PROJECT NARRATIVE

November 4, 2021

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

Re: Request of DISH Wireless LLC for an Order to Approve the Shared Use of an Existing Tower
10 Tanner Marsh Road Guilford, CT 06437
Latitude: 41'17'18.99" / Longitude: -72' 39' 29.81"

Dear Ms. Bachman:

Pursuant to Connecticut General Statutes ("C.G.S.") §16-50aa, as amended, DISH Wireless LLC ("DISH") hereby requests an order from the Connecticut Siting Council ("Council") to approve the shared use by DISH of an existing telecommunication tower at 10 Tanner Marsh Road in Guilford (the "Property"). The existing 191-foot self-support tower is owned by American Tower Corporation ("ATC"). The underlying property is owned by the Town of Guilford. DISH requests that the Council find that the proposed shared use of the ATC tower satisfies the criteria of C.G.S. §16-50aa and issue an order approving the proposed shared use. A copy of this filing is being sent to Matthew T. Hoey III, First Selectman of Town of Guilford, Kimberly Norman-Rosedam, Town of Guilford Building Official and the Town of Guilford as the property owner.

Background

The existing ATC facility consists of a 191-foot self-support tower located within an existing leased area. The Town of Guilford currently maintains antennas at the 190-foot level, 148-foot level, 144-foot level and 80-foot level. Metro PCS currently maintains antennas at the 183-foot level. T-Mobile currently maintains antennas at the 177-foot level. AT&T Mobility currently maintains antennas at the 166-foot level and 4-foot level. Monroe Board of Education currently maintains antennas at the 137-foot level, 127-foot level and 108-foot level. Spok Holdings, Inc. currently maintains antennas at the 87-foot level and 16-foot level. Equipment associated with these antennas are located at various positions within the tower and compound.

DISH is licensed by the Federal Communications Commission ("FCC") to provide wireless services throughout the State of Connecticut. DISH and Crown Castle have agreed to the proposed shared use of the 10 Tanner Marsh Road tower pursuant to mutually acceptable terms and conditions. Likewise, DISH and ATC have agreed to the proposed installation of equipment cabinets on the ground on the south side of the tower within the existing compound. ATC has authorized DISH to apply for all necessary permits and approvals that may be required to share the existing tower. (See attached Letter of Authorization)

DISH proposes to install three (3) antennas, (1) Tower platform mount, (6) Remote radio units at the 156-foot level along with, (1) over voltage protection device (OVP) and (1) Hybrid cable. DISH will install an equipment cabinet on a 5'x7' equipment platform. DISH's Construction Drawings provide project specifications for all proposed site improvement locations. The construction drawings also include specifications for DISH's proposed antenna and groundwork.

C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the Council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such a shared use." DISH respectfully submits that the shared use of the tower satisfies these criteria.

A. Technical Feasibility. The existing ATC tower is structurally capable of supporting DISH's proposed improvements. The proposed shared use of this tower is, therefore, technically feasible. A Feasibility Structural Analysis Report ("Structural Report") prepared for this project confirms that this tower can support DISH's proposed loading. A copy of the Structural Report has been included in this application.

B. Legal Feasibility. Under C.G.S. § 16-50aa, the Council has been authorized to issue order approving the shared use of an existing tower such as the ATC tower. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. In addition, § 16-50x(a) directs the Council to "give such consideration to the other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under the statutory authority vested in the Council, an order by the Council approving the requested shared use would permit the Applicant to obtain a building permit for the proposed installations.

C. Environmental Feasibility. The proposed shared use of the ATC tower would have a minimal environmental effect for the following reasons:

1. The proposed installation will have no visual impact on the area of the tower. DISH's equipment cabinet would be installed within the existing facility compound. DISH's shared use of this tower therefore will not cause any significant change or alteration in the physical or environmental characteristics of the existing site.

2. Operation of DISH's antennas at this site would not exceed the RF emissions standard adopted by the Federal Communications Commission ("FCC"). Included in the EME report of this filing are the approximation tables that demonstrate that DISH's proposed facility will operate well within the FCC RF emissions safety standards.

3. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete the proposed installations would not generate any increased traffic to the ATC facility other than periodic maintenance. The proposed shared use of the ATC tower, would, therefore, have a minimal environmental effect, and is environmentally feasible.

D. **Economic Feasibility**. As previously mentioned, DISH has entered into an agreement with ATC for the shared use of the existing facility subject to mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible.

E. **Public Safety Concerns**. As discussed above, the tower is structurally capable of supporting DISH's full array of three (3) antennas, (1) Tower platform mount, (6) Remote radio units, (1) over voltage protection device (OVP) and (1) Hybrid cable and all related equipment. DISH is not aware of any public safety concerns relative to the proposed sharing of the existing ATC tower

Conclusion

For the reasons discussed above, the proposed shared use of the existing ATC tower at 10 Tanner Marsh Road satisfies the criteria stated in C.G.S. §16-50aa and advances the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant, therefore, respectfully requests that the Council issue an order approving the prosed shared use.

Sincerely,

David Hoogasian

David Hoogasian
Project Manager

LETTER OF AUTHORIZATION

AMERICAN TOWER®
CORPORATION

LETTER OF AUTHORIZATION
LICENSEE: DISH WIRELESS L.L.C.

I, Margaret Robinson, Senior Counsel for American Tower*, owner/operator of the tower facility located at the address identified above (the "Tower Facility"), do hereby authorize DISH WIRELESS L.L.C., its successors and assigns, and/or its agent, (collectively, the "Licensee") to act as American Tower's non-exclusive agent for the sole purpose of filing and consummating any land-use or building permit application(s) as may be required by the applicable permitting authorities for Licensee's telecommunications' installation.

We understand that this application may be denied, modified or approved with conditions. The above authorization is limited to the acceptance by Licensee only of conditions related to Licensee's installation and any such conditions of approval or modifications will be Licensee's sole responsibility.

*American Tower includes all affiliates and subsidiaries of American Tower Corporation.

Project #	ATC Site #	ATC Site Name	ATC Site Address
13688133	208450	Enfield	1A Ecology Drive, Enfield CT
13700322	209115	Ridgefield 2	320 Old Stagecoach Road, Ridgefield, CT
13688136	209185	Burlington 2	87 Monce Road, Burlington CT
13700320	209271	Brookfield 2	100 Pocono Road, Brookfield CT
13693702	243036	WEST HAVEN & RT 162 CT	668 Jones Hill Road, West Haven CT
13693677	280501	ROXBURY CT	377 Southbury Road, Roxbury CT
13685406	281416	WILLINGTON CT	196 Tolland Turnpike, Willington CT
13709418	281862	BRIDGEWATER CT	111 SECOND HILL RD, Bridgewater CT
13693659	283418	NORTH HAVEN CT	50 Devine Street, North Haven CT
13694329	283419	PINE ORCHARD BRANFORD CT	123 Pine Orchard Road, Branford CT
13694332	283422	SHORT BEACH BRANFORD CT	171 Short Beach Road, Branford CT
13698427	283423	NAUGATUCK CT	880 Andrew Mountain Road, Naugatuck CT
13685464	283563	MANSFIELD CT	343 Daleville Road, Willington CT
13692735	284983	OLD LYME CT	61-1 Buttonball Road, Old Lyme CT
13693120	284984	PAWCATUCK CT	166 Pawcatuck Ave, Pawcatuck CT
13693144	284988	GUILFORD CT	Moose Hill Road, Guilford CT
13694582	302465	Colchester CT 6	355 Route 85, Colchester CT
13683501	302468	Petro Lock	99 Meadow St, Hartford CT
13685427	302469	Bridgeport CT 2	1069 Connecticut Avenue, Bridgeport CT
13683503	302472	Andover-bunker Hill Road	104 Bunker Hill Road, Andover CT
13683507	302473	E H F R - Prestige Park	310 Prestige Park Road, East Hartford CT

AMERICAN TOWER®
CORPORATION

Project #	ATC Site #	ATC Site Name	ATC Site Address
13683510	302474	South Windsor	391 Niederwerfer Road, South Windsor CT
13683513	302483	Brln - Berlin	286 Beckley Road, Berlin CT
13692185	302488	Cntn - Canton	4 Hoffmann Road, Canton CT
13692173	302495	Tolland CT	56 Ruops Road, Tolland CT
13694579	302496	Clch - Colchester	Chestnut Hill Road, Colchester CT
13701212	302501	Plymouth CT 3	297 North Street, Plymouth CT
13685414	302515	SMFR - North	5 High Ridge Park Road, Stamford CT
13702496	302516	Mlfd - Milford	438 Bridgeport Ave, Milford CT
13688395	302518	Newtown CT 3	25 Meridian Ridge Drive, Newton CT
13692174	302529	Vernon CT 6	777 Talcotville Road, Vernon Rockville CT
13693124	311014	NORWICH CT	202 N Wawecus Hill Rd, Norwich CT
13702522	311305	GLFD-GUILFORD REBUILD CT	10 Tanner Marsh Road, Guilford CT
13693127	370623	MONTVILLE CT	139 Sharp Hill Road, Uncasville CT
13681964	370625	Old Saybrook	77 Springbrook Road, Old Saybrook CT
13702535	383660	North Madison Volunteer FD	864 Opening Hill Road, Madison CT
13702538	411180	Good Hill CT	481 GOOD HILL ROAD, Woodbury CT
13693709	411182	Nepaug CT	20 Antolini Road, New Hartford CT
13693131	411183	WATERFORD CT	53 Dayton Rd., Waterford CT
13693135	411184	SALEM CT SQA	399 West Road, Salem CT
13692177	411186	West Granby, CT CT	207 West Granby Road, Granby CT
13692178	411187	Hartford North 2 CT	811 Blue Hills Avenue, Bloomfield CT
13693705	411188	Southbury CT	111 Upper Fishrock Road, Southbury CT
13692179	411256	CANTON CT	14 CANTON SPRINGS ROAD, Canton CT
13681988	411257	Middle Haddam Road-CROWN CT	191 Middle Haddam Rd, Portland CT
13692180	411258	Farmington North 2 CT	199 Town Farm Road, Farmington CT
13692182	411259	CT Collinsville CAC 802816 CT	650 Albany Turnpike, Collinsville CT
13692184	416862	SUFFIELD SW CT CT	106 South Grand St., West Suffield CT
13694578	6260	NORTH STONINGTON CT	118C Wintechog Hill Rd., off of Rt. 2, North Stonington CT
13681397	88013	Killingworth	131 Little City Road, Killingworth CT

Signature:

Print Name: Margaret Robinson
Senior Counsel
American Tower*

AMERICAN TOWER®
CORPORATION

LETTER OF AUTHORIZATION
LICENSEE: DISH WIRELESS L.L.C.

NOTARY BLOCK

Commonwealth of MASSACHUSETTS
County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Senior Counsel for American Tower*, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same.

WITNESS my hand and official seal, this 10th day of September 2021.

NOTARY SEAL

MELISSA ANN METZLER
Notary Public
Commonwealth of Massachusetts
My Commission Expires March 14, 2025

Notary Public _____
My Commission Expires: March 14, 2025

ENGINEERING DRAWINGS

DISH Wireless L.L.C. SITE ID:

BOHVN00147A

DISH Wireless L.L.C. SITE ADDRESS:

10 TANNER MARSH ROAD
GUILFORD, CT 06437

CONNECTICUT CODE OF COMPLIANCE

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

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

SHEET INDEX

PROJECT NOTES

THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLED TO EXPEDITED REVIEW UNDER 47 U.S.C 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION REMOVAL AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT A SUBSTANTIAL CHANGE UNDER CFR 1.61000 (B)(7).

SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

TOWER SCOPE OF WORK:
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (3) PROPOSED SECTOR FRAMES
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED METAL PLATFORM
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)

SITE PHOTO

UNDERGROUND SERVICE ALERT CBYD 811
UTILITY NOTIFICATION CENTER OF CONNECTICUT
(800) 922-4455
WWW.CBYD.COM

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

811

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE. NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

SITE INFORMATION

PROPERTY OWNER:	TOWN OF GUILFORD
ADDRESS:	31 PARK ST GUILFORD, CT 06437
TOWER TYPE:	SELF-SUPPORT TOWER
TOWER CO SITE ID:	311305
TOWER APP NUMBER:	13702522
COUNTY:	NEW HAVEN
LATITUDE (NAD 83):	41° 17' 18.99" N 41.28860833 N
LONGITUDE (NAD 83):	72° 39' 29.81" W 72.6582805599 W
ZONING JURISDICTION:	NEW HAVEN COUNTY
ZONING DISTRICT:	RESIDENTIAL
PARCEL NUMBER:	049029A
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	FRONTIER COMMUNICATIONS

PROJECT DIRECTORY

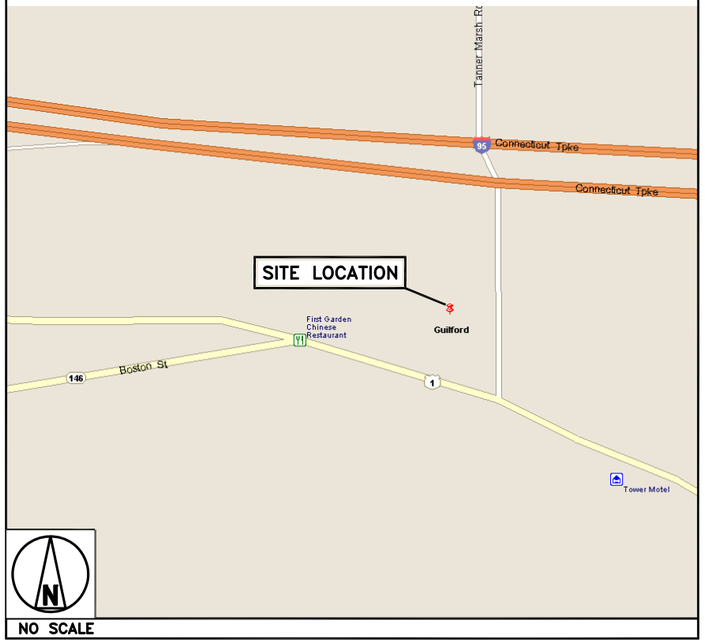
APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	AMERICAN TOWER CORPORATION 10 PRESIDENTIAL WAY WOBURN, MA 01801 (781) 926-4500
SITE DESIGNER:	B+T GROUP 1717 S. BOULDER AVE, SUITE 300 TULSA, OK 74119 (918) 587-4630
SITE ACQUISITION:	APRIL PARROTT april.parrott@dish.com
CONST. MANAGER:	JAVIER SOTO javier.soto@dish.com
RF ENGINEER:	SYED ZAIDI syed.zaidi@dish.com

DIRECTIONS

DIRECTIONS FROM TWEED NEW HAVEN AIRPORT:

GET ON I-95 N IN EAST HAVEN FROM BURR ST, CHARTER OAK AVE, MAIN ST AND US-1 N HEAD WEST. TURN RIGHT ONTO BURR ST. TURN LEFT TO STAY ON BURR ST. TURN LEFT ONTO CHARTER OAK AVE. TURN LEFT ONTO MAIN ST. PASS BY KFC (ON THE LEFT). TURN RIGHT ONTO OAKLEY ST. TURN RIGHT ONTO US-1 N. USE THE LEFT LANE TO TAKE THE RAMP ONTO I-95 N. FOLLOW I-95 N TO GOOSE LN IN GUILFORD. TAKE EXIT 59 FROM I-95 N. MERGE WITH I-95 N. TAKE EXIT 59 FOR GOOSE LANE. TAKE US-1 N TO TANNER MARSH RD. TURN RIGHT ONTO GOOSE LN. TURN LEFT AT THE 1ST CROSS STREET ONTO US-1 N. TURN LEFT ONTO TANNER MARSH RD. ARRIVE AT BOHVN00147A.

VICINITY MAP



NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

AMERICAN TOWER®
10 PRESIDENTIAL WAY
WOBURN, MA 01801

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

STATE OF CONNECTICUT
No. 23924
LICENSED PROFESSIONAL ENGINEER
9/7/21

B&T ENGINEERING, INC.
PEF006618
Expires 6/30/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
DD	SP	RCM

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	9/7/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

155741.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00147A
10 TANNER MARSH ROAD
GUILFORD, CT 06437

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

STATEMENT OF ENCROACHMENTS

A. EDGE OF BITUMINOUS 0.3'
B. CHAIN LINK FENCE 0.4'

MAP REFERENCES:

A. MAP ENTITLED: GENERAL LOCATION SURVEY SHOWING PROPERTY OF THE TOWN OF GUILFORD AND REVISED SUBLEASED PREMISES FROM THE CONNECTICUT WATER COMPANY, 10 TANNER MARSH ROAD, GUILFORD, CONNECTICUT, DATED: SEPTEMBER 8, 2010, SCALE: 1"=20, BY ANDERSON ENGINEERING & SURVEYING ASSOCIATES, GUILFORD, CONN.

ZONING NOTES

Zoning Information • Zone "TS TRANSITIONAL SERVICE"

PARKING STALLS

N/A

ZONING NOTES NOT PROVIDED BY TITLE INSURER ZONE "TS"

VICINITY MAP

FLOOD NOTE

FLOOD NOTE: Based on maps prepared by the Federal Emergency Management Agency (FEMA) available online at www.msc.fema.gov and by graphic plotting only, this property is located in Zone "X" on Flood Insurance Rate Map Number 0901C0170H, which bears an effective date of 12/17/2010 and is not in a Special Flood Hazard Area. By reviewing flood maps provided by the National Flood Insurance Program we have learned the community does participate in the program. No field surveying was performed to determine this zone and an elevation certificate may be needed to verify the accuracy of the maps or else to apply for a variance from the Federal Emergency Management Agency.

LAND AREA

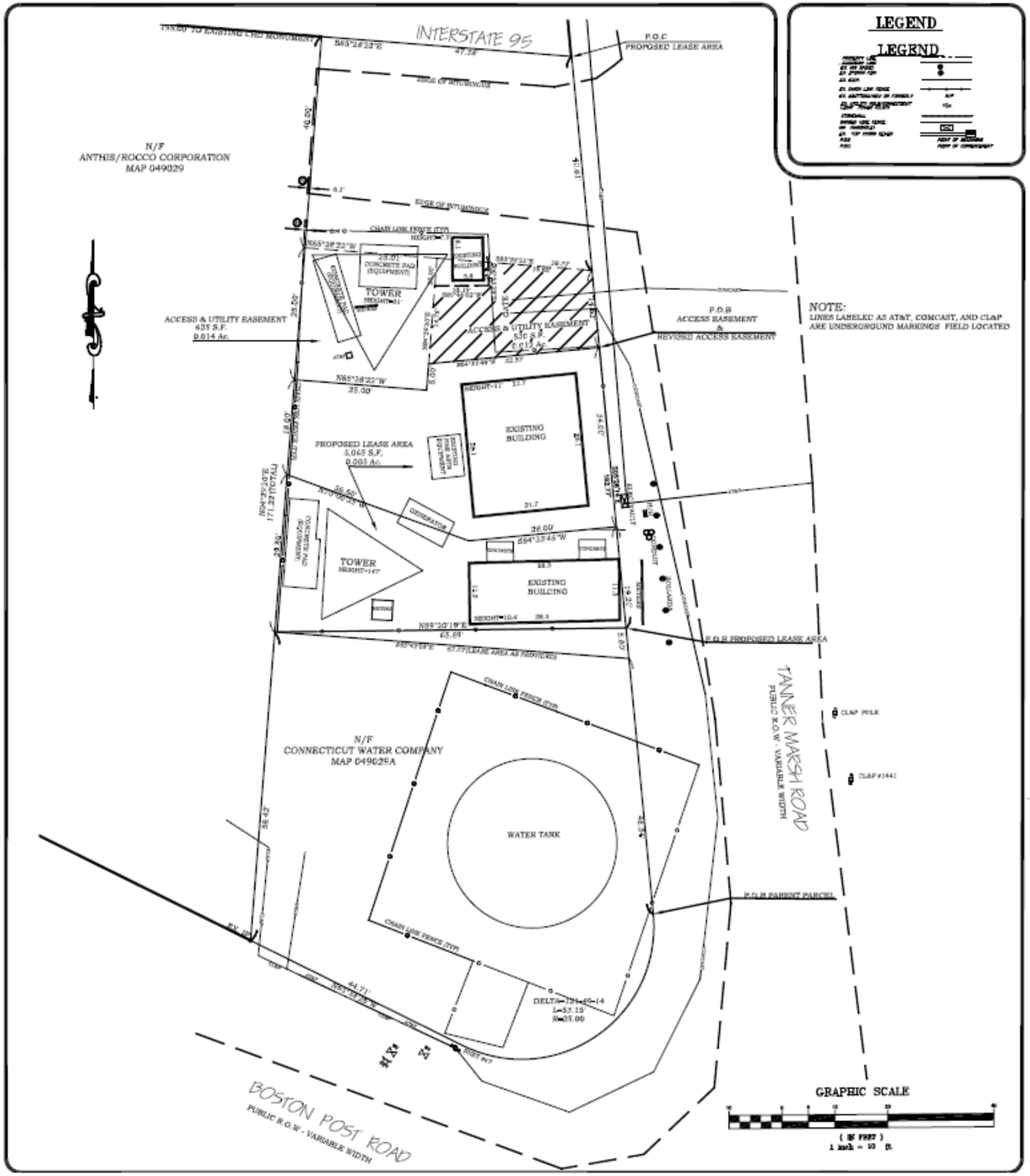
PARENT PARCEL
81,508 S.F./0.26 AC.

LEASE AREAS
(SEE MAP)

ACCESS EASEMENT
(SEE MAP)

BASIS OF BEARINGS

STREET LINE BOSTON POST RD
PER MAP #3147
N63°38'28"W



LEGEND

TITLE LEGAL DESCRIPTION

LEASE AREA (AS PROVIDED)

Starting at a point 58.20 ft. North-East of the iron pin found on the Right of Way line for the Boston Post Road,
Thence traveling 171.23 ft. at a bearing of N24°-39'-37E to the Right of Way of the Ct. Turnpike
Thence traveling 47.38 ft. at a bearing of S85°-28'-32E to the west street line of Tanner Marsh Road,
Thence traveling 182.77 ft. at a bearing of S65°-26'-05E to a turning point,
Thence traveling 67.37 ft. at a bearing of N89°-43'-35West to a turning point,
All as shown on the General Location Survey Showing Property of the Town of Guilford and revised subleased premises from the Connecticut Water Company, 10 Tanner Marsh Road, Guilford, Connecticut dated September 8, 2010 pursuant by Anderson Engineering & Surveying Associates 1104 Boston Post Road, Guilford, CT 06437

ACCESS & UTILITY EASEMENT AS SURVEYED)

All that certain piece or parcel of land situated in the Town of Guilford, County of New Haven, and State of Connecticut, on the West side of Tanner Marsh Road, and being more particularly described as follow:
Beginning at a point in the west line of Tanner Marsh Road, said point being S 0° 26' 14" E 69.23 feet from the intersection of the said west line of Tanner Marsh Road with the south "Non-Access Highway Line" of the State of Connecticut Interstate Highway I-95; thence running S 64° 33' 46" W 32.37 feet to a point; thence running N 4°39' 37" E 22.00 feet to a point; thence running S 89° 28' 22" E 29.37 feet to a point in the said west line of Tanner Marsh Road; thence running S 0° 26' 14" E along said west line of Tanner Marsh Road, 14.62 feet to the point of beginning.

REVISED ACCESS & UTILITY EASEMENT AS SURVEYED)

All that certain piece or parcel of land situated in the Town of Guilford, County of New Haven, and State of Connecticut, on the West side of Tanner Marsh Road, and being more particularly described as follow:
Beginning at a point in the west line of Tanner Marsh Road, said point being S 0° 26' 14" E 69.23 feet from the intersection of the said west line of Tanner Marsh Road with the south "Non-Access Highway Line" of the State of Connecticut Interstate Highway I-95; thence running S 64° 33' 46" W 32.37 feet to a point; thence running N 4°39' 37" E 22.00 feet to a point; thence running S 89° 28' 22" E 18.16 feet to a point, thence running N0-43-18W 6.45 feet to a point thence running S89-28-22E 10.62 feet to point in the west line of Tanner Marsh Road; thence running S 0° 26' 14" E along said west line of Tanner Marsh Road, 14.62 feet to the point of beginning.

PARENT PARCEL LEGAL DESCRIPTION (AS PROVIDED)

All that certain piece or parcel of land with all the buildings and improvements thereon, situated in the Town of Guilford, County of New Haven, and State of Connecticut and being more particularly shown as Parcels A, C and D on a certain map or plan entitled "Map of Property of the Canterbury Realty Company located in the Town of Guilford, Conn., Scale 1"=40' survey and map by T.M. Russell, Jr., P.E. & L.S. #420, Guilford, Conn., July 11, 1967 which map is on file in the Office of the Guilford Town Clerk. Said parcels are more particularly bounded and described as follows:
SOUTHERLY by highway known as Boston Post Road (U.S. Route #1), 56 feet, more or less, as shown on said map
WEST by Parcel #D, 32.37 feet and by land now or formerly of The Canterbury Realty Company, 171.22 feet, in all, as shown on said map;
NORTH By land now or formerly of the State of Connecticut, 24 feet, more or less, as shown on said map.
EASTERLY By Highway known as Tanner Marsh Road, 210 feet, more or less, as shown on said map.
Except as the same may have been changed by the layout and grade of Boston Post Road and Tanner Marsh Road.

PROPOSED LEASE AREA - AS SURVEYED:

A lease area situated in the City of Guilford, County of New Haven, State of Connecticut, and known as being a 3,064.99 ft. lease area over and upon the land described in deed to Town of Guilford by Deed Book 268, Page 222 of the aforesaid County Records of Deeds and being more particularly described by metes and bounds as follows;

Commencing at the Northeast corner of the aforementioned Town of Guilford tract, also being the point of intersection of the Southerly Right-of-Way line of Interstate 95 and the West Right-of-Way line of Tanner Marsh Road; thence South 0° 26' 14" East, a distance of 69.23 feet to the Place of Beginning.

Thence South 0° 26' 14" East, a distance of 53.16 feet;
Thence North 89° 20' 19" East, a distance of 63.89 feet;
Thence North 24° 29' 26" East, a distance of 47.80 feet;
Thence South 65° 28' 22" East, a distance of 29.22 feet;
Thence North 24° 29' 26" East, a distance of 5.44 feet;
Thence North 64° 33' 46" East, a distance of 32.37 feet to the Place of Beginning. Said lease area encumbering 3,065.04 ft. (0.070 acres), more or less.

THE LEGAL DESCRIPTION MATHEMATICALLY CLOSES.

SHEET TITLE
AS-BUILT SURVEY

PROJECT
311305 GUILFORD - REBUILD
10 TANNER MARSH ROAD
GUILFORD, CT.

AS-BUILT SURVEY

Survey Notes:

This map has been prepared within the "Minimum Standards For Surveys and Maps in the State of Connecticut" as adopted for use by the regulations of Connecticut state agencies on September 26, 1996. (CT Sections 20-300b-20).

-Type Of Survey: EXISTING CONDITIONS SURVEY
-Boundary Determination Category: Dependant Resurvey
-Horizontal Accuracy Class: A-2

Date of Plat or Map: 4/9/2013
Surveyor: James E. Jones
Register No. CT. LS #12329

SURVEYED BY:
JONES ENGINEERING, LLC
92 NORTH SUMMIT STREET
SUITE 2A
SOUTHINGTON, CT
PHONE: 860-621-0700
FAX: 860-621-0566

DRAWN BY: RSD
CHECKED BY: JEJ

NO.	DATE	REVISION
1.	8-27-13	OLD REPUBLIC COMMENTS
2.		
3.		
4.		
5.		

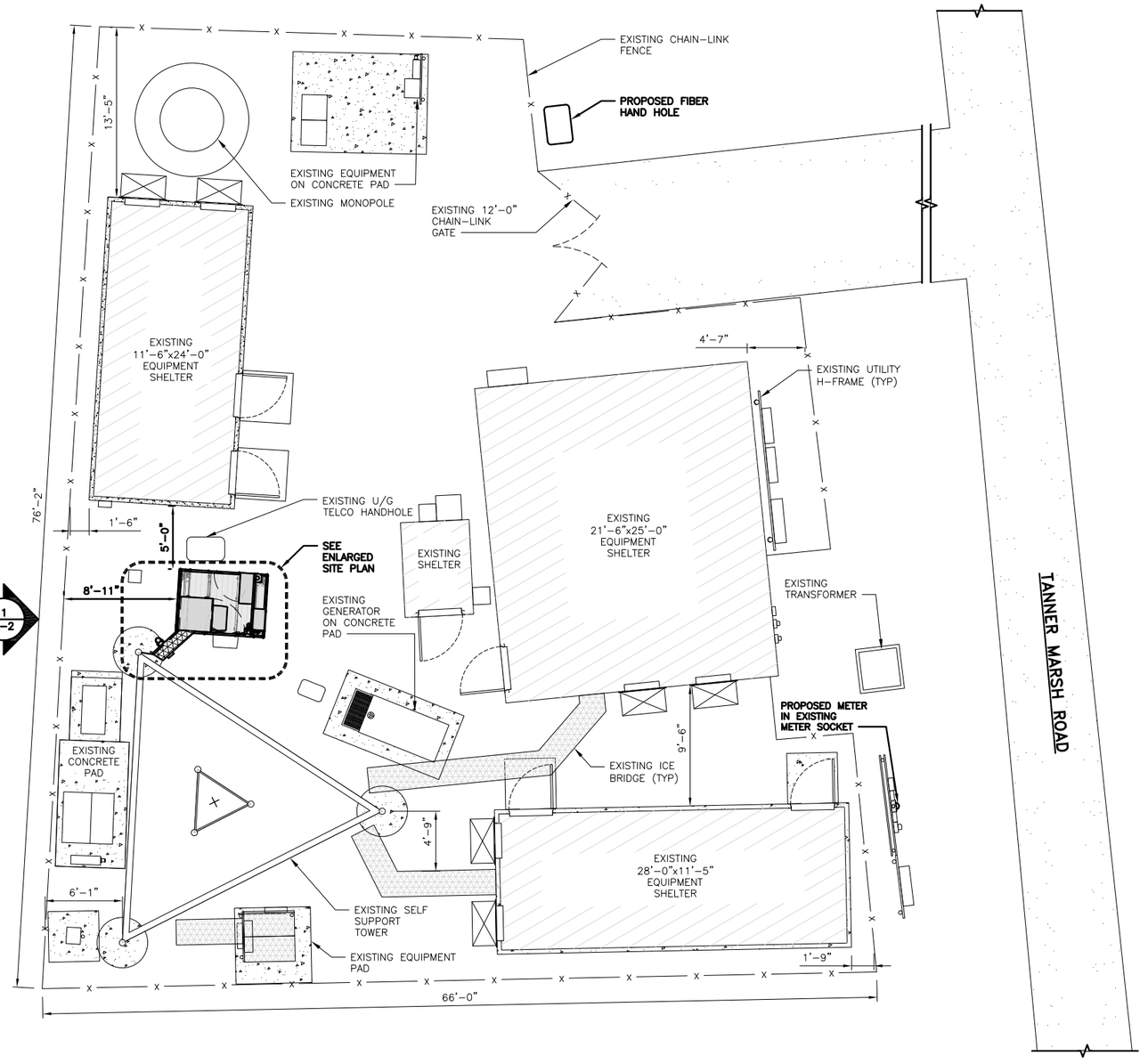
COORDINATED BY:
OLD REPUBLIC COMMERCIAL
DUE DILIGENCE SERVICES
A MEMBER OF THE OLD REPUBLIC TITLE INSURANCE GROUP
PRESTON PARK FINANCIAL CENTER EAST
4965 PRESTON PARK BOULEVARD, SUITE 620
Dallas, Texas 75252
P:(866) 539-4033 F:(972) 943-5339

PROJECT NUMBER
131284-S

SHEET
1 OF 1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



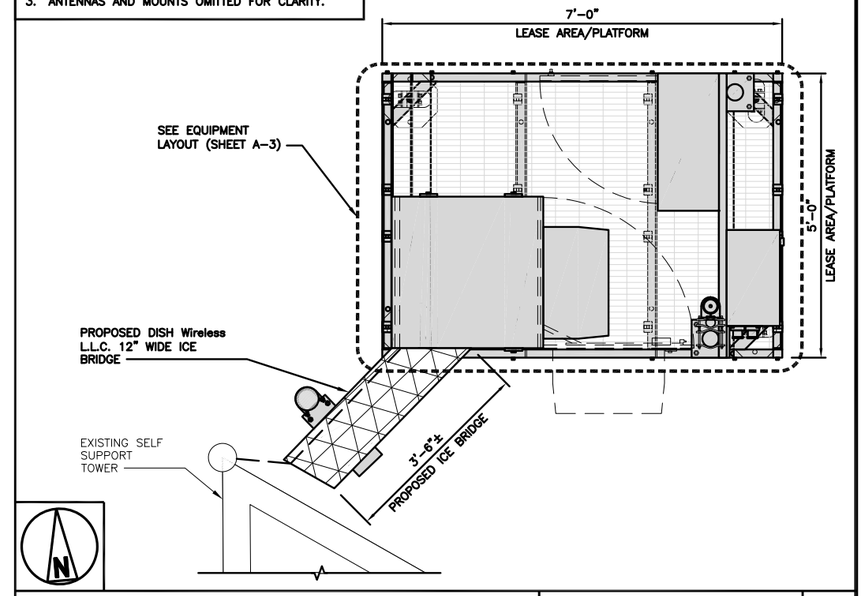
OVERALL SITE PLAN

6' 4' 2' 0 5' 10'
3/16"=1'-0"

1

NOTES

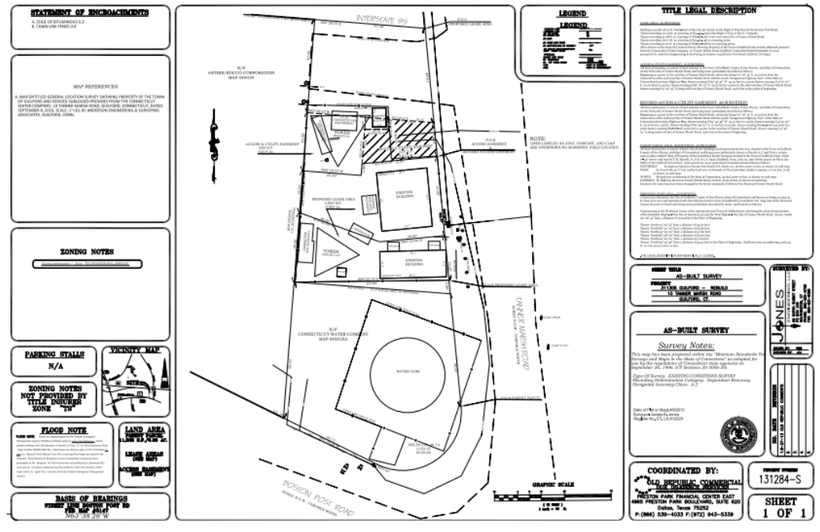
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



ENLARGED SITE PLAN

12" 6" 0 1' 2' 3'
3/4"=1'-0"

2



NOTE : THE SURVEY PROVIDED ON THIS SHEET IS PROVIDED FOR REFFERENCE ONLY, THE UTILITY ROUTE AND EXISTING EASEMENT MUST BE VERIFIED PRIOR TO CONSTRUCTION.

SURVEY

3

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DRAWN BY:	CHECKED BY:	APPROVED BY:
DD	SP	RCM

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	9/7/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

155741.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00147A
10 TANNER MARSH ROAD
GUILFORD, CT 06437

SHEET TITLE

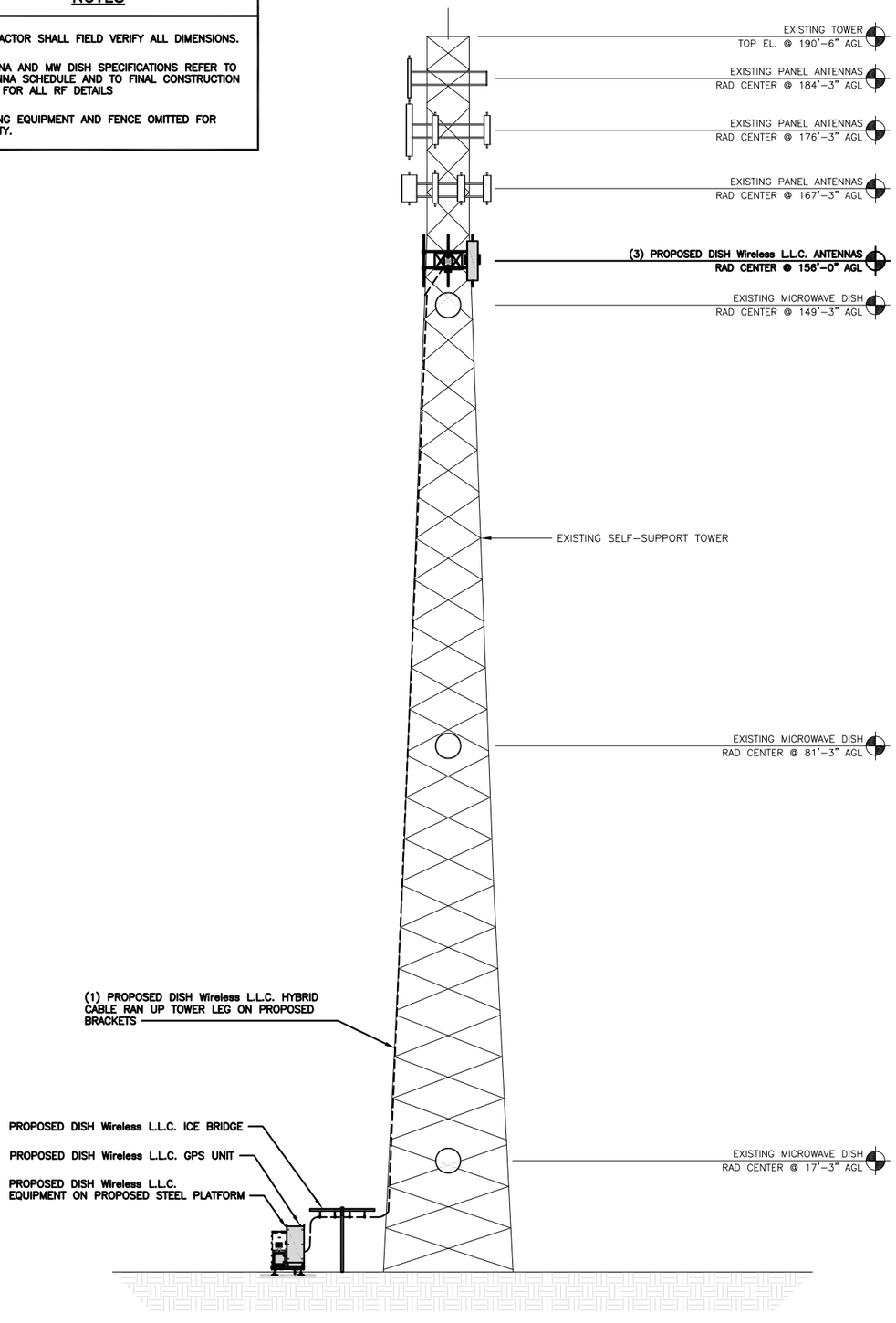
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

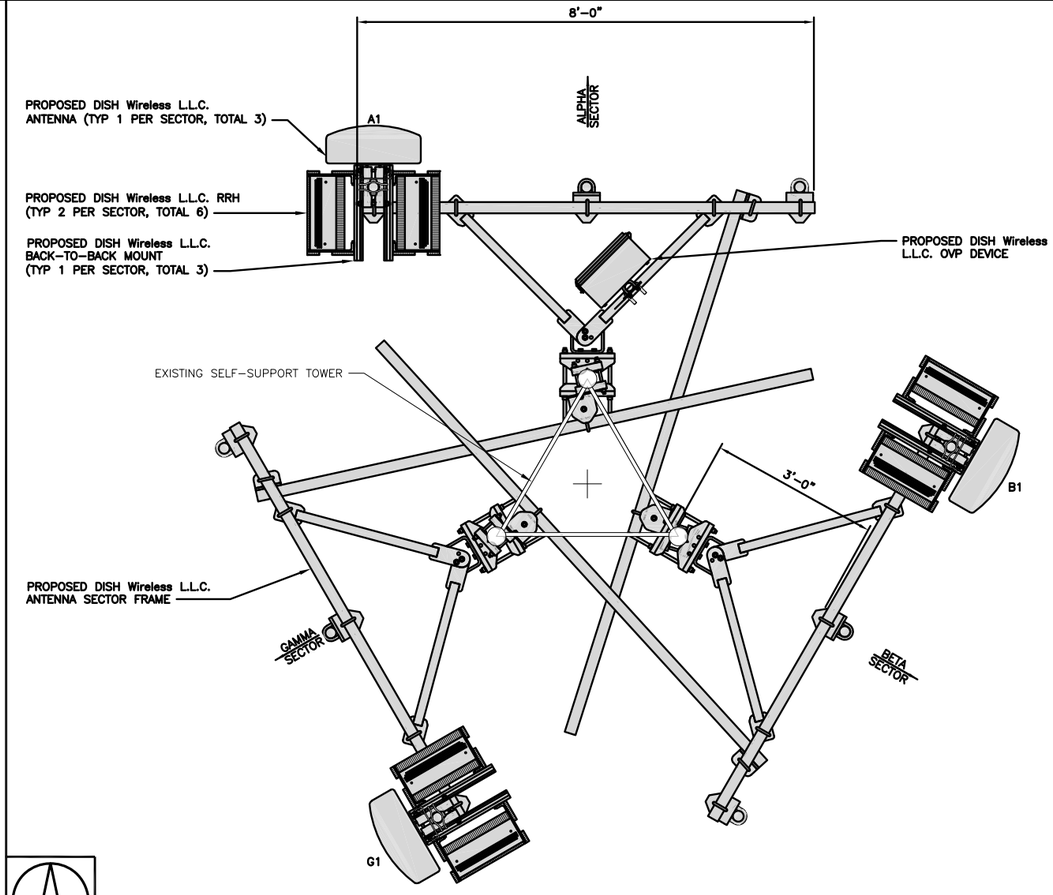
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED WEST ELEVATION

12' 8' 4' 0 10' 20'
3/32"=1'-0"

1



WIDTH OF TOWER FACE IS NOT TO BE CONSIDERED TO SCALE

ANTENNA LAYOUT

12" 6" 0 1' 2' 3'
3/4"=1'-0"

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	0°	156'-0"	(1) HIGH-CAPACITY HYBRID CABLE (185' LONG)
BETA	B1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	120°	156'-0"	
GAMMA	G1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	240°	156'-0"	

SECTOR	POSITION	RRH	
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY
ALPHA	A1	FUJITSU – TA08025-B605	5G
	A1	FUJITSU – TA08025-B604	5G
BETA	B1	FUJITSU – TA08025-B605	5G
	B1	FUJITSU – TA08025-B604	5G
GAMMA	G1	FUJITSU – TA08025-B605	5G
	G1	FUJITSU – TA08025-B604	5G

NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.

ANTENNA SCHEDULE

NO SCALE

3

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DISH Wireless L.L.C.
PROJECT INFORMATION

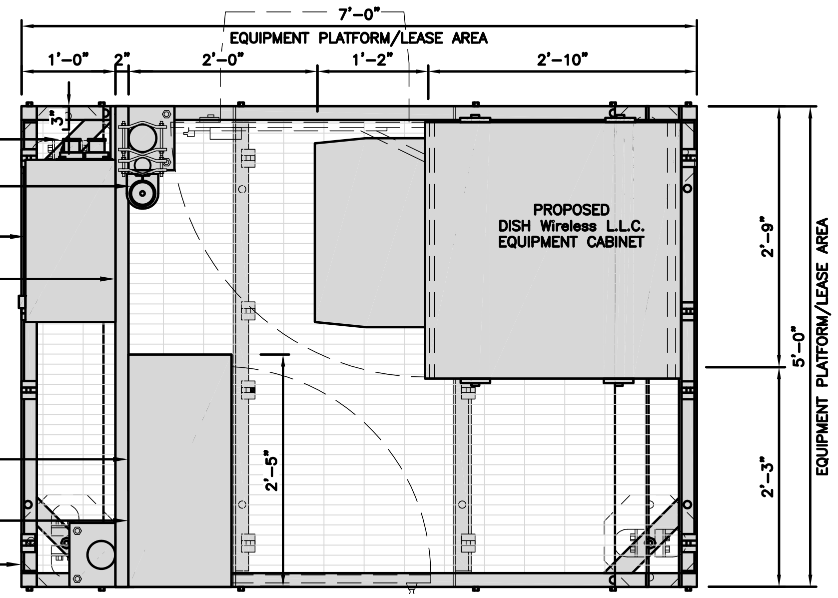
BOHVN00147A
10 TANNER MARSH ROAD
GUILFORD, CT 06437

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

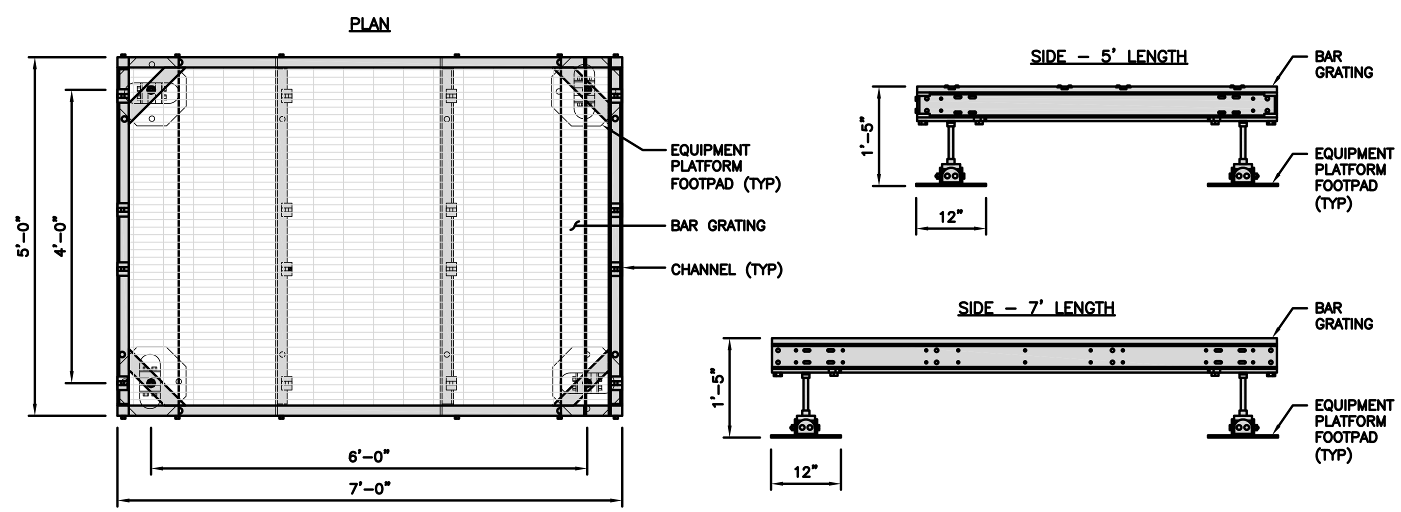
A-2



PLATFORM EQUIPMENT PLAN — 12" 9" 6" 3" 0 1' 2' — 1"=1'-0" — 1

COMMSCOPE MTC4045LP 5X7 PLATFORM	
DIMENSIONS (HxWxD)	16"x84"x60"
TOTAL WEIGHT	423 LBS

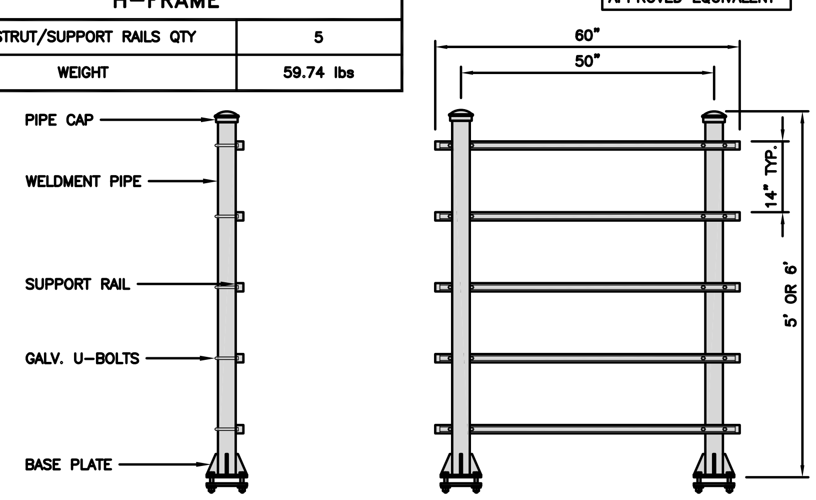
NOTE:
GC TO PROVIDE EXTENDED THREAD FOR PLATFORM IF REQUIRED HEIGHT EXCEEDS 17"



PLATFORM DETAIL — NO SCALE — 2

COMMSCOPE MTC4045HFLD H-FRAME	
UNISTRUT/SUPPORT RAILS QTY	5
WEIGHT	59.74 lbs

NOTE:
OR DISH Wireless L.L.C. APPROVED EQUIVALENT

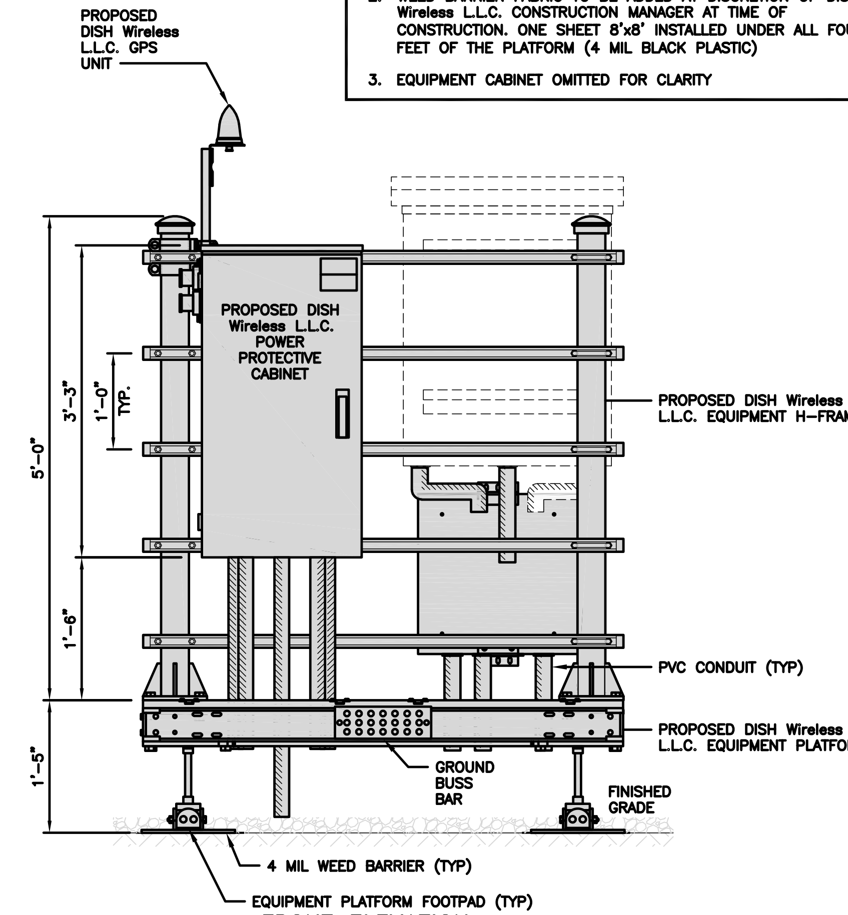


H-FRAME DETAIL — NO SCALE — 3

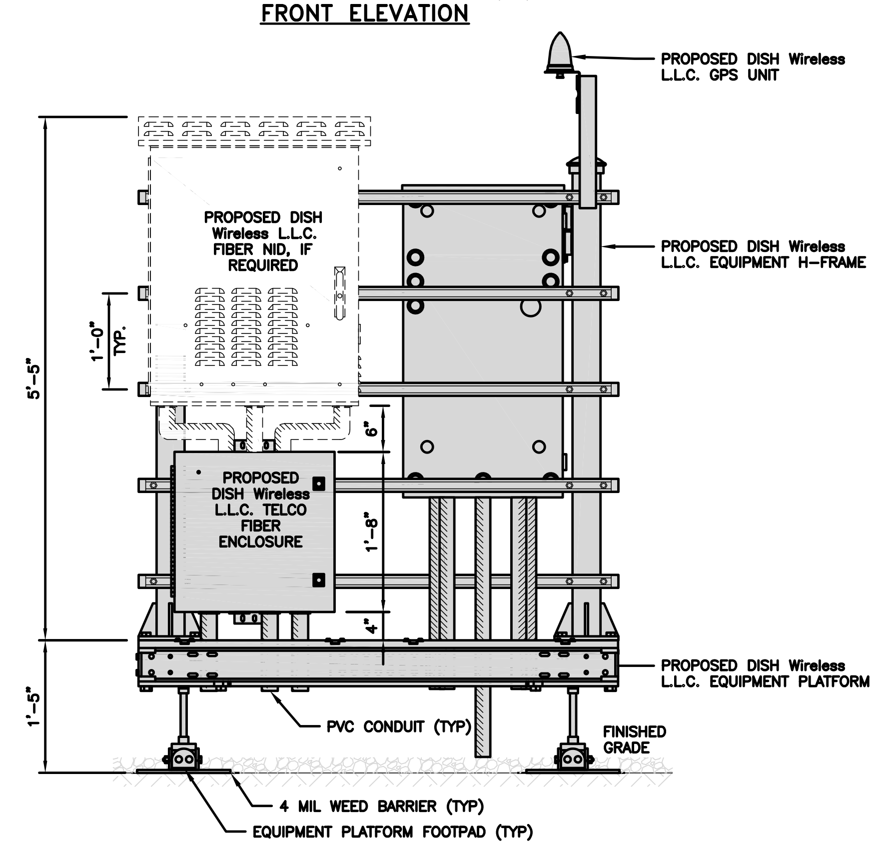
NOT USED — NO SCALE — 4

NOTES

1. CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
2. WEED BARRIER FABRIC TO BE ADDED AT DISCRETION OF DISH Wireless L.L.C. CONSTRUCTION MANAGER AT TIME OF CONSTRUCTION. ONE SHEET 8'x8' INSTALLED UNDER ALL FOUR FEET OF THE PLATFORM (4 MIL BLACK PLASTIC)
3. EQUIPMENT CABINET OMITTED FOR CLARITY



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION — 12" 9" 6" 3" 0 1' 2' — 1"=1'-0" — 5

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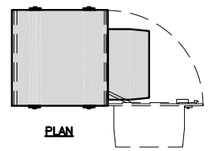
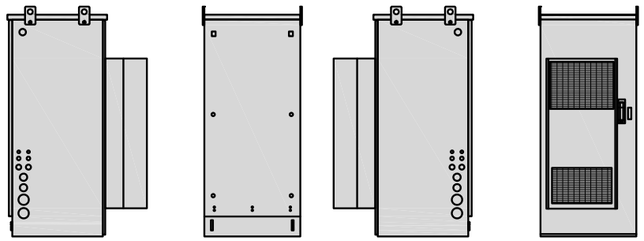
DISH Wireless L.L.C. PROJECT INFORMATION
BOHVN00147A
10 TANNER MARSH ROAD
GUILFORD, CT 06437

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

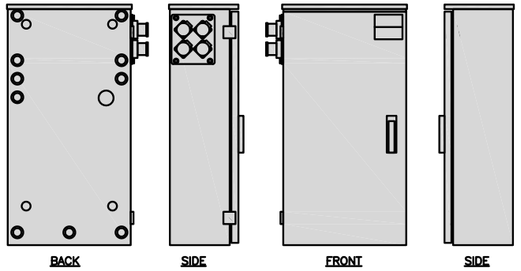
CHARLES INDUSTRY HEX CUBE–PM639155N4	
DIMENSIONS (HxWxD):	74"x32"x32"
POWER PLANT:	–48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	408 LBS





CABINET DETAIL | NO SCALE | 1

RAYCAP PPC RDIAC–2465–P–240–MTS	
ENCLOSURE DIMENSIONS (HxWxD):	39"x22.855"x12.593
WEIGHT:	80 lbs
OPERATING AC VOLTAGE	240/120 1 PHASE 3W+G

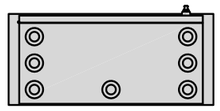


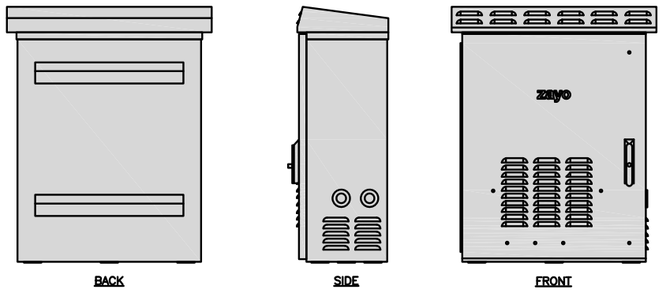
POWER PROTECTION CABINET (PPC) DETAIL | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

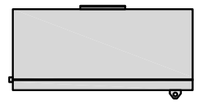
ZAYO 5RU (LEFT SWING DOOR) FIBER NID ENCLOSURE	
DIMENSIONS (HxWxD)	36.1"x29"x12.9"
WEIGHT	85 lbs

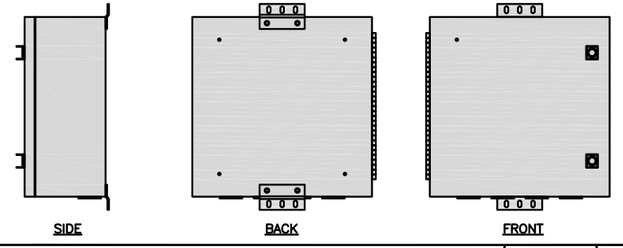




FIBER NID ENCLOSURE DETAIL | NO SCALE | 5

CHARLES CFIT–PF2020DSH1 FIBER TELCO ENCLOSURE	
ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4

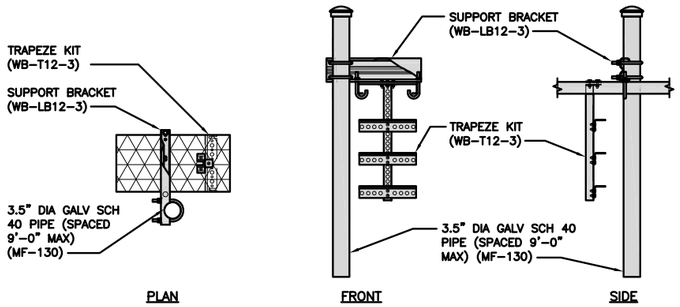




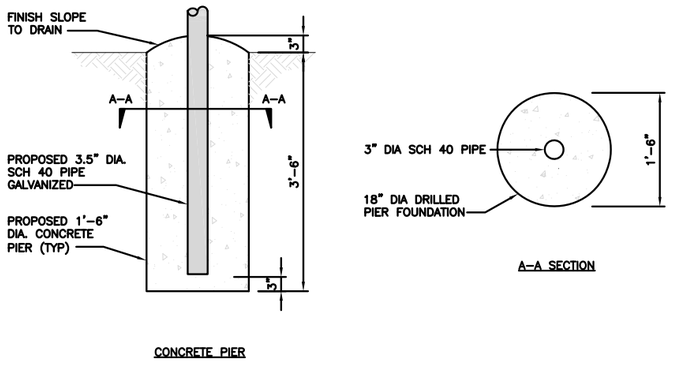
FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

COMMSCOPE WB–K110–B WAVEGUIDE BRIDGE KIT	
DIMENSIONS (HxL)	160"x10'
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

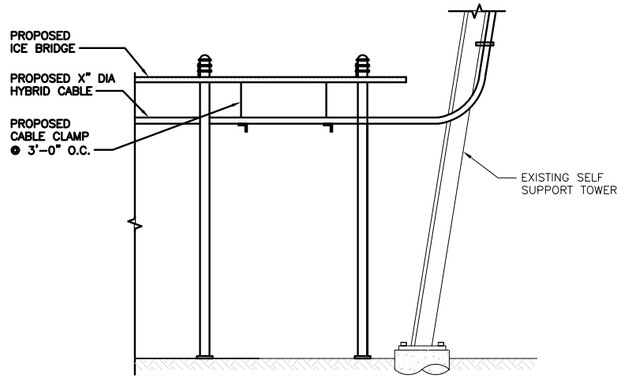
INCLUDED PRODUCTS:
- WB–T12–3 TRAPEZE KIT, 3 RUNGS
- WB–LB12–3 SUPPORT BRACKET
- MF–130 DIRECT BURIAL PIPE COLUMN, 13'–4"



ICE BRIDGE DETAIL | NO SCALE | 7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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PROJECT INFORMATION

BOHVN00147A
10 TANNER MARSH ROAD
GUILFORD, CT 06437

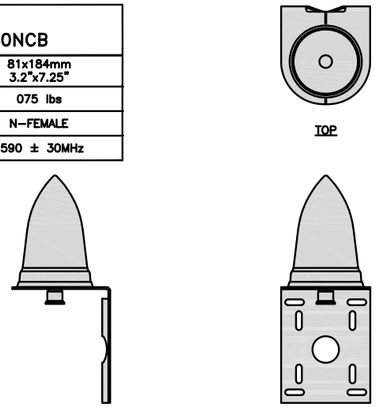
SHEET TITLE

EQUIPMENT DETAILS

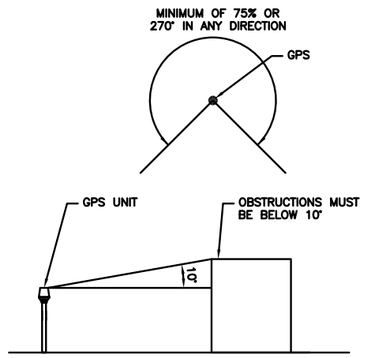
SHEET NUMBER

A-4

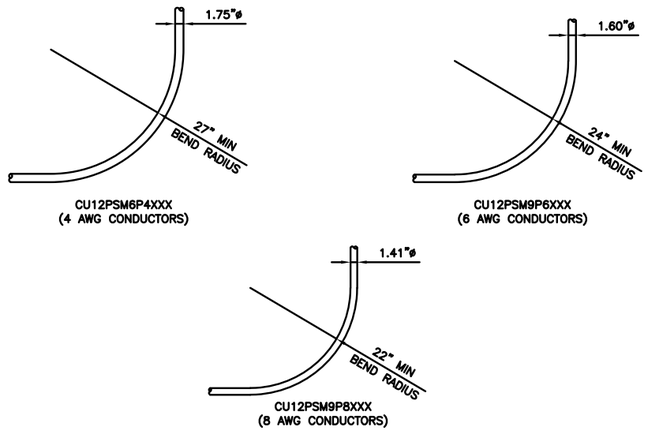
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



GPS DETAIL — NO SCALE — 1



GPS MINIMUM SKY VIEW REQUIREMENTS — NO SCALE — 2



CABLES UNLIMITED HYBRID CABLE MINIMUM BEND RADIUSES — NO SCALE — 3

NOT USED — NO SCALE — 4

NOT USED — NO SCALE — 5

NOT USED — NO SCALE — 6

NOT USED — NO SCALE — 7

NOT USED — NO SCALE — 8

NOT USED — NO SCALE — 9

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GUILFORD, CT 06437

SHEET TITLE

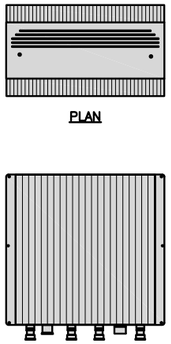
EQUIPMENT DETAILS

SHEET NUMBER

A-5

FUJITSU TRIPLE BAND TA08025-B605

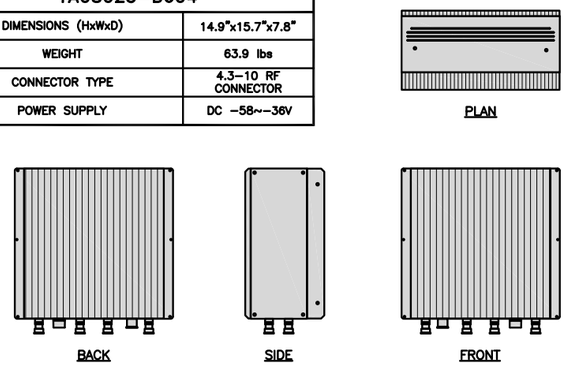
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



RRH DETAIL | NO SCALE | 1

FUJITSU DUAL BAND TA08025-B604

DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V

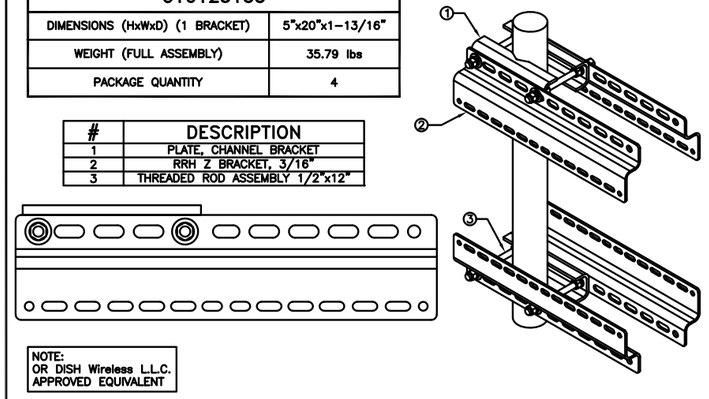


RRH DETAIL | NO SCALE | 2

SABRE DOUBLE Z-BRACKET C10123155

DIMENSIONS (HxWxD) (1 BRACKET)	5"x20"x1-13/16"
WEIGHT (FULL ASSEMBLY)	35.79 lbs
PACKAGE QUANTITY	4

#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"

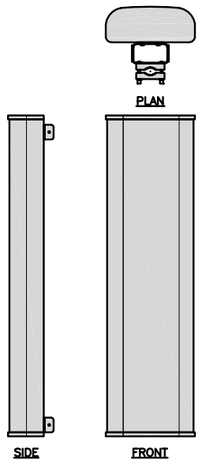


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

RRH MOUNT DETAIL | NO SCALE | 3

JMA MX08FRO665-21

DIMENSIONS (HxWxD)	72"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.5 lbs



ANTENNA DETAIL | NO SCALE | 4

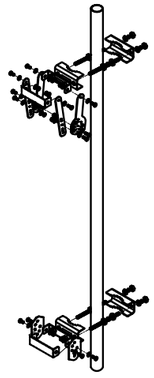
NOT USED | NO SCALE | 5

JMA ANTENNA MOUNT BRACKET #91900318

TOTAL WEIGHT (WITH BRACKETS)	18 lbs (8.18 Kg)
POLE DIAMETER RANGE	2.5" TO 4.5"

NOTE:
KIT #91900318: TOP AND BOTTOM BRACKETS FOR 4-,6-, AND 8-FOOT ANTENNAS

ANTENNA BRACKET NOT PART OF KIT

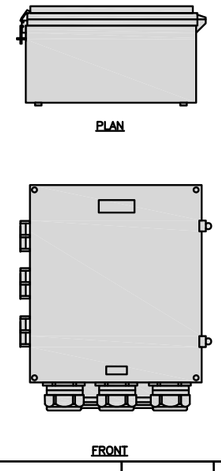


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

ANTENNA BRACKET DETAIL | NO SCALE | 6

RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)

DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS

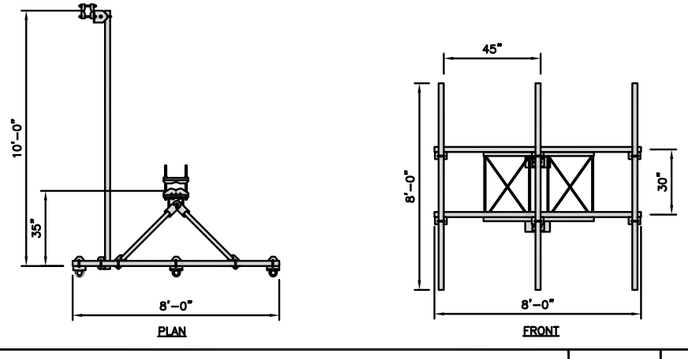


SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

COMMSCOPE V-FRAME MTC3975083

FACE SIZE	8'-0"
WEIGHT	352.136 lbs

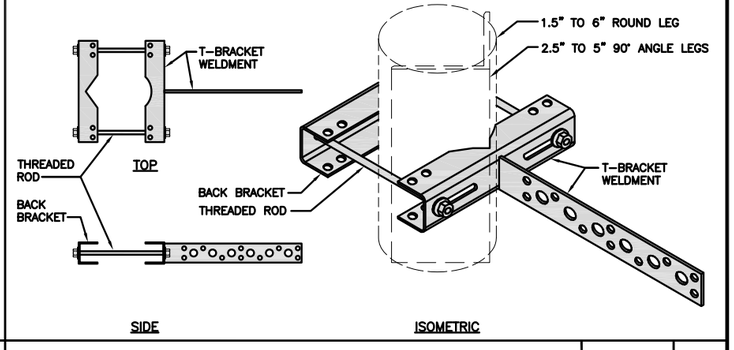
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT



ANTENNA FRAME DETAIL | NO SCALE | 8

SITEPRO1 T600 UNIVERSAL T-BRACKET

DIMENSIONS (HxWxL)	2.25"x10.0"x15.25"
WEIGHT/ VOLUME	5.60 LBS



VERTICAL CABLE SUPPORT DETAIL | NO SCALE | 9

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STATE OF COLORADO — No. 23024 — LICENSED PROFESSIONAL ENGINEER
9/7/21

B&T ENGINEERING, INC.
PEF006618
Expires 6/30/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
DD	SP	RCM

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	9/7/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

155741.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00147A
10 TANNER MARSH ROAD
GUILFORD, CT 06437

SHEET TITLE

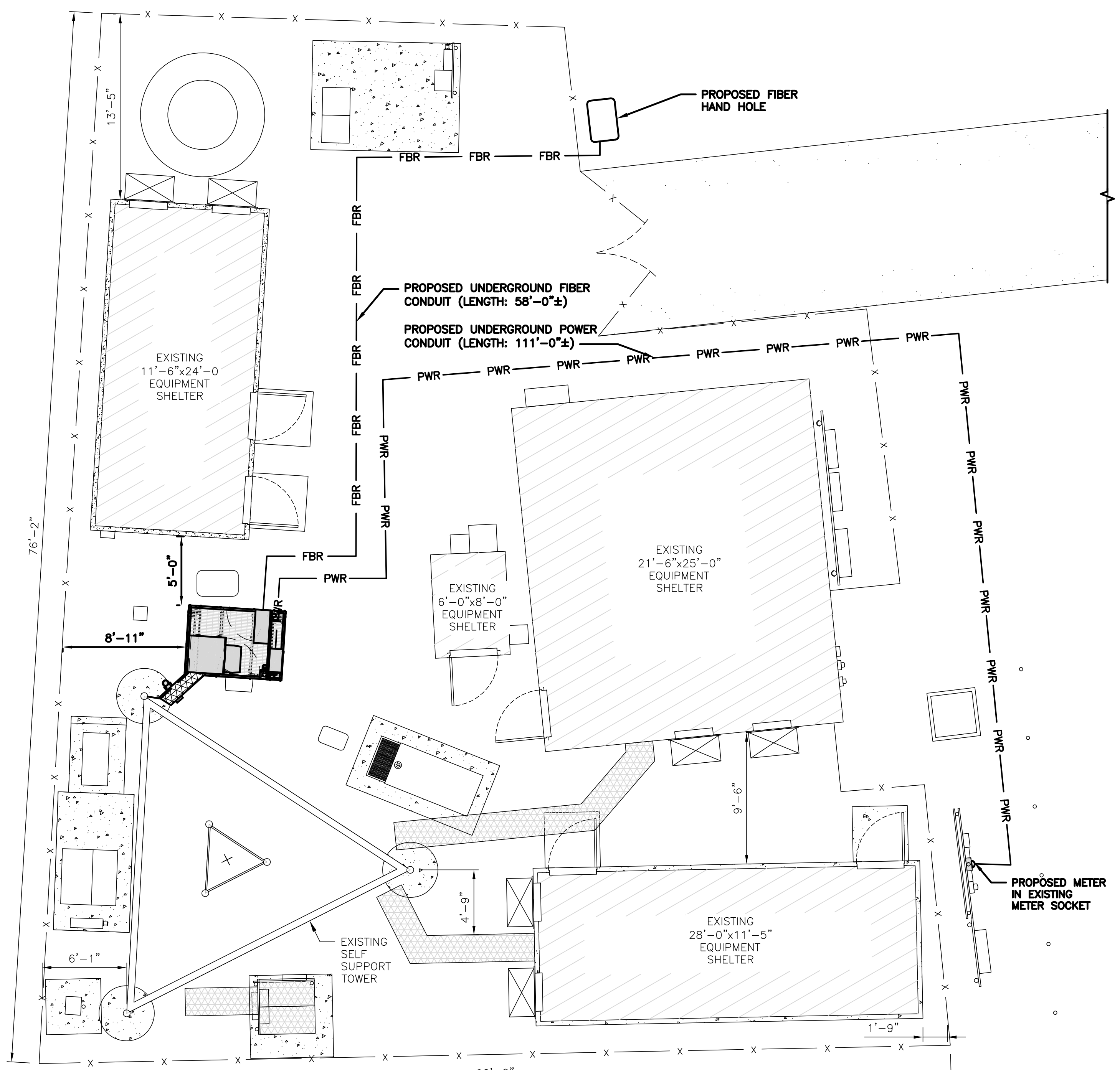
EQUIPMENT DETAILS

SHEET NUMBER

A-6

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



UTILITY ROUTE PLAN

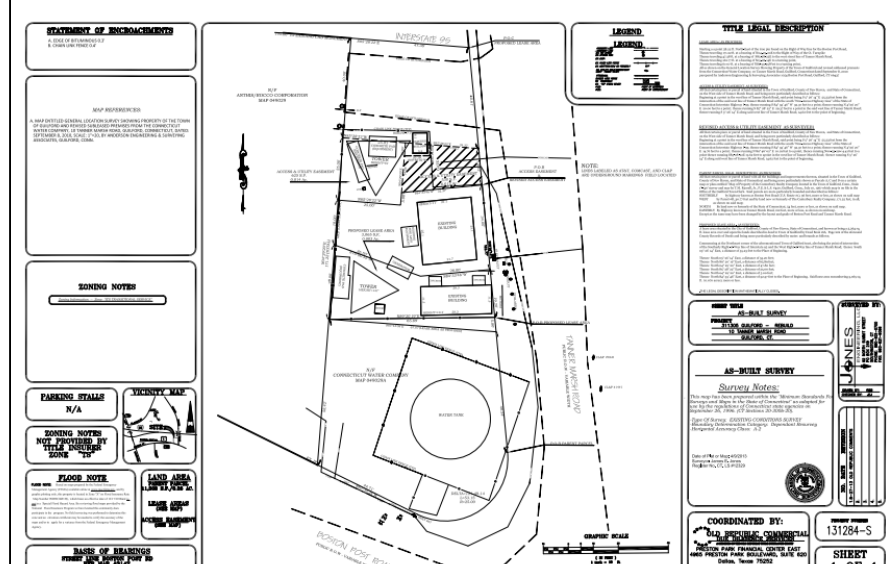
6' 4' 2' 0 5' 10'

3/16"=1'-0"

1

DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND −48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY −48V.

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314.
7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.
10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.
13. ALL TRENCHES IN COMPOUND TO BE HAND DUG.



NOTE : THE SURVEY PROVIDED ON THIS SHEET IS PROVIDED FOR REFFERENCE ONLY, THE UTILITY ROUTE AND EXISTING EASEMENT MUST BE VERIFIED PRIOR TO CONSTRUCTION.

ELECTRICAL NOTES

NO SCALE

2

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DISH Wireless L.L.C.
PROJECT INFORMATION

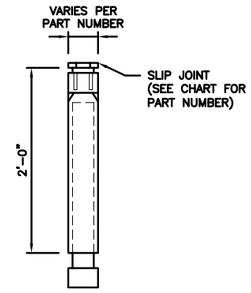
BOHVN00147A
10 TANNER MARSH ROAD
GUILFORD, CT 06437

SHEET TITLE
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER
E-1

CARLON EXPANSION FITTINGS

COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"
E945M	E945MX	3 1/2"	5	8"
E945N	E945NX	4"	5	8"
E945P	E945PX	5"	1	8"
E945R	E945RX	6"	1	8"

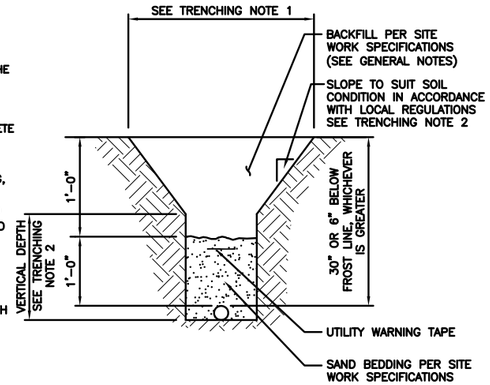


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

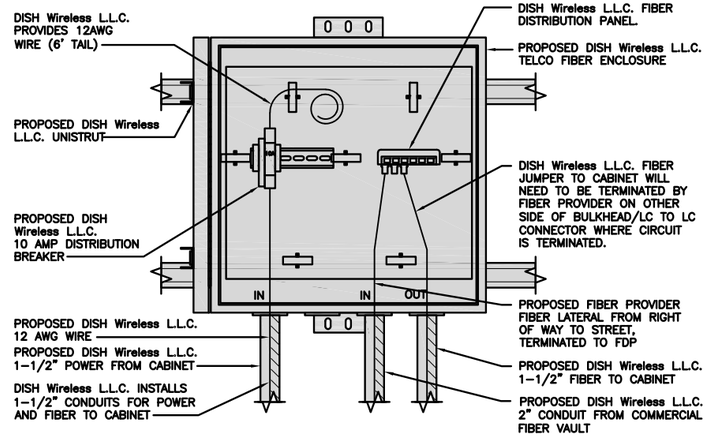
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

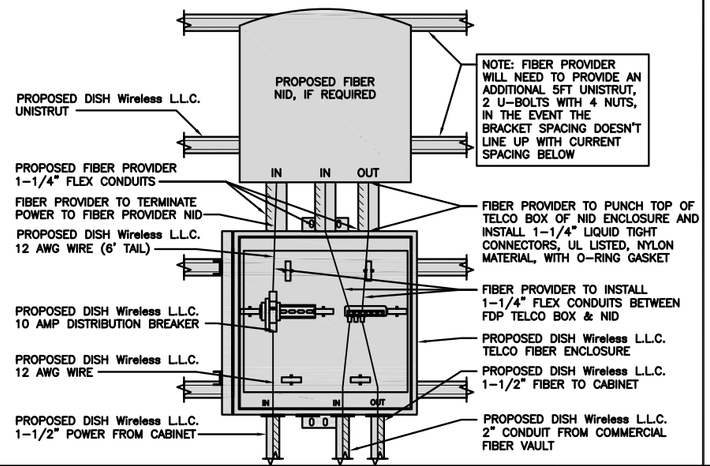
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT OSHA TRENCHING AND EXCAVATION SAFETY STANDARDS.
3. ALL CONDUITS SHALL BE INSTALLED IN COMPLIANCE WITH THE CURRENT NATIONAL ELECTRIC CODE (NEC) OR AS REQUIRED BY THE LOCAL JURISDICTION, WHICHEVER IS THE MOST STRINGENT.



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2



DARK TELCO BOX – INTERIOR WIRING LAYOUT | NO SCALE | 3



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL) | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

DISH Wireless L.L.C. TEMPLATE VERSION 40 – 08/13/2021

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RFDS REV #: 1

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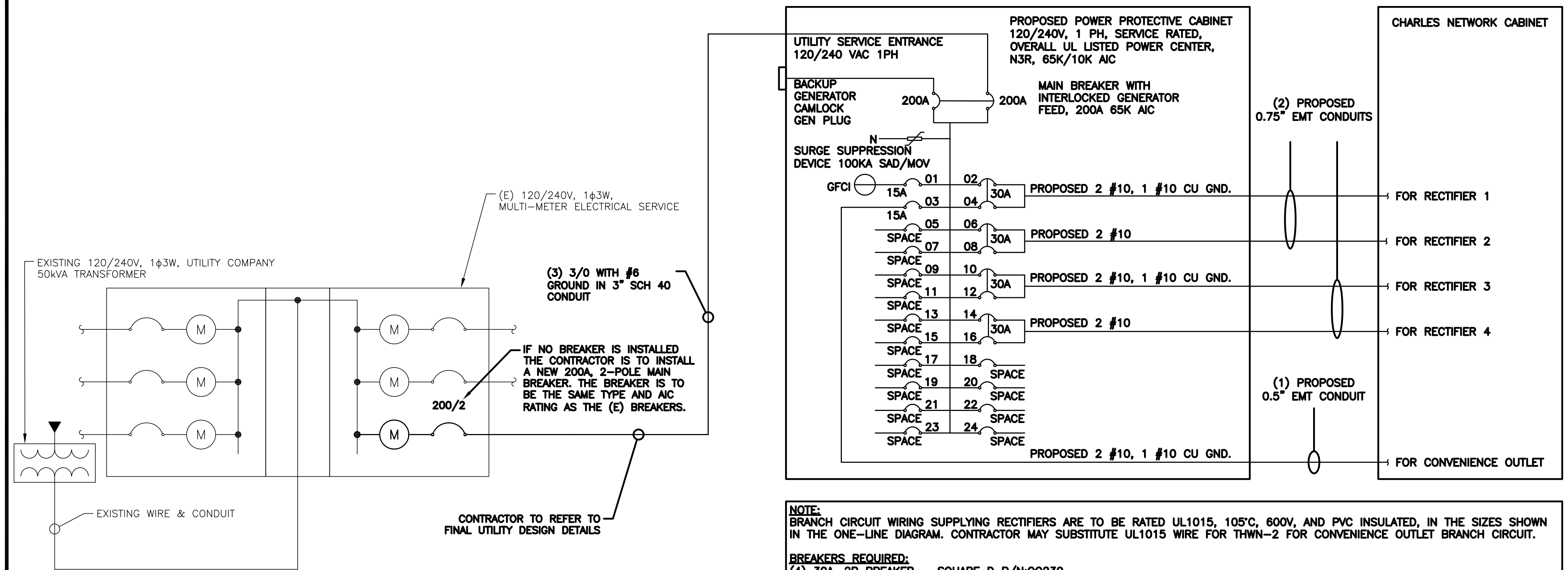
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00147A
10 TANNER MARSH ROAD
GUILFORD, CT 06437

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2



NOTE:
BRANCH CIRCUIT WIRING SUPPLYING RECTIFIERS ARE TO BE RATED UL1015, 105°C, 600V, AND PVC INSULATED, IN THE SIZES SHOWN IN THE ONE-LINE DIAGRAM. CONTRACTOR MAY SUBSTITUTE UL1015 WIRE FOR THWN-2 FOR CONVENIENCE OUTLET BRANCH CIRCUIT.

BREAKERS REQUIRED:
(4) 30A, 2P BREAKER – SQUARE D P/N:QO230
(1) 15A, 1P BREAKER – SQUARE D P/N:QO115

NOTES

THE (2) CONDUITS WITH (4) CURRENT CARRYING CONDUCTORS EACH, SHALL APPLY THE ADJUSTMENT FACTOR OF 80% PER 2014/17 NEC TABLE 310.15(B)(3)(a) OR 2020 NEC TABLE 310.15(C)(1) FOR UL1015 WIRE.

#12 FOR 15A–20A/1P BREAKER: 0.8 x 30A = 24.0A
#10 FOR 25A–30A/2P BREAKER: 0.8 x 40A = 32.0A
#8 FOR 35A–40A/2P BREAKER: 0.8 x 55A = 44.0A
#6 FOR 45A–60A/2P BREAKER: 0.8 x 75A = 60.0A

CONDUIT SIZING: AT 40% FILL PER NEC CHAPTER 9, TABLE 4, ARTICLE 358.
0.5" CONDUIT – 0.122 SQ. IN AREA
0.75" CONDUIT – 0.213 SQ. IN AREA
2.0" CONDUIT – 1.316 SQ. IN AREA
3.0" CONDUIT – 2.907 SQ. IN AREA

CABINET CONVENIENCE OUTLET CONDUCTORS (1 CONDUIT): USING THWN-2, CU.

#10 – 0.0211 SQ. IN X 2 = 0.0422 SQ. IN
#10 – 0.0211 SQ. IN X 1 = 0.0211 SQ. IN <GROUND
TOTAL = 0.0633 SQ. IN

0.5" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

RECTIFIER CONDUCTORS (2 CONDUITS): USING UL1015, CU.

#10 – 0.0266 SQ. IN X 4 = 0.1064 SQ. IN
#10 – 0.0082 SQ. IN X 1 = 0.0082 SQ. IN <BARE GROUND
TOTAL = 0.1146 SQ. IN

0.75" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (5) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

PPC FEED CONDUCTORS (1 CONDUIT): USING THWN, CU.

3/0 – 0.2679 SQ. IN X 3 = 0.8037 SQ. IN
#6 – 0.0507 SQ. IN X 1 = 0.0507 SQ. IN <GROUND
TOTAL = 0.8544 SQ. IN

3.0" SCH 40 PVC CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (4) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

PPC ONE-LINE DIAGRAM — NO SCALE — 1

PROPOSED CHARLES PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	30A	2880		ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET		180	15A	3	B	4			2880	
–SPACE–				5	A	6	30A	2880		ABB/GE INFINITY RECTIFIER 2
–SPACE–				7	B	8			2880	
–SPACE–				9	A	10	30A	2880		ABB/GE INFINITY RECTIFIER 3
–SPACE–				11	B	12			2880	
–SPACE–				13	A	14	30A	2880		ABB/GE INFINITY RECTIFIER 4
–SPACE–				15	B	16			2880	
–SPACE–				17	A	18				–SPACE–
–SPACE–				19	B	20				–SPACE–
–SPACE–				21	A	22				–SPACE–
–SPACE–				23	B	24				–SPACE–
VOLTAGE AMPS	180	180						11520	11520	

	L1	L2	
200A MCB, 1φ, 24 SPACE, 120/240V	L1	L2	
MB RATING: 65,000 AIC	11700	11700	VOLTAGE AMPS
	98	98	AMPS
	98		MAX AMPS
	123		MAX 125%

PANEL SCHEDULE — NO SCALE — 2

NOT USED — NO SCALE — 3

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
DD	SP	RCM

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

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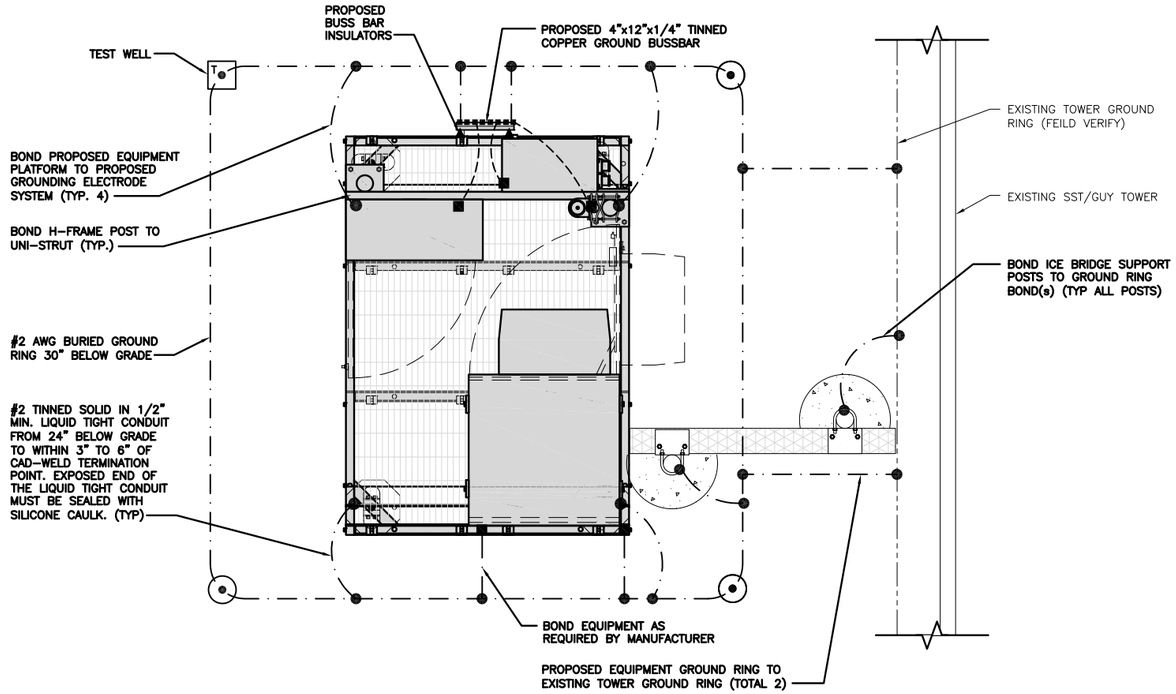
A&E PROJECT NUMBER
155741.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00147A
10 TANNER MARSH ROAD
GUILFORD, CT 06437

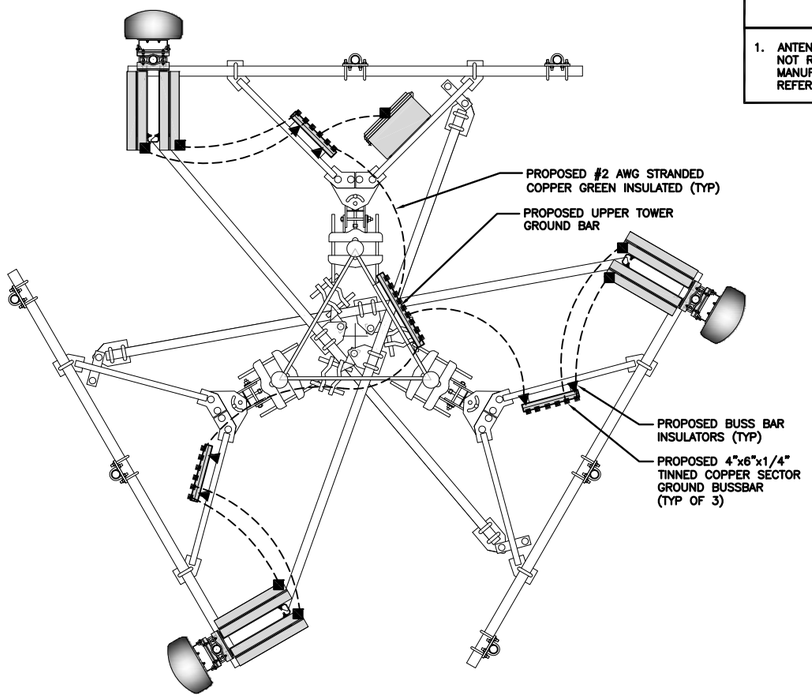
SHEET TITLE
ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE

SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE | 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2

NOTES

1. ANTENNAS AND OVP SHOWN ARE GENERIC AND NOT REFERENCING TO A SPECIFIC MANUFACTURER. THIS LAYOUT IS FOR REFERENCE ONLY

- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- GROUND BUS BAR
- GROUND ROD
- TEST GROUND ROD WITH INSPECTION SLEEVE
- #6 AWG STRANDED & INSULATED
- #2 AWG SOLID COPPER TINNED
- BUSS BAR INSULATOR

GROUNDING LEGEND

1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
2. CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND DISH Wireless L.L.C. GROUNDING AND BONDING REQUIREMENTS AND MANUFACTURER'S SPECIFICATIONS.
3. ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.

GROUNDING KEY NOTES

(A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.

(B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.

(C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.

(D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.

(E) GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.

(F) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.

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

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

(I) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.

(J) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.

(K) INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.

(L) FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.

(M) EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE

(N) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.

(O) DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR

(P) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO TOWER STEEL.

REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE | 3

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BOHVN00147A
10 TANNER MARSH ROAD
GUILFORD, CT 06437

SHEET TITLE

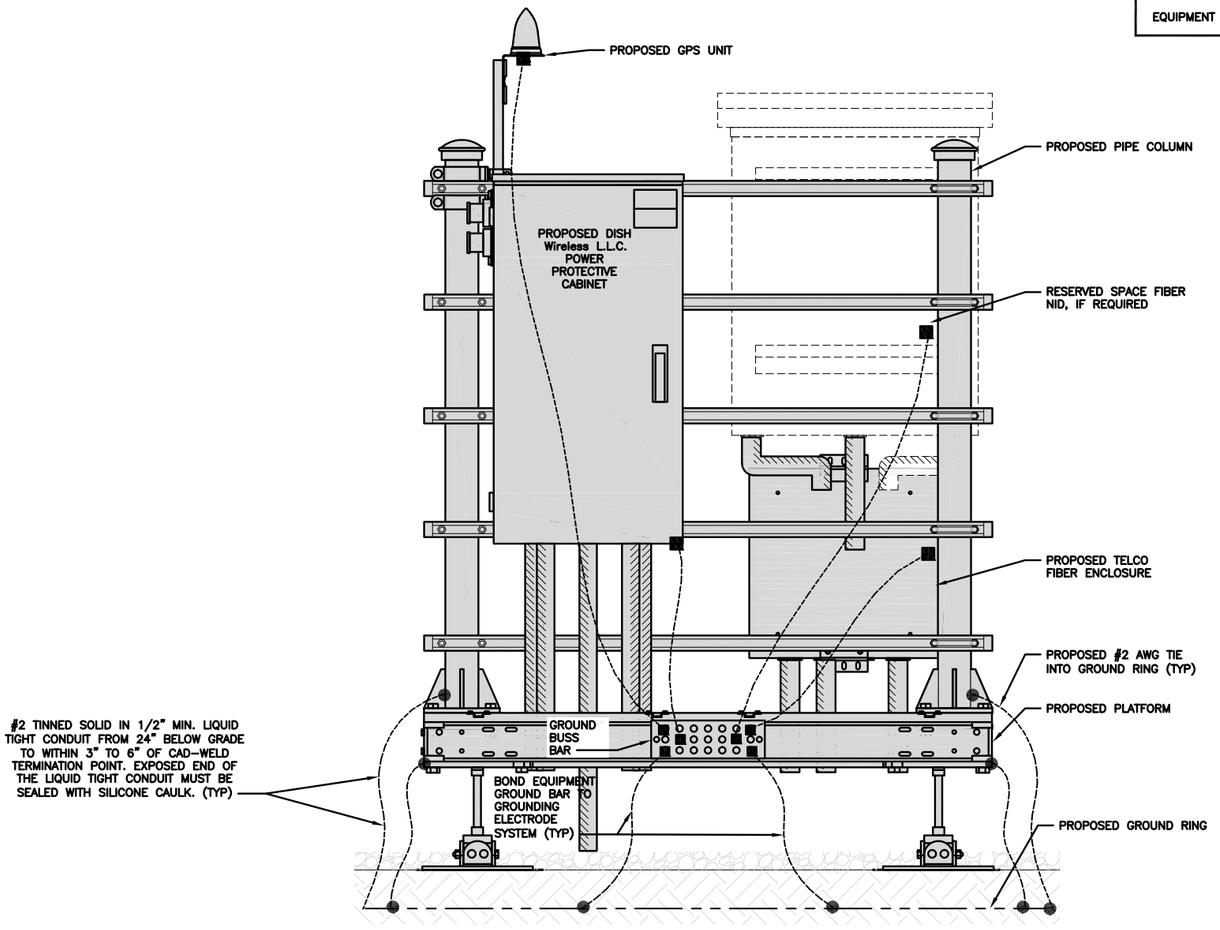
GROUNDING PLANS AND NOTES

SHEET NUMBER

G-1

NOTES

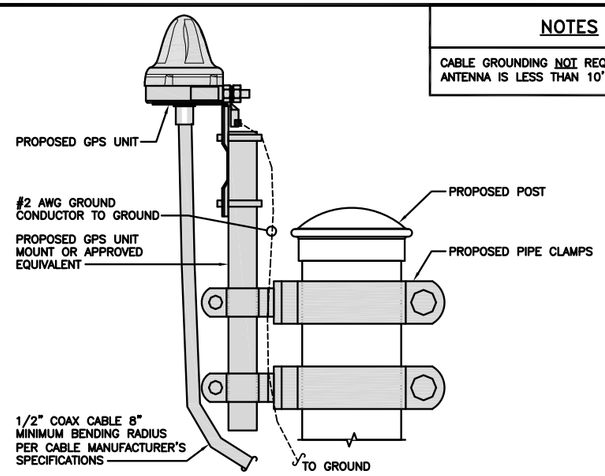
EQUIPMENT CABINET OMITTED FOR CLARITY



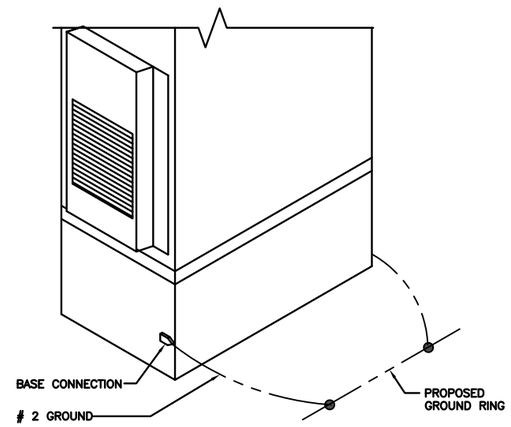
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

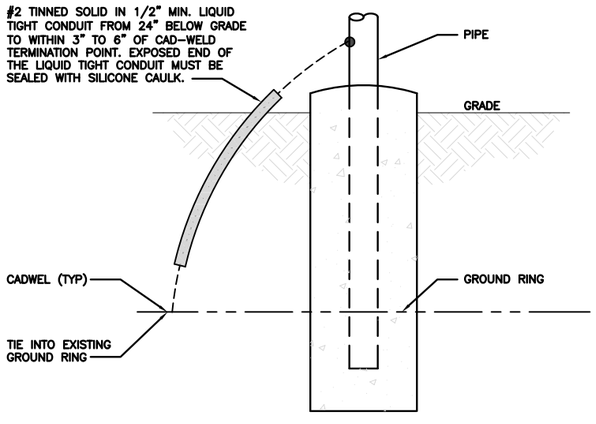
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



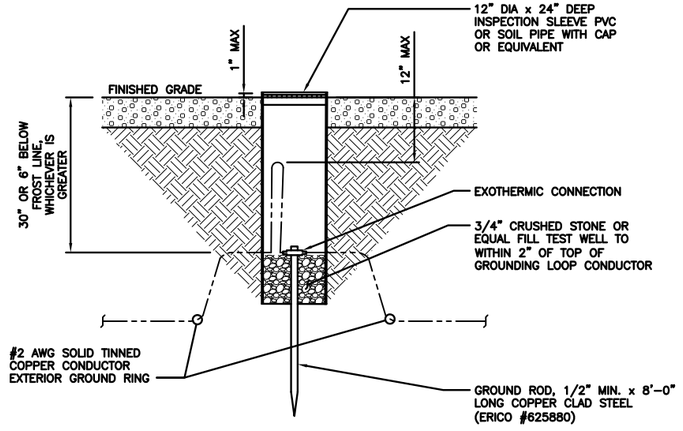
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



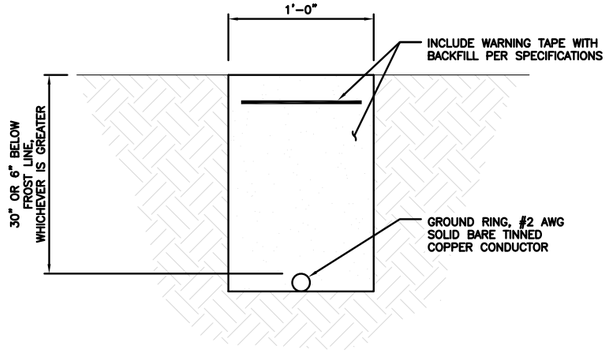
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE | NO SCALE | 5



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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PEF006618
Expires 6/30/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
DD	SP	RCM

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	9/7/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

155741.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00147A
10 TANNER MARSH ROAD
GUILFORD, CT 06437

SHEET TITLE

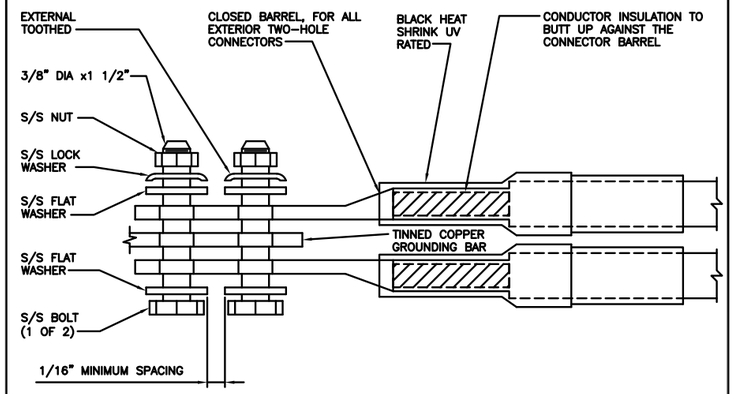
GROUNDING DETAILS

SHEET NUMBER

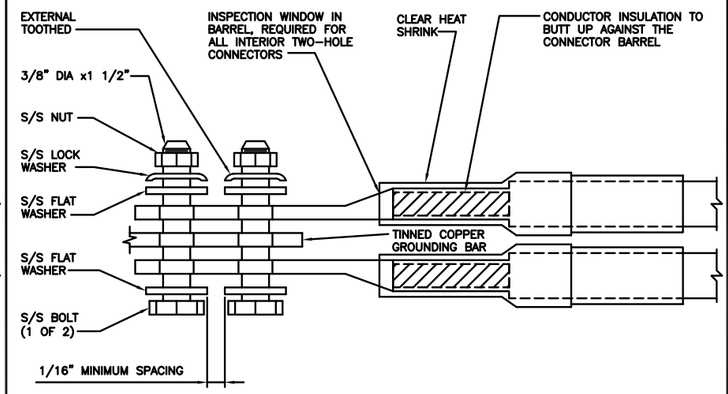
G-2

1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR. ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. ALL EXTERIOR GROUNDING HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
3. FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
4. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.
5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.
6. ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED.
8. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).

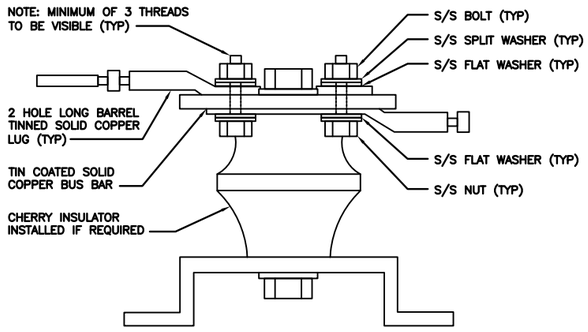
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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STATE OF CONNECTICUT No. 23024 LICENSED PROFESSIONAL ENGINEER
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PROJECT INFORMATION
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10 TANNER MARSH ROAD
GUILFORD, CT 06437

SHEET TITLE
GROUNDING DETAILS

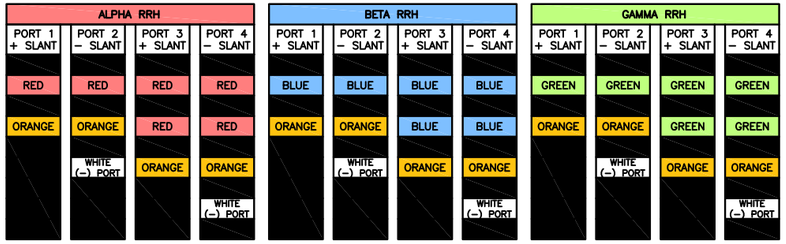
SHEET NUMBER
G-3

RF JUMPER COLOR CODING

3/4" TAPE WIDTHS WITH 3/4" SPACING

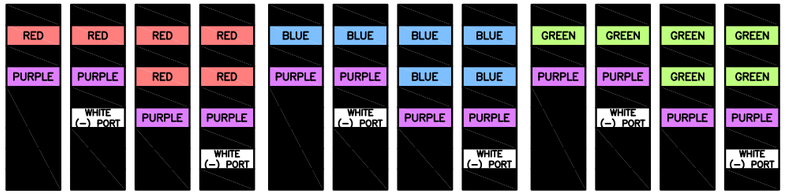
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BANDS)



MID-BAND RRH –
(AWS BANDS N66+N70)

ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BANDS)

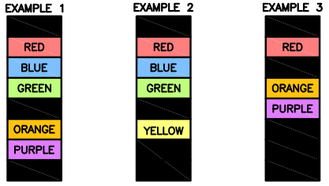


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS
ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

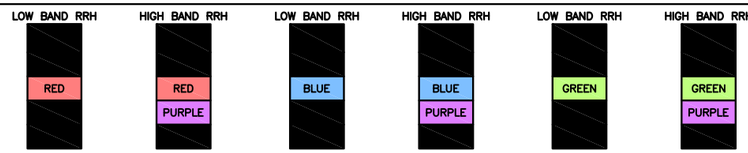
EXAMPLE 2 – HYBRID, OR DISCREET, SUPPORTS
CBRS ONLY, ALL SECTORS



CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RD DETAILS. FINAL RFDS IS IN NEXSYSONE.

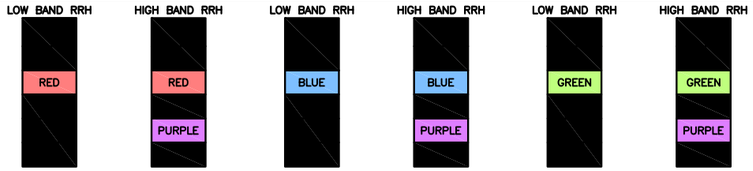
FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR STRIPE ONLY

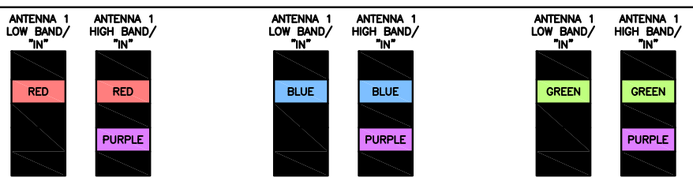


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



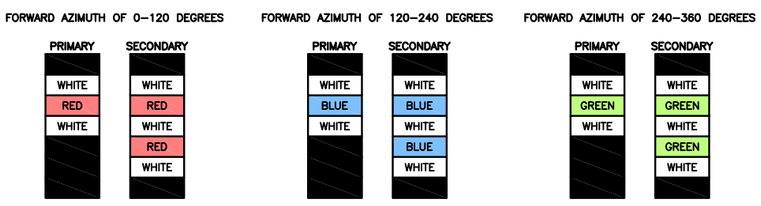
RET MOTORS AT ANTENNAS



MICROWAVE RADIO LINKS

LINKS WILL HAVE A 1.5–2 INCH WHITE WRAP WITH THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE. ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH ADDITIONAL MW RADIO.

MICROWAVE CABLES WILL REQUIRE P-TOUCH LABELS INSIDE THE CABINET TO IDENTIFY THE LOCAL AND REMOTE SITE ID'S



RF CABLE COLOR CODES	NO SCALE	1

LOW BANDS (N71+N26) OPTIONAL – (N29): ORANGE

AWS (N66+N70+H-BLOCK): PURPLE

CBRS TECH (3 GHz): YELLOW

NEGATIVE SLANT PORT ON ANT/RRH: WHITE

ALPHA SECTOR: RED

BETA SECTOR: BLUE

GAMMA SECTOR: GREEN

COLOR IDENTIFIER	NO SCALE	2

NOT USED	NO SCALE	3

NOT USED	NO SCALE	4

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STATE OF CONNECTICUT – No. 23024 – LICENSED PROFESSIONAL ENGINEER – 9/7/21

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DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00147A
10 TANNER MARSH ROAD
GUILFORD, CT 06437

SHEET TITLE
RF
CABLE COLOR CODE

SHEET NUMBER
RF-1

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48–T8

SMOKE DETECTION (DC)

EMERGENCY LIGHTING (DC)

SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW LED–1–25A400/51K–SR4–120–PE–DDBTXD

CHAIN LINK FENCE — X — X — X — X —

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE — W — W — W — W — W —

UNDERGROUND POWER — UGP — UGP — UGP — UGP — UGP —

UNDERGROUND TELCO — UGT — UGT — UGT — UGT — UGT —

OVERHEAD POWER — OHP — OHP — OHP — OHP —

OVERHEAD TELCO — OHT — OHT — OHT — OHT —

UNDERGROUND TELCO/POWER — UGT/P — UGT/P — UGT/P — UGT/P —

ABOVE GROUND POWER — AGP — AGP — AGP — AGP — AGP —

ABOVE GROUND TELCO — AGT — AGT — AGT — AGT — AGT —

ABOVE GROUND TELCO/POWER — AGT/P — AGT/P — AGT/P — AGT/P —

WORKPOINT W.P.

SECTION REFERENCE XX / X–X

DETAIL REFERENCE XX / X–X

LEGEND

AB	ANCHOR BOLT
ABV	ABOVE
AC	ALTERNATING CURRENT
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGL	ABOVE GROUND LEVEL
AIC	AMPERAGE INTERRUPTION CAPACITY
ALUM	ALUMINUM
ALT	ALTERNATE
ANT	ANTENNA
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BTC	BARE TINNED COPPER CONDUCTOR
BOF	BOTTOM OF FOOTING
CAB	CABINET
CANT	CANTILEVERED
CHG	CHARGING
CLG	CEILING
CLR	CLEAR
COL	COLUMN
COMM	COMMON
CONC	CONCRETE
CONSTR	CONSTRUCTION
DBL	DOUBLE
DC	DIRECT CURRENT
DEPT	DEPARTMENT
DF	DOUGLAS FIR
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
DWL	DOWEL
EA	EACH
EC	ELECTRICAL CONDUCTOR
EL.	ELEVATION
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ENG	ENGINEER
EQ	EQUAL
EXP	EXPANSION
EXT	EXTERIOR
EW	EACH WAY
FAB	FABRICATION
FF	FINISH FLOOR
FG	FINISH GRADE
FIF	FACILITY INTERFACE FRAME
FIN	FINISH(ED)
FLR	FLOOR
FDN	FOUNDATION
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FOW	FACE OF WALL
FS	FINISH SURFACE
FT	FOOT
FTG	FOOTING
GA	GAUGE
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GLB	GLUE LAMINATED BEAM
GLV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
GND	GROUND
GSM	GLOBAL SYSTEM FOR MOBILE
HDG	HOT DIPPED GALVANIZED
HDR	HEADER
HGR	HANGER
HVAC	HEAT/VENTILATION/AIR CONDITIONING
HT	HEIGHT
IGR	INTERIOR GROUND RING
IN	INCH
INT	INTERIOR
LB(S)	POUND(S)
LF	LINEAR FEET
LTE	LONG TERM EVOLUTION
MAS	MASONRY
MAX	MAXIMUM
MB	MACHINE BOLT
MECH	MECHANICAL
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
MTS	MANUAL TRANSFER SWITCH
MW	MICROWAVE
NEC	NATIONAL ELECTRIC CODE
NM	NEWTON METERS
NO.	NUMBER
#	NUMBER
NTS	NOT TO SCALE
OC	ON–CENTER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OPNG	OPENING
P/C	PRECAST CONCRETE
PCS	PERSONAL COMMUNICATION SERVICES
PCU	PRIMARY CONTROL UNIT
PRC	PRIMARY RADIO CABINET
PP	POLARIZING PRESERVING
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PWR	POWER CABINET
QTY	QUANTITY
RAD	RADIUS
RECT	RECTIFIER
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
RET	REMOTE ELECTRIC TILT
RF	RADIO FREQUENCY
RMC	RIGID METALLIC CONDUIT
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
RWY	RACEWAY
SCH	SCHEDULE
SHT	SHEET
SIAD	SMART INTEGRATED ACCESS DEVICE
SIM	SIMILAR
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
TEMP	TEMPORARY
THK	THICKNESS
TMA	TOWER MOUNTED AMPLIFIER
TN	TOE NAIL
TOA	TOP OF ANTENNA
TOC	TOP OF CURB
TOF	TOP OF FOUNDATION
TOP	TOP OF PLATE (PARAPET)
TOS	TOP OF STEEL
TOW	TOP OF WALL
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
UPS	UNITERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
VIF	VERIFIED IN FIELD
W	WIDE
W/	WITH
WD	WOOD
WP	WEATHERPROOF
WT	WEIGHT

ABBREVIATIONS

dish wireless.

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STATE OF CONNECTICUT — No. 23024 — LICENSED PROFESSIONAL ENGINEER — 9/7/21

B&T ENGINEERING, INC.
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155741.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00147A
10 TANNER MARSH ROAD
GUILFORD, CT 06437

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH Wireless L.L.C. AND TOWER OWNER NOC & THE DISH Wireless L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.

2. "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER 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 DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER 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 DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, 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 DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."

6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER 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 INCLUDING PRIVATE LOCATES 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 DISH 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 DISH Wireless L.L.C. AND TOWER OWNER, 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 AND RADIOS 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:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER

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 CARRIER POC AND TOWER OWNER.

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 TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, 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 DISH Wireless L.L.C. AND TOWER OWNER

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.

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9/7/21

B&T ENGINEERING, INC.
PEF006618
Expires 6/30/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
DD	SP	RCM

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	9/7/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

155741.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00147A
10 TANNER MARSH ROAD
GUILFORD, CT 06437

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.

2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.

3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.

4. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.

5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
- CONCRETE EXPOSED TO EARTH OR WEATHER:
- #6 BARS AND LARGER 2"
- #5 BARS AND SMALLER 1-1/2"
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
- SLAB AND WALLS 3/4"
- BEAMS AND COLUMNS 1-1/2"

7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.

2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.

3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.

4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.

4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.

4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY 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. TIE WRAPS ARE NOT ALLOWED.

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 3 (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 DISH Wireless L.L.C. AND TOWER OWNER 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 "DISH Wireless L.L.C.".

30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

dish wireless.

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9/7/21

B&T ENGINEERING, INC.
PEF006618
Expires 6/30/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
DD	SP	RCM

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
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155741.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00147A
10 TANNER MARSH ROAD
GUILFORD, CT 06437

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

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-POTENTIAL 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). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.

dish wireless.

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00147A
10 TANNER MARSH ROAD
GUILFORD, CT 06437

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

ENGINEERING:

STRUCTURAL ANALYSIS

MOUNT ANALYSIS

AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

TOWER ENGINEERING PROFESSIONALS

Structural Analysis Report

Structure	:	**191 ft Self Support Tower**
ATC Site Name	:	**GLFD-GUILFORD REBUILD CT,CT**
ATC Site Number	:	**311305**
Engineering Number	:	**13702522_C3_02**
Proposed Carrier	:	**DISH WIRELESS L.L.C.**
Carrier Site Name	:	**BOHVN00147A**
Carrier Site Number	:	**BOHVN00147A**
Site Location	:	**10 Tanner Marsh Road** **Guilford, CT 06437-2942** **41.2886, -72.6583**
County	:	**New Haven**
Date	:	**August 11, 2021**
Max Usage	:	**80%**
Result	:	**Pass**

Prepared By:

Jack Davis
TEP

Reviewed By:

STATE OF CONNECTICUT
AARON THOMAS RUCKER
32608
LICENSED PROFESSIONAL ENGINEER

08/11/2021

COA : PEC.0001553

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 191 ft Self Support tower to reflect the change in loading by DISH WIRELESS L.L.C..

Supporting Documents

Tower Drawings	Nello Job #RFQ34841, dated April 8, 2011 Inspection by A.R. Wireless, dated August 24, 2013
Foundation Drawing	ATC Job #47517572B, dated June 15, 2011
Geotechnical Report	GEOServices Project #21-07254, dated March 11, 2008
Mount Analysis Report	CLS Engineering, PLLC Engineering #13617386_C8_01, dated March 12, 2021
Mount Modifications Drawings	CLS Engineering, PLLC Engineering #13617386_C9_03, dated March 31, 2021

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	123 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.00" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	Ss = 0.20, S_1 = 0.05
Site Class:	D - Stiff Soil - Default

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
190.0	3	12' Dipole	Leg	(1) 5/16" (0.31"-7.9mm) Coax (3) 7/8" Coax	TOWN OF GUILFORD CT
189.0	2	6' Omni	Pole Mount	(2) 1/2" Coax	OTHER
183.0	3	RFS APXV18-206517S-C	Side Arms	(6) 1 5/8" Coax (1) 3/8" Coax	METRO PCS INC
	3	RCU (Remote Control Unit)			
177.0	3	RFS APXVAALL24 43-U-NA20	Sector Frames	(3) 1.99" (50.7mm) Hybrid	T-MOBILE
	3	Ericsson Air6449 B41			
	3	Ericsson Radio 4460 B25+B66			
	3	Ericsson Radio 4449 B71 B85A			
166.0	4	Ericsson RRUS 32 B30 (60 lbs)	Sector Frames	(4) 0.39" (10mm) Fiber Trunk (8) 0.74" (18.7mm) 8 AWG 7 (12) 1 5/8" Coax (1) 1/2" Coax (6) 3/8" (0.38"-9.5mm) RET Control Cable	AT&T MOBILITY
	2	Ericsson RRUS 4478 B5			
	1	Ericsson RRUS 4478 B14 (15")			
	4	Ericsson RRUS 4426 B66			
	2	Raycap DC6-48-60-18-8F (23.5" Height)			
	6	Powerwave Allgon LGP21401			
	2	Kaelus DBC0061F1V51-2			
	6	Powerwave Allgon 7020			
	4	Ericsson RRUS-11 (19.7”)			
	3	CCI BSA-M65R-BUU-H4			
	2	CCI HPA-65R-BUU-H4			
	2	CCI OPA-65R-LCUU-H4 (14.4" width)			
	2	Commscope SBNHH-1D65A			
	3	Powerwave Allgon 7770.00			
	2	Raycap DC6-48-60-18-8C-EV			
	4	Ericsson RRUS E2 B29			
148.0	1	4' Dish w/ Radome	Sector Frame	(3) 1 1/4" Coax (4) 7/8" Coax	TOWN OF GUILFORD CT
144.0	1	10' Dipole	Side Arm		
137.0	2	6' FM antenna	Side Arm	(1) 1 5/8" Coax	MONROE BOARD OF EDUCATION
127.0	1	Harris FML-4E	Side Arm	(1) 7/8" Coax	
108.8	1	Scala PR-950	Leg	(1) 7/8" Coax	
87.0	1	Antel BCD-87010 ___ 4°	Stand-Off	(1) 7/8" Coax	SPOK HOLDINGS, INC.
80.0	2	4' Std. Dish	Leg	(2) 7/8" Coax	TOWN OF GUILFORD CT
60.0	-	-	Empty Side Arms	-	-
16.0	1	Channel Master Type 120	Leg	(3) 0.28" (7mm) RG-6	SPOK HOLDINGS, INC.
4.0	2	Ericsson RRUS 32 B2	Leg	-	AT&T MOBILITY

Equipment to be Removed

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
No loading was considered as removed as part of this analysis.					

Proposed Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
156.0	1	Commscope RDIDC-9181-PF-48	Sector Frames	(1) 1.60" (40.6mm) Hybrid	DISH WIRELESS L.L.C.
	3	Fujitsu TA08025-B604			
	3	Fujitsu TA08025-B605			
	3	JMA Wireless MX08FRO665-21			

[1] Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines on the tower face with the least amount of existing lines.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	80%	Pass
Diagonals	69%	Pass
Horizontals	10%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Uplift (Kips)	434.0	585.9	416.6	71%
Download (kips)	488.3	659.2	468.3	71%
Shear (Kips)	49.5	66.8	45.0	67%
* The design reactions are factored by 1.35 per ANSI/TIA-222-H, Sec. 15.6.2				

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Twist (°)	Sway (Rotation) (°)
177.0	Ericsson Air6449 B41	T-MOBILE	0.462	0.007	0.321
	Ericsson Radio 4460 B25+B66				
156.0	Commscope RDIDC-9181-PF-48	DISH WIRELESS L.L.C.	0.339	0.008	0.255
	Fujitsu TA08025-B604				
	Fujitsu TA08025-B605				
	JMA Wireless MX08FRO665-21				
148.0	4' Dish w/ Radome	TOWN OF GUILFORD CT	0.311	0.008	0.242
108.8	Scala PR-950	MONROE BOARD OF EDUCATION	0.164	0.007	0.174
80.0	4' Std. Dish	TOWN OF GUILFORD CT	0.092	0.005	0.133
16.0	Channel Master Type 120	SPOK HOLDINGS, INC.	0.004	0.001	0.026

***Deflection, Twist and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H**

Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

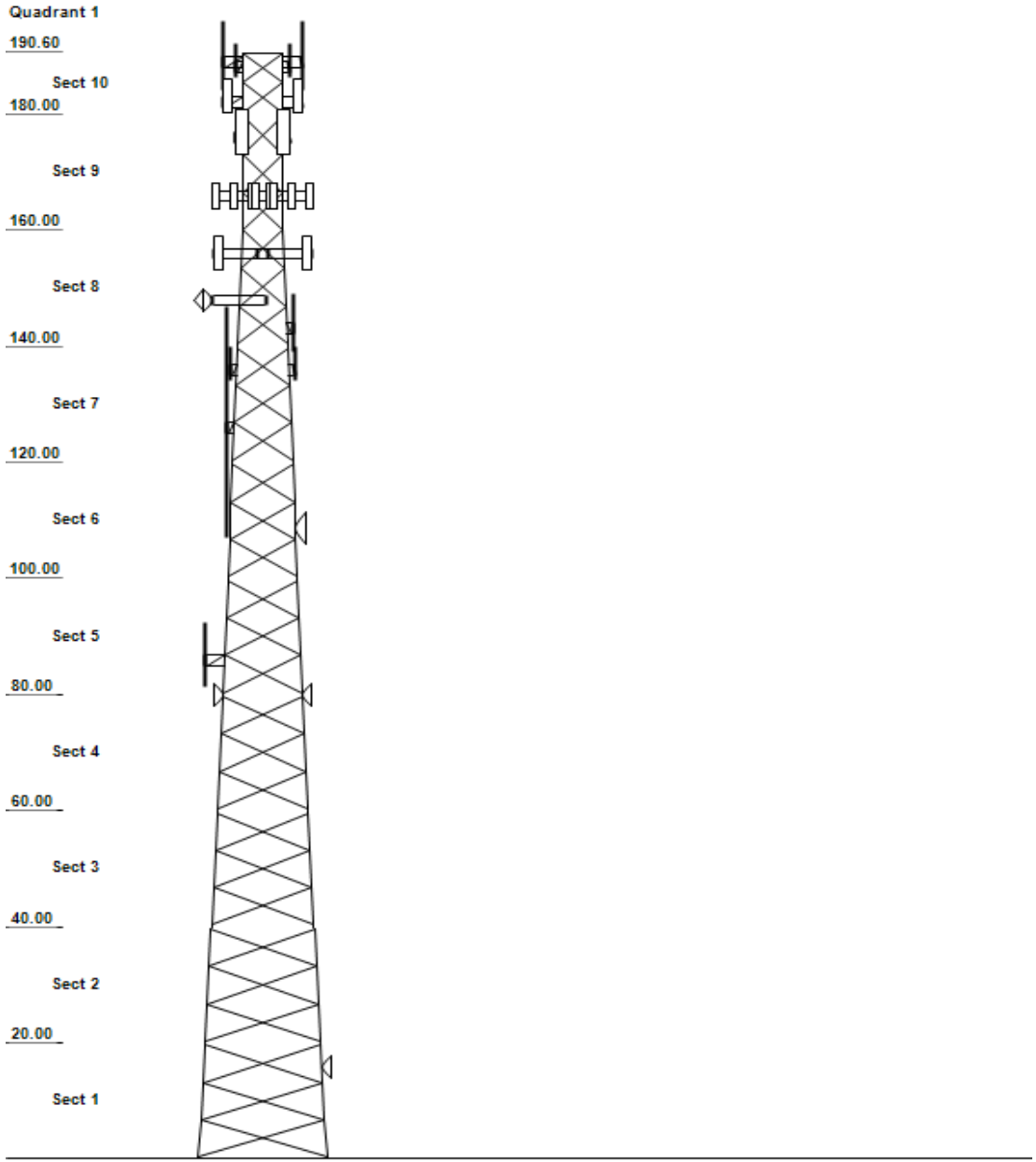
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

JOB INFORMATION

Asset:	311305, GLFD-GUILFORD REBUILD CT	Height :	190.6 ft
Client	DISH WIRELESS L.L.C.	Base Width :	20 ft
Code:	ANSI/TIA-222-H	Shape :	Triangle



SITE PARAMETERS

Nominal Wind : 123 mph wind with no ice — Exposure : C — Site Class : D

Ice Wind: 50 mph wind with 1" radial — Topo Method: Method 1 — Risk Cat : II

Service Wind : 60 mph Serviceability — Topo Feature : — S_s : 0.204 — S_1 : 0.054

SECTION PROPERTIES

Section	Leg Members	Diagonal Members	Horizontal Members
1	PST 50 ksi 12" DIA PI	SAE 50 ksi 4X4X0.25	
2	PST 50 ksi 10" DIA PI	SAE 50 ksi 3.5x3.5x0.25	
3 - 4	PST 50 ksi 10" DIA PI	SAE 50 ksi 3X3X0.25	
5 - 6	PST 50 ksi 8" DIA PIP	SAE 50 ksi 3X3X0.1875	
7	PST 50 ksi 6" DIA PIP	SAE 50 ksi 3X3X0.1875	
8	PST 50 ksi 5" DIA PIP	SAE 50 ksi 2.5X2.5X0.1875	
9	PST 50 ksi 3" DIA PIP	SAE 50 ksi 2.5X2.5X0.1875	
10	PST 50 ksi 2" DIA PIP	SAE 50 ksi 2X2X0.1875	SAE 36 ksi 1.75X1.75X0.125

REDUNDANT SECONDARY BRACING

Section	Sub Diag 1	Sub Horiz 1	Sub Diag 2	Sub Horiz 2	Sub Diag 3	Sub Horiz 3
1 - 10	-	-	-	-	-	-

DISCRETE APPURTENANCE

Elev (ft)	Type	Qty	Description
190.00	DIPOLE	3	Generic 12' Dipole
190.00	T-Arm	3	Side Arm
189.00	OMNI	2	Generic 6' Omni
183.00	PANEL	3	RFS APXV18-206517S-C
183.00	RET/RCU	3	Generic RCU (Remote Control Un
183.00	T-Arm	3	Round Side Arm
177.00	PANEL	3	Ericsson Air6449 B41
177.00	PANEL	3	RFS APXVAALL24 43-U-NA20
177.00	RRU/RRH	3	Ericsson Radio 4449 B71 B85A
177.00	RRU/RRH	3	Ericsson Radio 4460 B25+B66
175.00	Sector Frame	3	Generic Heavy Sector Frame
166.00	BOB/SSB	2	Raycap DC6-48-60-18-8F (23.5"
166.00	BOB/SSB	2	Raycap DC6-48-60-18-8C-EV
166.00	BTS	6	Powerwave Allgon 7020
166.00	DIPLEXER/DUAL COUPLER	2	Kaelus DBC0061F1V51-2
166.00	PANEL	2	Commscope SBNHH-1D65A
166.00	PANEL	2	CCI HPA-65R-BUU-H4
166.00	PANEL	2	CCI OPA-65R-LCUU-H4 (14.4" wid
166.00	PANEL	3	CCI BSA-M65R-BUU-H4
166.00	PANEL	3	Powerwave Allgon 7770.00
166.00	RRU/RRH	1	Ericsson RRUS 4478 B14 (15")
166.00	RRU/RRH	2	Ericsson RRUS 4478 B5
166.00	RRU/RRH	4	Ericsson RRUS E2 B29
166.00	RRU/RRH	4	Ericsson RRUS 4426 B66
166.00	RRU/RRH	4	Ericsson RRUS 32 B30 (60 lbs)
166.00	RRU/RRH	4	Ericsson RRUS-11 (19.7")
166.00	Sector Frame	3	Flat Light Sector Frame
166.00	TTA	6	Powerwave Allgon LGP21401
156.00	BOB/SSB	1	Commscope RDIDC-9181-PF-48

JOB INFORMATION

Asset:	311305, GLFD-GUILFORD REBUILD CT	Height :	190.6 ft
Client	DISH WIRELESS L.L.C.	Base Width :	20 ft
Code:	ANSI/TIA-222-H	Shape :	Triangle

DISCRETE APPURTENANCE

Elev (ft)	Type	Qty	Description
156.00	PANEL	3	JMA Wireless MX08FRO665-21
156.00	RRU/RRH	3	Fujitsu TA08025-B604
156.00	RRU/RRH	3	Fujitsu TA08025-B605
156.00	Sector Frame	3	Generic Flat Light Sector Fram
148.00	DISH-RADOME	1	Generic 4' Dish w/ Radome
148.00	Sector Frame	1	Generic Flat Light Sector Fram
144.00	DIPOLE	1	Generic 10' Dipole
142.00	T-Arm	2	Round Side Arm
137.00	FM	2	Generic 6' FM antenna
135.00	T-Arm	4	Round Side Arm
130.00	T-Arm	3	Round Side Arm
127.00	FM	1	Harris FML-4E
125.00	T-Arm	2	Round Side Arm
108.80	DISH-GRID	1	Scala PR-950
87.00	OMNI	1	Antel BCD-87010 ___ 4°
87.00	T-Arm	1	Stand-Off
80.00	DISH-STANDARD	2	Generic 4' Std. Dish
60.00	T-Arm	2	Side Arm
16.00	DISH-STANDARD	1	Channel Master Type 120
4.00	RRU/RRH	2	Ericsson RRUS 32 B2

LINEAR APPURTENANCE

Elev (ft) From	To	Qty	Description
0.00	190.50	1	Climbing Ladder
0.00	190.00	3	7/8" Coax
0.00	190.00	1	5/16" (0.31"-7.9mm) Coax
0.00	189.00	2	1/2" Coax
0.00	183.00	1	Waveguide
0.00	183.00	1	3/8" Coax
0.00	183.00	6	1 5/8" Coax
0.00	177.00	3	1.99" (50.7mm) Hybrid
0.00	175.00	1	Waveguide
0.00	166.00	1	Waveguide
0.00	166.00	6	3/8" (0.38"- 9.5mm) RET Control Cable
0.00	166.00	1	1/2" Coax
0.00	166.00	12	1 5/8" Coax
0.00	166.00	8	0.74" (18.7mm) 8 AWG 7
0.00	166.00	4	0.39" (10mm) Fiber Trunk
0.00	156.00	1	Waveguide
0.00	156.00	1	1.60" (40.6mm) Hybrid
0.00	144.00	3	1 1/4" Coax
0.00	140.00	4	7/8" Coax
0.00	137.00	1	1 5/8" Coax
0.00	127.00	1	7/8" Coax
0.00	108.80	1	7/8" Coax
0.00	87.00	1	7/8" Coax
0.00	80.00	2	7/8" Coax
0.00	16.00	3	0.28" (7mm) RG-6

GLOBAL BASE FOUNDATION DESIGN LOADS

Load Case	Moment (k-ft)	Vertical (kip)	Horizontal (kip)
DL+WL	7759.89	60.73	74.3

JOB INFORMATION

Asset:	311305, GLFD-GUILFORD REBUILD CT	Height :	190.6 ft
Client	DISH WIRELESS L.L.C.	Base Width :	20 ft
Code:	ANSI/TIA-222-H	Shape :	Triangle

GLOBAL BASE FOUNDATION DESIGN LOADS

Load Case	Moment (k-ft)	Vertical (kip)	Horizontal (kip)
DL+WL+IL	2426.93	123.3	23.58

INDIVIDUAL BASE FOUNDATION DESIGN LOADS

	Vertical (kip)	Uplift (kip)	Horizontal (kip)
	468.26	416.58	45.00

ANALYSIS PARAMETERS

Location:	New Haven County, CT	Height:	190.6 ft
Type and Shape:	Self Support, Triangle	Base Elevation:	0.00 ft
Manufacturer:	Undetermined	Bottom Face Width:	20.00 ft
Kd	0.85	Top Face Width:	6.50 ft
Ke:	1.00	Anchor Bolt Detail Type:	c

ICE & WIND PARAMETERS

Exposure Category:	C	Design Wind Speed Without Ice:	123 mph
Risk Category:	II	Design Wind Speed with Ice:	50 mph
Topographic Factor Procedure:	Method 1	Operational Windspeed:	60 mph
Topographic Category:	Flat	Design Ice Thickness:	1.00 in
Crest Height:	0 ft	HMSL:	81 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil			Period Based on Rayleigh Method (sec):	0.98
T_L (sec):	6	P:	1	$C_{s:}$	0.030
$S_{s:}$	0.204	$S_{1:}$	0.054	$C_{s,}$ Max:	0.030
$F_{a:}$	1.600	$F_{v:}$	2.400	$C_{s,}$ Min:	0.030
$S_{ds:}$	0.218	S_{d1}:	0.086		

LOAD CASES

1.2D + 1.0W Normal	123 mph wind with no ice
1.2D + 1.0W 60°	123 mph wind with no ice
1.2D + 1.0W 90°	123 mph wind with no ice
1.2D + 1.0W 120°	123 mph wind with no ice
1.2D + 1.0W 180°	123 mph wind with no ice
1.2D + 1.0W 210°	123 mph wind with no ice
1.2D + 1.0W 240°	123 mph wind with no ice
1.2D + 1.0W 300°	123 mph wind with no ice
1.2D + 1.0W 330°	123 mph wind with no ice
0.9D + 1.0W Normal	123 mph wind with no ice
0.9D + 1.0W 60°	123 mph wind with no ice
0.9D + 1.0W 90°	123 mph wind with no ice
0.9D + 1.0W 120°	123 mph wind with no ice
0.9D + 1.0W 180°	123 mph wind with no ice
0.9D + 1.0W 210°	123 mph wind with no ice
0.9D + 1.0W 240°	123 mph wind with no ice
0.9D + 1.0W 300°	123 mph wind with no ice
0.9D + 1.0W 330°	123 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Normal	50 mph wind with 1" radial ice
1.2D + 1.0Di + 1.0Wi 60°	50 mph wind with 1" radial ice
1.2D + 1.0Di + 1.0Wi 90°	50 mph wind with 1" radial ice
1.2D + 1.0Di + 1.0Wi 120°	50 mph wind with 1" radial ice
1.2D + 1.0Di + 1.0Wi 180°	50 mph wind with 1" radial ice
1.2D + 1.0Di + 1.0Wi 210°	50 mph wind with 1" radial ice
1.2D + 1.0Di + 1.0Wi 240°	50 mph wind with 1" radial ice
1.2D + 1.0Di + 1.0Wi 300°	50 mph wind with 1" radial ice
1.2D + 1.0Di + 1.0Wi 330°	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh Normal	Seismic
1.2D + 1.0Ev + 1.0Eh 60°	Seismic
1.2D + 1.0Ev + 1.0Eh 90°	Seismic
1.2D + 1.0Ev + 1.0Eh 120°	Seismic
1.2D + 1.0Ev + 1.0Eh 180°	Seismic
1.2D + 1.0Ev + 1.0Eh 210°	Seismic
1.2D + 1.0Ev + 1.0Eh 240°	Seismic
1.2D + 1.0Ev + 1.0Eh 300°	Seismic
1.2D + 1.0Ev + 1.0Eh 330°	Seismic

LOAD CASES	
0.9D - 1.0Ev + 1.0Eh Normal	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 60°	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 90°	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 120°	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 180°	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 210°	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 240°	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 300°	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 330°	Seismic (Reduced DL)
1.0D + 1.0W Service Normal	60 mph Wind with No Ice
1.0D + 1.0W Service 60°	60 mph Wind with No Ice
1.0D + 1.0W Service 90°	60 mph Wind with No Ice
1.0D + 1.0W Service 120°	60 mph Wind with No Ice
1.0D + 1.0W Service 180°	60 mph Wind with No Ice
1.0D + 1.0W Service 210°	60 mph Wind with No Ice
1.0D + 1.0W Service 240°	60 mph Wind with No Ice
1.0D + 1.0W Service 300°	60 mph Wind with No Ice
1.0D + 1.0W Service 330°	60 mph Wind with No Ice

TOWER LOADING

Discrete Appurtenance Properties 1.2D + 1.0W

Elev (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient Factor	Vert Ecc (ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
190.0	Generic 12' Dipole	3	40	4.5	12.0	3.0	3.0	1.00	1.00	0.0	0.00	47.55	547	144
190.0	Side Arm	3	150	5.2	0.0	0.0	0.0	1.00	0.67	0.0	0.00	47.55	422	540
189.0	Generic 6' Omni	2	25	1.8	6.0	3.0	3.0	1.00	1.00	0.0	0.00	47.50	142	60
183.0	Generic RCU (Remote Control Un	3	1	0.1	0.7	2.0	2.0	0.80	1.00	0.0	0.00	47.18	14	4
183.0	RFS APXV18-206517S-C	3	26	5.2	6.0	6.8	3.2	0.80	0.68	0.0	0.00	47.18	338	95
183.0	Round Side Arm	3	150	5.2	0.0	0.0	0.0	1.00	0.67	0.0	0.00	47.18	419	540
177.0	Ericsson Radio 4449 B71 B85A	3	75	1.6	1.3	13.2	10.5	0.80	0.50	0.0	0.00	46.85	79	270
177.0	Ericsson Radio 4460 B25+B66	3	109	2.6	1.6	15.7	12.1	0.80	0.67	0.0	0.00	46.85	164	392
177.0	Ericsson Air6449 B41	3	104	5.7	2.8	20.6	8.6	0.80	0.63	0.0	0.00	46.85	342	374
177.0	RFS APXVAALL24 43-U-NA20	3	123	20.2	8.0	24.0	8.5	0.80	0.63	0.0	0.00	46.85	1219	442
175.0	Generic Heavy Sector Frame	3	500	29.3	0.0	0.0	0.0	0.75	0.67	0.0	0.00	46.74	1755	1800
166.0	Powerwave Allgon 7020	6	2	0.3	0.4	8.3	2.4	0.80	0.50	0.0	0.00	46.22	32	16
166.0	Kaelus DBC0061F1V51-2	2	26	0.4	0.7	6.5	6.2	0.80	0.50	0.0	0.00	46.22	14	61
166.0	Powerwave Allgon LGP21401	6	14	1.1	1.2	9.2	2.6	0.80	0.50	0.0	0.00	46.22	104	102
166.0	Raycap DC6-48-60-18-8F (23.5"	2	20	1.3	2.0	9.7	9.7	0.80	1.00	0.0	0.00	46.22	79	48
166.0	Ericsson RRUS 4426 B66	4	48	1.6	1.3	13.2	5.8	0.80	0.50	0.0	0.00	46.22	104	232
166.0	Ericsson RRUS 4478 B14 (15")	1	59	1.6	1.3	13.2	7.3	0.80	1.00	0.0	0.00	46.22	52	71
166.0	Ericsson RRUS 4478 B5	2	60	1.8	1.4	13.4	7.7	0.80	0.50	0.0	0.00	46.22	58	144
166.0	Ericsson RRUS 32 B30 (60 lbs)	4	60	2.7	2.2	12.1	6.7	0.80	0.67	0.0	0.00	46.22	227	288
166.0	Ericsson RRUS-11 (19.7")	4	51	2.8	1.6	17.0	8.0	0.80	0.67	0.0	0.00	46.22	235	245
166.0	Ericsson RRUS E2 B29	4	60	3.1	1.7	18.5	7.5	0.80	0.62	0.0	0.00	46.22	245	288
166.0	Raycap DC6-48-60-18-8C-EV	2	16	4.8	2.6	18.3	10.2	0.80	0.75	0.0	0.00	46.22	226	38
166.0	Powerwave Allgon 7770.00	3	35	5.5	4.6	11.0	5.0	0.80	0.65	0.0	0.00	46.22	338	126
166.0	Commscope SBNHH-1D65A	2	34	5.9	4.6	11.9	7.1	0.80	0.77	0.0	0.00	46.22	285	80
166.0	CCI OPA-65R-LCUU-H4 (14.4" wid	2	57	5.9	4.0	14.4	7.3	0.80	0.75	0.0	0.00	46.22	280	137
166.0	CCI HPA-65R-BUU-H4	2	34	6.1	4.0	14.8	9.0	0.80	0.77	0.0	0.00	46.22	294	82
166.0	CCI BSA-M65R-BUU-H4	3	75	11.9	4.2	28.5	9.7	0.80	0.61	0.0	0.00	46.22	682	270
166.0	Flat Light Sector Frame	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.00	46.22	1060	1440
156.0	Commscope RDIDC-9181-PF-48	1	22	1.9	1.3	14.0	8.0	0.80	1.00	0.0	0.00	45.62	58	26
156.0	Fujitsu TA08025-B604	3	64	2.0	1.3	15.0	7.9	0.80	0.50	0.0	0.00	45.62	91	230
156.0	Fujitsu TA08025-B605	3	75	2.0	1.3	15.0	9.1	0.80	0.50	0.0	0.00	45.62	91	270
156.0	JMA Wireless MX08FRO665-21	3	65	12.5	6.0	20.0	8.0	0.80	0.64	0.0	0.00	45.62	744	232
156.0	Generic Flat Light Sector Fram	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.00	45.62	1046	1440
148.0	Generic 4' Dish w/ Radome	1	120	10.8	4.0	48.0	0.0	1.00	1.00	0.0	0.00	45.12	416	144
148.0	Generic Flat Light Sector Fram	1	400	17.9	0.0	0.0	0.0	1.00	1.00	0.0	0.00	45.12	686	480
144.0	Generic 10' Dipole	1	30	3.8	10.0	3.0	3.0	1.00	1.00	0.0	0.00	44.86	143	36
142.0	Round Side Arm	2	150	5.2	0.0	0.0	0.0	1.00	0.90	0.0	0.00	44.73	356	360
137.0	Generic 6' FM antenna	2	30	13.4	6.0	0.0	0.0	1.00	1.00	0.0	0.00	44.39	1015	72
135.0	Round Side Arm	4	150	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.00	44.25	782	720
130.0	Round Side Arm	3	150	5.2	0.0	0.0	0.0	1.00	0.67	0.0	0.00	43.90	390	540
127.0	Harris FML-4E	1	227	12.8	40.0	24.0	24.0	1.00	1.00	0.0	0.00	43.69	476	272
125.0	Round Side Arm	2	150	5.2	0.0	0.0	0.0	1.00	0.90	0.0	0.00	43.54	346	360
108.8	Scala PR-950	1	38	10.1	5.7	36.0	0.0	1.00	1.00	0.0	0.00	42.29	363	46
87.0	Stand-Off	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.00	40.34	86	90
87.0	Antel BCD-87010 ___ 4°	1	27	2.9	11.2	2.6	2.6	1.00	1.00	0.0	0.00	40.34	99	32
80.0	Generic 4' Std. Dish	2	188	20.9	4.0	48.0	0.0	1.00	1.00	0.0	0.00	39.64	1409	451
60.0	Side Arm	2	150	5.2	0.0	0.0	0.0	1.00	0.90	0.0	0.00	37.31	297	360
16.0	Channel Master Type 120	1	126	20.2	3.9	47.2	0.0	1.00	1.00	0.0	0.00	28.25	485	151
4.0	Ericsson RRUS 32 B2	2	53	2.7	2.3	12.1	7.0	1.00	0.67	0.0	0.00	27.90	87	127
	Totals	124	12,308	779.8									19,222	14,769

TOWER LOADING

Discrete Appurtenance Properties 0.9D + 1.0W

Elev (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient Factor	Vert Ecc (ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
190.0	Generic 12' Dipole	3	40	4.5	12.0	3.0	3.0	1.00	1.00	0.0	0.00	47.55	547	108
190.0	Side Arm	3	150	5.2	0.0	0.0	0.0	1.00	0.67	0.0	0.00	47.55	422	405
189.0	Generic 6' Omni	2	25	1.8	6.0	3.0	3.0	1.00	1.00	0.0	0.00	47.50	142	45
183.0	Generic RCU (Remote Control Un	3	1	0.1	0.7	2.0	2.0	0.80	1.00	0.0	0.00	47.18	14	3
183.0	RFS APXV18-206517S-C	3	26	5.2	6.0	6.8	3.2	0.80	0.68	0.0	0.00	47.18	338	71
183.0	Round Side Arm	3	150	5.2	0.0	0.0	0.0	1.00	0.67	0.0	0.00	47.18	419	405
177.0	Ericsson Radio 4449 B71 B85A	3	75	1.6	1.3	13.2	10.5	0.80	0.50	0.0	0.00	46.85	79	202

Elev (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient Factor	Vert Ecc (ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
177.0	Ericsson Radio 4460 B25+B66	3	109	2.6	1.6	15.7	12.1	0.80	0.67	0.0	0.00	46.85	164	294
177.0	Ericsson Air6449 B41	3	104	5.7	2.8	20.6	8.6	0.80	0.63	0.0	0.00	46.85	342	281
177.0	RFS APXVAALL24 43-U-NA20	3	123	20.2	8.0	24.0	8.5	0.80	0.63	0.0	0.00	46.85	1219	332
175.0	Generic Heavy Sector Frame	3	500	29.3	0.0	0.0	0.0	0.75	0.67	0.0	0.00	46.74	1755	1350
166.0	Powerwave Allgon 7020	6	2	0.3	0.4	8.3	2.4	0.80	0.50	0.0	0.00	46.22	32	12
166.0	Kaelus DBC0061F1V51-2	2	26	0.4	0.7	6.5	6.2	0.80	0.50	0.0	0.00	46.22	14	46
166.0	Powerwave Allgon LGP21401	6	14	1.1	1.2	9.2	2.6	0.80	0.50	0.0	0.00	46.22	104	76
166.0	Raycap DC6-48-60-18-8F (23.5"	2	20	1.3	2.0	9.7	9.7	0.80	1.00	0.0	0.00	46.22	79	36
166.0	Ericsson RRUS 4426 B66	4	48	1.6	1.3	13.2	5.8	0.80	0.50	0.0	0.00	46.22	104	174
166.0	Ericsson RRUS 4478 B14 (15")	1	59	1.6	1.3	13.2	7.3	0.80	1.00	0.0	0.00	46.22	52	53
166.0	Ericsson RRUS 4478 B5	2	60	1.8	1.4	13.4	7.7	0.80	0.50	0.0	0.00	46.22	58	108
166.0	Ericsson RRUS 32 B30 (60 lbs)	4	60	2.7	2.2	12.1	6.7	0.80	0.67	0.0	0.00	46.22	227	216
166.0	Ericsson RRUS-11 (19.7")	4	51	2.8	1.6	17.0	8.0	0.80	0.67	0.0	0.00	46.22	235	184
166.0	Ericsson RRUS E2 B29	4	60	3.1	1.7	18.5	7.5	0.80	0.62	0.0	0.00	46.22	245	216
166.0	Raycap DC6-48-60-18-8C-EV	2	16	4.8	2.6	18.3	10.2	0.80	0.75	0.0	0.00	46.22	226	29
166.0	Powerwave Allgon 7770.00	3	35	5.5	4.6	11.0	5.0	0.80	0.65	0.0	0.00	46.22	338	94
166.0	Commscope SBNHH-1D65A	2	34	5.9	4.6	11.9	7.1	0.80	0.77	0.0	0.00	46.22	285	60
166.0	CCI OPA-65R-LCUU-H4 (14.4" wid	2	57	5.9	4.0	14.4	7.3	0.80	0.75	0.0	0.00	46.22	280	103
166.0	CCI HPA-65R-BUU-H4	2	34	6.1	4.0	14.8	9.0	0.80	0.77	0.0	0.00	46.22	294	61
166.0	CCI BSA-M65R-BUU-H4	3	75	11.9	4.2	28.5	9.7	0.80	0.61	0.0	0.00	46.22	682	202
166.0	Flat Light Sector Frame	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.00	46.22	1060	1080
156.0	Commscope RDIDC-9181-PF-48	1	22	1.9	1.3	14.0	8.0	0.80	1.00	0.0	0.00	45.62	58	20
156.0	Fujitsu TA08025-B604	3	64	2.0	1.3	15.0	7.9	0.80	0.50	0.0	0.00	45.62	91	173
156.0	Fujitsu TA08025-B605	3	75	2.0	1.3	15.0	9.1	0.80	0.50	0.0	0.00	45.62	91	202
156.0	JMA Wireless MX08FRO665-21	3	65	12.5	6.0	20.0	8.0	0.80	0.64	0.0	0.00	45.62	744	174
156.0	Generic Flat Light Sector Fram	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.00	45.62	1046	1080
148.0	Generic 4' Dish w/ Radome	1	120	10.8	4.0	48.0	0.0	1.00	1.00	0.0	0.00	45.12	416	108
148.0	Generic Flat Light Sector Fram	1	400	17.9	0.0	0.0	0.0	1.00	1.00	0.0	0.00	45.12	686	360
144.0	Generic 10' Dipole	1	30	3.8	10.0	3.0	3.0	1.00	1.00	0.0	0.00	44.86	143	27
142.0	Round Side Arm	2	150	5.2	0.0	0.0	0.0	1.00	0.90	0.0	0.00	44.73	356	270
137.0	Generic 6' FM antenna	2	30	13.4	6.0	0.0	0.0	1.00	1.00	0.0	0.00	44.39	1015	54
135.0	Round Side Arm	4	150	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.00	44.25	782	540
130.0	Round Side Arm	3	150	5.2	0.0	0.0	0.0	1.00	0.67	0.0	0.00	43.90	390	405
127.0	Harris FML-4E	1	227	12.8	40.0	24.0	24.0	1.00	1.00	0.0	0.00	43.69	476	204
125.0	Round Side Arm	2	150	5.2	0.0	0.0	0.0	1.00	0.90	0.0	0.00	43.54	346	270
108.8	Scala PR-950	1	38	10.1	5.7	36.0	0.0	1.00	1.00	0.0	0.00	42.29	363	34
87.0	Stand-Off	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.00	40.34	86	68
87.0	Antel BCD-87010 ___ 4°	1	27	2.9	11.2	2.6	2.6	1.00	1.00	0.0	0.00	40.34	99	24
80.0	Generic 4' Std. Dish	2	188	20.9	4.0	48.0	0.0	1.00	1.00	0.0	0.00	39.64	1409	338
60.0	Side Arm	2	150	5.2	0.0	0.0	0.0	1.00	0.90	0.0	0.00	37.31	297	270
16.0	Channel Master Type 120	1	126	20.2	3.9	47.2	0.0	1.00	1.00	0.0	0.00	28.25	485	113
4.0	Ericsson RRUS 32 B2	2	53	2.7	2.3	12.1	7.0	1.00	0.67	0.0	0.00	27.90	87	95
	Totals	124	12,308	779.8									19,222	11,077

TOWER LOADING

Discrete Appurtenance Properties 1.2D + 1.0Di + 1.0Wi

Elev (ft)	Description	Qty	Ice Wt (lb)	Ice EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient Factor	Vert Ecc (ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
190.0	Generic 12' Dipole	3	131	9.4	12.0	3.0	3.0	1.00	1.00	0.0	0.00	7.86	188	417
190.0	Side Arm	3	200	7.1	0.0	0.0	0.0	1.00	0.67	0.0	0.00	7.86	95	690
189.0	Generic 6' Omni	2	56	2.6	6.0	3.0	3.0	1.00	1.00	0.0	0.00	7.85	35	123
183.0	Generic RCU (Remote Control Un	3	5	0.4	0.7	2.0	2.0	0.80	1.00	0.0	0.00	7.80	6	15
183.0	RFS APXV18-206517S-C	3	90	6.8	6.0	6.8	3.2	0.80	0.68	0.0	0.00	7.80	73	285
183.0	Round Side Arm	3	200	7.1	0.0	0.0	0.0	1.00	0.67	0.0	0.00	7.80	94	690
177.0	Ericsson Radio 4449 B71 B85A	3	116	2.2	1.3	13.2	10.5	0.80	0.50	0.0	0.00	7.74	18	392
177.0	Ericsson Radio 4460 B25+B66	3	169	3.3	1.6	15.7	12.1	0.80	0.67	0.0	0.00	7.74	35	572
177.0	Ericsson Air6449 B41	3	196	6.8	2.8	20.6	8.6	0.80	0.63	0.0	0.00	7.74	67	651
177.0	RFS APXVAALL24 43-U-NA20	3	386	22.8	8.0	24.0	8.5	0.80	0.63	0.0	0.00	7.74	226	1233
175.0	Generic Heavy Sector Frame	3	872	41.0	0.0	0.0	0.0	0.75	0.67	0.0	0.00	7.72	406	2917
166.0	Powerwave Allgon 7020	6	9	0.6	0.4	8.3	2.4	0.80	0.50	0.0	0.00	7.64	10	57
166.0	Kaelus DBC0061F1V51-2	2	38	0.7	0.7	6.5	6.2	0.80	0.50	0.0	0.00	7.64	4	86
166.0	Powerwave Allgon LGP21401	6	31	1.6	1.2	9.2	2.6	0.80	0.50	0.0	0.00	7.64	25	203
166.0	Raycap DC6-48-60-18-8F (23.5"	2	56	1.7	2.0	9.7	9.7	0.80	1.00	0.0	0.00	7.64	18	119
166.0	Ericsson RRUS 4426 B66	4	79	2.2	1.3	13.2	5.8	0.80	0.50	0.0	0.00	7.64	23	353
166.0	Ericsson RRUS 4478 B14 (15")	1	93	2.2	1.3	13.2	7.3	0.80	1.00	0.0	0.00	7.64	12	105
166.0	Ericsson RRUS 4478 B5	2	97	2.4	1.4	13.4	7.7	0.80	0.50	0.0	0.00	7.64	13	219

Elev (ft)	Description	Qty	Ice Wt (lb)	Ice EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient Factor	Vert Ecc (ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
166.0	Ericsson RRUS 32 B30 (60 lbs)	4	108	3.5	2.2	12.1	6.7	0.80	0.67	0.0	0.00	7.64	48	480
166.0	Ericsson RRUS-11 (19.7")	4	102	3.5	1.6	17.0	8.0	0.80	0.67	0.0	0.00	7.64	49	451
166.0	Ericsson RRUS E2 B29	4	115	3.9	1.7	18.5	7.5	0.80	0.62	0.0	0.00	7.64	51	507
166.0	Raycap DC6-48-60-18-8C-EV	2	103	5.8	2.6	18.3	10.2	0.80	0.75	0.0	0.00	7.64	45	213
166.0	Powerwave Allgon 7770.00	3	120	6.2	4.6	11.0	5.0	0.80	0.65	0.0	0.00	7.64	63	380
166.0	Commscope SBNHH-1D65A	2	125	7.3	4.6	11.9	7.1	0.80	0.77	0.0	0.00	7.64	59	264
166.0	CCI OPA-65R-LCUU-H4 (14.4" wid	2	150	7.2	4.0	14.4	7.3	0.80	0.75	0.0	0.00	7.64	56	323
166.0	CCI HPA-65R-BUU-H4	2	137	7.4	4.0	14.8	9.0	0.80	0.77	0.0	0.00	7.64	59	288
166.0	CCI BSA-M65R-BUU-H4	3	248	13.4	4.2	28.5	9.7	0.80	0.61	0.0	0.00	7.64	127	790
166.0	Flat Light Sector Frame	3	604	28.1	0.0	0.0	0.0	0.75	0.67	0.0	0.00	7.64	275	2051
156.0	Commscope RDIDC-9181-PF-48	1	60	2.5	1.3	14.0	8.0	0.80	1.00	0.0	0.00	7.54	13	64
156.0	Fujitsu TA08025-B604	3	103	2.6	1.3	15.0	7.9	0.80	0.50	0.0	0.00	7.54	20	347
156.0	Fujitsu TA08025-B605	3	117	2.6	1.3	15.0	9.1	0.80	0.50	0.0	0.00	7.54	20	396
156.0	JMA Wireless MX08FRO665-21	3	236	14.4	6.0	20.0	8.0	0.80	0.64	0.0	0.00	7.54	141	747
156.0	Generic Flat Light Sector Fram	3	601	28.0	0.0	0.0	0.0	0.75	0.67	0.0	0.00	7.54	270	2043
148.0	Generic 4' Dish w/ Radome	1	333	11.9	4.0	48.0	0.0	1.00	1.00	0.0	0.00	7.46	76	357
148.0	Generic Flat Light Sector Fram	1	601	28.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	7.46	177	681
144.0	Generic 10' Dipole	1	104	7.8	10.0	3.0	3.0	1.00	1.00	0.0	0.00	7.41	49	110
142.0	Round Side Arm	2	199	7.0	0.0	0.0	0.0	1.00	0.90	0.0	0.00	7.39	79	458
137.0	Generic 6' FM antenna	2	478	16.5	6.0	0.0	0.0	1.00	1.00	0.0	0.00	7.34	205	969
135.0	Round Side Arm	4	198	7.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	7.31	174	913
130.0	Round Side Arm	3	198	7.0	0.0	0.0	0.0	1.00	0.67	0.0	0.00	7.25	87	685
127.0	Harris FML-4E	1	460	29.9	40.0	24.0	24.0	1.00	1.00	0.0	0.00	7.22	184	506
125.0	Round Side Arm	2	198	7.0	0.0	0.0	0.0	1.00	0.90	0.0	0.00	7.20	77	456
108.8	Scala PR-950	1	243	53.9	5.7	36.0	0.0	1.00	1.00	0.0	0.00	6.99	320	251
87.0	Stand-Off	1	108	3.6	0.0	0.0	0.0	1.00	1.00	0.0	0.00	6.67	20	123
87.0	Antel BCD-87010 ___ 4°	1	99	5.5	11.2	2.6	2.6	1.00	1.00	0.0	0.00	6.67	31	105
80.0	Generic 4' Std. Dish	2	320	22.8	4.0	48.0	0.0	1.00	1.00	0.0	0.00	6.55	254	715
60.0	Side Arm	2	194	6.8	0.0	0.0	0.0	1.00	0.90	0.0	0.00	6.16	64	448
16.0	Channel Master Type 120	1	231	21.7	3.9	47.2	0.0	1.00	1.00	0.0	0.00	4.67	86	256
4.0	Ericsson RRUS 32 B2	2	90	3.3	2.3	12.1	7.0	1.00	0.67	0.0	0.00	4.61	18	202
	Totals	124	23,240	1084.8									4543	25,702

TOWER LOADING

Discrete Appurtenance Properties 1.0D + 1.0W Service

Elev (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient Factor	Vert Ecc (ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
190.0	Generic 12' Dipole	3	40	4.5	12.0	3.0	3.0	1.00	1.00	0.0	0.00	11.32	130	120
190.0	Side Arm	3	150	5.2	0.0	0.0	0.0	1.00	0.67	0.0	0.00	11.32	101	450
189.0	Generic 6' Omni	2	25	1.8	6.0	3.0	3.0	1.00	1.00	0.0	0.00	11.30	34	50
183.0	Generic RCU (Remote Control Un	3	1	0.1	0.7	2.0	2.0	0.80	1.00	0.0	0.00	11.23	3	3
183.0	RFS APXV18-206517S-C	3	26	5.2	6.0	6.8	3.2	0.80	0.68	0.0	0.00	11.23	80	79
183.0	Round Side Arm	3	150	5.2	0.0	0.0	0.0	1.00	0.67	0.0	0.00	11.23	100	450
177.0	Ericsson Radio 4449 B71 B85A	3	75	1.6	1.3	13.2	10.5	0.80	0.50	0.0	0.00	11.15	19	225
177.0	Ericsson Radio 4460 B25+B66	3	109	2.6	1.6	15.7	12.1	0.80	0.67	0.0	0.00	11.15	39	327
177.0	Ericsson Air6449 B41	3	104	5.7	2.8	20.6	8.6	0.80	0.63	0.0	0.00	11.15	81	312
177.0	RFS APXVAALL24 43-U-NA20	3	123	20.2	8.0	24.0	8.5	0.80	0.63	0.0	0.00	11.15	290	368
175.0	Generic Heavy Sector Frame	3	500	29.3	0.0	0.0	0.0	0.75	0.67	0.0	0.00	11.12	418	1500
166.0	Powerwave Allgon 7020	6	2	0.3	0.4	8.3	2.4	0.80	0.50	0.0	0.00	11.00	8	13
166.0	Kaelus DBC0061F1V51-2	2	26	0.4	0.7	6.5	6.2	0.80	0.50	0.0	0.00	11.00	3	51
166.0	Powerwave Allgon LGP21401	6	14	1.1	1.2	9.2	2.6	0.80	0.50	0.0	0.00	11.00	25	85
166.0	Raycap DC6-48-60-18-8F (23.5"	2	20	1.3	2.0	9.7	9.7	0.80	1.00	0.0	0.00	11.00	19	40
166.0	Ericsson RRUS 4426 B66	4	48	1.6	1.3	13.2	5.8	0.80	0.50	0.0	0.00	11.00	25	194
166.0	Ericsson RRUS 4478 B14 (15")	1	59	1.6	1.3	13.2	7.3	0.80	1.00	0.0	0.00	11.00	12	59
166.0	Ericsson RRUS 4478 B5	2	60	1.8	1.4	13.4	7.7	0.80	0.50	0.0	0.00	11.00	14	120
166.0	Ericsson RRUS 32 B30 (60 lbs)	4	60	2.7	2.2	12.1	6.7	0.80	0.67	0.0	0.00	11.00	54	240
166.0	Ericsson RRUS-11 (19.7")	4	51	2.8	1.6	17.0	8.0	0.80	0.67	0.0	0.00	11.00	56	204
166.0	Ericsson RRUS E2 B29	4	60	3.1	1.7	18.5	7.5	0.80	0.62	0.0	0.00	11.00	58	240
166.0	Raycap DC6-48-60-18-8C-EV	2	16	4.8	2.6	18.3	10.2	0.80	0.75	0.0	0.00	11.00	54	32
166.0	Powerwave Allgon 7770.00	3	35	5.5	4.6	11.0	5.0	0.80	0.65	0.0	0.00	11.00	80	105
166.0	Commscope SBNHH-1D65A	2	34	5.9	4.6	11.9	7.1	0.80	0.77	0.0	0.00	11.00	68	67
166.0	CCI OPA-65R-LCUU-H4 (14.4" wid	2	57	5.9	4.0	14.4	7.3	0.80	0.75	0.0	0.00	11.00	67	114
166.0	CCI HPA-65R-BUU-H4	2	34	6.1	4.0	14.8	9.0	0.80	0.77	0.0	0.00	11.00	70	68
166.0	CCI BSA-M65R-BUU-H4	3	75	11.9	4.2	28.5	9.7	0.80	0.61	0.0	0.00	11.00	162	225
166.0	Flat Light Sector Frame	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.00	11.00	252	1200

Elev (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient Factor	Vert Ecc (ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
156.0	Commscope RDIDC-9181-PF-48	1	22	1.9	1.3	14.0	8.0	0.80	1.00	0.0	0.00	10.86	14	22
156.0	Fujitsu TA08025-B604	3	64	2.0	1.3	15.0	7.9	0.80	0.50	0.0	0.00	10.86	22	192
156.0	Fujitsu TA08025-B605	3	75	2.0	1.3	15.0	9.1	0.80	0.50	0.0	0.00	10.86	22	225
156.0	JMA Wireless MX08FRO665-21	3	65	12.5	6.0	20.0	8.0	0.80	0.64	0.0	0.00	10.86	177	194
156.0	Generic Flat Light Sector Fram	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.00	10.86	249	1200
148.0	Generic 4' Dish w/ Radome	1	120	10.8	4.0	48.0	0.0	1.00	1.00	0.0	0.00	10.74	99	120
148.0	Generic Flat Light Sector Fram	1	400	17.9	0.0	0.0	0.0	1.00	1.00	0.0	0.00	10.74	163	400
144.0	Generic 10' Dipole	1	30	3.8	10.0	3.0	3.0	1.00	1.00	0.0	0.00	10.67	34	30
142.0	Round Side Arm	2	150	5.2	0.0	0.0	0.0	1.00	0.90	0.0	0.00	10.64	85	300
137.0	Generic 6' FM antenna	2	30	13.4	6.0	0.0	0.0	1.00	1.00	0.0	0.00	10.56	242	60
135.0	Round Side Arm	4	150	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.00	10.53	186	600
130.0	Round Side Arm	3	150	5.2	0.0	0.0	0.0	1.00	0.67	0.0	0.00	10.45	93	450
127.0	Harris FML-4E	1	227	12.8	40.0	24.0	24.0	1.00	1.00	0.0	0.00	10.40	113	227
125.0	Round Side Arm	2	150	5.2	0.0	0.0	0.0	1.00	0.90	0.0	0.00	10.36	82	300
108.8	Scala PR-950	1	38	10.1	5.7	36.0	0.0	1.00	1.00	0.0	0.00	10.06	86	38
87.0	Stand-Off	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.00	9.60	20	75
87.0	Antel BCD-87010 ___ 4°	1	27	2.9	11.2	2.6	2.6	1.00	1.00	0.0	0.00	9.60	24	26
80.0	Generic 4' Std. Dish	2	188	20.9	4.0	48.0	0.0	1.00	1.00	0.0	0.00	9.43	335	376
60.0	Side Arm	2	150	5.2	0.0	0.0	0.0	1.00	0.90	0.0	0.00	8.88	71	300
16.0	Channel Master Type 120	1	126	20.2	3.9	47.2	0.0	1.00	1.00	0.0	0.00	6.72	115	126
4.0	Ericsson RRUS 32 B2	2	53	2.7	2.3	12.1	7.0	1.00	0.67	0.0	0.00	6.64	21	106
	Totals	124	12,308	779.8									4,574	12,308

TOWER LOADING

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	% In Wind	Spread On Faces	Bundling	Cluster Dia (in)	Out of Zone	Spacing (in)	Orient Factor	K_a Override
0.0	190.5	Climbing Ladder	1	2.00	6.90	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	190.0	5/16" (0.31"-7.9mm) Coax	1	0.31	0.05	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	190.0	7/8" Coax	3	1.09	0.33	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	189.0	1/2" Coax	2	0.63	0.15	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	183.0	Waveguide	1	2.00	6.00	100	2	Individual	0.00	N	1.00	1.00	0.00
0.0	183.0	1 5/8" Coax	6	1.98	0.82	100	2	Individual	0.00	N	1.00	1.00	0.00
0.0	183.0	3/8" Coax	1	0.44	0.08	100	2	Individual	0.00	N	1.00	1.00	0.00
0.0	177.0	1.99" (50.7mm) Hybrid	3	1.99	1.90	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	175.0	Waveguide	1	2.00	6.00	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	166.0	0.74" (18.7mm) 8 AWG 7	8	0.74	0.49	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	166.0	1/2" Coax	1	0.63	0.15	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	166.0	1 5/8" Coax	12	1.98	0.82	50	3	Block	0.00	N	1.00	1.00	0.00
0.0	166.0	0.39" (10mm) Fiber Trunk	4	0.39	0.06	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	166.0	Waveguide	1	2.00	6.00	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	166.0	3/8" (0.38"- 9.5mm) RET Contro	6	0.38	0.23	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	156.0	1.60" (40.6mm) Hybrid	1	1.60	2.34	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	156.0	Waveguide	1	2.00	6.00	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	144.0	1 1/4" Coax	3	1.55	0.63	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	140.0	7/8" Coax	4	1.09	0.33	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	137.0	1 5/8" Coax	1	1.98	0.82	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	127.0	7/8" Coax	1	1.09	0.33	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	108.8	7/8" Coax	1	1.09	0.33	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	87.0	7/8" Coax	1	1.09	0.33	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	80.0	7/8" Coax	2	1.09	0.33	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	16.0	0.28" (7mm) RG-6	3	0.28	0.03	100	3	Individual	0.00	N	1.00	1.00	0.01

SECTION FORCES

1.2D + 1.0W Normal — Gust Response Factor (Gh): 0.85
123 mph wind with no ice — Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	47.30	6.300	4.195	0.00	0.148	2.78	1.00	1.00	0.0	8.68	24.13	0.00	606	0	970	311	1282
9	170	46.45	11.127	11.667	0.00	0.168	2.71	1.00	1.00	0.0	17.64	47.75	0.00	1998	0	1886	1983	3868
8	150	45.24	11.620	18.561	0.00	0.196	2.61	1.00	1.00	0.0	20.60	53.77	0.00	3129	0	2068	3361	5429
7	130	43.90	15.453	22.104	0.00	0.202	2.59	1.00	1.00	0.0	25.39	65.75	0.00	3793	0	2454	3760	6214
6	110	42.39	17.065	28.777	0.00	0.209	2.57	1.00	1.00	0.0	30.04	77.10	0.00	4594	0	2778	3694	6472
5	90	40.63	19.007	28.777	0.00	0.192	2.62	1.00	1.00	0.0	31.70	83.18	0.00	4705	0	2873	3582	6455
4	70	38.54	20.742	35.867	0.00	0.200	2.60	1.00	1.00	0.0	36.73	95.34	0.00	6071	0	3123	3511	6635
3	50	35.90	23.132	35.893	0.00	0.186	2.64	1.00	1.00	0.0	38.84	102.72	0.00	6242	0	3135	3271	6406
2	30	32.24	30.234	35.893	0.00	0.185	2.65	1.00	1.00	0.0	45.93	121.60	0.00	6792	0	3332	2938	6270
1	10	27.90	37.987	42.571	0.00	0.201	2.59	1.00	1.00	0.0	56.98	147.78	0.00	8031	0	3505	2542	6047
														45,963	0			55,077

1.2D + 1.0W 60° — Gust Response Factor (Gh): 0.85
123 mph wind with no ice — Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	47.30	6.300	4.195	0.00	0.148	2.78	0.80	1.00	0.0	7.42	20.62	0.00	606	0	829	311	1141
9	170	46.45	11.127	11.667	0.00	0.168	2.71	0.80	1.00	0.0	15.41	41.73	0.00	1998	0	1648	1983	3631
8	150	45.24	11.620	18.561	0.00	0.196	2.61	0.80	1.00	0.0	18.27	47.70	0.00	3129	0	1834	3361	5196
7	130	43.90	15.453	22.104	0.00	0.202	2.59	0.80	1.00	0.0	22.30	57.75	0.00	3793	0	2155	3760	5915
6	110	42.39	17.065	28.777	0.00	0.209	2.57	0.80	1.00	0.0	26.63	68.34	0.00	4594	0	2462	3694	6156
5	90	40.63	19.007	28.777	0.00	0.192	2.62	0.80	1.00	0.0	27.90	73.21	0.00	4705	0	2528	3582	6111
4	70	38.54	20.742	35.867	0.00	0.200	2.60	0.80	1.00	0.0	32.58	84.58	0.00	6071	0	2770	3511	6282
3	50	35.90	23.132	35.893	0.00	0.186	2.64	0.80	1.00	0.0	34.22	90.49	0.00	6242	0	2761	3271	6033
2	30	32.24	30.234	35.893	0.00	0.185	2.65	0.80	1.00	0.0	39.88	105.59	0.00	6792	0	2894	2938	5831
1	10	27.90	37.987	42.571	0.00	0.201	2.59	0.80	1.00	0.0	49.38	128.08	0.00	8031	0	3037	2542	5580
														45,963	0			51,874

1.2D + 1.0W 90° — Gust Response Factor (Gh): 0.85
123 mph wind with no ice — Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	47.30	6.300	4.195	0.00	0.148	2.78	0.85	1.00	0.0	7.74	21.50	0.00	606	0	864	311	1176
9	170	46.45	11.127	11.667	0.00	0.168	2.71	0.85	1.00	0.0	15.97	43.23	0.00	1998	0	1707	1983	3690
8	150	45.24	11.620	18.561	0.00	0.196	2.61	0.85	1.00	0.0	18.85	49.22	0.00	3129	0	1893	3361	5254
7	130	43.90	15.453	22.104	0.00	0.202	2.59	0.85	1.00	0.0	23.07	59.75	0.00	3793	0	2230	3760	5990
6	110	42.39	17.065	28.777	0.00	0.209	2.57	0.85	1.00	0.0	27.48	70.53	0.00	4594	0	2541	3694	6235
5	90	40.63	19.007	28.777	0.00	0.192	2.62	0.85	1.00	0.0	28.85	75.70	0.00	4705	0	2614	3582	6197
4	70	38.54	20.742	35.867	0.00	0.200	2.60	0.85	1.00	0.0	33.62	87.27	0.00	6071	0	2859	3511	6370
3	50	35.90	23.132	35.893	0.00	0.186	2.64	0.85	1.00	0.0	35.37	93.54	0.00	6242	0	2855	3271	6126
2	30	32.24	30.234	35.893	0.00	0.185	2.65	0.85	1.00	0.0	41.39	109.59	0.00	6792	0	3003	2938	5941
1	10	27.90	37.987	42.571	0.00	0.201	2.59	0.85	1.00	0.0	51.28	133.00	0.00	8031	0	3154	2542	5697
														45,963	0			52,675

1.2D + 1.0W 120° — Gust Response Factor (Gh): 0.85
123 mph wind with no ice — Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	47.30	6.300	4.195	0.00	0.148	2.78	1.00	1.00	0.0	8.68	24.13	0.00	606	0	970	311	1282
9	170	46.45	11.127	11.667	0.00	0.168	2.71	1.00	1.00	0.0	17.64	47.75	0.00	1998	0	1886	1983	3868

SECTION FORCES

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
8	150	45.24	11.620	18.561	0.00	0.196	2.61	1.00	1.00	0.0	20.60	53.77	0.00	3129	0	2068	3361	5429
7	130	43.90	15.453	22.104	0.00	0.202	2.59	1.00	1.00	0.0	25.39	65.75	0.00	3793	0	2454	3760	6214
6	110	42.39	17.065	28.777	0.00	0.209	2.57	1.00	1.00	0.0	30.04	77.10	0.00	4594	0	2778	3694	6472
5	90	40.63	19.007	28.777	0.00	0.192	2.62	1.00	1.00	0.0	31.70	83.18	0.00	4705	0	2873	3582	6455
4	70	38.54	20.742	35.867	0.00	0.200	2.60	1.00	1.00	0.0	36.73	95.34	0.00	6071	0	3123	3511	6635
3	50	35.90	23.132	35.893	0.00	0.186	2.64	1.00	1.00	0.0	38.84	102.72	0.00	6242	0	3135	3271	6406
2	30	32.24	30.234	35.893	0.00	0.185	2.65	1.00	1.00	0.0	45.93	121.60	0.00	6792	0	3332	2938	6270
1	10	27.90	37.987	42.571	0.00	0.201	2.59	1.00	1.00	0.0	56.98	147.78	0.00	8031	0	3505	2542	6047
														45,963	0			55,077

1.2D + 1.0W 180° Gust Response Factor (Gh): 0.85
123 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	47.30	6.300	4.195	0.00	0.148	2.78	0.80	1.00	0.0	7.42	20.62	0.00	606	0	829	311	1141
9	170	46.45	11.127	11.667	0.00	0.168	2.71	0.80	1.00	0.0	15.41	41.73	0.00	1998	0	1648	1983	3631
8	150	45.24	11.620	18.561	0.00	0.196	2.61	0.80	1.00	0.0	18.27	47.70	0.00	3129	0	1834	3361	5196
7	130	43.90	15.453	22.104	0.00	0.202	2.59	0.80	1.00	0.0	22.30	57.75	0.00	3793	0	2155	3760	5915
6	110	42.39	17.065	28.777	0.00	0.209	2.57	0.80	1.00	0.0	26.63	68.34	0.00	4594	0	2462	3694	6156
5	90	40.63	19.007	28.777	0.00	0.192	2.62	0.80	1.00	0.0	27.90	73.21	0.00	4705	0	2528	3582	6111
4	70	38.54	20.742	35.867	0.00	0.200	2.60	0.80	1.00	0.0	32.58	84.58	0.00	6071	0	2770	3511	6282
3	50	35.90	23.132	35.893	0.00	0.186	2.64	0.80	1.00	0.0	34.22	90.49	0.00	6242	0	2761	3271	6033
2	30	32.24	30.234	35.893	0.00	0.185	2.65	0.80	1.00	0.0	39.88	105.59	0.00	6792	0	2894	2938	5831
1	10	27.90	37.987	42.571	0.00	0.201	2.59	0.80	1.00	0.0	49.38	128.08	0.00	8031	0	3037	2542	5580
														45,963	0			51,874

1.2D + 1.0W 210° Gust Response Factor (Gh): 0.85
123 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	47.30	6.300	4.195	0.00	0.148	2.78	0.85	1.00	0.0	7.74	21.50	0.00	606	0	864	311	1176
9	170	46.45	11.127	11.667	0.00	0.168	2.71	0.85	1.00	0.0	15.97	43.23	0.00	1998	0	1707	1983	3690
8	150	45.24	11.620	18.561	0.00	0.196	2.61	0.85	1.00	0.0	18.85	49.22	0.00	3129	0	1893	3361	5254
7	130	43.90	15.453	22.104	0.00	0.202	2.59	0.85	1.00	0.0	23.07	59.75	0.00	3793	0	2230	3760	5990
6	110	42.39	17.065	28.777	0.00	0.209	2.57	0.85	1.00	0.0	27.48	70.53	0.00	4594	0	2541	3694	6235
5	90	40.63	19.007	28.777	0.00	0.192	2.62	0.85	1.00	0.0	28.85	75.70	0.00	4705	0	2614	3582	6197
4	70	38.54	20.742	35.867	0.00	0.200	2.60	0.85	1.00	0.0	33.62	87.27	0.00	6071	0	2859	3511	6370
3	50	35.90	23.132	35.893	0.00	0.186	2.64	0.85	1.00	0.0	35.37	93.54	0.00	6242	0	2855	3271	6126
2	30	32.24	30.234	35.893	0.00	0.185	2.65	0.85	1.00	0.0	41.39	109.59	0.00	6792	0	3003	2938	5941
1	10	27.90	37.987	42.571	0.00	0.201	2.59	0.85	1.00	0.0	51.28	133.00	0.00	8031	0	3154	2542	5697
														45,963	0			52,675

1.2D + 1.0W 240° Gust Response Factor (Gh): 0.85
123 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	47.30	6.300	4.195	0.00	0.148	2.78	1.00	1.00	0.0	8.68	24.13	0.00	606	0	970	311	1282
9	170	46.45	11.127	11.667	0.00	0.168	2.71	1.00	1.00	0.0	17.64	47.75	0.00	1998	0	1886	1983	3868
8	150	45.24	11.620	18.561	0.00	0.196	2.61	1.00	1.00	0.0	20.60	53.77	0.00	3129	0	2068	3361	5429
7	130	43.90	15.453	22.104	0.00	0.202	2.59	1.00	1.00	0.0	25.39	65.75	0.00	3793	0	2454	3760	6214
6	110	42.39	17.065	28.777	0.00	0.209	2.57	1.00	1.00	0.0	30.04	77.10	0.00	4594	0	2778	3694	6472
5	90	40.63	19.007	28.777	0.00	0.192	2.62	1.00	1.00	0.0	31.70	83.18	0.00	4705	0	2873	3582	6455
4	70	38.54	20.742	35.867	0.00	0.200	2.60	1.00	1.00	0.0	36.73	95.34	0.00	6071	0	3123	3511	6635
3	50	35.90	23.132	35.893	0.00	0.186	2.64	1.00	1.00	0.0	38.84	102.72	0.00	6242	0	3135	3271	6406
2	30	32.24	30.234	35.893	0.00	0.185	2.65	1.00	1.00	0.0	45.93	121.60	0.00	6792	0	3332	2938	6270
1	10	27.90	37.987	42.571	0.00	0.201	2.59	1.00	1.00	0.0	56.98	147.78	0.00	8031	0	3505	2542	6047

SECTION FORCES

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
														45,963	0			55,077

1.2D + 1.0W 300° Gust Response Factor (Gh): 0.85
123 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	47.30	6.300	4.195	0.00	0.148	2.78	0.80	1.00	0.0	7.42	20.62	0.00	606	0	829	311	1141
9	170	46.45	11.127	11.667	0.00	0.168	2.71	0.80	1.00	0.0	15.41	41.73	0.00	1998	0	1648	1983	3631
8	150	45.24	11.620	18.561	0.00	0.196	2.61	0.80	1.00	0.0	18.27	47.70	0.00	3129	0	1834	3361	5196
7	130	43.90	15.453	22.104	0.00	0.202	2.59	0.80	1.00	0.0	22.30	57.75	0.00	3793	0	2155	3760	5915
6	110	42.39	17.065	28.777	0.00	0.209	2.57	0.80	1.00	0.0	26.63	68.34	0.00	4594	0	2462	3694	6156
5	90	40.63	19.007	28.777	0.00	0.192	2.62	0.80	1.00	0.0	27.90	73.21	0.00	4705	0	2528	3582	6111
4	70	38.54	20.742	35.867	0.00	0.200	2.60	0.80	1.00	0.0	32.58	84.58	0.00	6071	0	2770	3511	6282
3	50	35.90	23.132	35.893	0.00	0.186	2.64	0.80	1.00	0.0	34.22	90.49	0.00	6242	0	2761	3271	6033
2	30	32.24	30.234	35.893	0.00	0.185	2.65	0.80	1.00	0.0	39.88	105.59	0.00	6792	0	2894	2938	5831
1	10	27.90	37.987	42.571	0.00	0.201	2.59	0.80	1.00	0.0	49.38	128.08	0.00	8031	0	3037	2542	5580
														45,963	0			51,874

1.2D + 1.0W 330° Gust Response Factor (Gh): 0.85
123 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	47.30	6.300	4.195	0.00	0.148	2.78	0.85	1.00	0.0	7.74	21.50	0.00	606	0	864	311	1176
9	170	46.45	11.127	11.667	0.00	0.168	2.71	0.85	1.00	0.0	15.97	43.23	0.00	1998	0	1707	1983	3690
8	150	45.24	11.620	18.561	0.00	0.196	2.61	0.85	1.00	0.0	18.85	49.22	0.00	3129	0	1893	3361	5254
7	130	43.90	15.453	22.104	0.00	0.202	2.59	0.85	1.00	0.0	23.07	59.75	0.00	3793	0	2230	3760	5990
6	110	42.39	17.065	28.777	0.00	0.209	2.57	0.85	1.00	0.0	27.48	70.53	0.00	4594	0	2541	3694	6235
5	90	40.63	19.007	28.777	0.00	0.192	2.62	0.85	1.00	0.0	28.85	75.70	0.00	4705	0	2614	3582	6197
4	70	38.54	20.742	35.867	0.00	0.200	2.60	0.85	1.00	0.0	33.62	87.27	0.00	6071	0	2859	3511	6370
3	50	35.90	23.132	35.893	0.00	0.186	2.64	0.85	1.00	0.0	35.37	93.54	0.00	6242	0	2855	3271	6126
2	30	32.24	30.234	35.893	0.00	0.185	2.65	0.85	1.00	0.0	41.39	109.59	0.00	6792	0	3003	2938	5941
1	10	27.90	37.987	42.571	0.00	0.201	2.59	0.85	1.00	0.0	51.28	133.00	0.00	8031	0	3154	2542	5697
														45,963	0			52,675

0.9D + 1.0W Normal Gust Response Factor (Gh): 0.85
123 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	47.30	6.300	4.195	0.00	0.148	2.78	1.00	1.00	0.0	8.68	24.13	0.00	455	0	970	311	1282
9	170	46.45	11.127	11.667	0.00	0.168	2.71	1.00	1.00	0.0	17.64	47.75	0.00	1499	0	1886	1983	3868
8	150	45.24	11.620	18.561	0.00	0.196	2.61	1.00	1.00	0.0	20.60	53.77	0.00	2347	0	2068	3361	5429
7	130	43.90	15.453	22.104	0.00	0.202	2.59	1.00	1.00	0.0	25.39	65.75	0.00	2845	0	2454	3760	6214
6	110	42.39	17.065	28.777	0.00	0.209	2.57	1.00	1.00	0.0	30.04	77.10	0.00	3446	0	2778	3694	6472
5	90	40.63	19.007	28.777	0.00	0.192	2.62	1.00	1.00	0.0	31.70	83.18	0.00	3529	0	2873	3582	6455
4	70	38.54	20.742	35.867	0.00	0.200	2.60	1.00	1.00	0.0	36.73	95.34	0.00	4554	0	3123	3511	6635
3	50	35.90	23.132	35.893	0.00	0.186	2.64	1.00	1.00	0.0	38.84	102.72	0.00	4682	0	3135	3271	6406
2	30	32.24	30.234	35.893	0.00	0.185	2.65	1.00	1.00	0.0	45.93	121.60	0.00	5094	0	3332	2938	6270
1	10	27.90	37.987	42.571	0.00	0.201	2.59	1.00	1.00	0.0	56.98	147.78	0.00	6023	0	3505	2542	6047
														34,472	0			55,077

0.9D + 1.0W 60° Gust Response Factor (Gh): 0.85
123 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	47.30	6.300	4.195	0.00	0.148	2.78	0.80	1.00	0.0	7.42	20.62	0.00	455	0	829	311	1141

SECTION FORCES

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
9	170	46.45	11.127	11.667	0.00	0.168	2.71	0.80	1.00	0.0	15.41	41.73	0.00	1499	0	1648	1983	3631
8	150	45.24	11.620	18.561	0.00	0.196	2.61	0.80	1.00	0.0	18.27	47.70	0.00	2347	0	1834	3361	5196
7	130	43.90	15.453	22.104	0.00	0.202	2.59	0.80	1.00	0.0	22.30	57.75	0.00	2845	0	2155	3760	5915
6	110	42.39	17.065	28.777	0.00	0.209	2.57	0.80	1.00	0.0	26.63	68.34	0.00	3446	0	2462	3694	6156
5	90	40.63	19.007	28.777	0.00	0.192	2.62	0.80	1.00	0.0	27.90	73.21	0.00	3529	0	2528	3582	6111
4	70	38.54	20.742	35.867	0.00	0.200	2.60	0.80	1.00	0.0	32.58	84.58	0.00	4554	0	2770	3511	6282
3	50	35.90	23.132	35.893	0.00	0.186	2.64	0.80	1.00	0.0	34.22	90.49	0.00	4682	0	2761	3271	6033
2	30	32.24	30.234	35.893	0.00	0.185	2.65	0.80	1.00	0.0	39.88	105.59	0.00	5094	0	2894	2938	5831
1	10	27.90	37.987	42.571	0.00	0.201	2.59	0.80	1.00	0.0	49.38	128.08	0.00	6023	0	3037	2542	5580
														34,472	0			51,874

0.9D + 1.0W 90° Gust Response Factor (Gh): 0.85
123 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	47.30	6.300	4.195	0.00	0.148	2.78	0.85	1.00	0.0	7.74	21.50	0.00	455	0	864	311	1176
9	170	46.45	11.127	11.667	0.00	0.168	2.71	0.85	1.00	0.0	15.97	43.23	0.00	1499	0	1707	1983	3690
8	150	45.24	11.620	18.561	0.00	0.196	2.61	0.85	1.00	0.0	18.85	49.22	0.00	2347	0	1893	3361	5254
7	130	43.90	15.453	22.104	0.00	0.202	2.59	0.85	1.00	0.0	23.07	59.75	0.00	2845	0	2230	3760	5990
6	110	42.39	17.065	28.777	0.00	0.209	2.57	0.85	1.00	0.0	27.48	70.53	0.00	3446	0	2541	3694	6235
5	90	40.63	19.007	28.777	0.00	0.192	2.62	0.85	1.00	0.0	28.85	75.70	0.00	3529	0	2614	3582	6197
4	70	38.54	20.742	35.867	0.00	0.200	2.60	0.85	1.00	0.0	33.62	87.27	0.00	4554	0	2859	3511	6370
3	50	35.90	23.132	35.893	0.00	0.186	2.64	0.85	1.00	0.0	35.37	93.54	0.00	4682	0	2855	3271	6126
2	30	32.24	30.234	35.893	0.00	0.185	2.65	0.85	1.00	0.0	41.39	109.59	0.00	5094	0	3003	2938	5941
1	10	27.90	37.987	42.571	0.00	0.201	2.59	0.85	1.00	0.0	51.28	133.00	0.00	6023	0	3154	2542	5697
														34,472	0			52,675

0.9D + 1.0W 120° Gust Response Factor (Gh): 0.85
123 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	47.30	6.300	4.195	0.00	0.148	2.78	1.00	1.00	0.0	8.68	24.13	0.00	455	0	970	311	1282
9	170	46.45	11.127	11.667	0.00	0.168	2.71	1.00	1.00	0.0	17.64	47.75	0.00	1499	0	1886	1983	3868
8	150	45.24	11.620	18.561	0.00	0.196	2.61	1.00	1.00	0.0	20.60	53.77	0.00	2347	0	2068	3361	5429
7	130	43.90	15.453	22.104	0.00	0.202	2.59	1.00	1.00	0.0	25.39	65.75	0.00	2845	0	2454	3760	6214
6	110	42.39	17.065	28.777	0.00	0.209	2.57	1.00	1.00	0.0	30.04	77.10	0.00	3446	0	2778	3694	6472
5	90	40.63	19.007	28.777	0.00	0.192	2.62	1.00	1.00	0.0	31.70	83.18	0.00	3529	0	2873	3582	6455
4	70	38.54	20.742	35.867	0.00	0.200	2.60	1.00	1.00	0.0	36.73	95.34	0.00	4554	0	3123	3511	6635
3	50	35.90	23.132	35.893	0.00	0.186	2.64	1.00	1.00	0.0	38.84	102.72	0.00	4682	0	3135	3271	6406
2	30	32.24	30.234	35.893	0.00	0.185	2.65	1.00	1.00	0.0	45.93	121.60	0.00	5094	0	3332	2938	6270
1	10	27.90	37.987	42.571	0.00	0.201	2.59	1.00	1.00	0.0	56.98	147.78	0.00	6023	0	3505	2542	6047
														34,472	0			55,077

0.9D + 1.0W 180° Gust Response Factor (Gh): 0.85
123 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	47.30	6.300	4.195	0.00	0.148	2.78	0.80	1.00	0.0	7.42	20.62	0.00	455	0	829	311	1141
9	170	46.45	11.127	11.667	0.00	0.168	2.71	0.80	1.00	0.0	15.41	41.73	0.00	1499	0	1648	1983	3631
8	150	45.24	11.620	18.561	0.00	0.196	2.61	0.80	1.00	0.0	18.27	47.70	0.00	2347	0	1834	3361	5196
7	130	43.90	15.453	22.104	0.00	0.202	2.59	0.80	1.00	0.0	22.30	57.75	0.00	2845	0	2155	3760	5915
6	110	42.39	17.065	28.777	0.00	0.209	2.57	0.80	1.00	0.0	26.63	68.34	0.00	3446	0	2462	3694	6156
5	90	40.63	19.007	28.777	0.00	0.192	2.62	0.80	1.00	0.0	27.90	73.21	0.00	3529	0	2528	3582	6111
4	70	38.54	20.742	35.867	0.00	0.200	2.60	0.80	1.00	0.0	32.58	84.58	0.00	4554	0	2770	3511	6282
3	50	35.90	23.132	35.893	0.00	0.186	2.64	0.80	1.00	0.0	34.22	90.49	0.00	4682	0	2761	3271	6033
2	30	32.24	30.234	35.893	0.00	0.185	2.65	0.80	1.00	0.0	39.88	105.59	0.00	5094	0	2894	2938	5831

SECTION FORCES

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
1	10	27.90	37.987	42.571	0.00	0.201	2.59	0.80	1.00	0.0	49.38	128.08	0.00	6023	0	3037	2542	5580
														34,472	0			51,874

0.9D + 1.0W 210° Gust Response Factor (Gh): 0.85
123 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	47.30	6.300	4.195	0.00	0.148	2.78	0.85	1.00	0.0	7.74	21.50	0.00	455	0	864	311	1176
9	170	46.45	11.127	11.667	0.00	0.168	2.71	0.85	1.00	0.0	15.97	43.23	0.00	1499	0	1707	1983	3690
8	150	45.24	11.620	18.561	0.00	0.196	2.61	0.85	1.00	0.0	18.85	49.22	0.00	2347	0	1893	3361	5254
7	130	43.90	15.453	22.104	0.00	0.202	2.59	0.85	1.00	0.0	23.07	59.75	0.00	2845	0	2230	3760	5990
6	110	42.39	17.065	28.777	0.00	0.209	2.57	0.85	1.00	0.0	27.48	70.53	0.00	3446	0	2541	3694	6235
5	90	40.63	19.007	28.777	0.00	0.192	2.62	0.85	1.00	0.0	28.85	75.70	0.00	3529	0	2614	3582	6197
4	70	38.54	20.742	35.867	0.00	0.200	2.60	0.85	1.00	0.0	33.62	87.27	0.00	4554	0	2859	3511	6370
3	50	35.90	23.132	35.893	0.00	0.186	2.64	0.85	1.00	0.0	35.37	93.54	0.00	4682	0	2855	3271	6126
2	30	32.24	30.234	35.893	0.00	0.185	2.65	0.85	1.00	0.0	41.39	109.59	0.00	5094	0	3003	2938	5941
1	10	27.90	37.987	42.571	0.00	0.201	2.59	0.85	1.00	0.0	51.28	133.00	0.00	6023	0	3154	2542	5697
														34,472	0			52,675

0.9D + 1.0W 240° Gust Response Factor (Gh): 0.85
123 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	47.30	6.300	4.195	0.00	0.148	2.78	1.00	1.00	0.0	8.68	24.13	0.00	455	0	970	311	1282
9	170	46.45	11.127	11.667	0.00	0.168	2.71	1.00	1.00	0.0	17.64	47.75	0.00	1499	0	1886	1983	3868
8	150	45.24	11.620	18.561	0.00	0.196	2.61	1.00	1.00	0.0	20.60	53.77	0.00	2347	0	2068	3361	5429
7	130	43.90	15.453	22.104	0.00	0.202	2.59	1.00	1.00	0.0	25.39	65.75	0.00	2845	0	2454	3760	6214
6	110	42.39	17.065	28.777	0.00	0.209	2.57	1.00	1.00	0.0	30.04	77.10	0.00	3446	0	2778	3694	6472
5	90	40.63	19.007	28.777	0.00	0.192	2.62	1.00	1.00	0.0	31.70	83.18	0.00	3529	0	2873	3582	6455
4	70	38.54	20.742	35.867	0.00	0.200	2.60	1.00	1.00	0.0	36.73	95.34	0.00	4554	0	3123	3511	6635
3	50	35.90	23.132	35.893	0.00	0.186	2.64	1.00	1.00	0.0	38.84	102.72	0.00	4682	0	3135	3271	6406
2	30	32.24	30.234	35.893	0.00	0.185	2.65	1.00	1.00	0.0	45.93	121.60	0.00	5094	0	3332	2938	6270
1	10	27.90	37.987	42.571	0.00	0.201	2.59	1.00	1.00	0.0	56.98	147.78	0.00	6023	0	3505	2542	6047
														34,472	0			55,077

0.9D + 1.0W 300° Gust Response Factor (Gh): 0.85
123 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	47.30	6.300	4.195	0.00	0.148	2.78	0.80	1.00	0.0	7.42	20.62	0.00	455	0	829	311	1141
9	170	46.45	11.127	11.667	0.00	0.168	2.71	0.80	1.00	0.0	15.41	41.73	0.00	1499	0	1648	1983	3631
8	150	45.24	11.620	18.561	0.00	0.196	2.61	0.80	1.00	0.0	18.27	47.70	0.00	2347	0	1834	3361	5196
7	130	43.90	15.453	22.104	0.00	0.202	2.59	0.80	1.00	0.0	22.30	57.75	0.00	2845	0	2155	3760	5915
6	110	42.39	17.065	28.777	0.00	0.209	2.57	0.80	1.00	0.0	26.63	68.34	0.00	3446	0	2462	3694	6156
5	90	40.63	19.007	28.777	0.00	0.192	2.62	0.80	1.00	0.0	27.90	73.21	0.00	3529	0	2528	3582	6111
4	70	38.54	20.742	35.867	0.00	0.200	2.60	0.80	1.00	0.0	32.58	84.58	0.00	4554	0	2770	3511	6282
3	50	35.90	23.132	35.893	0.00	0.186	2.64	0.80	1.00	0.0	34.22	90.49	0.00	4682	0	2761	3271	6033
2	30	32.24	30.234	35.893	0.00	0.185	2.65	0.80	1.00	0.0	39.88	105.59	0.00	5094	0	2894	2938	5831
1	10	27.90	37.987	42.571	0.00	0.201	2.59	0.80	1.00	0.0	49.38	128.08	0.00	6023	0	3037	2542	5580
														34,472	0			51,874

0.9D + 1.0W 330° Gust Response Factor (Gh): 0.85
123 mph wind with no ice Wind Importance Factor (Iw): 1.00

SECTION FORCES

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	47.30	6.300	4.195	0.00	0.148	2.78	0.85	1.00	0.0	7.74	21.50	0.00	455	0	864	311	1176
9	170	46.45	11.127	11.667	0.00	0.168	2.71	0.85	1.00	0.0	15.97	43.23	0.00	1499	0	1707	1983	3690
8	150	45.24	11.620	18.561	0.00	0.196	2.61	0.85	1.00	0.0	18.85	49.22	0.00	2347	0	1893	3361	5254
7	130	43.90	15.453	22.104	0.00	0.202	2.59	0.85	1.00	0.0	23.07	59.75	0.00	2845	0	2230	3760	5990
6	110	42.39	17.065	28.777	0.00	0.209	2.57	0.85	1.00	0.0	27.48	70.53	0.00	3446	0	2541	3694	6235
5	90	40.63	19.007	28.777	0.00	0.192	2.62	0.85	1.00	0.0	28.85	75.70	0.00	3529	0	2614	3582	6197
4	70	38.54	20.742	35.867	0.00	0.200	2.60	0.85	1.00	0.0	33.62	87.27	0.00	4554	0	2859	3511	6370
3	50	35.90	23.132	35.893	0.00	0.186	2.64	0.85	1.00	0.0	35.37	93.54	0.00	4682	0	2855	3271	6126
2	30	32.24	30.234	35.893	0.00	0.185	2.65	0.85	1.00	0.0	41.39	109.59	0.00	5094	0	3003	2938	5941
1	10	27.90	37.987	42.571	0.00	0.201	2.59	0.85	1.00	0.0	51.28	133.00	0.00	6023	0	3154	2542	5697
														34,472	0			52,675

1.2D + 1.0Di + 1.0Wi Normal — Gust Response Factor (Gh): 0.85 — Ice Importance Factor: 1.00
50 mph wind with 1" radial ice — Wind Importance Factor (Iw): 1.00 — Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	7.82	6.300	16.232	12.04	0.308	2.27	1.00	1.00	1.2	16.06	36.53	12.04	1652	1046	243	164	407
9	170	7.68	11.127	30.386	18.72	0.297	2.30	1.00	1.00	1.2	29.30	67.50	18.72	5269	3271	440	922	1362
8	150	7.48	11.620	37.679	19.12	0.312	2.27	1.00	1.00	1.2	34.33	77.76	19.12	7987	4857	494	1501	1995
7	130	7.25	15.453	42.206	20.10	0.304	2.29	1.00	1.00	1.1	40.78	93.23	20.10	9494	5701	575	1710	2284
6	110	7.00	17.065	49.947	21.17	0.300	2.30	1.00	1.00	1.1	46.98	107.84	21.17	10558	5964	642	1675	2317
5	90	6.71	19.007	50.957	22.18	0.276	2.36	1.00	1.00	1.1	49.17	116.07	22.18	10715	6009	662	1652	2314
4	70	6.37	20.742	58.934	23.07	0.278	2.36	1.00	1.00	1.1	55.66	131.12	23.07	12353	6282	710	1608	2318
3	50	5.93	23.132	59.864	23.97	0.258	2.41	1.00	1.00	1.0	58.28	140.62	23.97	12428	6186	709	1499	2209
2	30	5.33	30.234	60.508	24.61	0.251	2.43	1.00	1.00	1.0	65.65	159.78	24.61	13028	6236	724	1316	2040
1	10	4.61	37.987	66.296	23.72	0.258	2.41	1.00	1.00	0.9	76.90	185.62	23.72	14114	6083	727	1064	1791
														97,598	51,635			19,038

1.2D + 1.0Di + 1.0Wi 60° — Gust Response Factor (Gh): 0.85 — Ice Importance Factor: 1.00
50 mph wind with 1" radial ice — Wind Importance Factor (Iw): 1.00 — Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	7.82	6.300	16.232	12.04	0.308	2.27	0.80	1.00	1.2	14.80	33.67	12.04	1652	1046	224	164	388
9	170	7.68	11.127	30.386	18.72	0.297	2.30	0.80	1.00	1.2	27.07	62.37	18.72	5269	3271	407	922	1329
8	150	7.48	11.620	37.679	19.12	0.312	2.27	0.80	1.00	1.2	32.00	72.50	19.12	7987	4857	461	1501	1961
7	130	7.25	15.453	42.206	20.10	0.304	2.29	0.80	1.00	1.1	37.69	86.17	20.10	9494	5701	531	1710	2241
6	110	7.00	17.065	49.947	21.17	0.300	2.30	0.80	1.00	1.1	43.57	100.00	21.17	10558	5964	595	1675	2271
5	90	6.71	19.007	50.957	22.18	0.276	2.36	0.80	1.00	1.1	45.37	107.09	22.18	10715	6009	611	1652	2263
4	70	6.37	20.742	58.934	23.07	0.278	2.36	0.80	1.00	1.1	51.51	121.35	23.07	12353	6282	657	1608	2265
3	50	5.93	23.132	59.864	23.97	0.258	2.41	0.80	1.00	1.0	53.65	129.46	23.97	12428	6186	653	1499	2152
2	30	5.33	30.234	60.508	24.61	0.251	2.43	0.80	1.00	1.0	59.60	145.06	24.61	13028	6236	657	1316	1973
1	10	4.61	37.987	66.296	23.72	0.258	2.41	0.80	1.00	0.9	69.31	167.28	23.72	14114	6083	656	1064	1719
														97,598	51,635			18,563

1.2D + 1.0Di + 1.0Wi 90° — Gust Response Factor (Gh): 0.85 — Ice Importance Factor: 1.00
50 mph wind with 1" radial ice — Wind Importance Factor (Iw): 1.00 — Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	7.82	6.300	16.232	12.04	0.308	2.27	0.85	1.00	1.2	15.12	34.38	12.04	1652	1046	228	164	393
9	170	7.68	11.127	30.386	18.72	0.297	2.30	0.85	1.00	1.2	27.63	63.65	18.72	5269	3271	415	922	1337
8	150	7.48	11.620	37.679	19.12	0.312	2.27	0.85	1.00	1.2	32.58	73.81	19.12	7987	4857	469	1501	1970
7	130	7.25	15.453	42.206	20.10	0.304	2.29	0.85	1.00	1.1	38.46	87.93	20.10	9494	5701	542	1710	2252
6	110	7.00	17.065	49.947	21.17	0.300	2.30	0.85	1.00	1.1	44.42	101.96	21.17	10558	5964	607	1675	2282
5	90	6.71	19.007	50.957	22.18	0.276	2.36	0.85	1.00	1.1	46.32	109.34	22.18	10715	6009	624	1652	2276
4	70	6.37	20.742	58.934	23.07	0.278	2.36	0.85	1.00	1.1	52.54	123.79	23.07	12353	6282	670	1608	2278
3	50	5.93	23.132	59.864	23.97	0.258	2.41	0.85	1.00	1.0	54.81	132.25	23.97	12428	6186	667	1499	2166

SECTION FORCES

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
2	30	5.33	30.234	60.508	24.61	0.251	2.43	0.85	1.00	1.0	61.11	148.74	24.61	13028	6236	674	1316	1990
1	10	4.61	37.987	66.296	23.72	0.258	2.41	0.85	1.00	0.9	71.20	171.87	23.72	14114	6083	674	1064	1737
														97,598	51,635			18,682

1.2D + 1.0Di + 1.0Wi 120° — Gust Response Factor (Gh): 0.85 — Ice Importance Factor: 1.00
50 mph wind with 1" radial ice — Wind Importance Factor (Iw): 1.00 — Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	7.82	6.300	16.232	12.04	0.308	2.27	1.00	1.00	1.2	16.06	36.53	12.04	1652	1046	243	164	407
9	170	7.68	11.127	30.386	18.72	0.297	2.30	1.00	1.00	1.2	29.30	67.50	18.72	5269	3271	440	922	1362
8	150	7.48	11.620	37.679	19.12	0.312	2.27	1.00	1.00	1.2	34.33	77.76	19.12	7987	4857	494	1501	1995
7	130	7.25	15.453	42.206	20.10	0.304	2.29	1.00	1.00	1.1	40.78	93.23	20.10	9494	5701	575	1710	2284
6	110	7.00	17.065	49.947	21.17	0.300	2.30	1.00	1.00	1.1	46.98	107.84	21.17	10558	5964	642	1675	2317
5	90	6.71	19.007	50.957	22.18	0.276	2.36	1.00	1.00	1.1	49.17	116.07	22.18	10715	6009	662	1652	2314
4	70	6.37	20.742	58.934	23.07	0.278	2.36	1.00	1.00	1.1	55.66	131.12	23.07	12353	6282	710	1608	2318
3	50	5.93	23.132	59.864	23.97	0.258	2.41	1.00	1.00	1.0	58.28	140.62	23.97	12428	6186	709	1499	2209
2	30	5.33	30.234	60.508	24.61	0.251	2.43	1.00	1.00	1.0	65.65	159.78	24.61	13028	6236	724	1316	2040
1	10	4.61	37.987	66.296	23.72	0.258	2.41	1.00	1.00	0.9	76.90	185.62	23.72	14114	6083	727	1064	1791
														97,598	51,635			19,038

1.2D + 1.0Di + 1.0Wi 180° — Gust Response Factor (Gh): 0.85 — Ice Importance Factor: 1.00
50 mph wind with 1" radial ice — Wind Importance Factor (Iw): 1.00 — Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	7.82	6.300	16.232	12.04	0.308	2.27	0.80	1.00	1.2	14.80	33.67	12.04	1652	1046	224	164	388
9	170	7.68	11.127	30.386	18.72	0.297	2.30	0.80	1.00	1.2	27.07	62.37	18.72	5269	3271	407	922	1329
8	150	7.48	11.620	37.679	19.12	0.312	2.27	0.80	1.00	1.2	32.00	72.50	19.12	7987	4857	461	1501	1961
7	130	7.25	15.453	42.206	20.10	0.304	2.29	0.80	1.00	1.1	37.69	86.17	20.10	9494	5701	531	1710	2241
6	110	7.00	17.065	49.947	21.17	0.300	2.30	0.80	1.00	1.1	43.57	100.00	21.17	10558	5964	595	1675	2271
5	90	6.71	19.007	50.957	22.18	0.276	2.36	0.80	1.00	1.1	45.37	107.09	22.18	10715	6009	611	1652	2263
4	70	6.37	20.742	58.934	23.07	0.278	2.36	0.80	1.00	1.1	51.51	121.35	23.07	12353	6282	657	1608	2265
3	50	5.93	23.132	59.864	23.97	0.258	2.41	0.80	1.00	1.0	53.65	129.46	23.97	12428	6186	653	1499	2152
2	30	5.33	30.234	60.508	24.61	0.251	2.43	0.80	1.00	1.0	59.60	145.06	24.61	13028	6236	657	1316	1973
1	10	4.61	37.987	66.296	23.72	0.258	2.41	0.80	1.00	0.9	69.31	167.28	23.72	14114	6083	656	1064	1719
														97,598	51,635			18,563

1.2D + 1.0Di + 1.0Wi 210° — Gust Response Factor (Gh): 0.85 — Ice Importance Factor: 1.00
50 mph wind with 1" radial ice — Wind Importance Factor (Iw): 1.00 — Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	7.82	6.300	16.232	12.04	0.308	2.27	0.85	1.00	1.2	15.12	34.38	12.04	1652	1046	228	164	393
9	170	7.68	11.127	30.386	18.72	0.297	2.30	0.85	1.00	1.2	27.63	63.65	18.72	5269	3271	415	922	1337
8	150	7.48	11.620	37.679	19.12	0.312	2.27	0.85	1.00	1.2	32.58	73.81	19.12	7987	4857	469	1501	1970
7	130	7.25	15.453	42.206	20.10	0.304	2.29	0.85	1.00	1.1	38.46	87.93	20.10	9494	5701	542	1710	2252
6	110	7.00	17.065	49.947	21.17	0.300	2.30	0.85	1.00	1.1	44.42	101.96	21.17	10558	5964	607	1675	2282
5	90	6.71	19.007	50.957	22.18	0.276	2.36	0.85	1.00	1.1	46.32	109.34	22.18	10715	6009	624	1652	2276
4	70	6.37	20.742	58.934	23.07	0.278	2.36	0.85	1.00	1.1	52.54	123.79	23.07	12353	6282	670	1608	2278
3	50	5.93	23.132	59.864	23.97	0.258	2.41	0.85	1.00	1.0	54.81	132.25	23.97	12428	6186	667	1499	2166
2	30	5.33	30.234	60.508	24.61	0.251	2.43	0.85	1.00	1.0	61.11	148.74	24.61	13028	6236	674	1316	1990
1	10	4.61	37.987	66.296	23.72	0.258	2.41	0.85	1.00	0.9	71.20	171.87	23.72	14114	6083	674	1064	1737
														97,598	51,635			18,682

1.2D + 1.0Di + 1.0Wi 240° — Gust Response Factor (Gh): 0.85 — Ice Importance Factor: 1.00
50 mph wind with 1" radial ice — Wind Importance Factor (Iw): 1.00 — Ice Dead Load Factor: 1.00

Sect	Elev	Q_Z	A_f	A_r	Ice A_r	e	C_f	D_f	D_r	T_{iz}	A_e	EPA_a	EPA_{ai}	Wt.	Ice Wt	F_{st}	F_a	Force (lb)

SECTION FORCES

#	(ft)	(psf)	(sf)	(sf)	(sf)					(in)	(sf)	(sf)	(sf)	(lb)	(lb)	(lb)	(lb)	
10	185	7.82	6.300	16.232	12.04	0.308	2.27	1.00	1.00	1.2	16.06	36.53	12.04	1652	1046	243	164	407
9	170	7.68	11.127	30.386	18.72	0.297	2.30	1.00	1.00	1.2	29.30	67.50	18.72	5269	3271	440	922	1362
8	150	7.48	11.620	37.679	19.12	0.312	2.27	1.00	1.00	1.2	34.33	77.76	19.12	7987	4857	494	1501	1995
7	130	7.25	15.453	42.206	20.10	0.304	2.29	1.00	1.00	1.1	40.78	93.23	20.10	9494	5701	575	1710	2284
6	110	7.00	17.065	49.947	21.17	0.300	2.30	1.00	1.00	1.1	46.98	107.84	21.17	10558	5964	642	1675	2317
5	90	6.71	19.007	50.957	22.18	0.276	2.36	1.00	1.00	1.1	49.17	116.07	22.18	10715	6009	662	1652	2314
4	70	6.37	20.742	58.934	23.07	0.278	2.36	1.00	1.00	1.1	55.66	131.12	23.07	12353	6282	710	1608	2318
3	50	5.93	23.132	59.864	23.97	0.258	2.41	1.00	1.00	1.0	58.28	140.62	23.97	12428	6186	709	1499	2209
2	30	5.33	30.234	60.508	24.61	0.251	2.43	1.00	1.00	1.0	65.65	159.78	24.61	13028	6236	724	1316	2040
1	10	4.61	37.987	66.296	23.72	0.258	2.41	1.00	1.00	0.9	76.90	185.62	23.72	14114	6083	727	1064	1791
														97,598	51,635			19,038

1.2D + 1.0Di + 1.0Wi 300° — Gust Response Factor (Gh): 0.85 — Ice Importance Factor: 1.00
50 mph wind with 1" radial ice — Wind Importance Factor (Iw): 1.00 — Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	7.82	6.300	16.232	12.04	0.308	2.27	0.80	1.00	1.2	14.80	33.67	12.04	1652	1046	224	164	388
9	170	7.68	11.127	30.386	18.72	0.297	2.30	0.80	1.00	1.2	27.07	62.37	18.72	5269	3271	407	922	1329
8	150	7.48	11.620	37.679	19.12	0.312	2.27	0.80	1.00	1.2	32.00	72.50	19.12	7987	4857	461	1501	1961
7	130	7.25	15.453	42.206	20.10	0.304	2.29	0.80	1.00	1.1	37.69	86.17	20.10	9494	5701	531	1710	2241
6	110	7.00	17.065	49.947	21.17	0.300	2.30	0.80	1.00	1.1	43.57	100.00	21.17	10558	5964	595	1675	2271
5	90	6.71	19.007	50.957	22.18	0.276	2.36	0.80	1.00	1.1	45.37	107.09	22.18	10715	6009	611	1652	2263
4	70	6.37	20.742	58.934	23.07	0.278	2.36	0.80	1.00	1.1	51.51	121.35	23.07	12353	6282	657	1608	2265
3	50	5.93	23.132	59.864	23.97	0.258	2.41	0.80	1.00	1.0	53.65	129.46	23.97	12428	6186	653	1499	2152
2	30	5.33	30.234	60.508	24.61	0.251	2.43	0.80	1.00	1.0	59.60	145.06	24.61	13028	6236	657	1316	1973
1	10	4.61	37.987	66.296	23.72	0.258	2.41	0.80	1.00	0.9	69.31	167.28	23.72	14114	6083	656	1064	1719
														97,598	51,635			18,563

1.2D + 1.0Di + 1.0Wi 330° — Gust Response Factor (Gh): 0.85 — Ice Importance Factor: 1.00
50 mph wind with 1" radial ice — Wind Importance Factor (Iw): 1.00 — Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	7.82	6.300	16.232	12.04	0.308	2.27	0.85	1.00	1.2	15.12	34.38	12.04	1652	1046	228	164	393
9	170	7.68	11.127	30.386	18.72	0.297	2.30	0.85	1.00	1.2	27.63	63.65	18.72	5269	3271	415	922	1337
8	150	7.48	11.620	37.679	19.12	0.312	2.27	0.85	1.00	1.2	32.58	73.81	19.12	7987	4857	469	1501	1970
7	130	7.25	15.453	42.206	20.10	0.304	2.29	0.85	1.00	1.1	38.46	87.93	20.10	9494	5701	542	1710	2252
6	110	7.00	17.065	49.947	21.17	0.300	2.30	0.85	1.00	1.1	44.42	101.96	21.17	10558	5964	607	1675	2282
5	90	6.71	19.007	50.957	22.18	0.276	2.36	0.85	1.00	1.1	46.32	109.34	22.18	10715	6009	624	1652	2276
4	70	6.37	20.742	58.934	23.07	0.278	2.36	0.85	1.00	1.1	52.54	123.79	23.07	12353	6282	670	1608	2278
3	50	5.93	23.132	59.864	23.97	0.258	2.41	0.85	1.00	1.0	54.81	132.25	23.97	12428	6186	667	1499	2166
2	30	5.33	30.234	60.508	24.61	0.251	2.43	0.85	1.00	1.0	61.11	148.74	24.61	13028	6236	674	1316	1990
1	10	4.61	37.987	66.296	23.72	0.258	2.41	0.85	1.00	0.9	71.20	171.87	23.72	14114	6083	674	1064	1737
														97,598	51,635			18,682

1.0D + 1.0W Service Normal — Gust Response Factor (Gh): 0.85
60 mph Wind with No Ice — Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	11.26	6.300	4.195	0.00	0.148	2.78	1.00	1.00	0.0	8.68	24.13	0.00	505	0	231	74	305
9	170	11.05	11.127	11.667	0.00	0.168	2.71	1.00	1.00	0.0	17.77	48.11	0.00	1665	0	452	472	924
8	150	10.77	11.620	18.561	0.00	0.196	2.61	1.00	1.00	0.0	22.27	58.14	0.00	2608	0	532	800	1332
7	130	10.45	15.453	22.104	0.00	0.202	2.59	1.00	1.00	0.0	28.16	72.92	0.00	3161	0	648	895	1542
6	110	10.09	17.065	28.777	0.00	0.209	2.57	1.00	1.00	0.0	32.81	84.21	0.00	3829	0	722	879	1601
5	90	9.67	19.007	28.777	0.00	0.192	2.62	1.00	1.00	0.0	34.74	91.18	0.00	3921	0	749	852	1602
4	70	9.17	20.742	35.867	0.00	0.200	2.60	1.00	1.00	0.0	39.31	102.04	0.00	5059	0	795	836	1631
3	50	8.54	23.132	35.893	0.00	0.186	2.64	1.00	1.00	0.0	41.90	110.81	0.00	5202	0	805	778	1583
2	30	7.67	30.234	35.893	0.00	0.185	2.65	1.00	1.00	0.0	49.45	130.94	0.00	5660	0	854	699	1553

SECTION FORCES

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
1	10	6.64	37.987	42.571	0.00	0.201	2.59	1.00	1.00	0.0	59.68	154.77	0.00	6692	0	873	605	1478
														38,302	0			13,551

1.0D + 1.0W Service 60° Gust Response Factor (Gh): 0.85
60 mph Wind with No Ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	11.26	6.300	4.195	0.00	0.148	2.78	0.80	1.00	0.0	7.42	20.62	0.00	505	0	197	74	271
9	170	11.05	11.127	11.667	0.00	0.168	2.71	0.80	1.00	0.0	15.55	42.09	0.00	1665	0	395	472	867
8	150	10.77	11.620	18.561	0.00	0.196	2.61	0.80	1.00	0.0	19.94	52.07	0.00	2608	0	476	800	1276
7	130	10.45	15.453	22.104	0.00	0.202	2.59	0.80	1.00	0.0	25.07	64.92	0.00	3161	0	576	895	1471
6	110	10.09	17.065	28.777	0.00	0.209	2.57	0.80	1.00	0.0	29.40	75.45	0.00	3829	0	647	879	1526
5	90	9.67	19.007	28.777	0.00	0.192	2.62	0.80	1.00	0.0	30.94	81.20	0.00	3921	0	667	852	1520
4	70	9.17	20.742	35.867	0.00	0.200	2.60	0.80	1.00	0.0	35.16	91.27	0.00	5059	0	711	836	1547
3	50	8.54	23.132	35.893	0.00	0.186	2.64	0.80	1.00	0.0	37.27	98.58	0.00	5202	0	716	778	1494
2	30	7.67	30.234	35.893	0.00	0.185	2.65	0.80	1.00	0.0	43.41	114.93	0.00	5660	0	749	699	1449
1	10	6.64	37.987	42.571	0.00	0.201	2.59	0.80	1.00	0.0	52.08	135.06	0.00	6692	0	762	605	1367
														38,302	0			12,789

1.0D + 1.0W Service 90° Gust Response Factor (Gh): 0.85
60 mph Wind with No Ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	11.26	6.300	4.195	0.00	0.148	2.78	0.85	1.00	0.0	7.74	21.50	0.00	505	0	206	74	280
9	170	11.05	11.127	11.667	0.00	0.168	2.71	0.85	1.00	0.0	16.10	43.59	0.00	1665	0	410	472	881
8	150	10.77	11.620	18.561	0.00	0.196	2.61	0.85	1.00	0.0	20.53	53.59	0.00	2608	0	490	800	1290
7	130	10.45	15.453	22.104	0.00	0.202	2.59	0.85	1.00	0.0	25.84	66.92	0.00	3161	0	594	895	1489
6	110	10.09	17.065	28.777	0.00	0.209	2.57	0.85	1.00	0.0	30.25	77.64	0.00	3829	0	666	879	1545
5	90	9.67	19.007	28.777	0.00	0.192	2.62	0.85	1.00	0.0	31.89	83.70	0.00	3921	0	688	852	1540
4	70	9.17	20.742	35.867	0.00	0.200	2.60	0.85	1.00	0.0	36.20	93.96	0.00	5059	0	732	836	1568
3	50	8.54	23.132	35.893	0.00	0.186	2.64	0.85	1.00	0.0	38.43	101.64	0.00	5202	0	738	778	1516
2	30	7.67	30.234	35.893	0.00	0.185	2.65	0.85	1.00	0.0	44.92	118.93	0.00	5660	0	776	699	1475
1	10	6.64	37.987	42.571	0.00	0.201	2.59	0.85	1.00	0.0	53.98	139.99	0.00	6692	0	790	605	1395
														38,302	0			12,979

1.0D + 1.0W Service 120° Gust Response Factor (Gh): 0.85
60 mph Wind with No Ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	11.26	6.300	4.195	0.00	0.148	2.78	1.00	1.00	0.0	8.68	24.13	0.00	505	0	231	74	305
9	170	11.05	11.127	11.667	0.00	0.168	2.71	1.00	1.00	0.0	17.77	48.11	0.00	1665	0	452	472	924
8	150	10.77	11.620	18.561	0.00	0.196	2.61	1.00	1.00	0.0	22.27	58.14	0.00	2608	0	532	800	1332
7	130	10.45	15.453	22.104	0.00	0.202	2.59	1.00	1.00	0.0	28.16	72.92	0.00	3161	0	648	895	1542
6	110	10.09	17.065	28.777	0.00	0.209	2.57	1.00	1.00	0.0	32.81	84.21	0.00	3829	0	722	879	1601
5	90	9.67	19.007	28.777	0.00	0.192	2.62	1.00	1.00	0.0	34.74	91.18	0.00	3921	0	749	852	1602
4	70	9.17	20.742	35.867	0.00	0.200	2.60	1.00	1.00	0.0	39.31	102.04	0.00	5059	0	795	836	1631
3	50	8.54	23.132	35.893	0.00	0.186	2.64	1.00	1.00	0.0	41.90	110.81	0.00	5202	0	805	778	1583
2	30	7.67	30.234	35.893	0.00	0.185	2.65	1.00	1.00	0.0	49.45	130.94	0.00	5660	0	854	699	1553
1	10	6.64	37.987	42.571	0.00	0.201	2.59	1.00	1.00	0.0	59.68	154.77	0.00	6692	0	873	605	1478
														38,302	0			13,551

1.0D + 1.0W Service 180° Gust Response Factor (Gh): 0.85
60 mph Wind with No Ice Wind Importance Factor (Iw): 1.00

SECTION FORCES

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	11.26	6.300	4.195	0.00	0.148	2.78	0.80	1.00	0.0	7.42	20.62	0.00	505	0	197	74	271
9	170	11.05	11.127	11.667	0.00	0.168	2.71	0.80	1.00	0.0	15.55	42.09	0.00	1665	0	395	472	867
8	150	10.77	11.620	18.561	0.00	0.196	2.61	0.80	1.00	0.0	19.94	52.07	0.00	2608	0	476	800	1276
7	130	10.45	15.453	22.104	0.00	0.202	2.59	0.80	1.00	0.0	25.07	64.92	0.00	3161	0	576	895	1471
6	110	10.09	17.065	28.777	0.00	0.209	2.57	0.80	1.00	0.0	29.40	75.45	0.00	3829	0	647	879	1526
5	90	9.67	19.007	28.777	0.00	0.192	2.62	0.80	1.00	0.0	30.94	81.20	0.00	3921	0	667	852	1520
4	70	9.17	20.742	35.867	0.00	0.200	2.60	0.80	1.00	0.0	35.16	91.27	0.00	5059	0	711	836	1547
3	50	8.54	23.132	35.893	0.00	0.186	2.64	0.80	1.00	0.0	37.27	98.58	0.00	5202	0	716	778	1494
2	30	7.67	30.234	35.893	0.00	0.185	2.65	0.80	1.00	0.0	43.41	114.93	0.00	5660	0	749	699	1449
1	10	6.64	37.987	42.571	0.00	0.201	2.59	0.80	1.00	0.0	52.08	135.06	0.00	6692	0	762	605	1367
														38,302	0			12,789

1.0D + 1.0W Service 210° Gust Response Factor (Gh): 0.85
60 mph Wind with No Ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	11.26	6.300	4.195	0.00	0.148	2.78	0.85	1.00	0.0	7.74	21.50	0.00	505	0	206	74	280
9	170	11.05	11.127	11.667	0.00	0.168	2.71	0.85	1.00	0.0	16.10	43.59	0.00	1665	0	410	472	881
8	150	10.77	11.620	18.561	0.00	0.196	2.61	0.85	1.00	0.0	20.53	53.59	0.00	2608	0	490	800	1290
7	130	10.45	15.453	22.104	0.00	0.202	2.59	0.85	1.00	0.0	25.84	66.92	0.00	3161	0	594	895	1489
6	110	10.09	17.065	28.777	0.00	0.209	2.57	0.85	1.00	0.0	30.25	77.64	0.00	3829	0	666	879	1545
5	90	9.67	19.007	28.777	0.00	0.192	2.62	0.85	1.00	0.0	31.89	83.70	0.00	3921	0	688	852	1540
4	70	9.17	20.742	35.867	0.00	0.200	2.60	0.85	1.00	0.0	36.20	93.96	0.00	5059	0	732	836	1568
3	50	8.54	23.132	35.893	0.00	0.186	2.64	0.85	1.00	0.0	38.43	101.64	0.00	5202	0	738	778	1516
2	30	7.67	30.234	35.893	0.00	0.185	2.65	0.85	1.00	0.0	44.92	118.93	0.00	5660	0	776	699	1475
1	10	6.64	37.987	42.571	0.00	0.201	2.59	0.85	1.00	0.0	53.98	139.99	0.00	6692	0	790	605	1395
														38,302	0			12,979

1.0D + 1.0W Service 240° Gust Response Factor (Gh): 0.85
60 mph Wind with No Ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	11.26	6.300	4.195	0.00	0.148	2.78	1.00	1.00	0.0	8.68	24.13	0.00	505	0	231	74	305
9	170	11.05	11.127	11.667	0.00	0.168	2.71	1.00	1.00	0.0	17.77	48.11	0.00	1665	0	452	472	924
8	150	10.77	11.620	18.561	0.00	0.196	2.61	1.00	1.00	0.0	22.27	58.14	0.00	2608	0	532	800	1332
7	130	10.45	15.453	22.104	0.00	0.202	2.59	1.00	1.00	0.0	28.16	72.92	0.00	3161	0	648	895	1542
6	110	10.09	17.065	28.777	0.00	0.209	2.57	1.00	1.00	0.0	32.81	84.21	0.00	3829	0	722	879	1601
5	90	9.67	19.007	28.777	0.00	0.192	2.62	1.00	1.00	0.0	34.74	91.18	0.00	3921	0	749	852	1602
4	70	9.17	20.742	35.867	0.00	0.200	2.60	1.00	1.00	0.0	39.31	102.04	0.00	5059	0	795	836	1631
3	50	8.54	23.132	35.893	0.00	0.186	2.64	1.00	1.00	0.0	41.90	110.81	0.00	5202	0	805	778	1583
2	30	7.67	30.234	35.893	0.00	0.185	2.65	1.00	1.00	0.0	49.45	130.94	0.00	5660	0	854	699	1553
1	10	6.64	37.987	42.571	0.00	0.201	2.59	1.00	1.00	0.0	59.68	154.77	0.00	6692	0	873	605	1478
														38,302	0			13,551

1.0D + 1.0W Service 300° Gust Response Factor (Gh): 0.85
60 mph Wind with No Ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	11.26	6.300	4.195	0.00	0.148	2.78	0.80	1.00	0.0	7.42	20.62	0.00	505	0	197	74	271
9	170	11.05	11.127	11.667	0.00	0.168	2.71	0.80	1.00	0.0	15.55	42.09	0.00	1665	0	395	472	867
8	150	10.77	11.620	18.561	0.00	0.196	2.61	0.80	1.00	0.0	19.94	52.07	0.00	2608	0	476	800	1276
7	130	10.45	15.453	22.104	0.00	0.202	2.59	0.80	1.00	0.0	25.07	64.92	0.00	3161	0	576	895	1471
6	110	10.09	17.065	28.777	0.00	0.209	2.57	0.80	1.00	0.0	29.40	75.45	0.00	3829	0	647	879	1526
5	90	9.67	19.007	28.777	0.00	0.192	2.62	0.80	1.00	0.0	30.94	81.20	0.00	3921	0	667	852	1520
4	70	9.17	20.742	35.867	0.00	0.200	2.60	0.80	1.00	0.0	35.16	91.27	0.00	5059	0	711	836	1547
3	50	8.54	23.132	35.893	0.00	0.186	2.64	0.80	1.00	0.0	37.27	98.58	0.00	5202	0	716	778	1494

SECTION FORCES

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
2	30	7.67	30.234	35.893	0.00	0.185	2.65	0.80	1.00	0.0	43.41	114.93	0.00	5660	0	749	699	1449
1	10	6.64	37.987	42.571	0.00	0.201	2.59	0.80	1.00	0.0	52.08	135.06	0.00	6692	0	762	605	1367
														38,302	0			12,789

1.0D + 1.0W Service 330°
60 mph Wind with No Ice

Gust Response Factor (Gh): 0.85
Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_Z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	185	11.26	6.300	4.195	0.00	0.148	2.78	0.85	1.00	0.0	7.74	21.50	0.00	505	0	206	74	280
9	170	11.05	11.127	11.667	0.00	0.168	2.71	0.85	1.00	0.0	16.10	43.59	0.00	1665	0	410	472	881
8	150	10.77	11.620	18.561	0.00	0.196	2.61	0.85	1.00	0.0	20.53	53.59	0.00	2608	0	490	800	1290
7	130	10.45	15.453	22.104	0.00	0.202	2.59	0.85	1.00	0.0	25.84	66.92	0.00	3161	0	594	895	1489
6	110	10.09	17.065	28.777	0.00	0.209	2.57	0.85	1.00	0.0	30.25	77.64	0.00	3829	0	666	879	1545
5	90	9.67	19.007	28.777	0.00	0.192	2.62	0.85	1.00	0.0	31.89	83.70	0.00	3921	0	688	852	1540
4	70	9.17	20.742	35.867	0.00	0.200	2.60	0.85	1.00	0.0	36.20	93.96	0.00	5059	0	732	836	1568
3	50	8.54	23.132	35.893	0.00	0.186	2.64	0.85	1.00	0.0	38.43	101.64	0.00	5202	0	738	778	1516
2	30	7.67	30.234	35.893	0.00	0.185	2.65	0.85	1.00	0.0	44.92	118.93	0.00	5660	0	776	699	1475
1	10	6.64	37.987	42.571	0.00	0.201	2.59	0.85	1.00	0.0	53.98	139.99	0.00	6692	0	790	605	1395
														38,302	0			12,979

EQUIVALENT LATERAL FORCE METHOD

Spectral Response Acceleration for Short Period (S_S):	0.20
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.05
Long-Period Transition Period (T_L – Seconds):	6
Importance Factor (I_e):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v:	2.40
Response Modification Coefficient (R):	3.00
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.22
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.09
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_S:	0.03
Lower Limit C_S:	0.03
Period based on Rayleigh Method (sec):	0.98
Redundancy Factor (p):	1.00
Seismic Force Distribution Exponent (k):	1.24
Total Unfactored Dead Load:	50.61 k
Seismic Base Shear (E):	1.52 k

SEISMIC

Load Case: 0.9D - 1.0Ev + 1.0Eh

Seismic

Section	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	Cvx	Horizontal Force (lb)	Vertical Force (lb)
10	185.30	505	329,166	0.022	34	433
9	170.00	1,665	975,132	0.066	100	1,426
8	150.00	2,608	1,307,341	0.088	134	2,233
7	130.00	3,161	1,326,790	0.089	136	2,707
6	110.00	3,829	1,306,280	0.088	134	3,279
5	90.00	3,921	1,042,946	0.070	107	3,358
4	70.00	5,059	985,221	0.066	101	4,333
3	50.00	5,202	667,211	0.045	68	4,455
2	30.00	5,660	385,160	0.026	39	4,848
1	10.00	6,692	116,520	0.008	12	5,732
Generic 12' Dipole	190.00	120	80,667	0.005	8	103
Side Arm	190.00	450	302,500	0.020	31	385
Generic 6' Omni	189.00	50	33,392	0.002	3	43
Generic RCU (Remote Control Unit)	183.00	3	1,925	0.000	0	3
RFS APXV18-206517S-C	183.00	79	50,817	0.003	5	68
Round Side Arm	183.00	450	288,733	0.019	30	385
Ericsson Radio 4449 B71 B85A	177.00	225	138,517	0.009	14	193
Ericsson Radio 4460 B25+B66	177.00	327	201,311	0.014	21	280
Ericsson Air6449 B41	177.00	312	192,077	0.013	20	267
RFS APXVAALL24 43-U-NA20	177.00	368	226,798	0.015	23	316
Generic Heavy Sector Frame	175.00	1,500	910,516	0.061	93	1,285
Powerwave Allgon 7020	166.00	13	7,504	0.000	1	11
Kaelus DBC0061F1V51-2	166.00	51	28,994	0.002	3	44
Powerwave Allgon LGP21401	166.00	85	48,097	0.003	5	72
Raycap DC6-48-60-18-8F (23.5" Height)	166.00	40	22,741	0.002	2	34
Ericsson RRUS 4426 B66	166.00	194	110,065	0.007	11	166
Ericsson RRUS 4478 B14 (15")	166.00	59	33,770	0.002	3	51
Ericsson RRUS 4478 B5	166.00	120	68,108	0.005	7	103
Ericsson RRUS 32 B30 (60 lbs)	166.00	240	136,444	0.009	14	206
Ericsson RRUS-11 (19.7")	166.00	204	115,978	0.008	12	175
Ericsson RRUS E2 B29	166.00	240	136,444	0.009	14	206
Raycap DC6-48-60-18-8C-EV	166.00	32	18,193	0.001	2	27

Powerwave Allgon 7770.00	166.00	105	59,694	0.004	6	90
Commscope SBNHH-1D65A	166.00	67	38,091	0.003	4	57
CCI OPA-65R-LCUU-H4 (14.4" width)	166.00	114	64,811	0.004	7	98
CCI HPA-65R-BUU-H4	166.00	68	38,659	0.003	4	58
CCI BSA-M65R-BUU-H4	166.00	225	127,917	0.009	13	193
Flat Light Sector Frame	166.00	1,200	682,222	0.046	70	1,028
Commscope RDIDC-9181-PF-48	156.00	22	11,527	0.001	1	19
Fujitsu TA08025-B604	156.00	192	100,899	0.007	10	164
Fujitsu TA08025-B605	156.00	225	118,426	0.008	12	193
JMA Wireless MX08FRO665-21	156.00	194	101,846	0.007	10	166
Generic Flat Light Sector Frame	156.00	1,200	631,603	0.042	65	1,028
Generic 4' Dish w/ Radome	148.00	120	59,166	0.004	6	103
Generic Flat Light Sector Frame	148.00	400	197,221	0.013	20	343
Generic 10' Dipole	144.00	30	14,297	0.001	1	26
Round Side Arm	142.00	300	140,512	0.010	14	257
Generic 6' FM antenna	137.00	60	26,880	0.002	3	51
Round Side Arm	135.00	600	263,938	0.018	27	514
Round Side Arm	130.00	450	188,897	0.013	19	385
Harris FML-4E	127.00	227	92,567	0.006	9	194
Round Side Arm	125.00	300	119,950	0.008	12	257
Scala PR-950	108.80	38	12,790	0.001	1	33
Stand-Off	87.00	75	19,127	0.001	2	64
Antel BCD-87010 ___ 4°	87.00	26	6,758	0.000	1	23
Generic 4' Std. Dish	80.00	376	86,411	0.006	9	322
Side Arm	60.00	300	48,248	0.003	5	257
Channel Master Type 120	16.00	126	3,931	0.000	0	108
Ericsson RRUS 32 B2	4.00	106	592	0.000	0	91
Totals		50,610	14,852,337	1.000	1,518	43,346

SEISMIC

Load Case: 1.2D + 1.0Ev + 1.0Eh Seismic

Section	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	Cvx	Horizontal Force (lb)	Vertical Force (lb)
10	185.30	505	329,166	0.022	34	628
9	170.00	1,665	975,132	0.066	100	2,071
8	150.00	2,608	1,307,341	0.088	134	3,243
7	130.00	3,161	1,326,790	0.089	136	3,930
6	110.00	3,829	1,306,280	0.088	134	4,761
5	90.00	3,921	1,042,946	0.070	107	4,876
4	70.00	5,059	985,221	0.066	101	6,292
3	50.00	5,202	667,211	0.045	68	6,469
2	30.00	5,660	385,160	0.026	39	7,038
1	10.00	6,692	116,520	0.008	12	8,322
Generic 12' Dipole	190.00	120	80,667	0.005	8	149
Side Arm	190.00	450	302,500	0.020	31	560
Generic 6' Omni	189.00	50	33,392	0.002	3	62
Generic RCU (Remote Control Unit)	183.00	3	1,925	0.000	0	4
RFS APXV18-206517S-C	183.00	79	50,817	0.003	5	98
Round Side Arm	183.00	450	288,733	0.019	30	560
Ericsson Radio 4449 B71 B85A	177.00	225	138,517	0.009	14	280
Ericsson Radio 4460 B25+B66	177.00	327	201,311	0.014	21	407
Ericsson Air6449 B41	177.00	312	192,077	0.013	20	388
RFS APXVAALL24 43-U-NA20	177.00	368	226,798	0.015	23	458
Generic Heavy Sector Frame	175.00	1,500	910,516	0.061	93	1,865
Powerwave Allgon 7020	166.00	13	7,504	0.000	1	16
Kaelus DBC0061F1V51-2	166.00	51	28,994	0.002	3	63
Powerwave Allgon LGP21401	166.00	85	48,097	0.003	5	105
Raycap DC6-48-60-18-8F (23.5" Height)	166.00	40	22,741	0.002	2	50
Ericsson RRUS 4426 B66	166.00	194	110,065	0.007	11	241
Ericsson RRUS 4478 B14 (15")	166.00	59	33,770	0.002	3	74
Ericsson RRUS 4478 B5	166.00	120	68,108	0.005	7	149
Ericsson RRUS 32 B30 (60 lbs)	166.00	240	136,444	0.009	14	298
Ericsson RRUS-11 (19.7")	166.00	204	115,978	0.008	12	254
Ericsson RRUS E2 B29	166.00	240	136,444	0.009	14	298
Raycap DC6-48-60-18-8C-EV	166.00	32	18,193	0.001	2	40
Powerwave Allgon 7770.00	166.00	105	59,694	0.004	6	131
Commscope SBNHH-1D65A	166.00	67	38,091	0.003	4	83
CCI OPA-65R-LCUU-H4 (14.4" width)	166.00	114	64,811	0.004	7	142
CCI HPA-65R-BUU-H4	166.00	68	38,659	0.003	4	85

CCI BSA-M65R-BUU-H4	166.00	225	127,917	0.009	13	280
Flat Light Sector Frame	166.00	1,200	682,222	0.046	70	1,492
Commscope RDIDC-9181-PF-48	156.00	22	11,527	0.001	1	27
Fujitsu TA08025-B604	156.00	192	100,899	0.007	10	238
Fujitsu TA08025-B605	156.00	225	118,426	0.008	12	280
JMA Wireless MX08FRO665-21	156.00	194	101,846	0.007	10	241
Generic Flat Light Sector Frame	156.00	1,200	631,603	0.042	65	1,492
Generic 4' Dish w/ Radome	148.00	120	59,166	0.004	6	149
Generic Flat Light Sector Frame	148.00	400	197,221	0.013	20	497
Generic 10' Dipole	144.00	30	14,297	0.001	1	37
Round Side Arm	142.00	300	140,512	0.010	14	373
Generic 6' FM antenna	137.00	60	26,880	0.002	3	75
Round Side Arm	135.00	600	263,938	0.018	27	746
Round Side Arm	130.00	450	188,897	0.013	19	560
Harris FML-4E	127.00	227	92,567	0.006	9	282
Round Side Arm	125.00	300	119,950	0.008	12	373
Scala PR-950	108.80	38	12,790	0.001	1	47
Stand-Off	87.00	75	19,127	0.001	2	93
Antel BCD-87010 ___ 4°	87.00	26	6,758	0.000	1	33
Generic 4' Std. Dish	80.00	376	86,411	0.006	9	468
Side Arm	60.00	300	48,248	0.003	5	373
Channel Master Type 120	16.00	126	3,931	0.000	0	157
Ericsson RRUS 32 B2	4.00	106	592	0.000	0	132
Totals		50,610	14,852,337	1.000	1,518	62,935

FORCE/STRESS SUMMARY

Section 1 – Bolt Elevation 0.0 (ft) and Height 20.00 (ft)

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'_y (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
L PST - 12" DIA PIPE	-462.45	1.2D + 1.0W N	6.427	100	100	100	17.61	50.0	642.27	0.00	0.00	0	0	72	Member X
D SAE - 4X4X0.25	-11.58	1.2D + 1.0W 90°	20.055	48	48	48	145.30	43.5	26.30	0.00	0.00	0	0	44	Member Z

Max Tension Member	Pu (kip)	Load Case	F_y (ksi)	F_u (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	Blk Shear $\Phi_t P_n$ (kip)	# Bolt	# Hole	Use %	Controls
L PST - 12" DIA PIPE	414.26	1.2D + 1.0W 60°	50.0	65	657.00	0.00	0.00		0	0	63	Member
D SAE - 4X4X0.25	11.36	1.2D + 1.0W 90°	50.0	65	87.30	0.00	0.00	0.00	0	0	13	Member

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Top Tension	383.33	0.9D + 1.0W 180°	0.00	0	0	
Bot Tension	418.63	0.9D + 1.0W 60°	0.00	0	0	
Bot Compression	469.64	1.2D + 1.0W 120°	0.00	0	0	

Section 2 – Bolt Elevation 20.0 (ft) and Height 20.00 (ft)

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'_y (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
L PST - 10" DIA PIPE	-428.52	1.2D + 1.0W N	0.376	100	100	100	1.23	50.0	535.44	0.00	0.00	0	0	80	Member X
D SAE - 3.5x3.5x0.25	-11.49	1.2D + 1.0W 90°	18.773	48	48	48	157.17	50.0	19.58	0.00	0.00	0	0	58	Member Z

Max Tension Member	Pu (kip)	Load Case	F_y (ksi)	F_u (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	Blk Shear $\Phi_t P_n$ (kip)	# Bolt	# Hole	Use %	Controls
L PST - 10" DIA PIPE	383.62	0.9D + 1.0W 60°	50.0	65	535.50	0.00	0.00		0	0	71	Member
D SAE - 3.5x3.5x0.25	11.54	1.2D + 1.0W 90°	50.0	65	76.05	0.00	0.00	0.00	0	0	15	Member

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Top Tension	344.05	0.9D + 1.0W 180°	0.00	0	0	
Bot Tension	383.33	0.9D + 1.0W 180°	0.00	0	0	

Section 3 – Bolt Elevation 40.0 (ft) and Height 20.00 (ft)

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'_y (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
L PST - 10" DIA PIPE	-374.38	1.2D + 1.0W N	6.427	100	100	100	21.02	50.0	518.48	0.00	0.00	0	0	72	Member X
D SAE - 3X3X0.25	-11.01	1.2D + 1.0W 90°	16.908	47	47	47	161.08	50.0	15.88	0.00	0.00	0	0	69	Member Z

Max Tension Member	Pu (kip)	Load Case	F_y (ksi)	F_u (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	Blk Shear $\Phi_t P_n$ (kip)	# Bolt	# Hole	Use %	Controls
L PST - 10" DIA PIPE	344.34	0.9D + 1.0W 60°	50.0	65	535.50	0.00	0.00		0	0	64	Member
D SAE - 3X3X0.25	10.77	1.2D + 1.0W 90°	50.0	65	64.80	0.00	0.00	0.00	0	0	16	Member

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Top Tension	302.18	0.9D + 1.0W 180°	0.00	0	0	
Bot Tension	344.05	0.9D + 1.0W 180°	0.00	0	0	

Section 4 – Bolt Elevation 60.0 (ft) and Height 20.00 (ft)

FORCE/STRESS SUMMARY

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'_y (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
L PST - 10" DIA PIPE	-335.39	1.2D + 1.0W N	0.375	100	100	100	1.23	50.0	535.44	0.00	0.00	0	0	62	Member X
D SAE - 3X3X0.25	-12.86	1.2D + 1.0W 90°	15.157	48	48	48	147.48	50.0	18.95	0.00	0.00	0	0	67	Member Z

Max Tension Member	Pu (kip)	Load Case	F_y (ksi)	F_u (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	Blk Shear $\Phi_t P_n$ (kip)	# Bolt	# Hole	Use %	Controls
L PST - 10" DIA PIPE	302.32	0.9D + 1.0W 60°	50.0	65	535.50	0.00	0.00		0	0	56	Member
D SAE - 3X3X0.25	12.56	1.2D + 1.0W 90°	50.0	65	64.80	0.00	0.00	0.00	0	0	19	Member

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Top Tension	247.52	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	302.18	0.9D + 1.0W 180°	0.00	0	0	

Section 5 – Bolt Elevation 80.0 (ft) and Height 20.00 (ft)

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'_y (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
L PST - 8" DIA PIPE	-264.49	1.2D + 1.0W N	6.423	100	100	100	26.22	50.0	359.48	0.00	0.00	0	0	73	Member X
D SAE - 3X3X0.1875	-11.25	1.2D + 1.0W 90°	13.813	48	48	48	133.49	44.0	17.51	0.00	0.00	0	0	64	Member Z

Max Tension Member	Pu (kip)	Load Case	F_y (ksi)	F_u (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	Blk Shear $\Phi_t P_n$ (kip)	# Bolt	# Hole	Use %	Controls
L PST - 8" DIA PIPE	245.84	1.2D + 1.0W 60°	50.0	65	378.00	0.00	0.00		0	0	65	Member
D SAE - 3X3X0.1875	11.31	1.2D + 1.0W 90°	50.0	65	49.05	0.00	0.00	0.00	0	0	23	Member

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Top Tension	194.48	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	247.52	0.9D + 1.0W 60°	0.00	0	0	

Section 6 – Bolt Elevation 100.0 (ft) and Height 20.00 (ft)

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'_y (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
L PST - 8" DIA PIPE	-216.87	1.2D + 1.0W N	0.375	100	100	100	1.53	50.0	377.94	0.00	0.00	0	0	57	Member X
D SAE - 3X3X0.1875	-10.80	1.2D + 1.0W 90°	12.504	48	48	48	120.84	44.0	21.36	0.00	0.00	0	0	50	Member Z

Max Tension Member	Pu (kip)	Load Case	F_y (ksi)	F_u (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	Blk Shear $\Phi_t P_n$ (kip)	# Bolt	# Hole	Use %	Controls
L PST - 8" DIA PIPE	192.96	1.2D + 1.0W 60°	50.0	65	378.00	0.00	0.00		0	0	51	Member
D SAE - 3X3X0.1875	10.68	1.2D + 1.0W 90°	50.0	65	49.05	0.00	0.00	0.00	0	0	21	Member

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Top Tension	138.73	0.9D + 1.0W 180°	0.00	0	0	
Bot Tension	194.48	0.9D + 1.0W 60°	0.00	0	0	

Section 7 – Bolt Elevation 120.0 (ft) and Height 20.00 (ft)

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'_y (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
L PST - 6" DIA PIPE	-145.57	1.2D + 1.0W N	6.423	100	100	100	34.25	50.0	230.45	0.00	0.00	0	0	63	Member X
D SAE - 3X3X0.1875	-9.77	1.2D + 1.0W 90°	11.243	48	48	48	111.49	44.0	25.05	0.00	0.00	0	0	39	Member Z

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Max Tension Member	Pu (kip)	Load Case	F_y (ksi)	F_u (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	Blk Shear $\Phi_t P_n$ (kip)	# Bolt	# Hole	Use %	Controls
L PST - 6" DIA PIPE	138.95	0.9D + 1.0W 60°	50.0	65	251.10	0.00	0.00		0	0	55	Member
D SAE - 3X3X0.1875	9.63	1.2D + 1.0W 90°	50.0	65	49.05	0.00	0.00	0.00	0	0	19	Member

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Top Tension	83.53	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	138.73	0.9D + 1.0W 180°	0.00	0	0	

Section 8 – Bolt Elevation 140.0 (ft) and Height 20.00 (ft)

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'_y (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
L PST - 5" DIA PIPE	-86.31	1.2D + 1.0W N	6.548	100	100	100	41.79	50.0	170.30	0.00	0.00	0	0	50	Member X
D SAE - 2.5X2.5X0.1875	-7.87	1.2D + 1.0W 90°	10.125	48	48	48	118.36	50.0	18.43	0.00	0.00	0	0	42	Member Z

Max Tension Member	Pu (kip)	Load Case	F_y (ksi)	F_u (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	Blk Shear $\Phi_t P_n$ (kip)	# Bolt	# Hole	Use %	Controls
L PST - 5" DIA PIPE	83.70	0.9D + 1.0W 60°	50.0	65	193.50	0.00	0.00		0	0	43	Member
D SAE - 2.5X2.5X0.1875	7.77	1.2D + 1.0W 90°	50.0	65	40.59	0.00	0.00	0.00	0	0	19	Member

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Top Tension	36.88	0.9D + 1.0W 180°	0.00	0	0	
Bot Tension	83.53	0.9D + 1.0W 60°	0.00	0	0	

Section 9 – Bolt Elevation 160.0 (ft) and Height 20.00 (ft)

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'_y (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
L PST - 3" DIA PIPE	-35.16	1.2D + 1.0W N	6.542	100	100	100	67.67	50.0	71.80	0.00	0.00	0	0	48	Member X
D SAE - 2.5X2.5X0.1875	-7.06	1.2D + 1.0W 90°	9.222	48	48	48	110.48	50.0	21.15	0.00	0.00	0	0	33	Member Z

Max Tension Member	Pu (kip)	Load Case	F_y (ksi)	F_u (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	Blk Shear $\Phi_t P_n$ (kip)	# Bolt	# Hole	Use %	Controls
L PST - 3" DIA PIPE	27.26	1.2D + 1.0W 60°	50.0	65	100.35	0.00	0.00		0	0	27	Member
D SAE - 2.5X2.5X0.1875	6.53	1.2D + 1.0W 60°	50.0	65	40.59	0.00	0.00	0.00	0	0	16	Member

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Top Tension	3.32	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	36.88	0.9D + 1.0W 180°	0.00	0	0	

Section 10 – Bolt Elevation 180.0 (ft) and Height 10.60 (ft)

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'_y (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
L PST - 2" DIA PIPE	-3.17	1.2D + 1.0W N	5.112	100	100	100	77.94	50.0	30.88	0.00	0.00	0	0	10	Member X
H SAE - 1.75X1.75X0.125	-0.25	1.2D + 1.0W 60°	6.5	100	100	100	224.78	36.0	2.38	0.00	0.00	0	0	10	Member Z
D SAE - 2X2X0.1875	-1.19	1.2D + 1.0W N	8.269	48	48	48	120.89	50.0	14.00	0.00	0.00	0	0	8	Member Z

Max Tension Member	Pu (kip)	Load Case	F_y (ksi)	F_u (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	Blk Shear $\Phi_t P_n$ (kip)	# Bolt	# Hole	Use %	Controls
L PST - 2" DIA PIPE	3.44	0.9D + 1.0W 60°	50.0	65	48.15	0.00	0.00		0	0	7	Member
H SAE - 1.75X1.75X0.125	0.30	1.2D + 1.0W N	36.0	58	13.61	0.00	0.00	0.00	0	0	2	Member

FORCE/STRESS SUMMARY

D SAE - 2X2X0.1875	0.98	1.2D + 1.0W N	50.0	65	32.18	0.00	0.00	0.00	0	0	3	Member

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Bot Tension	3.32	0.9D + 1.0W 60°	0.00	0	0	

DETAILED REACTIONS

Load Case	Radius (ft)	Elevation (ft)	Azimuth (deg)	Node	*(-) Uplift and (+) Down *F_X (kip)	*F_Y (kip)	*F_Z (kip)
1.2D + 1.0W Normal	11.55	0.00	0	1	0.00	468.26	-45.00
	11.55	0.00	120	1a	15.50	-203.76	-14.65
	11.55	0.00	240	1b	-15.50	-203.76	-14.65
1.2D + 1.0W 60°	11.55	0.00	0	1	-4.37	236.43	-22.35
	11.55	0.00	120	1a	-21.55	236.44	7.39
	11.55	0.00	240	1b	-35.65	-412.14	-20.58
1.2D + 1.0W 90°	11.55	0.00	0	1	-5.29	20.25	-1.34
	11.55	0.00	120	1a	-34.19	398.07	16.85
	11.55	0.00	240	1b	-32.42	-357.60	-15.51
1.2D + 1.0W 120°	11.55	0.00	0	1	-4.94	-203.76	20.75
	11.55	0.00	120	1a	-38.97	468.26	22.50
	11.55	0.00	240	1b	-20.44	-203.77	-6.10
1.2D + 1.0W 180°	11.55	0.00	0	1	0.00	-412.14	41.16
	11.55	0.00	120	1a	-17.17	236.43	14.97
	11.55	0.00	240	1b	17.17	236.43	14.97
1.2D + 1.0W 210°	11.55	0.00	0	1	2.78	-357.60	35.83
	11.55	0.00	120	1a	1.49	20.25	5.25
	11.55	0.00	240	1b	31.68	398.07	21.19
1.2D + 1.0W 240°	11.55	0.00	0	1	4.94	-203.76	20.75
	11.55	0.00	120	1a	20.44	-203.77	-6.10
	11.55	0.00	240	1b	38.97	468.26	22.50
1.2D + 1.0W 300°	11.55	0.00	0	1	4.37	236.43	-22.35
	11.55	0.00	120	1a	35.65	-412.14	-20.58
	11.55	0.00	240	1b	21.55	236.44	7.39
1.2D + 1.0W 330°	11.55	0.00	0	1	2.51	398.07	-38.03
	11.55	0.00	120	1a	29.64	-357.60	-20.33
	11.55	0.00	240	1b	3.80	20.26	-3.91
0.9D + 1.0W Normal	11.55	0.00	0	1	0.00	462.56	-44.65
	11.55	0.00	120	1a	15.78	-208.50	-14.83
	11.55	0.00	240	1b	-15.78	-208.50	-14.83
0.9D + 1.0W 60°	11.55	0.00	0	1	-4.39	231.06	-22.01
	11.55	0.00	120	1a	-21.26	231.07	7.21
	11.55	0.00	240	1b	-35.93	-416.58	-20.74
0.9D + 1.0W 90°	11.55	0.00	0	1	-5.30	15.19	-1.00
	11.55	0.00	120	1a	-33.89	392.47	16.66
	11.55	0.00	240	1b	-32.71	-362.12	-15.66
0.9D + 1.0W 120°	11.55	0.00	0	1	-4.95	-208.50	21.08
	11.55	0.00	120	1a	-38.67	462.56	22.33
	11.55	0.00	240	1b	-20.73	-208.51	-6.25
0.9D + 1.0W 180°	11.55	0.00	0	1	0.00	-416.58	41.49
	11.55	0.00	120	1a	-16.87	231.06	14.81
	11.55	0.00	240	1b	16.87	231.06	14.81
0.9D + 1.0W 210°	11.55	0.00	0	1	2.79	-362.11	36.15
	11.55	0.00	120	1a	1.79	15.19	5.09
	11.55	0.00	240	1b	31.37	392.47	21.02
0.9D + 1.0W 240°	11.55	0.00	0	1	4.95	-208.50	21.08
	11.55	0.00	120	1a	20.73	-208.51	-6.25
	11.55	0.00	240	1b	38.67	462.56	22.33
0.9D + 1.0W 300°	11.55	0.00	0	1	4.39	231.06	-22.01
	11.55	0.00	120	1a	35.93	-416.58	-20.74
	11.55	0.00	240	1b	21.26	231.07	7.21
0.9D + 1.0W 330°	11.55	0.00	0	1	2.51	392.47	-37.68
	11.55	0.00	120	1a	29.92	-362.12	-20.49
	11.55	0.00	240	1b	3.52	15.19	-4.09
1.2D + 1.0Di + 1.0Wi Normal	11.55	0.00	0	1	0.00	181.22	-7.55
	11.55	0.00	120	1a	10.77	-28.96	-8.01
	11.55	0.00	240	1b	-10.77	-28.96	-8.01
1.2D + 1.0Di + 1.0Wi 60°	11.55	0.00	0	1	-1.48	109.98	-0.47
	11.55	0.00	120	1a	-1.15	109.98	-1.05
	11.55	0.00	240	1b	-17.37	-96.67	-10.03
1.2D + 1.0Di + 1.0Wi 90°	11.55	0.00	0	1	-1.74	41.10	6.36
	11.55	0.00	120	1a	-5.20	160.96	2.02
	11.55	0.00	240	1b	-16.27	-78.76	-8.37
1.2D + 1.0Di + 1.0Wi 120°	11.55	0.00	0	1	-1.55	-28.96	13.34
	11.55	0.00	120	1a	-6.54	181.22	3.77
	11.55	0.00	240	1b	-12.33	-28.96	-5.32
1.2D + 1.0Di + 1.0Wi 180°	11.55	0.00	0	1	0.00	-96.73	20.06
	11.55	0.00	120	1a	0.34	110.02	1.52

DETAILED REACTIONS

*(-) Uplift and (+) Down

Load Case	Radius (ft)	Elevation (ft)	Azimuth (deg)	Node	*Fx (kip)	*Fy (kip)	*Fz (kip)
	11.55	0.00	240	1b	-0.34	110.02	1.52
1.2D + 1.0Di + 1.0Wi 210°	11.55	0.00	0	1	0.88	-78.76	18.28
	11.55	0.00	120	1a	6.38	41.10	-1.67
	11.55	0.00	240	1b	4.35	160.96	3.50
1.2D + 1.0Di + 1.0Wi 240°	11.55	0.00	0	1	1.55	-28.96	13.34
	11.55	0.00	120	1a	12.33	-28.96	-5.32
	11.55	0.00	240	1b	6.54	181.22	3.77
1.2D + 1.0Di + 1.0Wi 300°	11.55	0.00	0	1	1.48	109.98	-0.47
	11.55	0.00	120	1a	17.37	-96.67	-10.03
	11.55	0.00	240	1b	1.15	109.98	-1.05
1.2D + 1.0Di + 1.0Wi 330°	11.55	0.00	0	1	0.86	160.96	-5.52
	11.55	0.00	120	1a	15.39	-78.76	-9.91
	11.55	0.00	240	1b	-4.64	41.10	-4.69
1.2D + 1.0Ev + 1.0Eh Normal	11.55	0.00	0	1	0.00	32.17	17.18
	11.55	0.00	120	1a	16.09	14.67	-9.34
	11.55	0.00	240	1b	-16.09	14.67	-9.34
1.2D + 1.0Ev + 1.0Eh 60°	11.55	0.00	0	1	-0.04	26.33	17.65
	11.55	0.00	120	1a	15.27	26.33	-8.86
	11.55	0.00	240	1b	-16.52	8.83	-9.54
1.2D + 1.0Ev + 1.0Eh 90°	11.55	0.00	0	1	-0.05	20.50	18.13
	11.55	0.00	120	1a	14.98	30.60	-8.67
	11.55	0.00	240	1b	-16.42	10.39	-9.46
1.2D + 1.0Ev + 1.0Eh 120°	11.55	0.00	0	1	-0.04	14.67	18.60
	11.55	0.00	120	1a	14.88	32.17	-8.59
	11.55	0.00	240	1b	-16.13	14.67	-9.27
1.2D + 1.0Ev + 1.0Eh 180°	11.55	0.00	0	1	0.00	8.83	19.08
	11.55	0.00	120	1a	15.31	26.33	-8.79
	11.55	0.00	240	1b	-15.31	26.33	-8.79
1.2D + 1.0Ev + 1.0Eh 210°	11.55	0.00	0	1	0.02	10.40	18.95
	11.55	0.00	120	1a	15.72	20.50	-9.03
	11.55	0.00	240	1b	-15.00	30.60	-8.63
1.2D + 1.0Ev + 1.0Eh 240°	11.55	0.00	0	1	0.04	14.67	18.60
	11.55	0.00	120	1a	16.13	14.67	-9.27
	11.55	0.00	240	1b	-14.88	32.17	-8.59
1.2D + 1.0Ev + 1.0Eh 300°	11.55	0.00	0	1	0.04	26.33	17.65
	11.55	0.00	120	1a	16.52	8.83	-9.54
	11.55	0.00	240	1b	-15.27	26.33	-8.86
1.2D + 1.0Ev + 1.0Eh 330°	11.55	0.00	0	1	0.02	30.60	17.31
	11.55	0.00	120	1a	16.40	10.40	-9.49
	11.55	0.00	240	1b	-15.68	20.50	-9.10
0.9D - 1.0Ev + 1.0Eh Normal	11.55	0.00	0	1	0.00	25.77	17.62
	11.55	0.00	120	1a	16.47	8.30	-9.56
	11.55	0.00	240	1b	-16.47	8.30	-9.56
0.9D - 1.0Ev + 1.0Eh 60°	11.55	0.00	0	1	-0.04	19.94	18.09
	11.55	0.00	120	1a	15.65	19.94	-9.08
	11.55	0.00	240	1b	-16.90	2.47	-9.76
0.9D - 1.0Ev + 1.0Eh 90°	11.55	0.00	0	1	-0.05	14.12	18.57
	11.55	0.00	120	1a	15.36	24.21	-8.89
	11.55	0.00	240	1b	-16.80	4.03	-9.67
0.9D - 1.0Ev + 1.0Eh 120°	11.55	0.00	0	1	-0.04	8.30	19.04
	11.55	0.00	120	1a	15.26	25.77	-8.81
	11.55	0.00	240	1b	-16.51	8.30	-9.49
0.9D - 1.0Ev + 1.0Eh 180°	11.55	0.00	0	1	0.00	2.47	19.52
	11.55	0.00	120	1a	15.69	19.94	-9.01
	11.55	0.00	240	1b	-15.69	19.94	-9.01
0.9D - 1.0Ev + 1.0Eh 210°	11.55	0.00	0	1	0.02	4.03	19.39
	11.55	0.00	120	1a	16.10	14.12	-9.24
	11.55	0.00	240	1b	-15.38	24.20	-8.85
0.9D - 1.0Ev + 1.0Eh 240°	11.55	0.00	0	1	0.04	8.30	19.04
	11.55	0.00	120	1a	16.51	8.30	-9.49
	11.55	0.00	240	1b	-15.26	25.77	-8.81
0.9D - 1.0Ev + 1.0Eh 300°	11.55	0.00	0	1	0.04	19.94	18.09
	11.55	0.00	120	1a	16.90	2.47	-9.76
	11.55	0.00	240	1b	-15.65	19.94	-9.08
0.9D - 1.0Ev + 1.0Eh 330°	11.55	0.00	0	1	0.02	24.20	17.75
	11.55	0.00	120	1a	16.78	4.03	-9.71
	11.55	0.00	240	1b	-16.06	14.12	-9.32
1.0D + 1.0W Service Normal	11.55	0.00	0	1	0.00	125.28	7.69
	11.55	0.00	120	1a	20.00	-37.34	-12.90

DETAILED REACTIONS

Load Case	Radius (ft)	Elevation (ft)	Azimuth (deg)	Node	*(-) Uplift and (+) Down *F_X (kip)	*F_Y (kip)	*F_Z (kip)
	11.55	0.00	240	1b	-20.00	-37.34	-12.90
1.0D + 1.0W Service 60°	11.55	0.00	0	1	-1.08	69.22	13.26
	11.55	0.00	120	1a	10.94	69.22	-7.57
	11.55	0.00	240	1b	-24.87	-87.83	-14.36
1.0D + 1.0W Service 90°	11.55	0.00	0	1	-1.28	16.87	18.40
	11.55	0.00	120	1a	7.83	108.34	-5.25
	11.55	0.00	240	1b	-24.08	-74.60	-13.15
1.0D + 1.0W Service 120°	11.55	0.00	0	1	-1.17	-37.34	23.77
	11.55	0.00	120	1a	6.66	125.28	-3.85
	11.55	0.00	240	1b	-21.17	-37.34	-10.88
1.0D + 1.0W Service 180°	11.55	0.00	0	1	0.00	-87.83	28.72
	11.55	0.00	120	1a	12.02	69.22	-5.69
	11.55	0.00	240	1b	-12.02	69.22	-5.69
1.0D + 1.0W Service 210°	11.55	0.00	0	1	0.65	-74.70	27.44
	11.55	0.00	120	1a	16.58	16.87	-8.09
	11.55	0.00	240	1b	-8.45	108.44	-4.15
1.0D + 1.0W Service 240°	11.55	0.00	0	1	1.17	-37.34	23.77
	11.55	0.00	120	1a	21.17	-37.34	-10.88
	11.55	0.00	240	1b	-6.66	125.28	-3.85
1.0D + 1.0W Service 300°	11.55	0.00	0	1	1.08	69.22	13.26
	11.55	0.00	120	1a	24.87	-87.83	-14.36
	11.55	0.00	240	1b	-10.94	69.22	-7.57
1.0D + 1.0W Service 330°	11.55	0.00	0	1	0.63	108.44	9.40
	11.55	0.00	120	1a	23.44	-74.70	-14.28
	11.55	0.00	240	1b	-15.30	16.87	-10.31

Max Uplift:	416.58 (kip)	Moment Ice:	2426.93 (kip-ft)	Moment:	7759.89 (kip-ft)
Max Down:	468.26 (kip)	Total Down Ice:	123.3 (kip)	Total Down:	60.73 (kip)
Max Shear:	45 (kip)	Total Shear Ice:	23.58 (kip)	Total Shear:	74.3(kip)

1.2D + 1.0W 120°

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.2D + 1.0W Normal 123 mph wind with no ice	6.79	0.006	0.0033	0.0775	0.0775
1.2D + 1.0W Normal 123 mph wind with no ice	13.21	0.017	0.0049	0.1077	0.1078
1.2D + 1.0W Normal 123 mph wind with no ice	60.00	0.221	0.0157	0.4204	0.4204
1.2D + 1.0W Normal 123 mph wind with no ice	80.00	0.383	0.0198	0.5508	0.5508
1.2D + 1.0W Normal 123 mph wind with no ice	86.79	0.449	0.0213	0.5770	0.5774
1.2D + 1.0W Normal 123 mph wind with no ice	106.79	0.679	0.0256	0.7207	0.7212
1.2D + 1.0W Normal 123 mph wind with no ice	126.79	0.957	0.0290	0.8593	0.8598
1.2D + 1.0W Normal 123 mph wind with no ice	133.21	1.057	0.0302	0.9100	0.9105
1.2D + 1.0W Normal 123 mph wind with no ice	139.63	1.162	0.0318	1.0451	1.0451
1.2D + 1.0W Normal 123 mph wind with no ice	140.38	1.176	0.0317	1.0566	1.0566
1.2D + 1.0W Normal 123 mph wind with no ice	146.92	1.290	0.0309	1.0081	1.0085
1.2D + 1.0W Normal 123 mph wind with no ice	153.46	1.408	0.0306	1.0638	1.0638
1.2D + 1.0W Normal 123 mph wind with no ice	166.54	1.659	0.0292	1.1554	1.1554
1.2D + 1.0W Normal 123 mph wind with no ice	173.08	1.790	0.0295	1.1357	1.1360
1.2D + 1.0W Normal 123 mph wind with no ice	179.63	1.924	0.0281	1.3519	1.3519
1.2D + 1.0W Normal 123 mph wind with no ice	185.49	2.045	0.0292	1.1338	1.1342
1.2D + 1.0W Normal 123 mph wind with no ice	190.60	2.150	0.0288	1.1962	1.1962
1.2D + 1.0W 60° 123 mph wind with no ice	6.79	0.006	0.0031	0.0739	0.0739
1.2D + 1.0W 60° 123 mph wind with no ice	13.21	0.016	0.0045	0.1033	0.1034
1.2D + 1.0W 60° 123 mph wind with no ice	60.00	0.214	0.0148	0.4063	0.4063
1.2D + 1.0W 60° 123 mph wind with no ice	80.00	0.371	0.0188	0.5327	0.5327
1.2D + 1.0W 60° 123 mph wind with no ice	86.79	0.435	-0.0200	0.5591	0.5595
1.2D + 1.0W 60° 123 mph wind with no ice	106.79	0.658	-0.0240	0.6990	0.6994
1.2D + 1.0W 60° 123 mph wind with no ice	126.79	0.928	-0.0271	0.8340	0.8344
1.2D + 1.0W 60° 123 mph wind with no ice	133.21	1.024	-0.0279	0.8834	0.8838
1.2D + 1.0W 60° 123 mph wind with no ice	139.63	1.127	-0.0303	1.0126	1.0126
1.2D + 1.0W 60° 123 mph wind with no ice	140.38	1.140	-0.0303	1.0237	1.0237
1.2D + 1.0W 60° 123 mph wind with no ice	146.92	1.251	-0.0283	0.9792	0.9796
1.2D + 1.0W 60° 123 mph wind with no ice	153.46	1.365	-0.0283	1.0342	1.0342
1.2D + 1.0W 60° 123 mph wind with no ice	166.54	1.609	-0.0269	1.1219	1.1219
1.2D + 1.0W 60° 123 mph wind with no ice	173.08	1.737	0.0265	1.1021	1.1024
1.2D + 1.0W 60° 123 mph wind with no ice	179.63	1.866	-0.0278	1.3128	1.3128
1.2D + 1.0W 60° 123 mph wind with no ice	185.49	1.984	-0.0267	1.1010	1.1014
1.2D + 1.0W 60° 123 mph wind with no ice	190.60	2.085	-0.0271	1.1604	1.1604
1.2D + 1.0W 90° 123 mph wind with no ice	6.79	0.006	-0.0036	0.0737	0.0738
1.2D + 1.0W 90° 123 mph wind with no ice	13.21	0.016	-0.0053	0.1069	0.1071
1.2D + 1.0W 90° 123 mph wind with no ice	60.00	0.215	-0.0173	0.4072	0.4073
1.2D + 1.0W 90° 123 mph wind with no ice	80.00	0.373	-0.0218	0.5330	0.5331
1.2D + 1.0W 90° 123 mph wind with no ice	86.79	0.438	-0.0233	0.5637	0.5642
1.2D + 1.0W 90° 123 mph wind with no ice	106.79	0.663	-0.0280	0.7056	0.7062
1.2D + 1.0W 90° 123 mph wind with no ice	126.79	0.934	-0.0316	0.8410	0.8416
1.2D + 1.0W 90° 123 mph wind with no ice	133.21	1.032	-0.0328	0.8946	0.8952
1.2D + 1.0W 90° 123 mph wind with no ice	139.63	1.135	-0.0350	1.0104	1.0106
1.2D + 1.0W 90° 123 mph wind with no ice	140.38	1.149	-0.0350	1.0199	1.0200
1.2D + 1.0W 90° 123 mph wind with no ice	146.92	1.260	-0.0333	0.9913	0.9919
1.2D + 1.0W 90° 123 mph wind with no ice	153.46	1.376	-0.0331	1.0410	1.0411
1.2D + 1.0W 90° 123 mph wind with no ice	166.54	1.621	-0.0315	1.1289	1.1290
1.2D + 1.0W 90° 123 mph wind with no ice	173.08	1.750	-0.0315	1.1197	1.1201
1.2D + 1.0W 90° 123 mph wind with no ice	179.63	1.881	-0.0314	1.3001	1.3001
1.2D + 1.0W 90° 123 mph wind with no ice	185.49	1.999	-0.0315	1.1172	1.1177
1.2D + 1.0W 90° 123 mph wind with no ice	190.60	2.101	-0.0314	1.1670	1.1671
1.2D + 1.0W 120° 123 mph wind with no ice	6.79	0.006	0.0033	0.0775	0.0775
1.2D + 1.0W 120° 123 mph wind with no ice	13.21	0.017	0.0048	0.1077	0.1078
1.2D + 1.0W 120° 123 mph wind with no ice	60.00	0.221	0.0154	0.4203	0.4203
1.2D + 1.0W 120° 123 mph wind with no ice	80.00	0.383	0.0194	0.5508	0.5508
1.2D + 1.0W 120° 123 mph wind with no ice	86.79	0.449	0.0207	0.5770	0.5774
1.2D + 1.0W 120° 123 mph wind with no ice	106.79	0.679	-0.0249	0.7207	0.7212
1.2D + 1.0W 120° 123 mph wind with no ice	126.79	0.957	-0.0282	0.8593	0.8598
1.2D + 1.0W 120° 123 mph wind with no ice	133.21	1.057	-0.0293	0.9101	0.9106
1.2D + 1.0W 120° 123 mph wind with no ice	139.63	1.162	-0.0308	1.0450	1.0450
1.2D + 1.0W 120° 123 mph wind with no ice	140.38	1.176	-0.0308	1.0565	1.0565
1.2D + 1.0W 120° 123 mph wind with no ice	146.92	1.290	-0.0299	1.0081	1.0086
1.2D + 1.0W 120° 123 mph wind with no ice	153.46	1.408	-0.0296	1.0638	1.0638
1.2D + 1.0W 120° 123 mph wind with no ice	166.54	1.659	-0.0282	1.1553	1.1553

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.2D + 1.0W 120° 123 mph wind with no ice	173.08	1.790	-0.0286	1.1356	1.1360
1.2D + 1.0W 120° 123 mph wind with no ice	179.63	1.924	-0.0272	1.3519	1.3519
1.2D + 1.0W 120° 123 mph wind with no ice	185.49	2.045	-0.0283	1.1338	1.1341
1.2D + 1.0W 120° 123 mph wind with no ice	190.60	2.150	-0.0279	1.1961	1.1961
1.2D + 1.0W 180° 123 mph wind with no ice	6.79	0.006	0.0031	0.0739	0.0739
1.2D + 1.0W 180° 123 mph wind with no ice	13.21	0.016	0.0046	0.1033	0.1034
1.2D + 1.0W 180° 123 mph wind with no ice	60.00	0.214	0.0152	0.4063	0.4063
1.2D + 1.0W 180° 123 mph wind with no ice	80.00	0.371	0.0193	0.5328	0.5328
1.2D + 1.0W 180° 123 mph wind with no ice	86.79	0.435	0.0205	0.5591	0.5595
1.2D + 1.0W 180° 123 mph wind with no ice	106.79	0.658	0.0247	0.6990	0.6994
1.2D + 1.0W 180° 123 mph wind with no ice	126.79	0.928	0.0279	0.8340	0.8344
1.2D + 1.0W 180° 123 mph wind with no ice	133.21	1.024	0.0288	0.8833	0.8838
1.2D + 1.0W 180° 123 mph wind with no ice	139.63	1.127	0.0312	1.0127	1.0127
1.2D + 1.0W 180° 123 mph wind with no ice	140.38	1.140	0.0313	1.0238	1.0238
1.2D + 1.0W 180° 123 mph wind with no ice	146.92	1.251	0.0293	0.9792	0.9796
1.2D + 1.0W 180° 123 mph wind with no ice	153.46	1.365	0.0293	1.0342	1.0342
1.2D + 1.0W 180° 123 mph wind with no ice	166.54	1.609	0.0278	1.1219	1.1219
1.2D + 1.0W 180° 123 mph wind with no ice	173.08	1.737	0.0275	1.1021	1.1024
1.2D + 1.0W 180° 123 mph wind with no ice	179.63	1.866	0.0287	1.3128	1.3128
1.2D + 1.0W 180° 123 mph wind with no ice	185.49	1.984	0.0277	1.1011	1.1014
1.2D + 1.0W 180° 123 mph wind with no ice	190.60	2.085	0.0280	1.1605	1.1605
1.2D + 1.0W 210° 123 mph wind with no ice	6.79	0.006	-0.0036	0.0737	0.0737
1.2D + 1.0W 210° 123 mph wind with no ice	13.21	0.016	-0.0054	0.1069	0.1071
1.2D + 1.0W 210° 123 mph wind with no ice	60.00	0.215	-0.0175	0.4072	0.4073
1.2D + 1.0W 210° 123 mph wind with no ice	80.00	0.373	-0.0221	0.5330	0.5331
1.2D + 1.0W 210° 123 mph wind with no ice	86.79	0.438	-0.0236	0.5637	0.5642
1.2D + 1.0W 210° 123 mph wind with no ice	106.79	0.663	-0.0283	0.7056	0.7062
1.2D + 1.0W 210° 123 mph wind with no ice	126.79	0.934	-0.0321	0.8410	0.8416
1.2D + 1.0W 210° 123 mph wind with no ice	133.21	1.032	-0.0332	0.8946	0.8952
1.2D + 1.0W 210° 123 mph wind with no ice	139.63	1.135	-0.0355	1.0105	1.0107
1.2D + 1.0W 210° 123 mph wind with no ice	140.38	1.149	-0.0355	1.0199	1.0201
1.2D + 1.0W 210° 123 mph wind with no ice	146.92	1.260	-0.0338	0.9912	0.9918
1.2D + 1.0W 210° 123 mph wind with no ice	153.46	1.376	-0.0336	1.0409	1.0411
1.2D + 1.0W 210° 123 mph wind with no ice	166.54	1.621	-0.0320	1.1288	1.1289
1.2D + 1.0W 210° 123 mph wind with no ice	173.08	1.750	-0.0320	1.1197	1.1201
1.2D + 1.0W 210° 123 mph wind with no ice	179.63	1.881	-0.0319	1.3000	1.3001
1.2D + 1.0W 210° 123 mph wind with no ice	185.49	1.999	-0.0319	1.1172	1.1176
1.2D + 1.0W 210° 123 mph wind with no ice	190.60	2.101	-0.0319	1.1670	1.1671
1.2D + 1.0W 240° 123 mph wind with no ice	6.79	0.006	0.0033	0.0775	0.0775
1.2D + 1.0W 240° 123 mph wind with no ice	13.21	0.017	0.0048	0.1077	0.1078
1.2D + 1.0W 240° 123 mph wind with no ice	60.00	0.221	-0.0154	0.4203	0.4203
1.2D + 1.0W 240° 123 mph wind with no ice	80.00	0.383	0.0194	0.5508	0.5508
1.2D + 1.0W 240° 123 mph wind with no ice	86.79	0.449	0.0207	0.5770	0.5774
1.2D + 1.0W 240° 123 mph wind with no ice	106.79	0.679	0.0249	0.7207	0.7212
1.2D + 1.0W 240° 123 mph wind with no ice	126.79	0.957	0.0282	0.8593	0.8598
1.2D + 1.0W 240° 123 mph wind with no ice	133.21	1.057	0.0293	0.9101	0.9106
1.2D + 1.0W 240° 123 mph wind with no ice	139.63	1.162	0.0308	1.0450	1.0450
1.2D + 1.0W 240° 123 mph wind with no ice	140.38	1.176	0.0308	1.0565	1.0565
1.2D + 1.0W 240° 123 mph wind with no ice	146.92	1.290	0.0299	1.0081	1.0086
1.2D + 1.0W 240° 123 mph wind with no ice	153.46	1.408	0.0296	1.0638	1.0638
1.2D + 1.0W 240° 123 mph wind with no ice	166.54	1.659	0.0282	1.1553	1.1553
1.2D + 1.0W 240° 123 mph wind with no ice	173.08	1.790	0.0286	1.1356	1.1360
1.2D + 1.0W 240° 123 mph wind with no ice	179.63	1.924	0.0272	1.3519	1.3519
1.2D + 1.0W 240° 123 mph wind with no ice	185.49	2.045	0.0283	1.1338	1.1341
1.2D + 1.0W 240° 123 mph wind with no ice	190.60	2.150	0.0279	1.1961	1.1961
1.2D + 1.0W 300° 123 mph wind with no ice	6.79	0.006	0.0031	0.0739	0.0739
1.2D + 1.0W 300° 123 mph wind with no ice	13.21	0.016	0.0045	0.1033	0.1034
1.2D + 1.0W 300° 123 mph wind with no ice	60.00	0.214	0.0148	0.4063	0.4063
1.2D + 1.0W 300° 123 mph wind with no ice	80.00	0.371	0.0188	0.5327	0.5327
1.2D + 1.0W 300° 123 mph wind with no ice	86.79	0.435	0.0200	0.5591	0.5595
1.2D + 1.0W 300° 123 mph wind with no ice	106.79	0.658	0.0240	0.6990	0.6994
1.2D + 1.0W 300° 123 mph wind with no ice	126.79	0.928	0.0271	0.8340	0.8344
1.2D + 1.0W 300° 123 mph wind with no ice	133.21	1.024	0.0279	0.8834	0.8838
1.2D + 1.0W 300° 123 mph wind with no ice	139.63	1.127	0.0303	1.0126	1.0126
1.2D + 1.0W 300° 123 mph wind with no ice	140.38	1.140	0.0303	1.0237	1.0237
1.2D + 1.0W 300° 123 mph wind with no ice	146.92	1.251	0.0283	0.9792	0.9796
1.2D + 1.0W 300° 123 mph wind with no ice	153.46	1.365	0.0283	1.0342	1.0342
1.2D + 1.0W 300° 123 mph wind with no ice	166.54	1.609	0.0269	1.1219	1.1219

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.2D + 1.0W 300° 123 mph wind with no ice	173.08	1.737	0.0265	1.1021	1.1024
1.2D + 1.0W 300° 123 mph wind with no ice	179.63	1.866	0.0278	1.3128	1.3128
1.2D + 1.0W 300° 123 mph wind with no ice	185.49	1.984	0.0267	1.1010	1.1014
1.2D + 1.0W 300° 123 mph wind with no ice	190.60	2.085	0.0271	1.1604	1.1604
1.2D + 1.0W 330° 123 mph wind with no ice	6.79	0.006	-0.0036	0.0737	0.0737
1.2D + 1.0W 330° 123 mph wind with no ice	13.21	0.016	-0.0054	0.1069	0.1071
1.2D + 1.0W 330° 123 mph wind with no ice	60.00	0.215	-0.0175	0.4072	0.4073
1.2D + 1.0W 330° 123 mph wind with no ice	80.00	0.373	-0.0221	0.5331	0.5332
1.2D + 1.0W 330° 123 mph wind with no ice	86.79	0.438	-0.0236	0.5637	0.5642
1.2D + 1.0W 330° 123 mph wind with no ice	106.79	0.663	-0.0283	0.7056	0.7062
1.2D + 1.0W 330° 123 mph wind with no ice	126.79	0.934	-0.0321	0.8410	0.8416
1.2D + 1.0W 330° 123 mph wind with no ice	133.21	1.032	-0.0332	0.8946	0.8952
1.2D + 1.0W 330° 123 mph wind with no ice	139.63	1.135	-0.0355	1.0105	1.0107
1.2D + 1.0W 330° 123 mph wind with no ice	140.38	1.149	-0.0355	1.0200	1.0202
1.2D + 1.0W 330° 123 mph wind with no ice	146.92	1.260	-0.0338	0.9912	0.9918
1.2D + 1.0W 330° 123 mph wind with no ice	153.46	1.376	-0.0336	1.0409	1.0411
1.2D + 1.0W 330° 123 mph wind with no ice	166.54	1.621	-0.0320	1.1288	1.1290
1.2D + 1.0W 330° 123 mph wind with no ice	173.08	1.750	-0.0320	1.1197	1.1201
1.2D + 1.0W 330° 123 mph wind with no ice	179.63	1.881	-0.0319	1.3000	1.3001
1.2D + 1.0W 330° 123 mph wind with no ice	185.49	1.999	-0.0319	1.1172	1.1176
1.2D + 1.0W 330° 123 mph wind with no ice	190.60	2.101	-0.0319	1.1670	1.1671
0.9D + 1.0W Normal 123 mph wind with no ice	6.79	0.006	0.0033	0.0775	0.0775
0.9D + 1.0W Normal 123 mph wind with no ice	13.21	0.016	0.0049	0.1076	0.1077
0.9D + 1.0W Normal 123 mph wind with no ice	60.00	0.221	0.0157	0.4197	0.4197
0.9D + 1.0W Normal 123 mph wind with no ice	80.00	0.382	0.0198	0.5498	0.5498
0.9D + 1.0W Normal 123 mph wind with no ice	86.79	0.449	0.0212	0.5759	0.5763
0.9D + 1.0W Normal 123 mph wind with no ice	106.79	0.678	0.0256	0.7191	0.7196
0.9D + 1.0W Normal 123 mph wind with no ice	126.79	0.955	0.0290	0.8573	0.8577
0.9D + 1.0W Normal 123 mph wind with no ice	133.21	1.054	0.0302	0.9078	0.9083
0.9D + 1.0W Normal 123 mph wind with no ice	139.63	1.160	0.0317	1.0425	1.0425
0.9D + 1.0W Normal 123 mph wind with no ice	140.38	1.173	0.0317	1.0539	1.0539
0.9D + 1.0W Normal 123 mph wind with no ice	146.92	1.287	0.0308	1.0055	1.0060
0.9D + 1.0W Normal 123 mph wind with no ice	153.46	1.405	0.0305	1.0613	1.0613
0.9D + 1.0W Normal 123 mph wind with no ice	166.54	1.656	0.0291	1.1524	1.1524
0.9D + 1.0W Normal 123 mph wind with no ice	173.08	1.786	0.0295	1.1326	1.1330
0.9D + 1.0W Normal 123 mph wind with no ice	179.63	1.920	0.0281	1.3488	1.3488
0.9D + 1.0W Normal 123 mph wind with no ice	185.49	2.041	0.0292	1.1309	1.1313
0.9D + 1.0W Normal 123 mph wind with no ice	190.60	2.145	0.0288	1.1930	1.1930
0.9D + 1.0W 60° 123 mph wind with no ice	6.79	0.006	0.0031	0.0739	0.0739
0.9D + 1.0W 60° 123 mph wind with no ice	13.21	0.016	0.0045	0.1033	0.1034
0.9D + 1.0W 60° 123 mph wind with no ice	60.00	0.213	0.0148	0.4055	0.4055
0.9D + 1.0W 60° 123 mph wind with no ice	80.00	0.370	0.0188	0.5317	0.5317
0.9D + 1.0W 60° 123 mph wind with no ice	86.79	0.434	0.0199	0.5580	0.5583
0.9D + 1.0W 60° 123 mph wind with no ice	106.79	0.657	-0.0239	0.6975	0.6979
0.9D + 1.0W 60° 123 mph wind with no ice	126.79	0.926	-0.0270	0.8321	0.8325
0.9D + 1.0W 60° 123 mph wind with no ice	133.21	1.022	-0.0279	0.8813	0.8817
0.9D + 1.0W 60° 123 mph wind with no ice	139.63	1.124	-0.0303	1.0101	1.0101
0.9D + 1.0W 60° 123 mph wind with no ice	140.38	1.138	-0.0303	1.0212	1.0212
0.9D + 1.0W 60° 123 mph wind with no ice	146.92	1.248	-0.0283	0.9768	0.9772
0.9D + 1.0W 60° 123 mph wind with no ice	153.46	1.363	-0.0283	1.0314	1.0314
0.9D + 1.0W 60° 123 mph wind with no ice	166.54	1.606	-0.0269	1.1189	1.1189
0.9D + 1.0W 60° 123 mph wind with no ice	173.08	1.733	-0.0265	1.0992	1.0996
0.9D + 1.0W 60° 123 mph wind with no ice	179.63	1.862	-0.0277	1.3085	1.3085
0.9D + 1.0W 60° 123 mph wind with no ice	185.49	1.980	-0.0267	1.0981	1.0985
0.9D + 1.0W 60° 123 mph wind with no ice	190.60	2.080	-0.0271	1.1573	1.1573
0.9D + 1.0W 90° 123 mph wind with no ice	6.79	0.006	-0.0036	0.0737	0.0737
0.9D + 1.0W 90° 123 mph wind with no ice	13.21	0.016	-0.0053	0.1069	0.1070
0.9D + 1.0W 90° 123 mph wind with no ice	60.00	0.215	-0.0172	0.4065	0.4066
0.9D + 1.0W 90° 123 mph wind with no ice	80.00	0.373	-0.0218	0.5320	0.5321
0.9D + 1.0W 90° 123 mph wind with no ice	86.79	0.437	-0.0232	0.5626	0.5631
0.9D + 1.0W 90° 123 mph wind with no ice	106.79	0.662	-0.0279	0.7041	0.7046
0.9D + 1.0W 90° 123 mph wind with no ice	126.79	0.933	-0.0316	0.8391	0.8397
0.9D + 1.0W 90° 123 mph wind with no ice	133.21	1.030	-0.0327	0.8925	0.8931
0.9D + 1.0W 90° 123 mph wind with no ice	139.63	1.133	-0.0349	1.0079	1.0080
0.9D + 1.0W 90° 123 mph wind with no ice	140.38	1.146	-0.0349	1.0173	1.0174
0.9D + 1.0W 90° 123 mph wind with no ice	146.92	1.257	-0.0333	0.9888	0.9894
0.9D + 1.0W 90° 123 mph wind with no ice	153.46	1.373	-0.0331	1.0382	1.0383
0.9D + 1.0W 90° 123 mph wind with no ice	166.54	1.618	-0.0315	1.1258	1.1259

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
0.9D + 1.0W 90° 123 mph wind with no ice	173.08	1.746	-0.0315	1.1168	1.1172
0.9D + 1.0W 90° 123 mph wind with no ice	179.63	1.876	-0.0314	1.2959	1.2960
0.9D + 1.0W 90° 123 mph wind with no ice	185.49	1.994	-0.0314	1.1143	1.1147
0.9D + 1.0W 90° 123 mph wind with no ice	190.60	2.096	-0.0314	1.1639	1.1640
0.9D + 1.0W 120° 123 mph wind with no ice	6.79	0.006	0.0033	0.0775	0.0775
0.9D + 1.0W 120° 123 mph wind with no ice	13.21	0.016	0.0048	0.1076	0.1077
0.9D + 1.0W 120° 123 mph wind with no ice	60.00	0.221	0.0153	0.4196	0.4196
0.9D + 1.0W 120° 123 mph wind with no ice	80.00	0.382	0.0193	0.5497	0.5497
0.9D + 1.0W 120° 123 mph wind with no ice	86.79	0.449	0.0207	0.5759	0.5763
0.9D + 1.0W 120° 123 mph wind with no ice	106.79	0.678	-0.0249	0.7191	0.7196
0.9D + 1.0W 120° 123 mph wind with no ice	126.79	0.955	-0.0282	0.8573	0.8577
0.9D + 1.0W 120° 123 mph wind with no ice	133.21	1.054	-0.0293	0.9079	0.9083
0.9D + 1.0W 120° 123 mph wind with no ice	139.63	1.160	-0.0308	1.0423	1.0423
0.9D + 1.0W 120° 123 mph wind with no ice	140.38	1.173	-0.0307	1.0537	1.0537
0.9D + 1.0W 120° 123 mph wind with no ice	146.92	1.287	-0.0299	1.0056	1.0060
0.9D + 1.0W 120° 123 mph wind with no ice	153.46	1.405	-0.0296	1.0612	1.0612
0.9D + 1.0W 120° 123 mph wind with no ice	166.54	1.656	-0.0282	1.1524	1.1524
0.9D + 1.0W 120° 123 mph wind with no ice	173.08	1.786	-0.0285	1.1326	1.1330
0.9D + 1.0W 120° 123 mph wind with no ice	179.63	1.920	0.0271	1.3487	1.3487
0.9D + 1.0W 120° 123 mph wind with no ice	185.49	2.041	-0.0283	1.1309	1.1312
0.9D + 1.0W 120° 123 mph wind with no ice	190.60	2.145	-0.0279	1.1930	1.1930
0.9D + 1.0W 180° 123 mph wind with no ice	6.79	0.006	0.0031	0.0739	0.0739
0.9D + 1.0W 180° 123 mph wind with no ice	13.21	0.016	0.0046	0.1033	0.1034
0.9D + 1.0W 180° 123 mph wind with no ice	60.00	0.213	0.0152	0.4056	0.4056
0.9D + 1.0W 180° 123 mph wind with no ice	80.00	0.370	0.0192	0.5318	0.5318
0.9D + 1.0W 180° 123 mph wind with no ice	86.79	0.434	0.0204	0.5580	0.5584
0.9D + 1.0W 180° 123 mph wind with no ice	106.79	0.657	0.0246	0.6974	0.6979
0.9D + 1.0W 180° 123 mph wind with no ice	126.79	0.926	0.0278	0.8320	0.8325
0.9D + 1.0W 180° 123 mph wind with no ice	133.21	1.022	0.0287	0.8812	0.8817
0.9D + 1.0W 180° 123 mph wind with no ice	139.63	1.124	0.0312	1.0102	1.0102
0.9D + 1.0W 180° 123 mph wind with no ice	140.38	1.138	0.0312	1.0213	1.0213
0.9D + 1.0W 180° 123 mph wind with no ice	146.92	1.248	0.0292	0.9767	0.9771
0.9D + 1.0W 180° 123 mph wind with no ice	153.46	1.363	0.0292	1.0314	1.0314
0.9D + 1.0W 180° 123 mph wind with no ice	166.54	1.606	0.0278	1.1189	1.1189
0.9D + 1.0W 180° 123 mph wind with no ice	173.08	1.733	0.0275	1.0993	1.0996
0.9D + 1.0W 180° 123 mph wind with no ice	179.63	1.862	0.0287	1.3086	1.3086
0.9D + 1.0W 180° 123 mph wind with no ice	185.49	1.980	0.0276	1.0982	1.0985
0.9D + 1.0W 180° 123 mph wind with no ice	190.60	2.080	0.0280	1.1573	1.1573
0.9D + 1.0W 210° 123 mph wind with no ice	6.79	0.006	-0.0036	0.0737	0.0737
0.9D + 1.0W 210° 123 mph wind with no ice	13.21	0.016	-0.0054	0.1069	0.1070
0.9D + 1.0W 210° 123 mph wind with no ice	60.00	0.215	-0.0175	0.4065	0.4066
0.9D + 1.0W 210° 123 mph wind with no ice	80.00	0.373	-0.0221	0.5320	0.5321
0.9D + 1.0W 210° 123 mph wind with no ice	86.79	0.437	-0.0235	0.5626	0.5631
0.9D + 1.0W 210° 123 mph wind with no ice	106.79	0.662	-0.0283	0.7040	0.7046
0.9D + 1.0W 210° 123 mph wind with no ice	126.79	0.933	-0.0320	0.8390	0.8397
0.9D + 1.0W 210° 123 mph wind with no ice	133.21	1.030	-0.0332	0.8924	0.8930
0.9D + 1.0W 210° 123 mph wind with no ice	139.63	1.133	-0.0354	1.0079	1.0081
0.9D + 1.0W 210° 123 mph wind with no ice	140.38	1.146	-0.0354	1.0173	1.0175
0.9D + 1.0W 210° 123 mph wind with no ice	146.92	1.257	-0.0338	0.9887	0.9893
0.9D + 1.0W 210° 123 mph wind with no ice	153.46	1.373	-0.0336	1.0381	1.0383
0.9D + 1.0W 210° 123 mph wind with no ice	166.54	1.618	-0.0320	1.1258	1.1259
0.9D + 1.0W 210° 123 mph wind with no ice	173.08	1.746	-0.0320	1.1167	1.1172
0.9D + 1.0W 210° 123 mph wind with no ice	179.63	1.876	-0.0319	1.2959	1.2960
0.9D + 1.0W 210° 123 mph wind with no ice	185.49	1.995	-0.0319	1.1143	1.1147
0.9D + 1.0W 210° 123 mph wind with no ice	190.60	2.096	-0.0319	1.1639	1.1640
0.9D + 1.0W 240° 123 mph wind with no ice	6.79	0.006	0.0033	0.0775	0.0775
0.9D + 1.0W 240° 123 mph wind with no ice	13.21	0.016	0.0048	0.1076	0.1077
0.9D + 1.0W 240° 123 mph wind with no ice	60.00	0.221	0.0153	0.4196	0.4196
0.9D + 1.0W 240° 123 mph wind with no ice	80.00	0.382	0.0193	0.5497	0.5497
0.9D + 1.0W 240° 123 mph wind with no ice	86.79	0.449	0.0207	0.5759	0.5763
0.9D + 1.0W 240° 123 mph wind with no ice	106.79	0.678	0.0249	0.7191	0.7196
0.9D + 1.0W 240° 123 mph wind with no ice	126.79	0.955	0.0282	0.8573	0.8577
0.9D + 1.0W 240° 123 mph wind with no ice	133.21	1.054	0.0293	0.9079	0.9083
0.9D + 1.0W 240° 123 mph wind with no ice	139.63	1.160	0.0308	1.0423	1.0423
0.9D + 1.0W 240° 123 mph wind with no ice	140.38	1.173	0.0307	1.0537	1.0537
0.9D + 1.0W 240° 123 mph wind with no ice	146.92	1.287	0.0299	1.0056	1.0060
0.9D + 1.0W 240° 123 mph wind with no ice	153.46	1.405	0.0296	1.0612	1.0612
0.9D + 1.0W 240° 123 mph wind with no ice	166.54	1.656	0.0282	1.1524	1.1524

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
0.9D + 1.0W 240° 123 mph wind with no ice	173.08	1.786	0.0285	1.1326	1.1330
0.9D + 1.0W 240° 123 mph wind with no ice	179.63	1.920	0.0271	1.3487	1.3487
0.9D + 1.0W 240° 123 mph wind with no ice	185.49	2.041	0.0283	1.1309	1.1312
0.9D + 1.0W 240° 123 mph wind with no ice	190.60	2.145	0.0279	1.1930	1.1930
0.9D + 1.0W 300° 123 mph wind with no ice	6.79	0.006	0.0031	0.0739	0.0739
0.9D + 1.0W 300° 123 mph wind with no ice	13.21	0.016	0.0045	0.1033	0.1034
0.9D + 1.0W 300° 123 mph wind with no ice	60.00	0.213	0.0148	0.4055	0.4055
0.9D + 1.0W 300° 123 mph wind with no ice	80.00	0.370	0.0188	0.5317	0.5317
0.9D + 1.0W 300° 123 mph wind with no ice	86.79	0.434	0.0199	0.5580	0.5583
0.9D + 1.0W 300° 123 mph wind with no ice	106.79	0.657	0.0239	0.6975	0.6979
0.9D + 1.0W 300° 123 mph wind with no ice	126.79	0.926	0.0270	0.8321	0.8325
0.9D + 1.0W 300° 123 mph wind with no ice	133.21	1.022	0.0279	0.8813	0.8817
0.9D + 1.0W 300° 123 mph wind with no ice	139.63	1.124	0.0303	1.0101	1.0101
0.9D + 1.0W 300° 123 mph wind with no ice	140.38	1.138	0.0303	1.0212	1.0212
0.9D + 1.0W 300° 123 mph wind with no ice	146.92	1.248	0.0283	0.9768	0.9772
0.9D + 1.0W 300° 123 mph wind with no ice	153.46	1.363	0.0283	1.0314	1.0314
0.9D + 1.0W 300° 123 mph wind with no ice	166.54	1.606	0.0269	1.1189	1.1189
0.9D + 1.0W 300° 123 mph wind with no ice	173.08	1.733	0.0265	1.0992	1.0996
0.9D + 1.0W 300° 123 mph wind with no ice	179.63	1.862	0.0277	1.3085	1.3085
0.9D + 1.0W 300° 123 mph wind with no ice	185.49	1.980	0.0267	1.0981	1.0985
0.9D + 1.0W 300° 123 mph wind with no ice	190.60	2.080	0.0271	1.1573	1.1573
0.9D + 1.0W 330° 123 mph wind with no ice	6.79	0.006	-0.0036	0.0737	0.0737
0.9D + 1.0W 330° 123 mph wind with no ice	13.21	0.016	-0.0054	0.1069	0.1070
0.9D + 1.0W 330° 123 mph wind with no ice	60.00	0.215	-0.0175	0.4066	0.4067
0.9D + 1.0W 330° 123 mph wind with no ice	80.00	0.373	-0.0221	0.5320	0.5321
0.9D + 1.0W 330° 123 mph wind with no ice	86.79	0.437	-0.0235	0.5626	0.5631
0.9D + 1.0W 330° 123 mph wind with no ice	106.79	0.662	-0.0283	0.7040	0.7046
0.9D + 1.0W 330° 123 mph wind with no ice	126.79	0.933	-0.0320	0.8390	0.8397
0.9D + 1.0W 330° 123 mph wind with no ice	133.21	1.030	-0.0332	0.8924	0.8930
0.9D + 1.0W 330° 123 mph wind with no ice	139.63	1.133	-0.0354	1.0080	1.0081
0.9D + 1.0W 330° 123 mph wind with no ice	140.38	1.146	-0.0354	1.0174	1.0176
0.9D + 1.0W 330° 123 mph wind with no ice	146.92	1.257	-0.0338	0.9887	0.9893
0.9D + 1.0W 330° 123 mph wind with no ice	153.46	1.373	-0.0336	1.0381	1.0383
0.9D + 1.0W 330° 123 mph wind with no ice	166.54	1.618	-0.0320	1.1258	1.1259
0.9D + 1.0W 330° 123 mph wind with no ice	173.08	1.746	-0.0319	1.1167	1.1172
0.9D + 1.0W 330° 123 mph wind with no ice	179.63	1.876	-0.0319	1.2959	1.2960
0.9D + 1.0W 330° 123 mph wind with no ice	185.49	1.995	-0.0319	1.1143	1.1147
0.9D + 1.0W 330° 123 mph wind with no ice	190.60	2.096	-0.0319	1.1639	1.1640
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	6.79	0.004	0.0011	0.0333	0.0333
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	13.21	0.006	0.0016	0.0373	0.0373
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	60.00	0.070	0.0051	0.1310	0.1310
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	80.00	0.120	0.0064	0.1710	0.1710
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	86.79	0.140	0.0068	0.1779	0.1781
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	106.79	0.211	0.0081	0.2194	0.2196
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	126.79	0.295	0.0091	0.2583	0.2585
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	133.21	0.325	0.0095	0.2731	0.2732
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	139.63	0.356	0.0100	0.3115	0.3115
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	140.38	0.360	0.0100	0.3147	0.3147
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	146.92	0.394	0.0097	0.2992	0.2994
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	153.46	0.429	0.0097	0.3156	0.3157
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	166.54	0.503	0.0093	0.3403	0.3403
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	173.08	0.542	0.0093	0.3354	0.3356
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	179.63	0.582	0.0091	0.3931	0.3931
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	185.49	0.618	0.0092	0.3343	0.3344
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	190.60	0.648	0.0091	0.3526	0.3526
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	6.79	0.004	0.0010	0.0384	0.0384
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	13.21	0.007	0.0015	0.0366	0.0366
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	60.00	0.070	0.0049	0.1294	0.1294
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	80.00	0.119	0.0061	0.1679	0.1679
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	86.79	0.139	0.0065	0.1752	0.1754
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	106.79	0.208	0.0077	0.2160	0.2162
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	126.79	0.291	-0.0087	0.2543	0.2545
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	133.21	0.320	-0.0090	0.2686	0.2687
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	139.63	0.351	0.0096	0.3062	0.3062
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	140.38	0.356	0.0096	0.3094	0.3094
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	146.92	0.389	-0.0092	0.2950	0.2951
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	153.46	0.423	0.0092	0.3119	0.3119
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	166.54	0.496	0.0088	0.3364	0.3364

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	173.08	0.535	0.0087	0.3298	0.3299
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	179.63	0.573	0.0087	0.3974	0.3974
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	185.49	0.609	0.0085	0.3299	0.3300
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	190.60	0.639	0.0085	0.3476	0.3476
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	6.79	0.004	-0.0012	0.0371	0.0371
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	13.21	0.007	-0.0018	0.0370	0.0370
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	60.00	0.070	-0.0057	0.1290	0.1291
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	80.00	0.119	-0.0071	0.1675	0.1676
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	86.79	0.139	-0.0076	0.1761	0.1762
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	106.79	0.209	-0.0090	0.2174	0.2176
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	126.79	0.292	-0.0101	0.2556	0.2558
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	133.21	0.322	-0.0105	0.2713	0.2715
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	139.63	0.353	-0.0112	0.3048	0.3049
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	140.38	0.357	-0.0112	0.3074	0.3075
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	146.92	0.390	-0.0107	0.2975	0.2977
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	153.46	0.425	-0.0108	0.3129	0.3130
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	166.54	0.498	-0.0103	0.3372	0.3373
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	173.08	0.537	-0.0103	0.3343	0.3344
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	179.63	0.575	-0.0102	0.3920	0.3921
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	185.49	0.611	-0.0101	0.3333	0.3335
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	190.60	0.642	-0.0101	0.3485	0.3485
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	6.79	0.004	0.0011	0.0333	0.0333
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	13.21	0.006	0.0016	0.0374	0.0374
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	60.00	0.070	0.0050	0.1310	0.1310
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	80.00	0.120	0.0062	0.1709	0.1709
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	86.79	0.140	0.0066	0.1779	0.1781
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	106.79	0.211	0.0079	0.2195	0.2196
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	126.79	0.295	0.0088	0.2583	0.2585
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	133.21	0.325	0.0092	0.2731	0.2732
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	139.63	0.356	-0.0098	0.3115	0.3115
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	140.38	0.360	0.0097	0.3147	0.3147
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	146.92	0.394	0.0094	0.2992	0.2994
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	153.46	0.429	0.0094	0.3156	0.3157
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	166.54	0.503	-0.0091	0.3403	0.3403
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	173.08	0.542	0.0090	0.3354	0.3356
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	179.63	0.582	-0.0089	0.3931	0.3931
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	185.49	0.618	0.0089	0.3343	0.3344
1.2D + 1.0Di + 1.0Wi 120° 50 mph wind with 1" radial ice	190.60	0.648	0.0088	0.3526	0.3526
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	6.79	0.004	0.0010	0.0384	0.0384
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	13.21	0.007	0.0016	0.0366	0.0366
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	60.00	0.070	0.0050	0.1295	0.1295
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	80.00	0.119	0.0063	0.1680	0.1680
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	86.79	0.139	0.0067	0.1753	0.1755
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	106.79	0.208	0.0080	0.2161	0.2163
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	126.79	0.291	0.0090	0.2544	0.2546
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	133.21	0.321	0.0093	0.2687	0.2689
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	139.63	0.352	0.0100	0.3064	0.3064
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	140.38	0.356	0.0100	0.3096	0.3096
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	146.92	0.389	0.0095	0.2952	0.2953
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	153.46	0.424	0.0096	0.3121	0.3121
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	166.54	0.496	0.0092	0.3366	0.3366
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	173.08	0.535	0.0091	0.3301	0.3302
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	179.63	0.573	0.0091	0.3977	0.3977
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	185.49	0.609	0.0090	0.3301	0.3302
1.2D + 1.0Di + 1.0Wi 180° 50 mph wind with 1" radial ice	190.60	0.639	0.0090	0.3479	0.3479
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	6.79	0.004	-0.0012	0.0371	0.0371
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	13.21	0.007	-0.0018	0.0370	0.0370
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	60.00	0.070	-0.0057	0.1291	0.1291
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	80.00	0.119	-0.0072	0.1675	0.1676
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	86.79	0.139	-0.0076	0.1761	0.1762
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	106.79	0.209	-0.0091	0.2174	0.2176
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	126.79	0.292	-0.0102	0.2556	0.2558
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	133.21	0.322	-0.0106	0.2713	0.2715
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	139.63	0.353	-0.0113	0.3048	0.3049
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	140.38	0.357	-0.0113	0.3075	0.3075
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	146.92	0.390	-0.0109	0.2974	0.2976
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	153.46	0.425	-0.0109	0.3129	0.3130
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	166.54	0.498	-0.0105	0.3372	0.3373

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	173.08	0.537	-0.0104	0.3343	0.3345
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	179.63	0.575	-0.0103	0.3920	0.3921
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	185.49	0.611	-0.0103	0.3333	0.3335
1.2D + 1.0Di + 1.0Wi 210° 50 mph wind with 1" radial ice	190.60	0.642	-0.0102	0.3485	0.3485
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	6.79	0.004	0.0011	0.0333	0.0333
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	13.21	0.006	0.0016	0.0374	0.0374
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	60.00	0.070	0.0050	0.1310	0.1310
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	80.00	0.120	0.0062	0.1709	0.1709
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	86.79	0.140	0.0066	0.1779	0.1781
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	106.79	0.211	0.0079	0.2195	0.2196
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	126.79	0.295	0.0088	0.2583	0.2585
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	133.21	0.325	0.0092	0.2731	0.2732
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	139.63	0.356	0.0098	0.3115	0.3115
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	140.38	0.360	0.0097	0.3147	0.3147
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	146.92	0.394	0.0094	0.2992	0.2994
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	153.46	0.429	0.0094	0.3156	0.3157
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	166.54	0.503	0.0091	0.3403	0.3403
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	173.08	0.542	0.0090	0.3354	0.3356
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	179.63	0.582	0.0089	0.3931	0.3931
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	185.49	0.618	0.0089	0.3343	0.3344
1.2D + 1.0Di + 1.0Wi 240° 50 mph wind with 1" radial ice	190.60	0.648	0.0088	0.3526	0.3526
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	6.79	0.004	0.0010	0.0384	0.0384
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	13.21	0.007	0.0015	0.0366	0.0366
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	60.00	0.070	0.0049	0.1294	0.1294
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	80.00	0.119	0.0061	0.1679	0.1679
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	86.79	0.139	0.0065	0.1752	0.1754
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	106.79	0.208	0.0077	0.2160	0.2162
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	126.79	0.291	0.0087	0.2543	0.2545
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	133.21	0.320	0.0090	0.2686	0.2687
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	139.63	0.351	0.0096	0.3062	0.3062
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	140.38	0.356	0.0096	0.3094	0.3094
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	146.92	0.389	0.0092	0.2950	0.2951
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	153.46	0.423	0.0092	0.3119	0.3119
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	166.54	0.496	0.0088	0.3364	0.3364
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	173.08	0.535	0.0087	0.3298	0.3299
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	179.63	0.573	0.0087	0.3974	0.3974
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	185.49	0.609	0.0085	0.3299	0.3300
1.2D + 1.0Di + 1.0Wi 300° 50 mph wind with 1" radial ice	190.60	0.639	0.0085	0.3476	0.3476
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	6.79	0.004	-0.0012	0.0371	0.0371
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	13.21	0.007	-0.0018	0.0370	0.0370
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	60.00	0.070	-0.0057	0.1290	0.1291
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	80.00	0.119	-0.0072	0.1675	0.1676
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	86.79	0.139	-0.0076	0.1761	0.1762
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	106.79	0.209	-0.0091	0.2174	0.2176
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	126.79	0.292	-0.0102	0.2556	0.2558
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	133.21	0.322	-0.0106	0.2713	0.2715
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	139.63	0.353	-0.0113	0.3049	0.3049
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	140.38	0.357	-0.0113	0.3075	0.3075
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	146.92	0.390	-0.0109	0.2975	0.2977
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	153.46	0.425	-0.0109	0.3129	0.3130
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	166.54	0.498	-0.0105	0.3372	0.3373
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	173.08	0.537	-0.0104	0.3343	0.3345
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	179.63	0.575	-0.0103	0.3920	0.3921
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	185.49	0.611	-0.0103	0.3333	0.3335
1.2D + 1.0Di + 1.0Wi 330° 50 mph wind with 1" radial ice	190.60	0.642	-0.0102	0.3485	0.3485
1.2D + 1.0Ev + 1.0Eh Normal Seismic	6.79	0.005	0.0001	0.0320	0.0320
1.2D + 1.0Ev + 1.0Eh Normal Seismic	13.21	0.005	0.0001	0.0157	0.0157
1.2D + 1.0Ev + 1.0Eh Normal Seismic	60.00	0.008	0.0004	0.0113	0.0113
1.2D + 1.0Ev + 1.0Eh Normal Seismic	80.00	0.012	0.0005	0.0156	0.0156
1.2D + 1.0Ev + 1.0Eh Normal Seismic	86.79	0.014	0.0006	0.0167	0.0167
1.2D + 1.0Ev + 1.0Eh Normal Seismic	106.79	0.020	0.0007	0.0215	0.0215
1.2D + 1.0Ev + 1.0Eh Normal Seismic	126.79	0.028	0.0009	0.0264	0.0264
1.2D + 1.0Ev + 1.0Eh Normal Seismic	133.21	0.031	0.0009	0.0283	0.0283
1.2D + 1.0Ev + 1.0Eh Normal Seismic	139.63	0.034	0.0010	0.0330	0.0330
1.2D + 1.0Ev + 1.0Eh Normal Seismic	140.38	0.035	0.0010	0.0333	0.0333
1.2D + 1.0Ev + 1.0Eh Normal Seismic	146.92	0.038	0.0010	0.0318	0.0318
1.2D + 1.0Ev + 1.0Eh Normal Seismic	153.46	0.042	0.0010	0.0344	0.0344
1.2D + 1.0Ev + 1.0Eh Normal Seismic	166.54	0.050	0.0009	0.0383	0.0383

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.2D + 1.0Ev + 1.0Eh Normal Seismic	173.08	0.054	0.0009	0.0376	0.0376
1.2D + 1.0Ev + 1.0Eh Normal Seismic	179.63	0.059	0.0008	0.0457	0.0457
1.2D + 1.0Ev + 1.0Eh Normal Seismic	185.49	0.063	0.0008	0.0364	0.0365
1.2D + 1.0Ev + 1.0Eh Normal Seismic	190.60	0.066	0.0007	0.0393	0.0393
1.2D + 1.0Ev + 1.0Eh 60° Seismic	6.79	0.005	0.0001	0.0327	0.0327
1.2D + 1.0Ev + 1.0Eh 60° Seismic	13.21	0.005	0.0001	0.0147	0.0147
1.2D + 1.0Ev + 1.0Eh 60° Seismic	60.00	0.009	0.0004	0.0115	0.0115
1.2D + 1.0Ev + 1.0Eh 60° Seismic	80.00	0.013	0.0005	0.0154	0.0154
1.2D + 1.0Ev + 1.0Eh 60° Seismic	86.79	0.015	0.0006	0.0167	0.0167
1.2D + 1.0Ev + 1.0Eh 60° Seismic	106.79	0.021	0.0007	0.0214	0.0215
1.2D + 1.0Ev + 1.0Eh 60° Seismic	126.79	0.029	0.0008	0.0264	0.0264
1.2D + 1.0Ev + 1.0Eh 60° Seismic	133.21	0.032	0.0009	0.0281	0.0281
1.2D + 1.0Ev + 1.0Eh 60° Seismic	139.63	0.035	0.0010	0.0327	0.0327
1.2D + 1.0Ev + 1.0Eh 60° Seismic	140.38	0.036	0.0010	0.0331	0.0331
1.2D + 1.0Ev + 1.0Eh 60° Seismic	146.92	0.039	0.0009	0.0320	0.0320
1.2D + 1.0Ev + 1.0Eh 60° Seismic	153.46	0.043	-0.0010	0.0347	0.0347
1.2D + 1.0Ev + 1.0Eh 60° Seismic	166.54	0.051	0.0009	0.0379	0.0379
1.2D + 1.0Ev + 1.0Eh 60° Seismic	173.08	0.055	0.0008	0.0373	0.0373
1.2D + 1.0Ev + 1.0Eh 60° Seismic	179.63	0.060	0.0008	0.0500	0.0500
1.2D + 1.0Ev + 1.0Eh 60° Seismic	185.49	0.064	0.0008	0.0369	0.0369
1.2D + 1.0Ev + 1.0Eh 60° Seismic	190.60	0.067	0.0007	0.0393	0.0393
1.2D + 1.0Ev + 1.0Eh 90° Seismic	6.79	0.005	-0.0001	0.0325	0.0325
1.2D + 1.0Ev + 1.0Eh 90° Seismic	13.21	0.005	0.0001	0.0155	0.0155
1.2D + 1.0Ev + 1.0Eh 90° Seismic	60.00	0.008	-0.0004	0.0115	0.0115
1.2D + 1.0Ev + 1.0Eh 90° Seismic	80.00	0.013	-0.0006	0.0154	0.0154
1.2D + 1.0Ev + 1.0Eh 90° Seismic	86.79	0.014	-0.0007	0.0167	0.0167
1.2D + 1.0Ev + 1.0Eh 90° Seismic	106.79	0.021	-0.0008	0.0215	0.0215
1.2D + 1.0Ev + 1.0Eh 90° Seismic	126.79	0.029	-0.0010	0.0264	0.0264
1.2D + 1.0Ev + 1.0Eh 90° Seismic	133.21	0.032	-0.0010	0.0283	0.0284
1.2D + 1.0Ev + 1.0Eh 90° Seismic	139.63	0.035	-0.0011	0.0325	0.0325
1.2D + 1.0Ev + 1.0Eh 90° Seismic	140.38	0.035	-0.0011	0.0328	0.0328
1.2D + 1.0Ev + 1.0Eh 90° Seismic	146.92	0.039	-0.0011	0.0320	0.0320
1.2D + 1.0Ev + 1.0Eh 90° Seismic	153.46	0.043	-0.0011	0.0346	0.0346
1.2D + 1.0Ev + 1.0Eh 90° Seismic	166.54	0.050	-0.0010	0.0382	0.0382
1.2D + 1.0Ev + 1.0Eh 90° Seismic	173.08	0.055	-0.0010	0.0379	0.0379
1.2D + 1.0Ev + 1.0Eh 90° Seismic	179.63	0.059	-0.0009	0.0487	0.0487
1.2D + 1.0Ev + 1.0Eh 90° Seismic	185.49	0.064	-0.0009	0.0369	0.0369
1.2D + 1.0Ev + 1.0Eh 90° Seismic	190.60	0.067	-0.0008	0.0393	0.0393
1.2D + 1.0Ev + 1.0Eh 120° Seismic	6.79	0.005	0.0001	0.0320	0.0320
1.2D + 1.0Ev + 1.0Eh 120° Seismic	13.21	0.005	0.0001	0.0157	0.0157
1.2D + 1.0Ev + 1.0Eh 120° Seismic	60.00	0.008	0.0004	0.0113	0.0113
1.2D + 1.0Ev + 1.0Eh 120° Seismic	80.00	0.012	0.0005	0.0156	0.0156
1.2D + 1.0Ev + 1.0Eh 120° Seismic	86.79	0.014	0.0006	0.0167	0.0167
1.2D + 1.0Ev + 1.0Eh 120° Seismic	106.79	0.020	0.0007	0.0215	0.0215
1.2D + 1.0Ev + 1.0Eh 120° Seismic	126.79	0.028	0.0008	0.0264	0.0264
1.2D + 1.0Ev + 1.0Eh 120° Seismic	133.21	0.031	0.0009	0.0283	0.0283
1.2D + 1.0Ev + 1.0Eh 120° Seismic	139.63	0.034	0.0010	0.0329	0.0329
1.2D + 1.0Ev + 1.0Eh 120° Seismic	140.38	0.035	0.0010	0.0333	0.0333
1.2D + 1.0Ev + 1.0Eh 120° Seismic	146.92	0.038	0.0009	0.0318	0.0318
1.2D + 1.0Ev + 1.0Eh 120° Seismic	153.46	0.042	0.0010	0.0344	0.0344
1.2D + 1.0Ev + 1.0Eh 120° Seismic	166.54	0.050	0.0009	0.0383	0.0383
1.2D + 1.0Ev + 1.0Eh 120° Seismic	173.08	0.054	0.0009	0.0376	0.0376
1.2D + 1.0Ev + 1.0Eh 120° Seismic	179.63	0.059	0.0008	0.0457	0.0457
1.2D + 1.0Ev + 1.0Eh 120° Seismic	185.49	0.063	0.0008	0.0364	0.0365
1.2D + 1.0Ev + 1.0Eh 120° Seismic	190.60	0.066	0.0007	0.0393	0.0393
1.2D + 1.0Ev + 1.0Eh 180° Seismic	6.79	0.005	0.0001	0.0327	0.0327
1.2D + 1.0Ev + 1.0Eh 180° Seismic	13.21	0.005	0.0001	0.0147	0.0147
1.2D + 1.0Ev + 1.0Eh 180° Seismic	60.00	0.009	0.0004	0.0115	0.0115
1.2D + 1.0Ev + 1.0Eh 180° Seismic	80.00	0.013	0.0005	0.0154	0.0154
1.2D + 1.0Ev + 1.0Eh 180° Seismic	86.79	0.015	0.0006	0.0167	0.0167
1.2D + 1.0Ev + 1.0Eh 180° Seismic	106.79	0.021	0.0007	0.0214	0.0215
1.2D + 1.0Ev + 1.0Eh 180° Seismic	126.79	0.029	0.0009	0.0264	0.0264
1.2D + 1.0Ev + 1.0Eh 180° Seismic	133.21	0.032	0.0009	0.0281	0.0281
1.2D + 1.0Ev + 1.0Eh 180° Seismic	139.63	0.035	0.0010	0.0327	0.0327
1.2D + 1.0Ev + 1.0Eh 180° Seismic	140.38	0.036	0.0010	0.0331	0.0331
1.2D + 1.0Ev + 1.0Eh 180° Seismic	146.92	0.039	0.0010	0.0320	0.0320
1.2D + 1.0Ev + 1.0Eh 180° Seismic	153.46	0.043	0.0010	0.0347	0.0347
1.2D + 1.0Ev + 1.0Eh 180° Seismic	166.54	0.051	0.0009	0.0379	0.0379

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.2D + 1.0Ev + 1.0Eh 180° Seismic	173.08	0.055	0.0009	0.0373	0.0373
1.2D + 1.0Ev + 1.0Eh 180° Seismic	179.63	0.060	0.0008	0.0500	0.0500
1.2D + 1.0Ev + 1.0Eh 180° Seismic	185.49	0.064	0.0008	0.0369	0.0369
1.2D + 1.0Ev + 1.0Eh 180° Seismic	190.60	0.067	0.0007	0.0393	0.0393
1.2D + 1.0Ev + 1.0Eh 210° Seismic	6.79	0.005	-0.0001	0.0325	0.0325
1.2D + 1.0Ev + 1.0Eh 210° Seismic	13.21	0.005	0.0001	0.0155	0.0155
1.2D + 1.0Ev + 1.0Eh 210° Seismic	60.00	0.008	-0.0005	0.0115	0.0115
1.2D + 1.0Ev + 1.0Eh 210° Seismic	80.00	0.013	-0.0006	0.0154	0.0154
1.2D + 1.0Ev + 1.0Eh 210° Seismic	86.79	0.014	-0.0007	0.0167	0.0167
1.2D + 1.0Ev + 1.0Eh 210° Seismic	106.79	0.021	-0.0008	0.0215	0.0215
1.2D + 1.0Ev + 1.0Eh 210° Seismic	126.79	0.029	-0.0010	0.0264	0.0264
1.2D + 1.0Ev + 1.0Eh 210° Seismic	133.21	0.032	-0.0010	0.0283	0.0284
1.2D + 1.0Ev + 1.0Eh 210° Seismic	139.63	0.035	-0.0011	0.0325	0.0326
1.2D + 1.0Ev + 1.0Eh 210° Seismic	140.38	0.035	-0.0011	0.0328	0.0328
1.2D + 1.0Ev + 1.0Eh 210° Seismic	146.92	0.039	-0.0011	0.0320	0.0320
1.2D + 1.0Ev + 1.0Eh 210° Seismic	153.46	0.043	-0.0011	0.0346	0.0346
1.2D + 1.0Ev + 1.0Eh 210° Seismic	166.54	0.050	-0.0010	0.0382	0.0382
1.2D + 1.0Ev + 1.0Eh 210° Seismic	173.08	0.055	-0.0010	0.0379	0.0379
1.2D + 1.0Ev + 1.0Eh 210° Seismic	179.63	0.059	-0.0010	0.0487	0.0487
1.2D + 1.0Ev + 1.0Eh 210° Seismic	185.49	0.064	-0.0009	0.0369	0.0369
1.2D + 1.0Ev + 1.0Eh 210° Seismic	190.60	0.067	-0.0009	0.0393	0.0393
1.2D + 1.0Ev + 1.0Eh 240° Seismic	6.79	0.005	0.0001	0.0320	0.0320
1.2D + 1.0Ev + 1.0Eh 240° Seismic	13.21	0.005	0.0001	0.0157	0.0157
1.2D + 1.0Ev + 1.0Eh 240° Seismic	60.00	0.008	0.0004	0.0113	0.0113
1.2D + 1.0Ev + 1.0Eh 240° Seismic	80.00	0.012	0.0005	0.0156	0.0156
1.2D + 1.0Ev + 1.0Eh 240° Seismic	86.79	0.014	0.0006	0.0167	0.0167
1.2D + 1.0Ev + 1.0Eh 240° Seismic	106.79	0.020	0.0007	0.0215	0.0215
1.2D + 1.0Ev + 1.0Eh 240° Seismic	126.79	0.028	0.0008	0.0264	0.0264
1.2D + 1.0Ev + 1.0Eh 240° Seismic	133.21	0.031	0.0009	0.0283	0.0283
1.2D + 1.0Ev + 1.0Eh 240° Seismic	139.63	0.034	0.0010	0.0329	0.0329
1.2D + 1.0Ev + 1.0Eh 240° Seismic	140.38	0.035	0.0010	0.0333	0.0333
1.2D + 1.0Ev + 1.0Eh 240° Seismic	146.92	0.038	0.0009	0.0318	0.0318
1.2D + 1.0Ev + 1.0Eh 240° Seismic	153.46	0.042	0.0010	0.0344	0.0344
1.2D + 1.0Ev + 1.0Eh 240° Seismic	166.54	0.050	0.0009	0.0383	0.0383
1.2D + 1.0Ev + 1.0Eh 240° Seismic	173.08	0.054	0.0009	0.0376	0.0376
1.2D + 1.0Ev + 1.0Eh 240° Seismic	179.63	0.059	0.0008	0.0457	0.0457
1.2D + 1.0Ev + 1.0Eh 240° Seismic	185.49	0.063	0.0008	0.0364	0.0365
1.2D + 1.0Ev + 1.0Eh 240° Seismic	190.60	0.066	0.0007	0.0393	0.0393
1.2D + 1.0Ev + 1.0Eh 300° Seismic	6.79	0.005	0.0001	0.0327	0.0327
1.2D + 1.0Ev + 1.0Eh 300° Seismic	13.21	0.005	0.0001	0.0147	0.0147
1.2D + 1.0Ev + 1.0Eh 300° Seismic	60.00	0.009	0.0004	0.0115	0.0115
1.2D + 1.0Ev + 1.0Eh 300° Seismic	80.00	0.013	0.0005	0.0154	0.0154
1.2D + 1.0Ev + 1.0Eh 300° Seismic	86.79	0.015	0.0006	0.0167	0.0167
1.2D + 1.0Ev + 1.0Eh 300° Seismic	106.79	0.021	0.0007	0.0214	0.0215
1.2D + 1.0Ev + 1.0Eh 300° Seismic	126.79	0.029	0.0008	0.0264	0.0264
1.2D + 1.0Ev + 1.0Eh 300° Seismic	133.21	0.032	0.0009	0.0281	0.0281
1.2D + 1.0Ev + 1.0Eh 300° Seismic	139.63	0.035	0.0010	0.0327	0.0327
1.2D + 1.0Ev + 1.0Eh 300° Seismic	140.38	0.036	0.0010	0.0331	0.0331
1.2D + 1.0Ev + 1.0Eh 300° Seismic	146.92	0.039	0.0009	0.0320	0.0320
1.2D + 1.0Ev + 1.0Eh 300° Seismic	153.46	0.043	0.0010	0.0347	0.0347
1.2D + 1.0Ev + 1.0Eh 300° Seismic	166.54	0.051	0.0009	0.0379	0.0379
1.2D + 1.0Ev + 1.0Eh 300° Seismic	173.08	0.055	0.0008	0.0373	0.0373
1.2D + 1.0Ev + 1.0Eh 300° Seismic	179.63	0.060	0.0008	0.0500	0.0500
1.2D + 1.0Ev + 1.0Eh 300° Seismic	185.49	0.064	0.0008	0.0369	0.0369
1.2D + 1.0Ev + 1.0Eh 300° Seismic	190.60	0.067	0.0007	0.0393	0.0393
1.2D + 1.0Ev + 1.0Eh 330° Seismic	6.79	0.005	-0.0001	0.0325	0.0325
1.2D + 1.0Ev + 1.0Eh 330° Seismic	13.21	0.005	0.0001	0.0155	0.0155
1.2D + 1.0Ev + 1.0Eh 330° Seismic	60.00	0.008	-0.0004	0.0115	0.0115
1.2D + 1.0Ev + 1.0Eh 330° Seismic	80.00	0.013	-0.0006	0.0154	0.0154
1.2D + 1.0Ev + 1.0Eh 330° Seismic	86.79	0.014	-0.0007	0.0167	0.0167
1.2D + 1.0Ev + 1.0Eh 330° Seismic	106.79	0.021	-0.0008	0.0215	0.0215
1.2D + 1.0Ev + 1.0Eh 330° Seismic	126.79	0.029	-0.0010	0.0264	0.0264
1.2D + 1.0Ev + 1.0Eh 330° Seismic	133.21	0.032	-0.0010	0.0283	0.0284
1.2D + 1.0Ev + 1.0Eh 330° Seismic	139.63	0.035	-0.0011	0.0326	0.0326
1.2D + 1.0Ev + 1.0Eh 330° Seismic	140.38	0.035	-0.0011	0.0328	0.0328
1.2D + 1.0Ev + 1.0Eh 330° Seismic	146.92	0.039	-0.0011	0.0320	0.0320
1.2D + 1.0Ev + 1.0Eh 330° Seismic	153.46	0.043	-0.0011	0.0346	0.0346
1.2D + 1.0Ev + 1.0Eh 330° Seismic	166.54	0.050	-0.0010	0.0382	0.0382

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.2D + 1.0Ev + 1.0Eh 330° Seismic	173.08	0.055	-0.0010	0.0379	0.0379
1.2D + 1.0Ev + 1.0Eh 330° Seismic	179.63	0.059	-0.0009	0.0487	0.0487
1.2D + 1.0Ev + 1.0Eh 330° Seismic	185.49	0.064	-0.0009	0.0369	0.0369
1.2D + 1.0Ev + 1.0Eh 330° Seismic	190.60	0.067	-0.0008	0.0393	0.0393
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	6.79	0.005	0.0001	0.0320	0.0320
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	13.21	0.005	0.0001	0.0158	0.0158
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	60.00	0.008	0.0004	0.0113	0.0113
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	80.00	0.012	0.0005	0.0155	0.0155
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	86.79	0.014	0.0006	0.0166	0.0166
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	106.79	0.020	0.0007	0.0214	0.0214
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	126.79	0.028	0.0009	0.0263	0.0263
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	133.21	0.031	0.0009	0.0282	0.0282
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	139.63	0.034	0.0010	0.0328	0.0328
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	140.38	0.035	0.0010	0.0332	0.0332
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	146.92	0.038	0.0009	0.0317	0.0317
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	153.46	0.042	0.0010	0.0342	0.0342
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	166.54	0.050	0.0009	0.0381	0.0381
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	173.08	0.054	0.0009	0.0374	0.0374
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	179.63	0.059	0.0008	0.0449	0.0450
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	185.49	0.063	0.0008	0.0364	0.0364
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	190.60	0.066	0.0007	0.0392	0.0392
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	6.79	0.005	0.0001	0.0328	0.0328
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	13.21	0.005	0.0001	0.0148	0.0148
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	60.00	0.009	0.0004	0.0115	0.0115
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	80.00	0.013	0.0005	0.0154	0.0154
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	86.79	0.015	0.0006	0.0166	0.0166
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	106.79	0.021	0.0007	0.0214	0.0214
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	126.79	0.029	0.0008	0.0263	0.0263
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	133.21	0.032	0.0009	0.0280	0.0280
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	139.63	0.035	-0.0010	0.0326	0.0326
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	140.38	0.036	0.0010	0.0330	0.0330
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	146.92	0.039	0.0009	0.0318	0.0319
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	153.46	0.043	0.0009	0.0344	0.0344
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	166.54	0.051	0.0009	0.0378	0.0378
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	173.08	0.055	0.0008	0.0372	0.0372
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	179.63	0.059	0.0008	0.0487	0.0487
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	185.49	0.064	-0.0008	0.0367	0.0367
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	190.60	0.067	0.0007	0.0392	0.0392
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	6.79	0.005	-0.0001	0.0326	0.0326
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	13.21	0.005	0.0001	0.0156	0.0156
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	60.00	0.008	-0.0004	0.0114	0.0114
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	80.00	0.013	-0.0006	0.0154	0.0154
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	86.79	0.014	-0.0006	0.0166	0.0167
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	106.79	0.021	-0.0008	0.0215	0.0215
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	126.79	0.029	-0.0010	0.0263	0.0263
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	133.21	0.032	-0.0010	0.0283	0.0283
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	139.63	0.035	-0.0011	0.0324	0.0324
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	140.38	0.035	-0.0011	0.0327	0.0327
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	146.92	0.039	-0.0011	0.0319	0.0319
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	153.46	0.042	-0.0011	0.0343	0.0343
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	166.54	0.050	-0.0010	0.0380	0.0380
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	173.08	0.055	-0.0010	0.0378	0.0378
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	179.63	0.059	-0.0009	0.0476	0.0476
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	185.49	0.063	-0.0009	0.0368	0.0368
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	190.60	0.067	-0.0008	0.0392	0.0392
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	6.79	0.005	0.0001	0.0320	0.0320
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	13.21	0.005	0.0001	0.0158	0.0158
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	60.00	0.008	0.0004	0.0113	0.0113
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	80.00	0.012	0.0005	0.0155	0.0155
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	86.79	0.014	0.0006	0.0166	0.0166
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	106.79	0.020	0.0007	0.0214	0.0214
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	126.79	0.028	0.0008	0.0263	0.0263
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	133.21	0.031	0.0009	0.0282	0.0282
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	139.63	0.034	0.0010	0.0328	0.0328
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	140.38	0.035	0.0010	0.0331	0.0331
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	146.92	0.038	0.0009	0.0317	0.0317
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	153.46	0.042	0.0009	0.0342	0.0342
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	166.54	0.050	0.0009	0.0381	0.0381

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	173.08	0.054	0.0009	0.0374	0.0374
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	179.63	0.059	0.0008	0.0449	0.0449
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	185.49	0.063	0.0008	0.0364	0.0364
0.9D - 1.0Ev + 1.0Eh 120° Seismic (Reduced DL)	190.60	0.066	0.0007	0.0392	0.0392
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	6.79	0.005	0.0001	0.0328	0.0328
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	13.21	0.005	0.0001	0.0148	0.0148
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	60.00	0.009	0.0004	0.0115	0.0115
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	80.00	0.013	0.0005	0.0154	0.0154
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	86.79	0.015	0.0006	0.0166	0.0166
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	106.79	0.021	0.0007	0.0214	0.0214
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	126.79	0.029	0.0009	0.0263	0.0263
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	133.21	0.032	0.0009	0.0280	0.0280
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	139.63	0.035	0.0010	0.0326	0.0326
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	140.38	0.036	0.0010	0.0330	0.0330
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	146.92	0.039	0.0010	0.0318	0.0318
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	153.46	0.043	0.0010	0.0344	0.0344
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	166.54	0.051	0.0009	0.0378	0.0378
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	173.08	0.055	0.0009	0.0372	0.0373
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	179.63	0.059	0.0008	0.0487	0.0487
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	185.49	0.064	0.0008	0.0367	0.0367
0.9D - 1.0Ev + 1.0Eh 180° Seismic (Reduced DL)	190.60	0.067	0.0007	0.0392	0.0392
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	6.79	0.005	-0.0001	0.0326	0.0326
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	13.21	0.005	0.0001	0.0156	0.0156
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	60.00	0.008	-0.0005	0.0114	0.0114
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	80.00	0.013	-0.0006	0.0154	0.0154
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	86.79	0.014	-0.0007	0.0166	0.0167
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	106.79	0.021	-0.0008	0.0215	0.0215
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	126.79	0.029	-0.0010	0.0263	0.0263
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	133.21	0.032	-0.0010	0.0283	0.0283
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	139.63	0.035	-0.0011	0.0324	0.0324
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	140.38	0.035	-0.0011	0.0327	0.0327
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	146.92	0.039	-0.0011	0.0319	0.0319
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	153.46	0.042	-0.0011	0.0343	0.0343
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	166.54	0.050	-0.0010	0.0380	0.0380
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	173.08	0.055	-0.0010	0.0378	0.0378
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	179.63	0.059	-0.0010	0.0476	0.0476
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	185.49	0.063	-0.0009	0.0368	0.0368
0.9D - 1.0Ev + 1.0Eh 210° Seismic (Reduced DL)	190.60	0.067	-0.0008	0.0392	0.0392
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	6.79	0.005	0.0001	0.0320	0.0320
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	13.21	0.005	0.0001	0.0158	0.0158
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	60.00	0.008	0.0004	0.0113	0.0113
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	80.00	0.012	0.0005	0.0155	0.0155
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	86.79	0.014	0.0006	0.0166	0.0166
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	106.79	0.020	0.0007	0.0214	0.0214
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	126.79	0.028	0.0008	0.0263	0.0263
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	133.21	0.031	0.0009	0.0282	0.0282
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	139.63	0.034	0.0010	0.0328	0.0328
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	140.38	0.035	0.0010	0.0331	0.0331
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	146.92	0.038	0.0009	0.0317	0.0317
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	153.46	0.042	0.0009	0.0342	0.0342
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	166.54	0.050	0.0009	0.0381	0.0381
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	173.08	0.054	-0.0009	0.0374	0.0374
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	179.63	0.059	0.0008	0.0449	0.0449
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	185.49	0.063	0.0008	0.0364	0.0364
0.9D - 1.0Ev + 1.0Eh 240° Seismic (Reduced DL)	190.60	0.066	0.0007	0.0392	0.0392
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	6.79	0.005	0.0001	0.0328	0.0328
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	13.21	0.005	0.0001	0.0148	0.0148
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	60.00	0.009	0.0004	0.0115	0.0115
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	80.00	0.013	0.0005	0.0154	0.0154
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	86.79	0.015	0.0006	0.0166	0.0166
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	106.79	0.021	0.0007	0.0214	0.0214
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	126.79	0.029	0.0008	0.0263	0.0263
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	133.21	0.032	0.0009	0.0280	0.0280
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	139.63	0.035	0.0010	0.0326	0.0326
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	140.38	0.036	0.0010	0.0330	0.0330
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	146.92	0.039	0.0009	0.0318	0.0319
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	153.46	0.043	0.0009	0.0344	0.0344
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	166.54	0.051	0.0009	0.0378	0.0378

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	173.08	0.055	0.0008	0.0372	0.0372
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	179.63	0.059	0.0008	0.0487	0.0487
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	185.49	0.064	0.0008	0.0367	0.0367
0.9D - 1.0Ev + 1.0Eh 300° Seismic (Reduced DL)	190.60	0.067	0.0007	0.0392	0.0392
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	6.79	0.005	-0.0001	0.0326	0.0326
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	13.21	0.005	0.0001	0.0156	0.0156
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	60.00	0.008	-0.0004	0.0114	0.0114
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	80.00	0.013	-0.0006	0.0154	0.0154
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	86.79	0.014	-0.0007	0.0166	0.0167
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	106.79	0.021	-0.0008	0.0215	0.0215
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	126.79	0.029	-0.0010	0.0263	0.0263
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	133.21	0.032	-0.0010	0.0283	0.0283
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	139.63	0.035	-0.0011	0.0324	0.0324
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	140.38	0.035	-0.0011	0.0327	0.0327
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	146.92	0.039	-0.0011	0.0319	0.0319
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	153.46	0.042	-0.0011	0.0343	0.0343
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	166.54	0.050	-0.0010	0.0380	0.0380
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	173.08	0.055	-0.0010	0.0378	0.0378
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	179.63	0.059	-0.0009	0.0476	0.0476
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	185.49	0.063	-0.0009	0.0368	0.0368
0.9D - 1.0Ev + 1.0Eh 330° Seismic (Reduced DL)	190.60	0.067	-0.0008	0.0392	0.0392
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	6.79	0.006	0.0008	0.0434	0.0434
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	13.21	0.007	0.0012	0.0377	0.0377
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	60.00	0.055	0.0038	0.1015	0.1015
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	80.00	0.094	0.0048	0.1331	0.1331
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	86.79	0.110	0.0051	0.1392	0.1393
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	106.79	0.165	0.0062	0.1736	0.1737
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	126.79	0.232	0.0070	0.2067	0.2068
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	133.21	0.256	0.0072	0.2188	0.2190
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	139.63	0.281	0.0077	0.2509	0.2509
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	140.38	0.284	0.0076	0.2536	0.2536
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	146.92	0.311	0.0073	0.2420	0.2421
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	153.46	0.340	0.0072	0.2552	0.2553
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	166.54	0.400	0.0068	0.2767	0.2767
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	173.08	0.431	0.0067	0.2723	0.2724
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	179.63	0.464	0.0066	0.3216	0.3216
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	185.49	0.493	0.0065	0.2717	0.2718
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	190.60	0.518	0.0064	0.2863	0.2863
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	6.79	0.006	0.0008	0.0492	0.0492
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	13.21	0.008	0.0011	0.0336	0.0336
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	60.00	0.055	0.0036	0.0984	0.0984
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	80.00	0.092	0.0045	0.1287	0.1287
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	86.79	0.108	0.0048	0.1349	0.1350
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	106.79	0.161	0.0058	0.1684	0.1685
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	126.79	0.226	0.0065	0.2005	0.2006
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	133.21	0.249	0.0067	0.2123	0.2124
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	139.63	0.273	0.0072	0.2432	0.2432
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	140.38	0.276	0.0072	0.2459	0.2459
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	146.92	0.303	0.0068	0.2350	0.2351
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	153.46	0.330	-0.0068	0.2485	0.2485
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	166.54	0.388	0.0063	0.2690	0.2690
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	173.08	0.419	0.0062	0.2640	0.2641
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	179.63	0.450	0.0062	0.3155	0.3155
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	185.49	0.478	0.0060	0.2640	0.2641
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	190.60	0.503	-0.0060	0.2780	0.2780
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	6.79	0.006	-0.0009	0.0477	0.0477
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	13.21	0.008	-0.0013	0.0363	0.0363
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	60.00	0.055	-0.0042	0.0986	0.0986
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	80.00	0.093	-0.0053	0.1288	0.1288
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	86.79	0.108	-0.0056	0.1361	0.1362
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	106.79	0.162	-0.0068	0.1700	0.1701
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	126.79	0.227	-0.0076	0.2023	0.2024
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	133.21	0.250	-0.0079	0.2151	0.2152
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	139.63	0.275	-0.0084	0.2427	0.2427
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	140.38	0.278	-0.0084	0.2449	0.2449
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	146.92	0.305	-0.0080	0.2379	0.2381
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	153.46	0.333	-0.0079	0.2501	0.2501
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	166.54	0.391	-0.0074	0.2707	0.2707

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	173.08	0.422	-0.0073	0.2684	0.2685
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	179.63	0.453	-0.0072	0.3123	0.3124
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	185.49	0.482	-0.0070	0.2678	0.2679
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	190.60	0.506	-0.0069	0.2796	0.2796
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	6.79	0.006	0.0008	0.0434	0.0434
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	13.21	0.007	0.0012	0.0377	0.0377
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	60.00	0.055	0.0037	0.1015	0.1015
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	80.00	0.094	0.0047	0.1330	0.1330
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	86.79	0.110	0.0050	0.1392	0.1393
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	106.79	0.165	0.0060	0.1736	0.1737
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	126.79	0.232	-0.0068	0.2067	0.2068
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	133.21	0.256	0.0070	0.2189	0.2190
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	139.63	0.281	0.0074	0.2509	0.2509
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	140.38	0.284	0.0074	0.2536	0.2536
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	146.92	0.311	0.0071	0.2420	0.2421
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	153.46	0.340	0.0070	0.2552	0.2553
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	166.54	0.400	0.0066	0.2767	0.2767
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	173.08	0.431	0.0065	0.2723	0.2724
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	179.63	0.464	0.0063	0.3216	0.3216
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	185.49	0.493	0.0063	0.2717	0.2718
1.0D + 1.0W Service 120° 60 mph Wind with No Ice	190.60	0.518	0.0062	0.2863	0.2863
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	6.79	0.006	0.0008	0.0492	0.0492
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	13.21	0.008	0.0012	0.0336	0.0336
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	60.00	0.055	0.0037	0.0984	0.0984
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	80.00	0.092	0.0047	0.1287	0.1287
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	86.79	0.108	0.0050	0.1349	0.1350
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	106.79	0.161	0.0060	0.1684	0.1685
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	126.79	0.226	0.0067	0.2005	0.2006
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	133.21	0.249	0.0069	0.2122	0.2124
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	139.63	0.273	0.0074	0.2432	0.2432
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	140.38	0.276	0.0074	0.2459	0.2459
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	146.92	0.303	0.0070	0.2350	0.2351
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	153.46	0.330	0.0070	0.2485	0.2485
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	166.54	0.388	0.0065	0.2690	0.2690
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	173.08	0.419	0.0064	0.2640	0.2641
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	179.63	0.450	0.0064	0.3155	0.3155
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	185.49	0.478	0.0062	0.2640	0.2641
1.0D + 1.0W Service 180° 60 mph Wind with No Ice	190.60	0.503	0.0062	0.2780	0.2780
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	6.79	0.006	-0.0009	0.0478	0.0478
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	13.21	0.008	-0.0013	0.0363	0.0363
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	60.00	0.055	-0.0043	0.0987	0.0987
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	80.00	0.093	-0.0054	0.1289	0.1290
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	86.79	0.108	-0.0057	0.1362	0.1363
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	106.79	0.162	-0.0069	0.1702	0.1703
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	126.79	0.227	-0.0077	0.2025	0.2027
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	133.21	0.251	-0.0080	0.2153	0.2155
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	139.63	0.276	-0.0086	0.2430	0.2430
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	140.38	0.279	-0.0085	0.2452	0.2453
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	146.92	0.305	-0.0081	0.2382	0.2384
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	153.46	0.333	-0.0081	0.2504	0.2505
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	166.54	0.392	-0.0076	0.2711	0.2711
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	173.08	0.423	-0.0075	0.2688	0.2689
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	179.63	0.454	-0.0075	0.3129	0.3129
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	185.49	0.483	-0.0074	0.2682	0.2683
1.0D + 1.0W Service 210° 60 mph Wind with No Ice	190.60	0.507	-0.0073	0.2800	0.2800
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	6.79	0.006	0.0008	0.0434	0.0434
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	13.21	0.007	0.0012	0.0377	0.0377
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	60.00	0.055	0.0037	0.1015	0.1015
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	80.00	0.094	0.0047	0.1330	0.1330
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	86.79	0.110	0.0050	0.1392	0.1393
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	106.79	0.165	0.0060	0.1736	0.1737
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	126.79	0.232	0.0068	0.2067	0.2068
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	133.21	0.256	0.0070	0.2189	0.2190
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	139.63	0.281	0.0074	0.2509	0.2509
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	140.38	0.284	0.0074	0.2536	0.2536
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	146.92	0.311	0.0071	0.2420	0.2421
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	153.46	0.340	0.0070	0.2552	0.2553
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	166.54	0.400	0.0066	0.2767	0.2767

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	173.08	0.431	0.0065	0.2723	0.2724
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	179.63	0.464	0.0063	0.3216	0.3216
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	185.49	0.493	0.0063	0.2717	0.2718
1.0D + 1.0W Service 240° 60 mph Wind with No Ice	190.60	0.518	0.0062	0.2863	0.2863
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	6.79	0.006	0.0008	0.0492	0.0492
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	13.21	0.008	0.0011	0.0336	0.0336
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	60.00	0.055	0.0036	0.0984	0.0984
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	80.00	0.092	0.0045	0.1287	0.1287
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	86.79	0.108	0.0048	0.1349	0.1350
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	106.79	0.161	0.0058	0.1684	0.1685
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	126.79	0.226	0.0065	0.2005	0.2006
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	133.21	0.249	0.0067	0.2123	0.2124
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	139.63	0.273	0.0072	0.2432	0.2432
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	140.38	0.276	0.0072	0.2459	0.2459
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	146.92	0.303	0.0068	0.2350	0.2351
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	153.46	0.330	0.0068	0.2485	0.2485
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	166.54	0.388	0.0063	0.2690	0.2690
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	173.08	0.419	0.0062	0.2640	0.2641
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	179.63	0.450	0.0062	0.3155	0.3155
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	185.49	0.478	0.0060	0.2640	0.2641
1.0D + 1.0W Service 300° 60 mph Wind with No Ice	190.60	0.503	0.0060	0.2780	0.2780
1.0D + 1.0W Service 330° 60 mph Wind with No Ice	6.79	0.006	-0.0009	0.0478	0.0478
1.0D + 1.0W Service 330° 60 mph Wind with No Ice	13.21	0.008	-0.0013	0.0363	0.0363
1.0D + 1.0W Service 330° 60 mph Wind with No Ice	60.00	0.055	-0.0043	0.0987	0.0987
1.0D + 1.0W Service 330° 60 mph Wind with No Ice	80.00	0.093	-0.0054	0.1289	0.1290
1.0D + 1.0W Service 330° 60 mph Wind with No Ice	86.79	0.108	-0.0057	0.1362	0.1363
1.0D + 1.0W Service 330° 60 mph Wind with No Ice	106.79	0.162	-0.0069	0.1702	0.1703
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1.0D + 1.0W Service 330° 60 mph Wind with No Ice	146.92	0.305	-0.0081	0.2382	0.2384
1.0D + 1.0W Service 330° 60 mph Wind with No Ice	153.46	0.333	-0.0081	0.2504	0.2505
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1.0D + 1.0W Service 330° 60 mph Wind with No Ice	173.08	0.423	-0.0075	0.2688	0.2689
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1.0D + 1.0W Service 330° 60 mph Wind with No Ice	185.49	0.483	-0.0074	0.2682	0.2683
1.0D + 1.0W Service 330° 60 mph Wind with No Ice	190.60	0.507	-0.0073	0.2800	0.2800

AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

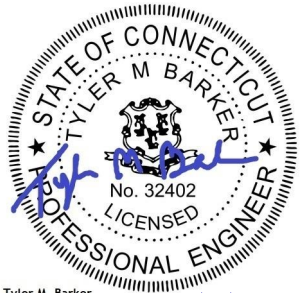
CLS ENGINEERING PLLC

Antenna Mount Modification Report

ATC Site Name	:	**GLFD-Guilford Rebuild CT**
ATC Asset Number	:	**311305**
Engineering Number	:	**13617386_C9_03**
Mount Elevation	:	**174 ft**
Carrier	:	**T-Mobile**
Carrier Site Name	:	**Guilford SNET Mobilit_1**
Carrier Site Number	:	**CT11028A**
Site Location	:	**10 Tanner Marsh Road** **Guilford, CT 06437-2942** **41.28860833,-72.65828056**
County	:	**New Haven**
Date	:	**March 31, 2021**
Max Usage	:	**84%**
Result	:	**Pass (Pending Mods)**

Prepared By:
Nagabharana Nayak
CLS Engineering PLLC

Reviewed By:
Tyler M. Barker, P.E.
CLS Engineering PLLC



Tyler M. Barker
CLS Engineering PLLC
PE # 32402 Exp. 1/31/2021
COA # PEC.001833 Exp. 8/14/2022
03/31/2021

Table of Contents

Introduction

The proposed equipment is to be mounted to the existing T-Frames. This proposed mounting configuration was analyzed using RISA-3D, a commercially available finite element analysis software package. A selection of input and output from our analysis is attached to the end of this report.

Supporting Documents

Structural Data	Site Photos, dated July 01, 2020 Spec Sheet by Andrew, Part #QT−SF SERIES
Previous Analyses	Mount Analysis by CLS Engineering, PLLC, Engineering Number #13617386_C8_01, dated March 12, 2021 Structural Analysis by ATC, Engineering Number #12948421_C3_02, dated August 9, 2019
Loading Data	ATC Application, Project #13617386, dated March 02, 2021 T-Mobile RFDS, Site ID #CT11028A, Version: 6, dated February 05, 2021

Analysis

Codes	TIA-222-H
Basic Wind Speed	123 mph, V_{ult} (3-Second Gust)
Basic Wind Speed w/ Ice	50 mph (3-Second Gust) w/ 1” Radial Ice (Escalating)
Exposure Category	C
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Risk Category	II
Maintenance Live Load	L_M: 500 lb
Spectral Response	S_s: 0.20; S_1: 0.05; Site Class: D

Conclusion

Based on the analysis, the antenna mount meets the requirements per the applicable codes listed above. The mounting configuration considered in this analysis will be capable of supporting the referenced loading pursuant to referenced standards once the referenced modifications are installed.

This analysis incorporates modifications per CLS Engineering PLLC, dated March 31, 2021.

- **Install (1) proposed face horizontal pipe at each sector frame mount (3 total) as shown. Connect to all antenna mount pipes with Site Pro 1 SCX7-U crossover plate kits (9 total).**
- **Install (1) Site Pro 1 SFS-V at each sector frame mount (3 total) as shown. Connect to proposed face horizontal pipe.**
- **Install (1) proposed stiff arm per sector (3 total) as shown. Connect to nearest adjacent tower leg with Site Pro 1 universal stiff arm attachment (SAM-U). Connect to proposed face horizontal pipe with Site Pro 1 PUCK in lieu of the Site Pro 1 SCX1 included in the STK-U kit.**

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

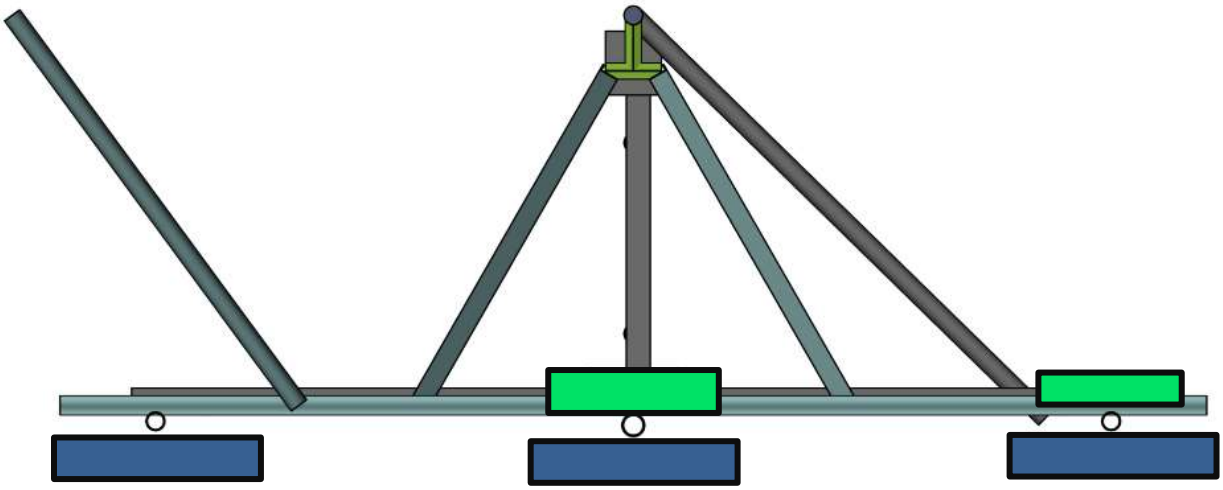
Antenna Loading

Elevation (ft)		Antennas	
Mount	Rad.	#	Name
174.0	177.0	3	RFS Celwave APXVAALL24_43-U-NA20
		3	Ericsson AIR 21 B4A/B2P
		3	Ericsson AIR 21 B2A/B4P
		3	Ericsson RADIO 4449 B71 B85A
		3	Ericsson KRY 112 144/1

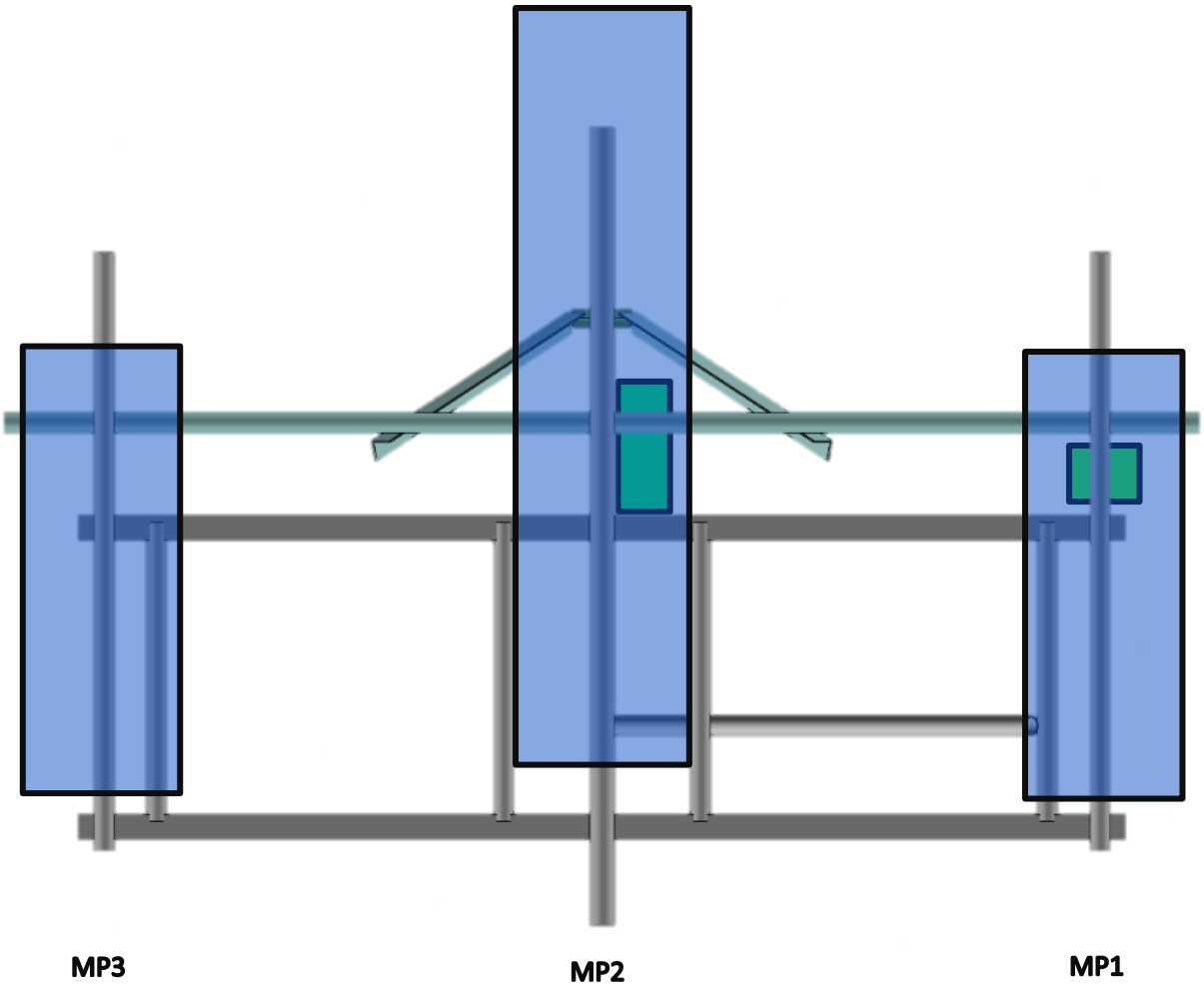
Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Face Horizontals	84%	Pass
Reinforcement Members	75%	Pass
Pivot Plate	52%	Pass
Mount Pipes	51%	Pass
Bracing Members	38%	Pass
Stand-Off Horizontals	38%	Pass
Stiff Arms	5%	Pass

Equipment Layout Plan View



Equipment Layout Front Elevation View



Standard Conditions

This analysis is inclusive of the antenna supporting frames/mounts and all recorded connections that will support the equipment listed in this report. It considers only the theoretical capacity of structural components and it is not a condition assessment. The validity of the analysis may be dependent on the accuracy of structural information supplied by others. The client is responsible for verifying this information. If any provided information is revised after completion of this analysis, CLS Engineering PLLC should be notified immediately to revise results.

This analysis assumes the following:

1. The tower or other superstructure and mounts (if existing) were properly constructed as per the original design and have been properly maintained in accordance with applicable code standards.

2. Member sizes and strengths are accurate as supplied or are assumed as stated in the calculations.

3. In the absence of sufficient design information, all welds and connections are assumed to develop at least the capacity of the connected member, unless otherwise stated in this analysis.

4. All prior structural modifications, if any, are assumed to be correctly installed and fully effective.

5. The loading configuration is complete and accurate as supplied and/or as modeled in the previous analysis. All appurtenances are assumed to be properly installed and supported as per manufacturer requirements.

6. Some conservative assumptions may be used regarding appurtenances and their projected areas based on careful interpretation of data supplied, previous experience and standard industry practice.

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of the report. All opinions and conclusions contained herein are subject to revision based upon receipt of new or updated information. All services are provided exercising a level of care and diligence equivalent to the standard of our profession. No warranty or guarantee, either expressed or implied, is offered. All services are confidential in nature and this report will not be released to any other party without the client's consent. The use of this analysis is limited to the expressed purpose for which it was commissioned and it may not be reused, copied or disseminated for any other purpose without consent from CLS Engineering PLLC.

All services were performed, results obtained and recommendations made in accordance with generally accepted engineering principles and practices. CLS Engineering PLLC is not responsible for the conclusions, opinions or recommendations made by others based on the information supplied in this analysis.

It is not possible to have the fully detailed information necessary to perform a complete and thorough analysis of every structural sub-component of an existing structure. The structural analysis by CLS Engineering PLLC verifies the adequacy of the primary members of the structure. CLS Engineering PLLC provides a limited scope of service in that we cannot verify the adequacy of every weld, bolt, gusset, etc.

Project & Site Information

CLS Project ID		41124-13617386_C9_03-02-MOD
Client Information	Carrier Name	T-Mobile
	Client Name	American Tower
	Site #	311305
	Site Name	GLFD-Guilford Rebuild CT
	Application #	13617386_C9_03
Site Location	Address	10 Tanner Marsh Road Guilford, CT 06437-2942
	County	New Haven
	GPS	41.28860833,-72.65828056
	Elevation AMSL (ft)	80.05

Mount & Supporting Structure

Mount Configuration	**Mount Type**	T-Frames
Nominal AGL Elevations (ft)	**Mount Elevation**	174
	Default Antenna Rad	177
Supporting Structure	**Structure Type**	Self-Supporting Tower
	Height (TOS) (ft)	190.6

Wind & Ice Loading

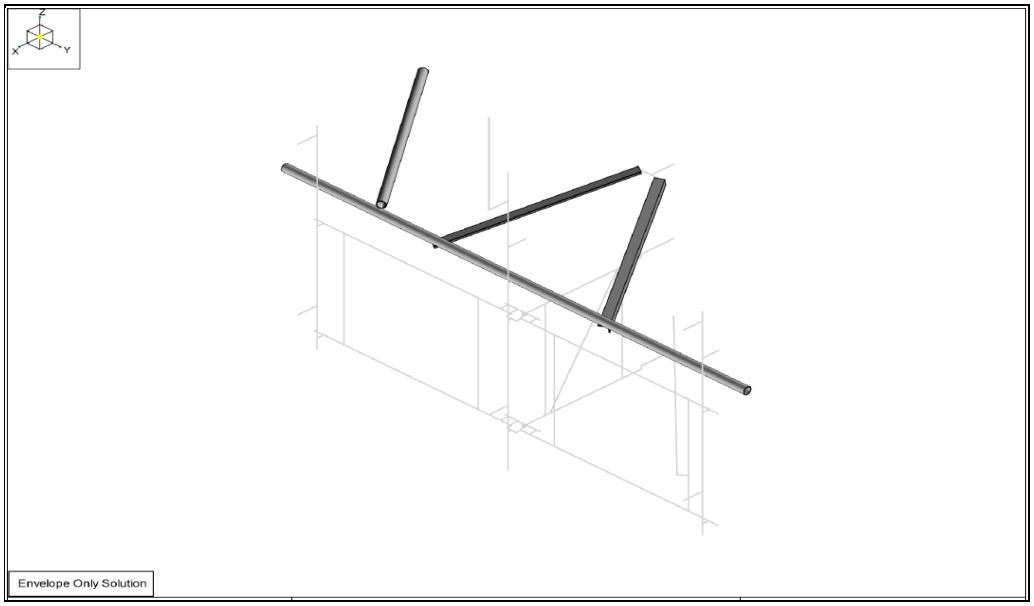
TIA Standard	TIA-222-H
Building Code	
Basic Wind Speed, V (bare)	123.0 mph
Basic Wind Speed, V (ice)	50.0 mph
Design Ice Thickness, t_i	1.00 in

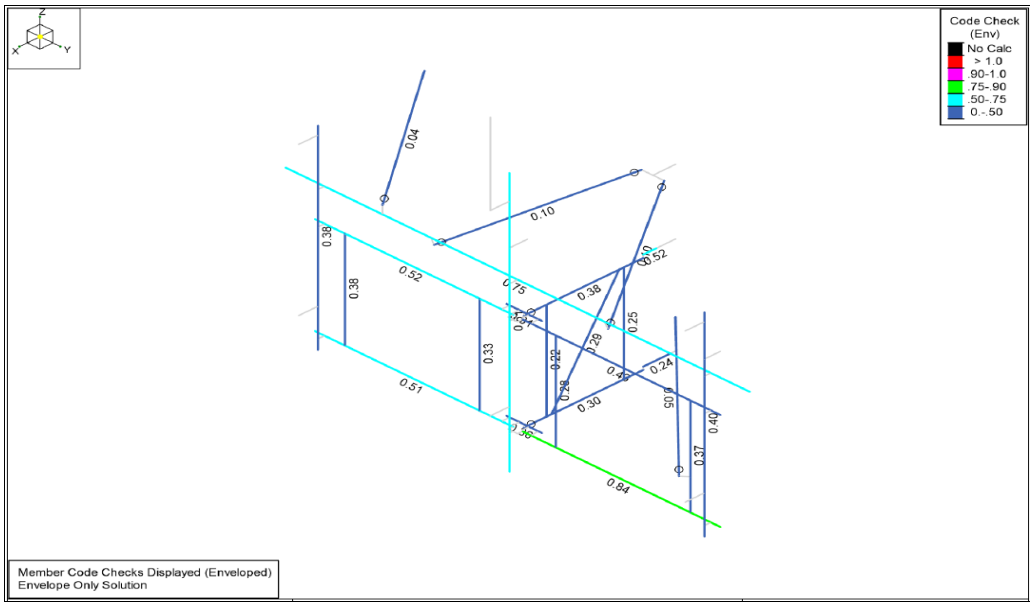
Mod Summary

Mod Summary			Cost Estimate
Install (1) proposed Face Horizontal Pipe at each sector (3 total).			$ 1,875
Install (1) proposed Single Sector Frame Stabilizer Kit at each sector (3 total).			$ 4,375
Install (1) proposed Stiff Arm Kit at each sector (3 total).			$ 1,875
Post Mod Usage	84%	**Cost + Mobilization**	$ 11,125

Replacement Summary

Replacement Summary	Cost Estimate
(3) Site Pro 1 VFA12-HD (or equivalent)	$27,500

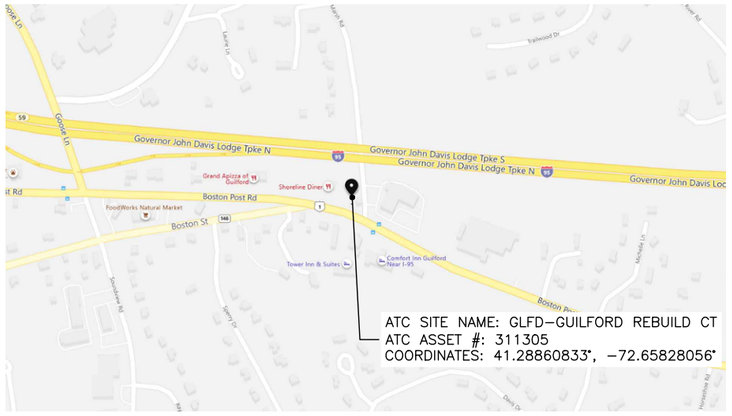




T··Mobile·®

CARRIER SITE NAME:	**GUILFORD SNET MOBILIT_1**
CARRIER SITE NUMBER:	**CT11028A**
ATC SITE NAME:	**GLFD-GUILFORD REBUILD CT**
ATC ASSET NUMBER:	**311305**
ENGINEERING NUMBER:	**13617386_C9_03**
STRUCTURE TYPE:	**190'-7" SELF-SUPPORTING TOWER**
PROJECT SCOPE:	**MOUNT REINFORCEMENT**

LOCATION MAP



STRUCTURE ELEVATION PHOTOGRAPH

DRAWING INDEX

SHEET	SHEET DESCRIPTION	REV
T-1	TITLE SHEET & DRAWING INDEX	0
GN-1	STRUCTURAL NOTES	0
IN-2	MODIFICATION INSPECTION NOTES	0
S-1	MOUNT VIEWS & MODIFICATION SCHEDULE	0
S-2	MODIFICATION DETAIL VIEWS	0

SCOPE OF WORK

1. THIS MODIFICATION PLAN HAS BEEN DESIGNED UTILIZING THE STRUCTURAL ANALYSIS BY CLS ENGINEERING PLLC., REPORT #41124-13617386_C9_03-02-MOD, DATED MARCH 31, 2021
2. FULL MODIFICATION SCHEDULE CAN BE FOUND ON S-1.
3. CONTRACTOR SHALL SCHEDULE A SITE VISIT TO CONFIRM ALL EXISTING STRUCTURE DIMENSIONS, SITE CONSTRAINTS, PROPOSED REINFORCING DIMENSIONS, THE CLEARANCES OF THE PROPOSED REINFORCING, EXISTING FOUNDATION INFORMATION, EXISTING SITE UTILITIES, AND ALL OTHER INFORMATION NECESSARY TO PERFORM THE WORK ON THESE DRAWINGS IN ORDER TO ELIMINATE THE RISK OF RFIS ONCE CONSTRUCTION AND FABRICATION HAVE BEGUN. THE CONTRACTOR SHALL NOT BEGIN FABRICATION OR CONSTRUCTION PRIOR TO PERFORMING THIS SITE VISIT AND VALIDATING THE INFORMATION ON THESE DRAWINGS AND ANY ADDITIONAL INFORMATION THE CONTRACTOR NEEDS TO PERFORM THE WORK.
4. THE CONTRACTOR SHALL PERFORM THIS PRE-CONSTRUCTION WORK AND REPORT ALL DISCREPANCIES TO THE CUSTOMER AND THE ENGINEER OF RECORD OR BE LIABLE FOR THE LABOR & MATERIALS FOR DISCREPANCIES NOT CAUGHT BY THE CONTRACTOR'S DUE DILIGENCE SITE VISIT.

CODE COMPLIANCE

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.

DESIGN STANDARD: TIA-222-H

DRIVING DIRECTIONS

DEPART FROM TWEED NEW HAVEN AIRPORT:

DEPART AND HEAD 89 FT, TURN LEFT 36 FT, TURN RIGHT 197 FT, TURN RIGHT TOWARD BURR ST 0.2 MI, TURN RIGHT ONTO BURR ST 0.2 MI, KEEP STRAIGHT TO GET ONTO DODGE AVE 0.7 MI, TURN LEFT ONTO THOMPSON AVE 0.6 MI, KEEP STRAIGHT TO GET ONTO CT-100 0.3 MI, TAKE THE RAMP ON THE RIGHT FOR I-95 NORTH AND HEAD TOWARD NEW LONDON 10.8 MI, HEAD RIGHT ON THE RAMP FOR GOOSE LANE TOWARD GUILFORD 0.2 MI, TURN RIGHT ONTO GOOSE LN TOWARD GUILFORD 128 FT, TURN LEFT ONTO US-1 N 0.3 MI, TURN LEFT ONTO TANNER MARSH RD 151 FT, ARRIVE AT YOUR DESTINATION ON THE LEFT.

PROJECT TEAM

ENGINEER/ARCHITECT:
CLS ENGINEERING, PLLC.
319 CHAPANOKE ROAD,
SUITE 118
RALEIGH, NC 27603
(405) 348-5460

APPLICANT/CUSTOMER:
T-MOBILE
12920 SE 38TH STREET
BELLEVUE, WA 98006

STRUCTURE OWNER:
AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBURN, MA 1801
SEAN O'BRIEN
(781) 926-6980

OWNER SITE NAME:
GLFD-GUILFORD REBUILD CT

OWNER SITE NUMBER:
311305

PROJECT INFORMATION

STRUCTURE TYPE:	**SELF-SUPPORTING TOWER**
STRUCTURE HEIGHT:	**190'-7"**
LATITUDE:	**41.28860833° (NAD 83)**
LONGITUDE:	**-72.65828056° (NAD 83)**
ADDRESS:	**311305 - GLFD-GUILFORD REBUILD CT**
	10 TANNER MARSH ROAD
	GUILFORD, CT 06437-2942
COUNTY:	**NEW HAVEN**
CODE JURISDICTION:	**CITY OF GUILFORD**
GROUND ELEVATION:	**80' AMSL**

ONE CALL

CALL CONNECTICUT ONE-CALL
3 DAYS BEFORE YOU DIG
811 OR 1-800-922-4455

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT OR ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR THE SAME.

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AMERICAN TOWER® CORPORATION

CLS ENGINEERING PLLC
319 CHAPANOKE ROAD, SUITE 118, RALEIGH, NC 27603
PH: (405)348-5460 FAX: (405)341-4625

CLS ENGINEERING PROJECT ID:
41124-311305-13617386-TMOL60020221CT11028A

COA# PEC.001833 EXP. 08/14/2021

REVISIONS

REV.	DATE	DESCRIPTION	INITIALS
A	03/30/21	PRELIMINARY ISSUE	HRP
0	03/31/21	FOR CONSTRUCTION	HRP

STATE OF CONNECTICUT · TYLER M BARKER · No. 32402 · LICENSED PROFESSIONAL ENGINEER

Tyler M. Barker
CLS Engineering PLLC
PE # 32402 Exp. 1/31/2021
COA # PEC.001833 Exp. 8/14/2022
03/31/2021

PE# 32402 EXP: 1/31/2022

ATC SITE NAME:
GLFD-GUILFORD REBUILD CT

ATC ASSET #: 311305

10 TANNER MARSH ROAD
GUILFORD, CT 06437-2942

SHEET TITLE
TITLE SHEET & DRAWING INDEX

SHEET NUMBER
T-1

GENERAL NOTES

1. THESE MODIFICATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF TIA/EIA-222, ASCE 7, AWS, ACI, AND AISC. MATERIALS AND SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE ABOVE-MENTIONED CODES AND THE CONTRACT SPECIFICATIONS.
2. ALL MATERIALS UTILIZED FOR THIS PROJECT MUST BE NEW AND FREE OF ANY DEFECTS.
3. ALL PRODUCT OR MATERIAL SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER SUITABLE TO DETERMINE IF SUBSTITUTE IS ACCEPTABLE FOR USE AND MEETS THE ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED.
4. PROVIDE STRUCTURAL STEEL SHOP DRAWING(S) TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION.
5. UNLESS NOTED OTHERWISE, ALL NEW MEMBERS AND REINFORCING SHALL MAINTAIN THE EXISTING MEMBER WORK LINES AND NOT INTRODUCE ECCENTRICITIES INTO THE STRUCTURE.
6. ANY CONTRACTOR-CAUSED DAMAGE TO PROPERTY OF THE LAND OWNER, PROPERTY OF THE STRUCTURE OWNER, PROPERTY OF THE CUSTOMER, SITE FENCING OR GATES, ANY AND ALL UTILITY AND/OR SERVICE LINES, SHOWN OR NOT SHOWN ON THE PLANS, SHALL BE REPAIRED OR REPLACED AT THE SOLE COST OF THE CONTRACTOR AND SHALL BE ACCOMPLISHED BY THE CONTRACTOR OR SUBCONTRACTOR AS APPROVED BY THE ENGINEER OF RECORD AND LAND OWNER. DAMAGE TO EQUIPMENT OR PROPERTY OF ANY KIND BELONGING TO OTHER COMPANIES (BESIDES THE INDICATED CUSTOMER) SHALL BE ADDRESSED BY THE CONTRACTOR WITH THE COMPANIES THAT OWN THE DAMAGED ITEMS.

STRUCTURAL STEEL NOTES

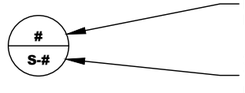
1. STRUCTURAL STEEL SHALL COMPLY WITH THE FOLLOWING SPECIFICATIONS:
   - A. STRUCTURAL STEEL SHAPES, PLATES AND BARS (EXCEPT W-SHAPES)- ASTM A36, Fy=36 KSI
   - B. PIPES - ASTM A53, GRADE B, Fy=35 KSI
   - C. HSS-SHAPES - ASTM A500, GRADE B, Fy=42 KSI (ROUND) Fy=46 KSI (SQUARE & RECTANGULAR)
   - D. ANCHOR & ALL-THREAD RODS - ASTM F1554, GRADE 55
   - E. STRUCTURAL BOLTS 1/2"ø AND LARGER - ASTM A325
   - F. STRUCTURAL BOLTS SMALLER THAN 1/2"ø - DIMENSIONS: ASME B18.2.1 MATERIAL: SAE J429 GRADE 5 | THREADING: ASME B1.1, UNC, CLASS 2A | FINISH: HOT-DIP GALVANIZED OR ZINC-PLATED
   - G. SHEET METAL SCREWS - DIMENSIONS: ASME B18.6.3 MATERIAL: SAE J933 | FINISH: HOT-DIP GALVANIZED OR ZINC-PLATED
   - H. NUTS FOR BOLTS/ALL-THREAD - ASTM A563 (THREADING TO MATCH BOLT)
   - I. WASHERS FOR BOLTS/ALL-THREAD - ASTM F436
   - J. W & WT SHAPES - ASTM A36, Fy=36 KSI ALTERNATE SPEC: ASTM A992 (IF OTHER SPEC IS UNAVAILABLE)
2. STRUCTURAL BOLTS SHALL CONFORM TO THIS NOTE. ALL BOLT HOLES SHALL BE STANDARD SIZE BOLT HOLES PER AISC 360, UNLESS OTHERWISE NOTED. ALL HOLES SHALL BE SHOP DRILLED OR SUB-PUNCHED AND REAMED. BURNING OF HOLES IS NOT PERMITTED. WHERE SLOTTED OR OVERSIZE HOLES ARE SPECIFIED ON THE DRAWINGS, EXTRA-THICK ASTM F436 PLATE WASHERS SHALL BE USED (5/16" MINIMUM THICKNESS) WITH A DIAMETER SUITABLE TO COVER THE EXTENTS OF THE SLOT OR HOLE. BOLTS SHALL BE HEAVY-HEX WHERE AVAILABLE IN THE SIZE AND GRADE SPECIFIED, OTHERWISE BOLTS SHALL BE HEX HEAD CAP SCREWS.
3. ALL STEEL HARDWARE, INCLUDING ADHESIVE OR EMBEDDED ANCHOR BOLTS AND THEIR ACCESSORIES, SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153 (EXCEPT BOLTS SMALLER THAN 1/2" SHALL CONFORM TO FE/ZN 3 AT PER ASTM F1941 WHERE HOT-DIP GALVANIZED BOLTS ARE NOT AVAILABLE). ALL STEEL MEMBERS, INCLUDING WELDMENTS, SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123. REPAIR DAMAGE TO GALVANIZED COATINGS USING ASTM A780 PROCEDURES WITH A ZINC RICH PAINT (SUCH AS ZRC GALVILITE) FOR GALVANIZING DAMAGED BY HANDLING, TRANSPORTING, CUTTING, WELDING, OR BOLTING. DO NOT HEAT SURFACES TO WHICH REPAIR PAINT HAS BEEN APPLIED. CALL OUT HOLES REQUIRED FOR HOT-DIP GALVANIZING ON SHOP DRAWINGS.
4. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1 "STRUCTURAL WELDING CODE - STEEL". WELD ELECTRODES SHALL BE E70XX. UNLESS OTHERWISE NOTED, PROVIDE CONTINUOUS FILLET WELDS WITH MINIMUM SIZE OF 3/16 INCH OR OF A SIZE EQUAL TO THE THICKNESS OF THE THINNER MATERIAL BEING JOINED (WHICHEVER IS LESS). FOR ACUTE OR OBTUSE JOINT ANGLES, THE FILLET WELD LEG SIZE SHALL BE ADJUSTED AS REQUIRED TO MAINTAIN THE EFFECTIVE THROAT OF A 3/16 INCH FILLET WELD IN A 90° JOINT. ALL WELD SIZES SHOWN IN INCHES.
5. PRIOR TO WELDING, THE CONTRACTOR SHALL SUBMIT CERTIFICATION FOR EACH WELDER STATING THE TYPE OF WELDING AND POSITIONS QUALIFIED FOR, THE CODE AND PROCEDURE QUALIFIED UNDER, DATE QUALIFIED, AND THE FIRM AND INDIVIDUAL CERTIFYING THE QUALIFICATION TESTS. THIS INFORMATION SHALL BE SUBMITTED TO THE MODIFICATION INSPECTOR (SEE SHEET S-003) AS WELL AS ANY THIRD-PARTY CERTIFIED WELD INSPECTOR (CWI).
6. MEMBERS SHALL BE SHOP-FABRICATED AND WELDED TO THE EXTENT PRACTICABLE IN ORDER TO REDUCE FIELD INSTALLATION COSTS.

CONTRACTOR NOTES

1. PRIOR TO BEGINNING CONSTRUCTION, ALL CONTRACTORS AND SUBCONTRACTORS MUST ACKNOWLEDGE IN WRITING TO STRUCTURE OWNER THAT THEY HAVE OBTAINED, UNDERSTAND, AND WILL FOLLOW STRUCTURE OWNER STANDARDS OF PRACTICE, CONSTRUCTION GUIDELINES, ALL SITE AND STRUCTURE/TOWER SAFETY PROCEDURES, ALL PRODUCT LIMITATIONS AND INSTALLATION PROCEDURES USED ON SITE, AND PROPOSED MODIFICATIONS DESCRIBED. RECEIPT OF ACKNOWLEDGEMENT MUST OCCUR PRIOR TO BEGINNING CONSTRUCTION OR CLIMBING. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE THIS DOCUMENTATION FOR STRUCTURE OWNER ON COMPANY LETTERHEAD AND THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN THIS DOCUMENTATION FROM ANY SUBCONTRACTORS (ON SUBCONTRACTOR LETTERHEAD) AND DELIVER IT TO THE STRUCTURE OWNER.
2. IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS, OR ANY CONDITIONS THAT WOULD INTERFERE WITH THE INSTALLATION OF THE MODIFICATIONS, THE ENGINEER OF RECORD SHALL BE CONTACTED IMMEDIATELY TO EVALUATE THE SIGNIFICANCE OF THE DEVIATION.
3. THE CONTRACTOR SHALL SOLICIT AND HIRE THE SERVICES OF A QUALIFIED MODIFICATION INSPECTOR PRIOR TO BEGINNING CONSTRUCTION. THE MODIFICATION INSPECTOR MAY BE AN EMPLOYEE OF THE CONTRACTOR'S FIRM, HOWEVER THE INSPECTOR'S ONLY DUTIES SHALL BE INSPECTION, TESTING, AND REPORT CREATION AS REQUIRED ON THE "MODIFICATION INSPECTION NOTES" SHEET. THE INSPECTOR SHALL BE QUALIFIED AS A REGISTERED PROFESSIONAL ENGINEER (PE) OR AS AN ENGINEERING INTERN (EI) OR ENGINEER IN TRAINING (EIT) UNDER THE SUPERVISION OF A REGISTERED PROFESSIONAL ENGINEER (PE). IT IS ALSO ACCEPTABLE FOR THE CONTRACTOR TO SUBCONTRACT THE MODIFICATION INSPECTOR DUTIES TO A THIRD PARTY FIRM MEETING THE ABOVE REQUIREMENTS.
4. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD AND TOWER OWNER OF THE PLANNED CONSTRUCTION & INSPECTION SCHEDULE, AS WELL AS ANY CHANGES TO THE SCHEDULE, WITHIN TWO BUSINESS DAYS OF THE COMPLETION OF THE SCHEDULE OR SCHEDULE REVISION BOTH PRIOR TO BEGINNING CONSTRUCTION AND DURING CONSTRUCTION AS THE SCHEDULE CHANGES. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD WHEN PHASES OF CONSTRUCTION HAVE BEEN MOVED UP AND SHALL GIVE THE ENGINEER ADEQUATE NOTICE SO THAT THE ENGINEER OF RECORD MAY, AT THEIR DISCRETION, INSPECT PORTIONS OF THE WORK THAT ARE DEEMED CRITICAL TO THE INTEGRITY OF THE STRUCTURE. FAILURE TO PROVIDE THIS NOTICE MAY RESULT IN REJECTION OF THE CONTRACTOR'S WORK. THE CONTRACTOR SHALL ALSO NOTIFY THE ENGINEER OF RECORD AND THE STRUCTURE OWNER WHEN THE WORK HAS BEEN COMPLETED WITHIN 2 BUSINESS DAYS OF THE COMPLETION OF THE WORK AND ASSOCIATED MODIFICATION INSPECTIONS & TESTING.
5. IT IS ASSUMED THAT ANY STRUCTURAL MODIFICATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE. THIS INCLUDES PROVIDING THE NECESSARY CERTIFICATIONS TO THE STRUCTURE OWNER AND ENGINEER INCLUDING BUT NOT LIMITED TO TOWER CLIMBER AND RESCUE CLIMBER CERTIFICATIONS, QUALIFIED WELDER CERTIFICATES, CERTIFIED WELDING INSPECTOR CREDENTIALS, ET CETERA.
6. THESE DRAWINGS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES AND PROCEDURES.
7. CONTRACTOR SHALL WORK WITHIN THE LIMITS OF THE STRUCTURE OWNER'S PROPERTY OR LEASE AREA AND APPROVED EASEMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY WORK IS WITHIN THESE BOUNDARIES. CONTRACTOR SHALL EMPLOY A SURVEYOR AS REQUIRED. ANY WORK OUTSIDE THESE BOUNDARIES SHALL BE APPROVED IN WRITING BY THE LAND OWNER PRIOR TO MOBILIZATION. CONSTRUCTION STAKING AND BOUNDARY MARKING IS THE RESPONSIBILITY OF THE CONTRACTOR.

SYMBOLS AND CALL-OUTS

TYPICAL DETAIL CALL-OUT

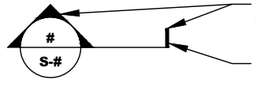


DETAIL REFERENCE IDENTIFIER

SHEET ON WHICH DETAIL IS LOCATED

NOTE:
THE DETAIL CALL-OUT INFORMATION IS THE SAME FOR SECTION, ELEVATION, AND PHOTOGRAPH CALL-OUTS

TYPICAL SECTION CALL-OUT



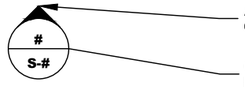
ARROW AND TAIL INDICATE DIRECTION SECTION VIEW IS FACING

EXTENT OF TAIL INDICATES APPROXIMATE WIDTH OF SECTION VIEW

TYPICAL ELEVATION CALL-OUT

ARROW INDICATES ORIENTATION OF ELEVATION VIEW

TYPICAL PHOTOGRAPH CALL-OUT



ARROW INDICATES APPROXIMATE ORIENTATION OF CAMERA

CALL-OUT INDICATES APPROXIMATE POSITION OF CAMERA

STANDARD ABBREVIATIONS

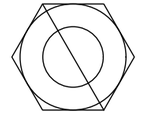
AFF	ABOVE FINISHED FLOOR	LONG	LONGITUDINAL
ARCH	ARCHITECT, -URAL	MAS	MASONRY
BLDG	BUILDING	MATL	MATERIAL
BOD	BOTTOM OF DECK	MAX	MAXIMUM
BOT	BOTTOM	MECH	MECHANICAL
BRCG	BRACING	MFR	MANUFACTURER
BRDG	BRIDGING	MIN	MINIMUM
C	CHANNEL	MOD	MODIFICATION
CL	CENTER LINE	MPH	MILES PER HOUR
CLR	CLEAR	MRI	MEAN RECURRENCE INTERVAL
CMU	CONCRETE MASONRY UNIT	#	NUMBER
CONC	CONCRETE	NTS	NOT TO SCALE
CONT	CONTINUOUS	OC	ON CENTER
DIA (OR) ø	DIAMETER	OPH	OPPOSITE HAND
DWGS	DRAWINGS	OPNG	OPENING
EA	EACH	PC	PIECE
EL	ELEVATION	PL	PLATE
EQ, EQUIV	EQUAL, EQUIVALENT	PSF	POUNDS PER SQUARE FOOT
EW	EACH WAY	PSI	POUNDS PER SQUARE INCH
EXIST	EXISTING	REF	REFERENCE
' OR FT	FEET (DIMENSION)	REINF	REINFORCE/REINFORCEMENT
f'c	COMPRESSIVE STRESS	REQD	REQUIRED
FDN	FOUNDATION	REV	REVISION
FTG	FOOTING	SF	SQUARE FEET
GALV	GALVANIZED	SIM	SIMILAR
HORIZ	HORIZONTAL	SR	SOLID ROUND (SHAPE)
HSS	HOLLOW STRUCTURAL SHAPES	STD	STANDARD
		T&B	TOP AND BOTTOM
KIP	KILOPOUNDS (1000 LBS PER UNIT)	THK	THICKNESS
		TOF	TOP OF FOOTING
KSI	KIPS PER SQUARE INCH	TOM	TOP OF MASONRY
" OR IN	INCH	TOS	TOP OF STEEL
L	ANGLE	TYP	TYPICAL
LB	POUND	UON	UNLESS OTHERWISE NOTED
LLH	LONG LEG HORIZONTAL	VERT	VERTICAL
LLV	LONG LEG VERTICAL	W/	WITH

BOLT TIGHTENING PROCEDURE

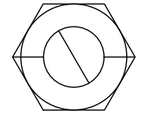
1. TIGHTEN BOLTS BY AISC "TURN OF THE NUT" METHOD USING THE CHART BELOW:
   - BOLT LENGTHS UP TO AND INCLUDING FOUR DIAMETERS: +1/3 TURN BEYOND SNUG TIGHT
   - BOLT LENGTHS OVER FOUR AND UP TO EIGHT DIAMETERS: +1/2 TURN BEYOND SNUG TIGHT
   - BOLT LENGTHS OVER EIGHT AND UP TO TWELVE DIAMETERS: +2/3 TURN BEYOND SNUG TIGHT
2. SPLICE BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8(d)(1) OF THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS AS FOLLOWS:

   "FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES AND BE TIGHTENED BY ONE OF THE METHODS DESCRIBED IN SUBSECTION 8(d)(1) THROUGH 8(d)(4).

   8(d)(1) TURN-OF-THE-NUT TIGHTENING.
   BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BROUGHT TO A SNUG TIGHT CONDITION. SNUG TIGHT IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN THE PLIES OF A JOINT ARE IN FIRM CONTACT. THIS MAY BE OBTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF A MAN USING AN ORDINARY SPUD WRENCH. SNUG TIGHTENING SHALL PROGRESS SYSTEMATICALLY...UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION, ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED ABOVE. DURING THE TIGHTENING OPERATION, THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.

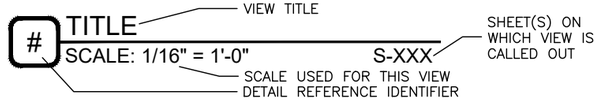


BEFORE ⅓ TURN



AFTER ⅓ TURN

SECTION / ELEVATION / DETAIL VIEW CALLOUTS



T-Mobile

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CLS ENGINEERING PROJECT ID:
41124-311305-13617386-TMOL6002021CT11028A

COA# PEC.001833 EXP. 08/14/2021

REVISIONS

REV.	DATE	DESCRIPTION	INITIALS
A	03/30/21	PRELIMINARY ISSUE	HRP
0	03/31/21	FOR CONSTRUCTION	HRP

STATE OF CONNECTICUT
TYLER M BARKER
No. 32402
LICENSED PROFESSIONAL ENGINEER

Tyler M. Barker
CLS Engineering PLLC
PE # 32402 Exp. 1/31/2021
COA # PEC.001833 Exp. 8/14/2022
03/31/2021

PE# 32402 EXP: 1/31/2022

ATC SITE NAME:

GLFD-GUILFORD REBUILD CT

ATC ASSET #: 311305

10 TANNER MARSH ROAD
GUILFORD, CT 06437-2942

SHEET TITLE

STRUCTURAL NOTES

SHEET NUMBER

GN-1

PRE-CONSTRUCTION INSPECTION CHECKLIST

CONSTRUCTION AND/OR INSTALLATION INSPECTIONS REQUIRED FOR REPORT? (CHECK=YES, BLANK=NO)	INSPECTION REPORT ITEM
√	MODIFICATION INSPECTION CHECKLIST
√	SHOP DRAWINGS APPROVED BY ENGINEER OF RECORD (LATEST REVISION)
√	FABRICATION INSPECTION
	FABRICATOR'S CERTIFIED WELD INSPECTOR (CWI)
	FABRICATOR'S QUALIFIED PERSONNEL FOR WELDING
√	MATERIAL TEST REPORT(S) / MILL CERTIFICATE(S)
	FABRICATOR'S NON-DESTRUCTIVE TESTING (NDT) TECHNICIAN
√	PACKING SLIPS FOR STRUCTURAL MATERIALS

CONSTRUCTION INSPECTION CHECKLIST

CONSTRUCTION AND/OR INSTALLATION INSPECTIONS REQUIRED FOR REPORT? (CHECK=YES, BLANK=NO)	INSPECTION REPORT ITEM
√	CONSTRUCTION INSPECTIONS
	FOUNDATION INSPECTIONS
	CONCRETE COMPRESSIVE STRENGTH AND SLUMP TESTING RESULTS/CERTIFICATES
	ADHESIVE ANCHOR ROD(S) INSTALLATION INSPECTION
	BASE PLATE GROUT INSPECTION
	THIRD-PARTY CERTIFIED WELD INSPECTION (INCLUDING IBC SPECIAL INSPECTIONS)
	SOIL EXCAVATION - DENSITY TESTING, COMPACTION INSPECTION/VERIFICATION, USE OF SUITABLE FILL
√	GALVANIZING REPAIR MATERIAL PREPARATION, INSPECTION, & PAINT APPLICATION
	GUY WIRE (RE-)TENSION REPORT AND INSPECTION
√	PRIME CONTRACTOR'S AS-BUILT DOCUMENTS (SIGNED & DATED)

POST-CONSTRUCTION INSPECTION CHECKLIST

CONSTRUCTION AND/OR INSTALLATION INSPECTIONS REQUIRED FOR REPORT? (CHECK=YES, BLANK=NO)	INSPECTION REPORT ITEM
√	MODIFICATION INSPECTOR'S ISSUE LIST (INCLUDING CORRECTIVE ACTIONS TAKEN) AND/OR REDLINED RECORD DRAWINGS
	POST-INSTALLED ADHESIVE ANCHOR ROD PULL-OUT TESTING
√	PHOTOGRAPHS OF MODIFICATIONS (INCLUDE PHOTOS OF BOTH SIDES OF WELDED OR BOLTED CONNECTIONS, OF OVERALL AND DETAIL VIEWS OF INSTALLED MODIFICATIONS, AND BEFORE/AFTER PHOTOS OF ANY ISSUES IDENTIFIED BY THE INSPECTOR)

GENERAL NOTES

1. THE POST-MODIFICATION INSPECTION IS A VISUAL EXAMINATION OF STRUCTURE MODIFICATIONS AND A REVIEW OF ANY REQUIRED CONSTRUCTION INSPECTIONS, TESTING, AND OTHER DATA TO VERIFY THAT THE MODIFICATIONS ARE INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AS DESIGNED BY THE ENGINEER OF RECORD. THE CONTRACT DOCUMENTS INCLUDE THESE MODIFICATION DRAWINGS, ANY PROJECT SPECIFICATIONS REFERENCED TO IN THE PROJECT NOTES OR OTHERWISE PROVIDED WITH THE DRAWINGS, AND OTHER DOCUMENTS OR DRAWINGS PROVIDED WITH THE MODIFICATION DRAWINGS WITH THE INTENT THAT THEY BE USED AS A DESIGN AID OR GUIDELINE FOR CONSTRUCTION.

2. THE POST-MODIFICATION INSPECTION SHALL CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A QUALITATIVE REVIEW OF THE ENGINEERING ASPECTS OF THE DESIGN OR THE DESIGN DRAWINGS. THE MODIFICATION INSPECTOR IS NOT TAKING OWNERSHIP OF THE MODIFICATION DESIGN IN THE PERFORMANCE OF THEIR DUTIES. OWNERSHIP OF THE MODIFICATION DESIGN'S EFFECTIVENESS AND INTENT, AS WELL AS ALL ASSOCIATED RISK, LIES WITH THE ENGINEER OF RECORD AT ALL TIMES.

3. TO ENSURE THAT THE REQUIREMENTS OF THE POST-MODIFICATION INSPECTION ARE MET, IT IS ESSENTIAL THAT COORDINATION BETWEEN THE PRIME CONTRACTOR AND THE MODIFICATION INSPECTOR BEGIN AS SOON AS THE PROJECT IS FUNDED AND WORK ENTERS THE PLANNING STAGE. THE PRIME CONTRACTOR AND MODIFICATION INSPECTOR SHALL BE PROACTIVE IN IDENTIFYING CONSTRUCTION ISSUES AND COMMUNICATING THESE ISSUES TO EACH OTHER AND TO THE ENGINEER OF RECORD AND STRUCTURE OWNER & CUSTOMER, AS REQUIRED.

INSPECTION AND REPORT RECOMMENDATIONS

1. THE FOLLOWING ARE PROVIDED WITH THE INTENT OF ENHANCING THE EFFECTIVENESS OF THE MODIFICATION INSPECTION AND IMPROVING THE EFFICIENCY OF THE PROCESS OF COLLECTING AND COMPILING THE INFORMATION INTO A USABLE REPORT:

1.1. IT IS RECOMMENDED THAT THE PRIME CONTRACTOR PROVIDE THE MODIFICATION INSPECTOR AT LEAST 5 BUSINESS DAYS NOTICE FOR WHEN THE SITE WILL BE READY FOR THE MODIFICATION INSPECTION.
1.2. THE PRIME CONTRACTOR AND THE MODIFICATION INSPECTOR SHALL COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
1.3. THE PRIME CONTRACTOR AND MODIFICATION INSPECTOR SHALL BOTH BE PRESENT DURING THE INITIAL INSPECTION IN ORDER TO ALLOW FOR THE REMEDIATION OF DEFICIENCIES DURING THE INSPECTION, AS PRACTICABLE. IT MAY BE PREFERABLE TO KEEP WORK CREWS AND THEIR EQUIPMENT ON-SITE TO REMEDIATE DEFICIENCIES DURING INSPECTIONS.

INSPECTION RESCHEDULING AND CANCELLATION

1. IF THE PRIME CONTRACTOR AND MODIFICATION INSPECTOR HAVE AGREED UPON A TIME AND DATE FOR A GIVEN INSPECTION AND EITHER PARTY RESCHEDULES OR CANCELS THE INSPECTION, THE STRUCTURE OWNER SHALL NOT BE RESPONSIBLE FOR COSTS, FEES, LOST DEPOSITS, OR OTHER EXPENSES INCURRED BY THE PRIME CONTRACTOR, THEIR SUBCONTRACTOR(S), OR THE MODIFICATION INSPECTOR DUE TO THESE SCHEDULING CHANGES. EXCEPTIONS MAY BE MADE IN THE EVENT OF UNCONTROLLABLE SITUATIONS SUCH AS NATURAL DISASTERS, SEVERE WEATHER, OR OTHER CONDITIONS THAT COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

REMEDIATION OF FAILING INSPECTION

1. IN THE EVENT THAT ANY PORTION OF THE MODIFICATION WORK IS DETERMINED TO BE UNSATISFACTORY BY THE MODIFICATION INSPECTOR, THE PRIME CONTRACTOR SHALL WORK WITH THE MODIFICATION INSPECTOR TO CREATE A PLAN OF ACTION THAT WILL EITHER:

1.1. REPAIR THE DEFICIENT WORK TO SATISFACTORY CONDITION AND INCLUDE A SUBSEQUENT RE-INSPECTION OF THE WORK TO VERIFY THAT IT IS SATISFACTORY
1.2. OR, WITH THE PERMISSION OF THE STRUCTURE OWNER AND/OR CUSTOMER, THE PRIME CONTRACTOR MAY WORK WITH THE ENGINEER OF RECORD TO REVIEW THE AS-BUILT CONDITION OF THE MODIFICATION TO DETERMINE IF IT IS STRUCTURALLY ACCEPTABLE. IF THIS ACTION IS NOT ACCEPTABLE TO ANY PARTY, THE PRIME CONTRACTOR SHALL PROCEED TO REPAIR THE DEFICIENT WORK TO A SATISFACTORY CONDITION.

MODIFICATION INSPECTOR'S RESPONSIBILITIES

1. THE MODIFICATION INSPECTOR SHALL CONTACT THE PRIME CONTRACTOR AS SOON AS THEY HAVE RECEIVED A PURCHASE ORDER OR PAYMENT FOR THIS INSPECTION. THE MODIFICATION INSPECTOR SHALL REVIEW THE REQUIREMENTS OF THE INSPECTION CHECKLIST, SHALL WORK WITH THE PRIME CONTRACTOR TO DEVELOP A SCHEDULE OF NECESSARY ON-SITE INSPECTIONS, AND SHALL DISCUSS ANY SITE-SPECIFIC INSPECTION REQUIREMENTS OR OTHER CONCERNS.

2. THE MODIFICATION INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL PRIME CONTRACTOR INSPECTION AND TEST REPORTS (INCLUDING THOSE OF ASSIGNED SUB-CONTRACTORS), SHALL REVIEW THE REPORTS FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS, SHALL CONDUCT THE NECESSARY ON-SITE INSPECTIONS, AND SHALL COMPILE AND SUBMIT THE MODIFICATION INSPECTION REPORT.

PRIME CONTRACTOR'S RESPONSIBILITIES

1. THE PRIME CONTRACTOR SHALL CONTACT THE MODIFICATION INSPECTOR AS SOON AS THEY HAVE RECEIVED A PURCHASE ORDER OR PAYMENT FOR THE MODIFICATION INSTALLATION OR PROJECT. THE PRIME CONTRACTOR SHALL REVIEW THE REQUIREMENTS OF THE MODIFICATION INSPECTION CHECKLIST, SHALL WORK WITH THE MODIFICATION INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, AND SHALL DISCUSS SPECIFIC INSPECTION AND TESTING REQUIREMENTS WITH THE MODIFICATION INSPECTOR IN DETAIL TO OBTAIN A FULL UNDERSTANDING OF THE REQUIRED INSPECTIONS AND TESTING.

2. THE PRIME CONTRACTOR SHALL PERFORM AND RECORD THE TESTING AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MODIFICATION INSPECTION CHECKLIST.

PHOTOGRAPHY REQUIREMENTS

1. THE PRIME CONTRACTOR AND MODIFICATION INSPECTOR SHALL, BETWEEN THE EFFORTS OF BOTH PARTIES AND THEIR EMPLOYED PERSONNEL, PROVIDE PHOTOGRAPHS WITH THE INSPECTION REPORT TO INCLUDE THE FOLLOWING:
a. GENERAL SITE PHOTOGRAPHS PRE-CONSTRUCTION
b. MODIFICATION INSTALLATION PHOTOGRAPHS DURING CONSTRUCTION/ERECTION OPERATIONS AND INSPECTIONS
b.1. RAW MATERIALS
b.2. PHOTOS OF DETAILED WORK REQUIRED ON THE DRAWINGS (CONNECTIONS, WELDMENTS, FIELD-FABRICATED MEMBERS, ETC)
b.3. WELD PREPARATION AND COMPLETED WELD INSPECTION (INCLUDING A FILLET WELD SIZE GAUGE, AS APPLICABLE)
b.4. BOLT INSTALLATION AND TORQUE/PRETENSION.
b.5. FINAL INSTALLED CONDITION (AFTER DEFICIENT CONDITIONS, IF ANY, ARE REMEDIATED).
b.6. REPAIR OF SURFACE COATINGS (INCLUDING GALVANIZING AND/OR PAINT COATING)
c. POST-MODIFICATION PHOTOGRAPHS OF THE SITE & WORK.
d. PHOTOGRAPHS OF THE FINAL STATE OF THE SITE AT CONCLUSION OF THE WORK BY THE PRIME CONTRACTOR, ASSOCIATED SUBCONTRACTORS, AND THE MODIFICATION INSPECTOR.
e. OTHER PHOTOS MAY BE INCLUDED AT PRIME CONTRACTOR & MODIFICATION INSPECTOR'S DISCRETION.

NOTE: PHOTOS OF MODIFICATIONS INSTALLED ON THE STRUCTURE ABOVE AN ELEVATION OF 20 FT SHALL REQUIRE PHOTOS TAKEN FROM THE STRUCTURE AS WELL AS OVERALL PHOTOGRAPHS OF THE MODIFICATIONS TAKEN FROM THE GROUND.

OWNER INSPECTIONS

1. THE STRUCTURE OWNER MAY CONDUCT INSPECTIONS TO VERIFY THE QUALITY AND COMPLETENESS OF THE PREVIOUSLY COMPLETED MODIFICATION INSPECTION REPORTS FOR THE MODIFICATION INSTALLATION WORK.

2. INSPECTIONS MAY BE COMPLETED BY A 3RD-PARTY FIRM OF THE STRUCTURE OWNER'S CHOOSING AFTER A MODIFICATION PROJECT IS COMPLETED AND A PASSING MODIFICATION INSPECTION REPORT IS ISSUED.

T-Mobile

AMERICAN TOWER® CORPORATION

CLS ENGINEERING PLLC
319 CHAPANOKE ROAD, SUITE 118, RALEIGH, NC 27603
PH: (405)348-5460 FAX: (405)341-4625

CLS ENGINEERING PROJECT ID:
41124-311305-13617386-TMOL60020211CT11028A

COA# PEC.001833 EXP. 08/14/2021

REVISIONS

REV.	DATE	DESCRIPTION	INITIALS
A	03/30/21	PRELIMINARY ISSUE	HRP
0	03/31/21	FOR CONSTRUCTION	HRP

STATE OF CONNECTICUT
TYLER M BARKER
No. 32402
LICENSED PROFESSIONAL ENGINEER

Tyler M. Barker
CLS Engineering PLLC
PE # 32402 Exp. 1/31/2021
COA # PEC.001833 Exp. 8/14/2022

03/31/2021

PE# 32402 EXP: 1/31/2022

ATC SITE NAME:

GLFD-GUILFORD REBUILD CT

ATC ASSET #: 311305

10 TANNER MARSH ROAD
GUILFORD, CT 06437-2942

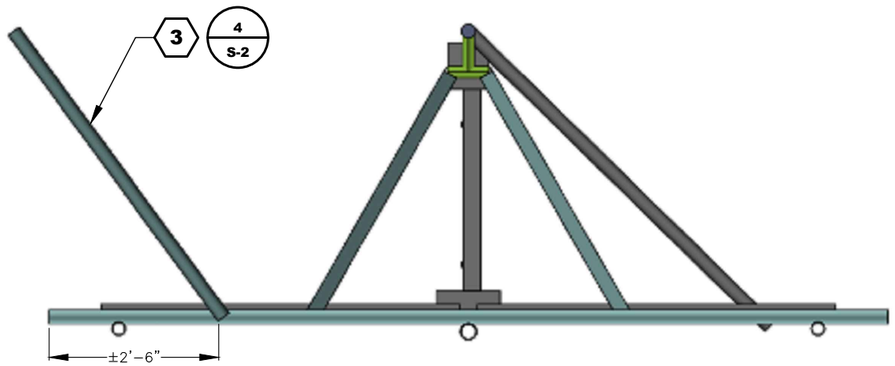
SHEET TITLE

MODIFICATION INSPECTION NOTES

SHEET NUMBER

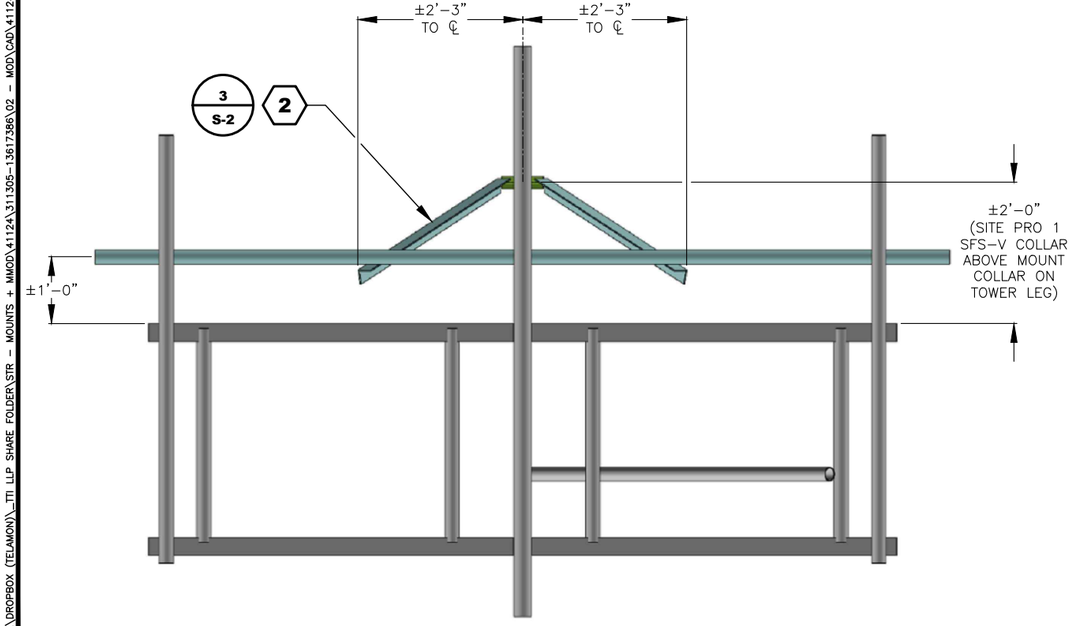
IN-1

NOTE:
EXISTING MOUNT SHOWN IS REPRESENTATIVE TO ILLUSTRATE MODIFICATION AND MAY DIFFER SLIGHTLY ON SITE.



1 MOUNT - PLAN VIEW
SCALE: N.T.S.

NOTE:
STIFF ARM NOT SHOWN FOR CLARITY.



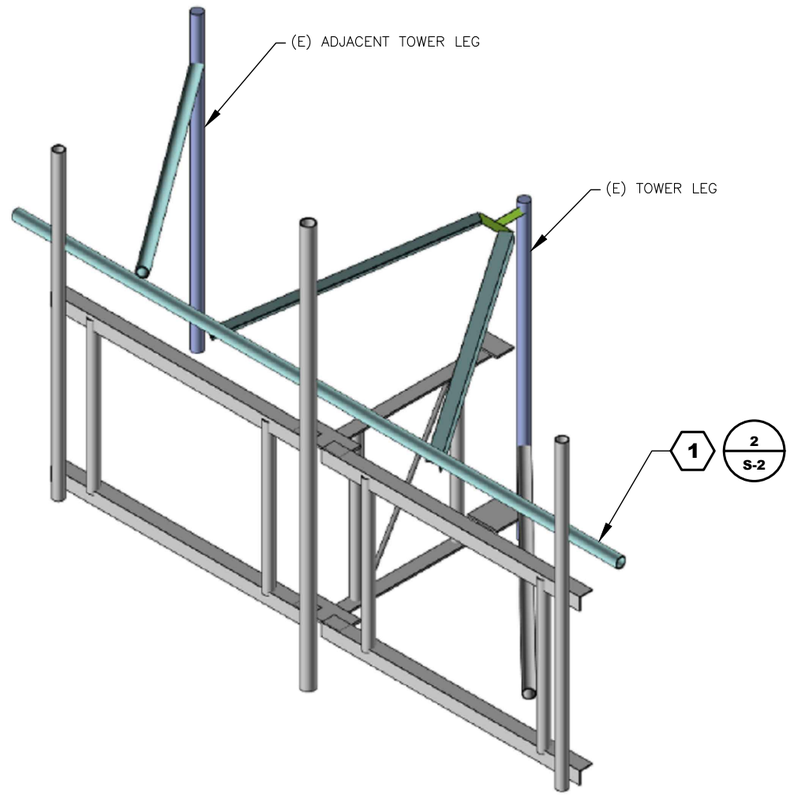
2 MOUNT - FRONT ELEVATION VIEW
SCALE: N.T.S.

CONSTRUCTION NOTES

1. SCOPE OF WORK MUST BE COMPLETED AT WIND SPEEDS < 20 MPH.
2. ALL DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHOULD FIELD VERIFY ALL DIMENSIONS BEFORE FABRICATION OF STEEL AND COMMENCEMENT OF WORK. FIELD CUT MEMBERS AS REQUIRED.
3. HARDWARE FOR SITE PRO 1 SFS-V CONNECTION TO TOWER LEG AND SITE PRO 1 PUCK CONNECTION TO PROPOSED HORIZONTAL PIPE SHOULD BE INSTALLED WITH "TURN OF THE NUT" METHOD (RE: GN-1).

MODIFICATION SCHEDULE

LABEL	ELEVATION	SCOPE	MATERIAL	NOTES
1	±174'-0"	INSTALL (1) PROPOSED FACE HORIZONTAL PIPE AT EACH SECTOR FRAME MOUNT (3 TOTAL) AS SHOWN. CONNECT TO ALL ANTENNA MOUNT PIPES WITH SITE PRO 1 SCX7-U CROSSOVER PLATE KITS (9 TOTAL).	PIPE 2 STD X 12'-0" LONG SITE PRO 1 SCX7-U	S-1 S-2
2	±174'-0"	INSTALL (1) SITE PRO 1 SFS-V AT EACH SECTOR FRAME MOUNT (3 TOTAL) AS SHOWN. CONNECT TO PROPOSED FACE HORIZONTAL PIPE.	SITE PRO 1 SFS-V	S-1 S-2
3	±174'-0"	INSTALL (1) PROPOSED STIFF ARM PER SECTOR (3 TOTAL) AS SHOWN. CONNECT TO NEAREST ADJACENT TOWER LEG WITH SITE PRO 1 UNIVERSAL STIFF ARM ATTACHMENT (SAM-U). CONNECT TO PROPOSED FACE HORIZONTAL PIPE WITH SITE PRO 1 PUCK IN LIEU OF THE SITE PRO 1 SCX1 INCLUDED IN THE STK-U KIT.	SITE PRO 1 STK-U SITE PRO 1 PUCK	S-1 S-2



3 MOUNT - ISOMETRIC VIEW
SCALE: N.T.S.

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STATE OF CONNECTICUT · TYLER M BARKER · No. 32402 · LICENSED PROFESSIONAL ENGINEER

Tyler M. Barker
CLS Engineering PLLC
PE # 32402 Exp. 1/31/2021
COA # PEC.001833 Exp. 8/14/2022
03/31/2021

PE# 32402 EXP: 1/31/2022

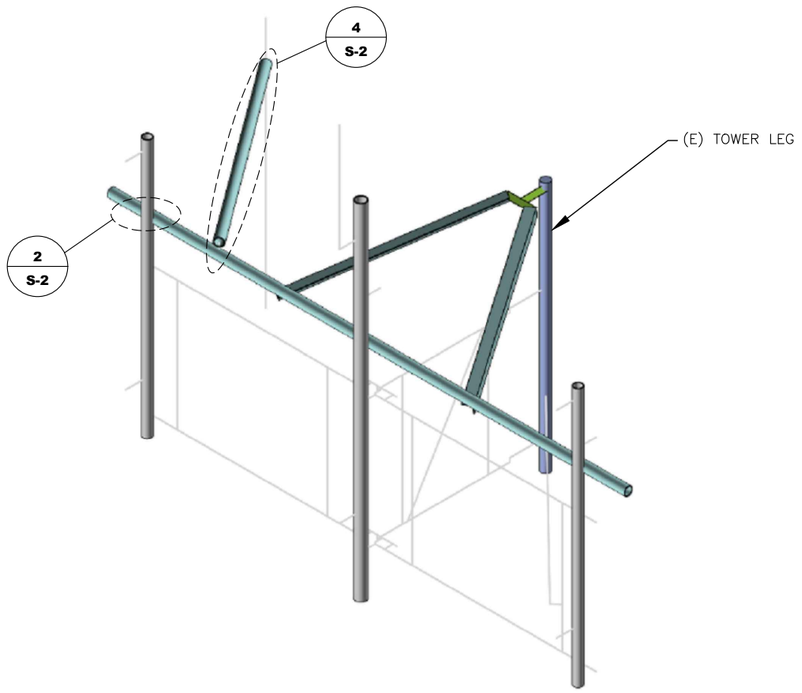
ATC SITE NAME:
GLFD-GUILFORD REBUILD CT

ATC ASSET #: 311305

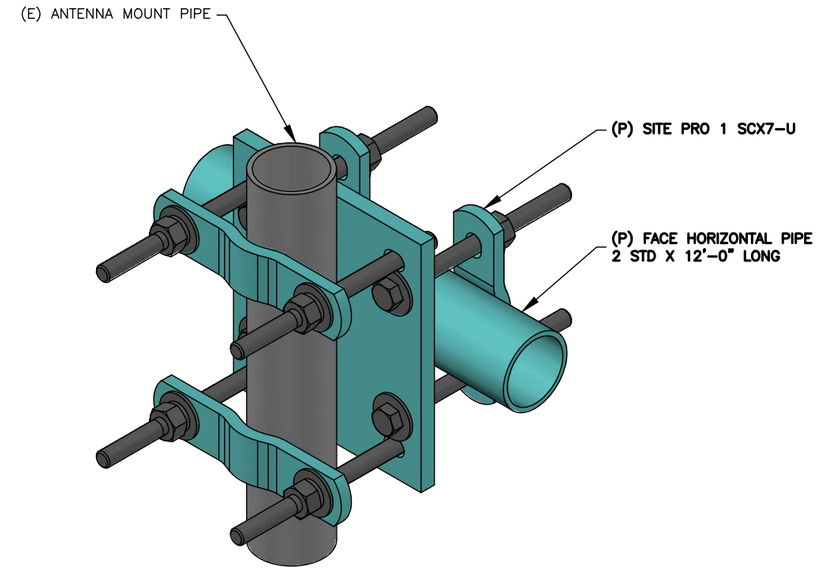
10 TANNER MARSH ROAD
GUILFORD, CT 06437-2942

SHEET TITLE
MOUNT VIEWS & MODIFICATION SCHEDULE

SHEET NUMBER
S-1

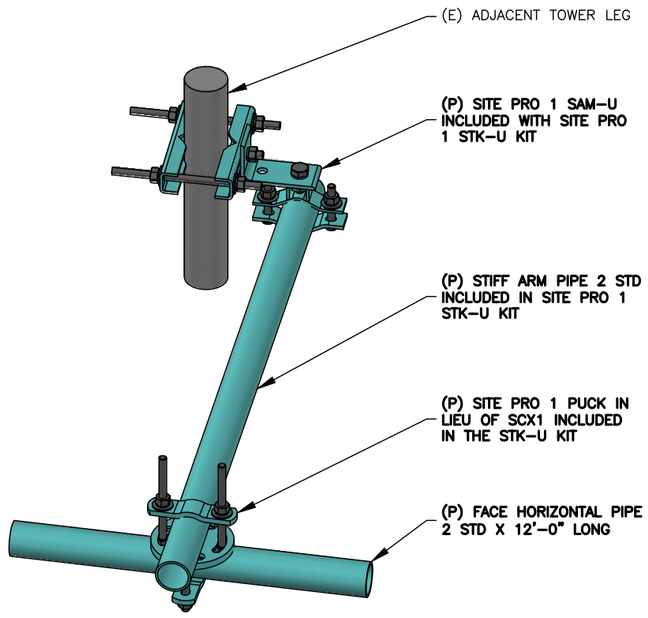


1 MOUNT MOD - ISOMETRIC VIEW
SCALE: N.T.S.



2 SITE PRO 1 SCX7-U
SCALE: N.T.S.

3 SITE PRO 1 SFS-V
SCALE: N.T.S.



4 SITE PRO 1 STK-U WITH PUCK CONNECTION
SCALE: N.T.S.

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STATE OF CONNECTICUT
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PE # 32402 Exp. 1/31/2021
COA # PEC.001833 Exp. 8/14/2022
03/31/2021

PE# 32402 EXP: 1/31/2022

ATC SITE NAME:

GLFD-GUILFORD REBUILD CT

ATC ASSET #: 311305

10 TANNER MARSH ROAD
GUILFORD, CT 06437-2942

SHEET TITLE

MODIFICATION DETAIL VIEWS

SHEET NUMBER

S-2

Wind & Ice Loading

Nominal Mount Elevation (AGL), z_{mount}	174 ft	**K_a**	0.90
Nominal Rad Elevation (AGL), z_{rad}	177 ft	**K_d**	0.95
Elevation AMSL (ft)	80 ft	**K_e**	1.00
TIA Standard	H	**K_z**	1.42
Basic Wind Speed, V_{ult} (bare)	123 mph	**K_{zt}**	1.00
Basic Wind Speed, V (ice)	50 mph	**K_s**	1.00
Design Ice Thickness, t_i	1 in	**t_{iz}**	1.18 in
Exposure Category	C	**G_h**	1.00
Risk Category	II	**q_z (bare)**	52.2 psf
Seismic Response Coeff., C_s	0.11	**q_z (ice)**	8.6 psf

Live Loading

At Mount Pipes, L_M	500 lb
Joint Labels Considered	M1
	M2
	M3

Member Distributed Loading

Section Set Label	Shape Label	F_A (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Mount Pipe_2.0	PIPE_2.0	11.15	3.68	5.13
Mount Pipe_2.5	PIPE_2.5	13.50	4.06	5.85
Rear Connection Plate	PL7x3/8	54.78	7.27	8.48
Face Horizontal	L3X3X3	23.48	2.12	7.10
Vertical Bracing	P2.38x.120	11.18	3.68	5.14
Standoff Angle	L3X3X6	23.48	2.12	7.10
Stiff Arm	PIPE_2.0	11.15	3.68	5.13
Standoff Bracing	SR 3/4	3.52	2.41	2.79
Face Connection Plate	PL5x0.5	39.13	5.73	6.76
MOD Face Pipe	PIPE_2.0	11.15	3.68	5.13
MOD SFS	L2.5x2.5x3	19.57	2.08	6.18
MOD Stiff Arm	PIPE_2.0	11.15	3.68	5.13

Appurtenances

Appurtenance Model	Status	Azimuth Offset (°, ↻)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty.	Total Qty. Override	0° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	EPA_A (Bare) (ft^2)		EPA_A (Ice) (ft^2)		F_A (Bare) (lb)		F_A (Ice) (lb)	
					Front	Side	0°		1	2							N	T	N	T	N	T	N	T
APXVAALL24_43-U-NA20				☐			1	***3***	A2	A22	95.9	24	8.5	149.9	Generic	264.52	14.67	5.32	16.47	6.91	691.35	250.71	128.24	53.77
AIR 21 B4A/B2P				☐			1	***3***	A3	A33	55	12	7.9	83	Generic	97.00	3.19	1.98	3.95	2.69	150.33	93.31	30.74	20.95
AIR 21 B2A/B4P				☐			1	***3***	A1	A11	55	12	7.9	83	Generic	97.00	3.19	1.98	3.95	2.69	150.33	93.31	30.74	20.95
KRY 112 144/1				☐	0.5		1	***3***	T1		6.9	6.1	2.7	11	Flat	9.19	0.18	0.16	0.33	0.39	8.26	7.33	2.55	3.05
RADIO 4449 B71 B85A				☐	0.5		1	***3***	R1		15	13.2	10.5	75	Flat	45.33	0.83	1.31	1.13	1.86	38.88	61.85	8.77	14.50

ASCE 7 Hazards Report

Address:
345 Boston Post Rd
Guilford, Connecticut
06437

Standard:	ASCE/SEI 7-16	**Elevation:**	80.05 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.288777
Soil Class:	D - Default (see Section 11.4.3)	**Longitude:**	-72.658755

Wind

Results:

Wind Speed:	123 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	94 Vmph
100-year MRI	100 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:	Thu Mar 11 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 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

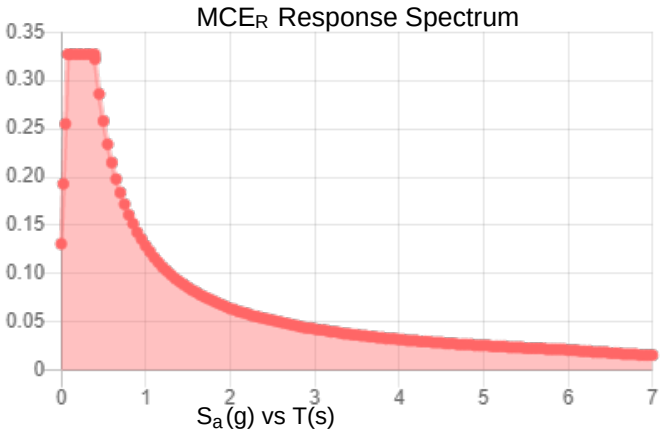
Seismic

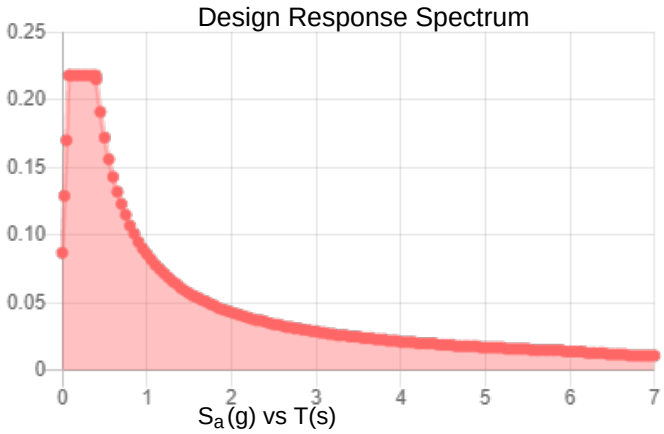
Site Soil Class: D - Default (see Section 11.4.3)

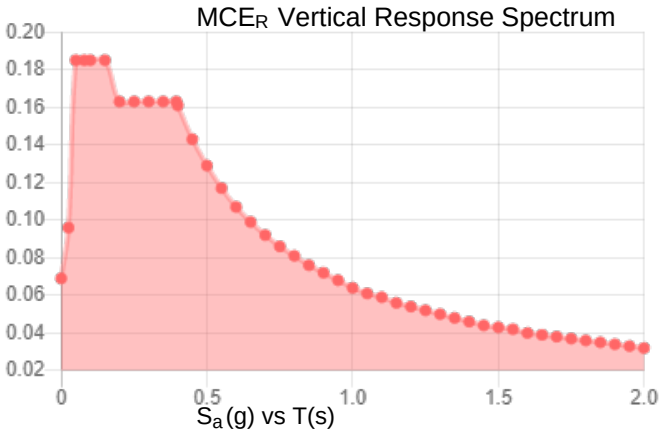
Results:

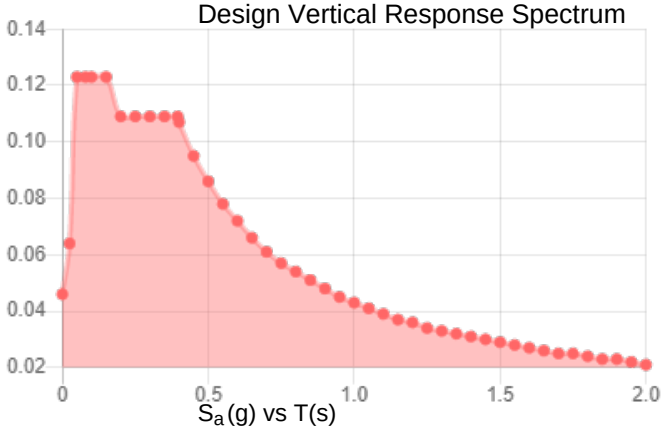
S_S :	0.204	S_{D1} :	0.086
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.114
F_v :	2.4	PGA_M :	0.179
S_{MS} :	0.327	F_{PGA} :	1.572
S_{M1} :	0.129	I_e :	1
S_{DS} :	0.218	C_v :	0.708

Seismic Design Category B









Data Accessed: Thu Mar 11 2021

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.

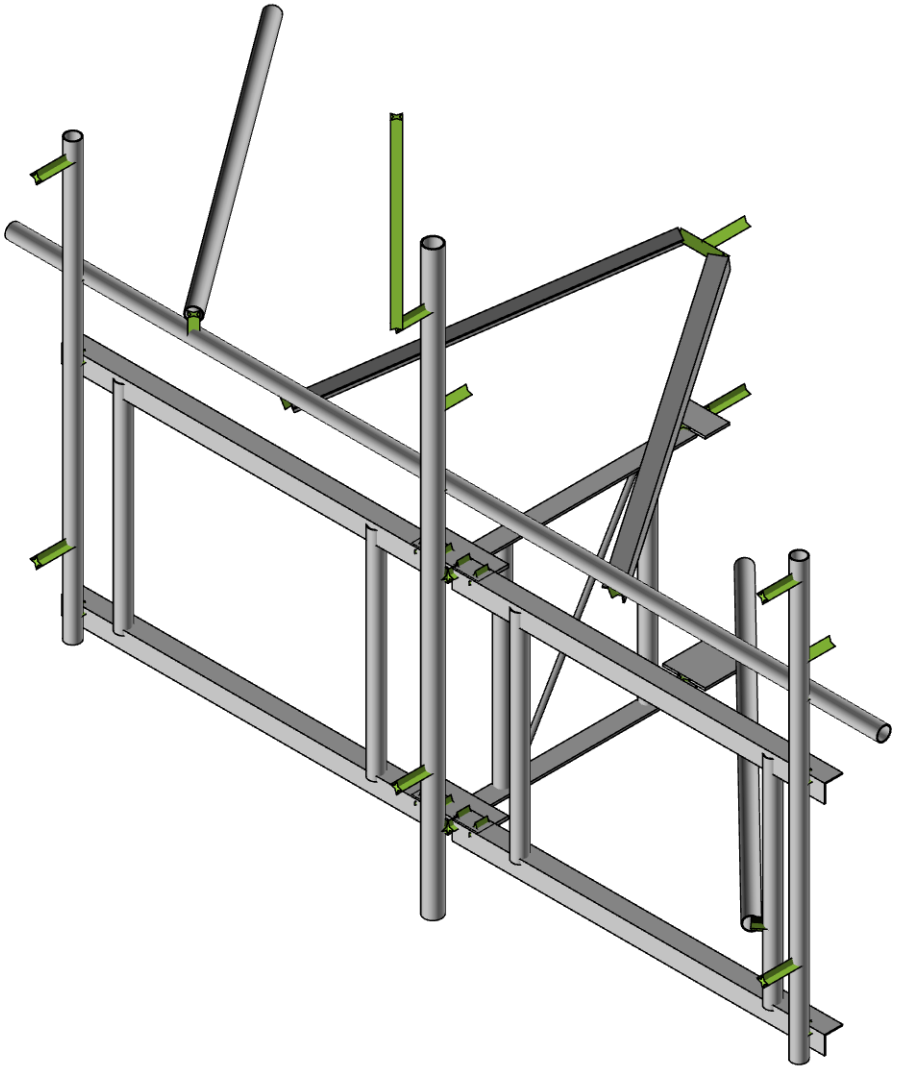
Ice

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:	Thu Mar 11 2021

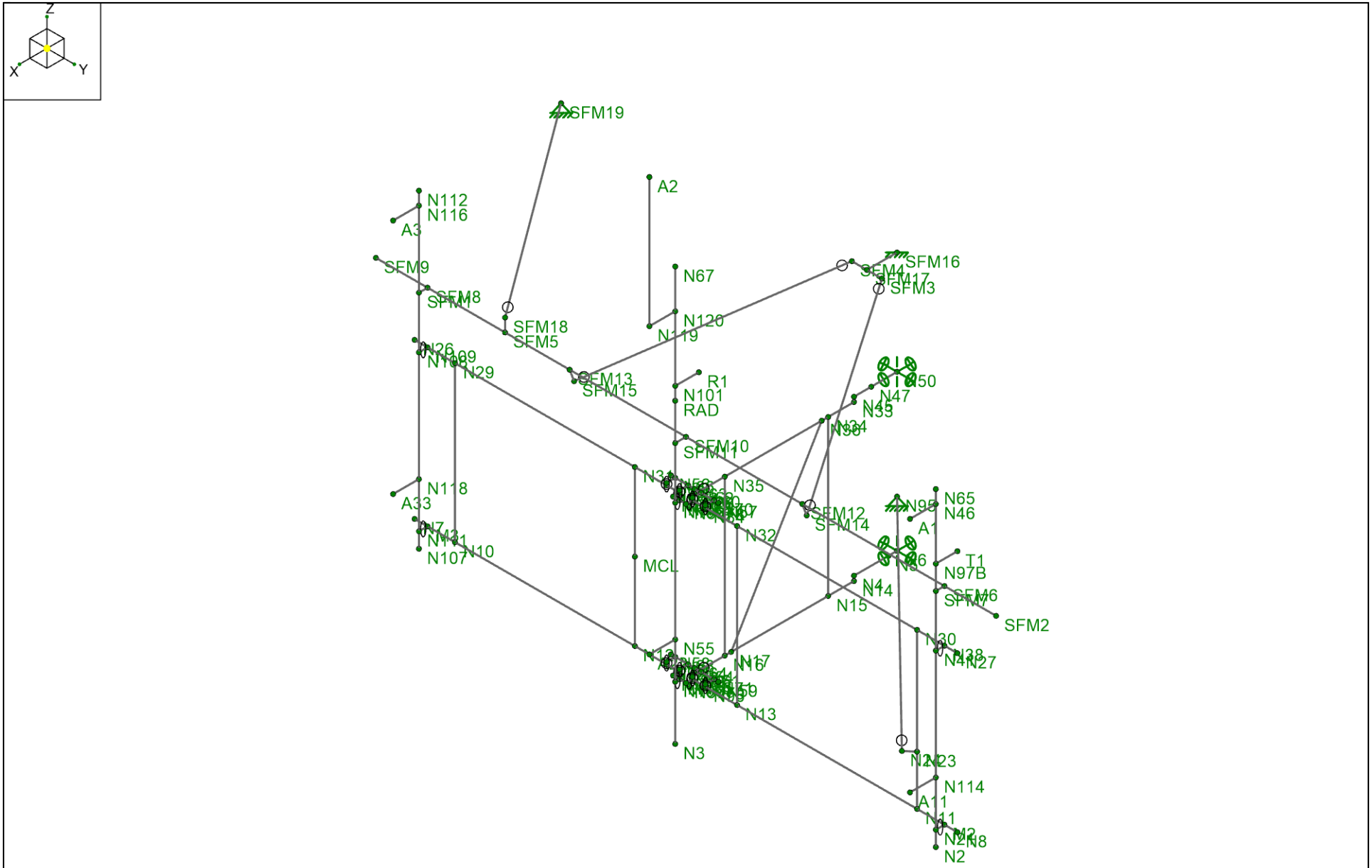
Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 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.



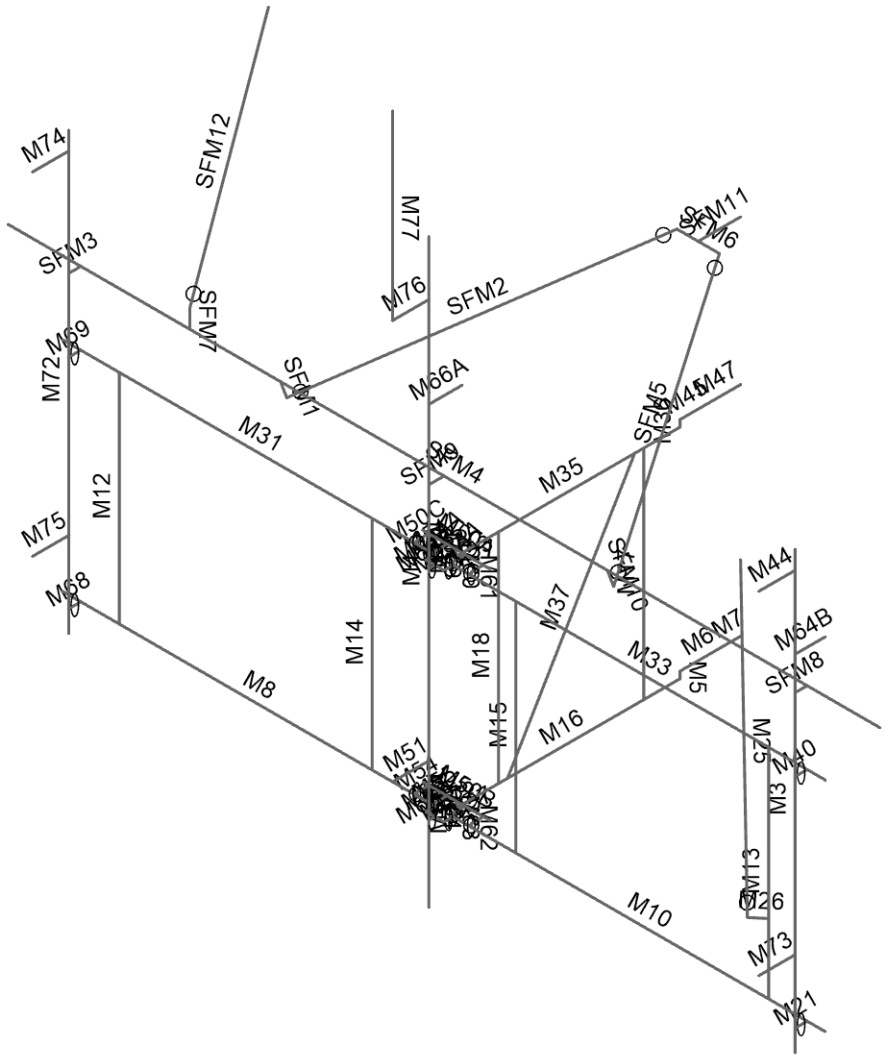
Envelope Only Solution

CLS	41124-13617386_C9_03-GLFD-GUILFORD REBUILD CT	SK-1
NGN		Mar 31, 2021
41124-13617386_C9_03-02-MOD	Rendered	41124-13617386_C9_03-02-MOD.r3d



Envelope Only Solution

CLS	41124-13617386_C9_03-GLFD-GUILFORD REBUILD CT	SK-2
NGN		Mar 31, 2021
41124-13617386_C9_03-02-MOD	Joint Labels	41124-13617386_C9_03-02-MOD.r3d



Envelope Only Solution

CLS	41124-13617386_C9_03-GLFD-GUILFORD REBUILD CT	SK-3
NGN		Mar 31, 2021
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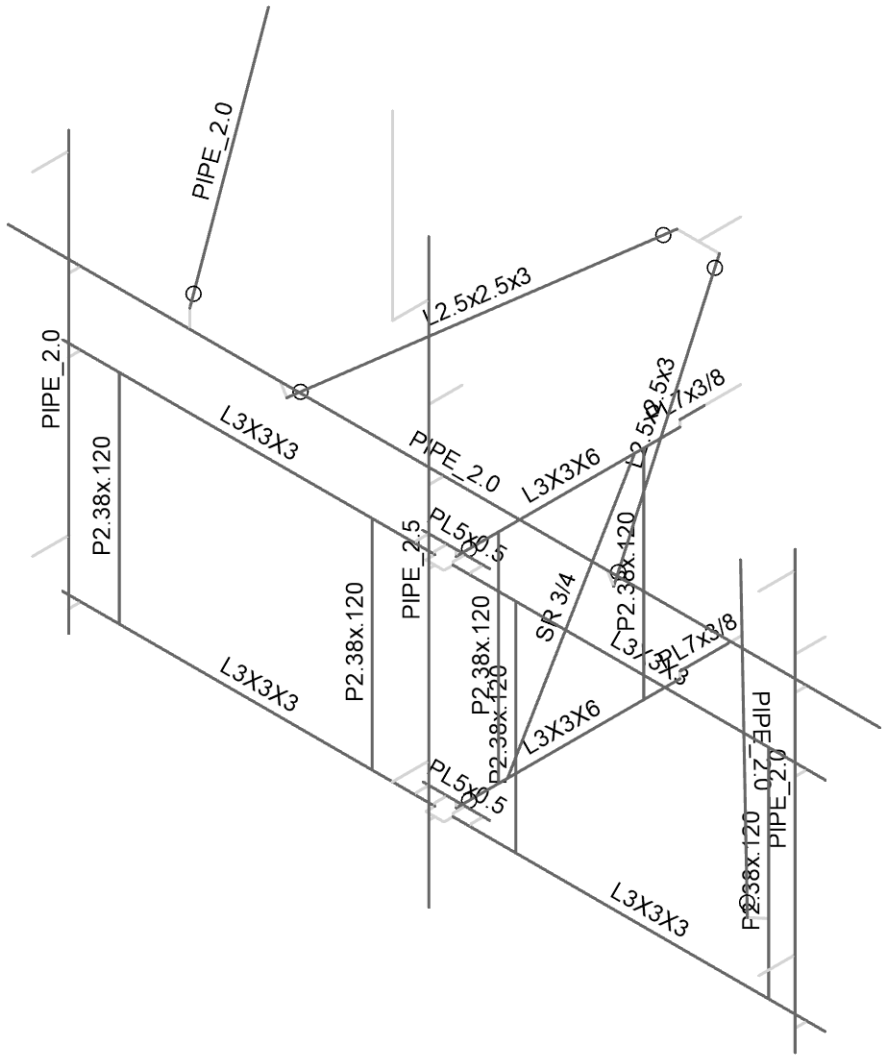
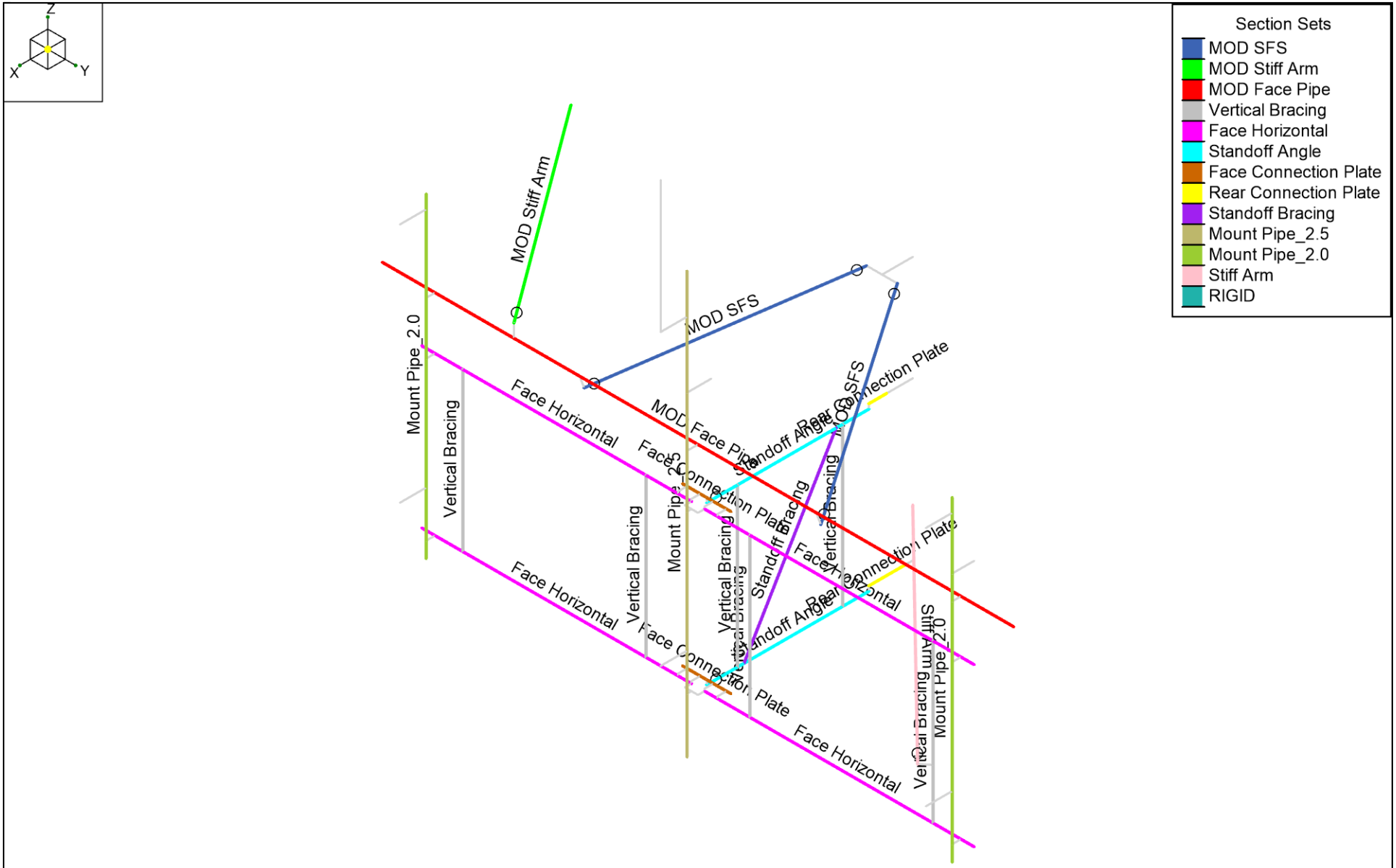


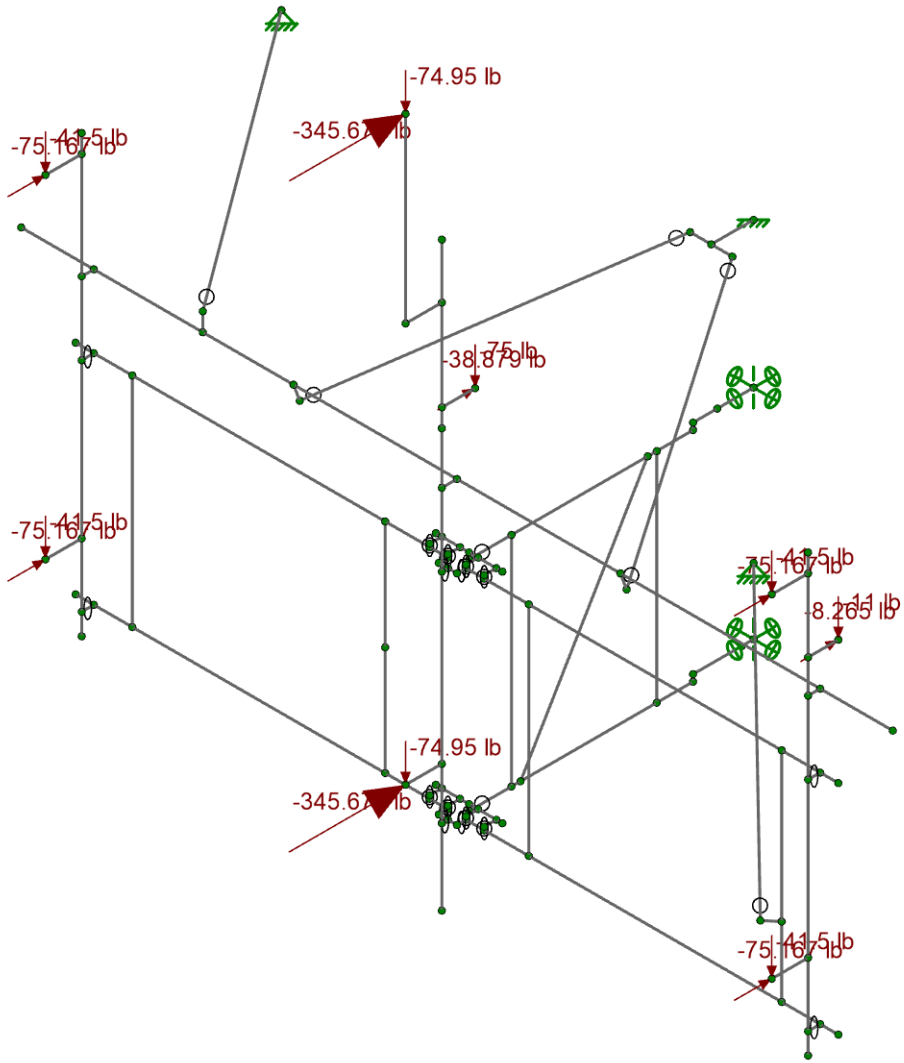
Envelope Only Solution

CLS	41124-13617386_C9_03-GLFD-GUILFORD REBUILD CT	SK-3.1
NGN		Mar 31, 2021
41124-13617386_C9_03-02-MOD	Member Shapes	41124-13617386_C9_03-02-MOD.r3d



Envelope Only Solution

CLS	41124-13617386_C9_03-GLFD-GUILFORD REBUILD CT	SK-4
NGN		Mar 31, 2021
41124-13617386_C9_03-02-MOD	Section Sets	41124-13617386_C9_03-02-MOD.r3d



Loads: LC 1, DISPLAY (1.0D + 1.0W_0)

Envelope Only Solution

CLS	41124-13617386_C9_03-GLFD-GUILFORD REBUILD CT	SK-5
NGN		Mar 31, 2021
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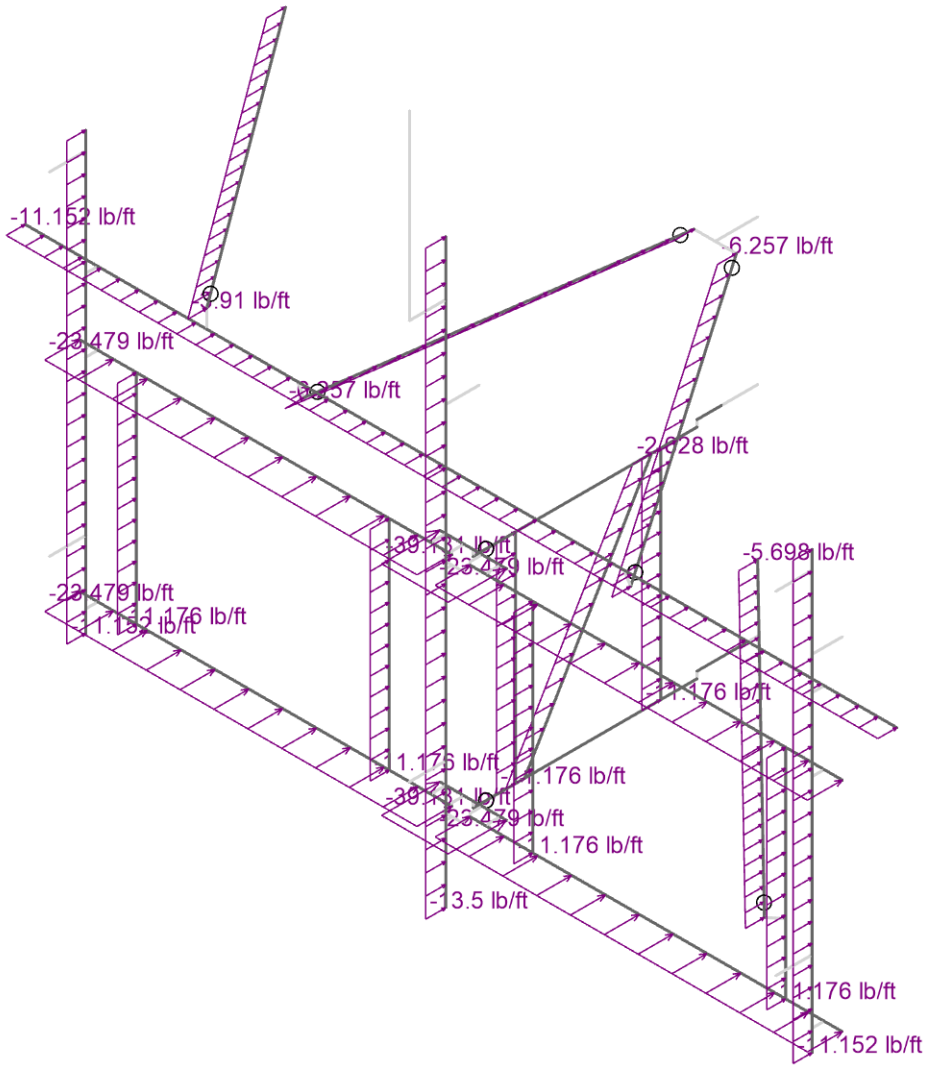
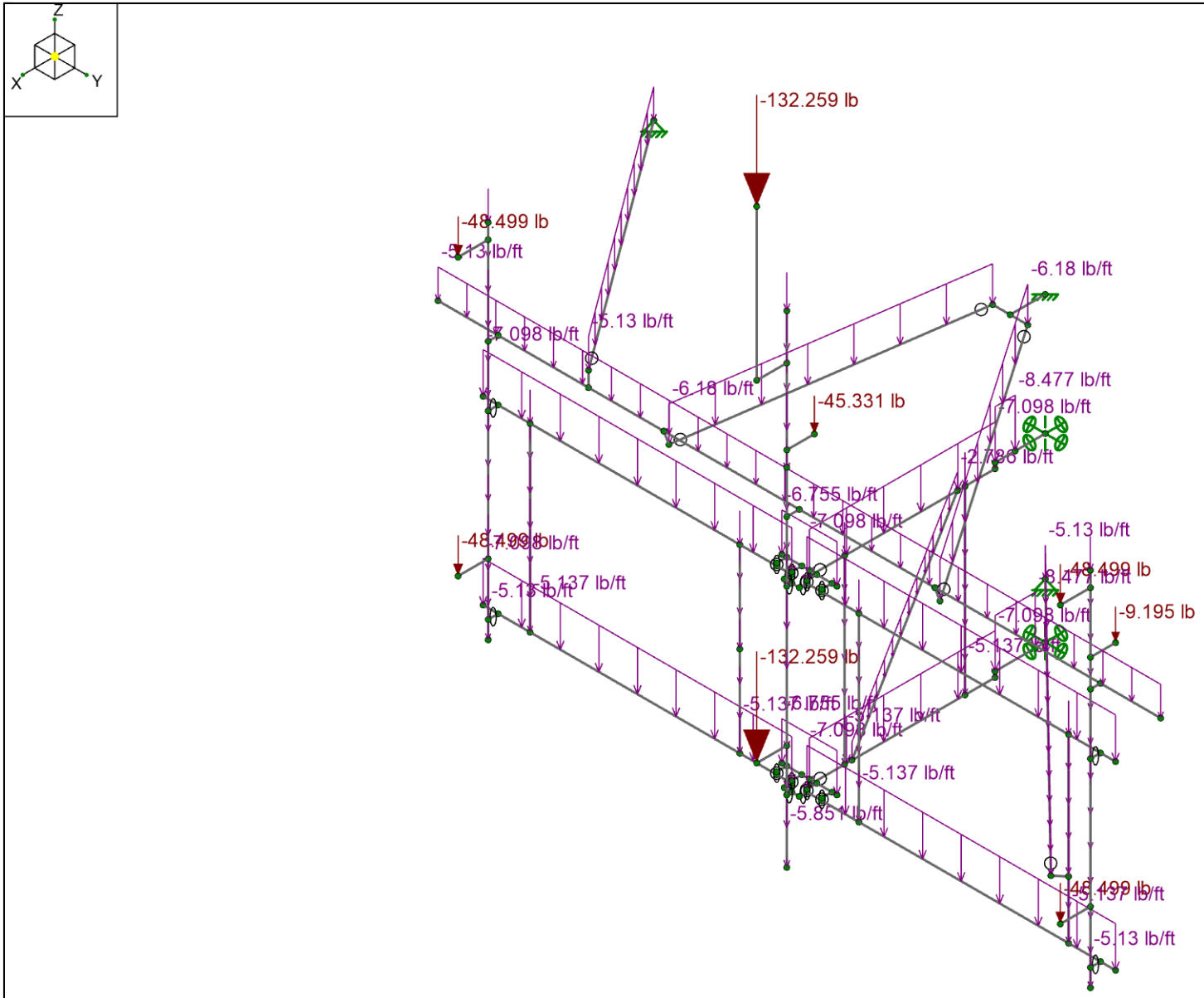


Loads: BLC 5, Structure Wind 0

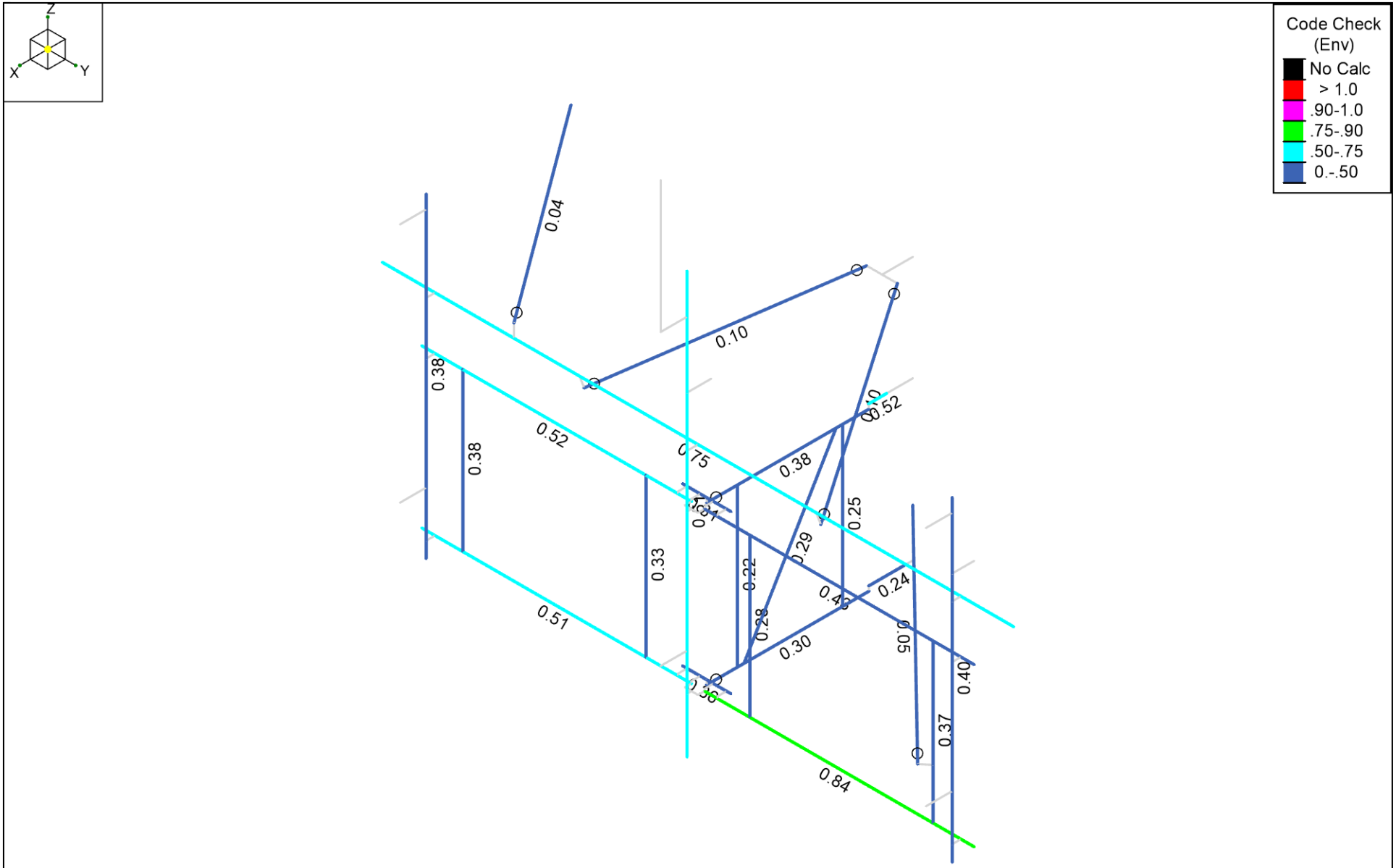
Envelope Only Solution

CLS	41124-13617386_C9_03-GLFD-GUILFORD REBUILD CT	SK-6
NGN		Mar 31, 2021
41124-13617386_C9_03-02-MOD	Distributed Load - Normal Wind	41124-13617386_C9_03-02-MOD.r3d



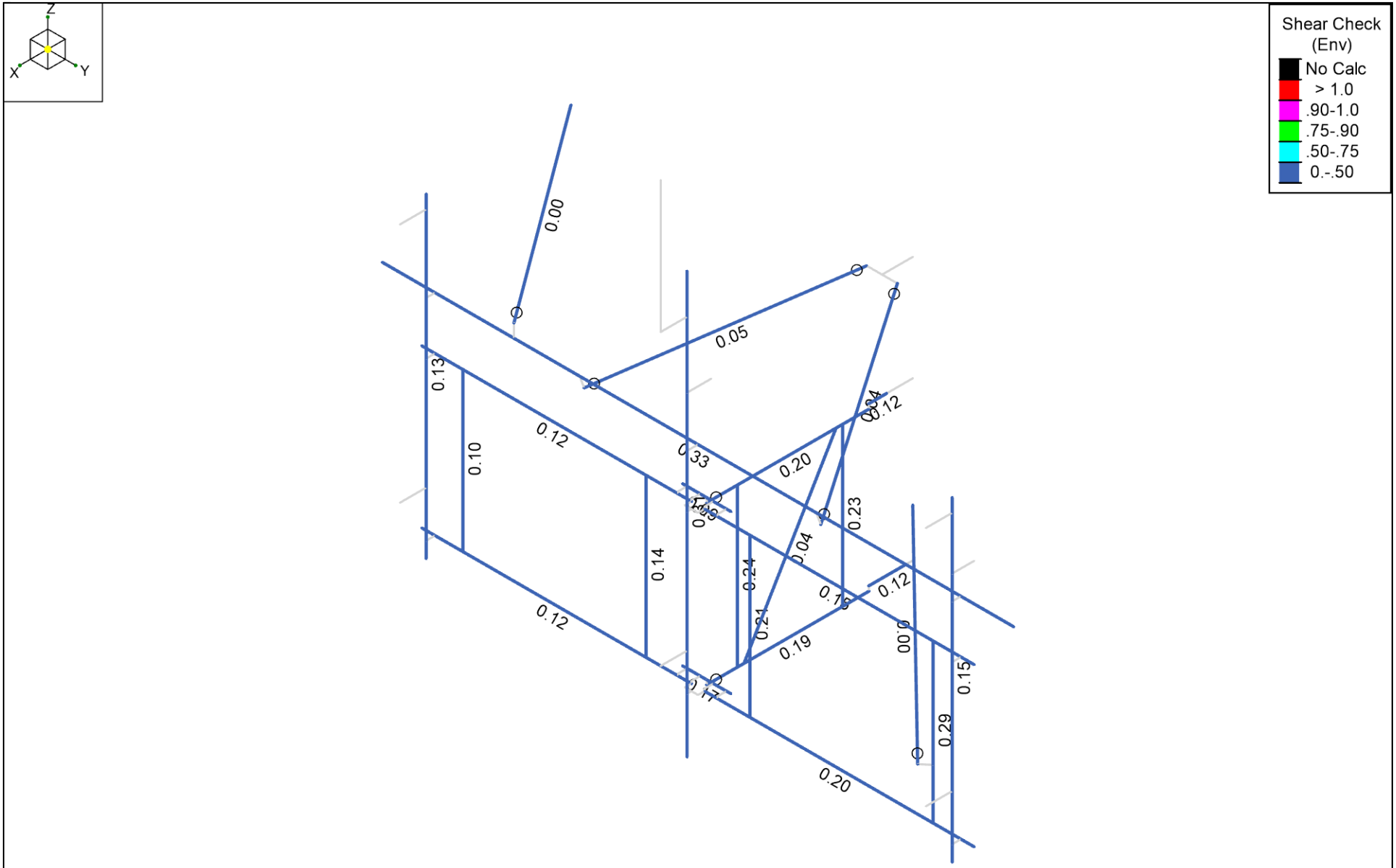
Loads: BLC 2, Ice Dead
Envelope Only Solution

CLS	41124-13617386_C9_03-GLFD-GUILFORD REBUILD CT	SK-7
NGN		Mar 31, 2021
41124-13617386_C9_03-02-MOD	Ice Dead Loads	41124-13617386_C9_03-02-MOD.r3d



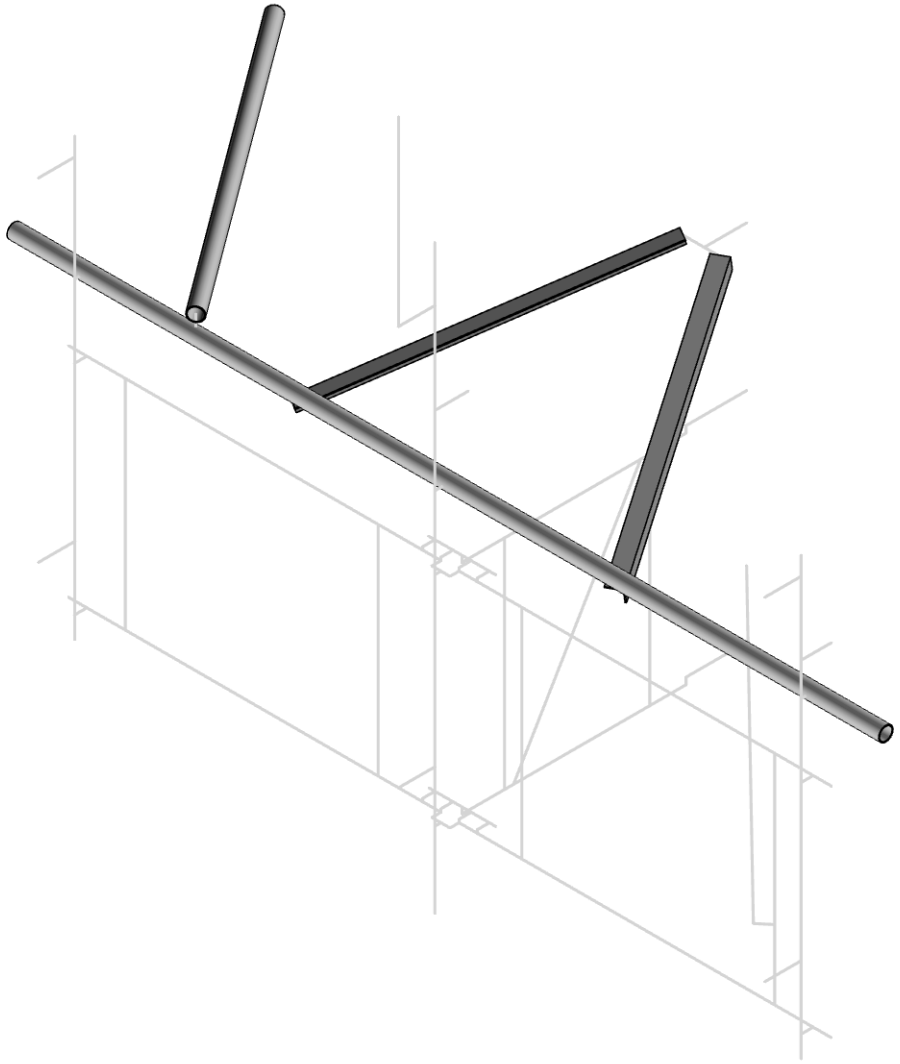
Member Code Checks Displayed (Enveloped)
Envelope Only Solution

CLS	41124-13617386_C9_03-GLFD-GUILFORD REBUILD CT	SK-8
NGN		Mar 31, 2021
41124-13617386_C9_03-02-MOD	Envelope Member Unity Check Results – Bending	41124-13617386_C9_03-02-MOD.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

CLS	41124-13617386_C9_03-GLFD-GUILFORD REBUILD CT	SK-9
NGN		Mar 31, 2021
41124-13617386_C9_03-02-MOD	Envelope Member Check Results – Shear	41124-13617386_C9_03-02-MOD.r3d



Envelope Only Solution

CLS	41124-13617386_C9_03-GLFD-GUILFORD REBUILD CT	SK-10
NGN		Mar 31, 2021
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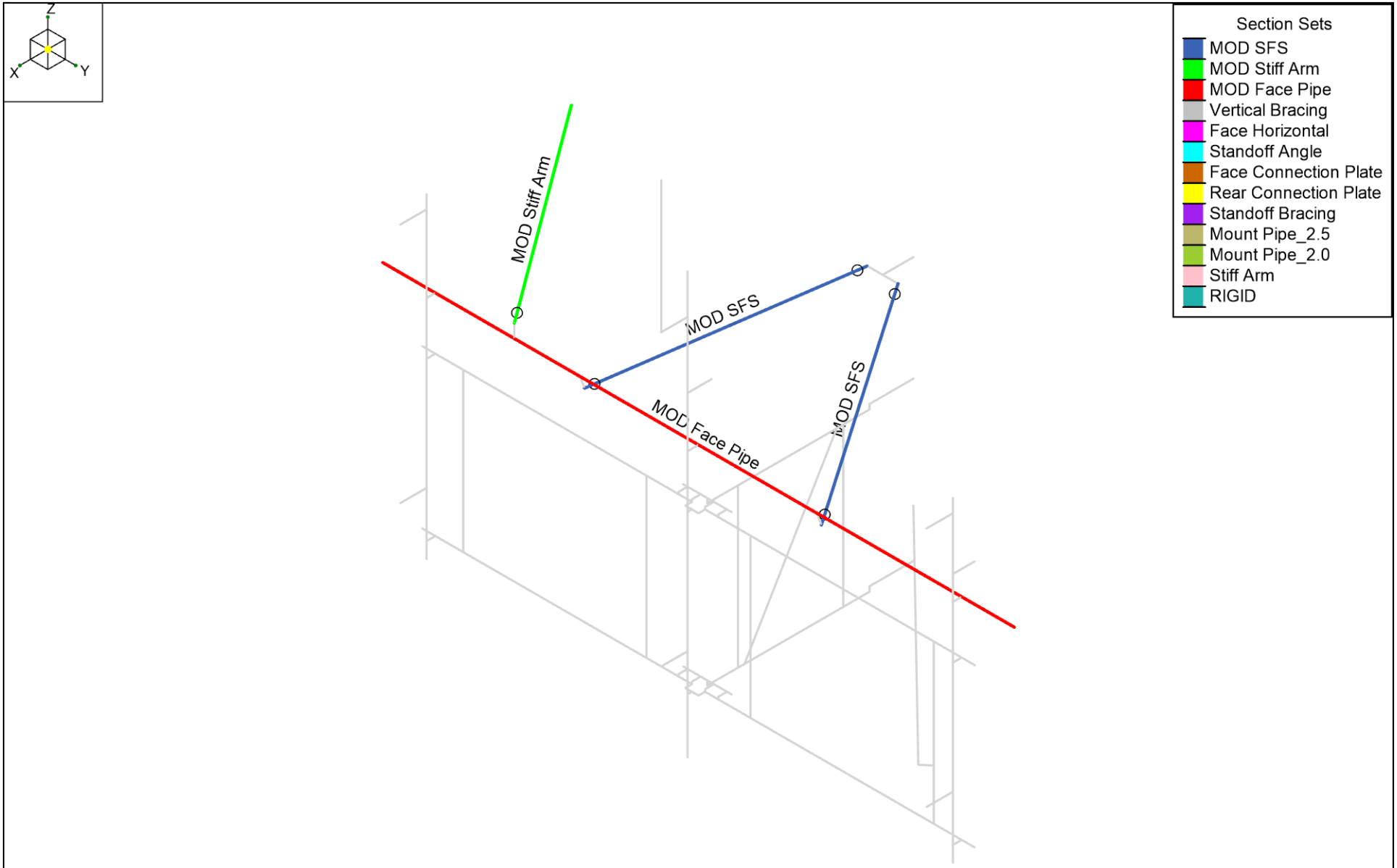


Envelope Only Solution

CLS	41124-13617386_C9_03-GLFD-GUILFORD REBUILD CT	SK-11
NGN		Mar 31, 2021
41124-13617386_C9_03-02-MOD	Proposed Modifications - Section Sets	41124-13617386_C9_03-02-MOD.r3d

Basic Load Cases

	BLC Description	Category	Z Gravity	Nodal	Distributed
1	Dead	DL	-1	8	
2	Ice Dead	RL		8	25
5	Structure Wind 0°	None			21
6	Structure Wind 30°	None			50
7	Structure Wind 45°	None			50
8	Structure Wind 60°	None			50
9	Structure Wind 90°	None			18
10	Structure Wind 120°	None			50
11	Structure Wind 135°	None			50
12	Structure Wind 150°	None			50
13	Structure Wind 180°	None			21
14	Structure Wind 210°	None			50
15	Structure Wind 225°	None			50
16	Structure Wind 240°	None			50
17	Structure Wind 270°	None			18
18	Structure Wind 300°	None			50
19	Structure Wind 315°	None			50
20	Structure Wind 330°	None			50
21	Structure Wind w/ Ice 0°	None			21
22	Structure Wind w/ Ice 30°	None			50
23	Structure Wind w/ Ice 45°	None			50
24	Structure Wind w/ Ice 60°	None			50
25	Structure Wind w/ Ice 90°	None			18
26	Structure Wind w/ Ice 120°	None			50
27	Structure Wind w/ Ice 135°	None			50
28	Structure Wind w/ Ice 150°	None			50
29	Structure Wind w/ Ice 180°	None			21
30	Structure Wind w/ Ice 210°	None			50
31	Structure Wind w/ Ice 225°	None			50
32	Structure Wind w/ Ice 240°	None			50
33	Structure Wind w/ Ice 270°	None			18
34	Structure Wind w/ Ice 300°	None			50
35	Structure Wind w/ Ice 315°	None			50
36	Structure Wind w/ Ice 330°	None			50
37	Antenna Wind 0°	None		8	
38	Antenna Wind 30°	None		16	
39	Antenna Wind 45°	None		16	
40	Antenna Wind 60°	None		16	
41	Antenna Wind 90°	None		8	
42	Antenna Wind 120°	None		16	
43	Antenna Wind 135°	None		16	
44	Antenna Wind 150°	None		16	
45	Antenna Wind 180°	None		8	
46	Antenna Wind 210°	None		16	
47	Antenna Wind 225°	None		16	
48	Antenna Wind 240°	None		16	
49	Antenna Wind 270°	None		8	
50	Antenna Wind 300°	None		16	
51	Antenna Wind 315°	None		16	
52	Antenna Wind 330°	None		16	
53	Antenna Wind w/ Ice 0°	None		8	
54	Antenna Wind w/ Ice 30°	None		16	
55	Antenna Wind w/ Ice 45°	None		16	
56	Antenna Wind w/ Ice 60°	None		16	
57	Antenna Wind w/ Ice 90°	None		8	
58	Antenna Wind w/ Ice 120°	None		16	
59	Antenna Wind w/ Ice 135°	None		16	
60	Antenna Wind w/ Ice 150°	None		16	

Basic Load Cases (Continued)

	BLC Description	Category	Z Gravity	Nodal	Distributed
61	Antenna Wind w/ Ice 180°	None		8	
62	Antenna Wind w/ Ice 210°	None		16	
63	Antenna Wind w/ Ice 225°	None		16	
64	Antenna Wind w/ Ice 240°	None		16	
65	Antenna Wind w/ Ice 270°	None		8	
66	Antenna Wind w/ Ice 300°	None		16	
67	Antenna Wind w/ Ice 315°	None		16	
68	Antenna Wind w/ Ice 330°	None		16	
69	Seismic X	ELX		8	25
70	Seismic Y	ELY		8	25
71	Seismic Z	ELZ		8	25
72	Maintenance Live 500 (1)	OL1		1	
73	Maintenance Live 500 (2)	OL2		1	
74	Maintenance Live 500 (3)	OL3		1	

Load Combinations

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	DISPLAY (1.0D + 1.0W_0°)	Yes	Y	DL	1	37	1				
2	1.4D	Yes	Y	DL	1.4						
3	1.2D + 1.0W_0°	Yes	Y	DL	1.2	5	1	37	1		
4	1.2D + 1.0W_30°	Yes	Y	DL	1.2	6	1	38	1		
5	1.2D + 1.0W_45°	Yes	Y	DL	1.2	7	1	39	1		
6	1.2D + 1.0W_60°	Yes	Y	DL	1.2	8	1	40	1		
7	1.2D + 1.0W_90°	Yes	Y	DL	1.2	9	1	41	1		
8	1.2D + 1.0W_120°	Yes	Y	DL	1.2	10	1	42	1		
9	1.2D + 1.0W_135°	Yes	Y	DL	1.2	11	1	43	1		
10	1.2D + 1.0W_150°	Yes	Y	DL	1.2	12	1	44	1		
11	1.2D + 1.0W_180°	Yes	Y	DL	1.2	13	-1	45	-1		
12	1.2D + 1.0W_210°	Yes	Y	DL	1.2	14	-1	46	-1		
13	1.2D + 1.0W_225°	Yes	Y	DL	1.2	15	-1	47	-1		
14	1.2D + 1.0W_240°	Yes	Y	DL	1.2	16	-1	48	-1		
15	1.2D + 1.0W_270°	Yes	Y	DL	1.2	17	-1	49	-1		
16	1.2D + 1.0W_300°	Yes	Y	DL	1.2	18	-1	50	-1		
17	1.2D + 1.0W_315°	Yes	Y	DL	1.2	19	-1	51	-1		
18	1.2D + 1.0W_330°	Yes	Y	DL	1.2	20	-1	52	-1		
19	1.2D + 1.0Di + 1.0Wi_0°	Yes	Y	DL	1.2	21	1	53	1	RL	1
20	1.2D + 1.0Di + 1.0Wi_30°	Yes	Y	DL	1.2	22	1	54	1	RL	1
21	1.2D + 1.0Di + 1.0Wi_45°	Yes	Y	DL	1.2	23	1	55	1	RL	1
22	1.2D + 1.0Di + 1.0Wi_60°	Yes	Y	DL	1.2	24	1	56	1	RL	1
23	1.2D + 1.0Di + 1.0Wi_90°	Yes	Y	DL	1.2	25	1	57	1	RL	1
24	1.2D + 1.0Di + 1.0Wi_120°	Yes	Y	DL	1.2	26	1	58	1	RL	1
25	1.2D + 1.0Di + 1.0Wi_135°	Yes	Y	DL	1.2	27	1	59	1	RL	1
26	1.2D + 1.0Di + 1.0Wi_150°	Yes	Y	DL	1.2	28	1	60	1	RL	1
27	1.2D + 1.0Di + 1.0Wi_180°	Yes	Y	DL	1.2	29	-1	61	-1	RL	1
28	1.2D + 1.0Di + 1.0Wi_210°	Yes	Y	DL	1.2	30	-1	62	-1	RL	1
29	1.2D + 1.0Di + 1.0Wi_225°	Yes	Y	DL	1.2	31	-1	63	-1	RL	1
30	1.2D + 1.0Di + 1.0Wi_240°	Yes	Y	DL	1.2	32	-1	64	-1	RL	1
31	1.2D + 1.0Di + 1.0Wi_270°	Yes	Y	DL	1.2	33	-1	65	-1	RL	1
32	1.2D + 1.0Di + 1.0Wi_300°	Yes	Y	DL	1.2	34	-1	66	-1	RL	1
33	1.2D + 1.0Di + 1.0Wi_315°	Yes	Y	DL	1.2	35	-1	67	-1	RL	1
34	1.2D + 1.0Di + 1.0Wi_330°	Yes	Y	DL	1.2	36	-1	68	-1	RL	1
35	1.2D + 1.0Ev + 1.0Eh_0°	Yes	Y	DL	1.244	ELX	-1	ELY			
36	1.2D + 1.0Ev + 1.0Eh_30°	Yes	Y	DL	1.244	ELX	-0.866	ELY	0.5		
37	1.2D + 1.0Ev + 1.0Eh_45°	Yes	Y	DL	1.244	ELX	-0.707	ELY	0.707		
38	1.2D + 1.0Ev + 1.0Eh_60°	Yes	Y	DL	1.244	ELX	-0.5	ELY	0.866		
39	1.2D + 1.0Ev + 1.0Eh_90°	Yes	Y	DL	1.244	ELX		ELY	1		
40	1.2D + 1.0Ev + 1.0Eh_120°	Yes	Y	DL	1.244	ELX	0.5	ELY	0.866		
41	1.2D + 1.0Ev + 1.0Eh_135°	Yes	Y	DL	1.244	ELX	0.707	ELY	0.707		

Load Combinations (Continued)

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
42	1.2D + 1.0Ev + 1.0Eh_150°	Yes	Y	DL	1.244	ELX	0.866	ELY	0.5		
43	1.2D + 1.0Ev + 1.0Eh_180°	Yes	Y	DL	1.244	ELX	1	ELY			
44	1.2D + 1.0Ev + 1.0Eh_210°	Yes	Y	DL	1.244	ELX	0.866	ELY	-0.5		
45	1.2D + 1.0Ev + 1.0Eh_225°	Yes	Y	DL	1.244	ELX	0.707	ELY	-0.707		
46	1.2D + 1.0Ev + 1.0Eh_240°	Yes	Y	DL	1.244	ELX	0.5	ELY	-0.866		
47	1.2D + 1.0Ev + 1.0Eh_270°	Yes	Y	DL	1.244	ELX		ELY	-1		
48	1.2D + 1.0Ev + 1.0Eh_300°	Yes	Y	DL	1.244	ELX	-0.5	ELY	-0.866		
49	1.2D + 1.0Ev + 1.0Eh_315°	Yes	Y	DL	1.244	ELX	-0.707	ELY	-0.707		
50	1.2D + 1.0Ev + 1.0Eh_330°	Yes	Y	DL	1.244	ELX	-0.866	ELY	-0.5		
51	0.9D - 1.0Ev + 1.0Eh_0°	Yes	Y	DL	0.856	ELX	-1	ELY			
52	0.9D - 1.0Ev + 1.0Eh_30°	Yes	Y	DL	0.856	ELX	-0.866	ELY	0.5		
53	0.9D - 1.0Ev + 1.0Eh_45°	Yes	Y	DL	0.856	ELX	-0.707	ELY	0.707		
54	0.9D - 1.0Ev + 1.0Eh_60°	Yes	Y	DL	0.856	ELX	-0.5	ELY	0.866		
55	0.9D - 1.0Ev + 1.0Eh_90°	Yes	Y	DL	0.856	ELX		ELY	1		
56	0.9D - 1.0Ev + 1.0Eh_120°	Yes	Y	DL	0.856	ELX	0.5	ELY	0.866		
57	0.9D - 1.0Ev + 1.0Eh_135°	Yes	Y	DL	0.856	ELX	0.707	ELY	0.707		
58	0.9D - 1.0Ev + 1.0Eh_150°	Yes	Y	DL	0.856	ELX	0.866	ELY	0.5		
59	0.9D - 1.0Ev + 1.0Eh_180°	Yes	Y	DL	0.856	ELX	1	ELY			
60	0.9D - 1.0Ev + 1.0Eh_210°	Yes	Y	DL	0.856	ELX	0.866	ELY	-0.5		
61	0.9D - 1.0Ev + 1.0Eh_225°	Yes	Y	DL	0.856	ELX	0.707	ELY	-0.707		
62	0.9D - 1.0Ev + 1.0Eh_240°	Yes	Y	DL	0.856	ELX	0.5	ELY	-0.866		
63	0.9D - 1.0Ev + 1.0Eh_270°	Yes	Y	DL	0.856	ELX		ELY	-1		
64	0.9D - 1.0Ev + 1.0Eh_300°	Yes	Y	DL	0.856	ELX	-0.5	ELY	-0.866		
65	0.9D - 1.0Ev + 1.0Eh_315°	Yes	Y	DL	0.856	ELX	-0.707	ELY	-0.707		
66	0.9D - 1.0Ev + 1.0Eh_330°	Yes	Y	DL	0.856	ELX	-0.866	ELY	-0.5		
67	1.2D + 1.5Lm_1 + 1.0Wm_0°	Yes	Y	DL	1.2	5	0.063	37	0.063	OL1	1.5
68	1.2D + 1.5Lm_1 + 1.0Wm_30°	Yes	Y	DL	1.2	6	0.063	38	0.063	OL1	1.5
69	1.2D + 1.5Lm_1 + 1.0Wm_45°	Yes	Y	DL	1.2	7	0.063	39	0.063	OL1	1.5
70	1.2D + 1.5Lm_1 + 1.0Wm_60°	Yes	Y	DL	1.2	8	0.063	40	0.063	OL1	1.5
71	1.2D + 1.5Lm_1 + 1.0Wm_90°	Yes	Y	DL	1.2	9	0.063	41	0.063	OL1	1.5
72	1.2D + 1.5Lm_1 + 1.0Wm_120°	Yes	Y	DL	1.2	10	0.063	42	0.063	OL1	1.5
73	1.2D + 1.5Lm_1 + 1.0Wm_135°	Yes	Y	DL	1.2	11	0.063	43	0.063	OL1	1.5
74	1.2D + 1.5Lm_1 + 1.0Wm_150°	Yes	Y	DL	1.2	12	0.063	44	0.063	OL1	1.5
75	1.2D + 1.5Lm_1 + 1.0Wm_180°	Yes	Y	DL	1.2	13	-0.063	45	-0.063	OL1	1.5
76	1.2D + 1.5Lm_1 + 1.0Wm_210°	Yes	Y	DL	1.2	14	-0.063	46	-0.063	OL1	1.5
77	1.2D + 1.5Lm_1 + 1.0Wm_225°	Yes	Y	DL	1.2	15	-0.063	47	-0.063	OL1	1.5
78	1.2D + 1.5Lm_1 + 1.0Wm_240°	Yes	Y	DL	1.2	16	-0.063	48	-0.063	OL1	1.5
79	1.2D + 1.5Lm_1 + 1.0Wm_270°	Yes	Y	DL	1.2	17	-0.063	49	-0.063	OL1	1.5
80	1.2D + 1.5Lm_1 + 1.0Wm_300°	Yes	Y	DL	1.2	18	-0.063	50	-0.063	OL1	1.5
81	1.2D + 1.5Lm_1 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.063	51	-0.063	OL1	1.5
82	1.2D + 1.5Lm_1 + 1.0Wm_330°	Yes	Y	DL	1.2	20	-0.063	52	-0.063	OL1	1.5
83	1.2D + 1.5Lm_2 + 1.0Wm_0°	Yes	Y	DL	1.2	5	0.063	37	0.063	OL2	1.5
84	1.2D + 1.5Lm_2 + 1.0Wm_30°	Yes	Y	DL	1.2	6	0.063	38	0.063	OL2	1.5
85	1.2D + 1.5Lm_2 + 1.0Wm_45°	Yes	Y	DL	1.2	7	0.063	39	0.063	OL2	1.5
86	1.2D + 1.5Lm_2 + 1.0Wm_60°	Yes	Y	DL	1.2	8	0.063	40	0.063	OL2	1.5
87	1.2D + 1.5Lm_2 + 1.0Wm_90°	Yes	Y	DL	1.2	9	0.063	41	0.063	OL2	1.5
88	1.2D + 1.5Lm_2 + 1.0Wm_120°	Yes	Y	DL	1.2	10	0.063	42	0.063	OL2	1.5
89	1.2D + 1.5Lm_2 + 1.0Wm_135°	Yes	Y	DL	1.2	11	0.063	43	0.063	OL2	1.5
90	1.2D + 1.5Lm_2 + 1.0Wm_150°	Yes	Y	DL	1.2	12	0.063	44	0.063	OL2	1.5
91	1.2D + 1.5Lm_2 + 1.0Wm_180°	Yes	Y	DL	1.2	13	-0.063	45	-0.063	OL2	1.5
92	1.2D + 1.5Lm_2 + 1.0Wm_210°	Yes	Y	DL	1.2	14	-0.063	46	-0.063	OL2	1.5
93	1.2D + 1.5Lm_2 + 1.0Wm_225°	Yes	Y	DL	1.2	15	-0.063	47	-0.063	OL2	1.5
94	1.2D + 1.5Lm_2 + 1.0Wm_240°	Yes	Y	DL	1.2	16	-0.063	48	-0.063	OL2	1.5
95	1.2D + 1.5Lm_2 + 1.0Wm_270°	Yes	Y	DL	1.2	17	-0.063	49	-0.063	OL2	1.5
96	1.2D + 1.5Lm_2 + 1.0Wm_300°	Yes	Y	DL	1.2	18	-0.063	50	-0.063	OL2	1.5
97	1.2D + 1.5Lm_2 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.063	51	-0.063	OL2	1.5
98	1.2D + 1.5Lm_2 + 1.0Wm_330°	Yes	Y	DL	1.2	20	-0.063	52	-0.063	OL2	1.5
99	1.2D + 1.5Lm_3 + 1.0Wm_0°	Yes	Y	DL	1.2	5	0.063	37	0.063	OL3	1.5

Load Combinations (Continued)

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
100	1.2D + 1.5Lm_3 + 1.0Wm_30°	Yes	Y	DL	1.2	6	0.063	38	0.063	OL3	1.5
101	1.2D + 1.5Lm_3 + 1.0Wm_45°	Yes	Y	DL	1.2	7	0.063	39	0.063	OL3	1.5
102	1.2D + 1.5Lm_3 + 1.0Wm_60°	Yes	Y	DL	1.2	8	0.063	40	0.063	OL3	1.5
103	1.2D + 1.5Lm_3 + 1.0Wm_90°	Yes	Y	DL	1.2	9	0.063	41	0.063	OL3	1.5
104	1.2D + 1.5Lm_3 + 1.0Wm_120°	Yes	Y	DL	1.2	10	0.063	42	0.063	OL3	1.5
105	1.2D + 1.5Lm_3 + 1.0Wm_135°	Yes	Y	DL	1.2	11	0.063	43	0.063	OL3	1.5
106	1.2D + 1.5Lm_3 + 1.0Wm_150°	Yes	Y	DL	1.2	12	0.063	44	0.063	OL3	1.5
107	1.2D + 1.5Lm_3 + 1.0Wm_180°	Yes	Y	DL	1.2	13	-0.063	45	-0.063	OL3	1.5
108	1.2D + 1.5Lm_3 + 1.0Wm_210°	Yes	Y	DL	1.2	14	-0.063	46	-0.063	OL3	1.5
109	1.2D + 1.5Lm_3 + 1.0Wm_225°	Yes	Y	DL	1.2	15	-0.063	47	-0.063	OL3	1.5
110	1.2D + 1.5Lm_3 + 1.0Wm_240°	Yes	Y	DL	1.2	16	-0.063	48	-0.063	OL3	1.5
111	1.2D + 1.5Lm_3 + 1.0Wm_270°	Yes	Y	DL	1.2	17	-0.063	49	-0.063	OL3	1.5
112	1.2D + 1.5Lm_3 + 1.0Wm_300°	Yes	Y	DL	1.2	18	-0.063	50	-0.063	OL3	1.5
113	1.2D + 1.5Lm_3 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.063	51	-0.063	OL3	1.5
114	1.2D + 1.5Lm_3 + 1.0Wm_330°	Yes	Y	DL	1.2	20	-0.063	52	-0.063	OL3	1.5

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e⁵°F⁻¹]	Density [k/ft³]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3
8	A500 GR.C RND	29000	11154	0.3	0.65	0.49	46	1.5	58	1.3
9	A500 GR.C RECT	29000	11154	0.3	0.65	0.49	50	1.5	58	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	MOD SFS	L2.5x2.5x3	Column	Single Angle	A36 Gr.36	Typical	0.901	0.535	0.535	0.011
2	MOD Stiff Arm	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
3	MOD Face Pipe	PIPE_2.0	Column	HSS Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
4	Vertical Bracing	P2.38x.120	Column	Pipe	A500 GR.C RND	Typical	0.852	0.545	0.545	1.091
5	Face Horizontal	L3X3X3	Beam	Single Angle	A36 Gr.36	Typical	1.09	0.948	0.948	0.014
6	Standoff Angle	L3X3X6	Beam	Single Angle	A36 Gr.36	Typical	2.11	1.75	1.75	0.101
7	Face Connection Plate	PL5x0.5	Beam	RECT	A36 Gr.36	Typical	2.5	0.052	5.208	0.195
8	Rear Connection Plate	PL7x3/8	Beam	RECT	A36 Gr.36	Typical	2.625	0.031	10.719	0.119
9	Standoff Bracing	SR 3/4	Beam	BAR	A36 Gr.36	Typical	0.442	0.016	0.016	0.031
10	Mount Pipe_2.5	PIPE_2.5	Column	HSS Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
11	Mount Pipe_2.0	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
12	Stiff Arm	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	M3	N2	N65		Mount Pipe_2.0	Column	Pipe	A53 Gr.B	Typical
2	M4	N3	N67		Mount Pipe_2.5	Column	HSS Pipe	A53 Gr.B	Typical
3	M5	N4	N14		RIGID	None	None	RIGID	Typical
4	M6	N5	N4	90	Rear Connection Plate	Beam	RECT	A36 Gr.36	Typical
5	M7	N6	N5		RIGID	None	None	RIGID	Typical
6	M8	N7	N89	180	Face Horizontal	Beam	Single Angle	A36 Gr.36	Typical
7	M10	N86	N8	180	Face Horizontal	Beam	Single Angle	A36 Gr.36	Typical
8	M12	N10	N29		Vertical Bracing	Column	Pipe	A500 GR.C RND	Typical
9	M13	N11	N30		Vertical Bracing	Column	Pipe	A500 GR.C RND	Typical
10	M14	N12	N31		Vertical Bracing	Column	Pipe	A500 GR.C RND	Typical
11	M15	N13	N32		Vertical Bracing	Column	Pipe	A500 GR.C RND	Typical
12	M16	N14	N9	180	Standoff Angle	Beam	Single Angle	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
13	M17	N15	N34		Vertical Bracing	Column	Pipe	A500 GR.C RND	Typical
14	M18	N16	N35		Vertical Bracing	Column	Pipe	A500 GR.C RND	Typical
15	M21	M2	N21		RIGID	None	None	RIGID	Typical
16	M25	N95	N24		Stiff Arm	Beam	Pipe	A53 Gr.B	Typical
17	M26	N23	N24		RIGID	None	None	RIGID	Typical
18	M31	N26	N81	180	Face Horizontal	Beam	Single Angle	A36 Gr.36	Typical
19	M33	N80	N27	180	Face Horizontal	Beam	Single Angle	A36 Gr.36	Typical
20	M35	N33	N28	180	Standoff Angle	Beam	Single Angle	A36 Gr.36	Typical
21	M36	N33	N45		RIGID	None	None	RIGID	Typical
22	M37	N36	N17		Standoff Bracing	Beam	BAR	A36 Gr.36	Typical
23	M40	N38	N41		RIGID	None	None	RIGID	Typical
24	M44	N46	A1		RIGID	None	None	RIGID	Typical
25	M45	N47	N45	90	Rear Connection Plate	Beam	RECT	A36 Gr.36	Typical
26	M47	N50	N47		RIGID	None	None	RIGID	Typical
27	M51	N55	A22		RIGID	None	None	RIGID	Typical
28	M48A	N9	N54		RIGID	None	None	RIGID	Typical
29	M49	N28	N52		RIGID	None	None	RIGID	Typical
30	M50A	N56	N57	90	Face Connection Plate	Beam	RECT	A36 Gr.36	Typical
31	M50B	N58	N59	90	Face Connection Plate	Beam	RECT	A36 Gr.36	Typical
32	M50C	N66	N76		RIGID	None	None	RIGID	Typical
33	M51A	N63	N74		RIGID	None	None	RIGID	Typical
34	M52A	N60	N72		RIGID	None	None	RIGID	Typical
35	M53	N70	N78		RIGID	None	None	RIGID	Typical
36	M54	N68	N77		RIGID	None	None	RIGID	Typical
37	M55	N64	N75		RIGID	None	None	RIGID	Typical
38	M56	N61	N73		RIGID	None	None	RIGID	Typical
39	M57	N71	N79		RIGID	None	None	RIGID	Typical
40	M58	N76	N82		RIGID	None	None	RIGID	Typical
41	M59	N74	N81		RIGID	None	None	RIGID	Typical
42	M60	N72	N80		RIGID	None	None	RIGID	Typical
43	M61	N78	N84		RIGID	None	None	RIGID	Typical
44	M62	N79	N96		RIGID	None	None	RIGID	Typical
45	M63	N73	N86		RIGID	None	None	RIGID	Typical
46	M64	N75	N89		RIGID	None	None	RIGID	Typical
47	M65	N77	N92		RIGID	None	None	RIGID	Typical
48	M64A	N81	N85		RIGID	None	None	RIGID	Typical
49	M65A	N80	N83		RIGID	None	None	RIGID	Typical
50	M66	N89	N90		RIGID	None	None	RIGID	Typical
51	M67	N86	N87		RIGID	None	None	RIGID	Typical
52	M70	N87	N90		RIGID	None	None	RIGID	Typical
53	M71	N83	N85		RIGID	None	None	RIGID	Typical
54	M64B	N97B	T1		RIGID	None	None	RIGID	Typical
55	M66A	N101	R1		RIGID	None	None	RIGID	Typical
56	M66B	N93	N105		RIGID	None	None	RIGID	Typical
57	M67B	M1	N106		RIGID	None	None	RIGID	Typical
58	M68	M3	N111		RIGID	None	None	RIGID	Typical
59	M69	N109	N108		RIGID	None	None	RIGID	Typical
60	M72	N107	N112		Mount Pipe_2.0	Column	Pipe	A53 Gr.B	Typical
61	M73	N114	A11		RIGID	None	None	RIGID	Typical
62	M74	N116	A3		RIGID	None	None	RIGID	Typical
63	M75	N118	A33		RIGID	None	None	RIGID	Typical
64	M76	N120	N119		RIGID	None	None	RIGID	Typical
65	M77	A2	N119		RIGID	None	None	RIGID	Typical
66	SFM3	SFM8	SFM1		RIGID	None	None	RIGID	Typical
67	SFM8	SFM6	SFM7		RIGID	None	None	RIGID	Typical
68	SFM4	SFM9	SFM2		MOD Face Pipe	Column	HSS Pipe	A53 Gr.B	Typical
69	SFM9	SFM11	SFM10		RIGID	None	None	RIGID	Typical
70	SFM1	SFM13	SFM15		RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
71	SFM10	SFM12	SFM14		RIGID	None	None	RIGID	Typical
72	SFM6	SFM4	SFM3		RIGID	None	None	RIGID	Typical
73	SFM11	SFM17	SFM16		RIGID	None	None	RIGID	Typical
74	SFM2	SFM15	SFM4	90	MOD SFS	Column	Single Angle	A36 Gr.36	Typical
75	SFM5	SFM3	SFM14	90	MOD SFS	Column	Single Angle	A36 Gr.36	Typical
76	SFM7	SFM18	SFM5		RIGID	None	None	RIGID	Typical
77	SFM12	SFM18	SFM19		MOD Stiff Arm	Column	Pipe	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
1	M3			Yes	** NA **	None
2	M4			Yes	** NA **	None
3	M5			Yes	** NA **	None
4	M6			Yes	Default	None
5	M7			Yes	** NA **	None
6	M8			Yes	Default	None
7	M10			Yes	Default	None
8	M12			Yes	** NA **	None
9	M13			Yes	** NA **	None
10	M14			Yes	** NA **	None
11	M15			Yes	** NA **	None
12	M16		BenPIN	Yes	Default	None
13	M17			Yes	** NA **	None
14	M18			Yes	** NA **	None
15	M21		OOOXOO	Yes	** NA **	None
16	M25		BenPIN	Yes	Default	None
17	M26			Yes	** NA **	None
18	M31			Yes	Default	None
19	M33			Yes	Default	None
20	M35		BenPIN	Yes	Default	None
21	M36			Yes	** NA **	None
22	M37			Yes	Default	None
23	M40		OOOXOO	Yes	** NA **	None
24	M44			Yes	** NA **	None
25	M45			Yes	Default	None
26	M47			Yes	** NA **	None
27	M51			Yes	** NA **	None
28	M48A			Yes	** NA **	None
29	M49			Yes	** NA **	None
30	M50A			Yes	Default	None
31	M50B			Yes	Default	None
32	M50C			Yes	** NA **	None
33	M51A			Yes	** NA **	None
34	M52A			Yes	** NA **	None
35	M53			Yes	** NA **	None
36	M54			Yes	** NA **	None
37	M55			Yes	** NA **	None
38	M56			Yes	** NA **	None
39	M57			Yes	** NA **	None
40	M58	OOOXOX		Yes	** NA **	None
41	M59	OOOXOX		Yes	** NA **	None
42	M60	OOOXOX		Yes	** NA **	None
43	M61	OOOXOX		Yes	** NA **	None
44	M62	OOOXOX		Yes	** NA **	None
45	M63	OOOXOX		Yes	** NA **	None
46	M64	OOOXOX		Yes	** NA **	None
47	M65	OOOXOX		Yes	** NA **	None
48	M64A	OOOXOO		Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
49	M65A	OOOXOO		Yes	** NA **	None
50	M66	OOOXOO		Yes	** NA **	None
51	M67	OOOXOO		Yes	** NA **	None
52	M70			Yes	** NA **	None
53	M71			Yes	** NA **	None
54	M64B			Yes	** NA **	None
55	M66A			Yes	** NA **	None
56	M66B		OOOXOO	Yes	** NA **	None
57	M67B		OOOXOO	Yes	** NA **	None
58	M68		OOOXOO	Yes	** NA **	None
59	M69		OOOXOO	Yes	** NA **	None
60	M72			Yes	** NA **	None
61	M73			Yes	** NA **	None
62	M74			Yes	** NA **	None
63	M75			Yes	** NA **	None
64	M76			Yes	** NA **	None
65	M77			Yes	** NA **	None
66	SFM3			Yes	** NA **	None
67	SFM8			Yes	** NA **	None
68	SFM4			Yes	** NA **	None
69	SFM9			Yes	** NA **	None
70	SFM1			Yes	** NA **	None
71	SFM10			Yes	** NA **	None
72	SFM6			Yes	** NA **	None
73	SFM11			Yes	** NA **	None
74	SFM2	BenPIN	BenPIN	Yes	** NA **	None
75	SFM5	BenPIN	BenPIN	Yes	** NA **	None
76	SFM7			Yes	** NA **	None
77	SFM12	BenPIN		Yes	** NA **	None

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	N95	Reaction	Reaction	Reaction			
2	N50	Reaction	Reaction	Reaction	Reaction	Reaction	
3	N6	Reaction	Reaction	Reaction	Reaction	Reaction	
4	SFM16	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	SFM19	Reaction	Reaction	Reaction			

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N50	max	159.211	13	167.784	100	1641.407	20	51.704	93	8.838	12	0	114
2		min	-2009.206	22	-155.303	92	-17.134	12	-57.059	101	-1154.558	20	0	1
3	SFM16	max	2103.511	4	729.729	111	896.331	12	157.709	86	455.771	4	59.553	111
4		min	-2391.768	12	-777.346	86	-777.867	4	-147.185	110	-524.293	12	-61.77	87
5	N6	max	2561.332	100	168.248	14	383.449	20	53.666	93	-24.848	12	0	114
6		min	-378.002	12	-153.345	103	55.856	12	-57.785	101	-210.85	20	0	1
7	N95	max	769.581	96	764.441	94	28.113	24	0	114	0	114	0	114
8		min	-695.269	104	-742.212	102	-5.745	94	0	1	0	1	0	1
9	SFM19	max	817.616	14	629.197	14	33.353	5	0	114	0	114	0	114
10		min	-826.248	6	-648.386	6	4.527	18	0	1	0	1	0	1
11	Totals:	max	2284.158	3	1420.912	14	2057.831	21						
12		min	-2284.162	11	-1420.887	6	681.121	62						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
1	M10	L3X3X3	0.839	2.913	100	0.201	2.913	z	100	19776.553	35316	1320.097	2540.626	1.5	H2-1
2	SFM4	PIPE_2.0	0.747	45.474	13	0.332	72		13	6830.97	32130	1871.625	1871.625	1.746	H3-6

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

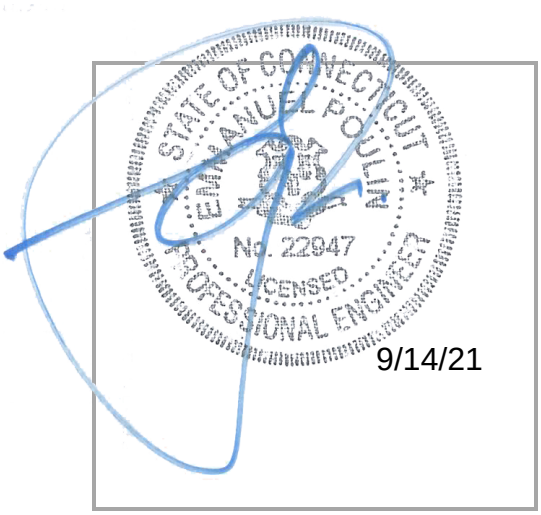
	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
3	M31	L3X3X3	0.524	9.387	100	0.119	58.587	z	4	19776.553	35316	1320.097	2540.626	1.5	H2-1
4	M45	PL7x3/8	0.516	0	21	0.117	4	y	101	79151.372	85050	664.453	12403.125	1.195	H1-1b
5	M8	L3X3X3	0.51	9.387	100	0.123	58.587	z	100	19776.553	35316	1320.097	2540.626	1.5	H2-1
6	M4	PIPE_2.5	0.505	60.126	3	0.311	60.126		94	30038.461	50715	3596.25	3596.25	1.624	H1-1b
7	M33	L3X3X3	0.427	10.682	84	0.153	52.437	y	93	19776.553	35316	1320.097	2540.626	1.5	H2-1
8	M3	PIPE_2.0	0.399	51.158	92	0.151	39.411		102	20866.733	32130	1871.625	1871.625	3	H1-1b
9	M35	L3X3X6	0.382	5.842	20	0.205	0	y	101	55221.012	68364	2307.398	5322.329	1.5	H2-1
10	M72	PIPE_2.0	0.382	51.158	107	0.13	39.789		4	20866.733	32130	1871.625	1871.625	3	H1-1b
11	M12	P2.38x.120	0.378	0	100	0.098	0		5	33300.843	35272.8	2116.534	2116.534	2.26	H1-1b
12	M13	P2.38x.120	0.369	36	84	0.29	11.368		102	33300.843	35272.8	2116.534	2116.534	1.892	H1-1b
13	M50B	PL5x0.5	0.365	5.5	93	0.169	7.005	y	100	59661.584	81000	843.75	8437.5	1.899	H1-1b
14	M14	P2.38x.120	0.328	0	100	0.144	0		102	33300.843	35272.8	2116.534	2116.534	2.267	H1-1b
15	M50A	PL5x0.5	0.31	5.5	92	0.089	3.995	y	4	59661.584	81000	843.75	8437.5	1.828	H1-1b
16	M16	L3X3X6	0.3	5.842	100	0.19	28.626	y	100	55221.012	68364	2307.398	5322.329	1.5	H2-1
17	M37	SR 3/4	0.293	41.677	21	0.042	41.677		101	4781.242	14313.866	178.929	178.929	2.248	H1-1a
18	M15	P2.38x.120	0.28	0	84	0.206	0		94	33300.843	35272.8	2116.534	2116.534	2.261	H1-1b
19	M17	P2.38x.120	0.251	36	101	0.235	0		101	33300.843	35272.8	2116.534	2116.534	1.958	H3-6
20	M6	PL7x3/8	0.24	0	21	0.119	0	y	101	63798.553	85050	664.453	12403.125	1.463	H1-1b
21	M18	P2.38x.120	0.221	0	100	0.235	0		101	33300.843	35272.8	2116.534	2116.534	2.193	H3-6
22	SFM2	L2.5x2.5x3	0.101	25.102	5	0.048	49.681	z	101	16686.599	29192.4	872.574	1699.011	1.136	H2-1
23	SFM5	L2.5x2.5x3	0.096	24.841	5	0.041	49.681	z	97	16686.599	29192.4	872.574	1699.011	1.136	H2-1
24	M25	PIPE_2.0	0.052	0	96	0.004	72.364		13	20775.667	32130	1871.625	1871.625	1.136	H1-1b*
25	SFM12	PIPE_2.0	0.044	60.806	14	0.003	60.806		14	23616.36	32130	1871.625	1871.625	1.136	H1-1b*

MOUNT ANALYSIS REPORT

September 14, 2021

Dish Wireless Site Name	BOHVN00147A
Dish Wireless Site Number	BOHVN00147A
ATC Site Name	GLFD-Guilford Rebuild CT, CT
ATC Site Number	311305
Infinigy Job Number	1197-F0001-B
Client	ATC
Carrier	Dish Wireless
Site Location	10 Tanner Marsh Road Guilford, CT 06437 New Haven County 41.28860800 N NAD83 72.65828056 W NAD83
Mount Type	8.0 ft Sector Frames
Mount Elevation	156.0 ft AGL
Structural Usage Ratio	**40.1%**
Overall Result	**Pass**

The enclosed mount structural analysis has been performed in accordance with the 2018 Connecticut State Building Code (2015 IBC) based on an ultimate 3-second gust wind speed of 123 mph. The evaluation criteria and applicable codes are presented in the next section of this report.



CONTENTS

1. INTRODUCTION

Infinigy performed a structural analysis on the Dish Wireless proposed telecommunication equipment supporting Sector Frames mounted to the existing structure located at the aforementioned address. All referenced supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The mount was analyzed using Risa-3D version 17.0.4 analysis software.

2. DESIGN/ANALYSIS PARAMETERS

Wind Speed	123 mph (3-Second Gust)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 1.0" ice
Code / Standard	TIA-222-H
Adopted Code	2018 Connecticut State Building Code (2015 IBC)
Risk Category	II
Exposure Category	C
Topographic Category	1
Calculated Crest Height	0 ft.
Seismic Spectral Response	S_s = 0.204 g / S_1 = 0.054 g
Live Load Wind Speed	60 mph
Man Live Load at Mid/End Points	250 lbs
Man Live Load at Mount Pipes	500 lbs

3. PROPOSED LOADING CONFIGURATION - 156.0 ft. AGL Sector Frames

Antenna Centerline (ft)	Qty.	Appurtenance Manufacturers	Appurtenance Models
156.0	3	JMA WIRELESS	MX08FRO665-21
	3	FUJITSU	TA08025-B605
	3	FUJITSU	TA08025-B604
	1	RAYCAP	RDIDC-9181-PF-48

4. SUPPORTING DOCUMENTATION

Proposed Loading	Dish Wireless Asset ID CT-ATC-T-311305 Rev 1, Site #BOHVN00147A, dated July 09, 2021
Mount Manufacturer Drawings	Commscope Document # MTC3975083, dated March 17, 2021
Structural Analysis Report	American Tower Corporation, Site #311305, dated August 11, 2021

5. RESULTS

Components	Capacity	Pass/Fail
Mount Pipes	28.6%	Pass
Horizontals	15.1%	Pass
Standoffs	40.1%	Pass
Connections	10.3%	Pass
MOUNT RATING =	**40.1%**	**Pass**

Notes:
1. See additional documentation in Appendix for calculations supporting the capacity consumed and detailed mount connection calculations.

6. RECOMMENDATIONS

Infinigy recommends installing Dish Wireless's proposed equipment loading configuration on the mount at 156.0 ft. The installation shall be performed in accordance with the construction documents issued for this site.

Pradin Suinyal Magar
Project Engineer II | **INFINIGY**

7. ASSUMPTIONS

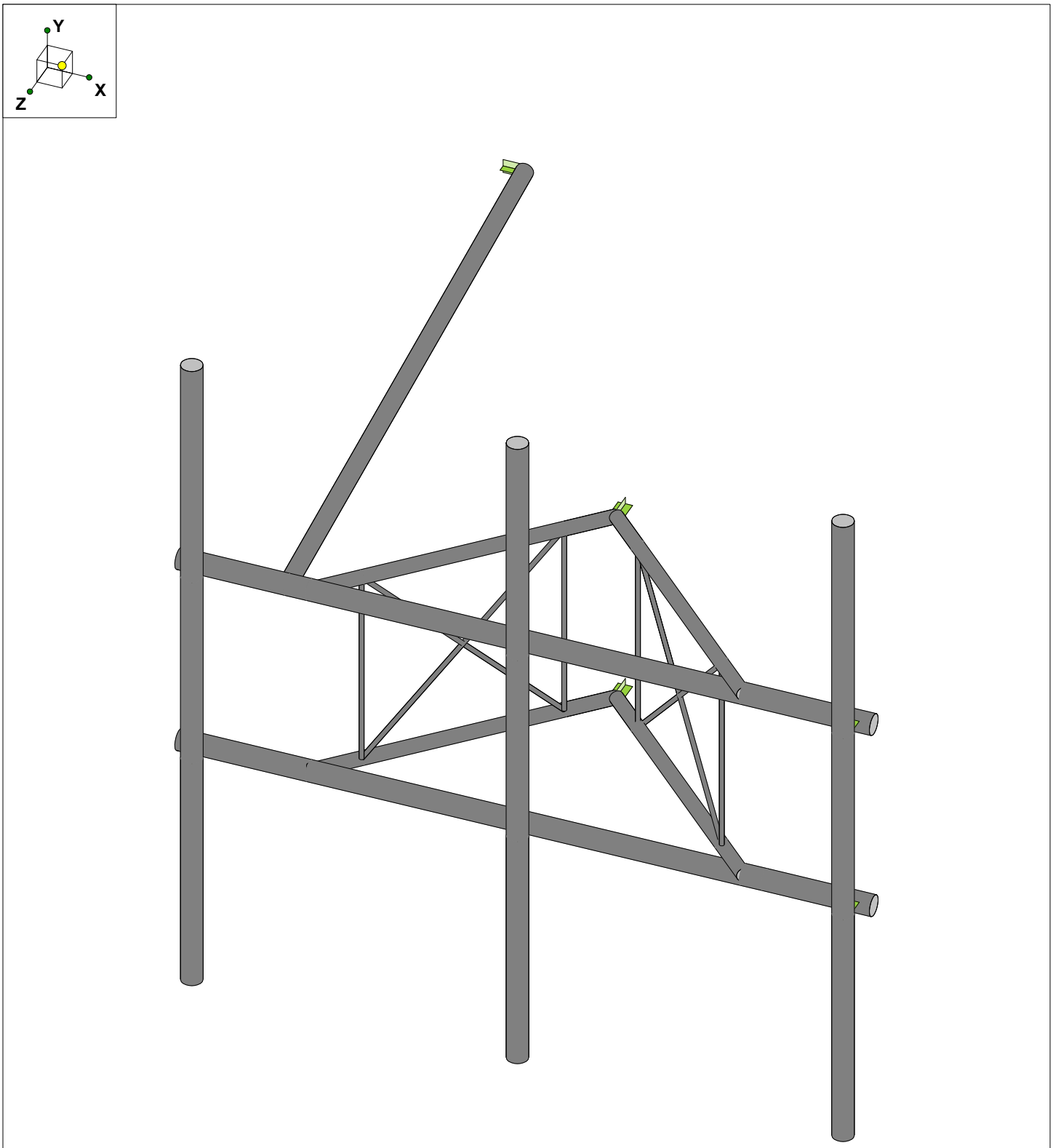
The antenna mounting system was properly fabricated, installed and maintained in accordance with its original design and manufacturer's specifications.
The configuration of antennas, mounts, and other appurtenances are as specified in the proposed loading configuration table.
All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
The analysis will require revisions 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.
Steel grades have been assumed as follows, unless noted otherwise: Channel, Plate, Built-up Angle — ASTM A1011 36 KSI Solid Round — ASTM A529 Gr 50 Structural Angle — ASTM A529 Gr. 50 HSS (Rectangular) — ASTM A500-B GR 46 HSS (Circular) — ASTM A500-B GR 42 Pipe — ASTM A500 Gr 46 Connection Bolts — ASTM A449 U-Bolts — ASTM A307
All bolted connections are pretensioned in accordance with Table 8.2 of the RCSC 2014 Standard

8. LIABILITY WAIVER AND LIMITATIONS

Our structural calculations are completed assuming all information provided to Infinigy is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition as erected and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report, Infinigy should be notified immediately to assess the impact on the results of this report.

Our evaluation is completed using industry standard methods and procedures. The structural results, conclusions and recommendations contained in this report are proprietary and should not be used by others as their own. Infinigy is not responsible for decisions made by others that are or are not based on the stated assumptions and conclusions in this report.

This report is an evaluation of the mount structure only and does not determine the adequacy of the supporting structure, other carrier mounts or cable mounting attachments. The analysis of these elements is outside the scope of this analysis, are assumed to be adequate for the purpose of this report and to have been installed per their manufacturer requirements. This document is not for construction purposes.



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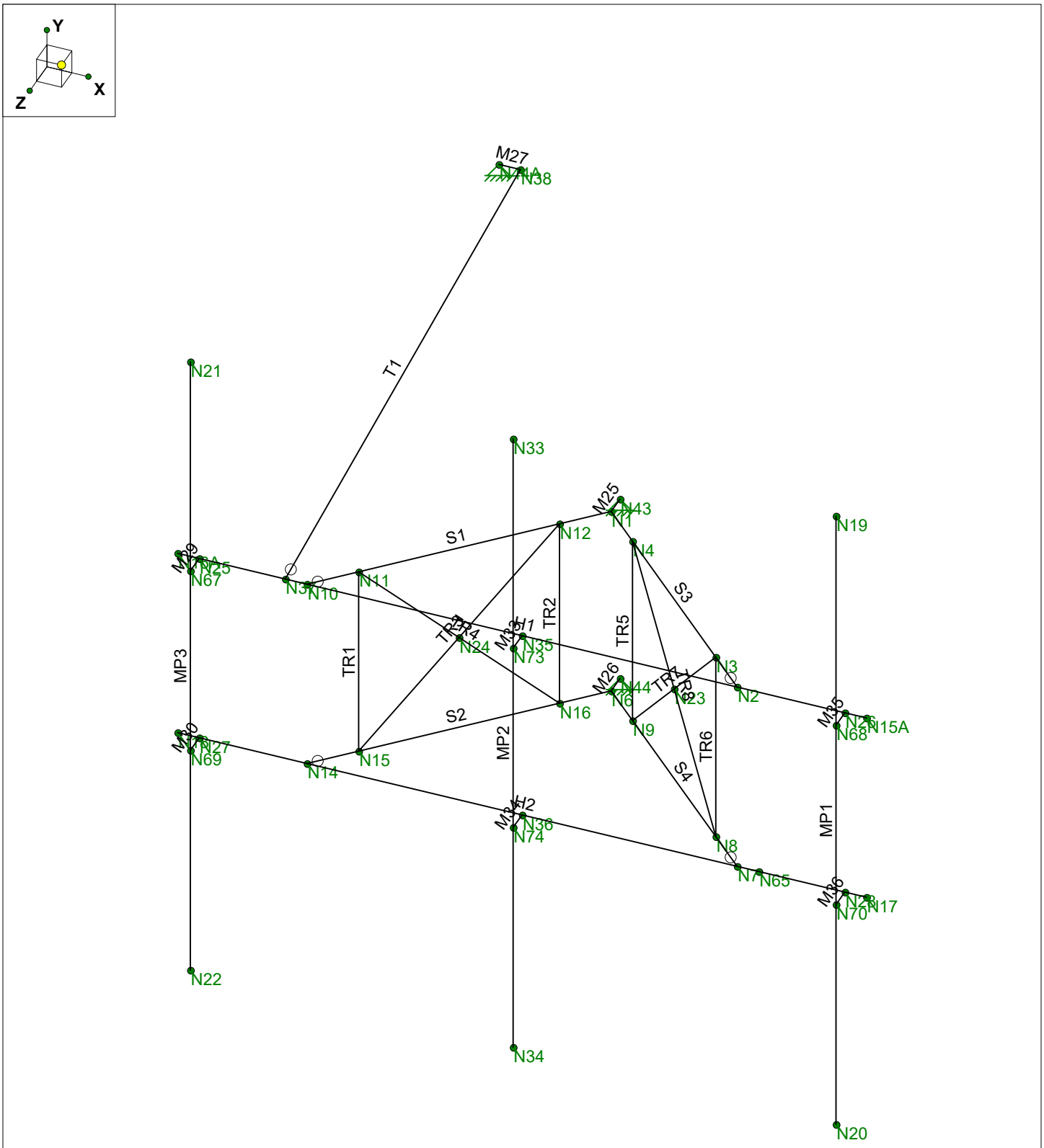

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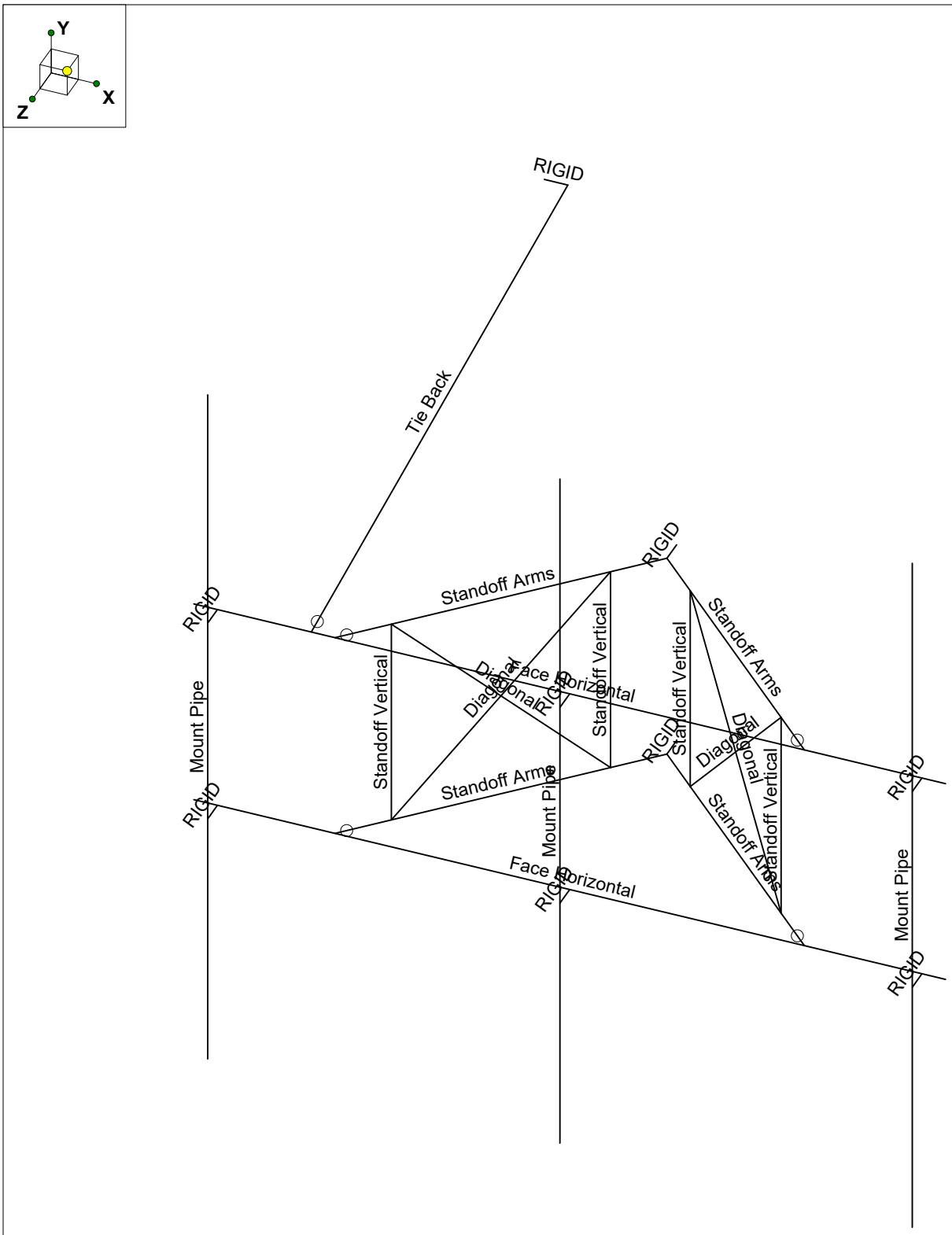

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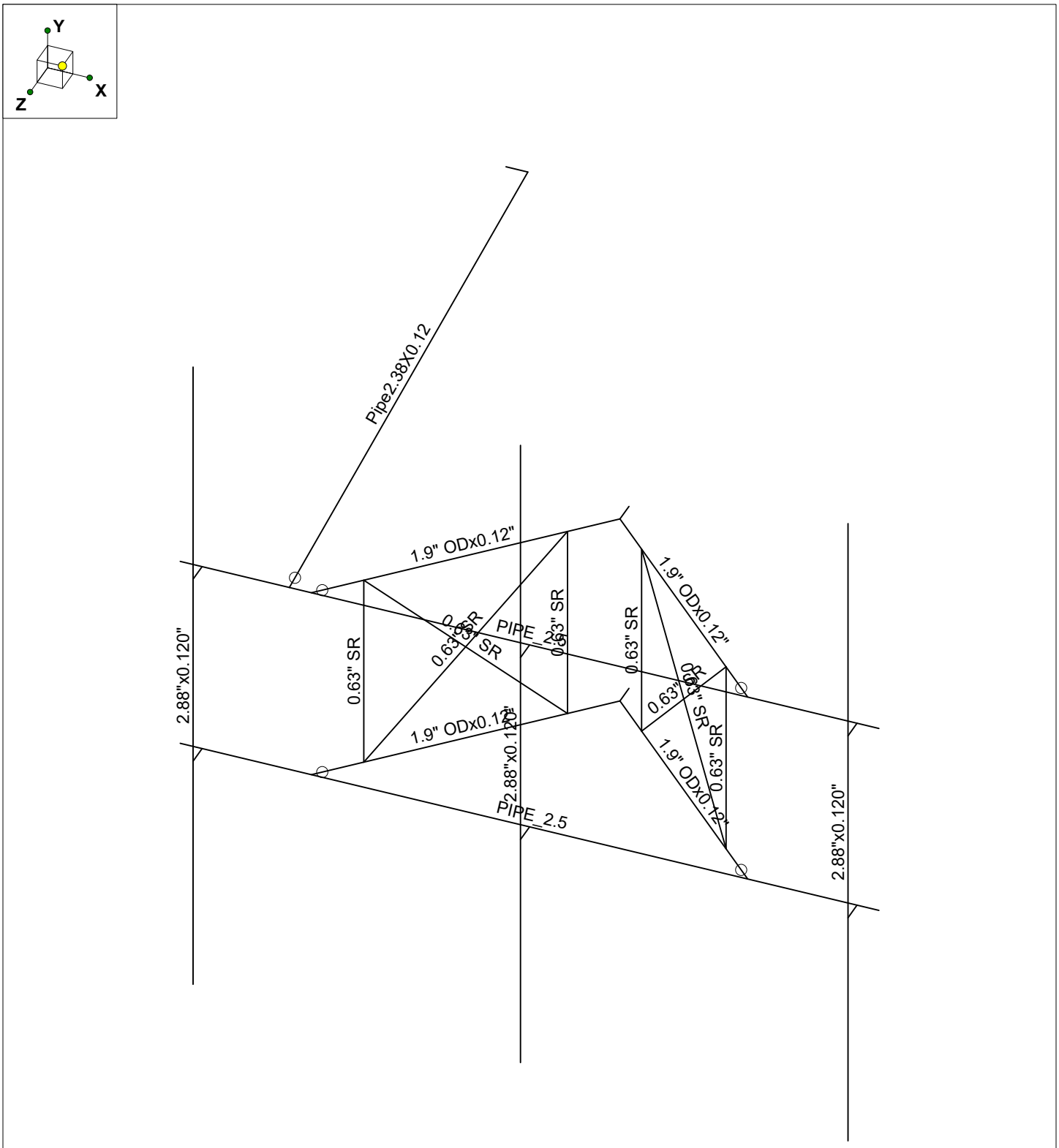

Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00147A	Member Shapes
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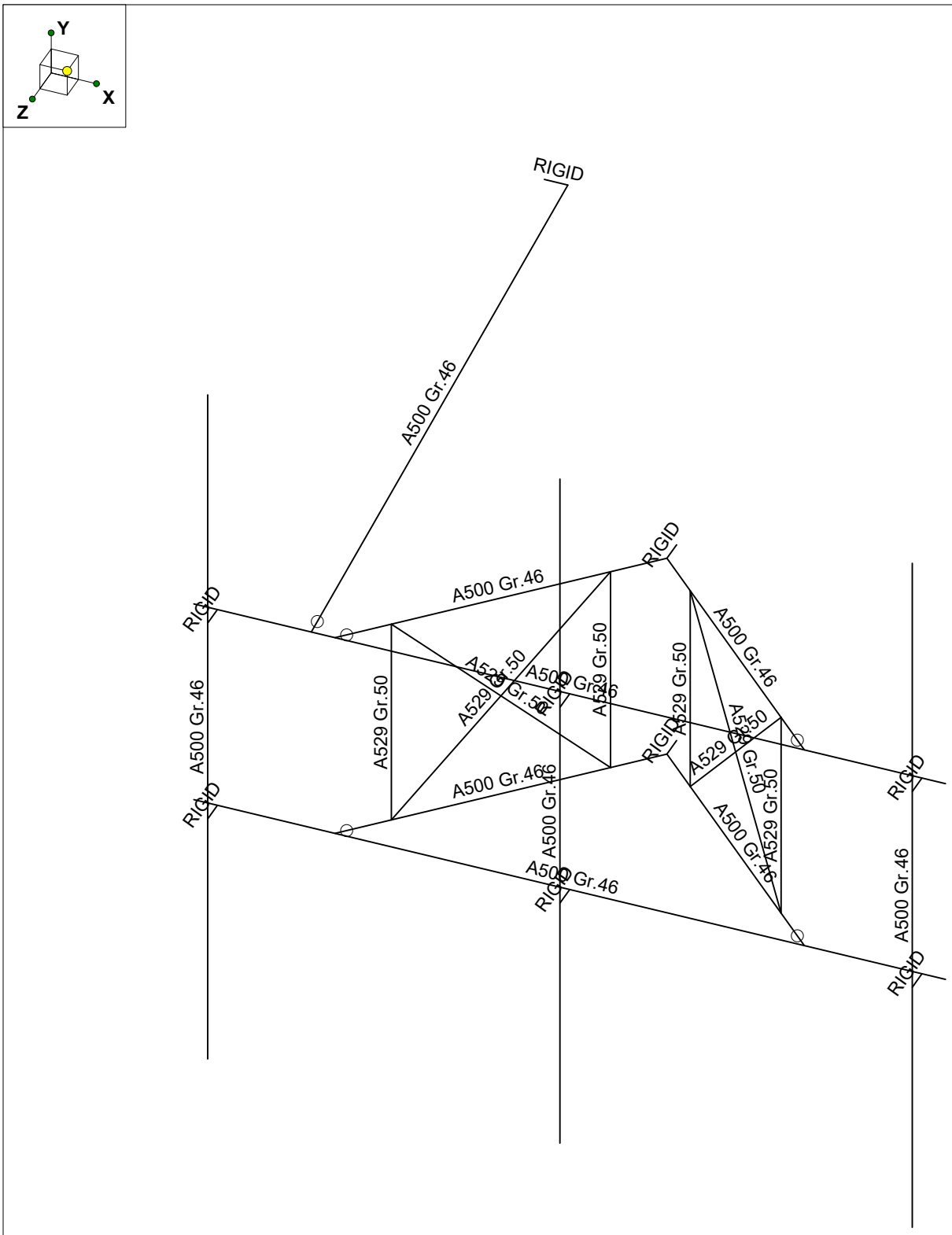

Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00147A	Material Sets
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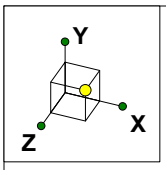
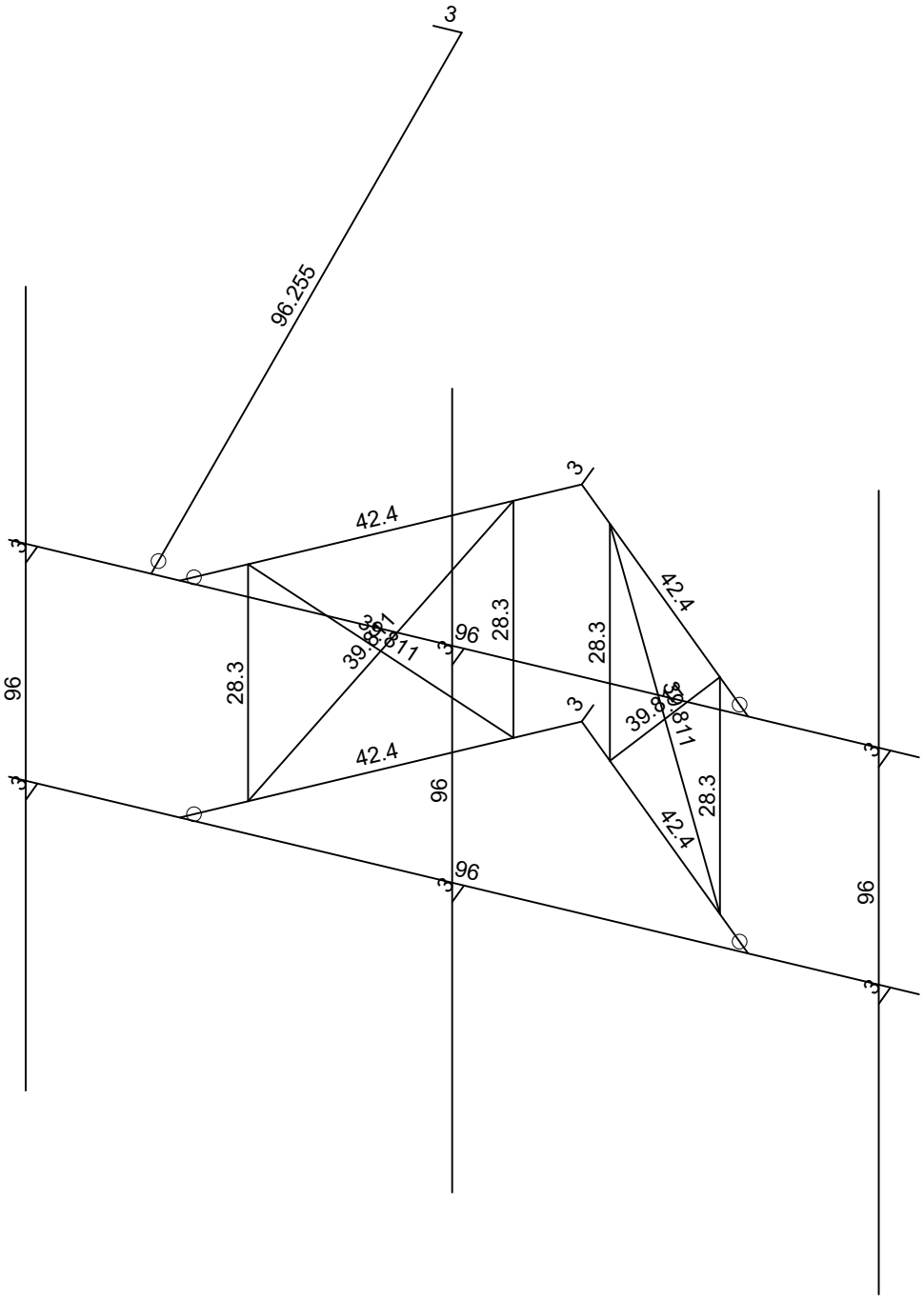
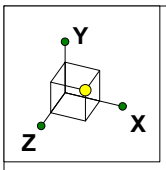
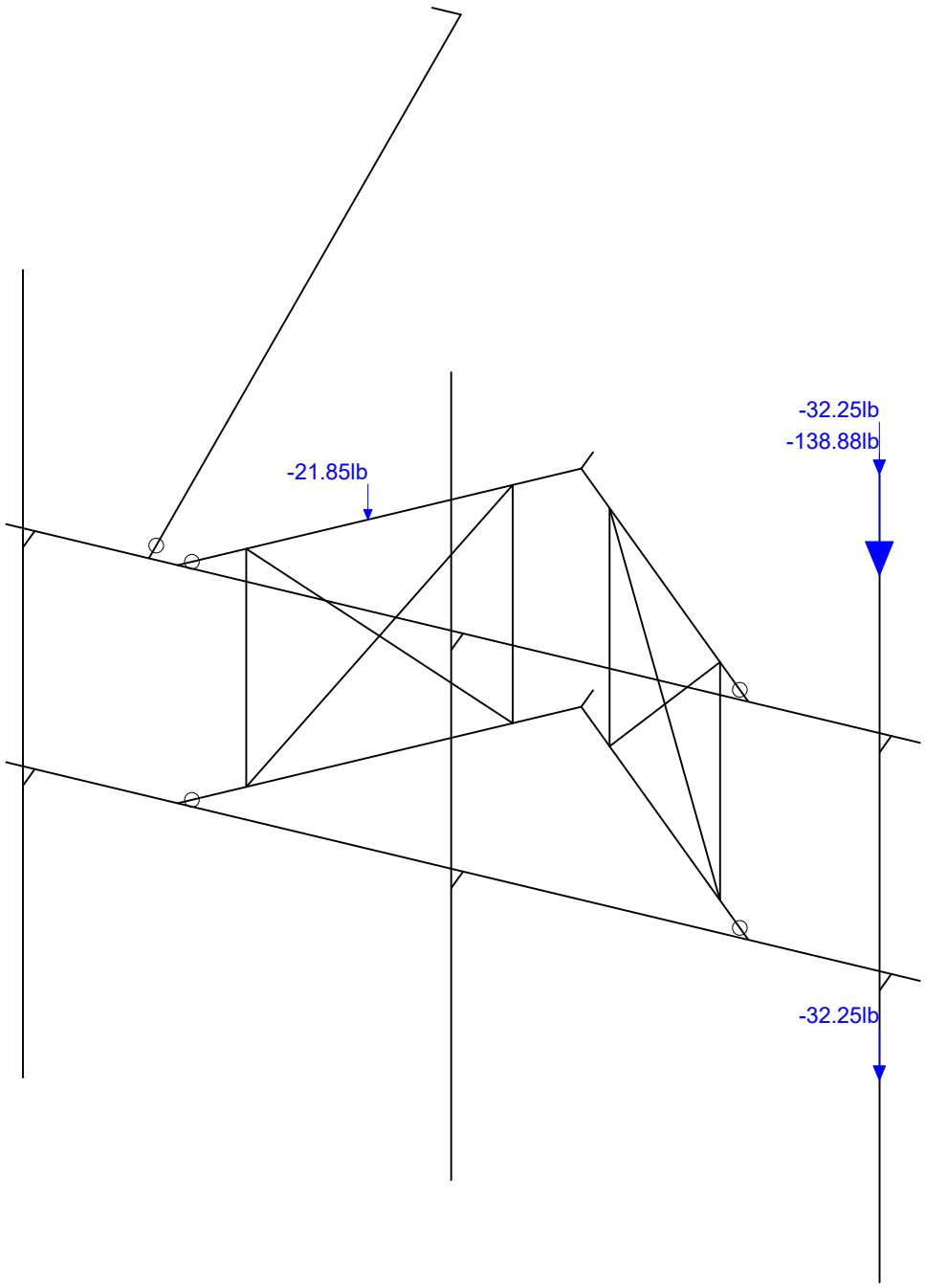




Member Length (in) Displayed
Envelope Only Solution

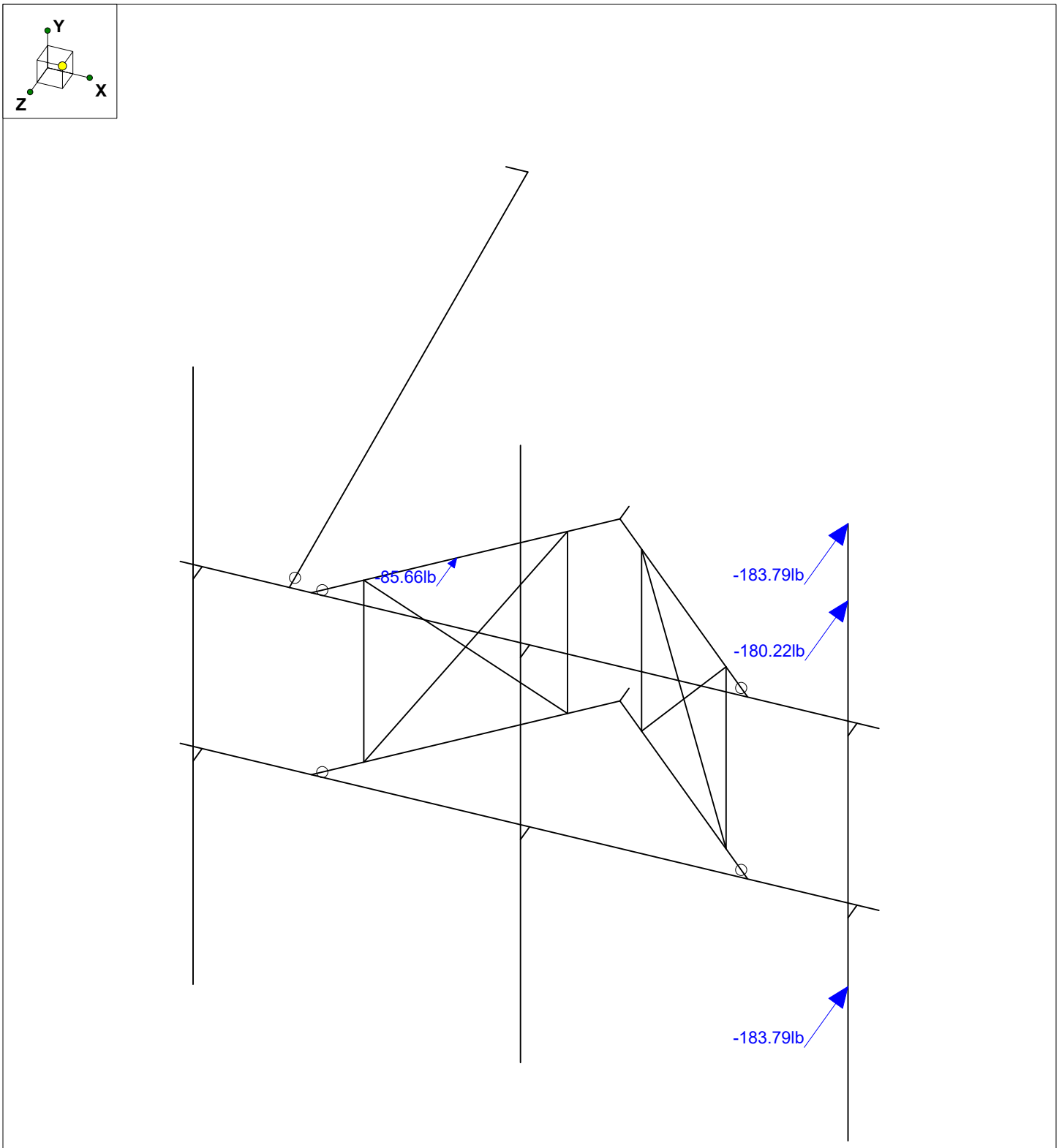
Infinigy Engineering, PLLC	BOHVN00147A	Member Lengths
PSM		Sept 14, 2021 at 2:26 PM
1197-F0001-B		BOHVN00147A_loaded.r3d





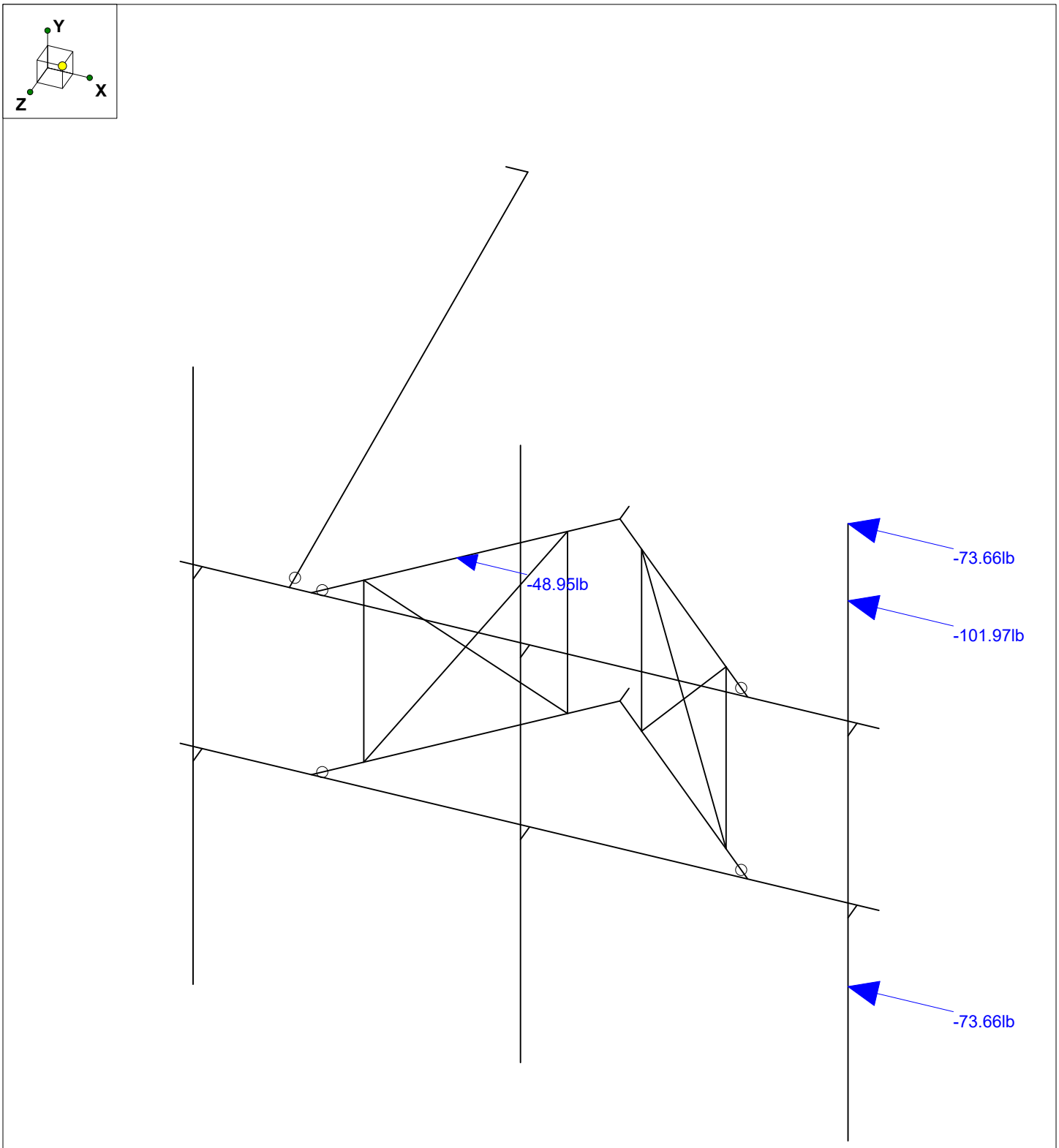
Loads: BLC 1, Self Weight
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00147A	Self Weight
PSM		Sept 14, 2021 at 2:26 PM
1197-F0001-B		BOHVN00147A_loaded.r3d



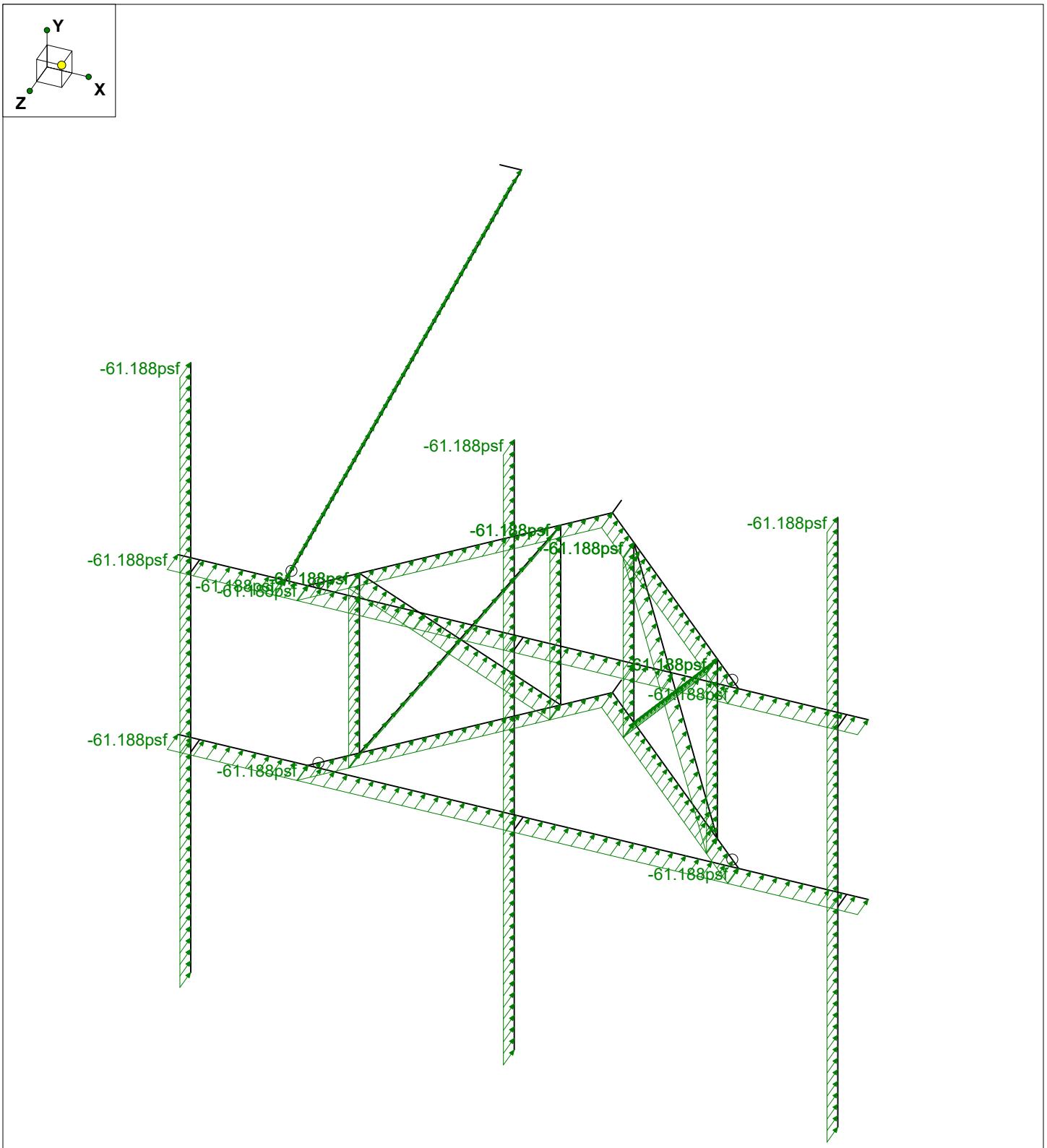
Loads: BLC 2, Wind Load AZI 0
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00147A	Wind Load AZI 000
PSM		Sept 14, 2021 at 2:26 PM
1197-F0001-B		BOHVN00147A_loaded.r3d



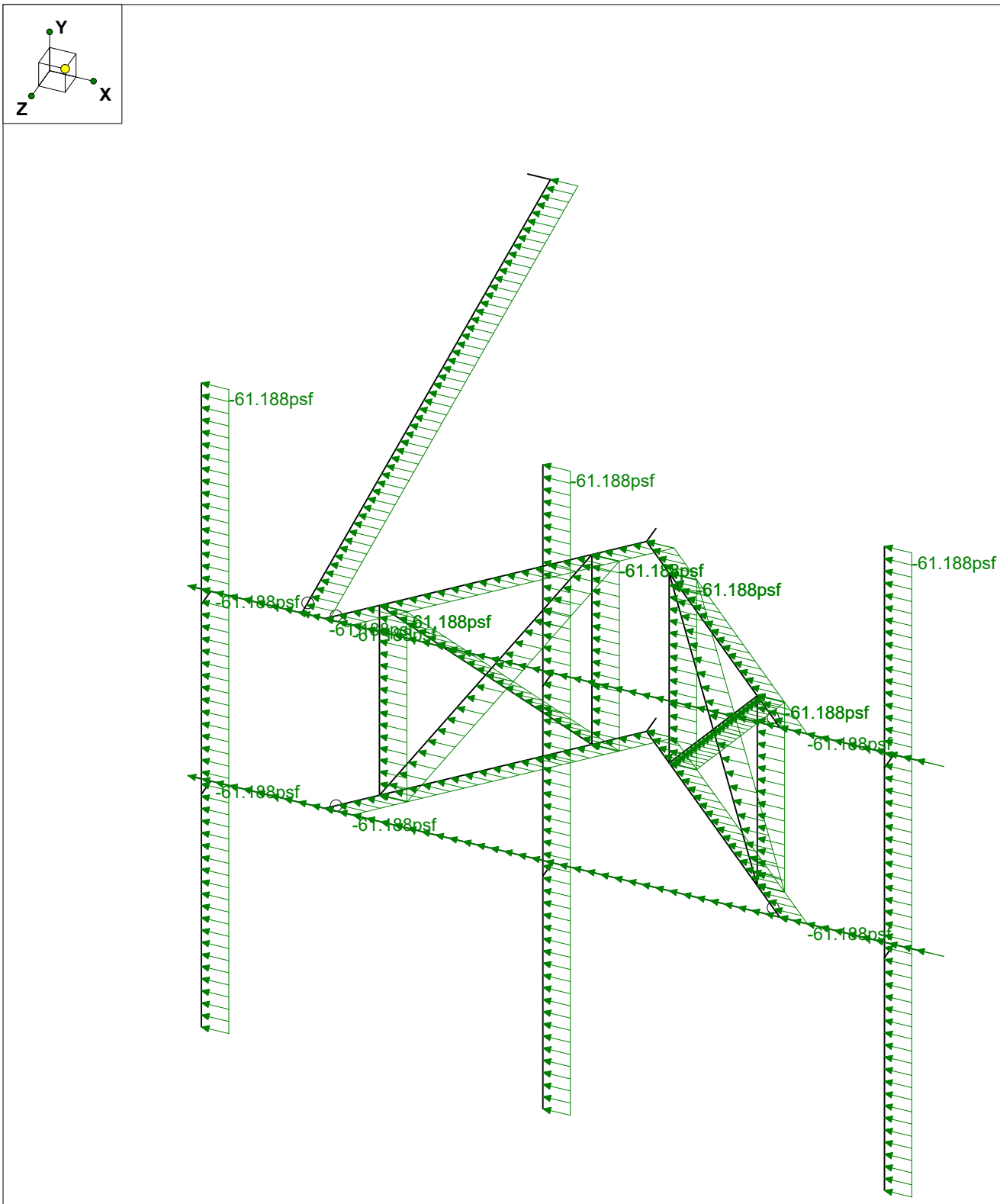
Loads: BLC 5, Wind Load AZI 90
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00147A	Wind Load AZI 090
PSM		Sept 14, 2021 at 2:26 PM
1197-F0001-B		BOHVN00147A_loaded.r3d



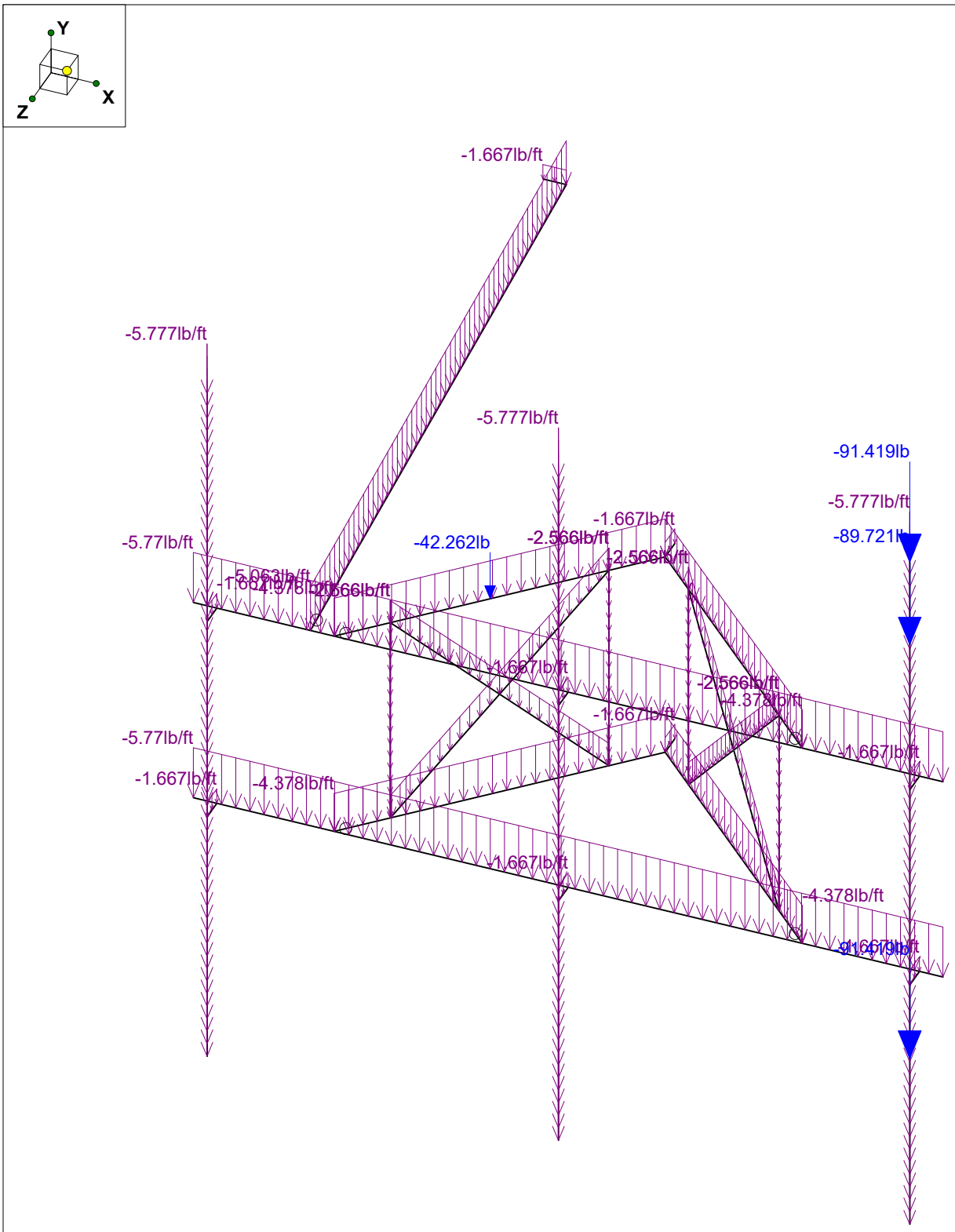
Loads: BLC 14, Distr. Wind Load Z
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00147A	Distr Wind Load AZI 000
PSM		Sept 14, 2021 at 2:27 PM
1197-F0001-B		BOHVN00147A_loaded.r3d



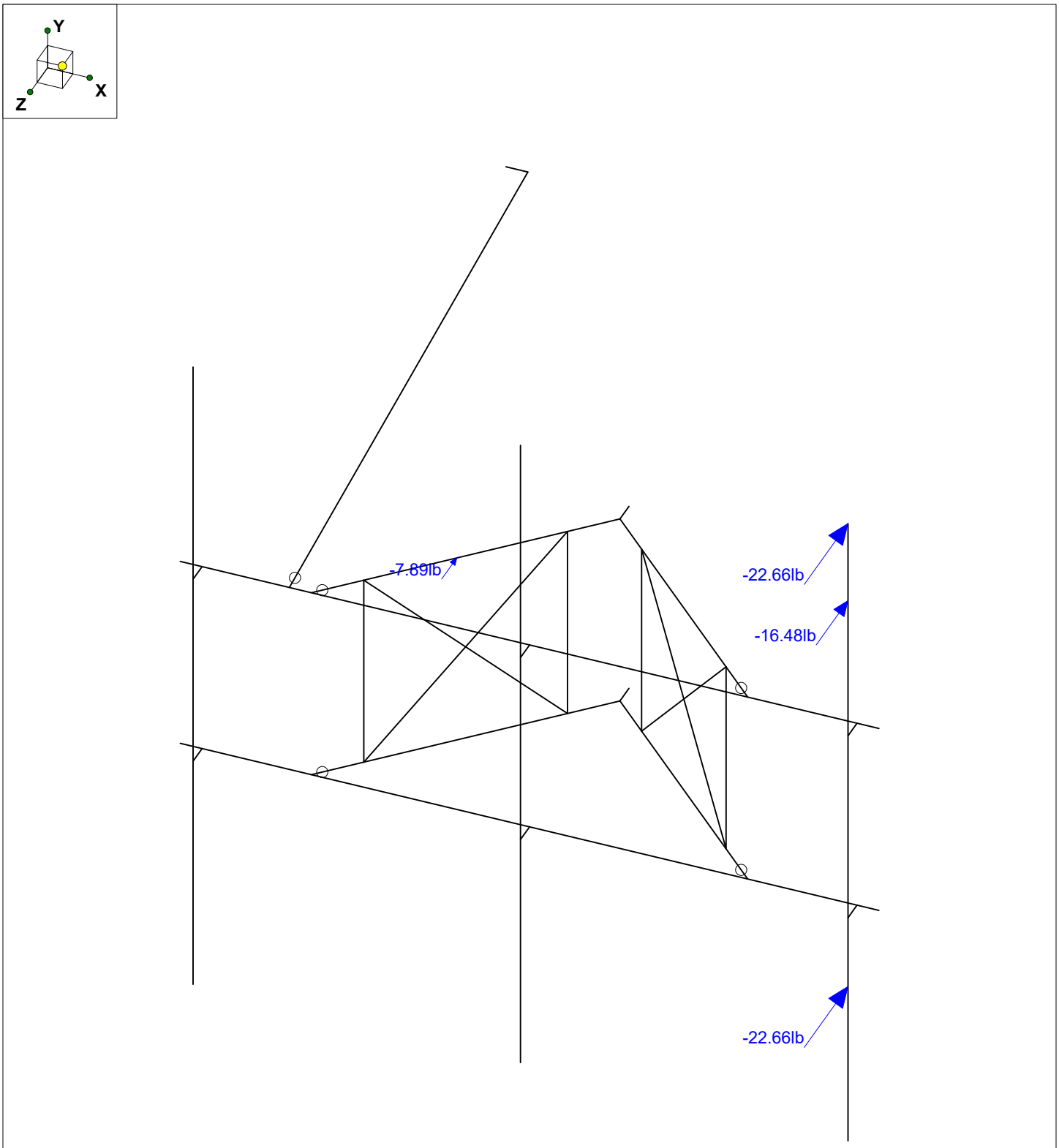
Loads: BLC 15, Distr. Wind Load X
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00147A	Distr Wind Load AZI 090
PSM		Sept 14, 2021 at 2:27 PM
1197-F0001-B		BOHVN00147A_loaded.r3d



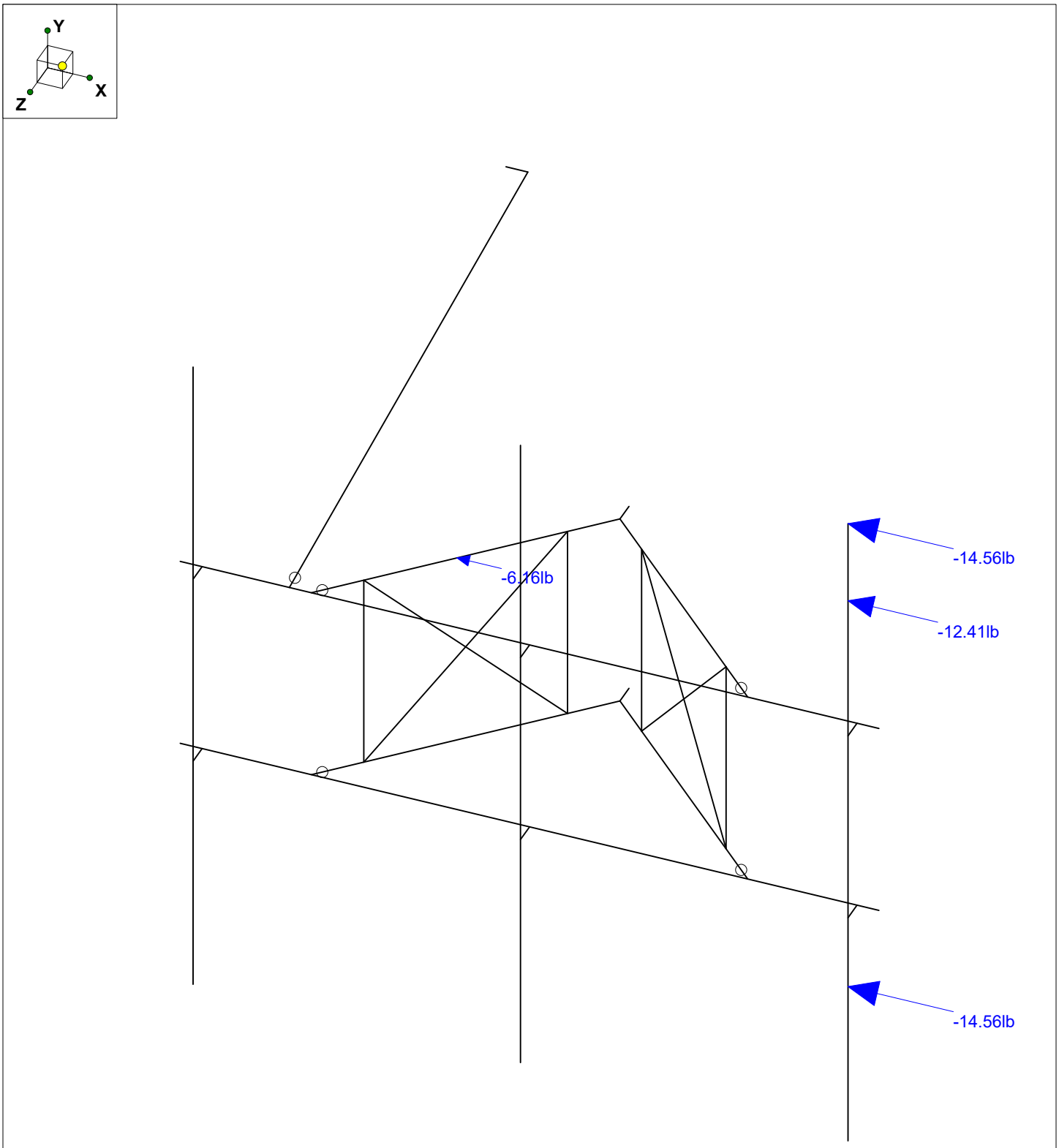
Loads: BLC 16, Ice Weight
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00147A	Ice Weight
PSM		Sept 14, 2021 at 2:27 PM
1197-F0001-B		BOHVN00147A_loaded.r3d



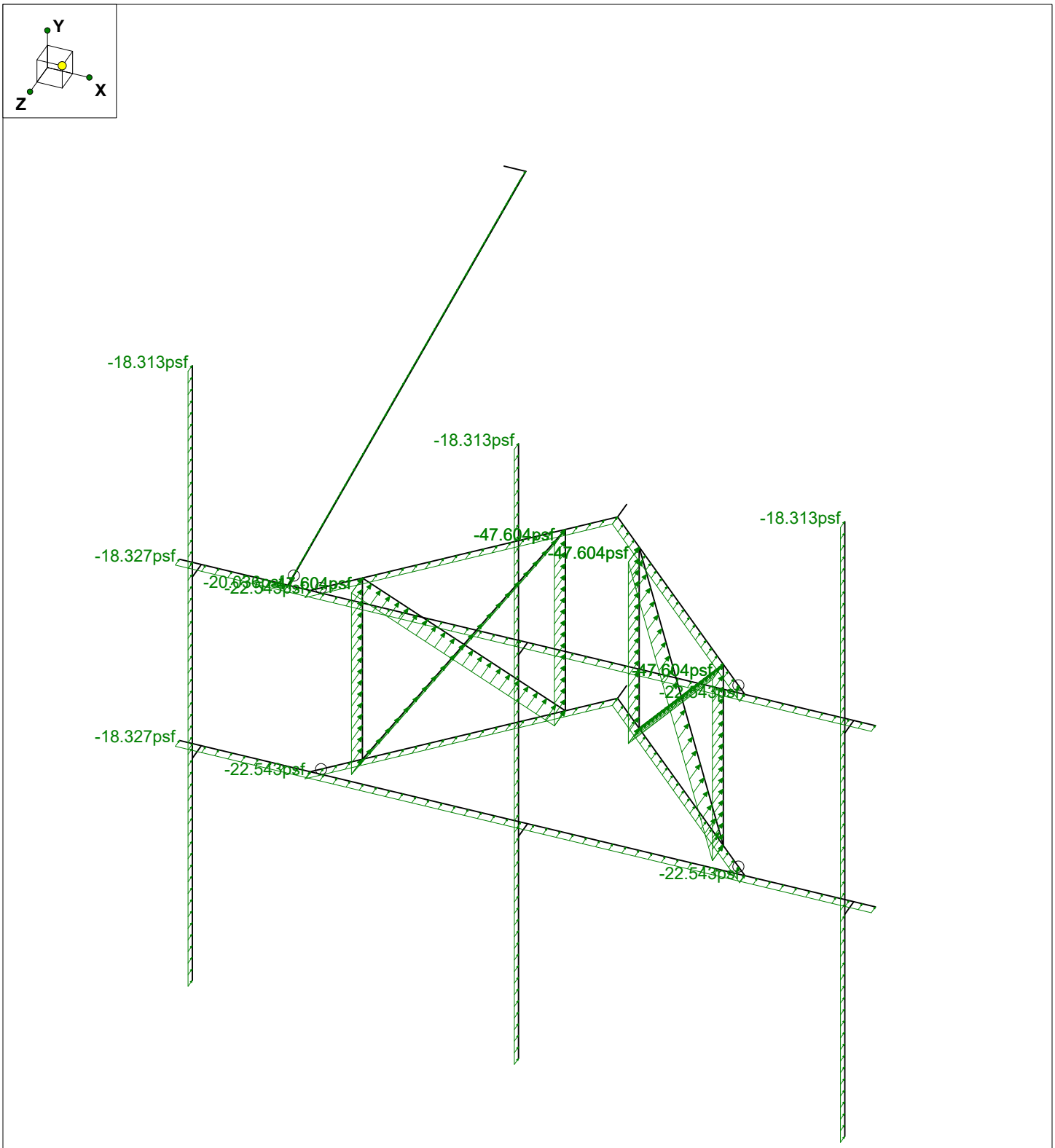
Loads: BLC 17, Ice Wind Load AZI 0
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00147A	Ice + Wind Load AZI 000
PSM		Sept 14, 2021 at 2:28 PM
1197-F0001-B		BOHVN00147A_loaded.r3d



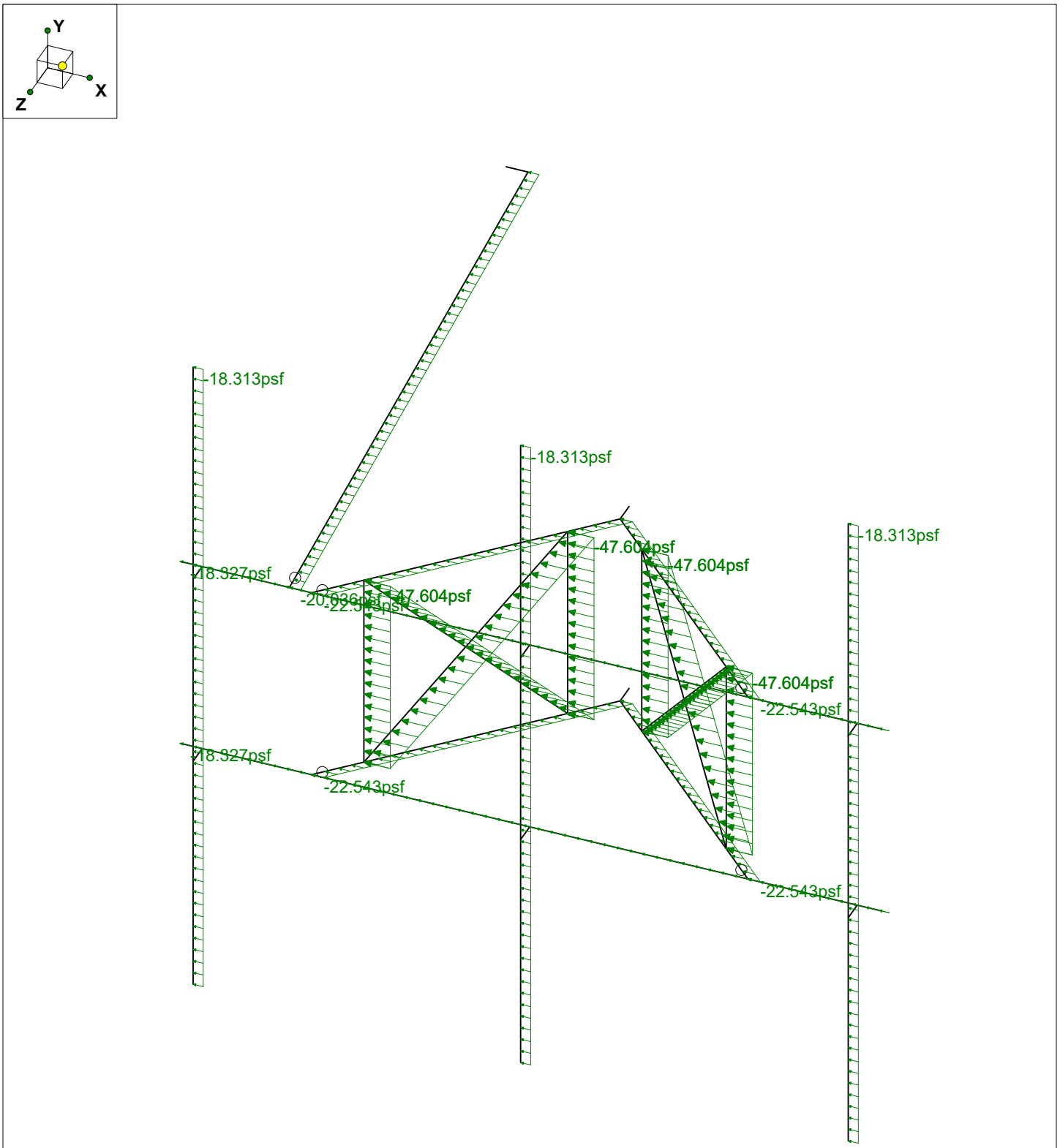
Loads: BLC 20, Ice Wind Load AZI 90
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00147A	Ice + Wind Load AZI 090
PSM		Sept 14, 2021 at 2:28 PM
1197-F0001-B		BOHVN00147A_loaded.r3d



Loads: BLC 29, Distr. Ice Wind Load Z
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00147A	Distr Ice + Wind Load AZI 000
PSM		Sept 14, 2021 at 2:28 PM
1197-F0001-B		BOHVN00147A_loaded.r3d



Loads: BLC 30, Distr. Ice Wind Load X
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00147A	Distr Ice + Wind Load AZI 090
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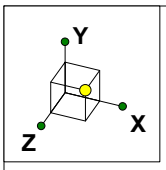
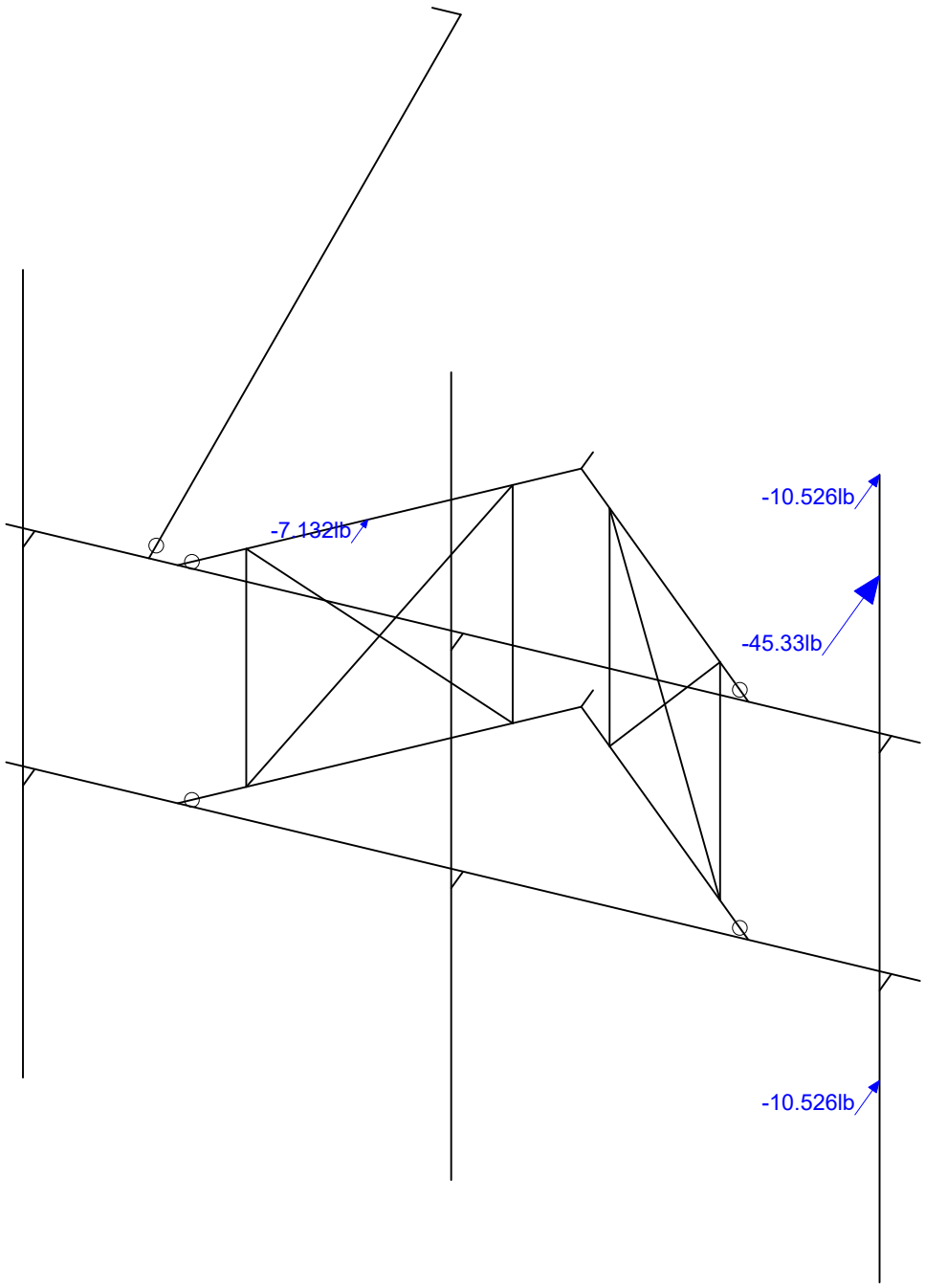
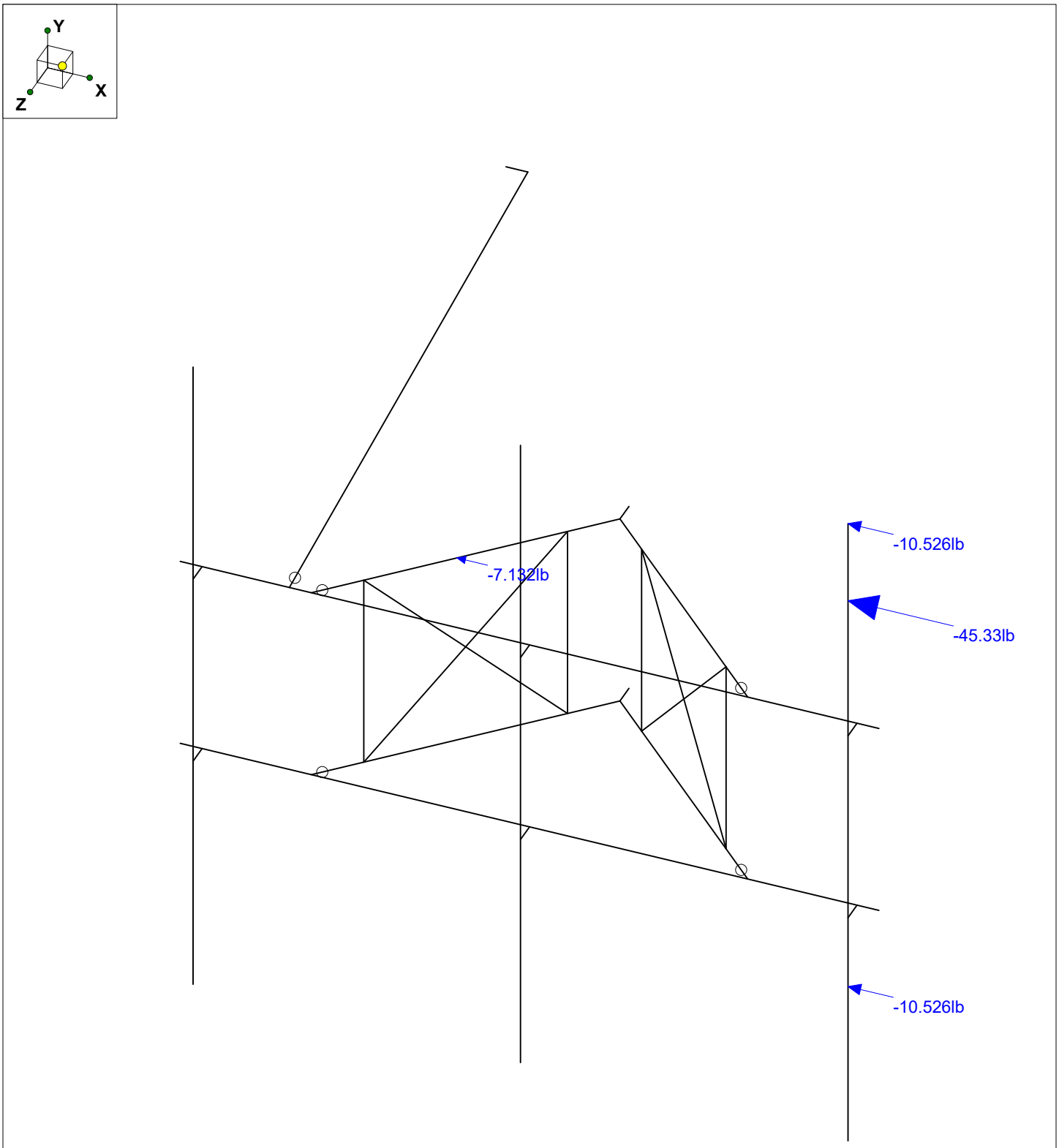
1197-F0001-B		BOHVN00147A_loaded.r3d





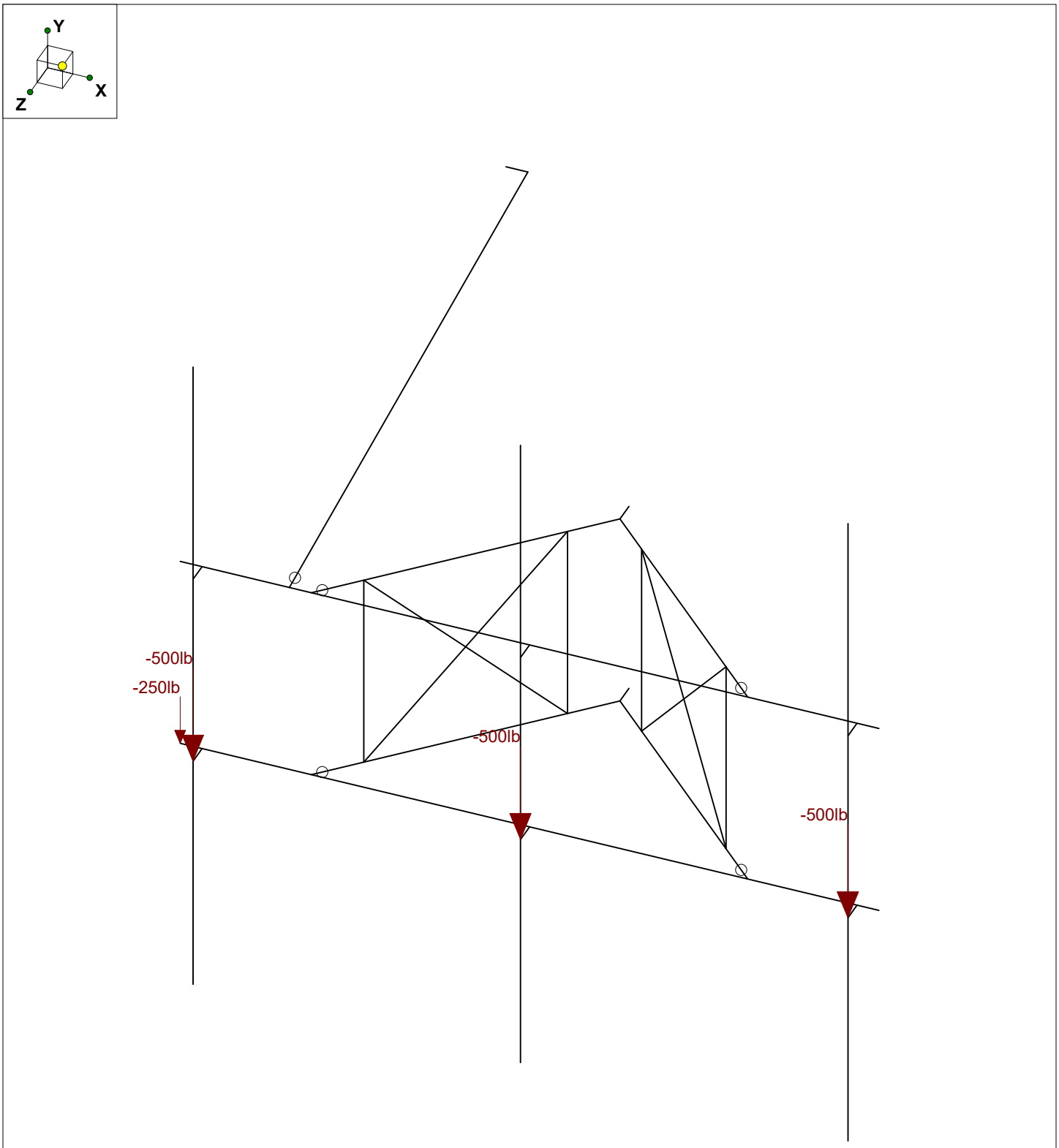
Loads: BLC 31, Seismic Load Z
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00147A	Seismic Load AZI 000
PSM		Sept 14, 2021 at 2:29 PM
1197-F0001-B		BOHVN00147A_loaded.r3d



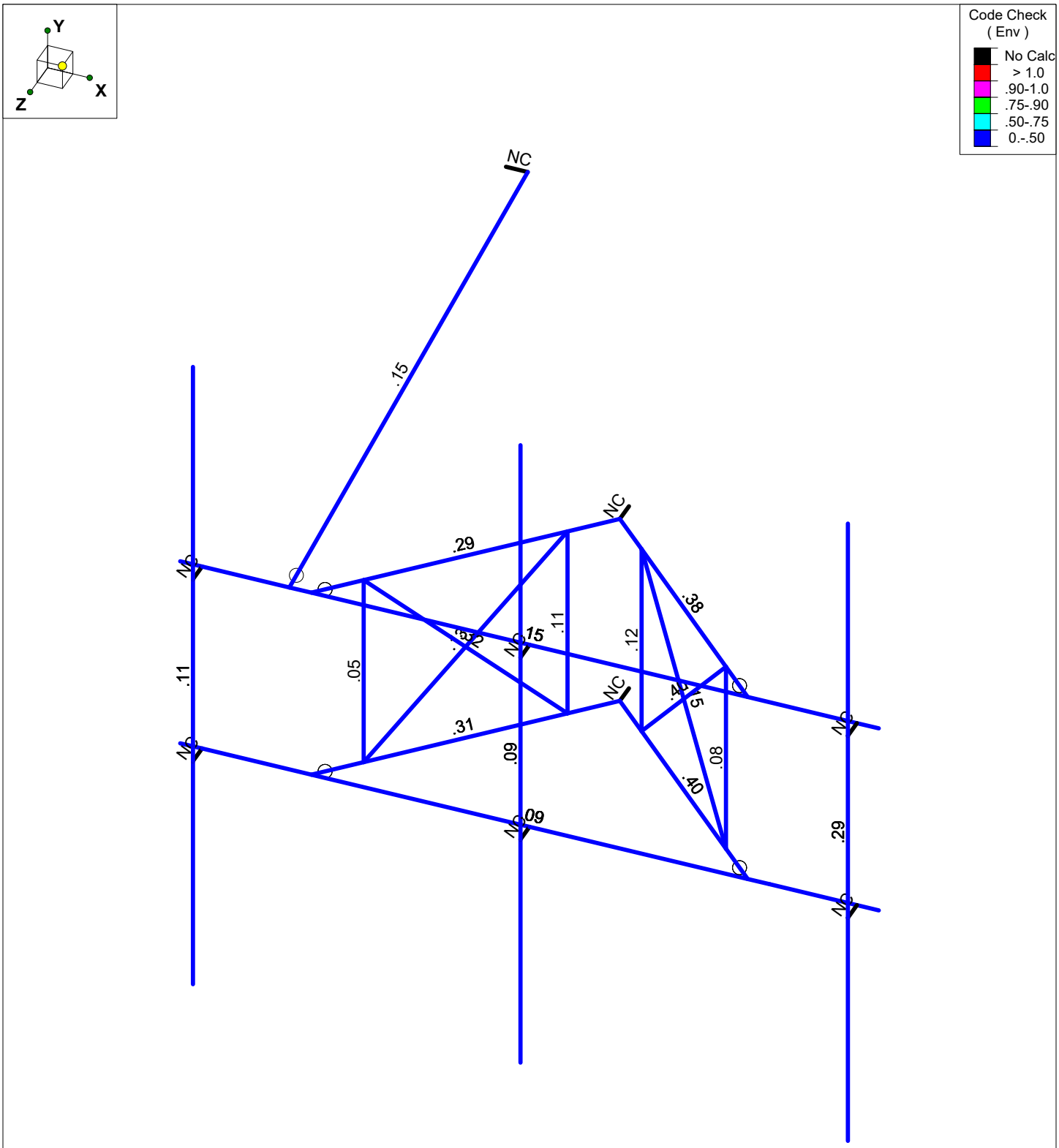
Loads: BLC 32, Seismic Load X
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00147A	Seismic Load AZI 090
PSM		Sept 14, 2021 at 2:29 PM
1197-F0001-B		BOHVN00147A_loaded.r3d



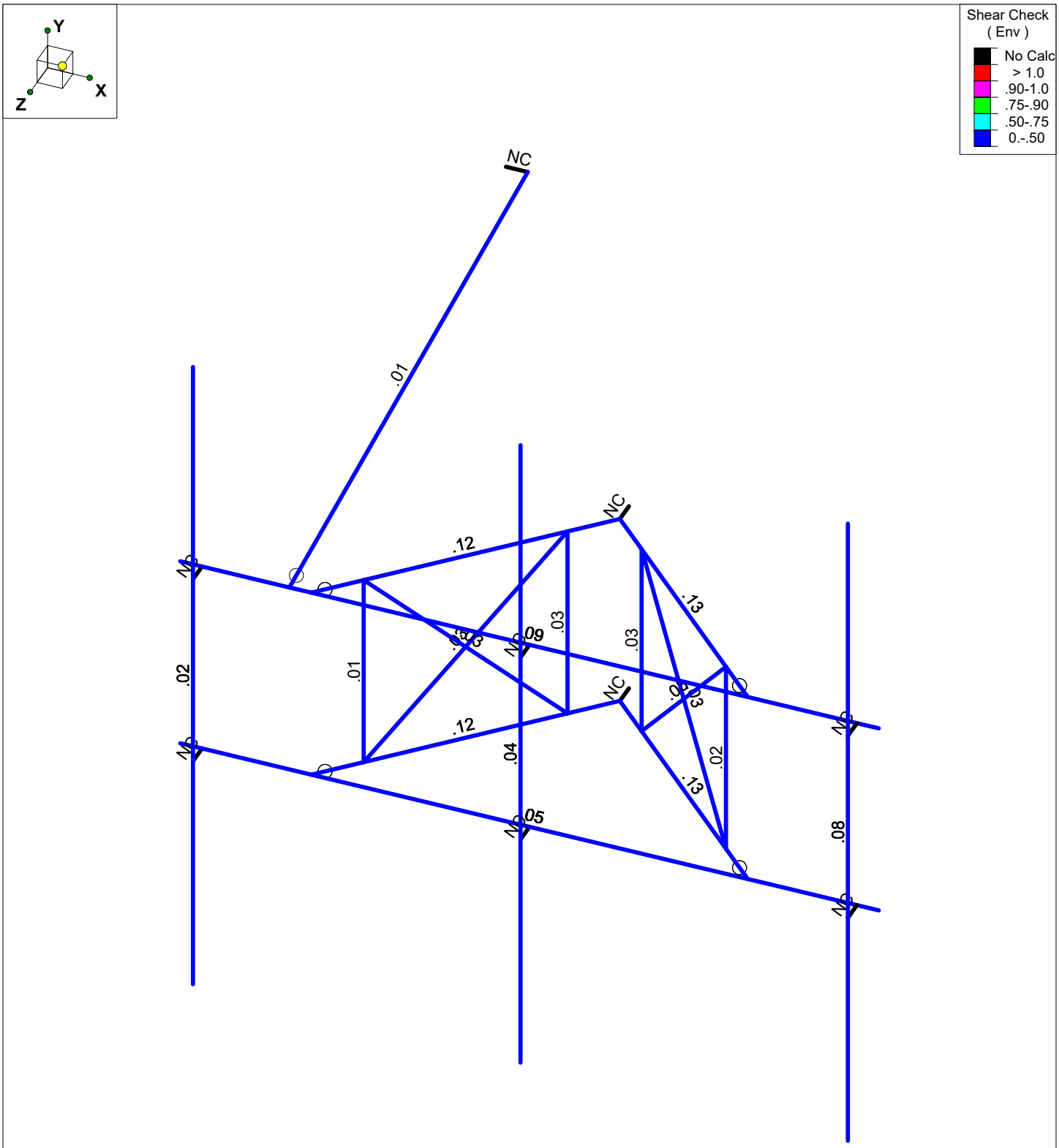
Loads: LL - Live Load
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00147A	Non-concurrent Service Live Lo
PSM		Sept 14, 2021 at 2:29 PM
1197-F0001-B		BOHVN00147A_loaded.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00147A	Bending Check
PSM		Sept 14, 2021 at 2:30 PM
1197-F0001-B		BOHVN00147A_loaded.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00147A	Shear Check
PSM		Sept 14, 2021 at 2:30 PM
1197-F0001-B		BOHVN00147A_loaded.r3d

Program Inputs

PROJECT INFORMATION	
Client:	ATC
Carrier:	Dish Wireless
Engineer:	Pradin Suinyal Magar, M.S

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	79.48	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Sector Frame	
Num Sectors:	3	
Centerline AGL:	156.00	ft
Tower Height AGL:	191.00	ft

TOPOGRAPHIC DATA		
Topo Feature:	N/A	
Slope Distance:	N/A	ft
Crest Distance:	N/A	ft
Crest Height:	N/A	ft

FACTORS		
Directionality Fact. (K_d):	0.950	
Ground Ele. Factor (K_e):	0.997	*Rev H Only
Rooftop Speed-Up (K_s):	1.000	*Rev H Only
Topographic Factor (K_{zt}):	1.000	
Gust Effect Factor (G_h):	1.000	

CODE STANDARDS		
Building Code:	2015 IBC	
TIA Standard:	TIA-222-H	
ASCE Standard:	ASCE 7-16	

WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	123	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1	in
Flat Pressure:	101.980	psf
Round Pressure:	61.188	psf
Ice Wind Pressure:	10.111	psf

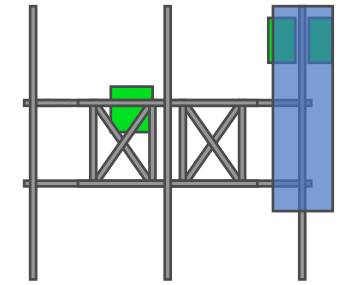
SEISMIC DATA		
Short-Period Accel. (S_s):	0.204	g
1-Second Accel. (S_1):	0.054	g
Short-Period Design (S_{DS}):	0.218	
1-Second Design (S_{D1}):	0.086	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	2.000	

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

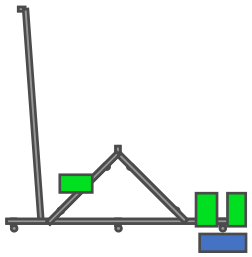
Infinigy Load Calculator V2.1.7

Program Inputs

ELEVATION VIEW



PLAN VIEW



INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Infinigy Load Calculator V2.1.7

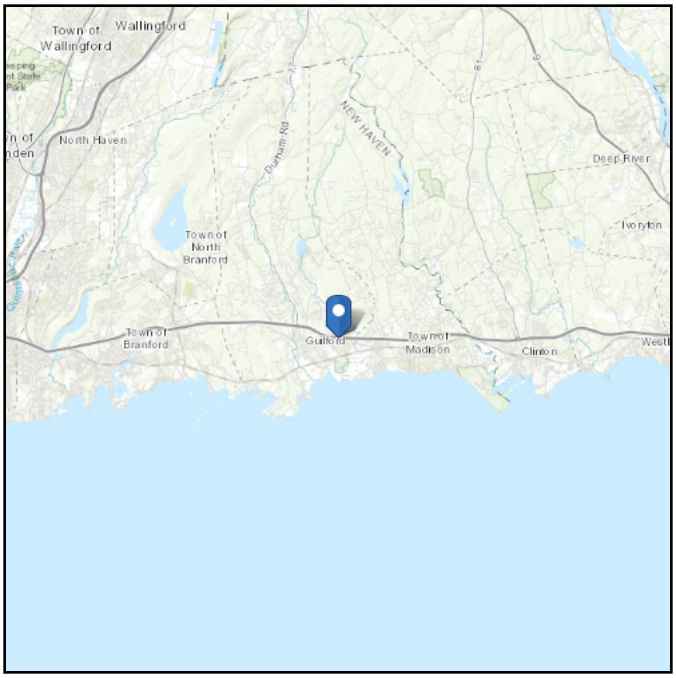
APPURTENANCE INFORMATION

Appurtenance Name	Elevation	Qty.	K_a	q_z (psf)	EPA_N (ft^2)	EPA_T (ft^2)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)
JMA WIRELESS MX08FRO665-21	156.0	3	0.90	50.99	8.01	3.21	367.59	147.31	64.50	21.05	MP1
FUJITSU TA08025-B605	156.0	3	0.90	50.99	1.96	1.19	90.11	54.57	74.95	24.46	MP1
FUJITSU TA08025-B604	156.0	3	0.90	50.99	1.96	1.03	90.11	47.40	63.93	20.87	MP1
RAYCAP RDIDC-9181-PF-48	156.0	1	0.90	50.99	1.87	1.07	85.66	48.95	21.85	7.13	S1

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Elevation:**	79.48 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.288608
Soil Class:	D - Default (see Section 11.4.3)	**Longitude:**	-72.658281



Wind

Results:

Wind Speed:	123 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	94 Vmph
100-year MRI	100 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:	Tue Sep 14 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 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

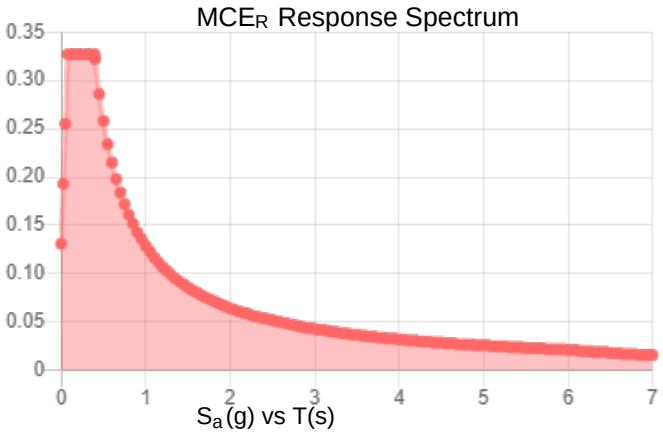
Seismic

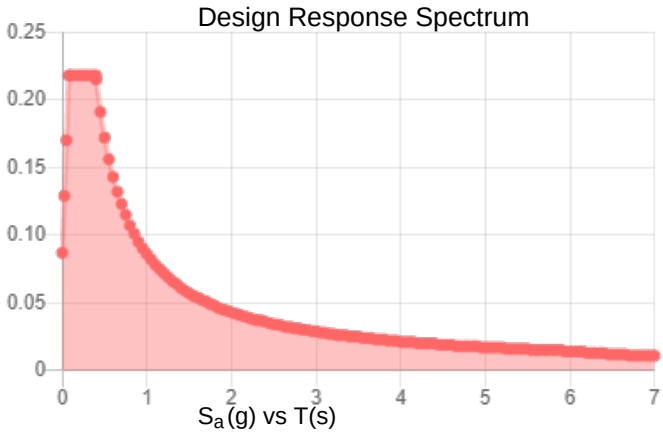
Site Soil Class: D - Default (see Section 11.4.3)

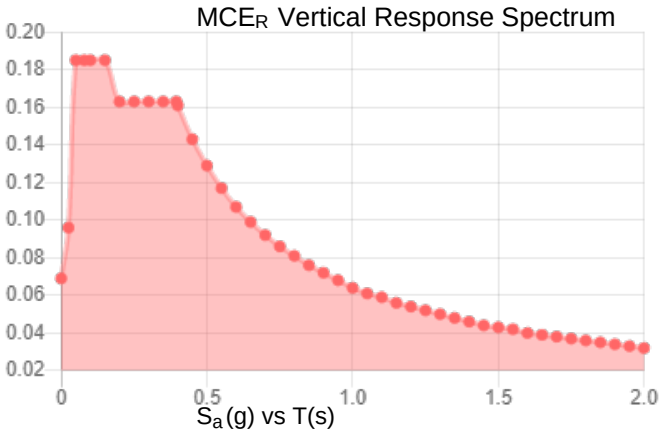
Results:

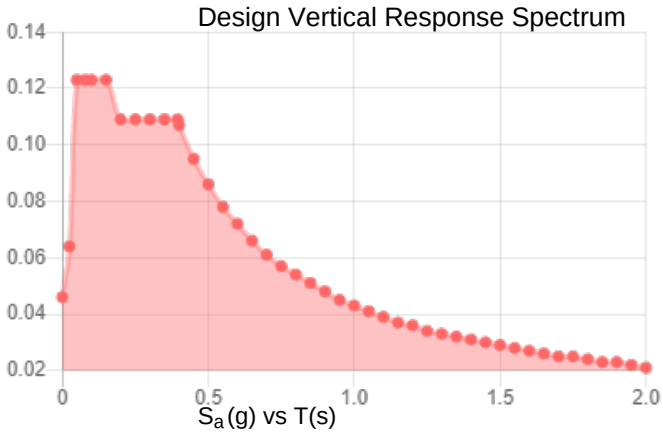
S_S :	0.204	S_{D1} :	0.086
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.114
F_v :	2.4	PGA_M :	0.179
S_{MS} :	0.327	F_{PGA} :	1.572
S_{M1} :	0.129	I_e :	1
S_{DS} :	0.218	C_v :	0.708

Seismic Design Category B









Data Accessed: Tue Sep 14 2021

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:	Tue Sep 14 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 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.

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design Rules
1	S3	N2	N1			Standoff Arms	Beam	Pipe	A500 Gr.46	Typical
2	S4	N7	N6			Standoff Arms	Beam	Pipe	A500 Gr.46	Typical
3	TR6	N3	N8			Standoff Vertical	None	None	A529 Gr.50	Typical
4	TR5	N4	N9			Standoff Vertical	None	None	A529 Gr.50	Typical
5	TR8	N4	N8			Diagonal	None	None	A529 Gr.50	Typical
6	TR7	N3	N9			Diagonal	None	None	A529 Gr.50	Typical
7	S1	N10	N1			Standoff Arms	Beam	Pipe	A500 Gr.46	Typical
8	S2	N14	N6			Standoff Arms	Beam	Pipe	A500 Gr.46	Typical
9	TR1	N11	N15			Standoff Vertical	None	None	A529 Gr.50	Typical
10	TR2	N12	N16			Standoff Vertical	None	None	A529 Gr.50	Typical
11	TR3	N12	N15			Diagonal	None	None	A529 Gr.50	Typical
12	TR4	N11	N16			Diagonal	None	None	A529 Gr.50	Typical
13	H1	N16A	N15A			Face Horizontal	Beam	Pipe	A500 Gr.46	Typical
14	H2	N18	N17			Face Horizontal	Beam	Pipe	A500 Gr.46	Typical
15	MP3	N21	N22			Mount Pipe	Colu...	Pipe	A500 Gr.46	Typical
16	MP1	N19	N20			Mount Pipe	Colu...	Pipe	A500 Gr.46	Typical
17	MP2	N33	N34			Mount Pipe	Colu...	Pipe	A500 Gr.46	Typical
18	T1	N37	N38			Tie Back	None	None	A500 Gr.46	Typical
19	M29	N25	N67			RIGID	None	None	RIGID	Typical
20	M30	N27	N69			RIGID	None	None	RIGID	Typical
21	M33	N35	N73			RIGID	None	None	RIGID	Typical
22	M34	N36	N74			RIGID	None	None	RIGID	Typical
23	M35	N26	N68			RIGID	None	None	RIGID	Typical
24	M36	N28	N70			RIGID	None	None	RIGID	Typical
25	M25	N43	N1			RIGID	None	None	RIGID	Typical
26	M26	N44	N6			RIGID	None	None	RIGID	Typical
27	M27	N44A	N38			RIGID	None	None	RIGID	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Lengt...	Lbyy[in]	Lbzz[in]	Lcomp t...	Lcomp b...	L-tor...	Kyy	Kzz	Cb	Func...
1	S3	Standoff Arms	42.4			Lbyy						Late...
2	S4	Standoff Arms	42.4			Lbyy						Late...
3	TR6	Standoff Vertical	28.3			Lbyy			.65	.65		Late...
4	TR5	Standoff Vertical	28.3			Lbyy			.65	.65		Late...
5	TR8	Diagonal	39.811			Lbyy			.7	.7		Late...
6	TR7	Diagonal	39.811			Lbyy			.5	.5		Late...
7	S1	Standoff Arms	42.4			Lbyy						Late...
8	S2	Standoff Arms	42.4			Lbyy						Late...
9	TR1	Standoff Vertical	28.3			Lbyy			.65	.65		Late...
10	TR2	Standoff Vertical	28.3			Lbyy			.65	.65		Late...

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Lengt...	Lbyy[in]	Lbzz[in]	Lcomp t...	Lcomp b...	L-tor...	Kyy	Kzz	Cb	Func...
11	TR3	Diagonal	39.811			Lbyy			.7	.7		Late...
12	TR4	Diagonal	39.811			Lbyy			.5	.5		Late...
13	H1	Face Horizontal	96			Lbyy						Late...
14	H2	Face Horizontal	96			Lbyy						Late...
15	MP3	Mount Pipe	96			Lbyy						Late...
16	MP1	Mount Pipe	96			Lbyy						Late...
17	MP2	Mount Pipe	96			Lbyy						Late...
18	T1	Tie Back	96.255			Lbyy						Late...

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ra...	Analysis ...	Inactive	Seismi...
1	S3	BenPIN					Yes	Default			None
2	S4	BenPIN					Yes	Default			None
3	TR6						Yes	** NA **			None
4	TR5						Yes	** NA **			None
5	TR8						Yes	** NA **			None
6	TR7						Yes	** NA **			None
7	S1	BenPIN					Yes	Default			None
8	S2	BenPIN					Yes	Default			None
9	TR1						Yes	** NA **			None
10	TR2						Yes	** NA **			None
11	TR3						Yes	** NA **			None
12	TR4						Yes	** NA **			None
13	H1						Yes				None
14	H2						Yes				None
15	MP3						Yes	** NA **			None
16	MP1						Yes	** NA **			None
17	MP2						Yes	** NA **			None
18	T1	BenPIN					Yes	** NA **			None
19	M29						Yes	** NA **			None
20	M30						Yes	** NA **			None
21	M33						Yes	** NA **			None
22	M34						Yes	** NA **			None
23	M35						Yes	** NA **			None
24	M36						Yes	** NA **			None
25	M25						Yes	** NA **			None
26	M26						Yes	** NA **			None
27	M27						Yes	** NA **			None

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		9	27	0
3	Total General		9	27	0
4					
5	Hot Rolled Steel				
6	A500 Gr.46	1.9" ODx0.12"	4	169.6	32.27
7	A500 Gr.46	PIPE 2.5	2	192	87.656
8	A500 Gr.46	2.88"x0.120"	3	288	84.933
9	A500 Gr.46	Pipe2.38X0.12	1	96.3	23.255
10	A529 Gr.50	0.63" SR	8	272.4	24.082
11	Total HR Steel		18	1018.3	252.196

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design...	A [in2]	Iyy [in...	Izz [in...	J [in4]
1	Face Horizontal	PIPE 2.5	Beam	Pipe	A500 G...	Typical	1.61	1.45	1.45	2.89
2	Standoff Arms	1.9" ODx0.12"	Beam	Pipe	A500 G...	Typical	.671	.267	.267	.534
3	Diagonal	0.63" SR	None	None	A529 G...	Typical	.312	.008	.008	.015
4	Mount Pipe	2.88"x0.120"	Colu...	Pipe	A500 G...	Typical	1.04	.993	.993	1.985
5	Tie Back	Pipe2.38X0.12	None	None	A500 G...	Typical	.852	.545	.545	1.091
6	End Support Pipe	3.5"x0.120	None	None	A500 G...	Typical	1.274	1.822	1.822	3.644
7	Standoff Vertical	0.63" SR	None	None	A529 G...	Typical	.312	.008	.008	.015

Basic Load Cases

	BLC Description	Category	X Gr...	Y Gr...	Z Gr...	Joint	Point	Distributed	Area(Memb...	Surface(Plate/Wall)
1	Self Weight	DL		-1			5			
2	Wind Load AZI 0	WLZ					10			
3	Wind Load AZI 30	None					10			
4	Wind Load AZI 60	None					10			
5	Wind Load AZI 90	WLX					10			
6	Wind Load AZI 1...	None					10			
7	Wind Load AZI 1...	None					10			
8	Wind Load AZI 1...	None					10			
9	Wind Load AZI 2...	None					10			
10	Wind Load AZI 2...	None					10			
11	Wind Load AZI 2...	None					10			
12	Wind Load AZI 3...	None					10			
13	Wind Load AZI 3...	None					10			
14	Distr. Wind Load Z	WLZ						27		

Basic Load Cases (Continued)

	BLC Description	Category	X Gr...	Y Gr...	Z Gr...	Joint	Point	Distributed	Area(Memb...	Surface(Plate/Wall)
15	Distr. Wind Load X	WLX						27		
16	Ice Weight	OL1					5	27		
17	Ice Wind Load A...	OL2					10			
18	Ice Wind Load A...	None					10			
19	Ice Wind Load A...	None					10			
20	Ice Wind Load A...	OL3					10			
21	Ice Wind Load A...	None					10			
22	Ice Wind Load A...	None					10			
23	Ice Wind Load A...	None					10			
24	Ice Wind Load A...	None					10			
25	Ice Wind Load A...	None					10			
26	Ice Wind Load A...	None					10			
27	Ice Wind Load A...	None					10			
28	Ice Wind Load A...	None					10			
29	Distr. Ice Wind L...	OL2						27		
30	Distr. Ice Wind L...	OL3						27		
31	Seismic Load Z	ELZ			-.326		5			
32	Seismic Load X	ELX	-.326				5			
33	Service Live Loa...	LL				1				
34	Maintenance Loa...	LL				1				
35	Maintenance Loa...	LL				1				
36	Maintenance Loa...	LL				1				

Load Combinations

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4DL	Y...	Y		1	1.4																				
2	1.2DL + 1WL AZI 0	Y...	Y		1	1.2	2	1	14	1	15															
3	1.2DL + 1WL AZI 30	Y...	Y		1	1.2	3	1	14	.866	15	.5														
4	1.2DL + 1WL AZI 60	Y...	Y		1	1.2	4	1	14	.5	15	.866														
5	1.2DL + 1WL AZI 90	Y...	Y		1	1.2	5	1	14		15	1														
6	1.2DL + 1WL AZI 120	Y...	Y		1	1.2	6	1	14	-.5	15	.866														
7	1.2DL + 1WL AZI 150	Y...	Y		1	1.2	7	1	14	-.8...	15	.5														
8	1.2DL + 1WL AZI 180	Y...	Y		1	1.2	8	1	14	-1	15															
9	1.2DL + 1WL AZI 210	Y...	Y		1	1.2	9	1	14	-.8...	15	-.5														
10	1.2DL + 1WL AZI 240	Y...	Y		1	1.2	10	1	14	-.5	15	-.8...														
11	1.2DL + 1WL AZI 270	Y...	Y		1	1.2	11	1	14		15	-1														
12	1.2DL + 1WL AZI 300	Y...	Y		1	1.2	12	1	14	.5	15	-.8...														
13	1.2DL + 1WL AZI 330	Y...	Y		1	1.2	13	1	14	.866	15	-.5														
14	0.9DL + 1WL AZI 0	Y...	Y		1	.9	2	1	14	1	15															
15	0.9DL + 1WL AZI 30	Y...	Y		1	.9	3	1	14	.866	15	.5														
16	0.9DL + 1WL AZI 60	Y...	Y		1	.9	4	1	14	.5	15	.866														

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
17	0.9DL + 1WL AZI 90	Y...	Y		1	.9	5	1	14		15	1														
18	0.9DL + 1WL AZI 120	Y...	Y		1	.9	6	1	14	-.5	15	.866														
19	0.9DL + 1WL AZI 150	Y...	Y		1	.9	7	1	14	-.8...	15	.5														
20	0.9DL + 1WL AZI 180	Y...	Y		1	.9	8	1	14	-1	15															
21	0.9DL + 1WL AZI 210	Y...	Y		1	.9	9	1	14	-.8...	15	-.5														
22	0.9DL + 1WL AZI 240	Y...	Y		1	.9	10	1	14	-.5	15	-.8...														
23	0.9DL + 1WL AZI 270	Y...	Y		1	.9	11	1	14		15	-1														
24	0.9DL + 1WL AZI 300	Y...	Y		1	.9	12	1	14	.5	15	-.8...														
25	0.9DL + 1WL AZI 330	Y...	Y		1	.9	13	1	14	.866	15	-.5														
26	1.2D + 1.0Di	Y...	Y		1	1.2	16	1																		
27	1.2D + 1.0Di +1.0Wi AZI 0	Y...	Y		1	1.2	16	1	17	1	29	1	30													
28	1.2D + 1.0Di +1.0Wi AZI 30	Y...	Y		1	1.2	16	1	18	1	29	.866	30	.5												
29	1.2D + 1.0Di +1.0Wi AZI 60	Y...	Y		1	1.2	16	1	19	1	29	.5	30	.866												
30	1.2D + 1.0Di +1.0Wi AZI 90	Y...	Y		1	1.2	16	1	20	1	29		30	1												
31	1.2D + 1.0Di +1.0Wi AZI 120	Y...	Y		1	1.2	16	1	21	1	29	-.5	30	.866												
32	1.2D + 1.0Di +1.0Wi AZI 150	Y...	Y		1	1.2	16	1	22	1	29	-.8...	30	.5												
33	1.2D + 1.0Di +1.0Wi AZI 180	Y...	Y		1	1.2	16	1	23	1	29	-1	30													
34	1.2D + 1.0Di +1.0Wi AZI 210	Y...	Y		1	1.2	16	1	24	1	29	-.8...	30	-.5												
35	1.2D + 1.0Di +1.0Wi AZI 240	Y...	Y		1	1.2	16	1	25	1	29	-.5	30	-.8...												
36	1.2D + 1.0Di +1.0Wi AZI 270	Y...	Y		1	1.2	16	1	26	1	29		30	-1												
37	1.2D + 1.0Di +1.0Wi AZI 300	Y...	Y		1	1.2	16	1	27	1	29	.5	30	-.8...												
38	1.2D + 1.0Di +1.0Wi AZI 330	Y...	Y		1	1.2	16	1	28	1	29	.866	30	-.5												
39	(1.2 + 0.2Sds)DL + 1.0E AZI 0	Y...	Y		1	1.2...	31	1	32																	
40	(1.2 + 0.2Sds)DL + 1.0E AZI 30	Y...	Y		1	1.2...	31	.866	32	.5																
41	(1.2 + 0.2Sds)DL + 1.0E AZI 60	Y...	Y		1	1.2...	31	.5	32	.866																
42	(1.2 + 0.2Sds)DL + 1.0E AZI 90	Y...	Y		1	1.2...	31		32	1																
43	(1.2 + 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	1.2...	31	-.5	32	.866																
44	(1.2 + 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	1.2...	31	-.8...	32	.5																
45	(1.2 + 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	1.2...	31	-1	32																	
46	(1.2 + 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	1.2...	31	-.8...	32	-.5																
47	(1.2 + 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	1.2...	31	-.5	32	-.8...																
48	(1.2 + 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	1.2...	31		32	-1																
49	(1.2 + 0.2Sds)DL + 1.0E AZI 3...	Y...	Y		1	1.2...	31	.5	32	-.8...																
50	(1.2 + 0.2Sds)DL + 1.0E AZI 3...	Y...	Y		1	1.2...	31	.866	32	-.5																
51	(0.9 - 0.2Sds)DL + 1.0E AZI 0	Y...	Y		1	.856	31	1	32																	
52	(0.9 - 0.2Sds)DL + 1.0E AZI 30	Y...	Y		1	.856	31	.866	32	.5																
53	(0.9 - 0.2Sds)DL + 1.0E AZI 60	Y...	Y		1	.856	31	.5	32	.866																
54	(0.9 - 0.2Sds)DL + 1.0E AZI 90	Y...	Y		1	.856	31		32	1																
55	(0.9 - 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	.856	31	-.5	32	.866																
56	(0.9 - 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	.856	31	-.8...	32	.5																
57	(0.9 - 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	.856	31	-1	32																	
58	(0.9 - 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	.856	31	-.8...	32	-.5																

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
59	(0.9 - 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	.856	31	-.5	32	-.8...															
60	(0.9 - 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	.856	31		32	-1															
61	(0.9 - 0.2Sds)DL + 1.0E AZI 3...	Y...	Y		1	.856	31	.5	32	-.8...															
62	(0.9 - 0.2Sds)DL + 1.0E AZI 3...	Y...	Y		1	.856	31	.866	32	-.5															
63	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	2	.238	14	.238	15		33	1.5											
64	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	3	.238	14	.206	15	.119	33	1.5											
65	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	4	.238	14	.119	15	.206	33	1.5											
66	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	5	.238	14		15	.238	33	1.5											
67	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	6	.238	14	-.1...	15	.206	33	1.5											
68	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	7	.238	14	-.2...	15	.119	33	1.5											
69	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	8	.238	14	-.2...	15		33	1.5											
70	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	9	.238	14	-.2...	15	-.1...	33	1.5											
71	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	10	.238	14	-.1...	15	-.2...	33	1.5											
72	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	11	.238	14		15	-.2...	33	1.5											
73	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	12	.238	14	.119	15	-.2...	33	1.5											
74	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	13	.238	14	.206	15	-.1...	33	1.5											
75	1.2DL + 1.5LL	Y...	Y		1	1.2	33	1.5																	
76	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	2	.059	14	.059	15												
77	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	3	.059	14	.052	15	.03											
78	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	4	.059	14	.03	15	.052											
79	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	5	.059	14		15	.059											
80	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	6	.059	14	-.03	15	.052											
81	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	7	.059	14	-.0...	15	.03											
82	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	8	.059	14	-.0...	15												
83	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	9	.059	14	-.0...	15	-.03											
84	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	10	.059	14	-.03	15	-.0...											
85	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	11	.059	14		15	-.0...											
86	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	12	.059	14	.03	15	-.0...											
87	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	13	.059	14	.052	15	-.03											
88	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	2	.059	14	.059	15												
89	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	3	.059	14	.052	15	.03											
90	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	4	.059	14	.03	15	.052											
91	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	5	.059	14		15	.059											
92	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	6	.059	14	-.03	15	.052											
93	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	7	.059	14	-.0...	15	.03											
94	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	8	.059	14	-.0...	15												
95	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	9	.059	14	-.0...	15	-.03											
96	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	10	.059	14	-.03	15	-.0...											
97	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	11	.059	14		15	-.0...											
98	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	12	.059	14	.03	15	-.0...											
99	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	13	.059	14	.052	15	-.03											
100	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	2	.059	14	.059	15												

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
101	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	3	.059	14	.052	15	.03												
102	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	4	.059	14	.03	15	.052												
103	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	5	.059	14		15	.059												
104	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	6	.059	14	-.03	15	.052												
105	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	7	.059	14	-.0...	15	.03												
106	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	8	.059	14	-.0...	15													
107	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	9	.059	14	-.0...	15	-.03												
108	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	10	.059	14	-.03	15	-.0...												
109	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	11	.059	14		15	-.0...												
110	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	12	.059	14	.03	15	-.0...												

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1						
2	N6						
3	N38						
4	N43	Reaction	Reaction	Reaction			
5	N44	Reaction	Reaction	Reaction			
6	N44A	Reaction	Reaction	Reaction			

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N43	...	867.82	78	667.935	89	1343.9...	25	0	110	0	110	0	110
2		...	-1584.095	96	174.51	20	-2459.6...	7	0	1	0	1	0	1
3	N44	...	1561.195	91	648.968	107	1611.3...	88	0	110	0	110	0	110
4		...	-844.544	85	175.944	14	190.969	20	0	1	0	1	0	1
5	N44A	...	133.665	6	34.635	37	951.314	7	0	110	0	110	0	110
6		...	-134.252	12	9.926	55	-953.319	25	0	1	0	1	0	1
7	Totals:	...	874.731	17	1322.9...	95	1384.8...	2						
8		...	-874.732	11	408.907	53	-1384.8...	8						

Member Point Loads (BLC 1 : Self Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-32.25	0
2	MP1	Y	-32.25	72
3	MP1	Y	-74.95	12
4	MP1	Y	-63.93	12
5	S1	Y	-21.85	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	0
2	MP1	Z	-183.79	0
3	MP1	X	0	72
4	MP1	Z	-183.79	72
5	MP1	X	0	12
6	MP1	Z	-90.11	12
7	MP1	X	0	12
8	MP1	Z	-90.11	12
9	S1	X	0	20
10	S1	Z	-85.66	20

Member Point Loads (BLC 3 : Wind Load AZI 30)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-78.13	0
2	MP1	Z	-135.32	0
3	MP1	X	-78.13	72
4	MP1	Z	-135.32	72
5	MP1	X	-40.61	12
6	MP1	Z	-70.34	12
7	MP1	X	-39.72	12
8	MP1	Z	-68.79	12
9	S1	X	-38.24	20
10	S1	Z	-66.24	20

Member Point Loads (BLC 4 : Wind Load AZI 60)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-87.63	0
2	MP1	Z	-50.59	0
3	MP1	X	-87.63	72
4	MP1	Z	-50.59	72
5	MP1	X	-54.95	12
6	MP1	Z	-31.73	12
7	MP1	X	-50.3	12
8	MP1	Z	-29.04	12
9	S1	X	-50.34	20
10	S1	Z	-29.06	20

Member Point Loads (BLC 5 : Wind Load AZI 90)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-73.66	0
2	MP1	Z	0	0

Member Point Loads (BLC 5 : Wind Load AZI 90) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
3	MP1	X	-73.66	72
4	MP1	Z	0	72
5	MP1	X	-54.57	12
6	MP1	Z	0	12
7	MP1	X	-47.4	12
8	MP1	Z	0	12
9	S1	X	-48.95	20
10	S1	Z	0	20

Member Point Loads (BLC 6 : Wind Load AZI 120)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-87.63	0
2	MP1	Z	50.59	0
3	MP1	X	-87.63	72
4	MP1	Z	50.59	72
5	MP1	X	-54.95	12
6	MP1	Z	31.73	12
7	MP1	X	-50.3	12
8	MP1	Z	29.04	12
9	S1	X	-50.34	20
10	S1	Z	29.06	20

Member Point Loads (BLC 7 : Wind Load AZI 150)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-78.13	0
2	MP1	Z	135.32	0
3	MP1	X	-78.13	72
4	MP1	Z	135.32	72
5	MP1	X	-40.61	12
6	MP1	Z	70.34	12
7	MP1	X	-39.72	12
8	MP1	Z	68.79	12
9	S1	X	-38.24	20
10	S1	Z	66.24	20

Member Point Loads (BLC 8 : Wind Load AZI 180)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	0
2	MP1	Z	183.79	0
3	MP1	X	0	72
4	MP1	Z	183.79	72

Member Point Loads (BLC 8 : Wind Load AZI 180) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
5	MP1	X	0	12
6	MP1	Z	90.11	12
7	MP1	X	0	12
8	MP1	Z	90.11	12
9	S1	X	0	20
10	S1	Z	85.66	20

Member Point Loads (BLC 9 : Wind Load AZI 210)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	78.13	0
2	MP1	Z	135.32	0
3	MP1	X	78.13	72
4	MP1	Z	135.32	72
5	MP1	X	40.61	12
6	MP1	Z	70.34	12
7	MP1	X	39.72	12
8	MP1	Z	68.79	12
9	S1	X	38.24	20
10	S1	Z	66.24	20

Member Point Loads (BLC 10 : Wind Load AZI 240)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	87.63	0
2	MP1	Z	50.59	0
3	MP1	X	87.63	72
4	MP1	Z	50.59	72
5	MP1	X	54.95	12
6	MP1	Z	31.73	12
7	MP1	X	50.3	12
8	MP1	Z	29.04	12
9	S1	X	50.34	20
10	S1	Z	29.06	20

Member Point Loads (BLC 11 : Wind Load AZI 270)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	73.66	0
2	MP1	Z	0	0
3	MP1	X	73.66	72
4	MP1	Z	0	72
5	MP1	X	54.57	12
6	MP1	Z	0	12

Member Point Loads (BLC 11 : Wind Load AZI 270) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
7	MP1	X	47.4	12
8	MP1	Z	0	12
9	S1	X	48.95	20
10	S1	Z	0	20

Member Point Loads (BLC 12 : Wind Load AZI 300)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	87.63	0
2	MP1	Z	-50.59	0
3	MP1	X	87.63	72
4	MP1	Z	-50.59	72
5	MP1	X	54.95	12
6	MP1	Z	-31.73	12
7	MP1	X	50.3	12
8	MP1	Z	-29.04	12
9	S1	X	50.34	20
10	S1	Z	-29.06	20

Member Point Loads (BLC 13 : Wind Load AZI 330)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	78.13	0
2	MP1	Z	-135.32	0
3	MP1	X	78.13	72
4	MP1	Z	-135.32	72
5	MP1	X	40.61	12
6	MP1	Z	-70.34	12
7	MP1	X	39.72	12
8	MP1	Z	-68.79	12
9	S1	X	38.24	20
10	S1	Z	-66.24	20

Member Point Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-91.419	0
2	MP1	Y	-91.419	72
3	MP1	Y	-46.349	12
4	MP1	Y	-43.372	12
5	S1	Y	-42.262	20

Member Point Loads (BLC 17 : Ice Wind Load AZI 0)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]

Member Point Loads (BLC 17 : Ice Wind Load AZI 0) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	0
2	MP1	Z	-22.66	0
3	MP1	X	0	72
4	MP1	Z	-22.66	72
5	MP1	X	0	12
6	MP1	Z	-8.24	12
7	MP1	X	0	12
8	MP1	Z	-8.24	12
9	S1	X	0	20
10	S1	Z	-7.89	20

Member Point Loads (BLC 18 : Ice Wind Load AZI 30)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-10.32	0
2	MP1	Z	-17.87	0
3	MP1	X	-10.32	72
4	MP1	Z	-17.87	72
5	MP1	X	-3.89	12
6	MP1	Z	-6.73	12
7	MP1	X	-3.84	12
8	MP1	Z	-6.66	12
9	S1	X	-3.73	20
10	S1	Z	-6.46	20

Member Point Loads (BLC 19 : Ice Wind Load AZI 60)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-14.37	0
2	MP1	Z	-8.29	0
3	MP1	X	-14.37	72
4	MP1	Z	-8.29	72
5	MP1	X	-5.93	12
6	MP1	Z	-3.42	12
7	MP1	X	-5.7	12
8	MP1	Z	-3.29	12
9	S1	X	-5.71	20
10	S1	Z	-3.29	20

Member Point Loads (BLC 20 : Ice Wind Load AZI 90)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-14.56	0
2	MP1	Z	0	0

Member Point Loads (BLC 20 : Ice Wind Load AZI 90) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
3	MP1	X	-14.56	72
4	MP1	Z	0	72
5	MP1	X	-6.38	12
6	MP1	Z	0	12
7	MP1	X	-6.03	12
8	MP1	Z	0	12
9	S1	X	-6.16	20
10	S1	Z	0	20

Member Point Loads (BLC 21 : Ice Wind Load AZI 120)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-14.37	0
2	MP1	Z	8.29	0
3	MP1	X	-14.37	72
4	MP1	Z	8.29	72
5	MP1	X	-5.93	12
6	MP1	Z	3.42	12
7	MP1	X	-5.7	12
8	MP1	Z	3.29	12
9	S1	X	-5.71	20
10	S1	Z	3.29	20

Member Point Loads (BLC 22 : Ice Wind Load AZI 150)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-10.32	0
2	MP1	Z	17.87	0
3	MP1	X	-10.32	72
4	MP1	Z	17.87	72
5	MP1	X	-3.89	12
6	MP1	Z	6.73	12
7	MP1	X	-3.84	12
8	MP1	Z	6.66	12
9	S1	X	-3.73	20
10	S1	Z	6.46	20

Member Point Loads (BLC 23 : Ice Wind Load AZI 180)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	0
2	MP1	Z	22.66	0
3	MP1	X	0	72
4	MP1	Z	22.66	72

Member Point Loads (BLC 23 : Ice Wind Load AZI 180) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
5	MP1	X	0	12
6	MP1	Z	8.24	12
7	MP1	X	0	12
8	MP1	Z	8.24	12
9	S1	X	0	20
10	S1	Z	7.89	20

Member Point Loads (BLC 24 : Ice Wind Load AZI 210)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	10.32	0
2	MP1	Z	17.87	0
3	MP1	X	10.32	72
4	MP1	Z	17.87	72
5	MP1	X	3.89	12
6	MP1	Z	6.73	12
7	MP1	X	3.84	12
8	MP1	Z	6.66	12
9	S1	X	3.73	20
10	S1	Z	6.46	20

Member Point Loads (BLC 25 : Ice Wind Load AZI 240)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	14.37	0
2	MP1	Z	8.29	0
3	MP1	X	14.37	72
4	MP1	Z	8.29	72
5	MP1	X	5.93	12
6	MP1	Z	3.42	12
7	MP1	X	5.7	12
8	MP1	Z	3.29	12
9	S1	X	5.71	20
10	S1	Z	3.29	20

Member Point Loads (BLC 26 : Ice Wind Load AZI 270)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	14.56	0
2	MP1	Z	0	0
3	MP1	X	14.56	72
4	MP1	Z	0	72
5	MP1	X	6.38	12
6	MP1	Z	0	12

Member Point Loads (BLC 26 : Ice Wind Load AZI 270) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
7	MP1	X	6.03	12
8	MP1	Z	0	12
9	S1	X	6.16	20
10	S1	Z	0	20

Member Point Loads (BLC 27 : Ice Wind Load AZI 300)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	14.37	0
2	MP1	Z	-8.29	0
3	MP1	X	14.37	72
4	MP1	Z	-8.29	72
5	MP1	X	5.93	12
6	MP1	Z	-3.42	12
7	MP1	X	5.7	12
8	MP1	Z	-3.29	12
9	S1	X	5.71	20
10	S1	Z	-3.29	20

Member Point Loads (BLC 28 : Ice Wind Load AZI 330)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	10.32	0
2	MP1	Z	-17.87	0
3	MP1	X	10.32	72
4	MP1	Z	-17.87	72
5	MP1	X	3.89	12
6	MP1	Z	-6.73	12
7	MP1	X	3.84	12
8	MP1	Z	-6.66	12
9	S1	X	3.73	20
10	S1	Z	-6.46	20

Member Point Loads (BLC 31 : Seismic Load Z)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-10.526	0
2	MP1	Z	-10.526	72
3	MP1	Z	-24.464	12
4	MP1	Z	-20.867	12
5	S1	Z	-7.132	20

Member Point Loads (BLC 32 : Seismic Load X)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]

Member Point Loads (BLC 32 : Seismic Load X) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-10.526	0
2	MP1	X	-10.526	72
3	MP1	X	-24.464	12
4	MP1	X	-20.867	12
5	S1	X	-7.132	20

Joint Loads and Enforced Displacements (BLC 33 : Service Live Loads)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N18	L	Y	-250

Joint Loads and Enforced Displacements (BLC 34 : Maintenance Load 1)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N69	L	Y	-500

Joint Loads and Enforced Displacements (BLC 35 : Maintenance Load 2)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N70	L	Y	-500

Joint Loads and Enforced Displacements (BLC 36 : Maintenance Load 3)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N74	L	Y	-500

Member Distributed Loads (BLC 14 : Distr. Wind Load Z)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S3	SZ	-61.188	-61.188	0	%100
2	S4	SZ	-61.188	-61.188	0	%100
3	TR6	SZ	-61.188	-61.188	0	%100
4	TR5	SZ	-61.188	-61.188	0	%100
5	TR8	SZ	-61.188	-61.188	0	%100
6	TR7	SZ	-61.188	-61.188	0	%100
7	S1	SZ	-61.188	-61.188	0	%100
8	S2	SZ	-61.188	-61.188	0	%100
9	TR1	SZ	-61.188	-61.188	0	%100
10	TR2	SZ	-61.188	-61.188	0	%100
11	TR3	SZ	-61.188	-61.188	0	%100
12	TR4	SZ	-61.188	-61.188	0	%100
13	H1	SZ	-61.188	-61.188	0	%100
14	H2	SZ	-61.188	-61.188	0	%100

Member Distributed Loads (BLC 14 : Distr. Wind Load Z) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
15	MP3	SZ	-61.188	-61.188	0	%100
16	MP1	SZ	-61.188	-61.188	0	%100
17	MP2	SZ	-61.188	-61.188	0	%100
18	T1	SZ	-61.188	-61.188	0	%100
19	M29	SZ	0	0	0	%100
20	M30	SZ	0	0	0	%100
21	M33	SZ	0	0	0	%100
22	M34	SZ	0	0	0	%100
23	M35	SZ	0	0	0	%100
24	M36	SZ	0	0	0	%100
25	M25	SZ	0	0	0	%100
26	M26	SZ	0	0	0	%100
27	M27	SZ	0	0	0	%100

Member Distributed Loads (BLC 15 : Distr. Wind Load X)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S3	SX	-61.188	-61.188	0	%100
2	S4	SX	-61.188	-61.188	0	%100
3	TR6	SX	-61.188	-61.188	0	%100
4	TR5	SX	-61.188	-61.188	0	%100
5	TR8	SX	-61.188	-61.188	0	%100
6	TR7	SX	-61.188	-61.188	0	%100
7	S1	SX	-61.188	-61.188	0	%100
8	S2	SX	-61.188	-61.188	0	%100
9	TR1	SX	-61.188	-61.188	0	%100
10	TR2	SX	-61.188	-61.188	0	%100
11	TR3	SX	-61.188	-61.188	0	%100
12	TR4	SX	-61.188	-61.188	0	%100
13	H1	SX	-61.188	-61.188	0	%100
14	H2	SX	-61.188	-61.188	0	%100
15	MP3	SX	-61.188	-61.188	0	%100
16	MP1	SX	-61.188	-61.188	0	%100
17	MP2	SX	-61.188	-61.188	0	%100
18	T1	SX	-61.188	-61.188	0	%100
19	M29	SX	0	0	0	%100
20	M30	SX	0	0	0	%100
21	M33	SX	0	0	0	%100
22	M34	SX	0	0	0	%100
23	M35	SX	0	0	0	%100
24	M36	SX	0	0	0	%100
25	M25	SX	0	0	0	%100
26	M26	SX	0	0	0	%100

Member Distributed Loads (BLC 15 : Distr. Wind Load X) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
27	M27	SX	0	0	0	%100

Member Distributed Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S3	Y	-4.378	-4.378	0	%100
2	S4	Y	-4.378	-4.378	0	%100
3	TR6	Y	-2.566	-2.566	0	%100
4	TR5	Y	-2.566	-2.566	0	%100
5	TR8	Y	-2.566	-2.566	0	%100
6	TR7	Y	-2.566	-2.566	0	%100
7	S1	Y	-4.378	-4.378	0	%100
8	S2	Y	-4.378	-4.378	0	%100
9	TR1	Y	-2.566	-2.566	0	%100
10	TR2	Y	-2.566	-2.566	0	%100
11	TR3	Y	-2.566	-2.566	0	%100
12	TR4	Y	-2.566	-2.566	0	%100
13	H1	Y	-5.77	-5.77	0	%100
14	H2	Y	-5.77	-5.77	0	%100
15	MP3	Y	-5.777	-5.777	0	%100
16	MP1	Y	-5.777	-5.777	0	%100
17	MP2	Y	-5.777	-5.777	0	%100
18	T1	Y	-5.063	-5.063	0	%100
19	M29	Y	-1.667	-1.667	0	%100
20	M30	Y	-1.667	-1.667	0	%100
21	M33	Y	-1.667	-1.667	0	%100
22	M34	Y	-1.667	-1.667	0	%100
23	M35	Y	-1.667	-1.667	0	%100
24	M36	Y	-1.667	-1.667	0	%100
25	M25	Y	-1.667	-1.667	0	%100
26	M26	Y	-1.667	-1.667	0	%100
27	M27	Y	-1.667	-1.667	0	%100

Member Distributed Loads (BLC 29 : Distr. Ice Wind Load Z)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S3	SZ	-22.543	-22.543	0	%100
2	S4	SZ	-22.543	-22.543	0	%100
3	TR6	SZ	-47.604	-47.604	0	%100
4	TR5	SZ	-47.604	-47.604	0	%100
5	TR8	SZ	-47.604	-47.604	0	%100
6	TR7	SZ	-47.604	-47.604	0	%100
7	S1	SZ	-22.543	-22.543	0	%100

Member Distributed Loads (BLC 29 : Distr. Ice Wind Load Z) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
8	S2	SZ	-22.543	-22.543	0	%100
9	TR1	SZ	-47.604	-47.604	0	%100
10	TR2	SZ	-47.604	-47.604	0	%100
11	TR3	SZ	-47.604	-47.604	0	%100
12	TR4	SZ	-47.604	-47.604	0	%100
13	H1	SZ	-18.327	-18.327	0	%100
14	H2	SZ	-18.327	-18.327	0	%100
15	MP3	SZ	-18.313	-18.313	0	%100
16	MP1	SZ	-18.313	-18.313	0	%100
17	MP2	SZ	-18.313	-18.313	0	%100
18	T1	SZ	-20.036	-20.036	0	%100
19	M29	SZ	0	0	0	%100
20	M30	SZ	0	0	0	%100
21	M33	SZ	0	0	0	%100
22	M34	SZ	0	0	0	%100
23	M35	SZ	0	0	0	%100
24	M36	SZ	0	0	0	%100
25	M25	SZ	0	0	0	%100
26	M26	SZ	0	0	0	%100
27	M27	SZ	0	0	0	%100

Member Distributed Loads (BLC 30 : Distr. Ice Wind Load X)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S3	SX	-22.543	-22.543	0	%100
2	S4	SX	-22.543	-22.543	0	%100
3	TR6	SX	-47.604	-47.604	0	%100
4	TR5	SX	-47.604	-47.604	0	%100
5	TR8	SX	-47.604	-47.604	0	%100
6	TR7	SX	-47.604	-47.604	0	%100
7	S1	SX	-22.543	-22.543	0	%100
8	S2	SX	-22.543	-22.543	0	%100
9	TR1	SX	-47.604	-47.604	0	%100
10	TR2	SX	-47.604	-47.604	0	%100
11	TR3	SX	-47.604	-47.604	0	%100
12	TR4	SX	-47.604	-47.604	0	%100
13	H1	SX	-18.327	-18.327	0	%100
14	H2	SX	-18.327	-18.327	0	%100
15	MP3	SX	-18.313	-18.313	0	%100
16	MP1	SX	-18.313	-18.313	0	%100
17	MP2	SX	-18.313	-18.313	0	%100
18	T1	SX	-20.036	-20.036	0	%100
19	M29	SX	0	0	0	%100

Member Distributed Loads (BLC 30 : Distr. Ice Wind Load X) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
20	M30	SX	0	0	0	%100
21	M33	SX	0	0	0	%100
22	M34	SX	0	0	0	%100
23	M35	SX	0	0	0	%100
24	M36	SX	0	0	0	%100
25	M25	SX	0	0	0	%100
26	M26	SX	0	0	0	%100
27	M27	SX	0	0	0	%100

Member Area Loads

Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
No Data to Print ...						

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

	Member	Shape	Code Check	Loc[in]	LC	She...	Loc[in]	Dir	LC	phi*P...	phi*P...	phi*M...	phi*Mn z-z [lb...	Cb	Eqn
1	TR7	0.63" SR	.401	39.811	88	.026	19.905		85	4409....	1402...	147.2...	147.295	2....	H1-1a
2	S4	1.9" ODx0.1...	.396	35.333	91	.134	42.4		94	2049...	2777...	1314....	1314.45	1....	H1-1b
3	S3	1.9" ODx0.1...	.378	35.333	94	.135	42.4		88	2049...	2777...	1314....	1314.45	1....	H1-1b
4	TR4	0.63" SR	.319	39.811	87	.030	19.905		90	4409....	1402...	147.2...	147.295	2....	H1-1a
5	S2	1.9" ODx0.1...	.308	35.333	85	.119	42.4		84	2049...	2777...	1314....	1314.45	1....	H1-1b
6	S1	1.9" ODx0.1...	.292	35.333	81	.118	42.4		87	2049...	2777...	1314....	1314.45	1.79	H1-1b
7	MP1	2.88"x0.120"	.286	33	2	.079	33		8	2249...	43056	3156....	3156.75	3.69	H1-1b
8	TR8	0.63" SR	.154	0	94	.026	19.905		81	2249....	1402...	147.2...	147.295	2....	H1-1b
9	H1	PIPE 2.5	.151	77	8	.094	78		2	3348...	66654	4726.5	4726.5	2....	H1-1b
10	T1	Pipe2.38X0....	.149	96.255	7	.009	96.255		5	1328...	3527...	2114....	2114.85	1....	H1-1b
11	TR3	0.63" SR	.126	0	81	.030	19.905		96	2249....	1402...	147.2...	147.295	2....	H1-1b
12	TR5	0.63" SR	.120	0	94	.033	0		95	5162....	1402...	147.2...	147.295	2....	H1-1b
13	TR2	0.63" SR	.110	0	81	.034	0		95	5162....	1402...	147.2...	147.295	2....	H1-1b
14	MP3	2.88"x0.120"	.109	33	81	.023	61		87	2249...	43056	3156....	3156.75	4....	H1-1b
15	MP2	2.88"x0.120"	.089	33	8	.038	33		93	2249...	43056	3156....	3156.75	4.38	H1-1b
16	H2	PIPE 2.5	.088	93	96	.047	78		94	3348...	66654	4726.5	4726.5	2....	H1-1b
17	TR6	0.63" SR	.076	0	93	.016	0		96	5162....	1402...	147.2...	147.295	2....	H1-1b
18	TR1	0.63" SR	.053	28.3	77	.015	28.3		96	5162....	1402...	147.2...	147.295	2....	H1-1b

INFINIGY

FROM ZERO TO INFINIGY

the solutions are endless

Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	BOHVN00147A
Site Number:	BOHVN00147A
Connection Description:	Sector Frame to Tower Leg

MAXIMUM BOLT LOADS		
Bolt Tension:	1229.83	lbs
Bolt Shear:	853.14	lbs

WORST CASE BOLT LOADS[1]		
Bolt Tension:	794.31	lbs
Bolt Shear:	853.14	lbs

WORST CASE CONNECTION SLIP LOADS[2]		
Sliding Force:	653.53	lbs
Torsion About Leg:	0.00	lbs-ft

BOLT PROPERTIES		
Bolt Type:	Threaded Rod	-
Bolt Diameter:	0.625	in
Bolt Grade:	A449	-
# of Threaded Rods:	2	-
Leg Diameter:	5.563	in
Threads Excluded?	No	-

[1] *Worst case bolt loads correspond to Load combination #96 on member M25 in RISA-3D, which causes the maximum demand on the bolts.*

[2] *Worst Case slip loads correspond to Load combination #93 on member M25 in RISA 3D, which causes the maximum slip demand on the connection.*

Member Information
I nodes of M25, M26

BOLT CHECK		
Tensile Strength	20340.15	
Shear Strength	13805.83	
Max Tensile Usage	6.0%	
Max Shear Usage	6.2%	
Interaction Check (Worst Case)	0.01	***≤1.05***
Result	Pass	

SLIP CHECK (WORST CASE)		
Torsional Slip Resistance	1469.84	
Sliding Resistance	6341.20	
Torsional Slip Usage	0.0%	
Sliding Usage	10.3%	
Interaction Check	0.01	***≤1.05***
Result	Pass	

INFINIGY
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Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	BOHVN00147A
Site Number:	BOHVN00147A
Connection Description:	Tieback to Tower Leg

MAXIMUM BOLT LOADS		
Bolt Tension:	67.13	lbs
Bolt Shear:	476.36	lbs

WORST CASE BOLT LOADS[1]		
Bolt Tension:	62.08	lbs
Bolt Shear:	476.36	lbs

WORST CASE CONNECTION SLIP LOADS[2]		
Sliding Force:	34.56	lbs
Torsion About Leg:	0.00	lbs-ft

BOLT PROPERTIES		
Bolt Type:	Threaded Rod	-
Bolt Diameter:	0.5	in
Bolt Grade:	A449	-
# of Threaded Rods:	2	-
Leg Diameter:	5.563	in
Threads Excluded?	No	-

[1] *Worst case bolt loads correspond to Load combination #13 on member M27 in RISA-3D, which causes the maximum demand on the bolts.*

[2] *Worst Case slip loads correspond to Load combination #36 on member M27 in RISA 3D, which causes the maximum slip demand on the connection.*

Member Information
I nodes of M27

BOLT CHECK		
Tensile Strength	12770.86	
Shear Strength	8835.73	
Max Tensile Usage*	0.5%	
Max Shear Usage*	5.4%	
Interaction Check (Worst Case)*	0.00	***≤1.0***
Result	Pass	

SLIP CHECK (WORST CASE)		
Torsional Slip Resistance	1087.30	
Sliding Resistance	4690.85	
Torsional Slip Usage*	0.0%	
Sliding Usage*	0.7%	
Interaction Check*	0.00	***≤1.0***
Result	Pass	

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

POWER DENSITY STUDY

EBI Consulting

environmental | engineering | due diligence

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

Dish Wireless Existing Facility

Site ID: BOHVN00147A

BOHVN00147A
10 Tanner Marsh Road
Guilford, Connecticut 06437

October 12, 2021

EBI Project Number: 6221004013

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**7.75%**

October 12, 2021

Dish Wireless

Emissions Analysis for Site: BOHVN00147A - BOHVN00147A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **10 Tanner Marsh Road** in **Guilford, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless 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 Dish Wireless antenna facility located at 10 Tanner Marsh Road in Guilford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless 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 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 4 n71 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) 4 n70 channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

3) 4 n66 channels (AWS Band - 2190 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

4) 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.

5) 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 20 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.

6) The antennas used in this modeling are the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 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 20 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.

7) The antenna mounting height centerline of the proposed antennas is 156 feet above ground level (AGL).

8) 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.

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

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21
Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz
Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd
Height (AGL):	156 feet	Height (AGL):	156 feet	Height (AGL):	156 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	5,236.31	ERP (W):	5,236.31	ERP (W):	5,236.31
Antenna A1 MPE %:	**1.05%**	Antenna B1 MPE %:	**1.05%**	Antenna C1 MPE %:	**1.05%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	1.05%
AT&T	3.43%
Sprint	0.57%
Verizon	2.7%
TCI	0%
Site Total MPE % :	7.75%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	1.05%
Dish Wireless Sector B Total:	1.05%
Dish Wireless Sector C Total:	1.05%
Site Total MPE % :	7.75%

Dish Wireless Maximum MPE Power Values (Sector A)

Dish Wireless 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
Dish Wireless 600 MHz n71	4	223.68	103.0	3.42	600 MHz n71	400	0.85%
Dish Wireless 1900 MHz n70	4	542.70	103.0	8.29	1900 MHz n70	1000	0.83%
Dish Wireless 2190 MHz n66	4	542.70	103.0	8.29	2190 MHz n66	1000	0.83%
						Total:	**1.05%**

• 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 Dish Wireless 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:

Dish Wireless Sector	Power Density Value (%)
Sector A:	1.05%
Sector B:	1.05%
Sector C:	1.05%
Dish Wireless Maximum MPE % (Sector A):	1.05%
Site Total:	7.75%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **7.75%** 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.

November 09, 2021

Dear Customer,

The following is the proof-of-delivery for tracking number: 775108856738

Delivery Information:

Status:	Delivered	**Delivered To:**	Receptionist/Front Desk
Signed for by:	D.PIOMBINO	**Delivery Location:**	50 BOSTON ST
Service type:	FedEx 2Day		
Special Handling:	Deliver Weekday		GUILFORD, CT, 06437
		Delivery date:	Nov 8, 2021 12:30

Shipping Information:

Tracking number:	775108856738	**Ship Date:**	Nov 5, 2021
		Weight:	2.0 LB/0.91 KG

Recipient:
Kimberly Norman-Rosedam,
50 Boston St
GUILFORD, CT, US, 06437

Shipper:
Corey Milan, NB+C
100 Apollo Dr.
Suite 303
CHELMSFORD, MA, US, 01824

Reference 100814

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November 09, 2021

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Signed for by:	A.DWYER	**Delivery Location:**	31 PARK ST
Service type:	FedEx 2Day		
Special Handling:	Deliver Weekday		GUILFORD, CT, 06437
		Delivery date:	Nov 8, 2021 12:36

Shipping Information:

Tracking number:	775122080208	**Ship Date:**	Nov 5, 2021
		Weight:	1.0 LB/0.45 KG

Recipient:
Town of Guilford - Owner,
31 Park Street
GUILFORD, CT, US, 06437

Shipper:
Corey Milan, NB+C
100 Apollo Dr.
Suite 303
CHELMSFORD, MA, US, 01824

Reference 100814

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November 09, 2021

Dear Customer,

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Status:	Delivered	**Delivered To:**	Receptionist/Front Desk
Signed for by:	K.QUERCIA	**Delivery Location:**	31 PARK ST
Service type:	FedEx 2Day		
Special Handling:	Deliver Weekday		GUILFORD, CT, 06437
		Delivery date:	Nov 8, 2021 12:38

Shipping Information:

Tracking number:	775108826562	**Ship Date:**	Nov 5, 2021
		Weight:	1.0 LB/0.45 KG

Recipient:
Matthew T. Hoey,
31 Park St
GUILFORD, CT, US, 06437

Shipper:
Corey Milan, NB+C
100 Apollo Dr.
Suite 303
CHELMSFORD, MA, US, 01824

Reference 100814

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