

PROJECT NARRATIVE

November 4, 2021

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

Re: Request of DISH Wireless LLC for an Order to Approve the Shared Use of an Existing Tower
4 Elkington Farm Road New Milford, CT 06776
Latitude: 41°35'27.100" / Longitude: -73°24'30.96"

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 4 Elkington Farm Road in New Milford (the "Property"). The existing 150-foot monopole tower is owned by American Tower Corporation ("ATC"). The underlying property is owned by Canterbury School Inc. 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 Pete Bass, Mayor for the Town of New Milford, Bill Murphy, Town of New Milford Building Official and Canterbury School Inc. as the property owner.

Background

The existing ATC facility consists of a 150-foot monopole tower located within an existing leased area. AT&T Mobility currently maintains antennas at the 150-foot level. Sprint Nextel currently maintains antennas at the 141-foot level and 75-foot level. Verizon Wireless currently maintains antennas at the 132-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 4 Elkington Farm 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 122-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 4 Elkington Farm 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 proposed shared use.

Sincerely,

David Hoogasian

David Hoogasian
Project Manager

LETTER OF AUTHORIZATION

AMERICAN TOWER®
CORPORATION
LETTER OF AUTHORIZATION

SITE NO/PROJECT NO: 302523 / 13702509

SITE NAME: New Milford CT 2

ADDRESS: CANTERBURY ROAD, NEW
MILFORD, CT 06776-2909

APN: NMIL-000035-000004-000037-CE000000-LL

I, Margaret Robinson, Senior Counsel, US Tower Division on behalf of American Tower*, owner of the tower facility located at the address identified above (the "Tower Facility"), do hereby authorize **Network Building and Consulting LLC**, its successors and assigns, to act as American Tower's non-exclusive agent for the purpose of filing and securing any zoning, land-use, building permit and/or electrical permit application(s) and approvals of the applicable jurisdiction for and to conduct the construction of the installation of antennas and related telecommunications equipment on the Tower Facility located at the above address. This installation shall not affect adjoining lands and will occur only within the area leased by American Tower.

American Tower understands that the application may be denied, modified or approved with conditions. The above authorization is limited to the acceptance by American Tower of conditions related to American Tower's installation. Any such conditions of approval or modifications will not be effective unless approved in writing by American Tower.

The above authorization does not permit **Network Building and Consulting LLC** to modify or alter any existing permit(s) and/or zoning or land-use conditions or impose any additional conditions unrelated to American Tower's installation of telecommunications equipment without the prior written approval of American Tower.

Signature:



Margaret Robinson, Senior Counsel
US Tower Division

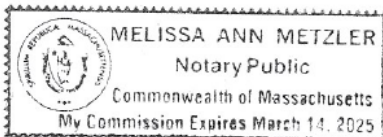
NOTARY BLOCK

COMMONWEALTH OF MASSACHUSETTS
County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Senior Counsel of American Tower (Tower Facility owner and/or operator), 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/she executed the same.

WITNESS my hand and official seal, this 17th day of November, 2021.

NOTARY SEAL



Notary Public

My Commission Expires: March 14, 2025

* American Tower as used herein is defined as American Tower Corporation and any of its affiliates or subsidiaries.

ENGINEERING DRAWINGS



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

BOHVN00145A

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

4 ELKINGTON FARM RD
NEW MILFORD, CT 06776

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

SHEET INDEX

SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
A-0	PARCEL PLAN
A-1	OVERALL AND ENLARGED SITE PLAN
A-2	ELEVATION, ANTENNA LAYOUT AND SCHEDULE
A-3	EQUIPMENT PLATFORM AND H-FRAME DETAILS
A-4	EQUIPMENT DETAILS
A-5	EQUIPMENT DETAILS
A-6	EQUIPMENT DETAILS
E-1	ELECTRICAL/FIBER ROUTE PLAN AND NOTES
E-2	ELECTRICAL DETAILS
E-3	ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE
G-1	GROUNDING PLANS AND NOTES
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
RF-1	RF CABLE COLOR CODE
RF-2	PLUMBING DIAGRAM
GN-1	LEGEND AND ABBREVIATIONS
GN-2	GENERAL NOTES
GN-3	GENERAL NOTES
GN-4	GENERAL NOTES

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 PHOTO



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

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION



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.

SITE INFORMATION

PROPERTY OWNER: CANTERBURY SCHOOL INC
ADDRESS: 4 ELKINGTON FARM RD
NEW MILFORD, CT 06776

TOWER TYPE: MONOPOLE

TOWER CO SITE ID: 302523

TOWER APP NUMBER: 13702509

COUNTY: LITCHFIELD

LATITUDE (NAD 83): 41° 35' 27.100" N
41.59086111

LONGITUDE (NAD 83): 73° 24' 30.960" W
-73.4086

ZONING JURISDICTION: LITCHFIELD COUNTY

ZONING DISTRICT: R-40

PARCEL NUMBER: 35.4/37

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: II-B

POWER COMPANY: EVERSOURCE

TELEPHONE COMPANY: FRONTIER COMMUNICATIONS

PROJECT DIRECTORY

APPLICANT: DISH WIRELESS, L.L.C.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120
(303) 706-5008

TOWER OWNER: AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBBURN, MA 01801

ENGINEER: NB+C ENGINEERING SERVICES, LLC.
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615

SITE ACQUISITION: JEAN COTTRELL
JEAN.COTTRELL@DISH.COM

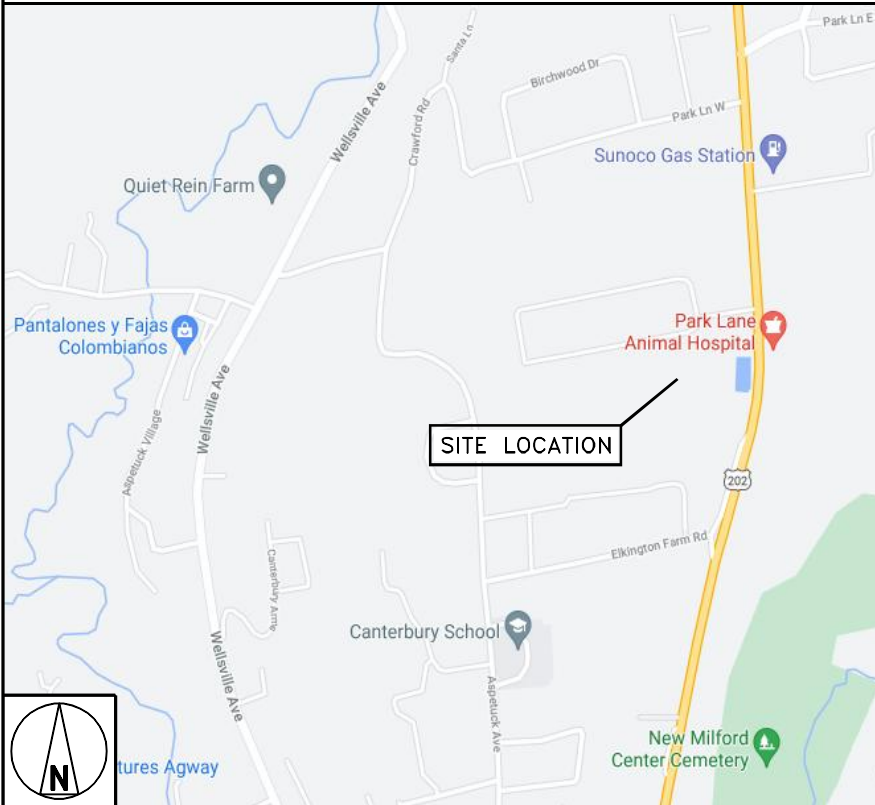
CONSTRUCTION MANAGER: JAVIER SOTO
JAVIER.SOTO@DISH.COM

RF ENGINEER: SYED ZAIDI
SYED.ZAIDI@DISH.COM

DIRECTIONS

FROM HARTFORD TAKE I-84 WEST TO EXIT 9. FOLLOW RT 25 NORTH TO RT 7/202. TURN RIGHT AND FOLLOW TO SPLIT OF RT 7/202. TURN RIGHT ONTO BRIDGE TO FOLLOW RT 202. FOLLOW RT 202 PAST HOSPITAL AND POLICE STATION. ELKINGTON FARM RD IS PAST POLICE STATION, TURN LEFT ONTO IT AND FOLLOW STRAIGHT TO ACCESS ROAD ON LEFT

VICINITY MAP



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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
1	08/19/2021	ISSUED FOR REVIEW
2	10/07/2021	ISSUED FOR CONSTRUCTION



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
302523-13702509

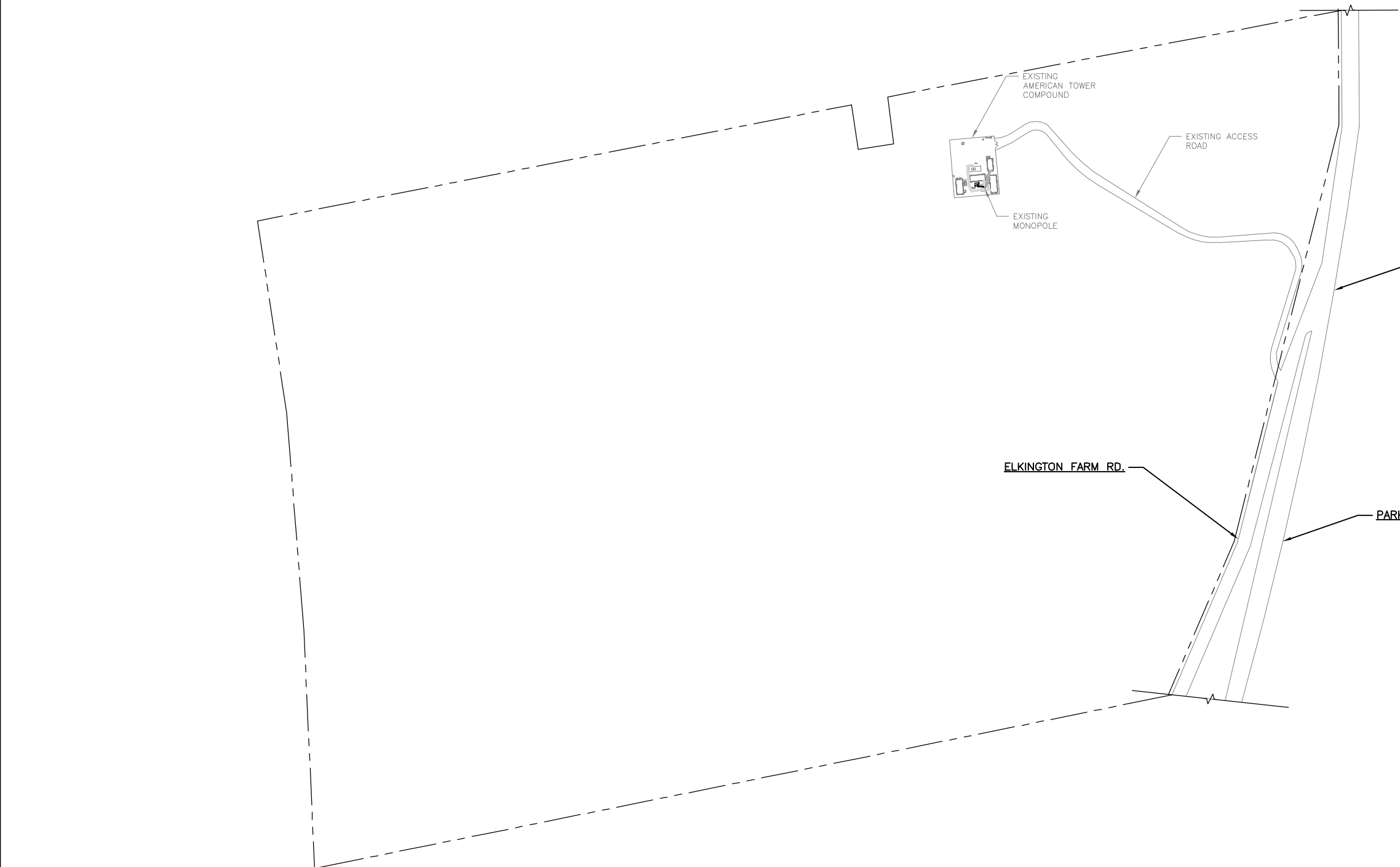
DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00145A
4 ELKINGTON FARM RD
NEW MILFORD, CT 06776

SHEET TITLE
TITLE SHEET

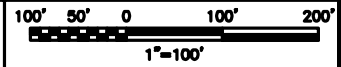
SHEET NUMBER
T-1

NOTES

1. PARCEL LINES TAKEN FROM LITCHFIELD COUNTY
ONLINE GIS.



PARCEL PLAN



1



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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

DRAWN BY:	CHECKED BY:	APPROVED BY:
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JOV	BIW	BIW
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**DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00145A
4 ELKINGTON FARM RD
NEW MILFORD, CT 06776**

SHEET TITLE	
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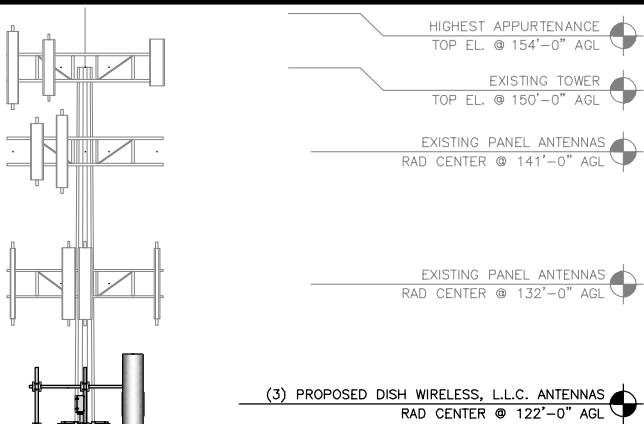
**PARCEL
PLAN**

SHEET NUMBER

A-0

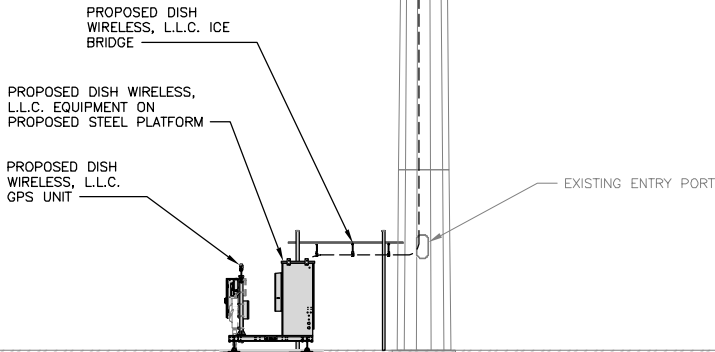
NOTES

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.



(1) PROPOSED DISH WIRELESS, L.L.C. HYBRID CABLE ROUTED INSIDE MONOPOLE SHAFT PER ATC STRUCTURAL ANALYSIS

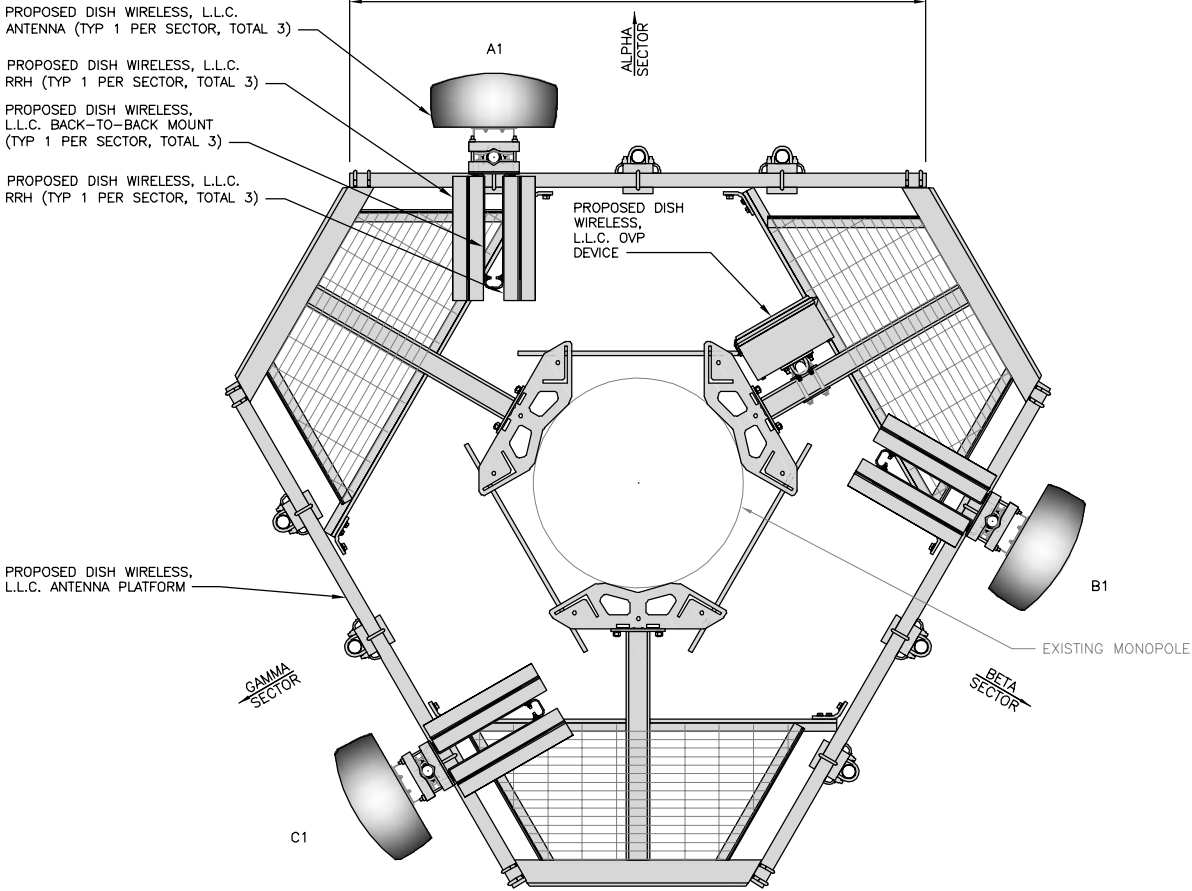
EXISTING MONOPOLE



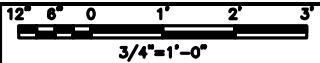
PROPOSED SOUTH ELEVATION



1



ANTENNA LAYOUT



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'	122'–0"	(1) HIGH–CAPACITY HYBRID CABLE (156' LONG)
BETA	B1	PROPOSED	JMA – MX08FRO665–21		5G	72.0" x 20.0"	120'	122'–0"	
GAMMA	C1	PROPOSED	JMA – MX08FRO665–21		5G	72.0" x 20.0"	240'	122'–0"	
SECTOR	POSITION	RRH		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.					
		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						
SECTOR	POSITION	OVP							
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY						
ALPHA	–	RAYCAP – RDIDC–9181–PF–48		–					

ANTENNA SCHEDULE

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

RFDS REV #: 1

CONSTRUCTION
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SUBMITTALS

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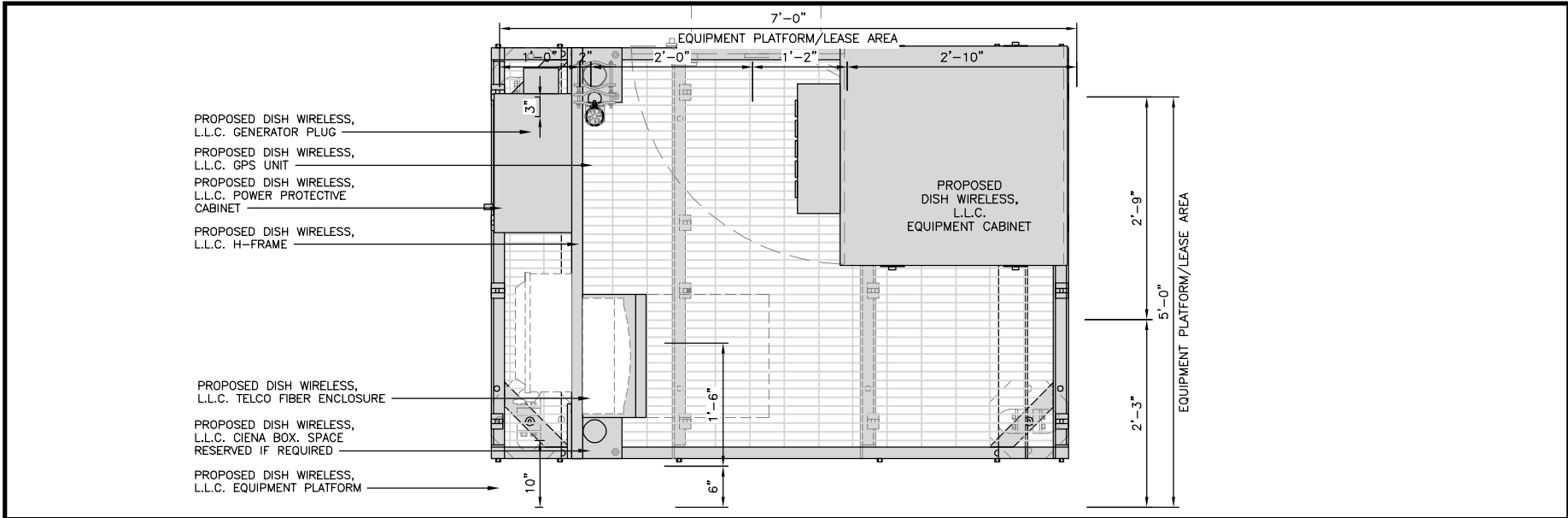
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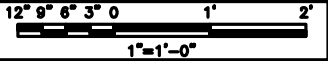
SHEET TITLE
ELEVATION, ANTENNA
LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



PLATFORM EQUIPMENT PLAN

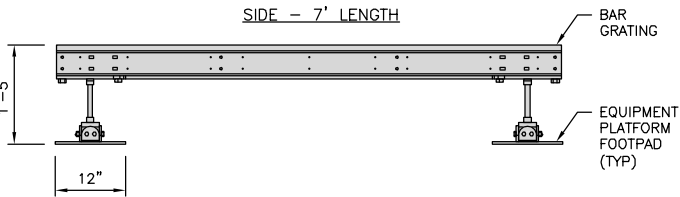
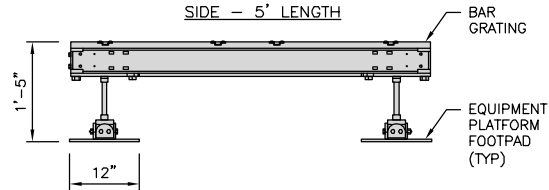
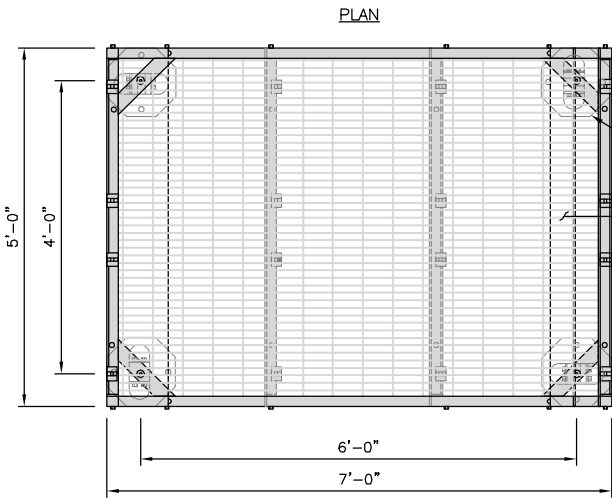


1

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

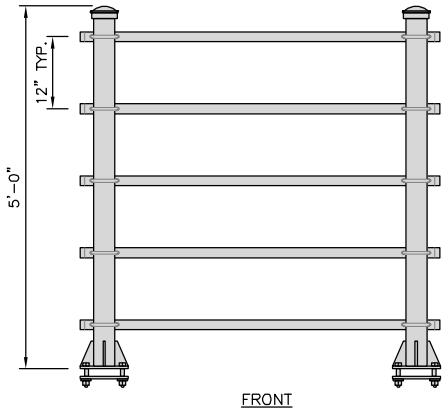
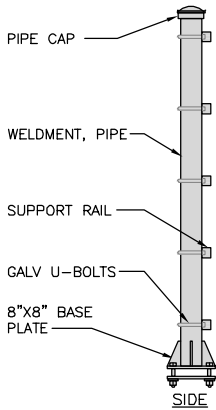
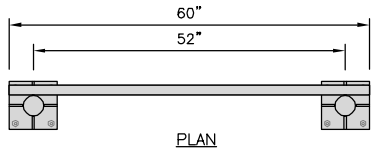


PLATFORM DETAIL

NO SCALE

2

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



H-FRAME DETAIL

NO SCALE

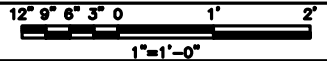
3

NOT USED

NO SCALE

4

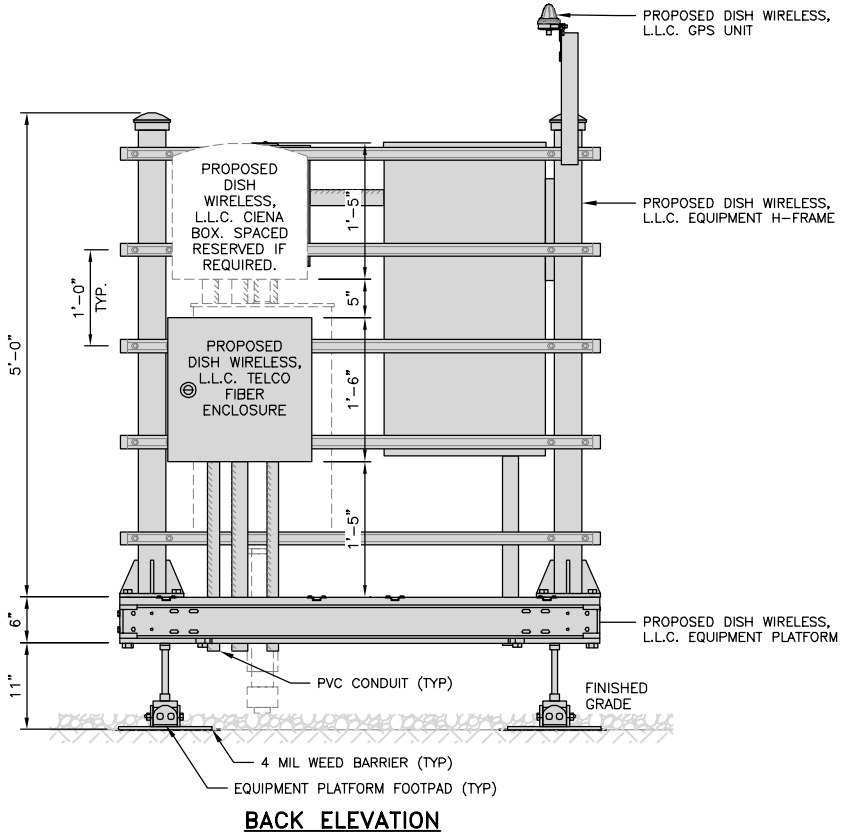
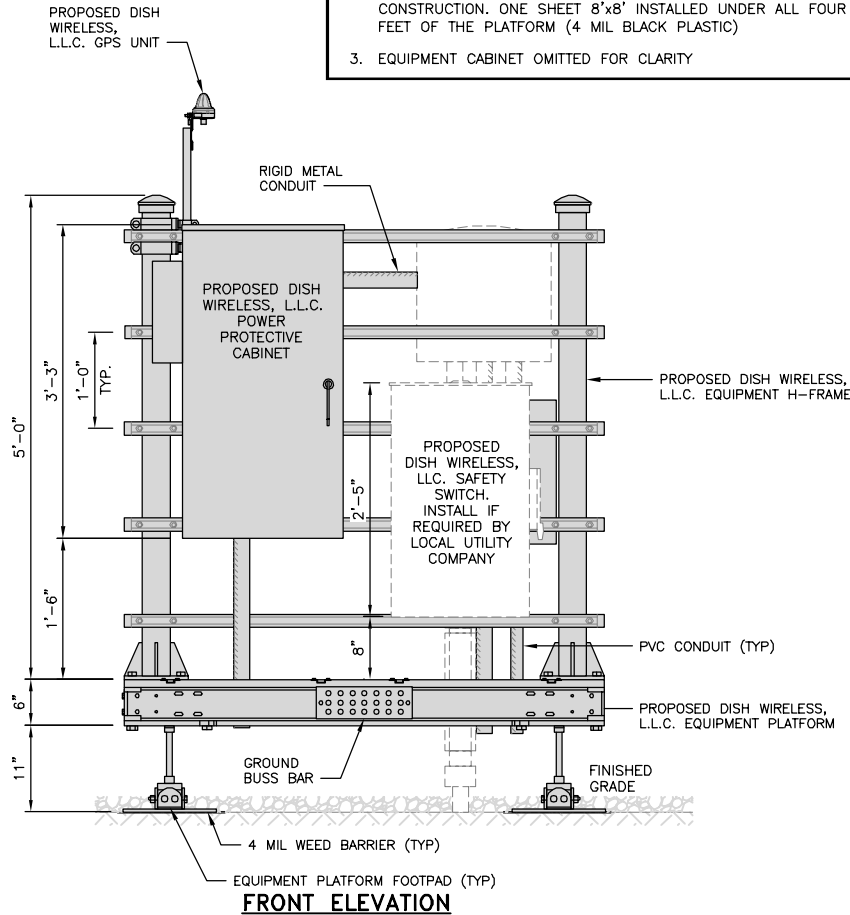
H-FRAME EQUIPMENT ELEVATION



5

NOTES

- CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
- 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)
- EQUIPMENT CABINET OMITTED FOR CLARITY



dish
wireless.

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LITTLETON, CO 80120

NB+C
TOTALLY COMMITTED.

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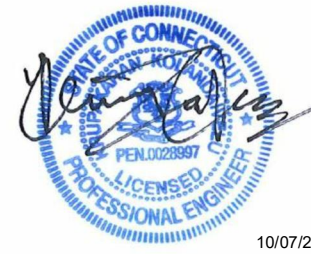
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BOHVN00145A
4 ELKINGTON FARM RD
NEW MILFORD, CT 06776

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

PLAN

SIDE

BACK

SIDE

FRONT

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

PLAN

SIDE

FRONT

POWER PROTECTION CABINET (PPC) DETAIL

NO SCALE

2

NOT USED

NO SCALE

3

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

PLAN

FRONT

SIDE

BACK

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

PLAN

SIDE

BACK

FRONT

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

PLAN

FRONT

SIDE

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

PROPOSED ICE BRIDGE

PROPOSED X" DIA HYBRID CABLE (OPTION "A")

PROPOSED X" DIA HYBRID CABLE (OPTION "B")

PROPOSED CABLE CLAMP @ 3'-0" O.C.

HYBRID SUPPORT BRACKET AND BANDING @ 10'-0" O.C.

EXISTING ENTRY PORT

EXISTING MONOPOLE

A-A SECTION

3" DIA SCH 40 PIPE

18" DIA DRILLED PIER FOUNDATION

1'-6"

CONCRETE PIER

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL

NO SCALE

8

HYBRID CABLE RUN

NO SCALE

9

dish

wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NB+C

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NB+C ENGINEERING SERVICES, LLC.
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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	08/19/2021	ISSUED FOR REVIEW
B	10/07/2021	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT

SEAN ROBERT LAFIN

PEN.0028997

PROFESSIONAL ENGINEER

10/07/21

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A&E PROJECT NUMBER

302523-13702509

DISH WIRELESS, L.L.C.

PROJECT INFORMATION

BOHVN00145A

4 ELKINGTON FARM RD

NEW MILFORD, CT 06776

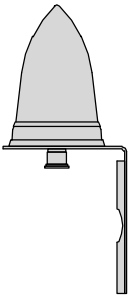
SHEET TITLE

EQUIPMENT DETAILS

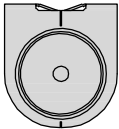
SHEET NUMBER

A-4

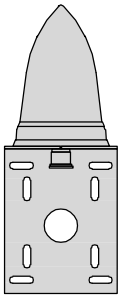
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



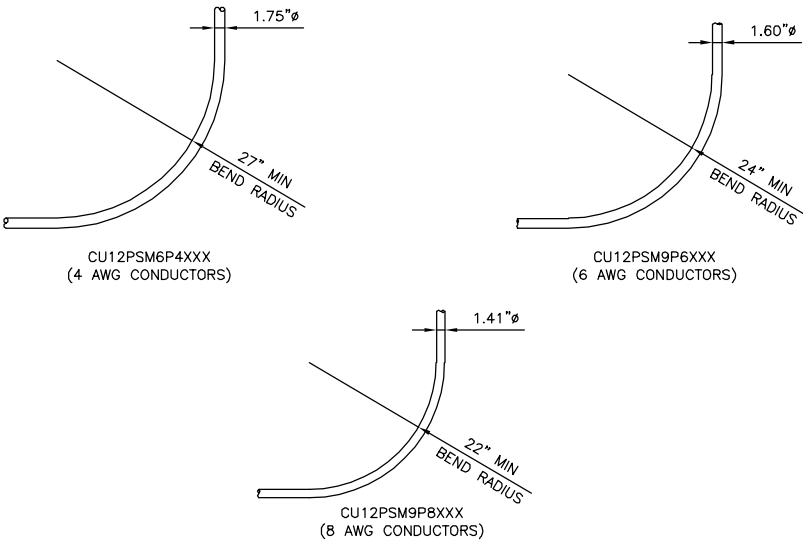
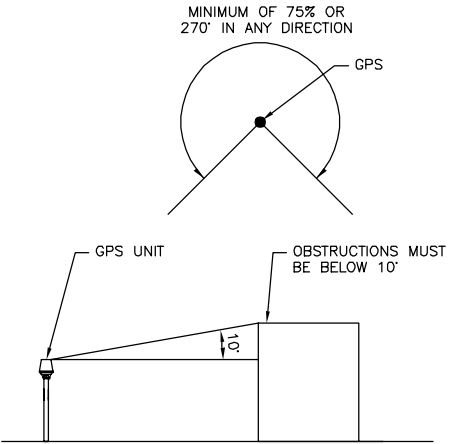
BACK



TOP



SIDE



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

dish
wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NB+C
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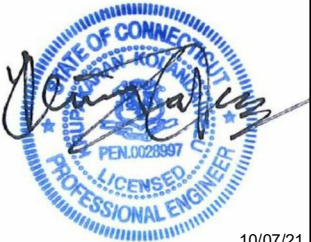
JOV BIW BIW

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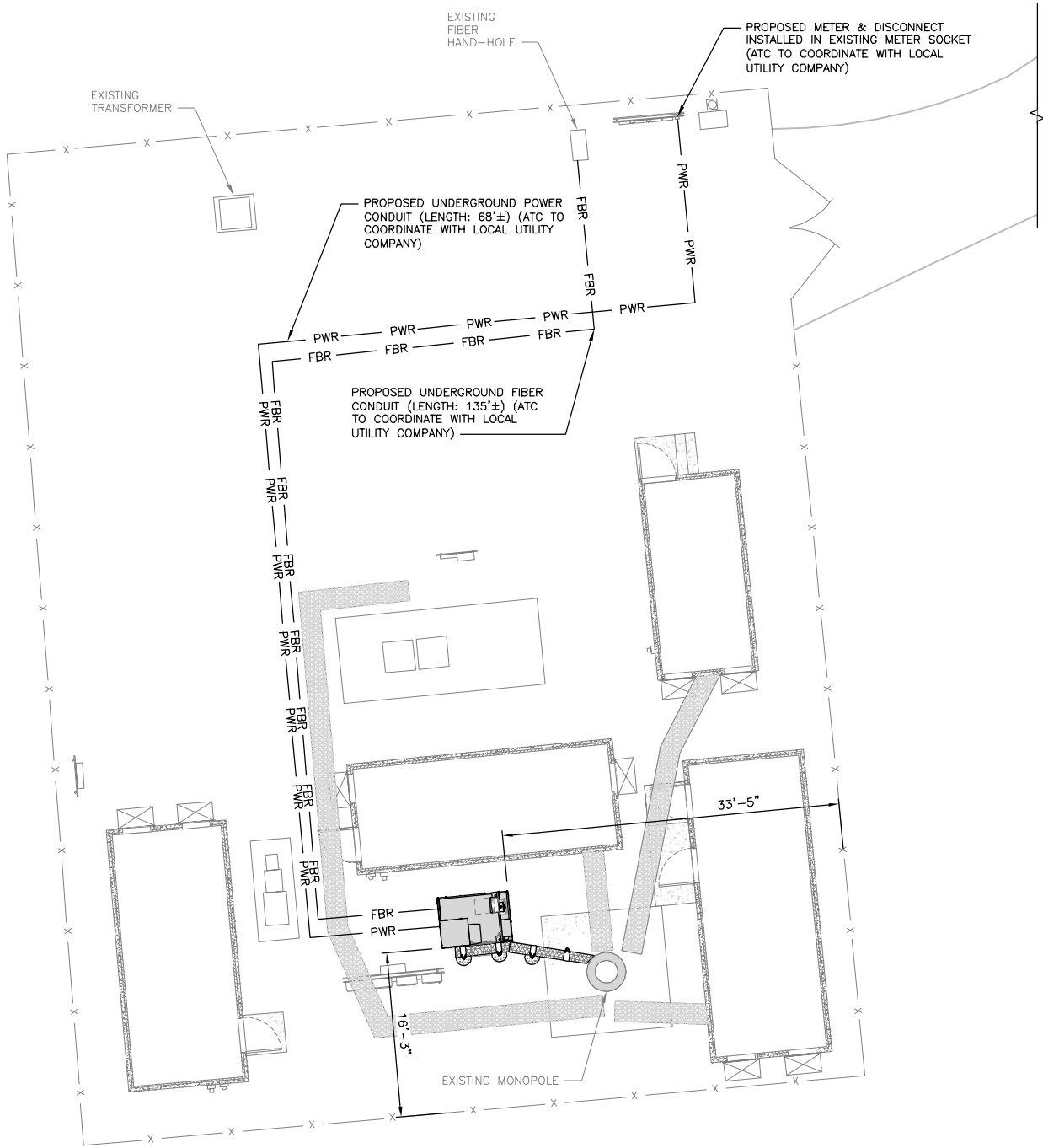
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DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00145A
4 ELKINGTON FARM RD
NEW MILFORD, CT 06776

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER

A-5



NOTES

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

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

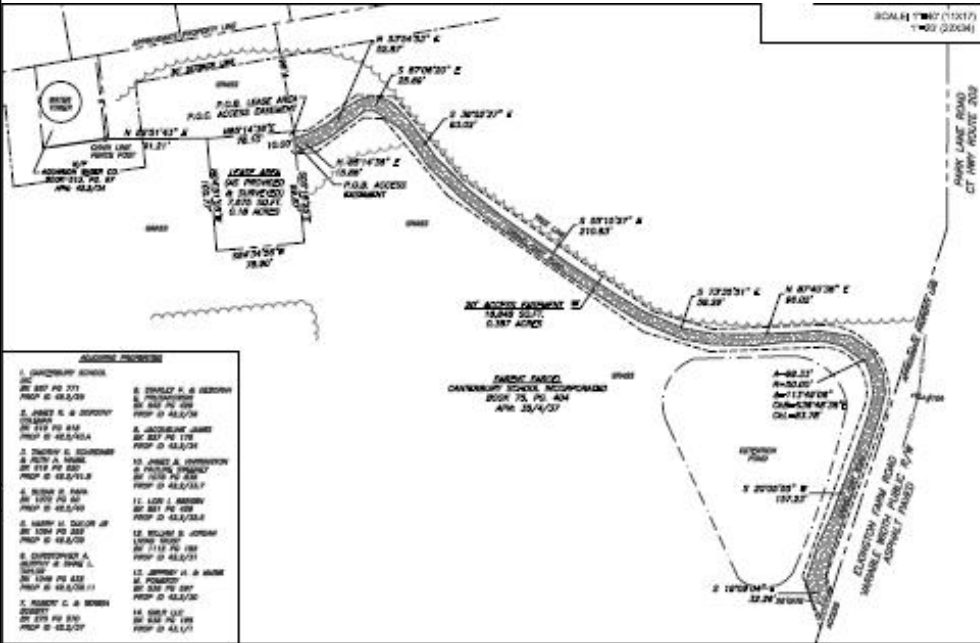
ELECTRICAL NOTES

NO SCALE

2

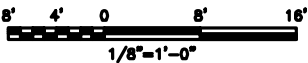
NOTES

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



ADJACENT PROPERTIES	
1. CANTONMENT SCHOOL SEE SET PG 201 PROP ID: 48.8/201	6. CANTONMENT A & B SECTION SEE SET PG 202 PROP ID: 48.8/202
2. JAMES E. & DEBORAH TOLSON SEE SET PG 204 PROP ID: 48.8/204	7. JACOBUS & JAMES SEE SET PG 178 PROP ID: 48.8/178
3. THURMAN D. SCHNEIDER & PATRICIA A. SCHNEIDER SEE SET PG 220 PROP ID: 48.8/220	8. JAMES & CHRISTOPHER & PATRICIA SCHNEIDER SEE SET PG 220 PROP ID: 48.8/220
4. RICHARD E. HARRIS SEE SET PG 202 PROP ID: 48.8/202	9. JAMES & CHRISTOPHER & PATRICIA SCHNEIDER SEE SET PG 220 PROP ID: 48.8/220
5. HARRY H. DUDLEY JR SEE SET PG 202 PROP ID: 48.8/202	10. RICHARD E. HARRIS SEE SET PG 202 PROP ID: 48.8/202
11. JAMES E. & DEBORAH TOLSON SEE SET PG 204 PROP ID: 48.8/204	12. JAMES E. & DEBORAH TOLSON SEE SET PG 204 PROP ID: 48.8/204
13. JAMES E. & DEBORAH TOLSON SEE SET PG 204 PROP ID: 48.8/204	14. RICHARD E. HARRIS SEE SET PG 202 PROP ID: 48.8/202

UTILITY ROUTE PLAN



1

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

RFDS REV #: 1

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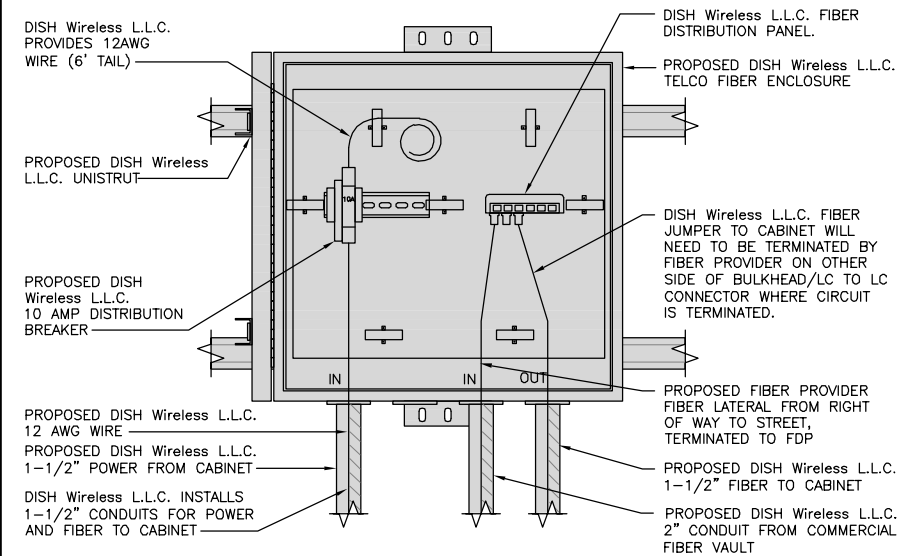
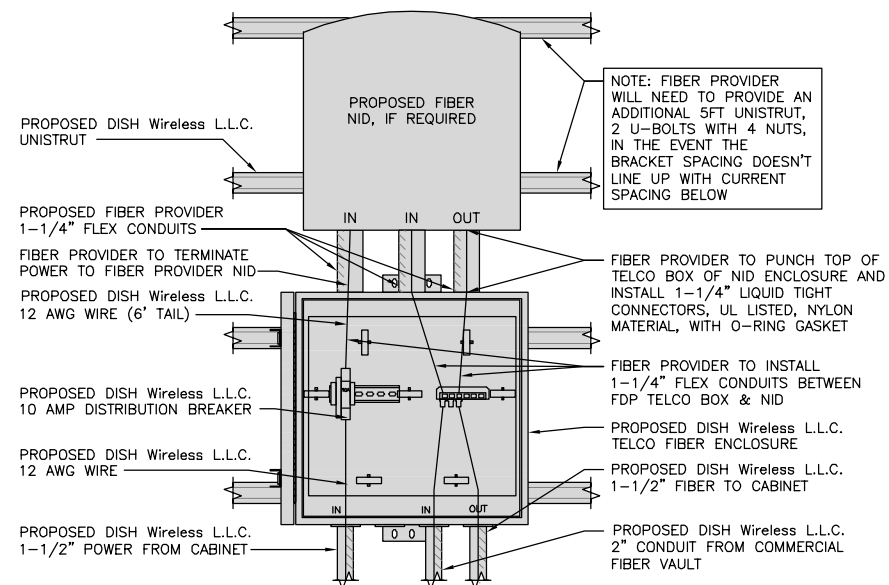
A&E PROJECT NUMBER
302523-13702509

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00145A
4 ELKINGTON FARM RD
NEW MILFORD, CT 06776

SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

SHEET NUMBER

E-1



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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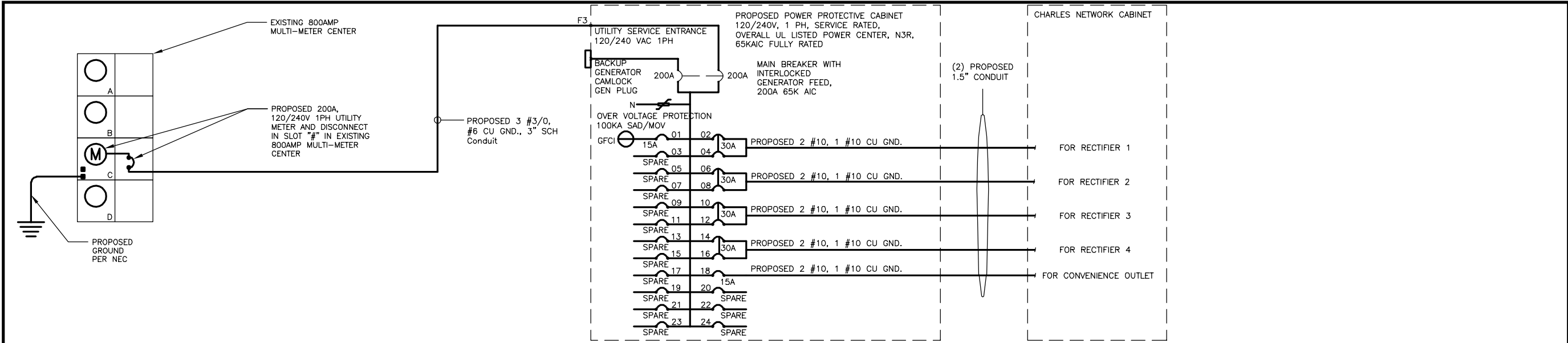
**DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00145A
4 ELKINGTON FARM RD
NEW MILFORD, CT 06776**

MEET TITLE

CTRICAL

DETAILS

SHEET NUMBER



(CHARLES ABB GE INFINITY DC PLANT) WITH MULTI-METER CENTER 120V240V 1PH SOURCE

NO SCALE

1

PROPOSED PANEL SCHEDULE											
LOAD SERVED	VOLT AMPS (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED	
	L1	L2						L1	L2		
GFCI IN PPC CAB.	1440		15A	1	A	2		2880	2880	ABB/GE INFINITY RECTIFIER 1	
-SPARE-				3	B	4	30A	2880	2880	ABB/GE INFINITY RECTIFIER 2	
-SPARE-				5	A	6		2880	2880	ABB/GE INFINITY RECTIFIER 3	
-SPARE-				7	B	8	30A	2880	2880	ABB/GE INFINITY RECTIFIER 4	
-SPARE-				9	A	10		2880	2880	CHARLES GFCI OUTLET	
-SPARE-				11	B	12	30A	2880	2880	-SPARE-	
-SPARE-				13	A	14		2880	2880	-SPARE-	
-SPARE-				15	B	16	30A	2880	2880	-SPARE-	
-SPARE-				17	A	18	15A	1440A		-SPARE-	
-SPARE-				19	B	20				-SPARE-	
-SPARE-				21	A	22				-SPARE-	
-SPARE-				23	B	24				-SPARE-	
VOLT AMPS	1440							12960A	11520		
200A MCB, 1Ø, 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

dish
wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NB+C
TOTALLY COMMITTED.

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(919) 657-9131

DRAWN BY: CHECKED BY: APPROVED BY:

JOV BIW BIW

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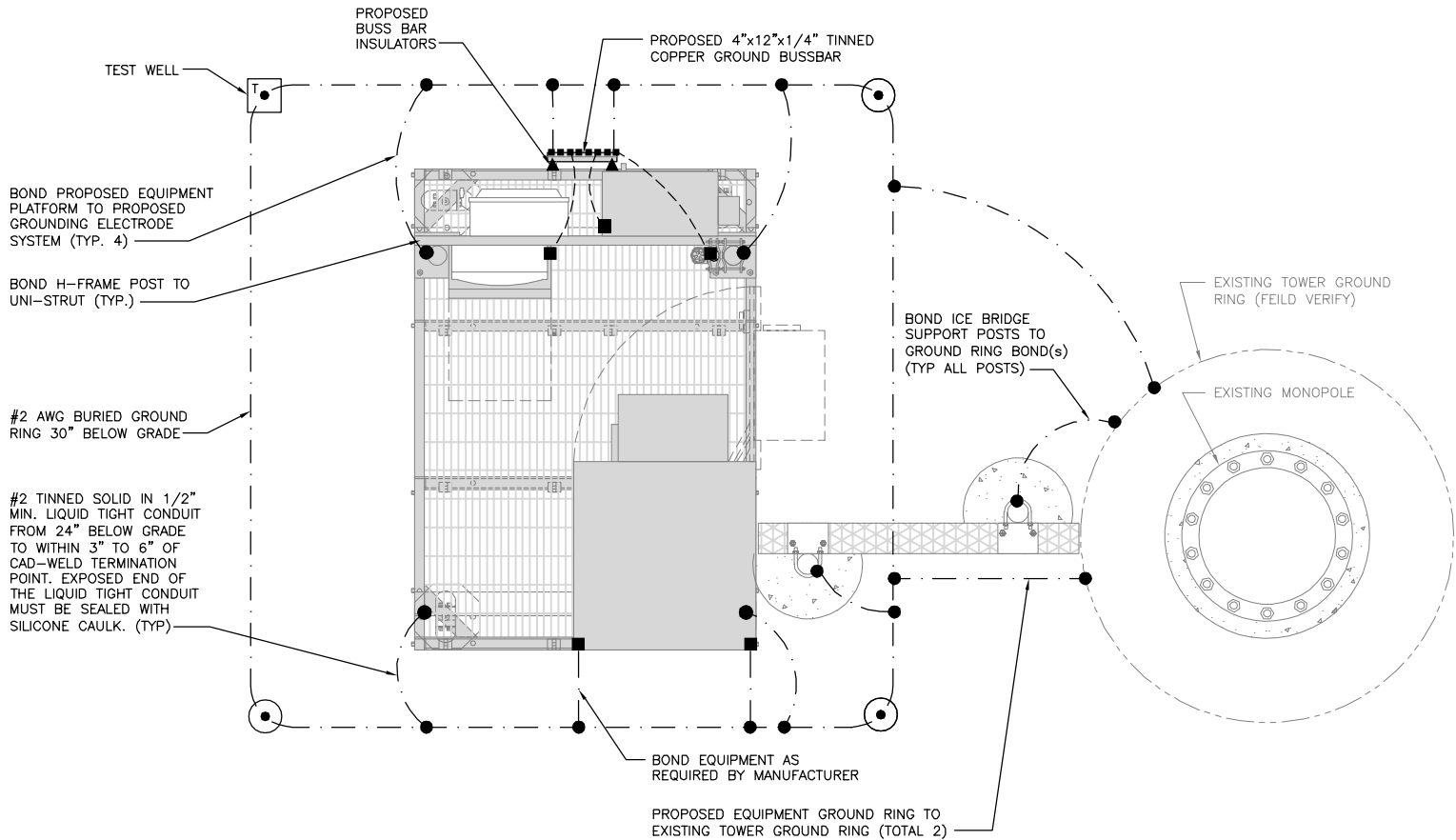
A&E PROJECT NUMBER
302523-13702509

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00145A
4 ELKINGTON FARM RD
NEW MILFORD, CT 06776

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

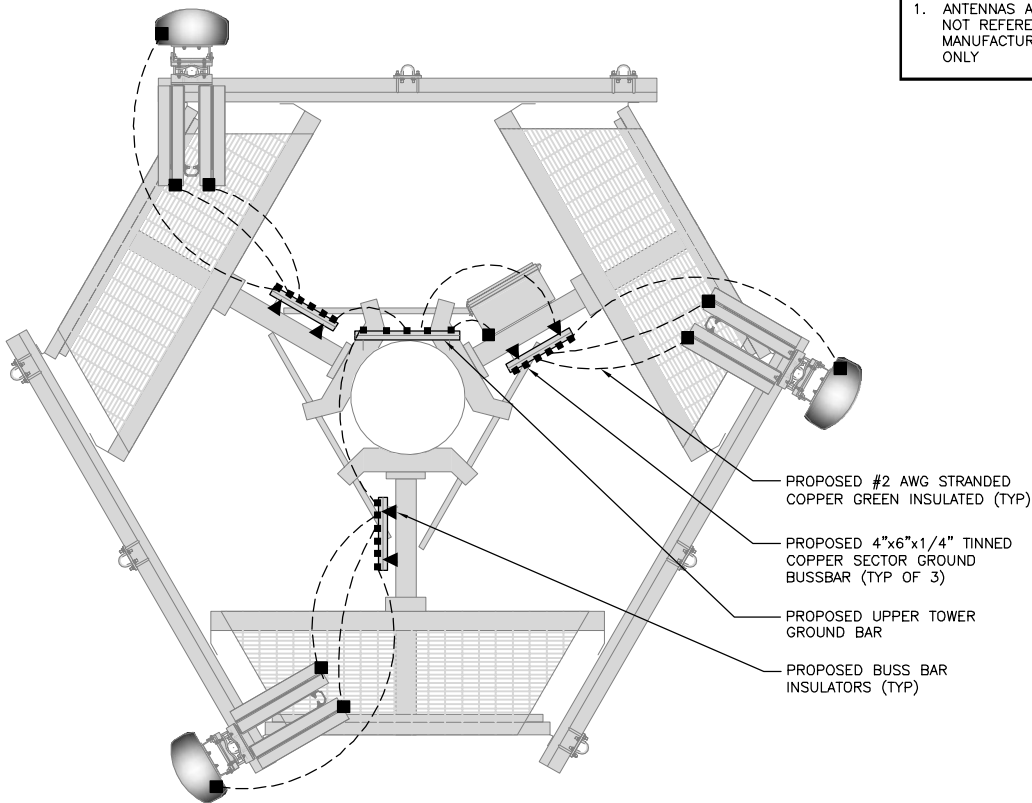
SHEET NUMBER

E-3



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2

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

GROUNDING LEGEND

- GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
- 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.
- 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



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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JOV	BIW	BIW

RFDS REV #: 1

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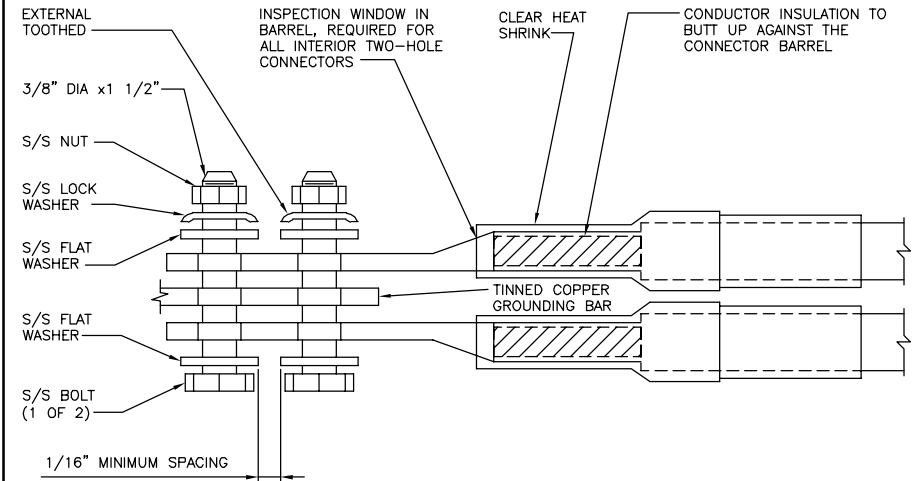
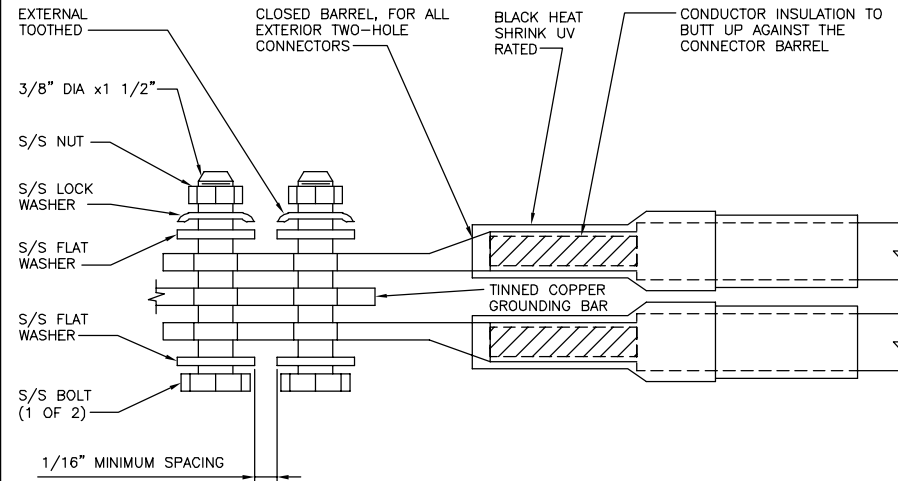
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DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00145A
4 ELKINGTON FARM RD
NEW MILFORD, CT 06776

SHEET TITLE
GROUNDING PLANS
AND NOTES

SHEET NUMBER
G-1

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).



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

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JOV	BIW	BIW
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RFDS REV #: 1

CONSTRUCTION
DOCUMENTS

SUBMITTALS

[illegible]

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UNLESS THEY ARE ACTING UNDER THE DIRECTION
OF A LICENSED PROFESSIONAL ENGINEER,
TO ALTER THIS DOCUMENT.**

A&E PROJECT NUMBER
302523-13702509

**DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHYN00145A
4 ELKINGTON FARM RD
NEW MILFORD, CT 06776**

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER

G-3

LUG DETAIL

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

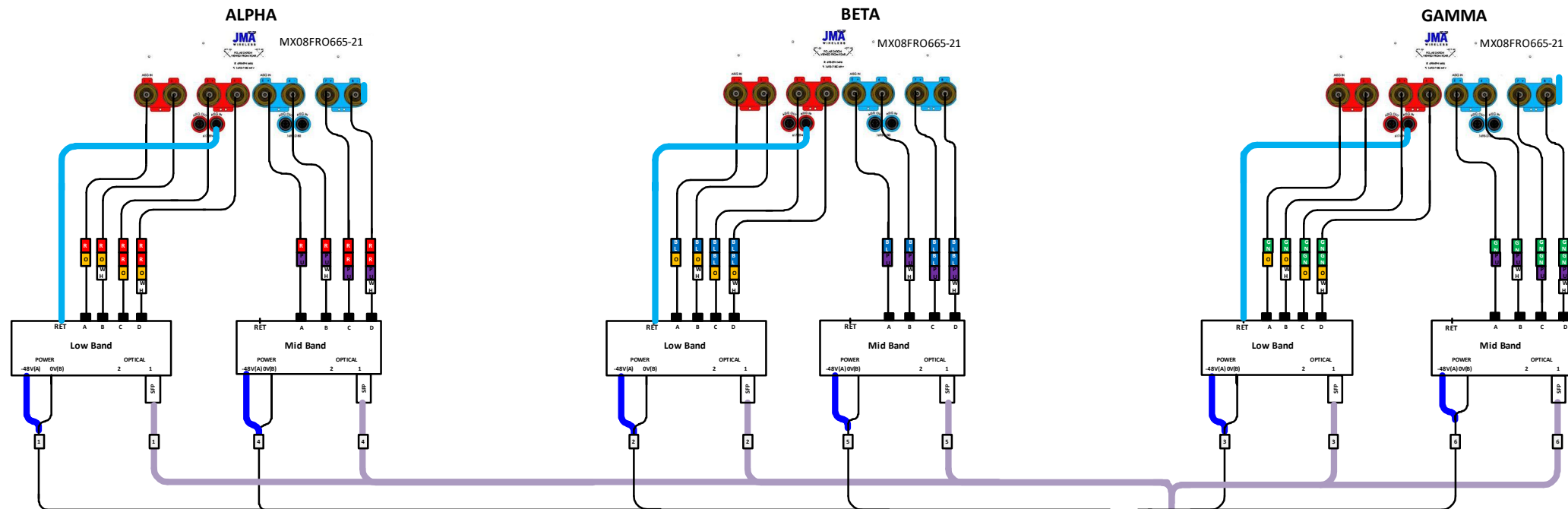
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8

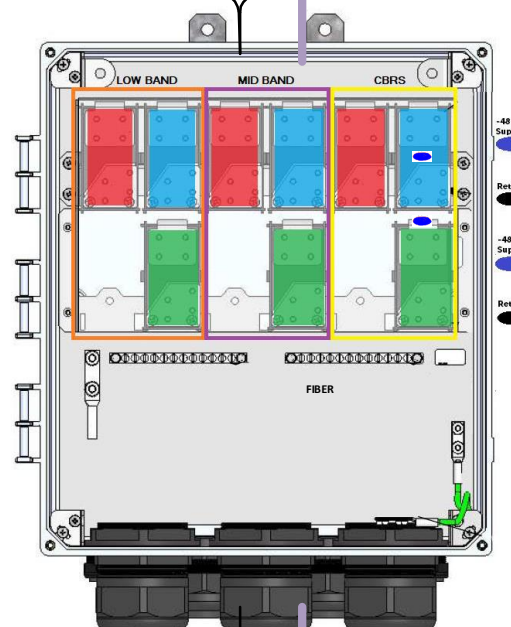
NOT USED

NO SCALE

9



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



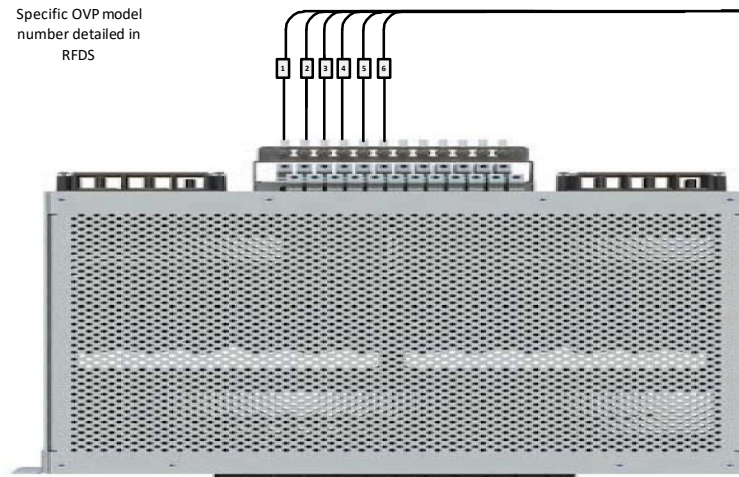
CSR NCS540		
Port	Interface	Description
0	Gi0/0/0/0	SiteBoss
1	Gi0/0/0/1	CBRS - Alpha
2	Gi0/0/0/2	CBRS - Beta
3	Gi0/0/0/3	CBRS - Gamma
4	Te0/0/0/4	Fujitsu Low-Band RU - Alpha
5	Te0/0/0/5	Fujitsu Mid-Band RU - Alpha
6	Te0/0/0/6	Fujitsu Low-Band RU - Beta
7	Te0/0/0/7	Fujitsu Mid-Band RU - Beta
8	Te0/0/0/8	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	Te0/0/0/19	SM1 - Data 1
20	Te0/0/0/20	SM1 - Data 2
21	Te0/0/0/21	SM2 - Data 1
22	Te0/0/0/22	SM2 - Data 2
23	Te0/0/0/23	Reserved Uplink (EDC, LDC)
24	Te0/0/0/24	Blank/Future
25	Te0/0/0/25	Blank/Future
26	Te0/0/0/26	Fiber NIU
27	Te0/0/0/27	Fiber NIU
28	Te0/0/0/28	Blank/Future
29	Te0/0/0/29	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)				
	SIZE	PSCH NO	DWG NO	REV	
	Quan Liu			3	
5-Jan-2021	SCALE	None	SHEET		

dish
wireless.

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LITTLETON, CO 80120

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A&E PROJECT NUMBER
302523-13702509

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00145A
4 ELKINGTON FARM RD
NEW MILFORD, CT 06776

SHEET TITLE
RF
PLUMBING DIAGRAM

SHEET NUMBER

RF-2

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	
SINGLE POLE SWITCH	\$
DUPLEX RECEPTACLE	
DUPLEX GFCI RECEPTACLE	
FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48-T8	
SMOKE DETECTION (DC)	
EMERGENCY LIGHTING (DC)	
SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW LED-1-25A400/51K-SR4-120-PE-DBBTXD	
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	
DETAIL REFERENCE	

LEGEND

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

ABBREVIATIONS



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

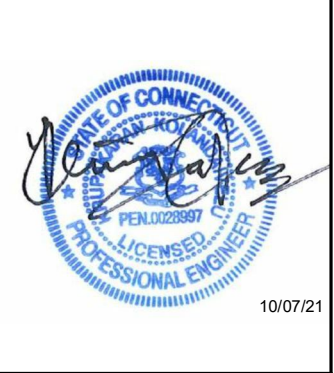


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RFDS REV #: 1

CONSTRUCTION DOCUMENTS

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A&E PROJECT NUMBER
302523-13702509

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00145A
4 ELKINGTON FARM RD
NEW MILFORD, CT 06776

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.



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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(919) 657-9131

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

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
	08/19/2021	ISSUED FOR REVIEW
	10/07/2021	ISSUED FOR CONSTRUCTION



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
302523–13702509

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00145A
4 ELKINGTON FARM RD
NEW MILFORD, CT 06776

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

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 ¼” 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



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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

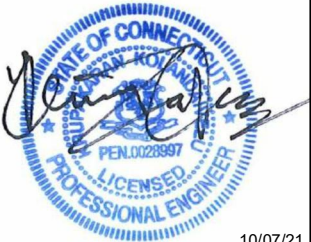
DRAWN BY: CHECKED BY: APPROVED BY:

JOV BIW BIW

RFDS REV #: 1

CONSTRUCTION
DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
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A&E PROJECT NUMBER
302523–13702509

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00145A
4 ELKINGTON FARM RD
NEW MILFORD, CT 06776

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4

ENGINEERING:
STRUCTURAL ANALYSIS
MOUNT ANALYSIS



AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

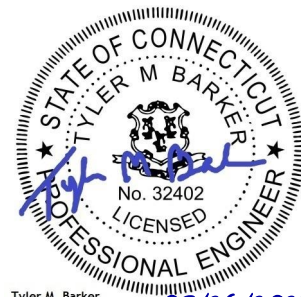
CLSENGINEERING
PLLC

Structural Analysis Report

Structure : 150 ft Monopole
ATC Site Name : New Milford CT 2,CT
ATC Site Number : 302523
Engineering Number : 13702509_C3_03
Proposed Carrier : DISH WIRELESS L.L.C.
Carrier Site Name : BOHVN00145A
Carrier Site Number : BOHVN00145A
Site Location : 4 Elkington Farm Rd
New Milford, CT 06776-2909
41.5909, -73.4086
County : Litchfield
Date : August 25, 2021
Max Usage : 99%
Result : Pass

Prepared By:
Chaitanya Shetti
CLS

Reviewed By:



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

08/26/2021

Table of Contents

Introduction	3
Supporting Documents	3
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Deflection and Sway*	5
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Calculations	Attached

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 150 ft Monopole to reflect the change in loading by DISH WIRELESS L.L.C..

Supporting Documents

Tower Drawings	ITT Meyer per AT&T Design Spec. AT-8935, dated April 13, 1984 Tower Mapping by Spectra Site dated March 07, 2008
Foundation Drawing	SNET Job #3C239, dated April 20, 1990
Geotechnical Report	Johnson Soils Engineering Company Job #14974-NM, dated January 28, 2002
Modifications	Scientel CMS Modification Drawings, dated March 7, 2002 ATC Project #41658239, dated December 22, 2008 ATC Project #50496632, dated October 22, 2012 ATC Project #OAA682215_C6_04, dated September 19, 2016 ATC Project #OAA707682_C6_06, dated February 16, 2018

Analysis

The tower was analyzed using tnxTower 8.1.1 tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	114 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:	$S_s = 0.20$, $S_i = 0.06$
Site Class:	D - Stiff Soil – Default

****Wind load and Ice thickness have been reduced by applicable existing structure load modification factors in accordance with TIA-222-H, Annex S.**

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
154.0	3	Powerwave Allgon TT19-08BP111-001	Triangular Low Profile Platform	(2) 0.39" (10mm) Fiber Trunk (4) 0.78" (19.7mm) 8 AWG 6 (12) 1 1/4" Coax (1) 2" conduit (1) 3" conduit	AT&T MOBILITY
	1	Andrew ABT-DFDM-ADB			
	3	Kaelus DBCT108F1V92-1			
	2	Raycap DC6-48-60-18-8F			
	3	Ericsson RRUS 11 (Band 12)			
	2	Kathrein Scala 80010768			
	3	Ericsson RRUS-12 B2			
	3	Powerwave Allgon 7770.00A			
	1	Kathrein Scala 800 10764			
	1	Kathrein Scala 80010767			
	2	KMW AM-X-CD-16-65-00T-RET			
	3	Ericsson RRUS 32 B2			
141.0	3	Ericsson Radio 4480 B71+B85A	Triangular Platform with Handrails	(3) 1 5/8" Hybriflex	SPRINT NEXTEL
	3	Ericsson Radio 4460 B25+B66			
	3	Ericsson Air6449 B41			
	3	RFS APXVAALL24 43-U-NA20			
	3	RFS APX16DWV-16DWVS-E-A20			
132.0	3	Commscope CBC78T-DS-43-2X	Triangular Platform with Handrails	(6) 1 5/8" Coax (2) 1.58" (40.1mm) Hybrid	VERIZON WIRELESS
	3	Samsung Outdoor LAA 1W RRH –Clip-on Antenna			
	3	Samsung Outdoor CBRS 20W RRH			
	3	Nokia B5 RRH4x40 w/ Solar Shield			
	3	Samsung B5/B13 RRH-BR04C			
	3	Samsung B2/B66A RRH-BR049			
	3	Samsung MT6407-77A			
	2	RFS DB-T1-6Z-8AB-0Z			
	4	Antel LPA-80080/6CF			
	2	Antel LPA-80063/6CF			
	6	Commscope JAHH-65B-R3B			
75.0	1	PCTEL GPS-TMG-HR-26N	Flush	(1) 1/2" Coax	SPRINT NEXTEL

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
122.0	1	Commscope RDIDC-9181-PF-48	Triangular Platform with Handrails	(1) 1.60" (40.6mm) Hybrid	DISH WIRELESS L.L.C.
	3	Fujitsu TA08025-B605			
	3	Fujitsu TA08025-B604			
	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	69%	Pass
Shaft	84%	Pass
Flange	99%	Pass
Base Plate	30%	Pass
Reinforcement	50%	Pass

Foundation

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	2409.9	82%
Axial (Kips)	50.7	38%
Shear (Kips)	22.0	27%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
122.0	Commscope RDIDC-9181-PF-48	DISH WIRELESS L.L.C.	1.261	0.003
	Fujitsu TA08025-B605			
	Fujitsu TA08025-B604			
	JMA Wireless MX08FRO665-21			

*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

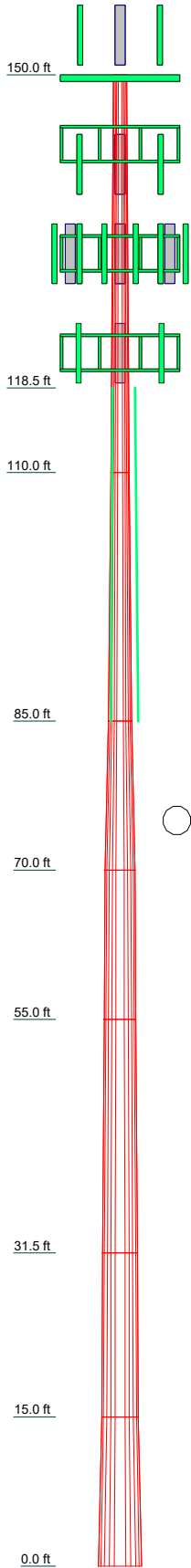
It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

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.

Section	1	2	3	4	5	6	7
Length (ft)	40.00	25.00	15.00	15.00	23.50	16.50	15.00
Number of Sides	12	12	12	12	12	12	12
Thickness (in)	0.1875	0.2500	0.3722	0.3918	0.4720	0.4977	0.5362
Top Dia (in)	15.0000	21.2500	27.6100	35.6910	38.0580	41.5760	44.0460
Bot Dia (in)	21.2500	27.6100	35.6910	38.0580	41.5760	44.0460	52.0640
Grade	A572-65						
Tube Length (ft)	33.50						
Reinf Size	2 1/2						
Reinf Grade	A615-75						
Weight (K)	1.5	1.7	1.9	2.3	4.8	3.8	4.2



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
ABT-DFDM-ADB	150	CBC78T-DS-43-2X	132
TT19-08BP111-001	150	CBC78T-DS-43-2X	132
TT19-08BP111-001	150	Outdoor LAA 1W RRH-Clip-on Antenna	132
TT19-08BP111-001	150	Outdoor LAA 1W RRH-Clip-on Antenna	132
DBCT108F1V92-1	150	Outdoor LAA 1W RRH-Clip-on Antenna	132
DBCT108F1V92-1	150	Outdoor LAA 1W RRH-Clip-on Antenna	132
DBCT108F1V92-1	150	Outdoor LAA 1W RRH-Clip-on Antenna	132
(2) DC6-48-60-18-8F	150	Outdoor CBRS 20W RRH	132
RRUS 11 (Band 12)	150	Outdoor CBRS 20W RRH	132
RRUS 11 (Band 12)	150	Outdoor CBRS 20W RRH	132
RRUS 11 (Band 12)	150	Outdoor CBRS 20W RRH	132
RRUS 32 B2	150	B5 RRH4X40 w/ Solar Shield	132
RRUS 32 B2	150	B5 RRH4X40 w/ Solar Shield	132
RRUS 32 B2	150	B5 RRH4X40 w/ Solar Shield	132
RRUS 32 B2	150	B5/B13 RRH-BR04C	132
RRUS-12 B2	150	B5/B13 RRH-BR04C	132
RRUS-12 B2	150	B5/B13 RRH-BR04C	132
RRUS-12 B2	150	B5/B13 RRH-BR04C	132
7770.00A	150	B2/B66A RRH-BR049	132
7770.00A	150	B2/B66A RRH-BR049	132
7770.00A	150	B2/B66A RRH-BR049	132
800 10764	150	MT6407-77A	132
80010767	150	MT6407-77A	132
AM-X-CD-16-65-00T-RET	150	MT6407-77A	132
AM-X-CD-16-65-00T-RET	150	DB-T1-6Z-8AB-0Z	132
80010768	150	DB-T1-6Z-8AB-0Z	132
80010768	150	(2) LPA-80080/6CF	132
Round Low Profile Platform	150	(2) LPA-80080/6CF	132
Round Platform w/ Handrails	143	(2) JAHH-65B-R3B	132
Radio 4460 B25+B66	141	(2) JAHH-65B-R3B	132
Radio 4460 B25+B66	141	(2) JAHH-65B-R3B	132
Radio 4480 B71+B85A	141	(2) LPA-80063/6CF	132
Radio 4480 B71+B85A	141	Round Platform w/ Handrails	132
Radio 4480 B71+B85A	141	RDIDC-9181-PF-48	122
Air6449 B41	141	TA08025-B604	122
Air6449 B41	141	TA08025-B604	122
Air6449 B41	141	TA08025-B604	122
APX16DWV-16DWVS-E-A20	141	TA08025-B605	122
APX16DWV-16DWVS-E-A20	141	TA08025-B605	122
APX16DWV-16DWVS-E-A20	141	TA08025-B605	122
APXVAALL24_43-U-NA20	141	MX08FRO665-21	122
APXVAALL24_43-U-NA20	141	MX08FRO665-21	122
APXVAALL24_43-U-NA20	141	MX08FRO665-21	122
Radio 4460 B25+B66	141	Flat Platform w/ Handrails	122
CBC78T-DS-43-2X	132	GPS-TMG-HR-26N	75

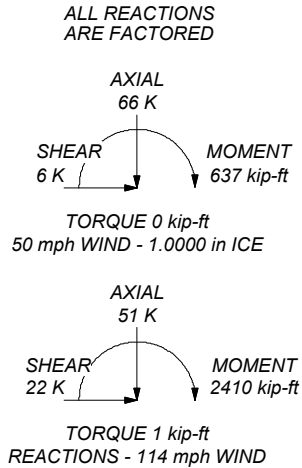
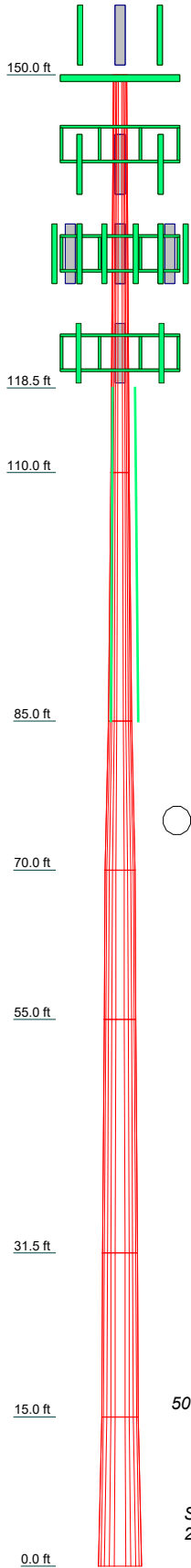
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi	A615-75	75 ksi	100 ksi

TOWER DESIGN NOTES

1. Tower is located in Litchfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 114 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. Tower wrap from 0' to 85'. This model considers an equivalent Moment of Inertia for tower Sections 3 through 7.

Section	1	2	3	4	5	6	7
Length (ft)	40.00	25.00	15.00	15.00	23.50	16.50	15.00
Number of Sides	12	12	12	12	12	12	12
Thickness (in)	0.1875	0.2500	0.3722	0.3918	0.4720	0.4977	0.5362
Top Dia (in)	15.0000	21.2500	27.6100	35.6910	38.0580	41.5760	44.0460
Bot Dia (in)	21.2500	27.6100	35.6910	38.0580	41.5760	44.0460	52.0640
Grade	A572-65						
Tube Length (ft)	33.50						
Reinf Size	2 1/2						
Reinf Grade	A615-75						
Weight (K)	1.5	1.7	1.9	2.3	4.8	3.8	4.2
20.2							



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi	A615-75	75 ksi	100 ksi

TOWER DESIGN NOTES

1. Tower is located in Litchfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 114 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. Tower wrap from 0' to 85'. This model considers an equivalent Moment of Inertia for tower Sections 3 through 7.
9. TOWER RATING: 84.4%

tnxTower Telamon Corporation 319 Chapanoke Road, Suite 118 Raleigh, NC 27603 Phone: (405) 348-5460 FAX: (405) 341-6334	Job 302523 - New Milford CT 2, CT	Page 1 of 29
	Project 13702509_C3_03	Date 17:04:36 08/25/21
	Client DISH WIRELESS, LLC	Designed by Chaitanya Shetti

Tower Input Data

The tower is a monopole.

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

The following design criteria apply:

Tower is located in Litchfield County, Connecticut.

Tower base elevation above sea level: 470.56 ft.

Basic wind speed of 114 mph.

Risk Category II.

Exposure Category B.

Simplified Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Category: 1.

Crest Height: 0.00 ft.

Nominal ice thickness of 1.0000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

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

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

Tower wrap from 0' to 85'. This model considers an equivalent Moment of Inertia for tower Sections 3 through 7..

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

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

Tower analysis based on target reliabilities in accordance with Annex S.

Load Modification Factors used: $K_{cs}(F_w) = 0.95$, $K_{cs}(t_i) = 0.85$.

Maximum demand-capacity ratio is: 1.

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

Options

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

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Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	150.00-110.00	40.00	0.00	12	15.0000	21.2500	0.1875	0.7500	A572-65 (65 ksi)
L2	110.00-85.00	25.00	0.00	12	21.2500	27.6100	0.2500	1.0000	A572-65 (65 ksi)
L3	85.00-70.00	15.00	0.00	12	27.6100	35.6910	0.3722	1.4888	A572-65 (65 ksi)
L4	70.00-55.00	15.00	0.00	12	35.6910	38.0580	0.3918	1.5673	A572-65 (65 ksi)
L5	55.00-31.50	23.50	0.00	12	38.0580	41.5760	0.4720	1.8882	A572-65 (65 ksi)
L6	31.50-15.00	16.50	0.00	12	41.5760	44.0460	0.4977	1.9908	A572-65 (65 ksi)
L7	15.00-0.00	15.00		12	44.0460	52.0640	0.5362	2.1449	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	15.4630	8.9430	250.4541	5.3029	7.7700	32.2335	507.4880	4.4015	3.5175	18.76
	21.9335	12.7165	720.0669	7.5404	11.0075	65.4160	1459.0508	6.2587	5.1925	27.693
L2	21.9114	16.9050	951.5678	7.5180	11.0075	86.4472	1928.1342	8.3201	5.0250	20.1
	28.4958	22.0248	2104.4088	9.7949	14.3020	147.1411	4264.1028	10.8399	6.7295	26.918
L3	28.4527	32.6449	3091.3307	9.7511	14.3020	216.1470	6263.8740	16.0668	6.4020	17.2
	36.8187	42.3301	6739.8046	12.6441	18.4879	364.5515	13656.6715	20.8336	8.5677	23.018
L4	36.8118	44.5367	7083.2568	12.6371	18.4879	383.1285	14352.5987	21.9196	8.5151	21.732
	39.2623	47.5231	8605.8524	13.4845	19.7140	436.5341	17437.7901	23.3894	9.1494	23.351
L5	39.2340	57.1295	10301.4312	13.4558	19.7140	522.5428	20873.4924	28.1174	8.9345	18.927
	42.8761	62.4767	13473.2267	14.7152	21.5364	625.6035	27300.4100	30.7491	9.8773	20.925
L6	42.8671	65.8318	14179.0407	14.7060	21.5364	658.3766	28730.5806	32.4004	9.8085	19.708
	45.4242	69.7902	16893.6340	15.5903	22.8158	740.4348	34231.0826	34.3486	10.4705	21.038
L7	45.4106	75.1266	18153.2042	15.5765	22.8158	795.6408	36783.3132	36.9750	10.3672	19.334
	53.7115	88.9710	30152.0589	18.4469	26.9692	1118.0203	61096.2459	43.7888	12.5161	23.341

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L1 150.00-110.00				1	1	1			
L2 110.00-85.00				1	1	1			
L3 85.00-70.00				1	1	1			
L4 70.00-55.00				1	1	1			
L5 55.00-31.50				1	1	1			
L6 31.50-15.00				1	1	1			
L7 15.00-0.00				1	1	1			

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<i>Description</i>	<i>Face or Leg</i>	<i>Allow Shield</i>	<i>Exclude From Torque Calculation</i>	<i>Component Type</i>	<i>Placement ft</i>	<i>Total Number</i>		<i>C_AA_A ft²/ft</i>	<i>Weight plf</i>
1 5/8" Hybriflex	C	No	No	Inside Pole	141.00 - 0.00	3	No Ice	0.00	1.90
							1/2" Ice	0.00	1.90
							1" Ice	0.00	1.90

1 5/8" Coax	B	No	No	Inside Pole	132.00 - 10.00	6	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
1.58" (40.1mm) Hybrid	B	No	No	Inside Pole	132.00 - 10.00	2	No Ice	0.00	1.61
							1/2" Ice	0.00	1.61
							1" Ice	0.00	1.61

1.60" Hybrid	C	No	No	Inside Pole	122.00 - 0.00	1	No Ice	0.00	2.30
							1/2" Ice	0.00	2.30
							1" Ice	0.00	2.30

1/2" Coax	C	No	No	Inside Pole	75.00 - 5.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15

Feed Line/Linear Appurtenances Section Areas

<i>Tower Section</i>	<i>Tower Elevation ft</i>	<i>Face</i>	<i>A_R ft²</i>	<i>A_F ft²</i>	<i>C_AA_A In Face ft²</i>	<i>C_AA_A Out Face ft²</i>	<i>Weight K</i>
L1	150.00-110.00	A	0.000	0.000	5.250	0.000	1.06
		B	0.000	0.000	5.250	0.000	0.53
		C	0.000	0.000	5.250	0.000	0.70
L2	110.00-85.00	A	0.000	0.000	6.250	0.000	0.86
		B	0.000	0.000	6.250	0.000	0.62
		C	0.000	0.000	6.250	0.000	0.71
L3	85.00-70.00	A	0.000	0.000	1.531	0.000	0.38
		B	0.000	0.000	1.531	0.000	0.24
		C	0.000	0.000	1.531	0.000	0.29
L4	70.00-55.00	A	0.000	0.000	0.281	0.000	0.29
		B	0.000	0.000	0.281	0.000	0.15
		C	0.000	0.000	0.281	0.000	0.21
L5	55.00-31.50	A	0.000	0.000	0.441	0.000	0.46
		B	0.000	0.000	0.441	0.000	0.24
		C	0.000	0.000	0.441	0.000	0.32
L6	31.50-15.00	A	0.000	0.000	0.309	0.000	0.32
		B	0.000	0.000	0.309	0.000	0.17
		C	0.000	0.000	0.309	0.000	0.23
L7	15.00-0.00	A	0.000	0.000	0.281	0.000	0.29
		B	0.000	0.000	0.281	0.000	0.07
		C	0.000	0.000	0.281	0.000	0.21

Feed Line/Linear Appurtenances Section Areas - With Ice

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<i>Tower Section</i>	<i>Tower Elevation ft</i>	<i>Face or Leg</i>	<i>Ice Thickness in</i>	<i>A_R ft²</i>	<i>A_F ft²</i>	<i>C_AA_A In Face ft²</i>	<i>C_AA_A Out Face ft²</i>	<i>Weight K</i>
L1	150.00-110.00	A	0.974	0.000	0.000	9.342	0.000	1.14
		B		0.000	0.000	9.342	0.000	0.62
		C		0.000	0.000	9.342	0.000	0.79
L2	110.00-85.00	A	0.947	0.000	0.000	10.984	0.000	0.96
		B		0.000	0.000	10.984	0.000	0.72
		C		0.000	0.000	10.984	0.000	0.81
L3	85.00-70.00	A	0.925	0.000	0.000	5.233	0.000	0.42
		B		0.000	0.000	5.233	0.000	0.27
		C		0.000	0.000	5.233	0.000	0.33
L4	70.00-55.00	A	0.906	0.000	0.000	2.999	0.000	0.31
		B		0.000	0.000	2.999	0.000	0.17
		C		0.000	0.000	2.999	0.000	0.23
L5	55.00-31.50	A	0.873	0.000	0.000	4.544	0.000	0.49
		B		0.000	0.000	4.544	0.000	0.26
		C		0.000	0.000	4.544	0.000	0.35
L6	31.50-15.00	A	0.820	0.000	0.000	3.017	0.000	0.34
		B		0.000	0.000	3.017	0.000	0.18
		C		0.000	0.000	3.017	0.000	0.24
L7	15.00-0.00	A	0.731	0.000	0.000	2.474	0.000	0.31
		B		0.000	0.000	2.474	0.000	0.08
		C		0.000	0.000	2.474	0.000	0.22

Feed Line Center of Pressure

<i>Section</i>	<i>Elevation</i>	<i>CP_x</i>	<i>CP_z</i>	<i>CP_x</i>	<i>CP_z</i>
	<i>ft</i>	<i>in</i>	<i>in</i>	<i>Ice</i>	<i>Ice</i>
				<i>in</i>	<i>in</i>
L1	150.00-110.00	0.0000	0.0000	0.0000	0.0000
L2	110.00-85.00	0.0000	0.0000	0.0000	0.0000
L3	85.00-70.00	0.0000	0.0000	0.0000	0.0000
L4	70.00-55.00	0.0000	0.0000	0.0000	0.0000
L5	55.00-31.50	0.0000	0.0000	0.0000	0.0000
L6	31.50-15.00	0.0000	0.0000	0.0000	0.0000
L7	15.00-0.00	0.0000	0.0000	0.0000	0.0000

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

Shielding Factor Ka

<i>Tower Section</i>	<i>Feed Line Record No.</i>	<i>Description</i>	<i>Feed Line Segment Elev.</i>	<i>K_a No Ice</i>	<i>K_a Ice</i>
L1	23	#20 Dywidag	110.00 - 131.00	1.0000	1.0000
L1	24	#20 Dywidag	110.00 - 131.00	1.0000	1.0000
L1	25	#20 Dywidag	110.00 - 131.00	1.0000	1.0000
L2	23	#20 Dywidag	85.00 - 110.00	1.0000	1.0000
L2	24	#20 Dywidag	85.00 - 110.00	1.0000	1.0000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L2	25	#20 Dywidag	85.00 - 110.00	1.0000	1.0000
L3	19	Wrap Seams	70.00 - 85.00	1.0000	1.0000
L3	20	Wrap Seams	70.00 - 85.00	1.0000	1.0000
L3	21	Wrap Seams	70.00 - 85.00	1.0000	1.0000
L3	23	#20 Dywidag	80.00 - 85.00	1.0000	1.0000
L3	24	#20 Dywidag	80.00 - 85.00	1.0000	1.0000
L3	25	#20 Dywidag	80.00 - 85.00	1.0000	1.0000
L4	19	Wrap Seams	55.00 - 70.00	1.0000	1.0000
L4	20	Wrap Seams	55.00 - 70.00	1.0000	1.0000
L4	21	Wrap Seams	55.00 - 70.00	1.0000	1.0000
L5	19	Wrap Seams	31.50 - 55.00	1.0000	1.0000
L5	20	Wrap Seams	31.50 - 55.00	1.0000	1.0000
L5	21	Wrap Seams	31.50 - 55.00	1.0000	1.0000
L6	19	Wrap Seams	15.00 - 31.50	1.0000	1.0000
L6	20	Wrap Seams	15.00 - 31.50	1.0000	1.0000
L6	21	Wrap Seams	15.00 - 31.50	1.0000	1.0000
L7	19	Wrap Seams	0.00 - 15.00	1.0000	1.0000
L7	20	Wrap Seams	0.00 - 15.00	1.0000	1.0000
L7	21	Wrap Seams	0.00 - 15.00	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
ABT-DFDM-ADB	C	From Leg	4.00 0.00 4.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	0.05 0.11 0.17	0.05 0.10 0.15	0.00 0.00 0.00
TT19-08BP111-001	A	From Leg	4.00 0.00 4.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	0.64 0.82 1.00	0.52 0.66 0.80	0.02 0.02 0.03
TT19-08BP111-001	B	From Leg	4.00 0.00 4.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	0.64 0.82 1.00	0.52 0.66 0.80	0.02 0.02 0.03
TT19-08BP111-001	C	From Leg	4.00 0.00 4.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	0.64 0.82 1.00	0.52 0.66 0.80	0.02 0.02 0.03
DBCT108F1V92-1	A	From Leg	4.00 0.00 4.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	0.74 0.92 1.10	0.71 0.88 1.05	0.01 0.02 0.03
DBCT108F1V92-1	B	From Leg	4.00 0.00 4.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	0.74 0.92 1.10	0.71 0.88 1.05	0.01 0.02 0.03
DBCT108F1V92-1	C	From Leg	4.00 0.00 4.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	0.74 0.92 1.10	0.71 0.88 1.05	0.01 0.02 0.03
(2) DC6-48-60-18-8F	A	From Leg	4.00 0.00 4.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	1.11 1.46 1.81	1.11 1.46 1.81	0.02 0.04 0.05
RRUS 11 (Band 12)	A	From Leg	4.00 0.00	0.0000	150.00	No Ice 1/2" Ice	2.57 3.34	1.07 1.39	0.05 0.07

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<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>	<i>C_AA_A Front ft²</i>	<i>C_AA_A Side ft²</i>	<i>Weight K</i>	
RRUS 11 (Band 12)	B	From Leg	4.00	0.0000	150.00	1" Ice	4.11	1.71	0.09
			No Ice			2.57	1.07	0.05	
			1/2" Ice			3.34	1.39	0.07	
RRUS 11 (Band 12)	C	From Leg	4.00	0.0000	150.00	1" Ice	4.11	1.71	0.09
			No Ice			2.57	1.07	0.05	
			1/2" Ice			3.34	1.39	0.07	
RRUS 32 B2	A	From Leg	4.00	0.0000	150.00	1" Ice	4.11	1.71	0.09
			No Ice			2.73	1.67	0.05	
			1/2" Ice			2.95	1.86	0.07	
RRUS 32 B2	B	From Leg	4.00	0.0000	150.00	1" Ice	3.18	2.05	0.10
			No Ice			2.73	1.67	0.05	
			1/2" Ice			2.95	1.86	0.07	
RRUS 32 B2	C	From Leg	4.00	0.0000	150.00	1" Ice	3.18	2.05	0.10
			No Ice			2.73	1.67	0.05	
			1/2" Ice			2.95	1.86	0.07	
RRUS-12 B2	A	From Leg	4.00	0.0000	150.00	1" Ice	3.18	2.05	0.10
			No Ice			3.15	1.29	0.06	
			1/2" Ice			4.06	1.66	0.08	
RRUS-12 B2	B	From Leg	4.00	0.0000	150.00	1" Ice	4.97	2.03	0.10
			No Ice			3.15	1.29	0.06	
			1/2" Ice			4.06	1.66	0.08	
RRUS-12 B2	C	From Leg	4.00	0.0000	150.00	1" Ice	4.97	2.03	0.10
			No Ice			3.15	1.29	0.06	
			1/2" Ice			4.06	1.66	0.08	
7770.00A	A	From Leg	4.00	0.0000	150.00	1" Ice	4.97	2.03	0.10
			No Ice			5.56	1.69	0.03	
			1/2" Ice			6.60	2.01	0.06	
7770.00A	B	From Leg	4.00	0.0000	150.00	1" Ice	7.64	2.33	0.09
			No Ice			5.56	1.69	0.03	
			1/2" Ice			6.60	2.01	0.06	
7770.00A	C	From Leg	4.00	0.0000	150.00	1" Ice	7.64	2.33	0.09
			No Ice			5.56	1.69	0.03	
			1/2" Ice			6.60	2.01	0.06	
800 10764	C	From Leg	4.00	0.0000	150.00	1" Ice	7.64	2.33	0.09
			No Ice			4.53	2.30	0.05	
			1/2" Ice			5.00	2.73	0.08	
80010767	C	From Leg	4.00	0.0000	150.00	1" Ice	5.48	3.17	0.12
			No Ice			5.11	2.31	0.06	
			1/2" Ice			5.55	2.70	0.11	
AM-X-CD-16-65-00T-RET	A	From Leg	4.00	0.0000	150.00	1" Ice	6.00	3.11	0.16
			No Ice			4.69	2.34	0.05	
			1/2" Ice			5.15	2.77	0.10	
AM-X-CD-16-65-00T-RET	B	From Leg	4.00	0.0000	150.00	1" Ice	5.61	3.20	0.15
			No Ice			4.69	2.34	0.05	
			1/2" Ice			5.15	2.77	0.10	
80010768	A	From Leg	4.00	0.0000	150.00	1" Ice	5.61	3.20	0.15
			No Ice			7.17	3.28	0.08	
			1/2" Ice			7.75	3.80	0.14	
80010768	B	From Leg	4.00	0.0000	150.00	1" Ice	8.33	4.34	0.21
			No Ice			7.17	3.28	0.08	
			1/2" Ice			7.75	3.80	0.14	
Round Low Profile Platform	C	None	4.00	0.0000	150.00	1" Ice	8.33	4.34	0.21
			No Ice			21.70	21.70	1.50	
			1/2" Ice			27.20	27.20	1.70	
***						1" Ice	32.70	32.70	1.90
Radio 4460 B25+B66	A	From Leg	4.00	0.0000	141.00	No Ice	2.56	1.98	0.11

<i>tnxTower</i> <i>Telamon Corporation</i> 319 Chapanoke Road, Suite 118 Raleigh, NC 27603 Phone: (405) 348-5460 FAX: (405) 341-6334	Job	302523 - New Milford CT 2, CT	Page	8 of 29
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	Client	DISH WIRELESS, LLC	Designed by	Chaitanya Shetti

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft²	C _{AA} Side ft²	Weight K
Radio 4460 B25+B66	B	From Leg	0.00	0.0000	141.00	1/2" Ice	2.76	2.16	0.13
			0.00			1" Ice	2.97	2.34	0.16
			4.00			No Ice	2.56	1.98	0.11
			0.00			1/2" Ice	2.76	2.16	0.13
Radio 4460 B25+B66	C	From Leg	0.00	0.0000	141.00	1" Ice	2.97	2.34	0.16
			4.00			No Ice	2.56	1.98	0.11
			0.00			1/2" Ice	2.76	2.16	0.13
			0.00			1" Ice	2.97	2.34	0.16
Radio 4480 B71+B85A	A	From Leg	4.00	0.0000	141.00	No Ice	2.85	1.38	0.08
			0.00			1/2" Ice	3.06	1.54	0.11
			0.00			1" Ice	3.28	1.71	0.13
			4.00			No Ice	2.85	1.38	0.08
Radio 4480 B71+B85A	B	From Leg	4.00	0.0000	141.00	No Ice	2.85	1.38	0.08
			0.00			1/2" Ice	3.06	1.54	0.11
			0.00			1" Ice	3.28	1.71	0.13
			4.00			No Ice	2.85	1.38	0.08
Radio 4480 B71+B85A	C	From Leg	4.00	0.0000	141.00	No Ice	2.85	1.38	0.08
			0.00			1/2" Ice	3.06	1.54	0.11
			0.00			1" Ice	3.28	1.71	0.13
			4.00			No Ice	2.85	1.38	0.08
Air6449 B41	A	From Leg	4.00	0.0000	141.00	No Ice	5.68	2.49	0.10
			0.00			1/2" Ice	5.98	2.72	0.14
			0.00			1" Ice	6.29	2.95	0.19
			4.00			No Ice	5.68	2.49	0.10
Air6449 B41	B	From Leg	4.00	0.0000	141.00	No Ice	5.68	2.49	0.10
			0.00			1/2" Ice	5.98	2.72	0.14
			0.00			1" Ice	6.29	2.95	0.19
			4.00			No Ice	5.68	2.49	0.10
Air6449 B41	C	From Leg	4.00	0.0000	141.00	No Ice	5.68	2.49	0.10
			0.00			1/2" Ice	5.98	2.72	0.14
			0.00			1" Ice	6.29	2.95	0.19
			4.00			No Ice	5.68	2.49	0.10
APX16DWV-16DWVS-E-A 20	A	From Leg	4.00	0.0000	141.00	No Ice	6.26	1.50	0.04
			0.00			1/2" Ice	6.85	2.00	0.07
			0.00			1" Ice	7.46	2.52	0.11
			4.00			No Ice	6.26	1.50	0.04
APX16DWV-16DWVS-E-A 20	B	From Leg	4.00	0.0000	141.00	No Ice	6.26	1.50	0.04
			0.00			1/2" Ice	6.85	2.00	0.07
			0.00			1" Ice	7.46	2.52	0.11
			4.00			No Ice	6.26	1.50	0.04
APX16DWV-16DWVS-E-A 20	C	From Leg	4.00	0.0000	141.00	No Ice	6.26	1.50	0.04
			0.00			1/2" Ice	6.85	2.00	0.07
			0.00			1" Ice	7.46	2.52	0.11
			4.00			No Ice	6.26	1.50	0.04
APXVAALL24_43-U-NA20	A	From Leg	4.00	0.0000	141.00	No Ice	14.67	5.32	0.15
			0.00			1/2" Ice	15.43	5.99	0.26
			0.00			1" Ice	16.21	6.68	0.38
			4.00			No Ice	14.67	5.32	0.15
APXVAALL24_43-U-NA20	B	From Leg	4.00	0.0000	141.00	No Ice	14.67	5.32	0.15
			0.00			1/2" Ice	15.43	5.99	0.26
			0.00			1" Ice	16.21	6.68	0.38
			4.00			No Ice	14.67	5.32	0.15
APXVAALL24_43-U-NA20	C	From Leg	4.00	0.0000	141.00	No Ice	14.67	5.32	0.15
			0.00			1/2" Ice	15.43	5.99	0.26
			0.00			1" Ice	16.21	6.68	0.38
			4.00			No Ice	14.67	5.32	0.15
Round Platform w/ Handrails	C	None		0.0000	143.00	No Ice	27.20	27.20	2.00
						1/2" Ice	34.20	34.20	2.40
						1" Ice	41.20	41.20	2.80

CBC78T-DS-43-2X	A	From Leg	4.00	0.0000	132.00	No Ice	0.55	0.51	0.02
			0.00			1/2" Ice	0.65	0.60	0.03
			0.00			1" Ice	0.75	0.70	0.04
			4.00			No Ice	0.55	0.51	0.02
CBC78T-DS-43-2X	B	From Leg	4.00	0.0000	132.00	No Ice	0.55	0.51	0.02
			0.00			1/2" Ice	0.65	0.60	0.03
			0.00			1" Ice	0.75	0.70	0.04
			4.00			No Ice	0.55	0.51	0.02
CBC78T-DS-43-2X	C	From Leg	4.00	0.0000	132.00	No Ice	0.55	0.51	0.02
			0.00			1/2" Ice	0.65	0.60	0.03
			0.00			1" Ice	0.75	0.70	0.04
			4.00			No Ice	0.55	0.51	0.02

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	Client	DISH WIRELESS, LLC	Designed by	Chaitanya Shetti

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>		<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight K</i>
Outdoor LAA 1W RRH-Clip-on Antenna	A	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	0.81 0.93 1.05	0.13 0.20 0.28	0.00 0.01 0.02
Outdoor LAA 1W RRH-Clip-on Antenna	B	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	0.81 0.93 1.05	0.13 0.20 0.28	0.00 0.01 0.02
Outdoor LAA 1W RRH-Clip-on Antenna	C	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	0.81 0.93 1.05	0.13 0.20 0.28	0.00 0.01 0.02
Outdoor CBRS 20W RRH	A	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	0.86 0.98 1.10	0.42 0.51 0.61	0.02 0.03 0.03
Outdoor CBRS 20W RRH	B	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	0.86 0.98 1.10	0.42 0.51 0.61	0.02 0.03 0.03
Outdoor CBRS 20W RRH	C	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	0.86 0.98 1.10	0.42 0.51 0.61	0.02 0.03 0.03
B5 RRH4X40 w/ Solar Shield	A	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	1.73 1.90 2.07	1.00 1.14 1.28	0.04 0.05 0.07
B5 RRH4X40 w/ Solar Shield	B	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	1.73 1.90 2.07	1.00 1.14 1.28	0.04 0.05 0.07
B5 RRH4X40 w/ Solar Shield	C	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	1.73 1.90 2.07	1.00 1.14 1.28	0.04 0.05 0.07
B5/B13 RRH-BR04C	A	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	2.17 2.87 3.57	1.63 2.15 2.67	0.06 0.08 0.10
B5/B13 RRH-BR04C	B	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	2.17 2.87 3.57	1.63 2.15 2.67	0.06 0.08 0.10
B5/B13 RRH-BR04C	C	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	2.17 2.87 3.57	1.63 2.15 2.67	0.06 0.08 0.10
B2/B66A RRH-BR049	A	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	2.58 3.38 4.18	1.63 2.13 2.63	0.07 0.09 0.11
B2/B66A RRH-BR049	B	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	2.58 3.38 4.18	1.63 2.13 2.63	0.07 0.09 0.11
B2/B66A RRH-BR049	C	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	2.58 3.38 4.18	1.63 2.13 2.63	0.07 0.09 0.11
MT6407-77A	A	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	4.71 5.00 5.29	1.84 2.06 2.29	0.08 0.11 0.14
MT6407-77A	B	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	4.71 5.00 5.29	1.84 2.06 2.29	0.08 0.11 0.14
MT6407-77A	C	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	4.71 5.00 5.29	1.84 2.06 2.29	0.08 0.11 0.14
DB-T1-6Z-8AB-0Z	A	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	4.80 6.08 7.36	2.00 2.53 3.06	0.04 0.08 0.12

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	Client	DISH WIRELESS, LLC	Designed by	Chaitanya Shetti

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>		<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight K</i>
DB-T1-6Z-8AB-0Z	B	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	4.80 6.08 7.36	2.00 2.53 3.06	0.04 0.08 0.12
(2) LPA-80080/6CF	B	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	4.33 4.76 5.21	8.62 9.08 9.54	0.02 0.07 0.12
(2) LPA-80080/6CF	C	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	4.33 4.76 5.21	8.62 9.08 9.54	0.02 0.07 0.12
(2) JAHH-65B-R3B	A	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	5.29 5.75 6.22	3.05 3.48 3.93	0.06 0.12 0.19
(2) JAHH-65B-R3B	B	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	5.29 5.75 6.22	3.05 3.48 3.93	0.06 0.12 0.19
(2) JAHH-65B-R3B	C	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	5.29 5.75 6.22	3.05 3.48 3.93	0.06 0.12 0.19
(2) LPA-80063/6CF	A	From Leg	4.00 0.00 0.00	0.0000	132.00	No Ice 1/2" Ice 1" Ice	9.57 10.03 10.50	8.55 9.01 9.47	0.00 0.07 0.15
Round Platform w/ Handrails	C	None		0.0000	132.00	No Ice 1/2" Ice 1" Ice	27.20 34.20 41.20	27.20 34.20 41.20	2.00 2.40 2.80

RDIDC-9181-PF-48	A	From Leg	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	1.87 2.00 2.13	1.87 2.00 2.13	0.02 0.04 0.06
TA08025-B604	A	From Leg	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.03 1.17 1.31	0.06 0.08 0.10
TA08025-B604	B	From Leg	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.03 1.17 1.31	0.06 0.08 0.10
TA08025-B604	C	From Leg	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.03 1.17 1.31	0.06 0.08 0.10
TA08025-B605	A	From Leg	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	2.23 2.41 2.60	1.19 1.33 1.48	0.07 0.09 0.12
TA08025-B605	B	From Leg	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	2.23 2.41 2.60	1.19 1.33 1.48	0.07 0.09 0.12
TA08025-B605	C	From Leg	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	2.23 2.41 2.60	1.19 1.33 1.48	0.07 0.09 0.12
MX08FRO665-21	A	From Leg	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	8.01 8.53 9.05	3.21 3.66 4.12	0.07 0.15 0.23
MX08FRO665-21	B	From Leg	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	8.01 8.53 9.05	3.21 3.66 4.12	0.07 0.15 0.23
MX08FRO665-21	C	From Leg	4.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	8.01 8.53 9.05	3.21 3.66 4.12	0.07 0.15 0.23
Flat Platform w/ Handrails	C	None		0.0000	122.00	No Ice	42.40	42.40	2.00

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	Client	DISH WIRELESS, LLC	Designed by	Chaitanya Shetti

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>	<i>C_AA_A Front ft²</i>	<i>C_AA_A Side ft²</i>	<i>Weight K</i>	
						1/2" Ice	48.40	48.40	2.45
						1" Ice	54.40	54.40	2.90

GPS-TMG-HR-26N	C	From Leg	4.00	0.0000	75.00	No Ice	0.09	0.09	0.00
			0.00			1/2" Ice	0.14	0.14	0.00
			0.00			1" Ice	0.19	0.19	0.00

Tower Pressures - No Ice

$$G_H = 1.100$$

<i>Section Elevation</i>	<i>z</i>	<i>K_Z</i>	<i>q_z</i>	<i>A_G</i>	<i>F a c e</i>	<i>A_F</i>	<i>A_R</i>	<i>A_{leg}</i>	<i>Leg %</i>	<i>C_AA_A In Face ft²</i>	<i>C_AA_A Out Face ft²</i>
<i>ft</i>	<i>ft</i>		<i>psf</i>	<i>ft²</i>	<i>e</i>	<i>ft²</i>	<i>ft²</i>	<i>ft²</i>		<i>ft²</i>	<i>ft²</i>
L1	129.06	1.063	31	62.327	A	0.000	62.327	62.327	100.00	5.250	0.000
150.00-110.00					B	0.000	62.327		100.00	5.250	0.000
					C	0.000	62.327		100.00	5.250	0.000
L2	96.96	0.98	29	52.508	A	0.000	52.508	52.508	100.00	6.250	0.000
110.00-85.00					B	0.000	52.508		100.00	6.250	0.000
					C	0.000	52.508		100.00	6.250	0.000
L3 85.00-70.00	77.18	0.918	27	40.795	A	0.000	40.795	40.795	100.00	1.531	0.000
					B	0.000	40.795		100.00	1.531	0.000
					C	0.000	40.795		100.00	1.531	0.000
L4 70.00-55.00	62.42	0.864	25	47.546	A	0.000	47.546	47.546	100.00	0.281	0.000
					B	0.000	47.546		100.00	0.281	0.000
					C	0.000	47.546		100.00	0.281	0.000
L5 55.00-31.50	43.08	0.777	23	80.400	A	0.000	80.400	80.400	100.00	0.441	0.000
					B	0.000	80.400		100.00	0.441	0.000
					C	0.000	80.400		100.00	0.441	0.000
L6 31.50-15.00	23.17	0.7	21	60.700	A	0.000	60.700	60.700	100.00	0.309	0.000
					B	0.000	60.700		100.00	0.309	0.000
					C	0.000	60.700		100.00	0.309	0.000
L7 15.00-0.00	7.29	0.7	21	61.951	A	0.000	61.951	61.951	100.00	0.281	0.000
					B	0.000	61.951		100.00	0.281	0.000
					C	0.000	61.951		100.00	0.281	0.000

Tower Pressure - With Ice

$$G_H = 1.100$$

<i>Section Elevation</i>	<i>z</i>	<i>K_Z</i>	<i>q_z</i>	<i>t_Z</i>	<i>A_G</i>	<i>F a c e</i>	<i>A_F</i>	<i>A_R</i>	<i>A_{leg}</i>	<i>Leg %</i>	<i>C_AA_A In Face ft²</i>	<i>C_AA_A Out Face ft²</i>
<i>ft</i>	<i>ft</i>		<i>psf</i>	<i>in</i>	<i>ft²</i>	<i>e</i>	<i>ft²</i>	<i>ft²</i>	<i>ft²</i>		<i>ft²</i>	<i>ft²</i>

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	Client	DISH WIRELESS, LLC	Designed by	Chaitanya Shetti

Section Elevation	z	K _Z	q _z	t _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	in	ft ²		ft ²	ft ²	ft ²			
L1 150.00-110.00	129.06	1.063	6	0.9742	68.822	A	0.000	68.822	68.822	100.00	9.342	0.000
						B	0.000	68.822		100.00	9.342	0.000
						C	0.000	68.822		100.00	9.342	0.000
L2 110.00-85.00	96.96	0.98	6	0.9467	56.452	A	0.000	56.452	56.452	100.00	10.984	0.000
						B	0.000	56.452		100.00	10.984	0.000
						C	0.000	56.452		100.00	10.984	0.000
L3 85.00-70.00	77.18	0.918	5	0.9254	43.108	A	0.000	43.108	43.108	100.00	5.233	0.000
						B	0.000	43.108		100.00	5.233	0.000
						C	0.000	43.108		100.00	5.233	0.000
L4 70.00-55.00	62.42	0.864	5	0.9059	49.811	A	0.000	49.811	49.811	100.00	2.999	0.000
						B	0.000	49.811		100.00	2.999	0.000
						C	0.000	49.811		100.00	2.999	0.000
L5 55.00-31.50	43.08	0.777	4	0.8730	83.819	A	0.000	83.819	83.819	100.00	4.544	0.000
						B	0.000	83.819		100.00	4.544	0.000
						C	0.000	83.819		100.00	4.544	0.000
L6 31.50-15.00	23.17	0.7	4	0.8205	62.957	A	0.000	62.957	62.957	100.00	3.017	0.000
						B	0.000	62.957		100.00	3.017	0.000
						C	0.000	62.957		100.00	3.017	0.000
L7 15.00-0.00	7.29	0.7	4	0.7309	63.779	A	0.000	63.779	63.779	100.00	2.474	0.000
						B	0.000	63.779		100.00	2.474	0.000
						C	0.000	63.779		100.00	2.474	0.000

Tower Pressure - Service

$$G_H = 1.100$$

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	ft ²		ft ²	ft ²	ft ²			
L1 150.00-110.00	129.06	1.063	8	62.327	A	0.000	62.327	62.327	100.00	5.250	0.000
					B	0.000	62.327		100.00	5.250	0.000
					C	0.000	62.327		100.00	5.250	0.000
L2 110.00-85.00	96.96	0.98	8	52.508	A	0.000	52.508	52.508	100.00	6.250	0.000
					B	0.000	52.508		100.00	6.250	0.000
					C	0.000	52.508		100.00	6.250	0.000
L3 85.00-70.00	77.18	0.918	7	40.795	A	0.000	40.795	40.795	100.00	1.531	0.000
					B	0.000	40.795		100.00	1.531	0.000
					C	0.000	40.795		100.00	1.531	0.000
L4 70.00-55.00	62.42	0.864	7	47.546	A	0.000	47.546	47.546	100.00	0.281	0.000
					B	0.000	47.546		100.00	0.281	0.000
					C	0.000	47.546		100.00	0.281	0.000
L5 55.00-31.50	43.08	0.777	6	80.400	A	0.000	80.400	80.400	100.00	0.441	0.000
					B	0.000	80.400		100.00	0.441	0.000
					C	0.000	80.400		100.00	0.441	0.000
L6 31.50-15.00	23.17	0.7	5	60.700	A	0.000	60.700	60.700	100.00	0.309	0.000
					B	0.000	60.700		100.00	0.309	0.000
					C	0.000	60.700		100.00	0.309	0.000
L7 15.00-0.00	7.29	0.7	5	61.951	A	0.000	61.951	61.951	100.00	0.281	0.000
					B	0.000	61.951		100.00	0.281	0.000
					C	0.000	61.951		100.00	0.281	0.000

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Load Combinations

<i>Comb. No.</i>	<i>Description</i>
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

<i>Section No.</i>	<i>Elevation</i>	<i>Horz. Deflection</i>	<i>Gov. Load Comb.</i>	<i>Tilt</i>	<i>Twist</i>
	<i>ft</i>	<i>in</i>		<i>°</i>	<i>°</i>

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<i>Section No.</i>	<i>Elevation ft</i>	<i>Horz. Deflection in</i>	<i>Gov. Load Comb.</i>	<i>Tilt °</i>	<i>Twist °</i>
L1	150 - 110	23.626	39	1.6397	0.0066
L2	110 - 85	11.930	39	1.1232	0.0020
L3	85 - 70	6.657	39	0.8544	0.0007
L4	70 - 55	4.338	39	0.6395	0.0004
L5	55 - 31.5	2.583	39	0.4765	0.0003
L6	31.5 - 15	0.780	39	0.2553	0.0001
L7	15 - 0	0.156	39	0.1056	0.0000

Critical Deflections and Radius of Curvature - Service Wind

<i>Elevation ft</i>	<i>Appurtenance</i>	<i>Gov. Load Comb.</i>	<i>Deflection in</i>	<i>Tilt °</i>	<i>Twist °</i>	<i>Radius of Curvature ft</i>
150.00	ABT-DFDM-ADB	39	23.626	1.6397	0.0066	29710
143.00	Round Platform w/ Handrails	39	21.433	1.5413	0.0057	21221
141.00	Radio 4460 B25+B66	39	20.810	1.5134	0.0054	16505
132.00	CBC78T-DS-43-2X	39	18.053	1.3903	0.0043	8252
122.00	RDIDC-9181-PF-48	39	15.131	1.2613	0.0032	5304
75.00	GPS-TMG-HR-26N	39	5.045	0.7096	0.0005	4581

Maximum Tower Deflections - Design Wind

<i>Section No.</i>	<i>Elevation ft</i>	<i>Horz. Deflection in</i>	<i>Gov. Load Comb.</i>	<i>Tilt °</i>	<i>Twist °</i>
L1	150 - 110	91.648	2	6.3620	0.0257
L2	110 - 85	46.288	2	4.3634	0.0076
L3	85 - 70	25.820	2	3.3181	0.0025
L4	70 - 55	16.820	2	2.4823	0.0016
L5	55 - 31.5	10.014	2	1.8483	0.0011
L6	31.5 - 15	3.020	2	0.9895	0.0005
L7	15 - 0	0.604	2	0.4090	0.0002

Critical Deflections and Radius of Curvature - Design Wind

<i>Elevation ft</i>	<i>Appurtenance</i>	<i>Gov. Load Comb.</i>	<i>Deflection in</i>	<i>Tilt °</i>	<i>Twist °</i>	<i>Radius of Curvature ft</i>
150.00	ABT-DFDM-ADB	2	91.648	6.3620	0.0257	7794
143.00	Round Platform w/ Handrails	2	83.144	5.9815	0.0221	5567
141.00	Radio 4460 B25+B66	2	80.730	5.8736	0.0211	4329
132.00	CBC78T-DS-43-2X	2	70.039	5.3976	0.0166	2163
122.00	RDIDC-9181-PF-48	2	58.705	4.8983	0.0121	1388
75.00	GPS-TMG-HR-26N	2	19.564	2.7547	0.0018	1183

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Compression Checks

Pole Design Data

Section No.	Elevation <i>ft</i>	Size	<i>L</i> <i>ft</i>	<i>L_u</i> <i>ft</i>	<i>Kl/r</i>	<i>A</i> <i>in²</i>	<i>P_u</i> <i>K</i>	ϕP_n <i>K</i>	Ratio $\frac{P_u}{\phi P_n}$
L1	150 - 148	TP21.25x15x0.1875	40.00	0.00	0.0	9.1317	-2.97	534.21	0.006
	148 - 146					9.3204	-3.17	545.24	0.006
	146 - 144					9.5091	-3.37	556.28	0.006
	144 - 142					9.6977	-5.86	567.32	0.010
	142 - 140					9.8864	-7.60	578.36	0.013
	140 - 138					10.0751	-7.82	589.39	0.013
	138 - 136					10.2638	-8.04	600.43	0.013
	136 - 134					10.4524	-8.26	611.47	0.014
	134 - 132					10.6411	-8.49	622.50	0.014
	132 - 130					10.8298	-12.41	633.54	0.020
	130 - 128					11.0184	-12.66	644.58	0.020
	128 - 126					11.2071	-12.91	655.62	0.020
	126 - 124					11.3958	-13.17	666.65	0.020
	124 - 122					11.5845	-13.43	677.69	0.020
	122 - 120					11.7731	-16.67	688.73	0.024
	120 - 118.5					11.9146	-16.89	697.01	0.024
	118.5 - 118					11.9146	-4.45	697.01	0.006
	118 - 116					11.9618	-4.59	699.76	0.007
	116 - 114					12.1505	-4.81	710.80	0.007
	114 - 112					12.5278	-5.19	732.88	0.007
	112 - 110					12.7165	-5.39	743.91	0.007
L2	110 - 108.75	TP27.61x21.25x0.25	25.00	0.00	0.0	17.1610	-5.61	1003.92	0.006
	108.75 - 107.5					17.4170	-5.83	1018.89	0.006
	107.5 - 106.25					17.6730	-6.05	1033.87	0.006
	106.25 - 105					17.9290	-6.27	1048.84	0.006
	105 - 103.75					18.1849	-6.50	1063.82	0.006
	103.75 - 102.5					18.4409	-6.73	1078.80	0.006
	102.5 - 101.25					18.6969	-6.96	1093.77	0.006
	101.25 - 100					18.9529	-7.19	1108.75	0.006
	100 - 98.75					19.2089	-7.43	1123.72	0.007
	98.75 - 97.5					19.4649	-7.66	1138.70	0.007
	97.5 - 96.25					19.7209	-7.90	1153.67	0.007
	96.25 - 95					19.9769	-8.14	1168.65	0.007
	95 - 93.75					20.2329	-8.38	1183.62	0.007
	93.75 - 92.5					20.4889	-8.63	1198.60	0.007
	92.5 - 91.25					20.7449	-8.87	1213.57	0.007
	91.25 - 90					21.0008	-9.12	1228.55	0.007
	90 - 88.75					21.2568	-9.37	1243.52	0.008
	88.75 - 87.5					21.5128	-9.62	1258.50	0.008
	87.5 - 86.25					21.7688	-9.87	1273.48	0.008
	86.25 - 85					22.0248	-10.13	1288.45	0.008
L3	85 - 84	TP35.691x27.61x0.3722	15.00	0.00	0.0	32.6449	-24.69	1909.73	0.013
	84 - 83					33.2906	-24.91	1947.50	0.013
	83 - 82					33.9363	-25.14	1985.27	0.013
	82 - 81					34.5820	-25.36	2023.05	0.013
	81 - 80					35.2277	-25.59	2060.82	0.012
	80 - 79					35.8733	-25.82	2098.59	0.012
	79 - 78					36.5190	-26.05	2136.36	0.012
	78 - 77					37.1647	-26.29	2174.13	0.012
	77 - 76					37.8104	-26.53	2211.91	0.012
	76 - 75					38.4561	-26.77	2249.68	0.012
	75 - 74					39.1017	-27.01	2287.45	0.012
	74 - 73					39.7474	-27.25	2325.22	0.012

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
L4	73 - 72	TP38.058x35.691x0.3918	15.00	0.00	0.0	40.3931	-27.50	2363.00	0.012
	72 - 71					41.0388	-27.75	2400.77	0.012
	71 - 70					41.6845	-28.00	2438.54	0.011
	70 - 69					44.7358	-28.48	2617.04	0.011
	69 - 68					44.9349	-28.72	2628.69	0.011
	68 - 67					45.1340	-28.97	2640.34	0.011
	67 - 66					45.3331	-29.22	2651.99	0.011
	66 - 65					45.5322	-29.46	2663.63	0.011
	65 - 64					45.7313	-29.71	2675.28	0.011
	64 - 63					45.9304	-29.96	2686.93	0.011
	63 - 62					46.1295	-30.21	2698.57	0.011
	62 - 61					46.3286	-30.46	2710.22	0.011
	61 - 60					46.5277	-30.71	2721.87	0.011
	60 - 59					46.7267	-30.97	2733.51	0.011
	59 - 58					46.9258	-31.22	2745.16	0.011
	58 - 57					47.1249	-31.47	2756.81	0.011
L5	57 - 56	TP41.576x38.058x0.472	23.50	0.00	0.0	47.3240	-31.73	2768.46	0.011
	56 - 55					47.5231	-31.99	2780.10	0.012
	55 - 53.825					57.3969	-32.33	3357.72	0.010
	53.825 - 52.65					57.6642	-32.68	3373.36	0.010
	52.65 - 51.475					57.9316	-33.03	3389.00	0.010
	51.475 - 50.3					58.1989	-33.38	3404.64	0.010
	50.3 - 49.125					58.4663	-33.73	3420.28	0.010
	49.125 - 47.95					58.7337	-34.09	3435.92	0.010
	47.95 - 46.775					59.0010	-34.44	3451.56	0.010
	46.775 - 45.6					59.2684	-34.80	3467.20	0.010
	45.6 - 44.425					59.5357	-35.16	3482.84	0.010
	44.425 - 43.25					59.8031	-35.52	3498.48	0.010
	43.25 - 42.075					60.0705	-35.88	3514.12	0.010
	42.075 - 40.9					60.3378	-36.24	3529.76	0.010
	40.9 - 39.725					60.6052	-36.61	3545.40	0.010
	39.725 - 38.55					60.8726	-36.97	3561.04	0.010
L6	38.55 - 37.375	TP44.046x41.576x0.4977	16.50	0.00	0.0	61.1399	-37.34	3576.69	0.010
	37.375 - 36.2					61.4073	-37.71	3592.33	0.010
	36.2 - 35.025					61.6746	-38.08	3607.97	0.011
	35.025 - 33.85					61.9420	-38.45	3623.61	0.011
	33.85 - 32.675					62.2094	-38.82	3639.25	0.011
	32.675 - 31.5					62.4767	-39.19	3654.89	0.011
	31.5 - 30.4688					66.0792	-39.54	3865.64	0.010
	30.4688 - 29.4375					66.3266	-39.88	3880.11	0.010
	29.4375 - 28.4063					66.5740	-40.23	3894.58	0.010
	28.4063 - 27.375					66.8214	-40.57	3909.05	0.010
	27.375 - 26.3438					67.0688	-40.92	3923.53	0.010
	26.3438 - 25.3125					67.3162	-41.27	3938.00	0.010
	25.3125 - 24.2813					67.5636	-41.62	3952.47	0.011
	24.2813 - 23.25					67.8110	-41.97	3966.95	0.011
	23.25 - 22.2188					68.0584	-42.32	3981.42	0.011
	22.2188 - 21.1875					68.3058	-42.67	3995.89	0.011
	21.1875 - 20.1563					68.5532	-43.03	4010.36	0.011
	20.1563 -					68.8006	-43.38	4024.84	0.011

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
L7	19.125	TP52.064x44.046x0.5362	15.00	0.00	0.0	69.0480	-43.74	4039.31	0.011
	19.125 - 18.0938								
	18.0938 - 17.0625								
	17.0625 - 16.0313								
	16.0313 - 15								
	15 - 14					69.7902	-44.82	4082.73	0.011
	14 - 13					75.1266	-44.83	4394.91	0.010
	13 - 12					76.0496	-45.19	4448.90	0.010
	12 - 11					76.9725	-45.56	4502.89	0.010
	11 - 10					77.8955	-45.94	4556.89	0.010
	10 - 9					78.8184	-46.31	4610.88	0.010
	9 - 8					79.7414	-46.69	4664.87	0.010
	8 - 7					80.6644	-47.07	4718.86	0.010
	7 - 6					81.5873	-47.46	4772.86	0.010
	6 - 5					82.5103	-47.85	4826.85	0.010
	5 - 4					83.4332	-48.25	4880.84	0.010
	4 - 3					84.3562	-48.64	4934.84	0.010
	3 - 2					85.2791	-49.05	4988.83	0.010
	2 - 1					86.2021	-49.45	5042.82	0.010
	1 - 0					87.1251	-49.86	5096.82	0.010
						88.0480	-50.27	5150.81	0.010

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M _{uy} kip-ft	φM _{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
L1	150 - 148	TP21.25x15x0.1875	13.17	206.49	0.064	0.00	206.49	0.000
	148 - 146		19.24	214.95	0.090	0.00	214.95	0.000
	146 - 144		25.53	222.46	0.115	0.00	222.46	0.000
	144 - 142		33.28	230.04	0.145	0.00	230.04	0.000
	142 - 140		44.43	237.69	0.187	0.00	237.69	0.000
	140 - 138		57.75	245.41	0.235	0.00	245.41	0.000
	138 - 136		71.29	253.18	0.282	0.00	253.18	0.000
	136 - 134		85.03	261.02	0.326	0.00	261.02	0.000
	134 - 132		98.98	268.90	0.368	0.00	268.90	0.000
	132 - 130		121.47	276.85	0.439	0.00	276.85	0.000
	130 - 128		144.32	284.83	0.507	0.00	284.83	0.000
	128 - 126		167.35	292.87	0.571	0.00	292.87	0.000
	126 - 124		190.53	300.95	0.633	0.00	300.95	0.000
	124 - 122		213.88	309.06	0.692	0.00	309.06	0.000
	122 - 120		242.32	317.21	0.764	0.00	317.21	0.000
	120 - 118.5		263.63	323.35	0.815	0.00	323.35	0.000
	118.5 - 118		44.86	323.35	0.139	0.00	323.35	0.000
	118 - 116		38.74	325.40	0.119	0.00	325.40	0.000
	116 - 114		14.09	333.61	0.042	0.00	333.61	0.000
	114 - 112		36.19	350.11	0.103	0.00	350.11	0.000
	112 - 110		61.63	358.40	0.172	0.00	358.40	0.000
L2	110 - 108.75	TP27.61x21.25x0.25	77.66	541.02	0.144	0.00	541.02	0.000
	108.75 - 107.5		93.79	554.81	0.169	0.00	554.81	0.000
	107.5 - 106.25		110.03	568.70	0.193	0.00	568.70	0.000
	106.25 - 105		126.38	582.67	0.217	0.00	582.67	0.000
	105 - 103.75		142.83	596.74	0.239	0.00	596.74	0.000
	103.75 - 102.5		159.39	610.88	0.261	0.00	610.88	0.000

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	Client	Designed by
	DISH WIRELESS, LLC	Chaitanya Shetti

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M_{uy} kip-ft	ϕM_{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
	102.5 - 101.25		176.05	625.09	0.282	0.00	625.09	0.000
	101.25 - 100		192.82	639.39	0.302	0.00	639.39	0.000
	100 - 98.75		209.71	653.75	0.321	0.00	653.75	0.000
	98.75 - 97.5		226.70	668.18	0.339	0.00	668.18	0.000
	97.5 - 96.25		243.80	682.68	0.357	0.00	682.68	0.000
	96.25 - 95		261.01	697.23	0.374	0.00	697.23	0.000
	95 - 93.75		278.33	711.85	0.391	0.00	711.85	0.000
	93.75 - 92.5		295.76	726.52	0.407	0.00	726.52	0.000
	92.5 - 91.25		313.30	741.24	0.423	0.00	741.24	0.000
	91.25 - 90		330.96	756.00	0.438	0.00	756.00	0.000
	90 - 88.75		348.73	770.81	0.452	0.00	770.81	0.000
	88.75 - 87.5		366.61	785.66	0.467	0.00	785.66	0.000
	87.5 - 86.25		384.60	800.55	0.480	0.00	800.55	0.000
	86.25 - 85		402.71	815.48	0.494	0.00	815.48	0.000
L3	85 - 84	TP35.691x27.61x0.3722	777.92	1327.68	0.586	0.00	1327.68	0.000
	84 - 83		794.36	1381.08	0.575	0.00	1381.08	0.000
	83 - 82		810.85	1435.54	0.565	0.00	1435.54	0.000
	82 - 81		827.40	1491.04	0.555	0.00	1491.04	0.000
	81 - 80		843.99	1547.60	0.545	0.00	1547.60	0.000
	80 - 79		860.65	1605.22	0.536	0.00	1605.22	0.000
	79 - 78		877.37	1663.88	0.527	0.00	1663.88	0.000
	78 - 77		894.13	1715.88	0.521	0.00	1715.88	0.000
	77 - 76		910.98	1767.16	0.516	0.00	1767.16	0.000
	76 - 75		927.88	1818.85	0.510	0.00	1818.85	0.000
	75 - 74		944.83	1870.93	0.505	0.00	1870.93	0.000
	74 - 73		961.87	1923.39	0.500	0.00	1923.39	0.000
	73 - 72		978.98	1976.22	0.495	0.00	1976.22	0.000
	72 - 71		996.15	2029.38	0.491	0.00	2029.38	0.000
	71 - 70		1013.39	2082.88	0.487	0.00	2082.88	0.000
L4	70 - 69	TP38.058x35.691x0.3918	1048.11	2303.07	0.455	0.00	2303.07	0.000
	69 - 68		1065.58	2320.29	0.459	0.00	2320.29	0.000
	68 - 67		1083.11	2337.53	0.463	0.00	2337.53	0.000
	67 - 66		1100.72	2354.81	0.467	0.00	2354.81	0.000
	66 - 65		1118.40	2372.12	0.471	0.00	2372.12	0.000
	65 - 64		1136.15	2389.45	0.475	0.00	2389.45	0.000
	64 - 63		1153.97	2406.81	0.479	0.00	2406.81	0.000
	63 - 62		1171.87	2424.20	0.483	0.00	2424.20	0.000
	62 - 61		1189.83	2441.63	0.487	0.00	2441.63	0.000
	61 - 60		1207.87	2459.07	0.491	0.00	2459.07	0.000
	60 - 59		1225.97	2476.55	0.495	0.00	2476.55	0.000
	59 - 58		1244.16	2494.05	0.499	0.00	2494.05	0.000
	58 - 57		1262.41	2511.58	0.503	0.00	2511.58	0.000
	57 - 56		1280.72	2529.13	0.506	0.00	2529.13	0.000
	56 - 55		1299.12	2546.72	0.510	0.00	2546.72	0.000
L5	55 - 53.825	TP41.576x38.058x0.472	1320.82	3240.02	0.408	0.00	3240.02	0.000
	53.825 - 52.65		1342.61	3270.46	0.411	0.00	3270.46	0.000
	52.65 - 51.475		1364.49	3301.05	0.413	0.00	3301.05	0.000
	51.475 - 50.3		1386.47	3331.78	0.416	0.00	3331.78	0.000
	50.3 - 49.125		1408.54	3362.64	0.419	0.00	3362.64	0.000
	49.125 - 47.95		1430.71	3393.66	0.422	0.00	3393.66	0.000
	47.95 - 46.775		1452.96	3422.63	0.425	0.00	3422.63	0.000
	46.775 - 45.6		1475.31	3449.31	0.428	0.00	3449.31	0.000
	45.6 - 44.425		1497.75	3476.04	0.431	0.00	3476.04	0.000
	44.425 - 43.25		1520.28	3502.84	0.434	0.00	3502.84	0.000
	43.25 - 42.075		1542.91	3529.69	0.437	0.00	3529.69	0.000
	42.075 - 40.9		1565.63	3556.61	0.440	0.00	3556.61	0.000
	40.9 - 39.725		1588.43	3583.57	0.443	0.00	3583.57	0.000
	39.725 - 38.55		1611.33	3610.60	0.446	0.00	3610.60	0.000
	38.55 - 37.375		1634.33	3637.68	0.449	0.00	3637.68	0.000
	37.375 - 36.2		1657.40	3664.81	0.452	0.00	3664.81	0.000

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Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M_{uy} kip-ft	ϕM_{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
L6	36.2 - 35.025	TP44.046x41.576x0.4977	1680.58	3692.00	0.455	0.00	3692.00	0.000
	35.025 - 33.85		1703.84	3719.24	0.458	0.00	3719.24	0.000
	33.85 - 32.675		1727.20	3746.53	0.461	0.00	3746.53	0.000
	32.675 - 31.5		1750.64	3773.88	0.464	0.00	3773.88	0.000
	31.5 - 30.4688		1771.29	4063.19	0.436	0.00	4063.19	0.000
	30.4688 - 29.4375		1792.00	4089.32	0.438	0.00	4089.32	0.000
	29.4375 - 28.4063		1812.78	4115.48	0.440	0.00	4115.48	0.000
	28.4063 - 27.375		1833.61	4141.69	0.443	0.00	4141.69	0.000
	27.375 - 26.3438		1854.51	4167.95	0.445	0.00	4167.95	0.000
	26.3438 - 25.3125		1875.47	4194.26	0.447	0.00	4194.26	0.000
	25.3125 - 24.2813		1896.48	4220.61	0.449	0.00	4220.61	0.000
	24.2813 - 23.25		1917.57	4247.00	0.452	0.00	4247.00	0.000
	23.25 - 22.2188		1938.71	4273.44	0.454	0.00	4273.44	0.000
	22.2188 - 21.1875		1959.92	4299.93	0.456	0.00	4299.93	0.000
	21.1875 - 20.1563		1981.18	4326.46	0.458	0.00	4326.46	0.000
	20.1563 - 19.125		2002.51	4353.02	0.460	0.00	4353.02	0.000
	19.125 - 18.0938		2023.89	4379.64	0.462	0.00	4379.64	0.000
	18.0938 - 17.0625		2045.34	4406.30	0.464	0.00	4406.30	0.000
	17.0625 - 16.0313		2066.85	4433.00	0.466	0.00	4433.00	0.000
	16.0313 - 15		2088.42	4459.74	0.468	0.00	4459.74	0.000
L7	15 - 14	TP52.064x44.046x0.5362	2088.42	4887.23	0.427	0.00	4887.23	0.000
	14 - 13		2109.39	5008.78	0.421	0.00	5008.78	0.000
	13 - 12		2130.43	5112.07	0.417	0.00	5112.07	0.000
	12 - 11		2151.52	5217.43	0.412	0.00	5217.43	0.000
	11 - 10		2172.68	5323.39	0.408	0.00	5323.39	0.000
	10 - 9		2193.90	5429.93	0.404	0.00	5429.93	0.000
	9 - 8		2215.18	5537.02	0.400	0.00	5537.02	0.000
	8 - 7		2236.53	5644.65	0.396	0.00	5644.65	0.000
	7 - 6		2257.96	5752.81	0.392	0.00	5752.81	0.000
	6 - 5		2279.44	5861.48	0.389	0.00	5861.48	0.000
	5 - 4		2301.00	5970.65	0.385	0.00	5970.65	0.000
	4 - 3		2322.63	6080.30	0.382	0.00	6080.30	0.000
	3 - 2		2344.33	6190.41	0.379	0.00	6190.41	0.000
	2 - 1		2366.10	6300.97	0.376	0.00	6300.97	0.000
	1 - 0		2387.95	6411.96	0.372	0.00	6411.96	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	150 - 148	TP21.25x15x0.1875	2.98	160.26	0.019	0.12	213.22	0.001

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Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio V_u ϕV_n	Actual T_u kip-ft	ϕT_n kip-ft	Ratio T_u ϕT_n
	148 - 146		3.09	163.57	0.019	0.12	222.12	0.001
	146 - 144		3.21	166.88	0.019	0.29	231.20	0.001
	144 - 142		4.54	170.19	0.027	0.29	240.47	0.001
	142 - 140		6.61	173.51	0.038	0.29	249.92	0.001
	140 - 138		6.72	176.82	0.038	0.29	259.55	0.001
	138 - 136		6.83	180.13	0.038	0.29	269.36	0.001
	136 - 134		6.93	183.44	0.038	0.29	279.35	0.001
	134 - 132		7.04	186.75	0.038	0.29	289.53	0.001
	132 - 130		11.40	190.06	0.060	0.35	299.89	0.001
	130 - 128		11.49	193.37	0.059	0.35	310.43	0.001
	128 - 126		11.57	196.69	0.059	0.35	321.15	0.001
	126 - 124		11.66	200.00	0.058	0.35	332.05	0.001
	124 - 122		11.74	203.31	0.058	0.35	343.14	0.001
	122 - 120		14.22	206.62	0.069	0.35	354.41	0.001
	120 - 118.5		14.26	209.10	0.068	0.35	362.98	0.001
	118.5 - 118		12.26	209.93	0.058	0.36	362.98	0.001
	118 - 116		12.39	213.24	0.058	0.36	365.86	0.001
	116 - 114		12.52	216.55	0.058	0.36	377.49	0.001
	114 - 112		12.62	219.86	0.057	0.65	401.30	0.002
	112 - 110		12.78	223.17	0.057	0.35	413.48	0.001
L2	110 - 108.75	TP27.61x21.25x0.25	12.87	301.18	0.043	0.35	564.76	0.001
	108.75 - 107.5		12.95	305.67	0.042	0.35	581.74	0.001
	107.5 - 106.25		13.04	310.16	0.042	0.35	598.96	0.001
	106.25 - 105		13.12	314.65	0.042	0.35	616.44	0.001
	105 - 103.75		13.21	319.15	0.041	0.35	634.17	0.001
	103.75 - 102.5		13.29	323.64	0.041	0.35	652.15	0.001
	102.5 - 101.25		13.38	328.13	0.041	0.35	670.38	0.001
	101.25 - 100		13.47	332.62	0.040	0.35	688.86	0.001
	100 - 98.75		13.55	337.12	0.040	0.35	707.60	0.000
	98.75 - 97.5		13.64	341.61	0.040	0.35	726.58	0.000
	97.5 - 96.25		13.73	346.10	0.040	0.35	745.82	0.000
	96.25 - 95		13.82	350.59	0.039	0.35	765.31	0.000
	95 - 93.75		13.91	355.09	0.039	0.35	785.05	0.000
	93.75 - 92.5		13.99	359.58	0.039	0.35	805.04	0.000
	92.5 - 91.25		14.08	364.07	0.039	0.35	825.28	0.000
	91.25 - 90		14.17	368.57	0.038	0.35	845.77	0.000
	90 - 88.75		14.26	373.06	0.038	0.34	866.52	0.000
	88.75 - 87.5		14.36	377.55	0.038	0.34	887.52	0.000
	87.5 - 86.25		14.45	382.04	0.038	0.34	908.77	0.000
	86.25 - 85		14.54	386.54	0.038	0.34	930.26	0.000
L3	85 - 84	TP35.691x27.61x0.3722	16.48	584.25	0.028	0.35	1372.67	0.000
	84 - 83		16.53	595.58	0.028	0.35	1427.50	0.000
	83 - 82		16.59	606.91	0.027	0.35	1483.41	0.000
	82 - 81		16.64	618.25	0.027	0.35	1540.40	0.000
	81 - 80		16.70	629.58	0.027	0.35	1598.46	0.000
	80 - 79		16.76	640.91	0.026	0.35	1657.59	0.000
	79 - 78		16.82	652.24	0.026	0.35	1717.79	0.000
	78 - 77		16.88	663.57	0.025	0.35	1779.08	0.000
	77 - 76		16.94	674.90	0.025	0.35	1841.43	0.000
	76 - 75		17.01	686.24	0.025	0.35	1904.86	0.000
	75 - 74		17.08	697.57	0.024	0.34	1969.36	0.000
	74 - 73		17.15	708.90	0.024	0.34	2034.93	0.000
	73 - 72		17.22	720.23	0.024	0.34	2101.58	0.000
	72 - 71		17.30	731.56	0.024	0.34	2169.31	0.000
	71 - 70		17.37	742.89	0.023	0.34	2238.11	0.000
L4	70 - 69	TP38.058x35.691x0.3918	17.44	785.11	0.022	0.34	2448.69	0.000
	69 - 68		17.51	788.61	0.022	0.34	2470.53	0.000
	68 - 67		17.58	792.10	0.022	0.34	2492.47	0.000
	67 - 66		17.66	795.60	0.022	0.34	2514.52	0.000
	66 - 65		17.73	799.09	0.022	0.34	2536.65	0.000

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Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L5	65 - 64	TP41.576x38.058x0.472	17.80	802.58	0.022	0.34	2558.88	0.000
	64 - 63		17.87	806.08	0.022	0.34	2581.21	0.000
	63 - 62		17.94	809.57	0.022	0.34	2603.63	0.000
	62 - 61		18.01	813.07	0.022	0.34	2626.16	0.000
	61 - 60		18.08	816.56	0.022	0.34	2648.78	0.000
	60 - 59		18.16	820.05	0.022	0.34	2671.50	0.000
	59 - 58		18.23	823.55	0.022	0.34	2694.31	0.000
	58 - 57		18.30	827.04	0.022	0.34	2717.22	0.000
	57 - 56		18.37	830.54	0.022	0.34	2740.23	0.000
	56 - 55		18.44	834.03	0.022	0.34	2763.33	0.000
	55 - 53.825		18.52	1007.31	0.018	0.34	3345.94	0.000
	53.825 - 52.65		18.60	1012.01	0.018	0.34	3377.18	0.000
	52.65 - 51.475		18.68	1016.70	0.018	0.34	3408.57	0.000
	51.475 - 50.3		18.76	1021.39	0.018	0.34	3440.11	0.000
	50.3 - 49.125		18.84	1026.08	0.018	0.34	3471.79	0.000
	49.125 - 47.95		18.91	1030.78	0.018	0.34	3503.62	0.000
	47.95 - 46.775		18.99	1035.47	0.018	0.34	3535.58	0.000
	46.775 - 45.6		19.07	1040.16	0.018	0.34	3567.70	0.000
	45.6 - 44.425		19.15	1044.85	0.018	0.34	3599.96	0.000
	44.425 - 43.25		19.23	1049.54	0.018	0.34	3632.37	0.000
	43.25 - 42.075		19.31	1054.24	0.018	0.34	3664.92	0.000
	42.075 - 40.9		19.39	1058.93	0.018	0.34	3697.62	0.000
	40.9 - 39.725		19.46	1063.62	0.018	0.34	3730.46	0.000
	39.725 - 38.55		19.54	1068.31	0.018	0.34	3763.44	0.000
	38.55 - 37.375		19.62	1073.01	0.018	0.34	3796.57	0.000
	37.375 - 36.2		19.70	1077.70	0.018	0.34	3829.85	0.000
	36.2 - 35.025		19.78	1082.39	0.018	0.34	3863.28	0.000
	35.025 - 33.85		19.85	1087.08	0.018	0.34	3896.84	0.000
	33.85 - 32.675		19.93	1091.77	0.018	0.34	3930.56	0.000
	32.675 - 31.5		20.01	1096.47	0.018	0.34	3964.42	0.000
L6	31.5 - 30.4688	TP44.046x41.576x0.4977	20.07	1159.69	0.017	0.34	4206.14	0.000
	30.4688 - 29.4375		20.13	1164.03	0.017	0.34	4237.69	0.000
	29.4375 - 28.4063		20.19	1168.37	0.017	0.34	4269.37	0.000
	28.4063 - 27.375		20.25	1172.72	0.017	0.34	4301.16	0.000
	27.375 - 26.3438		20.31	1177.06	0.017	0.34	4333.07	0.000
	26.3438 - 25.3125		20.37	1181.40	0.017	0.34	4365.09	0.000
	25.3125 - 24.2813		20.43	1185.74	0.017	0.34	4397.23	0.000
	24.2813 - 23.25		20.49	1190.08	0.017	0.34	4429.49	0.000
	23.25 - 22.2188		20.55	1194.43	0.017	0.34	4461.88	0.000
	22.2188 - 21.1875		20.61	1198.77	0.017	0.34	4494.38	0.000
	21.1875 - 20.1563		20.66	1203.11	0.017	0.34	4526.99	0.000
	20.1563 - 19.125		20.72	1207.45	0.017	0.34	4559.73	0.000
	19.125 - 18.0938		20.78	1211.79	0.017	0.34	4592.57	0.000
	18.0938 - 17.0625		20.84	1216.14	0.017	0.34	4625.54	0.000
	17.0625 - 16.0313		20.90	1220.48	0.017	0.34	4658.63	0.000
	16.0313 - 15		20.96	1224.82	0.017	0.34	4691.83	0.000

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Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L7	15 - 14	TP52.064x44.046x0.5362	21.02	1334.67	0.016	0.34	5046.12	0.000
	14 - 13		21.08	1350.87	0.016	0.34	5170.87	0.000
	13 - 12		21.14	1367.07	0.015	0.34	5297.14	0.000
	12 - 11		21.20	1383.26	0.015	0.34	5424.93	0.000
	11 - 10		21.27	1399.46	0.015	0.34	5554.25	0.000
	10 - 9		21.33	1415.66	0.015	0.34	5685.09	0.000
	9 - 8		21.40	1431.86	0.015	0.34	5817.46	0.000
	8 - 7		21.46	1448.06	0.015	0.34	5951.35	0.000
	7 - 6		21.53	1464.25	0.015	0.34	6086.76	0.000
	6 - 5		21.60	1480.45	0.015	0.34	6223.69	0.000
	5 - 4		21.68	1496.65	0.014	0.34	6362.15	0.000
	4 - 3		21.75	1512.85	0.014	0.34	6502.13	0.000
	3 - 2		21.82	1529.04	0.014	0.34	6643.63	0.000
	2 - 1		21.90	1545.24	0.014	0.34	6786.66	0.000
	1 - 0		21.97	1561.44	0.014	0.34	6931.21	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	150 - 148	0.006	0.064	0.000	0.019	0.001	0.070	1.000	4.8.2 ✓
	148 - 146	0.006	0.090	0.000	0.019	0.001	0.096	1.000	4.8.2 ✓
	146 - 144	0.006	0.115	0.000	0.019	0.001	0.121	1.000	4.8.2 ✓
	144 - 142	0.010	0.145	0.000	0.027	0.001	0.156	1.000	4.8.2 ✓
	142 - 140	0.013	0.187	0.000	0.038	0.001	0.202	1.000	4.8.2 ✓
	140 - 138	0.013	0.235	0.000	0.038	0.001	0.250	1.000	4.8.2 ✓
	138 - 136	0.013	0.282	0.000	0.038	0.001	0.296	1.000	4.8.2 ✓
	136 - 134	0.014	0.326	0.000	0.038	0.001	0.341	1.000	4.8.2 ✓
	134 - 132	0.014	0.368	0.000	0.038	0.001	0.383	1.000	4.8.2 ✓
	132 - 130	0.020	0.439	0.000	0.060	0.001	0.462	1.000	4.8.2 ✓
	130 - 128	0.020	0.507	0.000	0.059	0.001	0.530	1.000	4.8.2 ✓
	128 - 126	0.020	0.571	0.000	0.059	0.001	0.595	1.000	4.8.2 ✓
	126 - 124	0.020	0.633	0.000	0.058	0.001	0.656	1.000	4.8.2 ✓
	124 - 122	0.020	0.692	0.000	0.058	0.001	0.715	1.000	4.8.2 ✓
	122 - 120	0.024	0.764	0.000	0.069	0.001	0.793	1.000	4.8.2 ✓

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Section No.	Elevation <i>ft</i>	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	120 - 118.5	0.024	0.815	0.000	0.068	0.001	0.844	1.000	4.8.2 ✓
	118.5 - 118	0.006	0.139	0.000	0.058	0.001	0.149	1.000	4.8.2 ✓
	118 - 116	0.007	0.119	0.000	0.058	0.001	0.129	1.000	4.8.2 ✓
	116 - 114	0.007	0.042	0.000	0.058	0.001	0.052	1.000	4.8.2 ✓
	114 - 112	0.007	0.103	0.000	0.057	0.002	0.114	1.000	4.8.2 ✓
	112 - 110	0.007	0.172	0.000	0.057	0.001	0.183	1.000	4.8.2 ✓
L2	110 - 108.75	0.006	0.144	0.000	0.043	0.001	0.151	1.000	4.8.2 ✓
	108.75 - 107.5	0.006	0.169	0.000	0.042	0.001	0.177	1.000	4.8.2 ✓
	107.5 - 106.25	0.006	0.193	0.000	0.042	0.001	0.201	1.000	4.8.2 ✓
	106.25 - 105	0.006	0.217	0.000	0.042	0.001	0.225	1.000	4.8.2 ✓
	105 - 103.75	0.006	0.239	0.000	0.041	0.001	0.247	1.000	4.8.2 ✓
	103.75 - 102.5	0.006	0.261	0.000	0.041	0.001	0.269	1.000	4.8.2 ✓
	102.5 - 101.25	0.006	0.282	0.000	0.041	0.001	0.290	1.000	4.8.2 ✓
	101.25 - 100	0.006	0.302	0.000	0.040	0.001	0.310	1.000	4.8.2 ✓
	100 - 98.75	0.007	0.321	0.000	0.040	0.000	0.329	1.000	4.8.2 ✓
	98.75 - 97.5	0.007	0.339	0.000	0.040	0.000	0.348	1.000	4.8.2 ✓
	97.5 - 96.25	0.007	0.357	0.000	0.040	0.000	0.366	1.000	4.8.2 ✓
	96.25 - 95	0.007	0.374	0.000	0.039	0.000	0.383	1.000	4.8.2 ✓
	95 - 93.75	0.007	0.391	0.000	0.039	0.000	0.400	1.000	4.8.2 ✓
	93.75 - 92.5	0.007	0.407	0.000	0.039	0.000	0.416	1.000	4.8.2 ✓
	92.5 - 91.25	0.007	0.423	0.000	0.039	0.000	0.432	1.000	4.8.2 ✓
	91.25 - 90	0.007	0.438	0.000	0.038	0.000	0.447	1.000	4.8.2 ✓
	90 - 88.75	0.008	0.452	0.000	0.038	0.000	0.461	1.000	4.8.2 ✓
	88.75 - 87.5	0.008	0.467	0.000	0.038	0.000	0.476	1.000	4.8.2 ✓
	87.5 - 86.25	0.008	0.480	0.000	0.038	0.000	0.490	1.000	4.8.2 ✓
	86.25 - 85	0.008	0.494	0.000	0.038	0.000	0.503	1.000	4.8.2 ✓

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L3	85 - 84	0.013	0.586	0.000	0.028	0.000	0.600	1.000	4.8.2 ✓
	84 - 83	0.013	0.575	0.000	0.028	0.000	0.589	1.000	4.8.2 ✓
	83 - 82	0.013	0.565	0.000	0.027	0.000	0.578	1.000	4.8.2 ✓
	82 - 81	0.013	0.555	0.000	0.027	0.000	0.568	1.000	4.8.2 ✓
	81 - 80	0.012	0.545	0.000	0.027	0.000	0.558	1.000	4.8.2 ✓
	80 - 79	0.012	0.536	0.000	0.026	0.000	0.549	1.000	4.8.2 ✓
	79 - 78	0.012	0.527	0.000	0.026	0.000	0.540	1.000	4.8.2 ✓
	78 - 77	0.012	0.521	0.000	0.025	0.000	0.534	1.000	4.8.2 ✓
	77 - 76	0.012	0.516	0.000	0.025	0.000	0.528	1.000	4.8.2 ✓
	76 - 75	0.012	0.510	0.000	0.025	0.000	0.523	1.000	4.8.2 ✓
	75 - 74	0.012	0.505	0.000	0.024	0.000	0.517	1.000	4.8.2 ✓
	74 - 73	0.012	0.500	0.000	0.024	0.000	0.512	1.000	4.8.2 ✓
	73 - 72	0.012	0.495	0.000	0.024	0.000	0.508	1.000	4.8.2 ✓
	72 - 71	0.012	0.491	0.000	0.024	0.000	0.503	1.000	4.8.2 ✓
	71 - 70	0.011	0.487	0.000	0.023	0.000	0.499	1.000	4.8.2 ✓
L4	70 - 69	0.011	0.455	0.000	0.022	0.000	0.466	1.000	4.8.2 ✓
	69 - 68	0.011	0.459	0.000	0.022	0.000	0.471	1.000	4.8.2 ✓
	68 - 67	0.011	0.463	0.000	0.022	0.000	0.475	1.000	4.8.2 ✓
	67 - 66	0.011	0.467	0.000	0.022	0.000	0.479	1.000	4.8.2 ✓
	66 - 65	0.011	0.471	0.000	0.022	0.000	0.483	1.000	4.8.2 ✓
	65 - 64	0.011	0.475	0.000	0.022	0.000	0.487	1.000	4.8.2 ✓
	64 - 63	0.011	0.479	0.000	0.022	0.000	0.491	1.000	4.8.2 ✓
	63 - 62	0.011	0.483	0.000	0.022	0.000	0.495	1.000	4.8.2 ✓
	62 - 61	0.011	0.487	0.000	0.022	0.000	0.499	1.000	4.8.2 ✓
	61 - 60	0.011	0.491	0.000	0.022	0.000	0.503	1.000	4.8.2 ✓
	60 - 59	0.011	0.495	0.000	0.022	0.000	0.507	1.000	4.8.2 ✓

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Section No.	Elevation <i>ft</i>	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	59 - 58	0.011	0.499	0.000	0.022	0.000	0.511	1.000	4.8.2 ✓
	58 - 57	0.011	0.503	0.000	0.022	0.000	0.515	1.000	4.8.2 ✓
	57 - 56	0.011	0.506	0.000	0.022	0.000	0.518	1.000	4.8.2 ✓
	56 - 55	0.012	0.510	0.000	0.022	0.000	0.522	1.000	4.8.2 ✓
L5	55 - 53.825	0.010	0.408	0.000	0.018	0.000	0.418	1.000	4.8.2 ✓
	53.825 - 52.65	0.010	0.411	0.000	0.018	0.000	0.421	1.000	4.8.2 ✓
	52.65 - 51.475	0.010	0.413	0.000	0.018	0.000	0.423	1.000	4.8.2 ✓
	51.475 - 50.3	0.010	0.416	0.000	0.018	0.000	0.426	1.000	4.8.2 ✓
	50.3 - 49.125	0.010	0.419	0.000	0.018	0.000	0.429	1.000	4.8.2 ✓
	49.125 - 47.95	0.010	0.422	0.000	0.018	0.000	0.432	1.000	4.8.2 ✓
	47.95 - 46.775	0.010	0.425	0.000	0.018	0.000	0.435	1.000	4.8.2 ✓
	46.775 - 45.6	0.010	0.428	0.000	0.018	0.000	0.438	1.000	4.8.2 ✓
	45.6 - 44.425	0.010	0.431	0.000	0.018	0.000	0.441	1.000	4.8.2 ✓
	44.425 - 43.25	0.010	0.434	0.000	0.018	0.000	0.445	1.000	4.8.2 ✓
	43.25 - 42.075	0.010	0.437	0.000	0.018	0.000	0.448	1.000	4.8.2 ✓
	42.075 - 40.9	0.010	0.440	0.000	0.018	0.000	0.451	1.000	4.8.2 ✓
	40.9 - 39.725	0.010	0.443	0.000	0.018	0.000	0.454	1.000	4.8.2 ✓
	39.725 - 38.55	0.010	0.446	0.000	0.018	0.000	0.457	1.000	4.8.2 ✓
	38.55 - 37.375	0.010	0.449	0.000	0.018	0.000	0.460	1.000	4.8.2 ✓
	37.375 - 36.2	0.010	0.452	0.000	0.018	0.000	0.463	1.000	4.8.2 ✓
	36.2 - 35.025	0.011	0.455	0.000	0.018	0.000	0.466	1.000	4.8.2 ✓
	35.025 - 33.85	0.011	0.458	0.000	0.018	0.000	0.469	1.000	4.8.2 ✓
	33.85 - 32.675	0.011	0.461	0.000	0.018	0.000	0.472	1.000	4.8.2 ✓
	32.675 - 31.5	0.011	0.464	0.000	0.018	0.000	0.475	1.000	4.8.2 ✓
L6	31.5 - 30.4688	0.010	0.436	0.000	0.017	0.000	0.446	1.000	4.8.2 ✓
	30.4688 -	0.010	0.438	0.000	0.017	0.000	0.449	1.000	4.8.2 ✓

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Section No.	Elevation <i>ft</i>	Ratio P_u	Ratio M_{ux}	Ratio M_{uy}	Ratio V_u	Ratio T_u	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	29.4375						✓		
	29.4375 - 28.4063	0.010	0.440	0.000	0.017	0.000	0.451	1.000	4.8.2 ✓
	28.4063 - 27.375	0.010	0.443	0.000	0.017	0.000	0.453	1.000	4.8.2 ✓
	27.375 - 26.3438	0.010	0.445	0.000	0.017	0.000	0.456	1.000	4.8.2 ✓
	26.3438 - 25.3125	0.010	0.447	0.000	0.017	0.000	0.458	1.000	4.8.2 ✓
	25.3125 - 24.2813	0.011	0.449	0.000	0.017	0.000	0.460	1.000	4.8.2 ✓
	24.2813 - 23.25	0.011	0.452	0.000	0.017	0.000	0.462	1.000	4.8.2 ✓
	23.25 - 22.2188	0.011	0.454	0.000	0.017	0.000	0.465	1.000	4.8.2 ✓
	22.2188 - 21.1875	0.011	0.456	0.000	0.017	0.000	0.467	1.000	4.8.2 ✓
	21.1875 - 20.1563	0.011	0.458	0.000	0.017	0.000	0.469	1.000	4.8.2 ✓
	20.1563 - 19.125	0.011	0.460	0.000	0.017	0.000	0.471	1.000	4.8.2 ✓
	19.125 - 18.0938	0.011	0.462	0.000	0.017	0.000	0.473	1.000	4.8.2 ✓
	18.0938 - 17.0625	0.011	0.464	0.000	0.017	0.000	0.475	1.000	4.8.2 ✓
	17.0625 - 16.0313	0.011	0.466	0.000	0.017	0.000	0.477	1.000	4.8.2 ✓
	16.0313 - 15	0.011	0.468	0.000	0.017	0.000	0.480	1.000	4.8.2 ✓
L7	15 - 14	0.010	0.427	0.000	0.016	0.000	0.438	1.000	4.8.2 ✓
	14 - 13	0.010	0.421	0.000	0.016	0.000	0.432	1.000	4.8.2 ✓
	13 - 12	0.010	0.417	0.000	0.015	0.000	0.427	1.000	4.8.2 ✓
	12 - 11	0.010	0.412	0.000	0.015	0.000	0.423	1.000	4.8.2 ✓
	11 - 10	0.010	0.408	0.000	0.015	0.000	0.418	1.000	4.8.2 ✓
	10 - 9	0.010	0.404	0.000	0.015	0.000	0.414	1.000	4.8.2 ✓
	9 - 8	0.010	0.400	0.000	0.015	0.000	0.410	1.000	4.8.2 ✓
	8 - 7	0.010	0.396	0.000	0.015	0.000	0.406	1.000	4.8.2 ✓
	7 - 6	0.010	0.392	0.000	0.015	0.000	0.403	1.000	4.8.2 ✓
	6 - 5	0.010	0.389	0.000	0.015	0.000	0.399	1.000	4.8.2 ✓
	5 - 4	0.010	0.385	0.000	0.014	0.000	0.395	1.000	4.8.2 ✓
	4 - 3	0.010	0.382	0.000	0.014	0.000	0.392	1.000	4.8.2 ✓

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Section No.	Elevation <i>ft</i>	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	3 - 2	0.010	0.379	0.000	0.014	0.000	0.389 ✓	1.000	4.8.2 ✓
	2 - 1	0.010	0.376	0.000	0.014	0.000	0.385 ✓	1.000	4.8.2 ✓
	1 - 0	0.010	0.372	0.000	0.014	0.000	0.382 ✓	1.000	4.8.2 ✓

Reinforcing Design Data (Compression)

Section No.	Elevation <i>ft</i>	Size	<i>L</i> <i>ft</i>	<i>L_u</i> <i>ft</i>	<i>Kl/r</i>	<i>A</i> <i>in</i> ²	<i>P_u</i> <i>K</i>	ϕP_n <i>K</i>	Ratio $\frac{P_u}{\phi P_n}$
L2	118.5 - 85	2 1/2	33.50	2.50	38.4 K=0.80	4.9087	-140.95	281.86	0.500 ¹

¹ $P_u / \phi P_n$ controls

Reinforcing Bending Design Data

Section No.	Elevation <i>ft</i>	Size	<i>M_{ux}</i> <i>kip-ft</i>	ϕM_{nx} <i>kip-ft</i>	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	<i>M_{uy}</i> <i>kip-ft</i>	ϕM_{ny} <i>kip-ft</i>	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L2	118.5 - 85	2 1/2	0.42	14.65	0.029	0.00	14.65	0.000

Reinforcing Interaction Design Data

Section No.	Elevation <i>ft</i>	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L2	118.5 - 85	2 1/2	0.500	0.029	0.000	0.500 ¹ ✓	1.000	4.8.1 ✓

¹ $P_u / \phi P_n$ controls

Tension Checks

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Reinforcing Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
L2	118.5 - 85	2 1/2	33.50	2.50	48.0	4.9087	131.87	331.34	0.398 ¹

¹ P_u / φP_n controls

Reinforcing Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M _{uy} kip-ft	φM _{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L2	118.5 - 85	2 1/2	0.01	14.65	0.001	0.00	14.65	0.000

Reinforcing Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L2	118.5 - 85	2 1/2	0.398	0.001	0.000	0.398 ¹ ✓	1.000	4.8.1 ✓

¹ P_u / φP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	φP _{allow} K	% Capacity	Pass Fail
L1	150 - 110	Pole	TP21.25x15x0.1875	1	-16.89	697.01	84.4	Pass
L2	110 - 85	Pole	TP27.61x21.25x0.25	2	53.69	1288.45	50.3	Pass
L3	85 - 70	Pole	TP35.691x27.61x0.3722	3	-24.69	1909.73	60.0	Pass
L4	70 - 55	Pole	TP38.058x35.691x0.3918	4	-31.99	2780.10	52.2	Pass
L5	55 - 31.5	Pole	TP41.576x38.058x0.472	5	-39.19	3654.89	47.5	Pass
L6	31.5 - 15	Pole	TP44.046x41.576x0.4977	6	-44.82	4082.73	48.0	Pass
L7	15 - 0	Pole	TP52.064x44.046x0.5362	7	-44.83	4394.91	43.8	Pass
L2	118.5 - 85	Reinforcing	2 1/2	9	-140.95	281.86	50.0	Pass
							Summary	
							Pole (L1)	84.4 Pass
							Reinforcing (L2)	50.0 Pass
							RATING =	84.4 Pass

<i>tnxTower</i> <i>Telamon Corporation</i> <i>319 Chapanoke Road, Suite 118</i> <i>Raleigh, NC 27603</i> <i>Phone: (405) 348-5460</i> <i>FAX: (405) 341-6334</i>	Job 302523 - New Milford CT 2, CT	Page 29 of 29
	Project 13702509_C3_03	Date 17:04:36 08/25/21
Program Version: 17.02.09.03 File: T:\American Tower\41125 - ATC Structural Engineering - National\302523 - New Milford CT\302523 - New Milford CT.dwg	Client 302523 - New Milford CT DISH WIRELESS, LLC	Designed by Chaitanya Shetti

Flange Plate Analysis

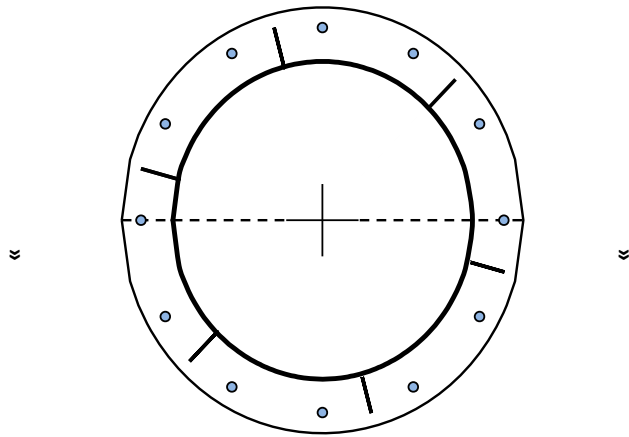
Flange Plate	Plate Type	Flange	@ 110 ft
	Pole Diameter	21.25	in
	Pole Thickness	0.1875	in
	Plate Diameter	28.5	in
	Plate Thickness	1	in
	Plate Fy	60	ksi
	Weld Length	1/4	in
	f _s Resistance	201.01	k-in
	Applied	13.11	k-in

Code Rev.	H
Moment	61.6 k-ft
Axial	5.4 k

Date	8/25/2021
Engineer	Chaitanya Shetti
Site #	302523
Carrier	DISH WIRELESS

Stiffeners	#	6	Show
	Thickness	1/2	in
	Length	3 1/2	in
	Height	6	in
	Chamfer	1/2	in
	Offset Angle	0	°
	Fy	50	ksi

Bolts	#	12	
	Bolt Circle	25.75	in
	(R)adial / (S)quare	R	
	Diameter	1	in
	Hole Diameter	1 1/8	in
	Type	A325	
	Fy	92	ksi
	Fu	120	ksi
	f _s Resistance	54.52	k
	Applied	9.12	k



Reinforcement	#		

Plate Stress Ratio:

7% Pass

Bolt Stress Ratio:

17% Pass

Extra Bolts	#		

Flange Plate Analysis

Flange Plate	Plate Type	Flange	@ 55 ft
	Pole Diameter	34.5	in
	Pole Thickness	0.25	in
	Plate Diameter	48.5	in
	Plate Thickness	2	in
	Plate Fy	60	ksi
	Weld Length	1/4	in
	f _s Resistance	585.28	k-in
	Applied	321.93	k-in

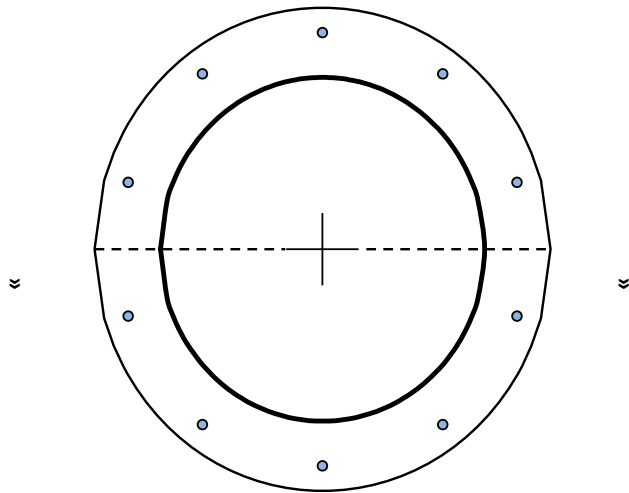
Code Rev.	H
Moment	1299.1 k-ft
Act. Moment	878.1 k-ft
Axial	32.0 k

Date	8/25/2021
Engineer	Chaitanya Shetti
Site #	302523
Carrier	DISH WIRELESS

Required Flange Thickness:
1.48 in OK

Stiffeners	#	
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Bolts	#	10	
	Bolt Circle	43.5	in
	(R)adial / (S)quare	R	
	Diameter	1 1/2	in
	Hole Diameter	1 5/8	in
	Type	A325	
	Fy	81	ksi
	Fu	105	ksi
	f _s Resistance	110.66	k
	Applied	93.65	k



Reinforcement	#	
---------------	---	--

Plate Stress Ratio:

55% Pass

Bolt Stress Ratio:

85% Pass

Extra Bolts	#	
-------------	---	--

Flange Plate Analysis

Flange Plate	Plate Type	Flange	@ 15 ft
	Pole Diameter	39.1	in
	Pole Thickness	0.3125	in
	Plate Diameter	54.7	in
	Plate Thickness	2	in
	Plate Fy	60	ksi
	Weld Length	1/4	in
	f _s Resistance	552.76	k-in
	Applied	465.44	k-in

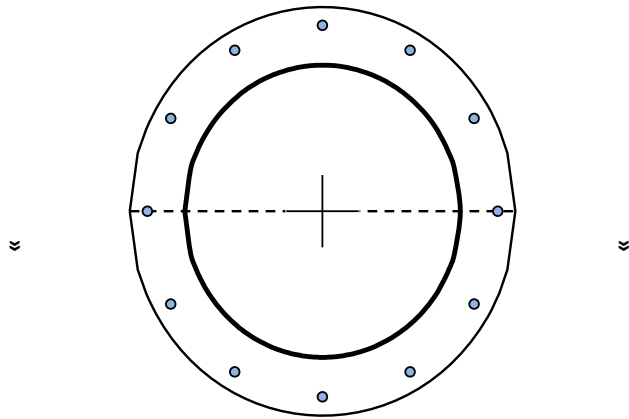
Code Rev.	H
Moment	2088.4 k-ft
Act. Moment	1411.7 k-ft
Axial	44.8 k

Date	8/25/2021
Engineer	Chaitanya Shetti
Site #	302523
Carrier	DISH WIRELESS

Required Flange Thickness:
1.84 in OK

Stiffeners	#	
------------	---	--

Bolts	#	12	
	Bolt Circle	49.7	in
	(R)adial / (S)quare	R	
	Diameter	1 1/2	in
	Hole Diameter	1 5/8	in
	Type	A325	
	Fy	81	ksi
	Fu	105	ksi
	f _s Resistance	110.66	k
	Applied	109.84	k



Reinforcement	#	
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Plate Stress Ratio:

84% Pass

Bolt Stress Ratio:

99% Pass

Extra Bolts	#	
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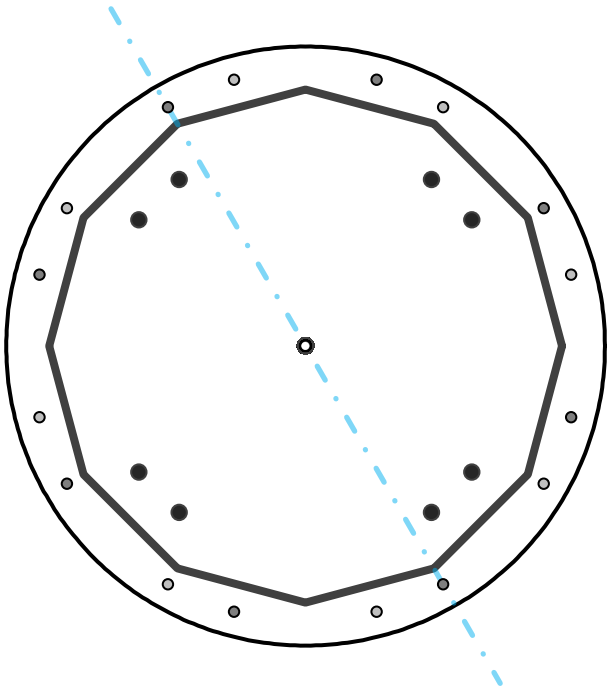
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	12	-
Diameter	52.1	in
Thickness	3/8	in
Orientation Offset		°

Base Reactions		
Moment, Mu	2,409.9	k-ft
Axial, Pu	50.7	k
Shear, Vu	22.0	k
Neutral Axis	120	°

Report Capacities		
Component	Capacity	Result
Base Plate	30%	Pass
Anchor Rods	69%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, ϕ	63.1	in
Thickness	2	in
Grade	A572-60	
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	N/A	in
Orientation Offset		°
Anchor Rod Detail	c	$\eta=0.55$
Clear Distance	N/A	in
Applied Moment, Mu	323.5	k
Bending Stress, ϕMn	1088.2	k



Original Anchor Rods		
Arrangement	Cluster	-
Quantity	8	-
Diameter, ϕ	2 1/4	in
Bolt Circle	44	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset		°
Applied Force, Pu	131.0	k
Anchor Rods, ϕPn	243.6	k

Additional Anchor Rods		
Quantity	8	-
Diameter, ϕ	1 1/2	in
Bolt Circle	58	in
Grade	A325 (>1")	
Yield Strength, Fy	81	ksi
Tensile Strength, Fu	105	ksi
Bypass Base?	No	
Orientation Offset	15	°
Applied Force, Pu	72.9	k
Additional Rod, ϕPn	110.7	k

Additional Anchor Rods		
Quantity	8	-
Diameter, ϕ	1 1/2	in
Bolt Circle	58	in
Grade	A325 (>1")	
Yield Strength, Fy	81	ksi
Tensile Strength, Fu	105	ksi
Bypass Base?	No	
Orientation Offset	-15	°
Applied Force, Pu	75.5	k
Additional Rod, ϕPn	110.7	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution				Geometric Properties					
Reaction	Shear Vu	Moment Mu	Factor	Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	k	k-ft	-	-	in ²	in ²	in ⁴	#	in ⁴
Base Forces	22.0	2409.9	1.00	Pole	60.2014	5.0168	0.2360		20108.25
Anchor Rod Forces	16.2	963.0	0.40	Bolt	3.9761	3.2477	0.8393	4.5	6294.24
Additional Bolt (Grp1) Forces	2.9	723.4	0.30	Bolt1	1.7671	1.4053	0.1571	6	4728.53
Additional Bolt (Grp2) Forces	2.9	723.4	0.30	Bolt2	1.7671	1.4053	0.1571	6	4728.53
Dywidag Forces	0.0	0.0	0.00	Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener Forces	0.0	0.0	0.00	Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate			Anchor Rods		
Shape	Round	-	Anchor Rod Quantity, N	8	-
Diameter, D	63.084	in	Rod Diameter, d	2.25	in
Thickness, t	2	in	Bolt Circle, BC	44	in
Yield Strength, Fy	60	ksi	Yield Strength, Fy	75	ksi
Tensile Strength, Fu	75	ksi	Tensile Strength, Fu	100	ksi
Base Plate Chord	0.000	in	Applied Axial, Pu	131.0	k
Detail Type	c	-	Applied Shear, Vu	0.4	k
Detail Factor	0.55	-	Compressive Capacity, φPn	243.6	k
Clear Distance	N/A	-	Tensile Capacity, φRnt	0.538	OK
			Interaction Capacity	0.541	OK

External Base Plate			Additional Bolt Group 1		
Chord Length AA	0.000	in	Bolt Quantity, N	8	-
Additional AA	4.000	in	Bolt Diameter, d	1.5	in
Section Modulus, Z	4.000	in ³	Bolt Circle, BC	58	in
Applied Moment, Mu	359.0	k-ft	Yield Strength, Fy	81	ksi
Bending Capacity, φMn	216.0	k-ft	Tensile Strength, Fu	105	ksi
Capacity, Mu/φMn			Applied Axial, Pu	72.9	k
			Applied Shear, Vu	0.5	k
Chord Length AB	0.000	in	Compressive Capacity, φPn	110.7	k
Additional AB	4.000	in	Compressive Capacity, φPn	0.659	OK
Section Modulus, Z	4.000	in ³	Interaction Capacity	0.667	OK
Applied Moment, Mu	222.4	k-ft			
Bending Capacity, φMn	216.0	k-ft			
Capacity, Mu/φMn					

Internal Base Plate			Additional Bolt Group 2		
Bend Line Length	0.000	in	Bolt Quantity, N	8	-
Additional Bend Line	0.000	in	Bolt Diameter, d	1.5	in
Section Modulus, Z	0.000	in ³	Bolt Circle, BC	58	in
Applied Moment, Mu	#N/A	k-ft	Yield Strength, Fy	81	ksi
Bending Capacity, φMn	0.0	k-ft	Tensile Strength, Fu	105	ksi
Capacity, Mu/φMn			Applied Axial, Pu	75.5	k
			Applied Shear, Vu	0.4	k
			Compressive Capacity, φPn	110.7	k
			Compressive Capacity, φPn	0.682	OK
			Interaction Capacity	0.689	OK

Site Name: New Milford CT 2, CT
Site Number: 302523
Tower Type: MP
Design Loads (Factored) - Analysis per TIA-222-H Standards

Monolithic Mat & Pier Foundation Analysis

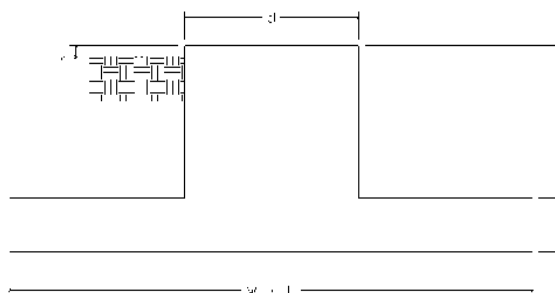
Foundation Analysis Parameters		
Design / Analysis / Mapping:	Analysis	-
Compression/Leg:	50.7	k
Uplift/Leg:	0.0	k
Total Shear:	22.0	k
Moment:	2,409.9	k-ft
Tower + Appurtenance Weight:	42.2	k
Depth to Base of Foundation (l + t - h):	8	ft
Diameter of Pier (d):	6	ft
Length of Pier (l):	5.5	ft
Height of Pier above Ground (h):	0.5	ft
Width of Pad (W):	18	ft
Length of Pad (L):	24	ft
Thickness of Pad (t):	3	ft
Tower Leg Center to Center:	0	ft
Number of Tower Legs:	1	-
Tower Center from Mat Center:	3	ft
Depth Below Ground Surface to Water Table:	99	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Soil Above Water Table:	115	pcf
Unit Weight of Water:	62.4	pcf
Unit Weight of Soil Below Water Table:	52.6	pcf
Friction Angle of Uplift:	15	°
Coefficient of Shear Friction:	0.20	-
Ultimate Compressive Bearing Pressure:	9,162	psf
Ultimate Passive Pressure on Pad Face:	1,354	psf
$f_{\text{Soil and Concrete Weight}}$:	0.9	-
f_{Soil} :	0.75	-

Overturning Moment Usage		
Design OTM:	2596.5	k-ft
OTM Resistance:	4229.4	k-ft
Design OTM / OTM Resistance:	61%	Pass

Soil Bearing Pressure Usage		
Net Bearing Pressure:	2612	psf
Factored Nominal Bearing Pressure:	6872	psf
Factored Nominal (Net) Bearing Pressure:	38%	Pass
Load Direction Controlling Design Bearing Pressure:	Diagonal to Pad Edge	

Sliding Factor of Safety		
Ultimate Friction Resistance:	97.0	k
Ultimate Passive Pressure Resistance:	73.1	k
Total Factored Sliding Resistance:	127.6	k
Sliding Design / Sliding Resistance:	17%	Pass

Foundation Steel Parameters		
Shear/Leg (Compression):	16.0	k
Shear/Leg (Uplift):	13.2	k
Concrete Strength (f'_c):	3,000	psi
Pad Tension Steel Depth:	32.38	in
Dead Load Factor:	0.9	-
f_{Shear} :	0.75	-
$f_{\text{Flexure / Tension}}$:	0.9	-
$f_{\text{Compression}}$:	0.65	-
b:	0.85	-
Bottom Pad Rebar Size #:	10	-
# of Bottom Pad Rebar:	36	-
Pad Bottom Steel Area:	45.72	in ²
Pad Steel F_y :	60,000	psi
Top Pad Rebar Size #:	5	-
# of Top Pad Rebar:	36	-
Pad Top Steel Area:	11.16	in ²
Pier Rebar Size #:	11	-
Pier Steel Area (Single Bar):	1.56	in ²
# of Pier Rebar:	14	-
Pier Steel F_y :	60,000	psi
Pier Cage Diameter:	63.6	in
Rebar Strain Limit:	0.008	-
Steel Elastic Modulus:	29,000	ksi
Tie Rebar Size #:	4	-
Tie Steel Area (Single Bar):	0.20	in ²
Tie Spacing:	12	in
Tie Steel F_y :	60,000	psi
Clear Cover:	3	in



Pad Strength Capacity			
Factored One Way Shear (V_u):	207.0	k	ACI 318-14 25.5.5.1
One Way Shear Capacity (ϕV_c):	766.0	k	
$V_u / \phi V_c$:	27%	Pass	
Load Direction Controlling Shear Capacity:	Parallel to Pad Edge		
Lower Steel Pad Factored Moment (M_u):	953.5	k-ft	ACI 318-14 22.3.1.1
Lower Steel Pad Moment Capacity (ϕM_n):	6334.2	k-ft	
$M_u / \phi M_n$:	15%	Pass	
Load Direction Controlling Flexural Capacity:	Parallel to Pad Edge		
Upper Steel Pad Factored Moment (M_u):	442.8	k-ft	
Upper Steel Pad Moment Capacity (ϕM_n):	1606.4	k-ft	
$M_u / \phi M_n$:	28%	Pass	
Lower Pad Flexural Reinforcement Ratio:	0.0049		OK - ACI 318-14 7.6.1.1 & 8.6.1.1
Upper Pad Flexural Reinforcement Ratio:	0.0012		OK - ACI 318-14 7.6.1.1 & 8.6.1.1
Lower Pad Reinforcement Spacing:	8.0	in	OK - ACI 318-14 7.7.2.3, 8.7.2.2, & 24.4.3.3
Upper Pad Reinforcement Spacing:	8.0	in	OK - ACI 318-14 7.7.2.3, 8.7.2.2, & 24.4.3.3
Ultimate Punching Shear Stress, v_u :	37.83	psi	ACI 318-14 R8.4.4.2.3
Nominal Punching Shear Capacity ($\phi_c v_c$):	164.3	psi	ACI 318-14 22.6.5.2
$v_u / \phi_c v_c$:	23%	Pass	
Pier Moment Pad Flexure Transfer Ratio, η :	0.60		TIA-222-H 9.4.2
Moment Transfer Effective Flexural Width, B_{eff} :	15.00	ft	TIA-222-H 9.4.2
Moment Transfer Through Pad Flexure:	18220.75	k-in	TIA-222-H 9.4.2
Moment Transfer Flexural Capacity ($\phi M_{sc,f}$):	49285.17	k-in	
$g_f M_{sc} / \phi M_{sc,f}$:	0%	Pass	

Pier Strength Capacity			
Factored Moment in Pier (M_u):	2530.7	k-ft	
Pier Moment Capacity (ϕM_n):	3069.4	k-ft	
$M_u / \phi M_n$:	82%	Pass	
Factored Shear in Pier (V_u):	22.0	k	ACI 318-14 22.5.1.1
Pier Shear Capacity (ϕV_n):	423.0	k	
$V_u / \phi V_c$:	5%	Pass	
Pier Shear Reinforcement Ratio:	0.0005		OK - No Ties Necessary for Shear - ACI11.5.6.1
Factored Tension in Pier (T_u):	0.0	k	
Pier Tension Capacity (ϕT_n):	1179.4	k	
$T_u / \phi T_n$:	0%	Pass	
Factored Compression in Pier (P_u):	50.7	k	ACI 318-14 22.4.2.1
Pier Compression Capacity (ϕP_n):	5418.5	k	
$P_u / \phi P_n$:	1%	Pass	
Minimum Depth to Develop Vertical Rebar:	63	in	ACI 318-14 25.4.2.3
Minimum Hook Development Length:	31	in	ACI 318-14 25.4.3.1
Minimum Mat Thickness / Edge Distance from Pier:	34.0	in	
Minimum Foundation Depth:	8.35	ft	
$M_u / \phi_B M_n + T_u / \phi_T T_n$:	82%	Pass	

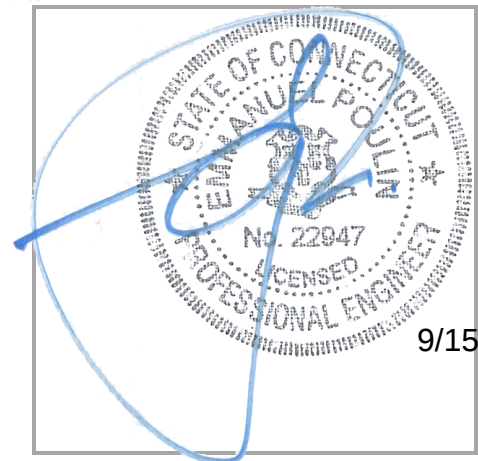
INFINIGY8

MOUNT ANALYSIS REPORT

September 15, 2021

Dish Wireless Site Name	BOHVN00145A
Dish Wireless Site Number	BOHVN00145A
ATC Site Name	-
ATC Site Number	302523
Infinigy Job Number	1197-F0001-B
Client	ATC
Carrier	Dish Wireless
Site Location	4 Elkington Farm Rd New Milford, CT 06776 Litchfield County 41.590861 N NAD83 73.408600 W NAD83
Mount Type	8.0 ft Platform
Mount Elevation	122.0 ft AGL
Structural Usage Ratio	31.5
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 114 mph. The evaluation criteria and applicable codes are presented in the next section of this report.



9/15/21

CONTENTS

1. Introduction
2. Design/Analysis Parameters
3. Proposed Loading Configuration
4. Supporting Documentation
5. Results
6. Recommendations
7. Assumptions
8. Liability Waiver and Limitations
9. Calculations

September 15, 2021

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	114 mph (3-Second Gust)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 1.0" ice
Code / Standard	TIA-222-H
Adopted Code	2018 Connecticut State Building Code (2015 IBC)
Risk Category	II
Exposure Category	C
Topographic Category	1
Calculated Crest Height	0 ft.
Seismic Spectral Response	$S_s = 0.197 \text{ g} / S_1 = 0.055 \text{ g}$
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 - 122.0 ft. AGL Platform

Antenna Centerline (ft)	Qty.	Appurtenance Manufacturers	Appurtenance Models
122.0	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-302523 Rev 1, Site #BOHVN00145A, dated July 09, 2021
Mount Manufacturer Drawings	Commscope Document # MC-PK8-DSH, dated March 08, 2021
Construction Drawings	NB+C, A&E Project #302523-13702509, dated August 19, 2021

5. RESULTS

Components	Capacity	Pass/Fail
Mount Pipes	20.2%	Pass
Horizontals	12.2%	Pass
Standoffs	30.2%	Pass
Handrails	24.3%	Pass
Connections	31.5%	Pass
MOUNT RATING =	31.5 %	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 122.0 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

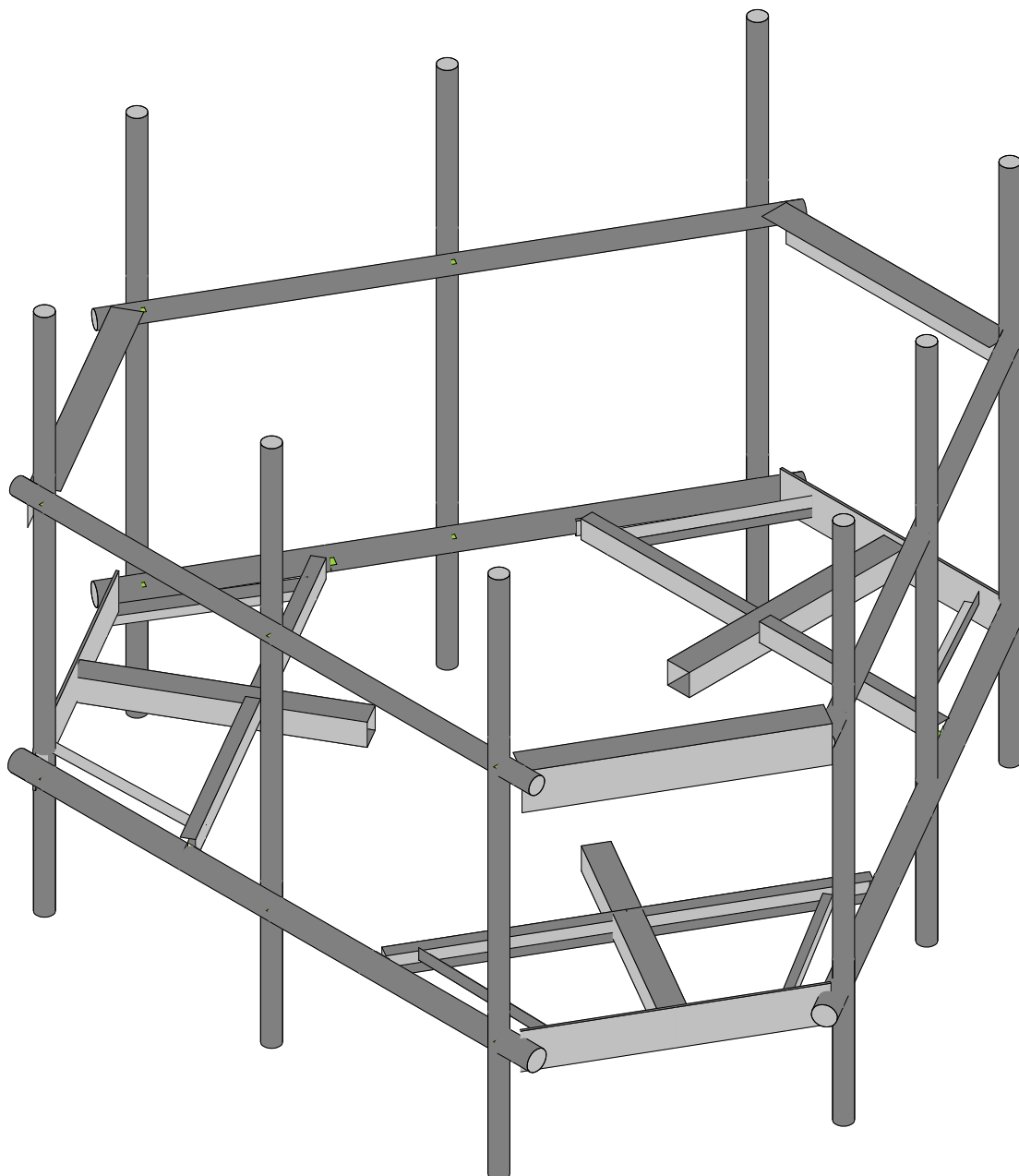
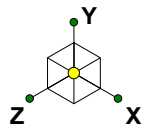
The antenna mounting system was properly fabricated, installed and maintained in accordance with its original design and manufacturer's specifications.	
The configuration of antennas, mounts, and other appurtenances are as specified in the proposed loading configuration table.	
All member connections 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.

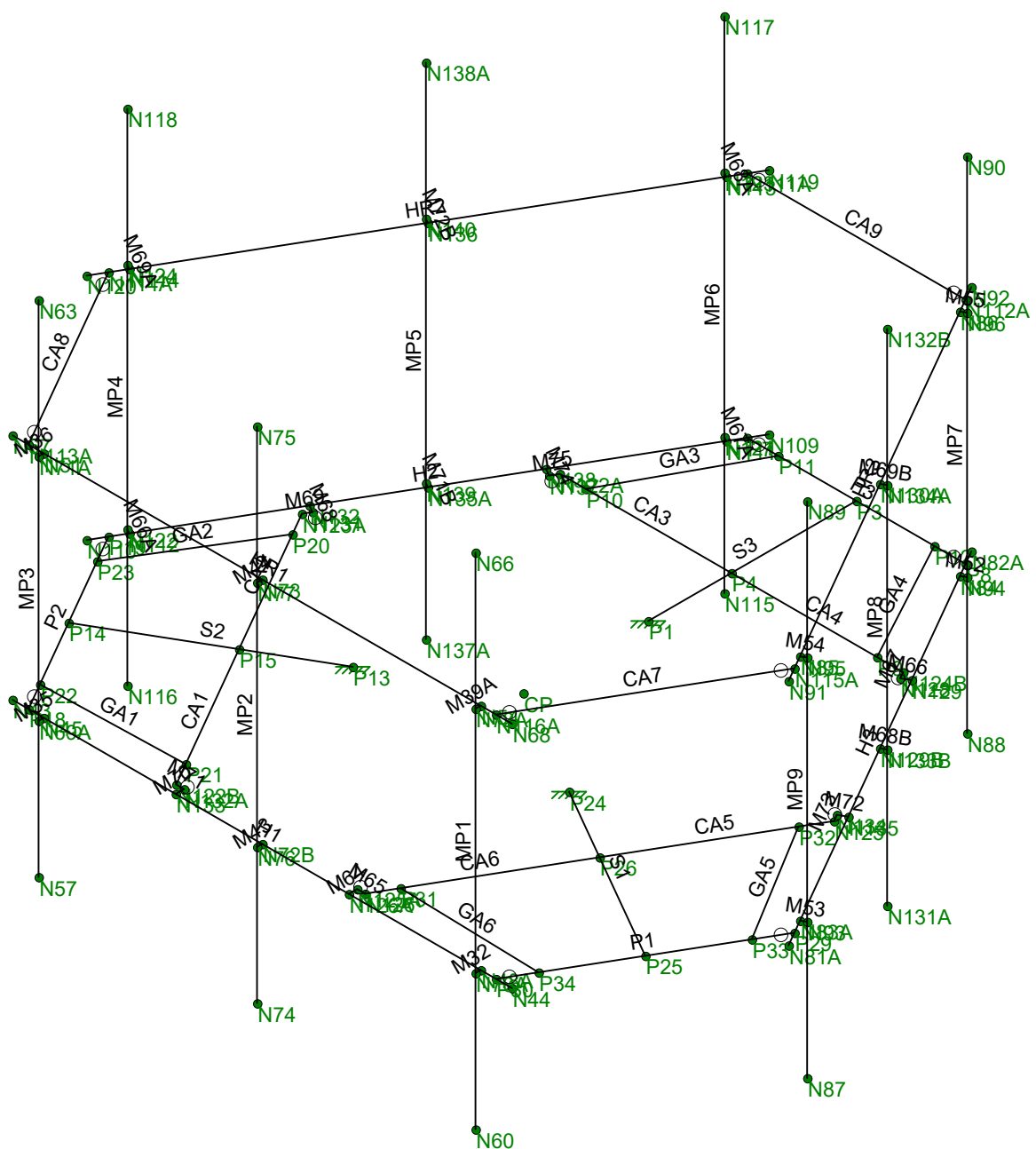
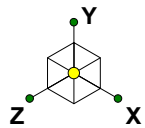
Our evaluation is completed using industry standard methods and procedures. The structural results, conclusions and recommendations contained in this report are proprietary and should not be used by others as their own. Infinigy is not responsible for decisions made by others that are or are not based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



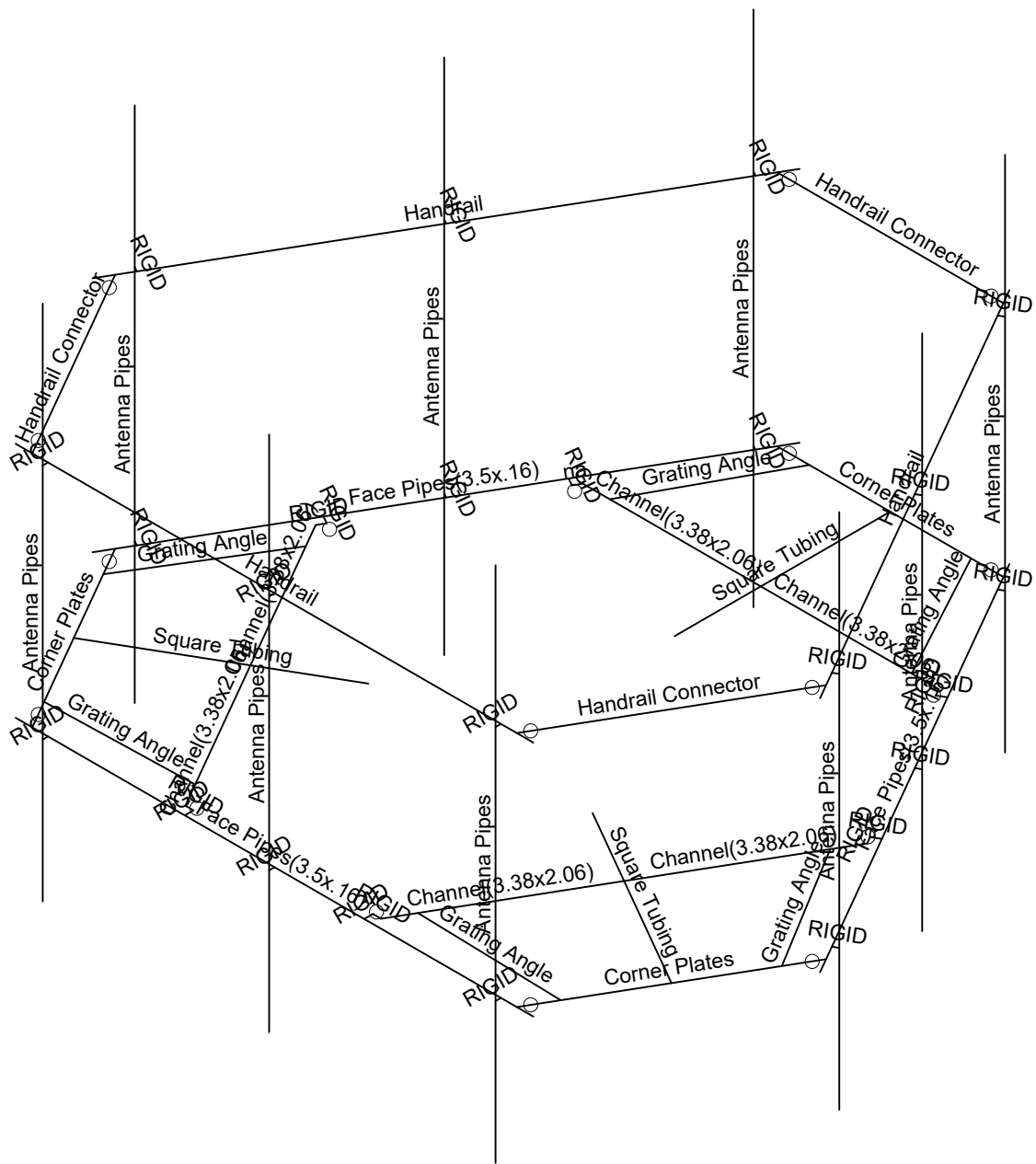
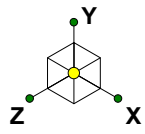
Envelope Only Solution

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PSM		Sept 15, 2021 at 11:30 AM
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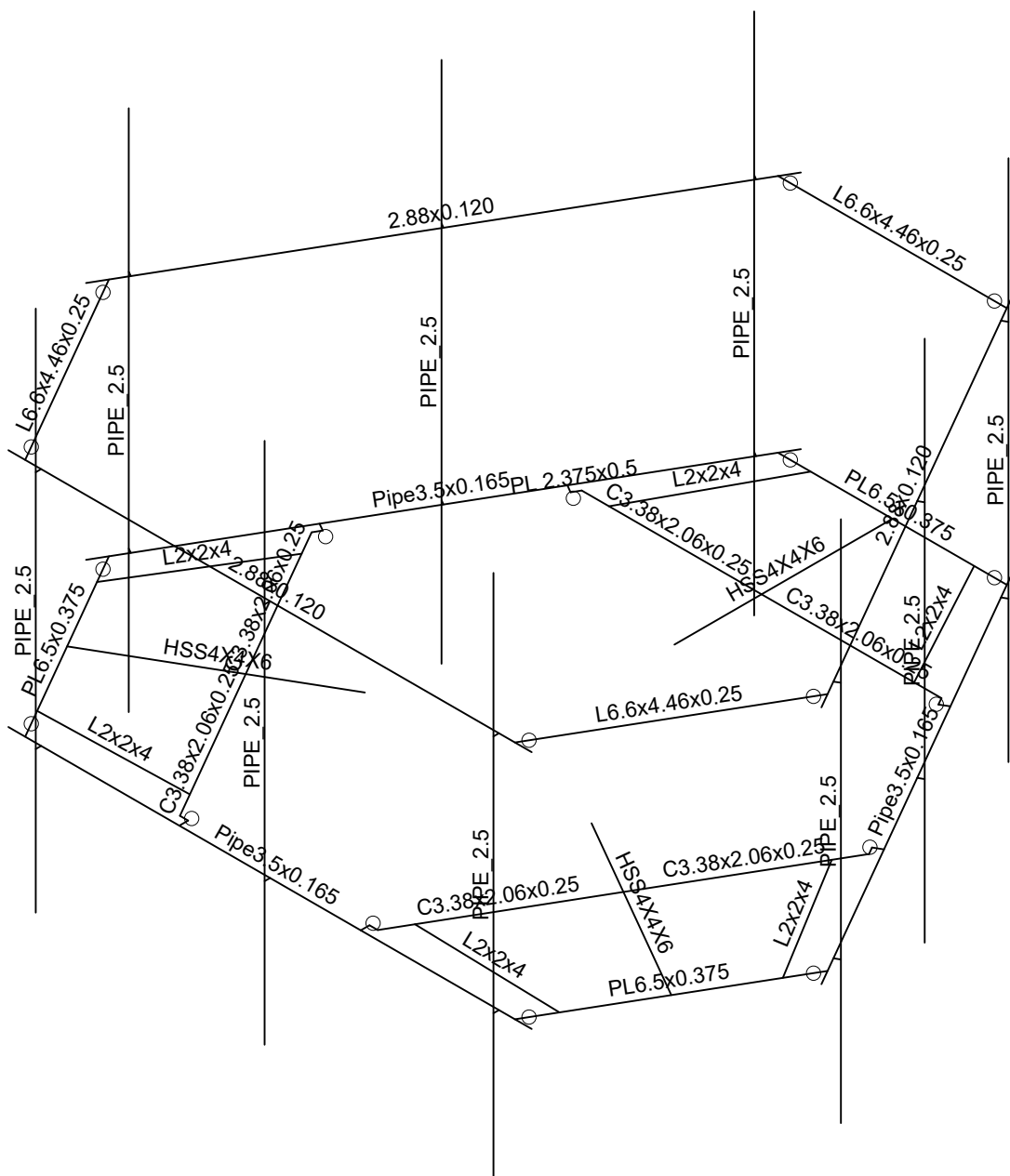
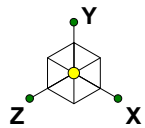
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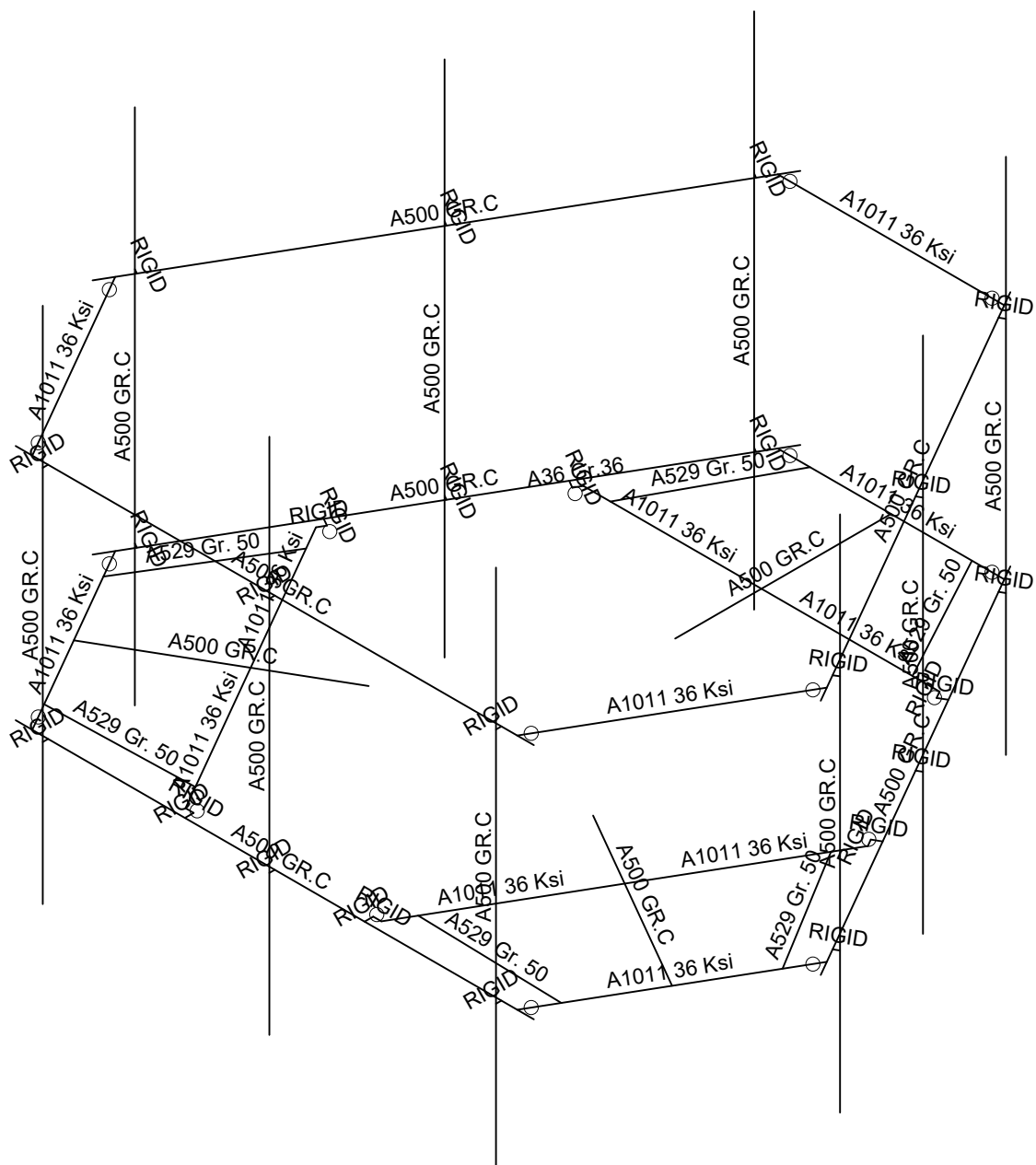
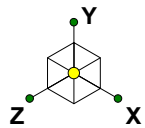
Envelope Only Solution

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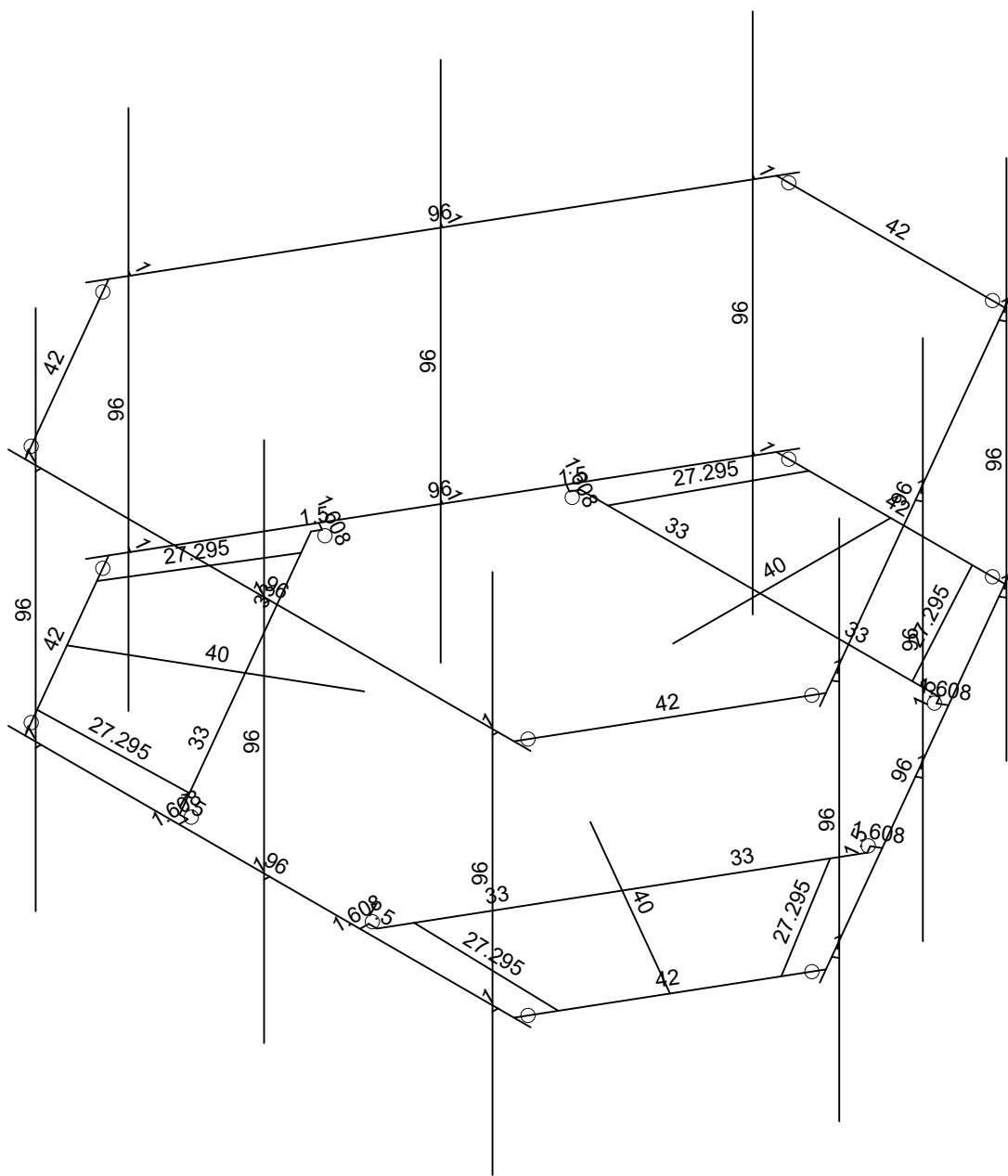
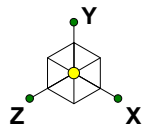
Envelope Only Solution

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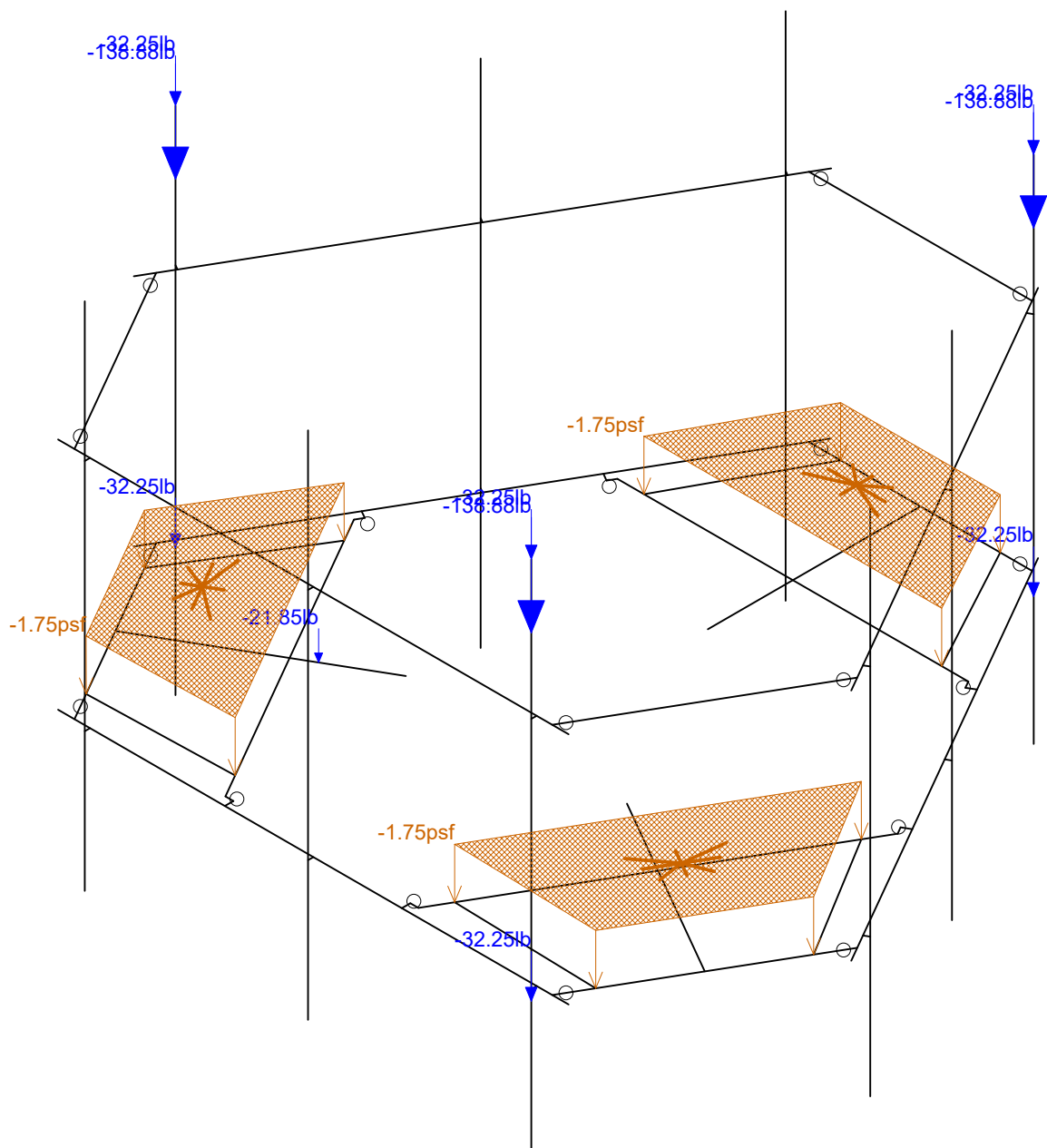
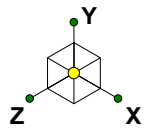
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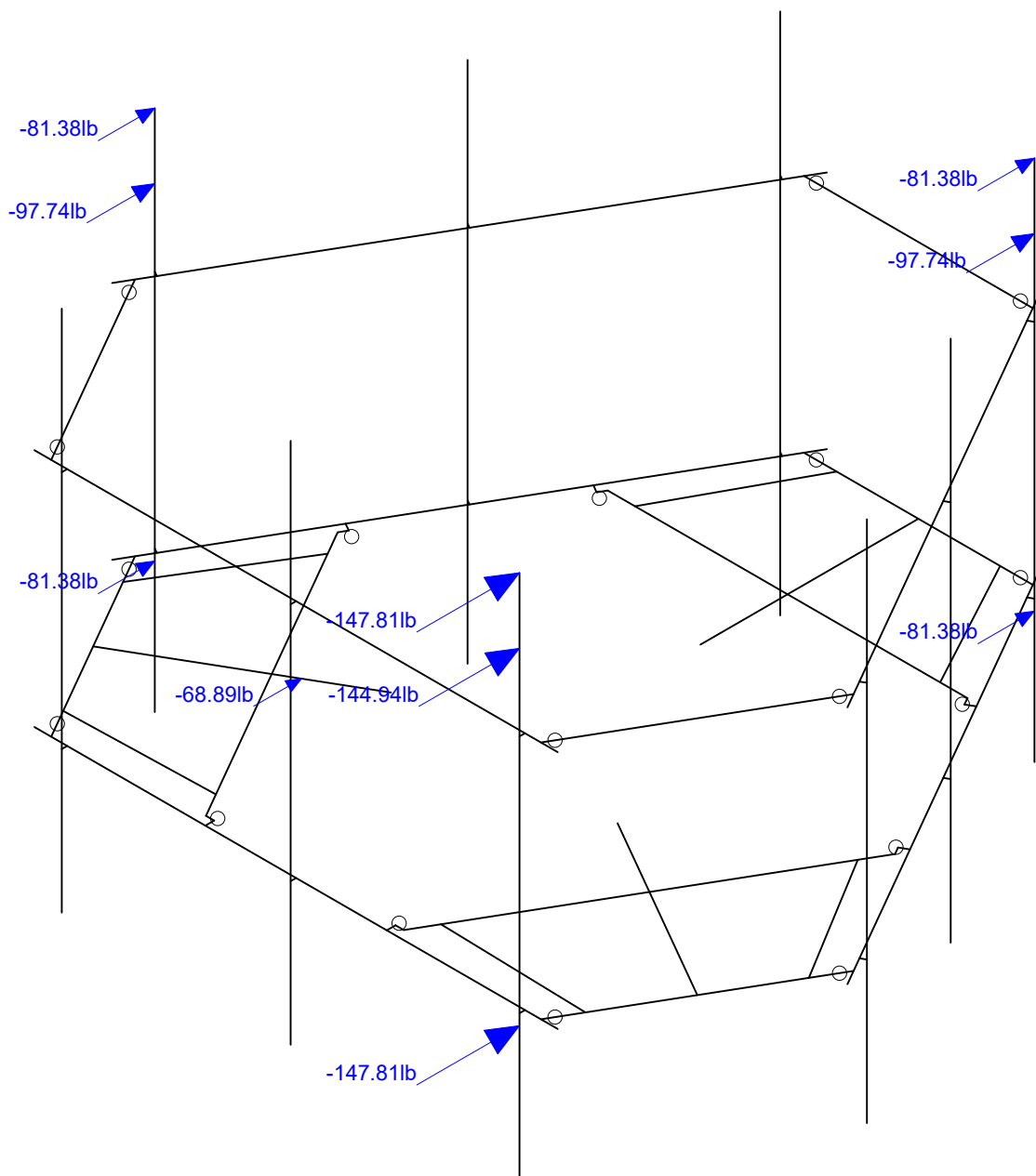
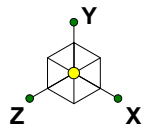
Member Length (in) Displayed
Envelope Only Solution

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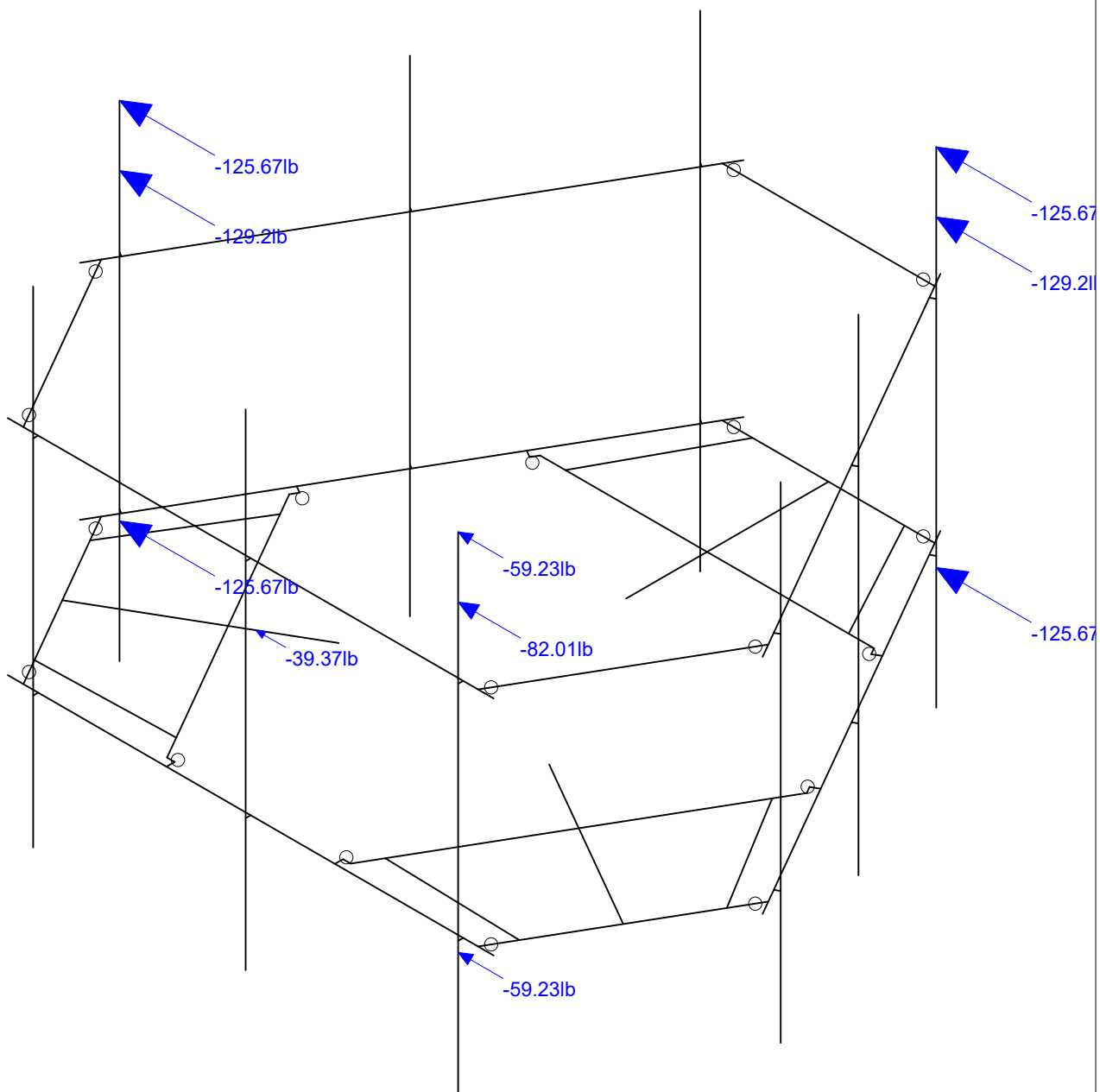
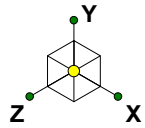
Loads: BLC 1, Self Weight
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00145A	Self Weight
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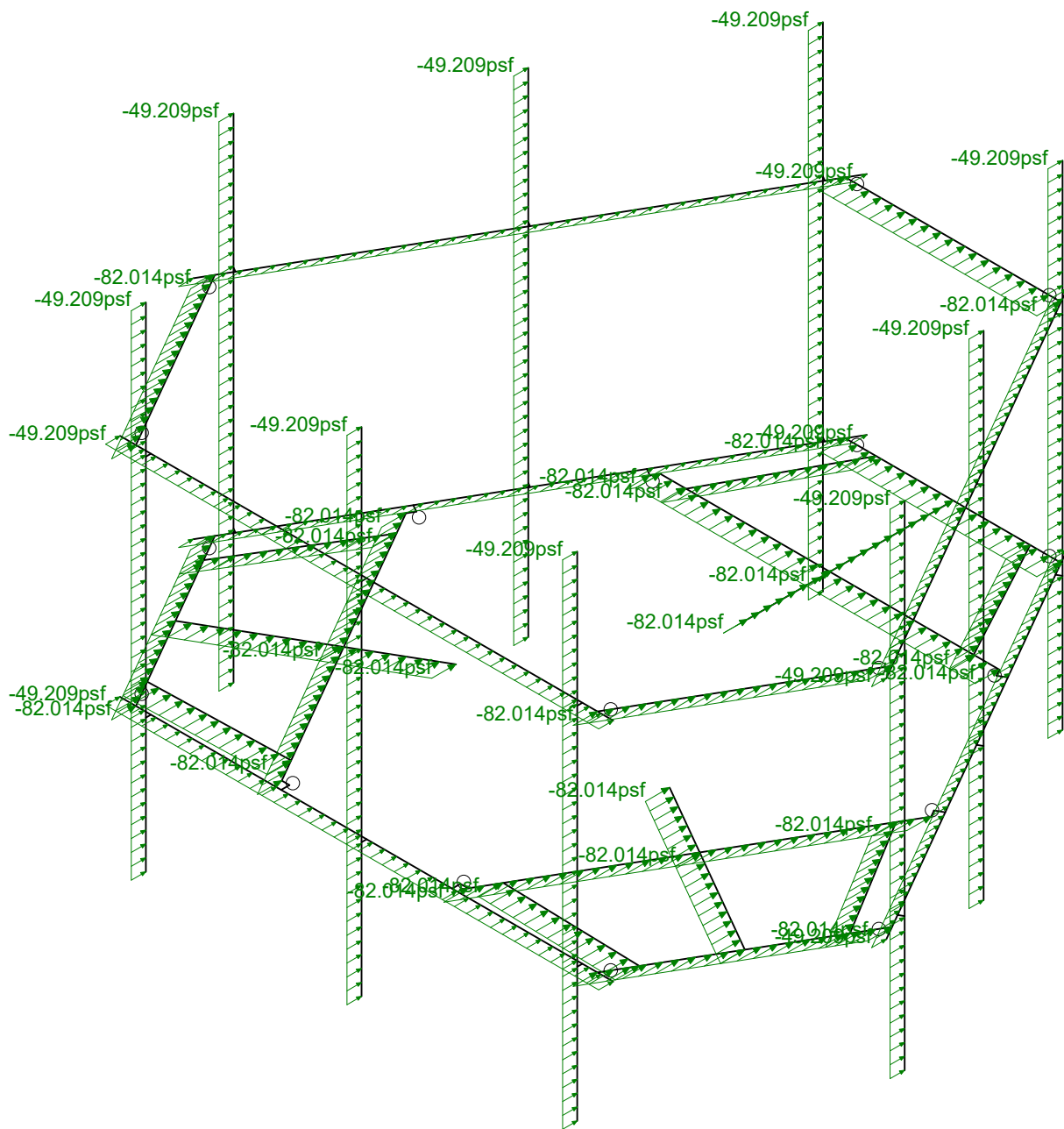
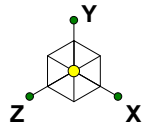
Loads: BLC 2, Wind Load AZI 0
Envelope Only Solution

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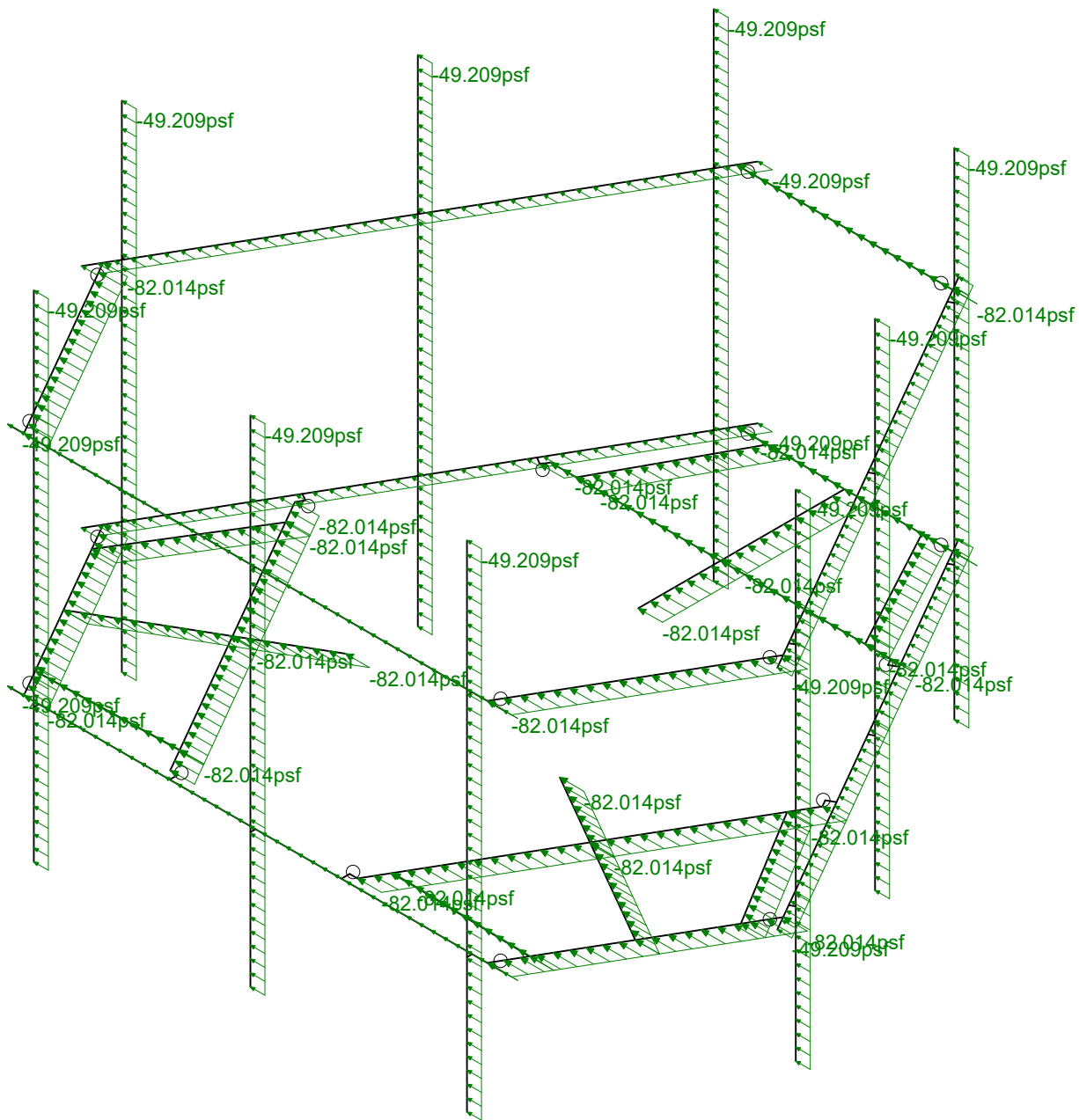
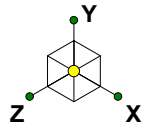
Loads: BLC 5, Wind Load AZI 90
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00145A	Wind Load AZI 090
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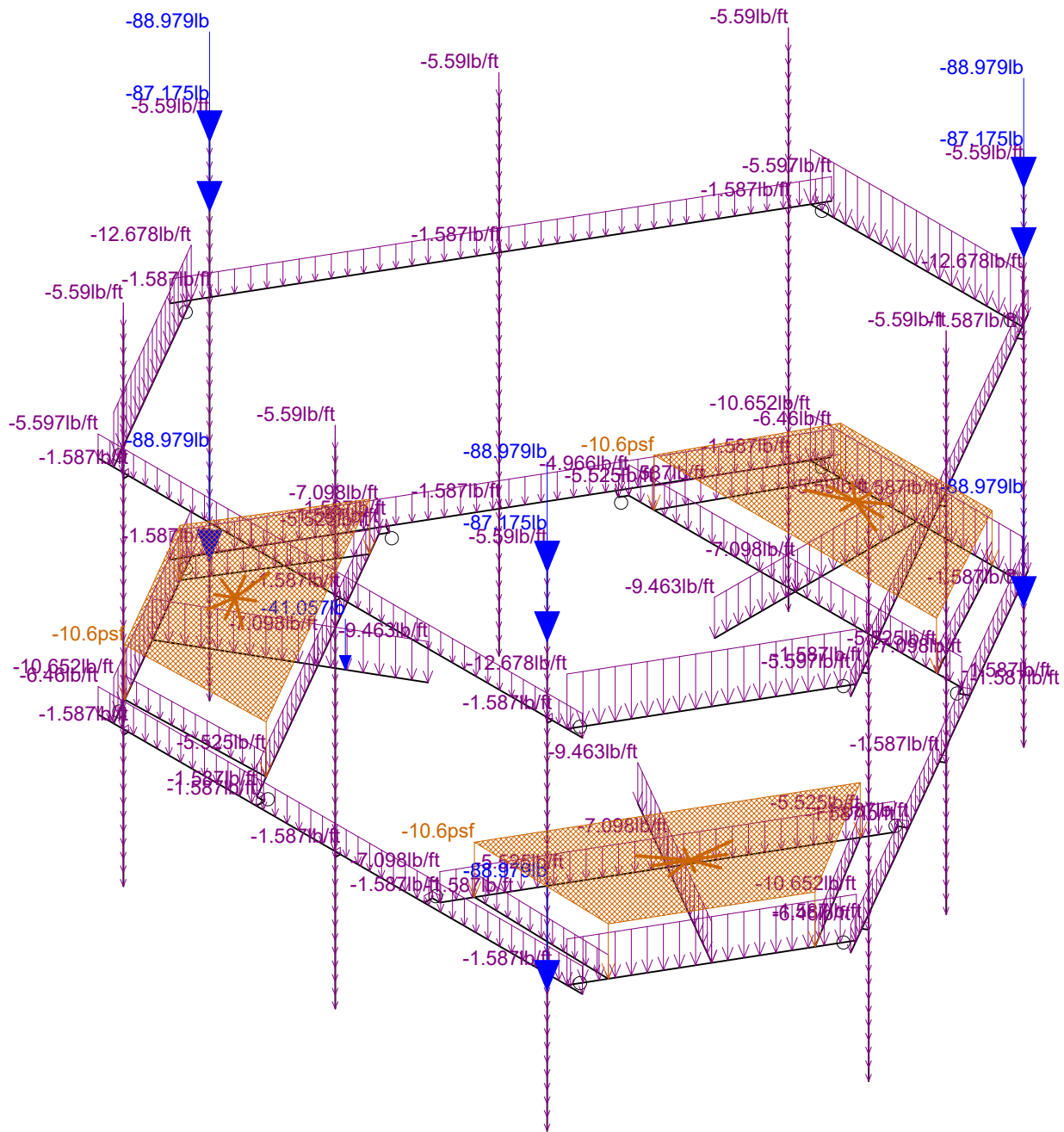
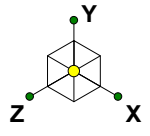
Loads: BLC 14, Distr. Wind Load Z
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00145A	Distr Wind Load AZI 000
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1197-F0001-B		BOHVN00145A_loaded.r3d



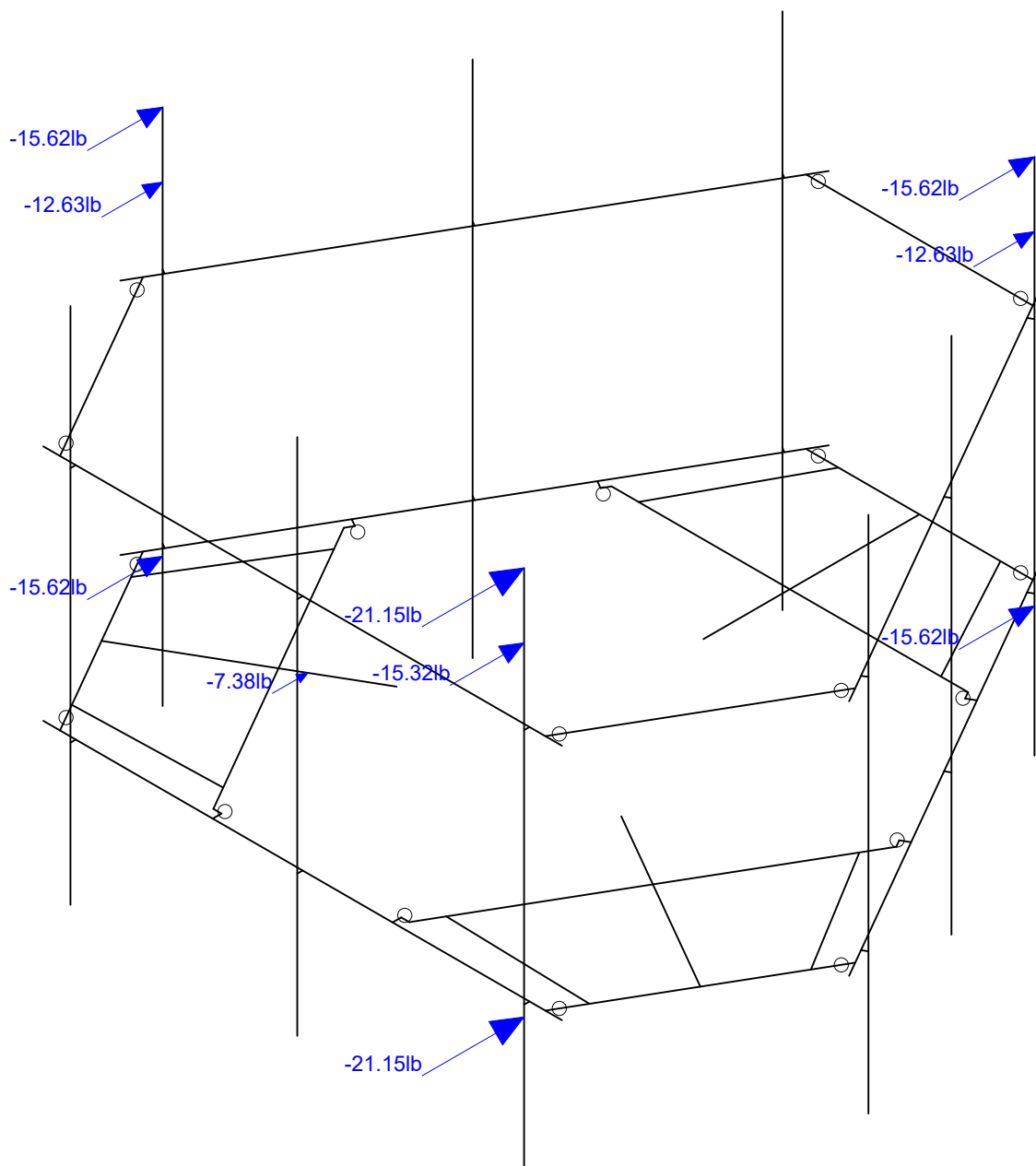
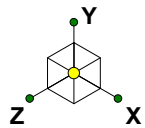
Loads: BLC 15, Distr. Wind Load X
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00145A	Distr Wind Load AZI 090
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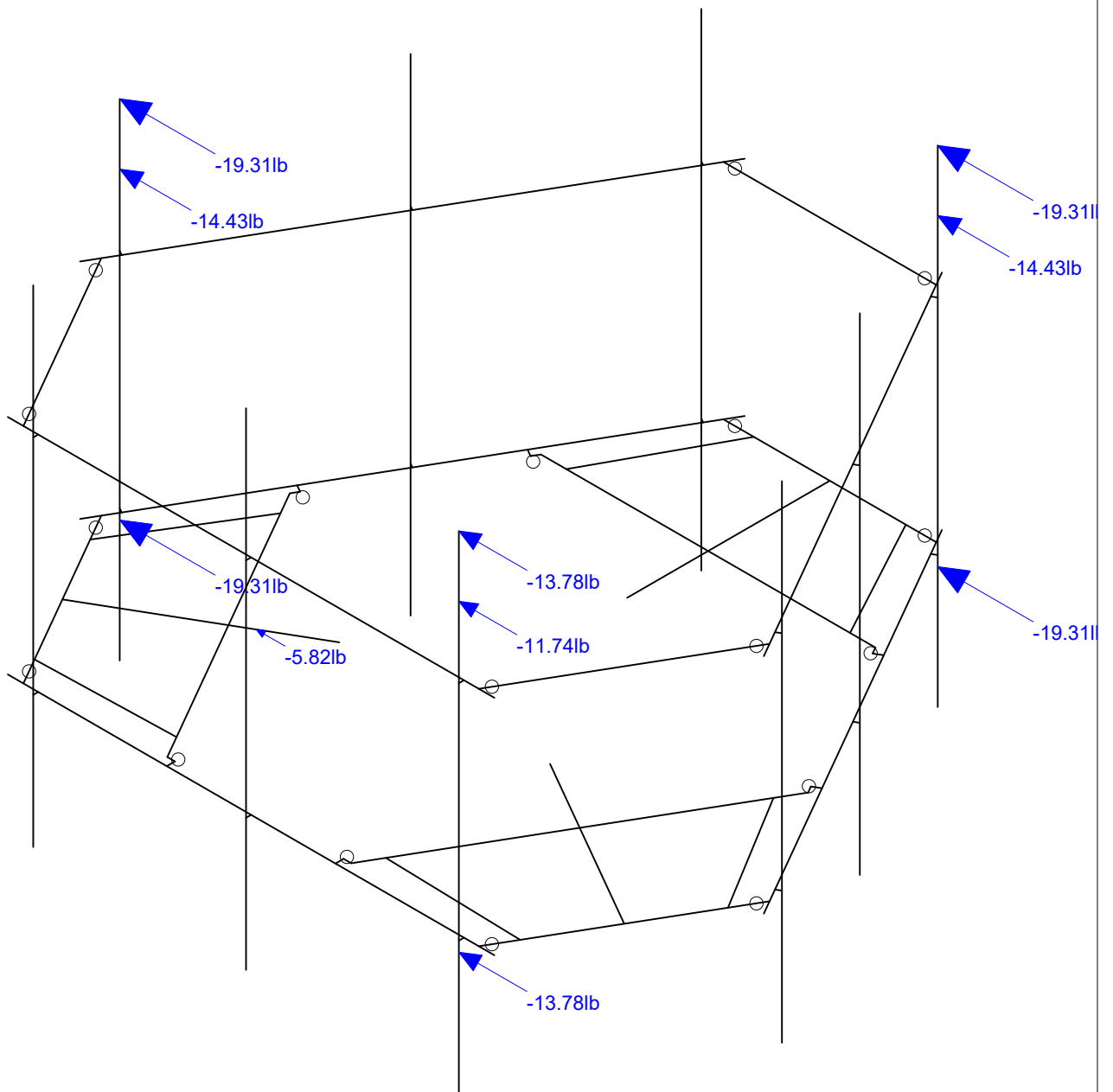
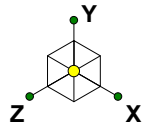
Loads: BLC 16, Ice Weight
Envelope Only Solution

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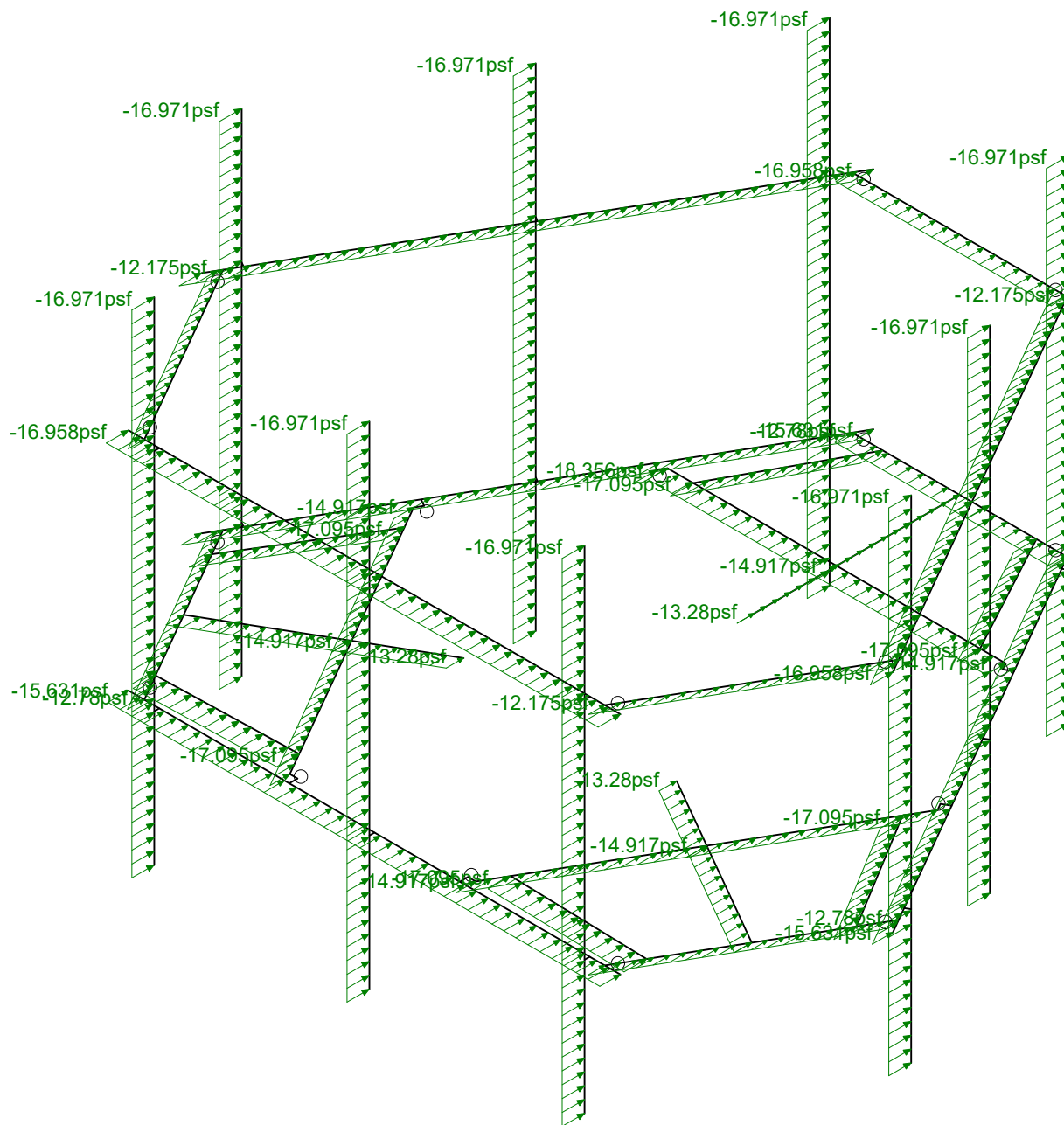
Loads: BLC 17, Ice Wind Load AZI 0
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00145A	Ice + Wind Load AZI 000
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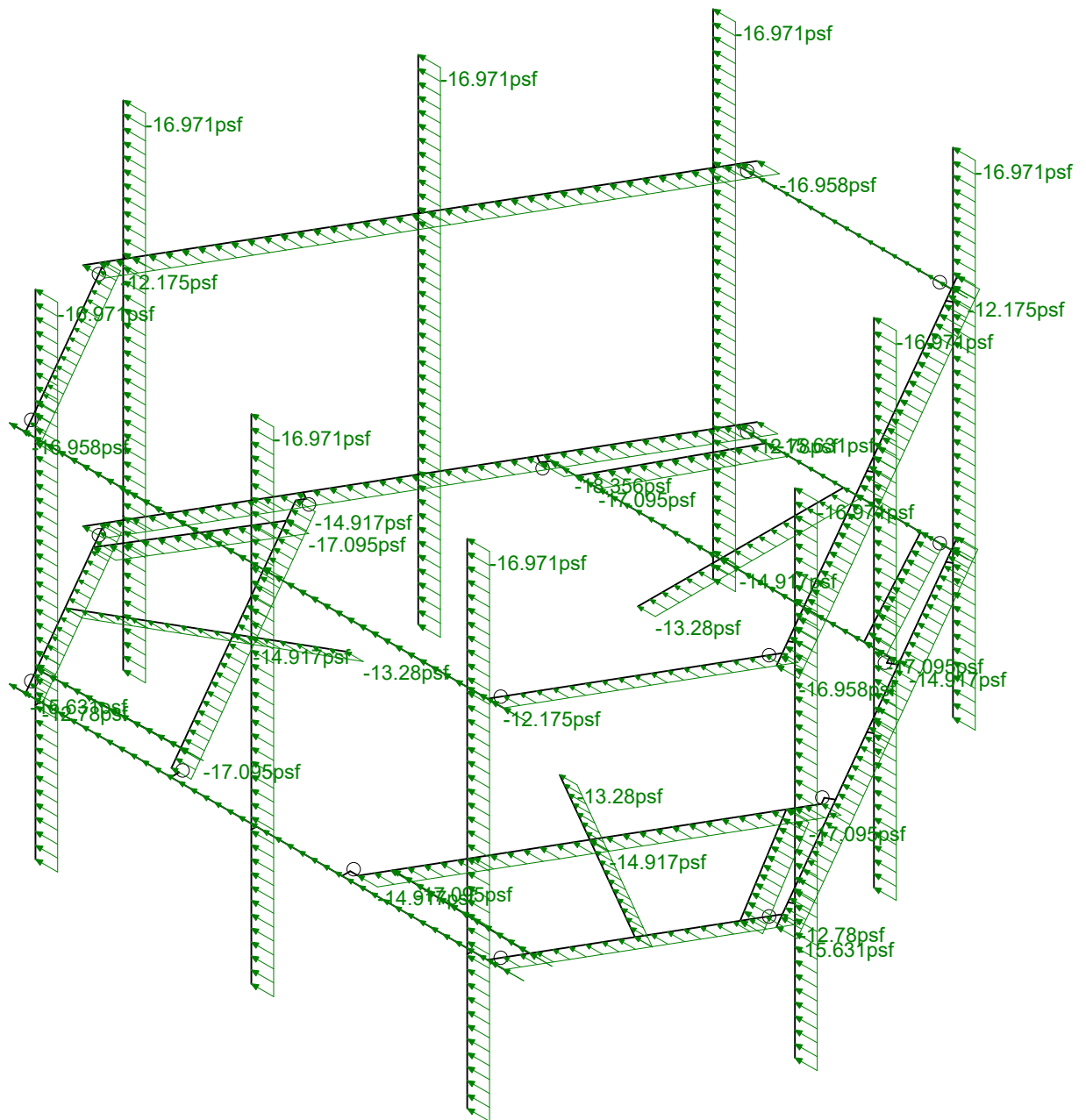
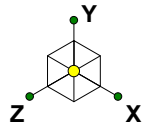


Loads: BLC 20, Ice Wind Load AZI 90
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00145A	Ice + Wind Load AZI 090
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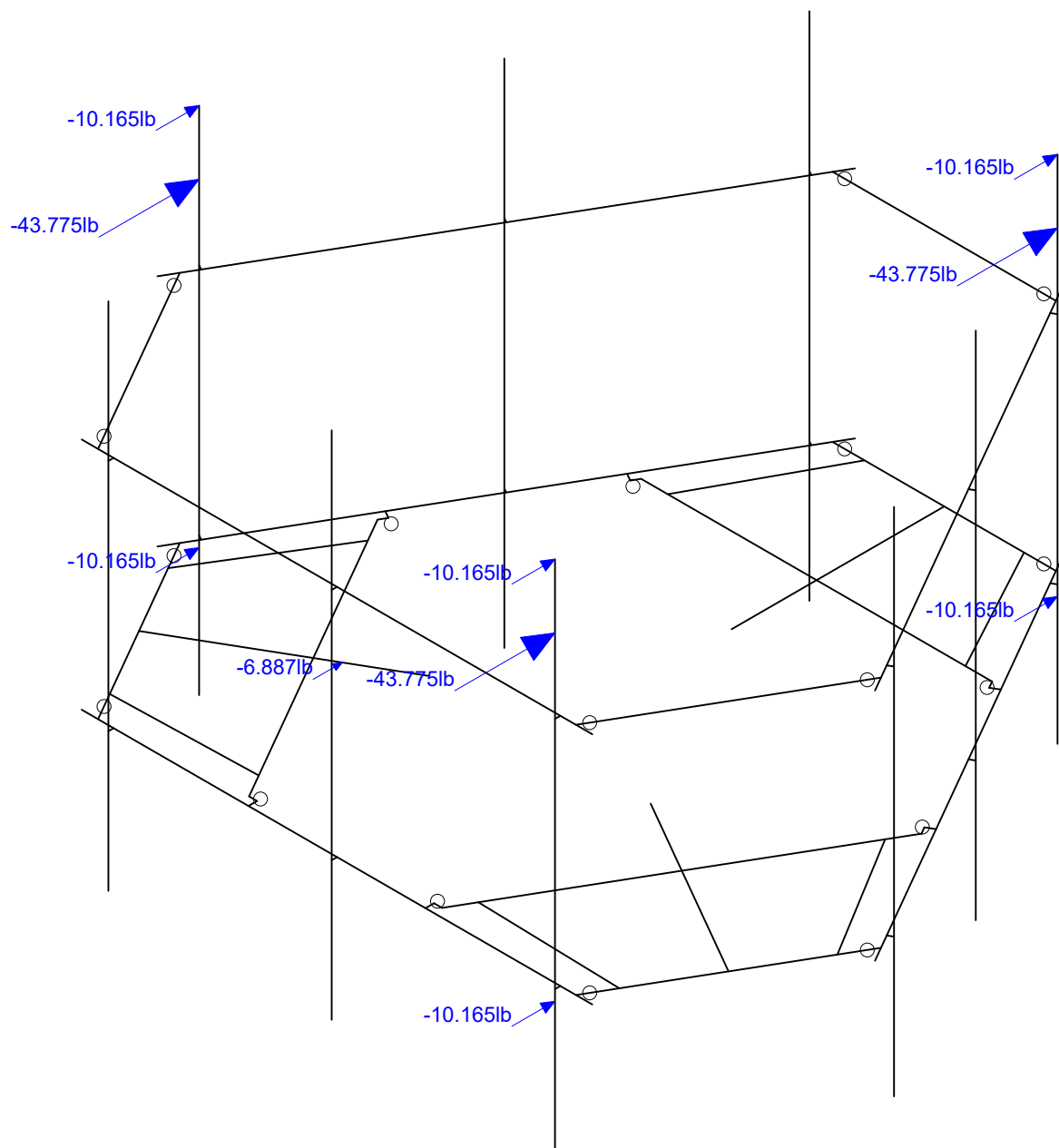
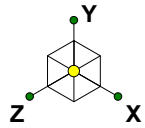


Infinigy Engineering, PLLC	BOHVN00145A	Distr Ice + Wind Load AZI 000
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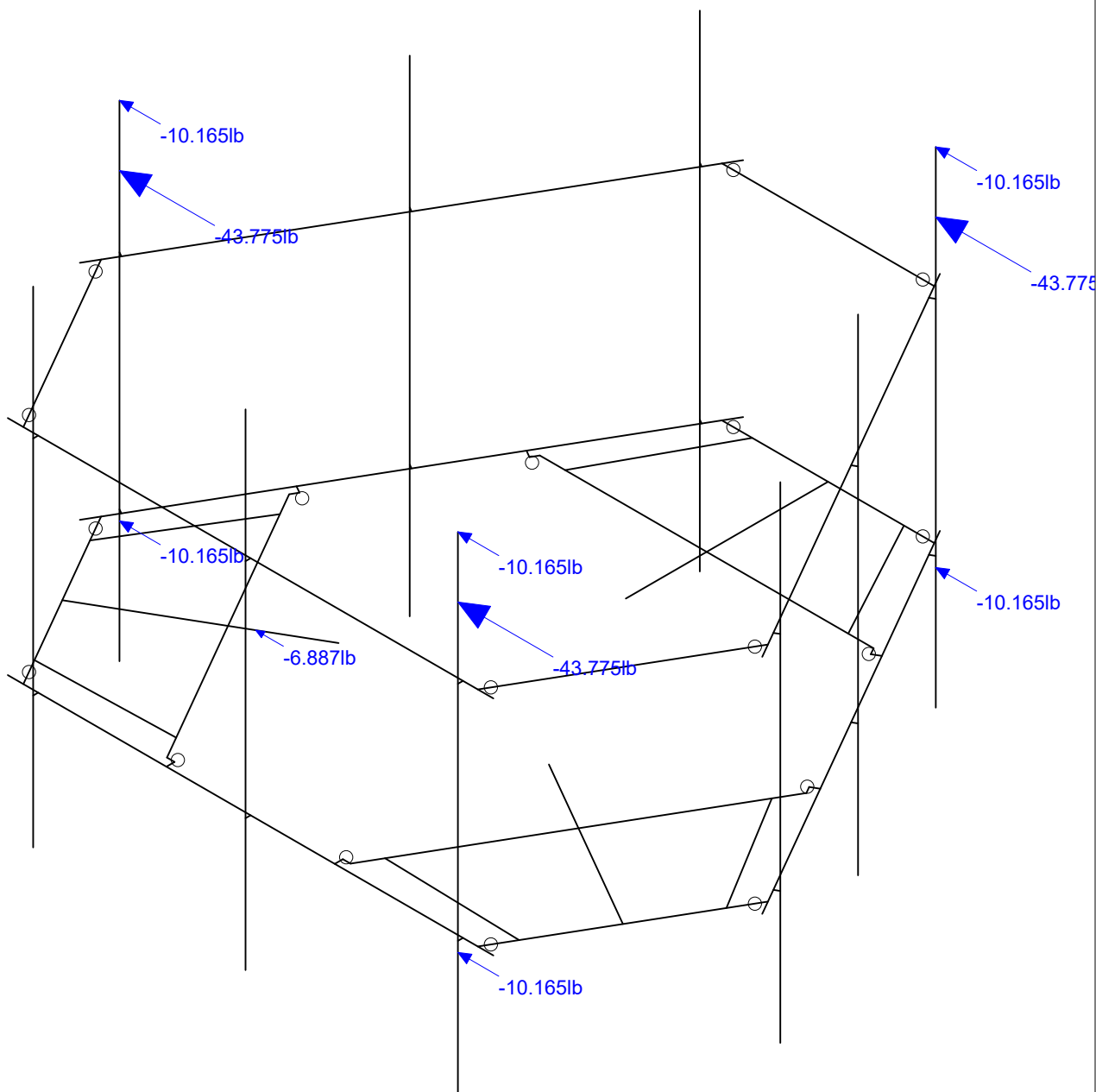
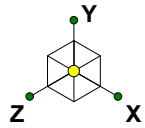
Loads: BLC 30, Distr. Ice Wind Load X
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00145A	Distr Ice + Wind Load AZI 090
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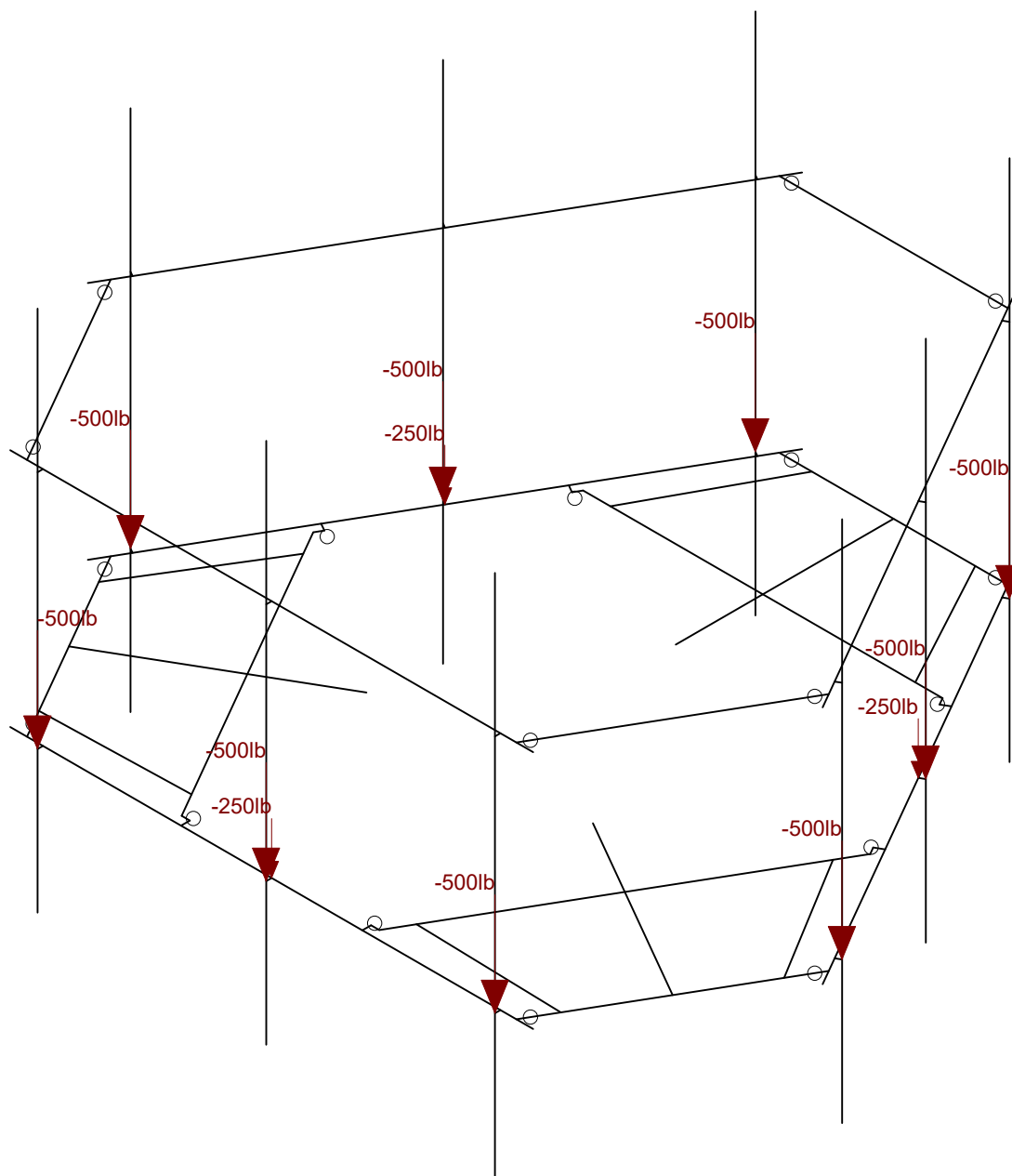
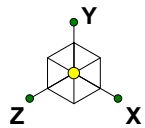
Loads: BLC 31, Seismic Load Z
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00145A	Seismic Load AZI 000
PSM		Sept 15, 2021 at 11:34 AM
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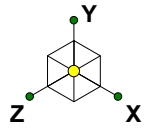
Loads: BLC 32, Seismic Load X
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00145A	Seismic Load AZI 090
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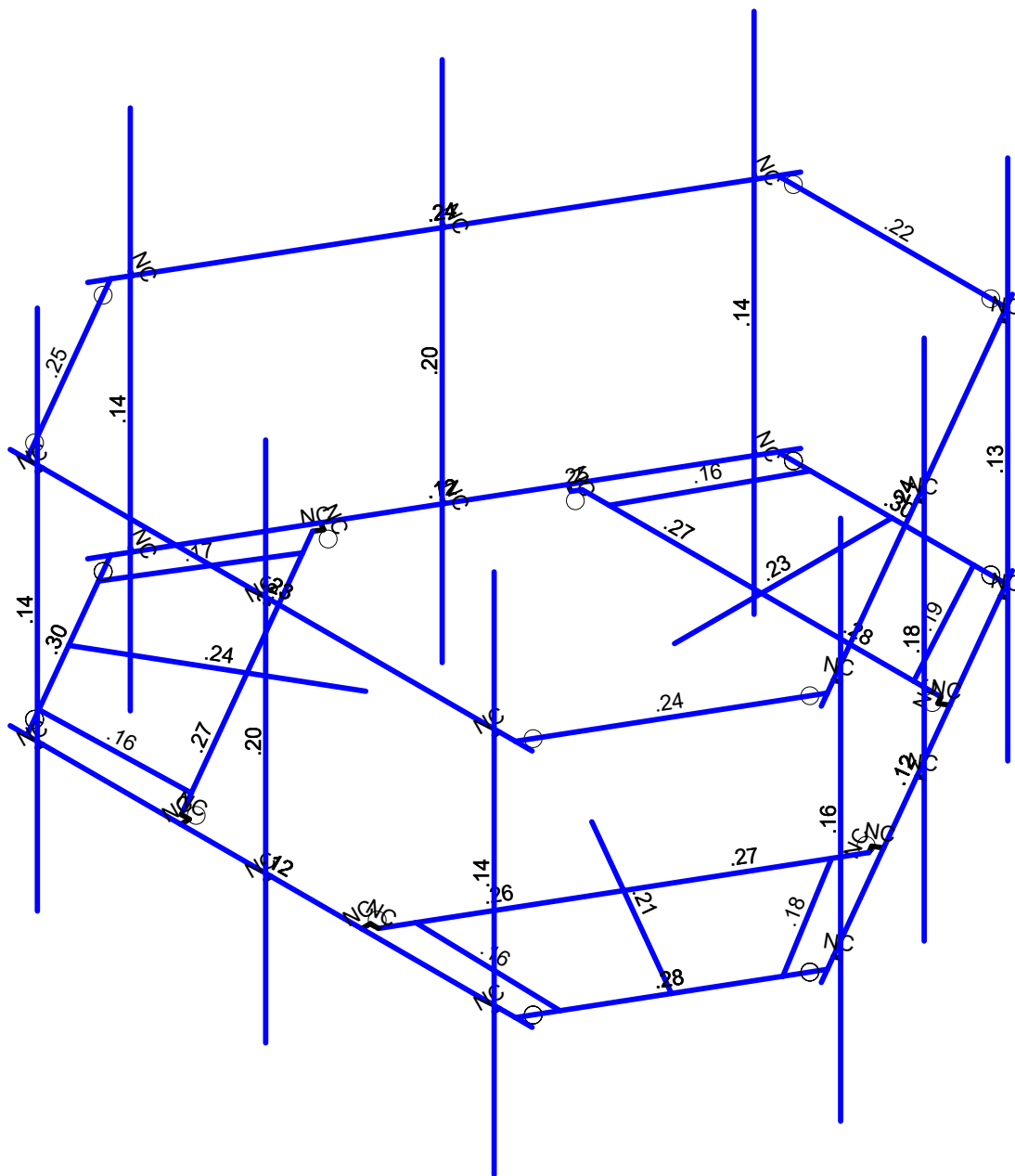


Loads: LL - Live Load
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00145A	Service Live Load
PSM		Sept 15, 2021 at 11:35 AM
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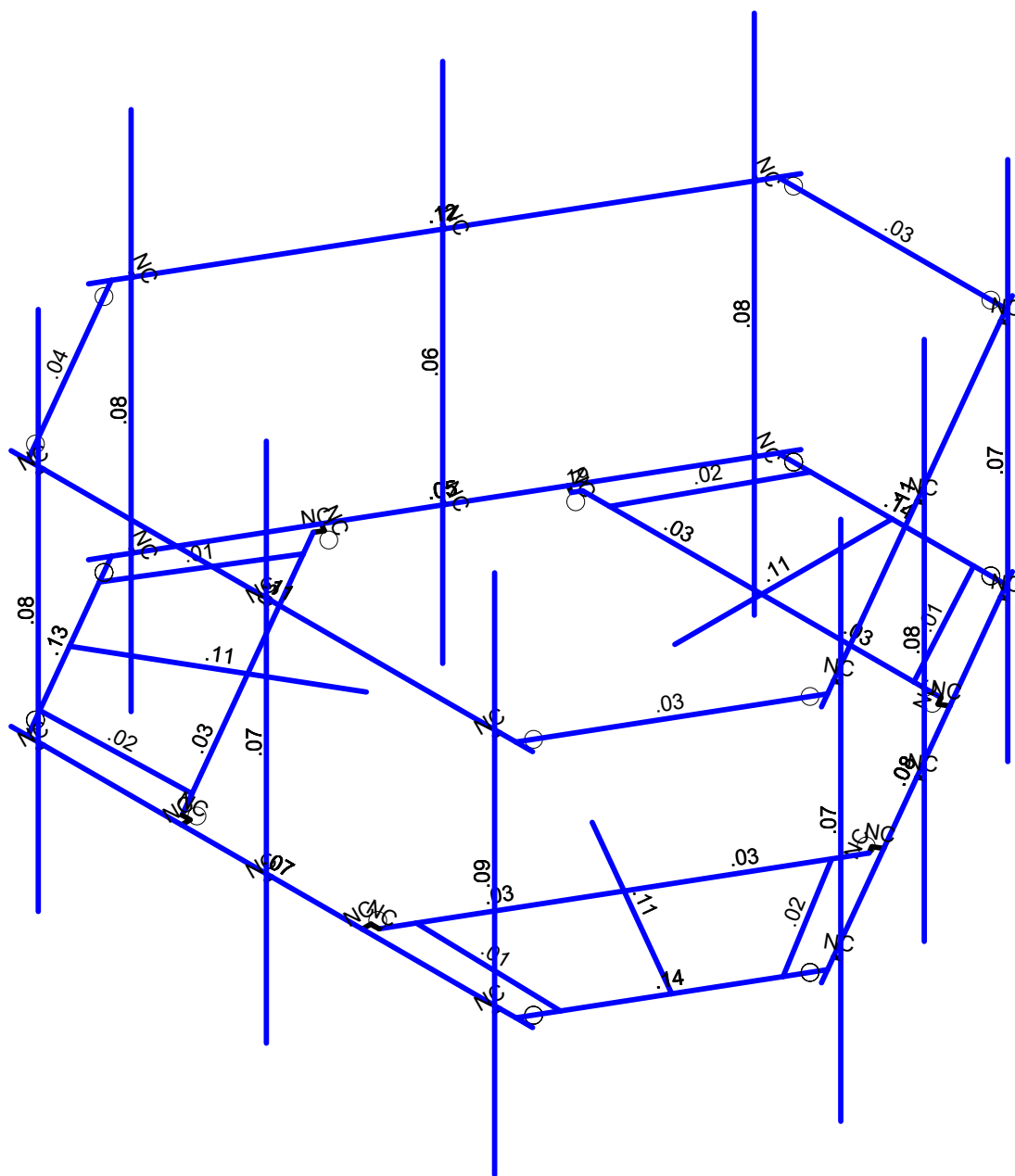
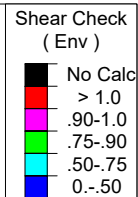
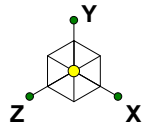


Code Check (Env)	
 	No Calc
 	> 1.0
 	.90-1.0
 	.75-.90
 	.50-.75
 	0.-.50



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00145A	Bending Check
PSM		Sept 15, 2021 at 11:35 AM
1197-F0001-B		BOHVN00145A_loaded.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00145A	Shear Check
PSM		Sept 15, 2021 at 11:35 AM
1197-F0001-B		BOHVN00145A_loaded.r3d

Program Inputs

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

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	470.56	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	122.00	ft
Tower Height AGL:	150.00	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):	0.983	*Rev H Only
Rooftop Speed-Up (K_s):	1.000	*Rev H Only
Topographic Factor (K_{zt}):	1.000	
Gust Effect Factor (G_h):	1.000	

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

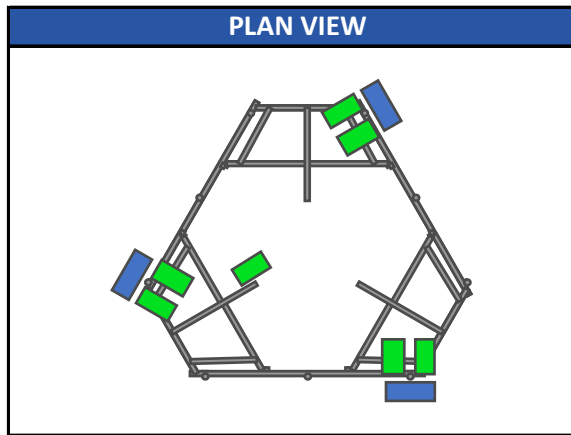
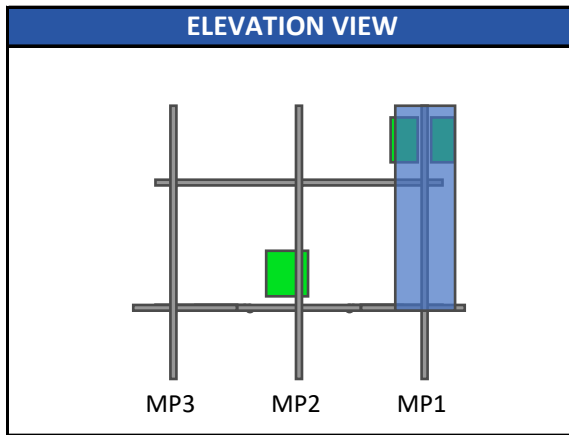
WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	114	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1	in
Flat Pressure:	82.014	psf
Round Pressure:	49.209	psf
Ice Wind Pressure:	9.466	psf

SEISMIC DATA		
Short-Period Accel. (S_s):	0.197	g
1-Second Accel. (S_1):	0.055	g
Short-Period Design (S_{DS}):	0.210	
1-Second Design (S_{D1}):	0.088	
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 Load Calculator V2.1.7

Program Inputs

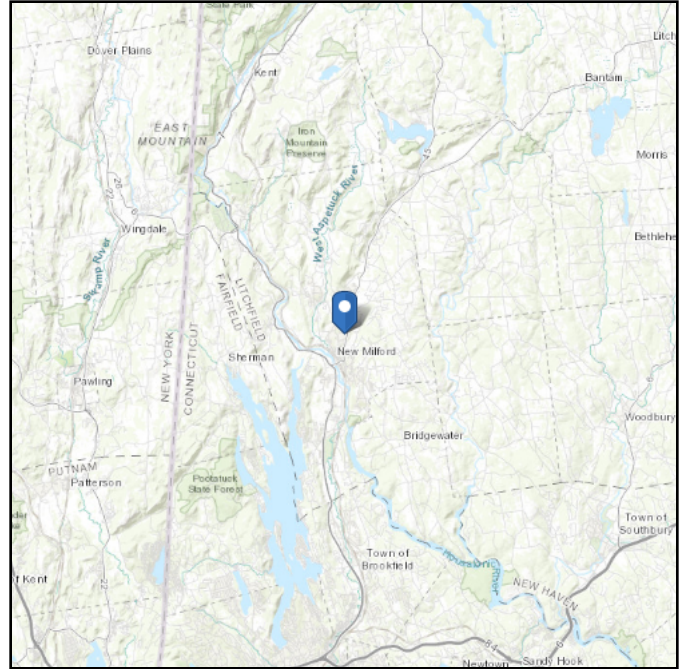
[illegible]

ASCE 7 Hazards Report

Address:
No Address at This
Location

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

Elevation: 470.56 ft (NAVD 88)
Latitude: 41.590861
Longitude: -73.4086



Wind

Results:

Wind Speed:	114 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	89 Vmph
100-year MRI	95 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Wed Sep 15 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

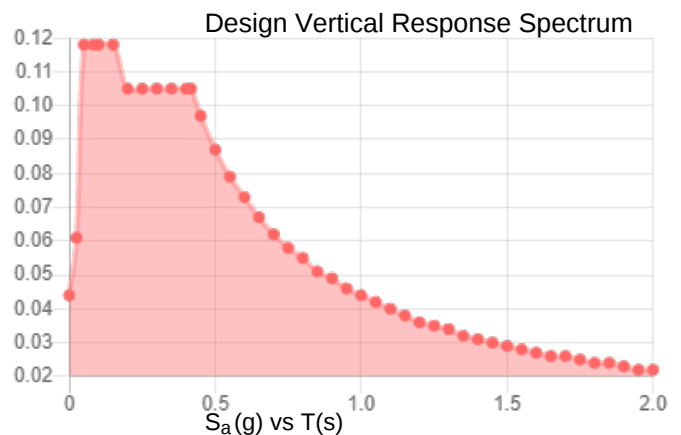
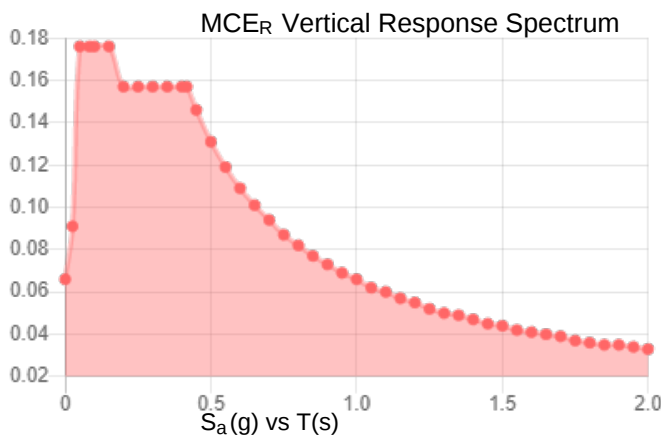
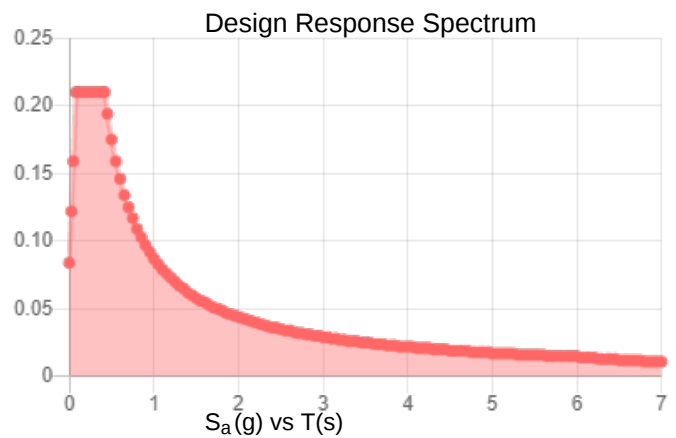
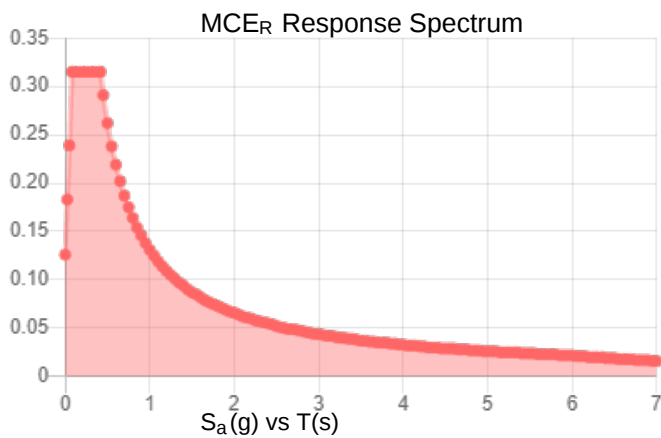
Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

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

Results:

S_S :	0.197	S_{D1} :	0.087
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.109
F_v :	2.4	PGA _M :	0.173
S_{MS} :	0.315	F_{PGA} :	1.582
S_{M1} :	0.131	I_e :	1
S_{DS} :	0.21	C_v :	0.7

Seismic Design Category B



Data Accessed:

Wed Sep 15 2021

Date Source:

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

Results:

Ice Thickness: 1.00 in.
Concurrent Temperature: 15 F
Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Wed Sep 15 2021

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

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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	Length	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	00000X	00000X				Yes				None
18	CA9	00000X	00000X				Yes				None
19	CA7	00000X	00000X				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

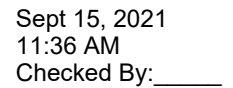
	Label	Shape	Type	Design List	Material	Design...	A [in2]	Iyy [in...]	Izz [in...]	J [in4]
1	Corner Plates	PL6.5x0.375	Beam	None	A1011 ...	Typical	2.438	.029	8.582	.11
2	6"x0.37" Plate	Plate 6x.37	Beam	None	A1011 ...	Typical	2.22	.025	6.66	.097
3	Grating Angle	L2x2x4	Beam	None	A529 G...	Typical	.944	.346	.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

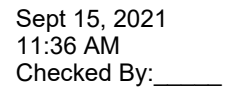
Hot Rolled Steel Section Sets (Continued)

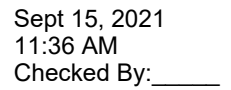
	Label	Shape	Type	Design List	Material	Design...	A [in2]	Iyy [in...]	Izz [in...]	J [in4]
9	Handrail	2.88x0.120	Beam	None	A500 G...	Typical	1.04	.993	.993	1.985

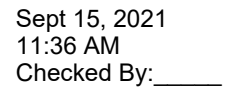
Basic Load Cases

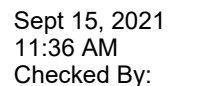
	BLC Description	Category	X Gr...	Y Gr...	Z Gr...	Joint	Point	Distributed	Area(Memb...	Surface(Plate/Wall)
1	Self Weight	DL		-1			13		3	
2	Wind Load AZI 0	WLZ					26			
3	Wind Load AZI 30	None					26			
4	Wind Load AZI 60	None					26			
5	Wind Load AZI 90	WLX					26			
6	Wind Load AZI 1...	None					26			
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			-.315		13			
32	Seismic Load X	ELX	-.315				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				











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	...	11	...	20	...	8	...	20	...	17	...	157
7	Totals: ...	5	...	34	...	14						
8	...	23	...	53	...	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	-147.81	0
3	MP1	X	0	72
4	MP1	Z	-147.81	72
5	MP1	X	0	12
6	MP1	Z	-72.47	12
7	MP1	X	0	12
8	MP1	Z	-72.47	12
9	S2	X	0	12
10	S2	Z	-68.89	12
11	MP4	X	0	0
12	MP4	Z	-81.38	0
13	MP4	X	0	72
14	MP4	Z	-81.38	72
15	MP4	X	0	12
16	MP4	Z	-51.03	12
17	MP4	X	0	12
18	MP4	Z	-46.71	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	-81.38	0
21	MP7	X	0	72
22	MP7	Z	-81.38	72
23	MP7	X	0	12
24	MP7	Z	-51.03	12
25	MP7	X	0	12
26	MP7	Z	-46.71	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-62.83	0
2	MP1	Z	-108.83	0
3	MP1	X	-62.83	72
4	MP1	Z	-108.83	72
5	MP1	X	-32.66	12
6	MP1	Z	-56.57	12
7	MP1	X	-31.94	12
8	MP1	Z	-55.32	12
9	S2	X	-30.76	12
10	S2	Z	-53.27	12
11	MP4	X	-62.83	0
12	MP4	Z	-108.83	0
13	MP4	X	-62.83	72
14	MP4	Z	-108.83	72
15	MP4	X	-32.66	12
16	MP4	Z	-56.57	12
17	MP4	X	-31.94	12
18	MP4	Z	-55.32	12
19	MP7	X	-29.62	0
20	MP7	Z	-51.3	0
21	MP7	X	-29.62	72
22	MP7	Z	-51.3	72
23	MP7	X	-21.94	12
24	MP7	Z	-38.01	12
25	MP7	X	-19.06	12
26	MP7	Z	-33.01	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-70.48	0

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
2	MP1	Z	-40.69	0
3	MP1	X	-70.48	72
4	MP1	Z	-40.69	72
5	MP1	X	-44.19	12
6	MP1	Z	-25.52	12
7	MP1	X	-40.45	12
8	MP1	Z	-23.35	12
9	S2	X	-40.49	12
10	S2	Z	-23.37	12
11	MP4	X	-128.01	0
12	MP4	Z	-73.91	0
13	MP4	X	-128.01	72
14	MP4	Z	-73.91	72
15	MP4	X	-62.76	12
16	MP4	Z	-36.23	12
17	MP4	X	-62.76	12
18	MP4	Z	-36.23	12
19	MP7	X	-70.48	0
20	MP7	Z	-40.69	0
21	MP7	X	-70.48	72
22	MP7	Z	-40.69	72
23	MP7	X	-44.19	12
24	MP7	Z	-25.52	12
25	MP7	X	-40.45	12
26	MP7	Z	-23.35	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-59.23	0
2	MP1	Z	0	0
3	MP1	X	-59.23	72
4	MP1	Z	0	72
5	MP1	X	-43.89	12
6	MP1	Z	0	12
7	MP1	X	-38.12	12
8	MP1	Z	0	12
9	S2	X	-39.37	12
10	S2	Z	0	12
11	MP4	X	-125.67	0
12	MP4	Z	0	0
13	MP4	X	-125.67	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	-65.32	12
16	MP4	Z	0	12
17	MP4	X	-63.88	12
18	MP4	Z	0	12
19	MP7	X	-125.67	0
20	MP7	Z	0	0
21	MP7	X	-125.67	72
22	MP7	Z	0	72
23	MP7	X	-65.32	12
24	MP7	Z	0	12
25	MP7	X	-63.88	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	-70.48	0
2	MP1	Z	40.69	0
3	MP1	X	-70.48	72
4	MP1	Z	40.69	72
5	MP1	X	-44.19	12
6	MP1	Z	25.52	12
7	MP1	X	-40.45	12
8	MP1	Z	23.35	12
9	S2	X	-40.49	12
10	S2	Z	23.37	12
11	MP4	X	-70.48	0
12	MP4	Z	40.69	0
13	MP4	X	-70.48	72
14	MP4	Z	40.69	72
15	MP4	X	-44.19	12
16	MP4	Z	25.52	12
17	MP4	X	-40.45	12
18	MP4	Z	23.35	12
19	MP7	X	-128.01	0
20	MP7	Z	73.91	0
21	MP7	X	-128.01	72
22	MP7	Z	73.91	72
23	MP7	X	-62.76	12
24	MP7	Z	36.23	12
25	MP7	X	-62.76	12
26	MP7	Z	36.23	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-62.83	0
2	MP1	Z	108.83	0
3	MP1	X	-62.83	72
4	MP1	Z	108.83	72
5	MP1	X	-32.66	12
6	MP1	Z	56.57	12
7	MP1	X	-31.94	12
8	MP1	Z	55.32	12
9	S2	X	-30.76	12
10	S2	Z	53.27	12
11	MP4	X	-29.62	0
12	MP4	Z	51.3	0
13	MP4	X	-29.62	72
14	MP4	Z	51.3	72
15	MP4	X	-21.94	12
16	MP4	Z	38.01	12
17	MP4	X	-19.06	12
18	MP4	Z	33.01	12
19	MP7	X	-62.83	0
20	MP7	Z	108.83	0
21	MP7	X	-62.83	72
22	MP7	Z	108.83	72
23	MP7	X	-32.66	12
24	MP7	Z	56.57	12
25	MP7	X	-31.94	12
26	MP7	Z	55.32	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	147.81	0
3	MP1	X	0	72
4	MP1	Z	147.81	72
5	MP1	X	0	12
6	MP1	Z	72.47	12
7	MP1	X	0	12
8	MP1	Z	72.47	12
9	S2	X	0	12
10	S2	Z	68.89	12
11	MP4	X	0	0
12	MP4	Z	81.38	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	81.38	72
15	MP4	X	0	12
16	MP4	Z	51.03	12
17	MP4	X	0	12
18	MP4	Z	46.71	12
19	MP7	X	0	0
20	MP7	Z	81.38	0
21	MP7	X	0	72
22	MP7	Z	81.38	72
23	MP7	X	0	12
24	MP7	Z	51.03	12
25	MP7	X	0	12
26	MP7	Z	46.71	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	62.83	0
2	MP1	Z	108.83	0
3	MP1	X	62.83	72
4	MP1	Z	108.83	72
5	MP1	X	32.66	12
6	MP1	Z	56.57	12
7	MP1	X	31.94	12
8	MP1	Z	55.32	12
9	S2	X	30.76	12
10	S2	Z	53.27	12
11	MP4	X	62.83	0
12	MP4	Z	108.83	0
13	MP4	X	62.83	72
14	MP4	Z	108.83	72
15	MP4	X	32.66	12
16	MP4	Z	56.57	12
17	MP4	X	31.94	12
18	MP4	Z	55.32	12
19	MP7	X	29.62	0
20	MP7	Z	51.3	0
21	MP7	X	29.62	72
22	MP7	Z	51.3	72
23	MP7	X	21.94	12
24	MP7	Z	38.01	12
25	MP7	X	19.06	12
26	MP7	Z	33.01	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	70.48	0
2	MP1	Z	40.69	0
3	MP1	X	70.48	72
4	MP1	Z	40.69	72
5	MP1	X	44.19	12
6	MP1	Z	25.52	12
7	MP1	X	40.45	12
8	MP1	Z	23.35	12
9	S2	X	40.49	12
10	S2	Z	23.37	12
11	MP4	X	128.01	0
12	MP4	Z	73.91	0
13	MP4	X	128.01	72
14	MP4	Z	73.91	72
15	MP4	X	62.76	12
16	MP4	Z	36.23	12
17	MP4	X	62.76	12
18	MP4	Z	36.23	12
19	MP7	X	70.48	0
20	MP7	Z	40.69	0
21	MP7	X	70.48	72
22	MP7	Z	40.69	72
23	MP7	X	44.19	12
24	MP7	Z	25.52	12
25	MP7	X	40.45	12
26	MP7	Z	23.35	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	59.23	0
2	MP1	Z	0	0
3	MP1	X	59.23	72
4	MP1	Z	0	72
5	MP1	X	43.89	12
6	MP1	Z	0	12
7	MP1	X	38.12	12
8	MP1	Z	0	12
9	S2	X	39.37	12
10	S2	Z	0	12
11	MP4	X	125.67	0
12	MP4	Z	0	0
13	MP4	X	125.67	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	65.32	12
16	MP4	Z	0	12
17	MP4	X	63.88	12
18	MP4	Z	0	12
19	MP7	X	125.67	0
20	MP7	Z	0	0
21	MP7	X	125.67	72
22	MP7	Z	0	72
23	MP7	X	65.32	12
24	MP7	Z	0	12
25	MP7	X	63.88	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	70.48	0
2	MP1	Z	-40.69	0
3	MP1	X	70.48	72
4	MP1	Z	-40.69	72
5	MP1	X	44.19	12
6	MP1	Z	-25.52	12
7	MP1	X	40.45	12
8	MP1	Z	-23.35	12
9	S2	X	40.49	12
10	S2	Z	-23.37	12
11	MP4	X	70.48	0
12	MP4	Z	-40.69	0
13	MP4	X	70.48	72
14	MP4	Z	-40.69	72
15	MP4	X	44.19	12
16	MP4	Z	-25.52	12
17	MP4	X	40.45	12
18	MP4	Z	-23.35	12
19	MP7	X	128.01	0
20	MP7	Z	-73.91	0
21	MP7	X	128.01	72
22	MP7	Z	-73.91	72
23	MP7	X	62.76	12
24	MP7	Z	-36.23	12
25	MP7	X	62.76	12
26	MP7	Z	-36.23	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	62.83	0
2	MP1	Z	-108.83	0
3	MP1	X	62.83	72
4	MP1	Z	-108.83	72
5	MP1	X	32.66	12
6	MP1	Z	-56.57	12
7	MP1	X	31.94	12
8	MP1	Z	-55.32	12
9	S2	X	30.76	12
10	S2	Z	-53.27	12
11	MP4	X	29.62	0
12	MP4	Z	-51.3	0
13	MP4	X	29.62	72
14	MP4	Z	-51.3	72
15	MP4	X	21.94	12
16	MP4	Z	-38.01	12
17	MP4	X	19.06	12
18	MP4	Z	-33.01	12
19	MP7	X	62.83	0
20	MP7	Z	-108.83	0
21	MP7	X	62.83	72
22	MP7	Z	-108.83	72
23	MP7	X	32.66	12
24	MP7	Z	-56.57	12
25	MP7	X	31.94	12
26	MP7	Z	-55.32	12

Member Point Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-88.979	0
2	MP1	Y	-88.979	72
3	MP1	Y	-45.037	12
4	MP1	Y	-42.138	12
5	S2	Y	-41.057	12
6	MP4	Y	-88.979	0
7	MP4	Y	-88.979	72
8	MP4	Y	-45.037	12
9	MP4	Y	-42.138	12
10	MP7	Y	-88.979	0
11	MP7	Y	-88.979	72
12	MP7	Y	-45.037	12
13	MP7	Y	-42.138	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	-21.15	0
3	MP1	X	0	72
4	MP1	Z	-21.15	72
5	MP1	X	0	12
6	MP1	Z	-7.66	12
7	MP1	X	0	12
8	MP1	Z	-7.66	12
9	S2	X	0	12
10	S2	Z	-7.38	12
11	MP4	X	0	0
12	MP4	Z	-15.62	0
13	MP4	X	0	72
14	MP4	Z	-15.62	72
15	MP4	X	0	12
16	MP4	Z	-6.44	12
17	MP4	X	0	12
18	MP4	Z	-6.19	12
19	MP7	X	0	0
20	MP7	Z	-15.62	0
21	MP7	X	0	72
22	MP7	Z	-15.62	72
23	MP7	X	0	12
24	MP7	Z	-6.44	12
25	MP7	X	0	12
26	MP7	Z	-6.19	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-9.66	0
2	MP1	Z	-16.72	0
3	MP1	X	-9.66	72
4	MP1	Z	-16.72	72
5	MP1	X	-3.63	12
6	MP1	Z	-6.28	12
7	MP1	X	-3.59	12
8	MP1	Z	-6.21	12
9	S2	X	-3.49	12
10	S2	Z	-6.05	12
11	MP4	X	-9.66	0
12	MP4	Z	-16.72	0
13	MP4	X	-9.66	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	-16.72	72
15	MP4	X	-3.63	12
16	MP4	Z	-6.28	12
17	MP4	X	-3.59	12
18	MP4	Z	-6.21	12
19	MP7	X	-6.89	0
20	MP7	Z	-11.93	0
21	MP7	X	-6.89	72
22	MP7	Z	-11.93	72
23	MP7	X	-3.02	12
24	MP7	Z	-5.23	12
25	MP7	X	-2.85	12
26	MP7	Z	-4.94	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-13.53	0
2	MP1	Z	-7.81	0
3	MP1	X	-13.53	72
4	MP1	Z	-7.81	72
5	MP1	X	-5.58	12
6	MP1	Z	-3.22	12
7	MP1	X	-5.36	12
8	MP1	Z	-3.1	12
9	S2	X	-5.38	12
10	S2	Z	-3.1	12
11	MP4	X	-18.32	0
12	MP4	Z	-10.58	0
13	MP4	X	-18.32	72
14	MP4	Z	-10.58	72
15	MP4	X	-6.64	12
16	MP4	Z	-3.83	12
17	MP4	X	-6.64	12
18	MP4	Z	-3.83	12
19	MP7	X	-13.53	0
20	MP7	Z	-7.81	0
21	MP7	X	-13.53	72
22	MP7	Z	-7.81	72
23	MP7	X	-5.58	12
24	MP7	Z	-3.22	12
25	MP7	X	-5.36	12
26	MP7	Z	-3.1	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-13.78	0
2	MP1	Z	0	0
3	MP1	X	-13.78	72
4	MP1	Z	0	72
5	MP1	X	-6.04	12
6	MP1	Z	0	12
7	MP1	X	-5.7	12
8	MP1	Z	0	12
9	S2	X	-5.82	12
10	S2	Z	0	12
11	MP4	X	-19.31	0
12	MP4	Z	0	0
13	MP4	X	-19.31	72
14	MP4	Z	0	72
15	MP4	X	-7.26	12
16	MP4	Z	0	12
17	MP4	X	-7.17	12
18	MP4	Z	0	12
19	MP7	X	-19.31	0
20	MP7	Z	0	0
21	MP7	X	-19.31	72
22	MP7	Z	0	72
23	MP7	X	-7.26	12
24	MP7	Z	0	12
25	MP7	X	-7.17	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	-13.53	0
2	MP1	Z	7.81	0
3	MP1	X	-13.53	72
4	MP1	Z	7.81	72
5	MP1	X	-5.58	12
6	MP1	Z	3.22	12
7	MP1	X	-5.36	12
8	MP1	Z	3.1	12
9	S2	X	-5.38	12
10	S2	Z	3.1	12
11	MP4	X	-13.53	0
12	MP4	Z	7.81	0
13	MP4	X	-13.53	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	7.81	72
15	MP4	X	-5.58	12
16	MP4	Z	3.22	12
17	MP4	X	-5.36	12
18	MP4	Z	3.1	12
19	MP7	X	-18.32	0
20	MP7	Z	10.58	0
21	MP7	X	-18.32	72
22	MP7	Z	10.58	72
23	MP7	X	-6.64	12
24	MP7	Z	3.83	12
25	MP7	X	-6.64	12
26	MP7	Z	3.83	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-9.66	0
2	MP1	Z	16.72	0
3	MP1	X	-9.66	72
4	MP1	Z	16.72	72
5	MP1	X	-3.63	12
6	MP1	Z	6.28	12
7	MP1	X	-3.59	12
8	MP1	Z	6.21	12
9	S2	X	-3.49	12
10	S2	Z	6.05	12
11	MP4	X	-6.89	0
12	MP4	Z	11.93	0
13	MP4	X	-6.89	72
14	MP4	Z	11.93	72
15	MP4	X	-3.02	12
16	MP4	Z	5.23	12
17	MP4	X	-2.85	12
18	MP4	Z	4.94	12
19	MP7	X	-9.66	0
20	MP7	Z	16.72	0
21	MP7	X	-9.66	72
22	MP7	Z	16.72	72
23	MP7	X	-3.63	12
24	MP7	Z	6.28	12
25	MP7	X	-3.59	12
26	MP7	Z	6.21	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	21.15	0
3	MP1	X	0	72
4	MP1	Z	21.15	72
5	MP1	X	0	12
6	MP1	Z	7.66	12
7	MP1	X	0	12
8	MP1	Z	7.66	12
9	S2	X	0	12
10	S2	Z	7.38	12
11	MP4	X	0	0
12	MP4	Z	15.62	0
13	MP4	X	0	72
14	MP4	Z	15.62	72
15	MP4	X	0	12
16	MP4	Z	6.44	12
17	MP4	X	0	12
18	MP4	Z	6.19	12
19	MP7	X	0	0
20	MP7	Z	15.62	0
21	MP7	X	0	72
22	MP7	Z	15.62	72
23	MP7	X	0	12
24	MP7	Z	6.44	12
25	MP7	X	0	12
26	MP7	Z	6.19	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	9.66	0
2	MP1	Z	16.72	0
3	MP1	X	9.66	72
4	MP1	Z	16.72	72
5	MP1	X	3.63	12
6	MP1	Z	6.28	12
7	MP1	X	3.59	12
8	MP1	Z	6.21	12
9	S2	X	3.49	12
10	S2	Z	6.05	12
11	MP4	X	9.66	0
12	MP4	Z	16.72	0
13	MP4	X	9.66	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	16.72	72
15	MP4	X	3.63	12
16	MP4	Z	6.28	12
17	MP4	X	3.59	12
18	MP4	Z	6.21	12
19	MP7	X	6.89	0
20	MP7	Z	11.93	0
21	MP7	X	6.89	72
22	MP7	Z	11.93	72
23	MP7	X	3.02	12
24	MP7	Z	5.23	12
25	MP7	X	2.85	12
26	MP7	Z	4.94	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	13.53	0
2	MP1	Z	7.81	0
3	MP1	X	13.53	72
4	MP1	Z	7.81	72
5	MP1	X	5.58	12
6	MP1	Z	3.22	12
7	MP1	X	5.36	12
8	MP1	Z	3.1	12
9	S2	X	5.38	12
10	S2	Z	3.1	12
11	MP4	X	18.32	0
12	MP4	Z	10.58	0
13	MP4	X	18.32	72
14	MP4	Z	10.58	72
15	MP4	X	6.64	12
16	MP4	Z	3.83	12
17	MP4	X	6.64	12
18	MP4	Z	3.83	12
19	MP7	X	13.53	0
20	MP7	Z	7.81	0
21	MP7	X	13.53	72
22	MP7	Z	7.81	72
23	MP7	X	5.58	12
24	MP7	Z	3.22	12
25	MP7	X	5.36	12
26	MP7	Z	3.1	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	13.78	0
2	MP1	Z	0	0
3	MP1	X	13.78	72
4	MP1	Z	0	72
5	MP1	X	6.04	12
6	MP1	Z	0	12
7	MP1	X	5.7	12
8	MP1	Z	0	12
9	S2	X	5.82	12
10	S2	Z	0	12
11	MP4	X	19.31	0
12	MP4	Z	0	0
13	MP4	X	19.31	72
14	MP4	Z	0	72
15	MP4	X	7.26	12
16	MP4	Z	0	12
17	MP4	X	7.17	12
18	MP4	Z	0	12
19	MP7	X	19.31	0
20	MP7	Z	0	0
21	MP7	X	19.31	72
22	MP7	Z	0	72
23	MP7	X	7.26	12
24	MP7	Z	0	12
25	MP7	X	7.17	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	13.53	0
2	MP1	Z	-7.81	0
3	MP1	X	13.53	72
4	MP1	Z	-7.81	72
5	MP1	X	5.58	12
6	MP1	Z	-3.22	12
7	MP1	X	5.36	12
8	MP1	Z	-3.1	12
9	S2	X	5.38	12
10	S2	Z	-3.1	12
11	MP4	X	13.53	0
12	MP4	Z	-7.81	0
13	MP4	X	13.53	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	-7.81	72
15	MP4	X	5.58	12
16	MP4	Z	-3.22	12
17	MP4	X	5.36	12
18	MP4	Z	-3.1	12
19	MP7	X	18.32	0
20	MP7	Z	-10.58	0
21	MP7	X	18.32	72
22	MP7	Z	-10.58	72
23	MP7	X	6.64	12
24	MP7	Z	-3.83	12
25	MP7	X	6.64	12
26	MP7	Z	-3.83	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	9.66	0
2	MP1	Z	-16.72	0
3	MP1	X	9.66	72
4	MP1	Z	-16.72	72
5	MP1	X	3.63	12
6	MP1	Z	-6.28	12
7	MP1	X	3.59	12
8	MP1	Z	-6.21	12
9	S2	X	3.49	12
10	S2	Z	-6.05	12
11	MP4	X	6.89	0
12	MP4	Z	-11.93	0
13	MP4	X	6.89	72
14	MP4	Z	-11.93	72
15	MP4	X	3.02	12
16	MP4	Z	-5.23	12
17	MP4	X	2.85	12
18	MP4	Z	-4.94	12
19	MP7	X	9.66	0
20	MP7	Z	-16.72	0
21	MP7	X	9.66	72
22	MP7	Z	-16.72	72
23	MP7	X	3.63	12
24	MP7	Z	-6.28	12
25	MP7	X	3.59	12
26	MP7	Z	-6.21	12

Member Point Loads (BLC 31 : Seismic Load Z)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-10.165	0
2	MP1	Z	-10.165	72
3	MP1	Z	-23.624	12
4	MP1	Z	-20.151	12
5	S2	Z	-6.887	12
6	MP4	Z	-10.165	0
7	MP4	Z	-10.165	72
8	MP4	Z	-23.624	12
9	MP4	Z	-20.151	12
10	MP7	Z	-10.165	0
11	MP7	Z	-10.165	72
12	MP7	Z	-23.624	12
13	MP7	Z	-20.151	12

Member Point Loads (BLC 32 : Seismic Load X)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-10.165	0
2	MP1	X	-10.165	72
3	MP1	X	-23.624	12
4	MP1	X	-20.151	12
5	S2	X	-6.887	12
6	MP4	X	-10.165	0
7	MP4	X	-10.165	72
8	MP4	X	-23.624	12
9	MP4	X	-20.151	12
10	MP7	X	-10.165	0
11	MP7	X	-10.165	72
12	MP7	X	-23.624	12
13	MP7	X	-20.151	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	-82.014	-82.014	0	%100
2	GA4	SZ	-82.014	-82.014	0	%100
3	GA3	SZ	-82.014	-82.014	0	%100
4	P3	SZ	-82.014	-82.014	0	%100
5	S2	SZ	-82.014	-82.014	0	%100
6	GA2	SZ	-82.014	-82.014	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	-82.014	-82.014	0	%100
8	P2	SZ	-82.014	-82.014	0	%100
9	S1	SZ	-82.014	-82.014	0	%100
10	GA6	SZ	-82.014	-82.014	0	%100
11	GA5	SZ	-82.014	-82.014	0	%100
12	P1	SZ	-82.014	-82.014	0	%100
13	H1	SZ	-49.209	-49.209	0	%100
14	MP1	SZ	-49.209	-49.209	0	%100
15	MP3	SZ	-49.209	-49.209	0	%100
16	HR1	SZ	-49.209	-49.209	0	%100
17	CA8	SZ	-82.014	-82.014	0	%100
18	CA9	SZ	-82.014	-82.014	0	%100
19	CA7	SZ	-82.014	-82.014	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	-82.014	-82.014	0	%100
25	CA4	SZ	-82.014	-82.014	0	%100
26	CA1	SZ	-82.014	-82.014	0	%100
27	CA2	SZ	-82.014	-82.014	0	%100
28	CA5	SZ	-82.014	-82.014	0	%100
29	CA6	SZ	-82.014	-82.014	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	-82.014	-82.014	0	%100
42	MP2	SZ	-49.209	-49.209	0	%100
43	M43	SZ	0	0	0	%100
44	M44	SZ	0	0	0	%100
45	H3	SZ	-49.209	-49.209	0	%100
46	MP7	SZ	-49.209	-49.209	0	%100
47	MP9	SZ	-49.209	-49.209	0	%100
48	HR3	SZ	-49.209	-49.209	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	-49.209	-49.209	0	%100
54	MP4	SZ	-49.209	-49.209	0	%100
55	MP6	SZ	-49.209	-49.209	0	%100
56	HR2	SZ	-49.209	-49.209	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	-49.209	-49.209	0	%100
62	M68B	SZ	0	0	0	%100
63	M69B	SZ	0	0	0	%100
64	MP5	SZ	-49.209	-49.209	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	-82.014	-82.014	0	%100
2	GA4	SX	-82.014	-82.014	0	%100
3	GA3	SX	-82.014	-82.014	0	%100
4	P3	SX	-82.014	-82.014	0	%100
5	S2	SX	-82.014	-82.014	0	%100
6	GA2	SX	-82.014	-82.014	0	%100
7	GA1	SX	-82.014	-82.014	0	%100
8	P2	SX	-82.014	-82.014	0	%100
9	S1	SX	-82.014	-82.014	0	%100
10	GA6	SX	-82.014	-82.014	0	%100
11	GA5	SX	-82.014	-82.014	0	%100
12	P1	SX	-82.014	-82.014	0	%100
13	H1	SX	-49.209	-49.209	0	%100
14	MP1	SX	-49.209	-49.209	0	%100
15	MP3	SX	-49.209	-49.209	0	%100
16	HR1	SX	-49.209	-49.209	0	%100
17	CA8	SX	-82.014	-82.014	0	%100
18	CA9	SX	-82.014	-82.014	0	%100
19	CA7	SX	-82.014	-82.014	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	-82.014	-82.014	0	%100
25	CA4	SX	-82.014	-82.014	0	%100
26	CA1	SX	-82.014	-82.014	0	%100
27	CA2	SX	-82.014	-82.014	0	%100
28	CA5	SX	-82.014	-82.014	0	%100
29	CA6	SX	-82.014	-82.014	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	-82.014	-82.014	0	%100
42	MP2	SX	-49.209	-49.209	0	%100
43	M43	SX	0	0	0	%100
44	M44	SX	0	0	0	%100
45	H3	SX	-49.209	-49.209	0	%100
46	MP7	SX	-49.209	-49.209	0	%100
47	MP9	SX	-49.209	-49.209	0	%100
48	HR3	SX	-49.209	-49.209	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	-49.209	-49.209	0	%100
54	MP4	SX	-49.209	-49.209	0	%100
55	MP6	SX	-49.209	-49.209	0	%100
56	HR2	SX	-49.209	-49.209	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	-49.209	-49.209	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	-49.209	-49.209	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	-9.463	-9.463	0	%100
2	GA4	Y	-5.525	-5.525	0	%100
3	GA3	Y	-5.525	-5.525	0	%100
4	P3	Y	-10.652	-10.652	0	%100
5	S2	Y	-9.463	-9.463	0	%100
6	GA2	Y	-5.525	-5.525	0	%100
7	GA1	Y	-5.525	-5.525	0	%100
8	P2	Y	-10.652	-10.652	0	%100
9	S1	Y	-9.463	-9.463	0	%100
10	GA6	Y	-5.525	-5.525	0	%100
11	GA5	Y	-5.525	-5.525	0	%100
12	P1	Y	-10.652	-10.652	0	%100
13	H1	Y	-6.46	-6.46	0	%100
14	MP1	Y	-5.59	-5.59	0	%100
15	MP3	Y	-5.59	-5.59	0	%100
16	HR1	Y	-5.597	-5.597	0	%100
17	CA8	Y	-12.678	-12.678	0	%100
18	CA9	Y	-12.678	-12.678	0	%100
19	CA7	Y	-12.678	-12.678	0	%100
20	M32	Y	-1.587	-1.587	0	%100
21	M35	Y	-1.587	-1.587	0	%100
22	M36	Y	-1.587	-1.587	0	%100
23	M39A	Y	-1.587	-1.587	0	%100
24	CA3	Y	-7.098	-7.098	0	%100
25	CA4	Y	-7.098	-7.098	0	%100
26	CA1	Y	-7.098	-7.098	0	%100
27	CA2	Y	-7.098	-7.098	0	%100
28	CA5	Y	-7.098	-7.098	0	%100
29	CA6	Y	-7.098	-7.098	0	%100
30	M64	Y	-1.587	-1.587	0	%100
31	M65	Y	-1.587	-1.587	0	%100
32	M66	Y	-1.587	-1.587	0	%100
33	M67	Y	-1.587	-1.587	0	%100
34	M68	Y	-1.587	-1.587	0	%100
35	M69	Y	-1.587	-1.587	0	%100
36	M70	Y	-1.587	-1.587	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	-1.587	-1.587	0	%100
38	M72	Y	-1.587	-1.587	0	%100
39	M73	Y	-1.587	-1.587	0	%100
40	M74	Y	-1.587	-1.587	0	%100
41	M75	Y	-4.966	-4.966	0	%100
42	MP2	Y	-5.59	-5.59	0	%100
43	M43	Y	-1.587	-1.587	0	%100
44	M44	Y	-1.587	-1.587	0	%100
45	H3	Y	-6.46	-6.46	0	%100
46	MP7	Y	-5.59	-5.59	0	%100
47	MP9	Y	-5.59	-5.59	0	%100
48	HR3	Y	-5.597	-5.597	0	%100
49	M52	Y	-1.587	-1.587	0	%100
50	M53	Y	-1.587	-1.587	0	%100
51	M54	Y	-1.587	-1.587	0	%100
52	M55	Y	-1.587	-1.587	0	%100
53	H2	Y	-6.46	-6.46	0	%100
54	MP4	Y	-5.59	-5.59	0	%100
55	MP6	Y	-5.59	-5.59	0	%100
56	HR2	Y	-5.597	-5.597	0	%100
57	M66A	Y	-1.587	-1.587	0	%100
58	M67A	Y	-1.587	-1.587	0	%100
59	M68A	Y	-1.587	-1.587	0	%100
60	M69A	Y	-1.587	-1.587	0	%100
61	MP8	Y	-5.59	-5.59	0	%100
62	M68B	Y	-1.587	-1.587	0	%100
63	M69B	Y	-1.587	-1.587	0	%100
64	MP5	Y	-5.59	-5.59	0	%100
65	M71B	Y	-1.587	-1.587	0	%100
66	M72B	Y	-1.587	-1.587	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	-13.28	-13.28	0	%100
2	GA4	SZ	-17.095	-17.095	0	%100
3	GA3	SZ	-17.095	-17.095	0	%100
4	P3	SZ	-12.78	-12.78	0	%100
5	S2	SZ	-13.28	-13.28	0	%100
6	GA2	SZ	-17.095	-17.095	0	%100
7	GA1	SZ	-17.095	-17.095	0	%100
8	P2	SZ	-12.78	-12.78	0	%100
9	S1	SZ	-13.28	-13.28	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	-17.095	-17.095	0	%100
11	GA5	SZ	-17.095	-17.095	0	%100
12	P1	SZ	-12.78	-12.78	0	%100
13	H1	SZ	-15.631	-15.631	0	%100
14	MP1	SZ	-16.971	-16.971	0	%100
15	MP3	SZ	-16.971	-16.971	0	%100
16	HR1	SZ	-16.958	-16.958	0	%100
17	CA8	SZ	-12.175	-12.175	0	%100
18	CA9	SZ	-12.175	-12.175	0	%100
19	CA7	SZ	-12.175	-12.175	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	-14.917	-14.917	0	%100
25	CA4	SZ	-14.917	-14.917	0	%100
26	CA1	SZ	-14.917	-14.917	0	%100
27	CA2	SZ	-14.917	-14.917	0	%100
28	CA5	SZ	-14.917	-14.917	0	%100
29	CA6	SZ	-14.917	-14.917	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	-18.356	-18.356	0	%100
42	MP2	SZ	-16.971	-16.971	0	%100
43	M43	SZ	0	0	0	%100
44	M44	SZ	0	0	0	%100
45	H3	SZ	-15.631	-15.631	0	%100
46	MP7	SZ	-16.971	-16.971	0	%100
47	MP9	SZ	-16.971	-16.971	0	%100
48	HR3	SZ	-16.958	-16.958	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	-15.631	-15.631	0	%100
54	MP4	SZ	-16.971	-16.971	0	%100
55	MP6	SZ	-16.971	-16.971	0	%100
56	HR2	SZ	-16.958	-16.958	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	-16.971	-16.971	0	%100
62	M68B	SZ	0	0	0	%100
63	M69B	SZ	0	0	0	%100
64	MP5	SZ	-16.971	-16.971	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	-13.28	-13.28	0	%100
2	GA4	SX	-17.095	-17.095	0	%100
3	GA3	SX	-17.095	-17.095	0	%100
4	P3	SX	-12.78	-12.78	0	%100
5	S2	SX	-13.28	-13.28	0	%100
6	GA2	SX	-17.095	-17.095	0	%100
7	GA1	SX	-17.095	-17.095	0	%100
8	P2	SX	-12.78	-12.78	0	%100
9	S1	SX	-13.28	-13.28	0	%100
10	GA6	SX	-17.095	-17.095	0	%100
11	GA5	SX	-17.095	-17.095	0	%100
12	P1	SX	-12.78	-12.78	0	%100
13	H1	SX	-15.631	-15.631	0	%100
14	MP1	SX	-16.971	-16.971	0	%100
15	MP3	SX	-16.971	-16.971	0	%100
16	HR1	SX	-16.958	-16.958	0	%100
17	CA8	SX	-12.175	-12.175	0	%100
18	CA9	SX	-12.175	-12.175	0	%100
19	CA7	SX	-12.175	-12.175	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	-14.917	-14.917	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	-14.917	-14.917	0	%100
26	CA1	SX	-14.917	-14.917	0	%100
27	CA2	SX	-14.917	-14.917	0	%100
28	CA5	SX	-14.917	-14.917	0	%100
29	CA6	SX	-14.917	-14.917	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	-18.356	-18.356	0	%100
42	MP2	SX	-16.971	-16.971	0	%100
43	M43	SX	0	0	0	%100
44	M44	SX	0	0	0	%100
45	H3	SX	-15.631	-15.631	0	%100
46	MP7	SX	-16.971	-16.971	0	%100
47	MP9	SX	-16.971	-16.971	0	%100
48	HR3	SX	-16.958	-16.958	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	-15.631	-15.631	0	%100
54	MP4	SX	-16.971	-16.971	0	%100
55	MP6	SX	-16.971	-16.971	0	%100
56	HR2	SX	-16.958	-16.958	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	-16.971	-16.971	0	%100
62	M68B	SX	0	0	0	%100
63	M69B	SX	0	0	0	%100
64	MP5	SX	-16.971	-16.971	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	-19.294	-19.294	16.404	40
2	GA2	Y	-9.723	-9.723	3.828	27.295
3	GA1	Y	-9.723	-9.723	3.828	27.295
4	S3	Y	-19.294	-19.294	16.404	40
5	GA4	Y	-9.723	-9.723	3.828	27.295
6	GA3	Y	-9.723	-9.723	3.828	27.295
7	S1	Y	-19.294	-19.294	16.404	40
8	GA6	Y	-9.723	-9.723	3.828	27.295
9	GA5	Y	-9.723	-9.723	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	-10.6
2	P10	P11	P12	P9	Y	Two Way	-10.6
3	P31	P34	P33	P32	Y	Two Way	-10.6

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	.302	21	2	.139 36.312	y	5	3658...	78975	616.9...	7966.126	1....	H1-1b
2	P2	PL6.5x0.375	.295	21	6	.129 36.312	y	10	3658...	78975	616.9...	7949.575	1....	H1-1b
3	CA4	C3.38x2.06...	.277	33	2	.033 33	y	115	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	P1	PL6.5x0.375	.277	21	10	.139	36.312	y	2	3658...	78975	616.9...	7968.831	1....	H1-1b
5	CA5	C3.38x2.06...	.273	0	10	.033	28.187	y	28	4776...	56700	2202...	5751.945	1....	H1-1b
6	CA3	C3.38x2.06...	.267	0	2	.034	28.188	y	32	4776...	56700	2202...	5751.945	1....	H1-1b
7	CA1	C3.38x2.06...	.266	0	6	.035	28.188	y	36	4776...	56700	2202...	5751.945	1....	H1-1b
8	CA2	C3.38x2.06...	.262	33	6	.033	33	y	143	4776...	56700	2202...	5751.945	1....	H1-1b
9	CA6	C3.38x2.06...	.258	33	10	.032	33	y	87	4776...	56700	2202...	5751.945	1....	H1-1b
10	CA8	L6.6x4.46x0...	.251	41.562	22	.035	42	z	4	5117...	87561	2464...	7125.374	1....	H2-1
11	M75	PL 2.375x0.5	.247	1.5	12	.186	0	y	173	3825...	38475	400.7...	1903.711	2....	H1-1b
12	HR2	2.88x0.120	.243	90	3	.121	92		4	2249...	4307...	3155...	3155.674	1....	H1-1b
13	CA7	L6.6x4.46x0...	.243	41.562	3	.033	42	z	8	5117...	87561	2464...	7125.374	1....	H2-1
14	HR3	2.88x0.120	.240	6	2	.113	92		6	2249...	4307...	3155...	3155.674	1....	H1-1b
15	S2	HSS4X4X6	.237	0	7	.111	0	y	142	1882...	1978...	2204...	22045.5	1....	H1-1b
16	HR1	2.88x0.120	.233	6	4	.106	6		4	2249...	4307...	3155...	3155.674	1....	H1-1b
17	S3	HSS4X4X6	.231	0	13	.111	0	y	114	1882...	1978...	2204...	22045.5	1.81	H1-1b
18	CA9	L6.6x4.46x0...	.223	41.562	6	.031	42	z	12	5117...	87561	2464...	7125.374	1....	H2-1
19	S1	HSS4X4X6	.213	0	9	.108	0	y	86	1882...	1978...	2204...	22045.5	1....	H1-1b
20	MP2	PIPE 2.5	.202	70	5	.072	70		5	3348...	66654	4726.5	4726.5	4....	H1-1b
21	MP5	PIPE 2.5	.198	70	7	.061	70		7	3348...	66654	4726.5	4726.5	4....	H1-1b
22	GA4	L2x2x4	.187	0	2	.013	27.295	y	9	2952...	42480	959.63	2190.068	2....	H2-1
23	MP8	PIPE 2.5	.177	70	9	.076	70		3	3348...	66654	4726.5	4726.5	4....	H1-1b
24	GA5	L2x2x4	.177	0	9	.017	27.295	z	2	2952...	42480	959.63	2190.068	2....	H2-1
25	GA2	L2x2x4	.172	0	12	.014	0	y	12	2952...	42480	959.63	2190.068	2....	H2-1
26	GA1	L2x2x4	.160	0	6	.016	27.295	y	34	2952...	42480	959.63	2190.068	2.29	H2-1
27	GA3	L2x2x4	.159	0	7	.016	27.295	z	6	2952...	42480	959.63	2190.068	2....	H2-1
28	GA6	L2x2x4	.159	0	4	.013	0	y	4	2952...	42480	959.63	2190.068	2....	H2-1
29	MP9	PIPE 2.5	.158	70	2	.071	70		7	3348...	66654	4726.5	4726.5	3....	H1-1b
30	MP6	PIPE 2.5	.144	70	7	.078	70		6	3348...	66654	4726.5	4726.5	4....	H1-1b
31	MP1	PIPE 2.5	.141	70	11	.087	26		8	3348...	66654	4726.5	4726.5	2....	H1-1b
32	MP3	PIPE 2.5	.139	70	5	.079	70		3	3348...	66654	4726.5	4726.5	4....	H1-1b
33	MP4	PIPE 2.5	.136	70	7	.079	26		4	3348...	66654	4726.5	4726.5	1....	H1-1b
34	MP7	PIPE 2.5	.133	70	9	.071	26		6	3348...	66654	4726.5	4726.5	3....	H1-1b
35	H3	Pipe3.5x0.1...	.122	31	2	.076	90		2	4587...	7158...	6337...	6337.65	1....	H1-1b
36	H1	Pipe3.5x0.1...	.117	31	10	.067	48		4	4587...	7158...	6337...	6337.65	2....	H1-1b
37	H2	Pipe3.5x0.1...	.116	31	6	.054	48		12	4587...	7158...	6337...	6337.65	1....	H1-1b

Bolt Calculation Tool, V1.5.1

PROJECT DATA		
Site Name:	BOHVN00145A	
Site Number:	BOHVN00145A	
Connection Description:	Platform to Monopole	

MAXIMUM BOLT LOADS		
Bolt Tension:	6403.86	lbs
Bolt Shear:	1638.43	lbs

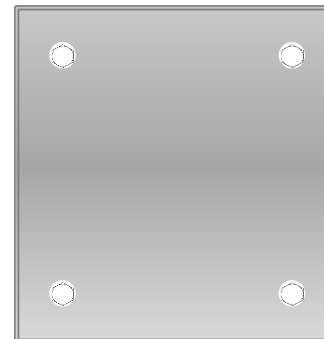
WORST CASE BOLT LOADS ¹		
Bolt Tension:	6403.86	lbs
Bolt Shear:	779.26	lbs

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 #7 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	31.5%	
Max Shear Usage	11.9%	
Interaction Check (Worst Case)	0.10	≤1.05
Result	Pass	



POWER DENSITY STUDY



EBI Consulting

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

Dish Wireless Existing Facility

Site ID: BOHVN00145A

BOHVN00145A
4 Elkington Farm Road
New Milford, Connecticut 06776

October 20, 2021

EBI Project Number: 6221004011

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	8.77%

October 20, 2021

Dish Wireless

Emissions Analysis for Site: BOHVN00145A - BOHVN00145A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **4 Elkington Farm Road in New Milford, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

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

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless antenna facility located at 4 Elkington Farm Road in New Milford, 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 122 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 #:	I	Antenna #:	I	Antenna #:	I
Make / Model:	JMA MX08FRO665-2I	Make / Model:	JMA MX08FRO665-2I	Make / Model:	JMA MX08FRO665-2I
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):	122 feet	Height (AGL):	122 feet	Height (AGL):	122 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 AI MPE %:	1.76%	Antenna BI MPE %:	1.76%	Antenna CI MPE %:	1.76%



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Site Composite MPE %	
Carrier	MPE %
Dish Wireless (Max at Sector A):	1.76%
AT&T	4.16%
PageNet	0.08%
Nextel	0.53%
Sprint	0.83%
Verizon	1.41%
Site Total MPE % :	8.77%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	1.76%
Dish Wireless Sector B Total:	1.76%
Dish Wireless Sector C Total:	1.76%
Site Total MPE % :	8.77%

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 ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	122.0	2.39	600 MHz n71	400	0.60%
Dish Wireless 1900 MHz n70	4	542.70	122.0	5.80	1900 MHz n70	1000	0.58%
Dish Wireless 2190 MHz n66	4	542.70	122.0	5.80	2190 MHz n66	1000	0.58%
						Total:	1.76%

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



Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the Dish Wireless facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

Dish Wireless Sector	Power Density Value (%)
Sector A:	1.76%
Sector B:	1.76%
Sector C:	1.76%
Dish Wireless Maximum MPE % (Sector A):	1.76%
Site Total:	8.77%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **8.77%** 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: 775265447503

Delivery Information:

Status:	Delivered	Delivered To:	Receptionist/Front Desk
Signed for by:	G.FERNANDEZ	Delivery Location:	10 MAIN ST
Service type:	FedEx 2Day		
Special Handling:	Deliver Weekday		NEW MILFORD, CT, 06776
		Delivery date:	Nov 22, 2021 08:45

Shipping Information:

Tracking number:	775265447503	Ship Date:	Nov 19, 2021
		Weight:	1.0 LB/0.45 KG

Recipient:
Bill Murphy - Building Official,
New Milford Town Hall
10 Main Street
NEW MILFORD, CT, US, 06776

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

Reference 100814

Thank you for choosing FedEx



November 22, 2021

Dear Customer,

The following is the proof-of-delivery for tracking number: 775265414442

Delivery Information:

Status:	Delivered	Delivered To:	Receptionist/Front Desk
Signed for by:	G.FERNANDEZ	Delivery Location:	10 MAIN ST
Service type:	FedEx 2Day		
Special Handling:	Deliver Weekday		NEW MILFORD, CT, 06776
		Delivery date:	Nov 22, 2021 08:45

Shipping Information:

Tracking number:	775265414442	Ship Date:	Nov 19, 2021
		Weight:	0.5 LB/0.23 KG

Recipient:
Pete Bass - Mayor,
New Milford Town Hall
10 Main Street
NEW MILFORD, CT, US, 06776

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

Reference 100814

Thank you for choosing FedEx



November 30, 2021

Dear Customer,

The following is the proof-of-delivery for tracking number: 775265474047

Delivery Information:

Status:	Delivered	Delivered To:	Receptionist/Front Desk
Signed for by:	A.DELA	Delivery Location:	101 ASPETUCK AVE
Service type:	FedEx 2Day		
Special Handling:	Deliver Weekday		NEW MILFORD, CT, 06776
		Delivery date:	Nov 22, 2021 13:45

Shipping Information:

Tracking number:	775265474047	Ship Date:	Nov 19, 2021
		Weight:	0.5 LB/0.23 KG

Recipient:
Canterbury School, Inc. - Owner,
101 Aspetuck Avenue
NEW MILFORD, CT, US, 06776

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

Reference 100814

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