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

August 21, 2019

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

RE: **Notice of Exempt Modification for T-Mobile:**
876340 - T-Mobile Site ID: CT11309
238 Meriden Road, Middlefield, CT 06457
Latitude: 41° 32′ 45.60″ / Longitude: -72° 42′ 53.90″

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 101-foot mount on the existing 133-foot Monopole Tower, located at 238 Meriden Road, Middlefield, CT. The tower is owned by Crown Castle and the property is owned by James Kolman. T-Mobile now intends to replace three (3) existing antennas with three (3) new 1900/2100 MHz antennas and three (3) new 600/700 MHz antennas. The new antennas will be installed at the 101-ft level of the tower. T-Mobile is also proposing tower mount modifications as shown on the enclosed mount analysis.

Planned Modifications:
Tower:

Remove and Replace:
(3) AIR21 KRC118023-1_B2P_B4A Antenna **(REMOVE)** – (3) AIR32_B66A_B2A Antenna 1900/2100 MHz **(REPLACE)**

Install New:
(3) RFS-APXVAARR24_43-U-NA20 Antenna 600/700 MHz
(3) 1 5/8" Hybrid Fiber Line
(3) Radio 4449 B71+B12

Existing to Remain:
(6) 1 5/8" Coax
(1) Hybrid Fiber line
(3) AIR21 KRC118023-1_B2P_B4A Antenna 1900/2100 MHz
(3) TMA

Ground:

Upgrade to existing ground cabinet. (Internally)

The facility was first approved by the Connecticut Siting Council in TS No. TS-OCI-082-990816.

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 Edward Bailey, First Selectman for the Town of Middlefield, Jerry Russ, Zoning Enforcement Officer, Crown Castle as the tower owner, and James Kolman, the property owner.

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

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

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

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

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

For the foregoing reasons, T-Mobile 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
Real Estate Specialist
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
(201) 236-9224
AnneMarie.Zsamba@crowncastle.com

Attachments
cc:
Edward Bailey, First Selectman
Town of Middlefield
Selectman's Office
393 Jackson Hill Road

Middlefield, CT 06455
860-349-7114

Jerry Russ, Zoning Enforcement Officer
Town of Middlefield
Land Use Department
405 Main Street- Comm Center
Middlefield, CT 06455
860-349-7123

James Kolman, Property Owner
15 Higby Road
Middlefield, CT 06455

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

ORIGIN ID:ONHA (585) 445-5896
RICHARD ZAJAC
CROWN CASTLE
300 MERIDIAN CENTRE
ROCHESTER, NY 14618
UNITED STATES US

SHIP DATE: 15AUG19
ACTWGT: 2.00 LB
CAD: 104924194/INET4160

BILL SENDER

TO **EDWARD BAILEY, FIRST SELECTMAN**
TOWN OF MIDDLEFIELD
393 JACKSON HILL ROAD

MIDDLEFIELD CT 06455
(860) 349-7114
INV:
PO:
REF: 1734.7680
DEPT:

567J3/E9E7/05A2

J192019062401uv

FedEx Express

FRI - 16 AUG 10:30A
PRIORITY OVERNIGHT

TRK# 0201 **7759 9327 0630**

XE RSPA

06455
BDL
CT-US

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ORIGIN ID:ONHA (585) 445-5896
RICHARD ZAJAC
CROWN CASTLE
300 MERIDIAN CENTRE

ROCHESTER, NY 14618
UNITED STATES US

SHIP DATE: 15AUG19
ACTWGT: 2.00 LB
CAD: 104924194/INET4160

BILL SENDER

TO **JERRY RUSS**
TOWN OF MIDDLEFIELD
LAND USE DEPT
405 MAIN STREET - COMM CENTER
MIDDLEFIELD CT 06455
(860) 349-7123

REF: 1734.7680
INV:
PO:
DEPT:

567J3/E9E7/05A2

J192019062401uv

FedEx Express

FRI - 16 AUG 10:30A
PRIORITY OVERNIGHT

TRK# 0201 **7759 9329 1856**

XE RSPA

06455
BDL
CT-US

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Exhibit A

Original Facility Approval

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square
New Britain, Connecticut 06051
Phone: (860) 827-2935
Fax: (860) 827-2950

August 18, 1999

Honorable Charles R. Augur
First Selectman
Town of Middlefield
Town Administration Bldg.
393 Jackson Hill Road, P.O. Box 179
Middlefield, CT 06455

RE: TS-OCI-082-990816 – Omnipoint Communications request for an order to approve tower sharing at an existing telecommunications facility located at 238 Meriden Road in Middlefield, Connecticut.

Dear Mr. Augur:

The Connecticut Siting Council (Council) received this request for tower sharing, pursuant to Connecticut General Statutes § 16-50aa.

The Council will consider this item at the next meeting tentatively scheduled for Tuesday, August 31 1999, at 1:30 p.m. in Hearing Room One, Ten Franklin Square, New Britain, Connecticut.

Please call me or inform the Council if you have any questions or comments regarding this proposal.

Thank you for your cooperation and consideration.

Very truly yours,

Joel M. Rinebold
Executive Director

JMR/tsg

Enclosure: Notice of Tower Sharing

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square
New Britain, Connecticut 06051
Phone: (860) 827-2935
Fax: (860) 827-2950

September 3, 1999

J. Brendan Sharkey, Esq.
Omnipoint Communications, Inc.
100 Filley Street
Bloomfield, CT 06002

RE: TS-OCI-082-990816 – Omnipoint Communications request for an order to approve tower sharing at an existing telecommunications facility located at 238 Meriden Road in Middlefield, Connecticut.

Dear Mr. Sharkey:

At a public meeting held August 31, 1999, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures.

This facility has been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequency now used on this tower. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction.

The proposed shared use is to be implemented as specified in your letter dated August 16, 1999. Please notify the Council when all work is complete.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/RKE/sll

cc: Honorable Charles R. Augur, First Selectman, Town of Middlefield
Steve Kotfila, Site Development Manager, Sprint Spectrum, L.P.

Exhibit B

Property Card

238 MERIDEN RD & RT 66

Location	238 MERIDEN RD & RT 66	**Mblu**	2/ / 1/ /
Acct#	00131600	**Owner**	KOLMAN JAMES
Assessment	$200,100	**PID**	1412
Building Count	1		

Current Value

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$55,100	$145,000	$200,100

Owner of Record

Owner	KOLMAN JAMES	**Sale Price**	$0
Co-Owner	NORA L/U	**Certificate**	
Address	C/O 15 HIGBY RD MIDDLEFIELD, CT 06455	**Book & Page**	84/ 598
		Sale Date	06/27/1994

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
KOLMAN JAMES	$0		84/ 598	06/27/1994

Building Information

Building 1 : Section 1

Year Built:	1850
Living Area:	2,390
Replacement Cost:	$183,494
Building Percent Good:	30
Replacement Cost Less Depreciation:	$55,000

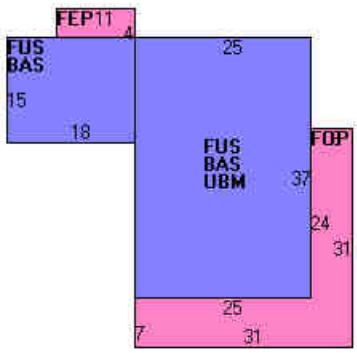
Building Attributes	
Field	**Description**
Style	Old Style
Model	Residential
Grade:	Average +

Stories:	2 Stories
Occupancy	1
Exterior Wall 1	Clapboard
Exterior Wall 2	
Roof Structure:	Gable
Roof Cover	Asphalt Shingl
Interior Wall 1	Plastered
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	
Heat Fuel	Oil/Gas
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	6 Bedrooms
Total Bthrms:	1
Total Half Baths:	0
Total Xtra Fixtrs:	
Total Rooms:	12 Rooms
Bath Style:	Old Style
Kitchen Style:	Below Average
Whirlpool	
Interior	

Building Photo

(http://images.vgsi.com/photos/MiddlefieldCTPhotos//\01\00\11/

Building Layout



(http://images.vgsi.com/photos/MiddlefieldCTPhotos//Sketches/1

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,195	1,195
FUS	Upper Story, Finished	1,195	1,195
FEP	Porch, Enclosed	44	0
FOP	Porch, Open	361	0
UBM	Basement, Unfinished	925	0
		3,720	2,390

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	0101
Description	Single Fam MDL-01
Zone	DD1
Neighborhood	0300
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	24.54
Frontage	
Depth	
Assessed Value	$145,000

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
BRN1	BARN - 1 STORY			4032 S.F.	$14,500	1
BRN1	BARN - 1 STORY			2560 S.F.	$9,200	1

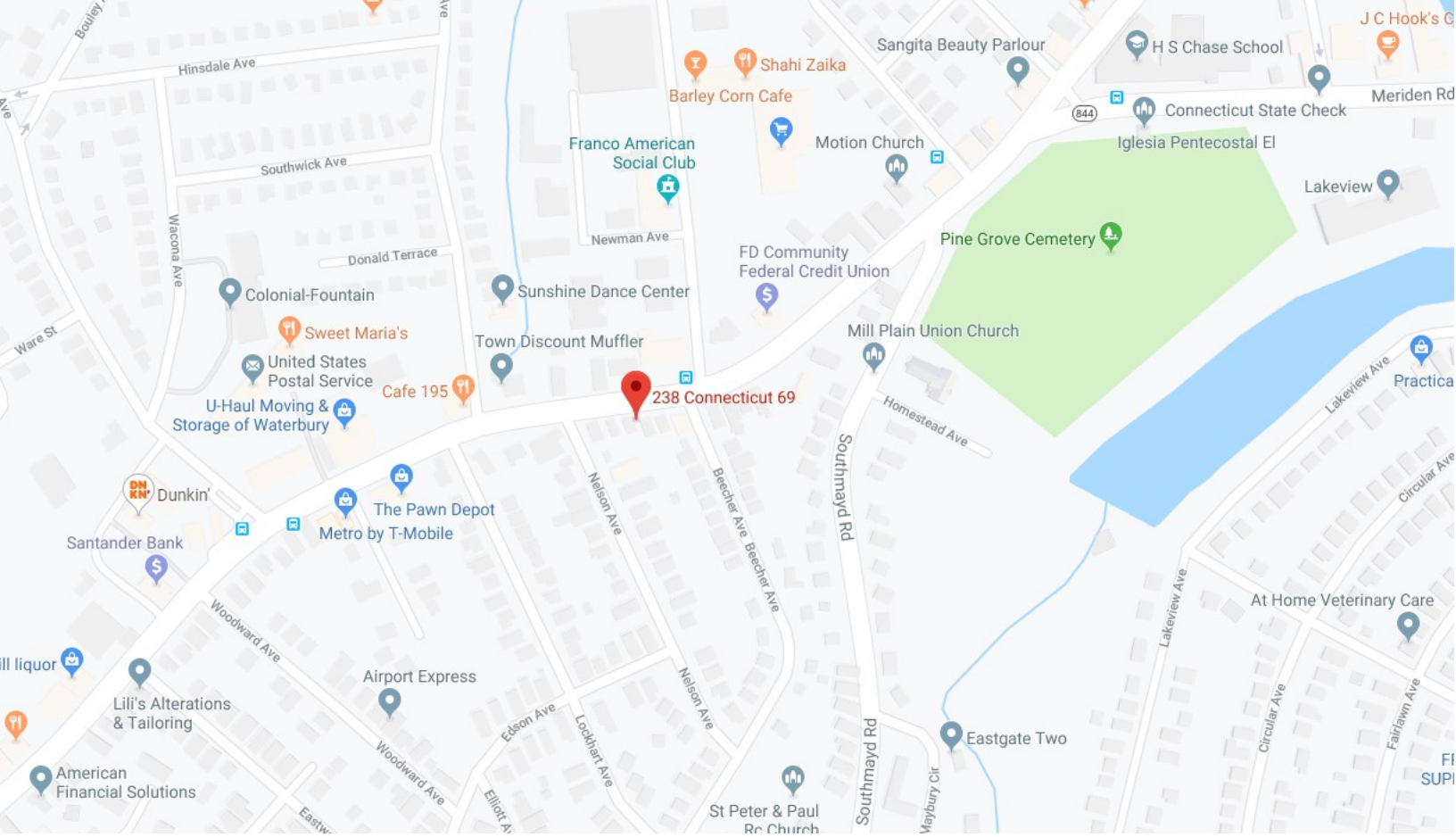

Hinsdale Ave
Southwick Ave
Donald Terrace
Newman Ave
Ware St
Wacona Ave
Colonial-Fountain
Sweet Maria's
United States Postal Service
U-Haul Moving & Storage of Waterbury
Cafe 195
Sunshine Dance Center
Town Discount Muffler
238 Connecticut 69
Franco American Social Club
Barley Corn Cafe
Shahi Zaika
Sangita Beauty Parlour
H S Chase School
Meriden Rd
844
Connecticut State Check
Iglesia Pentecostal El
Motion Church
Lakeview
Pine Grove Cemetery
FD Community Federal Credit Union
Mill Plain Union Church
Homestead Ave
Southmayd Rd
Nelson Ave
Beecher Ave
Lakeview Ave
Circular Ave
Dunkin'
Santander Bank
The Pawn Depot
Metro by T-Mobile
Woodward Ave
Airport Express
Lili's Alterations & Tailoring
American Financial Solutions
Edson Ave
Lockhart Ave
Elliott Ave
St Peter & Paul Rc Church
Maybury Cir
Eastgate Two
At Home Veterinary Care
Fairlawn Ave

Exhibit C

Construction Drawings

SCOPE OF WORK

ITEMS TO BE INSTALLED ON & REMOVED FROM EXISTING TOWER & ON GROUND:

- REMOVE T-MOBILE ANTENNA (AIR21 KRC1180231-1_B2P_B4A) (TYP. OF 1 PER SECTOR, TOTAL OF 3)

- INSTALL T-MOBILE ANTENNA (APXVAARR24_43-U-NA20) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL T-MOBILE ANTENNA (AIR32 KRD901146-1_B66A_B2A) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL T-MOBILE RADIO (4449 B71+B12) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL T-MOBILE COAX JUMPER CABLES (TYP. OF 4 PER SECTOR, TOTAL OF 12).
- INSTALL T-MOBILE FIBER JUMPER CABLES (TYP. OF 1 PER SECTOR, TOTAL OF 3.).
- INSTALL T-MOBILE 6x12 HCS HYBRID CABLE (TOTAL OF 3).

ITEMS TO BE INSTALLED ON EXISTING EQUIPMENT PAD:

- REMOVE (1) DUS41
- REMOVE XMU

- INSTALL (2) ERICSSON BASEBAND 6630 UNITS

ITEMS TO REMAIN:
- (3) ANTENNAS, (3) TMAS, (6) COAX CABLES, (1) HYBRID CABLE.

SITE ADDRESS:	238 MERIDEN RD. MIDDLEFIELD, CT 06457
LATITUDE (NAD 83):	N 41° 32' 45.60"
LONGITUDE (NAD 83):	W -72° 42' 53.90"
COUNTY:	MIDDLESEX
JURISDICTION:	---
LANDLORD:	CROWN CASTLE INTERNATIONAL 500 W. CUMMINGS PARK, STE 3600 WOBURN, MA 01801
STRUCTURE TYPE:	MONOPOLE/OUTDOOR
STRUCTURE HEIGHT:	133'
RAD CENTER:	104'
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO:	SHEET TITLE
T-1	TITLE SHEET
GN-1	GENERAL NOTES
C-1	SITE PLAN
S-1	PROPOSED TOWER ELEVATION & ANTENNA LAYOUT PLAN
S-2	EQUIPMENT DETAILS
RF-1	ANTENNA INFORMATION CHART
RF-2	RF EQUIPMENT SCHEMATIC
E-1	ONE LINE DIAGRAM
G-1	GROUNDING RISER DIAGRAM

CROWN CASTLE SITE ID #: 876340
CROWN CASTLE SITE NAME: COE HILL

ENGINEERING

2018 CONNECTICUT STATE BUILDING CODE
2018 AMENDMENT WITH 2015 INTERNATIONAL BUILDING CODE
2009 ICC/ANSI A117.1 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES
2015 INTERNATIONAL MECHANICAL CODE
2015 INTERNATIONAL ENERGY CONSERVATION CODE
2017 NATIONAL ELECTRICAL CODE (NFPA 70 2017)
ANSI/TIA-222-G

NOTE:

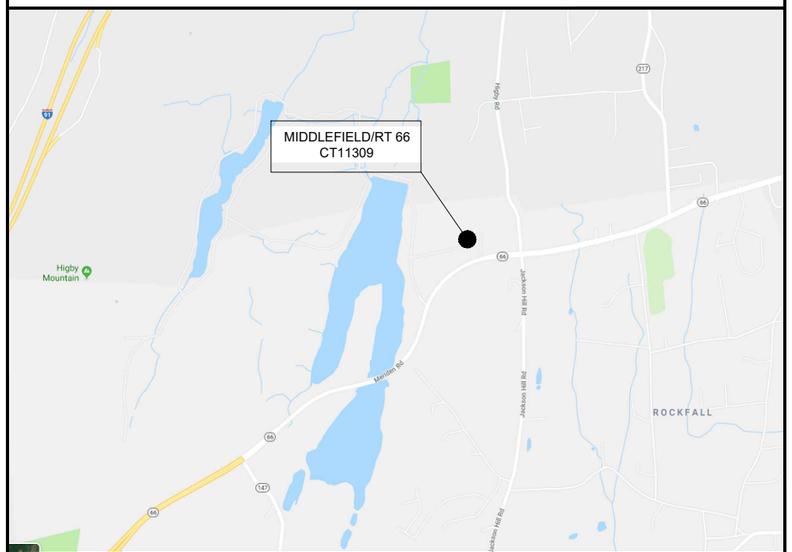
ALL CONSTRUCTION ACTIVITIES ARE TO BE COMPLETED DIRECTLY THROUGH CROWN. CONTRACTOR MUST HAVE CONSTRUCTION PO AND NTP FROM CROWN DIRECT IN ORDER TO BEGIN. PRE-APPROVAL TO ENTER THE PROPERTY MUST BE OBTAINED. FOR ACCESS AUTHORIZATION, PLEASE CONTACT CROWN.

T-Mobile®

L600 PROJECT
SITE NUMBER: CT11309

SITE NAME: MIDDLEFIELD/RT 66
CROWN SITE NAME: COE HILL
BU#: 876340
T-MOBILE RAN TEMPLATE: 67D92DB OUTDOOR

VICINITY MAP



HEAD WEST ON ST. JAMES AVE TOWARD TRINITY PLACE (0.1 MILE), MERGE ONTO I-90 W VIA THE RAMP TO NEW YORK (0.2 MILE), MERGE ONTO I-90 W (10.2 MILES), KEEP LEFT TO STAY ON I-90 W (44.1 MILES), USE THE RIGHT 2 LANES TO TAKE EXIT 9 FOR I-84 TOWARD US-20/HARTFORD/NEW YORK CITY (0.7 MILE), CONTINUE ONTO I-84 FOR (40.9 MILES), USE THE RIGHT 2 LANES TO TAKE EXIT 9 FOR I-84 TOWARD US-20/HARTFORD.NEW YORK CITY (0.7 MILE), CONTINUE ONTO I-84 (40.9 MILES), US THE LEFT 2 LANES TO TAKE EXIT 57 FOR CT-15 S TOWARD I-91 S /CHARTER OAK BRIDGE /N.Y. CITY (0.6 MILE), CONTINUE ONTO CT-15 S (0.5 MILE), CONTINUE ONTO CT-15 /US-5 S (0.8 MILE), TAKE EXIT 86 TO MERGE ONTO I-91 TOWARD NEW HAVEN /NEW YORK CITY (13.4 MILES), TAKE EXIT 20 FOR MIDDLE ST. TOWARD COUNTRY CLUB RD (0.2 MILE), TURN LEFT ONTO MIDDLE ST (0.1 MILE), TURN LEFT ONTO COUNTRY CLUB RD (1.1 MILES), TURN RIGHT ONTO HIGBY RC (1.2 MILES), TURN RIGHT ONTO CT-66 W (0.1 MILE), SITE WILL BE LOCATED TO THE LEFT.

GENERAL NOTES

1. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
2. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T-MOBILE REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
3. HANDICAP REQUIREMENTS ARE NOT REQUIRED.
4. THIS FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REGULATORY REQUIREMENTS.
5. ALL NEW MATERIAL SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR UNLESS NOTED OTHERWISE. EQUIPMENT, ANTENNAS/RADIOS AND CABLES FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR.
6. NO COMMERCIAL SIGNAGE IS PROPOSED.

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

811

T-Mobile®
T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

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

JACOBS
JACOBS ENGINEERING GROUP, INC.
120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
31055
LICENSED PROFESSIONAL ENGINEER

PROJECT NO:	ERCC0004
DRAWN BY:	JT
CHECKED BY:	DC

SUBMITTALS

1	08/19/19	ISSUED FOR CONSTRUCTION
0	07/18/19	ISSUED FOR PERMITTING

MIDDLEFIELD/RT 66
CT11309
COE HILL
876340
238 MERIDEN RD.
MIDDLEFIELD, CT 06457

TITLE SHEET

T-1

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: T-MOBILE
   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.

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, 20,000 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 (□□ 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 (□6 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/90□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 (□□ 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 " CT11309".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

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 (□□ 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 □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 (□□, 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).

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

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

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

JACOBS
JACOBS ENGINEERING GROUP, INC.
120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
34055
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO:	ERCC0004
DRAWN BY:	JT
CHECKED BY:	DC

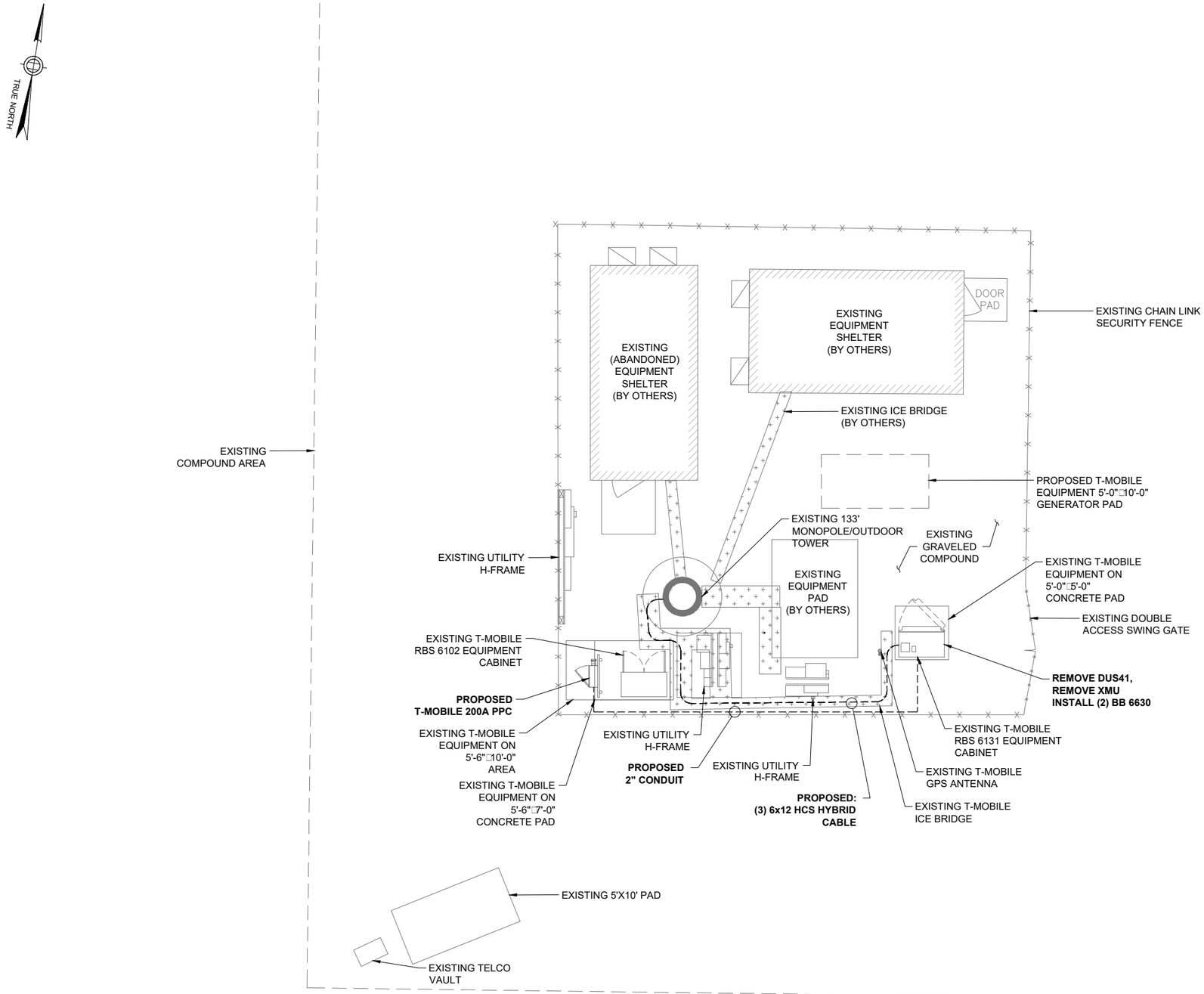
SUBMITTALS

1	08/19/19	ISSUED FOR CONSTRUCTION
0	07/18/19	ISSUED FOR PERMITTING

MIDDLEFIELD/RT 66
CT11309
COE HILL
876340
238 MERIDEN RD.
MIDDLEFIELD, CT 06457

GENERAL NOTES

GN-1



NOTES:

1. PLAN BASED ON ASBUILT DRAWINGS ISSUED BY CROWN CASTLE ON 02/02/2015. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING EQUIPMENT.

1 SITE PLAN

SCALE: 3/16" □ 1'-0"

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

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

JACOBS
JACOBS ENGINEERING GROUP, INC.
120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
34055
LICENSED PROFESSIONAL ENGINEER

PROJECT NO:	ERCC0004
DRAWN BY:	JT
CHECKED BY:	DC

SUBMITTALS

1	08/19/19	ISSUED FOR CONSTRUCTION
0	07/18/19	ISSUED FOR PERMITTING

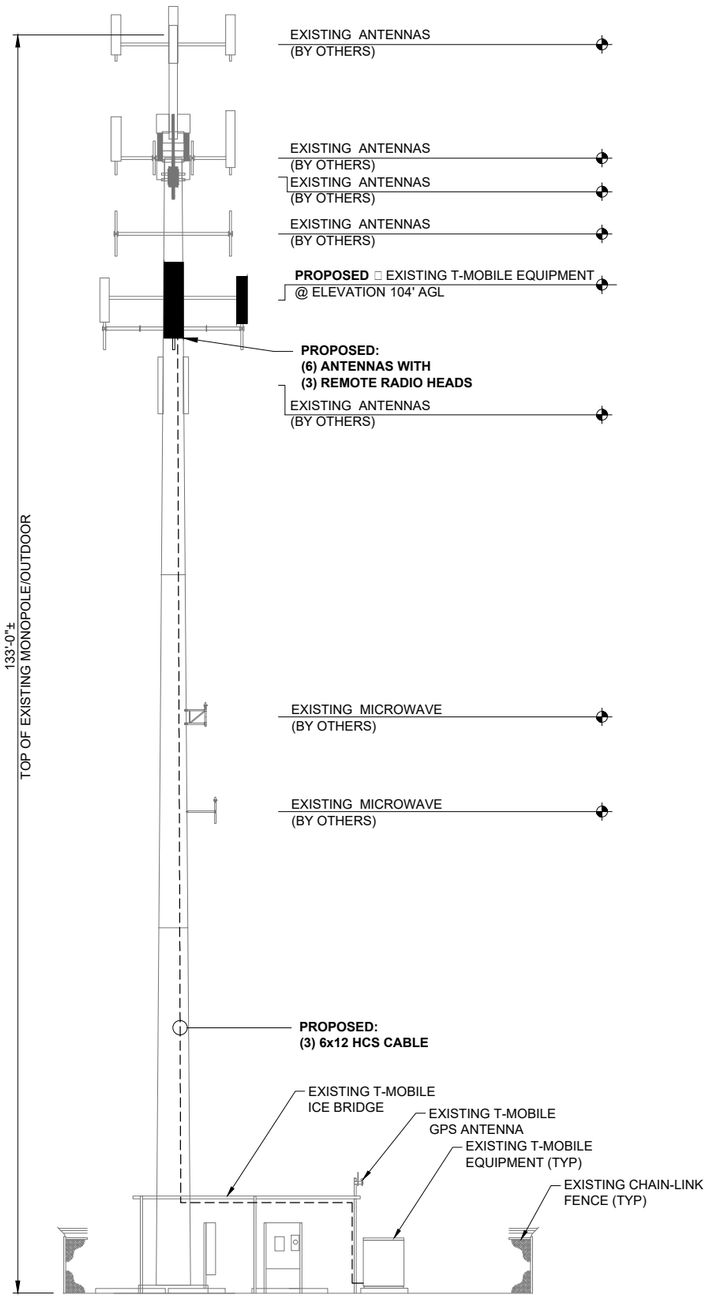
MIDDLEFIELD/RT 66
CT11309
COE HILL
876340
238 MERIDEN RD.
MIDDLEFIELD, CT 06457

SITE PLAN

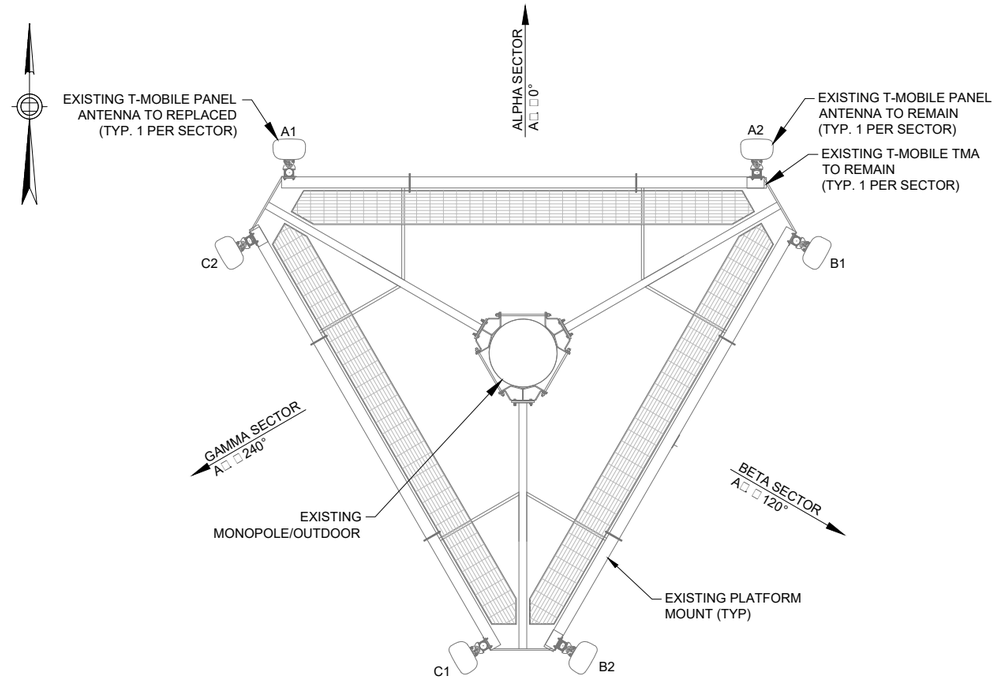
C-1

NOTES:

1. CONTRACTOR SHALL REFER TO THE STRUCTURAL ANALYSIS REPORT; SITE NUMBER: CT11309; SITE NAME: MIDDLEFIELD/RT 66; CROWN BU NUMBER: 876340; CROWN SITE NAME: COE HILL; CROWN ORDER NUMBER: 479827; ISSUED BY MASTEC NETWORK SOLUTIONS. DATED ON 06/13/19. PER THIS ANALYSIS NO MODIFICATIONS ARE REQUIRED. THE CONTRACTOR SHALL VERIFY ALL EXISTING MEMBERS AND HARDWARE ARE INSTALLED PROPERLY AS DESCRIBED IN THIS REPORT.

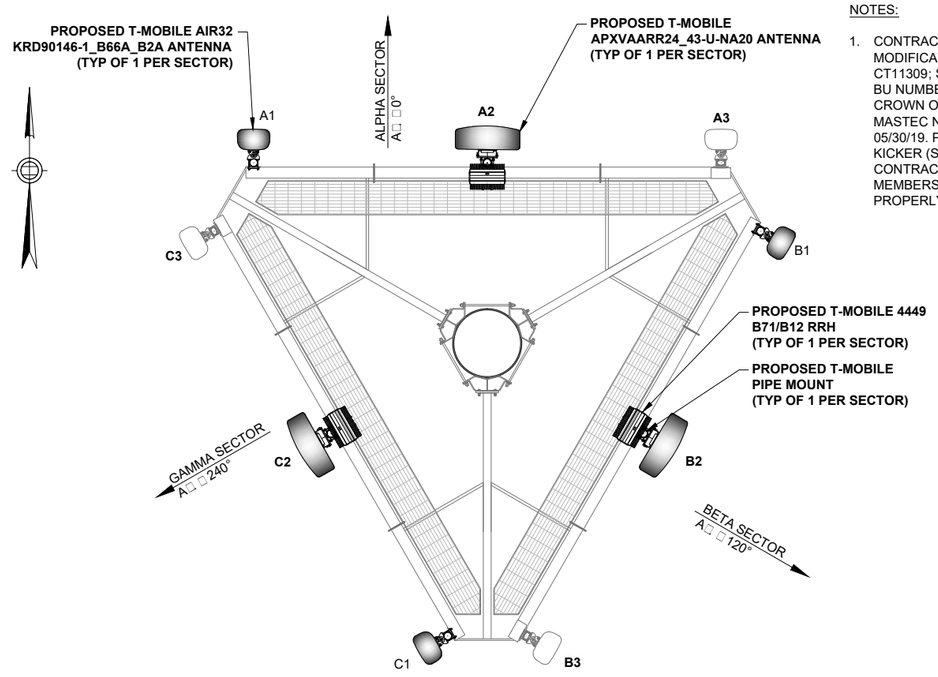


1 TOWER ELEVATION — SCALE: 1/8" □ 1'-0"



ELEVATION 104'

2 EXISTING ANTENNA LAYOUT — SCALE: N.T.S.



ELEVATION 104'

NOTES:

1. CONTRACTOR SHALL REFER TO THE MOUNT MODIFICATION ANALYSIS REPORT; SITE NUMBER: CT11309; SITE NAME: MIDDLEFIELD/RT 66; CROWN BU NUMBER: 876340; CROWN SITE NAME: COE HILL; CROWN ORDER NUMBER: 479827; ISSUED BY MASTEC NETWORK SOLUTIONS. DATED ON 05/30/19. PER THIS ANALYSIS, INSTALLATION OF A KICKER (SABRE C10851202DP) IS REQUIRED. THE CONTRACTOR SHALL VERIFY ALL EXISTING MEMBERS AND HARDWARE ARE INSTALLED PROPERLY AS DESCRIBED IN THIS REPORT.

3 PROPOSED ANTENNA LAYOUT — SCALE: N.T.S.

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

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

JACOBS
JACOBS ENGINEERING GROUP, INC.
120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
34055
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO:	ERCC0004
DRAWN BY:	JT
CHECKED BY:	DC

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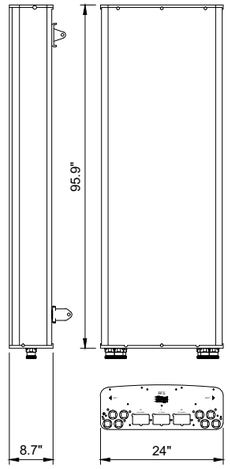
CT11309
COE HILL
876340
238 MERIDEN RD.
MIDDLEFIELD, CT 06457

PROPOSED TOWER ELEVATION □
ANTENNA LAYOUT
PLAN

S-1

MANUFACTURER: RFS
MODEL NO.: APXVAARR24□43-U-NA20

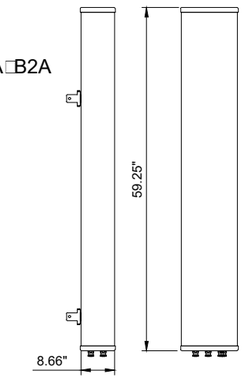
COLOR: LIGHT GRAY
DIMENSIONS (L□W□D): 95.9" □24" □8.7"
2436□□ □609□□ □222□□
WEIGHT (□□□): 58
CONNECTOR: 8 □4.3-10 FEMALE AT BOTTOM □
6 AISG CONNECTORS (3 MALE/3 FEMALE)
SURVIVAL/RATED WIND VELOCITY (KM/H): 241 (150)



1 ANTENNA SPECIFICATIONS — SCALE: N.T.S.

MANUFACTURER: ERICSSON
MODEL NO.: AIR32 KRD901146-1□B66A□B2A

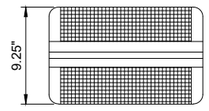
COLOR: LIGHT GRAY
DIMENSIONS (L□W□D): 59.25" □12.87" □8.66"
1505□□ □327□□ □220□□
WEIGHT (□□□): 153
69.4□g
CONNECTOR: 7/16 IEC-169-4 INSERT TYPE
CABLE CONNECTOR: 7/16 INSERT-TYPE ON BOTH ENDS
MAX. WIND LOAD: @ 42□/□900 N



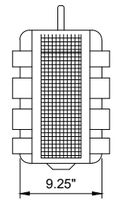
2 ANTENNA SPECIFICATIONS — SCALE: N.T.S.

MANUFACTURER: ERICSSON
MODEL NO.: 4449 B71□B12

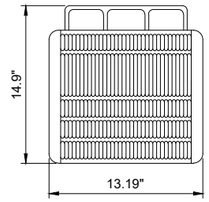
COLOR: LIGHT GRAY
DIMENSIONS (L□W□D): 14.9" □13.19" □9.25"
378□□ □335□□ □235□□
WEIGHT (□□□): 74



PLAN

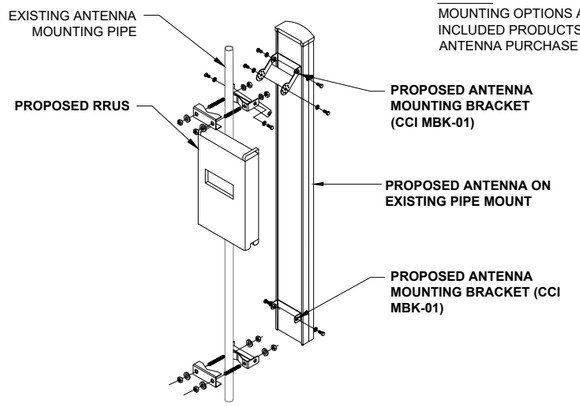


SIDE



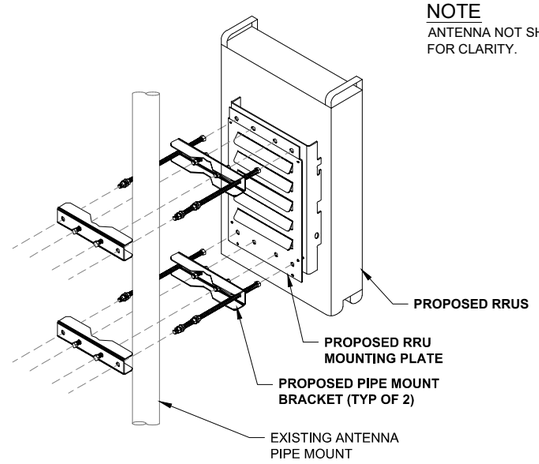
FRONT

3 RRUS SPECIFICATIONS — SCALE: N.T.S.



NOTE
MOUNTING OPTIONS ARE INCLUDED PRODUCTS WITH ANTENNA PURCHASE

4 RRU MOUNTING DETAIL W/ANTENNA — SCALE: N.T.S.



NOTE
ANTENNA NOT SHOWN FOR CLARITY.

5 RRU MOUNTING DETAIL — SCALE: N.T.S.

6 DETAIL NOT USED — SCALE: N.T.S.

7 DETAIL NOT USED — SCALE: N.T.S.

8 DETAIL NOT USED — SCALE: N.T.S.

9 DETAIL NOT USED — SCALE: N.T.S.

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BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
34055
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO: ERCC0004
DRAWN BY: JT
CHECKED BY: DC

SUBMITTALS

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MIDDLEFIELD/RT 66
CT11309
COE HILL
876340
238 MERIDEN RD.
MIDDLEFIELD, CT 06457

EQUIPMENT DETAILS

S-2

67D92DB OUTDOOR - TOWER TOP EQUIPMENT SCHEDULE (RE: MIDDLEFIELD/RT 66)														
ANTENNA NUMBER (FROM L TO R)	ANTENNA MODEL	ANTENNA AZIMUTH	MECH. TILT	ELEC. TILT	ANTENNA CENTERLINE FROM GROUND	TMA/RRUS MODEL	TMA/RRUS QUANTITY	COAX/HYBRID CABLE			JUMPERS		
								SIZE/TYPE	QUANTITY	LENGTH	TYPE	QTY	LENGTH
A1	**AIR 32 B2A B66AA**	**0°**	**0°**	**2°**	**104'**	-	-	-	-	-	FIBER	2	15'
A2	**APXVAARR24_43-U-NA20**	**0°**	**0°**	**2°**	**104'**	**RADIO 4449 B71+B12**	**1**	**6x12 HCS**	**1**	**154'**	**COAX** FIBER	**4** 1	**15'** 15'
A3	AIR21 KRC118023-1□B2A□B4P	0°	0°	2°	104'	TWIN STYLE 1A-AWS TMA	1	9X18 HCS 1-1/4" COAX	1 2	154' 154'	FIBER	2	15'
B1	**AIR 32 B2A B66AA**	**120°**	**0°**	**2°**	**104'**	-	-	-	-	-	FIBER	2	15'
B2	**APXVAARR24_43-U-NA20**	**120°**	**0°**	**2°**	**104'**	**RADIO 4449 B71+B12**	**1**	**6x12 HCS**	**1**	**154'**	**COAX** FIBER	**4** 1	**15'** 15'
B3	AIR21 KRC118023-1□B2A□B4P	120°	0°	2°	104'	TWIN STYLE 1A-AWS TMA	1	1-1/4" COAX	2	154'	FIBER	2	15'
C1	**AIR 32 B2A B66AA**	**240°**	**0°**	**2°**	**104'**	-	-	-	-	-	FIBER	2	15'
C2	**APXVAARR24_43-U-NA20**	**240°**	**0°**	**2°**	**104'**	**RADIO 4449 B71+B12**	**1**	**6x12 HCS**	**1**	**154'**	**COAX** FIBER	**4** 1	**15'** 15'
C3	AIR21 KRC118023-1□B2A□B4P	240°	0°	2°	104'	TWIN STYLE 1A-AWS TMA	1	1-1/4" COAX	2	154'	FIBER	2	15'

NOTES:

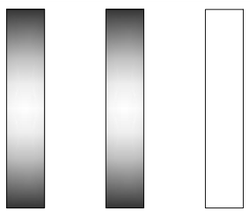
1. EQUIPMENT LISTED IN **BOLD**, DELINEATES THAT THE EQUIPMENT IS PROPOSED
2. □DENOTES THAT EQUIPMENT IS TO BE GROUND MOUNTED

1 EQUIPMENT INFORMATION CHART

SCALE: NONE

KEY
EXISTING
PROPOSED

KEY
ANTENNA POSITION AS VIEW FROM BEHIND



EQUIPMENT NOTES:

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

2 ANTENNA KEY

SCALE: NONE

67D92DB OUTDOOR - TOWER LOADING SUMMARY				
EQUIPMENT TYPE	EXISTING QUANTITY	QUANTITY REMOVED	QUANTITY ADDED	TOTAL QUANTITY
PANEL ANTENNA	6	3	6	9
COAX CABLE	6	0	0	6
HYBRID CABLE	1	0	3	2
FIBER JUMPER	15	0	0	15
COAX JUMPER	0	0	12	12
TMA	3	0	0	3
RADIO	0	0	3	3

3 ANTENNA & CABLE SCHEDULE

SCALE: NONE

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

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

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120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
34055
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO:	ERCC0004
DRAWN BY:	JT
CHECKED BY:	DC

SUBMITTALS

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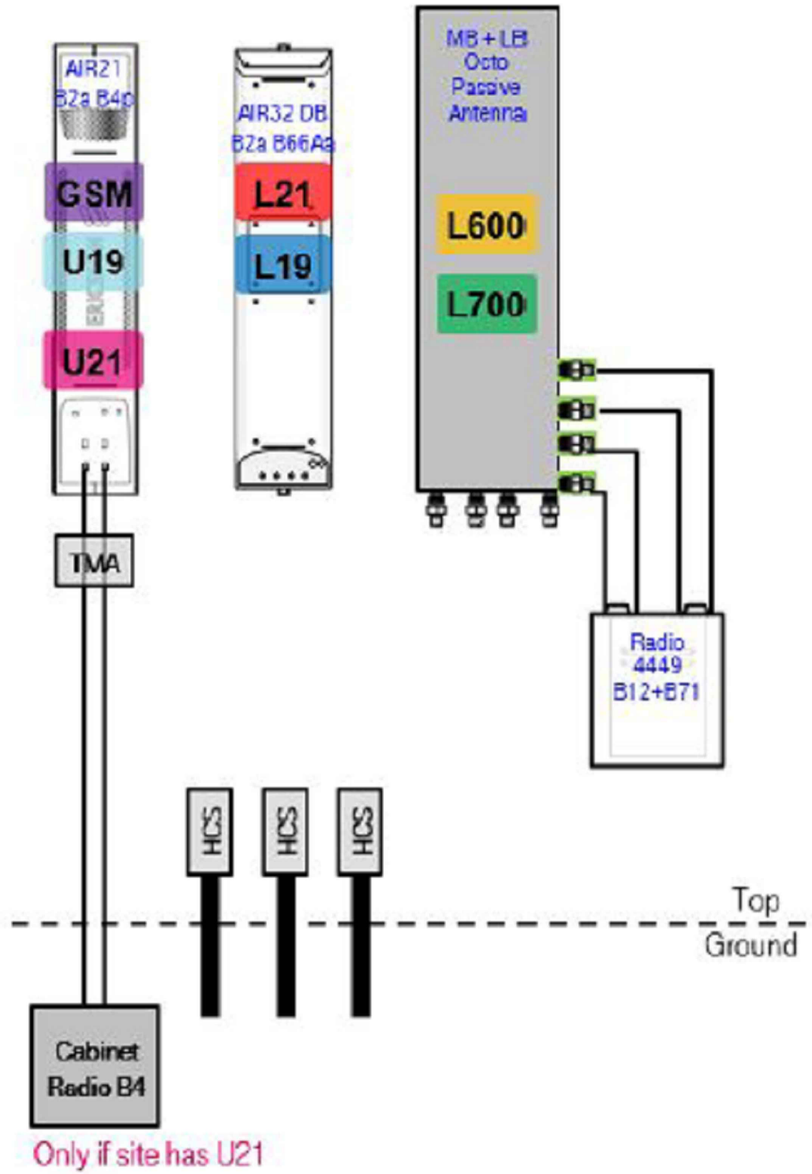
0	07/18/19	ISSUED FOR PERMITTING

MIDDLEFIELD/RT 66
CT11309
COE HILL
876340
238 MERIDEN RD.
MIDDLEFIELD, CT 06457

ANTENNA
INFORMATION CHART

RF-1

SITE CONFIGURATION: 67D92DB OUTDOOR



1 RF EQUIPMENT SCHEMATIC

SCALE: NONE

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

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

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BOSTON, MA 02116

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PROFESSIONAL ENGINEER

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RF EQUIPMENT SCHEMATIC

RF-2

ONE LINE DIAGRAM NOTES:

1. ELECTRICAL SERVICE SHALL BE 200A, 240/120V, 1Ø, 3W

2. FOR COMPLETE INTERNAL WIRING AND ARRANGEMENT, REFER TO VENDOR PRINTS PROVIDED BY EQUIPMENT MANUFACTURER.

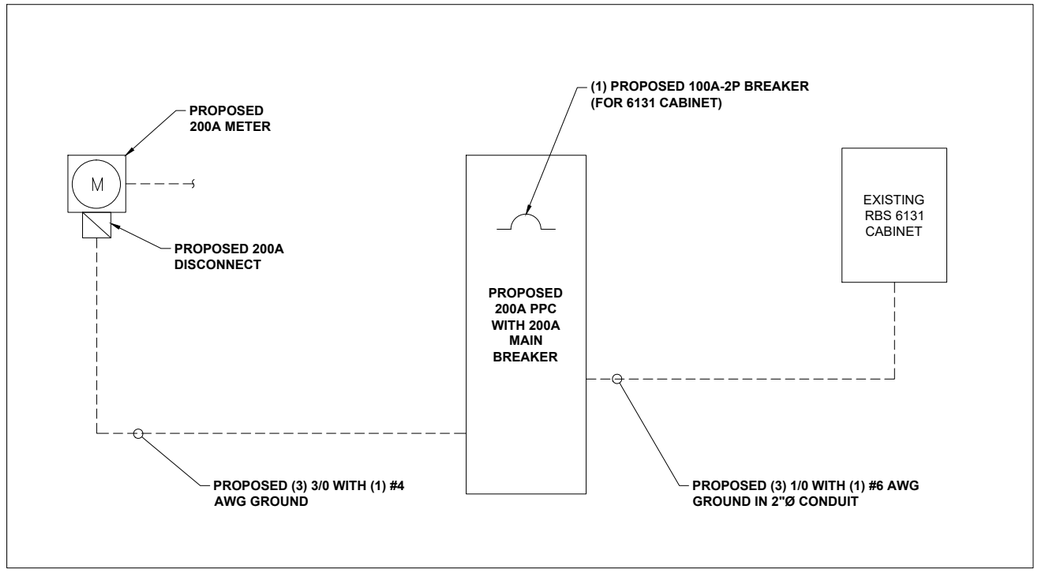
NOTES:

1. CONTRACTOR SHALL VERIFY AVAILABLE FAULT CURRENT WITH POWER COMPANY AND ENSURE ALL ELECTRICAL EQUIPMENT IS SUITABLE FOR AVAILABLE FAULT CURRENT.

2. CONTRACTOR SHALL COORDINATE UTILITY SERVICES WITH LOCAL UTILITY COMPANIES. VERIFY ALL REQUIREMENTS WITH UTILITY COMPANY STANDARDS.

3. ONE-LINE DIAGRAM IS SCHEMATIC ONLY AND NOT INDICATIVE OF ACTUAL EQUIPMENT LAYOUT.

4. CONTRACTOR SHALL LABEL METER SOCKET WITH SERVICE OWNER NAMEPLATE W/ 1/2" MINIMUM LETTERS.



1 ONE LINE DIAGRAM

SCALE: NONE

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

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CLIFTON PARK, NY 12065

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876340
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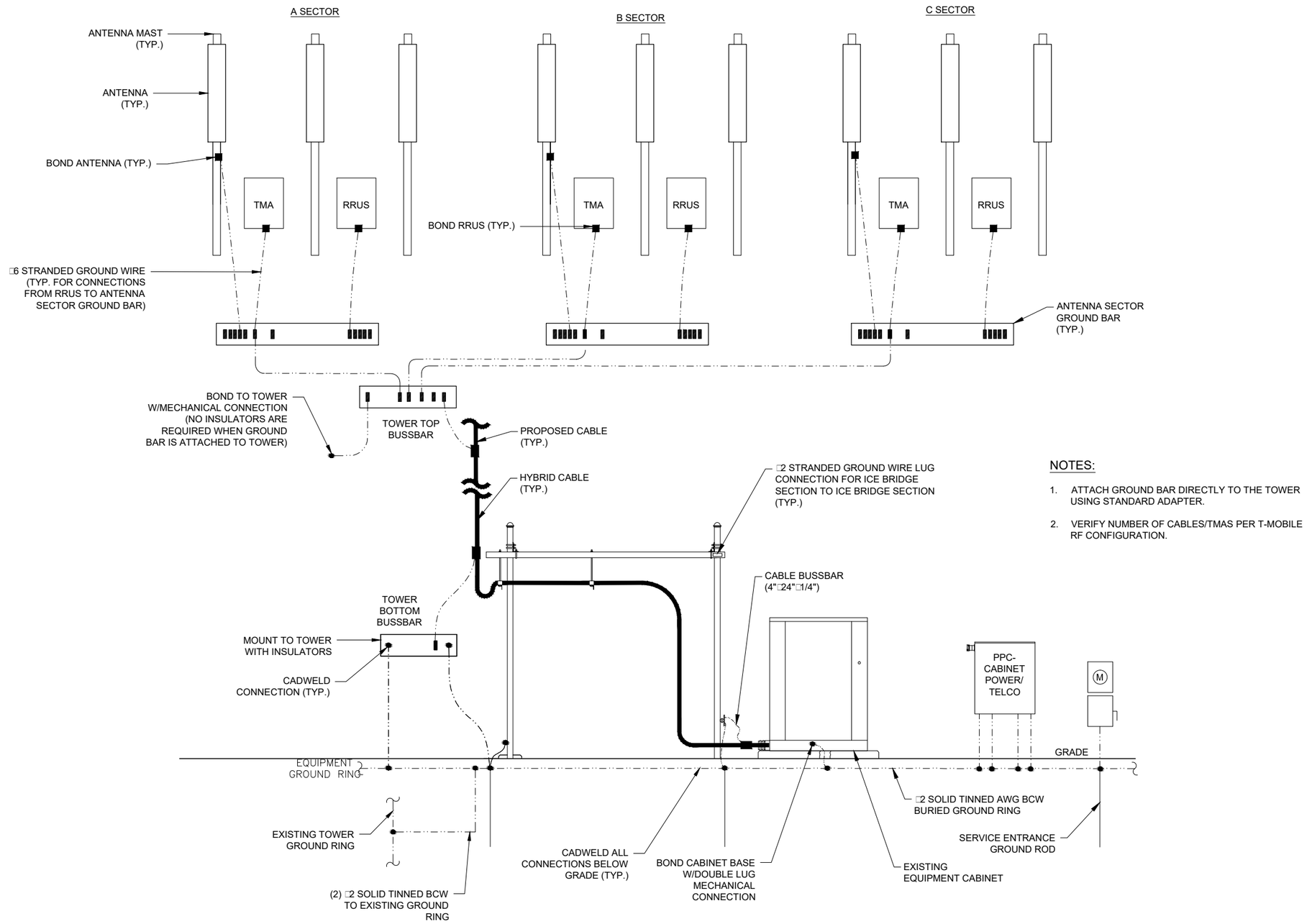
MIDDLEFIELD, CT 06457

ONE LINE
DIAGRAM

E-1



NOTES:

1. ATTACH GROUND BAR DIRECTLY TO THE TOWER USING STANDARD ADAPTER.
2. VERIFY NUMBER OF CABLES/TMAS PER T-MOBILE RF CONFIGURATION.

GROUNDING NOTES:

1. BELOW GROUND ALL GROUNDING CONDUCTORS TO BE □2 AWG SOLID TINNED BARE COPPER WIRE (BCW) U.O.N.
2. ABOVE GROUND ALL GROUNDING CONDUCTORS TO BE □2 AWG STRANDED INSULATED COPPER WIRE U.O.N.
3. PROVIDE BONDING AND GROUNDING CONDUCTORS WITH GREEN TYPE THWN INSULATION, U.O.N.
4. LEAVE 4' EXCESS GROUND WIRE COILED UP ABOVE GRADE. SEAL/WEATHERPROOF CONDUIT.

1 GROUNDING RISER DIAGRAM

SCALE: N.T.S.

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876340
238 MERIDEN RD.
MIDDLEFIELD, CT 06457

GROUNDING RISER DIAGRAM

G-1

Exhibit D

Structural Analysis Report

Date: **June 13, 2019**

MasTec Network Solutions

Heather Simeone
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

MasTec Network Solutions
507 Airport Blvd, Suite 111
Morrisville, NC 27560
(919) 674-5866

Subject: **Structural Analysis Report**

Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11309
	Carrier Site Name:	Middlefield/Rt 66
Crown Castle Designation:	**Crown Castle BU Number:**	876340
	Crown Castle Site Name:	COE HILL
	Crown Castle JDE Job Number:	559327
	Crown Castle Work Order Number:	1755307
	Crown Castle Order Number:	479827 Rev. 1
Engineering Firm Designation:	**MasTec Network Solutions Project Number:**	19161-SAR1
Site Data:	**238 Meriden Rd., Middlefield, Middlesex County, CT 06457**	
	Latitude *41° 32' 45.60"*, Longitude *-72° 42' 53.90"*	
	133.5 Foot - Monopole Tower	

Dear Heather Simeone,

MasTec Network Solutions 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:

LC5: Proposed Equipment Configuration	**78.7%**	**Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut State Building Code (2015 IBC). Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Tsega Melesse

Respectfully submitted by:

Raphael I. Mohamed, P.E., P.Eng.
Senior Director of Engineering
CT PE License No. 25112

Raphael Mohamed

Digitally signed by Raphael Mohamed
Date: 2019.06.20 14:49:04 -04'00'

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 133.5-ft monopole tower designed by Summit and mapped by FDH, Inc. in November 2007. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F. The tower has been modified per reinforcement drawings prepared by FDH, Inc. in April of 2009. Modifications consist of the addition of transition stiffeners, anchor rods and channel reinforcement between elevations 0' and 70.5' and 77' and 87'. The tower was later reinforced per reinforcement drawings prepared by Paul J. Ford, in May of 2010. Reinforcement consists the addition of a 14' pole extension. Reinforcement between 77' and 87' was not considered in this analysis. All other modifications were installed and considered as shown in the drawings.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	125 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.50 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)
101.0	104.0	3	Ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	6 4	1-1/4 1-5/8
		3	RFS Celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		3	Ericsson	AIR 32 B2A/B66AA w/ Mount Pipe		
		3	Ericsson	RADIO 4449 B12/B71		
	101.0	3	Ericsson	KRY 112 144/1		
		1	Tower Mounts	Platform Mount [LP 713-1]		
		1	Sabre	Kicker Kit [C1085120DP]		

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)
131.0	132.0	7	Powerwave Technologies	P65-15-XLH-RR w/ Mount Pipe	1 2 12	3/8 3/4 1-1/4
		2	KMW Communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe		
		6	Powerwave Technologies	TT19-08BP111-001		
		6	Ericsson	RRUS 11 B2		
		1	Raycap	DC6-48-60-18-8F		
	131.0	1	Tower Mounts	Platform Mount [LP 601-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
119.0	121.0	3	RFS Celwave	APXVSPP18-C-A20 w/ Mount Pipe	1 3	7/8 1-1/4
		3	RFS Celwave	APXVTM14-C-120 w/ Mount Pipe		
		3	Alcatel Lucent	TD-RRH8x20-25		
	119.0	1	Tower Mounts	Platform Mount [LP 1201-1]		
117.0	117.0	3	Alcatel Lucent	800MHz 2X50W RRH W/FILTER	-	-
		3	Alcatel Lucent	PCS 1900MHz 4x45W-65MHz		
		1	Tower Mounts	Side Arm Mount [SO 102-3]		
111.0	111.0	1	Tower Mounts	Platform Mount [LP 1201-1]	-	-
95.0	95.0	3	RFS Celwave	APXV18-206517S-ACU	6	1-5/8
		1	Tower Mounts	Pipe Mount [PM 601-3]		
60.0	61.0	1	Symmetricom	58532A	1	1/2
	60.0	1	Tower Mounts	Side Arm Mount [SO 304-1]		
50.0	51.0	1	Lucent	KS24019-L112A	1	1/2
	50.0	1	Tower Mounts	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Tower Reinforcement Drawings	Paul J. Ford and Co.	2642501	CCISites
Tower Reinforcement Drawings	FDH, Inc.	2331830	CCISites
Geotechnical Report	SEA Consultants Inc.	1613531	CCISites
Tower Foundation Drawings	Summit Manufacturing, Inc.	1613597	CCISites
Tower Manufacturer Drawings	FDH, Inc. (Mapping)/ Summit Manufacturing	1533009	CCISites
Post Modification Inspection	FDH, Inc.	2427628	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.

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 reinforced leg section. These calculations are presented in Appendix C.

3.2) Assumptions

1) The tower and foundation were built and have been maintained in accordance with the manufacturer's specifications.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and the referenced drawings.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary) (Monopole Tower)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
133.5 - 128.5	Pole	TP10.75x10.75x0.365	Pole	13.3%	Pass
128.5 - 123.5	Pole	TP10.75x10.75x0.365	Pole	34.0%	Pass
123.5 - 121.5	Pole	TP10.75x10.75x0.365	Pole	42.5%	Pass
121.5 - 119	Pole	TP22x22x0.25	Pole	11.3%	Pass
119 - 114	Pole	TP22.95x22x0.25	Pole	16.7%	Pass
114 - 109	Pole	TP23.9x22.95x0.25	Pole	23.3%	Pass
109 - 104	Pole	TP24.851x23.9x0.25	Pole	30.0%	Pass
104 - 99	Pole	TP25.801x24.851x0.25	Pole	39.2%	Pass
99 - 94	Pole	TP26.751x25.801x0.25	Pole	48.3%	Pass
94 - 89	Pole	TP27.701x26.751x0.25	Pole	57.1%	Pass
89 - 84	Pole	TP28.652x27.701x0.25	Pole	65.3%	Pass
84 - 79	Pole	TP29.602x28.652x0.25	Pole	73.0%	Pass
79 - 78.75	Pole	TP30.362x29.602x0.25	Pole	73.4%	Pass
78.75 - 73.75	Pole	TP30.1x29.149x0.3125	Pole	60.7%	Pass
73.75 - 68.75	Pole	TP31.05x30.1x0.3125	Pole	65.6%	Pass
68.75 - 68.08	Pole	TP31.177x31.05x0.3125	Pole	66.3%	Pass
68.08 - 67.83	Pole + Reinf.	TP31.225x31.177x0.575	Reinf. 1 Tension Rupture	50.3%	Pass
67.83 - 62.83	Pole + Reinf.	TP32.175x31.225x0.5688	Reinf. 1 Tension Rupture	53.9%	Pass
62.83 - 57.83	Pole + Reinf.	TP33.125x32.175x0.5625	Reinf. 1 Tension Rupture	57.3%	Pass
57.83 - 52.83	Pole + Reinf.	TP34.075x33.125x0.55	Reinf. 1 Tension Rupture	60.5%	Pass
52.83 - 47.83	Pole + Reinf.	TP35.025x34.075x0.5438	Reinf. 1 Tension Rupture	63.6%	Pass
47.83 - 42.83	Pole + Reinf.	TP35.976x35.025x0.5375	Reinf. 1 Tension Rupture	66.5%	Pass
42.83 - 42.5	Pole + Reinf.	TP36.941x35.976x0.5375	Reinf. 1 Tension Rupture	66.7%	Pass
42.5 - 37.5	Pole + Reinf.	TP36.364x35.413x0.6	Reinf. 1 Tension Rupture	64.0%	Pass
37.5 - 32.5	Pole + Reinf.	TP37.314x36.364x0.5875	Reinf. 1 Tension Rupture	66.4%	Pass
32.5 - 27.5	Pole + Reinf.	TP38.264x37.314x0.5875	Reinf. 1 Tension Rupture	68.6%	Pass
27.5 - 22.5	Pole + Reinf.	TP39.214x38.264x0.575	Reinf. 1 Tension Rupture	70.7%	Pass
22.5 - 17.5	Pole + Reinf.	TP40.164x39.214x0.575	Reinf. 1 Tension Rupture	72.6%	Pass
17.5 - 12.5	Pole + Reinf.	TP41.115x40.164x0.5688	Reinf. 1 Tension Rupture	74.5%	Pass
12.5 - 7.5	Pole + Reinf.	TP42.065x41.115x0.5625	Reinf. 1 Tension Rupture	76.2%	Pass
7.5 - 2.5	Pole + Reinf.	TP43.015x42.065x0.5625	Reinf. 1 Tension Rupture	77.9%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
2.5 - 0	Pole + Reinf.	TP43.49x43.015x0.5563	Reinf. 1 Tension Rupture	78.7%	Pass
				Summary	
			Pole	73.4%	Pass
			Reinforcement	78.7%	Pass
			Overall	78.7%	Pass

Table 5 - Tower Component Stresses vs. Capacity (Monopole Tower) – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1, 2	Flange Connection	119	46.2	Pass
1, 2	Anchor Rods	0	60.9	Pass
1, 2	Base Plate	0	53.4	Pass
1, 2	Base Foundation (Soil Interaction)	0	53.4	Pass
1, 2	Base Foundation (Structural)	0	45.4	Pass

Structure Rating (max from all components) =	**78.7%**

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

4.1) Recommendations

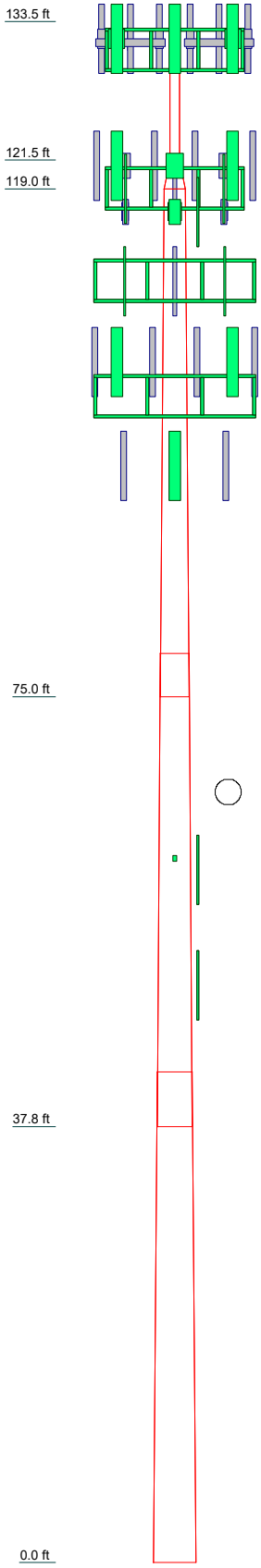
The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	1	2	3	4	5
Length (ft)	12.00	2.50	44.00	41.00	42.50
Number of Sides	1	1	12	12	12
Thickness (in)	0.3650	0.2500	0.2500	0.3125	0.3750
Socket Length (ft)			3.75	4.75	
Top Dia (in)	10.7500	10.7500	22.0000	29.1493	35.4133
Bot Dia (in)	10.7500	22.0000	30.3620	36.9410	43.4900
Grade	A53-B-35		A572-65	A607-65	
Weight (lb)	486.3	107.7	3125.4	4595.2	6823.8

Total Weight (lb): 15138.4



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	60 ksi	A607-65	65 ksi	80 ksi
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

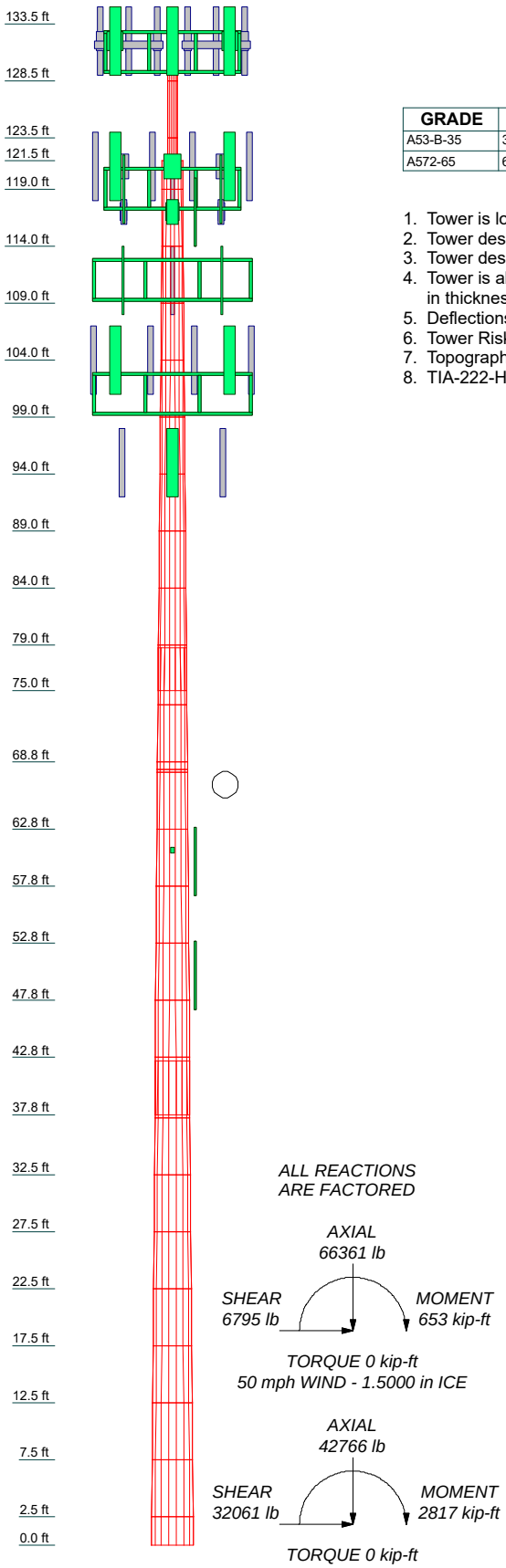
1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in 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 0.00 ft
8. TIA-222-H Annex S

MasTec Network Solutions

MasTec Network Solutions
507 Airport Blvd.,
Morrisville, NC
Phone: (919) 674-5860
FAX:

Job: *COE HILL (BU# 876340)*			
Project: *19161-SAR1*			
Client: Crown Castle International	Drawn by: Tsega Melesse		App'd:
Code: TIA-222-H	Date: 06/14/19		Scale: NTS
Path:			Dwg No. E-1

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)	5.00	5.00	2.00	2.50	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	2.50
Number of Sides	0	0	0	0	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Thickness (in)	0.3650	0.3650	0.3650	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.3125	0.3125	0.5625	0.5625	0.5625	0.5625	0.5500	0.5437	0.5375	0.5375	0.5000	0.5875	0.5875	0.5750	0.5750	0.5687	0.5625	0.5625	0.5563
Socket Length (ft)																																
Top Dia (in)	10.7500	10.7500	10.7500	10.7500	22.0000	22.9502	23.9005	24.8507	25.8009	26.7511	27.7014	28.6516	29.6018	30.5520	31.5023	32.4525	33.4027	34.3530	35.3032	36.2534	37.2037	38.1539	39.1041	40.0544	41.0046	41.9548	42.9051	43.8553	44.8055	45.7558	46.7060	47.6562
Bot Dia (in)	10.7500	10.7500	10.7500	10.7500	22.0000	22.9502	23.9005	24.8507	25.8009	26.7511	27.7014	28.6516	29.6018	30.5520	31.5023	32.4525	33.4027	34.3530	35.3032	36.2534	37.2037	38.1539	39.1041	40.0544	41.0046	41.9548	42.9051	43.8553	44.8055	45.7558	46.7060	47.6562
Grade	A53-B-35			A572-65		A607-65																										
Weight (lb)	202.6	202.6	101.0	145.3	304.4	317.4	330.4	343.4	356.5	369.5	382.5	395.5	825.8	501.1	518.1	916.6	933.0	949.4	965.9	982.3	1124.6	1129.2	1148.8	1168.4	1188.1	1207.7	1227.3	1247.0	1266.6	1286.2	1305.9	631.9



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	60 ksi	A607-65	65 ksi	80 ksi
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Middlesex 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 0.00 ft
8. TIA-222-H Annex S

MasTec Network Solutions

MasTec Network Solutions
507 Airport Blvd.,
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Phone: (919) 674-5860
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Job:	COE HILL (BU# 876340)
Project:	19161-SAR1
Client: Crown Castle International	Drawn by: Tsega Melesse / App'd:
Code: TIA-222-H	Date: 06/14/19 / 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 Middlesex County, Connecticut.
Tower base elevation above sea level: 444.59 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: 0.00 ft.
Nominal ice thickness of 1.5000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
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	133.50-128.50	5.00	0.00	Round	10.7500	10.7500	0.3650		A53-B-35 (35 ksi)
L2	128.50-123.50	5.00	0.00	Round	10.7500	10.7500	0.3650		A53-B-35 (35 ksi)
L3	123.50-121.50	2.00	0.00	Round	10.7500	10.7500	0.3650		A53-B-35 (35 ksi)
L4	121.50-119.00	2.50	0.00	Round	22.0000	22.0000	0.2500		A572-65 (65 ksi)
L5	119.00-114.00	5.00	0.00	12	22.0000	22.9502	0.2500	1.0000	A607-65 (65 ksi)
L6	114.00-109.00	5.00	0.00	12	22.9502	23.9005	0.2500	1.0000	A607-65 (65 ksi)
L7	109.00-104.00	5.00	0.00	12	23.9005	24.8507	0.2500	1.0000	A607-65 (65 ksi)
L8	104.00-99.00	5.00	0.00	12	24.8507	25.8009	0.2500	1.0000	A607-65 (65 ksi)
L9	99.00-94.00	5.00	0.00	12	25.8009	26.7511	0.2500	1.0000	A607-65 (65 ksi)
L10	94.00-89.00	5.00	0.00	12	26.7511	27.7014	0.2500	1.0000	A607-65 (65 ksi)
L11	89.00-84.00	5.00	0.00	12	27.7014	28.6516	0.2500	1.0000	A607-65 (65 ksi)
L12	84.00-79.00	5.00	0.00	12	28.6516	29.6018	0.2500	1.0000	A607-65 (65 ksi)
L13	79.00-75.00	4.00	3.75	12	29.6018	30.3620	0.2500	1.0000	A607-65 (65 ksi)
L14	75.00-73.75	5.00	0.00	12	29.1493	30.0995	0.3125	1.2500	A607-65 (65 ksi)
L15	73.75-68.75	5.00	0.00	12	30.0995	31.0497	0.3125	1.2500	A607-65 (65 ksi)
L16	68.75-68.08	0.67	0.00	12	31.0497	31.1771	0.3125	1.2500	A607-65 (65 ksi)
L17	68.08-67.83	0.25	0.00	12	31.1771	31.2246	0.5750	2.3000	A607-65 (65 ksi)
L18	67.83-62.83	5.00	0.00	12	31.2246	32.1748	0.5687	2.2750	A607-65 (65 ksi)
L19	62.83-57.83	5.00	0.00	12	32.1748	33.1250	0.5625	2.2500	A607-65 (65 ksi)
L20	57.83-52.83	5.00	0.00	12	33.1250	34.0752	0.5500	2.2000	A607-65 (65 ksi)
L21	52.83-47.83	5.00	0.00	12	34.0752	35.0254	0.5437	2.1750	A607-65 (65 ksi)
L22	47.83-42.83	5.00	0.00	12	35.0254	35.9756	0.5375	2.1500	A607-65 (65 ksi)
L23	42.83-37.75	5.08	4.75	12	35.9756	36.9410	0.5375	2.1500	A607-65 (65 ksi)
L24	37.75-37.50	5.00	0.00	12	35.4133	36.3635	0.6000	2.4000	A607-65 (65 ksi)
L25	37.50-32.50	5.00	0.00	12	36.3635	37.3137	0.5875	2.3500	A607-65 (65 ksi)
L26	32.50-27.50	5.00	0.00	12	37.3137	38.2639	0.5875	2.3500	A607-65 (65 ksi)
L27	27.50-22.50	5.00	0.00	12	38.2639	39.2141	0.5750	2.3000	A607-65 (65 ksi)
L28	22.50-17.50	5.00	0.00	12	39.2141	40.1643	0.5750	2.3000	A607-65 (65 ksi)
L29	17.50-12.50	5.00	0.00	12	40.1643	41.1145	0.5687	2.2750	A607-65 (65 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
L30	12.50-7.50	5.00	0.00	12	41.1145	42.0647	0.5625	2.2500	A607-65 (65 ksi)
L31	7.50-2.50	5.00	0.00	12	42.0647	43.0149	0.5625	2.2500	A607-65 (65 ksi)
L32	2.50-0.00	2.50		12	43.0149	43.4900	0.5563	2.2250	A607-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	10.7500	11.9083	160.7342	3.6739	5.3750	29.9040	321.4685	5.9506	0.0000	0
	10.7500	11.9083	160.7342	3.6739	5.3750	29.9040	321.4685	5.9506	0.0000	0
L2	10.7500	11.9083	160.7342	3.6739	5.3750	29.9040	321.4685	5.9506	0.0000	0
	10.7500	11.9083	160.7342	3.6739	5.3750	29.9040	321.4685	5.9506	0.0000	0
L3	10.7500	11.9083	160.7342	3.6739	5.3750	29.9040	321.4685	5.9506	0.0000	0
	10.7500	11.9083	160.7342	3.6739	5.3750	29.9040	321.4685	5.9506	0.0000	0
L4	22.0000	17.0824	1010.2644	7.6903	11.0000	91.8422	2020.5288	8.5361	0.0000	0
	22.0000	17.0824	1010.2644	7.6903	11.0000	91.8422	2020.5288	8.5361	0.0000	0
L5	22.6879	17.5087	1057.2060	7.7865	11.3960	92.7699	2142.1860	8.6173	5.2260	20.904
	23.6716	18.2737	1201.9114	8.1267	11.8882	101.1011	2435.3983	8.9938	5.4807	21.923
L6	23.6716	18.2737	1201.9114	8.1267	11.8882	101.1011	2435.3983	8.9938	5.4807	21.923
	24.6554	19.0386	1359.2530	8.4669	12.3804	109.7904	2754.2151	9.3702	5.7353	22.941
L7	24.6554	19.0386	1359.2530	8.4669	12.3804	109.7904	2754.2151	9.3702	5.7353	22.941
	25.6391	19.8035	1529.7599	8.8070	12.8727	118.8380	3099.7082	9.7467	5.9900	23.96
L8	25.6391	19.8035	1529.7599	8.8070	12.8727	118.8380	3099.7082	9.7467	5.9900	23.96
	26.6229	20.5685	1713.9609	9.1472	13.3649	128.2437	3472.9494	10.1232	6.2446	24.979
L9	26.6229	20.5685	1713.9609	9.1472	13.3649	128.2437	3472.9494	10.1232	6.2446	24.979
	27.6066	21.3334	1912.3850	9.4874	13.8571	138.0077	3875.0104	10.4997	6.4993	25.997
L10	27.6066	21.3334	1912.3850	9.4874	13.8571	138.0077	3875.0104	10.4997	6.4993	25.997
	28.5904	22.0983	2125.5611	9.8276	14.3493	148.1299	4306.9631	10.8761	6.7540	27.016
L11	28.5904	22.0983	2125.5611	9.8276	14.3493	148.1299	4306.9631	10.8761	6.7540	27.016
	29.5741	22.8633	2354.0183	10.1678	14.8415	158.6103	4769.8793	11.2526	7.0086	28.035
L12	29.5741	22.8633	2354.0183	10.1678	14.8415	158.6103	4769.8793	11.2526	7.0086	28.035
	30.5579	23.6282	2598.2854	10.5080	15.3337	169.4489	5264.8307	11.6291	7.2633	29.053
L13	30.5579	23.6282	2598.2854	10.5080	15.3337	169.4489	5264.8307	11.6291	7.2633	29.053
	31.3449	24.2402	2805.4377	10.7801	15.7275	178.3777	5684.5775	11.9303	7.4670	29.868
L14	30.8052	29.0171	3079.8841	10.3236	15.0994	203.9746	6240.6802	14.2813	6.9745	22.318
	31.0511	29.9732	3394.4827	10.6638	15.5916	217.7129	6878.1422	14.7519	7.2292	23.133
L15	31.0511	29.9732	3394.4827	10.6638	15.5916	217.7129	6878.1422	14.7519	7.2292	23.133
	32.0348	30.9293	3729.8067	11.0039	16.0838	231.8989	7557.5995	15.2225	7.4838	23.948
L16	32.0348	30.9293	3729.8067	11.0039	16.0838	231.8989	7557.5995	15.2225	7.4838	23.948
	32.1666	31.0575	3776.3505	11.0495	16.1497	233.8338	7651.9099	15.2855	7.5180	24.057
L17	32.0740	56.6597	6772.6999	10.9555	16.1497	419.3695	13723.3263	27.8862	6.8145	11.851
	32.1232	56.7477	6804.2931	10.9725	16.1743	420.6847	13787.3426	27.9295	6.8272	11.873
L18	32.1254	56.1423	6734.4516	10.9748	16.1743	416.3667	13645.8247	27.6315	6.8439	12.033
	33.1091	57.8825	7380.2827	11.3150	16.6665	442.8205	14954.4537	28.4880	7.0986	12.481
L19	33.1114	57.2577	7303.5118	11.3172	16.6665	438.2142	14798.8949	28.1805	7.1153	12.649
	34.0951	58.9788	7982.0941	11.6574	17.1587	465.1911	16173.8868	29.0276	7.3700	13.102
L20	34.0995	57.6903	7813.7059	11.6618	17.1587	455.3776	15832.6865	28.3934	7.4035	13.461
	35.0832	59.3731	8517.6165	12.0020	17.6509	482.5586	17259.0003	29.2216	7.6581	13.924
L21	35.0854	58.7094	8425.5359	12.0043	17.6509	477.3419	17072.4200	28.8950	7.6749	14.115
	36.0691	60.3730	9162.3063	12.3444	18.1432	505.0008	18565.3166	29.7138	7.9296	14.583
L22	36.0713	59.6899	9061.9182	12.3467	18.1432	499.4677	18361.9031	29.3776	7.9463	14.784
	37.0551	61.3345	9831.7612	12.6868	18.6354	527.5864	19921.8137	30.1870	8.2010	15.258
L23	37.0551	61.3345	9831.7612	12.6868	18.6354	527.5864	19921.8137	30.1870	8.2010	15.258

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
	38.0545	63.0054	10657.3619	13.0325	19.1354	556.9437	21594.7045	31.0093	8.4597	15.739
L24	37.3854	67.2593	10404.6839	12.4632	18.3441	567.1953	21082.7105	33.1030	7.8828	13.138
	37.4346	69.0951	11280.1097	12.8033	18.8363	598.8497	22856.5605	34.0065	8.1374	13.562
L25	37.4390	67.6793	11056.6929	12.8078	18.8363	586.9887	22403.8574	33.3097	8.1709	13.908
	38.4227	69.4768	11961.2854	13.1480	19.3285	618.8419	24236.8071	34.1944	8.4256	14.341
L26	38.4227	69.4768	11961.2854	13.1480	19.3285	618.8419	24236.8071	34.1944	8.4256	14.341
	39.4065	71.2743	12913.9183	13.4882	19.8207	651.5369	26167.0996	35.0791	8.6802	14.775
L27	39.4109	69.7810	12651.7382	13.4926	19.8207	638.3093	25635.8517	34.3441	8.7137	15.154
	40.3946	71.5403	13632.9797	13.8328	20.3129	671.1487	27624.1130	35.2100	8.9684	15.597
L28	40.3946	71.5403	13632.9797	13.8328	20.3129	671.1487	27624.1130	35.2100	8.9684	15.597
	41.3783	73.2996	14663.6884	14.1730	20.8051	704.8119	29712.6082	36.0758	9.2230	16.04
L29	41.3805	72.5143	14511.1710	14.1752	20.8051	697.4811	29403.5666	35.6893	9.2398	16.246
	42.3642	74.2545	15581.1428	14.5154	21.2973	731.6014	31571.6195	36.5458	9.4944	16.694
L30	42.3664	73.4498	15417.0487	14.5176	21.2973	723.8965	31239.1204	36.1498	9.5112	16.909
	43.3502	75.1709	16526.3803	14.8578	21.7895	758.4556	33486.9269	36.9968	9.7658	17.361
L31	43.3502	75.1709	16526.3803	14.8578	21.7895	758.4556	33486.9269	36.9968	9.7658	17.361
	44.3339	76.8919	17687.6894	15.1980	22.2817	793.8207	35840.0541	37.8439	10.0205	17.814
L32	44.3361	76.0488	17498.8860	15.2002	22.2817	785.3472	35457.4872	37.4289	10.0372	18.044
	44.8279	76.8997	18092.9055	15.3703	22.5278	803.1361	36661.1318	37.8477	10.1646	18.273

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 133.50-128.50				1	1	1			
L2 128.50-123.50				1	1	1			
L3 123.50-121.50				1	1	1			
L4 121.50-119.00				1	1	1			
L5 119.00-114.00				1	1	1			
L6 114.00-109.00				1	1	1			
L7 109.00-104.00				1	1	1			
L8 104.00-99.00				1	1	1			
L9 99.00-94.00				1	1	1			
L10 94.00-89.00				1	1	1			
L11 89.00-84.00				1	1	1			
L12 84.00-79.00				1	1	1			
L13 79.00-75.00				1	1	1			
L14 75.00-73.75				1	1	1			
L15 73.75-68.75				1	1	1			
L16 68.75-68.08				1	1	1			
L17 68.08-67.83				1	1	0.946958			
L18 67.83-62.83				1	1	0.944911			
L19				1	1	0.943559			

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
62.83-57.83									
L20				1	1	0.953396			
57.83-52.83									
L21				1	1	0.953443			
52.83-47.83									
L22				1	1	0.954086			
47.83-42.83									
L23				1	1	0.953428			
42.83-37.75									
L24				1	1	0.956486			
37.75-37.50									
L25				1	1	0.967746			
37.50-32.50									
L26				1	1	0.959437			
32.50-27.50									
L27				1	1	0.971908			
27.50-22.50									
L28				1	1	0.964234			
22.50-17.50									
L29				1	1	0.967286			
17.50-12.50									
L30 12.50-7.50				1	1	0.970758			
L31 7.50-2.50				1	1	0.963952			
L32 2.50-0.00				1	1	0.971314			

Monopole Base Plate Data

Base Plate Data	
Base plate is square	√
Base plate is grouted	
Anchor bolt grade	A615-75
Anchor bolt size	2.2500 in
Number of bolts	12
Embedment length	84.0000 in
f'_c	4 ksi
Grout space	2.0000 in
Base plate grade	A572-50
Base plate thickness	3.0000 in
Bolt circle diameter	51.0000 in
Outer diameter	49.0000 in
Inner diameter	42.0000 in
Base plate type	Plain Plate

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
**										
*										
MP3-08	C	No	Surface Af	87.00 -	1	1	0.000	7.9300	21.4600	0.04

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
			(CaAa)	77.00			0.000			
MP3-08	B	No	Surface Af (CaAa)	87.00 - 77.00	1	1	0.000 0.000	7.9300	21.4600	0.04
MP3-08	B	No	Surface Af (CaAa)	87.00 - 77.00	1	1	-0.500 -0.500	7.9300	21.4600	0.04
MP3-08	A	No	Surface Af (CaAa)	87.00 - 77.00	1	1	0.000 0.000	7.9300	21.4600	0.04
*										
MP3-05	C	No	Surface Af (CaAa)	70.50 - 0.50	1	1	-0.500 -0.500	5.3300	14.8400	0.00
MP3-05	B	No	Surface Af (CaAa)	70.50 - 0.50	1	1	-0.250 -0.250	5.3300	14.8400	0.00
MP3-05	A	No	Surface Af (CaAa)	70.50 - 0.50	1	1	0.000 0.000	5.3300	14.8400	0.00
MP3-05	C	No	Surface Af (CaAa)	70.50 - 0.50	1	1	0.500 0.500	5.3300	14.8400	0.00
*										
Safety Line 3/8	C	No	Surface Ar (CaAa)	133.50 - 0.00	1	1	0.000 0.000	0.3750		0.22
**** ***										

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
**									
*									
LCF114-50J(1-1/4)	C	No	No	Inside Pole	131.00 - 0.00	12	No Ice	0.00	0.70
							1/2" Ice	0.00	0.70
							1" Ice	0.00	0.70
							2" Ice	0.00	0.70
FB-L98B-002-50000 (3/8)	C	No	No	Inside Pole	131.00 - 0.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	131.00 - 0.00	2	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
							2" Ice	0.00	0.58
2" Flex Conduit	C	No	No	Inside Pole	131.00 - 0.00	1	No Ice	0.00	0.36
							1/2" Ice	0.00	0.36
							1" Ice	0.00	0.36
							2" Ice	0.00	0.36
*									
LDF5-50A(7/8)	C	No	No	Inside Pole	119.00 - 0.00	1	No Ice	0.00	0.33
							1/2" Ice	0.00	0.33
							1" Ice	0.00	0.33
							2" Ice	0.00	0.33
HB114-1-08U4-M5J (1-1/4)	C	No	No	Inside Pole	119.00 - 0.00	3	No Ice	0.00	1.08
							1/2" Ice	0.00	1.08
							1" Ice	0.00	1.08
							2" Ice	0.00	1.08
*									
LDF6-50A(1-1/4)	C	No	No	Inside Pole	101.00 - 0.00	6	No Ice	0.00	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
							1/2" Ice	0.00	0.60
							1" Ice	0.00	0.60
							2" Ice	0.00	0.60
MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	C	No	No	Inside Pole	101.00 - 0.00	1	No Ice	0.00	1.07
							1/2" Ice	0.00	1.07
							1" Ice	0.00	1.07
							2" Ice	0.00	1.07
HCS 6X12 4AWG(1-5/8")	C	No	No	Inside Pole	101.00 - 0.00	3	No Ice	0.00	2.40
							1/2" Ice	0.00	2.40
							1" Ice	0.00	2.40
							2" Ice	0.00	2.40
*									
AVA7-50(1-5/8)	A	No	No	Inside Pole	95.00 - 0.00	6	No Ice	0.00	0.70
							1/2" Ice	0.00	0.70
							1" Ice	0.00	0.70
							2" Ice	0.00	0.70
*									
LDF4-50A(1/2)	C	No	No	Inside Pole	60.00 - 0.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
							2" Ice	0.00	0.15
*									
LDF4-50A(1/2)	C	No	No	Inside Pole	50.00 - 0.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
							2" Ice	0.00	0.15
****									
***									

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 lb
L1	133.50-128.50	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	0.188	0.000	26.07
L2	128.50-123.50	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	0.188	0.000	51.04
L3	123.50-121.50	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	0.075	0.000	20.41
L4	121.50-119.00	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	0.094	0.000	25.52
L5	119.00-114.00	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	0.188	0.000	68.89
L6	114.00-109.00	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	0.188	0.000	68.89
L7	109.00-104.00	A	0.000	0.000	0.000	0.000	0.00
		B	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 lb
		C	0.000	0.000	0.188	0.000	68.89
L8	104.00-99.00	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	0.188	0.000	92.63
L9	99.00-94.00	A	0.000	0.000	0.000	0.000	4.20
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	128.24
L10	94.00-89.00	A	0.000	0.000	0.000	0.000	21.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.188	0.000	128.24
L11	89.00-84.00	A	0.000	0.000	3.256	0.000	21.11
		B	0.000	0.000	6.512	0.000	0.21
		C	0.000	0.000	3.443	0.000	128.34
L12	84.00-79.00	A	0.000	0.000	5.426	0.000	21.18
		B	0.000	0.000	10.853	0.000	0.35
		C	0.000	0.000	5.614	0.000	128.41
L13	79.00-75.00	A	0.000	0.000	2.171	0.000	16.87
		B	0.000	0.000	4.341	0.000	0.14
		C	0.000	0.000	2.321	0.000	102.66
L14	75.00-73.75	A	0.000	0.000	0.000	0.000	5.25
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.047	0.000	32.06
L15	73.75-68.75	A	0.000	0.000	1.555	0.000	21.00
		B	0.000	0.000	1.555	0.000	0.00
		C	0.000	0.000	3.297	0.000	128.24
L16	68.75-68.08	A	0.000	0.000	0.595	0.000	2.81
		B	0.000	0.000	0.595	0.000	0.00
		C	0.000	0.000	1.215	0.000	17.18
L17	68.08-67.83	A	0.000	0.000	0.222	0.000	1.05
		B	0.000	0.000	0.222	0.000	0.00
		C	0.000	0.000	0.454	0.000	6.41
L18	67.83-62.83	A	0.000	0.000	4.442	0.000	21.00
		B	0.000	0.000	4.442	0.000	0.00
		C	0.000	0.000	9.071	0.000	128.24
L19	62.83-57.83	A	0.000	0.000	4.442	0.000	21.00
		B	0.000	0.000	4.442	0.000	0.00
		C	0.000	0.000	9.071	0.000	128.56
L20	57.83-52.83	A	0.000	0.000	4.442	0.000	21.00
		B	0.000	0.000	4.442	0.000	0.00
		C	0.000	0.000	9.071	0.000	128.99
L21	52.83-47.83	A	0.000	0.000	4.442	0.000	21.00
		B	0.000	0.000	4.442	0.000	0.00
		C	0.000	0.000	9.071	0.000	129.31
L22	47.83-42.83	A	0.000	0.000	4.442	0.000	21.00
		B	0.000	0.000	4.442	0.000	0.00
		C	0.000	0.000	9.071	0.000	129.74
L23	42.83-37.75	A	0.000	0.000	4.513	0.000	21.34
		B	0.000	0.000	4.513	0.000	0.00
		C	0.000	0.000	9.216	0.000	131.81
L24	37.75-37.50	A	0.000	0.000	0.222	0.000	1.05
		B	0.000	0.000	0.222	0.000	0.00
		C	0.000	0.000	0.454	0.000	6.49
L25	37.50-32.50	A	0.000	0.000	4.442	0.000	21.00
		B	0.000	0.000	4.442	0.000	0.00
		C	0.000	0.000	9.071	0.000	129.74
L26	32.50-27.50	A	0.000	0.000	4.442	0.000	21.00
		B	0.000	0.000	4.442	0.000	0.00
		C	0.000	0.000	9.071	0.000	129.74
L27	27.50-22.50	A	0.000	0.000	4.442	0.000	21.00
		B	0.000	0.000	4.442	0.000	0.00
		C	0.000	0.000	9.071	0.000	129.74

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 lb
L28	22.50-17.50	A	0.000	0.000	4.442	0.000	21.00
		B	0.000	0.000	4.442	0.000	0.00
		C	0.000	0.000	9.071	0.000	129.74
L29	17.50-12.50	A	0.000	0.000	4.442	0.000	21.00
		B	0.000	0.000	4.442	0.000	0.00
		C	0.000	0.000	9.071	0.000	129.74
L30	12.50-7.50	A	0.000	0.000	4.442	0.000	21.00
		B	0.000	0.000	4.442	0.000	0.00
		C	0.000	0.000	9.071	0.000	129.74
L31	7.50-2.50	A	0.000	0.000	4.442	0.000	21.00
		B	0.000	0.000	4.442	0.000	0.00
		C	0.000	0.000	9.071	0.000	129.74
L32	2.50-0.00	A	0.000	0.000	1.777	0.000	10.50
		B	0.000	0.000	1.777	0.000	0.00
		C	0.000	0.000	3.647	0.000	64.87

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 lb
L1	133.50-128.50	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	1.651	0.000	42.50
L2	128.50-123.50	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	1.645	0.000	67.36
L3	123.50-121.50	A	1.454	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	0.656	0.000	26.91
L4	121.50-119.00	A	1.451	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	0.819	0.000	33.61
L5	119.00-114.00	A	1.446	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	1.634	0.000	84.98
L6	114.00-109.00	A	1.440	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	1.628	0.000	84.85
L7	109.00-104.00	A	1.433	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	1.621	0.000	84.72
L8	104.00-99.00	A	1.427	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	1.614	0.000	108.33
L9	99.00-94.00	A	1.419	0.000	0.000	0.000	0.000	4.20
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.607	0.000	143.80
L10	94.00-89.00	A	1.412	0.000	0.000	0.000	0.000	21.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	1.599	0.000	143.65
L11	89.00-84.00	A	1.404	0.000	0.000	3.719	0.000	64.96
		B		0.000	0.000	7.439	0.000	87.92
		C		0.000	0.000	5.311	0.000	187.45
L12	84.00-79.00	A	1.396	0.000	0.000	6.194	0.000	93.75
		B		0.000	0.000	12.389	0.000	145.50
		C		0.000	0.000	7.778	0.000	216.08
L13	79.00-75.00	A	1.388	0.000	0.000	2.476	0.000	45.70

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 lb
		B		0.000	0.000	4.952	0.000	57.81
		C		0.000	0.000	3.736	0.000	143.45
L14	75.00-73.75	A	1.383	0.000	0.000	0.000	0.000	5.25
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.394	0.000	35.79
L15	73.75-68.75	A	1.377	0.000	0.000	2.037	0.000	39.79
		B		0.000	0.000	2.037	0.000	18.79
		C		0.000	0.000	5.638	0.000	180.56
L16	68.75-68.08	A	1.371	0.000	0.000	0.779	0.000	9.97
		B		0.000	0.000	0.779	0.000	7.16
		C		0.000	0.000	1.767	0.000	33.46
L17	68.08-67.83	A	1.371	0.000	0.000	0.291	0.000	3.72
		B		0.000	0.000	0.291	0.000	2.67
		C		0.000	0.000	0.659	0.000	12.48
L18	67.83-62.83	A	1.365	0.000	0.000	5.807	0.000	74.11
		B		0.000	0.000	5.807	0.000	53.11
		C		0.000	0.000	13.166	0.000	248.96
L19	62.83-57.83	A	1.354	0.000	0.000	5.796	0.000	73.58
		B		0.000	0.000	5.796	0.000	52.58
		C		0.000	0.000	13.134	0.000	248.02
L20	57.83-52.83	A	1.343	0.000	0.000	5.784	0.000	73.01
		B		0.000	0.000	5.784	0.000	52.01
		C		0.000	0.000	13.099	0.000	247.09
L21	52.83-47.83	A	1.330	0.000	0.000	5.772	0.000	72.39
		B		0.000	0.000	5.772	0.000	51.39
		C		0.000	0.000	13.061	0.000	245.95
L22	47.83-42.83	A	1.316	0.000	0.000	5.758	0.000	71.73
		B		0.000	0.000	5.758	0.000	50.73
		C		0.000	0.000	13.019	0.000	244.78
L23	42.83-37.75	A	1.301	0.000	0.000	5.834	0.000	72.12
		B		0.000	0.000	5.834	0.000	50.78
		C		0.000	0.000	13.180	0.000	246.91
L24	37.75-37.50	A	1.292	0.000	0.000	0.287	0.000	3.55
		B		0.000	0.000	0.287	0.000	2.50
		C		0.000	0.000	0.649	0.000	12.15
L25	37.50-32.50	A	1.282	0.000	0.000	5.724	0.000	70.11
		B		0.000	0.000	5.724	0.000	49.11
		C		0.000	0.000	12.918	0.000	240.95
L26	32.50-27.50	A	1.263	0.000	0.000	5.705	0.000	69.18
		B		0.000	0.000	5.705	0.000	48.18
		C		0.000	0.000	12.859	0.000	238.73
L27	27.50-22.50	A	1.240	0.000	0.000	5.682	0.000	68.10
		B		0.000	0.000	5.682	0.000	47.10
		C		0.000	0.000	12.791	0.000	236.17
L28	22.50-17.50	A	1.213	0.000	0.000	5.654	0.000	66.82
		B		0.000	0.000	5.654	0.000	45.82
		C		0.000	0.000	12.709	0.000	233.13
L29	17.50-12.50	A	1.178	0.000	0.000	5.620	0.000	65.22
		B		0.000	0.000	5.620	0.000	44.22
		C		0.000	0.000	12.606	0.000	229.35
L30	12.50-7.50	A	1.131	0.000	0.000	5.573	0.000	63.07
		B		0.000	0.000	5.573	0.000	42.07
		C		0.000	0.000	12.465	0.000	224.29
L31	7.50-2.50	A	1.056	0.000	0.000	5.497	0.000	59.66
		B		0.000	0.000	5.497	0.000	38.66
		C		0.000	0.000	12.237	0.000	216.28
L32	2.50-0.00	A	0.919	0.000	0.000	2.144	0.000	23.59
		B		0.000	0.000	2.144	0.000	13.09
		C		0.000	0.000	4.842	0.000	94.68

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	133.50-128.50	0.0000	0.3628	0.0000	1.0818
L2	128.50-123.50	0.0000	0.3628	0.0000	1.0795
L3	123.50-121.50	0.0000	0.3628	0.0000	1.0778
L4	121.50-119.00	0.0000	0.3688	0.0000	1.3010
L5	119.00-114.00	0.0000	0.2288	0.0000	1.2725
L6	114.00-109.00	0.0000	0.2288	0.0000	1.2785
L7	109.00-104.00	0.0000	0.2288	0.0000	1.2836
L8	104.00-99.00	0.0000	0.2288	0.0000	1.2878
L9	99.00-94.00	0.0000	0.2288	0.0000	1.2912
L10	94.00-89.00	0.0000	0.2288	0.0000	1.2938
L11	89.00-84.00	-1.8637	-1.9396	-1.6275	-1.0872
L12	84.00-79.00	-2.1229	-2.2527	-2.0923	-1.7518
L13	79.00-75.00	-1.7352	-1.7761	-1.4960	-0.8608
L14	75.00-73.75	0.0000	0.2290	0.0000	1.2975
L15	73.75-68.75	-1.0468	-2.8616	-0.9645	-1.8768
L16	68.75-68.08	-1.6416	-4.6440	-1.7341	-4.4240
L17	68.08-67.83	-1.6462	-4.6570	-1.7388	-4.4366
L18	67.83-62.83	-1.6601	-4.6978	-1.7556	-4.4823
L19	62.83-57.83	-1.6860	-4.7740	-1.7871	-4.5682
L20	57.83-52.83	-1.7113	-4.8481	-1.8177	-4.6522
L21	52.83-47.83	-1.7360	-4.9204	-1.8475	-4.7346
L22	47.83-42.83	-1.7600	-4.9909	-1.8765	-4.8153
L23	42.83-37.75	-1.7837	-5.0603	-1.9049	-4.8951
L24	37.75-37.50	-1.7813	-5.0533	-1.9017	-4.8866
L25	37.50-32.50	-1.7933	-5.0886	-1.9154	-4.9284
L26	32.50-27.50	-1.8160	-5.1551	-1.9422	-5.0056
L27	27.50-22.50	-1.8381	-5.2198	-1.9679	-5.0811
L28	22.50-17.50	-1.8597	-5.2832	-1.9925	-5.1555
L29	17.50-12.50	-1.8808	-5.3449	-2.0156	-5.2287
L30	12.50-7.50	-1.9013	-5.4053	-2.0366	-5.3010
L31	7.50-2.50	-1.9215	-5.4644	-2.0536	-5.3738
L32	2.50-0.00	-1.9563	-5.5389	-1.8245	-4.7030

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	13	Safety Line 3/8	128.50 - 133.50	1.0000	1.0000
L2	13	Safety Line 3/8	123.50 - 128.50	1.0000	1.0000
L3	13	Safety Line 3/8	121.50 - 123.50	1.0000	1.0000
L4	13	Safety Line 3/8	119.00 - 121.50	1.0000	1.0000
L5	13	Safety Line 3/8	114.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			119.00		
L6	13	Safety Line 3/8	109.00 - 114.00	1.0000	1.0000
L7	13	Safety Line 3/8	104.00 - 109.00	1.0000	1.0000
L8	13	Safety Line 3/8	99.00 - 104.00	1.0000	1.0000
L9	13	Safety Line 3/8	94.00 - 99.00	1.0000	1.0000
L10	13	Safety Line 3/8	89.00 - 94.00	1.0000	1.0000
L11	3	MP3-08	84.00 - 87.00	1.0000	1.0000
L11	4	MP3-08	84.00 - 87.00	1.0000	1.0000
L11	5	MP3-08	84.00 - 87.00	1.0000	1.0000
L11	6	MP3-08	84.00 - 87.00	1.0000	1.0000
L11	13	Safety Line 3/8	84.00 - 89.00	1.0000	1.0000
L12	3	MP3-08	79.00 - 84.00	1.0000	1.0000
L12	4	MP3-08	79.00 - 84.00	1.0000	1.0000
L12	5	MP3-08	79.00 - 84.00	1.0000	1.0000
L12	6	MP3-08	79.00 - 84.00	1.0000	1.0000
L12	13	Safety Line 3/8	79.00 - 84.00	1.0000	1.0000
L13	3	MP3-08	77.00 - 79.00	1.0000	1.0000
L13	4	MP3-08	77.00 - 79.00	1.0000	1.0000
L13	5	MP3-08	77.00 - 79.00	1.0000	1.0000
L13	6	MP3-08	77.00 - 79.00	1.0000	1.0000
L13	13	Safety Line 3/8	75.00 - 79.00	1.0000	1.0000
L15	8	MP3-05	68.75 - 70.50	1.0000	1.0000
L15	9	MP3-05	68.75 - 70.50	1.0000	1.0000
L15	10	MP3-05	68.75 - 70.50	1.0000	1.0000
L15	11	MP3-05	68.75 - 70.50	1.0000	1.0000
L15	13	Safety Line 3/8	68.75 - 73.75	1.0000	1.0000
L16	8	MP3-05	68.08 - 68.75	1.0000	1.0000
L16	9	MP3-05	68.08 - 68.75	1.0000	1.0000
L16	10	MP3-05	68.08 - 68.75	1.0000	1.0000
L16	11	MP3-05	68.08 - 68.75	1.0000	1.0000
L16	13	Safety Line 3/8	68.08 - 68.75	1.0000	1.0000
L17	8	MP3-05	67.83 - 68.08	1.0000	1.0000
L17	9	MP3-05	67.83 - 68.08	1.0000	1.0000
L17	10	MP3-05	67.83 - 68.08	1.0000	1.0000
L17	11	MP3-05	67.83 - 68.08	1.0000	1.0000
L17	13	Safety Line 3/8	67.83 - 68.08	1.0000	1.0000
L18	8	MP3-05	62.83 - 67.83	1.0000	1.0000
L18	9	MP3-05	62.83 - 67.83	1.0000	1.0000
L18	10	MP3-05	62.83 - 67.83	1.0000	1.0000
L18	11	MP3-05	62.83 - 67.83	1.0000	1.0000
L18	13	Safety Line 3/8	62.83 - 67.83	1.0000	1.0000
L19	8	MP3-05	57.83 - 62.83	1.0000	1.0000
L19	9	MP3-05	57.83 - 62.83	1.0000	1.0000
L19	10	MP3-05	57.83 - 62.83	1.0000	1.0000
L19	11	MP3-05	57.83 - 62.83	1.0000	1.0000
L19	13	Safety Line 3/8	57.83 - 62.83	1.0000	1.0000
L20	8	MP3-05	52.83 - 57.83	1.0000	1.0000
L20	9	MP3-05	52.83 - 57.83	1.0000	1.0000
L20	10	MP3-05	52.83 - 57.83	1.0000	1.0000
L20	11	MP3-05	52.83 - 57.83	1.0000	1.0000
L20	13	Safety Line 3/8	52.83 - 57.83	1.0000	1.0000
L21	8	MP3-05	47.83 - 52.83	1.0000	1.0000
L21	9	MP3-05	47.83 - 52.83	1.0000	1.0000
L21	10	MP3-05	47.83 - 52.83	1.0000	1.0000
L21	11	MP3-05	47.83 - 52.83	1.0000	1.0000
L21	13	Safety Line 3/8	47.83 - 52.83	1.0000	1.0000
L22	8	MP3-05	42.83 - 47.83	1.0000	1.0000
L22	9	MP3-05	42.83 - 47.83	1.0000	1.0000
L22	10	MP3-05	42.83 - 47.83	1.0000	1.0000
L22	11	MP3-05	42.83 - 47.83	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L22	13	Safety Line 3/8	42.83 - 47.83	1.0000	1.0000
L23	8	MP3-05	37.75 - 42.83	1.0000	1.0000
L23	9	MP3-05	37.75 - 42.83	1.0000	1.0000
L23	10	MP3-05	37.75 - 42.83	1.0000	1.0000
L23	11	MP3-05	37.75 - 42.83	1.0000	1.0000
L23	13	Safety Line 3/8	37.75 - 42.83	1.0000	1.0000
L25	8	MP3-05	32.50 - 37.50	1.0000	1.0000
L25	9	MP3-05	32.50 - 37.50	1.0000	1.0000
L25	10	MP3-05	32.50 - 37.50	1.0000	1.0000
L25	11	MP3-05	32.50 - 37.50	1.0000	1.0000
L25	13	Safety Line 3/8	32.50 - 37.50	1.0000	1.0000
L26	8	MP3-05	27.50 - 32.50	1.0000	1.0000
L26	9	MP3-05	27.50 - 32.50	1.0000	1.0000
L26	10	MP3-05	27.50 - 32.50	1.0000	1.0000
L26	11	MP3-05	27.50 - 32.50	1.0000	1.0000
L26	13	Safety Line 3/8	27.50 - 32.50	1.0000	1.0000
L27	8	MP3-05	22.50 - 27.50	1.0000	1.0000
L27	9	MP3-05	22.50 - 27.50	1.0000	1.0000
L27	10	MP3-05	22.50 - 27.50	1.0000	1.0000
L27	11	MP3-05	22.50 - 27.50	1.0000	1.0000
L27	13	Safety Line 3/8	22.50 - 27.50	1.0000	1.0000
L28	8	MP3-05	17.50 - 22.50	1.0000	1.0000
L28	9	MP3-05	17.50 - 22.50	1.0000	1.0000
L28	10	MP3-05	17.50 - 22.50	1.0000	1.0000
L28	11	MP3-05	17.50 - 22.50	1.0000	1.0000
L28	13	Safety Line 3/8	17.50 - 22.50	1.0000	1.0000
L29	8	MP3-05	12.50 - 17.50	1.0000	1.0000
L29	9	MP3-05	12.50 - 17.50	1.0000	1.0000
L29	10	MP3-05	12.50 - 17.50	1.0000	1.0000
L29	11	MP3-05	12.50 - 17.50	1.0000	1.0000
L29	13	Safety Line 3/8	12.50 - 17.50	1.0000	1.0000
L30	8	MP3-05	7.50 - 12.50	1.0000	1.0000
L30	9	MP3-05	7.50 - 12.50	1.0000	1.0000
L30	10	MP3-05	7.50 - 12.50	1.0000	1.0000
L30	11	MP3-05	7.50 - 12.50	1.0000	1.0000
L30	13	Safety Line 3/8	7.50 - 12.50	1.0000	1.0000
L31	8	MP3-05	2.50 - 7.50	1.0000	1.0000
L31	9	MP3-05	2.50 - 7.50	1.0000	1.0000
L31	10	MP3-05	2.50 - 7.50	1.0000	1.0000
L31	11	MP3-05	2.50 - 7.50	1.0000	1.0000
L31	13	Safety Line 3/8	2.50 - 7.50	1.0000	1.0000
L32	8	MP3-05	0.50 - 2.50	1.0000	1.0000
L32	9	MP3-05	0.50 - 2.50	1.0000	1.0000
L32	10	MP3-05	0.50 - 2.50	1.0000	1.0000
L32	11	MP3-05	0.50 - 2.50	1.0000	1.0000
L32	13	Safety Line 3/8	0.00 - 2.50	1.0000	1.0000

Discrete Tower Loads

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 lb
(2) P65-15-XLH-RR w/ Mount Pipe	A	From Face	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.30 5.69 6.09 6.90	3.67 4.28 4.90 6.19	48.25 92.06 141.75 261.70
(2) P65-15-XLH-RR w/ Mount Pipe	B	From Face	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.30 5.69 6.09 6.90	3.67 4.28 4.90 6.19	48.25 92.06 141.75 261.70
(3) P65-15-XLH-RR w/ Mount Pipe	C	From Face	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.30 5.69 6.09 6.90	3.67 4.28 4.90 6.19	48.25 92.06 141.75 261.70
AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Face	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.63 5.06 5.51 6.43	3.27 3.69 4.12 5.00	74.09 133.31 203.20 376.44
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Face	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.63 5.06 5.51 6.43	3.27 3.69 4.12 5.00	74.09 133.31 203.20 376.44
(2) TT19-08BP111-001	A	From Face	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.55 0.64 0.74 0.97	0.44 0.53 0.63 0.84	16.00 21.74 29.10 49.42
(2) TT19-08BP111-001	B	From Face	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.55 0.64 0.74 0.97	0.44 0.53 0.63 0.84	16.00 21.74 29.10 49.42
(2) TT19-08BP111-001	C	From Face	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.55 0.64 0.74 0.97	0.44 0.53 0.63 0.84	16.00 21.74 29.10 49.42
(2) RRUS 11 B2	A	From Face	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.83 3.04 3.26 3.71	1.18 1.33 1.48 1.83	50.70 71.57 95.49 153.24
(2) RRUS 11 B2	B	From Face	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.83 3.04 3.26 3.71	1.18 1.33 1.48 1.83	50.70 71.57 95.49 153.24
(2) RRUS 11 B2	C	From Face	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.83 3.04 3.26 3.71	1.18 1.33 1.48 1.83	50.70 71.57 95.49 153.24
DC6-48-60-18-8F	A	From Face	4.00 0.00 1.00	0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.79 1.27 1.45 1.83	0.79 1.27 1.45 1.83	20.00 35.12 52.57 95.09
Platform Mount [LP 601-1]	C	None		0.0000	131.00	No Ice 1/2" Ice 1" Ice 2" Ice	28.47 33.59 38.71 48.95	28.47 33.59 38.71 48.95	1122.00 1513.66 1905.31 2688.62
**									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Face	4.00 0.00 2.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	95.09 159.53 234.77 419.06

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 lb
APXVSPP18-C-A20 w/ Mount Pipe	B	From Face	4.00 0.00 2.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	95.09 159.53 234.77 419.06
APXVSPP18-C-A20 w/ Mount Pipe	C	From Face	4.00 0.00 2.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	95.09 159.53 234.77 419.06
APXVTM14-C-120 w/ Mount Pipe	A	From Face	4.00 0.00 2.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	77.03 126.70 185.31 330.73
APXVTM14-C-120 w/ Mount Pipe	B	From Face	4.00 0.00 2.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	77.03 126.70 185.31 330.73
APXVTM14-C-120 w/ Mount Pipe	C	From Face	4.00 0.00 2.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	77.03 126.70 185.31 330.73
TD-RRH8x20-25	A	From Face	4.00 0.00 2.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.05 4.30 4.56 5.10	1.53 1.71 1.90 2.30	70.00 97.15 127.83 200.54
TD-RRH8x20-25	B	From Face	4.00 0.00 2.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.05 4.30 4.56 5.10	1.53 1.71 1.90 2.30	70.00 97.15 127.83 200.54
TD-RRH8x20-25	C	From Face	4.00 0.00 2.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.05 4.30 4.56 5.10	1.53 1.71 1.90 2.30	70.00 97.15 127.83 200.54
Platform Mount [LP 1201-1]	C	None		0.0000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice	23.10 26.80 30.50 37.90	23.10 26.80 30.50 37.90	2100.00 2500.00 2900.00 3700.00
6' x 3" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.77 2.13 2.50 3.27	1.77 2.13 2.50 3.27	30.40 43.64 60.99 108.69
6' x 3" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.77 2.13 2.50 3.27	1.77 2.13 2.50 3.27	30.40 43.64 60.99 108.69
6' x 3" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.77 2.13 2.50 3.27	1.77 2.13 2.50 3.27	30.40 43.64 60.99 108.69
***									
800MHz 2X50W RRH W/FILTER	A	From Face	4.00 0.00 0.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.06 2.24 2.43 2.83	1.93 2.11 2.29 2.68	64.00 86.12 111.30 171.62
800MHz 2X50W RRH W/FILTER	B	From Face	4.00 0.00 0.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.06 2.24 2.43 2.83	1.93 2.11 2.29 2.68	64.00 86.12 111.30 171.62

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 lb
800MHz 2X50W RRH W/FILTER	C	From Face	4.00 0.00 0.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.06 2.24 2.43 2.83	1.93 2.11 2.29 2.68	64.00 86.12 111.30 171.62
PCS 1900MHz 4x45W-65MHz	A	From Face	4.00 0.00 0.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	60.00 83.13 109.50 172.72
PCS 1900MHz 4x45W-65MHz	B	From Face	4.00 0.00 0.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	60.00 83.13 109.50 172.72
PCS 1900MHz 4x45W-65MHz	C	From Face	4.00 0.00 0.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	60.00 83.13 109.50 172.72
Side Arm Mount [SO 102-3]	C	None		0.0000	117.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.00 3.48 3.96 4.92	3.00 3.48 3.96 4.92	81.00 111.00 141.00 201.00
**									
Platform Mount [LP 1201-1]	C	None		0.0000	111.00	No Ice 1/2" Ice 1" Ice 2" Ice	23.10 26.80 30.50 37.90	23.10 26.80 30.50 37.90	2100.00 2500.00 2900.00 3700.00
(3) 6' x 3" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	111.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.77 2.13 2.50 3.27	1.77 2.13 2.50 3.27	30.40 43.64 60.99 108.69
(3) 6' x 3" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	111.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.77 2.13 2.50 3.27	1.77 2.13 2.50 3.27	30.40 43.64 60.99 108.69
(3) 6' x 3" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	111.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.77 2.13 2.50 3.27	1.77 2.13 2.50 3.27	30.40 43.64 60.99 108.69
**									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Face	4.00 0.00 3.00	0.0000	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	112.18 169.02 232.59 383.07
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Face	4.00 0.00 3.00	0.0000	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	112.18 169.02 232.59 383.07
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Face	4.00 0.00 3.00	0.0000	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.33 6.78 7.21 8.12	5.64 6.43 7.13 8.59	112.18 169.02 232.59 383.07
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Face	4.00 0.00 3.00	0.0000	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	186.18 314.71 457.66 788.19
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Face	4.00 0.00 3.00	0.0000	101.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	186.18 314.71 457.66

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
							2" Ice	17.82	9.67	788.19
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Face	4.00 0.00 3.00		0.0000	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	186.18 314.71 457.66 788.19
AIR 32 B2A/B66AA w/ Mount Pipe	A	From Face	4.00 0.00 3.00		0.0000	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.75 7.20 7.65 8.57	6.07 6.87 7.58 9.06	153.07 214.04 281.89 441.43
AIR 32 B2A/B66AA w/ Mount Pipe	B	From Face	4.00 0.00 3.00		0.0000	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.75 7.20 7.65 8.57	6.07 6.87 7.58 9.06	153.07 214.04 281.89 441.43
AIR 32 B2A/B66AA w/ Mount Pipe	C	From Face	4.00 0.00 3.00		0.0000	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.75 7.20 7.65 8.57	6.07 6.87 7.58 9.06	153.07 214.04 281.89 441.43
RADIO 4449 B12/B71	A	From Face	4.00 0.00 3.00		0.0000	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.30 1.44 1.60 1.92	75.00 92.20 112.11 160.77
RADIO 4449 B12/B71	B	From Face	4.00 0.00 3.00		0.0000	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.30 1.44 1.60 1.92	75.00 92.20 112.11 160.77
RADIO 4449 B12/B71	C	From Face	4.00 0.00 3.00		0.0000	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.30 1.44 1.60 1.92	75.00 92.20 112.11 160.77
KRY 112 144/1	A	From Face	4.00 0.00 0.00		0.0000	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.17 0.23 0.30 0.46	11.00 14.18 18.58 31.87
KRY 112 144/1	B	From Face	4.00 0.00 0.00		0.0000	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.17 0.23 0.30 0.46	11.00 14.18 18.58 31.87
KRY 112 144/1	C	From Face	4.00 0.00 0.00		0.0000	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.17 0.23 0.30 0.46	11.00 14.18 18.58 31.87
Platform Mount [LP 713-1]	C	None			0.0000	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	31.27 39.68 48.09 64.91	31.27 39.68 48.09 64.91	1510.00 1929.00 2348.00 3186.00
Miscellaneous [NA 509-3]	C	None			0.0000	101.00	No Ice 1/2" Ice 1" Ice 2" Ice	11.84 16.96 22.08 32.32	11.84 16.96 22.08 32.32	275.00 296.20 317.40 359.80
***										
APXV18-206517S-ACU	A	From Face	4.00 0.00 0.00		0.0000	95.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.17 5.62 6.08 7.02	3.04 3.47 3.91 4.81	26.40 53.00 85.10 166.61
APXV18-206517S-ACU	B	From Face	4.00 0.00 0.00		0.0000	95.00	No Ice 1/2" Ice 1" Ice	5.17 5.62 6.08	3.04 3.47 3.91	26.40 53.00 85.10

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 lb
						2" Ice	7.02	4.81	166.61
APXV18-206517S-ACU	C	From Face	4.00 0.00 0.00	0.0000	95.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.17 5.62 6.08 7.02	3.04 3.47 3.91 4.81	26.40 53.00 85.10 166.61
Pipe Mount [PM 601-3]	C	None		0.0000	95.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.39 5.48 6.57 8.75	4.39 5.48 6.57 8.75	195.00 237.41 279.82 364.65
***									
58532A	C	From Face	4.00 0.00 1.00	0.0000	60.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.19 0.25 0.31 0.47	0.19 0.25 0.31 0.47	0.41 2.76 6.18 17.00
Side Arm Mount [SO 304-1]	C	None		0.0000	60.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.63 1.00 1.37 2.11	0.94 1.45 1.96 2.98	23.00 31.92 40.83 58.66
***									
KS24019-L112A	C	From Face	4.00 0.00 1.00	0.0000	50.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.10 0.18 0.26 0.42	0.10 0.18 0.26 0.42	5.00 6.50 8.00 11.00
Side Arm Mount [SO 701-1]	C	None		0.0000	50.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.85 1.14 1.43 2.01	1.67 2.34 3.01 4.35	65.00 79.00 93.00 121.00
* ****									

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

Comb. No.	Description
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	133.5 - 128.5	Pole	Max Tension	15	0.04	-0.00	0.00
			Max. Compression	26	-6061.20	0.30	0.57
			Max. Mx	20	-2279.31	13.56	0.19
			Max. My	2	-2277.65	0.08	13.71
			Max. Vy	20	-4391.79	13.56	0.19
			Max. Vx	14	4406.38	0.08	-13.33
			Max. Torque	3			0.12
L2	128.5 - 123.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-6490.61	0.30	0.57
			Max. Mx	20	-2583.97	35.92	0.19
			Max. My	2	-2582.46	0.08	36.13
			Max. Vy	20	-4551.98	35.92	0.19
			Max. Vx	14	4566.85	0.08	-35.77
			Max. Torque	3			0.12
L3	123.5 - 121.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-6662.20	0.30	0.57
			Max. Mx	20	-2710.67	45.08	0.19
			Max. My	2	-2709.25	0.08	45.32
			Max. Vy	20	-4612.51	45.08	0.19
			Max. Vx	14	4627.50	0.08	-44.96

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	3			0.12
L4	121.5 - 119	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-6979.22	0.30	0.56
			Max. Mx	20	-2906.79	56.81	0.19
			Max. My	2	-2905.41	0.08	57.08
			Max. Vy	20	-4769.32	56.81	0.19
			Max. Vx	14	4784.45	0.08	-56.72
			Max. Torque	3			0.12
L5	119 - 114	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-15026.09	0.30	0.54
			Max. Mx	20	-7035.47	101.79	0.19
			Max. My	2	-7034.04	0.08	102.12
			Max. Vy	20	-9014.74	101.79	0.19
			Max. Vx	14	9032.77	0.08	-101.79
			Max. Torque	3			0.12
L6	114 - 109	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20193.67	0.30	0.52
			Max. Mx	20	-10150.54	152.23	0.19
			Max. My	2	-10149.16	0.09	152.63
			Max. Vy	20	-11579.43	152.23	0.19
			Max. Vx	14	11599.64	0.09	-152.33
			Max. Torque	3			0.12
L7	109 - 104	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20920.32	0.30	0.51
			Max. Mx	20	-10620.20	211.37	0.19
			Max. My	2	-10618.94	0.09	211.83
			Max. Vy	20	-12086.59	211.37	0.19
			Max. Vx	14	12107.11	0.09	-211.57
			Max. Torque	3			0.12
L8	104 - 99	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-29632.83	0.30	0.49
			Max. Mx	20	-14784.50	292.79	0.19
			Max. My	2	-14783.36	0.09	293.32
			Max. Vy	20	-18038.57	292.79	0.19
			Max. Vx	14	18061.94	0.09	-293.10
			Max. Torque	3			0.12
L9	99 - 94	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-31208.57	0.30	0.47
			Max. Mx	20	-15683.97	384.92	0.19
			Max. My	2	-15683.04	0.09	385.51
			Max. Vy	20	-19261.96	384.92	0.19
			Max. Vx	14	19285.89	0.09	-385.35
			Max. Torque	3			0.12
L10	94 - 89	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32099.59	0.30	0.45
			Max. Mx	20	-16366.65	482.43	0.19
			Max. My	2	-16365.94	0.09	483.09
			Max. Vy	20	-19762.78	482.43	0.19
			Max. Vx	14	19787.08	0.09	-482.99
			Max. Torque	3			0.12
L11	89 - 84	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33188.87	0.27	0.50
			Max. Mx	20	-17078.95	582.55	0.19
			Max. My	14	-17053.41	0.09	-583.63
			Max. Vy	20	-20307.34	582.55	0.19
			Max. Vx	14	20493.23	0.09	-583.63
			Max. Torque	3			0.12
L12	84 - 79	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34415.49	0.23	0.61
			Max. Mx	20	-17816.11	685.67	0.19
			Max. My	14	-17784.35	0.09	-687.97

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-20963.65	685.67	0.19
			Max. Vx	14	21267.00	0.09	-687.97
			Max. Torque	19			-0.15
L13	79 - 75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34470.19	0.23	0.61
			Max. Mx	20	-17864.61	690.91	0.19
			Max. My	14	-17832.58	0.09	-693.28
			Max. Vy	20	-20995.44	690.91	0.19
			Max. Vx	14	21308.19	0.09	-693.28
			Max. Torque	19			-0.15
L14	75 - 73.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-36217.62	0.22	0.63
			Max. Mx	20	-19045.33	797.26	0.19
			Max. My	14	-19006.09	0.09	-801.64
			Max. Vy	20	-21562.13	797.26	0.19
			Max. Vx	14	22016.36	0.09	-801.64
			Max. Torque	19			-0.15
L15	73.75 - 68.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37383.79	0.22	0.60
			Max. Mx	20	-19946.37	906.25	0.18
			Max. My	14	-19910.34	0.10	-912.90
			Max. Vy	20	-22061.31	906.25	0.18
			Max. Vx	14	22515.51	0.10	-912.90
			Max. Torque	19			-0.15
L16	68.75 - 68.08	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37560.55	0.23	0.59
			Max. Mx	20	-20072.13	921.05	0.18
			Max. My	14	-20036.65	0.10	-928.01
			Max. Vy	20	-22150.08	921.05	0.18
			Max. Vx	14	22604.24	0.10	-928.01
			Max. Torque	19			-0.15
L17	68.08 - 67.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37649.70	0.23	0.59
			Max. Mx	20	-20144.74	926.59	0.18
			Max. My	14	-20109.54	0.10	-933.66
			Max. Vy	20	-22196.03	926.59	0.18
			Max. Vx	14	22650.28	0.10	-933.66
			Max. Torque	19			-0.15
L18	67.83 - 62.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39438.21	0.24	0.52
			Max. Mx	20	-21457.87	1039.35	0.18
			Max. My	14	-21424.25	0.10	-1048.70
			Max. Vy	20	-22940.18	1039.35	0.18
			Max. Vx	14	23394.59	0.10	-1048.70
			Max. Torque	19			-0.15
L19	62.83 - 57.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41312.09	0.26	0.40
			Max. Mx	20	-22830.37	1156.01	0.18
			Max. My	14	-22798.68	0.10	-1167.63
			Max. Vy	20	-23743.78	1156.01	0.18
			Max. Vx	14	24198.28	0.10	-1167.63
			Max. Torque	19			-0.15
L20	57.83 - 52.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43147.26	0.28	0.33
			Max. Mx	20	-24205.87	1276.54	0.18
			Max. My	14	-24176.36	0.10	-1290.43
			Max. Vy	20	-24490.53	1276.54	0.18
			Max. Vx	14	24944.91	0.10	-1290.43
			Max. Torque	24			0.14
L21	52.83 - 47.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45130.09	0.30	0.21

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-25690.59	1400.96	0.14
			Max. My	14	-25663.43	0.10	-1417.16
			Max. Vy	20	-25308.85	1400.96	0.14
			Max. Vx	14	25762.94	0.10	-1417.16
			Max. Torque	24			0.15
L22	47.83 - 42.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47009.59	0.32	0.14
			Max. Mx	20	-27122.21	1529.27	0.14
			Max. My	14	-27097.62	0.10	-1547.74
			Max. Vy	20	-26038.95	1529.27	0.14
			Max. Vx	14	26492.53	0.10	-1547.74
			Max. Torque	24			0.15
L23	42.83 - 37.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47134.76	0.32	0.13
			Max. Mx	20	-27224.80	1537.86	0.14
			Max. My	14	-27200.58	0.10	-1556.48
			Max. Vy	20	-26088.63	1537.86	0.14
			Max. Vx	14	26542.17	0.10	-1556.48
			Max. Torque	24			0.15
L24	37.75 - 37.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50607.47	0.34	0.06
			Max. Mx	20	-29916.56	1670.27	0.14
			Max. My	14	-29893.59	0.10	-1691.16
			Max. Vy	20	-26905.14	1670.27	0.14
			Max. Vx	14	27359.13	0.10	-1691.16
			Max. Torque	24			0.15
L25	37.5 - 32.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52658.87	0.35	-0.01
			Max. Mx	20	-31525.64	1806.42	0.14
			Max. My	14	-31505.16	0.10	-1829.58
			Max. Vy	20	-27592.12	1806.42	0.14
			Max. Vx	14	28045.21	0.10	-1829.58
			Max. Torque	24			0.15
L26	32.5 - 27.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54732.45	0.37	-0.08
			Max. Mx	20	-33171.59	1946.01	0.14
			Max. My	14	-33153.93	0.10	-1971.43
			Max. Vy	20	-28270.81	1946.01	0.14
			Max. Vx	14	28722.90	0.10	-1971.43
			Max. Torque	24			0.15
L27	27.5 - 22.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56826.50	0.39	-0.15
			Max. Mx	20	-34848.53	2088.92	0.13
			Max. My	14	-34833.84	0.10	-2116.60
			Max. Vy	20	-28924.22	2088.92	0.13
			Max. Vx	14	29375.07	0.10	-2116.60
			Max. Torque	24			0.15
L28	22.5 - 17.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58938.66	0.41	-0.22
			Max. Mx	20	-36554.44	2235.03	0.13
			Max. My	14	-36542.80	0.10	-2264.96
			Max. Vy	20	-29547.59	2235.03	0.13
			Max. Vx	14	29997.02	0.10	-2264.96
			Max. Torque	24			0.15
L29	17.5 - 12.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-61065.34	0.43	-0.29
			Max. Mx	20	-38289.80	2384.15	0.13
			Max. My	14	-38281.30	0.10	-2416.33
			Max. Vy	20	-30131.28	2384.15	0.13
			Max. Vx	14	30579.09	0.10	-2416.33
			Max. Torque	24			0.15

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L30	12.5 - 7.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63200.36	0.45	-0.35
			Max. Mx	20	-40054.00	2536.19	0.13
			Max. My	14	-40048.73	0.10	-2570.60
			Max. Vy	20	-30717.08	2536.19	0.13
			Max. Vx	14	31163.07	0.10	-2570.60
			Max. Torque	24			0.15
L31	7.5 - 2.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65329.57	0.46	-0.42
			Max. Mx	20	-41845.89	2691.16	0.13
			Max. My	14	-41843.88	0.10	-2727.81
			Max. Vy	20	-31306.25	2691.16	0.13
			Max. Vx	14	31750.23	0.10	-2727.81
			Max. Torque	24			0.15
L32	2.5 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66361.36	0.47	-0.44
			Max. Mx	20	-42750.96	2769.66	0.13
			Max. My	14	-42750.54	0.10	-2807.41
			Max. Vy	20	-31523.91	2769.66	0.13
			Max. Vx	14	31966.87	0.10	-2807.41
			Max. Torque	24			0.15

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	26	66361.36	-0.08	-0.13
	Max. H_x	20	42765.98	31503.53	-0.00
	Max. H_z	2	42765.98	0.00	31468.72
	Max. M_x	2	2767.26	0.00	31468.72
	Max. M_z	8	2769.46	-31503.53	-0.00
	Max. Torsion	24	0.15	14579.46	25263.76
	Min. Vert	15	32074.40	0.00	-31945.19
	Min. H_x	8	42765.98	-31503.53	-0.00
	Min. H_z	14	42765.98	0.00	-31946.21
	Min. M_x	14	-2807.41	0.00	-31946.21
	Min. M_z	20	-2769.66	31503.53	-0.00
	Min. Torsion	12	-0.15	-15908.86	-27566.35

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	35638.42	-0.00	-0.00	-0.09	0.08	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	42765.98	-0.00	-31468.72	-2767.26	0.10	-0.12
0.9 Dead+1.0 Wind 0 deg - No Ice	32074.41	-0.00	-31467.71	-2739.43	0.07	-0.12
1.2 Dead+1.0 Wind 30 deg - No Ice	42766.10	14710.84	-25491.32	-2334.44	-1346.71	-0.06
0.9 Dead+1.0 Wind 30 deg - No	32074.58	14710.85	-25491.34	-2310.71	-1333.07	-0.06

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	kip-ft	kip-ft	kip-ft
Ice						
1.2 Dead+1.0 Wind 60 deg - No Ice	42766.10	27762.34	-16035.18	-1409.09	-2438.72	-0.09
0.9 Dead+1.0 Wind 60 deg - No Ice	32074.58	27762.36	-16035.19	-1395.01	-2414.45	-0.09
1.2 Dead+1.0 Wind 90 deg - No Ice	42765.98	31503.53	0.00	-0.13	-2769.46	0.09
0.9 Dead+1.0 Wind 90 deg - No Ice	32074.41	31502.52	0.00	-0.09	-2741.68	0.08
1.2 Dead+1.0 Wind 120 deg - No Ice	42766.10	27762.34	16035.18	1408.84	-2438.72	0.11
0.9 Dead+1.0 Wind 120 deg - No Ice	32074.58	27762.36	16035.19	1394.83	-2414.45	0.10
1.2 Dead+1.0 Wind 150 deg - No Ice	42766.10	15908.86	27566.35	2422.88	-1397.91	0.15
0.9 Dead+1.0 Wind 150 deg - No Ice	32074.58	15908.87	27566.37	2398.73	-1383.99	0.15
1.2 Dead+1.0 Wind 180 deg - No Ice	42765.98	-0.00	31946.21	2807.41	0.10	0.12
0.9 Dead+1.0 Wind 180 deg - No Ice	32074.40	-0.00	31945.19	2779.33	0.07	0.12
1.2 Dead+1.0 Wind 210 deg - No Ice	42766.10	-14892.16	25805.38	2360.79	1362.26	0.06
0.9 Dead+1.0 Wind 210 deg - No Ice	32074.58	-14892.17	25805.39	2336.91	1348.44	0.06
1.2 Dead+1.0 Wind 240 deg - No Ice	42766.10	-27762.34	16035.18	1408.84	2438.92	0.09
0.9 Dead+1.0 Wind 240 deg - No Ice	32074.58	-27762.36	16035.19	1394.83	2414.59	0.09
1.2 Dead+1.0 Wind 270 deg - No Ice	42765.98	-31503.53	0.00	-0.13	2769.66	-0.09
0.9 Dead+1.0 Wind 270 deg - No Ice	32074.41	-31502.52	0.00	-0.09	2741.83	-0.08
1.2 Dead+1.0 Wind 300 deg - No Ice	42766.10	-25773.81	-14887.10	-1366.34	2364.87	-0.11
0.9 Dead+1.0 Wind 300 deg - No Ice	32074.58	-25773.82	-14887.10	-1352.46	2340.89	-0.11
1.2 Dead+1.0 Wind 330 deg - No Ice	42766.10	-14579.46	-25263.76	-2322.49	1340.01	-0.15
0.9 Dead+1.0 Wind 330 deg - No Ice	32074.58	-14579.47	-25263.78	-2298.83	1326.35	-0.15
1.2 Dead+1.0 Ice+1.0 Temp	66361.36	0.08	0.13	0.44	0.47	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	66361.36	0.00	-6692.67	-643.19	0.53	-0.04
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	66361.36	3326.37	-5758.55	-555.33	-320.56	-0.01
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	66361.36	5885.04	-3396.06	-325.69	-564.67	-0.01
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	66361.36	6696.01	0.00	0.38	-643.53	0.04
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	66361.36	5885.04	3396.06	326.46	-564.67	0.05
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	66361.36	3356.46	5810.66	559.01	-322.24	0.05
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	66361.36	0.00	6730.14	647.21	0.53	0.04
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	66361.36	-3334.82	5773.19	557.38	322.35	0.01
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	66361.36	-5885.04	3396.06	326.46	565.73	0.01
1.2 Dead+1.0 Wind 270	66361.36	-6696.01	0.00	0.38	644.58	-0.04

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	kip-ft	kip-ft	kip-ft
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 300	66361.36	-5847.56	-3374.42	-324.75	564.10	-0.05
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 330	66361.36	-3326.37	-5758.55	-555.33	321.61	-0.05
deg+1.0 Ice+1.0 Temp						
Dead+Wind 0 deg - Service	35638.41	0.00	-6847.75	-599.75	0.08	-0.03
Dead+Wind 30 deg - Service	35638.42	3201.76	-5548.09	-505.96	-291.78	-0.01
Dead+Wind 60 deg - Service	35638.42	6040.89	-3489.14	-305.42	-528.40	-0.02
Dead+Wind 90 deg - Service	35638.41	6855.30	0.00	-0.10	-600.09	0.02
Dead+Wind 120 deg - Service	35638.42	6040.89	3489.14	305.21	-528.40	0.02
Dead+Wind 150 deg - Service	35638.42	3461.73	5998.36	524.95	-302.86	0.03
Dead+Wind 180 deg - Service	35638.41	0.00	6951.36	608.28	0.08	0.03
Dead+Wind 210 deg - Service	35638.42	-3241.11	5616.24	511.51	295.26	0.01
Dead+Wind 240 deg - Service	35638.42	-6040.89	3489.14	305.21	528.56	0.02
Dead+Wind 270 deg - Service	35638.41	-6855.30	0.00	-0.10	600.25	-0.02
Dead+Wind 300 deg - Service	35638.42	-5609.39	-3240.01	-296.16	512.53	-0.02
Dead+Wind 330 deg - Service	35638.42	-3173.25	-5498.71	-503.37	290.45	-0.03

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-35638.42	0.00	0.00	35638.42	0.00	0.000%
2	0.00	-42766.10	-31470.96	0.00	42765.98	31468.72	0.004%
3	0.00	-32074.58	-31470.96	0.00	32074.41	31467.71	0.007%
4	14710.86	-42766.10	-25491.36	-14710.84	42766.10	25491.32	0.000%
5	14710.86	-32074.58	-25491.36	-14710.85	32074.58	25491.34	0.000%
6	27762.38	-42766.10	-16035.20	-27762.34	42766.10	16035.18	0.000%
7	27762.38	-32074.58	-16035.20	-27762.36	32074.58	16035.19	0.000%
8	31505.78	-42766.10	0.00	-31503.53	42765.98	-0.00	0.004%
9	31505.78	-32074.58	0.00	-31502.52	32074.41	-0.00	0.007%
10	27762.38	-42766.10	16035.20	-27762.34	42766.10	-16035.18	0.000%
11	27762.38	-32074.58	16035.20	-27762.36	32074.58	-16035.19	0.000%
12	15908.88	-42766.10	27566.39	-15908.86	42766.10	-27566.35	0.000%
13	15908.88	-32074.58	27566.39	-15908.87	32074.58	-27566.37	0.000%
14	0.00	-42766.10	31948.48	0.00	42765.98	-31946.21	0.004%
15	0.00	-32074.58	31948.48	0.00	32074.40	-31945.19	0.007%
16	-14892.18	-42766.10	25805.41	14892.16	42766.10	-25805.38	0.000%
17	-14892.18	-32074.58	25805.41	14892.17	32074.58	-25805.39	0.000%
18	-27762.38	-42766.10	16035.20	27762.34	42766.10	-16035.18	0.000%
19	-27762.38	-32074.58	16035.20	27762.36	32074.58	-16035.19	0.000%
20	-31505.78	-42766.10	0.00	31503.53	42765.98	-0.00	0.004%
21	-31505.78	-32074.58	0.00	31502.52	32074.41	-0.00	0.007%
22	-25773.84	-42766.10	-14887.12	25773.81	42766.10	14887.10	0.000%
23	-25773.84	-32074.58	-14887.12	25773.82	32074.58	14887.10	0.000%
24	-14579.48	-42766.10	-25263.80	14579.46	42766.10	25263.76	0.000%
25	-14579.48	-32074.58	-25263.80	14579.47	32074.58	25263.78	0.000%
26	0.00	-66361.36	0.00	-0.08	66361.36	-0.13	0.000%
27	0.00	-66361.36	-6692.80	-0.00	66361.36	6692.67	0.000%
28	3326.43	-66361.36	-5758.66	-3326.37	66361.36	5758.55	0.000%
29	5885.15	-66361.36	-3396.13	-5885.04	66361.36	3396.06	0.000%
30	6696.14	-66361.36	0.00	-6696.01	66361.36	-0.00	0.000%
31	5885.15	-66361.36	3396.13	-5885.04	66361.36	-3396.06	0.000%
32	3356.52	-66361.36	5810.77	-3356.46	66361.36	-5810.66	0.000%
33	0.00	-66361.36	6730.27	-0.00	66361.36	-6730.14	0.000%
34	-3334.88	-66361.36	5773.30	3334.82	66361.36	-5773.19	0.000%
35	-5885.15	-66361.36	3396.13	5885.04	66361.36	-3396.06	0.000%

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
36	-6696.14	-66361.36	0.00	6696.01	66361.36	-0.00	0.000%
37	-5847.67	-66361.36	-3374.49	5847.56	66361.36	3374.42	0.000%
38	-3326.43	-66361.36	-5758.66	3326.37	66361.36	5758.55	0.000%
39	0.00	-35638.42	-6848.60	-0.00	35638.41	6847.75	0.002%
40	3201.96	-35638.42	-5548.43	-3201.76	35638.42	5548.09	0.001%
41	6041.24	-35638.42	-3489.34	-6040.89	35638.42	3489.14	0.001%
42	6856.16	-35638.42	0.00	-6855.30	35638.41	-0.00	0.002%
43	6041.24	-35638.42	3489.34	-6040.89	35638.42	-3489.14	0.001%
44	3461.93	-35638.42	5998.71	-3461.73	35638.42	-5998.36	0.001%
45	0.00	-35638.42	6952.22	-0.00	35638.41	-6951.36	0.002%
46	-3241.31	-35638.42	5616.58	3241.11	35638.42	-5616.24	0.001%
47	-6041.24	-35638.42	3489.34	6040.89	35638.42	-3489.14	0.001%
48	-6856.16	-35638.42	0.00	6855.30	35638.41	-0.00	0.002%
49	-5609.73	-35638.42	-3240.21	5609.39	35638.42	3240.01	0.001%
50	-3173.45	-35638.42	-5499.05	3173.25	35638.42	5498.71	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	16	0.00005166	0.00009276
3	Yes	15	0.00007344	0.00012333
4	Yes	21	0.00000001	0.00013518
5	Yes	21	0.00000001	0.00009679
6	Yes	21	0.00000001	0.00014256
7	Yes	21	0.00000001	0.00010136
8	Yes	16	0.00005166	0.00008975
9	Yes	15	0.00007344	0.00011755
10	Yes	21	0.00000001	0.00014246
11	Yes	21	0.00000001	0.00010129
12	Yes	21	0.00000001	0.00014007
13	Yes	21	0.00000001	0.00009969
14	Yes	16	0.00005159	0.00009294
15	Yes	15	0.00007335	0.00012331
16	Yes	21	0.00000001	0.00013837
17	Yes	21	0.00000001	0.00009893
18	Yes	21	0.00000001	0.00014199
19	Yes	21	0.00000001	0.00010093
20	Yes	16	0.00005165	0.00008976
21	Yes	15	0.00007344	0.00011756
22	Yes	21	0.00000001	0.00013912
23	Yes	21	0.00000001	0.00009942
24	Yes	21	0.00000001	0.00013516
25	Yes	21	0.00000001	0.00009687
26	Yes	6	0.00000001	0.00001932
27	Yes	19	0.00000001	0.00012702
28	Yes	19	0.00000001	0.00014135
29	Yes	19	0.00000001	0.00014319
30	Yes	19	0.00000001	0.00012675
31	Yes	19	0.00000001	0.00014290
32	Yes	19	0.00000001	0.00014141
33	Yes	19	0.00000001	0.00012704
34	Yes	19	0.00000001	0.00014156
35	Yes	19	0.00000001	0.00014322
36	Yes	19	0.00000001	0.00012712

37	Yes	19	0.00000001	0.00014330
38	Yes	19	0.00000001	0.00014171
39	Yes	15	0.00000001	0.00004405
40	Yes	16	0.00000001	0.00008320
41	Yes	16	0.00000001	0.00008965
42	Yes	15	0.00000001	0.00004393
43	Yes	16	0.00000001	0.00008939
44	Yes	16	0.00000001	0.00008690
45	Yes	15	0.00000001	0.00004442
46	Yes	16	0.00000001	0.00008590
47	Yes	16	0.00000001	0.00008844
48	Yes	15	0.00000001	0.00004396
49	Yes	16	0.00000001	0.00008588
50	Yes	16	0.00000001	0.00008395

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	133.5 - 128.5	18.252	41	1.2633	0.0009
L2	128.5 - 123.5	16.931	41	1.2555	0.0008
L3	123.5 - 121.5	15.637	41	1.2079	0.0005
L4	121.5 - 119	15.138	41	1.1766	0.0003
L5	119 - 114	14.524	41	1.1687	0.0003
L6	114 - 109	13.311	47	1.1468	0.0003
L7	109 - 104	12.125	47	1.1165	0.0002
L8	104 - 99	10.976	47	1.0776	0.0002
L9	99 - 94	9.871	47	1.0304	0.0002
L10	94 - 89	8.822	47	0.9729	0.0002
L11	89 - 84	7.837	47	0.9067	0.0001
L12	84 - 79	6.925	47	0.8334	0.0001
L13	79 - 75	6.094	47	0.7544	0.0001
L14	78.75 - 73.75	6.054	47	0.7503	0.0001
L15	73.75 - 68.75	5.289	47	0.7035	0.0001
L16	68.75 - 68.08	4.591	47	0.6294	0.0001
L17	68.08 - 67.83	4.504	47	0.6193	0.0001
L18	67.83 - 62.83	4.471	47	0.6172	0.0001
L19	62.83 - 57.83	3.848	47	0.5739	0.0001
L20	57.83 - 52.83	3.270	47	0.5291	0.0001
L21	52.83 - 47.83	2.740	47	0.4827	0.0000
L22	47.83 - 42.83	2.260	47	0.4352	0.0000
L23	42.83 - 37.75	1.829	47	0.3867	0.0000
L24	42.5 - 37.5	1.803	47	0.3835	0.0000
L25	37.5 - 32.5	1.413	47	0.3587	0.0000
L26	32.5 - 27.5	1.062	47	0.3114	0.0000
L27	27.5 - 22.5	0.761	47	0.2642	0.0000
L28	22.5 - 17.5	0.509	47	0.2162	0.0000
L29	17.5 - 12.5	0.308	47	0.1683	0.0000
L30	12.5 - 7.5	0.157	47	0.1202	0.0000
L31	7.5 - 2.5	0.057	47	0.0719	0.0000
L32	2.5 - 0	0.006	47	0.0240	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
131.00	(2) P65-15-XLH-RR w/ Mount Pipe	41	17.590	1.2618	0.0008	10318
119.00	APXVSPP18-C-A20 w/ Mount Pipe	41	14.524	1.1687	0.0003	10863
117.00	800MHz 2X50W RRH W/FILTER	47	14.036	1.1632	0.0003	13477
111.00	Platform Mount [LP 1201-1]	47	12.596	1.1291	0.0003	8991
101.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	47	10.307	1.0504	0.0002	5892
95.00	APXV18-206517S-ACU	47	9.027	0.9852	0.0002	4752
60.00	58532A	47	3.515	0.5486	0.0001	6374
50.00	KS24019-L112A	47	2.462	0.4559	0.0000	6029

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	133.5 - 128.5	84.136	6	5.8273	0.0042
L2	128.5 - 123.5	78.059	6	5.7915	0.0035
L3	123.5 - 121.5	72.108	6	5.5735	0.0021
L4	121.5 - 119	69.809	6	5.4303	0.0016
L5	119 - 114	66.982	18	5.3944	0.0015
L6	114 - 109	61.396	18	5.2940	0.0013
L7	109 - 104	55.935	18	5.1547	0.0011
L8	104 - 99	50.640	18	4.9760	0.0009
L9	99 - 94	45.549	18	4.7589	0.0008
L10	94 - 89	40.710	18	4.4934	0.0007
L11	89 - 84	36.169	18	4.1878	0.0006
L12	84 - 79	31.964	18	3.8495	0.0005
L13	79 - 75	28.127	18	3.4846	0.0004
L14	78.75 - 73.75	27.945	18	3.4657	0.0004
L15	73.75 - 68.75	24.416	18	3.2495	0.0004
L16	68.75 - 68.08	21.194	18	2.9068	0.0003
L17	68.08 - 67.83	20.790	18	2.8603	0.0003
L18	67.83 - 62.83	20.640	18	2.8506	0.0003
L19	62.83 - 57.83	17.762	18	2.6505	0.0003
L20	57.83 - 52.83	15.095	18	2.4438	0.0002
L21	52.83 - 47.83	12.650	18	2.2292	0.0002
L22	47.83 - 42.83	10.431	18	2.0097	0.0002
L23	42.83 - 37.75	8.444	18	1.7858	0.0002
L24	42.5 - 37.5	8.321	18	1.7710	0.0002
L25	37.5 - 32.5	6.524	18	1.6562	0.0001
L26	32.5 - 27.5	4.904	18	1.4379	0.0001
L27	27.5 - 22.5	3.513	18	1.2199	0.0001
L28	22.5 - 17.5	2.352	18	0.9979	0.0001
L29	17.5 - 12.5	1.422	18	0.7769	0.0001
L30	12.5 - 7.5	0.725	18	0.5549	0.0000
L31	7.5 - 2.5	0.261	18	0.3320	0.0000
L32	2.5 - 0	0.029	18	0.1110	0.0000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
131.00	(2) P65-15-XLH-RR w/ Mount Pipe	6	81.092	5.8203	0.0039	2378
119.00	APXVSPP18-C-A20 w/ Mount Pipe	18	66.982	5.3944	0.0015	2437
117.00	800MHz 2X50W RRH W/FILTER	18	64.737	5.3692	0.0015	3011
111.00	Platform Mount [LP 1201-1]	18	58.102	5.2131	0.0012	1996
101.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	18	47.558	4.8509	0.0009	1299
95.00	APXV18-206517S-ACU	18	41.656	4.5501	0.0007	1044
60.00	58532A	18	16.226	2.5336	0.0003	1386
50.00	KS24019-L112A	18	11.366	2.1052	0.0002	1309

Base Plate Design Data

Plate Thickness in	Number of Anchor Bolts	Anchor Bolt Size in	Actual Allowable Ratio Bolt Tension lb	Actual Allowable Ratio Bolt Compression lb	Actual Allowable Ratio Plate Stress ksi	Actual Allowable Ratio Stiffener Stress ksi	Controlling Condition	Ratio
3.0000	12	2.2500	217346.18 243576.14 0.89	224471.28 404336.40 0.56	32.903 45.000 0.73		Bolt T	0.89

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	133.5 - 132.5	TP10.75x10.75x0.365	5.00	0.00	0.0	11.9083	-51.77	375111.00	0.000
	132.5 - 131.5					11.9083	-103.52	375111.00	0.000
	131.5 - 130.5					11.9083	-2175.70	375111.00	0.006
	130.5 - 129.5					11.9083	-2228.14	375111.00	0.006
	129.5 - 128.5					11.9083	-2281.20	375111.00	0.006
L2	128.5 - 127.5	TP10.75x10.75x0.365	5.00	0.00	0.0	11.9083	-2340.87	375111.00	0.006
	127.5 - 126.5					11.9083	-2397.59	375111.00	0.006
	126.5 - 125.5					11.9083	-2458.53	375111.00	0.007
	125.5 - 124.5					11.9083	-2520.15	375111.00	0.007
	124.5 - 123.5					11.9083	-2582.46	375111.00	0.007
L3	123.5 - 122.5	TP10.75x10.75x0.365	2.00	0.00	0.0	11.9083	-2645.49	375111.00	0.007
	122.5 - 121.5					11.9083	-2709.25	375111.00	0.007
L4	121.5 - 120.25	TP22x22x0.25	2.50	0.00	0.0	17.0824	-2808.48	860441.00	0.003
	120.25 - 119					17.0824	-2905.41	860441.00	0.003
L5	119 - 118	TP22.9502x22x0.25	5.00	0.00	0.0	17.6617	-6220.15	1033210.00	0.006
	118 - 117					17.8147	-6302.55	1042160.00	0.006
	117 - 116					17.9677	-6864.44	1051110.00	0.007
	116 - 115					18.1207	-6948.80	1060060.00	0.007
	115 - 114					18.2737	-7034.04	1069010.00	0.007
L6	114 - 113	TP23.9005x22.9502x0.25	5.00	0.00	0.0	18.4267	-7120.25	1077960.00	0.007
	113 - 112					18.5797	-7207.33	1086910.00	0.007

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
	112 - 111					18.7326	-7295.28	1095860.00	0.007
	111 - 110					18.8856	-10058.30	1104810.00	0.009
	110 - 109					19.0386	-10149.20	1113760.00	0.009
L7	109 - 108	TP24.8507x23.9005x0.25	5.00	0.00	0.0	19.1916	-10241.10	1122710.00	0.009
	108 - 107					19.3446	-10334.10	1131660.00	0.009
	107 - 106					19.4976	-10428.00	1140610.00	0.009
	106 - 105					19.6506	-10523.00	1149560.00	0.009
	105 - 104					19.8035	-10618.90	1158510.00	0.009
L8	104 - 103	TP25.8009x24.8507x0.25	5.00	0.00	0.0	19.9565	-10721.60	1167460.00	0.009
	103 - 102					20.1095	-10825.30	1176410.00	0.009
	102 - 101					20.2625	-10930.00	1185360.00	0.009
	101 - 100					20.4155	-14671.80	1194310.00	0.012
	100 - 99					20.5685	-14783.40	1203260.00	0.012
L9	99 - 98	TP26.7511x25.8009x0.25	5.00	0.00	0.0	20.7215	-14905.90	1212210.00	0.012
	98 - 97					20.8745	-15029.80	1221160.00	0.012
	97 - 96					21.0274	-15155.00	1230110.00	0.012
	96 - 95					21.1804	-15281.50	1239060.00	0.012
	95 - 94					21.3334	-15683.00	1248000.00	0.013
L10	94 - 93	TP27.7014x26.7511x0.25	5.00	0.00	0.0	21.4864	-15817.00	1256950.00	0.013
	93 - 92					21.6394	-15952.30	1265900.00	0.013
	92 - 91					21.7924	-16088.90	1274850.00	0.013
	91 - 90					21.9454	-16226.80	1283800.00	0.013
	90 - 89					22.0983	-16365.90	1292750.00	0.013
L11	89 - 88	TP28.6516x27.7014x0.25	5.00	0.00	0.0	22.2513	-16506.50	1301700.00	0.013
	88 - 87					22.4043	-16628.70	1310650.00	0.013
	87 - 86					22.5573	-16768.90	1319600.00	0.013
	86 - 85					22.7103	-16910.50	1328550.00	0.013
	85 - 84					22.8633	-17053.40	1337500.00	0.013
L12	84 - 83	TP29.6018x28.6516x0.25	5.00	0.00	0.0	23.0163	-17196.90	1346450.00	0.013
	83 - 82					23.1693	-17341.80	1355400.00	0.013
	82 - 81					23.3222	-17488.00	1364350.00	0.013
	81 - 80					23.4752	-17635.50	1373300.00	0.013
	80 - 79					23.6282	-17772.80	1382250.00	0.013
L13	79 - 78.75	TP30.362x29.6018x0.25	4.00	0.00	0.0	23.6665	-17821.20	1384490.00	0.013
	78.75 - 75					24.2402	-8456.81	1418050.00	0.006
L14	78.75 - 75	TP30.0995x29.1493x0.3125	5.00	0.00	0.0	29.7342	-10309.00	1739450.00	0.006
	75 - 73.75					29.9732	-18996.30	1753430.00	0.011
L15	73.75 - 72.75	TP31.0497x30.0995x0.3125	5.00	0.00	0.0	30.1644	-19177.50	1764620.00	0.011
	72.75 - 71.75					30.3557	-19356.70	1775810.00	0.011
	71.75 - 70.75					30.5469	-19537.00	1786990.00	0.011
	70.75 - 69.75					30.7381	-19718.60	1798180.00	0.011
	69.75 - 68.75					30.9293	-19901.40	1809370.00	0.011
L16	68.75 - 68.08 (16)	TP31.1771x31.0497x0.3125	0.67	0.00	0.0	31.0575	-20027.80	1816860.00	0.011
L17	68.08 - 67.83 (17)	TP31.2246x31.1771x0.575	0.25	0.00	0.0	56.7477	-20100.80	3319740.00	0.006
L18	67.83 - 66.83	TP32.1748x31.2246x0.5688	5.00	0.00	0.0	56.4903	-20355.90	3304690.00	0.006
	66.83 - 65.83					56.8384	-20618.50	3325050.00	0.006
	65.83 - 64.83					57.1864	-20882.70	3345410.00	0.006
	64.83 - 63.83					57.5345	-21148.50	3365770.00	0.006
	63.83 - 62.83					57.8825	-21415.90	3386130.00	0.006
L19	62.83 - 61.83	TP33.125x32.1748x0.5625	5.00	0.00	0.0	57.6020	-21682.40	3369710.00	0.006
	61.83 - 60.83					57.9462	-21950.70	3389850.00	0.006
	60.83 - 59.83					58.2904	-22246.30	3409990.00	0.007
	59.83 - 58.83					58.6346	-22517.80	3430120.00	0.007
	58.83 - 57.83					58.9788	-22790.80	3450260.00	0.007
L20	57.83 - 56.83	TP34.0752x33.125x0.55	5.00	0.00	0.0	58.0269	-23063.10	3394570.00	0.007
	56.83 - 55.83					58.3634	-23337.30	3414260.00	0.007
	55.83 - 54.83					58.7000	-23613.00	3433950.00	0.007
	54.83 - 53.83					59.0365	-23890.20	3453640.00	0.007

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
	53.83 - 52.83					59.3731	-24169.00	3473330.00	0.007
L21	52.83 - 51.83	TP35.0254x34.0752x0.5438	5.00	0.00	0.0	59.0421	-24447.10	3453960.00	0.007
	51.83 - 50.83					59.3748	-24726.90	3473430.00	0.007
	50.83 - 49.83					59.7076	-25089.30	3492890.00	0.007
	49.83 - 48.83					60.0403	-25372.20	3512360.00	0.007
	48.83 - 47.83					60.3730	-25656.60	3531820.00	0.007
L22	47.83 - 46.83	TP35.9756x35.0254x0.5375	5.00	0.00	0.0	60.0188	-25940.50	3511100.00	0.007
	46.83 - 45.83					60.3477	-26225.90	3530340.00	0.007
	45.83 - 44.83					60.6767	-26512.90	3549580.00	0.007
	44.83 - 43.83					61.0056	-26801.40	3568830.00	0.008
	43.83 - 42.83					61.3345	-27091.50	3588070.00	0.008
L23	42.83 - 42.5	TP36.941x35.9756x0.5375	5.08	0.00	0.0	61.4430	-27194.50	3594420.00	0.008
	42.5 - 37.75					63.0054	-14255.50	3685810.00	0.004
L24	42.5 - 37.75	TP36.3635x35.4133x0.6	5.00	0.00	0.0	69.0033	-15529.20	4036690.00	0.004
	37.75 - 37.5					69.0951	-29887.90	4042060.00	0.007
L25	37.5 - 36.5	TP37.3137x36.3635x0.5875	5.00	0.00	0.0	68.0388	-30200.70	3980270.00	0.008
	36.5 - 35.5					68.3983	-30523.10	4001300.00	0.008
	35.5 - 34.5					68.7578	-30847.10	4022330.00	0.008
	34.5 - 33.5					69.1173	-31172.80	4043360.00	0.008
	33.5 - 32.5					69.4768	-31500.10	4064390.00	0.008
L26	32.5 - 31.5	TP38.2639x37.3137x0.5875	5.00	0.00	0.0	69.8363	-31826.70	4085420.00	0.008
	31.5 - 30.5					70.1958	-32155.00	4106460.00	0.008
	30.5 - 29.5					70.5553	-32484.90	4127490.00	0.008
	29.5 - 28.5					70.9148	-32816.40	4148520.00	0.008
	28.5 - 27.5					71.2743	-33149.50	4169550.00	0.008
L27	27.5 - 26.5	TP39.2141x38.2639x0.575	5.00	0.00	0.0	70.1329	-33482.30	4102770.00	0.008
	26.5 - 25.5					70.4847	-33816.90	4123360.00	0.008
	25.5 - 24.5					70.8366	-34153.10	4143940.00	0.008
	24.5 - 23.5					71.1884	-34490.90	4164520.00	0.008
	23.5 - 22.5					71.5403	-34830.20	4185110.00	0.008
L28	22.5 - 21.5	TP40.1643x39.2141x0.575	5.00	0.00	0.0	71.8922	-35169.00	4205690.00	0.008
	21.5 - 20.5					72.2440	-35509.40	4226280.00	0.008
	20.5 - 19.5					72.5959	-35851.40	4246860.00	0.008
	19.5 - 18.5					72.9477	-36194.90	4267440.00	0.008
	18.5 - 17.5					73.2996	-36539.90	4288030.00	0.009
L29	17.5 - 16.5	TP41.1145x40.1643x0.5688	5.00	0.00	0.0	72.8623	-36884.60	4262450.00	0.009
	16.5 - 15.5					73.2104	-37231.00	4282810.00	0.009
	15.5 - 14.5					73.5584	-37578.90	4303170.00	0.009
	14.5 - 13.5					73.9064	-37928.30	4323530.00	0.009
	13.5 - 12.5					74.2545	-38279.30	4343890.00	0.009
L30	12.5 - 11.5	TP42.0647x41.1145x0.5625	5.00	0.00	0.0	73.7940	-38629.70	4316950.00	0.009
	11.5 - 10.5					74.1382	-38981.90	4337090.00	0.009
	10.5 - 9.5					74.4824	-39335.60	4357220.00	0.009
	9.5 - 8.5					74.8267	-39690.80	4377360.00	0.009
	8.5 - 7.5					75.1709	-40047.50	4397500.00	0.009
L31	7.5 - 6.5	TP43.0149x42.0647x0.5625	5.00	0.00	0.0	75.5151	-40403.70	4417630.00	0.009
	6.5 - 5.5					75.8593	-40761.30	4437770.00	0.009
	5.5 - 4.5					76.2035	-41120.50	4457900.00	0.009
	4.5 - 3.5					76.5477	-41481.30	4478040.00	0.009
	3.5 - 2.5					76.8919	-41843.50	4498180.00	0.009
L32	2.5 - 1.25	TP43.49x43.0149x0.5563	2.50	0.00	0.0	76.4742	-42294.30	4473740.00	0.009
	1.25 - 0					76.8997	-42750.60	4498630.00	0.010

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	133.5 - 132.5	TP10.75x10.75x0.365	0.02	103.38	0.000	0.00	103.38	0.000
	132.5 - 131.5		0.07	103.38	0.001	0.00	103.38	0.000
	131.5 - 130.5		4.98	103.38	0.048	0.00	103.38	0.000
	130.5 - 129.5		9.33	103.38	0.090	0.00	103.38	0.000
	129.5 - 128.5		13.71	103.38	0.133	0.00	103.38	0.000
L2	128.5 - 127.5	TP10.75x10.75x0.365	18.13	103.38	0.175	0.00	103.38	0.000
	127.5 - 126.5		22.58	103.38	0.218	0.00	103.38	0.000
	126.5 - 125.5		27.07	103.38	0.262	0.00	103.38	0.000
	125.5 - 124.5		31.58	103.38	0.306	0.00	103.38	0.000
	124.5 - 123.5		36.13	103.38	0.350	0.00	103.38	0.000
L3	123.5 - 122.5	TP10.75x10.75x0.365	40.71	103.38	0.394	0.00	103.38	0.000
	122.5 - 121.5		45.32	103.38	0.438	0.00	103.38	0.000
L4	121.5 - 120.25	TP22x22x0.25	51.15	494.72	0.103	0.00	494.72	0.000
	120.25 - 119		57.08	494.72	0.115	0.00	494.72	0.000
L5	119 - 118	TP22.9502x22x0.25	67.54	568.09	0.119	0.00	568.09	0.000
	118 - 117		75.49	576.43	0.131	0.00	576.43	0.000
	117 - 116		84.27	584.80	0.144	0.00	584.80	0.000
	116 - 115		93.15	593.20	0.157	0.00	593.20	0.000
	115 - 114		102.12	601.63	0.170	0.00	601.63	0.000
L6	114 - 113	TP23.9005x22.9502x0.25	111.20	610.09	0.182	0.00	610.09	0.000
	113 - 112		120.37	618.57	0.195	0.00	618.57	0.000
	112 - 111		129.65	627.08	0.207	0.00	627.08	0.000
	111 - 110		141.09	635.62	0.222	0.00	635.62	0.000
	110 - 109		152.63	644.19	0.237	0.00	644.19	0.000
L7	109 - 108	TP24.8507x23.9005x0.25	164.27	652.78	0.252	0.00	652.78	0.000
	108 - 107		176.01	661.39	0.266	0.00	661.39	0.000
	107 - 106		187.85	670.03	0.280	0.00	670.03	0.000
	106 - 105		199.79	678.69	0.294	0.00	678.69	0.000
	105 - 104		211.83	687.37	0.308	0.00	687.37	0.000
L8	104 - 103	TP25.8009x24.8507x0.25	223.98	696.08	0.322	0.00	696.08	0.000
	103 - 102		236.23	704.80	0.335	0.00	704.80	0.000
	102 - 101		248.58	713.54	0.348	0.00	713.54	0.000
	101 - 100		275.32	722.31	0.381	0.00	722.31	0.000
	100 - 99		293.32	731.09	0.401	0.00	731.09	0.000
L9	99 - 98	TP26.7511x25.8009x0.25	311.41	739.89	0.421	0.00	739.89	0.000
	98 - 97		329.61	748.71	0.440	0.00	748.71	0.000
	97 - 96		347.90	757.54	0.459	0.00	757.54	0.000
	96 - 95		366.30	766.39	0.478	0.00	766.39	0.000
	95 - 94		385.51	775.25	0.497	0.00	775.25	0.000
L10	94 - 93	TP27.7014x26.7511x0.25	404.83	784.13	0.516	0.00	784.13	0.000
	93 - 92		424.24	793.02	0.535	0.00	793.02	0.000
	92 - 91		443.76	801.93	0.553	0.00	801.93	0.000
	91 - 90		463.37	810.84	0.571	0.00	810.84	0.000
	90 - 89		483.09	819.77	0.589	0.00	819.77	0.000
L11	89 - 88	TP28.6516x27.7014x0.25	502.90	828.71	0.607	0.00	828.71	0.000
	88 - 87		522.82	837.66	0.624	0.00	837.66	0.000
	87 - 86		542.95	846.62	0.641	0.00	846.62	0.000
	86 - 85		563.22	855.58	0.658	0.00	855.58	0.000
	85 - 84		583.63	864.55	0.675	0.00	864.55	0.000
L12	84 - 83	TP29.6018x28.6516x0.25	604.19	873.53	0.692	0.00	873.53	0.000
	83 - 82		624.90	882.52	0.708	0.00	882.52	0.000
	82 - 81		645.77	891.52	0.724	0.00	891.52	0.000
	81 - 80		666.79	900.51	0.740	0.00	900.51	0.000
	80 - 79		687.95	909.52	0.756	0.00	909.52	0.000
L13	79 - 78.75	TP30.362x29.6018x0.25	693.31	911.77	0.760	0.00	911.77	0.000
	78.75 - 75		355.39	945.55	0.376	0.00	945.55	0.000
L14	78.75 - 75	TP30.0995x29.1493x0.3125	419.32	1257.22	0.334	0.00	1257.22	0.000
	75 - 73.75		802.28	1273.99	0.630	0.00	1273.99	0.000
L15	73.75 - 72.75	TP31.0497x30.0995x0.3125	824.45	1287.45	0.640	0.00	1287.45	0.000
	72.75 - 71.75		846.72	1300.93	0.651	0.00	1300.93	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	71.75 - 70.75		869.09	1314.44	0.661	0.00	1314.44	0.000
	70.75 - 69.75		891.56	1327.98	0.671	0.00	1327.98	0.000
	69.75 - 68.75		914.13	1341.55	0.681	0.00	1341.55	0.000
L16	68.75 - 68.08 (16)	TP31.1771x31.0497x0.3125	929.31	1350.65	0.688	0.00	1350.65	0.000
L17	68.08 - 67.83 (17)	TP31.2246x31.1771x0.575	935.00	2584.06	0.362	0.00	2584.06	0.000
L18	67.83 - 66.83	TP32.1748x31.2246x0.5688	957.82	2589.63	0.370	0.00	2589.63	0.000
	66.83 - 65.83		980.79	2621.93	0.374	0.00	2621.93	0.000
	65.83 - 64.83		1003.92	2654.43	0.378	0.00	2654.43	0.000
	64.83 - 63.83		1027.19	2687.13	0.382	0.00	2687.13	0.000
	63.83 - 62.83		1050.62	2720.03	0.386	0.00	2720.03	0.000
L19	62.83 - 61.83	TP33.125x32.1748x0.5625	1074.19	2724.47	0.394	0.00	2724.47	0.000
	61.83 - 60.83		1097.92	2757.42	0.398	0.00	2757.42	0.000
	60.83 - 59.83		1121.81	2790.56	0.402	0.00	2790.56	0.000
	59.83 - 58.83		1145.89	2823.90	0.406	0.00	2823.90	0.000
	58.83 - 57.83		1170.12	2857.43	0.410	0.00	2857.43	0.000
L20	57.83 - 56.83	TP34.0752x33.125x0.55	1194.50	2830.16	0.422	0.00	2830.16	0.000
	56.83 - 55.83		1219.03	2863.36	0.426	0.00	2863.36	0.000
	55.83 - 54.83		1243.70	2896.75	0.429	0.00	2896.75	0.000
	54.83 - 53.83		1268.53	2930.33	0.433	0.00	2930.33	0.000
	53.83 - 52.83		1293.51	2964.12	0.436	0.00	2964.12	0.000
L21	52.83 - 51.83	TP35.0254x34.0752x0.5438	1318.63	2965.67	0.445	0.00	2965.67	0.000
	51.83 - 50.83		1343.90	2999.46	0.448	0.00	2999.46	0.000
	50.83 - 49.83		1369.35	3033.43	0.451	0.00	3033.43	0.000
	49.83 - 48.83		1395.00	3067.61	0.455	0.00	3067.61	0.000
	48.83 - 47.83		1420.79	3101.97	0.458	0.00	3101.97	0.000
L22	47.83 - 46.83	TP35.9756x35.0254x0.5375	1446.73	3102.14	0.466	0.00	3102.14	0.000
	46.83 - 45.83		1472.82	3136.50	0.470	0.00	3136.50	0.000
	45.83 - 44.83		1499.05	3171.04	0.473	0.00	3171.04	0.000
	44.83 - 43.83		1525.43	3205.78	0.476	0.00	3205.78	0.000
	43.83 - 42.83		1551.96	3240.70	0.479	0.00	3240.70	0.000
L23	42.83 - 42.5	TP36.941x35.9756x0.5375	1560.74	3252.27	0.480	0.00	3252.27	0.000
	42.5 - 37.75		822.73	3421.03	0.240	0.00	3421.03	0.000
L24	42.5 - 37.75	TP36.3635x35.4133x0.6	866.41	3668.58	0.236	0.00	3668.58	0.000
	37.75 - 37.5		1696.00	3678.43	0.461	0.00	3678.43	0.000
L25	37.5 - 36.5	TP37.3137x36.3635x0.5875	1723.53	3644.30	0.473	0.00	3644.30	0.000
	36.5 - 35.5		1751.18	3683.22	0.475	0.00	3683.22	0.000
	35.5 - 34.5		1778.98	3722.35	0.478	0.00	3722.35	0.000
	34.5 - 33.5		1806.93	3761.69	0.480	0.00	3761.69	0.000
	33.5 - 32.5		1835.00	3801.23	0.483	0.00	3801.23	0.000
L26	32.5 - 31.5	TP38.2639x37.3137x0.5875	1863.22	3840.99	0.485	0.00	3840.99	0.000
	31.5 - 30.5		1891.57	3880.95	0.487	0.00	3880.95	0.000
	30.5 - 29.5		1920.06	3921.12	0.490	0.00	3921.12	0.000
	29.5 - 28.5		1948.68	3961.48	0.492	0.00	3961.48	0.000
	28.5 - 27.5		1977.43	4002.07	0.494	0.00	4002.07	0.000
L27	27.5 - 26.5	TP39.2141x38.2639x0.575	2006.33	3960.75	0.507	0.00	3960.75	0.000
	26.5 - 25.5		2035.35	4000.89	0.509	0.00	4000.89	0.000
	25.5 - 24.5		2064.50	4041.23	0.511	0.00	4041.23	0.000
	24.5 - 23.5		2093.78	4081.78	0.513	0.00	4081.78	0.000
	23.5 - 22.5		2123.19	4122.53	0.515	0.00	4122.53	0.000
L28	22.5 - 21.5	TP40.1643x39.2141x0.575	2152.73	4163.48	0.517	0.00	4163.48	0.000
	21.5 - 20.5		2182.39	4204.63	0.519	0.00	4204.63	0.000
	20.5 - 19.5		2212.18	4245.99	0.521	0.00	4245.99	0.000
	19.5 - 18.5		2242.09	4287.55	0.523	0.00	4287.55	0.000
	18.5 - 17.5		2272.13	4329.31	0.525	0.00	4329.31	0.000
L29	17.5 - 16.5	TP41.1145x40.1643x0.5688	2302.28	4325.79	0.532	0.00	4325.79	0.000
	16.5 - 15.5		2332.56	4367.51	0.534	0.00	4367.51	0.000
	15.5 - 14.5		2362.94	4409.43	0.536	0.00	4409.43	0.000
	14.5 - 13.5		2393.45	4451.54	0.538	0.00	4451.54	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	13.5 - 12.5		2424.07	4493.86	0.539	0.00	4493.86	0.000
L30	12.5 - 11.5	TP42.0647x41.1145x0.5625	2454.81	4488.59	0.547	0.00	4488.59	0.000
	11.5 - 10.5		2485.66	4530.85	0.549	0.00	4530.85	0.000
	10.5 - 9.5		2516.63	4573.31	0.550	0.00	4573.31	0.000
	9.5 - 8.5		2547.72	4615.96	0.552	0.00	4615.96	0.000
	8.5 - 7.5		2578.93	4658.82	0.554	0.00	4658.82	0.000
L31	7.5 - 6.5	TP43.0149x42.0647x0.5625	2610.24	4701.87	0.555	0.00	4701.87	0.000
	6.5 - 5.5		2641.68	4745.11	0.557	0.00	4745.11	0.000
	5.5 - 4.5		2673.23	4788.56	0.558	0.00	4788.56	0.000
	4.5 - 3.5		2704.91	4832.20	0.560	0.00	4832.20	0.000
	3.5 - 2.5		2736.70	4876.04	0.561	0.00	4876.04	0.000
L32	2.5 - 1.25	TP43.49x43.0149x0.5563	2776.57	4878.48	0.569	0.00	4878.48	0.000
	1.25 - 0		2816.58	4933.27	0.571	0.00	4933.27	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	133.5 - 132.5	TP10.75x10.75x0.365	33.89	112533.00	0.000	0.00	102.75	0.000
	132.5 - 131.5		67.43	112533.00	0.001	0.00	102.75	0.000
	131.5 - 130.5		4334.72	112533.00	0.039	0.12	102.75	0.001
	130.5 - 129.5		4367.88	112533.00	0.039	0.12	102.75	0.001
	129.5 - 128.5		4400.70	112533.00	0.039	0.12	102.75	0.001
L2	128.5 - 127.5	TP10.75x10.75x0.365	4433.53	112533.00	0.039	0.12	102.75	0.001
	127.5 - 126.5		4470.36	112533.00	0.040	0.12	102.75	0.001
	126.5 - 125.5		4502.42	112533.00	0.040	0.12	102.75	0.001
	125.5 - 124.5		4534.04	112533.00	0.040	0.12	102.75	0.001
	124.5 - 123.5		4565.21	112533.00	0.041	0.12	102.75	0.001
L3	123.5 - 122.5	TP10.75x10.75x0.365	4595.72	112533.00	0.041	0.12	102.75	0.001
	122.5 - 121.5		4625.72	112533.00	0.041	0.12	102.75	0.001
L4	121.5 - 120.25	TP22x22x0.25	4703.49	210635.00	0.022	0.12	309.83	0.000
	120.25 - 119		4782.52	210635.00	0.023	0.12	309.83	0.000
L5	119 - 118	TP22.9502x22x0.25	7904.27	309963.00	0.026	0.12	598.20	0.000
	118 - 117		8003.09	312648.00	0.026	0.12	608.61	0.000
	117 - 116		8827.70	315333.00	0.028	0.12	619.11	0.000
	116 - 115		8927.56	318018.00	0.028	0.12	629.70	0.000
	115 - 114		9028.01	320703.00	0.028	0.12	640.37	0.000
L6	114 - 113	TP23.9005x22.9502x0.25	9128.19	323388.00	0.028	0.12	651.14	0.000
	113 - 112		9228.95	326073.00	0.028	0.12	662.00	0.000
	112 - 111		9330.28	328758.00	0.028	0.12	672.94	0.000
	111 - 110		11491.70	331443.00	0.035	0.12	683.98	0.000
	110 - 109		11592.70	334128.00	0.035	0.12	695.11	0.000
L7	109 - 108	TP24.8507x23.9005x0.25	11693.30	336813.00	0.035	0.12	706.32	0.000
	108 - 107		11794.20	339498.00	0.035	0.12	717.63	0.000
	107 - 106		11895.60	342182.00	0.035	0.12	729.02	0.000
	106 - 105		11997.50	344867.00	0.035	0.12	740.51	0.000
	105 - 104		12099.80	347552.00	0.035	0.12	752.09	0.000
L8	104 - 103	TP25.8009x24.8507x0.25	12202.10	350237.00	0.035	0.12	763.75	0.000
	103 - 102		12304.70	352922.00	0.035	0.12	775.51	0.000
	102 - 101		12407.80	355607.00	0.035	0.12	787.35	0.000
	101 - 100		17951.20	358292.00	0.050	0.12	799.28	0.000
	100 - 99		18051.70	360977.00	0.050	0.12	811.31	0.000
L9	99 - 98	TP26.7511x25.8009x0.25	18152.10	363662.00	0.050	0.12	823.42	0.000
	98 - 97		18252.60	366347.00	0.050	0.12	835.63	0.000
	97 - 96		18353.30	369032.00	0.050	0.12	847.92	0.000

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
	96 - 95		18454.10	371717.00	0.050	0.12	860.30	0.000
	95 - 94		19275.00	374401.00	0.051	0.12	872.77	0.000
L10	94 - 93	TP27.7014x26.7511x0.25	19374.90	377086.00	0.051	0.12	885.33	0.000
	93 - 92		19474.90	379771.00	0.051	0.12	897.99	0.000
	92 - 91		19575.10	382456.00	0.051	0.12	910.73	0.000
	91 - 90		19675.30	385141.00	0.051	0.12	923.57	0.000
	90 - 89		19775.70	387826.00	0.051	0.12	936.48	0.000
L11	89 - 88	TP28.6516x27.7014x0.25	19875.50	390511.00	0.051	0.12	949.50	0.000
	88 - 87		20068.30	393196.00	0.051	0.12	962.60	0.000
	87 - 86		20209.50	395881.00	0.051	0.12	975.79	0.000
	86 - 85		20351.20	398566.00	0.051	0.12	989.07	0.000
	85 - 84		20493.20	401251.00	0.051	0.12	1002.44	0.000
L12	84 - 83	TP29.6018x28.6516x0.25	20647.00	403936.00	0.051	0.12	1015.90	0.000
	83 - 82		20801.20	406620.00	0.051	0.12	1029.45	0.000
	82 - 81		20956.00	409305.00	0.051	0.12	1043.09	0.000
	81 - 80		21111.20	411990.00	0.051	0.12	1056.82	0.000
	80 - 79		21406.70	414675.00	0.052	0.15	1070.64	0.000
L13	79 - 78.75	TP30.362x29.6018x0.25	21448.80	415346.00	0.052	0.15	1074.11	0.000
	78.75 - 75		10248.70	425415.00	0.024	0.07	1126.82	0.000
L14	78.75 - 75	TP30.0995x29.1493x0.3125	11766.30	521835.00	0.023	0.08	1356.38	0.000
	75 - 73.75		22133.10	526030.00	0.042	0.15	1378.28	0.000
L15	73.75 - 72.75	TP31.0497x30.0995x0.3125	22230.70	529386.00	0.042	0.15	1395.93	0.000
	72.75 - 71.75		22330.80	532742.00	0.042	0.15	1413.68	0.000
	71.75 - 70.75		22431.10	536098.00	0.042	0.15	1431.54	0.000
	70.75 - 69.75		22531.50	539454.00	0.042	0.15	1449.53	0.000
	69.75 - 68.75		22632.20	542810.00	0.042	0.15	1467.62	0.000
L16	68.75 - 68.08 (16)	TP31.1771x31.0497x0.3125	22720.80	545059.00	0.042	0.15	1479.80	0.000
L17	68.08 - 67.83 (17)	TP31.2246x31.1771x0.575	22778.00	995922.00	0.023	0.15	2685.03	0.000
L18	67.83 - 66.83	TP32.1748x31.2246x0.5688	22906.80	991406.00	0.023	0.15	2689.97	0.000
	66.83 - 65.83		23057.20	997514.00	0.023	0.15	2723.22	0.000
	65.83 - 64.83		23208.20	1003620.00	0.023	0.15	2756.68	0.000
	64.83 - 63.83		23359.80	1009730.00	0.023	0.15	2790.33	0.000
	63.83 - 62.83		23511.90	1015840.00	0.023	0.15	2824.19	0.000
L19	62.83 - 61.83	TP33.125x32.1748x0.5625	23661.30	1010910.00	0.023	0.15	2827.96	0.000
	61.83 - 60.83		23811.20	1016960.00	0.023	0.15	2861.86	0.000
	60.83 - 59.83		24013.00	1023000.00	0.023	0.15	2895.96	0.000
	59.83 - 58.83		24164.00	1029040.00	0.023	0.11	2930.26	0.000
	58.83 - 57.83		24315.40	1035080.00	0.023	0.11	2964.77	0.000
L20	57.83 - 56.83	TP34.0752x33.125x0.55	24463.80	1018370.00	0.024	0.11	2935.06	0.000
	56.83 - 55.83		24612.60	1024280.00	0.024	0.11	2969.20	0.000
	55.83 - 54.83		24761.80	1030180.00	0.024	0.11	3003.55	0.000
	54.83 - 53.83		24911.60	1036090.00	0.024	0.11	3038.08	0.000
	53.83 - 52.83		25061.80	1042000.00	0.024	0.11	3072.82	0.000
L21	52.83 - 51.83	TP35.0254x34.0752x0.5438	25208.80	1036190.00	0.024	0.11	3073.58	0.000
	51.83 - 50.83		25356.10	1042030.00	0.024	0.11	3108.32	0.000
	50.83 - 49.83		25582.70	1047870.00	0.024	0.11	3143.26	0.000
	49.83 - 48.83		25730.90	1053710.00	0.024	0.09	3178.39	0.000
	48.83 - 47.83		25879.60	1059550.00	0.024	0.09	3213.72	0.000
L22	47.83 - 46.83	TP35.9756x35.0254x0.5375	26024.70	1053330.00	0.025	0.09	3213.05	0.000
	46.83 - 45.83		26170.10	1059100.00	0.025	0.09	3248.37	0.000
	45.83 - 44.83		26315.90	1064880.00	0.025	0.09	3283.87	0.000
	44.83 - 43.83		26462.20	1070650.00	0.025	0.09	3319.57	0.000
	43.83 - 42.83		26608.90	1076420.00	0.025	0.09	3355.46	0.000
L23	42.83 - 42.5	TP36.941x35.9756x0.5375	26653.90	1078330.00	0.025	0.09	3367.35	0.000
	42.5 - 37.75		13559.20	1105740.00	0.012	0.04	3540.77	0.000
L24	42.5 - 37.75	TP36.3635x35.4133x0.6	13886.70	1211010.00	0.011	0.04	3804.61	0.000
	37.75 - 37.5		27465.70	1212620.00	0.023	0.09	3814.73	0.000
L25	37.5 - 36.5	TP37.3137x36.3635x0.5875	27604.10	1194080.00	0.023	0.09	3777.69	0.000

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
	36.5 - 35.5		27742.80	1200390.00	0.023	0.09	3817.72	0.000
	35.5 - 34.5		27882.00	1206700.00	0.023	0.09	3857.95	0.000
	34.5 - 33.5		28021.40	1213010.00	0.023	0.09	3898.40	0.000
	33.5 - 32.5		28161.30	1219320.00	0.023	0.09	3939.06	0.000
L26	32.5 - 31.5	TP38.2639x37.3137x0.5875	28296.10	1225630.00	0.023	0.09	3979.93	0.000
	31.5 - 30.5		28431.30	1231940.00	0.023	0.09	4021.02	0.000
	30.5 - 29.5		28566.70	1238250.00	0.023	0.09	4062.31	0.000
	29.5 - 28.5		28702.50	1244560.00	0.023	0.09	4103.81	0.000
	28.5 - 27.5		28838.70	1250860.00	0.023	0.09	4145.52	0.000
L27	27.5 - 26.5	TP39.2141x38.2639x0.575	28968.70	1230830.00	0.024	0.09	4101.07	0.000
	26.5 - 25.5		29098.70	1237010.00	0.024	0.09	4142.32	0.000
	25.5 - 24.5		29229.10	1243180.00	0.024	0.09	4183.77	0.000
	24.5 - 23.5		29359.70	1249360.00	0.023	0.09	4225.44	0.000
	23.5 - 22.5		29490.50	1255530.00	0.023	0.09	4267.32	0.000
L28	22.5 - 21.5	TP40.1643x39.2141x0.575	29614.40	1261710.00	0.023	0.09	4309.39	0.000
	21.5 - 20.5		29738.50	1267880.00	0.023	0.09	4351.68	0.000
	20.5 - 19.5		29862.80	1274060.00	0.023	0.09	4394.18	0.000
	19.5 - 18.5		29987.40	1280230.00	0.023	0.09	4436.88	0.000
	18.5 - 17.5		30112.20	1286410.00	0.023	0.09	4479.77	0.000
L29	17.5 - 16.5	TP41.1145x40.1643x0.5688	30228.30	1278730.00	0.024	0.09	4475.13	0.000
	16.5 - 15.5		30344.50	1284840.00	0.024	0.09	4517.98	0.000
	15.5 - 14.5		30460.80	1290950.00	0.024	0.09	4561.04	0.000
	14.5 - 13.5		30577.30	1297060.00	0.024	0.09	4604.31	0.000
	13.5 - 12.5		30694.00	1303170.00	0.024	0.09	4647.77	0.000
L30	12.5 - 11.5	TP42.0647x41.1145x0.5625	30810.50	1295090.00	0.024	0.09	4641.32	0.000
	11.5 - 10.5		30927.10	1301130.00	0.024	0.09	4684.72	0.000
	10.5 - 9.5		31043.80	1307170.00	0.024	0.09	4728.32	0.000
	9.5 - 8.5		31160.70	1313210.00	0.024	0.09	4772.12	0.000
	8.5 - 7.5		31277.80	1319250.00	0.024	0.09	4816.13	0.000
L31	7.5 - 6.5	TP43.0149x42.0647x0.5625	31394.80	1325290.00	0.024	0.09	4860.33	0.000
	6.5 - 5.5		31512.00	1331330.00	0.024	0.09	4904.74	0.000
	5.5 - 4.5		31629.40	1337370.00	0.024	0.09	4949.35	0.000
	4.5 - 3.5		31746.90	1343410.00	0.024	0.09	4994.17	0.000
	3.5 - 2.5		31864.70	1349450.00	0.024	0.09	5039.18	0.000
L32	2.5 - 1.25	TP43.49x43.0149x0.5563	31975.10	1342120.00	0.024	0.09	5040.59	0.000
	1.25 - 0		32081.20	1349590.00	0.024	0.09	5096.83	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	133.5 - 132.5	0.000	0.000	0.000	0.000	0.000	0.000	1.050	4.8.2
	132.5 - 131.5	0.000	0.001	0.000	0.001	0.000	0.001	1.050	4.8.2
	131.5 - 130.5	0.006	0.048	0.000	0.039	0.001	0.056	1.050	4.8.2
	130.5 - 129.5	0.006	0.090	0.000	0.039	0.001	0.098	1.050	4.8.2
	129.5 - 128.5	0.006	0.133	0.000	0.039	0.001	0.140	1.050	4.8.2
L2	128.5 - 127.5	0.006	0.175	0.000	0.039	0.001	0.183	1.050	4.8.2
	127.5 - 126.5	0.006	0.218	0.000	0.040	0.001	0.227	1.050	4.8.2
	126.5 - 125.5	0.007	0.262	0.000	0.040	0.001	0.270	1.050	4.8.2
	125.5 - 124.5	0.007	0.306	0.000	0.040	0.001	0.314	1.050	4.8.2
	124.5 - 123.5	0.007	0.350	0.000	0.041	0.001	0.358	1.050	4.8.2
L3	123.5 - 122.5	0.007	0.394	0.000	0.041	0.001	0.403	1.050	4.8.2
	122.5 - 121.5	0.007	0.438	0.000	0.041	0.001	0.447	1.050	4.8.2
L4	121.5 - 120.25	0.003	0.103	0.000	0.022	0.000	0.107	1.050	4.8.2

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	120.25 - 119	0.003	0.115	0.000	0.023	0.000	0.119	1.050	4.8.2
L5	119 - 118	0.006	0.119	0.000	0.026	0.000	0.126	1.050	4.8.2
	118 - 117	0.006	0.131	0.000	0.026	0.000	0.138	1.050	4.8.2
	117 - 116	0.007	0.144	0.000	0.028	0.000	0.151	1.050	4.8.2
	116 - 115	0.007	0.157	0.000	0.028	0.000	0.164	1.050	4.8.2
	115 - 114	0.007	0.170	0.000	0.028	0.000	0.177	1.050	4.8.2
L6	114 - 113	0.007	0.182	0.000	0.028	0.000	0.190	1.050	4.8.2
	113 - 112	0.007	0.195	0.000	0.028	0.000	0.202	1.050	4.8.2
	112 - 111	0.007	0.207	0.000	0.028	0.000	0.214	1.050	4.8.2
	111 - 110	0.009	0.222	0.000	0.035	0.000	0.232	1.050	4.8.2
	110 - 109	0.009	0.237	0.000	0.035	0.000	0.247	1.050	4.8.2
L7	109 - 108	0.009	0.252	0.000	0.035	0.000	0.262	1.050	4.8.2
	108 - 107	0.009	0.266	0.000	0.035	0.000	0.276	1.050	4.8.2
	107 - 106	0.009	0.280	0.000	0.035	0.000	0.291	1.050	4.8.2
	106 - 105	0.009	0.294	0.000	0.035	0.000	0.305	1.050	4.8.2
	105 - 104	0.009	0.308	0.000	0.035	0.000	0.319	1.050	4.8.2
L8	104 - 103	0.009	0.322	0.000	0.035	0.000	0.332	1.050	4.8.2
	103 - 102	0.009	0.335	0.000	0.035	0.000	0.346	1.050	4.8.2
	102 - 101	0.009	0.348	0.000	0.035	0.000	0.359	1.050	4.8.2
	101 - 100	0.012	0.381	0.000	0.050	0.000	0.396	1.050	4.8.2
	100 - 99	0.012	0.401	0.000	0.050	0.000	0.416	1.050	4.8.2
L9	99 - 98	0.012	0.421	0.000	0.050	0.000	0.436	1.050	4.8.2
	98 - 97	0.012	0.440	0.000	0.050	0.000	0.455	1.050	4.8.2
	97 - 96	0.012	0.459	0.000	0.050	0.000	0.474	1.050	4.8.2
	96 - 95	0.012	0.478	0.000	0.050	0.000	0.493	1.050	4.8.2
	95 - 94	0.013	0.497	0.000	0.051	0.000	0.513	1.050	4.8.2
L10	94 - 93	0.013	0.516	0.000	0.051	0.000	0.532	1.050	4.8.2
	93 - 92	0.013	0.535	0.000	0.051	0.000	0.550	1.050	4.8.2
	92 - 91	0.013	0.553	0.000	0.051	0.000	0.569	1.050	4.8.2
	91 - 90	0.013	0.571	0.000	0.051	0.000	0.587	1.050	4.8.2
	90 - 89	0.013	0.589	0.000	0.051	0.000	0.605	1.050	4.8.2
L11	89 - 88	0.013	0.607	0.000	0.051	0.000	0.622	1.050	4.8.2
	88 - 87	0.013	0.624	0.000	0.051	0.000	0.639	1.050	4.8.2
	87 - 86	0.013	0.641	0.000	0.051	0.000	0.657	1.050	4.8.2
	86 - 85	0.013	0.658	0.000	0.051	0.000	0.674	1.050	4.8.2
	85 - 84	0.013	0.675	0.000	0.051	0.000	0.690	1.050	4.8.2
L12	84 - 83	0.013	0.692	0.000	0.051	0.000	0.707	1.050	4.8.2
	83 - 82	0.013	0.708	0.000	0.051	0.000	0.724	1.050	4.8.2
	82 - 81	0.013	0.724	0.000	0.051	0.000	0.740	1.050	4.8.2
	81 - 80	0.013	0.740	0.000	0.051	0.000	0.756	1.050	4.8.2
	80 - 79	0.013	0.756	0.000	0.052	0.000	0.772	1.050	4.8.2
L13	79 - 78.75	0.013	0.760	0.000	0.052	0.000	0.776	1.050	4.8.2
	78.75 - 75	0.006	0.376	0.000	0.024	0.000	0.382	1.050	4.8.2
L14	78.75 - 75	0.006	0.334	0.000	0.023	0.000	0.340	1.050	4.8.2
	75 - 73.75	0.011	0.630	0.000	0.042	0.000	0.642	1.050	4.8.2
L15	73.75 - 72.75	0.011	0.640	0.000	0.042	0.000	0.653	1.050	4.8.2
	72.75 - 71.75	0.011	0.651	0.000	0.042	0.000	0.664	1.050	4.8.2
	71.75 - 70.75	0.011	0.661	0.000	0.042	0.000	0.674	1.050	4.8.2
	70.75 - 69.75	0.011	0.671	0.000	0.042	0.000	0.684	1.050	4.8.2
	69.75 - 68.75	0.011	0.681	0.000	0.042	0.000	0.694	1.050	4.8.2
L16	68.75 - 68.08 (16)	0.011	0.688	0.000	0.042	0.000	0.701	1.050	4.8.2
L17	68.08 - 67.83 (17)	0.006	0.362	0.000	0.023	0.000	0.368	1.050	4.8.2
L18	67.83 - 66.83	0.006	0.370	0.000	0.023	0.000	0.377	1.050	4.8.2
	66.83 - 65.83	0.006	0.374	0.000	0.023	0.000	0.381	1.050	4.8.2
	65.83 - 64.83	0.006	0.378	0.000	0.023	0.000	0.385	1.050	4.8.2
	64.83 - 63.83	0.006	0.382	0.000	0.023	0.000	0.389	1.050	4.8.2
	63.83 - 62.83	0.006	0.386	0.000	0.023	0.000	0.393	1.050	4.8.2
L19	62.83 - 61.83	0.006	0.394	0.000	0.023	0.000	0.401	1.050	4.8.2

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	61.83 - 60.83	0.006	0.398	0.000	0.023	0.000	0.405	1.050	4.8.2
	60.83 - 59.83	0.007	0.402	0.000	0.023	0.000	0.409	1.050	4.8.2
	59.83 - 58.83	0.007	0.406	0.000	0.023	0.000	0.413	1.050	4.8.2
	58.83 - 57.83	0.007	0.410	0.000	0.023	0.000	0.417	1.050	4.8.2
L20	57.83 - 56.83	0.007	0.422	0.000	0.024	0.000	0.429	1.050	4.8.2
	56.83 - 55.83	0.007	0.426	0.000	0.024	0.000	0.433	1.050	4.8.2
	55.83 - 54.83	0.007	0.429	0.000	0.024	0.000	0.437	1.050	4.8.2
	54.83 - 53.83	0.007	0.433	0.000	0.024	0.000	0.440	1.050	4.8.2
	53.83 - 52.83	0.007	0.436	0.000	0.024	0.000	0.444	1.050	4.8.2
L21	52.83 - 51.83	0.007	0.445	0.000	0.024	0.000	0.452	1.050	4.8.2
	51.83 - 50.83	0.007	0.448	0.000	0.024	0.000	0.456	1.050	4.8.2
	50.83 - 49.83	0.007	0.451	0.000	0.024	0.000	0.459	1.050	4.8.2
	49.83 - 48.83	0.007	0.455	0.000	0.024	0.000	0.463	1.050	4.8.2
	48.83 - 47.83	0.007	0.458	0.000	0.024	0.000	0.466	1.050	4.8.2
L22	47.83 - 46.83	0.007	0.466	0.000	0.025	0.000	0.474	1.050	4.8.2
	46.83 - 45.83	0.007	0.470	0.000	0.025	0.000	0.478	1.050	4.8.2
	45.83 - 44.83	0.007	0.473	0.000	0.025	0.000	0.481	1.050	4.8.2
	44.83 - 43.83	0.008	0.476	0.000	0.025	0.000	0.484	1.050	4.8.2
	43.83 - 42.83	0.008	0.479	0.000	0.025	0.000	0.487	1.050	4.8.2
L23	42.83 - 42.5	0.008	0.480	0.000	0.025	0.000	0.488	1.050	4.8.2
	42.5 - 37.75	0.004	0.240	0.000	0.012	0.000	0.245	1.050	4.8.2
L24	42.5 - 37.75	0.004	0.236	0.000	0.011	0.000	0.240	1.050	4.8.2
	37.75 - 37.5	0.007	0.461	0.000	0.023	0.000	0.469	1.050	4.8.2
L25	37.5 - 36.5	0.008	0.473	0.000	0.023	0.000	0.481	1.050	4.8.2
	36.5 - 35.5	0.008	0.475	0.000	0.023	0.000	0.484	1.050	4.8.2
	35.5 - 34.5	0.008	0.478	0.000	0.023	0.000	0.486	1.050	4.8.2
	34.5 - 33.5	0.008	0.480	0.000	0.023	0.000	0.489	1.050	4.8.2
	33.5 - 32.5	0.008	0.483	0.000	0.023	0.000	0.491	1.050	4.8.2
L26	32.5 - 31.5	0.008	0.485	0.000	0.023	0.000	0.493	1.050	4.8.2
	31.5 - 30.5	0.008	0.487	0.000	0.023	0.000	0.496	1.050	4.8.2
	30.5 - 29.5	0.008	0.490	0.000	0.023	0.000	0.498	1.050	4.8.2
	29.5 - 28.5	0.008	0.492	0.000	0.023	0.000	0.500	1.050	4.8.2
	28.5 - 27.5	0.008	0.494	0.000	0.023	0.000	0.503	1.050	4.8.2
L27	27.5 - 26.5	0.008	0.507	0.000	0.024	0.000	0.515	1.050	4.8.2
	26.5 - 25.5	0.008	0.509	0.000	0.024	0.000	0.517	1.050	4.8.2
	25.5 - 24.5	0.008	0.511	0.000	0.024	0.000	0.520	1.050	4.8.2
	24.5 - 23.5	0.008	0.513	0.000	0.023	0.000	0.522	1.050	4.8.2
	23.5 - 22.5	0.008	0.515	0.000	0.023	0.000	0.524	1.050	4.8.2
L28	22.5 - 21.5	0.008	0.517	0.000	0.023	0.000	0.526	1.050	4.8.2
	21.5 - 20.5	0.008	0.519	0.000	0.023	0.000	0.528	1.050	4.8.2
	20.5 - 19.5	0.008	0.521	0.000	0.023	0.000	0.530	1.050	4.8.2
	19.5 - 18.5	0.008	0.523	0.000	0.023	0.000	0.532	1.050	4.8.2
	18.5 - 17.5	0.009	0.525	0.000	0.023	0.000	0.534	1.050	4.8.2
L29	17.5 - 16.5	0.009	0.532	0.000	0.024	0.000	0.541	1.050	4.8.2
	16.5 - 15.5	0.009	0.534	0.000	0.024	0.000	0.543	1.050	4.8.2
	15.5 - 14.5	0.009	0.536	0.000	0.024	0.000	0.545	1.050	4.8.2
	14.5 - 13.5	0.009	0.538	0.000	0.024	0.000	0.547	1.050	4.8.2
	13.5 - 12.5	0.009	0.539	0.000	0.024	0.000	0.549	1.050	4.8.2
L30	12.5 - 11.5	0.009	0.547	0.000	0.024	0.000	0.556	1.050	4.8.2
	11.5 - 10.5	0.009	0.549	0.000	0.024	0.000	0.558	1.050	4.8.2
	10.5 - 9.5	0.009	0.550	0.000	0.024	0.000	0.560	1.050	4.8.2
	9.5 - 8.5	0.009	0.552	0.000	0.024	0.000	0.562	1.050	4.8.2
	8.5 - 7.5	0.009	0.554	0.000	0.024	0.000	0.563	1.050	4.8.2
L31	7.5 - 6.5	0.009	0.555	0.000	0.024	0.000	0.565	1.050	4.8.2
	6.5 - 5.5	0.009	0.557	0.000	0.024	0.000	0.566	1.050	4.8.2
	5.5 - 4.5	0.009	0.558	0.000	0.024	0.000	0.568	1.050	4.8.2
	4.5 - 3.5	0.009	0.560	0.000	0.024	0.000	0.570	1.050	4.8.2
	3.5 - 2.5	0.009	0.561	0.000	0.024	0.000	0.571	1.050	4.8.2
L32	2.5 - 1.25	0.009	0.569	0.000	0.024	0.000	0.579	1.050	4.8.2
	1.25 - 0	0.010	0.571	0.000	0.024	0.000	0.581	1.050	4.8.2

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria

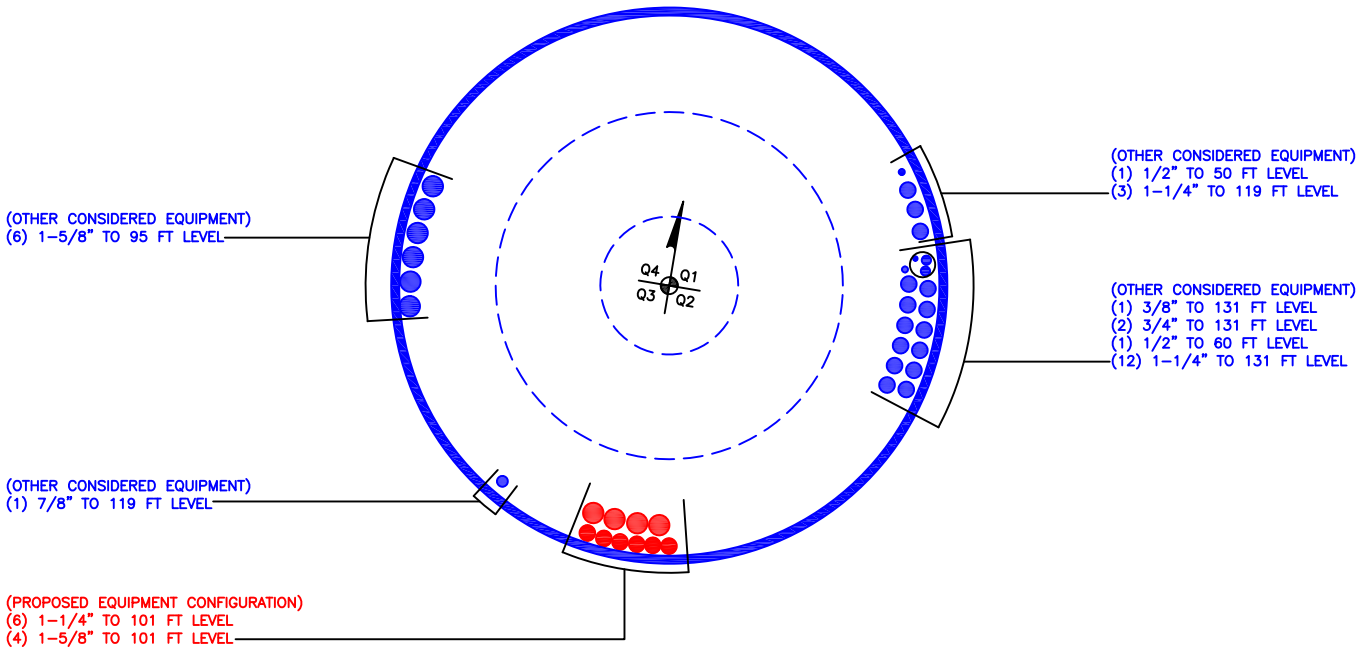
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	133.5 - 128.5	Pole	TP10.75x10.75x0.365	1	-2281.20	393866.53	13.4	Pass
L2	128.5 - 123.5	Pole	TP10.75x10.75x0.365	2	-2582.46	393866.53	34.1	Pass
L3	123.5 - 121.5	Pole	TP10.75x10.75x0.365	3	-2709.25	393866.53	42.6	Pass
L4	121.5 - 119	Pole	TP22x22x0.25	4	-2905.41	903463.01	11.4	Pass
L5	119 - 114	Pole	TP22.9502x22x0.25	5	-7034.04	1122460.45	16.9	Pass
L6	114 - 109	Pole	TP23.9005x22.9502x0.25	6	-10149.20	1169447.95	23.5	Pass
L7	109 - 104	Pole	TP24.8507x23.9005x0.25	7	-10618.90	1216435.44	30.3	Pass
L8	104 - 99	Pole	TP25.8009x24.8507x0.25	8	-14783.40	1263422.94	39.6	Pass
L9	99 - 94	Pole	TP26.7511x25.8009x0.25	9	-15683.00	1310399.94	48.8	Pass
L10	94 - 89	Pole	TP27.7014x26.7511x0.25	10	-16365.90	1357387.44	57.6	Pass
L11	89 - 84	Pole	TP28.6516x27.7014x0.25	11	-17053.40	1404374.94	65.8	Pass
L12	84 - 79	Pole	TP29.6018x28.6516x0.25	12	-17772.80	1451362.43	73.5	Pass
L13	79 - 75	Pole	TP30.362x29.6018x0.25	13	-17821.20	1453714.43	73.9	Pass
L14	75 - 73.75	Pole	TP30.0995x29.1493x0.3125	14	-18996.30	1841101.42	61.2	Pass
L15	73.75 - 68.75	Pole	TP31.0497x30.0995x0.3125	15	-19901.40	1899838.41	66.1	Pass
L16	68.75 - 68.08	Pole	TP31.1771x31.0497x0.3125	16	-20027.80	1907702.91	66.7	Pass
L17	68.08 - 67.83	Pole	TP31.2246x31.1771x0.575	17	-20100.80	3485726.84	35.1	Pass
L18	67.83 - 62.83	Pole	TP32.1748x31.2246x0.5688	18	-21415.90	3555436.34	37.4	Pass
L19	62.83 - 57.83	Pole	TP33.125x32.1748x0.5625	19	-22790.80	3622772.84	39.7	Pass
L20	57.83 - 52.83	Pole	TP34.0752x33.125x0.55	20	-24169.00	3646996.33	42.3	Pass
L21	52.83 - 47.83	Pole	TP35.0254x34.0752x0.5438	21	-25656.60	3708410.83	44.4	Pass
L22	47.83 - 42.83	Pole	TP35.9756x35.0254x0.5375	22	-27091.50	3767473.33	46.4	Pass
L23	42.83 - 37.75	Pole	TP36.941x35.9756x0.5375	23	-27194.50	3774140.83	46.5	Pass
L24	37.75 - 37.5	Pole	TP36.3635x35.4133x0.6	24	-29887.90	4244162.81	44.7	Pass
L25	37.5 - 32.5	Pole	TP37.3137x36.3635x0.5875	25	-31500.10	4267609.31	46.8	Pass
L26	32.5 - 27.5	Pole	TP38.2639x37.3137x0.5875	26	-33149.50	4378027.30	47.9	Pass
L27	27.5 - 22.5	Pole	TP39.2141x38.2639x0.575	27	-34830.20	4394365.30	49.9	Pass
L28	22.5 - 17.5	Pole	TP40.1643x39.2141x0.575	28	-36539.90	4502431.30	50.8	Pass
L29	17.5 - 12.5	Pole	TP41.1145x40.1643x0.5688	29	-38279.30	4561084.29	52.3	Pass
L30	12.5 - 7.5	Pole	TP42.0647x41.1145x0.5625	30	-40047.50	4617374.79	53.6	Pass
L31	7.5 - 2.5	Pole	TP43.0149x42.0647x0.5625	31	-41843.50	4723088.79	54.4	Pass
L32	2.5 - 0	Pole	TP43.49x43.0149x0.5563	32	-42750.60	4723561.29	55.3	Pass
							Summary	
						Pole (L13)	73.9	Pass
						Base Plate	85.0	Pass
						RATING =	**85.0**	**Pass**

***NOTE: Above stress ratios for reinforced sections are approximate. More exact calculations are presented in Appendix C.**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876340 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

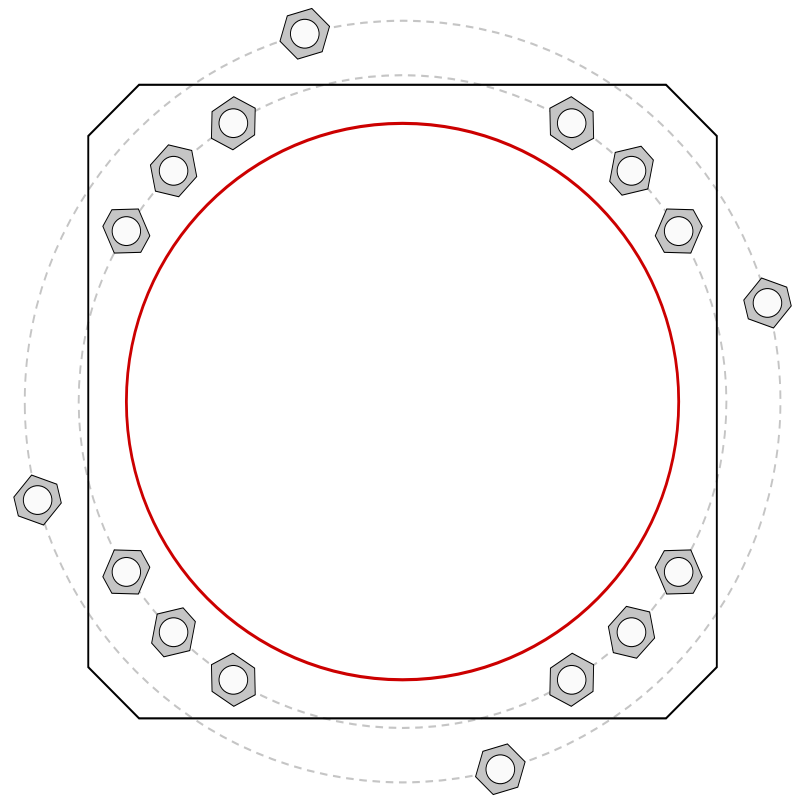
Monopole Base Plate Connection

Site Info	
BU #	876340
Site Name	COE HILL
Order #	479827 rev 1

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1.25

Applied Loads	
Moment (kip-ft)	2816.59
Axial Force (kips)	42.75
Shear Force (kips)	32.08

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (12) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 51" BC

Anchor Spacing: 6 in

GROUP 2: (4) 2-1/4" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 59.5" BC

Base Plate Data

49.5" OD x 3" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Stiffener Data

N/A

Pole Data

43.49" x 0.55625" 12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

GROUP 1:		
Pu_c = 155.41	ϕPn_c = 243.75	**Stress Rating**
Vu = 2.67	ϕVn = 73.13	**60.9%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2:		
Pu_c = 177.16	ϕPn_c = 341.25	**Stress Rating**
Vu = 0	ϕVn = 102.38	**49.4%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	25.24	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**53.4%**	**Pass**

MasTec Network Solutions

Flange Bypass Modification

Project Name	COE HILL
Site ID	876340
Code	H

Legend
Input
Calculated
Notes

Moment, M_u	45.32	(kip-ft) tnx Output
Axial, P_u	2.71	(kips) tnx Output
Shear, V_u	4.63	(kips) tnx Output

Tube Bypasses		
Number of Bypasses	3	(in)
Tube Orientation Diameter	39.25	(in)
Tube Grade	A500 Gr.B (Rect)	
Tube Size	HSS6x6x1/2	(in)
Unbraced Length	108	(in)
y	19.625	Extreme Fiber, (in)
I	5626.905	Moment of Intertia, (in^4)
F_y	46	Yeild Strength, (ksi)
F_u	58	Tensile Strength, (ksi)
A_g	9.740	Gross Area, (in^2)
A_n	8.615	Net Area, (in^2)
r	2.225	Radius of Gyration (in)
I_{TOTAL}	5626.905	Total Moment of Intertia, (in4)

P	19.378	Max Compression Force, (kip)
T	17.571	Max Tension Force, (kip)
V	1.543	Max Shear Force, (kip)
M	166.680	Max Bending Force, (kip-in)

Tension		
Tension Yeilding, ϕTn	434.599	(kip) 4.6.3
Tension Rupture, ϕTn	404.733	(kip) 4.6.3
Percentage	3.9%	

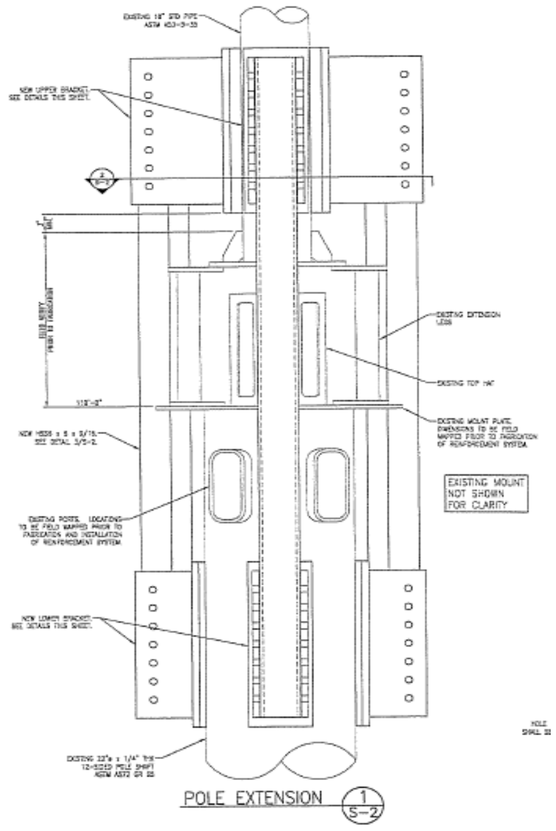
Compression		
Effective Yield Stress, F'y	46.000	(ksi) 4.5.4.1
KL/r	48.539	4.5.4.2
4.71*SQRT(E/F'y)	118.261	4.5.4.2
Fe	121.482	4.5.4.2
λc	1.289	4.5.4.2
Critical Stress, Fcr	39.258	(ksi) 4.5.4.2
Axial Strength, ϕPn	370.901	(kip) 4.5.4.2
Percentage	5.0%	

Flexure		
Plastic Section Modulous, Z	16.070	(in^3) 4.7.3
Flexural Strength, ϕMn	665.298	(kip-in) 4.7.3
Percentage	23.9%	

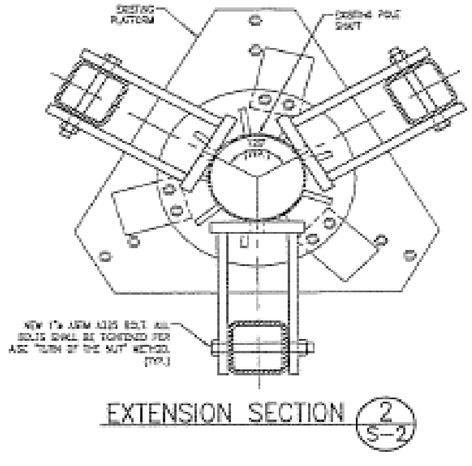
Combined Bending		
B_1	1.078	4.8.1
Percentage	34.0%	4.8.1.1

Tube Bolts		
Number of Bolts	7	(in)
Bolt Grade	A325N	
Bolt Diameter	1	(in)
Shear Strength, ϕrn	63.6	(kip) Table 7-1
Percentage	4.1%	

Ajax Bolts		
Number of Bolts	6	(in)
Type of Bolts	Ajax M20	
Single Shear Capacity	40	(kN)
Tension Capacity	25	(kN)
Ajax Shear Capacity, ϕrn	33.721	(kip)
Ajax Tension Capacity, ϕrn	21.076	(kip)
Bolt Spacing	3	(in)
Bolts Above Neutral Axis, n'	3	
Eccentricity, ecc	14.25	(in)
Max Shear In Bolt, rv	3.230	Max Compression Force, (kip)
Max Tension In Bolt, rt	10.227	Max Tension Force, (kip)
Shear Percentage	9.1%	
Tension Percentage	46.2%	



POLE EXTENSION 1 S-2



EXTENSION SECTION 2 S-2

Drilled Pier Foundation

BU # :	876340
Site Name:	COE HILL
Order Number:	479827 REV 1

TIA-222 Revison:	H
Tower Type:	Monopole

Applied Loads	Comp.	Uplift
Moment (kip-ft)	2816.59	
Axial Force (kips)	42.75	
Shear Force (kips)	32.08	

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

Pier Design Data		
Depth	21	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 21' below grade		
Pier Diameter	7.5	ft
Rebar Quantity	24	
Rebar Size	11	
Clear Cover to Ties	4	in
Tie Size	5	

Analysis Results		
Soil Lateral Capacity	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	6.07	-
Soil Safety Factor	2.37	-
Max Moment (kip-ft)	3035.49	-
Rating*	*53.4%*	-
Soil Vertical Capacity	*Compression*	*Uplift*
Skin Friction (kips)	402.03	-
End Bearing (kips)	583.16	-
Weight of Concrete (kips)	170.97	-
Total Capacity (kips)	985.18	-
Axial (kips)	213.72	-
Rating*	*20.7%*	-
Reinforced Concrete Capacity	*Compression*	*Uplift*
Critical Depth (ft from TOC)	6.01	-
Critical Moment (kip-ft)	3035.46	-
Critical Moment Capacity	6368.30	-
Rating*	*45.4%*	-

Soil Interaction Rating*	**53.4%**
Structural Foundation Rating*	**45.4%**

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

*Rating per TIA-222-H Section 15.5

Soil Profile					
Groundwater Depth	N/A	ft	# of Layers	3	

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	3.5	3.5	120	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	3.5	6	2.5	120	150	0	30	0.000	0.000	1.30	1.30			Cohesionless
3	6	21	15	120	150	0	35	0.000	0.000	1.30	1.30	17.6		Cohesionless

CCIpole

per TIA-222- H

Site BU: 876340

Work Order: 1755307

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	133.5	12	0	0	10.75	10.75	0.365		A53-B-35
2	121.5	2.5	0	0	22.00	22	0.25		A572-65
3	119	44	3.75	12	22.00	30.362	0.25	Auto	A607-65
4	78.75	41	4.75	12	29.15	36.941	0.3125	Auto	A607-65
5	42.5	42.5	0	12	35.41	43.49	0.375	Auto	A607-65

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
1	0	68.08	channel	MP3-05 (1.25in)	4			E			E			E			E
2																	
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	5.33	2.09	5.65	0.79	29.000	29.000	18.000	4.994	1.2500	A572-65

TNX Geometry Input

Increment (ft): 5

	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	133.5 - 128.5	5		0	10.750	10.750	0.365	A53-B-35	1.000
2	128.5 - 123.5	5		0	10.750	10.750	0.365	A53-B-35	1.000
3	123.5 - 121.5	2	0	0	10.750	10.750	0.365	A53-B-35	1.000
4	121.5 - 119	2.5	0	0	22.000	22.000	0.25	A572-65	1.000
5	119 - 114	5		12	22.000	22.950	0.25	A607-65	1.000
6	114 - 109	5		12	22.950	23.900	0.25	A607-65	1.000
7	109 - 104	5		12	23.900	24.851	0.25	A607-65	1.000
8	104 - 99	5		12	24.851	25.801	0.25	A607-65	1.000
9	99 - 94	5		12	25.801	26.751	0.25	A607-65	1.000
10	94 - 89	5		12	26.751	27.701	0.25	A607-65	1.000
11	89 - 84	5		12	27.701	28.652	0.25	A607-65	1.000
12	84 - 79	5		12	28.652	29.602	0.25	A607-65	1.000
13	79 - 78.75	4	3.75	12	29.602	30.362	0.25	A607-65	1.000
14	78.75 - 73.75	5		12	29.149	30.100	0.3125	A607-65	1.000
15	73.75 - 68.75	5		12	30.100	31.050	0.3125	A607-65	1.000
16	68.75 - 68.08	0.67		12	31.050	31.177	0.3125	A607-65	1.000
17	68.08 - 67.83	0.25		12	31.177	31.225	0.575	A607-65	0.947
18	67.83 - 62.83	5		12	31.225	32.175	0.56875	A607-65	0.945
19	62.83 - 57.83	5		12	32.175	33.125	0.5625	A607-65	0.944
20	57.83 - 52.83	5		12	33.125	34.075	0.55	A607-65	0.953
21	52.83 - 47.83	5		12	34.075	35.025	0.54375	A607-65	0.953
22	47.83 - 42.83	5		12	35.025	35.976	0.5375	A607-65	0.954
23	42.83 - 42.5	5.08	4.75	12	35.976	36.941	0.5375	A607-65	0.953
24	42.5 - 37.5	5		12	35.413	36.364	0.6	A607-65	0.956
25	37.5 - 32.5	5		12	36.364	37.314	0.5875	A607-65	0.968
26	32.5 - 27.5	5		12	37.314	38.264	0.5875	A607-65	0.959
27	27.5 - 22.5	5		12	38.264	39.214	0.575	A607-65	0.972
28	22.5 - 17.5	5		12	39.214	40.164	0.575	A607-65	0.964
29	17.5 - 12.5	5		12	40.164	41.115	0.56875	A607-65	0.967
30	12.5 - 7.5	5		12	41.115	42.065	0.5625	A607-65	0.971
31	7.5 - 2.5	5		12	42.065	43.015	0.5625	A607-65	0.964
32	2.5 - 0	2.5		12	43.015	43.490	0.55625	A607-65	0.971

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	133.5 - 128.5	2.28	13.71	4.40
2	128.5 - 123.5	2.58	36.13	4.57
3	123.5 - 121.5	2.71	45.32	4.63
4	121.5 - 119	2.91	57.08	4.78
5	119 - 114	7.03	102.12	9.03
6	114 - 109	10.15	152.63	11.59
7	109 - 104	10.62	211.83	12.10
8	104 - 99	14.78	293.32	18.05
9	99 - 94	15.68	385.51	19.28
10	94 - 89	16.37	483.09	19.78
11	89 - 84	17.05	583.63	20.49
12	84 - 79	17.78	687.97	21.27
13	79 - 78.75	17.82	693.31	21.45
14	78.75 - 73.75	19.00	802.28	22.13
15	73.75 - 68.75	19.90	914.13	22.63
16	68.75 - 68.08	20.03	929.31	22.72
17	68.08 - 67.83	20.10	935.00	22.78
18	67.83 - 62.83	21.42	1050.61	23.51
19	62.83 - 57.83	22.79	1170.12	24.32
20	57.83 - 52.83	24.17	1293.51	25.06
21	52.83 - 47.83	25.66	1420.79	25.88
22	47.83 - 42.83	27.09	1551.95	26.61
23	42.83 - 42.5	27.19	1560.74	26.65
24	42.5 - 37.5	29.89	1696.00	27.47
25	37.5 - 32.5	31.50	1835.00	28.16
26	32.5 - 27.5	33.15	1977.44	28.84
27	27.5 - 22.5	34.83	2123.19	29.49
28	22.5 - 17.5	36.54	2272.13	30.11
29	17.5 - 12.5	38.28	2424.07	30.69
30	12.5 - 7.5	40.05	2578.92	31.28
31	7.5 - 2.5	41.84	2736.70	31.86
32	2.5 - 0	42.75	2816.59	32.08

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
133.5 - 128.5	Pole	TP10.75x10.75x0.365	Pole	13.3%	Pass
128.5 - 123.5	Pole	TP10.75x10.75x0.365	Pole	34.0%	Pass
123.5 - 121.5	Pole	TP10.75x10.75x0.365	Pole	42.5%	Pass
121.5 - 119	Pole	TP22x22x0.25	Pole	11.3%	Pass
119 - 114	Pole	TP22.95x22x0.25	Pole	16.7%	Pass
114 - 109	Pole	TP23.9x22.95x0.25	Pole	23.3%	Pass
109 - 104	Pole	TP24.851x23.9x0.25	Pole	30.0%	Pass
104 - 99	Pole	TP25.801x24.851x0.25	Pole	39.2%	Pass
99 - 94	Pole	TP26.751x25.801x0.25	Pole	48.3%	Pass
94 - 89	Pole	TP27.701x26.751x0.25	Pole	57.1%	Pass
89 - 84	Pole	TP28.652x27.701x0.25	Pole	65.3%	Pass
84 - 79	Pole	TP29.602x28.652x0.25	Pole	73.0%	Pass
79 - 78.75	Pole	TP30.362x29.602x0.25	Pole	73.4%	Pass
78.75 - 73.75	Pole	TP30.1x29.149x0.3125	Pole	60.7%	Pass
73.75 - 68.75	Pole	TP31.05x30.1x0.3125	Pole	65.6%	Pass
68.75 - 68.08	Pole	TP31.177x31.05x0.3125	Pole	66.3%	Pass
68.08 - 67.83	Pole + Reinf.	TP31.225x31.177x0.575	Reinf. 1 Tension Rupture	50.3%	Pass
67.83 - 62.83	Pole + Reinf.	TP32.175x31.225x0.5688	Reinf. 1 Tension Rupture	53.9%	Pass
62.83 - 57.83	Pole + Reinf.	TP33.125x32.175x0.5625	Reinf. 1 Tension Rupture	57.3%	Pass
57.83 - 52.83	Pole + Reinf.	TP34.075x33.125x0.55	Reinf. 1 Tension Rupture	60.5%	Pass
52.83 - 47.83	Pole + Reinf.	TP35.025x34.075x0.5438	Reinf. 1 Tension Rupture	63.6%	Pass
47.83 - 42.83	Pole + Reinf.	TP35.976x35.025x0.5375	Reinf. 1 Tension Rupture	66.5%	Pass
42.83 - 42.5	Pole + Reinf.	TP36.941x35.976x0.5375	Reinf. 1 Tension Rupture	66.7%	Pass
42.5 - 37.5	Pole + Reinf.	TP36.364x35.413x0.6	Reinf. 1 Tension Rupture	64.0%	Pass
37.5 - 32.5	Pole + Reinf.	TP37.314x36.364x0.5875	Reinf. 1 Tension Rupture	66.4%	Pass
32.5 - 27.5	Pole + Reinf.	TP38.264x37.314x0.5875	Reinf. 1 Tension Rupture	68.6%	Pass
27.5 - 22.5	Pole + Reinf.	TP39.214x38.264x0.575	Reinf. 1 Tension Rupture	70.7%	Pass
22.5 - 17.5	Pole + Reinf.	TP40.164x39.214x0.575	Reinf. 1 Tension Rupture	72.6%	Pass
17.5 - 12.5	Pole + Reinf.	TP41.115x40.164x0.5688	Reinf. 1 Tension Rupture	74.5%	Pass
12.5 - 7.5	Pole + Reinf.	TP42.065x41.115x0.5625	Reinf. 1 Tension Rupture	76.2%	Pass
7.5 - 2.5	Pole + Reinf.	TP43.015x42.065x0.5625	Reinf. 1 Tension Rupture	77.9%	Pass
2.5 - 0	Pole + Reinf.	TP43.49x43.015x0.5563	Reinf. 1 Tension Rupture	78.7%	Pass
				Summary	
			Pole	73.4%	Pass
			Reinforcement	78.7%	Pass
			Overall	78.7%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity*	
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1
133.5 - 128.5	161	n/a	161	11.91	n/a	11.91	13.3%	
128.5 - 123.5	161	n/a	161	11.91	n/a	11.91	34.0%	
123.5 - 121.5	161	n/a	161	11.91	n/a	11.91	42.5%	
121.5 - 119	1010	n/a	1010	17.08	n/a	17.08	11.3%	
119 - 114	1204	n/a	1204	18.25	n/a	18.25	16.7%	
114 - 109	1361	n/a	1361	19.01	n/a	19.01	23.3%	
109 - 104	1532	n/a	1532	19.78	n/a	19.78	30.0%	
104 - 99	1716	n/a	1716	20.54	n/a	20.54	39.2%	
99 - 94	1915	n/a	1915	21.30	n/a	21.30	48.3%	
94 - 89	2128	n/a	2128	22.07	n/a	22.07	57.1%	
89 - 84	2357	n/a	2357	22.83	n/a	22.83	65.3%	
84 - 79	2602	n/a	2602	23.59	n/a	23.59	73.0%	
79 - 78.75	2614	n/a	2614	23.63	n/a	23.63	73.4%	
78.75 - 73.75	3399	n/a	3399	29.93	n/a	29.93	60.7%	
73.75 - 68.75	3735	n/a	3735	30.89	n/a	30.89	65.6%	
68.75 - 68.08	3781	n/a	3781	31.01	n/a	31.01	66.3%	
68.08 - 67.83	3799	3054	6853	31.06	22.60	53.66	35.7%	50.3%
67.83 - 62.83	4160	3233	7393	32.02	22.60	54.62	38.8%	53.9%
62.83 - 57.83	4544	3417	7960	32.97	22.60	55.57	41.8%	57.3%
57.83 - 52.83	4950	3606	8556	33.93	22.60	56.53	44.7%	60.5%
52.83 - 47.83	5380	3800	9179	34.88	22.60	57.48	47.6%	63.6%
47.83 - 42.83	5834	3999	9832	35.83	22.60	58.43	50.5%	66.5%
42.83 - 42.5	5864	4012	9877	35.90	22.60	58.50	50.6%	66.7%
42.5 - 37.5	7194	4082	11275	43.39	22.60	65.99	45.3%	64.0%
37.5 - 32.5	7779	4288	12067	44.54	22.60	67.14	47.4%	66.4%
32.5 - 27.5	8395	4499	12894	45.69	22.60	68.29	49.5%	68.6%
27.5 - 22.5	9042	4716	13758	46.83	22.60	69.43	51.6%	70.7%
22.5 - 17.5	9722	4937	14659	47.98	22.60	70.58	53.6%	72.6%
17.5 - 12.5	10435	5164	15599	49.12	22.60	71.72	55.5%	74.5%
12.5 - 7.5	11183	5396	16578	50.27	22.60	72.87	57.5%	76.2%
7.5 - 2.5	11965	5632	17597	51.41	22.60	74.01	59.3%	77.9%
2.5 - 0	12369	5753	18122	51.99	22.60	74.59	60.3%	78.7%

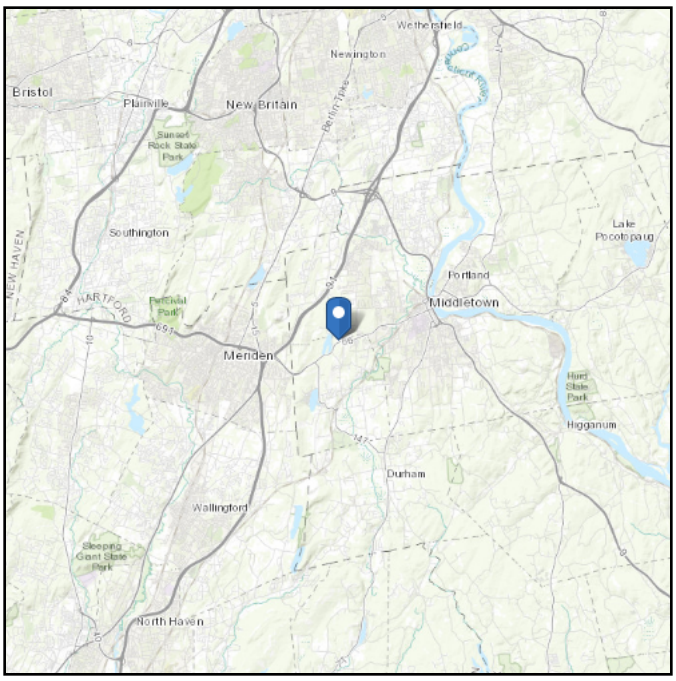
Note: Section capacity checked in 5 degree increments.
Rating per TIA-222-H Section 15.5.

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 444.59 ft (NAVD 88)
Latitude: 41.546
Longitude: -72.715



Wind

Results:

Wind Speed:	124 Vmph
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	94 Vmph
100-year MRI	102 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Fri Apr 19 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.

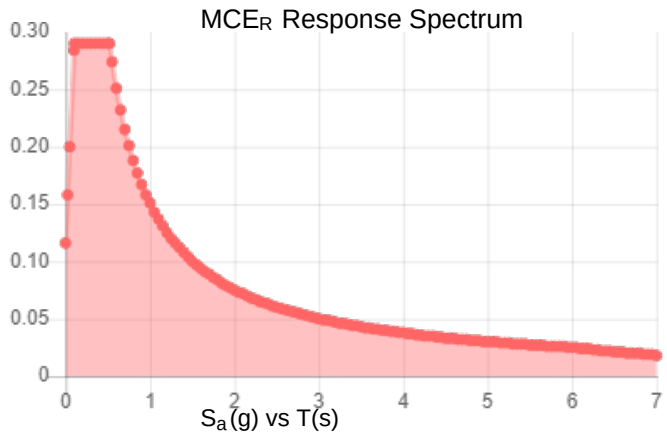
Seismic

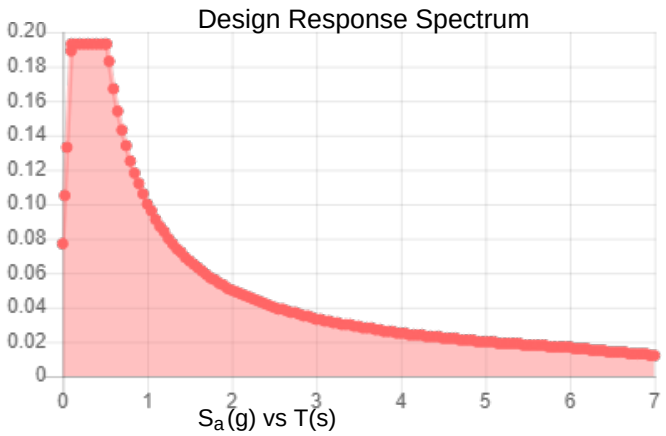
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.181	S_{DS} :	0.193
S_1 :	0.063	S_{D1} :	0.1
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.093
S_{MS} :	0.29	PGA_M :	0.148
S_{M1} :	0.151	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Fri Apr 19 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:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Fri Apr 19 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 30, 2019**

Charles McGuirt
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

MasTec Network Solutions
507 Airport Blvd, Suite 111
Morrisville, NC 27560
(919) 244-5207

Subject:	**Mount Modification Analysis**	
Carrier Designation:	**T-Mobile Equipment Change-Out**	
	Carrier Site Number:	CT11309
	Carrier Site Name:	Middlefield/Rt 66
Crown Castle Designation:	**Crown Castle BU Number:**	876340
	Crown Castle Site Name:	COE HILL
	Crown Castle JDE Number:	559327
	Crown Castle Order Number:	479827 Revision 1
Engineering Firm Designation:	**MasTec Network Solutions Project Number:**	18542-MOD1
Site Data:	**238 Meriden Road, Middlefield, Middlesex County, CT 06457** **Latitude: 41° 32' 45.60" Longitude: -72° 42' 53.90"**	
Structure Information	**Tower Height & Type:**	133.5 ft Monopole
	Mount Elevation:	101 ft
	Mount Width & Type:	14 ft Platform Mount

Dear Charles McGuirt,

MasTec Network Solutions is pleased to submit this **"Mount Modification Analysis Report"** to determine the structural integrity of T-Mobile's antenna mounting system with the proposed appurtenance and equipment addition on the above mentioned 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:

Platform Mount **Sufficient***

***Structure has sufficient capacity provided the proposed reinforcement is installed as recommended.**

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

Mount analysis prepared by: Elisa Mathon, EI

Respectfully Submitted by:

Raphael Mohamed, PE, PEng
Senior Director of Engineering
CT PE License No. 25112

Raphael Mohamed

Digitally signed by Raphael Mohamed
DN: E=Raphael.Mohamed@mastec.com, CN=Raphael Mohamed, OU=Users, OU=MasTec Network Solutions, OU=Service Lines, DC=mastec, DC=local
Date: 2019.05.31 16:05:13-04'00'

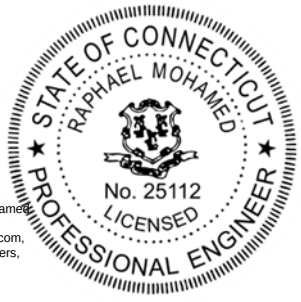


TABLE OF CONTENTS

1) INTRODUCTION

This mount is an existing 14 ft Platform Mount mapped by P-SEC in April of 2019. It is installed at the 101 ft elevation on 3 sector(s) of the 133.5 ft Monopole tower.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category	II
an ultimate:	125 mph
Exposure Category:	C
Topographic Category:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic Ss:	0.181
Seismic S1:	0.063
Live Loading Wind Speed:	30 mph
Live Loading at Mid/End-Points:	250 lb
Man Live Loading at Mount Pipes	500 lb

Table 1 - Proposed Loading Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
101.0	104.0	3	ericsson	AIR -32 B2A/B66AA	(1) 14' Platform w/ Handrails w/ Proposed Modifications
		3	ericsson	ERICSSON AIR 21 B2A B4P	
		3	rfs	APXVAARR24_43-UNA20	
		3	ericsson	KRY 112 144/1	
		3	ericsson	RADIO 4449 B12/B71	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
4-ORDER INFORMATION	CROWN CASTLE	ORDER NO. 479827 Rev. 1	CCIsites
4-MOUNT MAPPING	P-SEC	Project No. 19651-29	On File
4-MOUNT ANALYSIS	MasTec	Project No. 18542-MNT1	On File
4-MODIFICATION DRAWINGS	MasTec	Appendix E	On File

3.1) Analysis Method

RISA-3D (Version No. 17.0.2), 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.

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

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Tables 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) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM 500 (GR B-46)
Pipe	ASTM A53 (GR B-35)
Connection Bolts	ASTM A325

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

4) ANALYSIS RESULTS

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

Notes	Component	Beam No.	Centerline (ft)	% Capacity	Pass / Fail
1	Mount Pipe	--	101	53.6	Pass
1	Interior Angle	--	101	42.2	Pass
1	Handrail	--	101	92.7	Pass
1	Outer Standoff	--	101	24.3	Pass
1	Inner Standoff	--	101	38.5	Pass
1	Corner Plate	--	101	72.4	Pass
1	Horizontal	--	101	86.3	Pass
1	Diagonals	--	101	63.7	Pass
1	MOD Angle	--	101	13.5	Pass

Structure Rating (max from all components) =	**92.7%**

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

4.1) Recommendations

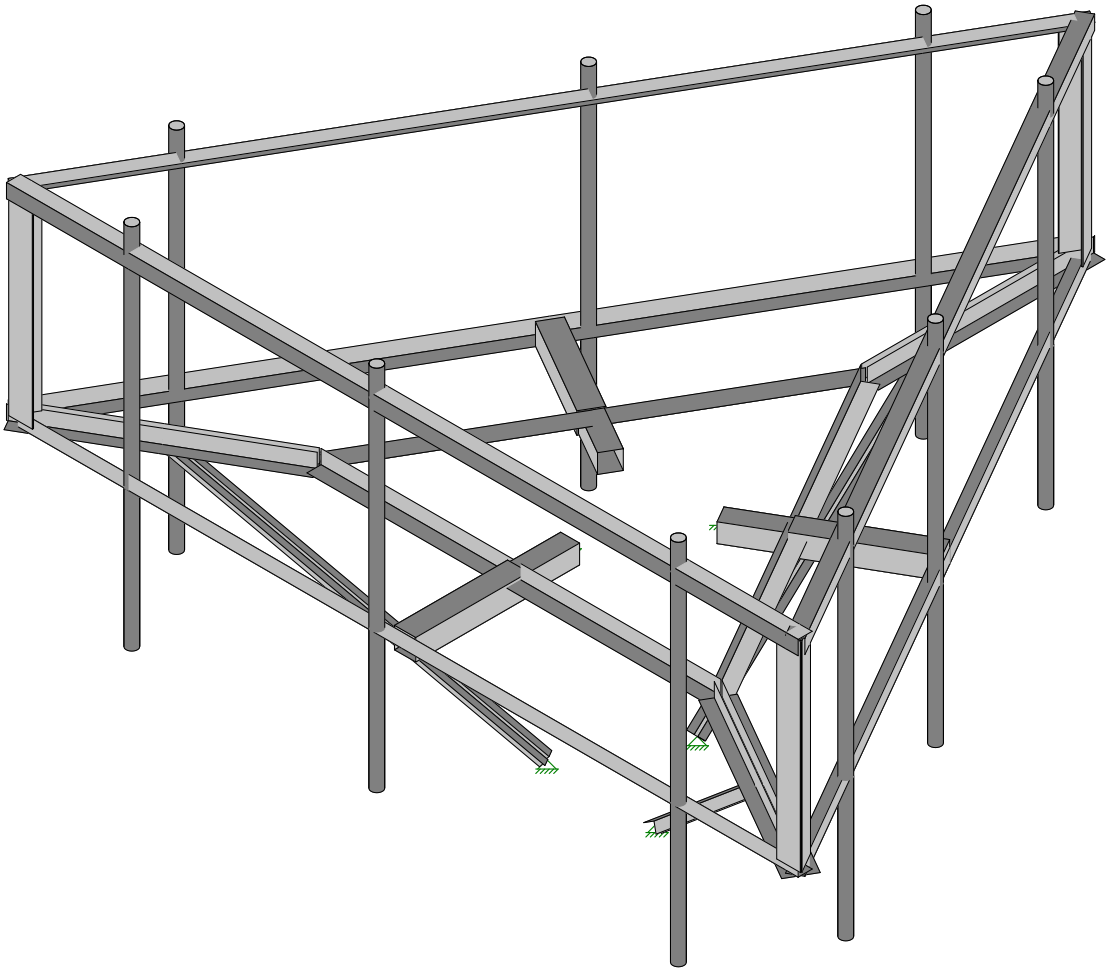
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the structural modifications listed below must be completed.

1. Kicker, Sabre C10851202DP

Engineering Detail Drawings have been provided in Appendix E- Mount Modification Drawings. Connection from the mount to the tower and local stresses on the tower are sufficient.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

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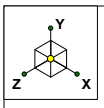
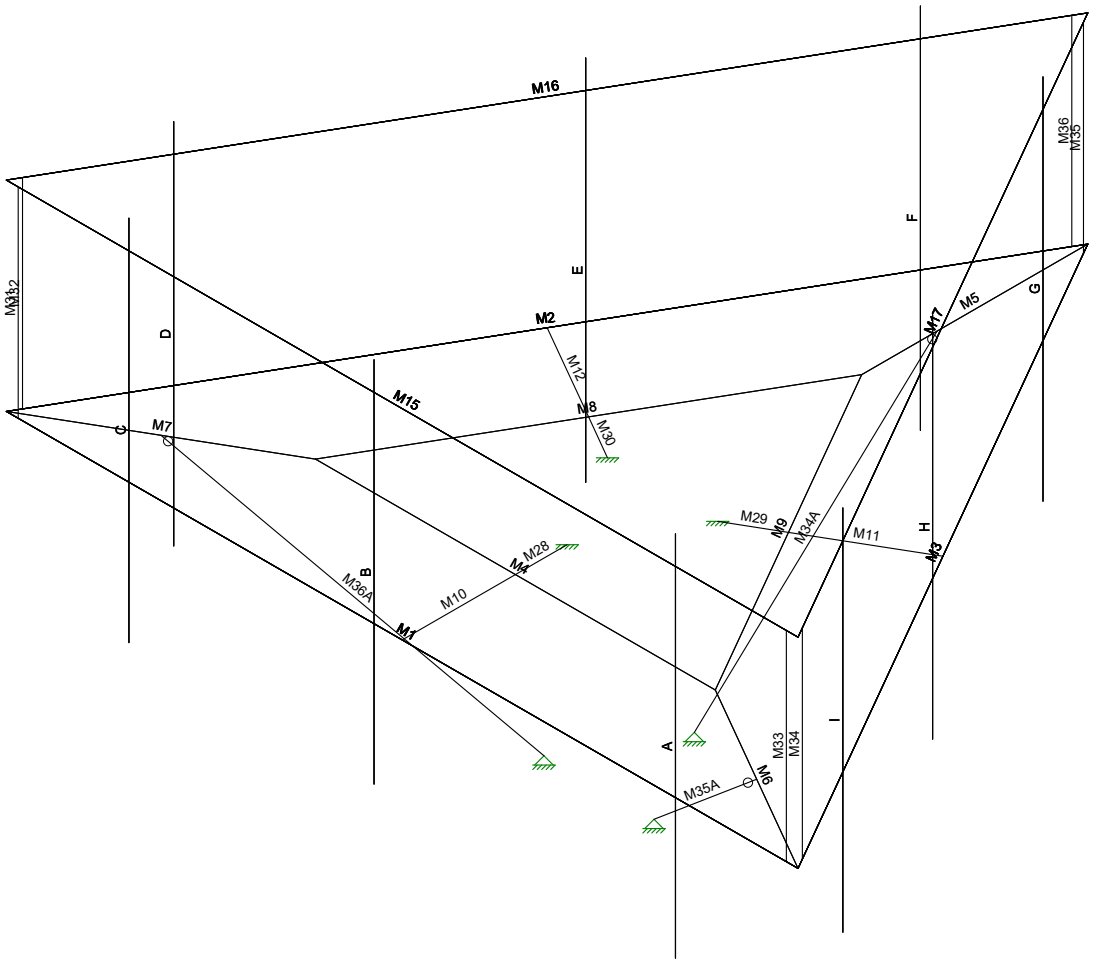
18542-MOD1		18542.R3D





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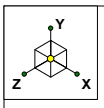

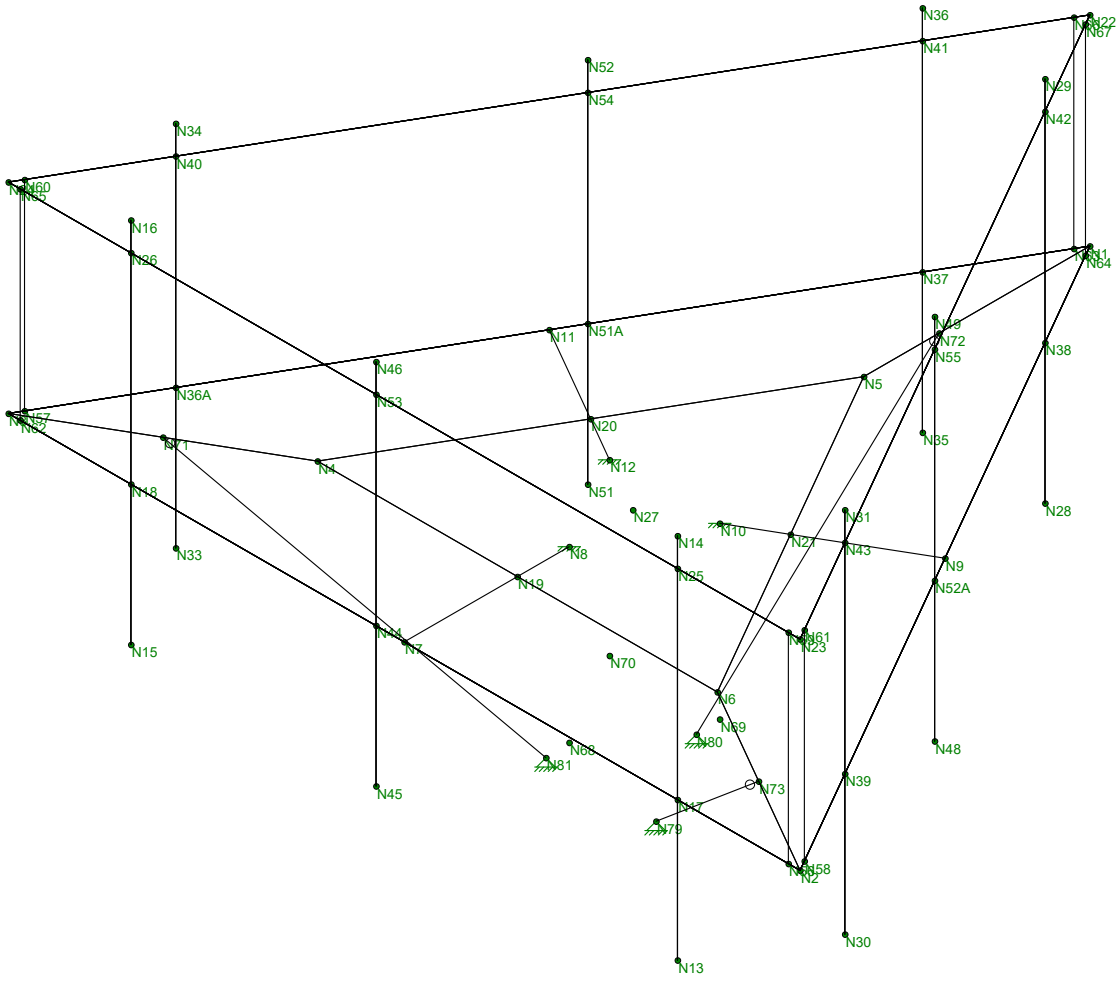

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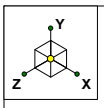

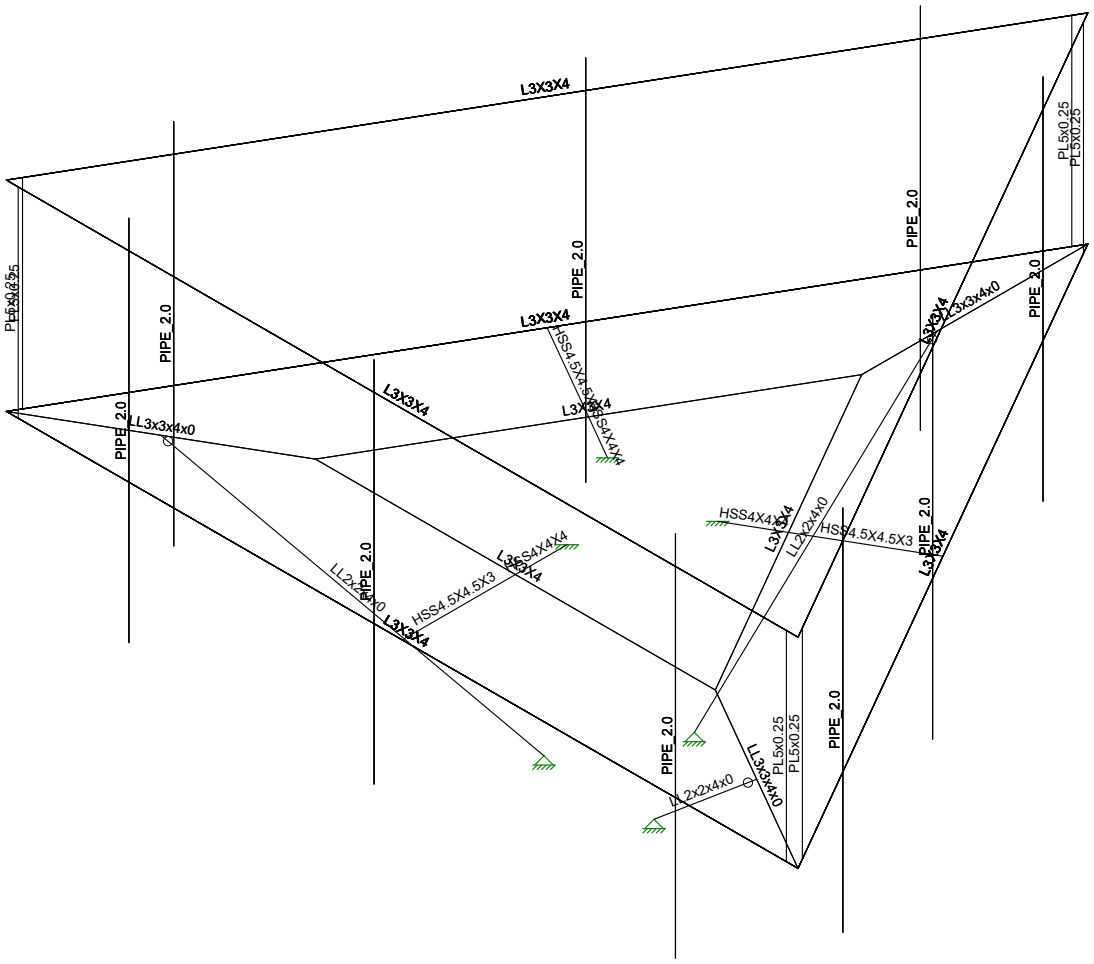

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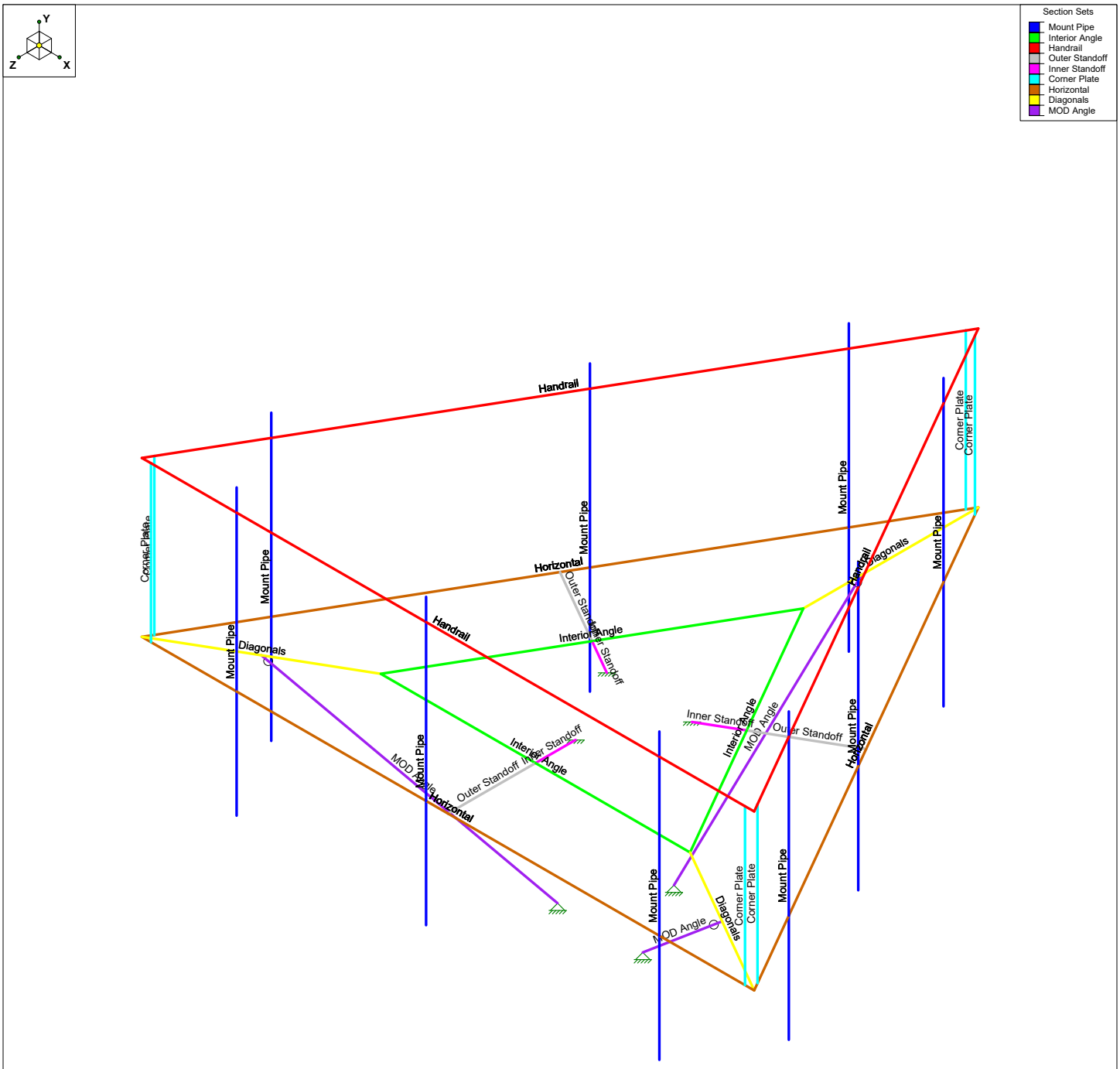

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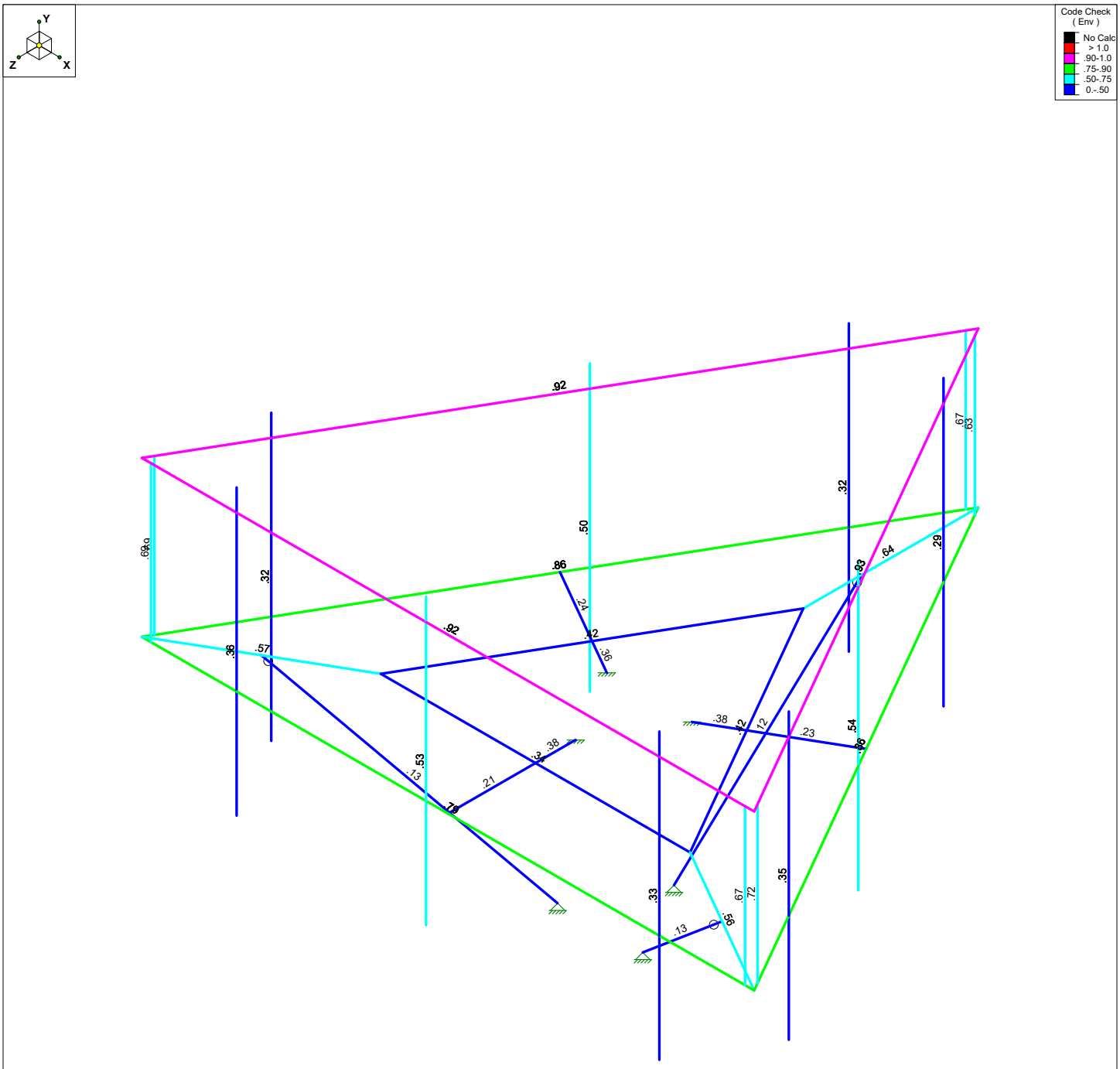

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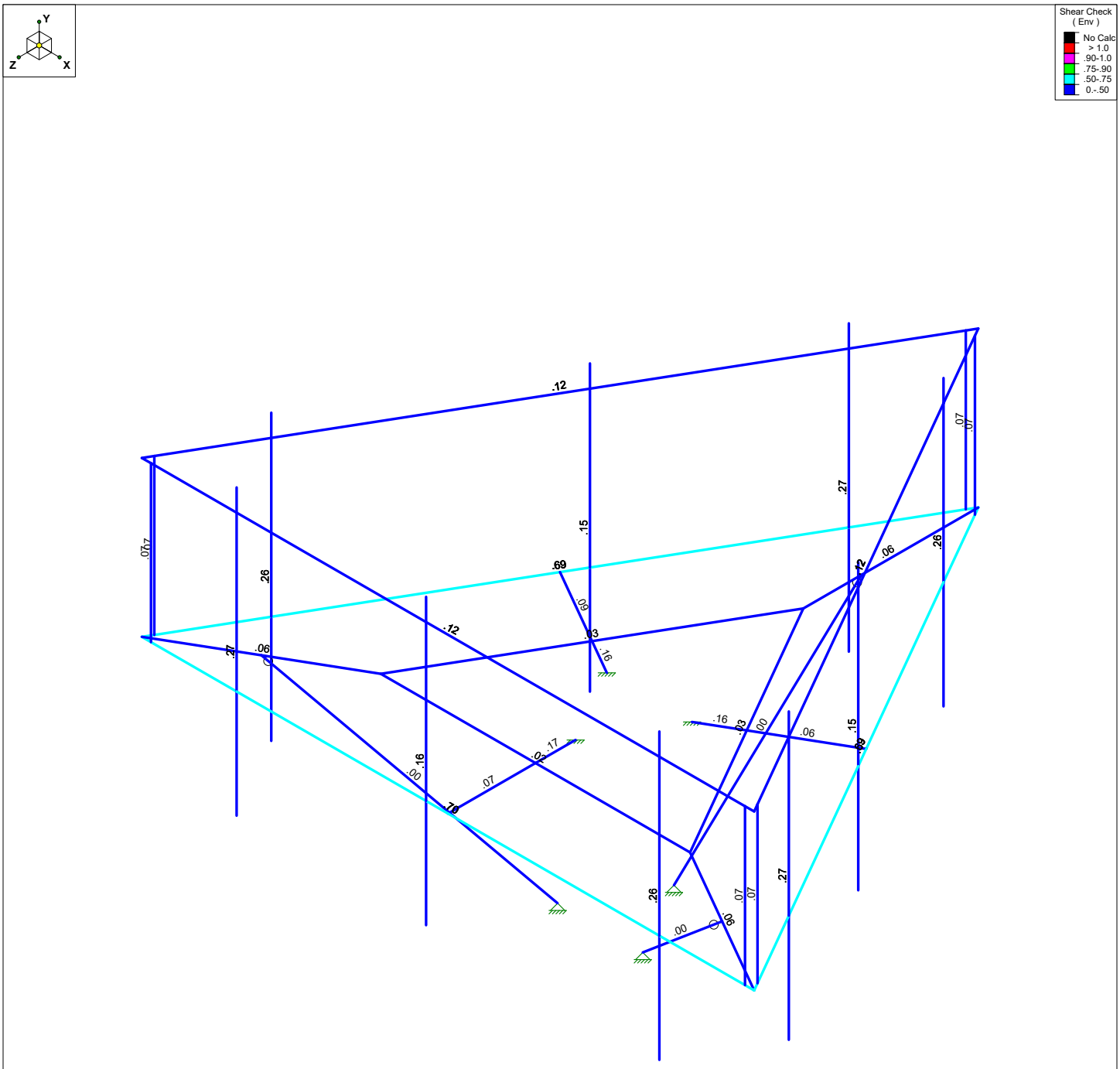

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Envelope Only Solution

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APPENDIX B

SOFTWARE INPUT CALCULATIONS

MasTec Network Solutions

Mount Analysis Tool

Site Name	COE HILL		
Site ID	876340		
Job Number	18542-MOD1	Mount Existing?	Crown
Code	H	Risk Category	II

Legend
Input
Calculated
Notes

Maximum Capacity		
Controlling Capacity	92.7%	PASS

Analysis Parameters		
Mount Height	101	ft
Exposure Category	C	(B,C, or D)
Ultimate Wind Speed	125	mph
Ice Wind Speed	50	mph
Design Ice Thickness, t_i	1.5	in
Maintenance Wind Speed	30	mph
Run Earthquake Analysis?	Yes	
Ground Elevation	444.26	ft, Google Earth
S_1	0.063	USGS
S_{DS}	0.193	2.7.5
Vertical Seismic Loads, E_v	0.039	2.7.6
Seismic Response Coefficient, C_s	0.097	2.7.7.1.1
C_s Min	0.030	2.7.7.1.1

Wind Parameters					
Gust Effect Factor, G_h	1.000	2.6.9	K_s	1.000	2.6.7
K_z	1.268	2.6.5.2	K_e	0.984	2.6.8
K_{zt}	1.000	2.6.6	K_a	0.900	16.6
K_d	0.950	Table 2-2	*Note for Rooftop Structures greater than 50', unobstructed for 90 deg and protruding 50' above surrounding buildings Ks must be calculated.		
q_z	42.816	psf, 2.6.11.6			
C/D	140.772	Table 2-9			
t_{iz}	1.678	in, 2.6.10			
q_{iz}	6.851	psf, 2.6.9.6	I, Ice	1.000	Table 2-3
C/D_{iz}	56.309	Table 2-9	I, EQ	1.000	Table 2-3
$q_{Maintenance}$	2.498	psf, 2.6.9.6	$K_{es\ (Wind)}$	1.000	Table S-1
$C/D_{Maintenance}$	33.785	Table 2-9	$K_{es\ (ice)}$	1.000	Table S-1
Ice Dead, Grating	0.015657008	ksf			

Pipe Mounts (Orientation Drawn Top-Down)			
Risa 3D Label	Elevation (ft)	Length (in)	Diameter (in)
A	101	78	2.375
B	101	78	2.375
C	101	78	2.375
D	101	78	2.375
E	101	78	2.375
F	101	78	2.375
G	101	78	2.375
H	101	78	2.375
I	101	78	2.375

Appurtenances					
Model	Type	Height (in)	Width (in)	Depth (in)	Weight (lbs)
Ericsson AIR -32 B2A/B66AA	Antenna	56.6	12.9	8.7	132.2
Ericsson AIR 21 B2A B4P	Antenna	56	12.1	7.87	91.5
RFS APXVAARR24_43-U-NA20	Antenna	95.9	24	8.7	128
Ericsson KRY 112 144/1	RRU, TMA, Etc.	7	6	3	11
Ericsson RADIO 4449 B12/B71	RRU, TMA, Etc.	14.95	13.19	9.25	75

Pipe Mount	Antenna	Elevation (ft)	Quantity	Orientation (deg)	Front Exposed (%)	Side Exposed (%)	Type	Height (in)	Width (in)	Depth (in)	Weight (lbs)	Front CaAa (ft^2)	Side CaAa (ft^2)	Front F_A (kips)	Side F_A (kips)	Top %	Bottom %
A	Ericsson AIR 21 B2A B4P	104	1	0	100.0%	100.0%	Antenna	56.000	12.100	7.870	91.500	6.092	4.297	0.261	0.184	0.0%	39.7%
A	Ericsson KRY 112 144/1	104	1	90	50.0%	0.0%	RRU, TMA, Etc.	7.000	6.000	3.000	11.000	0.350	0.175	0.004	0.000	0.0%	8.3%
A	Ericsson RADIO 4449 B12/B71	104	1	90	50.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	75.000	1.643	1.152	0.025	0.070	0.0%	13.4%
A																	
A																	
A																	
B	RFS APXVAARR24_43-U-NA20	104	1	0	100.0%	100.0%	Antenna	95.900	24.000	8.700	128.000	20.243	8.889	0.867	0.381	0.0%	65.3%
B																	
B																	
B																	
B																	
B																	
C	Ericsson AIR -32 B2A/B66AA	104	1	0	100.0%	100.0%	Antenna	56.600	12.900	8.700	132.200	6.510	4.712	0.279	0.202	0.0%	40.1%
C	Ericsson KRY 112 144/1	104	1	0	0.0%	100.0%	RRU, TMA, Etc.	7.000	6.000	3.000	11.000	0.350	0.175	0.000	0.007	0.0%	8.3%
C																	
C																	
C																	
C																	
D	Ericsson AIR 21 B2A B4P	104	1	120	100.0%	100.0%	Antenna	56.000	12.100	7.870	91.500	6.092	4.297	0.203	0.242	0.0%	39.7%
D	Ericsson RADIO 4449 B12/B71	104	1	120	25.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	75.000	1.643	1.152	0.014	0.065	0.0%	13.4%
D																	
D																	
D																	
D																	
E	RFS APXVAARR24_43-U-NA20	104	1	120	100.0%	100.0%	Antenna	95.900	24.000	8.700	128.000	20.243	8.889	0.502	0.745	0.0%	65.3%
E	Ericsson KRY 112 144/1	104	1	120	0.0%	100.0%	RRU, TMA, Etc.	7.000	6.000	3.000	11.000	0.350	0.175	0.000	0.013	0.0%	8.3%
E																	
E																	
E																	
E																	
F	Ericsson AIR -32 B2A/B66AA	104	1	120	100.0%	100.0%	Antenna	56.600	12.900	8.700	132.200	6.510	4.712	0.221	0.259	0.0%	40.1%
F																	
F																	
F																	
F																	
F																	
G	Ericsson AIR 21 B2A B4P	104	1	240	100.0%	100.0%	Antenna	56.000	12.100	7.870	91.500	6.092	4.297	0.203	0.242	0.0%	39.7%
G	Ericsson RADIO 4449 B12/B71	104	1	240	25.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	75.000	1.643	1.152	0.014	0.065	0.0%	13.4%
G																	
G																	
G																	
G																	
H	RFS APXVAARR24_43-U-NA20	104	1	240	100.0%	100.0%	Antenna	95.900	24.000	8.700	128.000	20.243	8.889	0.502	0.745	0.0%	65.3%
H																	
H																	
H																	
H																	
H																	
I	Ericsson AIR -32 B2A/B66AA	104	1	240	100.0%	100.0%	Antenna	56.600	12.900	8.700	132.200	6.510	4.712	0.221	0.259	0.0%	40.1%
I																	
I																	
I																	
I																	
I																	

Pipe Mount	Antenna	Elevation (ft)	Quantity	Orientation (deg)	Front Exposed (%)	Side Exposed (%)	Type	Height (in)	Width (in)	Depth (in)	Ice Weight (lb)	Front CaAa (ft^2)	Side CaAa (ft^2)	Front F_A (kips)	Side F_A (kips)	Top %	Bottom %
A	Ericsson AIR 21 B2A B4P	104	1	0	100.0%	100.0%	Antenna	56.000	12.100	7.870	154.098	8.024	6.125	0.055	0.042	0.0%	39.7%
A	Ericsson KRY 112 144/1	104	1	90	50.0%	0.0%	RRU, TMA, Etc.	7.000	6.000	3.000	10.025	0.807	0.548	0.002	0.000	0.0%	8.3%
A	Ericsson RADIO 4449 B12/B71	104	1	90	50.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	45.418	2.524	1.923	0.007	0.017	0.0%	13.4%
A																	
A																	
A																	
B	RFS APXVAARR24_43-U-NA20	104	1	0	100.0%	100.0%	Antenna	95.900	24.000	8.700	445.600	23.572	11.975	0.161	0.082	0.0%	65.3%
B																	
B																	
B																	
B																	
B																	
C	Ericsson AIR -32 B2A/B66AA	104	1	0	100.0%	100.0%	Antenna	56.600	12.900	8.700	166.628	8.479	6.575	0.058	0.045	0.0%	40.1%
C	Ericsson KRY 112 144/1	104	1	0	0.0%	100.0%	RRU, TMA, Etc.	7.000	6.000	3.000	10.025	0.807	0.548	0.000	0.004	0.0%	8.3%
C																	
C																	
C																	
C																	
D	Ericsson AIR 21 B2A B4P	104	1	120	100.0%	100.0%	Antenna	56.000	12.100	7.870	154.098	8.024	6.125	0.045	0.052	0.0%	39.7%
D	Ericsson RADIO 4449 B12/B71	104	1	120	25.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	45.418	2.524	1.923	0.004	0.016	0.0%	13.4%
D																	
D																	
D																	
D																	
E	RFS APXVAARR24_43-U-NA20	104	1	120	100.0%	100.0%	Antenna	95.900	24.000	8.700	445.600	23.572	11.975	0.102	0.142	0.0%	65.3%
E	Ericsson KRY 112 144/1	104	1	120	0.0%	100.0%	RRU, TMA, Etc.	7.000	6.000	3.000	10.025	0.807	0.548	0.000	0.005	0.0%	8.3%
E																	
E																	
E																	
E																	
F	Ericsson AIR -32 B2A/B66AA	104	1	120	100.0%	100.0%	Antenna	56.600	12.900	8.700	166.628	8.479	6.575	0.048	0.055	0.0%	40.1%
F																	
F																	
F																	
F																	
F																	
G	Ericsson AIR 21 B2A B4P	104	1	240	100.0%	100.0%	Antenna	56.000	12.100	7.870	154.098	8.024	6.125	0.045	0.052	0.0%	39.7%
G	Ericsson RADIO 4449 B12/B71	104	1	240	25.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	45.418	2.524	1.923	0.004	0.016	0.0%	13.4%
G																	
G																	
G																	
G																	
H	RFS APXVAARR24_43-U-NA20	104	1	240	100.0%	100.0%	Antenna	95.900	24.000	8.700	445.600	23.572	11.975	0.102	0.142	0.0%	65.3%
H																	
H																	
H																	
H																	
H																	
I	Ericsson AIR -32 B2A/B66AA	104	1	240	100.0%	100.0%	Antenna	56.600	12.900	8.700	166.628	8.479	6.575	0.048	0.055	0.0%	40.1%
I																	
I																	
I																	
I																	
I																	

Member	Section Set	Member Length (ft)	Flat/Round	Wind Projection (in)	D_c (in)	A_w (in^2)	C_f	Front Wind (klf)	Side Wind (klf)	Front Ice Wind (klf)	Side Ice Wind (klf)	Ice Dead (klf)	Front Maint Wind (klf)	Side Maint Wind (klf)
M1	Horizontal	14	Flat	3.000	4.243	31.200	2.000	0.021	0.000	0.006	0.002	0.012	0.001	0.000
M2	Horizontal	13.99999943	Flat	3.000	4.243	31.200	2.000	0.005	0.016	0.001	0.003	0.012	0.000	0.001
M3	Horizontal	13.99999943	Flat	3.000	4.243	31.200	2.000	0.005	0.016	0.001	0.003	0.012	0.000	0.001
M4	Interior Angle	7.071797	Flat	3.000	4.243	31.200	2.000	0.021	0.000	0.006	0.002	0.012	0.001	0.000
M5	Diagonals	4	Flat	6.000	6.000	40.462	2.000	0.000	0.043	0.000	0.007	0.016	0.000	0.002
M6	Diagonals	3.999999467	Flat	6.000	6.000	40.462	2.000	0.032	0.011	0.007	0.004	0.016	0.002	0.001
M7	Diagonals	4.000000333	Flat	6.000	6.000	40.462	2.000	0.032	0.011	0.007	0.004	0.016	0.002	0.001
M8	Interior Angle	7.071796012	Flat	3.000	4.243	31.200	2.000	0.005	0.016	0.001	0.003	0.012	0.000	0.001
M9	Interior Angle	7.071796512	Flat	3.000	4.243	31.200	2.000	0.005	0.016	0.001	0.003	0.012	0.000	0.001
M10	Outer Standoff	2	Flat	4.500	6.364	42.380	2.000	0.000	0.032	0.000	0.005	0.016	0.000	0.002
M11	Outer Standoff	2.000000167	Flat	4.500	6.364	42.380	2.000	0.024	0.008	0.006	0.004	0.016	0.001	0.000
M12	Outer Standoff	2.000000167	Flat	4.500	6.364	42.380	2.000	0.024	0.008	0.006	0.004	0.016	0.001	0.000
A	Mount Pipe	6.5	Round	2.380	2.380	21.384	1.200	0.010	0.010	0.004	0.004	0.008	0.001	0.001
C	Mount Pipe	6.5	Round	2.380	2.380	21.384	1.200	0.010	0.010	0.004	0.004	0.008	0.001	0.001
M15	Handrail	14	Flat	3.000	4.243	31.200	2.000	0.021	0.000	0.006	0.002	0.012	0.001	0.000
M16	Handrail	13.99999943	Flat	3.000	4.243	31.200	2.000	0.005	0.016	0.001	0.003	0.012	0.000	0.001
M17	Handrail	13.99999943	Flat	3.000	4.243	31.200	2.000	0.005	0.016	0.001	0.003	0.012	0.000	0.001
G	Mount Pipe	6.5	Round	2.380	2.380	21.384	1.200	0.010	0.010	0.004	0.004	0.008	0.001	0.001
I	Mount Pipe	6.5	Round	2.380	2.380	21.384	1.200	0.010	0.010	0.004	0.004	0.008	0.001	0.001
D	Mount Pipe	6.5	Round	2.380	2.380	21.384	1.200	0.010	0.010	0.004	0.004	0.008	0.001	0.001
F	Mount Pipe	6.5	Round	2.380	2.380	21.384	1.200	0.010	0.010	0.004	0.004	0.008	0.001	0.001
B	Mount Pipe	6.5	Round	2.380	2.380	21.384	1.200	0.010	0.010	0.004	0.004	0.008	0.001	0.001
H	Mount Pipe	6.5	Round	2.380	2.380	21.384	1.200	0.010	0.010	0.004	0.004	0.008	0.001	0.001
E	Mount Pipe	6.5	Round	2.380	2.380	21.384	1.200	0.010	0.010	0.004	0.004	0.008	0.001	0.001
M28	Inner Standoff	0.916666	Flat	4.000	5.657	38.653	2.000	0.000	0.029	0.000	0.005	0.015	0.000	0.002
M29	Inner Standoff	0.916665963	Flat	4.000	5.657	38.653	2.000	0.021	0.007	0.006	0.004	0.015	0.001	0.000
M30	Inner Standoff	0.916666829	Flat	4.000	5.657	38.653	2.000	0.021	0.007	0.006	0.004	0.015	0.001	0.000
M31	Corner Plate	3.541667	Flat	5.000	5.006	35.224	2.000	0.036	0.036	0.009	0.009	0.014	0.002	0.002
M32	Corner Plate	3.541667	Flat	5.000	5.006	35.224	2.000	0.036	0.036	0.009	0.009	0.014	0.002	0.002
M33	Corner Plate	3.541667	Flat	5.000	5.006	35.224	2.000	0.036	0.036	0.009	0.009	0.014	0.002	0.002
M34	Corner Plate	3.541667	Flat	5.000	5.006	35.224	2.000	0.036	0.036	0.009	0.009	0.014	0.002	0.002
M35	Corner Plate	3.541667	Flat	5.000	5.006	35.224	2.000	0.036	0.036	0.009	0.009	0.014	0.002	0.002
M36	Corner Plate	3.541667	Flat	5.000	5.006	35.224	2.000	0.036	0.036	0.009	0.009	0.014	0.002	0.002
M34A	MOD Angle	5.866562901	Flat	4.000	4.000	29.921	2.000	0.019	0.029	0.005	0.007	0.012	0.001	0.002
M35A	MOD Angle	6.37047352	Flat	4.000	4.000	29.921	2.000	0.026	0.021	0.007	0.005	0.012	0.002	0.001
M36A	MOD Angle	6.370474194	Flat	4.000	4.000	29.921	2.000	0.026	0.021	0.007	0.005	0.012	0.002	0.001

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Hot Rolled Steel Properties

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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mount Pipe	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	Interior Angle	L3X3X4	Beam	Single Angle	A36 Gr.36	Typical	1.44	1.23	1.23	.031
3	Handrail	L3X3X4	Beam	Single Angle	A36 Gr.36	Typical	1.44	1.23	1.23	.031
4	Outer Standoff	HSS4.5X4.5X3	Beam	SquareTube	A36 Gr.36	Typical	2.93	9.02	9.02	14.4
5	Inner Standoff	HSS4X4X4	Beam	SquareTube	A36 Gr.36	Typical	3.37	7.8	7.8	12.8
6	Corner Plate	PL5x0.25	Beam	RECT	A36 Gr.36	Typical	1.25	.007	2.604	.025
7	Horizontal	L3X3X4	Beam	Single Angle	A36 Gr.36	Typical	1.44	1.23	1.23	.031
8	Diagonals	LL3x3x4x0	Beam	Double Angle (No G...	A36 Gr.36	Typical	2.88	4.5	2.46	.063
9	MOD Angle	LL2x2x4x0	Beam	Double Angle (No G...	A36 Gr.36	Typical	1.89	1.34	.692	.042

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	2.56702	0	6.763475	0	
2	N2	9.56702	0	18.88783	0	
3	N3	-4.43298	0	18.88783	0	
4	N4	-0.968878	0	16.88783	0	
5	N5	2.56702	0	10.763475	0	
6	N6	6.102919	0	16.88783	0	
7	N7	2.56702	0	18.88783	0	
8	N8	2.56702	0	15.971164	0	
9	N9	6.06702	0	12.825653	0	
10	N10	3.541113	0	14.283986	0	
11	N11	-0.93298	0	12.825653	0	
12	N12	1.592928	0	14.283986	0	
13	N13	7.400354	-2.458333	18.88783	0	
14	N14	7.400354	4.041667	18.88783	0	
15	N15	-2.266313	-2.458333	18.88783	0	
16	N16	-2.266313	4.041667	18.88783	0	
17	N17	7.400354	0	18.88783	0	
18	N18	-2.266313	0	18.88783	0	
19	N19	2.56702	0	16.88783	0	
20	N20	0.799071	0	13.825653	0	
21	N21	4.334969	0	13.825653	0	
22	N22	2.56702	3.541667	6.763475	0	
23	N23	9.56702	3.541667	18.88783	0	
24	N24	-4.43298	3.541667	18.88783	0	
25	N25	7.400354	3.541667	18.88783	0	
26	N26	-2.266313	3.541667	18.88783	0	
27	N27	2.56702	0	14.846378	0	
28	N28	3.650354	-2.458333	8.639863	0	
29	N29	3.650354	4.041667	8.639863	0	
30	N30	8.483687	-2.458333	17.011442	0	
31	N31	8.483687	4.041667	17.011442	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
32	N33	-3.349646	-2.458333	17.011442	0	
33	N34	-3.349646	4.041667	17.011442	0	
34	N35	1.483687	-2.458333	8.639863	0	
35	N36	1.483687	4.041667	8.639863	0	
36	N36A	-3.349646	0	17.011442	0	
37	N37	1.483687	0	8.639863	0	
38	N38	3.650354	0	8.639863	0	
39	N39	8.483687	0	17.011442	0	
40	N40	-3.349646	3.541667	17.011442	0	
41	N41	1.483687	3.541667	8.639863	0	
42	N42	3.650354	3.541667	8.639863	0	
43	N43	8.483687	3.541667	17.011442	0	
44	N44	2.06702	0	18.88783	0	
45	N45	2.06702	-2.458333	18.88783	0	
46	N46	2.06702	4.041667	18.88783	0	
47	N48	6.31702	-2.458333	13.258665	0	
48	N49	6.31702	4.041667	13.258665	0	
49	N51	-0.68298	-2.458333	12.39264	0	
50	N52	-0.68298	4.041667	12.39264	0	
51	N51A	-0.68298	0	12.39264	0	
52	N52A	6.31702	0	13.258665	0	
53	N53	2.06702	3.541667	18.88783	0	
54	N54	-0.68298	3.541667	12.39264	0	
55	N55	6.31702	3.541667	13.258665	0	
56	N56	9.358687	0	18.88783	0	
57	N57	-4.328813	0	18.707408	0	
58	N58	9.462854	0	18.707408	0	
59	N59	9.358687	3.541667	18.88783	0	
60	N60	-4.328813	3.541667	18.707408	0	
61	N61	9.462854	3.541667	18.707408	0	
62	N62	-4.224646	0	18.88783	0	
63	N63	2.462854	0	6.943897	0	
64	N64	2.671187	0	6.943897	0	
65	N65	-4.224646	3.541667	18.88783	0	
66	N66	2.462854	3.541667	6.943897	0	
67	N67	2.671187	3.541667	6.943897	0	
68	N68	2.56702	-3	15.971164	0	
69	N69	3.541113	-3	14.283986	0	
70	N70	1.592928	-3	14.283986	0	
71	N71	-2.700929	0	17.88783	0	
72	N72	2.56702	0	9.430141	0	
73	N73	7.834969	0	17.88783	0	
74	N79	3.541113	-4	15.408771	0	
75	N80	2.56702	-4	13.721593	0	
76	N81	1.592928	-4	15.408771	0	

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
1	M1	N2	N3			Horizontal	Beam	Single Angle	A36 Gr.36	Typical
2	M2	N3	N1			Horizontal	Beam	Single Angle	A36 Gr.36	Typical
3	M3	N1	N2			Horizontal	Beam	Single Angle	A36 Gr.36	Typical
4	M4	N4	N6			Interior Angle	Beam	Single Angle	A36 Gr.36	Typical
5	M5	N1	N5		180	Diagonals	Beam	Double Angl..	A36 Gr.36	Typical
6	M6	N2	N6		180	Diagonals	Beam	Double Angl..	A36 Gr.36	Typical
7	M7	N3	N4		180	Diagonals	Beam	Double Angl..	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
8	M8	N4	N5		270	Interior Angle	Beam	Single Angle	A36 Gr.36	Typical
9	M9	N5	N6		270	Interior Angle	Beam	Single Angle	A36 Gr.36	Typical
10	M10	N7	N19			Outer Standoff	Beam	SquareTube	A36 Gr.36	Typical
11	M11	N9	N21			Outer Standoff	Beam	SquareTube	A36 Gr.36	Typical
12	M12	N11	N20			Outer Standoff	Beam	SquareTube	A36 Gr.36	Typical
13	A	N14	N13			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
14	C	N16	N15			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
15	M15	N23	N24		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
16	M16	N24	N22		90	Handrail	Beam	Single Angle	A36 Gr.36	Typical
17	M17	N23	N22		180	Handrail	Beam	Single Angle	A36 Gr.36	Typical
18	G	N29	N28			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
19	I	N31	N30			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
20	D	N34	N33			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
21	F	N36	N35			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
22	B	N46	N45			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
23	H	N49	N48			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
24	E	N52	N51			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
25	M28	N19	N8			Inner Standoff	Beam	SquareTube	A36 Gr.36	Typical
26	M29	N21	N10			Inner Standoff	Beam	SquareTube	A36 Gr.36	Typical
27	M30	N20	N12			Inner Standoff	Beam	SquareTube	A36 Gr.36	Typical
28	M31	N65	N62			Corner Plate	Beam	RECT	A36 Gr.36	Typical
29	M32	N60	N57		120	Corner Plate	Beam	RECT	A36 Gr.36	Typical
30	M33	N59	N56			Corner Plate	Beam	RECT	A36 Gr.36	Typical
31	M34	N61	N58		60	Corner Plate	Beam	RECT	A36 Gr.36	Typical
32	M35	N67	N64		60	Corner Plate	Beam	RECT	A36 Gr.36	Typical
33	M36	N66	N63		120	Corner Plate	Beam	RECT	A36 Gr.36	Typical
34	M34A	N72	N80			MOD Angle	Beam	Double Angl..	A36 Gr.36	Typical
35	M35A	N73	N79			MOD Angle	Beam	Double Angl..	A36 Gr.36	Typical
36	M36A	N71	N81			MOD Angle	Beam	Double Angl..	A36 Gr.36	Typical

Joint Loads and Enforced Displacements (BLC 42 : Man 1 (500 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	N17	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 43 : Man 2 (500 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	N51A	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 44 : Man 3 (500 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	N52A	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 45 : Man 4 (250 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	N2	L	Y	-.25

Joint Loads and Enforced Displacements (BLC 46 : Man 5 (250 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	N1	L	Y	-.25

Joint Loads and Enforced Displacements (BLC 47 : Man 6 (250 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s^2*ft)]
1	N3	L	Y	-.25

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Y	-.092	%19.9
2	A	Y	-.011	%4.2
3	A	Y	-.075	%6.7
4	B	Y	-.128	%32.7
5	C	Y	-.132	%20.1
6	C	Y	-.011	%4.2
7	D	Y	-.092	%19.9
8	D	Y	-.075	%6.7
9	E	Y	-.128	%32.7
10	E	Y	-.011	%4.2
11	F	Y	-.132	%20.1
12	G	Y	-.092	%19.9
13	G	Y	-.075	%6.7
14	H	Y	-.128	%32.7
15	I	Y	-.132	%20.1

Member Point Loads (BLC 2 : Ice Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Y	-.154	%19.9
2	A	Y	-.01	%4.2
3	A	Y	-.045	%6.7
4	B	Y	-.446	%32.7
5	C	Y	-.167	%20.1
6	C	Y	-.01	%4.2
7	D	Y	-.154	%19.9
8	D	Y	-.045	%6.7
9	E	Y	-.446	%32.7
10	E	Y	-.01	%4.2
11	F	Y	-.167	%20.1
12	G	Y	-.154	%19.9
13	G	Y	-.045	%6.7
14	H	Y	-.446	%32.7
15	I	Y	-.167	%20.1

Member Point Loads (BLC 3 : Full Wind Antenna (0 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.13	0
2	A	Z	-.004	%4.2
3	A	Z	-.025	%6.7
4	B	Z	-.433	0
5	C	Z	-.139	0
6	D	Z	-.102	0
7	D	Z	-.014	%6.7
8	E	Z	-.251	0
9	F	Z	-.111	0
10	G	Z	-.102	0
11	G	Z	-.014	%6.7
12	H	Z	-.251	0
13	I	Z	-.111	0
14	A	Z	-.13	%39.7
15	B	Z	-.433	%65.3
16	C	Z	-.139	%40.1
17	D	Z	-.102	%39.7
18	E	Z	-.251	%65.3
19	F	Z	-.111	%40.1

Member Point Loads (BLC 3 : Full Wind Antenna (0 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
20	G	Z	-.102	%39.7
21	H	Z	-.251	%65.3
22	I	Z	-.111	%40.1

Member Point Loads (BLC 4 : Full Wind Antenna (30 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.105	0
2	A	Z	-.004	%4.2
3	A	Z	-.024	%6.7
4	B	Z	-.323	0
5	C	Z	-.112	0
6	D	Z	-.08	0
7	D	Z	-.011	%6.7
8	E	Z	-.165	0
9	F	Z	-.087	0
10	G	Z	-.105	0
11	G	Z	-.014	%6.7
12	H	Z	-.323	0
13	I	Z	-.112	0
14	A	Z	-.105	%39.7
15	B	Z	-.323	%65.3
16	C	Z	-.112	%40.1
17	D	Z	-.08	%39.7
18	E	Z	-.165	%65.3
19	F	Z	-.087	%40.1
20	G	Z	-.105	%39.7
21	H	Z	-.323	%65.3
22	I	Z	-.112	%40.1
23	A	X	.06	0
24	A	X	.001	%4.2
25	A	X	.023	%6.7
26	B	X	.186	0
27	C	X	.065	0
28	C	X	.001	%4.2
29	D	X	.046	0
30	D	X	.025	%6.7
31	E	X	.095	0
32	E	X	.004	%4.2
33	F	X	.05	0
34	G	X	.06	0
35	G	X	.013	%6.7
36	H	X	.186	0
37	I	X	.065	0
38	A	X	.06	%39.7
39	B	X	.186	%65.3
40	C	X	.065	%40.1
41	D	X	.046	%39.7
42	E	X	.095	%65.3
43	F	X	.05	%40.1
44	G	X	.06	%39.7
45	H	X	.186	%65.3
46	I	X	.065	%40.1

Member Point Loads (BLC 5 : Full Wind Antenna (60 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.051	0

Member Point Loads (BLC 5 : Full Wind Antenna (60 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
2	A	Z	-.003	%4.2
3	A	Z	-.016	%6.7
4	B	Z	-.126	0
5	C	Z	-.055	0
6	D	Z	-.051	0
7	D	Z	-.007	%6.7
8	E	Z	-.126	0
9	F	Z	-.055	0
10	G	Z	-.065	0
11	G	Z	-.009	%6.7
12	H	Z	-.217	0
13	I	Z	-.07	0
14	A	Z	-.051	%39.7
15	B	Z	-.126	%65.3
16	C	Z	-.055	%40.1
17	D	Z	-.051	%39.7
18	E	Z	-.126	%65.3
19	F	Z	-.055	%40.1
20	G	Z	-.065	%39.7
21	H	Z	-.217	%65.3
22	I	Z	-.07	%40.1
23	A	X	.088	0
24	A	X	.005	%4.2
25	A	X	.034	%6.7
26	B	X	.217	0
27	C	X	.096	0
28	C	X	.005	%4.2
29	D	X	.088	0
30	D	X	.036	%6.7
31	E	X	.217	0
32	E	X	.005	%4.2
33	F	X	.096	0
34	G	X	.113	0
35	G	X	.015	%6.7
36	H	X	.375	0
37	I	X	.121	0
38	A	X	.088	%39.7
39	B	X	.217	%65.3
40	C	X	.096	%40.1
41	D	X	.088	%39.7
42	E	X	.217	%65.3
43	F	X	.096	%40.1
44	G	X	.113	%39.7
45	H	X	.375	%65.3
46	I	X	.121	%40.1

Member Point Loads (BLC 6 : Full Wind Antenna (90 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	0	0
2	A	Z	0	%4.2
3	A	Z	0	%6.7
4	B	Z	0	0
5	C	Z	0	0
6	D	Z	0	0
7	D	Z	0	%6.7
8	E	Z	0	0

Member Point Loads (BLC 6 : Full Wind Antenna (90 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
9	F	Z	0	0
10	G	Z	0	0
11	G	Z	0	%6.7
12	H	Z	0	0
13	I	Z	0	0
14	A	Z	0	%39.7
15	B	Z	0	%65.3
16	C	Z	0	%40.1
17	D	Z	0	%39.7
18	E	Z	0	%65.3
19	F	Z	0	%40.1
20	G	Z	0	%39.7
21	H	Z	0	%65.3
22	I	Z	0	%40.1
23	A	X	.092	0
24	A	X	.007	%4.2
25	A	X	.035	%6.7
26	B	X	.19	0
27	C	X	.101	0
28	C	X	.007	%4.2
29	D	X	.121	0
30	D	X	.026	%6.7
31	E	X	.373	0
32	E	X	.002	%4.2
33	F	X	.13	0
34	G	X	.121	0
35	G	X	.026	%6.7
36	H	X	.373	0
37	I	X	.13	0
38	A	X	.092	%39.7
39	B	X	.19	%65.3
40	C	X	.101	%40.1
41	D	X	.121	%39.7
42	E	X	.373	%65.3
43	F	X	.13	%40.1
44	G	X	.121	%39.7
45	H	X	.373	%65.3
46	I	X	.13	%40.1

Member Point Loads (BLC 7 : Full Wind Antenna (120 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	.051	0
2	A	Z	.003	%4.2
3	A	Z	.016	%6.7
4	B	Z	.126	0
5	C	Z	.055	0
6	D	Z	.065	0
7	D	Z	.009	%6.7
8	E	Z	.217	0
9	F	Z	.07	0
10	G	Z	.051	0
11	G	Z	.007	%6.7
12	H	Z	.126	0
13	I	Z	.055	0
14	A	Z	.051	%39.7
15	B	Z	.126	%65.3

Member Point Loads (BLC 7 : Full Wind Antenna (120 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
16	C	Z	.055	%40.1
17	D	Z	.065	%39.7
18	E	Z	.217	%65.3
19	F	Z	.07	%40.1
20	G	Z	.051	%39.7
21	H	Z	.126	%65.3
22	I	Z	.055	%40.1
23	A	X	.088	0
24	A	X	.005	%4.2
25	A	X	.034	%6.7
26	B	X	.217	0
27	C	X	.096	0
28	C	X	.005	%4.2
29	D	X	.113	0
30	D	X	.015	%6.7
31	E	X	.375	0
32	F	X	.121	0
33	G	X	.088	0
34	G	X	.036	%6.7
35	H	X	.217	0
36	I	X	.096	0
37	A	X	.088	%39.7
38	B	X	.217	%65.3
39	C	X	.096	%40.1
40	D	X	.113	%39.7
41	E	X	.375	%65.3
42	F	X	.121	%40.1
43	G	X	.088	%39.7
44	H	X	.217	%65.3
45	I	X	.096	%40.1

Member Point Loads (BLC 8 : Full Wind Antenna (150 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	.105	0
2	A	Z	.004	%4.2
3	A	Z	.024	%6.7
4	B	Z	.323	0
5	C	Z	.112	0
6	D	Z	.105	0
7	D	Z	.014	%6.7
8	E	Z	.323	0
9	F	Z	.112	0
10	G	Z	.08	0
11	G	Z	.011	%6.7
12	H	Z	.165	0
13	I	Z	.087	0
14	A	Z	.105	%39.7
15	B	Z	.323	%65.3
16	C	Z	.112	%40.1
17	D	Z	.105	%39.7
18	E	Z	.323	%65.3
19	F	Z	.112	%40.1
20	G	Z	.08	%39.7
21	H	Z	.165	%65.3
22	I	Z	.087	%40.1
23	A	X	.06	0

Member Point Loads (BLC 8 : Full Wind Antenna (150 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
24	A	X	.001	%4.2
25	A	X	.023	%6.7
26	B	X	.186	0
27	C	X	.065	0
28	C	X	.001	%4.2
29	D	X	.06	0
30	D	X	.013	%6.7
31	E	X	.186	0
32	E	X	.001	%4.2
33	F	X	.065	0
34	G	X	.046	0
35	G	X	.025	%6.7
36	H	X	.095	0
37	I	X	.05	0
38	A	X	.06	%39.7
39	B	X	.186	%65.3
40	C	X	.065	%40.1
41	D	X	.06	%39.7
42	E	X	.186	%65.3
43	F	X	.065	%40.1
44	G	X	.046	%39.7
45	H	X	.095	%65.3
46	I	X	.05	%40.1

Member Point Loads (BLC 15 : Ice Wind Antenna (0 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.027	0
2	A	Z	-.002	%4.2
3	A	Z	-.007	%6.7
4	B	Z	-.081	0
5	C	Z	-.029	0
6	D	Z	-.023	0
7	D	Z	-.004	%6.7
8	E	Z	-.051	0
9	F	Z	-.024	0
10	G	Z	-.023	0
11	G	Z	-.004	%6.7
12	H	Z	-.051	0
13	I	Z	-.024	0
14	A	Z	-.027	%39.7
15	B	Z	-.081	%65.3
16	C	Z	-.029	%40.1
17	D	Z	-.023	%39.7
18	E	Z	-.051	%65.3
19	F	Z	-.024	%40.1
20	G	Z	-.023	%39.7
21	H	Z	-.051	%65.3
22	I	Z	-.024	%40.1

Member Point Loads (BLC 16 : Ice Wind Antenna (30 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.022	0
2	A	Z	-.002	%4.2
3	A	Z	-.006	%6.7
4	B	Z	-.061	0
5	C	Z	-.024	0

Member Point Loads (BLC 16 : Ice Wind Antenna (30 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
6	D	Z	-.018	0
7	D	Z	-.003	%6.7
8	E	Z	-.036	0
9	F	Z	-.02	0
10	G	Z	-.022	0
11	G	Z	-.004	%6.7
12	H	Z	-.061	0
13	I	Z	-.024	0
14	A	Z	-.022	%39.7
15	B	Z	-.061	%65.3
16	C	Z	-.024	%40.1
17	D	Z	-.018	%39.7
18	E	Z	-.036	%65.3
19	F	Z	-.02	%40.1
20	G	Z	-.022	%39.7
21	H	Z	-.061	%65.3
22	I	Z	-.024	%40.1
23	A	X	.013	0
24	A	X	0	%4.2
25	A	X	.006	%6.7
26	B	X	.035	0
27	C	X	.014	0
28	C	X	0	%4.2
29	D	X	.01	0
30	D	X	.007	%6.7
31	E	X	.021	0
32	E	X	.002	%4.2
33	F	X	.011	0
34	G	X	.013	0
35	G	X	.003	%6.7
36	H	X	.035	0
37	I	X	.014	0
38	A	X	.013	%39.7
39	B	X	.035	%65.3
40	C	X	.014	%40.1
41	D	X	.01	%39.7
42	E	X	.021	%65.3
43	F	X	.011	%40.1
44	G	X	.013	%39.7
45	H	X	.035	%65.3
46	I	X	.014	%40.1

Member Point Loads (BLC 17 : Ice Wind Antenna (60 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.011	0
2	A	Z	-.001	%4.2
3	A	Z	-.004	%6.7
4	B	Z	-.025	0
5	C	Z	-.012	0
6	D	Z	-.011	0
7	D	Z	-.002	%6.7
8	E	Z	-.025	0
9	F	Z	-.012	0
10	G	Z	-.014	0
11	G	Z	-.002	%6.7
12	H	Z	-.04	0

Member Point Loads (BLC 17 : Ice Wind Antenna (60 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
13	I	Z	-.015	0
14	A	Z	-.011	%39.7
15	B	Z	-.025	%65.3
16	C	Z	-.012	%40.1
17	D	Z	-.011	%39.7
18	E	Z	-.025	%65.3
19	F	Z	-.012	%40.1
20	G	Z	-.014	%39.7
21	H	Z	-.04	%65.3
22	I	Z	-.015	%40.1
23	A	X	.02	0
24	A	X	.002	%4.2
25	A	X	.008	%6.7
26	B	X	.044	0
27	C	X	.021	0
28	C	X	.002	%4.2
29	D	X	.02	0
30	D	X	.009	%6.7
31	E	X	.044	0
32	E	X	.002	%4.2
33	F	X	.021	0
34	G	X	.024	0
35	G	X	.004	%6.7
36	H	X	.07	0
37	I	X	.025	0
38	A	X	.02	%39.7
39	B	X	.044	%65.3
40	C	X	.021	%40.1
41	D	X	.02	%39.7
42	E	X	.044	%65.3
43	F	X	.021	%40.1
44	G	X	.024	%39.7
45	H	X	.07	%65.3
46	I	X	.025	%40.1

Member Point Loads (BLC 18 : Ice Wind Antenna (90 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	0	0
2	A	Z	0	%4.2
3	A	Z	0	%6.7
4	B	Z	0	0
5	C	Z	0	0
6	D	Z	0	0
7	D	Z	0	%6.7
8	E	Z	0	0
9	F	Z	0	0
10	G	Z	0	0
11	G	Z	0	%6.7
12	H	Z	0	0
13	I	Z	0	0
14	A	Z	0	%39.7
15	B	Z	0	%65.3
16	C	Z	0	%40.1
17	D	Z	0	%39.7
18	E	Z	0	%65.3
19	F	Z	0	%40.1

Member Point Loads (BLC 18 : Ice Wind Antenna (90 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
20	G	Z	0	%39.7
21	H	Z	0	%65.3
22	I	Z	0	%40.1
23	A	X	.021	0
24	A	X	.003	%4.2
25	A	X	.009	%6.7
26	B	X	.041	0
27	C	X	.023	0
28	C	X	.004	%4.2
29	D	X	.026	0
30	D	X	.007	%6.7
31	E	X	.071	0
32	E	X	.001	%4.2
33	F	X	.027	0
34	G	X	.026	0
35	G	X	.007	%6.7
36	H	X	.071	0
37	I	X	.027	0
38	A	X	.021	%39.7
39	B	X	.041	%65.3
40	C	X	.023	%40.1
41	D	X	.026	%39.7
42	E	X	.071	%65.3
43	F	X	.027	%40.1
44	G	X	.026	%39.7
45	H	X	.071	%65.3
46	I	X	.027	%40.1

Member Point Loads (BLC 19 : Ice Wind Antenna (120 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	.011	0
2	A	Z	.001	%4.2
3	A	Z	.004	%6.7
4	B	Z	.025	0
5	C	Z	.012	0
6	D	Z	.014	0
7	D	Z	.002	%6.7
8	E	Z	.04	0
9	F	Z	.015	0
10	G	Z	.011	0
11	G	Z	.002	%6.7
12	H	Z	.025	0
13	I	Z	.012	0
14	A	Z	.011	%39.7
15	B	Z	.025	%65.3
16	C	Z	.012	%40.1
17	D	Z	.014	%39.7
18	E	Z	.04	%65.3
19	F	Z	.015	%40.1
20	G	Z	.011	%39.7
21	H	Z	.025	%65.3
22	I	Z	.012	%40.1
23	A	X	.02	0
24	A	X	.002	%4.2
25	A	X	.008	%6.7
26	B	X	.044	0

Member Point Loads (BLC 19 : Ice Wind Antenna (120 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
27	C	X	.021	0
28	C	X	.002	%4.2
29	D	X	.024	0
30	D	X	.004	%6.7
31	E	X	.07	0
32	F	X	.025	0
33	G	X	.02	0
34	G	X	.009	%6.7
35	H	X	.044	0
36	I	X	.021	0
37	A	X	.02	%39.7
38	B	X	.044	%65.3
39	C	X	.021	%40.1
40	D	X	.024	%39.7
41	E	X	.07	%65.3
42	F	X	.025	%40.1
43	G	X	.02	%39.7
44	H	X	.044	%65.3
45	I	X	.021	%40.1

Member Point Loads (BLC 20 : Ice Wind Antenna (150 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	.022	0
2	A	Z	.001	%4.2
3	A	Z	.004	%6.7
4	B	Z	.025	0
5	C	Z	.012	0
6	D	Z	.014	0
7	D	Z	.002	%6.7
8	E	Z	.04	0
9	F	Z	.015	0
10	G	Z	.011	0
11	G	Z	.002	%6.7
12	H	Z	.025	0
13	I	Z	.012	0
14	A	Z	.022	%39.7
15	B	Z	.025	%65.3
16	C	Z	.012	%40.1
17	D	Z	.014	%39.7
18	E	Z	.04	%65.3
19	F	Z	.015	%40.1
20	G	Z	.011	%39.7
21	H	Z	.025	%65.3
22	I	Z	.012	%40.1
23	A	X	.013	0
24	A	X	.002	%4.2
25	A	X	.008	%6.7
26	B	X	.044	0
27	C	X	.021	0
28	C	X	.002	%4.2
29	D	X	.024	0
30	D	X	.004	%6.7
31	E	X	.07	0
32	F	X	.025	0
33	G	X	.02	0
34	G	X	.009	%6.7

Member Point Loads (BLC 20 : Ice Wind Antenna (150 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
35	H	X	.044	0
36	I	X	.021	0
37	A	X	.013	%39.7
38	B	X	.044	%65.3
39	C	X	.021	%40.1
40	D	X	.024	%39.7
41	E	X	.07	%65.3
42	F	X	.025	%40.1
43	G	X	.02	%39.7
44	H	X	.044	%65.3
45	I	X	.021	%40.1

Member Point Loads (BLC 27 : Seismic Antenna (0 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Z	-.009	%19.9
2	A	Z	-.001	%4.2
3	A	Z	-.007	%6.7
4	B	Z	-.012	%32.7
5	C	Z	-.013	%20.1
6	C	Z	-.001	%4.2
7	D	Z	-.009	%19.9
8	D	Z	-.007	%6.7
9	E	Z	-.012	%32.7
10	E	Z	-.001	%4.2
11	F	Z	-.013	%20.1
12	G	Z	-.009	%19.9
13	G	Z	-.007	%6.7
14	H	Z	-.012	%32.7
15	I	Z	-.013	%20.1

Member Point Loads (BLC 28 : Seismic Antenna (90 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	X	.009	%19.9
2	A	X	.001	%4.2
3	A	X	.007	%6.7
4	B	X	.012	%32.7
5	C	X	.013	%20.1
6	C	X	.001	%4.2
7	D	X	.009	%19.9
8	D	X	.007	%6.7
9	E	X	.012	%32.7
10	E	X	.001	%4.2
11	F	X	.013	%20.1
12	G	X	.009	%19.9
13	G	X	.007	%6.7
14	H	X	.012	%32.7
15	I	X	.013	%20.1

Member Point Loads (BLC 41 : Seismic Vertical Antennas)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	A	Y	-.018	%19.9
2	A	Y	-.002	%4.2
3	A	Y	-.015	%6.7
4	B	Y	-.026	%32.7
5	C	Y	-.026	%20.1

Member Point Loads (BLC 41 : Seismic Vertical Antennas) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
6	C	Y	-.002	%4.2
7	D	Y	-.018	%19.9
8	D	Y	-.015	%6.7
9	E	Y	-.026	%32.7
10	E	Y	-.002	%4.2
11	F	Y	-.026	%20.1
12	G	Y	-.018	%19.9
13	G	Y	-.015	%6.7
14	H	Y	-.026	%32.7
15	I	Y	-.026	%20.1

Member Distributed Loads (BLC 2 : Ice Dead)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.012	-.012	0	%100
2	M2	Y	-.012	-.012	0	%100
3	M3	Y	-.012	-.012	0	%100
4	M4	Y	-.012	-.012	0	%100
5	M5	Y	-.016	-.016	0	%100
6	M6	Y	-.016	-.016	0	%100
7	M7	Y	-.016	-.016	0	%100
8	M8	Y	-.012	-.012	0	%100
9	M9	Y	-.012	-.012	0	%100
10	M10	Y	-.016	-.016	0	%100
11	M11	Y	-.016	-.016	0	%100
12	M12	Y	-.016	-.016	0	%100
13	A	Y	-.008	-.008	0	%100
14	C	Y	-.008	-.008	0	%100
15	M15	Y	-.012	-.012	0	%100
16	M16	Y	-.012	-.012	0	%100
17	M17	Y	-.012	-.012	0	%100
18	G	Y	-.008	-.008	0	%100
19	I	Y	-.008	-.008	0	%100
20	D	Y	-.008	-.008	0	%100
21	F	Y	-.008	-.008	0	%100
22	B	Y	-.008	-.008	0	%100
23	H	Y	-.008	-.008	0	%100
24	E	Y	-.008	-.008	0	%100
25	M28	Y	-.015	-.015	0	%100
26	M29	Y	-.015	-.015	0	%100
27	M30	Y	-.015	-.015	0	%100
28	M31	Y	-.014	-.014	0	%100
29	M32	Y	-.014	-.014	0	%100
30	M33	Y	-.014	-.014	0	%100
31	M34	Y	-.014	-.014	0	%100
32	M35	Y	-.014	-.014	0	%100
33	M36	Y	-.014	-.014	0	%100
34	M34A	Y	-.012	-.012	0	%100
35	M35A	Y	-.012	-.012	0	%100
36	M36A	Y	-.012	-.012	0	%100

Member Distributed Loads (BLC 9 : Full Wind Members (0 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.021	-.021	0	%100
2	M2	Z	-.005	-.005	0	%100
3	M3	Z	-.005	-.005	0	%100

Member Distributed Loads (BLC 9 : Full Wind Members (0 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
4	M4	Z	-.021	-.021	0	%100
5	M5	Z	0	0	0	%100
6	M6	Z	-.032	-.032	0	%100
7	M7	Z	-.032	-.032	0	%100
8	M8	Z	-.005	-.005	0	%100
9	M9	Z	-.005	-.005	0	%100
10	M10	Z	0	0	0	%100
11	M11	Z	-.024	-.024	0	%100
12	M12	Z	-.024	-.024	0	%100
13	M15	Z	-.021	-.021	0	%100
14	M16	Z	-.005	-.005	0	%100
15	M17	Z	-.005	-.005	0	%100
16	M28	Z	0	0	0	%100
17	M29	Z	-.021	-.021	0	%100
18	M30	Z	-.021	-.021	0	%100
19	M31	Z	-.036	-.036	0	%100
20	M32	Z	-.036	-.036	0	%100
21	M33	Z	-.036	-.036	0	%100
22	M34	Z	-.036	-.036	0	%100
23	M35	Z	-.036	-.036	0	%100
24	M36	Z	-.036	-.036	0	%100
25	M34A	Z	-.019	-.019	0	%100
26	M35A	Z	-.026	-.026	0	%100
27	M36A	Z	-.026	-.026	0	%100
28	A	Z	-.01	-.01	%39.7	%100
29	C	Z	-.01	-.01	%40.1	%100
30	G	Z	-.01	-.01	%39.7	%100
31	I	Z	-.01	-.01	%40.1	%100
32	D	Z	-.01	-.01	%39.7	%100
33	F	Z	-.01	-.01	%40.1	%100
34	B	Z	-.01	-.01	%65.3	%100
35	H	Z	-.01	-.01	%65.3	%100
36	E	Z	-.01	-.01	%65.3	%100
37	M1	X	0	0	0	%100
38	M2	X	0	0	0	%100
39	M3	X	0	0	0	%100
40	M4	X	0	0	0	%100
41	M5	X	0	0	0	%100
42	M6	X	0	0	0	%100
43	M7	X	0	0	0	%100
44	M8	X	0	0	0	%100
45	M9	X	0	0	0	%100
46	M10	X	0	0	0	%100
47	M11	X	0	0	0	%100
48	M12	X	0	0	0	%100
49	A	X	0	0	0	%100
50	C	X	0	0	0	%100
51	M15	X	0	0	0	%100
52	M16	X	0	0	0	%100
53	M17	X	0	0	0	%100
54	B	X	0	0	0	%100
55	M28	X	0	0	0	%100
56	M29	X	0	0	0	%100
57	M30	X	0	0	0	%100
58	M31	X	0	0	0	%100
59	M32	X	0	0	0	%100
60	M33	X	0	0	0	%100

Member Distributed Loads (BLC 9 : Full Wind Members (0 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
61	M34	X	0	0	0	%100
62	M35	X	0	0	0	%100
63	M36	X	0	0	0	%100
64	M34A	X	0	0	0	%100
65	M35A	X	0	0	0	%100
66	M36A	X	0	0	0	%100
67	G	X	0	0	%39.7	%100
68	I	X	0	0	%40.1	%100
69	D	X	0	0	%39.7	%100
70	F	X	0	0	%40.1	%100
71	H	X	0	0	%65.3	%100
72	E	X	0	0	%65.3	%100

Member Distributed Loads (BLC 10 : Full Wind Members (30 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.014	-.014	0	%100
2	M2	Z	0	0	0	%100
3	M3	Z	-.014	-.014	0	%100
4	M4	Z	-.014	-.014	0	%100
5	M5	Z	-.009	-.009	0	%100
6	M6	Z	-.037	-.037	0	%100
7	M7	Z	-.009	-.009	0	%100
8	M8	Z	0	0	0	%100
9	M9	Z	-.014	-.014	0	%100
10	M10	Z	-.007	-.007	0	%100
11	M11	Z	-.007	-.007	0	%100
12	M12	Z	-.028	-.028	0	%100
13	M15	Z	-.014	-.014	0	%100
14	M16	Z	0	0	0	%100
15	M17	Z	-.014	-.014	0	%100
16	M28	Z	-.006	-.006	0	%100
17	M29	Z	-.006	-.006	0	%100
18	M30	Z	-.025	-.025	0	%100
19	M31	Z	-.031	-.031	0	%100
20	M32	Z	-.031	-.031	0	%100
21	M33	Z	-.031	-.031	0	%100
22	M34	Z	-.031	-.031	0	%100
23	M35	Z	-.031	-.031	0	%100
24	M36	Z	-.031	-.031	0	%100
25	M34A	Z	-.019	-.019	0	%100
26	M35A	Z	-.025	-.025	0	%100
27	M36A	Z	-.018	-.018	0	%100
28	A	Z	-.009	-.009	%39.7	%100
29	C	Z	-.009	-.009	%40.1	%100
30	G	Z	-.009	-.009	%39.7	%100
31	I	Z	-.009	-.009	%40.1	%100
32	D	Z	-.009	-.009	%39.7	%100
33	F	Z	-.009	-.009	%40.1	%100
34	B	Z	-.009	-.009	%65.3	%100
35	H	Z	-.009	-.009	%65.3	%100
36	E	Z	-.009	-.009	%65.3	%100
37	M1	X	.008	.008	0	%100
38	M2	X	0	0	0	%100
39	M3	X	.008	.008	0	%100
40	M4	X	.008	.008	0	%100
41	M5	X	.005	.005	0	%100

Member Distributed Loads (BLC 10 : Full Wind Members (30 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
42	M6	X	.021	.021	0	%100
43	M7	X	.005	.005	0	%100
44	M8	X	0	0	0	%100
45	M9	X	.008	.008	0	%100
46	M10	X	.004	.004	0	%100
47	M11	X	.004	.004	0	%100
48	M12	X	.016	.016	0	%100
49	A	X	.005	.005	0	%100
50	C	X	.005	.005	0	%100
51	M15	X	.008	.008	0	%100
52	M16	X	0	0	0	%100
53	M17	X	.008	.008	0	%100
54	B	X	.005	.005	0	%100
55	M28	X	.004	.004	0	%100
56	M29	X	.004	.004	0	%100
57	M30	X	.014	.014	0	%100
58	M31	X	.018	.018	0	%100
59	M32	X	.018	.018	0	%100
60	M33	X	.018	.018	0	%100
61	M34	X	.018	.018	0	%100
62	M35	X	.018	.018	0	%100
63	M36	X	.018	.018	0	%100
64	M34A	X	.011	.011	0	%100
65	M35A	X	.014	.014	0	%100
66	M36A	X	.01	.01	0	%100
67	G	X	.005	.005	%39.7	%100
68	I	X	.005	.005	%40.1	%100
69	D	X	.005	.005	%39.7	%100
70	F	X	.005	.005	%40.1	%100
71	H	X	.005	.005	%65.3	%100
72	E	X	.005	.005	%65.3	%100

Member Distributed Loads (BLC 11 : Full Wind Members (60 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.003	-.003	0	%100
2	M2	Z	-.003	-.003	0	%100
3	M3	Z	-.011	-.011	0	%100
4	M4	Z	-.003	-.003	0	%100
5	M5	Z	-.016	-.016	0	%100
6	M6	Z	-.016	-.016	0	%100
7	M7	Z	0	0	0	%100
8	M8	Z	-.003	-.003	0	%100
9	M9	Z	-.011	-.011	0	%100
10	M10	Z	-.012	-.012	0	%100
11	M11	Z	0	0	0	%100
12	M12	Z	-.012	-.012	0	%100
13	M15	Z	-.003	-.003	0	%100
14	M16	Z	-.003	-.003	0	%100
15	M17	Z	-.011	-.011	0	%100
16	M28	Z	-.011	-.011	0	%100
17	M29	Z	0	0	0	%100
18	M30	Z	-.011	-.011	0	%100
19	M31	Z	-.018	-.018	0	%100
20	M32	Z	-.018	-.018	0	%100
21	M33	Z	-.018	-.018	0	%100
22	M34	Z	-.018	-.018	0	%100

Member Distributed Loads (BLC 11 : Full Wind Members (60 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
23	M35	Z	-.018	-.018	0	%100
24	M36	Z	-.018	-.018	0	%100
25	M34A	Z	-.013	-.013	0	%100
26	M35A	Z	-.013	-.013	0	%100
27	M36A	Z	-.009	-.009	0	%100
28	A	Z	-.005	-.005	%39.7	%100
29	C	Z	-.005	-.005	%40.1	%100
30	G	Z	-.005	-.005	%39.7	%100
31	I	Z	-.005	-.005	%40.1	%100
32	D	Z	-.005	-.005	%39.7	%100
33	F	Z	-.005	-.005	%40.1	%100
34	B	Z	-.005	-.005	%65.3	%100
35	H	Z	-.005	-.005	%65.3	%100
36	E	Z	-.005	-.005	%65.3	%100
37	M1	X	.005	.005	0	%100
38	M2	X	.005	.005	0	%100
39	M3	X	.019	.019	0	%100
40	M4	X	.005	.005	0	%100
41	M5	X	.028	.028	0	%100
42	M6	X	.028	.028	0	%100
43	M7	X	0	0	0	%100
44	M8	X	.005	.005	0	%100
45	M9	X	.019	.019	0	%100
46	M10	X	.021	.021	0	%100
47	M11	X	0	0	0	%100
48	M12	X	.021	.021	0	%100
49	A	X	.009	.009	0	%100
50	C	X	.009	.009	0	%100
51	M15	X	.005	.005	0	%100
52	M16	X	.005	.005	0	%100
53	M17	X	.019	.019	0	%100
54	B	X	.009	.009	0	%100
55	M28	X	.019	.019	0	%100
56	M29	X	0	0	0	%100
57	M30	X	.019	.019	0	%100
58	M31	X	.031	.031	0	%100
59	M32	X	.031	.031	0	%100
60	M33	X	.031	.031	0	%100
61	M34	X	.031	.031	0	%100
62	M35	X	.031	.031	0	%100
63	M36	X	.031	.031	0	%100
64	M34A	X	.023	.023	0	%100
65	M35A	X	.022	.022	0	%100
66	M36A	X	.016	.016	0	%100
67	G	X	.009	.009	%39.7	%100
68	I	X	.009	.009	%40.1	%100
69	D	X	.009	.009	%39.7	%100
70	F	X	.009	.009	%40.1	%100
71	H	X	.009	.009	%65.3	%100
72	E	X	.009	.009	%65.3	%100

Member Distributed Loads (BLC 12 : Full Wind Members (90 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	0	0	0	%100
2	M2	Z	0	0	0	%100
3	M3	Z	0	0	0	%100

Member Distributed Loads (BLC 12 : Full Wind Members (90 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
4	M4	Z	0	0	0	%100
5	M5	Z	0	0	0	%100
6	M6	Z	0	0	0	%100
7	M7	Z	0	0	0	%100
8	M8	Z	0	0	0	%100
9	M9	Z	0	0	0	%100
10	M10	Z	0	0	0	%100
11	M11	Z	0	0	0	%100
12	M12	Z	0	0	0	%100
13	M15	Z	0	0	0	%100
14	M16	Z	0	0	0	%100
15	M17	Z	0	0	0	%100
16	M28	Z	0	0	0	%100
17	M29	Z	0	0	0	%100
18	M30	Z	0	0	0	%100
19	M31	Z	0	0	0	%100
20	M32	Z	0	0	0	%100
21	M33	Z	0	0	0	%100
22	M34	Z	0	0	0	%100
23	M35	Z	0	0	0	%100
24	M36	Z	0	0	0	%100
25	M34A	Z	0	0	0	%100
26	M35A	Z	0	0	0	%100
27	M36A	Z	0	0	0	%100
28	A	Z	0	0	%39.7	%100
29	C	Z	0	0	%40.1	%100
30	G	Z	0	0	%39.7	%100
31	I	Z	0	0	%40.1	%100
32	D	Z	0	0	%39.7	%100
33	F	Z	0	0	%40.1	%100
34	B	Z	0	0	%65.3	%100
35	H	Z	0	0	%65.3	%100
36	E	Z	0	0	%65.3	%100
37	M1	X	0	0	0	%100
38	M2	X	.016	.016	0	%100
39	M3	X	.016	.016	0	%100
40	M4	X	0	0	0	%100
41	M5	X	.043	.043	0	%100
42	M6	X	.011	.011	0	%100
43	M7	X	.011	.011	0	%100
44	M8	X	.016	.016	0	%100
45	M9	X	.016	.016	0	%100
46	M10	X	.032	.032	0	%100
47	M11	X	.008	.008	0	%100
48	M12	X	.008	.008	0	%100
49	A	X	.01	.01	0	%100
50	C	X	.01	.01	0	%100
51	M15	X	0	0	0	%100
52	M16	X	.016	.016	0	%100
53	M17	X	.016	.016	0	%100
54	B	X	.01	.01	0	%100
55	M28	X	.029	.029	0	%100
56	M29	X	.007	.007	0	%100
57	M30	X	.007	.007	0	%100
58	M31	X	.036	.036	0	%100
59	M32	X	.036	.036	0	%100
60	M33	X	.036	.036	0	%100

Member Distributed Loads (BLC 12 : Full Wind Members (90 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
61	M34	X	.036	.036	0	%100
62	M35	X	.036	.036	0	%100
63	M36	X	.036	.036	0	%100
64	M34A	X	.029	.029	0	%100
65	M35A	X	.021	.021	0	%100
66	M36A	X	.021	.021	0	%100
67	G	X	.01	.01	%39.7	%100
68	I	X	.01	.01	%40.1	%100
69	D	X	.01	.01	%39.7	%100
70	F	X	.01	.01	%40.1	%100
71	H	X	.01	.01	%65.3	%100
72	E	X	.01	.01	%65.3	%100

Member Distributed Loads (BLC 13 : Full Wind Members (120 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.003	.003	0	%100
2	M2	Z	.011	.011	0	%100
3	M3	Z	.003	.003	0	%100
4	M4	Z	.003	.003	0	%100
5	M5	Z	.016	.016	0	%100
6	M6	Z	0	0	0	%100
7	M7	Z	.016	.016	0	%100
8	M8	Z	.011	.011	0	%100
9	M9	Z	.003	.003	0	%100
10	M10	Z	.012	.012	0	%100
11	M11	Z	.012	.012	0	%100
12	M12	Z	0	0	0	%100
13	M15	Z	.003	.003	0	%100
14	M16	Z	.011	.011	0	%100
15	M17	Z	.003	.003	0	%100
16	M28	Z	.011	.011	0	%100
17	M29	Z	.011	.011	0	%100
18	M30	Z	0	0	0	%100
19	M31	Z	.018	.018	0	%100
20	M32	Z	.018	.018	0	%100
21	M33	Z	.018	.018	0	%100
22	M34	Z	.018	.018	0	%100
23	M35	Z	.018	.018	0	%100
24	M36	Z	.018	.018	0	%100
25	M34A	Z	.013	.013	0	%100
26	M35A	Z	.009	.009	0	%100
27	M36A	Z	.013	.013	0	%100
28	A	Z	.005	.005	%39.7	%100
29	C	Z	.005	.005	%40.1	%100
30	G	Z	.005	.005	%39.7	%100
31	I	Z	.005	.005	%40.1	%100
32	D	Z	.005	.005	%39.7	%100
33	F	Z	.005	.005	%40.1	%100
34	B	Z	.005	.005	%65.3	%100
35	H	Z	.005	.005	%65.3	%100
36	E	Z	.005	.005	%65.3	%100
37	M1	X	.005	.005	0	%100
38	M2	X	.019	.019	0	%100
39	M3	X	.005	.005	0	%100
40	M4	X	.005	.005	0	%100
41	M5	X	.028	.028	0	%100

Member Distributed Loads (BLC 13 : Full Wind Members (120 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
42	M6	X	0	0	0	%100
43	M7	X	.028	.028	0	%100
44	M8	X	.019	.019	0	%100
45	M9	X	.005	.005	0	%100
46	M10	X	.021	.021	0	%100
47	M11	X	.021	.021	0	%100
48	M12	X	0	0	0	%100
49	A	X	.009	.009	0	%100
50	C	X	.009	.009	0	%100
51	M15	X	.005	.005	0	%100
52	M16	X	.019	.019	0	%100
53	M17	X	.005	.005	0	%100
54	B	X	.009	.009	0	%100
55	M28	X	.019	.019	0	%100
56	M29	X	.019	.019	0	%100
57	M30	X	0	0	0	%100
58	M31	X	.031	.031	0	%100
59	M32	X	.031	.031	0	%100
60	M33	X	.031	.031	0	%100
61	M34	X	.031	.031	0	%100
62	M35	X	.031	.031	0	%100
63	M36	X	.031	.031	0	%100
64	M34A	X	.023	.023	0	%100
65	M35A	X	.016	.016	0	%100
66	M36A	X	.022	.022	0	%100
67	G	X	.009	.009	%39.7	%100
68	I	X	.009	.009	%40.1	%100
69	D	X	.009	.009	%39.7	%100
70	F	X	.009	.009	%40.1	%100
71	H	X	.009	.009	%65.3	%100
72	E	X	.009	.009	%65.3	%100

Member Distributed Loads (BLC 14 : Full Wind Members (150 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.014	.014	0	%100
2	M2	Z	.014	.014	0	%100
3	M3	Z	0	0	0	%100
4	M4	Z	.014	.014	0	%100
5	M5	Z	.009	.009	0	%100
6	M6	Z	.009	.009	0	%100
7	M7	Z	.037	.037	0	%100
8	M8	Z	.014	.014	0	%100
9	M9	Z	0	0	0	%100
10	M10	Z	.007	.007	0	%100
11	M11	Z	.028	.028	0	%100
12	M12	Z	.007	.007	0	%100
13	M15	Z	.014	.014	0	%100
14	M16	Z	.014	.014	0	%100
15	M17	Z	0	0	0	%100
16	M28	Z	.006	.006	0	%100
17	M29	Z	.025	.025	0	%100
18	M30	Z	.006	.006	0	%100
19	M31	Z	.031	.031	0	%100
20	M32	Z	.031	.031	0	%100
21	M33	Z	.031	.031	0	%100
22	M34	Z	.031	.031	0	%100

Member Distributed Loads (BLC 14 : Full Wind Members (150 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
23	M35	Z	.031	.031	0	%100
24	M36	Z	.031	.031	0	%100
25	M34A	Z	.019	.019	0	%100
26	M35A	Z	.018	.018	0	%100
27	M36A	Z	.025	.025	0	%100
28	A	Z	.009	.009	%39.7	%100
29	C	Z	.009	.009	%40.1	%100
30	G	Z	.009	.009	%39.7	%100
31	I	Z	.009	.009	%40.1	%100
32	D	Z	.009	.009	%39.7	%100
33	F	Z	.009	.009	%40.1	%100
34	B	Z	.009	.009	%65.3	%100
35	H	Z	.009	.009	%65.3	%100
36	E	Z	.009	.009	%65.3	%100
37	M1	X	.008	.008	0	%100
38	M2	X	.008	.008	0	%100
39	M3	X	0	0	0	%100
40	M4	X	.008	.008	0	%100
41	M5	X	.005	.005	0	%100
42	M6	X	.005	.005	0	%100
43	M7	X	.021	.021	0	%100
44	M8	X	.008	.008	0	%100
45	M9	X	0	0	0	%100
46	M10	X	.004	.004	0	%100
47	M11	X	.016	.016	0	%100
48	M12	X	.004	.004	0	%100
49	A	X	.005	.005	0	%100
50	C	X	.005	.005	0	%100
51	M15	X	.008	.008	0	%100
52	M16	X	.008	.008	0	%100
53	M17	X	0	0	0	%100
54	B	X	.005	.005	0	%100
55	M28	X	.004	.004	0	%100
56	M29	X	.014	.014	0	%100
57	M30	X	.004	.004	0	%100
58	M31	X	.018	.018	0	%100
59	M32	X	.018	.018	0	%100
60	M33	X	.018	.018	0	%100
61	M34	X	.018	.018	0	%100
62	M35	X	.018	.018	0	%100
63	M36	X	.018	.018	0	%100
64	M34A	X	.011	.011	0	%100
65	M35A	X	.01	.01	0	%100
66	M36A	X	.014	.014	0	%100
67	G	X	.005	.005	%39.7	%100
68	I	X	.005	.005	%40.1	%100
69	D	X	.005	.005	%39.7	%100
70	F	X	.005	.005	%40.1	%100
71	H	X	.005	.005	%65.3	%100
72	E	X	.005	.005	%65.3	%100

Member Distributed Loads (BLC 21 : Ice Wind Members (0 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.006	-.006	0	%100
2	M2	Z	-.001	-.001	0	%100
3	M3	Z	-.001	-.001	0	%100

Member Distributed Loads (BLC 21 : Ice Wind Members (0 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
4	M4	Z	-.006	-.006	0	%100
5	M5	Z	0	0	0	%100
6	M6	Z	-.007	-.007	0	%100
7	M7	Z	-.007	-.007	0	%100
8	M8	Z	-.001	-.001	0	%100
9	M9	Z	-.001	-.001	0	%100
10	M10	Z	0	0	0	%100
11	M11	Z	-.006	-.006	0	%100
12	M12	Z	-.006	-.006	0	%100
13	M15	Z	-.006	-.006	0	%100
14	M16	Z	-.001	-.001	0	%100
15	M17	Z	-.001	-.001	0	%100
16	M28	Z	0	0	0	%100
17	M29	Z	-.006	-.006	0	%100
18	M30	Z	-.006	-.006	0	%100
19	M31	Z	-.009	-.009	0	%100
20	M32	Z	-.009	-.009	0	%100
21	M33	Z	-.009	-.009	0	%100
22	M34	Z	-.009	-.009	0	%100
23	M35	Z	-.009	-.009	0	%100
24	M36	Z	-.009	-.009	0	%100
25	M34A	Z	-.005	-.005	0	%100
26	M35A	Z	-.007	-.007	0	%100
27	M36A	Z	-.007	-.007	0	%100
28	A	Z	-.004	-.004	%39.7	%100
29	C	Z	-.004	-.004	%40.1	%100
30	G	Z	-.004	-.004	%39.7	%100
31	I	Z	-.004	-.004	%40.1	%100
32	D	Z	-.004	-.004	%39.7	%100
33	F	Z	-.004	-.004	%40.1	%100
34	B	Z	-.004	-.004	%65.3	%100
35	H	Z	-.004	-.004	%65.3	%100
36	E	Z	-.004	-.004	%65.3	%100
37	M1	X	0	0	0	%100
38	M2	X	0	0	0	%100
39	M3	X	0	0	0	%100
40	M4	X	0	0	0	%100
41	M5	X	0	0	0	%100
42	M6	X	0	0	0	%100
43	M7	X	0	0	0	%100
44	M8	X	0	0	0	%100
45	M9	X	0	0	0	%100
46	M10	X	0	0	0	%100
47	M11	X	0	0	0	%100
48	M12	X	0	0	0	%100
49	A	X	0	0	0	%100
50	C	X	0	0	0	%100
51	M15	X	0	0	0	%100
52	M16	X	0	0	0	%100
53	M17	X	0	0	0	%100
54	B	X	0	0	0	%100
55	M28	X	0	0	0	%100
56	M29	X	0	0	0	%100
57	M30	X	0	0	0	%100
58	M31	X	0	0	0	%100
59	M32	X	0	0	0	%100
60	M33	X	0	0	0	%100

Member Distributed Loads (BLC 21 : Ice Wind Members (0 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
61	M34	X	0	0	0	%100
62	M35	X	0	0	0	%100
63	M36	X	0	0	0	%100
64	M34A	X	0	0	0	%100
65	M35A	X	0	0	0	%100
66	M36A	X	0	0	0	%100
67	G	X	0	0	%39.7	%100
68	I	X	0	0	%40.1	%100
69	D	X	0	0	%39.7	%100
70	F	X	0	0	%40.1	%100
71	H	X	0	0	%65.3	%100
72	E	X	0	0	%65.3	%100

Member Distributed Loads (BLC 22 : Ice Wind Members (30 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.004	-.004	0	%100
2	M2	Z	-.001	-.001	0	%100
3	M3	Z	-.003	-.003	0	%100
4	M4	Z	-.004	-.004	0	%100
5	M5	Z	-.001	-.001	0	%100
6	M6	Z	-.008	-.008	0	%100
7	M7	Z	-.003	-.003	0	%100
8	M8	Z	-.001	-.001	0	%100
9	M9	Z	-.003	-.003	0	%100
10	M10	Z	-.001	-.001	0	%100
11	M11	Z	-.003	-.003	0	%100
12	M12	Z	-.006	-.006	0	%100
13	M15	Z	-.004	-.004	0	%100
14	M16	Z	-.001	-.001	0	%100
15	M17	Z	-.003	-.003	0	%100
16	M28	Z	-.001	-.001	0	%100
17	M29	Z	-.003	-.003	0	%100
18	M30	Z	-.006	-.006	0	%100
19	M31	Z	-.008	-.008	0	%100
20	M32	Z	-.008	-.008	0	%100
21	M33	Z	-.008	-.008	0	%100
22	M34	Z	-.008	-.008	0	%100
23	M35	Z	-.008	-.008	0	%100
24	M36	Z	-.008	-.008	0	%100
25	M34A	Z	-.005	-.005	0	%100
26	M35A	Z	-.006	-.006	0	%100
27	M36A	Z	-.005	-.005	0	%100
28	A	Z	-.004	-.004	%39.7	%100
29	C	Z	-.004	-.004	%40.1	%100
30	G	Z	-.004	-.004	%39.7	%100
31	I	Z	-.004	-.004	%40.1	%100
32	D	Z	-.004	-.004	%39.7	%100
33	F	Z	-.004	-.004	%40.1	%100
34	B	Z	-.004	-.004	%65.3	%100
35	H	Z	-.004	-.004	%65.3	%100
36	E	Z	-.004	-.004	%65.3	%100
37	M1	X	.002	.002	0	%100
38	M2	X	0	0	0	%100
39	M3	X	.002	.002	0	%100
40	M4	X	.003	.003	0	%100
41	M5	X	.001	.001	0	%100

Member Distributed Loads (BLC 22 : Ice Wind Members (30 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
42	M6	X	.004	.004	0	%100
43	M7	X	.002	.002	0	%100
44	M8	X	0	0	0	%100
45	M9	X	.002	.002	0	%100
46	M10	X	.001	.001	0	%100
47	M11	X	.002	.002	0	%100
48	M12	X	.004	.004	0	%100
49	A	X	.002	.002	0	%100
50	C	X	.002	.002	0	%100
51	M15	X	.002	.002	0	%100
52	M16	X	0	0	0	%100
53	M17	X	.002	.002	0	%100
54	B	X	.002	.002	0	%100
55	M28	X	.001	.001	0	%100
56	M29	X	.002	.002	0	%100
57	M30	X	.004	.004	0	%100
58	M31	X	.004	.004	0	%100
59	M32	X	.004	.004	0	%100
60	M33	X	.004	.004	0	%100
61	M34	X	.004	.004	0	%100
62	M35	X	.004	.004	0	%100
63	M36	X	.004	.004	0	%100
64	M34A	X	.003	.003	0	%100
65	M35A	X	.004	.004	0	%100
66	M36A	X	.003	.003	0	%100
67	G	X	.002	.002	%39.7	%100
68	I	X	.002	.002	%40.1	%100
69	D	X	.002	.002	%39.7	%100
70	F	X	.002	.002	%40.1	%100
71	H	X	.002	.002	%65.3	%100
72	E	X	.002	.002	%65.3	%100

Member Distributed Loads (BLC 23 : Ice Wind Members (60 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.002	-.002	0	%100
2	M2	Z	-.001	-.001	0	%100
3	M3	Z	-.002	-.002	0	%100
4	M4	Z	-.002	-.002	0	%100
5	M5	Z	-.003	-.003	0	%100
6	M6	Z	-.004	-.004	0	%100
7	M7	Z	-.001	-.001	0	%100
8	M8	Z	-.001	-.001	0	%100
9	M9	Z	-.002	-.002	0	%100
10	M10	Z	-.002	-.002	0	%100
11	M11	Z	-.001	-.001	0	%100
12	M12	Z	-.003	-.003	0	%100
13	M15	Z	-.002	-.002	0	%100
14	M16	Z	-.001	-.001	0	%100
15	M17	Z	-.002	-.002	0	%100
16	M28	Z	-.002	-.002	0	%100
17	M29	Z	-.001	-.001	0	%100
18	M30	Z	-.003	-.003	0	%100
19	M31	Z	-.004	-.004	0	%100
20	M32	Z	-.004	-.004	0	%100
21	M33	Z	-.004	-.004	0	%100
22	M34	Z	-.004	-.004	0	%100

Member Distributed Loads (BLC 23 : Ice Wind Members (60 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
23	M35	Z	-.004	-.004	0	%100
24	M36	Z	-.004	-.004	0	%100
25	M34A	Z	-.003	-.003	0	%100
26	M35A	Z	-.003	-.003	0	%100
27	M36A	Z	-.002	-.002	0	%100
28	A	Z	-.002	-.002	%39.7	%100
29	C	Z	-.002	-.002	%40.1	%100
30	G	Z	-.002	-.002	%39.7	%100
31	I	Z	-.002	-.002	%40.1	%100
32	D	Z	-.002	-.002	%39.7	%100
33	F	Z	-.002	-.002	%40.1	%100
34	B	Z	-.002	-.002	%65.3	%100
35	H	Z	-.002	-.002	%65.3	%100
36	E	Z	-.002	-.002	%65.3	%100
37	M1	X	.003	.003	0	%100
38	M2	X	.001	.001	0	%100
39	M3	X	.003	.003	0	%100
40	M4	X	.003	.003	0	%100
41	M5	X	.004	.004	0	%100
42	M6	X	.006	.006	0	%100
43	M7	X	.002	.002	0	%100
44	M8	X	.001	.001	0	%100
45	M9	X	.004	.004	0	%100
46	M10	X	.003	.003	0	%100
47	M11	X	.002	.002	0	%100
48	M12	X	.005	.005	0	%100
49	A	X	.004	.004	0	%100
50	C	X	.004	.004	0	%100
51	M15	X	.003	.003	0	%100
52	M16	X	.001	.001	0	%100
53	M17	X	.003	.003	0	%100
54	B	X	.004	.004	0	%100
55	M28	X	.003	.003	0	%100
56	M29	X	.002	.002	0	%100
57	M30	X	.005	.005	0	%100
58	M31	X	.008	.008	0	%100
59	M32	X	.008	.008	0	%100
60	M33	X	.008	.008	0	%100
61	M34	X	.008	.008	0	%100
62	M35	X	.008	.008	0	%100
63	M36	X	.008	.008	0	%100
64	M34A	X	.006	.006	0	%100
65	M35A	X	.006	.006	0	%100
66	M36A	X	.004	.004	0	%100
67	G	X	.004	.004	%39.7	%100
68	I	X	.004	.004	%40.1	%100
69	D	X	.004	.004	%39.7	%100
70	F	X	.004	.004	%40.1	%100
71	H	X	.004	.004	%65.3	%100
72	E	X	.004	.004	%65.3	%100

Member Distributed Loads (BLC 24 : Ice Wind Members (90 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	0	0	0	%100
2	M2	Z	0	0	0	%100
3	M3	Z	0	0	0	%100

Member Distributed Loads (BLC 24 : Ice Wind Members (90 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
4	M4	Z	0	0	0	%100
5	M5	Z	0	0	0	%100
6	M6	Z	0	0	0	%100
7	M7	Z	0	0	0	%100
8	M8	Z	0	0	0	%100
9	M9	Z	0	0	0	%100
10	M10	Z	0	0	0	%100
11	M11	Z	0	0	0	%100
12	M12	Z	0	0	0	%100
13	M15	Z	0	0	0	%100
14	M16	Z	0	0	0	%100
15	M17	Z	0	0	0	%100
16	M28	Z	0	0	0	%100
17	M29	Z	0	0	0	%100
18	M30	Z	0	0	0	%100
19	M31	Z	0	0	0	%100
20	M32	Z	0	0	0	%100
21	M33	Z	0	0	0	%100
22	M34	Z	0	0	0	%100
23	M35	Z	0	0	0	%100
24	M36	Z	0	0	0	%100
25	M34A	Z	0	0	0	%100
26	M35A	Z	0	0	0	%100
27	M36A	Z	0	0	0	%100
28	A	Z	0	0	%39.7	%100
29	C	Z	0	0	%40.1	%100
30	G	Z	0	0	%39.7	%100
31	I	Z	0	0	%40.1	%100
32	D	Z	0	0	%39.7	%100
33	F	Z	0	0	%40.1	%100
34	B	Z	0	0	%65.3	%100
35	H	Z	0	0	%65.3	%100
36	E	Z	0	0	%65.3	%100
37	M1	X	.002	.002	0	%100
38	M2	X	.003	.003	0	%100
39	M3	X	.003	.003	0	%100
40	M4	X	.002	.002	0	%100
41	M5	X	.007	.007	0	%100
42	M6	X	.004	.004	0	%100
43	M7	X	.004	.004	0	%100
44	M8	X	.003	.003	0	%100
45	M9	X	.003	.003	0	%100
46	M10	X	.005	.005	0	%100
47	M11	X	.004	.004	0	%100
48	M12	X	.004	.004	0	%100
49	A	X	.004	.004	0	%100
50	C	X	.004	.004	0	%100
51	M15	X	.002	.002	0	%100
52	M16	X	.003	.003	0	%100
53	M17	X	.003	.003	0	%100
54	B	X	.004	.004	0	%100
55	M28	X	.005	.005	0	%100
56	M29	X	.004	.004	0	%100
57	M30	X	.004	.004	0	%100
58	M31	X	.009	.009	0	%100
59	M32	X	.009	.009	0	%100
60	M33	X	.009	.009	0	%100

Member Distributed Loads (BLC 24 : Ice Wind Members (90 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
61	M34	X	.009	.009	0	%100
62	M35	X	.009	.009	0	%100
63	M36	X	.009	.009	0	%100
64	M34A	X	.007	.007	0	%100
65	M35A	X	.005	.005	0	%100
66	M36A	X	.005	.005	0	%100
67	G	X	.004	.004	%39.7	%100
68	I	X	.004	.004	%40.1	%100
69	D	X	.004	.004	%39.7	%100
70	F	X	.004	.004	%40.1	%100
71	H	X	.004	.004	%65.3	%100
72	E	X	.004	.004	%65.3	%100

Member Distributed Loads (BLC 25 : Ice Wind Members (120 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.002	.002	0	%100
2	M2	Z	.002	.002	0	%100
3	M3	Z	.001	.001	0	%100
4	M4	Z	.002	.002	0	%100
5	M5	Z	.003	.003	0	%100
6	M6	Z	.001	.001	0	%100
7	M7	Z	.004	.004	0	%100
8	M8	Z	.002	.002	0	%100
9	M9	Z	.001	.001	0	%100
10	M10	Z	.002	.002	0	%100
11	M11	Z	.003	.003	0	%100
12	M12	Z	.001	.001	0	%100
13	M15	Z	.002	.002	0	%100
14	M16	Z	.002	.002	0	%100
15	M17	Z	.001	.001	0	%100
16	M28	Z	.002	.002	0	%100
17	M29	Z	.003	.003	0	%100
18	M30	Z	.001	.001	0	%100
19	M31	Z	.004	.004	0	%100
20	M32	Z	.004	.004	0	%100
21	M33	Z	.004	.004	0	%100
22	M34	Z	.004	.004	0	%100
23	M35	Z	.004	.004	0	%100
24	M36	Z	.004	.004	0	%100
25	M34A	Z	.003	.003	0	%100
26	M35A	Z	.002	.002	0	%100
27	M36A	Z	.003	.003	0	%100
28	A	Z	.002	.002	%39.7	%100
29	C	Z	.002	.002	%40.1	%100
30	G	Z	.002	.002	%39.7	%100
31	I	Z	.002	.002	%40.1	%100
32	D	Z	.002	.002	%39.7	%100
33	F	Z	.002	.002	%40.1	%100
34	B	Z	.002	.002	%65.3	%100
35	H	Z	.002	.002	%65.3	%100
36	E	Z	.002	.002	%65.3	%100
37	M1	X	.003	.003	0	%100
38	M2	X	.003	.003	0	%100
39	M3	X	.001	.001	0	%100
40	M4	X	.003	.003	0	%100
41	M5	X	.004	.004	0	%100

Member Distributed Loads (BLC 25 : Ice Wind Members (120 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
42	M6	X	.002	.002	0	%100
43	M7	X	.006	.006	0	%100
44	M8	X	.004	.004	0	%100
45	M9	X	.001	.001	0	%100
46	M10	X	.003	.003	0	%100
47	M11	X	.005	.005	0	%100
48	M12	X	.002	.002	0	%100
49	A	X	.004	.004	0	%100
50	C	X	.004	.004	0	%100
51	M15	X	.003	.003	0	%100
52	M16	X	.003	.003	0	%100
53	M17	X	.001	.001	0	%100
54	B	X	.004	.004	0	%100
55	M28	X	.003	.003	0	%100
56	M29	X	.005	.005	0	%100
57	M30	X	.002	.002	0	%100
58	M31	X	.008	.008	0	%100
59	M32	X	.008	.008	0	%100
60	M33	X	.008	.008	0	%100
61	M34	X	.008	.008	0	%100
62	M35	X	.008	.008	0	%100
63	M36	X	.008	.008	0	%100
64	M34A	X	.006	.006	0	%100
65	M35A	X	.004	.004	0	%100
66	M36A	X	.006	.006	0	%100
67	G	X	.004	.004	%39.7	%100
68	I	X	.004	.004	%40.1	%100
69	D	X	.004	.004	%39.7	%100
70	F	X	.004	.004	%40.1	%100
71	H	X	.004	.004	%65.3	%100
72	E	X	.004	.004	%65.3	%100

Member Distributed Loads (BLC 26 : Ice Wind Members (150 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.004	.004	0	%100
2	M2	Z	.003	.003	0	%100
3	M3	Z	.001	.001	0	%100
4	M4	Z	.004	.004	0	%100
5	M5	Z	.001	.001	0	%100
6	M6	Z	.003	.003	0	%100
7	M7	Z	.008	.008	0	%100
8	M8	Z	.003	.003	0	%100
9	M9	Z	.001	.001	0	%100
10	M10	Z	.001	.001	0	%100
11	M11	Z	.006	.006	0	%100
12	M12	Z	.003	.003	0	%100
13	M15	Z	.004	.004	0	%100
14	M16	Z	.003	.003	0	%100
15	M17	Z	.001	.001	0	%100
16	M28	Z	.001	.001	0	%100
17	M29	Z	.006	.006	0	%100
18	M30	Z	.003	.003	0	%100
19	M31	Z	.008	.008	0	%100
20	M32	Z	.008	.008	0	%100
21	M33	Z	.008	.008	0	%100
22	M34	Z	.008	.008	0	%100

Member Distributed Loads (BLC 26 : Ice Wind Members (150 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
23	M35	Z	.008	.008	0	%100
24	M36	Z	.008	.008	0	%100
25	M34A	Z	.005	.005	0	%100
26	M35A	Z	.005	.005	0	%100
27	M36A	Z	.006	.006	0	%100
28	A	Z	.004	.004	%39.7	%100
29	C	Z	.004	.004	%40.1	%100
30	G	Z	.004	.004	%39.7	%100
31	I	Z	.004	.004	%40.1	%100
32	D	Z	.004	.004	%39.7	%100
33	F	Z	.004	.004	%40.1	%100
34	B	Z	.004	.004	%65.3	%100
35	H	Z	.004	.004	%65.3	%100
36	E	Z	.004	.004	%65.3	%100
37	M1	X	.002	.002	0	%100
38	M2	X	.002	.002	0	%100
39	M3	X	0	0	0	%100
40	M4	X	.003	.003	0	%100
41	M5	X	.001	.001	0	%100
42	M6	X	.002	.002	0	%100
43	M7	X	.004	.004	0	%100
44	M8	X	.002	.002	0	%100
45	M9	X	0	0	0	%100
46	M10	X	.001	.001	0	%100
47	M11	X	.004	.004	0	%100
48	M12	X	.002	.002	0	%100
49	A	X	.002	.002	0	%100
50	C	X	.002	.002	0	%100
51	M15	X	.002	.002	0	%100
52	M16	X	.002	.002	0	%100
53	M17	X	0	0	0	%100
54	B	X	.002	.002	0	%100
55	M28	X	.001	.001	0	%100
56	M29	X	.004	.004	0	%100
57	M30	X	.002	.002	0	%100
58	M31	X	.004	.004	0	%100
59	M32	X	.004	.004	0	%100
60	M33	X	.004	.004	0	%100
61	M34	X	.004	.004	0	%100
62	M35	X	.004	.004	0	%100
63	M36	X	.004	.004	0	%100
64	M34A	X	.003	.003	0	%100
65	M35A	X	.003	.003	0	%100
66	M36A	X	.004	.004	0	%100
67	G	X	.002	.002	%39.7	%100
68	I	X	.002	.002	%40.1	%100
69	D	X	.002	.002	%39.7	%100
70	F	X	.002	.002	%40.1	%100
71	H	X	.002	.002	%65.3	%100
72	E	X	.002	.002	%65.3	%100

Member Distributed Loads (BLC 48 : BLC 1 Transient Area Loads)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M3	Y	-.001	-.009	0	2.333
2	M3	Y	-.009	-.012	2.333	4.667
3	M3	Y	-.012	-.012	4.667	7

Member Distributed Loads (BLC 48 : BLC 1 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
4	M3	Y	-.012	-.012	7	9.333
5	M3	Y	-.012	-.009	9.333	11.667
6	M3	Y	-.009	-.001	11.667	14
7	M5	Y	-.015	-.017	.8	4
8	M6	Y	-.016	-.016	.8	4
9	M9	Y	-.007	-.007	0	3.536
10	M9	Y	-.007	-.007	3.536	7.072
11	M11	Y	-.023	-.023	1	2
12	M1	Y	-.001	-.009	0	2.333
13	M1	Y	-.009	-.012	2.333	4.667
14	M1	Y	-.012	-.012	4.667	7
15	M1	Y	-.012	-.012	7	9.333
16	M1	Y	-.012	-.009	9.333	11.667
17	M1	Y	-.009	-.001	11.667	14
18	M4	Y	-.007	-.007	0	3.536
19	M4	Y	-.007	-.007	3.536	7.072
20	M7	Y	-.016	-.016	.8	4
21	M10	Y	-.023	-.023	1	2
22	M2	Y	-.001	-.009	0	2.333
23	M2	Y	-.009	-.012	2.333	4.667
24	M2	Y	-.012	-.012	4.667	7
25	M2	Y	-.012	-.012	7	9.333
26	M2	Y	-.012	-.009	9.333	11.667
27	M2	Y	-.009	-.001	11.667	14
28	M8	Y	-.007	-.007	0	3.536
29	M8	Y	-.007	-.007	3.536	7.072
30	M12	Y	-.023	-.023	1	2

Member Distributed Loads (BLC 49 : BLC 2 Transient Area Loads)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M3	Y	-.001	-.011	0	2.333
2	M3	Y	-.011	-.016	2.333	4.667
3	M3	Y	-.016	-.016	4.667	7
4	M3	Y	-.016	-.016	7	9.333
5	M3	Y	-.016	-.011	9.333	11.667
6	M3	Y	-.011	-.001	11.667	14
7	M5	Y	-.019	-.023	.8	4
8	M6	Y	-.021	-.021	.8	4
9	M9	Y	-.009	-.009	0	3.536
10	M9	Y	-.009	-.009	3.536	7.072
11	M11	Y	-.03	-.03	1	2
12	M1	Y	-.001	-.011	0	2.333
13	M1	Y	-.011	-.016	2.333	4.667
14	M1	Y	-.016	-.016	4.667	7
15	M1	Y	-.016	-.016	7	9.333
16	M1	Y	-.016	-.011	9.333	11.667
17	M1	Y	-.011	-.001	11.667	14
18	M4	Y	-.009	-.009	0	3.536
19	M4	Y	-.009	-.009	3.536	7.072
20	M7	Y	-.021	-.021	.8	4
21	M10	Y	-.03	-.03	1	2
22	M2	Y	-.001	-.011	0	2.333
23	M2	Y	-.011	-.016	2.333	4.667
24	M2	Y	-.016	-.016	4.667	7
25	M2	Y	-.016	-.016	7	9.333
26	M2	Y	-.016	-.011	9.333	11.667

Member Distributed Loads (BLC 49 : BLC 2 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
27	M2	Y	-.011	-.001	11.667	14
28	M8	Y	-.009	-.009	0	3.536
29	M8	Y	-.009	-.009	3.536	7.072
30	M12	Y	-.03	-.03	1	2

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Dead	None		-1			15		3	
2	Ice Dead	None					15	36	3	
3	Full Wind Antenna (0 Deg)	None					22			
4	Full Wind Antenna (30 Deg)	None					46			
5	Full Wind Antenna (60 Deg)	None					46			
6	Full Wind Antenna (90 Deg)	None					46			
7	Full Wind Antenna (120 Deg)	None					45			
8	Full Wind Antenna (150 Deg)	None					46			
9	Full Wind Members (0 Deg)	None						72		
10	Full Wind Members (30 Deg)	None						72		
11	Full Wind Members (60 Deg)	None						72		
12	Full Wind Members (90 Deg)	None						72		
13	Full Wind Members (120 Deg)	None						72		
14	Full Wind Members (150 Deg)	None						72		
15	Ice Wind Antenna (0 Deg)	None					22			
16	Ice Wind Antenna (30 Deg)	None					46			
17	Ice Wind Antenna (60 Deg)	None					46			
18	Ice Wind Antenna (90 Deg)	None					46			
19	Ice Wind Antenna (120 Deg)	None					45			
20	Ice Wind Antenna (150 Deg)	None					45			
21	Ice Wind Members (0 Deg)	None						72		
22	Ice Wind Members (30 Deg)	None						72		
23	Ice Wind Members (60 Deg)	None						72		
24	Ice Wind Members (90 Deg)	None						72		
25	Ice Wind Members (120 Deg)	None						72		
26	Ice Wind Members (150 Deg)	None						72		
27	Seismic Antenna (0 Deg)	None					15			
28	Seismic Antenna (90 Deg)	None					15			
29	Seismic Members (0 Deg)	None		-.039	-.097					
30	Seismic Members (30 Deg)	None	.048	-.039	-.084					
31	Seismic Members (60 Deg)	None	.084	-.039	-.048					
32	Seismic Members (90 Deg)	None	.097	-.039	-5.911e-...					
33	Seismic Members (120 Deg)	None	.084	-.039	.048					
34	Seismic Members (150 Deg)	None	.048	-.039	.084					
35	Seismic Members (180 Deg)	None	1.182e-17	-.039	.097					
36	Seismic Members (210 Deg)	None	-.048	-.039	.084					
37	Seismic Members (240 Deg)	None	-.084	-.039	.048					
38	Seismic Members (270 Deg)	None	-.097	-.039	1.773e-17					
39	Seismic Members (300 Deg)	None	-.084	-.039	-.048					
40	Seismic Members (330 Deg)	None	-.048	-.039	-.084					
41	Seismic Vertical Antennas	None					15			
42	Man 1 (500 lbs)	None				1				
43	Man 2 (500 lbs)	None				1				
44	Man 3 (500 lbs)	None				1				
45	Man 4 (250 lbs)	None				1				
46	Man 5 (250 lbs)	None				1				
47	Man 6 (250 lbs)	None				1				
48	BLC 1 Transient Area Loads	None						30		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
49	BLC 2 Transient Area Loads	None						30		

Load Combinations

	Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4D	Yes	Y		1	1.4																		
2	1.2D + 1.0W 0°	Yes	Y		1	1.2	3	1	9	1														
3	1.2D + 1.0W 30°	Yes	Y		1	1.2	4	1	10	1														
4	1.2D + 1.0W 60°	Yes	Y		1	1.2	5	1	11	1														
5	1.2D + 1.0W 90°	Yes	Y		1	1.2	6	1	12	1														
6	1.2D + 1.0W 120°	Yes	Y		1	1.2	7	1	13	1														
7	1.2D + 1.0W 150°	Yes	Y		1	1.2	8	1	14	1														
8	1.2D + 1.0W 180°	Yes	Y		1	1.2	3	-1	9	-1														
9	1.2D + 1.0W 210°	Yes	Y		1	1.2	4	-1	10	-1														
10	1.2D + 1.0W 240°	Yes	Y		1	1.2	5	-1	11	-1														
11	1.2D + 1.0W 270°	Yes	Y		1	1.2	6	-1	12	-1														
12	1.2D + 1.0W 300°	Yes	Y		1	1.2	7	-1	13	-1														
13	1.2D + 1.0W 330°	Yes	Y		1	1.2	8	-1	14	-1														
14	1.2D + 1.0Di + 1.0Wi 0°	Yes	Y		1	1.2	2	1	15	1	21	1												
15	1.2D + 1.0Di + 1.0Wi 30°	Yes	Y		1	1.2	2	1	16	1	22	1												
16	1.2D + 1.0Di + 1.0Wi 60°	Yes	Y		1	1.2	2	1	17	1	23	1												
17	1.2D + 1.0Di + 1.0Wi 90°	Yes	Y		1	1.2	2	1	18	1	24	1												
18	1.2D + 1.0Di + 1.0Wi 120°	Yes	Y		1	1.2	2	1	19	1	25	1												
19	1.2D + 1.0Di + 1.0Wi 150°	Yes	Y		1	1.2	2	1	20	1	26	1												
20	1.2D + 1.0Di + 1.0Wi 180°	Yes	Y		1	1.2	2	1	15	-1	21	-1												
21	1.2D + 1.0Di + 1.0Wi 210°	Yes	Y		1	1.2	2	1	16	-1	22	-1												
22	1.2D + 1.0Di + 1.0Wi 240°	Yes	Y		1	1.2	2	1	17	-1	23	-1												
23	1.2D + 1.0Di + 1.0Wi 270°	Yes	Y		1	1.2	2	1	18	-1	24	-1												
24	1.2D + 1.0Di + 1.0Wi 300°	Yes	Y		1	1.2	2	1	19	-1	25	-1												
25	1.2D + 1.0Di + 1.0Wi 330°	Yes	Y		1	1.2	2	1	20	-1	26	-1												
26	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	3	.058	9	.058	42	1.5												
27	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	4	.058	10	.058	42	1.5												
28	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	5	.058	11	.058	42	1.5												
29	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	6	.058	12	.058	42	1.5												
30	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	7	.058	13	.058	42	1.5												
31	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	8	.058	14	.058	42	1.5												
32	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	3	-.0...	9	-.0...	42	1.5												
33	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	4	-.0...	10	-.0...	42	1.5												
34	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	5	-.0...	11	-.0...	42	1.5												
35	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	6	-.0...	12	-.0...	42	1.5												
36	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	7	-.0...	13	-.0...	42	1.5												
37	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		1	1.2	8	-.0...	14	-.0...	42	1.5												
38	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	3	.058	9	.058	43	1.5												
39	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	4	.058	10	.058	43	1.5												
40	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	5	.058	11	.058	43	1.5												
41	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	6	.058	12	.058	43	1.5												
42	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	7	.058	13	.058	43	1.5												
43	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	8	.058	14	.058	43	1.5												
44	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	3	-.0...	9	-.0...	43	1.5												
45	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	4	-.0...	10	-.0...	43	1.5												
46	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	5	-.0...	11	-.0...	43	1.5												
47	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	6	-.0...	12	-.0...	43	1.5												
48	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	7	-.0...	13	-.0...	43	1.5												
49	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		1	1.2	8	-.0...	14	-.0...	43	1.5												
50	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	3	.058	9	.058	44	1.5												
51	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	4	.058	10	.058	44	1.5												

Load Combinations (Continued)

	Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
52	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	5	.058	11	.058	44	1.5												
53	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	6	.058	12	.058	44	1.5												
54	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	7	.058	13	.058	44	1.5												
55	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	8	.058	14	.058	44	1.5												
56	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	3	-.0...	9	-.0...	44	1.5												
57	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	4	-.0...	10	-.0...	44	1.5												
58	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	5	-.0...	11	-.0...	44	1.5												
59	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	6	-.0...	12	-.0...	44	1.5												
60	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	7	-.0...	13	-.0...	44	1.5												
61	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		1	1.2	8	-.0...	14	-.0...	44	1.5												
62	1.2D + 1.5Lv_1 0°	Yes	Y		1	1.2	45	1.5																
63	1.2D + 1.5Lv_1 30°	Yes	Y		1	1.2	45	1.5																
64	1.2D + 1.5Lv_1 60°	Yes	Y		1	1.2	45	1.5																
65	1.2D + 1.5Lv_1 90°	Yes	Y		1	1.2	45	1.5																
66	1.2D + 1.5Lv_1 120°	Yes	Y		1	1.2	45	1.5																
67	1.2D + 1.5Lv_1 150°	Yes	Y		1	1.2	45	1.5																
68	1.2D + 1.5Lv_1 180°	Yes	Y		1	1.2	45	1.5																
69	1.2D + 1.5Lv_1 210°	Yes	Y		1	1.2	45	1.5																
70	1.2D + 1.5Lv_1 240°	Yes	Y		1	1.2	45	1.5																
71	1.2D + 1.5Lv_1 270°	Yes	Y		1	1.2	45	1.5																
72	1.2D + 1.5Lv_1 300°	Yes	Y		1	1.2	45	1.5																
73	1.2D + 1.5Lv_1 330°	Yes	Y		1	1.2	45	1.5																
74	1.2D + 1.5Lv_2 0°	Yes	Y		1	1.2	46	1.5																
75	1.2D + 1.5Lv_2 30°	Yes	Y		1	1.2	46	1.5																
76	1.2D + 1.5Lv_2 60°	Yes	Y		1	1.2	46	1.5																
77	1.2D + 1.5Lv_2 90°	Yes	Y		1	1.2	46	1.5																
78	1.2D + 1.5Lv_2 120°	Yes	Y		1	1.2	46	1.5																
79	1.2D + 1.5Lv_2 150°	Yes	Y		1	1.2	46	1.5																
80	1.2D + 1.5Lv_2 180°	Yes	Y		1	1.2	46	1.5																
81	1.2D + 1.5Lv_2 210°	Yes	Y		1	1.2	46	1.5																
82	1.2D + 1.5Lv_2 240°	Yes	Y		1	1.2	46	1.5																
83	1.2D + 1.5Lv_2 270°	Yes	Y		1	1.2	46	1.5																
84	1.2D + 1.5Lv_2 300°	Yes	Y		1	1.2	46	1.5																
85	1.2D + 1.5Lv_2 330°	Yes	Y		1	1.2	46	1.5																
86	1.2D + 1.5Lv_3 0°	Yes	Y		1	1.2	47	1.5																
87	1.2D + 1.5Lv_3 30°	Yes	Y		1	1.2	47	1.5																
88	1.2D + 1.5Lv_3 60°	Yes	Y		1	1.2	47	1.5																
89	1.2D + 1.5Lv_3 90°	Yes	Y		1	1.2	47	1.5																
90	1.2D + 1.5Lv_3 120°	Yes	Y		1	1.2	47	1.5																
91	1.2D + 1.5Lv_3 150°	Yes	Y		1	1.2	47	1.5																
92	1.2D + 1.5Lv_3 180°	Yes	Y		1	1.2	47	1.5																
93	1.2D + 1.5Lv_3 210°	Yes	Y		1	1.2	47	1.5																
94	1.2D + 1.5Lv_3 240°	Yes	Y		1	1.2	47	1.5																
95	1.2D + 1.5Lv_3 270°	Yes	Y		1	1.2	47	1.5																
96	1.2D + 1.5Lv_3 300°	Yes	Y		1	1.2	47	1.5																
97	1.2D + 1.5Lv_3 330°	Yes	Y		1	1.2	47	1.5																
98	1.2D + 1.0EV +1.0 EH 0°	Yes	Y		1	1.2	27	1	28		29	1	40	1										
99	1.2D + 1.0EV +1.0 EH 30°	Yes	Y		1	1.2	27	.866	28	.5	30	1	40	1										
100	1.2D + 1.0EV +1.0 EH 60°	Yes	Y		1	1.2	27	.5	28	.866	31	1	40	1										
101	1.2D + 1.0EV +1.0 EH 90°	Yes	Y		1	1.2	27		28	1	32	1	40	1										
102	1.2D + 1.0EV +1.0 EH 12...	Yes	Y		1	1.2	27	-.5	28	.866	33	1	40	1										
103	1.2D + 1.0EV +1.0 EH 15...	Yes	Y		1	1.2	27	-.8...	28	.5	34	1	40	1										
104	1.2D + 1.0EV +1.0 EH 18...	Yes	Y		1	1.2	27	-1	28		35	1	40	1										
105	1.2D + 1.0EV +1.0 EH 21...	Yes	Y		1	1.2	27	-.8...	28	-.5	36	1	40	1										
106	1.2D + 1.0EV +1.0 EH 24...	Yes	Y		1	1.2	27	-.5	28	-.8...	37	1	40	1										
107	1.2D + 1.0EV +1.0 EH 27...	Yes	Y		1	1.2	27		28	-1	38	1	40	1										
108	1.2D + 1.0EV +1.0 EH 30...	Yes	Y		1	1.2	27	.5	28	-.8...	39	1	40	1										

Load Combinations (Continued)

	Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
109	1.2D + 1.0EV +1.0 EH 33..	Yes	Y		1	1.2	27	.866	28	-.5	40	1	40	1										

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	N12	max	2.338	10	1.299	19	3.681	2	2.025	22	2.989	2	-1.069	8
2		min	-2.436	4	.199	12	-3.759	8	.451	4	-2.99	8	-3.305	22
3	N8	max	4.516	11	1.308	14	.797	2	-.896	12	3.274	10	.184	11
4		min	-4.503	5	.174	8	-.751	8	-3.626	18	-3.281	4	-.237	5
5	N10	max	2.431	12	1.29	23	3.713	2	1.799	14	3.032	6	3.479	14
6		min	-2.34	6	.185	5	-3.804	8	.471	8	-3.05	12	.632	8
7	N79	max	2.354	18	2.267	18	1.36	18	0	109	0	109	0	109
8		min	-.445	12	-.437	12	-.257	12	0	1	0	1	0	1
9	N80	max	.084	11	2.418	14	.3	8	0	109	0	109	0	109
10		min	-.084	5	-.31	8	-2.518	14	0	1	0	1	0	1
11	N81	max	.453	4	2.278	22	1.367	22	0	109	0	109	0	109
12		min	-2.366	22	-.445	4	-.262	4	0	1	0	1	0	1
13	Totals:	max	6.482	11	9.889	25	6.305	2						
14		min	-6.482	5	3.852	2	-6.305	8						

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

	Member	Shape	Code ...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	M1	L3X3X4	.791	13.708	10	.699	7	z	2	3.571	46.656	1.688	3.46	1....	H2-1
2	M2	L3X3X4	.863	14	2	.692	7	z	6	3.571	46.656	1.688	3.305	1....	H2-1
3	M3	L3X3X4	.858	0	2	.692	7	z	10	3.571	46.656	1.688	3.516	1....	H2-1
4	M4	L3X3X4	.344	0	4	.020	0	y	22	15.459	46.656	1.688	3.623	2....	H2-1
5	M5	LL3x3x4x0	.637	0	16	.056	2.667	y	15	49.885	93.312	6.48	3.069	1....	H1-1b
6	M6	LL3x3x4x0	.557	0	20	.056	2	y	19	49.885	93.312	6.48	3.069	1....	H1-1b
7	M7	LL3x3x4x0	.570	0	25	.059	2	y	23	49.885	93.312	6.48	3.069	1....	H1-1b
8	M8	L3X3X4	.422	7.072	2	.029	7.072	z	14	15.459	46.656	1.688	3.619	2....	H2-1
9	M9	L3X3X4	.420	0	2	.028	0	z	14	15.459	46.656	1.688	3.613	2....	H2-1
10	M10	HSS4.5X4.5...	.211	2	17	.065	2	y	23	90.897	94.932	12.717	12.717	1....	H1-1b
11	M11	HSS4.5X4.5...	.235	2	14	.063	0	z	13	90.897	94.932	12.717	12.717	1....	H1-1b
12	M12	HSS4.5X4.5...	.243	2	15	.085	2	y	15	90.897	94.932	12.717	12.717	1....	H1-1b
13	A	PIPE_2.0	.331	3.995	4	.258	3.995		2	19.36	32.13	1.872	1.872	2....	H1-1b
14	C	PIPE_2.0	.359	3.995	12	.266	3.995		2	19.36	32.13	1.872	1.872	2....	H1-1b
15	M15	L3X3X4	.920	7.583	8	.116	14	y	8	3.945	46.656	1.688	2.673	1....	H2-1
16	M16	L3X3X4	.922	7.583	12	.115	14	y	12	3.945	46.656	1.688	2.662	1....	H2-1
17	M17	L3X3X4	.927	6.417	4	.115	14	z	4	3.945	46.656	1.688	2.647	1....	H2-1
18	G	PIPE_2.0	.287	3.995	12	.260	3.995		10	19.36	32.13	1.872	1.872	2....	H1-1b
19	I	PIPE_2.0	.348	3.995	7	.268	3.995		4	19.36	32.13	1.872	1.872	2....	H1-1b
20	D	PIPE_2.0	.316	3.995	8	.258	3.995		6	19.36	32.13	1.872	1.872	2....	H1-1b
21	F	PIPE_2.0	.317	3.995	4	.271	3.995		12	19.36	32.13	1.872	1.872	2....	H1-1b
22	B	PIPE_2.0	.528	3.995	5	.160	3.995		10	19.36	32.13	1.872	1.872	2....	H1-1b
23	H	PIPE_2.0	.536	3.995	13	.153	.542		6	19.36	32.13	1.872	1.872	2....	H1-1b
24	E	PIPE_2.0	.501	3.995	9	.154	.542		2	19.36	32.13	1.872	1.872	2....	H1-1b
25	M28	HSS4X4X4	.378	.917	6	.173	.917	z	5	107.871	109.188	12.663	12.663	1....	H1-1b
26	M29	HSS4X4X4	.385	.917	2	.164	.917	z	12	107.871	109.188	12.663	12.663	1....	H1-1b
27	M30	HSS4X4X4	.358	.917	14	.160	.917	z	9	107.871	109.188	12.663	12.663	1....	H1-1b
28	M31	PL5x0.25	.692	3.542	8	.069	3.542	y	7	.814	40.5	.211	1.527	1....	H1-1a
29	M32	PL5x0.25	.691	3.542	12	.070	3.542	y	7	.814	40.5	.211	1.819	1....	H1-1a
30	M33	PL5x0.25	.667	3.542	8	.071	3.542	y	3	.814	40.5	.211	1.647	1....	H1-1a
31	M34	PL5x0.25	.724	3.542	4	.071	3.542	y	3	.814	40.5	.211	1.76	1....	H1-1a
32	M35	PL5x0.25	.628	3.542	4	.069	3.542	y	11	.814	40.5	.211	1.922	1....	H1-1a
33	M36	PL5x0.25	.671	3.542	12	.071	3.542	y	11	.814	40.5	.211	1.838	1....	H1-1a

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

	Member	Shape	Code ...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y...	phi*Mn z...	Cb	Eqn
34	M34A	LL2x2x4x0	.116	5.867	14	.004	0	z	11	30.029	61.236	2.894	2.114	1	H1-1b*
35	M35A	LL2x2x4x0	.134	6.37	18	.005	6.37	z	9	26.429	61.236	2.894	2.114	1...	H1-1b*
36	M36A	LL2x2x4x0	.135	6.37	22	.005	6.37	z	13	26.429	61.236	2.894	2.114	1...	H1-1b*

APPENDIX D

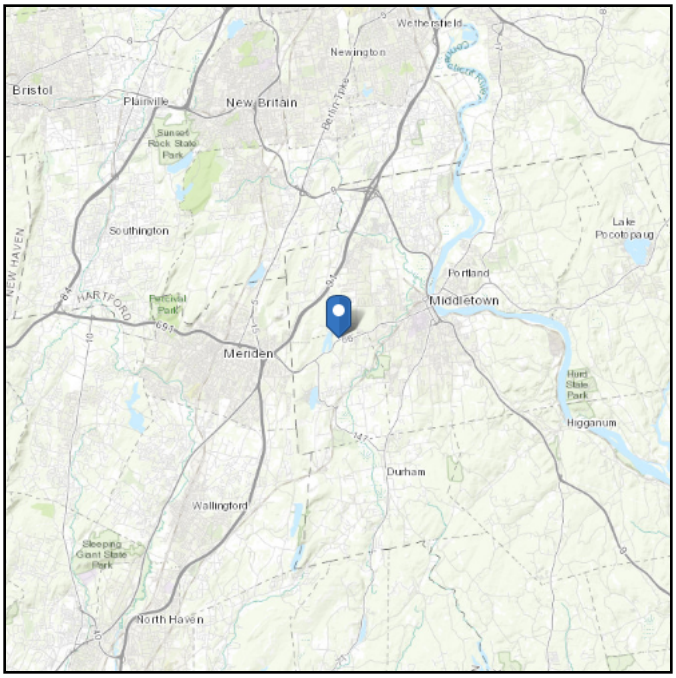
ADDITIONAL CALCUATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 444.26 ft (NAVD 88)
Latitude: 41.546
Longitude: -72.714972



Wind

Results:

Wind Speed:	Middlefield City Risk Category II Vult = 125mph
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	94 Vmph
100-year MRI	102 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: Wed Apr 24 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.

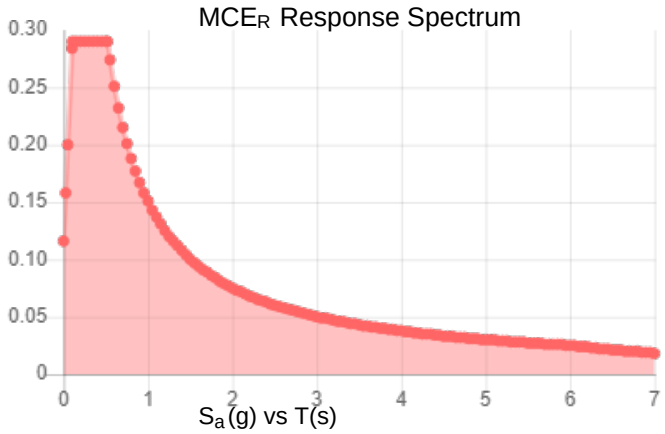
Seismic

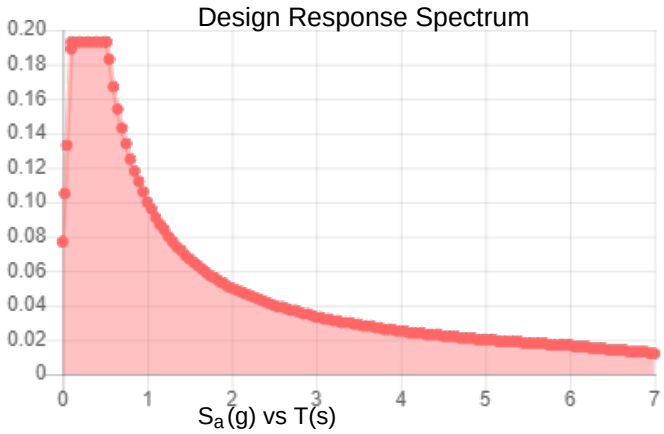
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.181	S_{DS} :	0.193
S_1 :	0.063	S_{D1} :	0.1
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.093
S_{MS} :	0.29	PGA_M :	0.148
S_{M1} :	0.151	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Wed Apr 24 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:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Wed Apr 24 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.

APPENDIX E

MODIFICATION DRAWINGS

MOUNT REINFORCEMENT DRAWINGS PREPARED FOR CROWN CASTLE

SITE NAME: COE HILL
BU NUMBER: 876340

SITE ADDRESS:
238 MERIDEN ROAD
MIDDLEFIELD, CT 06457
MIDDLESEX COUNTY, USA

PROJECT CONTACTS:

1. CROWN PROJECT MANAGER
   CHARLES MCGUIRT
   CHARLES.MCGUIRT@CROWNCASTLE.COM

2. DESIGN ENGINEER - MAIN RFI CONTACT
   ELISA MATHON
   919-674-5835
   ELISA.MATHON@MASTEC.COM

3. ENGINEER OF RECORD
   RAPHAEL I. MOHAMED, PE, PEng
   919-674-5895
   507 AIRPORT BLVD.
   SUITE 111
   MORRISVILLE, NC 27560
   RAPHAEL.MOHAMED@MASTEC.COM

4. FOR FABRICATION AND CONSTRUCTION RELATED INQUIRIES: CONTACT MASTEC DESIGN ENGINEER AND ENGINEER OF RECORD.

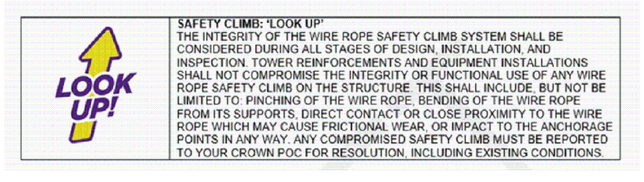
TOWER INFORMATION

TOWER HEIGHT / TYPE:	133.5 FT MONOPOLE TOWER
MOUNT HEIGHT/TYPE:	101 FT 14 FT PLATFORM MOUNT
TOWER LOCATION:	LAT: 41° 32' 45.60" LONG: -72° 42' 53.90"
MODIFICATION DRAWINGS:	MASTEC
MASTEC PROJECT NUMBER:	18542-MOD1
MA FAILING CCI DOCUMENT ID:	8366052
MOUNT ANALYSIS DATE:	04/26/2019
ORDER NUMBER:	479827, REV. 1
JDE JOB NUMBER:	559327

CODE COMPLIANCE

ANSI/TIA-222-H
2018 CONNECTICUT STATE BUILDING CODE

ATTENTION ALL CONTRACTORS, ANYTIME YOU ACCESS A CROWN SITE FOR ANY REASON YOU ARE TO CALL THE CROWN NOC UPON ARRIVAL AND DEPARTURE, DAILY AT 800-788-7011.



QUALIFIED ENGINEERING SERVICES ARE AVAILABLE FROM MASTEC NETWORK SOLUTIONS TO ASSIST CONTRACTORS IN CLASS IV RIGGING PLAN REVIEWS. FOR REQUESTED QUALIFIED ENGINEERING SERVICES, PLEASE CONTACT RAPHAEL MOHAMED AT (919) 244-5207.

DRAWINGS INCLUDED

SHEET NO.	DESCRIPTION	SHEET NO.	DESCRIPTION
T-1	TITLE SHEET		
N-1	MODIFICATION INSPECTION CHECKLIST		
N-2	GENERAL NOTES		
S-1	MODIFICATION SCHEDULE		
S-2	PLATFORM REINFORCEMENT DETAILS		
S-3	REINFORCEMENT CONNECTION DETAILS		
A-1	MANUFACTURER SPECIFICATIONS I		

NO.	DATE	DESCRIPTION	BY
0	05/29/19	FIRST ISSUE	EJM

REVISIONS

RAPHAEL I. MOHAMED, PE,PEng
SENIOR DIRECTOR OF ENGINEERING
CT PE LICENSE NO. 25112

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CONNECTICUT.

MasTec Network Solutions
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MORRISVILLE, NC 27560

SITE NAME: COE HILL
BU NUMBER: 876340

WO NUMBER: 479827
MNS ENG. NUMBER: 18542 - MOD1

SITE ADDRESS:
238 MERIDEN ROAD
MIDDLEFIELD, CT 06457
MIDDLESEX COUNTY, USA

DRAWN BY: EJM

CHECKED BY: BDM

APPROVED BY: RIM

SCALE: N.T.S

TITLE SHEET

T-1

REV 0

MI CHECKLIST

CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY EOR)	REPORT ITEM
PRE-CONSTRUCTION	
X	MI CHECKLIST DRAWING
N/A	EOR APPROVAL
X	FABRICATION INSPECTION
N/A	FABRICATOR CERTIFIED WELD INSPECTION
X	MATERIAL TEST REPORT (MTR)
N/A	FABRICATOR NDE INSPECTION
N/A	NDE REPORT OF BASE PLATE
X	PACKING SLIPS
ADDITIONAL TESTING AND INSPECTIONS:	
CONSTRUCTION	
X	CONSTRUCTION INSPECTIONS
N/A	CONTINUOUS FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH AND SLUMP TESTS
N/A	GROUT COMP. STRENGTH (ASTM C109)
N/A	POST INSTALLED ANCHOR ROD VERIFICATION
N/A	BASE PLATE GROUT VERIFICATION
N/A	CONTRACTOR'S CERTIFIED WELD INSPECTION AND NDE REPORTS
N/A	EARTHWORK: LIFT AND DENSITY
X	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
X	GC AS-BUILT DOCUMENTS
ADDITIONAL TESTING AND INSPECTIONS:	
POST-CONSTRUCTION	
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)
N/A	POST INSTALLED ANCHOR ROD PULL-OUT TESTING
X	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTE: X DENOTES A DOCUMENT NEEDED FOR THE PMI REPORT
N/A DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE PMI REPORT

MODIFICATION INSPECTION NOTES:

GENERAL:

1. THE MODIFICATION INSPECTION (MI) IS A VISUAL INSPECTION OF THE TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD (EOR)
2. THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE MI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.
3. TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, CONTACT YOUR POINT OF CONTACT (POC).

MI INSPECTOR:

1. THE MI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE MI TO, AT A MINIMUM

   REVIEW THE REQUIREMENTS OF THE MI CHECKLIST WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS.
2. THE MI IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTORS (GC) INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS. AND SUBMITTING THE MI REPORT.

GENERAL CONTRACTOR:

1. THE GC IS REQUIRED TO CONTACT THE MI INSPECTOR AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO, AT A MINIMUM:
   - REVIEW THE REQUIREMENTS OF THE MI CHECKLIST.
   - WORK WITH THE MI INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT
   - ON-SITE MI INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS.
   - BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS.
2. THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MI CHECKLIST.

MI VERIFICATION INSPECTIONS:

VERIFICATION INSPECTION MAY BE CONDUCTED BY AN INDEPENDENT FIRM AFTER A MODIFICATION PROJECT IS COMPLETED, AS MARKED BY THE OF AN ACCEPTED "PASSING MI" OR "PASS AS NOTED MI" REPORT FOR THE ORIGINAL PROJECT.

REQUIRED PHOTOS:

BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:

- PRE-CONSTRUCTION GENERAL SITE CONDITION
- PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTIONS AND INSPECTION:
- RAW MATERIALS
- PHOTOS OF ALL CRITICAL DETAILS
- FOUNDATION MODIFICATIONS
- WELD PREPARATION
- BOLT INSTALLATION AND TORQUE
- FINAL INSTALLED CONDITION
- SURFACE COATING REPAIR
- POST CONSTRUCTION PHOTOGRAPHS
- FINAL IN FIELD CONDITIONS

PHOTOS OF ELEVATED MODIFICATION TAKEN FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

CORRECTION OF FAILING MI'S:

IF THE MODIFICATION INSTALLATION WOULD FAIL THE MI ("FAILED MI"), THE GC SHALL WORK WITH THE TOWER OWNER TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:

- CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI.
- OR, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/ENFORCEMENT USING THE AS-BUILT CONDITION.

RECOMMENDATIONS:

THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING A MI REPORT:

- IT IS SUGGESTED THAT THE GC PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10, TO THE MI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.
- THE GC AND MI INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
- WHEN POSSIBLE IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR RE-TENSIONING OPERATIONS.
- IT MAY BE BENEFICIAL TO INSTALL ALL TOWER MODIFICATIONS PRIOR TO CONDUCTING THE FOUNDATION INSPECTIONS TO ALLOW FOUNDATION AND MI INSPECTION(S) TO COMMENCE WITH ONE SITE VISIT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE DURING THE MI TO HAVE ANY DEFICIENCIES CORRECTED DURING THE INITIAL MI, THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MI CAREFULLY TO ENSURE ALL CONSTRUCTION FACULTIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.

CANCELLATION OR DELAYS IN SCHEDULED MI:

IF THE GC AND MI INSPECTOR AGREE TO A DATE ON WHICH THE MI WILL BE CONDUCTED, AND EITHER PARTY CANCELS OR DELAYS, TOWER OWNER SHALL NOT BE RESPONSIBLE FOR ANY COSTS, FEES, LOSS OF DEPOSITS AND/OR OTHER PENALTIES RELATED TO THE CANCELLATION OR DELAY INCURRED BY EITHER PARTY FOR ANY TIME (E.G. TRAVEL AND LODGING, COSTS OF KEEPING EQUIPMENT ON-SITE, ETC.). IF TOWER OWNER CONTRACTS DIRECTLY FOR A THIRD PARTY MI, EXCEPTIONS MAY BE MADE IN THE EVENT THAT THE DELAY/CANCELLATION IS CAUSED BY WEATHER OR OTHER CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

NO.	DATE	DESCRIPTION	BY
0	05/29/19	FIRST ISSUE	EJM

REVISIONS

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CT PE LICENSE NO. 25112

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DRAWN BY: EJM

CHECKED BY: BDM

APPROVED BY: RIM

SCALE: N.T.S

MODIFICATION INSPECTION CHECKLIST

N-1

REV 0

GENERAL NOTES:

1. ALL WORK PRESENTED IN THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS OTHERWISE SPECIFIED.
2. THE CONTRACTOR MUST HAVE A MINIMUM OF 5 YEARS OF EXPERIENCE IN TOWER ERECTION AND RETROFIT SIMILAR TO THAT DESCRIBED HEREIN.
3. ALL CONSTRUCTION IS TO BE COMPLETE IN ACCORDANCE WITH THE ANSI/ASSE A10.48 AND ANSI/TIA-322 STANDARDS. THE CONTRACTOR MUST HAVE CONSIDERABLE WORKING KNOWLEDGE IN THESE STANDARDS TO ACCEPT THIS WORK. BY ACCEPTING THIS PROJECT, THE CONTRACTOR IS ATTESTING THAT HE HAS SUFFICIENT EXPERIENCE, ABILITY, AND KNOWLEDGE OF THE WORK TO BE PERFORMED AND IS PROPERLY LICENSED AND REGISTERED TO COMPLETE THIS WORK.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS, ELEVATIONS, AND EXISTING CONDITIONS PRIOR TO BEGINNING ANY MATERIAL ORDERS, FABRICATION OR CONSTRUCTION WORK ON THIS PROJECT. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE EOR. THE DISCREPANCIES MUST BE RESOLVED BEFORE THE CONTRACTOR MAY PROCEED WITH THE PROJECT.
5. ANY WORK PERFORMED WITHOUT A PREFABRICATION MAPPING IS DONE AT THE RISK OF THE CONTRACTOR AND/OR FABRICATOR.
6. ALL MANUFACTURERS' INSTRUCTIONS FOR INSTALLATION MUST BE FOLLOWED EXACTLY AS SPECIFIED. WHEN CONFLICTING WITH THESE DRAWINGS, THE MANUFACTURER SPECIFICATIONS SHALL GOVERN.
7. ALL MATERIALS AND EQUIPMENT USED IN THE INSTALLATION OF THESE DRAWINGS SHALL BE IN NEW OR GOOD WORKING QUALITY, FREE FROM DEFECTS AND FAULTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ALL SUBSTITUTIONS MUST BE GIVEN WRITTEN APPROVAL FROM THE EOR PRIOR TO INSTALLATION. ALL MATERIALS SHALL BE WARRANTED FOR ONE YEAR FROM ACCEPTANCE DATE.
8. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL INTENDED CONSTRUCTION ACTIVITY INCLUDING MATERIALS, ACCESS AND WORK SCHEDULE. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND WILL BE RESPONSIBLE FOR ABIDING BY ALL REQUIREMENTS AND CONDITIONS OF THE PERMITS. WHEN APPLICABLE, THE CONTRACTOR MUST NOTIFY THE APPLICABLE JURISDICTION PRIOR TO BEGINNING OF ANY CONSTRUCTION.
9. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION MEANS AND METHODS. INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS. CONSTRUCTION OF THE PROPOSED WORK SHALL MEET ANSI/ASSE A10.48, OSHA, AND GENERAL INDUSTRY STANDARDS. ALL RIGGING PLANS SHALL ADHERE TO ANSI/TIA-322 INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION.
10. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE INSTALLATION PROCEDURE AND SEQUENCE TO INSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENTS DURING ERECTION AND/OR FIELD ALTERATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF TEMPORARY BRACING, GUYS OR TIE-DOWNS THAT MAY BE NECESSARY; SUCH MATERIAL SHALL BE REMOVED AFTER THE COMPLETION OF THE PROJECT.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THIS PROJECT AND RELATED WORK COMPLIES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS GOVERNING THIS WORK.
12. THE CLIMBING FACILITIES, SAFETY CLIMB AND ALL PARTS THEREOF SHALL NOT BE IMPEDED, MODIFIED OR ALTERED WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE EOR.
13. INCORRECTLY FABRICATED, DAMAGED, MIS-FITTING, OR NON-CONFORMING MATERIALS AND CONDITIONS SHALL BE REPORTED TO THE EOR PRIOR TO ANY REMEDIAL OR CORRECTING ACTION. ALL ACTIONS SHALL REQUIRE EOR APPROVAL.

STEEL:

1. THE FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE LATEST AISC CODE AND ASTM SPECIFICATIONS.
2. HOLES SHALL NOT BE TORCH CUT THROUGH STRUCTURAL STEEL FOR FABRICATION. ALL STEEL FABRICATION MUST FOLLOW AISC SPECIFICATIONS.
3. HOT-DIP GALVANIZE ALL ITEMS AFTER FABRICATION IN COMPLIANCE WITH ASTM A-123 UNLESS OTHERWISE SPECIFIED. ALL NEW STEEL IS TO BE PAINTED TO MATCH THE EXISTING STEEL.
4. NEW STEEL MEMBERS MUST HAVE SINGLE DRILLED HOLES. SLOTTED AND DOUBLY DRILLED HOLES ARE NOT ACCEPTABLE MEANS OF FABRICATION UNLESS OTHERWISE SPECIFIED.
5. ALL CONNECTIONS NOT DETAILED IN THESE DRAWINGS MUST BE DETAILED BY THE STEEL FABRICATOR IN ACCORDANCE WITH THE LATEST AISC SPECIFICATIONS.
6. ALL BOLTED CONNECTIONS MUST BE INSTALLED TO A SNUG-TIGHTENED CONDITION PER AISC “SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM 325 OR A490 BOLTS” SECTION 8.1 UNLESS OTHERWISE SPECIFIED.
7. CONTRACTOR MAY BE REQUIRED TO STACK WASHERS FOR BOLTS WHERE THREADS ARE EXCLUDED FROM SHEAR PLANE TO OBTAIN SNUG TIGHT INSTALLATION. A NUT LOCKING DEVICE MUST BE INSTALLED ON ALL PROPOSED AND/OR REPLACED BOLTS. GALVANIZED ASTM 325 OR A490 BOLTS SHALL NOT BE REUSED.

COLD GALVANIZATION:

1. ALL DAMAGED SURFACES SHALL BE REPAIRED WITH A COLD-GALVANIZING COATING CONFORMING TO ASTM 780. THIS COATING SHALL BE APPLIED BY BRUSH. THE GALVANIZING COMPOUND SHALL CONTAIN A MINIMUM OF 95% ± PURE ZINC. THE FINISHED COATING SHALL BE A MINIMUM THICKNESS OF 4 MILS.
2. CONTRACTOR TO USE ZINGA OR ZRC COLD GALVANIZATION COMPOUNDS OR APPROVED EQUIVALENTS.
3. CLEAN AREAS TO BE PREPARED AND REMOVE SLAG FROM WELDS FOR TREATMENT ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
4. IF THE TOWER IS PAINTED, ALL TREATED AREAS ARE TO BE BRUSH PAINTED TO MATCH THE TOWER AFTER COLD GALVANIZING COMPOUND IS ALLOWED TO CURE.

U-BOLTS:

1. ALL U-BOLTS ARE TO BE ASTM A36/A307, SAE 429 GR. 2 UNLESS OTHERWISE SPECIFIED.
2. U-BOLTS SHALL MEET REQUIREMENTS OF ASME B18.31.5-2011 BENT BOLTS.
3. U-BOLT ASSEMBLY SHALL COME COMPLETE WITH NUTS (ASTM A563), WASHERS (ASTM F436), AND LOCK WASHERS.
4. FULL U-BOLT ASSEMBLY TO BE HOT-DIP GALVANIZED PER ASTM A153/A153M OR A123, AS APPLICABLE.

MODIFICATION MATERIALS

SCOPE	SHAPE	GRADE	YIELD STRENGTH (Fy)	ULTIMATE STRENGTH (Fu)
ALL	ANGLE	A36	36 KSI	58 KSI
ALL	BOLTS	A325	120 KSI	105 KSI

NO.	DATE	DESCRIPTION	BY
0	05/29/19	FIRST ISSUE	EJM

REVISIONS

MasTec Network Solutions
507 AIRPORT BLVD., SUITE 111
MORRISVILLE, NC 27560

STATE OF CONNECTICUT · RAPHAEL MOHAMED · No. 25112 · LICENSED PROFESSIONAL ENGINEER

RAPHAEL I. MOHAMED, PE,PEng
SENIOR DIRECTOR OF ENGINEERING
CT PE LICENSE NO. 25112

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MIDDLESEX COUNTY, USA

DRAWN BY: EJM

CHECKED BY: BDM

APPROVED BY: RIM

SCALE: N.T.S

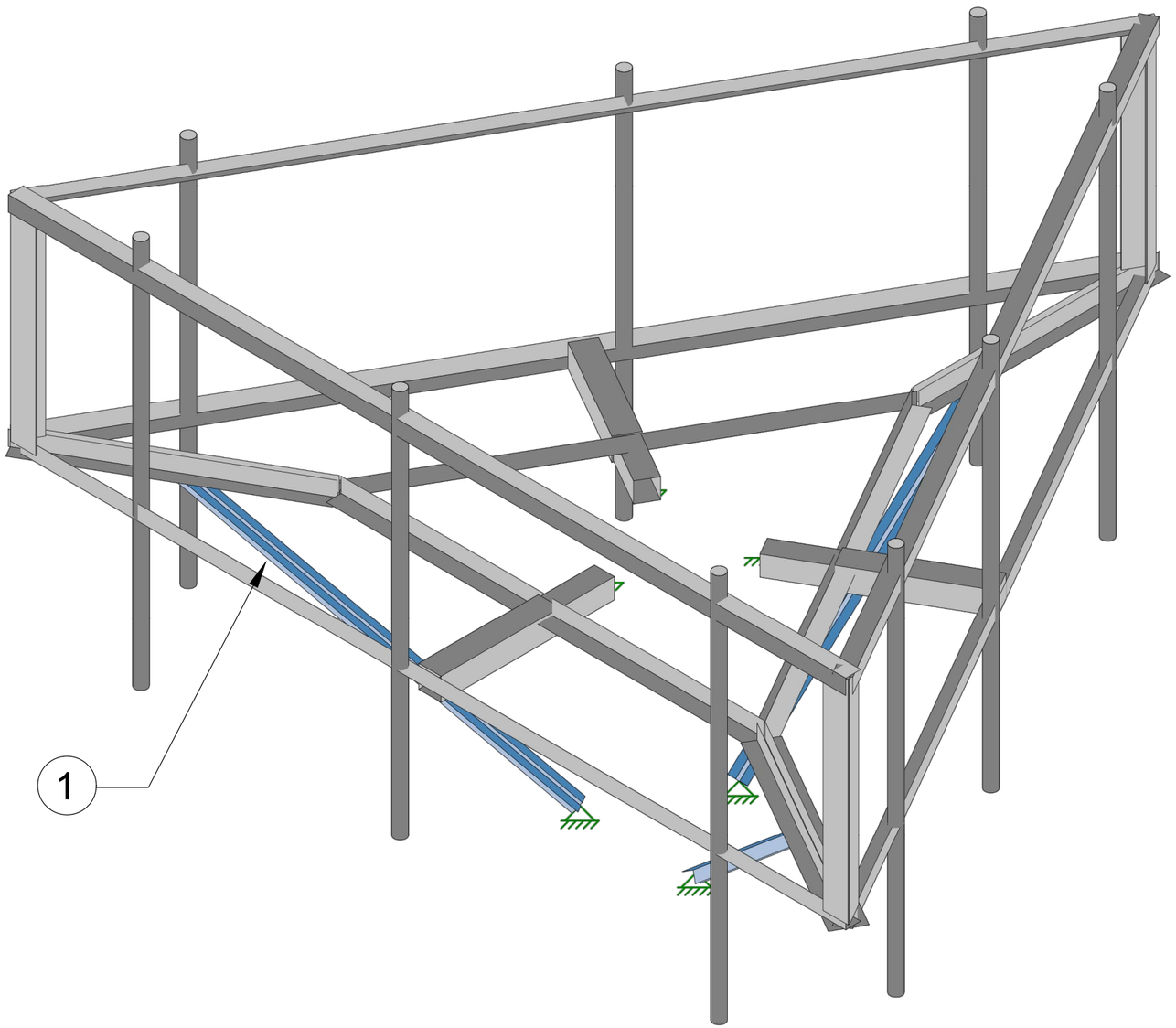
NOTES

N-2

REV 0

MODIFICATION SCHEDULE

SCOPE NO.	MODIFICATION DESCRIPTION	BOTTOM ELEVATION	TOP ELEVATION	SHEET NO.
1	INSTALLATION OF NEW SABRE C10851202DP	-	101'-0" ±	S-2



NOTES:

1. APPURTENANCES MAY INTERFERE WITH PROPOSED MODIFICATIONS.
2. ALL MODIFICATIONS TO BE INSTALLED CONTINUOUSLY THROUGH EXISTING EQUIPMENT. ALL EXISTING EQUIPMENT MUST NOT BE DAMAGED OR TAKEN OFF AIR DURING INSTALLATION OF PROPOSED MODIFICATIONS.
3. ANTENNA AND COAX NOT SHOWN FOR CLARITY. SEE STRUCTURAL ANALYSIS REPORT FOR EXISTING ANTENNA LOADING AND COAX CONFIGURATION.
4. PRIOR TO FABRICATION AND INSTALLATION , CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND QUANTITIES GIVEN. INFORMATION PROVIDED IS FOR QUOTING PURPOSES ONLY, AND SHALL NOT BE USED FOR FABRICATION.
5. EXISTING RRU'S AND ANCILLARY EQUIPMENT MAY NEED TO BE TEMPORARILY RELOCATED AS NECESSARY TO COMPLETE THIS MODIFICATION. EQUIPMENT IS NOT TO BE TAKEN OFF AIR AT ANY TIME DURING INSTALLATION. PLEASE CONTACT EOR IF THIS CANNOT BE MET.
6. CONTACT EOR IF PROPOSED MOUNT REINFORCEMENT DIMENSIONS CANNOT BE MET.

NO.	DATE	DESCRIPTION	BY
0	05/29/19	FIRST ISSUE	EJM

REVISIONS

MasTec Network Solutions
507 AIRPORT BLVD., SUITE 111
MORRISVILLE, NC 27560

SITE NAME: COE HILL
BU NUMBER: 876340

WO NUMBER: 479827
MNS ENG. NUMBER: 18542 - MOD1

SITE ADDRESS:
238 MERIDEN ROAD
MIDDLEFIELD, CT 06457
MIDDLESEX COUNTY, USA

DRAWN BY: EJM

CHECKED BY: BDM

APPROVED BY: RIM

SCALE: N.T.S

RAPHAEL I. MOHAMED, PE,PEng
SENIOR DIRECTOR OF ENGINEERING
CT PE LICENSE NO. 25112

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CONNECTICUT.

MODIFICATION SCHEDULE

S-1

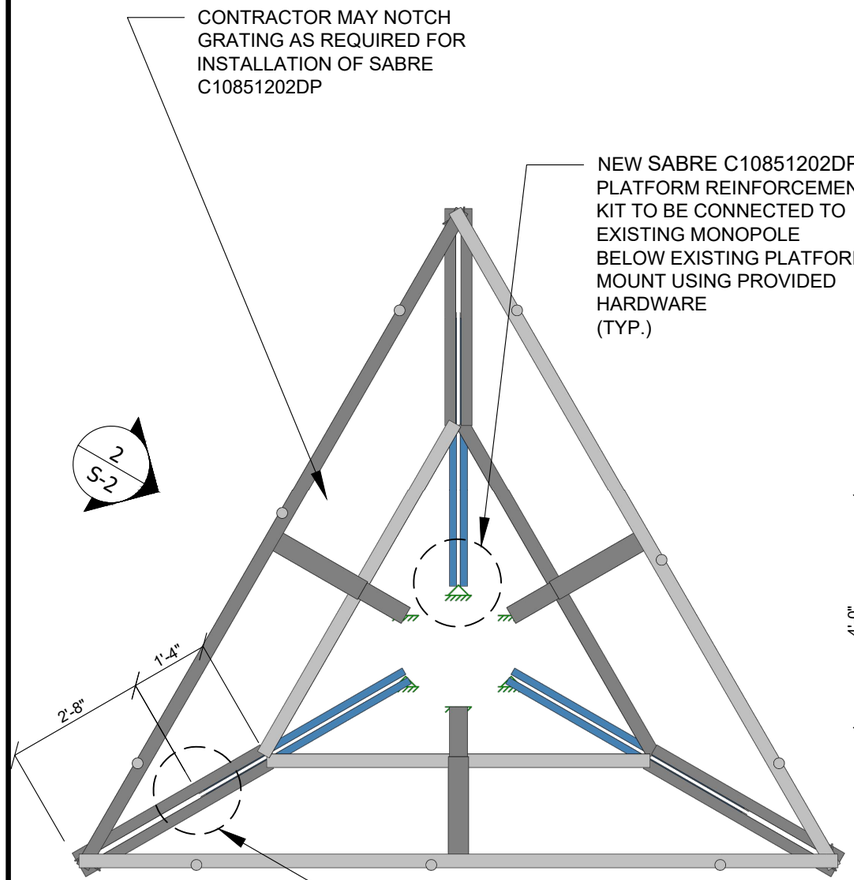
REV 0

NOTES:

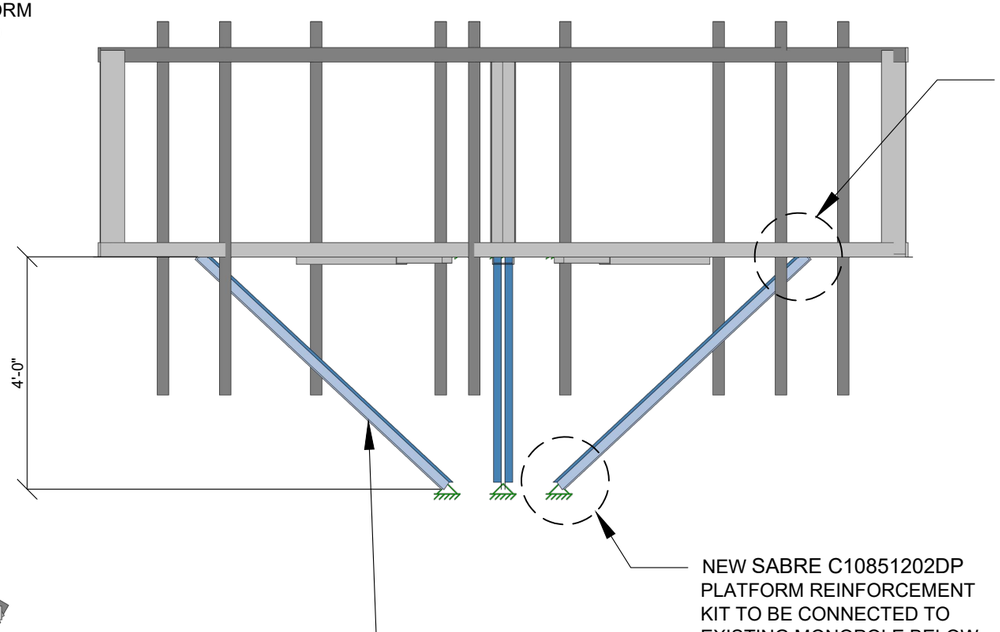
1. CONTRACTOR TO FIELD VERIFY THE REQUIRED LENGTH OF THE NEW ANGLES AND MAY CUT ENDS AS REQUIRED TO AVOID UNNECESSARY OVERHANG AND OVERLAP.
2. TWO COATS OF COLD GALVANIZING COATING MUST BE APPLIED TO ALL CUT ENDS IN ACCORDANCE TO ASTM A780 PRIOR TO INSTALLATION.

NEW PLATFORM STABILIZER KIT MATERIAL LIST

SABRE PART NO.	QTY.	LENGTH	DESCRIPTION
C10851202DP	1	ADJUSTABLE	PLATFORM REINFORCEMENT KIT



1 S-2 C10851202DP INSTALLATION
PLAN VIEW
NTS



2 S-2 C10851202DP INSTALLATION
SIDE VIEW
NTS

NO.	DATE	DESCRIPTION	BY
0	05/29/19	FIRST ISSUE	EJM

REVISIONS

MasTec Network Solutions
507 AIRPORT BLVD., SUITE 111
MORRISVILLE, NC 27560

STATE OF CONNECTICUT
RAPHAEL MOHAMED
No. 25112
LICENSED
PROFESSIONAL ENGINEER

RAPHAEL I. MOHAMED, PE,PEng
SENIOR DIRECTOR OF ENGINEERING
CT PE LICENSE NO. 25112

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CONNECTICUT.

SITE NAME: COE HILL
BU NUMBER: 876340

WO NUMBER: 479827
MNS ENG. NUMBER: 18542 - MOD1

SITE ADDRESS:
238 MERIDEN ROAD
MIDDLEFIELD, CT 06457
MIDDLESEX COUNTY, USA

DRAWN BY: EJM

CHECKED BY: BDM

APPROVED BY: RIM

SCALE: N.T.S

PLATFORM REINFORCEMENT DETAILS

S-2

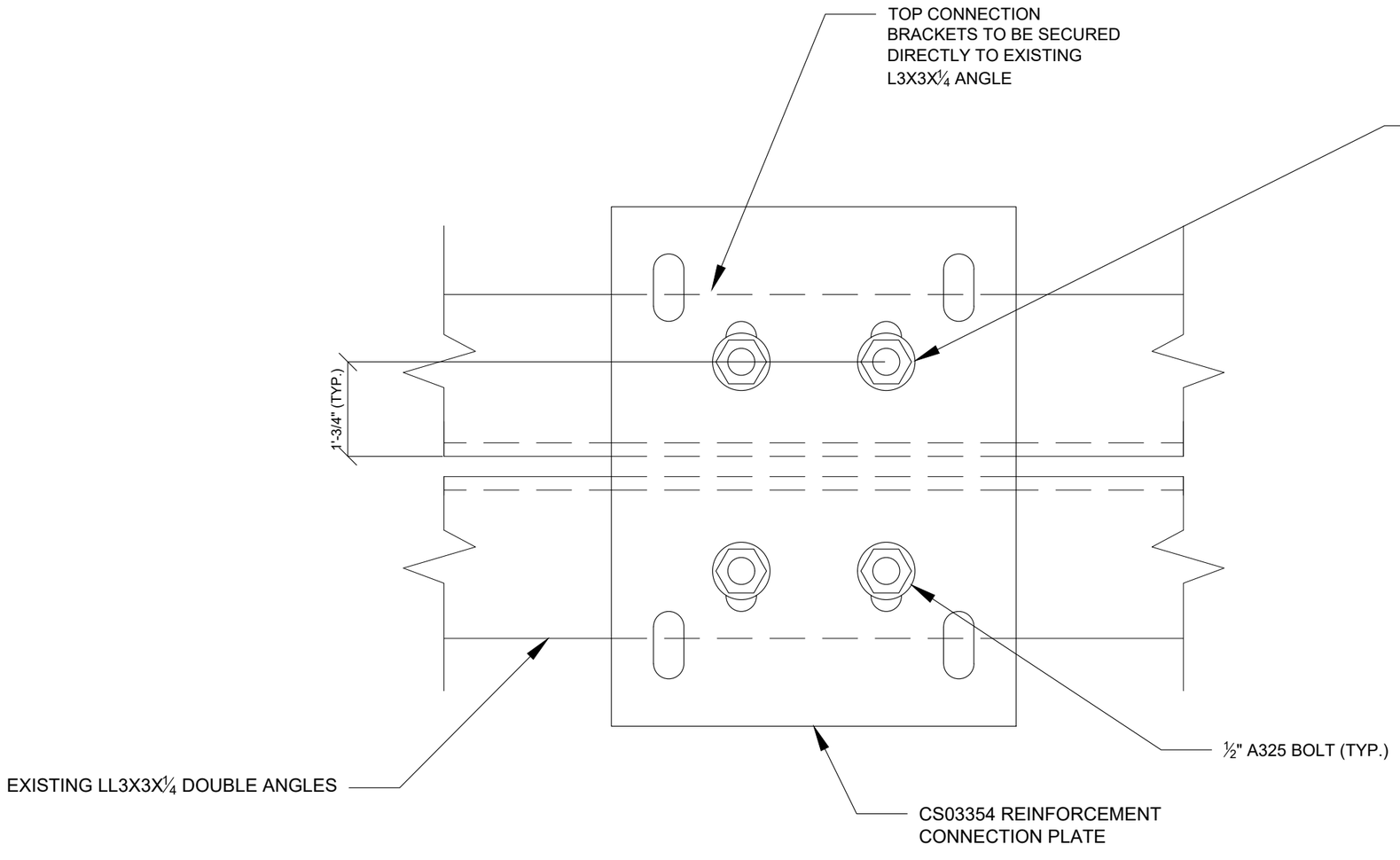
REV 0

NOTES:

1. CONTRACTOR TO FIELD VERIFY THE REQUIRED LENGTH OF THE NEW ANGLES AND MAY CUT ENDS AS REQUIRED TO AVOID UNNECESSARY OVERHANG AND OVERLAP.
2. TWO COATS OF COLD GALVANIZING COATING MUST BE APPLIED TO ALL CUT ENDS IN ACCORDANCE TO ASTM A780 PRIOR TO INSTALLATION.

NEW PLATFORM STABILIZER KIT MATERIAL LIST

SABRE PART NO.	QTY.	LENGTH	DESCRIPTION
C10851202DP	1	ADJUSTABLE	PLATFORM REINFORCEMENT KIT



1 / S-3 C10851202DP INSTALLATION

TOP VIEW
NTS

NO.	DATE	DESCRIPTION	BY
0	05/29/19	FIRST ISSUE	EJM

REVISIONS

MasTec Network Solutions
507 AIRPORT BLVD., SUITE 111
MORRISVILLE, NC 27560

STATE OF CONNECTICUT · RAPHAEL MOHAMED · No. 25112 · LICENSED · PROFESSIONAL ENGINEER

SITE NAME: COE HILL
BU NUMBER: 876340

WO NUMBER: 479827
MNS ENG. NUMBER: 18542 - MOD1

SITE ADDRESS:
238 MERIDEN ROAD
MIDDLEFIELD, CT 06457
MIDDLESEX COUNTY, USA

DRAWN BY: EJM

CHECKED BY: BDM

APPROVED BY: RIM

SCALE: N.T.S

RAPHAEL I. MOHAMED, PE,PEng
SENIOR DIRECTOR OF ENGINEERING
CT PE LICENSE NO. 25112

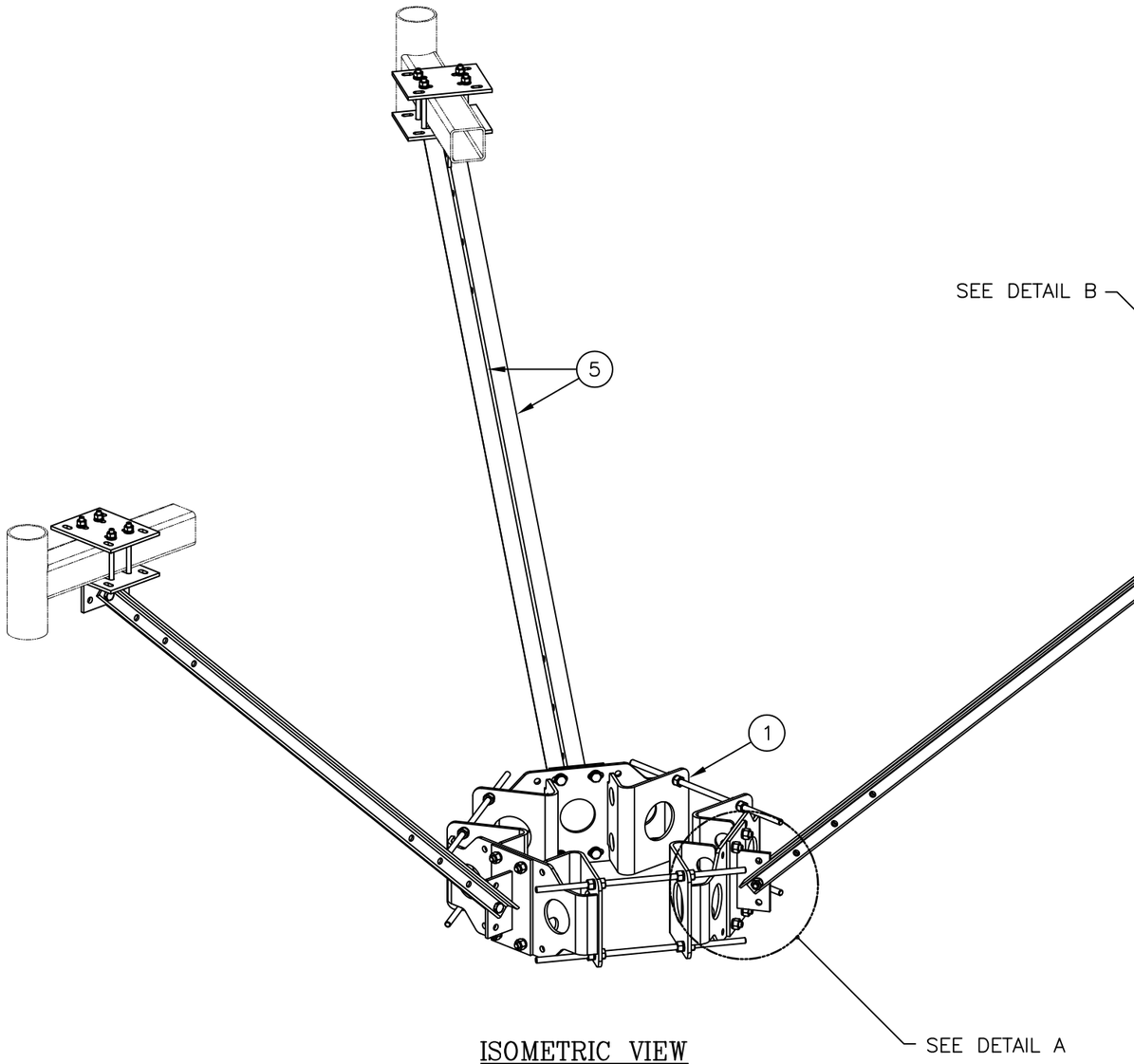
I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF CONNECTICUT.

REINFORCEMENT CONNECTION DETAILS

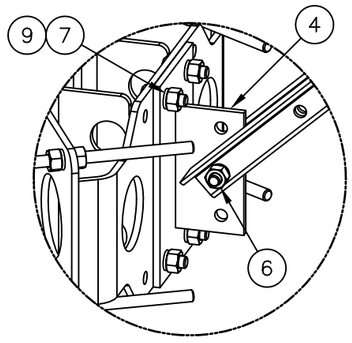
S-3 REV 0

C10851202 PLATFORM REINFORCEMENT KIT

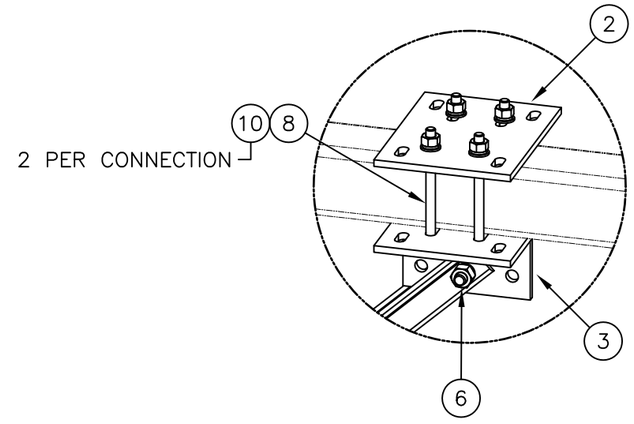
ITEM	QTY.	PART NO.	DESCRIPTION	WEIGHT
1.	1	C10112300	TRI COLLAR BRACKET ASSEMBLY	193
2.	3	CS03354	PLATE, UPPER CONNECTION	22
3.	3	CW01322	WELDMENT, KICKER SUPPORT	31
4.	3	CW01291	WELDMENT, KICKER SUPPORT	32
5.	6	CS03278	ANGLE, KICKER	139
6.	6	C40026024	BOLT ASSEMBLY, 5/8 ø X 2 1/4 A325	3
7.	12	C40026023	BOLT ASSEMBLY, 5/8 ø X 2 A325	6
8.	12	C40024106	BOLT ASSEMBLY, 1/2 ø X 6 1/2 GR5 FULL THD	5
9.	12	C40031003	FLATWASHER, 5/8 ø HARDENED ASTM F436	1
10.	24	C40031002	FLATWASHER, 1/2 ø HARDENED ASTM F436	1
			TOTAL WEIGHT	433



ISOMETRIC VIEW



DETAIL A



DETAIL B

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS INCLUDE
FINISHES AND ARE IN INCHES

TOLERANCES: FRACTIONS ± 1/16"
ANGLES ± 1/2 DEG.
DECIMALS ± .010"

MATERIAL:

TOLERANCES DO NOT APPLY TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION
1	02/18/16	WRF	KLE	CHANGED ITEMS 2 AND 3

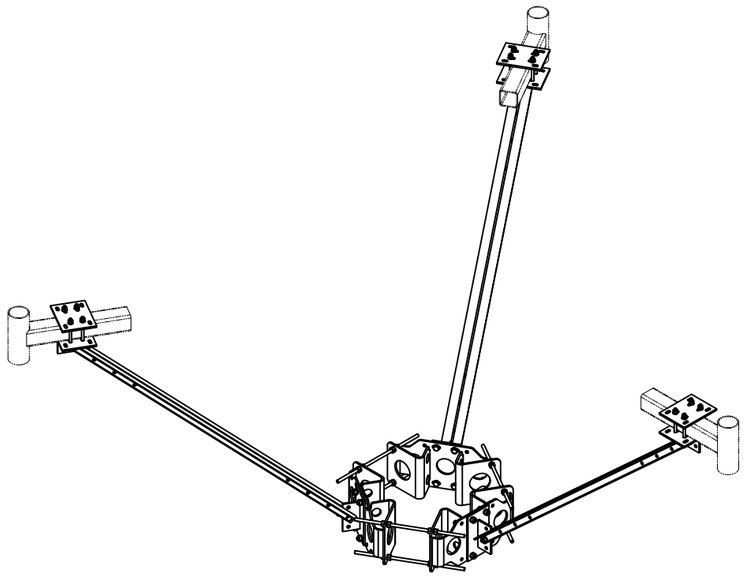
Sabre Industries™
Towers and Poles

PLATFORM REINFORCEMENT KIT (LONG) FOR 10" TO 40" DIA. POLES

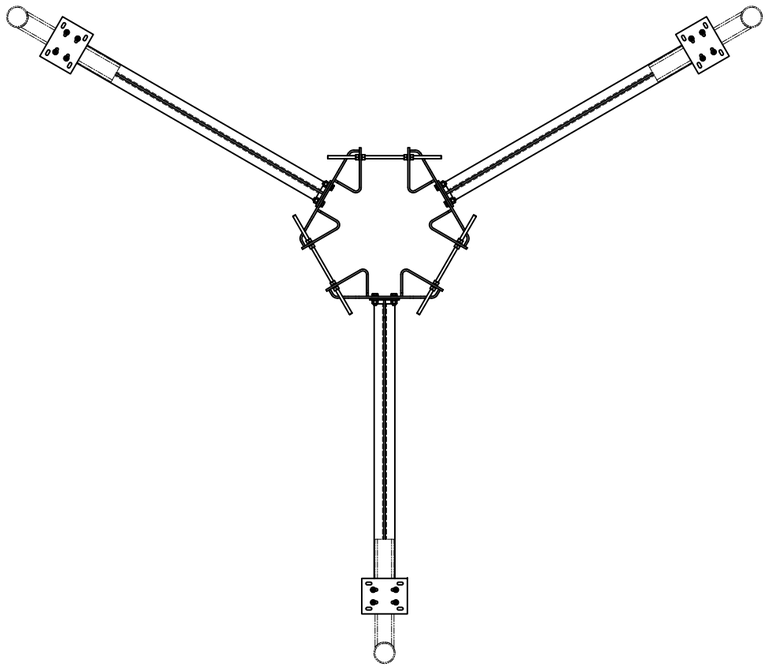
DATE	07/23/15
DRAWN BY	WRF
CHECKED BY	KLE

SIZE	DRAWING NO.	REV
B	C10851202	1

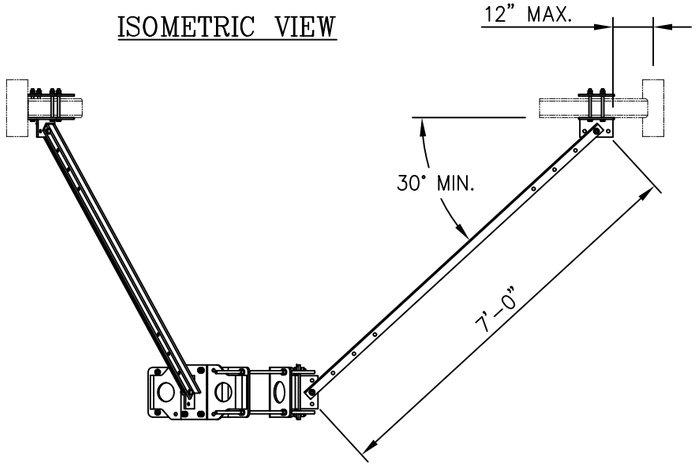
SCALE	PAGE
None	1 OF 2



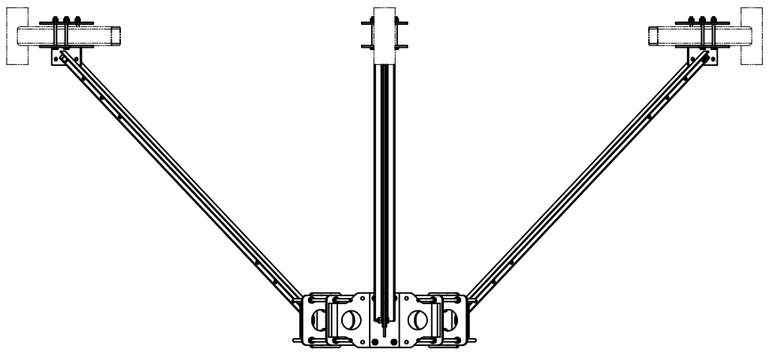
ISOMETRIC VIEW



TOP VIEW



SIDE VIEW



FRONT VIEW

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES TOLERANCES: FRACTIONS ± 1/16" ANGLES ± 1/2 DEG. DECIMALS ± .010"	MATERIAL: TOLERANCES DO NOT APPLY TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION
1	02/18/16	WRF	KLE	CHANGED ITEMS 2 AND 3

Sabre Industries™
Towers and Poles

PLATFORM REINFORCEMENT KIT (LONG) FOR 10" TO 40" DIA. POLES

DATE	07/23/15
DRAWN BY	WRF
CHECKED BY	KLE

SIZE	DRAWING NO.	REV
B	C10851202	1

SCALE	PAGE
None	2 OF 2

Exhibit F

Power Density/RF Emissions Report

Transcom Engineering, Inc.
Wireless Network Design and Deployment

Radio Frequency Emissions Analysis Report

T-MOBILE Existing Facility

Site ID: CT11309A

Middlefield/Rt 66
238 Meridan Rd
Middlefield, CT 06455

May 17, 2019

Transcom Engineering Project Number: 737001-0017

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**12.30 %**

May 17, 2019

T-MOBILE
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 6009

Emissions Analysis for Site: **CT11309A – Middlefield/Rt 66**

Transcom Engineering, Inc ("Transcom") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **238 Meridan Rd, Middlefield, CT**, for the purpose of determining whether the emissions from the Proposed T-MOBILE Antenna Installation located on this property are within specified federal limits.

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

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

General population/uncontrolled exposure limits apply to situations in which the general 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 600 & 700 MHz bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2500 MHz (BRS) 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 T-MOBILE antenna facility located at **238 Meridan Rd, Middlefield, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-MOBILE is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB 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	1900 MHz (PCS)	4	40
LTE	2100 MHz (AWS)	2	60
GSM	1900 MHz (PCS)	1	15
UMTS	2100 MHz (AWS)	1	40
LTE / 5G NR	600 MHz	2	40
LTE	700 MHz	2	20

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 600, 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	Ericsson AIR32 B66A / B2A	104
A	2	Ericsson AIR21 B2A/B4P	104
A	3	RFS APXVAARR24_43-U-NA20	104
B	1	Ericsson AIR32 B66A / B2A	104
B	2	Ericsson AIR21 B2A/B4P	104
B	3	RFS APXVAARR24_43-U-NA20	104
C	1	Ericsson AIR32 B66A / B2A	104
C	2	Ericsson AIR21 B2A/B4P	104
C	3	RFS APXVAARR24_43-U-NA20	104

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 **2100 MHz (AWS) UMTS** radios are ground mounted the following cable loss values were used. For each ground mounted **2100 MHz (AWS) UMTS** radio there was **1.48 dB** of cable loss calculated into the system gains / losses for this site. These values were calculated based upon the manufacturers specifications for **115 feet** of **1-1/4"** coax.

RESULTS

Per the calculations completed for the proposed T-MOBILE 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)	ERP (W)	MPE %
Antenna A1	Ericsson AIR32 B66A / B2A	1900 MHz (PCS) / 2100 MHz (AWS)	15.85	6	280	10,768.57	4.03
Antenna A2	Ericsson AIR21 B2A/B4P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9	2	55	1,690.34	0.63
Antenna A3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	2.17
						Sector A Composite MPE%	**6.83**
Antenna B1	Ericsson AIR32 B66A / B2A	1900 MHz (PCS) / 2100 MHz (AWS)	15.85	6	280	10,768.57	4.03
Antenna B2	Ericsson AIR21 B2A/B4P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9	2	55	1,690.34	0.63
Antenna B3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	2.17
						Sector B Composite MPE%	**6.83**
Antenna C1	Ericsson AIR32 B66A / B2A	1900 MHz (PCS) / 2100 MHz (AWS)	15.85	6	280	10,768.57	4.03
Antenna C2	Ericsson AIR21 B2A/B4P	1900 MHz (PCS) / 2100 MHz (AWS)	15.9	2	55	1,690.34	0.63
Antenna C3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	2.17
						Sector C Composite MPE%	**6.83**

Table 3: T-MOBILE 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 T-MOBILE 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 T-MOBILE Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
T-MOBILE – Max Per Sector Value	**6.83 %**
AT&T	2.46 %
MetroPCS	1.54 %
Sprint	0.94 %
Nextel	0.53 %
Site Total MPE %:	**12.30 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	6.83 %
T-MOBILE Sector B Total:	6.83 %
T-MOBILE Sector C Total:	6.83 %
Site Total:	12.30 %

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 T-MOBILE sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

T-MOBILE _ 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
T-Mobile 1900 MHz (PCS) LTE	4	1,538.37	104	23.03	1900 MHz (PCS)	1000	2.30%
T-Mobile 2100 MHz (AWS) LTE	2	2,307.55	104	17.28	2100 MHz (AWS)	1000	1.73%
T-Mobile 1900 MHz (PCS) GSM	1	583.57	104	2.18	1900 MHz (PCS)	1000	0.22%
T-Mobile 2100 MHz (AWS) UMTS	1	1,106.78	104	4.14	2100 MHz (AWS)	1000	0.41%
T-Mobile 600 MHz LTE	2	788.97	104	5.91	600 MHz	400	1.48%
T-Mobile 700 MHz LTE	2	432.54	104	3.24	700 MHz	467	0.69%
						Total:	**6.83%**

Table 6: T-MOBILE 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 T-MOBILE facility 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:

T-MOBILE Sector	Power Density Value (%)
Sector A:	6.83 %
Sector B:	6.83 %
Sector C:	6.83 %
T-MOBILE Maximum Total (per sector):	6.83 %
Site Total:	12.30 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **12.30 %** 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.

Scott Heffernan
RF Engineering Director
Transcom Engineering, Inc
PO Box 1048
Sterling, MA 01564