	R3	N15	N21			RIGID	None	None	RIGID	Typical
9	R4	N16	N22			RIGID	None	None	RIGID	Typical
10	R5	N19	N25			RIGID	None	None	RIGID	Typical
11	R6	N20	N26			RIGID	None	None	RIGID	Typical
12	R7	N17	N23			RIGID	None	None	RIGID	Typical
13	R8	N18	N24			RIGID	None	None	RIGID	Typical
14	SABOT	N1	N3			HSS3X3X4	Beam	Tube	A500 Gr.B Rect	Typical
15	SATOP	N2	N4			HSS3X3X4	Beam	Tube	A500 Gr.B Rect	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Ru...
16	SAV1	N5	N6			HSS2.375X0.188	Column	HSS Pipe	A500 Gr.B RND	Typical
17	SAV2	N8	N7			HSS3.000X0.216	Column	HSS Pipe	A500 Gr.B RND	Typical
18	STAB1	N34	N33			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
19	STAB2	N36	N35			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	General				
2	RIGID		8	19.6	0
3	Total General		8	19.6	0
4					
5	Hot Rolled Steel				
6	A500 Gr.B Rect	HSS3X3X4	2	50	0
7	A500 Gr.B RND	HSS3.000X0.216	1	56.5	0
8	A500 Gr.B RND	HSS2.375X0.188	1	36	0
9	A53 Gr.B	PIPE_2.0	7	816	.2
10	Total HR Steel		11	958.5	.3

Member Point Loads (BLC 1 : Dead Load)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-225.6	%66.7
2	MP2	Y	0	%50
3	MP3	Y	-128	%50

Member Point Loads (BLC 2 : Wind Load (0 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	211.1	%66.7
2	MP2	X	85.3	%50
3	MP3	X	0	%50
4	MP1	Z	0	%66.7
5	MP2	Z	0	%50
6	MP3	Z	0	%50

Member Point Loads (BLC 3 : Wind Load (30 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	189	%66.7
2	MP2	X	73.9	%50
3	MP3	X	18.5	%50
4	MP1	Z	109.1	%66.7
5	MP2	Z	42.6	%50
6	MP3	Z	10.7	%50

Member Point Loads (BLC 4 : Wind Load (60 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	116.3	%66.7
2	MP2	X	42.6	%50
3	MP3	X	32	%50
4	MP1	Z	201.5	%66.7
5	MP2	Z	73.9	%50
6	MP3	Z	55.4	%50

Member Point Loads (BLC 5 : Wind Load (90 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	%66.7
2	MP2	X	0	%50
3	MP3	X	0	%50
4	MP1	Z	239.9	%66.7
5	MP2	Z	85.3	%50
6	MP3	Z	85.3	%50

Member Point Loads (BLC 6 : Wind Load (120 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-116.3	%66.7
2	MP2	X	-42.6	%50
3	MP3	X	-32	%50
4	MP1	Z	201.5	%66.7
5	MP2	Z	73.9	%50
6	MP3	Z	55.4	%50

Member Point Loads (BLC 7 : Wind Load (150 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-189	%66.7
2	MP2	X	-73.9	%50
3	MP3	X	-18.5	%50
4	MP1	Z	109.1	%66.7
5	MP2	Z	42.6	%50
6	MP3	Z	10.7	%50

Member Point Loads (BLC 8 : Wind Load (180 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-211.1	%66.7
2	MP2	X	-85.3	%50
3	MP3	X	0	%50
4	MP1	Z	0	%66.7
5	MP2	Z	0	%50
6	MP3	Z	0	%50

Member Point Loads (BLC 9 : Wind Load (210 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-189	%66.7
2	MP2	X	-73.9	%50
3	MP3	X	-18.5	%50
4	MP1	Z	-109.1	%66.7
5	MP2	Z	-42.6	%50
6	MP3	Z	-10.7	%50

Member Point Loads (BLC 10 : Wind Load (240 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-116.3	%66.7
2	MP2	X	-42.6	%50
3	MP3	X	-32	%50
4	MP1	Z	-201.5	%66.7
5	MP2	Z	-73.9	%50
6	MP3	Z	-55.4	%50

Member Point Loads (BLC 11 : Wind Load (270 deg))

Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]

Member Point Loads (BLC 11 : Wind Load (270 deg)) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	%66.7
2	MP2	X	0	%50
3	MP3	X	0	%50
4	MP1	Z	-239.9	%66.7
5	MP2	Z	-85.3	%50
6	MP3	Z	-85.3	%50

Member Point Loads (BLC 12 : Wind Load (300 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	116.3	%66.7
2	MP2	X	42.6	%50
3	MP3	X	32	%50
4	MP1	Z	-201.5	%66.7
5	MP2	Z	-73.9	%50
6	MP3	Z	-55.4	%50

Member Point Loads (BLC 13 : Wind Load (330 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	189	%66.7
2	MP2	X	73.9	%50
3	MP3	X	18.5	%50
4	MP1	Z	-109.1	%66.7
5	MP2	Z	-42.6	%50
6	MP3	Z	-10.7	%50

Member Point Loads (BLC 14 : Ice Load)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-357.2	%66.7
2	MP2	Y	-53.7	%50
3	MP3	Y	-524.9	%50

Member Point Loads (BLC 15 : Wind on Ice (0 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	12.7	%66.7
2	MP2	X	8	%50
3	MP3	X	.4	%50
4	MP1	Z	0	%66.7
5	MP2	Z	0	%50
6	MP3	Z	0	%50

Member Point Loads (BLC 16 : Wind on Ice (30 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	12.3	%66.7
2	MP2	X	6.9	%50
3	MP3	X	2	%50
4	MP1	Z	7.1	%66.7
5	MP2	Z	4	%50
6	MP3	Z	1.2	%50

Member Point Loads (BLC 17 : Wind on Ice (60 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	8.6	%66.7
2	MP2	X	4	%50
3	MP3	X	3.1	%50

Member Point Loads (BLC 17 : Wind on Ice (60 deg)) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
4	MP1	Z	14.9	%66.7
5	MP2	Z	6.9	%50
6	MP3	Z	5.3	%50

Member Point Loads (BLC 18 : Wind on Ice (90 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	%66.7
2	MP2	X	0	%50
3	MP3	X	0	%50
4	MP1	Z	18.7	%66.7
5	MP2	Z	8	%50
6	MP3	Z	8	%50

Member Point Loads (BLC 19 : Wind on Ice (120 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-8.6	%66.7
2	MP2	X	-4	%50
3	MP3	X	-3.1	%50
4	MP1	Z	14.9	%66.7
5	MP2	Z	6.9	%50
6	MP3	Z	5.3	%50

Member Point Loads (BLC 20 : Wind on Ice (150 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-12.3	%66.7
2	MP2	X	-6.9	%50
3	MP3	X	-2	%50
4	MP1	Z	7.1	%66.7
5	MP2	Z	4	%50
6	MP3	Z	1.2	%50

Member Point Loads (BLC 21 : Wind on Ice (180 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-12.7	%66.7
2	MP2	X	-8	%50
3	MP3	X	-.4	%50
4	MP1	Z	0	%66.7
5	MP2	Z	0	%50
6	MP3	Z	0	%50

Member Point Loads (BLC 22 : Wind on Ice (210 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-12.3	%66.7
2	MP2	X	-6.9	%50
3	MP3	X	-2	%50
4	MP1	Z	-7.1	%66.7
5	MP2	Z	-4	%50
6	MP3	Z	-1.2	%50

Member Point Loads (BLC 23 : Wind on Ice (240 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-8.6	%66.7
2	MP2	X	-4	%50
3	MP3	X	-3.1	%50

Member Point Loads (BLC 23 : Wind on Ice (240 deg)) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
4	MP1	Z	-14.9	%66.7
5	MP2	Z	-6.9	%50
6	MP3	Z	-5.3	%50

Member Point Loads (BLC 24 : Wind on Ice (270 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	%66.7
2	MP2	X	0	%50
3	MP3	X	0	%50
4	MP1	Z	-18.7	%66.7
5	MP2	Z	-8	%50
6	MP3	Z	-8	%50

Member Point Loads (BLC 25 : Wind on Ice (300 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	8.6	%66.7
2	MP2	X	4	%50
3	MP3	X	3.1	%50
4	MP1	Z	-14.9	%66.7
5	MP2	Z	-6.9	%50
6	MP3	Z	-5.3	%50

Member Point Loads (BLC 26 : Wind on Ice (330 deg))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	12.3	%66.7
2	MP2	X	6.9	%50
3	MP3	X	2	%50
4	MP1	Z	-7.1	%66.7
5	MP2	Z	-4	%50
6	MP3	Z	-1.2	%50

Member Point Loads (BLC 27 : Horizontal Seismic, Eh (0))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	225.6	%66.7
2	MP2	X	0	%50
3	MP3	X	128	%50
4	MP1	Z	0	%66.7
5	MP2	Z	0	%50
6	MP3	Z	0	%50

Member Point Loads (BLC 28 : Horizontal Seismic, Eh (30))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	195.4	%66.7
2	MP2	X	0	%50
3	MP3	X	110.9	%50
4	MP1	Z	112.8	%66.7
5	MP2	Z	0	%50
6	MP3	Z	64	%50

Member Point Loads (BLC 29 : Horizontal Seismic, Eh (60))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	112.8	%66.7
2	MP2	X	0	%50
3	MP3	X	64	%50

Member Point Loads (BLC 29 : Horizontal Seismic, Eh (60)) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
4	MP1	Z	195.4	%66.7
5	MP2	Z	0	%50
6	MP3	Z	110.9	%50

Member Point Loads (BLC 30 : Horizontal Seismic, Eh (90))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	%66.7
2	MP2	X	0	%50
3	MP3	X	0	%50
4	MP1	Z	225.6	%66.7
5	MP2	Z	0	%50
6	MP3	Z	128	%50

Member Point Loads (BLC 31 : Horizontal Seismic, Eh (120))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-112.8	%66.7
2	MP2	X	0	%50
3	MP3	X	-64	%50
4	MP1	Z	195.4	%66.7
5	MP2	Z	0	%50
6	MP3	Z	110.9	%50

Member Point Loads (BLC 32 : Horizontal Seismic, Eh (150))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-195.4	%66.7
2	MP2	X	0	%50
3	MP3	X	-110.9	%50
4	MP1	Z	112.8	%66.7
5	MP2	Z	0	%50
6	MP3	Z	64	%50

Member Point Loads (BLC 33 : Horizontal Seismic, Eh (180))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-225.6	%66.7
2	MP2	X	0	%50
3	MP3	X	-128	%50
4	MP1	Z	0	%66.7
5	MP2	Z	0	%50
6	MP3	Z	0	%50

Member Point Loads (BLC 34 : Horizontal Seismic, Eh (210))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-195.4	%66.7
2	MP2	X	0	%50
3	MP3	X	-110.9	%50
4	MP1	Z	-112.8	%66.7
5	MP2	Z	0	%50
6	MP3	Z	-64	%50

Member Point Loads (BLC 35 : Horizontal Seismic, Eh (240))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-112.8	%66.7
2	MP2	X	0	%50
3	MP3	X	-64	%50

Member Point Loads (BLC 35 : Horizontal Seismic, Eh (240)) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
4	MP1	Z	-195.4	%66.7
5	MP2	Z	0	%50
6	MP3	Z	-110.9	%50

Member Point Loads (BLC 36 : Horizontal Seismic, Eh (270))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	%66.7
2	MP2	X	0	%50
3	MP3	X	0	%50
4	MP1	Z	-225.6	%66.7
5	MP2	Z	0	%50
6	MP3	Z	-128	%50

Member Point Loads (BLC 37 : Horizontal Seismic, Eh (300))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	112.8	%66.7
2	MP2	X	0	%50
3	MP3	X	64	%50
4	MP1	Z	-195.4	%66.7
5	MP2	Z	0	%50
6	MP3	Z	-110.9	%50

Member Point Loads (BLC 38 : Horizontal Seismic, Eh (330))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	195.4	%66.7
2	MP2	X	0	%50
3	MP3	X	110.9	%50
4	MP1	Z	-112.8	%66.7
5	MP2	Z	0	%50
6	MP3	Z	-64	%50

Member Point Loads (BLC 39 : Maintenance Load, Lm (MP1))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-500	%50

Member Point Loads (BLC 40 : Maintenance Load, Lm (MP2))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Y	-500	%50

Member Point Loads (BLC 41 : Maintenance Load, Lm (MP3))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Y	-500	%50

Member Point Loads (BLC 57 : Maintenance Load, Lv (Pos. 1))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	FMBOT	Y	-250	0

Member Point Loads (BLC 58 : Maintenance Load, Lv (Pos. 2))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	FMBOT	Y	-250	%50

Member Point Loads (BLC 59 : Maintenance Load, Lv (Pos. 3))

Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]

Member Point Loads (BLC 59 : Maintenance Load, Lv (Pos. 3)) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	FMBOT	Y	-250	%100

Member Point Loads (BLC 60 : Maintenance Load, Lv (Pos. 4))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	FMTOP	Y	-250	0

Member Point Loads (BLC 61 : Maintenance Load, Lv (Pos. 5))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	FMTOP	Y	-250	%50

Member Point Loads (BLC 62 : Maintenance Load, Lv (Pos. 6))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	FMTOP	Y	-250	%100

Member Point Loads (BLC 63 : Maintenance Load, Lv (Pos. 7))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	SABOT	Y	-250	%100

Member Point Loads (BLC 64 : Maintenance Load, Lv (Pos. 8))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	SATOP	Y	-250	%100

Member Distributed Loads (BLC 2 : Wind Load (0 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	14.2	14.2	0	0
2	FMTOP	X	14.2	14.2	0	0
3	SABOT	X	0	0	0	0
4	SATOP	X	0	0	0	0
5	SAV1	X	14.2	14.2	0	0
6	SAV2	X	18	18	0	0
7	STAB1	X	14.2	14.2	0	0
8	STAB2	X	14.2	14.2	0	0
9	FMBOT	Z	0	0	0	0
10	FMTOP	Z	0	0	0	0
11	SABOT	Z	0	0	0	0
12	SATOP	Z	0	0	0	0
13	SAV1	Z	0	0	0	0
14	SAV2	Z	0	0	0	0
15	STAB1	Z	0	0	0	0
16	STAB2	Z	0	0	0	0
17	MP1	X	84.1	84.1	%27.847	%100
18	MP2	X	0	0	0	0
19	MP3	X	202.3	202.3	%.069	%100
20	MP1	Z	0	0	0	0
21	MP2	Z	0	0	0	0
22	MP3	Z	0	0	0	0

Member Distributed Loads (BLC 3 : Wind Load (30 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	12.3	12.3	0	0
2	FMTOP	X	12.3	12.3	0	0
3	SABOT	X	25.9	25.9	0	0

Member Distributed Loads (BLC 3 : Wind Load (30 deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
4	SATOP	X	25.9	25.9	0	0
5	SAV1	X	12.3	12.3	0	0
6	SAV2	X	15.5	15.5	0	0
7	STAB1	X	12.3	12.3	0	0
8	STAB2	X	12.3	12.3	0	0
9	FMBOT	Z	7.1	7.1	0	0
10	FMTOP	Z	7.1	7.1	0	0
11	SABOT	Z	15	15	0	0
12	SATOP	Z	15	15	0	0
13	SAV1	Z	7.1	7.1	0	0
14	SAV2	Z	9	9	0	0
15	STAB1	Z	7.1	7.1	0	0
16	STAB2	Z	7.1	7.1	0	0
17	MP1	X	67.5	67.5	%27.847	%100
18	MP2	X	0	0	0	0
19	MP3	X	150.6	150.6	%.069	%100
20	MP1	Z	39	39	%27.847	%100
21	MP2	Z	0	0	0	0
22	MP3	Z	87	87	%.069	%100

Member Distributed Loads (BLC 4 : Wind Load (60 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	7.1	7.1	0	0
2	FMTOP	X	7.1	7.1	0	0
3	SABOT	X	15	15	0	0
4	SATOP	X	15	15	0	0
5	SAV1	X	7.1	7.1	0	0
6	SAV2	X	9	9	0	0
7	STAB1	X	7.1	7.1	0	0
8	STAB2	X	7.1	7.1	0	0
9	FMBOT	Z	12.3	12.3	0	0
10	FMTOP	Z	12.3	12.3	0	0
11	SABOT	Z	25.9	25.9	0	0
12	SATOP	Z	25.9	25.9	0	0
13	SAV1	Z	12.3	12.3	0	0
14	SAV2	Z	15.5	15.5	0	0
15	STAB1	Z	12.3	12.3	0	0
16	STAB2	Z	12.3	12.3	0	0
17	MP1	X	32.8	32.8	%27.847	%100
18	MP2	X	0	0	0	0
19	MP3	X	58.6	58.6	%.069	%100
20	MP1	Z	56.8	56.8	%27.847	%100
21	MP2	Z	0	0	0	0
22	MP3	Z	101.5	101.5	%.069	%100

Member Distributed Loads (BLC 5 : Wind Load (90 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	0	0	0	0
2	FMTOP	X	0	0	0	0
3	SABOT	X	0	0	0	0
4	SATOP	X	0	0	0	0
5	SAV1	X	0	0	0	0
6	SAV2	X	0	0	0	0
7	STAB1	X	0	0	0	0
8	STAB2	X	0	0	0	0
9	FMBOT	Z	0	0	0	0

Member Distributed Loads (BLC 5 : Wind Load (90 deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
10	FMTOP	Z	0	0	0	0
11	SABOT	Z	29.9	29.9	0	0
12	SATOP	Z	29.9	29.9	0	0
13	SAV1	Z	14.2	14.2	0	0
14	SAV2	Z	18	18	0	0
15	STAB1	Z	14.2	14.2	0	0
16	STAB2	Z	14.2	14.2	0	0
17	MP1	X	0	0	0	0
18	MP2	X	0	0	0	0
19	MP3	X	0	0	0	0
20	MP1	Z	59.3	59.3	%27.847	%100
21	MP2	Z	0	0	0	0
22	MP3	Z	88.8	88.8	%.069	%100

Member Distributed Loads (BLC 6 : Wind Load (120 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	-7.1	-7.1	0	0
2	FMTOP	X	-7.1	-7.1	0	0
3	SABOT	X	-15	-15	0	0
4	SATOP	X	-15	-15	0	0
5	SAV1	X	-7.1	-7.1	0	0
6	SAV2	X	-9	-9	0	0
7	STAB1	X	-7.1	-7.1	0	0
8	STAB2	X	-7.1	-7.1	0	0
9	FMBOT	Z	12.3	12.3	0	0
10	FMTOP	Z	12.3	12.3	0	0
11	SABOT	Z	25.9	25.9	0	0
12	SATOP	Z	25.9	25.9	0	0
13	SAV1	Z	12.3	12.3	0	0
14	SAV2	Z	15.5	15.5	0	0
15	STAB1	Z	12.3	12.3	0	0
16	STAB2	Z	12.3	12.3	0	0
17	MP1	X	-32.8	-32.8	%27.847	%100
18	MP2	X	0	0	0	0
19	MP3	X	-58.6	-58.6	%.069	%100
20	MP1	Z	56.8	56.8	%27.847	%100
21	MP2	Z	0	0	0	0
22	MP3	Z	101.5	101.5	%.069	%100

Member Distributed Loads (BLC 7 : Wind Load (150 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	-12.3	-12.3	0	0
2	FMTOP	X	-12.3	-12.3	0	0
3	SABOT	X	-25.9	-25.9	0	0
4	SATOP	X	-25.9	-25.9	0	0
5	SAV1	X	-12.3	-12.3	0	0
6	SAV2	X	-15.5	-15.5	0	0
7	STAB1	X	-12.3	-12.3	0	0
8	STAB2	X	-12.3	-12.3	0	0
9	FMBOT	Z	7.1	7.1	0	0
10	FMTOP	Z	7.1	7.1	0	0
11	SABOT	Z	15	15	0	0
12	SATOP	Z	15	15	0	0
13	SAV1	Z	7.1	7.1	0	0
14	SAV2	Z	9	9	0	0
15	STAB1	Z	7.1	7.1	0	0

Member Distributed Loads (BLC 7 : Wind Load (150 deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
16	STAB2	Z	7.1	7.1	0	0
17	MP1	X	-67.5	-67.5	%27.847	%100
18	MP2	X	0	0	0	0
19	MP3	X	-150.6	-150.6	%.069	%100
20	MP1	Z	39	39	%27.847	%100
21	MP2	Z	0	0	0	0
22	MP3	Z	87	87	%.069	%100

Member Distributed Loads (BLC 8 : Wind Load (180 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	-14.2	-14.2	0	0
2	FMTOP	X	-14.2	-14.2	0	0
3	SABOT	X	0	0	0	0
4	SATOP	X	0	0	0	0
5	SAV1	X	-14.2	-14.2	0	0
6	SAV2	X	-18	-18	0	0
7	STAB1	X	-14.2	-14.2	0	0
8	STAB2	X	-14.2	-14.2	0	0
9	FMBOT	Z	0	0	0	0
10	FMTOP	Z	0	0	0	0
11	SABOT	Z	0	0	0	0
12	SATOP	Z	0	0	0	0
13	SAV1	Z	0	0	0	0
14	SAV2	Z	0	0	0	0
15	STAB1	Z	0	0	0	0
16	STAB2	Z	0	0	0	0
17	MP1	X	-84.1	-84.1	%27.847	%100
18	MP2	X	0	0	0	0
19	MP3	X	-202.3	-202.3	%.069	%100
20	MP1	Z	0	0	0	0
21	MP2	Z	0	0	0	0
22	MP3	Z	0	0	0	0

Member Distributed Loads (BLC 9 : Wind Load (210 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	-12.3	-12.3	0	0
2	FMTOP	X	-12.3	-12.3	0	0
3	SABOT	X	-25.9	-25.9	0	0
4	SATOP	X	-25.9	-25.9	0	0
5	SAV1	X	-12.3	-12.3	0	0
6	SAV2	X	-15.5	-15.5	0	0
7	STAB1	X	-12.3	-12.3	0	0
8	STAB2	X	-12.3	-12.3	0	0
9	FMBOT	Z	-7.1	-7.1	0	0
10	FMTOP	Z	-7.1	-7.1	0	0
11	SABOT	Z	-15	-15	0	0
12	SATOP	Z	-15	-15	0	0
13	SAV1	Z	-7.1	-7.1	0	0
14	SAV2	Z	-9	-9	0	0
15	STAB1	Z	-7.1	-7.1	0	0
16	STAB2	Z	-7.1	-7.1	0	0
17	MP1	X	-67.5	-67.5	%27.847	%100
18	MP2	X	0	0	0	0
19	MP3	X	-150.6	-150.6	%.069	%100
20	MP1	Z	-39	-39	%27.847	%100
21	MP2	Z	0	0	0	0

Member Distributed Loads (BLC 9 : Wind Load (210 deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
22	MP3	Z	-87	-87	%.069	%100

Member Distributed Loads (BLC 10 : Wind Load (240 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	-7.1	-7.1	0	0
2	FMTOP	X	-7.1	-7.1	0	0
3	SABOT	X	-15	-15	0	0
4	SATOP	X	-15	-15	0	0
5	SAV1	X	-7.1	-7.1	0	0
6	SAV2	X	-9	-9	0	0
7	STAB1	X	-7.1	-7.1	0	0
8	STAB2	X	-7.1	-7.1	0	0
9	FMBOT	Z	-12.3	-12.3	0	0
10	FMTOP	Z	-12.3	-12.3	0	0
11	SABOT	Z	-25.9	-25.9	0	0
12	SATOP	Z	-25.9	-25.9	0	0
13	SAV1	Z	-12.3	-12.3	0	0
14	SAV2	Z	-15.5	-15.5	0	0
15	STAB1	Z	-12.3	-12.3	0	0
16	STAB2	Z	-12.3	-12.3	0	0
17	MP1	X	-32.8	-32.8	%27.847	%100
18	MP2	X	0	0	0	0
19	MP3	X	-58.6	-58.6	%.069	%100
20	MP1	Z	-56.8	-56.8	%27.847	%100
21	MP2	Z	0	0	0	0
22	MP3	Z	-101.5	-101.5	%.069	%100

Member Distributed Loads (BLC 11 : Wind Load (270 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	0	0	0	0
2	FMTOP	X	0	0	0	0
3	SABOT	X	0	0	0	0
4	SATOP	X	0	0	0	0
5	SAV1	X	0	0	0	0
6	SAV2	X	0	0	0	0
7	STAB1	X	0	0	0	0
8	STAB2	X	0	0	0	0
9	FMBOT	Z	0	0	0	0
10	FMTOP	Z	0	0	0	0
11	SABOT	Z	-29.9	-29.9	0	0
12	SATOP	Z	-29.9	-29.9	0	0
13	SAV1	Z	-14.2	-14.2	0	0
14	SAV2	Z	-18	-18	0	0
15	STAB1	Z	-14.2	-14.2	0	0
16	STAB2	Z	-14.2	-14.2	0	0
17	MP1	X	0	0	0	0
18	MP2	X	0	0	0	0
19	MP3	X	0	0	0	0
20	MP1	Z	-59.3	-59.3	%27.847	%100
21	MP2	Z	0	0	0	0
22	MP3	Z	-88.8	-88.8	%.069	%100

Member Distributed Loads (BLC 12 : Wind Load (300 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	7.1	7.1	0	0

Member Distributed Loads (BLC 12 : Wind Load (300 deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
2	FMTOP	X	7.1	7.1	0	0
3	SABOT	X	15	15	0	0
4	SATOP	X	15	15	0	0
5	SAV1	X	7.1	7.1	0	0
6	SAV2	X	9	9	0	0
7	STAB1	X	7.1	7.1	0	0
8	STAB2	X	7.1	7.1	0	0
9	FMBOT	Z	-12.3	-12.3	0	0
10	FMTOP	Z	-12.3	-12.3	0	0
11	SABOT	Z	-25.9	-25.9	0	0
12	SATOP	Z	-25.9	-25.9	0	0
13	SAV1	Z	-12.3	-12.3	0	0
14	SAV2	Z	-15.5	-15.5	0	0
15	STAB1	Z	-12.3	-12.3	0	0
16	STAB2	Z	-12.3	-12.3	0	0
17	MP1	X	32.8	32.8	%27.847	%100
18	MP2	X	0	0	0	0
19	MP3	X	58.6	58.6	%.069	%100
20	MP1	Z	-56.8	-56.8	%27.847	%100
21	MP2	Z	0	0	0	0
22	MP3	Z	-101.5	-101.5	%.069	%100

Member Distributed Loads (BLC 13 : Wind Load (330 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	12.3	12.3	0	0
2	FMTOP	X	12.3	12.3	0	0
3	SABOT	X	25.9	25.9	0	0
4	SATOP	X	25.9	25.9	0	0
5	SAV1	X	12.3	12.3	0	0
6	SAV2	X	15.5	15.5	0	0
7	STAB1	X	12.3	12.3	0	0
8	STAB2	X	12.3	12.3	0	0
9	FMBOT	Z	-7.1	-7.1	0	0
10	FMTOP	Z	-7.1	-7.1	0	0
11	SABOT	Z	-15	-15	0	0
12	SATOP	Z	-15	-15	0	0
13	SAV1	Z	-7.1	-7.1	0	0
14	SAV2	Z	-9	-9	0	0
15	STAB1	Z	-7.1	-7.1	0	0
16	STAB2	Z	-7.1	-7.1	0	0
17	MP1	X	67.5	67.5	%27.847	%100
18	MP2	X	0	0	0	0
19	MP3	X	150.6	150.6	%.069	%100
20	MP1	Z	-39	-39	%27.847	%100
21	MP2	Z	0	0	0	0
22	MP3	Z	-87	-87	%.069	%100

Member Distributed Loads (BLC 14 : Ice Load)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	Y	-8.9	-8.9	0	0
2	FMTOP	Y	-8.9	-8.9	0	0
3	SABOT	Y	-13	-13	0	0
4	SATOP	Y	-13	-13	0	0
5	SAV1	Y	-8.9	-8.9	0	0
6	SAV2	Y	-10.3	-10.3	0	0
7	STAB1	Y	-8.9	-8.9	0	0

Member Distributed Loads (BLC 14 : Ice Load) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
8	STAB2	Y	-8.9	-8.9	0	0

Member Distributed Loads (BLC 15 : Wind on Ice (0 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	1.6	1.6	0	0
2	FMTOP	X	1.6	1.6	0	0
3	SABOT	X	0	0	0	0
4	SATOP	X	0	0	0	0
5	SAV1	X	1.6	1.6	0	0
6	SAV2	X	1.8	1.8	0	0
7	STAB1	X	1.6	1.6	0	0
8	STAB2	X	1.6	1.6	0	0
9	FMBOT	Z	0	0	0	0
10	FMTOP	Z	0	0	0	0
11	SABOT	Z	0	0	0	0
12	SATOP	Z	0	0	0	0
13	SAV1	Z	0	0	0	0
14	SAV2	Z	0	0	0	0
15	STAB1	Z	0	0	0	0
16	STAB2	Z	0	0	0	0
17	MP1	X	4.5	4.5	%27.847	%100
18	MP2	X	0	0	0	0
19	MP3	X	10.1	10.1	%.069	%100
20	MP1	Z	0	0	0	0
21	MP2	Z	0	0	0	0
22	MP3	Z	0	0	0	0

Member Distributed Loads (BLC 16 : Wind on Ice (30 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	1.4	1.4	0	0
2	FMTOP	X	1.4	1.4	0	0
3	SABOT	X	2.1	2.1	0	0
4	SATOP	X	2.1	2.1	0	0
5	SAV1	X	1.4	1.4	0	0
6	SAV2	X	1.6	1.6	0	0
7	STAB1	X	1.4	1.4	0	0
8	STAB2	X	1.4	1.4	0	0
9	FMBOT	Z	.8	.8	0	0
10	FMTOP	Z	.8	.8	0	0
11	SABOT	Z	1.2	1.2	0	0
12	SATOP	Z	1.2	1.2	0	0
13	SAV1	Z	.8	.8	0	0
14	SAV2	Z	.9	.9	0	0
15	STAB1	Z	.8	.8	0	0
16	STAB2	Z	.8	.8	0	0
17	MP1	X	3.7	3.7	%27.847	%100
18	MP2	X	0	0	0	0
19	MP3	X	7.6	7.6	%.069	%100
20	MP1	Z	2.1	2.1	%27.847	%100
21	MP2	Z	0	0	0	0
22	MP3	Z	4.4	4.4	%.069	%100

Member Distributed Loads (BLC 17 : Wind on Ice (60 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	.8	.8	0	0

Member Distributed Loads (BLC 17 : Wind on Ice (60 deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
2	FMTOP	X	.8	.8	0	0
3	SABOT	X	1.2	1.2	0	0
4	SATOP	X	1.2	1.2	0	0
5	SAV1	X	.8	.8	0	0
6	SAV2	X	.9	.9	0	0
7	STAB1	X	.8	.8	0	0
8	STAB2	X	.8	.8	0	0
9	FMBOT	Z	1.4	1.4	0	0
10	FMTOP	Z	1.4	1.4	0	0
11	SABOT	Z	2.1	2.1	0	0
12	SATOP	Z	2.1	2.1	0	0
13	SAV1	Z	1.4	1.4	0	0
14	SAV2	Z	1.6	1.6	0	0
15	STAB1	Z	1.4	1.4	0	0
16	STAB2	Z	1.4	1.4	0	0
17	MP1	X	1.8	1.8	%27.847	%100
18	MP2	X	0	0	0	0
19	MP3	X	3.1	3.1	%.069	%100
20	MP1	Z	3.2	3.2	%27.847	%100
21	MP2	Z	0	0	0	0
22	MP3	Z	5.4	5.4	%.069	%100

Member Distributed Loads (BLC 18 : Wind on Ice (90 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	0	0	0	0
2	FMTOP	X	0	0	0	0
3	SABOT	X	0	0	0	0
4	SATOP	X	0	0	0	0
5	SAV1	X	0	0	0	0
6	SAV2	X	0	0	0	0
7	STAB1	X	0	0	0	0
8	STAB2	X	0	0	0	0
9	FMBOT	Z	0	0	0	0
10	FMTOP	Z	0	0	0	0
11	SABOT	Z	2.4	2.4	0	0
12	SATOP	Z	2.4	2.4	0	0
13	SAV1	Z	1.6	1.6	0	0
14	SAV2	Z	1.8	1.8	0	0
15	STAB1	Z	1.6	1.6	0	0
16	STAB2	Z	1.6	1.6	0	0
17	MP1	X	0	0	0	0
18	MP2	X	0	0	0	0
19	MP3	X	0	0	0	0
20	MP1	Z	3.4	3.4	%27.847	%100
21	MP2	Z	0	0	0	0
22	MP3	Z	4.9	4.9	%.069	%100

Member Distributed Loads (BLC 19 : Wind on Ice (120 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	-.8	-.8	0	0
2	FMTOP	X	-.8	-.8	0	0
3	SABOT	X	-1.2	-1.2	0	0
4	SATOP	X	-1.2	-1.2	0	0
5	SAV1	X	-.8	-.8	0	0
6	SAV2	X	-.9	-.9	0	0
7	STAB1	X	-.8	-.8	0	0

Member Distributed Loads (BLC 19 : Wind on Ice (120 deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
8	STAB2	X	-.8	-.8	0	0
9	FMBOT	Z	1.4	1.4	0	0
10	FMTOP	Z	1.4	1.4	0	0
11	SABOT	Z	2.1	2.1	0	0
12	SATOP	Z	2.1	2.1	0	0
13	SAV1	Z	1.4	1.4	0	0
14	SAV2	Z	1.6	1.6	0	0
15	STAB1	Z	1.4	1.4	0	0
16	STAB2	Z	1.4	1.4	0	0
17	MP1	X	-1.8	-1.8	%27.847	%100
18	MP2	X	0	0	0	0
19	MP3	X	-3.1	-3.1	%.069	%100
20	MP1	Z	3.2	3.2	%27.847	%100
21	MP2	Z	0	0	0	0
22	MP3	Z	5.4	5.4	%.069	%100

Member Distributed Loads (BLC 20 : Wind on Ice (150 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	-1.4	-1.4	0	0
2	FMTOP	X	-1.4	-1.4	0	0
3	SABOT	X	-2.1	-2.1	0	0
4	SATOP	X	-2.1	-2.1	0	0
5	SAV1	X	-1.4	-1.4	0	0
6	SAV2	X	-1.6	-1.6	0	0
7	STAB1	X	-1.4	-1.4	0	0
8	STAB2	X	-1.4	-1.4	0	0
9	FMBOT	Z	.8	.8	0	0
10	FMTOP	Z	.8	.8	0	0
11	SABOT	Z	1.2	1.2	0	0
12	SATOP	Z	1.2	1.2	0	0
13	SAV1	Z	.8	.8	0	0
14	SAV2	Z	.9	.9	0	0
15	STAB1	Z	.8	.8	0	0
16	STAB2	Z	.8	.8	0	0
17	MP1	X	-3.7	-3.7	%27.847	%100
18	MP2	X	0	0	0	0
19	MP3	X	-7.6	-7.6	%.069	%100
20	MP1	Z	2.1	2.1	%27.847	%100
21	MP2	Z	0	0	0	0
22	MP3	Z	4.4	4.4	%.069	%100

Member Distributed Loads (BLC 21 : Wind on Ice (180 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	-1.6	-1.6	0	0
2	FMTOP	X	-1.6	-1.6	0	0
3	SABOT	X	0	0	0	0
4	SATOP	X	0	0	0	0
5	SAV1	X	-1.6	-1.6	0	0
6	SAV2	X	-1.8	-1.8	0	0
7	STAB1	X	-1.6	-1.6	0	0
8	STAB2	X	-1.6	-1.6	0	0
9	FMBOT	Z	0	0	0	0
10	FMTOP	Z	0	0	0	0
11	SABOT	Z	0	0	0	0
12	SATOP	Z	0	0	0	0
13	SAV1	Z	0	0	0	0

Member Distributed Loads (BLC 21 : Wind on Ice (180 deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
14	SAV2	Z	0	0	0	0
15	STAB1	Z	0	0	0	0
16	STAB2	Z	0	0	0	0
17	MP1	X	-4.5	-4.5	%27.847	%100
18	MP2	X	0	0	0	0
19	MP3	X	-10.1	-10.1	%.069	%100
20	MP1	Z	0	0	0	0
21	MP2	Z	0	0	0	0
22	MP3	Z	0	0	0	0

Member Distributed Loads (BLC 22 : Wind on Ice (210 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	-1.4	-1.4	0	0
2	FMTOP	X	-1.4	-1.4	0	0
3	SABOT	X	-2.1	-2.1	0	0
4	SATOP	X	-2.1	-2.1	0	0
5	SAV1	X	-1.4	-1.4	0	0
6	SAV2	X	-1.6	-1.6	0	0
7	STAB1	X	-1.4	-1.4	0	0
8	STAB2	X	-1.4	-1.4	0	0
9	FMBOT	Z	-.8	-.8	0	0
10	FMTOP	Z	-.8	-.8	0	0
11	SABOT	Z	-1.2	-1.2	0	0
12	SATOP	Z	-1.2	-1.2	0	0
13	SAV1	Z	-.8	-.8	0	0
14	SAV2	Z	-.9	-.9	0	0
15	STAB1	Z	-.8	-.8	0	0
16	STAB2	Z	-.8	-.8	0	0
17	MP1	X	-3.7	-3.7	%27.847	%100
18	MP2	X	0	0	0	0
19	MP3	X	-7.6	-7.6	%.069	%100
20	MP1	Z	-2.1	-2.1	%27.847	%100
21	MP2	Z	0	0	0	0
22	MP3	Z	-4.4	-4.4	%.069	%100

Member Distributed Loads (BLC 23 : Wind on Ice (240 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	-.8	-.8	0	0
2	FMTOP	X	-.8	-.8	0	0
3	SABOT	X	-1.2	-1.2	0	0
4	SATOP	X	-1.2	-1.2	0	0
5	SAV1	X	-.8	-.8	0	0
6	SAV2	X	-.9	-.9	0	0
7	STAB1	X	-.8	-.8	0	0
8	STAB2	X	-.8	-.8	0	0
9	FMBOT	Z	-1.4	-1.4	0	0
10	FMTOP	Z	-1.4	-1.4	0	0
11	SABOT	Z	-2.1	-2.1	0	0
12	SATOP	Z	-2.1	-2.1	0	0
13	SAV1	Z	-1.4	-1.4	0	0
14	SAV2	Z	-1.6	-1.6	0	0
15	STAB1	Z	-1.4	-1.4	0	0
16	STAB2	Z	-1.4	-1.4	0	0
17	MP1	X	-1.8	-1.8	%27.847	%100
18	MP2	X	0	0	0	0
19	MP3	X	-3.1	-3.1	%.069	%100

Member Distributed Loads (BLC 23 : Wind on Ice (240 deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
20	MP1	Z	-3.2	-3.2	%27.847	%100
21	MP2	Z	0	0	0	0
22	MP3	Z	-5.4	-5.4	%.069	%100

Member Distributed Loads (BLC 24 : Wind on Ice (270 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	0	0	0	0
2	FMTOP	X	0	0	0	0
3	SABOT	X	0	0	0	0
4	SATOP	X	0	0	0	0
5	SAV1	X	0	0	0	0
6	SAV2	X	0	0	0	0
7	STAB1	X	0	0	0	0
8	STAB2	X	0	0	0	0
9	FMBOT	Z	0	0	0	0
10	FMTOP	Z	0	0	0	0
11	SABOT	Z	-2.4	-2.4	0	0
12	SATOP	Z	-2.4	-2.4	0	0
13	SAV1	Z	-1.6	-1.6	0	0
14	SAV2	Z	-1.8	-1.8	0	0
15	STAB1	Z	-1.6	-1.6	0	0
16	STAB2	Z	-1.6	-1.6	0	0
17	MP1	X	0	0	0	0
18	MP2	X	0	0	0	0
19	MP3	X	0	0	0	0
20	MP1	Z	-3.4	-3.4	%27.847	%100
21	MP2	Z	0	0	0	0
22	MP3	Z	-4.9	-4.9	%.069	%100

Member Distributed Loads (BLC 25 : Wind on Ice (300 deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	.8	.8	0	0
2	FMTOP	X	.8	.8	0	0
3	SABOT	X	1.2	1.2	0	0
4	SATOP	X	1.2	1.2	0	0
5	SAV1	X	.8	.8	0	0
6	SAV2	X	.9	.9	0	0
7	STAB1	X	.8	.8	0	0
8	STAB2	X	.8	.8	0	0
9	FMBOT	Z	-1.4	-1.4	0	0
10	FMTOP	Z	-1.4	-1.4	0	0
11	SABOT	Z	-2.1	-2.1	0	0
12	SATOP	Z	-2.1	-2.1	0	0
13	SAV1	Z	-1.4	-1.4	0	0
14	SAV2	Z	-1.6	-1.6	0	0
15	STAB1	Z	-1.4	-1.4	0	0
16	STAB2	Z	-1.4	-1.4	0	0
17	MP1	X	1.8	1.8	%27.847	%100
18	MP2	X	0	0	0	0
19	MP3	X	3.1	3.1	%.069	%100
20	MP1	Z	-3.2	-3.2	%27.847	%100
21	MP2	Z	0	0	0	0
22	MP3	Z	-5.4	-5.4	%.069	%100

Member Distributed Loads (BLC 26 : Wind on Ice (330 deg))

Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]

Member Distributed Loads (BLC 26 : Wind on Ice (330 deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,...	Start Location[in,%]	End Location[in,%]
1	FMBOT	X	1.4	1.4	0	0
2	FMTOP	X	1.4	1.4	0	0
3	SABOT	X	2.1	2.1	0	0
4	SATOP	X	2.1	2.1	0	0
5	SAV1	X	1.4	1.4	0	0
6	SAV2	X	1.6	1.6	0	0
7	STAB1	X	1.4	1.4	0	0
8	STAB2	X	1.4	1.4	0	0
9	FMBOT	Z	-.8	-.8	0	0
10	FMTOP	Z	-.8	-.8	0	0
11	SABOT	Z	-1.2	-1.2	0	0
12	SATOP	Z	-1.2	-1.2	0	0
13	SAV1	Z	-.8	-.8	0	0
14	SAV2	Z	-.9	-.9	0	0
15	STAB1	Z	-.8	-.8	0	0
16	STAB2	Z	-.8	-.8	0	0
17	MP1	X	3.7	3.7	%27.847	%100
18	MP2	X	0	0	0	0
19	MP3	X	7.6	7.6	%.069	%100
20	MP1	Z	-2.1	-2.1	%27.847	%100
21	MP2	Z	0	0	0	0
22	MP3	Z	-4.4	-4.4	%.069	%100

Load Combinations

	Description	Solve P...	SR...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
1	1.4D	Yes	Y		1	1.4																	
2	1.2D + 1.0W (0 ...	Yes	Y		1	1.2	2	1															
3	1.2D + 1.0W (30...	Yes	Y		1	1.2	3	1															
4	1.2D + 1.0W (60...	Yes	Y		1	1.2	4	1															
5	1.2D + 1.0W (90...	Yes	Y		1	1.2	5	1															
6	1.2D + 1.0W (12...	Yes	Y		1	1.2	6	1															
7	1.2D + 1.0W (15...	Yes	Y		1	1.2	7	1															
8	1.2D + 1.0W (18...	Yes	Y		1	1.2	8	1															
9	1.2D + 1.0W (21...	Yes	Y		1	1.2	9	1															
10	1.2D + 1.0W (24...	Yes	Y		1	1.2	10	1															
11	1.2D + 1.0W (27...	Yes	Y		1	1.2	11	1															
12	1.2D + 1.0W (30...	Yes	Y		1	1.2	12	1															
13	1.2D + 1.0W (33...	Yes	Y		1	1.2	13	1															
14	1.2D + Di + Wi (...	Yes	Y		1	1.2	14	1	15	1													
15	1.2D + Di + Wi (...	Yes	Y		1	1.2	14	1	16	1													
16	1.2D + Di + Wi (...	Yes	Y		1	1.2	14	1	17	1													
17	1.2D + Di + Wi (...	Yes	Y		1	1.2	14	1	18	1													
18	1.2D + Di + Wi (...	Yes	Y		1	1.2	14	1	19	1													
19	1.2D + Di + Wi (...	Yes	Y		1	1.2	14	1	20	1													
20	1.2D + Di + Wi (...	Yes	Y		1	1.2	14	1	21	1													
21	1.2D + Di + Wi (...	Yes	Y		1	1.2	14	1	22	1													
22	1.2D + Di + Wi (...	Yes	Y		1	1.2	14	1	23	1													
23	1.2D + Di + Wi (...	Yes	Y		1	1.2	14	1	24	1													
24	1.2D + Di + Wi (...	Yes	Y		1	1.2	14	1	25	1													
25	1.2D + Di + Wi (...	Yes	Y		1	1.2	14	1	26	1													
26	1.2D + 1.0 Ev + ...	Yes	Y		1	1.2	1	.036	27	.09													
27	1.2D + 1.0 Ev + ...	Yes	Y		1	1.2	1	.036	28	.09													
28	1.2D + 1.0 Ev + ...	Yes	Y		1	1.2	1	.036	29	.09													
29	1.2D + 1.0 Ev + ...	Yes	Y		1	1.2	1	.036	30	.09													
30	1.2D + 1.0 Ev + ...	Yes	Y		1	1.2	1	.036	31	.09													

Load Combinations (Continued)

	Description	Solve P...	SR...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
31	1.2D + 1.0 Ev + ...	Yes	Y	1	1.2	1	.036	32	.09														
32	1.2D + 1.0 Ev + ...	Yes	Y	1	1.2	1	.036	33	.09														
33	1.2D + 1.0 Ev + ...	Yes	Y	1	1.2	1	.036	34	.09														
34	1.2D + 1.0 Ev + ...	Yes	Y	1	1.2	1	.036	35	.09														
35	1.2D + 1.0 Ev + ...	Yes	Y	1	1.2	1	.036	36	.09														
36	1.2D + 1.0 Ev + ...	Yes	Y	1	1.2	1	.036	37	.09														
37	1.2D + 1.0 Ev + ...	Yes	Y	1	1.2	1	.036	38	.09														
38	1.2D + 1.5Lm1 +...	Yes	Y	1	1.2	39	1.5	2	.129														
39	1.2D + 1.5Lm1 +...	Yes	Y	1	1.2	39	1.5	3	.129														
40	1.2D + 1.5Lm1 +...	Yes	Y	1	1.2	39	1.5	4	.129														
41	1.2D + 1.5Lm1 +...	Yes	Y	1	1.2	39	1.5	5	.129														
42	1.2D + 1.5Lm1 +...	Yes	Y	1	1.2	39	1.5	6	.129														
43	1.2D + 1.5Lm1 +...	Yes	Y	1	1.2	39	1.5	7	.129														
44	1.2D + 1.5Lm1 +...	Yes	Y	1	1.2	39	1.5	8	.129														
45	1.2D + 1.5Lm1 +...	Yes	Y	1	1.2	39	1.5	9	.129														
46	1.2D + 1.5Lm1 +...	Yes	Y	1	1.2	39	1.5	10	.129														
47	1.2D + 1.5Lm1 +...	Yes	Y	1	1.2	39	1.5	11	.129														
48	1.2D + 1.5Lm1 +...	Yes	Y	1	1.2	39	1.5	12	.129														
49	1.2D + 1.5Lm1 +...	Yes	Y	1	1.2	39	1.5	13	.129														
50	1.2D + 1.5Lm2 +...	Yes	Y	1	1.2	40	1.5	2	.129														
51	1.2D + 1.5Lm2 +...	Yes	Y	1	1.2	40	1.5	3	.129														
52	1.2D + 1.5Lm2 +...	Yes	Y	1	1.2	40	1.5	4	.129														
53	1.2D + 1.5Lm2 +...	Yes	Y	1	1.2	40	1.5	5	.129														
54	1.2D + 1.5Lm2 +...	Yes	Y	1	1.2	40	1.5	6	.129														
55	1.2D + 1.5Lm2 +...	Yes	Y	1	1.2	40	1.5	7	.129														
56	1.2D + 1.5Lm2 +...	Yes	Y	1	1.2	40	1.5	8	.129														
57	1.2D + 1.5Lm2 +...	Yes	Y	1	1.2	40	1.5	9	.129														
58	1.2D + 1.5Lm2 +...	Yes	Y	1	1.2	40	1.5	10	.129														
59	1.2D + 1.5Lm2 +...	Yes	Y	1	1.2	40	1.5	11	.129														
60	1.2D + 1.5Lm2 +...	Yes	Y	1	1.2	40	1.5	12	.129														
61	1.2D + 1.5Lm2 +...	Yes	Y	1	1.2	40	1.5	13	.129														
62	1.2D + 1.5Lm3 +...	Yes	Y	1	1.2	41	1.5	2	.129														
63	1.2D + 1.5Lm3 +...	Yes	Y	1	1.2	41	1.5	3	.129														
64	1.2D + 1.5Lm3 +...	Yes	Y	1	1.2	41	1.5	4	.129														
65	1.2D + 1.5Lm3 +...	Yes	Y	1	1.2	41	1.5	5	.129														
66	1.2D + 1.5Lm3 +...	Yes	Y	1	1.2	41	1.5	6	.129														
67	1.2D + 1.5Lm3 +...	Yes	Y	1	1.2	41	1.5	7	.129														
68	1.2D + 1.5Lm3 +...	Yes	Y	1	1.2	41	1.5	8	.129														
69	1.2D + 1.5Lm3 +...	Yes	Y	1	1.2	41	1.5	9	.129														
70	1.2D + 1.5Lm3 +...	Yes	Y	1	1.2	41	1.5	10	.129														
71	1.2D + 1.5Lm3 +...	Yes	Y	1	1.2	41	1.5	11	.129														
72	1.2D + 1.5Lm3 +...	Yes	Y	1	1.2	41	1.5	12	.129														
73	1.2D + 1.5Lm3 +...	Yes	Y	1	1.2	41	1.5	13	.129														
74	1.2D + 1.5Lm4 +...	Yes	Y	1	1.2	42	1.5	2	.129														
75	1.2D + 1.5Lm4 +...	Yes	Y	1	1.2	42	1.5	3	.129														
76	1.2D + 1.5Lm4 +...	Yes	Y	1	1.2	42	1.5	4	.129														
77	1.2D + 1.5Lm4 +...	Yes	Y	1	1.2	42	1.5	5	.129														
78	1.2D + 1.5Lm4 +...	Yes	Y	1	1.2	42	1.5	6	.129														
79	1.2D + 1.5Lm4 +...	Yes	Y	1	1.2	42	1.5	7	.129														
80	1.2D + 1.5Lm4 +...	Yes	Y	1	1.2	42	1.5	8	.129														
81	1.2D + 1.5Lm4 +...	Yes	Y	1	1.2	42	1.5	9	.129														
82	1.2D + 1.5Lm4 +...	Yes	Y	1	1.2	42	1.5	10	.129														
83	1.2D + 1.5Lm4 +...	Yes	Y	1	1.2	42	1.5	11	.129														
84	1.2D + 1.5Lm4 +...	Yes	Y	1	1.2	42	1.5	12	.129														
85	1.2D + 1.5Lm4 +...	Yes	Y	1	1.2	42	1.5	13	.129														
86	1.2D + 1.5Lm5 +...	Yes	Y	1	1.2	43	1.5	2	.129														
87	1.2D + 1.5Lm5 +...	Yes	Y	1	1.2	43	1.5	3	.129														

Load Combinations (Continued)

	Description	Solve P...	SR...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
88	1.2D + 1.5Lm5 +...	Yes	Y	1	1.2	43	1.5	4	.129														
89	1.2D + 1.5Lm5 +...	Yes	Y	1	1.2	43	1.5	5	.129														
90	1.2D + 1.5Lm5 +...	Yes	Y	1	1.2	43	1.5	6	.129														
91	1.2D + 1.5Lm5 +...	Yes	Y	1	1.2	43	1.5	7	.129														
92	1.2D + 1.5Lm5 +...	Yes	Y	1	1.2	43	1.5	8	.129														
93	1.2D + 1.5Lm5 +...	Yes	Y	1	1.2	43	1.5	9	.129														
94	1.2D + 1.5Lm5 +...	Yes	Y	1	1.2	43	1.5	10	.129														
95	1.2D + 1.5Lm5 +...	Yes	Y	1	1.2	43	1.5	11	.129														
96	1.2D + 1.5Lm5 +...	Yes	Y	1	1.2	43	1.5	12	.129														
97	1.2D + 1.5Lm5 +...	Yes	Y	1	1.2	43	1.5	13	.129														
98	1.2D + 1.5Lm6 +...	Yes	Y	1	1.2	44	1.5	2	.129														
99	1.2D + 1.5Lm6 +...	Yes	Y	1	1.2	44	1.5	3	.129														
100	1.2D + 1.5Lm6 +...	Yes	Y	1	1.2	44	1.5	4	.129														
101	1.2D + 1.5Lm6 +...	Yes	Y	1	1.2	44	1.5	5	.129														
102	1.2D + 1.5Lm6 +...	Yes	Y	1	1.2	44	1.5	6	.129														
103	1.2D + 1.5Lm6 +...	Yes	Y	1	1.2	44	1.5	7	.129														
104	1.2D + 1.5Lm6 +...	Yes	Y	1	1.2	44	1.5	8	.129														
105	1.2D + 1.5Lm6 +...	Yes	Y	1	1.2	44	1.5	9	.129														
106	1.2D + 1.5Lm6 +...	Yes	Y	1	1.2	44	1.5	10	.129														
107	1.2D + 1.5Lm6 +...	Yes	Y	1	1.2	44	1.5	11	.129														
108	1.2D + 1.5Lm6 +...	Yes	Y	1	1.2	44	1.5	12	.129														
109	1.2D + 1.5Lm6 +...	Yes	Y	1	1.2	44	1.5	13	.129														
110	1.2D + 1.5Lm7 +...	Yes	Y	1	1.2	45	1.5	2	.129														
111	1.2D + 1.5Lm7 +...	Yes	Y	1	1.2	45	1.5	3	.129														
112	1.2D + 1.5Lm7 +...	Yes	Y	1	1.2	45	1.5	4	.129														
113	1.2D + 1.5Lm7 +...	Yes	Y	1	1.2	45	1.5	5	.129														
114	1.2D + 1.5Lm7 +...	Yes	Y	1	1.2	45	1.5	6	.129														
115	1.2D + 1.5Lm7 +...	Yes	Y	1	1.2	45	1.5	7	.129														
116	1.2D + 1.5Lm7 +...	Yes	Y	1	1.2	45	1.5	8	.129														
117	1.2D + 1.5Lm7 +...	Yes	Y	1	1.2	45	1.5	9	.129														
118	1.2D + 1.5Lm7 +...	Yes	Y	1	1.2	45	1.5	10	.129														
119	1.2D + 1.5Lm7 +...	Yes	Y	1	1.2	45	1.5	11	.129														
120	1.2D + 1.5Lm7 +...	Yes	Y	1	1.2	45	1.5	12	.129														
121	1.2D + 1.5Lm7 +...	Yes	Y	1	1.2	45	1.5	13	.129														
122	1.2D + 1.5Lm8 +...	Yes	Y	1	1.2	46	1.5	2	.129														
123	1.2D + 1.5Lm8 +...	Yes	Y	1	1.2	46	1.5	3	.129														
124	1.2D + 1.5Lm8 +...	Yes	Y	1	1.2	46	1.5	4	.129														
125	1.2D + 1.5Lm8 +...	Yes	Y	1	1.2	46	1.5	5	.129														
126	1.2D + 1.5Lm8 +...	Yes	Y	1	1.2	46	1.5	6	.129														
127	1.2D + 1.5Lm8 +...	Yes	Y	1	1.2	46	1.5	7	.129														
128	1.2D + 1.5Lm8 +...	Yes	Y	1	1.2	46	1.5	8	.129														
129	1.2D + 1.5Lm8 +...	Yes	Y	1	1.2	46	1.5	9	.129														
130	1.2D + 1.5Lm8 +...	Yes	Y	1	1.2	46	1.5	10	.129														
131	1.2D + 1.5Lm8 +...	Yes	Y	1	1.2	46	1.5	11	.129														
132	1.2D + 1.5Lm8 +...	Yes	Y	1	1.2	46	1.5	12	.129														
133	1.2D + 1.5Lm8 +...	Yes	Y	1	1.2	46	1.5	13	.129														
134	1.2D + 1.5Lm9 +...	Yes	Y	1	1.2	47	1.5	2	.129														
135	1.2D + 1.5Lm9 +...	Yes	Y	1	1.2	47	1.5	3	.129														
136	1.2D + 1.5Lm9 +...	Yes	Y	1	1.2	47	1.5	4	.129														
137	1.2D + 1.5Lm9 +...	Yes	Y	1	1.2	47	1.5	5	.129														
138	1.2D + 1.5Lm9 +...	Yes	Y	1	1.2	47	1.5	6	.129														
139	1.2D + 1.5Lm9 +...	Yes	Y	1	1.2	47	1.5	7	.129														
140	1.2D + 1.5Lm9 +...	Yes	Y	1	1.2	47	1.5	8	.129														
141	1.2D + 1.5Lm9 +...	Yes	Y	1	1.2	47	1.5	9	.129														
142	1.2D + 1.5Lm9 +...	Yes	Y	1	1.2	47	1.5	10	.129														
143	1.2D + 1.5Lm9 +...	Yes	Y	1	1.2	47	1.5	11	.129														
144	1.2D + 1.5Lm9 +...	Yes	Y	1	1.2	47	1.5	12	.129														

Load Combinations (Continued)

	Description	Solve P...	SR...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..
145	1.2D + 1.5Lm9 +..	Yes	Y	1	1.2	47	1.5	13	.129														
146	1.2D + 1.5Lm10 ..	Yes	Y	1	1.2	48	1.5	2	.129														
147	1.2D + 1.5Lm10 ..	Yes	Y	1	1.2	48	1.5	3	.129														
148	1.2D + 1.5Lm10 ..	Yes	Y	1	1.2	48	1.5	4	.129														
149	1.2D + 1.5Lm10 ..	Yes	Y	1	1.2	48	1.5	5	.129														
150	1.2D + 1.5Lm10 ..	Yes	Y	1	1.2	48	1.5	6	.129														
151	1.2D + 1.5Lm10 ..	Yes	Y	1	1.2	48	1.5	7	.129														
152	1.2D + 1.5Lm10 ..	Yes	Y	1	1.2	48	1.5	8	.129														
153	1.2D + 1.5Lm10 ..	Yes	Y	1	1.2	48	1.5	9	.129														
154	1.2D + 1.5Lm10 ..	Yes	Y	1	1.2	48	1.5	10	.129														
155	1.2D + 1.5Lm10 ..	Yes	Y	1	1.2	48	1.5	11	.129														
156	1.2D + 1.5Lm10 ..	Yes	Y	1	1.2	48	1.5	12	.129														
157	1.2D + 1.5Lm10 ..	Yes	Y	1	1.2	48	1.5	13	.129														
158	1.2D + 1.5Lm11 ..	Yes	Y	1	1.2	49	1.5	2	.129														
159	1.2D + 1.5Lm11 ..	Yes	Y	1	1.2	49	1.5	3	.129														
160	1.2D + 1.5Lm11 ..	Yes	Y	1	1.2	49	1.5	4	.129														
161	1.2D + 1.5Lm11 ..	Yes	Y	1	1.2	49	1.5	5	.129														
162	1.2D + 1.5Lm11 ..	Yes	Y	1	1.2	49	1.5	6	.129														
163	1.2D + 1.5Lm11 ..	Yes	Y	1	1.2	49	1.5	7	.129														
164	1.2D + 1.5Lm11 ..	Yes	Y	1	1.2	49	1.5	8	.129														
165	1.2D + 1.5Lm11 ..	Yes	Y	1	1.2	49	1.5	9	.129														
166	1.2D + 1.5Lm11 ..	Yes	Y	1	1.2	49	1.5	10	.129														
167	1.2D + 1.5Lm11 ..	Yes	Y	1	1.2	49	1.5	11	.129														
168	1.2D + 1.5Lm11 ..	Yes	Y	1	1.2	49	1.5	12	.129														
169	1.2D + 1.5Lm11 ..	Yes	Y	1	1.2	49	1.5	13	.129														
170	1.2D + 1.5Lm12 ..	Yes	Y	1	1.2	50	1.5	2	.129														
171	1.2D + 1.5Lm12 ..	Yes	Y	1	1.2	50	1.5	3	.129														
172	1.2D + 1.5Lm12 ..	Yes	Y	1	1.2	50	1.5	4	.129														
173	1.2D + 1.5Lm12 ..	Yes	Y	1	1.2	50	1.5	5	.129														
174	1.2D + 1.5Lm12 ..	Yes	Y	1	1.2	50	1.5	6	.129														
175	1.2D + 1.5Lm12 ..	Yes	Y	1	1.2	50	1.5	7	.129														
176	1.2D + 1.5Lm12 ..	Yes	Y	1	1.2	50	1.5	8	.129														
177	1.2D + 1.5Lm12 ..	Yes	Y	1	1.2	50	1.5	9	.129														
178	1.2D + 1.5Lm12 ..	Yes	Y	1	1.2	50	1.5	10	.129														
179	1.2D + 1.5Lm12 ..	Yes	Y	1	1.2	50	1.5	11	.129														
180	1.2D + 1.5Lm12 ..	Yes	Y	1	1.2	50	1.5	12	.129														
181	1.2D + 1.5Lm12 ..	Yes	Y	1	1.2	50	1.5	13	.129														
182	1.2D + 1.5Lm13 ..	Yes	Y	1	1.2	51	1.5	2	.129														
183	1.2D + 1.5Lm13 ..	Yes	Y	1	1.2	51	1.5	3	.129														
184	1.2D + 1.5Lm13 ..	Yes	Y	1	1.2	51	1.5	4	.129														
185	1.2D + 1.5Lm13 ..	Yes	Y	1	1.2	51	1.5	5	.129														
186	1.2D + 1.5Lm13 ..	Yes	Y	1	1.2	51	1.5	6	.129														
187	1.2D + 1.5Lm13 ..	Yes	Y	1	1.2	51	1.5	7	.129														
188	1.2D + 1.5Lm13 ..	Yes	Y	1	1.2	51	1.5	8	.129														
189	1.2D + 1.5Lm13 ..	Yes	Y	1	1.2	51	1.5	9	.129														
190	1.2D + 1.5Lm13 ..	Yes	Y	1	1.2	51	1.5	10	.129														
191	1.2D + 1.5Lm13 ..	Yes	Y	1	1.2	51	1.5	11	.129														
192	1.2D + 1.5Lm13 ..	Yes	Y	1	1.2	51	1.5	12	.129														
193	1.2D + 1.5Lm13 ..	Yes	Y	1	1.2	51	1.5	13	.129														
194	1.2D + 1.5Lm14 ..	Yes	Y	1	1.2	52	1.5	2	.129														
195	1.2D + 1.5Lm14 ..	Yes	Y	1	1.2	52	1.5	3	.129														
196	1.2D + 1.5Lm14 ..	Yes	Y	1	1.2	52	1.5	4	.129														
197	1.2D + 1.5Lm14 ..	Yes	Y	1	1.2	52	1.5	5	.129														
198	1.2D + 1.5Lm14 ..	Yes	Y	1	1.2	52	1.5	6	.129														
199	1.2D + 1.5Lm14 ..	Yes	Y	1	1.2	52	1.5	7	.129														
200	1.2D + 1.5Lm14 ..	Yes	Y	1	1.2	52	1.5	8	.129														
201	1.2D + 1.5Lm14 ..	Yes	Y	1	1.2	52	1.5	9	.129														

Load Combinations (Continued)

	Description	Solve	P...	SR...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
202	1.2D + 1.5Lm14 ...	Yes	Y		1	1.2	52	1.5	10	.129														
203	1.2D + 1.5Lm14 ...	Yes	Y		1	1.2	52	1.5	11	.129														
204	1.2D + 1.5Lm14 ...	Yes	Y		1	1.2	52	1.5	12	.129														
205	1.2D + 1.5Lm14 ...	Yes	Y		1	1.2	52	1.5	13	.129														
206	1.2D + 1.5Lm15 ...	Yes	Y		1	1.2	53	1.5	2	.129														
207	1.2D + 1.5Lm15 ...	Yes	Y		1	1.2	53	1.5	3	.129														
208	1.2D + 1.5Lm15 ...	Yes	Y		1	1.2	53	1.5	4	.129														
209	1.2D + 1.5Lm15 ...	Yes	Y		1	1.2	53	1.5	5	.129														
210	1.2D + 1.5Lm15 ...	Yes	Y		1	1.2	53	1.5	6	.129														
211	1.2D + 1.5Lm15 ...	Yes	Y		1	1.2	53	1.5	7	.129														
212	1.2D + 1.5Lm15 ...	Yes	Y		1	1.2	53	1.5	8	.129														
213	1.2D + 1.5Lm15 ...	Yes	Y		1	1.2	53	1.5	9	.129														
214	1.2D + 1.5Lm15 ...	Yes	Y		1	1.2	53	1.5	10	.129														
215	1.2D + 1.5Lm15 ...	Yes	Y		1	1.2	53	1.5	11	.129														
216	1.2D + 1.5Lm15 ...	Yes	Y		1	1.2	53	1.5	12	.129														
217	1.2D + 1.5Lm15 ...	Yes	Y		1	1.2	53	1.5	13	.129														
218	1.2D + 1.5Lm16 ...	Yes	Y		1	1.2	54	1.5	2	.129														
219	1.2D + 1.5Lm16 ...	Yes	Y		1	1.2	54	1.5	3	.129														
220	1.2D + 1.5Lm16 ...	Yes	Y		1	1.2	54	1.5	4	.129														
221	1.2D + 1.5Lm16 ...	Yes	Y		1	1.2	54	1.5	5	.129														
222	1.2D + 1.5Lm16 ...	Yes	Y		1	1.2	54	1.5	6	.129														
223	1.2D + 1.5Lm16 ...	Yes	Y		1	1.2	54	1.5	7	.129														
224	1.2D + 1.5Lm16 ...	Yes	Y		1	1.2	54	1.5	8	.129														
225	1.2D + 1.5Lm16 ...	Yes	Y		1	1.2	54	1.5	9	.129														
226	1.2D + 1.5Lm16 ...	Yes	Y		1	1.2	54	1.5	10	.129														
227	1.2D + 1.5Lm16 ...	Yes	Y		1	1.2	54	1.5	11	.129														
228	1.2D + 1.5Lm16 ...	Yes	Y		1	1.2	54	1.5	12	.129														
229	1.2D + 1.5Lm16 ...	Yes	Y		1	1.2	54	1.5	13	.129														
230	1.2D + 1.5Lm17 ...	Yes	Y		1	1.2	55	1.5	2	.129														
231	1.2D + 1.5Lm17 ...	Yes	Y		1	1.2	55	1.5	3	.129														
232	1.2D + 1.5Lm17 ...	Yes	Y		1	1.2	55	1.5	4	.129														
233	1.2D + 1.5Lm17 ...	Yes	Y		1	1.2	55	1.5	5	.129														
234	1.2D + 1.5Lm17 ...	Yes	Y		1	1.2	55	1.5	6	.129														
235	1.2D + 1.5Lm17 ...	Yes	Y		1	1.2	55	1.5	7	.129														
236	1.2D + 1.5Lm17 ...	Yes	Y		1	1.2	55	1.5	8	.129														
237	1.2D + 1.5Lm17 ...	Yes	Y		1	1.2	55	1.5	9	.129														
238	1.2D + 1.5Lm17 ...	Yes	Y		1	1.2	55	1.5	10	.129														
239	1.2D + 1.5Lm17 ...	Yes	Y		1	1.2	55	1.5	11	.129														
240	1.2D + 1.5Lm17 ...	Yes	Y		1	1.2	55	1.5	12	.129														
241	1.2D + 1.5Lm17 ...	Yes	Y		1	1.2	55	1.5	13	.129														
242	1.2D + 1.5Lm18 ...	Yes	Y		1	1.2	56	1.5	2	.129														
243	1.2D + 1.5Lm18 ...	Yes	Y		1	1.2	56	1.5	3	.129														
244	1.2D + 1.5Lm18 ...	Yes	Y		1	1.2	56	1.5	4	.129														
245	1.2D + 1.5Lm18 ...	Yes	Y		1	1.2	56	1.5	5	.129														
246	1.2D + 1.5Lm18 ...	Yes	Y		1	1.2	56	1.5	6	.129														
247	1.2D + 1.5Lm18 ...	Yes	Y		1	1.2	56	1.5	7	.129														
248	1.2D + 1.5Lm18 ...	Yes	Y		1	1.2	56	1.5	8	.129														
249	1.2D + 1.5Lm18 ...	Yes	Y		1	1.2	56	1.5	9	.129														
250	1.2D + 1.5Lm18 ...	Yes	Y		1	1.2	56	1.5	10	.129														
251	1.2D + 1.5Lm18 ...	Yes	Y		1	1.2	56	1.5	11	.129														
252	1.2D + 1.5Lm18 ...	Yes	Y		1	1.2	56	1.5	12	.129														
253	1.2D + 1.5Lm18 ...	Yes	Y		1	1.2	56	1.5	13	.129														
254	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	57	1.5																
255	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	58	1.5																
256	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	59	1.5																
257	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	60	1.5																
258	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	61	1.5																

Load Combinations (Continued)

	Description	Solve P...	SR...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
259	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	62	1.5															
260	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	63	1.5															
261	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	64	1.5															
262	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	65	1.5															
263	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	66	1.5															
264	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	67	1.5															
265	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	68	1.5															
266	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	69	1.5															
267	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	70	1.5															
268	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	71	1.5															
269	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	72	1.5															
270	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	73	1.5															
271	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	74	1.5															
272	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	75	1.5															
273	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	76	1.5															
274	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	77	1.5															
275	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	78	1.5															
276	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	79	1.5															
277	1.2D + 1.5Lv (P...	Yes	Y		1	1.2	80	1.5															

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N34	max	948.741	9	82.039	21	193.21	3	0	277	0	277	0	277
2		min	-952.383	3	23.053	3	-186.334	9	0	1	0	1	0	1
3	N36	max	1490.899	8	82.272	19	374.646	8	0	277	0	277	0	277
4		min	-1493.05	2	24.025	13	-377.586	2	0	1	0	1	0	1
5	N1	max	-171.191	2	1076.931	14	1151.452	12	1049.159	71	0	277	-355.048	2
6		min	-862.841	15	357.521	8	-935.853	6	-1422.272	40	0	1	-1254.025	20
7	N2	max	898.775	19	1077.494	20	984.315	12	1049.242	71	0	277	-376.9	2
8		min	-268.192	2	362.044	2	-1189.186	6	-1421.893	40	0	1	-1252.832	19
9	Totals:	max	2710.797	8	2314.829	16	2017.981	10						
10		min	-2710.793	2	804.621	13	-2017.977	4						

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[in]	LC	Shear Ch...	Lo...	Dir	LC	phi*Pn...	phi*P...	phi*M...	phi*M...	Cb	Eqn
1	FMBOT	PIPE 2.0	.875	75	66	.191	75		49	20114...	32130	1871....	1871....	1....	H1-1b
2	FMTOP	PIPE 2.0	.860	75	70	.237	75		7	20114...	32130	1871....	1871....	1....	H1-1b
3	MP1	PIPE 2.0	.750	54	40	.150	36		3	20866...	32130	1871....	1871....	1....	H1-1b
4	MP3	PIPE 2.0	.711	18	66	.193	30		2	20866...	32130	1871....	1871....	1....	H1-1b
5	MP2	PIPE 2.0	.357	18	46	.151	18		38	20866...	32130	1871....	1871....	1....	H1-1b
6	STAB2	PIPE 2.0	.327	71.875	13	.009	0		12	6295.4...	32130	1871....	1871....	1....	H1-1a
7	SABOT	HSS3X3X4	.300	25	12	.222	0	z	48	97642...	101016	8556	8556	2....	H1-1b
8	SATOP	HSS3X3X4	.297	25	4	.225	0	z	40	97642...	101016	8556	8556	2....	H1-1b
9	STAB1	PIPE 2.0	.212	75	4	.009	150		10	6295.4...	32130	1871....	1871....	1....	H1-1b
10	SAV2	HSS3.000X...	.176	45.906	19	.208	10...		40	54808...	66906	4977	4977	1....	H1-1b
11	SAV1	HSS2.375X...	.093	36	20	.209	0		40	39818...	45360	2661.75	2661....	2....	H1-1b

APPENDIX D

ADDITIONAL CALCULATIONS

Connection Check

Max Reactions	
$T_{u,max}$:	5.7 kip
$V_{u,max}$:	.3 kip

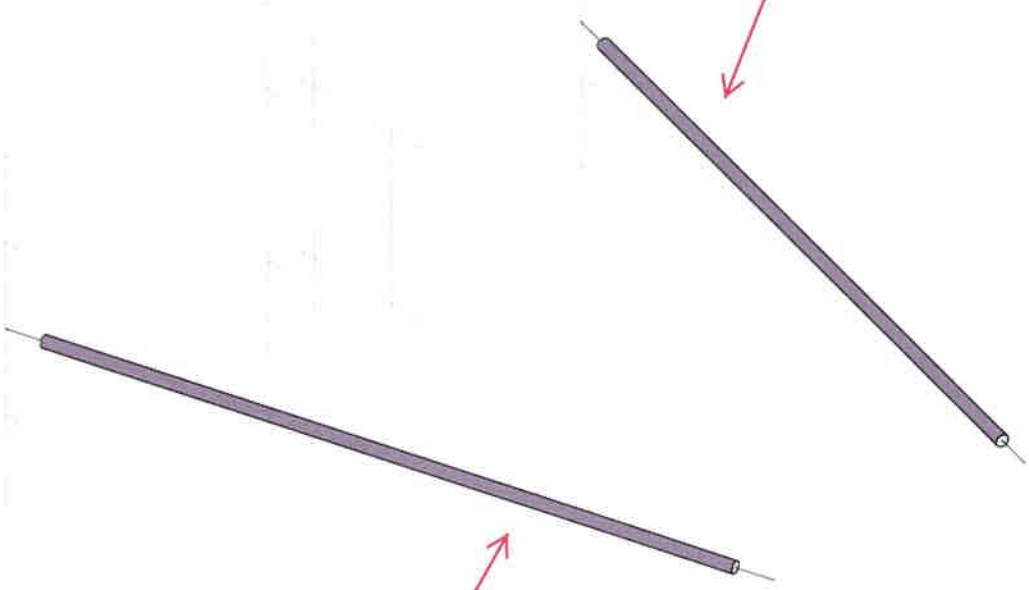
Input		Notes
d_b:	0.500 in	Diameter of Bolt
# of Bolts:	4	
# of Threads/Inch, n:	13	Bolt Ultimate Stress
F_{ub}:	58 ksi	Bolt Nominal Tensile Stress
X:	9.500 in	Bolt Spacing X-axis
Y:	1.375 in	Bolt Spacing Y-axis

Available Capacity		Notes
Ø:	0.75	Resistance Factor
A_{net}:	0.142 in^2	Net Area of Bolt
A_b:	0.196 in^2	Area of Bolt
$ØR_{nt}$:	6.17 kip	Tension Capacity per Bolt
$ØR_{nv}$:	4.27 kip	Shear Capacity per bolt

Bolt Capacity:	92.2% OK

APPENDIX E

MOUNT MODIFICATION DETAILS



Shift existing tieback up to 12 inches above bottom face mount member

Shift existing tieback up to 18 inches above bottom face mount member

ETS, PLLC	841273 - TRURO Mount Analysis	SK - 3
BRL		Mar 18, 2019 at 8:39 AM
191474.14		TRURO_MODDED.r3d

Building Permit Application

Massachusetts State Building Code, 780 CMR, 9th Edition

Permit #:	Fee:

TOWN OF TRURO
Building Department

24 Town Hall Rd.
PO Box 2030
Truro, MA 02666
Tel (508) 349-7004 x131 Fax (508) 349-5508

SITE INFORMATION

Project Site: 344 Route 6

Assessors Map & Parcel: 39 - 172.A		Zoning District:	
☑ Outside Flood Zone		☐ Inside Flood Zone – Specify:	
Setbacks:	Front: NA	Left Side: NA	Right Side: NA / Rear: NA
Lot Area (sq. ft.)		Frontage:	
Water Supply: ☐ Private ☐ Public		Subject to Policy 28: Curb Cut? ☐ Y ☑ N **If Yes, please attach a copy of the approval to this application.**	

SUBJECT TO NHESP/MESA REVIEW? ☐ Y ■ N * IF YES, PLEASE ATTACH A COPY OF THE APPROVAL.

PROPERTY OWNERSHIP

Owner of Record: Town of Truro

Mailing Address: PO Box 2012, Truro, MA 02666

Phone: 508-349-7004 E-mail:

Property Owner Authorization

Signature: Date:

PROJECT INFORMATION

☐ 1 & 2 Family Home ☑ Commercial / Other than 1 & 2 Family Home* ☐ Change of Use ☐ DEMO - Subject to Chapter VI: Historic Properties Bylaw? ☐ Y ☐ N

*** BUILDINGS IN EXCESS OF 35,000 CU. FT. MUST MEET CONTROL CONSTRUCTION REGULATIONS (780 CMR 116). ADDENDUM TO PERMIT APPLICATION AVAILABLE IN BUILDING DEPARTMENT.**

☐ New Dwelling: # of units _____ ☐ Commercial Building

☐ Addition ☑ Alteration ☐ Mechanical

☑ Accessory Structure: (type) Cell Tower Other: Antenna

Detailed Description of Proposed Work: T-Mobile antenna swap - Remove 3 antennas, 3 RRUs, 6 TMAs. Install 3 new antennas, 3 RRUs and 3 TMAs on the existing antenna platform.

Estimated Construction Cost: 20,000		Debris Disposal: (Landfill or Company Name) NA - No debris	
Floor Area: (Proposed Work Only)	Basement: ☐ unfinished _____	☐ finished _____	
1st flr:	2nd flr:	Porch/Deck:	Other:
#fireplaces:	#chimneys:	#bathrooms: existing _____	proposed _____
#bedrooms: existing _____ proposed _____			
Type of Heating System:		Type of Cooling System:	

CONTRACTOR INFORMATION*

*HOMEOWNER'S AFFIDAVIT REQUIRED IF OWNERS ARE DOING THEIR OWN WORK (RESIDENTIAL PROJECTS ONLY)

Contractor Name: Crown Castle		
Address: 3 Corporate Park Dr, Suite 101, Clifton Park, NY 12065		
Phone: 518-373-3543	Email: william.stone@crowncastle.com	
CSL#: CS-066811	HIC #	

OFFICE USE

HEALTH/CONSERVATION AGENT Review _____

_____

_____

_____

Signature:	Date:

Other Comments: _____

_____

_____

_____

BUILDING COMMISSIONER Review & Approval: _____

_____

_____

_____

Signature:	Issuance Date:

The Commonwealth of Massachusetts
Department of Industrial Accidents
1 Congress Street, Suite 100
Boston, MA 02114-2017
www.mass.gov/dia

Workers' Compensation Insurance Affidavit: General Businesses.
TO BE FILED WITH THE PERMITTING AUTHORITY.

Applicant Information — **Please Print Legibly**

Business/Organization Name: Crown Castle International

Address: 1220 Augusta Drive, Suite 600

City/State/Zip: Houston, TX 7705 Phone #:

Are you an employer? Check the appropriate box:

1. ☑ I am a employer with 5000 employees (full and/or part-time).*
2. ☐ I am a sole proprietor or partnership and have no employees working for me in any capacity. [No workers' comp. insurance required]
3. ☐ We are a corporation and its officers have exercised their right of exemption per c. 152, §1(4), and we have no employees. [No workers' comp. insurance required]**
4. ☐ We are a non-profit organization, staffed by volunteers, with no employees. [No workers' comp. insurance req.]

Business Type (required):

5. ☐ Retail
6. ☐ Restaurant/Bar/Eating Establishment
7. ☐ Office and/or Sales (incl. real estate, auto, etc.)
8. ☐ Non-profit
9. ☐ Entertainment
10. ☐ Manufacturing
11. ☐ Health Care
12. ☑ Other Telcom

*Any applicant that checks box #1 must also fill out the section below showing their workers' compensation policy information.
**If the corporate officers have exempted themselves, but the corporation has other employees, a workers' compensation policy is required and such an organization should check box #1.

I am an employer that is providing workers' compensation insurance for my employees. Below is the policy information.

Insurance Company Name: Willis of Pennsylvania Inc

Insurer's Address: C/O 26 Century BLVd

City/State/Zip: Nashville, TN 37230-5191

Policy # or Self-ins. Lic. #: TRKUB-474M970-1-18 Expiration Date: 4/1/2019

Attach a copy of the workers' compensation policy declaration page (showing the policy number and expiration date).

Failure to secure coverage as required under Section 25A of MGL c. 152 can lead to the imposition of criminal penalties of a fine up to $1,500.00 and/or one-year imprisonment, as well as civil penalties in the form of a STOP WORK ORDER and a fine of up to $250.00 a day against the violator. Be advised that a copy of this statement may be forwarded to the Office of Investigations of the DIA for insurance coverage verification.

I do hereby certify, under the pains and penalties of perjury that the information provided above is true and correct.

Signature: Date: 8/13/2018

Phone #: 781-970-0053

Official use only. Do not write in this area, to be completed by city or town official.

City or Town: **Permit/License #**

Issuing Authority (circle one):
1. Board of Health 2. Building Department 3. City/Town Clerk 4. Licensing Board 5. Selectmen's Office 6. Other

Contact Person: **Phone #:**

Commonwealth of Massachusetts
Division of Professional Licensure
Board of Building Regulations and Standards

Construction Supervisor

CS-068811

Expires: 06/30/2019

JEFFREY W BARBADORA
94 POND ST
NATICK MA 01760

Commissioner

Construction Supervisor
Unrestricted - Buildings of any use group which contain less than 35,000 cubic feet (991 cubic meters) of enclosed space.

Failure to possess a current edition of the Massachusetts State Building Code is cause for revocation of this license.
For information about this license
Call (617) 727-3200 or visit www.mass.gov/dpl

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 06/10/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Willis of Pennsylvania, Inc. c/o 26 Century Blvd P.O. Box 305191 Nashville, TN 372305191 USA	CONTACT NAME: PHONE (A/C, No, Ext): 1-877-945-7378 FAX (A/C, No): 1-888-467-2378 E-MAIL ADDRESS: certificates@willis.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A: Federal Insurance Company	20281
INSURER B: National Union Fire Insurance Company of P	19445
INSURER C: Berkshire Hathaway Specialty Insurance Com	22276
INSURER D: New Hampshire Insurance Company	23841
INSURER E:	
INSURER F:	

INSURED
Crown Castle International
See Attached Named Insured List
1220 Augusta Dr. Suite 600
Houston, TX 77057

COVERAGES **CERTIFICATE NUMBER: W11585822** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY PRO-JECT LOC OTHER:	Y	Y	3605-3335	04/01/2019	04/01/2020	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 1,000,000 $ 10,000 $ 1,000,000 $ 2,000,000 $ 2,000,000
B	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY SCHEDULED AUTOS NON-OWNED AUTOS ONLY			CA 4993141	04/01/2019	04/01/2020	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
C	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED X RETENTION $ 25,000			47-UMO-303445-03	04/01/2019	04/01/2020	EACH OCCURRENCE AGGREGATE	$ 5,000,000 $ 5,000,000
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N No If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		WC 012717225	04/01/2019	04/01/2020	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

BU #841273 - 344 Route 6, North TRURO, MA 02666

The Certificate Holder is included as an Additional Insured under General Liability policy as their interest may appear and as required by written agreement and only with respect to the liability arising out of the operations performed by or on behalf of the Named Insured.

CERTIFICATE HOLDER

Town of Truro
24 Town Hall Road
Truro, MA 02666

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Joseph Spina

SR ID: 18087748 BATCH: 1234393

AGENCY CUSTOMER ID: _____

LOC #: _____

ADDITIONAL REMARKS SCHEDULE

AGENCY	NAMED INSURED
Willis of Pennsylvania, Inc.	Crown Castle International See Attached Named Insured List 1220 Augusta Dr. Suite 600 Houston, TX 77057
POLICY NUMBER See Page 1	
CARRIER: See Page 1 / NAIC CODE: See Page 1	EFFECTIVE DATE: See Page 1

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: 25 FORM TITLE: Certificate of Liability Insurance

The General Liability policy includes a Waiver of Subrogation in favor of the Certificate Holder when agreed in written contract prior to the loss, but always subject to the policy terms, conditions and exclusions as permitted by law.

Crown Castle International Corp. Consolidated Subsidiaries as Named Insureds

Entity Name		5/16/2018 Edition
24/7 Chesapeake Holdings, LLC	Crown Castle International Corp.	Global Signal GP LLC
24/7 Mid-Atlantic Network of Virginia, LLC	Crown Castle International Corp. de Puerto Rico	Global Signal Holdings III LLC
24/7 Mid-Atlantic Network, LLC	Crown Castle International LLC	Global Signal Holdings IV LLC
Access Fiber Group Holdings LLC	Crown Castle Investment Corp.	Global Signal Operating Partnership, L.P.
Access Fiber Group, Inc.	Crown Castle Investment II Corp.	Global Signal Services LLC
AirComm of Avon, L.L.C.	Crown Castle MM Holding Corp.	GoldenState Towers, LLC
Atlantic Coast Communications LLC	Crown Castle MM Holding LLC	GS Savings Inc.
CA - CLEC LLC	Crown Castle MU LLC	GSPN Intangibles LLC
CC Castle International LLC	Crown Castle MUPA LLC	High Point Management Co. LLC
CC Edge LLC	Crown Castle NG Atlantic LLC	ICB Towers, LLC
CC Edge Solutions LLC	Crown Castle NG Central LLC	InfraSource FI, LLC
CC Finance LLC	Crown Castle NG East LLC	InSITE Fiber of Virginia LLC
CC FN Holdings LLC	Crown Castle NG Networks LLC	InSITE Solutions LLC
CC Holdings GS V LLC	Crown Castle NG West LLC	Interstate Tower Communications LLC
CC Site Acquisitions II LLC	Crown Castle Operating Company	Intracoastal City Towers LLC
CC Sunesys Fiber Networks LLC	Crown Castle Operating LLC	IX2 Center, LLC
CC TM PA LLC	Crown Castle Orlando Corp.	IX2 Wilshire, LLC
CC Towers Guarantor LLC	Crown Castle PR LLC	JBCM Towers LLC
CC Towers Holding LLC	Crown Castle PR Solutions LLC	Light Tower Clearinghouse LLC
CC TS LLC	Crown Castle PT Inc.	Light Tower Fiber New York, Inc. (NY)
CCATT Holdings LLC	Crown Castle Puerto Rico Corp.	Light Tower Holdings LLC
CCATT LCC	Crown Castle Services LLC	Light Tower Management, Inc.
CCATT PR LLC	Crown Castle Solutions LLC	Light Tower Metro Fiber LLC
CCGS Holdings Corp.	Crown Castle South LLC	Lightower Fiber Infrastructure Corp.
CCPE Acquisitions LLC	Crown Castle TDC LLC	Lightower Fiber Networks I, LLC
CCPR VI Tower Newco LLC	Crown Castle TLA LLC	Lightower Fiber Networks II, LLC n/k/a Crown Castle Fiber LLC
CCS & E LLC	Crown Castle Towers 05 LLC	LTS Buyer LLC
CCT2 Holdings LLC	Crown Castle Towers 06-2 LLC	LTS Group Holdings LLC
CCTM Holdings LLC	Crown Castle Towers 09 LLC	LTS Intermediate Holdings A LLC
CCTM1 LLC	Crown Castle Towers LLC	LTS Intermediate Holdings B LLC
CCTM2 LLC	Crown Castle USA Inc.	LTS Intermediate Holdings C LLC
CCTMO LLC	Crown Communication LLC	Md7 Capitol One, LLC
Chesapeake Fiber, LLC	Crown Communication New York, Inc.	Mobile Media California LLC
Coastal Antennas LLC	Crown Mobile Systems, Inc.	Mobile Media National LLC
ComSite Venture, Inc.	DAS Development Corporation	Modeo LLC
Coverage Plus Antenna Systems LLC	Fiber Technologies Networks, L.L.C.	MW Cell REIT 1 LLC
Cross Connect Solutions, Inc. (PA)	Fibernet Direct Florida LLC	MW Cell TRS 1 LLC
Crown Atlantic Company LLC	Fibernet Direct Holdings LLC	NEON Transcom, Inc.
Crown Castle AS LLC	Fibernet Direct TEL LLC	NewPath Networks Holding LLC
Crown Castle Atlantic LLC	Fibernet Direct Texas LLC	NewPath Networks LLC
Crown Castle Augusta LLC	Fibertech Facilities Corp. (NY)	NY - CLEC LLC
Crown Castle BP ATT LLC	Fibertech Holdings Corp.	OP 2 LLC
Crown Castle CA Corp.	Fibertech Networks, LLC	OP LLC
Crown Castle Fiber LLC f/k/a Lightower Fiber Networks II, LLC	Freedom Telecommunications, LLC	P3 CHB-1, LLC
Crown Castle GS III Corp.	Global Signal Acquisitions II LLC	P3 Holdings 2014 LLC
Crown Castle GT Company LLC	Global Signal Acquisitions III LLC	P3 OASA-1, LLC
Crown Castle GT Corp.	Global Signal Acquisitions IV LLC	P3 PBA-1, LLC
Crown Castle GT Holding Sub LLC	Global Signal Acquisitions LLC	PA - CLEC LLC

Crown Castle International Corp. Consolidated Subsidiaries as Named Insureds

Entity Name 5/16/2018 Edition

Pinnacle San Antonio L.L.C.
Pinnacle St. Louis LLC
Pinnacle Towers Acquisition Holdings LLC
Pinnacle Towers Acquisition LLC
Pinnacle Towers Asset Holding LLC
Pinnacle Towers Canada, Inc.
Pinnacle Towers III LLC
Pinnacle Towers Limited
Pinnacle Towers LLC
Pinnacle Towers V Inc.
PR Site Development Corporation
PR TDC Corporation
Princeton Ancillary Services II LLC
Princeton Ancillary Services III LLC
Radio Station WGLD LLC
RGP Tower Group, LLC
Shaffer & Associates, Inc.
Sidera Networks UK Limited (UK)
Sidera Networks, Inc.
Sierra Towers, Inc.
Sunesys Enterprise LLC
Sunesys of Massachusetts, LLC
Sunesys of Virginia, Inc.
Sunesys, LLC
Thunder Towers LLC
Tower Development Corporation
Tower Systems LLC
Tower Technology Company of Jacksonville LLC
Tower Ventures III, LLC
TowerOne 2012, LLC
TowerOne Allentown 001, LLC
TowerOne Bethlehem 001, LLC
TowerOne Doylestown, LLC
TowerOne East Rockhill 001, LLC
TowerOne Marple, LLC
TowerOne Middletown 001, LLC
TowerOne Middletown 002, LLC
TowerOne Middletown 003, LLC
TowerOne North Coventry, LLC
TowerOne Partners, LLC
TowerOne Richland, LLC
TowerOne Upper Pottsgrove 002, LLC
TowerOne Upper Pottsgrove, LLC
TowerOne Warminster 001, LLC
TowerOne Warrington 002, LLC
Towers Finco II LLC
Towers Finco III LLC
Towers Finco LLC
TriStar Investors LLC
TVHT, LLC
WA - CLEC LLC
WCP Wireless Lease Subsidiary, LLC
WCP Wireless Site Funding LLC
WCP Wireless Site Holdco LLC
WCP Wireless Site Non-RE Funding LLC
WCP Wireless Site Non-RE Holdco LLC
WCP Wireless Site RE Funding LLC
WCP Wireless Site RE Holdco LLC
Wilcon Holdings LLC
Wilcon Operations LLC
Wilshire Connection, LLC
Wilshire Services, LLC
Wireless Funding, LLC
Wireless Realty Holdings II, LLC
Wireless Revenue Properties, LLC
Yankee Metro Parent, Inc.

Initial Construction Control Document

To be submitted with the building permit application by a
Registered Design Professional
for work per the ninth edition of the
Massachusetts State Building Code, 780 CMR, Section 107

Project Title: Truro **Date:** 06/13/19

Property Address: 344 Route 6, North Truro, MA 02652

Project: Check (x) one or both as applicable: **New construction** **Existing Construction** X

Project description:

I John Kelly MA Registration Number: 47005 Expiration date: 06/30/2020 , am a *registered design professional,* and I have prepared or directly supervised the preparation of all design plans, computations and specifications concerning[1]:

X	**Architectural**	**Structural**	**Mechanical**
	Fire Protection	**Electrical**	**Other:**

for the above named project and that to the best of my knowledge, information, and belief such plans, computations and specifications meet the applicable provisions of the Massachusetts State Building Code, (780 CMR), and accepted engineering practices for the proposed project. I understand and agree that I (or my designee) shall perform the necessary professional services and be present on the construction site on a regular and periodic basis to:

1. **Review,** for conformance to this code and the design concept, shop drawings, samples and other submittals by the contractor in accordance with the requirements of the construction documents.
2. **Perform** the duties for registered design professionals in 780 CMR Chapter 17, as applicable.
3. **Be present** at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the work and to determine if the work is being performed in a manner consistent with the approved construction documents and this code.

Nothing in this document relieves the contractor of its responsibility regarding the provisions of 780 CMR 107.

When required by the building official, I shall submit field/progress reports (see item 3.) together with pertinent comments, in a form acceptable to the building official.

Upon completion of the work, I shall submit to the building official a **'Final Construction Control Document'**.

Enter in the space to the right a "wet" or electronic signature and seal:

6/13/19

COMMONWEALTH OF MASSACHUSETTS
JOHN W. KELLY III
STRUCTURAL
No. 47005
REGISTERED PROFESSIONAL ENGINEER

Phone number: 918 -587-4630 **Email:** jkelly@btgrp.com

Building Official Use Only

Building Official Name: **Permit No.:** **Date:**

Note 1. Indicate with an 'x' project design plans, computations and specifications that you prepared or directly supervised. If 'other' is chosen, provide a description.

Version 01_01_2018

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: T-MOBILE LICENSE LLC

ATTN: FCC REGULATORY COMPLIANCE
T-MOBILE LICENSE LLC
12920 S.E. 38TH STREET
BELLEVUE, WA 98006

Call Sign	File Number
KNLH311	0007725350
Radio Service CW - PCS Broadband	

FCC Registration Number (FRN): 0001565449

Grant Date	Effective Date	Expiration Date	Print Date
06-08-2017	06-08-2017	06-27-2027	06-09-2017

Market Number	Channel Block	Sub-Market Designator
BTA201	D	0

Market Name
Hyannis, MA

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
06-27-2002			

Waivers/Conditions:

This authorization is subject to the condition that, in the event that systems using the same frequencies as granted herein are authorized in an adjacent foreign territory (Canada/United States), future coordination of any base station transmitters within 72 km (45 miles) of the United States/Canada border shall be required to eliminate any harmful interference to operations in the adjacent foreign territory and to ensure continuance of equal access to the frequencies by both countries.

License renewal granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

Licensee Name: T-MOBILE LICENSE LLC

Call Sign: KNLH311 **File Number:** 0007725350 **Print Date:** 06-09-2017

This authorization is subject to the condition that the remaining balance of the winning bid amount will be paid in accordance with Part 1 of the Commission's rules, 47 C.F.R. Part 1.

Licensee Name: T-MOBILE LICENSE LLC

Call Sign: KNLH311 **File Number:** 0007725350 **Print Date:** 06-09-2017

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: T-MOBILE LICENSE LLC

ATTN: DAN MENSER
T-MOBILE LICENSE LLC
12920 SE 38TH ST.
BELLEVUE, WA 98006

Call Sign	File Number
WQGB373	
Radio Service AW - AWS (1710-1755 MHz and 2110-2155 MHz)	

FCC Registration Number (FRN): 0001565449

Grant Date	Effective Date	Expiration Date	Print Date
11-29-2006	11-30-2017	11-29-2021	

Market Number	Channel Block	Sub-Market Designator
REA001	E	11

Market Name
Northeast

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

This authorization is conditioned upon the licensee, prior to initiating operations from any base or fixed station, making reasonable efforts to coordinate frequency usage with known co-channel and adjacent channel incumbent federal users operating in the 1710-1755 MHz band whose facilities could be affected by the proposed operations. See, e.g., FCC and NTIA Coordination Procedures in the 1710-1755 MHz Band, Public Notice, FCC 06-50, WTB Docket No. 02-353, rel. April 20, 2006.

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

Licensee Name: T-MOBILE LICENSE LLC

Call Sign: WQGB373 **File Number:** **Print Date:**

The license is subject to compliance with the provisions of the January 12, 2001 Agreement between Deutsche Telekom AG, VoiceStream Wireless Corporation, VoiceStream Wireless Holding Corporation and the Department of Justice (DOJ) and the Federal Bureau of Investigation (FBI), which addresses national security, law enforcement, and public safety issues of the FBI and the DOJ regarding the authority granted by this license. Nothing in the Agreement is intended to limit any obligation imposed by Federal lawor regulation including, but not limited to, 47 U.S.C. Section 222(a) and (c)(1) and the FCC's implementing regulations. The Agreement is published at VoiceStream-DT Order, IB Docket No. 00-187, FCC 01-142, 16 FCC Rcd 9779, 9853 (2001).

AWS operations must not cause harmful interference across the Canadian or Mexican Border. The authority granted herein is subject to future international agreements with Canada or Mexico, as applicable.

Licensee Name: T-MOBILE LICENSE LLC

Call Sign: WQGB373 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: T-MOBILE LICENSE LLC

ATTN: FCC REGULATORY COMPLIANCE
T-MOBILE LICENSE LLC
12920 SE 38TH ST.
BELLEVUE, WA 98006

Call Sign	File Number
WRAM889	0008585885
Radio Service	
CW - PCS Broadband	

FCC Registration Number (FRN): 0001565449

Grant Date	Effective Date	Expiration Date	Print Date
05-30-2019	05-30-2019	06-30-2029	05-31-2019

Market Number	Channel Block	Sub-Market Designator
BTA201	C	4

Market Name
Hyannis, MA

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

This authorization is subject to the condition that, in the event that systems using the same frequencies as granted herein are authorized in an adjacent foreign territory (Canada/United States), future coordination of any base station transmitters within 72 km (45 miles) of the United States/Canada border shall be required to eliminate any harmful interference to operations in the adjacent foreign territory and to ensure continuance of equal access to the frequencies by both countries.

License renewal granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

Spectrum Lease associated with this license. See Spectrum Leasing Arrangement Letter dated 07/27/2004 and File No. 0001765259.

Licensee Name: T-MOBILE LICENSE LLC

Call Sign: WRAM889 **File Number:** 0008585885 **Print Date:** 05-31-2019

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: T-MOBILE LICENSE LLC

ATTN: FCC REGULATORY COMPLIANCE
T-MOBILE LICENSE LLC
12920 SE 38TH ST.
BELLEVUE, WA 98006

Call Sign	File Number
WPOJ753	0008585870
Radio Service	
CW - PCS Broadband	

FCC Registration Number (FRN): 0001565449

Grant Date	Effective Date	Expiration Date	Print Date
05-30-2019	05-30-2019	06-30-2029	05-31-2019

Market Number	Channel Block	Sub-Market Designator
BTA229	C	3

Market Name
Kingsport-Johnston City, TN-Br

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
06-30-2004			

Waivers/Conditions:

This authorization is subject to the condition that, in the event that systems using the same frequencies as granted herein are authorized in an adjacent foreign territory (Canada/United States), future coordination of any base station transmitters within 72 km (45 miles) of the United States/Canada border shall be required to eliminate any harmful interference to operations in the adjacent foreign territory and to ensure continuance of equal access to the frequencies by both countries.

License renewal granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

Licensee Name: T-MOBILE LICENSE LLC

Call Sign: WPOJ753 **File Number:** 0008585870 **Print Date:** 05-31-2019

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: T-MOBILE LICENSE LLC

ATTN: KATHLEEN O'BRIEN HAM
T-MOBILE LICENSE LLC
12920 SE 38TH STREET
BELLEVUE, WA 98006

Call Sign	File Number
WQPZ969	
Radio Service AW - AWS (1710-1755 MHz and 2110-2155 MHz)	

FCC Registration Number (FRN): 0001565449

Grant Date	Effective Date	Expiration Date	Print Date
08-23-2012	03-12-2014	11-29-2021	

Market Number	Channel Block	Sub-Market Designator
REA001	F	9

Market Name
Northeast

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

This authorization is conditioned upon the licensee, prior to initiating operations from any base or fixed station, making reasonable efforts to coordinate frequency usage with known co-channel and adjacent channel incumbent federal users operating in the 1710-1755 MHz band whose facilities could be affected by the proposed operations. See, e.g., FCC and NTIA Coordination Procedures in the 1710-1755 MHz Band, Public Notice, FCC 06-50, WTB Docket No. 02-353, rel. April 20, 2006.

AWS operations must not cause harmful interference across the Canadian or Mexican Border. The authority granted herein is subject to future international agreements with Canada or Mexico, as applicable.

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

Licensee Name: T-MOBILE LICENSE LLC

Call Sign: WQPZ969 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: T-MOBILE LICENSE LLC

ATTN: FCC REGULATORY COMPLIANCE
T-MOBILE LICENSE LLC
12920 SE 38TH STREET
BELLEVUE, WA 98006

Call Sign	File Number
WQGA731	
Radio Service AW - AWS (1710-1755 MHz and 2110-2155 MHz)	

FCC Registration Number (FRN): 0001565449

Grant Date	Effective Date	Expiration Date	Print Date
11-29-2006	11-30-2017	11-29-2021	

Market Number	Channel Block	Sub-Market Designator
REA001	D	5

Market Name
Northeast

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

This authorization is conditioned upon the licensee, prior to initiating operations from any base or fixed station, making reasonable efforts to coordinate frequency usage with known co-channel and adjacent channel incumbent federal users operating in the 1710-1755 MHz band whose facilities could be affected by the proposed operations. See, e.g., FCC and NTIA Coordination Procedures in the 1710-1755 MHz Band, Public Notice, FCC 06-50, WTB Docket No. 02-353, rel. April 20, 2006.

AWS operations must not cause harmful interference across the Canadian or Mexican Border. The authority granted herein is subject to future international agreements with Canada or Mexico, as applicable.

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

Licensee Name: T-MOBILE LICENSE LLC

Call Sign: WQGA731 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: T-MOBILE LICENSE LLC

T-MOBILE LICENSE LLC
12920 SE 38TH STREET
BELLEVUE, WA 98006

Call Sign	File Number
WQZL852	
Radio Service	
WT - 600 MHz Band	

FCC Registration Number (FRN): 0001565449

Grant Date	Effective Date	Expiration Date	Print Date
06-14-2017	06-15-2017	06-14-2029	

Market Number	Channel Block	Sub-Market Designator
PEA007	B	0

Market Name
Boston, MA

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
06-14-2023	06-14-2029		

Waivers/Conditions:

NONE

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

Licensee Name: T-MOBILE LICENSE LLC

Call Sign: WQZL852 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: T-MOBILE LICENSE LLC

ATTN: FCC REGULATORY COMPLIANCE
T-MOBILE LICENSE LLC
12920 SE 38TH STREET
BELLEVUE, WA 98006

Call Sign	File Number
WQIZ578	0008577570
Radio Service	
WY - 700 MHz Lower Band (Blocks A, B & E)	

FCC Registration Number (FRN): 0001565449

Grant Date	Effective Date	Expiration Date	Print Date
05-30-2019	05-30-2019	06-13-2029	05-31-2019

Market Number	Channel Block	Sub-Market Designator
BEA003	A	0

Market Name
Boston-Worcester-Lawrence-Lowe

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
	06-13-2019		

Waivers/Conditions:

If the facilities authorized herein are used to provide broadcast operations, whether exclusively or in combination with other services, the licensee must seek renewal of the license either within eight years from the commencement of the broadcast service or within the term of the license had the broadcast service not been provided, whichever period is shorter in length. See 47 CFR §27.13(b).

License renewal granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

Licensee Name: T-MOBILE LICENSE LLC

Call Sign: WQIZ578 **File Number:** 0008577570 **Print Date:** 05-31-2019

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: T-MOBILE LICENSE LLC

T-MOBILE LICENSE LLC
12920 SE 38TH STREET
BELLEVUE, WA 98006

Call Sign	File Number
WQZL853	
Radio Service	
WT - 600 MHz Band	

FCC Registration Number (FRN): 0001565449

Grant Date	Effective Date	Expiration Date	Print Date
06-14-2017	06-15-2017	06-14-2029	

Market Number	Channel Block	Sub-Market Designator
PEA007	C	0

Market Name
Boston, MA

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date
06-14-2023	06-14-2029		

Waivers/Conditions:

NONE

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

Licensee Name: T-MOBILE LICENSE LLC

Call Sign: WQZL853 **File Number:** **Print Date:**

700 MHz Relicensed Area Information:

Market	Market Name	Buildout Deadline	Buildout Notification	Status

CROWN CASTLE

3530 Toringdon Way Suite 300
Charlotte, NC 28277

Phone: (980) 430-6574
Fax: (724) 416-4476
www.crowncastle.com

March 14, 2019

VIA email: nscoullar@truro-ma.gov

TOWN OF TRURO
PO BOX 2012
COLLECTOR OF TAXES
TRURO, MA 02666

Re: BU 841273 / TRURO / 344 ROUTE 6 NORTH TRURO, MA 02652 ("Site")
Wireless Communications Facilities Lease Agreement, dated, as amended ("Lease")
Consent for Modifications – T-Mobile

Dear Landlord,

Pursuant to an agreement between NCWPCS MPL 24 - Year Sites Tower Holdings LLC ("AT&T") and CCATT LLC ("CCATT"), CCATT manages and operates the tower site that is subject to the Lease on behalf of AT&T. CCATT is a Crown Castle company. CCATT and its affiliates and subsidiaries own, manage and operate shared wireless communication facilities.

In order to better serve the public and minimize the amount of towers in an area where the Site is located, T-Mobile plans to modify its equipment at the wireless communication facility by replacing three (3) antennas and (3) RRUs, removing six (6) TMAs and adding (3) new TMAs.

Pursuant to Paragraph 1 of the Lease, AT&T is required to obtain your consent. Under the Lease, consent cannot be unreasonably withheld, conditioned or delayed. Signing this consent letter does not eliminate the need for the customer to go through any jurisdictional and/or zoning/permitting procedures that may be required. In addition, this letter authorizes T-Mobile, their agents, servants, assigns, and/or employees, to apply for and obtain, any and all zoning and/or permits required for this specific install.

Please indicate your consent by executing this letter where indicated below. Thank you for your continued cooperation with AT&T and CCATT. If you have any questions concerning this request, please contact Zachary Plummer at (704) 405-6552 or Zachary.Plummer@Crowncastle.com.

Sincerely,

Zachary Plummer

Zachary Plummer
Real Estate Specialist

Agreed and accepted on 4-9-19
(Date)

(Lessor's signature)

ROBERT WEINSTEIN
(Print name)

T-MOBILE SITE NAME:

HY568/CINGULAR TRURO

T-MOBILE SITE NUMBER:

4HY0568A

CROWN BU: 841273 / APP#: 479923

67D01D CONFIGURATION

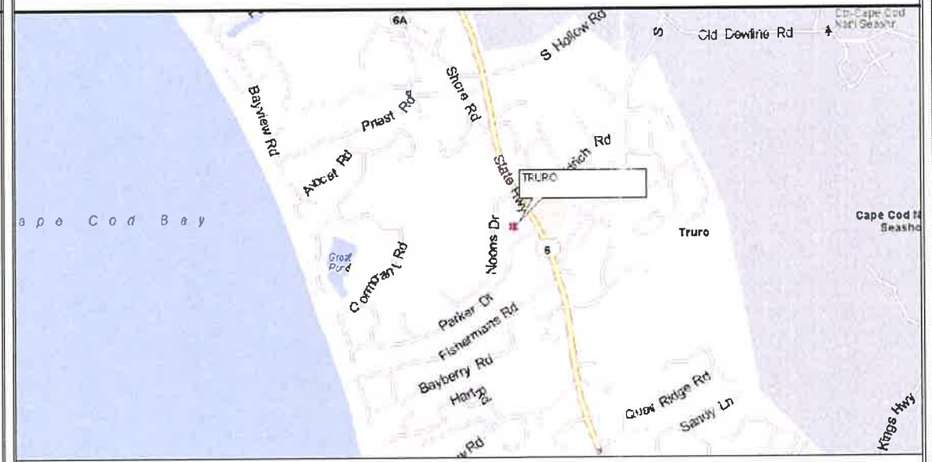
344 ROUTE 6
TRURO, MA 02652

EXISTING 170'-0" SELF-SUPPORT TOWER

PROJECT SUMMARY

SITE TYPE:	EXISTING EQUIPMENT UPGRADE
SITE ADDRESS:	344 ROUTE 6 TRURO, MA 02652
JURISDICTION:	TOWN OF TRURO
NAD83	
LATITUDE:	42.02260° N
LONGITUDE:	70.07529° W
TOWER OWNER:	CROWN CASTLE 12 GILL STREET, SUITE 5800 WOBURN, MA 01801
CUSTOMER/APPLICANT:	T-MOBILE 15 COMMERCE WAY SUITE B NORTON, MA 02766 (508) 286-2700
OCCUPANCY TYPE:	UNMANNED
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION

LOCATION MAP



NO SCALE

DRAWING INDEX

SHEET #	SHEET DESCRIPTION	REV. #
T-1	TITLE SHEET	1
A-1	OVERALL SITE PLAN	1
A-2	ENLARGED SITE PLAN	1
A-3	TOWER ELEVATION AND ANTENNA ORIENTATION	1
A-4	ANTENNA, RRH AND TMA SCHEDULE	1
E-1	FINAL T-MOBILE PANEL SCHEDULE	1

CONTACT INFORMATION

A&E FIRM:	B+T GROUP 1717 S. BOULDER, STE. 300 TULSA, OK 74119	ELECTRIC PROVIDER:	N/A
CONTACT:	MIKE OAKES	TELCO PROVIDER:	N/A
PHONE:	(918) 587-4630		

DRIVING DIRECTIONS

DEPART LOGAN INTERNATIONAL AIRPORT ON SERVICE RD. ROAD NAME CHANGES TO FRANKFORT ST. TURN LEFT ONTO NEPTUNE RD. ROAD NAME CHANGES TO RT-145 [NEPTUNE RD]. TAKE RAMP (LEFT) ONTO RT-1A [WILLIAM F MCCLELLAN HWY]. KEEP STRAIGHT ONTO I-90 [MASS PIKE]. *TOLL ROAD* STAY ON I-90 [MASS PIKE]. AT EXIT 20, TURN RIGHT ONTO RAMP. AT EXIT 20, KEEP LEFT ONTO LOCAL ROAD(S). TAKE RAMP (LEFT) ONTO I-90 [MASS PIKE]. AT EXIT 24A-B-C, TURN LEFT ONTO RAMP. KEEP LEFT TO STAY ON RAMP. KEEP LEFT TO STAY ON RAMP. STAY ON RAMP. MERGE ONTO I-93 [US-1]. KEEP LEFT ONTO RT-3 [PILGRIMS HWY]. ROAD NAME CHANGES TO US-44 [RT-3]. AT EXIT 6A, ROAD NAME CHANGES TO RT-3. AT EXIT 1A, ROAD NAME CHANGES TO US-6. AT ROUNDABOUT, TAKE THE SECOND EXIT ONTO US-6 [STATE HWY]. TURN LEFT ONTO PARKER DR. TURN RIGHT ONTO LOCAL ROAD(S) AND ARRIVE AT TRURO.

A/E DOCUMENT REVIEW STATUS

TITLE	SIGNATURE	DATE
T-MOBILE PROP:		
T-MOBILE R.F. MGR.:		
T-MOBILE NetOps:		
T-MOBILE CONST. MGR.:		
INTERCONNECT:		
T-MOBILE SITE DEV. MGR.:		
PROPERTY OWNER:		
PLANNING:		

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR MODIFICATIONS.

CODE COMPLIANCE

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/DWELLING	MA NINTH EDITION
STRUCTURAL	MA NINTH EDITION
MECHANICAL	MA NINTH EDITION
ELECTRICAL	NEC 2017

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES:

- REMOVE (3) EXISTING ANTENNAS AT 97'-0".
- REMOVE (3) EXISTING RRUS AT 97'-0".
- REMOVE (6) EXISTING TMAS AT 97'-0".
- REMOVE (1) DUS41 & (1) XMU.
- INSTALL (3) NEW ANTENNAS AT 97'-0".
- INSTALL (3) NEW RRUS AT 97'-0".
- INSTALL (3) NEW TMAS AT 97'-0".
- INSTALL (2) BB6630.

DO NOT SCALE DRAWINGS

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.

SEE SHEET SP-1 & SP-2 FOR ADDITIONAL CONSTRUCTION NOTES

CALL MASSACHUSETTS ONE CALL
(888) 344-7233
CALL 3 WORKING DAYS
BEFORE YOU DIG!

B+T GRP

CROWN CASTLE

T-Mobile

4HY0568A
BU #: 841273

HY568/CINGULAR TRURO

344 ROUTE 6
TRURO, MA 02652

EXISTING 170'-0" SELF-SUPPORT TOWER

PROJECT NO:	100736.004.01
CHECKED BY:	RPS

ISSUED FOR:

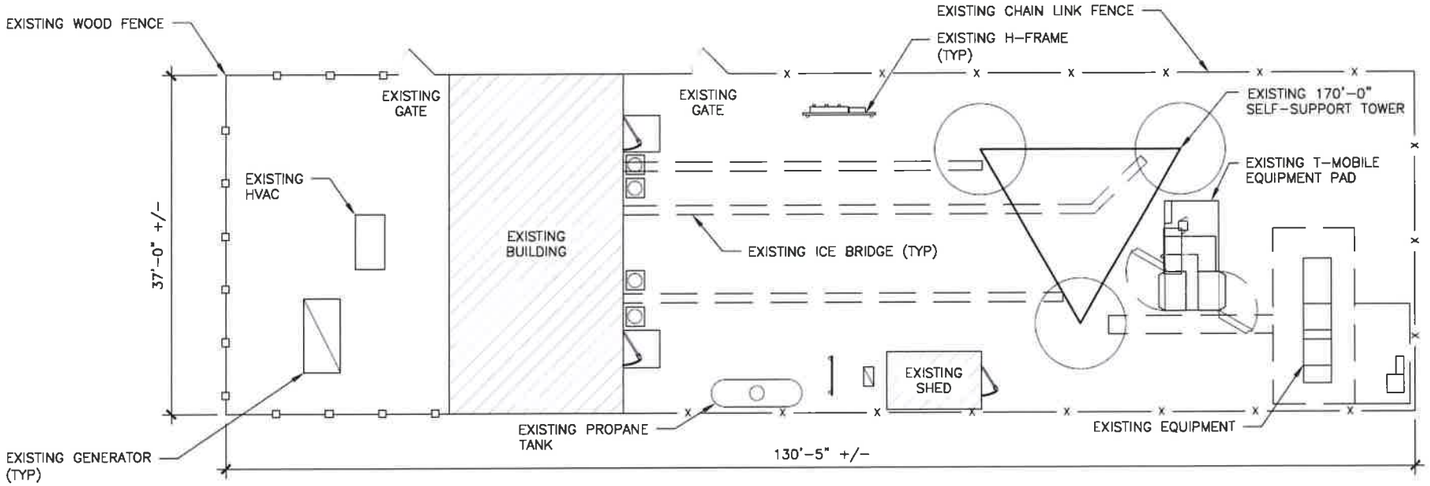
REV	DATE	DRWN	DESCRIPTION
A	3/29/19	FWP	PRELIMINARY REVIEW
0	4/1/19	GEH	CONSTRUCTION
1	5/23/19	JJD	CONSTRUCTION

B&T ENGINEERING, INC.

COMMONWEALTH OF MASSACHUSETTS
JOHN W. KELLY III
STRUCTURAL
NO. 47005
REGISTERED PROFESSIONAL ENGINEER
5/23/19

SHEET NUMBER: T-1

REVISION: 1



1 OVERALL SITE PLAN

SCALE: 0' 8' 16' 32' 48'

N

GENERAL NOTES:

1. SUBJECT PROPERTY IS KNOWN AS BLOCK TBD LOT TBD AS SHOWN ON THE TRURO TOWNSHIP TAX MAP AND IS SITUATED AT 344 ROUTE 6, TRURO, MA 02652.

2. APPLICANT: T-MOBILE
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
OFFICE: (508) 286-2700

TOWER OWNER: CROWN CASTLE INTERNATIONAL

- THE APLICANT IS TO UPDATED THEIR NETWORK BY INSTALLING SIX (6) NEW PANEL ANTENNAS, THREE (3) TMAS, THREE (3) RRUS, AND EIGHT (8) ADDITIONAL CABLES MOUNTED ON AN EXISTING SELF-SUPPORT TOWER.

3. THIS FACILITY SHALL BE VISITED ON THE AVERAGE OF ONCE A MONTH FOR MAINTENANCE AND SHALL BE MONITORED FROM A REMOTE FACILITY.

4. THE EXISTING SITE IS LOCATED AT LATITUDE OF 42.02260° N± AND LONGITUDE OF 70.07529° W±. THE HORIZONTAL DATUM ARE IN TERMS OF NORTH AMERICAN DATUM OF 1983 (NAD 83).

5. THIS SET OF PLANS HAS BEEN PREPARED FOR THE PURPOSES OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED AND EACH OF THE DRAWINGS HAVE BEEN REVISED TO INDICATED "ISSUED FOR CONSTRUCTION"

6. ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION FOR THE SITE IMPROVEMENTS SHOWN HEREON SHALL BE IN ACCORDANCE WITH:

   6.A. CURRENT PREVAILING MUNICIPAL AND/OR COUNTY SPECIFICATIONS, STANDARDS, AND REQUIREMENTS.
   6.B. CURRENT PREVAILING UTILITY COMPANY AUTHORITY SPECIFICATIONS, STANDARDS AND REQUIREMENTS.

7. THE CONTRACTOR SHALL NOTIFY B+T GROUP, P.A. IMMEDIATELY IF ANY FIELD-CONDITIONS ENCOUNTERED DIFFER FROM THOSE REPRESENTED HEREON, AND/OR IF SUCH CONDITIONS WOULD OR COULD RENDER THE DESIGNS SHOWN HEREON INAPPROPRIATE AND/OR INEFFECTIVE.

8. THE CONTRACTOR IS RESPONSIBLE TO PROTECT, REPAIR AND/OR REPLACE ANY DAMAGED STRUCTURES, UTILITIES OR LANDSCAPED AREA WHICH MAY BE DISTURBED DURING THE CONSTRUCTION OF THIS FACILITY.

9. THE CONSTRUCTION CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ALL CONSTRUCTION MEANS AND METHODS. THE CONSTRUCTION CONTRACTOR IS ALSO RESPONSIBLE FOR ALL JOB SITE SAFETY.

10. SITE INFORMATION SHOWN TAKEN FROM CROWN CASTLE SITE PLANS AND FROM CROWN CASTLE INSPECTION PHOTOS.

11. NO GUARANTEE IS MADE NOR SHOULD BE ASSUMED AS TO THE COMPLETENESS OR ACCURACY OF THE HORIZONTAL OR VERTICAL LOCATIONS. ALL PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS OF THE INFORMATION SHOWN PRIOR TO CONSTRUCTION ACTIVITIES.

12. ALL IMPROVEMENTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE TOWNSHIP ENGINEER WHO WILL BE GIVEN PROPER NOTIFICATION PRIOR TO THE START OF ANY CONSTRUCTION.

B+T GRP

CROWN CASTLE

T-Mobile

4HY0568A
BU #: 841273

HY568/CINGULAR TRURO

344 ROUTE 6
TRURO, MA 02652

EXISTING 170'-0" SELF-SUPPORT TOWER

PROJECT NO:	100736.004.01
CHECKED BY:	RPS

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
A	3/29/19	FWP	PRELIMINARY REVIEW
0	4/1/19	GEH	CONSTRUCTION
1	5/23/19	JJD	CONSTRUCTION

B&T ENGINEERING, INC.

COMMONWEALTH OF MASSACHUSETTS
JOHN W. KELLY II
STRUCTURAL
NO. 47005
REGISTERED PROFESSIONAL ENGINEER
5/23/19

SHEET NUMBER: A-1

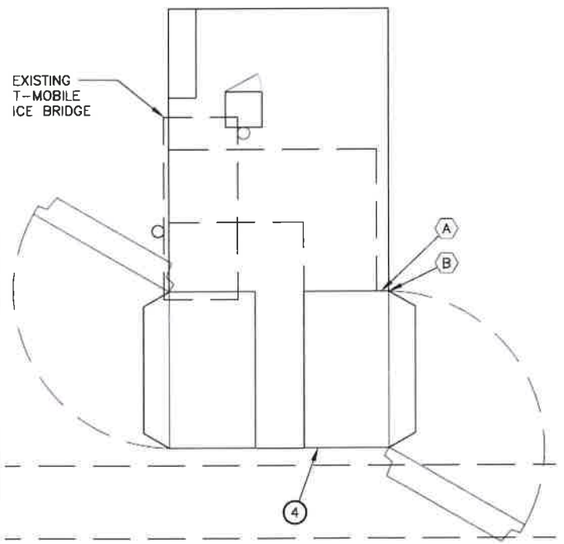
REVISION: 1

LEGEND

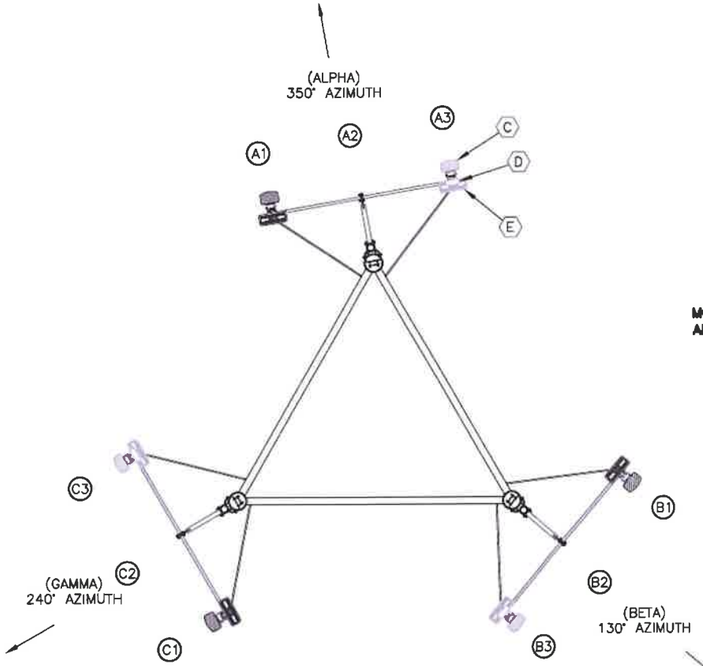
EXISTING/DEMOLITION NOTES		INSTALLATION NOTES	
A	EXISTING DUS41 TO BE REMOVED (TOTAL OF 1)	1	INSTALL RPS APXVAARR24_43-U-NA20 (8 FT) ANTENNAS ON EXISTING MOUNT. PROVIDE NEW 2 7/8" OD SCH.40 PIPE MAST (LENGTH TO BE V.I.F) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
B	EXISTING XMU TO BE REMOVED (TOTAL OF 1)	2	INSTALL NEW ATM1900D-1A20 TMA BEHIND ANTENNA (TYP. OF 1 PER SECTOR, TOTAL OF 3)
C	EXISTING COMMSCOPE SBNH-1D65C ANTENNA TO BE REMOVED (TOTAL OF 3)	3	INSTALL RADIO 4478 B12/B71 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
D	EXISTING KRY 112 144/1 TMA TO BE REMOVED (TYP OF 2 PER SECTOR, TOTAL OF 6)	4	INSTALL (2) NEW BB6630
E	EXISTING RRU 11 B12 TO BE REMOVED (TYP OF 1 PER SECTOR, TOTAL OF 3)		

ANTENNA AND CABLE SCHEDULE

SECTOR	POSITION	ANTENNAS	PROPOSED ANTENNA CONFIGURATION		E-TILT	M-TILT	ANTENNA CENTERLINE	TMA/RRH	CABLES	JUMPER TYPE	CABLE LENGTH
350° – ALPHA	A1	ERICSSON AIR 21 B4A B2P	LTE/UMTS	B2	4°/4°	0°	97'-0"	0/1	3x6 HCS	DC/FIBER & 1/2" COAX	147'-0"
	A2	–	–	–	–	–		–	–	–	–
	A3	**RPS APXVAARR24_43-U-NA20**	**LTE/GSM**	**B12/71**	**4°/4°**	**0°**		**1/1**	(2) 7/8" COAX	**DC/FIBER & 1/2" COAX**	**110'-0"**
130° – BETA	B1	ERICSSON AIR 21 B4A B2P	LTE/UMTS	B2	4°/4°	0°	97'-0"	0/1	3x6 HCS	DC/FIBER & 1/2" COAX	147'-0"
	B2	–	–	–	–	–		–	–	–	–
	B3	**RPS APXVAARR24_43-U-NA20**	**LTE/GSM**	**B12/71**	**4°/4°**	**0°**		**1/1**	(2) 7/8" COAX	**DC/FIBER & 1/2" COAX**	**110'-0"**
240° – GAMMA	G1	ERICSSON AIR 21 B4A B2P	LTE/UMTS	B2	4°/4°	0°	97'-0"	0/1	3x6 HCS	DC/FIBER & 1/2" COAX	147'-0"
	G2	–	–	–	–	–		–	–	–	–
	G3	**RPS APXVAARR24_43-U-NA20**	**LTE/GSM**	**B12/71**	**4°/4°**	**0°**		**1/1**	(2) 7/8" COAX	**DC/FIBER & 1/2" COAX**	**110'-0"**

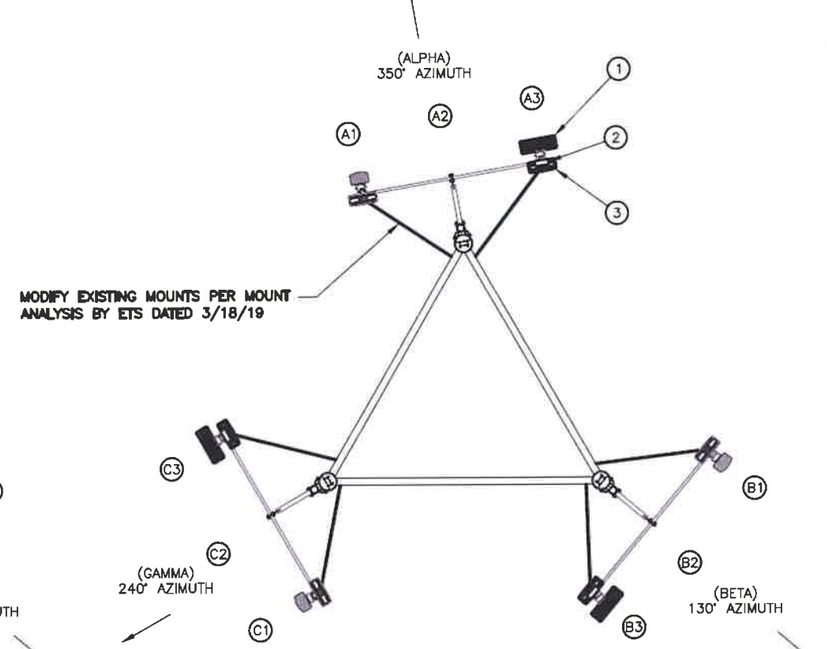


1 ENLARGED AREA PLAN
SCALE: 0' 1' 2' 4' 10'



2 EXISTING ANTENNA ORIENTATION
SCALE: 0' 1' 4' 8' 20'

N



3 PROPOSED ANTENNA ORIENTATION
SCALE: 0' 1' 4' 8' 20'

N

B+T GRP

CROWN CASTLE

T-Mobile

4HY0568A
BU #: 841273
HY568/CINGULAR TRURO
344 ROUTE 6
TRURO, MA 02652
EXISTING 170'-0" SELF-SUPPORT TOWER

PROJECT NO:	100736.004.01
CHECKED BY:	RPS

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
A	3/29/19	FWP	PRELIMINARY REVIEW
0	4/1/19	GEH	CONSTRUCTION
1	5/23/19	JJD	CONSTRUCTION

B&T ENGINEERING, INC.

COMMONWEALTH OF MASSACHUSETTS
JOHN W. KELLY II
STRUCTURAL
No. 47005
REGISTERED
PROFESSIONAL ENGINEER
5/23/19

SHEET NUMBER:	REVISION:
A-2	1

LEGEND

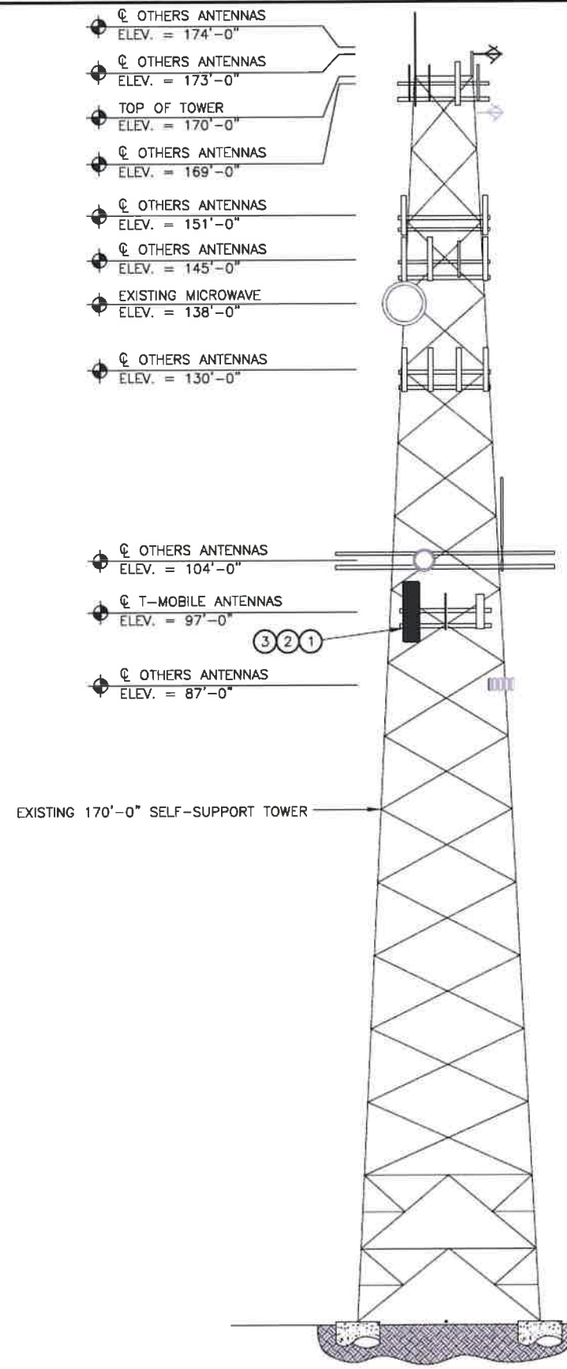
EXISTING/DEMOLITION NOTES		INSTALLATION NOTES	
(A)	EXISTING DUS41 TO BE REMOVED (TOTAL OF 1)	(1)	INSTALL RPS APXVAARR24_43-U-NA20 (8 FT) ANTENNAS ON EXISTING MOUNT. PROVIDE NEW 2 7/8" OD SCH.40 PIPE MAST (LENGTH TO BE V.I.F) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
(B)	EXISTING XMU TO BE REMOVED (TOTAL OF 1)	(2)	INSTALL NEW ATM1900D-1A20 TMA BEHIND ANTENNA (TYP. OF 1 PER SECTOR, TOTAL OF 3)
(C)	EXISTING COMMSCOPE SBNH-1D65C ANTENNA TO BE REMOVED (TOTAL OF 3)	(3)	INSTALL RADIO 4478 B12/B71 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
(D)	EXISTING KRY 112 144/1 TMA TO BE REMOVED (TYP OF 2 PER SECTOR, TOTAL OF 6)	(4)	INSTALL (2) NEW BB6630
(E)	EXISTING RRU 11 B12 TO BE REMOVED (TYP OF 1 PER SECTOR, TOTAL OF 3)		

STRUCTURAL ANALYSIS NOTE:

REFER TO STRUCTURAL ANALYSIS OR STRUCTURAL LETTER FOR APPROVAL OF ADDITIONAL NEW APPURTENANCES.

LEGEND:

- NEW
- EXISTING
- FUTURE



1 TOWER ELEVATION

SCALE: 0' 10' 20' 30' 40' 1"=20'

B+T GRP

CROWN CASTLE

T-Mobile

4HY0568A
BU #: 841273

HY568/CINGULAR TRURO

344 ROUTE 6
TRURO, MA 02652

EXISTING 170'-0" SELF-SUPPORT TOWER

PROJECT NO:	100736.004.01
CHECKED BY:	RPS

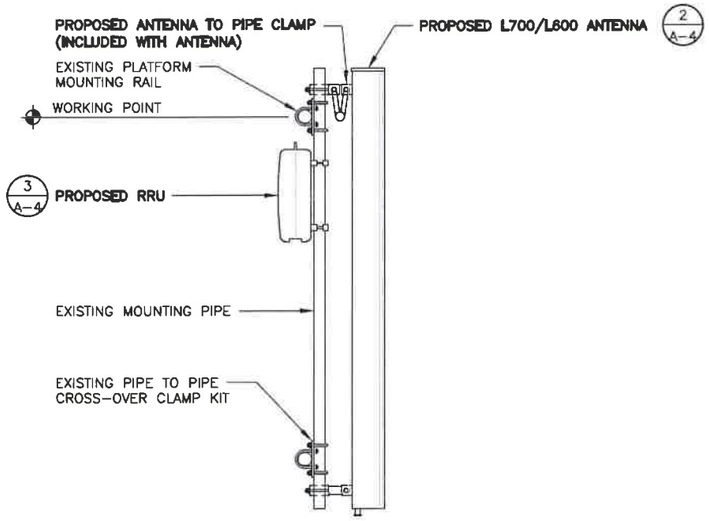
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
A	3/29/19	FWP	PRELIMINARY REVIEW
0	4/1/19	GEH	CONSTRUCTION
1	5/23/19	JJD	CONSTRUCTION

B&T ENGINEERING, INC.

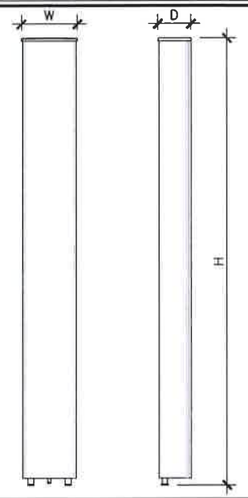
COMMONWEALTH OF MASSACHUSETTS
JOHN W. KELLY II
STRUCTURAL
No. 47005
REGISTERED PROFESSIONAL ENGINEER
5/23/19

SHEET NUMBER:	REVISION:
A-3	1



1 PROPOSED L1900 ANTENNA & RRU MOUNTING DETAIL

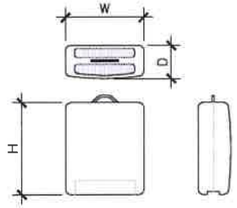
SCALE: N.T.S.



ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APXVAARR24_43-U-NA20
WIDTH	24.0"
DEPTH	8.7"
HEIGHT	95.9"
WEIGHT	128.0 LBS

2 L700/L600 ANTENNA DETAIL

SCALE: N.T.S.

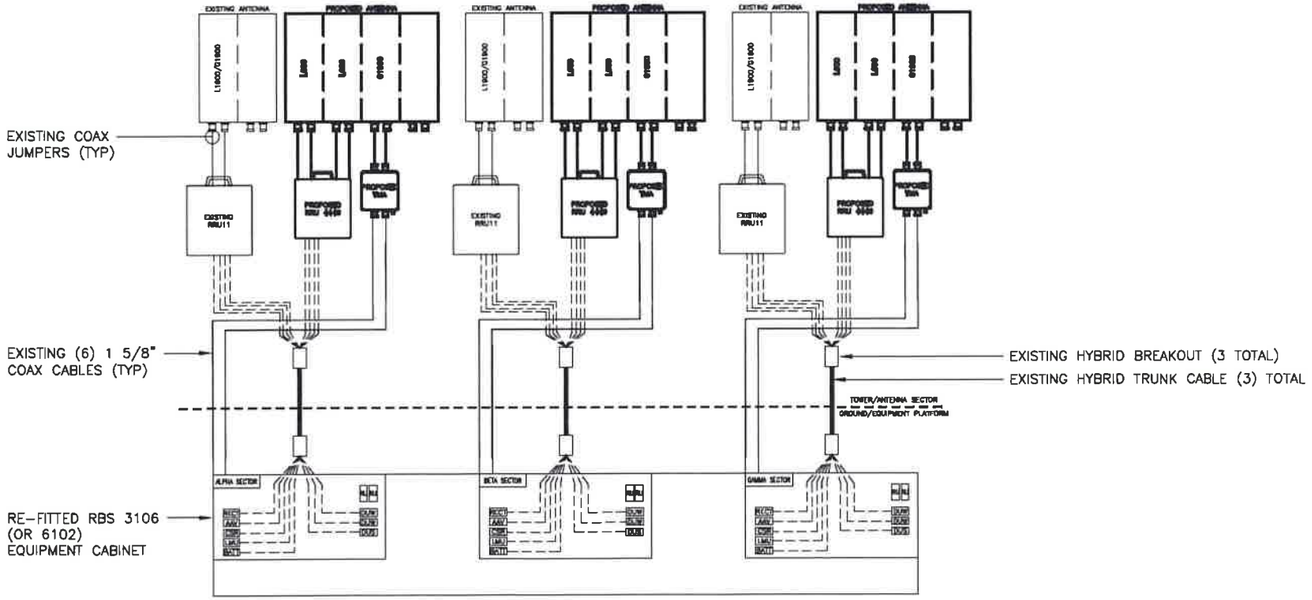


RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	4449
WIDTH	13.2"
DEPTH	10.4"
HEIGHT	14.9"
WEIGHT	74 LBS

3 REMOTE RADIO UNIT (RRU)

SCALE: N.T.S.

NOTES:
1. TAG ALL EXISTING AND PROPOSED CABLES/JUMPERS PER T-MOBILE SPECIFICATIONS.
2. SEE RF SCHEDULE FOR CABLE AND JUMPER LENGTHS.
3. REFER TO ANTENNA ORIENTATION ON SHEET C-3 FOR EXACT ANTENNA POSITIONING.



4 ANTENNA & CABLING SCHEMATIC

SCALE: N.T.S.

B+T GRP

CROWN CASTLE

T-Mobile

4HY0568A
BU #: 841273
HY568/CINGULAR TRURO
344 ROUTE 6
TRURO, MA 02652
EXISTING 170'-0" SELF-SUPPORT TOWER

PROJECT NO:	100736.004.01
CHECKED BY:	RPS

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
A	3/29/19	FWP	PRELIMINARY REVIEW
0	4/1/19	GEH	CONSTRUCTION
1	5/23/19	JJD	CONSTRUCTION

B&T ENGINEERING, INC.

COMMONWEALTH OF MASSACHUSETTS
JOHN W. KELLY III
STRUCTURAL
NO. 47005
REGISTERED PROFESSIONAL ENGINEER
5/23/19

SHEET NUMBER:	REVISION:
A-4	1

FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS L1		BUS L2	AMPS	POLES	LOAD
SURGE ARRESTER	2	60A	1		2	20A	1	GFI
			3		4	10A	2	BOOSTER
BTS-1	2	125A	5		6			
			7		8	–	–	–

RATED VOLTAGE: ■120/240 □_____, 1 PHASE, 4 WIRE	BRANCH POLES: □12 ■24 □30 □42	APPROVED MF'RS
RATED AMPS: □100 ■200 □400 □_____	CABINET: ■SURFACE □FLUSH	NEMA □1 ■3R □4X
□MAIN LUGS ONLY | MAIN 200 AMPS ■BREAKER □FUSED SWITCH	■HINGED DOOR	■KEYED DOOR LATCH
□FUSED ■CIRCUIT BREAKER BRANCH DEVICES	□_____ TO BE GFCI BREAKERS	FULL NEUTRAL BUS | GROUND BAR
ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL		

REPLACE EXISTING BREAKER IN POSITION 5 AND 7 WITH A NEW 2P 125A BREAKER
REPLACE EXISTING WIRES FOR EXISTING 3106 CABINET WITH (3) 1/0 AWG THWN (COPPER) AND (1) #6G AWG. MINIMUM CONDUIT SIZE TO BE 2".
IF 125A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL OR PANEL MAIN CAPACITY IS EXCEEDED, REPLACE (E) PANEL WITH SQUARE D PANEL Q0142MQ225RB (OR APPROVED EQUAL).
FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING DOCUMENTS AND PHOTOS

1 FINAL T-MOBILE PANEL DETAIL

SCALE: N.T.S.

B+T GRP

CROWN CASTLE

T-Mobile

4HY0568A
BU #: 841273

HY568/CINGULAR TRURO

344 ROUTE 6
TRURO, MA 02652

EXISTING 170'-0" SELF-SUPPORT TOWER

PROJECT NO:	100736.004.01
CHECKED BY:	RPS

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
A	3/29/19	FWP	PRELIMINARY REVIEW
0	4/1/19	GEH	CONSTRUCTION
1	5/23/19	JJD	CONSTRUCTION

B&T ENGINEERING, INC.

COMMONWEALTH OF MASSACHUSETTS
JOHN W. KELLY III
STRUCTURAL
No. 47005
REGISTERED PROFESSIONAL ENGINEER
5/23/19

SHEET NUMBER:	REVISION:
E-1	1

Truro Planning Board

Hearing/Meeting Schedule* – 2020

HEARING/MEETING (Wednesday at 5:00 pm) (Wednesday at 6:00 pm)	FILING DEADLINE (MONDAY at Noon unless otherwise noted)
January 8	**December 2**
January 22	**December 16**
February 5	**December 30**
February 19	**January 13**
March 4	**January 27**
March 18	**February 10**
April 1	**February 24**
April 15	**March 9**
May 6	**March 30**
May 20	**April 13**
June 3	**April 27**
June 17	**May 11**
July 8	**June 1**
July 22	**June 15**
August 5	**June 29**
August 19	**July 13**
September 2	**July 27**
September 16	**August 10**
October 7	**August 31**
October 21	**September 14**
November 4	**September 28**
November 18	**October 12**
December 2	**October 26**
December 16	**November 9**

***Applications requiring public hearings are subject to this schedule and include **Site Plans, Special Permits**, and **Definitive Plans**

All other applications (**not** requiring a **public hearing**) are not subject to this filing deadline schedule; **HOWEVER, they must be filed no less than 10-days prior to a scheduled meeting.** Applications will be scheduled accordingly and include **Preliminary Plans** (decision must be rendered within 45 days of filing), **Approval Not Required Plans** (decision rendered within 21 days of filing), and **Waiver from Site Plan Requests**.

All requests must be in writing or on the appropriate application form(s).

MEETING DATES AND TIMES ARE SUBJECT TO CHANGE
Please check the Town Website **www.truro-ma.gov** for any changes in the schedule.