PROJECT NARRATIVE

November 17, 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
401-411 Lopus Road Beacon Falls, CT 06403
Latitude: 41'25'58.200" / Longitude: -73' 04' 12.800"

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 401-411 Lopus Road in Beacon Falls (the "Property"). The existing 149-foot monopole tower is owned by American Tower Corporation ("ATC"). The underlying property is owned by The Town of Beacon Falls. 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 Gerard Smith, First Selectman of Town of Beacon Falls, Jim Baldwin, Town of Beacon Falls Building Official and The Town of Beacon Falls as the property owner.

Background

The existing ATC facility consists of a 149-foot monopole tower located within an existing leased area. AT&T Mobility currently maintains antennas at the 145-foot level. T-Mobile currently maintains antennas at the 135-foot level. Metro PCS currently maintains antennas at the 127-foot level. Verizon Wireless currently maintains antennas at the 115-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 401-411 Lopus 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 105-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 401-411 Lopus 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

ATC SITE#/NAME/PROJECT: 370641 / Beacon Falls CT / 13702524
SITE ADDRESS: 401-411 Lopus Road, Beacon Falls CT
LICENSEE: DISH WIRELESS L.L.C.

I, Margaret Robinson, Senior Counsel for American Tower*, owner 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.

Signature:

Print Name: Margaret Robinson
Senior Counsel
American Tower*

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 16th day of November, 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

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

ENGINEERING DRAWINGS

dish wireless

DISH WIRELESS, L.L.C. SITE ID:

BOHVN00148A

DISH WIRELESS, L.L.C. SITE ADDRESS:

401-411 LOPUS ROAD
BEACON FALLS, CT 06403

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 (1) PROPOSED ANTENNA PLATFORM
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRHs (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 SAFETY SWITCH (IF REQUIRED)
- INSTALL (1) PROPOSED CIENA BOX (IF REQUIRED)

SITE INFORMATION

PROPERTY OWNER:	GTP NO PAY VENDOR / The Town of Beacon Falls
ADDRESS:	401–411 LOPUS ROAD BEACON FALLS, CT 06403
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	370641
TOWER APP NUMBER:	13702524
COUNTY:	NEW HAVEN
LATITUDE (NAD 83):	41° 25' 58.200" N 41.43283333
LONGITUDE (NAD 83):	73° 4' 12.800" W –73.07022222
ZONING JURISDICTION:	CONNECTICUT SITING COUNCIL
ZONING DISTRICT:	IPD
PARCEL NUMBER:	003–001–0016
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II–B
POWER COMPANY:	CONNECTICUT LIGHT & POWER
TELEPHONE COMPANY:	AT&T

PROJECT DIRECTORY

APPLICANT:	DISH WIRELESS, L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120 (303) 706–5008
TOWER OWNER:	AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801
ENGINEER:	NB+C ENGINEERING SERVICES, LLC 8601 SIX FORKS ROAD, SUITE 540 RALEIGH, NC 27615
SITE ACQUISITION:	APRIL PARROTT APRIL.PARROTT@DISH.COM
CONSTRUCTION MANAGER:	JAVIER SOTO JAVIER.SOTO@DISH.COM
RF ENGINEER:	SYED ZAIDI SYED.ZAIDI@DISH.COM

CONNECTICUT 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. 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

SITE PHOTO

DIRECTIONS

FROM HAMDEN CT TAKE WILBUR CROSS PARKWAY CT–15 SOUTH TOWARD NEW YORK CITY. TAKE EXIT 59 CT–69 WOODBRIDGE / NEW HAVEN. TURN LEFT ONTO CT–69; TURN LEFT ON LUCY ST; TURN RIGHT ON CT–63 AMITY ROAD; TURN LEFT ON SEYMOUR ROAD CT–67; MERGE ONTO CT–8 NORTH TOWARD WATERBURY; TAKE EXIT 23 CT–42 TO BEACON FALLS / OXFORD; TURN RIGHT ONTO SOUTH MAIN ST CT–42; TURN LEFT ON DEPOT ST; TURN RIGHT ON LOPUS ROAD. SITE IS ON THE LEFT

SHEET INDEX

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

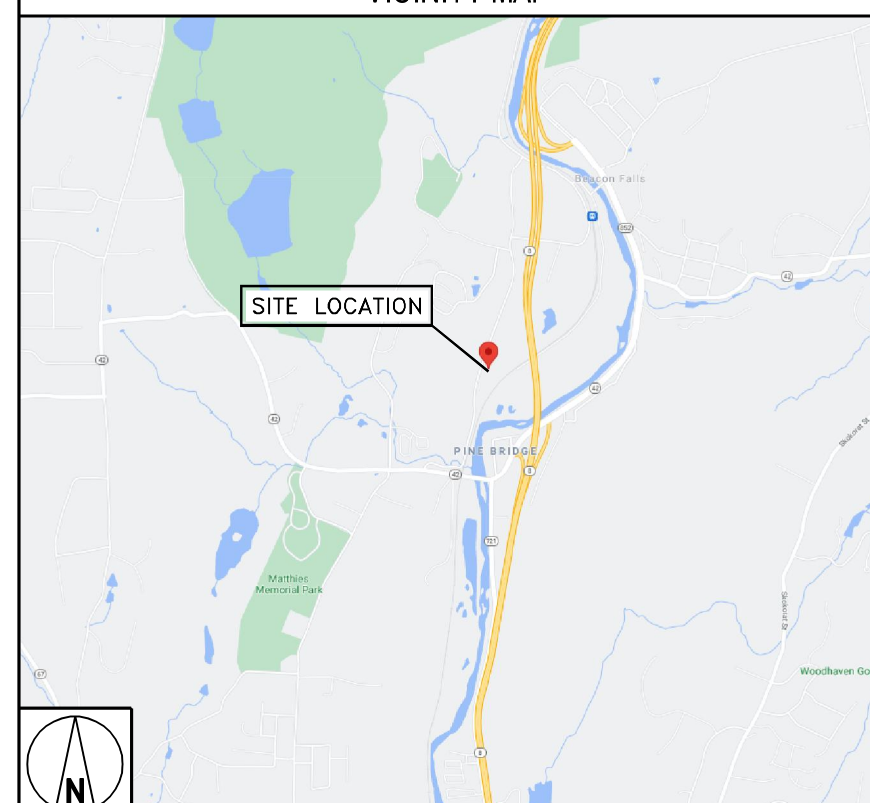
THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE. NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE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

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).

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.

VICINITY MAP



NO SCALE

dish wireless

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NB+C TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

DRAWN BY:	CHECKED BY:	APPROVED BY:
JOV	BIW	BIW

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	08/20/2021	ISSUED FOR REVIEW
0	10/07/2021	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT · PEN.0028997 · LICENSED PROFESSIONAL ENGINEER

10/07/21

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.

A&E PROJECT NUMBER
370641–13702524

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00148A
401–411 LOPUS ROAD
BEACON FALLS, CT 06403

SHEET TITLE
TITLE SHEET

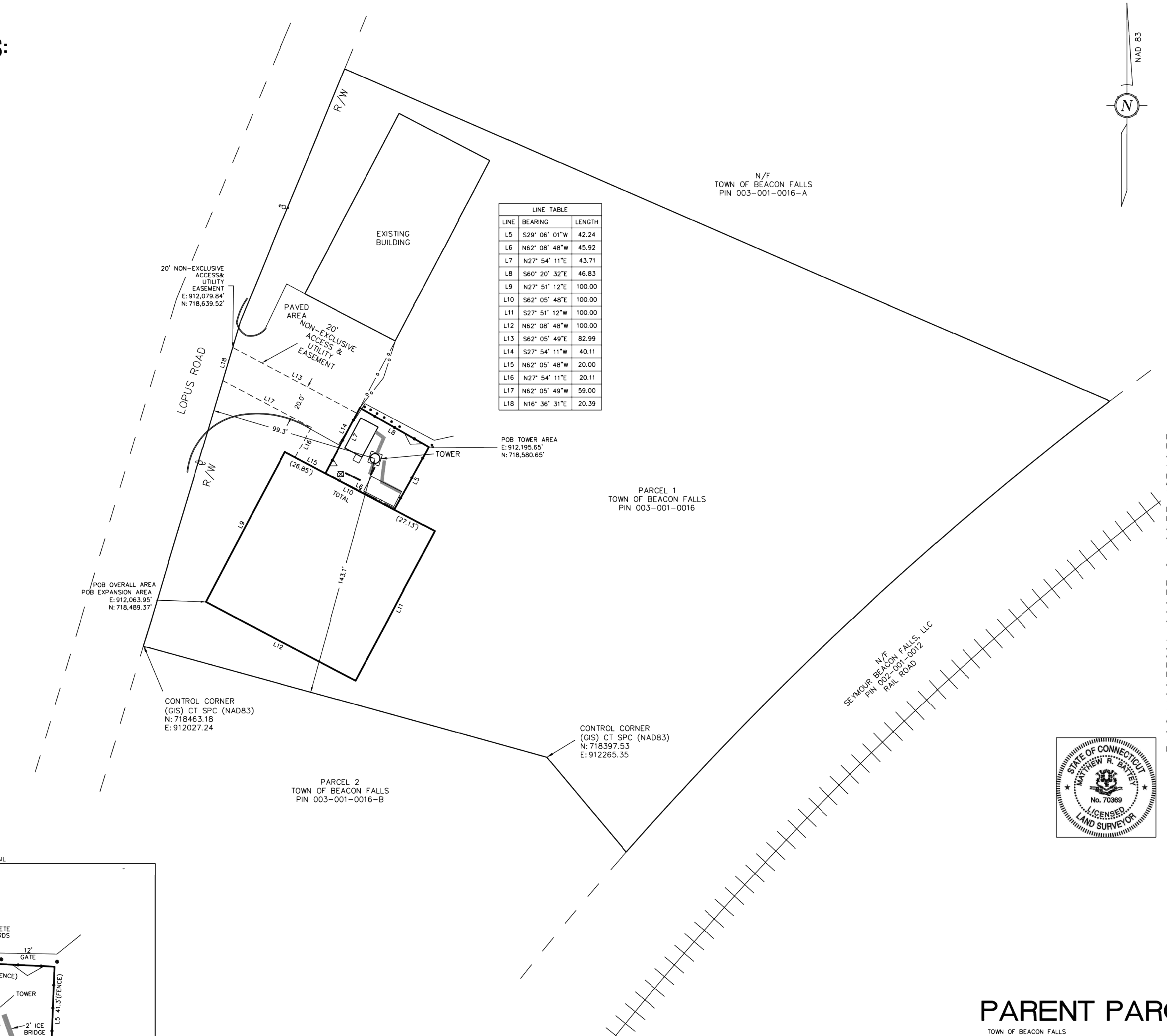
SHEET NUMBER
T-1

NOTES

1. THE SURVEY PROVIDED ON THIS SHEET IS PROVIDED FOR REFERENCE ONLY. THE UTILITY ROUTE AND EXISTING EASEMENTS MUST BE VERIFIED PRIOR TO CONSTRUCTION.

SURVEY NOTES:

1. BASIS OF BEARING: CT GRID NAD 83
2. NO SUBSURFACE INVESTIGATION WAS PERFORMED TO LOCATE UNDERGROUND UTILITIES. UTILITIES SHOWN HEREON ARE LIMITED TO AND ARE PER OBSERVED EVIDENCE ONLY.
3. THIS SURVEY DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARENT PARCEL.
4. ALL VISIBLE TOWER EQUIPMENT AND IMPROVEMENTS ARE CONTAINED WITH IN THE DESCRIBED AREA.
5. COORDINATES PROVIDED BY COGCNV GIS.



LINE TABLE		
LINE	BEARING	LENGTH
L5	S29° 06' 01"W	42.24
L6	N62° 08' 48"W	45.92
L7	N27° 54' 11"E	43.71
L8	S60° 20' 32"E	46.83
L9	N27° 51' 12"E	100.00
L10	S62° 05' 48"E	100.00
L11	S27° 51' 12"W	100.00
L12	N62° 08' 48"W	100.00
L13	S62° 05' 49"E	82.99
L14	S27° 54' 11"W	40.11
L15	N62° 05' 48"W	20.00
L16	N27° 54' 11"E	20.11
L17	N62° 05' 49"W	59.00
L18	N16° 36' 31"E	20.39

ZONING: N/A

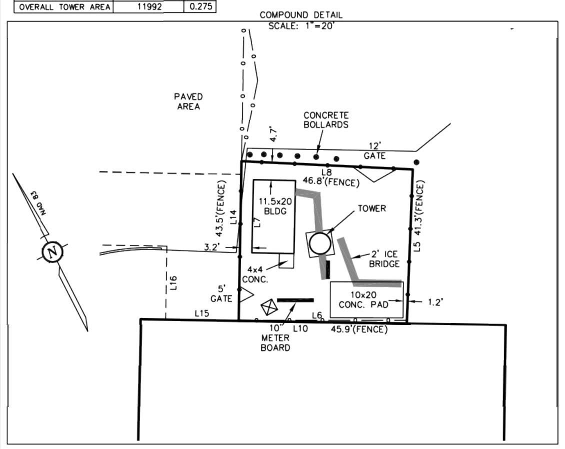
THIS PARCEL OF LAND LIES WITHIN FLOOD ZONE X WHICH IS NOT A SPECIAL FLOOD HAZARD AREA AS PER F.I.R.M. PANEL NUMBER: 09009C0262H EFFECTIVE DATE: DECEMBER 17, 2012

LEGEND

- ● : SET 5/8" REBAR.
- ○ : FOUND 1/2" REBAR AS NOTED.
- (___) : RECORD DESCRIPTION DATA.
- P.O.B. : POINT OF BEGINNING.
- P.O.C. : POINT OF COMMENCEMENT.
- —o— : FENCE AS NOTED.
- —OH— : OVER HEAD UTILITY LINES.
- : WOOD UTILITY POLE.
- E : ELECTRIC TRANSFORMER.
- T : TELCO PEDESTAL.
- WM : WATER METER.
- CATV : CABLE TELEVISION

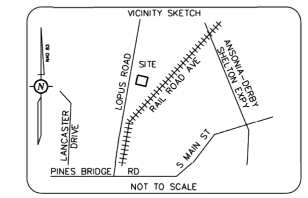
AREA	SQUARE FEET	ACRE
PARENT PARCEL	133293	3.06
EXPANSION AREA	10000	0.23
TOWER AREA	1992	0.045
ACCESS EASEMENT	2022	0.046
OVERALL TOWER AREA	11992	0.275

COMPOUND DETAIL
SCALE: 1"=20'



AS-BUILT SURVEY

NEW HAVEN COUNTY
TOWN OF BEACON FALLS, CT
FOR: Global Tower Partner



TOWER LOCATION INFORMATION 1-A
144' MONOPOLE TOWER

NAD 83
LATITUDE N41°25'58.22" ± 15'
LONGITUDE W73°04'12.77" ± 15'

GROUND ELEVATION AT BASE OF TOWER = 159' ± 3' NAVD88

TOP OF TOWER ELEVATION = 303'±3'

LEGAL:

LEGAL DESCRIPTION OF: Tower Area
From the POINT OF BEGINNING Having Connecticut State Plane Coordinates (NAD 83): E:912,195.65' -and- N:718,580.65'; Thence S 29° 06' 01" W a distance of 42.24 feet to a point; Thence, N 62° 08' 48" W for a distance of 45.92 feet to a point; Thence, N 27° 54' 11" E for a distance of 43.71 feet to a point; Thence, S 60° 20' 32" E for a distance of 46.83 feet to the POINT OF BEGINNING; Containing 1,992 square feet -and- 0.045 Acres.

LEGAL DESCRIPTION OF: Expansion Area
From the POINT OF BEGINNING Having Connecticut State Plane Coordinates (NAD 83): E:912,063.95' -and- N:718,489.37'; Thence, N 27° 51' 12" E for a distance of 100.00 feet to a point; Thence, S 62° 08' 48" E for a distance of 100.00 feet to a point; Thence, S 27° 51' 12" W for a distance of 100.00 feet to a point; Thence N 62° 08' 48" W a distance of 100.00 feet to the POINT OF BEGINNING; Containing 10,000 square feet -and- 0.23 Acres.

LEGAL DESCRIPTION OF: 20' Non-Exclusive Access/Utility Easement
From the POINT OF BEGINNING Having Connecticut State Plane Coordinates (NAD 83): E:912,079.84' -and- N:718,639.52'; Thence, S 62° 05' 49" E for a distance of 82.99 feet to a point; Thence, S 27° 54' 11" W for a distance of 40.11 feet to a point; Thence, N 62° 05' 48" W for a distance of 20.00 feet to a point; Thence, N 27° 54' 11" E for a distance of 20.11 feet to a point; Thence N 62° 05' 49" W a distance of 59.00 feet to a point; Thence, N 16° 36' 31" E for a distance of 20.39 feet to the POINT OF BEGINNING; Containing 2,022 square feet -and- 0.046 Acres.

LEGAL DESCRIPTION OF: Overall Tower Area
From the POINT OF BEGINNING Having Connecticut State Plane Coordinates (NAD 83): E:912,063.95' -and- N:718,489.37'; Thence, N 27° 51' 12" E for a distance of 100.00 feet to a point; Thence, S 62° 08' 48" E for a distance of 26.85 feet to a point; Thence, N 27° 54' 11" E for a distance of 43.71 feet to a point; Thence, S 60° 20' 32" E for a distance of 46.83 feet to a point; Thence S 29° 06' 01" W a distance of 42.24 feet to a point; Thence, S 62° 08' 48" E for a distance of 27.13 feet to a point; Thence, S 27° 51' 12" W for a distance of 100.00 feet to a point; Thence N 62° 08' 48" W a distance of 100.00 feet to the POINT OF BEGINNING; Containing 11,992 square feet -and- 0.275 Acres.

I MATTHEW BATTEY HEREBY CERTIFY TO: GLOBAL TOWER, LLC, INCLUDING ITS SUBSIDIARIES, AFFILIATES, SUCCESSORS AND ASSIGNS.

STATE OF CONNECTICUT MATTHEW R. BATTEY No. 70369 LICENSED LAND SURVEYOR

MURPHY GEOMATICS
MATTHEW BATTEY
LAND SURVEYOR - CT # 70369
Date of Survey: AUGUST 28 2012

Date of Last Revision ____________

PARENT PARCEL:

TOWN OF BEACON FALLS
PARCEL 1:
401 LOPUS ROAD,
BEACON FALLS, CT 06403
MAP VOL 6, PG 36
PIN 003-001-0016
PARCEL 2:
411 LOPUS ROAD,
BEACON FALLS, CT 06403
VOL 31, PG 371
MAP VOL 6, PG 36
PIN 003-001-0016-B

BAR GRAPH 1 inch = 30 ft.
CT5061 BEACON FALLS_SEND.DWG

GTP SITE NAME:
CT-5061 BEACON FALLS

SURVEY WORK PERFORMED BY:

murphy GEOMATICS
Professional Land Surveying
6308 J. Richard Drive (919) 280-8189
Raleigh NC 27617-4601 FAX 881-9573
FIRM# C-0257
E-MAIL : raleigh@murphygeomatics.com

NATIONAL SURVEY SERVICES COORDINATION BY:

GEOLINE SURVEYING, INC.
13430 NW 104th Terrace, Suite A
Alachua, FL 32615
(386) 418-0500
(386) 462-9986 Fax
WWW.GEOLINEINC.COM

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NB+C TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

DRAWN BY:	CHECKED BY:	APPROVED BY:
JOV	BIW	BIW

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
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0	10/07/2021	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT PEN.0028997 LICENSED PROFESSIONAL ENGINEER
10/07/21

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BOHVN00148A
401-411 LOPUS ROAD
BEACON FALLS, CT 06403

SHEET TITLE
SURVEY

SHEET NUMBER
A-0

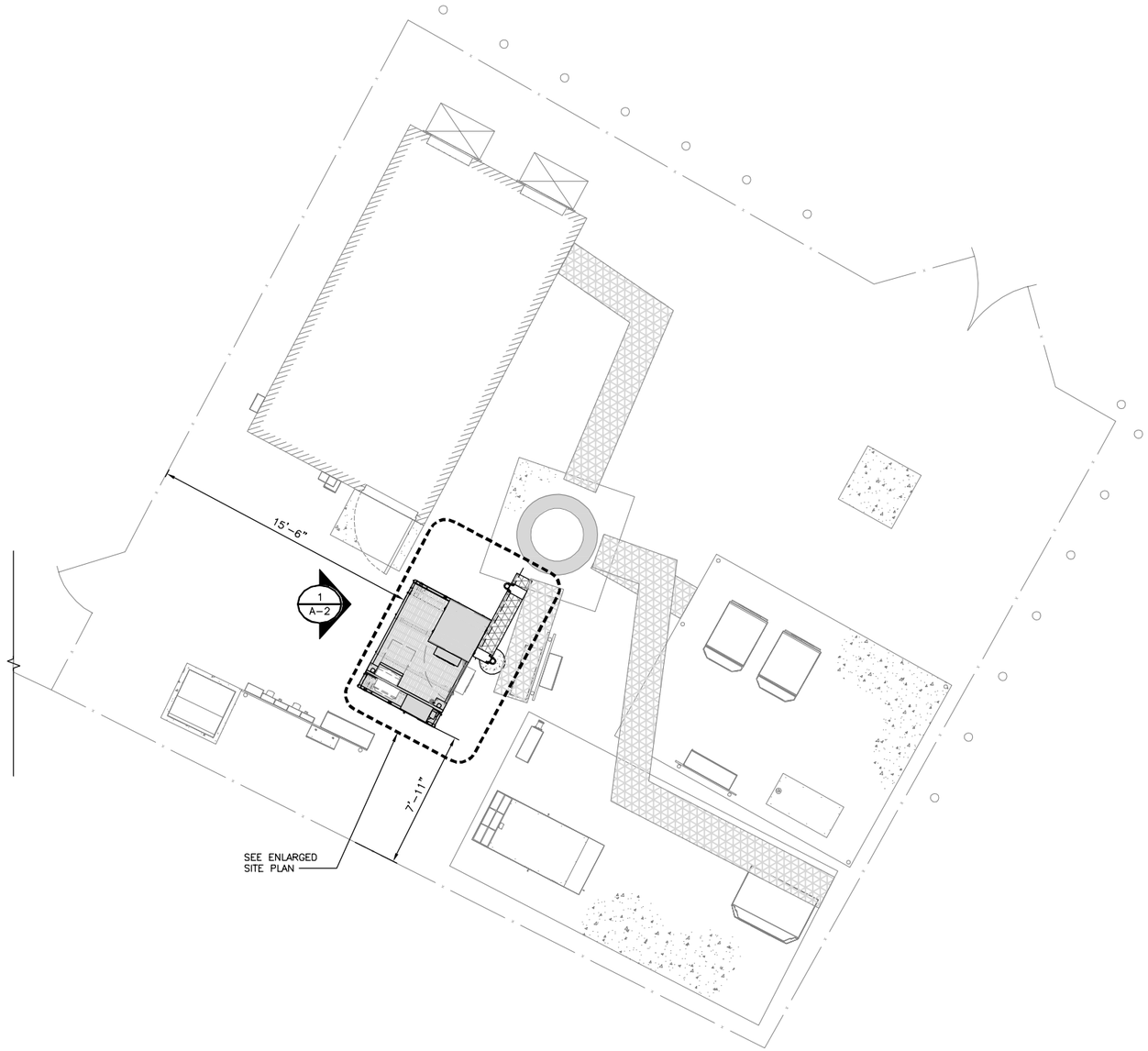
SURVEY (BY OTHERS)

NO SCALE

1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



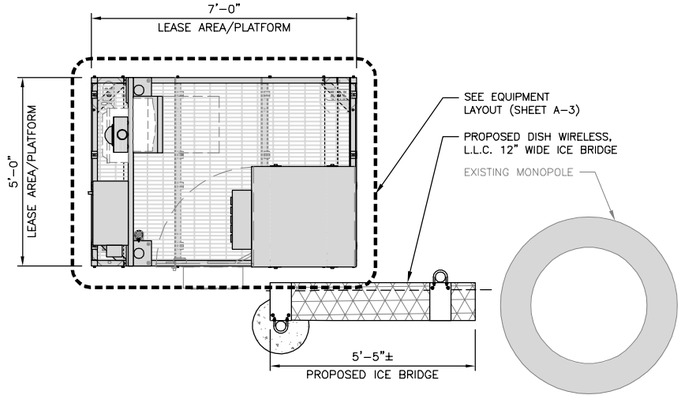
OVERALL SITE PLAN

4' 2' 0 4' 8'
1/4"=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' 4' 5'
1/2"=1'-0"

2

NOTES

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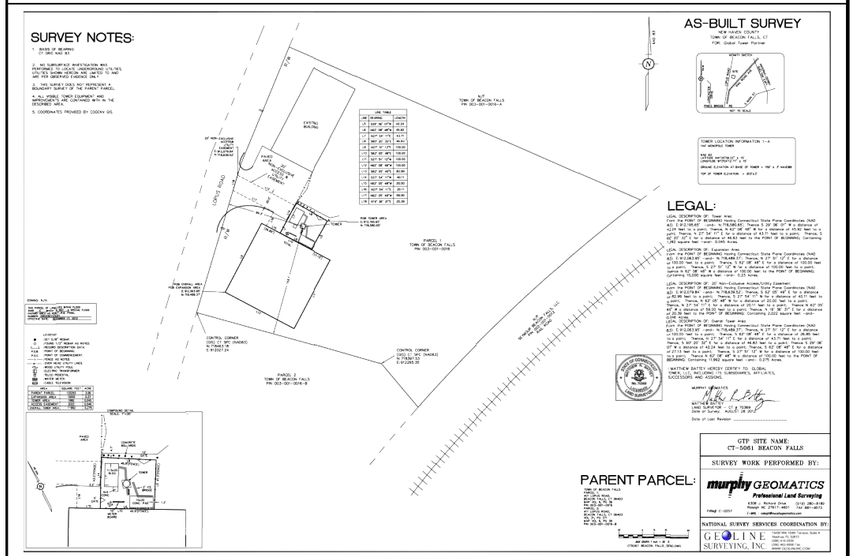

EXISTING SURVEY (BY OTHERS)

NO SCALE

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NB+C
TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

DRAWN BY:	CHECKED BY:	APPROVED BY:
JOV	BIW	BIW

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10/07/21

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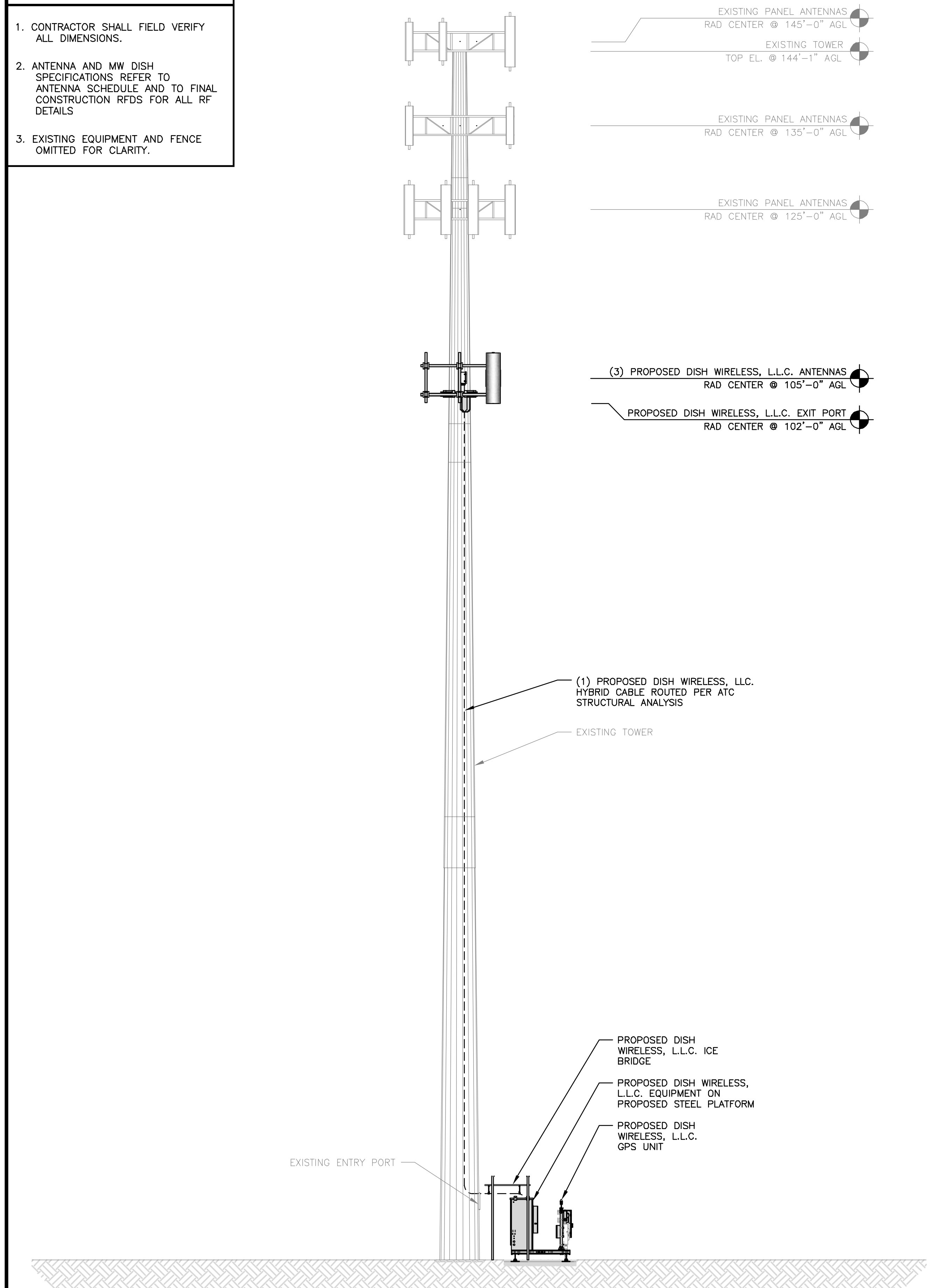
DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00148A
401-411 LOPUS ROAD
BEACON FALLS, CT 06403

SHEET TITLE
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER
A-1

NOTES

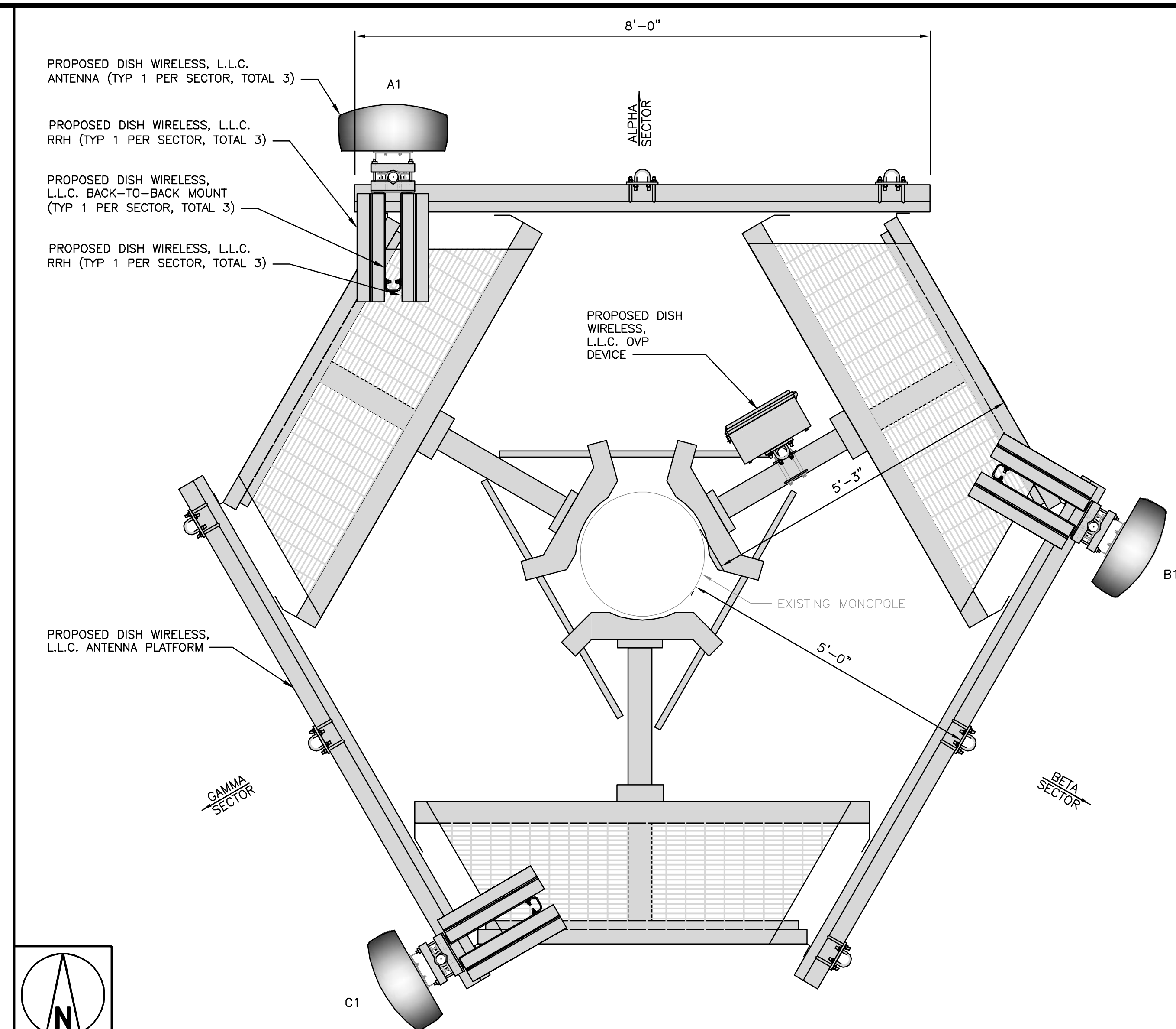
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED NORTHWEST ELEVATION

8' 4' 0 8' 16'
1/8"=1'–0"

1



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°	105'–0"	(1) HIGH–CAPACITY HYBRID CABLE (135' LONG)
BETA	B1	PROPOSED	JMA – MX08FRO665–21	5G	72.0" x 20.0"	120°	105'–0"	
GAMMA	C1	PROPOSED	JMA – MX08FRO665–21	5G	72.0" x 20.0"	240°	105'–0"	

SECTOR	POSITION	RRH	
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY
ALPHA	A1	FUJITSU – TA08025–B604	N29,N71
	A1	FUJITSU – TA08025–B605	N66,N70
BETA	B1	FUJITSU – TA08025–B604	N29,N71
	B1	FUJITSU – TA08025–B605	N66,N70
GAMMA	C1	FUJITSU – TA08025–B604	N29,N71
	C1	FUJITSU – TA08025–B605	N66,N70

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

dish wireless

5701 SOUTH SANTA FE DRIVE
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NB+C TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

DRAWN BY:	CHECKED BY:	APPROVED BY:
JOV	BIW	BIW

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	08/20/2021	ISSUED FOR REVIEW
0	10/07/2021	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT LICENSED PROFESSIONAL ENGINEER PEN.0028997

10/07/21

A&E PROJECT NUMBER

370641–13702524

DISH WIRELESS, L.L.C. PROJECT INFORMATION

BOHVN00148A

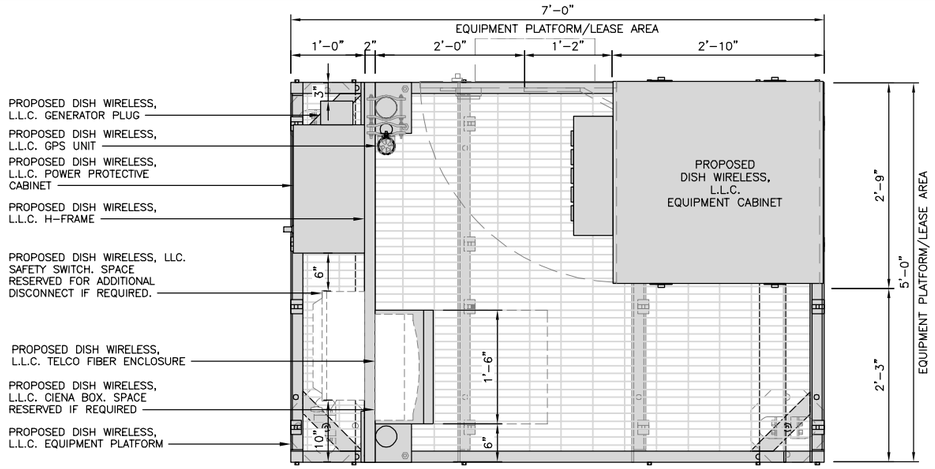
401–411 LOPUS ROAD
BEACON FALLS, CT 06403

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



PLATFORM EQUIPMENT PLAN

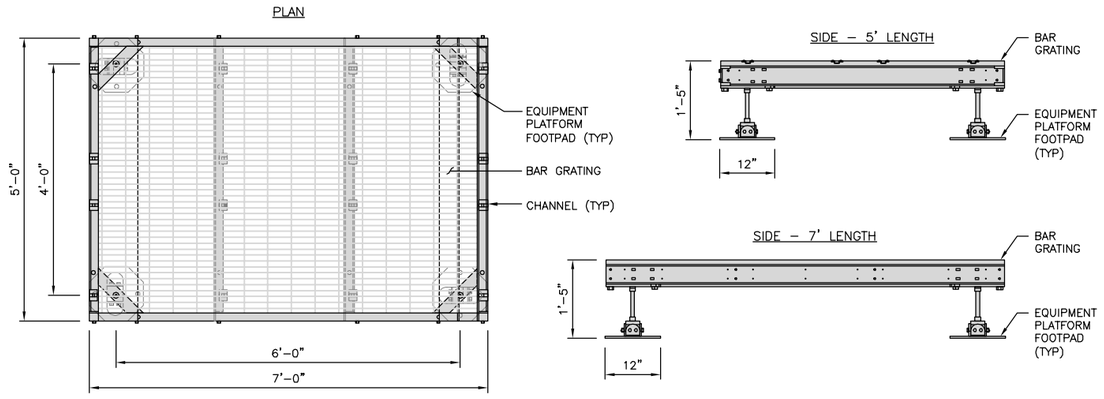
12" 9" 6" 3" 0 1' 2'
1"=1'-0"

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"

NOTE:
PLATFORM MUST BE LEVEL WITHIN 1 DEGREE

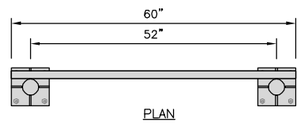


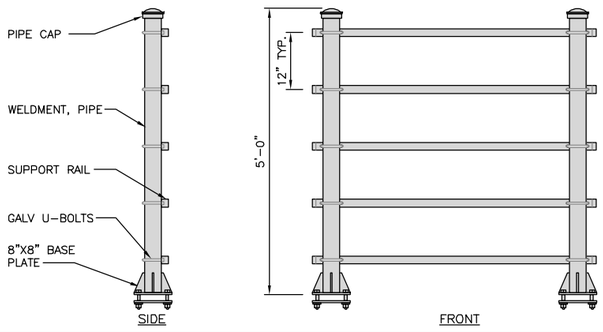
PLATFORM DETAIL

NO SCALE

2

KENWOOD T1701KT5-5S H-FRAME	
UNISTRUT/SUPPORT RAIL	5
WEIGHT/ VOLUME	173.6 LBS





H-FRAME DETAIL

NO SCALE

3

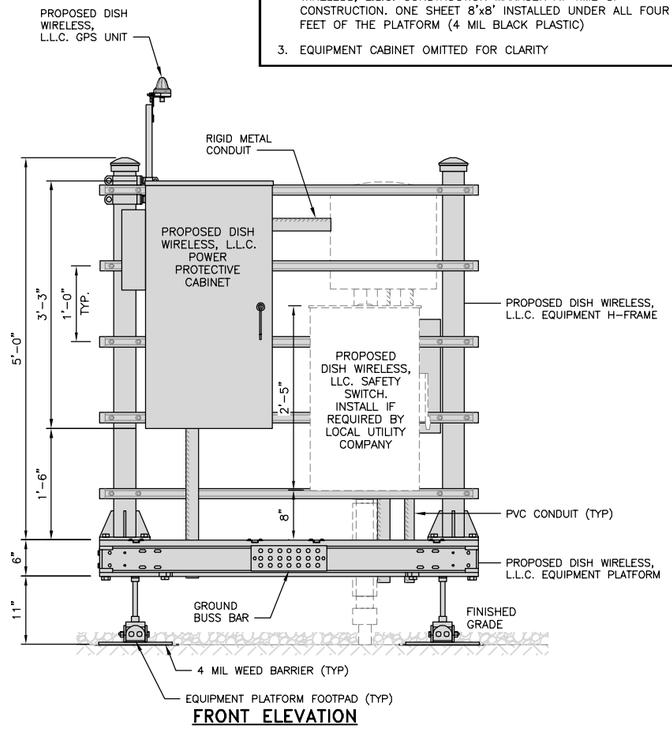
NOT USED

NO SCALE

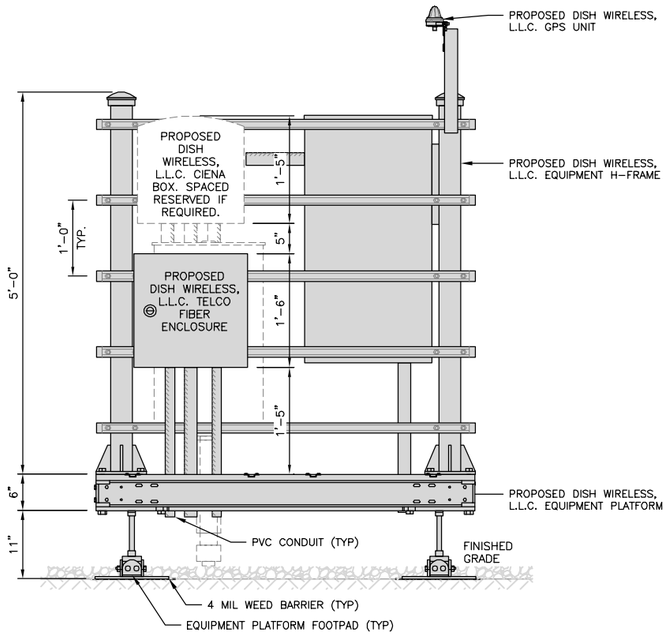
4

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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5701 SOUTH SANTA FE DRIVE
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JOV	BIW	BIW

RFDS REV #: 1

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10/07/21

A&E PROJECT NUMBER
370641-13702524

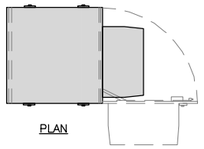
DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00148A
401-411 LOPUS ROAD
BEACON FALLS, CT 06403

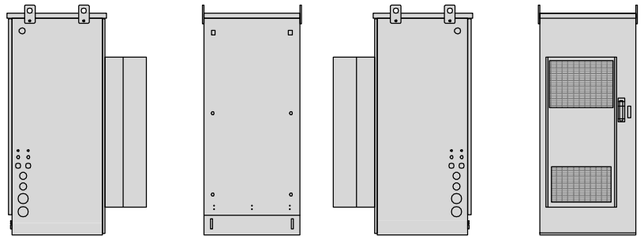
SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

CHARLES INDUSTRY HEX CUBE–PM639155N4

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

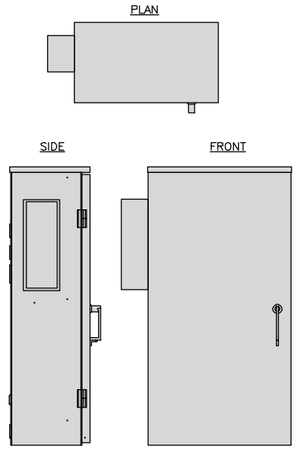




CABINET DETAIL | NO SCALE | 1

RAYCAP RDIAC–6512–P–240–MTS POWER & TELCO PROTECTION CABINET

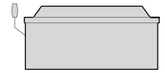
DIMENSIONS (HxWxD)	40"x20"x10"
WEIGHT/ VOLUME	124 LBS
MANUAL TRANSFER SWITCH	200A
LOAD CENTER	30 POSITION
MAIN BREAKER	200A, 65kA AIC
GENERATOR RECEPTACLE	CAMLOCK
NEMA RATING	3R POWDER COATED ALUMINUM
SURGE PROTECTION DEVICE	UL 1449 4TH EDITION LISTED

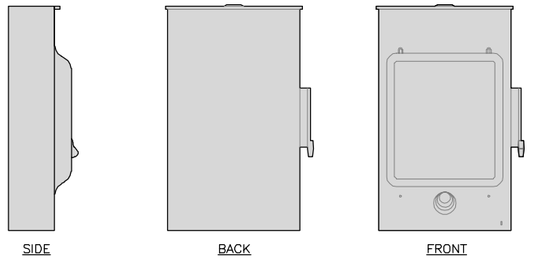


POWER PROTECTION CABINET (PPC) DETAIL | NO SCALE | 2

SQUARE D SAFETY SWITCH D324NRB

ENCLOSURE DIM (HxWxD)	29.25"x17.25"x8.25"
TOTAL WEIGHT (EMPTY)	45.33 LBS
MAX VOLTAGE/AMPS/WATT	240V/200A/48000W
ENCLOSURE RATING	OUTDOOR NEMA 3R



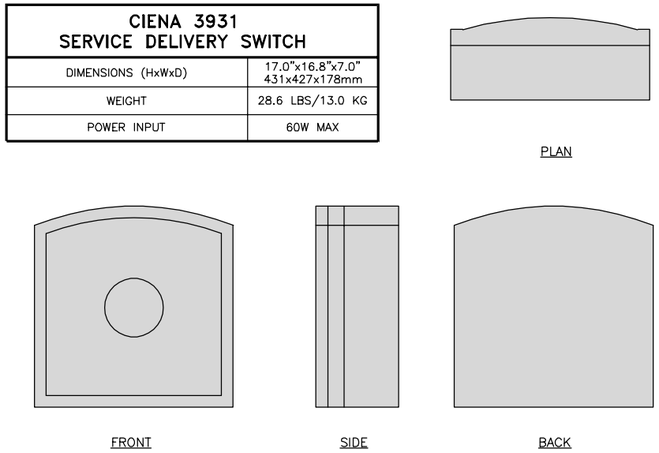


SAFETY SWITCH | NO SCALE | 3

NOT USED | NO SCALE | 4

CIENA 3931 SERVICE DELIVERY SWITCH

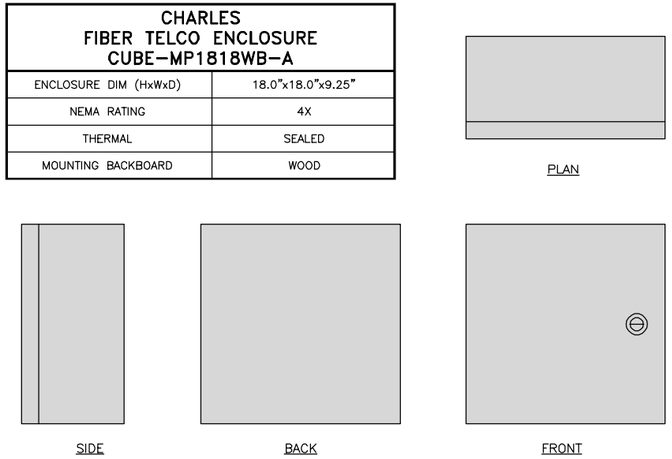
DIMENSIONS (HxWxD)	17.0"x16.8"x7.0" 431x427x178mm
WEIGHT	28.6 LBS/13.0 KG
POWER INPUT	60W MAX



CIENA DETAIL | NO SCALE | 5

CHARLES FIBER TELCO ENCLOSURE CUBE–MP1818WB–A

ENCLOSURE DIM (HxWxD)	18.0"x18.0"x9.25"
NEMA RATING	4X
THERMAL	SEALED
MOUNTING BACKBOARD	WOOD

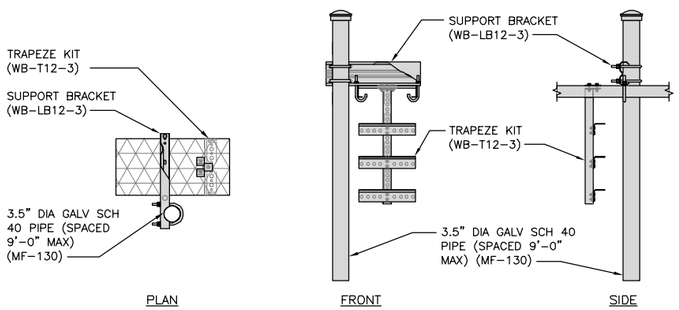


FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

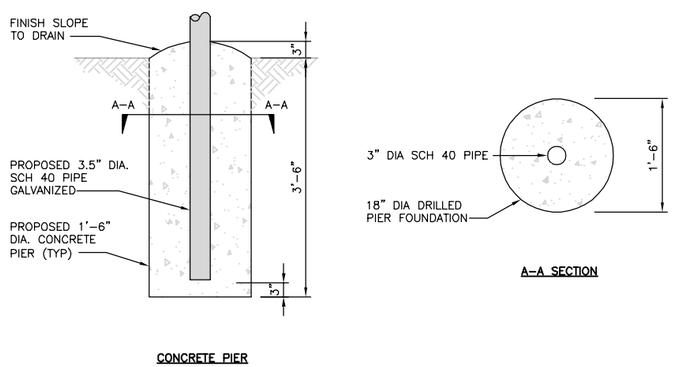
COMMSCOPE WB–K110–B WAVEGUIDE BRIDGE KIT

DIMENSIONS (HxL)	160"x10'
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

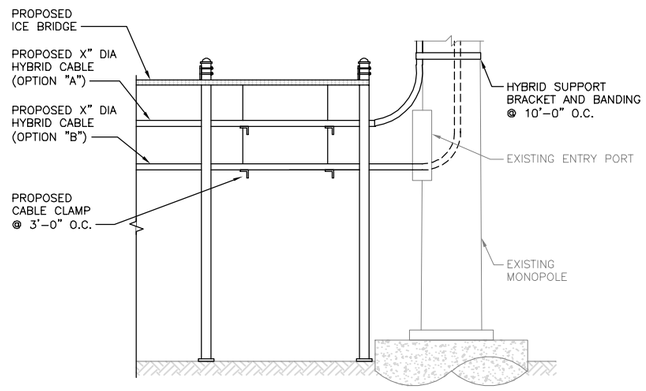
INCLUDED PRODUCTS:
- WB–T12–3 TRAPEZE KIT, 3 RUNGS
- WB–LB12–3 SUPPORT BRACKET
- MF–130 DIRECT BURIAL PIPE COLUMN, 13'–4"



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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5701 SOUTH SANTA FE DRIVE
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(919) 657-9131

DRAWN BY:	CHECKED BY:	APPROVED BY:
JOV	BIW	BIW

RFDS REV #: 1

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A&E PROJECT NUMBER
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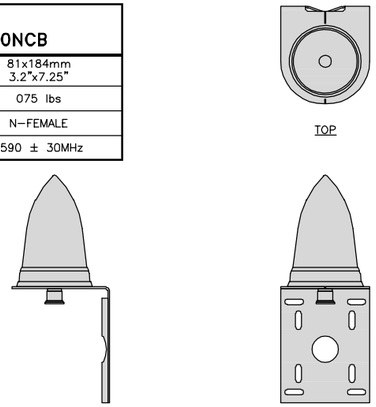
DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00148A
401–411 LOPUS ROAD
BEACON FALLS, CT 06403

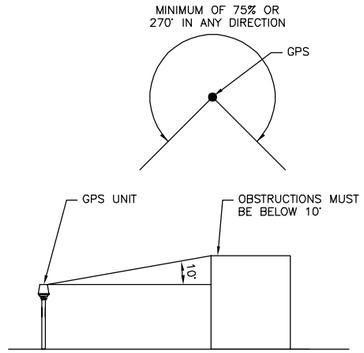
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

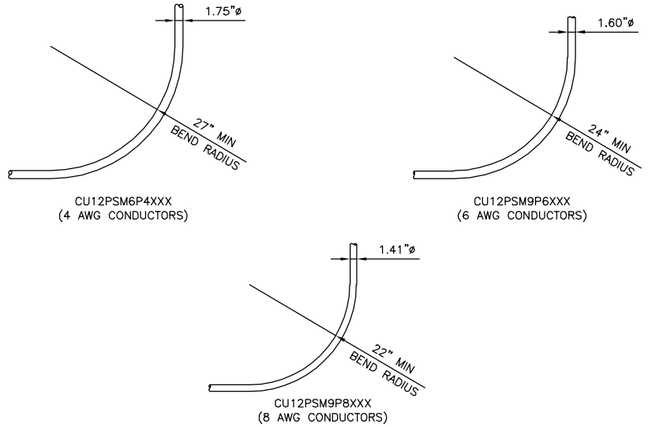
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



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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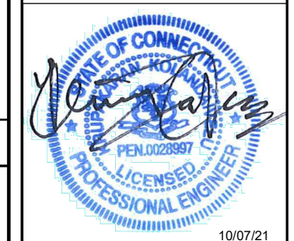


10/07/21

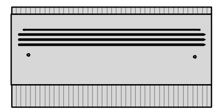
A&E PROJECT NUMBER
370641-13702524

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00148A
401-411 LOPUS ROAD
BEACON FALLS, CT 06403

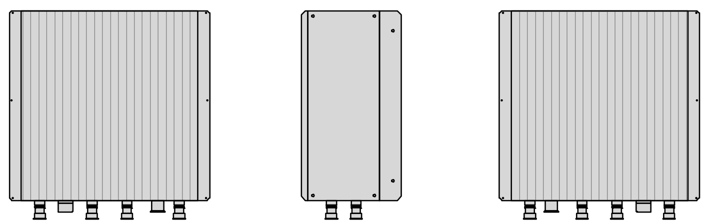
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

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



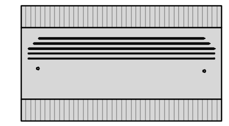
PLAN



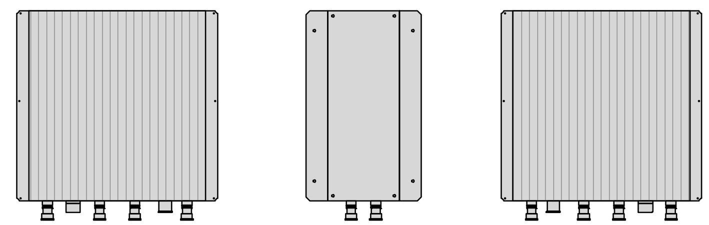
BACK SIDE FRONT

RRH DETAIL | NO SCALE | 1

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



PLAN

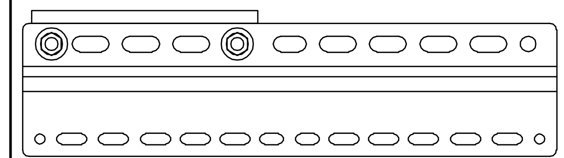


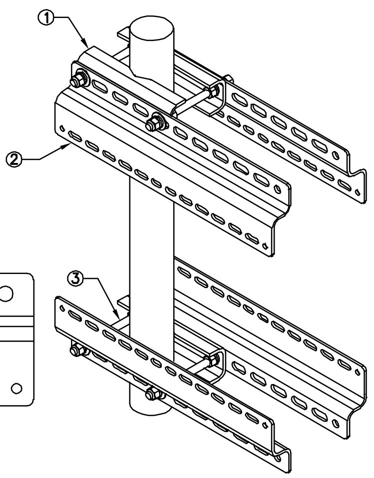
BACK SIDE FRONT

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"

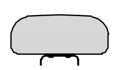




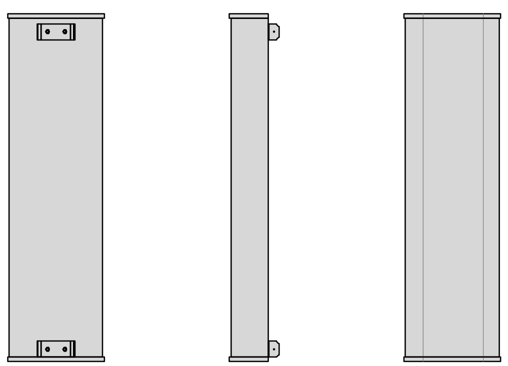
NOTE:
OR DISH Wireless L.L.C. APPROVED EQUIVALENT

RRH MOUNT DETAIL | NO SCALE | 3

JMA WIRELESS MX08FRO665-21 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	64.5 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE



PLAN



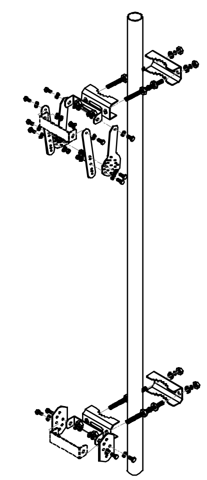
BACK SIDE FRONT

ANTENNA DETAIL | NO SCALE | 4

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

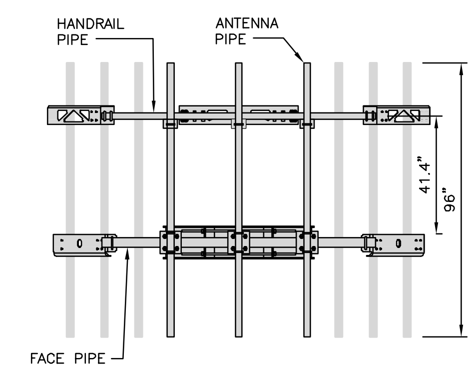
ANTENNA BRACKET NOT PART OF KIT

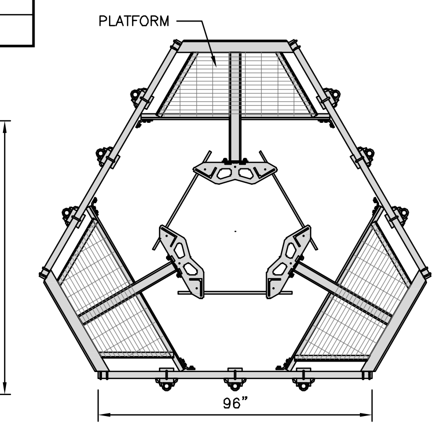


NOTE:
OR DISH Wireless L.L.C. APPROVED EQUIVALENT

ANTENNA BRACKET DETAIL | NO SCALE | 5

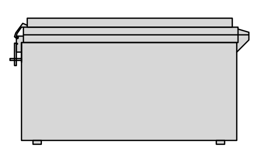
COMMSCOPE MC-PK8-DSH	
FACE WIDTH	96"
WEIGHT	1373.08 lbs
NOTE: 15" TO 38" O.D.	



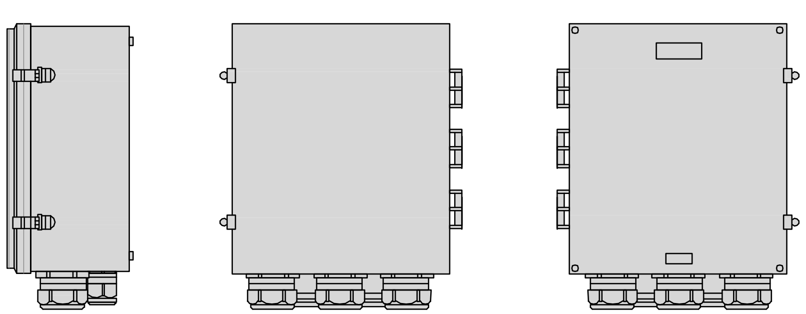


ANTENNA PLATFORM DETAIL | NO SCALE | 6

RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



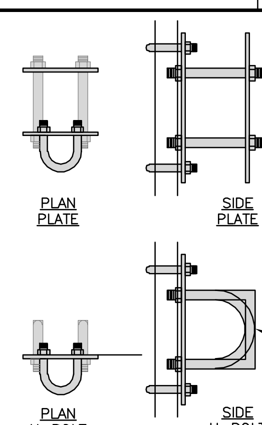
PLAN

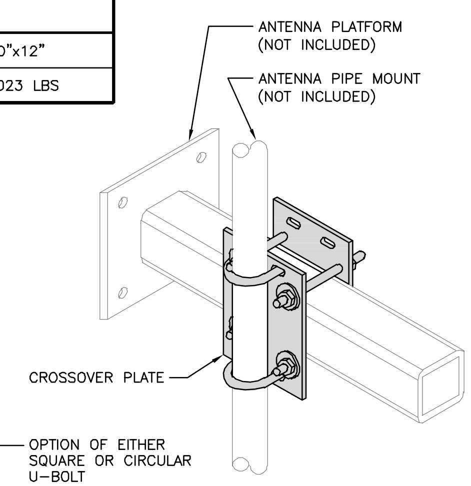


SIDE BACK FRONT

SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11.023 LBS





RRH/OVP MOUNT DETAIL | NO SCALE | 8

NOT USED | NO SCALE | 9

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NB+C TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, LLC
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DRAWN BY:	CHECKED BY:	APPROVED BY:
JOV	BIW	BIW

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

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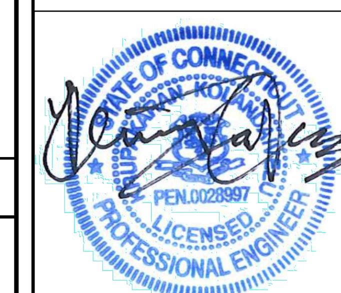

10/07/21

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A&E PROJECT NUMBER
370641-13702524

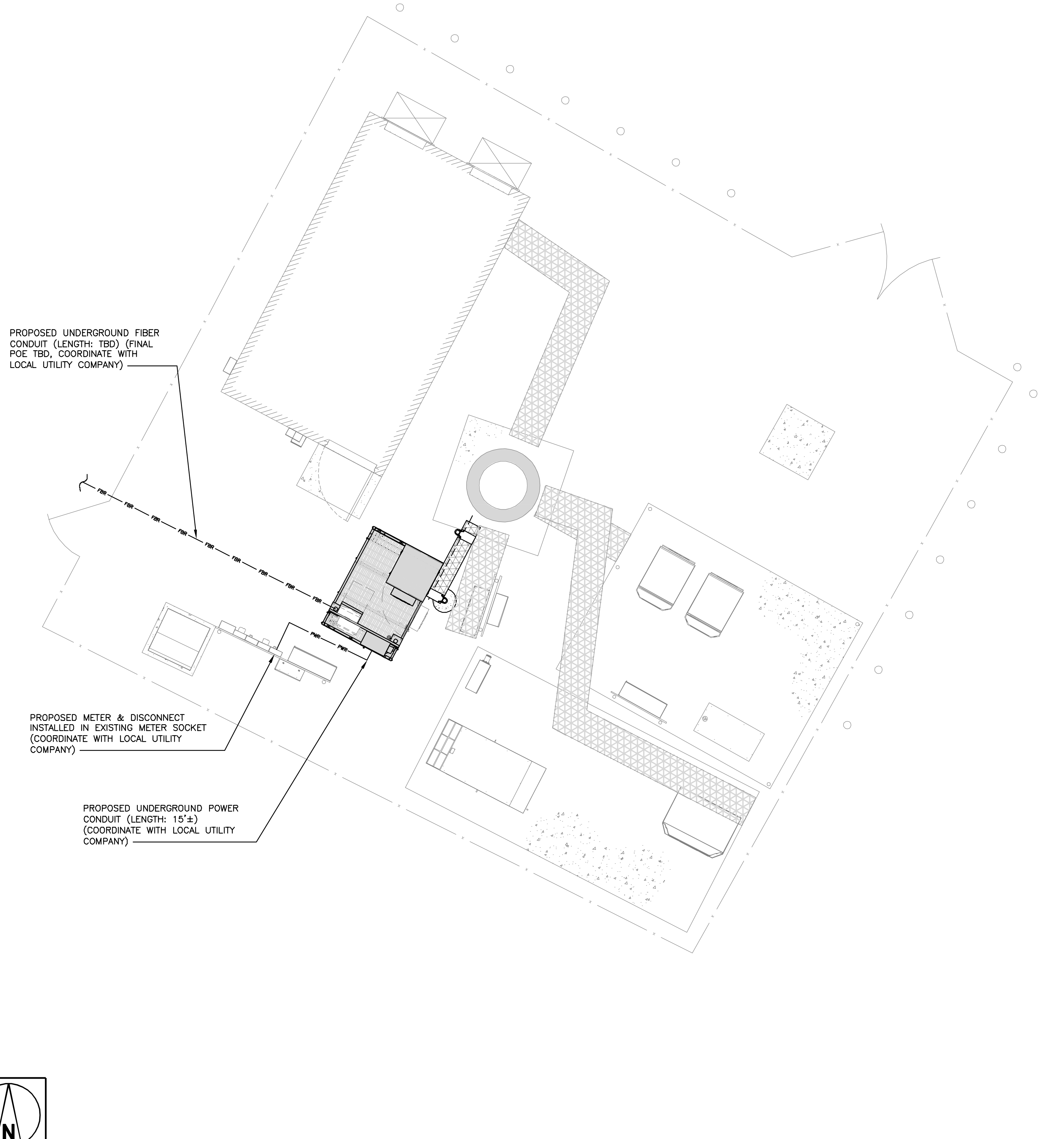
DISH WIRELESS, L.L.C. PROJECT INFORMATION
BOHVN00148A
401-411 LOPUS ROAD
BEACON FALLS, CT 06403

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6

NOTES

1. CONTRACTOR MUST VERIFY THAT THE PROPOSED UTILITY ROUTES ARE WITHIN AMERICAN TOWER'S EASEMENT.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



UTILITY ROUTE PLAN | 6' 4' 2' 0 5' 10' — 3/16"=1'-0" | 1

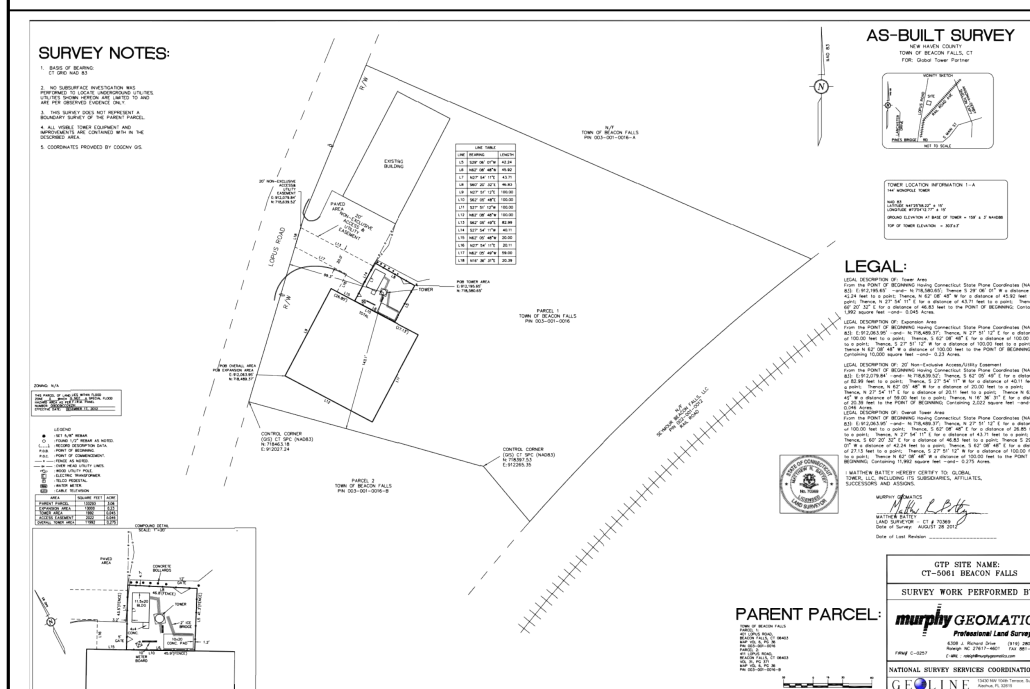
DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND −48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY −48V.

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

ELECTRICAL NOTES | NO SCALE | 2

NOTES

1. THE SURVEY PROVIDED ON THIS SHEET IS PROVIDED FOR REFERENCE ONLY, THE UTILITY ROUTE AND EXISTING EASEMENTS MUST BE VERIFIED PRIOR TO CONSTRUCTION.



EXISTING SURVEY (BY OTHERS) | NO SCALE | 3

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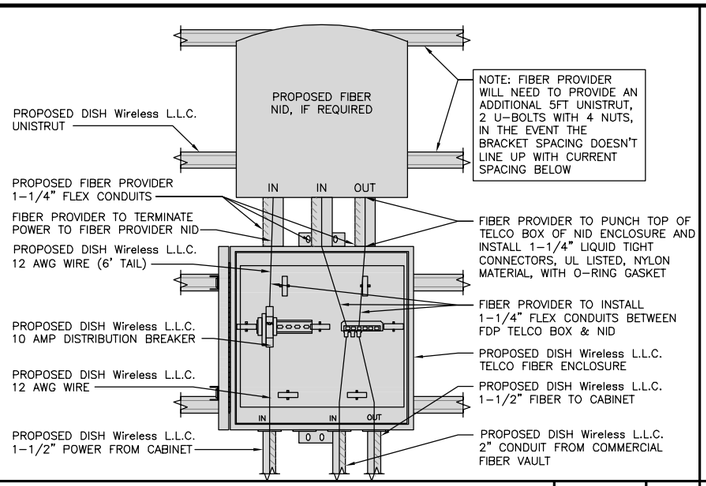
DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00148A
401-411 LOPUS ROAD
BEACON FALLS, CT 06403

SHEET TITLE
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

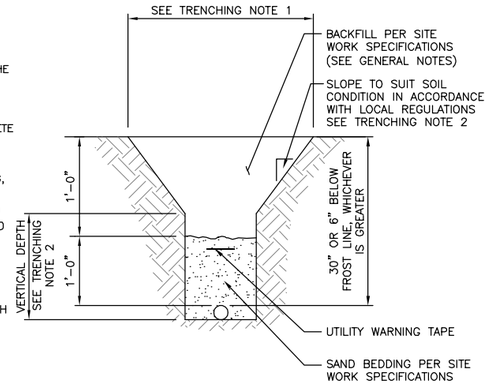
SHEET NUMBER
E-1



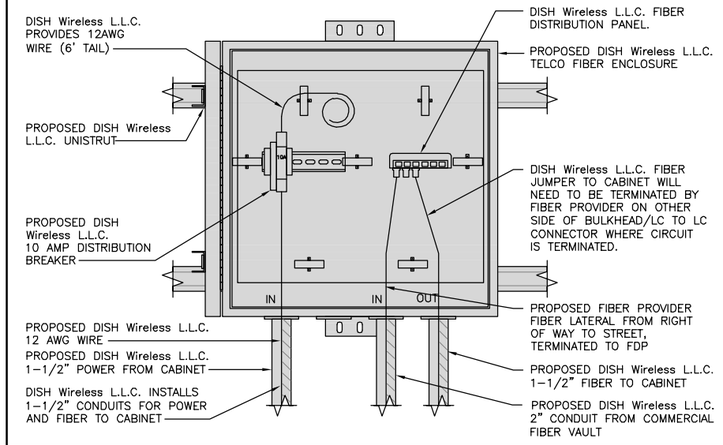
LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL) | NO SCALE | 1

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

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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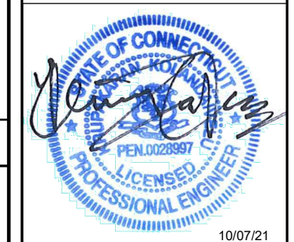


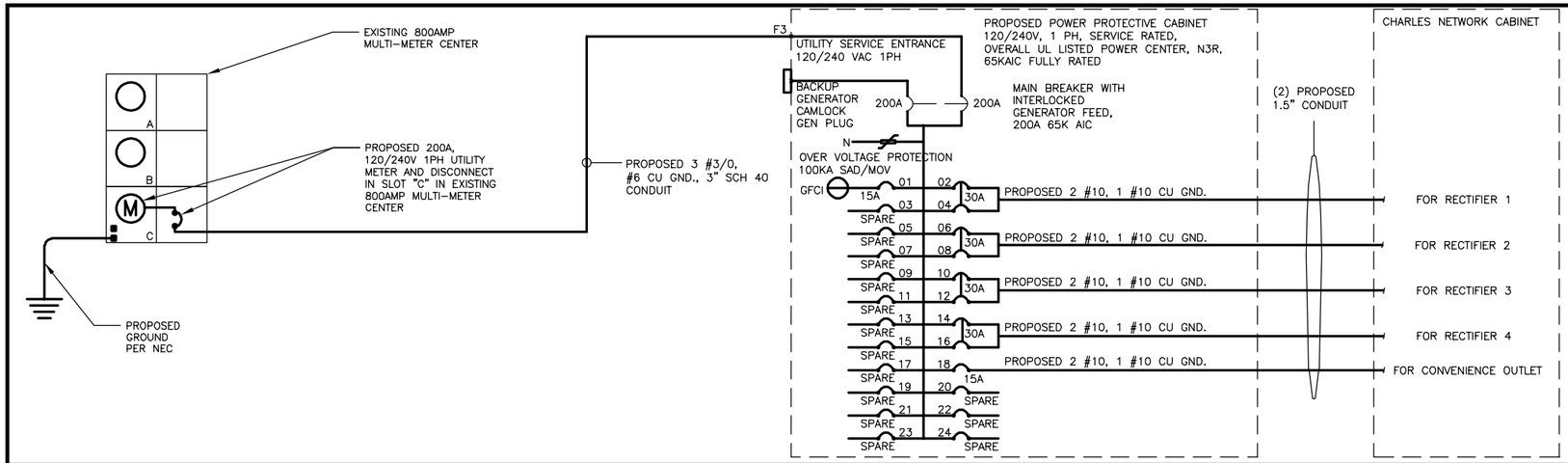
10/07/21

A&E PROJECT NUMBER
370641-13702524

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00148A
401-411 LOPUS ROAD
BEACON FALLS, CT 06403

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2



(CHARLES ABB GE INFINITY DC PLANT) WITH MULTI-METER CENTER 120V240V 1PH SOURCE | NO SCALE | 1

PROPOSED 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
GFCI IN PPC CAB.	1440		15A	1	A	2	30A	2880		ABB/GE INFINITY RECTIFIER 1
-SPARE-				3	B	4			2880	
-SPARE-				5	A	6	30A	2880		ABB/GE INFINITY RECTIFIER 2
-SPARE-				7	B	8			2880	
-SPARE-				9	A	10	30A	2880		ABB/GE INFINITY RECTIFIER 3
-SPARE-				11	B	12			2880	
-SPARE-				13	A	14	30A	2880		ABB/GE INFINITY RECTIFIER 4
-SPARE-				15	B	16			2880	
-SPARE-				17	A	18	15A	1440A		CHARLES GFCI OUTLET
-SPARE-				19	B	20				-SPARE-
-SPARE-				21	A	22				-SPARE-
-SPARE-				23	B	24				-SPARE-
VOLT AMPS	1440							12960A	11520	

200A MCB, 1ϕ, 3W, 120/240V	L1	L2	
MB RATING: 65,000 AIC	14400	11520	VOLT AMPS
	120	96	AMPS
	120		MAX AMPS
	150		MAX 125%

PANEL SCHEDULE
(CHARLES ABB GE INFINITY DC PLANT) WITH MULTI-METER CENTER 120V240V 1PH SOURCE | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

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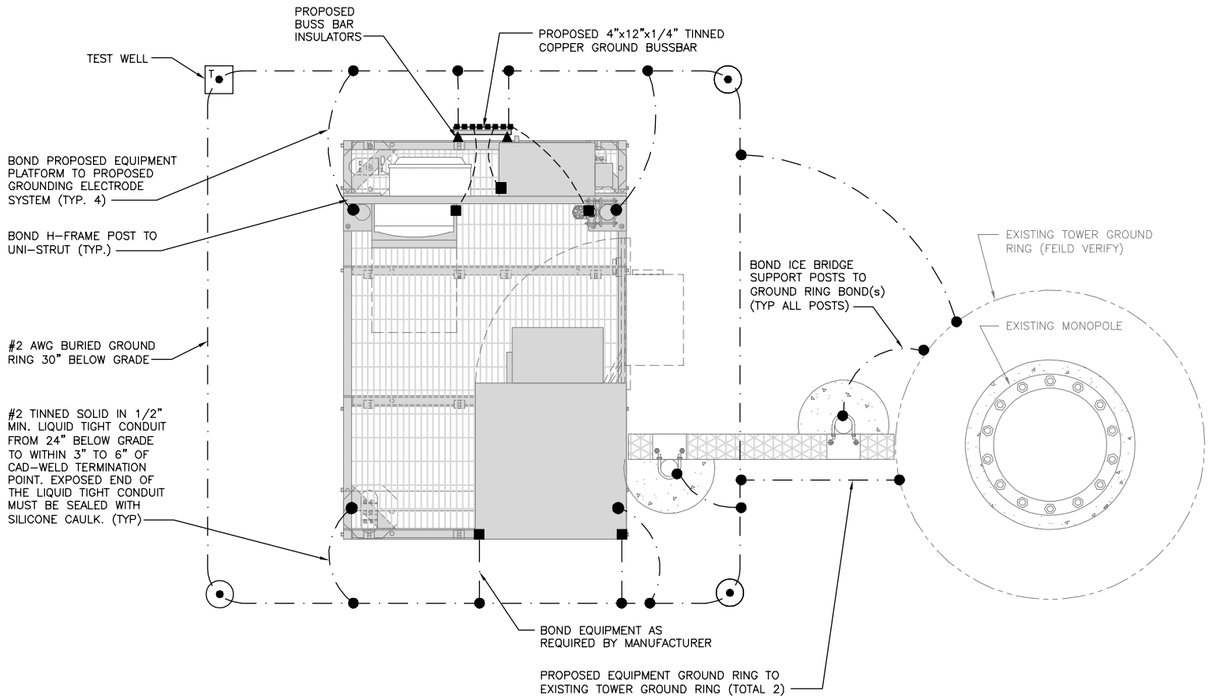
370641-13702524

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00148A
401-411 LOPUS ROAD
BEACON FALLS, CT 06403

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

SHEET NUMBER
E-3

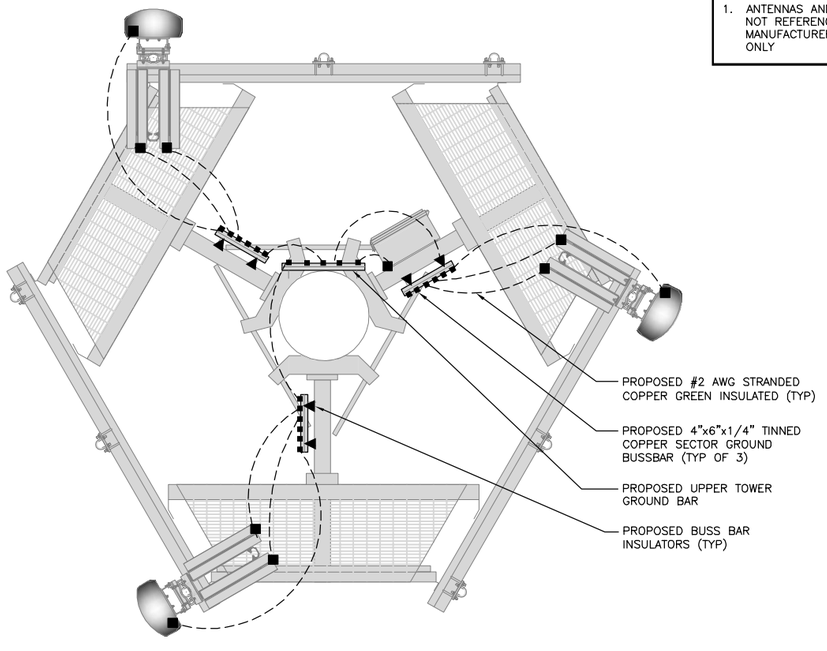


TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE | 1

NOTES

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2

- 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 5/8" 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.

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

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

(L) 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.

(M) 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.

(N) 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

(P) 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.

(Q) 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

(R) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR.

REFER TO DISH WIRELESS, L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE | 3

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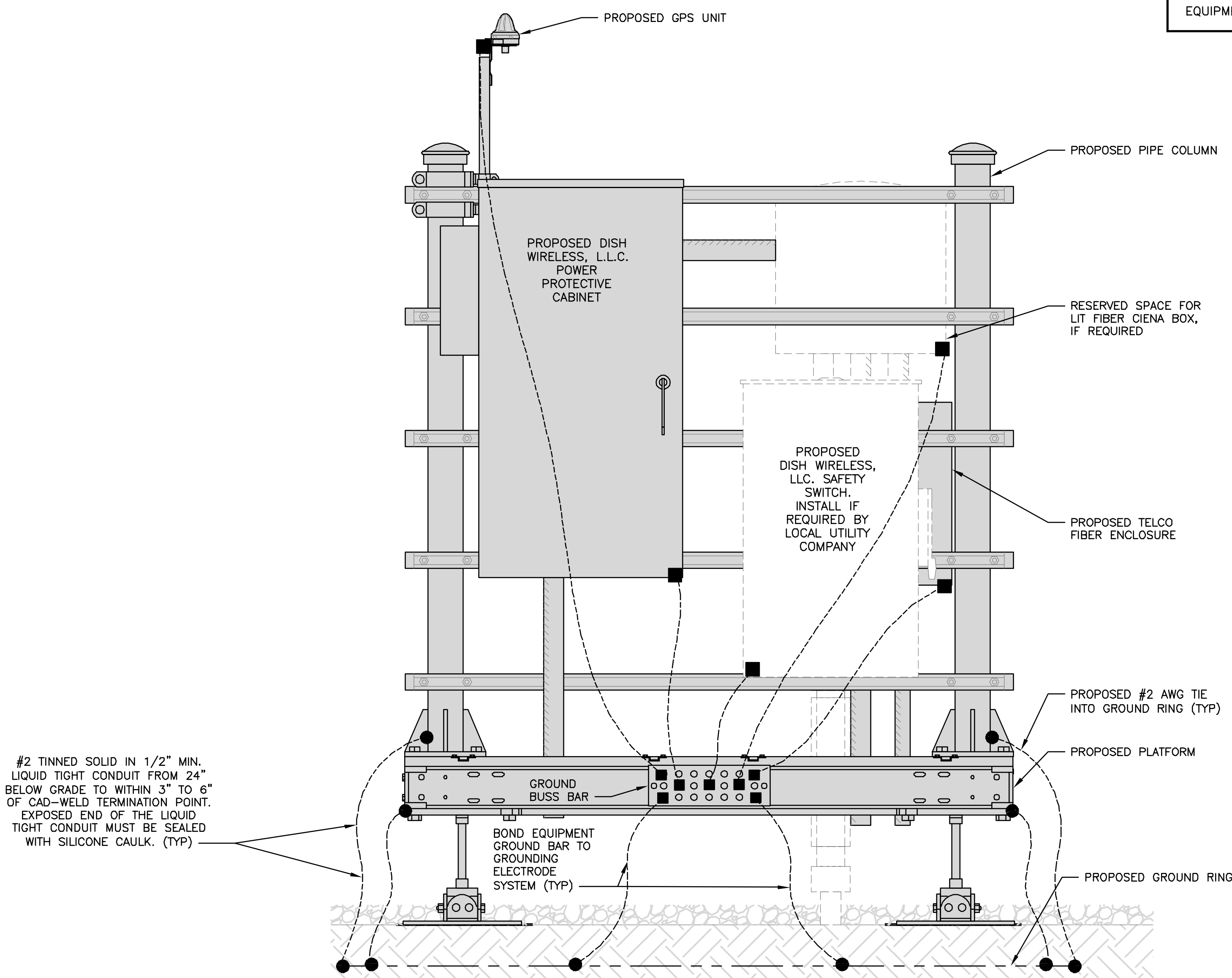
PROJECT INFORMATION
BOHVN00148A
401-411 LOPUS ROAD
BEACON FALLS, CT 06403

SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

NOTES

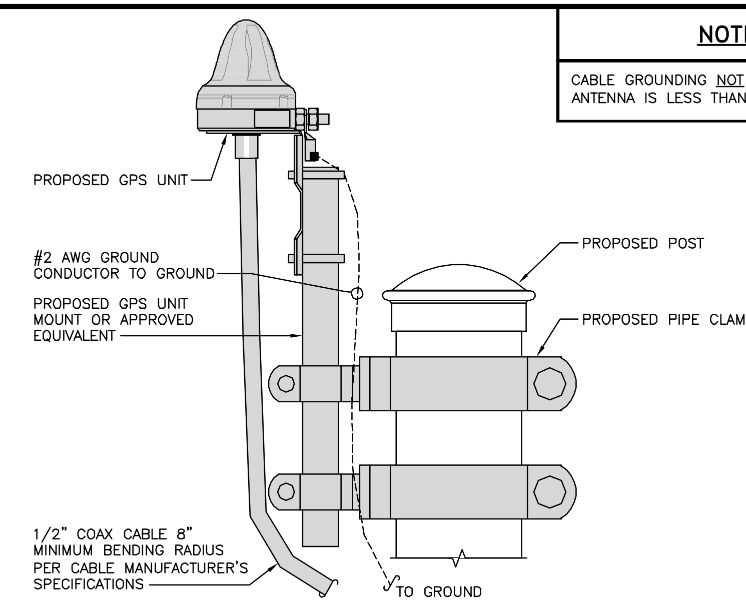
EQUIPMENT CABINET OMITTED FOR CLARITY



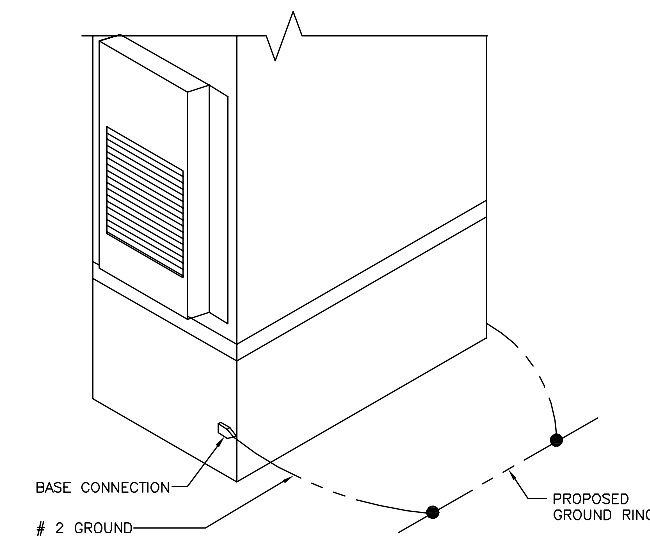
H-FRAME GROUNDING DETAIL — NO SCALE — 1

NOTES

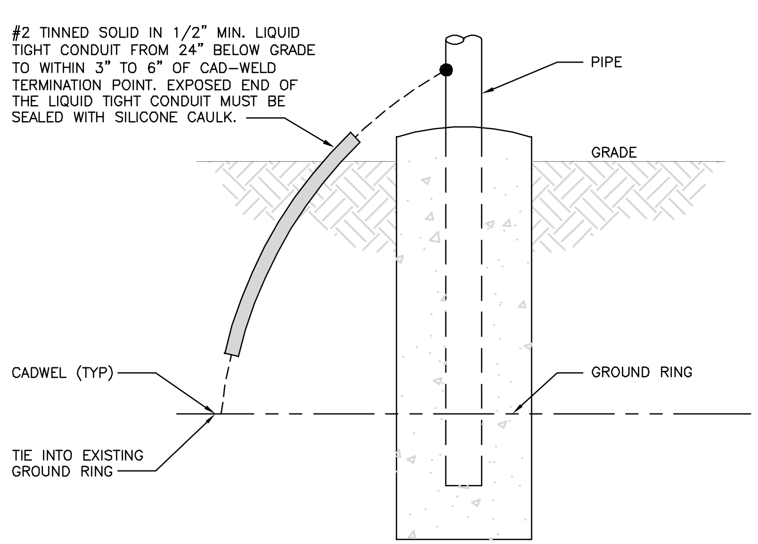
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



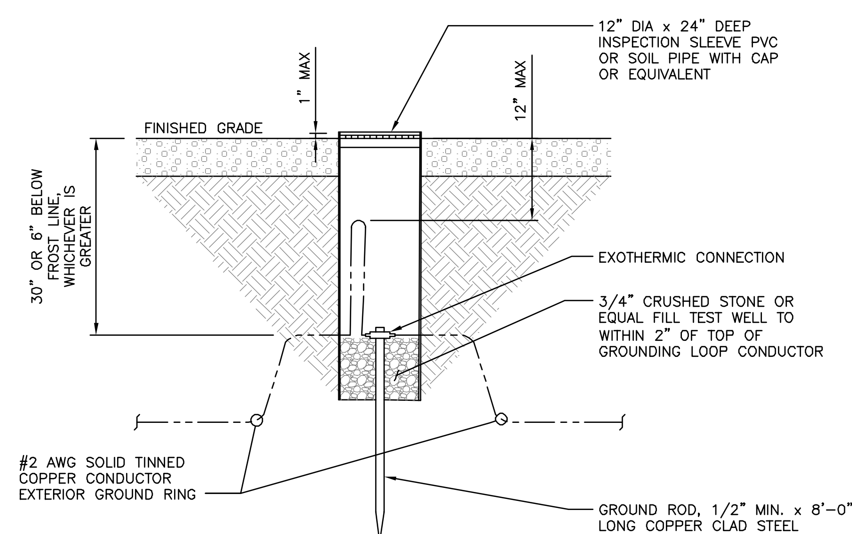
TYPICAL GPS UNIT GROUNDING — NO SCALE — 2



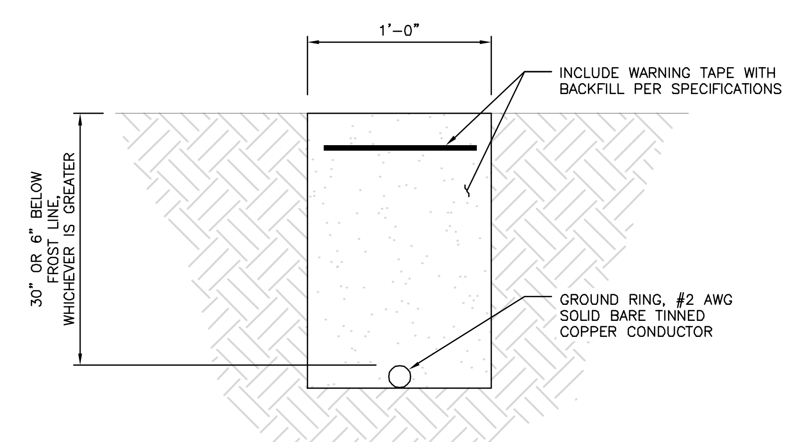
OUTDOOR CABINET GROUNDING — NO SCALE — 3



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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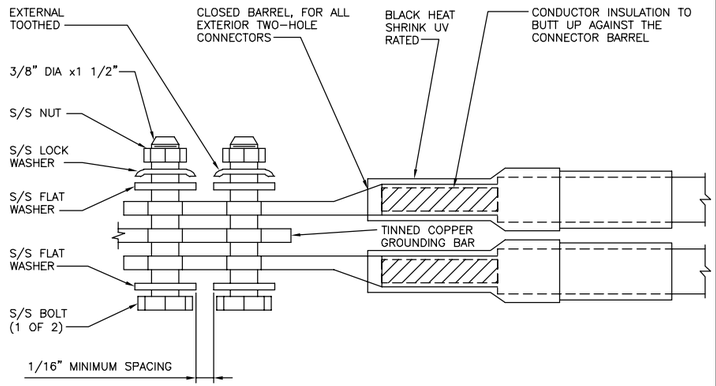
401-411 LOPUS ROAD
BEACON FALLS, CT 06403

SHEET TITLE
GROUNDING DETAILS

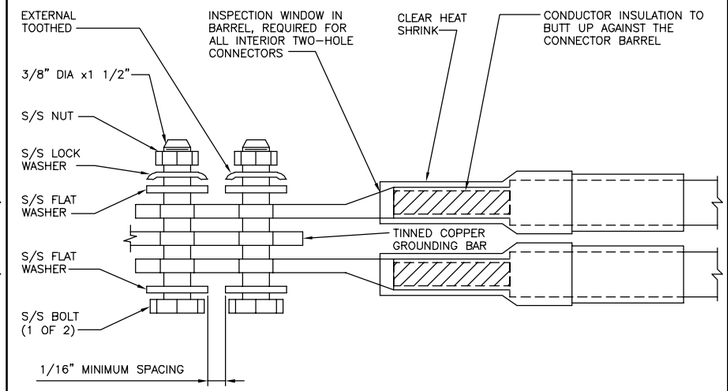
SHEET NUMBER
G-2

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.
9. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).

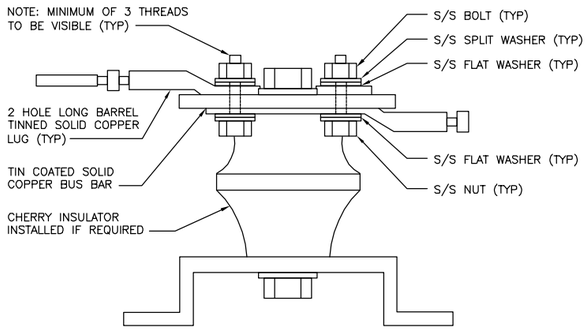
TYPICAL GROUNDING NOTES | NO SCALE | 1



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

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NB+C
TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

DRAWN BY:	CHECKED BY:	APPROVED BY:
JOV	BIW	BIW

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	08/20/2021	ISSUED FOR REVIEW
0	10/07/2021	ISSUED FOR CONSTRUCTION

10/07/21

A&E PROJECT NUMBER
370641-13702524

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00148A
401-411 LOPUS ROAD
BEACON FALLS, CT 06403

SHEET TITLE
GROUNDING DETAILS

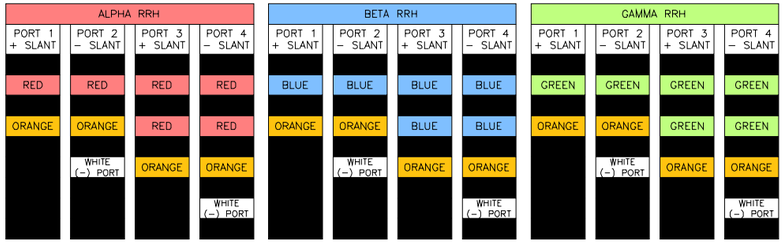
SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

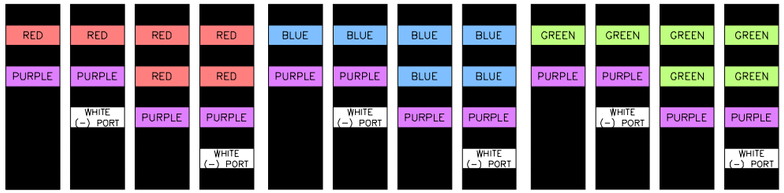
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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)

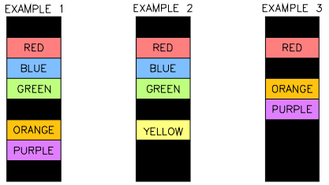


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

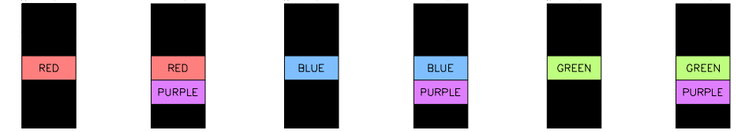
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS
ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

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



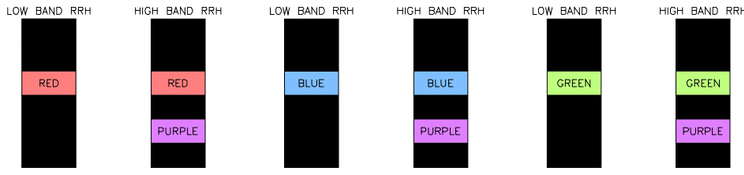
FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

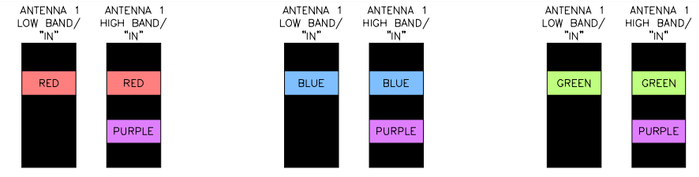


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY



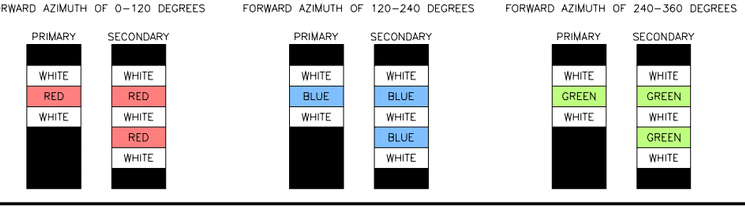
RET MOTORS AT ANTENNAS



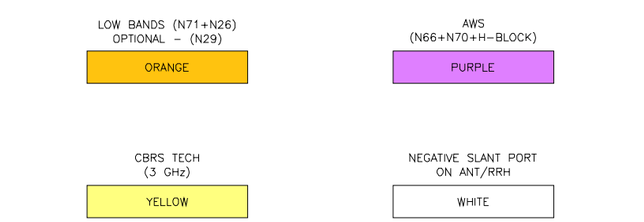
MICROWAVE RADIO LINKS

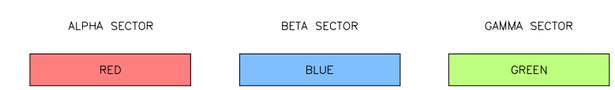
LINKS WILL HAVE A 1.5-2 INCH WHITE WRAP WITH
THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE.
ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH
ADDITIONAL MW RADIO.

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





COLOR IDENTIFIER	NO SCALE	2

NOT USED	NO SCALE	3

NOT USED	NO SCALE	4

dish wireless.

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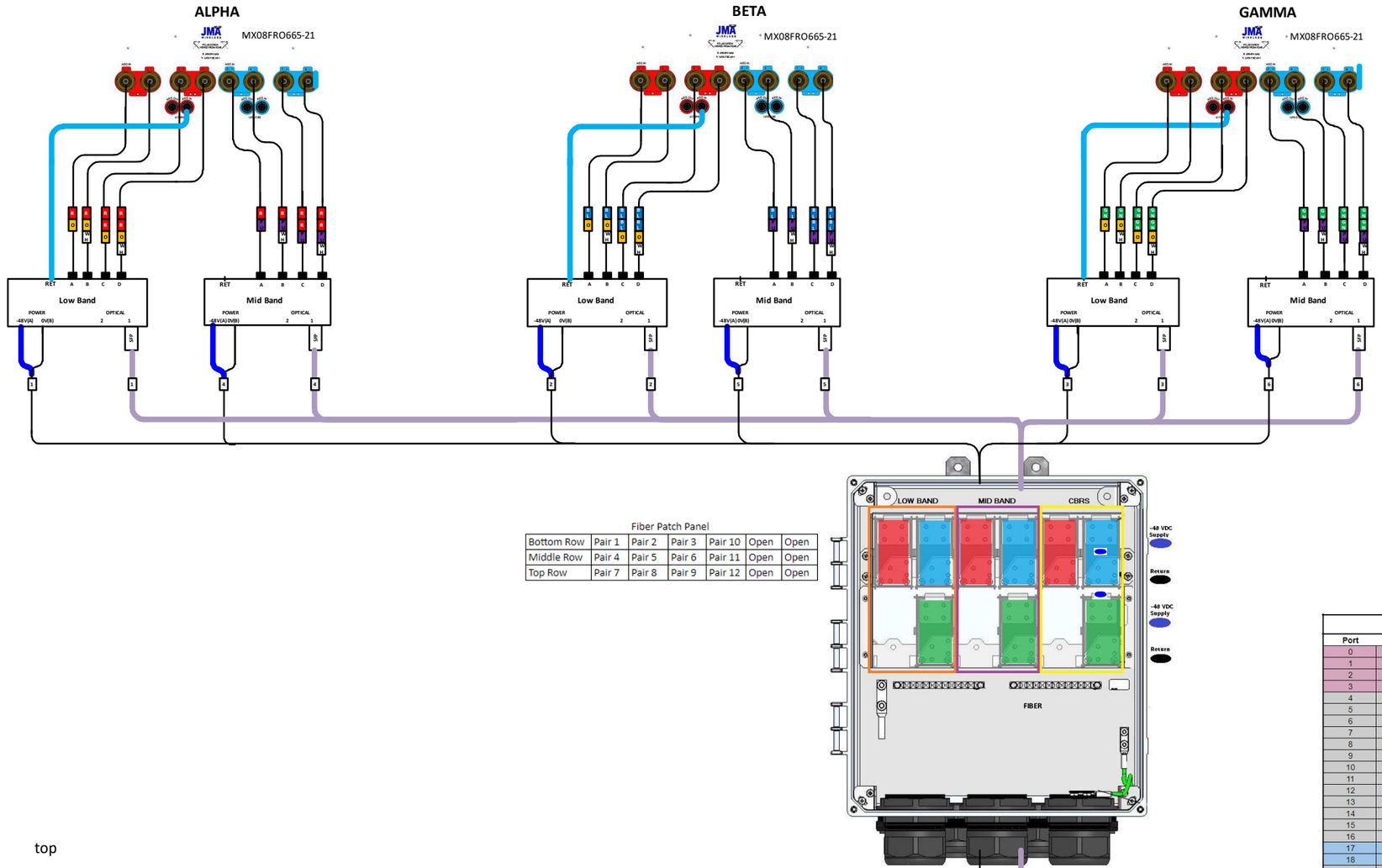
401-411 LOPUS ROAD
BEACON FALLS, CT 06403

SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1



Fiber Patch Panel

Bottom Row	Pair 1	Pair 2	Pair 3	Pair 10	Open	Open
Middle Row	Pair 4	Pair 5	Pair 6	Pair 11	Open	Open
Top Row	Pair 7	Pair 8	Pair 9	Pair 12	Open	Open

CSR NCS540

Port	Interface	Description
0	Gi0/0/0/0	SiteBoss
1	Gi0/0/0/1	CBRS - Alpha
2	Gi0/0/0/2	CBRS - Beta
3	Gi0/0/0/3	CBRS - Gamma
4	Te0/0/0/4	Fujitsu Low-Band RU - Alpha
5	Te0/0/0/5	Fujitsu Mid-Band RU - Alpha
6	Te0/0/0/6	Fujitsu Low-Band RU - Beta
7	Te0/0/0/7	Fujitsu Mid-Band RU - Beta
8	Te0/0/0/8	Fujitsu Low-Band RU - Gamma
9	Te0/0/0/9	Fujitsu Mid-Band RU - Gamma
10	Te0/0/0/10	Fixed Wifi
11	Te0/0/0/11	Fixed Wifi
12	Te0/0/0/12	Fixed Wifi
13	Te0/0/0/13	Fixed Wifi
14	Te0/0/0/14	CBRS1
15	Te0/0/0/15	CBRS2
16	Te0/0/0/16	CBRS3
17	Gi0/0/0/17	SM1 - BMC
18	Gi0/0/0/18	SM2 - BMC
19	Te0/0/019	SM1 - Data 1
20	Te0/0/020	SM1 - Data 2
21	Te0/0/021	SM2 - Data 1
22	Te0/0/022	SM2 - Data 2
23	Te0/0/023	Reserved Uplink (EDC, LDC)
24	Te0/0/024	Blank/Future
25	Te0/0/025	Blank/Future
26	Te0/0/026	Fiber NIU
27	Te0/0/027	Fiber NIU
28	Te0/0/028	Blank/Future
29	Te0/0/029	Blank/Future

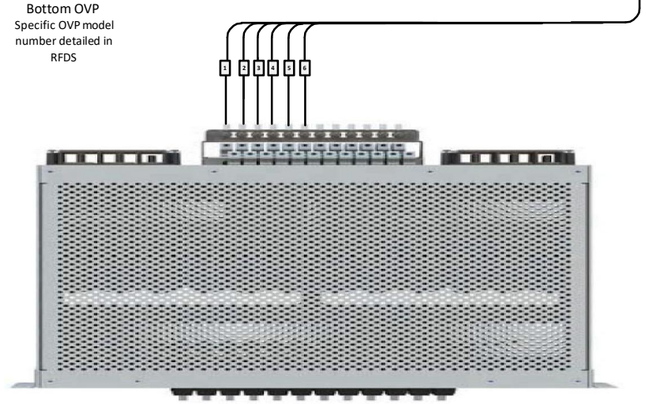
top

bottom

Bottom OVP Layout

Circuit 1	Alpha Low Band
Circuit 2	Beta Low Band
Circuit 3	Gamma Low Band
Circuit 4	Alpha Mid Band
Circuit 5	Beta Mid Band
Circuit 6	Gamma Mid Band
Circuit 7	Alpha CBRS
Circuit 8	Beta CBRS
Circuit 9	Gamma CBRS
Circuit 10	Open
Circuit 11	Open
Circuit 12	Open

Bottom OVP
Specific OVP model number detailed in RFDS



5G plumbing diagram JMA MX08FRO665-21
2-2-2(LB+MB)

Quan Liu	SIZE	FSCM NO	DWG NO	REV 3
5- Jan- 2021	SCALE None		SHEET	

PLUMBING DIAGRAM | NO SCALE | 1

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SHEET TITLE
RF
PLUMBING DIAGRAM

SHEET NUMBER
RF-2

LEGEND

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM — T

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE — T

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE — GFCI

FLUORESCENT LIGHTING FIXTURE
(2) TWO LAMPS 48–T8 — F

SMOKE DETECTION (DC) — SD

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

ABBREVIATIONS

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

dish wireless.

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STATE OF CONNECTICUT — BRIAN KOWALSKI — PEN.0028997 — LICENSED PROFESSIONAL ENGINEER

10/07/21

A&E PROJECT NUMBER
370641–13702524

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00148A
401–411 LOPUS ROAD
BEACON FALLS, CT 06403

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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10/07/21

A&E PROJECT NUMBER
370641–13702524

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00148A
401–411 LOPUS ROAD
BEACON FALLS, CT 06403

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.

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10/07/21

A&E PROJECT NUMBER

370641-13702524

DISH WIRELESS, L.L.C.
PROJECT INFORMATION

BOHVN00148A
401-411 LOPUS ROAD
BEACON FALLS, CT 06403

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.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."

2. STRUCTURAL STEEL ROLLED SHAPES, PLATES AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:

A. ASTM A–572, GRADE 50 – ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE

B. ASTM A–36 – ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.

C. ASTM A–500, GRADE B – HSS SECTION (SQUARE, RECTANGULAR, AND ROUND)

D. ASTM A–325, TYPE SC OR N – ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS

E. ASTM F–1554 07 – ALL ANCHOR BOLTS, UNLESS NOTED OTHERWISE

3. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT–DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.

4. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

5. DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.

6. CONNECTIONS:

A. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.

B. ALL WELDS SHALL BE INSPECTED VISUALLY. 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.

C. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.

D. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE BURNING/WELDING PERMITS AS REQUIRED BY LOCAL GOVERNING AUTHORITY AND IF REQUIRED SHALL HAVE FIRE DEPARTMENT DETAIL FOR ANY WELDING ACTIVITY.

E. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.

F. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.

G. PRIOR TO FIELD WELDING GALVANIZING MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING ½" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.

H. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE REQUIRED DURING CONSTRUCTION UNTIL ALL CONNECTIONS ARE COMPLETE.

I. ANY FIELD CHANGES OR SUBSTITUTIONS SHALL HAVE PRIOR APPROVAL FROM THE ENGINEER, AND DISH WIRELESS L.L.C. PROJECT MANAGER IN WRITING

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STATE OF CONNECTICUT PEN.0028997 LICENSED PROFESSIONAL ENGINEER

10/07/21

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.

A&E PROJECT NUMBER
370641–13702524

DISH WIRELESS, L.L.C. PROJECT INFORMATION
BOHVN00148A
401–411 LOPUS ROAD
BEACON FALLS, CT 06403

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4

ENGINEERING:

STRUCTURAL ANALYSIS

MOUNT ANALYSIS

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**149 ft Monopole**
ATC Site Name	:	**Beacon Falls CT,CT**
ATC Site Number	:	**370641**
Engineering Number	:	**13702524_C3_03**
Proposed Carrier	:	**DISH WIRELESS L.L.C.**
Carrier Site Name	:	**BOHVN00148A**
Carrier Site Number	:	**BOHVN00148A**
Site Location	:	**401-411 Lopus Road** **Beacon Falls, CT 06403-0000** **41.4328, -73.0702**
County	:	**New Haven**
Date	:	**August 23, 2021**
Max Usage	:	**45%**
Result	:	**Pass**

Prepared By:

Rebecca Malz
Structural Engineer I

Reviewed By:

COA : PEC.0001553

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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 149 ft Monopole to reflect the change in loading by DISH WIRELESS L.L.C..

Supporting Documents

Tower Drawings	EEI Job #13674, dated October 19, 2005
Foundation Drawing	EEI Job #13674, dated October 19, 2005
Geotechnical Report	Tectonic Project #3917.BEACON, dated August 17, 2005

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:	118 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:	B
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
147.0	-	-	Triangular Low Profile Platform	(1) 3" conduit (1) 0.39" (10mm) Fiber Trunk (2) 0.78" (19.7mm) 8 AWG 6 (12) 1 5/8" Coax (1) 2" conduit	AT&T MOBILITY
145.0	3	Ericsson RRUS 32 B2			
	3	Ericsson RRUS 11 (Band 12)			
	1	Raycap DC6-48-60-18-8F ("Squid")			
	6	Powerwave Allgon LGP13519			
	6	Powerwave Allgon LGP21401			
	6	Powerwave Allgon 7020.00 Dual Band RET			
	3	CCI HPA-65R-BUU-H6			
	6	Allgon 7770.00			
135.0	3	RFS APXVAARR24_43-U-NA20	Sector Frame	(3) 1 1/4" Hybriflex Cable (3) 1 5/8" (1.63"-41.3mm) Fiber (6) 1 5/8" Coax (1) 1 5/8" Hybriflex	T-MOBILE
	3	RFS APX16DWV-16DWVS-E-A20			
	3	Ericsson Air6449 B41			
	3	Ericsson 4424 B25			
	3	Ericsson RRUS 4415 B66			
	3	Ericsson KRY 112 144/1			
	3	Commscope SDX1926Q-43			
	3	Ericsson Radio 4449 B71 B85A			
127.0	3	Generic 34" x 6" Panel	Flush	(6) 1 5/8" Coax	METRO PCS INC
115.0	4	Samsung B5/B13 RRH-BR04C	Triangular Low Profile Platform	(2) 1 5/8" Hybriflex	VERIZON WIRELESS
	2	Samsung B2/B66A RRH-BR049			
	1	RFS DB-B1-6C-12AB-0Z			
	2	Samsung MT6407-77A			
	4	JMA Wireless MX06FRO660-02			

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
105.0	1	Commscope RDIDC-9181-PF-48	Triangular Platform with Handrails	(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 inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	35%	Pass
Shaft	37%	Pass
Base Plate	20%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	3762.3	5079.1	2154.0	42%
Shear (Kips)	34.9	47.1	21.1	45%
* 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)	Sway (Rotation) (°)
105.0	Commscope RDIDC-9181-PF-48	DISH WIRELESS L.L.C.	0.508	0.590
	JMA Wireless MX08FRO665-21			
	Fujitsu TA08025-B605			
	Fujitsu TA08025-B604			

***Deflection 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.

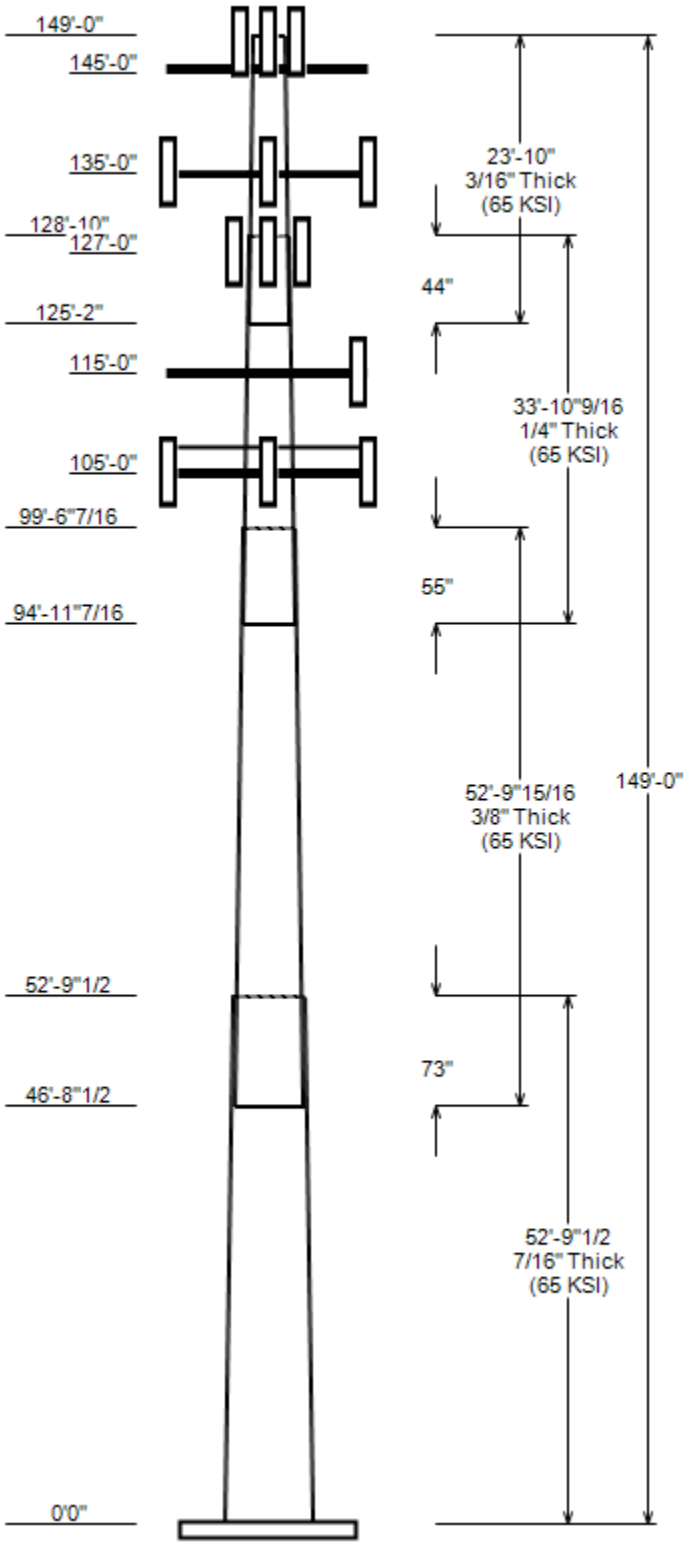
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with 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 :	370641, Beacon Falls CT	Height :	149 ft
Client :	DISH WIRELESS L.L.C.	Base Width :	56
Code :	ANSI/TIA-222-H	Shape :	18 Sides



SITE PARAMETERS

Base Elev (ft):	0.00	Structure Class:	II
Taper :	0.26300 (In/ft)	Exposure :	B
Topographic Category :	1	Topographic Feature:	
Topo Method :	Method 1		

SECTION PROPERTIES

Shaft Section	Length (ft)	Diameter (in) Across Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	52.790	42.14	56.00	0.438		0.000	18 Sides	65
2	52.830	30.61	44.49	0.375	Slip Joint	73.000	18 Sides	65
3	33.880	23.42	32.32	0.250	Slip Joint	55.000	18 Sides	65
4	23.833	18.50	24.76	0.188	Slip Joint	44.000	18 Sides	65

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
145.5	145.5	1	Generic Flat Low Profile Platf
145.0	147.0	6	Powerwave Allgon LGP13519
145.0	145.0	6	Powerwave Allgon 7020.00 Dual
145.0	147.0	6	Powerwave Allgon LGP21401
145.0	147.0	1	Raycap DC6-48-60-18-8F ("Squid
145.0	147.0	3	Ericsson RRUS 11 (Band 12)
145.0	145.0	3	Ericsson RRUS 32 B2
145.0	147.0	6	Allgon 7770.00
145.0	147.0	3	CCI HPA-65R-BUU-H6
135.0	135.0	3	Commscope SDX1926Q-43
135.0	137.0	3	Ericsson KRY 112 144/1
135.0	135.0	3	Ericsson RRUS 4415 B66
135.0	135.0	3	Ericsson Radio 4449 B71 B85A
135.0	135.0	3	Ericsson 4424 B25
135.0	135.0	3	Ericsson Air6449 B41
135.0	135.0	3	RFS APX16DWV-16DWVS-E-A20
135.0	135.0	3	Generic Round T-Arm
135.0	135.0	3	RFS APXVAARR24_43-U-NA20
127.0	127.0	3	Generic 34" x 6" Panel
115.0	115.0	4	Samsung B5/B13 RRH-BR04C
115.0	115.0	2	Samsung B2/B66A RRH-BR049
115.0	117.0	1	RFS DB-B1-6C-12AB-0Z
115.0	115.0	2	Samsung MT6407-77A
115.0	115.0	4	JMA Wireless MX06FRO660-02
115.0	115.0	1	Generic Round Low Profile Plat
105.0	105.0	1	Commscope RDIDC-9181-PF-48
105.0	105.0	3	Fujitsu TA08025-B604
105.0	105.0	3	Fujitsu TA08025-B605
105.0	105.0	3	JMA Wireless MX08FRO665-21
105.0	105.0	1	Generic Flat Platform with Han

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	147.0	3" conduit	No
0.0	145.0	2" conduit	No
0.0	145.0	1 5/8" Coax	No
0.0	145.0	0.78" (19.7mm) 8 AWG 6	No
0.0	145.0	0.39" (10mm) Fiber Trunk	No
0.0	135.0	1 5/8" Hybriflex	No
0.0	135.0	1 5/8" Coax	No
0.0	135.0	1 5/8" (1.63"-41.3mm) Fiber	No
0.0	135.0	1 1/4" Hybriflex Cable	No

JOB INFORMATION

Asset :	370641, Beacon Falls CT	Height :	149 ft
Client :	DISH WIRELESS L.L.C.	Base Width :	56
Code :	ANSI/TIA-222-H	Shape :	18 Sides

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	127.0	1 5/8" Coax	No
0.0	115.0	1 5/8" Hybriflex	No
0.0	105.0	1.60" (40.6mm) Hybrid	No

LOAD CASES

1.2D + 1.0W Normal	118 mph wind with no ice
0.9D + 1.0W Normal	118 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Nor	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh Nor	Seismic
0.9D - 1.0Ev + 1.0Eh Nor	Seismic (Reduced DL)
1.0D + 1.0W Service Norm	60 mph Wind with No Ice

REACTIONS

Load Case	Moment (kip-ft)	Shear (Kip)	Axial (Kip)
1.2D + 1.0W Normal	2153.97	21.14	49.16
0.9D + 1.0W Normal	2133.63	21.13	36.87
1.2D + 1.0Di + 1.0Wi Normal	574.29	5.78	62.57
1.2D + 1.0Ev + 1.0Eh Normal	142.27	1.23	49.02
0.9D - 1.0Ev + 1.0Eh Normal	140.60	1.23	33.83
1.0D + 1.0W Service Normal	495.27	4.89	40.98

DISH DEFLECTIONS

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)

ANALYSIS PARAMETERS

Location:	New Haven County,CT	Height:	149 ft
Type and Shape:	Taper, 18 Sides	Base Diameter:	56.00 in
Manufacturer:	EEI	Top Diameter:	18.50 in
K_d (non-service):	0.95	Taper:	0.2630 in/ft
K_e:	0.99	Rotation:	0.000°

ICE & WIND PARAMETERS

Exposure Category:	B	Design Wind Speed w/o Ice:	118 mph
Risk Category:	II	Design Wind Speed w/Ice:	50 mph
Topo Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.00 in
Crest Height:	0 ft	HMSL:	159.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil			Period Based on Rayleigh Method (sec):	2.10
T_L (sec):	6	P:	1	$C_{s:}$	0.030
$S_{s:}$	0.199	$S_{1:}$	0.054	C_s Max:	0.030
$F_{a:}$	1.600	$F_{v:}$	2.400	C_s Min:	0.030
$S_{ds:}$	0.212	$S_{d1:}$	0.086		

LOAD CASES

1.2D + 1.0W Normal	118 mph wind with no ice
0.9D + 1.0W Normal	118 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Normal	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh Normal	Seismic
0.9D - 1.0Ev + 1.0Eh Normal	Seismic (Reduced DL)
1.0D + 1.0W Service Normal	60 mph Wind with No Ice

SHAFT SECTION PROPERTIES

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (in)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	52.79	0.4375	65		0.00	12,130	56.00	0.000	77.15	30,093.2	21.16	128.00	42.14	52.79	57.90	12,721.9	15.57	96.32	0.2626
2-18	52.83	0.3750	65	Slip	73.00	7,954	44.49	46.710	52.50	12,906.4	19.51	118.63	30.61	99.54	35.99	4,157.6	12.98	81.63	0.2626
3-18	33.88	0.2500	65	Slip	55.00	2,526	32.32	94.950	25.44	3,305.6	21.38	129.27	23.42	128.83	18.39	1,247.1	15.11	93.68	0.2626
4-18	23.83	0.1875	65	Slip	44.00	1,035	24.76	125.167	14.62	1,115.3	21.87	132.04	18.50	149.00	10.90	461.7	15.99	98.67	0.2626
				Shaft Weight		23,645													

DISCRETE APPURTENANCE PROPERTIES

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
145.50	Generic Flat Low Profile Platf	1	1.00	0.000	1875.00	26.100	1.00	2414.28	38.813	1.00
145.00	Allgon 7770.00	6	0.80	2.000	35.00	5.508	0.65	117.88	6.191	0.65
145.00	Ericsson RRUS 32 B2	3	0.80	0.000	53.00	2.743	0.67	101.88	3.520	0.67
145.00	Ericsson RRUS 11 (Band 12)	3	0.80	2.000	50.00	2.566	0.67	95.31	3.262	0.67
145.00	Powerwave Allgon LGP21401	6	0.80	2.000	14.10	1.104	0.50	30.68	1.578	0.50
145.00	Powerwave Allgon 7020.00 Dual	6	0.80	0.000	2.20	0.339	0.50	8.99	0.611	0.50
145.00	Powerwave Allgon LGP13519	6	0.80	2.000	5.30	0.290	0.50	11.60	0.547	0.50
145.00	CCI HPA-65R-BUU-H6	3	0.80	2.000	51.00	9.658	0.69	196.81	11.500	0.69
145.00	Raycap DC6-48-60-18-8F ("Squid	1	0.80	2.000	31.80	1.470	1.00	72.81	1.934	1.00
135.00	Ericsson RRUS 4415 B66	3	0.80	0.000	46.00	1.650	0.50	74.57	2.210	0.50
135.00	RFS APXVAARR24_43-U-NA20	3	0.80	0.000	127.90	20.243	0.63	386.93	22.690	0.63
135.00	Generic Round T-Arm	3	0.75	0.000	312.50	9.700	0.67	484.87	15.140	0.67
135.00	RFS APX16DWV-16DWVS-E-A20	3	0.80	0.000	40.70	6.586	0.60	117.78	8.015	0.60
135.00	Ericsson Air6449 B41	3	0.80	0.000	104.00	5.682	0.63	193.92	6.729	0.63
135.00	Ericsson 4424 B25	3	0.80	0.000	86.00	2.052	0.67	134.11	2.675	0.67
135.00	Ericsson Radio 4449 B71 B85A	3	0.80	0.000	75.00	1.650	0.50	114.68	2.210	0.50
135.00	Ericsson KRY 112 144/1	3	0.80	2.000	11.00	0.351	0.50	18.10	0.619	0.50
135.00	Commscope SDX1926Q-43	3	0.80	0.000	6.20	0.242	0.50	11.87	0.474	0.50
127.00	Generic 34" x 6" Panel	3	1.00	0.000	20.00	1.899	0.50	47.27	2.772	0.50
115.00	Samsung B5/B13 RRH-BR04C	4	0.80	0.000	70.30	1.875	0.50	107.43	2.461	0.50
115.00	Generic Round Low Profile Plat	1	1.00	0.000	1875.00	21.700	1.00	2400.67	34.162	1.00
115.00	RFS DB-B1-6C-12AB-0Z	1	0.80	2.000	21.40	2.512	0.67	73.21	3.188	0.67
115.00	Samsung B2/B66A RRH-BR049	2	0.80	0.000	84.40	1.875	0.50	125.81	2.461	0.50
115.00	Samsung MT6407-77A	2	0.80	0.000	81.60	4.709	0.71	147.76	5.695	0.71
115.00	JMA Wireless MX06FRO660-02	4	0.80	0.000	46.00	9.872	0.71	201.63	11.653	0.71
105.00	Fujitsu TA08025-B605	3	0.75	0.000	75.00	1.962	0.50	115.29	2.554	0.50
105.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3642.41	55.887	1.00
105.00	JMA Wireless MX08FRO665-21	3	0.75	0.000	64.50	12.489	0.64	229.79	14.296	0.64
105.00	Commscope RDIDC-9181-PF-48	1	0.75	0.000	21.90	1.867	1.00	58.50	2.446	1.00
105.00	Fujitsu TA08025-B604	3	0.75	0.000	63.90	1.962	0.50	101.40	2.554	0.50
Totals	Num Loadings: 30	90			11,022.00			18,733.90		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : _

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax/ Row	Dist Between Rows(in)	Dist Between Cols(in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	147.00	1	3" conduit	3.5	7.58	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	145.00	12	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	145.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	145.00	1	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	145.00	1	2" conduit	2.38	3.65	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	135.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	T-MOBILE
0.00	135.00	3	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0	0	0	0	N	T-MOBILE
0.00	135.00	3	1 1/4" Hybriflex Cabl	1.54	1	N	0	0	0	0	0	N	T-MOBILE
0.00	135.00	1	1 5/8" Hybriflex	1.98	1.3	N	0	0	0	0	0	N	T-MOBILE
0.00	127.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	METRO PCS INC
0.00	115.00	2	1 5/8" Hybriflex	1.98	1.3	N	0	0	0	0	0	N	VERIZON WIREL
0.00	105.00	1	1.60" (40.6mm) Hybrid	1.6	2.34	N	0	0	0	0	0	N	DISH WIRELESS

SEGMENT PROPERTIES

(Max Len: 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.4375	56.000	77.153	30,093.20	21.16	128.00	76.5	1058.4	0.0	0.0
5.00		0.4375	54.687	75.330	28,009.90	20.63	125.00	77.1	1008.8	0.0	1,297.2
10.00		0.4375	53.374	73.507	26,025.10	20.10	122.00	77.8	960.4	0.0	1,266.1
15.00		0.4375	52.061	71.683	24,136.30	19.57	119.00	78.4	913.1	0.0	1,235.1
20.00		0.4375	50.748	69.860	22,341.20	19.04	116.00	79	867.1	0.0	1,204.1
25.00		0.4375	49.435	68.037	20,637.40	18.51	113.00	79.6	822.2	0.0	1,173.1
30.00		0.4375	48.122	66.214	19,022.50	17.98	109.99	80.2	778.6	0.0	1,142.1
35.00		0.4375	46.810	64.391	17,494.10	17.46	106.99	80.9	736.1	0.0	1,111.1
40.00		0.4375	45.497	62.568	16,049.90	16.93	103.99	81.5	694.8	0.0	1,080.0
45.00		0.4375	44.184	60.745	14,687.40	16.40	100.99	82.1	654.7	0.0	1,049.0
46.71	Bot - Section 2	0.4375	43.736	60.123	14,240.60	16.22	99.97	82.3	641.3	0.0	351.0
50.00		0.4375	42.871	58.922	13,404.30	15.87	97.99	82.6	615.8	0.0	1,249.6
52.79	Top - Section 1	0.3750	42.888	50.600	11,554.40	18.76	114.37	79.3	530.6	0.0	1,039.1
55.00		0.3750	42.308	49.909	11,087.70	18.48	112.82	79.7	516.2	0.0	377.9
60.00		0.3750	40.995	48.346	10,078.50	17.87	109.32	80.4	484.2	0.0	835.8
65.00		0.3750	39.682	46.784	9,132.40	17.25	105.82	81.1	453.3	0.0	809.3
70.00		0.3750	38.369	45.221	8,247.50	16.63	102.32	81.8	423.4	0.0	782.7
75.00		0.3750	37.056	43.658	7,421.80	16.01	98.82	82.6	394.5	0.0	756.1
80.00		0.3750	35.743	42.096	6,653.00	15.40	95.32	82.6	366.6	0.0	729.5
85.00		0.3750	34.430	40.533	5,939.30	14.78	91.81	82.6	339.8	0.0	702.9
90.00		0.3750	33.117	38.970	5,278.50	14.16	88.31	82.6	313.9	0.0	676.3
94.95	Bot - Section 3	0.3750	31.817	37.422	4,674.10	13.55	84.84	82.6	289.3	0.0	643.8
95.00		0.3750	31.805	37.408	4,668.60	13.54	84.81	82.6	289.1	0.0	10.0
99.54	Top - Section 2	0.2500	31.113	24.489	2,947.20	20.53	124.45	77.2	186.6	0.0	951.9
100.00		0.2500	30.992	24.393	2,912.50	20.45	123.97	77.4	185.1	0.0	38.5
105.00		0.2500	29.679	23.351	2,555.00	19.52	118.71	78.4	169.6	0.0	406.2
110.00		0.2500	28.366	22.309	2,228.10	18.60	113.46	79.5	154.7	0.0	388.4
115.00		0.2500	27.053	21.267	1,930.30	17.67	108.21	80.6	140.5	0.0	370.7
120.00		0.2500	25.740	20.226	1,660.30	16.74	102.96	81.7	127.0	0.0	353.0
125.00		0.2500	24.427	19.184	1,416.70	15.82	97.71	82.6	114.2	0.0	335.3
125.17	Bot - Section 4	0.2500	24.383	19.149	1,409.10	15.79	97.53	82.6	113.8	0.0	10.9
127.00		0.2500	23.902	18.767	1,326.40	15.45	95.61	82.6	109.3	0.0	208.6
128.83	Top - Section 3	0.1875	23.795	14.049	989.30	20.97	126.91	76.7	81.9	0.0	204.4
130.00		0.1875	23.489	13.867	951.30	20.68	125.28	77.1	79.8	0.0	55.4
135.00		0.1875	22.176	13.086	799.40	19.44	118.27	78.5	71.0	0.0	229.3
140.00		0.1875	20.863	12.304	664.60	18.21	111.27	80	62.7	0.0	216.0
145.00		0.1875	19.550	11.523	545.80	16.97	104.27	81.4	55.0	0.0	202.7
145.50		0.1875	19.419	11.445	534.80	16.85	103.57	81.6	54.2	0.0	19.5
149.00		0.1875	18.500	10.898	461.70	15.99	98.67	82.6	49.2	0.0	133.0
								Totals:			23,645.6

Load Case: 1.2D + 1.0W Normal 118 mph wind with no ice 23 Iterations
Gust Response Factor: 1.10
Dead load Factor: 1.20
Wind Load Factor: 1.00

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-49.16	-21.14	0.00	-2,154.0	0.00	2,153.97	5,312.91	1,354.03	6,795.27	6,073.81	0	0	0.364
5.00	-47.29	-20.78	0.00	-2,048.3	0.00	2,048.29	5,229.56	1,322.03	6,477.96	5,836.15	0.05	-0.1	0.360
10.00	-45.46	-20.43	0.00	-1,944.4	0.00	1,944.40	5,144.17	1,290.04	6,168.24	5,600.81	0.21	-0.2	0.356
15.00	-43.67	-20.08	0.00	-1,842.2	0.00	1,842.25	5,056.74	1,258.04	5,866.11	5,367.95	0.48	-0.3	0.352
20.00	-41.91	-19.75	0.00	-1,741.8	0.00	1,741.84	4,967.26	1,226.05	5,571.56	5,137.73	0.85	-0.41	0.348
25.00	-40.19	-19.41	0.00	-1,643.1	0.00	1,643.11	4,875.75	1,194.05	5,284.60	4,910.34	1.34	-0.52	0.343
30.00	-38.51	-19.08	0.00	-1,546.0	0.00	1,546.05	4,782.19	1,162.06	5,005.22	4,685.92	1.94	-0.63	0.338
35.00	-36.87	-18.74	0.00	-1,450.6	0.00	1,450.65	4,686.58	1,130.06	4,733.44	4,464.66	2.66	-0.74	0.333
40.00	-35.26	-18.40	0.00	-1,357.0	0.00	1,356.95	4,588.94	1,098.07	4,469.23	4,246.71	3.5	-0.85	0.327
45.00	-33.71	-18.15	0.00	-1,265.0	0.00	1,264.97	4,489.25	1,066.07	4,212.62	4,032.24	4.45	-0.97	0.322
46.71	-33.18	-17.98	0.00	-1,234.0	0.00	1,233.99	4,454.76	1,055.15	4,126.77	3,959.86	4.81	-1.01	0.319
50.00	-31.47	-17.74	0.00	-1,174.8	0.00	1,174.79	4,377.60	1,034.08	3,963.59	3,812.77	5.53	-1.09	0.316
52.79	-30.06	-17.54	0.00	-1,125.3	0.00	1,125.30	3,613.14	888.02	3,410.01	3,157.53	6.19	-1.16	0.365
55.00	-29.46	-17.29	0.00	-1,086.5	0.00	1,086.53	3,578.23	875.90	3,317.57	3,083.97	6.74	-1.21	0.361
60.00	-28.15	-16.93	0.00	-1,000.1	0.00	1,000.09	3,497.79	848.48	3,113.10	2,919.41	8.08	-1.35	0.351
65.00	-26.87	-16.56	0.00	-915.5	0.00	915.46	3,415.31	821.05	2,915.14	2,757.59	9.57	-1.48	0.340
70.00	-25.63	-16.20	0.00	-832.6	0.00	832.65	3,330.78	793.63	2,723.68	2,598.66	11.19	-1.62	0.329
75.00	-24.42	-15.84	0.00	-751.6	0.00	751.65	3,243.59	766.20	2,538.72	2,442.34	12.96	-1.76	0.316
80.00	-23.24	-15.48	0.00	-672.5	0.00	672.46	3,127.49	738.78	2,360.26	2,269.78	14.87	-1.89	0.304
85.00	-22.10	-15.12	0.00	-595.1	0.00	595.08	3,011.39	711.35	2,188.31	2,103.54	16.93	-2.03	0.291
90.00	-20.99	-14.77	0.00	-519.5	0.00	519.48	2,895.30	683.93	2,022.86	1,943.62	19.12	-2.16	0.275
94.95	-19.93	-14.57	0.00	-446.3	0.00	446.34	2,780.28	656.76	1,865.37	1,791.43	21.43	-2.29	0.257
95.00	-19.91	-14.43	0.00	-445.7	0.00	445.66	2,779.20	656.50	1,863.91	1,790.03	21.46	-2.29	0.257
99.54	-18.51	-14.21	0.00	-380.2	0.00	380.22	1,702.59	429.78	1,198.10	1,080.94	23.69	-2.4	0.364
100.00	-18.42	-14.05	0.00	-373.6	0.00	373.63	1,698.09	428.09	1,188.67	1,073.80	23.92	-2.42	0.360
105.00	-14.00	-11.10	0.00	-303.4	0.00	303.39	1,648.46	409.81	1,089.32	997.54	26.54	-2.58	0.313
110.00	-13.26	-10.77	0.00	-247.9	0.00	247.91	1,596.78	391.52	994.30	922.79	29.33	-2.74	0.278
115.00	-9.42	-8.17	0.00	-194.0	0.00	193.97	1,543.06	373.24	903.62	849.74	32.27	-2.88	0.235
120.00	-8.75	-7.85	0.00	-153.1	0.00	153.11	1,487.30	354.96	817.27	778.54	35.36	-3	0.203
125.00	-8.10	-7.67	0.00	-113.8	0.00	113.85	1,425.26	336.68	735.26	707.26	38.57	-3.12	0.167
125.17	-8.08	-7.61	0.00	-112.6	0.00	112.58	1,422.68	336.07	732.60	704.69	38.68	-3.12	0.166
127.00	-7.67	-7.38	0.00	-98.6	0.00	98.62	1,394.30	329.36	703.67	676.72	39.88	-3.16	0.152
128.83	-7.35	-7.27	0.00	-85.1	0.00	85.10	970.32	246.56	525.75	471.29	41.1	-3.2	0.189
130.00	-7.23	-7.10	0.00	-76.6	0.00	76.61	961.96	243.36	512.20	461.12	41.89	-3.22	0.175
135.00	-4.01	-3.80	0.00	-41.1	0.00	41.07	924.86	229.65	456.11	418.16	45.31	-3.31	0.103
140.00	-3.63	-3.52	0.00	-22.1	0.00	22.06	885.72	215.94	403.28	376.35	48.8	-3.36	0.063
145.00	-2.37	-1.39	0.00	-1.0	0.00	1.02	844.53	202.23	353.69	335.86	52.34	-3.39	0.006
145.50	-0.17	-0.09	0.00	-0.3	0.00	0.33	840.30	200.86	348.91	331.89	52.7	-3.39	0.001
149.00	0.00	-0.08	0.00	0.0	0.00	0.00	809.65	191.26	316.37	304.35	55.18	-3.39	0.000

Load Case: 0.9D + 1.0W Normal 118 mph wind with no ice 23 Iterations
Gust Response Factor: 1.10
Dead load Factor: 0.90
Wind Load Factor: 1.00

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-36.87	-21.13	0.00	-2,133.6	0.00	2,133.63	5,312.91	1,354.03	6,795.27	6,073.81	0	0	0.358
5.00	-35.46	-20.75	0.00	-2,028.0	0.00	2,028.00	5,229.56	1,322.03	6,477.96	5,836.15	0.05	-0.1	0.355
10.00	-34.07	-20.38	0.00	-1,924.3	0.00	1,924.26	5,144.17	1,290.04	6,168.24	5,600.81	0.21	-0.2	0.350
15.00	-32.72	-20.01	0.00	-1,822.4	0.00	1,822.38	5,056.74	1,258.04	5,866.11	5,367.95	0.47	-0.3	0.346
20.00	-31.39	-19.66	0.00	-1,722.3	0.00	1,722.31	4,967.26	1,226.05	5,571.56	5,137.73	0.85	-0.41	0.342
25.00	-30.10	-19.31	0.00	-1,624.0	0.00	1,624.03	4,875.75	1,194.05	5,284.60	4,910.34	1.33	-0.51	0.337
30.00	-28.83	-18.96	0.00	-1,527.5	0.00	1,527.49	4,782.19	1,162.06	5,005.22	4,685.92	1.92	-0.62	0.332
35.00	-27.59	-18.61	0.00	-1,432.7	0.00	1,432.69	4,686.58	1,130.06	4,733.44	4,464.66	2.63	-0.73	0.327
40.00	-26.38	-18.25	0.00	-1,339.6	0.00	1,339.65	4,588.94	1,098.07	4,469.23	4,246.71	3.46	-0.84	0.321
45.00	-25.21	-18.00	0.00	-1,248.4	0.00	1,248.40	4,489.25	1,066.07	4,212.62	4,032.24	4.4	-0.96	0.316
46.71	-24.81	-17.82	0.00	-1,217.7	0.00	1,217.69	4,454.76	1,055.15	4,126.77	3,959.86	4.76	-1	0.313
50.00	-23.53	-17.58	0.00	-1,159.0	0.00	1,159.01	4,377.60	1,034.08	3,963.59	3,812.77	5.47	-1.08	0.310
52.79	-22.46	-17.38	0.00	-1,110.0	0.00	1,109.97	3,613.14	888.02	3,410.01	3,157.53	6.12	-1.14	0.358
55.00	-22.01	-17.12	0.00	-1,071.6	0.00	1,071.56	3,578.23	875.90	3,317.57	3,083.97	6.67	-1.2	0.354
60.00	-21.02	-16.74	0.00	-986.0	0.00	985.98	3,497.79	848.48	3,113.10	2,919.41	7.99	-1.33	0.344
65.00	-20.05	-16.37	0.00	-902.3	0.00	902.26	3,415.31	821.05	2,915.14	2,757.59	9.46	-1.46	0.333
70.00	-19.11	-16.00	0.00	-820.4	0.00	820.41	3,330.78	793.63	2,723.68	2,598.66	11.06	-1.6	0.322
75.00	-18.20	-15.63	0.00	-740.4	0.00	740.41	3,243.59	766.20	2,538.72	2,442.34	12.81	-1.73	0.309
80.00	-17.31	-15.27	0.00	-662.2	0.00	662.25	3,127.49	738.78	2,360.26	2,269.78	14.7	-1.87	0.298
85.00	-16.45	-14.90	0.00	-585.9	0.00	585.92	3,011.39	711.35	2,188.31	2,103.54	16.73	-2	0.284
90.00	-15.61	-14.55	0.00	-511.4	0.00	511.40	2,895.30	683.93	2,022.86	1,943.62	18.89	-2.13	0.269
94.95	-14.82	-14.36	0.00	-439.3	0.00	439.33	2,780.28	656.76	1,865.37	1,791.43	21.17	-2.26	0.251
95.00	-14.80	-14.21	0.00	-438.7	0.00	438.66	2,779.20	656.50	1,863.91	1,790.03	21.19	-2.26	0.251
99.54	-13.75	-14.00	0.00	-374.2	0.00	374.21	1,702.59	429.78	1,198.10	1,080.94	23.4	-2.37	0.355
100.00	-13.68	-13.83	0.00	-367.7	0.00	367.72	1,698.09	428.09	1,188.67	1,073.80	23.63	-2.38	0.352
105.00	-10.38	-10.92	0.00	-298.6	0.00	298.56	1,648.46	409.81	1,089.32	997.54	26.22	-2.55	0.306
110.00	-9.82	-10.59	0.00	-244.0	0.00	243.95	1,596.78	391.52	994.30	922.79	28.97	-2.7	0.271
115.00	-6.97	-8.04	0.00	-190.9	0.00	190.89	1,543.06	373.24	903.62	849.74	31.87	-2.84	0.230
120.00	-6.47	-7.72	0.00	-150.7	0.00	150.68	1,487.30	354.96	817.27	778.54	34.91	-2.96	0.198
125.00	-5.98	-7.55	0.00	-112.1	0.00	112.06	1,425.26	336.68	735.26	707.26	38.07	-3.08	0.163
125.17	-5.97	-7.49	0.00	-110.8	0.00	110.80	1,422.68	336.07	732.60	704.69	38.18	-3.08	0.162
127.00	-5.66	-7.26	0.00	-97.1	0.00	97.07	1,394.30	329.36	703.67	676.72	39.37	-3.12	0.148
128.83	-5.42	-7.16	0.00	-83.8	0.00	83.76	970.32	246.56	525.75	471.29	40.57	-3.15	0.184
130.00	-5.34	-6.99	0.00	-75.4	0.00	75.41	961.96	243.36	512.20	461.12	41.35	-3.17	0.170
135.00	-2.96	-3.74	0.00	-40.4	0.00	40.43	924.86	229.65	456.11	418.16	44.72	-3.26	0.100
140.00	-2.67	-3.46	0.00	-21.7	0.00	21.73	885.72	215.94	403.28	376.35	48.17	-3.32	0.061
145.00	-1.76	-1.35	0.00	-1.0	0.00	0.99	844.53	202.23	353.69	335.86	51.66	-3.34	0.005
145.50	-0.12	-0.09	0.00	-0.3	0.00	0.32	840.30	200.86	348.91	331.89	52.01	-3.34	0.001
149.00	0.00	-0.08	0.00	0.0	0.00	0.00	809.65	191.26	316.37	304.35	54.46	-3.34	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi Normal		50 mph wind with 1" radial ice			22 Iterations
Gust Response Factor:	1.10	Ice Dead Load Factor	1.00		
Dead load Factor:	1.20			Ice Importance Factor	1.00
Wind Load Factor:	1.00				

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-62.57	-5.78	0.00	-574.3	0.00	574.29	5,312.91	1,354.03	6,795.27	6,073.81	0	0	0.106
5.00	-60.46	-5.67	0.00	-545.4	0.00	545.42	5,229.56	1,322.03	6,477.96	5,836.15	0.01	-0.03	0.105
10.00	-58.37	-5.57	0.00	-517.1	0.00	517.07	5,144.17	1,290.04	6,168.24	5,600.81	0.06	-0.05	0.104
15.00	-56.31	-5.46	0.00	-489.2	0.00	489.24	5,056.74	1,258.04	5,866.11	5,367.95	0.13	-0.08	0.102
20.00	-54.28	-5.36	0.00	-461.9	0.00	461.93	4,967.26	1,226.05	5,571.56	5,137.73	0.23	-0.11	0.101
25.00	-52.29	-5.26	0.00	-435.1	0.00	435.12	4,875.75	1,194.05	5,284.60	4,910.34	0.36	-0.14	0.099
30.00	-50.34	-5.16	0.00	-408.8	0.00	408.80	4,782.19	1,162.06	5,005.22	4,685.92	0.52	-0.17	0.098
35.00	-48.43	-5.06	0.00	-383.0	0.00	382.98	4,686.58	1,130.06	4,733.44	4,464.66	0.71	-0.2	0.096
40.00	-46.56	-4.96	0.00	-357.7	0.00	357.67	4,588.94	1,098.07	4,469.23	4,246.71	0.93	-0.23	0.094
45.00	-44.73	-4.88	0.00	-332.9	0.00	332.88	4,489.25	1,066.07	4,212.62	4,032.24	1.18	-0.26	0.093
46.71	-44.11	-4.83	0.00	-324.5	0.00	324.54	4,454.76	1,055.15	4,126.77	3,959.86	1.28	-0.27	0.092
50.00	-42.24	-4.76	0.00	-308.6	0.00	308.63	4,377.60	1,034.08	3,963.59	3,812.77	1.47	-0.29	0.091
52.79	-40.67	-4.70	0.00	-295.4	0.00	295.35	3,613.14	888.02	3,410.01	3,157.53	1.64	-0.31	0.105
55.00	-39.97	-4.63	0.00	-285.0	0.00	284.96	3,578.23	875.90	3,317.57	3,083.97	1.79	-0.32	0.104
60.00	-38.41	-4.52	0.00	-261.8	0.00	261.83	3,497.79	848.48	3,113.10	2,919.41	2.14	-0.36	0.101
65.00	-36.89	-4.41	0.00	-239.2	0.00	239.25	3,415.31	821.05	2,915.14	2,757.59	2.53	-0.39	0.098
70.00	-35.40	-4.29	0.00	-217.2	0.00	217.22	3,330.78	793.63	2,723.68	2,598.66	2.96	-0.43	0.094
75.00	-33.96	-4.18	0.00	-195.8	0.00	195.75	3,243.59	766.20	2,538.72	2,442.34	3.43	-0.46	0.091
80.00	-32.55	-4.07	0.00	-174.8	0.00	174.83	3,127.49	738.78	2,360.26	2,269.78	3.93	-0.5	0.087
85.00	-31.19	-3.96	0.00	-154.5	0.00	154.46	3,011.39	711.35	2,188.31	2,103.54	4.47	-0.53	0.084
90.00	-29.86	-3.86	0.00	-134.6	0.00	134.64	2,895.30	683.93	2,022.86	1,943.62	5.05	-0.57	0.080
94.95	-28.59	-3.79	0.00	-115.5	0.00	115.54	2,780.28	656.76	1,865.37	1,791.43	5.66	-0.6	0.075
95.00	-28.57	-3.75	0.00	-115.4	0.00	115.36	2,779.20	656.50	1,863.91	1,790.03	5.66	-0.6	0.075
99.54	-26.97	-3.68	0.00	-98.4	0.00	98.35	1,702.59	429.78	1,198.10	1,080.94	6.25	-0.63	0.107
100.00	-26.88	-3.64	0.00	-96.6	0.00	96.64	1,698.09	428.09	1,188.67	1,073.80	6.31	-0.63	0.106
105.00	-20.66	-2.91	0.00	-78.5	0.00	78.47	1,648.46	409.81	1,089.32	997.54	7	-0.68	0.091
110.00	-19.72	-2.81	0.00	-63.9	0.00	63.91	1,596.78	391.52	994.30	922.79	7.73	-0.72	0.082
115.00	-14.37	-2.13	0.00	-49.8	0.00	49.85	1,543.06	373.24	903.62	849.74	8.5	-0.75	0.068
120.00	-13.51	-2.03	0.00	-39.2	0.00	39.18	1,487.30	354.96	817.27	778.54	9.31	-0.79	0.059
125.00	-12.68	-1.97	0.00	-29.0	0.00	29.02	1,425.26	336.68	735.26	707.26	10.15	-0.81	0.050
125.17	-12.65	-1.96	0.00	-28.7	0.00	28.69	1,422.68	336.07	732.60	704.69	10.18	-0.82	0.050
127.00	-12.11	-1.89	0.00	-25.1	0.00	25.10	1,394.30	329.36	703.67	676.72	10.49	-0.83	0.046
128.83	-11.72	-1.85	0.00	-21.6	0.00	21.65	970.32	246.56	525.75	471.29	10.81	-0.84	0.058
130.00	-11.56	-1.80	0.00	-19.5	0.00	19.48	961.96	243.36	512.20	461.12	11.02	-0.84	0.054
135.00	-6.29	-0.99	0.00	-10.5	0.00	10.48	924.86	229.65	456.11	418.16	11.91	-0.86	0.032
140.00	-5.74	-0.90	0.00	-5.5	0.00	5.53	885.72	215.94	403.28	376.35	12.82	-0.88	0.021
145.00	-2.98	-0.39	0.00	-0.3	0.00	0.31	844.53	202.23	353.69	335.86	13.74	-0.88	0.004
145.50	-0.27	-0.03	0.00	-0.1	0.00	0.11	840.30	200.86	348.91	331.89	13.84	-0.88	0.001
149.00	0.00	-0.03	0.00	0.0	0.00	0.00	809.65	191.26	316.37	304.35	14.49	-0.88	0.000

Load Case: 1.0D + 1.0W Service Normal 60 mph Wind with No Ice 22 Iterations
Gust Response Factor: 1.10
Dead load Factor: 1.00
Wind Load Factor: 1.00

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-40.98	-4.89	0.00	-495.3	0.00	495.27	5,312.91	1,354.03	6,795.27	6,073.81	0	0	0.089
5.00	-39.45	-4.80	0.00	-470.8	0.00	470.83	5,229.56	1,322.03	6,477.96	5,836.15	0.01	-0.02	0.088
10.00	-37.95	-4.72	0.00	-446.8	0.00	446.83	5,144.17	1,290.04	6,168.24	5,600.81	0.05	-0.05	0.087
15.00	-36.49	-4.63	0.00	-423.2	0.00	423.24	5,056.74	1,258.04	5,866.11	5,367.95	0.11	-0.07	0.086
20.00	-35.05	-4.55	0.00	-400.1	0.00	400.07	4,967.26	1,226.05	5,571.56	5,137.73	0.2	-0.09	0.085
25.00	-33.64	-4.47	0.00	-377.3	0.00	377.30	4,875.75	1,194.05	5,284.60	4,910.34	0.31	-0.12	0.084
30.00	-32.27	-4.40	0.00	-354.9	0.00	354.93	4,782.19	1,162.06	5,005.22	4,685.92	0.45	-0.14	0.083
35.00	-30.92	-4.31	0.00	-333.0	0.00	332.95	4,686.58	1,130.06	4,733.44	4,464.66	0.61	-0.17	0.081
40.00	-29.61	-4.23	0.00	-311.4	0.00	311.38	4,588.94	1,098.07	4,469.23	4,246.71	0.8	-0.2	0.080
45.00	-28.33	-4.18	0.00	-290.2	0.00	290.21	4,489.25	1,066.07	4,212.62	4,032.24	1.02	-0.22	0.078
46.71	-27.90	-4.13	0.00	-283.1	0.00	283.09	4,454.76	1,055.15	4,126.77	3,959.86	1.1	-0.23	0.078
50.00	-26.50	-4.08	0.00	-269.5	0.00	269.47	4,377.60	1,034.08	3,963.59	3,812.77	1.27	-0.25	0.077
52.79	-25.33	-4.03	0.00	-258.1	0.00	258.09	3,613.14	888.02	3,410.01	3,157.53	1.42	-0.27	0.089
55.00	-24.85	-3.97	0.00	-249.2	0.00	249.18	3,578.23	875.90	3,317.57	3,083.97	1.55	-0.28	0.088
60.00	-23.78	-3.89	0.00	-229.3	0.00	229.31	3,497.79	848.48	3,113.10	2,919.41	1.86	-0.31	0.085
65.00	-22.74	-3.80	0.00	-209.9	0.00	209.87	3,415.31	821.05	2,915.14	2,757.59	2.2	-0.34	0.083
70.00	-21.72	-3.72	0.00	-190.9	0.00	190.86	3,330.78	793.63	2,723.68	2,598.66	2.57	-0.37	0.080
75.00	-20.73	-3.63	0.00	-172.3	0.00	172.27	3,243.59	766.20	2,538.72	2,442.34	2.98	-0.4	0.077
80.00	-19.77	-3.55	0.00	-154.1	0.00	154.11	3,127.49	738.78	2,360.26	2,269.78	3.42	-0.43	0.074
85.00	-18.84	-3.47	0.00	-136.4	0.00	136.36	3,011.39	711.35	2,188.31	2,103.54	3.89	-0.47	0.071
90.00	-17.93	-3.38	0.00	-119.0	0.00	119.03	2,895.30	683.93	2,022.86	1,943.62	4.39	-0.5	0.067
94.95	-17.05	-3.34	0.00	-102.3	0.00	102.27	2,780.28	656.76	1,865.37	1,791.43	4.92	-0.53	0.063
95.00	-17.04	-3.31	0.00	-102.1	0.00	102.11	2,779.20	656.50	1,863.91	1,790.03	4.93	-0.53	0.063
99.54	-15.88	-3.26	0.00	-87.1	0.00	87.12	1,702.59	429.78	1,198.10	1,080.94	5.44	-0.55	0.090
100.00	-15.82	-3.22	0.00	-85.6	0.00	85.61	1,698.09	428.09	1,188.67	1,073.80	5.49	-0.55	0.089
105.00	-12.05	-2.54	0.00	-69.5	0.00	69.51	1,648.46	409.81	1,089.32	997.54	6.09	-0.59	0.077
110.00	-11.45	-2.47	0.00	-56.8	0.00	56.80	1,596.78	391.52	994.30	922.79	6.73	-0.63	0.069
115.00	-8.17	-1.87	0.00	-44.4	0.00	44.45	1,543.06	373.24	903.62	849.74	7.41	-0.66	0.058
120.00	-7.61	-1.80	0.00	-35.1	0.00	35.09	1,487.30	354.96	817.27	778.54	8.12	-0.69	0.050
125.00	-7.07	-1.76	0.00	-26.1	0.00	26.10	1,425.26	336.68	735.26	707.26	8.85	-0.72	0.042
125.17	-7.05	-1.74	0.00	-25.8	0.00	25.80	1,422.68	336.07	732.60	704.69	8.88	-0.72	0.042
127.00	-6.70	-1.69	0.00	-22.6	0.00	22.60	1,394.30	329.36	703.67	676.72	9.15	-0.73	0.038
128.83	-6.43	-1.67	0.00	-19.5	0.00	19.51	970.32	246.56	525.75	471.29	9.43	-0.73	0.048
130.00	-6.34	-1.63	0.00	-17.6	0.00	17.56	961.96	243.36	512.20	461.12	9.61	-0.74	0.045
135.00	-3.51	-0.87	0.00	-9.4	0.00	9.41	924.86	229.65	456.11	418.16	10.4	-0.76	0.026
140.00	-3.18	-0.81	0.00	-5.1	0.00	5.06	885.72	215.94	403.28	376.35	11.2	-0.77	0.017
145.00	-2.04	-0.32	0.00	-0.2	0.00	0.23	844.53	202.23	353.69	335.86	12.01	-0.78	0.003
145.50	-0.14	-0.02	0.00	-0.1	0.00	0.07	840.30	200.86	348.91	331.89	12.09	-0.78	0.000
149.00	0.00	-0.02	0.00	0.0	0.00	0.00	809.65	191.26	316.37	304.35	12.67	-0.78	0.000

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

(Based on ASCE7-16 Chapters 11, 12 and 15)

Spectral Response Acceleration for Short Period (S_S):	0.199
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.054
Long-Period Transition Period (T_L – Seconds):	6
Importance Factor (I_e):	1.000
Site Coefficient F_a:	1.600
Site Coefficient F_v:	2.400
Response Modification Coefficient (R):	1.500
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.212
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.086
Seismic Response Coefficient (C_s):	0.030
Upper Limit C_S:	0.030
Lower Limit C_S:	0.030
Period based on Rayleigh Method (sec):	2.100
Redundancy Factor (p):	1.000
Seismic Force Distribution Exponent (k):	1.800
Total Unfactored Dead Load:	40.980 k
Seismic Base Shear (E):	1.230 k

1.2D + 1.0Ev + 1.0Eh Normal **Seismic**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
38	147.25	144	1,145	0.009	11	179
37	145.25	23	180	0.002	2	29
36	142.5	314	2,348	0.019	23	390
35	137.5	328	2,295	0.019	23	407
34	132.5	411	2,695	0.022	27	511
33	129.4167	98	615	0.005	6	122
32	127.9167	271	1,668	0.014	17	337
31	126.0833	284	1,705	0.014	17	353
30	125.0833	18	105	0.001	1	22
29	122.5	542	3,084	0.025	31	673
28	117.5	559	2,955	0.024	30	695
27	112.5	590	2,883	0.023	29	733
26	107.5	608	2,736	0.022	27	755
25	102.5	637	2,633	0.021	26	792
24	99.7683	60	236	0.002	2	74
23	97.2683	1,162	4,368	0.036	44	1,443
22	94.9767	12	44	0.000	0	15
21	92.4767	873	2,997	0.024	30	1,084
20	87.5	907	2,821	0.023	28	1,127
19	82.5	934	2,612	0.021	26	1,160
18	77.5	961	2,401	0.020	24	1,194
17	72.5	987	2,188	0.018	22	1,227
16	67.5	1,014	1,976	0.016	20	1,260
15	62.5	1,040	1,766	0.014	18	1,293
14	57.5	1,067	1,559	0.013	16	1,326
13	53.895	480	624	0.005	6	596
12	51.395	1,168	1,395	0.011	14	1,451
11	48.3533	1,402	1,500	0.012	15	1,742
10	45.8533	430	418	0.003	4	534
9	42.5	1,280	1,086	0.009	11	1,590
8	37.5	1,311	888	0.007	9	1,629
7	32.5	1,342	703	0.006	7	1,668
6	27.5	1,373	532	0.004	5	1,706
5	22.5	1,404	380	0.003	4	1,745

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
4	17.5	1,435	247	0.002	2	1,783
3	12.5	1,466	138	0.001	1	1,822
2	7.5	1,497	56	0.000	1	1,860
1	2.5	1,528	8	0.000	0	1,899
Generic Flat Low Profile Platform	145.5	1,875	14,547	0.118	145	2,330
Powerwave Allgon LGP13519	145	32	245	0.002	2	40
Powerwave Allgon 7020.00 Dual Band RET	145	13	102	0.001	1	16
Powerwave Allgon LGP21401	145	85	652	0.005	7	105
Raycap DC6-48-60-18-8F ("Squid")	145	32	245	0.002	2	40
Ericsson RRUS 11 (Band 12)	145	150	1,157	0.009	12	186
Ericsson RRUS 32 B2	145	159	1,226	0.010	12	198
Allgon 7770.00	145	210	1,619	0.013	16	261
CCI HPA-65R-BUU-H6	145	153	1,180	0.010	12	190
Commscope SDX1926Q-43	135	19	126	0.001	1	23
Ericsson KRY 112 144/1	135	33	224	0.002	2	41
Ericsson RRUS 4415 B66	135	138	936	0.008	9	171
Ericsson Radio 4449 B71 B85A	135	225	1,526	0.012	15	280
Ericsson 4424 B25	135	258	1,749	0.014	17	321
Ericsson Air6449 B41	135	312	2,116	0.017	21	388
RFS APX16DWV-16DWVS-E-A20	135	122	828	0.007	8	152
Generic Round T-Arm	135	938	6,357	0.052	64	1,165
RFS APXVAARR24_43-U-NA20	135	384	2,602	0.021	26	477
Generic 34" x 6" Panel	127	60	365	0.003	4	75
Samsung B5/B13 RRH-BR04C	115	281	1,429	0.012	14	349
Samsung B2/B66A RRH-BR049	115	169	858	0.007	9	210
RFS DB-B1-6C-12AB-0Z	115	21	109	0.001	1	27
Samsung MT6407-77A	115	163	829	0.007	8	203
JMA Wireless MX06FRO660-02	115	184	935	0.008	9	229
Generic Round Low Profile Platform	115	1,875	9,529	0.078	95	2,330
Commscope RDIDC-9181-PF-48	105	22	95	0.001	1	27
Fujitsu TA08025-B604	105	192	827	0.007	8	238
Fujitsu TA08025-B605	105	225	971	0.008	10	280
JMA Wireless MX08FRO665-21	105	194	835	0.007	8	240
Generic Flat Platform with Handrails	105	2,500	10,788	0.088	108	3,106
		40,984	122,996	1.000	1,230	50,921

0.9D - 1.0Ev + 1.0Eh Normal **Seismic (Reduced DL)**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
38	147.25	144	1,145	0.009	11	124
37	145.25	23	180	0.002	2	20
36	142.5	314	2,348	0.019	23	269
35	137.5	328	2,295	0.019	23	281
34	132.5	411	2,695	0.022	27	353
33	129.4167	98	615	0.005	6	84
32	127.9167	271	1,668	0.014	17	232
31	126.0833	284	1,705	0.014	17	244
30	125.0833	18	105	0.001	1	15
29	122.5	542	3,084	0.025	31	464
28	117.5	559	2,955	0.024	30	480
27	112.5	590	2,883	0.023	29	506
26	107.5	608	2,736	0.022	27	521
25	102.5	637	2,633	0.021	26	546
24	99.7683	60	236	0.002	2	51
23	97.2683	1,162	4,368	0.036	44	996
22	94.9767	12	44	0.000	0	10
21	92.4767	873	2,997	0.024	30	748
20	87.5	907	2,821	0.023	28	778
19	82.5	934	2,612	0.021	26	801
18	77.5	961	2,401	0.020	24	824
17	72.5	987	2,188	0.018	22	847
16	67.5	1,014	1,976	0.016	20	869

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
15	62.5	1,040	1,766	0.014	18	892
14	57.5	1,067	1,559	0.013	16	915
13	53.895	480	624	0.005	6	412
12	51.395	1,168	1,395	0.011	14	1,002
11	48.3533	1,402	1,500	0.012	15	1,202
10	45.8533	430	418	0.003	4	369
9	42.5	1,280	1,086	0.009	11	1,098
8	37.5	1,311	888	0.007	9	1,124
7	32.5	1,342	703	0.006	7	1,151
6	27.5	1,373	532	0.004	5	1,178
5	22.5	1,404	380	0.003	4	1,204
4	17.5	1,435	247	0.002	2	1,231
3	12.5	1,466	138	0.001	1	1,257
2	7.5	1,497	56	0.000	1	1,284
1	2.5	1,528	8	0.000	0	1,311
Generic Flat Low Profile Platform	145.5	1,875	14,547	0.118	145	1,608
Powerwave Allgon LGP13519	145	32	245	0.002	2	27
Powerwave Allgon 7020.00 Dual Band RET	145	13	102	0.001	1	11
Powerwave Allgon LGP21401	145	85	652	0.005	7	73
Raycap DC6-48-60-18-8F ("Squid")	145	32	245	0.002	2	27
Ericsson RRUS 11 (Band 12)	145	150	1,157	0.009	12	129
Ericsson RRUS 32 B2	145	159	1,226	0.010	12	136
Allgon 7770.00	145	210	1,619	0.013	16	180
CCI HPA-65R-BUU-H6	145	153	1,180	0.010	12	131
Commscope SDX1926Q-43	135	19	126	0.001	1	16
Ericsson KRY 112 144/1	135	33	224	0.002	2	28
Ericsson RRUS 4415 B66	135	138	936	0.008	9	118
Ericsson Radio 4449 B71 B85A	135	225	1,526	0.012	15	193
Ericsson 4424 B25	135	258	1,749	0.014	17	221
Ericsson Air6449 B41	135	312	2,116	0.017	21	268
RFS APX16DWV-16DWVS-E-A20	135	122	828	0.007	8	105
Generic Round T-Arm	135	938	6,357	0.052	64	804
RFS APXVAARR24_43-U-NA20	135	384	2,602	0.021	26	329
Generic 34" x 6" Panel	127	60	365	0.003	4	51
Samsung B5/B13 RRH-BR04C	115	281	1,429	0.012	14	241
Samsung B2/B66A RRH-BR049	115	169	858	0.007	9	145
RFS DB-B1-6C-12AB-0Z	115	21	109	0.001	1	18
Samsung MT6407-77A	115	163	829	0.007	8	140
JMA Wireless MX06FRO660-02	115	184	935	0.008	9	158
Generic Round Low Profile Platform	115	1,875	9,529	0.078	95	1,608
Commscope RDIDC-9181-PF-48	105	22	95	0.001	1	19
Fujitsu TA08025-B604	105	192	827	0.007	8	164
Fujitsu TA08025-B605	105	225	971	0.008	10	193
JMA Wireless MX08FRO665-21	105	194	835	0.007	8	166
Generic Flat Platform with Handrails	105	2,500	10,788	0.088	108	2,144
		40,984	122,996	1.000	1,230	35,146

1.2D + 1.0Ev + 1.0Eh Normal **Seismic**

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-49.02	-1.23	0.00	-142.27	0.00	142.27	5,312.91	1,354.03	6,795	6,073.81	0.00	0.00	0.03
5.00	-47.16	-1.24	0.00	-136.11	0.00	136.11	5,229.56	1,322.03	6,478	5,836.15	0.00	-0.01	0.03
10.00	-45.34	-1.24	0.00	-129.93	0.00	129.93	5,144.17	1,290.04	6,168	5,600.81	0.01	-0.01	0.03
15.00	-43.56	-1.24	0.00	-123.73	0.00	123.73	5,056.74	1,258.04	5,866	5,367.95	0.03	-0.02	0.03
20.00	-41.81	-1.24	0.00	-117.51	0.00	117.51	4,967.26	1,226.05	5,572	5,137.73	0.06	-0.03	0.03
25.00	-40.11	-1.24	0.00	-111.30	0.00	111.30	4,875.75	1,194.05	5,285	4,910.34	0.09	-0.03	0.03
30.00	-38.44	-1.24	0.00	-105.09	0.00	105.09	4,782.19	1,162.06	5,005	4,685.92	0.13	-0.04	0.03
35.00	-36.81	-1.23	0.00	-98.89	0.00	98.89	4,686.58	1,130.06	4,733	4,464.66	0.18	-0.05	0.03
40.00	-35.22	-1.23	0.00	-92.72	0.00	92.72	4,588.94	1,098.07	4,469	4,246.71	0.23	-0.06	0.03
45.00	-34.68	-1.22	0.00	-86.59	0.00	86.59	4,489.25	1,066.07	4,213	4,032.24	0.30	-0.07	0.03
46.71	-32.94	-1.21	0.00	-84.50	0.00	84.50	4,454.76	1,055.15	4,127	3,959.86	0.32	-0.07	0.03
50.00	-31.49	-1.20	0.00	-80.51	0.00	80.51	4,377.60	1,034.08	3,964	3,812.77	0.37	-0.07	0.03
52.79	-30.89	-1.19	0.00	-77.17	0.00	77.17	3,613.14	888.02	3,410	3,157.53	0.42	-0.08	0.03

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
55.00	-29.57	-1.18	0.00	-74.54	0.00	74.54	3,578.23	875.90	3,318	3,083.97	0.45	-0.08	0.03
60.00	-28.28	-1.16	0.00	-68.65	0.00	68.65	3,497.79	848.48	3,113	2,919.41	0.54	-0.09	0.03
65.00	-27.02	-1.15	0.00	-62.83	0.00	62.83	3,415.31	821.05	2,915	2,757.59	0.65	-0.10	0.03
70.00	-25.79	-1.13	0.00	-57.10	0.00	57.10	3,330.78	793.63	2,724	2,598.66	0.76	-0.11	0.03
75.00	-24.60	-1.10	0.00	-51.47	0.00	51.47	3,243.59	766.20	2,539	2,442.34	0.88	-0.12	0.03
80.00	-23.43	-1.08	0.00	-45.95	0.00	45.95	3,127.49	738.78	2,360	2,269.78	1.01	-0.13	0.03
85.00	-22.31	-1.05	0.00	-40.56	0.00	40.56	3,011.39	711.35	2,188	2,103.54	1.15	-0.14	0.03
90.00	-21.22	-1.02	0.00	-35.30	0.00	35.30	2,895.30	683.93	2,023	1,943.62	1.30	-0.15	0.03
94.95	-21.21	-1.02	0.00	-30.24	0.00	30.24	2,780.28	656.76	1,865	1,791.43	1.45	-0.16	0.03
95.00	-19.76	-0.98	0.00	-30.19	0.00	30.19	2,779.20	656.50	1,864	1,790.03	1.45	-0.16	0.02
99.54	-19.69	-0.98	0.00	-25.76	0.00	25.76	1,702.59	429.78	1,198	1,080.94	1.61	-0.16	0.04
100.00	-18.90	-0.95	0.00	-25.30	0.00	25.30	1,698.09	428.09	1,189	1,073.80	1.62	-0.16	0.04
105.00	-14.25	-0.78	0.00	-20.56	0.00	20.56	1,648.46	409.81	1,089	997.54	1.80	-0.18	0.03
110.00	-13.52	-0.75	0.00	-16.68	0.00	16.68	1,596.78	391.52	994	922.79	1.99	-0.19	0.03
115.00	-9.48	-0.57	0.00	-12.94	0.00	12.94	1,543.06	373.24	904	849.74	2.19	-0.20	0.02
120.00	-8.80	-0.54	0.00	-10.10	0.00	10.10	1,487.30	354.96	817	778.54	2.40	-0.20	0.02
125.00	-8.78	-0.54	0.00	-7.41	0.00	7.41	1,425.26	336.68	735	707.26	2.62	-0.21	0.02
125.17	-8.43	-0.52	0.00	-7.32	0.00	7.32	1,422.68	336.07	733	704.69	2.62	-0.21	0.02
127.00	-8.02	-0.50	0.00	-6.37	0.00	6.37	1,394.30	329.36	704	676.72	2.71	-0.21	0.02
128.83	-7.90	-0.49	0.00	-5.46	0.00	5.46	970.32	246.56	526	471.29	2.79	-0.22	0.02
130.00	-7.39	-0.46	0.00	-4.89	0.00	4.89	961.96	243.36	512	461.12	2.84	-0.22	0.02
135.00	-3.96	-0.26	0.00	-2.58	0.00	2.58	924.86	229.65	456	418.16	3.07	-0.22	0.01
140.00	-3.57	-0.24	0.00	-1.27	0.00	1.27	885.72	215.94	403	376.35	3.31	-0.23	0.01
145.00	-2.51	-0.17	0.00	-0.08	0.00	0.08	844.53	202.23	354	335.86	3.55	-0.23	0.00
145.50	0.00	0.00	0.00	0.00	0.00	0.00	840.30	200.86	349	331.89	3.57	-0.23	0.00
149.00	0.00	0.00	0.00	0.00	0.00	0.00	809.65	191.26	316	304.35	3.74	-0.23	0.00

0.9D - 1.0Ev + 1.0Eh Normal **Seismic (Reduced DL)**

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-33.83	-1.23	0.00	-140.60	0.00	140.60	5,312.91	1,354.03	6,795	6,073.81	0.00	0.00	0.03
5.00	-32.55	-1.23	0.00	-134.44	0.00	134.44	5,229.56	1,322.03	6,478	5,836.15	0.00	-0.01	0.03
10.00	-31.29	-1.24	0.00	-128.27	0.00	128.27	5,144.17	1,290.04	6,168	5,600.81	0.01	-0.01	0.03
15.00	-30.06	-1.24	0.00	-122.09	0.00	122.09	5,056.74	1,258.04	5,866	5,367.95	0.03	-0.02	0.03
20.00	-28.86	-1.24	0.00	-115.91	0.00	115.91	4,967.26	1,226.05	5,572	5,137.73	0.06	-0.03	0.03
25.00	-27.68	-1.23	0.00	-109.73	0.00	109.73	4,875.75	1,194.05	5,285	4,910.34	0.09	-0.03	0.03
30.00	-26.53	-1.23	0.00	-103.56	0.00	103.56	4,782.19	1,162.06	5,005	4,685.92	0.13	-0.04	0.03
35.00	-25.40	-1.22	0.00	-97.41	0.00	97.41	4,686.58	1,130.06	4,733	4,464.66	0.18	-0.05	0.03
40.00	-24.31	-1.21	0.00	-91.30	0.00	91.30	4,588.94	1,098.07	4,469	4,246.71	0.23	-0.06	0.03
45.00	-23.94	-1.21	0.00	-85.23	0.00	85.23	4,489.25	1,066.07	4,213	4,032.24	0.29	-0.06	0.03
46.71	-22.74	-1.20	0.00	-83.16	0.00	83.16	4,454.76	1,055.15	4,127	3,959.86	0.32	-0.07	0.03
50.00	-21.73	-1.18	0.00	-79.22	0.00	79.22	4,377.60	1,034.08	3,964	3,812.77	0.37	-0.07	0.03
52.79	-21.32	-1.18	0.00	-75.91	0.00	75.91	3,613.14	888.02	3,410	3,157.53	0.41	-0.08	0.03
55.00	-20.41	-1.16	0.00	-73.31	0.00	73.31	3,578.23	875.90	3,318	3,083.97	0.45	-0.08	0.03
60.00	-19.52	-1.15	0.00	-67.49	0.00	67.49	3,497.79	848.48	3,113	2,919.41	0.54	-0.09	0.03
65.00	-18.65	-1.13	0.00	-61.75	0.00	61.75	3,415.31	821.05	2,915	2,757.59	0.64	-0.10	0.03
70.00	-17.80	-1.11	0.00	-56.10	0.00	56.10	3,330.78	793.63	2,724	2,598.66	0.75	-0.11	0.03
75.00	-16.98	-1.09	0.00	-50.55	0.00	50.55	3,243.59	766.20	2,539	2,442.34	0.86	-0.12	0.03
80.00	-16.17	-1.06	0.00	-45.12	0.00	45.12	3,127.49	738.78	2,360	2,269.78	0.99	-0.13	0.03
85.00	-15.40	-1.03	0.00	-39.81	0.00	39.81	3,011.39	711.35	2,188	2,103.54	1.13	-0.14	0.02
90.00	-14.65	-1.00	0.00	-34.64	0.00	34.64	2,895.30	683.93	2,023	1,943.62	1.28	-0.14	0.02
94.95	-14.64	-1.00	0.00	-29.66	0.00	29.66	2,780.28	656.76	1,865	1,791.43	1.43	-0.15	0.02
95.00	-13.64	-0.96	0.00	-29.62	0.00	29.62	2,779.20	656.50	1,864	1,790.03	1.43	-0.15	0.02
99.54	-13.59	-0.96	0.00	-25.26	0.00	25.26	1,702.59	429.78	1,198	1,080.94	1.58	-0.16	0.03
100.00	-13.04	-0.93	0.00	-24.82	0.00	24.82	1,698.09	428.09	1,189	1,073.80	1.60	-0.16	0.03
105.00	-9.84	-0.76	0.00	-20.16	0.00	20.16	1,648.46	409.81	1,089	997.54	1.77	-0.17	0.03
110.00	-9.33	-0.73	0.00	-16.36	0.00	16.36	1,596.78	391.52	994	922.79	1.96	-0.18	0.02
115.00	-6.54	-0.56	0.00	-12.69	0.00	12.69	1,543.06	373.24	904	849.74	2.16	-0.19	0.02
120.00	-6.08	-0.53	0.00	-9.90	0.00	9.90	1,487.30	354.96	817	778.54	2.36	-0.20	0.02
125.00	-6.06	-0.53	0.00	-7.27	0.00	7.27	1,425.26	336.68	735	707.26	2.58	-0.21	0.02
125.17	-5.82	-0.51	0.00	-7.18	0.00	7.18	1,422.68	336.07	733	704.69	2.58	-0.21	0.01
127.00	-5.53	-0.49	0.00	-6.25	0.00	6.25	1,394.30	329.36	704	676.72	2.66	-0.21	0.01
128.83	-5.45	-0.48	0.00	-5.35	0.00	5.35	970.32	246.56	526	471.29	2.75	-0.21	0.02
130.00	-5.10	-0.45	0.00	-4.79	0.00	4.79	961.96	243.36	512	461.12	2.80	-0.21	0.02
135.00	-2.73	-0.26	0.00	-2.53	0.00	2.53	924.86	229.65	456	418.16	3.02	-0.22	0.01
140.00	-2.47	-0.23	0.00	-1.24	0.00	1.24	885.72	215.94	403	376.35	3.26	-0.22	0.01

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
145.00	-1.73	-0.16	0.00	-0.08	0.00	0.08	844.53	202.23	354	335.86	3.49	-0.22	0.00
145.50	0.00	0.00	0.00	0.00	0.00	0.00	840.30	200.86	349	331.89	3.51	-0.22	0.00
149.00	0.00	0.00	0.00	0.00	0.00	0.00	809.65	191.26	316	304.35	3.68	-0.22	0.00

ANALYSIS SUMMARY

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W Normal	21.14	0.00	49.16	0.00	0.00	2153.97	52.79	0.37
0.9D + 1.0W Normal	21.13	0.00	36.87	0.00	0.00	2133.63	0.00	0.36
1.2D + 1.0Di + 1.0Wi Normal	5.78	0.00	62.57	0.00	0.00	574.29	99.54	0.11
1.2D + 1.0Ev + 1.0Eh Normal	1.24	0.00	49.02	0.00	0.00	142.27	99.54	0.04
0.9D - 1.0Ev + 1.0Eh Normal	1.24	0.00	33.83	0.00	0.00	140.60	99.54	0.03
1.0D + 1.0W Service Normal	4.89	0.00	40.98	0.00	0.00	495.27	99.54	0.09

Base Plate & Anchor Rod Analysis

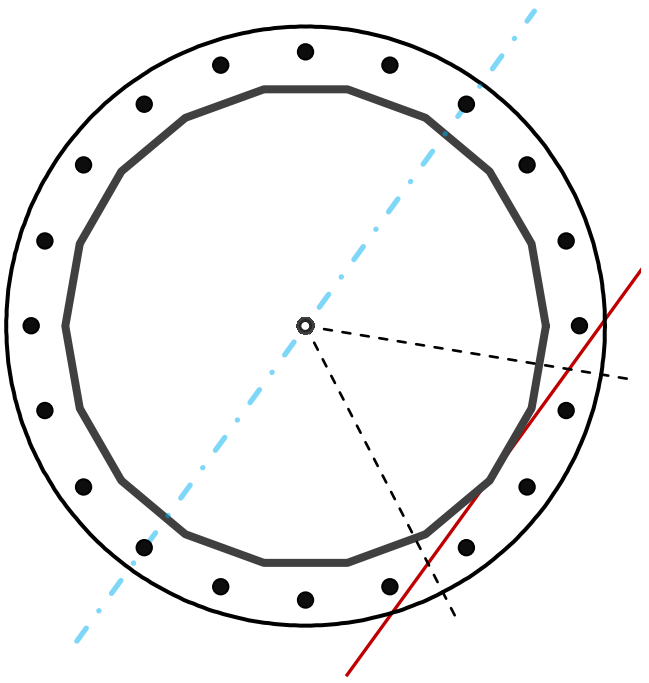
Pole Dimensions		
Number of Sides	18	-
Diameter	56	in
Thickness	7/16	in
Orientation Offset		°

Base Reactions		
Moment, Mu	2,154.0	k-ft
Axial, Pu	49.2	k
Shear, Vu	21.1	k
Neutral Axis	234	°

Report Capacities		
Component	Capacity	Result
Base Plate	20%	Pass
Anchor Rods	35%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, ø	71	in
Thickness	2 1/2	in
Grade	A572-60	
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	N/A	in
Orientation Offset		°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	554.1	k
Bending Stress, ϕMn	2767.5	k

Original Anchor Rods		
Arrangement	Radial	-
Quantity	20	-
Diameter, ø	2 1/4	in
Bolt Circle	65	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	10.2	in
Orientation Offset		°
Applied Force, Pu	85.0	k
Anchor Rods, ϕPn	243.6	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	21.1	2154.0	1.00
Anchor Rod Forces	21.1	2154.0	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	75.9806	4.2211	0.2704		29325.69
Bolt	3.9761	3.2477	0.8393	4.5	31859.49
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Round	-
Diameter, D	71	in
Thickness, t	2.5	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	43.646	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	20	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	65	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	85.0	k
Applied Shear, Vu	0.5	k
Compressive Capacity, ϕPn	243.6	k
Tensile Capacity, ϕRnt	0.349	OK
Interaction Capacity	0.353	OK

External Base Plate		
Chord Length AA	37.500	in
Additional AA	5.000	in
Section Modulus, Z	66.406	in^3
Applied Moment, Mu	554.1	k-ft
Bending Capacity, ϕMn	3585.9	k-ft
Capacity, Mu/ϕMn	0.155	OK
Chord Length AB	36.170	in
Additional AB	5.000	in
Section Modulus, Z	64.329	in^3
Applied Moment, Mu	447.2	k-ft
Bending Capacity, ϕMn	3473.8	k-ft
Capacity, Mu/ϕMn	0.129	OK
Bend Line Length	32.800	in
Additional Bend Line	0.000	in
Section Modulus, Z	51.250	in^3
Applied Moment, Mu	554.1	k-ft
Bending Capacity, ϕMn	2767.5	k-ft
Capacity, Mu/ϕMn	0.200	OK

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in^3
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

MOUNT ANALYSIS REPORT

August 27, 2021

Dish Wireless Site Name	BOHVN00148A
Dish Wireless Site Number	BOHVN00148A
ATC Site Name	Beacon Falls CT, CT
ATC Site Number	370641
Infinigy Job Number	1197-F0001-B
Client	ATC
Carrier	Dish Wireless
Site Location	401-411 Lopus Road Beacon Falls, CT 06403 New Haven County 41.43283300 N NAD83 73.07022222 W NAD83
Mount Type	8.0 ft Platform
Mount Elevation	105.0 ft AGL
Structural Usage Ratio	**34.0**
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 125 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 Platform 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	125 mph (3-Second Gust)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 1.5" ice
Code / Standard	TIA-222-H
Adopted Code	2018 Connecticut State Building Code (2015 IBC)
Risk Category	II
Exposure Category	B
Topographic Category	1
Calculated Crest Height	0 ft.
Seismic Spectral Response	S_s = 0.193 g / S_1 = 0.064 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 - 105.0 ft. AGL Platform

Antenna Centerline (ft)	Qty.	Appurtenance Manufacturers	Appurtenance Models
105.0	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-370641 Rev 1, Site #BOHVN00148A, dated July 09, 2021
Mount Manufacturer Drawings	Commscope Document # MC-PK8-DSH, dated March 08, 2021
Structural Analysis Report	ATC, Asset #370641, dated August 23, 2021

5. RESULTS

Components	Capacity	Pass/Fail
Mount Pipes	18.8%	Pass
Horizontals	11.3%	Pass
Standoffs	28.3%	Pass
Handrails	22.5%	Pass
Connections	34.0%	Pass
MOUNT RATING =	**34.0 %**	**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 105.0 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

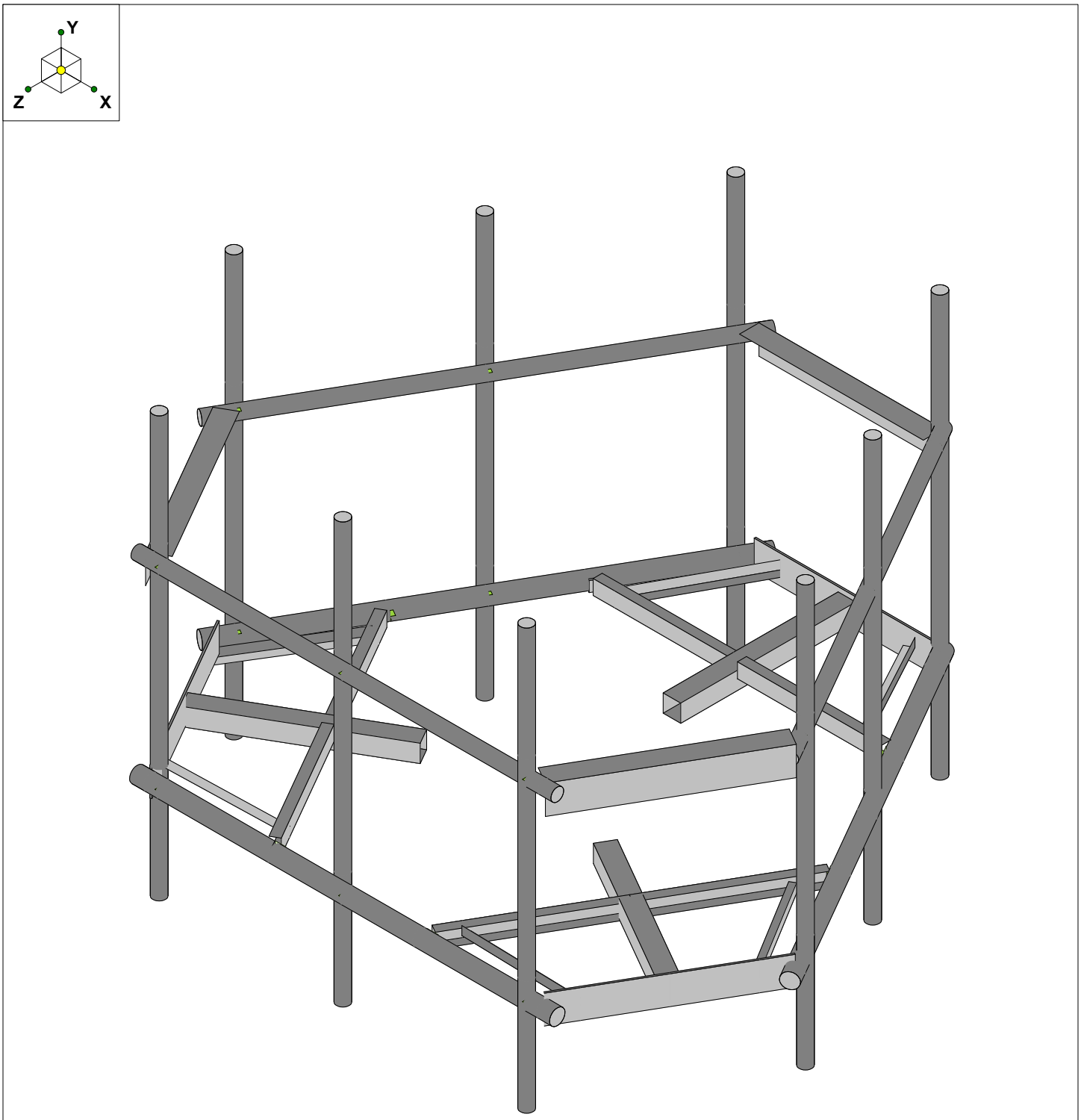
The antenna mounting system was properly fabricated, installed and maintained in accordance with its original design and manufacturer's specifications.
The configuration of antennas, mounts, and other appurtenances are as specified in the proposed loading configuration table.
All member connections are 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, Solid Round, Plate, Built-up Angle — ASTM A1011 36 KSI Structural Angle — ASTM A529 Gr. 50 HSS (Rectangular) — ASTM A500-B GR 46 HSS (Circular) — ASTM A500-B GR 42 Pipe — ASTM A500 Gr C Connection Bolts — ASTM A325 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.



Envelope Only Solution

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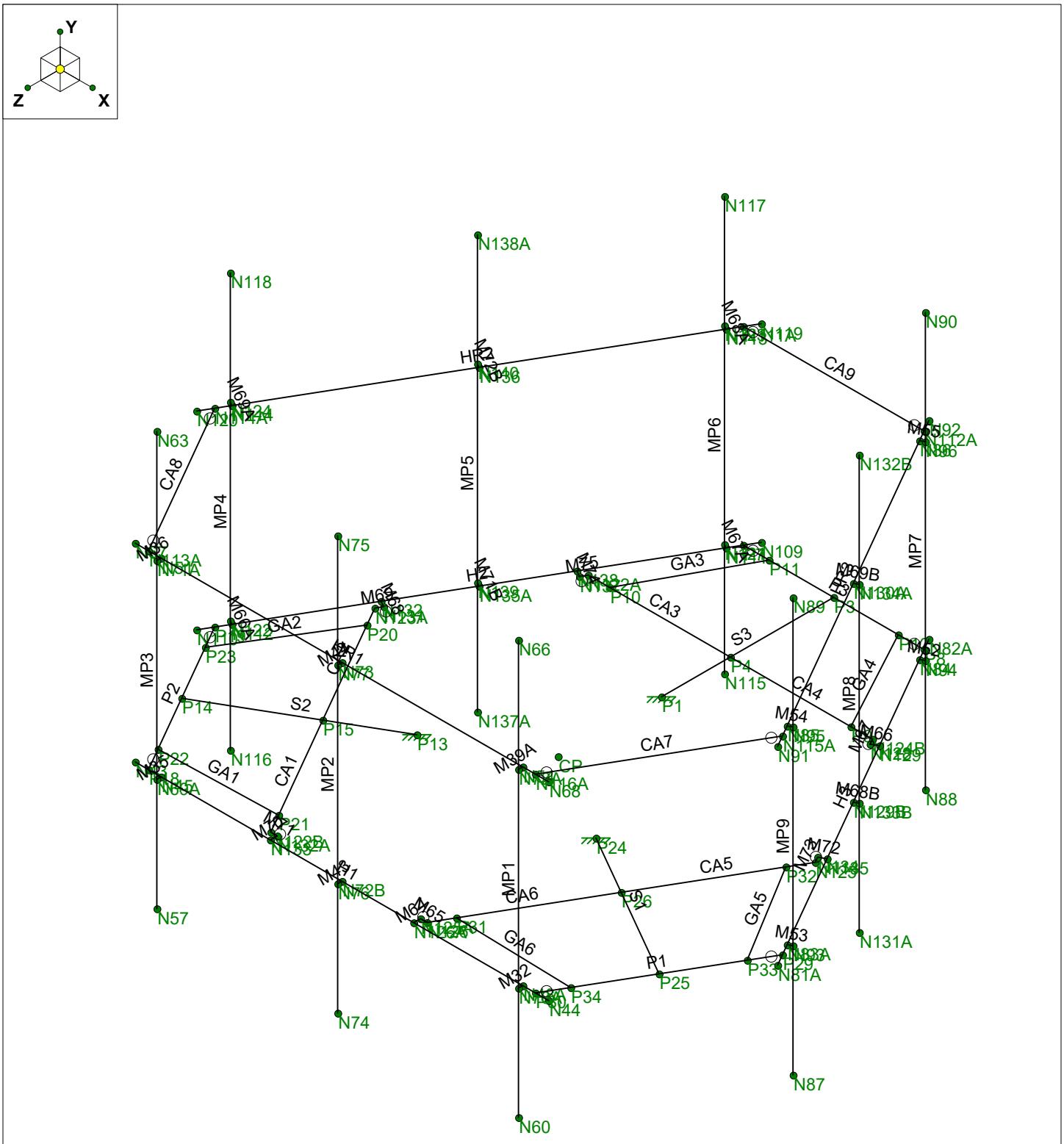

Envelope Only Solution

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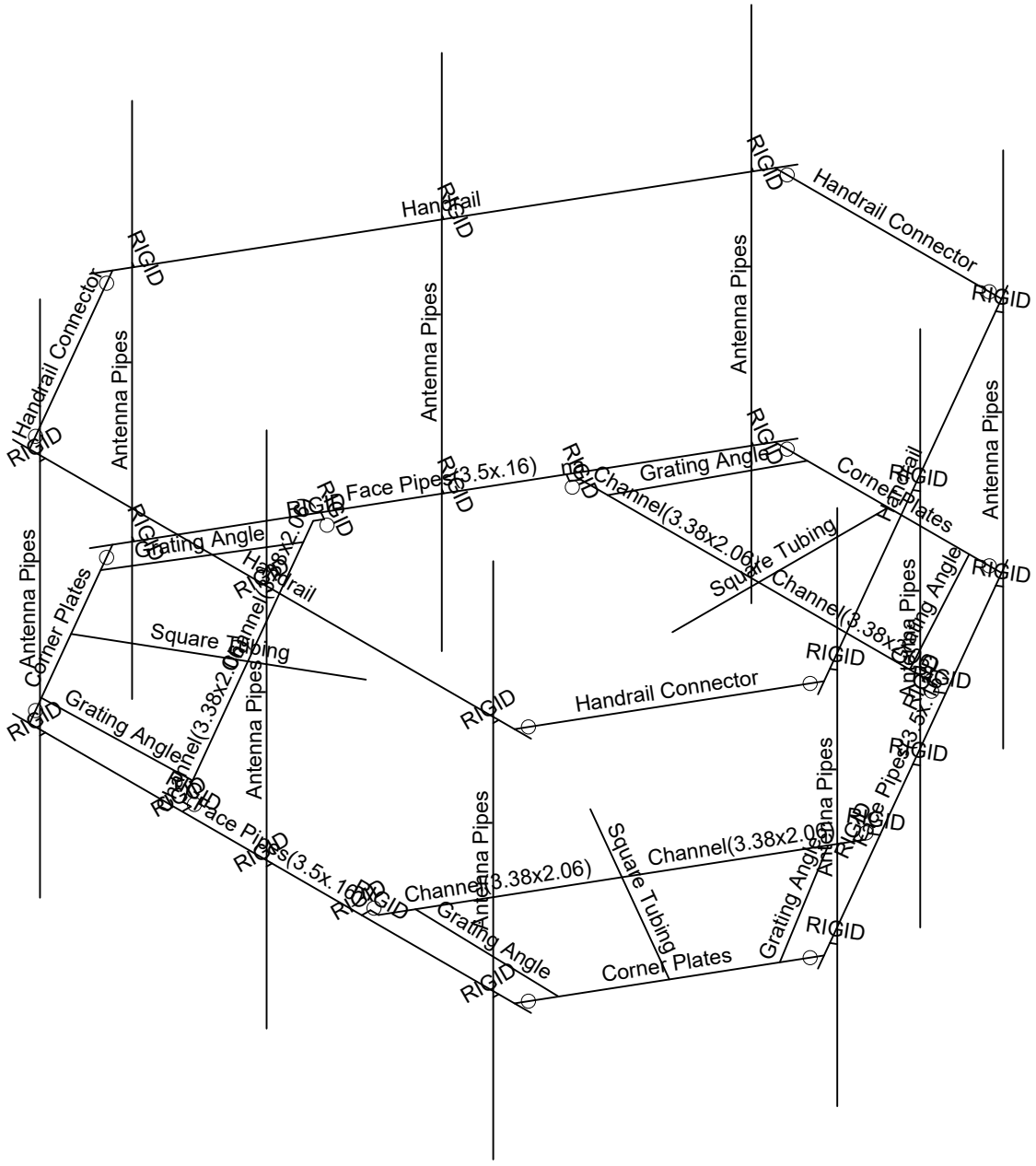

Envelope Only Solution

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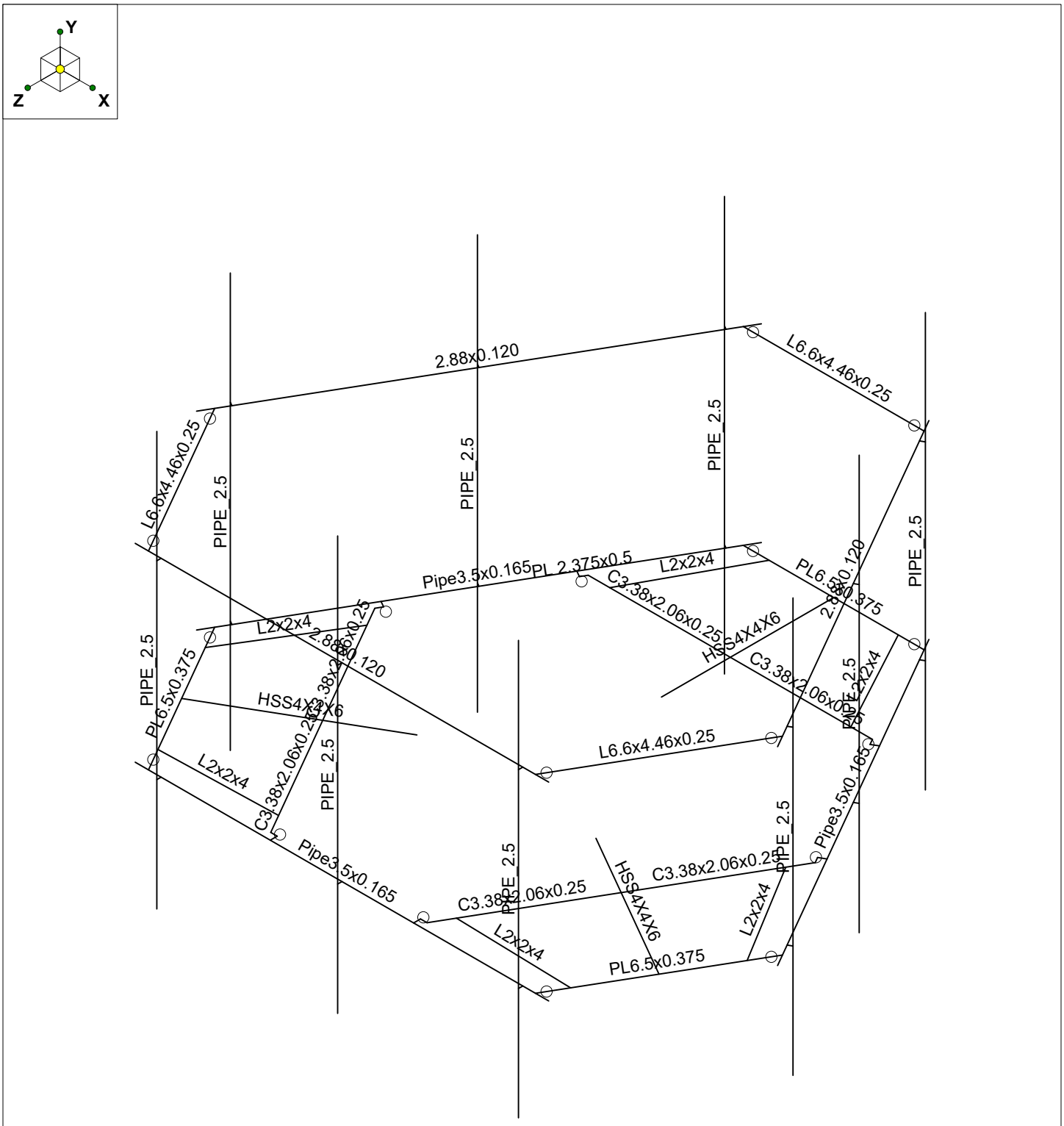

Envelope Only Solution

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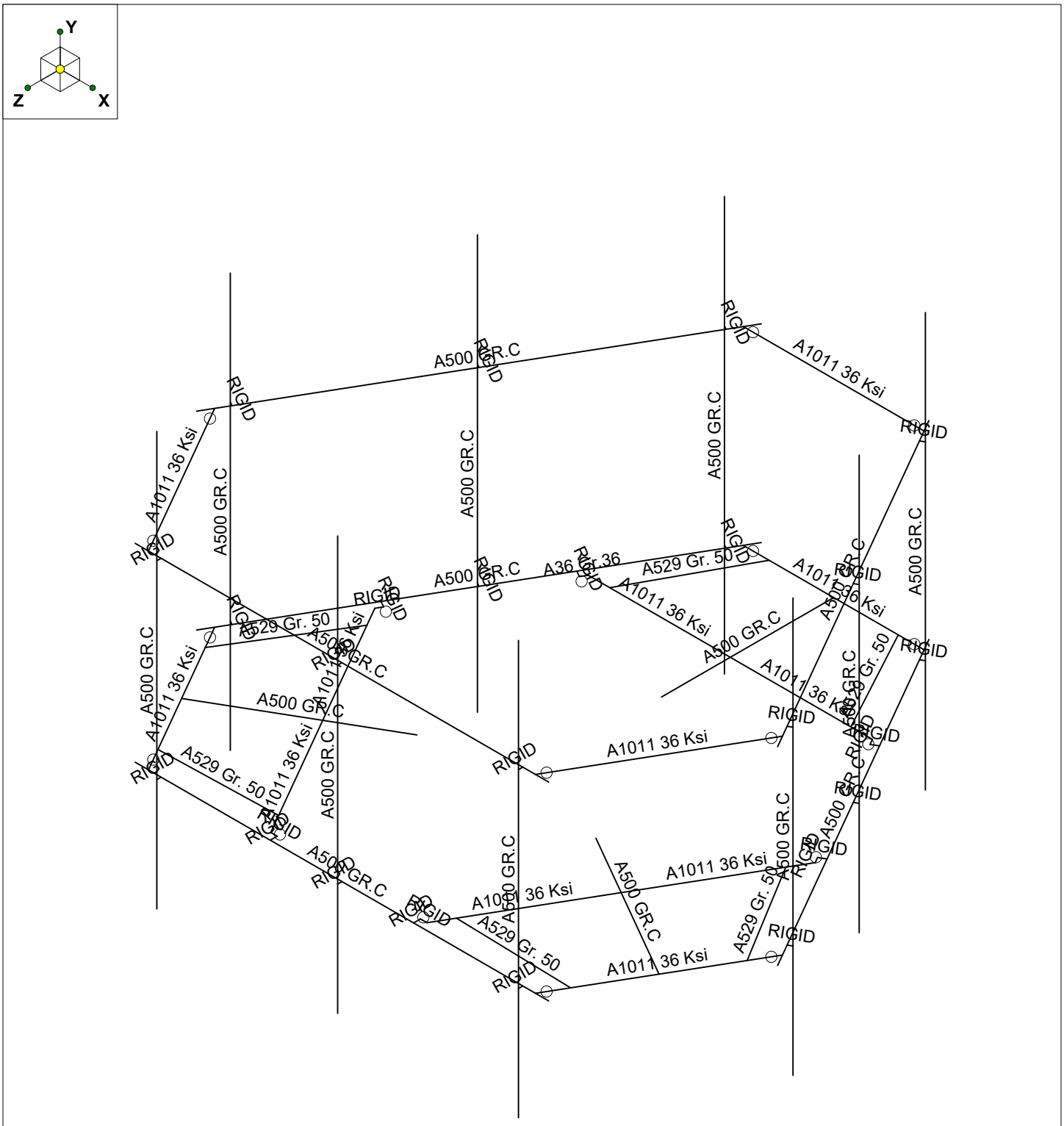

Envelope Only Solution

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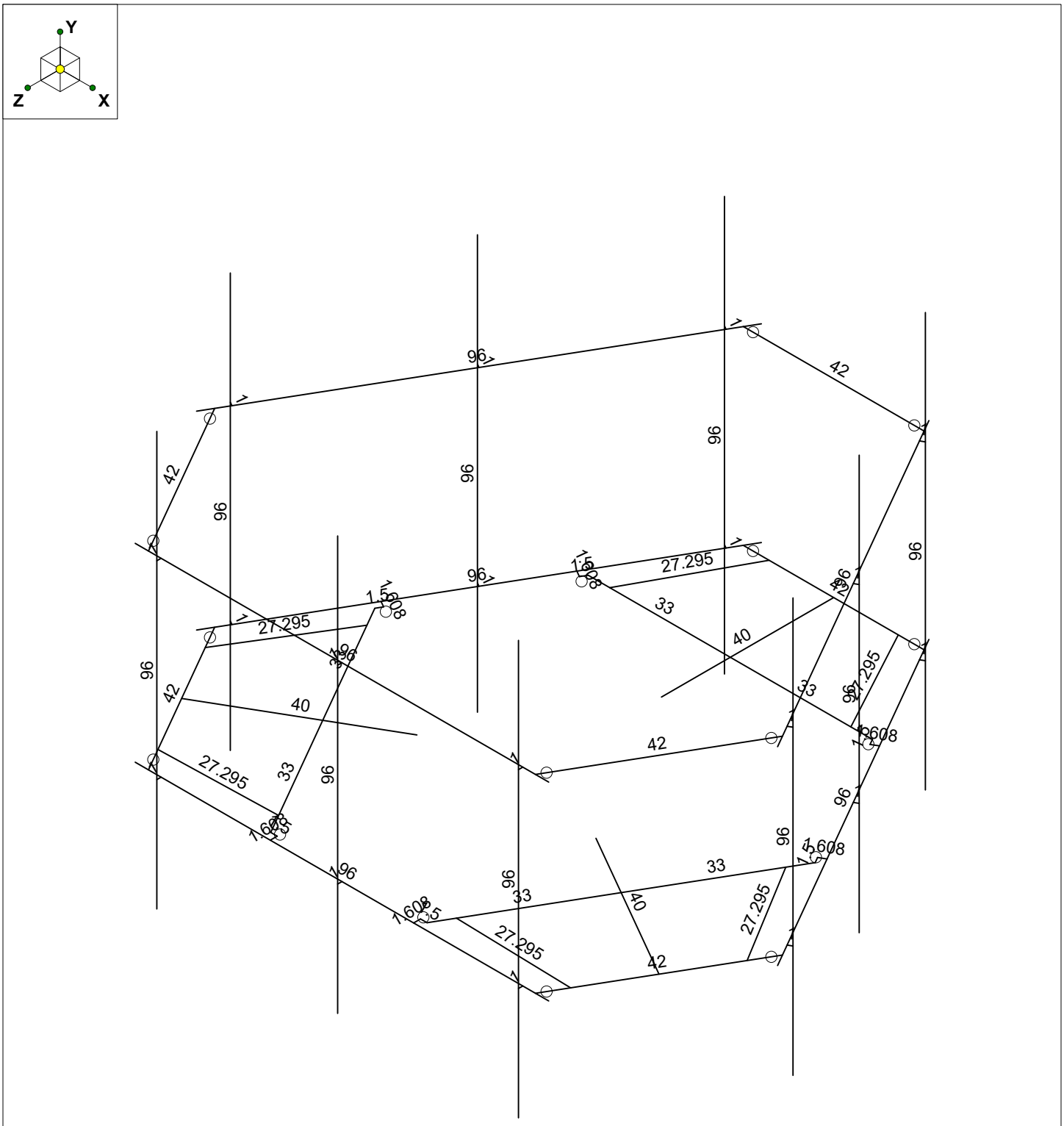

Member Length (in) Displayed
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00148A	Member Lengths
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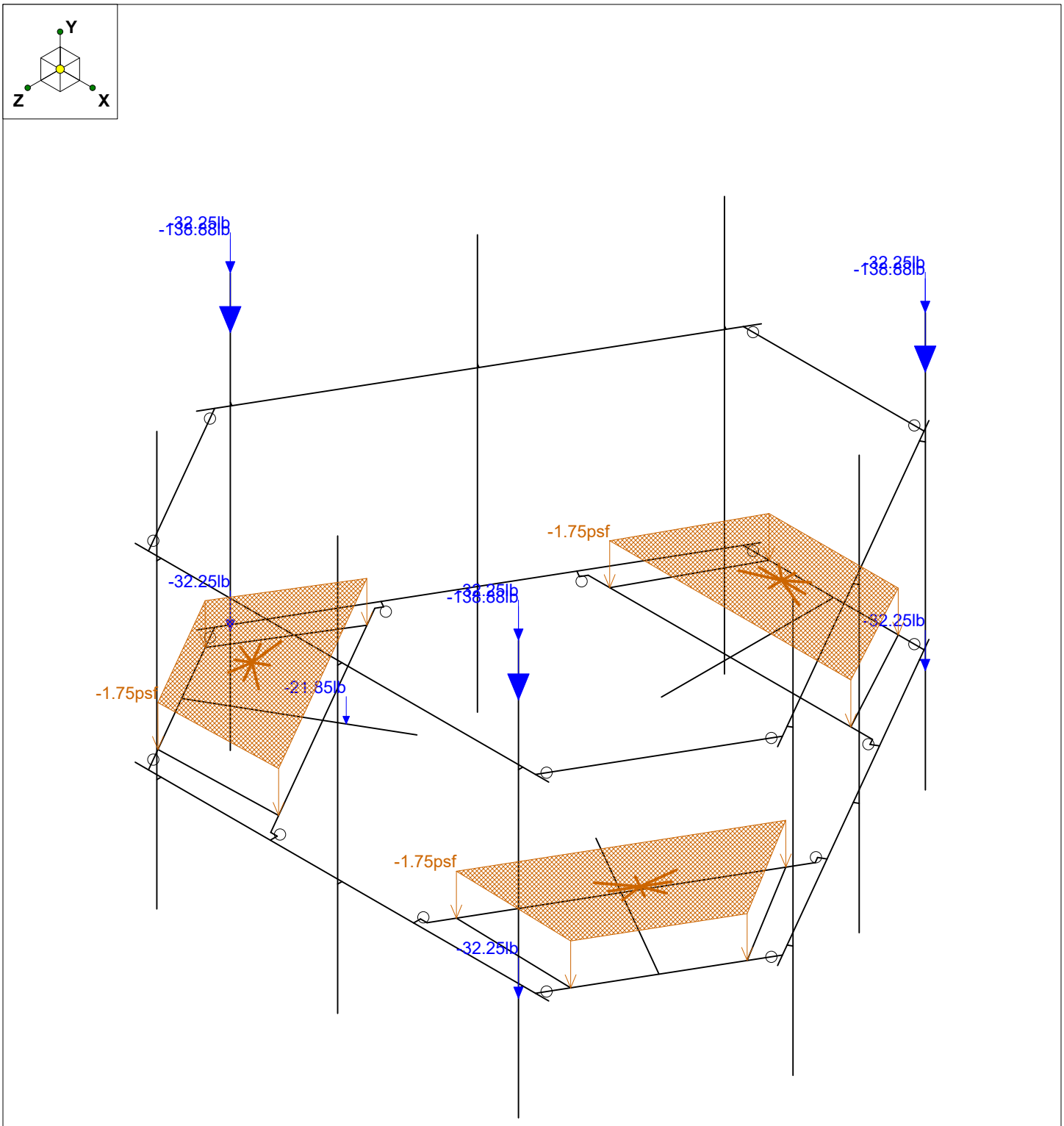

Loads: BLC 1, Self Weight
Envelope Only Solution

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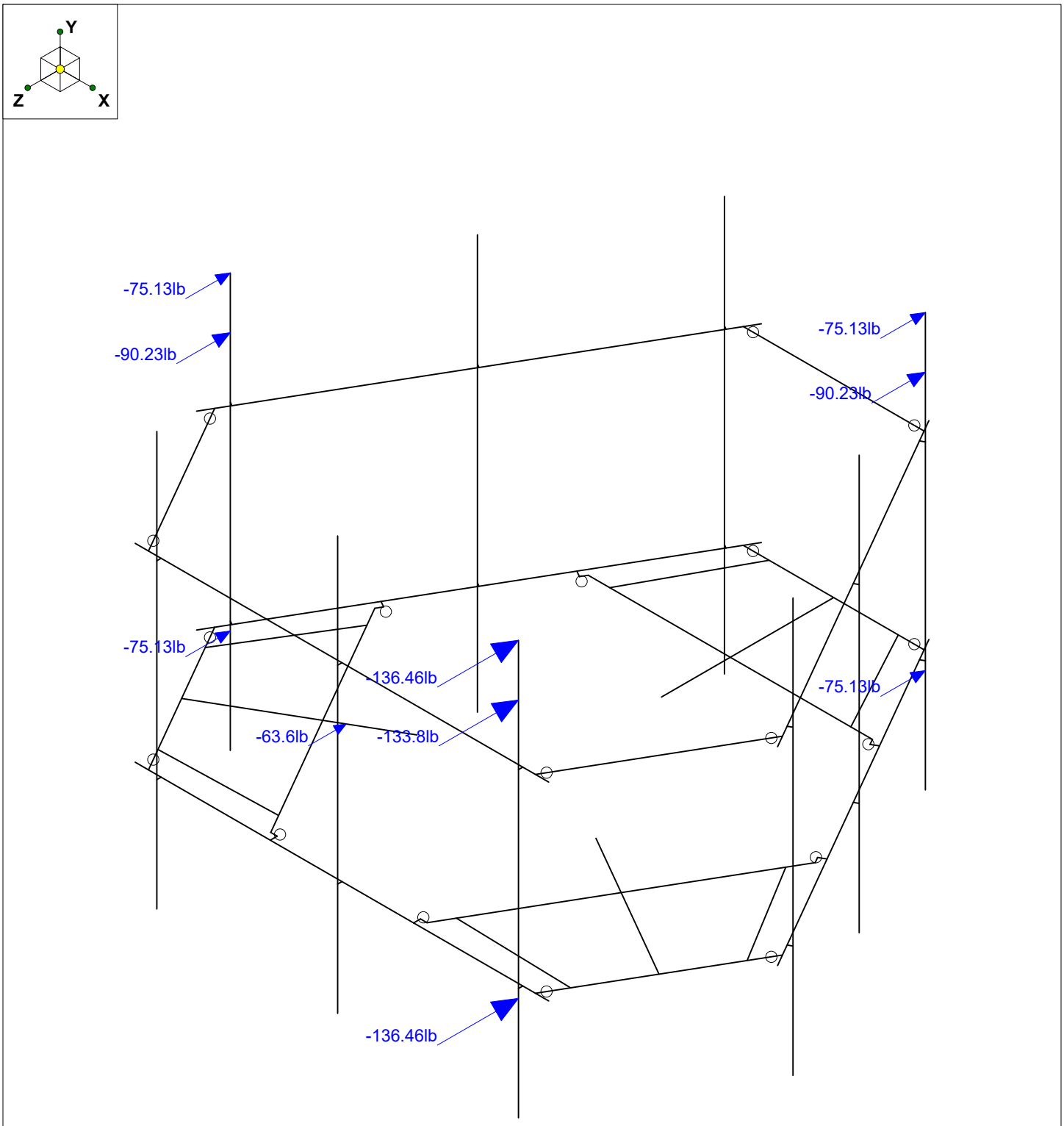

Loads: BLC 2, Wind Load AZI 0
Envelope Only Solution

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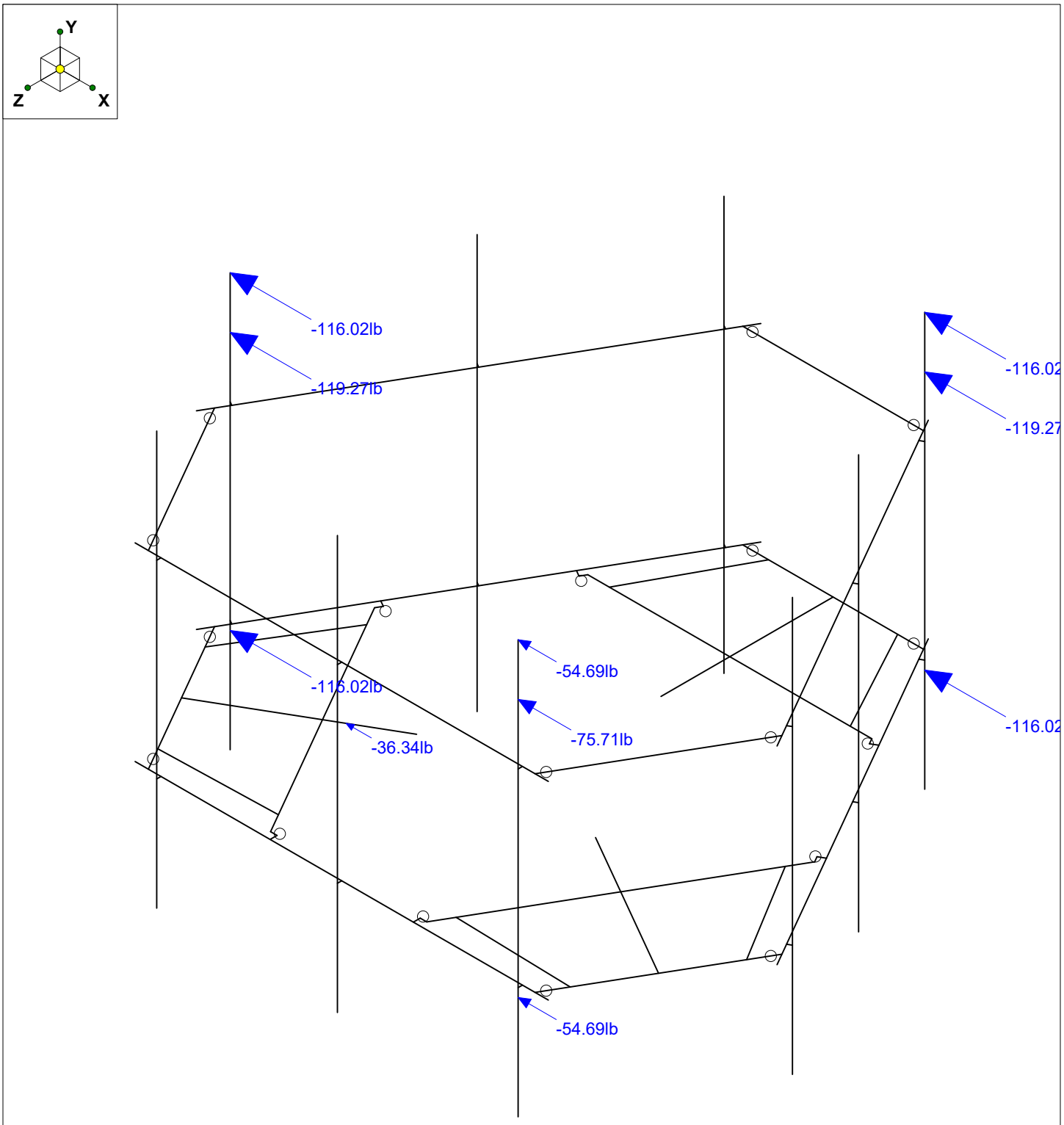

Loads: BLC 5, Wind Load AZI 90
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00148A	Wind Load AZI 090
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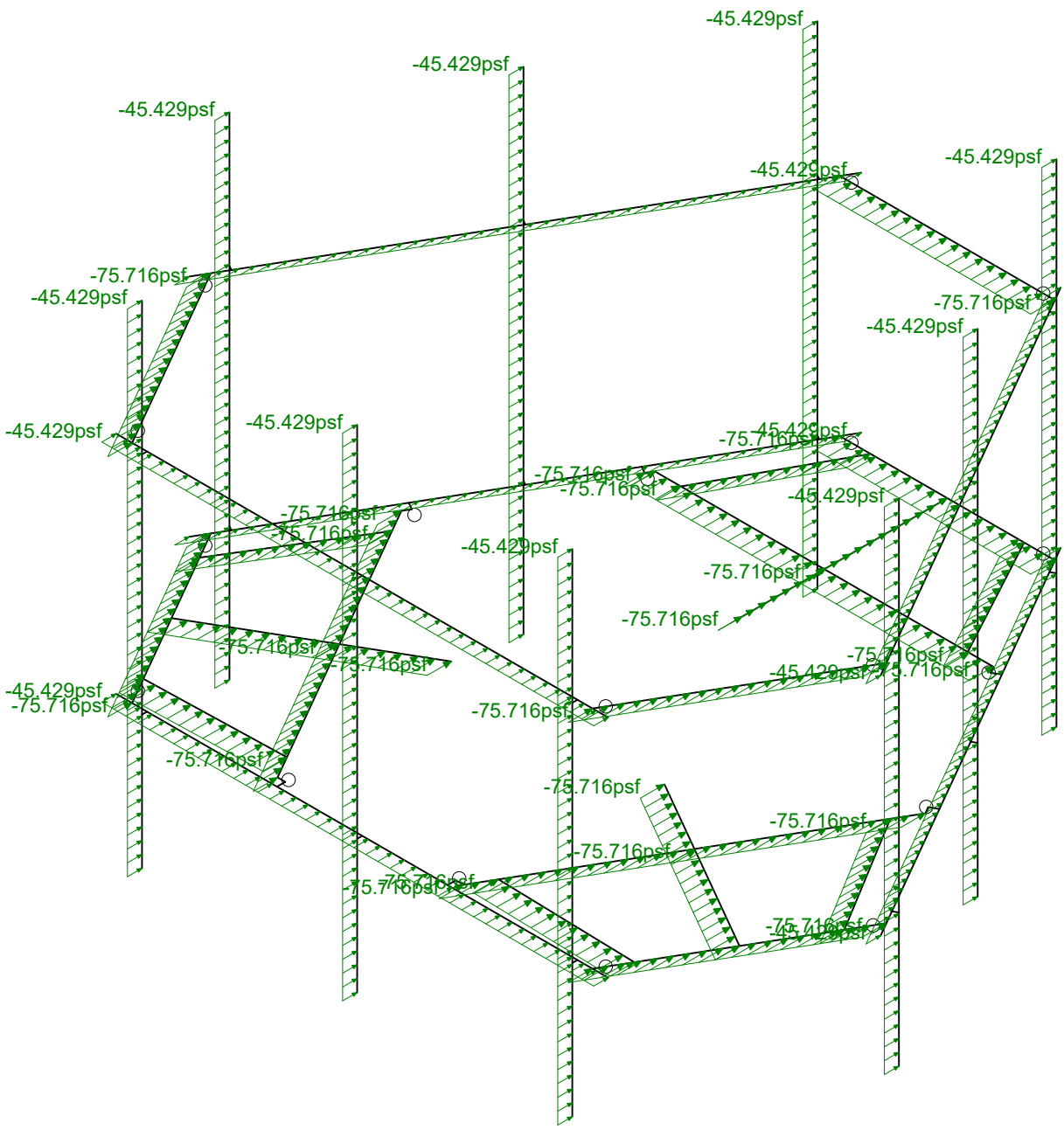

Loads: BLC 14, Distr. Wind Load Z
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00148A	Distr Wind Load AZI 000
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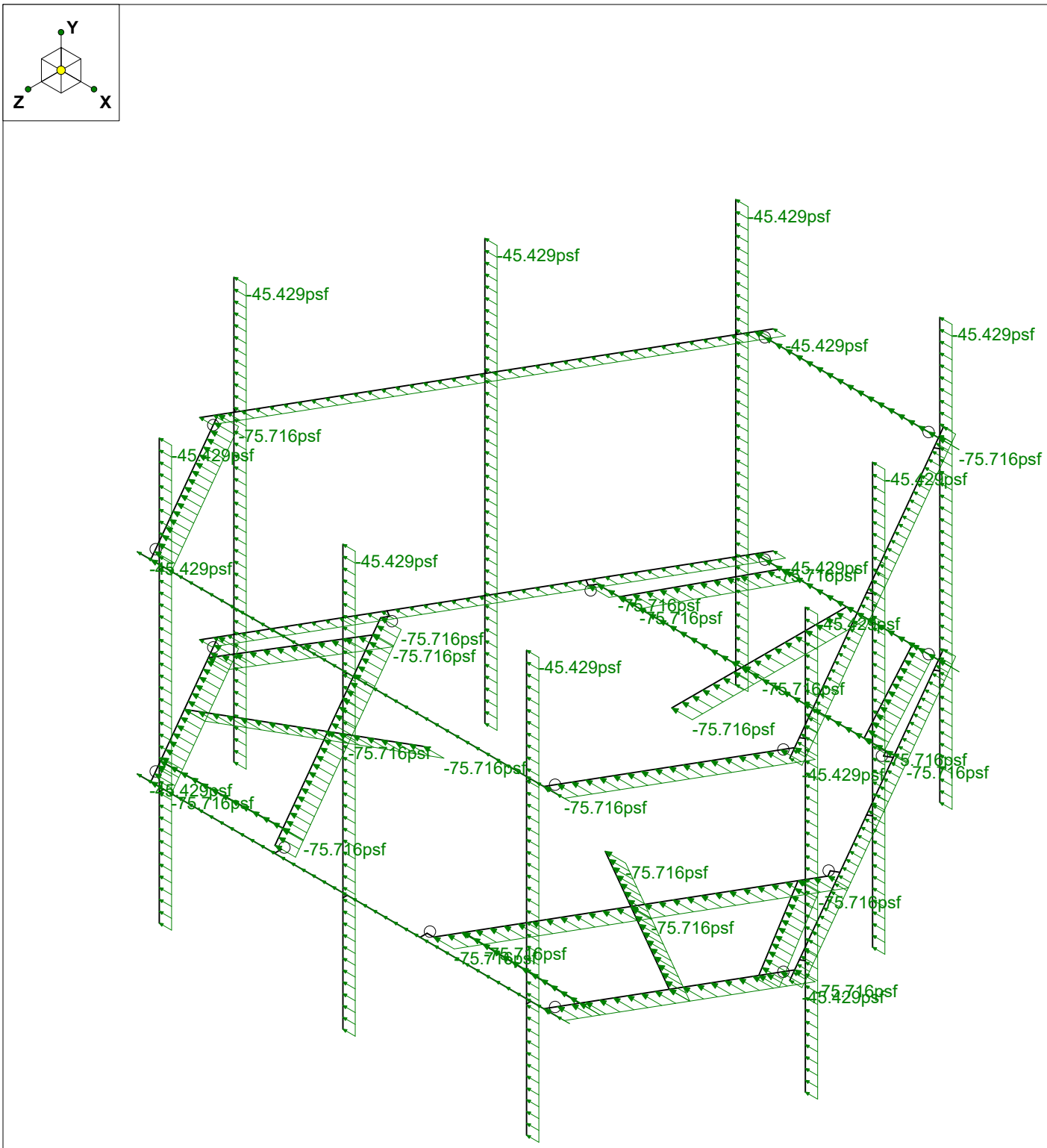

Loads: BLC 15, Distr. Wind Load X
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00148A	Distr Wind Load AZI 090
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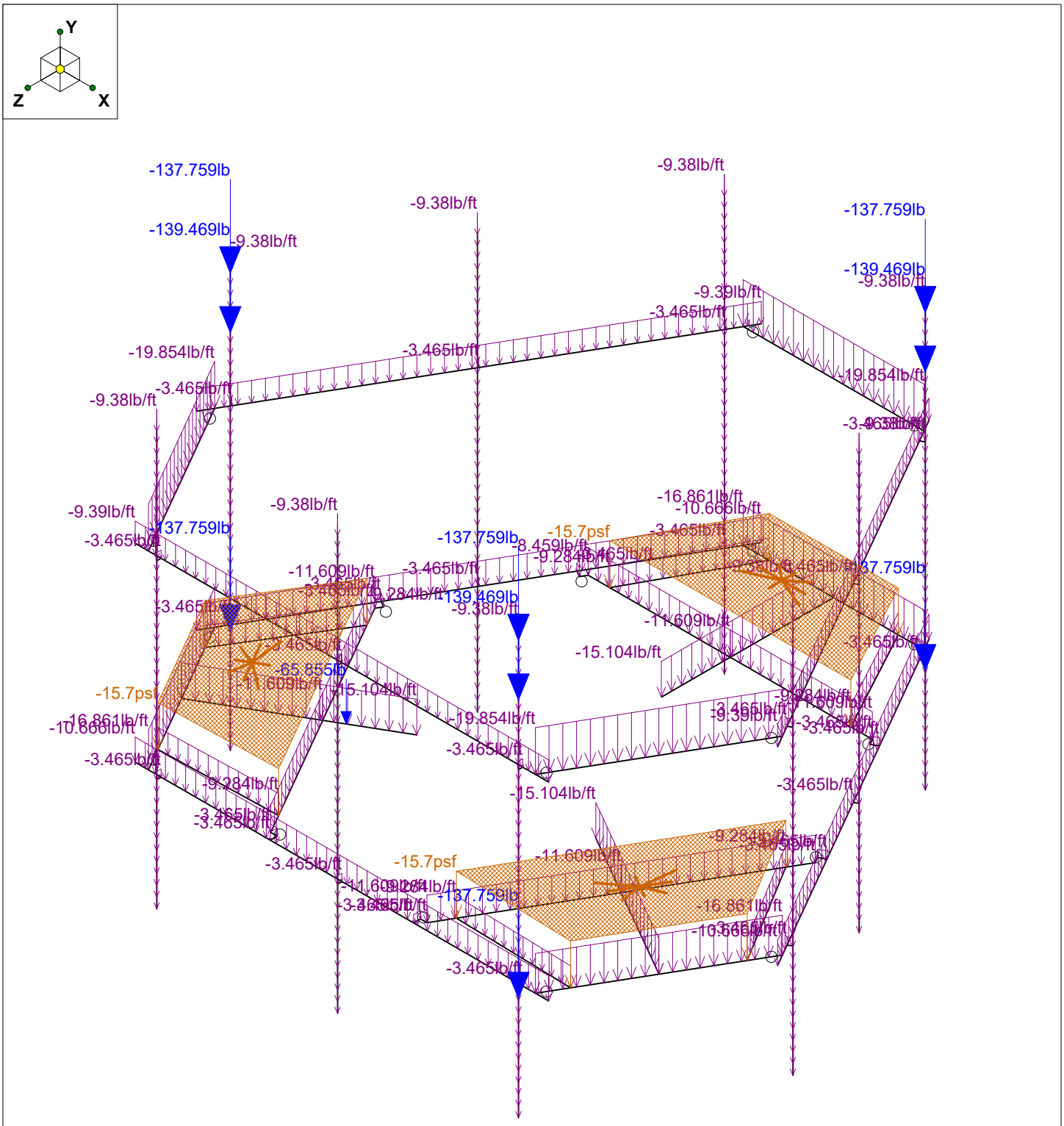

Loads: BLC 16, Ice Weight
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00148A	Ice Weight
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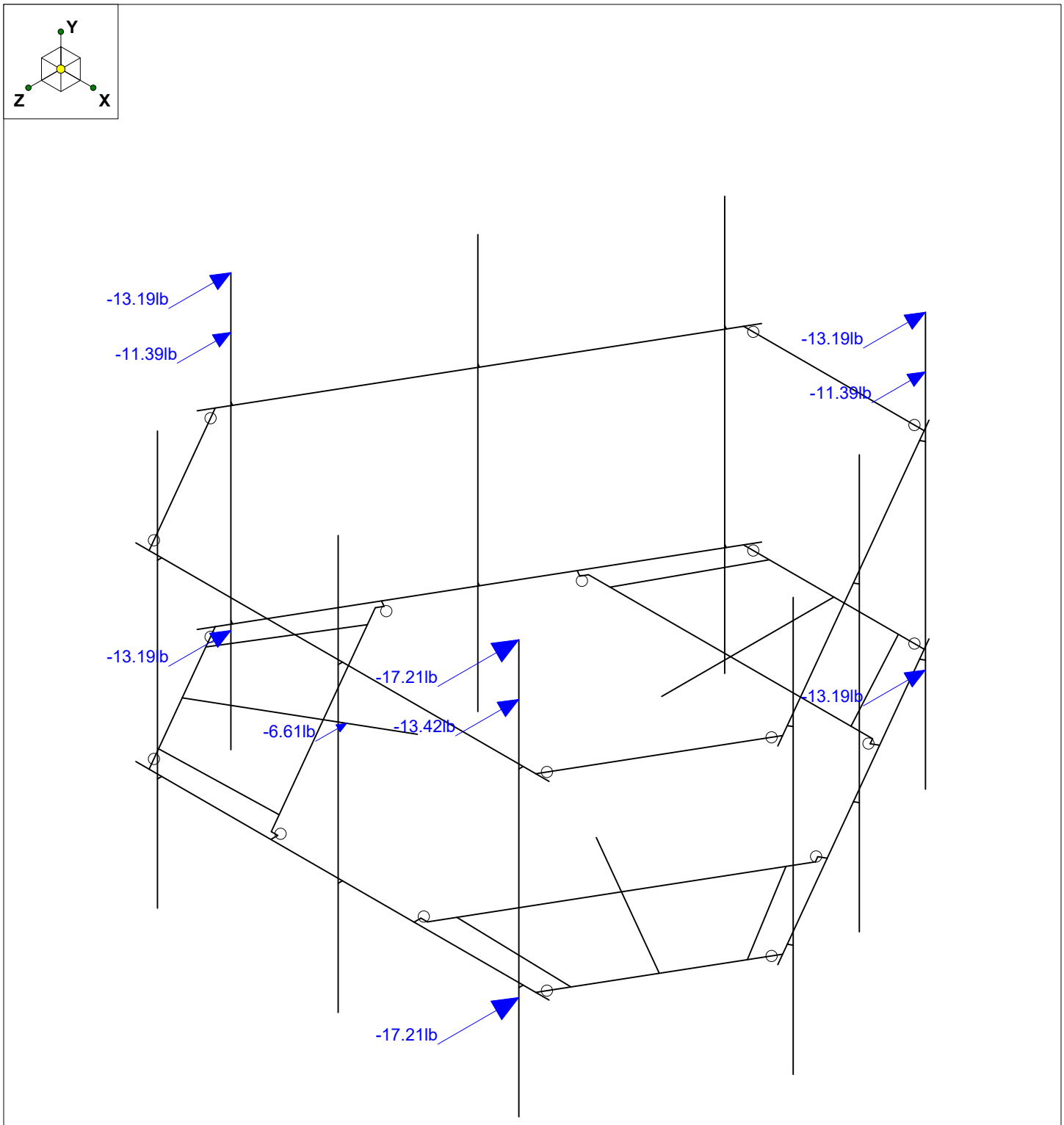

Loads: BLC 17, Ice Wind Load AZI 0
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00148A	Ice + Wind Load AZI 000
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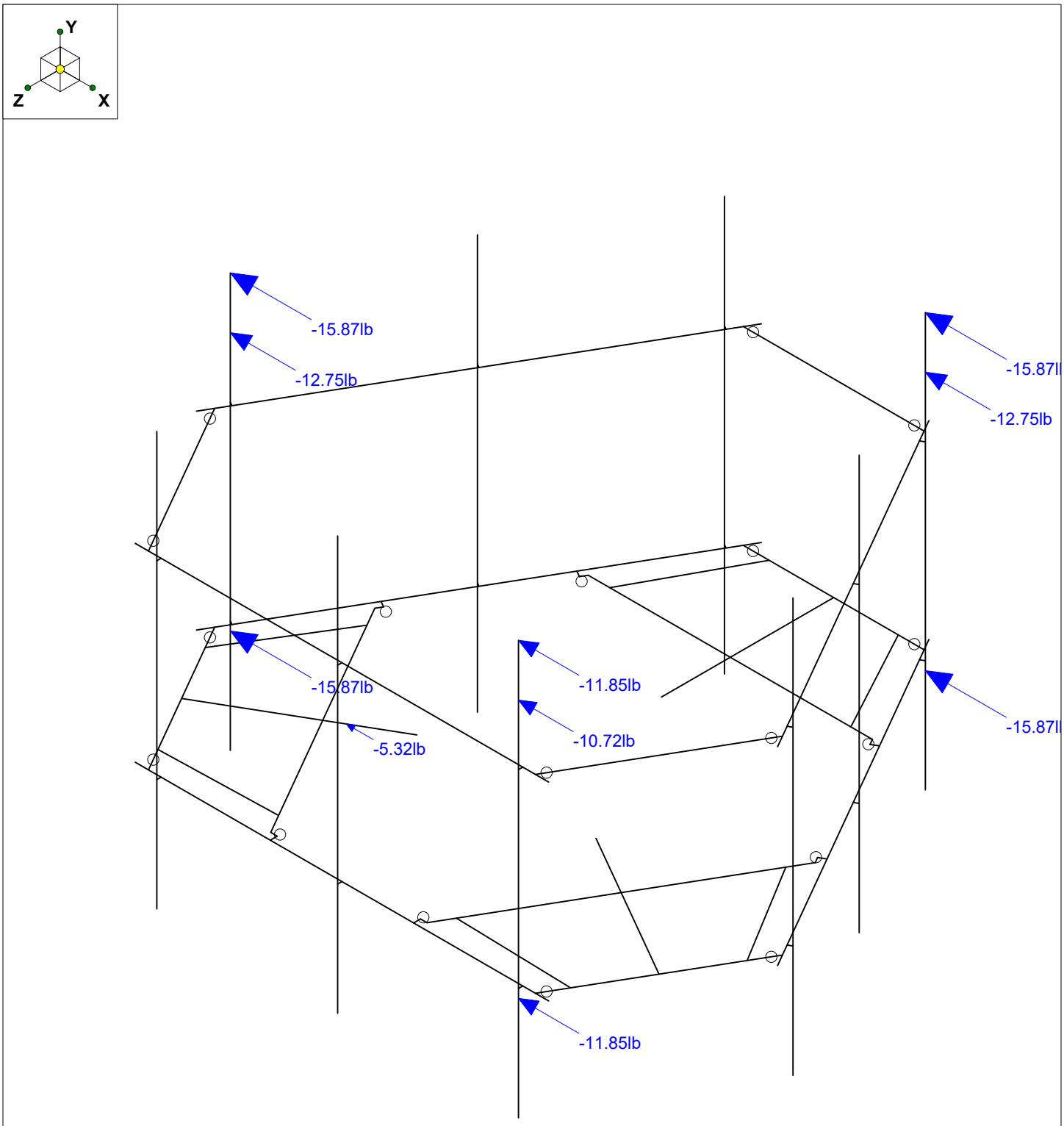

Loads: BLC 20, Ice Wind Load AZI 90
Envelope Only Solution

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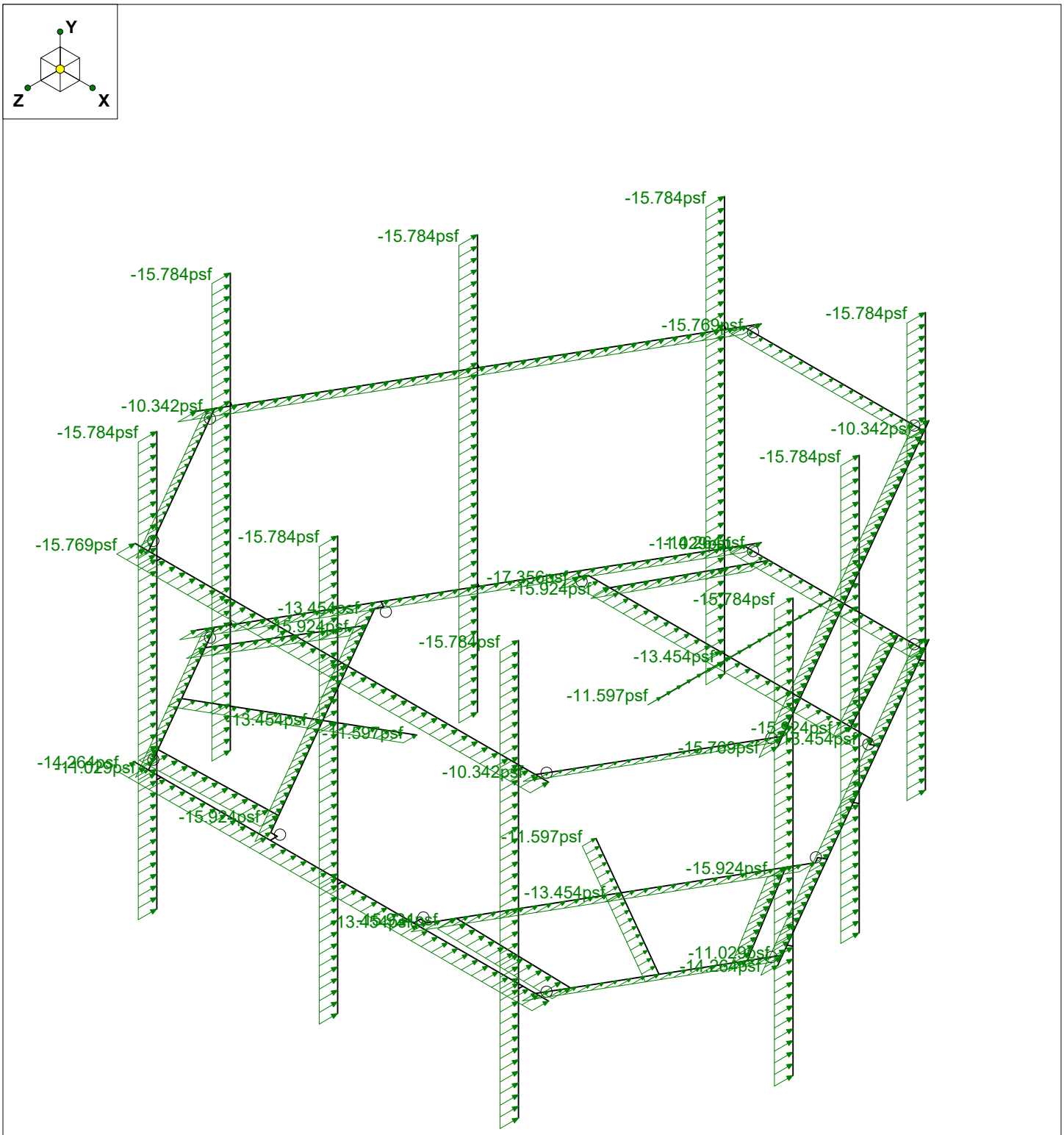

Loads: BLC 29, Distr. Ice Wind Load Z
Envelope Only Solution

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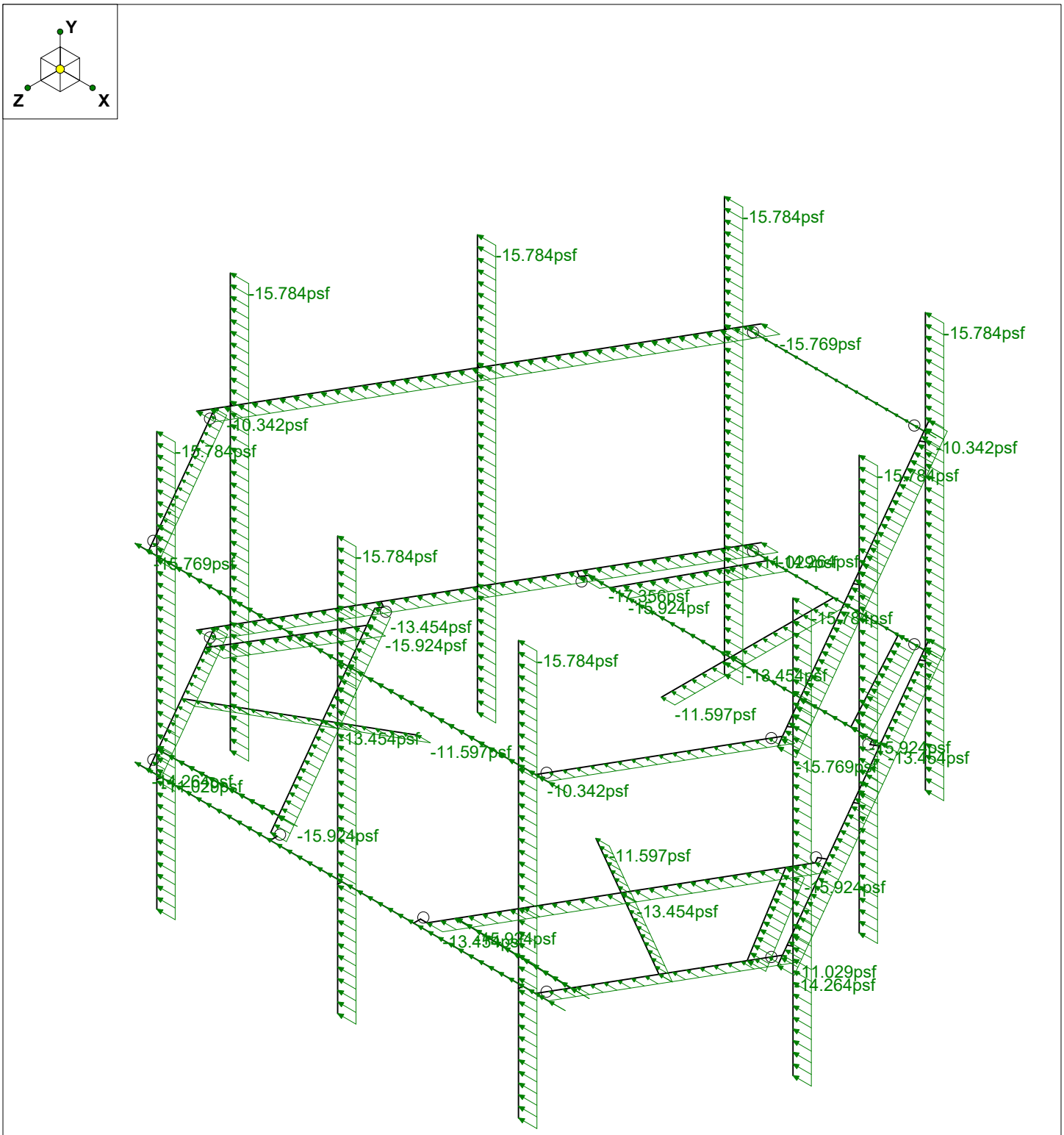

Loads: BLC 30, Distr. Ice Wind Load X
Envelope Only Solution

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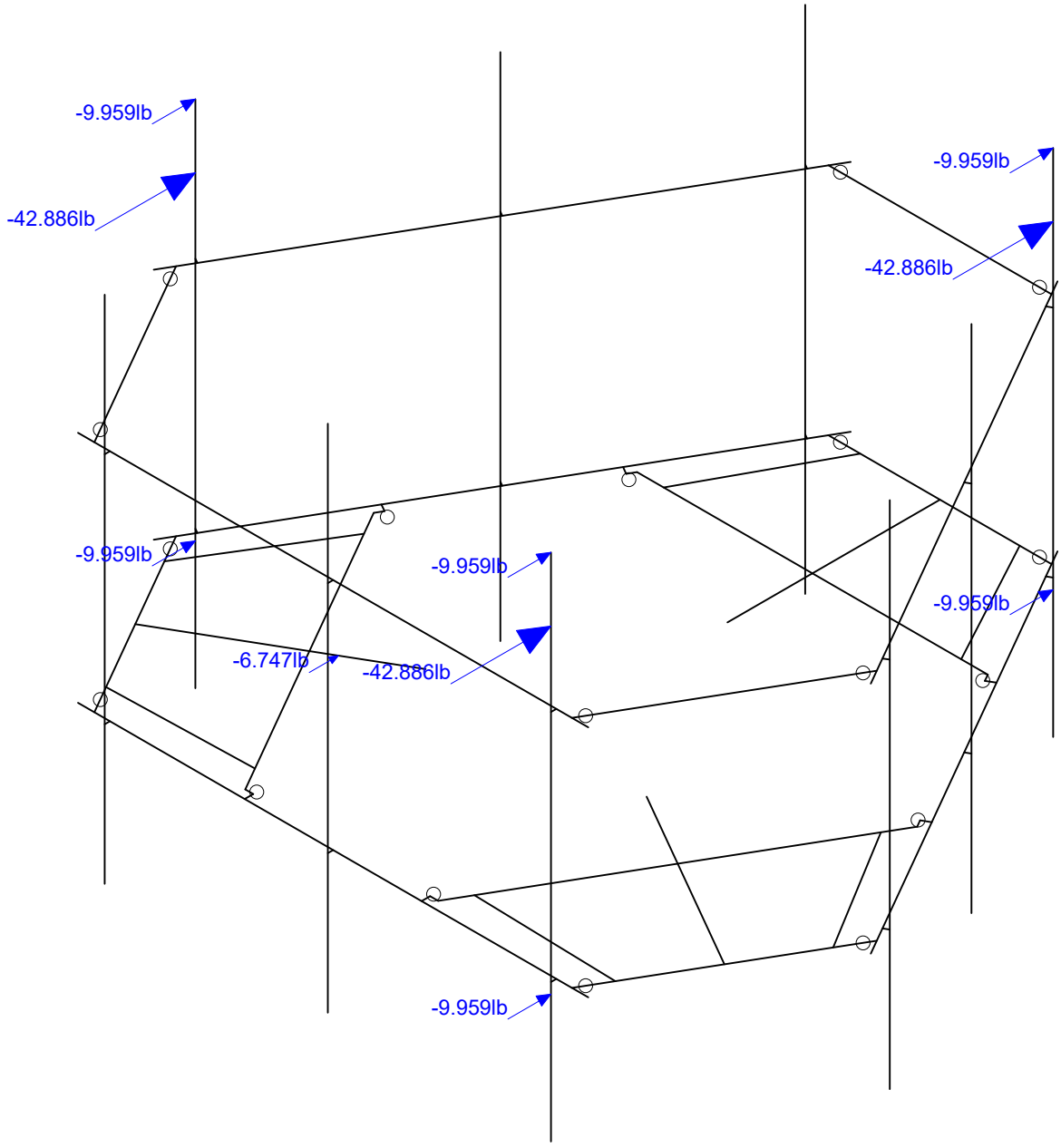

Loads: BLC 31, Seismic Load Z
Envelope Only Solution

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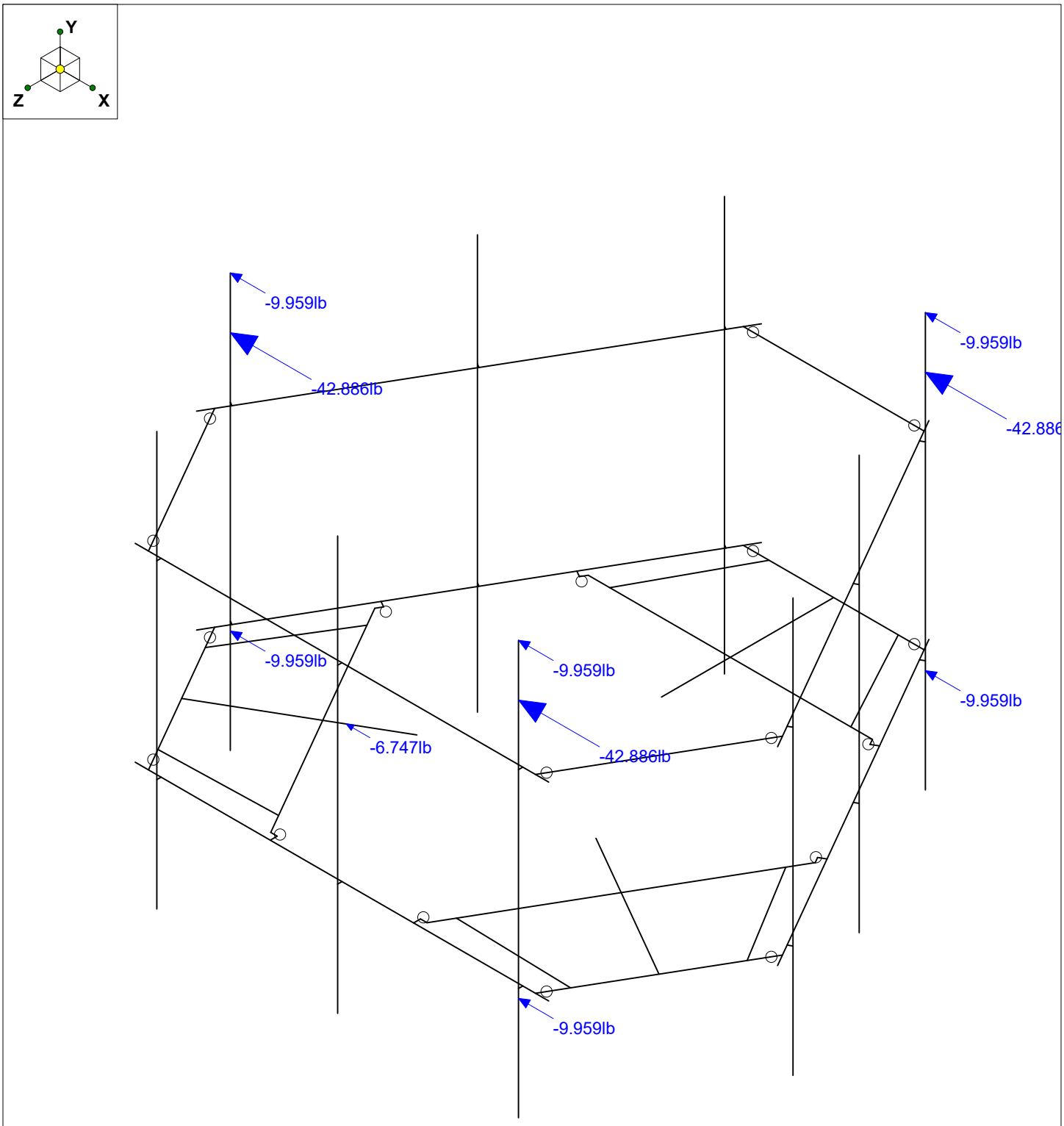

Loads: BLC 32, Seismic Load X
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00148A	Seismic Load AZI 090
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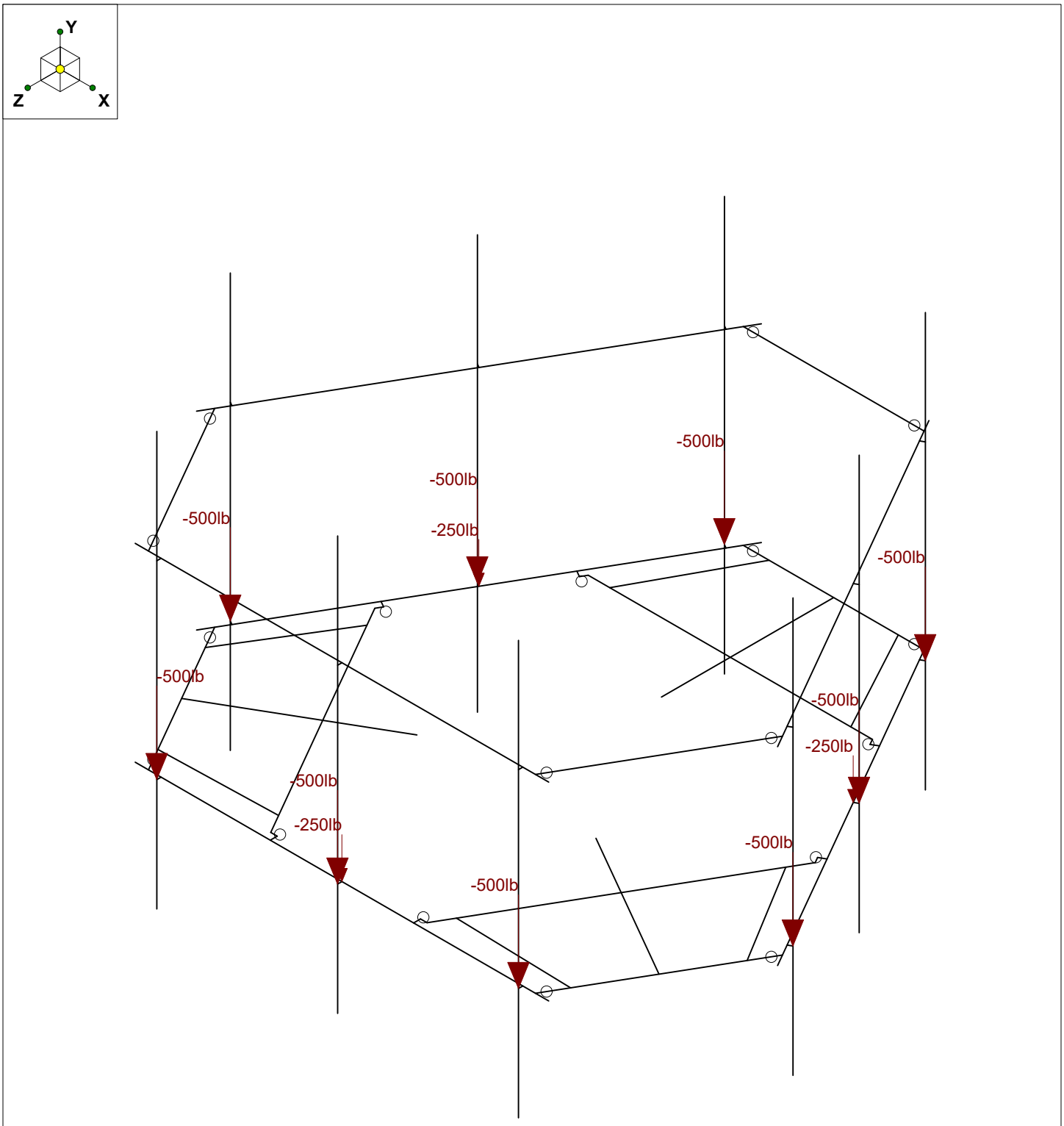

Loads: LL - Live Load
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00148A	Non-concurrent Live Loads
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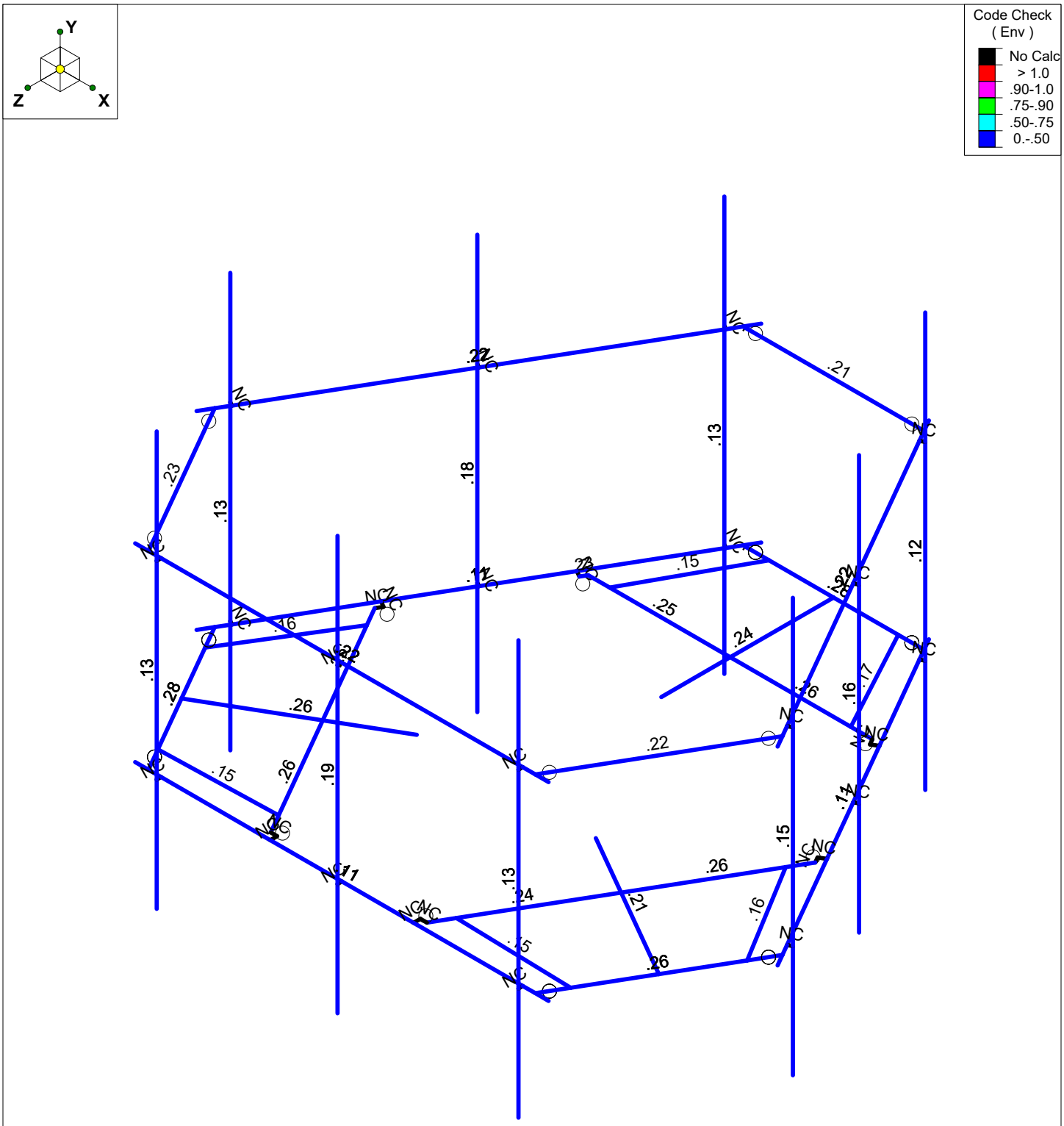

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00148A	Bending Check
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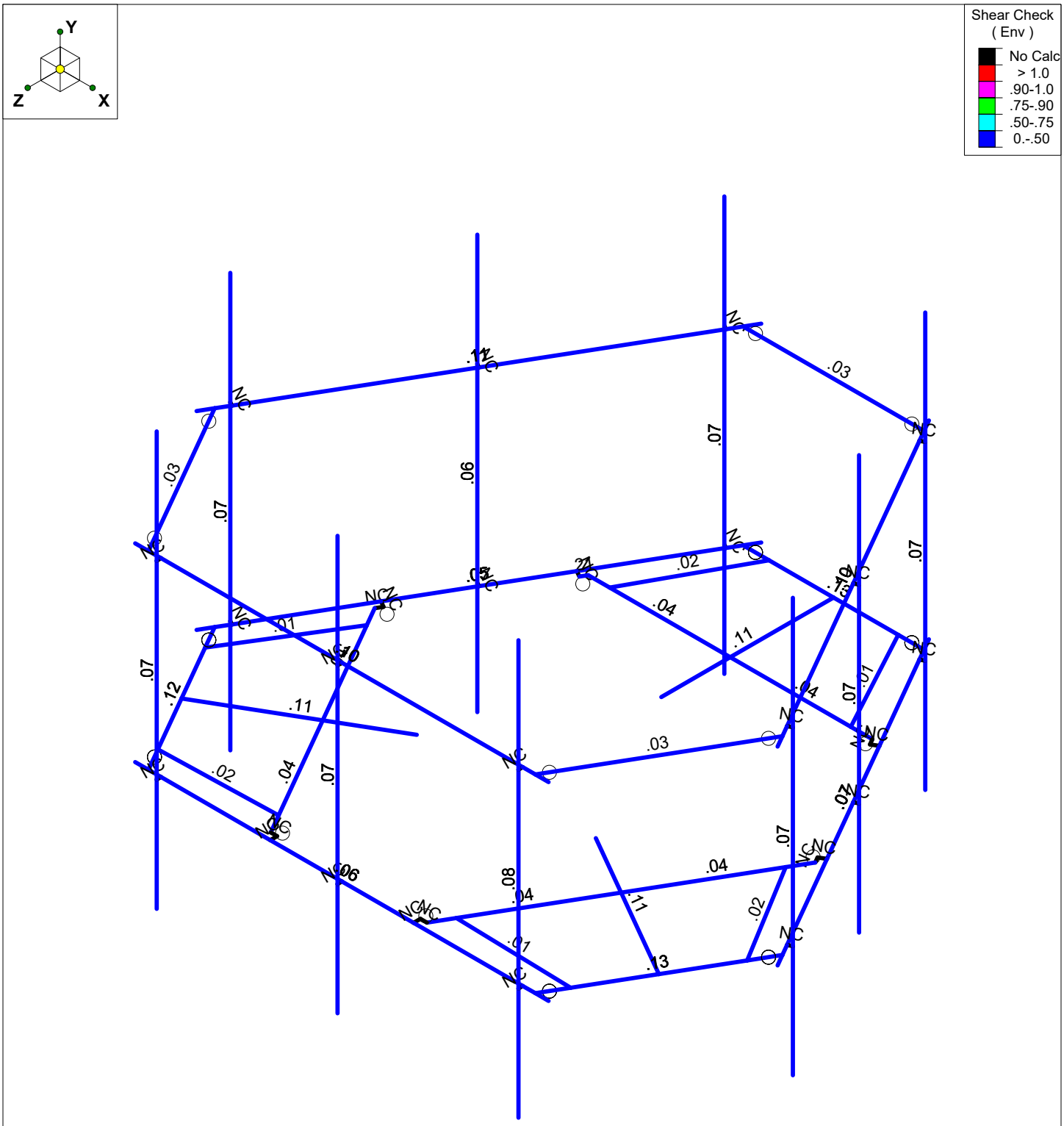

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00148A	Shear Check
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1197-F0001-B		BOHVN00148A_loaded.r3d

Program Inputs

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

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	B	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	161.54	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	105.00	ft
Tower Height AGL:	149.00	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):	0.994	*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 7-10	

WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	125	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1.5	in
Flat Pressure:	75.716	psf
Round Pressure:	45.429	psf
Ice Wind Pressure:	7.269	psf

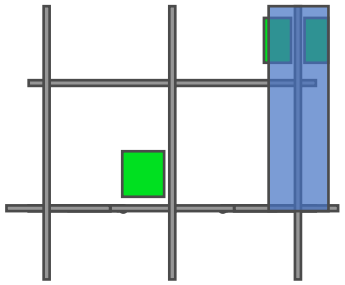
SEISMIC DATA		
Short-Period Accel. (S_s):	0.193	g
1-Second Accel. (S_1):	0.064	g
Short-Period Design (S_{DS}):	0.206	
1-Second Design (S_{D1}):	0.102	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	2.000	

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

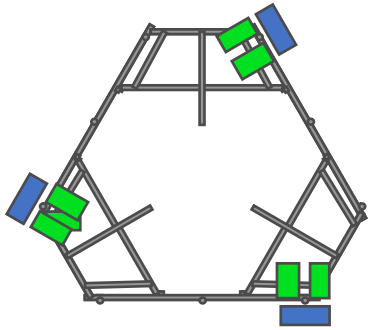
Infinigy Load Calculator V2.1.7

Program Inputs

ELEVATION VIEW



PLAN VIEW



INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Infinigy Load Calculator V2.1.7

APPURTENANCE INFORMATION

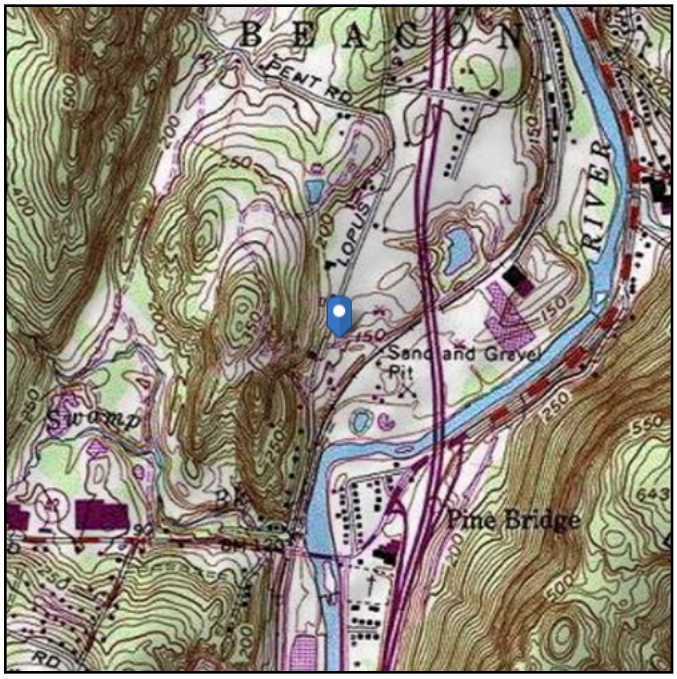
Appurtenance Name	Elevation	Qty.	K_a	q_z (psf)	EPA_N (ft^2)	EPA_T (ft^2)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)
JMA WIRELESS MX08FRO665-21	105.0	3	0.90	37.86	8.01	3.21	272.92	109.37	64.50	19.92	MP1
FUJITSU TA08025-B605	105.0	3	0.90	37.86	1.96	1.19	66.90	40.52	74.95	23.14	MP1
FUJITSU TA08025-B604	105.0	3	0.90	37.86	1.96	1.03	66.90	35.19	63.93	19.74	MP1
RAYCAP RDIDC-9181-PF-48	105.0	1	0.90	37.86	1.87	1.07	63.60	36.34	21.85	6.75	S2

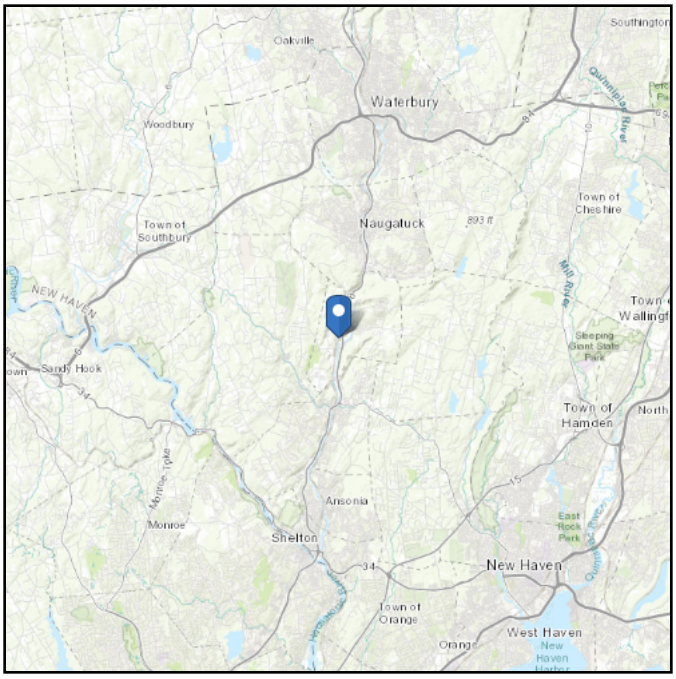
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 161.54 ft (NAVD 88)
Latitude: 41.432833
Longitude: -73.070222





Wind

Results:

Wind Speed:	125 mph per Beach Falls City Requirements in WSEL
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph

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

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

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

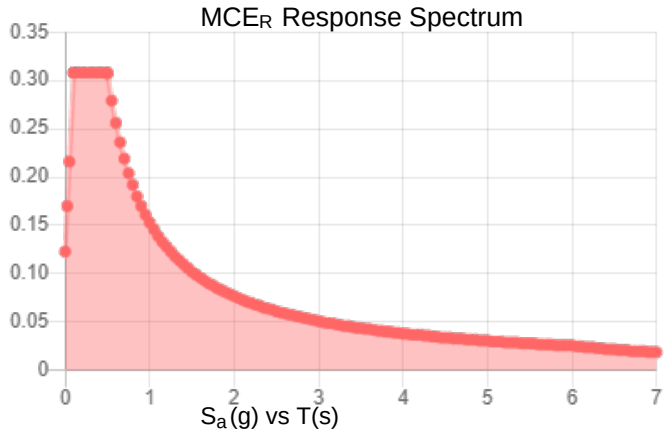
Seismic

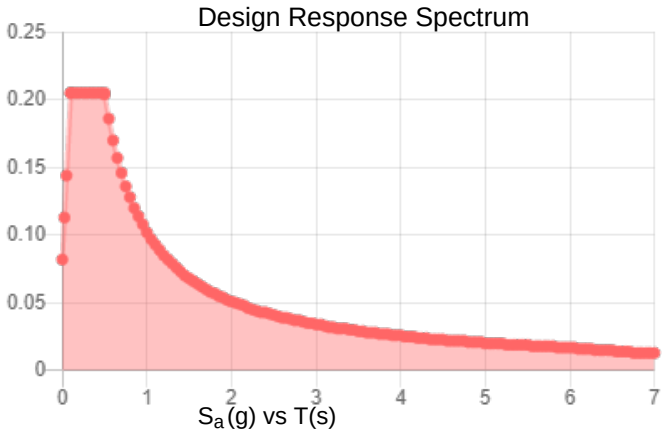
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.193	S_{DS} :	0.205
S_1 :	0.064	S_{D1} :	0.102
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.101
S_{MS} :	0.308	PGA_M :	0.161
S_{M1} :	0.153	F_{PGA} :	1.598
		I_e :	1

Seismic Design Category B





Data Accessed: Tue Aug 31 2021

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Tue Aug 31 2021

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

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

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design Rules
1	S3	P1	P3			Square Tubing	Beam	None	A500 GR.C	Typical
2	GA4	P9	P12		270	Grating Angle	Beam	None	A529 Gr. 50	Typical
3	GA3	P10	P11			Grating Angle	Beam	None	A529 Gr. 50	Typical
4	P3	P7	P8			Corner Plates	Beam	None	A1011 36 Ksi	Typical
5	S2	P13	P14			Square Tubing	Beam	None	A500 GR.C	Typical
6	GA2	P20	P23		270	Grating Angle	Beam	None	A529 Gr. 50	Typical
7	GA1	P21	P22			Grating Angle	Beam	None	A529 Gr. 50	Typical
8	P2	P18	P19			Corner Plates	Beam	None	A1011 36 Ksi	Typical
9	S1	P24	P25			Square Tubing	Beam	None	A500 GR.C	Typical
10	GA6	P31	P34		270	Grating Angle	Beam	None	A529 Gr. 50	Typical
11	GA5	P32	P33			Grating Angle	Beam	None	A529 Gr. 50	Typical
12	P1	P29	P30			Corner Plates	Beam	None	A1011 36 Ksi	Typical
13	H1	N43	N44			Face Pipes(3.5x.16)	Beam	None	A500 GR.C	Typical
14	MP1	N66	N60			Antenna Pipes	Beam	None	A500 GR.C	Typical
15	MP3	N63	N57			Antenna Pipes	Beam	None	A500 GR.C	Typical
16	HR1	N67	N68			Handrail	Beam	None	A500 GR.C	Typical
17	CA8	N114A	N113A		180	Handrail Connector	Beam	None	A1011 36 Ksi	Typical
18	CA9	N112A	N111A		180	Handrail Connector	Beam	None	A1011 36 Ksi	Typical
19	CA7	N116A	N115A		180	Handrail Connector	Beam	None	A1011 36 Ksi	Typical
20	M32	N48A	N70A			RIGID	None	None	RIGID	Typical
21	M35	N45	N69A			RIGID	None	None	RIGID	Typical
22	M36	N51	N71A			RIGID	None	None	RIGID	Typical
23	M39A	N54	N72A			RIGID	None	None	RIGID	Typical
24	CA3	P4	N122A			Channel(3.38x2.06)	Beam	None	A1011 36 Ksi	Typical
25	CA4	N124B	P4			Channel(3.38x2.06)	Beam	None	A1011 36 Ksi	Typical
26	CA1	P15	N122B			Channel(3.38x2.06)	Beam	None	A1011 36 Ksi	Typical
27	CA2	N123A	P15			Channel(3.38x2.06)	Beam	None	A1011 36 Ksi	Typical
28	CA5	P26	N125			Channel(3.38x2.06)	Beam	None	A1011 36 Ksi	Typical
29	CA6	N126	P26			Channel(3.38x2.06)	Beam	None	A1011 36 Ksi	Typical
30	M64	N126A	N125A			RIGID	None	None	RIGID	Typical
31	M65	N126	N125A			RIGID	None	None	RIGID	Typical
32	M66	N129	N128			RIGID	None	None	RIGID	Typical
33	M67	N124B	N128			RIGID	None	None	RIGID	Typical
34	M68	N132	N131			RIGID	None	None	RIGID	Typical
35	M69	N123A	N131			RIGID	None	None	RIGID	Typical
36	M70	N133	N132A			RIGID	None	None	RIGID	Typical
37	M71	N122B	N132A			RIGID	None	None	RIGID	Typical
38	M72	N135	N134			RIGID	None	None	RIGID	Typical
39	M73	N125	N134			RIGID	None	None	RIGID	Typical
40	M74	N138	N137			RIGID	None	None	RIGID	Typical
41	M75	N122A	N137			PL 2.375x0.5	None	None	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design Rules
42	MP2	N75	N74			Antenna Pipes	Beam	None	A500 GR.C	Typical
43	M43	N72B	N76			RIGID	None	None	RIGID	Typical
44	M44	N73	N77			RIGID	None	None	RIGID	Typical
45	H3	N81A	N82A			Face Pipes(3.5x.16)	Beam	None	A500 GR.C	Typical
46	MP7	N90	N88			Antenna Pipes	Beam	None	A500 GR.C	Typical
47	MP9	N89	N87			Antenna Pipes	Beam	None	A500 GR.C	Typical
48	HR3	N91	N92			Handrail	Beam	None	A500 GR.C	Typical
49	M52	N84	N94			RIGID	None	None	RIGID	Typical
50	M53	N83A	N93			RIGID	None	None	RIGID	Typical
51	M54	N85	N95			RIGID	None	None	RIGID	Typical
52	M55	N86	N96			RIGID	None	None	RIGID	Typical
53	H2	N109	N110			Face Pipes(3.5x.16)	Beam	None	A500 GR.C	Typical
54	MP4	N118	N116			Antenna Pipes	Beam	None	A500 GR.C	Typical
55	MP6	N117	N115			Antenna Pipes	Beam	None	A500 GR.C	Typical
56	HR2	N119	N120			Handrail	Beam	None	A500 GR.C	Typical
57	M66A	N112	N122			RIGID	None	None	RIGID	Typical
58	M67A	N111	N121			RIGID	None	None	RIGID	Typical
59	M68A	N113	N123			RIGID	None	None	RIGID	Typical
60	M69A	N114	N124			RIGID	None	None	RIGID	Typical
61	MP8	N132B	N131A			Antenna Pipes	Beam	None	A500 GR.C	Typical
62	M68B	N129B	N133B			RIGID	None	None	RIGID	Typical
63	M69B	N130A	N134A			RIGID	None	None	RIGID	Typical
64	MP5	N138A	N137A			Antenna Pipes	Beam	None	A500 GR.C	Typical
65	M71B	N135A	N139			RIGID	None	None	RIGID	Typical
66	M72B	N136	N140			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	Square Tubing	40			Lbyy						Late...
2	GA4	Grating Angle	27.295			Lbyy						Late...
3	GA3	Grating Angle	27.295			Lbyy						Late...
4	P3	Corner Plates	42			Lbyy						Late...
5	S2	Square Tubing	40			Lbyy						Late...
6	GA2	Grating Angle	27.295			Lbyy						Late...
7	GA1	Grating Angle	27.295			Lbyy						Late...
8	P2	Corner Plates	42			Lbyy						Late...
9	S1	Square Tubing	40			Lbyy						Late...
10	GA6	Grating Angle	27.295			Lbyy						Late...
11	GA5	Grating Angle	27.295			Lbyy						Late...
12	P1	Corner Plates	42			Lbyy						Late...
13	H1	Face Pipes(3.5x.16)	96			Lbyy						Late...

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Lengt...	Lbyy[in]	Lbzz[in]	Lcomp t...	Lcomp b...	L-tor...	Kyy	Kzz	Cb	Func...
14	MP1	Antenna Pipes	96			Lbyy						Late...
15	MP3	Antenna Pipes	96			Lbyy						Late...
16	HR1	Handrail	96			Lbyy						Late...
17	CA8	Handrail Connector	42			Lbyy						Late...
18	CA9	Handrail Connector	42			Lbyy						Late...
19	CA7	Handrail Connector	42			Lbyy						Late...
20	CA3	Channel(3.38x2.06)	33			Lbyy						Late...
21	CA4	Channel(3.38x2.06)	33			Lbyy						Late...
22	CA1	Channel(3.38x2.06)	33			Lbyy						Late...
23	CA2	Channel(3.38x2.06)	33			Lbyy						Late...
24	CA5	Channel(3.38x2.06)	33			Lbyy						Late...
25	CA6	Channel(3.38x2.06)	33			Lbyy						Late...
26	M75	PL 2.375x0.5	1.5			Lbyy						Late...
27	MP2	Antenna Pipes	96			Lbyy						Late...
28	H3	Face Pipes(3.5x.16)	96			Lbyy						Late...
29	MP7	Antenna Pipes	96			Lbyy						Late...
30	MP9	Antenna Pipes	96			Lbyy						Late...
31	HR3	Handrail	96			Lbyy						Late...
32	H2	Face Pipes(3.5x.16)	96			Lbyy						Late...
33	MP4	Antenna Pipes	96			Lbyy						Late...
34	MP6	Antenna Pipes	96			Lbyy						Late...
35	HR2	Handrail	96			Lbyy						Late...
36	MP8	Antenna Pipes	96			Lbyy						Late...
37	MP5	Antenna Pipes	96			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						Yes				None
2	GA4						Yes				None
3	GA3						Yes				None
4	P3	BenPIN	BenPIN				Yes	Default			None
5	S2						Yes				None
6	GA2						Yes				None
7	GA1						Yes				None
8	P2	BenPIN	BenPIN				Yes	Default			None
9	S1						Yes	Default			None
10	GA6						Yes				None
11	GA5						Yes				None
12	P1	BenPIN	BenPIN				Yes	Default			None
13	H1						Yes				None
14	MP1						Yes		+y+3		None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ra..	Analysis ...	Inactive	Seismi...
15	MP3						Yes		+y+3		None
16	HR1						Yes				None
17	CA8	OOOOOX	OOOOOX				Yes				None
18	CA9	OOOOOX	OOOOOX				Yes				None
19	CA7	OOOOOX	OOOOOX				Yes	Default			None
20	M32						Yes	** NA **			None
21	M35						Yes	** NA **			None
22	M36						Yes	** NA **			None
23	M39A						Yes	** NA **			None
24	CA3						Yes	Default			None
25	CA4						Yes	Default			None
26	CA1						Yes	Default			None
27	CA2						Yes	Default			None
28	CA5						Yes	Default			None
29	CA6						Yes	Default			None
30	M64	BenPIN					Yes	** NA **			None
31	M65						Yes	** NA **			None
32	M66	BenPIN					Yes	** NA **			None
33	M67						Yes	** NA **			None
34	M68	BenPIN					Yes	** NA **			None
35	M69						Yes	** NA **			None
36	M70	BenPIN					Yes	** NA **			None
37	M71						Yes	** NA **			None
38	M72	BenPIN					Yes	** NA **			None
39	M73						Yes	** NA **			None
40	M74	BenPIN					Yes	** NA **			None
41	M75						Yes	** NA **			None
42	MP2						Yes		+y+3		None
43	M43						Yes	** NA **			None
44	M44						Yes	** NA **			None
45	H3						Yes				None
46	MP7						Yes		+y+3		None
47	MP9						Yes		+y+3		None
48	HR3						Yes				None
49	M52						Yes	** NA **			None
50	M53						Yes	** NA **			None
51	M54						Yes	** NA **			None
52	M55						Yes	** NA **			None
53	H2						Yes				None
54	MP4						Yes		+y+3		None
55	MP6						Yes		+y+3		None
56	HR2						Yes				None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ra..	Analysis ...	Inactive	Seismi...
57	M66A						Yes	** NA **			None
58	M67A						Yes	** NA **			None
59	M68A						Yes	** NA **			None
60	M69A						Yes	** NA **			None
61	MP8						Yes		+y+3		None
62	M68B						Yes	** NA **			None
63	M69B						Yes	** NA **			None
64	MP5						Yes		+y+3		None
65	M71B						Yes	** NA **			None
66	M72B						Yes	** NA **			None

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		29	35.1	0
3	Total General		29	35.1	0
4					
5	Hot Rolled Steel				
6	A1011 36 Ksi	C3.38x2.06x0.25	6	198	98.255
7	A1011 36 Ksi	PL6.5x0.375	3	126	87.09
8	A1011 36 Ksi	L6.6x4.46x0.25	3	126	96.558
9	A36 Gr.36	PL 2.375x0.5	1	1.5	.505
10	A500 GR.C	2.88x0.120	3	288	84.974
11	A500 GR.C	HSS4X4X6	3	120	162.653
12	A500 GR.C	Pipe3.5x0.165	3	288	141.202
13	A500 GR.C	PIPE 2.5	9	864	394.45
14	A529 Gr. 50	L2x2x4	6	163.8	43.838
15	Total HR Steel		37	2175.3	1109.525

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design...	A [in2]	Iyy [in...	Izz [in...	J [in4]
1	Corner Plates	PL6.5x0.375	Beam	None	A1011 ...	Typical	2.438	.029	8.582	.11
2	6"x0.37" Plate	Plate 6x.37	Beam	None	A1011 ...	Typical	2.22	.025	6.66	.097
3	Grating Angle	L2x2x4	Beam	None	A529 G...	Typical	.944	.346	.346	.021
4	Face Pipes(3.5x.1...	Pipe3.5x0.165	Beam	None	A500 G...	Typical	1.729	2.409	2.409	4.819
5	Antenna Pipes	PIPE 2.5	Beam	None	A500 G...	Typical	1.61	1.45	1.45	2.89
6	Channel(3.38x2.06)	C3.38x2.06x0.25	Beam	None	A1011 ...	Typical	1.75	.715	3.026	.034
7	Square Tubing	HSS4X4X6	Beam	None	A500 G...	Typical	4.78	10.3	10.3	17.5
8	Handrail Connector	L6.6x4.46x0.25	Beam	None	A1011 ...	Typical	2.703	4.759	12.473	.055

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design...	A [in2]	Iyy [in...	Izz [in...	J [in4]
9	Handrail	2.88x0.120	Beam	None	A500 G...	Typical	1.04	.993	.993	1.985

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			13		3	
2	Wind Load AZI 0	WLZ					26			
3	Wind Load AZI 30	None					26			
4	Wind Load AZI 60	None					26			
5	Wind Load AZI 90	WLX					26			
6	Wind Load AZI 1...	None					26			
7	Wind Load AZI 1...	None					26			
8	Wind Load AZI 1...	None					26			
9	Wind Load AZI 2...	None					26			
10	Wind Load AZI 2...	None					26			
11	Wind Load AZI 2...	None					26			
12	Wind Load AZI 3...	None					26			
13	Wind Load AZI 3...	None					26			
14	Distr. Wind Load Z	WLZ						66		
15	Distr. Wind Load X	WLX						66		
16	Ice Weight	OL1					13	66	3	
17	Ice Wind Load A...	OL2					26			
18	Ice Wind Load A...	None					26			
19	Ice Wind Load A...	None					26			
20	Ice Wind Load A...	OL3					26			
21	Ice Wind Load A...	None					26			
22	Ice Wind Load A...	None					26			
23	Ice Wind Load A...	None					26			
24	Ice Wind Load A...	None					26			
25	Ice Wind Load A...	None					26			
26	Ice Wind Load A...	None					26			
27	Ice Wind Load A...	None					26			
28	Ice Wind Load A...	None					26			
29	Distr. Ice Wind L...	OL2						66		
30	Distr. Ice Wind L...	OL3						66		
31	Seismic Load Z	ELZ			-.309		13			
32	Seismic Load X	ELX	-.309				13			
33	Service Live Loa...	LL				3				
34	Maintenance Loa...	LL				1				
35	Maintenance Loa...	LL				1				
36	Maintenance Loa...	LL				1				
37	Maintenance Loa...	LL				1				

Basic Load Cases (Continued)

	BLC Description	Category	X Gr...	Y Gr...	Z Gr...	Joint	Point	Distributed	Area(Memb...	Surface(Plate/Wall)
38	Maintenance Loa...	LL				1				
39	Maintenance Loa...	LL				1				
40	Maintenance Loa...	LL				1				
41	Maintenance Loa...	LL				1				
42	Maintenance Loa...	LL				1				
43	BLC 1 Transient ...	None						9		
44	BLC 16 Transien...	None						9		

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														
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												

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...
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	.859	31	1	32																	
52	(0.9 - 0.2Sds)DL + 1.0E AZI 30	Y...	Y		1	.859	31	.866	32	.5																
53	(0.9 - 0.2Sds)DL + 1.0E AZI 60	Y...	Y		1	.859	31	.5	32	.866																
54	(0.9 - 0.2Sds)DL + 1.0E AZI 90	Y...	Y		1	.859	31		32	1																
55	(0.9 - 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	.859	31	-.5	32	.866																
56	(0.9 - 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	.859	31	-.8...	32	.5																
57	(0.9 - 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	.859	31	-1	32																	
58	(0.9 - 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	.859	31	-.8...	32	-.5																
59	(0.9 - 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	.859	31	-.5	32	-.8...																
60	(0.9 - 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	.859	31		32	-1																
61	(0.9 - 0.2Sds)DL + 1.0E AZI 3...	Y...	Y		1	.859	31	.5	32	-.8...																
62	(0.9 - 0.2Sds)DL + 1.0E AZI 3...	Y...	Y		1	.859	31	.866	32	-.5																
63	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	2	.23	14	.23	15		33	1.5												
64	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	3	.23	14	.2	15	.115	33	1.5												
65	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	4	.23	14	.115	15	.2	33	1.5												
66	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	5	.23	14		15	.23	33	1.5												
67	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	6	.23	14	-.1...	15	.2	33	1.5												
68	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	7	.23	14	-.2	15	.115	33	1.5												
69	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	8	.23	14	-.23	15		33	1.5												
70	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	9	.23	14	-.2	15	-.1...	33	1.5												
71	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	10	.23	14	-.1...	15	-.2	33	1.5												
72	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	11	.23	14		15	-.23	33	1.5												
73	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	12	.23	14	.115	15	-.2	33	1.5												

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...
74	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	13	.23	14	.2	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	.058	14	.058	15													
77	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	3	.058	14	.05	15	.029												
78	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	4	.058	14	.029	15	.05												
79	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	5	.058	14		15	.058												
80	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	6	.058	14	-.0...	15	.05												
81	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	7	.058	14	-.05	15	.029												
82	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	8	.058	14	-.0...	15													
83	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	9	.058	14	-.05	15	-.0...												
84	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	10	.058	14	-.0...	15	-.05												
85	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	11	.058	14		15	-.0...												
86	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	12	.058	14	.029	15	-.05												
87	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	13	.058	14	.05	15	-.0...												
88	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	2	.058	14	.058	15													
89	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	3	.058	14	.05	15	.029												
90	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	4	.058	14	.029	15	.05												
91	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	5	.058	14		15	.058												
92	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	6	.058	14	-.0...	15	.05												
93	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	7	.058	14	-.05	15	.029												
94	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	8	.058	14	-.0...	15													
95	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	9	.058	14	-.05	15	-.0...												
96	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	10	.058	14	-.0...	15	-.05												
97	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	11	.058	14		15	-.0...												
98	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	12	.058	14	.029	15	-.05												
99	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	13	.058	14	.05	15	-.0...												
100	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	2	.058	14	.058	15													
101	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	3	.058	14	.05	15	.029												
102	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	4	.058	14	.029	15	.05												
103	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	5	.058	14		15	.058												
104	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	6	.058	14	-.0...	15	.05												
105	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	7	.058	14	-.05	15	.029												
106	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	8	.058	14	-.0...	15													
107	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	9	.058	14	-.05	15	-.0...												
108	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	10	.058	14	-.0...	15	-.05												
109	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	11	.058	14		15	-.0...												
110	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	12	.058	14	.029	15	-.05												
111	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	13	.058	14	.05	15	-.0...												
112	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	2	.058	14	.058	15													
113	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	3	.058	14	.05	15	.029												
114	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	4	.058	14	.029	15	.05												
115	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	5	.058	14		15	.058												

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...
116	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	6	.058	14	-.0...	15	.05												
117	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	7	.058	14	-.05	15	.029												
118	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	8	.058	14	-.0...	15													
119	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	9	.058	14	-.05	15	-.0...												
120	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	10	.058	14	-.0...	15	-.05												
121	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	11	.058	14		15	-.0...												
122	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	12	.058	14	.029	15	-.05												
123	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	13	.058	14	.05	15	-.0...												
124	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	2	.058	14	.058	15													
125	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	3	.058	14	.05	15	.029												
126	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	4	.058	14	.029	15	.05												
127	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	5	.058	14		15	.058												
128	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	6	.058	14	-.0...	15	.05												
129	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	7	.058	14	-.05	15	.029												
130	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	8	.058	14	-.0...	15													
131	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	9	.058	14	-.05	15	-.0...												
132	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	10	.058	14	-.0...	15	-.05												
133	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	11	.058	14		15	-.0...												
134	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	12	.058	14	.029	15	-.05												
135	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	13	.058	14	.05	15	-.0...												
136	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	2	.058	14	.058	15													
137	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	3	.058	14	.05	15	.029												
138	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	4	.058	14	.029	15	.05												
139	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	5	.058	14		15	.058												
140	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	6	.058	14	-.0...	15	.05												
141	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	7	.058	14	-.05	15	.029												
142	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	8	.058	14	-.0...	15													
143	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	9	.058	14	-.05	15	-.0...												
144	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	10	.058	14	-.0...	15	-.05												
145	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	11	.058	14		15	-.0...												
146	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	12	.058	14	.029	15	-.05												
147	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	13	.058	14	.05	15	-.0...												
148	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	2	.058	14	.058	15													
149	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	3	.058	14	.05	15	.029												
150	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	4	.058	14	.029	15	.05												
151	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	5	.058	14		15	.058												
152	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	6	.058	14	-.0...	15	.05												
153	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	7	.058	14	-.05	15	.029												
154	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	8	.058	14	-.0...	15													
155	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	9	.058	14	-.05	15	-.0...												
156	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	10	.058	14	-.0...	15	-.05												
157	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	11	.058	14		15	-.0...												

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...
158	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	12	.058	14	.029	15	-.05												
159	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	13	.058	14	.05	15	-.0...												
160	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	2	.058	14	.058	15													
161	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	3	.058	14	.05	15	.029												
162	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	4	.058	14	.029	15	.05												
163	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	5	.058	14		15	.058												
164	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	6	.058	14	-.0...	15	.05												
165	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	7	.058	14	-.05	15	.029												
166	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	8	.058	14	-.0...	15													
167	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	9	.058	14	-.05	15	-.0...												
168	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	10	.058	14	-.0...	15	-.05												
169	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	11	.058	14		15	-.0...												
170	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	12	.058	14	.029	15	-.05												
171	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	13	.058	14	.05	15	-.0...												
172	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	2	.058	14	.058	15													
173	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	3	.058	14	.05	15	.029												
174	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	4	.058	14	.029	15	.05												
175	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	5	.058	14		15	.058												
176	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	6	.058	14	-.0...	15	.05												
177	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	7	.058	14	-.05	15	.029												
178	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	8	.058	14	-.0...	15													
179	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	9	.058	14	-.05	15	-.0...												
180	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	10	.058	14	-.0...	15	-.05												
181	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	11	.058	14		15	-.0...												
182	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	12	.058	14	.029	15	-.05												

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	P24	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	P13	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	P1	Reaction	Reaction	Reaction	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	P24	...	836.072	6	1947.6...	35	1272.7...	13	747.036	16	1607.474	19	3666.273	132
2		...	-819.994	24	-394.5...	16	-1264.6...	19	-3175.59	84	-1625.261	13	-1379.292	16
3	P13	...	1020.966	4	2326.3...	31	1346.9...	15	735.602	24	1807.667	15	1148.364	24
4		...	-1018.705	22	-299.9...	24	-1354.8...	9	-2806.6...	92	-1854.666	9	-5226.561	31
5	P1	...	1312.131	17	2085.1...	27	678.909	2	5003.31	27	1496.313	11	1578.146	115

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
6		...	-1330.565	11	-382.5...	20	-682.863	20	-1540.1...	20	-1444.896	17	-856.904	157
7	Totals:	...	3017.538	5	5805.9...	34	3196.0...	14						
8		...	-3017.53	23	1527.9...	53	-3196.0...	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	S2	Y	-21.85	12
6	MP4	Y	-32.25	0
7	MP4	Y	-32.25	72
8	MP4	Y	-74.95	12
9	MP4	Y	-63.93	12
10	MP7	Y	-32.25	0
11	MP7	Y	-32.25	72
12	MP7	Y	-74.95	12
13	MP7	Y	-63.93	12

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	-136.46	0
3	MP1	X	0	72
4	MP1	Z	-136.46	72
5	MP1	X	0	12
6	MP1	Z	-66.9	12
7	MP1	X	0	12
8	MP1	Z	-66.9	12
9	S2	X	0	12
10	S2	Z	-63.6	12
11	MP4	X	0	0
12	MP4	Z	-75.13	0
13	MP4	X	0	72
14	MP4	Z	-75.13	72
15	MP4	X	0	12
16	MP4	Z	-47.11	12
17	MP4	X	0	12
18	MP4	Z	-43.12	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
19	MP7	X	0	0
20	MP7	Z	-75.13	0
21	MP7	X	0	72
22	MP7	Z	-75.13	72
23	MP7	X	0	12
24	MP7	Z	-47.11	12
25	MP7	X	0	12
26	MP7	Z	-43.12	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-58.01	0
2	MP1	Z	-100.47	0
3	MP1	X	-58.01	72
4	MP1	Z	-100.47	72
5	MP1	X	-30.15	12
6	MP1	Z	-52.23	12
7	MP1	X	-29.49	12
8	MP1	Z	-51.07	12
9	S2	X	-28.39	12
10	S2	Z	-49.18	12
11	MP4	X	-58.01	0
12	MP4	Z	-100.47	0
13	MP4	X	-58.01	72
14	MP4	Z	-100.47	72
15	MP4	X	-30.15	12
16	MP4	Z	-52.23	12
17	MP4	X	-29.49	12
18	MP4	Z	-51.07	12
19	MP7	X	-27.34	0
20	MP7	Z	-47.36	0
21	MP7	X	-27.34	72
22	MP7	Z	-47.36	72
23	MP7	X	-20.26	12
24	MP7	Z	-35.09	12
25	MP7	X	-17.6	12
26	MP7	Z	-30.48	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-65.06	0

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
2	MP1	Z	-37.56	0
3	MP1	X	-65.06	72
4	MP1	Z	-37.56	72
5	MP1	X	-40.8	12
6	MP1	Z	-23.56	12
7	MP1	X	-37.34	12
8	MP1	Z	-21.56	12
9	S2	X	-37.38	12
10	S2	Z	-21.58	12
11	MP4	X	-118.18	0
12	MP4	Z	-68.23	0
13	MP4	X	-118.18	72
14	MP4	Z	-68.23	72
15	MP4	X	-57.94	12
16	MP4	Z	-33.45	12
17	MP4	X	-57.94	12
18	MP4	Z	-33.45	12
19	MP7	X	-65.06	0
20	MP7	Z	-37.56	0
21	MP7	X	-65.06	72
22	MP7	Z	-37.56	72
23	MP7	X	-40.8	12
24	MP7	Z	-23.56	12
25	MP7	X	-37.34	12
26	MP7	Z	-21.56	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-54.69	0
2	MP1	Z	0	0
3	MP1	X	-54.69	72
4	MP1	Z	0	72
5	MP1	X	-40.52	12
6	MP1	Z	0	12
7	MP1	X	-35.19	12
8	MP1	Z	0	12
9	S2	X	-36.34	12
10	S2	Z	0	12
11	MP4	X	-116.02	0
12	MP4	Z	0	0
13	MP4	X	-116.02	72
14	MP4	Z	0	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
15	MP4	X	-60.3	12
16	MP4	Z	0	12
17	MP4	X	-58.97	12
18	MP4	Z	0	12
19	MP7	X	-116.02	0
20	MP7	Z	0	0
21	MP7	X	-116.02	72
22	MP7	Z	0	72
23	MP7	X	-60.3	12
24	MP7	Z	0	12
25	MP7	X	-58.97	12
26	MP7	Z	0	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-65.06	0
2	MP1	Z	37.56	0
3	MP1	X	-65.06	72
4	MP1	Z	37.56	72
5	MP1	X	-40.8	12
6	MP1	Z	23.56	12
7	MP1	X	-37.34	12
8	MP1	Z	21.56	12
9	S2	X	-37.38	12
10	S2	Z	21.58	12
11	MP4	X	-65.06	0
12	MP4	Z	37.56	0
13	MP4	X	-65.06	72
14	MP4	Z	37.56	72
15	MP4	X	-40.8	12
16	MP4	Z	23.56	12
17	MP4	X	-37.34	12
18	MP4	Z	21.56	12
19	MP7	X	-118.18	0
20	MP7	Z	68.23	0
21	MP7	X	-118.18	72
22	MP7	Z	68.23	72
23	MP7	X	-57.94	12
24	MP7	Z	33.45	12
25	MP7	X	-57.94	12
26	MP7	Z	33.45	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-58.01	0
2	MP1	Z	100.47	0
3	MP1	X	-58.01	72
4	MP1	Z	100.47	72
5	MP1	X	-30.15	12
6	MP1	Z	52.23	12
7	MP1	X	-29.49	12
8	MP1	Z	51.07	12
9	S2	X	-28.39	12
10	S2	Z	49.18	12
11	MP4	X	-27.34	0
12	MP4	Z	47.36	0
13	MP4	X	-27.34	72
14	MP4	Z	47.36	72
15	MP4	X	-20.26	12
16	MP4	Z	35.09	12
17	MP4	X	-17.6	12
18	MP4	Z	30.48	12
19	MP7	X	-58.01	0
20	MP7	Z	100.47	0
21	MP7	X	-58.01	72
22	MP7	Z	100.47	72
23	MP7	X	-30.15	12
24	MP7	Z	52.23	12
25	MP7	X	-29.49	12
26	MP7	Z	51.07	12

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	136.46	0
3	MP1	X	0	72
4	MP1	Z	136.46	72
5	MP1	X	0	12
6	MP1	Z	66.9	12
7	MP1	X	0	12
8	MP1	Z	66.9	12
9	S2	X	0	12
10	S2	Z	63.6	12
11	MP4	X	0	0
12	MP4	Z	75.13	0
13	MP4	X	0	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	75.13	72
15	MP4	X	0	12
16	MP4	Z	47.11	12
17	MP4	X	0	12
18	MP4	Z	43.12	12
19	MP7	X	0	0
20	MP7	Z	75.13	0
21	MP7	X	0	72
22	MP7	Z	75.13	72
23	MP7	X	0	12
24	MP7	Z	47.11	12
25	MP7	X	0	12
26	MP7	Z	43.12	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	58.01	0
2	MP1	Z	100.47	0
3	MP1	X	58.01	72
4	MP1	Z	100.47	72
5	MP1	X	30.15	12
6	MP1	Z	52.23	12
7	MP1	X	29.49	12
8	MP1	Z	51.07	12
9	S2	X	28.39	12
10	S2	Z	49.18	12
11	MP4	X	58.01	0
12	MP4	Z	100.47	0
13	MP4	X	58.01	72
14	MP4	Z	100.47	72
15	MP4	X	30.15	12
16	MP4	Z	52.23	12
17	MP4	X	29.49	12
18	MP4	Z	51.07	12
19	MP7	X	27.34	0
20	MP7	Z	47.36	0
21	MP7	X	27.34	72
22	MP7	Z	47.36	72
23	MP7	X	20.26	12
24	MP7	Z	35.09	12
25	MP7	X	17.6	12
26	MP7	Z	30.48	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	65.06	0
2	MP1	Z	37.56	0
3	MP1	X	65.06	72
4	MP1	Z	37.56	72
5	MP1	X	40.8	12
6	MP1	Z	23.56	12
7	MP1	X	37.34	12
8	MP1	Z	21.56	12
9	S2	X	37.38	12
10	S2	Z	21.58	12
11	MP4	X	118.18	0
12	MP4	Z	68.23	0
13	MP4	X	118.18	72
14	MP4	Z	68.23	72
15	MP4	X	57.94	12
16	MP4	Z	33.45	12
17	MP4	X	57.94	12
18	MP4	Z	33.45	12
19	MP7	X	65.06	0
20	MP7	Z	37.56	0
21	MP7	X	65.06	72
22	MP7	Z	37.56	72
23	MP7	X	40.8	12
24	MP7	Z	23.56	12
25	MP7	X	37.34	12
26	MP7	Z	21.56	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	54.69	0
2	MP1	Z	0	0
3	MP1	X	54.69	72
4	MP1	Z	0	72
5	MP1	X	40.52	12
6	MP1	Z	0	12
7	MP1	X	35.19	12
8	MP1	Z	0	12
9	S2	X	36.34	12
10	S2	Z	0	12
11	MP4	X	116.02	0
12	MP4	Z	0	0
13	MP4	X	116.02	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	0	72
15	MP4	X	60.3	12
16	MP4	Z	0	12
17	MP4	X	58.97	12
18	MP4	Z	0	12
19	MP7	X	116.02	0
20	MP7	Z	0	0
21	MP7	X	116.02	72
22	MP7	Z	0	72
23	MP7	X	60.3	12
24	MP7	Z	0	12
25	MP7	X	58.97	12
26	MP7	Z	0	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	65.06	0
2	MP1	Z	-37.56	0
3	MP1	X	65.06	72
4	MP1	Z	-37.56	72
5	MP1	X	40.8	12
6	MP1	Z	-23.56	12
7	MP1	X	37.34	12
8	MP1	Z	-21.56	12
9	S2	X	37.38	12
10	S2	Z	-21.58	12
11	MP4	X	65.06	0
12	MP4	Z	-37.56	0
13	MP4	X	65.06	72
14	MP4	Z	-37.56	72
15	MP4	X	40.8	12
16	MP4	Z	-23.56	12
17	MP4	X	37.34	12
18	MP4	Z	-21.56	12
19	MP7	X	118.18	0
20	MP7	Z	-68.23	0
21	MP7	X	118.18	72
22	MP7	Z	-68.23	72
23	MP7	X	57.94	12
24	MP7	Z	-33.45	12
25	MP7	X	57.94	12
26	MP7	Z	-33.45	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	58.01	0
2	MP1	Z	-100.47	0
3	MP1	X	58.01	72
4	MP1	Z	-100.47	72
5	MP1	X	30.15	12
6	MP1	Z	-52.23	12
7	MP1	X	29.49	12
8	MP1	Z	-51.07	12
9	S2	X	28.39	12
10	S2	Z	-49.18	12
11	MP4	X	27.34	0
12	MP4	Z	-47.36	0
13	MP4	X	27.34	72
14	MP4	Z	-47.36	72
15	MP4	X	20.26	12
16	MP4	Z	-35.09	12
17	MP4	X	17.6	12
18	MP4	Z	-30.48	12
19	MP7	X	58.01	0
20	MP7	Z	-100.47	0
21	MP7	X	58.01	72
22	MP7	Z	-100.47	72
23	MP7	X	30.15	12
24	MP7	Z	-52.23	12
25	MP7	X	29.49	12
26	MP7	Z	-51.07	12

Member Point Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-137.759	0
2	MP1	Y	-137.759	72
3	MP1	Y	-71.947	12
4	MP1	Y	-67.521	12
5	S2	Y	-65.855	12
6	MP4	Y	-137.759	0
7	MP4	Y	-137.759	72
8	MP4	Y	-71.947	12
9	MP4	Y	-67.521	12
10	MP7	Y	-137.759	0
11	MP7	Y	-137.759	72
12	MP7	Y	-71.947	12
13	MP7	Y	-67.521	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	0
2	MP1	Z	-17.21	0
3	MP1	X	0	72
4	MP1	Z	-17.21	72
5	MP1	X	0	12
6	MP1	Z	-6.71	12
7	MP1	X	0	12
8	MP1	Z	-6.71	12
9	S2	X	0	12
10	S2	Z	-6.61	12
11	MP4	X	0	0
12	MP4	Z	-13.19	0
13	MP4	X	0	72
14	MP4	Z	-13.19	72
15	MP4	X	0	12
16	MP4	Z	-5.8	12
17	MP4	X	0	12
18	MP4	Z	-5.59	12
19	MP7	X	0	0
20	MP7	Z	-13.19	0
21	MP7	X	0	72
22	MP7	Z	-13.19	72
23	MP7	X	0	12
24	MP7	Z	-5.8	12
25	MP7	X	0	12
26	MP7	Z	-5.59	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-7.93	0
2	MP1	Z	-13.74	0
3	MP1	X	-7.93	72
4	MP1	Z	-13.74	72
5	MP1	X	-3.2	12
6	MP1	Z	-5.55	12
7	MP1	X	-3.17	12
8	MP1	Z	-5.49	12
9	S2	X	-3.15	12
10	S2	Z	-5.45	12
11	MP4	X	-7.93	0
12	MP4	Z	-13.74	0
13	MP4	X	-7.93	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	-13.74	72
15	MP4	X	-3.2	12
16	MP4	Z	-5.55	12
17	MP4	X	-3.17	12
18	MP4	Z	-5.49	12
19	MP7	X	-5.92	0
20	MP7	Z	-10.26	0
21	MP7	X	-5.92	72
22	MP7	Z	-10.26	72
23	MP7	X	-2.75	12
24	MP7	Z	-4.76	12
25	MP7	X	-2.61	12
26	MP7	Z	-4.52	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-11.42	0
2	MP1	Z	-6.59	0
3	MP1	X	-11.42	72
4	MP1	Z	-6.59	72
5	MP1	X	-5.02	12
6	MP1	Z	-2.9	12
7	MP1	X	-4.84	12
8	MP1	Z	-2.8	12
9	S2	X	-4.89	12
10	S2	Z	-2.82	12
11	MP4	X	-14.9	0
12	MP4	Z	-8.6	0
13	MP4	X	-14.9	72
14	MP4	Z	-8.6	72
15	MP4	X	-5.81	12
16	MP4	Z	-3.36	12
17	MP4	X	-5.81	12
18	MP4	Z	-3.36	12
19	MP7	X	-11.42	0
20	MP7	Z	-6.59	0
21	MP7	X	-11.42	72
22	MP7	Z	-6.59	72
23	MP7	X	-5.02	12
24	MP7	Z	-2.9	12
25	MP7	X	-4.84	12
26	MP7	Z	-2.8	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-11.85	0
2	MP1	Z	0	0
3	MP1	X	-11.85	72
4	MP1	Z	0	72
5	MP1	X	-5.5	12
6	MP1	Z	0	12
7	MP1	X	-5.22	12
8	MP1	Z	0	12
9	S2	X	-5.32	12
10	S2	Z	0	12
11	MP4	X	-15.87	0
12	MP4	Z	0	0
13	MP4	X	-15.87	72
14	MP4	Z	0	72
15	MP4	X	-6.41	12
16	MP4	Z	0	12
17	MP4	X	-6.34	12
18	MP4	Z	0	12
19	MP7	X	-15.87	0
20	MP7	Z	0	0
21	MP7	X	-15.87	72
22	MP7	Z	0	72
23	MP7	X	-6.41	12
24	MP7	Z	0	12
25	MP7	X	-6.34	12
26	MP7	Z	0	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-11.42	0
2	MP1	Z	6.59	0
3	MP1	X	-11.42	72
4	MP1	Z	6.59	72
5	MP1	X	-5.02	12
6	MP1	Z	2.9	12
7	MP1	X	-4.84	12
8	MP1	Z	2.8	12
9	S2	X	-4.89	12
10	S2	Z	2.82	12
11	MP4	X	-11.42	0
12	MP4	Z	6.59	0
13	MP4	X	-11.42	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	6.59	72
15	MP4	X	-5.02	12
16	MP4	Z	2.9	12
17	MP4	X	-4.84	12
18	MP4	Z	2.8	12
19	MP7	X	-14.9	0
20	MP7	Z	8.6	0
21	MP7	X	-14.9	72
22	MP7	Z	8.6	72
23	MP7	X	-5.81	12
24	MP7	Z	3.36	12
25	MP7	X	-5.81	12
26	MP7	Z	3.36	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-7.93	0
2	MP1	Z	13.74	0
3	MP1	X	-7.93	72
4	MP1	Z	13.74	72
5	MP1	X	-3.2	12
6	MP1	Z	5.55	12
7	MP1	X	-3.17	12
8	MP1	Z	5.49	12
9	S2	X	-3.15	12
10	S2	Z	5.45	12
11	MP4	X	-5.92	0
12	MP4	Z	10.26	0
13	MP4	X	-5.92	72
14	MP4	Z	10.26	72
15	MP4	X	-2.75	12
16	MP4	Z	4.76	12
17	MP4	X	-2.61	12
18	MP4	Z	4.52	12
19	MP7	X	-7.93	0
20	MP7	Z	13.74	0
21	MP7	X	-7.93	72
22	MP7	Z	13.74	72
23	MP7	X	-3.2	12
24	MP7	Z	5.55	12
25	MP7	X	-3.17	12
26	MP7	Z	5.49	12

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	17.21	0
3	MP1	X	0	72
4	MP1	Z	17.21	72
5	MP1	X	0	12
6	MP1	Z	6.71	12
7	MP1	X	0	12
8	MP1	Z	6.71	12
9	S2	X	0	12
10	S2	Z	6.61	12
11	MP4	X	0	0
12	MP4	Z	13.19	0
13	MP4	X	0	72
14	MP4	Z	13.19	72
15	MP4	X	0	12
16	MP4	Z	5.8	12
17	MP4	X	0	12
18	MP4	Z	5.59	12
19	MP7	X	0	0
20	MP7	Z	13.19	0
21	MP7	X	0	72
22	MP7	Z	13.19	72
23	MP7	X	0	12
24	MP7	Z	5.8	12
25	MP7	X	0	12
26	MP7	Z	5.59	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	7.93	0
2	MP1	Z	13.74	0
3	MP1	X	7.93	72
4	MP1	Z	13.74	72
5	MP1	X	3.2	12
6	MP1	Z	5.55	12
7	MP1	X	3.17	12
8	MP1	Z	5.49	12
9	S2	X	3.15	12
10	S2	Z	5.45	12
11	MP4	X	7.93	0
12	MP4	Z	13.74	0
13	MP4	X	7.93	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	13.74	72
15	MP4	X	3.2	12
16	MP4	Z	5.55	12
17	MP4	X	3.17	12
18	MP4	Z	5.49	12
19	MP7	X	5.92	0
20	MP7	Z	10.26	0
21	MP7	X	5.92	72
22	MP7	Z	10.26	72
23	MP7	X	2.75	12
24	MP7	Z	4.76	12
25	MP7	X	2.61	12
26	MP7	Z	4.52	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	11.42	0
2	MP1	Z	6.59	0
3	MP1	X	11.42	72
4	MP1	Z	6.59	72
5	MP1	X	5.02	12
6	MP1	Z	2.9	12
7	MP1	X	4.84	12
8	MP1	Z	2.8	12
9	S2	X	4.89	12
10	S2	Z	2.82	12
11	MP4	X	14.9	0
12	MP4	Z	8.6	0
13	MP4	X	14.9	72
14	MP4	Z	8.6	72
15	MP4	X	5.81	12
16	MP4	Z	3.36	12
17	MP4	X	5.81	12
18	MP4	Z	3.36	12
19	MP7	X	11.42	0
20	MP7	Z	6.59	0
21	MP7	X	11.42	72
22	MP7	Z	6.59	72
23	MP7	X	5.02	12
24	MP7	Z	2.9	12
25	MP7	X	4.84	12
26	MP7	Z	2.8	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	11.85	0
2	MP1	Z	0	0
3	MP1	X	11.85	72
4	MP1	Z	0	72
5	MP1	X	5.5	12
6	MP1	Z	0	12
7	MP1	X	5.22	12
8	MP1	Z	0	12
9	S2	X	5.32	12
10	S2	Z	0	12
11	MP4	X	15.87	0
12	MP4	Z	0	0
13	MP4	X	15.87	72
14	MP4	Z	0	72
15	MP4	X	6.41	12
16	MP4	Z	0	12
17	MP4	X	6.34	12
18	MP4	Z	0	12
19	MP7	X	15.87	0
20	MP7	Z	0	0
21	MP7	X	15.87	72
22	MP7	Z	0	72
23	MP7	X	6.41	12
24	MP7	Z	0	12
25	MP7	X	6.34	12
26	MP7	Z	0	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	11.42	0
2	MP1	Z	-6.59	0
3	MP1	X	11.42	72
4	MP1	Z	-6.59	72
5	MP1	X	5.02	12
6	MP1	Z	-2.9	12
7	MP1	X	4.84	12
8	MP1	Z	-2.8	12
9	S2	X	4.89	12
10	S2	Z	-2.82	12
11	MP4	X	11.42	0
12	MP4	Z	-6.59	0
13	MP4	X	11.42	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	-6.59	72
15	MP4	X	5.02	12
16	MP4	Z	-2.9	12
17	MP4	X	4.84	12
18	MP4	Z	-2.8	12
19	MP7	X	14.9	0
20	MP7	Z	-8.6	0
21	MP7	X	14.9	72
22	MP7	Z	-8.6	72
23	MP7	X	5.81	12
24	MP7	Z	-3.36	12
25	MP7	X	5.81	12
26	MP7	Z	-3.36	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	7.93	0
2	MP1	Z	-13.74	0
3	MP1	X	7.93	72
4	MP1	Z	-13.74	72
5	MP1	X	3.2	12
6	MP1	Z	-5.55	12
7	MP1	X	3.17	12
8	MP1	Z	-5.49	12
9	S2	X	3.15	12
10	S2	Z	-5.45	12
11	MP4	X	5.92	0
12	MP4	Z	-10.26	0
13	MP4	X	5.92	72
14	MP4	Z	-10.26	72
15	MP4	X	2.75	12
16	MP4	Z	-4.76	12
17	MP4	X	2.61	12
18	MP4	Z	-4.52	12
19	MP7	X	7.93	0
20	MP7	Z	-13.74	0
21	MP7	X	7.93	72
22	MP7	Z	-13.74	72
23	MP7	X	3.2	12
24	MP7	Z	-5.55	12
25	MP7	X	3.17	12
26	MP7	Z	-5.49	12

Member Point Loads (BLC 31 : Seismic Load Z)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-9.959	0
2	MP1	Z	-9.959	72
3	MP1	Z	-23.145	12
4	MP1	Z	-19.742	12
5	S2	Z	-6.747	12
6	MP4	Z	-9.959	0
7	MP4	Z	-9.959	72
8	MP4	Z	-23.145	12
9	MP4	Z	-19.742	12
10	MP7	Z	-9.959	0
11	MP7	Z	-9.959	72
12	MP7	Z	-23.145	12
13	MP7	Z	-19.742	12

Member Point Loads (BLC 32 : Seismic Load X)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-9.959	0
2	MP1	X	-9.959	72
3	MP1	X	-23.145	12
4	MP1	X	-19.742	12
5	S2	X	-6.747	12
6	MP4	X	-9.959	0
7	MP4	X	-9.959	72
8	MP4	X	-23.145	12
9	MP4	X	-19.742	12
10	MP7	X	-9.959	0
11	MP7	X	-9.959	72
12	MP7	X	-23.145	12
13	MP7	X	-19.742	12

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	N72B	L	Y	-250
2	N135A	L	Y	-250
3	N129B	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	N70A	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	N69A	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	N76	L	Y	-500

Joint Loads and Enforced Displacements (BLC 37 : Maintenance Load 4)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N94	L	Y	-500

Joint Loads and Enforced Displacements (BLC 38 : Maintenance Load 5)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N93	L	Y	-500

Joint Loads and Enforced Displacements (BLC 39 : Maintenance Load 6)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N122	L	Y	-500

Joint Loads and Enforced Displacements (BLC 40 : Maintenance Load 7)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N121	L	Y	-500

Joint Loads and Enforced Displacements (BLC 41 : Maintenance Load 8)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N133B	L	Y	-500

Joint Loads and Enforced Displacements (BLC 42 : Maintenance Load 9)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N139	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	-75.716	-75.716	0	%100
2	GA4	SZ	-75.716	-75.716	0	%100
3	GA3	SZ	-75.716	-75.716	0	%100
4	P3	SZ	-75.716	-75.716	0	%100
5	S2	SZ	-75.716	-75.716	0	%100
6	GA2	SZ	-75.716	-75.716	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,%]
7	GA1	SZ	-75.716	-75.716	0	%100
8	P2	SZ	-75.716	-75.716	0	%100
9	S1	SZ	-75.716	-75.716	0	%100
10	GA6	SZ	-75.716	-75.716	0	%100
11	GA5	SZ	-75.716	-75.716	0	%100
12	P1	SZ	-75.716	-75.716	0	%100
13	H1	SZ	-45.429	-45.429	0	%100
14	MP1	SZ	-45.429	-45.429	0	%100
15	MP3	SZ	-45.429	-45.429	0	%100
16	HR1	SZ	-45.429	-45.429	0	%100
17	CA8	SZ	-75.716	-75.716	0	%100
18	CA9	SZ	-75.716	-75.716	0	%100
19	CA7	SZ	-75.716	-75.716	0	%100
20	M32	SZ	0	0	0	%100
21	M35	SZ	0	0	0	%100
22	M36	SZ	0	0	0	%100
23	M39A	SZ	0	0	0	%100
24	CA3	SZ	-75.716	-75.716	0	%100
25	CA4	SZ	-75.716	-75.716	0	%100
26	CA1	SZ	-75.716	-75.716	0	%100
27	CA2	SZ	-75.716	-75.716	0	%100
28	CA5	SZ	-75.716	-75.716	0	%100
29	CA6	SZ	-75.716	-75.716	0	%100
30	M64	SZ	0	0	0	%100
31	M65	SZ	0	0	0	%100
32	M66	SZ	0	0	0	%100
33	M67	SZ	0	0	0	%100
34	M68	SZ	0	0	0	%100
35	M69	SZ	0	0	0	%100
36	M70	SZ	0	0	0	%100
37	M71	SZ	0	0	0	%100
38	M72	SZ	0	0	0	%100
39	M73	SZ	0	0	0	%100
40	M74	SZ	0	0	0	%100
41	M75	SZ	-75.716	-75.716	0	%100
42	MP2	SZ	-45.429	-45.429	0	%100
43	M43	SZ	0	0	0	%100
44	M44	SZ	0	0	0	%100
45	H3	SZ	-45.429	-45.429	0	%100
46	MP7	SZ	-45.429	-45.429	0	%100
47	MP9	SZ	-45.429	-45.429	0	%100
48	HR3	SZ	-45.429	-45.429	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,%]
49	M52	SZ	0	0	0	%100
50	M53	SZ	0	0	0	%100
51	M54	SZ	0	0	0	%100
52	M55	SZ	0	0	0	%100
53	H2	SZ	-45.429	-45.429	0	%100
54	MP4	SZ	-45.429	-45.429	0	%100
55	MP6	SZ	-45.429	-45.429	0	%100
56	HR2	SZ	-45.429	-45.429	0	%100
57	M66A	SZ	0	0	0	%100
58	M67A	SZ	0	0	0	%100
59	M68A	SZ	0	0	0	%100
60	M69A	SZ	0	0	0	%100
61	MP8	SZ	-45.429	-45.429	0	%100
62	M68B	SZ	0	0	0	%100
63	M69B	SZ	0	0	0	%100
64	MP5	SZ	-45.429	-45.429	0	%100
65	M71B	SZ	0	0	0	%100
66	M72B	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	-75.716	-75.716	0	%100
2	GA4	SX	-75.716	-75.716	0	%100
3	GA3	SX	-75.716	-75.716	0	%100
4	P3	SX	-75.716	-75.716	0	%100
5	S2	SX	-75.716	-75.716	0	%100
6	GA2	SX	-75.716	-75.716	0	%100
7	GA1	SX	-75.716	-75.716	0	%100
8	P2	SX	-75.716	-75.716	0	%100
9	S1	SX	-75.716	-75.716	0	%100
10	GA6	SX	-75.716	-75.716	0	%100
11	GA5	SX	-75.716	-75.716	0	%100
12	P1	SX	-75.716	-75.716	0	%100
13	H1	SX	-45.429	-45.429	0	%100
14	MP1	SX	-45.429	-45.429	0	%100
15	MP3	SX	-45.429	-45.429	0	%100
16	HR1	SX	-45.429	-45.429	0	%100
17	CA8	SX	-75.716	-75.716	0	%100
18	CA9	SX	-75.716	-75.716	0	%100
19	CA7	SX	-75.716	-75.716	0	%100
20	M32	SX	0	0	0	%100
21	M35	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,%]
22	M36	SX	0	0	0	%100
23	M39A	SX	0	0	0	%100
24	CA3	SX	-75.716	-75.716	0	%100
25	CA4	SX	-75.716	-75.716	0	%100
26	CA1	SX	-75.716	-75.716	0	%100
27	CA2	SX	-75.716	-75.716	0	%100
28	CA5	SX	-75.716	-75.716	0	%100
29	CA6	SX	-75.716	-75.716	0	%100
30	M64	SX	0	0	0	%100
31	M65	SX	0	0	0	%100
32	M66	SX	0	0	0	%100
33	M67	SX	0	0	0	%100
34	M68	SX	0	0	0	%100
35	M69	SX	0	0	0	%100
36	M70	SX	0	0	0	%100
37	M71	SX	0	0	0	%100
38	M72	SX	0	0	0	%100
39	M73	SX	0	0	0	%100
40	M74	SX	0	0	0	%100
41	M75	SX	-75.716	-75.716	0	%100
42	MP2	SX	-45.429	-45.429	0	%100
43	M43	SX	0	0	0	%100
44	M44	SX	0	0	0	%100
45	H3	SX	-45.429	-45.429	0	%100
46	MP7	SX	-45.429	-45.429	0	%100
47	MP9	SX	-45.429	-45.429	0	%100
48	HR3	SX	-45.429	-45.429	0	%100
49	M52	SX	0	0	0	%100
50	M53	SX	0	0	0	%100
51	M54	SX	0	0	0	%100
52	M55	SX	0	0	0	%100
53	H2	SX	-45.429	-45.429	0	%100
54	MP4	SX	-45.429	-45.429	0	%100
55	MP6	SX	-45.429	-45.429	0	%100
56	HR2	SX	-45.429	-45.429	0	%100
57	M66A	SX	0	0	0	%100
58	M67A	SX	0	0	0	%100
59	M68A	SX	0	0	0	%100
60	M69A	SX	0	0	0	%100
61	MP8	SX	-45.429	-45.429	0	%100
62	M68B	SX	0	0	0	%100
63	M69B	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,%]
64	MP5	SX	-45.429	-45.429	0	%100
65	M71B	SX	0	0	0	%100
66	M72B	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	-15.104	-15.104	0	%100
2	GA4	Y	-9.284	-9.284	0	%100
3	GA3	Y	-9.284	-9.284	0	%100
4	P3	Y	-16.861	-16.861	0	%100
5	S2	Y	-15.104	-15.104	0	%100
6	GA2	Y	-9.284	-9.284	0	%100
7	GA1	Y	-9.284	-9.284	0	%100
8	P2	Y	-16.861	-16.861	0	%100
9	S1	Y	-15.104	-15.104	0	%100
10	GA6	Y	-9.284	-9.284	0	%100
11	GA5	Y	-9.284	-9.284	0	%100
12	P1	Y	-16.861	-16.861	0	%100
13	H1	Y	-10.666	-10.666	0	%100
14	MP1	Y	-9.38	-9.38	0	%100
15	MP3	Y	-9.38	-9.38	0	%100
16	HR1	Y	-9.39	-9.39	0	%100
17	CA8	Y	-19.854	-19.854	0	%100
18	CA9	Y	-19.854	-19.854	0	%100
19	CA7	Y	-19.854	-19.854	0	%100
20	M32	Y	-3.465	-3.465	0	%100
21	M35	Y	-3.465	-3.465	0	%100
22	M36	Y	-3.465	-3.465	0	%100
23	M39A	Y	-3.465	-3.465	0	%100
24	CA3	Y	-11.609	-11.609	0	%100
25	CA4	Y	-11.609	-11.609	0	%100
26	CA1	Y	-11.609	-11.609	0	%100
27	CA2	Y	-11.609	-11.609	0	%100
28	CA5	Y	-11.609	-11.609	0	%100
29	CA6	Y	-11.609	-11.609	0	%100
30	M64	Y	-3.465	-3.465	0	%100
31	M65	Y	-3.465	-3.465	0	%100
32	M66	Y	-3.465	-3.465	0	%100
33	M67	Y	-3.465	-3.465	0	%100
34	M68	Y	-3.465	-3.465	0	%100
35	M69	Y	-3.465	-3.465	0	%100
36	M70	Y	-3.465	-3.465	0	%100

Member Distributed Loads (BLC 16 : Ice Weight) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
37	M71	Y	-3.465	-3.465	0	%100
38	M72	Y	-3.465	-3.465	0	%100
39	M73	Y	-3.465	-3.465	0	%100
40	M74	Y	-3.465	-3.465	0	%100
41	M75	Y	-8.459	-8.459	0	%100
42	MP2	Y	-9.38	-9.38	0	%100
43	M43	Y	-3.465	-3.465	0	%100
44	M44	Y	-3.465	-3.465	0	%100
45	H3	Y	-10.666	-10.666	0	%100
46	MP7	Y	-9.38	-9.38	0	%100
47	MP9	Y	-9.38	-9.38	0	%100
48	HR3	Y	-9.39	-9.39	0	%100
49	M52	Y	-3.465	-3.465	0	%100
50	M53	Y	-3.465	-3.465	0	%100
51	M54	Y	-3.465	-3.465	0	%100
52	M55	Y	-3.465	-3.465	0	%100
53	H2	Y	-10.666	-10.666	0	%100
54	MP4	Y	-9.38	-9.38	0	%100
55	MP6	Y	-9.38	-9.38	0	%100
56	HR2	Y	-9.39	-9.39	0	%100
57	M66A	Y	-3.465	-3.465	0	%100
58	M67A	Y	-3.465	-3.465	0	%100
59	M68A	Y	-3.465	-3.465	0	%100
60	M69A	Y	-3.465	-3.465	0	%100
61	MP8	Y	-9.38	-9.38	0	%100
62	M68B	Y	-3.465	-3.465	0	%100
63	M69B	Y	-3.465	-3.465	0	%100
64	MP5	Y	-9.38	-9.38	0	%100
65	M71B	Y	-3.465	-3.465	0	%100
66	M72B	Y	-3.465	-3.465	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	-11.597	-11.597	0	%100
2	GA4	SZ	-15.924	-15.924	0	%100
3	GA3	SZ	-15.924	-15.924	0	%100
4	P3	SZ	-11.029	-11.029	0	%100
5	S2	SZ	-11.597	-11.597	0	%100
6	GA2	SZ	-15.924	-15.924	0	%100
7	GA1	SZ	-15.924	-15.924	0	%100
8	P2	SZ	-11.029	-11.029	0	%100
9	S1	SZ	-11.597	-11.597	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,%]
10	GA6	SZ	-15.924	-15.924	0	%100
11	GA5	SZ	-15.924	-15.924	0	%100
12	P1	SZ	-11.029	-11.029	0	%100
13	H1	SZ	-14.264	-14.264	0	%100
14	MP1	SZ	-15.784	-15.784	0	%100
15	MP3	SZ	-15.784	-15.784	0	%100
16	HR1	SZ	-15.769	-15.769	0	%100
17	CA8	SZ	-10.342	-10.342	0	%100
18	CA9	SZ	-10.342	-10.342	0	%100
19	CA7	SZ	-10.342	-10.342	0	%100
20	M32	SZ	0	0	0	%100
21	M35	SZ	0	0	0	%100
22	M36	SZ	0	0	0	%100
23	M39A	SZ	0	0	0	%100
24	CA3	SZ	-13.454	-13.454	0	%100
25	CA4	SZ	-13.454	-13.454	0	%100
26	CA1	SZ	-13.454	-13.454	0	%100
27	CA2	SZ	-13.454	-13.454	0	%100
28	CA5	SZ	-13.454	-13.454	0	%100
29	CA6	SZ	-13.454	-13.454	0	%100
30	M64	SZ	0	0	0	%100
31	M65	SZ	0	0	0	%100
32	M66	SZ	0	0	0	%100
33	M67	SZ	0	0	0	%100
34	M68	SZ	0	0	0	%100
35	M69	SZ	0	0	0	%100
36	M70	SZ	0	0	0	%100
37	M71	SZ	0	0	0	%100
38	M72	SZ	0	0	0	%100
39	M73	SZ	0	0	0	%100
40	M74	SZ	0	0	0	%100
41	M75	SZ	-17.356	-17.356	0	%100
42	MP2	SZ	-15.784	-15.784	0	%100
43	M43	SZ	0	0	0	%100
44	M44	SZ	0	0	0	%100
45	H3	SZ	-14.264	-14.264	0	%100
46	MP7	SZ	-15.784	-15.784	0	%100
47	MP9	SZ	-15.784	-15.784	0	%100
48	HR3	SZ	-15.769	-15.769	0	%100
49	M52	SZ	0	0	0	%100
50	M53	SZ	0	0	0	%100
51	M54	SZ	0	0	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,%]
52	M55	SZ	0	0	0	%100
53	H2	SZ	-14.264	-14.264	0	%100
54	MP4	SZ	-15.784	-15.784	0	%100
55	MP6	SZ	-15.784	-15.784	0	%100
56	HR2	SZ	-15.769	-15.769	0	%100
57	M66A	SZ	0	0	0	%100
58	M67A	SZ	0	0	0	%100
59	M68A	SZ	0	0	0	%100
60	M69A	SZ	0	0	0	%100
61	MP8	SZ	-15.784	-15.784	0	%100
62	M68B	SZ	0	0	0	%100
63	M69B	SZ	0	0	0	%100
64	MP5	SZ	-15.784	-15.784	0	%100
65	M71B	SZ	0	0	0	%100
66	M72B	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	-11.597	-11.597	0	%100
2	GA4	SX	-15.924	-15.924	0	%100
3	GA3	SX	-15.924	-15.924	0	%100
4	P3	SX	-11.029	-11.029	0	%100
5	S2	SX	-11.597	-11.597	0	%100
6	GA2	SX	-15.924	-15.924	0	%100
7	GA1	SX	-15.924	-15.924	0	%100
8	P2	SX	-11.029	-11.029	0	%100
9	S1	SX	-11.597	-11.597	0	%100
10	GA6	SX	-15.924	-15.924	0	%100
11	GA5	SX	-15.924	-15.924	0	%100
12	P1	SX	-11.029	-11.029	0	%100
13	H1	SX	-14.264	-14.264	0	%100
14	MP1	SX	-15.784	-15.784	0	%100
15	MP3	SX	-15.784	-15.784	0	%100
16	HR1	SX	-15.769	-15.769	0	%100
17	CA8	SX	-10.342	-10.342	0	%100
18	CA9	SX	-10.342	-10.342	0	%100
19	CA7	SX	-10.342	-10.342	0	%100
20	M32	SX	0	0	0	%100
21	M35	SX	0	0	0	%100
22	M36	SX	0	0	0	%100
23	M39A	SX	0	0	0	%100
24	CA3	SX	-13.454	-13.454	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,%]
25	CA4	SX	-13.454	-13.454	0	%100
26	CA1	SX	-13.454	-13.454	0	%100
27	CA2	SX	-13.454	-13.454	0	%100
28	CA5	SX	-13.454	-13.454	0	%100
29	CA6	SX	-13.454	-13.454	0	%100
30	M64	SX	0	0	0	%100
31	M65	SX	0	0	0	%100
32	M66	SX	0	0	0	%100
33	M67	SX	0	0	0	%100
34	M68	SX	0	0	0	%100
35	M69	SX	0	0	0	%100
36	M70	SX	0	0	0	%100
37	M71	SX	0	0	0	%100
38	M72	SX	0	0	0	%100
39	M73	SX	0	0	0	%100
40	M74	SX	0	0	0	%100
41	M75	SX	-17.356	-17.356	0	%100
42	MP2	SX	-15.784	-15.784	0	%100
43	M43	SX	0	0	0	%100
44	M44	SX	0	0	0	%100
45	H3	SX	-14.264	-14.264	0	%100
46	MP7	SX	-15.784	-15.784	0	%100
47	MP9	SX	-15.784	-15.784	0	%100
48	HR3	SX	-15.769	-15.769	0	%100
49	M52	SX	0	0	0	%100
50	M53	SX	0	0	0	%100
51	M54	SX	0	0	0	%100
52	M55	SX	0	0	0	%100
53	H2	SX	-14.264	-14.264	0	%100
54	MP4	SX	-15.784	-15.784	0	%100
55	MP6	SX	-15.784	-15.784	0	%100
56	HR2	SX	-15.769	-15.769	0	%100
57	M66A	SX	0	0	0	%100
58	M67A	SX	0	0	0	%100
59	M68A	SX	0	0	0	%100
60	M69A	SX	0	0	0	%100
61	MP8	SX	-15.784	-15.784	0	%100
62	M68B	SX	0	0	0	%100
63	M69B	SX	0	0	0	%100
64	MP5	SX	-15.784	-15.784	0	%100
65	M71B	SX	0	0	0	%100
66	M72B	SX	0	0	0	%100

Member Distributed Loads (BLC 43 : BLC 1 Transient Area Loads)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S2	Y	-3.185	-3.185	16.404	40
2	GA2	Y	-1.605	-1.605	3.828	27.295
3	GA1	Y	-1.605	-1.605	3.828	27.295
4	S3	Y	-3.185	-3.185	16.404	40
5	GA4	Y	-1.605	-1.605	3.828	27.295
6	GA3	Y	-1.605	-1.605	3.828	27.295
7	S1	Y	-3.185	-3.185	16.404	40
8	GA6	Y	-1.605	-1.605	3.828	27.295
9	GA5	Y	-1.605	-1.605	3.828	27.295

Member Distributed Loads (BLC 44 : BLC 16 Transient Area Loads)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S2	Y	-28.577	-28.577	16.404	40
2	GA2	Y	-14.401	-14.401	3.828	27.295
3	GA1	Y	-14.401	-14.401	3.828	27.295
4	S3	Y	-28.577	-28.577	16.404	40
5	GA4	Y	-14.401	-14.401	3.828	27.295
6	GA3	Y	-14.401	-14.401	3.828	27.295
7	S1	Y	-28.577	-28.577	16.404	40
8	GA6	Y	-14.401	-14.401	3.828	27.295
9	GA5	Y	-14.401	-14.401	3.828	27.295

Member Area Loads (BLC 1 : Self Weight)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	P22	P21	P20	P23	Y	Two Way	-1.75
2	P10	P11	P12	P9	Y	Two Way	-1.75
3	P31	P34	P33	P32	Y	Two Way	-1.75

Member Area Loads (BLC 16 : Ice Weight)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	P22	P21	P20	P23	Y	Two Way	-15.7
2	P10	P11	P12	P9	Y	Two Way	-15.7
3	P31	P34	P33	P32	Y	Two Way	-15.7

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	P3	PL6.5x0.375	.283	21	2	.133	36.312	y	30	3658....	78975	616.9...	7985.776	1....	H1-1b
2	P2	PL6.5x0.375	.277	21	6	.120	36.312	y	10	3658....	78975	616.9...	7964.607	1....	H1-1b
3	CA1	C3.38x2.06...	.263	0	31	.045	28.188	y	36	4776...	56700	2202....	5751.945	1....	H1-1b

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

	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
4	CA4	C3.38x2.06...	.261	33	2	.037	33	y	31	4776...	56700	2202....	5751.945	1....	H1-1b
5	S2	HSS4X4X6	.260	0	32	.110	0	y	142	1882...	1978...	2204...	22045.5	1....	H1-1b
6	P1	PL6.5x0.375	.260	21	10	.131	36.312	y	2	3658....	78975	616.9...	7986.319	1....	H1-1b
7	CA5	C3.38x2.06...	.257	0	10	.043	28.187	y	28	4776...	56700	2202....	5751.945	1....	H1-1b
8	CA3	C3.38x2.06...	.252	0	2	.044	28.188	y	32	4776...	56700	2202....	5751.945	1....	H1-1b
9	CA2	C3.38x2.06...	.247	33	6	.037	33	y	34	4776...	56700	2202....	5751.945	1....	H1-1b
10	CA6	C3.38x2.06...	.243	33	10	.036	33	y	38	4776...	56700	2202....	5751.945	1....	H1-1b
11	S3	HSS4X4X6	.236	0	38	.111	0	y	114	1882...	1978...	2204...	22045.5	1....	H1-1b
12	CA8	L6.6x4.46x0...	.230	41.562	22	.033	42	z	4	5117...	87561	2464....	7125.374	1....	H2-1
13	M75	PL 2.375x0.5	.228	1.5	12	.211	0	y	28	3825...	38475	400.7...	1903.711	2....	H1-1b
14	HR2	2.88x0.120	.225	90	3	.112	92		4	2249...	4307...	3155....	3155.674	1....	H1-1b
15	CA7	L6.6x4.46x0...	.224	41.562	3	.031	42	z	8	5117...	87561	2464....	7125.374	1....	H2-1
16	HR3	2.88x0.120	.222	6	2	.104	92		6	2249...	4307...	3155....	3155.674	1....	H1-1b
17	HR1	2.88x0.120	.216	6	4	.098	6		4	2249...	4307...	3155....	3155.674	1....	H1-1b
18	S1	HSS4X4X6	.210	0	36	.107	0	y	86	1882...	1978...	2204...	22045.5	1....	H1-1b
19	CA9	L6.6x4.46x0...	.206	41.562	6	.029	42	z	12	5117...	87561	2464....	7125.374	1....	H2-1
20	MP2	PIPE_2.5	.188	70	5	.067	70		5	3348...	66654	4726.5	4726.5	4....	H1-1b
21	MP5	PIPE_2.5	.183	70	7	.057	70		7	3348...	66654	4726.5	4726.5	4....	H1-1b
22	GA4	L2x2x4	.173	0	2	.012	27.295	y	9	2952...	42480	959.63	2190.068	2....	H2-1
23	MP8	PIPE_2.5	.164	70	9	.070	70		3	3348...	66654	4726.5	4726.5	4....	H1-1b
24	GA5	L2x2x4	.164	0	9	.020	27.295	y	38	2952...	42480	959.63	2190.068	2....	H2-1
25	GA2	L2x2x4	.159	0	12	.013	0	y	12	2952...	42480	959.63	2190.068	2....	H2-1
26	GA1	L2x2x4	.148	0	6	.020	27.295	y	34	2952...	42480	959.63	2190.068	2....	H2-1
27	GA3	L2x2x4	.147	0	7	.021	27.295	y	30	2952...	42480	959.63	2190.068	2....	H2-1
28	MP9	PIPE_2.5	.147	70	2	.066	70		7	3348...	66654	4726.5	4726.5	3....	H1-1b
29	GA6	L2x2x4	.147	0	4	.012	0	y	4	2952...	42480	959.63	2190.068	2....	H2-1
30	MP6	PIPE_2.5	.134	70	7	.072	70		6	3348...	66654	4726.5	4726.5	4.6	H1-1b
31	MP1	PIPE_2.5	.130	70	11	.080	26		8	3348...	66654	4726.5	4726.5	2....	H1-1b
32	MP3	PIPE_2.5	.128	70	5	.073	70		3	3348...	66654	4726.5	4726.5	4....	H1-1b
33	MP4	PIPE_2.5	.126	70	7	.073	26		4	3348...	66654	4726.5	4726.5	1....	H1-1b
34	MP7	PIPE_2.5	.123	70	9	.066	26		6	3348...	66654	4726.5	4726.5	3....	H1-1b
35	H3	Pipe3.5x0.1...	.113	31	2	.071	90		2	4587...	7158...	6337....	6337.65	1....	H1-1b
36	H1	Pipe3.5x0.1...	.108	31	10	.063	48		4	4587...	7158...	6337....	6337.65	2.08	H1-1b
37	H2	Pipe3.5x0.1...	.107	31	6	.050	48		12	4587...	7158...	6337....	6337.65	1....	H1-1b

INFINIGY

FROM ZERO TO INFINIGY

the solutions are endless

Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	BOHVN00148A
Site Number:	BOHVN00148A
Connection Description:	Platform to Monopole

MAXIMUM BOLT LOADS		
Bolt Tension:	6906.46	lbs
Bolt Shear:	1628.84	lbs

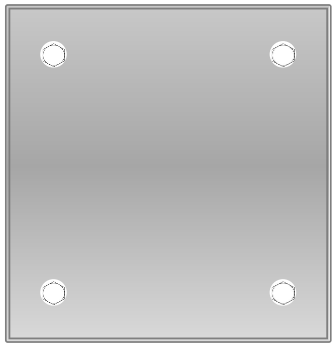
WORST CASE BOLT LOADS[1]		
Bolt Tension:	6906.46	lbs
Bolt Shear:	1231.93	lbs

BOLT PROPERTIES		
Bolt Type:	Bolt	-
Bolt Diameter:	0.625	in
Bolt Grade:	A325	-
# of Bolts:	4	-
Threads Excluded?	No	-

[1] *Worst case bolt loads correspond to Load combination #32 on member S2 in RISA-3D, which causes the maximum demand on the bolts.*

Member Information
I nodes of S3, S2, S1

BOLT CHECK		
Tensile Strength	20340.15	
Shear Strength	13805.83	
Max Tensile Usage	34.0%	
Max Shear Usage	11.8%	
Interaction Check (Worst Case)	0.12	***≤1.05***
Result	Pass	



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: BOHVN00148A

BOHVN00148A
401-411 Lopus Road
Beacon Falls, Connecticut 06403

October 15, 2021

EBI Project Number: 6221004014

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**41.93%**

October 15, 2021

Dish Wireless

Emissions Analysis for Site: BOHVN00148A - BOHVN00148A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **401-411 Lopus Road** in **Beacon Falls, 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 401-411 Lopus Road in Beacon Falls, 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 105 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):	105 feet	Height (AGL):	105 feet	Height (AGL):	105 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 %:	**2.41%**	Antenna B1 MPE %:	**2.41%**	Antenna C1 MPE %:	**2.41%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	2.41%
AT&T	2.17%
Verizon	23.45%
Metro PCS	0.48%
T-Mobile	13.42%
Site Total MPE % :	41.93%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	2.41%
Dish Wireless Sector B Total:	2.41%
Dish Wireless Sector C Total:	2.41%
Site Total MPE % :	41.93%

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	105.0	3.28	600 MHz n71	400	0.82%
Dish Wireless 1900 MHz n70	4	542.70	105.0	7.96	1900 MHz n70	1000	0.80%
Dish Wireless 2190 MHz n66	4	542.70	105.0	7.96	2190 MHz n66	1000	0.80%
						Total:	**2.41%**

• 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:	2.41%
Sector B:	2.41%
Sector C:	2.41%
Dish Wireless Maximum MPE % (Sector A):	2.41%
Site Total:	41.93%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **41.93%** 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 22, 2021

Dear Customer,

The following is the proof-of-delivery for tracking number: 775241998680

Delivery Information:

Status:	Delivered	**Delivered To:**	Receptionist/Front Desk
Signed for by:	J.CETE	**Delivery Location:**	10 MAPLE AVE
Service type:	FedEx 2Day		
Special Handling:	Deliver Weekday		BEACON FALLS, CT, 06403
		Delivery date:	Nov 19, 2021 11:16

Shipping Information:

Tracking number:	775241998680	**Ship Date:**	Nov 17, 2021
		Weight:	0.5 LB/0.23 KG

Recipient:
Jim Baldwin - Building Official,
Beacon Falls Town Hall
10 Maple Avenue
BEACON FALLS, CT, US, 06403

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

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		Delivery date:	Nov 19, 2021 11:16

Shipping Information:

Tracking number:	775242024783	**Ship Date:**	Nov 17, 2021
		Weight:	0.5 LB/0.23 KG

Recipient:
Town of Beacon Falls,
Beacon Falls Town Hall
10 Maple Avenue
BEACON FALLS, CT, US, 06403

Shipper:
Corey Milan, NB+C
100 Apollo Dr.
Suite 303
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Special Handling:	Deliver Weekday		BEACON FALLS, CT, 06403
		Delivery date:	Nov 19, 2021 11:16

Shipping Information:

Tracking number:	775241963182	**Ship Date:**	Nov 17, 2021
		Weight:	0.5 LB/0.23 KG

Recipient:
Gerard Smith - First Selectman,
Beacon Falls Town Hall
10 Maple Avenue
BEACON FALLS, CT, US, 06403

Shipper:
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100 Apollo Dr.
Suite 303
CHELMSFORD, MA, US, 01824

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