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

June 23, 2020

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

RE: **Notice of Exempt Modification for AT&T - 876321**
150 North Main Street, Branford, CT 06450
Latitude: 41° 17′ 19.00″ / Longitude: -72° 48′ 49.90″

Dear Ms. Bachman:

AT&T currently maintains twelve (12) antennas at the 110-foot mount on the existing 147-foot Monopole Tower, located at 150 North Main Street, Branford, CT. The tower is owned by Crown Castle and the property is owned by Premier Realty Holdings LLC. AT&T now intends to replace six (6) existing antennas with three (3) new 850 MHz antennas and three (3) new 1900 MHz antennas. The new antennas will be installed at the 110-ft level of the tower.

The facility was approved by the Town of Branford Planning and Zoning Commission on September 18, 1997. The approval was given with conditions which this exempt modification complies with.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to James B. Cosgrove, First Selectman, Harry Smith, Town Planner, Crown Castle as the tower owner, and the property owner.

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

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

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

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

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

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

Sincerely,

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

Attachments
cc:

James Cosgrove, First Selectman (*via email only to jcosgrove@branford-ct.gov)*
Branford Town Hall
1019 Main Street
Branford, CT 06405

Harry Smith, Town Planner (*via email only to p-z@branford-ct.gov*)
Branford Town Hall
1019 Main Street
Branford, CT 06405

Premier Realty Holdings, LLC
155 North Main Street (*via email only to nancyanderson3@comcast.net*)
Branford, CT 06405

Crown Castle, Tower Owner

From: Zsamba, Anne Marie
To: nancyanderson3@comcast.net
Subject: Notice of Exempt Modification - 150 North Main Street - 876321 AT&T
Date: Tuesday, June 23, 2020 2:11:00 PM
Attachments: EM-AT&T-876321_150 NORTH MAIN STREET BRANFORD_notice.pdf

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Dear Premier Realty Holdings LLC:

Attached please AT&T's exempt modification application that is being submitted to the Connecticut Siting Council, today June 23, 2020.

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

Best,
Anne Marie Zsamba

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

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

From: Zsamba, Anne Marie
To: p-z@branford-ct.gov
Subject: Notice of Exempt Modification - 150 North Main Street - 876321 AT&T
Date: Tuesday, June 23, 2020 2:12:00 PM
Attachments: EM-AT&T-876321_150 NORTH MAIN STREET BRANFORD_notice.pdf

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Dear Planner Smith:

Attached please AT&T's exempt modification application that is being submitted to the Connecticut Siting Council, today June 23, 2020.

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

Best,
Anne Marie Zsamba

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

CROWN CASTLE
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
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From: Zsamba, Anne Marie
To: jcosgrove@branford-ct.gov
Subject: Notice of Exempt Modification - 150 North Main Street - 876321 AT&T
Date: Tuesday, June 23, 2020 2:12:00 PM
Attachments: EM-AT&T-876321_150 NORTH MAIN STREET BRANFORD_notice.pdf

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Dear First Selectman Cosgrove:

Attached please AT&T's exempt modification application that is being submitted to the Connecticut Siting Council, today June 23, 2020.

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

Best,
Anne Marie Zsamba

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CROWN CASTLE
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Clifton Park, NY 12065
CrownCastle.com

Exhibit A

Original Facility Approval

VOL. 634 PAGE 591

4704

PLANNING AND ZONING COMMISSION
TOWN OF BRANFORD TOWN HALL DRIVE P.O. BOX 150
Branford, Connecticut 06405 488-1255

NOTICE OF DECISION

Recorded 9/29/97

September 22, 1997

Sprint PCS
% Attorney John Knuff
Harris Beach & Wilcox, L.L.P
147 North Broad Street
Milford, Connecticut 06460

SUBJECT: Special Exception

LOCATION: 150 North Main Street

APPLICATION # 97-6.5

OWNER OF RECORD: Irene Maculaitis

Dear Sir:

At a meeting of the Branford Planning & Zoning Commission held on Thursday, September 18, 1997, the Commission voted to:

X Approve your above subject application with the conditions noted below.

Very truly yours,

Shirley Rasmussen

Shirley Rasmussen
Town Planner

NOTE: This Special Exception shall become effective only after it is filed on the Land Records in the office of the Town Clerk.

1. Prior to issuance of a building permit, revise plan to show the following:

   a. Revise width of eastern-most curb cut to 30 feet (Sect. 25.10a) by creating new landscaped island extending 15 feet back from streetline (Sect. 25.8.2) with new sidewalk (Sect. 31.5.3(b)).

   b. Relocate proposed utility pole so that it is not in the access drive.

2. Provide for co-location of communications equipment to be operated by the Town of Branford Sewage Treatment Plant.

3. Change plantings around tower yard to 6' to 7' dark American Arborvitae and rearrange to screen parking area from street.

(OVER)

4. All users of the telecommunications facility must demonstrate compliance with current FCC regulations for electromagnetic frequency emissions and any future changes in these standards.

5. The owner of the telecommunication facility shall provide for and encourage co-location of other antennae on the facility.

NOTE: Special Exception shall become null and void in the event the applicant fails to obtain a building permit within one (1) year of date of approval.
(Per Section 31.7 of the Branford Zoning Regulations)

CC: Scott M. Thomae
Sprint PCS
Irene Maculaitis

RECEIVED FOR RECORD Sept. 25 1997
at 2 h 03 m P M, AND RECORDED BY
GEORGETTE A. LASKE
BRANFORD TOWN CLERK

SITE PLAN AND SPECIAL EXCEPTION

APPLICATION FOR CERTIFICATE OF ZONING COMPLIANCE
TOWN OF BRANFORD

ADDRESS OF SUBJECT PROPERTY 150 N. MAIN Street Branford, CT 06405

ASSESSOR'S MAP D-6 BLOCK 13 LOT 13 ZONE: IG-1

APPLICANT'S NAME Sprint PCS

TELEPHONE (203) 237-1737 ext.17

ADDRESS 300 RESEARCH Parkway 3rd fl. Meriden, CT 06450

Briefly describe the building, structure or use for which Zoning Compliance Application is made:

The erection of a monopole telecommunications facility and placement of the associated equipment cabinets on property located at 150 N. MAIN Street within the IG-1/ Industrial District.

PLEASE SUBMIT THE FOLLOWING WITH YOUR COMPLETED APPLICATION:

1. $125.00 (which includes $100.00 application fee, $15.00 Zoning Compliance fee, and $10.00 State surcharge)

2. Application materials described in Sect. 31.4 of the Branford Zoning Regulations including:
   - (1) Statement of Use
   - (2) Site Plan Map
   - (3) Erosion Control Plan
   - (4) Tabulation of Standards
   - (5) Staging Plan
   - (6) Building Plans
   - (7) Traffic Report
   - (8) Drainage Report
   - (9) Flood Requirements
   - (10) Agency Reports

RECEIVED
JUN 11 1997
BRANFORD PLANNING & ZONING COMMISSION

3. Sufficient information to determine compliance with special standards listed on attached sheet.

4. Copy of any variance or Wetlands Commission approval pertinent to this application.

5. Additional information which may be necessary to determine compliance, as specified by the Branford Planning & Zoning Commission.

The undersigned states that information submitted with this application is correct and acknowledges that any approval based on erroneous or incomplete information shall be null and void.

SIGNATURE OF APPLICANT Scott M. Young DATE 6/10/97

SIGNATURE OF OWNER John Reed as agent DATE 6/11/97

Petition No. 887
Pocket Communications
150 North Main Street, Branford
Staff Report
March 12, 2009

On February 3, 2009, the Connecticut Siting Council received a Petition (Petition) from Youghiogheny Communications-Northeast, LLC (Pocket) for a Declaratory Ruling that no Certificate of Environmental Compatibility and Public Need is Required for the proposed modifications to an existing Town of Branford-approved 147-foot Crown Castle-owned monopole located at 150 North Main Street, Branford. Specifically, Pocket seeks to extend the tower by ten feet from 147 feet to 157 feet and flush-mount three panel antennas at the 157-foot level of the tower. The total height with appurtenances would be approximately 160 feet. Pocket also seeks to install a Nortel CDMA Micro BTS cabinet on an H-frame inside the existing fenced compound.

A Professional Engineer duly licensed in the State of Connecticut has certified that the tower will require reinforcements to support the proposed loading. Given that Pagenet, a paging service, is no longer on the tower, the maximum worst case power density at the base of the tower would be approximately 27.5 percent of the applicable limit.

While AT&T has been decommissioned at the 120-foot level of the tower, this location would not work for Pocket because 157 feet is the minimum height for Pocket's coverage objectives. There is also a 110-foot tower approximately 0.13 miles to the northeast. While the ground elevation is about three feet higher, over 40 feet of extension would be necessary to reach an equivalent height, which is not practical.

The tower is located at an automobile dealership, Premier Subaru. Surrounding land use is commercial to the south, east, and west of the site. To the north of the tower site is a residential trailer park.

By letter dated March 3, 2009, the President and General Manager of the Subaru dealer expressed concerns relative to health effects due to radio frequency emissions, visibility, and addition of more carriers on the tower since its original approval.

The trailer park is approximately 10 feet higher in ground elevation than the tower site. It is also about 145 feet to the northwest of the tower. This results in a maximum worst case power density of about 12.3 percent of the applicable limit at the trailer park. Assuming the trailer park elevation is 10 feet higher than the tower base, the potential maximum worst case power density would be approximately 32.7 percent of the limit at the trailer park. In any case, the power density would be well within applicable standards.

According to the visibility analysis, the tower is currently visible from North Main Street and North Ivy Street and would remain so with the tower extension. There is some limited vegetation between the trailer park and the tower, but views of the tower and the extension from the trailer park through the trees are expected.

This Petition was field reviewed on March 4, 2009 by Council member Dr. Barbara Bell and Michael Perrone of the Council staff. Attorney Carrie Larson from Pullman and Comley, LLC and Thomas Flynn III, Maxton Technology, Inc., both representing Pocket, also attended the field review. Attorney David Gibson from Gibson & Donegan, P.C., representing the underlying property owner of the lease parcel, also attended the field review.

Pocket provided notice the Town of Branford and the property owner by sending copies of the Petition at or about the time of filing. Notice to all abutting property owners was sent on February 20, 2009. Other than the letter from the Subaru dealership, there were no replies.

Exhibit B

Property Card

Town of Branford
Property Listing Report

Parcel ID D06/E06/001/001.1

Account 005520

Property Information

Owner	PREMIER REALTY HOLDINGS LLC
Address	148-160 NO MAIN ST
Mailing Address	150 NORTH MAIN ST BRANFORD , CT 06405
Land Use	- AUTO S S&S MDL96
Land Class	C

Census Tract	
Neighborhood	500
Zoning	IG-1
Acreage	2.05
Utilities	Public Water,Public Sewer
Lot Setting/ Desc	/ Level

Photo

PARCEL VALUATIONS (Assessed value = 70% of Appraised Value)

	Appraised	Assessed
Buildings	61400	43000
Outbuildings	77800	54400
Improvements	142500	99700
Extras	3300	2300
Land	1007000	704900
Total	1149500	804600
Previous		

Construction Details

Year Built	1965
Stories	1
Building Style	Car Dealrshp
Building Use	Ind/Comm
Building Condition	03
Total Rooms	
Bedrooms	
Full Bathrooms	
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	Flat
Roof Cover	Metal/Tin

EXTERIOR WALLS:	
Primary	MASONRY
Secondary	Pre-finsh Metl
INTERIOR WALLS:	
Primary	Minim/Masonry
Secondary	Drywall
FLOORS:	
Primary	Concr-Finished
Secondary	Carpet
HEATING/AC:	
Heating Type	Forced Air-Duc
Heating Fuel	Oil
AC Type	None

BUILDING AREA:	
Effective Building Area	
Gross Building Area	23192
Total Living Area	13144

SALES HISTORY:	
Sale Date	7/6/2004
Sale Price	
Book/ Page	0877/0469

Report Created On 6/9/2020

Town of Branford, Connecticut - Assessment Parcel Map

Parcel: D06-E06-001-001-1 Address: 148-160 NO MAIN ST

Approximate Scale: 1 inch : 100 feet

Grand List Date October 2019

Disclaimer:
This map is for informational purposes only.
All information is subject to verification by any user. The Town of Branford and its mapping contractors assume no legal responsibility for the information contained herein.

Exhibit C

Construction Drawings

AT&T

AT&T SITE NUMBER:	**CTU2220**	**BUSINESS UNIT #:**	**876321**
AT&T SITE NAME:	**BRANFORD CENTRAL**	**SITE ADDRESS:**	**150 NORTH MAIN STREET**
AT&T FA CODE:	**10035122**		**BRANFORD, CT 06405**
AT&T PACE NUMBER:	**MRCTB045250, MRCTB045206, MRCTB045297, MRCTB045208**	**COUNTY:**	**NEW HAVEN**
		TOWER HEIGHT:	**147'-0"**
SITE TYPE:	**MONOPOLE**		

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

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	BRANFORD BANM TOWER
SITE ADDRESS:	150 NORTH MAIN STREET BRANFORD, CT 06405
COUNTY:	NEW HAVEN
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.2886031
LONGITUDE:	-72.8138600
LAT/LONG TYPE:	NAD83
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	AT&T MOBILITY ONE AT&T WAY BEDMINSTER, NJ 07921
CROWN CASTLE USA INC. APPLICATION ID:	509329

PROJECT TEAM

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

DRAWING INDEX

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

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

PROJECT DESCRIPTION

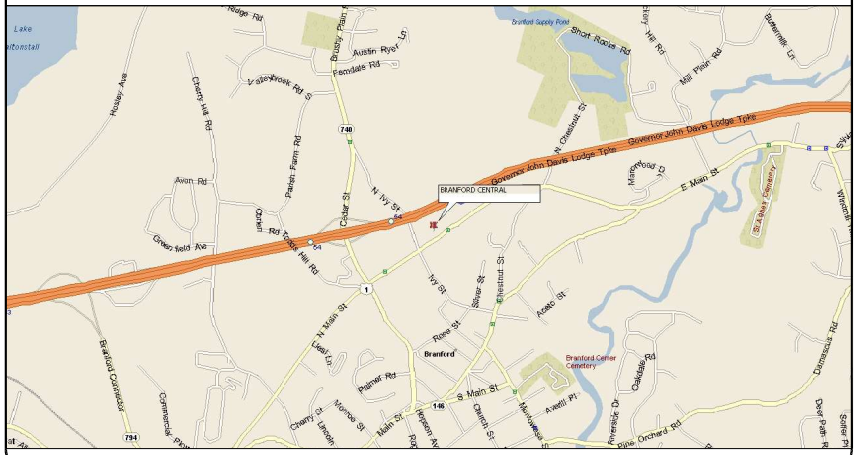
THE PURPOSE OF THIS PROJECT IS TO PROPOSE AN ANTENNA MODIFICATION ON AN EXISTING WIRELESS SITE.

TOWER SCOPE OF WORK
- REMOVE (6) ANDREW SBNHH-1D65A ANTENNAS
- REMOVE (3) ERICSSON RRUS11 B12 RRHS
- RELOCATE (3) ERICCSON RRUS-32 B2 RRHS
- RELOCATE (3) RRUS-32 B30 RRHS
- INSTALL (3) CCI DMP65R-BU4DA ANTENNAS
- INSTALL (3) CCI OPA65R-BU4DA ANTENNAS
- INSTALL (3) ERICSSON 4449 B5/B12 RRHS
- INSTALL (3) ERICSSON 4478 B14 RRHS
- INSTALL (1) RAYCAP DC6-48-60-18-8C SURGE SUPPRESSOR
- INSTALL (2) ROSENBERGER LEONI WR-VG66ST-BRD_CCIV2 DC TRUNKS

GROUND SCOPE OF WORK
- INSTALL (1) BB 6630 5G + 1DLe IN LTE RACK
- INSTALL (3) ERICSSON RRUS-E2 B29 RRHS

DESIGN PACKAGE BASED ON THE RFDS REVISION: 2.00 DATE: 3/2/20	DESIGN PACKAGE BASED ON THE APPLICATION ID: 509329 REVISION: 0

LOCATION MAP



NO SCALE

APPLICABLE CODES/REFERENCE DOCUMENTS

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

CODE TYPE	CODE
BUILDING	2018 CT SBC (2015 IBC)
MECHANICAL	2018 CT SBC (2015 IMC)
ELECTRICAL	2018 CT SBC (2017 NEC)

REFERENCE DOCUMENTS:
STRUCTURAL ANALYSIS:

MOUNT ANALYSIS: B+T GROUP MARCH 9, 2020

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

CALL CONNECTICUT ONE CALL 811
(800) 922-4455
CALL 3 WORKING DAYS BEFORE YOU DIG!

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

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

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

AT&T SITE NUMBER:
CTU2220

BU #: **876321**
BRANFORD BANM TOWER

150 NORTH MAIN STREET
BRANFORD, CT 06405

EXISTING 147'-0"
MONOPOLE

ISSUED FOR:

REV.	DATE	DRWN	DESCRIPTION	DES./QA
1	4/3/20	GEH	CONSTRUCTION	RMC
2	5/1/20	GEH	CONSTRUCTION	RMC
3	6/4/20	STH	CONSTRUCTION	FWP
4	6/18/20	GEH	CONSTRUCTION	FWP

STATE OF CONNECTICUT
31627
LICENSED PROFESSIONAL ENGINEER
6/18/20

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

SHEET NUMBER: T-1
REVISION: 4

SITE WORK GENERAL NOTES:

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

STRUCTURAL STEEL NOTES:

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

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. SLAB FOUNDATION DESIGN ASSUMING ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

   CONCRETE CAST AGAINST EARTH.....3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER.....2 IN.
   #5 AND SMALLER & WWF.....1 1/2 IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALLS.....3/4 IN.
   BEAMS AND COLUMNS.....1 1/2 IN.
5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE. IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

MASONRY NOTES:

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

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

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

ABBREVIATIONS AND SYMBOLS:

ABBREVIATIONS:

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

SYMBOLS:

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

ELECTRICAL INSTALLATION NOTES:

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

GREENFIELD GROUNDING NOTES:

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

NEC INSULATOR COLOR CODE

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

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

AT&T
ONE AT&T WAY
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KING OF PRUSSIA, PA 19406

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

AT&T SITE NUMBER:
CTU2220

BU #: **876321**
BRANFORD BANM TOWER

150 NORTH MAIN STREET
BRANFORD, CT 06405

EXISTING 147'-0" MONOPOLE

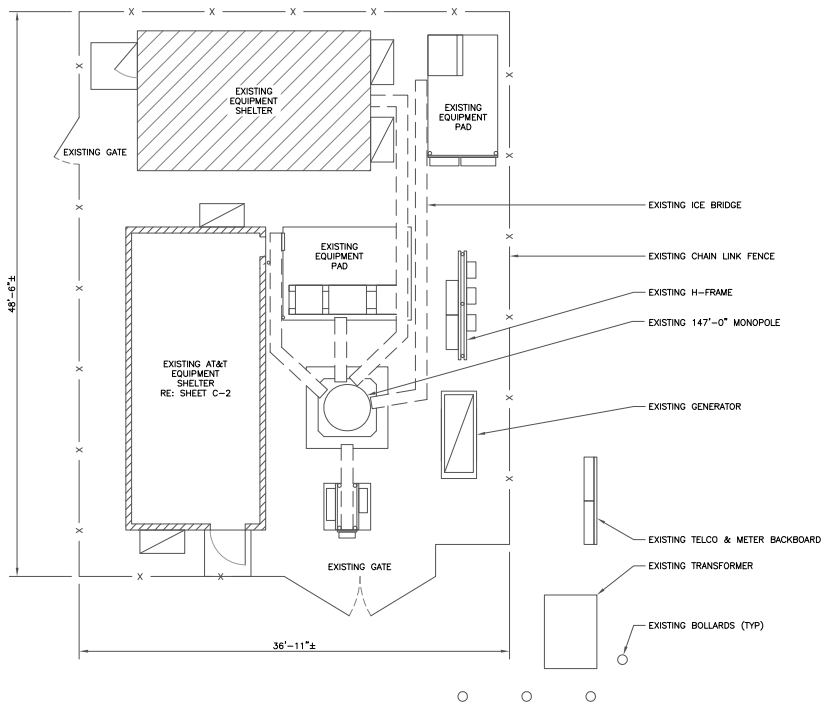
ISSUED FOR:

REV.	DATE	DRWN	DESCRIPTION	DES./QA
1	4/3/20	GEH	CONSTRUCTION	RMC
2	5/11/20	GEH	CONSTRUCTION	RMC
3	6/4/20	STH	CONSTRUCTION	RWP
4	6/18/20	GEH	CONSTRUCTION	RWP

STATE OF CONNECTICUT
31627
LICENSED
PROFESSIONAL ENGINEER
6/18/20

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

SHEET NUMBER: T-2
REVISION: 4



1 SITE PLAN

SCALE: 4' 2' 0' 4' 3/16"=1'-0" (FULL SIZE) 3/32"=1'-0" (11x17)

N

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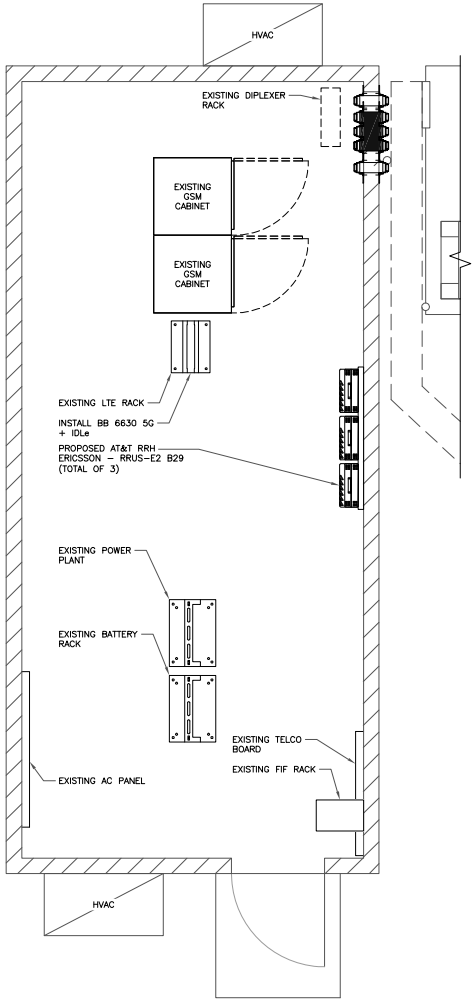
SHEET NUMBER: C-1

REVISION: 4



1 EXISTING EQUIPMENT PLAN

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

N

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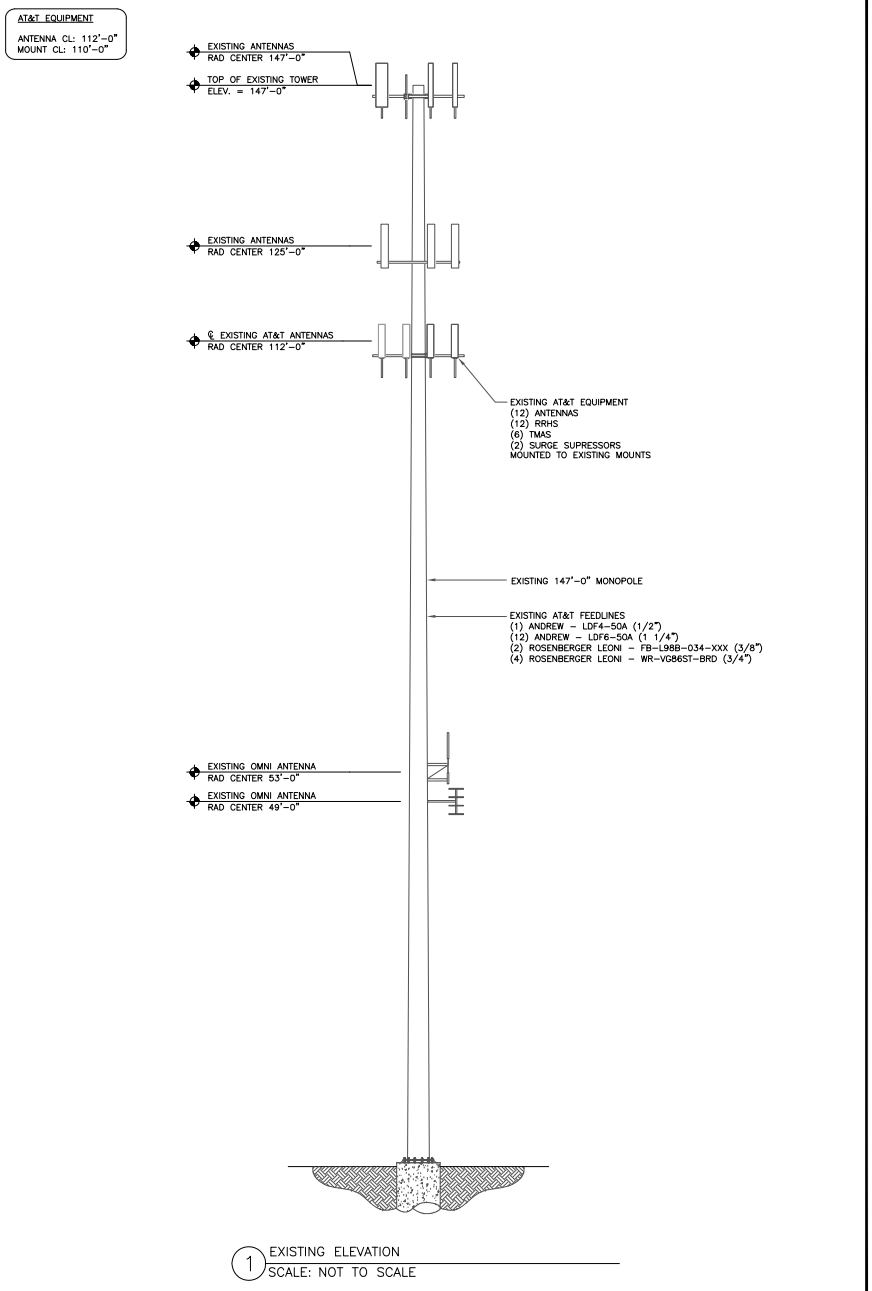
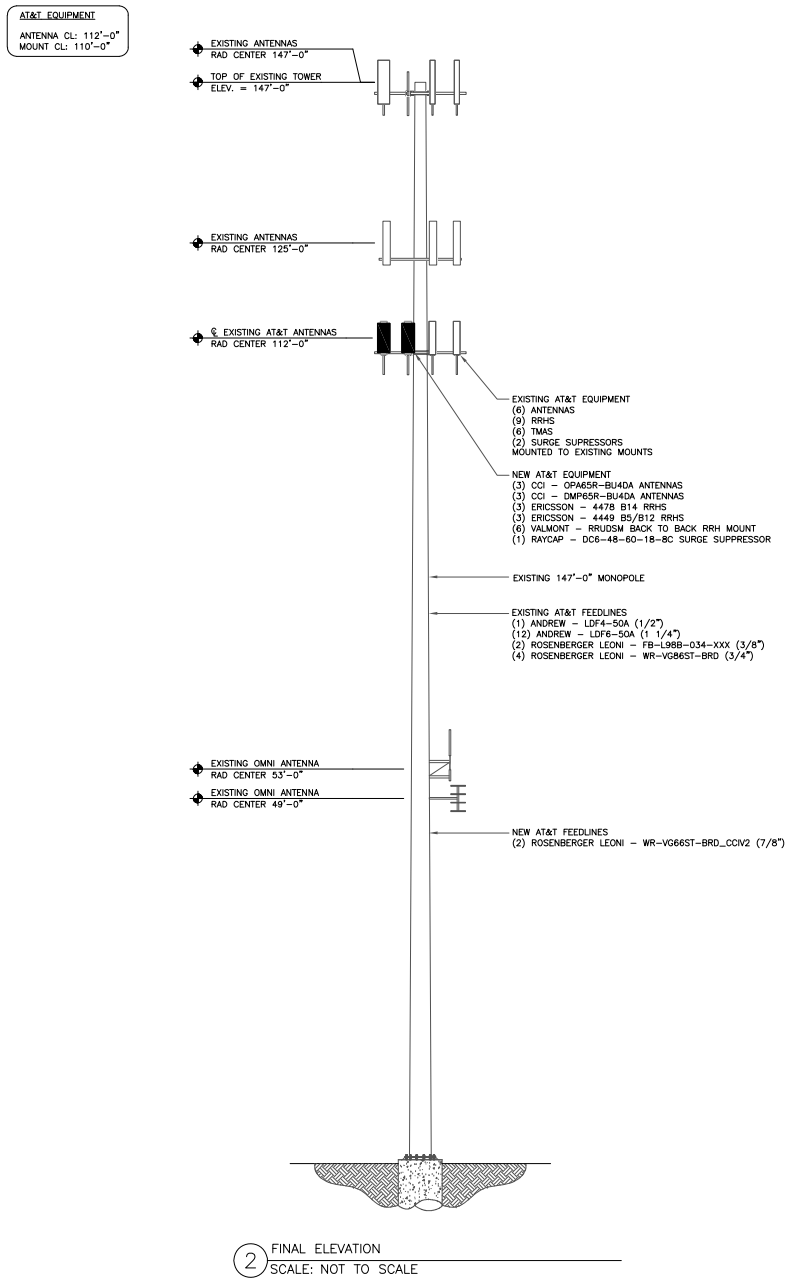
REVISION: 4



1 EXISTING ELEVATION
SCALE: NOT TO SCALE



2 FINAL ELEVATION
SCALE: NOT TO SCALE

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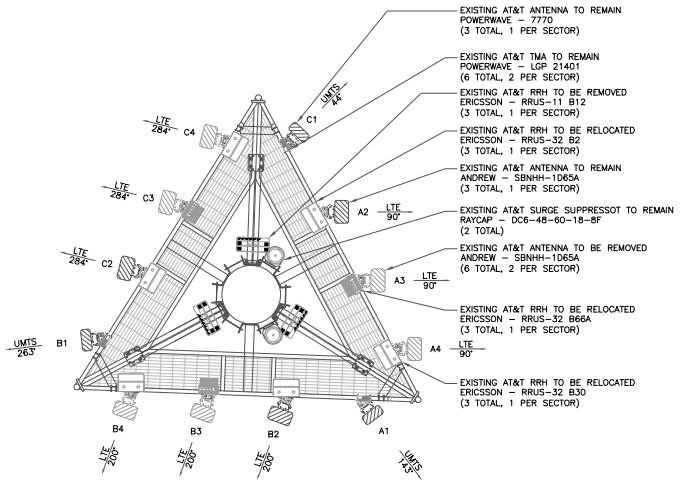
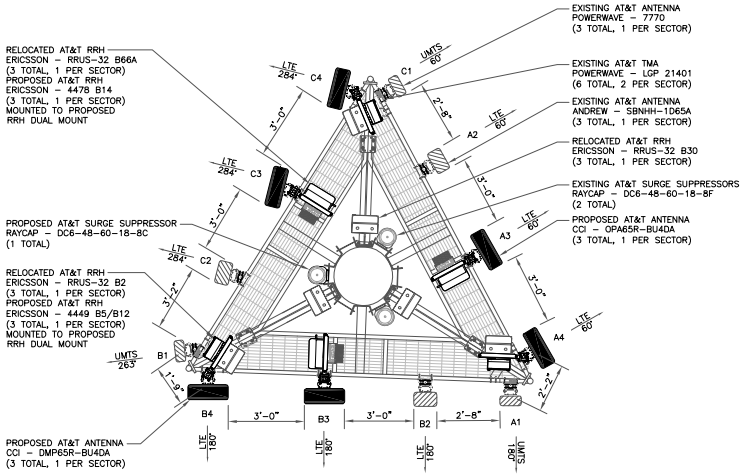
SHEET NUMBER: C-3
REVISION: 4



1 EXISTING ANTENNA LAYOUT
SCALE: NOT TO SCALE

N



2 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE

N

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Expires 2/10/21

SHEET NUMBER: C-4
REVISION: 4

FINAL ANTENNA AND COAXIAL CABLE SCHEDULE

POS.	TECH	STATUS	AZIMUTH	ANTENNA TYPE	ANTENNA RAD CENTER	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	MAIN COAX SIZE	MAIN COAX LENGTH	COAX QTY	TMA QTY AND MODEL	RAYCAP	DC (WR-VG86ST-BRD) FIBER CABLES (FB-L98B-034-XXXXXX)	RRHs QTY ON TOWER	RRHs ON GROUND	DIPLEXER ON TOWER	DIPLEXER ON GROUND	RET CABLE
ALPHA SECTOR																		
A1	UMTS	EXISTING	180°	POWERWAVE 7770	112'-0"	0°	2°	1 1/4"	140'-0"	2	(2) LGP 21401	DC6-48-60-18-8F	(1) FIBER (2) DC LINES	–	–	–	(2) LGP 21901	Y
A2	LTE	EXISTING	60°	ANDREW SBNHH-1D65A	112'-0"	0°	3°/1°	1 1/4"	140'-0"	2	–			(1) RRUS-32 B30	(1) RRUS-E2 B29	–	(2) LGP 21901	Y
A3	LTE	NEW	60°	CCI OPA65R-BU4DA	112'-0"	0°	2°/6°	–	–	–	–			(1) 4478 B14 (1) RRUS-32 B66A	–	–	–	Y
A4	LTE	NEW	60°	CCI DMP65R-BU4DA	112'-0"	0°	2°/2°/6°/6°/2°	–	–	–	–			(1) 4449 B5/B12 (1) RRUS-32 B2	–	–	–	Y
BETA SECTOR																		
B1	UMTS	EXISTING	263°	POWERWAVE 7770	112'-0"	2°	2°	1 1/4"	140'-0"	2	(2) LGP 21401	DC6-48-60-18-8F	(1) FIBER (2) DC LINES	–	–	–	(2) LGP 21901	Y
B2	LTE	EXISTING	180°	ANDREW SBNHH-1D65A	112'-0"	0°	3°/1°	1 1/4"	140'-0"	2	–			(1) RRUS-32 B30	(1) RRUS-E2 B29	–	(2) LGP 21901	Y
B3	LTE	NEW	180°	CCI OPA65R-BU4DA	112'-0"	0°	2°/3°	–	–	–	–			(1) 4478 B14 (1) RRUS-32 B66A	–	–	–	Y
B4	LTE	NEW	180°	CCI DMP65R-BU4DA	112'-0"	0°	2°/2°/3°/3°/2°	–	–	–	–			(1) 4449 B5/B12 (1) RRUS-32 B2	–	–	–	Y
GAMMA SECTOR																		
C1	UMTS	EXISTING	60°	POWERWAVE 7770	112'-0"	0°	6°	1 1/4"	140'-0"	2	(2) LGP 21401	DC6-48-60-18-8C	(2) DC LINES	–	–	–	(2) LGP 21901	Y
C2	LTE	EXISTING	284°	ANDREW SBNHH-1D65A	112'-0"	0°	3°/3°	1 1/4"	140'-0"	2	–			(1) RRUS-32 B30	(1) RRUS-E2 B29	–	(2) LGP 21901	Y
C3	LTE	NEW	284°	CCI OPA65R-BU4DA	112'-0"	0°	2°/4°	–	–	–	–			(1) 4478 B14 (1) RRUS-32 B66A	–	–	–	Y
C4	LTE	NEW	284°	CCI DMP65R-BU4DA	112'-0"	0°	2°/2°/4°/4°/2°	–	–	–	–			(1) 4449 B5/B12 (1) RRUS-32 B2	–	–	–	Y

NOTE: BOLD DENOTES NEW EQUIPMENT

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

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

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

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

AT&T SITE NUMBER:
CTU2220

BU #: **876321**
BRANFORD BANM TOWER

150 NORTH MAIN STREET
BRANFORD, CT 06405

EXISTING 147'-0" MONOPOLE

ISSUED FOR:

REV.	DATE	DRWN	DESCRIPTION	DES./QA
1	4/3/20	GEH	CONSTRUCTION	RMC
2	5/1/20	GEH	CONSTRUCTION	RMC
3	6/4/20	STH	CONSTRUCTION	FWP
4	6/18/20	GEH	CONSTRUCTION	FWP

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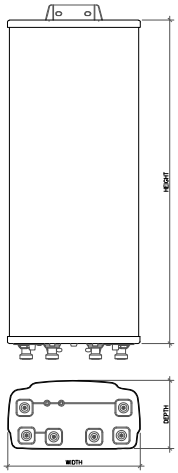
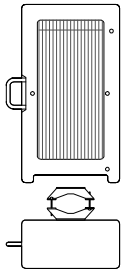
REVISION: 4



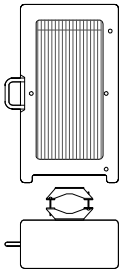
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
DMP65R-BU4DA	48"	20.7"	7.7"	76.5 lbs
OPA65R-BU4DA	48"	21.0"	7.8"	62.3 lbs

1 ANTENNA DETAIL
SCALE: NOT TO SCALE



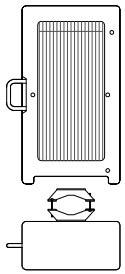
ERICSSON – 4449 B5/B12
WEIGHT (FULLY EQUIPPED): 71.0 LBS
SIZE (HxWxD): 17.9x13.19x9.44 IN.

2 RRH DETAIL
SCALE: NOT TO SCALE



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

3 RRH DETAIL
SCALE: NOT TO SCALE



ERICSSON – RRUS-E2 B29
WEIGHT (FULLY EQUIPPED): 60.0 LBS
SIZE (HxWxD): 20.4x18.5x7.5 IN.

4 RRH DETAIL
SCALE: NOT TO SCALE

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AT&T SITE NUMBER:
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BU #: **876321**
BRANFORD BANM TOWER

150 NORTH MAIN STREET
BRANFORD, CT 06405

EXISTING 147'-0"
MONOPOLE

ISSUED FOR:

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3	6/4/20	STH	CONSTRUCTION	FWP
4	6/18/20	GEH	CONSTRUCTION	FWP

6/18/20

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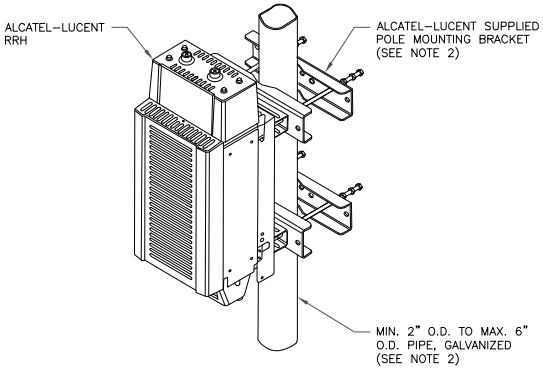
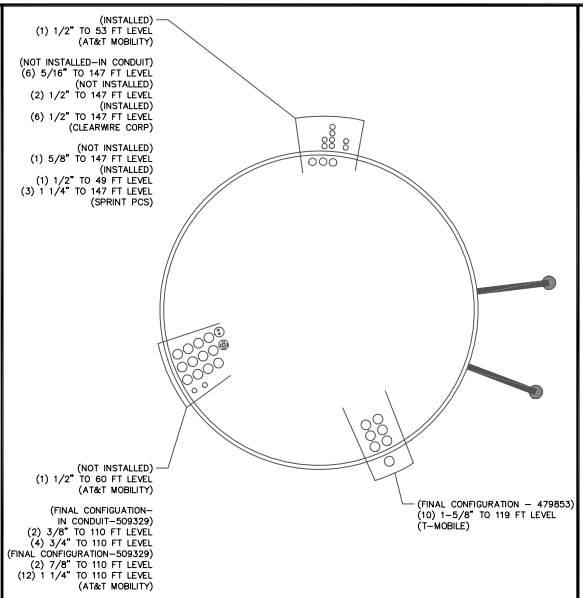
SHEET NUMBER: C-6
REVISION: 4

NOTES:

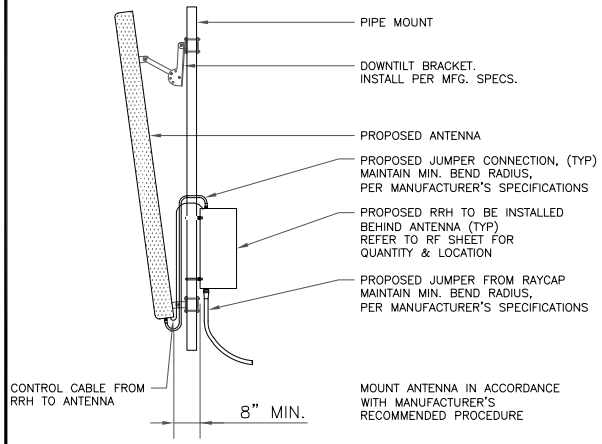
1. ALCATEL–LUCENT (ALU) VIA AT&T SUPPLIES RRH, RRH POLE–MOUNTING BRACKET. SUBCONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ALU RRH POLE–MOUNTING BRACKET. ALU INSTALLS RRH AND MAKES CABLE TERMINATIONS.
2. FOR POLE DIAMETERS FROM 6" TO 15", ALCATEL–LUCENT CAN SUPPLY A PAIR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



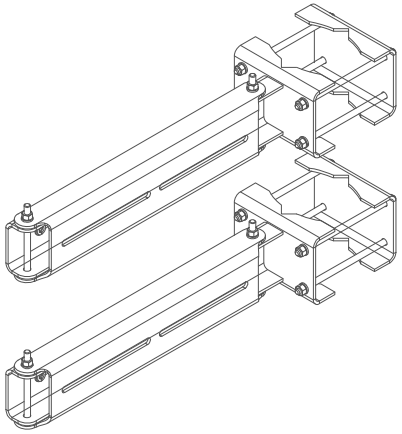
1 RRH MOUNTING DETAIL
SCALE: NOT TO SCALE



2 BASE LEVEL DRAWING
SCALE: NOT TO SCALE



3 ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE



4 VALMONT – RRUDSM
SCALE: NOT TO SCALE

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BU #: **876321**
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EXISTING 147'-0" MONOPOLE

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3	6/4/20	STH	CONSTRUCTION	FWP
4	6/18/20	GEH	CONSTRUCTION	FWP

STATE OF CONNECTICUT
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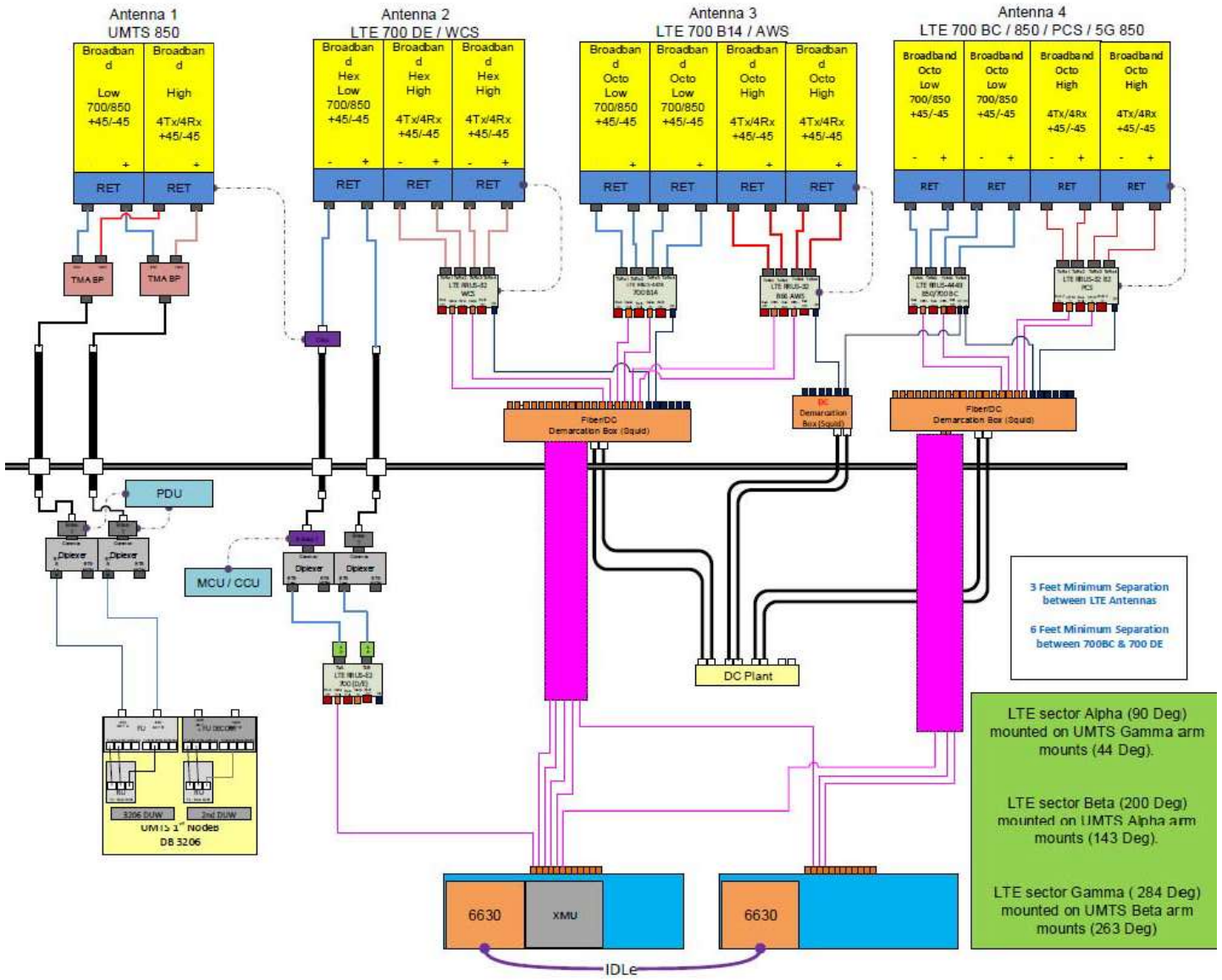
SHEET NUMBER: C-7
REVISION: 4



1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

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

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AT&T SITE NUMBER:
CTU2220

BU #: **876321**
BRANFORD BANM
TOWER

150 NORTH MAIN
STREET
BRANFORD, CT 06405

EXISTING 147'-0"
MONOPOLE

ISSUED FOR:

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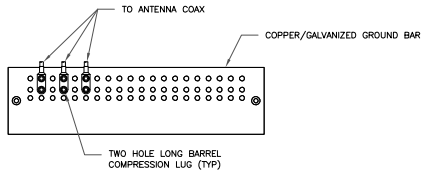
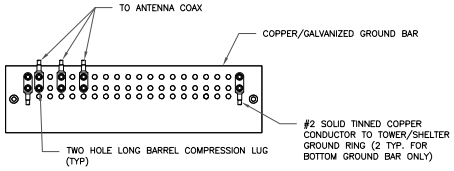
SHEET NUMBER: C-8
REVISION: 4



NOTES:

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

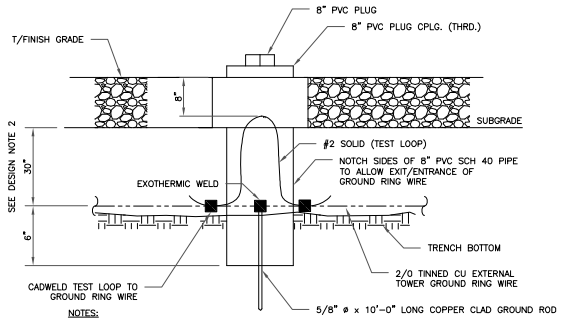
1 ANTENNA GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

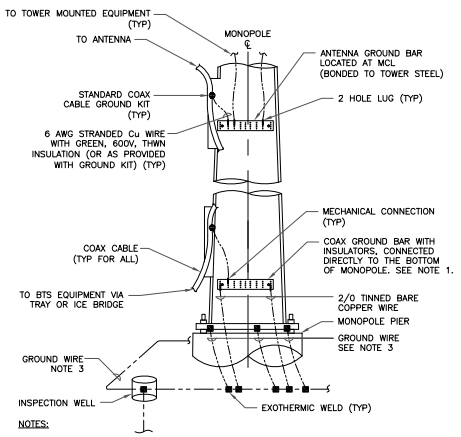
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

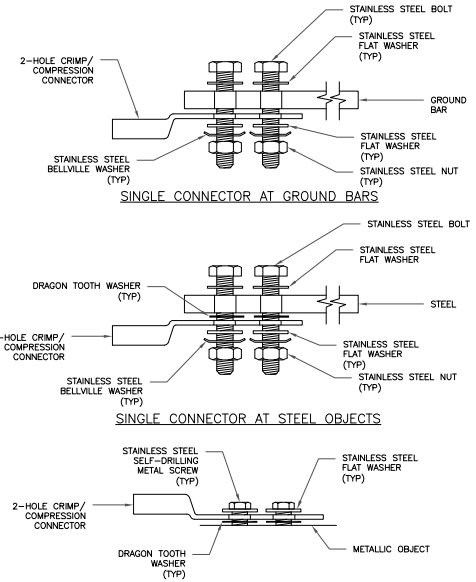
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



NOTES:

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

4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE

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KING OF PRUSSIA, PA 19406

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AT&T SITE NUMBER:
CTU2220

BU #: **876321**
BRANFORD BANM TOWER

150 NORTH MAIN STREET
BRANFORD, CT 06405

EXISTING 147'-0" MONOPOLE

ISSUED FOR:

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4	6/18/20	GEH	CONSTRUCTION	FWP

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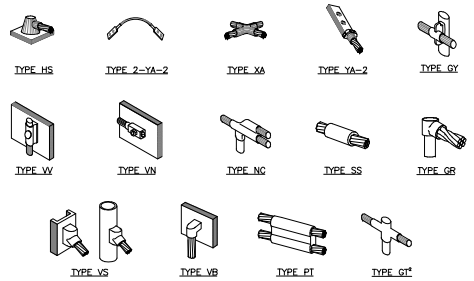
REVISION: 4

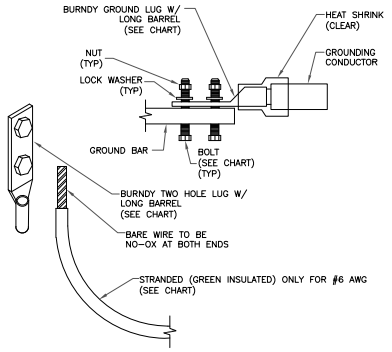


NOTE:

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

1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE

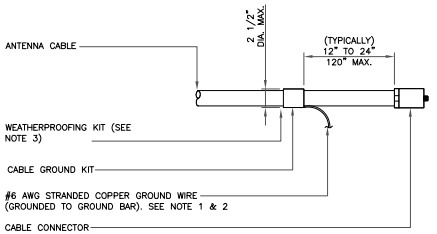
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA2B-2N	1/2" - 16 NC S 2 BOLT



NOTES:

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

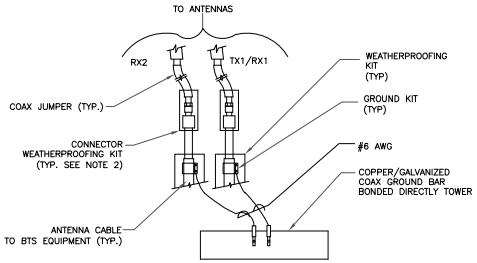
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



NOTES:

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

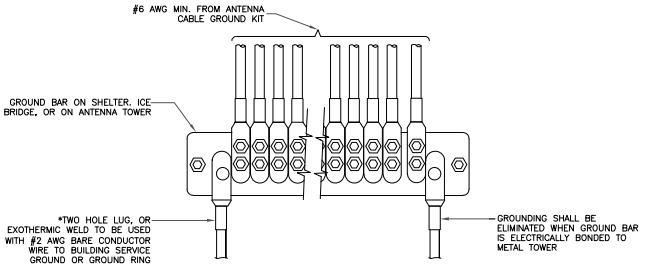
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



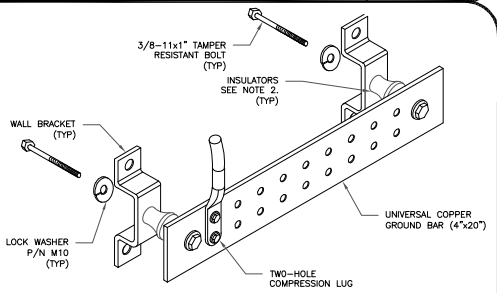
NOTES:

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

4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



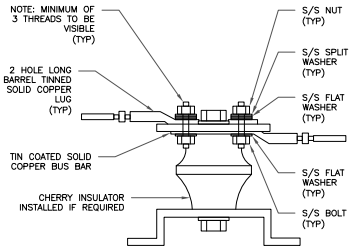
5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



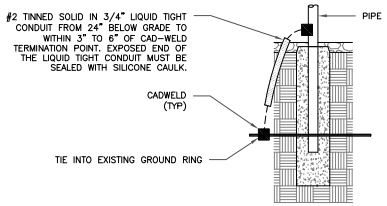
NOTES:

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

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

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

SHEET NUMBER: G-2
REVISION: 4

Exhibit D

Structural Analysis Report

PAUL J. FORD & COMPANY

Date: **March 13, 2020**

Cheryl Schultz
Crown Castle
6325 Ardrey Kell Rd, Suite 600
Charlotte, NC 28277

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	24492
	Carrier Site Name:	BRANFORD CENTRAL
Crown Castle Designation:	**Crown Castle BU Number:**	876321
	Crown Castle Site Name:	BRANFORD BANM TOWER
	Crown Castle JDE Job Number:	596334
	Crown Castle Work Order Number:	1835072
	Crown Castle Order Number:	509329 Rev. 0
Engineering Firm Designation:	**Paul J. Ford and Company Project Number:**	37520-0477.001.7805
Site Data:	**150 North Main Street, BRANFORD, New Haven County, CT** **Latitude *41° 17' 19"*, Longitude *-72° 48' 49.9"*** **147 Foot - Monopole Tower**	

Dear Cheryl Schultz,

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

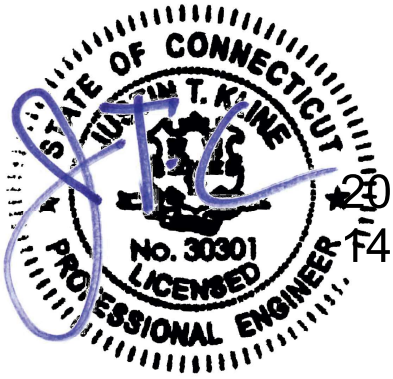
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity** **92.0%**

This analysis utilizes an ultimate 3-second gust wind speed of 130 mph as required by the 2018 Connecticut State Building Code and Appendix N. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:

Angela Sage, E.I.
Structural Designer
asage@pauljford.com



2020.03.13 14:33:10-04'00'

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1) INTRODUCTION

This tower is a 147 ft Monopole tower designed by SUMMIT Manufacturing in March of 1999.

The tower has been modified multiple times to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	130 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)
110.0	112.0	3	andrew	SBNHH-1D65A w/ Mount Pipe	12 2 2 4 2	1-1/4 3/8 7/8 3/4 2” Cond
		3	cci antennas	DMP65R-BU4D w/ Mount Pipe		
		3	cci antennas	OPA65R-BU4D w/ Mount Pipe		
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 32 B66		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14_CCIV2		
		3	ericsson	RRUS-32 B30		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		6	powerwave technologies	LGP2140X		
		1	raycap	DC6-48-60-18-8C-EV		
		2	raycap	DC6-48-60-18-8F		
	110.0	1	tower mounts	Platform Mount [LP 1201-1_KCKR-HR-1]		
53.0	54.0	1	gps	GPS_A	1	1/2
	53.0	1	tower mounts	Side Arm Mount [SO 701-1]		

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)
147.0	149.0	1	andrew	VHLP2-18	6 3	1/2 1-1/4
		2	dragonwave	A-ANT-23G-2-C		
	147.0	3	alcatel lucent	TD-RRH8x20-25		
		1	powerwave technologies	P40-16-XLPP-RR-A w/ Mount Pipe		
		9	rfs celwave	ACU-A20-N		
		2	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe		
		1	tower mounts	Platform Mount [LP 1201-1]		
145.0	146.0	3	alcatel lucent	800 EXTERNAL NOTCH FILTER	-	-
		3	alcatel lucent	TME-800MHZ RRH		
	145.0	1	tower mounts	Side Arm Mount [SO 102-3]		
	143.0	3	alcatel lucent	TME-1900MHz RRH (65 MHz)		
119.0	121.0	3	ericsson	RADIO 4449 B12/B71	10	1-5/8
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe		
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe		
		3	ericsson	KRY 112 144/1		
	119.0	1	sitepro1	RMQP-4096-HK		
49.0	50.0	1	lucent	KS24019-L112A	1	1/2
	49.0	1	tower mounts	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Dr. Clarence Welti, P.E., P.C., 10/08/96	2135657	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Summit/PJF, 29299-111, 03/15/99	1613620	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Summit/PJF, 29299-111, 03/15/99	1614568	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF, A41709-0058, 05/08/2009	2431042	CCISITES
4-POST-MODIFICATION INSPECTION	PJF, 41709-0058, 06/15/09	2448190	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF, A37512-1607, 09/04/2012	3316256	CCISITES
4-POST-MODIFICATION INSPECTION	TEP, 128359, 03/06/13	3890848	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Aero Solutions, 7/23/2013	4988798	CCISITES
4-POST-MODIFICATION INSPECTION	SGS, 130357, 12/9/13	4699667	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.5.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

1) Tower and structures were maintained in accordance with the TIA-222 standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
3) Monopole was modified in conformance with the referenced modification drawings.
4) The shaft reinforcement and transition stiffeners from reference document #2431042 & document #3316256 has been found to be ineffective and therefore, have not been considered in this analysis.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	147 - 99.5	Pole	TP30.313x22x0.25	1	-15.82	1342.23	61.6	Pass
L2	99.5 - 59	Pole	TP36.9x29.1567x0.3125	2	-23.39	2210.06	90.8	Pass
L3	59 - 29.25	Pole	TP41.481x35.4438x0.375	3	-31.50	2980.72	92.0	Pass
L4	29.25 - 0	Pole	TP45.85x39.8123x0.4375	4	-43.41	3929.66	91.5	Pass
							Summary	
						Pole (L3)	92.0	Pass
						RATING =	**92.0**	**Pass**

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	71.4	Pass
1	Base Plate	0	56.4	Pass
1	Base Foundation Structural Steel	0	77.6	Pass
1	Base Foundation Soil Interaction	0	86.9	Pass

Structure Rating (max from all components) =	92.0%

Notes:

- All structural ratings are per TIA-222-H Section 15.5

1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

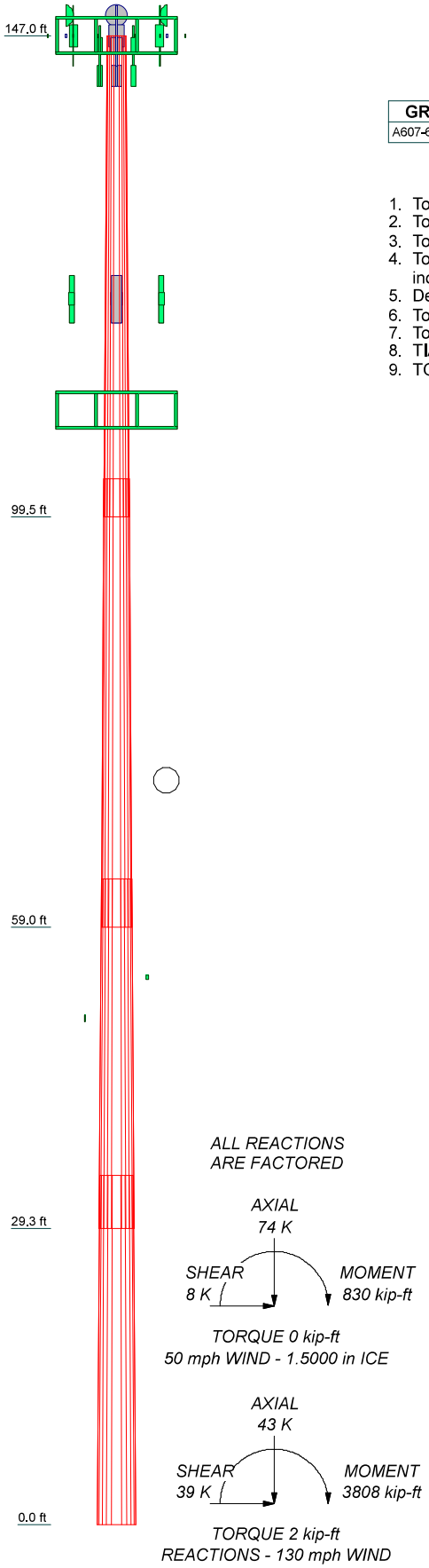
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	47.5000	12	0.2500	3.7500	22.0000	30.3130	A607-60	3.4
2	44.2500	12	0.3125	4.7500	29.1567	36.9000	A607-60	5.0
3	34.5000	12	0.3750	5.2500	35.4438	41.4810	A607-65	5.4
4	34.5000	12	0.4375		39.8123	45.8500	A607-65	7.0
								20.7



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-60	60 ksi	75 ksi	A607-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 130 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 0.0000 ft
8. TIA-222H Annex S
9. TOWER RATING: 92%

PJFLogo

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

Job: *147' MP; Branford Banm Tower; Branford, CT*		
Project: *PJF# 37520-0477.001.7805 (BU# 876321)*		
Client: CCI	Drawn by: Angela Sage	App'd:
Code: TIA-222-H	Date: 03/12/20	Scale: NTS
Path: G:\TOWER\375_Crown_Castle\2020\37520-0477_876321_BRANFORD BANM TOWER\37520-0477.001.7805_SA_183507\37520-0477.001.7805.eri		Dwg No. E-1

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

1) Tower is located in New Haven County, Connecticut.
2) Tower base elevation above sea level: 57.7000 ft.
3) Basic wind speed of 130 mph.
4) Risk Category II.
5) Exposure Category C.
6) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
7) Topographic Category: 1.
8) Crest Height: 0.0000 ft.
9) Nominal ice thickness of 1.5000 in.
10) Ice thickness is considered to increase with height.
11) Ice density of 56.00 pcf.
12) A wind speed of 50 mph is used in combination with ice.
13) Temperature drop of 50 °F.
14) Deflections calculated using a wind speed of 60 mph.
15) TIA-222H Annex S.
16) A non-linear (P-delta) analysis was used.
17) Pressures are calculated at each section.
18) Stress ratio used in pole design is 1.05.
19) Tower analysis based on target reliabilities in accordance with Annex S.
20) Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
21) 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		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	147.0000-99.5000	47.5000	3.75	12	22.0000	30.3130	0.2500	1.0000	A607-60 (60 ksi)
L2	99.5000-59.0000	44.2500	4.75	12	29.1567	36.9000	0.3125	1.2500	A607-65 (65 ksi)
L3	59.0000-29.2500	34.5000	5.25	12	35.4438	41.4810	0.3750	1.5000	A607-65 (65 ksi)
L4	29.2500-0.0000	34.5000		12	39.8123	45.8500	0.4375	1.7500	A607-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	22.6879	17.5087	1057.2060	7.7865	11.3960	92.7699	2142.1860	8.6173	5.2260	20.904
	31.2941	24.2007	2791.7645	10.7626	15.7021	177.7952	5656.8718	11.9109	7.4539	29.816
L2	30.7544	29.0245	3082.2497	10.3262	15.1032	204.0796	6245.4735	14.2850	6.9765	22.325
	38.0915	36.8162	6290.5707	13.0983	19.1142	329.1046	12746.4018	18.1198	9.0517	28.965
L3	37.4224	42.3456	6647.1547	12.5546	18.3599	362.0477	13468.9375	20.8412	8.4939	22.651
	42.8120	49.6355	10705.0511	14.7159	21.4872	498.2069	21691.3357	24.4291	10.1119	26.965
L4	42.0136	55.4692	10976.7763	14.0962	20.6228	532.2649	22241.9248	27.3003	9.4972	21.708
	47.3131	63.9749	16840.1561	16.2577	23.7503	709.0502	34122.7218	31.4865	11.1153	25.406

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 147.0000-99.5000				1	1	1			
L2 99.5000-59.0000				1	1	1			
L3 59.0000-29.2500				1	1	1			
L4 29.2500-0.0000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
9011(1/2)	A	No	Surface Ar (CaAa)	147.0000 - 0.0000	5	2	0.167 0.192	0.4000		0.06
9011(1/2)	A	No	Surface Ar (CaAa)	147.0000 - 0.0000	1	1	0.183 0.183	0.4000		0.06
MLE Hybrid 9Power/18Fiber RL 2(1-5/8) ****	B	No	Surface Ar (CaAa)	119.0000 - 0.0000	1	1	0.342 0.342	1.6250		1.07
LDF4-50A(1/2)	A	No	Surface Ar (CaAa)	53.0000 - 0.0000	1	1	0.225 0.225	0.6250		0.15
LDF4-50A(1/2) ***	A	No	Surface Ar (CaAa)	49.0000 - 0.0000	1	1	0.225 0.225	0.6250		0.15
MP3-04 (L)	B	No	Surface Af (CaAa)	25.5000 - 0.0000	1	1	-0.267 -0.267	4.7800	12.7800	0.00
MP3-04 (L)	A	No	Surface Af (CaAa)	25.5000 - 0.0000	1	1	-0.267 -0.267	4.7800	12.7800	0.00
MP3-04 (L)	C	No	Surface Af (CaAa)	25.5000 - 0.0000	1	1	-0.267 -0.267	4.7800	12.7800	0.00
MP3-04 (L)	A	No	Surface Af (CaAa)	52.0000 - 32.0000	1	1	0.483 0.483	4.7800	12.7800	0.00

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
MP3-04 (L)	C	No	Surface Af (CaAa)	52.0000 - 32.0000	1	1	0.483 0.483	4.7800	12.7800	0.00
MP3-04 (L)	B	No	Surface Af (CaAa)	52.0000 - 32.0000	1	1	0.483 0.483	4.7800	12.7800	0.00
MP3-04 (L)	A	No	Surface Af (CaAa)	71.0000 - 61.0000	1	1	0.483 0.483	4.7800	12.7800	0.00
MP3-04 (L)	C	No	Surface Af (CaAa)	71.0000 - 61.0000	1	1	0.483 0.483	4.7800	12.7800	0.00
MP3-04 (L)	B	No	Surface Af (CaAa)	71.0000 - 61.0000	1	1	0.483 0.483	4.7800	12.7800	0.00
MP3-04 (L)	A	No	Surface Af (CaAa)	35.5000 - 0.0000	1	1	-0.017 -0.017	4.7800	12.7800	0.00
MP3-04 (L)	C	No	Surface Af (CaAa)	35.5000 - 0.0000	1	1	0.233 0.233	4.7800	12.7800	0.00
MP3-04 (L)	B	No	Surface Af (CaAa)	35.5000 - 0.0000	1	1	0.233 0.233	4.7800	12.7800	0.00
MP3-03 (L)	A	No	Surface Af (CaAa)	59.0000 - 49.0000	1	1	0.233 0.233	4.0600	11.2600	0.00
MP3-03 (L)	C	No	Surface Af (CaAa)	59.0000 - 49.0000	1	1	0.233 0.233	4.0600	11.2600	0.00
MP3-03 (L)	B	No	Surface Af (CaAa)	59.0000 - 49.0000	1	1	0.233 0.233	4.0600	11.2600	0.00

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 plf
HB114-1-0813U4-M5J(1-1/4)	C	No	No	Inside Pole	147.0000 - 0.0000	3	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	1.20 1.20 1.20 1.20
***									
HCS 6X12 4AWG(1-5/8)	B	No	No	Inside Pole	119.0000 - 0.0000	3	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	2.40 2.40 2.40 2.40
LDF7-50A(1-5/8)	B	No	No	Inside Pole	119.0000 - 0.0000	6	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.82 0.82 0.82 0.82
***									
WR-VG66ST-BRD_CCIV2(7/8)	C	No	No	Inside Pole	110.0000 - 0.0000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.88 0.88 0.88 0.88
LDF6-50A(1-1/4)	C	No	No	Inside Pole	110.0000 - 0.0000	12	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.60 0.60 0.60 0.60
FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	110.0000 - 0.0000	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.06 0.06 0.06 0.06
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	110.0000 - 0.0000	4	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.58 0.58 0.58 0.58
2" (Nominal) Conduit	C	No	No	Inside Pole	110.0000 - 0.0000	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.72 0.72 0.72 0.72

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	147.0000-99.5000	A	0.000	0.000	5.700	0.000	0.02
		B	0.000	0.000	3.169	0.000	0.26
		C	0.000	0.000	0.000	0.000	0.30
L2	99.5000-59.0000	A	0.000	0.000	12.666	0.000	0.01
		B	0.000	0.000	14.387	0.000	0.53
		C	0.000	0.000	7.806	0.000	0.63
L3	59.0000-29.2500	A	0.000	0.000	33.968	0.000	0.02
		B	0.000	0.000	32.514	0.000	0.39
		C	0.000	0.000	27.679	0.000	0.46
L4	29.2500-0.0000	A	0.000	0.000	50.784	0.000	0.02
		B	0.000	0.000	48.371	0.000	0.39
		C	0.000	0.000	43.618	0.000	0.46

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	147.0000-99.5000	A	1.453	0.000	0.000	37.716	0.000	0.39
		B		0.000	0.000	8.837	0.000	0.36
		C		0.000	0.000	0.000	0.000	0.30
L2	99.5000-59.0000	A	1.391	0.000	0.000	41.556	0.000	0.44
		B		0.000	0.000	27.752	0.000	0.86
		C		0.000	0.000	9.398	0.000	0.73
L3	59.0000-29.2500	A	1.312	0.000	0.000	74.419	0.000	0.73
		B		0.000	0.000	49.923	0.000	0.89
		C		0.000	0.000	36.812	0.000	0.81
L4	29.2500-0.0000	A	1.173	0.000	0.000	98.340	0.000	0.89
		B		0.000	0.000	70.405	0.000	1.02
		C		0.000	0.000	57.979	0.000	0.95

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	147.0000-99.5000	-0.0079	-0.4659	-0.8870	-1.7985
L2	99.5000-59.0000	0.4222	-0.2988	-0.1049	-1.5026
L3	59.0000-29.2500	-0.2662	-0.0680	-0.9595	-1.5340
L4	29.2500-0.0000	-1.3679	0.8290	-2.0173	-0.5733

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	1	9011(1/2)	99.50 - 147.00	1.0000	1.0000
L1	2	9011(1/2)	99.50 - 147.00	1.0000	1.0000
L1	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	99.50 - 119.00	1.0000	1.0000
L1	26	MP3-04 (L)	99.50 - 71.00	1.0000	1.0000
L1	27	MP3-04 (L)	99.50 - 71.00	1.0000	1.0000
L1	28	MP3-04 (L)	99.50 - 71.00	1.0000	1.0000
L2	1	9011(1/2)	59.00 - 99.50	1.0000	1.0000
L2	2	9011(1/2)	59.00 - 99.50	1.0000	1.0000
L2	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	59.00 - 99.50	1.0000	1.0000
L2	17	LDF4-50A(1/2)	59.00 - 53.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L2	18	LDF4-50A(1/2)	59.00 - 49.00	1.0000	1.0000
L2	23	MP3-04 (L)	59.00 - 52.00	1.0000	1.0000
L2	24	MP3-04 (L)	59.00 - 52.00	1.0000	1.0000
L2	25	MP3-04 (L)	59.00 - 52.00	1.0000	1.0000
L2	29	MP3-04 (L)	59.00 - 35.50	1.0000	1.0000
L2	30	MP3-04 (L)	59.00 - 35.50	1.0000	1.0000
L2	31	MP3-04 (L)	59.00 - 35.50	1.0000	1.0000
L2	32	MP3-03 (L)	59.00 - 59.00	1.0000	1.0000
L2	33	MP3-03 (L)	59.00 - 59.00	1.0000	1.0000
L2	34	MP3-03 (L)	59.00 - 59.00	1.0000	1.0000
L3	1	9011(1/2)	29.25 - 59.00	1.0000	1.0000
L3	2	9011(1/2)	29.25 - 59.00	1.0000	1.0000
L3	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	29.25 - 59.00	1.0000	1.0000
L3	17	LDF4-50A(1/2)	29.25 - 53.00	1.0000	1.0000
L3	18	LDF4-50A(1/2)	29.25 - 49.00	1.0000	1.0000
L3	20	MP3-04 (L)	29.25 - 25.50	1.0000	1.0000
L3	21	MP3-04 (L)	29.25 - 25.50	1.0000	1.0000
L3	22	MP3-04 (L)	29.25 - 25.50	1.0000	1.0000
L3	29	MP3-04 (L)	29.25 - 35.50	1.0000	1.0000
L3	30	MP3-04 (L)	29.25 - 35.50	1.0000	1.0000
L3	31	MP3-04 (L)	29.25 - 35.50	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Top Hat 10" Diameter x 4' 6" Tall	C	None		0.00	147.0000	No Ice	2.1167	2.1167	0.20
						1/2" Ice	3.1744	3.1744	0.23
						1" Ice	3.4914	3.4914	0.27
						2" Ice	4.1531	4.1531	0.35
8' x 2" Lightning Rod	C	From Leg	0.5000 0.00 4.00	0.00	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.6000 2.4250 3.2364 4.2284	1.6000 2.4250 3.2364 4.2284	0.02 0.03 0.05 0.10
****									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.6000 5.0500 5.5000 6.4400	4.0100 4.4500 4.8900 5.8200	0.10 0.16 0.23 0.42
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.6000 5.0500 5.5000 6.4400	4.0100 4.4500 4.8900 5.8200	0.10 0.16 0.23 0.42
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.0900 4.4800 4.8800 5.7100	2.8600 3.2300 3.6100 4.4000	0.08 0.13 0.19 0.33
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.0900 4.4800 4.8800 5.7100	2.8600 3.2300 3.6100 4.4000	0.08 0.13 0.19 0.33
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	147.0000	No Ice 1/2" Ice 1" Ice	4.0900 4.4800 4.8800 5.7100	2.8600 3.2300 3.6100 4.4000	0.08 0.13 0.19 0.33

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
TD-RRH8x20-25	A	From Leg	4.0000 0.00 0.00	0.00	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.0455 4.2975 4.5570 5.0981	1.5345 1.7142 1.9008 2.2951	0.07 0.10 0.13 0.20
TD-RRH8x20-25	B	From Leg	4.0000 0.00 0.00	0.00	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.0455 4.2975 4.5570 5.0981	1.5345 1.7142 1.9008 2.2951	0.07 0.10 0.13 0.20
TD-RRH8x20-25	C	From Leg	4.0000 0.00 0.00	0.00	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.0455 4.2975 4.5570 5.0981	1.5345 1.7142 1.9008 2.2951	0.07 0.10 0.13 0.20
(3) ACU-A20-N	A	From Leg	4.0000 0.00 0.00	0.00	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0667 0.1037 0.1481 0.2593	0.1167 0.1620 0.2148 0.3426	0.00 0.00 0.00 0.01
(3) ACU-A20-N	B	From Leg	4.0000 0.00 0.00	0.00	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0667 0.1037 0.1481 0.2593	0.1167 0.1620 0.2148 0.3426	0.00 0.00 0.00 0.01
(3) ACU-A20-N	C	From Leg	4.0000 0.00 0.00	0.00	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.0667 0.1037 0.1481 0.2593	0.1167 0.1620 0.2148 0.3426	0.00 0.00 0.00 0.01
P40-16-XLPP-RR-A w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice	7.2400 7.7300 8.2400 9.2800	3.3100 3.7300 4.1600 5.0600	0.08 0.15 0.22 0.39
(3) 6' x 2" Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.4250 1.9250 2.2939 3.0596	1.4250 1.9250 2.2939 3.0596	0.02 0.03 0.05 0.09
(3) 6' x 2" Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.4250 1.9250 2.2939 3.0596	1.4250 1.9250 2.2939 3.0596	0.02 0.03 0.05 0.09
(3) 6' x 2" Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.4250 1.9250 2.2939 3.0596	1.4250 1.9250 2.2939 3.0596	0.02 0.03 0.05 0.09
Platform Mount [LP 1201-1]	B	None		0.00	147.0000	No Ice 1/2" Ice 1" Ice 2" Ice	18.3800 22.1100 25.8700 33.4700	18.3800 22.1100 25.8700 33.4700	2.10 2.65 3.26 4.66
****									
TME-1900MHz RRH (65 MHz)	A	From Leg	1.0000 0.00 -2.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.3125 2.5168 2.7284 3.1740	2.3750 2.5809 2.7943 3.2431	0.06 0.08 0.11 0.18
TME-1900MHz RRH (65 MHz)	B	From Leg	1.0000 0.00 -2.00	0.00	145.0000	No Ice 1/2" Ice	2.3125 2.5168 2.7284	2.3750 2.5809 2.7943	0.06 0.08 0.11

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	3.1740	3.2431	0.18
						2" Ice			
TME-1900MHz RRH (65 MHz)	C	From Leg	1.0000 0.00 -2.00	0.00	145.0000	No Ice	2.3125	2.3750	0.06
						1/2" Ice	2.5168	2.5809	0.08
						1" Ice	2.7284	2.7943	0.11
						2" Ice	3.1740	3.2431	0.18
800 EXTERNAL NOTCH FILTER	A	From Leg	1.0000 0.00 1.00	0.00	145.0000	No Ice	0.6601	0.3211	0.01
						1/2" Ice	0.7627	0.3983	0.02
						1" Ice	0.8727	0.4830	0.02
						2" Ice	1.1149	0.6744	0.04
TME-800MHZ RRH	A	From Leg	1.0000 0.00 1.00	0.00	145.0000	No Ice	2.1342	1.7730	0.05
						1/2" Ice	2.3195	1.9461	0.07
						1" Ice	2.5123	2.1267	0.10
						2" Ice	2.9201	2.5100	0.16
800 EXTERNAL NOTCH FILTER	B	From Leg	1.0000 0.00 1.00	0.00	145.0000	No Ice	0.6601	0.3211	0.01
						1/2" Ice	0.7627	0.3983	0.02
						1" Ice	0.8727	0.4830	0.02
						2" Ice	1.1149	0.6744	0.04
TME-800MHZ RRH	B	From Leg	1.0000 0.00 1.00	0.00	145.0000	No Ice	2.1342	1.7730	0.05
						1/2" Ice	2.3195	1.9461	0.07
						1" Ice	2.5123	2.1267	0.10
						2" Ice	2.9201	2.5100	0.16
800 EXTERNAL NOTCH FILTER	C	From Leg	1.0000 0.00 1.00	0.00	145.0000	No Ice	0.6601	0.3211	0.01
						1/2" Ice	0.7627	0.3983	0.02
						1" Ice	0.8727	0.4830	0.02
						2" Ice	1.1149	0.6744	0.04
TME-800MHZ RRH	C	From Leg	1.0000 0.00 1.00	0.00	145.0000	No Ice	2.1342	1.7730	0.05
						1/2" Ice	2.3195	1.9461	0.07
						1" Ice	2.5123	2.1267	0.10
						2" Ice	2.9201	2.5100	0.16
Side Arm Mount [SO 102-3]	B	None		0.00	145.0000	No Ice	3.6000	3.6000	0.07
						1/2" Ice	4.1800	4.1800	0.11
						1" Ice	4.7500	4.7500	0.14
						2" Ice	5.9000	5.9000	0.20
6' x 2" Mount Pipe	A	From Leg	1.0000 0.00 0.00	0.00	145.0000	No Ice	1.4250	1.4250	0.02
						1/2" Ice	1.9250	1.9250	0.03
						1" Ice	2.2939	2.2939	0.05
						2" Ice	3.0596	3.0596	0.09
6' x 2" Mount Pipe	B	From Leg	1.0000 0.00 0.00	0.00	145.0000	No Ice	1.4250	1.4250	0.02
						1/2" Ice	1.9250	1.9250	0.03
						1" Ice	2.2939	2.2939	0.05
						2" Ice	3.0596	3.0596	0.09
6' x 2" Mount Pipe	C	From Leg	1.0000 0.00 0.00	0.00	145.0000	No Ice	1.4250	1.4250	0.02
						1/2" Ice	1.9250	1.9250	0.03
						1" Ice	2.2939	2.2939	0.05
						2" Ice	3.0596	3.0596	0.09
****									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.0000 0.00 2.00	0.00	119.0000	No Ice	6.3292	5.6424	0.11
						1/2" Ice	6.7751	6.4259	0.17
						1" Ice	7.2137	7.1313	0.23
						2" Ice	8.1168	8.5907	0.38
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.0000 0.00	0.00	119.0000	No Ice	6.3292 6.7751	5.6424 6.4259	0.11 0.17

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			2.00			1/2" Ice	7.2137	7.1313	0.23
						1" Ice	8.1168	8.5907	0.38
						2" Ice			
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.0000 0.00 2.00	0.00	119.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.3292 6.7751 7.2137 8.1168	5.6424 6.4259 7.1313 8.5907	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.0000 0.00 2.00	0.00	119.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.3186 6.7646 7.2032 8.1062	5.6334 6.4160 7.1208 8.5791	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.0000 0.00 2.00	0.00	119.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.3186 6.7646 7.2032 8.1062	5.6334 6.4160 7.1208 8.5791	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.0000 0.00 2.00	0.00	119.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.3186 6.7646 7.2032 8.1062	5.6334 6.4160 7.1208 8.5791	0.11 0.17 0.23 0.38
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.0000 0.00 2.00	0.00	119.0000	No Ice 1/2" Ice 1" Ice 2" Ice	14.6900 15.4600 16.2300 17.8200	6.8700 7.5500 8.2500 9.6700	0.19 0.31 0.46 0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.0000 0.00 2.00	0.00	119.0000	No Ice 1/2" Ice 1" Ice 2" Ice	14.6900 15.4600 16.2300 17.8200	6.8700 7.5500 8.2500 9.6700	0.19 0.31 0.46 0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.0000 0.00 2.00	0.00	119.0000	No Ice 1/2" Ice 1" Ice 2" Ice	14.6900 15.4600 16.2300 17.8200	6.8700 7.5500 8.2500 9.6700	0.19 0.31 0.46 0.79
KRY 112 144/1	A	From Leg	4.0000 0.00 2.00	0.00	119.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.3500 0.4259 0.5093 0.6981	0.1750 0.2343 0.3009 0.4565	0.01 0.01 0.02 0.03
KRY 112 144/1	B	From Leg	4.0000 0.00 2.00	0.00	119.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.3500 0.4259 0.5093 0.6981	0.1750 0.2343 0.3009 0.4565	0.01 0.01 0.02 0.03
KRY 112 144/1	C	From Leg	4.0000 0.00 2.00	0.00	119.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.3500 0.4259 0.5093 0.6981	0.1750 0.2343 0.3009 0.4565	0.01 0.01 0.02 0.03
RADIO 4449 B12/B71	A	From Leg	4.0000 0.00 2.00	0.00	119.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.6500 1.8104 1.9781 2.3359	1.1625 1.3012 1.4473 1.7618	0.07 0.09 0.11 0.16
RADIO 4449 B12/B71	B	From Leg	4.0000 0.00 2.00	0.00	119.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.6500 1.8104 1.9781 2.3359	1.1625 1.3012 1.4473 1.7618	0.07 0.09 0.11 0.16
RADIO 4449 B12/B71	C	From Leg	4.0000	0.00	119.0000	No Ice	1.6500	1.1625	0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00 2.00			1/2" Ice 1" Ice 2" Ice	1.8104 1.9781 2.3359	1.3012 1.4473 1.7618	0.09 0.11 0.16
RMQP-4096-HK	C	None		0.00	119.0000	No Ice 1/2" Ice 1" Ice 2" Ice	23.1400 28.1700 33.2300 43.3500	23.1400 28.1700 33.2300 43.3500	1.95 2.34 2.85 3.87
2.375" OD x 6' Mount Pipe	A	None		0.00	119.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.4250 1.9250 2.2939 3.0596	1.4250 1.9250 2.2939 3.0596	0.03 0.04 0.05 0.09
2.375" OD x 6' Mount Pipe	B	None		0.00	119.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.4250 1.9250 2.2939 3.0596	1.4250 1.9250 2.2939 3.0596	0.03 0.04 0.05 0.09
2.375" OD x 6' Mount Pipe	C	None		0.00	119.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.4250 1.9250 2.2939 3.0596	1.4250 1.9250 2.2939 3.0596	0.03 0.04 0.05 0.09
***** DMP65R-BU4D w/ Mount Pipe	A	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	7.5300 8.0400 8.5700 9.6800	3.7900 4.2300 4.6800 5.6300	0.09 0.16 0.22 0.39
DMP65R-BU4D w/ Mount Pipe	B	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	7.5300 8.0400 8.5700 9.6800	3.7900 4.2300 4.6800 5.6300	0.09 0.16 0.22 0.39
DMP65R-BU4D w/ Mount Pipe	C	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	7.5300 8.0400 8.5700 9.6800	3.7900 4.2300 4.6800 5.6300	0.09 0.16 0.22 0.39
OPA65R-BU4D w/ Mount Pipe	A	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	8.1000 8.6500 9.2100 10.3900	4.0300 4.5000 4.9800 5.9800	0.08 0.14 0.21 0.38
OPA65R-BU4D w/ Mount Pipe	B	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	8.1000 8.6500 9.2100 10.3900	4.0300 4.5000 4.9800 5.9800	0.08 0.14 0.21 0.38
OPA65R-BU4D w/ Mount Pipe	C	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	8.1000 8.6500 9.2100 10.3900	4.0300 4.5000 4.9800 5.9800	0.08 0.14 0.21 0.38
RRUS 4478 B14_CCIV2	A	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.0212 2.1999 2.3860 2.7804	1.2459 1.3960 1.5536 1.8909	0.06 0.08 0.10 0.15
RRUS 4478 B14_CCIV2	B	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.0212 2.1999 2.3860 2.7804	1.2459 1.3960 1.5536 1.8909	0.06 0.08 0.10 0.15

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
RRUS 4478 B14_CCIV2	C	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.0212 2.1999 2.3860 2.7804	1.2459 1.3960 1.5536 1.8909	0.06 0.08 0.10 0.15
RRUS 4449 B5/B12	A	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.9675 2.1439 2.3278 2.7177	1.4081 1.5637 1.7267 2.0749	0.07 0.09 0.11 0.16
RRUS 4449 B5/B12	B	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.9675 2.1439 2.3278 2.7177	1.4081 1.5637 1.7267 2.0749	0.07 0.09 0.11 0.16
RRUS 4449 B5/B12	C	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.9675 2.1439 2.3278 2.7177	1.4081 1.5637 1.7267 2.0749	0.07 0.09 0.11 0.16
DC6-48-60-18-8C-EV	A	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7357 2.9620 3.1953 3.6830	2.7357 2.9620 3.1953 3.6830	0.03 0.05 0.08 0.15
7770.00 w/ Mount Pipe	A	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	5.7460 6.1791 6.6067 7.4880	4.2543 5.0137 5.7109 7.1553	0.06 0.10 0.16 0.29
7770.00 w/ Mount Pipe	B	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	5.7460 6.1791 6.6067 7.4880	4.2543 5.0137 5.7109 7.1553	0.06 0.10 0.16 0.29
7770.00 w/ Mount Pipe	C	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	5.7460 6.1791 6.6067 7.4880	4.2543 5.0137 5.7109 7.1553	0.06 0.10 0.16 0.29
SBNHH-1D65A w/ Mount Pipe	A	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	3.0400 3.3400 3.6500 4.3100	2.4500 2.7500 3.0500 3.6800	0.05 0.10 0.16 0.31
SBNHH-1D65A w/ Mount Pipe	B	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	3.0400 3.3400 3.6500 4.3100	2.4500 2.7500 3.0500 3.6800	0.05 0.10 0.16 0.31
SBNHH-1D65A w/ Mount Pipe	C	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	3.0400 3.3400 3.6500 4.3100	2.4500 2.7500 3.0500 3.6800	0.05 0.10 0.16 0.31
(2) LGP2140X	A	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.0800 1.2137 1.3548 1.6593	0.3580 0.4536 0.5563 0.7825	0.01 0.02 0.03 0.05
(2) LGP2140X	B	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.0800 1.2137 1.3548 1.6593	0.3580 0.4536 0.5563 0.7825	0.01 0.02 0.03 0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) LGP2140X	C	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.0800 1.2137 1.3548 1.6593	0.3580 0.4536 0.5563 0.7825	0.01 0.02 0.03 0.05
RRUS 32 B2	A	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7427 2.9647 3.1941 3.6753	1.6681 1.8552 2.0493 2.4585	0.05 0.07 0.10 0.16
RRUS 32 B2	B	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7427 2.9647 3.1941 3.6753	1.6681 1.8552 2.0493 2.4585	0.05 0.07 0.10 0.16
RRUS 32 B2	C	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7427 2.9647 3.1941 3.6753	1.6681 1.8552 2.0493 2.4585	0.05 0.07 0.10 0.16
RRUS 32 B66	A	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7427 2.9647 3.1941 3.6753	1.6681 1.8552 2.0493 2.4585	0.05 0.07 0.10 0.16
RRUS 32 B66	B	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7427 2.9647 3.1941 3.6753	1.6681 1.8552 2.0493 2.4585	0.05 0.07 0.10 0.16
RRUS 32 B66	C	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7427 2.9647 3.1941 3.6753	1.6681 1.8552 2.0493 2.4585	0.05 0.07 0.10 0.16
RRUS-32 B30	A	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	3.3139 3.5576 3.8087 4.3332	2.4238 2.6383 2.8597 3.3235	0.08 0.10 0.14 0.21
RRUS-32 B30	B	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	3.3139 3.5576 3.8087 4.3332	2.4238 2.6383 2.8597 3.3235	0.08 0.10 0.14 0.21
RRUS-32 B30	C	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	3.3139 3.5576 3.8087 4.3332	2.4238 2.6383 2.8597 3.3235	0.08 0.10 0.14 0.21
DC6-48-60-18-8F	A	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.2117 1.8924 2.1051 2.5703	1.2117 1.8924 2.1051 2.5703	0.03 0.05 0.08 0.14
DC6-48-60-18-8F	B	From Leg	4.0000 0.00 2.00	0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.2117 1.8924 2.1051 2.5703	1.2117 1.8924 2.1051 2.5703	0.03 0.05 0.08 0.14
Platform Mount [LP 1201-1_KCKR-HR-1]	B	None		0.00	110.0000	No Ice 1/2" Ice 1" Ice 2" Ice	37.6100 45.6200 53.5900 69.6500	37.6100 45.6200 53.5900 69.6500	2.63 3.48 4.46 6.85

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
****									
****									
GPS_A	B	From Leg	2.0000 0.00 1.00	0.00	53.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.2550 0.3205 0.3934 0.5614	0.2550 0.3205 0.3934 0.5614	0.00 0.00 0.01 0.02
Side Arm Mount [SO 701-1]	B	None		0.00	53.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.8500 1.1400 1.4300 2.0100	1.6700 2.3400 3.0100 4.3500	0.07 0.08 0.09 0.12
****									
KS24019-L112A	C	From Leg	2.0000 0.00 1.00	0.00	49.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.1407 0.1979 0.2621 0.4148	0.1407 0.1979 0.2621 0.4148	0.01 0.01 0.01 0.02
Side Arm Mount [SO 701-1]	C	None		0.00	49.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.8500 1.1400 1.4300 2.0100	1.6700 2.3400 3.0100 4.3500	0.07 0.08 0.09 0.12
****									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
A-ANT-23G-2-C	A	Paraboloid w/o Radome	From Leg	4.0000 0.00 2.00	0.00		147.0000	2.1750	No Ice 1/2" Ice 1" Ice 2" Ice	3.7200 4.0100 4.3000 4.8800	0.01 0.02 0.03 0.04
A-ANT-23G-2-C	B	Paraboloid w/o Radome	From Leg	4.0000 0.00 2.00	0.00		147.0000	2.1750	No Ice 1/2" Ice 1" Ice 2" Ice	3.7200 4.0100 4.3000 4.8800	0.01 0.02 0.03 0.04
VHLP2-18	C	Paraboloid w/o Radome	From Leg	4.0000 0.00 2.00	-60.00		147.0000	2.1750	No Ice 1/2" Ice 1" Ice 2" Ice	3.7200 4.0100 4.3000 4.8800	0.03 0.05 0.07 0.11

Tower Pressures - No Ice

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
L1 147.0000-99.5000	122.2279	1.32	51.38	106.839	A B C	0.000 0.000 0.000	106.839 106.839 106.839	106.839	100.00 100.00 100.00	5.700 3.169 0.000	0.000 0.000 0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L2 99.5000-59.0000	78.8041	1.204	46.80	116.177	A	0.000	116.177	116.177	100.00	12.666	0.000
					B	0.000	116.177		100.00	14.387	0.000
					C	0.000	116.177		100.00	7.806	0.000
L3 59.0000-29.2500	43.7930	1.064	41.45	99.457	A	0.000	99.457	99.457	100.00	33.968	0.000
					B	0.000	99.457		100.00	32.514	0.000
					C	0.000	99.457		100.00	27.679	0.000
L4 29.2500-0.0000	14.3368	0.85	33.12	108.867	A	0.000	108.867	108.867	100.00	50.784	0.000
					B	0.000	108.867		100.00	48.371	0.000
					C	0.000	108.867		100.00	43.618	0.000

Tower Pressure - With Ice

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 147.0000-99.5000	122.2279	1.32	7.60	1.4534	118.345	A	0.000	118.345	118.345	100.00	37.716	0.000
						B	0.000	118.345		100.00	8.837	0.000
						C	0.000	118.345		100.00	0.000	0.000
L2 99.5000-59.0000	78.8041	1.204	6.92	1.3910	125.988	A	0.000	125.988	125.988	100.00	41.556	0.000
						B	0.000	125.988		100.00	27.752	0.000
						C	0.000	125.988		100.00	9.398	0.000
L3 59.0000-29.2500	43.7930	1.064	6.13	1.3116	106.354	A	0.000	106.354	106.354	100.00	74.419	0.000
						B	0.000	106.354		100.00	49.923	0.000
						C	0.000	106.354		100.00	36.812	0.000
L4 29.2500-0.0000	14.3368	0.85	4.90	1.1730	115.261	A	0.000	115.261	115.261	100.00	98.340	0.000
						B	0.000	115.261		100.00	70.405	0.000
						C	0.000	115.261		100.00	57.979	0.000

Tower Pressure - Service

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 147.0000-99.5000	122.2279	1.32	10.31	106.839	A	0.000	106.839	106.839	100.00	5.700	0.000
					B	0.000	106.839		100.00	3.169	0.000
					C	0.000	106.839		100.00	0.000	0.000
L2 99.5000-59.0000	78.8041	1.204	9.39	116.177	A	0.000	116.177	116.177	100.00	12.666	0.000
					B	0.000	116.177		100.00	14.387	0.000
					C	0.000	116.177		100.00	7.806	0.000
L3 59.0000-29.2500	43.7930	1.064	8.32	99.457	A	0.000	99.457	99.457	100.00	33.968	0.000
					B	0.000	99.457		100.00	32.514	0.000
					C	0.000	99.457		100.00	27.679	0.000
L4 29.2500-0.0000	14.3368	0.85	6.64	108.867	A	0.000	108.867	108.867	100.00	50.784	0.000
					B	0.000	108.867		100.00	48.371	0.000
					C	0.000	108.867		100.00	43.618	0.000

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

Comb. No.	Description
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
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
L1	147 - 99.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-36.72	-0.02	1.12
			Max. Mx	20	-15.90	527.04	5.20
			Max. My	2	-15.82	10.18	540.53
			Max. Vy	20	-24.00	527.04	5.20
			Max. Vx	2	-24.30	10.18	540.53
			Max. Torque	6			2.05
L2	99.5 - 59	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.00	0.06	1.52
			Max. Mx	20	-23.45	1579.37	9.66
			Max. My	2	-23.39	19.32	1604.81
			Max. Vy	20	-29.24	1579.37	9.66
			Max. Vx	2	-29.54	19.32	1604.81
			Max. Torque	6			2.05

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L3	59 - 29.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.02	0.31	1.85
			Max. Mx	8	-31.53	-2493.34	8.33
			Max. My	2	-31.50	25.91	2538.05
			Max. Vy	8	34.02	-2493.34	8.33
			Max. Vx	2	-34.33	25.91	2538.05
			Max. Torque	6			2.04
L4	29.25 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.58	0.82	2.21
			Max. Mx	8	-43.41	-3753.85	10.74
			Max. My	2	-43.41	33.35	3808.09
			Max. Vy	8	38.83	-3753.85	10.74
			Max. Vx	2	-39.08	33.35	3808.09
			Max. Torque	6			2.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	73.58	-0.00	-0.00
	Max. H_x	20	43.44	37.61	0.10
	Max. H_z	3	32.58	0.21	39.05
	Max. M_x	2	3808.09	0.21	39.05
	Max. M_z	8	3753.85	-38.80	0.07
	Max. Torsion	6	1.99	-32.54	19.12
	Min. Vert	15	32.58	0.04	-37.81
	Min. H_x	9	32.58	-38.80	0.07
	Min. H_z	15	32.58	0.04	-37.81
	Min. M_x	14	-3740.88	0.04	-37.81
	Min. M_z	20	-3712.98	37.61	0.10
	Min. Torsion	20	-1.05	37.61	0.10

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	36.20	0.00	-0.00	-0.34	-0.14	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	43.44	-0.21	-39.05	-3808.09	33.35	-0.97
0.9 Dead+1.0 Wind 0 deg - No Ice	32.58	-0.21	-39.05	-3755.49	32.83	-0.97
1.2 Dead+1.0 Wind 30 deg - No Ice	43.44	18.85	-32.87	-3242.58	-1852.06	-1.66
0.9 Dead+1.0 Wind 30 deg - No Ice	32.58	18.85	-32.87	-3197.41	-1826.33	-1.66
1.2 Dead+1.0 Wind 60 deg - No Ice	43.44	32.54	-19.12	-1904.70	-3207.43	-1.99
0.9 Dead+1.0 Wind 60 deg - No Ice	32.58	32.54	-19.12	-1878.00	-3162.89	-1.99
1.2 Dead+1.0 Wind 90 deg - No Ice	43.44	38.80	-0.07	-10.74	-3753.85	-0.46
0.9 Dead+1.0 Wind 90 deg - No Ice	32.58	38.80	-0.07	-10.45	-3702.39	-0.46
1.2 Dead+1.0 Wind 120 deg - No Ice	43.44	33.52	19.64	1921.58	-3250.43	-0.22
0.9 Dead+1.0 Wind 120 deg - No Ice	32.58	33.52	19.64	1895.09	-3205.67	-0.22
1.2 Dead+1.0 Wind 150 deg - No Ice	43.44	18.70	32.75	3242.85	-1840.31	-0.04
0.9 Dead+1.0 Wind 150 deg - No Ice	32.58	18.70	32.75	3197.86	-1814.78	-0.04
1.2 Dead+1.0 Wind 180 deg - No Ice	43.44	-0.04	37.81	3740.88	5.97	0.11
0.9 Dead+1.0 Wind 180 deg - No Ice	32.58	-0.04	37.81	3689.17	5.92	0.11
1.2 Dead+1.0 Wind 210 deg - No Ice	43.44	-19.31	33.67	3285.80	1876.17	0.05
0.9 Dead+1.0 Wind 210 deg - No Ice	32.58	-19.31	33.67	3240.58	1850.40	0.05
1.2 Dead+1.0 Wind 240 deg - No Ice	43.44	-33.73	19.52	1902.48	3284.08	0.61
0.9 Dead+1.0 Wind 240 deg - No Ice	32.58	-33.73	19.52	1876.32	3238.83	0.61
1.2 Dead+1.0 Wind 270 deg - No Ice	43.44	-37.61	-0.10	-16.48	3712.98	1.05
0.9 Dead+1.0 Wind 270 deg - No Ice	32.58	-37.61	-0.10	-16.08	3661.36	1.04
1.2 Dead+1.0 Wind 300 deg - No Ice	43.44	-32.62	-19.12	-1905.12	3220.02	-0.16
0.9 Dead+1.0 Wind 300 deg - No Ice	32.58	-32.62	-19.12	-1878.41	3175.37	-0.17

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 330 deg - No Ice	43.44	-19.54	-33.87	-3293.81	1899.28	-0.33
0.9 Dead+1.0 Wind 330 deg - No Ice	32.58	-19.54	-33.87	-3248.28	1873.15	-0.34
1.2 Dead+1.0 Ice+1.0 Temp	73.58	0.00	0.00	-2.21	0.82	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	73.58	-0.04	-7.63	-830.46	7.77	-0.17
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	73.58	3.79	-6.61	-717.04	-407.33	-0.30
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	73.58	6.55	-3.84	-421.24	-706.51	-0.37
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	73.58	7.58	-0.01	-4.24	-815.91	-0.09
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	73.58	6.55	3.84	415.19	-706.63	-0.06
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	73.58	3.77	6.60	712.54	-405.66	-0.02
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	73.58	-0.01	7.61	822.37	1.76	0.02
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	73.58	-3.78	6.58	711.98	408.95	0.02
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	73.58	-6.59	3.81	410.90	714.73	0.12
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	73.58	-7.58	-0.02	-6.02	819.84	0.20
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	73.58	-6.57	-3.85	-421.90	711.15	-0.03
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	73.58	-3.82	-6.62	-718.71	413.97	-0.06
Dead+Wind 0 deg - Service	36.20	-0.04	-7.83	-759.20	6.53	-0.19
Dead+Wind 30 deg - Service	36.20	3.78	-6.59	-646.40	-369.16	-0.33
Dead+Wind 60 deg - Service	36.20	6.53	-3.84	-379.80	-639.23	-0.40
Dead+Wind 90 deg - Service	36.20	7.78	-0.01	-2.41	-748.23	-0.09
Dead+Wind 120 deg - Service	36.20	6.72	3.94	382.63	-647.84	-0.06
Dead+Wind 150 deg - Service	36.20	3.75	6.57	645.89	-366.82	-0.01
Dead+Wind 180 deg - Service	36.20	-0.01	7.59	745.25	1.07	0.02
Dead+Wind 210 deg - Service	36.20	-3.87	6.75	654.50	373.76	0.02
Dead+Wind 240 deg - Service	36.20	-6.77	3.92	378.85	654.33	0.13
Dead+Wind 270 deg - Service	36.20	-7.55	-0.02	-3.56	739.76	0.21
Dead+Wind 300 deg - Service	36.20	-6.54	-3.84	-379.89	641.53	-0.05
Dead+Wind 330 deg - Service	36.20	-3.92	-6.79	-656.67	378.38	-0.07

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-36.20	0.00	-0.00	36.20	0.00	0.000%
2	-0.21	-43.44	-39.05	0.21	43.44	39.05	0.003%
3	-0.21	-32.58	-39.05	0.21	32.58	39.05	0.002%
4	18.85	-43.44	-32.87	-18.85	43.44	32.87	0.000%
5	18.85	-32.58	-32.87	-18.85	32.58	32.87	0.000%
6	32.54	-43.44	-19.12	-32.54	43.44	19.12	0.000%
7	32.54	-32.58	-19.12	-32.54	32.58	19.12	0.000%
8	38.80	-43.44	-0.07	-38.80	43.44	0.07	0.007%
9	38.80	-32.58	-0.07	-38.80	32.58	0.07	0.005%
10	33.52	-43.44	19.64	-33.52	43.44	-19.64	0.000%
11	33.52	-32.58	19.64	-33.52	32.58	-19.64	0.000%
12	18.70	-43.44	32.75	-18.70	43.44	-32.75	0.000%
13	18.70	-32.58	32.75	-18.70	32.58	-32.75	0.000%
14	-0.04	-43.44	37.81	0.04	43.44	-37.81	0.007%
15	-0.04	-32.58	37.81	0.04	32.58	-37.81	0.006%
16	-19.31	-43.44	33.67	19.31	43.44	-33.67	0.000%
17	-19.31	-32.58	33.67	19.31	32.58	-33.67	0.000%
18	-33.73	-43.44	19.52	33.73	43.44	-19.52	0.000%
19	-33.73	-32.58	19.52	33.73	32.58	-19.52	0.000%
20	-37.62	-43.44	-0.10	37.61	43.44	0.10	0.003%
21	-37.62	-32.58	-0.10	37.61	32.58	0.10	0.006%
22	-32.62	-43.44	-19.12	32.62	43.44	19.12	0.000%
23	-32.62	-32.58	-19.12	32.62	32.58	19.12	0.000%
24	-19.54	-43.44	-33.87	19.54	43.44	33.87	0.000%
25	-19.54	-32.58	-33.87	19.54	32.58	33.87	0.000%
26	0.00	-73.58	0.00	-0.00	73.58	-0.00	0.001%
27	-0.04	-73.58	-7.63	0.04	73.58	7.63	0.001%
28	3.79	-73.58	-6.61	-3.79	73.58	6.61	0.001%
29	6.55	-73.58	-3.84	-6.55	73.58	3.84	0.001%
30	7.58	-73.58	-0.01	-7.58	73.58	0.01	0.001%
31	6.56	-73.58	3.84	-6.55	73.58	-3.84	0.001%
32	3.77	-73.58	6.60	-3.77	73.58	-6.60	0.001%
33	-0.01	-73.58	7.62	0.01	73.58	-7.61	0.001%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
34	-3.78	-73.58	6.59	3.78	73.58	-6.58	0.001%
35	-6.59	-73.58	3.81	6.59	73.58	-3.81	0.001%
36	-7.58	-73.58	-0.02	7.58	73.58	0.02	0.001%
37	-6.57	-73.58	-3.85	6.57	73.58	3.85	0.001%
38	-3.82	-73.58	-6.62	3.82	73.58	6.62	0.001%
39	-0.04	-36.20	-7.83	0.04	36.20	7.83	0.002%
40	3.78	-36.20	-6.59	-3.78	36.20	6.59	0.002%
41	6.53	-36.20	-3.84	-6.53	36.20	3.84	0.002%
42	7.78	-36.20	-0.01	-7.78	36.20	0.01	0.002%
43	6.72	-36.20	3.94	-6.72	36.20	-3.94	0.002%
44	3.75	-36.20	6.57	-3.75	36.20	-6.57	0.002%
45	-0.01	-36.20	7.59	0.01	36.20	-7.59	0.002%
46	-3.87	-36.20	6.76	3.87	36.20	-6.75	0.002%
47	-6.77	-36.20	3.92	6.77	36.20	-3.92	0.002%
48	-7.55	-36.20	-0.02	7.55	36.20	0.02	0.002%
49	-6.54	-36.20	-3.84	6.54	36.20	3.84	0.002%
50	-3.92	-36.20	-6.79	3.92	36.20	6.79	0.002%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	15	0.00003646	0.00010066
3	Yes	15	0.00002275	0.00007460
4	Yes	18	0.00000001	0.00014277
5	Yes	18	0.00000001	0.00009385
6	Yes	19	0.00000001	0.00005988
7	Yes	18	0.00000001	0.00009933
8	Yes	14	0.00008922	0.00012567
9	Yes	14	0.00005726	0.00009931
10	Yes	18	0.00000001	0.00014738
11	Yes	18	0.00000001	0.00009673
12	Yes	18	0.00000001	0.00014448
13	Yes	18	0.00000001	0.00009511
14	Yes	14	0.00008904	0.00011008
15	Yes	14	0.00005712	0.00008883
16	Yes	18	0.00000001	0.00014602
17	Yes	18	0.00000001	0.00009586
18	Yes	18	0.00000001	0.00014747
19	Yes	18	0.00000001	0.00009672
20	Yes	15	0.00003664	0.00007710
21	Yes	14	0.00005725	0.00013650
22	Yes	18	0.00000001	0.00014864
23	Yes	18	0.00000001	0.00009773
24	Yes	18	0.00000001	0.00014896
25	Yes	18	0.00000001	0.00009771
26	Yes	6	0.00000001	0.00001835
27	Yes	16	0.00000001	0.00007817
28	Yes	16	0.00000001	0.00009628
29	Yes	16	0.00000001	0.00009783
30	Yes	16	0.00000001	0.00007638
31	Yes	16	0.00000001	0.00009623
32	Yes	16	0.00000001	0.00009575
33	Yes	16	0.00000001	0.00007713
34	Yes	16	0.00000001	0.00009601
35	Yes	16	0.00000001	0.00009655
36	Yes	16	0.00000001	0.00007686
37	Yes	16	0.00000001	0.00009792
38	Yes	16	0.00000001	0.00009785
39	Yes	14	0.00000001	0.00003064
40	Yes	14	0.00000001	0.00003585
41	Yes	14	0.00000001	0.00004708
42	Yes	14	0.00000001	0.00002956
43	Yes	14	0.00000001	0.00004027
44	Yes	14	0.00000001	0.00004029
45	Yes	14	0.00000001	0.00002976
46	Yes	14	0.00000001	0.00004119
47	Yes	14	0.00000001	0.00003977
48	Yes	14	0.00000001	0.00002995
49	Yes	14	0.00000001	0.00004031
50	Yes	14	0.00000001	0.00004307

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147 - 99.5	27.81	39	1.55	0.00
L2	103.25 - 59	14.34	39	1.31	0.00
L3	63.75 - 29.25	5.41	39	0.80	0.00
L4	34.5 - 0	1.60	39	0.42	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
149.0000	A-ANT-23G-2-C	39	27.81	1.55	0.00	46088
147.0000	Top Hat 10" Diameter x 4' 6" Tall	39	27.81	1.55	0.00	46088
145.0000	TME-1900MHz RRH (65 MHz)	39	27.16	1.55	0.00	46088
119.0000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	39	18.91	1.43	0.00	8229
110.0000	DMP65R-BU4D w/ Mount Pipe	39	16.24	1.37	0.00	6227
53.0000	GPS_A	39	3.71	0.65	0.00	4003
49.0000	KS24019-L112A	39	3.16	0.60	0.00	3917

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147 - 99.5	139.43	2	7.80	0.01
L2	103.25 - 59	71.93	2	6.57	0.01
L3	63.75 - 29.25	27.15	2	4.01	0.00
L4	34.5 - 0	8.02	2	2.09	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
149.0000	A-ANT-23G-2-C	2	139.43	7.80	0.02	9480
147.0000	Top Hat 10" Diameter x 4' 6" Tall	2	139.43	7.80	0.02	9480
145.0000	TME-1900MHz RRH (65 MHz)	2	136.18	7.77	0.02	9480
119.0000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	2	94.86	7.19	0.01	1688
110.0000	DMP65R-BU4D w/ Mount Pipe	2	81.47	6.87	0.01	1274
53.0000	GPS_A	2	18.60	3.28	0.00	802
49.0000	KS24019-L112A	2	15.86	3.02	0.00	784

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	147 - 99.5 (1)	TP30.313x22x0.25	47.5000	0.0000	0.0	23.6724	-15.82	1278.31	0.012
L2	99.5 - 59 (2)	TP36.9x29.1567x0.3125	44.2500	0.0000	0.0	35.9798	-23.39	2104.82	0.011
L3	59 - 29.25 (3)	TP41.481x35.4438x0.375	34.5000	0.0000	0.0	48.5262	-31.50	2838.78	0.011
L4	29.25 - 0 (4)	TP45.85x39.8123x0.4375	34.5000	0.0000	0.0	63.9749	-43.41	3742.53	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	147 - 99.5 (1)	TP30.313x22x0.25	540.63	857.29	0.631	0.00	857.29	0.000
L2	99.5 - 59 (2)	TP36.9x29.1567x0.3125	1604.93	1707.36	0.940	0.00	1707.36	0.000
L3	59 - 29.25 (3)	TP41.481x35.4438x0.375	2538.18	2662.28	0.953	0.00	2662.28	0.000
L4	29.25 - 0 (4)	TP45.85x39.8123x0.4375	3808.24	4017.32	0.948	0.00	4017.32	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	147 - 99.5 (1)	TP30.313x22x0.25	24.30	383.49	0.063	1.00	991.98	0.001
L2	99.5 - 59 (2)	TP36.9x29.1567x0.3125	29.54	631.45	0.047	0.99	1986.04	0.001
L3	59 - 29.25 (3)	TP41.481x35.4438x0.375	34.33	851.63	0.040	0.97	3010.53	0.000
L4	29.25 - 0 (4)	TP45.85x39.8123x0.4375	39.09	1122.76	0.035	0.97	4484.99	0.000

Pole Interaction Design Data

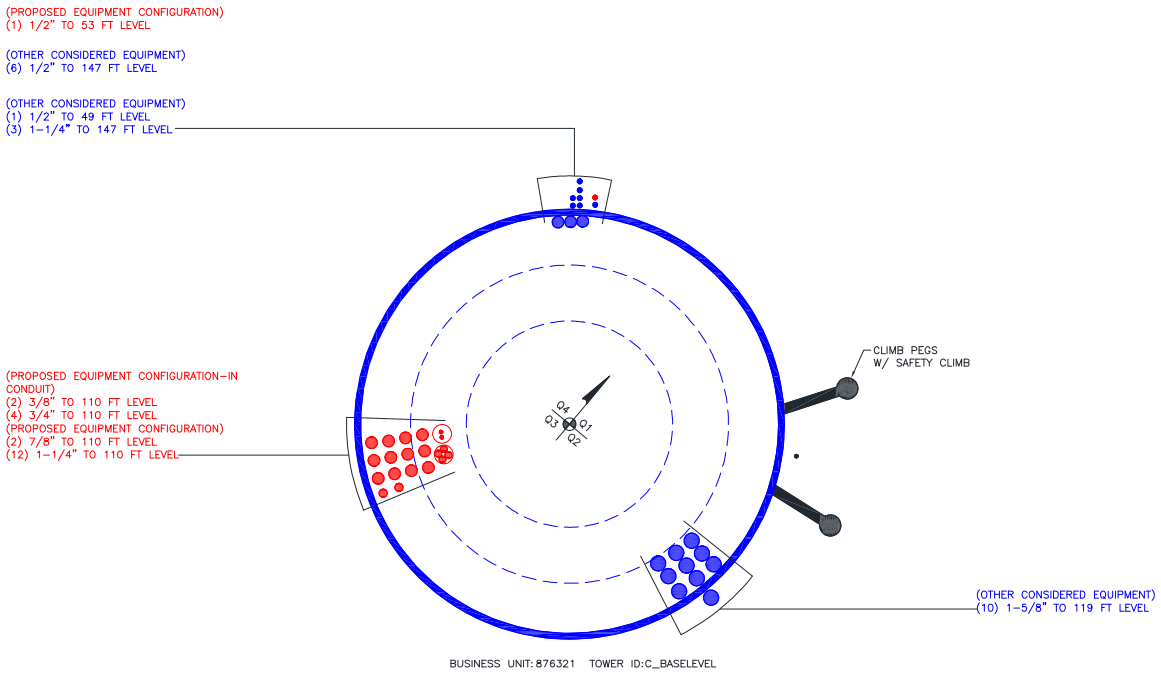
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	147 - 99.5 (1)	0.012	0.631	0.000	0.063	0.001	0.647	1.050	4.8.2
L2	99.5 - 59 (2)	0.011	0.940	0.000	0.047	0.001	0.953	1.050	4.8.2
L3	59 - 29.25 (3)	0.011	0.953	0.000	0.040	0.000	0.966	1.050	4.8.2
L4	29.25 - 0 (4)	0.012	0.948	0.000	0.035	0.000	0.961	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	147 - 99.5	Pole	TP30.313x22x0.25	1	-15.82	1342.23	61.6	Pass
L2	99.5 - 59	Pole	TP36.9x29.1567x0.3125	2	-23.39	2210.06	90.8	Pass
L3	59 - 29.25	Pole	TP41.481x35.4438x0.375	3	-31.50	2980.72	92.0	Pass
L4	29.25 - 0	Pole	TP45.85x39.8123x0.4375	4	-43.41	3929.66	91.5	Pass
							Summary	
						Pole (L3)	92.0	Pass
						RATING =	**92.0**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1/2" TO 53 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(6) 1/2" TO 147 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 49 FT LEVEL
(3) 1-1/4" TO 147 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION-IN CONDUIT)
(2) 3/8" TO 110 FT LEVEL
(4) 3/4" TO 110 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(2) 7/8" TO 110 FT LEVEL
(12) 1-1/4" TO 110 FT LEVEL
CLIMB PEGS
W/ SAFETY CLIMB
Q4
Q1
Q3
Q2
(OTHER CONSIDERED EQUIPMENT)
(10) 1-5/8" TO 119 FT LEVEL
BUSINESS UNIT: 876321 TOWER ID:C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

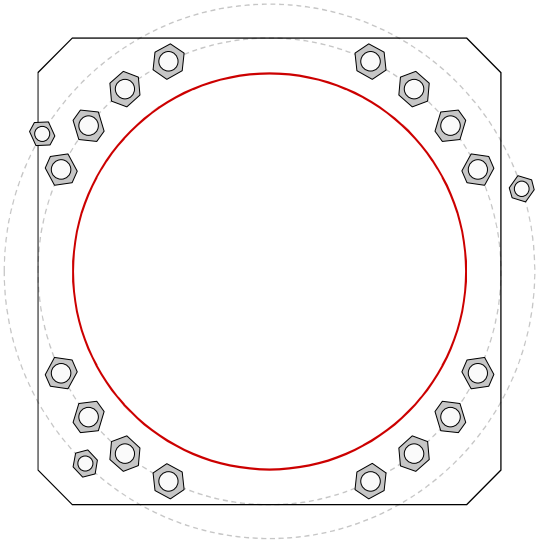
Monopole Base Plate Connection

Site Info	
BU #	876321
Site Name	Branford Banm Tower
Order #	509329 Rev 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0

Applied Loads	
Moment (kip-ft)	3808.24
Axial Force (kips)	43.41
Shear Force (kips)	39.09

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (16) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 54" BC
Anchor Spacing: 6 in
GROUP 2: (3) 1-3/4" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 61.85" BC
pos. (deg): 18, 149, 226

Base Plate Data

54" OD x 3.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Stiffener Data

N/A

Pole Data

45.85" x 0.4375" 12-sided pole (A607-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

GROUP 1:		
Pu_c = 201.17	ϕPn_c = 268.39	**Stress Rating**
Vu = 2.44	ϕVn = 120.77	**71.4%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2:		
Pu_c = 122.65	ϕPn_c = 227.3	**Stress Rating**
Vu = 0	ϕVn = 102.28	**51.4%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	26.67	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**56.4%**	**Pass**

Pier and Pad Foundation

BU # :	876321
Site Name:	Branford Banm Tov
App. Number:	509329 Rev 0

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp}:	43.41	kips
Base Shear, Vu_comp:	39.09	kips
Moment, M_u:	3808.24	ft-kips
Tower Height, **H**:	147	ft
BP Dist. Above Fdn, bp_{dist}:	2.5	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, **dpier**:	7	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	11	
Pier Rebar Quantity, **mc**:	16	
Pier Tie/Spiral Size, **St**:	5	
Pier Tie/Spiral Quantity, **mt**:	12	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	11	ft
Pad Width, **W**:	20.5	ft
Pad Thickness, **T**:	3	ft
Pad Rebar Size (Bottom), **Sp**:	11	
Pad Rebar Quantity (Bottom), **mp**:	21	
Pad Clear Cover, cc_{pad}:	3	in

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

Soile Properties		
Total Soil Unit Weight, γ:	125	pcf
Ultimate Gross Bearing, Qult:	8.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	35	degrees
SPT Blow Count, N_{blows}:	34	
Base Friction, μ:		
Neglected Depth, **N**:	3.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	4.5	ft

<--Toggle between Gross and Net

Foundation Analysis Checks	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	346.53	39.09	**10.7%**	**Pass**
Bearing Pressure (ksf)	6.00	4.35	**72.5%**	**Pass**
*Overturning (kip*ft)*	4909.95	4265.92	**86.9%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	4077.59	4140.51	**96.7%**	**Pass**
Pier Compression (kip)	23390.64	105.54	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	4322.10	2287.98	**50.4%**	**Pass**
Pad Shear - 1-way (kips)	624.22	359.23	**54.8%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.000	**0.0%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	6631.37	2484.30	**35.7%**	**Pass**

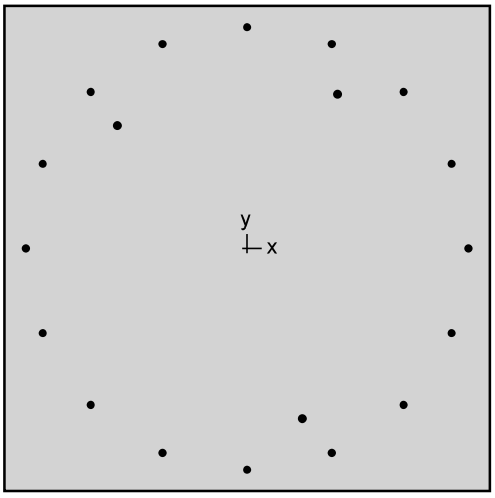
**Rating per TIA-222-H Section 15.5*

Soil Rating*:	**86.9%**
Structural Rating*:	*

*See SP Column for steel calculations

Version 3.3.1

spColumn v6.00
Computer program for the Strength Design of Reinforced Concrete Sections



Contents

List of Figures

1. General Information

File Name	g:\tower\375_crown_...\foundation steel check.col
Project	37520-0477.001.7805
Column	BU 876321
Engineer	AMS
Code	ACI 318-14
Bar Set	ASTM A615
Units	English
Run Option	Investigation
Run Axis	Biaxial
Slenderness	Not Considered
Column Type	Structural

2. Material Properties

2.1. Concrete

Type	Standard	
f'_c	3	ksi
E_c	3122.02	ksi
f_c	2.55	ksi
ε_u	0.003	in/in
β_1	0.85	

2.2. Steel

Type	Standard	
f_y	60	ksi
E_s	29000	ksi
ε_{yt}	0.00206897	in/in

3. Section

3.1. Shape and Properties

Type	Rectangular	
Width	84	in
Depth	84	in
A_g	7056	in^2
I_x	4.14893e+006	in^4
I_y	4.14893e+006	in^4
r_x	24.2487	in
r_y	24.2487	in
X_o	0	in
Y_o	0	in

3.2. Section Figure

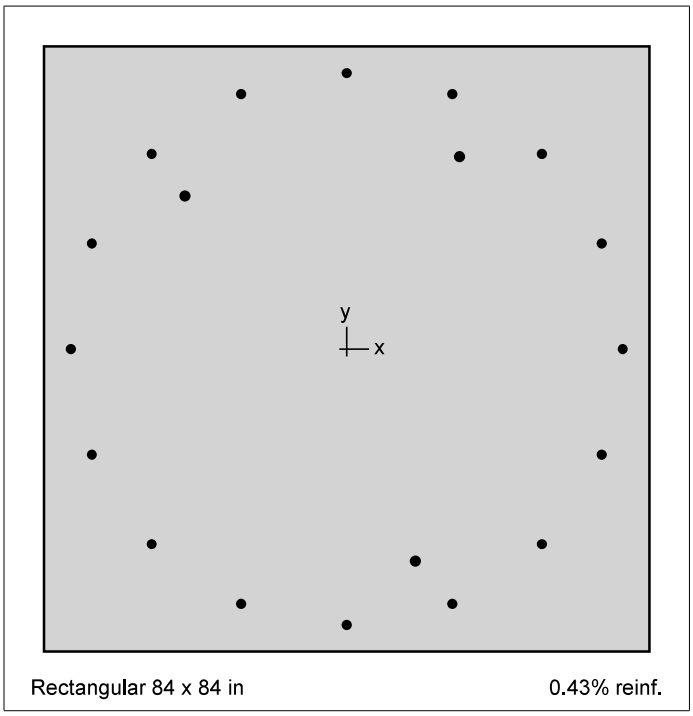


Figure 1: Column section

4. Reinforcement

4.1. Bar Set: ASTM A615

Bar	Diameter in	Area in²	Bar	Diameter in	Area in²	Bar	Diameter in	Area in²
#3	0.38	0.11	#4	0.50	0.20	#5	0.63	0.31
#6	0.75	0.44	#7	0.88	0.60	#8	1.00	0.79
#9	1.13	1.00	#10	1.27	1.27	#11	1.41	1.56
#14	1.69	2.25	#18	2.26	4.00			

4.2. Confinement and Factors

Confinement type	Tied
For #10 bars or less	#3 ties
For larger bars	#4 ties
Capacity Reduction Factors	
Axial compression, (a)	0.8
Tension controlled ϕ, (b)	0.9
Compression controlled ϕ, (c)	0.65

4.3. Arrangement

Pattern	Irregular
Bar layout	---
Cover to	---
Clear cover	---
Bars	---

Total steel area, A_s	30.66 in^2
Rho	0.43 %
Minimum clear spacing	5.95 in

(Note: Rho < 0.50%)

4.4. Bars Provided

Area in^2	X in	Y in	Area in^2	X in	Y in	Area in^2	X in	Y in
1.56	0.0	38.3	1.56	14.7	35.4	1.56	27.1	27.1
1.56	35.4	14.7	1.56	38.3	0.0	1.56	35.4	-14.7
1.56	27.1	-27.1	1.56	14.7	-35.4	1.56	0.0	-38.3
1.56	-14.7	-35.4	1.56	-27.1	-27.1	1.56	-35.4	-14.7
1.56	-38.3	0.0	1.56	-35.4	14.7	1.56	-27.1	27.1
1.56	-14.7	35.4	1.90	9.5	-29.4	1.90	15.7	26.7
1.90	-22.5	21.3						

5. Factored Loads and Moments with Corresponding Capacities

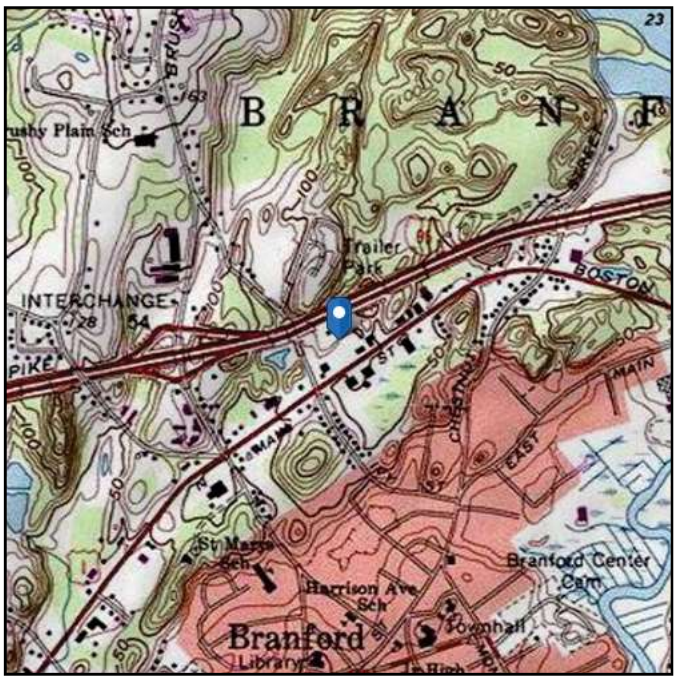
No	P_u kip	M_{ux} k-ft	M_{uy} k-ft	ϕM_{nx} k-ft	ϕM_{ny} k-ft	$\phi M_n/M_u$	NA Depth in	d_t Depth in	ε_t	ϕ
1	43.41	4265.92	0.00	5543.19	0.00	1.299	8.12	80.32	0.02672	0.900
2	43.41	0.00	-4265.92	0.00	-5398.61	1.266	8.85	80.79	0.02530	0.900
3	43.41	0.00	4265.92	0.00	5354.80	1.255	8.89	80.81	0.02524	0.900
4	43.41	-4265.92	0.00	-5234.68	0.00	1.227	8.29	80.37	0.02623	0.900
5	43.41	3016.50	3016.50	4134.21	4134.21	1.371	26.68	97.32	0.00794	0.900
6	43.41	3016.50	-3016.50	4178.11	-4178.11	1.385	27.21	97.32	0.00773	0.900
7	43.41	-3016.50	-3016.50	-4008.48	-4008.48	1.329	26.46	97.32	0.00803	0.900
8	43.41	-3016.50	3016.50	-3981.13	3981.13	1.320	26.50	97.32	0.00802	0.900

Rating per TIA-222-H Section 15.5 = 1/1.227/1.05 = 77.6%

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	57.7 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.288611
Soil Class:	D - Stiff Soil	**Longitude:**	-72.813861



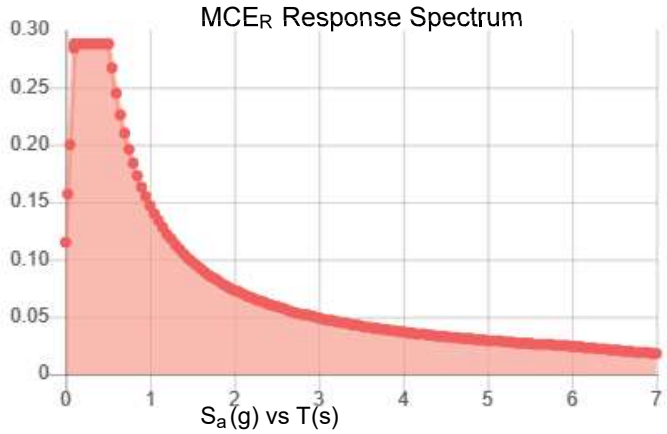
Seismic

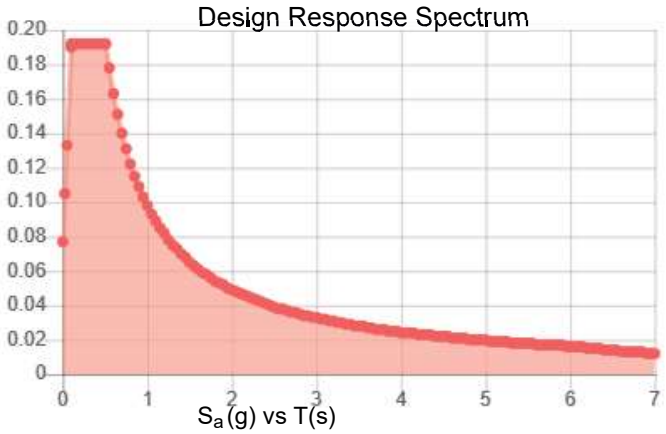
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.18	S_{DS} :	0.192
S_1 :	0.061	S_{D1} :	0.098
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.093
S_{MS} :	0.288	PGA_M :	0.149
S_{M1} :	0.147	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Thu Mar 12 2020

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.

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:	Thu Mar 12 2020

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

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

Exhibit E

Mount Analysis

Date: March 9, 2020

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

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

Subject:	**Mount Analysis Report**	
Carrier Designation:	**AT&T Mobility Equipment Change-Out**	
	Carrier Site Number:	24492
	Carrier Site Name:	Branford Central
Crown Castle Designation:	**Crown Castle BU Number:**	876321
	Crown Castle Site Name:	Branford Banm Tower
	Crown Castle JDE Job Number:	596334
	Crown Castle Order Number:	509329, Rev.0
Engineering Firm Designation:	**B+T Group Report Designation:**	136457.003.01 R1
Site Data:	**150 North Main Street, Branford, CT, New Haven, 06405**	
	Latitude 41° 17' 19.00" Longitude -72° 48' 49.90"	
Structure Information:	**Tower Height & Type:**	**147 ft. Monopole**
	Mount Elevation:	**110 ft.**
	Mount Type:	**14 ft. Platform Mount**

Dear Mr. Morrow,

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

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

Platform Mount **Sufficient**

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 121 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount structural analysis prepared by: Ramya Pasnoor, E.I.T.

Respectfully submitted by: B&T Engineering, Inc.
COA: PEC.0001564 Expires: 02/10/2020

3/9/20

Scott S. Vance, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

This is a 14' Platform Mount, mapped by B+T Group.

2) ANALYSIS CRITERIA

Building Code:	2018 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	121 mph
Exposure Category:	C
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.201
Seismic S_1:	0.054
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft.)	Antenna Centerline (ft.)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
110	112	3	Andrew	SBNHH-1D65A	14 ft. Platform Mount
		3	CCI	DMP65R-BU4D	
		3	CCI	OPA65R-BU4D	
		3	Powerwave	7770.00	
		3	Ericsson	RRUS 32 B2	
		3	Ericsson	RRUS 32 B66	
		3	Ericsson	RRUS 4449 B5/B12	
		3	Ericsson	RRUS 4478 B14_CCIV2	
		3	Ericsson	RRUS-32 B30	
		6	Powerwave	LGP2140X	
		1	Raycap	DC6-48-60-18-8C-EV	
		2	Raycap	DC6-48-60-18-8F	
53	54	1	GPS	GPS_A	--

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Order	Existing Loading Proposed Loading	Date: 04/03/2020	Crown Castle
RFDS		Date: 03/02/2020	
Mount Mapping	B+T group	Date: 12/19/2019	On file

3.1) Analysis Method

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

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

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

Manufacturer's drawings were used to create model.

3.2) Assumptions

1. The mount was properly fabricated and installed in accordance with its original design and manufacturer's specifications.
2. The mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3. The configuration of antennas, mounts, and other appurtenances are as specified in Table-1.
4. All mount components have been assumed to be in sufficient condition to carry their full design capacity for the analysis.
5. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
6. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
7. All prior structural modifications, if any are assumed to be correctly installed and fully effective.
8. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
9. The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
10. The following material grades were assumed (Unless Noted Otherwise):
    (a) Connection Bolts : ASTM A325
    (b) Steel Pipe : ASTM A53 (GR. 35)
    (c) HSS (Round) : ASTM 500 (GR. B-42)
    (d) HSS (Rectangular) : ASTM 500 (GR. B-46)
    (e) Channel : ASTM A36 (GR. 36)
    (f) Steel Solid Rod : ASTM A36 (GR. 36)
    (g) Steel Plate : ASTM A36 (GR. 36)
    (h) Steel Angle : ASTM A36 (GR. 36)
    (i) UNISTRUT : ASTM A570 (GR. 33)

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

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Platform Mount)

Notes	Component	Critical Member	Centerline (ft.)	% Capacity	Pass / Fail
1,2	Support Tubes	7	110	38.7	Pass
	Main Horizontals	2	110	65.3	Pass
	Support Rails	22	110	67.0	Pass
	Mount Pipes	74	110	86.1	Pass
	Connection Angles	25	110	65.3	Pass
	Kickers	29	110	10.1	Pass
	Support Angles	15	110	30.8	Pass
	Connection Plates	28	110	4.5	Pass

Structure Rating (max from all components) =	86.1%

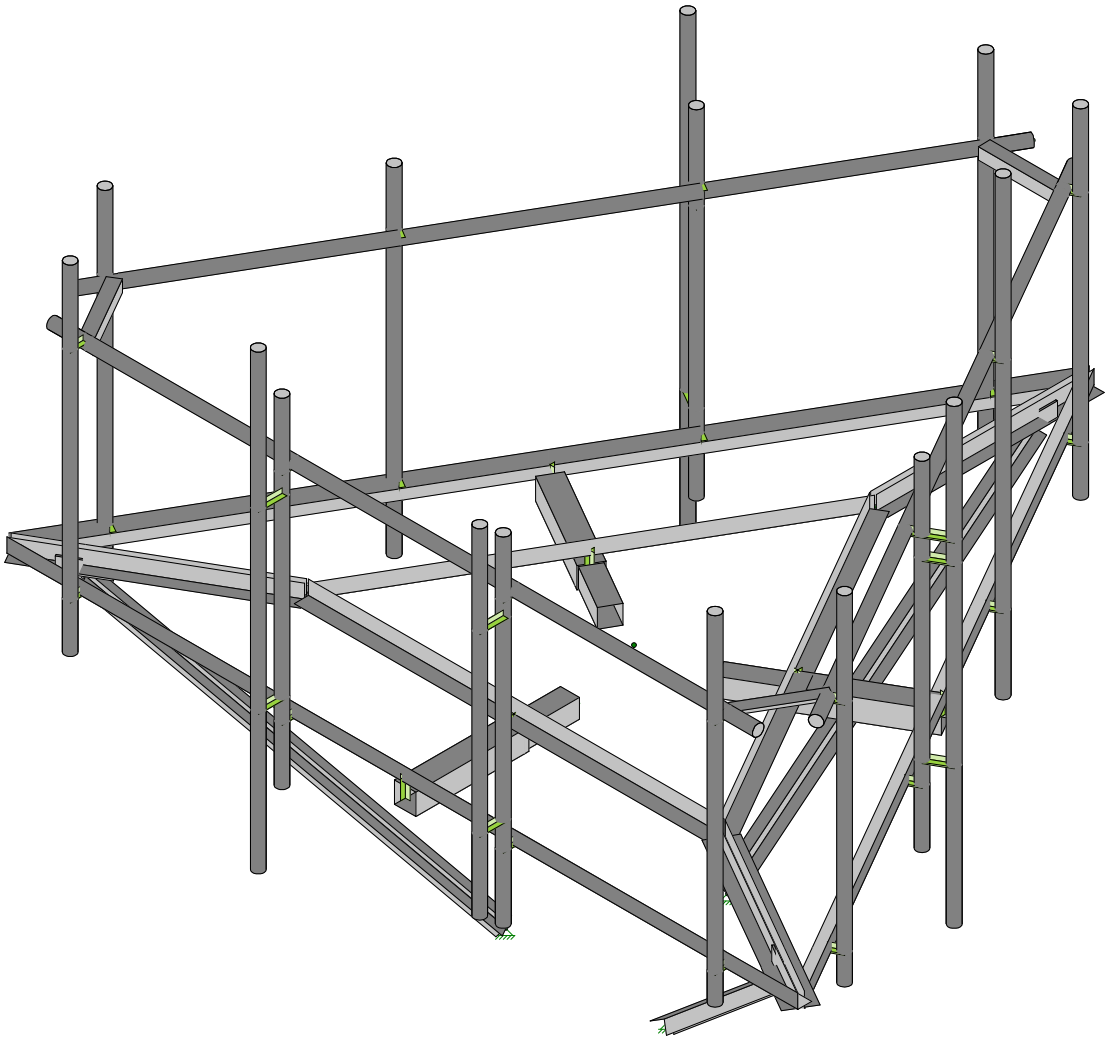
Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) All sectors are typical

4.1) Recommendations

The mount has sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

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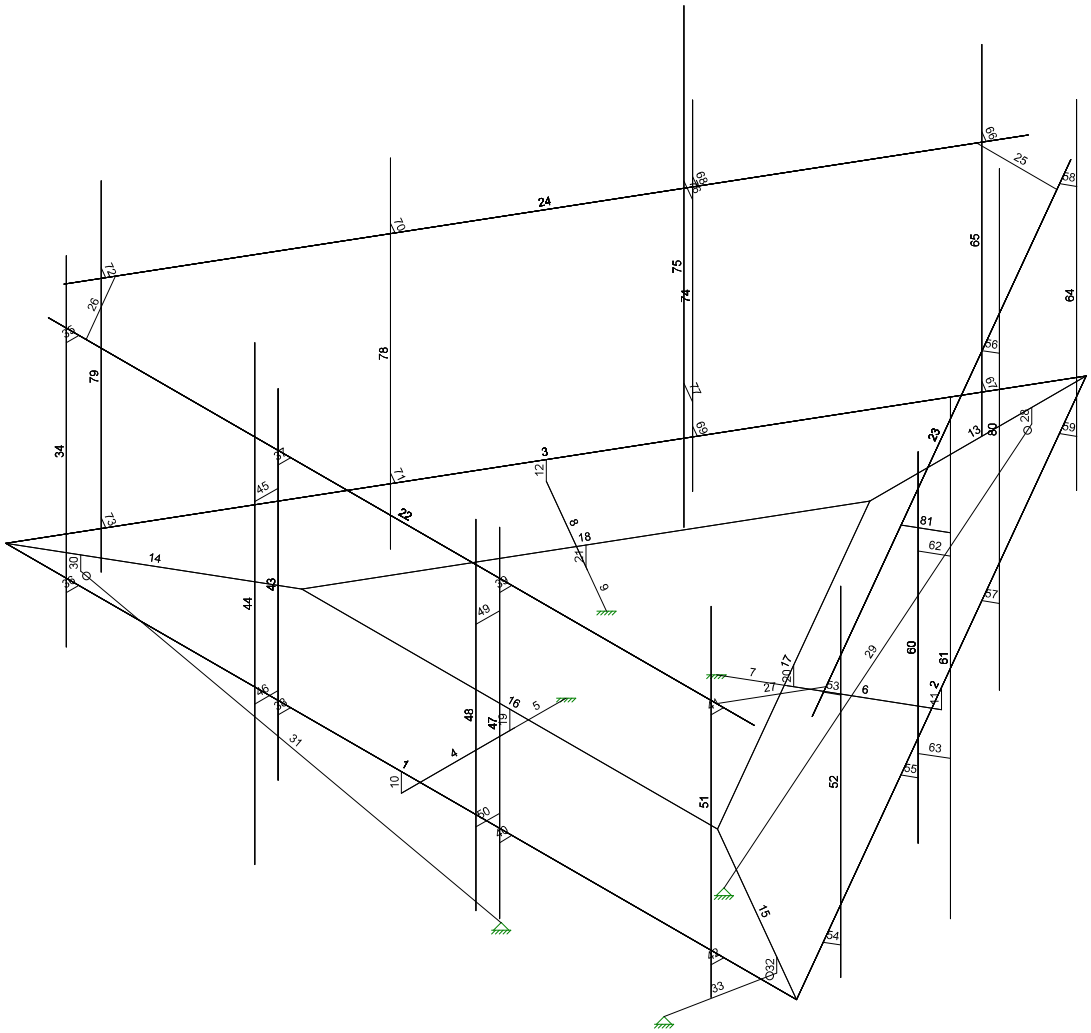

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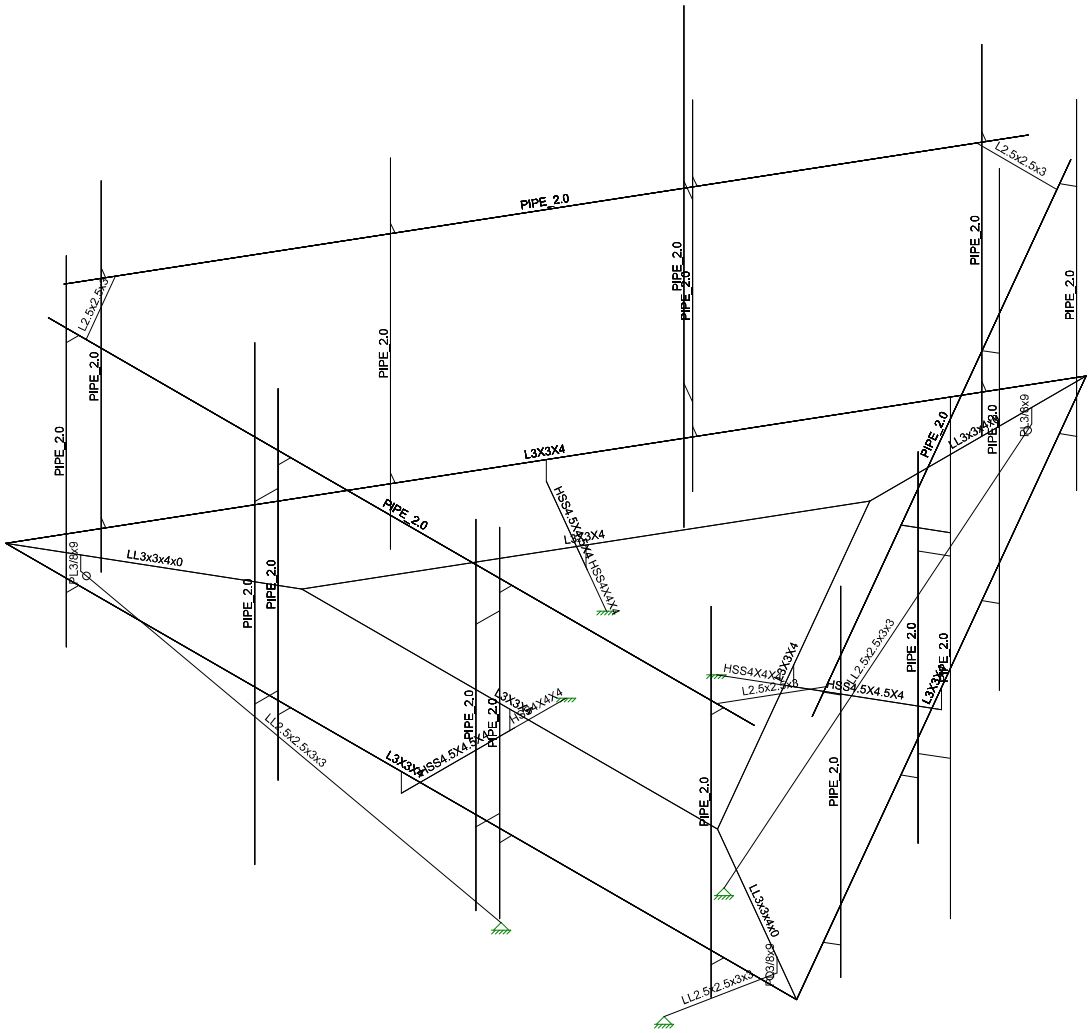

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APPENDIX B

SOFTWARE INPUT CALCULATIONS

PROJECT	**136457.003.01 - Branford Banm Tower KSC**			
SUBJECT	**Platform Mount Mount Analysis**			
DATE	**03/09/20**	PAGE 1	OF	1

B+T Group
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Tulsa, OK 74119
(918) 587-4630

INPUT

[REF: ANSI/TIA-222-H]

Tower Type		:	Monopole								
Ground Elevation	z_s	:	57	ft	[ASCE7 Hazard Tool]						
Tower Height		:	147	ft							
Mount Elevation		:	110	ft							
Antenna Elevation		:	112	ft							
Crest Height		:	0	ft							
Risk Category		:	II		[Table 2-1]	Gust Factor	G_h	:	1.00		[Sec. 16.6]
Exposure Category		:	C		[Sec. 2.6.5.1.2]	Pressure Coefficient	K_z	:	1.30		[Sec. 2.6.5.2]
Topography Category		:	1		[Sec. 2.6.6.2]	Topography Factor	K_{zt}	:	1.00		[Sec. 2.6.6]
Wind Velocity	V	:	121	mph	[ASCE7 Hazard Tool]	Elevation Factor	K_e	:	1.00		[Sec. 2.6.8]
Ice wind Velocity	V_i	:	50	mph	[ASCE7 Hazard Tool]	Directionality Factor	K_d	:	0.95		[Sec. 16.6]
Service Velocity	V_s	:	30	mph	[ASCE7 Hazard Tool]	Shielding Factor	K_a	:	0.90		[Sec. 16.6]
Base Ice thickness	t_i	:	1	in	[ASCE7 Hazard Tool]	Design Ice Thickness	t_{iz}	:	1.13	in	[Sec. 2.6.10]
Seismic Design Cat.		:	B		[ASCE7 Hazard Tool]						
	S_S	:	0.201			Importance Factor	I_e	:	1		[Table 2-3]
	S_1	:	0.054			Response Coefficient	C_s	:	0.11		[Sec. 2.7.7.1]
	S_{DS}	:	0.215			Amplification	A_s	:	1.99		[Sec. 16.7]
	S_{D1}	:	0.086								

ANTENNAS

	Manufacturer	Model	Height (in)	Front Width (in)	Side Width (in)	Weight (lbs)	Shape	Quantity	Location (%)
Mount Pipe **51**									
	Powerwave	7770.00	55.00	11.00	5.00	35.00	Flat	0.5	10
	Powerwave	7770.00	55.00	11.00	5.00	35.00	Flat	0.5	80
	Powerwave	TME-LGP21401	14.40	9.20	2.60	14.10	Flat	2	60
Mount Pipe **34**									
	Andrew	SBNHH-1D65A	55.60	11.90	7.10	33.50	Flat	0.5	10
	Andrew	SBNHH-1D65A	55.60	11.90	7.10	33.50	Flat	0.5	70
Mount Pipe **44**									
	CCI	OPA65R-BU4D	48.00	21.00	7.80	62.30	Flat	0.5	25
	CCI	OPA65R-BU4D	48.00	21.00	7.80	62.30	Flat	0.5	75
Mount Pipe **48**									
	CCI	DMP65R-BU4D	48.00	20.70	7.70	76.50	Flat	0.5	20
	CCI	DMP65R-BU4D	48.00	20.70	7.70	76.50	Flat	0.5	80
47									
	Ericsson	TME-RRUS 32 B30	27.20	12.10	7.00	53.00	Flat	1	40
	Ericsson	TME-RRUS 32 B2	27.20	12.05	7.00	52.90	Flat	1	40
	Ericsson	TME-RRUS 4478 B14	16.50	7.70	13.40	59.90	Flat	1	50
43									
	Ericsson	RRUS 32 B66A	27.60	7.41	12.45	55.12	Flat	1	50
	Ericsson	RRUS 4449 B5/B12	17.90	13.19	9.44	71.00	Flat	1	60

PROJECT	136457.003.01 - Branford Banm Tower KSC			
SUBJECT	Platform Mount Mount Analysis			
DATE	03/09/20	PAGE 2	OF 5	

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Mount Pipe	79								
	Powerwave	7770.00	55.00	11.00	5.00	35.00	Flat	0.5	10
	Powerwave	7770.00	55.00	11.00	5.00	35.00	Flat	0.5	80
	Powerwave	TME-LGP21401	14.40	9.20	2.60	14.10	Flat	2	60
Mount Pipe	65								
	Andrew	SBNHH-1D65A	55.60	11.90	7.10	33.50	Flat	0.5	10
	Andrew	SBNHH-1D65A	55.60	11.90	7.10	33.50	Flat	0.5	70
Mount Pipe	75								
	CCI	OPA65R-BU4D	48.00	21.00	7.80	62.30	Flat	0.5	25
	CCI	OPA65R-BU4D	48.00	21.00	7.80	62.30	Flat	0.5	75
Mount Pipe	78								
	CCI	DMP65R-BU4D	48.00	20.70	7.70	76.50	Flat	0.5	20
	CCI	DMP65R-BU4D	48.00	20.70	7.70	76.50	Flat	0.5	80
	Ericsson	TME-RRUS 4478 B14	16.50	7.70	13.40	59.90	Flat	1	50
	Ericsson	TME-RRUS 32 B2	27.20	7.00	12.05	52.90	Flat	1	40
	Ericsson	TME-RRUS 32 B30	27.20	7.00	12.05	53.00	Flat	1	40
Mount Pipe	74								
	Ericsson	RRUS 32 B66A	27.60	7.41	12.45	55.12	Flat	1	50
	Ericsson	RRUS 4449 B5/B12	17.90	9.44	13.19	71.00	Flat	1	10
Mount Pipe	64								
	Powerwave	7770.00	55.00	11.00	5.00	35.00	Flat	0.5	10
	Powerwave	7770.00	55.00	11.00	5.00	35.00	Flat	0.5	80
	Powerwave	TME-LGP21401	14.40	9.20	2.60	14.10	Flat	2	60
Mount Pipe	52								
	Andrew	SBNHH-1D65A	55.60	11.90	7.10	33.50	Flat	0.5	15
	Andrew	SBNHH-1D65A	55.60	11.90	7.10	33.50	Flat	0.5	70
Mount Pipe	61								
	CCI	OPA65R-BU4D	48.00	21.00	7.80	62.30	Flat	0.5	25
	CCI	OPA65R-BU4D	48.00	21.00	7.80	62.30	Flat	0.5	75
Mount Pipe	80								
	CCI	DMP65R-BU4D	48.00	20.70	7.70	76.50	Flat	0.5	20
	CCI	DMP65R-BU4D	48.00	20.70	7.70	76.50	Flat	0.5	80
	Ericsson	TME-RRUS 32 B30	27.20	12.10	7.00	53.00	Flat	1	40
	Ericsson	TME-RRUS 32 B2	27.20	12.05	7.00	52.90	Flat	1	40
	Ericsson	TME-RRUS 4478 B14	16.50	7.70	13.40	59.90	Flat	1	50

PROJECT	136457.003.01 - Branford Banm Tower KSC				
SUBJECT	Platform Mount Mount Analysis				
DATE	03/09/20	PAGE	3	OF	5

B+T GRP

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Mount Pipe **60**

	Ericsson	RRUS 32 B66A	27.60	7.41	12.45	55.12	Flat	1	10
	Ericsson	RRUS 4449 B5/B12	17.90	9.44	13.19	71.00	Flat	1	10

Mount Pipe **5**

	Raycap	TME-DC6-48-60-18-8C	31.41	10.24	10.24	26.20	Round	1	50

Mount Pipe **5**

	Raycap	TME-DC6-48-60-18-8C	31.41	10.24	10.24	26.20	Round	1	50

Mount Pipe

Mount Pipe

Mount Pipe

Mount Pipe

Mount Pipe

Mount Pipe

PROJECT	**136457.003.01 - Branford Banm Tower KSC**				
SUBJECT	**Platform Mount Mount Analysis**				
DATE	**03/09/20**	PAGE	1	OF	1

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(918) 587-4630

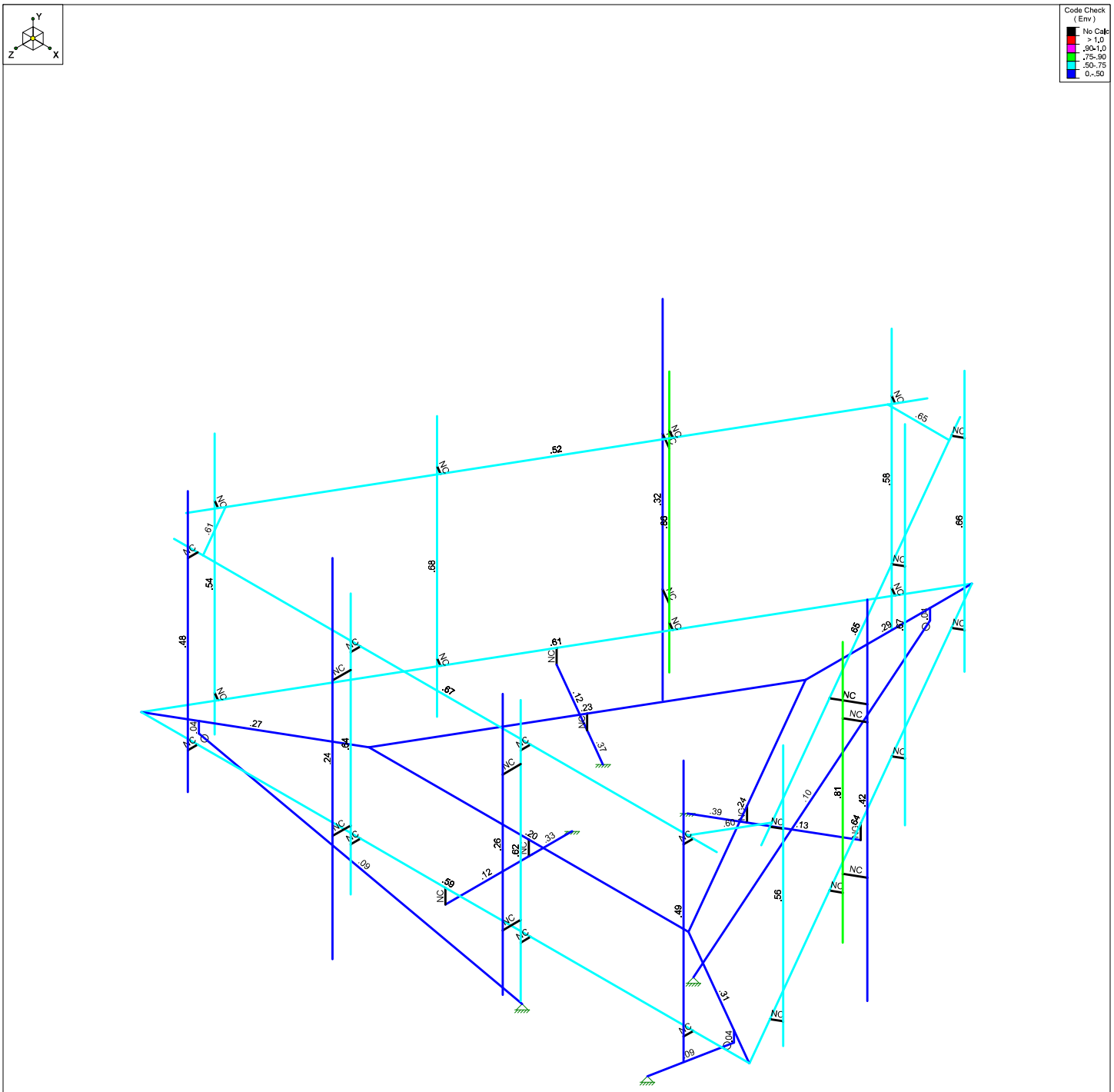
INPUT

[REF: ANSI/TIA-222-H]

	Member Number	Section Set	Wind Projection (in)	Length (in)	Perimeter (in)	Shape	D_c (in)
	1	MF-H1	3.00	168.00	12.00	Flat	4.24
	2	MF-H1	3.00	168.00	12.00	Flat	4.24
	3	MF-H1	3.00	168.00	12.00	Flat	4.24
	4	F1-ST2	4.50	24.00	18.00	Flat	6.36
	5	F1-ST1	4.00	11.00	16.00	Flat	5.66
	6	F1-ST2	4.50	24.00	18.00	Flat	6.36
	7	F1-ST1	4.00	11.00	16.00	Flat	5.66
	8	F1-ST2	4.50	24.00	18.00	Flat	6.36
	9	F1-ST1	4.00	11.00	16.00	Flat	5.66
	13	MF-H2	3.00	46.00	18.00	Flat	6.00
	14	MF-H2	3.00	46.00	18.00	Flat	6.00
	15	MF-H2	3.00	46.00	18.00	Flat	6.00
	16	MF-H1	3.00	88.32	12.00	Flat	4.24
	17	MF-H1	3.00	88.32	12.00	Flat	4.24
	18	MF-H1	3.00	88.32	12.00	Flat	4.24
	22	Handrail	2.38	150.00	7.46	Round	2.38
	23	Handrail	2.38	150.00	7.46	Round	2.38
	24	Handrail	2.38	150.00	7.46	Round	2.38
	25	F1-CA1	2.50	17.00	10.00	Flat	3.54
	26	F1-CA1	2.50	17.00	10.00	Flat	3.54
	27	F1-CA1	2.50	17.00	10.00	Flat	3.54
	28	CP	4.00	3.00	18.75	Flat	9.01
	29	Kicker	2.50	84.00	15.00	Flat	5.38
	30	CP	4.00	3.00	18.75	Flat	9.01
	31	Kicker	2.50	84.00	15.00	Flat	5.38
	32	CP	4.00	3.00	18.75	Flat	9.01
	33	Kicker	2.50	84.00	15.00	Flat	5.38
	34	MF-P1	2.38	72.00	7.46	Round	2.38
	43	MF-P1	2.38	72.00	7.46	Round	2.38
	44	MF-P1	2.38	96.00	7.46	Round	2.38
	47	MF-P1	2.38	72.00	7.46	Round	2.38
	48	MF-P1	2.38	72.00	7.46	Round	2.38
	51	MF-P1	2.38	72.00	7.46	Round	2.38
	52	MF-P1	2.38	72.00	7.46	Round	2.38
	60	MF-P1	2.38	72.00	7.46	Round	2.38
	61	MF-P1	2.38	96.00	7.46	Round	2.38
	64	MF-P1	2.38	72.00	7.46	Round	2.38
	65	MF-P1	2.38	72.00	7.46	Round	2.38
	74	MF-P1	2.38	72.00	7.46	Round	2.38
	75	MF-P1	2.38	96.00	7.46	Round	2.38
	78	MF-P1	2.38	72.00	7.46	Round	2.38
	79	MF-P1	2.38	72.00	7.46	Round	2.38
	80	MF-P1	2.38	96.00	7.46	Round	2.38

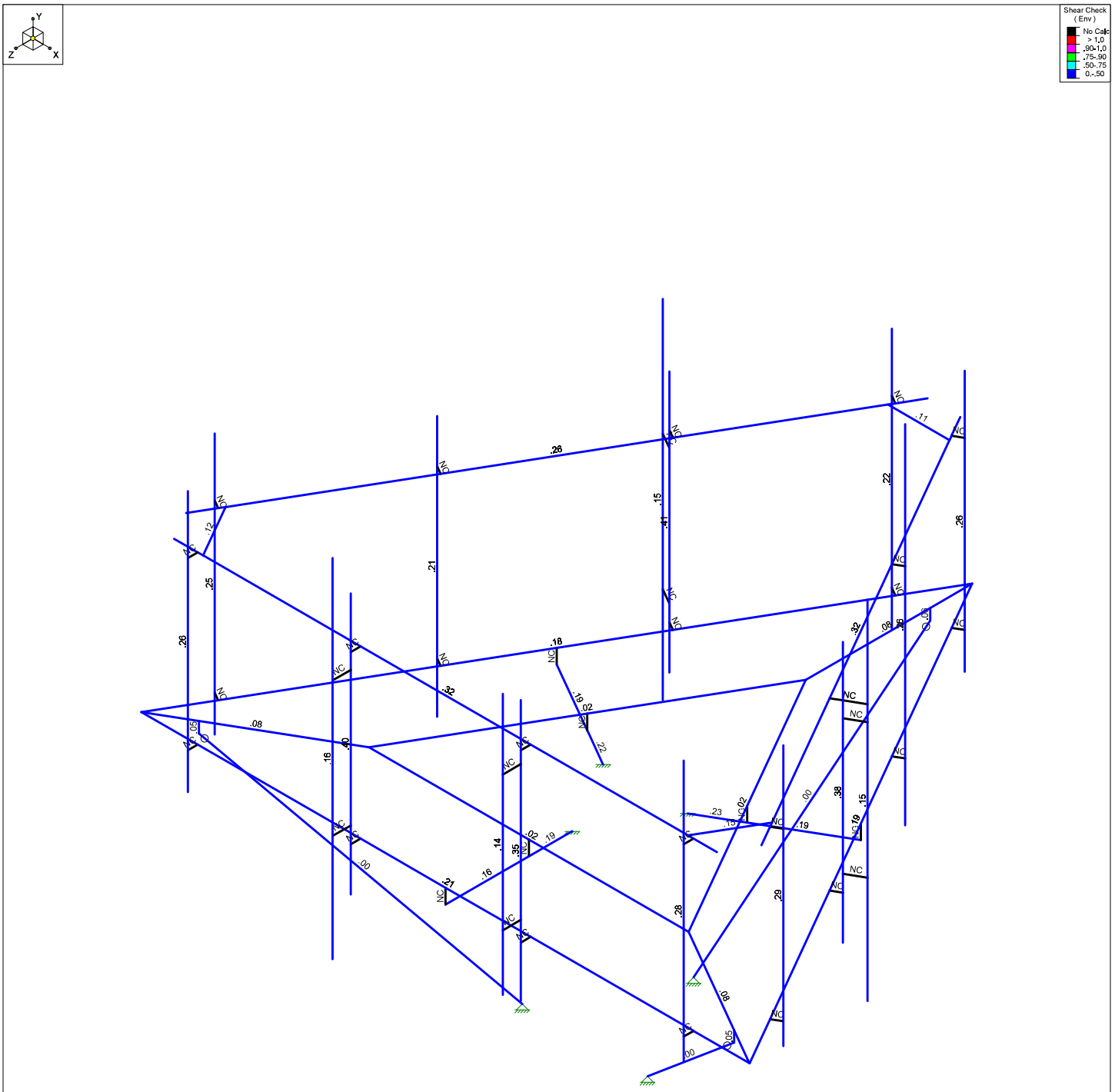
APPENDIX C

SOFTWARE ANALYSIS OUTPUT



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	876321 - Branford Banm Tower	SK - 6
RP		Mar 9, 2020 at 5:00 PM
136457.003.01		136457_003_01_Branford Banm T...



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	876321 - Branford Banm Tower	SK - 7
RP		Mar 9, 2020 at 5:01 PM
136457.003.01		136457_003_01_Branford Banm T...

PROJECT	**136457.003.01 - Branford Bar**		**KSC**
SUBJECT	**Platform Mount Mount Analysis**		
DATE	**03/09/20**	PAGE	OF

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74159
(918) 587-4630

Tower Type		:	Monopole		
Ground Elevation	z_s	:	57	ft	[ASCE7 Hazard Tool]
Tower Height		:	147.00	ft	
Mount Elevation		:	110.00	ft	
Antenna Elevation		:	112.00	ft	
Crest Height		:	0	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	C		[Sec. 2.6.5.1.2]
Topography Category		:	1.00		[Sec. 2.6.6.2]
Wind Velocity	V	:	121	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	:	50	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	:	30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	:	1.00	in	[ASCE7 Hazard Tool]
Seismic Design Cat.		:	B		[ASCE7 Hazard Tool]
	S_S	:	0.20		
	S_1	:	0.05		
	S_{DS}	:	0.22		
	S_{D1}	:	0.09		

Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	1.30		[Sec. 2.6.5.2]
Topography Factor	K_{zt}	:	1.00		[Sec. 2.6.6]
Elevation Factor	K_e	:	1.00		[Sec. 2.6.8]
Directionality Factor	K_d	:	0.95		[Sec. 16.6]
Shielding Factor	K_a	:	0.90		[Sec. 16.6]
Design Ice Thickness	t_{iz}	:	1.13	in	[Sec. 2.6.10]

Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.108		[Sec. 2.7.7.1]
Amplification	A_s	:	1.993197		[Sec. 16.7]

PROJECT	136457.003.01 - Branford Bar	KSC
SUBJECT	Platform Mount Mount Analysis	
DATE	03/09/20	PAGE OF

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74159
(918) 587-4630

Manufacturer	Model	Qty	Aspect Ratio	C_a flat/round	EPA_N (ft^2)	EPA_T (ft^2)	$EPA_{N\text{-}Ice}$ (ft^2)	$EPA_{T\text{-}Ice}$ (ft^2)	$F_{A\ No\ Ice\ (N)}$	$F_{A\ No\ Ice\ (T)}$	$F_{A\ Ice\ (N)}$	$F_{A\ Ice\ (T)}$
Powerwave	7770.00	0.5	5.00	1.31	2.10	0.95	2.64	1.44	0.11	0.05	0.02	0.01
Powerwave	7770.00	0.5	5.00	1.31	2.10	0.95	2.64	1.44	0.11	0.05	0.02	0.01
Powerwave	TME-LGP21401	2	1.57	1.20	1.84	0.52	2.65	1.12	0.09	0.03	0.02	0.00
Andrew	SBNHH-1D65A	0.5	4.67	1.30	2.30	1.37	2.84	1.88	0.07	0.04	0.01	0.01
Andrew	SBNHH-1D65A	0.5	4.67	1.30	2.30	1.37	2.84	1.88	0.07	0.04	0.01	0.01
CCI	OPA65R-BU4D	0.5	2.29	1.20	3.50	1.30	4.06	1.75	0.19	0.07	0.04	0.02
CCI	OPA65R-BU4D	0.5	2.29	1.20	3.50	1.30	4.06	1.75	0.19	0.07	0.04	0.02
CCI	DMP65R-BU4D	0.5	2.32	1.20	3.45	1.28	4.01	1.74	0.17	0.06	0.03	0.01
CCI	DMP65R-BU4D	0.5	2.32	1.20	3.45	1.28	4.01	1.74	0.17	0.06	0.03	0.01
Ericsson	TME-RRUS 32 B30	1	2.25	1.20	2.29	1.32	2.94	1.89	0.11	0.07	0.02	0.01
Ericsson	TME-RRUS 32 B2	1	2.26	1.20	2.28	1.32	2.93	1.89	0.11	0.07	0.02	0.01
Ericsson	TME-RRUS 4478 B14	1	2.14	1.20	0.88	1.54	1.30	2.04	0.04	0.08	0.01	0.01
Ericsson	RRUS 32 B66A	1	3.72	1.25	1.42	2.39	2.00	3.05	0.07	0.12	0.01	0.02
Ericsson	RRUS 4449 B5/B12	1	1.36	1.20	1.64	1.17	2.16	1.64	0.08	0.06	0.01	0.01

PROJECT	136457.003.01 - Branford Bar	KSC
SUBJECT	Platform Mount Mount Analysis	
DATE	03/09/20	PAGE 3 OF

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74159
(918) 587-4630

Manufacturer	Model	Qty	Aspect Ratio	C_a flat/round	EPA_N (ft^2)	EPA_T (ft^2)	$EPA_{N\text{-}Ice}$ (ft^2)	$EPA_{T\text{-}Ice}$ (ft^2)	$F_{A\ No\ Ice\ (N)}$	$F_{A\ No\ Ice\ (T)}$	$F_{A\ Ice\ (N)}$	$F_{A\ Ice\ (T)}$
Powerwave	7770.00	0.5	5.00	1.31	2.10	0.95	2.64	1.44	0.00	0.05	0.02	0.01
Powerwave	7770.00	0.5	5.00	1.31	2.10	0.95	2.64	1.44	0.00	0.05	0.02	0.01
Powerwave	TME-LGP21401	2	1.57	1.20	1.84	0.52	2.65	1.12	0.00	0.03	0.02	0.00
Andrew	SBNHH-1D65A	0.5	4.67	1.30	2.30	1.37	2.84	1.88	0.00	0.04	0.01	0.01
Andrew	SBNHH-1D65A	0.5	4.67	1.30	2.30	1.37	2.84	1.88	0.00	0.04	0.01	0.01
CCI	OPA65R-BU4D	0.5	2.29	1.20	3.50	1.30	4.06	1.75	0.00	0.07	0.04	0.02
CCI	OPA65R-BU4D	0.5	2.29	1.20	3.50	1.30	4.06	1.75	0.00	0.07	0.04	0.02
CCI	DMP65R-BU4D	0.5	2.32	1.20	3.45	1.28	4.01	1.74	0.00	0.06	0.03	0.01
CCI	DMP65R-BU4D	0.5	2.32	1.20	3.45	1.28	4.01	1.74	0.00	0.06	0.03	0.01
Ericsson	TME-RRUS 4478 B14	1	2.14	1.20	0.88	1.54	1.30	2.04	0.00	0.08	0.01	0.01
Ericsson	TME-RRUS 32 B2	1	3.89	1.26	1.32	2.28	1.89	2.93	0.00	0.12	0.01	0.02
Ericsson	TME-RRUS 32 B30	1	3.89	1.26	1.32	2.28	1.89	2.93	0.00	0.12	0.01	0.02
Ericsson	RRUS 32 B66A	1	3.72	1.25	1.42	2.39	2.00	3.05	0.00	0.12	0.01	0.02
Ericsson	RRUS 4449 B5/B12	1	1.90	1.20	1.17	1.64	1.64	2.16	0.00	0.08	0.01	0.01
Powerwave	7770.00	0.5	5.00	1.31	2.10	0.95	2.64	1.44	0.00	0.05	0.02	0.01
Powerwave	7770.00	0.5	5.00	1.31	2.10	0.95	2.64	1.44	0.00	0.05	0.02	0.01
Powerwave	TME-LGP21401	2	1.57	1.20	1.84	0.52	2.65	1.12	0.00	0.03	0.02	0.00

PROJECT	136457.003.01 - Branford Bar	KSC
SUBJECT	Platform Mount Mount Analysis	
DATE	03/09/20	PAGE 4 OF

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74159
(918) 587-4630

Manufacturer	Model	Qty	Aspect Ratio	C_a flat/round	EPA_N (ft^2)	EPA_T (ft^2)	$EPA_{N\text{-}Ice}$ (ft^2)	$EPA_{T\text{-}Ice}$ (ft^2)	$F_{A\ No\ Ice\ (N)}$	$F_{A\ No\ Ice\ (T)}$	$F_{A\ Ice\ (N)}$	$F_{A\ Ice\ (T)}$
Andrew	SBNHH-1D65A	0.5	4.67	1.30	2.30	1.37	2.84	1.88	0.07	0.04	0.01	0.01
Andrew	SBNHH-1D65A	0.5	4.67	1.30	2.30	1.37	2.84	1.88	0.07	0.04	0.01	0.01
CCI	OPA65R-BU4D	0.5	2.29	1.20	3.50	1.30	4.06	1.75	0.19	0.07	0.04	0.02
CCI	OPA65R-BU4D	0.5	2.29	1.20	3.50	1.30	4.06	1.75	0.19	0.07	0.04	0.02
CCI	DMP65R-BU4D	0.5	2.32	1.20	3.45	1.28	4.01	1.74	0.17	0.06	0.03	0.01
CCI	DMP65R-BU4D	0.5	2.32	1.20	3.45	1.28	4.01	1.74	0.17	0.06	0.03	0.01
Ericsson	TME-RRUS 32 B30	1	2.25	1.20	2.29	1.32	2.94	1.89	0.11	0.07	0.02	0.01
Ericsson	TME-RRUS 32 B2	1	2.26	1.20	2.28	1.32	2.93	1.89	0.11	0.07	0.02	0.01
Ericsson	TME-RRUS 4478 B14	1	2.14	1.20	0.88	1.54	1.30	2.04	0.04	0.08	0.01	0.01
Ericsson	RRUS 32 B66A	1	3.72	1.25	1.42	2.39	2.00	3.05	0.07	0.12	0.01	0.02
Ericsson	RRUS 4449 B5/B12	1	1.90	1.20	1.17	1.64	1.64	2.16	0.06	0.08	0.01	0.01
Raycap	TME-DC6-48-60-18-8C	1	3.07	0.51	2.23	2.23	2.92	2.92	0.05	0.05	0.01	0.01
Raycap	TME-DC6-48-60-18-8C	1	3.07	0.51	2.23	2.23	2.92	2.92	0.05	0.05	0.01	0.01

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	3	max	4.502	5	1.649	20	1.401	2	-1.214	2	3.35	5	.998	11
2		min	-4.507	11	.752	2	-1.406	8	-3.928	20	-3.358	11	-.946	5
3	5	max	2.654	3	1.479	14	4.797	3	2.107	2	4.165	9	3.262	23
4		min	-2.67	9	.639	8	-4.82	9	-.28	8	-4.153	3	1.05	5
5	7	max	2.611	7	1.463	18	4.722	13	2.011	14	3.979	13	-.826	12
6		min	-2.606	13	.678	12	-4.727	7	-.099	8	-3.992	7	-3.298	18
7	36	max	.482	12	1.682	6	.998	6	0	109	0	109	0	109
8		min	-1.729	6	-.472	12	-.278	12	0	1	0	1	0	1
9	39	max	1.804	10	1.752	10	1.042	10	0	109	0	109	0	109
10		min	-.541	4	-.527	4	-.312	4	0	1	0	1	0	1
11	33	max	.06	5	1.984	2	.944	8	0	109	0	109	0	109
12		min	-.06	11	-.785	8	-2.371	2	0	1	0	1	0	1
13	Totals:	max	6.368	5	8.518	20	8.275	2						
14		min	-6.368	11	4.123	2	-8.275	8						

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

	Member	Shape	Code C...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-...	phi*Mn z-...	Cb	Eqn
1	1	L3X3X4	.588	7	66	.210	7	y	2	15.778	46.656	1.688	2.161	1	H2-1
2	2	L3X3X4	.643	1.312	8	.189	7	z	7	15.778	46.656	1.688	2.161	1	H2-1
3	3	L3X3X4	.614	12.687	7	.184	7	y	10	15.778	46.656	1.688	2.161	1	H2-1
4	4	HSS4.5X4.5X4	.123	2	22	.157	2	z	11	156.915	158.976	20.907	20.907	1....	H1-1b
5	5	HSS4X4X4	.326	.917	5	.191	.917	z	11	139.028	139.518	16.181	16.181	1....	H1-1b
6	6	HSS4.5X4.5X4	.130	1.917	2	.192	2	z	3	156.915	158.976	20.907	20.907	1....	H1-1b
7	7	HSS4X4X4	.387	.917	3	.231	.917	z	3	139.028	139.518	16.181	16.181	1....	H1-1b
8	8	HSS4.5X4.5X4	.123	1.917	2	.188	2	z	7	156.915	158.976	20.907	20.907	1....	H1-1b
9	9	HSS4X4X4	.365	.917	7	.225	.917	z	7	139.028	139.518	16.181	16.181	1....	H1-1b
10	13	LL3x3x4x0	.293	0	13	.077	.958	y	13	76.456	93.312	6.48	4.364	1....	H1-1b
11	14	LL3x3x4x0	.272	0	8	.075	.958	y	8	76.456	93.312	6.48	4.364	1....	H1-1b
12	15	LL3x3x4x0	.308	0	9	.079	.958	y	8	76.456	93.312	6.48	4.364	1....	H1-1b
13	16	L3X3X4	.201	3.68	12	.016	3.68	y	22	34.564	46.656	1.688	3.756	1....	H2-1
14	17	L3X3X4	.245	3.68	8	.016	3.68	y	14	34.564	46.656	1.688	3.756	1....	H2-1
15	18	L3X3X4	.234	3.68	8	.015	3.68	y	18	34.564	46.656	1.688	3.756	1....	H2-1
16	22	PIPE_2.0	.670	8.333	8	.317	11.719		8	6.295	32.13	1.872	1.872	4....	H3-6
17	23	PIPE_2.0	.652	4.167	13	.322	.781		12	6.295	32.13	1.872	1.872	2....	H3-6
18	24	PIPE_2.0	.521	.781	2	.260	.781		4	6.295	32.13	1.872	1.872	3....	H1-1b
19	25	L2.5x2.5x3	.653	0	13	.113	0	y	5	27.174	29.192	.873	1.972	1....	H2-1
20	26	L2.5x2.5x3	.609	1.417	7	.124	0	z	9	27.174	29.192	.873	1.972	1....	H2-1
21	27	L2.5x2.5x3	.602	0	9	.152	1.417	z	7	27.174	29.192	.873	1.972	2....	H2-1
22	28	PL3/8x9	.045	0	13	.057	0	y	2	105.017	109.35	.854	20.503	1....	H1-1b
23	29	LL2.5x2.5x3x3	.101	7	2	.003	7	z	11	31.22	58.32	3.954	2.511	1	H1-1b*
24	30	PL3/8x9	.040	0	7	.049	0	y	6	105.017	109.35	.854	20.503	1....	H1-1b
25	31	LL2.5x2.5x3x3	.091	3.5	7	.003	7	z	9	31.22	58.32	3.954	2.511	1....	H1-1b
26	32	PL3/8x9	.042	0	9	.050	0	y	10	105.017	109.35	.854	20.503	1....	H1-1b
27	33	LL2.5x2.5x3x3	.093	3.5	9	.003	7	z	13	31.22	58.32	3.954	2.511	1....	H1-1b
28	34	PIPE_2.0	.482	5.125	6	.263	1.375		8	20.867	32.13	1.872	1.872	1....	H1-1b
29	43	PIPE_2.0	.642	5	12	.399	5		7	20.867	32.13	1.872	1.872	2....	H3-6
30	44	PIPE_2.0	.242	2.5	6	.161	5.5		7	14.916	32.13	1.872	1.872	4....	H1-1b
31	47	PIPE_2.0	.623	4.813	5	.349	4.813		9	20.867	32.13	1.872	1.872	2....	H1-1b
32	48	PIPE_2.0	.258	1.625	11	.141	4.688		9	20.867	32.13	1.872	1.872	2....	H1-1b
33	51	PIPE_2.0	.488	5.5	10	.279	1.688		8	20.867	32.13	1.872	1.872	2....	H1-1b
34	52	PIPE_2.0	.561	5.5	9	.294	5.5		7	20.867	32.13	1.872	1.872	2....	H1-1b
35	60	PIPE_2.0	.814	5	3	.376	5		10	20.867	32.13	1.872	1.872	2....	H1-1b
36	61	PIPE_2.0	.420	2.083	9	.153	5.5		11	14.916	32.13	1.872	1.872	4....	H1-1b
37	64	PIPE_2.0	.658	5.125	2	.259	5.125		12	20.867	32.13	1.872	1.872	1....	H1-1b

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

	Member	Shape	Code C...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-...	phi*Mn z-...	Cb	Eqn
38	65	PIPE_2.0	.582	5.125	2	.222	5.125		11	20.867	32.13	1.872	1.872	1....	H1-1b
39	74	PIPE_2.0	.861	5	8	.413	5		2	20.867	32.13	1.872	1.872	2....	H3-6
40	75	PIPE_2.0	.315	5.75	7	.146	5.75		3	14.916	32.13	1.872	1.872	4....	H1-1b
41	78	PIPE_2.0	.683	4.813	13	.212	4.813		5	20.867	32.13	1.872	1.872	1....	H1-1b
42	79	PIPE_2.0	.543	5.125	7	.251	5.125		9	20.867	32.13	1.872	1.872	1....	H1-1b
43	80	PIPE_2.0	.673	6.667	9	.263	6.667		13	14.916	32.13	1.872	1.872	1....	H1-1b

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	F1-ST1	HSS4X4X4	Beam	None	A500 Gr.B R...	Typical	3.37	7.8	7.8	12.8
2	F1-ST2	HSS4.5X4.5...	Beam	None	A500 Gr.B R...	Typical	3.84	11.4	11.4	18.5
3	MF-H1	L3X3X4	Beam	None	A36 Gr.36	Typical	1.44	1.23	1.23	.031
4	Handrail	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
5	MF-P1	PIPE_2.0	Column	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
6	F1-CA1	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical	.901	.535	.535	.011
7	Kicker	LL2.5x2.5x3...	VBrace	None	A36 Gr.36	Typical	1.8	2.46	1.07	.023
8	MF-H2	LL3x3x4x0	Beam	None	A36 Gr.36	Typical	2.88	4.5	2.46	.063
9	CP	PL3/8x9	Column	None	A36 Gr.36	Typical	3.375	.04	22.781	.154

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	1	0	0	0	0	
2	2	0.	-0.333333	2.041452	0	
3	3	0.	-0.333333	1.124785	0	
4	4	1.767949	-0.333333	-1.020726	0	
5	5	0.974093	-0.333333	-0.562393	0	
6	6	-1.767949	-0.333333	-1.020726	0	
7	7	-0.974093	-0.333333	-0.562393	0	
8	8	0.	-0.333333	4.041452	0	
9	9	0.	0	4.041452	0	
10	10	3.5	-0.333333	-2.020726	0	
11	11	3.5	0	-2.020726	0	
12	12	-3.5	-0.333333	-2.020726	0	
13	13	-3.5	0	-2.020726	0	
14	14	-0.	0	-8.082904	0	
15	15	-7	0	4.041452	0	
16	16	7	0	4.041452	0	
17	17	3.680236	0	2.124785	0	
18	18	-0.	0	-4.24957	0	
19	19	-3.680236	0	2.124785	0	
20	20	0.	0	2.124785	0	
21	21	0.	-0.333333	2.124785	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
22	22	1.840118	0	-1.062393	0	
23	23	1.840118	-0.333333	-1.062393	0	
24	24	-1.840118	0	-1.062393	0	
25	25	-1.840118	-0.333333	-1.062393	0	
26	26	-6.25	3.833333	4.041452	0	
27	27	6.25	3.833333	4.041452	0	
28	28	6.625	3.833333	3.391933	0	
29	29	.375	3.833333	-7.433385	0	
30	30	-.375	3.833333	-7.433385	0	
31	31	-6.625	3.833333	3.391933	0	
32	32	-0.	0	-7.116667	0	
33	33	0	-4.642942	-1.666667	0	
34	34	-0.	-.25	-7.116667	0	
35	35	-6.163214	-4e-16	3.558333	0	
36	36	-1.443376	-4.642942	0.833333	0	
37	37	-6.163214	-.25	3.558333	0	
38	38	6.163214	0	3.558333	0	
39	39	1.443376	-4.642942	0.833333	0	
40	40	6.163214	-.25	3.558333	0	
41	41	-5.708334	5.166667	4.265618	0	
42	42	-5.708334	-0.833333	4.265618	0	
43	43	-5.708334	3.833333	4.041452	0	
44	44	-5.708334	3.833333	4.265618	0	
45	45	-5.708334	0	4.041452	0	
46	46	-5.708334	0	4.265618	0	
47	47	-1.958334	3.833333	4.041452	0	
48	48	-1.958334	3.833333	4.265618	0	
49	49	-1.958334	0	4.041452	0	
50	50	-1.958334	0	4.265618	0	
51	51	1.958333	3.833333	4.041452	0	
52	52	1.958333	3.833333	4.265618	0	
53	53	1.958333	0	4.041452	0	
54	54	1.958333	0	4.265618	0	
55	55	5.708333	3.833333	4.041452	0	
56	56	5.708333	3.833333	4.265618	0	
57	57	5.708333	0	4.041452	0	
58	58	5.708333	0	4.265618	0	
59	59	-1.958334	5	4.265618	0	
60	60	-1.958334	-1	4.265618	0	
61	61	-1.958334	5.916667	4.682285	0	
62	62	-1.958334	-2.083333	4.682285	0	
63	63	-1.958334	3.475362	4.265618	0	
64	64	-1.958334	3.475362	4.682285	0	
65	65	-1.958334	0.373254	4.265618	0	
66	66	-1.958334	0.373254	4.682285	0	
67	67	1.958333	4.833333	4.265618	0	
68	68	1.958333	-1.166667	4.265618	0	
69	69	1.958333	5.166667	4.682285	0	
70	70	1.958333	-0.833333	4.682285	0	
71	71	1.958333	3.556374	4.265618	0	
72	72	1.958333	3.556374	4.682285	0	
73	73	1.958333	0.449898	4.265618	0	
74	74	1.958333	0.449898	4.682285	0	
75	75	5.708333	5.5	4.265618	0	
76	76	5.708333	-.5	4.265618	0	
77	77	6.5483	5.5	2.810753	0	
78	78	6.5483	-.5	2.810753	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
79	79	6.354167	3.833333	2.922836	0	
80	80	6.5483	3.833333	2.810753	0	
81	81	6.354167	0	2.922836	0	
82	82	6.5483	0	2.810753	0	
83	83	4.6733	3.833333	-0.436842	0	
84	84	4.479167	0	-0.324759	0	
85	85	4.6733	0	-0.436842	0	
86	86	2.520834	3.833333	-3.716692	0	
87	87	2.714967	3.833333	-3.828775	0	
88	88	2.520834	0	-3.716692	0	
89	89	2.714967	0	-3.828775	0	
90	90	0.645833	3.833333	-6.964288	0	
91	91	0.839967	3.833333	-7.07637	0	
92	92	0.645834	0	-6.964287	0	
93	93	0.839967	0	-7.07637	0	
94	94	4.6733	5	-0.436842	0	
95	95	4.6733	-1	-0.436842	0	
96	96	5.034144	5.916667	-0.645175	0	
97	97	5.034144	-2.083333	-0.645175	0	
98	98	4.6733	3.475362	-0.436842	0	
99	99	5.034144	3.475362	-0.645175	0	
100	100	4.6733	0.373254	-0.436842	0	
101	101	5.034144	0.373254	-0.645175	0	
102	102	0.839967	5.166667	-7.07637	0	
103	103	0.839967	-0.833333	-7.07637	0	
104	104	-0.839966	5.166667	-7.076371	0	
105	105	-0.839966	-0.833333	-7.076371	0	
106	106	-0.645833	3.833333	-6.964288	0	
107	107	-0.839966	3.833333	-7.076371	0	
108	108	-0.645833	0	-6.964288	0	
109	109	-0.839966	0	-7.076371	0	
110	110	-2.520833	3.833333	-3.716693	0	
111	111	-2.714966	3.833333	-3.828776	0	
112	112	-2.520833	0	-3.716693	0	
113	113	-2.714966	0	-3.828776	0	
114	114	-4.479166	3.833333	-0.32476	0	
115	115	-4.6733	3.833333	-0.436843	0	
116	116	-4.479166	0	-0.32476	0	
117	117	-4.6733	0	-0.436843	0	
118	118	-6.354166	3.833333	2.922835	0	
119	119	-6.5483	3.833333	2.810752	0	
120	120	-6.354166	0	2.922835	0	
121	121	-6.5483	0	2.810752	0	
122	122	-2.714966	5	-3.828776	0	
123	123	-2.714966	-1	-3.828776	0	
124	124	-3.07581	6.166667	-4.037109	0	
125	125	-3.07581	-1.833333	-4.037109	0	
126	126	-2.714966	3.475362	-3.828776	0	
127	127	-3.07581	3.475362	-4.037109	0	
128	128	-2.714966	0.373254	-3.828776	0	
129	129	-3.07581	0.373254	-4.037109	0	
130	130	-4.6733	4.833333	-0.436843	0	
131	131	-4.6733	-1.166667	-0.436843	0	
132	132	-6.5483	5.166667	2.810752	0	
133	133	-6.5483	-0.833333	2.810752	0	
134	134	2.714967	6.666667	-3.828775	0	
135	135	2.714967	-1.333333	-3.828775	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
136	136	4.479167	3.833333	-0.324759	0	
137	137	5.034144	3.833333	-0.645175	0	
138	138	5.583333	3.833333	4.041452	0	
139	139	-5.583334	3.833333	4.041452	0	
140	140	0.708333	3.833333	-6.856035	0	
141	141	6.291667	3.833333	2.814583	0	
142	142	-6.291666	3.833333	2.814582	0	
143	143	-0.708333	3.833333	-6.856035	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	3	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	5	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	7	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	36	Reaction	Reaction	Reaction			
5	39	Reaction	Reaction	Reaction			
6	33	Reaction	Reaction	Reaction			

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	1	15	16		270	MF-H1	Beam	None	A36 Gr.36	Typical
2	2	16	14		270	MF-H1	Beam	None	A36 Gr.36	Typical
3	3	14	15		270	MF-H1	Beam	None	A36 Gr.36	Typical
4	4	8	2			F1-ST2	Beam	None	A500 Gr.B...	Typical
5	5	2	3			F1-ST1	Beam	None	A500 Gr.B...	Typical
6	6	10	4			F1-ST2	Beam	None	A500 Gr.B...	Typical
7	7	4	5			F1-ST1	Beam	None	A500 Gr.B...	Typical
8	8	12	6			F1-ST2	Beam	None	A500 Gr.B...	Typical
9	9	6	7			F1-ST1	Beam	None	A500 Gr.B...	Typical
10	10	8	9			RIGID	None	None	RIGID	Typical
11	11	10	11			RIGID	None	None	RIGID	Typical
12	12	12	13			RIGID	None	None	RIGID	Typical
13	13	14	18		180	MF-H2	Beam	None	A36 Gr.36	Typical
14	14	15	19		180	MF-H2	Beam	None	A36 Gr.36	Typical
15	15	16	17		180	MF-H2	Beam	None	A36 Gr.36	Typical
16	16	19	17			MF-H1	Beam	None	A36 Gr.36	Typical
17	17	17	18			MF-H1	Beam	None	A36 Gr.36	Typical
18	18	18	19			MF-H1	Beam	None	A36 Gr.36	Typical
19	19	20	21			RIGID	None	None	RIGID	Typical
20	20	22	23			RIGID	None	None	RIGID	Typical
21	21	24	25			RIGID	None	None	RIGID	Typical
22	22	26	27			Handrail	Beam	None	A53 Gr.B	Typical
23	23	28	29			Handrail	Beam	None	A53 Gr.B	Typical
24	24	30	31			Handrail	Beam	None	A53 Gr.B	Typical
25	25	143	140		180	F1-CA1	Beam	None	A36 Gr.36	Typical
26	26	139	142		180	F1-CA1	Beam	None	A36 Gr.36	Typical
27	27	141	138		180	F1-CA1	Beam	None	A36 Gr.36	Typical
28	28	32	34		90	CP	Column	None	A36 Gr.36	Typical
29	29	33	34			Kicker	VBrace	None	A36 Gr.36	Typical
30	30	35	37		330	CP	Column	None	A36 Gr.36	Typical
31	31	36	37			Kicker	VBrace	None	A36 Gr.36	Typical
32	32	38	40		30	CP	Column	None	A36 Gr.36	Typical
33	33	39	40			Kicker	VBrace	None	A36 Gr.36	Typical
34	34	41	42			MF-P1	Column	None	A53 Gr.B	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
35	35	43	44			RIGID	None	None	RIGID	Typical
36	36	45	46			RIGID	None	None	RIGID	Typical
37	37	47	48			RIGID	None	None	RIGID	Typical
38	38	49	50			RIGID	None	None	RIGID	Typical
39	39	51	52			RIGID	None	None	RIGID	Typical
40	40	53	54			RIGID	None	None	RIGID	Typical
41	41	55	56			RIGID	None	None	RIGID	Typical
42	42	57	58			RIGID	None	None	RIGID	Typical
43	43	59	60			MF-P1	Column	None	A53 Gr.B	Typical
44	44	61	62			MF-P1	Column	None	A53 Gr.B	Typical
45	45	63	64			RIGID	None	None	RIGID	Typical
46	46	65	66			RIGID	None	None	RIGID	Typical
47	47	67	68			MF-P1	Column	None	A53 Gr.B	Typical
48	48	69	70			MF-P1	Column	None	A53 Gr.B	Typical
49	49	71	72			RIGID	None	None	RIGID	Typical
50	50	73	74			RIGID	None	None	RIGID	Typical
51	51	75	76			MF-P1	Column	None	A53 Gr.B	Typical
52	52	77	78			MF-P1	Column	None	A53 Gr.B	Typical
53	53	79	80			RIGID	None	None	RIGID	Typical
54	54	81	82			RIGID	None	None	RIGID	Typical
55	55	84	85			RIGID	None	None	RIGID	Typical
56	56	86	87			RIGID	None	None	RIGID	Typical
57	57	88	89			RIGID	None	None	RIGID	Typical
58	58	90	91			RIGID	None	None	RIGID	Typical
59	59	92	93			RIGID	None	None	RIGID	Typical
60	60	94	95			MF-P1	Column	None	A53 Gr.B	Typical
61	61	96	97			MF-P1	Column	None	A53 Gr.B	Typical
62	62	98	99			RIGID	None	None	RIGID	Typical
63	63	100	101			RIGID	None	None	RIGID	Typical
64	64	102	103			MF-P1	Column	None	A53 Gr.B	Typical
65	65	104	105			MF-P1	Column	None	A53 Gr.B	Typical
66	66	106	107			RIGID	None	None	RIGID	Typical
67	67	108	109			RIGID	None	None	RIGID	Typical
68	68	110	111			RIGID	None	None	RIGID	Typical
69	69	112	113			RIGID	None	None	RIGID	Typical
70	70	114	115			RIGID	None	None	RIGID	Typical
71	71	116	117			RIGID	None	None	RIGID	Typical
72	72	118	119			RIGID	None	None	RIGID	Typical
73	73	120	121			RIGID	None	None	RIGID	Typical
74	74	122	123			MF-P1	Column	None	A53 Gr.B	Typical
75	75	124	125			MF-P1	Column	None	A53 Gr.B	Typical
76	76	126	127			RIGID	None	None	RIGID	Typical
77	77	128	129			RIGID	None	None	RIGID	Typical
78	78	130	131			MF-P1	Column	None	A53 Gr.B	Typical
79	79	132	133			MF-P1	Column	None	A53 Gr.B	Typical
80	80	134	135			MF-P1	Column	None	A53 Gr.B	Typical
81	81	136	137			RIGID	None	None	RIGID	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torq...	Kyy	Kzz	Cb	Function
1	1	MF-H1	14	7	7	Lbyy						Lateral
2	2	MF-H1	14	7	7	Lbyy						Lateral
3	3	MF-H1	14	7	7	Lbyy						Lateral
4	4	F1-ST2	2			Lbyy						Lateral
5	5	F1-ST1	.917			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torq...	Kyy	Kzz	Cb	Function
6	6	F1-ST2	2			Lbyy						Lateral
7	7	F1-ST1	.917			Lbyy						Lateral
8	8	F1-ST2	2			Lbyy						Lateral
9	9	F1-ST1	.917			Lbyy						Lateral
10	13	MF-H2	3.833			Lbyy						Lateral
11	14	MF-H2	3.833			Lbyy						Lateral
12	15	MF-H2	3.833			Lbyy						Lateral
13	16	MF-H1	7.36	3.68	3.68	Lbyy						Lateral
14	17	MF-H1	7.36	3.68	3.68	Lbyy						Lateral
15	18	MF-H1	7.36	3.68	3.68	Lbyy						Lateral
16	22	Handrail	12.5			Lbyy						Lateral
17	23	Handrail	12.5			Lbyy						Lateral
18	24	Handrail	12.5			Lbyy						Lateral
19	25	F1-CA1	1.417			Lbyy						Lateral
20	26	F1-CA1	1.417			Lbyy						Lateral
21	27	F1-CA1	1.417			Lbyy						Lateral
22	28	CP	.25			Lbyy						Lateral
23	29	Kicker	7			Lbyy						Lateral
24	30	CP	.25			Lbyy						Lateral
25	31	Kicker	7			Lbyy						Lateral
26	32	CP	.25			Lbyy						Lateral
27	33	Kicker	7			Lbyy						Lateral
28	34	MF-P1	6			Lbyy						Lateral
29	43	MF-P1	6			Lbyy						Lateral
30	44	MF-P1	8			Lbyy						Lateral
31	47	MF-P1	6			Lbyy						Lateral
32	48	MF-P1	6			Lbyy						Lateral
33	51	MF-P1	6			Lbyy						Lateral
34	52	MF-P1	6			Lbyy						Lateral
35	60	MF-P1	6			Lbyy						Lateral
36	61	MF-P1	8			Lbyy						Lateral
37	64	MF-P1	6			Lbyy						Lateral
38	65	MF-P1	6			Lbyy						Lateral
39	74	MF-P1	6			Lbyy						Lateral
40	75	MF-P1	8			Lbyy						Lateral
41	78	MF-P1	6			Lbyy						Lateral
42	79	MF-P1	6			Lbyy						Lateral
43	80	MF-P1	8			Lbyy						Lateral

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

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	45	L	Y	-.5
2	81	L	Y	-.5
3	108	L	Y	-.5

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

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	49	L	Y	-.5
2	84	L	Y	-.5
3	112	L	Y	-.5

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

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	53	L	Y	-.5

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

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
2	88	L	Y	-.5
3	116	L	Y	-.5

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

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	57	L	Y	-.5
2	92	L	Y	-.5
3	120	L	Y	-.5

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	51	Y	-.018	%10
2	51	Y	-.018	%80
3	51	Y	-.028	%60
4	51	Y	0	0
5	51	Y	0	0
6	34	Y	-.017	%10
7	34	Y	-.017	%70
8	34	Y	0	0
9	34	Y	0	0
10	34	Y	0	0
11	44	Y	-.031	%25
12	44	Y	-.031	%75
13	44	Y	0	0
14	44	Y	0	0
15	44	Y	0	0
16	48	Y	-.038	%20
17	48	Y	-.038	%80
18	48	Y	0	0
19	48	Y	0	0
20	48	Y	0	0
21	47	Y	-.053	%40
22	47	Y	-.053	%40
23	47	Y	-.06	%50
24	47	Y	0	0
25	47	Y	0	0
26	43	Y	-.055	%50
27	43	Y	-.071	%60
28	43	Y	0	0
29	43	Y	0	0
30	43	Y	0	0
31	79	Y	-.018	%10
32	79	Y	-.018	%80
33	79	Y	-.028	%60
34	79	Y	0	0
35	79	Y	0	0
36	65	Y	-.017	%10
37	65	Y	-.017	%70
38	65	Y	0	0
39	65	Y	0	0
40	65	Y	0	0
41	75	Y	-.031	%25
42	75	Y	-.031	%75
43	75	Y	0	0
44	75	Y	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
45	75	Y	0	0
46	78	Y	-.038	%20
47	78	Y	-.038	%80
48	78	Y	-.06	%50
49	78	Y	-.053	%40
50	78	Y	-.053	%40
51	74	Y	-.055	%50
52	74	Y	-.071	%10
53	74	Y	0	0
54	74	Y	0	0
55	74	Y	0	0
56	64	Y	-.018	%10
57	64	Y	-.018	%80
58	64	Y	-.028	%60
59	64	Y	0	0
60	64	Y	0	0
61	52	Y	-.017	%15
62	52	Y	-.017	%70
63	52	Y	0	0
64	52	Y	0	0
65	52	Y	0	0
66	61	Y	-.031	%25
67	61	Y	-.031	%75
68	61	Y	0	0
69	61	Y	0	0
70	61	Y	0	0
71	80	Y	-.038	%20
72	80	Y	-.038	%80
73	80	Y	-.053	%40
74	80	Y	-.053	%40
75	80	Y	-.06	%50
76	60	Y	-.055	%10
77	60	Y	-.071	%10
78	60	Y	0	0
79	60	Y	0	0
80	60	Y	0	0
81	5	Y	-.026	%50
82	5	Y	0	0
83	5	Y	0	0
84	5	Y	0	0
85	5	Y	0	0
86	5	Y	-.026	%50
87	5	Y	0	0
88	5	Y	0	0
89	5	Y	0	0
90	5	Y	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	51	Z	-.114	%10
2	51	Z	-.114	%80
3	51	Z	-.091	%60
4	51	Z	0	0
5	51	Z	0	0
6	34	Z	-.071	%10
7	34	Z	-.071	%70

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
8	34	Z	0	0
9	34	Z	0	0
10	34	Z	0	0
11	44	Z	-.186	%25
12	44	Z	-.186	%75
13	44	Z	0	0
14	44	Z	0	0
15	44	Z	0	0
16	48	Z	-.172	%20
17	48	Z	-.172	%80
18	48	Z	0	0
19	48	Z	0	0
20	48	Z	0	0
21	47	Z	-.114	%40
22	47	Z	-.113	%40
23	47	Z	-.044	%50
24	47	Z	0	0
25	47	Z	0	0
26	43	Z	-.074	%50
27	43	Z	-.082	%60
28	43	Z	0	0
29	43	Z	0	0
30	43	Z	0	0
31	79	Z	-.114	%10
32	79	Z	-.114	%80
33	79	Z	-.091	%60
34	79	Z	0	0
35	79	Z	0	0
36	65	Z	-.071	%10
37	65	Z	-.071	%70
38	65	Z	0	0
39	65	Z	0	0
40	65	Z	0	0
41	75	Z	-.186	%25
42	75	Z	-.186	%75
43	75	Z	0	0
44	75	Z	0	0
45	75	Z	0	0
46	78	Z	-.172	%20
47	78	Z	-.172	%80
48	78	Z	-.044	%50
49	78	Z	-.069	%40
50	78	Z	-.069	%40
51	74	Z	-.074	%50
52	74	Z	-.058	%10
53	74	Z	0	0
54	74	Z	0	0
55	74	Z	0	0
56	64	Z	-.114	%10
57	64	Z	-.114	%80
58	64	Z	-.091	%60
59	64	Z	0	0
60	64	Z	0	0
61	52	Z	-.071	%15
62	52	Z	-.071	%70
63	52	Z	0	0
64	52	Z	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
65	52	Z	0	0
66	61	Z	-.186	%25
67	61	Z	-.186	%75
68	61	Z	0	0
69	61	Z	0	0
70	61	Z	0	0
71	80	Z	-.172	%20
72	80	Z	-.172	%80
73	80	Z	-.114	%40
74	80	Z	-.113	%40
75	80	Z	-.044	%50
76	60	Z	-.074	%10
77	60	Z	-.058	%10
78	60	Z	0	0
79	60	Z	0	0
80	60	Z	0	0
81	5	Z	-.048	%50
82	5	Z	0	0
83	5	Z	0	0
84	5	Z	0	0
85	5	Z	0	0
86	5	Z	-.048	%50
87	5	Z	0	0
88	5	Z	0	0
89	5	Z	0	0
90	5	Z	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	51	X	-.052	%10
2	51	X	-.052	%80
3	51	X	-.026	%60
4	51	X	0	0
5	51	X	0	0
6	34	X	-.043	%10
7	34	X	-.043	%70
8	34	X	0	0
9	34	X	0	0
10	34	X	0	0
11	44	X	-.069	%25
12	44	X	-.069	%75
13	44	X	0	0
14	44	X	0	0
15	44	X	0	0
16	48	X	-.065	%20
17	48	X	-.065	%80
18	48	X	0	0
19	48	X	0	0
20	48	X	0	0
21	47	X	-.066	%40
22	47	X	-.066	%40
23	47	X	-.076	%50
24	47	X	0	0
25	47	X	0	0
26	43	X	-.124	%50
27	43	X	-.058	%60

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
28	43	X	0	0
29	43	X	0	0
30	43	X	0	0
31	79	X	-.052	%10
32	79	X	-.052	%80
33	79	X	-.026	%60
34	79	X	0	0
35	79	X	0	0
36	65	X	-.043	%10
37	65	X	-.043	%70
38	65	X	0	0
39	65	X	0	0
40	65	X	0	0
41	75	X	-.069	%25
42	75	X	-.069	%75
43	75	X	0	0
44	75	X	0	0
45	75	X	0	0
46	78	X	-.065	%20
47	78	X	-.065	%80
48	78	X	-.076	%50
49	78	X	-.119	%40
50	78	X	-.119	%40
51	74	X	-.124	%50
52	74	X	-.082	%10
53	74	X	0	0
54	74	X	0	0
55	74	X	0	0
56	64	X	-.052	%10
57	64	X	-.052	%80
58	64	X	-.026	%60
59	64	X	0	0
60	64	X	0	0
61	52	X	-.043	%15
62	52	X	-.043	%70
63	52	X	0	0
64	52	X	0	0
65	52	X	0	0
66	61	X	-.069	%25
67	61	X	-.069	%75
68	61	X	0	0
69	61	X	0	0
70	61	X	0	0
71	80	X	-.065	%20
72	80	X	-.065	%80
73	80	X	-.066	%40
74	80	X	-.066	%40
75	80	X	-.076	%50
76	60	X	-.124	%10
77	60	X	-.082	%10
78	60	X	0	0
79	60	X	0	0
80	60	X	0	0
81	5	X	-.048	%50
82	5	X	0	0
83	5	X	0	0
84	5	X	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
85	5	X	0	0
86	5	X	-.048	%50
87	5	X	0	0
88	5	X	0	0
89	5	X	0	0
90	5	X	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	51	Z	-.019	%10
2	51	Z	-.019	%80
3	51	Z	-.016	%60
4	51	Z	0	0
5	51	Z	0	0
6	34	Z	-.015	%10
7	34	Z	-.015	%70
8	34	Z	0	0
9	34	Z	0	0
10	34	Z	0	0
11	44	Z	-.036	%25
12	44	Z	-.036	%75
13	44	Z	0	0
14	44	Z	0	0
15	44	Z	0	0
16	48	Z	-.034	%20
17	48	Z	-.034	%80
18	48	Z	0	0
19	48	Z	0	0
20	48	Z	0	0
21	47	Z	-.019	%40
22	47	Z	-.019	%40
23	47	Z	-.007	%50
24	47	Z	0	0
25	47	Z	0	0
26	43	Z	-.013	%50
27	43	Z	-.014	%60
28	43	Z	0	0
29	43	Z	0	0
30	43	Z	0	0
31	79	Z	-.019	%10
32	79	Z	-.019	%80
33	79	Z	-.016	%60
34	79	Z	0	0
35	79	Z	0	0
36	65	Z	-.015	%10
37	65	Z	-.015	%70
38	65	Z	0	0
39	65	Z	0	0
40	65	Z	0	0
41	75	Z	-.036	%25
42	75	Z	-.036	%75
43	75	Z	0	0
44	75	Z	0	0
45	75	Z	0	0
46	78	Z	-.034	%20
47	78	Z	-.034	%80

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
48	78	Z	-.007	%50
49	78	Z	-.012	%40
50	78	Z	-.012	%40
51	74	Z	-.013	%50
52	74	Z	-.01	%10
53	74	Z	0	0
54	74	Z	0	0
55	74	Z	0	0
56	64	Z	-.019	%10
57	64	Z	-.019	%80
58	64	Z	-.016	%60
59	64	Z	0	0
60	64	Z	0	0
61	52	Z	-.015	%15
62	52	Z	-.015	%70
63	52	Z	0	0
64	52	Z	0	0
65	52	Z	0	0
66	61	Z	-.036	%25
67	61	Z	-.036	%75
68	61	Z	0	0
69	61	Z	0	0
70	61	Z	0	0
71	80	Z	-.034	%20
72	80	Z	-.034	%80
73	80	Z	-.019	%40
74	80	Z	-.019	%40
75	80	Z	-.007	%50
76	60	Z	-.013	%10
77	60	Z	-.01	%10
78	60	Z	0	0
79	60	Z	0	0
80	60	Z	0	0
81	5	Z	-.008	%50
82	5	Z	0	0
83	5	Z	0	0
84	5	Z	0	0
85	5	Z	0	0
86	5	Z	-.008	%50
87	5	Z	0	0
88	5	Z	0	0
89	5	Z	0	0
90	5	Z	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	51	X	-.009	%10
2	51	X	-.009	%80
3	51	X	-.004	%60
4	51	X	0	0
5	51	X	0	0
6	34	X	-.01	%10
7	34	X	-.01	%70
8	34	X	0	0
9	34	X	0	0
10	34	X	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
11	44	X	-.015	%25
12	44	X	-.015	%75
13	44	X	0	0
14	44	X	0	0
15	44	X	0	0
16	48	X	-.015	%20
17	48	X	-.015	%80
18	48	X	0	0
19	48	X	0	0
20	48	X	0	0
21	47	X	-.011	%40
22	47	X	-.011	%40
23	47	X	-.013	%50
24	47	X	0	0
25	47	X	0	0
26	43	X	-.021	%50
27	43	X	-.01	%60
28	43	X	0	0
29	43	X	0	0
30	43	X	0	0
31	79	X	-.009	%10
32	79	X	-.009	%80
33	79	X	-.004	%60
34	79	X	0	0
35	79	X	0	0
36	65	X	-.01	%10
37	65	X	-.01	%70
38	65	X	0	0
39	65	X	0	0
40	65	X	0	0
41	75	X	-.015	%25
42	75	X	-.015	%75
43	75	X	0	0
44	75	X	0	0
45	75	X	0	0
46	78	X	-.015	%20
47	78	X	-.015	%80
48	78	X	-.013	%50
49	78	X	-.02	%40
50	78	X	-.02	%40
51	74	X	-.021	%50
52	74	X	-.014	%10
53	74	X	0	0
54	74	X	0	0
55	74	X	0	0
56	64	X	-.009	%10
57	64	X	-.009	%80
58	64	X	-.004	%60
59	64	X	0	0
60	64	X	0	0
61	52	X	-.01	%15
62	52	X	-.01	%70
63	52	X	0	0
64	52	X	0	0
65	52	X	0	0
66	61	X	-.015	%25
67	61	X	-.015	%75

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
68	61	X	0	0
69	61	X	0	0
70	61	X	0	0
71	80	X	-.015	%20
72	80	X	-.015	%80
73	80	X	-.011	%40
74	80	X	-.011	%40
75	80	X	-.013	%50
76	60	X	-.021	%10
77	60	X	-.014	%10
78	60	X	0	0
79	60	X	0	0
80	60	X	0	0
81	5	X	-.008	%50
82	5	X	0	0
83	5	X	0	0
84	5	X	0	0
85	5	X	0	0
86	5	X	-.008	%50
87	5	X	0	0
88	5	X	0	0
89	5	X	0	0
90	5	X	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	51	Z	-.007	%10
2	51	Z	-.007	%80
3	51	Z	-.006	%60
4	51	Z	0	0
5	51	Z	0	0
6	34	Z	-.004	%10
7	34	Z	-.004	%70
8	34	Z	0	0
9	34	Z	0	0
10	34	Z	0	0
11	44	Z	-.011	%25
12	44	Z	-.011	%75
13	44	Z	0	0
14	44	Z	0	0
15	44	Z	0	0
16	48	Z	-.011	%20
17	48	Z	-.011	%80
18	48	Z	0	0
19	48	Z	0	0
20	48	Z	0	0
21	47	Z	-.007	%40
22	47	Z	-.007	%40
23	47	Z	-.003	%50
24	47	Z	0	0
25	47	Z	0	0
26	43	Z	-.004	%50
27	43	Z	-.005	%60
28	43	Z	0	0
29	43	Z	0	0
30	43	Z	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
31	79	Z	-.007	%10
32	79	Z	-.007	%80
33	79	Z	-.006	%60
34	79	Z	0	0
35	79	Z	0	0
36	65	Z	-.004	%10
37	65	Z	-.004	%70
38	65	Z	0	0
39	65	Z	0	0
40	65	Z	0	0
41	75	Z	-.011	%25
42	75	Z	-.011	%75
43	75	Z	0	0
44	75	Z	0	0
45	75	Z	0	0
46	78	Z	-.011	%20
47	78	Z	-.011	%80
48	78	Z	-.003	%50
49	78	Z	-.004	%40
50	78	Z	-.004	%40
51	74	Z	-.004	%50
52	74	Z	-.004	%10
53	74	Z	0	0
54	74	Z	0	0
55	74	Z	0	0
56	64	Z	-.007	%10
57	64	Z	-.007	%80
58	64	Z	-.006	%60
59	64	Z	0	0
60	64	Z	0	0
61	52	Z	-.004	%15
62	52	Z	-.004	%70
63	52	Z	0	0
64	52	Z	0	0
65	52	Z	0	0
66	61	Z	-.011	%25
67	61	Z	-.011	%75
68	61	Z	0	0
69	61	Z	0	0
70	61	Z	0	0
71	80	Z	-.011	%20
72	80	Z	-.011	%80
73	80	Z	-.007	%40
74	80	Z	-.007	%40
75	80	Z	-.003	%50
76	60	Z	-.004	%10
77	60	Z	-.004	%10
78	60	Z	0	0
79	60	Z	0	0
80	60	Z	0	0
81	5	Z	-.003	%50
82	5	Z	0	0
83	5	Z	0	0
84	5	Z	0	0
85	5	Z	0	0
86	5	Z	-.003	%50
87	5	Z	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
88	5	Z	0	0
89	5	Z	0	0
90	5	Z	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	51	X	-.003	%10
2	51	X	-.003	%80
3	51	X	-.002	%60
4	51	X	0	0
5	51	X	0	0
6	34	X	-.003	%10
7	34	X	-.003	%70
8	34	X	0	0
9	34	X	0	0
10	34	X	0	0
11	44	X	-.004	%25
12	44	X	-.004	%75
13	44	X	0	0
14	44	X	0	0
15	44	X	0	0
16	48	X	-.004	%20
17	48	X	-.004	%80
18	48	X	0	0
19	48	X	0	0
20	48	X	0	0
21	47	X	-.004	%40
22	47	X	-.004	%40
23	47	X	-.005	%50
24	47	X	0	0
25	47	X	0	0
26	43	X	-.008	%50
27	43	X	-.004	%60
28	43	X	0	0
29	43	X	0	0
30	43	X	0	0
31	79	X	-.003	%10
32	79	X	-.003	%80
33	79	X	-.002	%60
34	79	X	0	0
35	79	X	0	0
36	65	X	-.003	%10
37	65	X	-.003	%70
38	65	X	0	0
39	65	X	0	0
40	65	X	0	0
41	75	X	-.004	%25
42	75	X	-.004	%75
43	75	X	0	0
44	75	X	0	0
45	75	X	0	0
46	78	X	-.004	%20
47	78	X	-.004	%80
48	78	X	-.005	%50
49	78	X	-.007	%40
50	78	X	-.007	%40

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
51	74	X	-.008	%50
52	74	X	-.005	%10
53	74	X	0	0
54	74	X	0	0
55	74	X	0	0
56	64	X	-.003	%10
57	64	X	-.003	%80
58	64	X	-.002	%60
59	64	X	0	0
60	64	X	0	0
61	52	X	-.003	%15
62	52	X	-.003	%70
63	52	X	0	0
64	52	X	0	0
65	52	X	0	0
66	61	X	-.004	%25
67	61	X	-.004	%75
68	61	X	0	0
69	61	X	0	0
70	61	X	0	0
71	80	X	-.004	%20
72	80	X	-.004	%80
73	80	X	-.004	%40
74	80	X	-.004	%40
75	80	X	-.005	%50
76	60	X	-.008	%10
77	60	X	-.005	%10
78	60	X	0	0
79	60	X	0	0
80	60	X	0	0
81	5	X	-.003	%50
82	5	X	0	0
83	5	X	0	0
84	5	X	0	0
85	5	X	0	0
86	5	X	-.003	%50
87	5	X	0	0
88	5	X	0	0
89	5	X	0	0
90	5	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	51	Y	-.042	%10
2	51	Y	-.042	%80
3	51	Y	-.035	%60
4	51	Y	0	0
5	51	Y	0	0
6	34	Y	-.059	%10
7	34	Y	-.059	%70
8	34	Y	0	0
9	34	Y	0	0
10	34	Y	0	0
11	44	Y	-.086	%25
12	44	Y	-.086	%75
13	44	Y	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
14	44	Y	0	0
15	44	Y	0	0
16	48	Y	-.093	%20
17	48	Y	-.093	%80
18	48	Y	0	0
19	48	Y	0	0
20	48	Y	0	0
21	47	Y	-.047	%40
22	47	Y	-.047	%40
23	47	Y	-.032	%50
24	47	Y	0	0
25	47	Y	0	0
26	43	Y	-.05	%50
27	43	Y	-.036	%60
28	43	Y	0	0
29	43	Y	0	0
30	43	Y	0	0
31	79	Y	-.042	%10
32	79	Y	-.042	%80
33	79	Y	-.035	%60
34	79	Y	0	0
35	79	Y	0	0
36	65	Y	-.059	%10
37	65	Y	-.059	%70
38	65	Y	0	0
39	65	Y	0	0
40	65	Y	0	0
41	75	Y	-.086	%25
42	75	Y	-.086	%75
43	75	Y	0	0
44	75	Y	0	0
45	75	Y	0	0
46	78	Y	-.093	%20
47	78	Y	-.093	%80
48	78	Y	-.032	%50
49	78	Y	-.047	%40
50	78	Y	-.047	%40
51	74	Y	-.05	%50
52	74	Y	-.036	%10
53	74	Y	0	0
54	74	Y	0	0
55	74	Y	0	0
56	64	Y	-.042	%10
57	64	Y	-.042	%80
58	64	Y	-.035	%60
59	64	Y	0	0
60	64	Y	0	0
61	52	Y	-.059	%15
62	52	Y	-.059	%70
63	52	Y	0	0
64	52	Y	0	0
65	52	Y	0	0
66	61	Y	-.086	%25
67	61	Y	-.086	%75
68	61	Y	0	0
69	61	Y	0	0
70	61	Y	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
71	80	Y	-.093	%20
72	80	Y	-.093	%80
73	80	Y	-.047	%40
74	80	Y	-.047	%40
75	80	Y	-.032	%50
76	60	Y	-.05	%10
77	60	Y	-.036	%10
78	60	Y	0	0
79	60	Y	0	0
80	60	Y	0	0
81	5	Y	-.041	%50
82	5	Y	0	0
83	5	Y	0	0
84	5	Y	0	0
85	5	Y	0	0
86	5	Y	-.041	%50
87	5	Y	0	0
88	5	Y	0	0
89	5	Y	0	0
90	5	Y	0	0

Member Point Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	51	Z	-.007	%10
2	51	Z	-.007	%80
3	51	Z	-.003	%60
4	51	Z	0	0
5	51	Z	0	0
6	34	Z	-.007	%10
7	34	Z	-.007	%70
8	34	Z	0	0
9	34	Z	0	0
10	34	Z	0	0
11	44	Z	-.013	%25
12	44	Z	-.013	%75
13	44	Z	0	0
14	44	Z	0	0
15	44	Z	0	0
16	48	Z	-.016	%20
17	48	Z	-.016	%80
18	48	Z	0	0
19	48	Z	0	0
20	48	Z	0	0
21	47	Z	-.011	%40
22	47	Z	-.011	%40
23	47	Z	-.013	%50
24	47	Z	0	0
25	47	Z	0	0
26	43	Z	-.012	%50
27	43	Z	-.015	%60
28	43	Z	0	0
29	43	Z	0	0
30	43	Z	0	0
31	79	Z	-.007	%10
32	79	Z	-.007	%80
33	79	Z	-.003	%60

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
34	79	Z	0	0
35	79	Z	0	0
36	65	Z	-.007	%10
37	65	Z	-.007	%70
38	65	Z	0	0
39	65	Z	0	0
40	65	Z	0	0
41	75	Z	-.013	%25
42	75	Z	-.013	%75
43	75	Z	0	0
44	75	Z	0	0
45	75	Z	0	0
46	78	Z	-.016	%20
47	78	Z	-.016	%80
48	78	Z	-.013	%50
49	78	Z	-.011	%40
50	78	Z	-.011	%40
51	74	Z	-.012	%50
52	74	Z	-.015	%10
53	74	Z	0	0
54	74	Z	0	0
55	74	Z	0	0
56	64	Z	-.007	%10
57	64	Z	-.007	%80
58	64	Z	-.003	%60
59	64	Z	0	0
60	64	Z	0	0
61	52	Z	-.007	%15
62	52	Z	-.007	%70
63	52	Z	0	0
64	52	Z	0	0
65	52	Z	0	0
66	61	Z	-.013	%25
67	61	Z	-.013	%75
68	61	Z	0	0
69	61	Z	0	0
70	61	Z	0	0
71	80	Z	-.016	%20
72	80	Z	-.016	%80
73	80	Z	-.011	%40
74	80	Z	-.011	%40
75	80	Z	-.013	%50
76	60	Z	-.012	%10
77	60	Z	-.015	%10
78	60	Z	0	0
79	60	Z	0	0
80	60	Z	0	0
81	5	Z	-.006	0
82	5	Z	0	0
83	5	Z	0	0
84	5	Z	0	0
85	5	Z	0	%50
86	5	Z	-.006	%50
87	5	Z	0	0
88	5	Z	0	0
89	5	Z	0	0
90	5	Z	0	0

Member Point Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	51	X	-.007	%10
2	51	X	-.007	%80
3	51	X	-.003	%60
4	51	X	0	0
5	51	X	0	0
6	34	X	-.007	%10
7	34	X	-.007	%70
8	34	X	0	0
9	34	X	0	0
10	34	X	0	0
11	44	X	-.013	%25
12	44	X	-.013	%75
13	44	X	0	0
14	44	X	0	0
15	44	X	0	0
16	48	X	-.016	%20
17	48	X	-.016	%80
18	48	X	0	0
19	48	X	0	0
20	48	X	0	0
21	47	X	-.011	%40
22	47	X	-.011	%40
23	47	X	-.013	%50
24	47	X	0	0
25	47	X	0	0
26	43	X	-.012	%50
27	43	X	-.015	%60
28	43	X	0	0
29	43	X	0	0
30	43	X	0	0
31	79	X	-.007	%10
32	79	X	-.007	%80
33	79	X	-.003	%60
34	79	X	0	0
35	79	X	0	0
36	65	X	-.007	%10
37	65	X	-.007	%70
38	65	X	0	0
39	65	X	0	0
40	65	X	0	0
41	75	X	-.013	%25
42	75	X	-.013	%75
43	75	X	0	0
44	75	X	0	0
45	75	X	0	0
46	78	X	-.016	%20
47	78	X	-.016	%80
48	78	X	-.013	%50
49	78	X	-.011	%40
50	78	X	-.011	%40
51	74	X	-.012	%50
52	74	X	-.015	%10
53	74	X	0	0
54	74	X	0	0
55	74	X	0	0
56	64	X	-.007	%10
57	64	X	-.007	%80

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
58	64	X	-.003	%60
59	64	X	0	0
60	64	X	0	0
61	52	X	-.007	%15
62	52	X	-.007	%70
63	52	X	0	0
64	52	X	0	0
65	52	X	0	0
66	61	X	-.013	%25
67	61	X	-.013	%75
68	61	X	0	0
69	61	X	0	0
70	61	X	0	0
71	80	X	-.016	%20
72	80	X	-.016	%80
73	80	X	-.011	%40
74	80	X	-.011	%40
75	80	X	-.013	%50
76	60	X	-.012	%10
77	60	X	-.015	%10
78	60	X	0	0
79	60	X	0	0
80	60	X	0	0
81	5	X	-.006	0
82	5	X	0	0
83	5	X	0	0
84	5	X	0	0
85	5	X	0	%50
86	5	X	-.006	%50
87	5	X	0	0
88	5	X	0	0
89	5	X	0	0
90	5	X	0	0

Member Point Loads (BLC 15 : Maint LL 1)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	22	Y	-.5	%5

Member Point Loads (BLC 16 : Maint LL 2)

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

Member Point Loads (BLC 17 : Maint LL 3)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	24	Y	-.5	%5

Member Point Loads (BLC 18 : Maint LL 4)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	3	Y	-.5	%5

Member Point Loads (BLC 19 : Maint LL 5)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	23	Y	-.5	%5

Member Point Loads (BLC 20 : Maint LL 6)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	2	Y	-.5	%5

Member Point Loads (BLC 21 : Maint LL 7)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	22	Y	-.5	%95

Member Point Loads (BLC 22 : Maint LL 8)

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

Member Point Loads (BLC 23 : Maint LL 9)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	24	Y	-.5	%95

Member Point Loads (BLC 24 : Maint LL 10)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	3	Y	-.5	%95

Member Point Loads (BLC 25 : Maint LL 11)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	23	Y	-.5	%95

Member Point Loads (BLC 26 : Maint LL 12)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	2	Y	-.5	%95

Member Point Loads (BLC 27 : Maint LL 13)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	4	Y	-.5	%10

Member Point Loads (BLC 28 : Maint LL 14)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	8	Y	-.5	%10

Member Point Loads (BLC 29 : Maint LL 15)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	6	Y	-.5	%10

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	Z	-.021	-.021	0	0
2	2	Z	-.021	-.021	0	0
3	3	Z	-.021	-.021	0	0
4	4	Z	-.02	-.02	0	0
5	5	Z	-.017	-.017	0	0
6	6	Z	-.02	-.02	0	0
7	7	Z	-.017	-.017	0	0
8	8	Z	-.02	-.02	0	0
9	9	Z	-.017	-.017	0	0
10	13	Z	-.017	-.017	0	0
11	14	Z	-.017	-.017	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
12	15	Z	-.017	-.017	0	0
13	16	Z	-.021	-.021	0	0
14	17	Z	-.021	-.021	0	0
15	18	Z	-.021	-.021	0	0
16	22	Z	-.01	-.01	0	0
17	23	Z	-.01	-.01	0	0
18	24	Z	-.01	-.01	0	0
19	25	Z	-.012	-.012	0	0
20	26	Z	-.012	-.012	0	0
21	27	Z	-.012	-.012	0	0
22	28	Z	-.017	-.017	0	0
23	29	Z	-.017	-.017	0	0
24	30	Z	-.017	-.017	0	0
25	31	Z	-.017	-.017	0	0
26	32	Z	-.017	-.017	0	0
27	33	Z	-.017	-.017	0	0
28	34	Z	-.01	-.01	0	0
29	43	Z	-.01	-.01	0	0
30	44	Z	-.01	-.01	0	0
31	47	Z	-.01	-.01	0	0
32	48	Z	-.01	-.01	0	0
33	51	Z	-.01	-.01	0	0
34	52	Z	-.01	-.01	0	0
35	60	Z	-.01	-.01	0	0
36	61	Z	-.01	-.01	0	0
37	64	Z	-.01	-.01	0	0
38	65	Z	-.01	-.01	0	0
39	74	Z	-.01	-.01	0	0
40	75	Z	-.01	-.01	0	0
41	78	Z	-.01	-.01	0	0
42	79	Z	-.01	-.01	0	0
43	80	Z	-.01	-.01	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	X	-.021	-.021	0	0
2	2	X	-.021	-.021	0	0
3	3	X	-.021	-.021	0	0
4	4	X	-.02	-.02	0	0
5	5	X	-.017	-.017	0	0
6	6	X	-.02	-.02	0	0
7	7	X	-.017	-.017	0	0
8	8	X	-.02	-.02	0	0
9	9	X	-.017	-.017	0	0
10	13	X	-.017	-.017	0	0
11	14	X	-.017	-.017	0	0
12	15	X	-.017	-.017	0	0
13	16	X	-.021	-.021	0	0
14	17	X	-.021	-.021	0	0
15	18	X	-.021	-.021	0	0
16	22	X	-.01	-.01	0	0
17	23	X	-.01	-.01	0	0
18	24	X	-.01	-.01	0	0
19	25	X	-.012	-.012	0	0
20	26	X	-.012	-.012	0	0
21	27	X	-.012	-.012	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
22	28	X	-.017	-.017	0	0
23	29	X	-.017	-.017	0	0
24	30	X	-.017	-.017	0	0
25	31	X	-.017	-.017	0	0
26	32	X	-.017	-.017	0	0
27	33	X	-.017	-.017	0	0
28	34	X	-.01	-.01	0	0
29	43	X	-.01	-.01	0	0
30	44	X	-.01	-.01	0	0
31	47	X	-.01	-.01	0	0
32	48	X	-.01	-.01	0	0
33	51	X	-.01	-.01	0	0
34	52	X	-.01	-.01	0	0
35	60	X	-.01	-.01	0	0
36	61	X	-.01	-.01	0	0
37	64	X	-.01	-.01	0	0
38	65	X	-.01	-.01	0	0
39	74	X	-.01	-.01	0	0
40	75	X	-.01	-.01	0	0
41	78	X	-.01	-.01	0	0
42	79	X	-.01	-.01	0	0
43	80	X	-.01	-.01	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	Z	-.006	-.006	0	0
2	2	Z	-.006	-.006	0	0
3	3	Z	-.006	-.006	0	0
4	4	Z	-.006	-.006	0	0
5	5	Z	-.005	-.005	0	0
6	6	Z	-.006	-.006	0	0
7	7	Z	-.005	-.005	0	0
8	8	Z	-.006	-.006	0	0
9	9	Z	-.005	-.005	0	0
10	13	Z	-.005	-.005	0	0
11	14	Z	-.005	-.005	0	0
12	15	Z	-.005	-.005	0	0
13	16	Z	-.006	-.006	0	0
14	17	Z	-.006	-.006	0	0
15	18	Z	-.006	-.006	0	0
16	22	Z	-.002	-.002	0	0
17	23	Z	-.002	-.002	0	0
18	24	Z	-.002	-.002	0	0
19	25	Z	-.004	-.004	0	0
20	26	Z	-.004	-.004	0	0
21	27	Z	-.004	-.004	0	0
22	28	Z	-.008	-.008	0	0
23	29	Z	-.006	-.006	0	0
24	30	Z	-.008	-.008	0	0
25	31	Z	-.006	-.006	0	0
26	32	Z	-.008	-.008	0	0
27	33	Z	-.006	-.006	0	0
28	34	Z	-.002	-.002	0	0
29	43	Z	-.002	-.002	0	0
30	44	Z	-.002	-.002	0	0
31	47	Z	-.002	-.002	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
32	48	Z	-.002	-.002	0	0
33	51	Z	-.002	-.002	0	0
34	52	Z	-.002	-.002	0	0
35	60	Z	-.002	-.002	0	0
36	61	Z	-.002	-.002	0	0
37	64	Z	-.002	-.002	0	0
38	65	Z	-.002	-.002	0	0
39	74	Z	-.002	-.002	0	0
40	75	Z	-.002	-.002	0	0
41	78	Z	-.002	-.002	0	0
42	79	Z	-.002	-.002	0	0
43	80	Z	-.002	-.002	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	X	-.006	-.006	0	0
2	2	X	-.006	-.006	0	0
3	3	X	-.006	-.006	0	0
4	4	X	-.006	-.006	0	0
5	5	X	-.005	-.005	0	0
6	6	X	-.006	-.006	0	0
7	7	X	-.005	-.005	0	0
8	8	X	-.006	-.006	0	0
9	9	X	-.005	-.005	0	0
10	13	X	-.005	-.005	0	0
11	14	X	-.005	-.005	0	0
12	15	X	-.005	-.005	0	0
13	16	X	-.006	-.006	0	0
14	17	X	-.006	-.006	0	0
15	18	X	-.006	-.006	0	0
16	22	X	-.002	-.002	0	0
17	23	X	-.002	-.002	0	0
18	24	X	-.002	-.002	0	0
19	25	X	-.004	-.004	0	0
20	26	X	-.004	-.004	0	0
21	27	X	-.004	-.004	0	0
22	28	X	-.008	-.008	0	0
23	29	X	-.006	-.006	0	0
24	30	X	-.008	-.008	0	0
25	31	X	-.006	-.006	0	0
26	32	X	-.008	-.008	0	0
27	33	X	-.006	-.006	0	0
28	34	X	-.002	-.002	0	0
29	43	X	-.002	-.002	0	0
30	44	X	-.002	-.002	0	0
31	47	X	-.002	-.002	0	0
32	48	X	-.002	-.002	0	0
33	51	X	-.002	-.002	0	0
34	52	X	-.002	-.002	0	0
35	60	X	-.002	-.002	0	0
36	61	X	-.002	-.002	0	0
37	64	X	-.002	-.002	0	0
38	65	X	-.002	-.002	0	0
39	74	X	-.002	-.002	0	0
40	75	X	-.002	-.002	0	0
41	78	X	-.002	-.002	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
42	79	X	-.002	-.002	0	0
43	80	X	-.002	-.002	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	Z	-.001	-.001	0	0
2	2	Z	-.001	-.001	0	0
3	3	Z	-.001	-.001	0	0
4	4	Z	-.001	-.001	0	0
5	5	Z	-.001	-.001	0	0
6	6	Z	-.001	-.001	0	0
7	7	Z	-.001	-.001	0	0
8	8	Z	-.001	-.001	0	0
9	9	Z	-.001	-.001	0	0
10	13	Z	-.001	-.001	0	0
11	14	Z	-.001	-.001	0	0
12	15	Z	-.001	-.001	0	0
13	16	Z	-.001	-.001	0	0
14	17	Z	-.001	-.001	0	0
15	18	Z	-.001	-.001	0	0
16	22	Z	-.0003	-.0003	0	0
17	23	Z	-.0003	-.0003	0	0
18	24	Z	-.0003	-.0003	0	0
19	25	Z	-.0007	-.0007	0	0
20	26	Z	-.0007	-.0007	0	0
21	27	Z	-.0007	-.0007	0	0
22	28	Z	-.001	-.001	0	0
23	29	Z	-.001	-.001	0	0
24	30	Z	-.001	-.001	0	0
25	31	Z	-.001	-.001	0	0
26	32	Z	-.001	-.001	0	0
27	33	Z	-.001	-.001	0	0
28	34	Z	-.0003	-.0003	0	0
29	43	Z	-.0003	-.0003	0	0
30	44	Z	-.0003	-.0003	0	0
31	47	Z	-.0003	-.0003	0	0
32	48	Z	-.0003	-.0003	0	0
33	51	Z	-.0003	-.0003	0	0
34	52	Z	-.0003	-.0003	0	0
35	60	Z	-.0003	-.0003	0	0
36	61	Z	-.0003	-.0003	0	0
37	64	Z	-.0003	-.0003	0	0
38	65	Z	-.0003	-.0003	0	0
39	74	Z	-.0003	-.0003	0	0
40	75	Z	-.0003	-.0003	0	0
41	78	Z	-.0003	-.0003	0	0
42	79	Z	-.0003	-.0003	0	0
43	80	Z	-.0003	-.0003	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	X	-.001	-.001	0	0
2	2	X	-.001	-.001	0	0
3	3	X	-.001	-.001	0	0
4	4	X	-.001	-.001	0	0
5	5	X	-.001	-.001	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
6	6	X	-.001	-.001	0	0
7	7	X	-.001	-.001	0	0
8	8	X	-.001	-.001	0	0
9	9	X	-.001	-.001	0	0
10	13	X	-.001	-.001	0	0
11	14	X	-.001	-.001	0	0
12	15	X	-.001	-.001	0	0
13	16	X	-.001	-.001	0	0
14	17	X	-.001	-.001	0	0
15	18	X	-.001	-.001	0	0
16	22	X	-.0003	-.0003	0	0
17	23	X	-.0003	-.0003	0	0
18	24	X	-.0003	-.0003	0	0
19	25	X	-.0007	-.0007	0	0
20	26	X	-.0007	-.0007	0	0
21	27	X	-.0007	-.0007	0	0
22	28	X	-.001	-.001	0	0
23	29	X	-.001	-.001	0	0
24	30	X	-.001	-.001	0	0
25	31	X	-.001	-.001	0	0
26	32	X	-.001	-.001	0	0
27	33	X	-.001	-.001	0	0
28	34	X	-.0003	-.0003	0	0
29	43	X	-.0003	-.0003	0	0
30	44	X	-.0003	-.0003	0	0
31	47	X	-.0003	-.0003	0	0
32	48	X	-.0003	-.0003	0	0
33	51	X	-.0003	-.0003	0	0
34	52	X	-.0003	-.0003	0	0
35	60	X	-.0003	-.0003	0	0
36	61	X	-.0003	-.0003	0	0
37	64	X	-.0003	-.0003	0	0
38	65	X	-.0003	-.0003	0	0
39	74	X	-.0003	-.0003	0	0
40	75	X	-.0003	-.0003	0	0
41	78	X	-.0003	-.0003	0	0
42	79	X	-.0003	-.0003	0	0
43	80	X	-.0003	-.0003	0	0

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	Y	-.007	-.007	0	0
2	2	Y	-.007	-.007	0	0
3	3	Y	-.007	-.007	0	0
4	4	Y	-.01	-.01	0	0
5	5	Y	-.009	-.009	0	0
6	6	Y	-.01	-.01	0	0
7	7	Y	-.009	-.009	0	0
8	8	Y	-.01	-.01	0	0
9	9	Y	-.009	-.009	0	0
10	13	Y	-.01	-.01	0	0
11	14	Y	-.01	-.01	0	0
12	15	Y	-.01	-.01	0	0
13	16	Y	-.007	-.007	0	0
14	17	Y	-.007	-.007	0	0
15	18	Y	-.007	-.007	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
16	22	Y	-.005	-.005	0	0
17	23	Y	-.005	-.005	0	0
18	24	Y	-.005	-.005	0	0
19	25	Y	-.006	-.006	0	0
20	26	Y	-.006	-.006	0	0
21	27	Y	-.006	-.006	0	0
22	28	Y	-.014	-.014	0	0
23	29	Y	-.009	-.009	0	0
24	30	Y	-.014	-.014	0	0
25	31	Y	-.009	-.009	0	0
26	32	Y	-.014	-.014	0	0
27	33	Y	-.009	-.009	0	0
28	34	Y	-.005	-.005	0	0
29	43	Y	-.005	-.005	0	0
30	44	Y	-.005	-.005	0	0
31	47	Y	-.005	-.005	0	0
32	48	Y	-.005	-.005	0	0
33	51	Y	-.005	-.005	0	0
34	52	Y	-.005	-.005	0	0
35	60	Y	-.005	-.005	0	0
36	61	Y	-.005	-.005	0	0
37	64	Y	-.005	-.005	0	0
38	65	Y	-.005	-.005	0	0
39	74	Y	-.005	-.005	0	0
40	75	Y	-.005	-.005	0	0
41	78	Y	-.005	-.005	0	0
42	79	Y	-.005	-.005	0	0
43	80	Y	-.005	-.005	0	0

Member Distributed Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	Z	-.001	-.001	0	0
2	2	Z	-.001	-.001	0	0
3	3	Z	-.001	-.001	0	0
4	4	Z	-.003	-.003	0	0
5	5	Z	-.003	-.003	0	0
6	6	Z	-.003	-.003	0	0
7	7	Z	-.003	-.003	0	0
8	8	Z	-.003	-.003	0	0
9	9	Z	-.003	-.003	0	0
10	13	Z	-.002	-.002	0	0
11	14	Z	-.002	-.002	0	0
12	15	Z	-.002	-.002	0	0
13	16	Z	-.001	-.001	0	0
14	17	Z	-.001	-.001	0	0
15	18	Z	-.001	-.001	0	0
16	22	Z	-.0007	-.0007	0	0
17	23	Z	-.0007	-.0007	0	0
18	24	Z	-.0007	-.0007	0	0
19	25	Z	-.0006	-.0006	0	0
20	26	Z	-.0006	-.0006	0	0
21	27	Z	-.0006	-.0006	0	0
22	28	Z	-.002	-.002	0	0
23	29	Z	-.001	-.001	0	0
24	30	Z	-.002	-.002	0	0
25	31	Z	-.001	-.001	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
26	32	Z	-.002	-.002	0	0
27	33	Z	-.001	-.001	0	0
28	34	Z	-.0007	-.0007	0	0
29	43	Z	-.0007	-.0007	0	0
30	44	Z	-.0007	-.0007	0	0
31	47	Z	-.0007	-.0007	0	0
32	48	Z	-.0007	-.0007	0	0
33	51	Z	-.0007	-.0007	0	0
34	52	Z	-.0007	-.0007	0	0
35	60	Z	-.0007	-.0007	0	0
36	61	Z	-.0007	-.0007	0	0
37	64	Z	-.0007	-.0007	0	0
38	65	Z	-.0007	-.0007	0	0
39	74	Z	-.0007	-.0007	0	0
40	75	Z	-.0007	-.0007	0	0
41	78	Z	-.0007	-.0007	0	0
42	79	Z	-.0007	-.0007	0	0
43	80	Z	-.0007	-.0007	0	0

Member Distributed Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	X	-.001	-.001	0	0
2	2	X	-.001	-.001	0	0
3	3	X	-.001	-.001	0	0
4	4	X	-.003	-.003	0	0
5	5	X	-.003	-.003	0	0
6	6	X	-.003	-.003	0	0
7	7	X	-.003	-.003	0	0
8	8	X	-.003	-.003	0	0
9	9	X	-.003	-.003	0	0
10	13	X	-.002	-.002	0	0
11	14	X	-.002	-.002	0	0
12	15	X	-.002	-.002	0	0
13	16	X	-.001	-.001	0	0
14	17	X	-.001	-.001	0	0
15	18	X	-.001	-.001	0	0
16	22	X	-.0007	-.0007	0	0
17	23	X	-.0007	-.0007	0	0
18	24	X	-.0007	-.0007	0	0
19	25	X	-.0006	-.0006	0	0
20	26	X	-.0006	-.0006	0	0
21	27	X	-.0006	-.0006	0	0
22	28	X	-.002	-.002	0	0
23	29	X	-.001	-.001	0	0
24	30	X	-.002	-.002	0	0
25	31	X	-.001	-.001	0	0
26	32	X	-.002	-.002	0	0
27	33	X	-.001	-.001	0	0
28	34	X	-.0007	-.0007	0	0
29	43	X	-.0007	-.0007	0	0
30	44	X	-.0007	-.0007	0	0
31	47	X	-.0007	-.0007	0	0
32	48	X	-.0007	-.0007	0	0
33	51	X	-.0007	-.0007	0	0
34	52	X	-.0007	-.0007	0	0
35	60	X	-.0007	-.0007	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
36	61	X	-.0007	-.0007	0	0
37	64	X	-.0007	-.0007	0	0
38	65	X	-.0007	-.0007	0	0
39	74	X	-.0007	-.0007	0	0
40	75	X	-.0007	-.0007	0	0
41	78	X	-.0007	-.0007	0	0
42	79	X	-.0007	-.0007	0	0
43	80	X	-.0007	-.0007	0	0

Member Distributed Loads (BLC 39 : BLC 1 Transient Area Loads)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	Y	-.0001947	-.006	0	2
2	1	Y	-.006	-.01	2	4
3	1	Y	-.01	-.009	4	6
4	1	Y	-.009	-.009	6	8
5	1	Y	-.009	-.01	8	10
6	1	Y	-.01	-.006	10	12
7	1	Y	-.006	-.0001947	12	14
8	14	Y	-.002	-.009	0	1.917
9	14	Y	-.009	-.017	1.917	3.833
10	15	Y	-.002	-.009	0	1.917
11	15	Y	-.009	-.017	1.917	3.833
12	16	Y	-.01	-.01	.014	7.346
13	2	Y	-.002	-.005	0	2.333
14	2	Y	-.005	-.009	2.333	4.667
15	2	Y	-.009	-.012	4.667	7
16	2	Y	-.012	-.009	7	9.333
17	2	Y	-.009	-.005	9.333	11.667
18	2	Y	-.005	-.002	11.667	14
19	13	Y	-.002	-.009	0	1.917
20	13	Y	-.009	-.017	1.917	3.833
21	17	Y	-.01	-.01	.014	7.346
22	3	Y	-.002	-.005	0	2.333
23	3	Y	-.005	-.009	2.333	4.667
24	3	Y	-.009	-.012	4.667	7
25	3	Y	-.012	-.009	7	9.333
26	3	Y	-.009	-.005	9.333	11.667
27	3	Y	-.005	-.002	11.667	14
28	18	Y	-.01	-.01	.014	7.346

Member Distributed Loads (BLC 40 : BLC 8 Transient Area Loads)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	1	Y	-.0001049	-.003	0	2
2	1	Y	-.003	-.005	2	4
3	1	Y	-.005	-.005	4	6
4	1	Y	-.005	-.005	6	8
5	1	Y	-.005	-.005	8	10
6	1	Y	-.005	-.003	10	12
7	1	Y	-.003	-.0001049	12	14
8	14	Y	-.0009922	-.005	0	1.917
9	14	Y	-.005	-.009	1.917	3.833
10	15	Y	-.0009922	-.005	0	1.917
11	15	Y	-.005	-.009	1.917	3.833
12	16	Y	-.005	-.005	.014	7.346
13	2	Y	-.0009798	-.003	0	2.333
14	2	Y	-.003	-.005	2.333	4.667

Member Distributed Loads (BLC 40 : BLC 8 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
15	2	Y	-.005	-.006	4.667	7
16	2	Y	-.006	-.005	7	9.333
17	2	Y	-.005	-.003	9.333	11.667
18	2	Y	-.003	-.0009798	11.667	14
19	13	Y	-.0009553	-.005	0	1.917
20	13	Y	-.005	-.008	1.917	3.833
21	17	Y	-.005	-.005	.014	7.346
22	3	Y	-.0009798	-.003	0	2.333
23	3	Y	-.003	-.005	2.333	4.667
24	3	Y	-.005	-.006	4.667	7
25	3	Y	-.006	-.005	7	9.333
26	3	Y	-.005	-.003	9.333	11.667
27	3	Y	-.003	-.0009798	11.667	14
28	18	Y	-.005	-.005	.014	7.346

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Dead	DL		-1			90		3	
2	0 Wind - No Ice	WLZ					90	43		
3	90 Wind - No Ice	WLX					90	43		
4	0 Wind - Ice	WLZ					90	43		
5	90 Wind - Ice	WLX					90	43		
6	0 Wind - Service	WLZ					90	43		
7	90 Wind - Service	WLX					90	43		
8	Ice	OL1					90	43	3	
9	0 Seismic	ELZ					90	43		
10	90 Seismic	ELX					90	43		
11	Live Load a	LL				3				
12	Live Load b	LL				3				
13	Live Load c	LL				3				
14	Live Load d	LL				3				
15	Maint LL 1	LL					1			
16	Maint LL 2	LL					1			
17	Maint LL 3	LL					1			
18	Maint LL 4	LL					1			
19	Maint LL 5	LL					1			
20	Maint LL 6	LL					1			
21	Maint LL 7	LL					1			
22	Maint LL 8	LL					1			
23	Maint LL 9	LL					1			
24	Maint LL 10	LL					1			
25	Maint LL 11	LL					1			
26	Maint LL 12	LL					1			
27	Maint LL 13	LL					1			
28	Maint LL 14	LL					1			
29	Maint LL 15	LL					1			
30	Maint LL 16	LL								
31	Maint LL 17	LL								
32	Maint LL 18	LL								
33	Maint LL 19	LL								
34	Maint LL 20	LL								
35	Maint LL 21	LL								
36	Maint LL 22	LL								
37	Maint LL 23	LL								
38	Maint LL 24	LL								

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
39	BLC 1 Transient Area...	None						28		
40	BLC 8 Transient Area...	None						28		

Load Combinations

	Description	Sol...	PD...	SR...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
1	1.4 Dead	Yes	Y		1	1.4																		
2	1.2 D + 1....	Yes	Y		1	1.2	2	1																
3	1.2 D + 1....	Yes	Y		1	1.2	2	.866	3	.5														
4	1.2 D + 1....	Yes	Y		1	1.2	3	.866	2	.5														
5	1.2 D + 1....	Yes	Y		1	1.2	3	1																
6	1.2 D + 1....	Yes	Y		1	1.2	3	.866	2	-.5														
7	1.2 D + 1....	Yes	Y		1	1.2	2	-.866	3	.5														
8	1.2 D + 1....	Yes	Y		1	1.2	2	-1																
9	1.2 D + 1....	Yes	Y		1	1.2	2	-.866	3	-.5														
10	1.2 D + 1....	Yes	Y		1	1.2	3	-.866	2	-.5														
11	1.2 D + 1....	Yes	Y		1	1.2	3	-1																
12	1.2 D + 1....	Yes	Y		1	1.2	3	-.866	2	.5														
13	1.2 D + 1....	Yes	Y		1	1.2	2	.866	3	-.5														
14	1.2 D + 1....	Yes	Y		1	1.2	4	1			8	1												
15	1.2 D + 1....	Yes	Y		1	1.2	4	.866	5	.5	8	1												
16	1.2 D + 1....	Yes	Y		1	1.2	5	.866	4	.5	8	1												
17	1.2 D + 1....	Yes	Y		1	1.2	5	1			8	1												
18	1.2 D + 1....	Yes	Y		1	1.2	5	.866	4	-.5	8	1												
19	1.2 D + 1....	Yes	Y		1	1.2	4	-.866	5	.5	8	1												
20	1.2 D + 1....	Yes	Y		1	1.2	4	-1			8	1												
21	1.2 D + 1....	Yes	Y		1	1.2	4	-.866	5	-.5	8	1												
22	1.2 D + 1....	Yes	Y		1	1.2	5	-.866	4	-.5	8	1												
23	1.2 D + 1....	Yes	Y		1	1.2	5	-1			8	1												
24	1.2 D + 1....	Yes	Y		1	1.2	5	-.866	4	.5	8	1												
25	1.2 D + 1....	Yes	Y		1	1.2	4	.866	5	-.5	8	1												
26	1.2 D + 1....	Yes	Y		1	1.2	9	1																
27	1.2 D + 1....	Yes	Y		1	1.2	9	.866	10	.5														
28	1.2 D + 1....	Yes	Y		1	1.2	10	.866	9	.5														
29	1.2 D + 1....	Yes	Y		1	1.2	10	1																
30	1.2 D + 1....	Yes	Y		1	1.2	10	.866	9	-.5														
31	1.2 D + 1....	Yes	Y		1	1.2	9	-.866	10	.5														
32	1.2 D + 1....	Yes	Y		1	1.2	9	-1																
33	1.2 D + 1....	Yes	Y		1	1.2	9	-.866	10	-.5														
34	1.2 D + 1....	Yes	Y		1	1.2	10	-.866	9	-.5														
35	1.2 D + 1....	Yes	Y		1	1.2	10	-1																
36	1.2 D + 1....	Yes	Y		1	1.2	10	-.866	9	.5														
37	1.2 D + 1....	Yes	Y		1	1.2	9	.866	10	-.5														
38	1.2 D + 1....	Yes	Y		1	1.2	6	1			11	1.5												
39	1.2 D + 1....	Yes	Y		1	1.2	6	.866	7	.5	11	1.5												
40	1.2 D + 1....	Yes	Y		1	1.2	7	.866	6	.5	11	1.5												
41	1.2 D + 1....	Yes	Y		1	1.2	7	1			11	1.5												
42	1.2 D + 1....	Yes	Y		1	1.2	7	.866	6	-.5	11	1.5												
43	1.2 D + 1....	Yes	Y		1	1.2	6	-.866	7	.5	11	1.5												
44	1.2 D + 1....	Yes	Y		1	1.2	6	-1			11	1.5												
45	1.2 D + 1....	Yes	Y		1	1.2	6	-.866	7	-.5	11	1.5												
46	1.2 D + 1....	Yes	Y		1	1.2	7	-.866	6	-.5	11	1.5												
47	1.2 D + 1....	Yes	Y		1	1.2	7	-1			11	1.5												
48	1.2 D + 1....	Yes	Y		1	1.2	7	-.866	6	.5	11	1.5												
49	1.2 D + 1....	Yes	Y		1	1.2	6	.866	7	-.5	11	1.5												
50	1.2 D + 1....	Yes	Y		1	1.2	6	1			12	1.5												

Load Combinations (Continued)

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
51	1.2 D + 1....	Yes	Y		1	1.2	6	.866	7	.5	12	1.5												
52	1.2 D + 1....	Yes	Y		1	1.2	7	.866	6	.5	12	1.5												
53	1.2 D + 1....	Yes	Y		1	1.2	7	1			12	1.5												
54	1.2 D + 1....	Yes	Y		1	1.2	7	.866	6	-.5	12	1.5												
55	1.2 D + 1....	Yes	Y		1	1.2	6	-.866	7	.5	12	1.5												
56	1.2 D + 1....	Yes	Y		1	1.2	6	-1			12	1.5												
57	1.2 D + 1....	Yes	Y		1	1.2	6	-.866	7	-.5	12	1.5												
58	1.2 D + 1....	Yes	Y		1	1.2	7	-.866	6	-.5	12	1.5												
59	1.2 D + 1....	Yes	Y		1	1.2	7	-1			12	1.5												
60	1.2 D + 1....	Yes	Y		1	1.2	7	-.866	6	.5	12	1.5												
61	1.2 D + 1....	Yes	Y		1	1.2	6	.866	7	-.5	12	1.5												
62	1.2 D + 1....	Yes	Y		1	1.2	6	1			13	1.5												
63	1.2 D + 1....	Yes	Y		1	1.2	6	.866	7	.5	13	1.5												
64	1.2 D + 1....	Yes	Y		1	1.2	7	.866	6	.5	13	1.5												
65	1.2 D + 1....	Yes	Y		1	1.2	7	1			13	1.5												
66	1.2 D + 1....	Yes	Y		1	1.2	7	.866	6	-.5	13	1.5												
67	1.2 D + 1....	Yes	Y		1	1.2	6	-.866	7	.5	13	1.5												
68	1.2 D + 1....	Yes	Y		1	1.2	6	-1			13	1.5												
69	1.2 D + 1....	Yes	Y		1	1.2	6	-.866	7	-.5	13	1.5												
70	1.2 D + 1....	Yes	Y		1	1.2	7	-.866	6	-.5	13	1.5												
71	1.2 D + 1....	Yes	Y		1	1.2	7	-1			13	1.5												
72	1.2 D + 1....	Yes	Y		1	1.2	7	-.866	6	.5	13	1.5												
73	1.2 D + 1....	Yes	Y		1	1.2	6	.866	7	-.5	13	1.5												
74	1.2 D + 1....	Yes	Y		1	1.2	6	1			14	1.5												
75	1.2 D + 1....	Yes	Y		1	1.2	6	.866	7	.5	14	1.5												
76	1.2 D + 1....	Yes	Y		1	1.2	7	.866	6	.5	14	1.5												
77	1.2 D + 1....	Yes	Y		1	1.2	7	1			14	1.5												
78	1.2 D + 1....	Yes	Y		1	1.2	7	.866	6	-.5	14	1.5												
79	1.2 D + 1....	Yes	Y		1	1.2	6	-.866	7	.5	14	1.5												
80	1.2 D + 1....	Yes	Y		1	1.2	6	-1			14	1.5												
81	1.2 D + 1....	Yes	Y		1	1.2	6	-.866	7	-.5	14	1.5												
82	1.2 D + 1....	Yes	Y		1	1.2	7	-.866	6	-.5	14	1.5												
83	1.2 D + 1....	Yes	Y		1	1.2	7	-1			14	1.5												
84	1.2 D + 1....	Yes	Y		1	1.2	7	-.866	6	.5	14	1.5												
85	1.2 D + 1....	Yes	Y		1	1.2	6	.866	7	-.5	14	1.5												
86	1.2 D + 1....	Yes	Y		1	1.2					15	1.5												
87	1.2 D + 1....	Yes	Y		1	1.2					16	1.5												
88	1.2 D + 1....	Yes	Y		1	1.2					17	1.5												
89	1.2 D + 1....	Yes	Y		1	1.2					18	1.5												
90	1.2 D + 1....	Yes	Y		1	1.2					19	1.5												
91	1.2 D + 1....	Yes	Y		1	1.2					20	1.5												
92	1.2 D + 1....	Yes	Y		1	1.2					21	1.5												
93	1.2 D + 1....	Yes	Y		1	1.2					22	1.5												
94	1.2 D + 1....	Yes	Y		1	1.2					23	1.5												
95	1.2 D + 1....	Yes	Y		1	1.2					24	1.5												
96	1.2 D + 1....	Yes	Y		1	1.2					25	1.5												
97	1.2 D + 1....	Yes	Y		1	1.2					26	1.5												
98	1.2 D + 1....	Yes	Y		1	1.2					27	1.5												
99	1.2 D + 1....	Yes	Y		1	1.2					28	1.5												
100	1.2 D + 1....	Yes	Y		1	1.2					29	1.5												
101	1.2 D + 1....	Yes	Y		1	1.2					30	1.5												
102	1.2 D + 1....	Yes	Y		1	1.2					31	1.5												
103	1.2 D + 1....	Yes	Y		1	1.2					32	1.5												
104	1.2 D + 1....	Yes	Y		1	1.2					33	1.5												
105	1.2 D + 1....	Yes	Y		1	1.2					34	1.5												
106	1.2 D + 1....	Yes	Y		1	1.2					35	1.5												
107	1.2 D + 1....	Yes	Y		1	1.2					36	1.5												

Load Combinations (Continued)

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
108	1.2 D + 1....	Yes	Y		1	1.2					37	1.5														
109	1.2 D + 1....	Yes	Y		1	1.2					38	1.5														

Exhibit F

Power Density/RF Emissions Report

RF EMISSIONS COMPLIANCE REPORT

Crown Castle on behalf of AT&T Mobility LLC

Crown Castle Site Name: BRANFORD BANM TOWER
Crown Castle Site BU: 876321
AT&T Mobility, LLC Site FA #: 10035122
150 N. Main Street
Branford, CT
3/24/2020

Report Status:

AT&T Mobility LLC is Compliant

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

Signed 25 March 2020

Prepared By:

Site Safe, LLC

8618 Westwood Center Drive
Suite 315
Vienna, VA 22182
Voice: 703-276-1100
Fax: 703-276-1169

Engineering Statement in Re:
Electromagnetic Energy Analysis
Crown Castle
Branford, CT

My signature on the cover of this document indicates:

That I am registered as a Professional Engineer in the jurisdiction indicated; and

That I have extensive professional experience in the wireless communications engineering industry; and

That I am an employee of Site Safe, LLC in Vienna, Virginia; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission ("the FCC" and "the FCC Rules") both in general and specifically as they apply to the FCC's Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields; and

That the technical information serving as the basis for this report was supplied by Crown Castle on behalf of AT&T Mobility, LLC (see attached Site Summary and Carrier documents) and that AT&T Mobility, LLC's installation involves communications equipment, antennas and associated technical equipment at a location referred to as "BRANFORD BANM TOWER" ("the site"); and

That AT&T Mobility, LLC proposes to operate at the site with transmit antennas listed in the carrier summary and with a maximum effective radiated power as specified by AT&T Mobility, LLC and shown on the worksheet and that worst-case 100% duty cycle has been assumed; and

That in addition to the emitters specified in the worksheet, there are additional collocated point-to-point microwave facilities on this structure, and the antennas used are highly directional and oriented at angles at or just below the horizontal, and that the energy present at ground level is typically so low as to be considered insignificant and has not been included in this analysis (a list of microwave antennas is included); and

That this analysis has been performed with the assumption that the ground immediately surrounding the tower is primarily flat or falling; and

That at this time, the FCC requires that certain licensees address specific levels of radio frequency energy to which workers or members of the public might possibly be exposed (at §1.1307(b) of the FCC Rules); and

That such consideration of possible exposure of humans to radio frequency energy must utilize the standards set by the FCC, which is the federal agency having jurisdiction over communications facilities; and

That the FCC rules define two tiers of permissible exposure guidelines: 1) "uncontrolled environments," which defines situations in which persons may not be aware of (the "general public"), or may not be able to control their exposure to a transmission facility; and 2) "controlled environments," which defines situations in which persons are aware of their potential for exposure (industry personnel); and

That this statement specifically addresses the uncontrolled environment (which is more conservative than the controlled environment) and the limit set forth in the FCC rules for licensees of AT&T Mobility, LLC's operating frequencies as shown on the attached antenna worksheet; and

That when applying the uncontrolled environment standards, the predicted Maximum Power Density at two meters above ground level from the proposed AT&T Mobility, LLC operation is no more than 3.910% of the maximum permissible exposure limits in any accessible area on the ground; and

That it is understood per FCC Guidelines and OET 65 Appendix A, that regardless of the existent radio frequency environment, only those licensees whose contributions exceed 5% of the exposure limit pertinent to their operation(s) bear any responsibility for bringing any non-compliant area(s) into compliance; and

That when applying the uncontrolled environment standards, the cumulative predicted energy density from the proposed operation is no more than 6.477% of the maximum in any accessible area up to two meters above the ground per OET 65; and

That the calculations provided in this report are based on data provided by the client and antenna pattern data supplied by the antenna manufacturer, in accordance with FCC guidelines listed in OET 65. Horizontal and vertical antenna patterns are combined for modeling purposes to accurately reflect the energy two meters above ground level where on-axis energy refers to maximum energy two meters above the ground along the azimuth of the antenna and where area energy refers to the maximum energy anywhere two meters above the ground regardless of the antenna azimuth, accounting for cumulative energy from multiple antennas for the carrier(s) and frequency range(s) indicated; and

That the Occupational Safety and Health Administration has policies in place which address worker safety in and around communications sites, thus individual companies will be responsible for their employees' training regarding radio frequency safety; and

In summary, it is stated here that the proposed operation at the site will not result in exposure of the public to excessive levels of radio frequency energy as defined in the FCC Rules and Regulations, specifically 47 CFR 1.1307(b), and that AT&T Mobility, LLC's proposed operation is completely compliant.

Finally, it is stated that access to the tower should be restricted to communication industry professionals and approved contractor personnel trained in radio frequency safety and that this instant analysis addresses exposure levels at two meters above ground level and does not address exposure levels on the tower or in the immediate proximity of the antennas.

Crown Castle
BRANFORD BANM TOWER
Site Summary

Carrier	Area Maximum Percentage MPE
AT&T Mobility LLC	0.436 %
AT&T Mobility LLC	0.205 %
AT&T Mobility LLC (Proposed)	0.887 %
AT&T Mobility LLC (Proposed)	0.562 %
AT&T Mobility LLC (Proposed)	0.548 %
AT&T Mobility LLC (Proposed)	0.809 %
AT&T Mobility LLC (Proposed)	0.463 %
Sprint	0.254 %
Sprint	0.180 %
Sprint	0.180 %
Sprint	0.258 %
T-Mobile	0.280 %
T-Mobile	0.664 %
T-Mobile	0.471 %
T-Mobile	0.280 %
Composite Site MPE:	6.477 %

AT&T Mobility LLC
BRANFORD BANM TOWER
Carrier Summary

Frequency:	2300	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	4.35633	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.43563	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
ANDREW	SBNHH-1D65A	112	90	2685	2.567802	0.256780	4.073417	0.407342
ANDREW	SBNHH-1D65A	112	200	2685	2.567802	0.256780	4.073417	0.407342
ANDREW	SBNHH-1D65A	112	284	2685	2.567802	0.256780	4.073417	0.407342

AT&T Mobility LLC
BRANFORD BANM TOWER
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	$\mu W/cm^2$
Maximum power density at ground level:	1.16019	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.20474	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
Powerwave	7770	112	44	547	0.431499	0.076147	0.667754	0.117839
Powerwave	7770	112	143	547	0.431499	0.076147	0.667754	0.117839
Powerwave	7770	112	263	547	0.431499	0.076147	0.667754	0.117839

AT&T Mobility LLC (Proposed)
BRANFORD BANM TOWER
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	8.86661	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.88666	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
CCI	OPA65R-BU4D	112	90	3708	5.981133	0.598113	7.535108	0.753511
CCI	OPA65R-BU4D	112	200	3708	5.981133	0.598113	7.535108	0.753511
CCI	OPA65R-BU4D	112	284	3708	5.981133	0.598113	7.535108	0.753511

AT&T Mobility LLC (Proposed)
BRANFORD BANM TOWER
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	$\mu W/cm^2$
Maximum power density at ground level:	3.18602	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.56224	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
CCI	OPA65R-BU4D	112	90	2038	1.943172	0.342913	2.068927	0.365105
CCI	OPA65R-BU4D	112	200	2038	1.943172	0.342913	2.068927	0.365105
CCI	OPA65R-BU4D	112	284	2038	1.943172	0.342913	2.068927	0.365105

AT&T Mobility LLC (Proposed)
BRANFORD BANM TOWER
Carrier Summary

Frequency:	737	MHz
Maximum Permissible Exposure (MPE):	491.33	$\mu W/cm^2$
Maximum power density at ground level:	2.69409	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.54832	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
CCI	OPA65R-BU4D	112	90	1775	2.077601	0.422850	2.217626	0.451349
CCI	OPA65R-BU4D	112	200	1775	2.077601	0.422850	2.217626	0.451349
CCI	OPA65R-BU4D	112	284	1775	2.077601	0.422850	2.217626	0.451349

AT&T Mobility LLC (Proposed)
BRANFORD BANM TOWER
Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	8.08611	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.80861	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
CCI Antennas	DMP65R-BU4D	112	90	4066	5.116333	0.511633	6.847550	0.684755
CCI Antennas	DMP65R-BU4D	112	200	4066	5.116333	0.511633	6.847550	0.684755
CCI Antennas	DMP65R-BU4D	112	284	4066	5.116333	0.511633	6.847550	0.684755

AT&T Mobility LLC (Proposed)
BRANFORD BANM TOWER
Carrier Summary

Frequency:	763	MHz
Maximum Permissible Exposure (MPE):	508.67	$\mu W/cm^2$
Maximum power density at ground level:	2.35430	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.46284	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
CCI Antennas	DMP65R-BU4D	112	90	1582	1.663846	0.327099	1.741274	0.342321
CCI Antennas	DMP65R-BU4D	112	200	1582	1.663846	0.327099	1.741274	0.342321
CCI Antennas	DMP65R-BU4D	112	284	1582	1.663846	0.327099	1.741274	0.342321

Sprint
BRANFORD BANM TOWER
Carrier Summary

Frequency:	2500	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	2.53962	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.25396	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
RFS	APXVTM14-C-I20	147	0	6168	1.046962	0.104696	1.958436	0.195844
RFS	APXVTM14-C-I20	147	120	6168	1.046962	0.104696	1.958436	0.195844
RFS	APXVTM14-C-I20	147	240	6168	1.046962	0.104696	1.958436	0.195844

Sprint
BRANFORD BANM TOWER
Carrier Summary

Frequency:	1990	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	1.79846	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.17985	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
RFS	APXVSPP18-C-A20	147	0	3804	0.833768	0.083377	1.577051	0.157705
RFS	APXVSPP18-C-A20	147	150	3804	0.833768	0.083377	1.577051	0.157705
Powerwave	P40-16-XLPP-RR	147	240	3583	0.927407	0.092741	1.427875	0.142787

Sprint
BRANFORD BANM TOWER
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	1.79846	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.17985	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
RFS	APXVSPP18-C-A20	147	0	3804	0.833768	0.083377	1.577051	0.157705
RFS	APXVSPP18-C-A20	147	150	3804	0.833768	0.083377	1.577051	0.157705
Powerwave	P40-16-XLPP-RR	147	240	3583	0.927407	0.092741	1.427875	0.142787

Sprint
BRANFORD BANM TOWER
Carrier Summary

Frequency:	862	MHz
Maximum Permissible Exposure (MPE):	574.67	$\mu W/cm^2$
Maximum power density at ground level:	1.48273	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.25802	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
RFS	APXVSPP18-C-A20	147	0	2168	0.719467	0.125197	0.735164	0.127929
RFS	APXVSPP18-C-A20	147	150	2168	0.719467	0.125197	0.735164	0.127929
Powerwave	P40-16-XLPP-RR	147	240	2630	1.403404	0.244212	1.447395	0.251867

T-Mobile
BRANFORD BANM TOWER
Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	2.79829	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.27983	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
Ericsson	AIR 21 B4A B2P	121	60	4123	1.382321	0.138232	1.588662	0.158866
Ericsson	AIR 21 B4A B2P	121	200	4123	1.382321	0.138232	1.588662	0.158866
Ericsson	AIR 21 B4A B2P	121	290	4123	1.382321	0.138232	1.588662	0.158866

T-Mobile
BRANFORD BANM TOWER
Carrier Summary

Frequency:	700	MHz
Maximum Permissible Exposure (MPE):	466.67	$\mu W/cm^2$
Maximum power density at ground level:	3.09855	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.66398	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
RFS	APXVAARR24_43-U-NA20	121	60	3484	1.517465	0.325171	1.635641	0.350495
RFS	APXVAARR24_43-U-NA20	121	200	3484	1.517465	0.325171	1.635641	0.350495
RFS	APXVAARR24_43-U-NA20	121	290	3484	1.517465	0.325171	1.635641	0.350495

T-Mobile
BRANFORD BANM TOWER
Carrier Summary

Frequency:	600	MHz
Maximum Permissible Exposure (MPE):	400	$\mu W/cm^2$
Maximum power density at ground level:	1.88237	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.47059	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
RFS	APXVAARR24_43-U-NA20	121	60	2501	1.208510	0.302127	1.246502	0.311626
RFS	APXVAARR24_43-U-NA20	121	200	2501	1.208510	0.302127	1.246502	0.311626
RFS	APXVAARR24_43-U-NA20	121	290	2501	1.208510	0.302127	1.246502	0.311626

T-Mobile
BRANFORD BANM TOWER
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	2.79829	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.27983	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
Ericsson	AIR 21 B2A B4P	121	60	4123	1.382321	0.138232	1.588662	0.158866
Ericsson	AIR 21 B2A B4P	121	200	4123	1.382321	0.138232	1.588662	0.158866
Ericsson	AIR 21 B2A B4P	121	290	4123	1.382321	0.138232	1.588662	0.158866

BRANFORD BANM TOWER
Composite Microwave Antenna Summary

Carrier	Antenna Make/Model	Height (feet)
Clearwire	Dragonwave A-ANT-23G-2-C	149
Clearwire	Dragonwave A-ANT-23G-2-C	149
Clearwire	Andrew VHLP2-18	149