



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

January 17, 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 / Crown Site BU: 876320
T-Mobile Site ID: CT11082E
Located at: 528 Wheelers Farm Road, Milford, Connecticut 06460
Latitude: 41° 14' 54.35" / Longitude: -73° 4' 44.67"

Dear Ms. Bachman:

T-Mobile is requesting to file an Exempt Modification for an existing 120-foot monopole tower located at 528 Wheelers Farm Road, Milford, Connecticut 06460. T-Mobile currently maintains nine (9) antennas at the 107-foot level of the existing monopole. The tower is owned by Crown Castle and the property is owned by the Village Foundation Inc. T-Mobile now intends to replace the mount and swap out six (6) panel antennas antenna and (3) RRUs as well as add (2) hybrid fiber cables.

This facility was approved by the Connecticut Siting Council, Petition No. 656 on February 2, 2004. There were no conditions that could feasibly be violated by this modification, including total facility height or mounting restrictions. This modification therefore complies with the aforementioned approval.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(6)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Milford Mayor, Benjamin G. Blake; David B. Sulkis, Milford's City Planner; the owner of the Property; and Crown, the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.

The Foundation for a Wireless World.

CrownCastle.com

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: William Stone.

Sincerely,

William Stone
Real Estate Specialist
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
518-373-3543
William.stone@crowncastle.com

Attachments:

- Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes
- Tab 2: Exhibit-2: Structural Modification Report
- Tab 3: Exhibit-3: General Power Density Table Report (RF Emissions Analysis Report)

cc:

Mayor Blake
City of Milford
110 River St
Milford, CT 06460
203-783-3201

David Sulkis, City Planner
City of Milford
70 West River St
Milford, CT 06460
203-783-3245

Village Foundation Inc
528 Wheelers Farm Rd
Milford, CT 06461
(203) 877-0300

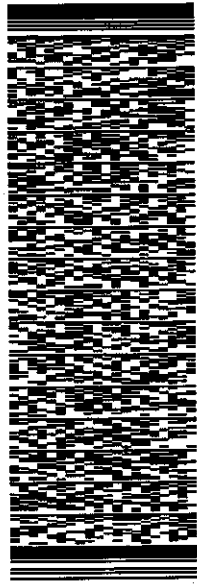
ORIGIN ID: GFLA (518) 373-3523
ANNE MARIE ZSAMBA
CROWN CASTLE
3 CORPORATE PARK DRIVE
SUITE 101
CLIFTON PARK, NY 12065
UNITED STATES US

SHIP DATE: 17 JAN 19
ACT WT: 1.30 LB
CAD: 108924194INET4040
BILL SENDER

TO MR. BENJAMIN G. BLAKE, MAYOR
CITY OF MILFORD
110 RIVER STREET

MILFORD CT 06460
(203) 783-3201 REF: 1766698
NY DEPT:
PO:

552J2ID74CIDCA5

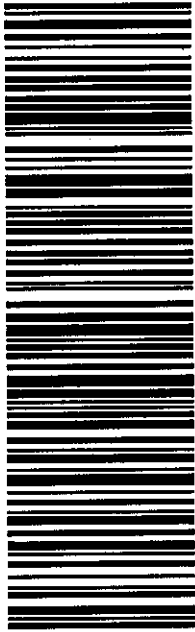


TRK# 7742 1983 1922
0201

FRI - 18 JAN 10:30A
PRIORITY OVERNIGHT
DSR

EB OXCA

06460
CT-US BDL



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ORIGIN: D:G:ELA (518) 373-3523
ANNEX: MARTE 75AMBA
CROWN CASTLE
3 CORPORATE PARK DRIVE
SUITE 101
CLIFTON PARK, NY 12065
UNITED STATES US

SHIP DATE: 17 JAN 19
ACT WGT: 1.50 LB
CAD: 104924194ANNET4040
BILL SENDER

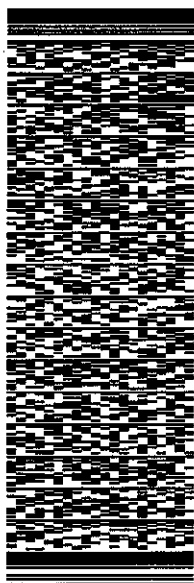
TO DAVID SULKIS - CITY PLANNER
CITY OF MILFORD
70 WEST RIVER ROAD

MILFORD CT 06460

REF: 1766899

(203) 783-3201
INV.
PO.

DEPT.



1122110001501uv

TRK# 7742 1991 3547
0201

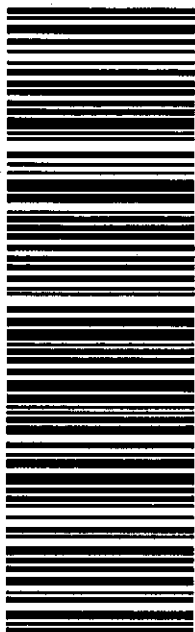
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EB OXCA

06460
CT-US BDL



552.02/D74GDCA5

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ORIGIN ID:GELA (518) 373-3323
ANNE MARIE ZSAMBA
CROWN CASTLE
3 CORPORATE PARK DRIVE
SUITE 101
CLIFTON PARK, NY 12065
UNITED STATES US

SHIP DATE: 17 JAN 19
ACTWGT: 1.50 LB
CAD: 100924194INLET4040
BILL SENDER

TO VILLAGE FOUNDATION INC

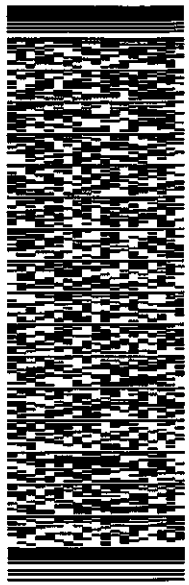
528 WHEELERS ROAD

MILFORD CT 06461

REF: 1734.7680

(203) 877-0300
NY
PO

DEPT:



J182118091501uv

552J2D74C/DCA5

FRI - 18 JAN 10:30A

PRIORITY OVERNIGHT

DSR

TRK# 7742 1994 3263
⑒201

06461

CT-US BDL

EB OXCA



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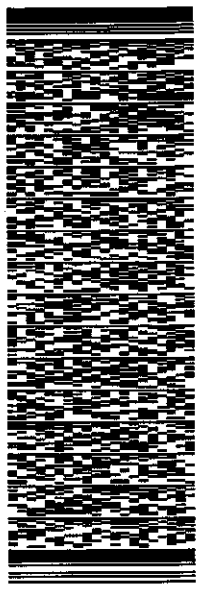
ORIGIN: GFLA (518) 373-3523
ANNE MARIE ZSAMBA
CROWN CASTLE
3 CORPORATE PARK DRIVE
SUITE 101
CLIFTON PARK, NY 12065
UNITED STATES US

SHIP DATE: 17 JAN 19
ACT WGT: 4.50 LB
CAD: 106924194/NET/4040
BILL SENDER

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

NEW BRITAIN CT 06051

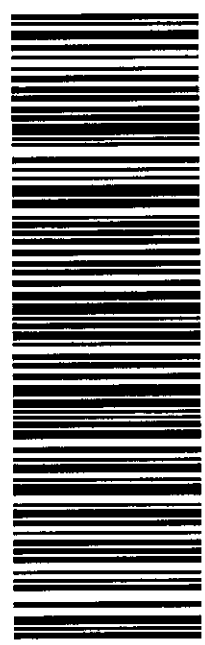
(860) 827-2951 REF: 17656990
NY DEPT:
PO



552J2D74C0C0A5

TRK# 7742 1996 2730
0201
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DSR

EB BDLA
CT-US **BDL**
06051



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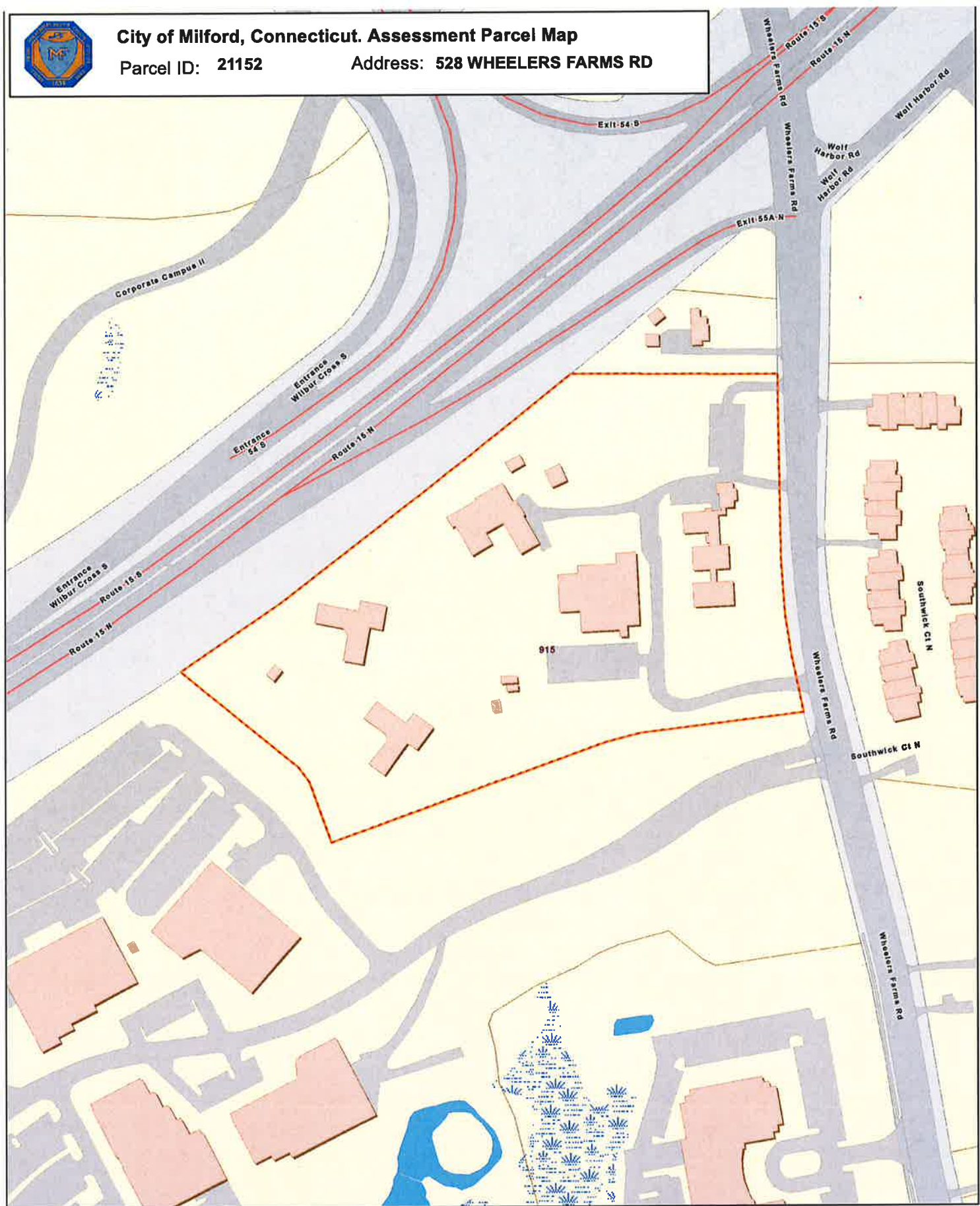
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City of Milford, Connecticut. Assessment Parcel Map

Parcel ID: 21152

Address: 528 WHEELERS FARMS RD



1 inch = 200 feet



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

Map Produced: March 2015



Property Information

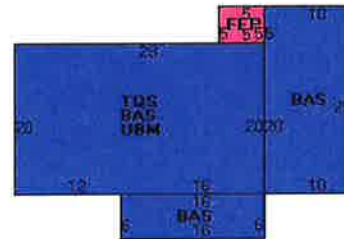
Property Location	528 WHEELERS FARMS RD
Owner	VILLAGE FOUNDATION INC THE
Co-Owner	06-00
Mailing Address	528 WHEELERS FARM RD MILFORD CT 06461
Land Use	904R PVT SCHOOL MDL-01
Land Class	E
Zoning Code	DO25
Census Tract	

Neighborhood	GG
Acreage	11.34
Utilities	All Public,Public Sewer
Lot Setting/Desc	
Additional Info	

Photo



Sketch



Primary Construction Details

Year Built	1900
Stories	2
Building Style	Conventional
Building Use	Residential
Building Condition	Average
Floors	Carpet
Total Rooms	

Bedrooms	0 Bedrooms
Full Bathrooms	0
Half Bathrooms	1
Bath Style	Updated
Kitchen Style	n/a
Roof Style	Gable/Hlp
Roof Cover	Asph/F Gls/Cmp

Exterior Walls	Vinyl Siding
Interior Walls	Drywall/Sheet
Heating Type	Hot Water
Heating Fuel	Gas
AC Type	XF Per Sq Ft
Gross Bldg Area	2051
Total Living Area	1410



Valuation Summary (Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	3235090	2264560
Extras	0	0
Improvements		
Outbuildings	35690	24980
Land	461440	323010
Total	3732220	2612550

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	906	906
Porch, Enclosed, Finished	25	0
Three Quarter Story	560	504
Basement, Unfinished	560	0
Total Area	2051	1410

Outbuilding and Extra Items

Type	Description
SHED FRAME	96 S.F.
OPN PRCH/SCRNHSE	120 S.F.
PAVING-ASPHALT	19000 S.F.
SHED FRAME	448 S.F.
SHED FRAME	216 S.F.
SHED FRAME	192 S.F.

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
VILLAGE FOUNDATION INC THE	00259/0563	5/15/1942	0

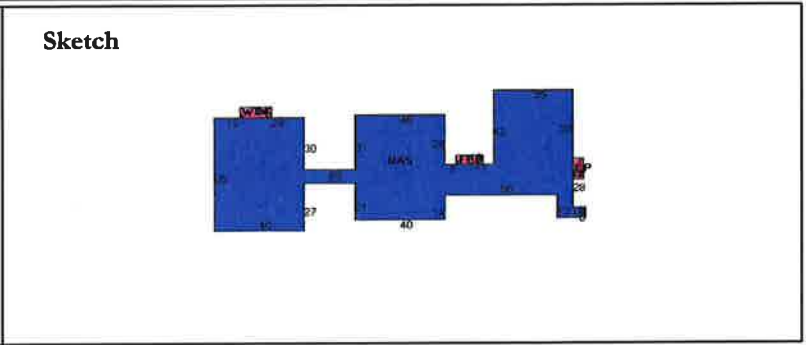


City of Milford, CT

Property Listing Report

Map Block Lot **104 915 13**

Account **019893**



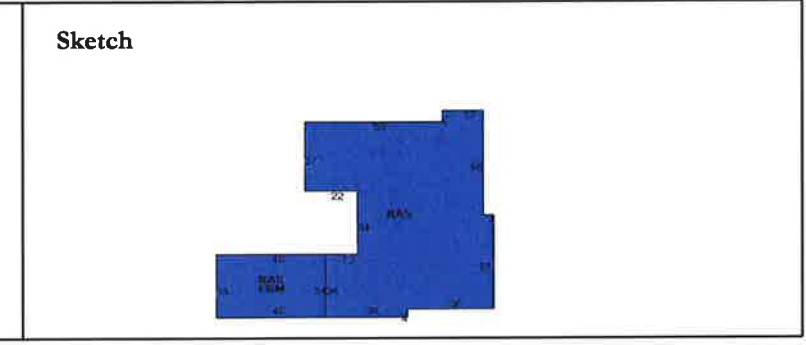
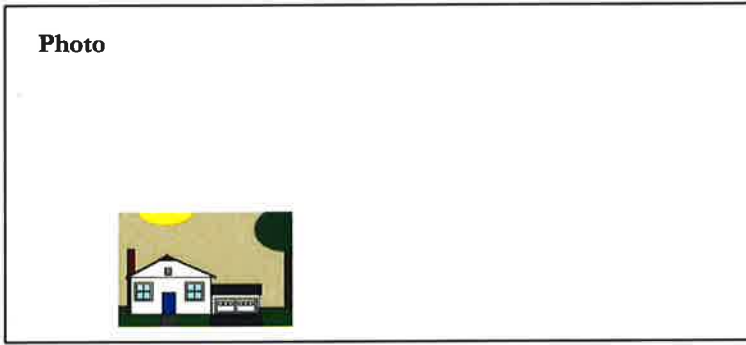
Primary Construction Details

Year Built	1983
Stories	1
Building Style	School/College
Building Use	Commercial
Building Condition	AVERAGE
Floors	Carpet
Total Rooms	
Bedrooms	
Bathrooms	2
Bath Style	n/a
Half Bath	

Kitchen Style	n/a
Roof Style	Flat
Roof Cover	Tar & Gravel
Exterior Walls	Concr/Cinder
Interior Walls	Drywall/Sheet
Heating Type	Forced Air-Duc
Heating Fuel	Gas
AC Type	Central
Gross Bldg Area	
Total Living Area	

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	7807	7807
Porch,	120	0
Deck, Wood	84	0
Total Area		



Primary Construction Details

Year Built	1957
Stories	1
Building Style	School/College
Building Use	Commercial
Building Condition	AVERAGE
Floors	Carpet
Total Rooms	
Bedrooms	
Bathrooms	2
Bath Style	n/a
Half Bath	

Kitchen Style	n/a
Roof Style	Flat
Roof Cover	Tar & Gravel
Exterior Walls	Concr/Cinder
Interior Walls	Minim/Masonry
Heating Type	Forced Air-Duc
Heating Fuel	Gas
AC Type	Central
Gross Bldg Area	
Total Living Area	

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Porch, Open,	72	0
Base,	1564	0
First Floor	9417	9417
Total Area		

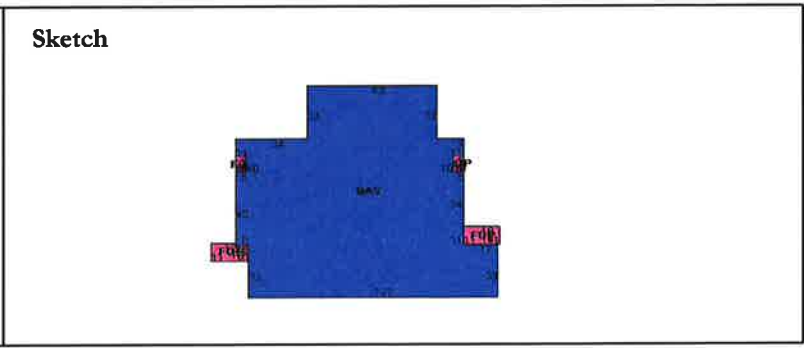


City of Milford, CT

Property Listing Report

Map Block Lot **104 915 13**

Account **019893**



Primary Construction Details

Year Built	1989
Stories	1
Building Style	Auditorlum
Building Use	Commercial
Building Condition	AVERAGE
Floors	Vinyl/Asphalt
Total Rooms	
Bedrooms	
Bathrooms	2
Bath Style	n/a
Half Bath	

Kitchen Style	n/a
Roof Style	Flat
Roof Cover	Tar & Gravel
Exterior Walls	Concr/Cinder
Interior Walls	Minim/Masonry
Heating Type	Hydro-Air
Heating Fuel	Gas
AC Type	Central
Gross Bldg Area	
Total Living Area	

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	13232	13232
Porch, Open,	490	0
Total Area		

SITE NAME: STRATFORD/MP X 53/MAIN

528 WHEELERS FARM ROAD

MILFORD, CT 06460

NEW HAVEN COUNTY

T-MOBILE SITE NUMBER: CT11082E

CROWN BU NUMBER: 876320

RF DESIGN GUIDELINE: 67D92M OUTDOOR

CONTRACTOR TO NOTIFY CROWN CM PRIOR TO CONSTRUCTION START

T-MOBILE TECHNICIAN SITE SAFETY NOTES

LOCATION	SPECIAL RESTRICTIONS
SECTOR A: ANTENNA/TMA/RRH	ACCESS NOT PERMITTED
SECTOR B: ANTENNA/TMA/RRH	ACCESS NOT PERMITTED
SECTOR C: ANTENNA/TMA/RRH	ACCESS NOT PERMITTED
GPS/LMU:	UNRESTRICTED CAUTION: OSHA-APPROVED PORTABLE 8' STEP-LADDER REQUIRED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE

**T-MOBILE
NORTHEAST LLC**

103 MONARCH DRIVE
UNVERPOOL, NY 13088
(315) 265-1882



CROWN CASTLE
12 GILL STREET, SUITE 5800
WOBURN, MA 01801



45 BEECHWOOD DRIVE TEL: (978) 557-5553
N. ANDOVER, MA 01845 FAX: (978) 336-5586

GENERAL NOTES

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.

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.

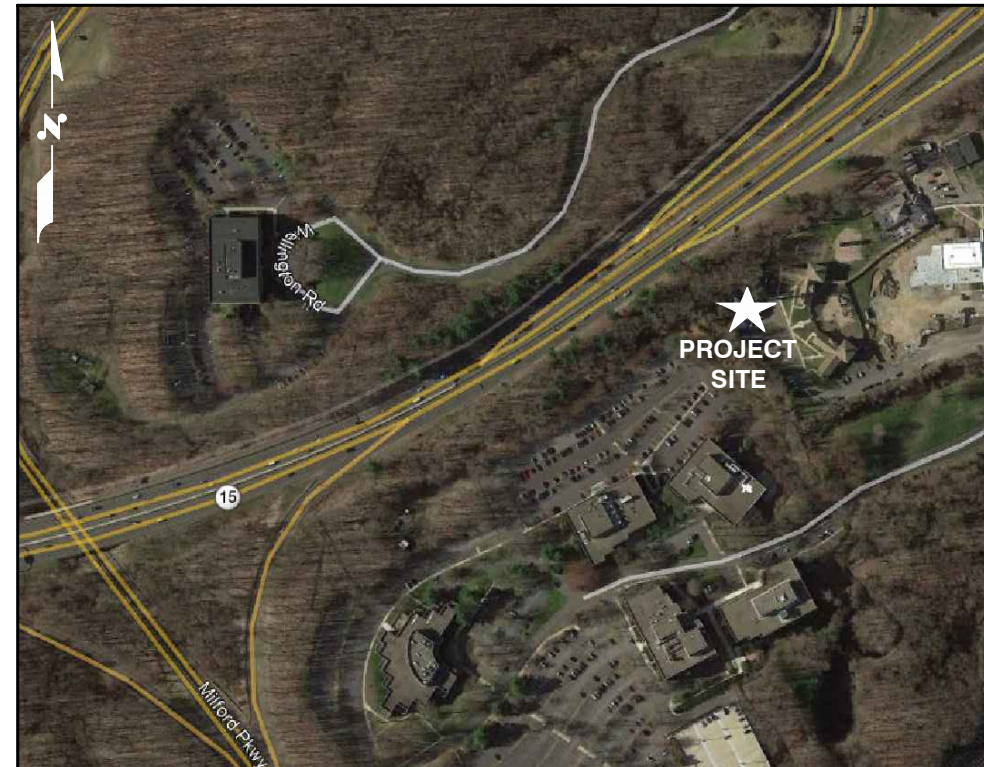
CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T-MOBILE NORTHEAST, LLC REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SPECIAL STRUCTURAL NOTES

CONTRACTOR SCOPE OF WORK SHALL INCLUDE ALL REQUIRED STRUCTURAL MODIFICATIONS, RE-BUNDLING OF COAXIAL CABLES OR OTHER SPECIAL MODIFICATIONS AS OUTLINED THEREIN.

STRUCTURAL DESIGNS AND DETAILS FOR ANTENNA MOUNTS AND GLOBAL STRUCTURAL STABILITY ANALYSIS COMPLETED ON BEHALF OF T-MOBILE ARE INCLUSIVE OF THE ENTIRE SUPPORT STRUCTURE, EXISTING ANTENNA MOUNTS AND ALL OTHER ASPECTS OF THE STRUCTURE THAT WILL SUPPORT THE T-MOBILE L700 EQUIPMENT DEPLOYMENT AS DEPICTED HEREIN.

HUDSON DESIGN ASSUMES THAT THE EQUIPMENT IS PROPERLY CONSTRUCTED AND MAINTAINED. ALL STRUCTURAL MEMBERS AND THEIR CONNECTION ARE ASSUMED TO BE IN GOOD CONDITION AND ARE FREE FROM DEFECTS WITH NO DETERIORATION TO ITS MEMBER CAPACITIES



PROJECT SUMMARY

SCOPE OF WORK: UNMANNED TELECOMMUNICATIONS FACILITY T-MOBILE EQUIPMENT MODERNIZATION
 ZONING JURISDICTION: BASED ON INFORMATION PROVIDED BY T-MOBILE, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS AN ELIGIBLE FACILITY UNDER THE TAX RELIEF ACT OF 2012, 47 USC 1455(A), AND IS SUBJECT TO AN EXPEDITED ELIGIBLE FACILITIES REQUEST/REVIEW AND ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW).

SITE ADDRESS: 528 WHEELERS FARM ROAD
MILFORD, CT 06460

LATITUDE: 41° 14' 54.35" N

LONGITUDE: 73° 4' 44.67" W

JURISDICTION: NEW HAVEN COUNTY

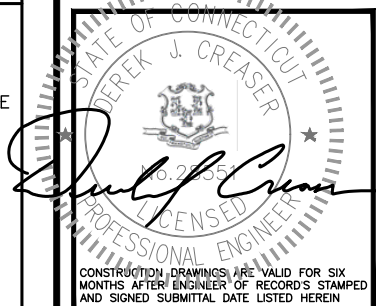
CURRENT USE: TELECOMMUNICATIONS FACILITY

PROPOSED USE: TELECOMMUNICATIONS FACILITY

CROWN CASTLE CM: CHRIS MILLER (585) 739-1780

CROWN CASTLE SITE NAME: 528 WHEELERS FARM RD

CROWN CASTLE SITE ID: 876320



CHECKED BY: BB

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	10/25/18	CONSTRUCTION FINAL	DJM
1	08/31/18	CONSTRUCTION REVISED	DJM
0	08/16/18	ISSUED FOR CONSTRUCTION	GA

APPROVALS

PROJECT MANAGER	DATE
CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING / SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE

UNDERGROUND SERVICE ALERT

CALL
BEFORE YOU DIG
CALL TOLL FREE 1-800-922-4455
OR CALL 811

**WWW.DIGSAFE.COM
72 HOURS PRIOR**

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
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A-3	ANTENNA DETAILS	2
A-4	EQUIPMENT DETAILS	2
A-5	ANTENNA AND COAX SCHEDULE & PLUMBING DIAGRAM	2
E-1	ONE-LINE DIAGRAM AND GROUNDING DETAILS	2

SITE NUMBER:
CT11082E
CROWN CASTLE SITE ID:
876320
SITE NAME:
STRATFORD/MP X
53/MAIN
SITE ADDRESS:
528 WHEELERS FARM ROAD
MILFORD, CT 06460
NEW HAVEN COUNTY

SHEET TITLE
TITLE SHEET
(L700)

SHEET NUMBER
T-1

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. 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.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. 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.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR – CROWN CASTLE INTERNATIONAL
 SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER – T-MOBILE
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH L700 SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T-MOBILE SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. APPLICABLE BUILDING CODES:
 SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
 BUILDING CODE: IBC 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS
 ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70)

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-G, STRUCTURAL STANDARDS FOR STEEL

EQUIPMENT AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS					
AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

**T-MOBILE
NORTHEAST LLC**

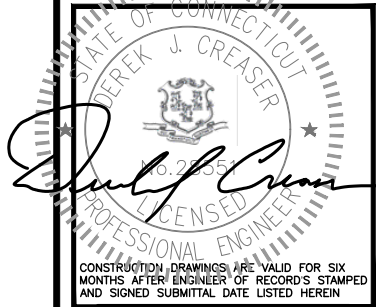
103 MONARCH DRIVE
LIVERPOOL, NY 13088
(315) 265-1882



CROWN CASTLE
12 GILL STREET, SUITE 5800
WOBRUN, MA 01801



45 BEECHWOOD DRIVE
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FAX: (978) 336-5586



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APPROVED BY: DJC

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1	08/31/18	CONSTRUCTION REVISED	DJM
0	08/16/18	ISSUED FOR CONSTRUCTION	GA

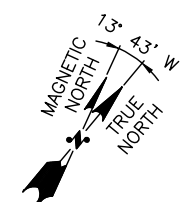
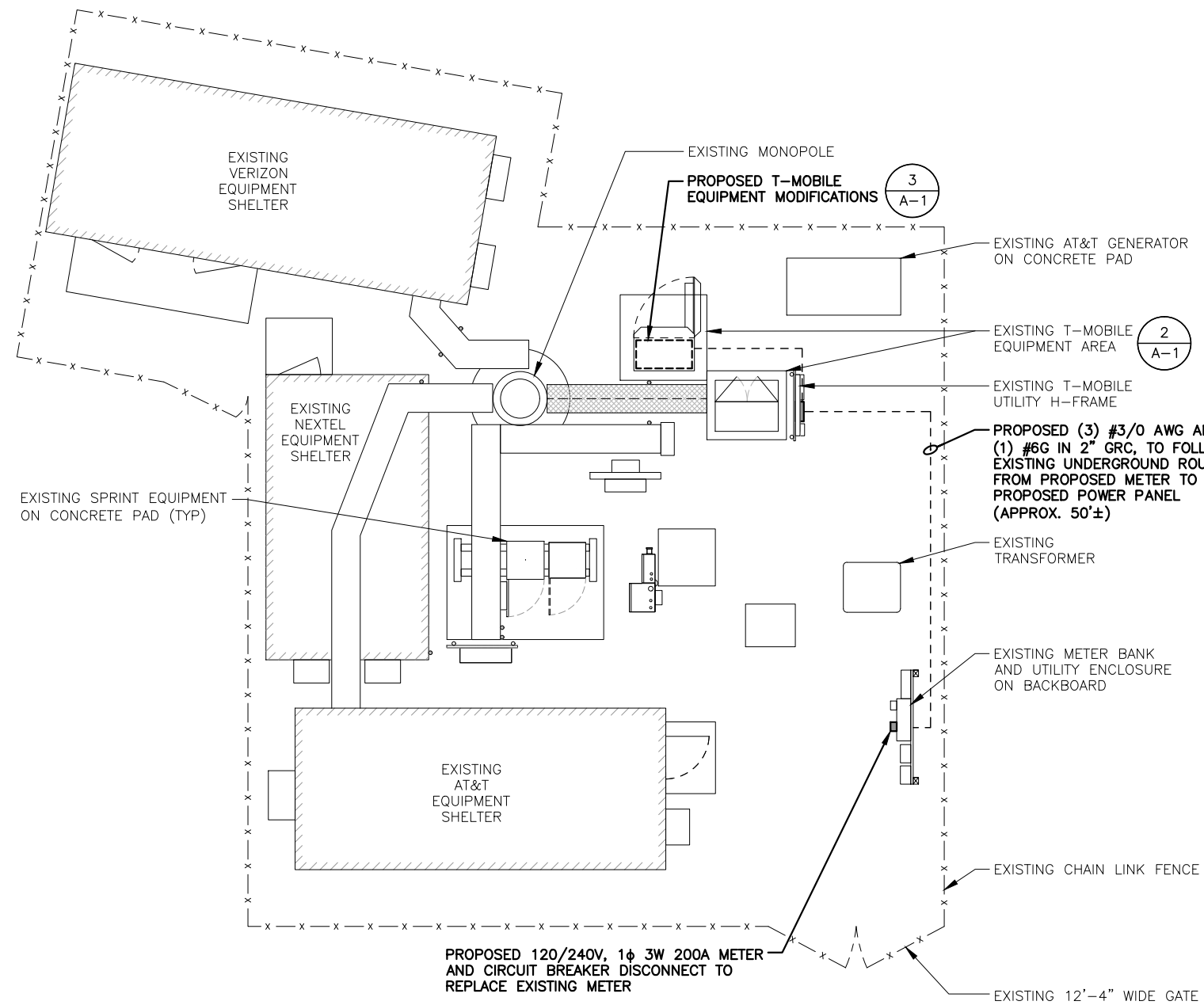
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CT11082E
CROWN CASTLE SITE ID:
876320
SITE NAME:
STRATFORD/MP X
53/MAIN
SITE ADDRESS:
528 WHEELERS FARM ROAD
MILFORD, CT 06460
NEW HAVEN COUNTY

SHEET TITLE
GENERAL NOTES
(L700)

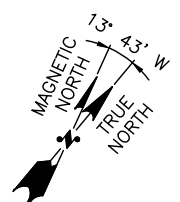
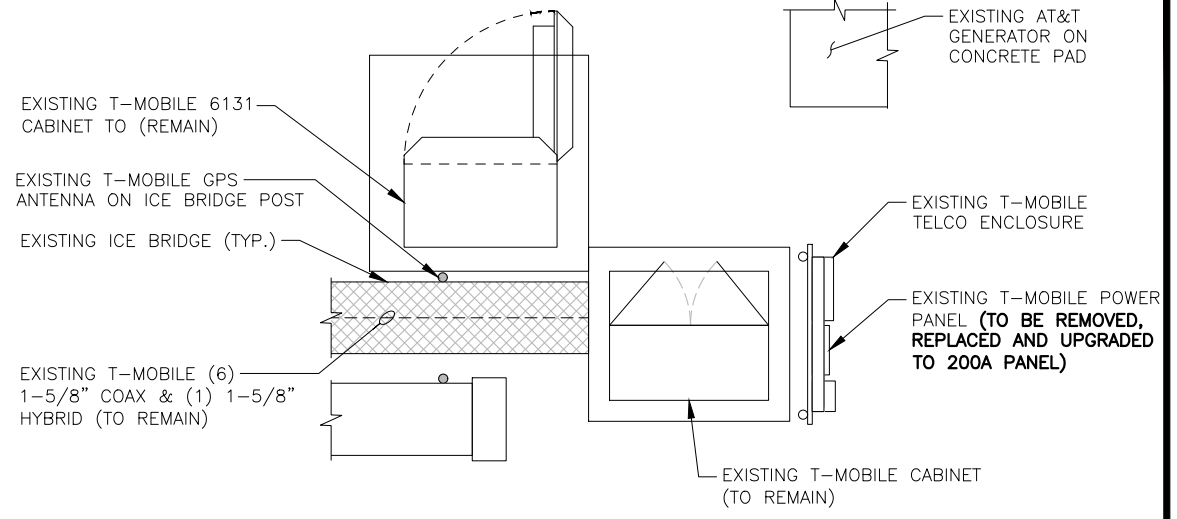
SHEET NUMBER
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STRUCTURAL NOTES:
 PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO TOWER STRUCTURAL ANALYSIS COMPLETED BY TOWER ENGINEERING PROFESSIONALS DATED 10/04/18 AND MOUNT STRUCTURAL ANALYSIS COMPLETED BY CENTEK ENGINEERING, INC. DATED 05/21/18 TO DETERMINE IF THERE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS, OR RELOCATION ARRANGEMENTS.

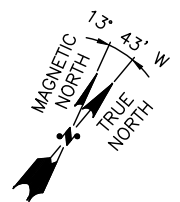
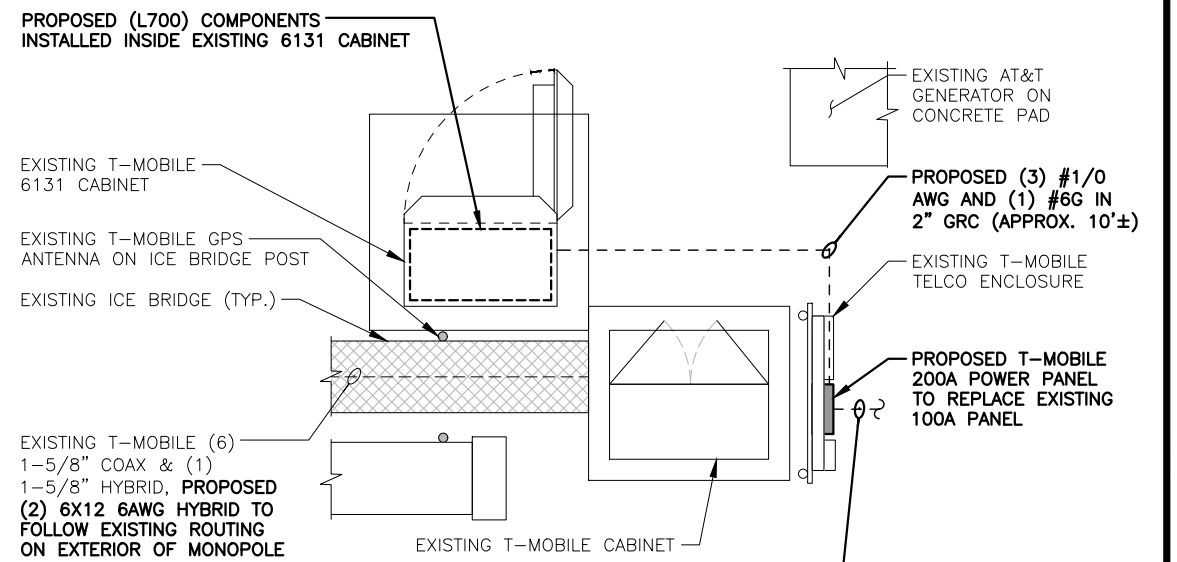
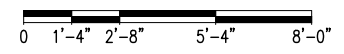
NOTE:
 REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



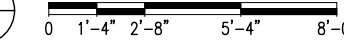
COMPOUND PLAN 1
 22x34 SCALE: 3/16"=1'-0"
 11x17 SCALE: 3/32"=1'-0"



EXISTING EQUIPMENT PLAN 2
 22x34 SCALE: 3/8"=1'-0"
 11x17 SCALE: 3/16"=1'-0"



PROPOSED EQUIPMENT PLAN 3
 22x34 SCALE: 3/8"=1'-0"
 11x17 SCALE: 3/16"=1'-0"



T-MOBILE NORTHEAST LLC
 103 MONARCH DRIVE
 LIVERPOOL, NY 13088
 (315) 265-1882

CROWN CASTLE
 CROWN CASTLE
 12 GILL STREET, SUITE 5800
 WOBURN, MA 01801

HG HUDSON Design Group LLC
 45 BEECHWOOD DRIVE
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 TEL: (978) 557-5553
 FAX: (978) 336-5586

STATE OF CONNECTICUT
 DEREK J. CREASER
 LICENSED PROFESSIONAL ENGINEER
 No. 29935
 CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

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 APPROVED BY: DJC

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1	08/31/18	CONSTRUCTION REVISED	DJM
0	08/16/18	ISSUED FOR CONSTRUCTION	GA

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 CROWN CASTLE SITE ID:
 876320
 SITE NAME:
 STRATFORD/MP X
 53/MAIN
 SITE ADDRESS:
 528 WHEELERS FARM ROAD
 MILFORD, CT 06460
 NEW HAVEN COUNTY

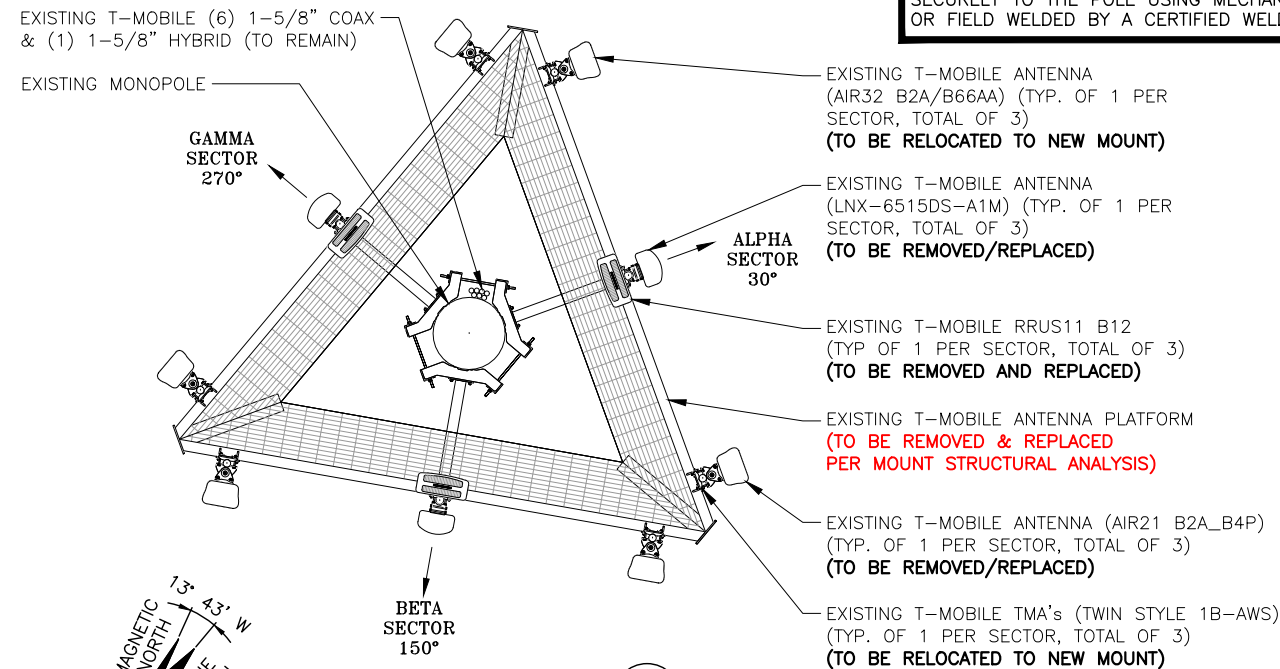
SHEET TITLE
 COMPOUND & EQUIPMENT PLAN
 (L700)

SHEET NUMBER
A-1

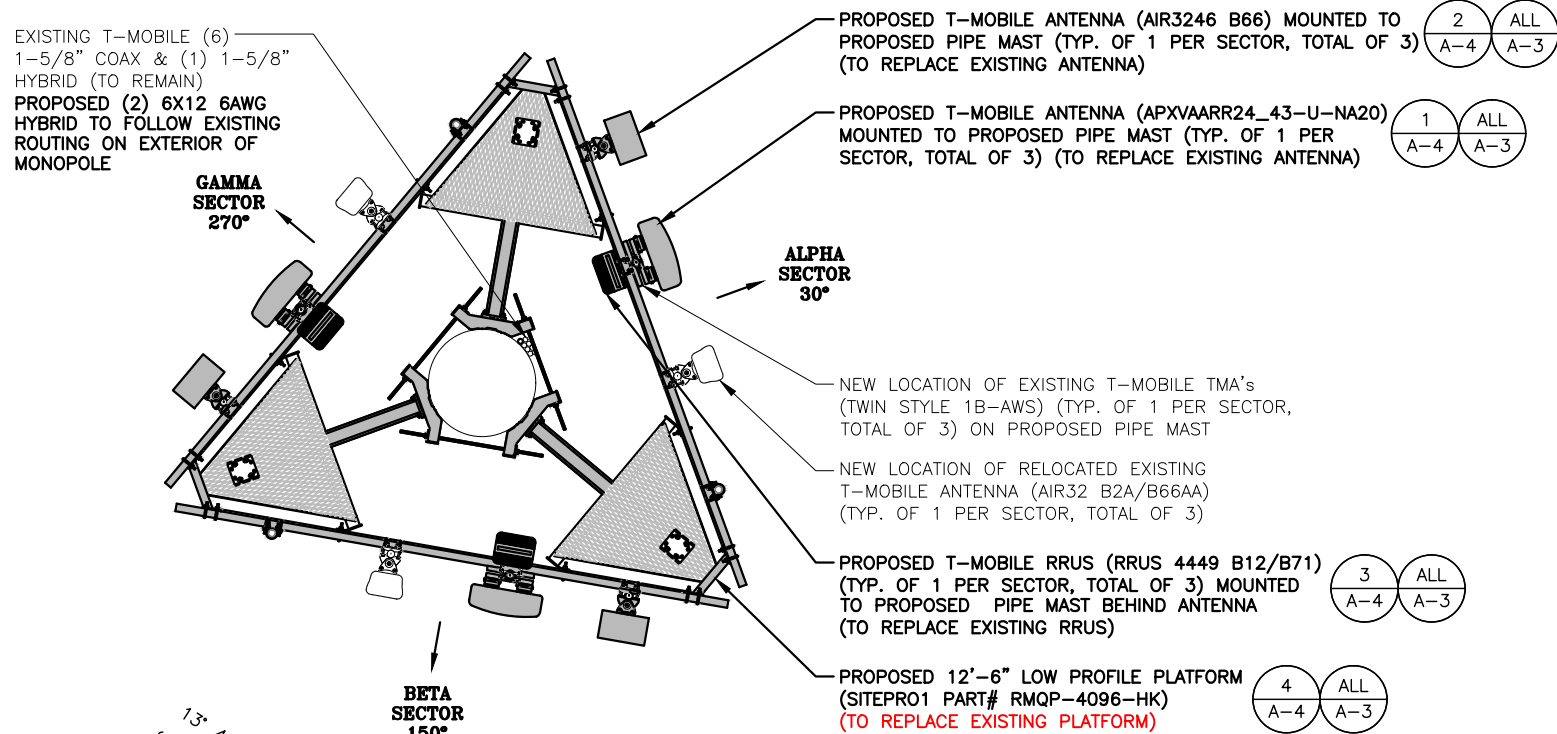
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NOTE:
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SPECIAL TOWER TOP EQUIPMENT INSTALLATION WORK NOTE (SAFETY-CLIMB ALIGNMENT REQUIREMENTS):
 GENERAL CONTRACTOR SHALL ORIENT PROPOSED STRUCTURAL AUGMENT REINFORCEMENT KIT RING-MOUNTS SO THAT EXISTING SAFETY CLIMB CABLE IS NOT OBSTRUCTED/RE-ROUTED FROM VERTICAL ALIGNMENT AND IS NOT IN PHYSICAL CONTACT WITH EXISTING OR PROPOSED RING-MOUNT HARDWARE. GENERAL CONTRACTOR SHALL INSTALL NEW OR ADDITIONAL SAFETY-CLIMB CABLE GUIDES IF ADDITIONAL CLEARANCE IS REQUIRED. ADDITIONAL CABLE GUIDES SHALL BE ATTACHED SECURELY TO THE POLE USING MECHANICAL FASTENERS OR FIELD WELDED BY A CERTIFIED WELDING TECHNICIAN.



EXISTING ANTENNA PLAN
 SCALE: N.T.S



PROPOSED ANTENNA PLAN
 SCALE: N.T.S

TOP OF HIGHEST APPURTENANCE
 ELEV. = 131'-0"± A.G.L

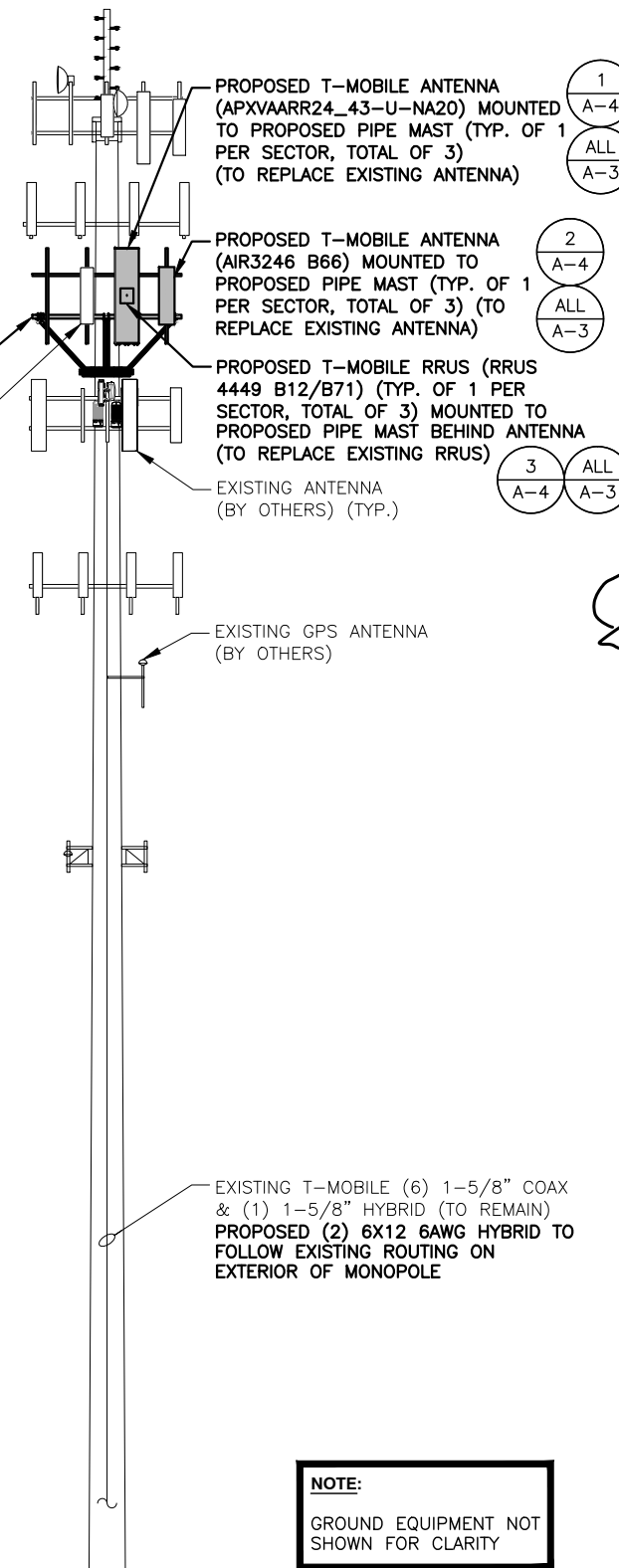
TOP OF EXISTING MONOPOLE
 ELEV. = 120'-0"± A.G.L

CL OF PROPOSED/EXISTING T-MOBILE ANTENNAS
 ELEV. = 107'-0"± A.G.L

PROPOSED 12'-6" LOW PROFILE PLATFORM (SITEPRO1 PART# RMQP-4096-HK) (TO REPLACE EXISTING PLATFORM)

NEW LOCATION OF RELOCATED EXISTING T-MOBILE ANTENNA (AIR32 B2A/B66AA) (TYP. OF 1 PER SECTOR, TOTAL OF 3)

GROUND LEVEL
 ELEV. = 0'-0"± A.G.L



NOTE:
 GROUND EQUIPMENT NOT SHOWN FOR CLARITY

ELEVATION
 22x34 SCALE: 1/8"=1'-0"
 11x17 SCALE: 1/16"=1'-0"



T-MOBILE NORTHEAST LLC

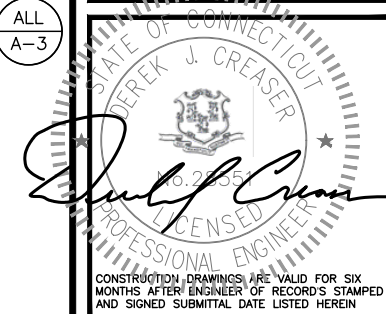
103 MONARCH DRIVE
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CROWN CASTLE

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 WOBURN, MA 01801

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 CROWN CASTLE SITE ID:
 876320
 SITE NAME:
 STRATFORD/MP X
 53/MAIN
 SITE ADDRESS:
 528 WHEELERS FARM ROAD
 MILFORD, CT 06460
 NEW HAVEN COUNTY

SHEET TITLE
 ANTENNA LAYOUTS
 & ELEVATION
 (L700)

SHEET NUMBER
A-2

STRUCTURAL NOTES:
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NOTE:
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3
A-4

ALL
A-3

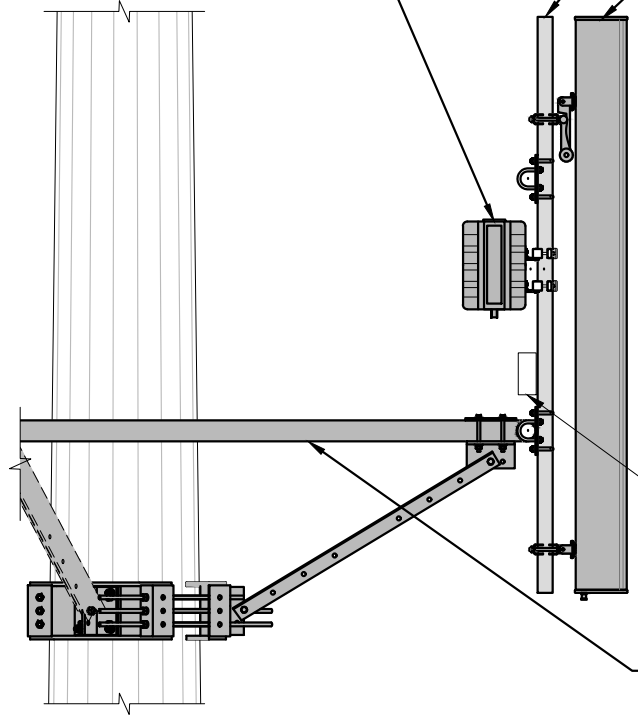
PROPOSED T-MOBILE RRUS (RRUS 4449 B12/B71) (TYP. OF 1 PER SECTOR, TOTAL OF 3) MOUNTED TO PROPOSED PIPE MAST BEHIND ANTENNA (TO REPLACE EXISTING RRUS)

PROPOSED 2.5" STD (2-7/8" O.D.) X 96" LONG PIPE MAST (TYP OF 4 PER SECTOR, TOTAL OF 12) (INCLUDED IN KIT)

PROPOSED T-MOBILE ANTENNA (APXVAARR24_43-U-NA20) MOUNTED TO PROPOSED PIPE MAST (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TO REPLACE EXISTING ANTENNA)

1
A-4

2
A-2



☉ OF PROPOSED/EXISTING T-MOBILE ANTENNAS
 ELEV. = 107'-0"± A.G.L

ANTENNA INSTALLATION SPECIAL WORK NOTE:
 ANTENNA INSTALLATION WORKING POINT IS THE VERTICAL CENTERLINE OF THE PROPOSED UPPER HANDRAIL AND PLATFORM. **UNLESS NOTED OTHERWISE, VERTICALLY CENTER ALL PIPE MASTS AND ALL ANTENNAS BETWEEN THESE WORKING POINTS.**

NEW LOCATION OF EXISTING T-MOBILE TMA'S (TWIN STYLE 1B-AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3) ON PROPOSED PIPE MAST (BEHIND ANTENNA)

PROPOSED 12'-6" LOW PROFILE PLATFORM (SITEPRO1 PART# RMQP-4096-HK) (TO REPLACE EXISTING PLATFORM)

4
A-4

2
A-2

ANTENNA MOUNTING DETAIL

22x34 SCALE: 3/4"=1'-0"
 11x17 SCALE: 3/8"=1'-0"

1
A-3

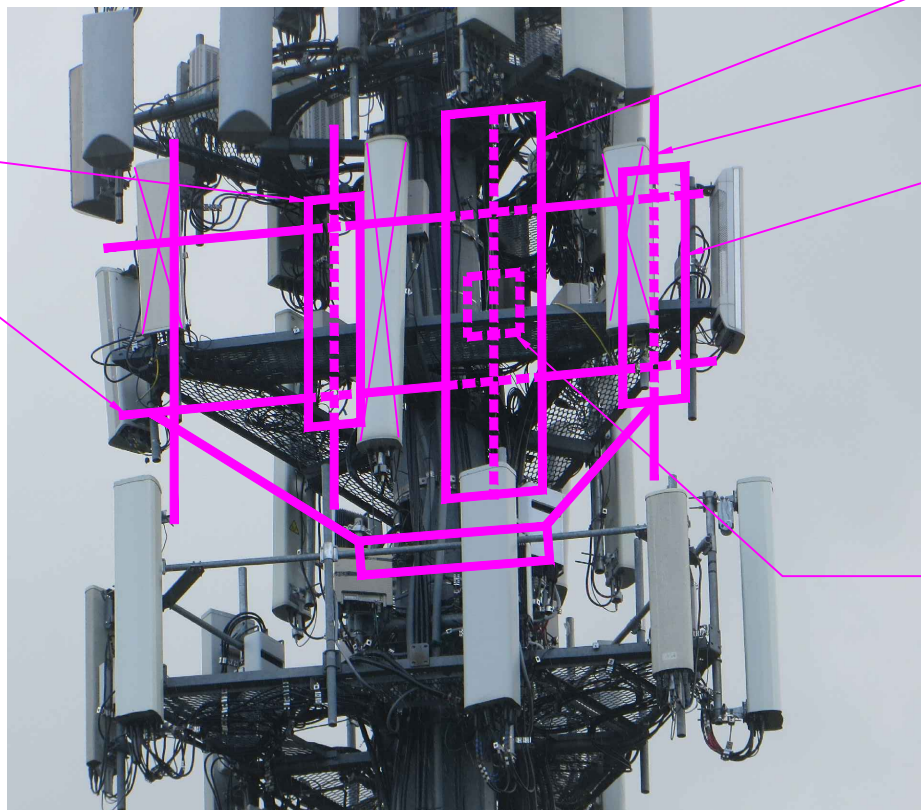


NEW LOCATION OF RELOCATED EXISTING T-MOBILE ANTENNA (AIR32 B2A/B66AA) (TYP. OF 1 PER SECTOR, TOTAL OF 3)

4
A-4

2
A-2

PROPOSED 12'-6" LOW PROFILE PLATFORM (SITEPRO1 PART# RMQP-4096-HK) (TO REPLACE EXISTING PLATFORM)



PROPOSED T-MOBILE ANTENNA (APXVAARR24_43-U-NA20) MOUNTED TO PROPOSED PIPE MAST (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TO REPLACE EXISTING ANTENNA)

1
A-4

2
A-2

PROPOSED 2.5" STD (2-7/8" O.D.) X 96" LONG PIPE MAST (TYP OF 4 PER SECTOR, TOTAL OF 12) (INCLUDED IN KIT)

PROPOSED T-MOBILE ANTENNA (AIR3246 B66) MOUNTED TO PROPOSED PIPE MAST (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TO REPLACE EXISTING ANTENNA)

2
A-4

2
A-2

PROPOSED T-MOBILE RRUS (RRUS 4449 B12/B71) (TYP. OF 1 PER SECTOR, TOTAL OF 3) MOUNTED TO PROPOSED PIPE MAST BEHIND ANTENNA (TO REPLACE EXISTING RRUS)

3
A-4

2
A-2

T-MOBILE ELEVATION PHOTO DETAIL

SCALE: N.T.S

2
A-3

T-MOBILE NORTHEAST LLC

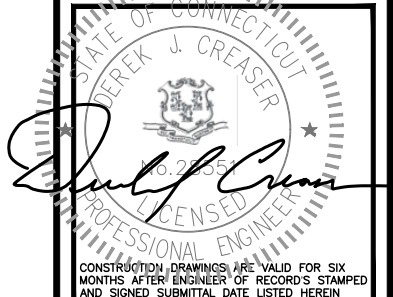
103 MONARCH DRIVE
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HDG HUDSON Design Group LLC

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 876320

SITE NAME:
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 53/MAIN

SITE ADDRESS:
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 NEW HAVEN COUNTY

SHEET TITLE

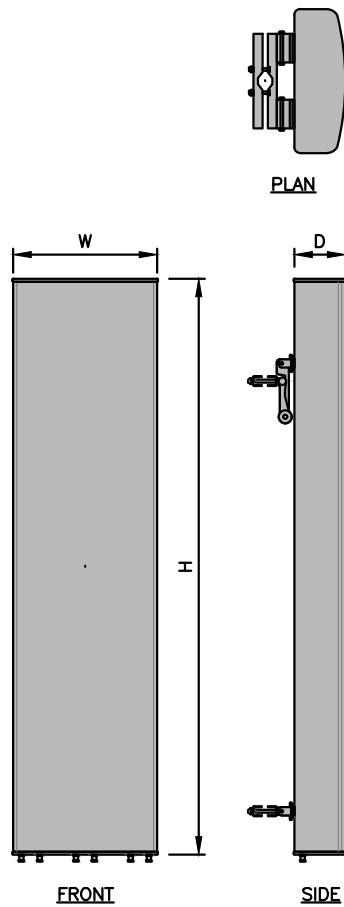
ANTENNA DETAILS

(L700)

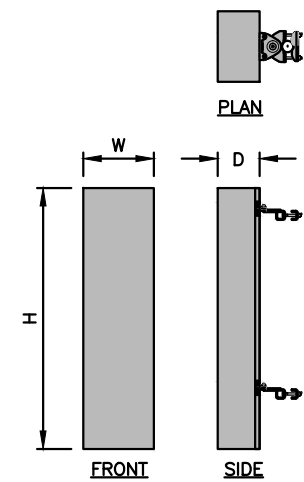
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A-3

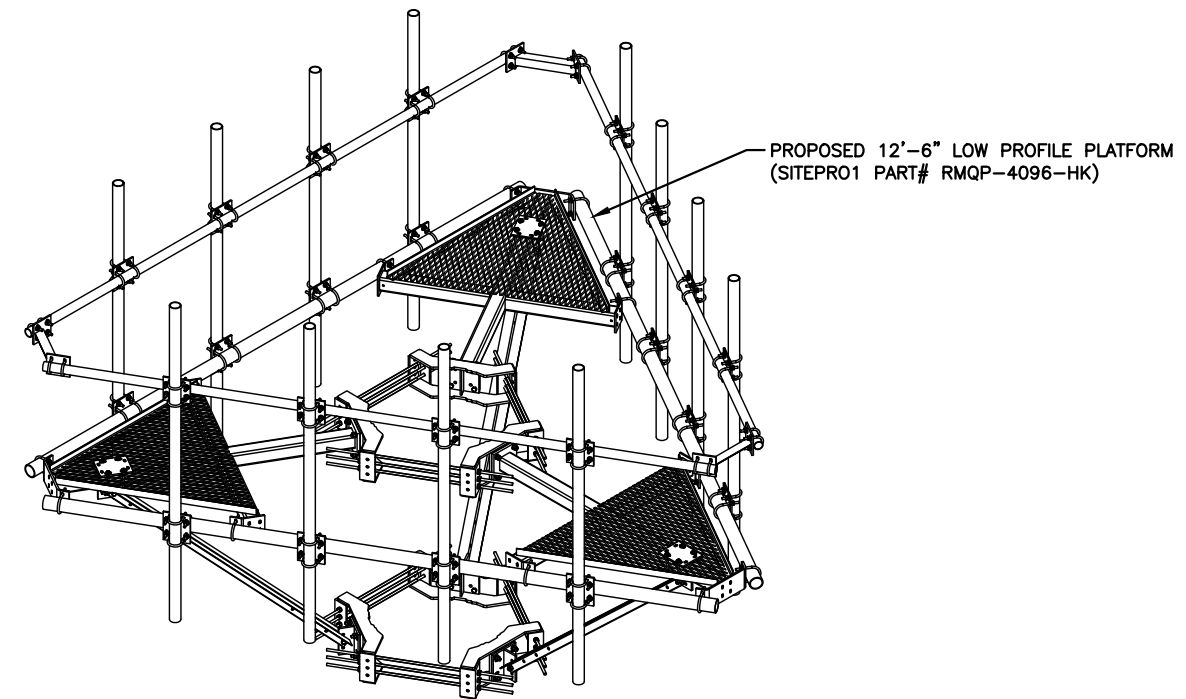
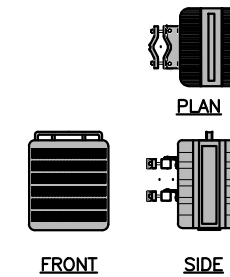
U21/L7/L6 ANTENNA DIMENSIONS	
MODEL #	APXVAARR24_43-U-NA20 (OCTA)
MANUF.	RFS
HEIGHT	95.9"
WIDTH	24"
DEPTH	8.7"
WEIGHT	128 LBS



L2100 ANTENNA DIMENSIONS	
MODEL #	AIR3246 B66
MANUF.	ERICSSON
HEIGHT	58.1"
WIDTH	15.7"
DEPTH	9.4"
WEIGHT	180 LBS



RADIO DIMENSIONS	
MODEL #	RADIO 4449 B12+B71
MANUF.	ERICSSON
HEIGHT	14.95"
WIDTH	13.19"
DEPTH	9.25"
WEIGHT	78 LBS



**T-MOBILE
NORTHEAST LLC**

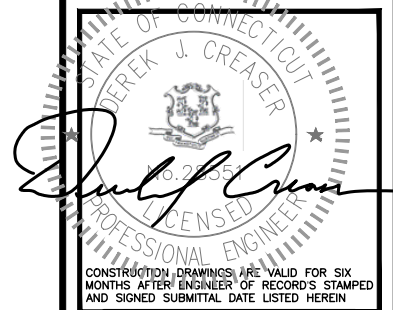
103 MONARCH DRIVE
LIVERPOOL, NY 13088
(315) 265-1882



CROWN CASTLE
12 GILL STREET, SUITE 5800
WOBURN, MA 01801



45 BEECHWOOD DRIVE TEL: (978) 557-5553
N. ANDOVER, MA 01845 FAX: (978) 336-5886



CHECKED BY: BB

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	10/25/18	CONSTRUCTION FINAL	DJM
1	08/31/18	CONSTRUCTION REVISED	DJM
0	08/16/18	ISSUED FOR CONSTRUCTION	GA

SITE NUMBER:

CT11082E

CROWN CASTLE SITE ID:
876320

SITE NAME:
STRATFORD/MP X
53/MAIN

SITE ADDRESS:
528 WHEELERS FARM ROAD
MILFORD, CT 06460
NEW HAVEN COUNTY

SHEET TITLE

EQUIPMENT DETAILS

(L700)

SHEET NUMBER

A-4

**T-MOBILE
NORTHEAST LLC**

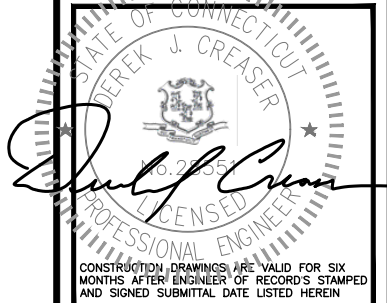
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528 WHEELERS FARM ROAD

MILFORD, CT 06460

NEW HAVEN COUNTY

SHEET TITLE

ANTENNA AND COAX

SCHEDULE &

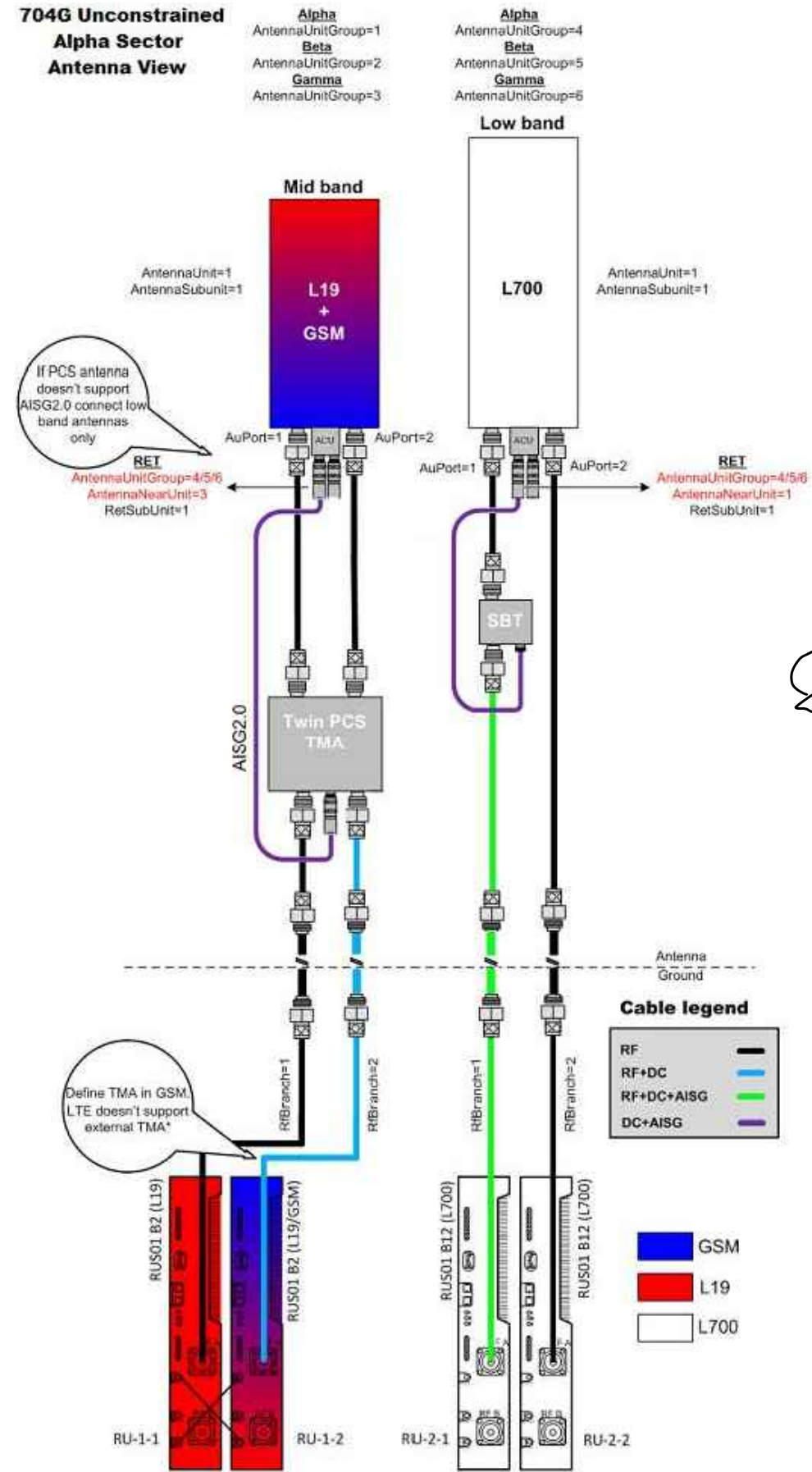
PLUMBING DIAGRAM

(L700)

SHEET NUMBER

A-5

**704G Unconstrained
Alpha Sector
Antenna View**



PLUMBING DIAGRAM

SCALE: N.T.S

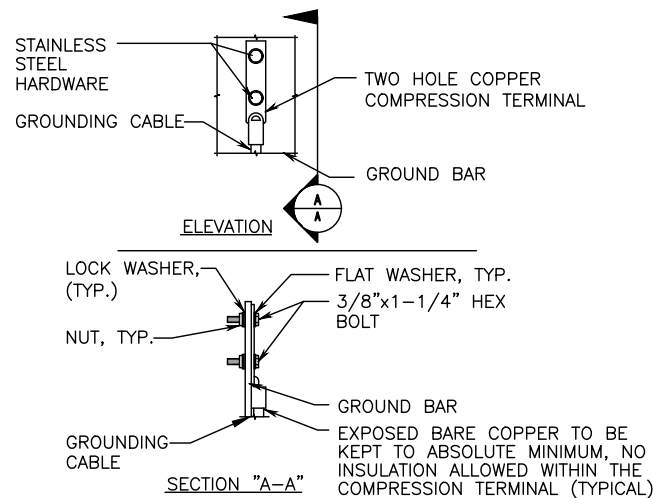
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A-5

PROPOSED ANTENNA AND COAXIAL CABLE SCHEDULE

SCALE: N.T.S

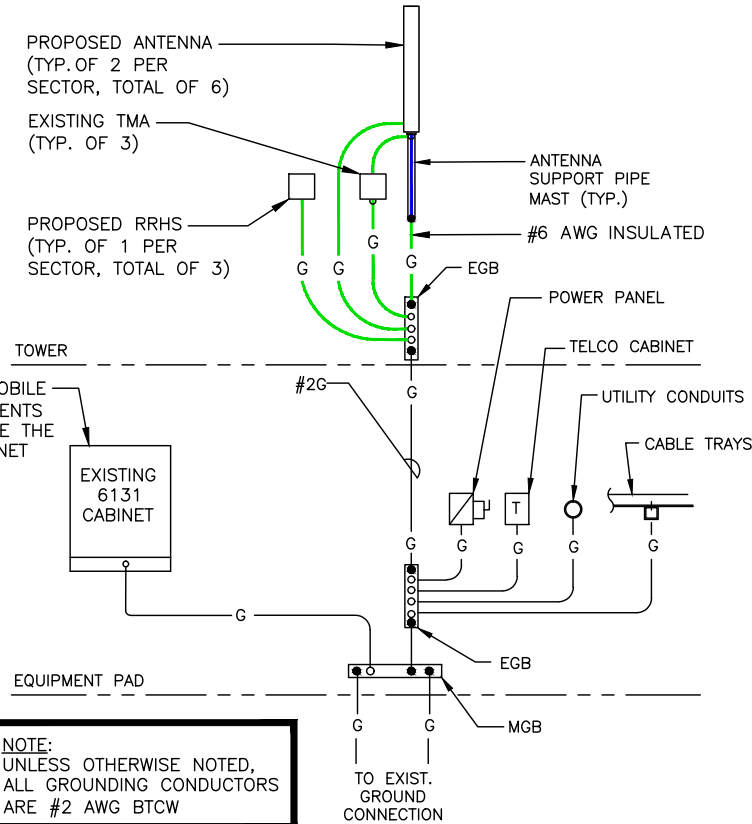
PROPOSED ANTENNA AND COAXIAL CABLE SCHEDULE											
SECTOR MARK	ANTENNA MODEL	AZIMUT H	E-TILT	M-TILT	ANTENNA CENTERLINE	SECTOR	TMA/SBiasT/RRU	TX/RX	CABLE FEED LINES	JUMPER TYPE	CABLE LENGTH
A-1 L21	ERICSSON AIR3246 B66 (58.10x15.70x9.40)	30°	0	0	107'	RIGHT ALPHA	0/0/0	TX-RX-1 TX-RX-2	-	-	-
A-2 U21/L7/L6	RFS/CELWAVE APXVAARR24_43-U-NA20 (95.90X24X8.7)	30°	0	0	107'	CENTER ALPHA	1/0/1	TX-RX-1 TX-RX-2	(2) (E) 1-5/8" COAX (1) (E) 1-5/8" HYBRID (2) (P) HCS 6X12 6AWG	-	160'±
A-2 AIR32	ERICSSON AIR32 B2A/B66AA (56.60X12.90X8.70)	30°	0	0	107'	LEFT ALPHA	0/0/0	TX-RX-1 TX-RX-2	-	-	-
B-1 L21	ERICSSON AIR3246 B66 (58.10x15.70x9.40)	150°	0	0	107'	RIGHT BETA	0/0/0	TX-RX-1 TX-RX-2	-	-	-
B-2 U21/L7/L6	RFS/CELWAVE APXVAARR24_43-U-NA20 (95.90X24X8.7)	150°	0	0	107'	CENTER BETA	1/0/1	TX-RX-1 TX-RX-2	(2) (E) 1-5/8" COAX	-	160'±
B-2 AIR32	ERICSSON AIR32 B2A/B66AA (56.60X12.90X8.70)	150°	0	0	107'	LEFT BETA	0/0/0	TX-RX-1 TX-RX-2	-	-	-
C-1 L21	ERICSSON AIR3246 B66 (58.10x15.70x9.40)	270°	0	0	107'	RIGHT GAMMA	0/0/0	TX-RX-1 TX-RX-2	-	-	-
C-2 U21/L7/L6	RFS/CELWAVE APXVAARR24_43-U-NA20 (95.90X24X8.7)	270°	0	0	107'	CENTER GAMMA	1/0/1	TX-RX-1 TX-RX-2	(2) (E) 1-5/8" COAX	-	160'±
C-3 AIR32	ERICSSON AIR32 B2A/B66AA (56.60X12.90X8.70)	270°	0	0	107'	LEFT GAMMA	0/0/0	TX-RX-1 TX-RX-2	-	-	-

NOTES:
INFORMATION BASED ON CCI APP. REVISION #0 DATED 05/23/2018 AND RFDS REV 2.1 DATED 05/02/18. CHECK WITH RF ENGINEER FOR LATEST RFDS.

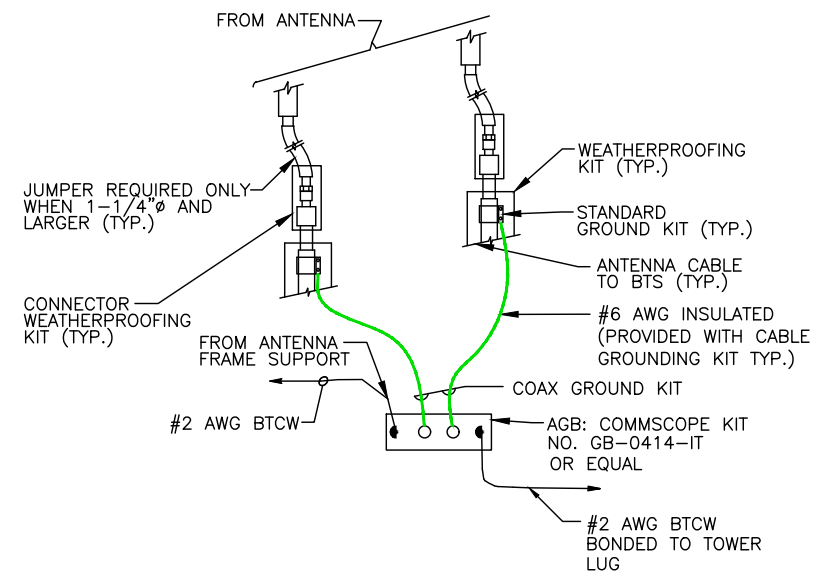


NOTE:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER AGB/EGB, LOWER EGB, AND MGB.

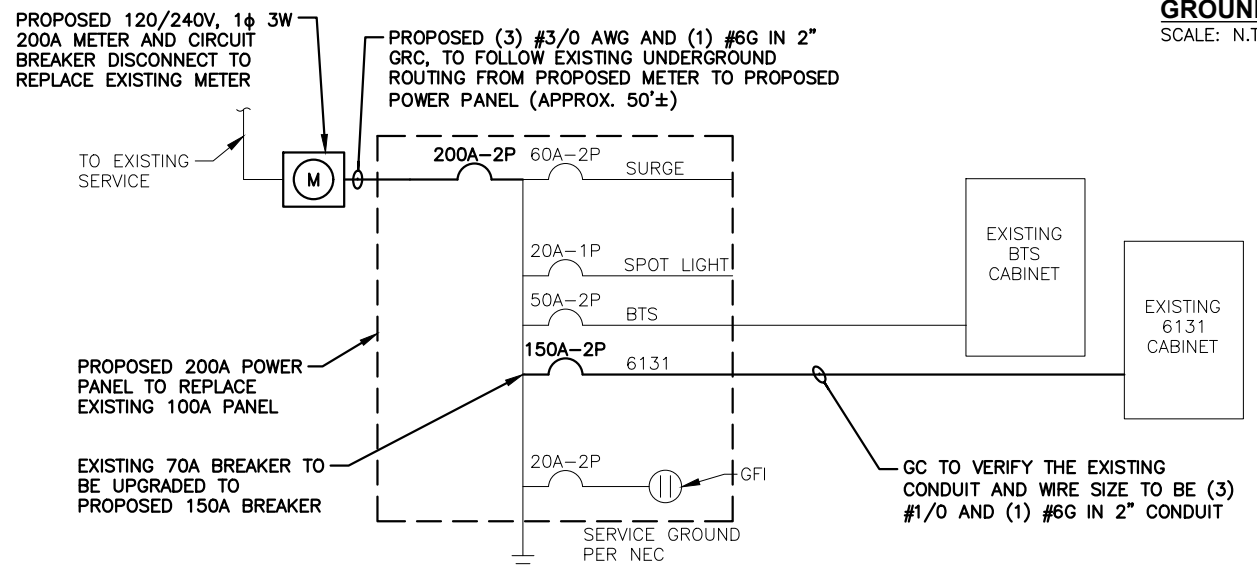
NOTE:
REFER TO EE MEMO FOR DETAILS ON THE ELECTRICAL UPGRADE.



NOTE:
UNLESS OTHERWISE NOTED, ALL GROUNDING CONDUCTORS ARE #2 AWG BTCW



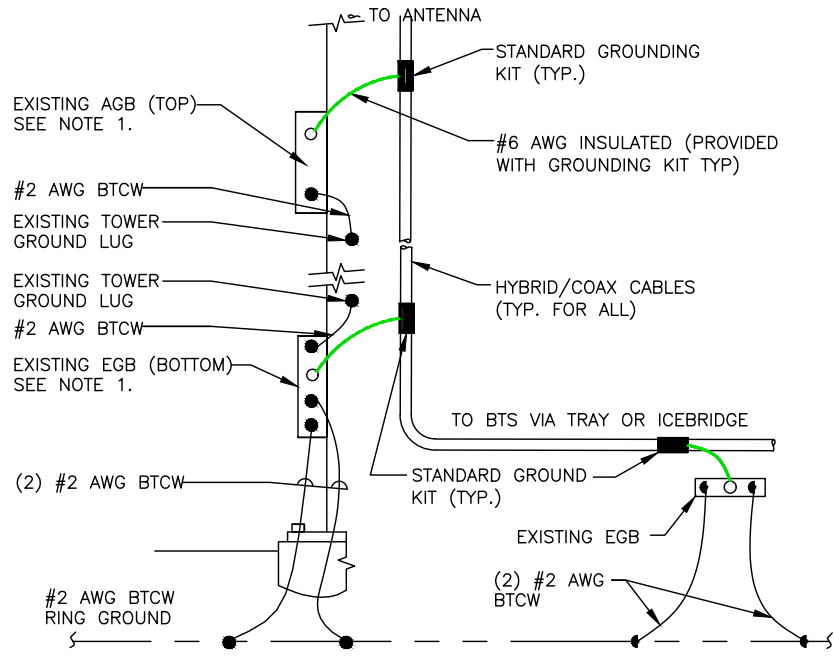
NOTE:
INSTALL CABLE GROUND KIT ABOVE HORIZONTAL BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO AGB/EGB.



ELECTRICAL LEGEND

A	AMPERE
V	VOLT
KWH	KILOWATT - HOUR
C	CONDUIT
GRC	GALVANIZED RIGID CONDUIT
BTCW	BARE TINNED (SOLID) COPPER WIRE (#2 AWG, UNLESS NOTES OTHERWISE)
G	GROUND
MGB	GROUND
(Symbol)	MASTER GROUND BAR
(Symbol)	MECHANICAL CONNECTION
(Symbol)	AGB/EGB
(Symbol)	CADWELD CONNECTION
(Symbol)	EQUIPMENT GROUND BAR/ANTENNA GROUND BAR
(Symbol)	GROUND COPPER WIRE, SIZE AS NOTED
(Symbol)	EXPOSED WIRING
(Symbol)	INSULATED GROUNDING CONDUCTOR (#6 AWG STRANDED, UNLESS NOTED OTHERWISE)
(Symbol)	5/8" x 8" COPPER CLAD STAINLESS STEEL GROUND ROD
(Symbol)	EXOTHERMIC (CAD WELD) OR MECHANICAL (COMPRESSION TYPE) CONNECTION
(Symbol)	POWER PROTECTION CABINET
(Symbol)	OMNI-DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL

- ELECTRICAL & GROUNDING NOTES**
- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
 - ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
 - THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
 - GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
 - ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
 - RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
 - ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION.
 - RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL ROOM AND PROPOSED CELL SITE POWER PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
 - RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON DRAWING A-1. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
 - ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
 - GROUNDING SHALL COMPLY WITH NEC ART. 250.
 - GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
 - USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
 - ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
 - ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
 - CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PRODUCERS (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUND); (GROUNDING ELECTRODE RING OR BUILDING STEEL); NON-SURGING OBJECTS (EGB GROUND IN BTS UNIT).
 - CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
 - APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
 - BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
 - BOND ANTENNA EGB'S AND MGB TO WATER MAIN.
 - TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.
 - BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
 - VERIFY PROPOSED SERVICE UPGRADE WITH LOCAL UTILITY COMPANY PRIOR TO CONSTRUCTION.



NOTE:
1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION AND CONNECTION ORIENTATION. PROVIDE ADDITIONAL AGB/EGB AS REQUIRED.
2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088
(315) 265-1882

CROWN CASTLE
CROWN CASTLE
12 GILL STREET, SUITE 5800
WOBBURN, MA 01801

HDG HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
Derek J. Creaser
LICENSED PROFESSIONAL ENGINEER
CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMP AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: BB

APPROVED BY: DJC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	10/25/18	CONSTRUCTION FINAL	DJM
1	08/31/18	CONSTRUCTION REVISED	DJM
0	08/16/18	ISSUED FOR CONSTRUCTION	GA

SITE NUMBER:
CT11082E
CROWN CASTLE SITE ID:
876320
SITE NAME:
STRATFORD/MP X
53/MAIN
SITE ADDRESS:
528 WHEELERS FARM ROAD
MILFORD, CT 06460
NEW HAVEN COUNTY

SHEET TITLE
ONE-LINE DIAGRAM & GROUNDING DETAILS (L700)

SHEET NUMBER
E-1

Date: **November 15, 2018**

Steve Tuttle
Crown Castle
8 Parkmeadow Dr.,
Pittsford, NY 14534



Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351

Subject: Structural Analysis Report

Carrier Designation: **T-Mobile Co-Locate**
Carrier Site Number: CT11082E
Carrier Site Name: Stratford/MP x 53/Main

Crown Castle Designation: **Crown Castle BU Number:** 876320
Crown Castle Site Name: 528 Wheelers Farm Rd
Crown Castle JDE Job Number: 510432
Crown Castle Work Order Number: 1660584
Crown Castle Order Number: 444441 Rev. 2

Engineering Firm Designation: **TEP Project Number:** 25570.196099

Site Data: **528 Wheelers Farm Road, Milford, New Haven County, CT 06460**
Latitude 41° 14' 54.35", Longitude -73° 4' 44.67"
120 Foot - Monopole Tower

Dear Steve Tuttle,

Tower Engineering Professionals 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:

LC4.7: Modified Structure w/ Proposed Equipment Configuration

Sufficient Capacity

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph (converted an equivalent 97 mph nominal 3-second gust wind speed per Section 1609.3.1 for use with TIA-222-G) as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Giovanni Palmieri, E.I.T. / PRS

Respectfully submitted by:

Aaron T. Rucker, P.E.



Electronic Copy

11/15/2018

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1) INTRODUCTION

This tower is a 120-ft Monopole Tower designed by Paul J. Ford and Company. The tower has been modified multiple times in the past to accommodate additional loading. The proposed modifications designed by Tower Engineering Professionals in August of 2018 were considered in this analysis. All information provided to TEP was assumed to be accurate and complete.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-G
Risk Category:	II
Wind Speed:	97 mph
Exposure Category:	C
Topographic Factor:	1.0
Ice Thickness:	0.75 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)
105.0	107.0	3	Ericsson	AIR 32 B2A/B66AA w/ Mount Pipe	2 7	1-3/8 1-5/8
		3	RFS Celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		3	Ericsson	AIR 3246 B66 w/ Mount Pipe		
		1	Ericsson	KRY 112 144/1		
		3	Ericsson	RADIO 4449 B12/B71		
	105.0	2	Ericsson	KRY 112 144/1		
		1	SitePro 1	RMQP-496-HK		

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)
122.0	125.0	2	Andrew	VHLP2-11	6 1 3 4	5/16 1/8 7983A 1-1/4
	123.0	1	MTI Wireless Edge	MT-485025		
		1	Andrew	PX2F-52		
	122.0	3	Argus Technologies	LLPX310R w/ Mount Pipe		
		3	Samsung Telecommunications	FDD_R6_RRH		
		1	Tower Mounts	Miscellaneous [NA 507-1]		
		1	Tower Mounts	Platform Mount [LP 712-1]		
	121.0	3	RFS Celwave	APXVTM14-ALU-I20 w/ Mount Pipe		
		3	RFS Celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		2	Alcatel Lucent	PCS 1900MHz 4x45W-65MHz		
		1	Alcatel Lucent	800MHZ RRH		
		3	Alcatel Lucent	TD-RRH8x20-25		
	120.0	9	RFS Celwave	ACU-A20-N		
		1	Alcatel Lucent	PCS 1900MHz 4x45W-65MHz		
		2	Alcatel Lucent	800MHZ RRH		
		3	Alcatel Lucent	800 External Notch Filter		
113.0	116.0	1	Trimble	ACUTIME 2000	14	1-5/8
	114.0	3	Antel	BXA-171063/8CF w/ Mount Pipe		
		4	Commscope	SBNHH-1D45B w/ Mount Pipe		
		2	Commscope	SBNHH-1D65B w/ Mount Pipe		
		2	Andrew	DB846F65ZAXY w/ Mount Pipe		
		4	Antel	LPA-80063/4CF w/ Mount Pipe		
		2	RFS Celwave	DB-T1-6Z-8AB-0Z		
		3	Alcatel Lucent	RRH2X60-1900		
		3	Alcatel Lucent	RRH2x60-700		
		3	Alcatel Lucent	AWS-3 RRH4x45		
	6	RFS Celwave	FD9R6004/2C-3L			
113.0	1	Tower Mounts	Platform Mount [LP 305-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
96.0	98.0	3	Powerwave Technologies	7770.00 w/ Mount Pipe	2 4 12	3/8 3/4 1-1/4
		3	CCI Antennas	OPA-65R-LCUU-H6 w/ Mount Pipe		
		3	Quintel Technology	QS66512-2 w/ Mount Pipe		
		1	Commscope	WCS-IMFQ-AMT		
		3	Ericsson	RRUS 11 B12		
		3	Ericsson	RRUS 32 B2		
	96.0	3	Kaelus	DBC0061F1V51-2		
		1	Tower Mounts	Miscellaneous [NA 507-1]		
		96.0	1	Tower Mounts		
97.0	97.0	2	Raycap	DC6-48-60-18-8F	-	-
		3	Ericsson	RRUS 32 B30		
		1	Tower Mounts	Side Arm Mount [SO 102-3]		
82.0	82.0	-	-	-	12	7/8
75.0	76.0	1	Trimble	ACUTIME 2000	1	1/2
	75.0	1	Tower Mounts	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Supplemental Geotechnical Report	FDH, Inc.	1613534	CCISites
Tower Foundation Drawings	Paul J. Ford and Co.	1614583	CCISites
Tower Manufacturer Drawings	Paul J. Ford and Co.	1614557	CCISites
Tower Reinforcement Drawings	Semaan Engineering Solutions	1613579	CCISites
Post Modification Inspection	Semaan Engineering Solutions	3350209	CCISites
Tower Reinforcement Drawings	B&T Engineering	2460630	CCISites
Post Modification Inspection	B&T Engineering	2460628	CCISites
Tower Reinforcement Drawings	B&T Engineering	3349207	CCISites
Post Modification Inspection	B&T Engineering	3349204	CCISites
Tower Reinforcement Drawings	Paul J. Ford and Co.	3338935	CCISites
Post Modification Inspection	Tower Engineering Professionals	3753892	CCISites
Tower Reinforcement Drawings	Paul J. Ford and Co.	4961357	CCISites
Post Modification Inspection	SGS, Inc.	5760332	CCISites
Tower Reinforcement Drawings	Paul J. Ford and Co.	5873963	CCISites
Post Modification Inspection	FDH Velocitel	6112300	CCISites
Tower Reinforcement Drawings	Tower Engineering Professionals	7728833	CCISites

3.1) Analysis Method

tnxTower (version 8.0.4.0), 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 reinforcing elements. These calculations are presented in Appendix C.

3.2) Assumptions

- 1) The tower and foundation were built and maintained in accordance with the manufacturer's specification.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and the referenced drawings.
- 3) All tower components are in sufficient condition to carry their full design capacity.
- 4) Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.
- 5) All antenna mounts and mounting hardware are structurally sufficient to carry the full design capacity requirements of appurtenance wind area and weight as provided by the original manufacturer specifications. It is the carrier's responsibility to ensure compliance to the structural limitations of the existing and/or proposed antenna mounts. TEP did not perform a site visit to verify the size, condition or capacity of the antenna mounts and did not analyze antennas supporting mounts as part of this structural analysis report.
- 6) The existing base plate grout was not considered in this analysis.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)¹

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
120 - 115	Pole	TP23.01x22x0.25	Pole	8.9%	Pass
115 - 110	Pole	TP24.02x23.01x0.25	Pole	19.7%	Pass
110 - 105	Pole	TP25.031x24.02x0.25	Pole	30.5%	Pass
105 - 100	Pole	TP26.041x25.031x0.25	Pole	46.1%	Pass
100 - 99.25	Pole	TP26.192x26.041x0.25	Pole	48.1%	Pass
99.25 - 99	Pole + Reinf.	TP26.243x26.192x0.3625	Reinf. 14 Tension Rupture	45.5%	Pass
99 - 94	Pole + Reinf.	TP27.253x26.243x0.3563	Reinf. 14 Tension Rupture	60.0%	Pass
94 - 90.08	Pole + Reinf.	TP28.045x27.253x0.35	Reinf. 14 Tension Rupture	71.3%	Pass
90.08 - 89.83	Pole + Reinf.	TP28.096x28.045x0.5125	Reinf. 11 Tension Rupture	59.0%	Pass
89.83 - 89.5	Pole + Reinf.	TP28.162x28.096x0.5125	Reinf. 11 Tension Rupture	59.8%	Pass
89.5 - 89.25	Pole + Reinf.	TP28.213x28.162x0.725	Reinf. 15 Tension Rupture	46.3%	Pass
89.25 - 84.25	Pole + Reinf.	TP29.223x28.213x0.7	Reinf. 15 Tension Rupture	55.0%	Pass
84.25 - 81.75	Pole + Reinf.	TP30.486x29.223x0.7	Reinf. 15 Tension Rupture	59.2%	Pass
81.75 - 77	Pole + Reinf.	TP30.188x29.228x0.8625	Reinf. 17 Tension Rupture	53.1%	Pass
77 - 76.75	Pole + Reinf.	TP30.239x30.188x0.8625	Reinf. 17 Tension Rupture	53.4%	Pass
76.75 - 76.5	Pole + Reinf.	TP30.289x30.239x0.9625	Reinf. 14 Tension Rupture	50.1%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
76.5 - 75.5	Pole + Reinf.	TP30.491x30.289x0.9625	Reinf. 14 Tension Rupture	51.3%	Pass
75.5 - 75.25	Pole + Reinf.	TP30.542x30.491x0.7625	Reinf. 17 Tension Rupture	59.0%	Pass
75.25 - 74.5	Pole + Reinf.	TP30.693x30.542x0.7625	Reinf. 17 Tension Rupture	59.9%	Pass
74.5 - 74.25	Pole + Reinf.	TP30.744x30.693x0.8375	Reinf. 17 Tension Rupture	63.1%	Pass
74.25 - 72	Pole + Reinf.	TP31.198x30.744x0.825	Reinf. 17 Tension Rupture	66.1%	Pass
72 - 71.75	Pole + Reinf.	TP31.249x31.198x0.7625	Reinf. 17 Tension Rupture	63.4%	Pass
71.75 - 70.5	Pole + Reinf.	TP31.501x31.249x0.7625	Reinf. 17 Tension Rupture	65.0%	Pass
70.5 - 70.25	Pole + Reinf.	TP31.552x31.501x0.7875	Reinf. 17 Tension Rupture	65.0%	Pass
70.25 - 70	Pole + Reinf.	TP31.602x31.552x0.7875	Reinf. 17 Tension Rupture	65.3%	Pass
70 - 69.75	Pole + Reinf.	TP31.653x31.602x0.725	Reinf. 17 Tension Rupture	67.7%	Pass
69.75 - 69.5	Pole + Reinf.	TP31.703x31.653x0.875	Reinf. 4 Tension Rupture	57.5%	Pass
69.5 - 69.25	Pole + Reinf.	TP31.754x31.703x0.75	Reinf. 4 Tension Rupture	64.2%	Pass
69.25 - 64.25	Pole + Reinf.	TP32.764x31.754x0.7375	Reinf. 4 Tension Rupture	69.9%	Pass
64.25 - 59.25	Pole + Reinf.	TP33.774x32.764x0.7125	Reinf. 4 Tension Rupture	75.3%	Pass
59.25 - 56	Pole + Reinf.	TP34.431x33.774x0.7125	Reinf. 4 Tension Rupture	78.6%	Pass
56 - 55.75	Pole + Reinf.	TP34.481x34.431x0.8125	Reinf. 7 Tension Rupture	75.7%	Pass
55.75 - 55.5	Pole + Reinf.	TP34.532x34.481x0.8125	Reinf. 7 Tension Rupture	75.9%	Pass
55.5 - 55.25	Pole + Reinf.	TP34.582x34.532x0.8875	Reinf. 7 Tension Rupture	68.4%	Pass
55.25 - 54	Pole + Reinf.	TP34.835x34.582x0.875	Reinf. 7 Tension Rupture	69.5%	Pass
54 - 53.75	Pole + Reinf.	TP34.885x34.835x0.75	Reinf. 7 Tension Rupture	79.8%	Pass
53.75 - 53.5	Pole + Reinf.	TP34.936x34.885x0.7375	Reinf. 7 Tension Rupture	80.0%	Pass
53.5 - 53.25	Pole + Reinf.	TP34.986x34.936x0.6625	Reinf. 4 Tension Rupture	85.9%	Pass
53.25 - 53	Pole + Reinf.	TP35.037x34.986x0.6	Reinf. 12 Tension Rupture	88.8%	Pass
53 - 48	Pole + Reinf.	TP36.047x35.037x0.5875	Reinf. 12 Tension Rupture	94.1%	Pass
48 - 44.5	Pole + Reinf.	TP37.714x36.047x0.5875	Reinf. 12 Tension Rupture	97.6%	Pass
44.5 - 38.75	Pole + Reinf.	TP37.291x36.129x0.6625	Reinf. 4 Tension Rupture	95.1%	Pass
38.75 - 34.75	Pole + Reinf.	TP38.099x37.291x0.6625	Reinf. 4 Tension Rupture	98.1%	Pass
34.75 - 34.5	Pole + Reinf.	TP38.15x38.099x0.825	Reinf. 3 Tension Rupture	78.7%	Pass
34.5 - 33.75	Pole + Reinf.	TP38.301x38.15x0.825	Reinf. 3 Tension Rupture	79.2%	Pass
33.75 - 33.5	Pole + Reinf.	TP38.352x38.301x0.625	Reinf. 6 Tension Rupture	97.4%	Pass
33.5 - 32.75	Pole + Reinf.	TP38.503x38.352x0.625	Reinf. 6 Tension Rupture	98.0%	Pass
32.75 - 32.5	Pole + Reinf.	TP38.554x38.503x0.925	Reinf. 20 Tension Rupture	68.4%	Pass
32.5 - 27.5	Pole + Reinf.	TP39.564x38.554x0.9	Reinf. 20 Tension Rupture	71.2%	Pass
27.5 - 24	Pole + Reinf.	TP40.271x39.564x0.9	Reinf. 20 Tension Rupture	73.0%	Pass
24 - 23.75	Pole + Reinf.	TP40.322x40.271x1	Reinf. 3 Tension Rupture	70.9%	Pass
23.75 - 18.75	Pole + Reinf.	TP41.332x40.322x0.975	Reinf. 3 Tension Rupture	73.5%	Pass
18.75 - 14.25	Pole + Reinf.	TP42.241x41.332x0.975	Reinf. 3 Tension Rupture	75.7%	Pass
14.25 - 14	Pole + Reinf.	TP42.291x42.241x1	Reinf. 20 Tension Rupture	68.5%	Pass
14 - 12.75	Pole + Reinf.	TP42.544x42.291x0.9875	Reinf. 20 Tension Rupture	69.1%	Pass
12.75 - 12.5	Pole + Reinf.	TP42.595x42.544x0.775	Reinf. 3 Tension Rupture	91.9%	Pass
12.5 - 7.5	Pole + Reinf.	TP43.605x42.595x0.7625	Reinf. 3 Tension Rupture	94.5%	Pass
7.5 - 5	Pole + Reinf.	TP44.11x43.605x0.75	Reinf. 3 Tension Rupture	95.7%	Pass
5 - 4.75	Pole + Reinf.	TP44.16x44.11x0.9125	Reinf. 3 Tension Rupture	87.0%	Pass
4.75 - 4.5	Pole + Reinf.	TP44.211x44.16x0.875	Reinf. 1 Compression	87.6%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
4.5 - 0	Pole + Reinf.	TP45.12x44.211x0.8625	Reinf. 1 Compression	89.5%	Pass
				Summary	
			Pole	74.4%	Pass
			Reinforcement	98.1%	Pass
			Overall	98.1%	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC4.7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	-	86.1	Pass
1	Base Plate	-	64.4	Pass
1	Base Foundation Soil Interaction	-	68.2	Pass
1	Base Foundation Structural	-	59.6	Pass

Structure Rating (max from all components) =	98.1%
---	--------------

Notes:

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

4.1) Recommendations

- 1) If the load differs from that described in Tables 1 and 2 of this report, the referenced drawings, or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
- 2) The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A
TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)	Grade
1	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	22.0000	0.3
2	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	23.0102	0.3
3	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.0205	0.3
4	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.0307	0.3
5	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.0410	0.3
6	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.0513	0.3
7	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.0616	0.3
8	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.0719	0.3
9	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.0822	0.3
10	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.0925	0.3
11	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.1028	0.3
12	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.1131	0.3
13	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.1234	0.3
14	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.1337	0.3
15	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.1440	0.3
16	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.1543	0.3
17	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.1646	0.3
18	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.1749	0.3
19	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.1852	0.3
20	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.1955	0.3
21	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.2058	0.3
22	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.2161	0.3
23	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.2264	0.3
24	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.2367	0.3
25	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.2470	0.3
26	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.2573	0.3
27	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.2676	0.3
28	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.2779	0.3
29	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.2882	0.3
30	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.2985	0.3
31	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.3088	0.3
32	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.3191	0.3
33	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.3294	0.3
34	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.3397	0.3
35	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.3500	0.3
36	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.3603	0.3
37	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.3706	0.3
38	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.3809	0.3
39	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.3912	0.3
40	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.4015	0.3
41	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.4118	0.3
42	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.4221	0.3
43	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.4324	0.3
44	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.4427	0.3
45	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.4530	0.3
46	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.4633	0.3
47	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.4736	0.3
48	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.4839	0.3
49	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.4942	0.3
50	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.5045	0.3
51	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.5148	0.3
52	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.5251	0.3
53	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.5354	0.3
54	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.5457	0.3
55	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.5560	0.3
56	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.5663	0.3
57	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.5766	0.3
58	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.5869	0.3
59	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.5972	0.3
60	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.6075	0.3
61	5.000	12	0.2500	3,750	28.2402	28.2402	0.3	24.6178	0.3

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
APXVTM14-ALLU120 w/ Mount Pipe	122	Platform Mount [LP 305-1]	113
APXVTM14-ALLU120 w/ Mount Pipe	122	BXA-171063/BCF w/ Mount Pipe	113
APXVTM14-ALLU120 w/ Mount Pipe	122	BXA-171063/BCF w/ Mount Pipe	113
APXVSP18-C-A20 w/ Mount Pipe	122	BXA-171063/BCF w/ Mount Pipe	113
APXVSP18-C-A20 w/ Mount Pipe	122	KRY 112 144/1	105
APXVSP18-C-A20 w/ Mount Pipe	122	KRY 112 144/1	105
LLPX310R w/ Mount Pipe	122	KRY 112 144/1	105
LLPX310R w/ Mount Pipe	122	APXVAARR24_43-U-NA20 w/ Mount Pipe	105
LLPX310R w/ Mount Pipe	122	APXVAARR24_43-U-NA20 w/ Mount Pipe	105
MT-485025	122	APXVAARR24_43-U-NA20 w/ Mount Pipe	105
(3) ACU-A20-N	122	AIR 3246 B66 w/ Mount Pipe	105
(3) ACU-A20-N	122	AIR 3246 B66 w/ Mount Pipe	105
(3) ACU-A20-N	122	AIR 3246 B66 w/ Mount Pipe	105
PCS 1900MHz 4x45W-65MHz	122	RADIO 4449 B12/B71	105
PCS 1900MHz 4x45W-65MHz	122	RADIO 4449 B12/B71	105
PCS 1900MHz 4x45W-65MHz	122	RADIO 4449 B12/B71	105
800MHZ RRH	122	2.4" Dia x 8-ft Mount Pipe	105
800MHZ RRH	122	2.4" Dia x 8-ft Mount Pipe	105
800MHZ RRH	122	2.4" Dia x 8-ft Mount Pipe	105
800 EXTERNAL NOTCH FILTER	122	Miscellaneous [NA 507-1]	105
800 EXTERNAL NOTCH FILTER	122	Miscellaneous [NA 509-3]	105
800 EXTERNAL NOTCH FILTER	122	Platform Mount [LP 303-1]	105
FDD_R6_RRH	122	AIR 32 B2a/B66Aa w/ Mount Pipe	105
FDD_R6_RRH	122	AIR 32 B2a/B66Aa w/ Mount Pipe	105
FDD_R6_RRH	122	AIR 32 B2a/B66Aa w/ Mount Pipe	105
TD-RRH8x20-25	122	RRUS 32 B30	97
TD-RRH8x20-25	122	RRUS 32 B30	97
TD-RRH8x20-25	122	(2) 2.4" Dia. x 5-ft Pipe	97
(2) 2.4" Dia. x 5-ft Pipe	122	(2) 2.4" Dia. x 5-ft Pipe	97
(2) 2.4" Dia. x 5-ft Pipe	122	(2) 2.4" Dia. x 5-ft Pipe	97
(2) 2.4" Dia. x 5-ft Pipe	122	Side Arm Mount [SO 102-3]	97
Miscellaneous [NA 507-1]	122	DC6-48-60-18-8F	97
Platform Mount [LP 712-1]	122	DC6-48-60-18-8F	97
PX2F-52	122	RRUS 32 B30	97
VHLP2-11	122	OPA-65R-LCUU-H6 w/ Mount Pipe	96
VHLP2-11	122	OPA-65R-LCUU-H6 w/ Mount Pipe	96
Pipe 6" x 10'	120	OPA-65R-LCUU-H6 w/ Mount Pipe	96
(2) FD9R6004/2C-3L	113	OS66512-2 w/ Mount Pipe	96
(4) FD9R6004/2C-3L	113	OS66512-2 w/ Mount Pipe	96
(2) SBNH-ID65B w/ Mount Pipe	113	OS66512-2 w/ Mount Pipe	96
(2) SBNH-ID45B w/ Mount Pipe	113	WCS-IMFG-AMT	96
(2) SBNH-ID45B w/ Mount Pipe	113	RRUS 11 B12	96
(2) DB84F65ZAXY w/ Mount Pipe	113	RRUS 11 B12	96
(2) LPA-80063/4CF w/ Mount Pipe	113	RRUS 11 B12	96
(2) LPA-80063/4CF w/ Mount Pipe	113	RRUS 32 B2	96
ACUTIME 2000	113	RRUS 32 B2	96
DB-T1-62-8AB-0Z	113	RRUS 32 B2	96
DB-T1-62-8AB-0Z	113	DBC0061F1V51-2	96
RRH2X60-1900	113	DBC0061F1V51-2	96
RRH2X60-1900	113	DBC0061F1V51-2	96
RRH2X60-1900	113	2.4" Dia x 6-ft Pipe	96
RRH2X60-700	113	2.4" Dia x 6-ft Pipe	96
RRH2X60-700	113	2.4" Dia x 6-ft Pipe	96
RRH2X60-700	113	Miscellaneous [NA 507-1]	96
AWS-3 RRH4X45	113	Platform Mount [LP 712-1]	96
AWS-3 RRH4X45	113	7770.00 w/ Mount Pipe	96
AWS-3 RRH4X45	113	7770.00 w/ Mount Pipe	96
(2) 2.4" Dia x 6-ft Pipe	113	7770.00 w/ Mount Pipe	96
(2) 2.4" Dia x 6-ft Pipe	113	Side Arm Mount [SO 701-1]	75
(2) 2.4" Dia x 6-ft Pipe	113	ACUTIME 2000	75

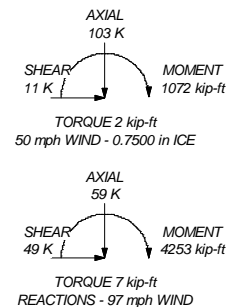
MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft

ALL REACTIONS ARE FACTORED



Tower Engineering Professionals
 326 Tryon Road
 Raleigh, NC 27603
 Phone: (919) 661-6351
 FAX: (919) 661-6350

Job: **528 Wheelers Farm Rd (BU 876320)**
 Project: **TEP No. 25570.196099**
 Client: **Crown Castle** | Drawn by: **gpalmieri** | App'd: _____
 Code: **TIA-222-G** | Date: **11/15/18** | Scale: **NTS**
 Path: _____ | Dwg No: **E-1**

tnxTower Tower Engineering Professionals 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Job 528 Wheelers Farm Rd (BU 876320)	Page 1 of 56
	Project TEP No. 25570.196099	Date 09:54:18 11/15/18
	Client Crown Castle	Designed by gpalmieri

Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in New Haven County, Connecticut.

Basic wind speed of 97 mph.

Structure Class II.

Exposure Category C.

Topographic Category 1.

Crest Height 0.000 ft.

Nominal ice thickness of 0.7500 in.

Ice thickness is considered to increase with height.

Ice density of 56.00 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

<ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric 	<ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retention Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination √ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs 	<ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-G Bracing Resist. Exemption Use TIA-222-G Tension Splice Exemption <li style="text-align: center;">Poles √ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
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Tapered Pole Section Geometry

Section	Elevation	Section Length	Splice Length	Number of Sides	Top Diameter	Bottom Diameter	Wall Thickness	Bend Radius	Pole Grade
	ft	ft	ft		in	in	in	in	
L1	120.000-115.00	5.000	0.00	12	22.0000	23.0102	0.2500	1.0000	A607-60

tnxTower Tower Engineering Professionals 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Job	528 Wheelers Farm Rd (BU 876320)	Page	2 of 56
	Project	TEP No. 25570.196099	Date	09:54:18 11/15/18
	Client	Crown Castle	Designed by	gpalmieri

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
L2	115.000-110.000	5.000	0.00	12	23.0102	24.0205	0.2500	1.0000	(60 ksi) A607-60
L3	110.000-105.000	5.000	0.00	12	24.0205	25.0307	0.2500	1.0000	(60 ksi) A607-60
L4	105.000-100.000	5.000	0.00	12	25.0307	26.0410	0.2500	1.0000	(60 ksi) A607-60
L5	100.000-99.250	0.750	0.00	12	26.0410	26.1925	0.2500	1.0000	(60 ksi) A607-60
L6	99.250-99.000	0.250	0.00	12	26.1925	26.2430	0.3625	1.4500	(60 ksi) A607-60
L7	99.000-94.000	5.000	0.00	12	26.2430	27.2532	0.3563	1.4250	(60 ksi) A607-60
L8	94.000-90.080	3.920	0.00	12	27.2532	28.0453	0.3500	1.4000	(60 ksi) A607-60
L9	90.080-89.830	0.250	0.00	12	28.0453	28.0958	0.5125	2.0500	(60 ksi) A607-60
L10	89.830-89.500	0.330	0.00	12	28.0958	28.1625	0.5125	2.0500	(60 ksi) A607-60
L11	89.500-89.250	0.250	0.00	12	28.1625	28.2130	0.7250	2.9000	(60 ksi) A607-60
L12	89.250-84.250	5.000	0.00	12	28.2130	29.2232	0.7000	2.8000	(60 ksi) A607-60
L13	84.250-78.000	6.250	3.75	12	29.2232	30.4860	0.7000	2.8000	(60 ksi) A607-60
L14	78.000-77.000	4.750	0.00	12	29.2283	30.1880	0.8625	3.4500	(60 ksi) A607-60
L15	77.000-76.750	0.250	0.00	12	30.1880	30.2385	0.8625	3.4500	(60 ksi) A607-60
L16	76.750-76.500	0.250	0.00	12	30.2385	30.2890	0.9625	3.8500	(60 ksi) A607-60
L17	76.500-75.500	1.000	0.00	12	30.2890	30.4911	0.9625	3.8500	(60 ksi) A607-60
L18	75.500-75.250	0.250	0.00	12	30.4911	30.5416	0.7625	3.0500	(60 ksi) A607-60
L19	75.250-74.500	0.750	0.00	12	30.5416	30.6931	0.7625	3.0500	(60 ksi) A607-60
L20	74.500-74.250	0.250	0.00	12	30.6931	30.7436	0.8375	3.3500	(60 ksi) A607-60
L21	74.250-72.000	2.250	0.00	12	30.7436	31.1982	0.8250	3.3000	(60 ksi) A607-60
L22	72.000-71.750	0.250	0.00	12	31.1982	31.2487	0.7625	3.0500	(60 ksi) A607-60
L23	71.750-70.500	1.250	0.00	12	31.2487	31.5013	0.7625	3.0500	(60 ksi) A607-60
L24	70.500-70.250	0.250	0.00	12	31.5013	31.5518	0.7875	3.1500	(60 ksi) A607-60
L25	70.250-70.000	0.250	0.00	12	31.5518	31.6023	0.7875	3.1500	(60 ksi) A607-60
L26	70.000-69.750	0.250	0.00	12	31.6023	31.6528	0.7250	2.9000	(60 ksi) A607-60
L27	69.750-69.500	0.250	0.00	12	31.6528	31.7033	0.8750	3.5000	(60 ksi) A607-60
L28	69.500-69.250	0.250	0.00	12	31.7033	31.7538	0.7500	3.0000	(60 ksi) A607-60
L29	69.250-64.250	5.000	0.00	12	31.7538	32.7640	0.7375	2.9500	(60 ksi) A607-60
L30	64.250-59.250	5.000	0.00	12	32.7640	33.7742	0.7125	2.8500	(60 ksi) A607-60
L31	59.250-56.000	3.250	0.00	12	33.7742	34.4309	0.7125	2.8500	(60 ksi) A607-60

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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
L32	56.000-55.750	0.250	0.00	12	34.4309	34.4814	0.8125	3.2500	A607-60 (60 ksi)
L33	55.750-55.500	0.250	0.00	12	34.4814	34.5319	0.8125	3.2500	A607-60 (60 ksi)
L34	55.500-55.250	0.250	0.00	12	34.5319	34.5824	0.8875	3.5500	A607-60 (60 ksi)
L35	55.250-54.000	1.250	0.00	12	34.5824	34.8349	0.8750	3.5000	A607-60 (60 ksi)
L36	54.000-53.750	0.250	0.00	12	34.8349	34.8854	0.7500	3.0000	A607-60 (60 ksi)
L37	53.750-53.500	0.250	0.00	12	34.8854	34.9359	0.7375	2.9500	A607-60 (60 ksi)
L38	53.500-53.250	0.250	0.00	12	34.9359	34.9865	0.6625	2.6500	A607-60 (60 ksi)
L39	53.250-53.000	0.250	0.00	12	34.9865	35.0370	0.6000	2.4000	A607-60 (60 ksi)
L40	53.000-48.000	5.000	0.00	12	35.0370	36.0472	0.5875	2.3500	A607-60 (60 ksi)
L41	48.000-39.750	8.250	4.75	12	36.0472	37.7140	0.5875	2.3500	A607-60 (60 ksi)
L42	39.750-38.750	5.750	0.00	12	36.1293	37.2910	0.6625	2.6500	A607-60 (60 ksi)
L43	38.750-34.750	4.000	0.00	12	37.2910	38.0992	0.6625	2.6500	A607-60 (60 ksi)
L44	34.750-34.500	0.250	0.00	12	38.0992	38.1497	0.8250	3.3000	A607-60 (60 ksi)
L45	34.500-33.750	0.750	0.00	12	38.1497	38.3012	0.8250	3.3000	A607-60 (60 ksi)
L46	33.750-33.500	0.250	0.00	12	38.3012	38.3517	0.6250	2.5000	A607-60 (60 ksi)
L47	33.500-32.750	0.750	0.00	12	38.3517	38.5033	0.6250	2.5000	A607-60 (60 ksi)
L48	32.750-32.500	0.250	0.00	12	38.5033	38.5538	0.9250	3.7000	A607-60 (60 ksi)
L49	32.500-27.500	5.000	0.00	12	38.5538	39.5640	0.9000	3.6000	A607-60 (60 ksi)
L50	27.500-24.000	3.500	0.00	12	39.5640	40.2711	0.9000	3.6000	A607-60 (60 ksi)
L51	24.000-23.750	0.250	0.00	12	40.2711	40.3216	1.0000	4.0000	A607-60 (60 ksi)
L52	23.750-18.750	5.000	0.00	12	40.3216	41.3318	0.9750	3.9000	A607-60 (60 ksi)
L53	18.750-14.250	4.500	0.00	12	41.3318	42.2410	0.9750	3.9000	A607-60 (60 ksi)
L54	14.250-14.000	0.250	0.00	12	42.2410	42.2915	1.0000	4.0000	A607-60 (60 ksi)
L55	14.000-12.750	1.250	0.00	12	42.2915	42.5440	0.9875	3.9500	A607-60 (60 ksi)
L56	12.750-12.500	0.250	0.00	12	42.5440	42.5945	0.7750	3.1000	A607-60 (60 ksi)
L57	12.500-7.500	5.000	0.00	12	42.5945	43.6047	0.7625	3.0500	A607-60 (60 ksi)
L58	7.500-5.000	2.500	0.00	12	43.6047	44.1098	0.7500	3.0000	A607-60 (60 ksi)
L59	5.000-4.750	0.250	0.00	12	44.1098	44.1603	0.9125	3.6500	A607-60 (60 ksi)
L60	4.750-4.500	0.250	0.00	12	44.1603	44.2108	0.8750	3.5000	A607-60 (60 ksi)
L61	4.500-0.000	4.500		12	44.2108	45.1200	0.8625	3.4500	A607-60 (60 ksi)

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Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	Iu/Q in ²	w in	w/t
L1	22.6879	17.5087	1057.2060	7.7865	11.3960	92.7699	2142.1860	8.6173	5.2260	20.904
	23.7338	18.3220	1211.4688	8.1482	11.9193	101.6392	2454.7642	9.0175	5.4967	21.987
L2	23.7338	18.3220	1211.4688	8.1482	11.9193	101.6392	2454.7642	9.0175	5.4967	21.987
	24.7796	19.1352	1380.0520	8.5098	12.4426	110.9134	2796.3596	9.4178	5.7675	23.07
L3	24.7796	19.1352	1380.0520	8.5098	12.4426	110.9134	2796.3596	9.4178	5.7675	23.07
	25.8255	19.9485	1563.5914	8.8715	12.9659	120.5925	3168.2601	9.8180	6.0382	24.153
L4	25.8255	19.9485	1563.5914	8.8715	12.9659	120.5925	3168.2601	9.8180	6.0382	24.153
	26.8714	20.7617	1762.7225	9.2332	13.4892	130.6765	3571.7537	10.2183	6.3090	25.236
L5	26.8714	20.7617	1762.7225	9.2332	13.4892	130.6765	3571.7537	10.2183	6.3090	25.236
	27.0283	20.8837	1793.9763	9.2874	13.5677	132.2240	3635.0824	10.2783	6.3496	25.398
L6	26.9886	30.1501	2567.5709	9.2471	13.5677	189.2413	5202.5948	14.8389	6.0481	16.684
	27.0409	30.2090	2582.6635	9.2652	13.5939	189.9873	5233.1764	14.8680	6.0616	16.722
L7	27.0431	29.6953	2539.9741	9.2675	13.5939	186.8470	5146.6761	14.6151	6.0784	17.062
	28.0890	30.8542	2849.0997	9.6291	14.1172	201.8179	5773.0484	15.1855	6.3491	17.822
L8	28.0912	30.3199	2801.0672	9.6314	14.1172	198.4155	5675.7215	14.9226	6.3659	18.188
	28.9111	31.2126	3055.8107	9.9149	14.5274	210.3474	6191.9009	15.3619	6.5781	18.795
L9	28.8538	45.4359	4396.2783	9.8567	14.5274	302.6188	8908.0517	22.3622	6.1426	11.986
	28.9061	45.5193	4420.5191	9.8748	14.5536	303.7403	8957.1702	22.4032	6.1562	12.012
L10	28.9061	45.5193	4420.5191	9.8748	14.5536	303.7403	8957.1702	22.4032	6.1562	12.012
	28.9751	45.6293	4452.6528	9.8987	14.5882	305.2240	9022.2818	22.4574	6.1740	12.047
L11	28.9002	64.0527	6154.7606	9.8226	14.5882	421.9014	12471.2135	31.5248	5.6045	7.73
	28.9525	64.1707	6188.8157	9.8407	14.6143	423.4763	12540.2184	31.5828	5.6181	7.749
L12	28.9613	62.0142	5991.7268	9.8496	14.6143	409.9902	12140.8629	30.5215	5.6851	8.122
	30.0072	64.2913	6676.2823	10.2113	15.1376	441.0391	13527.9580	31.6422	5.9558	8.508
L13	30.0072	64.2913	6676.2823	10.2113	15.1376	441.0391	13527.9580	31.6422	5.9558	8.508
	31.3145	67.1376	7602.8499	10.6634	15.7917	481.4445	15405.4352	33.0431	6.2942	8.992
L14	30.7395	78.7790	8090.7168	10.1550	15.1403	534.3839	16393.9857	38.7726	5.5217	6.402
	30.9487	81.4443	8940.0035	10.4985	15.6374	571.7069	18114.8709	40.0844	5.7789	6.7
L15	30.9487	81.4443	8940.0035	10.4985	15.6374	571.7069	18114.8709	40.0844	5.7789	6.7
	31.0010	81.5846	8986.2777	10.5166	15.6636	573.7062	18208.6349	40.1534	5.7924	6.716
L16	30.9657	90.7337	9926.1015	10.4808	15.6636	633.7069	20112.9727	44.6564	5.5244	5.74
	31.0180	90.8903	9977.5667	10.4989	15.6897	635.9303	20217.2553	44.7334	5.5380	5.754
L17	31.0180	90.8903	9977.5667	10.4989	15.6897	635.9303	20217.2553	44.7334	5.5380	5.754
	31.2271	91.5164	10185.2068	10.5712	15.7944	644.8629	20637.9903	45.0416	5.5921	5.81
L18	31.2977	72.9911	8233.8656	10.6428	15.7944	521.3163	16684.0439	35.9240	6.1281	8.037
	31.3500	73.1151	8275.9059	10.6609	15.8205	523.1115	16769.2290	35.9850	6.1416	8.055
L19	31.3500	73.1151	8275.9059	10.6609	15.8205	523.1115	16769.2290	35.9850	6.1416	8.055
	31.5069	73.4871	8402.8850	10.7152	15.8990	528.5155	17026.5231	36.1681	6.1823	8.108
L20	31.4804	80.5131	9160.1910	10.6883	15.8990	576.1477	18561.0304	39.6261	5.9813	7.142
	31.5327	80.6493	9206.7616	10.7064	15.9252	578.1255	18655.3950	39.6931	5.9948	7.158
L21	31.5371	79.4788	9080.7242	10.7109	15.9252	570.2112	18400.0092	39.1171	6.0283	7.307
	32.0077	80.6864	9500.9688	10.8736	16.1607	587.9067	19251.5386	39.7114	6.1501	7.455
L22	32.0298	74.7273	8835.5182	10.8960	16.1607	546.7296	17903.1553	36.7785	6.3176	8.285
	32.0821	74.8513	8879.5805	10.9141	16.1868	548.5680	17992.4375	36.8395	6.3312	8.303
L23	32.0821	74.8513	8879.5805	10.9141	16.1868	548.5680	17992.4375	36.8395	6.3312	8.303
	32.3435	75.4714	9102.0909	11.0045	16.3177	557.8062	18443.3039	37.1447	6.3988	8.392
L24	32.3347	77.8824	9377.6023	10.9955	16.3177	574.6904	19001.5646	38.3314	6.3318	8.04
	32.3870	78.0105	9423.9439	11.0136	16.3438	576.6059	19095.4653	38.3944	6.3454	8.058
L25	32.3870	78.0105	9423.9439	11.0136	16.3438	576.6059	19095.4653	38.3944	6.3454	8.058
	32.4393	78.1386	9470.4380	11.0317	16.3700	578.5245	19189.6749	38.4574	6.3589	8.075
L26	32.4613	72.0830	8771.9753	11.0541	16.3700	535.8572	17774.4002	35.4771	6.5264	9.002
	32.5136	72.2010	8815.0942	11.0722	16.3962	537.6319	17861.7706	35.5351	6.5400	9.021
L27	32.4607	86.7165	10484.8600	11.0185	16.3962	639.4708	21245.1690	42.6792	6.1380	7.015
	32.5130	86.8588	10536.5655	11.0365	16.4223	641.6005	21349.9382	42.7492	6.1515	7.03
L28	32.5571	74.7522	9141.6464	11.0813	16.4223	556.6600	18523.4540	36.7908	6.4865	8.649

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Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	I/Q in ²	w in	w/t
L29	32.6094	74.8742	9186.4718	11.0994	16.4485	558.4998	18614.2825	36.8508	6.5000	8.667
	32.6138	73.6560	9044.2945	11.1038	16.4485	549.8560	18326.1927	36.2512	6.5335	8.859
	33.6596	76.0550	9957.1062	11.4655	16.9718	586.6866	20175.7967	37.4319	6.8043	9.226
L30	33.6685	73.5342	9642.1220	11.4744	16.9718	568.1273	19537.5533	36.1913	6.8713	9.644
	34.7143	75.8519	10582.8602	11.8361	17.4950	604.9061	21443.7440	37.3320	7.1420	10.024
L31	34.7143	75.8519	10582.8602	11.8361	17.4950	604.9061	21443.7440	37.3320	7.1420	10.024
	35.3941	77.3583	11226.0164	12.0712	17.8352	629.4310	22746.9527	38.0734	7.3180	10.271
L32	35.3588	87.9540	12688.0363	12.0354	17.8352	711.4050	25709.4015	43.2883	7.0500	8.677
	35.4111	88.0862	12745.3118	12.0535	17.8613	713.5695	25825.4572	43.3533	7.0635	8.694
L33	35.4111	88.0862	12745.3118	12.0535	17.8613	713.5695	25825.4572	43.3533	7.0635	8.694
	35.4634	88.2183	12802.7595	12.0715	17.8875	715.7374	25941.8616	43.4184	7.0770	8.71
L34	35.4369	96.1472	13891.4450	12.0447	17.8875	776.6003	28147.8337	47.3207	6.8760	7.748
	35.4892	96.2915	13954.1043	12.0628	17.9137	778.9639	28274.7984	47.3918	6.8896	7.763
L35	35.4936	94.9705	13772.8845	12.0672	17.9137	768.8476	27907.5980	46.7416	6.9231	7.912
	35.7551	95.6821	14084.7854	12.1577	18.0445	780.5586	28539.5938	47.0918	6.9908	7.989
L36	35.7992	82.3151	12206.4761	12.2024	18.0445	676.4654	24733.6299	40.5130	7.3258	9.768
	35.8515	82.4371	12260.8224	12.2205	18.0707	678.4934	24843.7502	40.5730	7.3393	9.786
L37	35.8559	81.0928	12069.7250	12.2250	18.0707	667.9184	24456.5351	39.9114	7.3728	9.997
	35.9082	81.2128	12123.3632	12.2430	18.0968	669.9167	24565.2206	39.9705	7.3863	10.015
L38	35.9347	73.1138	10962.2871	12.2699	18.0968	605.7576	22212.5658	35.9844	7.5873	11.453
	35.9869	73.2216	11010.8251	12.2880	18.1230	607.5613	22310.9169	36.0374	7.6009	11.473
L39	36.0090	66.4346	10026.6413	12.3104	18.1230	553.2555	20316.6936	32.6971	7.7684	12.947
	36.0613	66.5322	10070.8904	12.3284	18.1492	554.8960	20406.3543	32.7451	7.7819	12.97
L40	36.0657	65.1698	9871.8223	12.3329	18.1492	543.9275	20002.9883	32.0746	7.8154	13.303
	37.1115	67.0808	10765.9848	12.6946	18.6724	576.5710	21814.8040	33.0151	8.0861	13.764
L41	37.1115	67.0808	10765.9848	12.6946	18.6724	576.5710	21814.8040	33.0151	8.0861	13.764
	38.8372	70.2341	12356.6777	13.2913	19.5359	632.5129	25037.9792	34.5671	8.5329	14.524
L42	38.1636	75.6596	12147.7009	12.6971	18.7150	649.0896	24614.5354	37.2373	7.9072	11.935
	38.3728	78.1378	13380.9250	13.1130	19.3168	692.7109	27113.3819	38.4571	8.2185	12.405
L43	38.3728	78.1378	13380.9250	13.1130	19.3168	692.7109	27113.3819	38.4571	8.2185	12.405
	39.2095	79.8618	14286.2974	13.4023	19.7354	723.8929	28947.9117	39.3055	8.4351	12.732
L44	39.1521	99.0189	17559.8202	13.3442	19.7354	889.7637	35580.9564	48.7341	7.9996	9.696
	39.2044	99.1530	17631.3026	13.3622	19.7615	892.2029	35725.7991	48.8001	8.0131	9.713
L45	39.2044	99.1530	17631.3026	13.3622	19.7615	892.2029	35725.7991	48.8001	8.0131	9.713
	39.3613	99.5556	17846.9103	13.4165	19.8400	899.5404	36162.6788	48.9982	8.0537	9.762
L46	39.4319	75.8234	13738.0073	13.4881	19.8400	692.4388	27836.9273	37.3180	8.5897	13.744
	39.4842	75.9250	13793.3343	13.5062	19.8662	694.3118	27949.0348	37.3680	8.6033	13.765
L47	39.4842	75.9250	13793.3343	13.5062	19.8662	694.3118	27949.0348	37.3680	8.6033	13.765
	39.6410	76.2300	13960.2040	13.5604	19.9447	699.9460	28287.1581	37.5181	8.6439	13.83
L48	39.5352	111.9268	20174.0650	13.4530	19.9447	1011.5007	40878.1252	55.0870	7.8399	8.476
	39.5875	112.0773	20255.5240	13.4711	19.9709	1014.2544	41043.1832	55.1610	7.8534	8.49
L49	39.5963	109.1206	19747.3848	13.4800	19.9709	988.8104	40013.5554	53.7058	7.9204	8.8
	40.6421	112.0481	21379.7782	13.8417	20.4941	1043.2148	43321.2269	55.1467	8.1911	9.101
L50	40.6421	112.0481	21379.7782	13.8417	20.4941	1043.2148	43321.2269	55.1467	8.1911	9.101
	41.3742	114.0974	22574.4207	14.0948	20.8604	1082.1650	45741.8965	56.1553	8.3807	9.312
L51	41.3389	126.4529	24892.0495	14.0590	20.8604	1193.2667	50438.0408	62.2363	8.1127	8.113
	41.3912	126.6155	24988.2187	14.0771	20.8866	1196.3763	50632.9058	62.3163	8.1262	8.126
L52	41.4000	123.5286	24410.0125	14.0861	20.8866	1168.6932	49461.3032	60.7970	8.1932	8.403
	42.4459	126.7001	26338.8141	14.4477	21.4099	1230.2185	53369.5783	62.3580	8.4639	8.681
L53	42.4459	126.7001	26338.8141	14.4477	21.4099	1230.2185	53369.5783	62.3580	8.4639	8.681
	43.3871	129.5545	28159.3266	14.7732	21.8808	1286.9413	57058.4300	63.7628	8.7076	8.931
L54	43.3783	132.7959	28828.9011	14.7643	21.8808	1317.5423	58415.1696	65.3581	8.6406	8.641
	43.4306	132.9585	28934.9537	14.7823	21.9070	1320.8098	58630.0608	65.4381	8.6541	8.654
L55	43.4350	131.3363	28599.2242	14.7868	21.9070	1305.4845	57949.7819	64.6397	8.6876	8.798
	43.6965	132.1393	29127.0376	14.8772	22.0378	1321.6853	59019.2750	65.0350	8.7553	8.866
L56	43.7714	104.2346	23211.6630	14.9533	22.0378	1053.2659	47033.1223	51.3011	9.3248	12.032
	43.8237	104.3606	23295.9707	14.9714	22.0640	1055.8380	47203.9525	51.3631	9.3383	12.049
L57	43.8281	102.7081	22940.7882	14.9759	22.0640	1039.7401	46484.2564	50.5498	9.3718	12.291
	44.8739	105.1883	24643.2180	15.3375	22.5872	1091.0238	49933.8408	51.7705	9.6426	12.646
L58	44.8784	103.4941	24260.4537	15.3420	22.5872	1074.0777	49158.2566	50.9367	9.6761	12.901
	45.4013	104.7139	25128.4208	15.5228	22.8489	1099.7659	50916.9933	51.5370	9.8114	13.082
L59	45.3439	126.9245	30230.4634	15.4646	22.8489	1323.0610	61255.1147	62.4684	9.3759	10.275

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Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	I/Q in ²	w in	w/t
L60	45.3962	127.0729	30336.6316	15.4827	22.8750	1326.1889	61470.2403	62.5414	9.3895	10.29
	45.4095	121.9564	29165.6576	15.4961	22.8750	1274.9989	59097.5294	60.0232	9.4900	10.846
	45.4618	122.0987	29267.8757	15.5142	22.9012	1278.0057	59304.6510	60.0933	9.5035	10.861
L61	45.4662	120.3891	28874.7351	15.5187	22.9012	1260.8389	58508.0416	59.2519	9.5370	11.057
	46.4074	122.9141	30729.9292	15.8442	23.3722	1314.8091	62267.1679	60.4946	9.7807	11.34

Tower Elevation	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 120.000-115.000				1	1	1			
L2 115.000-110.000				1	1	1			
L3 110.000-105.000				1	1	1			
L4 105.000-100.000				1	1	1			
L5 100.000-99.250				1	1	1			
L6 99.250-99.000				1	1	1.18991			
L7 99.000-94.000				1	1	1.19138			
L8 94.000-90.080				1	1	1.19813			
L9 90.080-89.830				1	1	1.02045			
L10 89.830-89.500				1	1	1.01917			
L11 89.500-89.250				1	1	0.912595			
L12 89.250-84.250				1	1	0.923531			
L13 84.250-78.000				1	1	0.913676			
L14 78.000-77.000				1	1	0.996207			
L15 77.000-76.750				1	1	0.995117			
L16 76.750-76.500				1	1	0.948882			
L17 76.500-75.500				1	1	0.944612			
L18 75.500-75.250				1	1	1.04608			
L19 75.250-74.500				1	1	1.04286			
L20 74.500-74.250				1	1	0.888787			
L21 74.250-72.000				1	1	0.894048			
L22 72.000-71.750				1	1	1.07313			
L23				1	1	1.06768			

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Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L53				1	1	0.92372			
18.750-14.250									
L54				1	1	0.988502			
14.250-14.000									
L55				1	1	0.996938			
14.000-12.750									
L56				1	1	0.951021			
12.750-12.500									
L57				1	1	0.955134			
12.500-7.500									
L58				1	1	0.965286			
7.500-5.000									
L59				1	1	0.899355			
5.000-4.750									
L60				1	1	0.895485			
4.750-4.500									
L61				1	1	0.898475			
4.500-0.000									

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement	Total Number	Number Per Row	Start/End Position	Width or Diameter	Perimeter	Weight
				ft				in	in	plf
3" Flexible Conduit	B	No	Surface Ar (CaAa)	120.000 - 0.000	2	2	0.250 0.250	3.0000		1.04
HB114-1-0813U4-M5J(1-1/4)	B	No	Surface Ar (CaAa)	120.000 - 0.000	4	4	0.250 0.250	1.5400		1.20
LDF7-50A(1-5/8)	A	No	Surface Ar (CaAa)	113.000 - 0.000	14	7	-0.250 -0.250	1.9800		0.82

LDF7-50A(1-5/8)	A	No	Surface Ar (CaAa)	105.000 - 0.000	7	6	0.500 0.500	1.9800		0.82

Safety Line 3/8	C	No	Surface Ar (CaAa)	120.000 - 0.000	1	1	0.000 0.000	0.3750		0.22
Step Pegs (5/8" SR) 7-in. w/30" step	C	No	Surface Ar (CaAa)	120.000 - 0.000	1	1	0.000 0.000	0.3500		0.49
Existing Mods										
(Area) Aero MP3-04	A	No	Surface Ar (CaAa)	25.500 - 0.000	1	1	-0.250 -0.250	1.6100		0.00
(Area) Aero MP3-04	A	No	Surface Ar (CaAa)	25.500 - 0.000	1	1	0.500 0.500	1.6100		0.00
(Area) Aero MP3-04	B	No	Surface Ar (CaAa)	25.500 - 0.000	1	1	0.250 0.250	1.6100		0.00
(Area) Aero MP3-04	C	No	Surface Ar (CaAa)	25.500 - 0.000	1	1	0.000 0.000	1.6100		0.00
*										
(Area) Aero MP3-03	A	No	Surface Ar (CaAa)	45.500 - 25.500	1	1	-0.250 -0.250	1.5700		0.00
(Area) Aero MP3-03	A	No	Surface Ar (CaAa)	45.500 - 25.500	1	1	0.500 0.500	1.5700		0.00
(Area) Aero MP3-03	B	No	Surface Ar (CaAa)	45.500 - 25.500	1	1	0.250 0.250	1.5700		0.00

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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
(Area) Aero MP3-03	C	No	Surface Ar (CaAa)	45.500 - 25.500	1	1	0.000 0.000	1.5700		0.00
*										
(Area) CCI-65FP-045100	A	No	Surface Ar (CaAa)	57.250 - 45.500	1	1	-0.250 -0.250	1.0000		0.00
(Area) CCI-65FP-045100	A	No	Surface Ar (CaAa)	57.250 - 45.500	1	1	0.500 0.500	1.0000		0.00
(Area) CCI-65FP-045100	B	No	Surface Ar (CaAa)	50.500 - 45.500	1	1	0.250 0.250	1.0000		0.00
(Area) CCI-65FP-045100	C	No	Surface Ar (CaAa)	57.250 - 45.500	1	1	0.000 0.000	1.0000		0.00
*										
(Area) CCI-65FP-045100	A	No	Surface Ar (CaAa)	68.250 - 57.250	1	1	-0.250 -0.250	1.0000		0.00
(Area) CCI-65FP-045100	A	No	Surface Ar (CaAa)	68.250 - 57.250	1	1	0.500 0.500	1.0000		0.00
(Area) CCI-65FP-065125	B	No	Surface Ar (CaAa)	74.750 - 50.500	1	1	0.000 0.000	1.2500		0.00
(Area) CCI-65FP-045100	C	No	Surface Ar (CaAa)	68.250 - 57.250	1	1	0.000 0.000	1.0000		0.00
*										
(Area) CCI-65FP-045125	A	No	Surface Ar (CaAa)	78.250 - 68.250	1	1	-0.250 -0.250	1.2500		0.00
(Area) CCI-65FP-045125	A	No	Surface Ar (CaAa)	80.000 - 68.250	1	1	0.500 0.500	1.2500		0.00
(Area) CCI-65FP-045125	B	No	Surface Ar (CaAa)	80.000 - 74.750	1	1	0.250 0.250	1.2500		0.00
(Area) CCI-65FP-045125	C	No	Surface Ar (CaAa)	80.000 - 68.250	1	1	0.000 0.000	1.2500		0.00
*										
(Area) CCI-65FP-045125	A	No	Surface Ar (CaAa)	100.750 - 78.250	1	1	-0.250 -0.250	1.2500		0.00
(Area) CCI-65FP-045125	A	No	Surface Ar (CaAa)	100.750 - 80.000	1	1	0.500 0.500	1.2500		0.00
*										
(Area) CCI-65FP-060100	B	No	Surface Ar (CaAa)	92.080 - 80.000	1	1	0.250 0.250	1.0000		0.00
(Area) CCI-65FP-060100	C	No	Surface Ar (CaAa)	92.080 - 80.000	1	1	0.000 0.000	1.0000		0.00

Proposed Mods

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight plf

1266A(1/8)	B	No	No	CaAa (Out Of Face)	120.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.01 0.41 1.41
7983A(ELLIPTICAL)	B	No	No	CaAa (Out Of Face)	120.000 - 0.000	3	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.08 0.74 2.01
9207(5/16)	B	No	No	Inside Pole	120.000 - 0.000	6	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.06 0.06 0.06

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Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight plf
*** HCS 6X12 6AWG(1-3/8)	A	No	No	CaAa (Out Of Face)	105.000 - 0.000	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	1.70 2.85 4.61
*** *** LDF6-50A(1 1/4")	C	No	No	Inside Pole	96.000 - 0.000	12	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.66 0.66 0.66
FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	96.000 - 0.000	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.06 0.06 0.06
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	96.000 - 0.000	4	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.58 0.58 0.58
2" Flexible Conduit	C	No	No	Inside Pole	96.000 - 0.000	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.34 0.34 0.34
*** LDF5-50A(7/8)	C	No	No	Inside Pole	82.000 - 0.000	12	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.33 0.33 0.33
*** LDF4-50A(1/2)	C	No	No	Inside Pole	75.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.15 0.15 0.15

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	120.000-115.000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	6.080	0.000	0.04
		C	0.000	0.000	0.362	0.000	0.00
L2	115.000-110.000	A	0.000	0.000	4.158	0.000	0.03
		B	0.000	0.000	6.080	0.000	0.04
		C	0.000	0.000	0.362	0.000	0.00
L3	110.000-105.000	A	0.000	0.000	6.930	0.000	0.06
		B	0.000	0.000	6.080	0.000	0.04
		C	0.000	0.000	0.362	0.000	0.00
L4	105.000-100.000	A	0.000	0.000	13.057	0.000	0.10
		B	0.000	0.000	6.080	0.000	0.04
		C	0.000	0.000	0.362	0.000	0.00
L5	100.000-99.250	A	0.000	0.000	2.118	0.000	0.02
		B	0.000	0.000	0.912	0.000	0.01
		C	0.000	0.000	0.054	0.000	0.00
L6	99.250-99.000	A	0.000	0.000	0.706	0.000	0.01
		B	0.000	0.000	0.304	0.000	0.00
		C	0.000	0.000	0.018	0.000	0.00
L7	99.000-94.000	A	0.000	0.000	14.120	0.000	0.10
		B	0.000	0.000	6.080	0.000	0.04
		C	0.000	0.000	0.362	0.000	0.03
L8	94.000-90.080	A	0.000	0.000	11.070	0.000	0.08

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<i>Tower Section</i>	<i>Tower Elevation ft</i>	<i>Face</i>	<i>A_R</i> <i>ft²</i>	<i>A_F</i> <i>ft²</i>	<i>C_{AA}</i> <i>In Face</i> <i>ft²</i>	<i>C_{AA}</i> <i>Out Face</i> <i>ft²</i>	<i>Weight</i> <i>K</i>
		B	0.000	0.000	4.967	0.000	0.03
		C	0.000	0.000	0.484	0.000	0.05
L9	90.080-89.830	A	0.000	0.000	0.706	0.000	0.01
		B	0.000	0.000	0.329	0.000	0.00
		C	0.000	0.000	0.043	0.000	0.00
L10	89.830-89.500	A	0.000	0.000	0.932	0.000	0.01
		B	0.000	0.000	0.434	0.000	0.00
		C	0.000	0.000	0.057	0.000	0.00
L11	89.500-89.250	A	0.000	0.000	0.706	0.000	0.01
		B	0.000	0.000	0.329	0.000	0.00
		C	0.000	0.000	0.043	0.000	0.00
L12	89.250-84.250	A	0.000	0.000	14.120	0.000	0.10
		B	0.000	0.000	6.580	0.000	0.04
		C	0.000	0.000	0.863	0.000	0.06
L13	84.250-78.000	A	0.000	0.000	17.650	0.000	0.13
		B	0.000	0.000	8.275	0.000	0.05
		C	0.000	0.000	1.128	0.000	0.09
L14	78.000-77.000	A	0.000	0.000	2.824	0.000	0.02
		B	0.000	0.000	1.341	0.000	0.01
		C	0.000	0.000	0.198	0.000	0.02
L15	77.000-76.750	A	0.000	0.000	0.706	0.000	0.01
		B	0.000	0.000	0.335	0.000	0.00
		C	0.000	0.000	0.049	0.000	0.00
L16	76.750-76.500	A	0.000	0.000	0.706	0.000	0.01
		B	0.000	0.000	0.335	0.000	0.00
		C	0.000	0.000	0.049	0.000	0.00
L17	76.500-75.500	A	0.000	0.000	2.824	0.000	0.02
		B	0.000	0.000	1.341	0.000	0.01
		C	0.000	0.000	0.198	0.000	0.02
L18	75.500-75.250	A	0.000	0.000	0.706	0.000	0.01
		B	0.000	0.000	0.335	0.000	0.00
		C	0.000	0.000	0.049	0.000	0.00
L19	75.250-74.500	A	0.000	0.000	2.118	0.000	0.02
		B	0.000	0.000	1.006	0.000	0.01
		C	0.000	0.000	0.148	0.000	0.01
L20	74.500-74.250	A	0.000	0.000	0.706	0.000	0.01
		B	0.000	0.000	0.335	0.000	0.00
		C	0.000	0.000	0.049	0.000	0.00
L21	74.250-72.000	A	0.000	0.000	6.354	0.000	0.05
		B	0.000	0.000	3.017	0.000	0.02
		C	0.000	0.000	0.444	0.000	0.04
L22	72.000-71.750	A	0.000	0.000	0.706	0.000	0.01
		B	0.000	0.000	0.335	0.000	0.00
		C	0.000	0.000	0.049	0.000	0.00
L23	71.750-70.500	A	0.000	0.000	3.530	0.000	0.03
		B	0.000	0.000	1.676	0.000	0.01
		C	0.000	0.000	0.247	0.000	0.02
L24	70.500-70.250	A	0.000	0.000	0.706	0.000	0.01
		B	0.000	0.000	0.335	0.000	0.00
		C	0.000	0.000	0.049	0.000	0.00
L25	70.250-70.000	A	0.000	0.000	0.706	0.000	0.01
		B	0.000	0.000	0.335	0.000	0.00
		C	0.000	0.000	0.049	0.000	0.00
L26	70.000-69.750	A	0.000	0.000	0.706	0.000	0.01
		B	0.000	0.000	0.335	0.000	0.00
		C	0.000	0.000	0.049	0.000	0.00
L27	69.750-69.500	A	0.000	0.000	0.706	0.000	0.01
		B	0.000	0.000	0.335	0.000	0.00
		C	0.000	0.000	0.049	0.000	0.00
L28	69.500-69.250	A	0.000	0.000	0.706	0.000	0.01
		B	0.000	0.000	0.335	0.000	0.00

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<i>Tower Section</i>	<i>Tower Elevation ft</i>	<i>Face</i>	<i>A_R</i> <i>ft²</i>	<i>A_F</i> <i>ft²</i>	<i>C_{AA}</i> <i>In Face</i> <i>ft²</i>	<i>C_{AA}</i> <i>Out Face</i> <i>ft²</i>	<i>Weight</i> <i>K</i>
L29	69.250-64.250	C	0.000	0.000	0.049	0.000	0.00
		A	0.000	0.000	13.920	0.000	0.10
		B	0.000	0.000	6.705	0.000	0.04
		C	0.000	0.000	0.887	0.000	0.08
L30	64.250-59.250	A	0.000	0.000	13.870	0.000	0.10
		B	0.000	0.000	6.705	0.000	0.04
		C	0.000	0.000	0.863	0.000	0.08
L31	59.250-56.000	A	0.000	0.000	9.015	0.000	0.07
		B	0.000	0.000	4.358	0.000	0.02
		C	0.000	0.000	0.561	0.000	0.05
L32	56.000-55.750	A	0.000	0.000	0.694	0.000	0.01
		B	0.000	0.000	0.335	0.000	0.00
		C	0.000	0.000	0.043	0.000	0.00
L33	55.750-55.500	A	0.000	0.000	0.694	0.000	0.01
		B	0.000	0.000	0.335	0.000	0.00
		C	0.000	0.000	0.043	0.000	0.00
L34	55.500-55.250	A	0.000	0.000	0.694	0.000	0.01
		B	0.000	0.000	0.335	0.000	0.00
		C	0.000	0.000	0.043	0.000	0.00
L35	55.250-54.000	A	0.000	0.000	3.467	0.000	0.03
		B	0.000	0.000	1.676	0.000	0.01
		C	0.000	0.000	0.216	0.000	0.02
L36	54.000-53.750	A	0.000	0.000	0.694	0.000	0.01
		B	0.000	0.000	0.335	0.000	0.00
		C	0.000	0.000	0.043	0.000	0.00
L37	53.750-53.500	A	0.000	0.000	0.694	0.000	0.01
		B	0.000	0.000	0.335	0.000	0.00
		C	0.000	0.000	0.043	0.000	0.00
L38	53.500-53.250	A	0.000	0.000	0.694	0.000	0.01
		B	0.000	0.000	0.335	0.000	0.00
		C	0.000	0.000	0.043	0.000	0.00
L39	53.250-53.000	A	0.000	0.000	0.694	0.000	0.01
		B	0.000	0.000	0.335	0.000	0.00
		C	0.000	0.000	0.043	0.000	0.00
L40	53.000-48.000	A	0.000	0.000	13.870	0.000	0.10
		B	0.000	0.000	6.643	0.000	0.04
		C	0.000	0.000	0.863	0.000	0.08
L41	48.000-39.750	A	0.000	0.000	23.541	0.000	0.17
		B	0.000	0.000	11.185	0.000	0.06
		C	0.000	0.000	1.751	0.000	0.13
L42	39.750-38.750	A	0.000	0.000	2.888	0.000	0.02
		B	0.000	0.000	1.373	0.000	0.01
		C	0.000	0.000	0.230	0.000	0.02
L43	38.750-34.750	A	0.000	0.000	11.552	0.000	0.08
		B	0.000	0.000	5.492	0.000	0.03
		C	0.000	0.000	0.918	0.000	0.06
L44	34.750-34.500	A	0.000	0.000	0.722	0.000	0.01
		B	0.000	0.000	0.343	0.000	0.00
		C	0.000	0.000	0.057	0.000	0.00
L45	34.500-33.750	A	0.000	0.000	2.166	0.000	0.02
		B	0.000	0.000	1.030	0.000	0.01
		C	0.000	0.000	0.172	0.000	0.01
L46	33.750-33.500	A	0.000	0.000	0.722	0.000	0.01
		B	0.000	0.000	0.343	0.000	0.00
		C	0.000	0.000	0.057	0.000	0.00
L47	33.500-32.750	A	0.000	0.000	2.166	0.000	0.02
		B	0.000	0.000	1.030	0.000	0.01
		C	0.000	0.000	0.172	0.000	0.01
L48	32.750-32.500	A	0.000	0.000	0.722	0.000	0.01
		B	0.000	0.000	0.343	0.000	0.00
		C	0.000	0.000	0.057	0.000	0.00

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Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
L49	32.500-27.500	A	0.000	0.000	14.440	0.000	0.10
		B	0.000	0.000	6.865	0.000	0.04
		C	0.000	0.000	1.148	0.000	0.08
L50	27.500-24.000	A	0.000	0.000	10.120	0.000	0.07
		B	0.000	0.000	4.811	0.000	0.03
		C	0.000	0.000	0.809	0.000	0.06
L51	24.000-23.750	A	0.000	0.000	0.724	0.000	0.01
		B	0.000	0.000	0.344	0.000	0.00
		C	0.000	0.000	0.058	0.000	0.00
L52	23.750-18.750	A	0.000	0.000	14.480	0.000	0.10
		B	0.000	0.000	6.885	0.000	0.04
		C	0.000	0.000	1.168	0.000	0.08
L53	18.750-14.250	A	0.000	0.000	13.032	0.000	0.09
		B	0.000	0.000	6.197	0.000	0.03
		C	0.000	0.000	1.051	0.000	0.07
L54	14.250-14.000	A	0.000	0.000	0.724	0.000	0.01
		B	0.000	0.000	0.344	0.000	0.00
		C	0.000	0.000	0.058	0.000	0.00
L55	14.000-12.750	A	0.000	0.000	3.620	0.000	0.03
		B	0.000	0.000	1.721	0.000	0.01
		C	0.000	0.000	0.292	0.000	0.02
L56	12.750-12.500	A	0.000	0.000	0.724	0.000	0.01
		B	0.000	0.000	0.344	0.000	0.00
		C	0.000	0.000	0.058	0.000	0.00
L57	12.500-7.500	A	0.000	0.000	14.480	0.000	0.10
		B	0.000	0.000	6.885	0.000	0.04
		C	0.000	0.000	1.168	0.000	0.08
L58	7.500-5.000	A	0.000	0.000	7.240	0.000	0.05
		B	0.000	0.000	3.442	0.000	0.02
		C	0.000	0.000	0.584	0.000	0.04
L59	5.000-4.750	A	0.000	0.000	0.724	0.000	0.01
		B	0.000	0.000	0.344	0.000	0.00
		C	0.000	0.000	0.058	0.000	0.00
L60	4.750-4.500	A	0.000	0.000	0.724	0.000	0.01
		B	0.000	0.000	0.344	0.000	0.00
		C	0.000	0.000	0.058	0.000	0.00
L61	4.500-0.000	A	0.000	0.000	13.032	0.000	0.09
		B	0.000	0.000	6.197	0.000	0.03
		C	0.000	0.000	1.051	0.000	0.07

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} In Face ft ²	C_{AA} Out Face ft ²	Weight K
L1	120.000-115.000	A	1.703	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	11.858	0.000	0.27
		C		0.000	0.000	3.769	0.000	0.05
L2	115.000-110.000	A	1.696	0.000	0.000	6.469	0.000	0.12
		B		0.000	0.000	11.839	0.000	0.27
		C		0.000	0.000	3.754	0.000	0.05
L3	110.000-105.000	A	1.688	0.000	0.000	10.773	0.000	0.21
		B		0.000	0.000	11.820	0.000	0.27
		C		0.000	0.000	3.739	0.000	0.05
L4	105.000-100.000	A	1.680	0.000	0.000	20.979	0.000	0.45
		B		0.000	0.000	11.800	0.000	0.27
		C		0.000	0.000	3.722	0.000	0.05
L5	100.000-99.250	A	1.675	0.000	0.000	3.731	0.000	0.07

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Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
		B		0.000	0.000	1.768	0.000	0.04
		C		0.000	0.000	0.557	0.000	0.01
L6	99.250-99.000	A	1.674	0.000	0.000	1.244	0.000	0.02
		B		0.000	0.000	0.589	0.000	0.01
		C		0.000	0.000	0.186	0.000	0.00
L7	99.000-94.000	A	1.670	0.000	0.000	24.852	0.000	0.50
		B		0.000	0.000	11.775	0.000	0.27
		C		0.000	0.000	3.702	0.000	0.07
L8	94.000-90.080	A	1.662	0.000	0.000	19.456	0.000	0.39
		B		0.000	0.000	10.081	0.000	0.22
		C		0.000	0.000	3.755	0.000	0.09
L9	90.080-89.830	A	1.658	0.000	0.000	1.240	0.000	0.02
		B		0.000	0.000	0.695	0.000	0.01
		C		0.000	0.000	0.292	0.000	0.01
L10	89.830-89.500	A	1.658	0.000	0.000	1.637	0.000	0.03
		B		0.000	0.000	0.918	0.000	0.02
		C		0.000	0.000	0.385	0.000	0.01
L11	89.500-89.250	A	1.657	0.000	0.000	1.240	0.000	0.02
		B		0.000	0.000	0.695	0.000	0.01
		C		0.000	0.000	0.292	0.000	0.01
L12	89.250-84.250	A	1.652	0.000	0.000	24.772	0.000	0.49
		B		0.000	0.000	13.883	0.000	0.29
		C		0.000	0.000	5.819	0.000	0.13
L13	84.250-78.000	A	1.641	0.000	0.000	30.903	0.000	0.61
		B		0.000	0.000	17.181	0.000	0.36
		C		0.000	0.000	7.282	0.000	0.17
L14	78.000-77.000	A	1.634	0.000	0.000	4.945	0.000	0.10
		B		0.000	0.000	2.707	0.000	0.06
		C		0.000	0.000	1.182	0.000	0.03
L15	77.000-76.750	A	1.632	0.000	0.000	1.234	0.000	0.02
		B		0.000	0.000	0.675	0.000	0.01
		C		0.000	0.000	0.294	0.000	0.01
L16	76.750-76.500	A	1.632	0.000	0.000	1.234	0.000	0.02
		B		0.000	0.000	0.675	0.000	0.01
		C		0.000	0.000	0.294	0.000	0.01
L17	76.500-75.500	A	1.631	0.000	0.000	4.935	0.000	0.10
		B		0.000	0.000	2.700	0.000	0.06
		C		0.000	0.000	1.176	0.000	0.03
L18	75.500-75.250	A	1.629	0.000	0.000	1.233	0.000	0.02
		B		0.000	0.000	0.675	0.000	0.01
		C		0.000	0.000	0.294	0.000	0.01
L19	75.250-74.500	A	1.628	0.000	0.000	3.700	0.000	0.07
		B		0.000	0.000	2.046	0.000	0.04
		C		0.000	0.000	0.881	0.000	0.02
L20	74.500-74.250	A	1.627	0.000	0.000	1.233	0.000	0.02
		B		0.000	0.000	0.696	0.000	0.01
		C		0.000	0.000	0.293	0.000	0.01
L21	74.250-72.000	A	1.624	0.000	0.000	11.091	0.000	0.22
		B		0.000	0.000	6.259	0.000	0.13
		C		0.000	0.000	2.637	0.000	0.07
L22	72.000-71.750	A	1.621	0.000	0.000	1.232	0.000	0.02
		B		0.000	0.000	0.695	0.000	0.01
		C		0.000	0.000	0.293	0.000	0.01
L23	71.750-70.500	A	1.620	0.000	0.000	6.157	0.000	0.12
		B		0.000	0.000	3.474	0.000	0.07
		C		0.000	0.000	1.462	0.000	0.04
L24	70.500-70.250	A	1.618	0.000	0.000	1.231	0.000	0.02
		B		0.000	0.000	0.694	0.000	0.01
		C		0.000	0.000	0.292	0.000	0.01
L25	70.250-70.000	A	1.617	0.000	0.000	1.231	0.000	0.02
		B		0.000	0.000	0.694	0.000	0.01

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Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
L26	70.000-69.750	C		0.000	0.000	0.292	0.000	0.01
		A	1.617	0.000	0.000	1.231	0.000	0.02
		B		0.000	0.000	0.694	0.000	0.01
		C		0.000	0.000	0.292	0.000	0.01
L27	69.750-69.500	A	1.616	0.000	0.000	1.231	0.000	0.02
		B		0.000	0.000	0.694	0.000	0.01
		C		0.000	0.000	0.292	0.000	0.01
L28	69.500-69.250	A	1.616	0.000	0.000	1.230	0.000	0.02
		B		0.000	0.000	0.694	0.000	0.01
		C		0.000	0.000	0.292	0.000	0.01
L29	69.250-64.250	A	1.609	0.000	0.000	24.380	0.000	0.48
		B		0.000	0.000	13.858	0.000	0.28
		C		0.000	0.000	5.716	0.000	0.14
L30	64.250-59.250	A	1.597	0.000	0.000	24.274	0.000	0.47
		B		0.000	0.000	13.814	0.000	0.28
		C		0.000	0.000	5.653	0.000	0.14
L31	59.250-56.000	A	1.586	0.000	0.000	15.746	0.000	0.31
		B		0.000	0.000	8.954	0.000	0.18
		C		0.000	0.000	3.653	0.000	0.09
L32	56.000-55.750	A	1.581	0.000	0.000	1.210	0.000	0.02
		B		0.000	0.000	0.688	0.000	0.01
		C		0.000	0.000	0.280	0.000	0.01
L33	55.750-55.500	A	1.580	0.000	0.000	1.210	0.000	0.02
		B		0.000	0.000	0.688	0.000	0.01
		C		0.000	0.000	0.280	0.000	0.01
L34	55.500-55.250	A	1.580	0.000	0.000	1.210	0.000	0.02
		B		0.000	0.000	0.688	0.000	0.01
		C		0.000	0.000	0.280	0.000	0.01
L35	55.250-54.000	A	1.578	0.000	0.000	6.047	0.000	0.12
		B		0.000	0.000	3.437	0.000	0.07
		C		0.000	0.000	1.399	0.000	0.04
L36	54.000-53.750	A	1.575	0.000	0.000	1.209	0.000	0.02
		B		0.000	0.000	0.687	0.000	0.01
		C		0.000	0.000	0.279	0.000	0.01
L37	53.750-53.500	A	1.575	0.000	0.000	1.209	0.000	0.02
		B		0.000	0.000	0.687	0.000	0.01
		C		0.000	0.000	0.279	0.000	0.01
L38	53.500-53.250	A	1.574	0.000	0.000	1.208	0.000	0.02
		B		0.000	0.000	0.687	0.000	0.01
		C		0.000	0.000	0.279	0.000	0.01
L39	53.250-53.000	A	1.573	0.000	0.000	1.208	0.000	0.02
		B		0.000	0.000	0.687	0.000	0.01
		C		0.000	0.000	0.279	0.000	0.01
L40	53.000-48.000	A	1.565	0.000	0.000	24.131	0.000	0.46
		B		0.000	0.000	13.455	0.000	0.27
		C		0.000	0.000	5.558	0.000	0.14
L41	48.000-39.750	A	1.543	0.000	0.000	40.308	0.000	0.77
		B		0.000	0.000	22.424	0.000	0.45
		C		0.000	0.000	9.390	0.000	0.24
L42	39.750-38.750	A	1.526	0.000	0.000	4.920	0.000	0.09
		B		0.000	0.000	2.757	0.000	0.05
		C		0.000	0.000	1.155	0.000	0.03
L43	38.750-34.750	A	1.516	0.000	0.000	19.584	0.000	0.37
		B		0.000	0.000	10.953	0.000	0.21
		C		0.000	0.000	4.557	0.000	0.11
L44	34.750-34.500	A	1.507	0.000	0.000	1.222	0.000	0.02
		B		0.000	0.000	0.683	0.000	0.01
		C		0.000	0.000	0.283	0.000	0.01
L45	34.500-33.750	A	1.505	0.000	0.000	3.665	0.000	0.07
		B		0.000	0.000	2.048	0.000	0.04
		C		0.000	0.000	0.849	0.000	0.02

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Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L46	33.750-33.500	A	1.503	0.000	0.000	1.221	0.000	0.02
		B		0.000	0.000	0.682	0.000	0.01
		C		0.000	0.000	0.283	0.000	0.01
L47	33.500-32.750	A	1.501	0.000	0.000	3.662	0.000	0.07
		B		0.000	0.000	2.046	0.000	0.04
		C		0.000	0.000	0.847	0.000	0.02
L48	32.750-32.500	A	1.498	0.000	0.000	1.220	0.000	0.02
		B		0.000	0.000	0.681	0.000	0.01
		C		0.000	0.000	0.282	0.000	0.01
L49	32.500-27.500	A	1.486	0.000	0.000	24.343	0.000	0.45
		B		0.000	0.000	13.585	0.000	0.26
		C		0.000	0.000	5.605	0.000	0.14
L50	27.500-24.000	A	1.463	0.000	0.000	16.981	0.000	0.31
		B		0.000	0.000	9.460	0.000	0.18
		C		0.000	0.000	3.882	0.000	0.10
L51	24.000-23.750	A	1.452	0.000	0.000	1.212	0.000	0.02
		B		0.000	0.000	0.674	0.000	0.01
		C		0.000	0.000	0.276	0.000	0.01
L52	23.750-18.750	A	1.435	0.000	0.000	24.157	0.000	0.44
		B		0.000	0.000	13.429	0.000	0.25
		C		0.000	0.000	5.474	0.000	0.14
L53	18.750-14.250	A	1.399	0.000	0.000	21.596	0.000	0.39
		B		0.000	0.000	11.973	0.000	0.22
		C		0.000	0.000	4.829	0.000	0.12
L54	14.250-14.000	A	1.378	0.000	0.000	1.195	0.000	0.02
		B		0.000	0.000	0.661	0.000	0.01
		C		0.000	0.000	0.265	0.000	0.01
L55	14.000-12.750	A	1.370	0.000	0.000	5.966	0.000	0.11
		B		0.000	0.000	3.300	0.000	0.06
		C		0.000	0.000	1.320	0.000	0.03
L56	12.750-12.500	A	1.363	0.000	0.000	1.191	0.000	0.02
		B		0.000	0.000	0.659	0.000	0.01
		C		0.000	0.000	0.263	0.000	0.01
L57	12.500-7.500	A	1.331	0.000	0.000	23.687	0.000	0.41
		B		0.000	0.000	13.064	0.000	0.23
		C		0.000	0.000	5.161	0.000	0.13
L58	7.500-5.000	A	1.270	0.000	0.000	11.706	0.000	0.20
		B		0.000	0.000	6.425	0.000	0.11
		C		0.000	0.000	2.489	0.000	0.06
L59	5.000-4.750	A	1.239	0.000	0.000	1.164	0.000	0.02
		B		0.000	0.000	0.637	0.000	0.01
		C		0.000	0.000	0.244	0.000	0.01
L60	4.750-4.500	A	1.232	0.000	0.000	1.162	0.000	0.02
		B		0.000	0.000	0.636	0.000	0.01
		C		0.000	0.000	0.243	0.000	0.01
L61	4.500-0.000	A	1.146	0.000	0.000	20.570	0.000	0.33
		B		0.000	0.000	11.175	0.000	0.17
		C		0.000	0.000	4.146	0.000	0.11

Feed Line Center of Pressure

Section	Elevation ft	CP _X in	CP _Z in	CP _X Ice in	CP _Z Ice in
L1	120.000-115.000	4.1715	0.2297	4.0758	1.1960
L2	115.000-110.000	0.9159	0.1904	1.4024	0.9964
L3	110.000-105.000	-0.6637	0.1733	0.0958	0.9109

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Section	Elevation	CP_x	CP_z	CP_x	CP_z
		<i>in</i>	<i>in</i>	<i>Ice</i> <i>in</i>	<i>Ice</i> <i>in</i>
L4	105.000-100.000	-0.5808	-2.5765	0.0090	-1.4904
L5	100.000-99.250	-0.7786	-2.7347	-0.3751	-1.8127
L6	99.250-99.000	-0.7800	-2.7412	-0.3759	-1.8180
L7	99.000-94.000	-0.7852	-2.7671	-0.3798	-1.8431
L8	94.000-90.080	-0.6781	-2.6655	-0.1537	-1.6068
L9	90.080-89.830	-0.5743	-2.5518	0.0554	-1.3727
L10	89.830-89.500	-0.5746	-2.5543	0.0556	-1.3747
L11	89.500-89.250	-0.5755	-2.5595	0.0559	-1.3774
L12	89.250-84.250	-0.5782	-2.5814	0.0577	-1.3955
L13	84.250-78.000	-0.5651	-2.6048	0.0415	-1.4261
L14	78.000-77.000	-0.5274	-2.5675	0.0016	-1.4158
L15	77.000-76.750	-0.5279	-2.5725	0.0002	-1.4234
L16	76.750-76.500	-0.5284	-2.5757	0.0003	-1.4254
L17	76.500-75.500	-0.5289	-2.5806	0.0005	-1.4297
L18	75.500-75.250	-0.5289	-2.5830	0.0008	-1.4333
L19	75.250-74.500	-0.5412	-2.6312	0.0100	-1.5139
L20	74.500-74.250	-0.5655	-2.7247	0.0282	-1.6713
L21	74.250-72.000	-0.5666	-2.7348	0.0286	-1.6811
L22	72.000-71.750	-0.5676	-2.7443	0.0291	-1.6907
L23	71.750-70.500	-0.5683	-2.7503	0.0293	-1.6966
L24	70.500-70.250	-0.5691	-2.7567	0.0295	-1.7026
L25	70.250-70.000	-0.5693	-2.7587	0.0296	-1.7046
L26	70.000-69.750	-0.5694	-2.7600	0.0297	-1.7063
L27	69.750-69.500	-0.5700	-2.7639	0.0298	-1.7089
L28	69.500-69.250	-0.5699	-2.7643	0.0299	-1.7104
L29	69.250-64.250	-0.5313	-2.8070	0.0558	-1.7379
L30	64.250-59.250	-0.5246	-2.8513	0.0638	-1.7792
L31	59.250-56.000	-0.5274	-2.8827	0.0649	-1.8120
L32	56.000-55.750	-0.5289	-2.8971	0.0654	-1.8264
L33	55.750-55.500	-0.5290	-2.8990	0.0654	-1.8284
L34	55.500-55.250	-0.5294	-2.9018	0.0655	-1.8307
L35	55.250-54.000	-0.5299	-2.9072	0.0656	-1.8366
L36	54.000-53.750	-0.5301	-2.9111	0.0657	-1.8421
L37	53.750-53.500	-0.5302	-2.9128	0.0658	-1.8440
L38	53.500-53.250	-0.5302	-2.9137	0.0658	-1.8457
L39	53.250-53.000	-0.5302	-2.9147	0.0658	-1.8475
L40	53.000-48.000	-0.5432	-2.8654	0.0402	-1.7414
L41	48.000-39.750	-0.5481	-2.7874	0.0768	-1.6408
L42	39.750-38.750	-0.5448	-2.7751	0.1042	-1.6399
L43	38.750-34.750	-0.5465	-2.7915	0.0989	-1.6675
L44	34.750-34.500	-0.5483	-2.8071	0.0984	-1.6843
L45	34.500-33.750	-0.5487	-2.8103	0.0982	-1.6882
L46	33.750-33.500	-0.5485	-2.8111	0.0980	-1.6913
L47	33.500-32.750	-0.5489	-2.8143	0.0978	-1.6952
L48	32.750-32.500	-0.5499	-2.8210	0.0976	-1.7003
L49	32.500-27.500	-0.5516	-2.8373	0.0963	-1.7212
L50	27.500-24.000	-0.5539	-2.8614	0.0933	-1.7555
L51	24.000-23.750	-0.5548	-2.8710	0.0915	-1.7710
L52	23.750-18.750	-0.5564	-2.8866	0.0884	-1.7944
L53	18.750-14.250	-0.5594	-2.9149	0.0809	-1.8401
L54	14.250-14.000	-0.5609	-2.9290	0.0757	-1.8654
L55	14.000-12.750	-0.5614	-2.9332	0.0738	-1.8737
L56	12.750-12.500	-0.5614	-2.9351	0.0717	-1.8814
L57	12.500-7.500	-0.5629	-2.9500	0.0630	-1.9142
L58	7.500-5.000	-0.5651	-2.9711	0.0445	-1.9716
L59	5.000-4.750	-0.5663	-2.9806	0.0343	-1.9992
L60	4.750-4.500	-0.5664	-2.9816	0.0321	-2.0046
L61	4.500-0.000	-0.5677	-2.9946	0.0017	-2.0734

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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	5	3" Flexible Conduit	115.00 - 120.00	1.0000	1.0000
L1	6	HB114-1-0813U4-M5J(1-1/4)	115.00 - 120.00	1.0000	1.0000
L1	27	Safety Line 3/8	115.00 - 120.00	1.0000	1.0000
L1	28	Step Pegs (5/8" SR) 7-in. w/30" step	115.00 - 120.00	1.0000	1.0000
L2	5	3" Flexible Conduit	110.00 - 115.00	1.0000	1.0000
L2	6	HB114-1-0813U4-M5J(1-1/4)	110.00 - 115.00	1.0000	1.0000
L2	9	LDF7-50A(1-5/8)	110.00 - 113.00	1.0000	1.0000
L2	27	Safety Line 3/8	110.00 - 115.00	1.0000	1.0000
L2	28	Step Pegs (5/8" SR) 7-in. w/30" step	110.00 - 115.00	1.0000	1.0000
L3	5	3" Flexible Conduit	105.00 - 110.00	1.0000	1.0000
L3	6	HB114-1-0813U4-M5J(1-1/4)	105.00 - 110.00	1.0000	1.0000
L3	9	LDF7-50A(1-5/8)	105.00 - 110.00	1.0000	1.0000
L3	27	Safety Line 3/8	105.00 - 110.00	1.0000	1.0000
L3	28	Step Pegs (5/8" SR) 7-in. w/30" step	105.00 - 110.00	1.0000	1.0000
L4	5	3" Flexible Conduit	100.00 - 105.00	1.0000	1.0000
L4	6	HB114-1-0813U4-M5J(1-1/4)	100.00 - 105.00	1.0000	1.0000
L4	9	LDF7-50A(1-5/8)	100.00 - 105.00	1.0000	1.0000
L4	11	LDF7-50A(1-5/8)	100.00 - 105.00	1.0000	1.0000
L4	27	Safety Line 3/8	100.00 - 105.00	1.0000	1.0000
L4	28	Step Pegs (5/8" SR) 7-in. w/30" step	100.00 - 105.00	1.0000	1.0000
L4	55	(Area) CCI-65FP-045125	100.00 - 100.75	1.0000	1.0000
L4	56	(Area) CCI-65FP-045125	100.00 - 100.75	1.0000	1.0000
L5	5	3" Flexible Conduit	99.25 - 100.00	1.0000	1.0000
L5	6	HB114-1-0813U4-M5J(1-1/4)	99.25 - 100.00	1.0000	1.0000
L5	9	LDF7-50A(1-5/8)	99.25 - 100.00	1.0000	1.0000
L5	11	LDF7-50A(1-5/8)	99.25 - 100.00	1.0000	1.0000
L5	27	Safety Line 3/8	99.25 - 100.00	1.0000	1.0000
L5	28	Step Pegs (5/8" SR) 7-in. w/30" step	99.25 - 100.00	1.0000	1.0000
L5	55	(Area) CCI-65FP-045125	99.25 - 100.00	1.0000	1.0000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L5	56	(Area) CCI-65FP-045125	99.25 - 100.00	1.0000	1.0000
L6	5	3" Flexible Conduit	99.00 - 99.25	1.0000	1.0000
L6	6	HB114-1-0813U4-M5J(1-1/4)	99.00 - 99.25	1.0000	1.0000
L6	9	LDF7-50A(1-5/8)	99.00 - 99.25	1.0000	1.0000
L6	11	LDF7-50A(1-5/8)	99.00 - 99.25	1.0000	1.0000
L6	27	Safety Line 3/8	99.00 - 99.25	1.0000	1.0000
L6	28	Step Pegs (5/8" SR) 7-in. w/30" step	99.00 - 99.25	1.0000	1.0000
L6	55	(Area) CCI-65FP-045125	99.00 - 99.25	1.0000	1.0000
L6	56	(Area) CCI-65FP-045125	99.00 - 99.25	1.0000	1.0000
L7	5	3" Flexible Conduit	94.00 - 99.00	1.0000	1.0000
L7	6	HB114-1-0813U4-M5J(1-1/4)	94.00 - 99.00	1.0000	1.0000
L7	9	LDF7-50A(1-5/8)	94.00 - 99.00	1.0000	1.0000
L7	11	LDF7-50A(1-5/8)	94.00 - 99.00	1.0000	1.0000
L7	27	Safety Line 3/8	94.00 - 99.00	1.0000	1.0000
L7	28	Step Pegs (5/8" SR) 7-in. w/30" step	94.00 - 99.00	1.0000	1.0000
L7	55	(Area) CCI-65FP-045125	94.00 - 99.00	1.0000	1.0000
L7	56	(Area) CCI-65FP-045125	94.00 - 99.00	1.0000	1.0000
L8	5	3" Flexible Conduit	90.08 - 94.00	1.0000	1.0000
L8	6	HB114-1-0813U4-M5J(1-1/4)	90.08 - 94.00	1.0000	1.0000
L8	9	LDF7-50A(1-5/8)	90.08 - 94.00	1.0000	1.0000
L8	11	LDF7-50A(1-5/8)	90.08 - 94.00	1.0000	1.0000
L8	27	Safety Line 3/8	90.08 - 94.00	1.0000	1.0000
L8	28	Step Pegs (5/8" SR) 7-in. w/30" step	90.08 - 94.00	1.0000	1.0000
L8	55	(Area) CCI-65FP-045125	90.08 - 94.00	1.0000	1.0000
L8	56	(Area) CCI-65FP-045125	90.08 - 94.00	1.0000	1.0000
L8	58	(Area) CCI-65FP-060100	90.08 - 92.08	1.0000	1.0000
L8	59	(Area) CCI-65FP-060100	90.08 - 92.08	1.0000	1.0000
L9	5	3" Flexible Conduit	89.83 - 90.08	1.0000	1.0000
L9	6	HB114-1-0813U4-M5J(1-1/4)	89.83 - 90.08	1.0000	1.0000
L9	9	LDF7-50A(1-5/8)	89.83 - 90.08	1.0000	1.0000
L9	11	LDF7-50A(1-5/8)	89.83 - 90.08	1.0000	1.0000
L9	27	Safety Line 3/8	89.83 - 90.08	1.0000	1.0000
L9	28	Step Pegs (5/8" SR) 7-in. w/30" step	89.83 - 90.08	1.0000	1.0000
L9	55	(Area) CCI-65FP-045125	89.83 - 90.08	1.0000	1.0000
L9	56	(Area) CCI-65FP-045125	89.83 - 90.08	1.0000	1.0000
L9	58	(Area) CCI-65FP-060100	89.83 - 90.08	1.0000	1.0000
L9	59	(Area) CCI-65FP-060100	89.83 - 90.08	1.0000	1.0000
L10	5	3" Flexible Conduit	89.50 - 89.83	1.0000	1.0000
L10	6	HB114-1-0813U4-M5J(1-1/4)	89.50 - 89.83	1.0000	1.0000
L10	9	LDF7-50A(1-5/8)	89.50 - 89.83	1.0000	1.0000
L10	11	LDF7-50A(1-5/8)	89.50 - 89.83	1.0000	1.0000
L10	27	Safety Line 3/8	89.50 - 89.83	1.0000	1.0000
L10	28	Step Pegs (5/8" SR) 7-in. w/30" step	89.50 - 89.83	1.0000	1.0000
L10	55	(Area) CCI-65FP-045125	89.50 - 89.83	1.0000	1.0000
L10	56	(Area) CCI-65FP-045125	89.50 - 89.83	1.0000	1.0000
L10	58	(Area) CCI-65FP-060100	89.50 - 89.83	1.0000	1.0000
L10	59	(Area) CCI-65FP-060100	89.50 - 89.83	1.0000	1.0000
L11	5	3" Flexible Conduit	89.25 - 89.50	1.0000	1.0000
L11	6	HB114-1-0813U4-M5J(1-1/4)	89.25 - 89.50	1.0000	1.0000
L11	9	LDF7-50A(1-5/8)	89.25 - 89.50	1.0000	1.0000
L11	11	LDF7-50A(1-5/8)	89.25 - 89.50	1.0000	1.0000

<i>Tower Section</i>	<i>Feed Line Record No.</i>	<i>Description</i>	<i>Feed Line Segment Elev.</i>	<i>K_a No Ice</i>	<i>K_a Ice</i>
L11	27	Safety Line 3/8	89.25 - 89.50	1.0000	1.0000
L11	28	Step Pegs (5/8" SR) 7-in. w/30" step	89.25 - 89.50	1.0000	1.0000
L11	55	(Area) CCI-65FP-045125	89.25 - 89.50	1.0000	1.0000
L11	56	(Area) CCI-65FP-045125	89.25 - 89.50	1.0000	1.0000
L11	58	(Area) CCI-65FP-060100	89.25 - 89.50	1.0000	1.0000
L11	59	(Area) CCI-65FP-060100	89.25 - 89.50	1.0000	1.0000
L12	5	3" Flexible Conduit	84.25 - 89.25	1.0000	1.0000
L12	6	HB114-1-0813U4-M5J(1-1/4)	84.25 - 89.25	1.0000	1.0000
L12	9	LDF7-50A(1-5/8)	84.25 - 89.25	1.0000	1.0000
L12	11	LDF7-50A(1-5/8)	84.25 - 89.25	1.0000	1.0000
L12	27	Safety Line 3/8	84.25 - 89.25	1.0000	1.0000
L12	28	Step Pegs (5/8" SR) 7-in. w/30" step	84.25 - 89.25	1.0000	1.0000
L12	55	(Area) CCI-65FP-045125	84.25 - 89.25	1.0000	1.0000
L12	56	(Area) CCI-65FP-045125	84.25 - 89.25	1.0000	1.0000
L12	58	(Area) CCI-65FP-060100	84.25 - 89.25	1.0000	1.0000
L12	59	(Area) CCI-65FP-060100	84.25 - 89.25	1.0000	1.0000
L13	5	3" Flexible Conduit	78.00 - 84.25	1.0000	1.0000
L13	6	HB114-1-0813U4-M5J(1-1/4)	78.00 - 84.25	1.0000	1.0000
L13	9	LDF7-50A(1-5/8)	78.00 - 84.25	1.0000	1.0000
L13	11	LDF7-50A(1-5/8)	78.00 - 84.25	1.0000	1.0000
L13	27	Safety Line 3/8	78.00 - 84.25	1.0000	1.0000
L13	28	Step Pegs (5/8" SR) 7-in. w/30" step	78.00 - 84.25	1.0000	1.0000
L13	50	(Area) CCI-65FP-045125	78.00 - 78.25	1.0000	1.0000
L13	51	(Area) CCI-65FP-045125	78.00 - 80.00	1.0000	1.0000
L13	52	(Area) CCI-65FP-045125	78.00 - 80.00	1.0000	1.0000
L13	53	(Area) CCI-65FP-045125	78.00 - 80.00	1.0000	1.0000
L13	55	(Area) CCI-65FP-045125	78.25 - 84.25	1.0000	1.0000
L13	56	(Area) CCI-65FP-045125	80.00 - 84.25	1.0000	1.0000
L13	58	(Area) CCI-65FP-060100	80.00 - 84.25	1.0000	1.0000
L13	59	(Area) CCI-65FP-060100	80.00 - 84.25	1.0000	1.0000
L15	5	3" Flexible Conduit	76.75 - 77.00	1.0000	1.0000
L15	6	HB114-1-0813U4-M5J(1-1/4)	76.75 - 77.00	1.0000	1.0000
L15	9	LDF7-50A(1-5/8)	76.75 - 77.00	1.0000	1.0000
L15	11	LDF7-50A(1-5/8)	76.75 - 77.00	1.0000	1.0000
L15	27	Safety Line 3/8	76.75 - 77.00	1.0000	1.0000
L15	28	Step Pegs (5/8" SR) 7-in. w/30" step	76.75 - 77.00	1.0000	1.0000
L15	50	(Area) CCI-65FP-045125	76.75 - 77.00	1.0000	1.0000
L15	51	(Area) CCI-65FP-045125	76.75 - 77.00	1.0000	1.0000
L15	52	(Area) CCI-65FP-045125	76.75 - 77.00	1.0000	1.0000
L15	53	(Area) CCI-65FP-045125	76.75 - 77.00	1.0000	1.0000
L16	5	3" Flexible Conduit	76.50 - 76.75	1.0000	1.0000
L16	6	HB114-1-0813U4-M5J(1-1/4)	76.50 - 76.75	1.0000	1.0000
L16	9	LDF7-50A(1-5/8)	76.50 - 76.75	1.0000	1.0000
L16	11	LDF7-50A(1-5/8)	76.50 - 76.75	1.0000	1.0000
L16	27	Safety Line 3/8	76.50 - 76.75	1.0000	1.0000
L16	28	Step Pegs (5/8" SR) 7-in. w/30" step	76.50 - 76.75	1.0000	1.0000
L16	50	(Area) CCI-65FP-045125	76.50 - 76.75	1.0000	1.0000
L16	51	(Area) CCI-65FP-045125	76.50 - 76.75	1.0000	1.0000
L16	52	(Area) CCI-65FP-045125	76.50 - 76.75	1.0000	1.0000
L16	53	(Area) CCI-65FP-045125	76.50 - 76.75	1.0000	1.0000
L17	5	3" Flexible Conduit	75.50 - 76.50	1.0000	1.0000
L17	6	HB114-1-0813U4-M5J(1-1/4)	75.50 - 76.50	1.0000	1.0000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L17	9	LDF7-50A(1-5/8)	75.50 - 76.50	1.0000	1.0000
L17	11	LDF7-50A(1-5/8)	75.50 - 76.50	1.0000	1.0000
L17	27	Safety Line 3/8	75.50 - 76.50	1.0000	1.0000
L17	28	Step Pegs (5/8" SR) 7-in. w/30" step	75.50 - 76.50	1.0000	1.0000
L17	50	(Area) CCI-65FP-045125	75.50 - 76.50	1.0000	1.0000
L17	51	(Area) CCI-65FP-045125	75.50 - 76.50	1.0000	1.0000
L17	52	(Area) CCI-65FP-045125	75.50 - 76.50	1.0000	1.0000
L17	53	(Area) CCI-65FP-045125	75.50 - 76.50	1.0000	1.0000
L18	5	3" Flexible Conduit	75.25 - 75.50	1.0000	1.0000
L18	6	HB114-1-0813U4-M5J(1-1/4)	75.25 - 75.50	1.0000	1.0000
L18	9	LDF7-50A(1-5/8)	75.25 - 75.50	1.0000	1.0000
L18	11	LDF7-50A(1-5/8)	75.25 - 75.50	1.0000	1.0000
L18	27	Safety Line 3/8	75.25 - 75.50	1.0000	1.0000
L18	28	Step Pegs (5/8" SR) 7-in. w/30" step	75.25 - 75.50	1.0000	1.0000
L18	50	(Area) CCI-65FP-045125	75.25 - 75.50	1.0000	1.0000
L18	51	(Area) CCI-65FP-045125	75.25 - 75.50	1.0000	1.0000
L18	52	(Area) CCI-65FP-045125	75.25 - 75.50	1.0000	1.0000
L18	53	(Area) CCI-65FP-045125	75.25 - 75.50	1.0000	1.0000
L19	5	3" Flexible Conduit	74.50 - 75.25	1.0000	1.0000
L19	6	HB114-1-0813U4-M5J(1-1/4)	74.50 - 75.25	1.0000	1.0000
L19	9	LDF7-50A(1-5/8)	74.50 - 75.25	1.0000	1.0000
L19	11	LDF7-50A(1-5/8)	74.50 - 75.25	1.0000	1.0000
L19	27	Safety Line 3/8	74.50 - 75.25	1.0000	1.0000
L19	28	Step Pegs (5/8" SR) 7-in. w/30" step	74.50 - 75.25	1.0000	1.0000
L19	47	(Area) CCI-65FP-065125	74.50 - 74.75	1.0000	1.0000
L19	50	(Area) CCI-65FP-045125	74.50 - 75.25	1.0000	1.0000
L19	51	(Area) CCI-65FP-045125	74.50 - 75.25	1.0000	1.0000
L19	52	(Area) CCI-65FP-045125	74.75 - 75.25	1.0000	1.0000
L19	53	(Area) CCI-65FP-045125	74.50 - 75.25	1.0000	1.0000
L20	5	3" Flexible Conduit	74.25 - 74.50	1.0000	1.0000
L20	6	HB114-1-0813U4-M5J(1-1/4)	74.25 - 74.50	1.0000	1.0000
L20	9	LDF7-50A(1-5/8)	74.25 - 74.50	1.0000	1.0000
L20	11	LDF7-50A(1-5/8)	74.25 - 74.50	1.0000	1.0000
L20	27	Safety Line 3/8	74.25 - 74.50	1.0000	1.0000
L20	28	Step Pegs (5/8" SR) 7-in. w/30" step	74.25 - 74.50	1.0000	1.0000
L20	47	(Area) CCI-65FP-065125	74.25 - 74.50	1.0000	1.0000
L20	50	(Area) CCI-65FP-045125	74.25 - 74.50	1.0000	1.0000
L20	51	(Area) CCI-65FP-045125	74.25 - 74.50	1.0000	1.0000
L20	53	(Area) CCI-65FP-045125	74.25 - 74.50	1.0000	1.0000
L21	5	3" Flexible Conduit	72.00 - 74.25	1.0000	1.0000
L21	6	HB114-1-0813U4-M5J(1-1/4)	72.00 - 74.25	1.0000	1.0000
L21	9	LDF7-50A(1-5/8)	72.00 - 74.25	1.0000	1.0000
L21	11	LDF7-50A(1-5/8)	72.00 - 74.25	1.0000	1.0000
L21	27	Safety Line 3/8	72.00 - 74.25	1.0000	1.0000
L21	28	Step Pegs (5/8" SR) 7-in. w/30" step	72.00 - 74.25	1.0000	1.0000
L21	47	(Area) CCI-65FP-065125	72.00 - 74.25	1.0000	1.0000
L21	50	(Area) CCI-65FP-045125	72.00 - 74.25	1.0000	1.0000
L21	51	(Area) CCI-65FP-045125	72.00 - 74.25	1.0000	1.0000
L21	53	(Area) CCI-65FP-045125	72.00 - 74.25	1.0000	1.0000
L22	5	3" Flexible Conduit	71.75 - 72.00	1.0000	1.0000
L22	6	HB114-1-0813U4-M5J(1-1/4)	71.75 - 72.00	1.0000	1.0000
L22	9	LDF7-50A(1-5/8)	71.75 - 72.00	1.0000	1.0000

<i>Tower Section</i>	<i>Feed Line Record No.</i>	<i>Description</i>	<i>Feed Line Segment Elev.</i>	<i>K_a No Ice</i>	<i>K_a Ice</i>
L22	11	LDF7-50A(1-5/8)	71.75 - 72.00	1.0000	1.0000
L22	27	Safety Line 3/8	71.75 - 72.00	1.0000	1.0000
L22	28	Step Pegs (5/8" SR) 7-in. w/30" step	71.75 - 72.00	1.0000	1.0000
L22	47	(Area) CCI-65FP-065125	71.75 - 72.00	1.0000	1.0000
L22	50	(Area) CCI-65FP-045125	71.75 - 72.00	1.0000	1.0000
L22	51	(Area) CCI-65FP-045125	71.75 - 72.00	1.0000	1.0000
L22	53	(Area) CCI-65FP-045125	71.75 - 72.00	1.0000	1.0000
L23	5	3" Flexible Conduit	70.50 - 71.75	1.0000	1.0000
L23	6	HB114-1-0813U4-M5J(1-1/4)	70.50 - 71.75	1.0000	1.0000
L23	9	LDF7-50A(1-5/8)	70.50 - 71.75	1.0000	1.0000
L23	11	LDF7-50A(1-5/8)	70.50 - 71.75	1.0000	1.0000
L23	27	Safety Line 3/8	70.50 - 71.75	1.0000	1.0000
L23	28	Step Pegs (5/8" SR) 7-in. w/30" step	70.50 - 71.75	1.0000	1.0000
L23	47	(Area) CCI-65FP-065125	70.50 - 71.75	1.0000	1.0000
L23	50	(Area) CCI-65FP-045125	70.50 - 71.75	1.0000	1.0000
L23	51	(Area) CCI-65FP-045125	70.50 - 71.75	1.0000	1.0000
L23	53	(Area) CCI-65FP-045125	70.50 - 71.75	1.0000	1.0000
L24	5	3" Flexible Conduit	70.25 - 70.50	1.0000	1.0000
L24	6	HB114-1-0813U4-M5J(1-1/4)	70.25 - 70.50	1.0000	1.0000
L24	9	LDF7-50A(1-5/8)	70.25 - 70.50	1.0000	1.0000
L24	11	LDF7-50A(1-5/8)	70.25 - 70.50	1.0000	1.0000
L24	27	Safety Line 3/8	70.25 - 70.50	1.0000	1.0000
L24	28	Step Pegs (5/8" SR) 7-in. w/30" step	70.25 - 70.50	1.0000	1.0000
L24	47	(Area) CCI-65FP-065125	70.25 - 70.50	1.0000	1.0000
L24	50	(Area) CCI-65FP-045125	70.25 - 70.50	1.0000	1.0000
L24	51	(Area) CCI-65FP-045125	70.25 - 70.50	1.0000	1.0000
L24	53	(Area) CCI-65FP-045125	70.25 - 70.50	1.0000	1.0000
L25	5	3" Flexible Conduit	70.00 - 70.25	1.0000	1.0000
L25	6	HB114-1-0813U4-M5J(1-1/4)	70.00 - 70.25	1.0000	1.0000
L25	9	LDF7-50A(1-5/8)	70.00 - 70.25	1.0000	1.0000
L25	11	LDF7-50A(1-5/8)	70.00 - 70.25	1.0000	1.0000
L25	27	Safety Line 3/8	70.00 - 70.25	1.0000	1.0000
L25	28	Step Pegs (5/8" SR) 7-in. w/30" step	70.00 - 70.25	1.0000	1.0000
L25	47	(Area) CCI-65FP-065125	70.00 - 70.25	1.0000	1.0000
L25	50	(Area) CCI-65FP-045125	70.00 - 70.25	1.0000	1.0000
L25	51	(Area) CCI-65FP-045125	70.00 - 70.25	1.0000	1.0000
L25	53	(Area) CCI-65FP-045125	70.00 - 70.25	1.0000	1.0000
L26	5	3" Flexible Conduit	69.75 - 70.00	1.0000	1.0000
L26	6	HB114-1-0813U4-M5J(1-1/4)	69.75 - 70.00	1.0000	1.0000
L26	9	LDF7-50A(1-5/8)	69.75 - 70.00	1.0000	1.0000
L26	11	LDF7-50A(1-5/8)	69.75 - 70.00	1.0000	1.0000
L26	27	Safety Line 3/8	69.75 - 70.00	1.0000	1.0000
L26	28	Step Pegs (5/8" SR) 7-in. w/30" step	69.75 - 70.00	1.0000	1.0000
L26	47	(Area) CCI-65FP-065125	69.75 - 70.00	1.0000	1.0000
L26	50	(Area) CCI-65FP-045125	69.75 - 70.00	1.0000	1.0000
L26	51	(Area) CCI-65FP-045125	69.75 - 70.00	1.0000	1.0000
L26	53	(Area) CCI-65FP-045125	69.75 - 70.00	1.0000	1.0000
L27	5	3" Flexible Conduit	69.50 - 69.75	1.0000	1.0000
L27	6	HB114-1-0813U4-M5J(1-1/4)	69.50 - 69.75	1.0000	1.0000
L27	9	LDF7-50A(1-5/8)	69.50 - 69.75	1.0000	1.0000
L27	11	LDF7-50A(1-5/8)	69.50 - 69.75	1.0000	1.0000
L27	27	Safety Line 3/8	69.50 - 69.75	1.0000	1.0000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L27	28	Step Pegs (5/8" SR) 7-in. w/30" step	69.50 - 69.75	1.0000	1.0000
L27	47	(Area) CCI-65FP-065125	69.50 - 69.75	1.0000	1.0000
L27	50	(Area) CCI-65FP-045125	69.50 - 69.75	1.0000	1.0000
L27	51	(Area) CCI-65FP-045125	69.50 - 69.75	1.0000	1.0000
L27	53	(Area) CCI-65FP-045125	69.50 - 69.75	1.0000	1.0000
L28	5	3" Flexible Conduit	69.25 - 69.50	1.0000	1.0000
L28	6	HB114-1-0813U4-M5J(1-1/4)	69.25 - 69.50	1.0000	1.0000
L28	9	LDF7-50A(1-5/8)	69.25 - 69.50	1.0000	1.0000
L28	11	LDF7-50A(1-5/8)	69.25 - 69.50	1.0000	1.0000
L28	27	Safety Line 3/8	69.25 - 69.50	1.0000	1.0000
L28	28	Step Pegs (5/8" SR) 7-in. w/30" step	69.25 - 69.50	1.0000	1.0000
L28	47	(Area) CCI-65FP-065125	69.25 - 69.50	1.0000	1.0000
L28	50	(Area) CCI-65FP-045125	69.25 - 69.50	1.0000	1.0000
L28	51	(Area) CCI-65FP-045125	69.25 - 69.50	1.0000	1.0000
L28	53	(Area) CCI-65FP-045125	69.25 - 69.50	1.0000	1.0000
L29	5	3" Flexible Conduit	64.25 - 69.25	1.0000	1.0000
L29	6	HB114-1-0813U4-M5J(1-1/4)	64.25 - 69.25	1.0000	1.0000
L29	9	LDF7-50A(1-5/8)	64.25 - 69.25	1.0000	1.0000
L29	11	LDF7-50A(1-5/8)	64.25 - 69.25	1.0000	1.0000
L29	27	Safety Line 3/8	64.25 - 69.25	1.0000	1.0000
L29	28	Step Pegs (5/8" SR) 7-in. w/30" step	64.25 - 69.25	1.0000	1.0000
L29	45	(Area) CCI-65FP-045100	64.25 - 68.25	1.0000	1.0000
L29	46	(Area) CCI-65FP-045100	64.25 - 68.25	1.0000	1.0000
L29	47	(Area) CCI-65FP-065125	64.25 - 69.25	1.0000	1.0000
L29	48	(Area) CCI-65FP-045100	64.25 - 68.25	1.0000	1.0000
L29	50	(Area) CCI-65FP-045125	68.25 - 69.25	1.0000	1.0000
L29	51	(Area) CCI-65FP-045125	68.25 - 69.25	1.0000	1.0000
L29	53	(Area) CCI-65FP-045125	68.25 - 69.25	1.0000	1.0000
L30	5	3" Flexible Conduit	59.25 - 64.25	1.0000	1.0000
L30	6	HB114-1-0813U4-M5J(1-1/4)	59.25 - 64.25	1.0000	1.0000
L30	9	LDF7-50A(1-5/8)	59.25 - 64.25	1.0000	1.0000
L30	11	LDF7-50A(1-5/8)	59.25 - 64.25	1.0000	1.0000
L30	27	Safety Line 3/8	59.25 - 64.25	1.0000	1.0000
L30	28	Step Pegs (5/8" SR) 7-in. w/30" step	59.25 - 64.25	1.0000	1.0000
L30	45	(Area) CCI-65FP-045100	59.25 - 64.25	1.0000	1.0000
L30	46	(Area) CCI-65FP-045100	59.25 - 64.25	1.0000	1.0000
L30	47	(Area) CCI-65FP-065125	59.25 - 64.25	1.0000	1.0000
L30	48	(Area) CCI-65FP-045100	59.25 - 64.25	1.0000	1.0000
L31	5	3" Flexible Conduit	56.00 - 59.25	1.0000	1.0000
L31	6	HB114-1-0813U4-M5J(1-1/4)	56.00 - 59.25	1.0000	1.0000
L31	9	LDF7-50A(1-5/8)	56.00 - 59.25	1.0000	1.0000
L31	11	LDF7-50A(1-5/8)	56.00 - 59.25	1.0000	1.0000
L31	27	Safety Line 3/8	56.00 - 59.25	1.0000	1.0000
L31	28	Step Pegs (5/8" SR) 7-in. w/30" step	56.00 - 59.25	1.0000	1.0000
L31	40	(Area) CCI-65FP-045100	56.00 - 57.25	1.0000	1.0000
L31	41	(Area) CCI-65FP-045100	56.00 - 57.25	1.0000	1.0000
L31	43	(Area) CCI-65FP-045100	56.00 - 57.25	1.0000	1.0000
L31	45	(Area) CCI-65FP-045100	57.25 - 59.25	1.0000	1.0000
L31	46	(Area) CCI-65FP-045100	57.25 - 59.25	1.0000	1.0000
L31	47	(Area) CCI-65FP-065125	56.00 - 59.25	1.0000	1.0000
L31	48	(Area) CCI-65FP-045100	57.25 - 59.25	1.0000	1.0000
L32	5	3" Flexible Conduit	55.75 - 56.00	1.0000	1.0000
L32	6	HB114-1-0813U4-M5J(1-1/4)	55.75 - 56.00	1.0000	1.0000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L32	9	LDF7-50A(1-5/8)	55.75 - 56.00	1.0000	1.0000
L32	11	LDF7-50A(1-5/8)	55.75 - 56.00	1.0000	1.0000
L32	27	Safety Line 3/8	55.75 - 56.00	1.0000	1.0000
L32	28	Step Pegs (5/8" SR) 7-in. w/30" step	55.75 - 56.00	1.0000	1.0000
L32	40	(Area) CCI-65FP-045100	55.75 - 56.00	1.0000	1.0000
L32	41	(Area) CCI-65FP-045100	55.75 - 56.00	1.0000	1.0000
L32	43	(Area) CCI-65FP-045100	55.75 - 56.00	1.0000	1.0000
L32	47	(Area) CCI-65FP-065125	55.75 - 56.00	1.0000	1.0000
L33	5	3" Flexible Conduit	55.50 - 55.75	1.0000	1.0000
L33	6	HB114-1-0813U4-M5J(1-1/4)	55.50 - 55.75	1.0000	1.0000
L33	9	LDF7-50A(1-5/8)	55.50 - 55.75	1.0000	1.0000
L33	11	LDF7-50A(1-5/8)	55.50 - 55.75	1.0000	1.0000
L33	27	Safety Line 3/8	55.50 - 55.75	1.0000	1.0000
L33	28	Step Pegs (5/8" SR) 7-in. w/30" step	55.50 - 55.75	1.0000	1.0000
L33	40	(Area) CCI-65FP-045100	55.50 - 55.75	1.0000	1.0000
L33	41	(Area) CCI-65FP-045100	55.50 - 55.75	1.0000	1.0000
L33	43	(Area) CCI-65FP-045100	55.50 - 55.75	1.0000	1.0000
L33	47	(Area) CCI-65FP-065125	55.50 - 55.75	1.0000	1.0000
L34	5	3" Flexible Conduit	55.25 - 55.50	1.0000	1.0000
L34	6	HB114-1-0813U4-M5J(1-1/4)	55.25 - 55.50	1.0000	1.0000
L34	9	LDF7-50A(1-5/8)	55.25 - 55.50	1.0000	1.0000
L34	11	LDF7-50A(1-5/8)	55.25 - 55.50	1.0000	1.0000
L34	27	Safety Line 3/8	55.25 - 55.50	1.0000	1.0000
L34	28	Step Pegs (5/8" SR) 7-in. w/30" step	55.25 - 55.50	1.0000	1.0000
L34	40	(Area) CCI-65FP-045100	55.25 - 55.50	1.0000	1.0000
L34	41	(Area) CCI-65FP-045100	55.25 - 55.50	1.0000	1.0000
L34	43	(Area) CCI-65FP-045100	55.25 - 55.50	1.0000	1.0000
L34	47	(Area) CCI-65FP-065125	55.25 - 55.50	1.0000	1.0000
L35	5	3" Flexible Conduit	54.00 - 55.25	1.0000	1.0000
L35	6	HB114-1-0813U4-M5J(1-1/4)	54.00 - 55.25	1.0000	1.0000
L35	9	LDF7-50A(1-5/8)	54.00 - 55.25	1.0000	1.0000
L35	11	LDF7-50A(1-5/8)	54.00 - 55.25	1.0000	1.0000
L35	27	Safety Line 3/8	54.00 - 55.25	1.0000	1.0000
L35	28	Step Pegs (5/8" SR) 7-in. w/30" step	54.00 - 55.25	1.0000	1.0000
L35	40	(Area) CCI-65FP-045100	54.00 - 55.25	1.0000	1.0000
L35	41	(Area) CCI-65FP-045100	54.00 - 55.25	1.0000	1.0000
L35	43	(Area) CCI-65FP-045100	54.00 - 55.25	1.0000	1.0000
L35	47	(Area) CCI-65FP-065125	54.00 - 55.25	1.0000	1.0000
L36	5	3" Flexible Conduit	53.75 - 54.00	1.0000	1.0000
L36	6	HB114-1-0813U4-M5J(1-1/4)	53.75 - 54.00	1.0000	1.0000
L36	9	LDF7-50A(1-5/8)	53.75 - 54.00	1.0000	1.0000
L36	11	LDF7-50A(1-5/8)	53.75 - 54.00	1.0000	1.0000
L36	27	Safety Line 3/8	53.75 - 54.00	1.0000	1.0000
L36	28	Step Pegs (5/8" SR) 7-in. w/30" step	53.75 - 54.00	1.0000	1.0000
L36	40	(Area) CCI-65FP-045100	53.75 - 54.00	1.0000	1.0000
L36	41	(Area) CCI-65FP-045100	53.75 - 54.00	1.0000	1.0000
L36	43	(Area) CCI-65FP-045100	53.75 - 54.00	1.0000	1.0000
L36	47	(Area) CCI-65FP-065125	53.75 - 54.00	1.0000	1.0000
L37	5	3" Flexible Conduit	53.50 - 53.75	1.0000	1.0000
L37	6	HB114-1-0813U4-M5J(1-1/4)	53.50 - 53.75	1.0000	1.0000
L37	9	LDF7-50A(1-5/8)	53.50 - 53.75	1.0000	1.0000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L37	11	LDF7-50A(1-5/8)	53.50 - 53.75	1.0000	1.0000
L37	27	Safety Line 3/8	53.50 - 53.75	1.0000	1.0000
L37	28	Step Pegs (5/8" SR) 7-in. w/30" step	53.50 - 53.75	1.0000	1.0000
L37	40	(Area) CCI-65FP-045100	53.50 - 53.75	1.0000	1.0000
L37	41	(Area) CCI-65FP-045100	53.50 - 53.75	1.0000	1.0000
L37	43	(Area) CCI-65FP-045100	53.50 - 53.75	1.0000	1.0000
L37	47	(Area) CCI-65FP-065125	53.50 - 53.75	1.0000	1.0000
L38	5	3" Flexible Conduit	53.25 - 53.50	1.0000	1.0000
L38	6	HB114-1-0813U4-M5J(1-1/4)	53.25 - 53.50	1.0000	1.0000
L38	9	LDF7-50A(1-5/8)	53.25 - 53.50	1.0000	1.0000
L38	11	LDF7-50A(1-5/8)	53.25 - 53.50	1.0000	1.0000
L38	27	Safety Line 3/8	53.25 - 53.50	1.0000	1.0000
L38	28	Step Pegs (5/8" SR) 7-in. w/30" step	53.25 - 53.50	1.0000	1.0000
L38	40	(Area) CCI-65FP-045100	53.25 - 53.50	1.0000	1.0000
L38	41	(Area) CCI-65FP-045100	53.25 - 53.50	1.0000	1.0000
L38	43	(Area) CCI-65FP-045100	53.25 - 53.50	1.0000	1.0000
L38	47	(Area) CCI-65FP-065125	53.25 - 53.50	1.0000	1.0000
L39	5	3" Flexible Conduit	53.00 - 53.25	1.0000	1.0000
L39	6	HB114-1-0813U4-M5J(1-1/4)	53.00 - 53.25	1.0000	1.0000
L39	9	LDF7-50A(1-5/8)	53.00 - 53.25	1.0000	1.0000
L39	11	LDF7-50A(1-5/8)	53.00 - 53.25	1.0000	1.0000
L39	27	Safety Line 3/8	53.00 - 53.25	1.0000	1.0000
L39	28	Step Pegs (5/8" SR) 7-in. w/30" step	53.00 - 53.25	1.0000	1.0000
L39	40	(Area) CCI-65FP-045100	53.00 - 53.25	1.0000	1.0000
L39	41	(Area) CCI-65FP-045100	53.00 - 53.25	1.0000	1.0000
L39	43	(Area) CCI-65FP-045100	53.00 - 53.25	1.0000	1.0000
L39	47	(Area) CCI-65FP-065125	53.00 - 53.25	1.0000	1.0000
L40	5	3" Flexible Conduit	48.00 - 53.00	1.0000	1.0000
L40	6	HB114-1-0813U4-M5J(1-1/4)	48.00 - 53.00	1.0000	1.0000
L40	9	LDF7-50A(1-5/8)	48.00 - 53.00	1.0000	1.0000
L40	11	LDF7-50A(1-5/8)	48.00 - 53.00	1.0000	1.0000
L40	27	Safety Line 3/8	48.00 - 53.00	1.0000	1.0000
L40	28	Step Pegs (5/8" SR) 7-in. w/30" step	48.00 - 53.00	1.0000	1.0000
L40	40	(Area) CCI-65FP-045100	48.00 - 53.00	1.0000	1.0000
L40	41	(Area) CCI-65FP-045100	48.00 - 53.00	1.0000	1.0000
L40	42	(Area) CCI-65FP-045100	48.00 - 50.50	1.0000	1.0000
L40	43	(Area) CCI-65FP-045100	48.00 - 53.00	1.0000	1.0000
L40	47	(Area) CCI-65FP-065125	50.50 - 53.00	1.0000	1.0000
L41	5	3" Flexible Conduit	39.75 - 48.00	1.0000	1.0000
L41	6	HB114-1-0813U4-M5J(1-1/4)	39.75 - 48.00	1.0000	1.0000
L41	9	LDF7-50A(1-5/8)	39.75 - 48.00	1.0000	1.0000
L41	11	LDF7-50A(1-5/8)	39.75 - 48.00	1.0000	1.0000
L41	27	Safety Line 3/8	39.75 - 48.00	1.0000	1.0000
L41	28	Step Pegs (5/8" SR) 7-in. w/30" step	39.75 - 48.00	1.0000	1.0000
L41	35	(Area) Aero MP3-03	39.75 - 45.50	1.0000	1.0000
L41	36	(Area) Aero MP3-03	39.75 - 45.50	1.0000	1.0000
L41	37	(Area) Aero MP3-03	39.75 - 45.50	1.0000	1.0000
L41	38	(Area) Aero MP3-03	39.75 - 45.50	1.0000	1.0000
L41	40	(Area) CCI-65FP-045100	45.50 - 48.00	1.0000	1.0000
L41	41	(Area) CCI-65FP-045100	45.50 - 48.00	1.0000	1.0000
L41	42	(Area) CCI-65FP-045100	45.50 - 48.00	1.0000	1.0000
L41	43	(Area) CCI-65FP-045100	45.50 - 48.00	1.0000	1.0000
L43	5	3" Flexible Conduit	34.75 - 38.75	1.0000	1.0000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L43	6	HB114-1-0813U4-M5J(1-1/4)	34.75 - 38.75	1.0000	1.0000
L43	9	LDF7-50A(1-5/8)	34.75 - 38.75	1.0000	1.0000
L43	11	LDF7-50A(1-5/8)	34.75 - 38.75	1.0000	1.0000
L43	27	Safety Line 3/8	34.75 - 38.75	1.0000	1.0000
L43	28	Step Pegs (5/8" SR) 7-in. w/30" step	34.75 - 38.75	1.0000	1.0000
L43	35	(Area) Aero MP3-03	34.75 - 38.75	1.0000	1.0000
L43	36	(Area) Aero MP3-03	34.75 - 38.75	1.0000	1.0000
L43	37	(Area) Aero MP3-03	34.75 - 38.75	1.0000	1.0000
L43	38	(Area) Aero MP3-03	34.75 - 38.75	1.0000	1.0000
L44	5	3" Flexible Conduit	34.50 - 34.75	1.0000	1.0000
L44	6	HB114-1-0813U4-M5J(1-1/4)	34.50 - 34.75	1.0000	1.0000
L44	9	LDF7-50A(1-5/8)	34.50 - 34.75	1.0000	1.0000
L44	11	LDF7-50A(1-5/8)	34.50 - 34.75	1.0000	1.0000
L44	27	Safety Line 3/8	34.50 - 34.75	1.0000	1.0000
L44	28	Step Pegs (5/8" SR) 7-in. w/30" step	34.50 - 34.75	1.0000	1.0000
L44	35	(Area) Aero MP3-03	34.50 - 34.75	1.0000	1.0000
L44	36	(Area) Aero MP3-03	34.50 - 34.75	1.0000	1.0000
L44	37	(Area) Aero MP3-03	34.50 - 34.75	1.0000	1.0000
L44	38	(Area) Aero MP3-03	34.50 - 34.75	1.0000	1.0000
L45	5	3" Flexible Conduit	33.75 - 34.50	1.0000	1.0000
L45	6	HB114-1-0813U4-M5J(1-1/4)	33.75 - 34.50	1.0000	1.0000
L45	9	LDF7-50A(1-5/8)	33.75 - 34.50	1.0000	1.0000
L45	11	LDF7-50A(1-5/8)	33.75 - 34.50	1.0000	1.0000
L45	27	Safety Line 3/8	33.75 - 34.50	1.0000	1.0000
L45	28	Step Pegs (5/8" SR) 7-in. w/30" step	33.75 - 34.50	1.0000	1.0000
L45	35	(Area) Aero MP3-03	33.75 - 34.50	1.0000	1.0000
L45	36	(Area) Aero MP3-03	33.75 - 34.50	1.0000	1.0000
L45	37	(Area) Aero MP3-03	33.75 - 34.50	1.0000	1.0000
L45	38	(Area) Aero MP3-03	33.75 - 34.50	1.0000	1.0000
L46	5	3" Flexible Conduit	33.50 - 33.75	1.0000	1.0000
L46	6	HB114-1-0813U4-M5J(1-1/4)	33.50 - 33.75	1.0000	1.0000
L46	9	LDF7-50A(1-5/8)	33.50 - 33.75	1.0000	1.0000
L46	11	LDF7-50A(1-5/8)	33.50 - 33.75	1.0000	1.0000
L46	27	Safety Line 3/8	33.50 - 33.75	1.0000	1.0000
L46	28	Step Pegs (5/8" SR) 7-in. w/30" step	33.50 - 33.75	1.0000	1.0000
L46	35	(Area) Aero MP3-03	33.50 - 33.75	1.0000	1.0000
L46	36	(Area) Aero MP3-03	33.50 - 33.75	1.0000	1.0000
L46	37	(Area) Aero MP3-03	33.50 - 33.75	1.0000	1.0000
L46	38	(Area) Aero MP3-03	33.50 - 33.75	1.0000	1.0000
L47	5	3" Flexible Conduit	32.75 - 33.50	1.0000	1.0000
L47	6	HB114-1-0813U4-M5J(1-1/4)	32.75 - 33.50	1.0000	1.0000
L47	9	LDF7-50A(1-5/8)	32.75 - 33.50	1.0000	1.0000
L47	11	LDF7-50A(1-5/8)	32.75 - 33.50	1.0000	1.0000
L47	27	Safety Line 3/8	32.75 - 33.50	1.0000	1.0000
L47	28	Step Pegs (5/8" SR) 7-in. w/30" step	32.75 - 33.50	1.0000	1.0000
L47	35	(Area) Aero MP3-03	32.75 - 33.50	1.0000	1.0000
L47	36	(Area) Aero MP3-03	32.75 - 33.50	1.0000	1.0000
L47	37	(Area) Aero MP3-03	32.75 - 33.50	1.0000	1.0000
L47	38	(Area) Aero MP3-03	32.75 - 33.50	1.0000	1.0000
L48	5	3" Flexible Conduit	32.50 - 32.75	1.0000	1.0000
L48	6	HB114-1-0813U4-M5J(1-1/4)	32.50 - 32.75	1.0000	1.0000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L48	9	LDF7-50A(1-5/8)	32.50 - 32.75	1.0000	1.0000
L48	11	LDF7-50A(1-5/8)	32.50 - 32.75	1.0000	1.0000
L48	27	Safety Line 3/8	32.50 - 32.75	1.0000	1.0000
L48	28	Step Pegs (5/8" SR) 7-in. w/30" step	32.50 - 32.75	1.0000	1.0000
L48	35	(Area) Aero MP3-03	32.50 - 32.75	1.0000	1.0000
L48	36	(Area) Aero MP3-03	32.50 - 32.75	1.0000	1.0000
L48	37	(Area) Aero MP3-03	32.50 - 32.75	1.0000	1.0000
L48	38	(Area) Aero MP3-03	32.50 - 32.75	1.0000	1.0000
L49	5	3" Flexible Conduit	27.50 - 32.50	1.0000	1.0000
L49	6	HB114-1-0813U4-M5J(1-1/4)	27.50 - 32.50	1.0000	1.0000
L49	9	LDF7-50A(1-5/8)	27.50 - 32.50	1.0000	1.0000
L49	11	LDF7-50A(1-5/8)	27.50 - 32.50	1.0000	1.0000
L49	27	Safety Line 3/8	27.50 - 32.50	1.0000	1.0000
L49	28	Step Pegs (5/8" SR) 7-in. w/30" step	27.50 - 32.50	1.0000	1.0000
L49	35	(Area) Aero MP3-03	27.50 - 32.50	1.0000	1.0000
L49	36	(Area) Aero MP3-03	27.50 - 32.50	1.0000	1.0000
L49	37	(Area) Aero MP3-03	27.50 - 32.50	1.0000	1.0000
L49	38	(Area) Aero MP3-03	27.50 - 32.50	1.0000	1.0000
L50	5	3" Flexible Conduit	24.00 - 27.50	1.0000	1.0000
L50	6	HB114-1-0813U4-M5J(1-1/4)	24.00 - 27.50	1.0000	1.0000
L50	9	LDF7-50A(1-5/8)	24.00 - 27.50	1.0000	1.0000
L50	11	LDF7-50A(1-5/8)	24.00 - 27.50	1.0000	1.0000
L50	27	Safety Line 3/8	24.00 - 27.50	1.0000	1.0000
L50	28	Step Pegs (5/8" SR) 7-in. w/30" step	24.00 - 27.50	1.0000	1.0000
L50	30	(Area) Aero MP3-04	24.00 - 25.50	1.0000	1.0000
L50	31	(Area) Aero MP3-04	24.00 - 25.50	1.0000	1.0000
L50	32	(Area) Aero MP3-04	24.00 - 25.50	1.0000	1.0000
L50	33	(Area) Aero MP3-04	24.00 - 25.50	1.0000	1.0000
L50	35	(Area) Aero MP3-03	25.50 - 27.50	1.0000	1.0000
L50	36	(Area) Aero MP3-03	25.50 - 27.50	1.0000	1.0000
L50	37	(Area) Aero MP3-03	25.50 - 27.50	1.0000	1.0000
L50	38	(Area) Aero MP3-03	25.50 - 27.50	1.0000	1.0000
L51	5	3" Flexible Conduit	23.75 - 24.00	1.0000	1.0000
L51	6	HB114-1-0813U4-M5J(1-1/4)	23.75 - 24.00	1.0000	1.0000
L51	9	LDF7-50A(1-5/8)	23.75 - 24.00	1.0000	1.0000
L51	11	LDF7-50A(1-5/8)	23.75 - 24.00	1.0000	1.0000
L51	27	Safety Line 3/8	23.75 - 24.00	1.0000	1.0000
L51	28	Step Pegs (5/8" SR) 7-in. w/30" step	23.75 - 24.00	1.0000	1.0000
L51	30	(Area) Aero MP3-04	23.75 - 24.00	1.0000	1.0000
L51	31	(Area) Aero MP3-04	23.75 - 24.00	1.0000	1.0000
L51	32	(Area) Aero MP3-04	23.75 - 24.00	1.0000	1.0000
L51	33	(Area) Aero MP3-04	23.75 - 24.00	1.0000	1.0000
L52	5	3" Flexible Conduit	18.75 - 23.75	1.0000	1.0000
L52	6	HB114-1-0813U4-M5J(1-1/4)	18.75 - 23.75	1.0000	1.0000
L52	9	LDF7-50A(1-5/8)	18.75 - 23.75	1.0000	1.0000
L52	11	LDF7-50A(1-5/8)	18.75 - 23.75	1.0000	1.0000
L52	27	Safety Line 3/8	18.75 - 23.75	1.0000	1.0000
L52	28	Step Pegs (5/8" SR) 7-in. w/30" step	18.75 - 23.75	1.0000	1.0000
L52	30	(Area) Aero MP3-04	18.75 - 23.75	1.0000	1.0000
L52	31	(Area) Aero MP3-04	18.75 - 23.75	1.0000	1.0000
L52	32	(Area) Aero MP3-04	18.75 - 23.75	1.0000	1.0000
L52	33	(Area) Aero MP3-04	18.75 - 23.75	1.0000	1.0000
L53	5	3" Flexible Conduit	14.25 - 18.75	1.0000	1.0000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L53	6	HB114-1-0813U4-M5J(1-1/4)	14.25 - 18.75	1.0000	1.0000
L53	9	LDF7-50A(1-5/8)	14.25 - 18.75	1.0000	1.0000
L53	11	LDF7-50A(1-5/8)	14.25 - 18.75	1.0000	1.0000
L53	27	Safety Line 3/8	14.25 - 18.75	1.0000	1.0000
L53	28	Step Pegs (5/8" SR) 7-in. w/30" step	14.25 - 18.75	1.0000	1.0000
L53	30	(Area) Aero MP3-04	14.25 - 18.75	1.0000	1.0000
L53	31	(Area) Aero MP3-04	14.25 - 18.75	1.0000	1.0000
L53	32	(Area) Aero MP3-04	14.25 - 18.75	1.0000	1.0000
L53	33	(Area) Aero MP3-04	14.25 - 18.75	1.0000	1.0000
L54	5	3" Flexible Conduit	14.00 - 14.25	1.0000	1.0000
L54	6	HB114-1-0813U4-M5J(1-1/4)	14.00 - 14.25	1.0000	1.0000
L54	9	LDF7-50A(1-5/8)	14.00 - 14.25	1.0000	1.0000
L54	11	LDF7-50A(1-5/8)	14.00 - 14.25	1.0000	1.0000
L54	27	Safety Line 3/8	14.00 - 14.25	1.0000	1.0000
L54	28	Step Pegs (5/8" SR) 7-in. w/30" step	14.00 - 14.25	1.0000	1.0000
L54	30	(Area) Aero MP3-04	14.00 - 14.25	1.0000	1.0000
L54	31	(Area) Aero MP3-04	14.00 - 14.25	1.0000	1.0000
L54	32	(Area) Aero MP3-04	14.00 - 14.25	1.0000	1.0000
L54	33	(Area) Aero MP3-04	14.00 - 14.25	1.0000	1.0000
L55	5	3" Flexible Conduit	12.75 - 14.00	1.0000	1.0000
L55	6	HB114-1-0813U4-M5J(1-1/4)	12.75 - 14.00	1.0000	1.0000
L55	9	LDF7-50A(1-5/8)	12.75 - 14.00	1.0000	1.0000
L55	11	LDF7-50A(1-5/8)	12.75 - 14.00	1.0000	1.0000
L55	27	Safety Line 3/8	12.75 - 14.00	1.0000	1.0000
L55	28	Step Pegs (5/8" SR) 7-in. w/30" step	12.75 - 14.00	1.0000	1.0000
L55	30	(Area) Aero MP3-04	12.75 - 14.00	1.0000	1.0000
L55	31	(Area) Aero MP3-04	12.75 - 14.00	1.0000	1.0000
L55	32	(Area) Aero MP3-04	12.75 - 14.00	1.0000	1.0000
L55	33	(Area) Aero MP3-04	12.75 - 14.00	1.0000	1.0000
L56	5	3" Flexible Conduit	12.50 - 12.75	1.0000	1.0000
L56	6	HB114-1-0813U4-M5J(1-1/4)	12.50 - 12.75	1.0000	1.0000
L56	9	LDF7-50A(1-5/8)	12.50 - 12.75	1.0000	1.0000
L56	11	LDF7-50A(1-5/8)	12.50 - 12.75	1.0000	1.0000
L56	27	Safety Line 3/8	12.50 - 12.75	1.0000	1.0000
L56	28	Step Pegs (5/8" SR) 7-in. w/30" step	12.50 - 12.75	1.0000	1.0000
L56	30	(Area) Aero MP3-04	12.50 - 12.75	1.0000	1.0000
L56	31	(Area) Aero MP3-04	12.50 - 12.75	1.0000	1.0000
L56	32	(Area) Aero MP3-04	12.50 - 12.75	1.0000	1.0000
L56	33	(Area) Aero MP3-04	12.50 - 12.75	1.0000	1.0000
L57	5	3" Flexible Conduit	7.50 - 12.50	1.0000	1.0000
L57	6	HB114-1-0813U4-M5J(1-1/4)	7.50 - 12.50	1.0000	1.0000
L57	9	LDF7-50A(1-5/8)	7.50 - 12.50	1.0000	1.0000
L57	11	LDF7-50A(1-5/8)	7.50 - 12.50	1.0000	1.0000
L57	27	Safety Line 3/8	7.50 - 12.50	1.0000	1.0000
L57	28	Step Pegs (5/8" SR) 7-in. w/30" step	7.50 - 12.50	1.0000	1.0000
L57	30	(Area) Aero MP3-04	7.50 - 12.50	1.0000	1.0000
L57	31	(Area) Aero MP3-04	7.50 - 12.50	1.0000	1.0000
L57	32	(Area) Aero MP3-04	7.50 - 12.50	1.0000	1.0000
L57	33	(Area) Aero MP3-04	7.50 - 12.50	1.0000	1.0000
L58	5	3" Flexible Conduit	5.00 - 7.50	1.0000	1.0000
L58	6	HB114-1-0813U4-M5J(1-1/4)	5.00 - 7.50	1.0000	1.0000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L58	9	LDF7-50A(1-5/8)	5.00 - 7.50	1.0000	1.0000
L58	11	LDF7-50A(1-5/8)	5.00 - 7.50	1.0000	1.0000
L58	27	Safety Line 3/8	5.00 - 7.50	1.0000	1.0000
L58	28	Step Pegs (5/8" SR) 7-in. w/30" step	5.00 - 7.50	1.0000	1.0000
L58	30	(Area) Aero MP3-04	5.00 - 7.50	1.0000	1.0000
L58	31	(Area) Aero MP3-04	5.00 - 7.50	1.0000	1.0000
L58	32	(Area) Aero MP3-04	5.00 - 7.50	1.0000	1.0000
L58	33	(Area) Aero MP3-04	5.00 - 7.50	1.0000	1.0000
L59	5	3" Flexible Conduit	4.75 - 5.00	1.0000	1.0000
L59	6	HB114-1-0813U4-M5J(1-1/4)	4.75 - 5.00	1.0000	1.0000
L59	9	LDF7-50A(1-5/8)	4.75 - 5.00	1.0000	1.0000
L59	11	LDF7-50A(1-5/8)	4.75 - 5.00	1.0000	1.0000
L59	27	Safety Line 3/8	4.75 - 5.00	1.0000	1.0000
L59	28	Step Pegs (5/8" SR) 7-in. w/30" step	4.75 - 5.00	1.0000	1.0000
L59	30	(Area) Aero MP3-04	4.75 - 5.00	1.0000	1.0000
L59	31	(Area) Aero MP3-04	4.75 - 5.00	1.0000	1.0000
L59	32	(Area) Aero MP3-04	4.75 - 5.00	1.0000	1.0000
L59	33	(Area) Aero MP3-04	4.75 - 5.00	1.0000	1.0000
L60	5	3" Flexible Conduit	4.50 - 4.75	1.0000	1.0000
L60	6	HB114-1-0813U4-M5J(1-1/4)	4.50 - 4.75	1.0000	1.0000
L60	9	LDF7-50A(1-5/8)	4.50 - 4.75	1.0000	1.0000
L60	11	LDF7-50A(1-5/8)	4.50 - 4.75	1.0000	1.0000
L60	27	Safety Line 3/8	4.50 - 4.75	1.0000	1.0000
L60	28	Step Pegs (5/8" SR) 7-in. w/30" step	4.50 - 4.75	1.0000	1.0000
L60	30	(Area) Aero MP3-04	4.50 - 4.75	1.0000	1.0000
L60	31	(Area) Aero MP3-04	4.50 - 4.75	1.0000	1.0000
L60	32	(Area) Aero MP3-04	4.50 - 4.75	1.0000	1.0000
L60	33	(Area) Aero MP3-04	4.50 - 4.75	1.0000	1.0000
L61	5	3" Flexible Conduit	0.00 - 4.50	1.0000	1.0000
L61	6	HB114-1-0813U4-M5J(1-1/4)	0.00 - 4.50	1.0000	1.0000
L61	9	LDF7-50A(1-5/8)	0.00 - 4.50	1.0000	1.0000
L61	11	LDF7-50A(1-5/8)	0.00 - 4.50	1.0000	1.0000
L61	27	Safety Line 3/8	0.00 - 4.50	1.0000	1.0000
L61	28	Step Pegs (5/8" SR) 7-in. w/30" step	0.00 - 4.50	1.0000	1.0000
L61	30	(Area) Aero MP3-04	0.00 - 4.50	1.0000	1.0000
L61	31	(Area) Aero MP3-04	0.00 - 4.50	1.0000	1.0000
L61	32	(Area) Aero MP3-04	0.00 - 4.50	1.0000	1.0000
L61	33	(Area) Aero MP3-04	0.00 - 4.50	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C_{AA} Front	C_{AA} Side	Weight
			ft ft ft	°	ft	ft ²	ft ²	K

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			ft ft ft	°	ft	ft ²	ft ²	K	

Pipe 6" x 10'	C	From Leg	0.00 0.00 5.00	0.00	120.000	No Ice 1/2" Ice 1" Ice	3.376 6.050 6.665	3.376 6.050 6.665	0.19 0.23 0.28
122									
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Centroid-Le g	4.000 -6.00 -1.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	6.580 7.031 7.473	4.959 5.754 6.472	0.08 0.13 0.19
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Centroid-Le g	4.000 -6.00 -1.00	10.00	122.000	No Ice 1/2" Ice 1" Ice	6.580 7.031 7.473	4.959 5.754 6.472	0.08 0.13 0.19
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Centroid-Le g	4.000 2.00 -1.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	6.580 7.031 7.473	4.959 5.754 6.472	0.08 0.13 0.19
APXVSPP18-C-A20 w/ Mount Pipe	A	From Centroid-Le g	4.000 -2.00 -1.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	8.262 8.822 9.346	6.946 8.127 9.021	0.08 0.15 0.23
APXVSPP18-C-A20 w/ Mount Pipe	B	From Centroid-Le g	4.000 -2.00 -1.00	10.00	122.000	No Ice 1/2" Ice 1" Ice	8.262 8.822 9.346	6.946 8.127 9.021	0.08 0.15 0.23
APXVSPP18-C-A20 w/ Mount Pipe	C	From Centroid-Le g	4.000 -2.00 -1.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	8.262 8.822 9.346	6.946 8.127 9.021	0.08 0.15 0.23
LLPX310R w/ Mount Pipe	A	From Centroid-Le g	4.000 0.00 0.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	4.455 4.787 5.129	2.874 3.398 3.937	0.04 0.08 0.12
LLPX310R w/ Mount Pipe	B	From Centroid-Le g	4.000 0.00 0.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	4.455 4.787 5.129	2.874 3.398 3.937	0.04 0.08 0.12
LLPX310R w/ Mount Pipe	C	From Centroid-Le g	4.000 0.00 0.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	4.455 4.787 5.129	2.874 3.398 3.937	0.04 0.08 0.12
MT-485025	C	From Centroid-Le g	4.000 -6.00 1.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	2.075 2.269 2.471	0.236 0.333 0.451	0.01 0.01 0.03
(3) ACU-A20-N	A	From Centroid-Le g	4.000 -2.00 -2.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	0.067 0.104 0.148	0.117 0.162 0.215	0.00 0.00 0.00
(3) ACU-A20-N	B	From Centroid-Le g	4.000 -2.00 -2.00	10.00	122.000	No Ice 1/2" Ice 1" Ice	0.067 0.104 0.148	0.117 0.162 0.215	0.00 0.00 0.00
(3) ACU-A20-N	C	From Centroid-Le g	4.000 -2.00 -2.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	0.067 0.104 0.148	0.117 0.162 0.215	0.00 0.00 0.00
PCS 1900MHz 4x45W-65MHz	A	From Centroid-Le g	4.000 -2.00 -1.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	2.322 2.527 2.739	2.238 2.441 2.651	0.06 0.08 0.11
PCS 1900MHz 4x45W-65MHz	B	From Centroid-Le g	4.000 -2.00 -2.00	10.00	122.000	No Ice 1/2" Ice 1" Ice	2.322 2.527 2.739	2.238 2.441 2.651	0.06 0.08 0.11
PCS 1900MHz 4x45W-65MHz	C	From Centroid-Le g	4.000 -2.00 -1.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	2.322 2.527 2.739	2.238 2.441 2.651	0.06 0.08 0.11
800MHZ RRH	A	From Centroid-Le g	4.000 -2.00 -2.00	30.00	122.000	No Ice 1/2" Ice 1" Ice	2.134 2.320 2.512	1.773 1.946 2.127	0.05 0.07 0.10
800MHZ RRH	B	From Centroid-Le g	4.000 -2.00 -2.00	10.00	122.000	No Ice 1/2" Ice 1" Ice	2.134 2.320 2.512	1.773 1.946 2.127	0.05 0.07 0.10

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Vert					
800MHZ RRH	C	Centroid-Le	-2.00		30.00	122.000	1/2" Ice	1.946	0.07
		g	-1.00				1" Ice	2.127	0.10
		From	4.000				No Ice	1.773	0.05
800 EXTERNAL NOTCH FILTER	A	Centroid-Le	-2.00		30.00	122.000	1/2" Ice	1.946	0.07
		g	-2.00				1" Ice	2.127	0.10
		From	4.000				No Ice	0.321	0.01
800 EXTERNAL NOTCH FILTER	B	Centroid-Le	-2.00		10.00	122.000	1/2" Ice	0.398	0.02
		g	-2.00				1" Ice	0.483	0.02
		From	4.000				No Ice	0.321	0.01
800 EXTERNAL NOTCH FILTER	C	Centroid-Le	-2.00		30.00	122.000	1/2" Ice	0.398	0.02
		g	-2.00				1" Ice	0.483	0.02
		From	4.000				No Ice	0.321	0.01
FDD_R6_RRH	A	Centroid-Le	-2.00		25.00	122.000	1/2" Ice	0.398	0.02
		g	-2.00				1" Ice	0.483	0.02
		From	4.000				No Ice	0.684	0.03
FDD_R6_RRH	B	Centroid-Le	0.00		10.00	122.000	1/2" Ice	0.800	0.04
		g	0.00				1" Ice	0.923	0.06
		From	4.000				No Ice	0.684	0.03
FDD_R6_RRH	C	Centroid-Le	0.00		30.00	122.000	1/2" Ice	0.800	0.04
		g	0.00				1" Ice	0.923	0.06
		From	4.000				No Ice	0.684	0.03
TD-RRH8x20-25	A	Centroid-Le	0.00		37.00	122.000	1/2" Ice	0.800	0.04
		g	0.00				1" Ice	0.923	0.06
		From	4.000				No Ice	1.294	0.07
TD-RRH8x20-25	B	Centroid-Le	2.00		30.00	122.000	1/2" Ice	1.465	0.09
		g	-1.00				1" Ice	1.642	0.12
		From	4.000				No Ice	1.294	0.07
TD-RRH8x20-25	C	Centroid-Le	2.00		30.00	122.000	1/2" Ice	1.465	0.09
		g	-1.00				1" Ice	1.642	0.12
		From	4.000				No Ice	1.294	0.07
(2) 2.4" Dia. x 5-ft Pipe	A	Centroid-Le	2.00		0.00	122.000	1/2" Ice	1.465	0.09
		g	-1.00				1" Ice	1.642	0.12
		From	4.000				No Ice	1.200	0.02
(2) 2.4" Dia. x 5-ft Pipe	B	Centroid-Le	4.00		0.00	122.000	1/2" Ice	1.502	0.03
		g	0.00				1" Ice	1.814	0.04
		From	4.000				No Ice	1.200	0.02
(2) 2.4" Dia. x 5-ft Pipe	C	Centroid-Le	4.00		0.00	122.000	1/2" Ice	1.502	0.03
		g	0.00				1" Ice	1.814	0.04
		From	4.000				No Ice	1.200	0.02
Miscellaneous [NA 507-1]	C	Centroid-Le	6.00		0.00	122.000	1/2" Ice	1.502	0.03
		g	0.00				1" Ice	1.814	0.04
		None					No Ice	4.800	0.25
Platform Mount [LP 712-1]	C	Centroid-Le			0.00	122.000	1/2" Ice	6.700	0.29
		g					1" Ice	8.600	0.34
		None					No Ice	24.530	1.34
113	A	Centroid-Le			30.00	113.000	1/2" Ice	29.940	1.65
		g					1" Ice	35.350	1.96
		None					No Ice	35.350	1.96
BXA-171063/8CF w/ Mount Pipe	A	Centroid-Le	4.000		30.00	113.000	1/2" Ice	3.510	0.03
		g	1.00				1" Ice	4.757	0.10
		From	4.000				No Ice	3.510	0.03
BXA-171063/8CF w/ Mount Pipe	B	Centroid-Le	0.00		10.00	113.000	1/2" Ice	4.130	0.06
		g	1.00				1" Ice	4.757	0.10
		From	4.000				No Ice	3.510	0.03
BXA-171063/8CF w/ Mount Pipe	C	Centroid-Le	-3.00		30.00	113.000	1/2" Ice	4.130	0.06
		g	1.00				1" Ice	4.757	0.10
		From	4.000				No Ice	3.510	0.03

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Vert					
			ft	ft	°	ft	ft ²	ft ²	K
(2) FD9R6004/2C-3L	B	From	4.000		10.00	113.000	No Ice	0.314	0.00
		Centroid-Le	4.00				1/2" Ice	0.386	0.01
		g	1.00				1" Ice	0.466	0.01
(4) FD9R6004/2C-3L	C	From	4.000		30.00	113.000	No Ice	0.314	0.00
		Centroid-Le	0.00				1/2" Ice	0.386	0.01
		g	1.00				1" Ice	0.466	0.01
(2) SBNHH-1D65B w/ Mount Pipe	A	From	4.000		0.00	113.000	No Ice	8.289	0.08
		Centroid-Le	-4.00				1/2" Ice	8.849	0.14
		g	1.00				1" Ice	9.374	0.22
(2) SBNHH-1D45B w/ Mount Pipe	B	From	4.000		-40.00	113.000	No Ice	11.637	0.09
		Centroid-Le	-4.00				1/2" Ice	12.228	0.17
		g	1.00				1" Ice	12.784	0.26
(2) SBNHH-1D45B w/ Mount Pipe	C	From	4.000		30.00	113.000	No Ice	11.637	0.09
		Centroid-Le	1.50				1/2" Ice	12.228	0.17
		g	1.00				1" Ice	12.784	0.26
(2) DB846F65ZAXY w/ Mount Pipe	A	From	4.000		30.00	113.000	No Ice	7.271	0.05
		Centroid-Le	4.00				1/2" Ice	7.832	0.11
		g	1.00				1" Ice	8.348	0.19
(2) LPA-80063/4CF w/ Mount Pipe	B	From	4.000		10.00	113.000	No Ice	6.396	0.04
		Centroid-Le	4.00				1/2" Ice	6.799	0.10
		g	1.00				1" Ice	7.210	0.18
(2) LPA-80063/4CF w/ Mount Pipe	C	From	4.000		30.00	113.000	No Ice	6.396	0.04
		Centroid-Le	0.00				1/2" Ice	6.799	0.10
		g	1.00				1" Ice	7.210	0.18
ACUTIME 2000	A	From	4.000		0.00	113.000	No Ice	0.255	0.00
		Centroid-Le	-3.00				1/2" Ice	0.320	0.00
		g	3.00				1" Ice	0.393	0.01
DB-T1-6Z-8AB-0Z	B	From	4.000		10.00	113.000	No Ice	4.800	0.04
		Centroid-Le	0.00				1/2" Ice	5.070	0.08
		g	1.00				1" Ice	5.348	0.12
DB-T1-6Z-8AB-0Z	B	From	4.000		-40.00	113.000	No Ice	4.800	0.04
		Centroid-Le	-3.00				1/2" Ice	5.070	0.08
		g	1.00				1" Ice	5.348	0.12
RRH2X60-1900	A	From	4.000		0.00	113.000	No Ice	1.874	0.04
		Centroid-Le	-6.00				1/2" Ice	2.052	0.06
		g	1.00				1" Ice	2.237	0.08
RRH2X60-1900	B	From	4.000		-40.00	113.000	No Ice	1.874	0.04
		Centroid-Le	-6.00				1/2" Ice	2.052	0.06
		g	1.00				1" Ice	2.237	0.08
RRH2X60-1900	C	From	4.000		30.00	113.000	No Ice	1.874	0.04
		Centroid-Le	0.00				1/2" Ice	2.052	0.06
		g	1.00				1" Ice	2.237	0.08
RRH2x60-700	A	From	4.000		0.00	113.000	No Ice	3.500	0.06
		Centroid-Le	6.00				1/2" Ice	3.761	0.08
		g	1.00				1" Ice	4.029	0.11
RRH2x60-700	B	From	4.000		10.00	113.000	No Ice	3.500	0.06
		Centroid-Le	6.00				1/2" Ice	3.761	0.08
		g	1.00				1" Ice	4.029	0.11
RRH2x60-700	C	From	4.000		30.00	113.000	No Ice	3.500	0.06
		Centroid-Le	-3.00				1/2" Ice	3.761	0.08
		g	1.00				1" Ice	4.029	0.11
AWS-3 RRH4X45	A	From	4.000		0.00	113.000	No Ice	3.112	0.08
		Centroid-Le	-3.00				1/2" Ice	3.345	0.11
		g	1.00				1" Ice	3.595	0.15
AWS-3 RRH4X45	B	From	4.000		-40.00	113.000	No Ice	3.112	0.08
		Centroid-Le	-3.00				1/2" Ice	3.345	0.11
		g	1.00				1" Ice	3.595	0.15

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft ²	ft ²	K	
AWS-3 RRH4X45	C	From	4.000		30.00	113.000	No Ice	3.112	3.624	0.08
		Centroid-Le	3.00				1/2" Ice	3.345	3.878	0.11
		g	1.00				1" Ice	3.595	4.139	0.15
(2) 2.4" Dia x 6-ft Pipe	A	From	4.000		0.00	113.000	No Ice	1.428	1.428	0.02
		Centroid-Le	-1.00				1/2" Ice	1.927	1.927	0.03
		g	1.00				1" Ice	2.296	2.296	0.05
(2) 2.4" Dia x 6-ft Pipe	B	From	4.000		0.00	113.000	No Ice	1.428	1.428	0.02
		Centroid-Le	-1.00				1/2" Ice	1.927	1.927	0.03
		g	1.00				1" Ice	2.296	2.296	0.05
(2) 2.4" Dia x 6-ft Pipe	C	From	4.000		0.00	113.000	No Ice	1.428	1.428	0.02
		Centroid-Le	-1.00				1/2" Ice	1.927	1.927	0.03
		g	1.00				1" Ice	2.296	2.296	0.05
Platform Mount [LP 305-1]	C	None			0.00	113.000	No Ice	18.010	18.010	1.12
							1/2" Ice	23.330	23.330	1.35
							1" Ice	28.650	28.650	1.58
105										
AIR 32 B2a/B66Aa w/ Mount Pipe	A	From	4.000		30.00	105.000	No Ice	6.747	6.070	0.15
		Centroid-Le	-6.00				1/2" Ice	7.202	6.867	0.21
		g	2.00				1" Ice	7.648	7.583	0.28
AIR 32 B2a/B66Aa w/ Mount Pipe	B	From	4.000		30.00	105.000	No Ice	6.747	6.070	0.15
		Centroid-Le	-2.00				1/2" Ice	7.202	6.867	0.21
		g	2.00				1" Ice	7.648	7.583	0.28
AIR 32 B2a/B66Aa w/ Mount Pipe	C	From	4.000		30.00	105.000	No Ice	6.747	6.070	0.15
		Centroid-Le	-2.00				1/2" Ice	7.202	6.867	0.21
		g	2.00				1" Ice	7.648	7.583	0.28
KRY 112 144/1	A	From	4.000		30.00	105.000	No Ice	0.352	0.162	0.01
		Centroid-Le	2.00				1/2" Ice	0.428	0.219	0.01
		g	2.00				1" Ice	0.512	0.285	0.02
KRY 112 144/1	B	From	4.000		30.00	105.000	No Ice	0.352	0.162	0.01
		Centroid-Le	-2.00				1/2" Ice	0.428	0.219	0.01
		g	0.00				1" Ice	0.512	0.285	0.02
KRY 112 144/1	C	From	4.000		30.00	105.000	No Ice	0.352	0.162	0.01
		Centroid-Le	-6.00				1/2" Ice	0.428	0.219	0.01
		g	0.00				1" Ice	0.512	0.285	0.02
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From	4.000		30.00	105.000	No Ice	20.480	11.024	0.16
		Centroid-Le	6.00				1/2" Ice	21.231	12.550	0.30
		g	2.00				1" Ice	21.990	14.099	0.44
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From	4.000		30.00	105.000	No Ice	20.480	11.024	0.16
		Centroid-Le	-6.00				1/2" Ice	21.231	12.550	0.30
		g	2.00				1" Ice	21.990	14.099	0.44
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From	4.000		30.00	105.000	No Ice	20.480	11.024	0.16
		Centroid-Le	6.00				1/2" Ice	21.231	12.550	0.30
		g	2.00				1" Ice	21.990	14.099	0.44
AIR 3246 B66 w/ Mount Pipe	A	From	4.000		30.00	105.000	No Ice	8.177	6.559	0.20
		Centroid-Le	-2.00				1/2" Ice	8.656	7.393	0.27
		g	2.00				1" Ice	9.124	8.128	0.35
AIR 3246 B66 w/ Mount Pipe	B	From	4.000		30.00	105.000	No Ice	8.177	6.559	0.20
		Centroid-Le	6.00				1/2" Ice	8.656	7.393	0.27
		g	2.00				1" Ice	9.124	8.128	0.35
AIR 3246 B66 w/ Mount Pipe	C	From	4.000		30.00	105.000	No Ice	8.177	6.559	0.20
		Centroid-Le	-6.00				1/2" Ice	8.656	7.393	0.27
		g	2.00				1" Ice	9.124	8.128	0.35
RADIO 4449 B12/B71	A	From	4.000		30.00	105.000	No Ice	1.650	1.163	0.07
		Centroid-Le	-2.00				1/2" Ice	1.810	1.301	0.09
		g	2.00				1" Ice	1.978	1.447	0.11
RADIO 4449 B12/B71	B	From	4.000		30.00	105.000	No Ice	1.650	1.163	0.07
		Centroid-Le	-2.00				1/2" Ice	1.810	1.301	0.09

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz Lateral	Vert						ft
RADIO 4449 B12/B71	C	From Centroid-Le	g	2.00	30.00	105.000	1" Ice	1.978	1.447	0.11
			From	4.000			No Ice	1.650	1.163	0.07
			-2.00	1/2" Ice			1.810	1.301	0.09	
2.4" Dia x 8-ft Mount Pipe	A	From Centroid-Le	g	2.00	0.00	105.000	1" Ice	1.978	1.447	0.11
			From	4.000			No Ice	1.900	1.900	0.03
			2.00	1/2" Ice			2.728	2.728	0.04	
2.4" Dia x 8-ft Mount Pipe	B	From Centroid-Le	g	0.00	0.00	105.000	1" Ice	3.401	3.401	0.06
			From	4.000			No Ice	1.900	1.900	0.03
			2.00	1/2" Ice			2.728	2.728	0.04	
2.4" Dia x 8-ft Mount Pipe	C	From Centroid-Le	g	0.00	0.00	105.000	1" Ice	3.401	3.401	0.06
			From	4.000			No Ice	1.900	1.900	0.03
			2.00	1/2" Ice			2.728	2.728	0.04	
Miscellaneous [NA 507-1]	C	None	g	0.00	0.00	105.000	1" Ice	3.401	3.401	0.06
			None	No Ice			4.800	4.800	0.25	
			1/2" Ice	6.700			6.700	0.29		
Miscellaneous [NA 509-3]	C	None	g	0.00	0.00	105.000	1" Ice	8.600	8.600	0.34
			None	No Ice			11.840	11.840	0.28	
			1/2" Ice	16.960			16.960	0.30		
Platform Mount [LP 303-1]	C	None	g	0.00	0.00	105.000	1" Ice	22.080	22.080	0.32
			None	No Ice			14.660	14.660	1.25	
			1/2" Ice	18.870			18.870	1.48		
97 DC6-48-60-18-8F	A	From Leg	g	2.000	30.00	97.000	No Ice	1.212	1.212	0.03
			2.00	1/2" Ice			1.892	1.892	0.05	
			0.00	1" Ice			2.105	2.105	0.08	
DC6-48-60-18-8F	B	From Leg	g	2.000	30.00	97.000	No Ice	1.212	1.212	0.03
			2.00	1/2" Ice			1.892	1.892	0.05	
			0.00	1" Ice			2.105	2.105	0.08	
RRUS 32 B30	A	From Leg	g	2.000	30.00	97.000	No Ice	2.743	1.668	0.05
			2.00	1/2" Ice			2.965	1.855	0.07	
			0.00	1" Ice			3.194	2.049	0.10	
RRUS 32 B30	B	From Leg	g	2.000	30.00	97.000	No Ice	2.743	1.668	0.05
			2.00	1/2" Ice			2.965	1.855	0.07	
			0.00	1" Ice			3.194	2.049	0.10	
RRUS 32 B30	C	From Leg	g	2.000	30.00	97.000	No Ice	2.743	1.668	0.05
			2.00	1/2" Ice			2.965	1.855	0.07	
			0.00	1" Ice			3.194	2.049	0.10	
(2) 2.4" Dia. x 5-ft Pipe	A	From Leg	g	2.000	0.00	97.000	No Ice	1.200	1.200	0.02
			0.00	1/2" Ice			1.502	1.502	0.03	
			0.00	1" Ice			1.814	1.814	0.04	
(2) 2.4" Dia. x 5-ft Pipe	B	From Leg	g	2.000	0.00	97.000	No Ice	1.200	1.200	0.02
			0.00	1/2" Ice			1.502	1.502	0.03	
			0.00	1" Ice			1.814	1.814	0.04	
(2) 2.4" Dia. x 5-ft Pipe	C	From Leg	g	2.000	0.00	97.000	No Ice	1.200	1.200	0.02
			0.00	1/2" Ice			1.502	1.502	0.03	
			0.00	1" Ice			1.814	1.814	0.04	
Side Arm Mount [SO 102-3]	C	None	g	0.00	0.00	97.000	No Ice	3.000	3.000	0.08
			0.00	1/2" Ice			3.480	3.480	0.11	
			0.00	1" Ice			3.960	3.960	0.14	
96 7770.00 w/ Mount Pipe	A	From Centroid-Le	g	4.000	23.00	96.000	No Ice	5.746	4.254	0.06
			-6.00	1/2" Ice			6.179	5.014	0.10	
			2.00	1" Ice			6.607	5.711	0.16	
7770.00 w/ Mount Pipe	B	From Centroid-Le	g	4.000	23.00	96.000	No Ice	5.746	4.254	0.06
			-6.00	1/2" Ice			6.179	5.014	0.10	
			2.00	1" Ice			6.607	5.711	0.16	

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<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert</i> <i>ft ft ft</i>	<i>Azimuth Adjustment</i> <i>°</i>	<i>Placement</i> <i>ft</i>	<i>C_{AA} Front</i> <i>ft²</i>	<i>C_{AA} Side</i> <i>ft²</i>	<i>Weight</i> <i>K</i>	
7770.00 w/ Mount Pipe	C	From	4.000	23.00	96.000	No Ice	5.746	4.254	0.06
		Centroid-Le	-6.00			1/2" Ice	6.179	5.014	0.10
		g	2.00			1" Ice	6.607	5.711	0.16
OPA-65R-LCUU-H6 w/ Mount Pipe	A	From	4.000	30.00	96.000	No Ice	9.895	7.179	0.10
		Centroid-Le	-2.00			1/2" Ice	10.470	8.362	0.18
		g	2.00			1" Ice	11.010	9.259	0.26
OPA-65R-LCUU-H6 w/ Mount Pipe	B	From	4.000	30.00	96.000	No Ice	9.895	7.179	0.10
		Centroid-Le	-2.00			1/2" Ice	10.470	8.362	0.18
		g	2.00			1" Ice	11.010	9.259	0.26
OPA-65R-LCUU-H6 w/ Mount Pipe	C	From	4.000	30.00	96.000	No Ice	9.895	7.179	0.10
		Centroid-Le	-2.00			1/2" Ice	10.470	8.362	0.18
		g	2.00			1" Ice	11.010	9.259	0.26
QS66512-2 w/ Mount Pipe	A	From	4.000	30.00	96.000	No Ice	8.371	8.463	0.14
		Centroid-Le	6.00			1/2" Ice	8.931	9.657	0.21
		g	2.00			1" Ice	9.457	10.548	0.30
QS66512-2 w/ Mount Pipe	B	From	4.000	30.00	96.000	No Ice	8.371	8.463	0.14
		Centroid-Le	6.00			1/2" Ice	8.931	9.657	0.21
		g	2.00			1" Ice	9.457	10.548	0.30
QS66512-2 w/ Mount Pipe	C	From	4.000	30.00	96.000	No Ice	8.371	8.463	0.14
		Centroid-Le	6.00			1/2" Ice	8.931	9.657	0.21
		g	2.00			1" Ice	9.457	10.548	0.30
WCS-IMFQ-AMT	C	From	4.000	30.00	96.000	No Ice	0.989	0.644	0.03
		Centroid-Le	-2.00			1/2" Ice	1.114	0.748	0.04
		g	2.00			1" Ice	1.246	0.860	0.05
RRUS 11 B12	A	From	4.000	23.00	96.000	No Ice	2.791	1.192	0.05
		Centroid-Le	-6.00			1/2" Ice	2.998	1.340	0.07
		g	2.00			1" Ice	3.213	1.496	0.10
RRUS 11 B12	B	From	4.000	23.00	96.000	No Ice	2.791	1.192	0.05
		Centroid-Le	-6.00			1/2" Ice	2.998	1.340	0.07
		g	2.00			1" Ice	3.213	1.496	0.10
RRUS 11 B12	C	From	4.000	23.00	96.000	No Ice	2.791	1.192	0.05
		Centroid-Le	-6.00			1/2" Ice	2.998	1.340	0.07
		g	2.00			1" Ice	3.213	1.496	0.10
RRUS 32 B2	A	From	4.000	23.00	96.000	No Ice	2.731	1.668	0.05
		Centroid-Le	-6.00			1/2" Ice	2.953	1.855	0.07
		g	2.00			1" Ice	3.182	2.049	0.10
RRUS 32 B2	B	From	4.000	23.00	96.000	No Ice	2.731	1.668	0.05
		Centroid-Le	-6.00			1/2" Ice	2.953	1.855	0.07
		g	2.00			1" Ice	3.182	2.049	0.10
RRUS 32 B2	C	From	4.000	23.00	96.000	No Ice	2.731	1.668	0.05
		Centroid-Le	-6.00			1/2" Ice	2.953	1.855	0.07
		g	2.00			1" Ice	3.182	2.049	0.10
DBC0061F1V51-2	A	From	4.000	30.00	96.000	No Ice	0.430	0.413	0.03
		Centroid-Le	-2.00			1/2" Ice	0.514	0.496	0.03
		g	2.00			1" Ice	0.605	0.586	0.04
DBC0061F1V51-2	B	From	4.000	30.00	96.000	No Ice	0.430	0.413	0.03
		Centroid-Le	-2.00			1/2" Ice	0.514	0.496	0.03
		g	2.00			1" Ice	0.605	0.586	0.04
DBC0061F1V51-2	C	From	4.000	30.00	96.000	No Ice	0.430	0.413	0.03
		Centroid-Le	-2.00			1/2" Ice	0.514	0.496	0.03
		g	2.00			1" Ice	0.605	0.586	0.04
2.4" Dia x 6-ft Pipe	A	From	4.000	0.00	96.000	No Ice	1.428	1.428	0.02
		Centroid-Le	2.00			1/2" Ice	1.927	1.927	0.03
		g	0.00			1" Ice	2.296	2.296	0.05
2.4" Dia x 6-ft Pipe	B	From	4.000	0.00	96.000	No Ice	1.428	1.428	0.02
		Centroid-Le	2.00			1/2" Ice	1.927	1.927	0.03
		g	0.00			1" Ice	2.296	2.296	0.05

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			ft ft ft	°	ft	ft ²	ft ²	K
2.4" Dia x 6-ft Pipe	C	From Centroid-Le	4.000 2.00 0.00	0.00	96.000	No Ice 1.428 1/2" Ice 1.927 1" Ice 2.296	1.428 1.927 2.296	0.02 0.03 0.05
Miscellaneous [NA 507-1]	C	None		0.00	96.000	No Ice 4.800 1/2" Ice 6.700 1" Ice 8.600	4.800 6.700 8.600	0.25 0.29 0.34
Platform Mount [LP 712-1]	C	None		0.00	96.000	No Ice 24.530 1/2" Ice 29.940 1" Ice 35.350	24.530 29.940 35.350	1.34 1.65 1.96
75 ACUTIME 2000	A	From Leg	3.000 0.00 1.00	0.00	75.000	No Ice 0.255 1/2" Ice 0.320 1" Ice 0.393	0.255 0.320 0.393	0.00 0.00 0.01
Side Arm Mount [SO 701-1]	C	None		0.00	75.000	No Ice 0.850 1/2" Ice 1.140 1" Ice 1.430	1.670 2.340 3.010	0.07 0.08 0.09

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight
				ft ft ft	°	°	ft	ft	ft ²	K
PX2F-52	A	Paraboloid w/Radome	From Centroid	4.000 0.00 1.00	25.00		122.000	2.092	No Ice 3.440 1/2" Ice 3.720 1" Ice 3.990	0.02 0.04 0.06
VHLP2-11	A	Paraboloid w/Shroud (HP)	From Centroid	4.000 2.00 3.00	37.00		122.000	2.000	No Ice 3.720 1/2" Ice 4.010 1" Ice 4.300	0.03 0.05 0.07
VHLP2-11	B	Paraboloid w/Shroud (HP)	From Centroid	4.000 0.00 3.00	10.00		122.000	2.000	No Ice 3.720 1/2" Ice 4.010 1" Ice 4.300	0.03 0.05 0.07

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice

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Comb. No.	Description
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	120 - 115	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-9.86	0.91	2.45
			Max. Mx	20	-3.72	49.29	0.27
			Max. My	2	-3.73	0.81	47.85
			Max. Vy	20	-7.68	49.29	0.27
			Max. Vx	14	7.55	0.28	-46.81
			Max. Torque	18			-3.15
L2	115 - 110	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20.45	-0.12	3.77
			Max. Mx	20	-6.89	118.19	0.89
			Max. My	2	-6.93	1.10	114.04
			Max. Vy	20	-15.83	118.19	0.89
			Max. Vx	14	15.19	0.08	-111.91

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L3	110 - 105	Pole	Max. Torque	18			-3.66
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-21.67	-0.16	3.96
			Max. Mx	20	-7.40	198.74	0.94
			Max. My	2	-7.42	1.53	192.08
			Max. Vy	20	-16.39	198.74	0.94
			Max. Vx	14	16.14	-0.04	-190.14
L4	105 - 100	Pole	Max. Torque	18			-3.66
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.09	-1.72	6.25
			Max. Mx	20	-11.95	320.21	0.25
			Max. My	2	-11.93	2.28	312.21
			Max. Vy	20	-23.09	320.21	0.25
			Max. Vx	14	23.12	0.18	-311.45
L5	100 - 99.25	Pole	Max. Torque	22			-7.55
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.32	-1.69	6.32
			Max. Mx	20	-12.05	337.58	0.26
			Max. My	2	-12.03	2.35	329.56
			Max. Vy	20	-23.22	337.58	0.26
			Max. Vx	14	23.26	0.17	-328.82
L6	99.25 - 99	Pole	Max. Torque	22			-7.55
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.42	-1.68	6.34
			Max. Mx	20	-12.10	343.40	0.26
			Max. My	2	-12.08	2.37	335.37
			Max. Vy	20	-23.26	343.40	0.26
			Max. Vx	14	23.31	0.16	-334.64
L7	99 - 94	Pole	Max. Torque	22			-7.55
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.45	-1.76	6.48
			Max. Mx	20	-16.71	481.33	0.23
			Max. My	2	-16.68	2.81	473.46
			Max. Vy	20	-30.16	481.33	0.23
			Max. Vx	14	30.32	0.05	-473.10
L8	94 - 90.08	Pole	Max. Torque	22			-7.64
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.01	-1.61	6.84
			Max. Mx	20	-17.55	600.95	0.31
			Max. My	2	-17.51	3.18	593.69
			Max. Vy	20	-30.86	600.95	0.31
			Max. Vx	14	31.12	-0.01	-593.40
L9	90.08 - 89.83	Pole	Max. Torque	22			-7.47
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.12	-1.61	6.86
			Max. Mx	20	-17.62	608.67	0.31
			Max. My	2	-17.58	3.21	601.47
			Max. Vy	20	-30.90	608.67	0.31
			Max. Vx	14	31.17	-0.01	-601.18
L10	89.83 - 89.5	Pole	Max. Torque	22			-7.47
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.26	-1.59	6.89
			Max. Mx	20	-17.70	618.88	0.32
			Max. My	2	-17.66	3.24	611.75
			Max. Vy	20	-30.96	618.88	0.32
			Max. Vx	14	31.24	-0.02	-611.47
L11	89.5 - 89.25	Pole	Max. Torque	22			-7.47
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.39	-1.59	6.91
			Max. Mx	20	-17.78	626.63	0.32
			Max. My	2	-17.74	3.26	619.56

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L12	89.25 - 84.25	Pole	Max. Vy	20	-31.01	626.63	0.32
			Max. Vx	14	31.29	-0.02	-619.28
			Max. Torque	22			-7.47
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.84	-1.41	7.36
			Max. Mx	20	-19.23	784.20	0.42
			Max. My	2	-19.18	3.74	778.55
			Max. Vy	20	-31.99	784.20	0.42
L13	84.25 - 78	Pole	Max. Vx	14	32.39	-0.09	-778.34
			Max. Torque	22			-7.47
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.09	-1.32	7.59
			Max. Mx	20	-19.98	864.81	0.47
			Max. My	2	-19.92	3.99	860.10
			Max. Vy	20	-32.48	864.81	0.47
			Max. Vx	14	32.94	-0.12	-859.93
L14	78 - 77	Pole	Max. Torque	22			-7.47
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-53.03	-1.14	8.03
			Max. Mx	20	-22.70	1021.64	0.57
			Max. My	2	-22.64	4.45	1019.12
			Max. Vy	20	-33.52	1021.64	0.57
			Max. Vx	14	34.09	-0.18	-1019.01
			Max. Torque	22			-7.47
L15	77 - 76.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-53.18	-1.13	8.06
			Max. Mx	20	-22.80	1030.03	0.57
			Max. My	2	-22.74	4.47	1027.63
			Max. Vy	20	-33.56	1030.03	0.57
			Max. Vx	14	34.14	-0.19	-1027.53
			Max. Torque	22			-7.47
			Max Tension	1	0.00	0.00	0.00
L16	76.75 - 76.5	Pole	Max. Compression	26	-53.33	-1.12	8.08
			Max. Mx	20	-22.91	1038.43	0.58
			Max. My	2	-22.85	4.50	1036.16
			Max. Vy	20	-33.61	1038.43	0.58
			Max. Vx	14	34.20	-0.19	-1036.07
			Max. Torque	22			-7.47
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-53.94	-1.09	8.17
L17	76.5 - 75.5	Pole	Max. Mx	20	-23.31	1072.15	0.60
			Max. My	2	-23.25	4.60	1070.43
			Max. Vy	20	-33.82	1072.15	0.60
			Max. Vx	14	34.43	-0.20	-1070.35
			Max. Torque	22			-7.47
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.08	-1.08	8.20
			Max. Mx	20	-23.41	1080.62	0.60
L18	75.5 - 75.25	Pole	Max. My	2	-23.35	4.62	1079.04
			Max. Vy	20	-33.87	1080.62	0.60
			Max. Vx	14	34.48	-0.21	-1078.96
			Max. Torque	22			-7.46
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.65	-1.05	8.35
			Max. Mx	20	-23.76	1106.14	0.62
			Max. My	2	-23.70	4.70	1104.99
L19	75.25 - 74.5	Pole	Max. Vy	20	-34.11	1106.14	0.62
			Max. Vx	14	34.74	-0.22	-1104.91
			Max. Torque	22			-7.51
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.79	-1.04	8.37
			Max. Mx	20	-23.76	1106.14	0.62
			Max. My	2	-23.70	4.70	1104.99
			Max. Vy	20	-34.11	1106.14	0.62
L20	74.5 - 74.25	Pole	Max. Vx	14	34.74	-0.22	-1104.91
			Max. Torque	22			-7.51
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.79	-1.04	8.37

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L21	74.25 - 72	Pole	Max. Mx	20	-23.86	1114.68	0.62
			Max. My	2	-23.79	4.72	1113.67
			Max. Vy	20	-34.16	1114.68	0.62
			Max. Vx	14	34.79	-0.22	-1113.60
			Max. Torque	22			-7.51
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.03	-0.96	8.59
			Max. Mx	20	-24.65	1192.07	0.67
			Max. My	2	-24.58	4.94	1192.41
			Max. Vy	20	-34.61	1192.07	0.67
L22	72 - 71.75	Pole	Max. Vx	14	35.28	-0.25	-1192.36
			Max. Torque	22			-7.51
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.18	-0.95	8.61
			Max. Mx	20	-24.75	1200.73	0.67
			Max. My	2	-24.69	4.97	1201.22
			Max. Vy	20	-34.66	1200.73	0.67
			Max. Vx	14	35.33	-0.25	-1201.18
			Max. Torque	22			-7.51
			Max Tension	1	0.00	0.00	0.00
L23	71.75 - 70.5	Pole	Max. Compression	26	-56.91	-0.90	8.73
			Max. Mx	20	-25.23	1244.23	0.70
			Max. My	2	-25.17	5.09	1245.50
			Max. Vy	20	-34.91	1244.23	0.70
			Max. Vx	14	35.60	-0.27	-1245.47
			Max. Torque	22			-7.51
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.06	-0.89	8.75
			Max. Mx	20	-25.35	1252.96	0.70
			Max. My	2	-25.28	5.11	1254.39
L24	70.5 - 70.25	Pole	Max. Vy	20	-34.95	1252.96	0.70
			Max. Vx	14	35.65	-0.27	-1254.36
			Max. Torque	22			-7.51
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.21	-0.88	8.78
			Max. Mx	20	-25.45	1261.71	0.71
			Max. My	2	-25.38	5.14	1263.30
			Max. Vy	20	-35.00	1261.71	0.71
			Max. Vx	14	35.70	-0.27	-1263.28
			Max. Torque	22			-7.51
L25	70.25 - 70	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.36	-0.87	8.80
			Max. Mx	20	-25.55	1270.47	0.71
			Max. My	2	-25.48	5.16	1272.22
			Max. Vy	20	-35.05	1270.47	0.71
			Max. Vx	14	35.75	-0.27	-1272.20
			Max. Torque	22			-7.51
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.51	-0.86	8.82
			Max. Mx	20	-25.65	1279.24	0.72
L26	70 - 69.75	Pole	Max. My	2	-25.59	5.19	1281.16
			Max. Vy	20	-35.10	1279.24	0.72
			Max. Vx	14	35.81	-0.28	-1281.14
			Max. Torque	22			-7.51
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.65	-0.85	8.85
			Max. Mx	20	-25.74	1288.03	0.72
			Max. My	2	-25.68	5.21	1290.10
			Max. Vy	20	-35.15	1288.03	0.72
			Max. Vx	14	35.86	-0.28	-1290.09
L27	69.75 - 69.5	Pole	Max. Torque	22			-7.51
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.65	-0.85	8.85
			Max. Mx	20	-25.74	1288.03	0.72
L28	69.5 - 69.25	Pole	Max. My	2	-25.68	5.21	1290.10
			Max. Vy	20	-35.15	1288.03	0.72
			Max. Vx	14	35.86	-0.28	-1290.09
			Max. Torque	22			-7.51

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L29	69.25 - 64.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-60.44	-0.67	9.33
			Max. Mx	20	-27.57	1466.25	0.82
			Max. My	14	-27.50	-0.34	-1471.85
			Max. Vy	20	-36.12	1466.25	0.82
			Max. Vx	14	36.91	-0.34	-1471.85
			Max. Torque	22			-7.51
L30	64.25 - 59.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.24	-0.47	9.81
			Max. Mx	20	-29.45	1648.78	0.92
			Max. My	14	-29.37	-0.39	-1658.81
			Max. Vy	20	-36.88	1648.78	0.92
			Max. Vx	14	37.95	-0.39	-1658.81
			Max. Torque	22			-7.51
L31	59.25 - 56	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.08	-0.35	10.13
			Max. Mx	20	-30.69	1769.45	0.99
			Max. My	14	-30.60	-0.42	-1783.09
			Max. Vy	20	-37.37	1769.45	0.99
			Max. Vx	14	38.61	-0.42	-1783.09
			Max. Torque	22			-7.50
L32	56 - 55.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.23	-0.34	10.15
			Max. Mx	20	-30.81	1778.80	0.99
			Max. My	14	-30.73	-0.42	-1792.74
			Max. Vy	20	-37.40	1778.80	0.99
			Max. Vx	14	38.66	-0.42	-1792.74
			Max. Torque	22			-7.50
L33	55.75 - 55.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.39	-0.33	10.18
			Max. Mx	20	-30.92	1788.16	1.00
			Max. My	14	-30.84	-0.43	-1802.40
			Max. Vy	20	-37.44	1788.16	1.00
			Max. Vx	14	38.71	-0.43	-1802.40
			Max. Torque	22			-7.50
L34	55.5 - 55.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.55	-0.32	10.20
			Max. Mx	20	-31.04	1797.53	1.00
			Max. My	14	-30.95	-0.43	-1812.08
			Max. Vy	20	-37.48	1797.53	1.00
			Max. Vx	14	38.76	-0.43	-1812.08
			Max. Torque	22			-7.50
L35	55.25 - 54	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.35	-0.27	10.33
			Max. Mx	20	-31.59	1844.52	1.03
			Max. My	14	-31.50	-0.44	-1860.66
			Max. Vy	20	-37.68	1844.52	1.03
			Max. Vx	14	39.03	-0.44	-1860.66
			Max. Torque	22			-7.50
L36	54 - 53.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.50	-0.26	10.35
			Max. Mx	20	-31.71	1853.95	1.04
			Max. My	14	-31.62	-0.44	-1870.41
			Max. Vy	20	-37.71	1853.95	1.04
			Max. Vx	14	39.08	-0.44	-1870.41
			Max. Torque	22			-7.50
L37	53.75 - 53.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.66	-0.25	10.37
			Max. Mx	20	-31.81	1863.38	1.04
			Max. My	14	-31.73	-0.44	-1880.18
			Max. Vy	20	-37.75	1863.38	1.04

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L38	53.5 - 53.25	Pole	Max. Vx	14	39.13	-0.44	-1880.18
			Max. Torque	22			-7.50
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.80	-0.24	10.40
			Max. Mx	20	-31.92	1872.83	1.05
			Max. My	14	-31.83	-0.45	-1889.96
			Max. Vy	20	-37.79	1872.83	1.05
L39	53.25 - 53	Pole	Max. Vx	14	39.18	-0.45	-1889.96
			Max. Torque	22			-7.50
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.94	-0.23	10.42
			Max. Mx	20	-32.01	1882.28	1.05
			Max. My	14	-31.92	-0.45	-1899.75
			Max. Vy	20	-37.82	1882.28	1.05
L40	53 - 48	Pole	Max. Vx	14	39.23	-0.45	-1899.75
			Max. Torque	22			-7.50
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-69.72	-0.02	10.92
			Max. Mx	20	-33.90	2073.26	1.15
			Max. My	14	-33.81	-0.49	-2098.20
			Max. Vy	20	-38.55	2073.26	1.15
L41	48 - 39.75	Pole	Max. Vx	14	40.23	-0.49	-2098.20
			Max. Torque	22			-7.50
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-71.68	0.13	11.27
			Max. Mx	20	-35.25	2209.04	1.23
			Max. My	14	-35.16	-0.52	-2240.05
			Max. Vy	20	-39.04	2209.04	1.23
L42	39.75 - 38.75	Pole	Max. Vx	14	40.93	-0.52	-2240.05
			Max. Torque	22			-7.50
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-76.76	0.38	11.84
			Max. Mx	20	-38.88	2436.27	1.35
			Max. My	14	-38.79	-0.57	-2478.85
			Max. Vy	20	-40.00	2436.27	1.35
L43	38.75 - 34.75	Pole	Max. Vx	14	42.20	-0.57	-2478.85
			Max. Torque	22			-7.50
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.04	0.56	12.24
			Max. Mx	20	-40.47	2597.69	1.43
			Max. My	14	-40.38	-0.60	-2649.02
			Max. Vy	20	-40.70	2597.69	1.43
L44	34.75 - 34.5	Pole	Max. Vx	14	42.98	-0.60	-2649.02
			Max. Torque	22			-7.50
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.20	0.57	12.26
			Max. Mx	20	-40.60	2607.87	1.43
			Max. My	14	-40.52	-0.60	-2659.76
			Max. Vy	20	-40.72	2607.87	1.43
L45	34.5 - 33.75	Pole	Max. Vx	14	43.01	-0.60	-2659.76
			Max. Torque	22			-7.49
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.69	0.60	12.33
			Max. Mx	20	-40.95	2638.46	1.45
			Max. My	14	-40.87	-0.60	-2692.05
			Max. Vy	20	-40.83	2638.46	1.45
L46	33.75 - 33.5	Pole	Max. Vx	14	43.17	-0.60	-2692.05
			Max. Torque	22			-7.49
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.83	0.61	12.36
			Max. Mx	20	-41.06	2648.67	1.45

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L47	33.5 - 32.75	Pole	Max. My	14	-40.98	-0.60	-2702.83
			Max. Vy	20	-40.86	2648.67	1.45
			Max. Vx	14	43.21	-0.60	-2702.83
			Max. Torque	22			-7.49
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-80.26	0.65	12.43
			Max. Mx	20	-41.35	2679.37	1.47
			Max. My	14	-41.27	-0.61	-2735.27
			Max. Vy	20	-40.97	2679.37	1.47
			Max. Vx	14	43.36	-0.61	-2735.27
L48	32.75 - 32.5	Pole	Max. Torque	22			-7.49
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-80.44	0.66	12.45
			Max. Mx	20	-41.50	2689.61	1.47
			Max. My	14	-41.42	-0.61	-2746.10
			Max. Vy	20	-40.99	2689.61	1.47
			Max. Vx	14	43.40	-0.61	-2746.10
			Max. Torque	22			-7.49
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-83.97	0.88	12.91
L49	32.5 - 27.5	Pole	Max. Mx	20	-44.12	2896.40	1.58
			Max. My	14	-44.04	-0.64	-2965.39
			Max. Vy	20	-41.70	2896.40	1.58
			Max. Vx	14	44.40	-0.64	-2965.39
			Max. Torque	22			-7.49
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86.45	1.04	13.24
			Max. Mx	20	-45.99	3043.20	1.65
			Max. My	14	-45.91	-0.66	-3121.78
			Max. Vy	20	-42.18	3043.20	1.65
L50	27.5 - 24	Pole	Max. Vx	14	45.07	-0.66	-3121.78
			Max. Torque	22			-7.49
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86.63	1.05	13.27
			Max. Mx	20	-46.14	3053.75	1.66
			Max. My	14	-46.07	-0.66	-3133.04
			Max. Vy	20	-42.20	3053.75	1.66
			Max. Vx	14	45.10	-0.66	-3133.04
			Max. Torque	22			-7.49
			Max Tension	1	0.00	0.00	0.00
L51	24 - 23.75	Pole	Max. Compression	26	-90.27	1.28	13.74
			Max. Mx	20	-48.90	3266.49	1.77
			Max. My	14	-48.84	-0.69	-3360.69
			Max. Vy	20	-42.87	3266.49	1.77
			Max. Vx	14	46.04	-0.69	-3360.69
			Max. Torque	22			-7.49
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-93.56	1.50	14.17
			Max. Mx	20	-51.42	3460.71	1.87
			Max. My	14	-51.37	-0.71	-3569.44
L52	23.75 - 18.75	Pole	Max. Vy	20	-43.44	3460.71	1.87
			Max. Vx	14	46.84	-0.71	-3569.44
			Max. Torque	22			-7.49
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-93.75	1.51	14.20
			Max. Mx	20	-51.59	3471.58	1.87
			Max. My	14	-51.54	-0.71	-3581.14
			Max. Vy	20	-43.46	3471.58	1.87
			Max. Vx	14	46.86	-0.71	-3581.14
			Max. Torque	22			-7.49
L53	18.75 - 14.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-93.75	1.51	14.20
L54	14.25 - 14	Pole	Max. Mx	20	-51.59	3471.58	1.87
			Max. My	14	-51.54	-0.71	-3581.14
			Max. Vy	20	-43.46	3471.58	1.87
			Max. Vx	14	46.86	-0.71	-3581.14
			Max. Torque	22			-7.49
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-93.75	1.51	14.20
			Max. Mx	20	-51.59	3471.58	1.87
			Max. My	14	-51.54	-0.71	-3581.14
			Max. Vy	20	-43.46	3471.58	1.87
L55	14 - 12.75	Pole	Max. Vx	14	46.86	-0.71	-3581.14
			Max. Torque	22			-7.49

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft			
L56	12.75 - 12.5	Pole	Max. Compression	26	-94.73	1.57	14.32			
			Max. Mx	20	-52.34	3526.02	1.90			
			Max. My	14	-52.29	-0.72	-3639.81			
			Max. Vy	20	-43.63	3526.02	1.90			
			Max. Vx	14	47.10	-0.72	-3639.81			
			Max. Torque	22			-7.49			
			Max Tension	1	0.00	0.00	0.00			
			Max. Compression	26	-94.89	1.58	14.34			
			Max. Mx	20	-52.48	3536.93	1.90			
			Max. My	14	-52.43	-0.72	-3651.58			
L57	12.5 - 7.5	Pole	Max. Vy	20	-43.64	3536.93	1.90			
			Max. Vx	14	47.12	-0.72	-3651.58			
			Max. Torque	22			-7.49			
			Max Tension	1	0.00	0.00	0.00			
			Max. Compression	26	-98.10	1.82	14.82			
			Max. Mx	20	-54.92	3756.64	2.01			
			Max. My	14	-54.89	-0.74	-3889.03			
			Max. Vy	20	-44.23	3756.64	2.01			
			Max. Vx	14	47.95	-0.74	-3889.03			
			Max. Torque	22			-7.49			
L58	7.5 - 5	Pole	Max Tension	1	0.00	0.00	0.00			
			Max. Compression	26	-99.70	1.94	15.05			
			Max. Mx	20	-56.15	3867.56	2.07			
			Max. My	14	-56.13	-0.75	-4009.29			
			Max. Vy	20	-44.52	3867.56	2.07			
			Max. Vx	14	48.37	-0.75	-4009.29			
			Max. Torque	22			-7.49			
			Max Tension	1	0.00	0.00	0.00			
			Max. Compression	26	-99.88	1.95	15.08			
			Max. Mx	20	-56.31	3878.70	2.08			
L59	5 - 4.75	Pole	Max. My	14	-56.29	-0.75	-4021.37			
			Max. Vy	20	-44.53	3878.70	2.08			
			Max. Vx	14	48.39	-0.75	-4021.37			
			Max. Torque	22			-7.49			
			Max Tension	1	0.00	0.00	0.00			
			Max. Compression	26	-100.04	1.97	15.10			
			Max. Mx	20	-56.44	3889.84	2.08			
			Max. My	14	-56.42	-0.75	-4033.46			
			Max. Vy	20	-44.56	3889.84	2.08			
			Max. Vx	14	48.43	-0.75	-4033.46			
L60	4.75 - 4.5	Pole	Max. Torque	22			-7.49			
			Max Tension	1	0.00	0.00	0.00			
			Max. Compression	26	-103.00	2.18	15.51			
			Max. Mx	20	-58.81	4091.63	2.18			
			Max. My	14	-58.80	-0.76	-4252.92			
			Max. Vy	20	-45.11	4091.63	2.18			
			Max. Vx	14	49.20	-0.76	-4252.92			
			Max. Torque	22			-7.49			
			L61	4.5 - 0	Pole	Max. Compression	26	-103.00	2.18	15.51
						Max. Mx	20	-58.81	4091.63	2.18
Max. My	14	-58.80				-0.76	-4252.92			
Max. Vy	20	-45.11				4091.63	2.18			
Max. Vx	14	49.20				-0.76	-4252.92			
Max. Torque	22						-7.49			

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	103.00	-0.00	0.00
	Max. H _x	20	58.82	45.09	-0.01
	Max. H _z	2	58.82	0.08	49.12

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Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. M _x	2	4252.83	0.08	49.12
	Max. M _z	8	4074.13	-44.99	-0.04
	Max. Torsion	10	7.40	-35.22	-19.79
	Min. Vert	5	44.12	-20.30	34.25
	Min. H _x	8	58.82	-44.99	-0.04
	Min. H _z	14	58.82	-0.03	-49.18
	Min. M _x	14	-4252.92	-0.03	-49.18
	Min. M _z	20	-4091.63	45.09	-0.01
	Min. Torsion	22	-7.49	35.26	19.79

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	49.02	0.00	0.00	-3.14	1.75	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	58.82	-0.08	-49.12	-4252.83	12.27	2.63
0.9 Dead+1.6 Wind 0 deg - No Ice	44.12	-0.08	-49.12	-4222.50	11.64	2.64
1.2 Dead+1.6 Wind 30 deg - No Ice	58.82	20.30	-34.25	-3187.39	-1897.77	-0.43
0.9 Dead+1.6 Wind 30 deg - No Ice	44.12	20.30	-34.25	-3163.73	-1884.75	-0.42
1.2 Dead+1.6 Wind 60 deg - No Ice	58.82	35.21	-19.73	-1835.88	-3294.99	-4.02
0.9 Dead+1.6 Wind 60 deg - No Ice	44.12	35.21	-19.73	-1821.86	-3271.99	-4.01
1.2 Dead+1.6 Wind 90 deg - No Ice	58.82	44.99	0.04	0.99	-4074.13	-7.26
0.9 Dead+1.6 Wind 90 deg - No Ice	44.12	44.99	0.04	1.94	-4046.05	-7.25
1.2 Dead+1.6 Wind 120 deg - No Ice	58.82	35.22	19.79	1835.68	-3295.96	-7.40
0.9 Dead+1.6 Wind 120 deg - No Ice	44.12	35.22	19.79	1823.57	-3272.95	-7.39
1.2 Dead+1.6 Wind 150 deg - No Ice	58.82	20.31	34.33	3189.27	-1898.72	-6.00
0.9 Dead+1.6 Wind 150 deg - No Ice	44.12	20.31	34.33	3167.52	-1885.70	-6.00
1.2 Dead+1.6 Wind 180 deg - No Ice	58.82	0.03	49.18	4252.92	-0.76	-2.57
0.9 Dead+1.6 Wind 180 deg - No Ice	44.12	0.03	49.18	4224.52	-1.30	-2.58
1.2 Dead+1.6 Wind 210 deg - No Ice	58.82	-20.33	34.33	3190.42	1906.88	0.47
0.9 Dead+1.6 Wind 210 deg - No Ice	44.12	-20.33	34.33	3168.67	1892.72	0.46
1.2 Dead+1.6 Wind 240 deg - No Ice	58.82	-35.30	19.77	1833.49	3311.72	4.29
0.9 Dead+1.6 Wind 240 deg - No Ice	44.12	-35.30	19.77	1821.41	3287.51	4.27
1.2 Dead+1.6 Wind 270 deg - No Ice	58.82	-45.09	0.01	-2.18	4091.63	7.36
0.9 Dead+1.6 Wind 270 deg - No Ice	44.12	-45.09	0.01	-1.21	4062.33	7.35
1.2 Dead+1.6 Wind 300 deg - No Ice	58.82	-35.26	-19.79	-1844.15	3305.54	7.49

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Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
No Ice						
0.9 Dead+1.6 Wind 300 deg - No Ice	44.12	-35.26	-19.79	-1830.06	3281.38	7.48
1.2 Dead+1.6 Wind 330 deg - No Ice	58.82	-20.36	-34.29	-3192.55	1910.48	6.19
0.9 Dead+1.6 Wind 330 deg - No Ice	44.12	-20.36	-34.29	-3168.85	1896.29	6.19
1.2 Dead+1.0 Ice+1.0 Temp	103.00	0.00	-0.00	-15.51	2.18	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	103.00	-0.02	-11.39	-1071.55	5.07	0.67
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	103.00	4.83	-8.25	-826.85	-474.40	-0.19
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	103.00	8.38	-4.75	-482.32	-825.36	-1.01
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	103.00	11.05	0.01	-13.94	-1032.28	-1.67
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	103.00	8.39	4.77	453.79	-826.22	-1.70
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	103.00	4.90	8.37	805.29	-479.77	-1.34
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	103.00	0.01	11.40	1041.97	0.91	-0.65
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	103.00	-4.84	8.27	797.91	479.85	0.20
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	103.00	-8.40	4.76	452.19	832.49	1.06
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	103.00	-11.07	-0.00	-15.94	1039.58	1.70
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	103.00	-8.40	-4.77	-485.26	831.78	1.72
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	103.00	-4.91	-8.36	-835.62	485.80	1.37
Dead+Wind 0 deg - Service	49.02	-0.02	-10.51	-908.89	3.95	0.57
Dead+Wind 30 deg - Service	49.02	4.34	-7.33	-681.61	-403.07	-0.09
Dead+Wind 60 deg - Service	49.02	7.53	-4.22	-393.63	-700.83	-0.87
Dead+Wind 90 deg - Service	49.02	9.63	0.01	-2.19	-866.99	-1.56
Dead+Wind 120 deg - Service	49.02	7.53	4.23	388.79	-701.04	-1.59
Dead+Wind 150 deg - Service	49.02	4.34	7.34	677.23	-403.28	-1.29
Dead+Wind 180 deg - Service	49.02	0.01	10.52	904.12	1.17	-0.56
Dead+Wind 210 deg - Service	49.02	-4.35	7.35	677.48	407.68	0.10
Dead+Wind 240 deg - Service	49.02	-7.55	4.23	388.33	707.07	0.92
Dead+Wind 270 deg - Service	49.02	-9.65	0.00	-2.87	873.39	1.58
Dead+Wind 300 deg - Service	49.02	-7.54	-4.24	-395.39	705.75	1.61
Dead+Wind 330 deg - Service	49.02	-4.36	-7.34	-682.72	408.44	1.33

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-49.02	0.00	0.00	49.02	0.00	0.000%
2	-0.08	-58.82	-49.12	0.08	58.82	49.12	0.000%
3	-0.08	-44.12	-49.12	0.08	44.12	49.12	0.000%
4	20.30	-58.82	-34.25	-20.30	58.82	34.25	0.000%
5	20.30	-44.12	-34.25	-20.30	44.12	34.25	0.000%
6	35.21	-58.82	-19.73	-35.21	58.82	19.73	0.000%
7	35.21	-44.12	-19.73	-35.21	44.12	19.73	0.000%
8	44.99	-58.82	0.04	-44.99	58.82	-0.04	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
9	44.99	-44.12	0.04	-44.99	44.12	-0.04	0.000%
10	35.22	-58.82	19.79	-35.22	58.82	-19.79	0.000%
11	35.22	-44.12	19.79	-35.22	44.12	-19.79	0.000%
12	20.31	-58.82	34.33	-20.31	58.82	-34.33	0.000%
13	20.31	-44.12	34.33	-20.31	44.12	-34.33	0.000%
14	0.03	-58.82	49.18	-0.03	58.82	-49.18	0.000%
15	0.03	-44.12	49.18	-0.03	44.12	-49.18	0.000%
16	-20.33	-58.82	34.33	20.33	58.82	-34.33	0.000%
17	-20.33	-44.12	34.33	20.33	44.12	-34.33	0.000%
18	-35.30	-58.82	19.77	35.30	58.82	-19.77	0.000%
19	-35.30	-44.12	19.77	35.30	44.12	-19.77	0.000%
20	-45.09	-58.82	0.01	45.09	58.82	-0.01	0.000%
21	-45.09	-44.12	0.01	45.09	44.12	-0.01	0.000%
22	-35.26	-58.82	-19.79	35.26	58.82	19.79	0.000%
23	-35.26	-44.12	-19.79	35.26	44.12	19.79	0.000%
24	-20.36	-58.82	-34.29	20.36	58.82	34.29	0.000%
25	-20.36	-44.12	-34.29	20.36	44.12	34.29	0.000%
26	0.00	-103.00	0.00	-0.00	103.00	0.00	0.000%
27	-0.02	-103.00	-11.39	0.02	103.00	11.39	0.000%
28	4.83	-103.00	-8.25	-4.83	103.00	8.25	0.000%
29	8.38	-103.00	-4.75	-8.38	103.00	4.75	0.000%
30	11.05	-103.00	0.01	-11.05	103.00	-0.01	0.000%
31	8.39	-103.00	4.77	-8.39	103.00	-4.77	0.000%
32	4.90	-103.00	8.37	-4.90	103.00	-8.37	0.000%
33	0.01	-103.00	11.40	-0.01	103.00	-11.40	0.000%
34	-4.84	-103.00	8.27	4.84	103.00	-8.27	0.000%
35	-8.40	-103.00	4.76	8.40	103.00	-4.76	0.000%
36	-11.07	-103.00	-0.00	11.07	103.00	0.00	0.000%
37	-8.40	-103.00	-4.77	8.40	103.00	4.77	0.000%
38	-4.91	-103.00	-8.36	4.91	103.00	8.36	0.000%
39	-0.02	-49.02	-10.51	0.02	49.02	10.51	0.000%
40	4.34	-49.02	-7.33	-4.34	49.02	7.33	0.000%
41	7.53	-49.02	-4.22	-7.53	49.02	4.22	0.000%
42	9.63	-49.02	0.01	-9.63	49.02	-0.01	0.000%
43	7.53	-49.02	4.23	-7.53	49.02	-4.23	0.000%
44	4.34	-49.02	7.34	-4.34	49.02	-7.34	0.000%
45	0.01	-49.02	10.52	-0.01	49.02	-10.52	0.000%
46	-4.35	-49.02	7.35	4.35	49.02	-7.35	0.000%
47	-7.55	-49.02	4.23	7.55	49.02	-4.23	0.000%
48	-9.65	-49.02	0.00	9.65	49.02	-0.00	0.000%
49	-7.54	-49.02	-4.24	7.54	49.02	4.24	0.000%
50	-4.36	-49.02	-7.34	4.36	49.02	7.34	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00035006
3	Yes	5	0.00000001	0.00015815
4	Yes	6	0.00000001	0.00013401
5	Yes	6	0.00000001	0.00004325
6	Yes	6	0.00000001	0.00014711
7	Yes	6	0.00000001	0.00004767
8	Yes	5	0.00000001	0.00097266
9	Yes	5	0.00000001	0.00043986

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10	Yes	6	0.00000001	0.00012105
11	Yes	6	0.00000001	0.00003862
12	Yes	6	0.00000001	0.00015081
13	Yes	6	0.00000001	0.00004926
14	Yes	5	0.00000001	0.00038307
15	Yes	5	0.00000001	0.00017278
16	Yes	6	0.00000001	0.00013674
17	Yes	6	0.00000001	0.00004415
18	Yes	6	0.00000001	0.00012683
19	Yes	6	0.00000001	0.00004052
20	Yes	5	0.00000001	0.00099806
21	Yes	5	0.00000001	0.00045080
22	Yes	6	0.00000001	0.00015921
23	Yes	6	0.00000001	0.00005184
24	Yes	6	0.00000001	0.00012517
25	Yes	6	0.00000001	0.00004006
26	Yes	5	0.00000001	0.00008220
27	Yes	6	0.00000001	0.00029878
28	Yes	6	0.00000001	0.00031249
29	Yes	6	0.00000001	0.00031674
30	Yes	6	0.00000001	0.00029061
31	Yes	6	0.00000001	0.00030316
32	Yes	6	0.00000001	0.00030552
33	Yes	6	0.00000001	0.00028667
34	Yes	6	0.00000001	0.00030058
35	Yes	6	0.00000001	0.00030290
36	Yes	6	0.00000001	0.00029137
37	Yes	6	0.00000001	0.00032046
38	Yes	6	0.00000001	0.00031527
39	Yes	4	0.00000001	0.00082469
40	Yes	5	0.00000001	0.00005485
41	Yes	5	0.00000001	0.00007259
42	Yes	5	0.00000001	0.00005220
43	Yes	5	0.00000001	0.00005591
44	Yes	5	0.00000001	0.00007932
45	Yes	4	0.00000001	0.00081777
46	Yes	5	0.00000001	0.00005728
47	Yes	5	0.00000001	0.00005072
48	Yes	5	0.00000001	0.00005349
49	Yes	5	0.00000001	0.00009177
50	Yes	5	0.00000001	0.00005588

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	120 - 115	13.16	39	0.97	0.01
L2	115 - 110	12.15	39	0.97	0.01
L3	110 - 105	11.15	39	0.95	0.01
L4	105 - 100	10.17	39	0.91	0.01
L5	100 - 99.25	9.24	39	0.87	0.01
L6	99.25 - 99	9.10	39	0.86	0.01
L7	99 - 94	9.06	39	0.86	0.01
L8	94 - 90.08	8.18	39	0.81	0.00
L9	90.08 - 89.83	7.53	39	0.77	0.00
L10	89.83 - 89.5	7.49	39	0.77	0.00
L11	89.5 - 89.25	7.44	39	0.76	0.00
L12	89.25 - 84.25	7.40	39	0.76	0.00
L13	84.25 - 78	6.62	39	0.73	0.00

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L14	81.75 - 77	6.24	39	0.71	0.00
L15	77 - 76.75	5.54	39	0.69	0.00
L16	76.75 - 76.5	5.51	39	0.69	0.00
L17	76.5 - 75.5	5.47	39	0.69	0.00
L18	75.5 - 75.25	5.33	39	0.68	0.00
L19	75.25 - 74.5	5.29	39	0.68	0.00
L20	74.5 - 74.25	5.19	39	0.67	0.00
L21	74.25 - 72	5.15	39	0.67	0.00
L22	72 - 71.75	4.84	39	0.65	0.00
L23	71.75 - 70.5	4.80	39	0.65	0.00
L24	70.5 - 70.25	4.63	39	0.64	0.00
L25	70.25 - 70	4.60	39	0.64	0.00
L26	70 - 69.75	4.57	39	0.64	0.00
L27	69.75 - 69.5	4.53	39	0.64	0.00
L28	69.5 - 69.25	4.50	39	0.63	0.00
L29	69.25 - 64.25	4.47	39	0.63	0.00
L30	64.25 - 59.25	3.83	39	0.59	0.00
L31	59.25 - 56	3.24	39	0.54	0.00
L32	56 - 55.75	2.88	39	0.51	0.00
L33	55.75 - 55.5	2.86	39	0.51	0.00
L34	55.5 - 55.25	2.83	39	0.50	0.00
L35	55.25 - 54	2.80	39	0.50	0.00
L36	54 - 53.75	2.67	39	0.49	0.00
L37	53.75 - 53.5	2.65	39	0.49	0.00
L38	53.5 - 53.25	2.62	39	0.49	0.00
L39	53.25 - 53	2.60	39	0.49	0.00
L40	53 - 48	2.57	39	0.48	0.00
L41	48 - 39.75	2.10	39	0.42	0.00
L42	44.5 - 38.75	1.80	39	0.38	0.00
L43	38.75 - 34.75	1.36	39	0.34	0.00
L44	34.75 - 34.5	1.09	39	0.30	0.00
L45	34.5 - 33.75	1.08	39	0.30	0.00
L46	33.75 - 33.5	1.03	39	0.29	0.00
L47	33.5 - 32.75	1.01	39	0.29	0.00
L48	32.75 - 32.5	0.97	39	0.28	0.00
L49	32.5 - 27.5	0.96	39	0.28	0.00
L50	27.5 - 24	0.69	39	0.23	0.00
L51	24 - 23.75	0.53	39	0.20	0.00
L52	23.75 - 18.75	0.52	39	0.20	0.00
L53	18.75 - 14.25	0.33	39	0.16	0.00
L54	14.25 - 14	0.19	39	0.13	0.00
L55	14 - 12.75	0.18	39	0.13	0.00
L56	12.75 - 12.5	0.15	39	0.12	0.00
L57	12.5 - 7.5	0.15	39	0.11	0.00
L58	7.5 - 5	0.05	39	0.07	0.00
L59	5 - 4.75	0.02	39	0.04	0.00
L60	4.75 - 4.5	0.02	39	0.04	0.00
L61	4.5 - 0	0.02	39	0.04	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
125.000	VHLP2-11	39	13.16	0.97	0.01	21713
123.000	PX2F-52	39	13.16	0.97	0.01	21713
122.000	APXVTM14-ALU-I20 w/ Mount	39	13.16	0.97	0.01	21713

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Elevation <i>ft</i>	Appurtenance	Gov. Load Comb.	Deflection <i>in</i>	Tilt °	Twist °	Radius of Curvature <i>ft</i>
	Pipe					
120.000	Pipe 6" x 10'	39	13.16	0.97	0.01	21713
113.000	BXA-171063/8CF w/ Mount Pipe	39	11.75	0.96	0.01	15681
105.000	AIR 32 B2a/B66Aa w/ Mount Pipe	39	10.17	0.91	0.01	7139
97.000	DC6-48-60-18-8F	39	8.70	0.84	0.01	6038
96.000	7770.00 w/ Mount Pipe	39	8.52	0.83	0.01	5947
75.000	ACUTIME 2000	39	5.26	0.68	0.00	8282

Maximum Tower Deflections - Design Wind

Section No.	Elevation <i>ft</i>	Horz. Deflection <i>in</i>	Gov. Load Comb.	Tilt °	Twist °
L1	120 - 115	61.55	2	4.54	0.05
L2	115 - 110	56.81	2	4.51	0.04
L3	110 - 105	52.13	2	4.42	0.04
L4	105 - 100	47.58	14	4.28	0.04
L5	100 - 99.25	43.22	14	4.06	0.03
L6	99.25 - 99	42.58	14	4.02	0.03
L7	99 - 94	42.37	14	4.01	0.03
L8	94 - 90.08	38.28	14	3.80	0.02
L9	90.08 - 89.83	35.24	14	3.60	0.02
L10	89.83 - 89.5	35.06	14	3.59	0.02
L11	89.5 - 89.25	34.81	14	3.57	0.02
L12	89.25 - 84.25	34.62	14	3.57	0.02
L13	84.25 - 78	30.97	14	3.41	0.02
L14	81.75 - 77	29.21	14	3.33	0.02
L15	77 - 76.75	25.94	14	3.23	0.01
L16	76.75 - 76.5	25.77	14	3.22	0.01
L17	76.5 - 75.5	25.60	14	3.22	0.01
L18	75.5 - 75.25	24.93	14	3.19	0.01
L19	75.25 - 74.5	24.77	14	3.18	0.01
L20	74.5 - 74.25	24.27	14	3.15	0.01
L21	74.25 - 72	24.11	14	3.14	0.01
L22	72 - 71.75	22.64	14	3.06	0.01
L23	71.75 - 70.5	22.48	14	3.05	0.01
L24	70.5 - 70.25	21.69	14	3.00	0.01
L25	70.25 - 70	21.54	14	2.99	0.01
L26	70 - 69.75	21.38	14	2.98	0.01
L27	69.75 - 69.5	21.22	14	2.97	0.01
L28	69.5 - 69.25	21.07	14	2.97	0.01
L29	69.25 - 64.25	20.91	14	2.96	0.01
L30	64.25 - 59.25	17.93	14	2.75	0.01
L31	59.25 - 56	15.16	14	2.53	0.01
L32	56 - 55.75	13.49	14	2.38	0.01
L33	55.75 - 55.5	13.37	14	2.37	0.01
L34	55.5 - 55.25	13.24	14	2.36	0.01
L35	55.25 - 54	13.12	14	2.35	0.01
L36	54 - 53.75	12.51	14	2.31	0.01
L37	53.75 - 53.5	12.39	14	2.30	0.01
L38	53.5 - 53.25	12.27	14	2.29	0.01
L39	53.25 - 53	12.15	14	2.27	0.01
L40	53 - 48	12.03	14	2.26	0.01
L41	48 - 39.75	9.81	14	1.98	0.01
L42	44.5 - 38.75	8.43	14	1.79	0.01
L43	38.75 - 34.75	6.37	14	1.61	0.00

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L44	34.75 - 34.5	5.11	14	1.40	0.00
L45	34.5 - 33.75	5.03	14	1.39	0.00
L46	33.75 - 33.5	4.82	14	1.35	0.00
L47	33.5 - 32.75	4.75	14	1.34	0.00
L48	32.75 - 32.5	4.54	14	1.30	0.00
L49	32.5 - 27.5	4.47	14	1.29	0.00
L50	27.5 - 24	3.23	14	1.09	0.00
L51	24 - 23.75	2.48	14	0.95	0.00
L52	23.75 - 18.75	2.43	14	0.95	0.00
L53	18.75 - 14.25	1.53	14	0.76	0.00
L54	14.25 - 14	0.89	14	0.60	0.00
L55	14 - 12.75	0.86	14	0.59	0.00
L56	12.75 - 12.5	0.71	14	0.55	0.00
L57	12.5 - 7.5	0.68	14	0.54	0.00
L58	7.5 - 5	0.24	14	0.31	0.00
L59	5 - 4.75	0.10	14	0.20	0.00
L60	4.75 - 4.5	0.09	14	0.19	0.00
L61	4.5 - 0	0.08	14	0.18	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
125.000	VHLP2-11	2	61.55	4.54	0.05	4834
123.000	PX2F-52	2	61.55	4.54	0.05	4834
122.000	APXVTM14-ALU-I20 w/ Mount	2	61.55	4.54	0.05	4834
120.000	Pipe Pipe 6" x 10'	2	61.55	4.54	0.05	4834
113.000	BXA-171063/8CF w/ Mount Pipe	2	54.93	4.48	0.04	3459
105.000	AIR 32 B2a/B66Aa w/ Mount Pipe	14	47.58	4.28	0.04	1545
97.000	DC6-48-60-18-8F	14	40.71	3.94	0.03	1302
96.000	7770.00 w/ Mount Pipe	14	39.89	3.90	0.02	1281
75.000	ACUTIME 2000	14	24.60	3.17	0.01	1779

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
L1	120 - 115 (1)	TP23.0102x22x0.25	5.000	0.000	0.0	18.3220	-3.72	1243.21	0.003
L2	115 - 110 (2)	TP24.0205x23.0102x0.25	5.000	0.000	0.0	19.1352	-6.89	1280.35	0.005
L3	110 - 105 (3)	TP25.0307x24.0205x0.25	5.000	0.000	0.0	19.9485	-7.40	1315.96	0.006
L4	105 - 100 (4)	TP26.041x25.0307x0.25	5.000	0.000	0.0	20.7617	-11.95	1350.03	0.009
L5	100 - 99.25 (5)	TP26.1925x26.041x0.25	0.750	0.000	0.0	20.8837	-12.05	1355.01	0.009
L6	99.25 - 99 (6)	TP26.243x26.1925x0.3625	0.250	0.000	0.0	30.2090	-12.10	2055.42	0.006
L7	99 - 94 (7)	TP27.2532x26.243x0.3563	5.000	0.000	0.0	30.8542	-16.71	2099.32	0.008
L8	94 - 90.08 (8)	TP28.0453x27.2532x0.35	3.920	0.000	0.0	31.2126	-17.55	2123.70	0.008

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
L9	90.08 - 89.83 (9)	TP28.0958x28.0453x0.5125	0.250	0.000	0.0	45.5193	-17.62	3097.13	0.006
L10	89.83 - 89.5 (10)	TP28.1625x28.0958x0.5125	0.330	0.000	0.0	45.6293	-17.70	3104.62	0.006
L11	89.5 - 89.25 (11)	TP28.213x28.1625x0.725	0.250	0.000	0.0	64.1707	-17.78	4366.17	0.004
L12	89.25 - 84.25 (12)	TP29.2232x28.213x0.7	5.000	0.000	0.0	64.2913	-19.23	4374.38	0.004
L13	84.25 - 78 (13)	TP30.486x29.2232x0.7	6.250	0.000	0.0	65.4298	-19.98	4451.85	0.004
L14	78 - 77 (14)	TP30.188x29.2283x0.8625	4.750	0.000	0.0	81.4443	-22.70	5541.47	0.004
L15	77 - 76.75 (15)	TP30.2385x30.188x0.8625	0.250	0.000	0.0	81.5846	-22.80	5551.01	0.004
L16	76.75 - 76.5 (16)	TP30.289x30.2385x0.9625	0.250	0.000	0.0	90.8903	-22.91	6184.17	0.004
L17	76.5 - 75.5 (17)	TP30.4911x30.289x0.9625	1.000	0.000	0.0	91.5164	-23.31	6226.78	0.004
L18	75.5 - 75.25 (18)	TP30.5416x30.4911x0.7625	0.250	0.000	0.0	73.1151	-23.41	4974.75	0.005
L19	75.25 - 74.5 (19)	TP30.6931x30.5416x0.7625	0.750	0.000	0.0	73.4871	-23.76	5000.06	0.005
L20	74.5 - 74.25 (20)	TP30.7436x30.6931x0.8375	0.250	0.000	0.0	80.6493	-23.86	5487.38	0.004
L21	74.25 - 72 (21)	TP31.1982x30.7436x0.825	2.250	0.000	0.0	80.6864	-24.58	5489.91	0.004
L22	72 - 71.75 (22)	TP31.2487x31.1982x0.7625	0.250	0.000	0.0	74.8513	-24.69	5092.88	0.005
L23	71.75 - 70.5 (23)	TP31.5013x31.2487x0.7625	1.250	0.000	0.0	75.4714	-25.17	5135.07	0.005
L24	70.5 - 70.25 (24)	TP31.5518x31.5013x0.7875	0.250	0.000	0.0	78.0105	-25.28	5307.84	0.005
L25	70.25 - 70 (25)	TP31.6023x31.5518x0.7875	0.250	0.000	0.0	78.1386	-25.38	5316.55	0.005
L26	70 - 69.75 (26)	TP31.6528x31.6023x0.725	0.250	0.000	0.0	72.2010	-25.48	4912.55	0.005
L27	69.75 - 69.5 (27)	TP31.7033x31.6528x0.875	0.250	0.000	0.0	86.8588	-25.59	5909.87	0.004
L28	69.5 - 69.25 (28)	TP31.7538x31.7033x0.75	0.250	0.000	0.0	74.8742	-25.68	5094.44	0.005
L29	69.25 - 64.25 (29)	TP32.764x31.7538x0.7375	5.000	0.000	0.0	76.0550	-27.50	5174.78	0.005
L30	64.25 - 59.25 (30)	TP33.7742x32.764x0.7125	5.000	0.000	0.0	75.8519	-29.37	5160.96	0.006
L31	59.25 - 56 (31)	TP34.4309x33.7742x0.7125	3.250	0.000	0.0	77.3583	-30.60	5263.46	0.006
L32	56 - 55.75 (32)	TP34.4814x34.4309x0.8125	0.250	0.000	0.0	88.0862	-30.73	5993.38	0.005
L33	55.75 - 55.5 (33)	TP34.5319x34.4814x0.8125	0.250	0.000	0.0	88.2183	-30.84	6002.37	0.005
L34	55.5 - 55.25 (34)	TP34.5824x34.5319x0.8875	0.250	0.000	0.0	96.2915	-30.95	6551.68	0.005
L35	55.25 - 54 (35)	TP34.8349x34.5824x0.875	1.250	0.000	0.0	95.6821	-31.50	6510.21	0.005
L36	54 - 53.75 (36)	TP34.8854x34.8349x0.75	0.250	0.000	0.0	82.4371	-31.62	5609.02	0.006
L37	53.75 - 53.5 (37)	TP34.936x34.8854x0.7375	0.250	0.000	0.0	81.2128	-31.73	5525.72	0.006
L38	53.5 - 53.25 (38)	TP34.9865x34.936x0.6625	0.250	0.000	0.0	73.2216	-31.83	4982.00	0.006
L39	53.25 - 53 (39)	TP35.037x34.9865x0.6	0.250	0.000	0.0	66.5322	-31.92	4526.85	0.007
L40	53 - 48 (40)	TP36.0472x35.037x0.5875	5.000	0.000	0.0	67.0808	-33.81	4564.18	0.007
L41	48 - 39.75 (41)	TP37.714x36.0472x0.5875	8.250	0.000	0.0	68.4186	-35.16	4655.20	0.008
L42	39.75 - 38.75 (42)	TP37.291x36.1293x0.6625	5.750	0.000	0.0	78.1378	-38.79	5316.50	0.007
L43	38.75 - 34.75 (43)	TP38.0992x37.291x0.6625	4.000	0.000	0.0	79.8618	-40.38	5433.80	0.007
L44	34.75 - 34.5 (44)	TP38.1497x38.0992x0.825	0.250	0.000	0.0	99.1530	-40.52	6746.37	0.006
L45	34.5 - 33.75 (45)	TP38.3012x38.1497x0.825	0.750	0.000	0.0	99.5556	-40.87	6773.76	0.006
L46	33.75 - 33.5	TP38.3517x38.3012x0.625	0.250	0.000	0.0	75.9250	-40.98	5165.94	0.008

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
L47	33.5 - 32.75 (46)	TP38.5033x38.3517x0.625	0.750	0.000	0.0	76.2300	-41.27	5186.69	0.008
L48	32.75 - 32.5 (47)	TP38.5538x38.5033x0.925	0.250	0.000	0.0	112.077	-41.42	7625.74	0.005
L49	32.5 - 27.5 (49) (48)	TP39.564x38.5538x0.9	5.000	0.000	0.0	112.048	-44.05	7623.76	0.006
L50	27.5 - 24 (50)	TP40.2711x39.564x0.9	3.500	0.000	0.0	114.097	-45.91	7763.19	0.006
L51	24 - 23.75 (51)	TP40.3216x40.2711x1	0.250	0.000	0.0	126.616	-46.07	8614.92	0.005
L52	23.75 - 18.75 (52)	TP41.3318x40.3216x0.975	5.000	0.000	0.0	126.700	-48.84	8620.68	0.006
L53	18.75 - 14.25 (53)	TP42.241x41.3318x0.975	4.500	0.000	0.0	129.554	-51.37	8814.89	0.006
L54	14.25 - 14 (54)	TP42.2915x42.241x1	0.250	0.000	0.0	132.959	-51.54	9046.50	0.006
L55	14 - 12.75 (55)	TP42.544x42.2915x0.9875	1.250	0.000	0.0	132.139	-52.29	8990.76	0.006
L56	12.75 - 12.5 (56)	TP42.5945x42.544x0.775	0.250	0.000	0.0	104.361	-52.43	7100.70	0.007
L57	12.5 - 7.5 (57)	TP43.6047x42.5945x0.7625	5.000	0.000	0.0	105.188	-54.89	7157.02	0.008
L58	7.5 - 5 (58)	TP44.1098x43.6047x0.75	2.500	0.000	0.0	104.714	-56.13	7124.74	0.008
L59	5 - 4.75 (59)	TP44.1603x44.1098x0.9125	0.250	0.000	0.0	127.073	-56.29	8646.04	0.007
L60	4.75 - 4.5 (60)	TP44.2108x44.1603x0.875	0.250	0.000	0.0	122.099	-56.42	8307.60	0.007
L61	4.5 - 0 (61)	TP45.12x44.2108x0.8625	4.500	0.000	0.0	122.914	-58.80	8363.08	0.007

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M _{uy} kip-ft	φM _{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
L1	120 - 115 (1)	TP23.0102x22x0.25	49.29	574.71	0.086	0.00	574.71	0.000
L2	115 - 110 (2)	TP24.0205x23.0102x0.25	118.19	618.44	0.191	0.00	618.44	0.000
L3	110 - 105 (3)	TP25.0307x24.0205x0.25	198.75	662.94	0.300	0.00	662.94	0.000
L4	105 - 100 (4)	TP26.041x25.0307x0.25	320.21	708.11	0.452	0.00	708.11	0.000
L5	100 - 99.25 (5)	TP26.1925x26.041x0.25	337.58	714.93	0.472	0.00	714.93	0.000
L6	99.25 - 99 (6)	TP26.243x26.1925x0.3625	343.40	1077.22	0.319	0.00	1077.22	0.000
L7	99 - 94 (7)	TP27.2532x26.243x0.3563	481.33	1144.31	0.421	0.00	1144.31	0.000
L8	94 - 90.08 (8)	TP28.0453x27.2532x0.35	600.95	1192.67	0.504	0.00	1192.67	0.000
L9	90.08 - 89.83 (9)	TP28.0958x28.0453x0.5125	608.67	1722.21	0.353	0.00	1722.21	0.000
L10	89.83 - 89.5 (10)	TP28.1625x28.0958x0.5125	618.88	1730.62	0.358	0.00	1730.62	0.000
L11	89.5 - 89.25 (11)	TP28.213x28.1625x0.725	626.63	2401.11	0.261	0.00	2401.11	0.000
L12	89.25 - 84.25 (12)	TP29.2232x28.213x0.7	784.20	2500.69	0.314	0.00	2500.69	0.000
L13	84.25 - 78 (13)	TP30.486x29.2232x0.7	864.81	2591.13	0.334	0.00	2591.13	0.000
L14	78 - 77 (14)	TP30.188x29.2283x0.8625	1021.64	3241.57	0.315	0.00	3241.57	0.000
L15	77 - 76.75 (15)	TP30.2385x30.188x0.8625	1030.03	3252.92	0.317	0.00	3252.92	0.000

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	Client	Crown Castle	Designed by	gpalmieri

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{rx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{rx}}$	M_{uy} kip-ft	ϕM_{ry} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ry}}$
L16	76.75 - 76.5 (16)	TP30.289x30.2385x0.9625	1038.43	3605.72	0.288	0.00	3605.72	0.000
L17	76.5 - 75.5 (17)	TP30.4911x30.289x0.9625	1072.16	3656.38	0.293	0.00	3656.38	0.000
L18	75.5 - 75.25 (18)	TP30.5416x30.4911x0.7625	1080.62	2966.04	0.364	0.00	2966.04	0.000
L19	75.25 - 74.5 (19)	TP30.6931x30.5416x0.7625	1106.14	2996.68	0.369	0.00	2996.68	0.000
L20	74.5 - 74.25 (20)	TP30.7436x30.6931x0.8375	1114.68	3277.97	0.340	0.00	3277.97	0.000
L21	74.25 - 72 (21)	TP31.1982x30.7436x0.825	1192.42	3333.43	0.358	0.00	3333.43	0.000
L22	72 - 71.75 (22)	TP31.2487x31.1982x0.7625	1201.23	3110.38	0.386	0.00	3110.38	0.000
L23	71.75 - 70.5 (23)	TP31.5013x31.2487x0.7625	1245.51	3162.76	0.394	0.00	3162.76	0.000
L24	70.5 - 70.25 (24)	TP31.5518x31.5013x0.7875	1254.40	3269.36	0.384	0.00	3269.36	0.000
L25	70.25 - 70 (25)	TP31.6023x31.5518x0.7875	1263.31	3280.23	0.385	0.00	3280.23	0.000
L26	70 - 69.75 (26)	TP31.6528x31.6023x0.725	1272.23	3048.38	0.417	0.00	3048.38	0.000
L27	69.75 - 69.5 (27)	TP31.7033x31.6528x0.875	1281.17	3637.88	0.352	0.00	3637.88	0.000
L28	69.5 - 69.25 (28)	TP31.7538x31.7033x0.75	1290.12	3166.69	0.407	0.00	3166.69	0.000
L29	69.25 - 64.25 (29)	TP32.764x31.7538x0.7375	1471.86	3326.52	0.442	0.00	3326.52	0.000
L30	64.25 - 59.25 (30)	TP33.7742x32.764x0.7125	1658.81	3429.82	0.484	0.00	3429.82	0.000
L31	59.25 - 56 (31)	TP34.4309x33.7742x0.7125	1783.09	3568.88	0.500	0.00	3568.88	0.000
L32	56 - 55.75 (32)	TP34.4814x34.4309x0.8125	1792.74	4045.94	0.443	0.00	4045.94	0.000
L33	55.75 - 55.5 (33)	TP34.5319x34.4814x0.8125	1802.40	4058.23	0.444	0.00	4058.23	0.000
L34	55.5 - 55.25 (34)	TP34.5824x34.5319x0.8875	1812.08	4416.73	0.410	0.00	4416.73	0.000
L35	55.25 - 54 (35)	TP34.8349x34.5824x0.875	1860.66	4425.77	0.420	0.00	4425.77	0.000
L36	54 - 53.75 (36)	TP34.8854x34.8349x0.75	1870.41	3847.06	0.486	0.00	3847.06	0.000
L37	53.75 - 53.5 (37)	TP34.936x34.8854x0.7375	1880.18	3798.43	0.495	0.00	3798.43	0.000
L38	53.5 - 53.25 (38)	TP34.9865x34.936x0.6625	1889.96	3444.88	0.549	0.00	3444.88	0.000
L39	53.25 - 53 (39)	TP35.037x34.9865x0.6	1899.75	3146.26	0.604	0.00	3146.26	0.000
L40	53 - 48 (40)	TP36.0472x35.037x0.5875	2098.19	3269.16	0.642	0.00	3269.16	0.000
L41	48 - 39.75 (41)	TP37.714x36.0472x0.5875	2240.05	3401.93	0.658	0.00	3401.93	0.000
L42	39.75 - 38.75 (42)	TP37.291x36.1293x0.6625	2478.85	3927.67	0.631	0.00	3927.67	0.000
L43	38.75 - 34.75 (43)	TP38.0992x37.291x0.6625	2649.02	4104.48	0.645	0.00	4104.48	0.000
L44	34.75 - 34.5 (44)	TP38.1497x38.0992x0.825	2659.76	5058.79	0.526	0.00	5058.79	0.000
L45	34.5 - 33.75 (45)	TP38.3012x38.1497x0.825	2692.05	5100.39	0.528	0.00	5100.39	0.000
L46	33.75 - 33.5 (46)	TP38.3517x38.3012x0.625	2702.83	3936.75	0.687	0.00	3936.75	0.000
L47	33.5 - 32.75 (47)	TP38.5033x38.3517x0.625	2735.27	3968.69	0.689	0.00	3968.69	0.000
L48	32.75 - 32.5 (48)	TP38.5538x38.5033x0.925	2746.10	5750.82	0.478	0.00	5750.82	0.000
L49	32.5 - 27.5 (49)	TP39.564x38.5538x0.9	2965.38	5915.02	0.501	0.00	5915.02	0.000
L50	27.5 - 24 (50)	TP40.2711x39.564x0.9	3121.78	6135.87	0.509	0.00	6135.87	0.000
L51	24 - 23.75 (51)	TP40.3216x40.2711x1	3133.04	6783.45	0.462	0.00	6783.45	0.000
L52	23.75 - 18.75 (52)	TP41.3318x40.3216x0.975	3360.69	6975.34	0.482	0.00	6975.34	0.000
L53	18.75 - 14.25	TP42.241x41.3318x0.975	3569.44	7296.96	0.489	0.00	7296.96	0.000

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Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{rx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{rx}}$	M_{uy} kip-ft	ϕM_{ry} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ry}}$
	(53)							
L54	14.25 - 14 (54)	TP42.2915x42.241x1	3581.14	7488.99	0.478	0.00	7488.99	0.000
L55	14 - 12.75 (55)	TP42.544x42.2915x0.9875	3639.81	7493.96	0.486	0.00	7493.96	0.000
L56	12.75 - 12.5	TP42.5945x42.544x0.775	3651.57	5986.60	0.610	0.00	5986.60	0.000
	(56)							
L57	12.5 - 7.5 (57)	TP43.6047x42.5945x0.7625	3889.03	6186.11	0.629	0.00	6186.11	0.000
L58	7.5 - 5 (58)	TP44.1098x43.6047x0.75	4009.29	6235.67	0.643	0.00	6235.67	0.000
L59	5 - 4.75 (59)	TP44.1603x44.1098x0.9125	4021.38	7519.49	0.535	0.00	7519.49	0.000
L60	4.75 - 4.5 (60)	TP44.2108x44.1603x0.875	4033.47	7246.29	0.557	0.00	7246.29	0.000
L61	4.5 - 0 (61)	TP45.12x44.2108x0.8625	4252.93	7454.97	0.570	0.00	7454.97	0.000

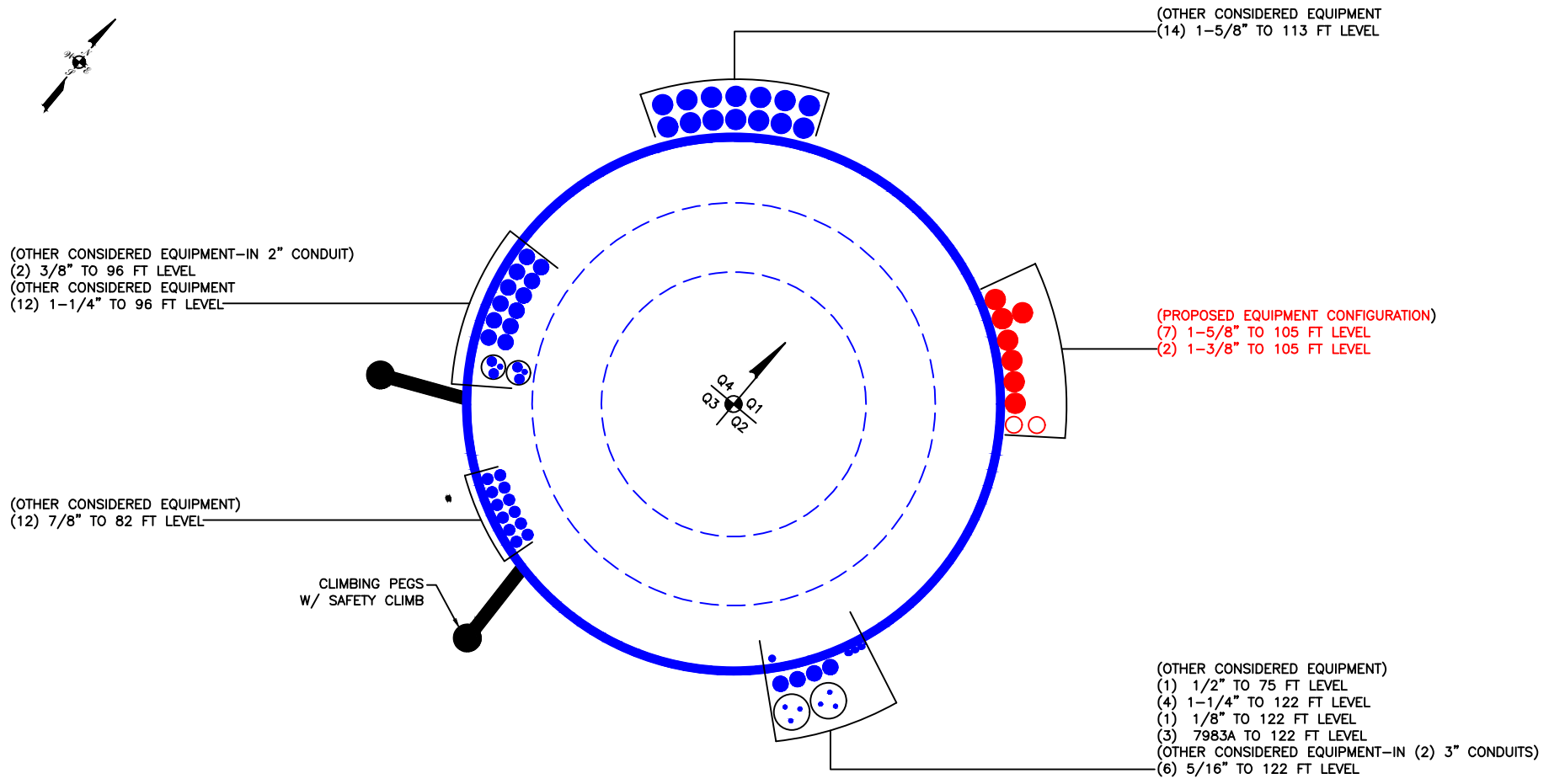
Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	120 - 115 (1)	TP23.0102x22x0.25	7.68	621.61	0.012	2.80	1169.68	0.002
L2	115 - 110 (2)	TP24.0205x23.0102x0.25	15.83	640.18	0.025	3.44	1258.47	0.003
L3	110 - 105 (3)	TP25.0307x24.0205x0.25	16.39	657.98	0.025	3.44	1348.82	0.003
L4	105 - 100 (4)	TP26.041x25.0307x0.25	23.09	675.02	0.034	6.86	1440.53	0.005
L5	100 - 99.25 (5)	TP26.1925x26.041x0.25	23.22	677.51	0.034	6.87	1454.39	0.005
L6	99.25 - 99 (6)	TP26.243x26.1925x0.3625	23.26	1027.71	0.023	6.87	2194.61	0.003
L7	99 - 94 (7)	TP27.2532x26.243x0.3563	30.16	1049.66	0.029	6.77	2330.68	0.003
L8	94 - 90.08 (8)	TP28.0453x27.2532x0.35	30.86	1061.85	0.029	6.83	2428.69	0.003
L9	90.08 - 89.83	TP28.0958x28.0453x0.5125	30.90	1548.57	0.020	6.83	3513.94	0.002
	(9)							
L10	89.83 - 89.5	TP28.1625x28.0958x0.5125	30.96	1552.31	0.020	6.84	3531.05	0.002
	(10)							
L11	89.5 - 89.25	TP28.213x28.1625x0.725	31.01	2183.09	0.014	6.84	4911.71	0.001
	(11)							
L12	89.25 - 84.25	TP29.2232x28.213x0.7	31.99	2187.19	0.015	6.92	5112.35	0.001
	(12)							
L13	84.25 - 78 (13)	TP30.486x29.2232x0.7	32.48	2225.92	0.015	6.96	5296.49	0.001
L14	78 - 77 (14)	TP30.188x29.2283x0.8625	33.52	2770.73	0.012	7.03	6637.52	0.001
L15	77 - 76.75 (15)	TP30.2385x30.188x0.8625	33.56	2775.51	0.012	7.04	6660.63	0.001
L16	76.75 - 76.5	TP30.289x30.2385x0.9625	33.61	3092.09	0.011	7.04	7391.32	0.001
	(16)							
L17	76.5 - 75.5 (17)	TP30.4911x30.289x0.9625	33.82	3113.39	0.011	7.06	7494.59	0.001
L18	75.5 - 75.25	TP30.5416x30.4911x0.7625	33.87	2487.38	0.014	7.06	6065.81	0.001
	(18)							
L19	75.25 - 74.5	TP30.6931x30.5416x0.7625	34.11	2500.03	0.014	7.12	6128.22	0.001
	(19)							
L20	74.5 - 74.25	TP30.7436x30.6931x0.8375	34.16	2743.69	0.012	7.13	6708.97	0.001
	(20)							
L21	74.25 - 72 (21)	TP31.1982x30.7436x0.825	35.22	2744.95	0.013	2.99	6820.62	0.000
L22	72 - 71.75 (22)	TP31.2487x31.1982x0.7625	35.26	2546.44	0.014	2.98	6359.76	0.000
L23	71.75 - 70.5	TP31.5013x31.2487x0.7625	35.54	2567.54	0.014	2.98	6466.42	0.000
	(23)							
L24	70.5 - 70.25	TP31.5518x31.5013x0.7875	35.58	2653.92	0.013	2.98	6686.09	0.000
	(24)							
L25	70.25 - 70 (25)	TP31.6023x31.5518x0.7875	35.64	2658.28	0.013	2.97	6708.25	0.000
L26	70 - 69.75 (26)	TP31.6528x31.6023x0.725	35.69	2456.28	0.015	2.97	6229.77	0.000
L27	69.75 - 69.5	TP31.7033x31.6528x0.875	35.75	2954.94	0.012	2.97	7446.50	0.000
	(27)							
L28	69.5 - 69.25	TP31.7538x31.7033x0.75	35.80	2547.22	0.014	2.97	6473.17	0.000
	(28)							

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	Client	Crown Castle	Designed by	gpalmeri

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L29	69.25 - 64.25 (29)	TP32.764x31.7538x0.7375	36.91	2587.39	0.014	2.89	6797.27	0.000
L30	64.25 - 59.25 (30)	TP33.7742x32.764x0.7125	37.95	2580.48	0.015	2.87	7004.95	0.000
L31	59.25 - 56 (31)	TP34.4309x33.7742x0.7125	38.61	2631.73	0.015	2.85	7287.95	0.000
L32	56 - 55.75 (32)	TP34.4814x34.4309x0.8125	38.66	2996.69	0.013	2.85	8270.31	0.000
L33	55.75 - 55.5 (33)	TP34.5319x34.4814x0.8125	38.71	3001.19	0.013	2.85	8295.33	0.000
L34	55.5 - 55.25 (34)	TP34.5824x34.5319x0.8875	38.76	3275.84	0.012	2.84	9034.75	0.000
L35	55.25 - 54 (35)	TP34.8349x34.5824x0.875	39.03	3255.11	0.012	2.84	9051.58	0.000
L36	54 - 53.75 (36)	TP34.8854x34.8349x0.75	39.08	2804.51	0.014	2.84	7858.20	0.000
L37	53.75 - 53.5 (37)	TP34.936x34.8854x0.7375	39.13	2762.86	0.014	2.84	7757.82	0.000
L38	53.5 - 53.25 (38)	TP34.9865x34.936x0.6625	39.18	2491.00	0.016	2.84	7030.49	0.000
L39	53.25 - 53 (39)	TP35.037x34.9865x0.6	39.23	2263.43	0.017	2.83	6417.07	0.000
L40	53 - 48 (40)	TP36.0472x35.037x0.5875	40.23	2282.09	0.018	2.81	6665.85	0.000
L41	48 - 39.75 (41)	TP37.714x36.0472x0.5875	40.93	2327.60	0.018	2.80	6935.82	0.000
L42	39.75 - 38.75 (42)	TP37.291x36.1293x0.6625	42.20	2658.25	0.016	2.77	8012.59	0.000
L43	38.75 - 34.75 (43)	TP38.0992x37.291x0.6625	42.98	2716.90	0.016	2.75	8372.17	0.000
L44	34.75 - 34.5 (44)	TP38.1497x38.0992x0.825	43.01	3373.19	0.013	2.74	10333.83	0.000
L45	34.5 - 33.75 (45)	TP38.3012x38.1497x0.825	43.17	3386.88	0.013	2.74	10418.50	0.000
L46	33.75 - 33.5 (46)	TP38.3517x38.3012x0.625	43.21	2582.97	0.017	2.73	8027.07	0.000
L47	33.5 - 32.75 (47)	TP38.5033x38.3517x0.625	43.36	2593.34	0.017	2.73	8092.03	0.000
L48	32.75 - 32.5 (48)	TP38.5538x38.5033x0.925	43.40	3812.87	0.011	2.73	11757.00	0.000
L49	32.5 - 27.5 (49)	TP39.564x38.5538x0.9	44.40	3811.88	0.012	2.71	12087.50	0.000
L50	27.5 - 24 (50)	TP40.2711x39.564x0.9	45.07	3881.59	0.012	2.69	12537.08	0.000
L51	24 - 23.75 (51)	TP40.3216x40.2711x1	45.10	4307.46	0.010	2.69	13871.92	0.000
L52	23.75 - 18.75 (52)	TP41.3318x40.3216x0.975	46.04	4310.34	0.011	2.66	14258.42	0.000
L53	18.75 - 14.25 (53)	TP42.241x41.3318x0.975	46.84	4407.44	0.011	2.64	14913.25	0.000
L54	14.25 - 14 (54)	TP42.2915x42.241x1	46.86	4523.25	0.010	2.64	15308.67	0.000
L55	14 - 12.75 (55)	TP42.544x42.2915x0.9875	47.10	4495.38	0.010	2.64	15316.58	0.000
L56	12.75 - 12.5 (56)	TP42.5945x42.544x0.775	47.12	3550.35	0.013	2.63	12214.67	0.000
L57	12.5 - 7.5 (57)	TP43.6047x42.5945x0.7625	47.95	3578.51	0.013	2.61	12618.67	0.000
L58	7.5 - 5 (58)	TP44.1098x43.6047x0.75	48.37	3562.37	0.014	2.60	12717.67	0.000
L59	5 - 4.75 (59)	TP44.1603x44.1098x0.9125	48.39	4323.02	0.011	2.60	15355.33	0.000
L60	4.75 - 4.5 (60)	TP44.2108x44.1603x0.875	48.43	4153.80	0.012	2.59	14793.00	0.000
L61	4.5 - 0 (61)	TP45.12x44.2108x0.8625	49.20	4181.54	0.012	2.58	15215.42	0.000

APPENDIX B
BASE LEVEL DRAWING



BUSINESS UNIT: 876320 TOWER ID: C_BASELEVEL

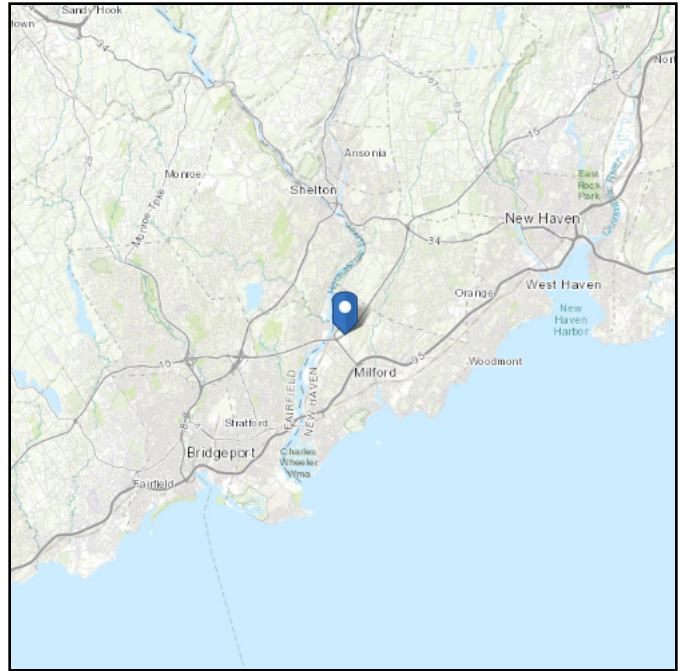
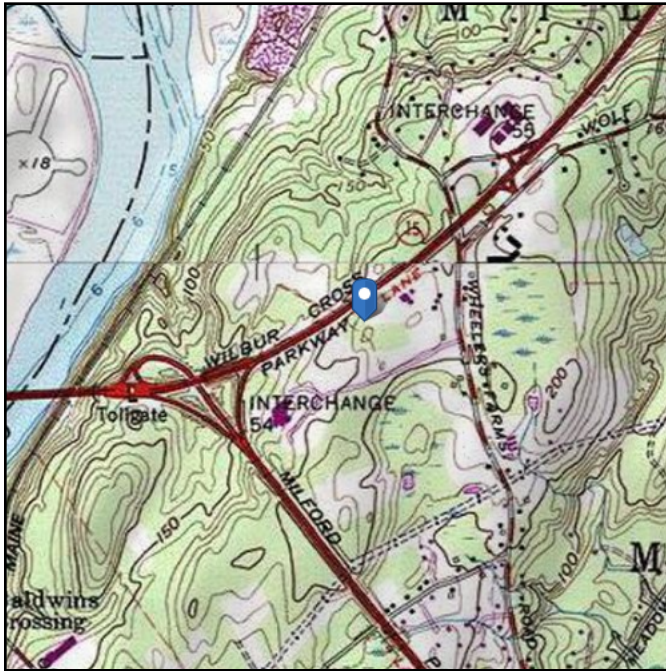
APPENDIX C
ADDITIONAL CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 212.97 ft (NAVD 88)
Latitude: 41.248431
Longitude: -73.079075



Wind

Results:

Wind Speed:	124 Vmph	*Milford, CT Requires 125 mph Vult
10-year MRI	77 Vmph	
25-year MRI	87 Vmph	
50-year MRI	93 Vmph	
100-year MRI	100 Vmph	

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

Date Accessed: Tue Sep 18 2018

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).

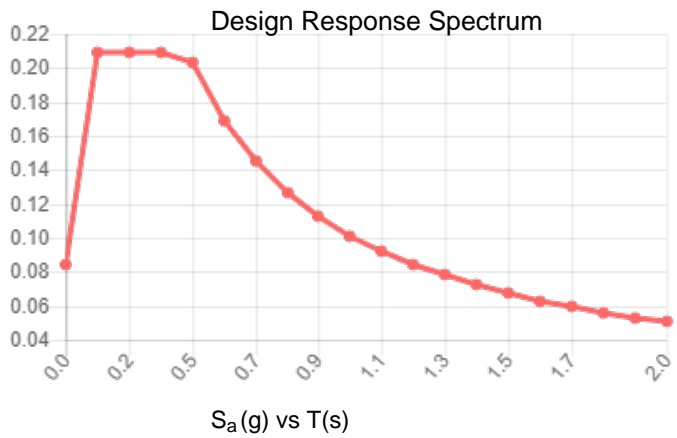
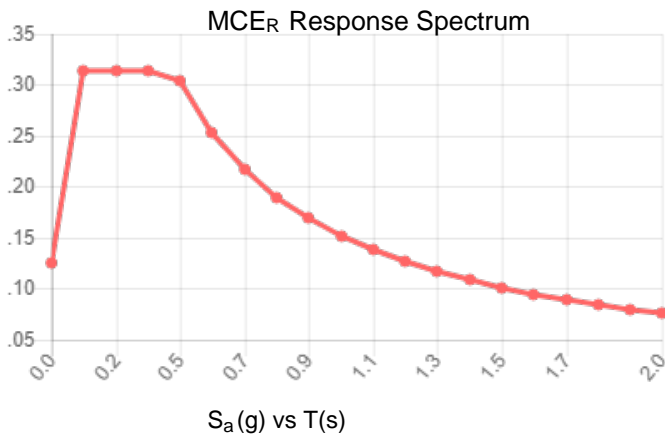
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_S :	0.196	S_{DS} :	0.209
S_1 :	0.063	S_{D1} :	0.101
F_a :	1.600	T_L :	6.000
F_v :	2.400	PGA :	0.104
S_{MS} :	0.314	PGA _M :	0.166
S_{M1} :	0.152	F _{PGA} :	1.591
		I_e :	1

Seismic Design Category B



Data Accessed:

Tue Sep 18 2018

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: Tue Sep 18 2018

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.

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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	120	42	3.75	12	22	30.486	0.25	Auto	A607-60
2	81.75	42	4.75	12	29.23	37.714	0.3125	Auto	A607-60
3	44.5	44.5	0	12	36.13	45.12	0.375	Auto	A607-60

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12
1	0	4.75	plate	(TS) 1.25x4.00 (65 ksi)	3			x		x						x	
2	0	24	channel	MP3-04 (1.25in)	4			x		x				x		x	
3	4.75	34.75	plate	PL 1" X 5"	4		3				-3		-4				-3.3
4	33.75	69.75	plate	PL 1" X 5"	4		-2.5				2.5		2.5				2.5
5	0	14.25	channel	MP3-03 (1.25in)	4		-1.8				1.5		0				1.8
6	24	44.25	channel	MP3-03 (1.25in)	4			x		x				x		x	
7	53.5	70.5	plate	CCI-SFP-045100	1											2.25	
8	53.25	72	plate	CCI-SFP-065125	1			x									
9	54	70	plate	CCI-AFP-045100	2					x				x			
10	69.5	89.5	plate	CCI-AFP-060100	2	x									x		
11	70	90.08	plate	CCI-AFP-045100	2					x				x			
12	44	56	plate	CCI-SFP-045100	3			3			-3		-3				
13	43.75	55.5	plate	CCI-SFP-045100	1				x								-3
14	74.5	99.25	plate	PL 1.25" X 4"	1				x								
15	75.5	99.25	plate	PL 1.25" X 4"	1						x						
16	75.5	99.25	plate	PL 1.25" X 4"	1												x
17	69.75	78.5	plate	PL 1.25" X 4"	2				x			x					
18	70	78.5	plate	PL 1.25" X 4"	1												-2
19	69.75	76.75	plate	PL 1.25" X 4"	1								-3				
20	12.75	32.75	plate	CCI-SFP-065125	4	x			x			x			x		
21	0	5	plate	(TS) 1.25x6.00 (65 ksi)	2							x			x		
22																	

Reinforcement Details

	B (in)	H (in)	Gross Area (in ²)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L _v (in)	Net Area (in ²)	Bolt Hole Size (in)	Reinforcement Material
1	1.25	4	5	8	n/a	n/a	6.000	5.000	0.0000	A572-65
2	4.78	1.61	4.13	0.61	17.000	17.000	18.000	3.566	1.2500	A572-65
3	5	1	5	0.5	27.000	27.000	18.000	3.750	1.1875	A572-65
4	5	1	5	0.5	27.000	27.000	18.000	3.750	1.1875	A572-65
5	4.06	1.57	2.92	0.59	14.000	14.000	18.000	2.526	1.2500	A572-65
6	4.06	1.57	2.92	0.59	14.000	14.000	18.000	2.526	1.2500	A572-65
7	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
8	6.5	1.25	8.125	0.625	33.000	33.000	19.000	6.563	1.1875	A572-65
9	4.5	1	4.5	0.5	24.000	24.000	20.000	3.250	1.1875	A572-65
10	6	1	6	0.5	30.000	30.000	16.000	4.750	1.1875	A572-65
11	4.5	1	4.5	0.5	24.000	24.000	20.000	3.250	1.1875	A572-65
12	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
13	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
14	4	1.25	5	0.625	18.000	18.000	27.000	3.438	1.1875	A572-65
15	4	1.25	5	0.625	18.000	18.000	27.000	3.438	1.1875	A572-65
16	4	1.25	5	0.625	18.000	18.000	27.000	3.438	1.1875	A572-65
17	4	1.25	5	0.625	18.000	18.000	27.000	3.438	1.1875	A572-65
18	4	1.25	5	0.625	18.000	18.000	27.000	3.438	1.1875	A572-65
19	4	1.25	5	0.625	18.000	18.000	27.000	3.438	1.1875	A572-65
20	6.5	1.25	8.125	0.625	33.000	33.000	19.000	6.563	1.1875	A572-65
21	1.25	5.25	6.5625	3.375	n/a	n/a	0.750	6.563	0.0000	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	120 - 115	5		12	22.000	23.010	0.25	A607-60	1.000
2	115 - 110	5		12	23.010	24.020	0.25	A607-60	1.000
3	110 - 105	5		12	24.020	25.031	0.25	A607-60	1.000
4	105 - 100	5		12	25.031	26.041	0.25	A607-60	1.000
5	100 - 99.25	0.75		12	26.041	26.192	0.25	A607-60	1.000
6	99.25 - 99	0.25		12	26.192	26.243	0.3625	A607-60	1.190
7	99 - 94	5		12	26.243	27.253	0.35625	A607-60	1.191
8	94 - 90.08	3.92		12	27.253	28.045	0.35	A607-60	1.198
9	90.08 - 89.83	0.25		12	28.045	28.096	0.5125	A607-60	1.020
10	89.83 - 89.5	0.33		12	28.096	28.162	0.5125	A607-60	1.019
11	89.5 - 89.25	0.25		12	28.162	28.213	0.725	A607-60	0.913
12	89.25 - 84.25	5		12	28.213	29.223	0.7	A607-60	0.924
13	84.25 - 81.75	6.25	3.75	12	29.223	30.486	0.7	A607-60	0.914
14	81.75 - 77	4.75		12	29.228	30.188	0.8625	A607-60	0.996
15	77 - 76.75	0.25		12	30.188	30.239	0.8625	A607-60	0.995
16	76.75 - 76.5	0.25		12	30.239	30.289	0.9625	A607-60	0.949
17	76.5 - 75.5	1		12	30.289	30.491	0.9625	A607-60	0.945
18	75.5 - 75.25	0.25		12	30.491	30.542	0.7625	A607-60	1.046
19	75.25 - 74.5	0.75		12	30.542	30.693	0.7625	A607-60	1.043
20	74.5 - 74.25	0.25		12	30.693	30.744	0.8375	A607-60	0.889
21	74.25 - 72	2.25		12	30.744	31.198	0.825	A607-60	0.894
22	72 - 71.75	0.25		12	31.198	31.249	0.7625	A607-60	1.073
23	71.75 - 70.5	1.25		12	31.249	31.501	0.7625	A607-60	1.068
24	70.5 - 70.25	0.25		12	31.501	31.552	0.7875	A607-60	1.091
25	70.25 - 70	0.25		12	31.552	31.602	0.7875	A607-60	1.090
26	70 - 69.75	0.25		12	31.602	31.653	0.725	A607-60	1.111
27	69.75 - 69.5	0.25		12	31.653	31.703	0.875	A607-60	0.982
28	69.5 - 69.25	0.25		12	31.703	31.754	0.75	A607-60	0.979
29	69.25 - 64.25	5		12	31.754	32.764	0.7375	A607-60	0.977
30	64.25 - 59.25	5		12	32.764	33.774	0.7125	A607-60	0.993
31	59.25 - 56	3.25		12	33.774	34.431	0.7125	A607-60	0.983
32	56 - 55.75	0.25		12	34.431	34.481	0.8125	A607-60	1.017
33	55.75 - 55.5	0.25		12	34.481	34.532	0.8125	A607-60	1.016
34	55.5 - 55.25	0.25		12	34.532	34.582	0.8875	A607-60	0.978
35	55.25 - 54	1.25		12	34.582	34.835	0.875	A607-60	0.987
36	54 - 53.75	0.25		12	34.835	34.885	0.75	A607-60	1.037
37	53.75 - 53.5	0.25		12	34.885	34.936	0.7375	A607-60	1.053
38	53.5 - 53.25	0.25		12	34.936	34.986	0.6625	A607-60	1.107
39	53.25 - 53	0.25		12	34.986	35.037	0.6	A607-60	1.097
40	53 - 48	5		12	35.037	36.047	0.5875	A607-60	1.103
41	48 - 44.5	8.25	4.75	12	36.047	37.714	0.5875	A607-60	1.092
42	44.5 - 38.75	5.75		12	36.129	37.291	0.6625	A607-60	0.976
43	38.75 - 34.75	4		12	37.291	38.099	0.6625	A607-60	0.968
44	34.75 - 34.5	0.25		12	38.099	38.150	0.825	A607-60	0.982
45	34.5 - 33.75	0.75		12	38.150	38.301	0.825	A607-60	0.980
46	33.75 - 33.5	0.25		12	38.301	38.352	0.625	A607-60	1.022
47	33.5 - 32.75	0.75		12	38.352	38.503	0.625	A607-60	1.020
48	32.75 - 32.5	0.25		12	38.503	38.554	0.925	A607-60	0.985
49	32.5 - 27.5	5		12	38.554	39.564	0.9	A607-60	0.996
50	27.5 - 24	3.5		12	39.564	40.271	0.9	A607-60	0.986
51	24 - 23.75	0.25		12	40.271	40.322	1	A607-60	0.927
52	23.75 - 18.75	5		12	40.322	41.332	0.975	A607-60	0.936
53	18.75 - 14.25	4.5		12	41.332	42.241	0.975	A607-60	0.924
54	14.25 - 14	0.25		12	42.241	42.291	1	A607-60	0.989
55	14 - 12.75	1.25		12	42.291	42.544	0.9875	A607-60	0.997
56	12.75 - 12.5	0.25		12	42.544	42.595	0.775	A607-60	0.951
57	12.5 - 7.5	5		12	42.595	43.605	0.7625	A607-60	0.955
58	7.5 - 5	2.5		12	43.605	44.110	0.75	A607-60	0.965
59	5 - 4.75	0.25		12	44.110	44.160	0.9125	A607-60	0.899
60	4.75 - 4.5	0.25		12	44.160	44.211	0.875	A607-60	0.895
61	4.5 - 0	4.5		12	44.211	45.120	0.8625	A607-60	0.898

TNX Section Forces

Increment (ft):		TNX Output		
5		P _u	M _{ux} (kip-ft)	V _u (K)
	Section Height (ft)	(K)		
1	120 - 115	3.72	49.29	7.68
2	115 - 110	6.89	118.19	15.83
3	110 - 105	7.40	198.75	16.39
4	105 - 100	11.95	320.21	23.09
5	100 - 99.25	12.05	337.58	23.22
6	99.25 - 99	12.10	343.40	23.26
7	99 - 94	16.71	481.33	30.16
8	94 - 90.08	17.55	600.95	30.86
9	90.08 - 89.83	17.62	608.67	30.90
10	89.83 - 89.5	17.70	618.88	30.96
11	89.5 - 89.25	17.78	626.63	31.01
12	89.25 - 84.25	19.23	784.20	31.99
13	84.25 - 81.75	19.98	864.81	32.48
14	81.75 - 77	22.70	1021.64	33.52
15	77 - 76.75	22.80	1030.03	33.56
16	76.75 - 76.5	22.91	1038.43	33.61
17	76.5 - 75.5	23.31	1072.16	33.82
18	75.5 - 75.25	23.41	1080.62	33.87
19	75.25 - 74.5	23.76	1106.14	34.11
20	74.5 - 74.25	23.86	1114.68	34.16
21	74.25 - 72	24.58	1192.42	35.22
22	72 - 71.75	24.69	1201.23	35.26
23	71.75 - 70.5	25.17	1245.51	35.54
24	70.5 - 70.25	25.28	1254.40	35.58
25	70.25 - 70	25.38	1263.31	35.64
26	70 - 69.75	25.48	1272.23	35.69
27	69.75 - 69.5	25.59	1281.17	35.75
28	69.5 - 69.25	25.68	1290.12	35.80
29	69.25 - 64.25	27.50	1471.85	36.91
30	64.25 - 59.25	29.37	1658.81	37.95
31	59.25 - 56	30.60	1783.09	38.61
32	56 - 55.75	30.73	1792.74	38.66
33	55.75 - 55.5	30.84	1802.40	38.71
34	55.5 - 55.25	30.95	1812.08	38.76
35	55.25 - 54	31.50	1860.66	39.03
36	54 - 53.75	31.62	1870.41	39.08
37	53.75 - 53.5	31.73	1880.18	39.13
38	53.5 - 53.25	31.83	1889.96	39.18
39	53.25 - 53	31.92	1899.75	39.23
40	53 - 48	33.81	2098.20	40.23
41	48 - 44.5	35.16	2240.05	40.93
42	44.5 - 38.75	38.79	2478.85	42.20
43	38.75 - 34.75	40.38	2649.02	42.98
44	34.75 - 34.5	40.52	2659.76	43.01
45	34.5 - 33.75	40.87	2692.05	43.17
46	33.75 - 33.5	40.98	2702.83	43.21
47	33.5 - 32.75	41.27	2735.27	43.36
48	32.75 - 32.5	41.42	2746.10	43.40
49	32.5 - 27.5	44.04	2965.39	44.40
50	27.5 - 24	45.91	3121.78	45.07
51	24 - 23.75	46.07	3133.04	45.10
52	23.75 - 18.75	48.84	3360.69	46.04
53	18.75 - 14.25	51.37	3569.44	46.84
54	14.25 - 14	51.54	3581.14	46.86
55	14 - 12.75	52.29	3639.81	47.10
56	12.75 - 12.5	52.43	3651.58	47.12
57	12.5 - 7.5	54.89	3889.03	47.95
58	7.5 - 5	56.13	4009.29	48.37
59	5 - 4.75	56.29	4021.37	48.39
60	4.75 - 4.5	56.42	4033.46	48.43
61	4.5 - 0	58.80	4252.92	49.21

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
120 - 115	Pole	TP23.01x22x0.25	Pole	8.9%	Pass
115 - 110	Pole	TP24.02x23.01x0.25	Pole	19.7%	Pass
110 - 105	Pole	TP25.031x24.02x0.25	Pole	30.5%	Pass
105 - 100	Pole	TP26.041x25.031x0.25	Pole	46.1%	Pass
100 - 99.25	Pole	TP26.192x26.041x0.25	Pole	48.1%	Pass
99.25 - 99	Pole + Reinf.	TP26.243x26.192x0.3625	Reinf. 14 Tension Rupture	45.5%	Pass
99 - 94	Pole + Reinf.	TP27.253x26.243x0.3563	Reinf. 14 Tension Rupture	60.0%	Pass
94 - 90.08	Pole + Reinf.	TP28.045x27.253x0.35	Reinf. 14 Tension Rupture	71.3%	Pass
90.08 - 89.83	Pole + Reinf.	TP28.096x28.045x0.5125	Reinf. 11 Tension Rupture	59.0%	Pass
89.83 - 89.5	Pole + Reinf.	TP28.162x28.096x0.5125	Reinf. 11 Tension Rupture	59.8%	Pass
89.5 - 89.25	Pole + Reinf.	TP28.213x28.162x0.725	Reinf. 15 Tension Rupture	46.3%	Pass
89.25 - 84.25	Pole + Reinf.	TP29.223x28.213x0.7	Reinf. 15 Tension Rupture	55.0%	Pass
84.25 - 81.75	Pole + Reinf.	TP30.486x29.223x0.7	Reinf. 15 Tension Rupture	59.2%	Pass
81.75 - 77	Pole + Reinf.	TP30.188x29.228x0.8625	Reinf. 17 Tension Rupture	53.1%	Pass
77 - 76.75	Pole + Reinf.	TP30.239x30.188x0.8625	Reinf. 17 Tension Rupture	53.4%	Pass
76.75 - 76.5	Pole + Reinf.	TP30.289x30.239x0.9625	Reinf. 14 Tension Rupture	50.1%	Pass
76.5 - 75.5	Pole + Reinf.	TP30.491x30.289x0.9625	Reinf. 14 Tension Rupture	51.3%	Pass
75.5 - 75.25	Pole + Reinf.	TP30.542x30.491x0.7625	Reinf. 17 Tension Rupture	59.0%	Pass
75.25 - 74.5	Pole + Reinf.	TP30.693x30.542x0.7625	Reinf. 17 Tension Rupture	59.9%	Pass
74.5 - 74.25	Pole + Reinf.	TP30.744x30.693x0.8375	Reinf. 17 Tension Rupture	63.1%	Pass
74.25 - 72	Pole + Reinf.	TP31.198x30.744x0.825	Reinf. 17 Tension Rupture	66.1%	Pass
72 - 71.75	Pole + Reinf.	TP31.249x31.198x0.7625	Reinf. 17 Tension Rupture	63.4%	Pass
71.75 - 70.5	Pole + Reinf.	TP31.501x31.249x0.7625	Reinf. 17 Tension Rupture	65.0%	Pass
70.5 - 70.25	Pole + Reinf.	TP31.552x31.501x0.7875	Reinf. 17 Tension Rupture	65.0%	Pass
70.25 - 70	Pole + Reinf.	TP31.602x31.552x0.7875	Reinf. 17 Tension Rupture	65.3%	Pass
70 - 69.75	Pole + Reinf.	TP31.653x31.602x0.725	Reinf. 17 Tension Rupture	67.7%	Pass
69.75 - 69.5	Pole + Reinf.	TP31.703x31.653x0.875	Reinf. 4 Tension Rupture	57.5%	Pass
69.5 - 69.25	Pole + Reinf.	TP31.754x31.703x0.75	Reinf. 4 Tension Rupture	64.2%	Pass
69.25 - 64.25	Pole + Reinf.	TP32.764x31.754x0.7375	Reinf. 4 Tension Rupture	69.9%	Pass
64.25 - 59.25	Pole + Reinf.	TP33.774x32.764x0.7125	Reinf. 4 Tension Rupture	75.3%	Pass
59.25 - 56	Pole + Reinf.	TP34.431x33.774x0.7125	Reinf. 4 Tension Rupture	78.6%	Pass
56 - 55.75	Pole + Reinf.	TP34.481x34.431x0.8125	Reinf. 7 Tension Rupture	75.7%	Pass
55.75 - 55.5	Pole + Reinf.	TP34.532x34.481x0.8125	Reinf. 7 Tension Rupture	75.9%	Pass
55.5 - 55.25	Pole + Reinf.	TP34.582x34.532x0.8875	Reinf. 7 Tension Rupture	68.4%	Pass
55.25 - 54	Pole + Reinf.	TP34.835x34.582x0.875	Reinf. 7 Tension Rupture	69.5%	Pass
54 - 53.75	Pole + Reinf.	TP34.885x34.835x0.75	Reinf. 7 Tension Rupture	79.8%	Pass
53.75 - 53.5	Pole + Reinf.	TP34.936x34.885x0.7375	Reinf. 7 Tension Rupture	80.0%	Pass
53.5 - 53.25	Pole + Reinf.	TP34.986x34.936x0.6625	Reinf. 4 Tension Rupture	85.9%	Pass
53.25 - 53	Pole + Reinf.	TP35.037x34.986x0.6	Reinf. 12 Tension Rupture	88.8%	Pass
53 - 48	Pole + Reinf.	TP36.047x35.037x0.5875	Reinf. 12 Tension Rupture	94.1%	Pass
48 - 44.5	Pole + Reinf.	TP37.714x36.047x0.5875	Reinf. 12 Tension Rupture	97.6%	Pass
44.5 - 38.75	Pole + Reinf.	TP37.291x36.129x0.6625	Reinf. 4 Tension Rupture	95.1%	Pass
38.75 - 34.75	Pole + Reinf.	TP38.099x37.291x0.6625	Reinf. 4 Tension Rupture	98.1%	Pass
34.75 - 34.5	Pole + Reinf.	TP38.15x38.099x0.825	Reinf. 3 Tension Rupture	78.7%	Pass
34.5 - 33.75	Pole + Reinf.	TP38.301x38.15x0.825	Reinf. 3 Tension Rupture	79.2%	Pass
33.75 - 33.5	Pole + Reinf.	TP38.352x38.301x0.625	Reinf. 6 Tension Rupture	97.4%	Pass
33.5 - 32.75	Pole + Reinf.	TP38.503x38.352x0.625	Reinf. 6 Tension Rupture	98.0%	Pass
32.75 - 32.5	Pole + Reinf.	TP38.554x38.503x0.925	Reinf. 20 Tension Rupture	68.4%	Pass
32.5 - 27.5	Pole + Reinf.	TP39.564x38.554x0.9	Reinf. 20 Tension Rupture	71.2%	Pass
27.5 - 24	Pole + Reinf.	TP40.271x39.564x0.9	Reinf. 20 Tension Rupture	73.0%	Pass
24 - 23.75	Pole + Reinf.	TP40.322x40.271x1	Reinf. 3 Tension Rupture	70.9%	Pass
23.75 - 18.75	Pole + Reinf.	TP41.332x40.322x0.975	Reinf. 3 Tension Rupture	73.5%	Pass
18.75 - 14.25	Pole + Reinf.	TP42.241x41.332x0.975	Reinf. 3 Tension Rupture	75.7%	Pass
14.25 - 14	Pole + Reinf.	TP42.291x42.241x1	Reinf. 20 Tension Rupture	68.5%	Pass
14 - 12.75	Pole + Reinf.	TP42.544x42.291x0.9875	Reinf. 20 Tension Rupture	69.1%	Pass
12.75 - 12.5	Pole + Reinf.	TP42.595x42.544x0.775	Reinf. 3 Tension Rupture	91.9%	Pass
12.5 - 7.5	Pole + Reinf.	TP43.605x42.595x0.7625	Reinf. 3 Tension Rupture	94.5%	Pass
7.5 - 5	Pole + Reinf.	TP44.11x43.605x0.75	Reinf. 3 Tension Rupture	95.7%	Pass
5 - 4.75	Pole + Reinf.	TP44.16x44.11x0.9125	Reinf. 3 Tension Rupture	87.0%	Pass
4.75 - 4.5	Pole + Reinf.	TP44.211x44.16x0.875	Reinf. 1 Compression	87.6%	Pass
4.5 - 0	Pole + Reinf.	TP45.12x44.211x0.8625	Reinf. 1 Compression	89.5%	Pass
				Summary	
			Pole	74.4%	Pass
			Reinforcement	98.1%	Pass
			Overall	98.1%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in ⁴)			Area (in ²)			% Capacity																						
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	
120 - 115	1213	n/a	1213	18.30	n/a	18.30	8.9%																						
115 - 110	1382	n/a	1382	19.11	n/a	19.11	19.7%																						
110 - 105	1566	n/a	1566	19.92	n/a	19.92	30.5%																						
105 - 100	1765	n/a	1765	20.73	n/a	20.73	46.1%																						
100 - 99.25	1796	n/a	1796	20.85	n/a	20.85	48.1%																						
99.25 - 99	1884	751	2634	20.89	15.00	35.89	36.9%																						
99 - 94	2108	809	2917	21.71	15.00	36.71	49.1%																						
94 - 90.08	2295	857	3153	22.34	15.00	37.34	58.8%																						
90.08 - 89.83	2235	2180	4415	22.38	24.00	46.38	40.3%																						
89.83 - 89.5	2251	2190	4441	22.44	24.00	46.44	40.9%																						
89.5 - 89.25	2276	3952	6228	22.48	36.00	58.48	30.6%																						
89.25 - 84.25	2531	4227	6758	23.29	36.00	59.29	36.9%																						
84.25 - 81.75	2665	4368	7033	23.70	36.00	59.70	40.1%																						
81.75 - 77	3434	5537	8970	30.02	51.00	81.02	33.1%																						
77 - 76.75	3451	5554	9005	30.07	51.00	81.07	33.4%																						
76.75 - 76.5	3483	6565	10048	30.12	56.00	86.12	30.7%																						
76.5 - 75.5	3554	6648	10202	30.32	56.00	86.32	31.5%																						
75.5 - 75.25	3556	4807	8363	30.37	46.00	76.37	37.6%																						
75.25 - 74.5	3609	4852	8461	30.53	46.00	76.53	38.3%																						
74.5 - 74.25	3738	5532	9270	30.58	41.00	71.58	38.9%																						
74.25 - 72	3906	5690	9596	31.03	41.00	72.03	41.0%																						
72 - 71.75	3808	5092	8900	31.09	49.13	80.21	40.2%																						
71.75 - 70.5	3902	5171	9072	31.34	49.13	80.46	41.3%																						
70.5 - 70.25	3925	5537	9462	31.39	53.63	85.01	40.4%																						
70.25 - 70	3944	5554	9498	31.44	53.63	85.07	40.6%																						
70 - 69.75	3961	4823	8785	31.49	48.63	80.12	44.5%																						
69.75 - 69.5	4028	6551	10579	31.54	53.63	85.17	38.5%																						
69.5 - 69.25	4004	5187	9190	31.59	41.63	73.22	43.3%																						
69.25 - 64.25	4401	5507	9909	32.61	41.63	74.23	47.8%																						
64.25 - 59.25	4825	5838	10663	33.62	41.63	75.25	52.1%																						
59.25 - 56	5114	6058	11172	34.28	41.63	75.91	54.9%																						
56 - 55.75	5209	7530	12738	34.33	55.13	89.46	50.5%																						
55.75 - 55.5	5232	7551	12782	34.38	55.13	89.51	50.7%																						
55.5 - 55.25	5199	8671	13870	34.43	59.63	94.06	46.2%																						
55.25 - 54	5314	8793	14107	34.69	59.63	94.31	47.1%																						
54 - 53.75	5328	6906	12234	34.74	50.63	85.36	54.6%																						
53.75 - 53.5	5351	6925	12276	34.79	50.63	85.41	54.8%																						
53.5 - 53.25	5418	5610	11027	34.84	46.13	80.97	62.9%																						
53.25 - 53	5388	4730	10118	34.89	38.00	72.89	66.4%																						
53 - 48	5872	4982	10854	35.91	38.00	73.91	71.1%																						
48 - 44.5	6228	5162	11390	36.62	38.00	74.62	74.4%																						
44.5 - 38.75	7765	5730	13494	44.51	31.68	76.19	65.2%																						
38.75 - 34.75	8286	5977	14263	45.49	31.68	77.17	67.8%																						
34.75 - 34.5	8319	9340	17659	45.55	51.68	97.23	54.4%																						
34.5 - 33.75	8419	9410	17829	45.73	51.68	97.41	54.8%																						
33.75 - 33.5	8462	5245	13707	45.79	31.68	77.47	73.2%																						
33.5 - 32.75	8564	5286	13849	45.97	31.68	77.65	73.7%																						
32.75 - 32.5	8592	11650	20241	46.03	64.18	110.21	49.4%																						
32.5 - 27.5	9292	12248	21540	47.25	64.18	111.43	51.9%																						
27.5 - 24	9804	12676	22480	48.11	64.18	112.29	53.6%																						
24 - 23.75	9841	15255	25096	48.17	69.02	117.19	49.2%																						
23.75 - 18.75	10606	15999	26605	49.38	69.02	118.40	51.5%																						
18.75 - 14.25	11328	16684	28012	50.48	69.02	119.50	53.6%																						
14.25 - 14	11368	17370	28738	50.54	80.70	131.24	51.4%																						
14 - 12.75	11575	17570	29145	50.85	80.70	131.55	51.9%																						
12.75 - 12.5	11615	11676	23291	50.91	48.20	99.11	67.0%																						
12.5 - 7.5	12469	12207	24676	52.13	48.20	100.33	69.6%																						
7.5 - 5	12911	12477	25388	52.73	48.20	100.93	70.9%																						
5 - 4.75	13166	17463	30629	52.80	61.33	114.12	62.2%																						
4.75 - 4.5	13036	16271	29308	52.86	56.33	109.18	64.2%																						
4.5 - 0	13864	16861	30724	53.95	56.33	110.28	66.5%																						

Note: Section capacity checked in 5 degree increments.

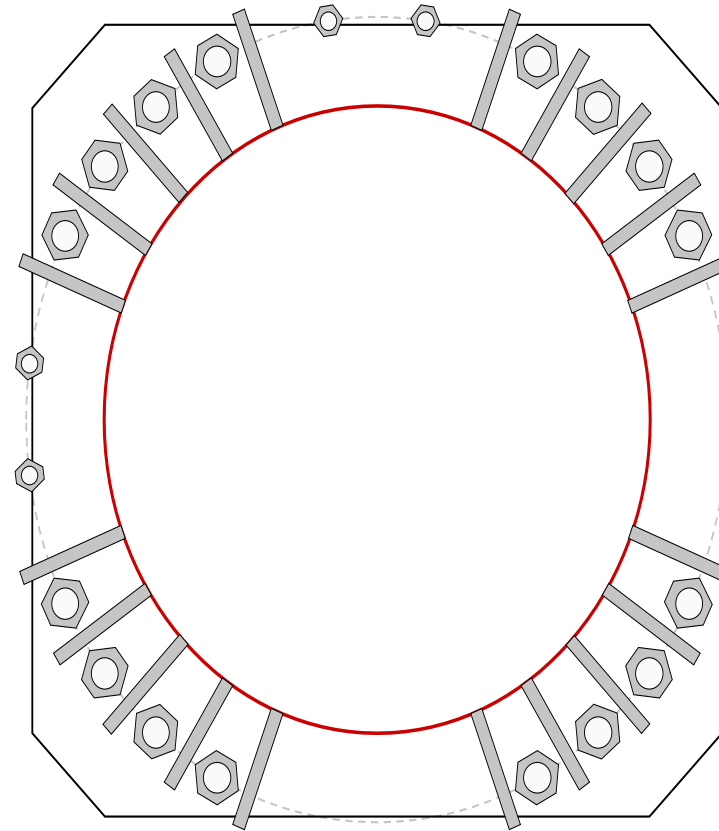
Monopole Base Plate Connection



Site Info	
BU #	876320
Site Name	528 Wheelers Farm R
Order #	444441 Rev. 2

Analysis Considerations	
TIA-222 Revision	G
Grout Considered:	No
l_{ar} (in)	2
Eta Factor, η	0.5

Applied Loads	
Moment (kip-ft)	4252.92
Axial Force (kips)	58.80
Shear Force (kips)	49.21



Connection Properties	Analysis Results
-----------------------	------------------

Anchor Rod Data
 GROUP 1: (16) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 58" BC
 GROUP 2: (4) 1-3/8" ϕ bolts (R71 15ksi 1-3/8" N; $F_y=120$ ksi, $F_u=125$ ksi) on 58" BC

Base Plate Data
 57" OD x 3.25" Plate (A572-50; $F_y=50$ ksi, $F_u=65$ ksi)

Stiffener Data
 (20) 18"H x 9"W x 1"T, Notch: 0.75"
 plate: $F_y= 50$ ksi ; weld: $F_y= 80$ ksi
 horiz. weld: 0.5" groove, 45° dbl bevel, 0.5" fillet
 vert. weld: 0.375" fillet

Pole Data
 45.12" x 0.375" 12-sided pole (A607-60; $F_y=60$ ksi, $F_u=75$ ksi)

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

GROUP 1:		
$P_{u_c} = 218.12$	$\phi P_{n_t} = 260$	Stress Rating
$V_u = 2.82$	$\phi V_n = n/a$	86.1%
$M_u = n/a$	$\phi M_n = n/a$	Pass

GROUP 2:		
$P_{u_c} = 70.98$	$\phi P_{n_t} = 116$	Stress Rating
$V_u = 1.01$	$\phi V_n = n/a$	62.9%
$M_u = n/a$	$\phi M_n = n/a$	Pass

Base Plate Summary

Max Stress (ksi):	4.17	(Shear)
Allowable Stress (ksi):	27	
Stress Rating:	15.4%	Pass

Stiffener Summary

Horizontal Weld:	44.7%	Pass
Vertical Weld:	57.8%	Pass
Plate Flexure+Shear:	25.5%	Pass
Plate Tension+Shear:	48.0%	Pass
Plate Compression:	64.4%	Pass

Pole Summary

Punching Shear:	27.9%	Pass
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Drilled Pier Foundation

BU #: 876320
 Site Name: 528 Wheelers Farm Rd
 Order Number: 444441 Rev. 2

TIA-222 Revison: G
 Tower Type: Monopole



Applied Loads		
	Comp.	Uplift
Moment (kip-ft)	4253	
Axial Force (kips)	59	
Shear Force (kips)	49	

Material Properties		
Concrete Strength, f _c :	3	ksi
Rebar Strength, F _y :	60	ksi

Pier Design Data		
Depth	19	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
<i>From 0.5' above grade to 19' below grade</i>		
Pier Diameter	7	ft
Rebar Quantity	32	
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)	5.74	-
Soil Safety Factor	1.95	-
Max Moment (kip-ft)	4497.20	-
Rating	68.2%	-
Soil Vertical Capacity		
	Compression	Uplift
Skin Friction (kips)	525.15	-
End Bearing (kips)	651.55	-
Weight of Concrete (kips)	100.50	-
Total Capacity (kips)	1176.70	-
Axial (kips)	159.50	-
Rating	13.6%	-
Reinforced Concrete Capacity		
	Compression	Uplift
Critical Depth (ft from TOC)	5.57	-
Critical Moment (kip-ft)	4496.65	-
Critical Moment Capacity	7541.73	-
Rating	59.6%	-
Soil Interaction Rating		68.2%
Structural Foundation Rating		59.6%

Check Limitation	
N/A	<input type="checkbox"/>

Soil Profile		
Groundwater Depth	7	ft
# of Layers	7	

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ _{soil} (pcf)	γ _{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	2	2	100	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	2	3.5	1.5	135	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
3	3.5	6	2.5	135	150	0	42	0.000	0.000	0.00	0.00			Cohesionless
4	6	7	1	135	150	0	42	0.000	0.000	1.28	1.28			Cohesionless
5	7	13.5	6.5	72.6	87.6	0	42	0.000	0.000	1.28	1.28			Cohesionless
6	13.5	14	0.5	77.6	87.6	8	0	3.600	3.600	1.28	1.28			Cohesive
7	14	19	5	77.6	87.6	8	0	3.60	3.60	4.32	4.32	22.5737		Cohesive

Structural Analysis Report

Antenna Mount Analysis

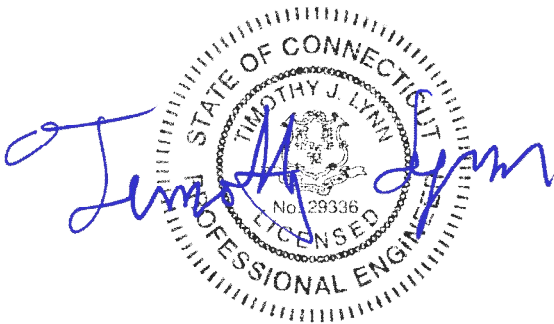
T-Mobile Site #: CT11082E

*528 Wheelers Farm Road
Milford, CT 06461*

Centek Project No. 18058.25

Date: May 21, 2018

Max Stress Ratio = 40.5%



Prepared for:

*T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002*

Table of Contents

SECTION 1 – REPORT

- ANTENNA AND APPURTENANCE SUMMARY
- STRUCTURE LOADING
- CONCLUSION

SECTION 2 – CALCULATIONS

- WIND LOAD ON APPURTENANCES
- RISA3D OUTPUT REPORT

SECTION 3 – REFERENCE MATERIALS (NOT INCLUDED WITHIN REPORT)

- RF DATA SHEET, DATED 5/1/2018

May 21, 2018

Mr. Dan Reid
Transcend Wireless
10 Industrial Ave
Mahwah, NJ 07430

Re: *Structural Letter ~ Antenna Mount*
T-Mobile – Site Ref: CT11082E
528 Wheelers Farm Road
Milford, CT 06461

Centek Project No. 18058.25

Dear Mr. Reid,

Centek Engineering, Inc. has reviewed the T-Mobile antenna installation at the above referenced site. The purpose of the review is to determine the structural adequacy of the existing mount, consisting of one (1) low profile platform to support the equipment configuration. The review considered the effects of wind load, dead load and ice load in accordance with the 2012 International Building Code as modified by the 2016 Connecticut State Building Code (CTBC) including ASCE 7-10 and ANSI/TIA-222-G *Structural Standards for Steel Antenna Towers and Supporting Structures*.

The loads considered in this analysis consist of the following:

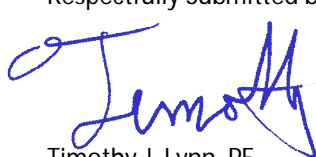
- T-Mobile:
Platform: Three (3) Ericsson AIR3246 B66 panel antennas, three (3) Ericsson AIR32 panel antennas, three (3) RFS APXVAARR24-43-NA20 panel antennas, three (3) KRY112 TMAs and three (3) Ericsson 4449 B71_B12 remote radio units mounted on one (1) low profile platform with a RAD center elevation of 107-ft +/- AGL.

The antenna mount was analyzed per the requirements of the 2012 International Building Code as modified by the 2016 Connecticut State Building Code considering a nominal design wind speed of 97 mph for Milford as required in Appendix N of the 2016 Connecticut State Building Code.

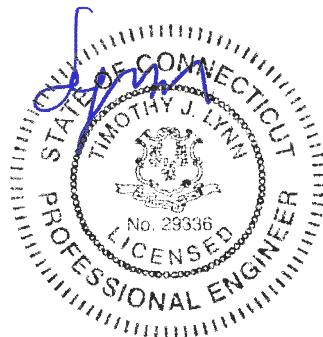
A structural analysis of tower and foundation needs to be completed prior to any work.

Based on our review of the installation, it is our opinion that the existing antenna platform is structurally inadequate to support the proposed antenna configuration. Replacement of the existing platform with a SitePro platform (p/n RMQP-4096-HK) is required. If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:



Timothy J. Lynn, PE
Structural Engineer



CEN TEK Engineering, Inc.
Structural Analysis – Mount Analysis
T-Mobile Site Ref. ~ CT11082E
Milford, CT
May 21, 2018

Section 2 - Calculations

**Development of Design Heights, Exposure Coefficients,
 and Velocity Pressures Per TIA-222-G**

Wind Speeds

Basic Wind Speed $V := 97$ mph (User Input - 2016 CSBC Appendix N)
 Basic Wind Speed with Ice $V_i := 50$ mph (User Input per Annex B of TIA-222-G)

Input

Structure Type = Structure_Type := Pole (User Input)
 Structure Category = SC := II (User Input)
 Exposure Category = Exp := C (User Input)
 Structure Height = h := 120 ft (User Input)
 Height to Center of Antennas = $z_{AT\&T} := 107$ ft (User Input)
 Radial Ice Thickness = $t_i := 0.75$ in (User Input per Annex B of TIA-222-G)
 Radial Ice Density = $\rho_d := 56.00$ pcf (User Input)
 Topographic Factor = $K_{zt} := 1.0$ (User Input)
 $K_a := 1.0$ (User Input)
 Gust Response Factor = $G_H := 1.1$ (User Input)

Output

Wind Direction Probability Factor = $K_d := \begin{cases} 0.95 & \text{if Structure_Type = Pole} \\ 0.85 & \text{if Structure_Type = Lattice} \end{cases} = 0.95$ (Per Table 2-2 of TIA-222-G)

Importance Factors = $I_{Wind} := \begin{cases} 0.87 & \text{if SC = 1} \\ 1.00 & \text{if SC = 2} \\ 1.15 & \text{if SC = 3} \end{cases} = 1$ (Per Table 2-3 of TIA-222-G)

$I_{Wind_w_Ice} := \begin{cases} 0 & \text{if SC = 1} \\ 1.00 & \text{if SC = 2} \\ 1.00 & \text{if SC = 3} \end{cases} = 1$

$I_{ice} := \begin{cases} 0 & \text{if SC = 1} \\ 1.00 & \text{if SC = 2} \\ 1.25 & \text{if SC = 3} \end{cases} = 1$

$$K_{iz} := \left(\frac{z_{AT\&T}}{33} \right)^{0.1} = 1.125$$

$$t_{iz} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 1.687$$

Velocity Pressure Coefficient Antennas =

$$K_{z_{AT\&T}} := 2.01 \left(\frac{z_{AT\&T}}{z_g} \right)^{\frac{2}{\alpha}} = 1.284$$

Velocity Pressure w/o Ice Antennas =

$$q_{z_{AT\&T}} := 0.00256 \cdot K_d \cdot K_{z_{AT\&T}} \cdot V^2 \cdot I_{Wind} = 29.376$$

Velocity Pressure with Ice Antennas =

$$q_{z_{ice,AT\&T}} := 0.00256 \cdot K_d \cdot K_{z_{AT\&T}} \cdot V_i^2 \cdot I_{Wind} = 7.805$$

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Ericsson AIR32	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 56.6$	in (User Input)
Antenna Width =	$W_{ant} := 12.9$	in (User Input)
Antenna Thickness =	$T_{ant} := 8.7$	in (User Input)
Antenna Weight =	$WT_{ant} := 133$	lbs (User Input)
Number of Antennas =	$N_{ant} := 1$	(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.4$	
Antenna Force Coefficient =	$Ca_{ant} = 1.28$	

Wind Load (without ice)

Surface Area for One Antenna = $SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 5.1$ sf

Total Antenna Wind Force = $F_{ant} := qz_{AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 210$ lbs

Surface Area for One Antenna = $SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 3.4$ sf

Total Antenna Wind Force = $F_{ant} := qz_{AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 142$ lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice = $SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 6.8$ sf

Total Antenna Wind Force w/ Ice = $F_{ant} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 75$ lbs

Surface Area for One Antenna w/ Ice = $SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 5$ sf

Total Antenna Wind Force w/ Ice = $F_{ant} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 55$ lbs

Gravity Load (without ice)

Weight of All Antennas = $WT_{ant} \cdot N_{ant} = 133$ lbs

Gravity Loads (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 6352$ cu in

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz})(T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 5433$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot \rho_d = 176$ lbs

Weight of Ice on All Antennas = $W_{ICEant} \cdot N_{ant} = 176$ lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Ericsson AIR3246 B66
Antenna Shape =	Flat (User Input)
Antenna Height =	$L_{ant} := 58.1$ in (User Input)
Antenna Width =	$W_{ant} := 15.7$ in (User Input)
Antenna Thickness =	$T_{ant} := 9.4$ in (User Input)
Antenna Weight =	$WT_{ant} := 180$ lbs (User Input)
Number of Antennas =	$N_{ant} := 1$ (User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 3.7$
Antenna Force Coefficient =	$Ca_{ant} = 1.25$

Wind Load (without ice)

Surface Area for One Antenna = $SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 6.3$ sf

Total Antenna Wind Force = $F_{ant} := qz_{AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 257$ lbs

Surface Area for One Antenna = $SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 3.8$ sf

Total Antenna Wind Force = $F_{ant} := qz_{AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 154$ lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice = $SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 8.1$ sf

Total Antenna Wind Force w/ Ice = $F_{ant} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 88$ lbs

Surface Area for One Antenna w/ Ice = $SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 5.5$ sf

Total Antenna Wind Force w/ Ice = $F_{ant} := qz_{ice.AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 59$ lbs

Gravity Load (without ice)

Weight of All Antennas = $WT_{ant} \cdot N_{ant} = 180$ lbs

Gravity Loads (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 8574$ cu in

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 6405$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot \rho_d = 208$ lbs

Weight of Ice on All Antennas = $W_{ICEant} \cdot N_{ant} = 208$ lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFSAPXVAARR24-43	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 95.9$	in (User Input)
Antenna Width =	$W_{ant} := 24$	in (User Input)
Antenna Thickness =	$T_{ant} := 8.7$	in (User Input)
Antenna Weight =	$WT_{ant} := 153$	lbs (User Input)
Number of Antennas =	$N_{ant} := 1$	(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.0$	
Antenna Force Coefficient =	$Ca_{ant} = 1.27$	

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 16$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 654$	lbs

Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 5.8$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{AT\&T} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 237$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 18.9$	sf
Total Antenna Wind Force w/ Ice =	$F_{ant} := qz_{ice} \cdot AT\&T \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 205$	lbs

Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 8.3$	sf
Total Antenna Wind Force w/ Ice =	$F_{ant} := qz_{ice} \cdot AT\&T \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 91$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 153$	lbs
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Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2 \times 10^4$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 1 \times 10^4$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot \rho_d = 414$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 414$	lbs

Development of Wind & Ice Load on TMA's

TMA Data:

TMA Model =	Ericsson KRY112 TMA
TMA Shape =	Flat (User Input)
TMA Height =	$L_{TMA} := 7.7$ in (User Input)
TMA Width =	$W_{TMA} := 7.5$ in (User Input)
TMA Thickness =	$T_{TMA} := 3.4$ in (User Input)
TMA Weight =	$W_{TMA} := 11$ lbs (User Input)
Number of TMA's =	$N_{TMA} := 1$ (User Input)
TMA Aspect Ratio =	$Ar_{TMA} := \frac{L_{TMA}}{W_{TMA}} = 1$
TMA Force Coefficient =	$Ca_{TMA} = 1.2$

Wind Load (without ice)

Surface Area for One TMA = $SA_{TMAF} := \frac{L_{TMA} \cdot W_{TMA}}{144} = 0.4$ sf

Total TMA Wind Force = $F_{TMA} := qz_{AT\&T} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{TMAF} = 16$ lbs

Surface Area for One TMA = $SA_{TMAS} := \frac{L_{TMA} \cdot T_{TMA}}{144} = 0.2$ sf

Total TMA Wind Force = $F_{TMA} := qz_{AT\&T} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{TMAS} = 7$ lbs

Wind Load (with ice)

Surface Area for One TMA w/ Ice = $SA_{ICETMAF} := \frac{(L_{TMA} + 2 \cdot t_{iz}) \cdot (W_{TMA} + 2 \cdot t_{iz})}{144} = 0.8$ sf

Total TMA Wind Force w/ Ice = $F_{i_{TMA}} := qz_{ice} \cdot AT\&T \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{ICETMAF} = 9$ lbs

Surface Area for One TMA w/ Ice = $SA_{ICETMAS} := \frac{(L_{TMA} + 2 \cdot t_{iz}) \cdot (T_{TMA} + 2 \cdot t_{iz})}{144} = 0.5$ sf

Total TMA Wind Force w/ Ice = $F_{i_{TMA}} := qz_{ice} \cdot AT\&T \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{ICETMAS} = 5$ lbs

Gravity Load (without ice)

Weight of All TMA's = $W_{TMA} \cdot N_{TMA} = 11$ lbs

Gravity Loads (ice only)

Volume of Each TMA = $V_{TMA} := L_{TMA} \cdot W_{TMA} \cdot T_{TMA} = 196$ cu in

Volume of Ice on Each TMA = $V_{ice} := (L_{TMA} + 2 \cdot t_{iz}) \cdot (W_{TMA} + 2 \cdot t_{iz}) \cdot (T_{TMA} + 2 \cdot t_{iz}) - V_{TMA} = 619$ cu in

Weight of Ice on Each TMA = $W_{ICETMA} := \frac{V_{ice}}{1728} \cdot \rho_d = 20$ lbs

Weight of Ice on All TMA's = $W_{ICETMA} \cdot N_{TMA} = 20$ lbs

Development of Wind & Ice Load on RRUS's

RRUS Data:

RRUS Model =	Ericsson 4449 B71B12
RRUS Shape =	Flat (User Input)
RRUS Height =	$L_{RRUS} := 14.9$ in (User Input)
RRUS Width =	$W_{RRUS} := 13.2$ in (User Input)
RRUS Thickness =	$T_{RRUS} := 10.4$ in (User Input)
RRUS Weight =	$W_{T_{RRUS}} := 74$ lbs (User Input)
Number of RRUSs =	$N_{RRUS} := 1$ (User Input)
RRUS Aspect Ratio =	$A_{r_{RRUS}} := \frac{L_{RRUS}}{W_{RRUS}} = 1.1$
RRUS Force Coefficient =	$C_{a_{RRUS}} = 1.2$

Wind Load (without ice)

Surface Area for One RRUS = $S_{A_{RRUSF}} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 1.4$ sf

Total RRUS Wind Force = $F_{RRUS} := q_{z_{AT\&T}} \cdot G_H \cdot C_{a_{RRUS}} \cdot K_a \cdot S_{A_{RRUSF}} = 53$ lbs

Surface Area for One RRUS = $S_{A_{RRUS}} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 1.1$ sf

Total RRUS Wind Force = $F_{RRUS} := q_{z_{AT\&T}} \cdot G_H \cdot C_{a_{RRUS}} \cdot K_a \cdot S_{A_{RRUS}} = 42$ lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice = $S_{A_{ICERRUSF}} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 2.1$ sf

Total RRUS Wind Force w/ Ice = $F_{i_{RRUS}} := q_{z_{ice}} \cdot A_{T\&T} \cdot G_H \cdot C_{a_{RRUS}} \cdot K_a \cdot S_{A_{ICERRUSF}} = 22$ lbs

Surface Area for One RRUS w/ Ice = $S_{A_{ICERRUS}} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 1.7$ sf

Total RRUS Wind Force w/ Ice = $F_{i_{RRUS}} := q_{z_{ice}} \cdot A_{T\&T} \cdot G_H \cdot C_{a_{RRUS}} \cdot K_a \cdot S_{A_{ICERRUS}} = 18$ lbs

Gravity Load (without ice)

Weight of All RRUSs = $W_{T_{RRUS}} \cdot N_{RRUS} = 74$ lbs

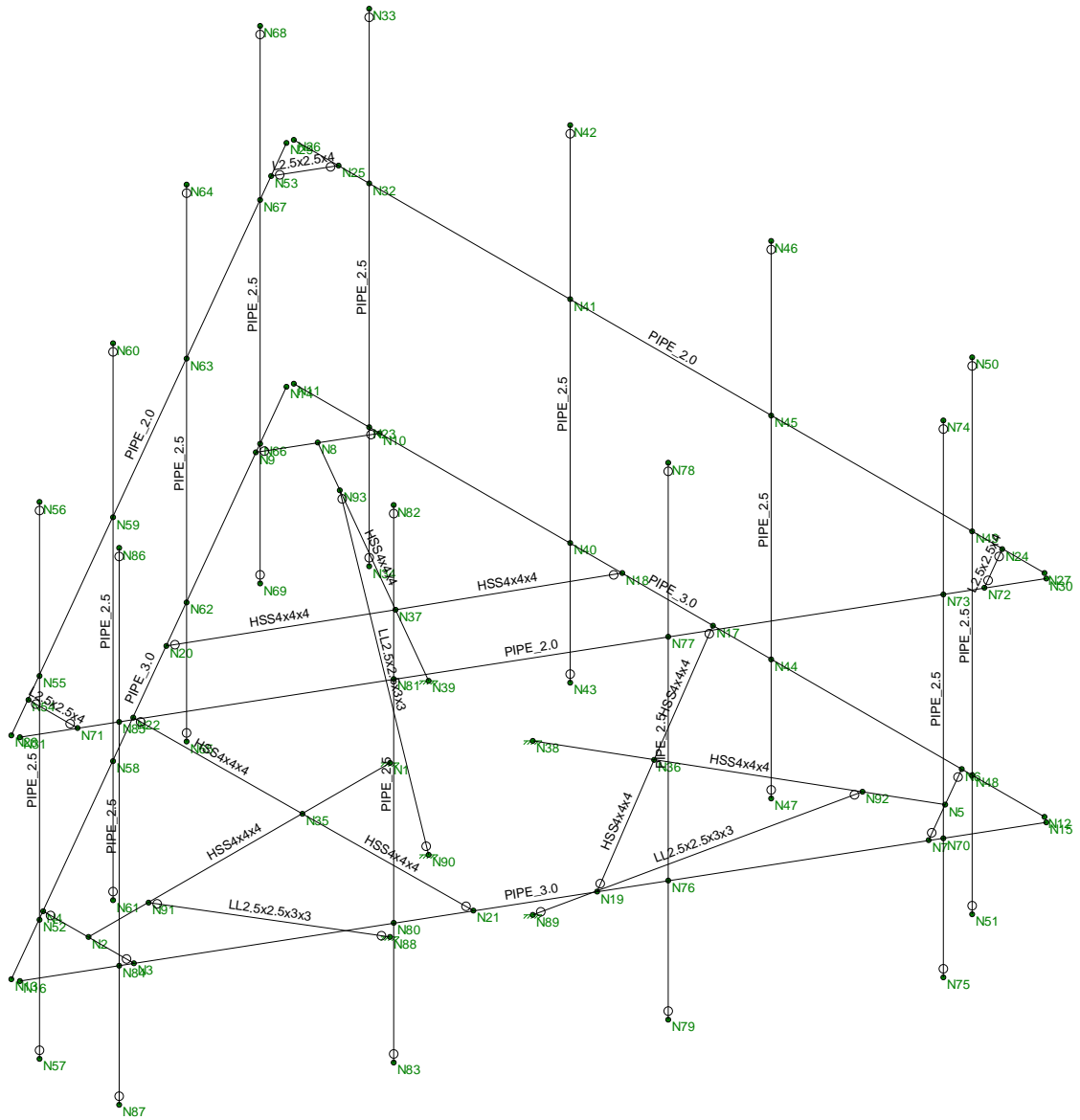
Gravity Loads (ice only)

Volume of Each RRUS = $V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 2045$ cu in

Volume of Ice on Each RRUS = $V_{ice} := (L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 2127$

Weight of Ice on Each RRUS = $W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot \rho_d = 69$ lbs

Weight of Ice on All RRUSs = $W_{ICERRUS} \cdot N_{RRUS} = 69$ lbs



Envelope Only Solution

Centek

TJL

18058.25

CT11082E - Mount
Member Framing

May 21, 2018 at 2:05 PM

Mount - Proposed.r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	No
RISAConnection Code	AISC 13th(360-05): ASD
Cold Formed Steel Code	AISI S100-10: ASD
Wood Code	AWC NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-11: ASD
Aluminum Code	AA ADM1-10: ASD - Building AISC 14th(360-10): ASD

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1
Footing Overturning Safety Factor	1
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	150.001
Footing Concrete f'c (ksi)	4
Footing Concrete Ec (ksi)	3644
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#3
Footing Top Bar Cover (in)	2
Footing Bottom Bar	#3
Footing Bottom Bar Cover (in)	3.5
Pedestal Bar	#3
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#3

Hot Rolled Steel Properties

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



Company : Centek
 Designer : TJL
 Job Number : 18058.25
 Model Name : CT11082E - Mount

May 21, 2018
 2:04 PM
 Checked By: _____

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Outrigger	HSS4x4x4	Beam	Pipe	A500 Gr.46	Typical	3.37	7.8	7.8	12.8
2	Horz Pipe	PIPE 3.0	Beam	Pipe	A53 Gr B	Typical	2.07	2.85	2.85	5.69
3	Antenna Pipe	PIPE 2.5	Beam	Pipe	A53 Gr B	Typical	1.61	1.45	1.45	2.89
4	Handrail	PIPE 2.0	Beam	Pipe	A53 Gr B	Typical	1.02	.627	.627	1.25
5	Support	HSS4x4x4	Beam	Pipe	A500 Gr.46	Typical	3.37	7.8	7.8	12.8
6	Kicker	LL2.5x2.5x3x3	Beam	Pipe	A36 Gr.36	Typical	1.8	2.46	1.07	.023
7	Handrail Corner	L2.5x2.5x4	Beam	Pipe	A36 Gr.36	Typical	1.19	.692	.692	.026

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	Outrigger	5	Segment	Segment	Segment	Segment	Segme...				Lateral
2	M2	Outrigger	5	Segment	Segment	Segment	Segment	Segme...				Lateral
3	M3	Outrigger	5	Segment	Segment	Segment	Segment	Segme...				Lateral
4	M4	Horz Pipe	12.45	5	5	5	5					Lateral
5	M5	Horz Pipe	12.45	5	5	5	5					Lateral
6	M6	Horz Pipe	12.45	5	5	5	5					Lateral
7	M10	Support	2.786			Lbyy						Lateral
8	M11	Support	2.811			Lbyy						Lateral
9	M12	Support	2.786			Lbyy						Lateral
10	M13	Handrail	12.45			Lbyy						Lateral
11	M14	Handrail	12.45			Lbyy						Lateral
12	M15	Handrail	12.45			Lbyy						Lateral
13	M16	Antenna Pipe	8			Lbyy						Lateral
14	M17	Support	2.811			Lbyy						Lateral
15	M18	Support	2.761			Lbyy						Lateral
16	M19	Support	2.761			Lbyy						Lateral
17	M20	Antenna Pipe	8			Lbyy						Lateral
18	M21	Antenna Pipe	8			Lbyy						Lateral
19	M22	Antenna Pipe	8			Lbyy						Lateral
20	M23	Antenna Pipe	8			Lbyy						Lateral
21	M24	Antenna Pipe	8			Lbyy						Lateral
22	M25	Antenna Pipe	8			Lbyy						Lateral
23	M26	Antenna Pipe	8			Lbyy						Lateral
24	M27	Antenna Pipe	8			Lbyy						Lateral
25	M28	Antenna Pipe	8			Lbyy						Lateral
26	M29	Antenna Pipe	8			Lbyy						Lateral
27	M30	Antenna Pipe	8			Lbyy						Lateral
28	M31	Handrail Co...	.821			Lbyy						Lateral
29	M32	Handrail Co...	.821			Lbyy						Lateral
30	M33	Handrail Co...	.821			Lbyy						Lateral
31	M34	Kicker	4.717			Lbyy						Lateral
32	M35	Kicker	4.717			Lbyy						Lateral
33	M36	Kicker	4.717			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...)	Section/Shape	Type	Design List	Material	Design Rul...
1	M1	N1	N2			Outrigger	Beam	Pipe	A500 Gr...	Typical
2	M2	N38	N5			Outrigger	Beam	Pipe	A500 Gr...	Typical
3	M3	N39	N8			Outrigger	Beam	Pipe	A500 Gr...	Typical
4	M4	N16	N15			Horz Pipe	Beam	Pipe	A53 Gr B	Typical
5	M5	N13	N14			Horz Pipe	Beam	Pipe	A53 Gr B	Typical
6	M6	N12	N11			Horz Pipe	Beam	Pipe	A53 Gr B	Typical
7	M7	N9	N10			RIGID	None	None	RIGID	Typical
8	M8	N7	N6			RIGID	None	None	RIGID	Typical
9	M9	N3	N4			RIGID	None	None	RIGID	Typical
10	M10	N22	N35			Support	Beam	Pipe	A500 Gr...	Typical
11	M11	N36	N17			Support	Beam	Pipe	A500 Gr...	Typical
12	M12	N37	N20			Support	Beam	Pipe	A500 Gr...	Typical
13	M13	N31	N30			Handrail	Beam	Pipe	A53 Gr B	Typical
14	M14	N28	N29			Handrail	Beam	Pipe	A53 Gr B	Typical
15	M15	N27	N26			Handrail	Beam	Pipe	A53 Gr B	Typical
16	M16	N34	N33			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
17	M17	N35	N21			Support	Beam	Pipe	A500 Gr...	Typical
18	M18	N36	N19			Support	Beam	Pipe	A500 Gr...	Typical
19	M19	N18	N37			Support	Beam	Pipe	A500 Gr...	Typical
20	M20	N43	N42			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
21	M21	N47	N46			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
22	M22	N51	N50			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
23	M23	N57	N56			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
24	M24	N61	N60			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
25	M25	N65	N64			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
26	M26	N69	N68			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
27	M27	N75	N74			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
28	M28	N79	N78			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
29	M29	N83	N82			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
30	M30	N87	N86			Antenna Pipe	Beam	Pipe	A53 Gr B	Typical
31	M31	N53	N25			Handrail Corner	Beam	Pipe	A36 Gr.36	Typical
32	M32	N72	N24			Handrail Corner	Beam	Pipe	A36 Gr.36	Typical
33	M33	N54	N71			Handrail Corner	Beam	Pipe	A36 Gr.36	Typical
34	M34	N91	N88			Kicker	Beam	Pipe	A36 Gr.36	Typical
35	M35	N93	N90			Kicker	Beam	Pipe	A36 Gr.36	Typical
36	M36	N92	N89			Kicker	Beam	Pipe	A36 Gr.36	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
1	N1	0	0	1	0	
2	N2	0	0	6	0	
3	N3	0.75	0	6	0	
4	N4	-0.75	0	6	0	
5	N5	5.196152	0	-3	0	
6	N6	4.821152	0	-3.649519	0	
7	N7	5.571152	0	-2.350481	0	
8	N8	-5.196152	0	-3	0	
9	N9	-5.571152	0	-2.350481	0	
10	N10	-4.821152	0	-3.649519	0	
11	N11	-6.25	0	-3.649519	0	



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Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
12	N12	6.2	0	-3.649519	0	
13	N13	-0.035576	0	7.237418	0	
14	N14	-6.260576	0	-3.544598	0	
15	N15	6.285576	0	-3.587899	0	
16	N16	0.060576	0	7.194117	0	
17	N17	.7	0	-3.649519	0	
18	N18	-.8	0	-3.649519	0	
19	N19	3.560576	0	1.131939	0	
20	N20	-3.535576	0	1.17524	0	
21	N21	2.810576	0	2.430977	0	
22	N22	-2.785576	0	2.474279	0	
23	N23	-5	0	-3.649519	0	
24	N24	5.5	3.5	-3.649519	0	
25	N25	-5.5	3.5	-3.649519	0	
26	N26	-6.25	3.5	-3.649519	0	
27	N27	6.2	3.5	-3.649519	0	
28	N28	-0.035576	3.5	7.237418	0	
29	N29	-6.260576	3.5	-3.544598	0	
30	N30	6.285576	3.5	-3.587899	0	
31	N31	0.060576	3.5	7.194117	0	
32	N32	-5	3.5	-3.649519	0	
33	N33	-5	6	-3.649519	0	
34	N34	-5	-2	-3.649519	0	
35	N35	0	0	2.452725	0	
36	N36	2.143125	0	-1.237334	0	
37	N37	-2.161623	0	-1.248013	0	
38	N38	0.866025	0	-.5	0	
39	N39	-0.866025	0	-.5	0	
40	N40	-1.667	0	-3.649519	0	
41	N41	-1.667	3.5	-3.649519	0	
42	N42	-1.667	6	-3.649519	0	
43	N43	-1.667	-2	-3.649519	0	
44	N44	1.666	0	-3.649519	0	
45	N45	1.666	3.5	-3.649519	0	
46	N46	1.666	6	-3.649519	0	
47	N47	1.666	-2	-3.649519	0	
48	N48	4.999	0	-3.649519	0	
49	N49	4.999	3.5	-3.649519	0	
50	N50	4.999	6	-3.649519	0	
51	N51	4.999	-2	-3.649519	0	
52	N52	-0.660576	0	6.154887	0	
53	N53	-5.910576	3.5	-2.93838	0	
54	N54	-0.410576	3.5	6.587899	0	
55	N55	-0.660576	3.5	6.154887	0	
56	N56	-0.660576	6	6.154887	0	
57	N57	-0.660576	-2	6.154887	0	
58	N58	-2.327076	0	3.268424	0	
59	N59	-2.327076	3.5	3.268424	0	
60	N60	-2.327076	6	3.268424	0	
61	N61	-2.327076	-2	3.268424	0	
62	N62	-3.993576	0	0.381961	0	
63	N63	-3.993576	3.5	0.381961	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
64	N64	-3.993576	6	0.381961	0	
65	N65	-3.993576	-2	0.381961	0	
66	N66	-5.660076	0	-2.504501	0	
67	N67	-5.660076	3.5	-2.504501	0	
68	N68	-5.660076	6	-2.504501	0	
69	N69	-5.660076	-2	-2.504501	0	
70	N70	5.660576	0	-2.505368	0	
71	N71	0.410576	3.5	6.587899	0	
72	N72	5.910576	3.5	-2.93838	0	
73	N73	5.660576	3.5	-2.505368	0	
74	N74	5.660576	6	-2.505368	0	
75	N75	5.660576	-2	-2.505368	0	
76	N76	3.994076	0	0.381095	0	
77	N77	3.994076	3.5	0.381095	0	
78	N78	3.994076	6	0.381095	0	
79	N79	3.994076	-2	0.381095	0	
80	N80	2.327576	0	3.267558	0	
81	N81	2.327576	3.5	3.267558	0	
82	N82	2.327576	6	3.267558	0	
83	N83	2.327576	-2	3.267558	0	
84	N84	0.661076	0	6.15402	0	
85	N85	0.661076	3.5	6.15402	0	
86	N86	0.661076	6	6.15402	0	
87	N87	0.661076	-2	6.15402	0	
88	N88	0	-2.5	1	0	
89	N89	0.866025	-2.5	-0.5	0	
90	N90	-0.866025	-2.5	-0.5	0	
91	N91	0	0	5	0	
92	N92	4.330127	0	-2.5	0	
93	N93	-4.330127	0	-2.5	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N38	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N39	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N88	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N89	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	N90	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
7	N91						
8	N92						
9	N93						

Member Point Loads (BLC 2 : Equipment Weight)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M22	Y	-0.67	7
2	M26	Y	-0.67	7
3	M30	Y	-0.67	7
4	M22	Y	-0.67	3

Member Point Loads (BLC 2 : Equipment Weight) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
5	M26	Y	-.067	3
6	M30	Y	-.067	3
7	M16	Y	-.09	7
8	M23	Y	-.09	7
9	M27	Y	-.09	7
10	M16	Y	-.09	3
11	M23	Y	-.09	3
12	M27	Y	-.09	3
13	M21	Y	-.077	7
14	M25	Y	-.077	7
15	M29	Y	-.077	7
16	M21	Y	-.077	1
17	M25	Y	-.077	1
18	M29	Y	-.077	1
19	M21	Y	-.074	%50
20	M25	Y	-.074	%50
21	M29	Y	-.074	%50

Member Point Loads (BLC 3 : Ice Weight)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M22	Y	-.088	7
2	M26	Y	-.088	7
3	M30	Y	-.088	7
4	M22	Y	-.088	3
5	M26	Y	-.088	3
6	M30	Y	-.088	3
7	M16	Y	-.104	7
8	M23	Y	-.104	7
9	M27	Y	-.104	7
10	M16	Y	-.104	3
11	M23	Y	-.104	3
12	M27	Y	-.104	3
13	M21	Y	-.207	7
14	M25	Y	-.207	7
15	M29	Y	-.207	7
16	M21	Y	-.207	1
17	M25	Y	-.207	1
18	M29	Y	-.207	1
19	M21	Y	-.069	%50
20	M25	Y	-.069	%50
21	M29	Y	-.069	%50

Member Point Loads (BLC 4 : Wind w/ Ice X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M22	X	.028	7
2	M22	X	.028	3
3	M26	X	.038	7
4	M30	X	.038	7
5	M26	X	.038	3
6	M30	X	.038	3
7	M16	X	.03	7



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Member Point Loads (BLC 4 : Wind w/ Ice X) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
8	M16	X	.03	3
9	M23	X	.044	7
10	M27	X	.044	7
11	M23	X	.044	3
12	M27	X	.044	3
13	M21	X	.046	7
14	M21	X	.046	1
15	M25	X	.103	7
16	M29	X	.103	7
17	M25	X	.103	1
18	M29	X	.103	1
19	M21	X	.018	%50

Member Point Loads (BLC 5 : Wind X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M22	X	.071	7
2	M22	X	.071	3
3	M26	X	.105	7
4	M30	X	.105	7
5	M26	X	.105	3
6	M30	X	.105	3
7	M16	X	.077	7
8	M16	X	.077	3
9	M23	X	.129	7
10	M27	X	.129	7
11	M23	X	.129	3
12	M27	X	.129	3
13	M21	X	.119	7
14	M21	X	.119	1
15	M25	X	.327	7
16	M29	X	.327	7
17	M25	X	.327	1
18	M29	X	.327	1
19	M21	X	.042	%50

Member Point Loads (BLC 6 : Wind w/ Ice Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M22	Z	.038	7
2	M22	Z	.038	3
3	M26	Z	.028	7
4	M30	Z	.028	7
5	M26	Z	.028	3
6	M30	Z	.028	3
7	M16	Z	.044	7
8	M16	Z	.044	3
9	M23	Z	.03	7
10	M27	Z	.03	7
11	M23	Z	.03	3
12	M27	Z	.03	3
13	M21	Z	.103	7
14	M21	Z	.103	1



Member Point Loads (BLC 6 : Wind w/ Ice Z) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
15	M25	Z	.046	7
16	M29	Z	.046	7
17	M25	Z	.046	1
18	M29	Z	.046	1
19	M25	Z	.018	%50
20	M29	Z	.018	%50

Member Point Loads (BLC 7 : Wind Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M22	Z	.105	7
2	M22	Z	.105	3
3	M26	Z	.071	7
4	M30	Z	.071	7
5	M26	Z	.071	3
6	M30	Z	.071	3
7	M16	Z	.129	7
8	M16	Z	.129	3
9	M23	Z	.077	7
10	M27	Z	.077	7
11	M23	Z	.077	3
12	M27	Z	.077	3
13	M21	Z	.327	7
14	M21	Z	.327	1
15	M25	Z	.119	7
16	M29	Z	.119	7
17	M25	Z	.119	1
18	M29	Z	.119	1
19	M25	Z	.042	%50
20	M29	Z	.042	%50

Member Distributed Loads (BLC 4 : Wind w/ Ice X)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M14	X	.003	.003	0	0
2	M5	X	.003	.003	0	0
3	M5	X	.003	.003	0	0
4	M24	X	.003	.003	0	0
5	M28	X	.003	.003	0	0
6	M16	X	.003	.003	0	0
7	M20	X	.003	.003	0	0
8	M21	X	.003	.003	0	0
9	M22	X	.003	.003	0	0
10	M13	X	.003	.003	0	0
11	M4	X	.003	.003	0	0

Member Distributed Loads (BLC 5 : Wind X)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M14	X	.008	.008	0	0
2	M5	X	.008	.008	0	0
3	M5	X	.008	.008	0	0



Member Distributed Loads (BLC 5 : Wind X) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
4	M24	X	.008	.008	0	0
5	M28	X	.008	.008	0	0
6	M16	X	.008	.008	0	0
7	M20	X	.008	.008	0	0
8	M21	X	.008	.008	0	0
9	M22	X	.008	.008	0	0
10	M13	X	.008	.008	0	0
11	M4	X	.008	.008	0	0

Member Distributed Loads (BLC 6 : Wind w/ Ice Z)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M15	Z	.003	.003	0	0
2	M6	Z	.003	.003	0	0
3	M20	Z	.003	.003	0	0
4	M26	Z	.003	.003	0	0
5	M25	Z	.003	.003	0	0
6	M24	Z	.003	.003	0	0
7	M23	Z	.003	.003	0	0
8	M27	Z	.003	.003	0	0
9	M28	Z	.003	.003	0	0
10	M29	Z	.003	.003	0	0
11	M30	Z	.003	.003	0	0
12	M14	Z	.003	.003	0	0
13	M5	Z	.003	.003	0	0
14	M13	Z	.003	.003	0	0
15	M4	Z	.003	.003	0	0

Member Distributed Loads (BLC 7 : Wind Z)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M15	Z	.008	.008	0	0
2	M6	Z	.008	.008	0	0
3	M20	Z	.008	.008	0	0
4	M26	Z	.008	.008	0	0
5	M25	Z	.008	.008	0	0
6	M24	Z	.008	.008	0	0
7	M23	Z	.008	.008	0	0
8	M27	Z	.008	.008	0	0
9	M28	Z	.008	.008	0	0
10	M29	Z	.008	.008	0	0
11	M30	Z	.008	.008	0	0
12	M14	Z	.008	.008	0	0
13	M5	Z	.008	.008	0	0
14	M13	Z	.008	.008	0	0
15	M4	Z	.008	.008	0	0

Member Distributed Loads (BLC 8 : BLC 2 Transient Area Loads)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.033	-.019	2	3.5
2	M1	Y	-.019	-.005	3.5	5
3	M4	Y	-.003	-.006	0	2.49



Member Distributed Loads (BLC 8 : BLC 2 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
4	M4	Y	-.006	-.01	2.49	4.98
5	M5	Y	.0003227	-.006	0	2.49
6	M5	Y	-.006	-.013	2.49	4.98
7	M9	Y	-.006	-.006	.317	1.183
8	M10	Y	-.012	-.012	.242	2.779
9	M17	Y	-.013	-.013	.0003843	2.559
10	M2	Y	-.032	-.019	2	3.5
11	M2	Y	-.019	-.005	3.5	5
12	M4	Y	-.013	-.006	7.47	9.96
13	M4	Y	-.006	.0003127	9.96	12.45
14	M6	Y	-.003	-.006	0	2.49
15	M6	Y	-.006	-.01	2.49	4.98
16	M8	Y	-.006	-.006	.318	1.183
17	M11	Y	-.012	-.012	0	2.556
18	M18	Y	-.012	-.012	.009	2.525
19	M3	Y	-.032	-.019	2	3.5
20	M3	Y	-.019	-.005	3.5	5
21	M5	Y	-.009	-.006	7.47	9.96
22	M5	Y	-.006	-.003	9.96	12.45
23	M6	Y	-.013	-.006	7.47	9.96
24	M6	Y	-.006	.0003098	9.96	12.45
25	M7	Y	-.006	-.006	.318	1.182
26	M12	Y	-.012	-.012	.0001388	2.537
27	M19	Y	-.012	-.012	.239	2.754

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Self Weight	DL		-1						
2	Equipment Weight	None					21		3	
3	Ice Weight	None					21			
4	Wind w/ Ice X	None					19	11		
5	Wind X	None					19	11		
6	Wind w/ Ice Z	None					20	15		
7	Wind Z	None					20	15		
8	BLC 2 Transient Area Loads	None						27		

Load Combinations

	Description	So...	PDelta	S...	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..
1	1.2D + 1.6W (X-dir...	Yes	Y		1	1.2	2	1.2	5	1.6							
2	0.9D + 1.6W (X-dir...	Yes	Y		1	.9	2	.9	5	1.6							
3	1.2D + 1.0Di + 1.0...	Yes	Y		1	1.2	2	1.2	3	1	4	1					
4	1.2D + 1.6W (X-dir...	Yes	Y		1	1.2	2	1.2	7	1.6							
5	0.9D + 1.6W (X-dir...	Yes	Y		1	.9	2	.9	7	1.6							
6	1.2D + 1.0Di + 1.0...	Yes	Y		1	1.2	2	1.2	3	1	6	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	N1	max	-.051	6	.464	3	-1.21	2	-.199	5	-.04	6	.355	1
2		min	-1.723	1	-.1	5	-6.366	4	-.5	3	-1.844	2	.056	5
3	N38	max	1.319	5	.545	4	3.048	1	.308	3	1.107	5	.456	4
4		min	-4.797	1	-.083	2	-2.108	5	-.08	5	-.377	2	.253	2
5	N39	max	1.077	6	.657	1	.446	6	.373	1	.206	2	-.162	2
6		min	-3.961	2	.409	5	-1.77	2	-.111	5	-.683	5	-.524	6
7	N88	max	.001	1	2.782	4	4.426	4	0	1	0	6	0	6
8		min	0	6	.871	2	1.373	2	0	1	0	2	0	2
9	N89	max	3.68	1	2.672	1	.05	5	0	4	0	4	0	3
10		min	-.087	5	-.05	5	-2.126	1	0	3	0	3	0	4
11	N90	max	1.03	2	1.622	6	.595	2	0	5	0	1	0	5
12		min	-2.224	6	-.731	2	-1.284	6	0	1	0	5	0	1
13	Totals:	max	0	6	6.88	6	0	2						
14		min	-5.923	1	3.209	2	-5.516	4						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...]	LC	Y Rotation [...]	LC	Z Rotation [...]	LC
1	N1	max	0	1	0	5	0	4	0	3	0	2	0	5
2		min	0	6	0	3	0	2	0	5	0	6	0	1
3	N2	max	.028	2	-.008	2	.003	4	2.097e-03	4	-1.398e-05	6	3.193e-03	2
4		min	0	6	-.039	4	0	2	2.401e-04	2	-2.036e-04	1	-5.609e-04	6
5	N3	max	.028	2	.021	2	.004	4	2.097e-03	4	6.628e-05	2	-9.722e-04	6
6		min	0	6	-.04	4	.001	3	2.401e-04	2	-4.254e-04	4	-9.565e-03	1
7	N4	max	.028	2	-.018	3	.003	4	2.097e-03	4	6.846e-04	1	1.318e-03	4
8		min	0	6	-.039	1	-.001	2	2.401e-04	2	1.016e-04	6	-9.042e-03	2
9	N5	max	.004	4	.009	5	.01	5	-1.101e-03	6	4.724e-04	2	1.928e-03	5
10		min	-.003	2	-.036	1	-.01	1	-2.094e-03	1	8.727e-05	3	-1.093e-03	1
11	N6	max	0	4	-.014	5	.012	5	7.264e-03	5	6.718e-04	5	-7.284e-04	3
12		min	-.006	2	-.048	1	-.008	1	-4.774e-04	3	-5.407e-05	3	-3.322e-03	4
13	N7	max	.008	4	.031	5	.008	5	6.01e-03	4	6.242e-04	1	-1.068e-03	6
14		min	.001	2	-.025	1	-.012	1	7.986e-04	3	-4.255e-04	5	-4.49e-03	1
15	N8	max	0	3	.021	2	.009	5	1.818e-03	2	6.516e-04	2	5.026e-04	3
16		min	-.004	4	-.013	6	0	3	-1.576e-03	4	-3.369e-04	4	-1.75e-03	5
17	N9	max	.003	2	.028	5	.011	2	5.811e-03	4	1.15e-03	2	2.595e-03	4
18		min	-.007	4	-.017	3	.001	6	-4.074e-03	2	1.579e-05	6	-4.113e-03	2
19	N10	max	0	6	.032	2	.01	5	6.979e-03	5	4.235e-05	6	3.234e-03	4
20		min	-.007	1	-.015	4	0	3	-2.083e-03	1	2.003e-06	2	-2.92e-03	2
21	N11	max	0	6	.082	2	.01	4	7.357e-03	5	4.716e-05	6	2.975e-03	4
22		min	-.007	1	-.066	4	0	3	-2.36e-03	1	-6.675e-05	2	-2.957e-03	2
23	N12	max	0	4	-.035	6	0	6	7.709e-03	5	7.235e-04	5	-7.677e-04	3
24		min	-.006	2	-.096	1	-.007	2	-3.649e-04	3	-7.316e-05	3	-3.051e-03	4
25	N13	max	.039	1	-.028	6	0	6	2.226e-03	4	7.224e-04	1	1.168e-03	4
26		min	.002	6	-.118	1	-.007	2	-1.76e-04	2	1.204e-04	6	-9.395e-03	2
27	N14	max	-.002	6	.089	5	.021	2	5.938e-03	4	1.212e-03	2	2.947e-03	4
28		min	-.014	1	-.023	3	.001	6	-3.938e-03	2	2.001e-05	6	-4.541e-03	2
29	N15	max	.015	5	.097	5	.012	5	6.153e-03	4	6.756e-04	1	-1.108e-03	6
30		min	-.009	1	-.016	3	-.018	1	7.477e-04	3	-4.891e-04	5	-4.789e-03	1
31	N16	max	.029	2	.093	2	.003	1	2.275e-03	4	5.304e-05	2	-8.867e-04	6
32		min	-.006	4	-.059	4	0	5	5.783e-04	3	-4.801e-04	4	-9.88e-03	1

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...]	LC	Y Rotation [...]	LC	Z Rotation [...]	LC
33	N17	max	0	6	.022	5	.007	5	7.939e-03	5	-1.81e-05	3	1.176e-05	2
34		min	-.006	2	-.027	3	0	3	-2.741e-04	3	-5.782e-04	5	-8.305e-04	4
35	N18	max	0	6	.023	5	.004	5	8.092e-03	5	1.2e-04	5	6.228e-04	5
36		min	-.006	1	-.018	3	-.004	1	-7.385e-04	1	-1.454e-04	1	-3.773e-04	3
37	N19	max	.009	1	-.021	6	.005	5	4.309e-03	1	-3.449e-05	3	-9.308e-04	6
38		min	0	6	-.037	1	-.008	1	1.061e-03	6	-1.519e-04	4	-6.127e-03	1
39	N20	max	.013	2	.021	2	.007	2	1.99e-03	5	2.134e-04	4	3.33e-03	4
40		min	0	4	-.03	6	0	6	-4.273e-03	1	-4.929e-04	2	-5.839e-03	2
41	N21	max	.01	2	-.026	5	.005	4	3.535e-03	1	4.926e-04	1	-7.361e-04	6
42		min	0	6	-.042	1	-.008	2	9.289e-04	6	3.346e-05	6	-6.809e-03	1
43	N22	max	.01	2	.024	2	.009	1	1.372e-03	4	1.198e-04	2	3.179e-03	4
44		min	0	6	-.022	4	0	6	-3.297e-03	1	-2.734e-05	4	-6.994e-03	2
45	N23	max	0	6	.038	2	.01	5	7.357e-03	5	4.546e-05	6	2.969e-03	4
46		min	-.007	1	-.021	4	0	3	-2.36e-03	1	-6.675e-05	2	-2.961e-03	2
47	N24	max	.124	1	-.017	5	.508	4	1.578e-02	4	4.475e-03	5	5.558e-04	4
48		min	-.002	5	-.07	1	.034	3	1.1e-03	3	-3.376e-03	1	-2.709e-03	2
49	N25	max	.124	1	.055	2	.474	4	1.414e-02	4	3.002e-05	6	-2.414e-04	6
50		min	-.003	5	-.019	4	-.22	2	-5.707e-03	2	-3.471e-03	2	-2.943e-03	1
51	N26	max	.124	1	.082	2	.456	4	1.414e-02	4	3.169e-05	6	-2.391e-04	6
52		min	-.003	5	-.015	4	-.251	2	-5.707e-03	2	-3.471e-03	2	-2.941e-03	1
53	N27	max	.124	1	-.013	5	.47	4	1.578e-02	4	4.469e-03	5	5.539e-04	4
54		min	-.002	5	-.093	1	.042	3	1.1e-03	3	-3.376e-03	1	-2.711e-03	2
55	N28	max	.576	1	-.023	3	.116	5	3.451e-03	5	3.317e-03	4	4.921e-04	5
56		min	.015	6	-.081	4	-.213	1	-6.8e-03	1	6.474e-04	3	-1.502e-02	1
57	N29	max	.313	1	.069	5	.316	4	7.495e-03	4	5.766e-03	2	8.199e-03	5
58		min	-.306	4	-.01	3	-.062	1	-3.953e-03	2	1.221e-04	6	-1.155e-02	1
59	N30	max	.338	5	.077	5	.339	4	7.926e-03	4	4.186e-03	1	-1.616e-03	6
60		min	.053	3	-.058	1	.01	3	6.657e-04	3	-3.129e-03	5	-9.676e-03	2
61	N31	max	.555	1	.05	2	.208	1	7.237e-03	2	-5.818e-04	3	-3.121e-04	6
62		min	-.014	5	-.082	4	.035	6	8.006e-04	6	-3.718e-03	4	-1.538e-02	1
63	N32	max	.124	1	.038	2	.485	4	1.421e-02	4	1.253e-05	6	-2.728e-04	6
64		min	-.003	5	-.021	4	-.199	1	-5.76e-03	2	-3.188e-03	2	-2.882e-03	1
65	N33	max	.225	1	.038	2	.931	4	0	1	1.253e-05	6	0	1
66		min	.01	6	-.022	4	-.372	2	0	1	-3.188e-03	2	0	1
67	N34	max	.07	4	.038	2	.062	1	0	1	4.546e-05	6	0	1
68		min	-.077	2	-.021	4	-.166	5	0	1	-6.675e-05	2	0	1
69	N35	max	.01	2	-.001	2	.001	4	2.799e-04	4	5.488e-04	2	-8.161e-05	5
70		min	0	6	-.003	6	0	2	7.401e-05	2	3.316e-06	6	-5.205e-04	1
71	N36	max	.002	4	-.001	5	.005	5	3.602e-04	5	1.876e-04	2	-8.758e-05	6
72		min	0	2	-.003	3	-.003	1	-1.845e-04	3	-2.317e-04	4	-3.417e-04	1
73	N37	max	0	2	0	2	.003	5	3.825e-04	5	1.833e-04	5	2.284e-04	6
74		min	-.002	4	-.003	6	0	3	-2.221e-04	1	1.34e-05	3	-2.588e-04	2
75	N38	max	0	1	0	2	0	5	0	5	0	2	0	2
76		min	0	5	0	4	0	1	0	3	0	5	0	4
77	N39	max	0	2	0	5	0	2	0	5	0	5	0	6
78		min	0	6	0	1	0	6	0	1	0	2	0	2
79	N40	max	0	6	.02	5	.006	5	9.367e-03	5	1.344e-04	5	5.364e-05	5
80		min	-.006	1	-.015	3	-.004	1	-1.187e-03	1	-8.036e-06	3	-7.205e-04	1
81	N41	max	.124	1	.02	5	.576	5	1.595e-02	4	-3.345e-04	6	4.503e-04	5
82		min	-.002	5	-.015	3	-.073	1	-1.95e-03	1	-2.529e-03	5	-2.103e-03	1
83	N42	max	.189	1	.02	5	1.057	5	0	1	-3.345e-04	6	0	1
84		min	-.016	5	-.015	3	-.132	1	0	1	-2.529e-03	5	0	1

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [... LC	Y Rotation [... LC	Z Rotation [... LC			
85	N43	max	0	5	.02	5	.025	1	0	1	1.344e-04	5	0	1
86		min	-.023	1	-.015	3	-.218	5	0	1	-8.036e-06	3	0	1
87	N44	max	0	6	.017	5	.016	5	9.172e-03	5	5.186e-05	1	-3.541e-05	5
88		min	-.006	2	-.032	3	0	3	-2.667e-04	3	-6.089e-04	5	-4.785e-04	1
89	N45	max	.124	1	.017	5	.673	5	2.042e-02	5	1.817e-04	5	-1.662e-04	6
90		min	-.002	5	-.033	3	-.004	3	2.088e-05	3	-2.362e-03	1	-2.548e-03	1
91	N46	max	.221	1	.017	5	1.335	5	0	1	1.817e-04	5	0	1
92		min	.007	6	-.033	3	-.004	3	0	1	-2.362e-03	1	0	1
93	N47	max	0	5	.017	5	.006	3	0	1	5.186e-05	1	0	1
94		min	-.01	1	-.032	3	-.186	5	0	1	-6.089e-04	5	0	1
95	N48	max	0	4	-.021	5	.011	5	7.709e-03	5	7.3e-04	5	-7.613e-04	3
96		min	-.006	2	-.054	1	-.008	1	-3.649e-04	3	-7.316e-05	3	-3.045e-03	4
97	N49	max	.124	1	-.021	5	.534	5	1.586e-02	4	4.289e-03	5	6.676e-04	4
98		min	-.002	5	-.054	1	.028	3	1.109e-03	3	-3.096e-03	1	-2.645e-03	2
99	N50	max	.216	2	-.021	5	1.026	4	0	1	4.289e-03	5	0	1
100		min	-.022	4	-.054	1	.061	3	0	1	-3.096e-03	1	0	1
101	N51	max	-.018	6	-.021	5	.007	3	0	1	7.3e-04	5	0	1
102		min	-.075	1	-.054	1	-.174	5	0	1	-7.316e-05	3	0	1
103	N52	max	.03	1	-.019	6	.003	4	2.222e-03	4	7.099e-04	1	1.171e-03	4
104		min	0	6	-.049	1	-.002	2	-1.793e-04	2	1.212e-04	6	-9.394e-03	2
105	N53	max	.355	2	.05	5	.307	4	7.496e-03	4	5.771e-03	2	8.198e-03	5
106		min	-.291	4	-.015	3	-.087	1	-3.952e-03	2	1.214e-04	6	-1.155e-02	1
107	N54	max	.567	1	-.022	3	.131	5	3.45e-03	5	3.32e-03	4	4.929e-04	5
108		min	.006	6	-.059	1	-.208	1	-6.802e-03	1	6.46e-04	3	-1.502e-02	1
109	N55	max	.561	1	-.019	6	.14	5	3.439e-03	5	3.072e-03	4	4.96e-04	5
110		min	-.004	5	-.049	1	-.205	1	-6.957e-03	1	5.875e-04	3	-1.503e-02	1
111	N56	max	1.032	1	-.02	6	.258	5	0	1	3.072e-03	4	0	1
112		min	-.019	5	-.049	1	-.413	1	0	1	5.875e-04	3	0	1
113	N57	max	.029	4	-.019	6	.002	2	0	1	7.099e-04	1	0	1
114		min	-.196	2	-.049	1	-.05	4	0	1	1.212e-04	6	0	1
115	N58	max	.013	2	.018	2	.007	1	2.214e-03	4	3.377e-04	2	2.837e-03	4
116		min	0	6	-.022	4	.001	6	-4.153e-03	2	-1.806e-05	4	-8.267e-03	2
117	N59	max	.542	2	.018	2	.202	4	3.984e-03	4	2.535e-03	4	3.754e-03	4
118		min	-.111	4	-.022	4	-.194	2	-6.3e-03	1	-3.595e-04	2	-1.44e-02	2
119	N60	max	.976	2	.018	2	.324	4	0	1	2.535e-03	4	0	1
120		min	-.223	4	-.022	4	-.383	2	0	1	-3.595e-04	2	0	1
121	N61	max	.068	4	.018	2	.107	2	0	1	3.377e-04	2	0	1
122		min	-.184	2	-.022	4	-.049	4	0	1	-1.806e-05	4	0	1
123	N62	max	.018	2	.017	2	.006	5	2.795e-03	4	2.673e-04	4	4.004e-03	4
124		min	-.003	4	-.034	6	0	3	-3.822e-03	2	-3.215e-04	2	-6.959e-03	2
125	N63	max	.553	2	.017	2	.258	4	6.476e-03	4	2.163e-03	5	6.264e-03	4
126		min	-.207	4	-.034	6	-.201	2	-7.338e-03	2	3.149e-04	3	-1.605e-02	2
127	N64	max	1.083	2	.017	2	.472	4	0	1	2.163e-03	5	0	1
128		min	-.395	4	-.034	6	-.421	2	0	1	3.149e-04	3	0	1
129	N65	max	.093	4	.017	2	.095	2	0	1	2.673e-04	4	0	1
130		min	-.13	2	-.034	6	-.054	4	0	1	-3.215e-04	2	0	1
131	N66	max	0	2	.035	5	.013	2	5.944e-03	4	1.224e-03	2	2.944e-03	4
132		min	-.007	4	-.018	3	.001	6	-3.933e-03	2	1.926e-05	6	-4.543e-03	2
133	N67	max	.385	2	.035	5	.301	4	7.459e-03	4	5.515e-03	2	8.3e-03	5
134		min	-.28	4	-.018	3	-.104	2	-3.91e-03	2	1.302e-04	6	-1.164e-02	1
135	N68	max	.749	1	.035	5	.538	4	0	1	5.515e-03	2	0	1
136		min	-.529	4	-.018	3	-.221	2	0	1	1.302e-04	6	0	1

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...]	LC	Y Rotation [...]	LC	Z Rotation [...]	LC
137	N69	max	.063	4	.035	5	.107	2	0	1	1.224e-03	2	0	1
138		min	-.108	2	-.018	3	-.134	4	0	1	1.926e-05	6	0	1
139	N70	max	.009	4	.04	5	.009	5	6.158e-03	4	6.819e-04	1	-1.105e-03	6
140		min	0	2	-.023	1	-.013	1	7.521e-04	3	-4.854e-04	5	-4.787e-03	1
141	N71	max	.567	1	.038	2	.215	1	7.235e-03	2	-5.83e-04	3	-3.13e-04	6
142		min	.006	6	-.059	4	.04	6	7.989e-04	6	-3.721e-03	4	-1.538e-02	1
143	N72	max	.314	5	.054	5	.325	4	7.928e-03	4	4.192e-03	1	-1.614e-03	6
144		min	.063	3	-.037	1	.016	3	6.677e-04	3	-3.126e-03	5	-9.675e-03	2
145	N73	max	.33	1	.04	5	.316	4	7.886e-03	4	3.928e-03	1	-1.633e-03	6
146		min	.062	6	-.024	1	.02	3	6.713e-04	3	-2.895e-03	5	-9.738e-03	2
147	N74	max	.642	2	.039	5	.567	4	0	1	3.928e-03	1	0	1
148		min	.111	6	-.024	1	.04	3	0	1	-2.895e-03	5	0	1
149	N75	max	-.024	6	.04	5	-.02	3	0	1	6.819e-04	1	0	1
150		min	-.115	1	-.023	1	-.138	4	0	1	-4.854e-04	5	0	1
151	N76	max	.01	1	-.017	6	.006	5	3.865e-03	1	5.768e-05	2	-1.117e-03	6
152		min	0	6	-.035	1	-.008	1	1.094e-03	6	-1.619e-04	4	-7.341e-03	1
153	N77	max	.475	1	-.017	6	.262	4	6.066e-03	1	3.812e-03	1	-1.437e-03	6
154		min	.053	6	-.035	1	.042	3	1.476e-03	3	-1.799e-03	5	-1.209e-02	1
155	N78	max	.84	1	-.017	6	.446	4	0	1	3.812e-03	1	0	1
156		min	.096	6	-.035	1	.086	3	0	1	-1.799e-03	5	0	1
157	N79	max	-.026	6	-.017	6	-.025	6	0	1	5.768e-05	2	0	1
158		min	-.165	1	-.035	1	-.101	1	0	1	-1.619e-04	4	0	1
159	N80	max	.018	1	-.027	5	.005	4	4.428e-03	1	7.522e-04	1	-9.429e-04	6
160		min	0	6	-.041	1	-.004	2	8.456e-04	6	4.07e-05	6	-8.021e-03	1
161	N81	max	.607	1	-.027	5	.239	1	7.502e-03	1	1.475e-03	2	-1.239e-03	6
162		min	.042	6	-.041	1	.058	3	1.364e-03	6	-1.979e-03	4	-1.792e-02	1
163	N82	max	1.193	1	-.027	5	.464	1	0	1	1.475e-03	2	0	1
164		min	.08	6	-.041	1	.107	6	0	1	-1.979e-03	4	0	1
165	N83	max	-.022	6	-.027	5	-.017	6	0	1	7.522e-04	1	0	1
166		min	-.156	1	-.041	1	-.11	1	0	1	4.07e-05	6	0	1
167	N84	max	.029	2	.03	2	.003	4	2.27e-03	4	4.747e-05	2	-8.899e-04	6
168		min	0	4	-.042	4	.001	3	5.728e-04	3	-4.833e-04	4	-9.883e-03	1
169	N85	max	.576	1	.03	2	.22	1	7.376e-03	2	-5.337e-04	3	-3.181e-04	6
170		min	.012	6	-.043	4	.043	6	7.932e-04	6	-3.47e-03	4	-1.541e-02	1
171	N86	max	1.054	1	.03	2	.441	1	0	1	-5.337e-04	3	0	1
172		min	.021	6	-.043	4	.07	6	0	1	-3.47e-03	4	0	1
173	N87	max	-.022	6	.03	2	-.012	3	0	1	4.747e-05	2	0	1
174		min	-.209	1	-.042	4	-.05	4	0	1	-4.833e-04	4	0	1
175	N88	max	0	6	0	2	0	2	0	1	0	2	0	2
176		min	0	1	0	4	0	4	0	1	0	6	0	6
177	N89	max	0	5	0	5	0	1	0	3	0	3	0	4
178		min	0	1	0	1	0	5	0	4	0	4	0	3
179	N90	max	0	6	0	2	0	6	0	1	0	5	0	1
180		min	0	2	0	6	0	2	0	5	0	1	0	5
181	N91	max	.027	2	-.004	2	.003	4	1.385e-03	4	3.056e-04	2	2.149e-03	2
182		min	0	6	-.016	4	0	2	2.484e-04	2	-2.35e-05	4	-4.456e-04	6
183	N92	max	.006	4	.002	5	.012	5	-8.846e-04	6	2.28e-04	2	1.168e-03	5
184		min	0	2	-.015	1	-.007	1	-1.388e-03	1	-6.71e-06	4	-6.899e-04	1
185	N93	max	0	2	.006	2	.01	5	1.088e-03	2	2.945e-04	2	5.276e-04	3
186		min	-.005	4	-.007	6	0	3	-1.127e-03	4	1.028e-05	6	-1.023e-03	5

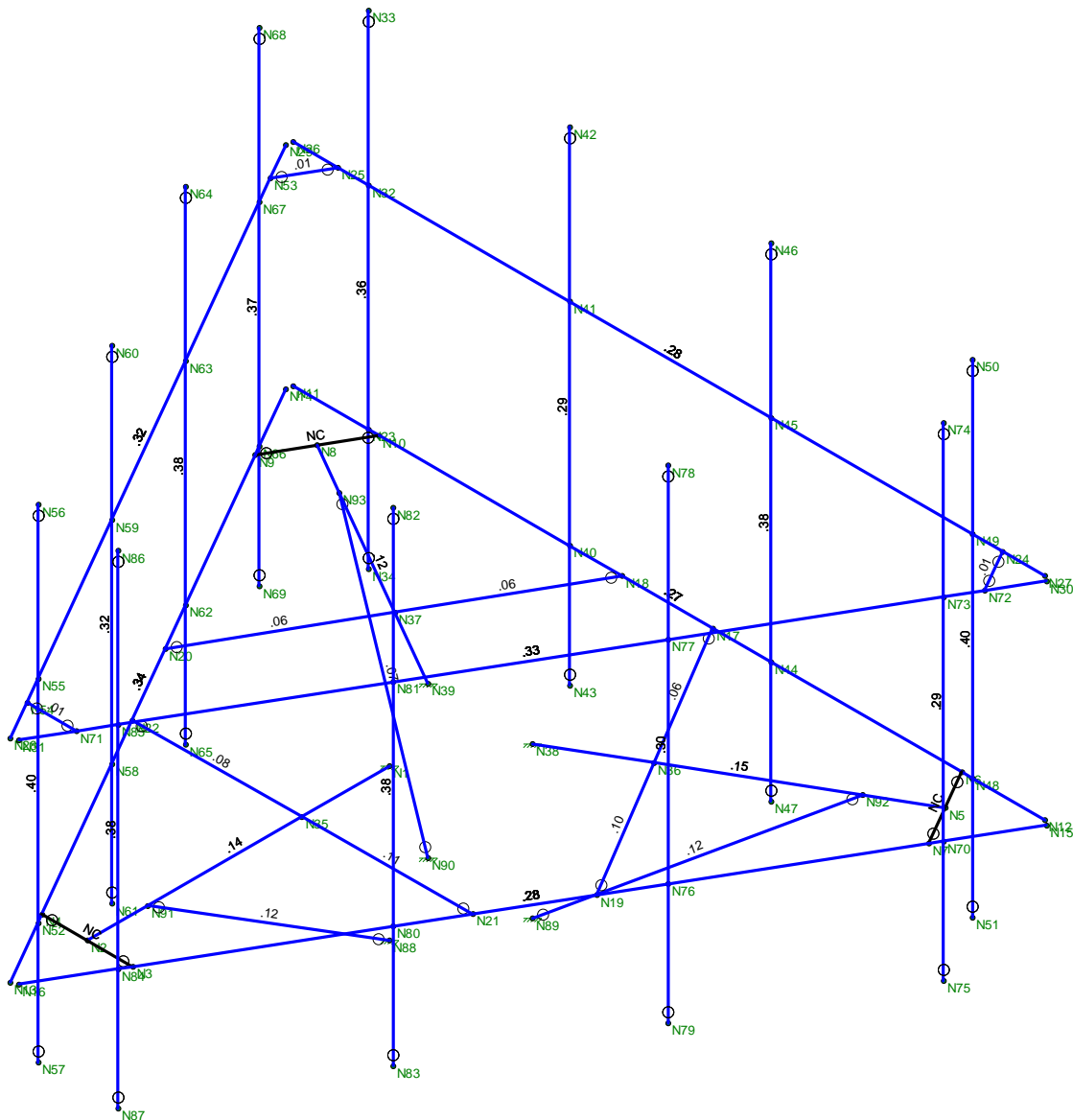
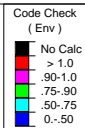


Company : Centek
 Designer : TJJ
 Job Number : 18058.25
 Model Name : CT11082E - Mount

May 21, 2018
 2:04 PM
 Checked By: _____

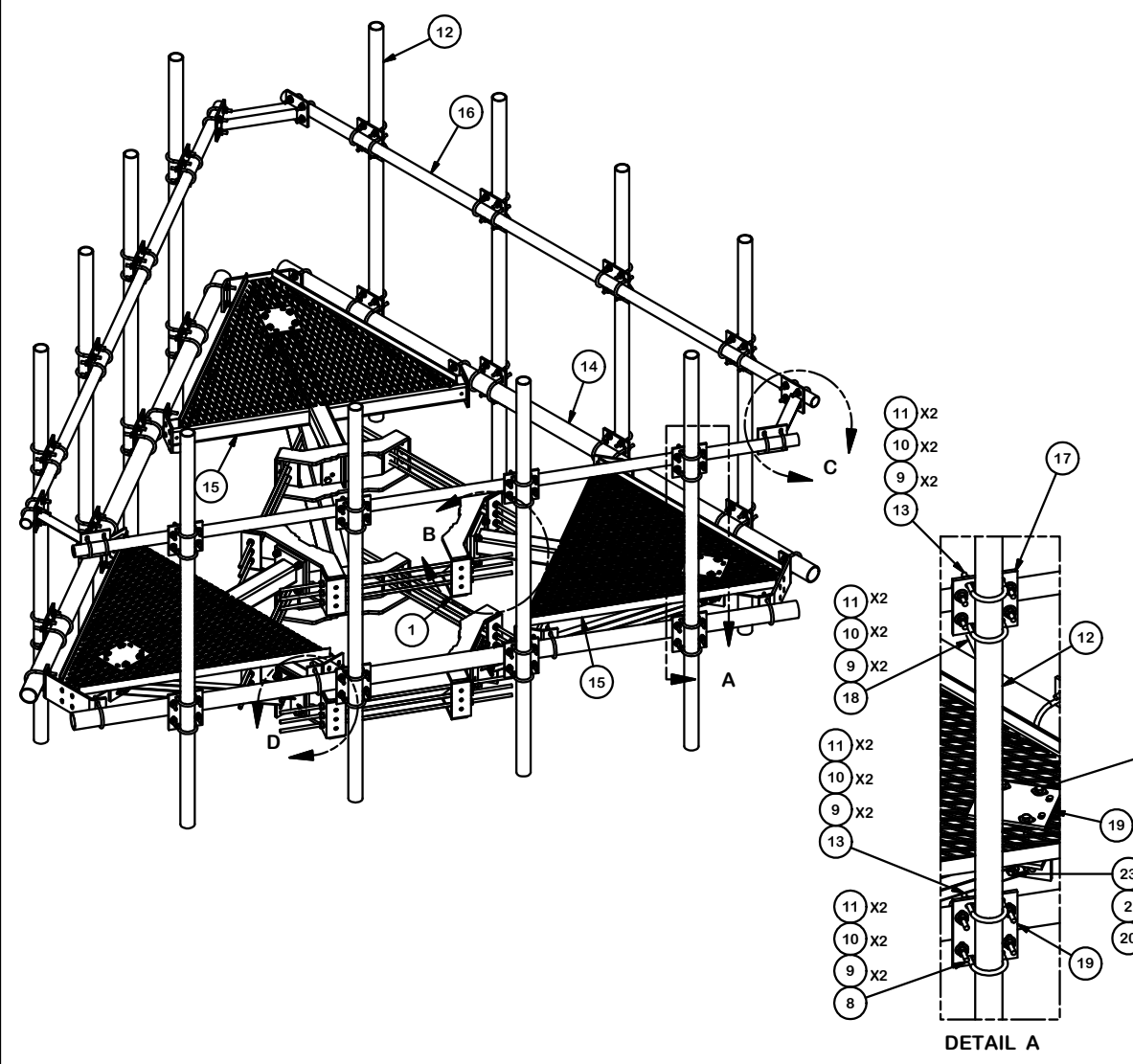
Envelope AISC 14th(360-10): LRFD Steel Code Checks

Member	Shape	Code Check	Loc...	LC	Shea..	Loc.....	L..	phi*Pn..	phi*Pn..	phi*M...	phi*M...	Eqn		
1	M1	HSS4x4x4	.144	3.9...	4	.098	4.01	y	1	135.78	139.518	16.181	16.181	2..H1-1b
2	M2	HSS4x4x4	.152	3.9...	1	.071	4.01	y	1	135.844	139.518	16.181	16.181	2..H1-1b
3	M3	HSS4x4x4	.122	5	1	.065	4.01	y	4	138.935	139.518	16.181	16.181	1..H1-1b
4	M4	PIPE_3.0	.284	1.4...	2	.257	1.2...	2	57.037	65.205	5.749	5.749	1 H1-1b	
5	M5	PIPE_3.0	.339	1.5...	1	.280	1.4...	1	57.037	65.205	5.749	5.749	1 H1-1b	
6	M6	PIPE_3.0	.274	1.4...	4	.238	1.2...	4	57.037	65.205	5.749	5.749	1 H1-1b	
7	M10	HSS4x4x4	.075	2.7...	4	.091	0	z	1	135.06	139.518	16.181	16.181	1..H1-1b
8	M11	HSS4x4x4	.064	0	3	.092	0	z	5	134.98	139.518	16.181	16.181	1..H1-1b
9	M12	HSS4x4x4	.064	0	2	.080	2.7...	y	2	135.06	139.518	16.181	16.181	1..H1-1b
10	M13	PIPE_2.0	.331	4.5...	1	.131	7.7...	1	6.346	32.13	1.872	1.872	3..H1-1b	
11	M14	PIPE_2.0	.320	8.0...	2	.133	11....	2	6.346	32.13	1.872	1.872	4..H1-1b	
12	M15	PIPE_2.0	.278	4.5...	2	.104	1.2...	5	6.346	32.13	1.872	1.872	4..H1-1b	
13	M16	PIPE_2.5	.361	2	4	.082	2	2	30.038	50.715	3.596	3.596	1..H1-1b	
14	M17	HSS4x4x4	.105	0	1	.101	0	y	1	134.981	139.518	16.181	16.181	1..H1-1b
15	M18	HSS4x4x4	.104	0	1	.087	0	y	1	135.137	139.518	16.181	16.181	1..H1-1b
16	M19	HSS4x4x4	.059	2.7...	3	.095	0	y	5	135.138	139.518	16.181	16.181	1..H1-1b
17	M20	PIPE_2.5	.286	2	4	.082	2	2	30.038	50.715	3.596	3.596	2..H1-1b	
18	M21	PIPE_2.5	.385	2	4	.081	2	1	30.038	50.715	3.596	3.596	2..H1-1b	
19	M22	PIPE_2.5	.404	2	4	.103	2	5	30.038	50.715	3.596	3.596	1..H1-1b	
20	M23	PIPE_2.5	.405	2	1	.076	2	4	30.038	50.715	3.596	3.596	1..H1-1b	
21	M24	PIPE_2.5	.324	2	1	.085	2	4	30.038	50.715	3.596	3.596	1..H1-1b	
22	M25	PIPE_2.5	.383	2	1	.075	5.5	2	30.038	50.715	3.596	3.596	1..H1-1b	
23	M26	PIPE_2.5	.372	2	1	.122	2	2	30.038	50.715	3.596	3.596	1..H1-1b	
24	M27	PIPE_2.5	.293	2	5	.095	2	1	30.038	50.715	3.596	3.596	1..H1-1b	
25	M28	PIPE_2.5	.305	2	1	.106	2	1	30.038	50.715	3.596	3.596	1..H1-1b	
26	M29	PIPE_2.5	.375	2	1	.074	2	4	30.038	50.715	3.596	3.596	1..H1-1b	
27	M30	PIPE_2.5	.377	2	2	.084	2	4	30.038	50.715	3.596	3.596	1..H1-1b	
28	M31	L2.5x2.5x4	.009	.411	2	.131	.821	y	4	37.717	38.556	1.114	2.537	1..H2-1
29	M32	L2.5x2.5x4	.009	.411	1	.144	0	y	4	37.717	38.556	1.114	2.537	1..H2-1
30	M33	L2.5x2.5x4	.008	.411	4	.170	0	y	1	37.717	38.556	1.114	2.537	1..H2-1
31	M34	LL2.5x2.5x3x3	.121	4.7...	4	.004	0	y	1	43.374	58.32	3.954	2.55	1 H1-1..
32	M35	LL2.5x2.5x3x3	.070	4.7...	6	.003	0	y	4	43.374	58.32	3.954	2.55	1 H1-1..
33	M36	LL2.5x2.5x3x3	.116	4.7...	1	.003	0	y	4	43.374	58.32	3.954	2.55	1 H1-1..



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek	CT11082E - Mount Unity Check	May 21, 2018 at 2:04 PM
TJL		Mount - Proposed.r3d
18058.25		



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	6	X-LWRM	RING MOUNT WELDMT		68.16	408.95
2	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
3	60	A58NUT	5/8" HDG A325 HEX NUT		0.13	7.78
4	18	G58R-24	5/8" x 24" THREADED ROD (HDG.)		0.55	9.88
5	18	G58R-48	5/8" x 48" THREADED ROD (HDG.)		0.55	9.88
6	24	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2 3/4 in	0.36	8.53
7	24	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.82
8	36	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.73	26.34
9	264	G12FW	1/2" HDG USS FLATWASHER		0.03	8.99
10	252	G12LW	1/2" HDG LOCKWASHER		0.01	3.50
11	252	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	18.03
12	12	P3096	2-7/8" OD X 96" Sch 40 Galvanized Pipe		46.45	557.43
13	48	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.73	35.12
14	3	P3150	3-1/2" X 150" SCH 40 GALVANIZED PIPE	150 in	94.80	284.40
15	3	X-SV196	LOW PROFILE PLATFORM CORNER		212.10	636.31
16	3	P2150	2-3/8" OD X 150" SCH 40 GALVANIZED PIPE	150 in	48.06	144.17
17	12	SCX2	CROSSOVER PLATE	7 in	4.80	57.56
18	36	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.73	26.34
19	15	SCX4	CROSSOVER PLATE	8 1/2 in	6.02	90.32
20	6	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	0.78
21	6	X-253993	PLATFORM REINFORCEMENT KIT ANGLE	52 25/32 in	14.33	85.99
22	6	X-253992	T-BRACKET FOR REINFORCEMENT KIT		13.55	81.27
23	6	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.62
24	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	4.91
25	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
					TOTAL WT. #	2645.84

TOLERANCE NOTES
 TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
 DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.060"$)

PROPRIETARY NOTE:
 THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION
 12' 6" LOW PROFILE PLATFORM
 WITH TWELVE 2-7/8" ANTENNA MOUNTING
 PIPES, AND HANDRAIL

CPD NO. 4488 DRAWN BY CEK 3/24/2014 ENG. APPROVAL
 CLASS SUB 81 02 DRAWING USAGE CUSTOMER CHECKED BY BMC 7/14/2014

Engineering Support Team:
1-888-753-7446

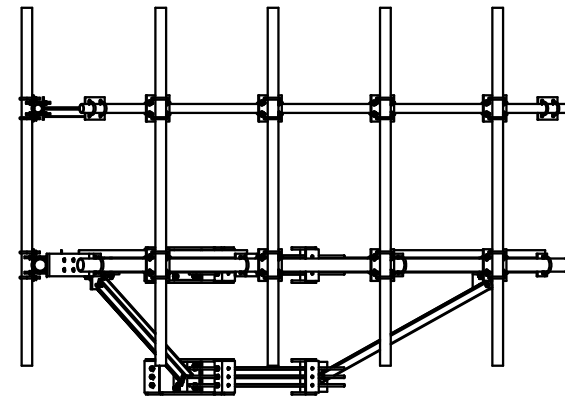
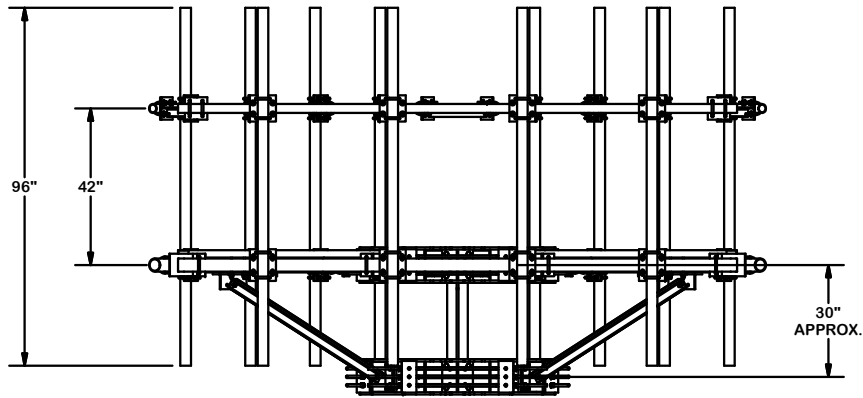
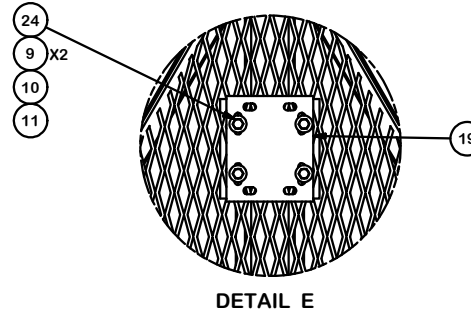
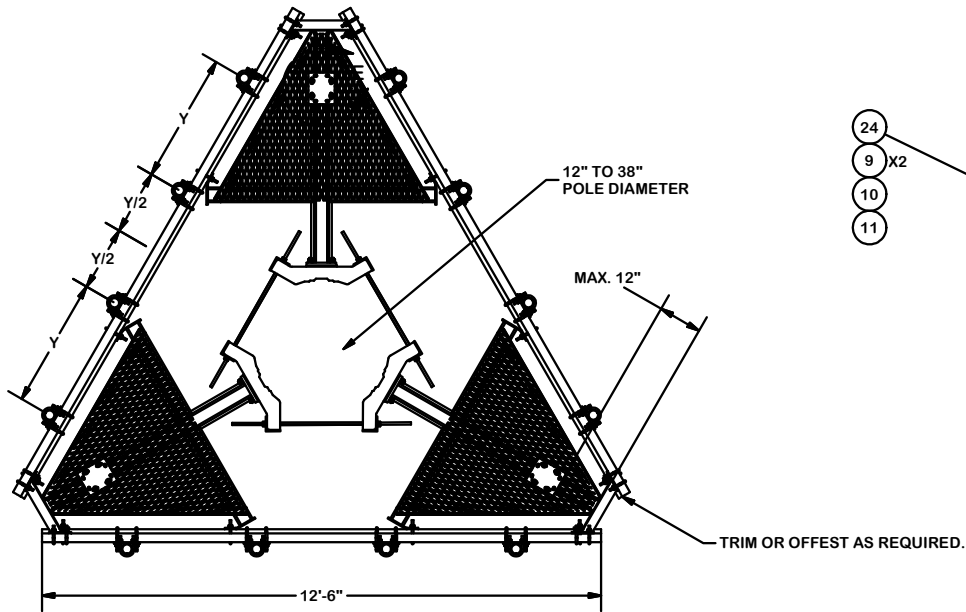
Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

A valmont COMPANY

PART NO. **RMQP-4096-HK**

DWG. NO. **RMQP-4096-HK**

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	REPLACED HCP WITH X-AHCP	4488	CEK	7/14/2014
REVISION HISTORY				



TOLERANCE NOTES

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 SAWED, SHEARED AND GAS CUT EDGES (± 0.030 ")
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DESCRIPTION
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 WITH TWELVE 2-7/8" ANTENNA MOUTING
 PIPES, AND HANDRAIL



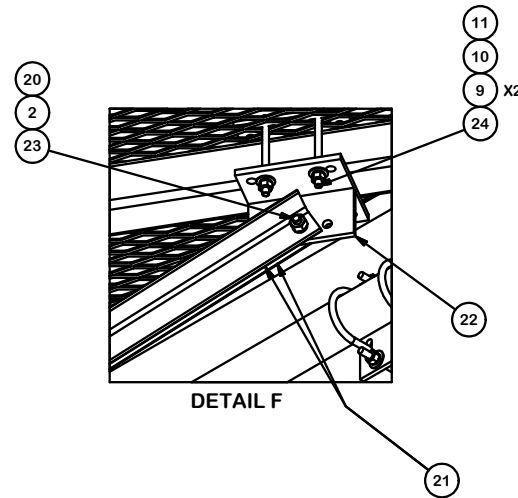
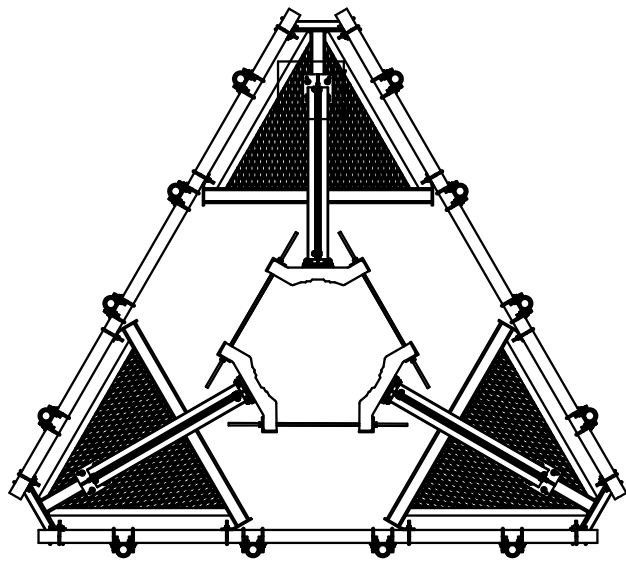
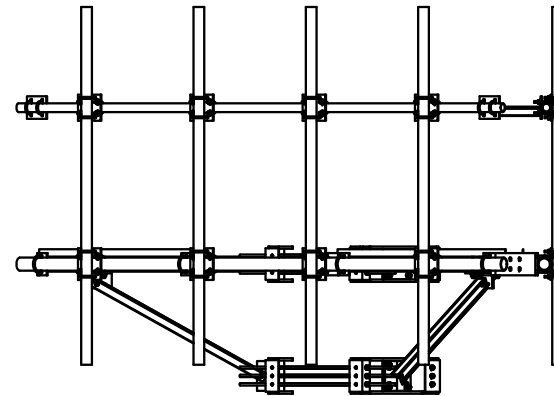
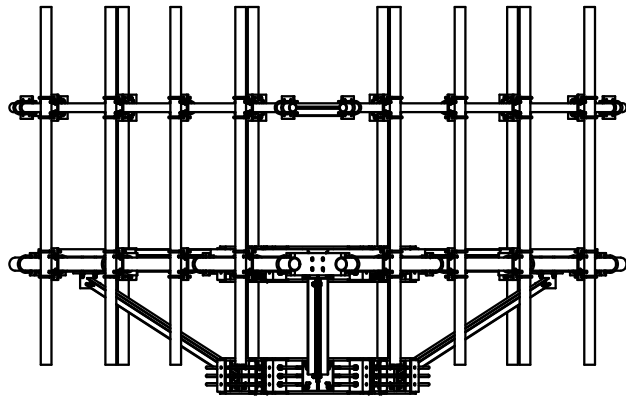
Engineering Support Team:
 1-888-753-7446

Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX

CPD NO. 4488	DRAWN BY CEK 3/24/2014	ENG. APPROVAL
CLASS 81	SUB 02	DRAWING USAGE CUSTOMER
CHECKED BY BMC 7/14/2014		

PART NO. RMQP-4096-HK	PAGE 2 OF 3
DWG. NO. RMQP-4096-HK	

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	REPLACED HCP WITH X-AHCP	4488	CEK	7/14/2014
REVISION HISTORY				



TOLERANCE NOTES

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 ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.060"$)

PROPRIETARY NOTE:
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DESCRIPTION
 12' 6" LOW PROFILE PLATFORM
 WITH TWELVE 2-7/8" ANTENNA MOUTING
 PIPES, AND HANDRAIL

SITE PRO 1
 A valmont COMPANY
 Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX
 Engineering Support Team:
 1-888-753-7446

CPD NO. 4488	DRAWN BY CEK 3/24/2014	ENG. APPROVAL
CLASS SUB 81 02	DRAWING USAGE CUSTOMER	CHECKED BY BMC 7/14/2014

PART NO. RMQP-4096-HK	PAGE 3 OF 3
DWG. NO. RMQP-4096-HK	

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	REPLACED HCP WITH X-AHCP	4488	CEK	7/14/2014
REVISION HISTORY				



RADIO FREQUENCY EMISSIONS ANALYSIS REPORT EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11082E

Stratford/MP x 53/Main
528 Wheelers Farm Road
Milford, CT 06460

August 1, 2018

EBI Project Number: 6218005332

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	24.81 %



August 1, 2018

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CT11082E – Stratford/MP x 53/Main**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **528 Wheelers Farm Road, Milford, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ 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.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 600 MHz and 700 MHz Band are approximately $400 \mu\text{W}/\text{cm}^2$ and $467 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS) bands is $1000 \mu\text{W}/\text{cm}^2$. 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 done for the proposed T-Mobile Wireless antenna facility located at **528 Wheelers Farm Road, Milford, 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 and 20 dB for highly focused parabolic microwave dishes, 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.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 2 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 4) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 5) 4 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 6) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.



- 7) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 8) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. 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. This is rarely the case, and if so, is never continuous.
- 9) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 10) The antennas used in this modeling are the **Ericsson AIR 3246 B66 & Ericsson AIR32 B2A/B66A** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **RFS APXVAARR24_43-U-NA20** for 600 MHz and 700 MHz channels. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site 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 and 20 dB for highly focused parabolic microwave dishes, 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.
- 11) The antenna mounting height centerline of the proposed antennas is **107 feet** above ground level (AGL).
- 12) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 13) All calculations were done with respect to uncontrolled / general population threshold limits.



T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 3246 B66	Make / Model:	Ericsson AIR 3246 B66	Make / Model:	Ericsson AIR 3246 B66
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	107	Height (AGL):	107	Height (AGL):	107
Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	9,337.08	ERP (W):	9,337.08	ERP (W):	9,337.08
Antenna A1 MPE%	3.29	Antenna B1 MPE%	3.29	Antenna C1 MPE%	3.29
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR32 B2A/B66A	Make / Model:	Ericsson AIR32 B2A/B66A	Make / Model:	Ericsson AIR32 B2A/B66A
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	107	Height (AGL):	107	Height (AGL):	107
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	300	Total TX Power(W):	300	Total TX Power(W):	300
ERP (W):	11,671.35	ERP (W):	11,671.35	ERP (W):	11,671.35
Antenna A2 MPE%	4.12	Antenna B2 MPE%	4.12	Antenna C2 MPE%	4.12
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Gain:	12.95 / 13.35 dBd	Gain:	12.95 / 13.35 dBd	Gain:	12.95 / 13.35 dBd
Height (AGL):	107	Height (AGL):	107	Height (AGL):	107
Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	2,481.08	ERP (W):	2,481.08	ERP (W):	2,481.08
Antenna A3 MPE%	2.02	Antenna B3 MPE%	2.02	Antenna C3 MPE%	2.02

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	9.43 %
AT&T	2.29
XM Satellite Radio	0.20
Clearwire	0.15
Sprint	4.09
Metricom	0.67
Verizon Wireless	7.98
Site Total MPE %:	24.81 %

T-Mobile Sector A Total:	9.43 %
T-Mobile Sector B Total:	9.43 %
T-Mobile Sector C Total:	9.43 %
<hr/>	
Site Total:	24.81 %



T-Mobile Max Power Values (Per Sector)

T-Mobile _Technology / Frequency Band (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile AWS - 2100 MHz LTE	4	2,334.27	107	32.91	AWS - 2100 MHz	1000.00	3.29%
T-Mobile PCS - 1900 MHz LTE	2	2,334.27	107	16.45	PCS - 1900 MHz	1000.00	1.66%
T-Mobile PCS - 1900 MHz GSM	2	1,167.14	107	8.23	PCS - 1900 MHz	1000.00	0.82%
T-Mobile PCS - 1900 MHz UMTS	2	1,167.14	107	8.23	PCS - 1900 MHz	1000.00	0.82%
T-Mobile AWS - 2100 MHz UMTS	2	1,167.14	107	8.23	AWS - 2100 MHz	1000.00	0.82%
T-Mobile 600 MHz LTE	2	591.73	107	4.17	600 MHz	400.00	1.04%
T-Mobile 700 MHz LTE	2	648.82	107	4.57	700 MHz	467.00	0.98%
						Total:	9.43%



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:	9.43 %
Sector B:	9.43 %
Sector C:	9.43 %
T-Mobile Maximum MPE % (Per Sector):	9.43 %
Site Total:	24.81 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **24.81%** 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.