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

July 8, 2020

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

RE: **Notice of Exempt Modification for AT&T - 876382**
1684 Chamberlain Highway, Berlin, CT 06037
Latitude: 41° 35′ 23.07″ / Longitude: -72° 48′ 19.20″

Dear Ms. Bachman:

AT&T currently maintains three (3) antennas at the 133-foot mount on the existing 133-foot Monopole Tower, located at 1684 Chamberlain Highway, Berlin, CT. The property is owned by Arlene & Ronald Laviana and the Tower is owned by Crown Castle. AT&T now intends to remove and replace three (3) existing antennas with three (3) new antennas. The new antennas will be installed at the 133-ft level of the tower.

The facility was approved by the Berlin Planning and Zoning Commission on March 23, 2000 via grant of a Special Permit. Notice of Decision dated April 11, 2000 is the only record able to be located despite diligent effort, therefore conditions of approval of unknown.

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 Mark Kaczynski, Mayor for the Town Berlin, Maureen Giusti, Acting Town Planner, Arlene and Ronald Laviana as the property owners and Crown Castle is the tower 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
Site Acquisition Specialist
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
(201) 236-9224
AnneMarie.Zsamba@crowncastle.com

Attachments
cc:

Mark Kaczynski, Mayor *(via email only to mkaczynski@town.berlin.ct.us)*
Town of Berlin
240 Kensington Road
Berlin, CT 06037

Maureen Giusti, Acting Town Planner *(via email only to mgiusti@town.berlin.ct.us)*
Town of Berlin
240 Kensington Road
Berlin, CT 06037

Ronald & Arlene Laviana
1684 Chamberlain Highway
Kensington, CT 06037

Crown Castle, Tower Owner

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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

From: Zsamba, Anne Marie
To: mkaczynski@town.berlin.ct.us
Subject: Notice of Exempt Modification - 1684 Chamberlain Highway, Berlin - AT&T - 876382
Date: Wednesday, July 8, 2020 10:01:00 AM
Attachments: EM-AT&T-1684 CHAMBERLAIN HWY BERLIN-876382_notice.pdf

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Dear Mayor Kaczynski:

Attached please find AT&T's exempt modification application that is being submitted to the Connecticut Siting Council, today July 8, 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: mgiusti@town.berlin.ct.us
Subject: Notice of Exempt Modification - 1684 Chamberlain Highway, Berlin - AT&T - 876382
Date: Wednesday, July 8, 2020 10:01:00 AM
Attachments: EM-AT&T-1684 CHAMBERLAIN HWY BERLIN-876382_notice.pdf

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Dear Ms. Giusti:

Attached please find AT&T's exempt modification application that is being submitted to the Connecticut Siting Council, today July 8, 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

Exhibit A

Original Facility Approval

VOL. 433 PAGE 0333

Town of Berlin

Department of Development Services

April 11, 2000

NOTICE OF DECISION

BERLIN PLANNING AND ZONING COMMISSION

Application: Special Permit - #00-02-SP

Applicant: SPRINT Spectrum L.P. dba SPRINT PCS

Location: Lot 17, Block 15, Chamberlain Highway

At its Regular Meeting of March 23, 2000, the Berlin Planning and Zoning voted five to two to grant the Special Permit Application of SPRINT Spectrum L.P., d/b/a SPRINT PCS for a telecommunications tower and related equipment at Lot 17, Block 15, Chamberlain Highway.

001240

Brian J. Miller, AICP
Director of Development Services

Lawrence J. & Nellie C. Laviana
Owner of Record

Certified Mail (Return Receipt Requested): 7099 3400 0001 5361 6271

Visit Our Web Site: http://www.edc.ci.berlin.ct.us

Town of Berlin, Connecticut • Planning and Zoning Commission
240 Kensington Road • Berlin, CT 06037 • (860) 828-7060 • Fax (860) 828-7180

RECEIVED May 3 2000
AT 12 HR 58 MIN p.m.
AND RECORDED IN
BERLIN LAND RECORDS
VOL. 433 PAGE 333
Cheryl DeFrancesco
ASST TOWN CLERK

Exhibit B

Property Card

Town of Berlin, CT

Property Listing Report

Map Block Lot	19-4-15-17	Building #	1	PID	3445	Account	1036200

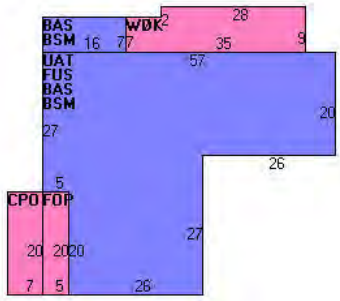
Property Information

Property Location	1684 CHAMBERLAIN HWY
Owner	LAVIANA RONALD L & ARLENE G
Co-Owner	
Mailing Address	1684 CHAMBERLAIN HWY KENSINGTON CT 06037
Land Use	1070 SFR w/Apt
Land Class	R
Zoning Code	MR-1
Census Tract	4002

District	0
Acreage	65.05
Utilities	Gas,Well,Septic
Book / Page	0456/0137

Photo

Sketch



Primary Construction Details

Year Built	1800
Building Desc.	SFR w/Apt
Building Style	Colonial
Stories	2
Occupancy	1.00
Exterior Walls	Vinyl Siding
Exterior Walls 2	
Roof Style	Gable
Roof Cover	Asph/F Gls/Cmp
Interior Walls	Drywall
Interior Walls 2	
Interior Floors 1	Carpet
Interior Floors 2	

Heating Fuel	Gas/Oil
Heating Type	Hot Water
AC Type	None
Bedrooms	6 Bedrooms
Full Bathrooms	3
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	12
Bath Style	Average
Kitchen Style	Average
Fin BSMT Area	
Fin BSMT Quality	
Fin BSMT Area 2	
Fin BSMT Qual 2	

BSMT Garages	0
Fireplaces	2
Whirlpool Tub	0
Building Use	Residential
Building Condition	A

Industrial / Commercial Details
(*Residential Not Applicable)

Heat / AC	NA
Frame Type	NA
Baths / Plumbing	NA
Ceiling / Wall	NA
Rooms / Prtns	NA
Wall Height	NA
First Floor Use	NA

Report Created On 7/6/2020

Town of Berlin, CT

Property Listing Report

Map Block Lot	19-4-15-17	Building #	1	PID	3445	Account	1036200

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	210800	147600
Extras	7500	5300
Improvements		
Outbuildings	276700	193700
Land	1481400	122176
Total	1976400	468776

Outbuilding and Extra Features

Type	Description
Barn 1 Story	638 S.F.
Barn 1 Sty w/Bsm	2100 S.F.
Garage - Avg	504 S.F.
Shed Wd Res	420 S.F.
Cell Tower	150 L.F.
Generator	22 UNITS

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	1989	1989
Concrete Patio	140	0
Porch, Open, Finished	100	0
Upper Story, Finished	1877	1877
Deck, Wood	301	0
Basement	1989	0
Attic, Unfinished	1877	0
Total Area	8273	3866

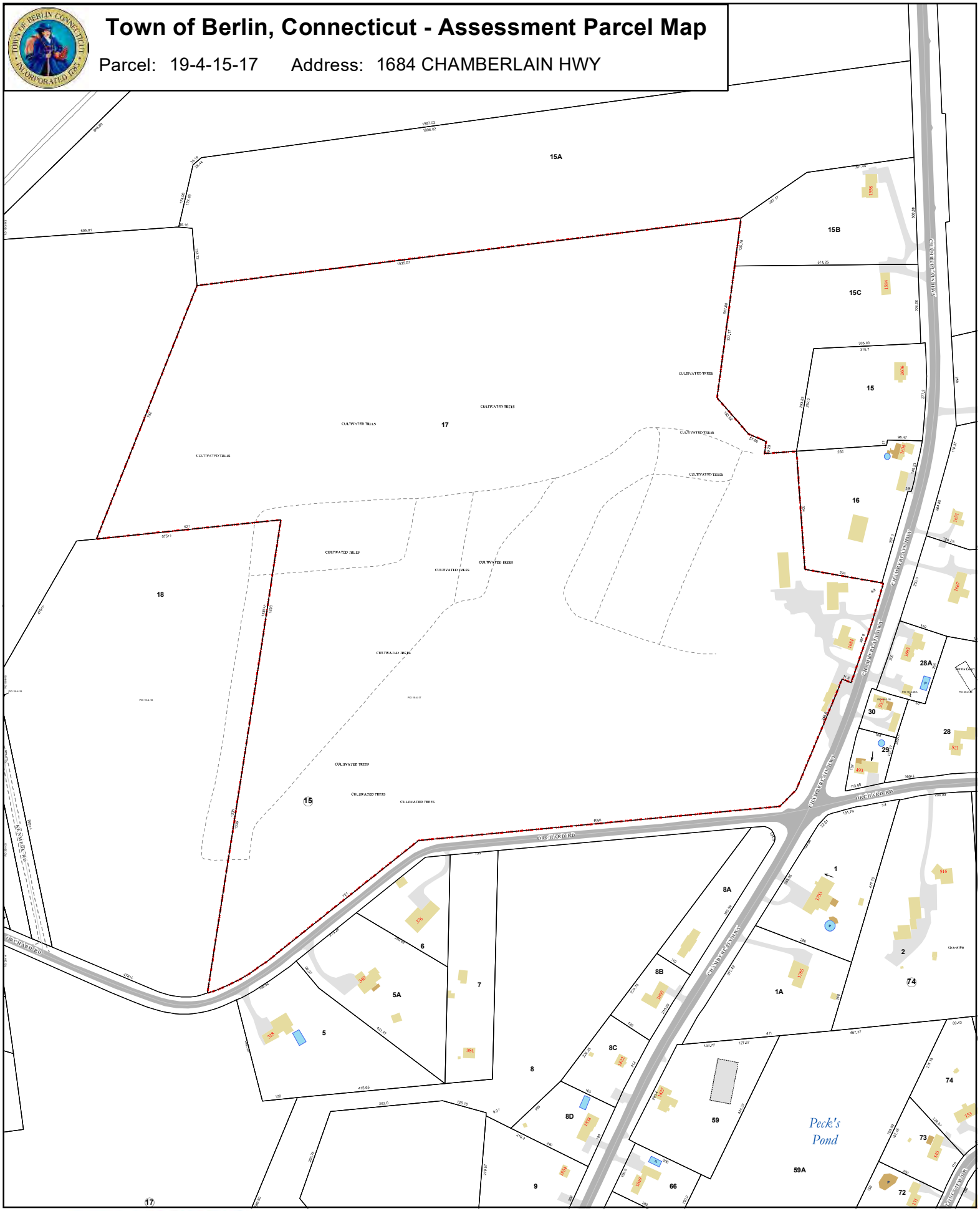
Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
LAVIANA RONALD L & ARLENE G	0456/0137	2001-09-19	0
LAVIANA,LAWRENCE,,	0088/0223	1944-04-23	0

Report Created On 7/6/2020

Town of Berlin, Connecticut - Assessment Parcel Map

Parcel: 19-4-15-17 Address: 1684 CHAMBERLAIN HWY



Approximate Scale: 1 inch = 333 feet

0 160 320 480 640 Feet

Map Produced: March 2020

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

Exhibit C

Construction Drawings

AT&T

AT&T SITE NUMBER:	**CTL01031**	**BUSINESS UNIT #:**	**876382**
AT&T SITE NAME:	**59417**	**SITE ADDRESS:**	**1684 CHAMBERLAIN HIGHWAY BERLIN, CT 6037**
AT&T FA CODE:	**10041794**	**COUNTY:**	**HARTFORD**
AT&T PACE NUMBER:	**MRCTB047035**	**SITE TYPE:**	**MONOPOLE**
AT&T PROJECT:	**LTE 2C/5G**	**TOWER HEIGHT:**	**133'-0"**

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	BERLIN / LAVIANA ORCHARD
SITE ADDRESS:	1684 CHAMBERLAIN HIGHWAY BERLIN, CT 6037
COUNTY:	HARTFORD
MAP/PARCEL #:	BERL-000036-000200
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41° 35' 23.07"
LONGITUDE:	-72° 48' 19.20"
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	352 FT.
CURRENT ZONING:	MR-1
JURISDICTION:	TOWN OF BERLIN
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	RONALD L LAVIANA 1684 CHAMBERLAIN HIGHWAY KENSINGTON, CT 06037
TOWER OWNER:	GLOBAL SIGNAL ACQUISITIONS II LLC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	AT&T TOWER ASSET GROUP 575 MOROSGO DRIVE ATLANTA, GA 30324-3300
ELECTRIC PROVIDER:	CONNECTICUT LIGHT & POWER CO (800) 922-4455
TELCO PROVIDER:	LIGHTOWER (845) 458-7720

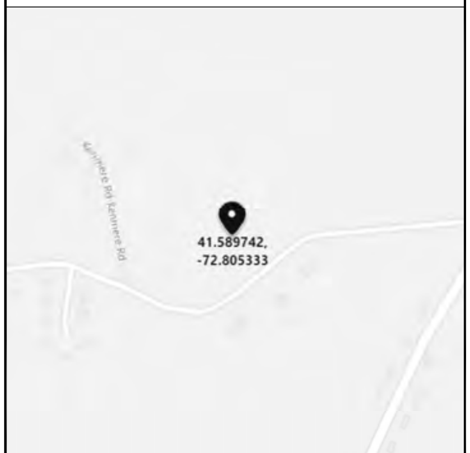
DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	SITE PLAN
C-1.2	EXISTING & FINAL EQUIPMENT PLANS
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	FINAL EQUIPMENT SCHEDULE
C-4	EQUIPMENT SPECS
G-1	GROUNDING SCHEMATIC
G-2	GROUNDING DETAILS
ATTACHED	PLUMBING DIAGRAM

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.

CALL CONNECTICUT ONE CALL
(800) 922-4455 CBYD.COM
CALL 2 WORKING DAYS
BEFORE YOU DIG!

LOCATION MAP



NO SCALE

SITE PHOTO

PROJECT TEAM

A&E FIRM:	CROWN CASTLE USA INC. 2000 CORPORATE DRIVE CANONSBURG, PA 15317 CROWNAE.APPROVAL@CROWNCASTLE.COM
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3 CORPORATE PARK DRIVE, SUITE 101 CLIFTON PARK, NY 12065 VERONICA DELIA - PROJECT MANAGER (610) 635-3222 JASON D'AMICO - CONSTRUCTION MANAGER (860) 209-0104

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (3) ERICSSON - OPA-65R-LCUU-H6 ANTENNAS
- REMOVE (3) ERICSSON - RRUS-11 B12 RRUs
- INSTALL (3) CCI - TPA65R-BU8DA-K ANTENNAS
- INSTALL (3) ERICSSON - 4449 B5/B12 RRUs
- INSTALL (3) ERICSSON - 4415 B25 RRUs
- INSTALL (3) KAELUS - DBC0111F2V62-1 COMBINERS
- INSTALL (1) RAYCAP - DC6-48-60-18-8C-EV SQUID

GROUND SCOPE OF WORK:
- INSTALL (2) 6630 + XMU WITH IDLe
- INSTALL (1) 6601
- INSTALL (1) RAYCAP - DC12-48-60-0-25E OVP

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 STATE BUILDING CODE/2015 IBC W/ CT AMENDMENTS
MECHANICAL	2018 CT STATE BUILDING CODE/2015 IMC W/ CT AMENDMENTS
ELECTRICAL	2018 CT STATE BUILDING CODE/2017 NEC W/ CT AMENDMENTS

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	PAUL J. FORD AND COMPANY
DATED:	MAY 22, 2020
MOUNT ANALYSIS:	BY OTHERS
DATED:	
RFDS REVISION:	3.00
DATED:	04/28/2020
ORDER ID:	517078
REVISION:	0

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

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

AT&T SITE NUMBER: **CTL01031**

BU #: **876382**
BERLIN / LAVIANA ORCHARD

1684 CHAMBERLAIN HIGHWAY
BERLIN, CT 6037

EXISTING 133'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	06/03/20	JMM	PRELIMINARY	RO
0	06/19/20	JMM	CONSTRUCTION	MD

DocuSigned by:
0143415346654B2...
STATE OF CONNECTICUT
23524
LICENSED
PROFESSIONAL ENGINEER
6/22/2020 | 8:43:40 AM EDT

Crown Castle USA Inc.
Certificate of Registration #PEC.0001101

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

SHEET NUMBER:	REVISION:
T-1	0

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED– NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800–788–7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" – CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
   THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. 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 CASTLE USA INC. 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 ANSI/TIA–322 (LATEST EDITION).
5. 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 ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR 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.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. 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 CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR 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 E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. 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, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. 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 CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR 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.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR 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.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. 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.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: AT&T
   TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR 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 CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR 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.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR 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.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE–THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER–TO–CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
   #4 BARS AND SMALLER 40 ksi
   #5 BARS AND LARGER 60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 BARS AND LARGER 2"
   #5 BARS AND SMALLER 1–1/2"
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
   SLAB AND WALLS 3/4"
   BEAMS AND COLUMNS 1–1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

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. CONTRACTOR 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.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR 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.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI–CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION 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 NOT 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), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) 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 THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER–ACTUATED) 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 BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. 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 BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "AT&T".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE

SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (–)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

ABBREVIATIONS:

ANT	ANTENNA
(E)	EXISTING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUND BAR
MW	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
PP	POWER PLANT
QTY	QUANTITY
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RFDS	RADIO FREQUENCY DATA SHEET
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
SIAD	SMART INTEGRATED DEVICE
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT

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 CONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR 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 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 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE 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 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 RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING 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 CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., 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 BARE SOLID TINNED COPPER IN 3/4" NON–METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

AT&T SITE NUMBER: **CTL01031**

BU #: **876382**
BERLIN / LAVIANA ORCHARD

1684 CHAMBERLAIN HIGHWAY
BERLIN, CT 6037

EXISTING 133'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	06/03/20	JMM	PRELIMINARY	RO
0	06/19/20	JMM	CONSTRUCTION	MD

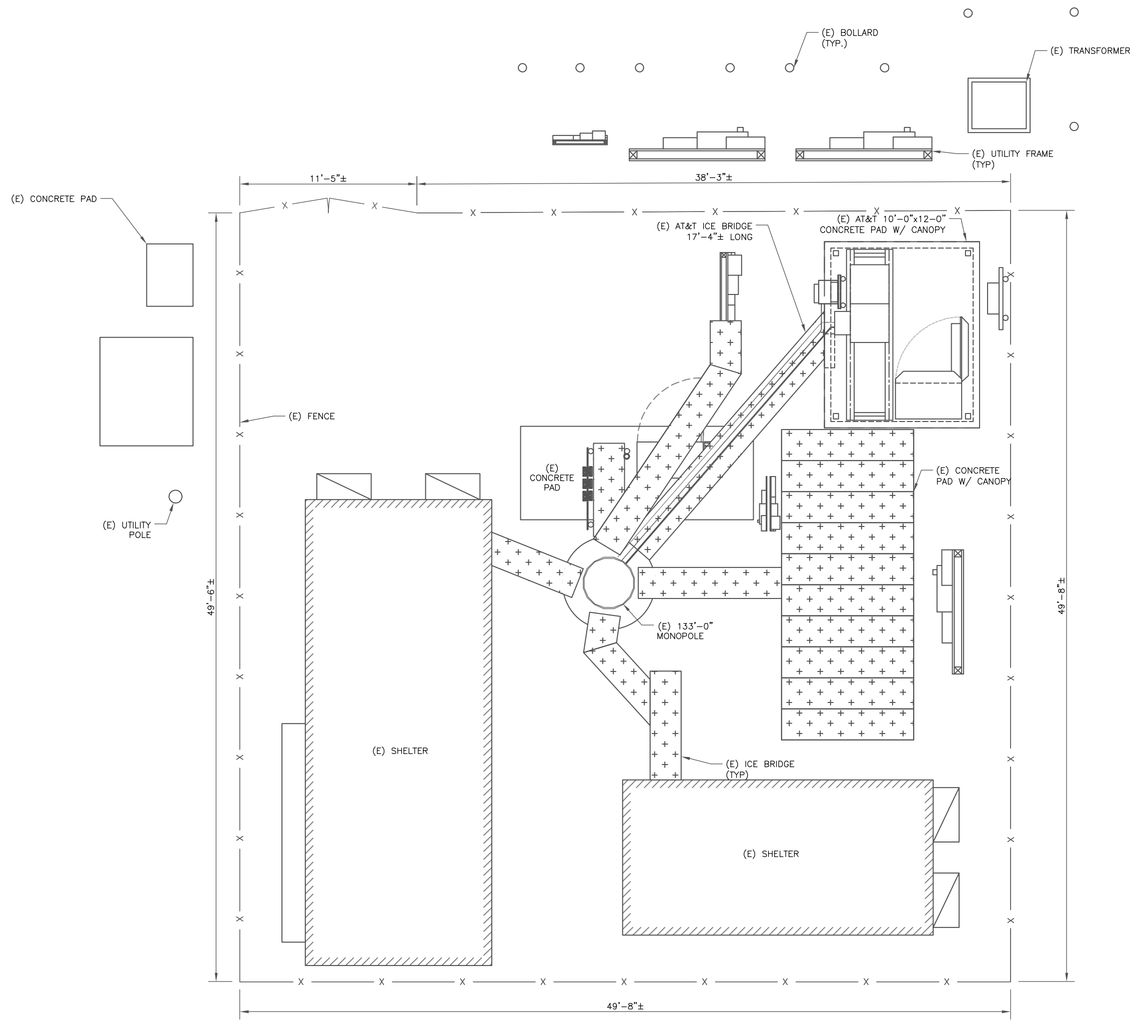
DocuSigned by:
01434153466B482...

STATE OF CONNECTICUT
MARIBEL DENTINGER
23524
LICENSED
PROFESSIONAL ENGINEER

6/22/2020 | 8:43:40 AM EDT

Crown Castle USA Inc.
Certificate of Registration #PEC.0001101

SHEET NUMBER: T-2
REVISION: 0



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

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
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AT&T SITE NUMBER: **CTL01031**

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0	06/19/20	JMM	CONSTRUCTION	MD

DocuSigned by:
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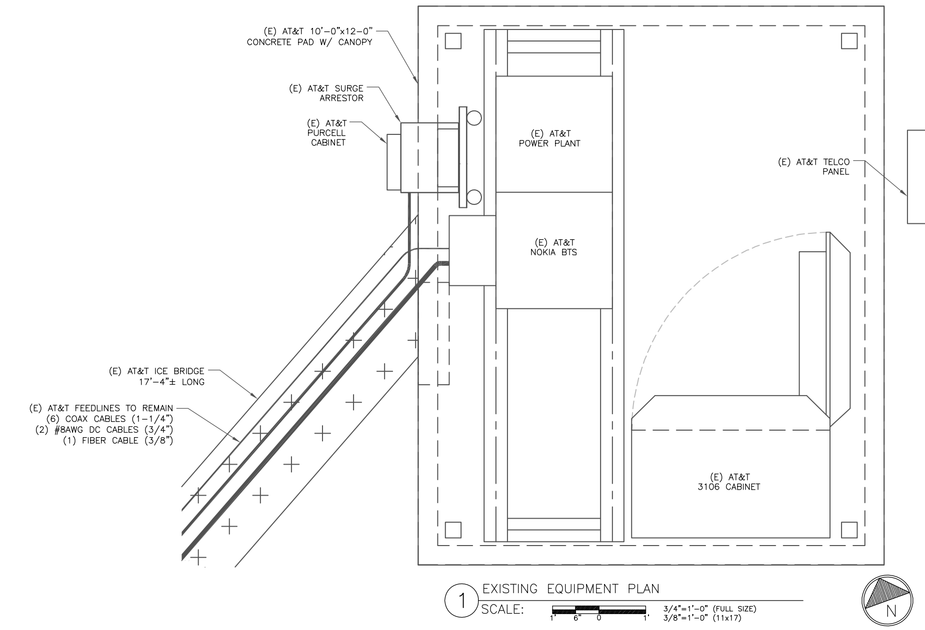
6/22/2020 | 8:43:40 AM EDT

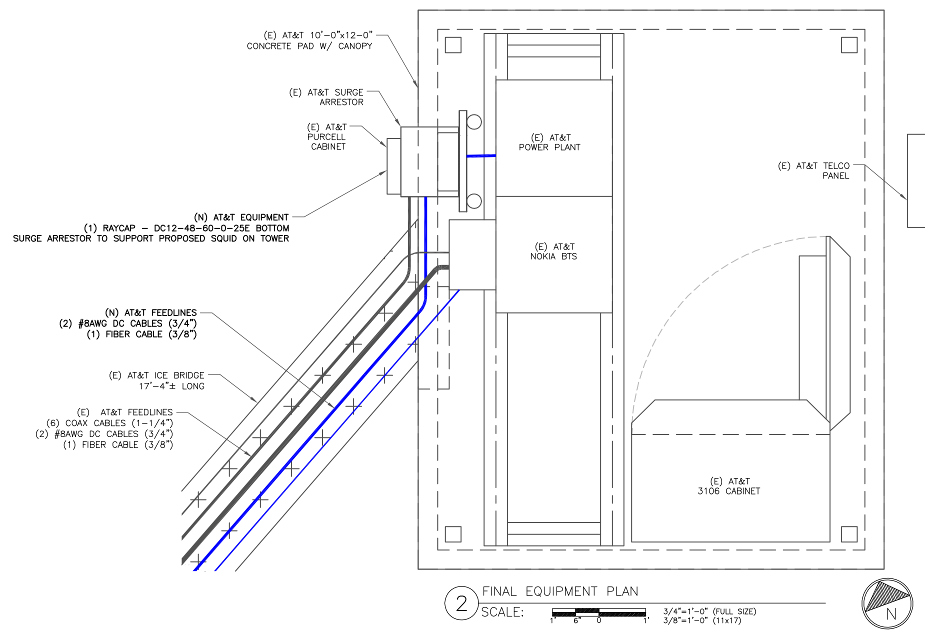
Crown Castle USA Inc.
Certificate of Registration #PEC.0001101

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

SHEET NUMBER: C-1.1
REVISION: 0


(E) AT&T 10'-0"x12-0" CONCRETE PAD W/ CANOPY
(E) AT&T SURGE ARRESTOR
(E) AT&T PURCELL CABINET
(E) AT&T POWER PLANT
(E) AT&T NOKIA BTS
(E) AT&T TELCO PANEL
(E) AT&T ICE BRIDGE 17'-4"± LONG
(E) AT&T FEEDLINES TO REMAIN (6) COAX CABLES (1-1/4") (2) #8AWG DC CABLES (3/4") (1) FIBER CABLE (3/8")
(E) AT&T 3106 CABINET
N

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


(E) AT&T 10'-0"x12-0" CONCRETE PAD W/ CANOPY
(E) AT&T SURGE ARRESTOR
(E) AT&T PURCELL CABINET
(N) AT&T EQUIPMENT (1) RAYCAP - DC12-48-60-0-25E BOTTOM SURGE ARRESTOR TO SUPPORT PROPOSED SQUID ON TOWER
(E) AT&T POWER PLANT
(E) AT&T NOKIA BTS
(E) AT&T TELCO PANEL
(N) AT&T FEEDLINES (2) #8AWG DC CABLES (3/4") (1) FIBER CABLE (3/8")
(E) AT&T ICE BRIDGE 17'-4"± LONG
(E) AT&T FEEDLINES (6) COAX CABLES (1-1/4") (2) #8AWG DC CABLES (3/4") (1) FIBER CABLE (3/8")
(E) AT&T 3106 CABINET
N

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

GROUND SCOPE OF WORK:
- INSTALL (2) 6630 + XMU WITH IDLe
- INSTALL (1) 6601

AT&T
575 MOROSGO DRIVE
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EXISTING 133'-0" MONOPOLE

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DocuSigned by:
6/22/2020 | 8:43:40 AM EDT
Crown Castle USA Inc.
Certificate of Registration #PEC.0001101

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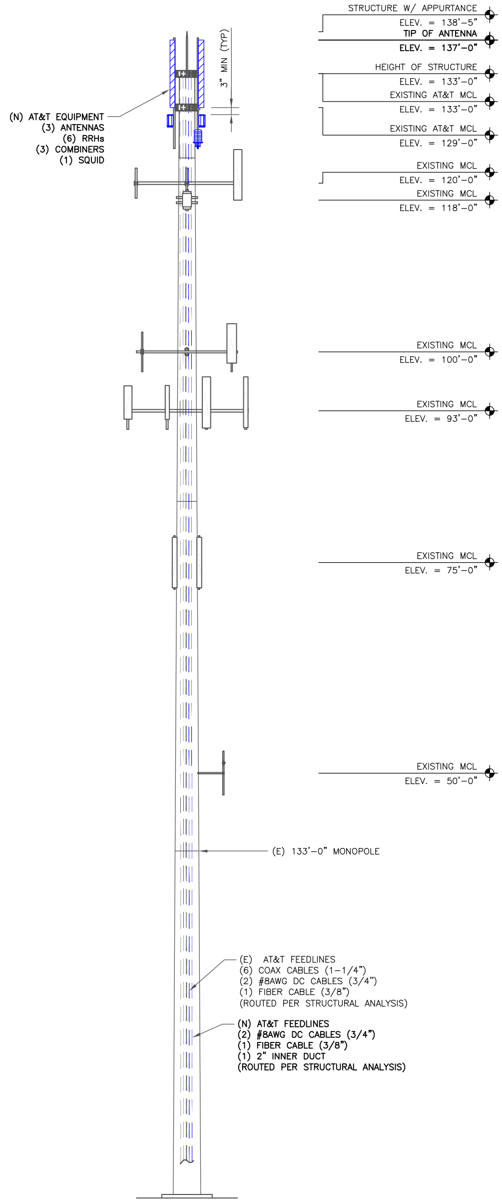
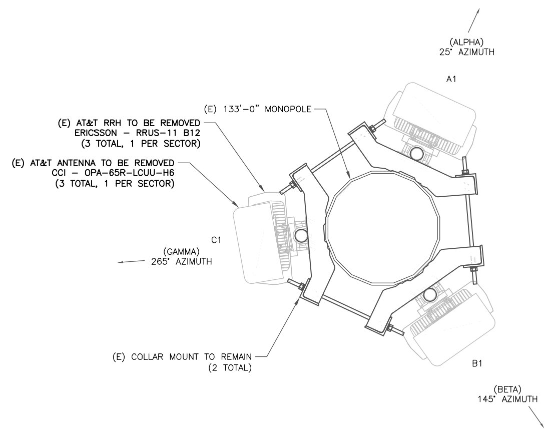
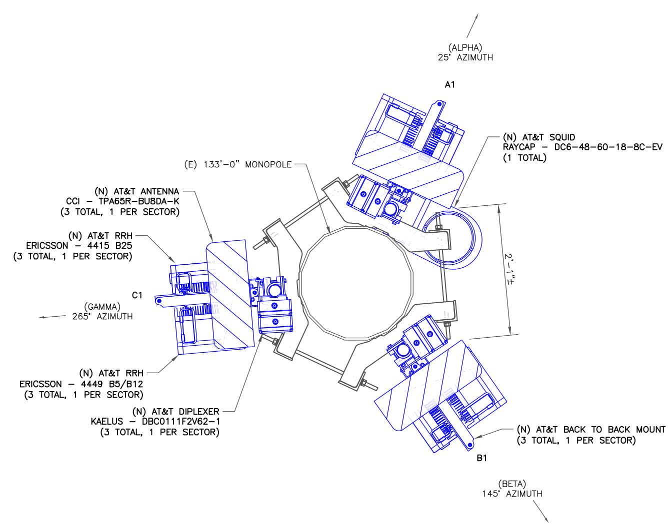
SHEET NUMBER: C-1.2
REVISION: 0


STRUCTURE W/ APPURTANCE
ELEV. = 138'-5"
TIP OF ANTENNA
ELEV. = 137'-0"
HEIGHT OF STRUCTURE
ELEV. = 133'-0"
EXISTING AT&T MCL
ELEV. = 133'-0"
EXISTING AT&T MCL
ELEV. = 129'-0"
EXISTING MCL
ELEV. = 120'-0"
EXISTING MCL
ELEV. = 118'-0"
EXISTING MCL
ELEV. = 100'-0"
EXISTING MCL
ELEV. = 93'-0"
EXISTING MCL
ELEV. = 75'-0"
EXISTING MCL
ELEV. = 50'-0"
3" MIN (TYP)
(N) AT&T EQUIPMENT
(3) ANTENNAS
(6) RRHs
(3) COMBINERS
(1) SQUID
(E) 133'-0" MONOPOLE
(E) AT&T FEEDLINES
(6) COAX CABLES (1-1/4")
(2) #8AWG DC CABLES (3/4")
(1) FIBER CABLE (3/8")
(ROUTED PER STRUCTURAL ANALYSIS)
(N) AT&T FEEDLINES
(2) #8AWG DC CABLES (3/4")
(1) FIBER CABLE (3/8")
(1) 2" INNER DUCT
(ROUTED PER STRUCTURAL ANALYSIS)

1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 EXISTING ANTENNA PLAN
SCALE: 1"=1'-0" (FULL SIZE) 1/2"=1'-0" (11x17)


(ALPHA)
25° AZIMUTH
A1
(N) AT&T SQUID
RAYCAP – DC6-48-60-18-8C-EV
(1 TOTAL)
(E) 133'-0" MONOPOLE
(N) AT&T ANTENNA
CCI – TPA65R-BU8DA-K
(3 TOTAL, 1 PER SECTOR)
(N) AT&T RRH
ERICSSON – 4415 B25
(3 TOTAL, 1 PER SECTOR)
C1
(GAMMA)
265° AZIMUTH
2'-1"±
(N) AT&T RRH
ERICSSON – 4449 B5/B12
(3 TOTAL, 1 PER SECTOR)
(N) AT&T DIPLEXER
KAELUS – DBC0111F2V62-1
(3 TOTAL, 1 PER SECTOR)
(N) AT&T BACK TO BACK MOUNT
(3 TOTAL, 1 PER SECTOR)
B1
(BETA)
145° AZIMUTH

3 FINAL ANTENNA PLAN
SCALE: 1"=1'-0" (FULL SIZE) 1/2"=1'-0" (11x17)

"LOOK UP" – CROWN CASTLE USA INC.
SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

INSTALLER NOTES:

1. REFERENCE C-3 FOR FINAL EQUIPMENT SCHEDULE.
2. REFERENCE C-4 FOR NEW EQUIPMENT SPECIFICATIONS.
3. CONTRACTOR TO VERIFY ALL ANTENNA TIP HEIGHTS DO NOT EXCEED BEACON BASE HEIGHT.
4. 3'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE ANTENNAS ON SAME SECTOR.
4. 6'-0" MINIMUM DISTANCE REQUIRED BETWEEN 700BC & 700DE ANTENNAS ON SAME SECTOR.
5. 4'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE 700 ANTENNAS ON OPPOSING SECTORS.
6. ALL ANTENNA MEASUREMENT DISTANCES MUST BE EDGE TO EDGE (RELOCATE ANTENNAS AS NEEDED).
7. 8" MINIMUM DISTANCE REQUIRED BETWEEN ANTENNA & RADIO. SEE GENERIC EXAMPLE DETAIL ON SHEET C-4.

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

AT&T SITE NUMBER: **CTL01031**

BU #: **876382**
BERLIN / LAVIANA ORCHARD

1684 CHAMBERLAIN HIGHWAY
BERLIN, CT 6037

EXISTING 133'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	06/03/20	JMM	PRELIMINARY	RO
0	06/19/20	JMM	CONSTRUCTION	MD

DocuSigned by:
01431153466B482...
STATE OF CONNECTICUT
23524
LICENSED PROFESSIONAL ENGINEER
6/22/2020 | 8:43:40 AM EDT

Crown Castle USA Inc.
Certificate of Registration #PEC.0001101

SHEET NUMBER: C-2
REVISION: 0

FINAL EQUIPMENT SCHEDULE
(VERIFY WITH CURRENT RFDS)

POSITION	ANTENNA				RADIO			DIPLEXER			TMA		SURGE PROTECTION		CABLES			
	TECH.	STATUS/MANUFACTURER MODEL	AZIMUTH	RAD CENTER	QTY.	STATUS/MODEL	LOCATION	QTY.	STATUS	LOCATION	QTY.	STATUS	QTY.	STATUS/MODEL	QTY.	STATUS/TYPE	SIZE	LENGTH
ALPHA																		
A1	UMTS/LTE /5G	(N) CCI TPA65R-BU8DA-K	25°	133'-0"	1	(N) 4449 B5/B12	TOWER	1	(N)	TOWER	–	–	–	–	1	(E) FIBER	3/8"	183'-0"
					1	(N) 4415 B25	TOWER								2	(E) #8AWG DC	3/4"	183'-0"
															2	(E) COAX	1-1/4"	183'-0"
BETA																		
B1	UMTS/LTE /5G	(N) CCI TPA65R-BU8DA-K	145°	133'-0"	1	(N) 4449 B5/B12	TOWER	1	(N)	TOWER	–	–	1	(N) DC6-48-60-18-8C-EV	1	(N) FIBER	3/8"	183'-0"
					1	(N) 4415 B25	TOWER								2	(N) #8AWG DC	3/4"	183'-0"
															2	(E) COAX	1-1/4"	183'-0"
GAMMA																		
C1	UMTS/LTE /5G	(N) CCI TPA65R-BU8DA-K	265°	133'-0"	1	(N) 4449 B5/B12	TOWER	1	(N)	TOWER	–	–	–	–	2	(E) COAX	1-1/4"	183'-0"
					1	(N) 4415 B25	TOWER											

NOTE:
(E) – EXISTING
(N) – NEW

1 FINAL EQUIPMENT SCHEDULE
SCALE: NOT TO SCALE

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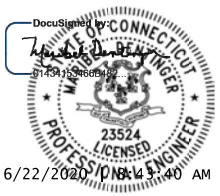
DocuSigned by:
01434153466B482...



6/22/2020 | 8:43:40 AM EDT

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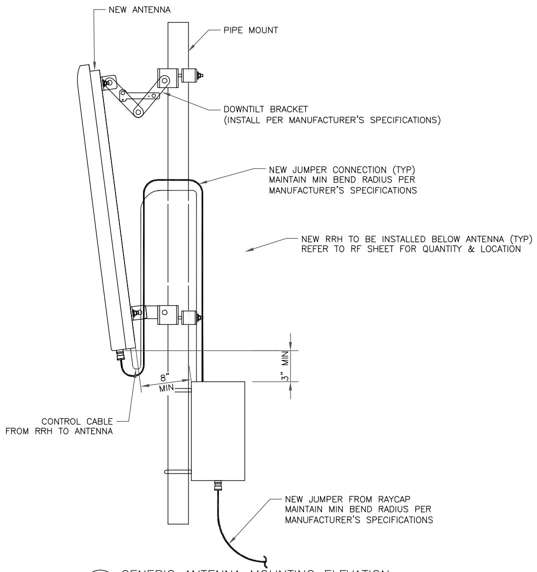
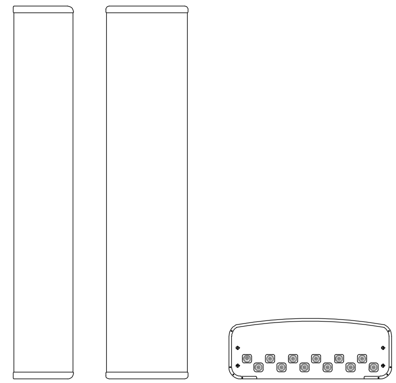
SHEET NUMBER: C-3

REVISION: 0

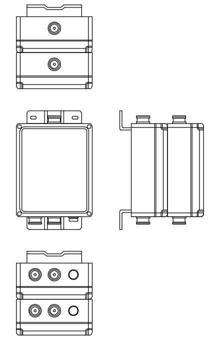


1 GENERIC ANTENNA MOUNTING ELEVATION
SCALE: NOT TO SCALE



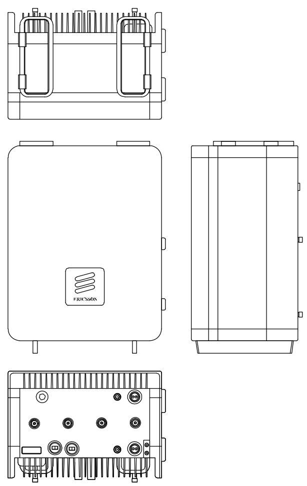
CCI ANTENNAS – TPA65R–BU8DA–K
WEIGHT (WITHOUT MOUNTING HARDWARE): 82.5 LBS
SIZE (HXWXD): 96X21X7.8 IN.
MOUNTING HARDWARE P/N: MBK–01
RATED WIND VELOCITY: 150.0 MPH

2 CCI ANTENNAS – TPA65R–BU8DA–K
SCALE: NOT TO SCALE



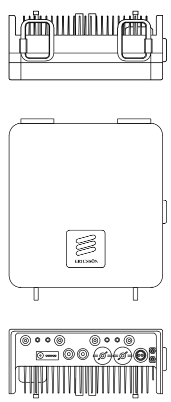
KAELUS – DBC0111F2V62–1
WEIGHT : 48.5 LBS
SIZE (HxWxD): 12.56x10.47x10.13 IN.

3 KAELUS – DBC0111F2V62–1
SCALE: NOT TO SCALE



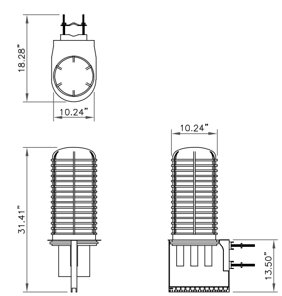
ERICSSON – 4449 B5/B12
WEIGHT: 70.0 LBS
SIZE (HxWxD): 18.0x13.2x9.4 IN.

4 ERICSSON – 4449 B5/B12
SCALE: NOT TO SCALE



ERICSSON – 4415 B25
WEIGHT: 60.0 LBS
SIZE (HxWxD): 15.0x13.0x8.0 IN.

5 ERICSSON – 4415 B25
SCALE: NOT TO SCALE



RAYCAP – DC6–48–60–24–8C–EV
WEIGHT (WITHOUT MOUNTING HARDWARE): 16.0 LBS
SIZE (HxWxD): 31.4x10.24x18.28 IN.

6 RAYCAP – DC6–48–60–24–8C–EV
SCALE: NOT TO SCALE

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
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AT&T SITE NUMBER: **CTL01031**

BU #: **876382**
BERLIN / LAVIANA ORCHARD

1684 CHAMBERLAIN HIGHWAY
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EXISTING 133'-0" MONOPOLE

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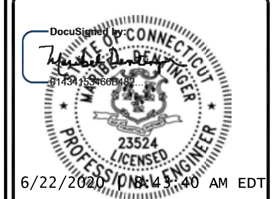

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SHEET NUMBER: C-4

REVISION: 0

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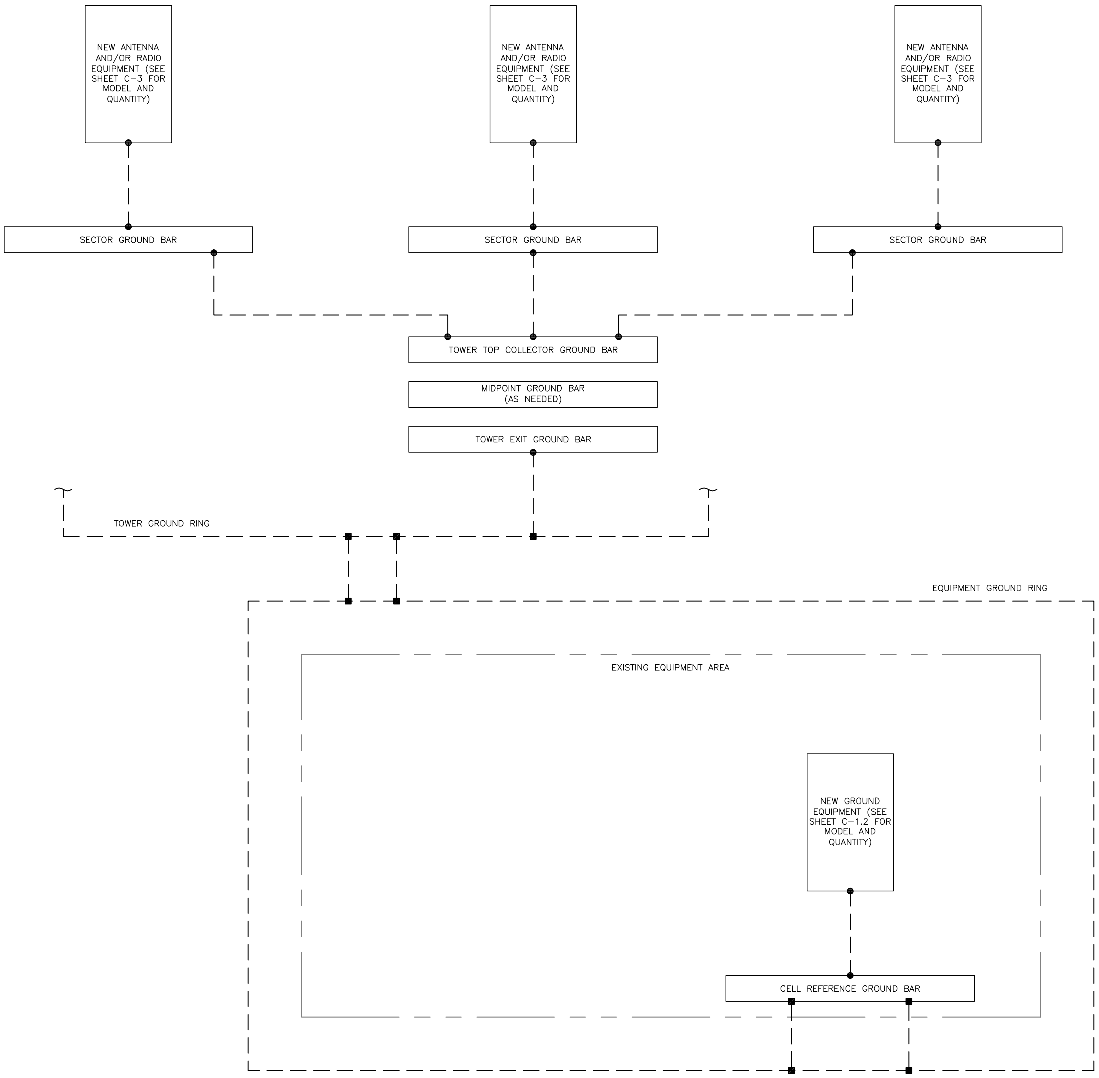

1 GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

GROUNDING PLAN LEGEND:

- --- GROUND WIRE
- ■ EXOTHERMIC WELD
- ● MECHANICAL CONNECTION
- COPPER GROUND ROD
- GROUND ROD W/ TEST WELL

CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUITS (ATT-TP-76416 7.6.7).

HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CELL SITE REFERENCE GROUND BAR MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS.

EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE (ATT-TP-76416 7.6.7.2).

DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICES CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR PER TP76300 SECTION H 6 AND TP76416 FIGURE 7-11 REQUIREMENTS.

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

AT&T SITE NUMBER: **CTL01031**

BU #: **876382**
BERLIN / LAVIANA ORCHARD

1684 CHAMBERLAIN HIGHWAY
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0	06/19/20	JMM	CONSTRUCTION	MD

DocuSigned by:
01434153466B482...

STATE OF CONNECTICUT
MARIBEL DENTINGER
23524
LICENSED
PROFESSIONAL ENGINEER

6/22/2020 | 8:43:40 AM EDT

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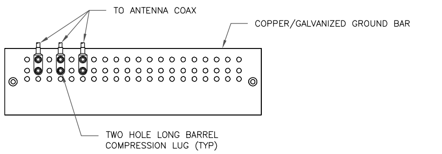
SHEET NUMBER: G-1

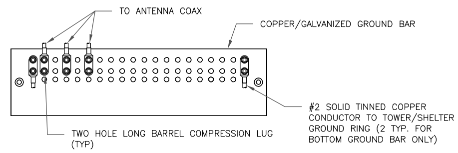
REVISION: 0



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 ANTENNA MOUNT STEEL.

1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE

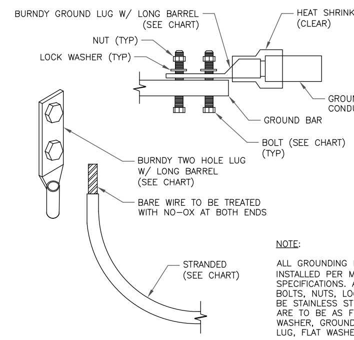


NOTES:

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

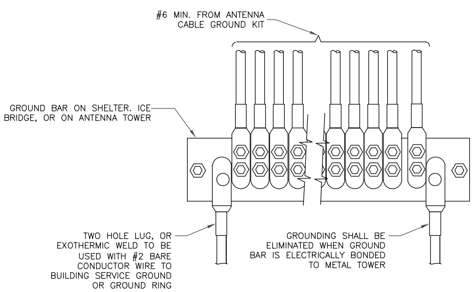
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



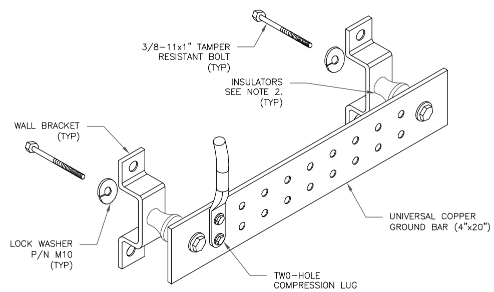
NOTE:

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.

3 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE


#6 MIN. FROM ANTENNA CABLE GROUND KIT
GROUND BAR ON SHELTER. ICE BRIDGE, OR ON ANTENNA TOWER
TWO HOLE LUG, OR EXOTHERMIC WELD TO BE USED WITH #2 BARE CONDUCTOR WIRE TO BUILDING SERVICE GROUND OR GROUND RING
GROUNDING SHALL BE ELIMINATED WHEN GROUND BAR IS ELECTRICALLY BONDED TO METAL TOWER

4 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE

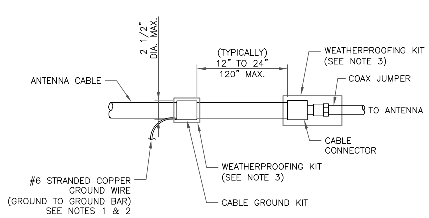


NOTES:

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.

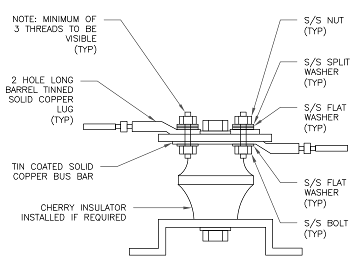
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



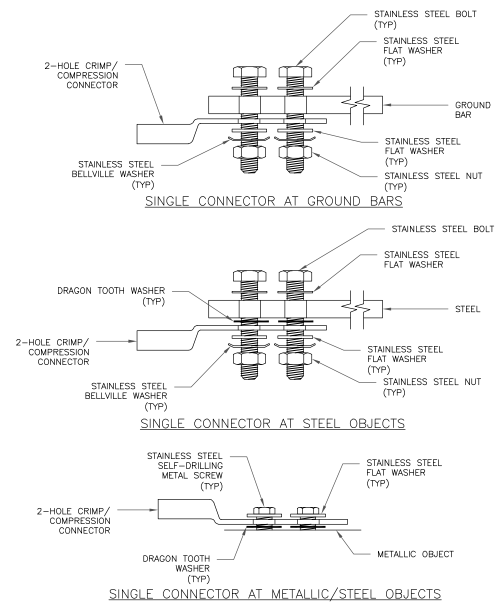
NOTES:

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.

6 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE


STAINLESS STEEL BOLT (TYP)
STAINLESS STEEL FLAT WASHER (TYP)
2-HOLE CRIMP/ COMPRESSION CONNECTOR
GROUND BAR
STAINLESS STEEL FLAT WASHER (TYP)
STAINLESS STEEL BELLVILLE WASHER (TYP)
STAINLESS STEEL NUT (TYP)
SINGLE CONNECTOR AT GROUND BARS
STAINLESS STEEL BOLT
STAINLESS STEEL FLAT WASHER
DRAGON TOOTH WASHER (TYP)
STEEL
2-HOLE CRIMP/ COMPRESSION CONNECTOR
STAINLESS STEEL FLAT WASHER (TYP)
STAINLESS STEEL BELLVILLE WASHER (TYP)
STAINLESS STEEL NUT (TYP)
SINGLE CONNECTOR AT STEEL OBJECTS
STAINLESS STEEL SELF-DRILLING METAL SCREW (TYP)
STAINLESS STEEL FLAT WASHER (TYP)
2-HOLE CRIMP/ COMPRESSION CONNECTOR
METALLIC OBJECT
DRAGON TOOTH WASHER (TYP)
SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE

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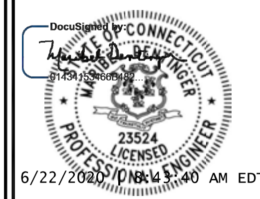


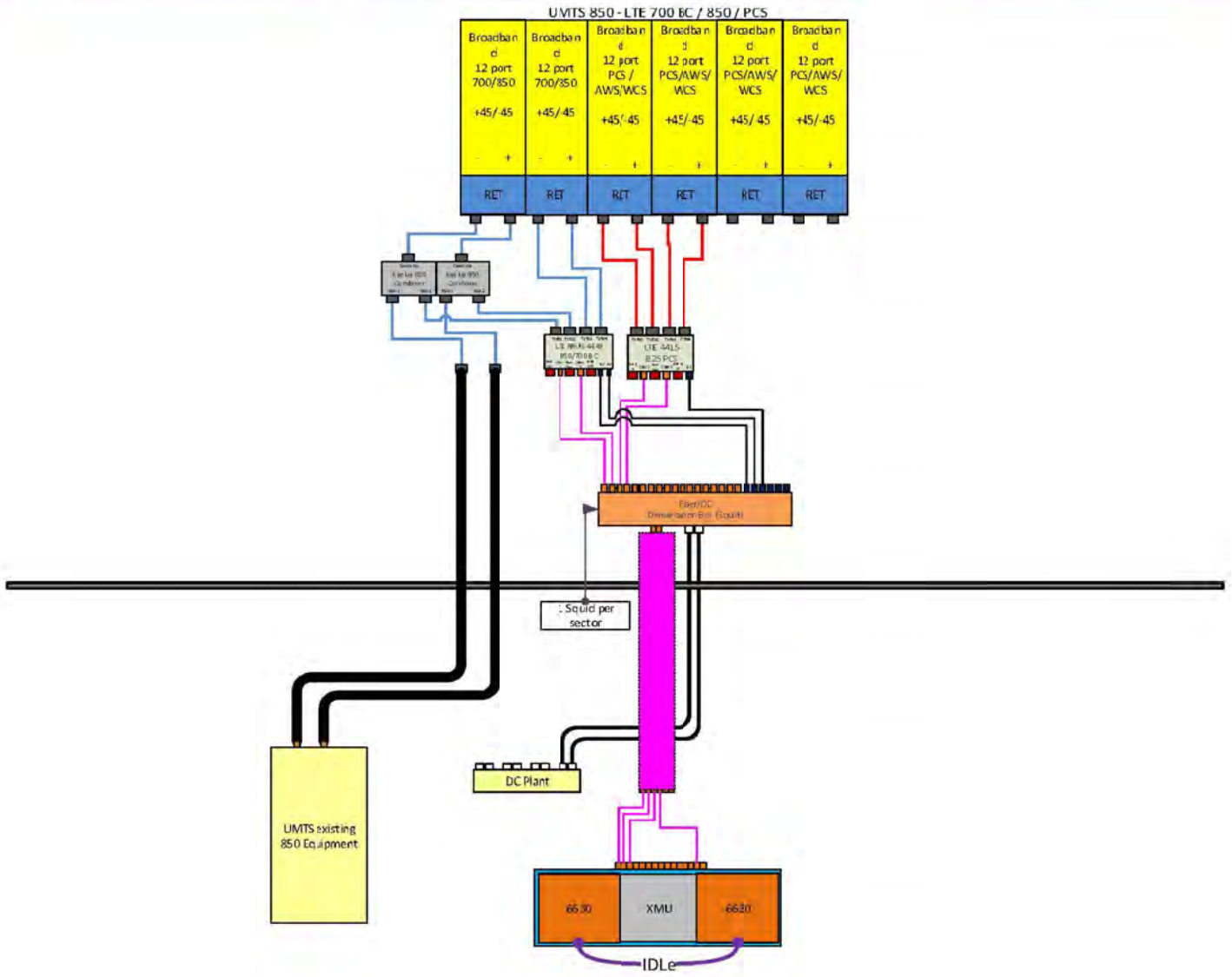
6/22/2020 | 8:43:40 AM EDT

Crown Castle USA Inc.
Certificate of Registration #PEC.0001101

SHEET NUMBER: G-2
REVISION: 0

Diagram - Sector	A	Diagram File Name - CT1031_A_B_C_850_PCS_d2.vsd					
Atoll Site Name -	CTL01031	Location Name -	BERLIN CHAMBERLAIN HWY	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

Comments: Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson



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Atoll Site Name -	CTL01031	Location Name -	BERLIN CHAMBERLAIN HWY	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND
Comments: Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson							

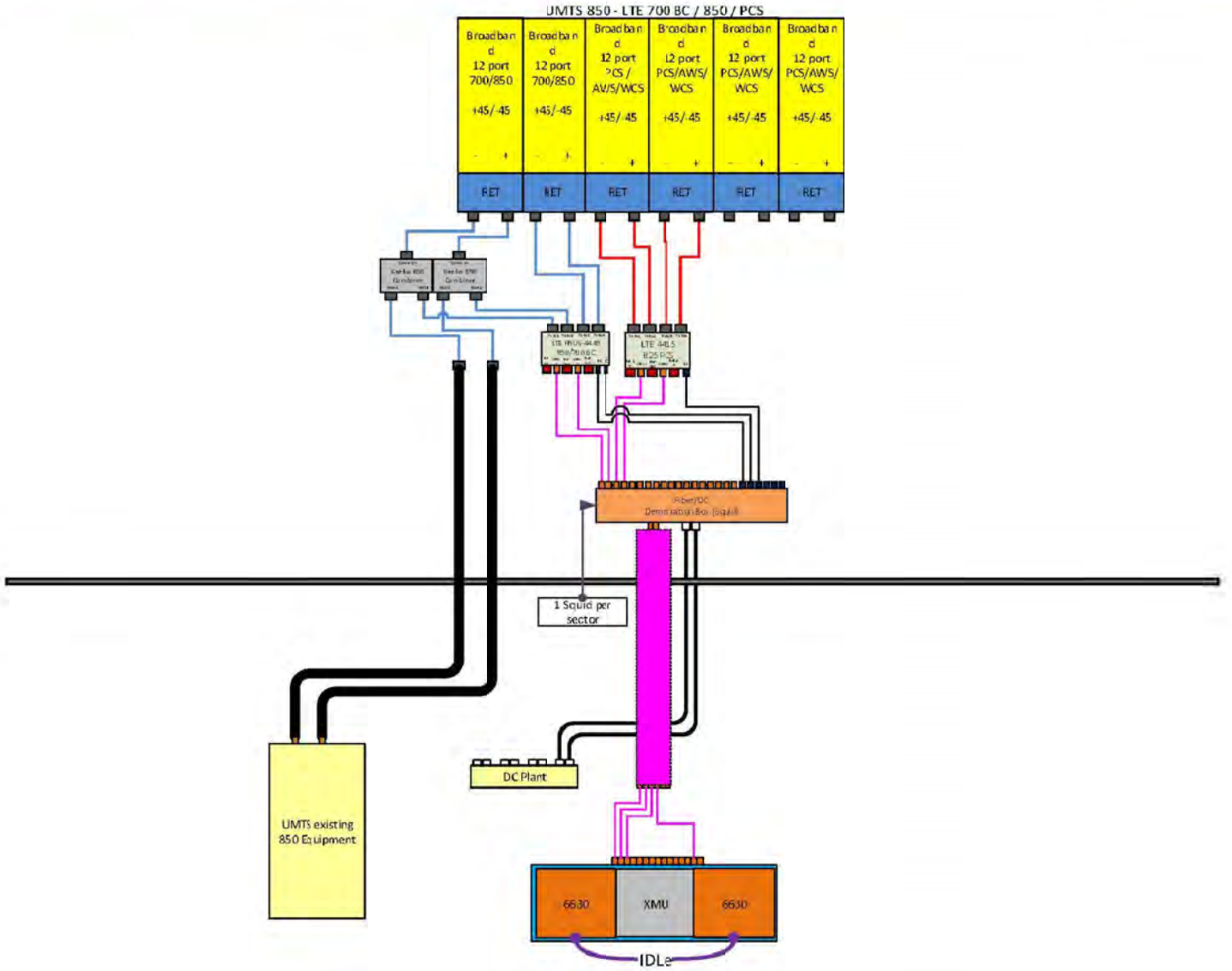
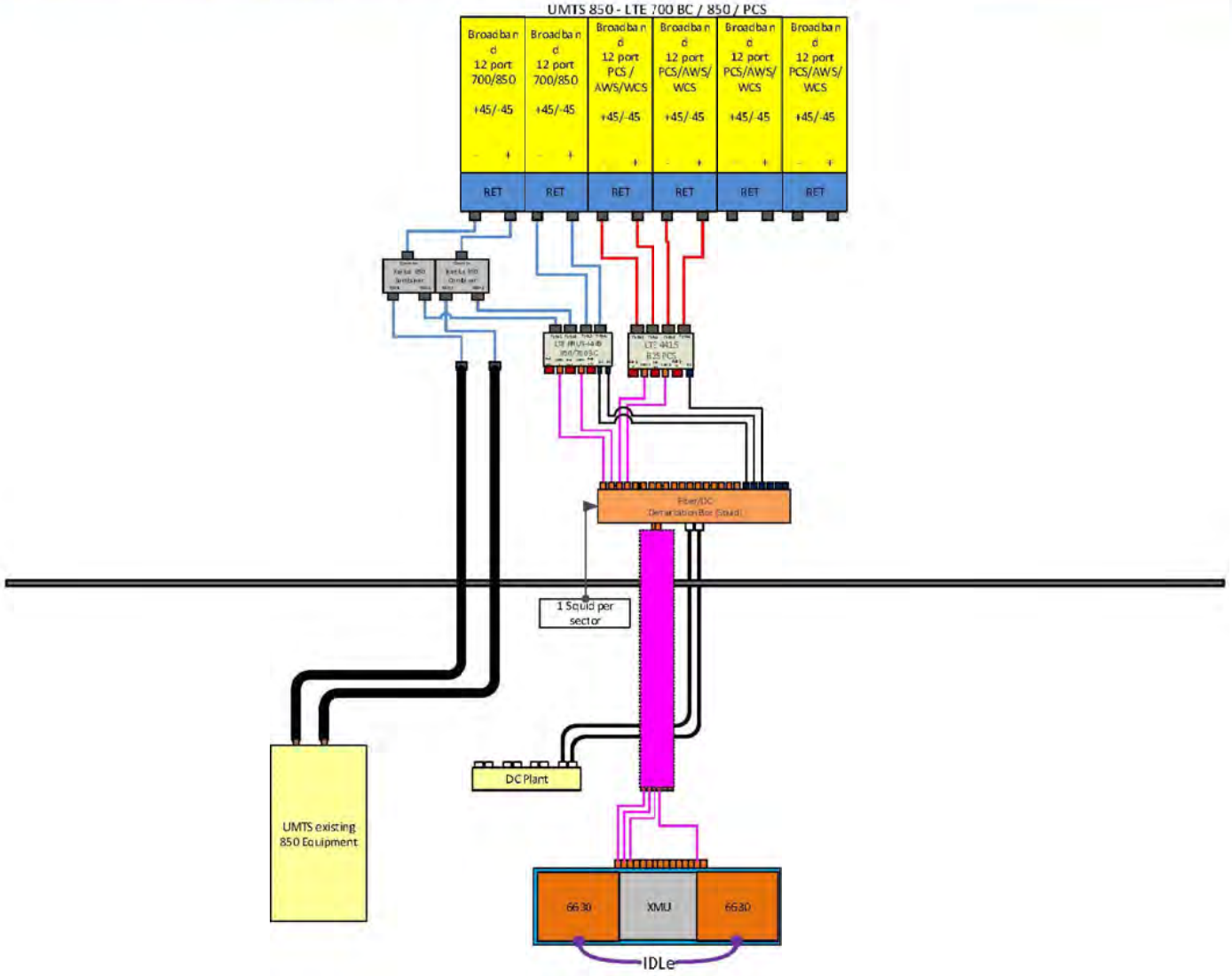


Diagram - Sector	C	Diagram File Name - CT1031_A_B_C_850_PCS_d2.vsd					
Atoll Site Name -	CTL01031	Location Name -	BERLIN CHAMBERLAIN HWY	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND

Comments: Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna_Radio Connection Drawings Playbook v6.0_Ericsson



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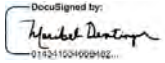
Maribel Dentinger Maribel.Dentinger@crowncastle.com Crown Castle International Corp. Security Level: Email, Account Authentication (None)	DocuSigned by:  Signature Adoption: Drawn on Device Using IP Address: 162.254.108.200	Sent: 6/22/2020 8:32:13 AM Viewed: 6/22/2020 8:43:24 AM Signed: 6/22/2020 8:43:40 AM

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Parties agreed to: Maribel Dentinger

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To contact us by email, send messages to: esignature@CrownCastle.com
To contact us by paper mail, send correspondence to
Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317

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To let us know of a change to the e-mail address where we should send documents for execution and other documents and records to you, you must send an email message to esignature@CrownCastle.com and state your previous e-mail address and your new e-mail address.

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Mobile Signing:	Apple iOS 7.0 or above; Android 4.0 or above
PDF Reader:	Acrobat® Reader or similar software may be required to view and print PDF files
Screen Resolution:	1024 x 768

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Exhibit D

Structural Analysis Report

PAUL J. FORD & COMPANY

Date: **May 21, 2020**

Denice Nicholson
Crown Castle
3 Corporate Dr
Clifton Park, NY 12065

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CTL01031
	Carrier Site Name:	59417
Crown Castle Designation:	**Crown Castle BU Number:**	876382
	Crown Castle Site Name:	BERLIN / LAVIANA ORCHARD
	Crown Castle JDE Job Number:	605418
	Crown Castle Work Order Number:	1853661
	Crown Castle Order Number:	517078 Rev. 0
Engineering Firm Designation:	**Paul J. Ford and Company Project Number:**	37520-0890.001.7805
Site Data:	**1684 Chamberlain Highway, BERLIN, Hartford County, CT**	
	Latitude *41° 35' 23.07"*, Longitude *-72° 48' 19.2"*	
	133 Foot - Monopole Tower	

Dear Denice Nicholson,

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 (96.7%)**

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

Respectfully submitted by:

Jared Forbes, E.I.
Structural Designer
jforbes@pauljford.com

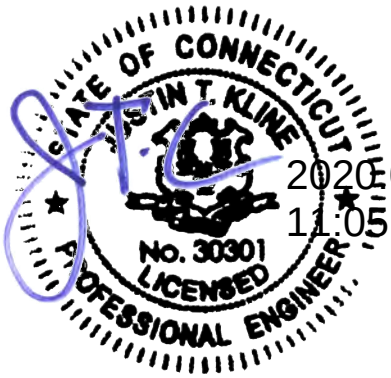


TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 133 ft Monopole tower designed by SUMMIT in June of 2000.

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:	125 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
133.0	133.0	3	cci antennas	TPA65R-BU8D_CCIV2 w/ Mount Pipe	6 2 4	1-1/4 3/8 3/4
		3	ericsson	RRUS 4415 B25		
		3	ericsson	RRUS 4449 B5/B12		
		3	kaelus	DBC0111F2V62-1		
		2	raycap	DC6-48-60-18-8F		
		1	tower mounts	Side Arm Mount [SO 901-3]		

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)
120.0	121.0	3	alcatel lucent	TD-RRH8x20-25	4	1-1/4
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe		
	120.0	1	tower mounts	Platform Mount [LP 1201-1]		
118.0	118.0	3	alcatel lucent	800MHz 2X50W RRH W/FILTER	-	-
		3	alcatel lucent	PCS 1900MHz 4x45W-65MHz		
		1	tower mounts	Pipe Mount [PM 601-3]		
		1	tower mounts	Side Arm Mount [SO 102-3]		
100.0	101.0	3	andrew	ETT19V2S12UB	13	1-5/8
		3	ericsson	KRY 112 144/1		
		3	ericsson	RADIO 4449 B12/B71		
		3	rfs celwave	APX16DWV-16DWVS-C		
		3	rfs celwave	APXVAARR24_43-U-NA20		
	100.0	1	tower mounts	Miscellaneous [NA 509-3]		
		1	tower mounts	Platform Mount [LP 301-1]		
93.0	94.0	3	alcatel lucent	RRH2X40-AWS	13	1-5/8
		3	andrew	LNX-6514DS-A1M w/ Mount Pipe		
		3	antel	BXA-171063-12CF-EDIN-X w/ Mount Pipe		
		2	antel	BXA-171063-8BF-2 w/ Mount Pipe		
		1	antel	BXA-171085-8BF-EDIN-0 w/ Mount Pipe		
		3	antel	BXA-70063-4CF-EDIN-X w/ Mount Pipe		
		1	rfs celwave	DB-T1-6Z-8AB-0Z		
		6	rfs celwave	FD9R6004/2C-3L		
	93.0	1	tower mounts	Platform Mount [LP 1201-1]		
75.0	75.0	3	rfs celwave	APXV18-206517S-C	6	1-5/8
		1	tower mounts	Pipe Mount [PM 601-3]		
50.0	51.0	1	lucent	KS24019-L112A	1	1/2
	50.0	1	tower mounts	Side Arm Mount [SO 702-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Dr. Clarence Welti, 05/05/2000	1629353	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	PJF, 29200-0802, 06/06/2000	1629413	CCISITES
4-TOWER MANUFACTURER DRAWINGS	PJF, 29200-0802, 06/06/2000	1629384	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Vertical Solutions, 080828.04, 12/11/2008	2611098	CCISITES
4-POST-MODIFICATION INSPECTION	SGS, 145202, 9/8/2014	5287888	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF, 37508-0979, 10/29/2008	2339268	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF, 37519-0043.002.7700, 01/18/2019	8173364	CCISITES
4-POST-MODIFICATION INSPECTION	TEP, 06/14/2019	8482047	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.

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the pole and in the reinforcing elements. These calculations are presented in Appendix C.

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) The structure was modified in conformance with the referenced modification drawings as shown in the referenced post modification inspection.

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)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
133 - 128	Pole	TP14x14x0.349	Pole	8.8%	Pass
128 - 123.5	Pole	TP14x14x0.349	Pole	17.0%	Pass
123.5 - 123	Pole	TP22x14x0.349	Pole	7.3%	Pass
123 - 118	Pole	TP22.75x22x0.1875	Pole	14.2%	Pass
118 - 113	Pole	TP23.5x22.75x0.1875	Pole	22.3%	Pass
113 - 108	Pole	TP24.251x23.5x0.1875	Pole	30.0%	Pass
108 - 103	Pole	TP25.001x24.251x0.1875	Pole	37.2%	Pass
103 - 98	Pole	TP25.751x25.001x0.1875	Pole	46.3%	Pass
98 - 93	Pole	TP26.501x25.751x0.1875	Pole	56.5%	Pass
93 - 88	Pole	TP27.251x26.501x0.1875	Pole	70.0%	Pass
88 - 85.75	Pole	TP28.114x27.251x0.1875	Pole	75.4%	Pass
85.75 - 80.75	Pole	TP27.964x27.214x0.25	Pole	60.8%	Pass
80.75 - 75.75	Pole	TP28.714x27.964x0.25	Pole	68.2%	Pass
75.75 - 70.75	Pole	TP29.465x28.714x0.25	Pole	75.3%	Pass
70.75 - 65.75	Pole	TP30.215x29.465x0.25	Pole	81.9%	Pass
65.75 - 60.75	Pole	TP30.965x30.215x0.25	Pole	88.2%	Pass
60.75 - 57	Pole	TP31.528x30.965x0.25	Pole	92.6%	Pass
57 - 56.75	Pole + Reinf.	TP31.565x31.528x0.4625	Reinf. 2 Tension Rupture	75.5%	Pass
56.75 - 51.75	Pole + Reinf.	TP32.315x31.565x0.4563	Reinf. 2 Tension Rupture	80.3%	Pass
51.75 - 46.75	Pole + Reinf.	TP33.066x32.315x0.45	Reinf. 2 Tension Rupture	84.9%	Pass
46.75 - 45	Pole + Reinf.	TP33.966x33.066x0.45	Reinf. 2 Tension Rupture	86.4%	Pass
45 - 40	Pole + Reinf.	TP33.578x32.828x0.4813	Reinf. 2 Tension Rupture	86.8%	Pass
40 - 35	Pole + Reinf.	TP34.329x33.578x0.4688	Reinf. 2 Tension Rupture	90.6%	Pass
35 - 30	Pole + Reinf.	TP35.079x34.329x0.4688	Reinf. 2 Tension Rupture	94.1%	Pass
30 - 26.25	Pole + Reinf.	TP35.642x35.079x0.4688	Reinf. 2 Tension Rupture	96.7%	Pass
26.25 - 26	Pole + Reinf.	TP35.679x35.642x0.5188	Reinf. 1 Tension Rupture	82.3%	Pass
26 - 21	Pole + Reinf.	TP36.429x35.679x0.5063	Reinf. 1 Tension Rupture	85.1%	Pass
21 - 16	Pole + Reinf.	TP37.179x36.429x0.5063	Reinf. 1 Tension Rupture	87.8%	Pass
16 - 11	Pole + Reinf.	TP37.93x37.179x0.4938	Reinf. 1 Tension Rupture	90.4%	Pass
11 - 6	Pole + Reinf.	TP38.68x37.93x0.4938	Reinf. 1 Tension Rupture	92.8%	Pass
6 - 1	Pole + Reinf.	TP39.43x38.68x0.4876	Reinf. 1 Tension Rupture	95.1%	Pass
1 - 0	Pole + Reinf.	TP39.58x39.43x0.4876	Reinf. 1 Tension Rupture	95.5%	Pass
				Summary	
			Pole	92.6%	Pass
			Reinforcement	96.7%	Pass
			Overall	96.7%	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Bolts	123	22.7	Pass
1	Flange Plate		59.6	Pass
1	Anchor Rods	0	85.0	Pass
1	Base Plate	0	52.3	Pass
1	Base Foundation Structural Steel	0	68.6	Pass
1	Base Foundation Soil Interaction	0	47.6	Pass

Structure Rating (max from all components) =	96.7%

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.

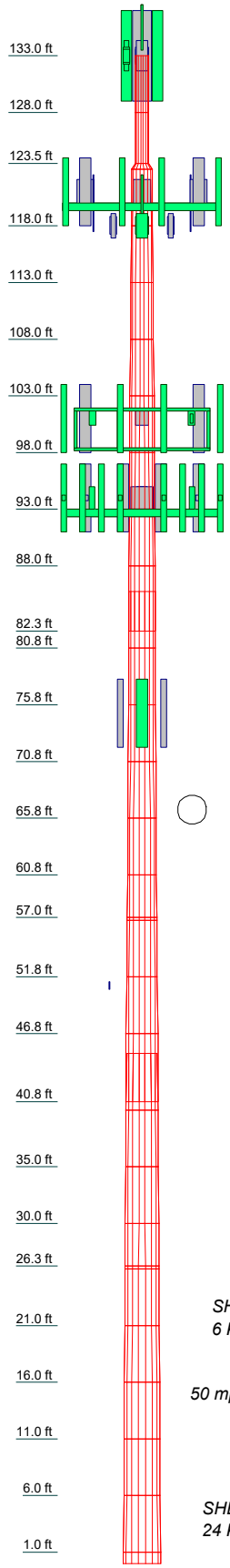
4.1) Recommendations

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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Length (ft)	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	1.0000
Number of Sides	0	0	0	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Thickness (in)	0.3490	0.3490	0.3490	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.1875	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.4500	0.4500	0.4500	0.4688	0.4688	0.4688	0.4688	0.5000	0.5000	0.5063	0.4938	0.4938	0.4875	0.4875
Socket Length (ft)											3.5000										4.2500											
Top Dia (in)	14.0000	14.0000	14.0000	22.0000	22.7502	23.5004	24.2506	25.0007	25.7509	26.5011	27.2513	27.9964	28.7143	29.4646	30.2148	30.9651	31.7277	32.3155	33.0657	33.9660	34.3287	35.0789	36.4292	37.1794	37.9296	38.6798	39.4300	39.5800				
Bot Dia (in)	14.0000	14.0000	14.0000	22.7502	23.5004	24.2506	25.0007	25.7509	26.5011	27.2513	27.9964	28.7143	29.4646	30.2148	30.9651	31.7277	32.3155	33.0657	33.9660	34.3287	35.0789	36.4292	37.1794	37.9296	38.6798	39.4300	39.5800					
Grade	A53-B-35																															
Weight (K)	0.3	0.2	0.0	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.0	0.7	0.7	0.9	0.8	0.8	0.8	0.6	0.0	0.9	0.9	1.0	1.0	1.0	0.2



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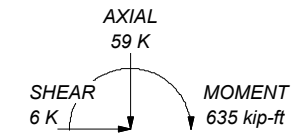
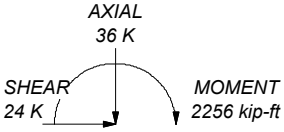


TORQUE 1 kip-ft
50 mph WIND - 1.5000 in ICE



TORQUE 2 kip-ft
REACTIONS - 125 mph WIND

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	60 ksi	A607-60	60 ksi	75 ksi

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.0000 ft
8. TIA-222-H Annex S
9. TOWER RATING: 96.7%

PJFLogo

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

Job:	***123' Monopole w/proposed Extension / Berlin / Laviana Orchar***		
Project:	***PJF# 37520.0890 / BU# 876382***		
Client: Crown Castle International	Drawn by: jforbes	App'd:	
Code: TIA-222-H	Date: 05/21/20	Scale: NTS	
Path:		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:

Tower is located in Hartford County, Connecticut.
Tower base elevation above sea level: 345.0400 ft.
Basic wind speed of 125 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.0000 ft.
Nominal ice thickness of 1.5000 in.
Ice thickness is considered to increase with height.
Ice density of 56.00 pcf.
A wind speed of 50 mph is used in combination with ice.
Deflections calculated using a wind speed of 60 mph.
TIA-222-H Annex S.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.05.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
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	133.0000-128.0000	5.0000	0.00	Round	14.0000	14.0000	0.3490		A53-B-35 (35 ksi)
L2	128.0000-123.5000	4.5000	0.00	Round	14.0000	14.0000	0.3490		A53-B-35 (35 ksi)
L3	123.5000-123.0000	0.5000	0.00	Round	14.0000	22.0000	0.3490		A53-B-35 (35 ksi)
L4	123.0000-118.0000	5.0000	0.00	18	22.0000	22.7502	0.1875	0.7500	A607-60 (60 ksi)

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
L5	118.0000-113.0000	5.0000	0.00	18	22.7502	23.5004	0.1875	0.7500	A607-60 (60 ksi)
L6	113.0000-108.0000	5.0000	0.00	18	23.5004	24.2506	0.1875	0.7500	A607-60 (60 ksi)
L7	108.0000-103.0000	5.0000	0.00	18	24.2506	25.0007	0.1875	0.7500	A607-60 (60 ksi)
L8	103.0000-98.0000	5.0000	0.00	18	25.0007	25.7509	0.1875	0.7500	A607-60 (60 ksi)
L9	98.0000-93.0000	5.0000	0.00	18	25.7509	26.5011	0.1875	0.7500	A607-60 (60 ksi)
L10	93.0000-88.0000	5.0000	0.00	18	26.5011	27.2513	0.1875	0.7500	A607-60 (60 ksi)
L11	88.0000-82.2500	5.7500	3.50	18	27.2513	28.1140	0.1875	0.7500	A607-60 (60 ksi)
L12	82.2500-80.7500	5.0000	0.00	18	27.2139	27.9641	0.2500	1.0000	A607-60 (60 ksi)
L13	80.7500-75.7500	5.0000	0.00	18	27.9641	28.7143	0.2500	1.0000	A607-60 (60 ksi)
L14	75.7500-70.7500	5.0000	0.00	18	28.7143	29.4646	0.2500	1.0000	A607-60 (60 ksi)
L15	70.7500-65.7500	5.0000	0.00	18	29.4646	30.2148	0.2500	1.0000	A607-60 (60 ksi)
L16	65.7500-60.7500	5.0000	0.00	18	30.2148	30.9651	0.2500	1.0000	A607-60 (60 ksi)
L17	60.7500-57.0000	3.7500	0.00	18	30.9651	31.5277	0.2500	1.0000	A607-60 (60 ksi)
L18	57.0000-56.7500	0.2500	0.00	18	31.5277	31.5652	0.4625	1.8500	A607-60 (60 ksi)
L19	56.7500-51.7500	5.0000	0.00	18	31.5652	32.3155	0.4562	1.8250	A607-60 (60 ksi)
L20	51.7500-46.7500	5.0000	0.00	18	32.3155	33.0657	0.4500	1.8000	A607-60 (60 ksi)
L21	46.7500-40.7500	6.0000	4.25	18	33.0657	33.9660	0.4500	1.8000	A607-60 (60 ksi)
L22	40.7500-40.0000	5.0000	0.00	18	32.8283	33.5785	0.4813	1.9252	A607-60 (60 ksi)
L23	40.0000-35.0000	5.0000	0.00	18	33.5785	34.3287	0.4688	1.8752	A607-60 (60 ksi)
L24	35.0000-30.0000	5.0000	0.00	18	34.3287	35.0789	0.4688	1.8752	A607-60 (60 ksi)
L25	30.0000-26.2500	3.7500	0.00	18	35.0789	35.6415	0.4688	1.8752	A607-60 (60 ksi)
L26	26.2500-26.0000	0.2500	0.00	18	35.6415	35.6790	0.5188	2.0752	A607-60 (60 ksi)
L27	26.0000-21.0000	5.0000	0.00	18	35.6790	36.4292	0.5063	2.0252	A607-60 (60 ksi)
L28	21.0000-16.0000	5.0000	0.00	18	36.4292	37.1794	0.5063	2.0252	A607-60 (60 ksi)
L29	16.0000-11.0000	5.0000	0.00	18	37.1794	37.9296	0.4938	1.9752	A607-60 (60 ksi)
L30	11.0000-6.0000	5.0000	0.00	18	37.9296	38.6798	0.4938	1.9752	A607-60 (60 ksi)
L31	6.0000-1.0000	5.0000	0.00	18	38.6798	39.4300	0.4875	1.9502	A607-60 (60 ksi)
L32	1.0000-0.0000	1.0000		18	39.4300	39.5800	0.4875	1.9502	A607-60 (60 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	14.0000	14.9672	348.8691	4.8279	7.0000	49.8384	697.7382	7.4791	0.0000	0
	14.0000	14.9672	348.8691	4.8279	7.0000	49.8384	697.7382	7.4791	0.0000	0
L2	14.0000	14.9672	348.8691	4.8279	7.0000	49.8384	697.7382	7.4791	0.0000	0
	14.0000	14.9672	348.8691	4.8279	7.0000	49.8384	697.7382	7.4791	0.0000	0
L3	14.0000	14.9672	348.8691	4.8279	7.0000	49.8384	697.7382	7.4791	0.0000	0
	22.0000	23.7385	1391.3360	7.6558	11.0000	126.4851	2782.6720	11.8622	0.0000	0

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
L4	22.3105	12.9812	780.3007	7.7434	11.1760	69.8193	1561.6281	6.4918	3.5420	18.891
	23.0722	13.4276	863.6105	8.0098	11.5571	74.7256	1728.3574	6.7151	3.6740	19.595
L5	23.0722	13.4276	863.6105	8.0098	11.5571	74.7256	1728.3574	6.7151	3.6740	19.595
	23.8340	13.8741	952.6487	8.2761	11.9382	79.7984	1906.5509	6.9384	3.8061	20.299
L6	23.8340	13.8741	952.6487	8.2761	11.9382	79.7984	1906.5509	6.9384	3.8061	20.299
	24.5957	14.3205	1047.6055	8.5424	12.3193	85.0379	2096.5895	7.1616	3.9381	21.003
L7	24.5957	14.3205	1047.6055	8.5424	12.3193	85.0379	2096.5895	7.1616	3.9381	21.003
	25.3575	14.7670	1148.6716	8.8087	12.7004	90.4439	2298.8546	7.3849	4.0701	21.707
L8	25.3575	14.7670	1148.6716	8.8087	12.7004	90.4439	2298.8546	7.3849	4.0701	21.707
	26.1192	15.2134	1256.0373	9.0750	13.0815	96.0165	2513.7272	7.6082	4.2022	22.412
L9	26.1192	15.2134	1256.0373	9.0750	13.0815	96.0165	2513.7272	7.6082	4.2022	22.412
	26.8810	15.6599	1369.8931	9.3413	13.4626	101.7558	2741.5886	7.8314	4.3342	23.116
L10	26.8810	15.6599	1369.8931	9.3413	13.4626	101.7558	2741.5886	7.8314	4.3342	23.116
	27.6428	16.1063	1490.4294	9.6076	13.8437	107.6616	2982.8200	8.0547	4.4662	23.82
L11	27.6428	16.1063	1490.4294	9.6076	13.8437	107.6616	2982.8200	8.0547	4.4662	23.82
	28.5188	16.6198	1637.5523	9.9139	14.2819	114.6592	3277.2593	8.3115	4.6181	24.63
L12	28.1284	21.3958	1965.3102	9.5722	13.8246	142.1599	3933.2064	10.6999	4.3496	17.399
	28.3569	21.9911	2133.9640	9.8385	14.2058	150.2181	4270.7359	10.9977	4.4817	17.927
L13	28.3569	21.9911	2133.9640	9.8385	14.2058	150.2181	4270.7359	10.9977	4.4817	17.927
	29.1187	22.5865	2312.0005	10.1048	14.5869	158.4986	4627.0433	11.2954	4.6137	18.455
L14	29.1187	22.5865	2312.0005	10.1048	14.5869	158.4986	4627.0433	11.2954	4.6137	18.455
	29.8806	23.1818	2499.6739	10.3712	14.9680	167.0011	5002.6370	11.5931	4.7458	18.983
L15	29.8806	23.1818	2499.6739	10.3712	14.9680	167.0011	5002.6370	11.5931	4.7458	18.983
	30.6424	23.7771	2697.2381	10.6375	15.3491	175.7258	5398.0253	11.8908	4.8778	19.511
L16	30.6424	23.7771	2697.2381	10.6375	15.3491	175.7258	5398.0253	11.8908	4.8778	19.511
	31.4042	24.3724	2904.9471	10.9038	15.7302	184.6727	5813.7166	12.1885	5.0098	20.039
L17	31.4042	24.3724	2904.9471	10.9038	15.7302	184.6727	5813.7166	12.1885	5.0098	20.039
	31.9755	24.8189	3067.5391	11.1036	16.0161	191.5286	6139.1146	12.4118	5.1089	20.436
L18	31.9427	45.6030	5560.0652	11.0282	16.0161	347.1550	11127.4464	22.8058	4.7349	10.238
	31.9808	45.6580	5580.2311	11.0415	16.0351	348.0001	11167.8049	22.8334	4.7415	10.252
L19	31.9818	45.0501	5508.1418	11.0437	16.0351	343.5044	11023.5314	22.5293	4.7525	10.416
	32.7436	46.1365	5916.3391	11.3100	16.4163	360.3950	11840.4631	23.0727	4.8845	10.706
L20	32.7446	45.5135	5838.7283	11.3122	16.4163	355.6673	11685.1393	22.7611	4.8955	10.879
	33.5064	46.5850	6260.9126	11.5786	16.7974	372.7314	12530.0635	23.2969	5.0276	11.172
L21	33.5064	46.5850	6260.9126	11.5786	16.7974	372.7314	12530.0635	23.2969	5.0276	11.172
	34.4206	47.8709	6793.8105	11.8982	17.2547	393.7362	13596.5606	23.9400	5.1860	11.524
L22	33.9080	49.4148	6532.2413	11.4832	16.6768	391.6969	13073.0778	24.7121	4.9307	10.245
	34.0222	50.5608	6997.3488	11.7495	17.0579	410.2123	14003.9049	25.2852	5.0627	10.519
L23	34.0242	49.2663	6823.3436	11.7539	17.0579	400.0114	13655.6654	24.6378	5.0847	10.846
	34.7859	50.3825	7297.7352	12.0203	17.4390	418.4729	14605.0730	25.1960	5.2168	11.128
L24	34.7859	50.3825	7297.7352	12.0203	17.4390	418.4729	14605.0730	25.1960	5.2168	11.128
	35.5477	51.4988	7793.6205	12.2866	17.8201	437.3509	15597.4961	25.7543	5.3488	11.41
L25	35.5477	51.4988	7793.6205	12.2866	17.8201	437.3509	15597.4961	25.7543	5.3488	11.41
	36.1190	52.3360	8179.9262	12.4863	18.1059	451.7827	16370.6157	26.1730	5.4478	11.621
L26	36.1113	57.8356	9013.8081	12.4686	18.1059	497.8386	18039.4768	28.9233	5.3598	10.331
	36.1494	57.8973	9042.7180	12.4819	18.1249	498.9102	18097.3346	28.9542	5.3664	10.344
L27	36.1513	56.5224	8834.2576	12.4863	18.1249	487.4089	17680.1396	28.2666	5.3884	10.643
	36.9131	57.7280	9411.6700	12.7526	18.5060	508.5730	18835.7241	28.8695	5.5205	10.904
L28	36.9131	57.7280	9411.6700	12.7526	18.5060	508.5730	18835.7241	28.8695	5.5205	10.904

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
	37.6748	58.9335	10013.7097	13.0189	18.8871	530.1869	20040.5957	29.4724	5.6525	11.164
L29	37.6768	57.4981	9776.4721	13.0234	18.8871	517.6261	19565.8084	28.7545	5.6745	11.491
	38.4385	58.6739	10388.5818	13.2897	19.2682	539.1560	20790.8331	29.3425	5.8065	11.759
L30	38.4385	58.6739	10388.5818	13.2897	19.2682	539.1560	20790.8331	29.3425	5.8065	11.759
	39.2003	59.8497	11025.7223	13.5560	19.6493	561.1247	22065.9524	29.9305	5.9386	12.026
L31	39.2013	59.1018	10891.5165	13.5582	19.6493	554.2947	21797.3643	29.5565	5.9496	12.203
	39.9630	60.2627	11546.0140	13.8246	20.0304	576.4239	23107.2206	30.1371	6.0816	12.474
L32	39.9630	60.2627	11546.0140	13.8246	20.0304	576.4239	23107.2206	30.1371	6.0816	12.474
	40.1154	60.4949	11679.9828	13.8778	20.1066	580.9018	23375.3343	30.2532	6.1080	12.528

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 133.0000-128.0000				1	1	1			
L2 128.0000-123.5000				1	1	1			
L3 123.5000-123.0000				1	1	1			
L4 123.0000-118.0000				1	1	1			
L5 118.0000-113.0000				1	1	1			
L6 113.0000-108.0000				1	1	1			
L7 108.0000-103.0000				1	1	1			
L8 103.0000-98.0000				1	1	1			
L9 98.0000-93.0000				1	1	1			
L10 93.0000-88.0000				1	1	1			
L11 88.0000-82.2500				1	1	1			
L12 82.2500-80.7500				1	1	1			
L13 80.7500-75.7500				1	1	1			
L14 75.7500-70.7500				1	1	1			
L15 70.7500-65.7500				1	1	1			
L16 65.7500-60.7500				1	1	1			
L17 60.7500-57.0000				1	1	1			
L18 57.0000-56.7500				1	1	0.944643			
L19 56.7500-51.7500				1	1	0.947749			
L20 51.7500-46.7500				1	1	0.951404			
L21 46.7500-40.7500				1	1	0.948243			
L22 40.7500-40.0000				1	1	0.949573			

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
L23 40.0000-35.0000				1	1	0.966228			
L24 35.0000-30.0000				1	1	0.95829			
L25 30.0000-26.2500				1	1	0.95256			
L26 26.2500-26.0000				1	1	0.942605			
L27 26.0000-21.0000				1	1	0.956973			
L28 21.0000-16.0000				1	1	0.948762			
L29 16.0000-11.0000				1	1	0.964376			
L30 11.0000-6.0000				1	1	0.956622			
L31 6.0000-1.0000				1	1	0.961179			
L32 1.0000-0.0000				1	1	0.959705			

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
HB114-21U3M12-XXXF(1-1/4)	B	No	Surface Ar (CaAa)	120.0000 - 0.0000	1	1	0.437 0.437	1.5400		1.22
AVA7-50(1-5/8) ***	A	No	Surface Ar (CaAa)	75.0000 - 0.0000	2	2	0.349 0.433	2.0100		0.70
LDF4-50A(1/2) ***	B	No	Surface Ar (CaAa)	50.0000 - 0.0000	1	1	0.396 0.396	0.6250		0.15
FP 6.125 x 1.25 Reinforcement	A	No	Surface Af (CaAa)	13.5330 - 0.0000	1	1	0.167 0.167	0.1000	2.7000	0.00
FP 6.125 x 1.25 Reinforcement	A	No	Surface Af (CaAa)	29.7500 - 13.5330	1	1	0.167 0.167	0.4290	3.3581	0.00
FP 6.125 x 1.25 Reinforcement	C	No	Surface Af (CaAa)	13.5330 - 0.0000	1	1	0.167 0.167	0.1000	2.7000	0.00
FP 6.125 x 1.25 Reinforcement	C	No	Surface Af (CaAa)	29.7500 - 13.5330	1	1	0.167 0.167	0.4290	3.3581	0.00
FP 6.125 x 1.25 Reinforcement	B	No	Surface Af (CaAa)	13.5330 - 0.0000	1	1	0.167 0.167	0.1000	2.7000	0.00
FP 6.125 x 1.25 Reinforcement	B	No	Surface Af (CaAa)	29.7500 - 13.5330	1	1	0.167 0.167	0.4290	3.3581	0.00
FP 4.875 x 1.25 Reinforcement	A	No	Surface Af (CaAa)	59.5000 - 29.7500	1	1	0.167 0.167	0.1000	2.7000	0.00
FP 4.875 x 1.25 Reinforcement	C	No	Surface Af (CaAa)	59.5000 - 29.7500	1	1	0.167 0.167	0.1000	2.7000	0.00
FP 4.875 x 1.25 Reinforcement	B	No	Surface Af (CaAa)	59.5000 - 29.7500	1	1	0.167 0.167	0.1000	2.7000	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
LDF6-50A(1-1/4)	C	No	No	Inside Pole	133.0000 - 0.0000	6	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

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	133.0000 - 0.0000	4	No Ice	0.0000	0.58
							1/2" Ice	0.0000	0.58
							1" Ice	0.0000	0.58
							2" Ice	0.0000	0.58
FB-L98B-034-XXX(3/8")	C	No	No	Inside Pole	133.0000 - 0.0000	2	No Ice	0.0000	0.06
							1/2" Ice	0.0000	0.06
							1" Ice	0.0000	0.06
							2" Ice	0.0000	0.06
***									
HB114-1-08U4-M5J(1-1/4)	C	No	No	Inside Pole	120.0000 - 0.0000	3	No Ice	0.0000	1.08
							1/2" Ice	0.0000	1.08
							1" Ice	0.0000	1.08
							2" Ice	0.0000	1.08
***									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	100.0000 - 0.0000	12	No Ice	0.0000	0.82
							1/2" Ice	0.0000	0.82
							1" Ice	0.0000	0.82
							2" Ice	0.0000	0.82
HCS 6X12 4AWG(1-5/8)	C	No	No	Inside Pole	100.0000 - 0.0000	1	No Ice	0.0000	2.40
							1/2" Ice	0.0000	2.40
							1" Ice	0.0000	2.40
							2" Ice	0.0000	2.40
***									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	93.0000 - 0.0000	12	No Ice	0.0000	0.82
							1/2" Ice	0.0000	0.82
							1" Ice	0.0000	0.82
							2" Ice	0.0000	0.82
HB158-1-08U8-S8J18(1-5/8)	C	No	No	Inside Pole	93.0000 - 0.0000	1	No Ice	0.0000	1.30
							1/2" Ice	0.0000	1.30
							1" Ice	0.0000	1.30
							2" Ice	0.0000	1.30
***									
AVA7-50(1-5/8)	C	No	No	Inside Pole	75.0000 - 0.0000	4	No Ice	0.0000	0.70
							1/2" Ice	0.0000	0.70
							1" Ice	0.0000	0.70
							2" Ice	0.0000	0.70

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	133.0000-128.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.03
L2	128.0000-123.5000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.03
L3	123.5000-123.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L4	123.0000-118.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.308	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L5	118.0000-113.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.770	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.05
L6	113.0000-108.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.770	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.05
L7	108.0000-103.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.770	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.05
L8	103.0000-98.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.770	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.07
L9	98.0000-93.0000	A	0.000	0.000	0.000	0.000	0.00

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
		B	0.000	0.000	0.770	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.11
L10	93.0000-88.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.770	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.16
L11	88.0000-82.2500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.885	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.19
L12	82.2500-80.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.231	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.05
L13	80.7500-75.7500	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.770	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.16
L14	75.7500-70.7500	A	0.000	0.000	1.708	0.000	0.01
		B	0.000	0.000	0.770	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.18
L15	70.7500-65.7500	A	0.000	0.000	2.010	0.000	0.01
		B	0.000	0.000	0.770	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.18
L16	65.7500-60.7500	A	0.000	0.000	2.010	0.000	0.01
		B	0.000	0.000	0.770	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.18
L17	60.7500-57.0000	A	0.000	0.000	1.549	0.000	0.01
		B	0.000	0.000	0.619	0.000	0.00
		C	0.000	0.000	0.042	0.000	0.13
L18	57.0000-56.7500	A	0.000	0.000	0.105	0.000	0.00
		B	0.000	0.000	0.043	0.000	0.00
		C	0.000	0.000	0.004	0.000	0.01
L19	56.7500-51.7500	A	0.000	0.000	2.093	0.000	0.01
		B	0.000	0.000	0.853	0.000	0.01
		C	0.000	0.000	0.083	0.000	0.18
L20	51.7500-46.7500	A	0.000	0.000	2.093	0.000	0.01
		B	0.000	0.000	1.056	0.000	0.01
		C	0.000	0.000	0.083	0.000	0.18
L21	46.7500-40.7500	A	0.000	0.000	2.512	0.000	0.01
		B	0.000	0.000	1.399	0.000	0.01
		C	0.000	0.000	0.100	0.000	0.21
L22	40.7500-40.0000	A	0.000	0.000	0.314	0.000	0.00
		B	0.000	0.000	0.175	0.000	0.00
		C	0.000	0.000	0.013	0.000	0.03
L23	40.0000-35.0000	A	0.000	0.000	2.093	0.000	0.01
		B	0.000	0.000	1.166	0.000	0.01
		C	0.000	0.000	0.083	0.000	0.18
L24	35.0000-30.0000	A	0.000	0.000	2.093	0.000	0.01
		B	0.000	0.000	1.166	0.000	0.01
		C	0.000	0.000	0.083	0.000	0.18
L25	30.0000-26.2500	A	0.000	0.000	1.762	0.000	0.01
		B	0.000	0.000	1.066	0.000	0.01
		C	0.000	0.000	0.254	0.000	0.13
L26	26.2500-26.0000	A	0.000	0.000	0.118	0.000	0.00
		B	0.000	0.000	0.072	0.000	0.00
		C	0.000	0.000	0.018	0.000	0.01
L27	26.0000-21.0000	A	0.000	0.000	2.368	0.000	0.01
		B	0.000	0.000	1.440	0.000	0.01
		C	0.000	0.000	0.358	0.000	0.18
L28	21.0000-16.0000	A	0.000	0.000	2.368	0.000	0.01
		B	0.000	0.000	1.440	0.000	0.01
		C	0.000	0.000	0.358	0.000	0.18
L29	16.0000-11.0000	A	0.000	0.000	2.229	0.000	0.01
		B	0.000	0.000	1.301	0.000	0.01
		C	0.000	0.000	0.219	0.000	0.18
L30	11.0000-6.0000	A	0.000	0.000	2.093	0.000	0.01
		B	0.000	0.000	1.166	0.000	0.01
		C	0.000	0.000	0.083	0.000	0.18
L31	6.0000-1.0000	A	0.000	0.000	2.093	0.000	0.01
		B	0.000	0.000	1.166	0.000	0.01
		C	0.000	0.000	0.083	0.000	0.18
L32	1.0000-0.0000	A	0.000	0.000	0.419	0.000	0.00

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
		B	0.000	0.000	0.233	0.000	0.00
		C	0.000	0.000	0.017	0.000	0.04

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	133.0000-128.0000	A	1.463	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.03
L2	128.0000-123.5000	A	1.458	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.03
L3	123.5000-123.0000	A	1.455	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L4	123.0000-118.0000	A	1.451	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.889	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.04
L5	118.0000-113.0000	A	1.445	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.215	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.05
L6	113.0000-108.0000	A	1.439	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.209	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.05
L7	108.0000-103.0000	A	1.432	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.202	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.05
L8	103.0000-98.0000	A	1.425	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.195	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.07
L9	98.0000-93.0000	A	1.418	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.188	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.11
L10	93.0000-88.0000	A	1.410	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.180	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.16
L11	88.0000-82.2500	A	1.402	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.497	0.000	0.04
		C		0.000	0.000	0.000	0.000	0.19
L12	82.2500-80.7500	A	1.396	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.652	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.05
L13	80.7500-75.7500	A	1.390	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.160	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.16
L14	75.7500-70.7500	A	1.381	0.000	0.000	3.603	0.000	0.04
		B		0.000	0.000	2.151	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.18
L15	70.7500-65.7500	A	1.371	0.000	0.000	4.226	0.000	0.05
		B		0.000	0.000	2.141	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.18
L16	65.7500-60.7500	A	1.361	0.000	0.000	4.213	0.000	0.05
		B		0.000	0.000	2.131	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.18
L17	60.7500-57.0000	A	1.351	0.000	0.000	3.868	0.000	0.05
		B		0.000	0.000	2.308	0.000	0.03
		C		0.000	0.000	0.717	0.000	0.14
L18	57.0000-56.7500	A	1.346	0.000	0.000	0.281	0.000	0.00
		B		0.000	0.000	0.177	0.000	0.00
		C		0.000	0.000	0.071	0.000	0.01
L19	56.7500-51.7500	A	1.340	0.000	0.000	5.611	0.000	0.07
		B		0.000	0.000	3.533	0.000	0.05
		C		0.000	0.000	1.423	0.000	0.20
L20	51.7500-46.7500	A	1.327	0.000	0.000	5.582	0.000	0.07
		B		0.000	0.000	4.573	0.000	0.06
		C		0.000	0.000	1.410	0.000	0.20

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
L21	46.7500-40.7500	A	1.311	0.000	0.000	6.656	0.000	0.08
		B		0.000	0.000	6.120	0.000	0.08
		C		0.000	0.000	1.674	0.000	0.24
L22	40.7500-40.0000	A	1.301	0.000	0.000	0.832	0.000	0.01
		B		0.000	0.000	0.765	0.000	0.01
		C		0.000	0.000	0.209	0.000	0.03
L23	40.0000-35.0000	A	1.291	0.000	0.000	5.501	0.000	0.06
		B		0.000	0.000	5.040	0.000	0.06
		C		0.000	0.000	1.375	0.000	0.20
L24	35.0000-30.0000	A	1.273	0.000	0.000	5.460	0.000	0.06
		B		0.000	0.000	4.985	0.000	0.06
		C		0.000	0.000	1.356	0.000	0.20
L25	30.0000-26.2500	A	1.255	0.000	0.000	4.256	0.000	0.05
		B		0.000	0.000	3.890	0.000	0.05
		C		0.000	0.000	1.196	0.000	0.15
L26	26.2500-26.0000	A	1.246	0.000	0.000	0.284	0.000	0.00
		B		0.000	0.000	0.259	0.000	0.00
		C		0.000	0.000	0.080	0.000	0.01
L27	26.0000-21.0000	A	1.232	0.000	0.000	5.643	0.000	0.06
		B		0.000	0.000	5.137	0.000	0.06
		C		0.000	0.000	1.590	0.000	0.20
L28	21.0000-16.0000	A	1.203	0.000	0.000	5.577	0.000	0.06
		B		0.000	0.000	5.050	0.000	0.06
		C		0.000	0.000	1.561	0.000	0.20
L29	16.0000-11.0000	A	1.166	0.000	0.000	5.354	0.000	0.06
		B		0.000	0.000	4.799	0.000	0.06
		C		0.000	0.000	1.385	0.000	0.19
L30	11.0000-6.0000	A	1.113	0.000	0.000	5.100	0.000	0.05
		B		0.000	0.000	4.505	0.000	0.05
		C		0.000	0.000	1.196	0.000	0.19
L31	6.0000-1.0000	A	1.019	0.000	0.000	4.887	0.000	0.05
		B		0.000	0.000	4.221	0.000	0.05
		C		0.000	0.000	1.102	0.000	0.19
L32	1.0000-0.0000	A	0.839	0.000	0.000	0.897	0.000	0.01
		B		0.000	0.000	0.736	0.000	0.01
		C		0.000	0.000	0.184	0.000	0.04

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	133.0000-128.0000	0.0000	0.0000	0.0000	0.0000
L2	128.0000-123.5000	0.0000	0.0000	0.0000	0.0000
L3	123.5000-123.0000	0.0000	0.0000	0.0000	0.0000
L4	123.0000-118.0000	0.4765	0.1970	0.7242	0.2994
L5	118.0000-113.0000	1.1103	0.4591	1.6407	0.6784
L6	113.0000-108.0000	1.1115	0.4596	1.6464	0.6807
L7	108.0000-103.0000	1.1126	0.4600	1.6513	0.6828
L8	103.0000-98.0000	1.1137	0.4605	1.6556	0.6846
L9	98.0000-93.0000	1.1147	0.4609	1.6593	0.6861
L10	93.0000-88.0000	1.1156	0.4613	1.6623	0.6873
L11	88.0000-82.2500	1.1166	0.4617	1.6648	0.6884
L12	82.2500-80.7500	1.1172	0.4619	1.6668	0.6892
L13	80.7500-75.7500	1.1177	0.4621	1.6642	0.6881
L14	75.7500-70.7500	0.4276	-1.8708	0.7283	-1.7237
L15	70.7500-65.7500	0.3293	-2.2169	0.6141	-2.0409
L16	65.7500-60.7500	0.3310	-2.2259	0.6169	-2.0566
L17	60.7500-57.0000	0.3280	-2.2040	0.5584	-1.8674
L18	57.0000-56.7500	0.3268	-2.1949	0.5339	-1.7883
L19	56.7500-51.7500	0.3276	-2.1995	0.5355	-1.7974

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L20	51.7500-46.7500	0.5677	-2.0978	1.0456	-1.5891
L21	46.7500-40.7500	0.6955	-2.0496	1.3098	-1.4920
L22	40.7500-40.0000	0.6956	-2.0499	1.3100	-1.4922
L23	40.0000-35.0000	0.6975	-2.0545	1.3078	-1.5019
L24	35.0000-30.0000	0.7009	-2.0626	1.3114	-1.5171
L25	30.0000-26.2500	0.6677	-1.9636	1.2837	-1.4961
L26	26.2500-26.0000	0.6669	-1.9603	1.2819	-1.4998
L27	26.0000-21.0000	0.6687	-1.9648	1.2812	-1.5074
L28	21.0000-16.0000	0.6722	-1.9735	1.2771	-1.5220
L29	16.0000-11.0000	0.6939	-2.0356	1.2826	-1.5552
L30	11.0000-6.0000	0.7156	-2.0979	1.2773	-1.5893
L31	6.0000-1.0000	0.7184	-2.1046	1.2283	-1.6072
L32	1.0000-0.0000	0.7200	-2.1085	1.1123	-1.6266

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
L4	6	HB114-21U3M12-XXXF(1-1/4)	118.00 - 120.00	1.0000	1.0000
L5	6	HB114-21U3M12-XXXF(1-1/4)	113.00 - 118.00	1.0000	1.0000
L6	6	HB114-21U3M12-XXXF(1-1/4)	108.00 - 113.00	1.0000	1.0000
L7	6	HB114-21U3M12-XXXF(1-1/4)	103.00 - 108.00	1.0000	1.0000
L8	6	HB114-21U3M12-XXXF(1-1/4)	98.00 - 103.00	1.0000	1.0000
L9	6	HB114-21U3M12-XXXF(1-1/4)	93.00 - 98.00	1.0000	1.0000
L10	6	HB114-21U3M12-XXXF(1-1/4)	88.00 - 93.00	1.0000	1.0000
L11	6	HB114-21U3M12-XXXF(1-1/4)	82.25 - 88.00	1.0000	1.0000
L13	6	HB114-21U3M12-XXXF(1-1/4)	75.75 - 80.75	1.0000	1.0000
L14	6	HB114-21U3M12-XXXF(1-1/4)	70.75 - 75.75	1.0000	1.0000
L14	15	AVA7-50(1-5/8)	70.75 - 75.00	1.0000	1.0000
L15	6	HB114-21U3M12-XXXF(1-1/4)	65.75 - 70.75	1.0000	1.0000
L15	15	AVA7-50(1-5/8)	65.75 - 70.75	1.0000	1.0000
L16	6	HB114-21U3M12-XXXF(1-1/4)	60.75 - 65.75	1.0000	1.0000
L16	15	AVA7-50(1-5/8)	60.75 - 65.75	1.0000	1.0000
L17	6	HB114-21U3M12-XXXF(1-1/4)	57.00 - 60.75	1.0000	1.0000
L17	15	AVA7-50(1-5/8)	57.00 - 60.75	1.0000	1.0000
L17	25	FP 4.875 x 1.25 Reinforcement	57.00 - 59.50	1.0000	1.0000
L17	26	FP 4.875 x 1.25 Reinforcement	57.00 - 59.50	1.0000	1.0000
L17	27	FP 4.875 x 1.25 Reinforcement	57.00 - 59.50	1.0000	1.0000
L18	6	HB114-21U3M12-XXXF(1-1/4)	56.75 - 57.00	1.0000	1.0000
L18	15	AVA7-50(1-5/8)	56.75 - 57.00	1.0000	1.0000
L18	25	FP 4.875 x 1.25 Reinforcement	56.75 - 57.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L18	26	FP 4.875 x 1.25 Reinforcement	56.75 - 57.00	1.0000	1.0000
L18	27	FP 4.875 x 1.25 Reinforcement	56.75 - 57.00	1.0000	1.0000
L19	6	HB114-21U3M12-XXXF(1-1/4)	51.75 - 56.75	1.0000	1.0000
L19	15	AVA7-50(1-5/8)	51.75 - 56.75	1.0000	1.0000
L19	25	FP 4.875 x 1.25 Reinforcement	51.75 - 56.75	1.0000	1.0000
L19	26	FP 4.875 x 1.25 Reinforcement	51.75 - 56.75	1.0000	1.0000
L19	27	FP 4.875 x 1.25 Reinforcement	51.75 - 56.75	1.0000	1.0000
L20	6	HB114-21U3M12-XXXF(1-1/4)	46.75 - 51.75	1.0000	1.0000
L20	15	AVA7-50(1-5/8)	46.75 - 51.75	1.0000	1.0000
L20	17	LDF4-50A(1/2)	46.75 - 50.00	1.0000	1.0000
L20	25	FP 4.875 x 1.25 Reinforcement	46.75 - 51.75	1.0000	1.0000
L20	26	FP 4.875 x 1.25 Reinforcement	46.75 - 51.75	1.0000	1.0000
L20	27	FP 4.875 x 1.25 Reinforcement	46.75 - 51.75	1.0000	1.0000
L21	6	HB114-21U3M12-XXXF(1-1/4)	40.75 - 46.75	1.0000	1.0000
L21	15	AVA7-50(1-5/8)	40.75 - 46.75	1.0000	1.0000
L21	17	LDF4-50A(1/2)	40.75 - 46.75	1.0000	1.0000
L21	25	FP 4.875 x 1.25 Reinforcement	40.75 - 46.75	1.0000	1.0000
L21	26	FP 4.875 x 1.25 Reinforcement	40.75 - 46.75	1.0000	1.0000
L21	27	FP 4.875 x 1.25 Reinforcement	40.75 - 46.75	1.0000	1.0000
L23	6	HB114-21U3M12-XXXF(1-1/4)	35.00 - 40.00	1.0000	1.0000
L23	15	AVA7-50(1-5/8)	35.00 - 40.00	1.0000	1.0000
L23	17	LDF4-50A(1/2)	35.00 - 40.00	1.0000	1.0000
L23	25	FP 4.875 x 1.25 Reinforcement	35.00 - 40.00	1.0000	1.0000
L23	26	FP 4.875 x 1.25 Reinforcement	35.00 - 40.00	1.0000	1.0000
L23	27	FP 4.875 x 1.25 Reinforcement	35.00 - 40.00	1.0000	1.0000
L24	6	HB114-21U3M12-XXXF(1-1/4)	30.00 - 35.00	1.0000	1.0000
L24	15	AVA7-50(1-5/8)	30.00 - 35.00	1.0000	1.0000
L24	17	LDF4-50A(1/2)	30.00 - 35.00	1.0000	1.0000
L24	25	FP 4.875 x 1.25 Reinforcement	30.00 - 35.00	1.0000	1.0000
L24	26	FP 4.875 x 1.25 Reinforcement	30.00 - 35.00	1.0000	1.0000
L24	27	FP 4.875 x 1.25 Reinforcement	30.00 - 35.00	1.0000	1.0000
L25	6	HB114-21U3M12-XXXF(1-1/4)	26.25 - 30.00	1.0000	1.0000
L25	15	AVA7-50(1-5/8)	26.25 - 30.00	1.0000	1.0000
L25	17	LDF4-50A(1/2)	26.25 - 30.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L25	20	FP 6.125 x 1.25 Reinforcement	26.25 - 29.75	1.0000	1.0000
L25	22	FP 6.125 x 1.25 Reinforcement	26.25 - 29.75	1.0000	1.0000
L25	24	FP 6.125 x 1.25 Reinforcement	26.25 - 29.75	1.0000	1.0000
L25	25	FP 4.875 x 1.25 Reinforcement	29.75 - 30.00	1.0000	1.0000
L25	26	FP 4.875 x 1.25 Reinforcement	29.75 - 30.00	1.0000	1.0000
L25	27	FP 4.875 x 1.25 Reinforcement	29.75 - 30.00	1.0000	1.0000
L26	6	HB114-21U3M12-XXXF(1-1/4)	26.00 - 26.25	1.0000	1.0000
L26	15	AVA7-50(1-5/8)	26.00 - 26.25	1.0000	1.0000
L26	17	LDF4-50A(1/2)	26.00 - 26.25	1.0000	1.0000
L26	20	FP 6.125 x 1.25 Reinforcement	26.00 - 26.25	1.0000	1.0000
L26	22	FP 6.125 x 1.25 Reinforcement	26.00 - 26.25	1.0000	1.0000
L26	24	FP 6.125 x 1.25 Reinforcement	26.00 - 26.25	1.0000	1.0000
L27	6	HB114-21U3M12-XXXF(1-1/4)	21.00 - 26.00	1.0000	1.0000
L27	15	AVA7-50(1-5/8)	21.00 - 26.00	1.0000	1.0000
L27	17	LDF4-50A(1/2)	21.00 - 26.00	1.0000	1.0000
L27	20	FP 6.125 x 1.25 Reinforcement	21.00 - 26.00	1.0000	1.0000
L27	22	FP 6.125 x 1.25 Reinforcement	21.00 - 26.00	1.0000	1.0000
L27	24	FP 6.125 x 1.25 Reinforcement	21.00 - 26.00	1.0000	1.0000
L28	6	HB114-21U3M12-XXXF(1-1/4)	16.00 - 21.00	1.0000	1.0000
L28	15	AVA7-50(1-5/8)	16.00 - 21.00	1.0000	1.0000
L28	17	LDF4-50A(1/2)	16.00 - 21.00	1.0000	1.0000
L28	20	FP 6.125 x 1.25 Reinforcement	16.00 - 21.00	1.0000	1.0000
L28	22	FP 6.125 x 1.25 Reinforcement	16.00 - 21.00	1.0000	1.0000
L28	24	FP 6.125 x 1.25 Reinforcement	16.00 - 21.00	1.0000	1.0000
L29	6	HB114-21U3M12-XXXF(1-1/4)	11.00 - 16.00	1.0000	1.0000
L29	15	AVA7-50(1-5/8)	11.00 - 16.00	1.0000	1.0000
L29	17	LDF4-50A(1/2)	11.00 - 16.00	1.0000	1.0000
L29	19	FP 6.125 x 1.25 Reinforcement	11.00 - 13.53	1.0000	1.0000
L29	20	FP 6.125 x 1.25 Reinforcement	13.53 - 16.00	1.0000	1.0000
L29	21	FP 6.125 x 1.25 Reinforcement	11.00 - 13.53	1.0000	1.0000
L29	22	FP 6.125 x 1.25 Reinforcement	13.53 - 16.00	1.0000	1.0000
L29	23	FP 6.125 x 1.25 Reinforcement	11.00 - 13.53	1.0000	1.0000
L29	24	FP 6.125 x 1.25 Reinforcement	13.53 - 16.00	1.0000	1.0000
L30	6	HB114-21U3M12-XXXF(1-1/4)	6.00 - 11.00	1.0000	1.0000
L30	15	AVA7-50(1-5/8)	6.00 - 11.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L30	17	LDF4-50A(1/2)	6.00 - 11.00	1.0000	1.0000
L30	19	FP 6.125 x 1.25 Reinforcement	6.00 - 11.00	1.0000	1.0000
L30	21	FP 6.125 x 1.25 Reinforcement	6.00 - 11.00	1.0000	1.0000
L30	23	FP 6.125 x 1.25 Reinforcement	6.00 - 11.00	1.0000	1.0000
L31	6	HB114-21U3M12-XXXF(1-1/4)	1.00 - 6.00	1.0000	1.0000
L31	15	AVA7-50(1-5/8)	1.00 - 6.00	1.0000	1.0000
L31	17	LDF4-50A(1/2)	1.00 - 6.00	1.0000	1.0000
L31	19	FP 6.125 x 1.25 Reinforcement	1.00 - 6.00	1.0000	1.0000
L31	21	FP 6.125 x 1.25 Reinforcement	1.00 - 6.00	1.0000	1.0000
L31	23	FP 6.125 x 1.25 Reinforcement	1.00 - 6.00	1.0000	1.0000
L32	6	HB114-21U3M12-XXXF(1-1/4)	0.00 - 1.00	1.0000	1.0000
L32	15	AVA7-50(1-5/8)	0.00 - 1.00	1.0000	1.0000
L32	17	LDF4-50A(1/2)	0.00 - 1.00	1.0000	1.0000
L32	19	FP 6.125 x 1.25 Reinforcement	0.00 - 1.00	1.0000	1.0000
L32	21	FP 6.125 x 1.25 Reinforcement	0.00 - 1.00	1.0000	1.0000
L32	23	FP 6.125 x 1.25 Reinforcement	0.00 - 1.00	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
5/8'' X 5' Lightning Rod	C	None		0.00	135.5000	No Ice	0.3125	0.3125	0.01
						1/2" Ice	0.8260	0.8260	0.01
						1" Ice	1.3216	1.3216	0.02
						2" Ice	1.9568	1.9568	0.04
*******									
TPA65R-BU8D_CCIV2 w/ Mount Pipe	A	From Leg	1.0000 0.00 0.00	0.00	133.0000	No Ice	18.1086	10.2597	0.12
						1/2" Ice	18.8430	11.7813	0.24
						1" Ice	19.5863	13.3269	0.37
						2" Ice	21.0084	15.6716	0.67
TPA65R-BU8D_CCIV2 w/ Mount Pipe	B	From Leg	1.0000 0.00 0.00	0.00	133.0000	No Ice	18.1086	10.2597	0.12
						1/2" Ice	18.8430	11.7813	0.24
						1" Ice	19.5863	13.3269	0.37
						2" Ice	21.0084	15.6716	0.67
TPA65R-BU8D_CCIV2 w/ Mount Pipe	C	From Leg	1.0000 0.00 0.00	0.00	133.0000	No Ice	18.1086	10.2597	0.12
						1/2" Ice	18.8430	11.7813	0.24
						1" Ice	19.5863	13.3269	0.37
						2" Ice	21.0084	15.6716	0.67
DC6-48-60-18-8F	A	From Leg	1.0000 0.00 0.00	0.00	133.0000	No Ice	1.2117	1.2117	0.03
						1/2" Ice	1.8924	1.8924	0.05
						1" Ice	2.1051	2.1051	0.08
						2" Ice	2.5703	2.5703	0.14
DC6-48-60-18-8F	C	From Leg	1.0000 0.00 0.00	0.00	133.0000	No Ice	1.2117	1.2117	0.03
						1/2" Ice	1.8924	1.8924	0.05
							2.1051	2.1051	0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	2.5703	2.5703	0.14
						2" Ice			
RRUS 4449 B5/B12	A	From Leg	1.0000	0.00	133.0000	No Ice	1.9675	1.4081	0.07
			0.00			1/2" Ice	2.1439	1.5637	0.09
			0.00			1" Ice	2.3278	1.7267	0.11
						2" Ice	2.7177	2.0749	0.16
RRUS 4449 B5/B12	B	From Leg	1.0000	0.00	133.0000	No Ice	1.9675	1.4081	0.07
			0.00			1/2" Ice	2.1439	1.5637	0.09
			0.00			1" Ice	2.3278	1.7267	0.11
						2" Ice	2.7177	2.0749	0.16
RRUS 4449 B5/B12	C	From Leg	1.0000	0.00	133.0000	No Ice	1.9675	1.4081	0.07
			0.00			1/2" Ice	2.1439	1.5637	0.09
			0.00			1" Ice	2.3278	1.7267	0.11
						2" Ice	2.7177	2.0749	0.16
RRUS 4415 B25	A	From Leg	1.0000	0.00	133.0000	No Ice	1.6444	0.6788	0.04
			0.00			1/2" Ice	1.8044	0.7911	0.06
			0.00			1" Ice	1.9719	0.9129	0.07
						2" Ice	2.3292	1.1834	0.11
RRUS 4415 B25	B	From Leg	1.0000	0.00	133.0000	No Ice	1.6444	0.6788	0.04
			0.00			1/2" Ice	1.8044	0.7911	0.06
			0.00			1" Ice	1.9719	0.9129	0.07
						2" Ice	2.3292	1.1834	0.11
RRUS 4415 B25	C	From Leg	1.0000	0.00	133.0000	No Ice	1.6444	0.6788	0.04
			0.00			1/2" Ice	1.8044	0.7911	0.06
			0.00			1" Ice	1.9719	0.9129	0.07
						2" Ice	2.3292	1.1834	0.11
DBC0111F2V62-1	A	From Leg	1.0000	0.00	133.0000	No Ice	1.0959	1.0603	0.05
			0.00			1/2" Ice	1.2275	1.1900	0.06
			0.00			1" Ice	1.3666	1.3272	0.08
						2" Ice	1.6669	1.6238	0.12
DBC0111F2V62-1	B	From Leg	1.0000	0.00	133.0000	No Ice	1.0959	1.0603	0.05
			0.00			1/2" Ice	1.2275	1.1900	0.06
			0.00			1" Ice	1.3666	1.3272	0.08
						2" Ice	1.6669	1.6238	0.12
DBC0111F2V62-1	C	From Leg	1.0000	0.00	133.0000	No Ice	1.0959	1.0603	0.05
			0.00			1/2" Ice	1.2275	1.1900	0.06
			0.00			1" Ice	1.3666	1.3272	0.08
						2" Ice	1.6669	1.6238	0.12
Side Arm Mount [SO 901-3]	C	None		0.00	133.0000	No Ice	1.1400	1.1400	0.32
						1/2" Ice	1.4900	1.4900	0.34
						1" Ice	1.9100	1.9100	0.37
						2" Ice	2.9300	2.9300	0.46
****									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.0000	0.00	120.0000	No Ice	4.6000	4.0100	0.10
			0.00			1/2" Ice	5.0500	4.4500	0.16
			1.00			1" Ice	5.5000	4.8900	0.23
						2" Ice	6.4400	5.8200	0.42
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.0000	0.00	120.0000	No Ice	4.6000	4.0100	0.10
			0.00			1/2" Ice	5.0500	4.4500	0.16
			1.00			1" Ice	5.5000	4.8900	0.23
						2" Ice	6.4400	5.8200	0.42
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.0000	0.00	120.0000	No Ice	4.6000	4.0100	0.10
			0.00				5.0500	4.4500	0.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.00			1/2" Ice	5.5000	4.8900	0.23
						1" Ice	6.4400	5.8200	0.42
						2" Ice			
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.0000	0.00	120.0000	No Ice	4.0900	2.8600	0.08
			0.00			1/2" Ice	4.4800	3.2300	0.13
			1.00			1" Ice	4.8800	3.6100	0.19
						2" Ice	5.7100	4.4000	0.33
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.0000	0.00	120.0000	No Ice	4.0900	2.8600	0.08
			0.00			1/2" Ice	4.4800	3.2300	0.13
			1.00			1" Ice	4.8800	3.6100	0.19
						2" Ice	5.7100	4.4000	0.33
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.0000	0.00	120.0000	No Ice	4.0900	2.8600	0.08
			0.00			1/2" Ice	4.4800	3.2300	0.13
			1.00			1" Ice	4.8800	3.6100	0.19
						2" Ice	5.7100	4.4000	0.33
(3) TD-RRH8x20-25	A	From Leg	4.0000	0.00	120.0000	No Ice	4.0455	1.5345	0.07
			0.00			1/2" Ice	4.2975	1.7142	0.10
			1.00			1" Ice	4.5570	1.9008	0.13
						2" Ice	5.0981	2.2951	0.20
Platform Mount [LP 1201-1]	C	None		0.00	120.0000	No Ice	18.3800	18.3800	2.10
						1/2" Ice	22.1100	22.1100	2.65
						1" Ice	25.8700	25.8700	3.26
						2" Ice	33.4700	33.4700	4.66
2.375" OD x 5' Mount Pipe	A	From Face	4.0000	0.00	120.0000	No Ice	1.1875	1.1875	0.02
			0.00			1/2" Ice	1.4956	1.4956	0.03
			0.00			1" Ice	1.8071	1.8071	0.04
						2" Ice	2.4580	2.4580	0.08
2.375" OD x 5' Mount Pipe	B	From Face	4.0000	0.00	120.0000	No Ice	1.1875	1.1875	0.02
			0.00			1/2" Ice	1.4956	1.4956	0.03
			0.00			1" Ice	1.8071	1.8071	0.04
						2" Ice	2.4580	2.4580	0.08
2.375" OD x 5' Mount Pipe	C	From Face	4.0000	0.00	120.0000	No Ice	1.1875	1.1875	0.02
			0.00			1/2" Ice	1.4956	1.4956	0.03
			0.00			1" Ice	1.8071	1.8071	0.04
						2" Ice	2.4580	2.4580	0.08
****									
800MHz 2X50W RRH W/FILTER	A	From Face	2.0000	0.00	118.0000	No Ice	2.0583	1.9317	0.06
			0.00			1/2" Ice	2.2398	2.1087	0.09
			0.00			1" Ice	2.4287	2.2931	0.11
						2" Ice	2.8287	2.6843	0.17
800MHz 2X50W RRH W/FILTER	B	From Face	2.0000	0.00	118.0000	No Ice	2.0583	1.9317	0.06
			0.00			1/2" Ice	2.2398	2.1087	0.09
			0.00			1" Ice	2.4287	2.2931	0.11
						2" Ice	2.8287	2.6843	0.17
800MHz 2X50W RRH W/FILTER	C	From Face	2.0000	0.00	118.0000	No Ice	2.0583	1.9317	0.06
			0.00			1/2" Ice	2.2398	2.1087	0.09
			0.00			1" Ice	2.4287	2.2931	0.11
						2" Ice	2.8287	2.6843	0.17
PCS 1900MHz 4x45W-65MHz	A	From Face	2.0000	0.00	118.0000	No Ice	2.3218	2.2381	0.06
			0.00			1/2" Ice	2.5266	2.4407	0.08
			0.00			1" Ice	2.7388	2.6507	0.11
						2" Ice	3.1855	3.0929	0.17

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
PCS 1900MHz 4x45W-65MHz	B	From Face	2.0000	0.00	0.00	118.0000	No Ice	2.3218	2.2381	0.06
			0.00				1/2" Ice	2.5266	2.4407	0.08
			0.00				1" Ice	2.7388	2.6507	0.11
							2" Ice	3.1855	3.0929	0.17
PCS 1900MHz 4x45W-65MHz	C	From Face	2.0000	0.00	0.00	118.0000	No Ice	2.3218	2.2381	0.06
			0.00				1/2" Ice	2.5266	2.4407	0.08
			0.00				1" Ice	2.7388	2.6507	0.11
							2" Ice	3.1855	3.0929	0.17
Side Arm Mount [SO 102-3]	C	None			0.00	118.0000	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
Pipe Mount [PM 601-3]	C	None			0.00	118.0000	No Ice	3.1700	3.1700	0.20
							1/2" Ice	3.7900	3.7900	0.23
							1" Ice	4.4200	4.4200	0.28
							2" Ice	5.7600	5.7600	0.40
*********										
APX16DWV-16DWVS-C	A	From Leg	4.0000	0.00	0.00	100.0000	No Ice	6.2600	1.5000	0.04
			0.00				1/2" Ice	6.8500	2.0000	0.07
			1.00				1" Ice	7.4600	2.5200	0.11
							2" Ice	8.7200	3.6200	0.20
APX16DWV-16DWVS-C	B	From Leg	4.0000	0.00	0.00	100.0000	No Ice	6.2600	1.5000	0.04
			0.00				1/2" Ice	6.8500	2.0000	0.07
			1.00				1" Ice	7.4600	2.5200	0.11
							2" Ice	8.7200	3.6200	0.20
APX16DWV-16DWVS-C	C	From Leg	4.0000	0.00	0.00	100.0000	No Ice	6.2600	1.5000	0.04
			0.00				1/2" Ice	6.8500	2.0000	0.07
			1.00				1" Ice	7.4600	2.5200	0.11
							2" Ice	8.7200	3.6200	0.20
APXVAARR24_43-U-NA20	A	From Leg	4.0000	0.00	0.00	100.0000	No Ice	14.6700	5.3200	0.15
			0.00				1/2" Ice	15.4300	5.9900	0.27
			1.00				1" Ice	16.2100	6.6800	0.39
							2" Ice	17.8100	8.0800	0.66
APXVAARR24_43-U-NA20	B	From Leg	4.0000	0.00	0.00	100.0000	No Ice	14.6700	5.3200	0.15
			0.00				1/2" Ice	15.4300	5.9900	0.27
			1.00				1" Ice	16.2100	6.6800	0.39
							2" Ice	17.8100	8.0800	0.66
APXVAARR24_43-U-NA20	C	From Leg	4.0000	0.00	0.00	100.0000	No Ice	14.6700	5.3200	0.15
			0.00				1/2" Ice	15.4300	5.9900	0.27
			1.00				1" Ice	16.2100	6.6800	0.39
							2" Ice	17.8100	8.0800	0.66
ETT19V2S12UB	A	From Leg	4.0000	0.00	0.00	100.0000	No Ice	0.5718	0.2761	0.01
			0.00				1/2" Ice	0.6683	0.3495	0.02
			1.00				1" Ice	0.7722	0.4323	0.03
							2" Ice	1.0022	0.6201	0.04
ETT19V2S12UB	B	From Leg	4.0000	0.00	0.00	100.0000	No Ice	0.5718	0.2761	0.01
			0.00				1/2" Ice	0.6683	0.3495	0.02
			1.00				1" Ice	0.7722	0.4323	0.03
							2" Ice	1.0022	0.6201	0.04
ETT19V2S12UB	C	From Leg	4.0000	0.00	0.00	100.0000	No Ice	0.5718	0.2761	0.01
			0.00				1/2" Ice	0.6683	0.3495	0.02
			1.00				1" Ice	0.7722	0.4323	0.03
							2" Ice	1.0022	0.6201	0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
KRY 112 144/1	A	From Leg	4.0000 0.00 1.00	0.00	100.0000	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 1.00	0.00	100.0000	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 1.00	0.00	100.0000	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 1.00	0.00	100.0000	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 1.00	0.00	100.0000	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 1.00	0.00	100.0000	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
Platform Mount [LP 301-1]	C	None		0.00	100.0000	No Ice 1/2" Ice 1" Ice 2" Ice	23.8100 30.2400 36.3300 48.0500	23.8100 30.2400 36.3300 48.0500	1.59 2.10 2.73 4.34
Miscellaneous [NA 509-3]	C	None		0.00	100.0000	No Ice 1/2" Ice 1" Ice 2" Ice	11.8400 16.9600 22.0800 32.3200	11.8400 16.9600 22.0800 32.3200	0.28 0.30 0.32 0.36
*****									
BXA-70063-4CF-EDIN-X w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.00	93.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.8400 5.3500 5.8800 6.9900	3.5400 4.0300 4.5300 5.5900	0.04 0.08 0.12 0.24
BXA-70063-4CF-EDIN-X w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.00	93.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.8400 5.3500 5.8800 6.9900	3.5400 4.0300 4.5300 5.5900	0.04 0.08 0.12 0.24
BXA-70063-4CF-EDIN-X w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.00	93.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.8400 5.3500 5.8800 6.9900	3.5400 4.0300 4.5300 5.5900	0.04 0.08 0.12 0.24
LNX-6514DS-A1M w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.00	93.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.0900 4.4900 4.8900 5.7100	3.3000 3.6800 4.0600 4.8700	0.06 0.13 0.20 0.38
LNX-6514DS-A1M w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.00	93.0000	No Ice 1/2" Ice	4.0900 4.4900 4.8900	3.3000 3.6800 4.0600	0.06 0.13 0.20

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	5.7100	4.8700	0.38
						2" Ice			
LNX-6514DS-A1M w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.00	93.0000	No Ice	4.0900	3.3000	0.06
						1/2" Ice	4.4900	3.6800	0.13
						1" Ice	4.8900	4.0600	0.20
						2" Ice	5.7100	4.8700	0.38
BXA-171063-8BF-2 w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.00	93.0000	No Ice	3.1789	3.3530	0.03
						1/2" Ice	3.5550	3.9709	0.06
						1" Ice	3.9298	4.5951	0.10
						2" Ice	4.6923	5.8933	0.19
BXA-171063-8BF-2 w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.00	93.0000	No Ice	3.1789	3.3530	0.03
						1/2" Ice	3.5550	3.9709	0.06
						1" Ice	3.9298	4.5951	0.10
						2" Ice	4.6923	5.8933	0.19
BXA-171063-12CF-EDIN-X w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.00	93.0000	No Ice	5.0290	5.2887	0.04
						1/2" Ice	5.5830	6.4594	0.09
						1" Ice	6.1033	7.3479	0.14
						2" Ice	7.1662	9.1478	0.27
BXA-171063-12CF-EDIN-X w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.00	93.0000	No Ice	5.0290	5.2887	0.04
						1/2" Ice	5.5830	6.4594	0.09
						1" Ice	6.1033	7.3479	0.14
						2" Ice	7.1662	9.1478	0.27
BXA-171063-12CF-EDIN-X w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.00	93.0000	No Ice	5.0290	5.2887	0.04
						1/2" Ice	5.5830	6.4594	0.09
						1" Ice	6.1033	7.3479	0.14
						2" Ice	7.1662	9.1478	0.27
BXA-171085-8BF-EDIN-0 w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.00	93.0000	No Ice	3.1789	3.3530	0.03
						1/2" Ice	3.5550	3.9709	0.06
						1" Ice	3.9298	4.5951	0.10
						2" Ice	4.6923	5.8933	0.19
RRH2X40-AWS	A	From Leg	4.0000 0.00 1.00	0.00	93.0000	No Ice	2.1614	1.4199	0.04
						1/2" Ice	2.3597	1.5903	0.06
						1" Ice	2.5655	1.7676	0.08
						2" Ice	2.9991	2.1432	0.13
RRH2X40-AWS	B	From Leg	4.0000 0.00 1.00	0.00	93.0000	No Ice	2.1614	1.4199	0.04
						1/2" Ice	2.3597	1.5903	0.06
						1" Ice	2.5655	1.7676	0.08
						2" Ice	2.9991	2.1432	0.13
RRH2X40-AWS	C	From Leg	4.0000 0.00 1.00	0.00	93.0000	No Ice	2.1614	1.4199	0.04
						1/2" Ice	2.3597	1.5903	0.06
						1" Ice	2.5655	1.7676	0.08
						2" Ice	2.9991	2.1432	0.13
(2) FD9R6004/2C-3L	A	From Leg	4.0000 0.00 1.00	0.00	93.0000	No Ice	0.3142	0.0762	0.00
						1/2" Ice	0.3862	0.1189	0.01
						1" Ice	0.4656	0.1685	0.01
						2" Ice	0.6468	0.2940	0.02
(2) FD9R6004/2C-3L	B	From Leg	4.0000 0.00 1.00	0.00	93.0000	No Ice	0.3142	0.0762	0.00
						1/2" Ice	0.3862	0.1189	0.01
						1" Ice	0.4656	0.1685	0.01
						2" Ice	0.6468	0.2940	0.02
(2) FD9R6004/2C-3L	C	From Leg	4.0000 0.00 1.00	0.00	93.0000	No Ice	0.3142	0.0762	0.00
						1/2" Ice	0.3862	0.1189	0.01
						1" Ice	0.4656	0.1685	0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	0.6468	0.2940	0.02
						2" Ice			
DB-T1-6Z-8AB-0Z	A	From Leg	4.0000	0.00	93.0000	No Ice	4.8000	2.0000	0.04
			0.00			1/2" Ice	5.0704	2.1926	0.08
			1.00			1" Ice	5.3481	2.3926	0.12
						2" Ice	5.9259	2.8148	0.21
Platform Mount [LP 1201-1]	C	None		0.00	93.0000	No Ice	18.3800	18.3800	2.10
						1/2" Ice	22.1100	22.1100	2.65
						1" Ice	25.8700	25.8700	3.26
						2" Ice	33.4700	33.4700	4.66
****									
APXV18-206517S-C	A	From Face	1.0000	0.00	75.0000	No Ice	3.8300	1.8100	0.03
			0.00			1/2" Ice	4.4600	2.4100	0.05
			0.00			1" Ice	5.1100	3.0300	0.09
						2" Ice	6.4400	4.3100	0.17
APXV18-206517S-C	B	From Face	1.0000	0.00	75.0000	No Ice	3.8300	1.8100	0.03
			0.00			1/2" Ice	4.4600	2.4100	0.05
			0.00			1" Ice	5.1100	3.0300	0.09
						2" Ice	6.4400	4.3100	0.17
APXV18-206517S-C	C	From Face	1.0000	0.00	75.0000	No Ice	3.8300	1.8100	0.03
			0.00			1/2" Ice	4.4600	2.4100	0.05
			0.00			1" Ice	5.1100	3.0300	0.09
						2" Ice	6.4400	4.3100	0.17
Pipe Mount [PM 601-3]	C	None		0.00	75.0000	No Ice	3.1700	3.1700	0.20
						1/2" Ice	3.7900	3.7900	0.23
						1" Ice	4.4200	4.4200	0.28
						2" Ice	5.7600	5.7600	0.40
****									
KS24019-L112A	A	From Face	2.0000	0.00	50.0000	No Ice	0.1407	0.1407	0.01
			0.00			1/2" Ice	0.1979	0.1979	0.01
			1.00			1" Ice	0.2621	0.2621	0.01
						2" Ice	0.4148	0.4148	0.02
Side Arm Mount [SO 702-1]	A	From Leg	1.0000	0.00	50.0000	No Ice	0.6200	1.4900	0.03
			0.00			1/2" Ice	0.7400	2.0700	0.04
			0.00			1" Ice	0.8900	2.5400	0.06
						2" Ice	1.2500	3.5500	0.12
****									

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 133.0000-128.0000	130.5000	1.339	47.723	5.833	A	0.000	5.833	5.833	100.00	0.000	0.000
					B	0.000	5.833		100.00	0.000	0.000
					C	0.000	5.833		100.00	0.000	0.000
L2 128.0000-123.5000	125.7500	1.328	47.352	5.250	A	0.000	5.250	5.250	100.00	0.000	0.000
					B	0.000	5.250		100.00	0.000	0.000
					C	0.000	5.250		100.00	0.000	0.000
L3 123.5000-123.0000	123.2315	1.323	47.150	0.750	A	0.000	0.750	0.750	100.00	0.000	0.000
					B	0.000	0.750		100.00	0.000	0.000
					C	0.000	0.750		100.00	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
L4 123.0000-118.0000	120.4860	1.316	46.927	9.455	A	0.000	9.455	9.455	100.00	0.000	0.000
					B	0.000	9.455		100.00	0.308	0.000
					C	0.000	9.455		100.00	0.000	0.000
L5 118.0000-113.0000	115.4865	1.305	46.510	9.772	A	0.000	9.772	9.772	100.00	0.000	0.000
					B	0.000	9.772		100.00	0.770	0.000
					C	0.000	9.772		100.00	0.000	0.000
L6 113.0000-108.0000	110.4869	1.292	46.079	10.090	A	0.000	10.090	10.090	100.00	0.000	0.000
					B	0.000	10.090		100.00	0.770	0.000
					C	0.000	10.090		100.00	0.000	0.000
L7 108.0000-103.0000	105.4873	1.28	45.632	10.407	A	0.000	10.407	10.407	100.00	0.000	0.000
					B	0.000	10.407		100.00	0.770	0.000
					C	0.000	10.407		100.00	0.000	0.000
L8 103.0000-98.0000	100.4877	1.267	45.168	10.724	A	0.000	10.724	10.724	100.00	0.000	0.000
					B	0.000	10.724		100.00	0.770	0.000
					C	0.000	10.724		100.00	0.000	0.000
L9 98.0000-93.0000	95.4880	1.253	44.685	11.042	A	0.000	11.042	11.042	100.00	0.000	0.000
					B	0.000	11.042		100.00	0.770	0.000
					C	0.000	11.042		100.00	0.000	0.000
L10 93.0000-88.0000	90.4884	1.239	44.182	11.359	A	0.000	11.359	11.359	100.00	0.000	0.000
					B	0.000	11.359		100.00	0.770	0.000
					C	0.000	11.359		100.00	0.000	0.000
L11 88.0000-82.2500	85.1101	1.223	43.616	13.455	A	0.000	13.455	13.455	100.00	0.000	0.000
					B	0.000	13.455		100.00	0.885	0.000
					C	0.000	13.455		100.00	0.000	0.000
L12 82.2500-80.7500	81.4990	1.212	43.220	3.530	A	0.000	3.530	3.530	100.00	0.000	0.000
					B	0.000	3.530		100.00	0.231	0.000
					C	0.000	3.530		100.00	0.000	0.000
L13 80.7500-75.7500	78.2390	1.202	42.850	11.974	A	0.000	11.974	11.974	100.00	0.000	0.000
					B	0.000	11.974		100.00	0.770	0.000
					C	0.000	11.974		100.00	0.000	0.000
L14 75.7500-70.7500	73.2393	1.185	42.258	12.292	A	0.000	12.292	12.292	100.00	1.708	0.000
					B	0.000	12.292		100.00	0.770	0.000
					C	0.000	12.292		100.00	0.000	0.000
L15 70.7500-65.7500	68.2395	1.168	41.634	12.609	A	0.000	12.609	12.609	100.00	2.010	0.000
					B	0.000	12.609		100.00	0.770	0.000
					C	0.000	12.609		100.00	0.000	0.000
L16 65.7500-60.7500	63.2398	1.149	40.972	12.926	A	0.000	12.926	12.926	100.00	2.010	0.000
					B	0.000	12.926		100.00	0.770	0.000
					C	0.000	12.926		100.00	0.000	0.000
L17 60.7500-57.0000	58.8694	1.132	40.359	9.903	A	0.000	9.903	9.903	100.00	1.549	0.000
					B	0.000	9.903		100.00	0.619	0.000
					C	0.000	9.903		100.00	0.042	0.000
L18 57.0000-56.7500	56.8750	1.124	40.067	0.666	A	0.000	0.666	0.666	100.00	0.105	0.000
					B	0.000	0.666		100.00	0.043	0.000
					C	0.000	0.666		100.00	0.004	0.000
L19 56.7500-51.7500	54.2402	1.113	39.669	13.484	A	0.000	13.484	13.484	100.00	2.093	0.000
					B	0.000	13.484		100.00	0.853	0.000
					C	0.000	13.484		100.00	0.083	0.000
L20 51.7500-46.7500	49.2404	1.09	38.870	13.802	A	0.000	13.802	13.802	100.00	2.093	0.000
					B	0.000	13.802		100.00	1.056	0.000
					C	0.000	13.802		100.00	0.083	0.000
L21 46.7500-40.7500	43.7366	1.063	37.912	16.982	A	0.000	16.982	16.982	100.00	2.512	0.000
					B	0.000	16.982		100.00	1.399	0.000
					C	0.000	16.982		100.00	0.100	0.000
L22 40.7500-40.0000	40.3748	1.046	37.279	2.123	A	0.000	2.123	2.123	100.00	0.314	0.000
					B	0.000	2.123		100.00	0.175	0.000
					C	0.000	2.123		100.00	0.013	0.000
L23 40.0000-35.0000	37.4908	1.029	36.702	14.335	A	0.000	14.335	14.335	100.00	2.093	0.000
					B	0.000	14.335		100.00	1.166	0.000
					C	0.000	14.335		100.00	0.083	0.000
L24 35.0000-30.0000	32.4910	0.999	35.612	14.653	A	0.000	14.653	14.653	100.00	2.093	0.000
					B	0.000	14.653		100.00	1.166	0.000
					C	0.000	14.653		100.00	0.083	0.000
L25 30.0000-26.2500	28.1200	0.969	34.545	11.198	A	0.000	11.198	11.198	100.00	1.762	0.000
					B	0.000	11.198		100.00	1.066	0.000
					C	0.000	11.198		100.00	0.254	0.000
L26 26.2500-26.0000	26.1250	0.954	34.014	0.753	A	0.000	0.753	0.753	100.00	0.118	0.000
					B	0.000	0.753		100.00	0.072	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
					C	0.000	0.753		100.00	0.018	0.000
L27 26.0000-21.0000	23.4913	0.933	33.262	15.222	A	0.000	15.222	15.222	100.00	2.368	0.000
					B	0.000	15.222		100.00	1.440	0.000
					C	0.000	15.222		100.00	0.358	0.000
L28 21.0000-16.0000	18.4915	0.887	31.627	15.539	A	0.000	15.539	15.539	100.00	2.368	0.000
					B	0.000	15.539		100.00	1.440	0.000
					C	0.000	15.539		100.00	0.358	0.000
L29 16.0000-11.0000	13.4917	0.85	30.304	15.857	A	0.000	15.857	15.857	100.00	2.229	0.000
					B	0.000	15.857		100.00	1.301	0.000
					C	0.000	15.857		100.00	0.219	0.000
L30 11.0000-6.0000	8.4918	0.85	30.304	16.175	A	0.000	16.175	16.175	100.00	2.093	0.000
					B	0.000	16.175		100.00	1.166	0.000
					C	0.000	16.175		100.00	0.083	0.000
L31 6.0000-1.0000	3.4920	0.85	30.304	16.493	A	0.000	16.493	16.493	100.00	2.093	0.000
					B	0.000	16.493		100.00	1.166	0.000
					C	0.000	16.493		100.00	0.083	0.000
L32 1.0000-0.0000	0.4997	0.85	30.304	3.337	A	0.000	3.337	3.337	100.00	0.419	0.000
					B	0.000	3.337		100.00	0.233	0.000
					C	0.000	3.337		100.00	0.017	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 133.0000-128.0000	130.5000	1.339	7.636	1.4629	7.052	A	0.000	7.052	7.052	100.00	0.000	0.000
						B	0.000	7.052		100.00	0.000	0.000
						C	0.000	7.052		100.00	0.000	0.000
L2 128.0000-123.5000	125.7500	1.328	7.576	1.4575	6.343	A	0.000	6.343	6.343	100.00	0.000	0.000
						B	0.000	6.343		100.00	0.000	0.000
						C	0.000	6.343		100.00	0.000	0.000
L3 123.5000-123.0000	123.2315	1.323	7.544	1.4546	0.871	A	0.000	0.871	0.871	100.00	0.000	0.000
						B	0.000	0.871		100.00	0.000	0.000
						C	0.000	0.871		100.00	0.000	0.000
L4 123.0000-118.0000	120.4860	1.316	7.508	1.4513	10.664	A	0.000	10.664	10.664	100.00	0.000	0.000
						B	0.000	10.664		100.00	0.889	0.000
						C	0.000	10.664		100.00	0.000	0.000
L5 118.0000-113.0000	115.4865	1.305	7.442	1.4451	10.976	A	0.000	10.976	10.976	100.00	0.000	0.000
						B	0.000	10.976		100.00	2.215	0.000
						C	0.000	10.976		100.00	0.000	0.000
L6 113.0000-108.0000	110.4869	1.292	7.373	1.4388	11.288	A	0.000	11.288	11.288	100.00	0.000	0.000
						B	0.000	11.288		100.00	2.209	0.000
						C	0.000	11.288		100.00	0.000	0.000
L7 108.0000-103.0000	105.4873	1.28	7.301	1.4321	11.600	A	0.000	11.600	11.600	100.00	0.000	0.000
						B	0.000	11.600		100.00	2.202	0.000
						C	0.000	11.600		100.00	0.000	0.000
L8 103.0000-98.0000	100.4877	1.267	7.227	1.4252	11.912	A	0.000	11.912	11.912	100.00	0.000	0.000
						B	0.000	11.912		100.00	2.195	0.000
						C	0.000	11.912		100.00	0.000	0.000
L9 98.0000-93.0000	95.4880	1.253	7.150	1.4179	12.223	A	0.000	12.223	12.223	100.00	0.000	0.000
						B	0.000	12.223		100.00	2.188	0.000
						C	0.000	12.223		100.00	0.000	0.000
L10 93.0000-88.0000	90.4884	1.239	7.069	1.4103	12.534	A	0.000	12.534	12.534	100.00	0.000	0.000
						B	0.000	12.534		100.00	2.180	0.000
						C	0.000	12.534		100.00	0.000	0.000
L11 88.0000-82.2500	85.1101	1.223	6.979	1.4017	14.799	A	0.000	14.799	14.799	100.00	0.000	0.000
						B	0.000	14.799		100.00	2.497	0.000
						C	0.000	14.799		100.00	0.000	0.000
L12 82.2500-80.7500	81.4990	1.212	6.915	1.3956	3.881	A	0.000	3.881	3.881	100.00	0.000	0.000
						B	0.000	3.881		100.00	0.652	0.000
						C	0.000	3.881		100.00	0.000	0.000
L13 80.7500-75.7500	78.2390	1.202	6.856	1.3900	13.132	A	0.000	13.132	13.132	100.00	0.000	0.000
						B	0.000	13.132		100.00	2.160	0.000
						C	0.000	13.132		100.00	0.000	0.000

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
L14 75.7500-70.7500	73.2393	1.185	6.761	1.3808	13.442	A	0.000	13.442	13.442	100.00	3.603	0.000
						B	0.000	13.442		100.00	2.151	0.000
						C	0.000	13.442		100.00	0.000	0.000
L15 70.7500-65.7500	68.2395	1.168	6.661	1.3711	13.752	A	0.000	13.752	13.752	100.00	4.226	0.000
						B	0.000	13.752		100.00	2.141	0.000
						C	0.000	13.752		100.00	0.000	0.000
L16 65.7500-60.7500	63.2398	1.149	6.556	1.3607	14.060	A	0.000	14.060	14.060	100.00	4.213	0.000
						B	0.000	14.060		100.00	2.131	0.000
						C	0.000	14.060		100.00	0.000	0.000
L17 60.7500-57.0000	58.8694	1.132	6.457	1.3510	10.747	A	0.000	10.747	10.747	100.00	3.868	0.000
						B	0.000	10.747		100.00	2.308	0.000
						C	0.000	10.747		100.00	0.717	0.000
L18 57.0000-56.7500	56.8750	1.124	6.411	1.3463	0.722	A	0.000	0.722	0.722	100.00	0.281	0.000
						B	0.000	0.722		100.00	0.177	0.000
						C	0.000	0.722		100.00	0.071	0.000
L19 56.7500-51.7500	54.2402	1.113	6.347	1.3400	14.601	A	0.000	14.601	14.601	100.00	5.611	0.000
						B	0.000	14.601		100.00	3.533	0.000
						C	0.000	14.601		100.00	1.423	0.000
L20 51.7500-46.7500	49.2404	1.09	6.219	1.3271	14.908	A	0.000	14.908	14.908	100.00	5.582	0.000
						B	0.000	14.908		100.00	4.573	0.000
						C	0.000	14.908		100.00	1.410	0.000
L21 46.7500-40.7500	43.7366	1.063	6.066	1.3114	18.293	A	0.000	18.293	18.293	100.00	6.656	0.000
						B	0.000	18.293		100.00	6.120	0.000
						C	0.000	18.293		100.00	1.674	0.000
L22 40.7500-40.0000	40.3748	1.046	5.965	1.3010	2.287	A	0.000	2.287	2.287	100.00	0.832	0.000
						B	0.000	2.287		100.00	0.765	0.000
						C	0.000	2.287		100.00	0.209	0.000
L23 40.0000-35.0000	37.4908	1.029	5.872	1.2914	15.412	A	0.000	15.412	15.412	100.00	5.501	0.000
						B	0.000	15.412		100.00	5.040	0.000
						C	0.000	15.412		100.00	1.375	0.000
L24 35.0000-30.0000	32.4910	0.999	5.698	1.2730	15.714	A	0.000	15.714	15.714	100.00	5.460	0.000
						B	0.000	15.714		100.00	4.985	0.000
						C	0.000	15.714		100.00	1.356	0.000
L25 30.0000-26.2500	28.1200	0.969	5.527	1.2548	11.982	A	0.000	11.982	11.982	100.00	4.256	0.000
						B	0.000	11.982		100.00	3.890	0.000
						C	0.000	11.982		100.00	1.196	0.000
L26 26.2500-26.0000	26.1250	0.954	5.442	1.2456	0.805	A	0.000	0.805	0.805	100.00	0.284	0.000
						B	0.000	0.805		100.00	0.259	0.000
						C	0.000	0.805		100.00	0.080	0.000
L27 26.0000-21.0000	23.4913	0.933	5.322	1.2324	16.249	A	0.000	16.249	16.249	100.00	5.643	0.000
						B	0.000	16.249		100.00	5.137	0.000
						C	0.000	16.249		100.00	1.590	0.000
L28 21.0000-16.0000	18.4915	0.887	5.060	1.2033	16.542	A	0.000	16.542	16.542	100.00	5.577	0.000
						B	0.000	16.542		100.00	5.050	0.000
						C	0.000	16.542		100.00	1.561	0.000
L29 16.0000-11.0000	13.4917	0.85	4.849	1.1659	16.829	A	0.000	16.829	16.829	100.00	5.354	0.000
						B	0.000	16.829		100.00	4.799	0.000
						C	0.000	16.829		100.00	1.385	0.000
L30 11.0000-6.0000	8.4918	0.85	4.849	1.1132	17.102	A	0.000	17.102	17.102	100.00	5.100	0.000
						B	0.000	17.102		100.00	4.505	0.000
						C	0.000	17.102		100.00	1.196	0.000
L31 6.0000-1.0000	3.4920	0.85	4.849	1.0185	17.341	A	0.000	17.341	17.341	100.00	4.887	0.000
						B	0.000	17.341		100.00	4.221	0.000
						C	0.000	17.341		100.00	1.102	0.000
L32 1.0000-0.0000	0.4997	0.85	4.849	0.8385	3.476	A	0.000	3.476	3.476	100.00	0.897	0.000
						B	0.000	3.476		100.00	0.736	0.000
						C	0.000	3.476		100.00	0.184	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 133.0000-128.0000	130.5000	1.339	10.356	5.833	A	0.000	5.833	5.833	100.00	0.000	0.000
					B	0.000	5.833		100.00	0.000	0.000
					C	0.000	5.833		100.00	0.000	0.000
L2 128.0000-123.5000	125.7500	1.328	10.275	5.250	A	0.000	5.250	5.250	100.00	0.000	0.000
					B	0.000	5.250		100.00	0.000	0.000
					C	0.000	5.250		100.00	0.000	0.000
L3 123.5000-123.0000	123.2315	1.323	10.231	0.750	A	0.000	0.750	0.750	100.00	0.000	0.000
					B	0.000	0.750		100.00	0.000	0.000
					C	0.000	0.750		100.00	0.000	0.000
L4 123.0000-118.0000	120.4860	1.316	10.183	9.455	A	0.000	9.455	9.455	100.00	0.000	0.000
					B	0.000	9.455		100.00	0.308	0.000
					C	0.000	9.455		100.00	0.000	0.000
L5 118.0000-113.0000	115.4865	1.305	10.093	9.772	A	0.000	9.772	9.772	100.00	0.000	0.000
					B	0.000	9.772		100.00	0.770	0.000
					C	0.000	9.772		100.00	0.000	0.000
L6 113.0000-108.0000	110.4869	1.292	9.999	10.090	A	0.000	10.090	10.090	100.00	0.000	0.000
					B	0.000	10.090		100.00	0.770	0.000
					C	0.000	10.090		100.00	0.000	0.000
L7 108.0000-103.0000	105.4873	1.28	9.902	10.407	A	0.000	10.407	10.407	100.00	0.000	0.000
					B	0.000	10.407		100.00	0.770	0.000
					C	0.000	10.407		100.00	0.000	0.000
L8 103.0000-98.0000	100.4877	1.267	9.801	10.724	A	0.000	10.724	10.724	100.00	0.000	0.000
					B	0.000	10.724		100.00	0.770	0.000
					C	0.000	10.724		100.00	0.000	0.000
L9 98.0000-93.0000	95.4880	1.253	9.697	11.042	A	0.000	11.042	11.042	100.00	0.000	0.000
					B	0.000	11.042		100.00	0.770	0.000
					C	0.000	11.042		100.00	0.000	0.000
L10 93.0000-88.0000	90.4884	1.239	9.587	11.359	A	0.000	11.359	11.359	100.00	0.000	0.000
					B	0.000	11.359		100.00	0.770	0.000
					C	0.000	11.359		100.00	0.000	0.000
L11 88.0000-82.2500	85.1101	1.223	9.465	13.455	A	0.000	13.455	13.455	100.00	0.000	0.000
					B	0.000	13.455		100.00	0.885	0.000
					C	0.000	13.455		100.00	0.000	0.000
L12 82.2500-80.7500	81.4990	1.212	9.379	3.530	A	0.000	3.530	3.530	100.00	0.000	0.000
					B	0.000	3.530		100.00	0.231	0.000
					C	0.000	3.530		100.00	0.000	0.000
L13 80.7500-75.7500	78.2390	1.202	9.298	11.974	A	0.000	11.974	11.974	100.00	0.000	0.000
					B	0.000	11.974		100.00	0.770	0.000
					C	0.000	11.974		100.00	0.000	0.000
L14 75.7500-70.7500	73.2393	1.185	9.170	12.292	A	0.000	12.292	12.292	100.00	1.708	0.000
					B	0.000	12.292		100.00	0.770	0.000
					C	0.000	12.292		100.00	0.000	0.000
L15 70.7500-65.7500	68.2395	1.168	9.034	12.609	A	0.000	12.609	12.609	100.00	2.010	0.000
					B	0.000	12.609		100.00	0.770	0.000
					C	0.000	12.609		100.00	0.000	0.000
L16 65.7500-60.7500	63.2398	1.149	8.891	12.926	A	0.000	12.926	12.926	100.00	2.010	0.000
					B	0.000	12.926		100.00	0.770	0.000
					C	0.000	12.926		100.00	0.000	0.000
L17 60.7500-57.0000	58.8694	1.132	8.758	9.903	A	0.000	9.903	9.903	100.00	1.549	0.000
					B	0.000	9.903		100.00	0.619	0.000
					C	0.000	9.903		100.00	0.042	0.000
L18 57.0000-56.7500	56.8750	1.124	8.694	0.666	A	0.000	0.666	0.666	100.00	0.105	0.000
					B	0.000	0.666		100.00	0.043	0.000
					C	0.000	0.666		100.00	0.004	0.000
L19 56.7500-51.7500	54.2402	1.113	8.608	13.484	A	0.000	13.484	13.484	100.00	2.093	0.000
					B	0.000	13.484		100.00	0.853	0.000
					C	0.000	13.484		100.00	0.083	0.000
L20 51.7500-46.7500	49.2404	1.09	8.435	13.802	A	0.000	13.802	13.802	100.00	2.093	0.000
					B	0.000	13.802		100.00	1.056	0.000
					C	0.000	13.802		100.00	0.083	0.000
L21 46.7500-40.7500	43.7366	1.063	8.227	16.982	A	0.000	16.982	16.982	100.00	2.512	0.000
					B	0.000	16.982		100.00	1.399	0.000
					C	0.000	16.982		100.00	0.100	0.000
L22 40.7500-40.0000	40.3748	1.046	8.089	2.123	A	0.000	2.123	2.123	100.00	0.314	0.000
					B	0.000	2.123		100.00	0.175	0.000
					C	0.000	2.123		100.00	0.013	0.000
L23 40.0000-35.0000	37.4908	1.029	7.964	14.335	A	0.000	14.335	14.335	100.00	2.093	0.000
					B	0.000	14.335		100.00	1.166	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
					C	0.000	14.335		100.00	0.083	0.000
L24 35.0000-30.0000	32.4910	0.999	7.728	14.653	A	0.000	14.653	14.653	100.00	2.093	0.000
					B	0.000	14.653		100.00	1.166	0.000
					C	0.000	14.653		100.00	0.083	0.000
L25 30.0000-26.2500	28.1200	0.969	7.496	11.198	A	0.000	11.198	11.198	100.00	1.762	0.000
					B	0.000	11.198		100.00	1.066	0.000
					C	0.000	11.198		100.00	0.254	0.000
L26 26.2500-26.0000	26.1250	0.954	7.381	0.753	A	0.000	0.753	0.753	100.00	0.118	0.000
					B	0.000	0.753		100.00	0.072	0.000
					C	0.000	0.753		100.00	0.018	0.000
L27 26.0000-21.0000	23.4913	0.933	7.218	15.222	A	0.000	15.222	15.222	100.00	2.368	0.000
					B	0.000	15.222		100.00	1.440	0.000
					C	0.000	15.222		100.00	0.358	0.000
L28 21.0000-16.0000	18.4915	0.887	6.863	15.539	A	0.000	15.539	15.539	100.00	2.368	0.000
					B	0.000	15.539		100.00	1.440	0.000
					C	0.000	15.539		100.00	0.358	0.000
L29 16.0000-11.0000	13.4917	0.85	6.576	15.857	A	0.000	15.857	15.857	100.00	2.229	0.000
					B	0.000	15.857		100.00	1.301	0.000
					C	0.000	15.857		100.00	0.219	0.000
L30 11.0000-6.0000	8.4918	0.85	6.576	16.175	A	0.000	16.175	16.175	100.00	2.093	0.000
					B	0.000	16.175		100.00	1.166	0.000
					C	0.000	16.175		100.00	0.083	0.000
L31 6.0000-1.0000	3.4920	0.85	6.576	16.493	A	0.000	16.493	16.493	100.00	2.093	0.000
					B	0.000	16.493		100.00	1.166	0.000
					C	0.000	16.493		100.00	0.083	0.000
L32 1.0000-0.0000	0.4997	0.85	6.576	3.337	A	0.000	3.337	3.337	100.00	0.419	0.000
					B	0.000	3.337		100.00	0.233	0.000
					C	0.000	3.337		100.00	0.017	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
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice

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

Maximum 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	133 - 128	Pole	Max Tension	27	0.00	-0.00	-0.00
			Max. Compression	26	-3.87	0.16	0.11
			Max. Mx	20	-1.45	15.25	0.03
			Max. My	2	-1.44	0.04	15.25
			Max. Vy	20	-3.14	15.25	0.03
			Max. Vx	2	-3.15	0.04	15.25
			Max. Torque	16			-0.10
L2	128 - 123.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-4.30	0.16	0.12
			Max. Mx	20	-1.74	29.84	0.04
			Max. My	2	-1.73	0.04	29.87
			Max. Vy	20	-3.34	29.84	0.04
			Max. Vx	2	-3.35	0.04	29.87
			Max. Torque	16			-0.10
L3	123.5 - 123	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-4.36	0.16	0.12
			Max. Mx	20	-1.79	31.52	0.04
			Max. My	2	-1.77	0.04	31.55
			Max. Vy	20	-3.37	31.52	0.04
			Max. Vx	2	-3.37	0.04	31.55
			Max. Torque	16			-0.10
L4	123 - 118	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-11.73	0.14	2.75
			Max. Mx	20	-5.25	55.73	1.18
			Max. My	2	-5.19	0.04	57.99
			Max. Vy	20	-6.39	55.73	1.18
			Max. Vx	2	-6.71	0.04	57.99
			Max. Torque	8			1.12
L5	118 - 113	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-13.77	0.11	2.82
			Max. Mx	20	-6.21	93.39	1.21
			Max. My	2	-6.15	0.03	97.31
			Max. Vy	20	-7.73	93.39	1.21
			Max. Vx	2	-8.06	0.03	97.31
			Max. Torque	8			1.12
L6	113 - 108	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-14.37	0.08	2.89
			Max. Mx	20	-6.54	133.01	1.23
			Max. My	2	-6.48	0.03	138.59
			Max. Vy	20	-8.12	133.01	1.23
			Max. Vx	2	-8.45	0.03	138.59
			Max. Torque	8			1.12
L7	108 - 103	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-14.99	0.05	2.96
			Max. Mx	20	-6.89	174.59	1.26
			Max. My	2	-6.83	0.02	181.83
			Max. Vy	20	-8.52	174.59	1.26

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	-8.85	0.02	181.83
			Max. Torque	8			1.12
L8	103 - 98	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-22.45	0.02	3.03
			Max. Mx	20	-10.15	228.03	1.28
			Max. My	2	-10.07	0.01	236.96
			Max. Vy	20	-12.91	228.03	1.28
			Max. Vx	2	-13.24	0.01	236.96
			Max. Torque	8			1.12
L9	98 - 93	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-23.17	-0.02	3.11
			Max. Mx	20	-10.62	293.50	1.31
			Max. My	2	-10.55	0.01	304.14
			Max. Vy	8	13.29	-293.48	1.31
			Max. Vx	2	-13.63	0.01	304.14
			Max. Torque	8			1.12
L10	93 - 88	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-31.26	-0.05	4.06
			Max. Mx	20	-14.23	380.41	1.55
			Max. My	2	-14.15	0.00	393.69
			Max. Vy	8	17.13	-380.40	1.55
			Max. Vx	2	-17.58	0.00	393.69
			Max. Torque	8			1.54
L11	88 - 82.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-31.62	-0.07	4.10
			Max. Mx	20	-14.51	419.10	1.56
			Max. My	2	-14.43	-0.00	433.41
			Max. Vy	8	17.29	-419.10	1.56
			Max. Vx	2	-17.74	-0.00	433.41
			Max. Torque	8			1.54
L12	82.25 - 80.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.96	-0.10	4.18
			Max. Mx	8	-15.41	-506.61	1.59
			Max. My	2	-15.34	-0.01	523.19
			Max. Vy	8	17.72	-506.61	1.59
			Max. Vx	2	-18.17	-0.01	523.19
			Max. Torque	8			1.54
L13	80.75 - 75.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.90	-0.14	4.26
			Max. Mx	8	-16.15	-596.06	1.61
			Max. My	2	-16.08	-0.02	614.91
			Max. Vy	8	18.08	-596.06	1.61
			Max. Vx	2	-18.54	-0.02	614.91
			Max. Torque	8			1.54
L14	75.75 - 70.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.65	-0.13	4.36
			Max. Mx	8	-17.23	-689.38	1.64
			Max. My	2	-17.16	-0.02	710.51
			Max. Vy	8	18.93	-689.38	1.64
			Max. Vx	2	-19.38	-0.02	710.51
			Max. Torque	8			1.54
L15	70.75 - 65.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-36.68	-0.10	4.46
			Max. Mx	8	-18.04	-784.82	1.67
			Max. My	2	-17.98	-0.01	808.22
			Max. Vy	20	-19.27	784.79	1.67
			Max. Vx	2	-19.72	-0.01	808.22
			Max. Torque	8			1.54
L16	65.75 - 60.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.74	-0.08	4.56
			Max. Mx	8	-18.87	-881.95	1.69
			Max. My	2	-18.82	-0.01	907.60
			Max. Vy	20	-19.61	881.93	1.69
			Max. Vx	2	-20.05	-0.01	907.60

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	8			1.54
L17	60.75 - 57	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.57	-0.07	4.63
			Max. Mx	8	-19.51	-955.87	1.71
			Max. My	2	-19.46	-0.01	983.21
			Max. Vy	20	-19.85	955.85	1.71
			Max. Vx	2	-20.30	-0.01	983.21
			Max. Torque	8			1.53
L18	57 - 56.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.64	-0.07	4.63
			Max. Mx	8	-19.59	-960.83	1.71
			Max. My	2	-19.54	-0.01	988.28
			Max. Vy	20	-19.85	960.81	1.71
			Max. Vx	2	-20.30	-0.01	988.28
			Max. Torque	8			1.53
L19	56.75 - 51.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-40.15	-0.05	4.72
			Max. Mx	8	-20.76	-1061.07	1.73
			Max. My	2	-20.71	-0.01	1090.76
			Max. Vy	20	-20.25	1061.05	1.73
			Max. Vx	2	-20.70	-0.01	1090.76
			Max. Torque	8			1.53
L20	51.75 - 46.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.79	0.00	5.04
			Max. Mx	20	-21.99	1163.49	1.83
			Max. My	2	-21.95	0.01	1195.38
			Max. Vy	20	-20.71	1163.49	1.83
			Max. Vx	2	-21.12	0.01	1195.38
			Max. Torque	8			1.69
L21	46.75 - 40.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.33	0.00	5.08
			Max. Mx	20	-22.41	1199.83	1.84
			Max. My	2	-22.37	0.01	1232.43
			Max. Vy	20	-20.85	1199.83	1.84
			Max. Vx	2	-21.25	0.01	1232.43
			Max. Torque	8			1.69
L22	40.75 - 40	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.97	0.00	5.17
			Max. Mx	20	-24.43	1305.12	1.86
			Max. My	2	-24.40	0.01	1339.77
			Max. Vy	20	-21.28	1305.12	1.86
			Max. Vx	2	-21.69	0.01	1339.77
			Max. Torque	8			1.69
L23	40 - 35	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.59	0.01	5.27
			Max. Mx	20	-25.73	1412.35	1.88
			Max. My	2	-25.70	0.01	1449.04
			Max. Vy	20	-21.63	1412.35	1.88
			Max. Vx	2	-22.04	0.01	1449.04
			Max. Torque	8			1.69
L24	35 - 30	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.23	0.01	5.33
			Max. Mx	20	-27.05	1521.27	1.90
			Max. My	2	-27.02	0.01	1559.98
			Max. Vy	20	-21.96	1521.27	1.90
			Max. Vx	2	-22.36	0.01	1559.98
			Max. Torque	8			1.69
L25	30 - 26.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.47	0.01	5.39
			Max. Mx	20	-28.04	1604.02	1.91
			Max. My	2	-28.02	0.01	1644.24
			Max. Vy	20	-22.20	1604.02	1.91
			Max. Vx	2	-22.60	0.01	1644.24
			Max. Torque	8			1.69
L26	26.25 - 26	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.56	0.01	5.39

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-28.13	1609.56	1.91
			Max. My	2	-28.10	0.01	1649.89
			Max. Vy	20	-22.20	1609.56	1.91
			Max. Vx	2	-22.60	0.01	1649.89
			Max. Torque	8			1.69
L27	26 - 21	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.32	0.01	5.46
			Max. Mx	20	-29.56	1721.32	1.93
			Max. My	2	-29.54	0.01	1763.65
			Max. Vy	20	-22.52	1721.32	1.93
			Max. Vx	2	-22.91	0.01	1763.65
			Max. Torque	8			1.69
L28	21 - 16	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-53.08	0.02	5.53
			Max. Mx	20	-31.01	1834.54	1.94
			Max. My	2	-31.00	0.01	1878.86
			Max. Vy	20	-22.80	1834.54	1.94
			Max. Vx	2	-23.19	0.01	1878.86
			Max. Torque	8			1.69
L29	16 - 11	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.85	0.02	5.59
			Max. Mx	20	-32.49	1949.09	1.96
			Max. My	2	-32.48	0.01	1995.39
			Max. Vy	20	-23.05	1949.09	1.96
			Max. Vx	2	-23.45	0.01	1995.39
			Max. Torque	8			1.69
L30	11 - 6	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.61	0.02	5.66
			Max. Mx	20	-33.98	2064.91	1.97
			Max. My	2	-33.97	0.01	2113.17
			Max. Vy	20	-23.30	2064.91	1.97
			Max. Vx	2	-23.69	0.01	2113.17
			Max. Torque	8			1.69
L31	6 - 1	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.36	0.03	5.72
			Max. Mx	20	-35.49	2181.96	1.98
			Max. My	2	-35.49	0.01	2232.17
			Max. Vy	20	-23.55	2181.96	1.98
			Max. Vx	2	-23.93	0.01	2232.17
			Max. Torque	8			1.69
L32	1 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.70	0.03	5.73
			Max. Mx	20	-35.79	2205.52	1.99
			Max. My	2	-35.79	0.01	2256.11
			Max. Vy	20	-23.60	2205.52	1.99
			Max. Vx	2	-23.98	0.01	2256.11
			Max. Torque	8			1.69

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	58.70	0.00	6.42
	Max. H_x	21	26.85	23.58	0.00
	Max. H_z	2	35.80	0.00	23.96
	Max. M_x	2	2256.11	0.00	23.96
	Max. M_z	8	2205.49	-23.58	0.00
	Max. Torsion	8	1.69	-23.58	0.00
	Min. Vert	7	26.85	-20.42	11.98
	Min. H_x	9	26.85	-23.58	0.00
	Min. H_z	14	35.80	0.00	-23.96
	Min. M_x	14	-2252.12	0.00	-23.96
	Min. M_z	20	-2205.52	23.58	0.00
	Min. Torsion	20	-1.69	23.58	0.00

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	29.84	0.00	-0.00	-1.60	0.01	-0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	35.80	0.00	-23.96	-2256.11	0.01	-0.10
0.9 Dead+1.0 Wind 0 deg - No Ice	26.85	0.00	-23.96	-2225.46	0.01	-0.10
1.2 Dead+1.0 Wind 30 deg - No Ice	35.80	11.79	-20.75	-1954.17	-1102.66	-0.94
0.9 Dead+1.0 Wind 30 deg - No Ice	26.85	11.79	-20.75	-1927.54	-1087.97	-0.92
1.2 Dead+1.0 Wind 60 deg - No Ice	35.80	20.42	-11.98	-1129.13	-1909.96	-1.53
0.9 Dead+1.0 Wind 60 deg - No Ice	26.85	20.42	-11.98	-1113.53	-1884.51	-1.49
1.2 Dead+1.0 Wind 90 deg - No Ice	35.80	23.58	0.00	-1.99	-2205.49	-1.69
0.9 Dead+1.0 Wind 90 deg - No Ice	26.85	23.58	-0.00	-1.45	-2176.10	-1.65
1.2 Dead+1.0 Wind 120 deg - No Ice	35.80	20.42	11.98	1125.16	-1909.96	-1.40
0.9 Dead+1.0 Wind 120 deg - No Ice	26.85	20.42	11.98	1110.62	-1884.51	-1.36
1.2 Dead+1.0 Wind 150 deg - No Ice	35.80	11.79	20.75	1950.18	-1102.65	-0.74
0.9 Dead+1.0 Wind 150 deg - No Ice	26.85	11.79	20.75	1924.63	-1087.96	-0.72
1.2 Dead+1.0 Wind 180 deg - No Ice	35.80	0.00	23.96	2252.12	0.01	0.10
0.9 Dead+1.0 Wind 180 deg - No Ice	26.85	0.00	23.96	2222.54	0.01	0.10
1.2 Dead+1.0 Wind 210 deg - No Ice	35.80	-11.79	20.75	1950.18	1102.68	0.92
0.9 Dead+1.0 Wind 210 deg - No Ice	26.85	-11.79	20.75	1924.63	1087.98	0.89
1.2 Dead+1.0 Wind 240 deg - No Ice	35.80	-20.42	11.98	1125.16	1909.98	1.50
0.9 Dead+1.0 Wind 240 deg - No Ice	26.85	-20.42	11.98	1110.62	1884.53	1.46
1.2 Dead+1.0 Wind 270 deg - No Ice	35.80	-23.58	0.00	-1.99	2205.52	1.69
0.9 Dead+1.0 Wind 270 deg - No Ice	26.85	-23.58	-0.00	-1.45	2176.12	1.65
1.2 Dead+1.0 Wind 300 deg - No Ice	35.80	-20.42	-11.98	-1129.14	1909.99	1.43
0.9 Dead+1.0 Wind 300 deg - No Ice	26.85	-20.42	-11.98	-1113.54	1884.53	1.39
1.2 Dead+1.0 Wind 330 deg - No Ice	35.80	-11.79	-20.75	-1954.17	1102.68	0.77
0.9 Dead+1.0 Wind 330 deg - No Ice	26.85	-11.79	-20.75	-1927.54	1087.99	0.75
1.2 Dead+1.0 Ice	58.70	0.00	-0.00	-5.73	0.03	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice	58.70	0.00	-6.42	-634.74	0.03	-0.04
1.2 Dead+1.0 Wind 30 deg+1.0 Ice	58.70	3.17	-5.56	-550.50	-309.19	-0.29
1.2 Dead+1.0 Wind 60 deg+1.0 Ice	58.70	5.50	-3.21	-320.29	-535.56	-0.46
1.2 Dead+1.0 Wind 90 deg+1.0 Ice	58.70	6.35	-0.00	-5.81	-618.40	-0.51
1.2 Dead+1.0 Wind 120 deg+1.0 Ice	58.70	5.50	3.21	308.66	-535.56	-0.42
1.2 Dead+1.0 Wind 150 deg+1.0 Ice	58.70	3.17	5.56	538.87	-309.19	-0.22
1.2 Dead+1.0 Wind 180 deg+1.0 Ice	58.70	0.00	6.42	623.11	0.03	0.04

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
1.2 Dead+1.0 Wind 210 deg+1.0 Ice	58.70	-3.17	5.56	538.87	309.25	0.29
1.2 Dead+1.0 Wind 240 deg+1.0 Ice	58.70	-5.50	3.21	308.66	535.62	0.46
1.2 Dead+1.0 Wind 270 deg+1.0 Ice	58.70	-6.35	-0.00	-5.81	618.45	0.51
1.2 Dead+1.0 Wind 300 deg+1.0 Ice	58.70	-5.50	-3.21	-320.29	535.62	0.42
1.2 Dead+1.0 Wind 330 deg+1.0 Ice	58.70	-3.17	-5.56	-550.50	309.25	0.22
Dead+Wind 0 deg - Service	29.84	0.00	-5.20	-487.31	0.01	-0.02
Dead+Wind 30 deg - Service	29.84	2.56	-4.50	-422.25	-237.57	-0.20
Dead+Wind 60 deg - Service	29.84	4.43	-2.60	-244.48	-411.48	-0.33
Dead+Wind 90 deg - Service	29.84	5.12	0.00	-1.65	-475.14	-0.37
Dead+Wind 120 deg - Service	29.84	4.43	2.60	241.19	-411.48	-0.30
Dead+Wind 150 deg - Service	29.84	2.56	4.50	418.95	-237.57	-0.16
Dead+Wind 180 deg - Service	29.84	0.00	5.20	484.02	0.01	0.02
Dead+Wind 210 deg - Service	29.84	-2.56	4.50	418.95	237.59	0.20
Dead+Wind 240 deg - Service	29.84	-4.43	2.60	241.19	411.51	0.33
Dead+Wind 270 deg - Service	29.84	-5.12	0.00	-1.65	475.17	0.37
Dead+Wind 300 deg - Service	29.84	-4.43	-2.60	-244.48	411.51	0.31
Dead+Wind 330 deg - Service	29.84	-2.56	-4.50	-422.25	237.59	0.16

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-29.84	0.00	0.00	29.84	0.00	0.000%
2	0.00	-35.80	-23.96	0.00	35.80	23.96	0.000%
3	0.00	-26.85	-23.96	0.00	26.85	23.96	0.000%
4	11.79	-35.80	-20.75	-11.79	35.80	20.75	0.000%
5	11.79	-26.85	-20.75	-11.79	26.85	20.75	0.000%
6	20.42	-35.80	-11.98	-20.42	35.80	11.98	0.000%
7	20.42	-26.85	-11.98	-20.42	26.85	11.98	0.000%
8	23.58	-35.80	0.00	-23.58	35.80	0.00	0.000%
9	23.58	-26.85	0.00	-23.58	26.85	0.00	0.000%
10	20.42	-35.80	11.98	-20.42	35.80	-11.98	0.000%
11	20.42	-26.85	11.98	-20.42	26.85	-11.98	0.000%
12	11.79	-35.80	20.75	-11.79	35.80	-20.75	0.000%
13	11.79	-26.85	20.75	-11.79	26.85	-20.75	0.000%
14	0.00	-35.80	23.96	0.00	35.80	-23.96	0.000%
15	0.00	-26.85	23.96	0.00	26.85	-23.96	0.000%
16	-11.79	-35.80	20.75	11.79	35.80	-20.75	0.000%
17	-11.79	-26.85	20.75	11.79	26.85	-20.75	0.000%
18	-20.42	-35.80	11.98	20.42	35.80	-11.98	0.000%
19	-20.42	-26.85	11.98	20.42	26.85	-11.98	0.000%
20	-23.58	-35.80	0.00	23.58	35.80	0.00	0.000%
21	-23.58	-26.85	0.00	23.58	26.85	0.00	0.000%
22	-20.42	-35.80	-11.98	20.42	35.80	11.98	0.000%
23	-20.42	-26.85	-11.98	20.42	26.85	11.98	0.000%
24	-11.79	-35.80	-20.75	11.79	35.80	20.75	0.000%
25	-11.79	-26.85	-20.75	11.79	26.85	20.75	0.000%
26	0.00	-58.70	0.00	-0.00	58.70	0.00	0.000%
27	0.00	-58.70	-6.42	0.00	58.70	6.42	0.000%
28	3.17	-58.70	-5.56	-3.17	58.70	5.56	0.000%
29	5.50	-58.70	-3.21	-5.50	58.70	3.21	0.000%
30	6.35	-58.70	0.00	-6.35	58.70	0.00	0.000%
31	5.50	-58.70	3.21	-5.50	58.70	-3.21	0.000%
32	3.17	-58.70	5.56	-3.17	58.70	-5.56	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
33	0.00	-58.70	6.42	0.00	58.70	-6.42	0.000%
34	-3.17	-58.70	5.56	3.17	58.70	-5.56	0.000%
35	-5.50	-58.70	3.21	5.50	58.70	-3.21	0.000%
36	-6.35	-58.70	0.00	6.35	58.70	0.00	0.000%
37	-5.50	-58.70	-3.21	5.50	58.70	3.21	0.000%
38	-3.17	-58.70	-5.56	3.17	58.70	5.56	0.000%
39	0.00	-29.84	-5.20	0.00	29.84	5.20	0.000%
40	2.56	-29.84	-4.50	-2.56	29.84	4.50	0.000%
41	4.43	-29.84	-2.60	-4.43	29.84	2.60	0.000%
42	5.12	-29.84	0.00	-5.12	29.84	0.00	0.000%
43	4.43	-29.84	2.60	-4.43	29.84	-2.60	0.000%
44	2.56	-29.84	4.50	-2.56	29.84	-4.50	0.000%
45	0.00	-29.84	5.20	0.00	29.84	-5.20	0.000%
46	-2.56	-29.84	4.50	2.56	29.84	-4.50	0.000%
47	-4.43	-29.84	2.60	4.43	29.84	-2.60	0.000%
48	-5.12	-29.84	0.00	5.12	29.84	0.00	0.000%
49	-4.43	-29.84	-2.60	4.43	29.84	2.60	0.000%
50	-2.56	-29.84	-4.50	2.56	29.84	4.50	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000379
2	Yes	5	0.00000001	0.00017703
3	Yes	5	0.00000001	0.00006496
4	Yes	6	0.00000001	0.00086319
5	Yes	6	0.00000001	0.00026992
6	Yes	6	0.00000001	0.00091282
7	Yes	6	0.00000001	0.00028815
8	Yes	6	0.00000001	0.00006900
9	Yes	5	0.00000001	0.00048027
10	Yes	6	0.00000001	0.00084529
11	Yes	6	0.00000001	0.00026520
12	Yes	6	0.00000001	0.00089509
13	Yes	6	0.00000001	0.00028191
14	Yes	5	0.00000001	0.00017652
15	Yes	5	0.00000001	0.00006484
16	Yes	6	0.00000001	0.00089957
17	Yes	6	0.00000001	0.00028349
18	Yes	6	0.00000001	0.00084339
19	Yes	6	0.00000001	0.00026452
20	Yes	6	0.00000001	0.00006900
21	Yes	5	0.00000001	0.00048029
22	Yes	6	0.00000001	0.00091044
23	Yes	6	0.00000001	0.00028730
24	Yes	6	0.00000001	0.00086723
25	Yes	6	0.00000001	0.00027135
26	Yes	4	0.00000001	0.00006718
27	Yes	5	0.00000001	0.00049143
28	Yes	6	0.00000001	0.00030823
29	Yes	6	0.00000001	0.00035074
30	Yes	5	0.00000001	0.00071875
31	Yes	6	0.00000001	0.00027912
32	Yes	6	0.00000001	0.00031565
33	Yes	5	0.00000001	0.00047452
34	Yes	6	0.00000001	0.00032017
35	Yes	6	0.00000001	0.00027772
36	Yes	5	0.00000001	0.00071842
37	Yes	6	0.00000001	0.00034792
38	Yes	6	0.00000001	0.00031166
39	Yes	4	0.00000001	0.00057191
40	Yes	5	0.00000001	0.00017845
41	Yes	5	0.00000001	0.00021107
42	Yes	5	0.00000001	0.00006127
43	Yes	5	0.00000001	0.00016828
44	Yes	5	0.00000001	0.00019561
45	Yes	4	0.00000001	0.00056726
46	Yes	5	0.00000001	0.00019871
47	Yes	5	0.00000001	0.00016764
48	Yes	5	0.00000001	0.00006127
49	Yes	5	0.00000001	0.00020925
50	Yes	5	0.00000001	0.00018048

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	133 - 128	22.97	39	1.50	0.01
L2	128 - 123.5	21.41	39	1.49	0.00
L3	123.5 - 123	20.01	39	1.47	0.00
L4	123 - 118	19.85	39	1.47	0.00
L5	118 - 113	18.32	39	1.46	0.00
L6	113 - 108	16.81	39	1.43	0.00
L7	108 - 103	15.33	39	1.39	0.00
L8	103 - 98	13.89	39	1.35	0.00
L9	98 - 93	12.51	39	1.29	0.00
L10	93 - 88	11.19	39	1.23	0.00
L11	88 - 82.25	9.94	39	1.15	0.00
L12	85.75 - 80.75	9.40	39	1.12	0.00

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L13	80.75 - 75.75	8.25	39	1.07	0.00
L14	75.75 - 70.75	7.18	39	0.99	0.00
L15	70.75 - 65.75	6.19	39	0.90	0.00
L16	65.75 - 60.75	5.29	39	0.81	0.00
L17	60.75 - 57	4.49	39	0.72	0.00
L18	57 - 56.75	3.95	39	0.65	0.00
L19	56.75 - 51.75	3.92	39	0.64	0.00
L20	51.75 - 46.75	3.27	39	0.59	0.00
L21	46.75 - 40.75	2.69	39	0.53	0.00
L22	45 - 40	2.50	39	0.51	0.00
L23	40 - 35	1.98	39	0.48	0.00
L24	35 - 30	1.51	39	0.41	0.00
L25	30 - 26.25	1.11	39	0.35	0.00
L26	26.25 - 26	0.85	39	0.31	0.00
L27	26 - 21	0.83	39	0.30	0.00
L28	21 - 16	0.55	39	0.25	0.00
L29	16 - 11	0.32	39	0.19	0.00
L30	11 - 6	0.15	39	0.13	0.00
L31	6 - 1	0.04	39	0.07	0.00
L32	1 - 0	0.00	39	0.01	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
135.5000	5/8" X 5' Lightning Rod	39	22.97	1.50	0.01	21143
133.0000	TPA65R-BU8D_CCIV2 w/ Mount Pipe	39	22.97	1.50	0.01	21143
120.0000	APXVSPP18-C-A20 w/ Mount Pipe	39	18.93	1.47	0.00	15851
118.0000	800MHz 2X50W RRH W/FILTER	39	18.32	1.46	0.00	13144
100.0000	APX16DWV-16DWVS-C	39	13.05	1.32	0.00	5234
93.0000	BXA-70063-4CF-EDIN-X w/ Mount Pipe	39	11.19	1.23	0.00	4122
75.0000	APXV18-206517S-C	39	7.02	0.97	0.00	3453
50.0000	KS24019-L112A	39	3.06	0.57	0.00	4940

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	133 - 128	106.08	2	6.91	0.02
L2	128 - 123.5	98.87	2	6.88	0.02
L3	123.5 - 123	92.43	2	6.80	0.02
L4	123 - 118	91.72	2	6.80	0.02
L5	118 - 113	84.65	2	6.72	0.02
L6	113 - 108	77.69	2	6.60	0.02
L7	108 - 103	70.87	2	6.44	0.02
L8	103 - 98	64.25	2	6.23	0.02
L9	98 - 93	57.87	2	5.98	0.01
L10	93 - 88	51.76	2	5.69	0.01
L11	88 - 82.25	45.98	2	5.34	0.01
L12	85.75 - 80.75	43.51	2	5.17	0.01
L13	80.75 - 75.75	38.21	2	4.94	0.01
L14	75.75 - 70.75	33.23	2	4.57	0.01
L15	70.75 - 65.75	28.65	2	4.18	0.01
L16	65.75 - 60.75	24.49	2	3.77	0.01
L17	60.75 - 57	20.77	2	3.33	0.00
L18	57 - 56.75	18.29	2	2.99	0.00
L19	56.75 - 51.75	18.13	2	2.98	0.00
L20	51.75 - 46.75	15.15	2	2.72	0.00
L21	46.75 - 40.75	12.44	2	2.45	0.00
L22	45 - 40	11.56	2	2.36	0.00

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L23	40 - 35	9.16	2	2.20	0.00
L24	35 - 30	7.00	2	1.92	0.00
L25	30 - 26.25	5.14	2	1.64	0.00
L26	26.25 - 26	3.94	2	1.42	0.00
L27	26 - 21	3.86	2	1.41	0.00
L28	21 - 16	2.53	2	1.14	0.00
L29	16 - 11	1.47	2	0.88	0.00
L30	11 - 6	0.70	2	0.60	0.00
L31	6 - 1	0.21	2	0.33	0.00
L32	1 - 0	0.01	2	0.05	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
135.5000	5/8" X 5' Lightning Rod	2	106.08	6.91	0.02	4738
133.0000	TPA65R-BU8D_CCIV2 w/ Mount Pipe	2	106.08	6.91	0.02	4738
120.0000	APXVSPP18-C-A20 w/ Mount Pipe	2	87.47	6.76	0.02	3646
118.0000	800MHz 2X50W RRH W/FILTER	2	84.65	6.72	0.02	3055
100.0000	APX16DWV-16DWVS-C	2	60.39	6.09	0.02	1169
93.0000	BXA-70063-4CF-EDIN-X w/ Mount Pipe	2	51.76	5.69	0.01	914
75.0000	APXV18-206517S-C	2	32.52	4.51	0.01	756
50.0000	KS24019-L112A	2	14.17	2.63	0.00	1071

Compression Checks
Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K
L1	133 - 128 (1)	TP14x14x0.349	5.0000	0.0000	0.0	14.9672	-1.44
L2	128 - 123.5 (2)	TP14x14x0.349	4.5000	0.0000	0.0	14.9672	-1.74
L3	123.5 - 123 (3)	TP22x14x0.349	0.5000	0.0000	0.0	14.9672	-1.74
L4	123 - 118 (4)	TP22.7502x22x0.1875	5.0000	0.0000	0.0	13.4276	-5.19
L5	118 - 113 (5)	TP23.5004x22.7502x0.1875	5.0000	0.0000	0.0	13.8741	-6.15
L6	113 - 108 (6)	TP24.2506x23.5004x0.1875	5.0000	0.0000	0.0	14.3205	-6.48
L7	108 - 103 (7)	TP25.0007x24.2506x0.1875	5.0000	0.0000	0.0	14.7670	-6.83
L8	103 - 98 (8)	TP25.7509x25.0007x0.1875	5.0000	0.0000	0.0	15.2134	-10.07
L9	98 - 93 (9)	TP26.5011x25.7509x0.1875	5.0000	0.0000	0.0	15.6599	-10.55
L10	93 - 88 (10)	TP27.2513x26.5011x0.1875	5.0000	0.0000	0.0	16.1063	-14.15
L11	88 - 82.25 (11)	TP28.114x27.2513x0.1875	5.7500	0.0000	0.0	16.3072	-14.43
L12	82.25 - 80.75 (12)	TP27.9641x27.2139x0.25	5.0000	0.0000	0.0	21.9911	-15.34
L13	80.75 - 75.75 (13)	TP28.7143x27.9641x0.25	5.0000	0.0000	0.0	22.5865	-16.08
L14	75.75 - 70.75 (14)	TP29.4646x28.7143x0.25	5.0000	0.0000	0.0	23.1818	-17.16
L15	70.75 - 65.75 (15)	TP30.2148x29.4646x0.25	5.0000	0.0000	0.0	23.7771	-17.98
L16	65.75 - 60.75 (16)	TP30.9651x30.2148x0.25	5.0000	0.0000	0.0	24.3724	-18.82
L17	60.75 - 57 (17)	TP31.5277x30.9651x0.25	3.7500	0.0000	0.0	24.8189	-19.46
L18	57 - 56.75 (18)	TP31.5652x31.5277x0.4625	0.2500	0.0000	0.0	45.6581	-19.54
L19	56.75 - 51.75 (19)	TP32.3155x31.5652x0.4563	5.0000	0.0000	0.0	46.1365	-20.71
L20	51.75 - 46.75 (20)	TP33.0657x32.3155x0.45	5.0000	0.0000	0.0	46.5850	-21.95
L21	46.75 - 40.75 (21)	TP33.966x33.0657x0.45	6.0000	0.0000	0.0	46.9601	-22.37
L22	40.75 - 40 (22)	TP33.5785x32.8283x0.4813	5.0000	0.0000	0.0	50.5608	-24.40
L23	40 - 35 (23)	TP34.3287x33.5785x0.4688	5.0000	0.0000	0.0	50.3825	-25.70
L24	35 - 30 (24)	TP35.0789x34.3287x0.4688	5.0000	0.0000	0.0	51.4988	-27.02
L25	30 - 26.25 (25)	TP35.6415x35.0789x0.4688	3.7500	0.0000	0.0	52.3360	-28.02
L26	26.25 - 26 (26)	TP35.679x35.6415x0.5188	0.2500	0.0000	0.0	57.8973	-28.10
L27	26 - 21 (27)	TP36.4292x35.679x0.5063	5.0000	0.0000	0.0	57.7280	-29.54
L28	21 - 16 (28)	TP37.1794x36.4292x0.5063	5.0000	0.0000	0.0	58.9335	-31.00
L29	16 - 11 (29)	TP37.9296x37.1794x0.4938	5.0000	0.0000	0.0	58.6739	-32.48
L30	11 - 6 (30)	TP38.6798x37.9296x0.4938	5.0000	0.0000	0.0	59.8497	-33.97
L31	6 - 1 (31)	TP39.43x38.6798x0.4876	5.0000	0.0000	0.0	60.2627	-35.49

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K
L32	1 - 0 (32)	TP39.58x39.43x0.4876	1.0000	0.0000	0.0	60.4949	-35.79

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft
L1	133 - 128 (1)	TP14x14x0.349	15.27
L2	128 - 123.5 (2)	TP14x14x0.349	29.88
L3	123.5 - 123 (3)	TP22x14x0.349	29.87
L4	123 - 118 (4)	TP22.7502x22x0.1875	57.99
L5	118 - 113 (5)	TP23.5004x22.7502x0.1875	97.31
L6	113 - 108 (6)	TP24.2506x23.5004x0.1875	138.59
L7	108 - 103 (7)	TP25.0007x24.2506x0.1875	181.83
L8	103 - 98 (8)	TP25.7509x25.0007x0.1875	236.96
L9	98 - 93 (9)	TP26.5011x25.7509x0.1875	304.14
L10	93 - 88 (10)	TP27.2513x26.5011x0.1875	393.69
L11	88 - 82.25 (11)	TP28.114x27.2513x0.1875	433.41
L12	82.25 - 80.75 (12)	TP27.9641x27.2139x0.25	523.19
L13	80.75 - 75.75 (13)	TP28.7143x27.9641x0.25	614.91
L14	75.75 - 70.75 (14)	TP29.4646x28.7143x0.25	710.51
L15	70.75 - 65.75 (15)	TP30.2148x29.4646x0.25	808.22
L16	65.75 - 60.75 (16)	TP30.9651x30.2148x0.25	907.61
L17	60.75 - 57 (17)	TP31.5277x30.9651x0.25	983.21
L18	57 - 56.75 (18)	TP31.5652x31.5277x0.4625	988.28
L19	56.75 - 51.75 (19)	TP32.3155x31.5652x0.4563	1090.76
L20	51.75 - 46.75 (20)	TP33.0657x32.3155x0.45	1195.38
L21	46.75 - 40.75 (21)	TP33.966x33.0657x0.45	1232.43
L22	40.75 - 40 (22)	TP33.5785x32.8283x0.4813	1339.77
L23	40 - 35 (23)	TP34.3287x33.5785x0.4688	1449.03
L24	35 - 30 (24)	TP35.0789x34.3287x0.4688	1559.98
L25	30 - 26.25 (25)	TP35.6415x35.0789x0.4688	1644.24
L26	26.25 - 26 (26)	TP35.679x35.6415x0.5188	1649.88
L27	26 - 21 (27)	TP36.4292x35.679x0.5063	1763.65
L28	21 - 16 (28)	TP37.1794x36.4292x0.5063	1878.86
L29	16 - 11 (29)	TP37.9296x37.1794x0.4938	1995.39
L30	11 - 6 (30)	TP38.6798x37.9296x0.4938	2113.18
L31	6 - 1 (31)	TP39.43x38.6798x0.4876	2232.17
L32	1 - 0 (32)	TP39.58x39.43x0.4876	2256.11

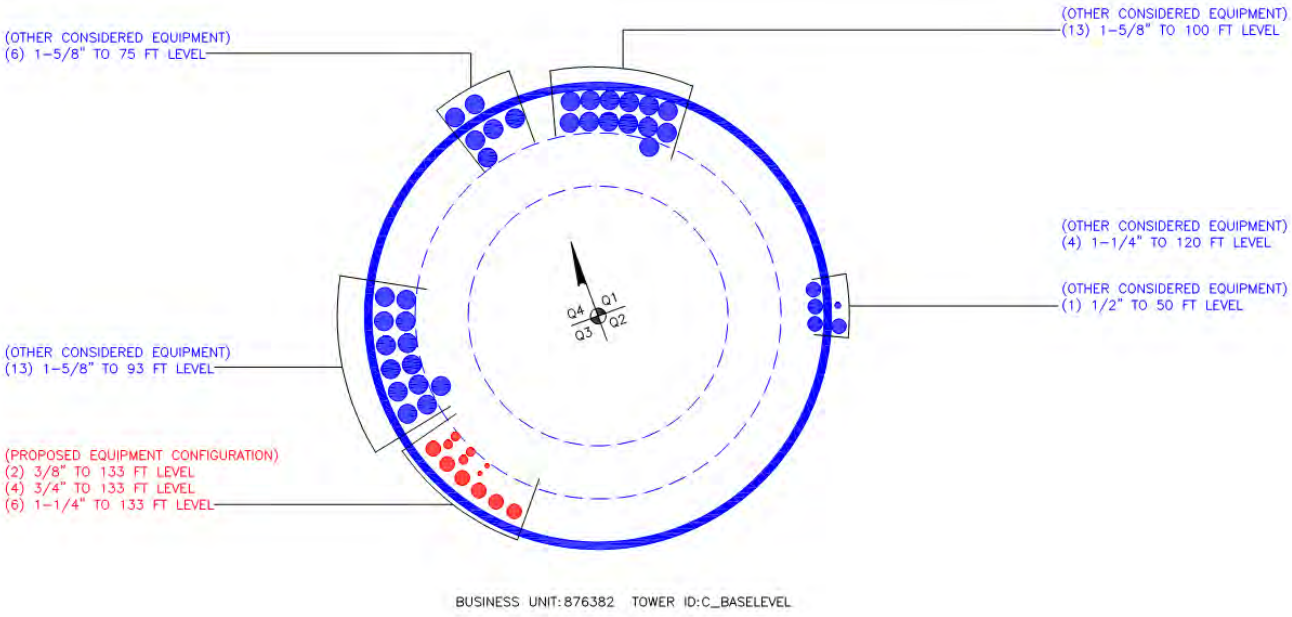
Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K
L1	133 - 128 (1)	TP14x14x0.349	3.15
L2	128 - 123.5 (2)	TP14x14x0.349	3.34
L3	123.5 - 123 (3)	TP22x14x0.349	3.38
L4	123 - 118 (4)	TP22.7502x22x0.1875	6.71
L5	118 - 113 (5)	TP23.5004x22.7502x0.1875	8.06
L6	113 - 108 (6)	TP24.2506x23.5004x0.1875	8.45
L7	108 - 103 (7)	TP25.0007x24.2506x0.1875	8.85
L8	103 - 98 (8)	TP25.7509x25.0007x0.1875	13.24
L9	98 - 93 (9)	TP26.5011x25.7509x0.1875	13.63
L10	93 - 88 (10)	TP27.2513x26.5011x0.1875	17.58
L11	88 - 82.25 (11)	TP28.114x27.2513x0.1875	17.74
L12	82.25 - 80.75 (12)	TP27.9641x27.2139x0.25	18.17
L13	80.75 - 75.75 (13)	TP28.7143x27.9641x0.25	18.54
L14	75.75 - 70.75 (14)	TP29.4646x28.7143x0.25	19.38
L15	70.75 - 65.75 (15)	TP30.2148x29.4646x0.25	19.72
L16	65.75 - 60.75 (16)	TP30.9651x30.2148x0.25	20.05
L17	60.75 - 57 (17)	TP31.5277x30.9651x0.25	20.30
L18	57 - 56.75 (18)	TP31.5652x31.5277x0.4625	20.30
L19	56.75 - 51.75 (19)	TP32.3155x31.5652x0.4563	20.70
L20	51.75 - 46.75 (20)	TP33.0657x32.3155x0.45	21.12
L21	46.75 - 40.75 (21)	TP33.966x33.0657x0.45	21.25

Section No.	Elevation ft	Size	Actual V_u K
L22	40.75 - 40 (22)	TP33.5785x32.8283x0.4813	21.69
L23	40 - 35 (23)	TP34.3287x33.5785x0.4688	22.04
L24	35 - 30 (24)	TP35.0789x34.3287x0.4688	22.36
L25	30 - 26.25 (25)	TP35.6415x35.0789x0.4688	22.60
L26	26.25 - 26 (26)	TP35.679x35.6415x0.5188	22.60
L27	26 - 21 (27)	TP36.4292x35.679x0.5063	22.91
L28	21 - 16 (28)	TP37.1794x36.4292x0.5063	23.19
L29	16 - 11 (29)	TP37.9296x37.1794x0.4938	23.45
L30	11 - 6 (30)	TP38.6798x37.9296x0.4938	23.69
L31	6 - 1 (31)	TP39.43x38.6798x0.4876	23.93
L32	1 - 0 (32)	TP39.58x39.43x0.4876	23.98

APPENDIX B

BASE LEVEL DRAWING


(OTHER CONSIDERED EQUIPMENT)
(6) 1-5/8" TO 75 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(13) 1-5/8" TO 100 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(4) 1-1/4" TO 120 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 50 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(13) 1-5/8" TO 93 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(2) 3/8" TO 133 FT LEVEL
(4) 3/4" TO 133 FT LEVEL
(6) 1-1/4" TO 133 FT LEVEL
Q1
Q2
Q3
Q4
BUSINESS UNIT: 876382 TOWER ID:C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 876382

Work Order: 1853661

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	133	9.5	0	0	14	14	0.349		A53-B-35
2	123.5	0.5	0	0	14.00	22	0.349		A53-B-35
3	123	40.75	3.5	18	22.00	28.114	0.1875	Auto	A607-60
4	85.75	45	4.25	18	27.21	33.966	0.25	Auto	A607-60
5	45	45	0	18	32.83	39.58	0.2813	Auto	A607-60

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	26.25	plate	.125 x 1.25; (1) (1.187	3			o						o						o			
2	26.25	57	plate	.875 x 1.25; (1) (1.187	3			o						o						o			
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	6.125	1.25	7.65625	0.625	n/a	30.000	15.000	6.094	1.1875	A572-65
2	4.875	1.25	6.09375	0.625	30.000	24.000	18.000	4.531	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5 Export to TNX

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	133 - 128	5		0	14.000	14.000	0.349	A53-B-35	1.000
2	128 - 123.5	4.5	0	0	14.000	14.000	0.349	A53-B-35	1.000
3	123.5 - 123	0.5	0	0	14.000	22.000	0.349	A53-B-35	1.000
4	123 - 118	5		18	22.000	22.750	0.1875	A607-60	1.000
5	118 - 113	5		18	22.750	23.500	0.1875	A607-60	1.000
6	113 - 108	5		18	23.500	24.251	0.1875	A607-60	1.000
7	108 - 103	5		18	24.251	25.001	0.1875	A607-60	1.000
8	103 - 98	5		18	25.001	25.751	0.1875	A607-60	1.000
9	98 - 93	5		18	25.751	26.501	0.1875	A607-60	1.000
10	93 - 88	5		18	26.501	27.251	0.1875	A607-60	1.000
11	88 - 85.75	5.75	3.5	18	27.251	28.114	0.1875	A607-60	1.000
12	85.75 - 80.75	5		18	27.214	27.964	0.25	A607-60	1.000
13	80.75 - 75.75	5		18	27.964	28.714	0.25	A607-60	1.000
14	75.75 - 70.75	5		18	28.714	29.465	0.25	A607-60	1.000
15	70.75 - 65.75	5		18	29.465	30.215	0.25	A607-60	1.000
16	65.75 - 60.75	5		18	30.215	30.965	0.25	A607-60	1.000
17	60.75 - 57	3.75		18	30.965	31.528	0.25	A607-60	1.000
18	57 - 56.75	0.25		18	31.528	31.565	0.4625	A607-60	0.945
19	56.75 - 51.75	5		18	31.565	32.315	0.45625	A607-60	0.948
20	51.75 - 46.75	5		18	32.315	33.066	0.45	A607-60	0.951
21	46.75 - 45	6	4.25	18	33.066	33.966	0.45	A607-60	0.948
22	45 - 40	5		18	32.828	33.578	0.4813	A607-60	0.950
23	40 - 35	5		18	33.578	34.329	0.4688	A607-60	0.966
24	35 - 30	5		18	34.329	35.079	0.4688	A607-60	0.958
25	30 - 26.25	3.75		18	35.079	35.642	0.4688	A607-60	0.953
26	26.25 - 26	0.25		18	35.642	35.679	0.5188	A607-60	0.943
27	26 - 21	5		18	35.679	36.429	0.5063	A607-60	0.957
28	21 - 16	5		18	36.429	37.179	0.5063	A607-60	0.949
29	16 - 11	5		18	37.179	37.930	0.4938	A607-60	0.964
30	11 - 6	5		18	37.930	38.680	0.4938	A607-60	0.957
31	6 - 1	5		18	38.680	39.430	0.48755	A607-60	0.961
32	1 - 0	1		18	39.430	39.580	0.48755	A607-60	0.960

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	133 - 128	1.44	15.27	3.15
2	128 - 123.5	1.74	29.88	3.34
3	123.5 - 123	1.78	31.56	3.38
4	123 - 118	5.19	57.99	6.71
5	118 - 113	6.15	97.31	8.06
6	113 - 108	6.48	138.59	8.45
7	108 - 103	6.83	181.83	8.85
8	103 - 98	10.07	236.96	13.24
9	98 - 93	10.55	304.14	13.63
10	93 - 88	14.15	393.69	17.58
11	88 - 85.75	14.43	433.41	17.74
12	85.75 - 80.75	15.34	523.19	18.17
13	80.75 - 75.75	16.08	614.91	18.54
14	75.75 - 70.75	17.16	710.51	19.38
15	70.75 - 65.75	17.98	808.22	19.72
16	65.75 - 60.75	18.82	907.60	20.05
17	60.75 - 57	19.46	983.21	20.30
18	57 - 56.75	19.54	988.28	20.30
19	56.75 - 51.75	20.71	1090.76	20.70
20	51.75 - 46.75	21.95	1195.38	21.12
21	46.75 - 45	22.37	1232.43	21.25
22	45 - 40	24.40	1339.77	21.69
23	40 - 35	25.70	1449.04	22.04
24	35 - 30	27.02	1559.98	22.36
25	30 - 26.25	28.02	1644.24	22.60
26	26.25 - 26	28.10	1649.89	22.60
27	26 - 21	29.54	1763.65	22.91
28	21 - 16	31.00	1878.86	23.19
29	16 - 11	32.48	1995.39	23.45
30	11 - 6	33.97	2113.17	23.69
31	6 - 1	35.49	2232.17	23.93
32	1 - 0	35.79	2256.11	23.98

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
133 - 128	Pole	TP14x14x0.349	Pole	8.8%	Pass
128 - 123.5	Pole	TP14x14x0.349	Pole	17.0%	Pass
123.5 - 123	Pole	TP22x14x0.349	Pole	7.3%	Pass
123 - 118	Pole	TP22.75x22x0.1875	Pole	14.2%	Pass
118 - 113	Pole	TP23.5x22.75x0.1875	Pole	22.3%	Pass
113 - 108	Pole	TP24.251x23.5x0.1875	Pole	30.0%	Pass
108 - 103	Pole	TP25.001x24.251x0.1875	Pole	37.2%	Pass
103 - 98	Pole	TP25.751x25.001x0.1875	Pole	46.3%	Pass
98 - 93	Pole	TP26.501x25.751x0.1875	Pole	56.5%	Pass
93 - 88	Pole	TP27.251x26.501x0.1875	Pole	70.0%	Pass
88 - 85.75	Pole	TP28.114x27.251x0.1875	Pole	75.4%	Pass
85.75 - 80.75	Pole	TP27.964x27.214x0.25	Pole	60.8%	Pass
80.75 - 75.75	Pole	TP28.714x27.964x0.25	Pole	68.2%	Pass
75.75 - 70.75	Pole	TP29.465x28.714x0.25	Pole	75.3%	Pass
70.75 - 65.75	Pole	TP30.215x29.465x0.25	Pole	81.9%	Pass
65.75 - 60.75	Pole	TP30.965x30.215x0.25	Pole	88.2%	Pass
60.75 - 57	Pole	TP31.528x30.965x0.25	Pole	92.6%	Pass
57 - 56.75	Pole + Reinf.	TP31.565x31.528x0.4625	Reinf. 2 Tension Rupture	75.5%	Pass
56.75 - 51.75	Pole + Reinf.	TP32.315x31.565x0.4563	Reinf. 2 Tension Rupture	80.3%	Pass
51.75 - 46.75	Pole + Reinf.	TP33.066x32.315x0.45	Reinf. 2 Tension Rupture	84.9%	Pass
46.75 - 45	Pole + Reinf.	TP33.966x33.066x0.45	Reinf. 2 Tension Rupture	86.4%	Pass
45 - 40	Pole + Reinf.	TP33.578x32.828x0.4813	Reinf. 2 Tension Rupture	86.8%	Pass
40 - 35	Pole + Reinf.	TP34.329x33.578x0.4688	Reinf. 2 Tension Rupture	90.6%	Pass
35 - 30	Pole + Reinf.	TP35.079x34.329x0.4688	Reinf. 2 Tension Rupture	94.1%	Pass
30 - 26.25	Pole + Reinf.	TP35.642x35.079x0.4688	Reinf. 2 Tension Rupture	96.7%	Pass
26.25 - 26	Pole + Reinf.	TP35.679x35.642x0.5188	Reinf. 1 Tension Rupture	82.3%	Pass
26 - 21	Pole + Reinf.	TP36.429x35.679x0.5063	Reinf. 1 Tension Rupture	85.1%	Pass
21 - 16	Pole + Reinf.	TP37.179x36.429x0.5063	Reinf. 1 Tension Rupture	87.8%	Pass
16 - 11	Pole + Reinf.	TP37.93x37.179x0.4938	Reinf. 1 Tension Rupture	90.4%	Pass
11 - 6	Pole + Reinf.	TP38.68x37.93x0.4938	Reinf. 1 Tension Rupture	92.8%	Pass
6 - 1	Pole + Reinf.	TP39.43x38.68x0.4876	Reinf. 1 Tension Rupture	95.1%	Pass
1 - 0	Pole + Reinf.	TP39.58x39.43x0.4876	Reinf. 1 Tension Rupture	95.5%	Pass
				Summary	
			Pole	92.6%	Pass
			Reinforcement	96.7%	Pass
			Overall	96.7%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity*		
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2
133 - 128	349	n/a	349	14.97	n/a	14.97	8.8%		
128 - 123.5	349	n/a	349	14.97	n/a	14.97	17.0%		
123.5 - 123	1391	n/a	1391	23.74	n/a	23.74	7.3%		
123 - 118	863	n/a	863	13.43	n/a	13.43	14.2%		
118 - 113	952	n/a	952	13.87	n/a	13.87	22.3%		
113 - 108	1047	n/a	1047	14.32	n/a	14.32	30.0%		
108 - 103	1148	n/a	1148	14.77	n/a	14.77	37.2%		
103 - 98	1256	n/a	1256	15.21	n/a	15.21	46.3%		
98 - 93	1369	n/a	1369	15.66	n/a	15.66	56.5%		
93 - 88	1490	n/a	1490	16.11	n/a	16.11	70.0%		
88 - 85.75	1546	n/a	1546	16.31	n/a	16.31	75.4%		
85.75 - 80.75	2133	n/a	2133	21.99	n/a	21.99	60.8%		
80.75 - 75.75	2311	n/a	2311	22.59	n/a	22.59	68.2%		
75.75 - 70.75	2499	n/a	2499	23.18	n/a	23.18	75.3%		
70.75 - 65.75	2696	n/a	2696	23.78	n/a	23.78	81.9%		
65.75 - 60.75	2904	n/a	2904	24.37	n/a	24.37	88.2%		
60.75 - 57	3066	n/a	3066	24.82	n/a	24.82	92.6%		
57 - 56.75	3077	2480	5558	24.85	18.28	43.13	50.7%		75.5%
56.75 - 51.75	3304	2594	5898	25.44	18.28	43.72	54.4%		80.3%
51.75 - 46.75	3541	2710	6252	26.04	18.28	44.32	58.0%		84.9%
46.75 - 45	3627	2752	6379	26.25	18.28	44.53	59.3%		86.4%
45 - 40	4163	2791	6954	29.73	18.28	48.01	57.4%		86.8%
40 - 35	4451	2912	7362	30.40	18.28	48.68	60.4%		90.6%
35 - 30	4751	3035	7786	31.07	18.28	49.35	63.2%		94.1%
30 - 26.25	4985	3129	8115	31.57	18.28	49.85	65.3%		96.7%
26.25 - 26	5001	3953	8954	31.60	22.97	54.57	59.5%	82.3%	
26 - 21	5326	4114	9440	32.27	22.97	55.24	62.0%	85.1%	
21 - 16	5665	4277	9942	32.94	22.97	55.91	64.5%	87.8%	
16 - 11	6017	4445	10462	33.61	22.97	56.58	66.8%	90.4%	
11 - 6	6384	4615	10999	34.28	22.97	57.25	69.1%	92.8%	
6 - 1	6766	4789	11554	34.95	22.97	57.92	71.4%	95.1%	
1 - 0	6844	4824	11667	35.09	22.97	58.06	71.8%	95.5%	

Note: Section capacity checked in 5 degree increments.
Rating per TIA-222-H Section 15.5.

Monopole Flange Plate Connection

BU #	876382
Site Name	RLIN / LAVIANA ORCHA
Order #	517078 Rev. 0

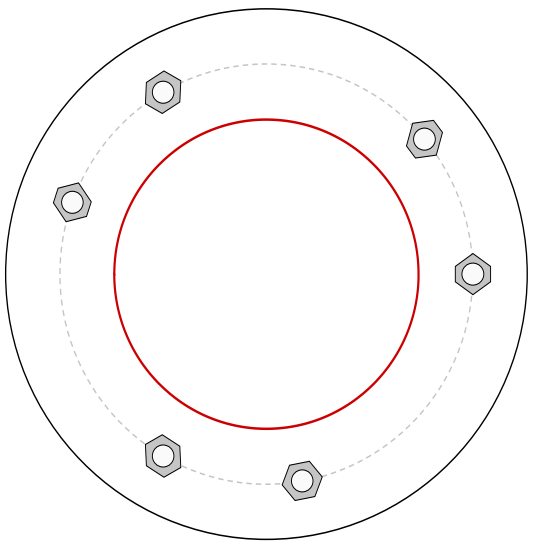
TIA-222 Revision	H

Elevation = 123 ft.

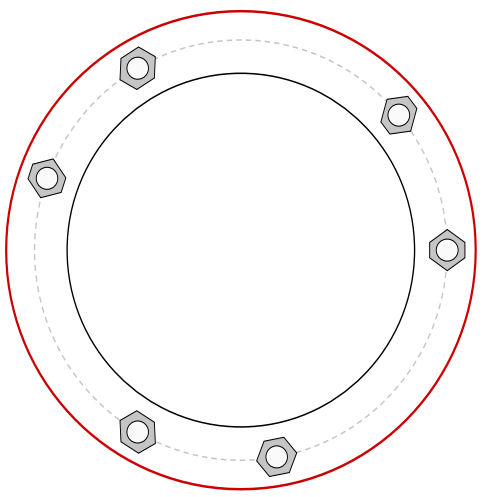
Applied Loads	
Moment (kip-ft)	31.56
Axial Force (kips)	1.78
Shear Force (kips)	3.38

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(6) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 19" BC

Top Plate Data

24" OD x 1.5" Plate (A572-65; Fy=65 ksi, Fu=80 ksi)

Bottom Plate Data

16" ID x 0.75" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

14" x 0.349" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Bottom Pole Data

22" x 0.1875" 18-sided pole (A607-60; Fy=60 ksi, Fu=75 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	12.98	
Allowable (kips)	54.53	
Stress Rating:	**22.7%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	6.81	(Flexural)
Allowable Stress (ksi):	58.50	
Stress Rating:	**11.1%**	**Pass**
Tension Side Stress Rating:	**7.0%**	**Pass**

Bottom Plate Capacity

Max Stress (ksi):	20.26	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**59.6%**	**Pass**
Tension Side Stress Rating:	**N/A**	

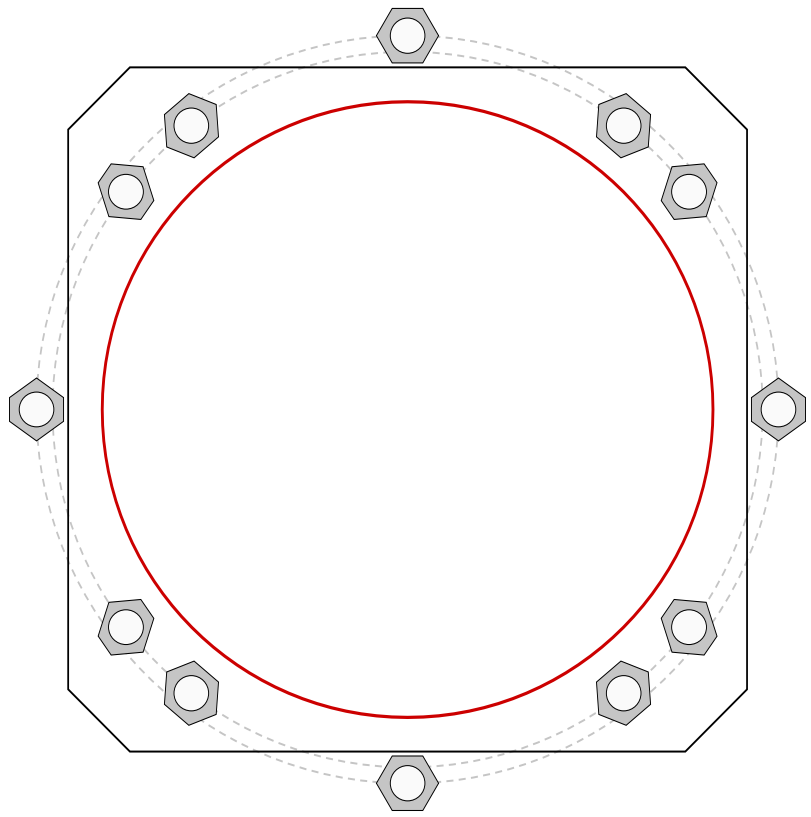
Monopole Base Plate Connection

Site Info	
BU #	876382
Site Name	RLIN / LAVIANA ORCHA
Order #	517078 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1.75

Applied Loads	
Moment (kip-ft)	2256.11
Axial Force (kips)	35.79
Shear Force (kips)	23.98

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (8) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 46" BC

Anchor Spacing: 6 in

GROUP 2: (4) 2-1/4" ø bolts (OTHER N; Fy=62.239 ksi, Fu=91.3717 ksi) on 48.08" BC

Base Plate Data

44" OD x 2.75" Plate (F1554-55; Fy=55 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

39.58" x 0.2813" 18-sided pole (A607-60; Fy=60 ksi, Fu=75 ksi)

Analysis Results

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

GROUP 1:		
Pu_c = 194.43	ϕPn_c = 268.39	**Stress Rating**
Vu = 3	ϕVn = 120.77	**69.1%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2:		
Pu_c = 198.73	ϕPn_c = 222.72	**Stress Rating**
Vu = 0	ϕVn = 100.22	**85.0%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	27.17	(Flexural)
Allowable Stress (ksi):	49.5	
Stress Rating:	**52.3%**	**Pass**

Drilled Pier Foundation

BU # :	876382
Site Name:	BERLIN / LAVIANA OF
Order Number:	517078 Rev. 0
TIA-222 Revison:	H
Tower Type:	Monopole

Applied Loads	Comp.	Uplift
Moment (kip-ft)	2256	
Axial Force (kips)	36	
Shear Force (kips)	24	

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

Pier Design Data		
Depth	20	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 20' below grade		
Pier Diameter	6	ft
Rebar Quantity	16	
Rebar Size	11	
Clear Cover to Ties	4	in
Tie Size	5	

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs

Analysis Results		
Soil Lateral Check	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	5.35	-
Soil Safety Factor	2.66	-
Max Moment (kip-ft)	2411.21	-
Rating*	*47.6%*	-
Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	143.49	-
End Bearing (kips)	848.23	-
Weight of Concrete (kips)	93.75	-
Total Capacity (kips)	991.72	-
Axial (kips)	129.75	-
Rating*	*12.5%*	-
Reinforced Concrete Check	*Compression*	*Uplift*
Critical Depth (ft from TOC)	5.17	-
Critical Moment (kip-ft)	2410.89	-
Critical Moment Capacity	3347.01	-
Rating*	*68.6%*	-

Soil Interaction Rating*	**47.6%**
Structural Foundation Rating*	**68.6%**

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

*Rating per TIA-222-H Section 15.5

Soil Profile														
Groundwater Depth	15			# of Layers	4									

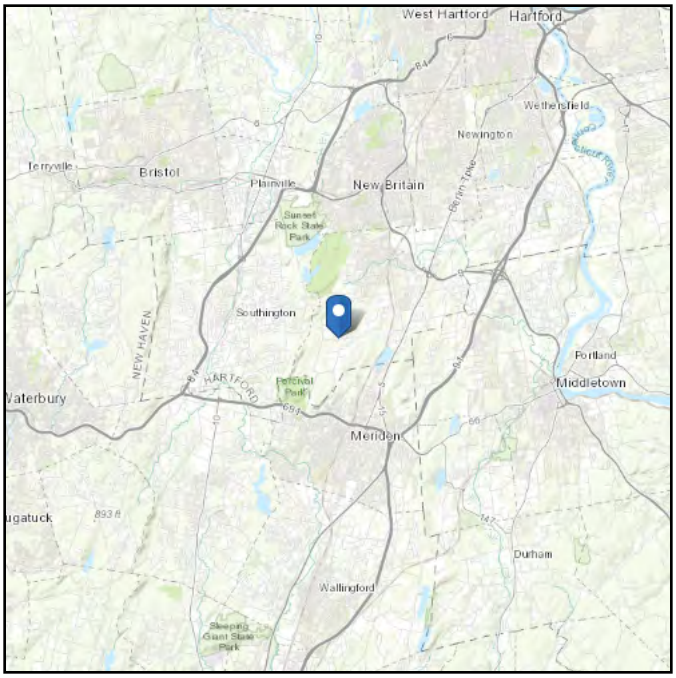
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	3.33	3.33	135	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	3.33	5	1.67	135	150		38	0.688	0.688		0.00		33	Cohesionless
3	5	15	10	135	150		38	0.000	0.000	0.60	0.00			Cohesionless
4	15	20	5	72.6	87.6		38	0.000	0.000	0.60	0.00	40		Cohesionless

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 345.04 ft (NAVD 88)
Latitude: 41.589742
Longitude: -72.805333



Wind

Results:

Wind Speed:	123 Vmph
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	93 Vmph
100-year MRI	100 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Mon Jan 07 2019

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

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

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

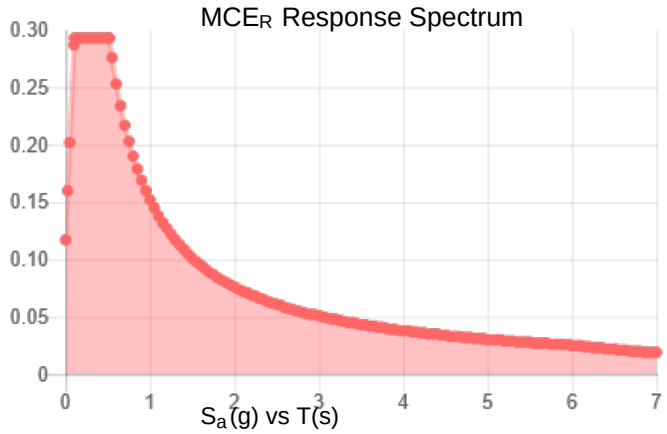
Seismic

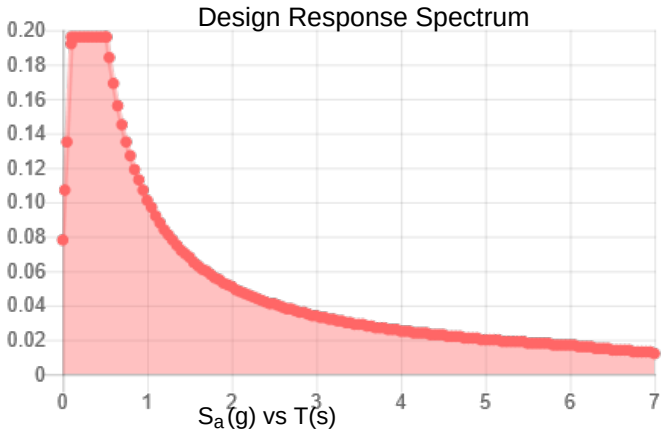
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.183	S_{DS} :	0.196
S_1 :	0.063	S_{D1} :	0.101
F_a :	1.6	T_L :	
F_v :	2.4	PGA :	0.094
S_{MS} :		PGA_M :	0.15
S_{M1} :		F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Mon Jan 07 2019

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Mon Jan 07 2019

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

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

Exhibit E

Mount Analysis

Date: **May 19, 2020**

Darcy Tarr
Crown Castle
6325 Ardey Kell Rd., Suite 600
Charlotte, NC 28277
(704) 405.6589

POD Group
1033 E Turkeyfoot Lake Rd. Suite 206
Akron, OH 44312
(330) 961.7432
mhoudeshell@podgrp.com

Subject:	**Mount Analysis Report**	
Carrier Designation:	**AT&T Mobility**	
	Carrier Site Number:	**CTL01031**
	Carrier Site Name:	**59417**
	FA Number:	**10041794**
	PACE Number:	**MRCTB046517**
Crown Castle Designation:	**Crown Castle BU Number:**	**876382**
	Crown Castle Site Name:	**BERLIN /LAVIANA ORCHARD**
	Crown Castle JDE Job Number:	**605418**
	Crown Castle Order Number:	**517078 Rev 0**
Engineering Firm Designation:	**POD Report Designation:**	**20-64274**
Site Data:	**1684 Chamberlain Highway, Berlin, Hartford County, CT 6037** **Latitude 41°35'23.07" Longitude -72°48'19.20"**	
Structure Information:	**Tower Height & Type:**	**133 ft Monopole**
	Mount Elevation:	**133 ft**
	Mount Type:	**9 ft Pipe Mount**

Dear Darcy Tarr,

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

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

9 ft Pipe Mount (Alpha, Beta Sector)	**Sufficient**
9 ft Pipe Mount (Gamma Sector)	**Sufficient**

The analysis has been performed in accordance with the TIA-222-H Standard based upon an ultimate 3-second gust wind speed of 118 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:

5/19/20

Jason Cheronis, P.E.
Connecticut PE #: PEN.0032793

TABLE OF CONTENTS

1) INTRODUCTION

This mount is an existing 9 ft Pipe Mount. This mount is installed at the 133 ft elevation on three sectors of the 133 ft Monopole.

2) ANALYSIS CRITERIA

TIA-222 Revision: TIA-222-H
Risk Category: II
Ultimate Wind Speed: 118 mph
Exposure Category: C
Topographic Factor at Base: 1.000
Topographic Factor at Mount: 1.000
Ice Thickness: 1.5 in
Wind Speed with Ice: 50 mph
Seismic S_s: 0.200
Seismic S_1: 0.055
***Live Loading Wind Speed:** 0 mph
***Man Live Load at Mid/End-Points:** 0 lb
***Man Live Load at Mount Pipes:** 0 lb

***Note:** Live loads are not considered because this mount is not man rated.

Table 1 - Final Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details	Note
133	133	3	CCI	TPA65R-BU8D_CCIV2	9 ft Mount Pipe	-
		3	Ericsson	RRUS 4415 B25		
		3	Ericsson	RRUS 4449 B5/B12		
		3	Kaelus	DBC0111F2V62-1		
		2	Raycap	DC6-48-60-18-8F		

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Application	-	Crown Castle Order ID: 517078 Rev 0 Date: 05/18/2020	Crown Castle
RFDS	-	Crown Castle Name: CTL01031 Date: 03/10/2020	Crown Castle
Manufacturer Drawing	-	Andrew Part Number: MC-RM1030-3 Date: 08/30/2004	Commscope
Construction Drawing	-	HDG Site #: CT1031 Date: 12/10/2018	Crown Castle

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. Selected output from the analysis are included in the Appendices.

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

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 Tower Mount Analysis (Revision B). In addition, this analysis is in accordance with AT&T's mount technical directive.

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed, and maintained in good condition in accordance with its original design, TIA Standards, and/or manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
3) 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.
4) The weight of the mount was increased 10% in the analysis to account for connections, coax, and jumpers.
5) 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.
6) Steel grades have been assumed as follows, unless noted otherwise:
    a. Pipe — ASTM A53 (GR 35)
    b. Connection Bolts — ASTM A325

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and POD Group should be allowed to review any new information to determine its effect on the structural integrity of the mount.

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Alpha/Beta)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
-	Mount Pipe	MP ALPHA1	133	29.6	Pass

Structure Rating (max from all components) =	29.6%

4.1) Recommendations (Alpha/Beta)

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

Table 4 – AT&T Specification (Alpha/Beta)

Wind Speed (mph)	Ice Thickness (in)	Height (ft)	Exposure	Class	Topo	# of Pipes	Allowable EPA per Pipe (ft sq.)	Allowable Weight per Sector (lbs)
118	1.5	133	C	II	1	1	23.90	1500

Table 5 - Mount Component Stresses vs. Capacity (Gamma)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
-	Mount Pipe	MP GAMMA1	133	29.6	Pass

Structure Rating (max from all components) =	29.6%

4.2) Recommendations (Gamma)

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

Table 6 – AT&T Specification (Gamma)

Wind Speed (mph)	Ice Thickness (in)	Height (ft)	Exposure	Class	Topo	# of Pipes	Allowable EPA per Pipe (ft sq.)	Allowable Weight per Sector (lbs)
118	1.5	133	C	II	1	1	23.90	1500

5) DISCLAIMER OF WARRANTIES

POD Group has not performed a site visit to the structure to verify the member sizes or antenna/coax loading unless noted otherwise. If the existing conditions are not as represented in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the structure or foundation. This report does not replace a full structure inspection. The structure, foundations, and mounting systems are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by POD Group in connection with this Structural Analysis are limited to a computer analysis of the structure and theoretical capacity of its main structural members. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

POD Group does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing structure. POD Group provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation in excess of the code specified amount, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed structure. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from POD Group, but are beyond the scope of this report.

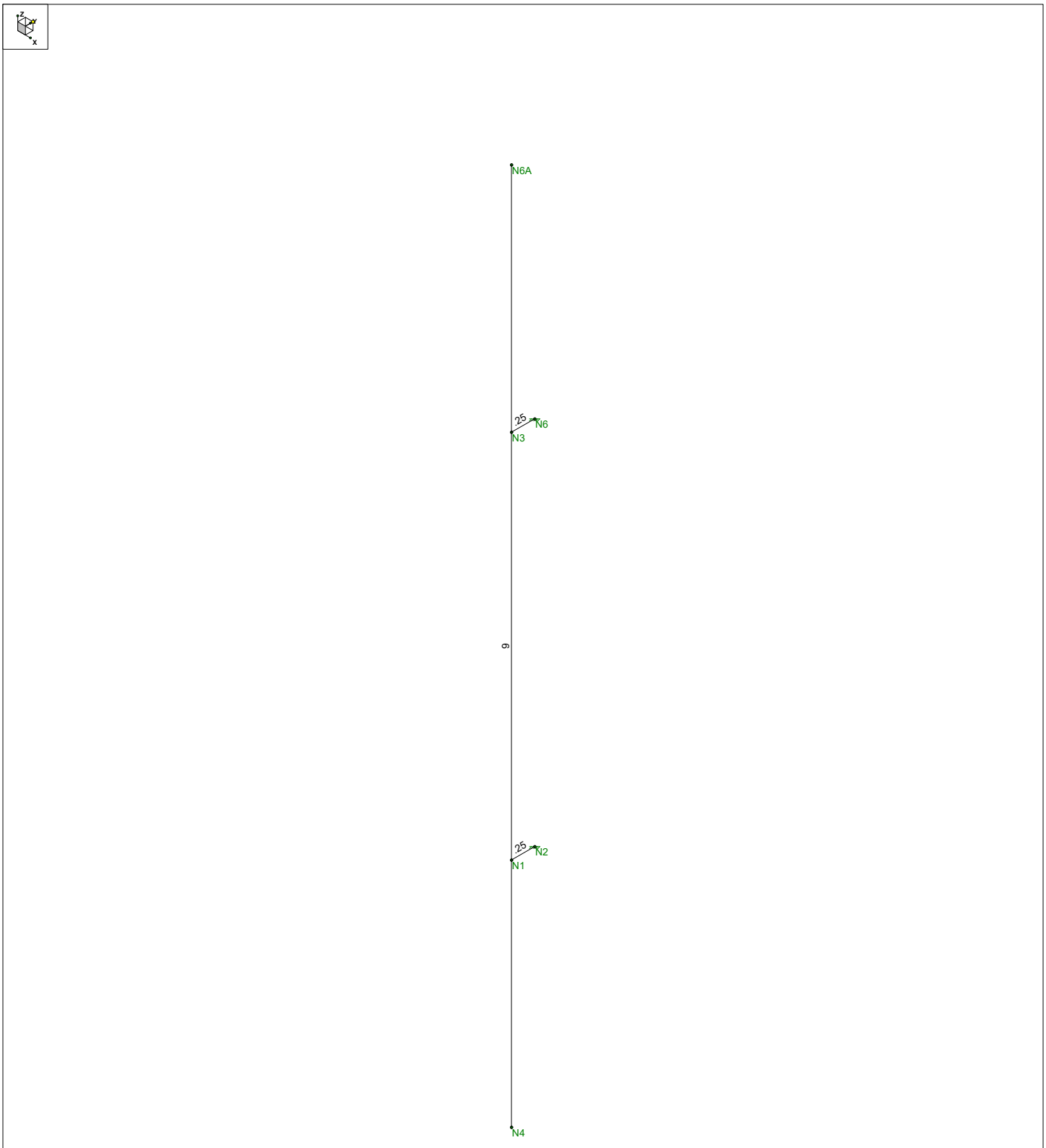
POD Group makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this structure. POD Group will not be responsible whatsoever, for or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of POD Group pursuant to this report will be limited to the total fee received for preparation of this report.

APPENDIX A

Wire Frame and Rendered Models (Alpha/Beta)

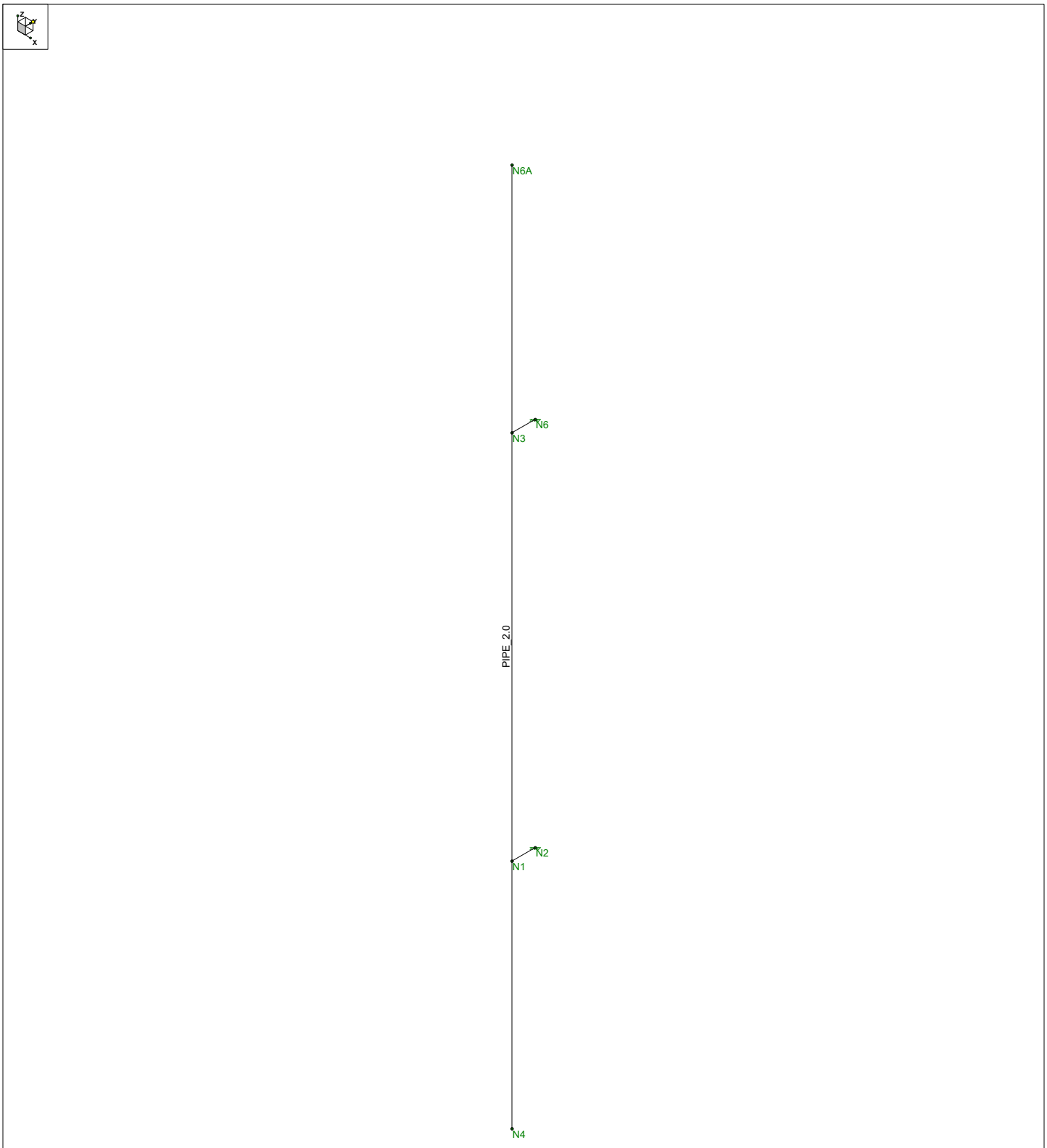
Loads: BLC 44,

POD		SK - 2
TAM		May 19, 2020 at 10:46 AM
20-64274		876382.r3d



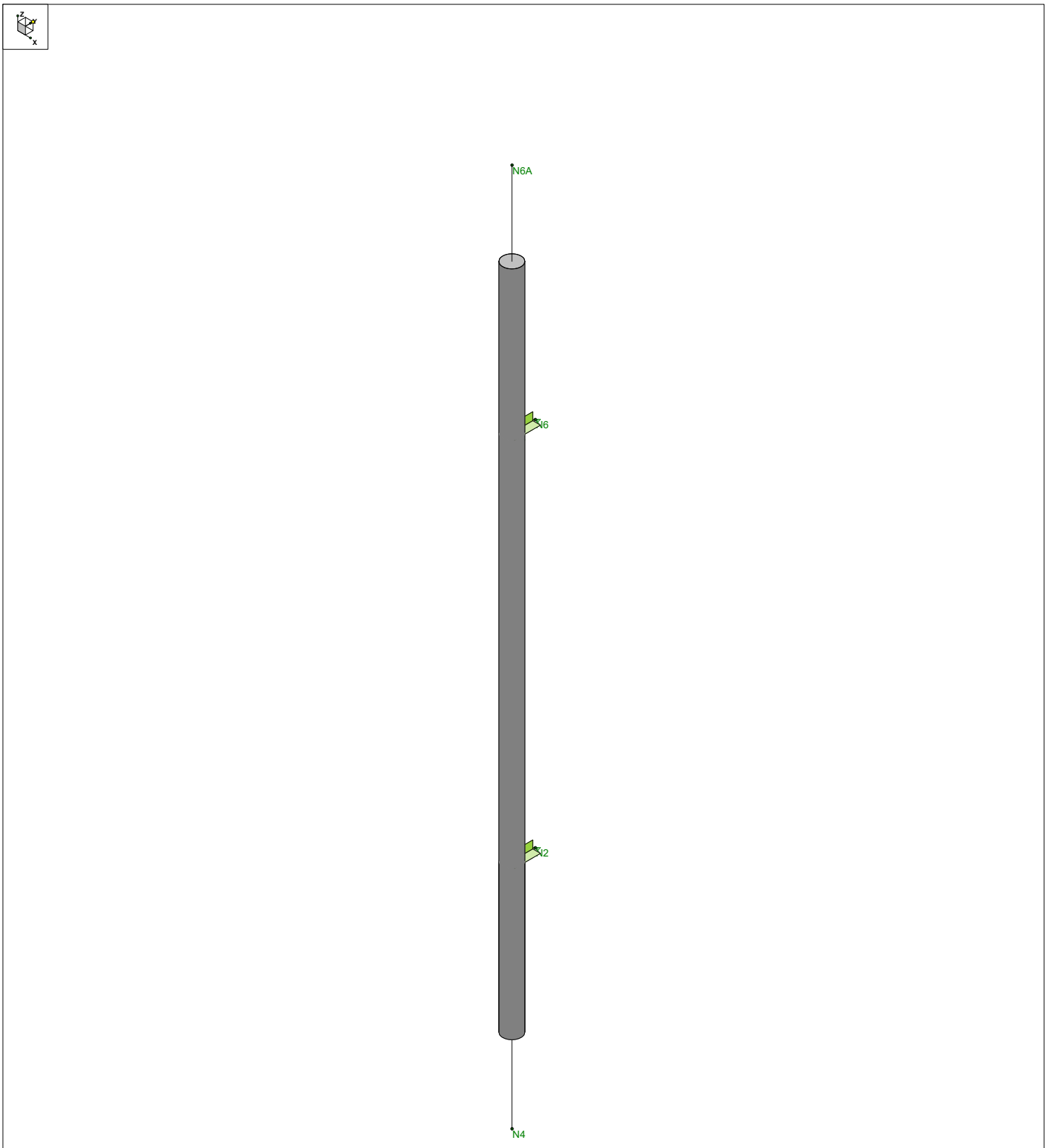
Member Length (ft) Displayed
Loads: BLC 44,

POD		SK - 4
TAM		May 19, 2020 at 10:47 AM
20-64274		876382.r3d



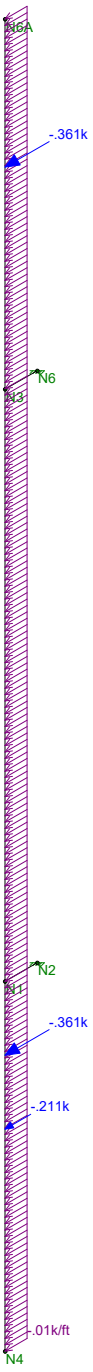
Loads: BLC 44,

POD		SK - 3
TAM		May 19, 2020 at 10:47 AM
20-64274		876382.r3d



Loads: BLC 44,

POD		SK - 1
TAM		May 19, 2020 at 10:46 AM
20-64274		876382.r3d



Loads: BLC 2, Wind Load (0)

POD		SK - 5
TAM		May 19, 2020 at 10:47 AM
20-64274		876382.r3d

APPENDIX B

Software Input Calculations (Alpha/Beta)

POD
POWER OF DESIGN

POD Job #	**20-64274**
Site Number	**876382**
Site Name	**BERLIN / LAVIANA**

General Site Information

Mount Type	MF	Risk Category	II	I (seismic)	1	
V (Wind Speed)	118	I(ice)	1	Sms	0.320	
Z_s	354			Sm1	0.132	
ti	1.5	Ss	0.2	Sds	0.213	
Vi	50	S1	0.055	Sd1	0.088	
Kzt	1	Soil Site Class	D (assumed)	Seismic Design Category	B	
Exposure	C	Fa	1.600			
zg	900	Fv	2.400	Seismic Analysis Not Required		
α	9.5			R	2	TIA-222-H 16.7
Kmin	0.85	Tower Type	Monopole	As	1	TIA-222-H 16.7
G_H	1	Tower Height	133	Cs, Min	0.03	TIA-222-H 2.7.7.1.1
Ke	0.99			Cs	0.106666667	TIA-222-H 2.7.7.1.1
K_D	0.95					
K_a	0.9					

Appurtenance Information

Model	Shielded	% Shielded	Centerline	Centerline on MP	Spacing (in)	Azimuth	Sector	Quantity		MP #
TPA65R-BU8D_CCIV2			133	4	72		A	1	1	
RRUS 4415			133	4			A	1	1	
RRUS 4449 B5/B12			133	4			A	1	1	
DBC0108F1V92-1			133	4			A	1	1	
DC6-48-60-18-8F			133	4			A	1	1	

Mount Information

Elevation (ft)	133	Grating Thickness (in)	
K_z	1.34	Grating Ice Weight (k/ft²)	0.016
Kiz	1.15		
tiz	1.72		

	Length (ft)	Width (in)	Centerline
Mount Pipes	8	2.375	133

Round Members

Member	Length (ft)	Width (in)	Frame Member	# of Members

Flat Members

Member	Length (ft)	Width (in)	Shape	A	B	C	D	Frame Member	# of Members

Version 3.11

Appurtenance Wind Calculations

Model	Height	Width	Depth	Weight (lbs)	Kz	qz (lb/ft$_2$)	$(EPA)_N$ (ft^2)	$(EPA)_T$(ft^2)	Wind Force (Kips) Front	Side	Alpha	Beta	Gamma
TPA65R-BU8D_CCIV2	96.0	20.7	7.7	87.1	1.34	44.93	16.08	7.31	0.723	0.328	0.624	0.624	0.328
RRUS 4415	15.0	13.2	5.4	44.0	1.34	44.93	1.48	0.61	0.066	0.027	0.057	0.057	0.027
RRUS 4449 B5/B12	17.9	13.2	9.4	71.0	1.34	44.93	1.77	1.27	0.080	0.057	0.074	0.074	0.057
DBC0108F1V92-1	12.6	10.5	10.1	48.5	1.34	44.93	0.29	0.18	0.013	0.008	0.012	0.012	0.008
DC6-48-60-18-8F	31.3	11.0	11.0	32.8	1.34	44.93	1.09	1.21	0.049	0.054	0.050	0.050	0.054

Appurtenance Ice Calculations

Model	tiz (in)	Height	Width	Depth	Weight (lbs)	Kiz	qz (lb/ft$_2$)	$(EPA)_N$ (ft^2)	$(EPA)_T$(ft^2)	Wind Force (Kips) Front	Side	Alpha	Beta	Gamma
TPA65R-BU8D_CCIV2	1.72	99.45	24.15	11.15	371.80	1.15	8.07	11.05	5.84	0.089	0.047	0.079	0.079	0.047
RRUS 4415	1.72	18.41	16.64	8.84	53.27	1.15	8.07	1.34	0.72	0.011	0.006	0.010	0.010	0.006
RRUS 4449 B5/B12	1.72	21.35	16.64	12.89	76.14	1.15	8.07	1.56	1.21	0.013	0.010	0.012	0.012	0.010
DBC0108F1V92-1	1.72	16.01	13.92	13.58	54.88	1.15	8.07	0.41	0.32	0.003	0.003	0.003	0.003	0.003
DC6-48-60-18-8F	1.72	34.70	14.45	14.45	112.21	1.15	8.07	2.19	2.19	0.018	0.018	0.018	0.018	0.018

Round Members

Member	Wind Calculations q_z (lb/ft^2)	Ar	C	Rrf	Cas	EPA (ft^2)	Load (k/ft)	Width (in)	Weight (k/ft)	Ice Calculations q_z (lb/ft^2)	Arice	Rrfice	Cas	EPA (ft^2)	Load (k/ft)

Flat Members

Member	Wind Calculations q_z (lb/ft^2)	Af	Cas	EPA	Load (k/ft)	Width (in)	Weight (k/ft)	Ice Calculations q_z (lb/ft^2)	Arice	Rrfice	Cas	EPA	Load (k/ft)

Appurtenance Seismic Calculations

Model	Weight	Sds	ρ	Cs	As	Ev	Eh
TPA65R-BU8D_CCIV2	87.1	0.213	1.000	0.107	1.000	0.004	0.009
RRUS 4415	44.0	0.213	1.000	0.107	1.000	0.002	0.005
RRUS 4449 B5/B12	71.0	0.213	1.000	0.107	1.000	0.003	0.008
DBC0108F1V92-1	48.5	0.213	1.000	0.107	1.000	0.002	0.005
DC6-48-60-18-8F	32.8	0.213	1.000	0.107	1.000	0.001	0.003

Version 3.11

APPENDIX C

Software Analysis Output (Alpha/Beta)

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	MP ALPHA1	PIPE_2.0	9			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Sha...	Type	Design List	Material	Design Ru...
1	MP ALPHA1	N4	N6A			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
2	1	N1	N2			RIGID	None	None	RIGID	Typical
3	2	N3	N6			RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl R...	Analysis...	Inactive	Seismi...
1	MP ALPH...						Yes				None
2	1						Yes	** NA **			None
3	2						Yes	** NA **			None

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	1.25	65	1.15
8	A913 Gr.65	29000	11154	.3	.65	.49	65	1.1	80	1.1

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	-.361	8
2	MP ALPHA1	Y	-.361	2
3	MP ALPHA1	Y	-.038	1.5
4	MP ALPHA1	Y	-.08	1.5
5	MP ALPHA1	Y	-.044	1.5
6	MP ALPHA1	Y	-.049	1.5

Member Point Loads (BLC 3 : Dead Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Z	-.044	8
2	MP ALPHA1	Z	-.044	2
3	MP ALPHA1	Z	-.044	1.5
4	MP ALPHA1	Z	-.071	1.5
5	MP ALPHA1	Z	-.049	1.5
6	MP ALPHA1	Z	-.033	1.5

Member Point Loads (BLC 4 : Wind Load (30))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	-.27	8
2	MP ALPHA1	Y	-.27	2
3	MP ALPHA1	X	-.156	8
4	MP ALPHA1	X	-.156	2

Member Point Loads (BLC 4 : Wind Load (30)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
5	MP ALPHA1	Y	-.031	1.5
6	MP ALPHA1	X	-.018	1.5
7	MP ALPHA1	Y	-.064	1.5
8	MP ALPHA1	X	-.037	1.5
9	MP ALPHA1	Y	-.038	1.5
10	MP ALPHA1	X	-.022	1.5
11	MP ALPHA1	Y	-.044	1.5
12	MP ALPHA1	X	-.025	1.5

Member Point Loads (BLC 5 : Wind Load (60))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	-.107	8
2	MP ALPHA1	Y	-.107	2
3	MP ALPHA1	X	-.185	8
4	MP ALPHA1	X	-.185	2
5	MP ALPHA1	Y	-.015	1.5
6	MP ALPHA1	X	-.025	1.5
7	MP ALPHA1	Y	-.031	1.5
8	MP ALPHA1	X	-.054	1.5
9	MP ALPHA1	Y	-.022	1.5
10	MP ALPHA1	X	-.037	1.5
11	MP ALPHA1	Y	-.027	1.5
12	MP ALPHA1	X	-.046	1.5

Member Point Loads (BLC 6 : Wind Load (90))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	X	-.164	8
2	MP ALPHA1	X	-.164	2
3	MP ALPHA1	X	-.026	1.5
4	MP ALPHA1	X	-.057	1.5
5	MP ALPHA1	X	-.043	1.5
6	MP ALPHA1	X	-.054	1.5

Member Point Loads (BLC 7 : Wind Load (120))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	.107	8
2	MP ALPHA1	Y	.107	2
3	MP ALPHA1	X	-.185	8
4	MP ALPHA1	X	-.185	2
5	MP ALPHA1	Y	.015	1.5
6	MP ALPHA1	X	-.025	1.5
7	MP ALPHA1	Y	.031	1.5
8	MP ALPHA1	X	-.054	1.5
9	MP ALPHA1	Y	.022	1.5
10	MP ALPHA1	X	-.037	1.5
11	MP ALPHA1	Y	.027	1.5
12	MP ALPHA1	X	-.046	1.5

Member Point Loads (BLC 8 : Wind Load (150))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	.27	8
2	MP ALPHA1	Y	.27	2
3	MP ALPHA1	X	-.156	8
4	MP ALPHA1	X	-.156	2
5	MP ALPHA1	Y	.031	1.5

Member Point Loads (BLC 8 : Wind Load (150)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
6	MP ALPHA1	X	-.018	1.5
7	MP ALPHA1	Y	.064	1.5
8	MP ALPHA1	X	-.037	1.5
9	MP ALPHA1	Y	.038	1.5
10	MP ALPHA1	X	-.022	1.5
11	MP ALPHA1	Y	.044	1.5
12	MP ALPHA1	X	-.025	1.5

Member Point Loads (BLC 9 : Wind Load (180))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	.361	8
2	MP ALPHA1	Y	.361	2
3	MP ALPHA1	Y	.038	1.5
4	MP ALPHA1	Y	.08	1.5
5	MP ALPHA1	Y	.044	1.5
6	MP ALPHA1	Y	.049	1.5

Member Point Loads (BLC 10 : Wind Load (210))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	.27	8
2	MP ALPHA1	Y	.27	2
3	MP ALPHA1	X	.156	8
4	MP ALPHA1	X	.156	2
5	MP ALPHA1	Y	.031	1.5
6	MP ALPHA1	X	.018	1.5
7	MP ALPHA1	Y	.064	1.5
8	MP ALPHA1	X	.037	1.5
9	MP ALPHA1	Y	.038	1.5
10	MP ALPHA1	X	.022	1.5
11	MP ALPHA1	Y	.044	1.5
12	MP ALPHA1	X	.025	1.5

Member Point Loads (BLC 11 : Wind Load (240))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	.107	8
2	MP ALPHA1	Y	.107	2
3	MP ALPHA1	X	.185	8
4	MP ALPHA1	X	.185	2
5	MP ALPHA1	Y	.015	1.5
6	MP ALPHA1	X	.025	1.5
7	MP ALPHA1	Y	.031	1.5
8	MP ALPHA1	X	.054	1.5
9	MP ALPHA1	Y	.022	1.5
10	MP ALPHA1	X	.037	1.5
11	MP ALPHA1	Y	.027	1.5
12	MP ALPHA1	X	.046	1.5

Member Point Loads (BLC 12 : Wind Load (270))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	X	.164	8
2	MP ALPHA1	X	.164	2
3	MP ALPHA1	X	.026	1.5
4	MP ALPHA1	X	.057	1.5
5	MP ALPHA1	X	.043	1.5
6	MP ALPHA1	X	.054	1.5

Member Point Loads (BLC 13 : Wind Load (300))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	-.107	8
2	MP ALPHA1	Y	-.107	2
3	MP ALPHA1	X	.185	8
4	MP ALPHA1	X	.185	2
5	MP ALPHA1	Y	-.015	1.5
6	MP ALPHA1	X	.025	1.5
7	MP ALPHA1	Y	-.031	1.5
8	MP ALPHA1	X	.054	1.5
9	MP ALPHA1	Y	-.022	1.5
10	MP ALPHA1	X	.037	1.5
11	MP ALPHA1	Y	-.027	1.5
12	MP ALPHA1	X	.046	1.5

Member Point Loads (BLC 14 : Wind Load (330))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	-.27	8
2	MP ALPHA1	Y	-.27	2
3	MP ALPHA1	X	.156	8
4	MP ALPHA1	X	.156	2
5	MP ALPHA1	Y	-.031	1.5
6	MP ALPHA1	X	.018	1.5
7	MP ALPHA1	Y	-.064	1.5
8	MP ALPHA1	X	.037	1.5
9	MP ALPHA1	Y	-.038	1.5
10	MP ALPHA1	X	.022	1.5
11	MP ALPHA1	Y	-.044	1.5
12	MP ALPHA1	X	.025	1.5

Member Point Loads (BLC 15 : Maintanence (0))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	-.023	8
2	MP ALPHA1	Y	-.023	2
3	MP ALPHA1	Y	-.002	1.5
4	MP ALPHA1	Y	-.005	1.5
5	MP ALPHA1	Y	-.003	1.5
6	MP ALPHA1	Y	-.003	1.5

Member Point Loads (BLC 16 : Maintanence (30))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	-.017	8
2	MP ALPHA1	Y	-.017	2
3	MP ALPHA1	X	-.01	8
4	MP ALPHA1	X	-.01	2
5	MP ALPHA1	Y	-.002	1.5
6	MP ALPHA1	X	-.001	1.5
7	MP ALPHA1	Y	-.004	1.5
8	MP ALPHA1	X	-.002	1.5
9	MP ALPHA1	Y	-.002	1.5
10	MP ALPHA1	X	-.001	1.5
11	MP ALPHA1	Y	-.003	1.5
12	MP ALPHA1	X	-.002	1.5

Member Point Loads (BLC 17 : Maintanence (60))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	-.007	8

Member Point Loads (BLC 17 : Maintanence (60)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
2	MP ALPHA1	Y	-.007	2
3	MP ALPHA1	X	-.012	8
4	MP ALPHA1	X	-.012	2
5	MP ALPHA1	Y	-.00095	1.5
6	MP ALPHA1	X	-.002	1.5
7	MP ALPHA1	Y	-.002	1.5
8	MP ALPHA1	X	-.004	1.5
9	MP ALPHA1	Y	-.001	1.5
10	MP ALPHA1	X	-.002	1.5
11	MP ALPHA1	Y	-.002	1.5
12	MP ALPHA1	X	-.003	1.5

Member Point Loads (BLC 18 : Maintanence (90))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	X	-.011	8
2	MP ALPHA1	X	-.011	2
3	MP ALPHA1	X	-.002	1.5
4	MP ALPHA1	X	-.004	1.5
5	MP ALPHA1	X	-.003	1.5
6	MP ALPHA1	X	-.004	1.5

Member Point Loads (BLC 19 : Maintanence (120))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	.007	8
2	MP ALPHA1	Y	.007	2
3	MP ALPHA1	X	-.012	8
4	MP ALPHA1	X	-.012	2
5	MP ALPHA1	Y	.00095	1.5
6	MP ALPHA1	X	-.002	1.5
7	MP ALPHA1	Y	.002	1.5
8	MP ALPHA1	X	-.004	1.5
9	MP ALPHA1	Y	.001	1.5
10	MP ALPHA1	X	-.002	1.5
11	MP ALPHA1	Y	.002	1.5
12	MP ALPHA1	X	-.003	1.5

Member Point Loads (BLC 20 : Maintanence (150))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	.017	8
2	MP ALPHA1	Y	.017	2
3	MP ALPHA1	X	-.01	8
4	MP ALPHA1	X	-.01	2
5	MP ALPHA1	Y	.002	1.5
6	MP ALPHA1	X	-.001	1.5
7	MP ALPHA1	Y	.004	1.5
8	MP ALPHA1	X	-.002	1.5
9	MP ALPHA1	Y	.002	1.5
10	MP ALPHA1	X	-.001	1.5
11	MP ALPHA1	Y	.003	1.5
12	MP ALPHA1	X	-.002	1.5

Member Point Loads (BLC 21 : Maintanence (180))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	.023	8
2	MP ALPHA1	Y	.023	2

Member Point Loads (BLC 21 : Maintanence (180)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
3	MP ALPHA1	Y	.002	1.5
4	MP ALPHA1	Y	.005	1.5
5	MP ALPHA1	Y	.003	1.5
6	MP ALPHA1	Y	.003	1.5

Member Point Loads (BLC 22 : Maintanence (210))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	.017	8
2	MP ALPHA1	Y	.017	2
3	MP ALPHA1	X	.01	8
4	MP ALPHA1	X	.01	2
5	MP ALPHA1	Y	.002	1.5
6	MP ALPHA1	X	.001	1.5
7	MP ALPHA1	Y	.004	1.5
8	MP ALPHA1	X	.002	1.5
9	MP ALPHA1	Y	.002	1.5
10	MP ALPHA1	X	.001	1.5
11	MP ALPHA1	Y	.003	1.5
12	MP ALPHA1	X	.002	1.5

Member Point Loads (BLC 23 : Maintanence (240))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	.007	8
2	MP ALPHA1	Y	.007	2
3	MP ALPHA1	X	.012	8
4	MP ALPHA1	X	.012	2
5	MP ALPHA1	Y	.00095	1.5
6	MP ALPHA1	X	.002	1.5
7	MP ALPHA1	Y	.002	1.5
8	MP ALPHA1	X	.004	1.5
9	MP ALPHA1	Y	.001	1.5
10	MP ALPHA1	X	.002	1.5
11	MP ALPHA1	Y	.002	1.5
12	MP ALPHA1	X	.003	1.5

Member Point Loads (BLC 24 : Maintanence (270))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	X	.011	8
2	MP ALPHA1	X	.011	2
3	MP ALPHA1	X	.002	1.5
4	MP ALPHA1	X	.004	1.5
5	MP ALPHA1	X	.003	1.5
6	MP ALPHA1	X	.004	1.5

Member Point Loads (BLC 25 : Maintanence (300))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	-.007	8
2	MP ALPHA1	Y	-.007	2
3	MP ALPHA1	X	.012	8
4	MP ALPHA1	X	.012	2
5	MP ALPHA1	Y	-.00095	1.5
6	MP ALPHA1	X	.002	1.5
7	MP ALPHA1	Y	-.002	1.5
8	MP ALPHA1	X	.004	1.5
9	MP ALPHA1	Y	-.001	1.5

Member Point Loads (BLC 25 : Maintanence (300)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
10	MP ALPHA1	X	.002	1.5
11	MP ALPHA1	Y	-.002	1.5
12	MP ALPHA1	X	.003	1.5

Member Point Loads (BLC 26 : Maintanence (330))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	-.017	8
2	MP ALPHA1	Y	-.017	2
3	MP ALPHA1	X	.01	8
4	MP ALPHA1	X	.01	2
5	MP ALPHA1	Y	-.002	1.5
6	MP ALPHA1	X	.001	1.5
7	MP ALPHA1	Y	-.004	1.5
8	MP ALPHA1	X	.002	1.5
9	MP ALPHA1	Y	-.002	1.5
10	MP ALPHA1	X	.001	1.5
11	MP ALPHA1	Y	-.003	1.5
12	MP ALPHA1	X	.002	1.5

Member Point Loads (BLC 27 : Ice Dead Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Z	-.186	8
2	MP ALPHA1	Z	-.186	2
3	MP ALPHA1	Z	-.053	1.5
4	MP ALPHA1	Z	-.076	1.5
5	MP ALPHA1	Z	-.055	1.5
6	MP ALPHA1	Z	-.112	1.5

Member Point Loads (BLC 28 : Ice Wind Load (0))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	-.045	8
2	MP ALPHA1	Y	-.045	2
3	MP ALPHA1	Y	-.016	1.5
4	MP ALPHA1	Y	-.013	1.5
5	MP ALPHA1	Y	-.008	1.5
6	MP ALPHA1	Y	-.018	1.5

Member Point Loads (BLC 29 : Ice Wind Load (30))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	-.034	8
2	MP ALPHA1	Y	-.034	2
3	MP ALPHA1	X	-.02	8
4	MP ALPHA1	X	-.02	2
5	MP ALPHA1	Y	-.013	1.5
6	MP ALPHA1	X	-.007	1.5
7	MP ALPHA1	Y	-.01	1.5
8	MP ALPHA1	X	-.006	1.5
9	MP ALPHA1	Y	-.007	1.5
10	MP ALPHA1	X	-.004	1.5
11	MP ALPHA1	Y	-.015	1.5
12	MP ALPHA1	X	-.009	1.5

Member Point Loads (BLC 30 : Ice Wind Load (60))

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

Member Point Loads (BLC 30 : Ice Wind Load (60)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	-.014	8
2	MP ALPHA1	Y	-.014	2
3	MP ALPHA1	X	-.025	8
4	MP ALPHA1	X	-.025	2
5	MP ALPHA1	Y	-.007	1.5
6	MP ALPHA1	X	-.012	1.5
7	MP ALPHA1	Y	-.005	1.5
8	MP ALPHA1	X	-.009	1.5
9	MP ALPHA1	Y	-.004	1.5
10	MP ALPHA1	X	-.007	1.5
11	MP ALPHA1	Y	-.009	1.5
12	MP ALPHA1	X	-.015	1.5

Member Point Loads (BLC 31 : Ice Wind Load (90))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	X	-.024	8
2	MP ALPHA1	X	-.024	2
3	MP ALPHA1	X	-.013	1.5
4	MP ALPHA1	X	-.01	1.5
5	MP ALPHA1	X	-.008	1.5
6	MP ALPHA1	X	-.018	1.5

Member Point Loads (BLC 32 : Ice Wind Load (120))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	.014	8
2	MP ALPHA1	Y	.014	2
3	MP ALPHA1	X	-.025	8
4	MP ALPHA1	X	-.025	2
5	MP ALPHA1	Y	.007	1.5
6	MP ALPHA1	X	-.012	1.5
7	MP ALPHA1	Y	.005	1.5
8	MP ALPHA1	X	-.009	1.5
9	MP ALPHA1	Y	.004	1.5
10	MP ALPHA1	X	-.007	1.5
11	MP ALPHA1	Y	.009	1.5
12	MP ALPHA1	X	-.015	1.5

Member Point Loads (BLC 33 : Ice Wind Load (150))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	.034	8
2	MP ALPHA1	Y	.034	2
3	MP ALPHA1	X	-.02	8
4	MP ALPHA1	X	-.02	2
5	MP ALPHA1	Y	.013	1.5
6	MP ALPHA1	X	-.007	1.5
7	MP ALPHA1	Y	.01	1.5
8	MP ALPHA1	X	-.006	1.5
9	MP ALPHA1	Y	.007	1.5
10	MP ALPHA1	X	-.004	1.5
11	MP ALPHA1	Y	.015	1.5
12	MP ALPHA1	X	-.009	1.5

Member Point Loads (BLC 34 : Ice Wind Load (180))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	.045	8

Member Point Loads (BLC 34 : Ice Wind Load (180)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
2	MP ALPHA1	Y	.045	2
3	MP ALPHA1	Y	.016	1.5
4	MP ALPHA1	Y	.013	1.5
5	MP ALPHA1	Y	.008	1.5
6	MP ALPHA1	Y	.018	1.5

Member Point Loads (BLC 35 : Ice Wind Load (210))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	.034	8
2	MP ALPHA1	Y	.034	2
3	MP ALPHA1	X	.02	8
4	MP ALPHA1	X	.02	2
5	MP ALPHA1	Y	.013	1.5
6	MP ALPHA1	X	.007	1.5
7	MP ALPHA1	Y	.01	1.5
8	MP ALPHA1	X	.006	1.5
9	MP ALPHA1	Y	.007	1.5
10	MP ALPHA1	X	.004	1.5
11	MP ALPHA1	Y	.015	1.5
12	MP ALPHA1	X	.009	1.5

Member Point Loads (BLC 36 : Ice Wind Load (240))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	.014	8
2	MP ALPHA1	Y	.014	2
3	MP ALPHA1	X	.025	8
4	MP ALPHA1	X	.025	2
5	MP ALPHA1	Y	.007	1.5
6	MP ALPHA1	X	.012	1.5
7	MP ALPHA1	Y	.005	1.5
8	MP ALPHA1	X	.009	1.5
9	MP ALPHA1	Y	.004	1.5
10	MP ALPHA1	X	.007	1.5
11	MP ALPHA1	Y	.009	1.5
12	MP ALPHA1	X	.015	1.5

Member Point Loads (BLC 37 : Ice Wind Load (270))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	X	.024	8
2	MP ALPHA1	X	.024	2
3	MP ALPHA1	X	.013	1.5
4	MP ALPHA1	X	.01	1.5
5	MP ALPHA1	X	.008	1.5
6	MP ALPHA1	X	.018	1.5

Member Point Loads (BLC 38 : Ice Wind Load (300))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	-.014	8
2	MP ALPHA1	Y	-.014	2
3	MP ALPHA1	X	.025	8
4	MP ALPHA1	X	.025	2
5	MP ALPHA1	Y	-.007	1.5
6	MP ALPHA1	X	.012	1.5
7	MP ALPHA1	Y	-.005	1.5
8	MP ALPHA1	X	.009	1.5

Member Point Loads (BLC 38 : Ice Wind Load (300)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
9	MP ALPHA1	Y	-.004	1.5
10	MP ALPHA1	X	.007	1.5
11	MP ALPHA1	Y	-.009	1.5
12	MP ALPHA1	X	.015	1.5

Member Point Loads (BLC 39 : Ice Wind Load (330))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	-.034	8
2	MP ALPHA1	Y	-.034	2
3	MP ALPHA1	X	.02	8
4	MP ALPHA1	X	.02	2
5	MP ALPHA1	Y	-.013	1.5
6	MP ALPHA1	X	.007	1.5
7	MP ALPHA1	Y	-.01	1.5
8	MP ALPHA1	X	.006	1.5
9	MP ALPHA1	Y	-.007	1.5
10	MP ALPHA1	X	.004	1.5
11	MP ALPHA1	Y	-.015	1.5
12	MP ALPHA1	X	.009	1.5

Member Point Loads (BLC 40 : Earthquake (x-direction))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	X	-.005	8
2	MP ALPHA1	X	-.005	2
3	MP ALPHA1	X	-.005	1.5
4	MP ALPHA1	X	-.008	1.5
5	MP ALPHA1	X	-.005	1.5
6	MP ALPHA1	X	-.003	1.5

Member Point Loads (BLC 41 : Earthquake (y-direction))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Y	-.005	8
2	MP ALPHA1	Y	-.005	2
3	MP ALPHA1	Y	-.005	1.5
4	MP ALPHA1	Y	-.008	1.5
5	MP ALPHA1	Y	-.005	1.5
6	MP ALPHA1	Y	-.003	1.5

Member Point Loads (BLC 42 : Earthquake (z-direction))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP ALPHA1	Z	-.002	8
2	MP ALPHA1	Z	-.002	2
3	MP ALPHA1	Z	-.002	1.5
4	MP ALPHA1	Z	-.003	1.5
5	MP ALPHA1	Z	-.002	1.5
6	MP ALPHA1	Z	-.001	1.5

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PY	-.01	-.01	0	0

Member Distributed Loads (BLC 4 : Wind Load (30))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]

Member Distributed Loads (BLC 4 : Wind Load (30)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PY	-.009	-.009	0	0
2	MP ALPHA1	PX	-.005	-.005	0	0

Member Distributed Loads (BLC 5 : Wind Load (60))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PY	-.005	-.005	0	0
2	MP ALPHA1	PX	-.009	-.009	0	0

Member Distributed Loads (BLC 6 : Wind Load (90))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PX	-.01	-.01	0	0

Member Distributed Loads (BLC 7 : Wind Load (120))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PY	.005	.005	0	0
2	MP ALPHA1	PX	-.009	-.009	0	0

Member Distributed Loads (BLC 8 : Wind Load (150))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PY	.009	.009	0	0
2	MP ALPHA1	PX	-.005	-.005	0	0

Member Distributed Loads (BLC 9 : Wind Load (180))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PY	.01	.01	0	0

Member Distributed Loads (BLC 10 : Wind Load (210))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PY	.009	.009	0	0
2	MP ALPHA1	PX	.005	.005	0	0

Member Distributed Loads (BLC 11 : Wind Load (240))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PY	.005	.005	0	0
2	MP ALPHA1	PX	.009	.009	0	0

Member Distributed Loads (BLC 12 : Wind Load (270))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PX	.01	.01	0	0

Member Distributed Loads (BLC 13 : Wind Load (300))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PY	-.005	-.005	0	0
2	MP ALPHA1	PX	.009	.009	0	0

Member Distributed Loads (BLC 14 : Wind Load (330))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PY	-.009	-.009	0	0
2	MP ALPHA1	PX	.005	.005	0	0

Member Distributed Loads (BLC 27 : Ice Dead Load)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]

Member Distributed Loads (BLC 27 : Ice Dead Load) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	Z	-.009	-.009	0	0

Member Distributed Loads (BLC 28 : Ice Wind Load (0))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PY	-.004	-.004	0	0

Member Distributed Loads (BLC 29 : Ice Wind Load (30))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PY	-.003	-.003	0	0
2	MP ALPHA1	PX	-.002	-.002	0	0

Member Distributed Loads (BLC 30 : Ice Wind Load (60))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PY	-.002	-.002	0	0
2	MP ALPHA1	PX	-.003	-.003	0	0

Member Distributed Loads (BLC 31 : Ice Wind Load (90))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PX	-.004	-.004	0	0

Member Distributed Loads (BLC 32 : Ice Wind Load (120))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PY	.002	.002	0	0
2	MP ALPHA1	PX	-.003	-.003	0	0

Member Distributed Loads (BLC 33 : Ice Wind Load (150))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PY	.003	.003	0	0
2	MP ALPHA1	PX	-.002	-.002	0	0

Member Distributed Loads (BLC 34 : Ice Wind Load (180))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PY	.004	.004	0	0

Member Distributed Loads (BLC 35 : Ice Wind Load (210))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PY	.003	.003	0	0
2	MP ALPHA1	PX	.002	.002	0	0

Member Distributed Loads (BLC 36 : Ice Wind Load (240))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PY	.002	.002	0	0
2	MP ALPHA1	PX	.003	.003	0	0

Member Distributed Loads (BLC 37 : Ice Wind Load (270))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PX	.004	.004	0	0

Member Distributed Loads (BLC 38 : Ice Wind Load (300))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PY	-.002	-.002	0	0
2	MP ALPHA1	PX	.003	.003	0	0

Member Distributed Loads (BLC 39 : Ice Wind Load (330))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP ALPHA1	PY	-.003	-.003	0	0
2	MP ALPHA1	PX	.002	.002	0	0

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	N2	m...	.39	11	.617	2	.831	36	.332	2	.28	29	.097	11
2		min	-.39	29	-.617	20	.308	17	-.486	20	-.28	11	-.097	29
3	N6	m...	.224	14	.406	2	.299	36	.542	20	.293	14	.056	14
4		min	-.224	26	-.406	20	.073	2	-.578	2	-.293	26	-.056	26
5	Totals:	m...	.611	14	1.024	2	1.131	36						
6		min	-.611	26	-1.024	20	.381	2						

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Live Load	DL								
2	Wind Load (0)	DL					6	1		
3	Dead Load	DL			-1.1		6			
4	Wind Load (30)	DL					12	2		
5	Wind Load (60)	DL					12	2		
6	Wind Load (90)	DL					6	1		
7	Wind Load (120)	DL					12	2		
8	Wind Load (150)	DL					12	2		
9	Wind Load (180)	DL					6	1		
10	Wind Load (210)	DL					12	2		
11	Wind Load (240)	DL					12	2		
12	Wind Load (270)	DL					6	1		
13	Wind Load (300)	DL					12	2		
14	Wind Load (330)	DL					12	2		
15	Maintanence (0)	DL					6			
16	Maintanence (30)	DL					12			
17	Maintanence (60)	DL					12			
18	Maintanence (90)	DL					6			
19	Maintanence (120)	DL					12			
20	Maintanence (150)	DL					12			
21	Maintanence (180)	DL					6			
22	Maintanence (210)	DL					12			
23	Maintanence (240)	DL					12			
24	Maintanence (270)	DL					6			
25	Maintanence (300)	DL					12			
26	Maintanence (330)	DL					12			
27	Ice Dead Load	DL					6	1		
28	Ice Wind Load (0)	DL					6	1		
29	Ice Wind Load (30)	DL					12	2		
30	Ice Wind Load (60)	DL					12	2		
31	Ice Wind Load (90)	DL					6	1		
32	Ice Wind Load (120)	DL					12	2		
33	Ice Wind Load (150)	DL					12	2		
34	Ice Wind Load (180)	DL					6	1		
35	Ice Wind Load (210)	DL					12	2		
36	Ice Wind Load (240)	DL					12	2		
37	Ice Wind Load (270)	DL					6	1		
38	Ice Wind Load (300)	DL					12	2		
39	Ice Wind Load (330)	DL					12	2		
40	Earthquake (x-directi...	DL	-.117				6			

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
41	Earthquake (y-directio...	DL		-.117			6			
42	Earthquake (z-directi...	DL			-.047		6			

Load Combinations

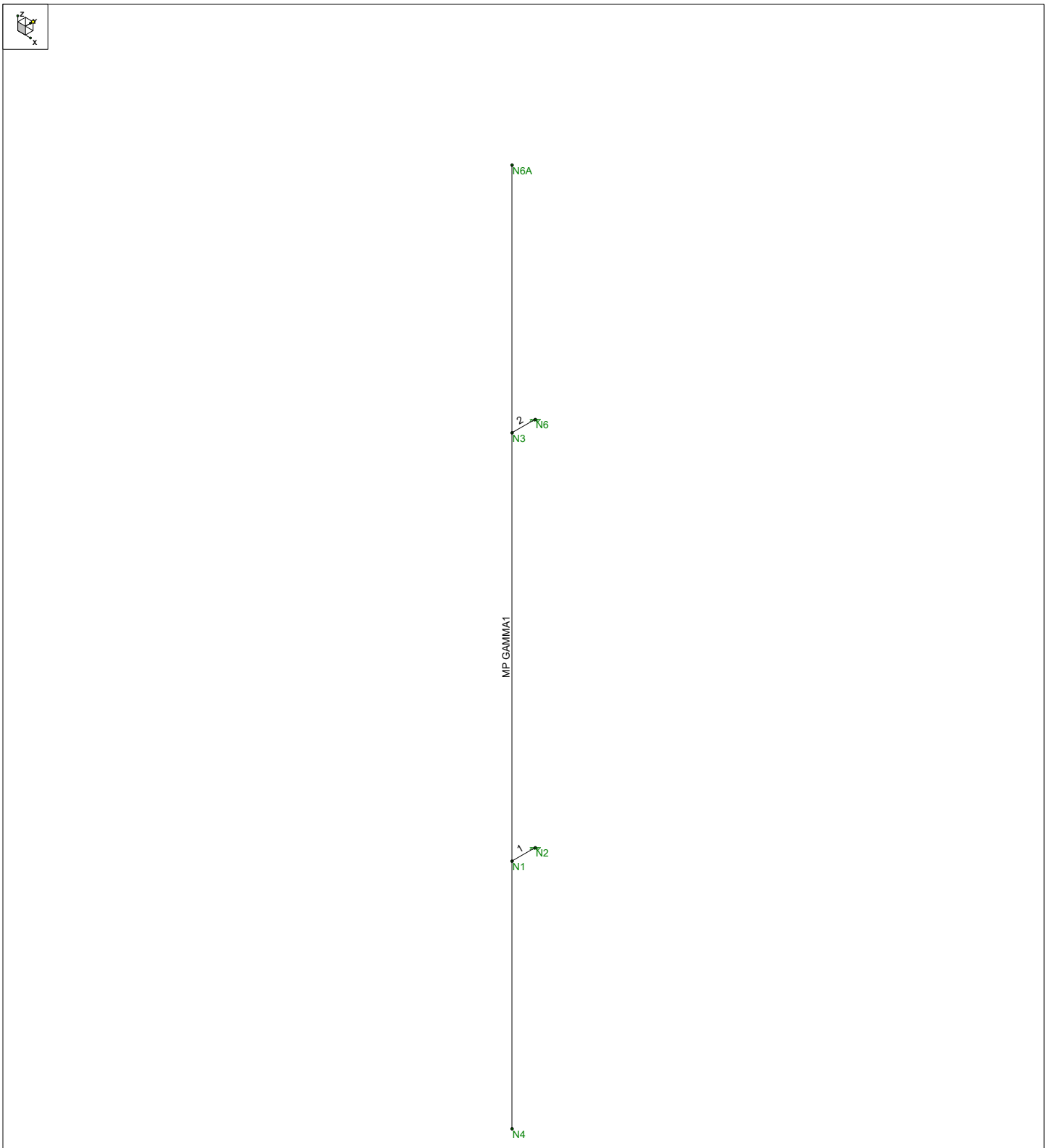
	Description	Solve	P...	S...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...
1	1.4D	Yes	Y		3	1.4																		
2	1.2D + 1.0W(0)	Yes	Y		3	1.2	2	1																
3	1.2D + 1.0Di + 1.0Wi(0)	Yes	Y		3	1.2	27	1	28	1														
4	1.2D + 1.5L + 1.0Wl(0)	Yes	Y		3	1.2	1	1.5	15	1														
5	1.2D + 1.0W(30)	Yes	Y		3	1.2	4	1																
6	1.2D + 1.0Di + 1.0Wi(3...	Yes	Y		3	1.2	27	1	29	1														
7	1.2D + 1.5L + 1.0Wl(30)	Yes	Y		3	1.2	1	1.5	16	1														
8	1.2D + 1.0W(60)	Yes	Y		3	1.2	5	1																
9	1.2D + 1.0Di + 1.0Wi(6...	Yes	Y		3	1.2	27	1	30	1														
10	1.2D + 1.5L + 1.0Wl(60)	Yes	Y		3	1.2	1	1.5	17	1														
11	1.2D + 1.0W(90)	Yes	Y		3	1.2	6	1																
12	1.2D + 1.0Di + 1.0Wi(9...	Yes	Y		3	1.2	27	1	31	1														
13	1.2D + 1.5L + 1.0Wl(90)	Yes	Y		3	1.2	1	1.5	18	1														
14	1.2D + 1.0W(120)	Yes	Y		3	1.2	7	1																
15	1.2D + 1.0Di + 1.0Wi(1...	Yes	Y		3	1.2	27	1	32	1														
16	1.2D + 1.5L + 1.0Wl(1...	Yes	Y		3	1.2	1	1.5	19	1														
17	1.2D + 1.0W(150)	Yes	Y		3	1.2	8	1																
18	1.2D + 1.0Di + 1.0Wi(1...	Yes	Y		3	1.2	27	1	33	1														
19	1.2D + 1.5L + 1.0Wl(1...	Yes	Y		3	1.2	1	1.5	20	1														
20	1.2D + 1.0W(180)	Yes	Y		3	1.2	9	1																
21	1.2D + 1.0Di + 1.0Wi(1...	Yes	Y		3	1.2	27	1	34	1														
22	1.2D + 1.5L + 1.0Wl(1...	Yes	Y		3	1.2	1	1.5	21	1														
23	1.2D + 1.0W(210)	Yes	Y		3	1.2	10	1																
24	1.2D + 1.0Di + 1.0Wi(2...	Yes	Y		3	1.2	27	1	35	1														
25	1.2D + 1.5L + 1.0Wl(2...	Yes	Y		3	1.2	1	1.5	22	1														
26	1.2D + 1.0W(240)	Yes	Y		3	1.2	11	1																
27	1.2D + 1.0Di + 1.0Wi(2...	Yes	Y		3	1.2	27	1	36	1														
28	1.2D + 1.5L + 1.0Wl(2...	Yes	Y		3	1.2	1	1.5	23	1														
29	1.2D + 1.0W(270)	Yes	Y		3	1.2	12	1																
30	1.2D + 1.0Di + 1.0Wi(2...	Yes	Y		3	1.2	27	1	37	1														
31	1.2D + 1.5L + 1.0Wl(2...	Yes	Y		3	1.2	1	1.5	24	1														
32	1.2D + 1.0W(300)	Yes	Y		3	1.2	13	1																
33	1.2D + 1.0Di + 1.0Wi(3...	Yes	Y		3	1.2	27	1	38	1														
34	1.2D + 1.5L + 1.0Wl(3...	Yes	Y		3	1.2	1	1.5	25	1														
35	1.2D + 1.0W(330)	Yes	Y		3	1.2	14	1																
36	1.2D + 1.0Di + 1.0Wi(3...	Yes	Y		3	1.2	27	1	39	1														
37	1.2D + 1.5L + 1.0Wl(3...	Yes	Y		3	1.2	1	1.5	26	1														
38	1.2D + 1.0E(x) + 1.0E(...	Yes	Y		3	1.2	40	1	42	1	1	1												
39	1.2D + 1.0E(y) + 1.0E(...	Yes	Y		3	1.2	41	1	42	1	1	1												
40	1.2D - 1.0E(x) + 1.0E(z...	Yes	Y		3	1.2	40	-1	42	1	1	1												
41	1.2D - 1.0E(y) + 1.0E(z...	Yes	Y		3	1.2	41	-1	42	1	1	1												

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

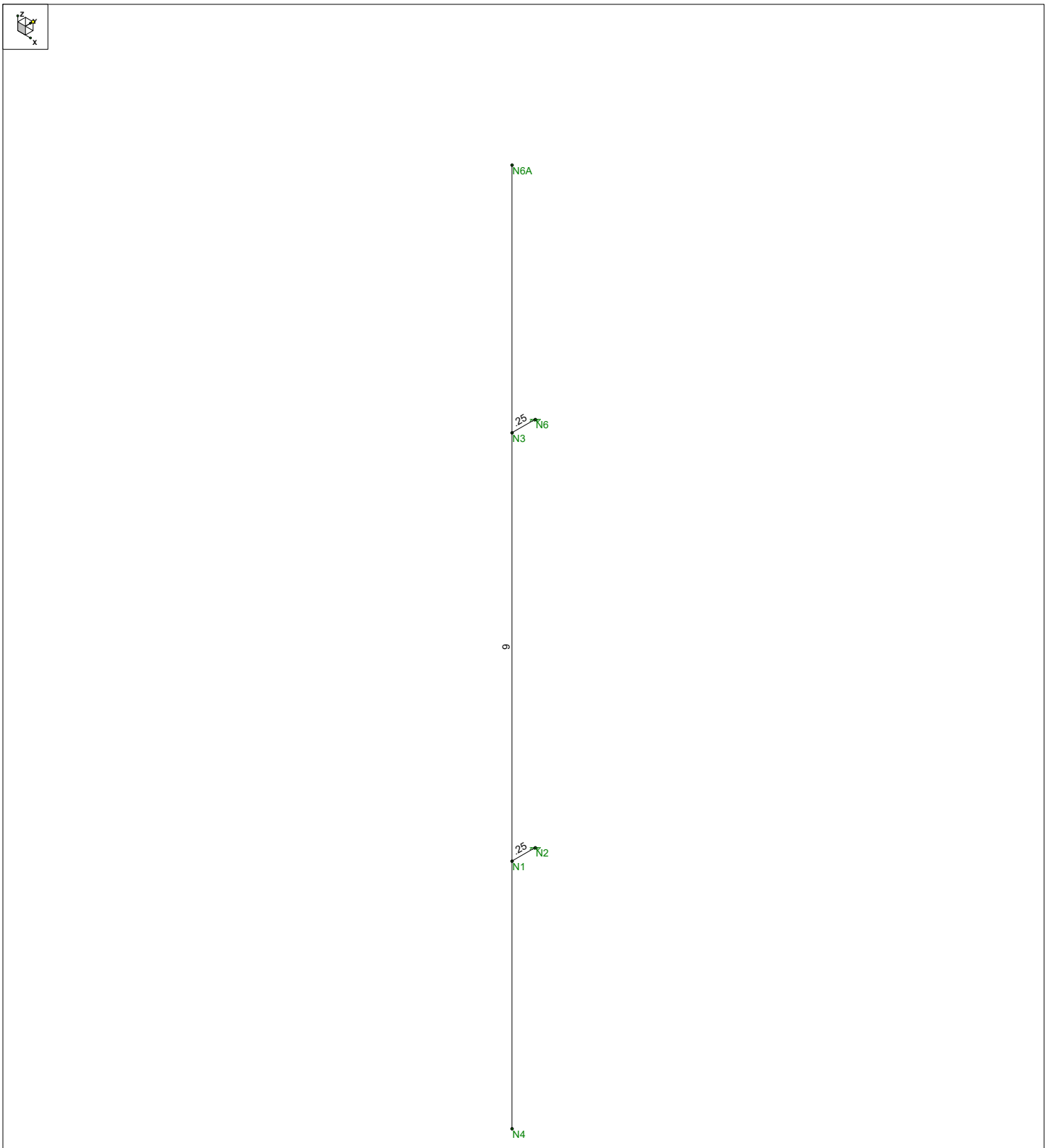
	Member	Shape	Code Ch...	Loc[ft]	LC	Shea...	Loc[ft]	Dir	LC	phi*Pn...	phi*Pnt...	phi*Mn...	phi*Mn...	Cb	Eqn
1	MP ALPHA1	PIPE_2.0	.296	6.563	20	.062	2.438		20	12.144	32.13	1.872	1.872	1..	H1-1b

APPENDIX D

Wire Frame and Rendered Models (Gamma)

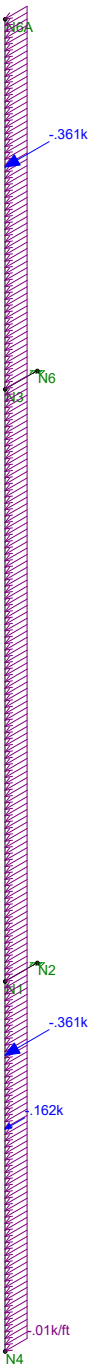


POD		SK - 1
TAM		May 19, 2020 at 11:45 AM
20-64274		876382 gamma.r3d



Member Length (ft) Displayed

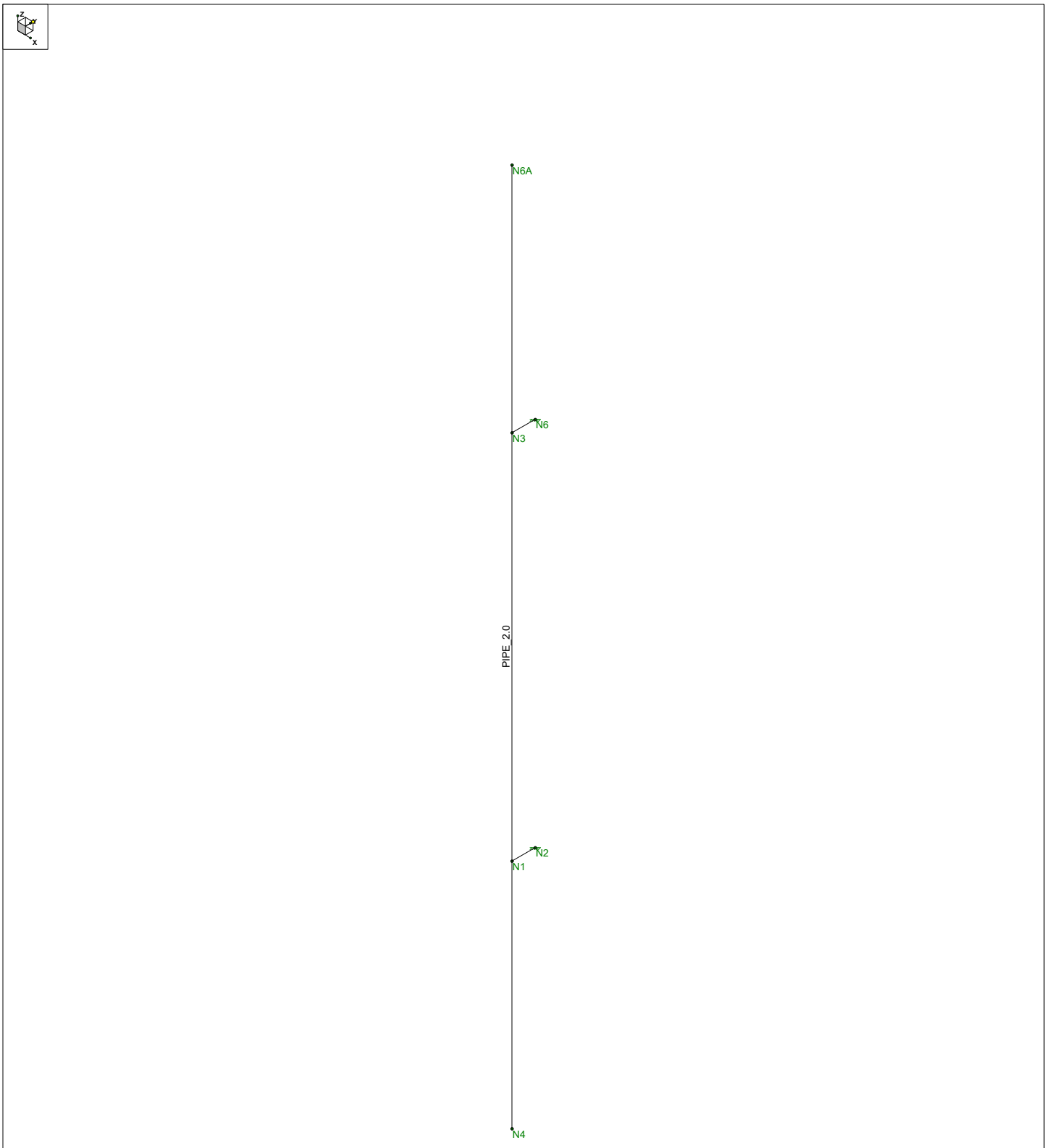
POD		SK - 3
TAM		May 19, 2020 at 11:45 AM
20-64274		876382 gamma.r3d



Loads: BLC 2, Wind Load (0)

POD		SK - 5
TAM		May 19, 2020 at 11:46 AM
20-64274		876382 gamma.r3d

POD		SK - 4
TAM		May 19, 2020 at 11:46 AM
20-64274		876382 gamma.r3d



POD		SK - 2
TAM		May 19, 2020 at 11:45 AM
20-64274		876382 gamma.r3d

APPENDIX E

Software Input Calculations (Gamma)

POWER OF DESIGN

POD Job #	**20-64274**
Site Number	**876382**
Site Name	**BERLIN / LAVIANA**

General Site Information

Mount Type	MF	Risk Category	II	I (seismic)	1	
V (Wind Speed)	118	I(ice)	1	Sms	0.320	
Zs	354			Sm1	0.132	
tI	1.5	Ss	0.2	Sds	0.213	
Vi	50	S1	0.055	Sd1	0.088	
Kzt	1	Soil Site Class	D (assumed)	Seismic Design Category	B	
Exposure	C	Fa	1.600			
zg	900	Fv	2.400	Seismic Analysis Not Required		
α	9.5			R	2	TIA-222-H 16.7
Kmin	0.85	Tower Type	Monopole	As	1	TIA-222-H 16.7
G_H	1	Tower Height	133	Cs, Min	0.03	TIA-222-H 2.7.7.1.1
Ke	0.99			Cs	0.106666667	TIA-222-H 2.7.7.1.1
K_D	0.95					
K_a	0.9					

Appurtenance Information

Model	Shielded	% Shielded	Centerline	Centerline on MP	Spacing (in)	Azimuth	Sector	Quantity		MP #
TPA65R-BU8D_CCIV2			133	5	72		C	1	1	
RRUS 4415 B25			133	1.5			C	1	1	
RRUS 4449 B5/B12			133	1.5			C	1	1	
DBC0111F2V62-1			133	1.5			C	1	1	

Mount Information

Elevation (ft)	133	Grating Thickness (in)	
K_z	1.34	Grating Ice Weight (k/ft²)	0.016
Kiz	1.15		
tiz	1.72		

	Length (ft)	Width (in)	Centerline
Mount Pipes	9	2.375	133

Round Members

Member	Length (ft)	Width (in)	Frame Member	# of Members

Flat Members

Member	Length (ft)	Width (in)	Shape	A	B	C	D	Frame Member	# of Members

Version 3.11

Appurtenance Wind Calculations

Model	Height	Width	Depth	Weight (lbs)	Kz	qz (lb/ft$_2$)	$(EPA)_N$ (ft^2)	$(EPA)_T$(ft^2)	Wind Force (Kips) Front	Side	Alpha	Beta	Gamma
TPA65R-BU8D_CCIV2	96.0	20.7	7.7	87.1	1.34	44.93	16.08	7.31	0.723	0.328	0.624	0.624	0.328
RRUS 4415 B25	15.0	13.2	5.4	44.0	1.34	44.93	0.85	0.59	0.038	0.026	0.035	0.035	0.026
RRUS 4449 B5/B12	17.9	13.2	9.4	71.0	1.34	44.93	1.77	1.27	0.080	0.057	0.074	0.074	0.057
DBC0111F2V62-1	12.6	10.5	10.1	48.5	1.34	44.93	0.99	0.95	0.044	0.043	0.044	0.044	0.043

Appurtenance Ice Calculations

Model	tiz (in)	Height	Width	Depth	Weight (lbs)	Kiz	qz (lb/ft$_2$)	$(EPA)_N$ (ft^2)	$(EPA)_T$(ft^2)	Wind Force (Kips) Front	Side	Alpha	Beta	Gamma
TPA65R-BU8D_CCIV2	1.72	99.45	24.15	11.15	371.80	1.15	8.07	11.05	5.84	0.089	0.047	0.079	0.079	0.047
RRUS 4415 B25	1.72	18.41	16.64	8.84	53.27	1.15	8.07	1.93	1.64	0.016	0.013	0.015	0.015	0.013
RRUS 4449 B5/B12	1.72	21.35	16.64	12.89	76.14	1.15	8.07	1.56	1.21	0.013	0.010	0.012	0.012	0.010
DBC0111F2V62-1	1.72	16.01	13.92	13.58	54.88	1.15	8.07	0.98	0.95	0.008	0.008	0.008	0.008	0.008

Round Members

Member	Wind Calculations q_z (lb/ft^2)	Ar	C	Rrf	Cas	EPA (ft^2)	Load (k/ft)	Width (in)	Weight (k/ft)	Ice Calculations q_z (lb/ft^2)	Arice	Rrfice	Cas	EPA (ft^2)	Load (k/ft)

Flat Members

Member	Wind Calculations q_z (lb/ft^2)	Af	Cas	EPA	Load (k/ft)	Width (in)	Weight (k/ft)	Ice Calculations q_z (lb/ft^2)	Arice	Rrfice	Cas	EPA	Load (k/ft)

Appurtenance Seismic Calculations

Model	Weight	Sds	ρ	Cs	As	Ev	Eh
TPA65R-BU8D_CCIV2	87.1	0.213	1.000	0.107	1.000	0.004	0.009
RRUS 4415 B25	44.0	0.213	1.000	0.107	1.000	0.002	0.005
RRUS 4449 B5/B12	71.0	0.213	1.000	0.107	1.000	0.003	0.008
DBC0111F2V62-1	48.5	0.213	1.000	0.107	1.000	0.002	0.005

Version 3.11

APPENDIX F

Software Analysis Output (Gamma)

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	MP GAMMA1	PIPE_2.0	9			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Sha...	Type	Design List	Material	Design Ru...
1	MP GAMMA1	N4	N6A			PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical
2	1	N1	N2			RIGID	None	None	RIGID	Typical
3	2	N3	N6			RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl R...	Analysis...	Inactive	Seismi...
1	MP GAM...						Yes				None
2	1						Yes	** NA **			None
3	2						Yes	** NA **			None

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	1.25	65	1.15
8	A913 Gr.65	29000	11154	.3	.65	.49	65	1.1	80	1.1

Member Point Loads (BLC 1 : Live Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Z	0	0

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	-.361	8
2	MP GAMMA1	Y	-.361	2
3	MP GAMMA1	Y	-.038	1.5
4	MP GAMMA1	Y	-.08	1.5
5	MP GAMMA1	Y	-.044	1.5

Member Point Loads (BLC 3 : Dead Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Z	-.044	8
2	MP GAMMA1	Z	-.044	2
3	MP GAMMA1	Z	-.044	1.5
4	MP GAMMA1	Z	-.071	1.5
5	MP GAMMA1	Z	-.049	1.5

Member Point Loads (BLC 4 : Wind Load (30))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	-.27	8

Member Point Loads (BLC 4 : Wind Load (30)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
2	MP GAMMA1	Y	-.27	2
3	MP GAMMA1	X	-.156	8
4	MP GAMMA1	X	-.156	2
5	MP GAMMA1	Y	-.031	1.5
6	MP GAMMA1	X	-.018	1.5
7	MP GAMMA1	Y	-.064	1.5
8	MP GAMMA1	X	-.037	1.5
9	MP GAMMA1	Y	-.038	1.5
10	MP GAMMA1	X	-.022	1.5

Member Point Loads (BLC 5 : Wind Load (60))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	-.107	8
2	MP GAMMA1	Y	-.107	2
3	MP GAMMA1	X	-.185	8
4	MP GAMMA1	X	-.185	2
5	MP GAMMA1	Y	-.015	1.5
6	MP GAMMA1	X	-.025	1.5
7	MP GAMMA1	Y	-.031	1.5
8	MP GAMMA1	X	-.054	1.5
9	MP GAMMA1	Y	-.022	1.5
10	MP GAMMA1	X	-.037	1.5

Member Point Loads (BLC 6 : Wind Load (90))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	X	-.164	8
2	MP GAMMA1	X	-.164	2
3	MP GAMMA1	X	-.026	1.5
4	MP GAMMA1	X	-.057	1.5
5	MP GAMMA1	X	-.043	1.5

Member Point Loads (BLC 7 : Wind Load (120))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	.107	8
2	MP GAMMA1	Y	.107	2
3	MP GAMMA1	X	-.185	8
4	MP GAMMA1	X	-.185	2
5	MP GAMMA1	Y	.015	1.5
6	MP GAMMA1	X	-.025	1.5
7	MP GAMMA1	Y	.031	1.5
8	MP GAMMA1	X	-.054	1.5
9	MP GAMMA1	Y	.022	1.5
10	MP GAMMA1	X	-.037	1.5

Member Point Loads (BLC 8 : Wind Load (150))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	.27	8
2	MP GAMMA1	Y	.27	2
3	MP GAMMA1	X	-.156	8
4	MP GAMMA1	X	-.156	2
5	MP GAMMA1	Y	.031	1.5
6	MP GAMMA1	X	-.018	1.5
7	MP GAMMA1	Y	.064	1.5
8	MP GAMMA1	X	-.037	1.5
9	MP GAMMA1	Y	.038	1.5

Member Point Loads (BLC 8 : Wind Load (150)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
10	MP GAMMA1	X	-.022	1.5

Member Point Loads (BLC 9 : Wind Load (180))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	.361	8
2	MP GAMMA1	Y	.361	2
3	MP GAMMA1	Y	.038	1.5
4	MP GAMMA1	Y	.08	1.5
5	MP GAMMA1	Y	.044	1.5

Member Point Loads (BLC 10 : Wind Load (210))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	.27	8
2	MP GAMMA1	Y	.27	2
3	MP GAMMA1	X	.156	8
4	MP GAMMA1	X	.156	2
5	MP GAMMA1	Y	.031	1.5
6	MP GAMMA1	X	.018	1.5
7	MP GAMMA1	Y	.064	1.5
8	MP GAMMA1	X	.037	1.5
9	MP GAMMA1	Y	.038	1.5
10	MP GAMMA1	X	.022	1.5

Member Point Loads (BLC 11 : Wind Load (240))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	.107	8
2	MP GAMMA1	Y	.107	2
3	MP GAMMA1	X	.185	8
4	MP GAMMA1	X	.185	2
5	MP GAMMA1	Y	.015	1.5
6	MP GAMMA1	X	.025	1.5
7	MP GAMMA1	Y	.031	1.5
8	MP GAMMA1	X	.054	1.5
9	MP GAMMA1	Y	.022	1.5
10	MP GAMMA1	X	.037	1.5

Member Point Loads (BLC 12 : Wind Load (270))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	X	.164	8
2	MP GAMMA1	X	.164	2
3	MP GAMMA1	X	.026	1.5
4	MP GAMMA1	X	.057	1.5
5	MP GAMMA1	X	.043	1.5

Member Point Loads (BLC 13 : Wind Load (300))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	-.107	8
2	MP GAMMA1	Y	-.107	2
3	MP GAMMA1	X	.185	8
4	MP GAMMA1	X	.185	2
5	MP GAMMA1	Y	-.015	1.5
6	MP GAMMA1	X	.025	1.5
7	MP GAMMA1	Y	-.031	1.5
8	MP GAMMA1	X	.054	1.5

Member Point Loads (BLC 13 : Wind Load (300)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
9	MP GAMMA1	Y	-.022	1.5
10	MP GAMMA1	X	.037	1.5

Member Point Loads (BLC 14 : Wind Load (330))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	-.27	8
2	MP GAMMA1	Y	-.27	2
3	MP GAMMA1	X	.156	8
4	MP GAMMA1	X	.156	2
5	MP GAMMA1	Y	-.031	1.5
6	MP GAMMA1	X	.018	1.5
7	MP GAMMA1	Y	-.064	1.5
8	MP GAMMA1	X	.037	1.5
9	MP GAMMA1	Y	-.038	1.5
10	MP GAMMA1	X	.022	1.5

Member Point Loads (BLC 15 : Maintanence (0))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	-.023	8
2	MP GAMMA1	Y	-.023	2
3	MP GAMMA1	Y	-.002	1.5
4	MP GAMMA1	Y	-.005	1.5
5	MP GAMMA1	Y	-.003	1.5

Member Point Loads (BLC 16 : Maintanence (30))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	-.017	8
2	MP GAMMA1	Y	-.017	2
3	MP GAMMA1	X	-.01	8
4	MP GAMMA1	X	-.01	2
5	MP GAMMA1	Y	-.002	1.5
6	MP GAMMA1	X	-.001	1.5
7	MP GAMMA1	Y	-.004	1.5
8	MP GAMMA1	X	-.002	1.5
9	MP GAMMA1	Y	-.002	1.5
10	MP GAMMA1	X	-.001	1.5

Member Point Loads (BLC 17 : Maintanence (60))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	-.007	8
2	MP GAMMA1	Y	-.007	2
3	MP GAMMA1	X	-.012	8
4	MP GAMMA1	X	-.012	2
5	MP GAMMA1	Y	-.00095	1.5
6	MP GAMMA1	X	-.002	1.5
7	MP GAMMA1	Y	-.002	1.5
8	MP GAMMA1	X	-.004	1.5
9	MP GAMMA1	Y	-.001	1.5
10	MP GAMMA1	X	-.002	1.5

Member Point Loads (BLC 18 : Maintanence (90))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	X	-.011	8
2	MP GAMMA1	X	-.011	2

Member Point Loads (BLC 18 : Maintanence (90)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
3	MP GAMMA1	X	-.002	1.5
4	MP GAMMA1	X	-.004	1.5
5	MP GAMMA1	X	-.003	1.5

Member Point Loads (BLC 19 : Maintanence (120))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	.007	8
2	MP GAMMA1	Y	.007	2
3	MP GAMMA1	X	-.012	8
4	MP GAMMA1	X	-.012	2
5	MP GAMMA1	Y	.00095	1.5
6	MP GAMMA1	X	-.002	1.5
7	MP GAMMA1	Y	.002	1.5
8	MP GAMMA1	X	-.004	1.5
9	MP GAMMA1	Y	.001	1.5
10	MP GAMMA1	X	-.002	1.5

Member Point Loads (BLC 20 : Maintanence (150))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	.017	8
2	MP GAMMA1	Y	.017	2
3	MP GAMMA1	X	-.01	8
4	MP GAMMA1	X	-.01	2
5	MP GAMMA1	Y	.002	1.5
6	MP GAMMA1	X	-.001	1.5
7	MP GAMMA1	Y	.004	1.5
8	MP GAMMA1	X	-.002	1.5
9	MP GAMMA1	Y	.002	1.5
10	MP GAMMA1	X	-.001	1.5

Member Point Loads (BLC 21 : Maintanence (180))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	.023	8
2	MP GAMMA1	Y	.023	2
3	MP GAMMA1	Y	.002	1.5
4	MP GAMMA1	Y	.005	1.5
5	MP GAMMA1	Y	.003	1.5

Member Point Loads (BLC 22 : Maintanence (210))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	.017	8
2	MP GAMMA1	Y	.017	2
3	MP GAMMA1	X	.01	8
4	MP GAMMA1	X	.01	2
5	MP GAMMA1	Y	.002	1.5
6	MP GAMMA1	X	.001	1.5
7	MP GAMMA1	Y	.004	1.5
8	MP GAMMA1	X	.002	1.5
9	MP GAMMA1	Y	.002	1.5
10	MP GAMMA1	X	.001	1.5

Member Point Loads (BLC 23 : Maintanence (240))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	.007	8

Member Point Loads (BLC 23 : Maintanence (240)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
2	MP GAMMA1	Y	.007	2
3	MP GAMMA1	X	.012	8
4	MP GAMMA1	X	.012	2
5	MP GAMMA1	Y	.00095	1.5
6	MP GAMMA1	X	.002	1.5
7	MP GAMMA1	Y	.002	1.5
8	MP GAMMA1	X	.004	1.5
9	MP GAMMA1	Y	.001	1.5
10	MP GAMMA1	X	.002	1.5

Member Point Loads (BLC 24 : Maintanence (270))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	X	.011	8
2	MP GAMMA1	X	.011	2
3	MP GAMMA1	X	.002	1.5
4	MP GAMMA1	X	.004	1.5
5	MP GAMMA1	X	.003	1.5

Member Point Loads (BLC 25 : Maintanence (300))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	-.007	8
2	MP GAMMA1	Y	-.007	2
3	MP GAMMA1	X	.012	8
4	MP GAMMA1	X	.012	2
5	MP GAMMA1	Y	-.00095	1.5
6	MP GAMMA1	X	.002	1.5
7	MP GAMMA1	Y	-.002	1.5
8	MP GAMMA1	X	.004	1.5
9	MP GAMMA1	Y	-.001	1.5
10	MP GAMMA1	X	.002	1.5

Member Point Loads (BLC 26 : Maintanence (330))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	-.017	8
2	MP GAMMA1	Y	-.017	2
3	MP GAMMA1	X	.01	8
4	MP GAMMA1	X	.01	2
5	MP GAMMA1	Y	-.002	1.5
6	MP GAMMA1	X	.001	1.5
7	MP GAMMA1	Y	-.004	1.5
8	MP GAMMA1	X	.002	1.5
9	MP GAMMA1	Y	-.002	1.5
10	MP GAMMA1	X	.001	1.5

Member Point Loads (BLC 27 : Ice Dead Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Z	-.186	8
2	MP GAMMA1	Z	-.186	2
3	MP GAMMA1	Z	-.053	1.5
4	MP GAMMA1	Z	-.076	1.5
5	MP GAMMA1	Z	-.055	1.5

Member Point Loads (BLC 28 : Ice Wind Load (0))

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

Member Point Loads (BLC 28 : Ice Wind Load (0)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	-.045	8
2	MP GAMMA1	Y	-.045	2
3	MP GAMMA1	Y	-.016	1.5
4	MP GAMMA1	Y	-.013	1.5
5	MP GAMMA1	Y	-.008	1.5

Member Point Loads (BLC 29 : Ice Wind Load (30))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	-.034	8
2	MP GAMMA1	Y	-.034	2
3	MP GAMMA1	X	-.02	8
4	MP GAMMA1	X	-.02	2
5	MP GAMMA1	Y	-.013	1.5
6	MP GAMMA1	X	-.007	1.5
7	MP GAMMA1	Y	-.01	1.5
8	MP GAMMA1	X	-.006	1.5
9	MP GAMMA1	Y	-.007	1.5
10	MP GAMMA1	X	-.004	1.5

Member Point Loads (BLC 30 : Ice Wind Load (60))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	-.014	8
2	MP GAMMA1	Y	-.014	2
3	MP GAMMA1	X	-.025	8
4	MP GAMMA1	X	-.025	2
5	MP GAMMA1	Y	-.007	1.5
6	MP GAMMA1	X	-.012	1.5
7	MP GAMMA1	Y	-.005	1.5
8	MP GAMMA1	X	-.009	1.5
9	MP GAMMA1	Y	-.004	1.5
10	MP GAMMA1	X	-.007	1.5

Member Point Loads (BLC 31 : Ice Wind Load (90))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	X	-.024	8
2	MP GAMMA1	X	-.024	2
3	MP GAMMA1	X	-.013	1.5
4	MP GAMMA1	X	-.01	1.5
5	MP GAMMA1	X	-.008	1.5

Member Point Loads (BLC 32 : Ice Wind Load (120))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	.014	8
2	MP GAMMA1	Y	.014	2
3	MP GAMMA1	X	-.025	8
4	MP GAMMA1	X	-.025	2
5	MP GAMMA1	Y	.007	1.5
6	MP GAMMA1	X	-.012	1.5
7	MP GAMMA1	Y	.005	1.5
8	MP GAMMA1	X	-.009	1.5
9	MP GAMMA1	Y	.004	1.5
10	MP GAMMA1	X	-.007	1.5

Member Point Loads (BLC 33 : Ice Wind Load (150))

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

Member Point Loads (BLC 33 : Ice Wind Load (150)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	.034	8
2	MP GAMMA1	Y	.034	2
3	MP GAMMA1	X	-.02	8
4	MP GAMMA1	X	-.02	2
5	MP GAMMA1	Y	.013	1.5
6	MP GAMMA1	X	-.007	1.5
7	MP GAMMA1	Y	.01	1.5
8	MP GAMMA1	X	-.006	1.5
9	MP GAMMA1	Y	.007	1.5
10	MP GAMMA1	X	-.004	1.5

Member Point Loads (BLC 34 : Ice Wind Load (180))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	.045	8
2	MP GAMMA1	Y	.045	2
3	MP GAMMA1	Y	.016	1.5
4	MP GAMMA1	Y	.013	1.5
5	MP GAMMA1	Y	.008	1.5

Member Point Loads (BLC 35 : Ice Wind Load (210))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	.034	8
2	MP GAMMA1	Y	.034	2
3	MP GAMMA1	X	.02	8
4	MP GAMMA1	X	.02	2
5	MP GAMMA1	Y	.013	1.5
6	MP GAMMA1	X	.007	1.5
7	MP GAMMA1	Y	.01	1.5
8	MP GAMMA1	X	.006	1.5
9	MP GAMMA1	Y	.007	1.5
10	MP GAMMA1	X	.004	1.5

Member Point Loads (BLC 36 : Ice Wind Load (240))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	.014	8
2	MP GAMMA1	Y	.014	2
3	MP GAMMA1	X	.025	8
4	MP GAMMA1	X	.025	2
5	MP GAMMA1	Y	.007	1.5
6	MP GAMMA1	X	.012	1.5
7	MP GAMMA1	Y	.005	1.5
8	MP GAMMA1	X	.009	1.5
9	MP GAMMA1	Y	.004	1.5
10	MP GAMMA1	X	.007	1.5

Member Point Loads (BLC 37 : Ice Wind Load (270))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	X	.024	8
2	MP GAMMA1	X	.024	2
3	MP GAMMA1	X	.013	1.5
4	MP GAMMA1	X	.01	1.5
5	MP GAMMA1	X	.008	1.5

Member Point Loads (BLC 38 : Ice Wind Load (300))

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

Member Point Loads (BLC 38 : Ice Wind Load (300)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	-.014	8
2	MP GAMMA1	Y	-.014	2
3	MP GAMMA1	X	.025	8
4	MP GAMMA1	X	.025	2
5	MP GAMMA1	Y	-.007	1.5
6	MP GAMMA1	X	.012	1.5
7	MP GAMMA1	Y	-.005	1.5
8	MP GAMMA1	X	.009	1.5
9	MP GAMMA1	Y	-.004	1.5
10	MP GAMMA1	X	.007	1.5

Member Point Loads (BLC 39 : Ice Wind Load (330))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	-.034	8
2	MP GAMMA1	Y	-.034	2
3	MP GAMMA1	X	.02	8
4	MP GAMMA1	X	.02	2
5	MP GAMMA1	Y	-.013	1.5
6	MP GAMMA1	X	.007	1.5
7	MP GAMMA1	Y	-.01	1.5
8	MP GAMMA1	X	.006	1.5
9	MP GAMMA1	Y	-.007	1.5
10	MP GAMMA1	X	.004	1.5

Member Point Loads (BLC 40 : Earthquake (x-direction))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	X	-.005	8
2	MP GAMMA1	X	-.005	2
3	MP GAMMA1	X	-.005	1.5
4	MP GAMMA1	X	-.008	1.5
5	MP GAMMA1	X	-.005	1.5

Member Point Loads (BLC 41 : Earthquake (y-direction))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Y	-.005	8
2	MP GAMMA1	Y	-.005	2
3	MP GAMMA1	Y	-.005	1.5
4	MP GAMMA1	Y	-.008	1.5
5	MP GAMMA1	Y	-.005	1.5

Member Point Loads (BLC 42 : Earthquake (z-direction))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	MP GAMMA1	Z	-.002	8
2	MP GAMMA1	Z	-.002	2
3	MP GAMMA1	Z	-.002	1.5
4	MP GAMMA1	Z	-.003	1.5
5	MP GAMMA1	Z	-.002	1.5

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PY	-.01	-.01	0	0

Member Distributed Loads (BLC 4 : Wind Load (30))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PY	-.009	-.009	0	0
2	MP GAMMA1	PX	-.005	-.005	0	0

Member Distributed Loads (BLC 5 : Wind Load (60))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PY	-.005	-.005	0	0
2	MP GAMMA1	PX	-.009	-.009	0	0

Member Distributed Loads (BLC 6 : Wind Load (90))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PX	-.01	-.01	0	0

Member Distributed Loads (BLC 7 : Wind Load (120))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PY	.005	.005	0	0
2	MP GAMMA1	PX	-.009	-.009	0	0

Member Distributed Loads (BLC 8 : Wind Load (150))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PY	.009	.009	0	0
2	MP GAMMA1	PX	-.005	-.005	0	0

Member Distributed Loads (BLC 9 : Wind Load (180))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PY	.01	.01	0	0

Member Distributed Loads (BLC 10 : Wind Load (210))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PY	.009	.009	0	0
2	MP GAMMA1	PX	.005	.005	0	0

Member Distributed Loads (BLC 11 : Wind Load (240))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PY	.005	.005	0	0
2	MP GAMMA1	PX	.009	.009	0	0

Member Distributed Loads (BLC 12 : Wind Load (270))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PX	.01	.01	0	0

Member Distributed Loads (BLC 13 : Wind Load (300))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PY	-.005	-.005	0	0
2	MP GAMMA1	PX	.009	.009	0	0

Member Distributed Loads (BLC 14 : Wind Load (330))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PY	-.009	-.009	0	0
2	MP GAMMA1	PX	.005	.005	0	0

Member Distributed Loads (BLC 27 : Ice Dead Load)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]

Member Distributed Loads (BLC 27 : Ice Dead Load) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	Z	-.009	-.009	0	0

Member Distributed Loads (BLC 28 : Ice Wind Load (0))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PY	-.004	-.004	0	0

Member Distributed Loads (BLC 29 : Ice Wind Load (30))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PY	-.003	-.003	0	0
2	MP GAMMA1	PX	-.002	-.002	0	0

Member Distributed Loads (BLC 30 : Ice Wind Load (60))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PY	-.002	-.002	0	0
2	MP GAMMA1	PX	-.003	-.003	0	0

Member Distributed Loads (BLC 31 : Ice Wind Load (90))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PX	-.004	-.004	0	0

Member Distributed Loads (BLC 32 : Ice Wind Load (120))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PY	.002	.002	0	0
2	MP GAMMA1	PX	-.003	-.003	0	0

Member Distributed Loads (BLC 33 : Ice Wind Load (150))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PY	.003	.003	0	0
2	MP GAMMA1	PX	-.002	-.002	0	0

Member Distributed Loads (BLC 34 : Ice Wind Load (180))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PY	.004	.004	0	0

Member Distributed Loads (BLC 35 : Ice Wind Load (210))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PY	.003	.003	0	0
2	MP GAMMA1	PX	.002	.002	0	0

Member Distributed Loads (BLC 36 : Ice Wind Load (240))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PY	.002	.002	0	0
2	MP GAMMA1	PX	.003	.003	0	0

Member Distributed Loads (BLC 37 : Ice Wind Load (270))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PX	.004	.004	0	0

Member Distributed Loads (BLC 38 : Ice Wind Load (300))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PY	-.002	-.002	0	0
2	MP GAMMA1	PX	.003	.003	0	0

Member Distributed Loads (BLC 39 : Ice Wind Load (330))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	MP GAMMA1	PY	-.003	-.003	0	0
2	MP GAMMA1	PX	.002	.002	0	0

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	N2	m...	.341	14	.568	2	.68	36	.293	2	.226	29	.085	14
2		min	-.341	26	-.568	20	.269	17	-.427	20	-.226	11	-.085	26
3	N6	m...	.224	14	.406	2	.299	36	.542	20	.293	14	.056	14
4		min	-.224	26	-.406	20	.073	2	-.578	2	-.293	26	-.056	26
5	Totals:	m...	.565	14	.975	2	.979	36						
6		min	-.565	26	-.975	20	.342	2						

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Live Load	DL					1			
2	Wind Load (0)	DL					5	1		
3	Dead Load	DL			-1.1		5			
4	Wind Load (30)	DL					10	2		
5	Wind Load (60)	DL					10	2		
6	Wind Load (90)	DL					5	1		
7	Wind Load (120)	DL					10	2		
8	Wind Load (150)	DL					10	2		
9	Wind Load (180)	DL					5	1		
10	Wind Load (210)	DL					10	2		
11	Wind Load (240)	DL					10	2		
12	Wind Load (270)	DL					5	1		
13	Wind Load (300)	DL					10	2		
14	Wind Load (330)	DL					10	2		
15	Maintanence (0)	DL					5			
16	Maintanence (30)	DL					10			
17	Maintanence (60)	DL					10			
18	Maintanence (90)	DL					5			
19	Maintanence (120)	DL					10			
20	Maintanence (150)	DL					10			
21	Maintanence (180)	DL					5			
22	Maintanence (210)	DL					10			
23	Maintanence (240)	DL					10			
24	Maintanence (270)	DL					5			
25	Maintanence (300)	DL					10			
26	Maintanence (330)	DL					10			
27	Ice Dead Load	DL					5	1		
28	Ice Wind Load (0)	DL					5	1		
29	Ice Wind Load (30)	DL					10	2		
30	Ice Wind Load (60)	DL					10	2		
31	Ice Wind Load (90)	DL					5	1		
32	Ice Wind Load (120)	DL					10	2		
33	Ice Wind Load (150)	DL					10	2		
34	Ice Wind Load (180)	DL					5	1		
35	Ice Wind Load (210)	DL					10	2		
36	Ice Wind Load (240)	DL					10	2		
37	Ice Wind Load (270)	DL					5	1		
38	Ice Wind Load (300)	DL					10	2		
39	Ice Wind Load (330)	DL					10	2		
40	Earthquake (x-directi...	DL	-.117				5			

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
41	Earthquake (y-directio...	DL		-.117			5			
42	Earthquake (z-directi...	DL			-.047		5			

Load Combinations

	Description	Solve	P...	S...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...	BLCFa...
1	1.4D	Yes	Y		3	1.4																
2	1.2D + 1.0W(0)	Yes	Y		3	1.2	2	1														
3	1.2D + 1.0Di + 1.0Wi(0)	Yes	Y		3	1.2	27	1	28	1												
4	1.2D + 1.5L + 1.0Wl(0)	Yes	Y		3	1.2	1	1.5	15	1												
5	1.2D + 1.0W(30)	Yes	Y		3	1.2	4	1														
6	1.2D + 1.0Di + 1.0Wi(3...	Yes	Y		3	1.2	27	1	29	1												
7	1.2D + 1.5L + 1.0Wl(30)	Yes	Y		3	1.2	1	1.5	16	1												
8	1.2D + 1.0W(60)	Yes	Y		3	1.2	5	1														
9	1.2D + 1.0Di + 1.0Wi(6...	Yes	Y		3	1.2	27	1	30	1												
10	1.2D + 1.5L + 1.0Wl(60)	Yes	Y		3	1.2	1	1.5	17	1												
11	1.2D + 1.0W(90)	Yes	Y		3	1.2	6	1														
12	1.2D + 1.0Di + 1.0Wi(9...	Yes	Y		3	1.2	27	1	31	1												
13	1.2D + 1.5L + 1.0Wl(90)	Yes	Y		3	1.2	1	1.5	18	1												
14	1.2D + 1.0W(120)	Yes	Y		3	1.2	7	1														
15	1.2D + 1.0Di + 1.0Wi(1...	Yes	Y		3	1.2	27	1	32	1												
16	1.2D + 1.5L + 1.0Wl(1...	Yes	Y		3	1.2	1	1.5	19	1												
17	1.2D + 1.0W(150)	Yes	Y		3	1.2	8	1														
18	1.2D + 1.0Di + 1.0Wi(1...	Yes	Y		3	1.2	27	1	33	1												
19	1.2D + 1.5L + 1.0Wl(1...	Yes	Y		3	1.2	1	1.5	20	1												
20	1.2D + 1.0W(180)	Yes	Y		3	1.2	9	1														
21	1.2D + 1.0Di + 1.0Wi(1...	Yes	Y		3	1.2	27	1	34	1												
22	1.2D + 1.5L + 1.0Wl(1...	Yes	Y		3	1.2	1	1.5	21	1												
23	1.2D + 1.0W(210)	Yes	Y		3	1.2	10	1														
24	1.2D + 1.0Di + 1.0Wi(2...	Yes	Y		3	1.2	27	1	35	1												
25	1.2D + 1.5L + 1.0Wl(2...	Yes	Y		3	1.2	1	1.5	22	1												
26	1.2D + 1.0W(240)	Yes	Y		3	1.2	11	1														
27	1.2D + 1.0Di + 1.0Wi(2...	Yes	Y		3	1.2	27	1	36	1												
28	1.2D + 1.5L + 1.0Wl(2...	Yes	Y		3	1.2	1	1.5	23	1												
29	1.2D + 1.0W(270)	Yes	Y		3	1.2	12	1														
30	1.2D + 1.0Di + 1.0Wi(2...	Yes	Y		3	1.2	27	1	37	1												
31	1.2D + 1.5L + 1.0Wl(2...	Yes	Y		3	1.2	1	1.5	24	1												
32	1.2D + 1.0W(300)	Yes	Y		3	1.2	13	1														
33	1.2D + 1.0Di + 1.0Wi(3...	Yes	Y		3	1.2	27	1	38	1												
34	1.2D + 1.5L + 1.0Wl(3...	Yes	Y		3	1.2	1	1.5	25	1												
35	1.2D + 1.0W(330)	Yes	Y		3	1.2	14	1														
36	1.2D + 1.0Di + 1.0Wi(3...	Yes	Y		3	1.2	27	1	39	1												
37	1.2D + 1.5L + 1.0Wl(3...	Yes	Y		3	1.2	1	1.5	26	1												
38	1.2D + 1.0E(x) + 1.0E(...	Yes	Y		3	1.2	40	1	42	1	1	1										
39	1.2D + 1.0E(y) + 1.0E(...	Yes	Y		3	1.2	41	1	42	1	1	1										
40	1.2D - 1.0E(x) + 1.0E(z...	Yes	Y		3	1.2	40	-1	42	1	1	1										
41	1.2D - 1.0E(y) + 1.0E(z...	Yes	Y		3	1.2	41	-1	42	1	1	1										

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

	Member	Shape	Code Ch...	Loc[ft]	LC	Shea...	Loc[ft]	Dir	LC	phi*Pn...	phi*Pnt...	phi*Mn...	phi*Mn...	Cb	Eqn
1	MP GAMMA1	PIPE_2.0	.296	6.563	20	.057	2.438		20	12.144	32.13	1.872	1.872	1..	H1-1b

APPENDIX G

ATC Wind Maps

Hazards by Location

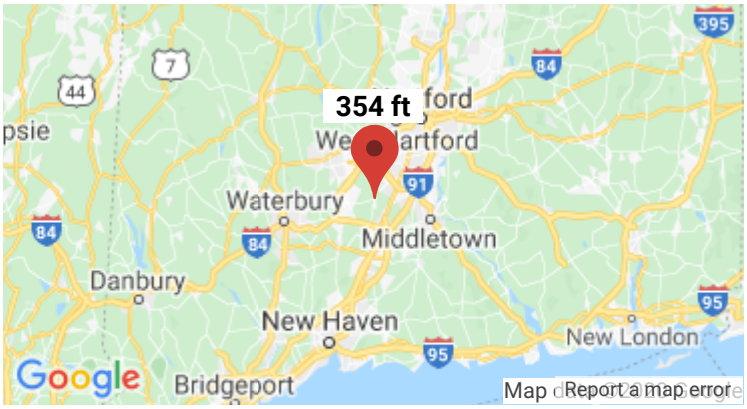
Search Information

Coordinates: 41.589742, -72.805333

Elevation: 354 ft

Timestamp: 2020-05-18T19:14:26.282Z

Hazard Type: Wind



ASCE 7-16

MRI 10-Year	75 mph
MRI 25-Year	83 mph
MRI 50-Year	90 mph
MRI 100-Year	97 mph
Risk Category I	108 mph
Risk Category II	118 mph
Risk Category III	127 mph
Risk Category IV	⚠ 131 mph

You are in a wind-borne debris region if you are also within 1 mile of the coastal mean high water line.

ASCE 7-10

MRI 10-Year	77 mph
MRI 25-Year	86 mph
MRI 50-Year	93 mph
MRI 100-Year	100 mph
Risk Category I	112 mph
Risk Category II	123 mph
Risk Category III-IV	⚠ 132 mph

If the structure under consideration is a healthcare facility and you are also within 1 mile of the coastal mean high water line, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region.

ASCE 7-05

ASCE 7-05 Wind Speed	102 mph

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. Per ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area – in some cases, this website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For queries near wind-borne debris region boundaries, the resulting determination is sensitive to rounding which may affect whether or not it is considered to be within a wind-borne debris region.

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

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Exhibit F

Power Density/RF Emissions Report

Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CTL01031

Project Type: AT&T LTE 5C

Crown Berlin / Laviana Orchard
1684 Chamberlain Highway
Berlin, CT 06037

July 7, 2020

Fullerton Project Number: 2020.0182.0016

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**22.78 %**

July 7, 2020

Crown Castle on Behalf of AT&T
Attn: Anne Marie Zsamba, Site Acquisition Specialist
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

Emissions Analysis for Site: **CTL01031 – Crown Berlin / Laviana Orchard**

Fullerton Engineering Consultants, LLC ("Fullerton") was directed to analyze the proposed upgrades to the AT&T facility located at **1684 Chamberlain Highway, Berlin, CT**, for the purpose of determining whether the emissions from the proposed AT&T antenna installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed upgrades to the AT&T antenna facility located at **1684 Chamberlain Highway, Berlin, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves.

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
LTE	700 MHz (Band 14)	4	40
LTE	1900 MHz (PCS)	4	40
LTE	2100 MHz (AWS)	4	40
LTE	700 MHz	4	40

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	CCI TPA65R-BU8D_CCIV2	133
B	1	CCI TPA65R-BU8D_CCIV2	133
C	1	CCI TPA65R-BU8D_CCIV2	133

Table 2: Antenna Data

All calculations were done with respect to uncontrolled / general population threshold limits.

Cable losses were factored in the calculations for this site. Since all of the proposed radios are ground mounted the following cable loss values were used. For each **700 MHz** Remote Radio Unit (RRU) there was **0.18 dB** of cable loss calculated into the system gains / losses for this site. For each **1900 MHz (PCS)** Remote Radio Unit (RRU) there was **0.32 dB** of cable loss calculated into the system gains / losses for this site. For each **2100 MHz (AWS)** Remote Radio Unit (RRU)there was **0.34 dB** of cable loss calculated into the system gains / losses for this site. These values were calculated based upon the manufacturers specifications for **10 feet** of **1/2"** coax.

RESULTS

Per the calculations completed for the proposed AT&T configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	Total Sector ERP (W)	MPE %
Antenna A1	CCI TPA65R-BU8D_CCIV2	700 MHz (Band 14) / 1900 MHz (PCS) / 2100 MHz (AWS) / 700 MHz	13.45 / 15.95 / 16.15 / 13.45	16	640	18,740.95	5.90
						Sector A Composite MPE%	**5.90**
Antenna B1	CCI TPA65R-BU8D_CCIV2	700 MHz (Band 14) / 1900 MHz (PCS) / 2100 MHz (AWS) / 700 MHz	13.45 / 15.95 / 16.15 / 13.45	16	640	18,740.95	5.90
						Sector B Composite MPE%	**5.90**
Antenna C1	CCI TPA65R-BU8D_CCIV2	700 MHz (Band 14) / 1900 MHz (PCS) / 2100 MHz (AWS) / 700 MHz	13.45 / 15.95 / 16.15 / 13.45	16	640	18,740.95	5.90
						Sector C Composite MPE%	**5.90**

Table 3: AT&T *Emissions Levels*

The following table (*Table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum AT&T MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each AT&T Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max Per Sector Value	**5.90 %**
Town	0.01 %
MetroPCS	1.43 %
Clearwire	0.14 %
Sprint	4.02 %
T-Mobile	4.08 %
Verizon Wireless	7.20 %
Site Total MPE %:	**22.78 %**

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	5.90 %
AT&T Sector B Total:	5.90 %
AT&T Sector C Total:	5.90 %
Site Total:	22.78 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

AT&T _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 700 MHz LTE (Band 14)	4	849.30	133	7.57	700 MHz	467	1.62%
AT&T 1900 MHz (PCS) LTE	4	1,462.38	133	13.04	1900 MHz (PCS)	1000	1.30%
AT&T 2100 MHz (AWS) LTE	4	1,524.26	133	13.59	2100 MHz (AWS)	1000	1.36%
AT&T 700 MHz LTE	4	849.30	133	7.57	700 MHz	467	1.62%
						Total:	**5.90%**

Table 6: AT&T *Maximum Sector MPE Power Values*

Summary

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

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

AT&T Sector	Power Density Value (%)
Sector A:	5.90 %
Sector B:	5.90 %
Sector C:	5.90 %
AT&T Maximum Total (per sector):	5.90 %
Site Total:	22.78 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **22.78 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

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