CROWN CASTLE

1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

Phone: (314) 513-0147
www.crowncastle.com

March 14, 2022

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

RE: **Notice of Exempt Modification for Sprint**
Crown Site ID#876397; Sprint Site ID#CTNH770A
399 Chestnut Land Rd., NEW MILFORD, CT 06776
Latitude: 41° 37′ 54.93″/ Longitude: -73° 22′ 2.82″

Dear Ms. Bachman:

Sprint currently maintains (6) antennas at the 160-foot mounts on the existing 160-foot Monopole Tower located at **399 Chestnut Land Rd., in NEW MILFORD.** The property and tower are owned by Crown Castle. Sprint now intends to replace six (6) antennas. This modification/proposal includes hardware that is both 4G(LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times.

Planned Modifications:

Tower:

REMOVE AND REPLACE
(3) RFS - APXVTM14-ALU-120 Antennas (**REMOVE**), (3) RFS – APXVAALL24_43_U_NA20 Antennas (**REPLACE**)
(3) RFS – APXVSPP18-C-A20 Antennas **(REMOVE),** (3) Air6449_B41 Antennas (**REPLACE**)
(9) Remote Radio head's (**REMOVE**), (3) Ericsson Radio 4460 B25 + B66 Remote Radio heads (**REPLACE**) and (3) Ericsson Radio 4480 B71+B85 Remote Radio heads (**REPLACE**)
(3) Hybrid Cable (**REMOVE**), (4) RFS/CELWAVE Hybrid Cable (**REPLACE**)
(1) Remote Radio mount (**REMOVE**)

INSTALL
Antenna mount modifications

Ground:

REMOVE:
(1) MMBS Equipment Cabinet
(1) BBU Equipment Cabinet

INSTALL:
(1) 6160 & (1) B160 Battery Cabinets
(1) PSU4813 Booster in (P) Cabinet
(3) BB6648 In (P) Cabinet
(1) IXRE Router in (P) Cabinet

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The Facility was approved by the Connecticut Siting Council on May 20, 2003, Docket#233. The approval was with conditions which this exempt modification complies with.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16-50j-72(b)(2). In accordance with R.C.S.A. §16-50j-73, a copy of this letter is being sent to Pete Bass, Town of New Milford Mayor, William Murphy Town of New Milford Building Official

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

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

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

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

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

For the foregoing reasons, Sprint 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).

Sincerely,

Ersilia Davis
Crown Castle, Agent for Applicant
edavis@nbcllc.com
(551)804-0667

CROWN CASTLE

1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

Phone: (314) 513-0147
www.crowncastle.com

cc:

Pete Bass, Mayor
10 Main St.
New Milford, CT 06776
860-355-6010
(Via Fedex)

William Murphy, Building Official
10 Main St.
New Milford, CT 06776
860-355-6090
(Via Fedex)

FedEx® Tracking

776292484254

ADD NICKNAME

Delivered
Tuesday, March 15, 2022 at 9:51 am

DELIVERED

Signed for by: G.FERNANDEZ

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM

Ersilia Davis

1777 Sentry Parkway
VEVA 17, Suite 210
Blue Bell, PA US 19422
551-804-0667

TO

Pete Bass, Mayor
Town of New Milford

10 Main St.
NEW MILFORD, CT US 06776
860-355-6010

MANAGE DELIVERY

Travel History

TIME ZONE
Local Scan Time

Tuesday, March 15, 2022

9:51 AM	NEW MILFORD, CT	Delivered
8:16 AM	DANBURY, CT	On FedEx vehicle for delivery
7:06 AM	DANBURY, CT	Shipment arriving On-Time
6:49 AM	DANBURY, CT	At local FedEx facility

FedEx® Tracking

776292541482

ADD NICKNAME

Delivered
Tuesday, March 15, 2022 at 9:51 am

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William Murphy, Building Official
Town of New Milford

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Exhibit A

Original Facility Approval

DOCKET NO. 233 - Sprint Spectrum, L.P. application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility at 399 Chestnut Land Road, New Milford, Connecticut.

} Connecticut

} Siting

} Council

} May 20, 2003

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Sprint Spectrum, L.P. for the construction, maintenance and operation of a wireless telecommunications facility at 399 Chestnut Land Road, New Milford, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of Sprint Spectrum, L.P. and AT&T Wireless PCS, LLC and other entities, both public and private, but such tower shall not exceed a height of 160 feet above ground level.

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be

submitted to and approved by the Council prior to the commencement of facility construction and shall include:

a. a final site plan of site development to include drawings depicting the location of the access road, compound, tower, landscaping and wetland features, if applicable.

b. specifications for the tower, tower foundation, antennas, equipment building, security fence, access road, utility line, and landscaping; and

c. construction plans for site clearing, tree removal, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, and provisions for the prevention and containment of spills and/or other discharge into surface water and groundwater bodies.

3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of electromagnetic radio frequency power density is submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

4. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

6. If the facility does not initially provide wireless services within one year of completion of construction or ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

7. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.

8. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Hartford Courant, Danbury News-Times, The New Milford Spectrum, and The Voices.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

Applicant

Sprint Spectrum L.P., d/b/a Sprint PCS

Its Representative

Thomas J. Regan, Esquire
Brown Rudnick Berlack Israels LLP
CityPlace I, 38th Floor
185 Asylum Street
Hartford, CT 06103-3402
Phone: (860)-509-6522

Intervenor

AT&T Wireless PCS, LLC
d/b/a AT&T Wireless

Its Representative

Christopher B. Fisher, Esq.
Cuddy & Feder LLP
90 Maple Avenue
White Plains, New York 10601
(914) 761-1300

Party

Town of Washington

Its Representative

Aimee L. Hoben, Esq.
Murtha Cullina LLP
CityPlace I, 29th Floor
185 Asylum Street
Hartford, CT 06103
(860) 240-6000

Intervenor

Fred Rickerich
50 Washington Ridge Road
New Milford, CT 06776
(860)-350-6166

Party

Northville Residents' Association Inc.

Its Representative

John Kane
7 Crossmon Rd.
New Milford, CT 06776
(860) 354-7651

Exhibit B

Property Card

399 CHESTNUT LAND RD

Location	399 CHESTNUT LAND RD	**Mblu**	66/ / 1/ CELL/
Acct#	015337	**Owner**	CROWN CASTLE
Assessment	$726,040	**Appraisal**	$1,037,200
PID	106734	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$1,037,200	$0	$1,037,200

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$726,040	$0	$726,040

Parcel Addreses

Additional Addresses
No Additional Addresses available for this parcel

Owner of Record

Owner	CROWN CASTLE	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	4017 WASHINGTON RD PMB 331 MCMURRAY, PA 15317-2520	**Book & Page**	0000/0000
		Sale Date	10/01/2010
		Instrument	

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
CROWN CASTLE	$0		0000/0000		10/01/2010

Building Information

Building 1 : Section 1

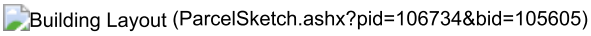
Year Built:
Living Area: 0
Replacement Cost: $0
Building Percent Good:
Replacement Cost Less Depreciation: $0

Building Attributes	
Field	**Description**
Style	Outbuildings
Model	
Grade	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type	
AC Type	
Total Bedrooms	
Full Bathrooms	
Half Bathrooms	
Total Xtra Fixtrs	
Total Rooms	
Bath Style	
Kitchen Style	
Num Kitchens	
Whirlpool Tub	
Fireplaces	
Fin Bsmt Area	
Bsmt Garages	
Fireplaces_1	
Solar	
Insp. Letter	
Multi-House	

Building Photo

(http://images.vgsi.com/photos/NewMilfordCTPhotos//default.jpg)

Building Layout


Building Layout (ParcelSketch.ashx?pid=106734&bid=105605)

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Parcel Information

Use Code	435
Description	Cell Site Vac Lnd
Deeded Acres	0

Land

Land Use

Use Code	435
Description	Cell Site Vac Lnd
Zone	
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0
Frontage	
Depth	
Assessed Value	$0
Appraised Value	$0

Outbuildings

Outbuildings							Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Assessed Value**	**Bldg #**
CB1	PreCastConc Shed			360.00 S.F	$104,000	$72,800	1
CB1	PreCastConc Shed			240.00 S.F	$69,300	$48,510	1
FN3	Fence 6'			200.00 L.F.	$1,900	$1,330	1
SITE	Cell Site Tenant	TW	Tower	4.00 Units	$862,000	$603,400	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$1,037,200	$0	$1,037,200

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$726,040	$0	$726,040

Exhibit C

Construction Drawings

T-Mobile

T-MOBILE SITE NUMBER: CTNH770A
T-MOBILE SITE NAME: CTNH770A
SITE TYPE: MONOPOLE
TOWER HEIGHT: 160'-0"

BUSINESS UNIT #: 876397
SITE ADDRESS: 399 CHESTNUT LAND RD, NEW MILFORD, CT 06776
COUNTY: LITCHFIELD
JURISDICTION: TOWN OF NEW MILFORD

T-MOBILE SPRINT RETAIN SITE CONFIGURATION: 67E5998E_1xAIR+1OP

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	NEW MILFORD/KIMBERLY
SITE ADDRESS:	399 CHESTNUT LAND RD NEW MILFORD, CT 06776
COUNTY:	LITCHFIELD
MAP/PARCEL #:	66/1/CELL
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.631925° (41° 37' 54.93")
LONGITUDE:	-73.367450° (-73° 22' 02.82")
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	985.0 FT
CURRENT ZONING:	R60
JURISDICTION:	TOWN OF NEW MILFORD
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	CROWN CASTLE USA 2000 CORPORATE DRIVE CANONSBURG, PA
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 35 GRIFFIN ROAD BLOOMFIELD, CT 06002
ELECTRIC PROVIDER:	TBD
TELCO PROVIDER:	TBD

PROJECT TEAM

A&E FIRM:	INFINIGY ENGINEERING, PLLC 1033 WATERVLIET SHAKER RD. ALBANY, NY 12205
CROWN CASTLE USA INC. DISTRICT CONTACTS:	1500 CORPORATE DRIVE CANONSBURG, PA 15317
	TRICIA PELON - PROJECT MANAGER TRICAIS.PELON@CROWNCASTLE.COM
	JASON D'AMICO - CONSTRUCTION MANAGER JASON.DAMICO@CROWNCASTLE.COM

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	SITE PLAN & ENLARGED SITE PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECS
C-6	EQUIPMENT SPECS
E-1	AC PANEL SCHEDULE & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS

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

PROJECT DESCRIPTION

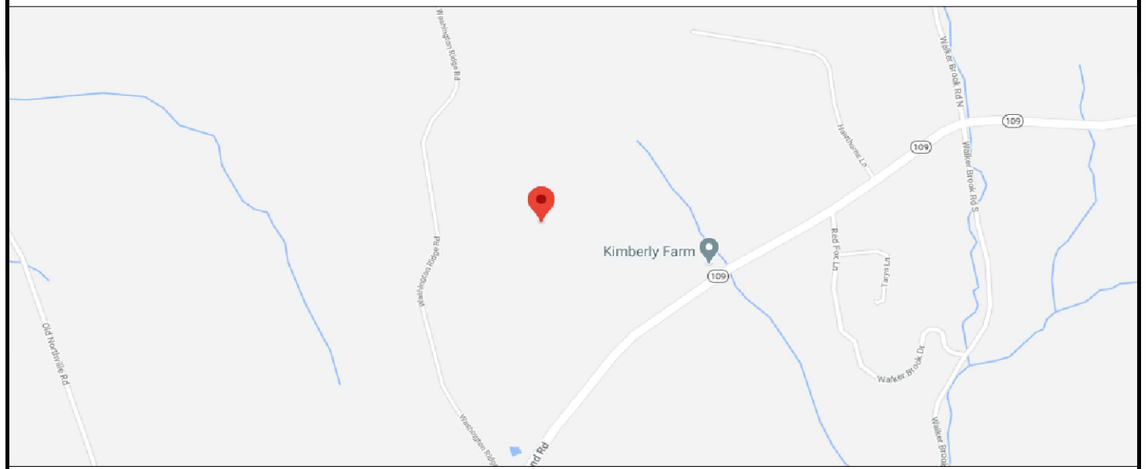
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (6) ANTENNAS
- REMOVE (9) RRHs
- REMOVE (1) RRH MOUNT
- REMOVE (3) HYBRID CABLES
- INSTALL (6) ANTENNAS
- INSTALL (6) RRHs
- INSTALL (4) HYBRID CABLES
- INSTALL ANTENNA MOUNT MODIFICATIONS

GROUND SCOPE OF WORK:
- REMOVE (1) MMBS EQUIPMENT CABINET
- REMOVE (1) BBU EQUIPMENT CABINET
- INSTALL (1) 6160 & (1) B160 BATTERY CABINETS
- INSTALL (1) PSU4813 BOOSTER IN (P) CABINET
- INSTALL (3) BB6648 IN (P) CABINET
- INSTALL (1) IXRE ROUTER IN (P) CABINET

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

LOCATION MAP



NO SCALE

APPLICABLE CODES/REFERENCE DOCUMENTS

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

CODE TYPE	CODE
BUILDING	2018 CT STATE BUILDING CODE
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS: DATED:	BY OTHERS
MOUNT ANALYSIS:	GPD ENGINEERING AND ARCHITECTURE PROFESSIONAL CORPORATION
DATED:	10/07/2021
RFDS REVISION:	1
DATED:	08/03/21
ORDER ID:	584631
REVISION:	1

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

APPROVALS

APPROVAL	SIGNATURE	DATE
PROPERTY OWNER OR REP.		
LAND USE PLANNER		
T-MOBILE		
OPERATIONS		
RF		
NETWORK		
BACKHAUL		
CONSTRUCTION MANAGER		

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

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
1500 CORPORATE DRIVE
CANONSBURG, PA 15317

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com

T-MOBILE SITE NUMBER:
CTNH770A

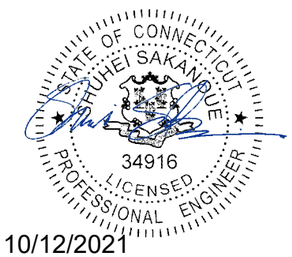
BU #: **876397**
NEW MILFORD/KIMBERLY

399 CHESTNUT LAND RD
NEW MILFORD, CT 06776

EXISTING 160'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	04/22/21	RCD	FINAL	SS
1	10/11/21	CB	FINAL	SS



10/12/2021

SHEET NUMBER: T-1
REVISION: 1

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED– NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800–788–7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" – CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
   THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED–STD–10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED–STD–10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

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

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE–THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER–TO–CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
   #4 BARS AND SMALLER..40 ksi
   #5 BARS AND LARGER..60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH..........3"
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 BARS AND LARGER..2"
   #5 BARS AND SMALLER..1–1/2"
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
   SLAB AND WALLS..3/4"
   BEAMS AND COLUMNS..1–1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON–METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI–CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER–ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T–MOBILE".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

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

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

APWA UNIFORM COLOR CODE:

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

ABBREVIATIONS:

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

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BU #: **876397**
NEW MILFORD/KIMBERLY

399 CHESTNUT LAND RD
NEW MILFORD, CT 06776

EXISTING 160'-0" MONOPOLE

ISSUED FOR:

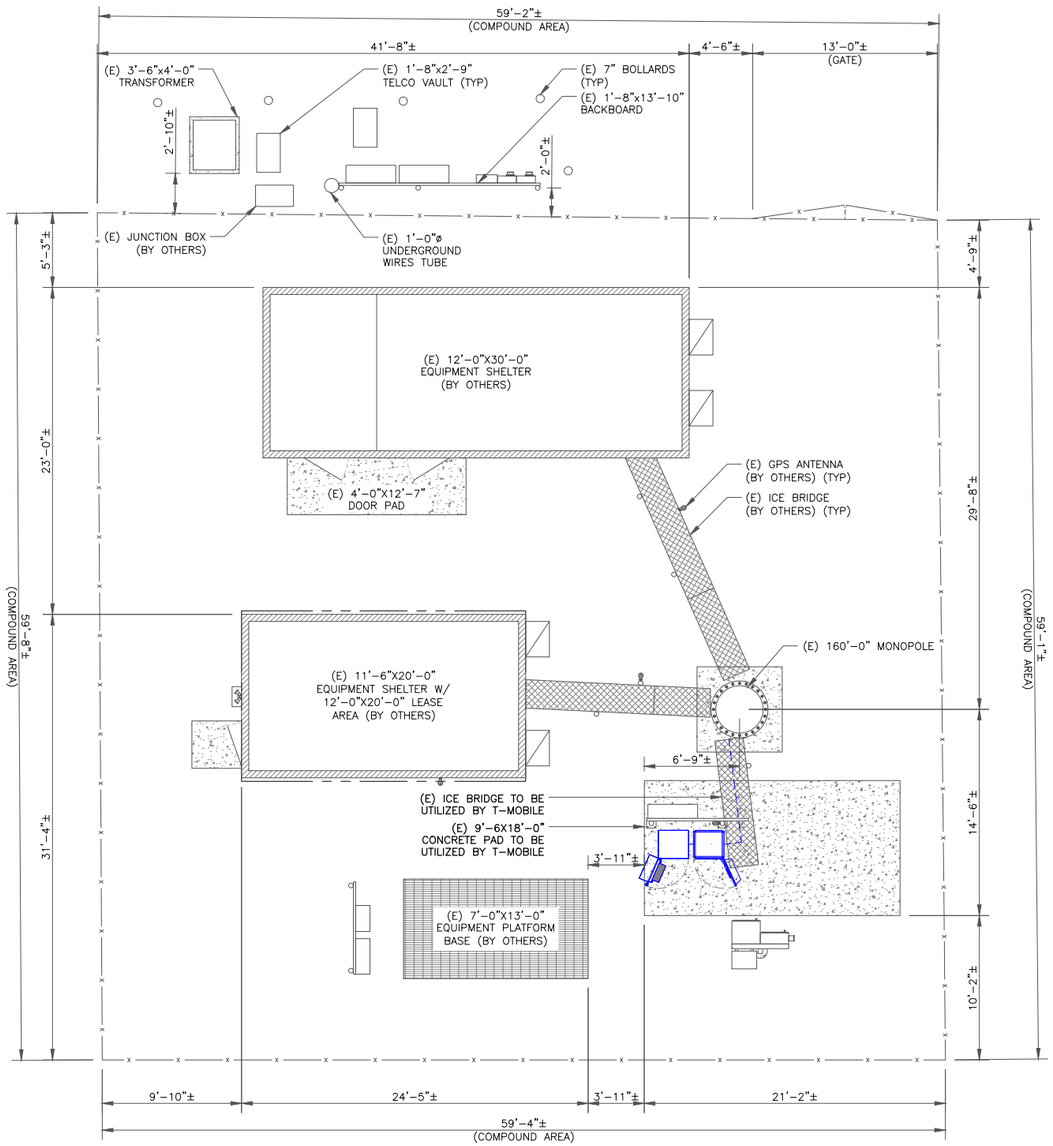
REV	DATE	DRWN	DESCRIPTION	DES./QA
0	04/22/21	RCD	FINAL	SS
1	10/11/21	CB	FINAL	SS

STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
10/12/2021

SHEET NUMBER: T-2
REVISION: 1

NOTE:

1. PLANS BASED ON SITE PLAN PROVIDED BY TOWER OWNER AND SITE VISIT PERFORMED BY INFINIGY. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING T–MOBILE EQUIPMENT.

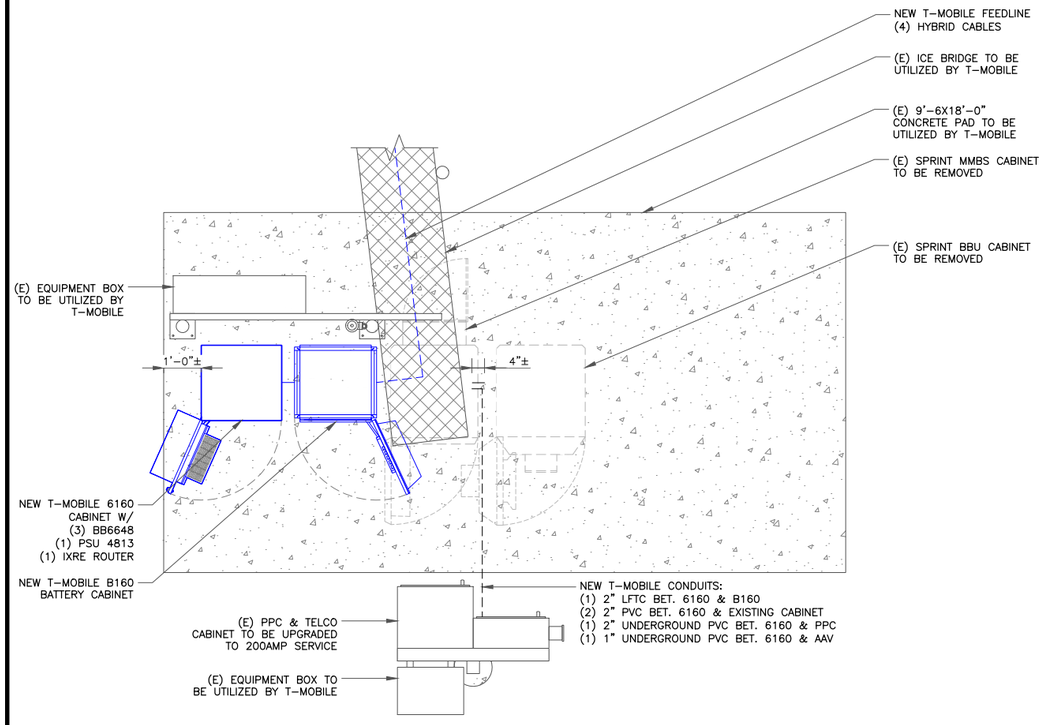


1 SITE PLAN
SCALE: 4' 2' 0 4' 3/16"=1'–0" (FULL SIZE) 3/32"=1'–0" (11x17)

N

NOTES:

THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. T–MOBILE IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.



2 ENLARGED SITE PLAN
SCALE: 2' 1' 0 2' 1/2"=1'–0" (FULL SIZE) 1/4"=1'–0" (11x17)

N

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35 GRIFFIN ROAD
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T-MOBILE SITE NUMBER:
CTNH770A

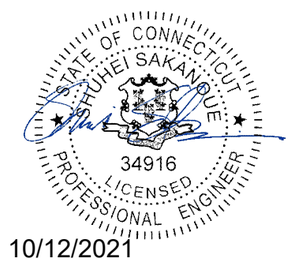
BU #: **876397**
NEW MILFORD/KIMBERLY

399 CHESTNUT LAND RD
NEW MILFORD, CT 06776

EXISTING 160'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	04/22/21	RCD	FINAL	SS
1	10/11/21	CB	FINAL	SS



10/12/2021

SHEET NUMBER: C-1

REVISION: 1

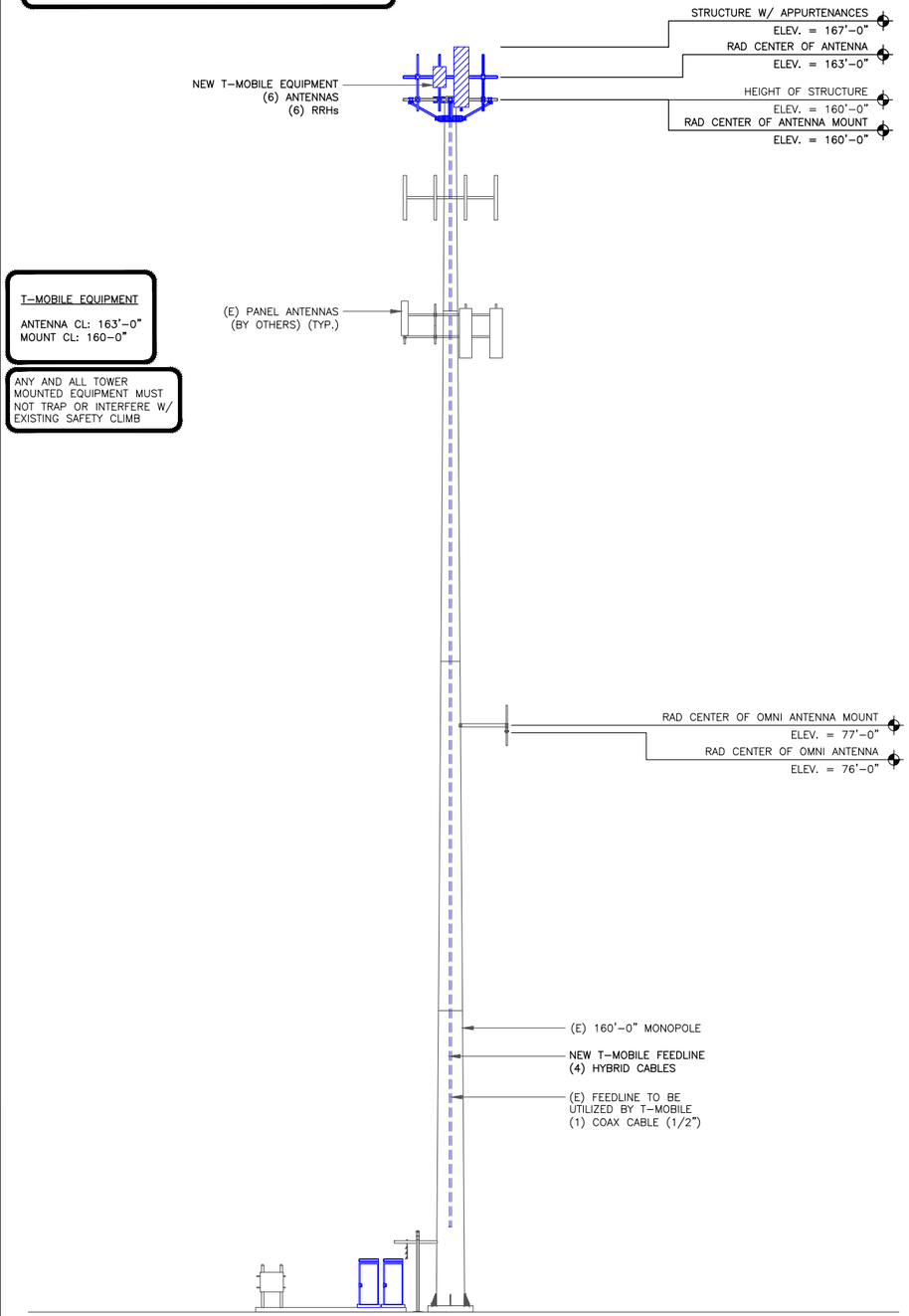
NOTES:

1. ELEVATION BASED ON DRAWING PROVIDED BY TOWER OWNER. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING EQUIPMENT.
2. INFINIGY HAS NOT EVALUATED THE TOWER OR MOUNT STRUCTURE AND ASSUMES NO RESPONSIBILITY FOR THEIR STRUCTURAL INTEGRITY REGARDING PROPOSED LOADINGS. FINAL INSTALLATION SHALL COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSES PERFORMED BY OTHERS.

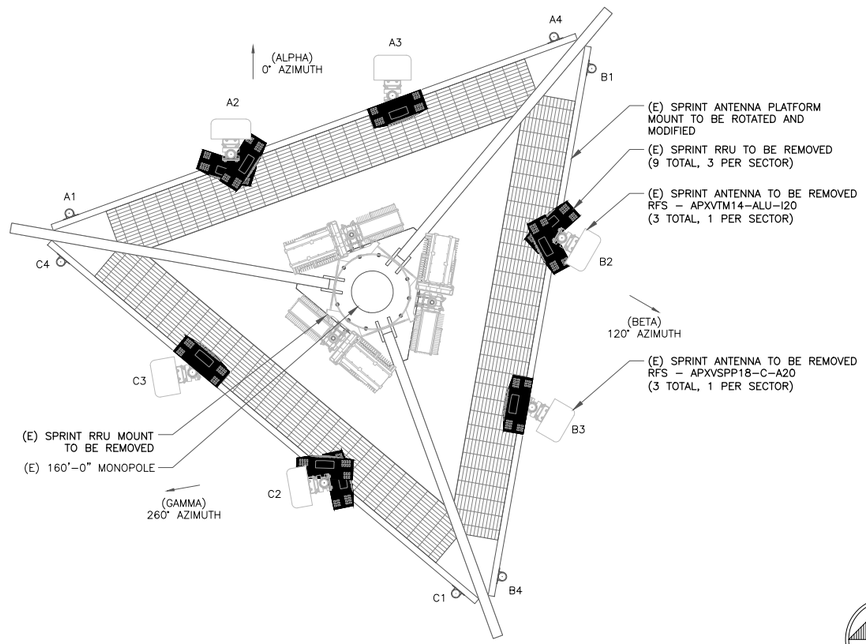
T-MOBILE EQUIPMENT

ANTENNA CL: 163'-0"
MOUNT CL: 160-0"

ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB

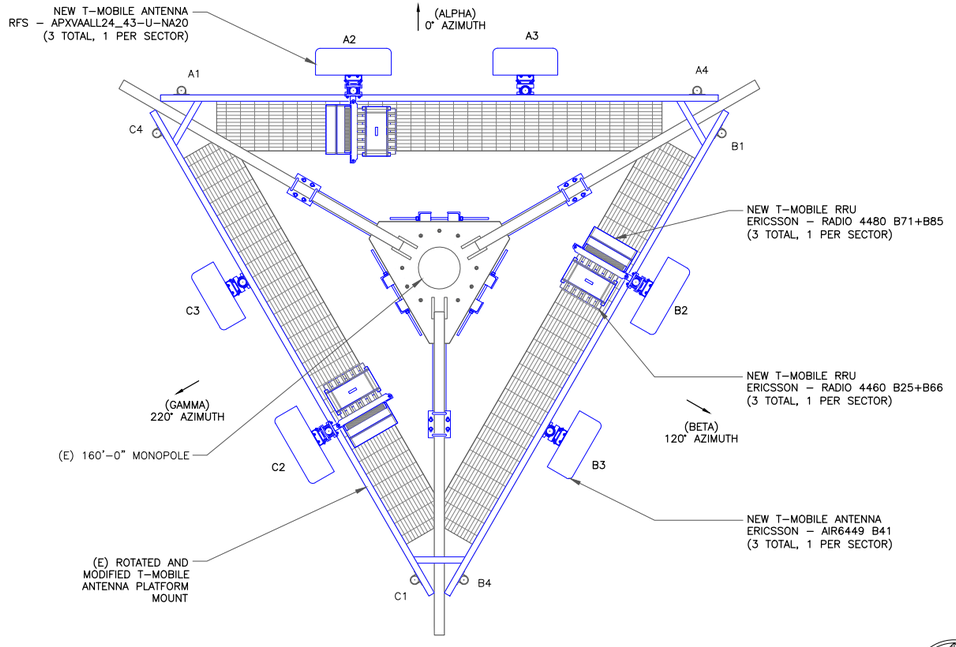


1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 EXISTING ANTENNA LAYOUT
SCALE: NOT TO SCALE

N



3 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE

N

NOTE:
A STRUCTURAL EVALUATION OF THE T-MOBILE ANTENNA MOUNTS HAS BEEN PERFORMED BY GPD ENGINEERING AND ARCHITECTURE PROFESSIONAL CORPORATION. REFER TO ANTENNA MOUNT STRUCTURAL ANALYSIS DATED 10-07-2021 PRIOR TO CONSTRUCTION.

INFINIGY HAS NOT EVALUATED THE TOWER FOR THIS SITE AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY. CONTRACTOR TO COORDINATE LOADING WITH RF ENGINEER. REFER TO STRUCTURAL ANALYSIS PERFORMED BY OTHERS PRIOR TO CONSTRUCTION.

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STATE OF CONNECTICUT
SHUHEI SAKAMOTO
34916
LICENSED
PROFESSIONAL ENGINEER

10/12/2021

SHEET NUMBER: C-2

REVISION: 1

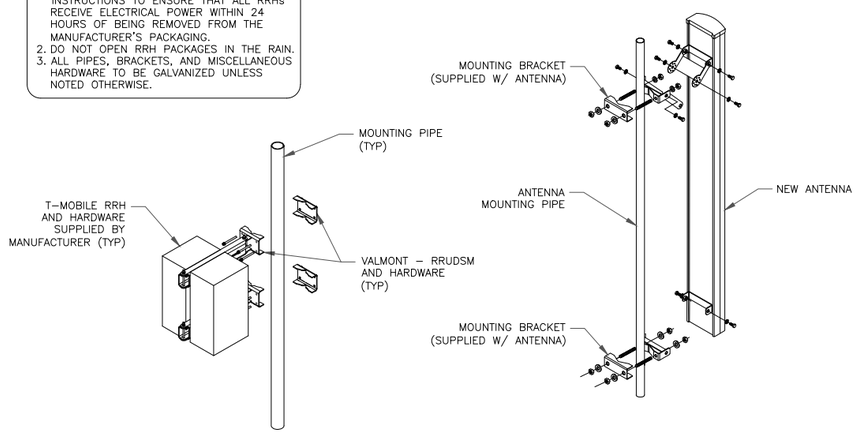
ANTENNA SCHEDULE

SECTOR	POS.	TECHNOLOGY	RAD CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	MECH. TILT	ELECT. TILT	TOWER MOUNTED EQUIPMENT	FEEDLINE TYPE
ALPHA	A1	--	--	--	--	--	--	--	--	(4) 6X24 HCS HYBRID (SHARED)
ALPHA	A2	L700, L600, N600, L1900, G1900, L2100	163'-0"	0°	RFS	APXVAALL24_43-U-NA20	--	--	(1) ERICSSON - RRUS 4480 B71+B85 (1) ERICSSON - RRUS 4460 B25+B66	
ALPHA	A3	L2500, N2500	163'-0"	0°	ERICSSON	AIR6449 B41	--	--	--	
ALPHA	A4	--	--	--	--	--	--	--	--	
BETA	B1	--	--	--	--	--	--	--	--	(4) 6X24 HCS HYBRID (SHARED)
BETA	B2	L700, L600, N600, L1900, G1900, L2100	163'-0"	120°	RFS	APXVAALL24_43-U-NA20	--	--	(1) ERICSSON - RRUS 4480 B71+B85 (1) ERICSSON - RRUS 4460 B25+B66	
BETA	B3	L2500, N2500	163'-0"	120°	ERICSSON	AIR6449 B41	--	--	--	
BETA	B4	--	--	--	--	--	--	--	--	
GAMMA	C1	--	--	--	--	--	--	--	--	(4) 6X24 HCS HYBRID (SHARED)
GAMMA	C2	L700, L600, N600, L1900, G1900, L2100	163'-0"	240°	RFS	APXVAALL24_43-U-NA20	--	--	(1) ERICSSON - RRUS 4480 B71+B85 (1) ERICSSON - RRUS 4460 B25+B66	
GAMMA	C3	L2500, N2500	163'-0"	240°	ERICSSON	AIR6449 B41	--	--	--	
GAMMA	C4	--	--	--	--	--	--	--	--	

1 ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



2 ANTENNA WITH RRHs MOUNTING DETAIL
SCALE: NOT TO SCALE

NOTE:

1. CONTRACTOR SHALL INSTALL 3RD DUAL RRH MOUNT TO ACCOMMODATE ALL RRH BRACKETS HOLES IF NECESSARY.

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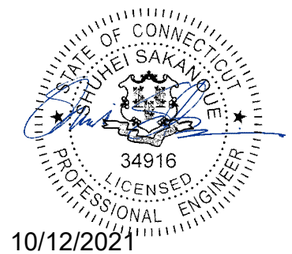
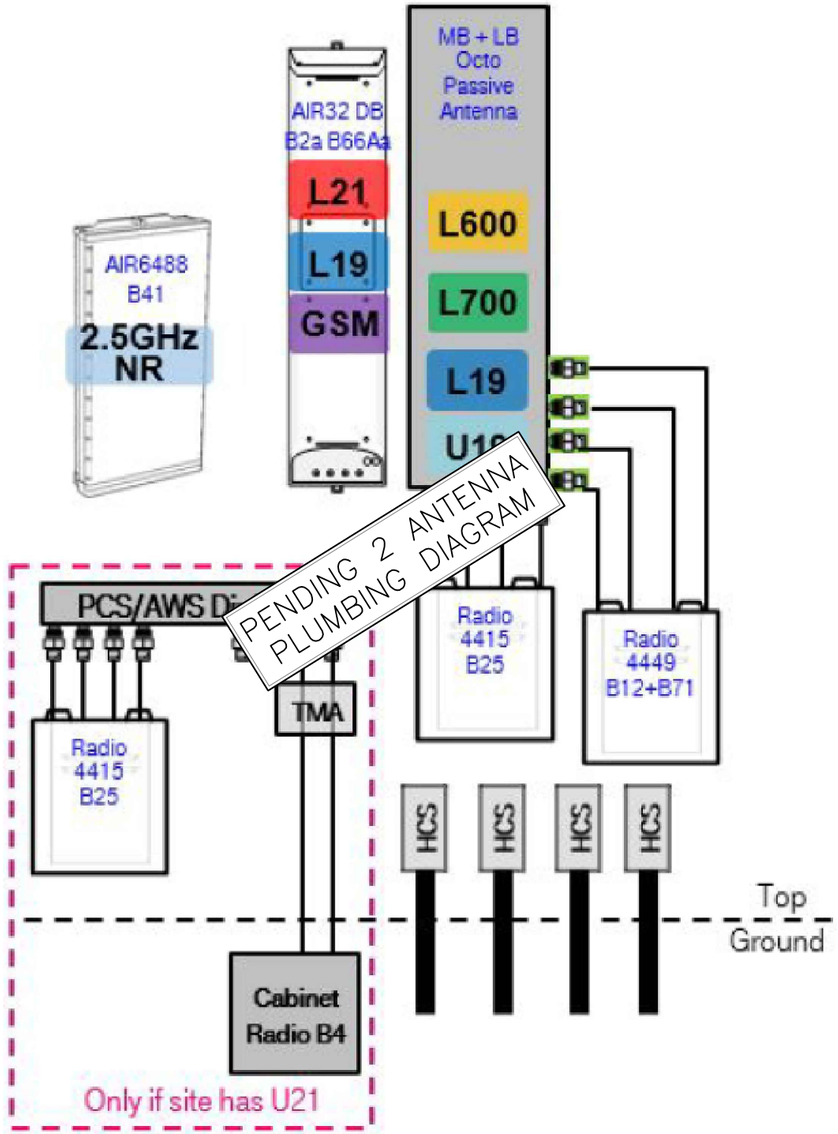


10/12/2021

SHEET NUMBER: C-3

REVISION: 1



1 PENDING INFO
SCALE: NOT TO SCALE

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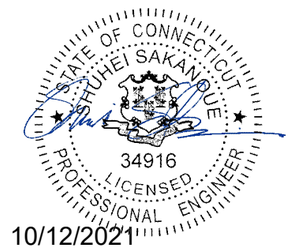
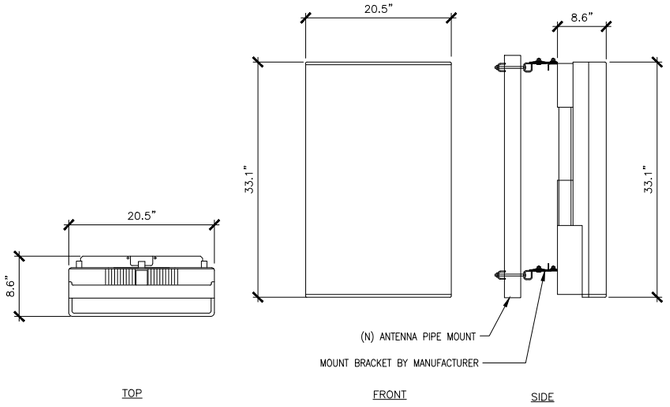


10/12/2021

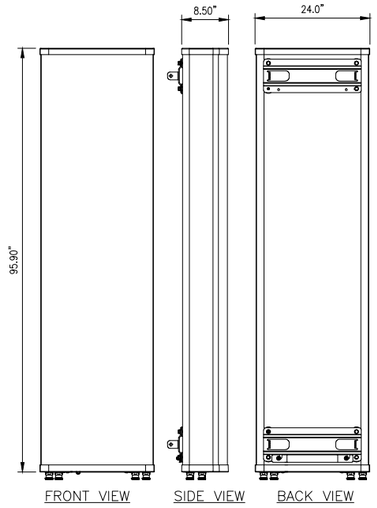
SHEET NUMBER: C-4

REVISION: 1

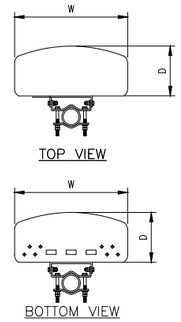
MANUFACTURER: ERICSSON
MODEL: AIR6449 B41
WEIGHT: 104 LBS (W/ MOUNT BRACKET 113)
DIMENSIONS: 33.1"H. X 20.5"W. X 8.6"D.
FREQUENCY: REFER TO RF DATA SHEET



1 (N) AIR6449 B41 ANTENNA SPEC
SCALE: NOT TO SCALE



700MHz RFS ANTENNAS	
MODEL	WEIGHT (lb)
(8') APXVAALL24_43-UNA20	149.90
WEIGHT W/ MOUNTING BRACKET (lb):	154

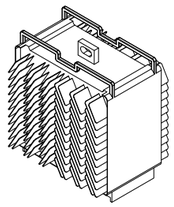


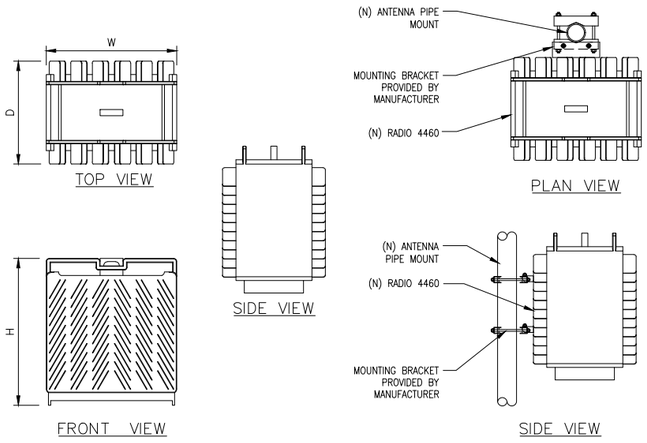
2 (N) APXVAALL24_43-UNA20 ANTENNA SPEC
SCALE: NOT TO SCALE

3 NOT USED
SCALE: NOT TO SCALE

ERICSSON RADIO-4460 B25 B66

DIMENSIONS, WxDxH:	17.0"x15.1"x11.9"
MAX OUTPUT POWER:	4x80W (2x(2x80W))
TOTAL WEIGHT:	109 lbs
TEMPERATURE:	-40° TO 55° C

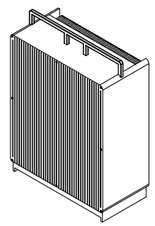


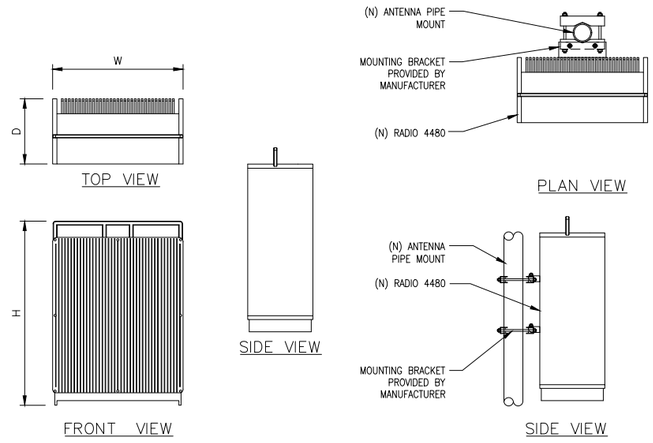


4 (N) RADIO 4460 SPEC
SCALE: NOT TO SCALE

ERICSSON RADIO-4480 B71 B85

DIMENSIONS, WxDxH:	21.8"x15.7"x7.5"
MAX OUTPUT POWER:	4x80W (2x(2x80W))
TOTAL WEIGHT:	93 lbs
TEMPERATURE:	-40° TO 55° C





5 (N) RADIO 4480 SPEC
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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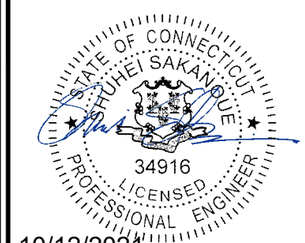
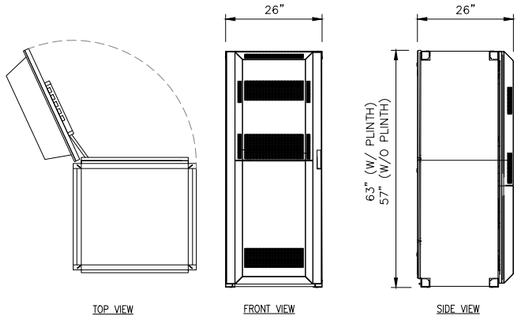


10/12/2021

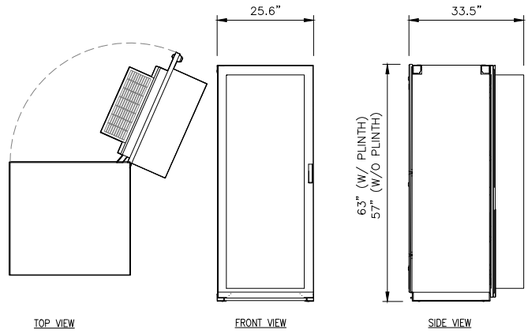
SHEET NUMBER: C-5

REVISION: 1



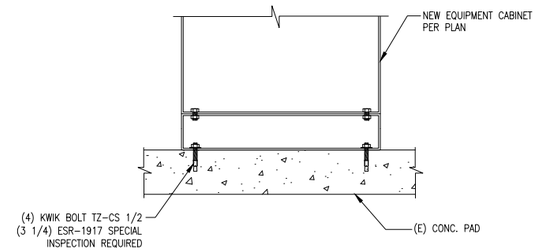
ERICSSON MODEL NO.:	B160
RACK SPACE:	19U
DIMENSIONS, HxWxD:	63"x26"x26" (W/ 6" PLINTH)
CABINET WEIGHT, EMPTY:	485 LBS
MAXIMUM WEIGHT:	2100± LBS

1 (N) B160 CABINET DETAIL
SCALE: NOT TO SCALE

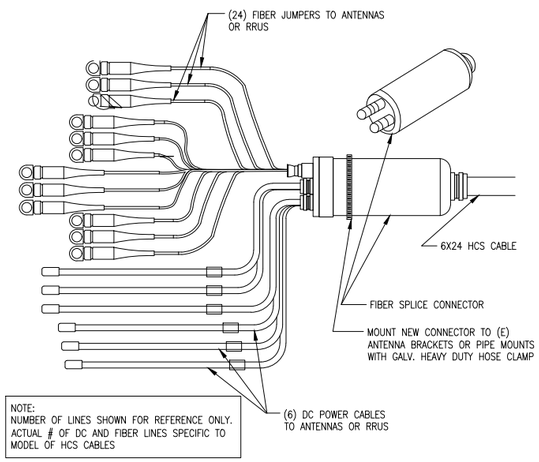


ERICSSON MODEL NO.:	6160
RACK SPACE:	19U
DIMENSIONS, HxWxD:	63"x25.6"x25.6" (W/ 6" PLINTH)
CABINET WEIGHT, EMPTY:	410 LBS
MAXIMUM WEIGHT:	770± LBS

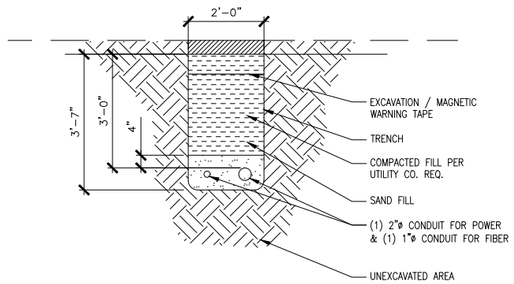
2 (N) 6160 CABINET DETAIL
SCALE: NOT TO SCALE



3 (N) EQUIPMENT CABINET MOUNTING DETAIL
SCALE: NOT TO SCALE



4 (N) 6X12 HCS CABLE DETAIL
SCALE: NOT TO SCALE



5 (N) CONDUIT TRENCH DETAIL
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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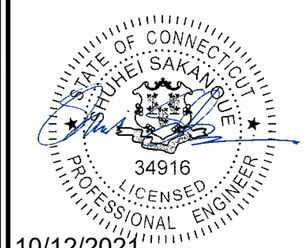


10/12/2021

SHEET NUMBER: C-6

REVISION: 1

T-MOBILE PANEL SCHEDULE

MAIN: 200A MAIN BREAKER | **VOTAGE/PHASE:** 120/240V, 1-PHASE, 3-WIRE | **SHORT CIRCUIT CURRENT RATING:** --

MOUNTING: INSIDE PPC ENCLOSURE | **ENCLOSURE:** NEMA 3R | **SURGE PROTECTION DEVICE:** YES

DESCRIPTION	LOAD (VA)	C or NC	C/B	CIR No.	PHASE LOADS (VA) A	PHASE LOADS (VA) B	CIR No.	C/B	C or NC	LOAD (VA)	DESCRIPTION
Surge Arrestor	0	NC	60	1	960		2	10	NC	960	Exhaust Fan
	0	NC		3		180	4	15	NC	180	Telco GFI
6160 GFI *	**180**	**NC**	**20**	**5**	7180		6	**100**	**C**	**7000**	**6160 ***
				7		7000	8		**C**	**7000**	
				9	0		10				
				11		0	12				
				13	0		14				
Blank				15		0	16				BLANK
				17	0		18				
				19		0	20				
				21	0		22				
				23		0	24				
				BASE LOAD (VA) =	8140	7180					
				25% OF CONTINUOUS LOAD (VA) =	2035	1795					
				TOTAL LOAD (VA) =	10175	8975					
				TOTAL LOAD (A) =	84.8	74.8					

C = CONTINUOUS LOAD; NC = NON-CONTINUOUS LOAD

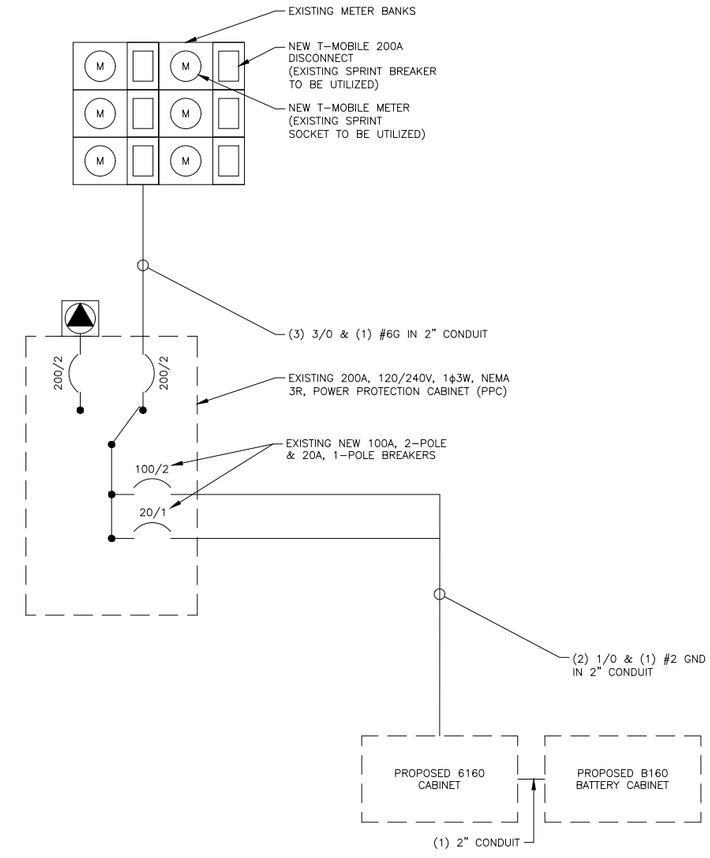
*INDICATES NEW LOAD. ALL OTHER LOADS ARE EXISTING.

NEW BREAKER TO BE SAME TYPE AND HAVE SAME AIC RATING AS EXISTING. CUSTOMER HAS NOT PROVIDED LOADS FOR EQUIPMENT CABINETS THEREFORE THE CABINET LOADS SHOWN ARE ESTIMATED

1 AC PANEL SCHEDULE
SCALE: NOT TO SCALE

NOTES:

1. ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN-2, XHHW, OR XHHW-2 UNLESS NOTED OTHERWISE.
2. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING PER THE NEC.



2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

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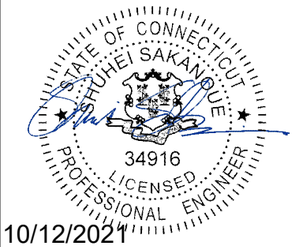
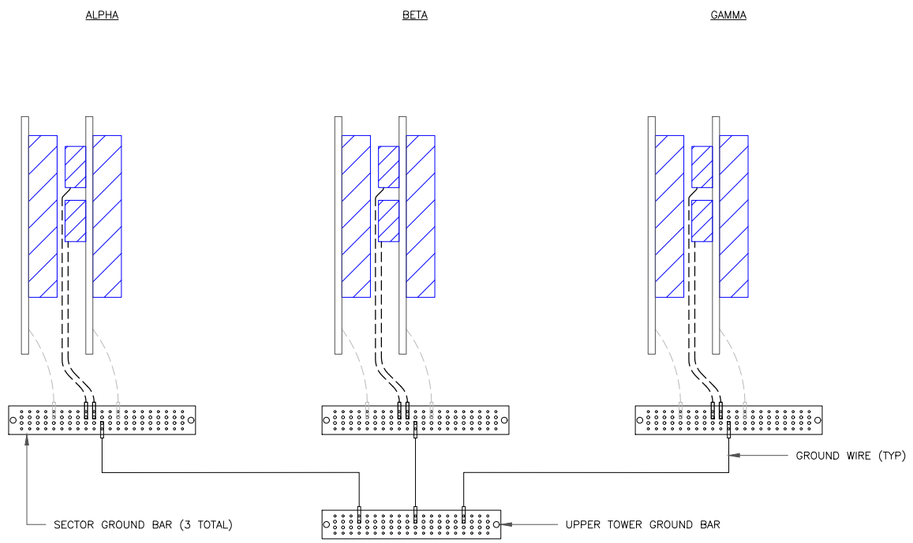


10/12/2021

SHEET NUMBER: E-1

REVISION: 1



NOTE:

ALL NEW GROUNDS TO BE #6 STRANDED COPPER WITH GREEN INSULATION UNLESS NOTED OTHERWISE.

1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE

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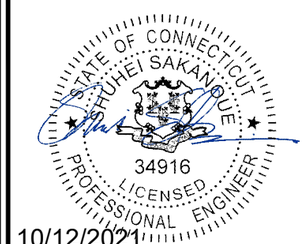
NEW MILFORD, CT 06776

EXISTING 160'-0" MONOPOLE

ISSUED FOR:

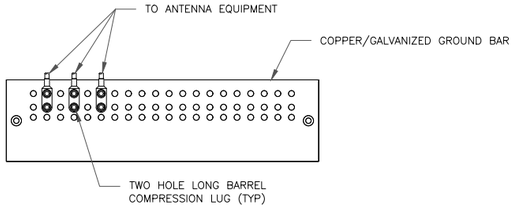
REV	DATE	DRWN	DESCRIPTION	DES./QA
0	04/22/21	RCD	FINAL	SS
1	10/11/21	CB	FINAL	SS



10/12/2021

SHEET NUMBER: G-1

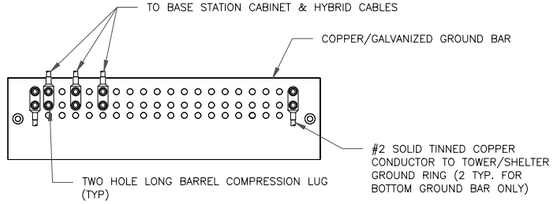
REVISION: 1



NOTES:

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

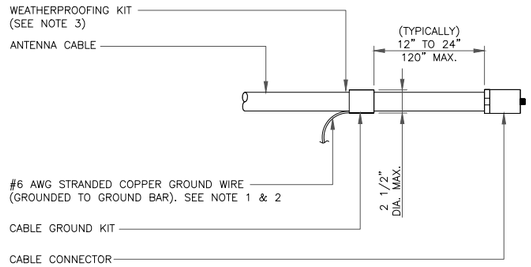
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

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

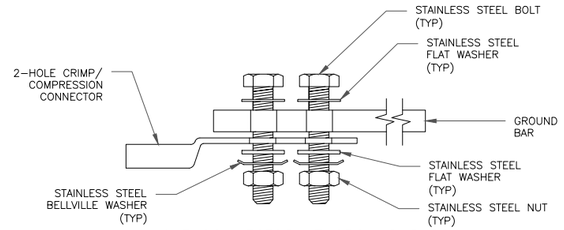
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



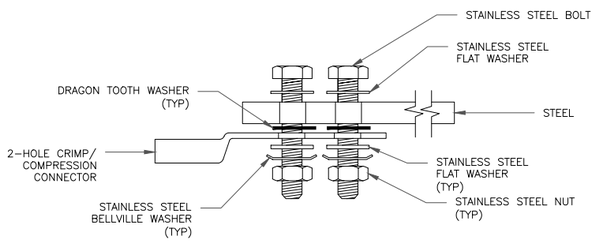
NOTES:

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

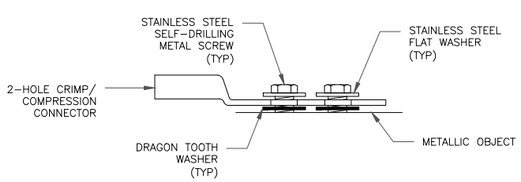
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

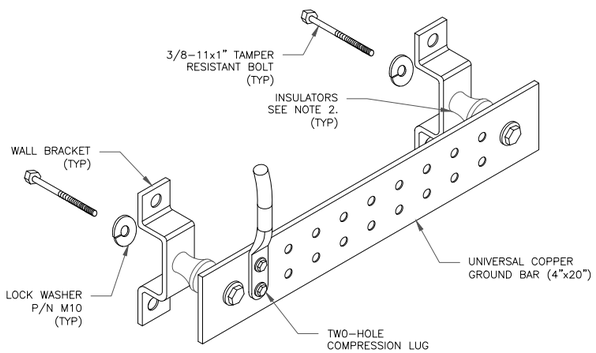


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

4 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

5 GROUND BAR DETAIL
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

T-Mobile
35 GRIFFIN ROAD
BLOOMFIELD, CT 06002

CROWN CASTLE
1500 CORPORATE DRIVE
CANONSBURG, PA 15317

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T-MOBILE SITE NUMBER:
CTNH770A

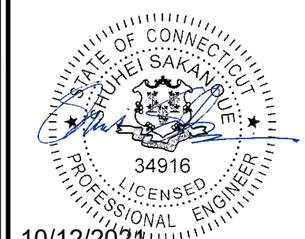
BU #: **876397**
NEW MILFORD/KIMBERLY

399 CHESTNUT LAND RD
NEW MILFORD, CT 06776

EXISTING 160'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	04/22/21	RCD	FINAL	SS
1	10/11/21	CB	FINAL	SS



10/12/2021

SHEET NUMBER: G-2

REVISION: 1

Exhibit D

Structural Analysis Report

Date: **February 7, 2022**

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

Subject:	**Structural Modification Report**	
Carrier Designation:	**Site Number:**	CTNH770A
	Site Name:	CT33XC606
Crown Castle Designation:	**BU Number:**	876397
	Site Name:	NEW MILFORD/ KIMBERLY
	JDE Job Number:	684639
	Work Order Number:	2066575
	Order Number:	584631 Rev. 0
Engineering Firm Designation:	**B+T Group Project Number:**	155998.003.01
Site Data:	**399 Chestnut Land Rd., New Milford, CT, Litchfield County** **Latitude *41° 37' 54.93"*, Longitude *-73° 22' 2.82"*** **160 Foot - Monopole**	

B+T Group is pleased to submit this **"Structural Modification 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 including the proposed modifications as outlined in the attached drawings, "Appendix D". 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 - 97.6%**

This analysis utilizes an ultimate 3-second gust wind speed of 115 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural modification prepared by: Michael Harris

Respectfully submitted by: B+T Engineering, Inc.
COA: PEC.0001564 Expires: 02/10/2022

Chad E. Tuttle, P.E.

tnxTower Report - version 8.1.1.0

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 160 ft. monopole designed by Engineered Endeavors, Inc. The tower has been modified multiple times to accommodate additional loading.

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

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	115 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1 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)
160.0	163.0	3	Site Pro 1	HRK14-U	3	1-5/8
		3	Ericsson	AIR6449 B41_T-MOBILE		
		3	Ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	Ericsson	Radio 4480_TMOV2		
		3	RFS Celwave	APXVAALL24_43-U-NA20_TMO		
	160.0	1	--	Platform Mount [LP 712-1]		
	156.5	1	Site Pro 1	PRK-1245		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
147.0	149.0	6	Antel	LPA-80080/6CF	7	1-5/8
		6	JMA Wireless	MX06FIT665-02		
		1	RFS Celwave	DB-C1-12C-24AB-0Z		
		3	Samsung Telecomm.	RFV01U-D1A		
		3	Samsung Telecomm.	RFV01U-D2A		
		3	VZW	Sub6 Antenna - VZS01		
	147.0	1	--	Platform Mount [LP 303-1_HR-1]		
132.0	133.0	3	Ericsson	RRUS 4478 B14	6 4 2 2	1-5/8 3/4 7/16 3/8
		3	Ericsson	RRUS 4449 B5/B12		
		3	Ericsson	RRUS 8843 B2/B66A		
		2	Kathrein	80010964		
		4	Kathrein	80010965		
		3	Powerwave Tech.	7770.00		
		6	Powerwave Tech.	LGP21401		
		2	Raycap	DC6-48-60-18-8C-EV		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		1	Raycap	DC6-48-60-18-8F		
	132.0	1	--	Platform Mount [LP 303-1_HR-1]		
122.0	122.0	3	Fujitsu	TA08025-B604	1	1-1/2
		3	Fujitsu	TA08025-B605		
		3	JMA Wireless	MX08FRO665-21		
		1	Raycap	RDIDC-9181-PF-48		
		1	Commscope	MC-PK8-DSH		
77.0	78.0	1	GPS	GPS_A	1	1/2
	77.0	1	--	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Tower Manufacturer Drawing	1613541	CCIsites
Mount Modification Report	10006199	CCIsites
Tower Modification Drawing	2055769	CCIsites
Post Modification Inspection	2331636	CCIsites
Tower Modification Drawing	3375822	CCIsites
Post Modification Inspection	3839077	CCIsites
Foundation Drawing	1614622	CCIsites
Geotech Report	2158227	CCIsites
Crown CAD Package	Date: 12/08/2021	CCIsites

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

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

3.2) Assumptions

1) The tower and structures were maintained in accordance with the - TIA-222 standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	160 - 155	Pole	TP18.902x18x0.188	1	-3.634	--	12.1	Pass[1]
L2	155 - 150	Pole	TP19.804x18.902x0.188	2	-3.869	--	20.1	Pass[1]
L3	150 - 145	Pole	TP20.706x19.804x0.188	3	-7.004	--	32.0	Pass[1]
L4	145 - 140	Pole	TP21.608x20.706x0.188	4	-7.338	--	43.6	Pass[1]
L5	140 - 138.66	Pole	TP22.45x21.608x0.188	5	-7.430	--	46.5	Pass[1]
L6	138.66 - 133.66	Pole	TP22.363x21.474x0.25	6	-8.019	--	41.5	Pass[1]
L7	133.66 - 128.66	Pole	TP23.253x22.363x0.25	7	-11.707	--	50.7	Pass[1]
L8	128.66 - 123.66	Pole	TP24.142x23.253x0.25	8	-12.278	--	59.0	Pass[1]
L9	123.66 - 118.66	Pole	TP25.032x24.142x0.25	9	-15.608	--	68.4	Pass[1]
L10	118.66 - 113.66	Pole	TP25.921x25.032x0.25	10	-16.286	--	77.3	Pass[1]
L11	113.66 - 108.66	Pole	TP26.81x25.921x0.25	11	-16.997	--	85.2	Pass[1]
L12	108.66 - 103.66	Pole	TP27.7x26.81x0.25	12	-17.737	--	92.3	Pass[1]
L13	103.66 - 101	Pole	TP28.174x27.7x0.25	13	-18.136	--	95.8	Pass[1]
L14	101 - 100.75	Pole + Reinf.	TP28.218x28.174x0.625	14	-18.224	--	70.2	Pass[1]
L15	100.75 - 95.75	Pole + Reinf.	TP29.107x28.218x0.613	15	-19.437	--	75.5	Pass[1]
L16	95.75 - 94.17	Pole + Reinf.	TP30.16x29.107x0.613	16	-19.824	--	77.0	Pass[1]
L17	94.17 - 88.83	Pole	TP29.837x28.889x0.313	17	-21.567	--	85.7	Pass[1]
L18	88.83 - 83.83	Pole	TP30.726x29.837x0.313	18	-22.480	--	89.3	Pass[1]
L19	83.83 - 78.83	Pole	TP31.615x30.726x0.313	19	-23.418	--	92.5	Pass[1]
L20	78.83 - 73.83	Pole	TP32.504x31.615x0.313	20	-24.452	--	95.5	Pass[1]
L21	73.83 - 70	Pole	TP33.185x32.504x0.313	21	-25.199	--	97.6	Pass[1]
L22	70 - 69.75	Pole + Reinf.	TP33.229x33.185x0.513	22	-25.287	--	94.2	Pass[1]
L23	69.75 - 65	Pole + Reinf.	TP34.074x33.229x0.5	23	-26.496	--	96.8	Pass[1]
L24	65 - 64.75	Pole + Reinf.	TP34.118x34.074x0.713	24	-26.592	--	74.3	Pass[1]
L25	64.75 - 59.75	Pole + Reinf.	TP35.007x34.118x0.7	25	-28.231	--	76.6	Pass[1]
L26	59.75 - 54.75	Pole + Reinf.	TP35.896x35.007x0.688	26	-29.899	--	78.8	Pass[1]
L27	54.75 - 49.75	Pole + Reinf.	TP36.785x35.896x0.675	27	-31.590	--	80.9	Pass[1]
L28	49.75 - 49.63	Pole + Reinf.	TP37.74x36.785x0.675	28	-31.642	--	80.9	Pass[1]
L29	49.63 - 43.38	Pole	TP37.292x36.182x0.375	29	-34.568	--	89.7	Pass[1]
L30	43.38 - 38.38	Pole	TP38.181x37.292x0.375	30	-35.791	--	91.0	Pass[1]
L31	38.38 - 33.38	Pole	TP39.069x38.181x0.375	31	-37.038	--	92.2	Pass[1]
L32	33.38 - 28.38	Pole	TP39.958x39.069x0.375	32	-38.308	--	93.2	Pass[1]
L33	28.38 - 23.38	Pole	TP40.846x39.958x0.375	33	-39.600	--	94.2	Pass[1]
L34	23.38 - 18.38	Pole	TP41.735x40.846x0.375	34	-40.915	--	95.1	Pass[1]
L35	18.38 - 13.38	Pole	TP42.623x41.735x0.375	35	-42.252	--	95.8	Pass[1]
L36	13.38 - 8.38	Pole	TP43.512x42.623x0.375	36	-43.610	--	96.6	Pass[1]
L37	8.38 - 3.38	Pole	TP44.4x43.512x0.375	37	-44.990	--	97.2	Pass[1]
L38	3.38 - 0	Pole	TP45x44.4x0.375	38	-45.931	--	97.6	Pass[1]
							Summary	
						Pole (L38)	97.6	Pass[1]
						Rating =	97.6	Pass[1]

Table 5 - Tower Component Stresses vs. Capacity (Monopole) - LC4.7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	Base	85.6	Pass
1,2	Base Plate	Base	92.7	Pass
1,2	Base Foundation (Structure)	Base	90.0	Pass
1,2	Base Foundation (Soil Interaction)	Base	82.5	Pass

Structure Rating (max from all components) =	97.6%

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

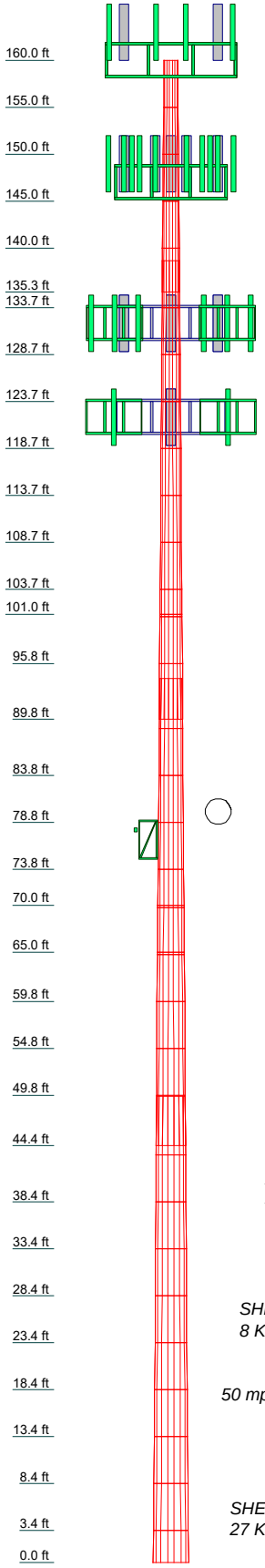
4.1) Recommendations

1) Perform the modifications detailed in "Appendix D" to remedy the deficiencies identified in Crown Castle Work Order No. 2015045.

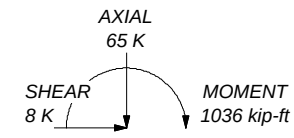
APPENDIX A

TNXTOWER OUTPUT

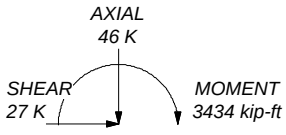
Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.000	18	0.188		18.000	18.902		0.2
2	5.000	18	0.188		18.902	19.804		0.2
3	5.000	18	0.188		19.804	20.706		0.2
4	5.000	18	0.188		20.706	21.608		0.2
5	5.000	18	0.188	3.333	21.608	22.450		0.2
6	5.000	18	0.250		22.450	23.252		0.3
7	5.000	18	0.250		22.363	23.253		0.3
8	5.000	18	0.250		23.253	24.142		0.3
9	5.000	18	0.250		24.142	25.032		0.3
10	5.000	18	0.250		25.032	25.921		0.3
11	5.000	18	0.250		25.921	26.810		0.4
12	5.000	18	0.250		26.810	27.700		0.4
13	5.000	18	0.250		27.700	28.221		0.2
14	2.663	18	0.250		28.221	28.482		0.1
15	5.000	18	0.610		28.482	29.107		0.9
16	5.000	18	0.613	4.333	29.107	30.160	A572-65	1.0
17	3.333	18	0.313		30.160	30.726		0.5
18	5.000	18	0.313		30.726	31.615		0.5
19	5.000	18	0.313		31.615	32.504		0.5
20	5.000	18	0.313		32.504	33.185		0.4
21	2.500	18	0.313		33.185	33.504		0.2
22	2.500	18	0.313		33.504	33.823		0.2
23	7.500	18	1.500		33.823	34.134		0.8
24	2.500	18	0.750		34.134	34.444		0.1
25	5.000	18	0.700		34.444	35.007		1.2
26	5.000	18	0.688		35.007	35.896		1.2
27	5.000	18	0.675		35.896	36.785		1.2
28	6.250	18	0.675	5.250	36.785	37.740		1.4
29	1.875	18	0.375		37.740	38.181		0.9
30	5.000	18	0.375		38.181	39.069		0.8
31	5.000	18	0.375		39.069	39.958		0.8
32	5.000	18	0.375		39.958	40.846		0.8
33	5.000	18	0.375		40.846	41.735		0.8
34	5.000	18	0.375		41.735	42.623		0.8
35	5.000	18	0.375		42.623	43.512		0.9
36	5.000	18	0.375		43.512	44.400		0.9
37	5.000	18	0.375		44.400	45.000		0.6
38	3.376	18	0.375		44.400	45.000		21.9



ALL REACTIONS ARE FACTORED



TORQUE 0 kip-ft
50 mph WIND - 1.000 in ICE



TORQUE 0 kip-ft
REACTIONS - 115 mph WIND

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Litchfield County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 115 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TIA-222-H Annex S
9. TOWER RATING: 97.6%

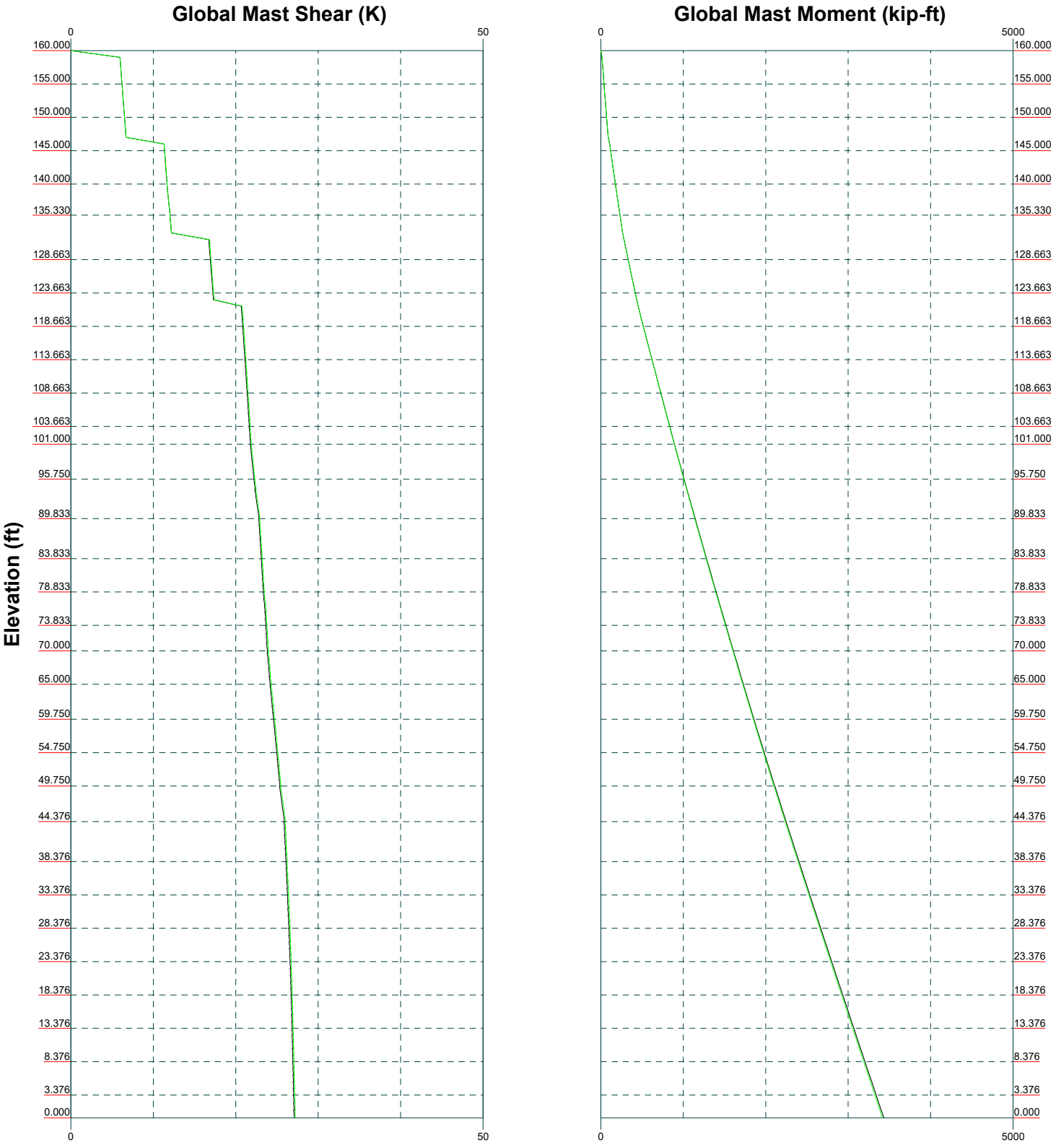
B+T Group
1717 S Boulder Ave, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job:	***155998.003.01 - NEW MILFORD/KIMBERLY, CT (BU# 87639***		
Project:			
Client: Crown Castle	Drawn by: M. Harris	App'd:	
Code: TIA-222-H	Date: 02/01/22	Scale: NTS	
Path:		Dwg No. E-1	

TIA-222-H - 115 mph/50 mph 1.000 in Ice Exposure C

Maximum Values

Vx Vz Mx Mz



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Phone: (918) 587-4630
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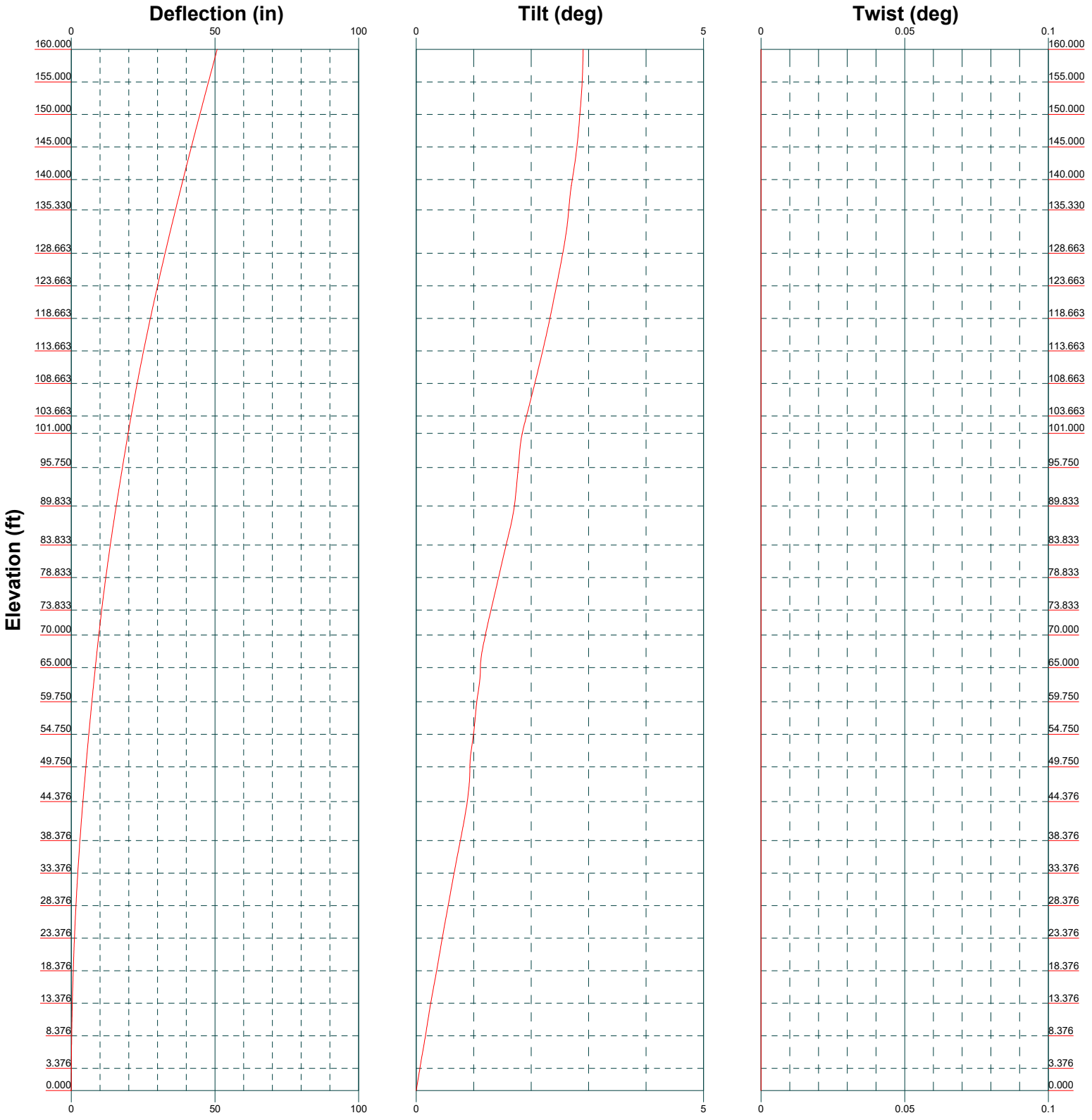
Job: 155998.003.01 - NEW MILFORD/KIMBERLY, CT (BU# 87639			
Project:			
Client: Crown Castle	Drawn by: M. Harris	App'd:	
Code: TIA-222-H	Date: 02/01/22	Scale: NTS	
Path:		Dwg No. E-4	

TIA-222-H - Service - 60 mph

Maximum Values



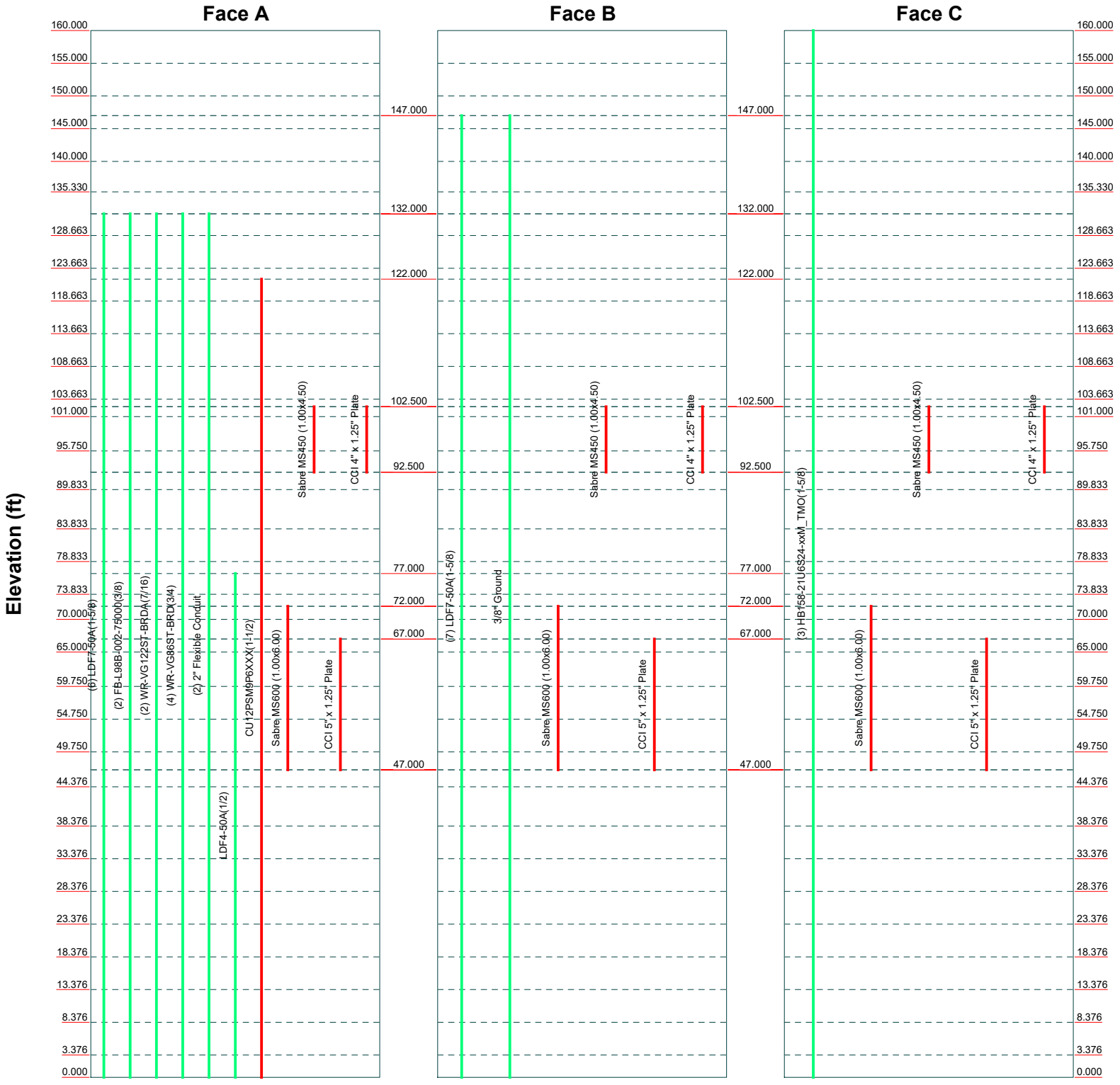
B+T GRP

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

Job: *155998.003.01 - NEW MILFORD/KIMBERLY, CT (BU# 87639*			
Project:			
Client: Crown Castle	Drawn by: M. Harris	App'd:	
Code: TIA-222-H	Date: 02/01/22	Scale: NTS	
Path:		Dwg No. E-5	

Feed Line Distribution Chart
0' - 160'

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



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Phone: (918) 587-4630
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Job:	***155998.003.01 - NEW MILFORD/KIMBERLY, CT (BU# 87639***		
Project:			
Client: Crown Castle		Drawn by: M. Harris	App'd:
Code: TIA-222-H		Date: 02/01/22	Scale: NTS
Path:			Dwg No. E-7

Tower Input Data

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

Tower is located in Litchfield County, Connecticut.
Tower base elevation above sea level: 980.000 ft.
Basic wind speed of 115 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.000 ft.
Nominal ice thickness of 1.000 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
TIA-222-H Annex S.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Maximum demand-capacity ratio is: 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	SR Leg Bolts Resist Compression
√ Use Code Stress Ratios	Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	√ Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	√ Use Azimuth Dish Coefficients	Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-H Bracing Resist. Exemption
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Use TIA-222-H Tension Splice Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
Secondary Horizontal Braces Leg	Sort Capacity Reports By Component	√ Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric	Ignore KL/ry For 60 Deg. Angle Legs	Pole Without Linear Attachments
		Pole With Shroud Or No Appurtenances
		Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	160.000-155.000	5.000	0.000	18	18.000	18.902	0.188	0.750	A572-65 (65 ksi)
L2	155.000-150.000	5.000	0.000	18	18.902	19.804	0.188	0.750	A572-65 (65 ksi)
L3	150.000-145.000	5.000	0.000	18	19.804	20.706	0.188	0.750	A572-65 (65 ksi)
L4	145.000-140.000	5.000	0.000	18	20.706	21.608	0.188	0.750	A572-65 (65 ksi)
L5	140.000-135.330	4.670	3.333	18	21.608	22.450	0.188	0.750	A572-65 (65 ksi)
L6	135.330-133.663	5.000	0.000	18	21.474	22.363	0.250	1.000	A572-65 (65 ksi)
L7	133.663-128.663	5.000	0.000	18	22.363	23.253	0.250	1.000	A572-65 (65 ksi)
L8	128.663-123.663	5.000	0.000	18	23.253	24.142	0.250	1.000	A572-65 (65 ksi)
L9	123.663-118.663	5.000	0.000	18	24.142	25.032	0.250	1.000	A572-65 (65 ksi)
L10	118.663-113.663	5.000	0.000	18	25.032	25.921	0.250	1.000	A572-65 (65 ksi)
L11	113.663-108.663	5.000	0.000	18	25.921	26.810	0.250	1.000	A572-65 (65 ksi)
L12	108.663-103.663	5.000	0.000	18	26.810	27.700	0.250	1.000	A572-65 (65 ksi)
L13	103.663-101.000	2.663	0.000	18	27.700	28.174	0.250	1.000	A572-65 (65 ksi)
L14	101.000-100.750	0.250	0.000	18	28.174	28.218	0.625	2.500	A572-65 (65 ksi)
L15	100.750-95.750	5.000	0.000	18	28.218	29.107	0.613	2.450	A572-65 (65 ksi)
L16	95.750-89.833	5.917	4.333	18	29.107	30.160	0.613	2.450	A572-65 (65 ksi)
L17	89.833-88.833	5.333	0.000	18	28.889	29.837	0.313	1.250	A572-65 (65 ksi)
L18	88.833-83.833	5.000	0.000	18	29.837	30.726	0.313	1.250	A572-65 (65 ksi)
L19	83.833-78.833	5.000	0.000	18	30.726	31.615	0.313	1.250	A572-65 (65 ksi)
L20	78.833-73.833	5.000	0.000	18	31.615	32.504	0.313	1.250	A572-65 (65 ksi)
L21	73.833-70.000	3.833	0.000	18	32.504	33.185	0.313	1.250	A572-65 (65 ksi)
L22	70.000-69.750	0.250	0.000	18	33.185	33.229	0.512	2.050	A572-65 (65 ksi)
L23	69.750-65.000	4.750	0.000	18	33.229	34.074	0.500	2.000	A572-65 (65 ksi)
L24	65.000-64.750	0.250	0.000	18	34.074	34.118	0.713	2.850	A572-65 (65 ksi)
L25	64.750-59.750	5.000	0.000	18	34.118	35.007	0.700	2.800	A572-65 (65 ksi)
L26	59.750-54.750	5.000	0.000	18	35.007	35.896	0.688	2.750	A572-65 (65 ksi)
L27	54.750-49.750	5.000	0.000	18	35.896	36.785	0.675	2.700	A572-65 (65 ksi)
L28	49.750-44.376	5.374	5.250	18	36.785	37.740	0.675	2.700	A572-65 (65 ksi)
L29	44.376-43.376	6.250	0.000	18	36.182	37.292	0.375	1.500	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L30	43.376-38.376	5.000	0.000	18	37.292	38.181	0.375	1.500	A572-65 (65 ksi)
L31	38.376-33.376	5.000	0.000	18	38.181	39.069	0.375	1.500	A572-65 (65 ksi)
L32	33.376-28.376	5.000	0.000	18	39.069	39.958	0.375	1.500	A572-65 (65 ksi)
L33	28.376-23.376	5.000	0.000	18	39.958	40.846	0.375	1.500	A572-65 (65 ksi)
L34	23.376-18.376	5.000	0.000	18	40.846	41.735	0.375	1.500	A572-65 (65 ksi)
L35	18.376-13.376	5.000	0.000	18	41.735	42.623	0.375	1.500	A572-65 (65 ksi)
L36	13.376-8.376	5.000	0.000	18	42.623	43.512	0.375	1.500	A572-65 (65 ksi)
L37	8.376-3.376	5.000	0.000	18	43.512	44.400	0.375	1.500	A572-65 (65 ksi)
L38	3.376-0.000	3.376		18	44.400	45.000	0.375	1.500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	18.249	10.601	424.933	6.323	9.144	46.471	850.425	5.301	2.838	15.136
	19.165	11.137	492.803	6.644	9.602	51.322	986.255	5.570	2.997	15.983
L2	19.165	11.137	492.803	6.644	9.602	51.322	986.255	5.570	2.997	15.983
	20.080	11.674	567.541	6.964	10.060	56.414	1135.830	5.838	3.155	16.829
L3	20.080	11.674	567.541	6.964	10.060	56.414	1135.830	5.838	3.155	16.829
	20.996	12.211	649.478	7.284	10.519	61.746	1299.810	6.107	3.314	17.676
L4	20.996	12.211	649.478	7.284	10.519	61.746	1299.810	6.107	3.314	17.676
	21.912	12.748	738.944	7.604	10.977	67.319	1478.860	6.375	3.473	18.522
L5	21.912	12.748	738.944	7.604	10.977	67.319	1478.860	6.375	3.473	18.522
	22.767	13.249	829.598	7.903	11.405	72.742	1660.287	6.626	3.621	19.313
L6	22.369	16.841	958.414	7.534	10.909	87.858	1918.089	8.422	3.339	13.358
	22.670	17.547	1084.028	7.850	11.361	95.421	2169.483	8.775	3.496	13.984
L7	22.670	17.547	1084.028	7.850	11.361	95.421	2169.483	8.775	3.496	13.984
	23.573	18.253	1220.165	8.166	11.812	103.296	2441.935	9.128	3.652	14.61
L8	23.573	18.253	1220.165	8.166	11.812	103.296	2441.935	9.128	3.652	14.61
	24.476	18.958	1367.247	8.482	12.264	111.483	2736.292	9.481	3.809	15.236
L9	24.476	18.958	1367.247	8.482	12.264	111.483	2736.292	9.481	3.809	15.236
	25.379	19.664	1525.698	8.797	12.716	119.982	3053.403	9.834	3.966	15.862
L10	25.379	19.664	1525.698	8.797	12.716	119.982	3053.403	9.834	3.966	15.862
	26.282	20.370	1695.941	9.113	13.168	128.794	3394.113	10.187	4.122	16.488
L11	26.282	20.370	1695.941	9.113	13.168	128.794	3394.113	10.187	4.122	16.488
	27.185	21.076	1878.399	9.429	13.620	137.918	3759.269	10.540	4.279	17.115
L12	27.185	21.076	1878.399	9.429	13.620	137.918	3759.269	10.540	4.279	17.115
	28.089	21.781	2073.496	9.745	14.072	147.354	4149.720	10.893	4.435	17.741
L13	28.089	21.781	2073.496	9.745	14.072	147.354	4149.720	10.893	4.435	17.741
	28.570	22.157	2182.709	9.913	14.312	152.507	4368.289	11.081	4.519	18.074
L14	28.512	54.649	5239.865	9.780	14.312	366.113	10486.625	27.330	3.859	6.174
	28.557	54.738	5265.282	9.796	14.335	367.309	10537.492	27.374	3.866	6.186
L15	28.559	53.667	5166.992	9.800	14.335	360.452	10340.783	26.839	3.888	6.348
	29.462	55.396	5682.689	10.116	14.787	384.314	11372.855	27.703	4.045	6.604
L16	29.462	55.396	5682.689	10.116	14.787	384.314	11372.855	27.703	4.045	6.604
	30.531	57.443	6335.964	10.489	15.321	413.540	12680.265	28.727	4.230	6.906
L17	30.069	28.345	2924.364	10.145	14.676	199.265	5852.576	14.175	4.535	14.51

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
	30.249	29.285	3225.165	10.481	15.157	212.779	6454.573	14.645	4.701	15.044
L18	30.249	29.285	3225.165	10.481	15.157	212.779	6454.573	14.645	4.701	15.044
	31.152	30.166	3525.292	10.797	15.609	225.852	7055.222	15.086	4.858	15.545
L19	31.152	30.166	3525.292	10.797	15.609	225.852	7055.222	15.086	4.858	15.545
	32.054	31.048	3843.484	11.112	16.060	239.315	7692.025	15.527	5.014	16.045
L20	32.054	31.048	3843.484	11.112	16.060	239.315	7692.025	15.527	5.014	16.045
	32.957	31.930	4180.268	11.428	16.512	253.168	8366.037	15.968	5.171	16.546
L21	32.957	31.930	4180.268	11.428	16.512	253.168	8366.037	15.968	5.171	16.546
	33.649	32.605	4451.367	11.670	16.858	264.051	8908.591	16.306	5.291	16.93
L22	33.618	53.148	7167.804	11.599	16.858	425.187	14345.040	26.579	4.939	9.636
	33.663	53.220	7197.092	11.615	16.881	426.354	14403.655	26.615	4.946	9.651
L23	33.665	51.942	7029.605	11.619	16.881	416.432	14068.459	25.976	4.968	9.937
	34.522	53.282	7587.821	11.919	17.310	438.361	15185.626	26.646	5.117	10.234
L24	34.490	75.446	10608.631	11.843	17.310	612.879	21231.221	37.730	4.743	6.657
	34.535	75.546	10651.083	11.859	17.332	614.530	21316.181	37.780	4.751	6.668
L25	34.537	74.249	10475.973	11.863	17.332	604.427	20965.731	37.131	4.773	6.818
	35.439	76.223	11334.276	12.179	17.784	637.344	22683.466	38.119	4.929	7.042
L26	35.441	74.890	11144.051	12.183	17.784	626.648	22302.765	37.452	4.951	7.202
	36.344	76.829	12032.496	12.499	18.235	659.853	24080.824	38.422	5.108	7.429
L27	36.346	75.459	11826.310	12.503	18.235	648.546	23668.182	37.737	5.130	7.6
	37.248	77.363	12744.418	12.819	18.687	682.007	25505.605	38.689	5.286	7.831
L28	37.248	77.363	12744.418	12.819	18.687	682.007	25505.605	38.689	5.286	7.831
	38.218	79.410	13782.886	13.158	19.172	718.910	27583.908	39.712	5.454	8.08
L29	37.629	42.619	6903.515	12.711	18.380	375.593	13816.114	21.314	5.708	15.221
	37.810	43.941	7566.007	13.106	18.945	399.377	15141.970	21.975	5.903	15.743
L30	37.810	43.941	7566.007	13.106	18.945	399.377	15141.970	21.975	5.903	15.743
	38.712	44.998	8125.521	13.421	19.396	418.931	16261.734	22.503	6.060	16.16
L31	38.712	44.998	8125.521	13.421	19.396	418.931	16261.734	22.503	6.060	16.16
	39.614	46.056	8711.961	13.736	19.847	438.952	17435.385	23.032	6.216	16.577
L32	39.614	46.056	8711.961	13.736	19.847	438.952	17435.385	23.032	6.216	16.577
	40.516	47.113	9325.960	14.052	20.299	459.440	18664.191	23.561	6.373	16.994
L33	40.516	47.113	9325.960	14.052	20.299	459.440	18664.191	23.561	6.373	16.994
	41.418	48.171	9968.150	14.367	20.750	480.396	19949.416	24.090	6.529	17.41
L34	41.418	48.171	9968.150	14.367	20.750	480.396	19949.416	24.090	6.529	17.41
	42.321	49.228	10639.165	14.683	21.201	501.818	21292.329	24.619	6.685	17.827
L35	42.321	49.228	10639.165	14.683	21.201	501.818	21292.329	24.619	6.685	17.827
	43.223	50.286	11339.636	14.998	21.653	523.709	22694.192	25.148	6.842	18.244
L36	43.223	50.286	11339.636	14.998	21.653	523.709	22694.192	25.148	6.842	18.244
	44.125	51.343	12070.198	15.314	22.104	546.066	24156.279	25.677	6.998	18.661
L37	44.125	51.343	12070.198	15.314	22.104	546.066	24156.279	25.677	6.998	18.661
	45.027	52.401	12831.482	15.629	22.555	568.891	25679.848	26.205	7.154	19.078
L38	45.027	52.401	12831.482	15.629	22.555	568.891	25679.848	26.205	7.154	19.078
	45.636	53.115	13363.196	15.842	22.860	584.567	26743.975	26.563	7.260	19.36

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 160.000-155.000				1	1	1			
L2 155.000-150.000				1	1	1			
L3 150.000-145.000				1	1	1			
L4 145.000-140.000				1	1	1			

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L5 140.000-135.330				1	1	1			
L6 135.330-133.663				1	1	1			
L7 133.663-128.663				1	1	1			
L8 128.663-123.663				1	1	1			
L9 123.663-118.663				1	1	1			
L10 118.663-113.663				1	1	1			
L11 113.663-108.663				1	1	1			
L12 108.663-103.663				1	1	1			
L13 103.663-101.000				1	1	1			
L14 101.000-100.750				1	1	0.92612			
L15 100.750-95.750				1	1	0.927849			
L16 95.750-89.833				1	1	0.92276			
L17 89.833-88.833				1	1	1			
L18 88.833-83.833				1	1	1			
L19 83.833-78.833				1	1	1			
L20 78.833-73.833				1	1	1			
L21 73.833-70.000				1	1	1			
L22 70.000-69.750				1	1	0.951715			
L23 69.750-65.000				1	1	0.96633			
L24 65.000-64.750				1	1	0.930322			
L25 64.750-59.750				1	1	0.933623			
L26 59.750-54.750				1	1	0.937738			
L27 54.750-49.750				1	1	0.94266			
L28 49.750-44.376				1	1	0.942367			

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L29 44.376-43.376				1	1	1			
L30 43.376-38.376				1	1	1			
L31 38.376-33.376				1	1	1			
L32 33.376-28.376				1	1	1			
L33 28.376-23.376				1	1	1			
L34 23.376-18.376				1	1	1			
L35 18.376-13.376				1	1	1			
L36 13.376-8.376				1	1	1			
L37 8.376-3.376				1	1	1			
L38 3.376-0.000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
*										
CU12PSM9P6XXX(1-1/2)	A	No	Surface Ar (CaAa)	122.000 - 0.000	1	1	-0.280 -0.250	1.600		0.002
*										
Sabre MS600 (1.00x6.00)	A	No	Surface Af (CaAa)	72.000 - 47.000	1	1	0.000 0.050	6.000	14.000	0.000
Sabre MS600 (1.00x6.00)	B	No	Surface Af (CaAa)	72.000 - 47.000	1	1	0.000 0.050	6.000	14.000	0.000
Sabre MS600 (1.00x6.00)	C	No	Surface Af (CaAa)	72.000 - 47.000	1	1	0.000 0.050	6.000	14.000	0.000
*										
Sabre MS450 (1.00x4.50)	A	No	Surface Af (CaAa)	102.500 - 92.500	1	1	0.000 0.050	4.500	11.000	0.000
Sabre MS450 (1.00x4.50)	B	No	Surface Af (CaAa)	102.500 - 92.500	1	1	0.000 0.050	4.500	11.000	0.000
Sabre MS450 (1.00x4.50)	C	No	Surface Af (CaAa)	102.500 - 92.500	1	1	0.000 0.050	4.500	11.000	0.000
*										
CCI 5" x 1.25" Plate	A	No	Surface Af (CaAa)	67.000 - 47.000	1	1	-0.450 -0.400	5.000	12.500	0.000
CCI 5" x 1.25" Plate	B	No	Surface Af (CaAa)	67.000 - 47.000	1	1	-0.450 -0.400	5.000	12.500	0.000
CCI 5" x 1.25" Plate	C	No	Surface Af (CaAa)	67.000 - 47.000	1	1	-0.450 -0.400	5.000	12.500	0.000
*										
CCI 4" x 1.25" Plate	A	No	Surface Af (CaAa)	102.500 - 92.500	1	1	0.200 0.250	4.000	10.500	0.000
CCI 4" x 1.25" Plate	B	No	Surface Af	102.500 -	1	1	0.200	4.000	10.500	0.000

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 klf
CCI 4" x 1.25" Plate *	C	No	(CaAa) Surface Af (CaAa)	92.500 102.500 - 92.500	1	1	0.250 0.200 0.250	4.000	10.500	0.000

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
HB158-21U6S24-xx M_TMO(1-5/8) *	C	No	No	Inside Pole	160.000 - 0.000	3	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.003 0.003 0.003
LDF7-50A(1-5/8) *	B	No	No	Inside Pole	147.000 - 0.000	7	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001
LDF7-50A(1-5/8)	A	No	No	Inside Pole	132.000 - 0.000	6	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001
FB-L98B-002-75000 (3/8)	A	No	No	Inside Pole	132.000 - 0.000	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000
WR-VG122ST-BRD A(7/16)	A	No	No	Inside Pole	132.000 - 0.000	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000
WR-VG86ST-BRD(3/4)	A	No	No	Inside Pole	132.000 - 0.000	4	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001
2" Flexible Conduit *	A	No	No	Inside Pole	132.000 - 0.000	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000
LDF4-50A(1/2) *	A	No	No	Inside Pole	77.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000
3/8" Ground *	B	No	No	Inside Pole	147.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	160.000-155.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	0.000	0.000	0.037
L2	155.000-150.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.037
L3	150.000-145.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.012
		C	0.000	0.000	0.000	0.000	0.037
L4	145.000-140.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.030
		C	0.000	0.000	0.000	0.000	0.037
L5	140.000-135.330	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.028
		C	0.000	0.000	0.000	0.000	0.035
L6	135.330-133.663	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.010
		C	0.000	0.000	0.000	0.000	0.013
L7	133.663-128.663	A	0.000	0.000	0.000	0.000	0.028
		B	0.000	0.000	0.000	0.000	0.030
		C	0.000	0.000	0.000	0.000	0.037
L8	128.663-123.663	A	0.000	0.000	0.000	0.000	0.042
		B	0.000	0.000	0.000	0.000	0.030
		C	0.000	0.000	0.000	0.000	0.037
L9	123.663-118.663	A	0.000	0.000	0.534	0.000	0.050
		B	0.000	0.000	0.000	0.000	0.030
		C	0.000	0.000	0.000	0.000	0.037
L10	118.663-113.663	A	0.000	0.000	0.800	0.000	0.053
		B	0.000	0.000	0.000	0.000	0.030
		C	0.000	0.000	0.000	0.000	0.037
L11	113.663-108.663	A	0.000	0.000	0.800	0.000	0.053
		B	0.000	0.000	0.000	0.000	0.030
		C	0.000	0.000	0.000	0.000	0.037
L12	108.663-103.663	A	0.000	0.000	0.800	0.000	0.053
		B	0.000	0.000	0.000	0.000	0.030
		C	0.000	0.000	0.000	0.000	0.037
L13	103.663-101.000	A	0.000	0.000	2.551	0.000	0.028
		B	0.000	0.000	2.125	0.000	0.016
		C	0.000	0.000	2.125	0.000	0.020
L14	101.000-100.750	A	0.000	0.000	0.394	0.000	0.003
		B	0.000	0.000	0.354	0.000	0.001
		C	0.000	0.000	0.354	0.000	0.002
L15	100.750-95.750	A	0.000	0.000	7.883	0.000	0.053
		B	0.000	0.000	7.083	0.000	0.030
		C	0.000	0.000	7.083	0.000	0.037
L16	95.750-89.833	A	0.000	0.000	5.551	0.000	0.063
		B	0.000	0.000	4.604	0.000	0.035
		C	0.000	0.000	4.604	0.000	0.044
L17	89.833-88.833	A	0.000	0.000	0.160	0.000	0.011
		B	0.000	0.000	0.000	0.000	0.006
		C	0.000	0.000	0.000	0.000	0.007
L18	88.833-83.833	A	0.000	0.000	0.800	0.000	0.053
		B	0.000	0.000	0.000	0.000	0.030
		C	0.000	0.000	0.000	0.000	0.037
L19	83.833-78.833	A	0.000	0.000	0.800	0.000	0.053
		B	0.000	0.000	0.000	0.000	0.030
		C	0.000	0.000	0.000	0.000	0.037
L20	78.833-73.833	A	0.000	0.000	0.800	0.000	0.054
		B	0.000	0.000	0.000	0.000	0.030
		C	0.000	0.000	0.000	0.000	0.037
L21	73.833-70.000	A	0.000	0.000	2.613	0.000	0.042
		B	0.000	0.000	2.000	0.000	0.023
		C	0.000	0.000	2.000	0.000	0.029

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L22	70.000-69.750	A	0.000	0.000	0.290	0.000	0.003
		B	0.000	0.000	0.250	0.000	0.001
		C	0.000	0.000	0.250	0.000	0.002
L23	69.750-65.000	A	0.000	0.000	7.177	0.000	0.051
		B	0.000	0.000	6.417	0.000	0.028
		C	0.000	0.000	6.417	0.000	0.036
L24	65.000-64.750	A	0.000	0.000	0.498	0.000	0.003
		B	0.000	0.000	0.458	0.000	0.001
		C	0.000	0.000	0.458	0.000	0.002
L25	64.750-59.750	A	0.000	0.000	9.967	0.000	0.054
		B	0.000	0.000	9.167	0.000	0.030
		C	0.000	0.000	9.167	0.000	0.037
L26	59.750-54.750	A	0.000	0.000	9.967	0.000	0.054
		B	0.000	0.000	9.167	0.000	0.030
		C	0.000	0.000	9.167	0.000	0.037
L27	54.750-49.750	A	0.000	0.000	9.967	0.000	0.054
		B	0.000	0.000	9.167	0.000	0.030
		C	0.000	0.000	9.167	0.000	0.037
L28	49.750-44.376	A	0.000	0.000	5.902	0.000	0.058
		B	0.000	0.000	5.042	0.000	0.032
		C	0.000	0.000	5.042	0.000	0.040
L29	44.376-43.376	A	0.000	0.000	0.160	0.000	0.011
		B	0.000	0.000	0.000	0.000	0.006
		C	0.000	0.000	0.000	0.000	0.007
L30	43.376-38.376	A	0.000	0.000	0.800	0.000	0.054
		B	0.000	0.000	0.000	0.000	0.030
		C	0.000	0.000	0.000	0.000	0.037
L31	38.376-33.376	A	0.000	0.000	0.800	0.000	0.054
		B	0.000	0.000	0.000	0.000	0.030
		C	0.000	0.000	0.000	0.000	0.037
L32	33.376-28.376	A	0.000	0.000	0.800	0.000	0.054
		B	0.000	0.000	0.000	0.000	0.030
		C	0.000	0.000	0.000	0.000	0.037
L33	28.376-23.376	A	0.000	0.000	0.800	0.000	0.054
		B	0.000	0.000	0.000	0.000	0.030
		C	0.000	0.000	0.000	0.000	0.037
L34	23.376-18.376	A	0.000	0.000	0.800	0.000	0.054
		B	0.000	0.000	0.000	0.000	0.030
		C	0.000	0.000	0.000	0.000	0.037
L35	18.376-13.376	A	0.000	0.000	0.800	0.000	0.054
		B	0.000	0.000	0.000	0.000	0.030
		C	0.000	0.000	0.000	0.000	0.037
L36	13.376-8.376	A	0.000	0.000	0.800	0.000	0.054
		B	0.000	0.000	0.000	0.000	0.030
		C	0.000	0.000	0.000	0.000	0.037
L37	8.376-3.376	A	0.000	0.000	0.800	0.000	0.054
		B	0.000	0.000	0.000	0.000	0.030
		C	0.000	0.000	0.000	0.000	0.037
L38	3.376-0.000	A	0.000	0.000	0.540	0.000	0.037
		B	0.000	0.000	0.000	0.000	0.020
		C	0.000	0.000	0.000	0.000	0.025

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	160.000-155.000	A	0.994	0.000	0.000	0.000	0.000	0.000

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.037
L2	155.000-150.000	A	0.991	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.037
L3	150.000-145.000	A	0.987	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.012
		C		0.000	0.000	0.000	0.000	0.037
L4	145.000-140.000	A	0.984	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.030
		C		0.000	0.000	0.000	0.000	0.037
L5	140.000-135.330	A	0.980	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.028
		C		0.000	0.000	0.000	0.000	0.035
L6	135.330-133.663	A	0.978	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.010
		C		0.000	0.000	0.000	0.000	0.013
L7	133.663-128.663	A	0.976	0.000	0.000	0.000	0.000	0.028
		B		0.000	0.000	0.000	0.000	0.030
		C		0.000	0.000	0.000	0.000	0.037
L8	128.663-123.663	A	0.972	0.000	0.000	0.000	0.000	0.042
		B		0.000	0.000	0.000	0.000	0.030
		C		0.000	0.000	0.000	0.000	0.037
L9	123.663-118.663	A	0.968	0.000	0.000	1.180	0.000	0.060
		B		0.000	0.000	0.000	0.000	0.030
		C		0.000	0.000	0.000	0.000	0.037
L10	118.663-113.663	A	0.964	0.000	0.000	1.764	0.000	0.069
		B		0.000	0.000	0.000	0.000	0.030
		C		0.000	0.000	0.000	0.000	0.037
L11	113.663-108.663	A	0.960	0.000	0.000	1.760	0.000	0.068
		B		0.000	0.000	0.000	0.000	0.030
		C		0.000	0.000	0.000	0.000	0.037
L12	108.663-103.663	A	0.955	0.000	0.000	1.755	0.000	0.068
		B		0.000	0.000	0.000	0.000	0.030
		C		0.000	0.000	0.000	0.000	0.037
L13	103.663-101.000	A	0.952	0.000	0.000	3.441	0.000	0.052
		B		0.000	0.000	2.508	0.000	0.032
		C		0.000	0.000	2.508	0.000	0.036
L14	101.000-100.750	A	0.950	0.000	0.000	0.505	0.000	0.006
		B		0.000	0.000	0.418	0.000	0.004
		C		0.000	0.000	0.418	0.000	0.005
L15	100.750-95.750	A	0.948	0.000	0.000	10.104	0.000	0.121
		B		0.000	0.000	8.356	0.000	0.083
		C		0.000	0.000	8.356	0.000	0.090
L16	95.750-89.833	A	0.943	0.000	0.000	7.490	0.000	0.115
		B		0.000	0.000	5.428	0.000	0.069
		C		0.000	0.000	5.428	0.000	0.078
L17	89.833-88.833	A	0.939	0.000	0.000	0.349	0.000	0.014
		B		0.000	0.000	0.000	0.000	0.006
		C		0.000	0.000	0.000	0.000	0.007
L18	88.833-83.833	A	0.936	0.000	0.000	1.736	0.000	0.068
		B		0.000	0.000	0.000	0.000	0.030
		C		0.000	0.000	0.000	0.000	0.037
L19	83.833-78.833	A	0.930	0.000	0.000	1.730	0.000	0.068
		B		0.000	0.000	0.000	0.000	0.030
		C		0.000	0.000	0.000	0.000	0.037
L20	78.833-73.833	A	0.924	0.000	0.000	1.724	0.000	0.068
		B		0.000	0.000	0.000	0.000	0.030
		C		0.000	0.000	0.000	0.000	0.037
L21	73.833-70.000	A	0.919	0.000	0.000	3.685	0.000	0.065
		B		0.000	0.000	2.368	0.000	0.035

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	2.368	0.000	0.041
L22	70.000-69.750	A	0.916	0.000	0.000	0.382	0.000	0.005
		B		0.000	0.000	0.296	0.000	0.003
		C		0.000	0.000	0.296	0.000	0.003
L23	69.750-65.000	A	0.913	0.000	0.000	9.276	0.000	0.106
		B		0.000	0.000	7.649	0.000	0.069
		C		0.000	0.000	7.649	0.000	0.076
L24	65.000-64.750	A	0.909	0.000	0.000	0.635	0.000	0.006
		B		0.000	0.000	0.549	0.000	0.004
		C		0.000	0.000	0.549	0.000	0.005
L25	64.750-59.750	A	0.906	0.000	0.000	12.684	0.000	0.127
		B		0.000	0.000	10.978	0.000	0.089
		C		0.000	0.000	10.978	0.000	0.096
L26	59.750-54.750	A	0.898	0.000	0.000	12.661	0.000	0.126
		B		0.000	0.000	10.963	0.000	0.088
		C		0.000	0.000	10.963	0.000	0.096
L27	54.750-49.750	A	0.890	0.000	0.000	12.637	0.000	0.125
		B		0.000	0.000	10.947	0.000	0.087
		C		0.000	0.000	10.947	0.000	0.095
L28	49.750-44.376	A	0.881	0.000	0.000	7.817	0.000	0.104
		B		0.000	0.000	6.010	0.000	0.063
		C		0.000	0.000	6.010	0.000	0.072
L29	44.376-43.376	A	0.875	0.000	0.000	0.336	0.000	0.014
		B		0.000	0.000	0.000	0.000	0.006
		C		0.000	0.000	0.000	0.000	0.007
L30	43.376-38.376	A	0.868	0.000	0.000	1.668	0.000	0.067
		B		0.000	0.000	0.000	0.000	0.030
		C		0.000	0.000	0.000	0.000	0.037
L31	38.376-33.376	A	0.857	0.000	0.000	1.657	0.000	0.067
		B		0.000	0.000	0.000	0.000	0.030
		C		0.000	0.000	0.000	0.000	0.037
L32	33.376-28.376	A	0.844	0.000	0.000	1.644	0.000	0.067
		B		0.000	0.000	0.000	0.000	0.030
		C		0.000	0.000	0.000	0.000	0.037
L33	28.376-23.376	A	0.830	0.000	0.000	1.630	0.000	0.066
		B		0.000	0.000	0.000	0.000	0.030
		C		0.000	0.000	0.000	0.000	0.037
L34	23.376-18.376	A	0.812	0.000	0.000	1.612	0.000	0.066
		B		0.000	0.000	0.000	0.000	0.030
		C		0.000	0.000	0.000	0.000	0.037
L35	18.376-13.376	A	0.790	0.000	0.000	1.590	0.000	0.066
		B		0.000	0.000	0.000	0.000	0.030
		C		0.000	0.000	0.000	0.000	0.037
L36	13.376-8.376	A	0.761	0.000	0.000	1.561	0.000	0.065
		B		0.000	0.000	0.000	0.000	0.030
		C		0.000	0.000	0.000	0.000	0.037
L37	8.376-3.376	A	0.715	0.000	0.000	1.515	0.000	0.064
		B		0.000	0.000	0.000	0.000	0.030
		C		0.000	0.000	0.000	0.000	0.037
L38	3.376-0.000	A	0.631	0.000	0.000	0.966	0.000	0.042
		B		0.000	0.000	0.000	0.000	0.020
		C		0.000	0.000	0.000	0.000	0.025

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	160.000-155.000	0.000	0.000	0.000	0.000
L2	155.000-150.000	0.000	0.000	0.000	0.000
L3	150.000-145.000	0.000	0.000	0.000	0.000
L4	145.000-140.000	0.000	0.000	0.000	0.000
L5	140.000-135.330	0.000	0.000	0.000	0.000
L6	135.330-133.663	0.000	0.000	0.000	0.000
L7	133.663-128.663	0.000	0.000	0.000	0.000
L8	128.663-123.663	0.000	0.000	0.000	0.000
L9	123.663-118.663	-0.866	0.027	-1.063	0.033
L10	118.663-113.663	-1.250	0.039	-1.526	0.048
L11	113.663-108.663	-1.252	0.039	-1.529	0.048
L12	108.663-103.663	-1.253	0.039	-1.531	0.048
L13	103.663-101.000	-0.552	0.017	-0.834	0.026
L14	101.000-100.750	-0.388	0.012	-0.620	0.019
L15	100.750-95.750	-0.392	0.012	-0.625	0.020
L16	95.750-89.833	-0.578	0.018	-0.865	0.027
L17	89.833-88.833	-1.257	0.039	-1.537	0.048
L18	88.833-83.833	-1.257	0.040	-1.535	0.048
L19	83.833-78.833	-1.258	0.040	-1.535	0.048
L20	78.833-73.833	-1.259	0.040	-1.535	0.048
L21	73.833-70.000	-0.734	0.023	-1.036	0.033
L22	70.000-69.750	-0.535	0.017	-0.802	0.025
L23	69.750-65.000	-0.448	0.014	-0.689	0.022
L24	65.000-64.750	-0.368	0.012	-0.577	0.018
L25	64.750-59.750	-0.371	0.012	-0.581	0.018
L26	59.750-54.750	-0.378	0.012	-0.588	0.018
L27	54.750-49.750	-0.384	0.012	-0.595	0.019
L28	49.750-44.376	-0.590	0.019	-0.854	0.027
L29	44.376-43.376	-1.264	0.040	-1.522	0.048
L30	43.376-38.376	-1.264	0.040	-1.514	0.048
L31	38.376-33.376	-1.265	0.040	-1.508	0.047
L32	33.376-28.376	-1.266	0.040	-1.500	0.047
L33	28.376-23.376	-1.266	0.040	-1.491	0.047
L34	23.376-18.376	-1.267	0.040	-1.479	0.046
L35	18.376-13.376	-1.267	0.040	-1.464	0.046
L36	13.376-8.376	-1.268	0.040	-1.442	0.045
L37	8.376-3.376	-1.268	0.040	-1.407	0.044
L38	3.376-0.000	-1.269	0.040	-1.339	0.042

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
L9	15	CU12PSM9P6XXX(1-1/2)	118.66 - 122.00	1.0000	1.0000
L10	15	CU12PSM9P6XXX(1-1/2)	113.66 - 118.66	1.0000	1.0000
L11	15	CU12PSM9P6XXX(1-1/2)	108.66 - 113.66	1.0000	1.0000
L12	15	CU12PSM9P6XXX(1-1/2)	103.66 - 108.66	1.0000	1.0000
L13	15	CU12PSM9P6XXX(1-1/2)	101.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			103.66		
L13	23	Sabre MS450 (1.00x4.50)	101.00 - 102.50	1.0000	1.0000
L13	24	Sabre MS450 (1.00x4.50)	101.00 - 102.50	1.0000	1.0000
L13	25	Sabre MS450 (1.00x4.50)	101.00 - 102.50	1.0000	1.0000
L13	31	CCI 4" x 1.25" Plate	101.00 - 102.50	1.0000	1.0000
L13	32	CCI 4" x 1.25" Plate	101.00 - 102.50	1.0000	1.0000
L13	33	CCI 4" x 1.25" Plate	101.00 - 102.50	1.0000	1.0000
L14	15	CU12PSM9P6XXX(1-1/2)	100.75 - 101.00	1.0000	1.0000
L14	23	Sabre MS450 (1.00x4.50)	100.75 - 101.00	1.0000	1.0000
L14	24	Sabre MS450 (1.00x4.50)	100.75 - 101.00	1.0000	1.0000
L14	25	Sabre MS450 (1.00x4.50)	100.75 - 101.00	1.0000	1.0000
L14	31	CCI 4" x 1.25" Plate	100.75 - 101.00	1.0000	1.0000
L14	32	CCI 4" x 1.25" Plate	100.75 - 101.00	1.0000	1.0000
L14	33	CCI 4" x 1.25" Plate	100.75 - 101.00	1.0000	1.0000
L15	15	CU12PSM9P6XXX(1-1/2)	95.75 - 100.75	1.0000	1.0000
L15	23	Sabre MS450 (1.00x4.50)	95.75 - 100.75	1.0000	1.0000
L15	24	Sabre MS450 (1.00x4.50)	95.75 - 100.75	1.0000	1.0000
L15	25	Sabre MS450 (1.00x4.50)	95.75 - 100.75	1.0000	1.0000
L15	31	CCI 4" x 1.25" Plate	95.75 - 100.75	1.0000	1.0000
L15	32	CCI 4" x 1.25" Plate	95.75 - 100.75	1.0000	1.0000
L15	33	CCI 4" x 1.25" Plate	95.75 - 100.75	1.0000	1.0000
L16	15	CU12PSM9P6XXX(1-1/2)	89.83 - 95.75	1.0000	1.0000
L16	23	Sabre MS450 (1.00x4.50)	92.50 - 95.75	1.0000	1.0000
L16	24	Sabre MS450 (1.00x4.50)	92.50 - 95.75	1.0000	1.0000
L16	25	Sabre MS450 (1.00x4.50)	92.50 - 95.75	1.0000	1.0000
L16	31	CCI 4" x 1.25" Plate	92.50 - 95.75	1.0000	1.0000
L16	32	CCI 4" x 1.25" Plate	92.50 - 95.75	1.0000	1.0000
L16	33	CCI 4" x 1.25" Plate	92.50 - 95.75	1.0000	1.0000
L17	15	CU12PSM9P6XXX(1-1/2)	88.83 - 89.83	1.0000	1.0000
L18	15	CU12PSM9P6XXX(1-1/2)	83.83 - 88.83	1.0000	1.0000
L19	15	CU12PSM9P6XXX(1-1/2)	78.83 - 83.83	1.0000	1.0000
L20	15	CU12PSM9P6XXX(1-1/2)	73.83 - 78.83	1.0000	1.0000
L21	15	CU12PSM9P6XXX(1-1/2)	70.00 - 73.83	1.0000	1.0000
L21	19	Sabre MS600 (1.00x6.00)	70.00 - 72.00	1.0000	1.0000
L21	20	Sabre MS600 (1.00x6.00)	70.00 - 72.00	1.0000	1.0000
L21	21	Sabre MS600 (1.00x6.00)	70.00 - 72.00	1.0000	1.0000
L22	15	CU12PSM9P6XXX(1-1/2)	69.75 - 70.00	1.0000	1.0000
L22	19	Sabre MS600 (1.00x6.00)	69.75 - 70.00	1.0000	1.0000
L22	20	Sabre MS600 (1.00x6.00)	69.75 - 70.00	1.0000	1.0000
L22	21	Sabre MS600 (1.00x6.00)	69.75 - 70.00	1.0000	1.0000
L23	15	CU12PSM9P6XXX(1-1/2)	65.00 - 69.75	1.0000	1.0000
L23	19	Sabre MS600 (1.00x6.00)	65.00 - 69.75	1.0000	1.0000
L23	20	Sabre MS600 (1.00x6.00)	65.00 - 69.75	1.0000	1.0000
L23	21	Sabre MS600 (1.00x6.00)	65.00 - 69.75	1.0000	1.0000
L23	27	CCI 5" x 1.25" Plate	65.00 - 67.00	1.0000	1.0000
L23	28	CCI 5" x 1.25" Plate	65.00 - 67.00	1.0000	1.0000
L23	29	CCI 5" x 1.25" Plate	65.00 - 67.00	1.0000	1.0000
L24	15	CU12PSM9P6XXX(1-1/2)	64.75 - 65.00	1.0000	1.0000
L24	19	Sabre MS600 (1.00x6.00)	64.75 - 65.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L24	20	Sabre MS600 (1.00x6.00)	64.75 - 65.00	1.0000	1.0000
L24	21	Sabre MS600 (1.00x6.00)	64.75 - 65.00	1.0000	1.0000
L24	27	CCI 5" x 1.25" Plate	64.75 - 65.00	1.0000	1.0000
L24	28	CCI 5" x 1.25" Plate	64.75 - 65.00	1.0000	1.0000
L24	29	CCI 5" x 1.25" Plate	64.75 - 65.00	1.0000	1.0000
L25	15	CU12PSM9P6XXX(1-1/2)	59.75 - 64.75	1.0000	1.0000
L25	19	Sabre MS600 (1.00x6.00)	59.75 - 64.75	1.0000	1.0000
L25	20	Sabre MS600 (1.00x6.00)	59.75 - 64.75	1.0000	1.0000
L25	21	Sabre MS600 (1.00x6.00)	59.75 - 64.75	1.0000	1.0000
L25	27	CCI 5" x 1.25" Plate	59.75 - 64.75	1.0000	1.0000
L25	28	CCI 5" x 1.25" Plate	59.75 - 64.75	1.0000	1.0000
L25	29	CCI 5" x 1.25" Plate	59.75 - 64.75	1.0000	1.0000
L26	15	CU12PSM9P6XXX(1-1/2)	54.75 - 59.75	1.0000	1.0000
L26	19	Sabre MS600 (1.00x6.00)	54.75 - 59.75	1.0000	1.0000
L26	20	Sabre MS600 (1.00x6.00)	54.75 - 59.75	1.0000	1.0000
L26	21	Sabre MS600 (1.00x6.00)	54.75 - 59.75	1.0000	1.0000
L26	27	CCI 5" x 1.25" Plate	54.75 - 59.75	1.0000	1.0000
L26	28	CCI 5" x 1.25" Plate	54.75 - 59.75	1.0000	1.0000
L26	29	CCI 5" x 1.25" Plate	54.75 - 59.75	1.0000	1.0000
L27	15	CU12PSM9P6XXX(1-1/2)	49.75 - 54.75	1.0000	1.0000
L27	19	Sabre MS600 (1.00x6.00)	49.75 - 54.75	1.0000	1.0000
L27	20	Sabre MS600 (1.00x6.00)	49.75 - 54.75	1.0000	1.0000
L27	21	Sabre MS600 (1.00x6.00)	49.75 - 54.75	1.0000	1.0000
L27	27	CCI 5" x 1.25" Plate	49.75 - 54.75	1.0000	1.0000
L27	28	CCI 5" x 1.25" Plate	49.75 - 54.75	1.0000	1.0000
L27	29	CCI 5" x 1.25" Plate	49.75 - 54.75	1.0000	1.0000
L28	15	CU12PSM9P6XXX(1-1/2)	44.38 - 49.75	1.0000	1.0000
L28	19	Sabre MS600 (1.00x6.00)	47.00 - 49.75	1.0000	1.0000
L28	20	Sabre MS600 (1.00x6.00)	47.00 - 49.75	1.0000	1.0000
L28	21	Sabre MS600 (1.00x6.00)	47.00 - 49.75	1.0000	1.0000
L28	27	CCI 5" x 1.25" Plate	47.00 - 49.75	1.0000	1.0000
L28	28	CCI 5" x 1.25" Plate	47.00 - 49.75	1.0000	1.0000
L28	29	CCI 5" x 1.25" Plate	47.00 - 49.75	1.0000	1.0000
L29	15	CU12PSM9P6XXX(1-1/2)	43.38 - 44.38	1.0000	1.0000
L30	15	CU12PSM9P6XXX(1-1/2)	38.38 - 43.38	1.0000	1.0000
L31	15	CU12PSM9P6XXX(1-1/2)	33.38 - 38.38	1.0000	1.0000
L32	15	CU12PSM9P6XXX(1-1/2)	28.38 - 33.38	1.0000	1.0000
L33	15	CU12PSM9P6XXX(1-1/2)	23.38 - 28.38	1.0000	1.0000
L34	15	CU12PSM9P6XXX(1-1/2)	18.38 - 23.38	1.0000	1.0000
L35	15	CU12PSM9P6XXX(1-1/2)	13.38 - 18.38	1.0000	1.0000
L36	15	CU12PSM9P6XXX(1-1/2)	8.38 - 13.38	1.0000	1.0000
L37	15	CU12PSM9P6XXX(1-1/2)	3.38 - 8.38	1.0000	1.0000
L38	15	CU12PSM9P6XXX(1-1/2)	0.00 - 3.38	1.0000	1.0000

Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L13	23	Sabre MS450 (1.00x4.50)	101.00 - 102.50	Auto	0.0019
L13	24	Sabre MS450 (1.00x4.50)	101.00 - 102.50	Auto	0.0019
L13	25	Sabre MS450 (1.00x4.50)	101.00 -	Auto	0.0019

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
			102.50		
L13	31	CCI 4" x 1.25" Plate	101.00 - 102.50	Auto	0.0000
L13	32	CCI 4" x 1.25" Plate	101.00 - 102.50	Auto	0.0000
L13	33	CCI 4" x 1.25" Plate	101.00 - 102.50	Auto	0.0000
L14	23	Sabre MS450 (1.00x4.50)	100.75 - 101.00	Auto	0.1417
L14	24	Sabre MS450 (1.00x4.50)	100.75 - 101.00	Auto	0.1417
L14	25	Sabre MS450 (1.00x4.50)	100.75 - 101.00	Auto	0.1417
L14	31	CCI 4" x 1.25" Plate	100.75 - 101.00	Auto	0.0344
L14	32	CCI 4" x 1.25" Plate	100.75 - 101.00	Auto	0.0344
L14	33	CCI 4" x 1.25" Plate	100.75 - 101.00	Auto	0.0344
L15	23	Sabre MS450 (1.00x4.50)	95.75 - 100.75	Auto	0.1185
L15	24	Sabre MS450 (1.00x4.50)	95.75 - 100.75	Auto	0.1185
L15	25	Sabre MS450 (1.00x4.50)	95.75 - 100.75	Auto	0.1185
L15	31	CCI 4" x 1.25" Plate	95.75 - 100.75	Auto	0.0100
L15	32	CCI 4" x 1.25" Plate	95.75 - 100.75	Auto	0.0100
L15	33	CCI 4" x 1.25" Plate	95.75 - 100.75	Auto	0.0100
L16	23	Sabre MS450 (1.00x4.50)	92.50 - 95.75	Auto	0.0898
L16	24	Sabre MS450 (1.00x4.50)	92.50 - 95.75	Auto	0.0898
L16	25	Sabre MS450 (1.00x4.50)	92.50 - 95.75	Auto	0.0898
L16	31	CCI 4" x 1.25" Plate	92.50 - 95.75	Auto	0.0000
L16	32	CCI 4" x 1.25" Plate	92.50 - 95.75	Auto	0.0000
L16	33	CCI 4" x 1.25" Plate	92.50 - 95.75	Auto	0.0000
L21	19	Sabre MS600 (1.00x6.00)	70.00 - 72.00	Auto	0.1235
L21	20	Sabre MS600 (1.00x6.00)	70.00 - 72.00	Auto	0.1235
L21	21	Sabre MS600 (1.00x6.00)	70.00 - 72.00	Auto	0.1235
L22	19	Sabre MS600 (1.00x6.00)	69.75 - 70.00	Auto	0.1763
L22	20	Sabre MS600 (1.00x6.00)	69.75 - 70.00	Auto	0.1763
L22	21	Sabre MS600 (1.00x6.00)	69.75 - 70.00	Auto	0.1763
L23	19	Sabre MS600 (1.00x6.00)	65.00 - 69.75	Auto	0.1596
L23	20	Sabre MS600 (1.00x6.00)	65.00 - 69.75	Auto	0.1596
L23	21	Sabre MS600 (1.00x6.00)	65.00 - 69.75	Auto	0.1596
L23	27	CCI 5" x 1.25" Plate	65.00 - 67.00	Auto	0.0000
L23	28	CCI 5" x 1.25" Plate	65.00 - 67.00	Auto	0.0000
L23	29	CCI 5" x 1.25" Plate	65.00 - 67.00	Auto	0.0000
L24	19	Sabre MS600 (1.00x6.00)	64.75 - 65.00	Auto	0.2088
L24	20	Sabre MS600 (1.00x6.00)	64.75 - 65.00	Auto	0.2088
L24	21	Sabre MS600 (1.00x6.00)	64.75 - 65.00	Auto	0.2088
L24	27	CCI 5" x 1.25" Plate	64.75 - 65.00	Auto	0.0506
L24	28	CCI 5" x 1.25" Plate	64.75 - 65.00	Auto	0.0506
L24	29	CCI 5" x 1.25" Plate	64.75 - 65.00	Auto	0.0506
L25	19	Sabre MS600 (1.00x6.00)	59.75 - 64.75	Auto	0.1915
L25	20	Sabre MS600 (1.00x6.00)	59.75 - 64.75	Auto	0.1915
L25	21	Sabre MS600 (1.00x6.00)	59.75 - 64.75	Auto	0.1915
L25	27	CCI 5" x 1.25" Plate	59.75 - 64.75	Auto	0.0298
L25	28	CCI 5" x 1.25" Plate	59.75 - 64.75	Auto	0.0298
L25	29	CCI 5" x 1.25" Plate	59.75 - 64.75	Auto	0.0298
L26	19	Sabre MS600 (1.00x6.00)	54.75 - 59.75	Auto	0.1618
L26	20	Sabre MS600 (1.00x6.00)	54.75 - 59.75	Auto	0.1618
L26	21	Sabre MS600 (1.00x6.00)	54.75 - 59.75	Auto	0.1618
L26	27	CCI 5" x 1.25" Plate	54.75 - 59.75	Auto	0.0015
L26	28	CCI 5" x 1.25" Plate	54.75 - 59.75	Auto	0.0015
L26	29	CCI 5" x 1.25" Plate	54.75 - 59.75	Auto	0.0015

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L27	19	Sabre MS600 (1.00x6.00)	49.75 - 54.75	Auto	0.1320
L27	20	Sabre MS600 (1.00x6.00)	49.75 - 54.75	Auto	0.1320
L27	21	Sabre MS600 (1.00x6.00)	49.75 - 54.75	Auto	0.1320
L27	27	CCI 5" x 1.25" Plate	49.75 - 54.75	Auto	0.0000
L27	28	CCI 5" x 1.25" Plate	49.75 - 54.75	Auto	0.0000
L27	29	CCI 5" x 1.25" Plate	49.75 - 54.75	Auto	0.0000
L28	19	Sabre MS600 (1.00x6.00)	47.00 - 49.75	Auto	0.1118
L28	20	Sabre MS600 (1.00x6.00)	47.00 - 49.75	Auto	0.1118
L28	21	Sabre MS600 (1.00x6.00)	47.00 - 49.75	Auto	0.1118
L28	27	CCI 5" x 1.25" Plate	47.00 - 49.75	Auto	0.0000
L28	28	CCI 5" x 1.25" Plate	47.00 - 49.75	Auto	0.0000
L28	29	CCI 5" x 1.25" Plate	47.00 - 49.75	Auto	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	A	From Leg	4.000 0.000 3.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	14.690 15.460 16.230	6.870 7.550 8.250	0.183 0.311 0.453
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	B	From Leg	4.000 0.000 3.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	14.690 15.460 16.230	6.870 7.550 8.250	0.183 0.311 0.453
APXVAALL24_43-U-NA20 _TMO w/ Mount Pipe	C	From Leg	4.000 0.000 3.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	14.690 15.460 16.230	6.870 7.550 8.250	0.183 0.311 0.453
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.000 0.000 3.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	5.190 5.590 6.020	2.710 3.040 3.380	0.128 0.174 0.227
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.000 0.000 3.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	5.190 5.590 6.020	2.710 3.040 3.380	0.128 0.174 0.227
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.000 0.000 3.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	5.190 5.590 6.020	2.710 3.040 3.380	0.128 0.174 0.227
Radio 4480_TMOV2	A	From Leg	4.000 0.000 3.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	2.878 3.091 3.312	1.397 1.558 1.727	0.081 0.103 0.128
Radio 4480_TMOV2	B	From Leg	4.000 0.000 3.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	2.878 3.091 3.312	1.397 1.558 1.727	0.081 0.103 0.128
Radio 4480_TMOV2	C	From Leg	4.000 0.000 3.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	2.878 3.091 3.312	1.397 1.558 1.727	0.081 0.103 0.128
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.000 0.000 3.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	2.139 2.321 2.511	1.686 1.850 2.022	0.109 0.131 0.156
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.000 0.000	0.000	160.000	No Ice 1/2" Ice	2.139 2.321	1.686 1.850	0.109 0.131

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			3.000			1" Ice	2.511	2.022	0.156
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.000 0.000 3.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	2.139 2.321 2.511	1.686 1.850 2.022	0.109 0.131 0.156
(2) 7' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	1.663 2.391 2.825	1.663 2.391 2.825	0.029 0.042 0.059
(2) 7' x 2" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	1.663 2.391 2.825	1.663 2.391 2.825	0.029 0.042 0.059
(2) 7' x 2" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	160.000	No Ice 1/2" Ice 1" Ice	1.663 2.391 2.825	1.663 2.391 2.825	0.029 0.042 0.059
Miscellaneous [NA 510-1]	C	None		0.000	160.000	No Ice 1/2" Ice 1" Ice	6.360 8.520 10.620	6.360 8.520 10.620	0.256 0.344 0.459
Platform Mount [LP 712-1_KCKR]	C	None		0.000	160.000	No Ice 1/2" Ice 1" Ice	40.759 48.004 55.250	40.759 48.004 55.250	1.834 2.656 3.478
* *									
(2) LPA-80080/6CF w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	147.000	No Ice 1/2" Ice 1" Ice	4.564 5.105 5.612	10.259 11.427 12.312	0.046 0.113 0.187
(2) LPA-80080/6CF w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	147.000	No Ice 1/2" Ice 1" Ice	4.564 5.105 5.612	10.259 11.427 12.312	0.046 0.113 0.187
(2) LPA-80080/6CF w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	147.000	No Ice 1/2" Ice 1" Ice	4.564 5.105 5.612	10.259 11.427 12.312	0.046 0.113 0.187
(2) MX06FIT665-02 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	147.000	No Ice 1/2" Ice 1" Ice	3.210 3.510 3.820	3.330 3.630 3.940	0.083 0.156 0.239
(2) MX06FIT665-02 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	147.000	No Ice 1/2" Ice 1" Ice	3.210 3.510 3.820	3.330 3.630 3.940	0.083 0.156 0.239
(2) MX06FIT665-02 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	147.000	No Ice 1/2" Ice 1" Ice	3.210 3.510 3.820	3.330 3.630 3.940	0.083 0.156 0.239
Sub6 Antenna - VZS01 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	147.000	No Ice 1/2" Ice 1" Ice	4.915 5.264 5.623	2.687 3.151 3.631	0.101 0.141 0.186
Sub6 Antenna - VZS01 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	147.000	No Ice 1/2" Ice 1" Ice	4.915 5.264 5.623	2.687 3.151 3.631	0.101 0.141 0.186
Sub6 Antenna - VZS01 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	147.000	No Ice 1/2" Ice 1" Ice	4.915 5.264 5.623	2.687 3.151 3.631	0.101 0.141 0.186
DB-C1-12C-24AB-0Z	A	From Leg	4.000 0.000 2.000	0.000	147.000	No Ice 1/2" Ice 1" Ice	4.056 4.316 4.582	3.098 3.335 3.580	0.032 0.068 0.109
RFV01U-D2A	A	From Leg	4.000 0.000 2.000	0.000	147.000	No Ice 1/2" Ice 1" Ice	1.875 2.045 2.223	1.013 1.145 1.284	0.070 0.087 0.106
RFV01U-D2A	B	From Leg	4.000 0.000 2.000	0.000	147.000	No Ice 1/2" Ice 1" Ice	1.875 2.045 2.223	1.013 1.145 1.284	0.070 0.087 0.106

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RFV01U-D2A	C	From Leg	4.000 0.000 2.000	0.000	147.000	No Ice 1/2" Ice 1" Ice	1.875 2.045 2.223	1.013 1.145 1.284	0.070 0.087 0.106
RFV01U-D1A	B	From Leg	4.000 0.000 2.000	0.000	147.000	No Ice 1/2" Ice 1" Ice	1.875 2.045 2.223	1.250 1.393 1.543	0.084 0.103 0.124
(2) RFV01U-D1A	C	From Leg	4.000 0.000 2.000	0.000	147.000	No Ice 1/2" Ice 1" Ice	1.875 2.045 2.223	1.250 1.393 1.543	0.084 0.103 0.124
Platform Mount [LP 303-1_HR-1] *	C	None		0.000	147.000	No Ice 1/2" Ice 1" Ice	17.090 21.470 25.720	17.090 21.470 25.720	1.495 1.881 2.346
(2) 80010965 w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	132.000	No Ice 1/2" Ice 1" Ice	12.260 13.030 13.800	5.790 6.470 7.170	0.136 0.226 0.328
(2) 80010965 w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	132.000	No Ice 1/2" Ice 1" Ice	12.260 13.030 13.800	5.790 6.470 7.170	0.136 0.226 0.328
(2) 80010964 w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	132.000	No Ice 1/2" Ice 1" Ice	8.610 9.180 9.770	4.100 4.590 5.100	0.116 0.186 0.265
7770.00 w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	132.000	No Ice 1/2" Ice 1" Ice	5.746 6.179 6.607	4.254 5.014 5.711	0.055 0.103 0.157
7770.00 w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	132.000	No Ice 1/2" Ice 1" Ice	5.746 6.179 6.607	4.254 5.014 5.711	0.055 0.103 0.157
7770.00 w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	132.000	No Ice 1/2" Ice 1" Ice	5.746 6.179 6.607	4.254 5.014 5.711	0.055 0.103 0.157
RRUS 4449 B5/B12	A	From Leg	4.000 0.000 1.000	0.000	132.000	No Ice 1/2" Ice 1" Ice	1.968 2.144 2.328	1.408 1.564 1.727	0.071 0.090 0.111
RRUS 4449 B5/B12	B	From Leg	4.000 0.000 1.000	0.000	132.000	No Ice 1/2" Ice 1" Ice	1.968 2.144 2.328	1.408 1.564 1.727	0.071 0.090 0.111
RRUS 4449 B5/B12	C	From Leg	4.000 0.000 1.000	0.000	132.000	No Ice 1/2" Ice 1" Ice	1.968 2.144 2.328	1.408 1.564 1.727	0.071 0.090 0.111
RRUS 8843 B2/B66A	A	From Leg	4.000 0.000 1.000	0.000	132.000	No Ice 1/2" Ice 1" Ice	1.639 1.799 1.966	1.353 1.500 1.655	0.072 0.090 0.110
RRUS 8843 B2/B66A	B	From Leg	4.000 0.000 1.000	0.000	132.000	No Ice 1/2" Ice 1" Ice	1.639 1.799 1.966	1.353 1.500 1.655	0.072 0.090 0.110
RRUS 8843 B2/B66A	C	From Leg	4.000 0.000 1.000	0.000	132.000	No Ice 1/2" Ice 1" Ice	1.639 1.799 1.966	1.353 1.500 1.655	0.072 0.090 0.110
RRUS 4478 B14	A	From Leg	4.000 0.000 1.000	0.000	132.000	No Ice 1/2" Ice 1" Ice	1.843 2.012 2.190	1.059 1.197 1.342	0.060 0.076 0.094
RRUS 4478 B14	B	From Leg	4.000 0.000 1.000	0.000	132.000	No Ice 1/2" Ice 1" Ice	1.843 2.012 2.190	1.059 1.197 1.342	0.060 0.076 0.094
RRUS 4478 B14	C	From Leg	4.000 0.000	0.000	132.000	No Ice 1/2" Ice	1.843 2.012	1.059 1.197	0.060 0.076

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.000			1" Ice	2.190	1.342	0.094
DC6-48-60-18-8C-EV	A	From Leg	4.000	0.000	132.000	No Ice	1.145	1.145	0.026
			0.000			1/2" Ice	1.792	1.792	0.047
			1.000			1" Ice	2.002	2.002	0.070
DC6-48-60-18-8C-EV	B	From Leg	4.000	0.000	132.000	No Ice	1.145	1.145	0.026
			0.000			1/2" Ice	1.792	1.792	0.047
			1.000			1" Ice	2.002	2.002	0.070
DC6-48-60-18-8F	C	From Leg	4.000	0.000	132.000	No Ice	1.212	1.212	0.033
			0.000			1/2" Ice	1.892	1.892	0.055
			1.000			1" Ice	2.105	2.105	0.080
(2) LGP21401	A	From Leg	4.000	0.000	132.000	No Ice	1.104	0.207	0.014
			0.000			1/2" Ice	1.239	0.274	0.021
			1.000			1" Ice	1.381	0.348	0.030
(2) LGP21401	B	From Leg	4.000	0.000	132.000	No Ice	1.104	0.207	0.014
			0.000			1/2" Ice	1.239	0.274	0.021
			1.000			1" Ice	1.381	0.348	0.030
(2) LGP21401	C	From Leg	4.000	0.000	132.000	No Ice	1.104	0.207	0.014
			0.000			1/2" Ice	1.239	0.274	0.021
			1.000			1" Ice	1.381	0.348	0.030
6' x 2" Mount Pipe	A	From Leg	4.000	0.000	132.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
6' x 2" Mount Pipe	B	From Leg	4.000	0.000	132.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
6' x 2" Mount Pipe	C	From Leg	4.000	0.000	132.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
Platform Mount [LP 303-1_HR-1]	C	None		0.000	132.000	No Ice	17.090	17.090	1.495
						1/2" Ice	21.470	21.470	1.881
						1" Ice	25.720	25.720	2.346
*									
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.000	0.000	122.000	No Ice	8.010	4.230	0.108
			0.000			1/2" Ice	8.520	4.690	0.194
			0.000			1" Ice	9.040	5.160	0.292
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.000	0.000	122.000	No Ice	8.010	4.230	0.108
			0.000			1/2" Ice	8.520	4.690	0.194
			0.000			1" Ice	9.040	5.160	0.292
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.000	0.000	122.000	No Ice	8.010	4.230	0.108
			0.000			1/2" Ice	8.520	4.690	0.194
			0.000			1" Ice	9.040	5.160	0.292
TA08025-B604	A	From Leg	4.000	0.000	122.000	No Ice	1.964	0.981	0.064
			0.000			1/2" Ice	2.138	1.112	0.081
			0.000			1" Ice	2.320	1.250	0.100
TA08025-B604	B	From Leg	4.000	0.000	122.000	No Ice	1.964	0.981	0.064
			0.000			1/2" Ice	2.138	1.112	0.081
			0.000			1" Ice	2.320	1.250	0.100
TA08025-B604	C	From Leg	4.000	0.000	122.000	No Ice	1.964	0.981	0.064
			0.000			1/2" Ice	2.138	1.112	0.081
			0.000			1" Ice	2.320	1.250	0.100
TA08025-B605	A	From Leg	4.000	0.000	122.000	No Ice	1.964	1.129	0.075
			0.000			1/2" Ice	2.138	1.267	0.093
			0.000			1" Ice	2.320	1.411	0.114
TA08025-B605	B	From Leg	4.000	0.000	122.000	No Ice	1.964	1.129	0.075
			0.000			1/2" Ice	2.138	1.267	0.093
			0.000			1" Ice	2.320	1.411	0.114
TA08025-B605	C	From Leg	4.000	0.000	122.000	No Ice	1.964	1.129	0.075

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1/2" Ice	2.138	1.267	0.093
			0.000			1" Ice	2.320	1.411	0.114
RDIDC-9181-PF-48	A	From Leg	4.000	0.000	122.000	No Ice	1.867	1.067	0.022
			0.000			1/2" Ice	2.037	1.204	0.038
			0.000			1" Ice	2.215	1.348	0.057
(2) 8' x 2" Mount Pipe	A	From Leg	4.000	0.000	122.000	No Ice	1.900	1.900	0.029
			0.000			1/2" Ice	2.728	2.728	0.044
			0.000			1" Ice	3.401	3.401	0.063
(2) 8' x 2" Mount Pipe	B	From Leg	4.000	0.000	122.000	No Ice	1.900	1.900	0.029
			0.000			1/2" Ice	2.728	2.728	0.044
			0.000			1" Ice	3.401	3.401	0.063
(2) 8' x 2" Mount Pipe	C	From Leg	4.000	0.000	122.000	No Ice	1.900	1.900	0.029
			0.000			1/2" Ice	2.728	2.728	0.044
			0.000			1" Ice	3.401	3.401	0.063
Commscope MC-PK8-DSH	C	None		0.000	122.000	No Ice	34.240	34.240	1.749
						1/2" Ice	62.950	62.950	2.099
						1" Ice	91.660	91.660	2.450
*									
GPS_A	C	From Leg	3.000	20.000	77.000	No Ice	0.255	0.255	0.001
			0.000			1/2" Ice	0.320	0.320	0.005
			1.000			1" Ice	0.393	0.393	0.010
Side Arm Mount [SO 701-1]	C	From Leg	1.500	20.000	77.000	No Ice	0.850	1.670	0.065
			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093
*									

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	160 - 155	Pole	Max Tension	26	0.000	-0.000	0.000
			Max. Compression	26	-8.308	0.004	-0.001
			Max. Mx	20	-3.638	37.937	0.009
			Max. My	14	-3.634	-0.006	-37.949
			Max. Vy	20	-6.201	37.937	0.009
			Max. Vx	14	6.203	-0.006	-37.949
			Max. Torque	10			0.005
L2	155 - 150	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-8.710	0.009	-0.001
			Max. Mx	20	-3.873	69.703	0.018
			Max. My	14	-3.869	-0.011	-69.728
			Max. Vy	20	-6.509	69.703	0.018
			Max. Vx	14	6.512	-0.011	-69.728
			Max. Torque	10			0.005
L3	150 - 145	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-15.976	0.604	-0.467
			Max. Mx	20	-7.009	118.826	-0.585
			Max. My	14	-7.001	0.399	-118.995
			Max. Vy	20	-11.365	118.826	-0.585
			Max. Vx	14	11.370	0.399	-118.995
			Max. Torque	16			-0.289
L4	145 - 140	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-16.446	0.604	-0.467
			Max. Mx	20	-7.343	176.405	-0.618

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	14	-7.335	0.436	-176.603
			Max. Vy	20	-11.675	176.405	-0.618
			Max. Vx	14	11.680	0.436	-176.603
			Max. Torque	16			-0.289
L5	140 - 135.33	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-16.575	0.604	-0.467
			Max. Mx	20	-7.434	192.064	-0.627
			Max. My	14	-7.426	0.445	-192.269
			Max. Vy	20	-11.759	192.064	-0.627
			Max. Vx	14	11.765	0.445	-192.269
			Max. Torque	16			-0.289
L6	135.33 - 133.663	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-17.417	0.604	-0.467
			Max. Mx	20	-8.023	251.806	-0.658
			Max. My	14	-8.015	0.480	-252.041
			Max. Vy	20	-12.136	251.806	-0.658
			Max. Vx	14	12.142	0.480	-252.041
			Max. Torque	16			-0.289
L7	133.663 - 128.663	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-24.772	0.083	-0.166
			Max. Mx	20	-11.730	330.887	-0.380
			Max. My	14	-11.707	0.174	-331.521
			Max. Vy	20	-16.926	330.887	-0.380
			Max. Vx	14	17.001	0.174	-331.521
			Max. Torque	11			0.484
L8	128.663 - 123.663	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-25.431	0.083	-0.166
			Max. Mx	20	-12.301	416.254	-0.107
			Max. My	14	-12.278	-0.093	-417.269
			Max. Vy	20	-17.238	416.254	-0.107
			Max. Vx	14	17.314	-0.093	-417.269
			Max. Torque	11			0.484
L9	123.663 - 118.663	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-31.013	0.101	0.147
			Max. Mx	20	-15.641	514.244	0.277
			Max. My	14	-15.612	-0.354	-515.593
			Max. Vy	20	-20.857	514.244	0.277
			Max. Vx	14	20.962	-0.354	-515.593
			Max. Torque	11			0.635
L10	118.663 - 113.663	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-31.739	0.130	0.164
			Max. Mx	20	-16.318	619.167	0.562
			Max. My	14	-16.290	-0.612	-621.021
			Max. Vy	20	-21.134	619.167	0.562
			Max. Vx	14	21.239	-0.612	-621.021
			Max. Torque	11			0.634
L11	113.663 - 108.663	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-32.483	0.159	0.181
			Max. Mx	20	-17.027	725.439	0.846
			Max. My	14	-17.001	-0.869	-727.797
			Max. Vy	20	-21.400	725.439	0.846
			Max. Vx	14	21.505	-0.869	-727.797
			Max. Torque	11			0.633
L12	108.663 - 103.663	Pole	Max Tension	1	0.000	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-33.247	0.190	0.198
			Max. Mx	20	-17.766	833.010	1.130
			Max. My	14	-17.741	-1.124	-835.872
			Max. Vy	20	-21.656	833.010	1.130
			Max. Vx	14	21.762	-1.124	-835.872
			Max. Torque	11			0.632
L13	103.663 - 101	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-33.709	0.206	0.207
			Max. Mx	20	-18.163	890.818	1.281
			Max. My	14	-18.139	-1.260	-893.947
			Max. Vy	20	-21.795	890.818	1.281
			Max. Vx	14	21.900	-1.260	-893.947
			Max. Torque	11			0.631
L14	101 - 100.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-33.785	0.208	0.208
			Max. Mx	20	-18.251	896.264	1.297
			Max. My	14	-18.228	-1.274	-899.419
			Max. Vy	20	-21.797	896.264	1.297
			Max. Vx	14	21.902	-1.274	-899.419
			Max. Torque	11			0.631
L15	100.75 - 95.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-35.310	0.239	0.227
			Max. Mx	20	-19.464	1006.291	1.579
			Max. My	14	-19.441	-1.528	-1009.949
			Max. Vy	20	-22.222	1006.291	1.579
			Max. Vx	14	22.328	-1.528	-1009.949
			Max. Torque	11			0.631
L16	95.75 - 89.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-35.776	0.249	0.232
			Max. Mx	20	-19.851	1041.587	1.669
			Max. My	14	-19.827	-1.608	-1045.405
			Max. Vy	20	-22.360	1041.587	1.669
			Max. Vx	14	22.466	-1.608	-1045.405
			Max. Torque	11			0.630
L17	89.833 - 88.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-37.918	0.284	0.252
			Max. Mx	20	-21.593	1162.233	1.974
			Max. My	14	-21.571	-1.881	-1166.591
			Max. Vy	20	-22.869	1162.233	1.974
			Max. Vx	14	22.975	-1.881	-1166.591
			Max. Torque	11			0.630
L18	88.833 - 83.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-38.865	0.317	0.271
			Max. Mx	20	-22.505	1277.135	2.259
			Max. My	14	-22.484	-2.135	-1281.999
			Max. Vy	20	-23.125	1277.135	2.259
			Max. Vx	14	23.231	-2.135	-1281.999
			Max. Torque	11			0.629
L19	83.833 - 78.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-39.833	0.350	0.291
			Max. Mx	20	-23.441	1393.295	2.542
			Max. My	14	-23.421	-2.388	-1398.663
			Max. Vy	20	-23.374	1393.295	2.542
			Max. Vx	14	23.480	-2.388	-1398.663
			Max. Torque	11			0.629
L20	78.833 - 73.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-40.937	0.674	0.144

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-24.475	1511.041	2.737
			Max. My	14	-24.455	-2.481	-1516.924
			Max. Vy	20	-23.666	1511.041	2.737
			Max. Vx	14	23.801	-2.481	-1516.924
			Max. Torque	11			0.628
L21	73.833 - 70	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-41.749	0.701	0.159
			Max. Mx	20	-25.221	1602.023	2.973
			Max. My	14	-25.202	-2.694	-1608.402
			Max. Vy	20	-23.851	1602.023	2.973
			Max. Vx	14	23.986	-2.694	-1608.402
			Max. Torque	9			0.503
L22	70 - 69.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-41.823	0.703	0.160
			Max. Mx	20	-25.309	1607.981	2.990
			Max. My	14	-25.290	-2.708	-1614.393
			Max. Vy	20	-23.846	1607.981	2.990
			Max. Vx	14	23.982	-2.708	-1614.393
			Max. Torque	9			0.502
L23	69.75 - 65	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-43.268	0.737	0.180
			Max. Mx	20	-26.517	1721.996	3.282
			Max. My	14	-26.499	-2.971	-1729.023
			Max. Vy	20	-24.178	1721.996	3.282
			Max. Vx	14	24.313	-2.971	-1729.023
			Max. Torque	9			0.502
L24	65 - 64.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-43.367	0.739	0.181
			Max. Mx	20	-26.612	1728.040	3.298
			Max. My	14	-26.595	-2.985	-1735.099
			Max. Vy	20	-24.187	1728.040	3.298
			Max. Vx	14	24.322	-2.985	-1735.099
			Max. Torque	9			0.502
L25	64.75 - 59.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-45.335	0.775	0.202
			Max. Mx	20	-28.250	1849.959	3.606
			Max. My	14	-28.233	-3.261	-1857.664
			Max. Vy	20	-24.592	1849.959	3.606
			Max. Vx	14	24.727	-3.261	-1857.664
			Max. Torque	9			0.502
L26	59.75 - 54.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-47.323	0.812	0.224
			Max. Mx	20	-29.918	1973.855	3.915
			Max. My	14	-29.901	-3.536	-1982.207
			Max. Vy	20	-24.983	1973.855	3.915
			Max. Vx	14	25.119	-3.536	-1982.207
			Max. Torque	9			0.502
L27	54.75 - 49.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-49.330	0.850	0.245
			Max. Mx	20	-31.607	2099.680	4.223
			Max. My	14	-31.592	-3.812	-2108.677
			Max. Vy	20	-25.364	2099.680	4.223
			Max. Vx	14	25.500	-3.812	-2108.677
			Max. Torque	9			0.501
L28	49.75 - 44.376	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-49.378	0.851	0.246
			Max. Mx	20	-31.659	2102.826	4.233
			Max. My	14	-31.644	-3.819	-2111.838
			Max. Vy	20	-25.380	2102.826	4.233
			Max. Vx	14	25.515	-3.819	-2111.838
			Max. Torque	9			0.501

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L29	44.376 - 43.376	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-52.831	0.899	0.274
			Max. Mx	20	-34.584	2263.179	4.618
			Max. My	14	-34.570	-4.162	-2272.999
			Max. Vy	20	-25.924	2263.179	4.618
			Max. Vx	14	26.059	-4.162	-2272.999
			Max. Torque	9			0.501
L30	43.376 - 38.376	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-54.105	0.938	0.296
			Max. Mx	20	-35.806	2393.176	4.926
			Max. My	14	-35.793	-4.436	-2403.640
			Max. Vy	20	-26.119	2393.176	4.926
			Max. Vx	14	26.254	-4.436	-2403.640
			Max. Torque	9			0.501
L31	38.376 - 33.376	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-55.402	0.977	0.319
			Max. Mx	20	-37.051	2524.115	5.232
			Max. My	14	-37.039	-4.707	-2535.217
			Max. Vy	20	-26.301	2524.115	5.232
			Max. Vx	14	26.435	-4.707	-2535.217
			Max. Torque	9			0.500
L32	33.376 - 28.376	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-56.722	1.016	0.341
			Max. Mx	20	-38.319	2655.927	5.535
			Max. My	14	-38.309	-4.976	-2667.662
			Max. Vy	20	-26.469	2655.927	5.535
			Max. Vx	14	26.602	-4.976	-2667.662
			Max. Torque	9			0.500
L33	28.376 - 23.376	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-58.064	1.056	0.365
			Max. Mx	20	-39.609	2788.531	5.837
			Max. My	14	-39.601	-5.243	-2800.896
			Max. Vy	20	-26.619	2788.531	5.837
			Max. Vx	14	26.751	-5.243	-2800.896
			Max. Torque	9			0.500
L34	23.376 - 18.376	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-59.427	1.097	0.388
			Max. Mx	20	-40.922	2921.837	6.136
			Max. My	14	-40.916	-5.506	-2934.824
			Max. Vy	20	-26.750	2921.837	6.136
			Max. Vx	14	26.881	-5.506	-2934.824
			Max. Torque	9			0.499
L35	18.376 - 13.376	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-60.810	1.137	0.411
			Max. Mx	20	-42.257	3055.733	6.432
			Max. My	14	-42.253	-5.767	-3069.336
			Max. Vy	20	-26.856	3055.733	6.432
			Max. Vx	14	26.985	-5.767	-3069.336
			Max. Torque	9			0.499
L36	13.376 - 8.376	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-62.209	1.178	0.435
			Max. Mx	20	-43.613	3190.139	6.726
			Max. My	14	-43.611	-6.025	-3204.352
			Max. Vy	20	-26.954	3190.139	6.726

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	14	27.083	-6.025	-3204.352
			Max. Torque	9			0.499
L37	8.376 - 3.376	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-63.622	1.218	0.458
			Max. Mx	20	-44.991	3325.029	7.017
			Max. My	14	-44.990	-6.280	-3339.845
			Max. Vy	20	-27.050	3325.029	7.017
			Max. Vx	14	27.177	-6.280	-3339.845
			Max. Torque	9			0.499
L38	3.376 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-64.572	1.243	0.472
			Max. Mx	20	-45.931	3416.372	7.212
			Max. My	14	-45.931	-6.450	-3431.591
			Max. Vy	20	-27.116	3416.372	7.212
			Max. Vx	14	27.242	-6.450	-3431.591
			Max. Torque	9			0.499

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	64.572	0.011	7.970
	Max. H_x	20	45.950	27.083	0.055
	Max. H_z	2	45.950	0.055	27.209
	Max. M_x	2	3431.136	0.055	27.209
	Max. M_z	8	3414.366	-27.083	-0.055
	Max. Torsion	9	0.499	-27.083	-0.055
	Min. Vert	23	34.463	23.482	13.652
	Min. H_x	8	45.950	-27.083	-0.055
	Min. H_z	14	45.950	-0.055	-27.209
	Min. M_x	14	-3431.591	-0.055	-27.209
	Min. M_z	20	-3416.372	27.083	0.055
	Min. Torsion	21	-0.477	27.083	0.055

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	38.292	0.000	0.000	0.149	0.759	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	45.950	-0.055	-27.209	-3431.136	8.497	0.017
0.9 Dead+1.0 Wind 0 deg - No Ice	34.463	-0.055	-27.209	-3346.831	8.042	0.043
1.2 Dead+1.0 Wind 30 deg - No Ice	45.950	13.494	-23.536	-2967.780	-1700.183	-0.210
0.9 Dead+1.0 Wind 30 deg - No Ice	34.463	13.494	-23.536	-2894.855	-1658.599	-0.206
1.2 Dead+1.0 Wind 60 deg - No Ice	45.950	23.427	-13.557	-1709.060	-2953.092	-0.390
0.9 Dead+1.0 Wind 60 deg - No Ice	34.463	23.427	-13.557	-1667.089	-2880.680	-0.407

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 90 deg - No Ice	45.950	27.083	0.055	7.736	-3414.366	-0.466
0.9 Dead+1.0 Wind 90 deg - No Ice	34.463	27.083	0.055	7.481	-3330.617	-0.499
1.2 Dead+1.0 Wind 120 deg - No Ice	45.950	23.482	13.652	1722.445	-2960.420	-0.408
0.9 Dead+1.0 Wind 120 deg - No Ice	34.463	23.482	13.652	1680.022	-2887.853	-0.449
1.2 Dead+1.0 Wind 150 deg - No Ice	45.950	13.589	23.591	2975.609	-1713.031	-0.232
0.9 Dead+1.0 Wind 150 deg - No Ice	34.463	13.589	23.591	2902.377	-1671.158	-0.271
1.2 Dead+1.0 Wind 180 deg - No Ice	45.950	0.055	27.209	3431.591	-6.450	0.005
0.9 Dead+1.0 Wind 180 deg - No Ice	34.463	0.055	27.209	3347.148	-6.554	-0.021
1.2 Dead+1.0 Wind 210 deg - No Ice	45.950	-13.494	23.536	2968.234	1702.190	0.233
0.9 Dead+1.0 Wind 210 deg - No Ice	34.463	-13.494	23.536	2895.171	1660.059	0.228
1.2 Dead+1.0 Wind 240 deg - No Ice	45.950	-23.427	13.557	1709.549	2955.078	0.390
0.9 Dead+1.0 Wind 240 deg - No Ice	34.463	-23.427	13.557	1667.429	2882.125	0.407
1.2 Dead+1.0 Wind 270 deg - No Ice	45.950	-27.083	-0.055	-7.212	3416.372	0.443
0.9 Dead+1.0 Wind 270 deg - No Ice	34.463	-27.083	-0.055	-7.115	3332.076	0.477
1.2 Dead+1.0 Wind 300 deg - No Ice	45.950	-23.482	-13.652	-1721.920	2962.466	0.385
0.9 Dead+1.0 Wind 300 deg - No Ice	34.463	-23.482	-13.652	-1679.656	2889.340	0.427
1.2 Dead+1.0 Wind 330 deg - No Ice	45.950	-13.589	-23.591	-2975.119	1715.098	0.232
0.9 Dead+1.0 Wind 330 deg - No Ice	34.463	-13.589	-23.591	-2902.036	1672.660	0.271
1.2 Dead+1.0 Ice+1.0 Temp	64.572	-0.000	0.000	-0.472	1.243	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	64.572	-0.011	-7.970	-1034.611	3.008	-0.039
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	64.572	3.961	-6.897	-895.297	-512.397	-0.077
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	64.572	6.872	-3.975	-516.233	-890.118	-0.094
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	64.572	7.941	0.011	1.012	-1028.940	-0.086
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	64.572	6.883	3.995	517.838	-891.669	-0.055
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	64.572	3.980	6.908	895.761	-515.088	-0.008
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	64.572	0.011	7.970	1033.520	-0.102	0.041
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	64.572	-3.961	6.897	894.207	515.301	0.078
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	64.572	-6.872	3.975	515.144	893.020	0.094
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	64.572	-7.941	-0.011	-2.098	1031.843	0.085
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	64.572	-6.883	-3.995	-518.924	894.575	0.054
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	64.572	-3.980	-6.908	-896.849	517.995	0.008

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 0 deg - Service	38.292	-0.014	-6.980	-870.006	2.725	0.009
Dead+Wind 30 deg - Service	38.292	3.462	-6.038	-752.483	-430.581	-0.056
Dead+Wind 60 deg - Service	38.292	6.010	-3.478	-433.274	-748.291	-0.107
Dead+Wind 90 deg - Service	38.292	6.948	0.014	2.080	-865.273	-0.129
Dead+Wind 120 deg - Service	38.292	6.024	3.502	436.924	-750.182	-0.116
Dead+Wind 150 deg - Service	38.292	3.486	6.052	754.743	-433.860	-0.071
Dead+Wind 180 deg - Service	38.292	0.014	6.980	870.374	-1.064	-0.008
Dead+Wind 210 deg - Service	38.292	-3.462	6.038	752.850	432.239	0.058
Dead+Wind 240 deg - Service	38.292	-6.010	3.478	433.643	749.949	0.107
Dead+Wind 270 deg - Service	38.292	-6.948	-0.014	-1.709	866.931	0.128
Dead+Wind 300 deg - Service	38.292	-6.024	-3.502	-436.553	751.843	0.115
Dead+Wind 330 deg - Service	38.292	-3.486	-6.052	-754.374	435.521	0.072

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-38.292	0.000	0.000	38.292	0.000	0.000%
2	-0.055	-45.950	-27.209	0.055	45.950	27.209	0.000%
3	-0.055	-34.463	-27.209	0.055	34.463	27.209	0.000%
4	13.494	-45.950	-23.536	-13.494	45.950	23.536	0.000%
5	13.494	-34.463	-23.536	-13.494	34.463	23.536	0.000%
6	23.427	-45.950	-13.557	-23.427	45.950	13.557	0.000%
7	23.427	-34.463	-13.557	-23.427	34.463	13.557	0.000%
8	27.083	-45.950	0.055	-27.083	45.950	-0.055	0.000%
9	27.083	-34.463	0.055	-27.083	34.463	-0.055	0.000%
10	23.482	-45.950	13.652	-23.482	45.950	-13.652	0.000%
11	23.482	-34.463	13.652	-23.482	34.463	-13.652	0.000%
12	13.589	-45.950	23.591	-13.589	45.950	-23.591	0.000%
13	13.589	-34.463	23.591	-13.589	34.463	-23.591	0.000%
14	0.055	-45.950	27.209	-0.055	45.950	-27.209	0.000%
15	0.055	-34.463	27.209	-0.055	34.463	-27.209	0.000%
16	-13.494	-45.950	23.536	13.494	45.950	-23.536	0.000%
17	-13.494	-34.463	23.536	13.494	34.463	-23.536	0.000%
18	-23.427	-45.950	13.557	23.427	45.950	-13.557	0.000%
19	-23.427	-34.463	13.557	23.427	34.463	-13.557	0.000%
20	-27.083	-45.950	-0.055	27.083	45.950	0.055	0.000%
21	-27.083	-34.463	-0.055	27.083	34.463	0.055	0.000%
22	-23.482	-45.950	-13.652	23.482	45.950	13.652	0.000%
23	-23.482	-34.463	-13.652	23.482	34.463	13.652	0.000%
24	-13.589	-45.950	-23.591	13.589	45.950	23.591	0.000%
25	-13.589	-34.463	-23.591	13.589	34.463	23.591	0.000%
26	0.000	-64.572	0.000	0.000	64.572	-0.000	0.000%
27	-0.011	-64.572	-7.970	0.011	64.572	7.970	0.000%
28	3.961	-64.572	-6.897	-3.961	64.572	6.897	0.000%
29	6.872	-64.572	-3.975	-6.872	64.572	3.975	0.000%
30	7.941	-64.572	0.011	-7.941	64.572	-0.011	0.000%
31	6.883	-64.572	3.995	-6.883	64.572	-3.995	0.000%
32	3.980	-64.572	6.908	-3.980	64.572	-6.908	0.000%
33	0.011	-64.572	7.970	-0.011	64.572	-7.970	0.000%
34	-3.961	-64.572	6.897	3.961	64.572	-6.897	0.000%
35	-6.872	-64.572	3.975	6.872	64.572	-3.975	0.000%
36	-7.941	-64.572	-0.011	7.941	64.572	0.011	0.000%
37	-6.883	-64.572	-3.995	6.883	64.572	3.995	0.000%
38	-3.980	-64.572	-6.908	3.980	64.572	6.908	0.000%
39	-0.014	-38.292	-6.980	0.014	38.292	6.980	0.000%
40	3.462	-38.292	-6.038	-3.462	38.292	6.038	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
41	6.010	-38.292	-3.478	-6.010	38.292	3.478	0.000%
42	6.948	-38.292	0.014	-6.948	38.292	-0.014	0.000%
43	6.024	-38.292	3.502	-6.024	38.292	-3.502	0.000%
44	3.486	-38.292	6.052	-3.486	38.292	-6.052	0.000%
45	0.014	-38.292	6.980	-0.014	38.292	-6.980	0.000%
46	-3.462	-38.292	6.038	3.462	38.292	-6.038	0.000%
47	-6.010	-38.292	3.478	6.010	38.292	-3.478	0.000%
48	-6.948	-38.292	-0.014	6.948	38.292	0.014	0.000%
49	-6.024	-38.292	-3.502	6.024	38.292	3.502	0.000%
50	-3.486	-38.292	-6.052	3.486	38.292	6.052	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	6	0.00000001	0.00053052
3	Yes	6	0.00000001	0.00013937
4	Yes	8	0.00000001	0.00053846
5	Yes	8	0.00000001	0.00008172
6	Yes	8	0.00000001	0.00054290
7	Yes	8	0.00000001	0.00008258
8	Yes	6	0.00000001	0.00042316
9	Yes	6	0.00000001	0.00011986
10	Yes	8	0.00000001	0.00053893
11	Yes	8	0.00000001	0.00008136
12	Yes	8	0.00000001	0.00054430
13	Yes	8	0.00000001	0.00008251
14	Yes	6	0.00000001	0.00050734
15	Yes	6	0.00000001	0.00015043
16	Yes	8	0.00000001	0.00054234
17	Yes	8	0.00000001	0.00008233
18	Yes	8	0.00000001	0.00053794
19	Yes	8	0.00000001	0.00008149
20	Yes	6	0.00000001	0.00088239
21	Yes	6	0.00000001	0.00029041
22	Yes	8	0.00000001	0.00054565
23	Yes	8	0.00000001	0.00008278
24	Yes	8	0.00000001	0.00054026
25	Yes	8	0.00000001	0.00008159
26	Yes	4	0.00000001	0.00006927
27	Yes	8	0.00000001	0.00080990
28	Yes	9	0.00000001	0.00023709
29	Yes	9	0.00000001	0.00023758
30	Yes	8	0.00000001	0.00080611
31	Yes	9	0.00000001	0.00023798
32	Yes	9	0.00000001	0.00023837
33	Yes	8	0.00000001	0.00080937
34	Yes	9	0.00000001	0.00023838
35	Yes	9	0.00000001	0.00023754
36	Yes	8	0.00000001	0.00080865
37	Yes	9	0.00000001	0.00023952
38	Yes	9	0.00000001	0.00023948
39	Yes	5	0.00000001	0.00097333
40	Yes	7	0.00000001	0.00012108
41	Yes	7	0.00000001	0.00012304

42	Yes	6	0.00000001	0.00009968
43	Yes	7	0.00000001	0.00012189
44	Yes	7	0.00000001	0.00012464
45	Yes	5	0.00000001	0.00097627
46	Yes	7	0.00000001	0.00012341
47	Yes	7	0.00000001	0.00012109
48	Yes	6	0.00000001	0.00010399
49	Yes	7	0.00000001	0.00012532
50	Yes	7	0.00000001	0.00012291

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160 - 155	50.775	45	2.904	0.002
L2	155 - 150	47.743	45	2.886	0.002
L3	150 - 145	44.739	45	2.850	0.002
L4	145 - 140	41.783	45	2.796	0.002
L5	140 - 135.33	38.895	45	2.718	0.002
L6	138.663 - 133.663	38.137	45	2.694	0.002
L7	133.663 - 128.663	35.344	50	2.638	0.002
L8	128.663 - 123.663	32.631	50	2.547	0.002
L9	123.663 - 118.663	30.020	50	2.443	0.001
L10	118.663 - 113.663	27.524	50	2.327	0.001
L11	113.663 - 108.663	25.154	50	2.199	0.001
L12	108.663 - 103.663	22.922	50	2.064	0.001
L13	103.663 - 101	20.836	50	1.921	0.001
L14	101 - 100.75	19.786	50	1.843	0.001
L15	100.75 - 95.75	19.690	50	1.840	0.001
L16	95.75 - 89.833	17.797	50	1.777	0.001
L17	94.166 - 88.833	17.211	50	1.756	0.001
L18	88.833 - 83.833	15.277	50	1.693	0.001
L19	83.833 - 78.833	13.573	50	1.562	0.001
L20	78.833 - 73.833	12.006	50	1.431	0.000
L21	73.833 - 70	10.576	50	1.300	0.000
L22	70 - 69.75	9.572	50	1.200	0.000
L23	69.75 - 65	9.509	50	1.196	0.000
L24	65 - 64.75	8.358	50	1.118	0.000
L25	64.75 - 59.75	8.300	50	1.115	0.000
L26	59.75 - 54.75	7.163	50	1.056	0.000
L27	54.75 - 49.75	6.089	50	0.996	0.000
L28	49.75 - 44.376	5.077	50	0.936	0.000
L29	49.626 - 43.376	5.053	50	0.935	0.000
L30	43.376 - 38.376	3.862	50	0.873	0.000
L31	38.376 - 33.376	3.004	50	0.765	0.000
L32	33.376 - 28.376	2.258	50	0.660	0.000
L33	28.376 - 23.376	1.622	50	0.556	0.000
L34	23.376 - 18.376	1.094	50	0.454	0.000
L35	18.376 - 13.376	0.672	50	0.353	0.000
L36	13.376 - 8.376	0.354	50	0.255	0.000
L37	8.376 - 3.376	0.138	50	0.158	0.000
L38	3.376 - 0	0.022	50	0.063	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
160.000	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	45	50.775	2.904	0.002	10482
147.000	(2) LPA-80080/6CF w/ Mount Pipe	45	42.958	2.819	0.002	5084
132.000	(2) 80010965 w/ Mount Pipe	50	34.432	2.613	0.002	3358
122.000	MX08FRO665-21 w/ Mount Pipe	50	29.176	2.406	0.001	2520
77.000	GPS_A	50	11.466	1.385	0.000	2195

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160 - 155	199.721	14	11.454	0.008
L2	155 - 150	187.838	14	11.384	0.008
L3	150 - 145	176.065	14	11.241	0.008
L4	145 - 140	164.472	14	11.029	0.008
L5	140 - 135.33	153.145	14	10.728	0.008
L6	138.663 - 133.663	150.172	14	10.635	0.008
L7	133.663 - 128.663	139.197	14	10.415	0.007
L8	128.663 - 123.663	128.533	14	10.059	0.007
L9	123.663 - 118.663	118.266	14	9.647	0.006
L10	118.663 - 113.663	108.447	14	9.191	0.005
L11	113.663 - 108.663	99.125	14	8.689	0.004
L12	108.663 - 103.663	90.341	14	8.152	0.004
L13	103.663 - 101	82.127	14	7.589	0.003
L14	101 - 100.75	77.994	14	7.281	0.003
L15	100.75 - 95.75	77.614	14	7.269	0.003
L16	95.75 - 89.833	70.157	14	7.019	0.002
L17	94.166 - 88.833	67.848	14	6.938	0.002
L18	88.833 - 83.833	60.229	14	6.688	0.002
L19	83.833 - 78.833	53.514	24	6.171	0.002
L20	78.833 - 73.833	47.342	24	5.653	0.002
L21	73.833 - 70	41.707	24	5.136	0.001
L22	70 - 69.75	37.751	24	4.741	0.001
L23	69.75 - 65	37.504	24	4.725	0.001
L24	65 - 64.75	32.966	24	4.416	0.001
L25	64.75 - 59.75	32.735	24	4.404	0.001
L26	59.75 - 54.75	28.254	24	4.170	0.001
L27	54.75 - 49.75	24.017	24	3.934	0.001
L28	49.75 - 44.376	20.027	24	3.697	0.001
L29	49.626 - 43.376	19.931	24	3.691	0.001
L30	43.376 - 38.376	15.234	24	3.446	0.001
L31	38.376 - 33.376	11.852	24	3.022	0.001
L32	33.376 - 28.376	8.909	24	2.604	0.001
L33	28.376 - 23.376	6.399	24	2.193	0.000
L34	23.376 - 18.376	4.315	24	1.790	0.000
L35	18.376 - 13.376	2.649	24	1.393	0.000
L36	13.376 - 8.376	1.395	24	1.004	0.000
L37	8.376 - 3.376	0.543	24	0.623	0.000
L38	3.376 - 0	0.088	24	0.248	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
160.000	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	14	199.721	11.454	0.008	2864
147.000	(2) LPA-80080/6CF w/ Mount Pipe	14	169.083	11.123	0.008	1394
132.000	(2) 80010965 w/ Mount Pipe	14	135.610	10.316	0.007	908
122.000	MX08FRO665-21 w/ Mount Pipe	14	114.948	9.501	0.006	673
77.000	GPS_A	24	45.214	5.472	0.002	565

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	160 - 159	TP18.902x18x0.188	5.000	0.000	0.0	10.708	-3.458	626.419	0.006
	159 - 158					10.815	-3.501	632.699	0.006
	158 - 157					10.923	-3.545	638.979	0.006
	157 - 156					11.030	-3.589	645.259	0.006
	156 - 155					11.137	-3.634	651.539	0.006
L2	155 - 154	TP19.804x18.902x0.188	5.000	0.000	0.0	11.245	-3.679	657.818	0.006
	154 - 153					11.352	-3.726	664.098	0.006
	153 - 152					11.460	-3.773	670.378	0.006
	152 - 151					11.567	-3.820	676.658	0.006
	151 - 150					11.674	-3.869	682.938	0.006
L3	150 - 149	TP20.706x19.804x0.188	5.000	0.000	0.0	11.781	-3.921	689.218	0.006
	149 - 148					11.889	-3.973	695.498	0.006
	148 - 147					11.996	-4.026	701.778	0.006
	147 - 146					12.104	-6.945	708.058	0.010
	146 - 145					12.211	-7.004	714.338	0.010
L4	145 - 144	TP21.608x20.706x0.188	5.000	0.000	0.0	12.318	-7.068	720.618	0.010
	144 - 143					12.426	-7.134	726.898	0.010
	143 - 142					12.533	-7.201	733.178	0.010
	142 - 141					12.640	-7.269	739.458	0.010
	141 - 140					12.748	-7.338	745.738	0.010
L5	140 - 138.663	TP22.45x21.608x0.188	4.670	0.000	0.0	12.891	-7.430	754.134	0.010
	138.663 - 135.33					13.249	-3.417	775.065	0.004
L6	138.663 - 135.33	TP22.363x21.474x0.25	5.000	0.000	0.0	17.312	-4.454	1012.730	0.004
	135.33 - 133.663					17.547	-8.019	1026.490	0.008
L7	133.663 - 132.663	TP23.253x22.363x0.25	5.000	0.000	0.0	17.688	-8.120	1034.750	0.008
	132.663 - 131.663					17.829	-11.408	1043.010	0.011
	131.663 - 130.663					17.970	-11.495	1051.260	0.011
	130.663 - 129.663					18.111	-11.600	1059.520	0.011
	129.663 - 128.663					18.253	-11.707	1067.780	0.011
L8	128.663 - 127.663	TP24.142x23.253x0.25	5.000	0.000	0.0	18.394	-11.819	1076.040	0.011
	127.663 -					18.535	-11.931	1084.290	0.011

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	126.663								
	126.663 - 125.663					18.676	-12.046	1092.550	0.011
	125.663 - 124.663					18.817	-12.161	1100.810	0.011
	124.663 - 123.663					18.958	-12.278	1109.060	0.011
L9	123.663 - 122.663	TP25.032x24.142x0.25	5.000	0.000	0.0	19.100	-12.398	1117.320	0.011
	122.663 - 121.663					19.241	-15.220	1125.580	0.014
	121.663 - 120.663					19.382	-15.348	1133.840	0.014
	120.663 - 119.663					19.523	-15.477	1142.090	0.014
	119.663 - 118.663					19.664	-15.608	1150.350	0.014
L10	118.663 - 117.663	TP25.921x25.032x0.25	5.000	0.000	0.0	19.805	-15.741	1158.610	0.014
	117.663 - 116.663					19.946	-15.875	1166.870	0.014
	116.663 - 115.663					20.088	-16.011	1175.120	0.014
	115.663 - 114.663					20.229	-16.148	1183.380	0.014
	114.663 - 113.663					20.370	-16.286	1191.640	0.014
L11	113.663 - 112.663	TP26.81x25.921x0.25	5.000	0.000	0.0	20.511	-16.426	1199.900	0.014
	112.663 - 111.663					20.652	-16.567	1208.150	0.014
	111.663 - 110.663					20.793	-16.709	1216.410	0.014
	110.663 - 109.663					20.934	-16.852	1224.670	0.014
	109.663 - 108.663					21.076	-16.997	1232.930	0.014
L12	108.663 - 107.663	TP27.7x26.81x0.25	5.000	0.000	0.0	21.217	-17.142	1241.180	0.014
	107.663 - 106.663					21.358	-17.290	1249.440	0.014
	106.663 - 105.663					21.499	-17.438	1257.700	0.014
	105.663 - 104.663					21.640	-17.587	1265.960	0.014
	104.663 - 103.663					21.781	-17.737	1274.210	0.014
L13	103.663 - 102.332	TP28.174x27.7x0.25	2.663	0.000	0.0	21.969	-17.932	1285.210	0.014
	102.332 - 101					22.157	-18.136	1296.200	0.014
L14	101 - 100.75 (14)	TP28.218x28.174x0.625	0.250	0.000	0.0	54.738	-18.224	3202.150	0.006
L15	100.75 - 99.75	TP29.107x28.218x0.613	5.000	0.000	0.0	54.013	-18.458	3159.760	0.006
	99.75 - 98.75					54.359	-18.700	3179.990	0.006
	98.75 - 97.75					54.705	-18.944	3200.220	0.006
	97.75 - 96.75					55.050	-19.190	3220.450	0.006
	96.75 - 95.75					55.396	-19.437	3240.680	0.006
L16	95.75 - 94.166	TP30.16x29.107x0.613	5.917	0.000	0.0	55.944	-19.824	3272.730	0.006
	94.166 - 89.833					57.443	-14.190	3360.390	0.004

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L17	94.166 - 89.833	TP29.837x28.889x0.313	5.333	0.000	0.0	29.108	-7.188	1702.850	0.004
	89.833 - 88.833					29.285	-21.567	1713.160	0.013
L18	88.833 - 87.833	TP30.726x29.837x0.313	5.000	0.000	0.0	29.461	-21.748	1723.480	0.013
	87.833 - 86.833					29.638	-21.929	1733.790	0.013
	86.833 - 85.833					29.814	-22.112	1744.110	0.013
	85.833 - 84.833					29.990	-22.296	1754.420	0.013
	84.833 - 83.833					30.166	-22.480	1764.740	0.013
L19	83.833 - 82.833	TP31.615x30.726x0.313	5.000	0.000	0.0	30.343	-22.666	1775.050	0.013
	82.833 - 81.833					30.519	-22.852	1785.370	0.013
	81.833 - 80.833					30.695	-23.040	1795.680	0.013
	80.833 - 79.833					30.872	-23.229	1805.990	0.013
	79.833 - 78.833					31.048	-23.418	1816.310	0.013
L20	78.833 - 77.833	TP32.504x31.615x0.313	5.000	0.000	0.0	31.224	-23.608	1826.620	0.013
	77.833 - 76.833					31.401	-23.872	1836.940	0.013
	76.833 - 75.833					31.577	-24.064	1847.250	0.013
	75.833 - 74.833					31.753	-24.258	1857.570	0.013
	74.833 - 73.833					31.930	-24.452	1867.880	0.013
L21	73.833 - 72.5553	TP33.185x32.504x0.313	3.833	0.000	0.0	32.155	-24.696	1881.060	0.013
	72.5553 - 71.2777					32.380	-24.947	1894.240	0.013
	71.2777 - 70					32.605	-25.199	1907.420	0.013
L22	70 - 69.75 (22)	TP33.229x33.185x0.513	0.250	0.000	0.0	53.220	-25.287	3113.360	0.008
L23	69.75 - 68.5625	TP34.074x33.229x0.5	4.750	0.000	0.0	52.277	-25.577	3058.180	0.008
	68.5625 - 67.375					52.612	-25.882	3077.780	0.008
	67.375 - 66.1875					52.947	-26.188	3097.380	0.008
	66.1875 - 65					53.282	-26.496	3116.980	0.009
L24	65 - 64.75 (24)	TP34.118x34.074x0.713	0.250	0.000	0.0	75.546	-26.592	4419.460	0.006
L25	64.75 - 63.75	TP35.007x34.118x0.7	5.000	0.000	0.0	74.644	-26.911	4366.650	0.006
	63.75 - 62.75					75.039	-27.238	4389.760	0.006
	62.75 - 61.75					75.434	-27.567	4412.860	0.006
	61.75 - 60.75					75.828	-27.898	4435.970	0.006
	60.75 - 59.75					76.224	-28.231	4459.070	0.006
L26	59.75 - 58.75	TP35.896x35.007x0.688	5.000	0.000	0.0	75.277	-28.561	4403.740	0.006
	58.75 - 57.75					75.665	-28.893	4426.430	0.007
	57.75 - 56.75					76.053	-29.227	4449.120	0.007
	56.75 - 55.75					76.441	-29.562	4471.810	0.007
	55.75 - 54.75					76.829	-29.899	4494.500	0.007
L27	54.75 - 53.75	TP36.785x35.896x0.675	5.000	0.000	0.0	75.840	-30.234	4436.630	0.007
	53.75 - 52.75					76.221	-30.571	4458.910	0.007

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	52.75 - 51.75					76.602	-30.909	4481.190	0.007
	51.75 - 50.75					76.982	-31.249	4503.470	0.007
	50.75 - 49.75					77.363	-31.590	4525.750	0.007
L28	49.75 - 49.626	TP37.74x36.785x0.675	5.374	0.000	0.0	77.410	-31.642	4528.510	0.007
	49.626 - 44.376					79.410	-22.131	4645.480	0.005
L29	49.626 - 44.376	TP37.292x36.182x0.375	6.250	0.000	0.0	43.729	-12.178	2558.170	0.005
	44.376 - 43.376					43.941	-34.568	2570.540	0.013
L30	43.376 - 42.376	TP38.181x37.292x0.375	5.000	0.000	0.0	44.152	-34.810	2582.910	0.013
	42.376 - 41.376					44.364	-35.054	2595.290	0.014
	41.376 - 40.376					44.575	-35.299	2607.660	0.014
	40.376 - 39.376					44.787	-35.544	2620.030	0.014
	39.376 - 38.376					44.998	-35.791	2632.400	0.014
L31	38.376 - 37.376	TP39.069x38.181x0.375	5.000	0.000	0.0	45.210	-36.039	2644.780	0.014
	37.376 - 36.376					45.421	-36.287	2657.150	0.014
	36.376 - 35.376					45.633	-36.536	2669.520	0.014
	35.376 - 34.376					45.844	-36.787	2681.900	0.014
	34.376 - 33.376					46.056	-37.038	2694.270	0.014
L32	33.376 - 32.376	TP39.958x39.069x0.375	5.000	0.000	0.0	46.267	-37.290	2706.640	0.014
	32.376 - 31.376					46.479	-37.543	2719.010	0.014
	31.376 - 30.376					46.690	-37.797	2731.390	0.014
	30.376 - 29.376					46.902	-38.052	2743.760	0.014
	29.376 - 28.376					47.113	-38.308	2756.130	0.014
L33	28.376 - 27.376	TP40.846x39.958x0.375	5.000	0.000	0.0	47.325	-38.564	2768.500	0.014
	27.376 - 26.376					47.536	-38.822	2780.880	0.014
	26.376 - 25.376					47.748	-39.081	2793.250	0.014
	25.376 - 24.376					47.959	-39.340	2805.620	0.014
	24.376 - 23.376					48.171	-39.600	2818.000	0.014
L34	23.376 - 22.376	TP41.735x40.846x0.375	5.000	0.000	0.0	48.382	-39.861	2830.370	0.014
	22.376 - 21.376					48.594	-40.124	2842.740	0.014
	21.376 - 20.376					48.805	-40.386	2855.110	0.014
	20.376 - 19.376					49.017	-40.650	2867.490	0.014
	19.376 - 18.376					49.228	-40.915	2879.860	0.014

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L35	18.376 - 17.376	TP42.623x41.735x0.375	5.000	0.000	0.0	49.440	-41.181	2892.230	0.014
	17.376 - 16.376					49.651	-41.447	2904.610	0.014
	16.376 - 15.376					49.863	-41.715	2916.980	0.014
	15.376 - 14.376					50.074	-41.983	2929.350	0.014
	14.376 - 13.376					50.286	-42.252	2941.720	0.014
L36	13.376 - 12.376	TP43.512x42.623x0.375	5.000	0.000	0.0	50.497	-42.522	2954.100	0.014
	12.376 - 11.376					50.709	-42.793	2966.470	0.014
	11.376 - 10.376					50.920	-43.064	2978.840	0.014
	10.376 - 9.376					51.132	-43.337	2991.210	0.014
	9.376 - 8.376					51.343	-43.610	3003.590	0.015
L37	8.376 - 7.376	TP44.4x43.512x0.375	5.000	0.000	0.0	51.555	-43.884	3015.960	0.015
	7.376 - 6.376					51.766	-44.159	3028.330	0.015
	6.376 - 5.376					51.978	-44.435	3040.710	0.015
	5.376 - 4.376					52.189	-44.712	3053.080	0.015
	4.376 - 3.376					52.401	-44.990	3065.450	0.015
L38	3.376 - 2.25067	TP45x44.4x0.375	3.376	0.000	0.0	52.639	-45.301	3079.380	0.015
	2.25067 - 1.12533					52.877	-45.615	3093.300	0.015
	1.12533 - 0					53.115	-45.931	3107.220	0.015

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	160 - 159	TP18.902x18x0.188	13.623	292.940	0.047	0.000	292.940	0.000
	159 - 158		19.615	298.151	0.066	0.000	298.151	0.000
	158 - 157		25.666	303.392	0.085	0.000	303.392	0.000
	157 - 156		31.778	308.663	0.103	0.000	308.663	0.000
	156 - 155		37.950	313.965	0.121	0.000	313.965	0.000
L2	155 - 154	TP19.804x18.902x0.188	44.184	319.295	0.138	0.000	319.295	0.000
	154 - 153		50.478	324.654	0.155	0.000	324.654	0.000
	153 - 152		56.833	330.042	0.172	0.000	330.042	0.000
	152 - 151		63.251	335.457	0.189	0.000	335.457	0.000
	151 - 150		69.730	340.900	0.205	0.000	340.900	0.000
L3	150 - 149	TP20.706x19.804x0.188	76.272	346.370	0.220	0.000	346.370	0.000
	149 - 148		82.877	351.867	0.236	0.000	351.867	0.000
	148 - 147		89.545	357.390	0.251	0.000	357.390	0.000
	147 - 146		107.798	362.938	0.297	0.000	362.938	0.000
	146 - 145		119.140	368.512	0.323	0.000	368.512	0.000
L4	145 - 144	TP21.608x20.706x0.188	130.543	374.112	0.349	0.000	374.112	0.000
	144 - 143		142.008	379.735	0.374	0.000	379.735	0.000
	143 - 142		153.535	385.382	0.398	0.000	385.382	0.000
	142 - 141		165.123	391.053	0.422	0.000	391.053	0.000
	141 - 140		176.773	396.748	0.446	0.000	396.748	0.000
L5	140 - 138.663	TP22.45x21.608x0.188	192.446	404.396	0.476	0.000	404.396	0.000
	138.663 - 135.33		102.978	423.633	0.243	0.000	423.633	0.000
L6	138.663 -	TP22.363x21.474x0.25	129.118	574.947	0.225	0.000	574.947	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	135.33							
	135.33 - 133.663		252.242	590.773	0.427	0.000	590.773	0.000
L7	133.663 - 132.663	TP23.253x22.363x0.25	264.414	600.370	0.440	0.000	600.370	0.000
	132.663 - 131.663		280.873	610.043	0.460	0.000	610.043	0.000
	131.663 - 130.663		297.660	619.795	0.480	0.000	619.795	0.000
	130.663 - 129.663		314.559	629.623	0.500	0.000	629.623	0.000
	129.663 - 128.663		331.522	639.529	0.518	0.000	639.529	0.000
L8	128.663 - 127.663	TP24.142x23.253x0.25	348.546	649.513	0.537	0.000	649.513	0.000
	127.663 - 126.663		365.633	659.573	0.554	0.000	659.573	0.000
	126.663 - 125.663		382.783	669.711	0.572	0.000	669.711	0.000
	125.663 - 124.663		399.995	679.926	0.588	0.000	679.926	0.000
	124.663 - 123.663		417.269	689.342	0.605	0.000	689.342	0.000
L9	123.663 - 122.663	TP25.032x24.142x0.25	434.604	698.448	0.622	0.000	698.448	0.000
	122.663 - 121.663		452.997	707.595	0.640	0.000	707.595	0.000
	121.663 - 120.663		473.822	716.782	0.661	0.000	716.782	0.000
	120.663 - 119.663		494.704	726.007	0.681	0.000	726.007	0.000
	119.663 - 118.663		515.643	735.271	0.701	0.000	735.271	0.000
L10	118.663 - 117.663	TP25.921x25.032x0.25	536.638	744.572	0.721	0.000	744.572	0.000
	117.663 - 116.663		557.687	753.913	0.740	0.000	753.913	0.000
	116.663 - 115.663		578.791	763.290	0.758	0.000	763.290	0.000
	115.663 - 114.663		599.951	772.705	0.776	0.000	772.705	0.000
	114.663 - 113.663		621.164	782.156	0.794	0.000	782.156	0.000
L11	113.663 - 112.663	TP26.81x25.921x0.25	642.433	791.643	0.812	0.000	791.643	0.000
	112.663 - 111.663		663.753	801.167	0.828	0.000	801.167	0.000
	111.663 - 110.663		685.128	810.725	0.845	0.000	810.725	0.000
	110.663 - 109.663		706.555	820.319	0.861	0.000	820.319	0.000
	109.663 - 108.663		728.034	829.947	0.877	0.000	829.947	0.000
L12	108.663 - 107.663	TP27.7x26.81x0.25	749.566	839.608	0.893	0.000	839.608	0.000
	107.663 - 106.663		771.148	849.308	0.908	0.000	849.308	0.000
	106.663 - 105.663		792.783	859.033	0.923	0.000	859.033	0.000
	105.663 -		814.467	868.800	0.937	0.000	868.800	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	104.663							
	104.663 - 103.663		836.200	878.592	0.952	0.000	878.592	0.000
L13	103.663 - 102.332	TP28.174x27.7x0.25	865.225	891.683	0.970	0.000	891.683	0.000
	102.332 - 101		894.325	904.833	0.988	0.000	904.833	0.000
L14	101 - 100.75 (14)	TP28.218x28.174x0.625	899.808	2274.100	0.396	0.000	2274.100	0.000
L15	100.75 - 99.75	TP29.107x28.218x0.613	921.758	2260.817	0.408	0.000	2260.817	0.000
	99.75 - 98.75		943.800	2290.175	0.412	0.000	2290.175	0.000
	98.75 - 97.75		965.925	2319.725	0.416	0.000	2319.725	0.000
	97.75 - 96.75		988.133	2349.458	0.421	0.000	2349.458	0.000
	96.75 - 95.75		1010.425	2379.383	0.425	0.000	2379.383	0.000
L16	95.75 - 94.166	TP30.16x29.107x0.613	1045.917	2427.175	0.431	0.000	2427.175	0.000
	94.166 - 89.833		762.991	2560.333	0.298	0.000	2560.333	0.000
L17	94.166 - 89.833	TP29.837x28.889x0.313	381.260	1301.475	0.293	0.000	1301.475	0.000
	89.833 - 88.833		1167.200	1317.375	0.886	0.000	1317.375	0.000
L18	88.833 - 87.833	TP30.726x29.837x0.313	1190.200	1333.367	0.893	0.000	1333.367	0.000
	87.833 - 86.833		1213.242	1347.583	0.900	0.000	1347.583	0.000
	86.833 - 85.833		1236.342	1361.800	0.908	0.000	1361.800	0.000
	85.833 - 84.833		1259.500	1376.067	0.915	0.000	1376.067	0.000
	84.833 - 83.833		1282.700	1390.383	0.923	0.000	1390.383	0.000
L19	83.833 - 82.833	TP31.615x30.726x0.313	1305.950	1404.742	0.930	0.000	1404.742	0.000
	82.833 - 81.833		1329.250	1419.158	0.937	0.000	1419.158	0.000
	81.833 - 80.833		1352.608	1433.625	0.943	0.000	1433.625	0.000
	80.833 - 79.833		1376.008	1448.133	0.950	0.000	1448.133	0.000
	79.833 - 78.833		1399.458	1462.692	0.957	0.000	1462.692	0.000
L20	78.833 - 77.833	TP32.504x31.615x0.313	1422.958	1477.300	0.963	0.000	1477.300	0.000
	77.833 - 76.833		1446.525	1491.950	0.970	0.000	1491.950	0.000
	76.833 - 75.833		1470.200	1506.642	0.976	0.000	1506.642	0.000
	75.833 - 74.833		1493.917	1521.392	0.982	0.000	1521.392	0.000
	74.833 - 73.833		1517.692	1536.175	0.988	0.000	1536.175	0.000
L21	73.833 - 72.5553	TP33.185x32.504x0.313	1548.125	1555.142	0.995	0.000	1555.142	0.000
	72.5553 - 71.2777		1578.642	1574.175	1.003	0.000	1574.175	0.000
	71.2777 - 70		1609.242	1593.275	1.010	0.000	1593.275	0.000
L22	70 - 69.75 (22)	TP33.229x33.185x0.513	1615.242	2639.667	0.612	0.000	2639.667	0.000
L23	69.75 - 68.5625	TP34.074x33.229x0.5	1643.783	2611.850	0.629	0.000	2611.850	0.000
	68.5625 - 67.375		1672.417	2645.683	0.632	0.000	2645.683	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	67.375 - 66.1875		1701.150	2679.733	0.635	0.000	2679.733	0.000
	66.1875 - 65		1729.975	2714.008	0.637	0.000	2714.008	0.000
L24	65 - 64.75 (24)	TP34.118x34.074x0.713	1736.058	3804.708	0.456	0.000	3804.708	0.000
L25	64.75 - 63.75	TP35.007x34.118x0.7	1760.433	3782.483	0.465	0.000	3782.483	0.000
	63.75 - 62.75		1784.892	3823.025	0.467	0.000	3823.025	0.000
	62.75 - 61.75		1809.425	3863.792	0.468	0.000	3863.792	0.000
	61.75 - 60.75		1834.042	3904.767	0.470	0.000	3904.767	0.000
	60.75 - 59.75		1858.742	3945.958	0.471	0.000	3945.958	0.000
L26	59.75 - 58.75	TP35.896x35.007x0.688	1883.517	3920.425	0.480	0.000	3920.425	0.000
	58.75 - 57.75		1908.367	3961.325	0.482	0.000	3961.325	0.000
	57.75 - 56.75		1933.300	4002.442	0.483	0.000	4002.442	0.000
	56.75 - 55.75		1958.308	4043.775	0.484	0.000	4043.775	0.000
	55.75 - 54.75		1983.400	4085.317	0.485	0.000	4085.317	0.000
L27	54.75 - 53.75	TP36.785x35.896x0.675	2008.567	4056.325	0.495	0.000	4056.325	0.000
	53.75 - 52.75		2033.808	4097.550	0.496	0.000	4097.550	0.000
	52.75 - 51.75		2059.125	4138.983	0.497	0.000	4138.983	0.000
	51.75 - 50.75		2084.517	4180.625	0.499	0.000	4180.625	0.000
	50.75 - 49.75		2109.983	4222.475	0.500	0.000	4222.475	0.000
L28	49.75 - 49.626	TP37.74x36.785x0.675	2113.150	4227.683	0.500	0.000	4227.683	0.000
	49.626 - 44.376		1459.242	4450.950	0.328	0.000	4450.950	0.000
L29	49.626 - 44.376	TP37.292x36.182x0.375	789.181	2430.908	0.325	0.000	2430.908	0.000
	44.376 - 43.376		2274.458	2451.658	0.928	0.000	2451.658	0.000
L30	43.376 - 42.376	TP38.181x37.292x0.375	2300.533	2472.475	0.930	0.000	2472.475	0.000
	42.376 - 41.376		2326.650	2493.342	0.933	0.000	2493.342	0.000
	41.376 - 40.376		2352.800	2514.267	0.936	0.000	2514.267	0.000
	40.376 - 39.376		2378.992	2535.250	0.938	0.000	2535.250	0.000
	39.376 - 38.376		2405.217	2556.283	0.941	0.000	2556.283	0.000
L31	38.376 - 37.376	TP39.069x38.181x0.375	2431.483	2577.375	0.943	0.000	2577.375	0.000
	37.376 - 36.376		2457.792	2598.525	0.946	0.000	2598.525	0.000
	36.376 - 35.376		2484.125	2619.733	0.948	0.000	2619.733	0.000
	35.376 - 34.376		2510.500	2640.992	0.951	0.000	2640.992	0.000
	34.376 - 33.376		2536.917	2662.308	0.953	0.000	2662.308	0.000
L32	33.376 - 32.376	TP39.958x39.069x0.375	2563.358	2683.675	0.955	0.000	2683.675	0.000
	32.376 - 31.376		2589.842	2705.092	0.957	0.000	2705.092	0.000
	31.376 - 30.376		2616.358	2726.567	0.960	0.000	2726.567	0.000
	30.376 - 29.376		2642.900	2748.092	0.962	0.000	2748.092	0.000
	29.376 - 28.376		2669.483	2769.667	0.964	0.000	2769.667	0.000
L33	28.376 - 27.376	TP40.846x39.958x0.375	2696.092	2791.300	0.966	0.000	2791.300	0.000
	27.376 - 26.376		2722.733	2812.983	0.968	0.000	2812.983	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	26.376 - 25.376		2749.400	2834.708	0.970	0.000	2834.708	0.000
	25.376 - 24.376		2776.100	2856.492	0.972	0.000	2856.492	0.000
	24.376 - 23.376		2802.833	2878.325	0.974	0.000	2878.325	0.000
L34	23.376 - 22.376	TP41.735x40.846x0.375	2829.592	2900.208	0.976	0.000	2900.208	0.000
	22.376 - 21.376		2856.375	2922.142	0.977	0.000	2922.142	0.000
	21.376 - 20.376		2883.183	2944.117	0.979	0.000	2944.117	0.000
	20.376 - 19.376		2910.017	2966.150	0.981	0.000	2966.150	0.000
	19.376 - 18.376		2936.875	2988.225	0.983	0.000	2988.225	0.000
L35	18.376 - 17.376	TP42.623x41.735x0.375	2963.758	3010.350	0.985	0.000	3010.350	0.000
	17.376 - 16.376		2990.667	3032.517	0.986	0.000	3032.517	0.000
	16.376 - 15.376		3017.592	3054.742	0.988	0.000	3054.742	0.000
	15.376 - 14.376		3044.542	3077.000	0.989	0.000	3077.000	0.000
	14.376 - 13.376		3071.508	3099.317	0.991	0.000	3099.317	0.000
L36	13.376 - 12.376	TP43.512x42.623x0.375	3098.492	3121.667	0.993	0.000	3121.667	0.000
	12.376 - 11.376		3125.500	3144.067	0.994	0.000	3144.067	0.000
	11.376 - 10.376		3152.533	3166.517	0.996	0.000	3166.517	0.000
	10.376 - 9.376		3179.575	3189.008	0.997	0.000	3189.008	0.000
	9.376 - 8.376		3206.642	3211.542	0.998	0.000	3211.542	0.000
L37	8.376 - 7.376	TP44.4x43.512x0.375	3233.725	3234.117	1.000	0.000	3234.117	0.000
	7.376 - 6.376		3260.833	3256.733	1.001	0.000	3256.733	0.000
	6.376 - 5.376		3287.950	3279.400	1.003	0.000	3279.400	0.000
	5.376 - 4.376		3315.092	3302.108	1.004	0.000	3302.108	0.000
	4.376 - 3.376		3342.250	3324.850	1.005	0.000	3324.850	0.000
L38	3.376 - 2.25067	TP45x44.4x0.375	3372.842	3350.500	1.007	0.000	3350.500	0.000
	2.25067 - 1.12533		3403.450	3376.200	1.008	0.000	3376.200	0.000
	1.12533 - 0		3434.075	3401.950	1.009	0.000	3401.950	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	160 - 159	TP18.902x18x0.188	5.962	187.926	0.032	0.002	296.119	0.000
	159 - 158		6.022	189.810	0.032	0.002	302.087	0.000
	158 - 157		6.082	191.694	0.032	0.002	308.113	0.000
	157 - 156		6.143	193.578	0.032	0.002	314.199	0.000
	156 - 155		6.204	195.462	0.032	0.002	320.345	0.000
L2	155 - 154	TP19.804x18.902x0.188	6.265	197.346	0.032	0.002	326.550	0.000
	154 - 153		6.326	199.230	0.032	0.002	332.814	0.000
	153 - 152		6.388	201.113	0.032	0.002	339.138	0.000

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 $\frac{T_u}{\phi T_n}$
	152 - 151		6.450	202.997	0.032	0.002	345.522	0.000
	151 - 150		6.512	204.881	0.032	0.002	351.965	0.000
L3	150 - 149	TP20.706x19.804x0.188	6.575	206.765	0.032	0.002	358.468	0.000
	149 - 148		6.638	208.649	0.032	0.002	365.030	0.000
	148 - 147		6.702	210.533	0.032	0.002	371.652	0.000
	147 - 146		11.314	212.417	0.053	0.289	378.333	0.001
	146 - 145		11.376	214.301	0.053	0.289	385.074	0.001
L4	145 - 144	TP21.608x20.706x0.188	11.438	216.185	0.053	0.289	391.875	0.001
	144 - 143		11.499	218.069	0.053	0.289	398.734	0.001
	143 - 142		11.562	219.953	0.053	0.289	405.654	0.001
	142 - 141		11.624	221.837	0.052	0.289	412.632	0.001
	141 - 140		11.686	223.721	0.052	0.289	419.671	0.001
L5	140 - 138.663	TP22.45x21.608x0.188	11.770	226.240	0.052	0.289	429.174	0.001
	138.663 - 135.33		5.397	232.519	0.023	0.128	453.328	0.000
L6	138.663 - 135.33	TP22.363x21.474x0.25	6.641	303.818	0.022	0.161	580.472	0.000
	135.33 - 133.663		12.147	307.947	0.039	0.289	596.360	0.000
L7	133.663 - 132.663	TP23.253x22.363x0.25	12.211	310.424	0.039	0.289	605.992	0.000
	132.663 - 131.663		16.748	312.902	0.054	0.289	615.703	0.000
	131.663 - 130.663		16.875	315.379	0.054	0.201	625.491	0.000
	130.663 - 129.663		16.939	317.856	0.053	0.201	635.356	0.000
	129.663 - 128.663		17.002	320.333	0.053	0.201	645.298	0.000
L8	128.663 - 127.663	TP24.142x23.253x0.25	17.064	322.811	0.053	0.201	655.317	0.000
	127.663 - 126.663		17.127	325.288	0.053	0.201	665.413	0.000
	126.663 - 125.663		17.190	327.765	0.052	0.201	675.587	0.000
	125.663 - 124.663		17.252	330.242	0.052	0.201	685.837	0.000
	124.663 - 123.663		17.314	332.719	0.052	0.201	696.165	0.000
L9	123.663 - 122.663	TP25.032x24.142x0.25	17.377	335.197	0.052	0.201	706.571	0.000
	122.663 - 121.663		20.811	337.674	0.062	0.459	717.053	0.001
	121.663 - 120.663		20.868	340.151	0.061	0.459	727.612	0.001
	120.663 - 119.663		20.925	342.628	0.061	0.458	738.249	0.001
	119.663 - 118.663		20.982	345.106	0.061	0.458	748.962	0.001
L10	118.663 - 117.663	TP25.921x25.032x0.25	21.038	347.583	0.061	0.458	759.753	0.001
	117.663 - 116.663		21.094	350.060	0.060	0.458	770.622	0.001
	116.663 - 115.663		21.149	352.537	0.060	0.458	781.568	0.001
	115.663 - 114.663		21.204	355.015	0.060	0.458	792.590	0.001
	114.663 - 113.663		21.259	357.492	0.059	0.457	803.689	0.001
L11	113.663 -	TP26.81x25.921x0.25	21.313	359.969	0.059	0.457	814.867	0.001

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 $\frac{T_u}{\phi T_n}$
	112.663							
	112.663 - 111.663		21.366	362.446	0.059	0.457	826.121	0.001
	111.663 - 110.663		21.419	364.924	0.059	0.457	837.450	0.001
	110.663 - 109.663		21.473	367.401	0.058	0.457	848.858	0.001
	109.663 - 108.663		21.525	369.878	0.058	0.457	860.342	0.001
L12	108.663 - 107.663	TP27.7x26.81x0.25	21.577	372.355	0.058	0.456	871.908	0.001
	107.663 - 106.663		21.628	374.833	0.058	0.456	883.550	0.001
	106.663 - 105.663		21.680	377.310	0.057	0.456	895.267	0.001
	105.663 - 104.663		21.731	379.787	0.057	0.456	907.058	0.001
	104.663 - 103.663		21.782	382.264	0.057	0.456	918.933	0.000
L13	103.663 - 102.332	TP28.174x27.7x0.25	21.854	385.563	0.057	0.456	934.858	0.000
	102.332 - 101		21.920	388.861	0.056	0.455	950.925	0.000
L14	101 - 100.75 (14)	TP28.218x28.174x0.625	21.929	960.646	0.023	0.455	2321.358	0.000
L15	100.75 - 99.75	TP29.107x28.218x0.613	22.010	947.928	0.023	0.455	2306.433	0.000
	99.75 - 98.75		22.094	953.998	0.023	0.455	2336.058	0.000
	98.75 - 97.75		22.179	960.067	0.023	0.455	2365.883	0.000
	97.75 - 96.75		22.264	966.136	0.023	0.455	2395.883	0.000
	96.75 - 95.75		22.348	972.205	0.023	0.455	2426.083	0.000
L16	95.75 - 94.166	TP30.16x29.107x0.613	22.486	981.819	0.023	0.455	2474.300	0.000
	94.166 - 89.833		15.359	1008.120	0.015	0.303	2608.625	0.000
L17	94.166 - 89.833	TP29.837x28.889x0.313	7.593	510.854	0.015	0.152	1312.925	0.000
	89.833 - 88.833		22.996	513.949	0.045	0.455	1328.883	0.000
L18	88.833 - 87.833	TP30.726x29.837x0.313	23.047	517.043	0.045	0.455	1344.933	0.000
	87.833 - 86.833		23.098	520.138	0.044	0.454	1361.075	0.000
	86.833 - 85.833		23.149	523.232	0.044	0.454	1377.317	0.000
	85.833 - 84.833		23.200	526.326	0.044	0.454	1393.658	0.000
	84.833 - 83.833		23.251	529.421	0.044	0.454	1410.092	0.000
L19	83.833 - 82.833	TP31.615x30.726x0.313	23.301	532.515	0.044	0.454	1426.625	0.000
	82.833 - 81.833		23.351	535.610	0.044	0.454	1443.250	0.000
	81.833 - 80.833		23.401	538.704	0.043	0.454	1459.975	0.000
	80.833 - 79.833		23.450	541.798	0.043	0.454	1476.800	0.000
	79.833 - 78.833		23.500	544.893	0.043	0.453	1493.717	0.000
L20	78.833 - 77.833	TP32.504x31.615x0.313	23.548	547.987	0.043	0.453	1510.725	0.000
	77.833 - 76.833		23.674	551.081	0.043	0.453	1527.842	0.000

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 $\frac{T_u}{\phi T_n}$
	76.833 - 75.833		23.723	554.176	0.043	0.234	1545.042	0.000
	75.833 - 74.833		23.770	557.270	0.043	0.234	1562.350	0.000
	74.833 - 73.833		23.818	560.365	0.043	0.234	1579.750	0.000
L21	73.833 - 72.5553	TP33.185x32.504x0.313	23.884	564.318	0.042	0.234	1602.117	0.000
	72.5553 - 71.2777		23.944	568.272	0.042	0.234	1624.642	0.000
	71.2777 - 70		24.003	572.225	0.042	0.234	1647.325	0.000
L22	70 - 69.75 (22)	TP33.229x33.185x0.513	23.999	934.009	0.026	0.234	2676.108	0.000
L23	69.75 - 68.5625	TP34.074x33.229x0.5	24.089	917.455	0.026	0.234	2646.650	0.000
	68.5625 - 67.375		24.170	923.335	0.026	0.234	2680.675	0.000
	67.375 - 66.1875		24.250	929.214	0.026	0.234	2714.925	0.000
	66.1875 - 65		24.330	935.093	0.026	0.234	2749.383	0.000
L24	65 - 64.75 (24)	TP34.118x34.074x0.713	24.340	1325.840	0.018	0.234	3878.750	0.000
L25	64.75 - 63.75	TP35.007x34.118x0.7	24.424	1310.000	0.019	0.234	3854.233	0.000
	63.75 - 62.75		24.504	1316.930	0.019	0.234	3895.125	0.000
	62.75 - 61.75		24.584	1323.860	0.019	0.234	3936.242	0.000
	61.75 - 60.75		24.664	1330.790	0.019	0.234	3977.567	0.000
	60.75 - 59.75		24.744	1337.720	0.018	0.234	4019.108	0.000
L26	59.75 - 58.75	TP35.896x35.007x0.688	24.823	1321.120	0.019	0.234	3991.242	0.000
	58.75 - 57.75		24.901	1327.930	0.019	0.234	4032.483	0.000
	57.75 - 56.75		24.979	1334.740	0.019	0.233	4073.933	0.000
	56.75 - 55.75		25.058	1341.540	0.019	0.233	4115.592	0.000
	55.75 - 54.75		25.136	1348.350	0.019	0.233	4157.467	0.000
L27	54.75 - 53.75	TP36.785x35.896x0.675	25.212	1330.990	0.019	0.233	4126.117	0.000
	53.75 - 52.75		25.288	1337.670	0.019	0.233	4167.658	0.000
	52.75 - 51.75		25.365	1344.360	0.019	0.233	4209.417	0.000
	51.75 - 50.75		25.441	1351.040	0.019	0.233	4251.375	0.000
	50.75 - 49.75		25.517	1357.720	0.019	0.233	4293.542	0.000
L28	49.75 - 49.626	TP37.74x36.785x0.675	25.527	1358.550	0.019	0.233	4298.783	0.000
	49.626 - 44.376		16.985	1393.640	0.012	0.151	4523.725	0.000
L29	49.626 - 44.376	TP37.292x36.182x0.375	9.074	767.450	0.012	0.082	2469.250	0.000
	44.376 - 43.376		26.077	771.162	0.034	0.233	2493.192	0.000
L30	43.376 - 42.376	TP38.181x37.292x0.375	26.116	774.874	0.034	0.233	2517.250	0.000
	42.376 - 41.376		26.155	778.586	0.034	0.233	2541.425	0.000
	41.376 - 40.376		26.193	782.298	0.033	0.233	2565.717	0.000
	40.376 - 39.376		26.232	786.009	0.033	0.233	2590.125	0.000
	39.376 - 38.376		26.271	789.721	0.033	0.233	2614.642	0.000
L31	38.376 - 37.376	TP39.069x38.181x0.375	26.307	793.433	0.033	0.233	2639.283	0.000
	37.376 - 36.376		26.344	797.145	0.033	0.233	2664.033	0.000
	36.376 - 35.376		26.380	800.857	0.033	0.233	2688.900	0.000
	35.376 - 34.376		26.416	804.569	0.033	0.233	2713.883	0.000

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 $\frac{T_u}{\phi T_n}$
	34.376 - 33.376		26.452	808.280	0.033	0.233	2738.983	0.000
L32	33.376 - 32.376	TP39.958x39.069x0.375	26.486	811.992	0.033	0.233	2764.192	0.000
	32.376 - 31.376		26.519	815.704	0.033	0.233	2789.525	0.000
	31.376 - 30.376		26.552	819.416	0.032	0.233	2814.967	0.000
	30.376 - 29.376		26.586	823.128	0.032	0.233	2840.525	0.000
	29.376 - 28.376		26.619	826.840	0.032	0.233	2866.208	0.000
L33	28.376 - 27.376	TP40.846x39.958x0.375	26.649	830.551	0.032	0.233	2892.000	0.000
	27.376 - 26.376		26.679	834.263	0.032	0.232	2917.900	0.000
	26.376 - 25.376		26.709	837.975	0.032	0.232	2943.925	0.000
	25.376 - 24.376		26.738	841.687	0.032	0.232	2970.067	0.000
	24.376 - 23.376		26.768	845.399	0.032	0.232	2996.317	0.000
L34	23.376 - 22.376	TP41.735x40.846x0.375	26.794	849.111	0.032	0.232	3022.683	0.000
	22.376 - 21.376		26.820	852.822	0.031	0.232	3049.175	0.000
	21.376 - 20.376		26.846	856.534	0.031	0.232	3075.775	0.000
	20.376 - 19.376		26.872	860.246	0.031	0.232	3102.492	0.000
	19.376 - 18.376		26.897	863.958	0.031	0.232	3129.317	0.000
L35	18.376 - 17.376	TP42.623x41.735x0.375	26.918	867.670	0.031	0.232	3156.267	0.000
	17.376 - 16.376		26.939	871.382	0.031	0.232	3183.325	0.000
	16.376 - 15.376		26.960	875.093	0.031	0.232	3210.508	0.000
	15.376 - 14.376		26.981	878.805	0.031	0.232	3237.800	0.000
	14.376 - 13.376		27.002	882.517	0.031	0.232	3265.208	0.000
L36	13.376 - 12.376	TP43.512x42.623x0.375	27.022	886.229	0.030	0.232	3292.733	0.000
	12.376 - 11.376		27.041	889.941	0.030	0.232	3320.375	0.000
	11.376 - 10.376		27.061	893.653	0.030	0.232	3348.125	0.000
	10.376 - 9.376		27.080	897.364	0.030	0.232	3376.000	0.000
	9.376 - 8.376		27.099	901.076	0.030	0.232	3403.983	0.000
L37	8.376 - 7.376	TP44.4x43.512x0.375	27.118	904.788	0.030	0.232	3432.092	0.000
	7.376 - 6.376		27.137	908.500	0.030	0.232	3460.308	0.000
	6.376 - 5.376		27.156	912.212	0.030	0.232	3488.642	0.000
	5.376 - 4.376		27.175	915.924	0.030	0.232	3517.092	0.000
	4.376 - 3.376		27.193	919.635	0.030	0.232	3545.650	0.000
L38	3.376 - 2.25067	TP45x44.4x0.375	27.218	923.813	0.029	0.232	3577.933	0.000
	2.25067 - 1.12533		27.238	927.990	0.029	0.232	3610.367	0.000
	1.12533 - 0		27.258	932.167	0.029	0.232	3642.942	0.000

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 $\frac{T_u}{\phi T_n}$

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	160 - 159	0.006	0.047	0.000	0.032	0.000	0.053 ✔	1.050	4.8.2 ✔
	159 - 158	0.006	0.066	0.000	0.032	0.000	0.072 ✔	1.050	4.8.2 ✔
	158 - 157	0.006	0.085	0.000	0.032	0.000	0.091 ✔	1.050	4.8.2 ✔
	157 - 156	0.006	0.103	0.000	0.032	0.000	0.110 ✔	1.050	4.8.2 ✔
	156 - 155	0.006	0.121	0.000	0.032	0.000	0.127 ✔	1.050	4.8.2 ✔
L2	155 - 154	0.006	0.138	0.000	0.032	0.000	0.145 ✔	1.050	4.8.2 ✔
	154 - 153	0.006	0.155	0.000	0.032	0.000	0.162 ✔	1.050	4.8.2 ✔
	153 - 152	0.006	0.172	0.000	0.032	0.000	0.179 ✔	1.050	4.8.2 ✔
	152 - 151	0.006	0.189	0.000	0.032	0.000	0.195 ✔	1.050	4.8.2 ✔
	151 - 150	0.006	0.205	0.000	0.032	0.000	0.211 ✔	1.050	4.8.2 ✔
L3	150 - 149	0.006	0.220	0.000	0.032	0.000	0.227 ✔	1.050	4.8.2 ✔
	149 - 148	0.006	0.236	0.000	0.032	0.000	0.242 ✔	1.050	4.8.2 ✔
	148 - 147	0.006	0.251	0.000	0.032	0.000	0.257 ✔	1.050	4.8.2 ✔
	147 - 146	0.010	0.297	0.000	0.053	0.001	0.310 ✔	1.050	4.8.2 ✔
	146 - 145	0.010	0.323	0.000	0.053	0.001	0.336 ✔	1.050	4.8.2 ✔
L4	145 - 144	0.010	0.349	0.000	0.053	0.001	0.362 ✔	1.050	4.8.2 ✔
	144 - 143	0.010	0.374	0.000	0.053	0.001	0.387 ✔	1.050	4.8.2 ✔
	143 - 142	0.010	0.398	0.000	0.053	0.001	0.411 ✔	1.050	4.8.2 ✔
	142 - 141	0.010	0.422	0.000	0.052	0.001	0.435 ✔	1.050	4.8.2 ✔
	141 - 140	0.010	0.446	0.000	0.052	0.001	0.458 ✔	1.050	4.8.2 ✔
L5	140 - 138.663	0.010	0.476	0.000	0.052	0.001	0.489 ✔	1.050	4.8.2 ✔
	138.663 - 135.33	0.004	0.243	0.000	0.023	0.000	0.248 ✔	1.050	4.8.2 ✔

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L6	138.663 - 135.33	0.004	0.225	0.000	0.022	0.000	0.229 ✔	1.050	4.8.2 ✔
	135.33 - 133.663	0.008	0.427	0.000	0.039	0.000	0.436 ✔	1.050	4.8.2 ✔
L7	133.663 - 132.663	0.008	0.440	0.000	0.039	0.000	0.450 ✔	1.050	4.8.2 ✔
	132.663 - 131.663	0.011	0.460	0.000	0.054	0.000	0.474 ✔	1.050	4.8.2 ✔
	131.663 - 130.663	0.011	0.480	0.000	0.054	0.000	0.494 ✔	1.050	4.8.2 ✔
	130.663 - 129.663	0.011	0.500	0.000	0.053	0.000	0.513 ✔	1.050	4.8.2 ✔
	129.663 - 128.663	0.011	0.518	0.000	0.053	0.000	0.532 ✔	1.050	4.8.2 ✔
L8	128.663 - 127.663	0.011	0.537	0.000	0.053	0.000	0.550 ✔	1.050	4.8.2 ✔
	127.663 - 126.663	0.011	0.554	0.000	0.053	0.000	0.568 ✔	1.050	4.8.2 ✔
	126.663 - 125.663	0.011	0.572	0.000	0.052	0.000	0.585 ✔	1.050	4.8.2 ✔
	125.663 - 124.663	0.011	0.588	0.000	0.052	0.000	0.602 ✔	1.050	4.8.2 ✔
	124.663 - 123.663	0.011	0.605	0.000	0.052	0.000	0.619 ✔	1.050	4.8.2 ✔
L9	123.663 - 122.663	0.011	0.622	0.000	0.052	0.000	0.636 ✔	1.050	4.8.2 ✔
	122.663 - 121.663	0.014	0.640	0.000	0.062	0.001	0.658 ✔	1.050	4.8.2 ✔
	121.663 - 120.663	0.014	0.661	0.000	0.061	0.001	0.678 ✔	1.050	4.8.2 ✔
	120.663 - 119.663	0.014	0.681	0.000	0.061	0.001	0.699 ✔	1.050	4.8.2 ✔
	119.663 - 118.663	0.014	0.701	0.000	0.061	0.001	0.719 ✔	1.050	4.8.2 ✔
L10	118.663 - 117.663	0.014	0.721	0.000	0.061	0.001	0.738 ✔	1.050	4.8.2 ✔
	117.663 - 116.663	0.014	0.740	0.000	0.060	0.001	0.757 ✔	1.050	4.8.2 ✔
	116.663 - 115.663	0.014	0.758	0.000	0.060	0.001	0.776 ✔	1.050	4.8.2 ✔
	115.663 - 114.663	0.014	0.776	0.000	0.060	0.001	0.794 ✔	1.050	4.8.2 ✔
	114.663 - 113.663	0.014	0.794	0.000	0.059	0.001	0.811 ✔	1.050	4.8.2 ✔
L11	113.663 - 112.663	0.014	0.812	0.000	0.059	0.001	0.829 ✔	1.050	4.8.2 ✔
	112.663 - 111.663	0.014	0.828	0.000	0.059	0.001	0.846 ✔	1.050	4.8.2 ✔
	111.663 - 110.663	0.014	0.845	0.000	0.059	0.001	0.862 ✔	1.050	4.8.2 ✔
	110.663 - 109.663	0.014	0.861	0.000	0.058	0.001	0.879 ✔	1.050	4.8.2 ✔

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	109.663 - 108.663	0.014	0.877	0.000	0.058	0.001	0.894 ✔	1.050	4.8.2 ✔
L12	108.663 - 107.663	0.014	0.893	0.000	0.058	0.001	0.910 ✔	1.050	4.8.2 ✔
	107.663 - 106.663	0.014	0.908	0.000	0.058	0.001	0.925 ✔	1.050	4.8.2 ✔
	106.663 - 105.663	0.014	0.923	0.000	0.057	0.001	0.940 ✔	1.050	4.8.2 ✔
	105.663 - 104.663	0.014	0.937	0.000	0.057	0.001	0.955 ✔	1.050	4.8.2 ✔
	104.663 - 103.663	0.014	0.952	0.000	0.057	0.000	0.969 ✔	1.050	4.8.2 ✔
L13	103.663 - 102.332	0.014	0.970	0.000	0.057	0.000	0.988 ✔	1.050	4.8.2 ✔
	102.332 - 101	0.014	0.988	0.000	0.056	0.000	1.006 ✔	1.050	4.8.2 ✔
L14	101 - 100.75 (14)	0.006	0.396	0.000	0.023	0.000	0.402 ✔	1.050	4.8.2 ✔
L15	100.75 - 99.75	0.006	0.408	0.000	0.023	0.000	0.414 ✔	1.050	4.8.2 ✔
	99.75 - 98.75	0.006	0.412	0.000	0.023	0.000	0.419 ✔	1.050	4.8.2 ✔
	98.75 - 97.75	0.006	0.416	0.000	0.023	0.000	0.423 ✔	1.050	4.8.2 ✔
	97.75 - 96.75	0.006	0.421	0.000	0.023	0.000	0.427 ✔	1.050	4.8.2 ✔
	96.75 - 95.75	0.006	0.425	0.000	0.023	0.000	0.431 ✔	1.050	4.8.2 ✔
L16	95.75 - 94.166	0.006	0.431	0.000	0.023	0.000	0.438 ✔	1.050	4.8.2 ✔
	94.166 - 89.833	0.004	0.298	0.000	0.015	0.000	0.302 ✔	1.050	4.8.2 ✔
L17	94.166 - 89.833	0.004	0.293	0.000	0.015	0.000	0.297 ✔	1.050	4.8.2 ✔
	89.833 - 88.833	0.013	0.886	0.000	0.045	0.000	0.901 ✔	1.050	4.8.2 ✔
L18	88.833 - 87.833	0.013	0.893	0.000	0.045	0.000	0.907 ✔	1.050	4.8.2 ✔
	87.833 - 86.833	0.013	0.900	0.000	0.044	0.000	0.915 ✔	1.050	4.8.2 ✔
	86.833 - 85.833	0.013	0.908	0.000	0.044	0.000	0.923 ✔	1.050	4.8.2 ✔
	85.833 - 84.833	0.013	0.915	0.000	0.044	0.000	0.930 ✔	1.050	4.8.2 ✔
	84.833 - 83.833	0.013	0.923	0.000	0.044	0.000	0.937 ✔	1.050	4.8.2 ✔
L19	83.833 - 82.833	0.013	0.930	0.000	0.044	0.000	0.944 ✔	1.050	4.8.2 ✔
	82.833 - 81.833	0.013	0.937	0.000	0.044	0.000	0.951 ✔	1.050	4.8.2 ✔
	81.833 - 80.833	0.013	0.943	0.000	0.043	0.000	0.958 ✔	1.050	4.8.2 ✔

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	80.833 - 79.833	0.013	0.950	0.000	0.043	0.000	0.965 ✔	1.050	4.8.2 ✔
	79.833 - 78.833	0.013	0.957	0.000	0.043	0.000	0.972 ✔	1.050	4.8.2 ✔
L20	78.833 - 77.833	0.013	0.963	0.000	0.043	0.000	0.978 ✔	1.050	4.8.2 ✔
	77.833 - 76.833	0.013	0.970	0.000	0.043	0.000	0.984 ✔	1.050	4.8.2 ✔
	76.833 - 75.833	0.013	0.976	0.000	0.043	0.000	0.991 ✔	1.050	4.8.2 ✔
	75.833 - 74.833	0.013	0.982	0.000	0.043	0.000	0.997 ✔	1.050	4.8.2 ✔
	74.833 - 73.833	0.013	0.988	0.000	0.043	0.000	1.003 ✔	1.050	4.8.2 ✔
L21	73.833 - 72.5553	0.013	0.995	0.000	0.042	0.000	1.010 ✔	1.050	4.8.2 ✔
	72.5553 - 71.2777	0.013	1.003	0.000	0.042	0.000	1.018 ✔	1.050	4.8.2 ✔
	71.2777 - 70	0.013	1.010	0.000	0.042	0.000	1.025 ✔	1.050	4.8.2 ✔
L22	70 - 69.75 (22)	0.008	0.612	0.000	0.026	0.000	0.621 ✔	1.050	4.8.2 ✔
L23	69.75 - 68.5625	0.008	0.629	0.000	0.026	0.000	0.638 ✔	1.050	4.8.2 ✔
	68.5625 - 67.375	0.008	0.632	0.000	0.026	0.000	0.641 ✔	1.050	4.8.2 ✔
	67.375 - 66.1875	0.008	0.635	0.000	0.026	0.000	0.644 ✔	1.050	4.8.2 ✔
	66.1875 - 65	0.009	0.637	0.000	0.026	0.000	0.647 ✔	1.050	4.8.2 ✔
L24	65 - 64.75 (24)	0.006	0.456	0.000	0.018	0.000	0.463 ✔	1.050	4.8.2 ✔
L25	64.75 - 63.75	0.006	0.465	0.000	0.019	0.000	0.472 ✔	1.050	4.8.2 ✔
	63.75 - 62.75	0.006	0.467	0.000	0.019	0.000	0.473 ✔	1.050	4.8.2 ✔
	62.75 - 61.75	0.006	0.468	0.000	0.019	0.000	0.475 ✔	1.050	4.8.2 ✔
	61.75 - 60.75	0.006	0.470	0.000	0.019	0.000	0.476 ✔	1.050	4.8.2 ✔
	60.75 - 59.75	0.006	0.471	0.000	0.018	0.000	0.478 ✔	1.050	4.8.2 ✔
L26	59.75 - 58.75	0.006	0.480	0.000	0.019	0.000	0.487 ✔	1.050	4.8.2 ✔
	58.75 - 57.75	0.007	0.482	0.000	0.019	0.000	0.489 ✔	1.050	4.8.2 ✔
	57.75 - 56.75	0.007	0.483	0.000	0.019	0.000	0.490 ✔	1.050	4.8.2 ✔
	56.75 - 55.75	0.007	0.484	0.000	0.019	0.000	0.491 ✔	1.050	4.8.2 ✔
	55.75 - 54.75	0.007	0.485	0.000	0.019	0.000	0.492 ✔	1.050	4.8.2 ✔

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L27	54.75 - 53.75	0.007	0.495	0.000	0.019	0.000	0.502 ✔	1.050	4.8.2 ✔
	53.75 - 52.75	0.007	0.496	0.000	0.019	0.000	0.504 ✔	1.050	4.8.2 ✔
	52.75 - 51.75	0.007	0.497	0.000	0.019	0.000	0.505 ✔	1.050	4.8.2 ✔
	51.75 - 50.75	0.007	0.499	0.000	0.019	0.000	0.506 ✔	1.050	4.8.2 ✔
	50.75 - 49.75	0.007	0.500	0.000	0.019	0.000	0.507 ✔	1.050	4.8.2 ✔
L28	49.75 - 49.626	0.007	0.500	0.000	0.019	0.000	0.507 ✔	1.050	4.8.2 ✔
	49.626 - 44.376	0.005	0.328	0.000	0.012	0.000	0.333 ✔	1.050	4.8.2 ✔
L29	49.626 - 44.376	0.005	0.325	0.000	0.012	0.000	0.330 ✔	1.050	4.8.2 ✔
	44.376 - 43.376	0.013	0.928	0.000	0.034	0.000	0.942 ✔	1.050	4.8.2 ✔
L30	43.376 - 42.376	0.013	0.930	0.000	0.034	0.000	0.945 ✔	1.050	4.8.2 ✔
	42.376 - 41.376	0.014	0.933	0.000	0.034	0.000	0.948 ✔	1.050	4.8.2 ✔
	41.376 - 40.376	0.014	0.936	0.000	0.033	0.000	0.950 ✔	1.050	4.8.2 ✔
	40.376 - 39.376	0.014	0.938	0.000	0.033	0.000	0.953 ✔	1.050	4.8.2 ✔
	39.376 - 38.376	0.014	0.941	0.000	0.033	0.000	0.956 ✔	1.050	4.8.2 ✔
L31	38.376 - 37.376	0.014	0.943	0.000	0.033	0.000	0.958 ✔	1.050	4.8.2 ✔
	37.376 - 36.376	0.014	0.946	0.000	0.033	0.000	0.961 ✔	1.050	4.8.2 ✔
	36.376 - 35.376	0.014	0.948	0.000	0.033	0.000	0.963 ✔	1.050	4.8.2 ✔
	35.376 - 34.376	0.014	0.951	0.000	0.033	0.000	0.965 ✔	1.050	4.8.2 ✔
	34.376 - 33.376	0.014	0.953	0.000	0.033	0.000	0.968 ✔	1.050	4.8.2 ✔
L32	33.376 - 32.376	0.014	0.955	0.000	0.033	0.000	0.970 ✔	1.050	4.8.2 ✔
	32.376 - 31.376	0.014	0.957	0.000	0.033	0.000	0.972 ✔	1.050	4.8.2 ✔
	31.376 - 30.376	0.014	0.960	0.000	0.032	0.000	0.974 ✔	1.050	4.8.2 ✔
	30.376 - 29.376	0.014	0.962	0.000	0.032	0.000	0.977 ✔	1.050	4.8.2 ✔
	29.376 - 28.376	0.014	0.964	0.000	0.032	0.000	0.979 ✔	1.050	4.8.2 ✔
L33	28.376 - 27.376	0.014	0.966	0.000	0.032	0.000	0.981 ✔	1.050	4.8.2 ✔
	27.376 - 26.376	0.014	0.968	0.000	0.032	0.000	0.983 ✔	1.050	4.8.2 ✔

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	26.376 - 25.376	0.014	0.970	0.000	0.032	0.000	0.985 ✔	1.050	4.8.2 ✔
	25.376 - 24.376	0.014	0.972	0.000	0.032	0.000	0.987 ✔	1.050	4.8.2 ✔
	24.376 - 23.376	0.014	0.974	0.000	0.032	0.000	0.989 ✔	1.050	4.8.2 ✔
L34	23.376 - 22.376	0.014	0.976	0.000	0.032	0.000	0.991 ✔	1.050	4.8.2 ✔
	22.376 - 21.376	0.014	0.977	0.000	0.031	0.000	0.993 ✔	1.050	4.8.2 ✔
	21.376 - 20.376	0.014	0.979	0.000	0.031	0.000	0.994 ✔	1.050	4.8.2 ✔
	20.376 - 19.376	0.014	0.981	0.000	0.031	0.000	0.996 ✔	1.050	4.8.2 ✔
	19.376 - 18.376	0.014	0.983	0.000	0.031	0.000	0.998 ✔	1.050	4.8.2 ✔
L35	18.376 - 17.376	0.014	0.985	0.000	0.031	0.000	1.000 ✔	1.050	4.8.2 ✔
	17.376 - 16.376	0.014	0.986	0.000	0.031	0.000	1.001 ✔	1.050	4.8.2 ✔
	16.376 - 15.376	0.014	0.988	0.000	0.031	0.000	1.003 ✔	1.050	4.8.2 ✔
	15.376 - 14.376	0.014	0.989	0.000	0.031	0.000	1.005 ✔	1.050	4.8.2 ✔
	14.376 - 13.376	0.014	0.991	0.000	0.031	0.000	1.006 ✔	1.050	4.8.2 ✔
L36	13.376 - 12.376	0.014	0.993	0.000	0.030	0.000	1.008 ✔	1.050	4.8.2 ✔
	12.376 - 11.376	0.014	0.994	0.000	0.030	0.000	1.009 ✔	1.050	4.8.2 ✔
	11.376 - 10.376	0.014	0.996	0.000	0.030	0.000	1.011 ✔	1.050	4.8.2 ✔
	10.376 - 9.376	0.014	0.997	0.000	0.030	0.000	1.012 ✔	1.050	4.8.2 ✔
	9.376 - 8.376	0.015	0.998	0.000	0.030	0.000	1.014 ✔	1.050	4.8.2 ✔
L37	8.376 - 7.376	0.015	1.000	0.000	0.030	0.000	1.015 ✔	1.050	4.8.2 ✔
	7.376 - 6.376	0.015	1.001	0.000	0.030	0.000	1.017 ✔	1.050	4.8.2 ✔
	6.376 - 5.376	0.015	1.003	0.000	0.030	0.000	1.018 ✔	1.050	4.8.2 ✔
	5.376 - 4.376	0.015	1.004	0.000	0.030	0.000	1.019 ✔	1.050	4.8.2 ✔
	4.376 - 3.376	0.015	1.005	0.000	0.030	0.000	1.021 ✔	1.050	4.8.2 ✔
L38	3.376 - 2.25067	0.015	1.007	0.000	0.029	0.000	1.022 ✔	1.050	4.8.2 ✔
	2.25067 - 1.12533	0.015	1.008	0.000	0.029	0.000	1.024 ✔	1.050	4.8.2 ✔
	1.12533 - 0	0.015	1.009	0.000	0.029	0.000	1.025 ✔	1.050	4.8.2 ✔

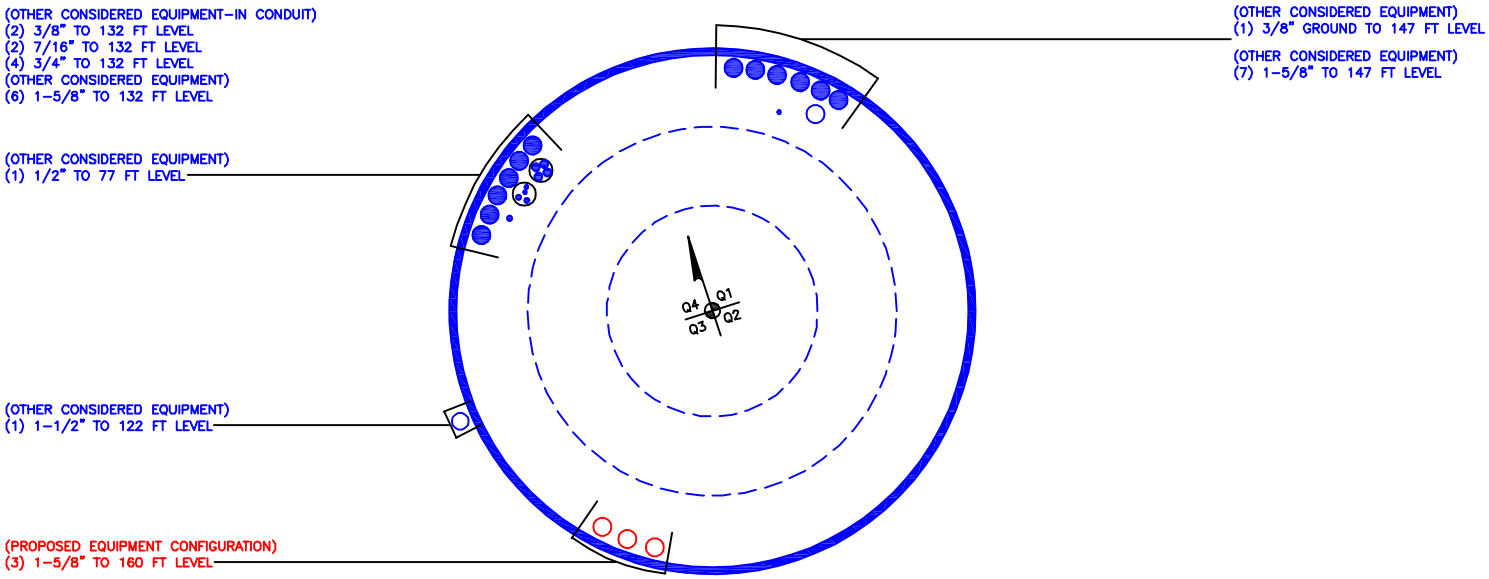
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	160 - 155	Pole	TP18.902x18x0.188	1	-3.634	--	12.1	Pass*
L2	155 - 150	Pole	TP19.804x18.902x0.188	2	-3.869	--	20.1	Pass*
L3	150 - 145	Pole	TP20.706x19.804x0.188	3	-7.004	--	32.0	Pass*
L4	145 - 140	Pole	TP21.608x20.706x0.188	4	-7.338	--	43.6	Pass*
L5	140 - 138.66	Pole	TP22.45x21.608x0.188	5	-7.430	--	46.5	Pass*
L6	138.66 - 133.66	Pole	TP22.363x21.474x0.25	6	-8.019	--	41.5	Pass*
L7	133.66 - 128.66	Pole	TP23.253x22.363x0.25	7	-11.707	--	50.7	Pass*
L8	128.66 - 123.66	Pole	TP24.142x23.253x0.25	8	-12.278	--	59.0	Pass*
L9	123.66 - 118.66	Pole	TP25.032x24.142x0.25	9	-15.608	--	68.4	Pass*
L10	118.66 - 113.66	Pole	TP25.921x25.032x0.25	10	-16.286	--	77.3	Pass*
L11	113.66 - 108.66	Pole	TP26.81x25.921x0.25	11	-16.997	--	85.2	Pass*
L12	108.66 - 103.66	Pole	TP27.7x26.81x0.25	12	-17.737	--	92.3	Pass*
L13	103.66 - 101	Pole	TP28.174x27.7x0.25	13	-18.136	--	95.8	Pass*
L14	101 - 100.75	Pole + Reinf.	TP28.218x28.174x0.625	14	-18.224	--	70.2	Pass*
L15	100.75 - 95.75	Pole + Reinf.	TP29.107x28.218x0.613	15	-19.437	--	75.5	Pass*
L16	95.75 - 94.17	Pole + Reinf.	TP30.16x29.107x0.613	16	-19.824	--	77.0	Pass*
L17	94.17 - 88.83	Pole	TP29.837x28.889x0.313	17	-21.567	--	85.7	Pass*
L18	88.83 - 83.83	Pole	TP30.726x29.837x0.313	18	-22.480	--	89.3	Pass*
L19	83.83 - 78.83	Pole	TP31.615x30.726x0.313	19	-23.418	--	92.5	Pass*
L20	78.83 - 73.83	Pole	TP32.504x31.615x0.313	20	-24.452	--	95.5	Pass*
L21	73.83 - 70	Pole	TP33.185x32.504x0.313	21	-25.199	--	97.6	Pass*
L22	70 - 69.75	Pole + Reinf.	TP33.229x33.185x0.513	22	-25.287	--	94.2	Pass*
L23	69.75 - 65	Pole + Reinf.	TP34.074x33.229x0.5	23	-26.496	--	96.8	Pass*
L24	65 - 64.75	Pole + Reinf.	TP34.118x34.074x0.713	24	-26.592	--	74.3	Pass*
L25	64.75 - 59.75	Pole + Reinf.	TP35.007x34.118x0.7	25	-28.231	--	76.6	Pass*
L26	59.75 - 54.75	Pole + Reinf.	TP35.896x35.007x0.688	26	-29.899	--	78.8	Pass*
L27	54.75 - 49.75	Pole + Reinf.	TP36.785x35.896x0.675	27	-31.590	--	80.9	Pass*
L28	49.75 - 49.63	Pole + Reinf.	TP37.74x36.785x0.675	28	-31.642	--	80.9	Pass*
L29	49.63 - 43.38	Pole	TP37.292x36.182x0.375	29	-34.568	--	89.7	Pass*
L30	43.38 - 38.38	Pole	TP38.181x37.292x0.375	30	-35.791	--	91.0	Pass*
L31	38.38 - 33.38	Pole	TP39.069x38.181x0.375	31	-37.038	--	92.2	Pass*
L32	33.38 - 28.38	Pole	TP39.958x39.069x0.375	32	-38.308	--	93.2	Pass*
L33	28.38 - 23.38	Pole	TP40.846x39.958x0.375	33	-39.600	--	94.2	Pass*
L34	23.38 - 18.38	Pole	TP41.735x40.846x0.375	34	-40.915	--	95.1	Pass*
L35	18.38 - 13.38	Pole	TP42.623x41.735x0.375	35	-42.252	--	95.8	Pass*
L36	13.38 - 8.38	Pole	TP43.512x42.623x0.375	36	-43.610	--	96.6	Pass*
L37	8.38 - 3.38	Pole	TP44.4x43.512x0.375	37	-44.990	--	97.2	Pass*
L38	3.38 - 0	Pole	TP45x44.4x0.375	38	-45.931	--	97.6	Pass*
							Summary	
						Pole (L38)	97.6	Pass*
						RATING =	**97.6**	**Pass***

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

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876397

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 876397

Work Order: 2066575

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	160	24.67	3.333	18	18	22.45	0.1875	Auto	A572-65
2	138.663	48.83	4.333	18	21.47	30.16	0.25	Auto	A572-65
3	94.166	49.79	5.25	18	28.89	37.74	0.3125	Auto	A572-65
4	49.626	49.626	0	18	36.18	45	0.375	Auto	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Pole Flat Width (in)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	49	70	plate	MS-600 (1.1875")	5.85				E						E						E		
2	94	101	plate	MS-450 (1.1875")	4.97				E						E						E		
3	49	65	plate	CCI-SFP-050125	6.01						P						P						P
4	94	101	plate	CCI-SFP-040125	4.97		P						P						P				
5																							
6																							
7																							
8																							
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in2)	Bolt Hole Size (in)	Reinforcement Material
1	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.375	4.750	1.1875	A572-65
2	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.625	3.250	1.1875	A572-65
3	5	1.25	6.25	0.625	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	23.000	4.688	1.1875	A572-65
4	4	1.25	5	0.625	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	27.000	3.438	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5 Export to TNX

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	160 - 155	5		18	18.000	18.902	0.1875	A572-65	1.000
2	155 - 150	5		18	18.902	19.804	0.1875	A572-65	1.000
3	150 - 145	5		18	19.804	20.706	0.1875	A572-65	1.000
4	145 - 140	5		18	20.706	21.608	0.1875	A572-65	1.000
5	140 - 138.663	4.67	3.333	18	21.608	22.450	0.1875	A572-65	1.000
6	138.663 - 133.663	5		18	21.474	22.363	0.25	A572-65	1.000
7	133.663 - 128.663	5		18	22.363	23.253	0.25	A572-65	1.000
8	128.663 - 123.663	5		18	23.253	24.142	0.25	A572-65	1.000
9	123.663 - 118.663	5		18	24.142	25.032	0.25	A572-65	1.000
10	118.663 - 113.663	5		18	25.032	25.921	0.25	A572-65	1.000
11	113.663 - 108.663	5		18	25.921	26.810	0.25	A572-65	1.000
12	108.663 - 103.663	5		18	26.810	27.700	0.25	A572-65	1.000
13	103.663 - 101	2.663		18	27.700	28.174	0.25	A572-65	1.000
14	101 - 100.75	0.25		18	28.174	28.218	0.625	A572-65	0.926
15	100.75 - 95.75	5		18	28.218	29.107	0.6125	A572-65	0.928
16	95.75 - 94.166	5.917	4.333	18	29.107	30.160	0.6125	A572-65	0.923
17	94.166 - 88.833	5.333		18	28.889	29.837	0.3125	A572-65	1.000
18	88.833 - 83.833	5		18	29.837	30.726	0.3125	A572-65	1.000
19	83.833 - 78.833	5		18	30.726	31.615	0.3125	A572-65	1.000
20	78.833 - 73.833	5		18	31.615	32.504	0.3125	A572-65	1.000
21	73.833 - 70	3.833		18	32.504	33.185	0.3125	A572-65	1.000
22	70 - 69.75	0.25		18	33.185	33.229	0.5125	A572-65	0.952
23	69.75 - 65	4.75		18	33.229	34.074	0.5	A572-65	0.966
24	65 - 64.75	0.25		18	34.074	34.118	0.7125	A572-65	0.930
25	64.75 - 59.75	5		18	34.118	35.007	0.7	A572-65	0.934
26	59.75 - 54.75	5		18	35.007	35.896	0.6875	A572-65	0.938
27	54.75 - 49.75	5		18	35.896	36.785	0.675	A572-65	0.943
28	49.75 - 49.626	5.374	5.25	18	36.785	37.740	0.675	A572-65	0.942
29	49.626 - 43.376	6.25		18	36.182	37.292	0.375	A572-65	1.000
30	43.376 - 38.376	5		18	37.292	38.181	0.375	A572-65	1.000
31	38.376 - 33.376	5		18	38.181	39.069	0.375	A572-65	1.000
32	33.376 - 28.376	5		18	39.069	39.958	0.375	A572-65	1.000
33	28.376 - 23.376	5		18	39.958	40.846	0.375	A572-65	1.000
34	23.376 - 18.376	5		18	40.846	41.735	0.375	A572-65	1.000
35	18.376 - 13.376	5		18	41.735	42.623	0.375	A572-65	1.000
36	13.376 - 8.376	5		18	42.623	43.512	0.375	A572-65	1.000
37	8.376 - 3.376	5		18	43.512	44.400	0.375	A572-65	1.000
38	3.376 - 0	3.376		18	44.400	45.000	0.375	A572-65	1.000

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	160 - 155	3.63	37.95	6.20
2	155 - 150	3.87	69.73	6.51
3	150 - 145	7.00	119.14	11.38
4	145 - 140	7.34	176.77	11.69
5	140 - 138.663	7.43	192.45	11.77
6	138.663 - 133.663	8.02	252.24	12.15
7	133.663 - 128.663	11.71	331.52	17.00
8	128.663 - 123.663	12.28	417.27	17.31
9	123.663 - 118.663	15.61	515.64	20.98
10	118.663 - 113.663	16.29	621.16	21.26
11	113.663 - 108.663	17.00	728.03	21.53
12	108.663 - 103.663	17.74	836.20	21.78
13	103.663 - 101	18.14	894.33	21.92
14	101 - 100.75	18.22	899.80	21.93
15	100.75 - 95.75	19.44	1010.43	22.35
16	95.75 - 94.166	19.82	1045.91	22.49
17	94.166 - 88.833	21.57	1167.20	23.00
18	88.833 - 83.833	22.48	1282.70	23.25
19	83.833 - 78.833	23.42	1399.46	23.50
20	78.833 - 73.833	24.45	1517.69	23.82
21	73.833 - 70	25.20	1609.24	24.00
22	70 - 69.75	25.29	1615.24	24.00
23	69.75 - 65	26.50	1729.98	24.33
24	65 - 64.75	26.59	1736.06	24.34
25	64.75 - 59.75	28.23	1858.74	24.74
26	59.75 - 54.75	29.90	1983.40	25.14
27	54.75 - 49.75	31.59	2109.99	25.52
28	49.75 - 49.626	31.64	2113.15	25.53
29	49.626 - 43.376	34.57	2274.46	26.08
30	43.376 - 38.376	35.79	2405.22	26.27
31	38.376 - 33.376	37.04	2536.92	26.45
32	33.376 - 28.376	38.31	2669.48	26.62
33	28.376 - 23.376	39.60	2802.83	26.77
34	23.376 - 18.376	40.92	2936.88	26.90
35	18.376 - 13.376	42.25	3071.51	27.00
36	13.376 - 8.376	43.61	3206.64	27.10
37	8.376 - 3.376	44.99	3342.25	27.19
38	3.376 - 0	45.93	3434.08	27.26

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
160 - 155	Pole	TP18.902x18x0.1875	Pole	12.1%	Pass
155 - 150	Pole	TP19.804x18.902x0.1875	Pole	20.1%	Pass
150 - 145	Pole	TP20.706x19.804x0.1875	Pole	32.0%	Pass
145 - 140	Pole	TP21.608x20.706x0.1875	Pole	43.6%	Pass
140 - 138.66	Pole	TP22.45x21.608x0.1875	Pole	46.5%	Pass
138.66 - 133.66	Pole	TP22.363x21.474x0.25	Pole	41.5%	Pass
133.66 - 128.66	Pole	TP23.253x22.363x0.25	Pole	50.7%	Pass
128.66 - 123.66	Pole	TP24.142x23.253x0.25	Pole	59.0%	Pass
123.66 - 118.66	Pole	TP25.032x24.142x0.25	Pole	68.4%	Pass
118.66 - 113.66	Pole	TP25.921x25.032x0.25	Pole	77.3%	Pass
113.66 - 108.66	Pole	TP26.81x25.921x0.25	Pole	85.2%	Pass
108.66 - 103.66	Pole	TP27.7x26.81x0.25	Pole	92.3%	Pass
103.66 - 101	Pole	TP28.174x27.7x0.25	Pole	95.8%	Pass
101 - 100.75	Pole + Reinf.	TP28.218x28.174x0.625	Reinf. 4 Tension Rupture	70.2%	Pass
100.75 - 95.75	Pole + Reinf.	TP29.107x28.218x0.6125	Reinf. 4 Tension Rupture	75.5%	Pass
95.75 - 94.17	Pole + Reinf.	TP30.16x29.107x0.6125	Reinf. 4 Tension Rupture	77.0%	Pass
94.17 - 88.83	Pole	TP29.837x28.889x0.3125	Pole	85.7%	Pass
88.83 - 83.83	Pole	TP30.726x29.837x0.3125	Pole	89.3%	Pass
83.83 - 78.83	Pole	TP31.615x30.726x0.3125	Pole	92.5%	Pass
78.83 - 73.83	Pole	TP32.504x31.615x0.3125	Pole	95.5%	Pass
73.83 - 70	Pole	TP33.185x32.504x0.3125	Pole	97.6%	Pass
70 - 69.75	Pole + Reinf.	TP33.229x33.185x0.5125	Reinf. 1 Tension Rupture	94.2%	Pass
69.75 - 65	Pole + Reinf.	TP34.074x33.229x0.5	Reinf. 1 Tension Rupture	96.8%	Pass
65 - 64.75	Pole + Reinf.	TP34.118x34.074x0.7125	Reinf. 3 Tension Rupture	74.3%	Pass
64.75 - 59.75	Pole + Reinf.	TP35.007x34.118x0.7	Reinf. 3 Tension Rupture	76.6%	Pass
59.75 - 54.75	Pole + Reinf.	TP35.896x35.007x0.6875	Reinf. 3 Tension Rupture	78.8%	Pass
54.75 - 49.75	Pole + Reinf.	TP36.785x35.896x0.675	Reinf. 3 Tension Rupture	80.9%	Pass
49.75 - 49.63	Pole + Reinf.	TP37.74x36.785x0.675	Reinf. 3 Tension Rupture	80.9%	Pass
49.63 - 43.38	Pole	TP37.292x36.182x0.375	Pole	89.7%	Pass
43.38 - 38.38	Pole	TP38.181x37.292x0.375	Pole	91.0%	Pass
38.38 - 33.38	Pole	TP39.069x38.181x0.375	Pole	92.2%	Pass
33.38 - 28.38	Pole	TP39.958x39.069x0.375	Pole	93.2%	Pass
28.38 - 23.38	Pole	TP40.846x39.958x0.375	Pole	94.2%	Pass
23.38 - 18.38	Pole	TP41.735x40.846x0.375	Pole	95.1%	Pass
18.38 - 13.38	Pole	TP42.623x41.735x0.375	Pole	95.8%	Pass
13.38 - 8.38	Pole	TP43.512x42.623x0.375	Pole	96.6%	Pass
8.38 - 3.38	Pole	TP44.4x43.512x0.375	Pole	97.2%	Pass
3.38 - 0	Pole	TP45x44.4x0.375	Pole	97.6%	Pass
				Summary	
			Pole	97.6%	Pass
			Reinforcement	96.8%	Pass
			Overall	97.6%	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
160 - 155	493	n/a	493	11.14	n/a	11.14	12.1%				
155 - 150	567	n/a	567	11.67	n/a	11.67	20.1%				
150 - 145	649	n/a	649	12.21	n/a	12.21	32.0%				
145 - 140	739	n/a	739	12.75	n/a	12.75	43.6%				
140 - 138.66	764	n/a	764	12.89	n/a	12.89	46.5%				
138.66 - 133.66	1084	n/a	1084	17.55	n/a	17.55	41.5%				
133.66 - 128.66	1220	n/a	1220	18.25	n/a	18.25	50.7%				
128.66 - 123.66	1367	n/a	1367	18.96	n/a	18.96	59.0%				
123.66 - 118.66	1525	n/a	1525	19.66	n/a	19.66	68.4%				
118.66 - 113.66	1695	n/a	1695	20.37	n/a	20.37	77.3%				
113.66 - 108.66	1878	n/a	1878	21.07	n/a	21.07	85.2%				
108.66 - 103.66	2073	n/a	2073	21.78	n/a	21.78	92.3%				
103.66 - 101	2182	n/a	2182	22.16	n/a	22.16	95.8%				
101 - 100.75	2192	3092	5284	22.19	28.50	50.69	39.3%		67.0%		70.2%
100.75 - 95.75	2408	3281	5689	22.90	28.50	51.40	42.7%		72.0%		75.5%
95.75 - 94.17	2479	3342	5821	23.12	28.50	51.62	43.7%		73.5%		77.0%
94.17 - 88.83	3224	n/a	3224	29.28	n/a	29.28	85.7%				
88.83 - 83.83	3524	n/a	3524	30.17	n/a	30.17	89.3%				
83.83 - 78.83	3842	n/a	3842	31.05	n/a	31.05	92.5%				
78.83 - 73.83	4179	n/a	4179	31.93	n/a	31.93	95.5%				
73.83 - 70	4450	n/a	4450	32.60	n/a	32.60	97.6%				
70 - 69.75	4468	2664	7132	32.65	18.00	50.65	60.4%	94.2%			
69.75 - 65	4821	2796	7616	33.49	18.00	51.49	62.5%	96.8%			
65 - 64.75	4840	5755	10595	33.53	36.75	70.28	45.2%	69.9%		74.3%	
64.75 - 59.75	5231	6047	11278	34.41	36.75	71.16	47.0%	72.1%		76.6%	
59.75 - 54.75	5644	6345	11989	35.29	36.75	72.04	48.7%	74.2%		78.8%	
54.75 - 49.75	6078	6651	12729	36.17	36.75	72.92	50.4%	76.2%		80.9%	
49.75 - 49.63	6089	6659	12748	36.20	36.75	72.95	50.5%	76.2%		80.9%	
49.63 - 43.38	7563	n/a	7563	43.94	n/a	43.94	89.7%				
43.38 - 38.38	8123	n/a	8123	45.00	n/a	45.00	91.0%				
38.38 - 33.38	8709	n/a	8709	46.05	n/a	46.05	92.2%				
33.38 - 28.38	9323	n/a	9323	47.11	n/a	47.11	93.2%				
28.38 - 23.38	9965	n/a	9965	48.17	n/a	48.17	94.2%				
23.38 - 18.38	10635	n/a	10635	49.23	n/a	49.23	95.1%				
18.38 - 13.38	11336	n/a	11336	50.28	n/a	50.28	95.8%				
13.38 - 8.38	12066	n/a	12066	51.34	n/a	51.34	96.6%				
8.38 - 3.38	12827	n/a	12827	52.40	n/a	52.40	97.2%				
3.38 - 0	13358	n/a	13358	53.11	n/a	53.11	97.6%				

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

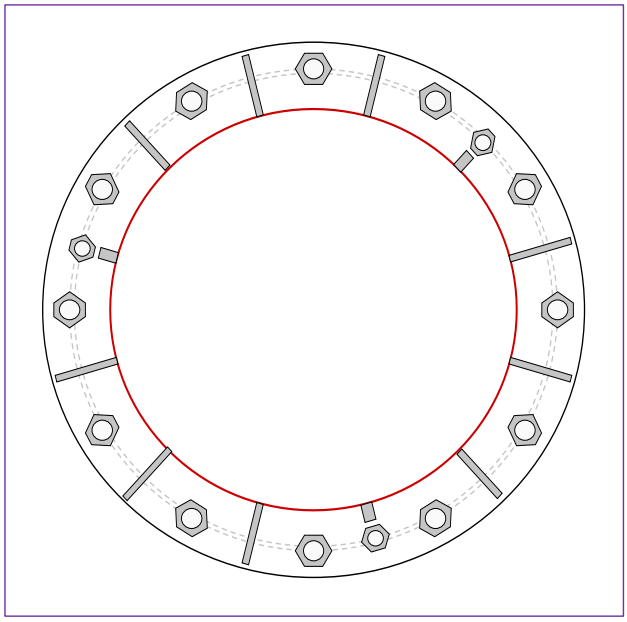
Monopole Base Plate Connection

Site Info	
BU #	876397
Site Name	V MILFORD/ KIMBERLY
Order #	584631 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	See Custom Sheet
l_{ar} (in)	See Custom Sheet

Applied Loads	
Moment (kip-ft)	3434.08
Axial Force (kips)	45.93
Shear Force (kips)	27.26

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (12) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 54" BC
GROUP 2: (3) 1-3/4" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 53" BC

Base Plate Data

60" OD x 2" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

(12) 18"H x 7"W x 0.75"T, Notch: 0.75"
plate: Fy= 50 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.375" groove, 45° dbl bevelFALSE
vert. weld: 0.3125" fillet

Pole Data

45" x 0.375" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

GROUP 1:		
Pu_t = 219	ϕPn_t = 243.75	**Stress Rating**
Vu = 2.27	ϕVn = 149.1	**85.6%**
Mu = 3.69	ϕMn = 128.14	**Pass**
GROUP 2:		
Pu_t = 127.86	ϕPn_t = 178.13	**Stress Rating**
Vu = 0	ϕVn = 112.75	**68.4%**
Mu = 0	ϕMn = 84.41	**Pass**

Base Plate Summary

Max Stress (ksi):	52.55	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**92.7%**	**Pass**

Stiffener Summary

Horizontal Weld:	**80.2%**	**Pass**
Vertical Weld:	**71.8%**	**Pass**
Plate Flexure+Shear:	**30.5%**	**Pass**
Plate Tension+Shear:	**81.3%**	**Pass**
Plate Compression:	**87.1%**	**Pass**

Pole Summary

Punching Shear:	**18.0%**	**Pass**

CCIplate

Elevation (ft)	0	*(Base)*

note: Bending interaction not considered when Grout Considered = "Yes"

Bolt Group	Resist Axial	Resist Shear	Induce Plate Bending	Grout Considered	Apply at BARB Elevation	BARB CL Elevation (ft)
1	Yes	Yes	Yes	No	No	
2	No	No	No	No	No	

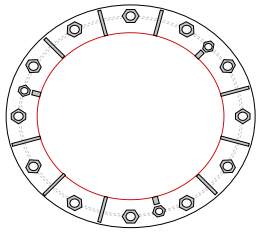
Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η:	l_{ar} (in):	Thread Type	Area Override, in^2	Tension Only
1	1	0	2.25	A615-75	54	0.5	2.5	N-Included		No
2	1	30	2.25	A615-75	54	0.5	2.5	N-Included		No
3	1	60	2.25	A615-75	54	0.5	2.5	N-Included		No
4	1	90	2.25	A615-75	54	0.5	2.5	N-Included		No
5	1	120	2.25	A615-75	54	0.5	2.5	N-Included		No
6	1	150	2.25	A615-75	54	0.5	2.5	N-Included		No
7	1	180	2.25	A615-75	54	0.5	2.5	N-Included		No
8	1	210	2.25	A615-75	54	0.5	2.5	N-Included		No
9	1	240	2.25	A615-75	54	0.5	2.5	N-Included		No
10	1	270	2.25	A615-75	54	0.5	2.5	N-Included		No
11	1	300	2.25	A615-75	54	0.5	2.5	N-Included		No
12	1	330	2.25	A615-75	54	0.5	2.5	N-Included		No
13	2	45	1.75	A193 Gr. B7	53	0.5	2.5	N-Included		No
14	2	165	1.75	A193 Gr. B7	53	0.5	2.5	N-Included		No
15	2	285	1.75	A193 Gr. B7	53	0.5	2.5	N-Included		No

Custom Stiffener Connection

Stiffener	Stiffener Group ID	Location (deg.)	Width (in)	Height (in)	Thickness (in)	H. Notch (in)	V. Notch (in)	Grade (ksi)	Weld Type	Groove Depth (in)	Groove Angle (deg.)	H. Fillet Weld Size (in)	V. Fillet Weld Size (in)	Weld Strength (ksi)
1	1	15	7	18	0.75	0.75	0.75	50	Groove	0.375	45		0.3125	70
2	1	45	2	30	1.25	0.75	1.25	65	Both	0.5625	45	0.5625	0.3125	80
3	1	75	7	18	0.75	0.75	0.75	50	Groove	0.375	45		0.3125	70
4	1	105	7	18	0.75	0.75	0.75	50	Groove	0.375	45		0.3125	70
5	1	135	7	18	0.75	0.75	0.75	50	Groove	0.375	45		0.3125	70
6	1	165	2	30	1.25	0.75	1.25	65	Both	0.5625	45	0.5625	0.3125	80
7	1	195	7	18	0.75	0.75	0.75	50	Groove	0.375	45		0.3125	70
8	1	225	7	18	0.75	0.75	0.75	50	Groove	0.375	45		0.3125	70
9	1	255	7	18	0.75	0.75	0.75	50	Groove	0.375	45		0.3125	70
10	1	285	2	30	1.25	0.75	1.25	65	Both	0.5625	45	0.5625	0.3125	80
11	1	315	7	18	0.75	0.75	0.75	50	Groove	0.375	45		0.3125	70
12	1	345	7	18	0.75	0.75	0.75	50	Groove	0.375	45		0.3125	70

Plot Graphic



PROJECT	**155998.003.01 - NEW MILFORD KIMBERLY, CT**
SUBJECT	**Anchor Rod Bracket Analysis**
DATE	**01-28-22**
v4.6.1	

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

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

Analysis Criteria		
Design/Analysis	Design	
Load Type	AR Capacity	
AR Capacity	227.3	kips

Tower Type	Monopole	
CA DSA site?	No	

Manufacturers Tower Prop.		
Pole Thickness	0.375	in
Pole Grade	A572-65	
Fy	65	ksi
Fu	80	ksi
Base Plate Gr.	A572-50	
Fy	50	ksi
Fu	65	ksi

Post-Installed Adhesive AR Mod.		
ARB Type	Welded	
Size	1.75	in
Bolt Circle	53.0	in
Grade	A193 Gr B7	
Fy	105	ksi
Fu	125	ksi

Foundation Prop.		
Type	Pier	
Pier Diameter	6.0	ft
Pier Depth	6.0	ft
f'c	4.0	ksi
Clear Cover	5.5	in
Vert. Bar Size	8	
Vert. Bar Quantity	34	
Vert. Bar Grade	60	ksi
Tie Size	4	

Anchor Rod Bracket Analysis Checks		
Tube Bearing	OK	0.533
Tube Compression	OK	0.799
Gusset Shear	OK	0.200
Gusset Flexure	N/A	-
Welds: Gusset to Tower and BP	OK	0.527
Welds: Gusset to Tube	OK	0.629
Welds: Geometry	OK	-
Tower Punching	OK	0.247
Tube Punching	OK	0.212

AF35LVE Embedment	5.0	ft
Hilti RE 500 V3 Embedment	5.0	ft
Target Tension	111.0	kips
Hole edge to vert rebar clear	1.5	in
Hole edge to tie clear	2.5	in
Utilization	**OK**	

Bracket Properties

Gusset		
Thickness	1.25	in
Width at Tube	2	in
Height at Pole	30	in
Height at Tube	24	in
Grade	A572-65	
Fy	65	ksi
Fu	80	ksi

Pipe/Tube		
Size	HSS4x4x1/2	
Total Length	27	in
Length above Gusset	3	in
Length below Gusset	0	in
Grade	A500 Grade C (Square)	
Fy	50	ksi
Fu	62	ksi

Weld - Gusset to Pipe/Tube		
FEXX	80	ksi
Weld Type	Double Fillet	
Fillet Size	5/16	in

Weld - Gusset to Tower		
FEXX	80	ksi
Weld Type	Double Fillet	
Fillet Size	5/16	in

Weld - Gusset to Base Plate		
FEXX	80	ksi
Weld Type	CJP - Double Bevel	
Fillet Size	9/16	in
Bevel Depth	9/16	in
Gap	0	in
Notch (horiz)	0.75	in
Notch (vert)	1.25	in
Pipe/Tube Welded to Base/Footpad?	Yes	
Fillet Size	1/2	in

Pier and Pad Foundation

BU # :	876397
Site Name:	NEW MILFORD KI
App. Number:	584631, Rev.0

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions

Compression, P_{comp}:	45.93	kips
Base Shear, Vu_comp:	27.26	kips
Moment, M_u:	3434.08	ft-kips
Tower Height, **H**:	160	ft
BP Dist. Above Fdn, bp_{dist}:	4.75	in

Pier Properties

Pier Shape:	Square	
Pier Diameter, **dpier**:	6	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	8	
Pier Rebar Quantity, **mc**:	34	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	6	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	5	ft
Pad Width, W_1:	24	ft
Pad Thickness, **T**:	3	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	32	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties

Total Soil Unit Weight, γ:	120	pcf
Ultimate Gross Bearing, Qult:	12.000	ksf
Cohesion, **Cu**:		ksf
Friction Angle, φ:	32	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:	0.7	
Neglected Depth, **N**:	3.33	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks

	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	258.34	27.26	**10.0%**	**Pass**
Bearing Pressure (ksf)	9.00	4.49	**49.9%**	**Pass**
*Overturning (kip*ft)*	4375.46	3608.43	**82.5%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	3720.86	3515.86	**90.0%**	**Pass**
Pier Compression (kip)	22913.28	65.37	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	3495.33	1807.98	**49.3%**	**Pass**
Pad Shear - 1-way (kips)	860.65	272.45	**30.1%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.000	**0.0%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	4338.85	2109.52	**46.3%**	**Pass**

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

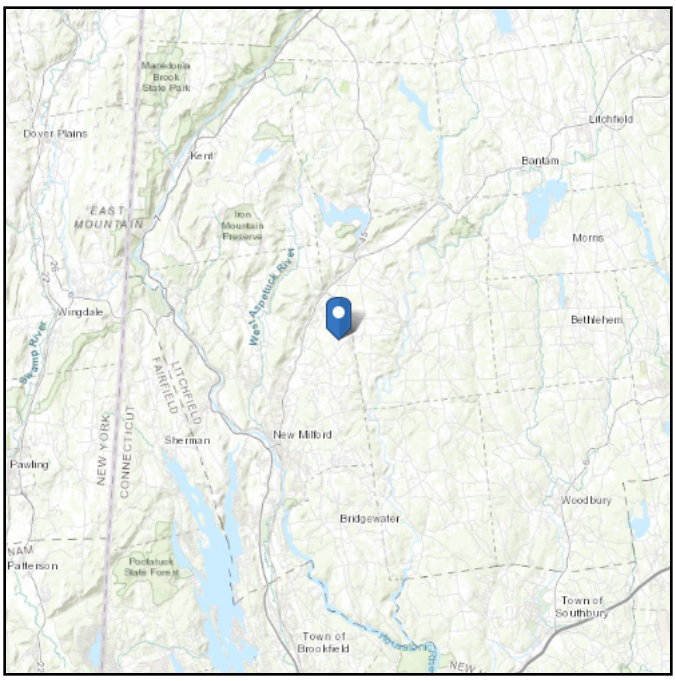
Structural Rating*:	**90.0%**
Soil Rating*:	**82.5%**

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 980.16 ft (NAVD 88)
Latitude: 41.631925
Longitude: -73.36745



Wind

Results:

Wind Speed	115 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	89 Vmph
100-year MRI	95 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Wed Jan 12 2022

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 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

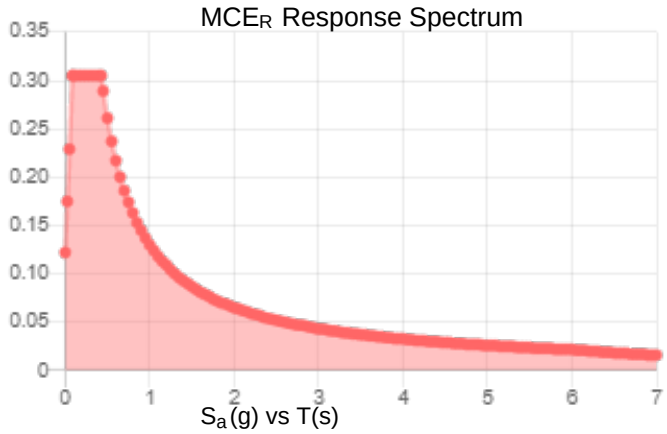
Seismic

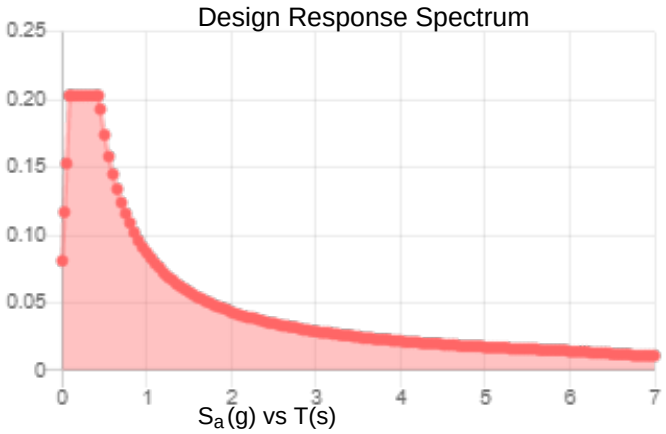
Site Soil Class: D - Default (see Section 11.4.3)

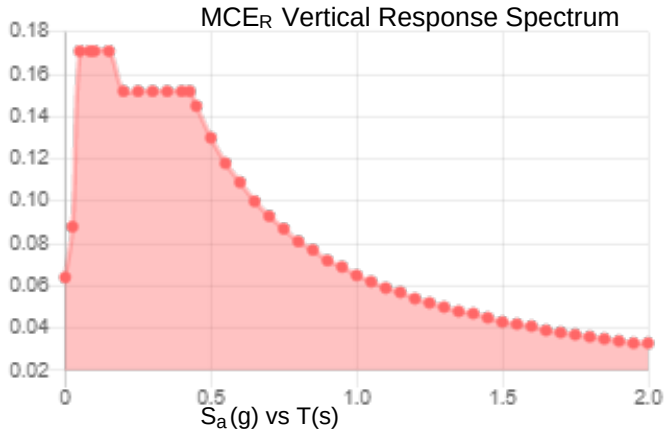
Results:

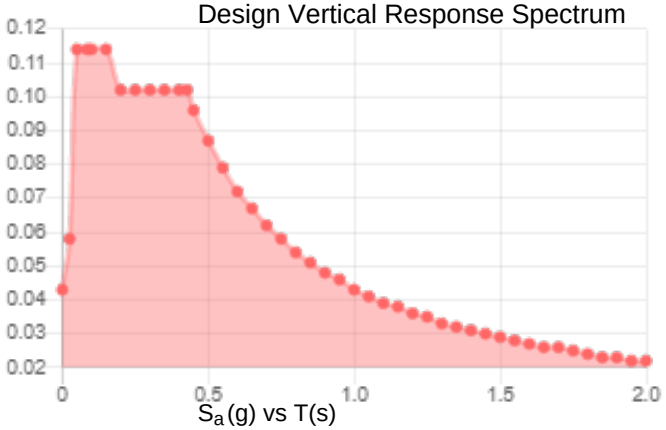
S_S :	0.191	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.105
F_v :	2.4	PGA_M :	0.166
S_{MS} :	0.305	F_{PGA} :	1.591
S_{M1} :	0.13	I_e :	1
S_{DS} :	0.203	C_v :	0.7

Seismic Design Category B









Data Accessed: **Wed Jan 12 2022**

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Wed Jan 12 2022

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

APPENDIX D

MODIFICATION DRAWINGS

TOWER MODIFICATION DRAWINGS PREPARED FOR: CROWN CASTLE

SAFETY CLIMB: 'LOOK UP'
THE INTEGRITY OF THE WIRE ROPE SAFETY CLIMB SYSTEM SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION AND INSPECTION. TOWER REINFORCEMENTS AND EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF ANY WIRE ROPE SAFETY CLIMB ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, OR IMPACT TO THE ANCHORAGE POINTS IN ANY WAY. ANY COMPROMISED SAFETY CLIMB MUST BE REPORTED TO YOUR CROWN POC FOR RESOLUTION, INCLUDING EXISTING CONDITIONS.

SITE NAME:
NEW MILFORD/ KIMBERLY
BU NUMBER:
876397

SITE ADDRESS:
399 CHESTNUT LAND RD.
NEW MILFORD, CT 06776
LITCHFIELD COUNTY, USA

PROJECT CONTACTS:

CROWN PROJECT MANAGER
JOHN MCGEE
(704) 877-8397
JOHN.MCGEE@CROWNCASTLE.COM

ENGINEERING RFI CONTACT
MICHAEL HARRIS
(918) 587-4630
MICHAEL.HARRIS@BTGRP.COM
MODDWGS@BTGRP.COM
1717 S BOULDER AVENUE, SUITE 300
TULSA, OK 74119

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

HOT WORK INCLUDED	
N/A	BASE GRINDING ONLY
X	BASE WELDING (AND GRINDING)
X	AERIAL GRINDING ONLY
N/A	AERIAL WELDING (AND GRINDING)

TOWER INFORMATION

TOWER MANUFACTURER / DWG #:	EEI / GS54689
TOWER HEIGHT / TYPE:	160' MONOPOLE
TOWER LOCATION:	LAT. 41° 37' 54.93"
	LONG. -73° 22' 2.82"
STRUCTURAL DESIGN DRAWING REPORT:	B+T GROUP / WO. # 2066575
ORDER ID / REVISION #:	584631 / 0

CODE COMPLIANCE

THIS REINFORCEMENT DESIGN HAS BEEN PERFORMED IN ACCORDANCE WITH THE TIA-222-H STANDARD. THIS REINFORCEMENT DESIGN UTILIZES AN ULTIMATE 3-SECOND GUST WIND SPEED OF 115 MPH AS REQUIRED BY THE 2018 CONNECTICUT STATE BUILDING CODE. EXPOSURE CATEGORY C AND RISK CATEGORY II WERE USED IN THIS REINFORCEMENT DESIGN.

DRAWINGS INCLUDED

SHEET	DESCRIPTION
TS	TITLE SHEET
MI	MODIFICATION INSPECTION NOTES AND CHECKLIST
GN	GENERAL NOTES
S1	TOWER ELEVATION, SCHEDULES AND FLAT PLATE NOTES
S2	TX LINE DISTRIBUTION DIAGRAM
S3	TOWER SECTION AT BASE AND ANCHOR ROD BRACKET DETAIL
S4	TOWER SECTIONS (47'-67' AND 92.5'-102.5')

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

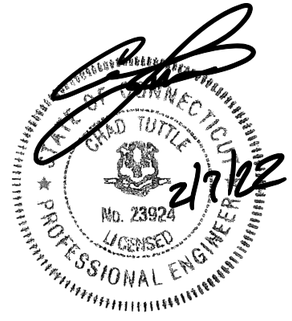
CROWN CASTLE

ISSUED FOR:

REV	DATE	DESCRIPTION
0	02/07/22	ISSUED FOR CONSTRUCTION

PROJECT NO:	155998.003.01
PROJECT ENG:	MICHAEL HARRIS
DRAWN BY:	MG
CHECKED BY:	VKP / PPK

B+T ENGINEERING, INC.
PEC.0001564
Expires 02/10/22



NEW MILFORD/ KIMBERLY
876397

399 CHESTNUT LAND RD.
NEW MILFORD, CT

EXISTING 160' MONOPOLE

SHEET TITLE
TITLE SHEET

SHEET NUMBER: TS
REVISION: 0

CED-FRM-10354 MI CHECKLIST

REQUIRED	REPORT ITEM	APPLICABLE CROWN DOC #	BRIEF DESCRIPTION
PRE-CONSTRUCTION			
X	MI CHECKLIST DRAWING	CED-SOW-10007	THIS CHECKLIST SERVES AS A GUIDELINE FOR THE REQUIRED CONSTRUCTION DOCUMENTS AND INSPECTIONS FOR THIS MODIFICATION
X	EOR APPROVED SHOP DRAWINGS	CED-SOW-10007	ONCE THE PRE-MODIFICATION MAPPING IS COMPLETE AND PRIOR TO FABRICATION, THE CONTRACTOR SHALL PROVIDE DETAILED ASSEMBLY DRAWINGS AND/OR SHOP DRAWINGS. THESE ARE TO INCLUDE, BUT ARE NOT LIMITED TO, A VISUAL LAYOUT OF NEW REINFORCEMENT, EXISTING REINFORCEMENT CONFIGURATION, PORTHOLES, MOUNTS, STEP PEGS, SAFETY CLIMBS AND ANY OTHER MISCELLANEOUS ITEMS WHICH MAY AFFECT SUCCESSFUL INSTALLATION OF MODIFICATIONS ON THE TOWER. THESE DRAWINGS SHALL BE SUBMITTED TO THE EOR FOR APPROVAL. SHOP DRAWING SUBMISSION SHALL INCLUDE THE EOR RFI FORM DETAILING ANY CHANGES FROM THE ORIGINAL DESIGN
X	FABRICATION INSPECTION	CED-SOW-10007	A LETTER FROM THE FABRICATOR, STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS, SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	FABRICATOR CERTIFIED WELD INSPECTION	CED-SOW-10007 CED-STD-10069	A CWI SHALL INSPECT ALL WELDING PERFORMED ON STRUCTURAL MEMBERS DURING FABRICATION. A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	MATERIAL TEST REPORTS (MTR)	CED-SOW-10007	MATERIAL TEST REPORTS SHALL BE PROVIDED FOR MATERIAL USED AS REQUIRED PER SECTION 9.2.5 OF CED-SOW-10007. MTRS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	FABRICATOR NDE INSPECTION REPORT	CED-SOW-10066 CED-STD-10069	CRITICAL SHOP WELDS THAT REQUIRE TESTING ARE NOTED ON THESE CONTRACT DRAWINGS. A CERTIFIED NDT INSPECTOR SHALL PERFORM NON-DESTRUCTIVE EXAMINATION AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	NDE OF MONOPOLE BASE PLATE	ENG-SOW-10033	A NDE OF THE POLE TO BASE PLATE CONNECTION IS REQUIRED AND A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	PACKING SLIPS	CED-SOW-10007	PACKING/SHIPPING LIST FOR ALL MATERIAL USED DURING CONSTRUCTION OF THE MODIFICATION
ADDITIONAL TESTING AND INSPECTIONS:			
N/A			
CONSTRUCTION			
N/A	FOUNDATION INSPECTIONS	CED-SOW-10144	A VISUAL OBSERVATION OF THE EXCAVATION AND REBAR SHALL BE PERFORMED BEFORE PLACING THE CONCRETE. A VISUAL OBSERVATION OF THE REBAR SHALL BE PERFORMED BEFORE PLACING THE EPOXY. A SEALED WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	CONCRETE COMP. STRENGTH AND SLUMP TEST	CED-SOW-10144	THE CONCRETE MIX DESIGN, SLUMP TEST, AND COMPRESSIVE STRENGTH TESTS SHALL BE PROVIDED AS PART OF THE FOUNDATION REPORT.
N/A	EARTHWORK	CED-SOW-10144	FOUNDATION SUB-GRADES SHALL BE INSPECTED AND APPROVED BY AN APPROVED FOUNDATION INSPECTOR AND RESULTS INCLUDED AS PART OF THE FOUNDATION REPORT.
N/A	MICROPILE/ROCK ANCHOR	CED-SOW-10144	MICROPILES/ROCK ANCHORS SHALL BE INSPECTED BY THE FOUNDATION INSPECTION VENDOR AND SHALL BE INCLUDED AS PART OF THE FOUNDATION INSPECTION REPORT, ADDITIONAL TESTING AND/OR INSPECTION REQUIREMENTS ARE NOTED IN THESE CONTRACT DOCUMENTS.
X	POST-INSTALLED ANCHOR ROD VERIFICATION	CED-SOW-10007 CED-FRM-10358	POST INSTALLED ANCHOR ROD VERIFICATION SHALL BE PERFORMED IN ACCORDANCE WITH CROWN REQUIREMENTS AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	BASE PLATE GROUT VERIFICATION	ENG-STD-10323	THE GENERAL CONTRACTOR SHALL PROVIDE DOCUMENTATION TO THE MI INSPECTOR THAT CERTIFIES THAT THE GROUT WAS REMOVED AND/OR INSTALLED IN ACCORDANCE WITH CROWN REQUIREMENTS FOR INCLUSION IN THE MI REPORT.
X	FIELD CERTIFIED WELD INSPECTION	CED-SOW-10066 CED-STD-10069	A CROWN APPROVED CERTIFIED WELD INSPECTOR SHALL INSPECT AND TEST FIELD WELDS, FOLLOWING ALL PROCEDURES SPECIFIED IN CROWN STANDARD DOCUMENTS APPLICABLE TO WELD INSPECTIONS. A REPORT SHALL BE PROVIDED. NDE OF FIELD WELDS SHALL BE PERFORMED AS REQUIRED BY CROWN STANDARDS AND CONTRACT DOCUMENTS. THE NDE REPORT SHALL BE INCLUDED IN THE CWI REPORT.
X	ON-SITE COLD GALVANIZING VERIFICATION	ENG-STD-10149 CED-FRM-10358	THE GENERAL CONTRACTOR SHALL PROVIDE WRITTEN AND PHOTOGRAPHIC DOCUMENTATION TO THE MI INSPECTOR VERIFYING THAT ANY ON-SITE COLD GALVANIZING WAS APPLIED PER MANUFACTURER SPECIFICATIONS AND APPLICABLE STANDARDS.
N/A	TENSION TWIST AND PLUMB	CED-PRC-10182 CED-STD-10261	THE GENERAL CONTRACTOR SHALL PROVIDE A REPORT IN ACCORDANCE WITH APPLICABLE STANDARDS DOCUMENTING TENSION TWIST AND PLUMB.
X	GC AS-BUILT DRAWINGS	CED-SOW-10007	THE GENERAL CONTRACTOR SHALL SUBMIT A LEGIBLE COPY OF THE ORIGINAL DESIGN DRAWINGS EITHER STATING "INSTALLED AS DESIGNED" OR NOTING ANY CHANGES THAT WERE REQUIRED AND APPROVED BY THE ENGINEER OF RECORD. EOR/RFI FORMS APPROVING ALL CHANGES SHALL BE SUBMITTED
ADDITIONAL TESTING AND INSPECTIONS:			
N/A	NDE OF EXTENSION FLANGE	ENG-SOW-10033	A CROWN APPROVED CERTIFIED WELD INSPECTOR SHALL INSPECT AND TEST SHOP WELDS, FOLLOWING ALL PROCEDURES SPECIFIED IN CROWN STANDARD DOCUMENT APPLICABLE TO WELD INSPECTIONS. THE REFERENCE STANDARD DOCUMENT IS FOR BASE PLATE, BUT CERTIFIED WELD INSPECTOR TO FOLLOW THE GENERAL REQUIREMENT AS APPLICABLE TO THE FLANGE PLATE.
POST-CONSTRUCTION			
X	CONSTRUCTION COMPLIANCE LETTER	CED-SOW-10007 CED-FRM-10358	A LETTER FROM THE GENERAL CONTRACTOR STATING THAT THE WORKMANSHIP WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THESE CONTRACT DRAWINGS, INCLUDING LISTING ADDITIONAL PARTIES TO THE MODIFICATION PROCESS.
X	POST-INSTALLED ANCHOR ROD PULL TESTS	CED-PRC-10119	POST-INSTALLED ANCHOR RODS SHALL BE TESTED BY A CROWN APPROVED PULL TEST INSPECTOR AND A REPORT SHALL BE PROVIDED INDICATING TESTING RESULTS.
X	PHOTOGRAPHS	CED-SOW-10007	PHOTOGRAPHS SHALL BE SUBMITTED TO THE MI. PHOTOS SHALL DOCUMENT ALL PHASES OF THE CONSTRUCTION. THE PHOTOS SHALL BE ORGANIZED IN A MANNER THAT EASILY IDENTIFIES THE EXACT LOCATION OF THE PHOTO.
N/A	BOLT HOLE INSTALLATION VERIFICATION REPORT	CED-SOW-10007	THE MI INSPECTOR SHALL VERIFY THE INSTALLATION AND TIGHTNESS 10% OF ALL NON PRE-TENSIONED BOLTS INSTALLED AS PART OF THE MODIFICATION. THE MI INSPECTOR SHALL LOOSEN THE NUT AND VERIFY THE BOLT HOLE SIZE AND CONDITION. THE MI REPORT SHALL CONTAIN THE COMPLETED BOLT INSTALLATION VERIFICATION REPORT, INCLUDING THE SUPPORTING PHOTOGRAPHS.
X	PUNCH LIST DEVELOPMENT AND CORRECTION DOCUMENTATION	CED-PRC-10283 CED-FRM-10285	FINAL PUNCH LIST INDICATING ALL NONCONFORMANCE(S) IDENTIFIED AND THE FINAL RESOLUTION/APPROVAL.
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)	CED-SOW-10007	THE MI INSPECTOR SHALL OBSERVE AND REPORT ANY DISCREPANCIES BETWEEN THE CONTRACTOR'S REDLINE DRAWING AND THE ACTUAL COMPLETED INSTALLATION.
ADDITIONAL TESTING AND INSPECTIONS:			
"N/A"			

THE MI CHECKLIST SHALL BE REVIEWED PRIOR TO THE START OF CONSTRUCTION. ALL PARTIES TO THE MODIFICATION SHALL UNDERSTAND CROWN REQUIREMENTS AND INSPECTION/DOCUMENTATION THAT IS APPLICABLE TO THE SCOPE OF WORK THEY ARE PERFORMING. ERRORS ON THE MI CHECKLIST SHALL BE BROUGHT TO THE ATTENTION OF THE CROWN POC AND EOR AS SOON AS POSSIBLE.

MODIFICATION INSPECTION NOTES

GENERAL

THE MI IS AN ON-SITE VISUAL AND HANDS-ON INSPECTION OF TOWER MODIFICATIONS INCLUDING A REVIEW OF CONSTRUCTION REPORTS AND ADDITIONAL PERTINENT DOCUMENTATION PROVIDED BY THE GENERAL CONTRACTOR (GC), AS WELL AS ANY INSPECTION DOCUMENTS PROVIDED BY 3RD PARTY INSPECTORS. THE MI IS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS; IN ACCORDANCE WITH APPLICABLE CROWN STANDARDS; AND AS DESIGNED BY THE ENGINEER OF RECORD (EOR).

NO DOCUMENT, CODE OR POLICY CAN ANTICIPATE EVERY SITUATION THAT MAY ARISE. ACCORDINGLY, THIS CHECKLIST IS INTENDED TO SERVE AS A SOURCE OF GUIDING PRINCIPLES IN ESTABLISHING GUIDELINES FOR MODIFICATION INSPECTION.

THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, AND THE MI INSPECTOR DOES NOT TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES. THE MI INSPECTOR SHALL INSPECT AND NOTE CONFORMANCE/NONCONFORMANCE AND PROVIDE TO THE CROWN POINT OF CONTACT (CROWN POC) FOR EVALUATION.

ALL MI'S SHALL BE CONDUCTED BY A CROWN APPROVED MI INSPECTOR, WORKING FOR A CROWN APPROVED MI VENDOR. SEE CROWN CED-LST-10173, "APPROVED MI VENDORS".

TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PURCHASE ORDER (PO) IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN THE GC AND/OR INSPECTOR SHALL CONTACT THE CROWN POINT OF CONTACT (CROWN POC).

REFER TO CROWN CED-SOW-10007, "MODIFICATION INSPECTION SOW", FOR FURTHER DETAILS AND REQUIREMENTS.

SERVICE LEVEL COMMITMENT

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

- THE GC SHALL PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10, TO THE MI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.
- THE GC AND MI INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR RE-TENSIONING OPERATIONS.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE DURING THE MI TO HAVE ANY MINOR DEFICIENCIES CORRECTED DURING THE INITIAL MI. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MI CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.

REQUIRED PHOTOS

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

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

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

THIS IS NOT A COMPLETE LIST OF REQUIRED PHOTOS, FOR A COMPLETE LIST OF PHOTOS SEE CROWN DOCUMENT # CED-SOW-10007.

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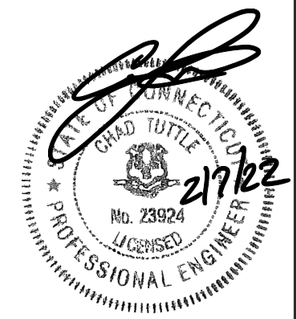
CROWN CASTLE

ISSUED FOR:

REV	DATE	DESCRIPTION
0	02/07/22	ISSUED FOR CONSTRUCTION

PROJECT NO:	155998.003.01
PROJECT ENG:	MICHAEL HARRIS
DRAWN BY:	MG
CHECKED BY:	VKP / PPK

B+T ENGINEERING, INC.
PEC.0001564
Expires 02/10/22



NEW MILFORD/ KIMBERLY
876397

399 CHESTNUT LAND RD.
NEW MILFORD, CT

EXISTING 160' MONOPOLE

SHEET TITLE

MODIFICATION INSPECTION NOTES AND CHECKLIST

SHEET NUMBER:	REVISION:
MI	0

GENERAL NOTES

1. The General Contractor (GC) shall reference CED–STD–10159, "Tower Modification Construction Specifications", as a continuation of the following General Notes. The GC shall keep a copy of this document with the Structural Design Drawings (SDD) at all times, and shall ensure that all Contractor Personnel are aware of the information enclosed within the General Notes and CED–STD–10159.
2. The Contract Documents are the property of Crown Castle (Crown). They are provided to the GC and its Lower Tier Contractors and material suppliers for the limited purpose of use in completing the Work for this Site, and shall be kept in strict confidence and not disclosed to any third parties. The Contract Documents shall not be used for any other purpose whatsoever without the prior written consent of Crown.
3. Detail drawings, including notes and tables, shall govern over general notes and typical details. Contact the Crown Point of Contact (POC) and Engineer of Record (EOR) for clarification as needed.
4. Do not scale drawings.
5. Any Work performed without a prefabrication mapping is done at the risk of the GC and/or fabricator. All dimensions of existing structural elements are assumed based on the available documentation and are preliminary until field–verified by the GC, unless noted otherwise (UNO). Where discrepancies are found, GC shall contact the Crown POC and EOR through RFI.
6. For this analysis and modification, the tower has been assumed to be in good condition without any structural defects, UNO. If the GC discovers any indication of an existing structural defect, contact the Crown POC and EOR immediately.
7. All construction means and methods, including but not limited to erection plans, rigging plans, climbing plans, and rescue plans, shall be the responsibility of the GC responsible for the execution of the Work contained herein, and shall meet ANSI/ASSE A10.48 (latest edition); federal, state, and local regulations; and any applicable industry consensus standards related to the construction activities being performed. All rigging plans shall adhere to ANSI/ASSE A10.48 (latest edition) and Crown standard CED–STD–10253, "Rigging Program", including the required involvement of a qualified engineer for class IV construction to certify the supporting structure(s) in accordance with the ANSI/TIA–322 (latest edition).
8. The structural integrity of the modification design extends to the complete condition only. The GC must be cognizant that the removal of any structural component of an existing tower has the potential to cause the partial or complete collapse of the structure. All necessary precautions must be taken to ensure structural integrity, including, but not limited to, engineering assessment of construction stresses with installation maximum wind speed and/or temporary bracing and shoring.
9. Aerial and underground utilities and facilities may or may not be shown on the drawings. The GC shall take every precaution to preserve and protect these items, which may include aerial or underground power lines, telephone lines, water lines, sewer lines, cable television facilities, pipelines, structures and other public and private improvements within or adjacent to the Work area. The responsibility for determining the actual on–site location of these items shall rest exclusively with the GC.
10. All manufacturer's hardware assembly instructions shall be followed, UNO. Conflicting notes shall be brought to the attention of the EOR and the Crown POC.
11. The GC shall fabricate all required items per the materials specified below, UNO on the detail drawing sheets. If the GC finds for any component that the materials have not been clearly specified, the GC shall submit an RFI to the EOR to confirm the required material.

    All structural elements shall be new and shall conform to the following requirements, UNO:

    Monopoles:
    - Structural shapes and plates: ASTM A572 Grade 65 (FY = 65 KSI)
    - Welding electrodes, SMAW: E80XX
    - Welding electrodes, FCAW: E8XT–XX
    - Welding elcctrodes, GMAW: ER80S–X

    Self–Support and Guyed Towers:
    - Structural shapes and plates: ASTM A572 Grade 50 (FY = 50 KSI)
    - Welding electrodes, SMAW: E70XX
    - Welding electrodes, FCAW: E7XT–XX
    - Welding elcctrodes, GMAW: ER70S–X

    All tower types:
    - Steel angle: ASTM A572 Grade 50 (FY = 50 KSI)
    - Solid rod: ASTM A36 (FY = 36 KSI)
    - Pipe/tube (round): ASTM A500 Grade C (FY = 46 KSI)
    - Pipe/tube (square): ASTM A500 Grade C (FY = 50 KSI)
    - Bolts: ASTM F3125 Grade A325 Type 1
    - U–bolts: Grade 2 ASTM A307 Grade A, or SAE J429
    - Nuts: ASTM A563 Grade DH
    - Washers: F436 Type 1
    - Guy Wires: ASTM A475 Grade EHS
    - Bridge Strand: ASTM A586 Grade 1
12. After fabrication, hot–dip galvanize all steel items, UNO. Galvanize per ASTM A123, ASTM A153/A153M, or ASTM A653 G90, as applicable. ASTM A490 bolts shall not be hot–dip galvanized, but shall instead be coated with Magni 565 or EOR approved equivalent, per ASTM F2833.
13. Contractor Personnel shall not drill holes in any new or existing structural members, other than those drilled holes shown on structural drawings, without the approval of the EOR.
14. For a list of Crown–approved cold galvanizing compounds, refer to ENG–STD–10149, "Tower Protective Coatings Guidelines".
15. All exposed structural steel as the result of this scope of Work including welds (after final inspection of the weld by the CWI), field drilled holes, and shaft interiors (where accessible), shall be cleaned and two (2) coats cold galvanizing shall be applied by brush in accordance with ENG–STD–10149, "Tower Protective Coatings Guidelines". Photo documentation is required to be submitted to the MI Inspector.
16. If removal of existing modifications is required per the modification scope, the GC shall clean and cold galvanize any existing empty bolt holes, UNO. If additional unexpected, oversized, or slotted holes are found, the GC shall contact the EOR and Crown POC for guidance prior to proceeding with the modifications.
17. All Work involving base plate grout scope items or resulting in disturbance of base plate grout shall reference ENG–STD–10323, "Base Plate Grout", and shall follow any Base Plate Grout Removal Notes contained herein.
18. All tower grounding affected by the Work shall be repaired or replaced in accordance with OPS–STD–10090, "Tower Grounding", and OPS–BUL–10133, "Grounding Repair Recommendation".
19. If scope of modification requires removal or covering of tower ID tag, the tag must be replaced.
20. Any hardware removed from the existing tower shall be replaced with new hardware of equal size and quality, UNO. No existing fasteners shall be reused.
21. All joints using ASTM A325 or A490 bolts, U–bolts, V–bolts, and threaded rods shall be snug tightened, UNO.
22. A nut locking device shall be installed on all proposed and/or replaced snug tightened ASTM A325 or A490 bolts, U–bolts, V–bolts, and threaded rods.
23. All joints are bearing type connections UNO. If no bolt length is given in the Bill of Materials, the connection may include threads in the shear planes, and the GC is responsible for sizing the length of the bolt.
24. Blind bolts shall be installed per the installation specifications on the corresponding Approved Fastener sheets contained in CED–CAT–10300, "Monopole Standard Drawings and Approved Reinforcement Components".
25. If ASTM A325 or A490 bolts, and/or threaded rods are specified to be pre–tensioned, these shall be installed and tightened to the pretensioned condition according to the requirements of the RCSC Specification for Structural Joints Using ASTM High Strength Bolts.
26. All proposed and/or replaced bolts shall be of sufficient length such that the end of the bolt be at least flush with the face of the nut. It is not permitted for the bolt end to be below the face of the nut after tightening is completed.

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CROWN CASTLE

ISSUED FOR:

REV	DATE	DESCRIPTION
0	02/07/22	ISSUED FOR CONSTRUCTION

PROJECT NO:	155998.003.01
PROJECT ENG:	MICHAEL HARRIS
DRAWN BY:	MG
CHECKED BY:	VKP / PPK

B+T ENGINEERING, INC.
PEC.0001564
Expires 02/10/22

NEW MILFORD/ KIMBERLY
876397

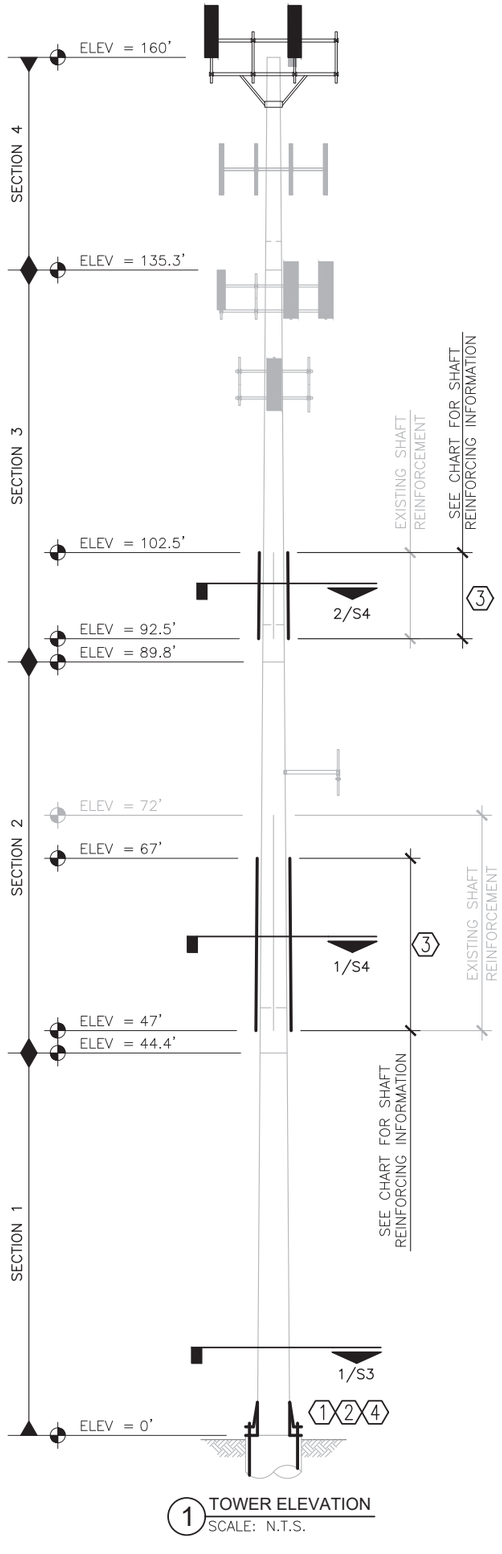
399 CHESTNUT LAND RD.
NEW MILFORD, CT

EXISTING 160' MONOPOLE

SHEET TITLE

GENERAL NOTES

SHEET NUMBER:	REVISION:
GN	0



1 TOWER ELEVATION
SCALE: N.T.S.

CCI FLAT PLATE (65 KSI) REINFORCING SCHEDULE

BOTTOM ELEVATION	TOP ELEVATION	PART NUMBER	FLAT / DEGREES (°)	TERMINATION BOLTS (BOTTOM)	TERMINATION BOLTS (TOP)	MAX INTERMEDIATE BOLT SPACING	BOLT QUANTITY PER PLATE	STEEL WEIGHT PER PLATE (BLACK)	TOTAL BOLT QUANTITY	TOTAL STEEL WEIGHT (BLACK)
47'-0" *	67'-0"	CCI-SFP-05012520	6, 12 & 18	8	8	1'-11"	24	426.0	72	1278.0
92'-6" *	102'-6"	CCI-SFP-04012510	2, 8 & 14	6	6	2'-3"	15	170.4	45	511.2
								TOTAL	117	1789.2

* STARTING ELEVATION DEPENDENT ON EXISTING LAP SPLICE ELEVATION. FIELD VERIFY ELEVATION PRIOR TO INSTALLATION AND COORDINATE WITH E.O.R. ALL BOLTS SHALL BE PRE-APPROVED BLIND M20 BOLTS WITH HIGH STRENGTH SHEAR SLEEVES (ASTM A519 WITH MIN. FU=120 KSI). CONTACT SUPPLIER FOR MATERIAL (PLATE AND BOLTS) AND INSTALLATION PROCEDURES.

MANUFACTURER POLE SPECIFICATIONS

TOWER TAPER:	0.18 IN/FT
BASE PLATE STEEL:	ASTM A572 GRADE 60 (60 KSI)
ANCHOR RODS:	2 1/4"ø #18J ASTM A615 GRADE 75

MANUFACTURER SHAFT SECTION DATA

SHAFT SECTION	SECTION SHAPE	SECTION LENGTH (FT)	PLATE THICKNESS (IN)	SECTION GRADE (KSI)	FLANGE PLATE GRADE (KSI)	LAP SPLICE (IN)	DIAMETER ACROSS FLATS OR OF ROUND SECTION (IN)	
							@ TOP	@ BOTTOM
1	18-SIDED	49.63	0.3750	65	---	63	36.04	45.00
2	18-SIDED	49.79	0.3125	65	---	52	28.76	37.74
3	18-SIDED	48.83	0.2500	65	---	40	21.35	30.16
4	18-SIDED	24.67	0.1875	65	60	---	18.00	22.45

NOTE: DIMENSIONS SHOWN DO NOT INCLUDE GALVANIZING TOLERANCES.

MODIFICATION SCHEDULE

ITEM	ELEVATION (FT)	MODIFICATION	REFERENCE SHEET
1	0'	REMOVE EXISTING BASE PLATE STIFFENERS AS REQUIRED. REFER TO CCI DOC. ID: 2055769.	S3
2	0'	INSTALL NEW ANCHOR RODS AND ANCHOR ROD BRACKETS	S3
3	47'-67' AND 92.5'-102.5'	INSTALL NEW FLAT PLATE REINFORCING ELEMENTS	S4
4	0'	CLIMBING FACILITIES NOT PRESENT, MAN LIFT MAY BE REQUIRED	---

PRIOR TO FABRICATION AND INSTALLATION, CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND QUANTITIES GIVEN. LENGTH AND QUANTITIES PROVIDED ARE FOR QUOTING PURPOSES ONLY, AND SHALL NOT BE USED FOR FABRICATION.

FOR PARTS NOT DETAILED WITHIN THE DRAWING AND STARTING WITH "CCI-", SEE THE FOLLOWING CATALOG FOR DETAILS: CED-CAT-10300, MONOPOLE STANDARD DRAWINGS AND APPROVED REINFORCEMENT COMPONENTS.

NOTES FOR CROWN (65 KSI) FLAT PLATES INCLUDING BOLTED BRIDGE STIFFENERS:

1. APPROVED FASTENERS MAY BE USED ON THIS PROJECT AS INDICATED IN THE FOLLOWING TABLE:

NEXGEN2	APPROVED
SPECIALTY FASTNERS	NA / REQUIRED AS NOTED

ORDERING INFORMATION AND INSTALLATION DETAILS FOR NEXGEN2 FASTENERS CAN BE FOUND IN CED-CAT-10300.

2. ALL FLAT PLATE REINFORCEMENT IS TO BE INSTALLED CENTERED ON ITS DESIGNATED FLAT OR AZIMUTH, UNO, WITH A TOLERANCE FROM CENTER OF THE FLAT OR AZIMUTH AS FOLLOWS:

ALLOWABLE FLAT PLATE CENTERING TOLERANCE	3/8"

GC SHALL REDLINE ALL DEVIATIONS FROM CENTER, INCLUDING THOSE WITHIN TOLERANCE.
3. GC SHALL REPLACE ANY STEP BOLTS AND STEP BOLT CLIPS THAT INTERFERE WITH THE INSTALLATION OF FLAT PLATE. REFERENCE CED-CAT-10300 FOR APPROVED OPTIONS. CCI-SB-0100 IS THE DEFAULT OPTION; OTHER OPTIONS MAY BE REQUIRED FOR FIT-UP.
4. FOR PLATES STARTING AT 6", THE BOTTOM OF THE FLAT PLATE SHALL BEGIN AT 6" +/- 1". FOR SINGLE PLATES OR MULTIPLE PLATES SPLICED TOGETHER, THE BOTTOM OF THE FLAT PLATE RUN SHALL BEGIN AT THE PROPOSED ELEVATION +/- 3". FOR MULTIPLE PLATES SPLICED TOGETHER, THE TOP OF THE FLAT PLATE IS TO BE PLACED SUCH THAT THERE IS NO MORE THAN 3" DIFFERENCE BETWEEN THE ACTUAL OVERALL LENGTH OF THE SPAN AND THE PROPOSED OVERALL LENGTH OF THE SPAN, FROM THE BOTTOM OF THE BOTTOM PLATE TO THE TOP OF THE TOP PLATE.
5. SHIMS FOR MONOPOLE REINFORCEMENT MEMBER SHALL BE REQUIRED WHERE GAPS BETWEEN THE POLE SHAFT AND REINFORCING MEMBER EXIST AT FASTENER LOCATIONS. FOR INTERMEDIATE CONNECTIONS, THE MINIMUM SHIM LENGTH AND WIDTH SHALL BE THE WIDTH OF THE REINFORCING MEMBER. FOR TERMINATION CONNECTIONS, A CONTINUOUS SHIM PLATE (PREFERRED) OR EQUIVALENT INDIVIDUAL SHIM PLATES THE WIDTH OF THE REINFORCING MEMBER MAY BE USED. SHIM THICKNESSES SHALL BE NO LESS THAN 1/16". STACKING OF SHIMS IS PERMITTED. FINGER SHIMS AND HORSESHOE SHIMS ARE PERMITTED. SINGLE AND STACKED SHIMS IN BOLT TERMINATION REGIONS SHALL BE NO GREATER THAN A TOTAL OF ¼" WITHOUT EOR APPROVAL. SINGLE AND STACKED SHIMS AT INTERMEDIATE CONNECTIONS SHALL BE NO GREATER THAN A TOTAL OF 5/8" WITHOUT EOR APPROVAL.
6. SHIM MATERIAL SHALL BE STEEL GRADE A36 OR GREATER IF WELDED, UNO, AND SHALL REQUIRE MTR; IF SHIMS ARE NOT WELDED, THERE IS NO MINIMUM REQUIRED STEEL GRADE.
7. IF UNEXPECTED HOLES ARE FOUND IN A LOCATION WHERE FLAT PLATE IS PROPOSED TO BE INSTALLED, THE GC SHALL NOT PLACE NEW BOLT HOLES WITHIN A CENTER-TO-CENTER DISTANCE OF 3 TIMES THE DIAMETER OF THE LARGER OF THE TWO HOLES, WITHOUT EOR APPROVAL. EXISTING HOLES MAY INCLUDE BUT ARE NOT LIMITED TO EMPTY BOLT HOLES AND JACKING NUTS WITH CENTER HOLES.

EXISTING TOWER HAS BEEN PREVIOUSLY MODIFIED

REFERENCE DRAWINGS BY:	DATE
TOWER ENGINEERING PROFESSIONALS	01/10/08
PAUL J. FORD AND COMPANY	11/16/12

BOLT COUNT BY LENGTH

LENGTH	QUANTITY
SHORT	117
MEDIUM	0
LONG	0
TOTAL	117

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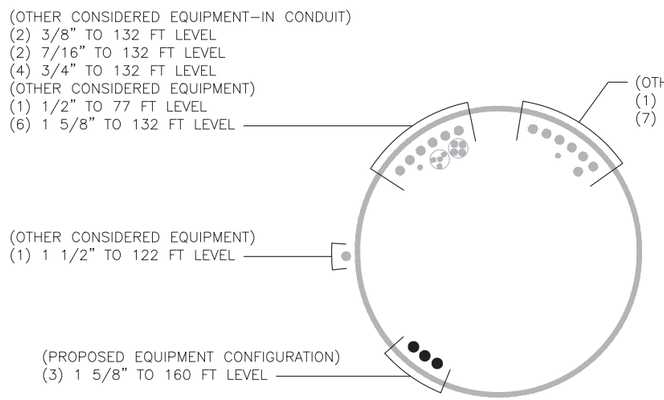
SHEET TITLE

TOWER ELEVATION, SCHEDULES AND FLAT PLATE NOTES

SHEET NUMBER: S1

REVISION: 0



1 TX LINE DISTRIBUTION DIAGRAM
SCALE: N.T.S.

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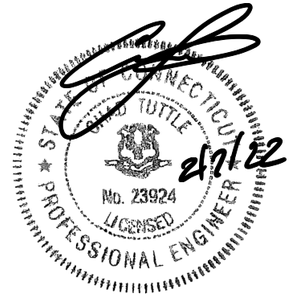

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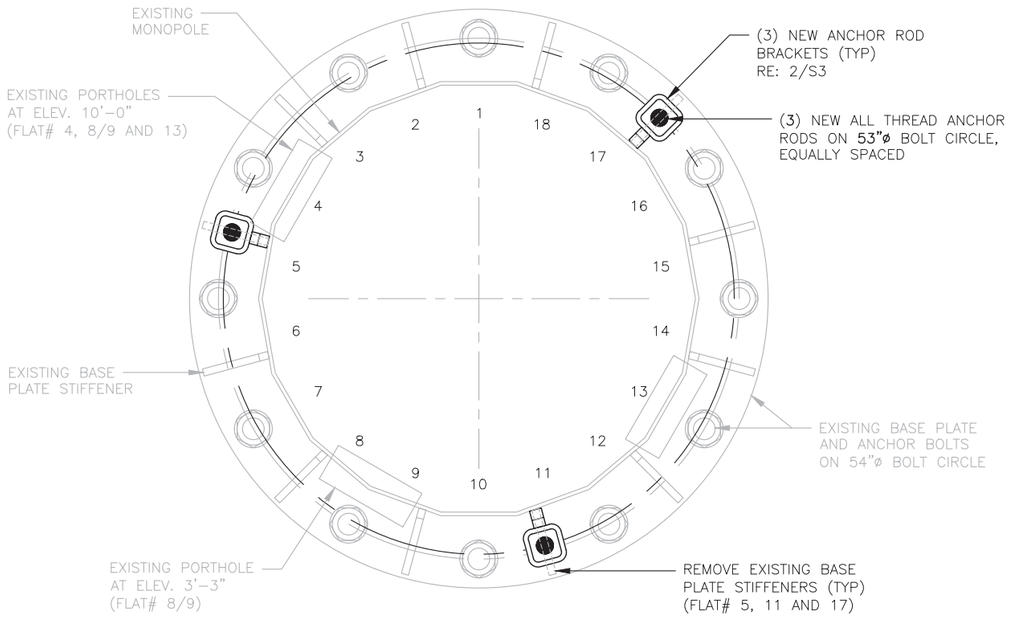
SHEET TITLE

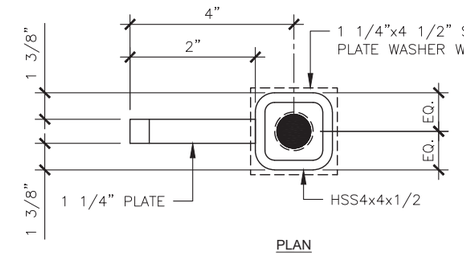
TX LINE DISTRIBUTION DIAGRAM

SHEET NUMBER:	REVISION:
S2	0

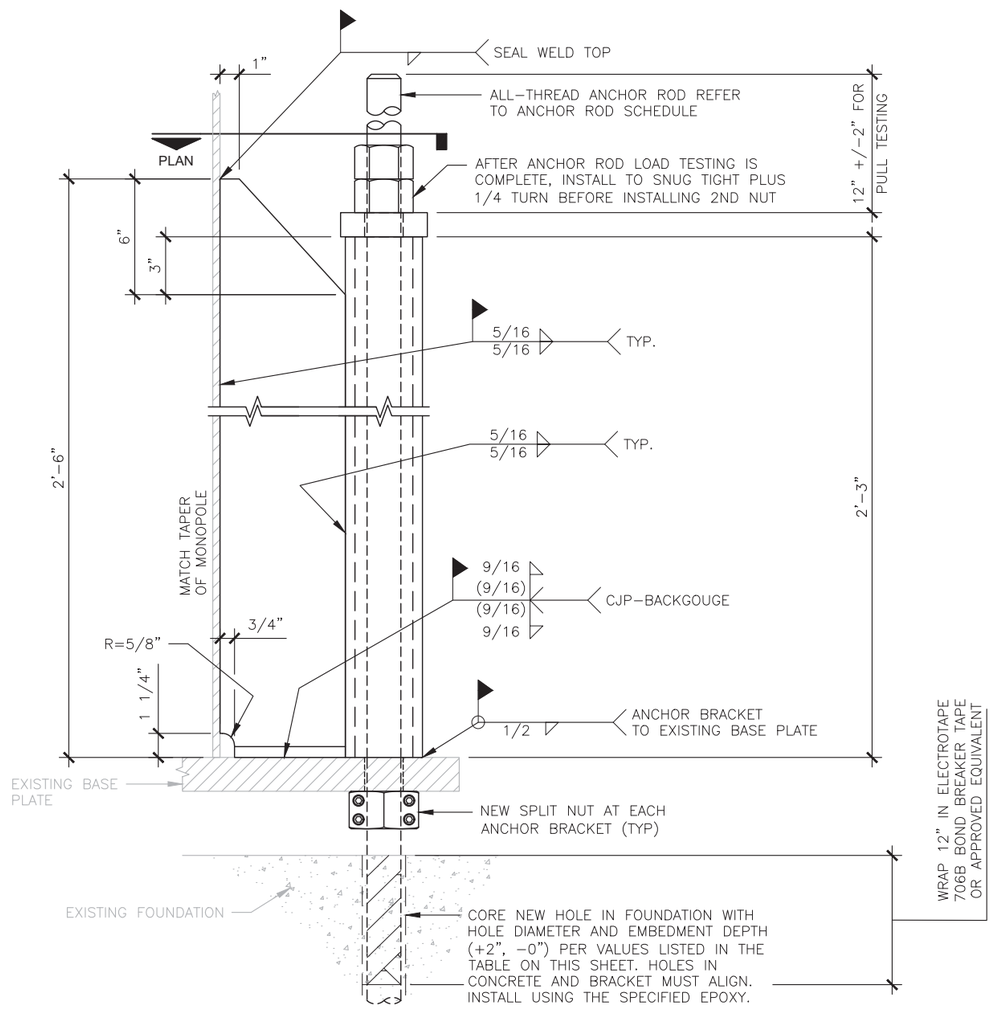


1 TOWER SECTION AT BASE
SCALE: N.T.S.

ANCHOR ROD SCHEDULE							
PART NUMBER	DIAMETER	MATERIAL	HOLE SIZE	TARGET TENSION	EPOXY	EMBEDMENT DEPTH	INSTALLED LENGTH
CCI-AR-0175	1 3/4"	A193-B7	2"	111	ALLFASTNERS AF35LV EPOXY GROUT	5'-0"	8'-10 1/4"
					HILTI HIT RE-500 EPOXY GROUT	5'-0"	8'-10 1/4"



PLAN



2 ANCHOR ROD BRACKET
SCALE: N.T.S.

ANCHOR ROD NOTES:

1. PLATE WASHER MUST FULLY BEAR ON THE TUBE.
2. REFERENCE CC CED-CAT-10300 (CURRENT VERISON) FOR ANCHOR ROD DIMENSIONS.
3. RODS MUST BE GALVANIZED FROM THE TOP OF THE PROJECTION TO 15" BELOW THE SURFACE OF THE CONCRETE, AT A MINIMUM.
4. CORED HOLES MUST BE MECHANICALLY ROUGHENED USING A CARBIDE HOLE ROUGHENER OR EQUIVALENT. BRUSHING WITH A NYLON OR WIRE BRUSH SHALL BE USED IN THE PROCESS OF HOLE CLEANING, BUT DOES NOT SATISFY THE HOLE ROUGHENING REQUIREMENT.
5. FOLLOW EPOXY MANUFACTURER'S RECOMMENDATIONS FOR HOLE CLEANING.
6. ALL HOLES MUST BE DRY PRIOR TO PLACING EPOXY.
7. CONTRACTOR SHALL CHOOSE EPOXY TO BE USED FROM TABLE ON THIS SHEET. FOLLOW EPOXY MANUFACTURER'S RECOMMENDATIONS REGARDING HANDLING OF THREADED ROD AND EPOXY, AS WELL AS ALL INSTALLATION INSTRUCTIONS AND REQUIREMENTS.
8. TAKE ALL MEASUREMENTS NECESSARY TO AVOID DAMAGING EXISTING REINFORCING BARS DURING CORING OPERATIONS. NOTIFY E.O.R. IMMEDIATELY IF EXISTING REINFORCING BARS ARE ENCOUNTERED AND INTERFERE WITH PLACEMENT OF NEW ANCHORS. MINOR ADJUSTMENT TO PROPOSED LOCATION OF NEW ANCHORS MAY BE REQUIRED.
9. ONCE ALL RESIN AND GROUT HAVE CURED, NEW ANCHOR ROD REINFORCING SHALL BE TARGET TENSIONED TO THE VALUE LISTED IN THE TABLE ON THIS SHEET. SEE ENG-PRC-10119: PULL-OUT TESTING POST-INSTALLED ANCHOR RODS, FOR SPECIFICATIONS.
10. CONTRACTOR TO VERIFY THAT A PULL TEST IS ABLE TO BE PERFORMED USING THE ANCHOR ROD PROJECTION SHOWN
11. WHEN COMPLETED WITH EPOXY INSTALLATION, THE TOP OF THE EPOXY SHALL BE EQUAL TO OF HIGHER THAN THE TOP OF THE FOUNDATION, SUCH THAT WATER IS NOT ABLE TO COLLECT IN THE ANNULAR AREA AROUND THE EXPOSED PORTION OF THE ANCHOR ROD.
12. GC SHALL PROVIDE PHOTO WITH MEASUREMENT OF ANCHOR ROD THREAD ENGAGEMENT INTO COUPLING NUT PRIOR TO INSTALLING ANCHOR ROD EXTENSION. PHOTOS SHALL BE INCLUDED IN MODIFICATION INSPECTION. END OF ANCHOR ROD EXTENSION SHALL BE FLUSH WITH END OF ANCHOR ROD ONCE INSTALLED INTO COUPLING NUT.
13. IF ANCHOR ROD IS FIELD-CUT, GC SHALL PROVIDE PHOTOS OF THE COLD-GALVANIZED ROD ENDS TAKEN PRIOR TO COUPLING NUT INSTALLATION.

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

CROWN CASTLE

ISSUED FOR:

REV	DATE	DESCRIPTION
0	02/07/22	ISSUED FOR CONSTRUCTION

PROJECT NO:	155998.003.01
PROJECT ENG:	MICHAEL HARRIS
DRAWN BY:	MG
CHECKED BY:	VKP / PPK

B+T ENGINEERING, INC.
PEC.0001564
Expires 02/10/22

NEW MILFORD/ KIMBERLY
876397

399 CHESTNUT LAND RD.
NEW MILFORD, CT

EXISTING 160' MONOPOLE

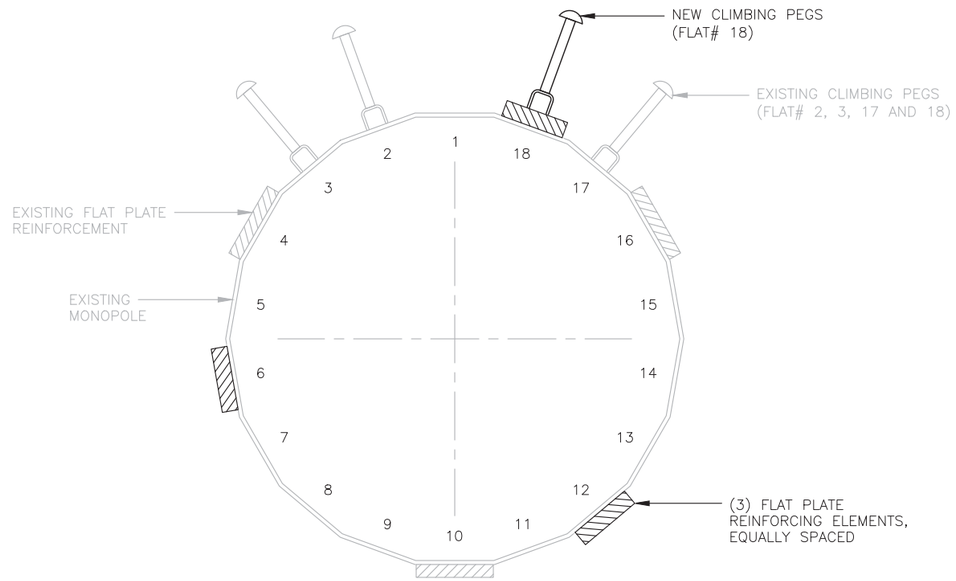
SHEET TITLE
TOWER SECTION AT BASE AND ANCHOR ROD BRACKET DETAIL

SHEET NUMBER: S3

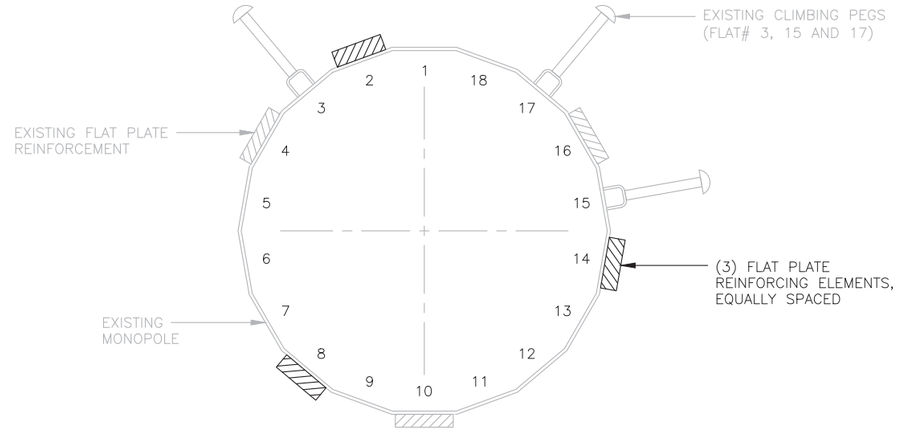
REVISION: 0

SAFETY CLIMB NOTES:

1. THE GC TO REMOVE THE EXISTING STEP PEGS INTERFERING WITH THE PROPOSED MODIFICATIONS AND PROVIDE NEW STEP PEGS AS REQUIRED PER THE TIA-222-REV G/H STANDARD REQUIREMENTS. STEP PEGS DETAILS FOUND IN THE CED-CAT-10300.



1 TOWER SECTION (47'-67')
SCALE: N.T.S.



2 TOWER SECTION (92.5'-102.5')
SCALE: N.T.S.

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

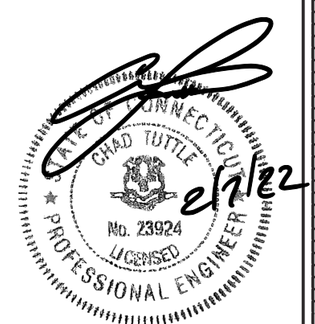
CROWN CASTLE

ISSUED FOR:

REV	DATE	DESCRIPTION
0	02/07/22	ISSUED FOR CONSTRUCTION

PROJECT NO:	155998.003.01
PROJECT ENG:	MICHAEL HARRIS
DRAWN BY:	MG
CHECKED BY:	VKP / PPK

B+T ENGINEERING, INC.
PEC.0001564
Expires 02/10/22



NEW MILFORD/ KIMBERLY
876397

399 CHESTNUT LAND RD.
NEW MILFORD, CT

EXISTING 160' MONOPOLE

SHEET TITLE

TOWER SECTIONS
47'-67' AND 92.5'-102.5'

SHEET NUMBER:	REVISION:
S4	0

Exhibit E

Mount Analysis

Date: **October 7, 2021**

GPD Engineering and Architecture
Professional Corporation
520 South Main Street, Suite 2531
Akron, Ohio 44311
(216) 927-8663
CrownMA@gpdgroup.com

Subject:	**Mount Modification Report**	
Carrier Designation:	***T-Mobile* Equipment Change-Out**	
	Carrier Site Number:	CTNH770A
	Carrier Site Name:	ctnh770a_crown_876397_ new_milford_kimberly
Crown Castle Designation:	**BU Number:**	876397
	Site Name:	NEW MILFORD/ KIMBERLY
	JDE Job Number:	684639
	Order Number:	584631 Rev. 0
Engineering Firm Designation:	**GPD Report Designation:**	2021777.876397.04
Site Data:	**399 Chestnut Land Rd., New Milford, Litchfield County, CT 06776 Latitude 41° 37' 54.93" Longitude -73° 22' 2.82"**	
Structure Information:	**Tower Height & Type:**	**160.0 ft Monopole Tower**
	Mount Elevation:	**160.0 ft**
	Mount Type:	**13.67 ft Platform Mount**

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

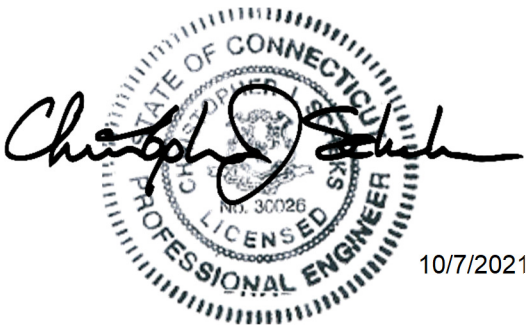
The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

Platform Mount **Sufficient Capacity – 43.9%***
***See Section 4.1 of this report for the loading and structural modifications required in order for the mount to support the loading listed in Table 1.**

This analysis utilizes an ultimate 3-second gust wind speed of 115 mph as required by the 2018 Connecticut Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Brandon Brookbank

Respectfully Submitted by:



Christopher J. Scheks, P.E.
Connecticut #: 0030026

10/7/2021

TABLE OF CONTENTS

1) INTRODUCTION

This is an existing 13.67' Platform Mount.

2) ANALYSIS CRITERIA

TIA-222 Revision: TIA-222-H
Risk Category: II
Ultimate Wind Speed: 115 mph
Exposure Category: C
Topographic Factor at Base: 1
Topographic Factor at Mount: 1
Ice Thickness: 1.5 in
Wind Speed with Ice: 40 mph
Live Loading Wind Speed: 30 mph
Man Live Load at Mid/End-Points: 250 lb
Man Live Load at Mount Pipes: 500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
160.0	163.0	3	Ericsson	AIR6449 B41_T-MOBILE	13.67 ft. Platform Mount
		3	RFS/Celwave	APXVAALL24_43-U-NA20_TMO	
		3	Ericsson	RADIO 4460 B2/B25 B66_TMO	
		3	Ericsson	Radio 4480_TMOV2	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Application	Crown Order Number 584631 Rev. 0	-	CCI
RF Data Sheet	Sprint Retain RFDS Site ID: CTNH770A, dated 7/9/2021	-	CCI
Support Rail Design	Site Pro 1 Part #: HRK14-U, dated 3/10/2015	-	Site Pro 1
Mount Modification Design Drawings	GPD Project #: 2021777.876397.04, dated 10/07/2021	-	GPD

3.1) Analysis Method

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

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

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

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
4) This analysis assumes all information reference in Table 2 is current and correct.
5) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
6) The mount was modeled from site photos. Member information and dimensions not provided have been assumed based on previous experience with similar mounts. No guarantee can be made as to the accuracy of these assumptions without a complete mount mapping.
7) Steel grades have been assumed as follows, unless noted otherwise:

Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM A500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

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

4) ANALYSIS RESULTS

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

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,3	Standoff	M1	160.0	24.0	Pass
	Toe Rail	M4		16.4	Pass
	Mount Pipe	B2		43.9	Pass
	Support Rail	M11		32.8	Pass
	Support Rail Connection	M12		15.8	Pass
	Platform Reinforcement	M49		12.5	Pass
2,3	Mount to Tower Connection	-		28.8	Pass
	Reinforcement to Tower Connection	-		4.8	Pass

Structure Rating (max from all components) =	43.9%[3]

Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity consumed.
3) Ratings per TIA-222-H section 15.5.

4.1) Recommendations

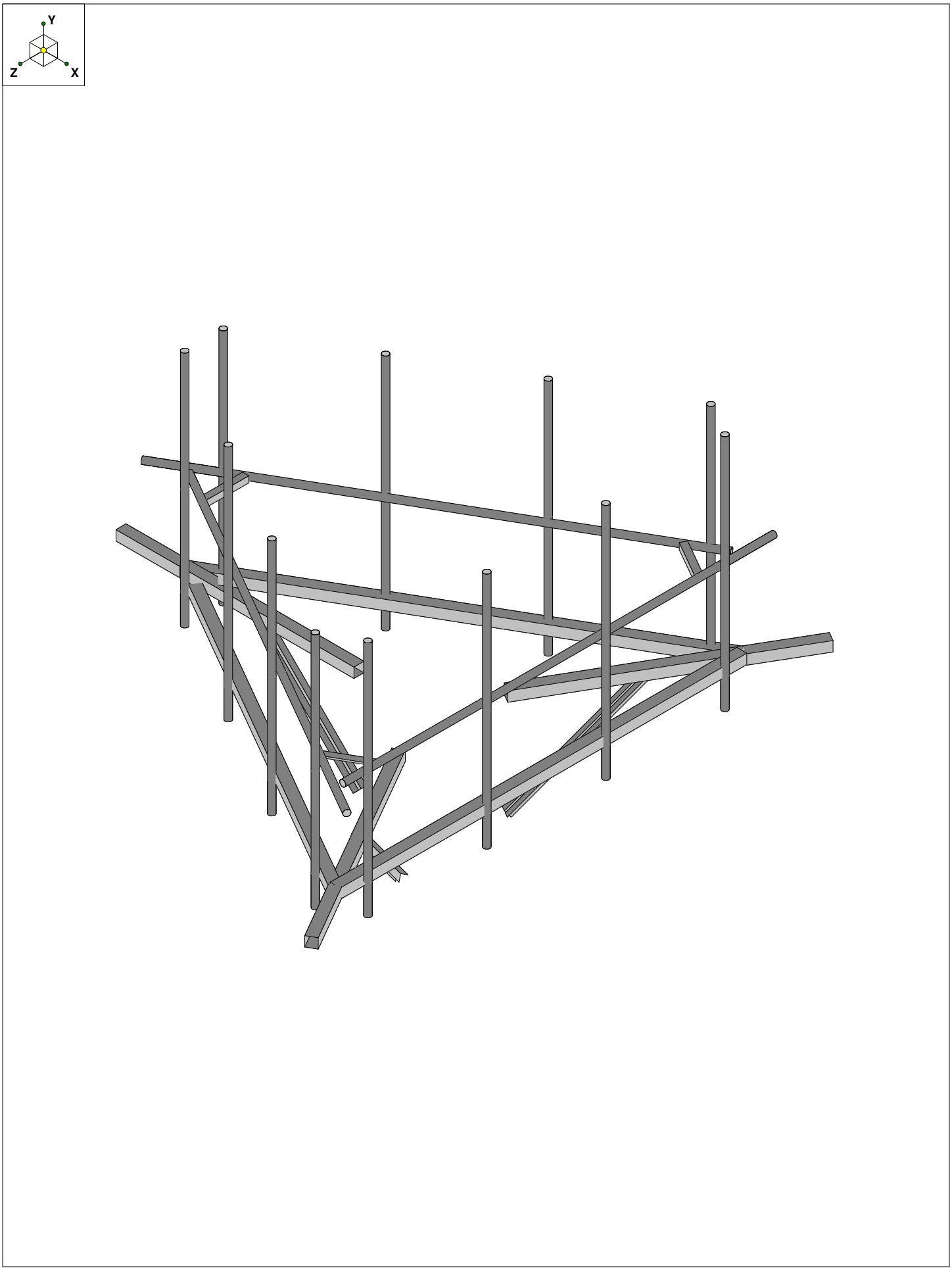
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the structural modifications listed below must be completed.

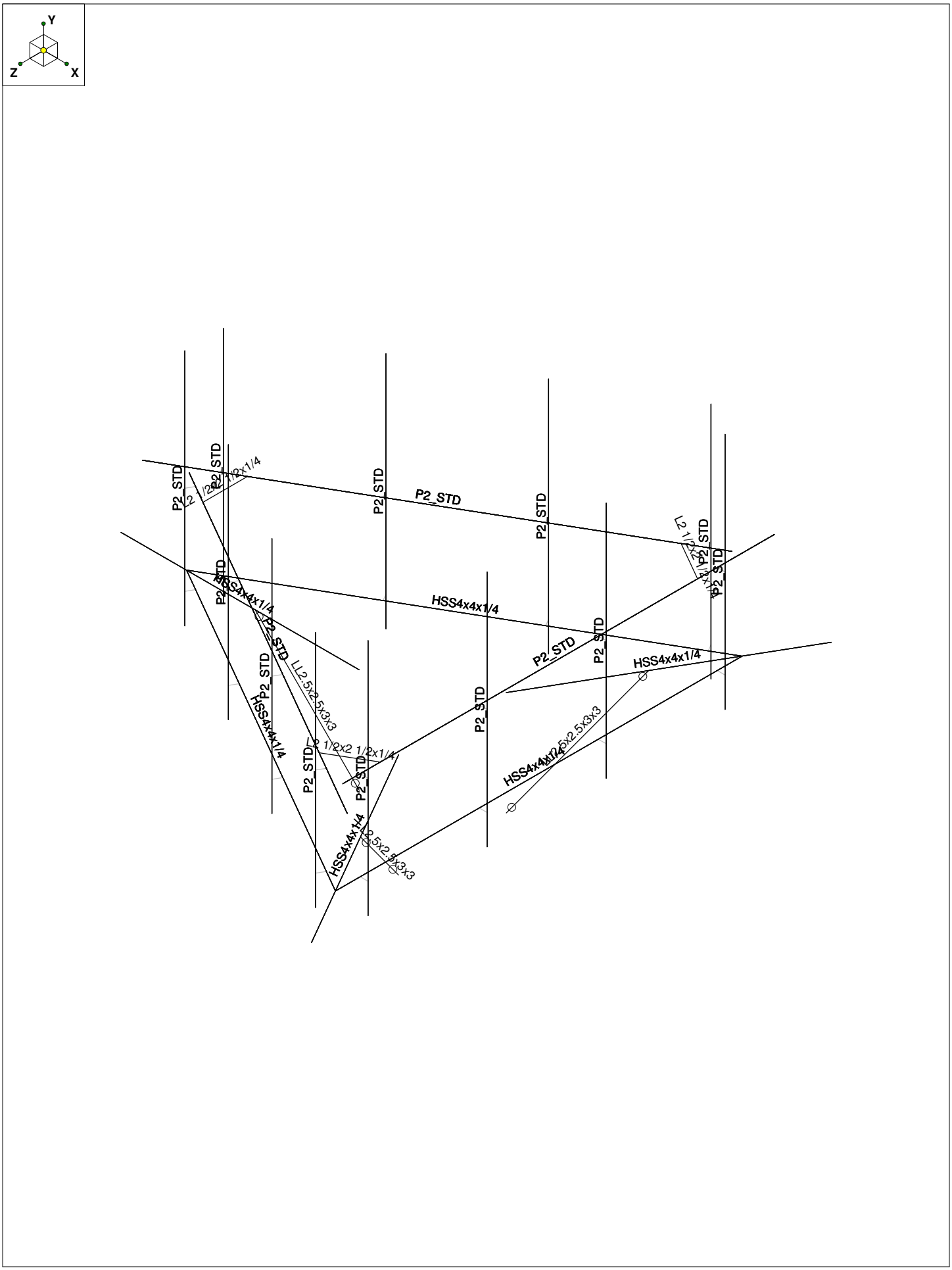
1. Install kicker support, Site Pro 1 PRK-1245
2. Install support rail kit, Site Pro 1 HRK14-U

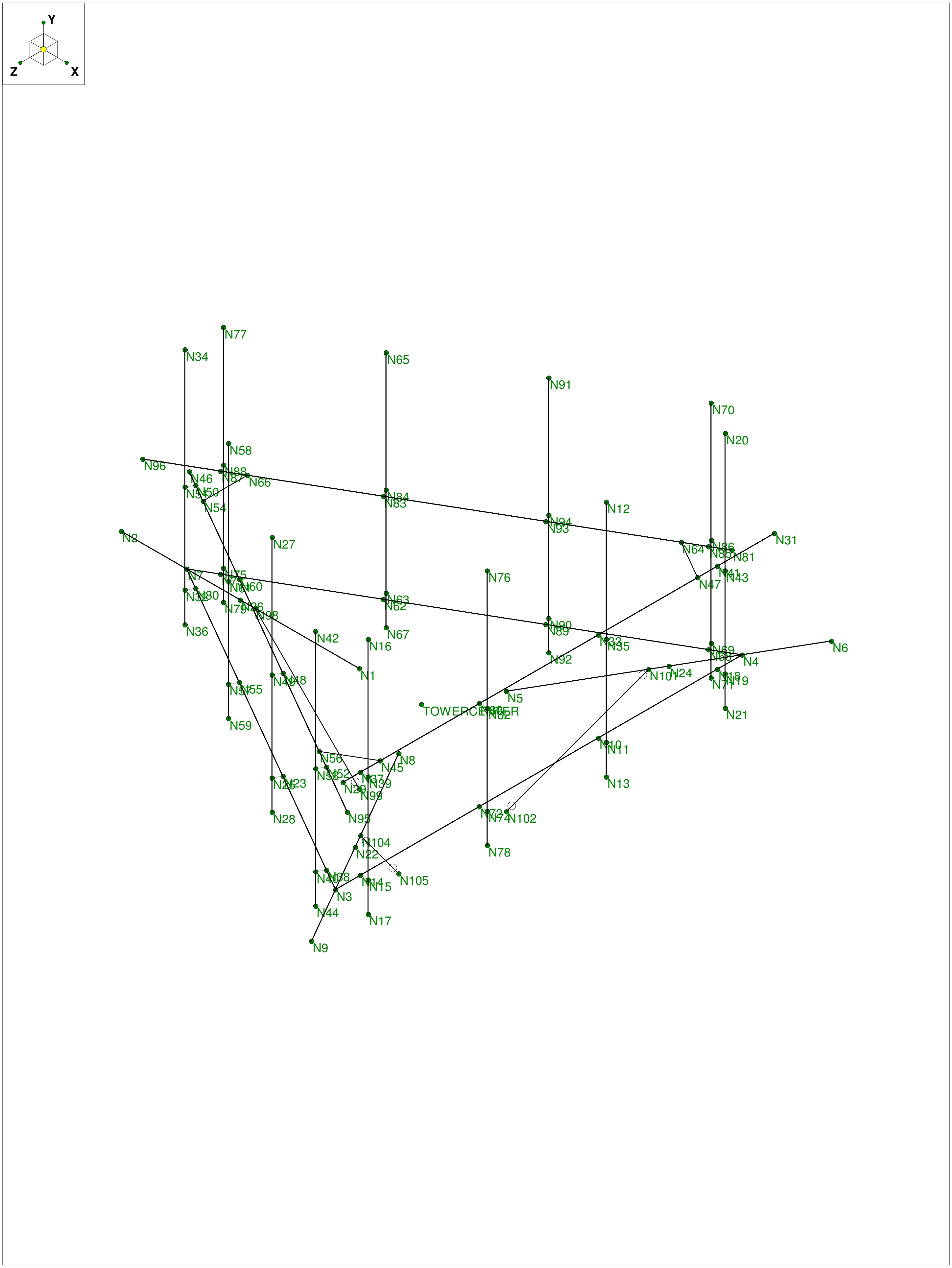
Engineering detail drawings have been provided in Appendix E – Mount Modification Design Drawings (MDD). Connection from the mount to the tower and local stresses on the tower are sufficient.

APPENDIX A

WIRE FRAME AND RENDERED MODELS


Y
Z
X


Y
Z
X
P2_STD
L2 1/2x2 1/2x1/4
HSS4x4x1/4
LL2.5x2.5x3x3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N2
N27
N76
N7
N75
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N26
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N42
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N90
N89
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N35
N69
N6
N4
N92
N36
N1
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N24
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N57
N55
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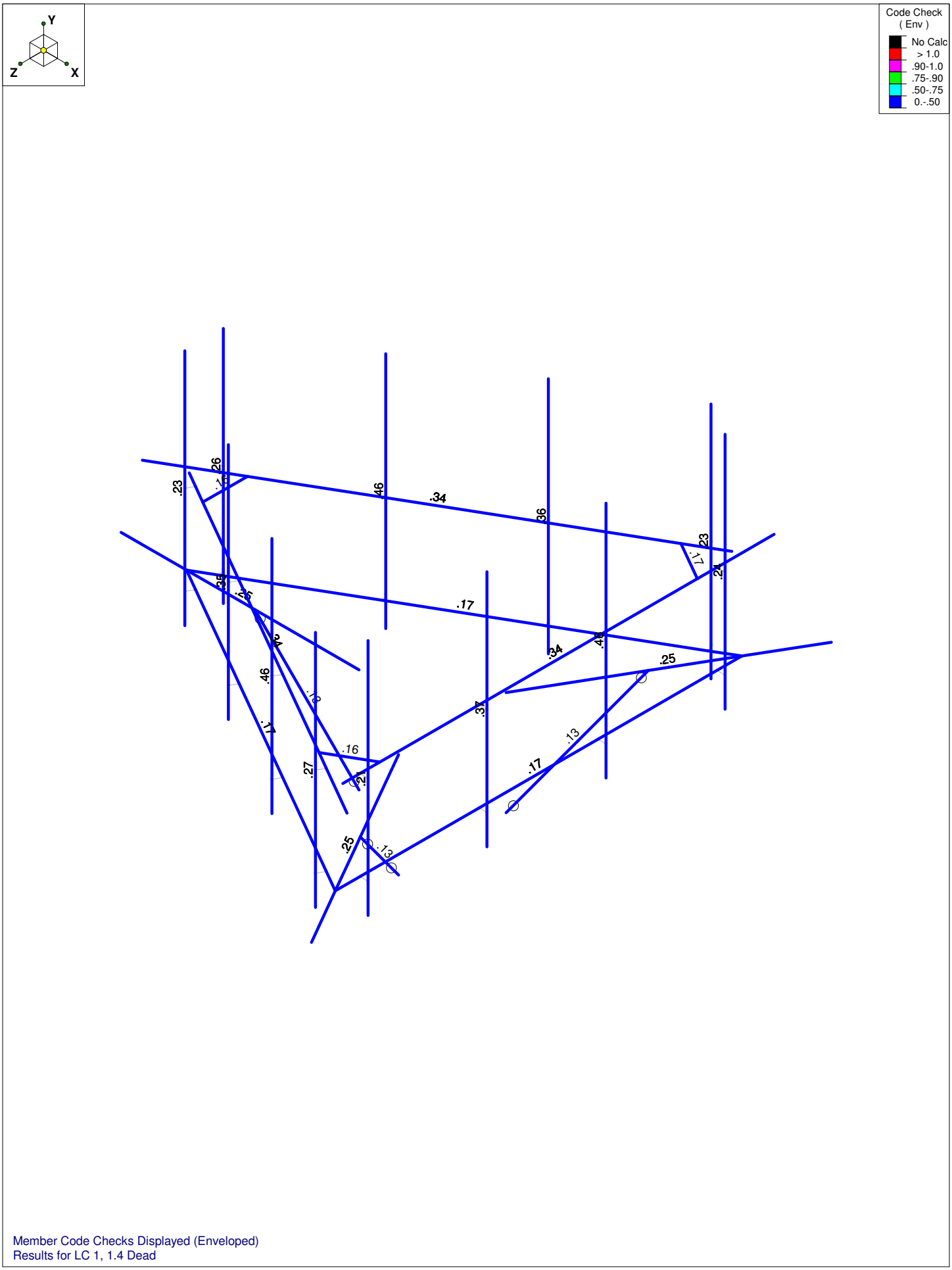
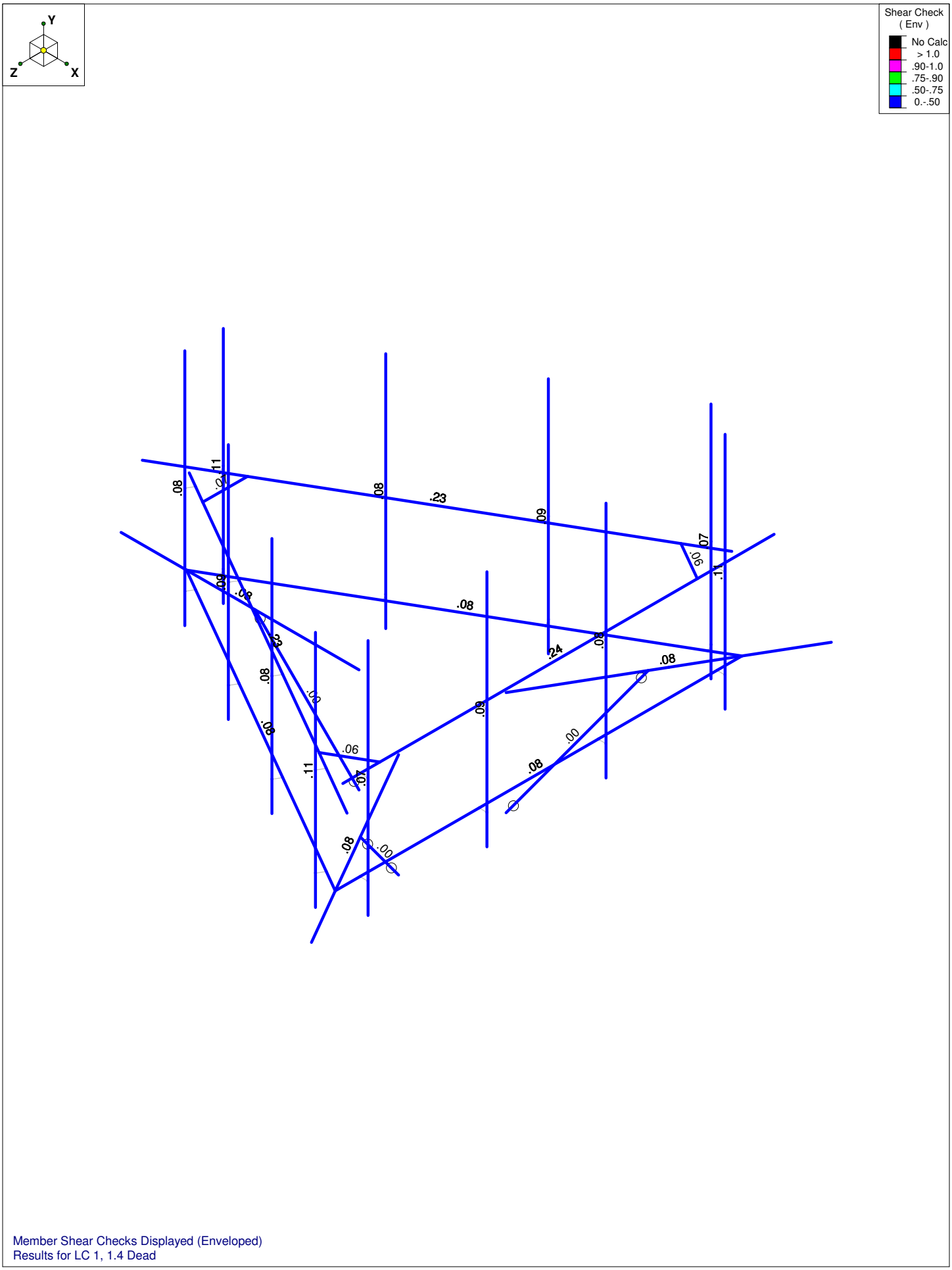
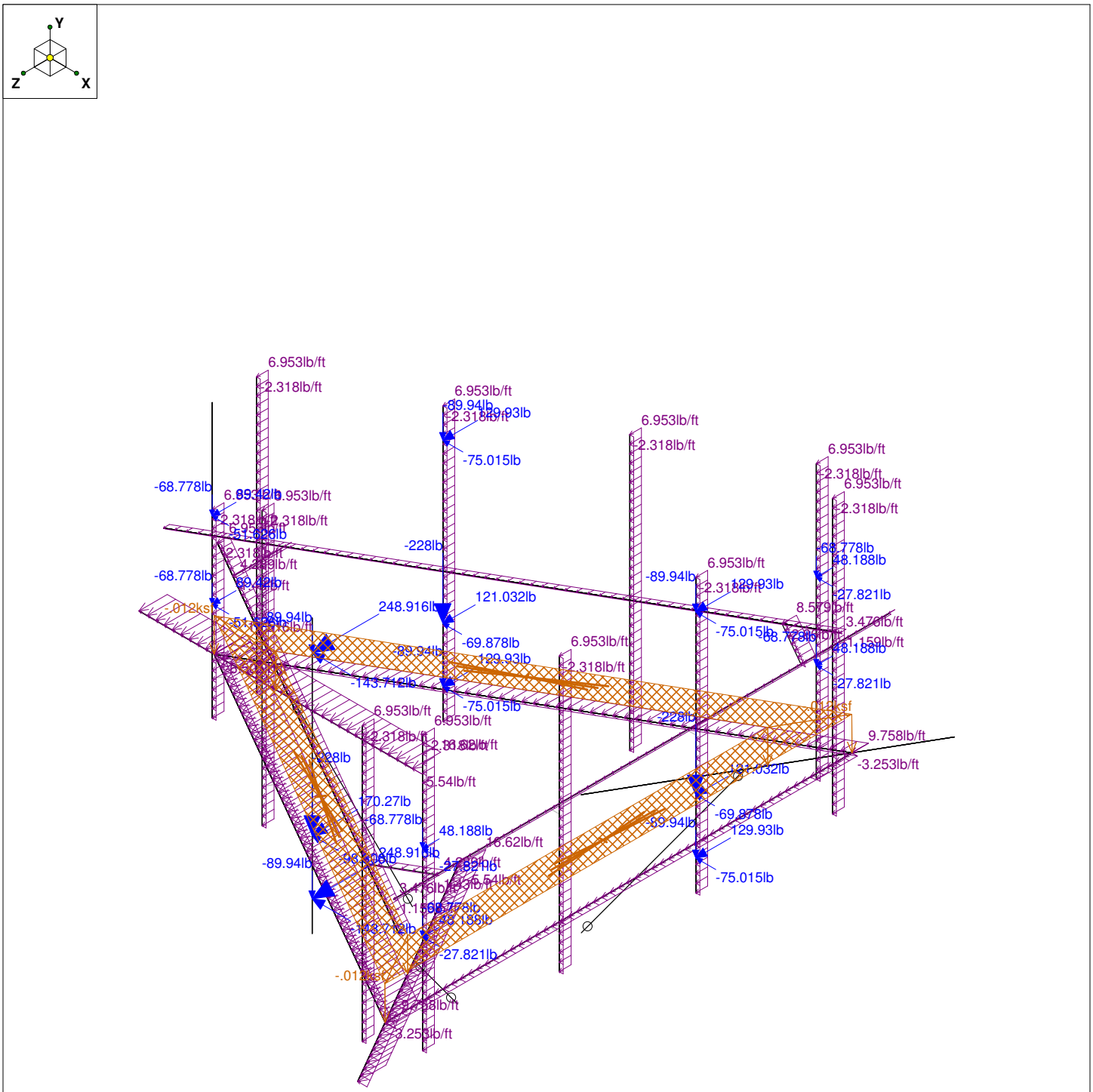


Member Code Checks Displayed (Enveloped)
Results for LC 1, 1.4 Dead



Member Shear Checks Displayed (Enveloped)
Results for LC 1, 1.4 Dead



Loads: LC 10, 1.2 Dead + 1.0 Wind @ 120° - No Ice

APPENDIX B

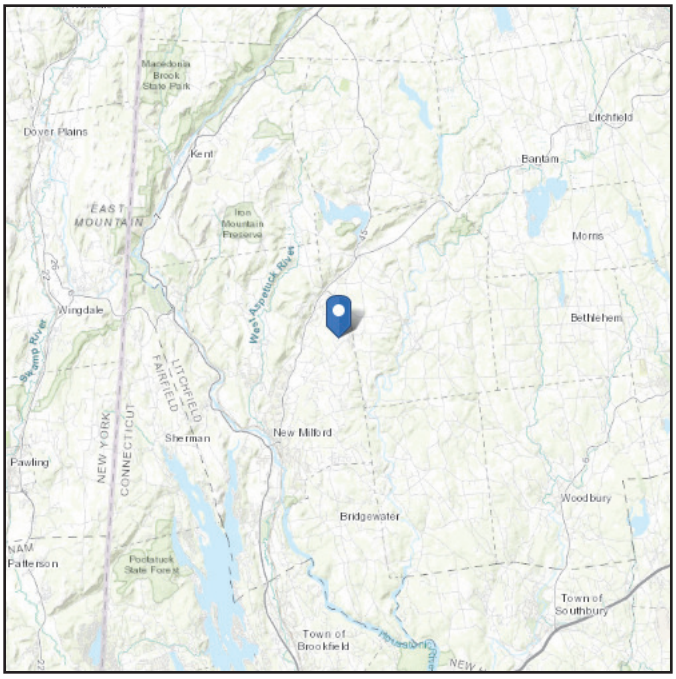
SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 980.16 ft (NAVD 88)
Latitude: 41.631925
Longitude: -73.36745



Wind

Results:

Wind Speed:	115 Vmph
10-year MRI	76 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

Date Accessed: Tue Aug 31 2021

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

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2.

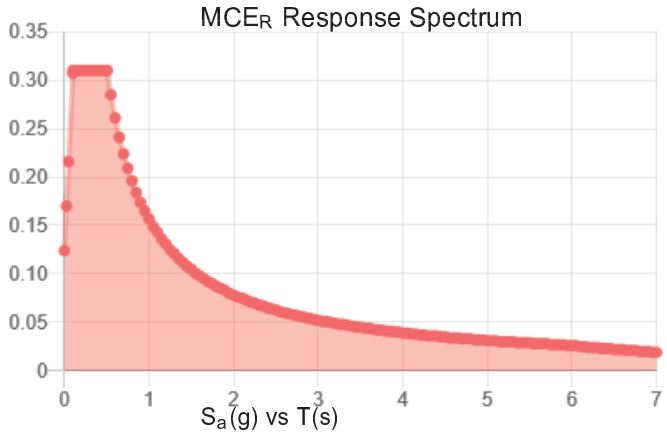
Seismic

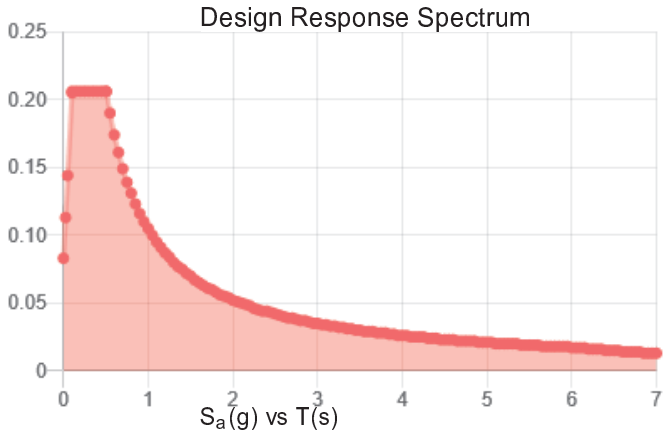
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.194	S_{DS} :	0.206
S_1 :	0.065	S_{D1} :	0.105
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.101
S_{MS} :	0.31	PGA_M :	0.161
S_{M1} :	0.157	F_{PGA} :	1.599
		I_e :	1

Seismic Design Category B





Data Accessed: Tue Aug 31 2021

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	5 F
Gust Speed:	40 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Tue Aug 31 2021

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.

TIA-222-H: Mount Analysis Wind Loading
876397 - NEW MILFORD/ KIMBERLY
2021777.876397.04

Structure Information		
Structure Type:	Monopole	
Structure Height:	160	ft
z (Mount Centerline) =	160	ft
Gh (Mount Gust Effect Factor) =	1.00	
Risk Category:	II	

Code Specifications		
TIA/EIA Code:	H	
Ultimate Wind Speed (No Ice) =	115	mph (3-s gust)
Ultimate Wind Speed (With Ice) =	40	mph (3-s gust)
Ice Thickness	1.5	in
Exposure Category	C	
Tower Base Elevation (AMSL)	983	ft

Topographic Inputs	
Topographic Feature:	N/A

Section Sets										No Ice	Ice Output	
Mount Components	Member Type	Length (in)	Side (Longest seeing wind) (in)	Other Side (in)	Calculated Dc, for ice weight (in)	Dc, for ice weight (in)	Area Type (Round or Flat)	K_a	User's Wind Multiplier	Normal Wind Force (lb/ft)*	Normal Ice Wind Force (lb/ft)*	Ice Weight (lb/ft)*
Standoff	Square/Rect.	96.000	4	4		5.66	Flat	0.90	1.00	28.43	4.21	15.91
Toe Rail	Square/Rect.	164.000	4	4		5.66	Flat	0.90	1.00	28.91	5.05	15.91
Mount Pipe	Pipe	96.000	2.375	2.375		2.38	Round	0.90	1.00	10.30	2.59	8.87
Support Rail	Pipe	174.000	2.375	2.375		2.38	Round	0.90	1.00	10.30	3.09	8.87
Support Rail Connection	Angle	18.000	2.5	2.5		3.54	Flat	0.90	1.00	12.71	2.43	11.36
Platform Reinforcement	Other	53.000	2.5	5.5	5.5	5.50	Flat	0.90	1.00	16.93	2.89	15.57

*All forces are unfactored.

Appurtenances							Shielding			No Ice		Ice Output	
Appurtenance Model	Loading Elevation (ft)	Height (in)	Front Width (in)	Side Depth (in)	Wt (lbs)	Type for Area	Front Shielding (%)	Side Shielding (%)	K_a and/or block shielding	Normal Wind Force (lbs)*	Wt (lbs) (no ice)*	Normal Wind Force (lbs) (w/ ice)*	Wt (lbs) (only ice)*
(3) AIR6449 B41_T-MOBILE	163	33.11	20.51	8.54	114.63	CFD	0%	0%	0.90	206.51	114.63	32.41	157.47
(3) APXVAALL24_43-U-NA20_TMO	163	95.9	24	8.5	149.9	CFD	0%	0%	0.90	574.85	149.90	82.59	434.24
(3) RADIO 4460 B2/B25 B66_TMO	163	17	15.1	11.9	109	Flat	0%	0%	0.90	83.82	109.00	13.03	91.93
(3) Radio 4480_TMOV2	163	22	15.7	7.5	81	Flat	0%	0%	0.90	112.79	81.00	16.99	91.20

*All forces are unfactored.

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

APPENDIX D

ADDITIONAL CALCULATIONS

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.25	65	1.15
8	A913 Gr.65	29000	11154	.3	.65	.49	65	1.1	80	1.1

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design ...	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Standoff	HSS4x4x1/4	None	None	A500 Gr.B Re...	Typical	3.75	8.828	8.828	13.184
2	Toe Rail	HSS4x4x1/4	None	None	A500 Gr.B Re...	Typical	3.75	8.828	8.828	13.184
3	Mount Pipe	P2_STD	None	None	A53 Gr.B	Typical	1.075	.666	.666	1.331
4	Support Rail	P2_STD	None	None	A53 Gr.B	Typical	1.075	.666	.666	1.331
5	Support Rail Connection	L2 1/2x2 1/2x1/4	None	None	A36 Gr.36	Typical	1.19	.703	.703	.025
6	Platform Reinforcement	LL2.5x2.5x3x3	None	None	A36 Gr.36	Typical	1.8	2.46	1.07	.023

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Dead	DL		-1			18		3	
2	No Ice Wind 0 deg	None					18	23		
3	No Ice Wind 30 deg	None					36	42		
4	No Ice Wind 60 deg	None					36	46		
5	No Ice Wind 90 deg	None					18	21		
6	No Ice Wind 120 deg	None					36	46		
7	No Ice Wind 150 deg	None					36	42		
8	No Ice Wind 180 deg	None					18	23		
9	No Ice Wind 210 deg	None					36	42		
10	No Ice Wind 240 deg	None					36	46		
11	No Ice Wind 270 deg	None					18	21		
12	No Ice Wind 300 deg	None					36	46		
13	No Ice Wind 330 deg	None					36	42		
14	Ice Weight	None					18	24	3	
15	Ice Wind 0 deg	None					18	23		
16	Ice Wind 30 deg	None					36	42		
17	Ice Wind 60 deg	None					36	46		
18	Ice Wind 90 deg	None					18	21		
19	Ice Wind 120 deg	None					36	46		
20	Ice Wind 150 deg	None					36	42		
21	Ice Wind 180 deg	None					18	23		
22	Ice Wind 210 deg	None					36	42		
23	Ice Wind 240 deg	None					36	46		
24	Ice Wind 270 deg	None					18	21		
25	Ice Wind 300 deg	None					36	46		
26	Ice Wind 330 deg	None					36	42		
27	Live Load - A1	None					1			
28	Live Load - A2	None					1			
29	Live Load - A3	None					1			
30	Live Load - A4	None					1			
31	Live Load - B1	None					1			
32	Live Load - B2	None					1			
33	Live Load - B3	None					1			

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
34	Live Load - B4	None					1			
35	Live Load - C1	None					1			
36	Live Load - C2	None					1			
37	Live Load - C3	None					1			
38	Live Load - C4	None					1			
39	Live Load - M1 (Start)	None					1			
40	Live Load - M1 (Midd...	None					1			
41	Live Load - M1 (End)	None					1			
42	Live Load - M2 (Start)	None					1			
43	Live Load - M2 (Midd...	None					1			
44	Live Load - M2 (End)	None					1			
45	Live Load - M3 (Start)	None					1			
46	Live Load - M3 (Midd...	None					1			
47	Live Load - M3 (End)	None					1			
48	Live Load - M4 (Start)	None					1			
49	Live Load - M4 (Midd...	None					1			
50	Live Load - M4 (End)	None					1			
51	Live Load - M5 (Start)	None					1			
52	Live Load - M5 (Midd...	None					1			
53	Live Load - M5 (End)	None					1			
54	Live Load - M6 (Start)	None					1			
55	Live Load - M6 (Midd...	None					1			
56	Live Load - M6 (End)	None					1			
57	Live Load - M7 (Start)	None					1			
58	Live Load - M7 (Midd...	None					1			
59	Live Load - M7 (End)	None					1			
60	Live Load - M9 (Start)	None					1			
61	Live Load - M9 (Midd...	None					1			
62	Live Load - M9 (End)	None					1			
63	Live Load - M11 (Start)	None					1			
64	Live Load - M11 (Mid...	None					1			
65	Live Load - M11 (End)	None					1			
66	BLC 1 Transient Area...	None						27		
67	BLC 14 Transient Are...	None						27		

Load Combinations

	Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4 Dead	Yes	Y		1	1.4	0		0		0		0		0		0		0					
2	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	2	1	0		0		0		0		0		0					
3	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	2	1	0		0		0		0		0		0					
4	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	3	1	0		0		0		0		0		0					
5	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	3	1	0		0		0		0		0		0					
6	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	4	1	0		0		0		0		0		0					
7	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	4	1	0		0		0		0		0		0					
8	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	5	1	0		0		0		0		0		0					
9	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	5	1	0		0		0		0		0		0					
10	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	6	1	0		0		0		0		0		0					
11	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	6	1	0		0		0		0		0		0					
12	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	7	1	0		0		0		0		0		0					
13	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	7	1	0		0		0		0		0		0					
14	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	8	1	0		0		0		0		0		0					
15	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	8	1	0		0		0		0		0		0					
16	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	9	1	0		0		0		0		0		0					
17	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	9	1	0		0		0		0		0		0					
18	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	10	1	0		0		0		0		0		0					

Load Combinations (Continued)

	Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
19	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	10	1	0		0		0		0		0		0					
20	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	11	1	0		0		0		0		0		0					
21	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	11	1	0		0		0		0		0		0					
22	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	12	1	0		0		0		0		0		0					
23	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	12	1	0		0		0		0		0		0					
24	1.2 Dead + 1.0 Wind ...	Yes	Y		1	1.2	13	1	0		0		0		0		0		0					
25	0.9 Dead + 1.0 Wind ...	Yes	Y		1	.9	13	1	0		0		0		0		0		0					
26	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	15	1	14	1		1	0		0		0		0					
27	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	16	1	14	1		1	0		0		0		0					
28	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	17	1	14	1		1	0		0		0		0					
29	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	18	1	14	1		1	0		0		0		0					
30	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	19	1	14	1		1	0		0		0		0					
31	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	20	1	14	1		1	0		0		0		0					
32	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	21	1	14	1		1	0		0		0		0					
33	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	22	1	14	1		1	0		0		0		0					
34	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	23	1	14	1		1	0		0		0		0					
35	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	24	1	14	1		1	0		0		0		0					
36	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	25	1	14	1		1	0		0		0		0					
37	1.2 Dead + 1.0 Ice Wi...	Yes	Y		1	1.2	26	1	14	1		1	0		0		0		0					
38	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	2	.068	0		0		0		0		0					
39	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	3	.068	0		0		0		0		0					
40	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	4	.068	0		0		0		0		0					
41	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	5	.068	0		0		0		0		0					
42	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	6	.068	0		0		0		0		0					
43	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	7	.068	0		0		0		0		0					
44	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	8	.068	0		0		0		0		0					
45	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	9	.068	0		0		0		0		0					
46	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	10	.068	0		0		0		0		0					
47	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	11	.068	0		0		0		0		0					
48	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	12	.068	0		0		0		0		0					
49	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	27	1.5	13	.068	0		0		0		0		0					
50	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	2	.068	0		0		0		0		0					
51	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	3	.068	0		0		0		0		0					
52	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	4	.068	0		0		0		0		0					
53	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	5	.068	0		0		0		0		0					
54	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	6	.068	0		0		0		0		0					
55	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	7	.068	0		0		0		0		0					
56	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	8	.068	0		0		0		0		0					
57	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	9	.068	0		0		0		0		0					
58	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	10	.068	0		0		0		0		0					
59	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	11	.068	0		0		0		0		0					
60	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	12	.068	0		0		0		0		0					
61	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	28	1.5	13	.068	0		0		0		0		0					
62	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	2	.068	0		0		0		0		0					
63	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	3	.068	0		0		0		0		0					
64	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	4	.068	0		0		0		0		0					
65	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	5	.068	0		0		0		0		0					
66	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	6	.068	0		0		0		0		0					
67	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	7	.068	0		0		0		0		0					
68	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	8	.068	0		0		0		0		0					
69	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	9	.068	0		0		0		0		0					
70	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	10	.068	0		0		0		0		0					
71	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	11	.068	0		0		0		0		0					
72	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	12	.068	0		0		0		0		0					
73	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	29	1.5	13	.068	0		0		0		0		0					
74	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	2	.068	0		0		0		0		0					
75	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	3	.068	0		0		0		0		0					

Load Combinations (Continued)

	Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
76	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	4	.068	0		0		0		0		0					
77	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	5	.068	0		0		0		0		0					
78	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	6	.068	0		0		0		0		0					
79	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	7	.068	0		0		0		0		0					
80	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	8	.068	0		0		0		0		0					
81	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	9	.068	0		0		0		0		0					
82	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	10	.068	0		0		0		0		0					
83	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	11	.068	0		0		0		0		0					
84	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	12	.068	0		0		0		0		0					
85	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	30	1.5	13	.068	0		0		0		0		0					
86	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	2	.068	0		0		0		0		0					
87	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	3	.068	0		0		0		0		0					
88	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	4	.068	0		0		0		0		0					
89	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	5	.068	0		0		0		0		0					
90	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	6	.068	0		0		0		0		0					
91	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	7	.068	0		0		0		0		0					
92	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	8	.068	0		0		0		0		0					
93	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	9	.068	0		0		0		0		0					
94	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	10	.068	0		0		0		0		0					
95	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	11	.068	0		0		0		0		0					
96	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	12	.068	0		0		0		0		0					
97	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	31	1.5	13	.068	0		0		0		0		0					
98	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	2	.068	0		0		0		0		0					
99	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	3	.068	0		0		0		0		0					
100	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	4	.068	0		0		0		0		0					
101	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	5	.068	0		0		0		0		0					
102	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	6	.068	0		0		0		0		0					
103	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	7	.068	0		0		0		0		0					
104	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	8	.068	0		0		0		0		0					
105	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	9	.068	0		0		0		0		0					
106	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	10	.068	0		0		0		0		0					
107	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	11	.068	0		0		0		0		0					
108	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	12	.068	0		0		0		0		0					
109	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	32	1.5	13	.068	0		0		0		0		0					
110	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	2	.068	0		0		0		0		0					
111	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	3	.068	0		0		0		0		0					
112	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	4	.068	0		0		0		0		0					
113	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	5	.068	0		0		0		0		0					
114	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	6	.068	0		0		0		0		0					
115	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	7	.068	0		0		0		0		0					
116	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	8	.068	0		0		0		0		0					
117	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	9	.068	0		0		0		0		0					
118	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	10	.068	0		0		0		0		0					
119	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	11	.068	0		0		0		0		0					
120	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	12	.068	0		0		0		0		0					
121	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	33	1.5	13	.068	0		0		0		0		0					
122	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	2	.068	0		0		0		0		0					
123	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	3	.068	0		0		0		0		0					
124	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	4	.068	0		0		0		0		0					
125	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	5	.068	0		0		0		0		0					
126	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	6	.068	0		0		0		0		0					
127	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	7	.068	0		0		0		0		0					
128	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	8	.068	0		0		0		0		0					
129	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	9	.068	0		0		0		0		0					
130	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	10	.068	0		0		0		0		0					
131	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	11	.068	0		0		0		0		0					
132	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	12	.068	0		0		0		0		0					

Load Combinations (Continued)

	Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
133	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	34	1.5	13	.068	0		0		0		0		0					
134	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	2	.068	0		0		0		0							
135	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	3	.068	0		0		0		0							
136	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	4	.068	0		0		0		0							
137	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	5	.068	0		0		0		0							
138	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	6	.068	0		0		0		0							
139	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	7	.068	0		0		0		0							
140	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	8	.068	0		0		0		0							
141	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	9	.068	0		0		0		0							
142	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	10	.068	0		0		0		0							
143	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	11	.068	0		0		0		0							
144	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	12	.068	0		0		0		0							
145	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	35	1.5	13	.068	0		0		0		0							
146	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	36	1.5	2	.068	0		0		0		0							
147	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	36	1.5	3	.068	0		0		0		0							
148	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	36	1.5	4	.068	0		0		0		0							
149	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	36	1.5	5	.068	0		0		0		0							
150	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	36	1.5	6	.068	0		0		0		0							
151	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	36	1.5	7	.068	0		0		0		0							
152	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	36	1.5	8	.068	0		0		0		0							
153	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	36	1.5	9	.068	0		0		0		0							
154	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	36	1.5	10	.068	0		0		0		0							
155	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	36	1.5	11	.068	0		0		0		0							
156	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	36	1.5	12	.068	0		0		0		0							
157	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	36	1.5	13	.068	0		0		0		0							
158	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	37	1.5	2	.068	0		0		0		0							
159	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	37	1.5	3	.068	0		0		0		0							
160	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	37	1.5	4	.068	0		0		0		0							
161	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	37	1.5	5	.068	0		0		0		0							
162	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	37	1.5	6	.068	0		0		0		0							
163	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	37	1.5	7	.068	0		0		0		0							
164	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	37	1.5	8	.068	0		0		0		0							
165	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	37	1.5	9	.068	0		0		0		0							
166	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	37	1.5	10	.068	0		0		0		0							
167	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	37	1.5	11	.068	0		0		0		0							
168	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	37	1.5	12	.068	0		0		0		0							
169	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	37	1.5	13	.068	0		0		0		0							
170	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	38	1.5	2	.068	0		0		0		0							
171	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	38	1.5	3	.068	0		0		0		0							
172	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	38	1.5	4	.068	0		0		0		0							
173	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	38	1.5	5	.068	0		0		0		0							
174	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	38	1.5	6	.068	0		0		0		0							
175	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	38	1.5	7	.068	0		0		0		0							
176	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	38	1.5	8	.068	0		0		0		0							
177	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	38	1.5	9	.068	0		0		0		0							
178	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	38	1.5	10	.068	0		0		0		0							
179	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	38	1.5	11	.068	0		0		0		0							
180	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	38	1.5	12	.068	0		0		0		0							
181	1.2 Dead + 1.5 Live_...	Yes	Y		1	1.2	38	1.5	13	.068	0		0		0		0							
182	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	39	1.5	0		0		0		0		0							
183	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	40	1.5	0		0		0		0		0							
184	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	41	1.5	0		0		0		0		0							
185	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	42	1.5	0		0		0		0		0							
186	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	43	1.5	0		0		0		0		0							
187	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	44	1.5	0		0		0		0		0							
188	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	45	1.5	0		0		0		0		0							
189	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	46	1.5	0		0		0		0		0							

Load Combinations (Continued)

	Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
190	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	47	1.5	0		0		0		0		0		0					
191	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	48	1.5	0		0		0		0		0		0					
192	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	49	1.5	0		0		0		0		0		0					
193	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	50	1.5	0		0		0		0		0		0					
194	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	51	1.5	0		0		0		0		0		0					
195	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	52	1.5	0		0		0		0		0		0					
196	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	53	1.5	0		0		0		0		0		0					
197	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	54	1.5	0		0		0		0		0		0					
198	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	55	1.5	0		0		0		0		0		0					
199	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	56	1.5	0		0		0		0		0		0					
200	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	57	1.5	0		0		0		0		0		0					
201	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	58	1.5	0		0		0		0		0		0					
202	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	59	1.5	0		0		0		0		0		0					
203	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	60	1.5	0		0		0		0		0		0					
204	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	61	1.5	0		0		0		0		0		0					
205	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	62	1.5	0		0		0		0		0		0					
206	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	63	1.5	0		0		0		0		0		0					
207	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	64	1.5	0		0		0		0		0		0					
208	1.2 Dead + 1.5 Live_V...	Yes	Y		1	1.2	65	1.5	0		0		0		0		0		0					

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	4515.026	14	177.15	3	743.91	20	.661	20	1.824	20	.701	32
2		min	-2607.199	3	-814.64	32	-744.121	8	-.62	9	-1.823	9	-.164	3
3	N5	max	1138.203	11	142.569	11	3593.916	22	.237	15	1.621	4	.422	5
4		min	-2092.385	22	-806.093	35	-1941.779	11	-.657	26	-1.619	17	-.614	16
5	N8	max	1093.266	19	142.59	19	1974.568	21	.623	2	1.615	12	.389	23
6		min	-2047.076	6	-806.04	29	-3623.174	8	-.251	15	-1.614	25	-.651	10
7	N99	max	-20.476	3	3971.033	32	1.951	8	0	16	0	5	0	208
8		min	-3954.198	32	34.12	3	-1.945	20	0	5	0	16	0	1
9	N102	max	1964.902	35	3946.072	35	-102.381	11	0	21	0	21	0	8
10		min	59.105	11	131.865	11	-3402.629	35	0	8	0	8	0	21
11	N105	max	1965.317	29	3946.991	29	3403.451	29	0	21	0	21	0	21
12		min	59.089	19	131.827	19	102.347	19	0	8	0	8	0	8
13	Totals:	max	4239.633	15	9026.048	33	4258.05	20						
14		min	-4239.633	3	2882.008	5	-4258.049	9						

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

	Member	Shape	Code ...	Loc[...	LC	Shear...	Loc[in]	Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	B2	P2_STD	.461	48	10	.080	84		8	15808....	33847....	1.997	1.997	1...	H1-1b
2	A2	P2_STD	.459	48	2	.076	48		12	15808....	33847....	1.997	1.997	1...	H1-1b
3	C2	P2_STD	.457	48	18	.076	84		16	15808....	33847....	1.997	1.997	1...	H1-1b
4	A3	P2_STD	.366	84	8	.088	84		4	15808....	33847....	1.997	1.997	1...	H1-1b
5	C3	P2_STD	.358	84	2	.095	84		20	15808....	33847....	1.997	1.997	2...	H1-1b
6	B3	P2_STD	.347	84	14	.091	84		12	15808....	33847....	1.997	1.997	1...	H1-1b
7	M11	P2_STD	.344	152....	208	.232	141.375		18	4967.646	33847....	1.997	1.997	3...	H1-1b
8	M9	P2_STD	.344	152....	205	.231	141.375		10	4967.646	33847....	1.997	1.997	3...	H1-1b
9	M7	P2_STD	.344	152....	202	.237	141.375		2	4967.646	33847....	1.997	1.997	3...	H1-1b
10	B1	P2_STD	.267	84	8	.105	84		10	15808....	33847....	1.997	1.997	1...	H1-1b
11	C1	P2_STD	.261	84	14	.105	48		18	15808....	33847....	1.997	1.997	1...	H1-1b
12	M1	HSS4x4x1/4	.252	69	35	.083	42	y	35	119306..	155250	18.219	18.219	3...	H1-1b
13	M3	HSS4x4x1/4	.250	69	27	.084	42	y	26	119306..	155250	18.219	18.219	3...	H1-1b
14	M5	HSS4x4x1/4	.250	69	37	.083	42	y	30	119306..	155250	18.219	18.219	3...	H1-1b
15	A1	P2_STD	.244	84	22	.108	84		2	15808....	33847....	1.997	1.997	1...	H1-1b

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

	Member	Shape	Code ...	Loc[...	LC	Shear...	Loc[in]	Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn ...	phi*Mn ...	Cb	Eqn
16	C4	P2_STD	.231	84	20	.072	84		4	15808....	33847....	1.997	1.997	1...	H1-1b
17	B4	P2_STD	.231	84	14	.078	84		20	15808....	33847....	1.997	1.997	1...	H1-1b
18	A4	P2_STD	.215	84	6	.073	84		24	15808....	33847....	1.997	1.997	1...	H1-1b
19	M4	HSS4x4x1/4	.172	164	29	.078	164	y	8	71988....	155250	18.219	18.219	2...	H1-1b
20	M6	HSS4x4x1/4	.172	164	29	.078	0	y	18	71988....	155250	18.219	18.219	2...	H1-1b
21	M2	HSS4x4x1/4	.172	164	35	.082	0	y	2	71988....	155250	18.219	18.219	2...	H1-1b
22	M12	L2 1/2x2 1...	.166	.75	15	.061	0	y	16	35922....	38556	.46	2.564	2...	H2-1
23	M8	L2 1/2x2 1...	.163	.188	22	.061	0	y	24	35922....	38556	.46	2.564	2...	H2-1
24	M10	L2 1/2x2 1...	.156	1.125	7	.066	0	y	8	35922....	38556	.46	2.564	2...	H2-1
25	M49	LL2.5x2.5x...	.131	59.3...	32	.003	0	y	16	42670....	58320	3.954	2.548	1	H1-1b*
26	M51	LL2.5x2.5x...	.131	59.3...	29	.003	0	y	8	42670....	58320	3.954	2.548	1	H1-1b*
27	M50	LL2.5x2.5x...	.131	59.3...	35	.003	0	y	8	42670....	58320	3.954	2.548	1	H1-1b*

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

	Member	Shape	Code Check Actual	Code Check Allowable	Ratio (Act./Allow.)	Loc[in]	LC	Shear Check	Shear Check Allowable	Ratio (Act./Allow.)	Loc[in]	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	B2	P2_STD	0.461	1.05	0.439*	48	10	0.08	1.05	0.076*	84	15808.485	33847.742	1.997	1.997	1.404	H1-1b
2	A2	P2_STD	0.459	1.05	0.437*	48	2	0.076	1.05	0.072*	48	15808.485	33847.742	1.997	1.997	1.396	H1-1b
3	C2	P2_STD	0.457	1.05	0.435*	48	18	0.076	1.05	0.072*	84	15808.485	33847.742	1.997	1.997	1.402	H1-1b
4	A3	P2_STD	0.366	1.05	0.349*	84	8	0.088	1.05	0.084*	84	15808.485	33847.742	1.997	1.997	1.99	H1-1b
5	C3	P2_STD	0.358	1.05	0.341*	84	2	0.095	1.05	0.09*	84	15808.485	33847.742	1.997	1.997	2.39	H1-1b
6	B3	P2_STD	0.347	1.05	0.33*	84	14	0.091	1.05	0.087*	84	15808.485	33847.742	1.997	1.997	1.782	H1-1b
7	M11	P2_STD	0.344	1.05	0.328*	152.3	208	0.232	1.05	0.221*	141.4	4967.646	33847.742	1.997	1.997	3.688	H1-1b
8	M9	P2_STD	0.344	1.05	0.328*	152.3	205	0.231	1.05	0.22*	141.4	4967.646	33847.742	1.997	1.997	3.688	H1-1b
9	M7	P2_STD	0.344	1.05	0.328*	152.3	202	0.237	1.05	0.226*	141.4	4967.646	33847.742	1.997	1.997	3.688	H1-1b
10	B1	P2_STD	0.267	1.05	0.254*	84	8	0.105	1.05	0.1*	84	15808.485	33847.742	1.997	1.997	1.455	H1-1b
11	C1	P2_STD	0.261	1.05	0.249*	84	14	0.105	1.05	0.1*	48	15808.485	33847.742	1.997	1.997	1.386	H1-1b
12	M1	HSS4x4x1/4	0.252	1.05	0.24*	69	35	0.083	1.05	0.079*	42	119306.44	155250	18.219	18.219	3.204	H1-1b
13	M3	HSS4x4x1/4	0.25	1.05	0.238*	69	27	0.084	1.05	0.08*	42	119306.44	155250	18.219	18.219	3.193	H1-1b
14	M5	HSS4x4x1/4	0.25	1.05	0.238*	69	37	0.083	1.05	0.079*	42	119306.44	155250	18.219	18.219	3.182	H1-1b
15	A1	P2_STD	0.244	1.05	0.232*	84	22	0.108	1.05	0.103*	84	15808.485	33847.742	1.997	1.997	1.334	H1-1b
16	C4	P2_STD	0.231	1.05	0.22*	84	20	0.072	1.05	0.069*	84	15808.485	33847.742	1.997	1.997	1.647	H1-1b
17	B4	P2_STD	0.231	1.05	0.22*	84	14	0.078	1.05	0.074*	84	15808.485	33847.742	1.997	1.997	1.514	H1-1b
18	A4	P2_STD	0.215	1.05	0.205*	84	6	0.073	1.05	0.07*	84	15808.485	33847.742	1.997	1.997	1.547	H1-1b
19	M4	HSS4x4x1/4	0.172	1.05	0.164*	164	29	0.078	1.05	0.074*	164	71988.064	155250	18.219	18.219	2.516	H1-1b
20	M6	HSS4x4x1/4	0.172	1.05	0.164*	164	29	0.078	1.05	0.074*	0	71988.064	155250	18.219	18.219	2.648	H1-1b
21	M2	HSS4x4x1/4	0.172	1.05	0.164*	164	35	0.082	1.05	0.078*	0	71988.064	155250	18.219	18.219	2.608	H1-1b
22	M12	L2 1/2x2 1/2x1/4	0.166	1.05	0.158*	0.75	15	0.061	1.05	0.058*	0	35922.377	38556	0.46	2.564	2.179	H2-1
23	M8	L2 1/2x2 1/2x1/4	0.163	1.05	0.155*	0.188	22	0.061	1.05	0.058*	0	35922.377	38556	0.46	2.564	2.169	H2-1
24	M10	L2 1/2x2 1/2x1/4	0.156	1.05	0.149*	1.125	7	0.066	1.05	0.063*	0	35922.377	38556	0.46	2.564	2.175	H2-1
25	M49	LL2.5x2.5x3x3	0.131	1.05	0.125*	59.4	32	0.003	1.05	0.003*	0	42670.287	58320	3.954	2.548	1	H1-1b*
26	M51	LL2.5x2.5x3x3	0.131	1.05	0.125*	59.4	29	0.003	1.05	0.003*	0	42670.287	58320	3.954	2.548	1	H1-1b*
27	M50	LL2.5x2.5x3x3	0.131	1.05	0.125*	59.4	35	0.003	1.05	0.003*	0	42670.287	58320	3.954	2.548	1	H1-1b*

*Rating per TIA-222-H, Section 15.5

APPENDIX E

SUPPLEMENTAL DRAWINGS

TIA-222-H CONNECTION CHECK
Mount to Tower Connection - Typ. All Sectors
2021777.876397.04

Bolt Information		
Bolt Diameter (d)	0.75	in
Net Tensile Area (An)	0.334	in^2
# of Bolts Total (n)	4	
Bolt Distance Up-Down	8	in
Bolt Distance Left-Right	3	in
Bolt Grade	A325N	
Bolt Tensile Strength (F_{ub})	120	ksi

Flange Information		
Height (h)	10	in
Width (w)	5	in
Thickness (t)	0.75	in
Steel Grade	A36	
Plate Yield Strength (Fy)	36	ksi
Support Arm Height	4	in
Support Arm Width	4	in

RISA 3D Reactions (Up-Down)		
Moment (M)	0.62	k-ft
Axial (T)	4.52	kips
Shear (V)	0.70	kips

RISA 3D Reactions (Left -Right)		
Moment (M)	1.82	k-ft
Axial (T)	1.12	kips
Shear (V)	0.80	kips

Bolt Capacity (Up-Down)		
Nominal Tensile Strength (R_{nt})	40.135	kips
Nominal Shear Strength (R_{nv})	26.51	kips
Bolt Tensile Force (T_{ub})	1.59	kips
Bolt Shear Force (V_{ub})	0.176	kips
$T_{ub}/\phi R_{nt}$	0.05031	
$V_{ub}/\phi R_{nv}$	0.00841	
$(V_{ub}/\phi R_{nv})^2+(T_{ub}/\phi R_{nt})^2$	0.00273	
Bolt Capacity =	5.0%	OK

*Rating per TIA-222-H, Section 15.5

Bolt Capacity (Left-Right)		
Nominal Tensile Strength (R_{nt})	40.135	kips
Nominal Shear Strength (R_{nv})	26.51	kips
Bolt Tensile Force (T_{ub})	3.93	kips
Bolt Shear Force (V_{ub})	0.200	kips
$T_{ub}/\phi R_{nt}$	0.12429	
$V_{ub}/\phi R_{nv}$	0.00957	
$(V_{ub}/\phi R_{nv})^2+(T_{ub}/\phi R_{nt})^2$	0.01632	
Bolt Capacity =	12.4%	OK

*Rating per TIA-222-H, Section 15.5

Plate Capacity (Up-Down)		
Bolt Circle (D_{BC})	8.544	in
Effective Width (B_{eff})	5.00	in
Flexural Moment (M_u)	6.36	k-in
Flexural Strength ($\emptyset M_n$)	22.78	k-in
Plate Capacity=	26.6%	OK

*Rating per TIA-222-H, Section 15.5

Plate Capacity (Left-Right)		
Bolt Circle (D_{BC})	8.544	in
Effective Width (B_{eff})	8.54	in
Flexural Moment (M_u)	11.79	k-in
Flexural Strength ($\emptyset M_n$)	38.93	k-in
Plate Capacity=	28.8%	OK

*Rating per TIA-222-H, Section 15.5

TIA-222-H CONNECTION CHECK
Reinforcement to Tower Connection - Typ. All Sectors
2021777.876397.04

Bolt Information		
Bolt Diameter (d)	0.75	in
Net Tensile Area (An)	0.334	in^2
# of Bolts Total (n)	4	
Bolt Distance Up-Down	8	in
Bolt Distance Left-Right	3	in
Bolt Grade	A325N	
Bolt Tensile Strength (F_{ub})	120	ksi

RISA 3D Reactions		
Moment (M)	0.00	k-ft
Axial (T)	-3.95	kips
Shear (V)	3.97	kips

Bolt Capacity		
Nominal Tensile Strength (R_{nt})	40.135	kips
Nominal Shear Strength (R_{nv})	26.51	kips
Bolt Tensile Force (T_{ub})	-0.99	kips
Bolt Shear Force (V_{ub})	0.993	kips
$T_{ub}/\phi R_{nt}$	-0.03128	
$V_{ub}/\phi R_{nv}$	0.04756	
$(V_{ub}/\phi R_{nv})^2+(T_{ub}/\phi R_{nt})^2$	0.00340	
Bolt Capacity =	4.8%	OK

*Rating per TIA-222-H, Section 15.5

APPENDIX E

MOUNT MODIFICATION DESIGN DRAWINGS (MDD)

MOUNT DESIGN DRAWINGS
PREPARED FOR CROWN CASTLE

TOWER INFORMATION	
TOWER HEIGHT / TYPE:	160.0 FT MONOPOLE
TOWER LOCATION: DATUM: (NAD 1983)	LAT: 41° 37' 54.93" LONG: -73° 22' 2.82"
WORK ORDER #:	CCI/WO #: NA
ORDER #:	584631 REV #: 0
SITE ADDRESS:	399 CHESTNUT LAND RD. NEW MILFORD, CT 06776 LITCHFIELD COUNTY, USA

CODE COMPLIANCE	
GOVERNING CODES:	TIA-222-H
WIND SPEEDS:	115 MPH 3 SECOND GUST 40 MPH 3 SECOND GUST
ICE THICKNESS:	1.5 IN
RISK CATEGORY:	II
EXPOSURE CATEGORY:	C
TOPO CATEGORY:	1

SITE NAME: NEW MILFORD/ KIMBERLY
BU NUMBER: 876397

SITE ADDRESS:
399 CHESTNUT LAND RD.
NEW MILFORD, CT 06776
LITCHFIELD COUNTY, USA

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

PERFORMED WORK SHALL NOT DAMAGE ANY EXISTING STRUCTURE, MOUNTS, SAFETY CLIMB, OR EQUIPMENT WHILE ON SITE. SHOULD DAMAGE OCCUR, CONTACT CROWN EOR AT EORAPPROVAL@CROWNCASTLE.COM

SAFETY CLIMB: 'LOOK UP'
THE INTEGRITY OF THE WIRE ROPE SAFETY CLIMB SYSTEM SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER REINFORCEMENT AND EQUIPMENT INSTALLATION SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF ANY WIRE ROPE SAFETY CLIMB ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, OR IMPACT THE ANCHORAGE POINTS IN ANY WAY. ANY COMPROMISED SAFETY CLIMB MUST BE REPORTED TO YOUR CROWN POC FOR RESOLUTION, INCLUDING EXISTING CONDITIONS.

DRAWINGS INCLUDED

SHEET NUMBER	DESCRIPTION
S-1	TITLE PAGE
S-2	GENERAL NOTES
S-3	MOUNT MODIFICATION SCHEDULE
S-4	DETAILS/PARTS

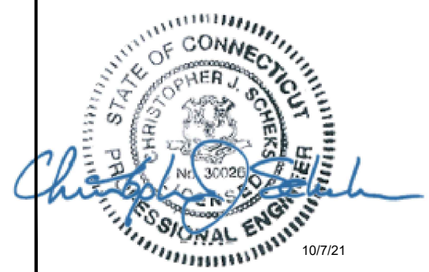
PROJECT CONTACTS:

1. CROWN PROJECT MANAGER:
   TRICIA PELON
   (518) 373-3507
   TRICIA.PELON@CROWNCASTLE.COM
   3 CORPORATE PARK DRIVE, SUITE 101
   CLIFTON PARK, NY 12065

2. ENGINEER OF RECORD:
   GPD ENGINEERING AND ARCHITECTURE PROFESSIONAL CORPORATION
   520 SOUTH MAIN STREET, SUITE 2531
   AKRON, OH 44311
   (330) 572-2100
   FOR QUESTIONS PLEASE EMAIL:
   CROWNMODS@GPDGROUP.COM

NO.	DATE	DESCRIPTION	BY

REVISIONS



10/7/21

GPD Engineering and Architecture Professional Corporation
520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2102

GPD PROJECT NUMBER
2021777.876397.04

CARRIER: T-MOBILE

SITE NAME: NEW MILFORD/ KIMBERLY
BU NUMBER: 876397
WO NUMBER: NA

ENG/QA BY: BAB	DATE: 10/7/21
DFT BY: BAB	DATE: 10/7/21
DFT/QA BY: DP	DATE: 10/7/21
APRV'D BY: CJS	DATE: 10/7/21

SCALE: N.T.S.

TITLE PAGE

S-1 REV 0

GENERAL NOTES

1. DETAILED DRAWINGS AND NOTES SHALL GOVERN GENERAL NOTES AND TYPICAL DETAILS. CONTACT VENDOR POINT OF CONTACT (POC) AND ENGINEER OF RECORD (EOR) FOR CLARIFICATION AS NEEDED.
2. DO NOT SCALE DRAWINGS.
3. FOR THIS MODIFICATION, THE TOWER AND MOUNT HAS BEEN ASSUMED TO BE IN GOOD CONDITION WITHOUT ANY STRUCTURAL DEFECTS, UNO. IF THE GC DISCOVERS ANY INDICATION OF AN EXISTING STRUCTURAL DEFECT, CONTACT THE CROWN POC AND EOR IMMEDIATELY.
4. ALL MANUFACTURER'S HARDWARE ASSEMBLY INSTRUCTIONS SHALL BE FOLLOWED, UNO. CONFLICTING NOTES SHALL BE BROUGHT TO THE ATTENTION OF THE EOR AND THE POC.
5. CONTRACTOR PERSONNEL SHALL NOT DRILL HOLES IN ANY NEW OR EXISTING STRUCTURAL MEMBERS, OTHER THAN THOSE DRILLED HOLES SHOWN ON STRUCTURAL DRAWINGS, WITHOUT THE APPROVAL OF THE EOR.
6. ANY HARDWARE REMOVED FROM THE EXISTING MOUNT SHALL BE REPLACED WITH NEW HARDWARE OF EQUAL SIZE AND QUALITY, UNO. NO EXISTING FASTENERS SHALL BE REUSED.
7. ALL JOINTS USING ASTM A325 OR A490 BOLTS, U-BOLTS, V-BOLTS, AND THREADED RODS SHALL BE SNUG TIGHTENED, UNO.
8. A NUT LOCKING DEVICE SHALL BE INSTALLED ON ALL PROPOSED AND/OR REPLACED SNUG TIGHTENED ASTM A325 OR A490 BOLTS, U-BOLTS, V-BOLTS, AND THREADED RODS.
9. ALL JOINTS ARE BEARING TYPE CONNECTIONS UNO. IF NO BOLT LENGTH IS GIVEN IN THE BILL OF MATERIALS, THE CONNECTION MAY INCLUDE THREADS IN THE SHEAR PLANES, AND THE GC IS RESPONSIBLE FOR SIZING THE LENGTH OF THE BOLT.
10. IF ASTM A325 OR A490 BOLTS, AND/OR THREADED RODS ARE SPECIFIED TO BE PRE-TENSIONED, THESE SHALL BE INSTALLED AND TIGHTENED TO THE PRE-TENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF THE RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM HIGH STRENGTH BOLTS.
11. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT BE AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.

NO.	DATE	DESCRIPTION	BY

REVISIONS

STATE OF CONNECTICUT
CHRISTOPHER J. SCHEKSNAYDER
No. 30026
LICENSED
PROFESSIONAL ENGINEER

10/7/21

GPD Engineering and Architecture
Professional Corporation

520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2102

GPD PROJECT NUMBER
2021777.876397.04

CARRIER: T-MOBILE

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WO NUMBER: NA

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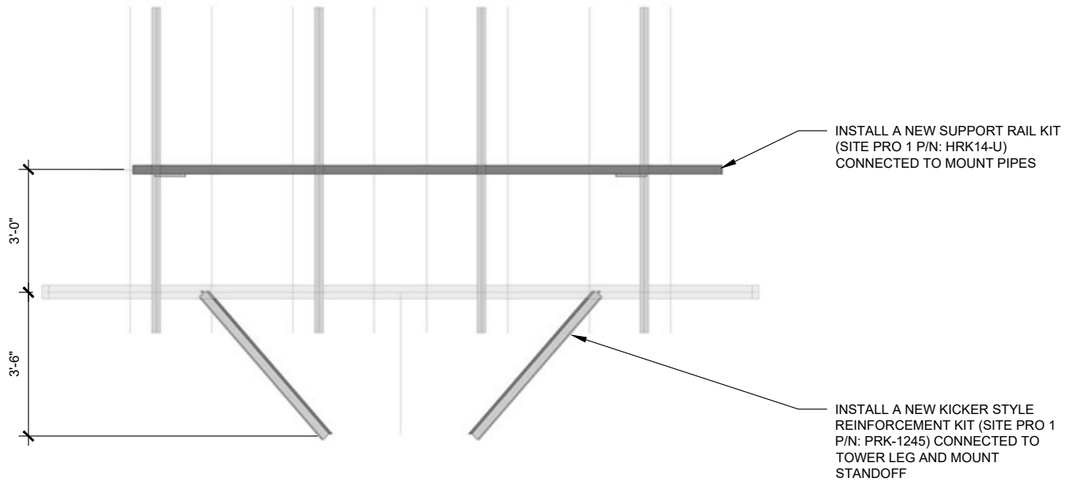
APRV'D BY: CJS DATE: 10/7/21

SCALE: N.T.S.

GENERAL NOTES

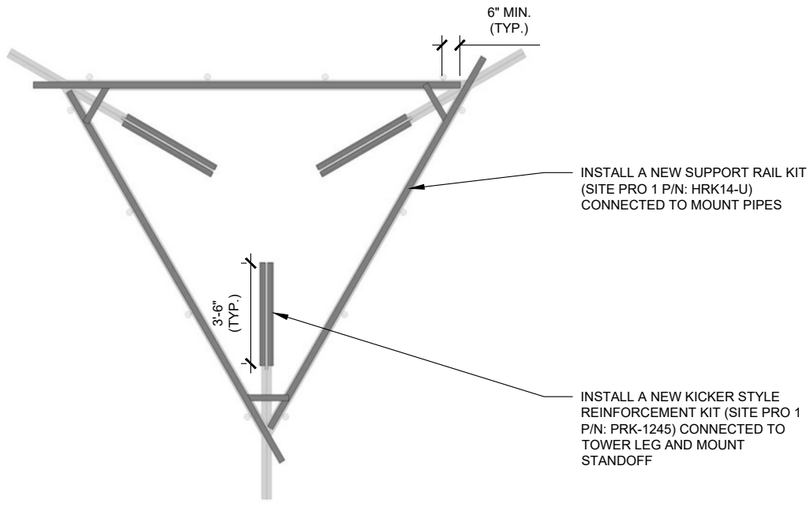
S-2

REV 0



1 / S-3 ELEVATION VIEW

NOTE:
1. DETAIL IS TYPICAL OF ALL (3) SECTORS, ONLY ONE SECTOR SHOWN FOR CLARITY.



2 / S-3 PLAN VIEW

MOUNT MODIFICATION SCHEDULE

	ELEVATION (FT)	MODIFICATION	REFERENCE SHEET
A	160.0	**INSTALL A NEW SUPPORT RAIL KIT CONNECTED TO MOUNT PIPES.**	S-3 & S-4
B	160.0	**INSTALL A NEW KICKER STYLE REINFORCEMENT KIT CONNECTED TO TOWER LEG AND MOUNT STANDOFF.**	S-3 & S-4
PRIOR TO FABRICATION AND INSTALLATION, CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND QUANTITIES GIVEN. LENGTH AND QUANTITIES PROVIDED ARE FOR QUOTING PURPOSES ONLY AND SHALL NOT BE USED FOR FABRICATION.			

NOTES:
1. ANY SUBSTITUTION OF PARTS SPECIFIED IN THIS DESIGN PACKAGE SHALL REQUIRE ENGINEER APPROVAL PRIOR TO FABRICATION.
2. ALL MATERIAL REMOVED FROM MOUNT SHALL BE DISPOSED OF BY CONTRACTOR OFF SITE.

NOTES:
1. ALL EXPOSED STRUCTURAL STEEL SHALL BE HOT-DIP GALVANIZED PER ASTM A153 / A153M OR A123, AS APPLICABLE. FIELD DRILLED OR CUT MATERIAL TO BE COATED WITH TWO BRUSH COATS OF CROWN APPROVED ZINC RICH PAINT IN ACCORDANCE WITH ENG-BUL-10149 *TOWER PROTECTIVE COATINGS BULLETIN.*

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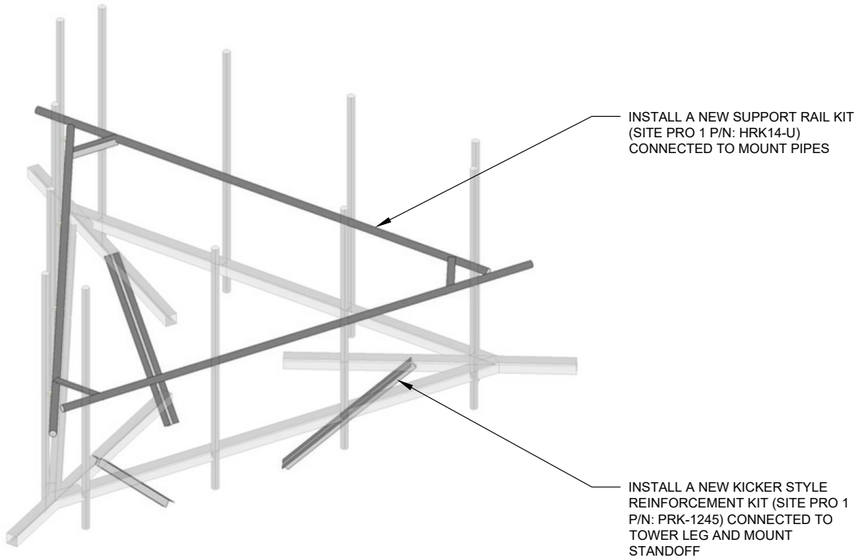
STATE OF CONNECTICUT · CHRISTOPHER J. SCHEKSNAYDER · No. 30026 · LICENSED PROFESSIONAL ENGINEER

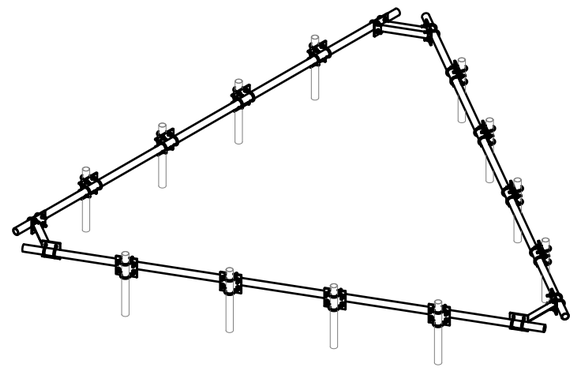
10/7/21

MOUNT MODIFICATION SCHEDULE

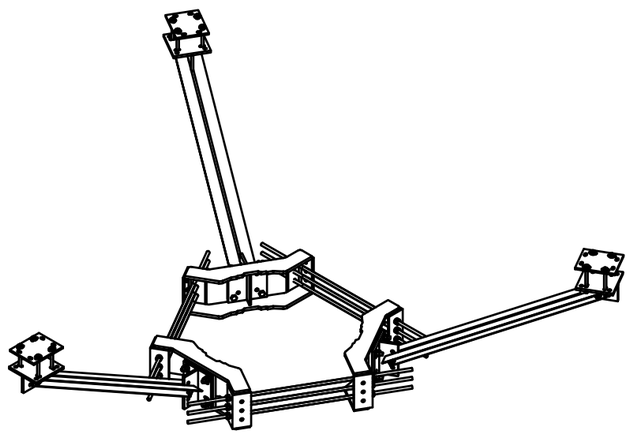
S-3 REV 0



3 S-4 ISOMETRIC VIEW



4 S-4 HRK14-U SUPPORT RAIL KIT



5 S-4 PRK-1245 KICKER STYLE REINFORCEMENT KIT

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SCALE: N.T.S.

DETAILS/PARTS

S-4

REV 0

MOUNT DESIGN DRAWINGS
PREPARED FOR CROWN CASTLE

TOWER INFORMATION	
TOWER HEIGHT / TYPE:	160.0 FT MONOPOLE
TOWER LOCATION: DATUM: (NAD 1983)	LAT: 41° 37' 54.93" LONG: -73° 22' 2.82"
WORK ORDER #:	CCI/WO #: NA
ORDER #:	584631 REV #: 0
SITE ADDRESS:	399 CHESTNUT LAND RD. NEW MILFORD, CT 06776 LITCHFIELD COUNTY, USA

CODE COMPLIANCE	
GOVERNING CODES:	TIA-222-H
WIND SPEEDS:	115 MPH 3 SECOND GUST 40 MPH 3 SECOND GUST
ICE THICKNESS:	1.5 IN
RISK CATEGORY:	II
EXPOSURE CATEGORY:	C
TOPO CATEGORY:	1

SITE NAME: NEW MILFORD/ KIMBERLY
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DRAWINGS INCLUDED

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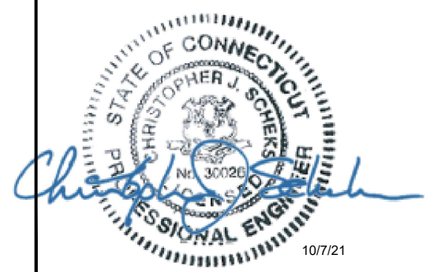

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TITLE PAGE

S-1 REV 0

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11. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT BE AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.

NO.	DATE	DESCRIPTION	BY

REVISIONS

STATE OF CONNECTICUT
CHRISTOPHER J. SCHEKSNAYDER
No. 30026
LICENSED
PROFESSIONAL ENGINEER

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Professional Corporation

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CARRIER: T-MOBILE

SITE NAME: NEW MILFORD/ KIMBERLY
BU NUMBER: 876397
WO NUMBER: NA

ENG/QA BY: BAB DATE: 10/7/21

DFT BY: BAB DATE: 10/7/21

DFT/QA BY: DP DATE: 10/7/21

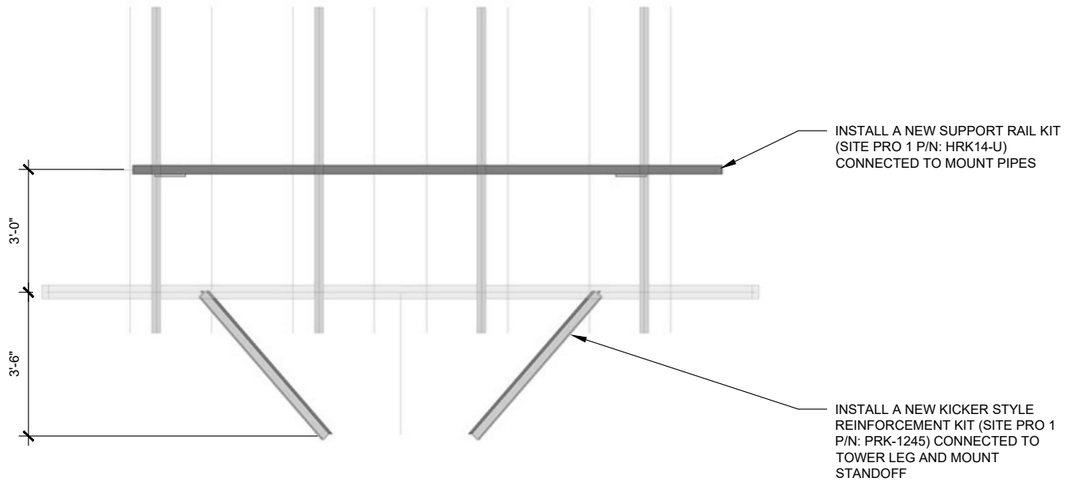
APRV'D BY: CJS DATE: 10/7/21

SCALE: N.T.S.

GENERAL NOTES

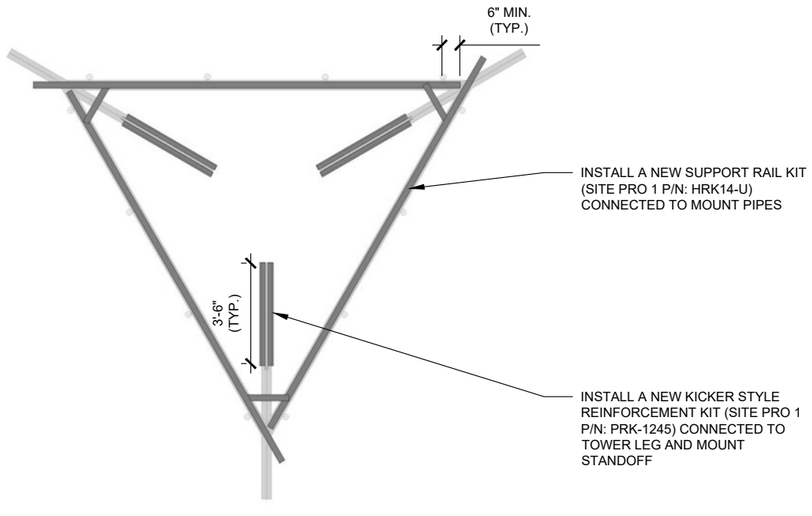
S-2

REV 0



1 / S-3 ELEVATION VIEW

NOTE:
1. DETAIL IS TYPICAL OF ALL (3) SECTORS, ONLY ONE SECTOR SHOWN FOR CLARITY.



2 / S-3 PLAN VIEW

MOUNT MODIFICATION SCHEDULE

	ELEVATION (FT)	MODIFICATION	REFERENCE SHEET
A	160.0	**INSTALL A NEW SUPPORT RAIL KIT CONNECTED TO MOUNT PIPES.**	S-3 & S-4
B	160.0	**INSTALL A NEW KICKER STYLE REINFORCEMENT KIT CONNECTED TO TOWER LEG AND MOUNT STANDOFF.**	S-3 & S-4
PRIOR TO FABRICATION AND INSTALLATION, CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND QUANTITIES GIVEN. LENGTH AND QUANTITIES PROVIDED ARE FOR QUOTING PURPOSES ONLY AND SHALL NOT BE USED FOR FABRICATION.			

NOTES:
1. ANY SUBSTITUTION OF PARTS SPECIFIED IN THIS DESIGN PACKAGE SHALL REQUIRE ENGINEER APPROVAL PRIOR TO FABRICATION.
2. ALL MATERIAL REMOVED FROM MOUNT SHALL BE DISPOSED OF BY CONTRACTOR OFF SITE.

NOTES:
1. ALL EXPOSED STRUCTURAL STEEL SHALL BE HOT-DIP GALVANIZED PER ASTM A153 / A153M OR A123, AS APPLICABLE. FIELD DRILLED OR CUT MATERIAL TO BE COATED WITH TWO BRUSH COATS OF CROWN APPROVED ZINC RICH PAINT IN ACCORDANCE WITH ENG-BUL-10149 *TOWER PROTECTIVE COATINGS BULLETIN.*

NO.	DATE	DESCRIPTION	BY

REVISIONS

GPD Engineering and Architecture Professional Corporation
520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2102

GPD PROJECT NUMBER
2021777.876397.04

CARRIER: T-MOBILE

SITE NAME: NEW MILFORD/ KIMBERLY
BU NUMBER: 876397
WO NUMBER: NA

ENG/QA BY: BAB DATE: 10/7/21

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APRV'D BY: CJS DATE: 10/7/21

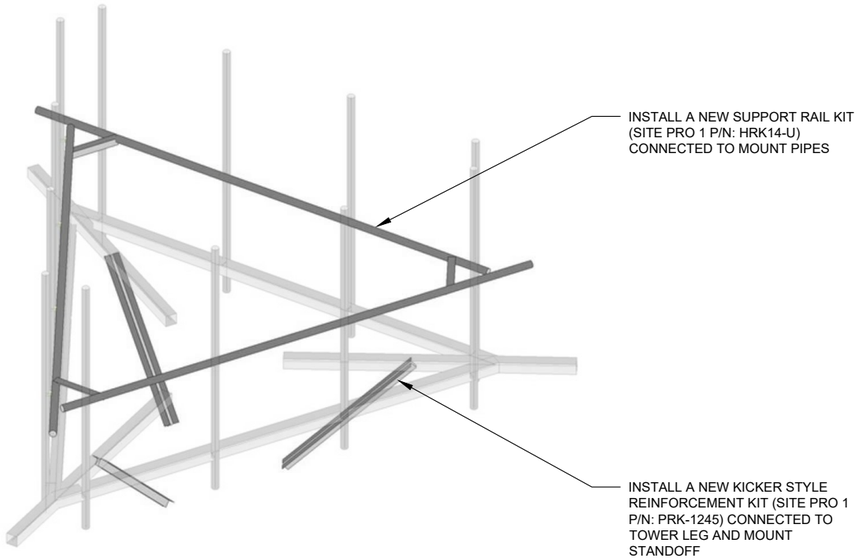
SCALE: N.T.S.

STATE OF CONNECTICUT · CHRISTOPHER J. SCHEKSNAYDER · No. 30026 · LICENSED PROFESSIONAL ENGINEER

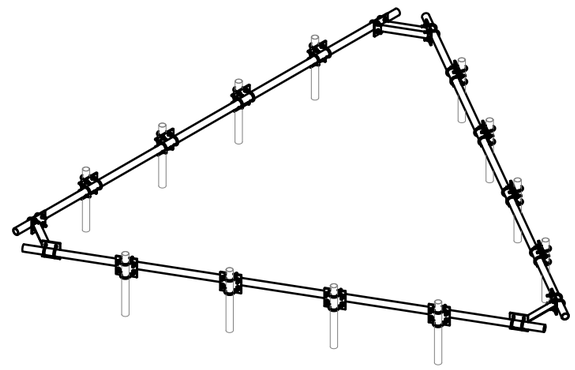
10/7/21

MOUNT MODIFICATION SCHEDULE

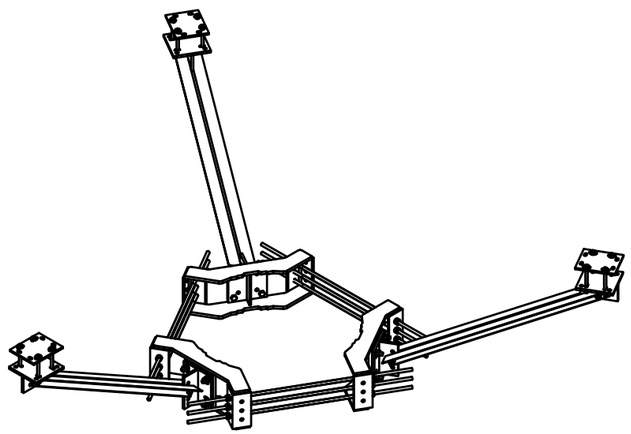
S-3 REV 0



3 S-4 ISOMETRIC VIEW



4 S-4 HRK14-U SUPPORT RAIL KIT



5 S-4 PRK-1245 KICKER STYLE REINFORCEMENT KIT

NO.	DATE	DESCRIPTION	BY

REVISIONS

STATE OF CONNECTICUT
CHRISTOPHER J. SCHEKS
No. 30026
LICENSED
PROFESSIONAL ENGINEER

10/7/21

GPD Engineering and Architecture Professional Corporation
520 South Main Street, Suite 2531
Akron, OH 44311
330.572.2100 Fax 330.572.2102

GPD PROJECT NUMBER
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APRV'D BY: CJS DATE: 10/7/21

SCALE: N.T.S.

DETAILS/PARTS

S-4

REV 0

Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTNH770A

876397
399 Chestnut Land Road
New Milford, Connecticut 06776

November 11, 2021

EBI Project Number: 6221006620

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**23.98%**

November 11, 2021

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

Emissions Analysis for Site: CTNH770A - 876397

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **399 Chestnut Land Road** in **New Milford, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 399 Chestnut Land Road in New Milford, Connecticut 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 manufacturer's 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 power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

1) 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.

2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 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.

4) 4 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.

5) 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.

6) 2 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.

7) 1 LTE Traffic channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.

8) 1 LTE Broadcast channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.

9) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.

11) 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.

12) 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 manufacturer's 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.

13) The antennas used in this modeling are the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector C. 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 manufacturer's 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.

14) The antenna mounting height centerline of the proposed antennas is 163 feet above ground level (AGL).

15) 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.

16) 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:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd
Height (AGL):	163 feet	Height (AGL):	163 feet	Height (AGL):	163 feet
Channel Count:	13	Channel Count:	13	Channel Count:	13
Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts
ERP (W):	17,868.72	ERP (W):	17,868.72	ERP (W):	17,868.72
Antenna A1 MPE %:	**3.44%**	Antenna B1 MPE %:	**3.44%**	Antenna C1 MPE %:	**3.44%**
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	163 feet	Height (AGL):	163 feet	Height (AGL):	163 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A2 MPE %:	**5.30%**	Antenna B2 MPE %:	**5.30%**	Antenna C2 MPE %:	**5.30%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	8.74%
AT&T	11.1%
T-Mobile (Existing)	2.49%
Verizon	1.65%
Site Total MPE % :	23.98%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	8.74%
T-Mobile Sector B Total:	8.74%
T-Mobile Sector C Total:	8.74%
Site Total MPE % :	23.98%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 600 MHz LTE	2	591.73	163.0	1.73	600 MHz LTE	400	0.43%
T-Mobile 600 MHz NR	1	1577.94	163.0	2.30	600 MHz NR	400	0.58%
T-Mobile 700 MHz LTE	2	695.22	163.0	2.03	700 MHz LTE	467	0.43%
T-Mobile 1900 MHz GSM	4	1052.26	163.0	6.14	1900 MHz GSM	1000	0.61%
T-Mobile 1900 MHz LTE	2	2104.51	163.0	6.14	1900 MHz LTE	1000	0.61%
T-Mobile 2100 MHz LTE	2	2649.42	163.0	7.73	2100 MHz LTE	1000	0.77%
T-Mobile 2500 MHz LTE 1C & 2C Traffic	1	11044.63	163.0	16.11	2500 MHz LTE 1C & 2C Traffic	1000	1.61%
T-Mobile 2500 MHz LTE 1C & 2C Broadcast	1	1074.06	163.0	1.57	2500 MHz LTE 1C & 2C Broadcast	1000	0.16%
T-Mobile 2500 MHz NR Traffic	1	22089.26	163.0	32.22	2500 MHz NR Traffic	1000	3.22%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	163.0	3.13	2500 MHz NR Broadcast	1000	0.31%
						Total:	**8.74%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

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:	8.74%
Sector B:	8.74%
Sector C:	8.74%
T-Mobile Maximum MPE % (Sector A):	8.74%
Site Total:	23.98%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **23.98%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

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2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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