



Northeast Site Solutions
Denise Sabo
4 Angela's Way, Burlington CT 06013
denise@northeastsitesolutions.com

October 29, 2021

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Tower Share Application
248 Hall Hill Road, Somers, CT 06071
Latitude: 42.0026 N
Longitude: -72.485 W
Site# BOBDL00103A_Dish_Somers_TS_Zoning

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the tower site located at 248 Hall Hill Road, Somers, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/19005G MHz antenna and six (6) RRUs, at the 155-foot level of the existing 179-foot monopole tower, one (1) Fiber cables will also be installed. Dish Wireless LLC equipment cabinets will be placed within 7x5 lease area. Included are plans by Infinigy, dated September 30, 2021, Exhibit C. Also included is a structural analysis prepared by Vertical Bridge Engineering, LLC, dated May 21, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. This facility was approved by the Connecticut Siting Council, Docket No. 476 on February 15, 2018. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to The Honorable C.G. Budd Knorr, Jr., First Selectman for the Town of Somers, Jennifer Roy, Zoning Enforcement Officer, Planning & Land Use Services for the Town of Somers, as well as the property owner Deborah and John Romano and Vertical Bridge REIT, LLC tower owner.

The planned modifications of the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-89.

1. The proposed modifications will not result in an increase in the height of the existing structure. The top of the tower is 179-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 155-feet.
2. The proposed modification will not result in the increase of the site boundary as depicted on the attached site plan.
3. The proposed modification will not increase the noise levels at the facility by six decibels or more, or to levels that exceed local and state criteria. The incremental effect of the proposed changes will be negligent.



4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total density of 1.76% as evidenced by Exhibit F.

Connecticut General Statutes 16-50-aa indicates that the Council must approve the shared use of a telecommunications facility provided it finds the shared use is technically, legally, environmentally, and economically feasible and meets public safety concerns. As demonstrated in this letter, Dish Wireless LLC respectfully indicates that the shared use of this facility satisfies these criteria.

A. Technical Feasibility. The existing monopole has been deemed structurally capable of supporting Dish Wireless LLC proposed loading. The structural analysis is included in Exhibit D.

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this support tower in Somers. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit Dish Wireless LLC to obtain a building permit for the proposed installation. Further, a letter of Authorization is included as Exhibit G, authorizing Dish Wireless LLC to file this application for shared use.

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 155-foot level of the existing 179-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

D. Economic Feasibility. Dish Wireless LLC will be entering into an agreement with the owner of this facility to mutually agreeable terms. As previously mentioned, the Letter of Authorization has been provided by the owner to assist Dish Wireless LLC with this tower share application.

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting Dish Wireless LLC proposed loading. Dish Wireless LLC is not aware of any public safety concerns relative to the proposed sharing of the existing tower. Dish Wireless LLC intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through Somers.

Sincerely,

Denise Sabo

Denise Sabo

Mobile: 203-435-3640

Fax: 413-521-0558

Office: Angela's Way, Burlington CT 06013

Email: denise@northeastsitesolutions.com



Attachments

Cc: The Honorable C.G. Budd Knorr, Jr.

First Selectman

Town of Somers

600 Main Street

Somers, CT 06071

Jennifer Roy, Zoning Enforcement Officer

Planning & Land Use Services

Town of Somers

600 Main Street

Somers, CT 06071

Deborah and John Romano

248 Hall Hill Road

Somers, CT 06071

Vertical Bridge, REIT, LLC, Tower Owner

Exhibit A

Original Facility Approval

DOCKET NO. 476 – Eco-Site, Inc. and T-Mobile Northeast, LLC } Connecticut
application for a Certificate of Environmental Compatibility and }
Public Need for the construction, maintenance, and operation of a } Siting
telecommunications facility located at 248 Hall Hill Road, Somers, }
Connecticut. } Council

February 15, 2018

Decision and Order

Pursuant to Connecticut General Statutes §16-50p, and the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, maintenance, and operation of a telecommunications facility, including effects on the natural environment, ecological balance, public health and safety, scenic, historic, and recreational values, agriculture, forests and parks, air and water purity, and fish, aquaculture and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Eco-Site, Inc., hereinafter referred to as the Certificate Holder, for a telecommunications facility at 248 Hall Hill Road, Somers, Connecticut.

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

1. The tower shall be constructed as a monopole at a height of 180 feet above ground level to provide the proposed wireless services, sufficient to accommodate the antennas of T-Mobile Northeast, LLC and other entities, both public and private. The height of the tower may be extended after the date of this Decision and Order pursuant to regulations of the Federal Communications Commission.
2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Somers for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
 - a) final site plan(s) for development of the facility that employ the governing standard in the State of Connecticut for tower design in accordance with the currently adopted International Building Code and include specifications for the tower, tower foundation, antennas, and equipment compound including, but not limited to, fencing, radio equipment, access road, utility line, and emergency backup generator;
 - b) construction plans for site clearing, grading, landscaping, water drainage and stormwater control, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended;
 - c) plans for seasonal restrictions to protect the potential vernal pool;
 - d) hours of construction; and
 - e) plans for disposition of 30 cubic yards of net cut.

3. Prior to the commencement of operation, the Certificate Holder shall provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.
4. Upon the establishment of any new federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
6. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed with at least one fully operational wireless telecommunications carrier providing wireless service within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.
7. Any request for extension of the time period referred to in Condition 6 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Somers
8. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council within 90 days from the one year period of cessation of service. The Certificate Holder may submit a written request to the Council for an extension of the 90 day period not later than 60 days prior to the expiration of the 90 day period.
9. Any nonfunctioning antenna, and associated antenna mounting equipment, on this facility shall be removed within 60 days of the date the antenna ceased to function.
10. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.
11. The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v.

12. This Certificate may be transferred in accordance with Conn. Gen. Stat. §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide the Council a written agreement as to the entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility.
13. The Certificate Holder shall maintain the facility and associated equipment, including but not limited to, the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line and landscaping in a reasonable physical and operational condition that is consistent with this Decision and Order and a Development and Management Plan to be approved by the Council.
14. If the Certificate Holder is a wholly-owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the Certificate Holder within 30 days of the sale and/or transfer.
15. This Certificate may be surrendered by the Certificate Holder upon written notification and approval by the Council.

We hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed in the Service List, dated September 21, 2017, and notice of issuance published in the Journal Inquirer.

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

Exhibit B

Property Card

248 HALL HILL RD

Location 248 HALL HILL RD

Mblu 07/72/11

Acct# 00110000

Owner ROMANO JOHN A & DEBRA

Assessment \$401,090

Appraisal \$795,300

PID 3008

Building Count 1

Dev Lot

Dev Map

Exempt Code

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2020	\$210,200	\$585,100	\$795,300

Assessment			
Valuation Year	Improvements	Land	Total
2020	\$147,100	\$253,990	\$401,090

Owner of Record

Owner	ROMANO JOHN A & DEBRA	Sale Price	\$0
Co-Owner		Certificate	
Address	248 HALL HILL RD SOMERS, CT 06071	Book & Page	0340/0652
		Sale Date	02/08/2017

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
ROMANO JOHN A & DEBRA	\$0		0340/0652	02/08/2017
ROMANO DEBRA	\$0	1	0330/0868	07/21/2015
TURBAK STANLEY J EST OF	\$0		0299/0007	02/15/2011
TURBAK STANLEY J	\$0		0286/0550	06/19/2009

Building Information

Building 1 : Section 1

Year Built: 1966
Living Area: 1,778
Replacement Cost: \$294,358
Building Percent Good: 66
Replacement Cost Less Depreciation: \$194,300

Building Attributes

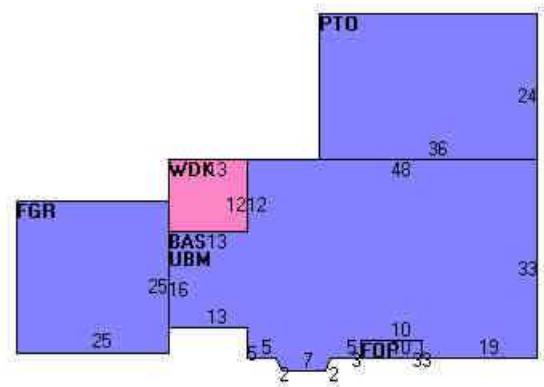
No Data for Building Attributes

Building Photo



(http://images.vgsi.com/photos/SomersCTPhotos///0009/DSCF2847_9082.)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,778	1,778
FGR	Garage	625	0
FOP	Open Porch	30	0
PTO	Patio	864	0
UBM	Basement	1,778	0
WDK	Wood Deck	156	0
		5,231	1,778

Extra Features

Extra Features

Legend

No Data for Extra Features

Land

Land Use

Use Code 101
Description Single Family
Zone A-1
Neighborhood 08
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 38.50
Frontage 1100
Depth
Assessed Value \$253,990
Appraised Value \$585,100

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
BRN3	Barn w Loft	FR	Frame	1656.00 SF	\$15,900	1

Valuation History

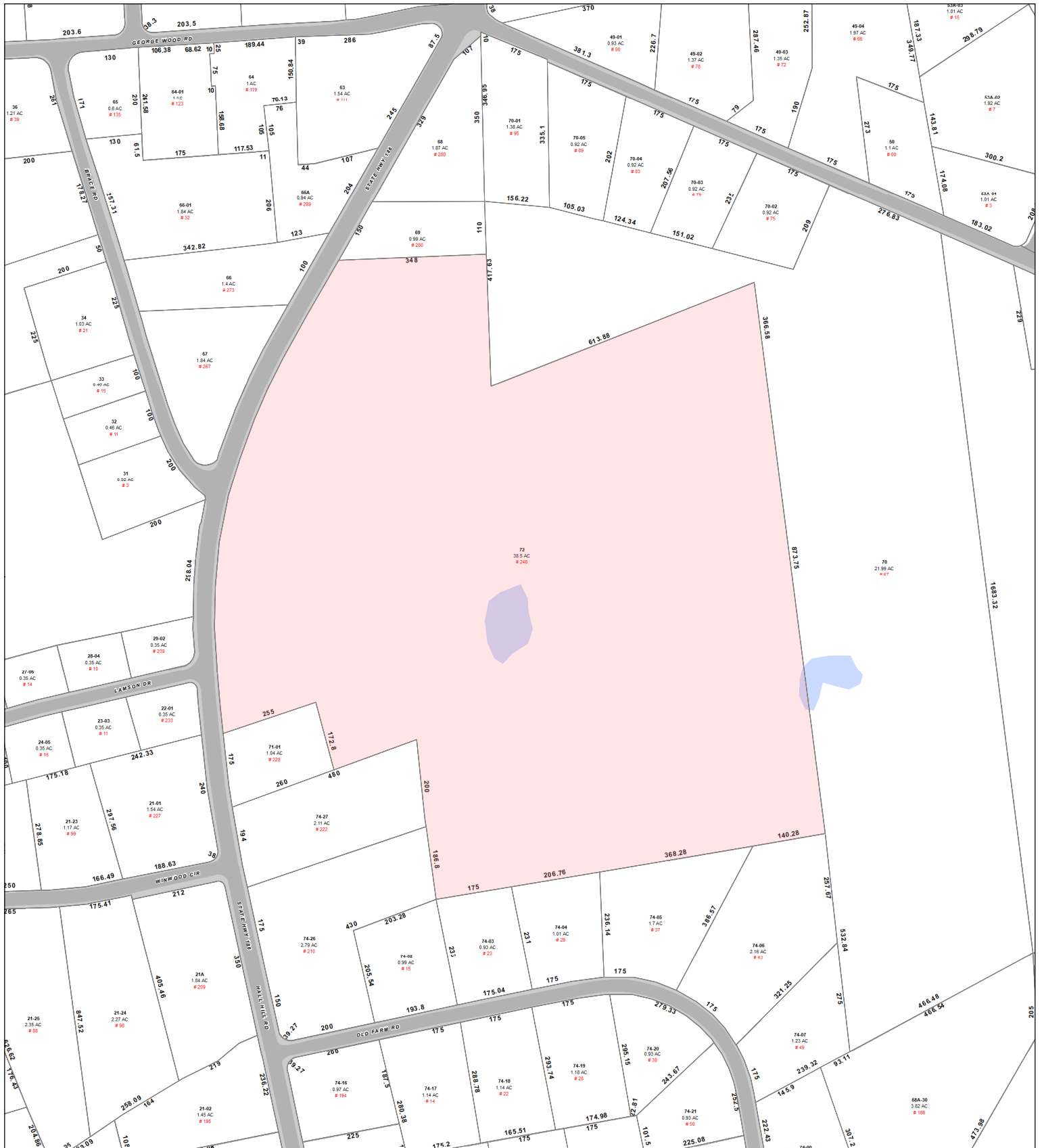
Appraisal			
Valuation Year	Improvements	Land	Total
2019	\$177,100	\$619,400	\$796,500
2016	\$177,100	\$369,400	\$546,500
2014	\$187,600	\$383,100	\$570,700

Assessment			
Valuation Year	Improvements	Land	Total
2019	\$123,900	\$252,760	\$376,660
2016	\$123,900	\$77,760	\$201,660
2014	\$131,300	\$113,220	\$244,520

Town of Somers, Connecticut - Assessment Parcel Map

Parcel: 07-72

Address: 248 HALL HILL RD



Approximate Scale: 1 inch = 300 feet

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

Map Produced June 2021

Exhibit C

Construction Drawings



DISH WIRELESS, LLC. SITE ID:

BOBDL00103A

DISH WIRELESS, LLC. SITE ADDRESS:

**248 HALL HILL ROAD
SOMERS, CT 6071**

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:	
<ul style="list-style-type: none"> • INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR) • INSTALL (1) PROPOSED PLATFORM • INSTALL PROPOSED JUMPERS • INSTALL (6) PROPOSED RRUs (2 PER SECTOR) • INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP) • INSTALL (1) PROPOSED HYBRID CABLE 	
GROUND SCOPE OF WORK:	
<ul style="list-style-type: none"> • 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) • INSTALL (1) PROPOSED METER SOCKET 	

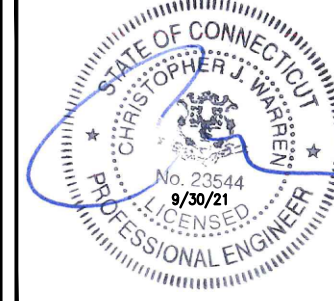
SITE INFORMATION	PROJECT DIRECTORY
PROPERTY OWNER: TBD	APPLICANT: DISH WIRELESS, LLC. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
ADDRESS: TBD	TOWER OWNER: VERTICAL BRIDGE 750 PARK OF COMMERCE DR, BOCA RATON, FL 33487
TOWER TYPE: MONOPOLE	SITE DESIGNER: INFINIGY 1033 WATERLIET SHAKER RD ALBANY, NY 12205 (518) 690-0790
TOWER CO SITE ID: TBD	SITE ACQUISITION: APRIL PARROTT TBD
TOWER APP NUMBER: TBD	CONSTRUCTION MANAGER: JAMIER SOTO TBD
COUNTY: TOLLAND	RF ENGINEER: TBD TBD
LATITUDE (NAD 83): 42° 00' 09.4" N 42.0026 N	
LONGITUDE (NAD 83): -72° 29' 06.0" W -72.485 W	
ZONING JURISDICTION: TBD	
ZONING DISTRICT: TBD	
PARCEL NUMBER: TBD	
OCCUPANCY GROUP: U	
CONSTRUCTION TYPE: V-B	
POWER COMPANY: TBD	
TELEPHONE COMPANY: AT&T	



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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HOFFMAN ESTATES, IL 60169
PHONE: 847-648-4088 | FAX: 518-690-0793
WWW.INFINIGY.COM



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

DRAWN BY: RCD CHECKED BY: SS APPROVED BY: CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	08/31/21	ISSUED FOR PERMIT
1	09/30/21	REVISED PER RFDS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00103A
HALL HILL ROAD
248 HALL HILL ROAD
SOMERS, CT 6071

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1



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.

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.

DIRECTIONS

DIRECTIONS FROM TOURS OF DISTINCTION:
DEPART AND HEAD TOWARD MASSACO ST, TURN RIGHT ONTO MASSACO ST, TURN LEFT ONTO US-202 E / CT-10 / HOPMEADOW ST, TURN RIGHT ONTO CT-315 / TARIFFVILLE RD, KEEP RIGHT TO STAY ON CT-315 / ELM ST, TURN RIGHT ONTO CT-189 / STATE HIGHWAY 189, TAKE THE RAMP ON THE LEFT FOR CT-187 NORTH, AND HEAD TOWARD E GRANBY / SUFFIELD, BEAR RIGHT ONTO SEYMOUR RD, BEAR RIGHT ONTO INTERNATIONAL DR, AT THE ROUNDABOUT, TAKE THE 1ST EXIT, TURN RIGHT ONTO CT-20 / RAINBOW RD, TAKE THE RAMP ON THE RIGHT AND FOLLOW SIGNS FOR CT-20 EAST, TAKE THE RAMP ON THE LEFT FOR I-91 NORTH AND HEAD TOWARD SPRINGFIELD, AT EXIT 48, HEAD RIGHT ON THE RAMP FOR CT-220 TOWARD ASHUNTUCK COMMUNITY COLLEGE / CONN CORR INST / MALLS / MOTOR VEHICLE DEPT, TURN RIGHT ONTO CT-220 / ELM ST TOWARD ASHUNTUCK COMMUNITY COLLEGE / CONN CORR INST / MALLS / MOTOR VEHICLE DEPT, TURN RIGHT ONTO ELM ST, KEEP STRAIGHT TO GET ONTO MOODY RD, ROAD NAME CHANGES TO GEORGE WOOD RD, TURN RIGHT ONTO BRACE RD, TURN RIGHT ONTO CT-186 / HALL HILL RD, TURN LEFT, ARRIVE AT, 25755 SR 44, SORRENTO, FL 34240

VICINITY MAP

SITE LOCATION

NO SCALE

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

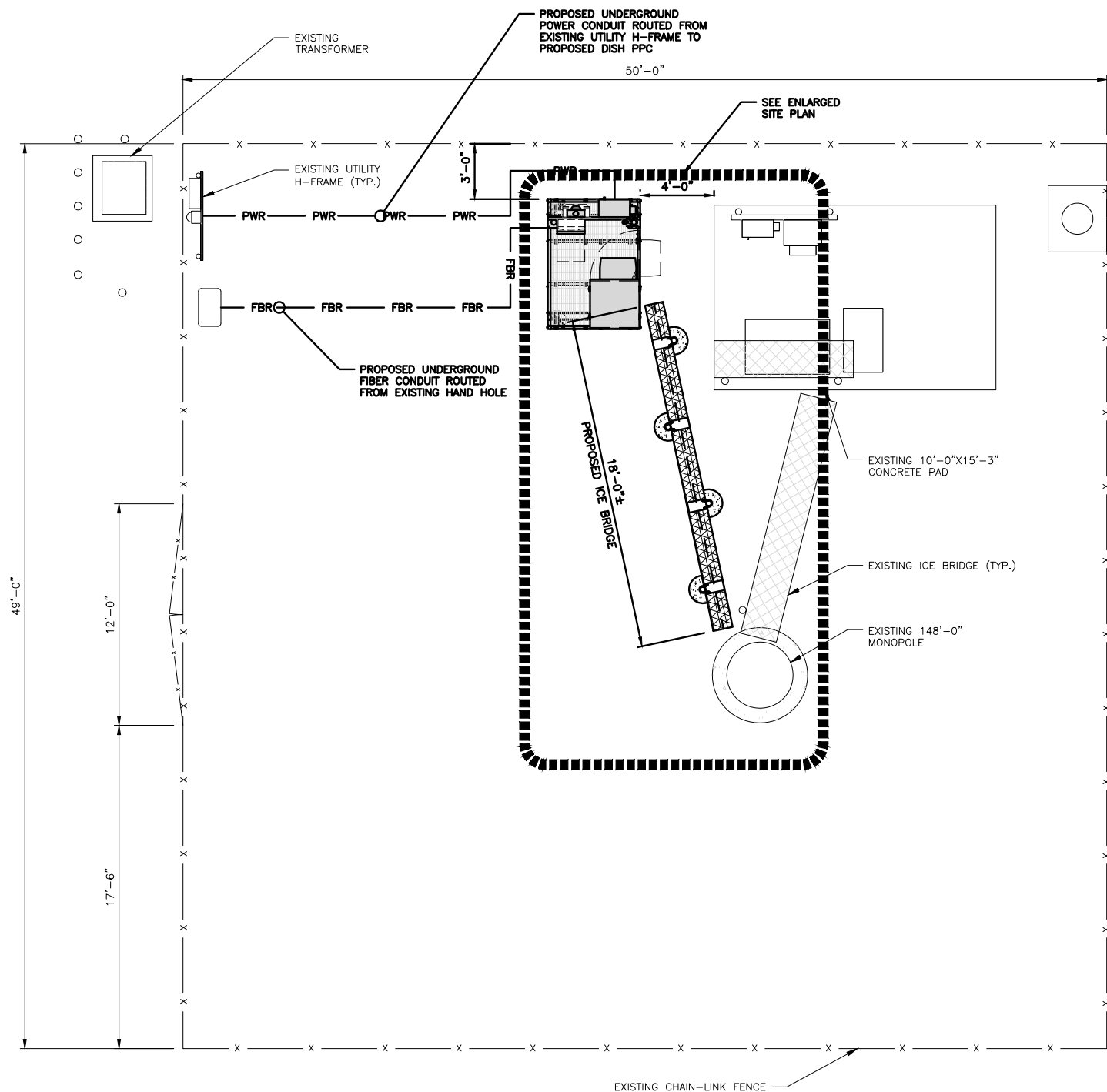
SHEET INDEX

SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
A-1	OVERALL AND ENLARGED SITE PLAN
A-2	ELEVATION, ANTENNA LAYOUT AND SCHEDULE
A-3	EQUIPMENT PLATEFORM AND H-FRAME DETAILS
A-4	EQUIPMENT DETAILS
A-5	EQUIPMENT DETAILS
A-6	EQUIPMENT DETAILS
E-1	ELECTRICAL 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	RF PLUMBING DIAGRAM
GN-1	LEGEND AND ABBREVIATIONS
GN-2	GENERAL NOTES
GN-3	GENERAL NOTES
GN-4	GENERAL NOTES

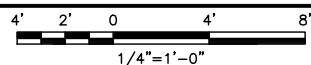
NOTES

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

1
A-2



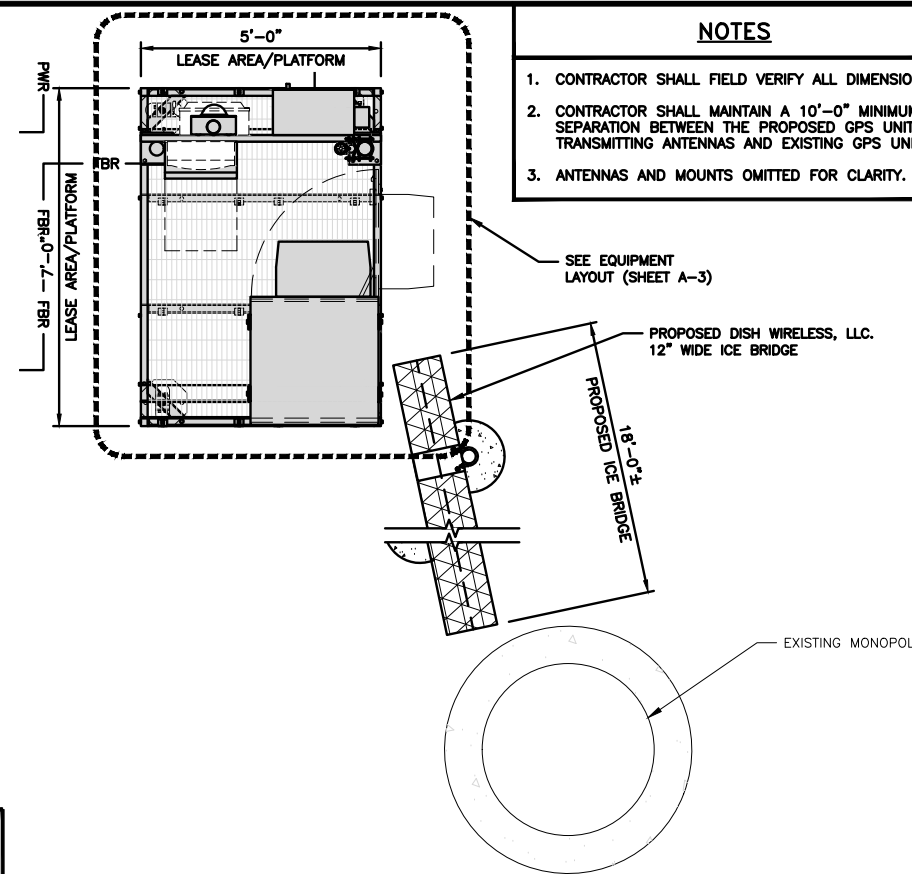
COMPOUND PLAN



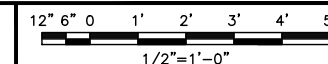
1

NOTES

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



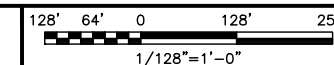
ENLARGED SITE PLAN



2



SITE PLAN



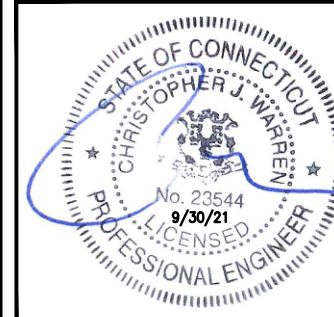
3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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FROM ZERO TO INFINIGY
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2500 W. HIGGINS RD., SUITE 500 |
HOFFMAN ESTATES, IL 60169
PHONE: 847-648-4068 | FAX: 518-690-0793
WWW.INFINIGY.COM



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DRAWN BY: CHECKED BY: APPROVED BY:
RCD SS CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	08/31/21	ISSUED FOR PERMIT
1	09/30/21	REVISED PER RFDS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00103A
HALL HILL ROAD
248 HALL HILL ROAD
SOMERS, CT 6071

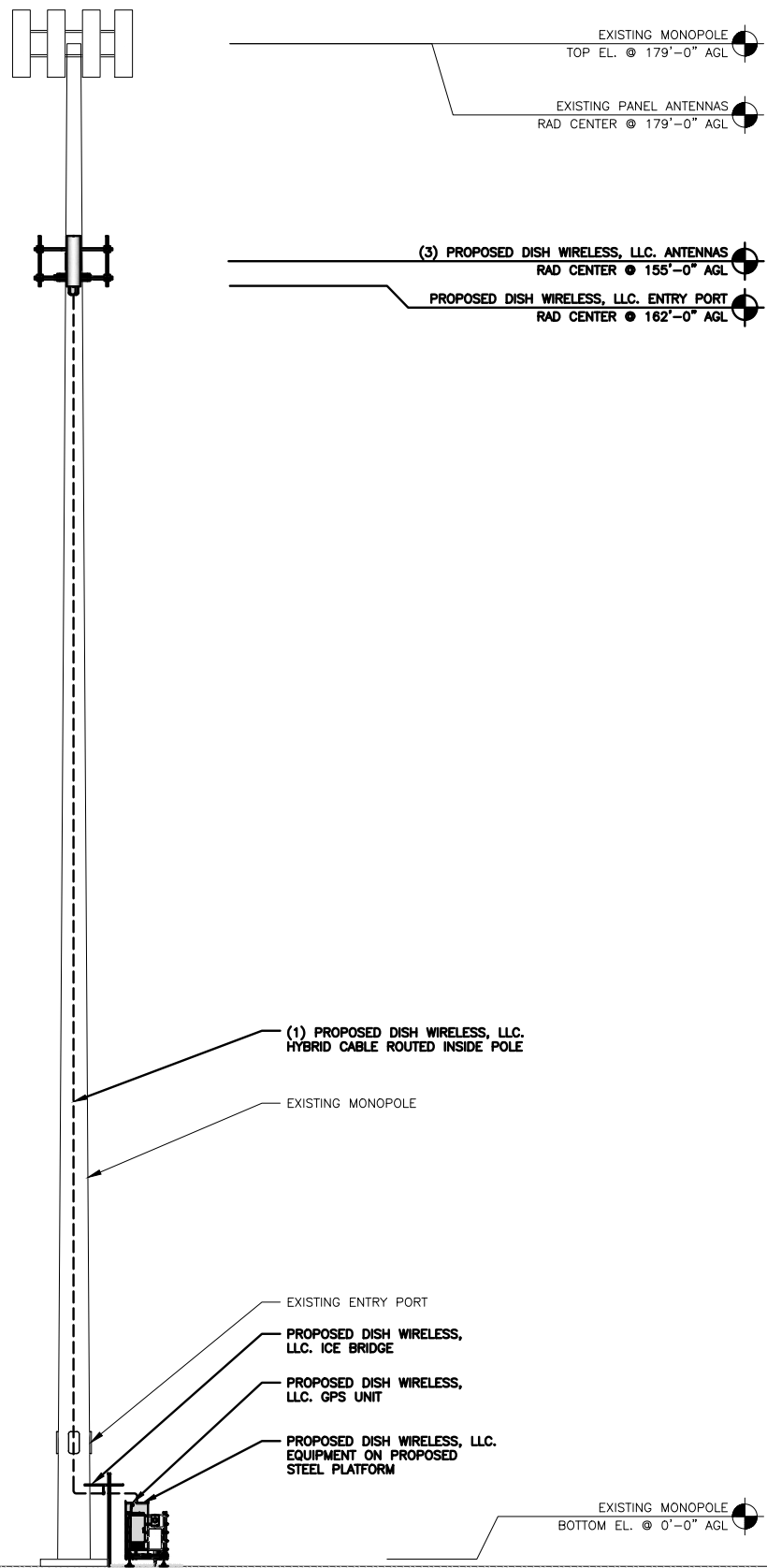
SHEET TITLE
OVERALL AND ENLARGED
SITE PLAN

SHEET NUMBER

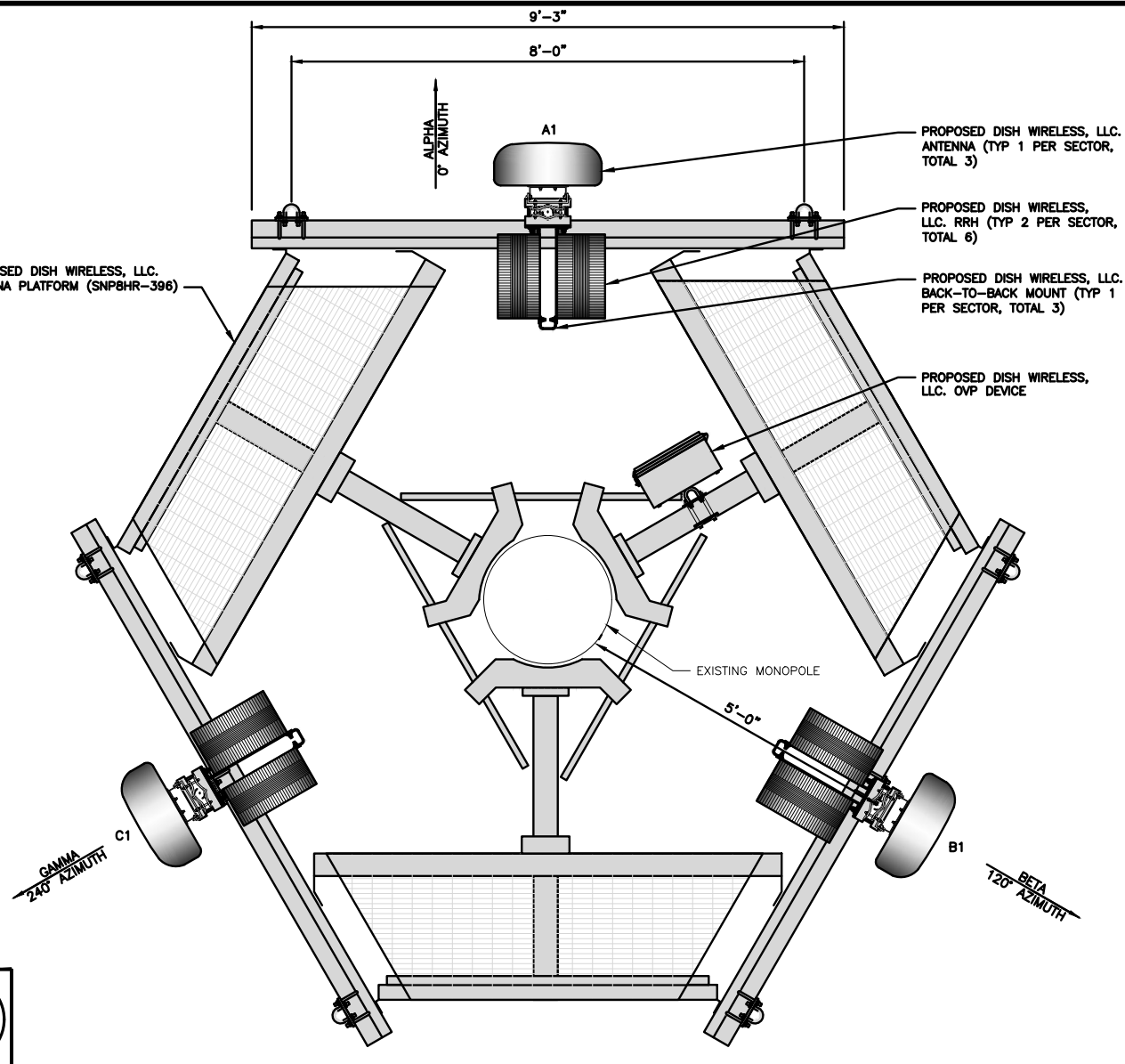
A-1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. BASED ON THE MOUNT ANALYSIS COMPLETED BY INFINIGY DATED 07/30/2021, THE EXISTING ANTENNA MOUNTS ARE CAPABLE OF SUPPORTING THE PROPOSED EQUIPMENT CONFIGURATION
5. FOR ADDITIONAL TOWER STRUCTURAL INFORMATION SEE STRUCTURAL ANALYSIS COMPLETED BY VERTICAL BRIDGE DATED: 05/21/21



PROPOSED NORTH ELEVATION



ANTENNA LAYOUT

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZMUTH	RAD CENTER	
ALPHA	A1	PROPOSED	JMA WIRELESS - MX08FRO665-20	5G	72.0" x 20.0"	0°	155'-0"	(1) HIGH-CAPACITY HYBRID CABLE (195' LONG)
BETA	B1	PROPOSED	JMA WIRELESS - MX08FRO665-20	5G	72.0" x 20.0"	120°	155'-0"	
GAMMA	C1	PROPOSED	JMA WIRELESS - MX08FRO665-20	5G	72.0" x 20.0"	240°	155'-0"	

NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
2. ANTENNA OR 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.

SECTOR	POSITION	RRH		NOTES
		MANUFACTURER - MODEL NUMBER	TECHNOLOGY	
ALPHA	A1	FUJITSU - TA08025-B604	5G	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.
	A1	FUJITSU - TA08025-B605	5G	
BETA	B1	FUJITSU - TA08025-B604	5G	
	B1	FUJITSU - TA08025-B605	5G	
GAMMA	C1	FUJITSU - TA08025-B604	5G	
	C1	FUJITSU - TA08025-B605	5G	

ANTENNA SCHEDULE

NO SCALE

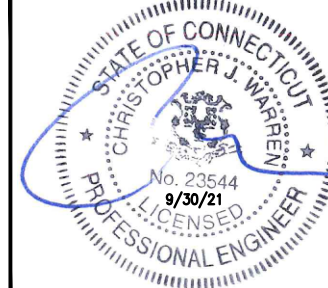
3



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DRAWN BY: CHECKED BY: APPROVED BY:
RCD SS CJW
RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	06/31/21	ISSUED FOR PERMIT
1	09/30/21	REVISED PER RFDS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00103A
HALL HILL ROAD
248 HALL HILL ROAD
SOMERS, CT 6071

SHEET TITLE
ELEVATION, ANTENNA
LAYOUT AND SCHEDULE

SHEET NUMBER

A-2

PROPOSED DISH WIRELESS, LLC.
GENERATOR PLUG
PROPOSED DISH WIRELESS, LLC.
GPS UNIT

PROPOSED DISH WIRELESS, LLC.
POWER PROTECTIVE CABINET
PROPOSED DISH WIRELESS, LLC.
H-FRAME

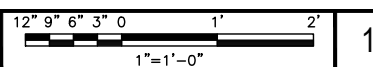
PROPOSED DISH WIRELESS, LLC.
SAFETY SWITCH. SPACE
RESERVED FOR ADDITIONAL
DISCONNECT IF REQUIRED.

PROPOSED DISH WIRELESS, LLC.
200AMP METER SOCKET
PROPOSED DISH WIRELESS, LLC.
TELCO FIBER ENCLOSURE

PROPOSED DISH WIRELESS, LLC.
CIENA BOX. SPACE RESERVED
IF REQUIRED

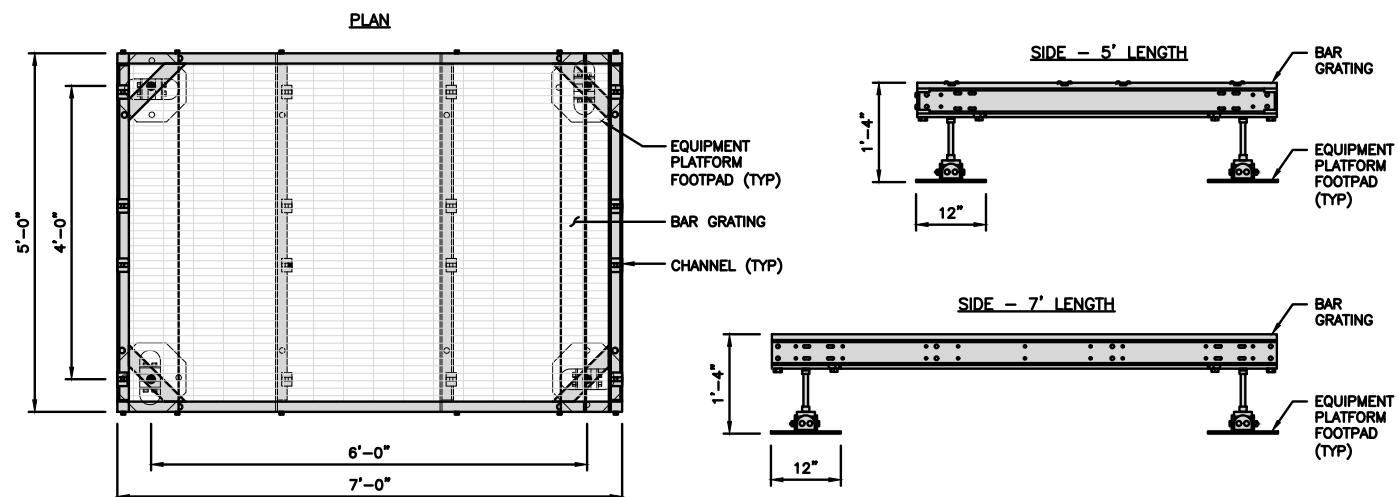
PROPOSED DISH WIRELESS, LLC.
EQUIPMENT PLATFORM

PLATFORM EQUIPMENT PLAN



COMMSCOPE MTC4045LP
5X7 PLATFORM

DIMENSIONS (HxWxD)	16"x84"x60"
TOTAL WEIGHT	423 LBS

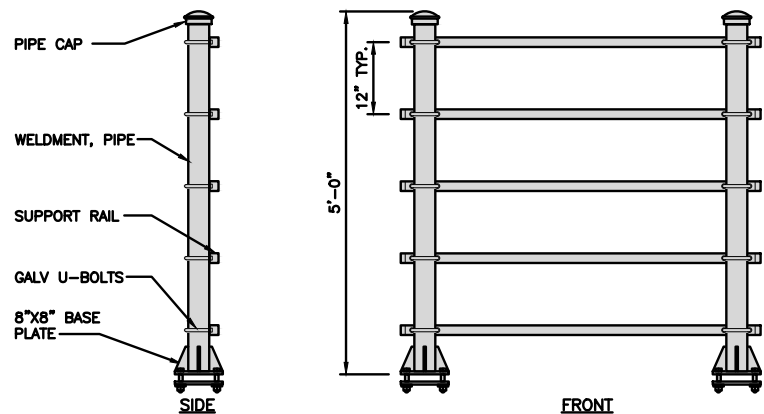


PLATFORM DETAIL

NO SCALE 2

KENWOOD T1701KT5-5S
H-FRAME

UNISTRUT/SUPPORT RAIL	5
WEIGHT/ VOLUME	173.6 LBS



H-FRAME DETAIL

NO SCALE 3

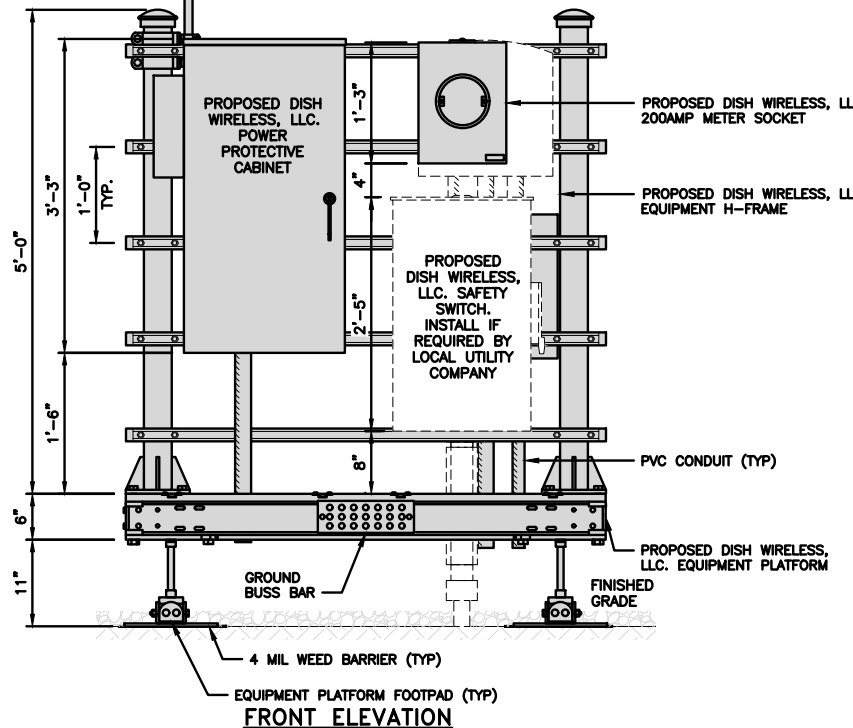
NOT USED

NO SCALE 4

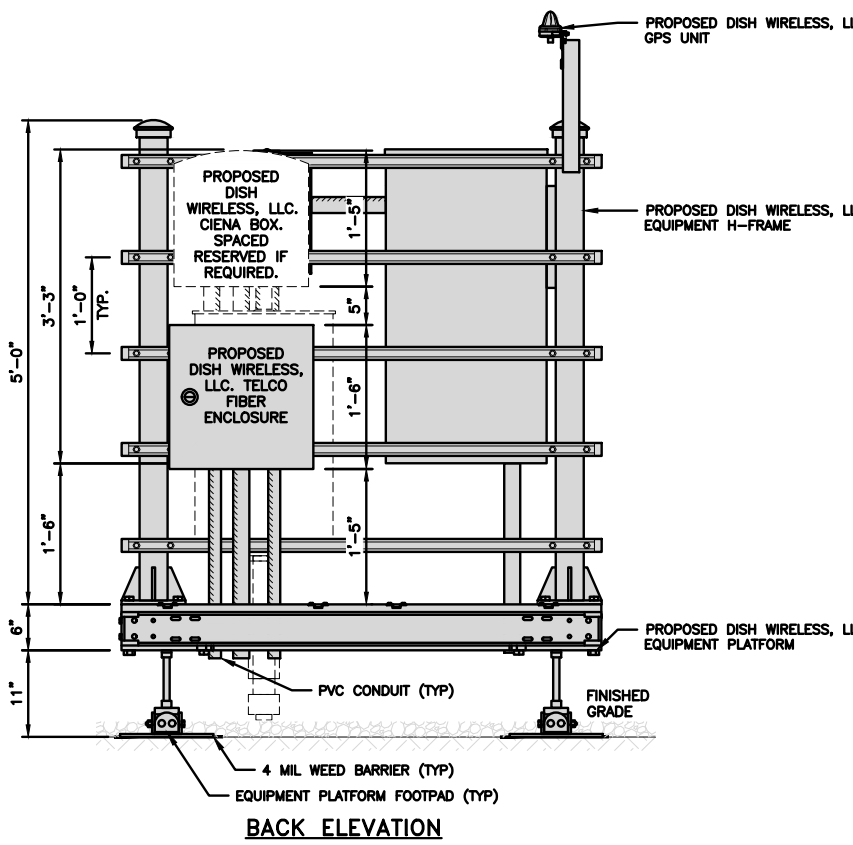
NOTES

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

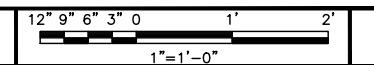
PROPOSED DISH WIRELESS, LLC.
GPS UNIT



FRONT ELEVATION



BACK ELEVATION



H-FRAME EQUIPMENT ELEVATION

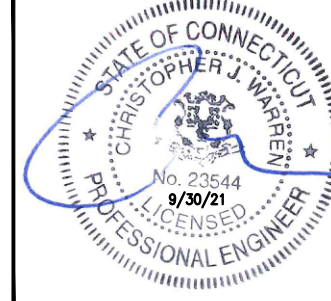
NO SCALE 5



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CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
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1	09/30/21	REVISED PER RFDS

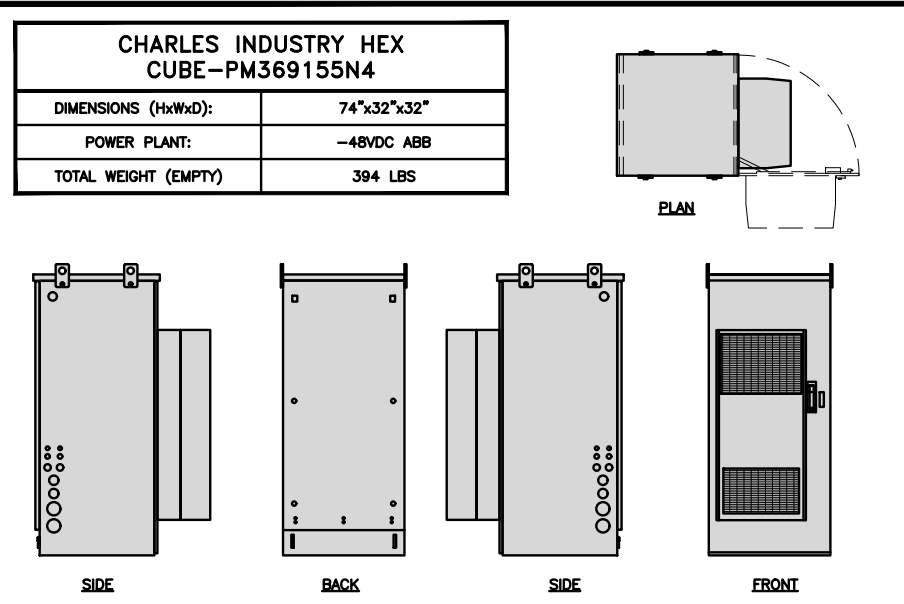
A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00103A
HALL HILL ROAD
248 HALL HILL ROAD
SOMERS, CT 6071

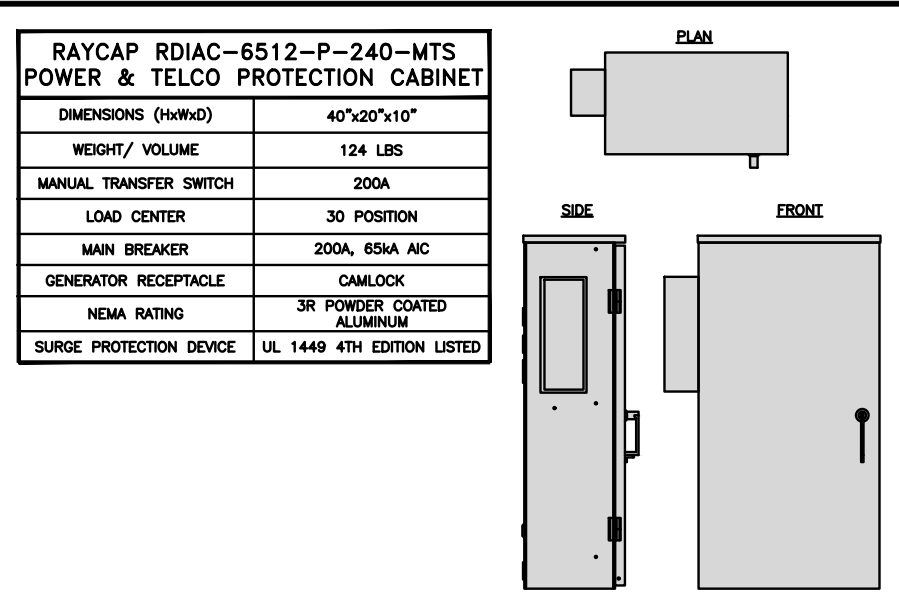
SHEET TITLE
EQUIPMENT PLATFORM AND
H-FRAME DETAILS

SHEET NUMBER

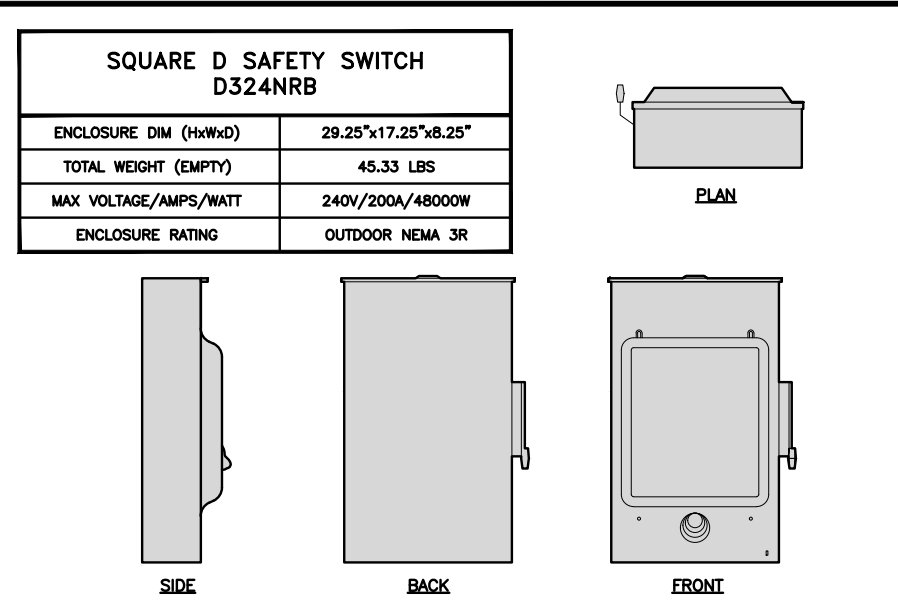
A-3



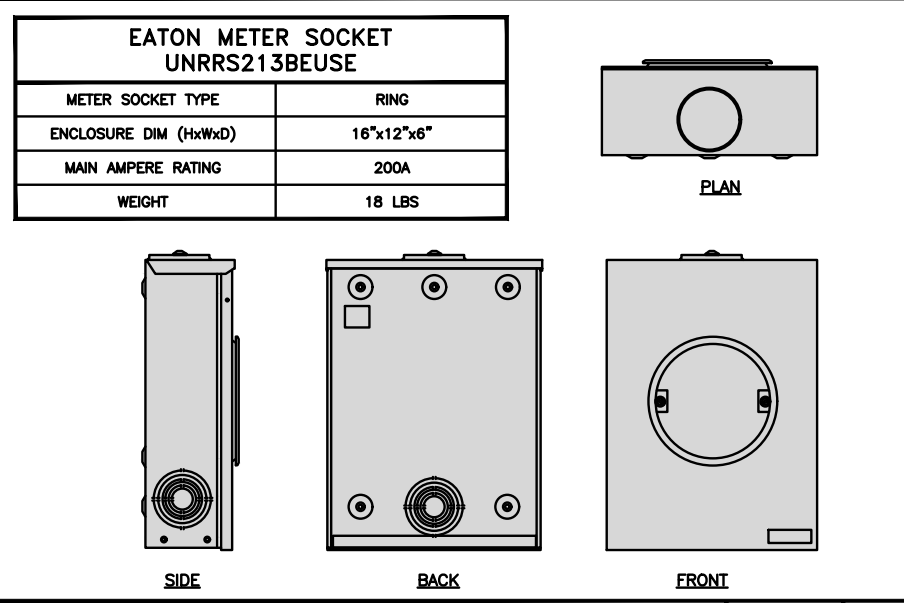
CABINET DETAIL NO SCALE 1



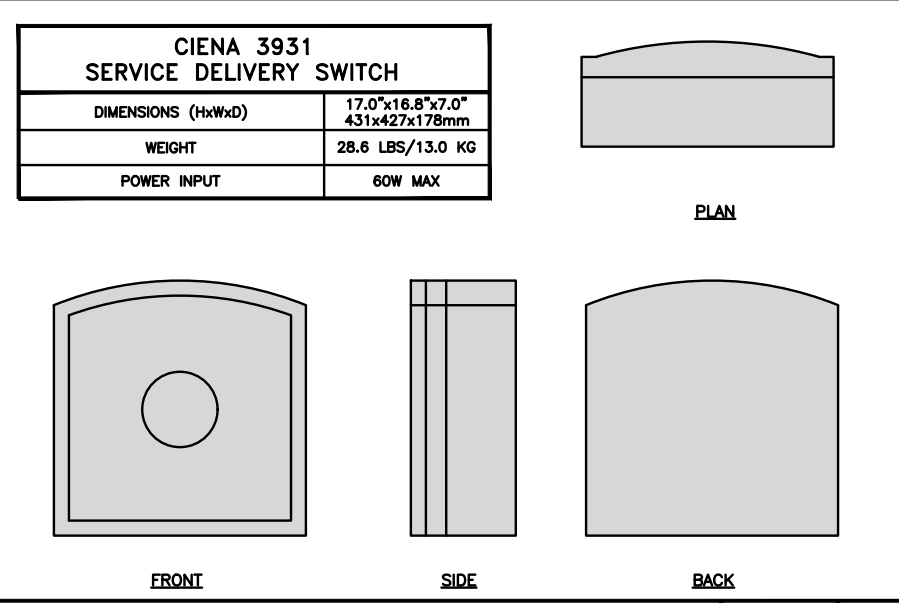
POWER PROTECTION CABINET (PPC) DETAIL NO SCALE 2



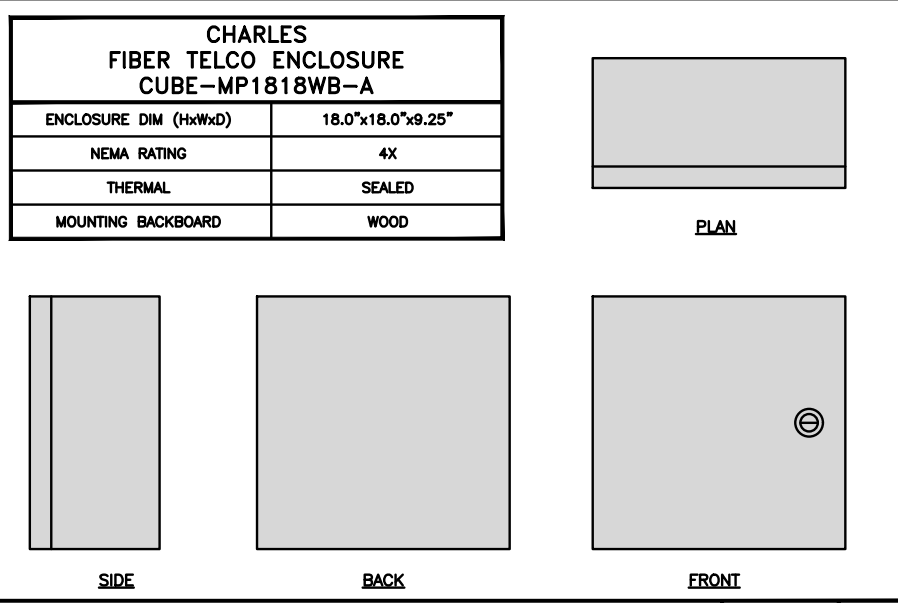
SAFETY SWITCH NO SCALE 3



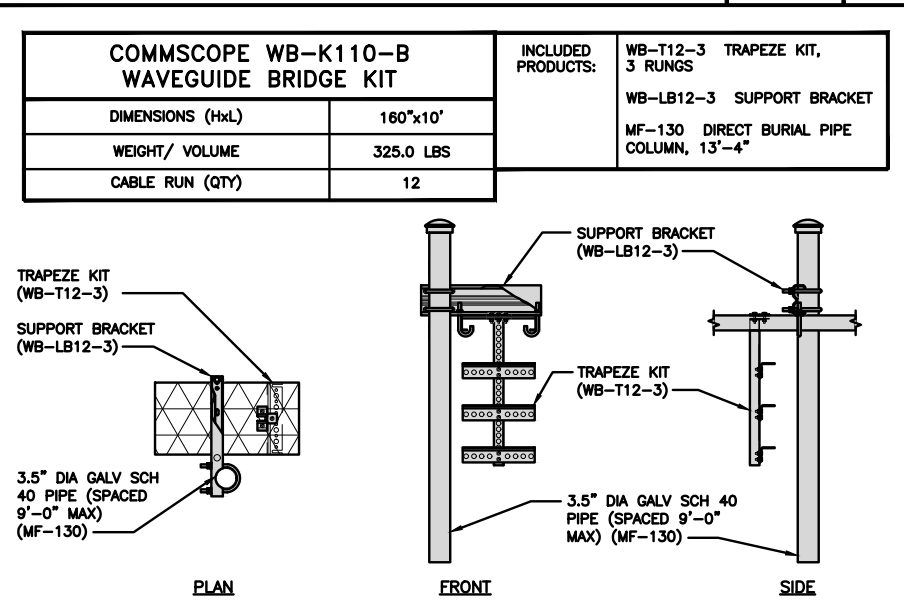
METER SOCKET DETAIL NO SCALE 4



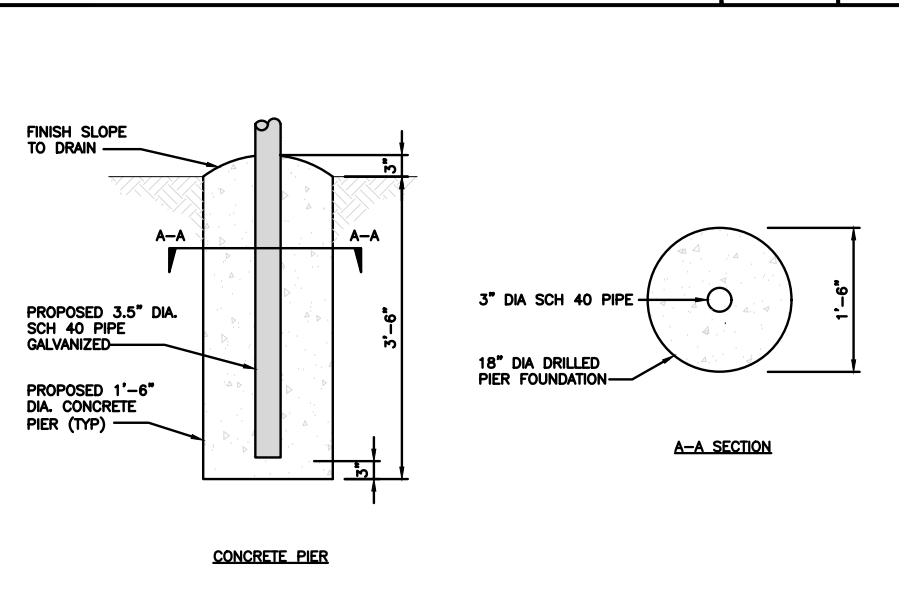
CIENA DETAIL NO SCALE 5



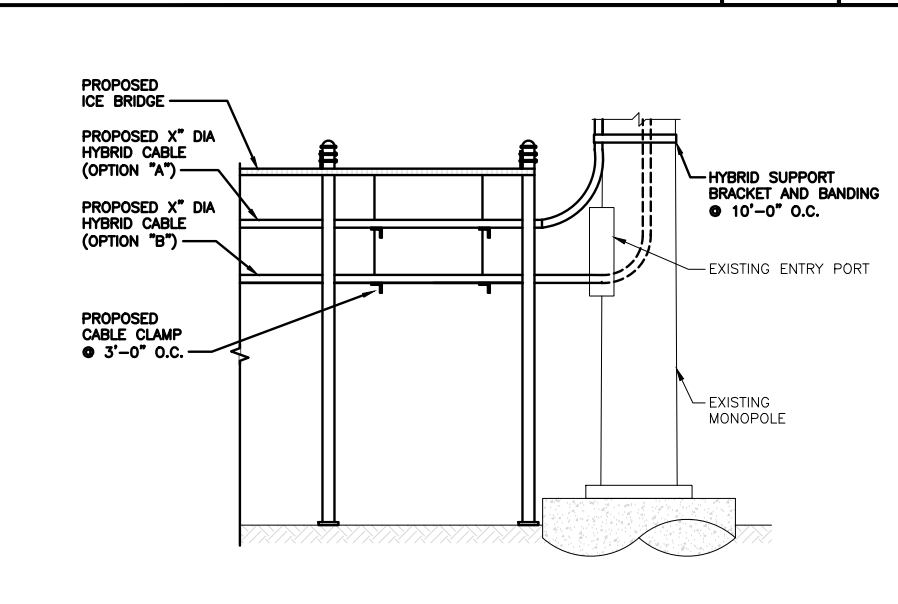
FIBER TELCO ENCLOSURE DETAIL NO SCALE 6



ICE BRIDGE DETAIL NO SCALE 7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL NO SCALE 8



HYBRID CABLE RUN NO SCALE 9

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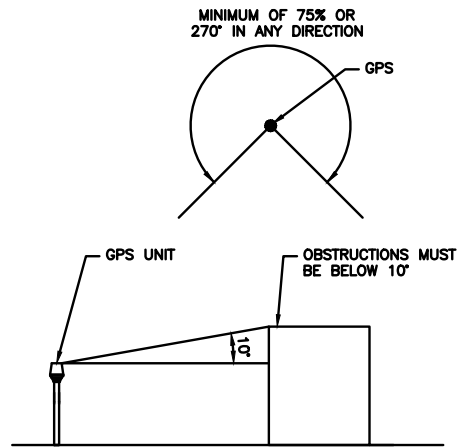
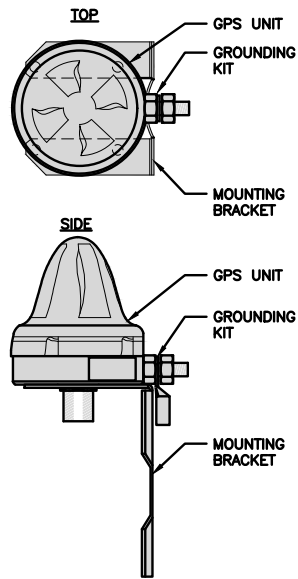
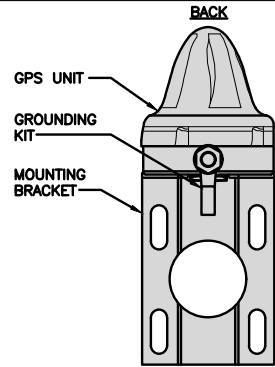
A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00103A
HALL HILL ROAD
248 HALL HILL ROAD
SOMERS, CT 6071

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

ROSENBERGER GPSGLONASS-36-N-S	
DIMENSION (DIA x H)	69mm x 98.5mm
WEIGHT (WITH ACCESSORIES)	515.74g
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1559 MHz ~ 1610.5MHz



GPS ANTENNA DETAIL

NO SCALE 1

GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE 2

NOT USED

NO SCALE 3

NOT USED

NO SCALE 4

NOT USED

NO SCALE 5

NOT USED

NO SCALE 6

NOT USED

NO SCALE 7

NOT USED

NO SCALE 8

NOT USED

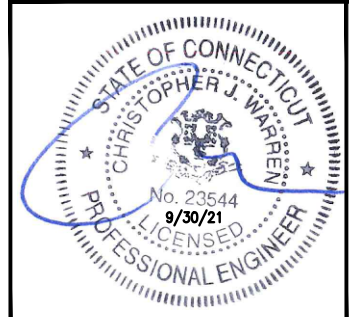
NO SCALE 9



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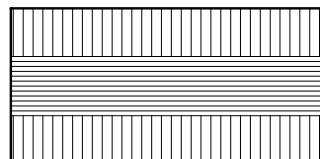
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DISH WIRELESS, LLC.
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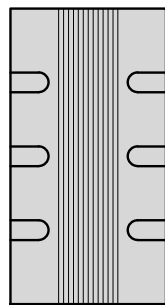
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

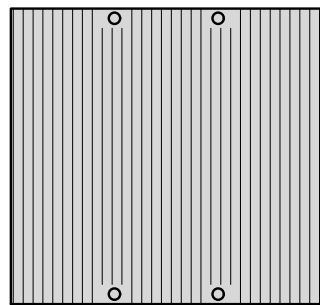
FUJITSU TA08025-B604 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x200/14.9"x15.7"x7.8"
WEIGHT(KG,LB)/ VOLUME	29kg,63.9lb/ 30L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE



FRONT

NOTES

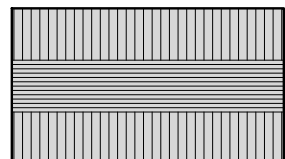
FINAL RRH SPECIFICATIONS TO BE CONFIRMED BY GC

REMOTE RADIO HEAD DETAIL

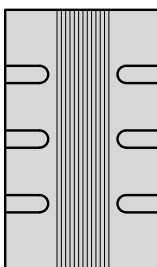
NO SCALE

1

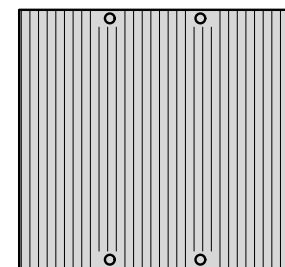
FUJITSU TA08025-B605 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x230/14.9"x15.7"x9.0"
WEIGHT(KG,LB)/ VOLUME	34kg,74.9lb/ 35L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE



FRONT

NOTES

FINAL RRH SPECIFICATIONS TO BE CONFIRMED BY GC

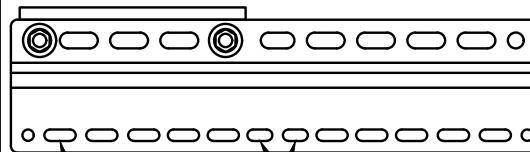
REMOTE RADIO HEAD DETAIL

NO SCALE

2

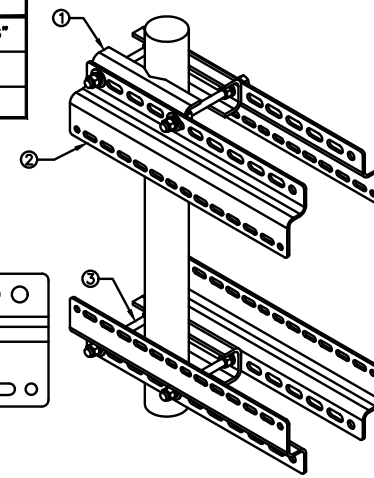
SABRE INDUSTRIES RRU BRACKET MOUNT C10123155	
DIMENSIONS (HxWxD) (1 BRACKET)	5"x20"x1-13/16"
WEIGHT (FULL ASSEMBLY)	35.79 lbs
PACKAGE QUANTITY	4

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



11MM x 30MM SLOTS
40MM ON CENTER

11MM x 24MM SLOTS



REMOTE RADIO MOUNT DETAIL

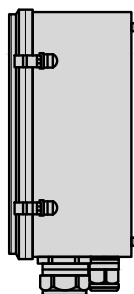
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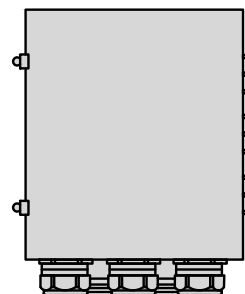
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



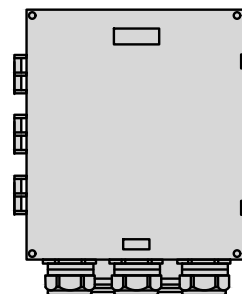
PLAN



SIDE



BACK



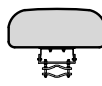
FRONT

SURGE SUPPRESSION DETAIL

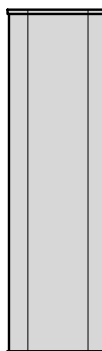
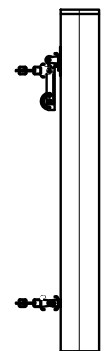
NO SCALE

4

JMA WIRELESS MX08FRO665-20 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	54 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE



PLAN



NOTES

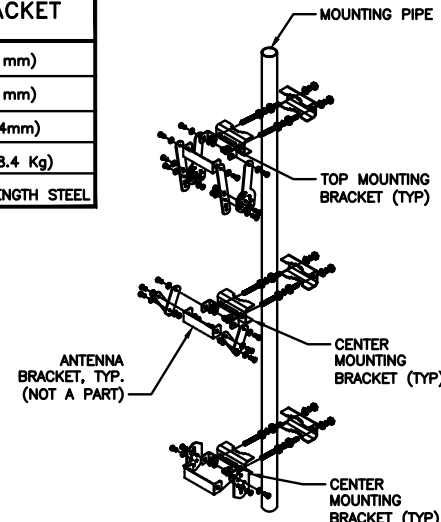
FINAL ANTENNA SPECIFICATIONS TO BE CONFIRMED BY GC

ANTENNA DETAIL

NO SCALE

5

JMA 91900318 MOUNTING BRACKET	
WIDTH	8.3" (211mm)
DEPTH	7.5" (191mm)
HEIGHT	11.2" (284mm)
TOTAL WEIGHT (WITH BRACKETS)	18.5 LBS (8.4 Kg)
HOUSING MATERIAL	GALV. HIGH STRENGTH STEEL

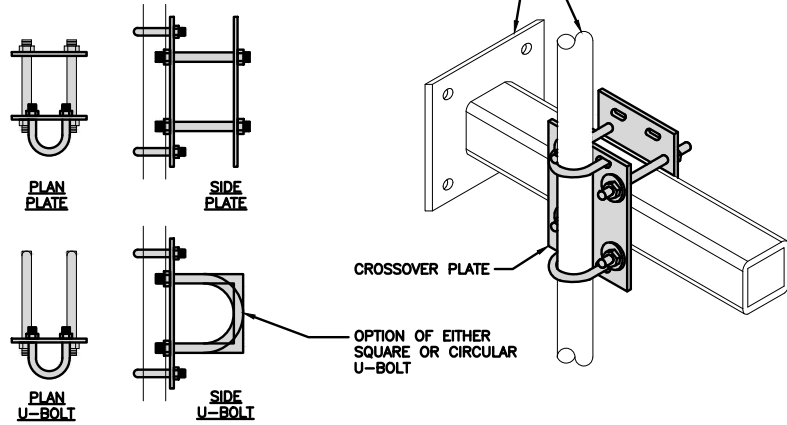


ANTENNA MOUNTING DETAIL

NO SCALE

6

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

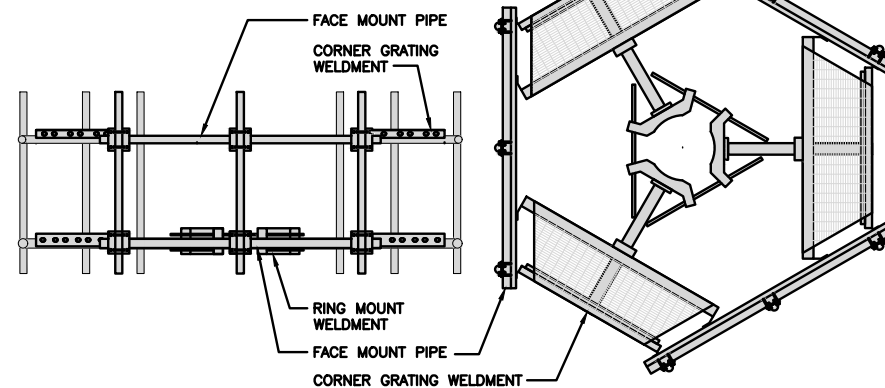


RRH/OVP MOUNT DETAIL

NO SCALE

7

SITEPRO1 SNP8HR-396 SNUB-NOSE PLATFORM	
FACE SIZE	8'-0"
WEIGHT	1786.28 LB
ANTENNA PIPE MOUNTS	(6) 2-3/8" O.D.



ANTENNA PLATFORM DETAIL

NO SCALE

8

NOT USED

NO SCALE

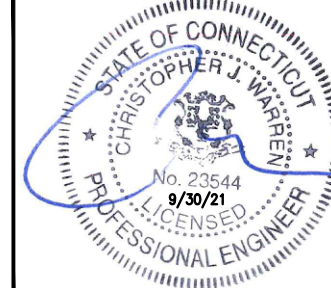
9

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DRAWN BY: CHECKED BY: APPROVED BY:
RCD SS CJW

RFDS REV #: N/A

**CONSTRUCTION
DOCUMENTS**

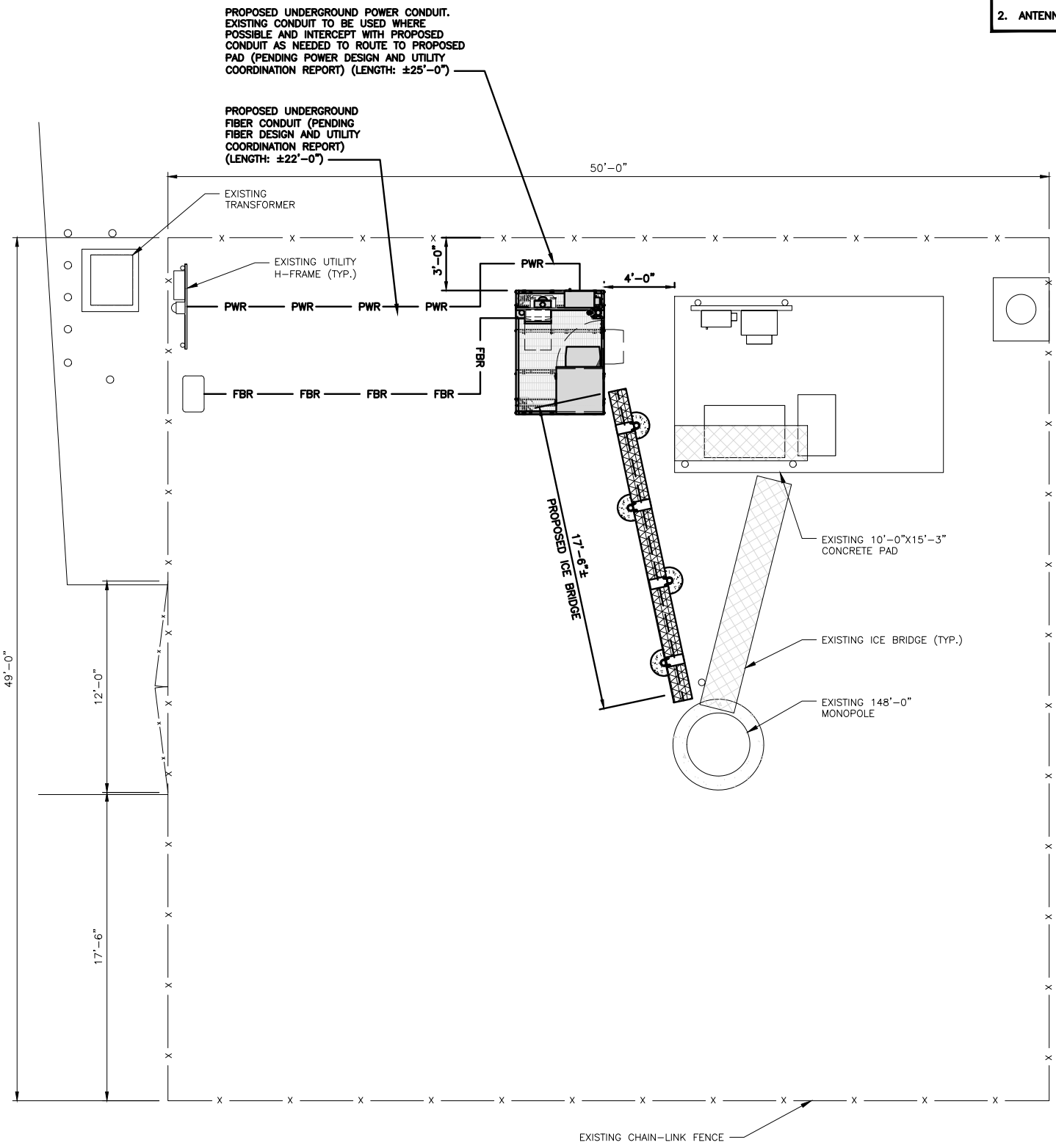
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REV	DATE	DESCRIPTION
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A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00103A
HALL HILL ROAD
248 HALL HILL ROAD
SOMERS, CT 6071

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6



NOTES

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

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.

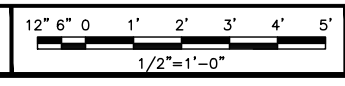
1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, 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. FIBER ROUTE IS PRELIMINARY, FINAL FIBER ROUTE TO BE DETERMINED ONCE UCR (UTILITY COORDINATION REPORT) HAS BEEN FINALIZED.

ELECTRICAL NOTES

2

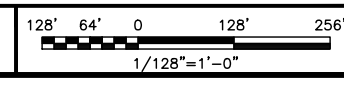


UTILITY ROUTE PLAN



1

OVERALL UTILITY ROUTE PLAN



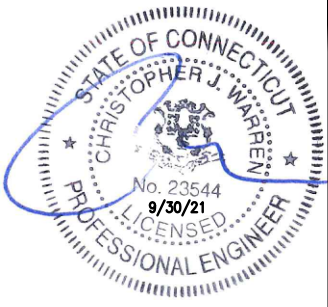
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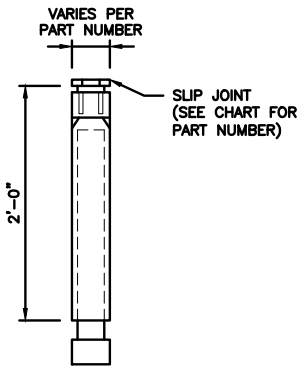
A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00103A
HALL HILL ROAD
248 HALL HILL ROAD
SOMERS, CT 6071

SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

SHEET NUMBER
E-1

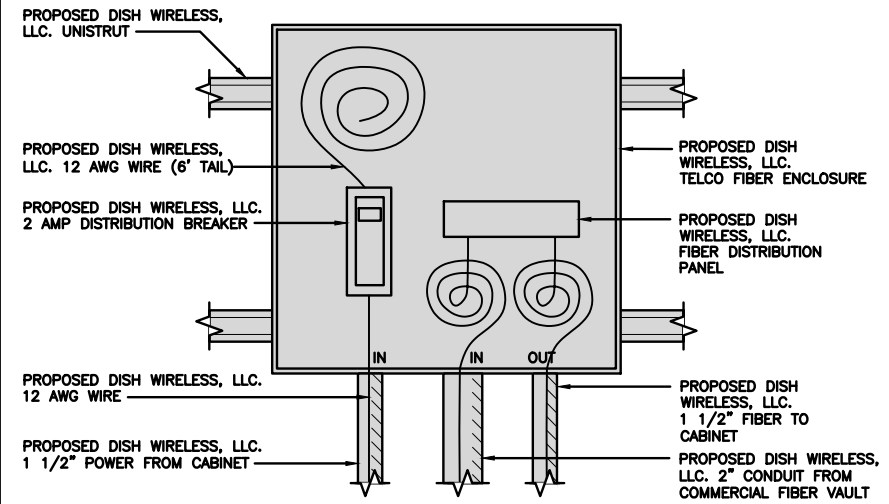
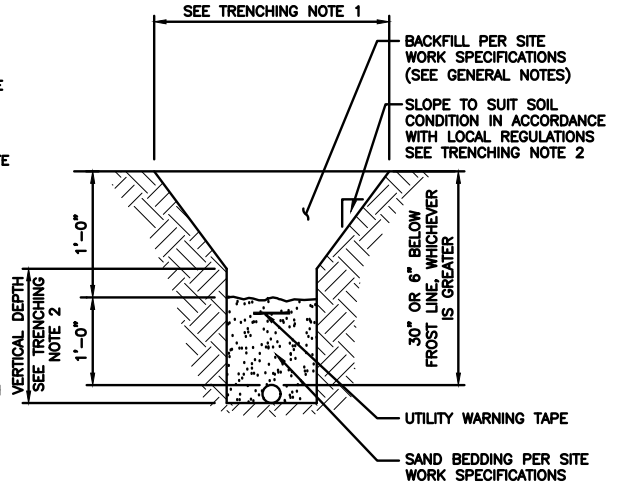
CARLON EXPANSION FITTINGS				
COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"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



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

TRENCHING NOTES

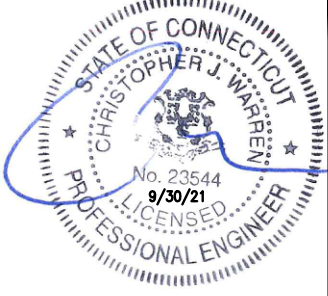
- CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
- TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT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



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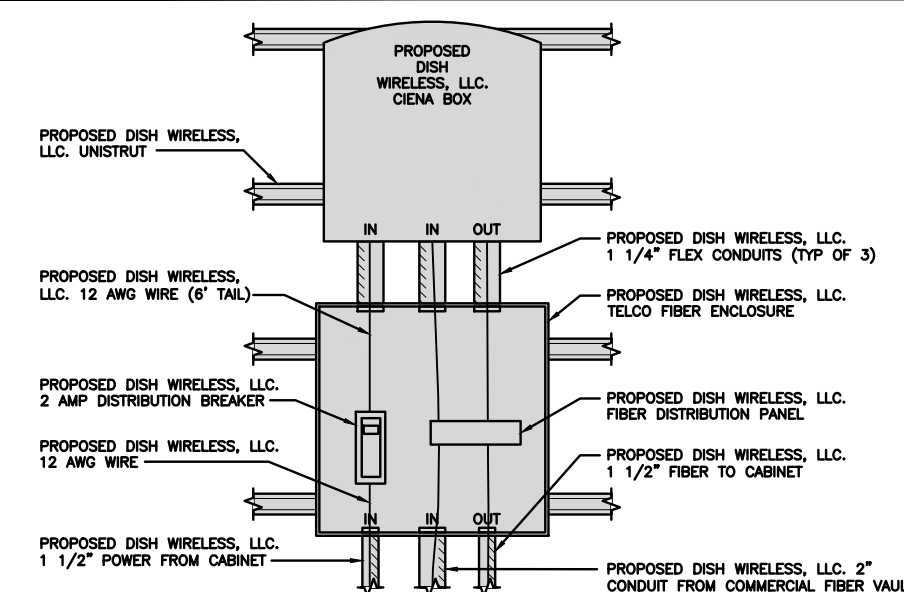
SHEET TITLE
ELECTRICAL
DETAILS

SHEET NUMBER
E-2

EXPANSION JOINT DETAIL | NO SCALE | 1

TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2

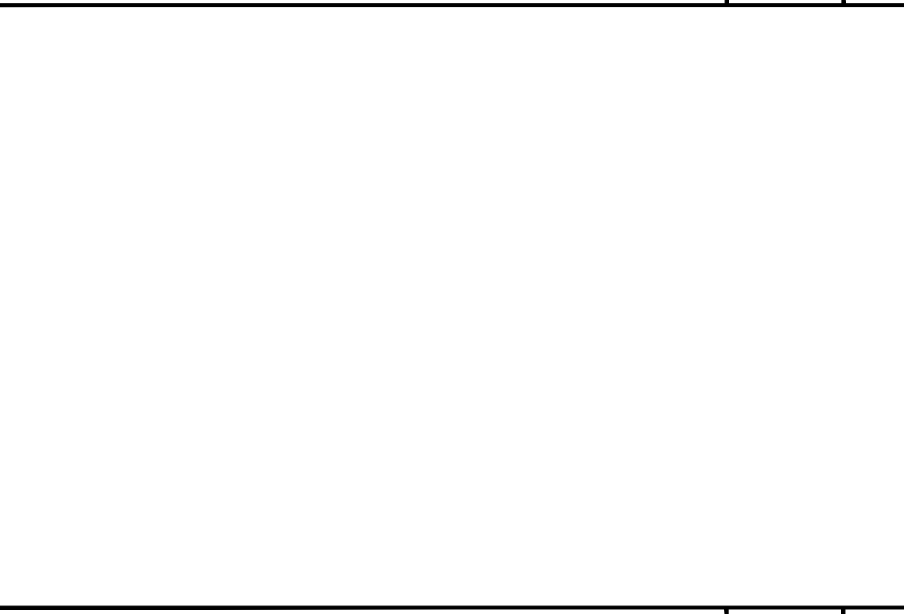
DARK TELCO BOX - INTERIOR WIRING LAYOUT | NO SCALE | 3



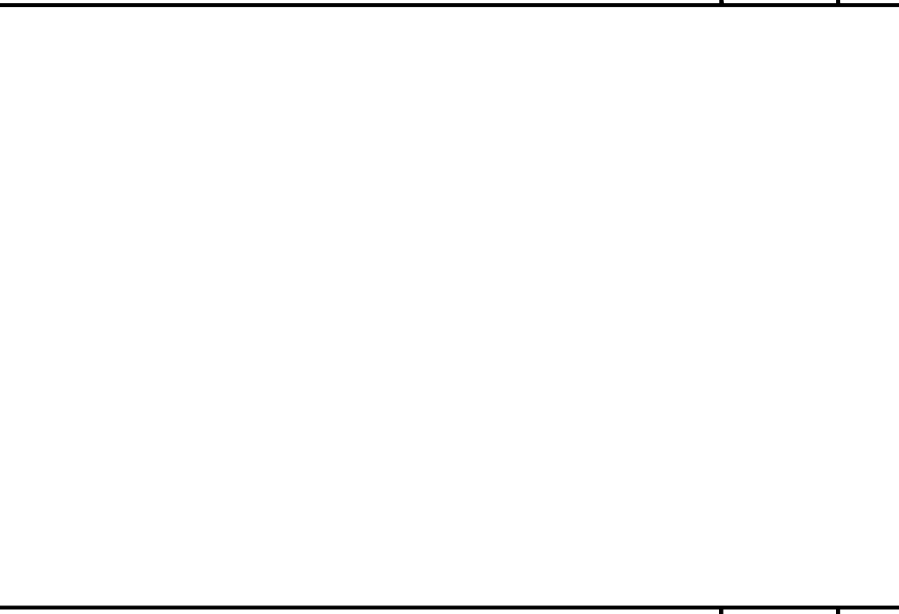
LIT TELCO BOX - INTERIOR WIRING LAYOUT | NO SCALE | 4

NOT USED | NO SCALE | 5

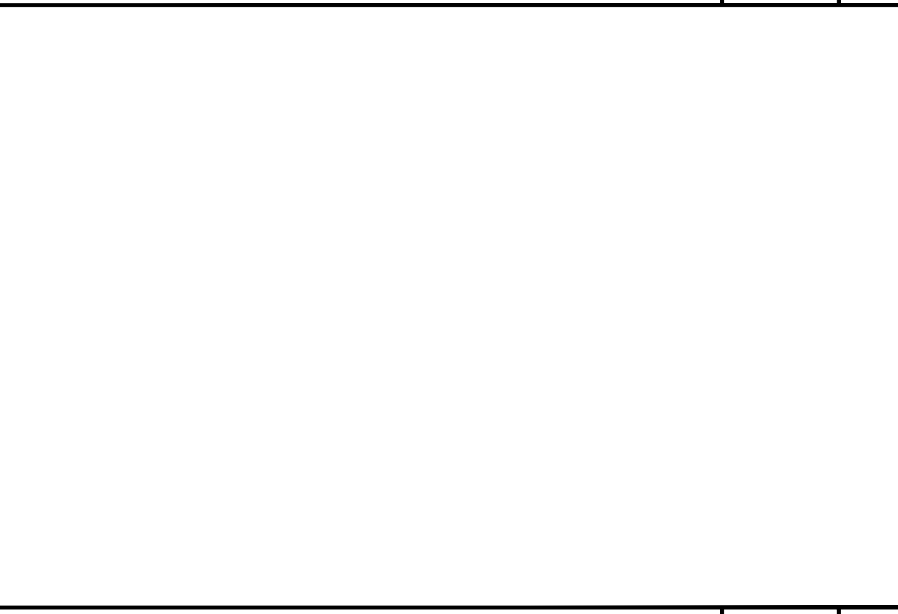
NOT USED | NO SCALE | 6



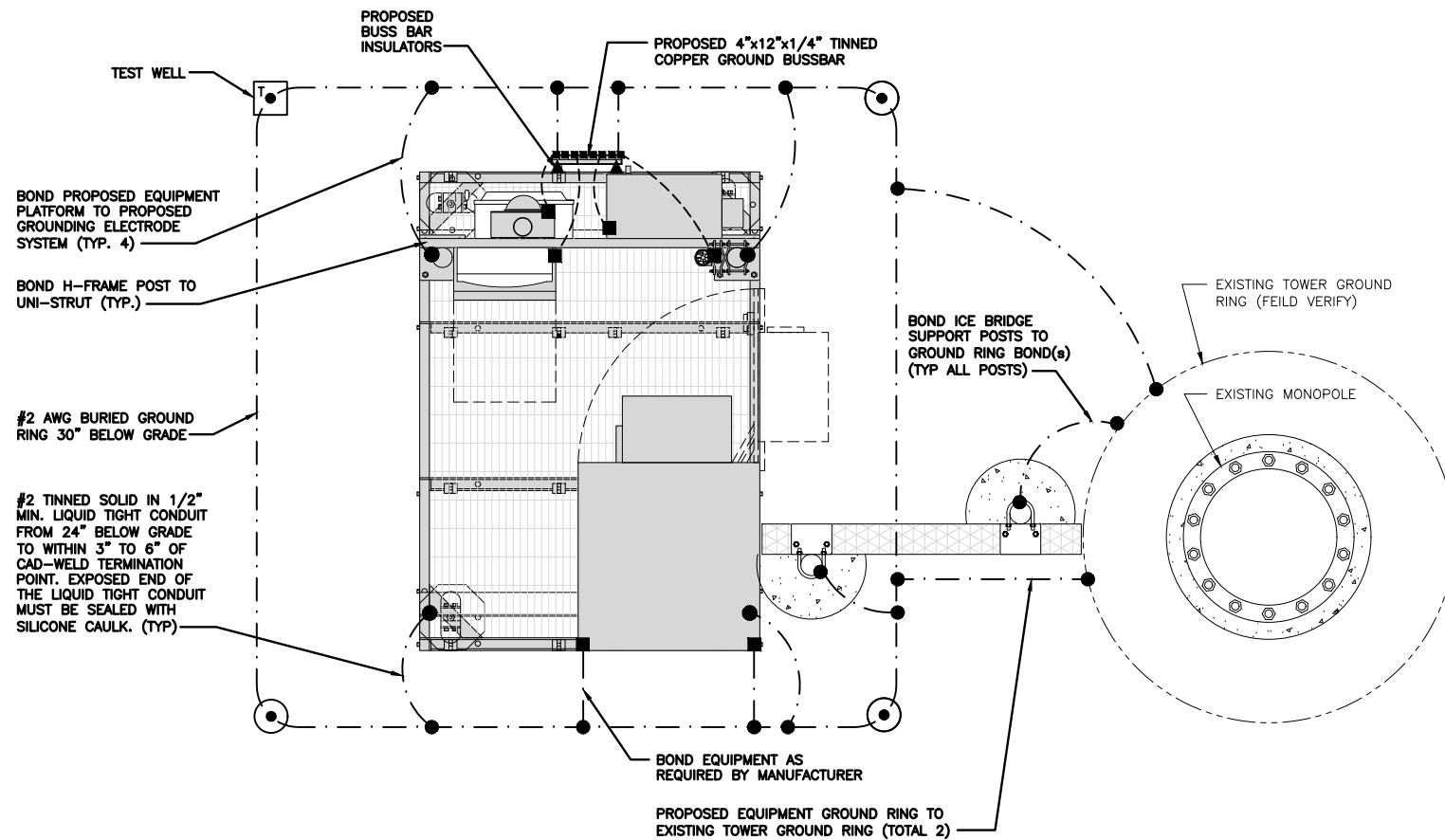
NOT USED | NO SCALE | 7



NOT USED | NO SCALE | 8



NOT USED | NO SCALE | 9

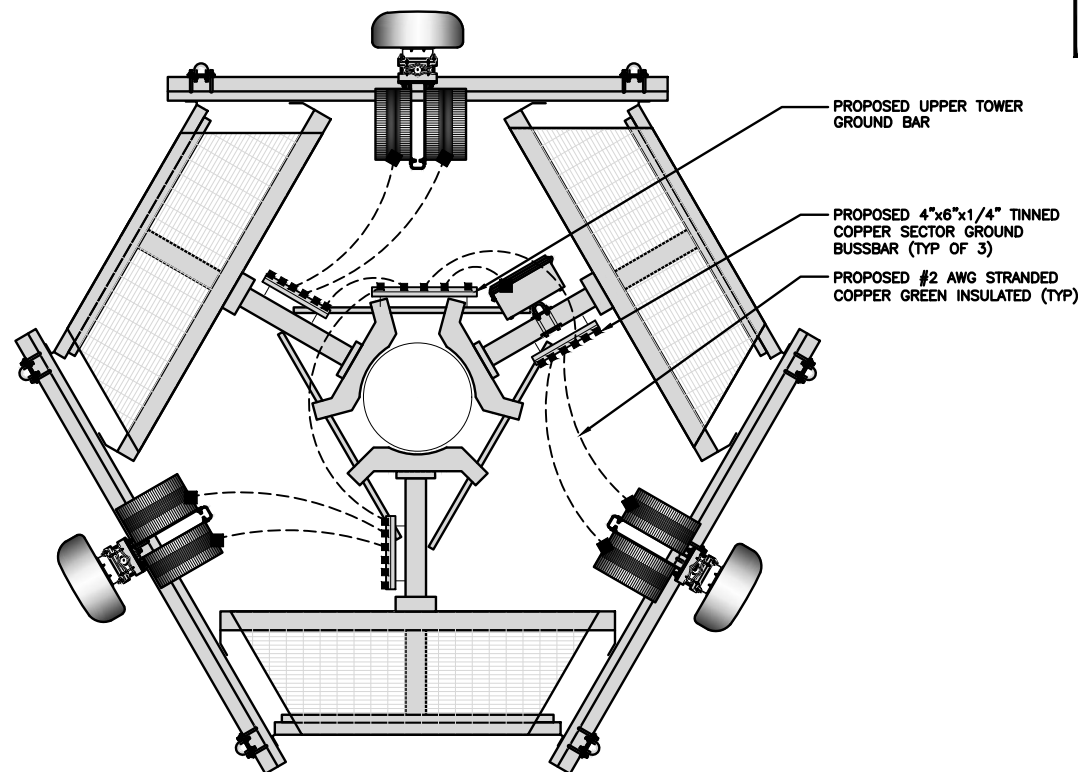


TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1

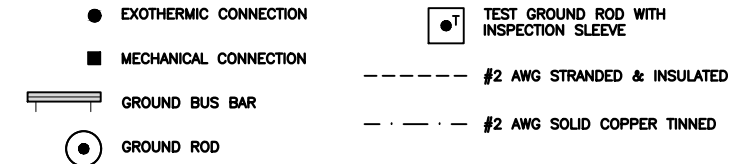
NOTES

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2



GROUNDING LEGEND

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

GROUNDING KEY NOTES

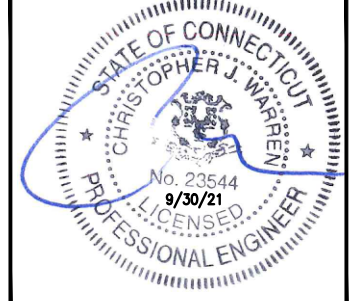
- (A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.
- (B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.
- (C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.
- (D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.
- (E) GROUND ROD: UL LISTED COPPER CLAD STEEL MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.
- (F) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.
- (G) HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.
- (H) EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.
- (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, LLC. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE 3



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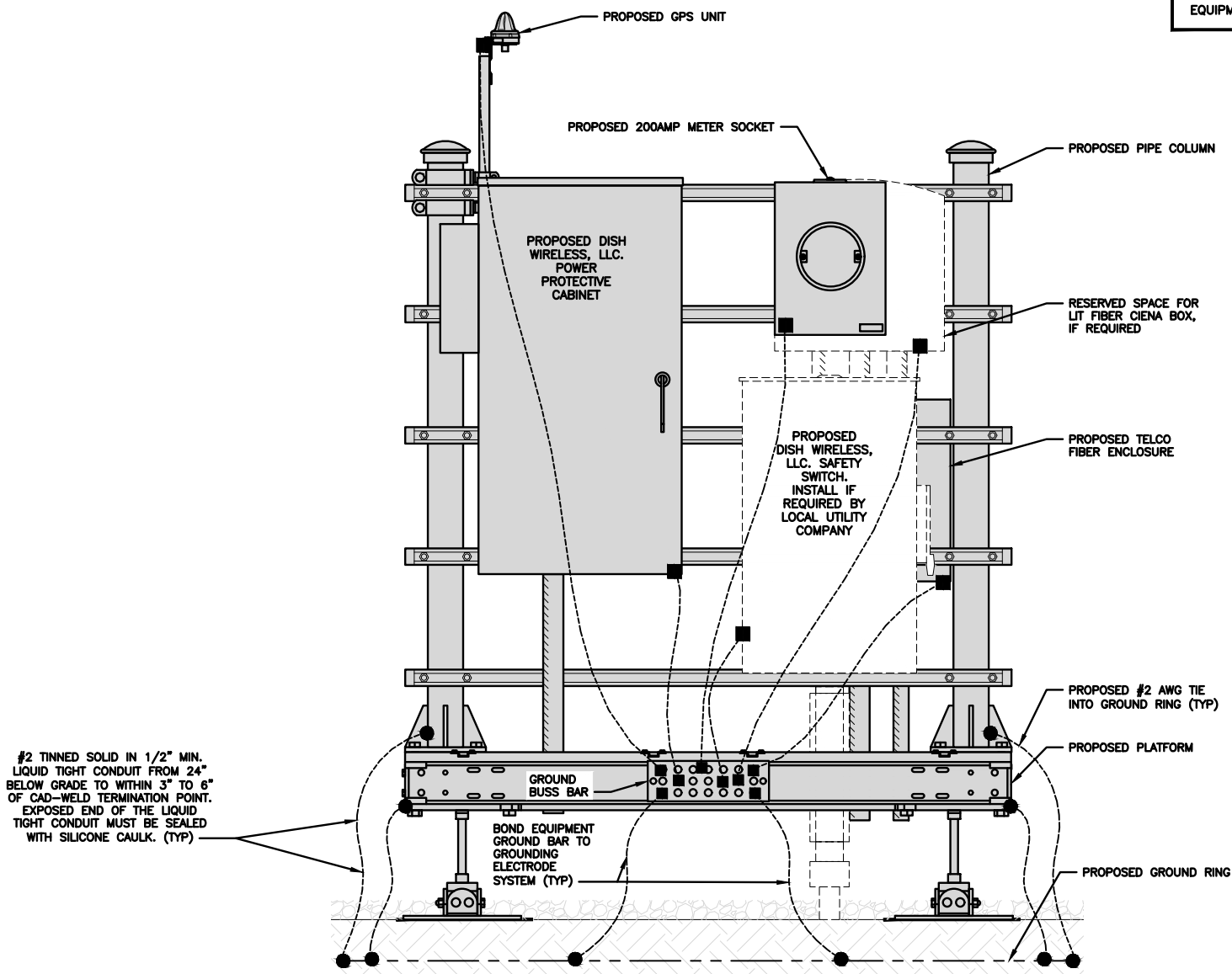
A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00103A
HALL HILL ROAD
248 HALL HILL ROAD
SOMERS, CT 6071

SHEET TITLE
GROUNDING PLANS
AND NOTES

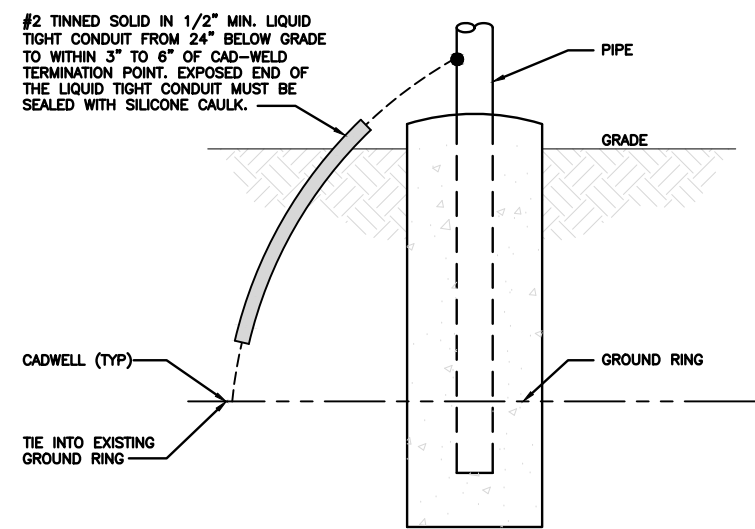
SHEET NUMBER

G-1



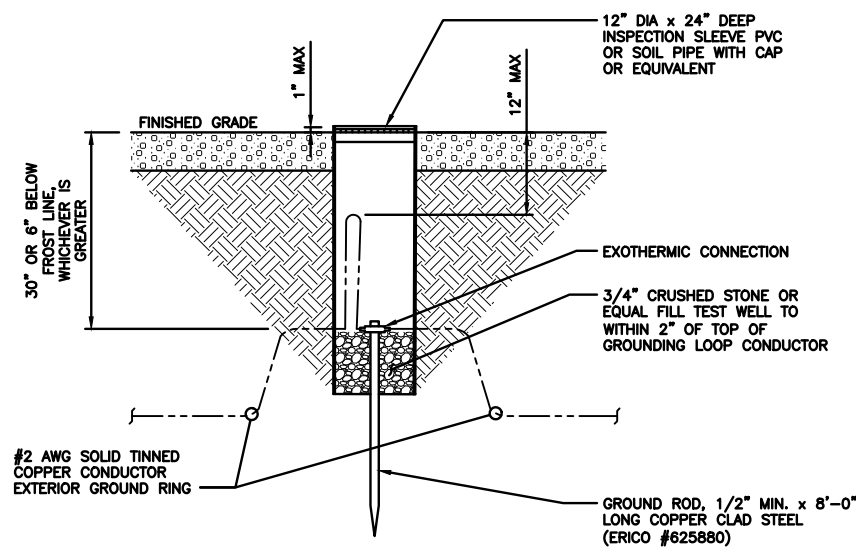
H-FRAME GROUNDING DETAIL

NO SCALE 1



TRANSITIONING GROUND DETAIL

NO SCALE 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

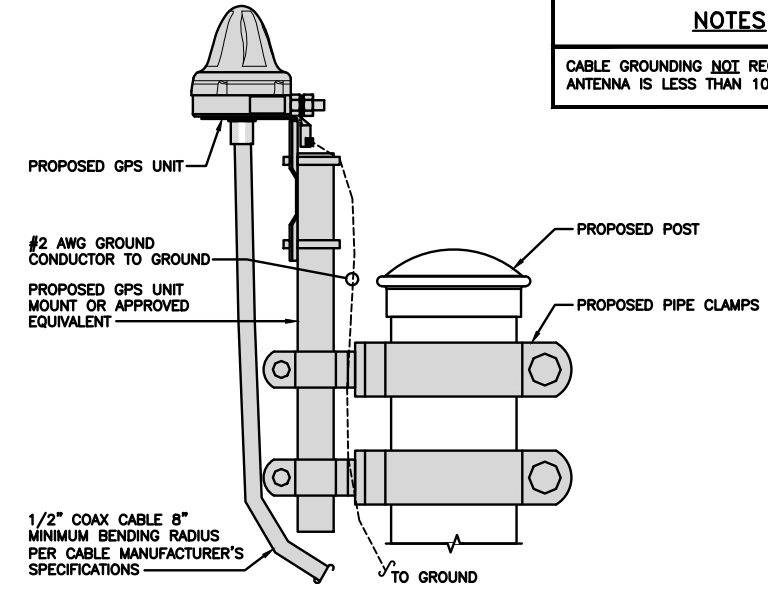
NO SCALE 5

NOTES

EQUIPMENT CABINET OMITTED FOR CLARITY

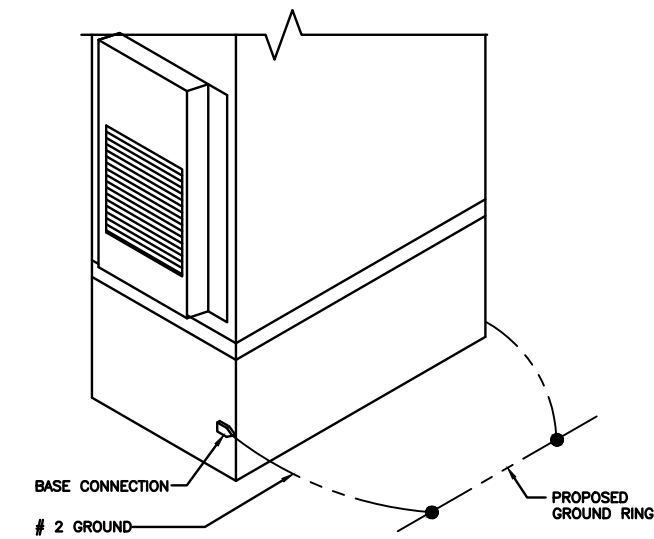
NOTES

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



TYPICAL GPS UNIT GROUNDING

NO SCALE 2

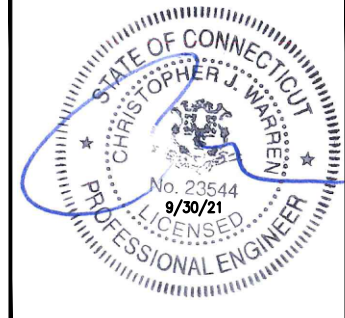


OUTDOOR CABINET GROUNDING

NO SCALE 3



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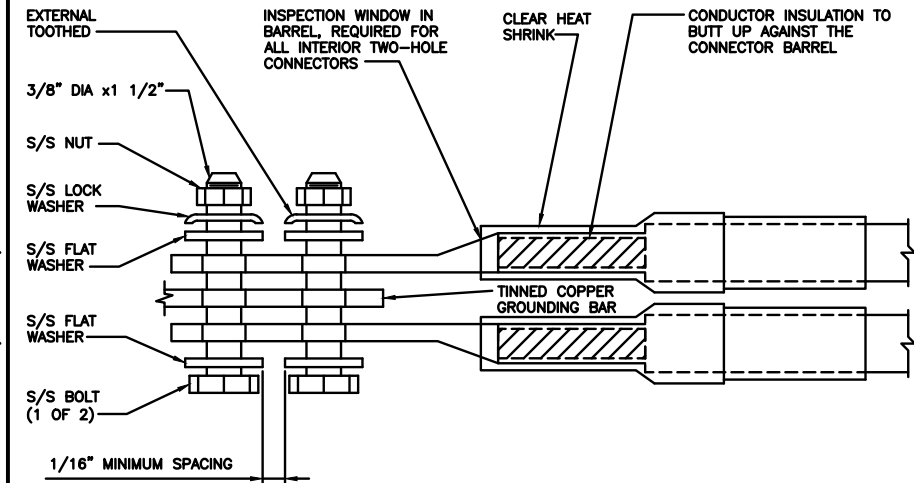
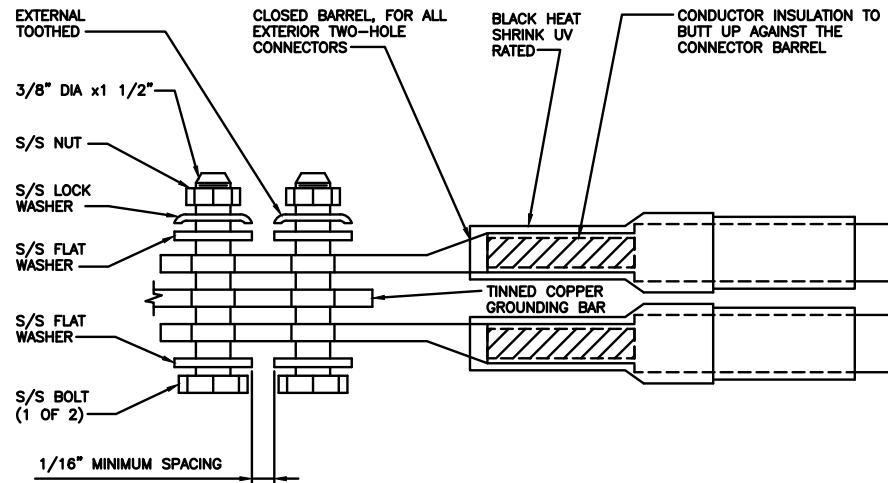
SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-2

NOT USED

NO SCALE 6

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



TYPICAL GROUNDING NOTES

NO SCALE

1

TYPICAL EXTERIOR TWO HOLE LUG

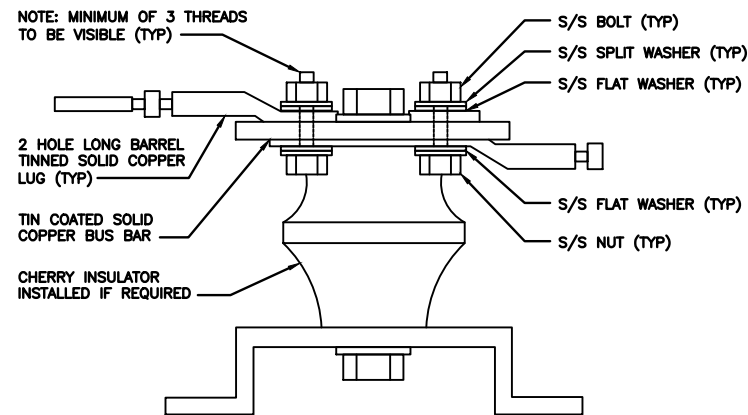
NO SCALE

2

TYPICAL INTERIOR TWO HOLE LUG

NO SCALE

3



LUG DETAIL

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

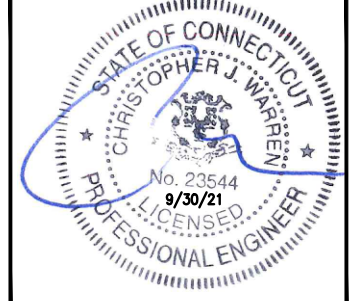
9

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SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

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

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

ALPHA RRH				BETA RRH				GAMMA RRH			
PORT 1 + SLANT	PORT 2 + SLANT	PORT 3 + SLANT	PORT 4 + SLANT	PORT 1 + SLANT	PORT 2 + SLANT	PORT 3 + SLANT	PORT 4 + SLANT	PORT 1 + SLANT	PORT 2 + SLANT	PORT 3 + SLANT	PORT 4 + SLANT
RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN
ORANGE	ORANGE	RED	RED	ORANGE	ORANGE	BLUE	BLUE	ORANGE	ORANGE	GREEN	GREEN
	WHITE (1) PORT	ORANGE	ORANGE		WHITE (1) PORT	ORANGE	ORANGE		WHITE (1) PORT	ORANGE	ORANGE
			WHITE (1) PORT				WHITE (1) PORT				WHITE (1) PORT

MID-BAND RRH -
(AWS BANDS N66+N70)

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

RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN
PURPLE	PURPLE	RED	RED	PURPLE	PURPLE	BLUE	BLUE	PURPLE	PURPLE	GREEN	GREEN
	WHITE (1) PORT	PURPLE	PURPLE		WHITE (1) PORT	PURPLE	PURPLE		WHITE (1) PORT	PURPLE	PURPLE
			WHITE (1) PORT				WHITE (1) PORT				WHITE (1) PORT

HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED AM
LONG WITH FREQUENCY BANDS

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

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

EXAMPLE 1	EXAMPLE 2
RED	RED
BLUE	BLUE
GREEN	GREEN
ORANGE	YELLOW
PURPLE	

HYBRID/DISCREET CABLES

LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	LOW BAND RRH	LOW BAND RRH	LOW BAND RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
	PURPLE		PURPLE		PURPLE

POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY

LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	LOW BAND RRH	LOW BAND RRH	LOW BAND RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
	PURPLE		PURPLE		PURPLE

RET MOTORS AT ANTENNAS

PORT 1/ ANTENNA 1 "IN"	PORT 1/ ANTENNA 1 "IN"	PORT 1/ ANTENNA 1 "IN"
RED	BLUE	GREEN

MICROWAVE RADIO LINKS

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

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

PRIMARY	SECONDARY
WHITE	WHITE
RED	RED
WHITE	WHITE
	RED
	WHITE

RF CABLE COLOR CODES

NO SCALE 1

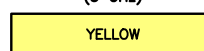
LOW BANDS (N71-N28)
OPTIONAL - (N29)



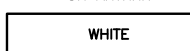
AWS
(N65+N70+H-BLOCK)



CBRS TECH
(3 GHz)



NEGATIVE SLANT PORT
ON ANTRRH



ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR



COLOR IDENTIFIER

NO SCALE 2

NOT USED

NO SCALE 3

NOT USED

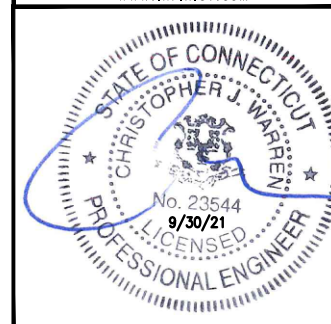
NO SCALE 4



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DRAWN BY: CHECKED BY: APPROVED BY:
RCD SS CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

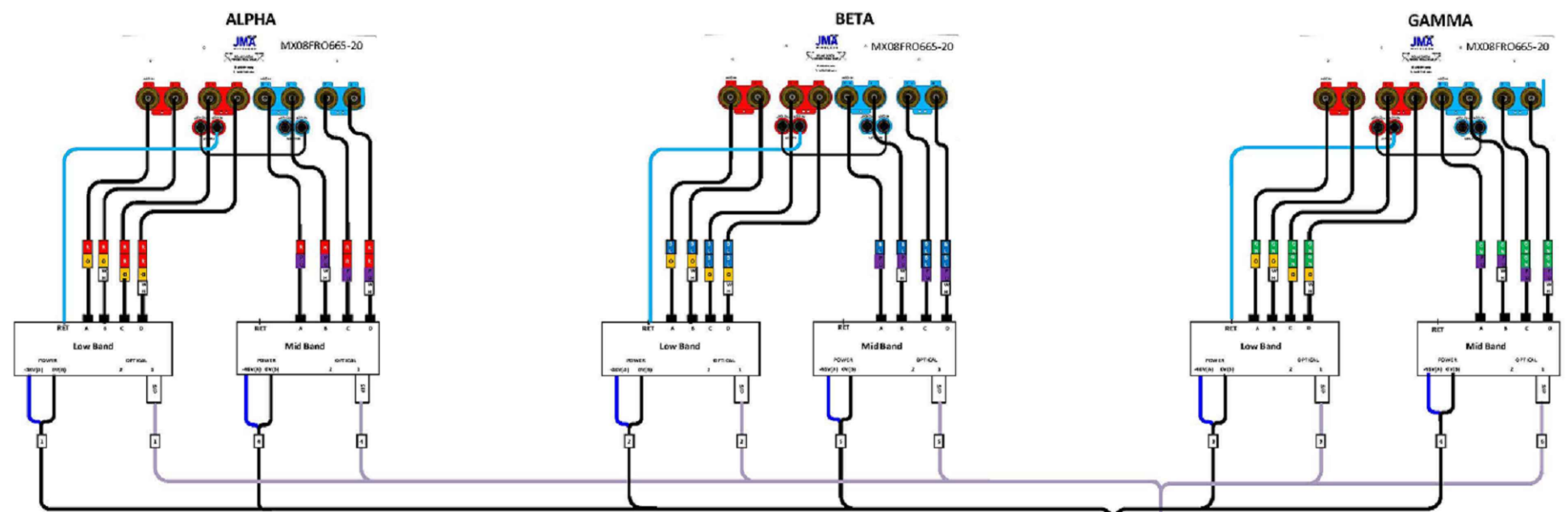
SUBMITTALS		
REV	DATE	DESCRIPTION
0	08/31/21	ISSUED FOR PERMIT
1	09/30/21	REVISED PER RFDS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00103A
HALL HILL ROAD
248 HALL HILL ROAD
SOMERS, CT 6071

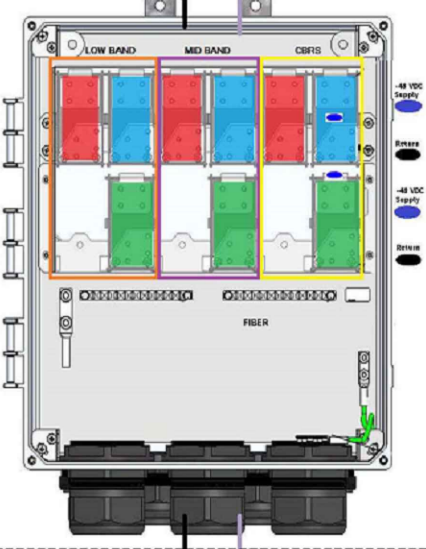
SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1



Fiber Patch Panel

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

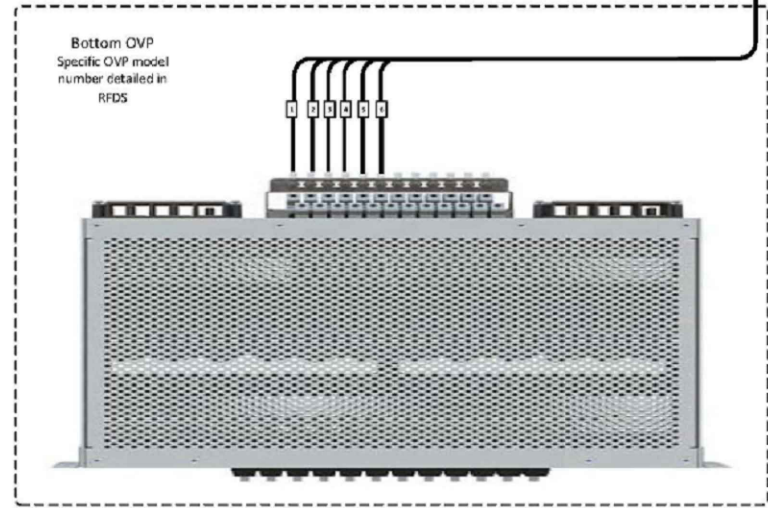


CSR NCS540

Port	Interface	Description
0	G0/0/0/0	StnBloss
1	G0/0/0/1	CBRS - Alpha
2	G0/0/0/2	CBRS - Beta
3	G0/0/0/3	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	CBRS 1
15	Te0/0/0/15	CBRS 2
16	Te0/0/0/16	CBRS 3
17	G0/0/0/17	SM1 - BMC
18	G0/0/0/18	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 NUJ
27	Te0/0/0/27	Fiber NUJ
28	Te0/0/0/28	Blank/Future
29	Te0/0/0/29	Blank/Future

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



5G plumbing diagram JMA MX08FRO665-20
2-2-Z(LB-MB)

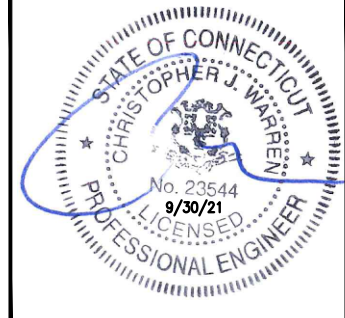
Quesada	JR	REV NO	DATE	REV
				3
5-Jan-2022	RFDS	RFDS		



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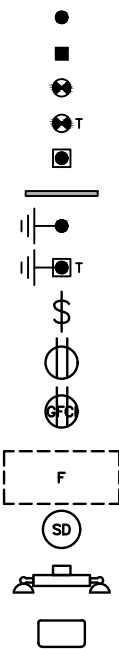
SHEET TITLE
RF
PLUMBING DIAGRAM

SHEET NUMBER
RF-2

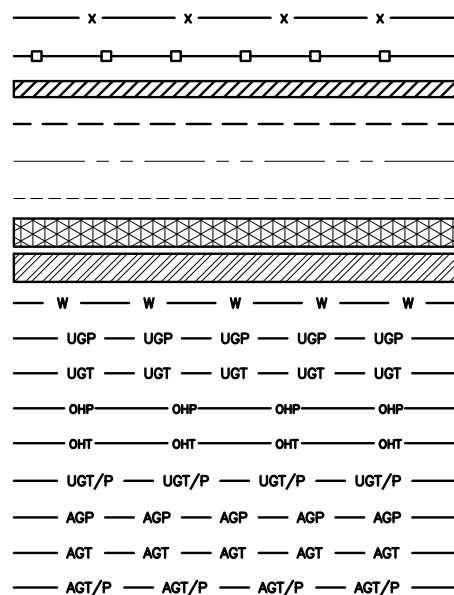
PLUMBING DIAGRAM

NO SCALE 1

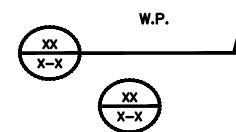
EXOTHERMIC CONNECTION
 MECHANICAL CONNECTION
 CHEMICAL ELECTROLYTIC GROUNDING SYSTEM
 TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM
 EXOTHERMIC WITH INSPECTION SLEEVE
 GROUNDING BAR
 GROUND ROD
 TEST GROUND ROD WITH INSPECTION SLEEVE
 SINGLE POLE SWITCH
 DUPLEX RECEPTACLE
 DUPLEX GFCI RECEPTACLE
 FLUORESCENT LIGHTING FIXTURE
 (2) TWO LAMPS 48-T8
 SMOKE DETECTION (DC)
 EMERGENCY LIGHTING (DC)
 SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW
 LED-1-25A400/51K-SR4-120-PE-DEBTD



CHAIN LINK FENCE
 WOOD/WROUGHT IRON FENCE
 WALL STRUCTURE
 LEASE AREA
 PROPERTY LINE (PL)
 SETBACKS
 ICE BRIDGE
 CABLE TRAY
 WATER LINE
 UNDERGROUND POWER
 UNDERGROUND TELCO
 OVERHEAD POWER
 OVERHEAD TELCO
 UNDERGROUND TELCO/POWER
 ABOVE GROUND POWER
 ABOVE GROUND TELCO
 ABOVE GROUND TELCO/POWER
 WORKPOINT



SECTION REFERENCE
 DETAIL REFERENCE



LEGEND

AB ANCHOR BOLT
 ABV ABOVE
 AC ALTERNATING CURRENT
 ADDL ADDITIONAL
 AFF ABOVE FINISHED FLOOR
 AFG ABOVE FINISHED GRADE
 AGL ABOVE GROUND LEVEL
 AIC AMPERAGE INTERRUPTION CAPACITY
 ALUM ALUMINUM
 ALT ALTERNATE
 ANT ANTENNA
 APPROX APPROXIMATE
 ARCH ARCHITECTURAL
 ATS AUTOMATIC TRANSFER SWITCH
 AWG AMERICAN WIRE GAUGE
 BATT BATTERY
 BLDG BUILDING
 BLK BLOCK
 BLKG BLOCKING
 BM BEAM
 BTC BARE TINNED COPPER CONDUCTOR
 BOF BOTTOM OF FOOTING
 CAB CABINET
 CANT CANTILEVERED
 CHG CHARGING
 CLG CEILING
 CLR CLEAR
 COL COLUMN
 COMM COMMON
 CONC CONCRETE
 CONSTR CONSTRUCTION
 DBL DOUBLE
 DC DIRECT CURRENT
 DEPT DEPARTMENT
 DF DOUGLAS FIR
 DIA DIAMETER
 DIAG DIAGONAL
 DIM DIMENSION
 DWG DRAWING
 DWL DOWEL
 EA EACH
 EC ELECTRICAL CONDUCTOR
 EL ELEVATION
 ELEC ELECTRICAL
 EMT ELECTRICAL METALLIC TUBING
 ENG ENGINEER
 EQ EQUAL
 EXP EXPANSION
 EXT EXTERIOR
 EW EACH WAY
 FAB FABRICATION
 FF FINISH FLOOR
 FG FINISH GRADE
 FIF FACILITY INTERFACE FRAME
 FIN FINISH(ED)
 FLR FLOOR
 FDN FOUNDATION
 FOC FACE OF CONCRETE
 FOM FACE OF MASONRY
 FOS FACE OF STUD
 FOW FACE OF WALL
 FS FINISH SURFACE
 FT FOOT
 FTG FOOTING
 GA GAUGE
 GEN GENERATOR
 GFCI GROUND FAULT CIRCUIT INTERRUPTER
 GLB GLUE LAMINATED BEAM
 GLV GALVANIZED
 GPS GLOBAL POSITIONING SYSTEM
 GND GROUND
 GSM GLOBAL SYSTEM FOR MOBILE
 HDG HOT DIPPED GALVANIZED
 HDR HEADER
 HGR HANGER
 HVAC HEAT/VENTILATION/AIR CONDITIONING
 HT HEIGHT
 IGR INTERIOR GROUND RING

IN INCH
 INT INTERIOR
 LB(S) POUND(S)
 LF LINEAR FEET
 LTE LONG TERM EVOLUTION
 MAS MASONRY
 MAX MAXIMUM
 MB MACHINE BOLT
 MECH MECHANICAL
 MFR MANUFACTURER
 MGB MASTER GROUND BAR
 MIN MINIMUM
 MISC MISCELLANEOUS
 MTL METAL
 MTS MANUAL TRANSFER SWITCH
 MW MICROWAVE
 NEC NATIONAL ELECTRIC CODE
 NM NEWTON METERS
 NO. NUMBER
 # NUMBER
 NTS NOT TO SCALE
 OC ON-CENTER
 OSHA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
 OPNG OPENING
 P/C PRECAST CONCRETE
 PCS PERSONAL COMMUNICATION SERVICES
 PCU PRIMARY CONTROL UNIT
 PRC PRIMARY RADIO CABINET
 PP POLARIZING PRESERVING
 PSF POUNDS PER SQUARE FOOT
 PSI POUNDS PER SQUARE INCH
 PT PRESSURE TREATED
 PWR POWER CABINET
 QTY QUANTITY
 RAD RADIUS
 RECT RECTIFIER
 REF REFERENCE
 REINF REINFORCEMENT
 REQ'D REQUIRED
 RET REMOTE ELECTRIC TILT
 RF RADIO FREQUENCY
 RMC RIGID METALLIC CONDUIT
 RRH REMOTE RADIO HEAD
 RRU REMOTE RADIO UNIT
 RWY RACEWAY
 SCH SCHEDULE
 SHT SHEET
 SIAD SMART INTEGRATED ACCESS DEVICE
 SIM SIMILAR
 SPEC SPECIFICATION
 SQ SQUARE
 SS STAINLESS STEEL
 STD STANDARD
 STL STEEL
 TEMP TEMPORARY
 THK THICKNESS
 TMA TOWER MOUNTED AMPLIFIER
 TN TOE NAIL
 TOA TOP OF ANTENNA
 TOC TOP OF CURB
 TOF TOP OF FOUNDATION
 TOP TOP OF PLATE (PARAPET)
 TOS TOP OF STEEL
 TOW TOP OF WALL
 TVSS TRANSIENT VOLTAGE SURGE SUPPRESSION
 TYP TYPICAL
 UG UNDERGROUND
 UL UNDERWRITERS LABORATORY
 UNO UNLESS NOTED OTHERWISE
 UMTS UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
 UPS UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
 VIF VERIFIED IN FIELD
 W WIDE
 W/ WITH
 WD WOOD
 WP WEATHERPROOF
 WT WEIGHT

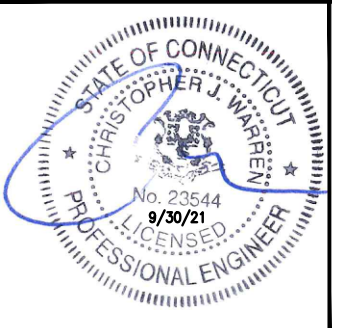
ABBREVIATIONS

dish
 wireless.

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DRAWN BY: RCD CHECKED BY: SS APPROVED BY: CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS		
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1	09/30/21	REVISED PER RFDS

A&E PROJECT NUMBER
 1197-F0001-C

DISH WIRELESS, LLC.
 PROJECT INFORMATION
 BOBDL00103A
 HALL HILL ROAD
 248 HALL HILL ROAD
 SOMERS, CT 6071

SHEET TITLE
 LEGEND AND ABBREVIATIONS

SHEET NUMBER
GN-1

SITE ACTIVITY REQUIREMENTS:

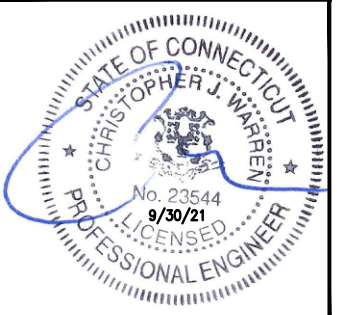
1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH WIRELESS, LLC. AND TOWER OWNER NOC & THE DISH WIRELESS, LLC. AND TOWER OWNER CONSTRUCTION MANAGER.
2. "LOOK UP" – DISH WIRELESS, LLC. 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, LLC. AND DISH WIRELESS, LLC. 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, LLC. 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, LLC. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH WIRELESS, LLC. 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, LLC. 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, LLC. 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, LLC.
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, LLC. AND TOWER OWNER
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.



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CONSTRUCTION DOCUMENTS

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REV	DATE	DESCRIPTION
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1	09/30/21	REVISED PER RFDS

A&E PROJECT NUMBER
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DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00103A
HALL HILL ROAD
248 HALL HILL ROAD
SOMERS, CT 6071

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
 - 4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
 - 4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. TIE WRAPS ARE NOT ALLOWED.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

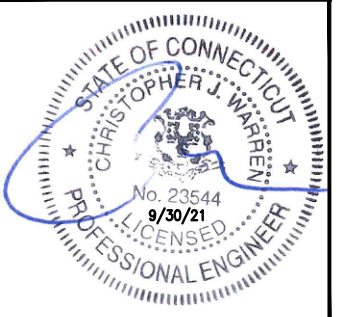
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH WIRELESS, LLC. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH WIRELESS, LLC."
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.



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0	08/31/21	ISSUED FOR PERMIT
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A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00103A
HALL HILL ROAD
248 HALL HILL ROAD
SOMERS, CT 6071

SHEET TITLE
GENERAL NOTES

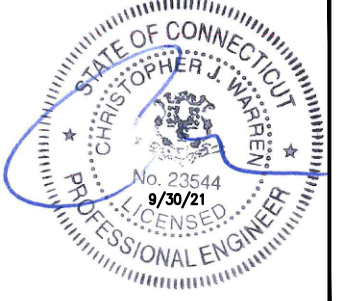
SHEET NUMBER
GN-3

GROUNDING NOTES:

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



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PROJECT INFORMATION
BOBDL00103A
HALL HILL ROAD
248 HALL HILL ROAD
SOMERS, CT 6071

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4

Exhibit D

Structural Analysis Report

Dish Wireless

Structural Analysis Report

Structure : 179 Foot Monopole
VB Site Name : Blue Ridge
VB Site Number : US-CT-5017
VB Deal Number : P-006913
Proposed Carrier : Dish Wireless LLC
Carrier Site Name : BOBDL00103A
Carrier Site Number : BOBDL00103A
Site Location : 248 Hall Hill Road
Somers, CT 06071 (Tolland County)
42.0026, -72.4850
Date : May 21, 2021
Max Member Stress Level : 43% (Foundation)
40% (Tower)
Result : **PASS**



05/21/2021 10:46:27 AM

Prepared by:



VERTICAL BRIDGE ENGINEERING, LLC

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Calculations..... Attached

Collocation Application Attached

Introduction

We have completed our structural analysis of the proposed equipment installation on the foregoing tower to determine its ability to support the new loads proposed by **Dish Wireless**. The objective of the analysis was to determine if the tower meets the current structural codes and standards with the proposed equipment installation.

Existing Structural Information

The following documents for the existing structure were made available for our structural analysis.

Tower Information	Sabre Tower Calculations Job No. 18-6446-JDS, dated April 6, 2018
Foundation Information	Sabre Foundation Calculations Job No. 18-6446-JDS, dated April 6, 2018
Geotechnical Information	Delta Oaks Geotechnical Report Job No. GEO17-01159-08 Rev. 0, dated July 18, 2017
Equipment Information	Vertical Bridge Collocation Application Version 4
Tower Reinforcement Information	This tower has not been previously modified.

Final Proposed Equipment Loading for Dish Wireless

The following proposed loading was obtained from the Vertical Bridge Collocation Application:

Antenna/Equipment					Coax	
Mount (Ft.)	RAD (Ft.)	Qty.	Antenna	Type	Qty.	Size/Type
155.0	-	1	Site Pro 1 SNP8HR-396	Mount	1	1.75” Hybrid
	155.0	3	JMA MX08FRO665-20	Panel		
		3	Fujitsu TA08025-B604	RRU		
		3	Fujitsu TA08025-B605	RRU		
		1	Raycap RDIDC-9181-PF-48	OVP		

Note: Proposed equipment shown in bold.

Note: Other existing loading can be found on the tower profile attached.

Note: The remainder of Dish’s reserve rights have been considered.

Design Criteria

The tower was analyzed using tnxTower (Version 8.0.9.0) tower analysis software using the following design criteria.

State	Connecticut
City/County Building Code	Tolland County (IBC 2018)
TIA/EIA Standard Code	TIA-222-H
Basic Wind Speed	116 MPH (V_{ult})
Basic Wind Speed w/ Ice	50 MPH w/ 1.5" Ice
Steel Grade	65 ksi Pole / 50 ksi Baseplate / A615-75 ksi Anchor Rods
Exposure Category	C
Topographic Category (height)	1 (0.0 Ft.)
Risk Category	II
Ground Elevation	234.15 Ft.
S_s	0.173
Seismic Design Category	B

Analysis Results

Based on the foregoing information, our structural analysis determined that **the existing tower is structurally capable of supporting the proposed equipment loads without modification.** The existing baseplate, anchor rods and base foundation have also been evaluated and **are structurally capable of supporting the proposed equipment loads.** A **seismic analysis** has been performed on this structure and **does not control.**

Assumptions

The below assumptions are true, complete, and accurate.

1. The existing tower has been maintained to manufacturer's specifications and is in good condition.
2. Foundations are considered to have been properly designed for the original design loads.
3. All member connections are considered to have been designed to meet the load carrying capacity of the connected member.
4. Antenna mount loads have been estimated based on generally accepted industry standards.
5. The mounts for the proposed antennas have been analyzed and designed by others.
6. See additional assumptions contained in the report attached.
7. Due to the utilization of Annex-S reliability factors, the structure is within acceptable engineering tolerances at 100%.

Conclusions

The existing tower described above **does have sufficient capacity** to support the proposed loading based on the governing Building Code. The existing baseplate, anchor rods, and base foundation have also been evaluated and are acceptable. A **seismic analysis** has been performed on this structure and **does not control**.

We appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance please call us anytime at 561-948-6367.

Sincerely,

Analysis by:



Jeremy Hesson, EIT
Design Engineer II

Reviewed by:



Michael T. De Boer, PE 05/21/2021 10:46:31 AM
Vice President of Structural Engineering

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but not necessarily limited, to:

- Information supplied by the client regarding the structure itself, the antenna and transmission line loading on the structure and its components, or relevant information.
- Information from drawings in possession of Vertical Bridge Engineering, LLC, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Vertical Bridge Engineering, LLC and used in the performance of our engineering services is correct and complete. In the absence of information contrary, we consider that all structures were constructed in accordance with the drawings and specifications and are in a un-corroded condition and have not deteriorated; and we, therefore consider that their capacity has not significantly changed from the original design condition.

All services will be performed to the codes and standards specified by the client, and we do not imply to meet any other code and standard requirements unless explicitly agreed to in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes and standards, the client shall specify the exact requirements. In the absence of information to the contrary, all work will be performed in accordance with the revision of ANSI/TIA/EIA-222-H requested.

All services are performed, results obtained and recommendations made in accordance with the generally accepted engineering principles and practices. Vertical Bridge Engineering LLC, is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

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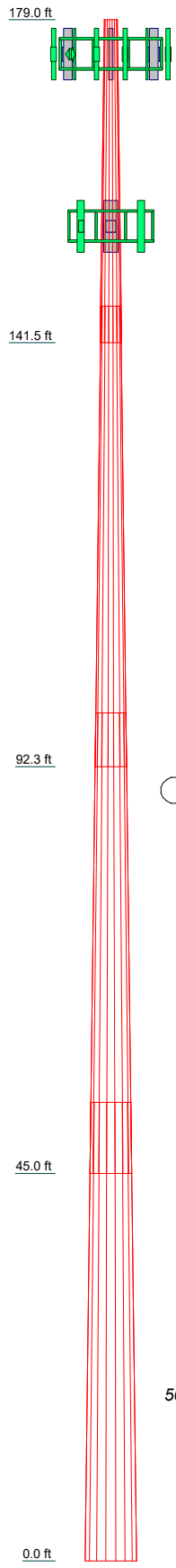
The engineering services by Vertical Bridge Engineering, LLC in connection with this Structural Analysis are limited to a computer analysis of the tower structure, size and capacity of its members. Vertical Bridge Engineering, LLC does not analyze the fabrication, including welding, except as may be expressly included in this report.

The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines. Any mention of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from Vertical Bridge Engineering, LLC but are beyond the scope of this report.

Vertical Bridge Engineering, LLC makes no warranties, express or implied, in connection with this report and disclaims any liability arising from material, fabrication and erection of this tower, or installation and compliance with legal and permitting requirements of the proposed equipment. Vertical Bridge Engineering, LLC will not be responsible whatsoever for or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of Vertical Bridge Engineering, LLC pursuant to this report will be limited to the total fee received for preparation of this report.

Attachment 1: Calculations

Section	1	2	3	4	
Length (ft)	37.500	53.500	53.500	53.250	
Number of Sides	18	18	18	18	
Thickness (in)	0.2500	0.3750	0.4375	0.4375	
Socket Length (ft)	4.250	6.250	8.250		
Top Dia (in)	18.7500	28.4733	42.2575	55.2895	
Bot Dia (in)	30.2800	44.9300	58.7000	71.6700	
Grade			A572-65		
Weight (K)	2.5	7.9	12.7	15.9	38.8



DESIGNED APPURTENANCE LOADING

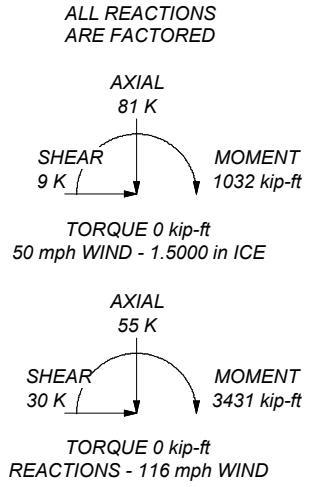
TYPE	ELEVATION	TYPE	ELEVATION
Sector Frames (TMO)	175	MX08FRO665-20_V0F w/ MP (72x20x8) (Dish)	155
APXV18-206517S-C w/ Mount Pipe (TMO)	175	MX08FRO665-20_V0F w/ MP (72x20x8) (Dish)	155
APXV18-206517S-C w/ Mount Pipe (TMO)	175	TA08025-B604 (15.75x14.96x7.87) (Dish)	155
APXV18-206517S-C w/ Mount Pipe (TMO)	175	TA08025-B604 (15.75x14.96x7.87) (Dish)	155
(2) LNX-6515DS-A1M w/ pipe mount (TMO)	175	TA08025-B604 (15.75x14.96x7.87) (Dish)	155
(2) LNX-6515DS-A1M w/ pipe mount (TMO)	175	TA08025-B605 (15.75x14.96x9.06) (Dish)	155
(2) LNX-6515DS-A1M w/ pipe mount (TMO)	175	TA08025-B605 (15.75x14.96x9.06) (Dish)	155
(2) RRUS 11 (TMO)	175	TA08025-B605 (15.75x14.96x9.06) (Dish)	155
(2) RRUS 11 (TMO)	175	RDIDC-9181-PF-48 (16x14x8) (Dish)	155
(2) RRUS 11 (TMO)	175	1/3 Remaining Reserve Rights (Dish)	155
1/3 Remaining Reserve Rights (TMO)	175	1/3 Remaining Reserve Rights (Dish)	155
1/3 Remaining Reserve Rights (TMO)	175	1/3 Remaining Reserve Rights (Dish)	155
VHLP1-23 (TMO)	175	1/3 Remaining Reserve Rights (Dish)	155
MX08FRO665-20_V0F w/ MP (72x20x8) (Dish)	155	SNP8HR-3xx (0.67 Ka included) (Dish)	155

MATERIAL STRENGTH

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

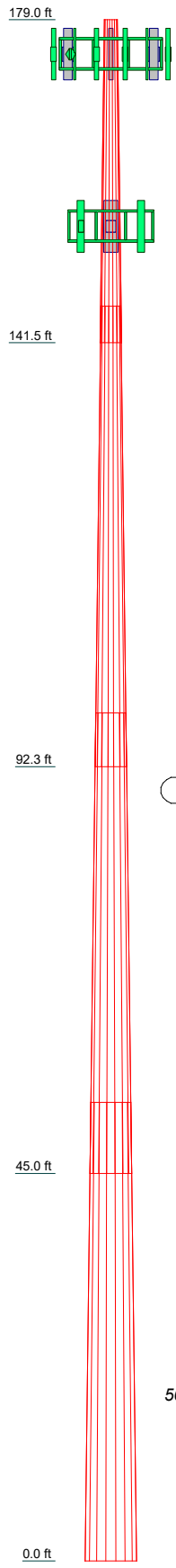
TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-H Standard.
2. Tower designed for a 116 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.000 ft
7. TOWER RATING: 40.3%



Vertical Bridge REIT, LLC		Job: US-CT-5017	
750 Park of Commerce Dr. Suite 200		Project: Monopole Structural Analysis	
Boca Raton, FL 33487		Client: Vertical Bridge	Drawn by: JHesson
Phone: 561-948-6367		Code: TIA-222-H	Date: 05/20/21
FAX:		Path:	Scale: NTS
		Dwg No. E-1	

Section	1	2	3	4	
Length (ft)	37.500	53.500	53.500	53.250	
Number of Sides	18	18	18	18	
Thickness (in)	0.2500	0.3750	0.4375	0.4375	
Socket Length (ft)	4.250	6.250	8.250		
Top Dia (in)	18.7500	28.4733	42.2575	55.2895	
Bot Dia (in)	30.2800	44.9300	58.7000	71.6700	
Grade			A572-65		
Weight (K)	2.5	7.9	12.7	15.9	38.8

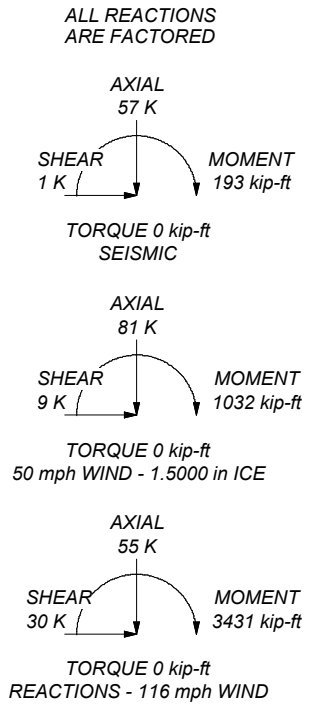


MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-H Standard.
2. Tower designed for a 116 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.000 ft
7. CCISeismic Note: Seismic loads generated by CCISeismic 3.3.6
8. CCISeismic Note: Seismic calculations are in accordance with TIA-222-H-1
9. TOWER RATING: 40.3%



Vertical Bridge REIT, LLC
 750 Park of Commerce Dr. Suite 200
 Boca Raton, FL 33487
 Phone: 561-948-6367
 FAX:

Job:	US-CT-5017		
Project:	Monopole Structural Analysis		
Client:	Vertical Bridge	Drawn by:	JHesson
Code:	TIA-222-H	Date:	05/20/21
Path:		Scale:	NTS
		Dwg No.:	E-1

tnxTower Vertical Bridge REIT, LLC 750 Park of Commerce Dr. Suite 200 Boca Raton, FL 33487 Phone: 561-948-6367 FAX:	Job	US-CT-5017	Page	1 of 32
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	Client	Vertical Bridge	Designed by	JHesson

Tower Input Data

The tower is a monopole.

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

The following design criteria apply:

- Tower base elevation above sea level: 234.150 ft.
- Basic wind speed of 116 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.000 ft.
- Nominal ice thickness of 1.5000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56.000 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50.000 °F.
- Deflections calculated using a wind speed of 60 mph.
- CCISEismic Note: Seismic loads generated by CCISEismic 3.3.6.
- CCISEismic Note: Seismic calculations are in accordance with TIA-222-H-1.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$, $K_{es}(E_v \text{ and } E_h) = 1.0$.
- Maximum demand-capacity ratio is: 1.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

tnxTower Vertical Bridge REIT, LLC 750 Park of Commerce Dr. Suite 200 Boca Raton, FL 33487 Phone: 561-948-6367 FAX:	Job US-CT-5017	Page 2 of 32
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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	179.000-141.500	37.500	4.250	18	18.7500	30.2800	0.2500	1.0000	A572-65 (65 ksi)
L2	141.500-92.250	53.500	6.250	18	28.4733	44.9300	0.3750	1.5000	A572-65 (65 ksi)
L3	92.250-45.000	53.500	8.250	18	42.2575	58.7000	0.4375	1.7500	A572-65 (65 ksi)
L4	45.000-0.000	53.250		18	55.2895	71.6700	0.4375	1.7500	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	I ² /Q in ²	w in	w/t
L1	19.0007	14.6798	634.7454	6.5675	9.5250	66.6399	1270.3260	7.3413	2.8600	11.44
	30.7086	23.8288	2714.8784	10.6607	15.3822	176.4943	5433.3291	11.9167	4.8893	19.557
L2	30.1821	33.4440	3335.9094	9.9749	14.4644	230.6286	6676.2082	16.7252	4.3513	11.603
	45.5653	53.0316	13300.4086	15.8170	22.8244	582.7266	26618.3183	26.5208	7.2477	19.327
L3	44.7924	58.0723	12831.3992	14.8461	21.4668	597.7322	25679.6823	29.0417	6.6673	15.24
	59.5381	80.9048	34696.8284	20.6832	29.8196	1163.5578	69439.3117	40.4601	9.5612	21.854
L4	58.6519	76.1688	28953.3731	19.4725	28.0871	1030.8442	57944.8438	38.0916	8.9609	20.482
	72.7081	98.9152	63409.8886	25.2875	36.4084	1741.6299	126903.213	49.4670	11.8439	27.072

6

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 179.000-141.500				1	1	1			
L2 141.500-92.250				1	1	1			
L3 92.250-45.000				1	1	1			
L4 45.000-0.000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
Safety Line 3/8	C	No	Surface Ar (CaAa)	179.000 - 5.000	1	1	0.000 0.000	0.3750		0.000
Step Pegs	C	No	Surface Ar (CaAa)	179.000 - 5.000	1	1	0.000 0.000	0.7500		0.002

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Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_{AA} ft ² /ft	Weight klf
*175 TMO									
1 5/8 Hybrid Flex (1.98" 1.3lbs) (TMO)	C	No	No	Inside Pole	175.000 - 8.000	3	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
LDF5-50A(7/8") (TMO)	C	No	No	Inside Pole	175.000 - 8.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
*155 Dish									
1 5/8 Hybrid Flex (1.98" 1.3lbs) (Dish)	C	No	No	Inside Pole	155.000 - 8.000	1	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
L1	179.000-141.500	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	4.219	0.000	0.224
L2	141.500-92.250	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	5.541	0.000	0.357
L3	92.250-45.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	5.316	0.000	0.343
L4	45.000-0.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	4.500	0.000	0.273

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
L1	179.000-141.500	A	1.492	0.000	0.000	0.000	0.000	0.000

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Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	26.599	0.000	0.505
L2	141.500-92.250	A	1.445	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	34.933	0.000	0.726
L3	92.250-45.000	A	1.370	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	32.629	0.000	0.678
L4	45.000-0.000	A	1.228	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	26.428	0.000	0.532

Feed Line Center of Pressure

Section	Elevation ft	CP_x in	CP_z in	CP_x Ice in	CP_z Ice in
L1	179.000-141.500	0.0000	0.8705	0.0000	2.5470
L2	141.500-92.250	0.0000	0.8841	0.0000	2.8107
L3	92.250-45.000	0.0000	0.8913	0.0000	2.9054
L4	45.000-0.000	0.0000	0.7887	0.0000	2.5612

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

Shielding Factor K_a

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	1	Safety Line 3/8	141.50 - 179.00	1.0000	1.0000
L1	2	Step Pegs	141.50 - 179.00	1.0000	1.0000
L2	1	Safety Line 3/8	92.25 - 141.50	1.0000	1.0000
L2	2	Step Pegs	92.25 - 141.50	1.0000	1.0000
L3	1	Safety Line 3/8	45.00 - 92.25	1.0000	1.0000
L3	2	Step Pegs	45.00 - 92.25	1.0000	1.0000
L4	1	Safety Line 3/8	5.00 - 45.00	1.0000	1.0000
L4	2	Step Pegs	5.00 - 45.00	1.0000	1.0000

User Defined Loads - Seismic

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	Client	Vertical Bridge	Designed by	JHesson

Description	Elevation	Offset From Centroid	Azimuth Angle	E_v	E_{hx}	E_{hz}	E_h
	ft	ft	°	K	K	K	K
CCISeismic Tower Section 1 - 1	175.250	0.000	0.0000	0.015	0.000	0.000	0.039
CCISeismic Tower Section 1 - 2	166.500	0.000	0.0000	0.022	0.000	0.000	0.054
CCISeismic Tower Section 1 - 3	156.500	0.000	0.0000	0.025	0.000	0.000	0.054
CCISeismic Tower Section 1 - 4	146.500	0.000	0.0000	0.028	0.000	0.000	0.053
CCISeismic Tower Section 2 - 1	144.000	0.000	0.0000	0.015	0.000	0.000	0.027
CCISeismic Tower Section 2 - 2	137.250	0.000	0.0000	0.046	0.000	0.000	0.075
CCISeismic Tower Section 2 - 3	127.250	0.000	0.0000	0.051	0.000	0.000	0.071
CCISeismic Tower Section 2 - 4	117.250	0.000	0.0000	0.055	0.000	0.000	0.066
CCISeismic Tower Section 2 - 5	107.250	0.000	0.0000	0.060	0.000	0.000	0.060
CCISeismic Tower Section 2 - 6	97.250	0.000	0.0000	0.064	0.000	0.000	0.053
CCISeismic Tower Section 3 - 1	96.750	0.000	0.0000	0.026	0.000	0.000	0.021
CCISeismic Tower Section 3 - 2	90.000	0.000	0.0000	0.077	0.000	0.000	0.055
CCISeismic Tower Section 3 - 3	80.000	0.000	0.0000	0.083	0.000	0.000	0.046
CCISeismic Tower Section 3 - 4	70.000	0.000	0.0000	0.088	0.000	0.000	0.038
CCISeismic Tower Section 3 - 5	60.000	0.000	0.0000	0.094	0.000	0.000	0.029
CCISeismic Tower Section 3 - 6	50.000	0.000	0.0000	0.099	0.000	0.000	0.021
CCISeismic Tower Section 4 - 1	51.625	0.000	0.0000	0.031	0.000	0.000	0.007
CCISeismic Tower Section 4 - 2	45.000	0.000	0.0000	0.100	0.000	0.000	0.018
CCISeismic Tower Section 4 - 3	35.000	0.000	0.0000	0.105	0.000	0.000	0.011
CCISeismic Tower Section 4 - 4	25.000	0.000	0.0000	0.111	0.000	0.000	0.006
CCISeismic Tower Section 4 - 5	15.000	0.000	0.0000	0.116	0.000	0.000	0.002
CCISeismic Tower Section 4 - 6	5.000	0.000	0.0000	0.122	0.000	0.000	0.000
CCISeismic Sector Frames	175.000	0.000	0.0000	0.074	0.000	0.000	0.197
CCISeismic rfs celwave	175.000	0.000	0.0000	0.002	0.000	0.000	0.005
APXV18-206517S-C w/ Mount Pipe							
CCISeismic rfs celwave	175.000	0.000	0.0000	0.002	0.000	0.000	0.005
APXV18-206517S-C w/ Mount Pipe							
CCISeismic rfs celwave	175.000	0.000	0.0000	0.002	0.000	0.000	0.005
APXV18-206517S-C w/ Mount Pipe							
CCISeismic (2) andrew LNX-6515DS-A1M w/ pipe mount	175.000	0.000	0.0000	0.004	0.000	0.000	0.012
CCISeismic (2) andrew LNX-6515DS-A1M w/ pipe mount	175.000	0.000	0.0000	0.004	0.000	0.000	0.012
CCISeismic (2) andrew LNX-6515DS-A1M w/ pipe mount	175.000	0.000	0.0000	0.004	0.000	0.000	0.012
CCISeismic (2) ericsson RRUS 11	175.000	0.000	0.0000	0.004	0.000	0.000	0.010
CCISeismic (2) ericsson RRUS 11	175.000	0.000	0.0000	0.004	0.000	0.000	0.010
CCISeismic (2) ericsson RRUS 11	175.000	0.000	0.0000	0.004	0.000	0.000	0.010
CCISeismic 1/3 Remaining Reserve Rights	175.000	0.000	0.0000	0.010	0.000	0.000	0.026
CCISeismic 1/3 Remaining Reserve Rights	175.000	0.000	0.0000	0.010	0.000	0.000	0.026
CCISeismic 1/3 Remaining Reserve Rights	175.000	0.000	0.0000	0.010	0.000	0.000	0.026
CCISeismic site pro 1	155.000	0.000	0.0000	0.054	0.000	0.000	0.114
SNP8HR-3xx (0.67 Ka included) CCISeismic jma	155.000	0.000	0.0000	0.002	0.000	0.000	0.004
MX08FRO665-20_V0F w/ MP (72x20x8) CCISeismic jma	155.000	0.000	0.0000	0.002	0.000	0.000	0.004
MX08FRO665-20_V0F w/ MP							

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Vertical Bridge REIT, LLC 750 Park of Commerce Dr. Suite 200 Boca Raton, FL 33487 Phone: 561-948-6367 FAX:</p>	Job	US-CT-5017	Page	6 of 32
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Description	Elevation	Offset From Centroid	Azimuth Angle	E_v	E_{hx}	E_{hz}	E_h
	ft	ft	°	K	K	K	K
(72x20x8) CCISeismic jma MX08FRO665-20_V0F w/ MP	155.000	0.000	0.0000	0.002	0.000	0.000	0.004
(72x20x8) CCISeismic fujitsu TA08025-B604 (15.75x14.96x7.87)	155.000	0.000	0.0000	0.002	0.000	0.000	0.005
CCISeismic fujitsu TA08025-B604 (15.75x14.96x7.87)	155.000	0.000	0.0000	0.002	0.000	0.000	0.005
CCISeismic fujitsu TA08025-B604 (15.75x14.96x7.87)	155.000	0.000	0.0000	0.002	0.000	0.000	0.005
CCISeismic fujitsu TA08025-B605 (15.75x14.96x9.06)	155.000	0.000	0.0000	0.003	0.000	0.000	0.006
CCISeismic fujitsu TA08025-B605 (15.75x14.96x9.06)	155.000	0.000	0.0000	0.003	0.000	0.000	0.006
CCISeismic fujitsu TA08025-B605 (15.75x14.96x9.06)	155.000	0.000	0.0000	0.003	0.000	0.000	0.006
CCISeismic raycap RDIDC-9181-PF-48 (16x14x8)	155.000	0.000	0.0000	0.001	0.000	0.000	0.002
CCISeismic 1/3 Remaining Reserve Rights	155.000	0.000	0.0000	0.002	0.000	0.000	0.005
CCISeismic 1/3 Remaining Reserve Rights	155.000	0.000	0.0000	0.002	0.000	0.000	0.005
CCISeismic 1/3 Remaining Reserve Rights	155.000	0.000	0.0000	0.002	0.000	0.000	0.005
CCISeismic andrew VHLP1-23	175.000	0.000	0.0000	0.001	0.000	0.000	0.001
CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (169ft to179ft)	174.000	0.000	0.0000	0.000	0.000	0.000	0.000
CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (159ft to169ft)	164.000	0.000	0.0000	0.000	0.000	0.000	0.000
CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (149ft to159ft)	154.000	0.000	0.0000	0.000	0.000	0.000	0.000
CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (139ft to149ft)	144.000	0.000	0.0000	0.000	0.000	0.000	0.000
CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (129ft to139ft)	134.000	0.000	0.0000	0.000	0.000	0.000	0.000
CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (119ft to129ft)	124.000	0.000	0.0000	0.000	0.000	0.000	0.000
CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (109ft to119ft)	114.000	0.000	0.0000	0.000	0.000	0.000	0.000
CCISeismic b&p	104.000	0.000	0.0000	0.000	0.000	0.000	0.000

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Vertical Bridge REIT, LLC 750 Park of Commerce Dr. Suite 200 Boca Raton, FL 33487 Phone: 561-948-6367 FAX:</p>	Job US-CT-5017	Page 7 of 32
	Project Monopole Structural Analysis	Date 11:28:21 05/20/21
	Client Vertical Bridge	Designed by JHesson

Description	Elevation	Offset From Centroid	Azimuth Angle	E_v	E_{hx}	E_{hz}	E_h
	ft	ft	°	K	K	K	K
database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (99ft to109ft) CCISeismic b&p	94.000	0.000	0.0000	0.000	0.000	0.000	0.000
database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (89ft to99ft) CCISeismic b&p	84.000	0.000	0.0000	0.000	0.000	0.000	0.000
database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (79ft to89ft) CCISeismic b&p	74.000	0.000	0.0000	0.000	0.000	0.000	0.000
database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (69ft to79ft) CCISeismic b&p	64.000	0.000	0.0000	0.000	0.000	0.000	0.000
database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (59ft to69ft) CCISeismic b&p	54.000	0.000	0.0000	0.000	0.000	0.000	0.000
database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (49ft to59ft) CCISeismic b&p	44.000	0.000	0.0000	0.000	0.000	0.000	0.000
database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (39ft to49ft) CCISeismic b&p	34.000	0.000	0.0000	0.000	0.000	0.000	0.000
database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (29ft to39ft) CCISeismic b&p	24.000	0.000	0.0000	0.000	0.000	0.000	0.000
database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (19ft to29ft) CCISeismic b&p	14.000	0.000	0.0000	0.000	0.000	0.000	0.000
database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (9ft to19ft) CCISeismic b&p	174.000	0.000	0.0000	0.001	0.000	0.000	0.002
database_mike-laptop_1 Step Pegs From 5 to 179 (169ft to179ft) CCISeismic b&p	164.000	0.000	0.0000	0.001	0.000	0.000	0.001
database_mike-laptop_1 Step Pegs From 5 to 179 (159ft to169ft) CCISeismic b&p	154.000	0.000	0.0000	0.001	0.000	0.000	0.001
database_mike-laptop_1 Step Pegs From 5 to 179 (149ft to159ft) CCISeismic b&p	144.000	0.000	0.0000	0.001	0.000	0.000	0.001
database_mike-laptop_1 Step Pegs From 5 to 179 (139ft to149ft) CCISeismic b&p	134.000	0.000	0.0000	0.001	0.000	0.000	0.001
database_mike-laptop_1 Step Pegs From 5 to 179 (129ft to139ft) CCISeismic b&p	124.000	0.000	0.0000	0.001	0.000	0.000	0.001

tnxTower Vertical Bridge REIT, LLC 750 Park of Commerce Dr. Suite 200 Boca Raton, FL 33487 Phone: 561-948-6367 FAX:	Job	US-CT-5017	Page	8 of 32
	Project	Monopole Structural Analysis	Date	11:28:21 05/20/21
	Client	Vertical Bridge	Designed by	JHesson

<i>Description</i>	<i>Elevation</i>	<i>Offset From Centroid</i>	<i>Azimuth Angle</i>	<i>E_v</i>	<i>E_{lx}</i>	<i>E_{lz}</i>	<i>E_h</i>
	<i>ft</i>	<i>ft</i>	<i>°</i>	<i>K</i>	<i>K</i>	<i>K</i>	<i>K</i>
database_mike-laptop_1 Step Pegs From 5 to 179 (119ft to129ft) CCISeismic b&p	114.000	0.000	0.0000	0.001	0.000	0.000	0.001
database_mike-laptop_1 Step Pegs From 5 to 179 (109ft to119ft) CCISeismic b&p	104.000	0.000	0.0000	0.001	0.000	0.000	0.001
database_mike-laptop_1 Step Pegs From 5 to 179 (99ft to109ft) CCISeismic b&p	94.000	0.000	0.0000	0.001	0.000	0.000	0.000
database_mike-laptop_1 Step Pegs From 5 to 179 (89ft to99ft) CCISeismic b&p	84.000	0.000	0.0000	0.001	0.000	0.000	0.000
database_mike-laptop_1 Step Pegs From 5 to 179 (79ft to89ft) CCISeismic b&p	74.000	0.000	0.0000	0.001	0.000	0.000	0.000
database_mike-laptop_1 Step Pegs From 5 to 179 (69ft to79ft) CCISeismic b&p	64.000	0.000	0.0000	0.001	0.000	0.000	0.000
database_mike-laptop_1 Step Pegs From 5 to 179 (59ft to69ft) CCISeismic b&p	54.000	0.000	0.0000	0.001	0.000	0.000	0.000
database_mike-laptop_1 Step Pegs From 5 to 179 (49ft to59ft) CCISeismic b&p	44.000	0.000	0.0000	0.001	0.000	0.000	0.000
database_mike-laptop_1 Step Pegs From 5 to 179 (39ft to49ft) CCISeismic b&p	34.000	0.000	0.0000	0.001	0.000	0.000	0.000
database_mike-laptop_1 Step Pegs From 5 to 179 (29ft to39ft) CCISeismic b&p	24.000	0.000	0.0000	0.001	0.000	0.000	0.000
database_mike-laptop_1 Step Pegs From 5 to 179 (19ft to29ft) CCISeismic b&p	14.000	0.000	0.0000	0.001	0.000	0.000	0.000
database_mike-laptop_1 Step Pegs From 5 to 179 (9ft to19ft) CCISeismic b&p	7.000	0.000	0.0000	0.000	0.000	0.000	0.000
database_mike-laptop_1 Step Pegs From 5 to 179 (5ft to9ft) CCISeismic (3) b&p	172.000	0.000	0.0000	0.001	0.000	0.000	0.002
database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175 (169ft to175ft) CCISeismic (3) b&p	164.000	0.000	0.0000	0.001	0.000	0.000	0.003
database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175 (159ft to169ft) CCISeismic (3) b&p	154.000	0.000	0.0000	0.001	0.000	0.000	0.003
database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175 (149ft to159ft) CCISeismic (3) b&p	144.000	0.000	0.0000	0.001	0.000	0.000	0.003
database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175 (139ft to149ft) CCISeismic (3) b&p	134.000	0.000	0.0000	0.001	0.000	0.000	0.002

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Vertical Bridge REIT, LLC 750 Park of Commerce Dr. Suite 200 Boca Raton, FL 33487 Phone: 561-948-6367 FAX:</p>	Job	US-CT-5017	Page	9 of 32
	Project	Monopole Structural Analysis	Date	11:28:21 05/20/21
	Client	Vertical Bridge	Designed by	JHesson

<i>Description</i>	<i>Elevation</i>	<i>Offset From Centroid</i>	<i>Azimuth Angle</i>	<i>E_v</i>	<i>E_{lx}</i>	<i>E_{lz}</i>	<i>E_h</i>
	<i>ft</i>	<i>ft</i>	<i>°</i>	<i>K</i>	<i>K</i>	<i>K</i>	<i>K</i>
8 to 175 (129ft to139ft) CCISeismic (3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175 (119ft to129ft)	124.000	0.000	0.0000	0.001	0.000	0.000	0.002
8 to 175 (109ft to119ft) CCISeismic (3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175 (109ft to119ft)	114.000	0.000	0.0000	0.001	0.000	0.000	0.002
8 to 175 (99ft to109ft) CCISeismic (3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175 (99ft to109ft)	104.000	0.000	0.0000	0.001	0.000	0.000	0.001
8 to 175 (89ft to99ft) CCISeismic (3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175 (89ft to99ft)	94.000	0.000	0.0000	0.001	0.000	0.000	0.001
8 to 175 (79ft to89ft) CCISeismic (3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175 (79ft to89ft)	84.000	0.000	0.0000	0.001	0.000	0.000	0.001
8 to 175 (69ft to79ft) CCISeismic (3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175 (69ft to79ft)	74.000	0.000	0.0000	0.001	0.000	0.000	0.001
8 to 175 (59ft to69ft) CCISeismic (3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175 (59ft to69ft)	64.000	0.000	0.0000	0.001	0.000	0.000	0.001
8 to 175 (49ft to59ft) CCISeismic (3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175 (49ft to59ft)	54.000	0.000	0.0000	0.001	0.000	0.000	0.000
8 to 175 (39ft to49ft) CCISeismic (3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175 (39ft to49ft)	44.000	0.000	0.0000	0.001	0.000	0.000	0.000
8 to 175 (29ft to39ft) CCISeismic (3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175 (29ft to39ft)	34.000	0.000	0.0000	0.001	0.000	0.000	0.000
8 to 175 (19ft to29ft) CCISeismic (3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175 (19ft to29ft)	24.000	0.000	0.0000	0.001	0.000	0.000	0.000
8 to 175 (9ft to19ft) CCISeismic (3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175 (9ft to19ft)	14.000	0.000	0.0000	0.001	0.000	0.000	0.000
8 to 175 (8ft to9ft) CCISeismic andrew LDF5-50A(7/8") From 8 to 175 (169ft to175ft)	8.500	0.000	0.0000	0.000	0.000	0.000	0.000
CCISeismic andrew LDF5-50A(7/8") From 8 to 175 (159ft to169ft)	172.000	0.000	0.0000	0.000	0.000	0.000	0.000
CCISeismic andrew	164.000	0.000	0.0000	0.000	0.000	0.000	0.000
CCISeismic andrew	154.000	0.000	0.0000	0.000	0.000	0.000	0.000

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Vertical Bridge REIT, LLC 750 Park of Commerce Dr. Suite 200 Boca Raton, FL 33487 Phone: 561-948-6367 FAX:</p>	Job US-CT-5017	Page 10 of 32
	Project Monopole Structural Analysis	Date 11:28:21 05/20/21
	Client Vertical Bridge	Designed by JHesson

Description	Elevation	Offset From Centroid	Azimuth Angle	E_v	E_{hx}	E_{hz}	E_h
	ft	ft	°	K	K	K	K
LDF5-50A(7/8") From 8 to 175 (149ft to159ft) CCISeismic andrew	144.000	0.000	0.0000	0.000	0.000	0.000	0.000
LDF5-50A(7/8") From 8 to 175 (139ft to149ft) CCISeismic andrew	134.000	0.000	0.0000	0.000	0.000	0.000	0.000
LDF5-50A(7/8") From 8 to 175 (129ft to139ft) CCISeismic andrew	124.000	0.000	0.0000	0.000	0.000	0.000	0.000
LDF5-50A(7/8") From 8 to 175 (119ft to129ft) CCISeismic andrew	114.000	0.000	0.0000	0.000	0.000	0.000	0.000
LDF5-50A(7/8") From 8 to 175 (109ft to119ft) CCISeismic andrew	104.000	0.000	0.0000	0.000	0.000	0.000	0.000
LDF5-50A(7/8") From 8 to 175 (99ft to109ft) CCISeismic andrew	94.000	0.000	0.0000	0.000	0.000	0.000	0.000
LDF5-50A(7/8") From 8 to 175 (89ft to99ft) CCISeismic andrew	84.000	0.000	0.0000	0.000	0.000	0.000	0.000
LDF5-50A(7/8") From 8 to 175 (79ft to89ft) CCISeismic andrew	74.000	0.000	0.0000	0.000	0.000	0.000	0.000
LDF5-50A(7/8") From 8 to 175 (69ft to79ft) CCISeismic andrew	64.000	0.000	0.0000	0.000	0.000	0.000	0.000
LDF5-50A(7/8") From 8 to 175 (59ft to69ft) CCISeismic andrew	54.000	0.000	0.0000	0.000	0.000	0.000	0.000
LDF5-50A(7/8") From 8 to 175 (49ft to59ft) CCISeismic andrew	44.000	0.000	0.0000	0.000	0.000	0.000	0.000
LDF5-50A(7/8") From 8 to 175 (39ft to49ft) CCISeismic andrew	34.000	0.000	0.0000	0.000	0.000	0.000	0.000
LDF5-50A(7/8") From 8 to 175 (29ft to39ft) CCISeismic andrew	24.000	0.000	0.0000	0.000	0.000	0.000	0.000
LDF5-50A(7/8") From 8 to 175 (19ft to29ft) CCISeismic andrew	14.000	0.000	0.0000	0.000	0.000	0.000	0.000
LDF5-50A(7/8") From 8 to 175 (9ft to19ft) CCISeismic b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155 (149ft to155ft)	152.000	0.000	0.0000	0.000	0.000	0.000	0.001
CCISeismic b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155 (139ft to149ft)	144.000	0.000	0.0000	0.001	0.000	0.000	0.001
CCISeismic b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155 (129ft to139ft)	134.000	0.000	0.0000	0.001	0.000	0.000	0.001
CCISeismic b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155 (119ft to129ft)	124.000	0.000	0.0000	0.001	0.000	0.000	0.001

tnxTower Vertical Bridge REIT, LLC 750 Park of Commerce Dr. Suite 200 Boca Raton, FL 33487 Phone: 561-948-6367 FAX:	Job US-CT-5017	Page 11 of 32
	Project Monopole Structural Analysis	Date 11:28:21 05/20/21
	Client Vertical Bridge	Designed by JHesson

Description	Elevation	Offset From Centroid	Azimuth Angle	E_v	E_{lx}	E_{ly}	E_h
	ft	ft	°	K	K	K	K
CCISeismic b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155 (109ft to119ft)	114.000	0.000	0.0000	0.001	0.000	0.000	0.001
CCISeismic b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155 (99ft to109ft)	104.000	0.000	0.0000	0.001	0.000	0.000	0.001
CCISeismic b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155 (89ft to99ft)	94.000	0.000	0.0000	0.001	0.000	0.000	0.000
CCISeismic b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155 (79ft to89ft)	84.000	0.000	0.0000	0.001	0.000	0.000	0.000
CCISeismic b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155 (69ft to79ft)	74.000	0.000	0.0000	0.001	0.000	0.000	0.000
CCISeismic b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155 (59ft to69ft)	64.000	0.000	0.0000	0.001	0.000	0.000	0.000
CCISeismic b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155 (49ft to59ft)	54.000	0.000	0.0000	0.001	0.000	0.000	0.000
CCISeismic b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155 (39ft to49ft)	44.000	0.000	0.0000	0.001	0.000	0.000	0.000
CCISeismic b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155 (29ft to39ft)	34.000	0.000	0.0000	0.001	0.000	0.000	0.000
CCISeismic b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155 (19ft to29ft)	24.000	0.000	0.0000	0.001	0.000	0.000	0.000
CCISeismic b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155 (9ft to19ft)	14.000	0.000	0.0000	0.001	0.000	0.000	0.000

Discrete Tower Loads

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

*TMO 175

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	Client	Vertical Bridge	Designed by	JHesson

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert</i> <i>ft ft ft</i>	<i>Azimuth Adjustment</i> <i>°</i>	<i>Placement</i> <i>ft</i>	<i>C_{AA} Front</i> <i>ft²</i>	<i>C_{AA} Side</i> <i>ft²</i>	<i>Weight</i> <i>K</i>
Sector Frames (TMO)	C	None		0.0000	175.000	No Ice 30.000 1/2" Ice 35.000 1" Ice 40.000 2" Ice 50.000	30.000 35.000 40.000 50.000	2.000 3.000 4.000 6.000
APXV18-206517S-C w/ Mount Pipe (TMO)	A	From Leg	4.000 0.000 0.000	0.0000	175.000	No Ice 5.404 1/2" Ice 5.960 1" Ice 6.481 2" Ice 7.547	4.700 5.860 6.734 8.515	0.052 0.097 0.150 0.280
APXV18-206517S-C w/ Mount Pipe (TMO)	B	From Leg	4.000 0.000 0.000	0.0000	175.000	No Ice 5.404 1/2" Ice 5.960 1" Ice 6.481 2" Ice 7.547	4.700 5.860 6.734 8.515	0.052 0.097 0.150 0.280
APXV18-206517S-C w/ Mount Pipe (TMO)	C	From Leg	4.000 0.000 0.000	0.0000	175.000	No Ice 5.404 1/2" Ice 5.960 1" Ice 6.481 2" Ice 7.547	4.700 5.860 6.734 8.515	0.052 0.097 0.150 0.280
(2) LNX-6515DS-A1M w/ pipe mount (TMO)	A	From Leg	4.000 0.000 0.000	0.0000	175.000	No Ice 8.634 1/2" Ice 9.295 1" Ice 9.925 2" Ice 11.122	7.305 8.591 9.728 11.675	0.061 0.132 0.212 0.400
(2) LNX-6515DS-A1M w/ pipe mount (TMO)	B	From Leg	4.000 0.000 0.000	0.0000	175.000	No Ice 8.634 1/2" Ice 9.295 1" Ice 9.925 2" Ice 11.122	7.305 8.591 9.728 11.675	0.061 0.132 0.212 0.400
(2) LNX-6515DS-A1M w/ pipe mount (TMO)	C	From Leg	4.000 0.000 0.000	0.0000	175.000	No Ice 8.634 1/2" Ice 9.295 1" Ice 9.925 2" Ice 11.122	7.305 8.591 9.728 11.675	0.061 0.132 0.212 0.400
(2) RRUS 11 (TMO)	A	From Leg	4.000 0.000 0.000	0.0000	175.000	No Ice 2.784 1/2" Ice 2.992 1" Ice 3.207 2" Ice 3.658	1.187 1.334 1.490 1.833	0.051 0.071 0.095 0.153
(2) RRUS 11 (TMO)	B	From Leg	4.000 0.000 0.000	0.0000	175.000	No Ice 2.784 1/2" Ice 2.992 1" Ice 3.207 2" Ice 3.658	1.187 1.334 1.490 1.833	0.051 0.071 0.095 0.153
(2) RRUS 11 (TMO)	C	From Leg	4.000 0.000 0.000	0.0000	175.000	No Ice 2.784 1/2" Ice 2.992 1" Ice 3.207 2" Ice 3.658	1.187 1.334 1.490 1.833	0.051 0.071 0.095 0.153
1/3 Remaining Reserve Rights (TMO)	A	From Leg	4.000 0.000 0.000	0.0000	175.000	No Ice 24.867 1/2" Ice 29.094 1" Ice 33.321 2" Ice 41.775	24.867 29.094 33.321 41.775	0.265 0.398 0.531 0.797
1/3 Remaining Reserve Rights (TMO)	B	From Leg	4.000 0.000 0.000	0.0000	175.000	No Ice 24.867 1/2" Ice 29.094 1" Ice 33.321 2" Ice 41.775	24.867 29.094 33.321 41.775	0.265 0.398 0.531 0.797
1/3 Remaining Reserve Rights (TMO)	C	From Leg	4.000 0.000 0.000	0.0000	175.000	No Ice 24.867 1/2" Ice 29.094 1" Ice 33.321 2" Ice 41.775	24.867 29.094 33.321 41.775	0.265 0.398 0.531 0.797
*155 Dish SNP8HR-3xx (0.67 Ka included) (Dish)	C	None		0.0000	155.000	No Ice 17.930 1/2" Ice 21.040 1" Ice 23.830 2" Ice 30.370	17.340 20.450 23.100 29.780	1.472 1.714 2.002 2.440

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Vert					
			Lateral		°	ft	ft ²	ft ²	K
			ft	ft					
MX08FRO665-20_V0F w/ MP (72x20x8) (Dish)	A	From Centroid-Le g	4.000 0.000 0.000	0.000	0.0000	155.000	No Ice 12.489 1/2" Ice 12.986 1" Ice 13.490 2" Ice 14.519	5.867 6.325 6.790 7.743	0.054 0.128 0.208 0.390
MX08FRO665-20_V0F w/ MP (72x20x8) (Dish)	B	From Centroid-Le g	4.000 0.000 0.000	0.000	0.0000	155.000	No Ice 12.489 1/2" Ice 12.986 1" Ice 13.490 2" Ice 14.519	5.867 6.325 6.790 7.743	0.054 0.128 0.208 0.390
MX08FRO665-20_V0F w/ MP (72x20x8) (Dish)	C	From Centroid-Le g	4.000 0.000 0.000	0.000	0.0000	155.000	No Ice 12.489 1/2" Ice 12.986 1" Ice 13.490 2" Ice 14.519	5.867 6.325 6.790 7.743	0.054 0.128 0.208 0.390
TA08025-B604 (15.75x14.96x7.87) (Dish)	A	From Centroid-Le g	4.000 0.000 0.000	0.000	0.0000	155.000	No Ice 1.964 1/2" Ice 2.138 1" Ice 2.320 2" Ice 2.705	1.033 1.168 1.310 1.617	0.063 0.080 0.099 0.147
TA08025-B604 (15.75x14.96x7.87) (Dish)	B	From Centroid-Le g	4.000 0.000 0.000	0.000	0.0000	155.000	No Ice 1.964 1/2" Ice 2.138 1" Ice 2.320 2" Ice 2.705	1.033 1.168 1.310 1.617	0.063 0.080 0.099 0.147
TA08025-B604 (15.75x14.96x7.87) (Dish)	C	From Centroid-Le g	4.000 0.000 0.000	0.000	0.0000	155.000	No Ice 1.964 1/2" Ice 2.138 1" Ice 2.320 2" Ice 2.705	1.033 1.168 1.310 1.617	0.063 0.080 0.099 0.147
TA08025-B605 (15.75x14.96x9.06) (Dish)	A	From Centroid-Le g	4.000 0.000 0.000	0.000	0.0000	155.000	No Ice 1.964 1/2" Ice 2.138 1" Ice 2.320 2" Ice 2.705	1.189 1.331 1.480 1.800	0.075 0.093 0.114 0.164
TA08025-B605 (15.75x14.96x9.06) (Dish)	B	From Centroid-Le g	4.000 0.000 0.000	0.000	0.0000	155.000	No Ice 1.964 1/2" Ice 2.138 1" Ice 2.320 2" Ice 2.705	1.189 1.331 1.480 1.800	0.075 0.093 0.114 0.164
TA08025-B605 (15.75x14.96x9.06) (Dish)	C	From Centroid-Le g	4.000 0.000 0.000	0.000	0.0000	155.000	No Ice 1.964 1/2" Ice 2.138 1" Ice 2.320 2" Ice 2.705	1.189 1.331 1.480 1.800	0.075 0.093 0.114 0.164
RDIDC-9181-PF-48 (16x14x8) (Dish)	C	From Centroid-Le g	4.000 0.000 0.000	0.000	0.0000	155.000	No Ice 1.867 1/2" Ice 2.037 1" Ice 2.215 2" Ice 2.593	1.067 1.204 1.348 1.659	0.022 0.038 0.057 0.104
1/3 Remaining Reserve Rights (Dish)	A	From Leg	4.000 0.000 0.000	0.000	0.0000	155.000	No Ice 5.774 1/2" Ice 6.755 1" Ice 7.736 2" Ice 9.698	5.774 6.755 7.736 9.698	0.062 0.092 0.122 0.182
1/3 Remaining Reserve Rights (Dish)	B	From Leg	4.000 0.000 0.000	0.000	0.0000	155.000	No Ice 5.774 1/2" Ice 6.755 1" Ice 7.736 2" Ice 9.698	5.774 6.755 7.736 9.698	0.062 0.092 0.122 0.182
1/3 Remaining Reserve Rights (Dish)	C	From Leg	4.000 0.000 0.000	0.000	0.0000	155.000	No Ice 5.774 1/2" Ice 6.755 1" Ice 7.736 2" Ice 9.698	5.774 6.755 7.736 9.698	0.062 0.092 0.122 0.182

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Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K	
VHLP1-23 (TMO)	C	Paraboloid w/Radome	From Leg	4.000	0.0000		175.000	1.275	No Ice	1.277	0.014
				0.000					1/2" Ice	1.449	0.021
				0.000					1" Ice	1.621	0.029
				0.000					2" Ice	1.966	0.044

Tower Pressures - No Ice

$G_H = 1.100$

Section Elevation ft	z ft	K _Z	q _z ksf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{A A A} In Face ft ²	C _{A A A} Out Face ft ²
179.000-141.500	158.891	1.395	0.043	77.671	A	0.000	77.671	77.671	100.00	0.000	0.000
					B	0.000	77.671	100.00	0.000	0.000	
					C	0.000	77.671	100.00	4.219	0.000	
141.500-92.250	115.479	1.305	0.040	155.440	A	0.000	155.440	155.440	100.00	0.000	0.000
					B	0.000	155.440	100.00	0.000	0.000	
					C	0.000	155.440	100.00	5.541	0.000	
92.250-45.000	67.943	1.167	0.036	205.401	A	0.000	205.401	205.401	100.00	0.000	0.000
					B	0.000	205.401	100.00	0.000	0.000	
					C	0.000	205.401	100.00	5.316	0.000	
45.000-0.000	22.641	0.926	0.028	246.300	A	0.000	246.300	246.300	100.00	0.000	0.000
					B	0.000	246.300	100.00	0.000	0.000	
					C	0.000	246.300	100.00	4.500	0.000	

Tower Pressure - With Ice

$G_H = 1.100$

Section Elevation ft	z ft	K _Z	q _z ksf	t _z in	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{A A A} In Face ft ²	C _{A A A} Out Face ft ²
179.000-141.500	158.891	1.395	0.008	1.4920	86.996	A	0.000	86.996	86.996	100.00	0.000	0.000
						B	0.000	86.996	100.00	0.000	0.000	
						C	0.000	86.996	100.00	26.599	0.000	
141.500-92.250	115.479	1.305	0.007	1.4451	167.687	A	0.000	167.687	167.687	100.00	0.000	0.000
						B	0.000	167.687	100.00	0.000	0.000	
						C	0.000	167.687	100.00	34.933	0.000	
92.250-45.000	67.943	1.167	0.007	1.3705	216.781	A	0.000	216.781	216.781	100.00	0.000	0.000
						B	0.000	216.781	100.00	0.000	0.000	
						C	0.000	216.781	100.00	32.629	0.000	
L4 45.000-0.000	22.641	0.926	0.005	1.2279	256.579	A	0.000	256.579	256.579	100.00	0.000	0.000
						B	0.000	256.579	100.00	0.000	0.000	

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Section Elevation	z	K _Z	q _z	t _z	A _G	F _a	A _F	A _R	A _{leg}	Leg %	C _{AA} _{In} Face	C _{AA} _{Out} Face
ft	ft		ksf	in	ft ²	c	ft ²	ft ²	ft ²		ft ²	ft ²
						C	0.000	256.579		100.00	26.428	0.000

Tower Pressure - Service

$G_H = 1.100$

Section Elevation	z	K _Z	q _z	A _G	F _a	A _F	A _R	A _{leg}	Leg %	C _{AA} _{In} Face	C _{AA} _{Out} Face
ft	ft		ksf	ft ²	c	ft ²	ft ²	ft ²		ft ²	ft ²
L1 179.000-141.500	158.891	1.395	0.011	77.671	A	0.000	77.671	77.671	100.00	0.000	0.000
					B	0.000	77.671		100.00	0.000	0.000
					C	0.000	77.671		100.00	4.219	0.000
L2 141.500-92.250	115.479	1.305	0.010	155.440	A	0.000	155.440	155.440	100.00	0.000	0.000
					B	0.000	155.440		100.00	0.000	0.000
					C	0.000	155.440		100.00	5.541	0.000
L3 92.250-45.000	67.943	1.167	0.009	205.401	A	0.000	205.401	205.401	100.00	0.000	0.000
					B	0.000	205.401		100.00	0.000	0.000
					C	0.000	205.401		100.00	5.316	0.000
L4 45.000-0.000	22.641	0.926	0.007	246.300	A	0.000	246.300	246.300	100.00	0.000	0.000
					B	0.000	246.300		100.00	0.000	0.000
					C	0.000	246.300		100.00	4.500	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F _a	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K	c			ksf			ft ²	K	klf	
L1 179.000-141.500	0.224	2.457	A	1	0.73	0.043	1	1	77.671	2.681	0.072	C
			B	1	0.73		1	1	77.671			
			C	1	0.73		1	1	77.671			
L2 141.500-92.250	0.357	7.871	A	1	0.73	0.040	1	1	155.440	5.012	0.102	C
			B	1	0.73		1	1	155.440			
			C	1	0.73		1	1	155.440			
L3 92.250-45.000	0.343	12.650	A	1	0.73	0.036	1	1	205.401	5.909	0.125	C
			B	1	0.73		1	1	205.401			
			C	1	0.73		1	1	205.401			
L4 45.000-0.000	0.273	15.862	A	1	0.73	0.028	1	1	246.300	5.631	0.125	C
			B	1	0.73		1	1	246.300			
			C	1	0.73		1	1	246.300			
Sum Weight:	1.197	38.841						OTM	1533.850 kip-ft	19.234		

Tower Forces - No Ice - Wind 60 To Face

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Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L1 179.000-141.500	0.224	2.457	A B C	1 1 1	0.73 0.73 0.73	0.043	1 1 1	1 1 1	77.671 77.671 77.671	2.681	0.072	C
L2 141.500-92.250	0.357	7.871	A B C	1 1 1	0.73 0.73 0.73	0.040	1 1 1	1 1 1	155.440 155.440 155.440	5.012	0.102	C
L3 92.250-45.000	0.343	12.650	A B C	1 1 1	0.73 0.73 0.73	0.036	1 1 1	1 1 1	205.401 205.401 205.401	5.909	0.125	C
L4 45.000-0.000	0.273	15.862	A B C	1 1 1	0.73 0.73 0.73	0.028	1 1 1	1 1 1	246.300 246.300 246.300	5.631	0.125	C
Sum Weight:	1.197	38.841						OTM	1533.850 kip-ft	19.234		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L1 179.000-141.500	0.224	2.457	A B C	1 1 1	0.73 0.73 0.73	0.043	1 1 1	1 1 1	77.671 77.671 77.671	2.681	0.072	C
L2 141.500-92.250	0.357	7.871	A B C	1 1 1	0.73 0.73 0.73	0.040	1 1 1	1 1 1	155.440 155.440 155.440	5.012	0.102	C
L3 92.250-45.000	0.343	12.650	A B C	1 1 1	0.73 0.73 0.73	0.036	1 1 1	1 1 1	205.401 205.401 205.401	5.909	0.125	C
L4 45.000-0.000	0.273	15.862	A B C	1 1 1	0.73 0.73 0.73	0.028	1 1 1	1 1 1	246.300 246.300 246.300	5.631	0.125	C
Sum Weight:	1.197	38.841						OTM	1533.850 kip-ft	19.234		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L1 179.000-141.500	0.505	4.253	A B C	1 1 1	1.2 1.2 1.2	0.008	1 1 1	1 1 1	86.996 86.996 86.996	0.917	0.024	C
L2 141.500-92.250	0.726	11.280	A B C	1 1 1	1.2 1.2 1.2	0.007	1 1 1	1 1 1	167.302 167.302 167.302	1.648	0.033	C
L3	0.678	16.871	A	1	1.2	0.007	1	1	216.193	1.900	0.040	C

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Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
92.250-45.000			B	1	1.2		1	1	216.193			
			C	1	1.2		1	1	216.193			
L4 45.000-0.000	0.532	20.362	A	1	1.2	0.005	1	1	255.509	1.784	0.040	C
			B	1	1.2		1	1	255.509			
			C	1	1.2		1	1	255.509			
Sum Weight:	2.440	52.767						OTM	505.463 kip-ft	6.249		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L1 179.000-141.500	0.505	4.253	A	1	1.2	0.008	1	1	86.996	0.917	0.024	C
			B	1	1.2		1	1	86.996			
			C	1	1.2		1	1	86.996			
L2 141.500-92.250	0.726	11.280	A	1	1.2	0.007	1	1	167.302	1.648	0.033	C
			B	1	1.2		1	1	167.302			
			C	1	1.2		1	1	167.302			
L3 92.250-45.000	0.678	16.871	A	1	1.2	0.007	1	1	216.193	1.900	0.040	C
			B	1	1.2		1	1	216.193			
			C	1	1.2		1	1	216.193			
L4 45.000-0.000	0.532	20.362	A	1	1.2	0.005	1	1	255.509	1.784	0.040	C
			B	1	1.2		1	1	255.509			
			C	1	1.2		1	1	255.509			
Sum Weight:	2.440	52.767						OTM	505.463 kip-ft	6.249		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L1 179.000-141.500	0.505	4.253	A	1	1.2	0.008	1	1	86.996	0.917	0.024	C
			B	1	1.2		1	1	86.996			
			C	1	1.2		1	1	86.996			
L2 141.500-92.250	0.726	11.280	A	1	1.2	0.007	1	1	167.302	1.648	0.033	C
			B	1	1.2		1	1	167.302			
			C	1	1.2		1	1	167.302			
L3 92.250-45.000	0.678	16.871	A	1	1.2	0.007	1	1	216.193	1.900	0.040	C
			B	1	1.2		1	1	216.193			
			C	1	1.2		1	1	216.193			
L4 45.000-0.000	0.532	20.362	A	1	1.2	0.005	1	1	255.509	1.784	0.040	C
			B	1	1.2		1	1	255.509			
			C	1	1.2		1	1	255.509			
Sum Weight:	2.440	52.767						OTM	505.463 kip-ft	6.249		

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Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L1 179.000-141.500	0.224	2.457	A B C	1 1 1	0.73 0.73 0.73	0.011	1 1 1	1 1 1	77.671 77.671 77.671	0.676	0.018	C
L2 141.500-92.250	0.357	7.871	A B C	1 1 1	0.73 0.73 0.73	0.010	1 1 1	1 1 1	155.440 155.440 155.440	1.263	0.026	C
L3 92.250-45.000	0.343	12.650	A B C	1 1 1	0.73 0.73 0.73	0.009	1 1 1	1 1 1	205.401 205.401 205.401	1.489	0.032	C
L4 45.000-0.000	0.273	15.862	A B C	1 1 1	0.73 0.73 0.73	0.007	1 1 1	1 1 1	246.300 246.300 246.300	1.419	0.032	C
Sum Weight:	1.197	38.841						OTM	386.492 kip-ft	4.847		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L1 179.000-141.500	0.224	2.457	A B C	1 1 1	0.73 0.73 0.73	0.011	1 1 1	1 1 1	77.671 77.671 77.671	0.676	0.018	C
L2 141.500-92.250	0.357	7.871	A B C	1 1 1	0.73 0.73 0.73	0.010	1 1 1	1 1 1	155.440 155.440 155.440	1.263	0.026	C
L3 92.250-45.000	0.343	12.650	A B C	1 1 1	0.73 0.73 0.73	0.009	1 1 1	1 1 1	205.401 205.401 205.401	1.489	0.032	C
L4 45.000-0.000	0.273	15.862	A B C	1 1 1	0.73 0.73 0.73	0.007	1 1 1	1 1 1	246.300 246.300 246.300	1.419	0.032	C
Sum Weight:	1.197	38.841						OTM	386.492 kip-ft	4.847		

Tower Forces - Service - Wind 90 To Face

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Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L1 179.000-141.500	0.224	2.457	A B C	1 1 1	0.73 0.73 0.73	0.011	1 1 1	1 1 1	77.671 77.671 77.671	0.676	0.018	C
L2 141.500-92.250	0.357	7.871	A B C	1 1 1	0.73 0.73 0.73	0.010	1 1 1	1 1 1	155.440 155.440 155.440	1.263	0.026	C
L3 92.250-45.000	0.343	12.650	A B C	1 1 1	0.73 0.73 0.73	0.009	1 1 1	1 1 1	205.401 205.401 205.401	1.489	0.032	C
L4 45.000-0.000	0.273	15.862	A B C	1 1 1	0.73 0.73 0.73	0.007	1 1 1	1 1 1	246.300 246.300 246.300	1.419	0.032	C
Sum Weight:	1.197	38.841						OTM	386.492 kip-ft	4.847		

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M _x kip-ft	Sum of Overturning Moments, M _z kip-ft	Sum of Torques kip-ft
Leg Weight	38.841					
Bracing Weight	0.000					
Total Member Self-Weight	38.841			0.642	0.135	
Total Weight	45.931			0.642	0.135	
Wind 0 deg - No Ice		0.020	-29.945	-3345.852	-3.095	-0.288
Wind 30 deg - No Ice		15.000	-25.951	-2900.460	-1677.471	-0.194
Wind 60 deg - No Ice		25.965	-14.991	-1675.549	-2903.114	0.000
Wind 90 deg - No Ice		29.974	-0.015	-1.657	-3351.097	0.194
Wind 120 deg - No Ice		25.943	14.955	1671.092	-2899.629	0.288
Wind 150 deg - No Ice		14.969	25.910	2894.860	-1672.498	0.294
Wind 180 deg - No Ice		-0.011	29.929	3344.342	1.814	0.255
Wind 210 deg - No Ice		-14.991	25.936	2899.160	1676.216	0.166
Wind 240 deg - No Ice		-25.956	14.985	1675.906	2901.777	0.000
Wind 270 deg - No Ice		-29.957	0.014	2.911	3348.366	-0.166
Wind 300 deg - No Ice		-25.925	-14.955	-1669.754	2896.704	-0.255
Wind 330 deg - No Ice		-14.954	-25.918	-2895.009	1670.285	-0.294
Member Ice	13.925					
Total Weight Ice	69.915			3.112	0.430	
Wind 0 deg - Ice		0.005	-9.083	-982.762	-0.308	-0.075
Wind 30 deg - Ice		4.548	-7.871	-851.399	-493.493	-0.051
Wind 60 deg - Ice		7.874	-4.546	-490.503	-854.535	0.000
Wind 90 deg - Ice		9.090	-0.003	2.617	-986.559	0.051
Wind 120 deg - Ice		7.869	4.538	495.409	-853.731	0.075
Wind 150 deg - Ice		4.541	7.861	855.929	-492.377	0.077
Wind 180 deg - Ice		-0.002	9.079	988.255	0.763	0.067
Wind 210 deg - Ice		-4.546	7.867	856.947	493.954	0.043
Wind 240 deg - Ice		-7.871	4.544	496.484	854.975	0.000
Wind 270 deg - Ice		-9.086	0.003	3.598	986.635	-0.043
Wind 300 deg - Ice		-7.864	-4.538	-489.172	853.756	-0.067
Wind 330 deg - Ice		-4.537	-7.863	-850.081	492.588	-0.077
Total Weight	45.931			0.642	0.135	
Wind 0 deg - Service		0.005	-7.545	-843.156	-0.679	-0.073
Wind 30 deg - Service		3.780	-6.539	-730.929	-422.581	-0.049

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Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Wind 60 deg - Service		6.542	-3.777	-422.281	-731.413	0.000
Wind 90 deg - Service		7.553	-0.004	-0.501	-844.293	0.049
Wind 120 deg - Service		6.537	3.768	420.990	-730.534	0.073
Wind 150 deg - Service		3.772	6.529	729.350	-421.328	0.074
Wind 180 deg - Service		-0.003	7.541	842.608	0.558	0.064
Wind 210 deg - Service		-3.777	6.535	730.433	422.466	0.042
Wind 240 deg - Service		-6.540	3.776	422.203	731.278	0.000
Wind 270 deg - Service		-7.548	0.004	0.650	843.807	-0.042
Wind 300 deg - Service		-6.532	-3.768	-420.821	729.999	-0.064
Wind 330 deg - Service		-3.768	-6.531	-729.555	420.972	-0.074
Seismic Vertical	1.696					
Seismic Horizontal 0 deg		0.000	-1.378	-187.113	0.000	0.000
Seismic Horizontal 30 deg		0.689	-1.193	-162.044	-93.556	0.000
Seismic Horizontal 60 deg		1.193	-0.689	-93.556	-162.044	0.000
Seismic Horizontal 90 deg		1.378	0.000	0.000	-187.113	0.000
Seismic Horizontal 120 deg		1.193	0.689	93.556	-162.044	0.000
Seismic Horizontal 150 deg		0.689	1.193	162.044	-93.556	0.000
Seismic Horizontal 180 deg		0.000	1.378	187.113	0.000	0.000
Seismic Horizontal 210 deg		-0.689	1.193	162.044	93.556	0.000
Seismic Horizontal 240 deg		-1.193	0.689	93.556	162.044	0.000
Seismic Horizontal 270 deg		-1.378	0.000	0.000	187.113	0.000
Seismic Horizontal 300 deg		-1.193	-0.689	-93.556	162.044	0.000
Seismic Horizontal 330 deg		-0.689	-1.193	-162.044	93.556	0.000

Load Combinations

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

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Comb. No.	Description
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
51	1.2 Dead+1.0 Ev+1.0 Eh 0 deg
52	0.9 Dead-1.0 Ev+1.0 Eh 0 deg
53	1.2 Dead+1.0 Ev+1.0 Eh 30 deg
54	0.9 Dead-1.0 Ev+1.0 Eh 30 deg
55	1.2 Dead+1.0 Ev+1.0 Eh 60 deg
56	0.9 Dead-1.0 Ev+1.0 Eh 60 deg
57	1.2 Dead+1.0 Ev+1.0 Eh 90 deg
58	0.9 Dead-1.0 Ev+1.0 Eh 90 deg
59	1.2 Dead+1.0 Ev+1.0 Eh 120 deg
60	0.9 Dead-1.0 Ev+1.0 Eh 120 deg
61	1.2 Dead+1.0 Ev+1.0 Eh 150 deg
62	0.9 Dead-1.0 Ev+1.0 Eh 150 deg
63	1.2 Dead+1.0 Ev+1.0 Eh 180 deg
64	0.9 Dead-1.0 Ev+1.0 Eh 180 deg
65	1.2 Dead+1.0 Ev+1.0 Eh 210 deg
66	0.9 Dead-1.0 Ev+1.0 Eh 210 deg
67	1.2 Dead+1.0 Ev+1.0 Eh 240 deg
68	0.9 Dead-1.0 Ev+1.0 Eh 240 deg
69	1.2 Dead+1.0 Ev+1.0 Eh 270 deg
70	0.9 Dead-1.0 Ev+1.0 Eh 270 deg
71	1.2 Dead+1.0 Ev+1.0 Eh 300 deg
72	0.9 Dead-1.0 Ev+1.0 Eh 300 deg
73	1.2 Dead+1.0 Ev+1.0 Eh 330 deg
74	0.9 Dead-1.0 Ev+1.0 Eh 330 deg

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	179 - 141.5	Pole	Max Tension	9	0.000	0.000	0.000
			Max. Compression	26	-20.510	0.460	-0.603
			Max. Mx	8	-9.162	-298.678	0.012
			Max. My	2	-9.165	-0.180	298.115
			Max. Vy	8	13.552	-298.678	0.012
			Max. Vx	2	-13.523	-0.180	298.115
			Max. Torque	25			0.291

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L2	141.5 - 92.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-33.268	0.459	-1.293
			Max. M _x	8	-18.235	-1045.617	0.562
			Max. M _y	2	-18.237	-1.143	1043.497
			Max. V _y	8	18.268	-1045.617	0.562
			Max. V _x	2	-18.238	-1.143	1043.497
L3	92.25 - 45	Pole	Max. Torque	25			0.291
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-52.299	0.458	-2.160
			Max. M _x	8	-32.662	-1994.497	1.040
			Max. M _y	2	-32.663	-2.070	1990.834
			Max. V _y	8	23.732	-1994.497	1.040
L4	45 - 0	Pole	Max. V _x	2	-23.702	-2.070	1990.834
			Max. Torque	25			0.291
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-80.779	0.457	-3.239
			Max. M _x	8	-55.108	-3430.367	1.567
			Max. M _y	2	-55.108	-3.148	3424.883
			Max. V _y	8	29.991	-3430.367	1.567
			Max. V _x	2	-29.962	-3.148	3424.883
			Max. Torque	25			0.291

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	80.779	-0.000	0.000
	Max. H _x	20	55.117	29.956	-0.014
	Max. H _z	2	55.117	-0.020	29.944
	Max. M _x	2	3424.883	-0.020	29.944
	Max. M _z	8	3430.367	-29.973	0.015
	Max. Torsion	25	0.291	14.954	25.918
	Min. Vert	66	39.642	0.688	-1.192
	Min. H _x	8	55.117	-29.973	0.015
	Min. H _z	14	55.117	0.011	-29.928
	Min. M _x	14	-3423.595	0.011	-29.928
	Min. M _z	20	-3427.623	29.956	-0.014
	Min. Torsion	13	-0.291	-14.969	-25.910

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overtuning Moment, M _x kip-ft	Overtuning Moment, M _z kip-ft	Torque kip-ft
Dead Only	45.931	-0.000	0.000	0.642	0.135	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	55.117	0.020	-29.944	-3424.883	-3.148	-0.284
0.9 Dead+1.0 Wind 0 deg - No Ice	41.338	0.020	-29.943	-3404.303	-3.169	-0.285
1.2 Dead+1.0 Wind 30 deg - No Ice	55.117	15.000	-25.951	-2969.050	-1717.194	-0.192
0.9 Dead+1.0 Wind 30 deg - No Ice	41.338	15.000	-25.951	-2951.377	-1706.899	-0.192

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Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Ice						
1.2 Dead+1.0 Wind 60 deg - No Ice	55.117	25.964	-14.991	-1715.118	-2971.873	-0.000
0.9 Dead+1.0 Wind 60 deg - No Ice	41.338	25.965	-14.991	-1704.992	-2954.028	-0.000
1.2 Dead+1.0 Wind 90 deg - No Ice	55.117	29.973	-0.015	-1.567	-3430.367	0.192
0.9 Dead+1.0 Wind 90 deg - No Ice	41.338	29.972	-0.015	-1.753	-3409.595	0.192
1.2 Dead+1.0 Wind 120 deg - No Ice	55.117	25.943	14.955	1710.807	-2968.298	0.284
0.9 Dead+1.0 Wind 120 deg - No Ice	41.338	25.943	14.955	1700.317	-2950.477	0.285
1.2 Dead+1.0 Wind 150 deg - No Ice	55.117	14.969	25.910	2963.563	-1712.091	0.290
0.9 Dead+1.0 Wind 150 deg - No Ice	41.338	14.969	25.910	2945.536	-1701.831	0.291
1.2 Dead+1.0 Wind 180 deg - No Ice	55.117	-0.011	29.928	3423.595	1.891	0.252
0.9 Dead+1.0 Wind 180 deg - No Ice	41.338	-0.011	29.927	3402.632	1.836	0.253
1.2 Dead+1.0 Wind 210 deg - No Ice	55.117	-14.991	25.936	2967.977	1715.964	0.164
0.9 Dead+1.0 Wind 210 deg - No Ice	41.338	-14.991	25.936	2949.919	1705.593	0.164
1.2 Dead+1.0 Wind 240 deg - No Ice	55.117	-25.955	14.985	1715.749	2970.561	-0.000
0.9 Dead+1.0 Wind 240 deg - No Ice	41.338	-25.955	14.985	1705.225	2952.640	-0.000
1.2 Dead+1.0 Wind 270 deg - No Ice	55.117	-29.956	0.014	3.120	3427.623	-0.164
0.9 Dead+1.0 Wind 270 deg - No Ice	41.338	-29.955	0.014	2.903	3406.785	-0.164
1.2 Dead+1.0 Wind 300 deg - No Ice	55.117	-25.925	-14.955	-1709.171	2965.353	-0.252
0.9 Dead+1.0 Wind 300 deg - No Ice	41.338	-25.925	-14.955	-1699.085	2947.468	-0.253
1.2 Dead+1.0 Wind 330 deg - No Ice	55.117	-14.954	-25.918	-2963.455	1709.876	-0.290
0.9 Dead+1.0 Wind 330 deg - No Ice	41.338	-14.954	-25.918	-2945.822	1699.547	-0.291
1.2 Dead+1.0 Ice+1.0 Temp	80.779	0.000	-0.000	3.239	0.457	-0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	80.779	0.005	-9.083	-1025.501	-0.270	-0.073
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	80.779	4.548	-7.870	-888.409	-514.988	-0.050
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	80.779	7.873	-4.546	-511.756	-891.795	0.000
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	80.779	9.090	-0.003	2.895	-1029.583	0.050
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	80.779	7.868	4.537	517.200	-890.948	0.073
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	80.779	4.541	7.860	893.454	-513.815	0.075
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	80.779	-0.002	9.079	1031.558	0.854	0.065
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	80.779	-4.545	7.866	894.525	515.579	0.042
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	80.779	-7.871	4.544	518.328	892.363	-0.000
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	80.779	-9.085	0.003	3.925	1029.767	-0.042

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Load Combination	Vertical K	Shear _x K	Shear _z K	Overturing Moment, M _x kip-ft	Overturing Moment, M _z kip-ft	Torque kip-ft
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 300	80.779	-7.863	-4.537	-510.356	891.079	-0.065
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 330	80.779	-4.537	-7.862	-887.021	514.143	-0.075
deg+1.0 Ice+1.0 Temp						
Dead+Wind 0 deg - Service	45.931	0.005	-7.545	-859.330	-0.691	-0.072
Dead+Wind 30 deg - Service	45.931	3.779	-6.538	-744.875	-430.976	-0.049
Dead+Wind 60 deg - Service	45.931	6.542	-3.777	-430.095	-745.944	0.000
Dead+Wind 90 deg - Service	45.931	7.552	-0.004	0.065	-861.067	0.049
Dead+Wind 120 deg - Service	45.931	6.537	3.768	429.930	-745.046	0.072
Dead+Wind 150 deg - Service	45.931	3.771	6.528	744.414	-429.695	0.073
Dead+Wind 180 deg - Service	45.931	-0.003	7.541	859.923	0.573	0.064
Dead+Wind 210 deg - Service	45.931	-3.777	6.535	745.523	430.864	0.042
Dead+Wind 240 deg - Service	45.931	-6.540	3.776	431.170	745.811	-0.000
Dead+Wind 270 deg - Service	45.931	-7.548	0.004	1.242	860.575	-0.042
Dead+Wind 300 deg - Service	45.931	-6.532	-3.768	-428.602	744.503	-0.064
Dead+Wind 330 deg - Service	45.931	-3.768	-6.530	-743.470	429.336	-0.073
1.2 Dead+1.0 Ev+1.0 Eh 0 deg	56.813	0.000	-1.376	-190.943	0.170	0.000
0.9 Dead-1.0 Ev+1.0 Eh 0 deg	39.642	0.000	-1.377	-189.723	0.126	0.000
1.2 Dead+1.0 Ev+1.0 Eh 30 deg	56.813	0.688	-1.192	-165.256	-95.698	0.000
0.9 Dead-1.0 Ev+1.0 Eh 30 deg	39.642	0.688	-1.192	-164.226	-95.030	0.000
1.2 Dead+1.0 Ev+1.0 Eh 60 deg	56.813	1.192	-0.688	-95.076	-165.878	0.000
0.9 Dead-1.0 Ev+1.0 Eh 60 deg	39.642	1.192	-0.688	-94.567	-164.690	0.000
1.2 Dead+1.0 Ev+1.0 Eh 90 deg	56.813	1.376	-0.000	0.792	-191.566	-0.000
0.9 Dead-1.0 Ev+1.0 Eh 90 deg	39.642	1.377	-0.000	0.589	-190.187	-0.000
1.2 Dead+1.0 Ev+1.0 Eh 120 deg	56.813	1.192	0.688	96.660	-165.878	-0.000
0.9 Dead-1.0 Ev+1.0 Eh 120 deg	39.642	1.192	0.688	95.745	-164.690	-0.000
1.2 Dead+1.0 Ev+1.0 Eh 150 deg	56.813	0.688	1.192	166.841	-95.698	-0.000
0.9 Dead-1.0 Ev+1.0 Eh 150 deg	39.642	0.688	1.192	165.405	-95.030	-0.000
1.2 Dead+1.0 Ev+1.0 Eh 180 deg	56.813	0.000	1.376	192.528	0.170	-0.000
0.9 Dead-1.0 Ev+1.0 Eh 180 deg	39.642	0.000	1.377	190.902	0.126	-0.000
1.2 Dead+1.0 Ev+1.0 Eh 210 deg	56.813	-0.688	1.192	166.841	96.038	-0.000
0.9 Dead-1.0 Ev+1.0 Eh 210 deg	39.642	-0.688	1.192	165.405	95.282	-0.000
1.2 Dead+1.0 Ev+1.0 Eh 240 deg	56.813	-1.192	0.688	96.660	166.219	-0.000
0.9 Dead-1.0 Ev+1.0 Eh 240 deg	39.642	-1.192	0.688	95.745	164.941	-0.000
1.2 Dead+1.0 Ev+1.0 Eh 270 deg	56.813	-1.376	-0.000	0.792	191.906	0.000
0.9 Dead-1.0 Ev+1.0 Eh 270 deg	39.642	-1.377	-0.000	0.589	190.438	0.000
1.2 Dead+1.0 Ev+1.0 Eh 300 deg	56.813	-1.192	-0.688	-95.076	166.219	0.000
0.9 Dead-1.0 Ev+1.0 Eh 300 deg	39.642	-1.192	-0.688	-94.567	164.941	0.000
1.2 Dead+1.0 Ev+1.0 Eh 330 deg	56.813	-0.688	-1.192	-165.256	96.038	0.000
0.9 Dead-1.0 Ev+1.0 Eh 330 deg	39.642	-0.688	-1.192	-164.226	95.282	0.000

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Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-45.931	0.000	0.000	45.931	-0.000	0.000%
2	0.020	-55.117	-29.945	-0.020	55.117	29.944	0.002%
3	0.020	-41.338	-29.945	-0.020	41.338	29.943	0.004%
4	15.000	-55.117	-25.951	-15.000	55.117	25.951	0.001%
5	15.000	-41.338	-25.951	-15.000	41.338	25.951	0.000%
6	25.965	-55.117	-14.991	-25.964	55.117	14.991	0.001%
7	25.965	-41.338	-14.991	-25.965	41.338	14.991	0.000%
8	29.974	-55.117	-0.015	-29.973	55.117	0.015	0.002%
9	29.974	-41.338	-0.015	-29.972	41.338	0.015	0.004%
10	25.943	-55.117	14.955	-25.943	55.117	-14.955	0.001%
11	25.943	-41.338	14.955	-25.943	41.338	-14.955	0.000%
12	14.969	-55.117	25.910	-14.969	55.117	-25.910	0.001%
13	14.969	-41.338	25.910	-14.969	41.338	-25.910	0.000%
14	-0.011	-55.117	29.929	0.011	55.117	-29.928	0.002%
15	-0.011	-41.338	29.929	0.011	41.338	-29.927	0.004%
16	-14.991	-55.117	25.936	14.991	55.117	-25.936	0.001%
17	-14.991	-41.338	25.936	14.991	41.338	-25.936	0.000%
18	-25.956	-55.117	14.985	25.955	55.117	-14.985	0.001%
19	-25.956	-41.338	14.985	25.955	41.338	-14.985	0.000%
20	-29.957	-55.117	0.014	29.956	55.117	-0.014	0.002%
21	-29.957	-41.338	0.014	29.955	41.338	-0.014	0.004%
22	-25.925	-55.117	-14.955	25.925	55.117	14.955	0.001%
23	-25.925	-41.338	-14.955	25.925	41.338	14.955	0.000%
24	-14.954	-55.117	-25.918	14.954	55.117	25.918	0.001%
25	-14.954	-41.338	-25.918	14.954	41.338	25.918	0.000%
26	0.000	-80.779	0.000	-0.000	80.779	0.000	0.000%
27	0.005	-80.779	-9.083	-0.005	80.779	9.083	0.001%
28	4.548	-80.779	-7.871	-4.548	80.779	7.870	0.001%
29	7.874	-80.779	-4.546	-7.873	80.779	4.546	0.001%
30	9.090	-80.779	-0.003	-9.090	80.779	0.003	0.001%
31	7.869	-80.779	4.538	-7.868	80.779	-4.537	0.001%
32	4.541	-80.779	7.861	-4.541	80.779	-7.860	0.001%
33	-0.002	-80.779	9.079	0.002	80.779	-9.079	0.001%
34	-4.546	-80.779	7.867	4.545	80.779	-7.866	0.001%
35	-7.871	-80.779	4.544	7.871	80.779	-4.544	0.001%
36	-9.086	-80.779	0.003	9.085	80.779	-0.003	0.001%
37	-7.864	-80.779	-4.538	7.863	80.779	4.537	0.001%
38	-4.537	-80.779	-7.863	4.537	80.779	7.862	0.001%
39	0.005	-45.931	-7.545	-0.005	45.931	7.545	0.001%
40	3.780	-45.931	-6.539	-3.779	45.931	6.538	0.001%
41	6.542	-45.931	-3.777	-6.542	45.931	3.777	0.001%
42	7.553	-45.931	-0.004	-7.552	45.931	0.004	0.001%
43	6.537	-45.931	3.768	-6.537	45.931	-3.768	0.001%
44	3.772	-45.931	6.529	-3.771	45.931	-6.528	0.001%
45	-0.003	-45.931	7.541	0.003	45.931	-7.541	0.001%
46	-3.777	-45.931	6.535	3.777	45.931	-6.535	0.001%
47	-6.540	-45.931	3.776	6.540	45.931	-3.776	0.001%
48	-7.548	-45.931	0.004	7.548	45.931	-0.004	0.001%
49	-6.532	-45.931	-3.768	6.532	45.931	3.768	0.001%
50	-3.768	-45.931	-6.531	3.768	45.931	6.530	0.001%
51	0.000	-56.813	-1.378	-0.000	56.813	1.376	0.002%
52	0.000	-39.642	-1.378	-0.000	39.642	1.377	0.002%
53	0.689	-56.813	-1.193	-0.688	56.813	1.192	0.002%
54	0.689	-39.642	-1.193	-0.688	39.642	1.192	0.002%
55	1.193	-56.813	-0.689	-1.192	56.813	0.688	0.002%
56	1.193	-39.642	-0.689	-1.192	39.642	0.688	0.002%
57	1.378	-56.813	0.000	-1.376	56.813	0.000	0.002%
58	1.378	-39.642	0.000	-1.377	39.642	0.000	0.002%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
59	1.193	-56.813	0.689	-1.192	56.813	-0.688	0.002%
60	1.193	-39.642	0.689	-1.192	39.642	-0.688	0.002%
61	0.689	-56.813	1.193	-0.688	56.813	-1.192	0.002%
62	0.689	-39.642	1.193	-0.688	39.642	-1.192	0.002%
63	0.000	-56.813	1.378	-0.000	56.813	-1.376	0.002%
64	0.000	-39.642	1.378	-0.000	39.642	-1.377	0.002%
65	-0.689	-56.813	1.193	0.688	56.813	-1.192	0.002%
66	-0.689	-39.642	1.193	0.688	39.642	-1.192	0.002%
67	-1.193	-56.813	0.689	1.192	56.813	-0.688	0.002%
68	-1.193	-39.642	0.689	1.192	39.642	-0.688	0.002%
69	-1.378	-56.813	0.000	1.376	56.813	0.000	0.002%
70	-1.378	-39.642	0.000	1.377	39.642	0.000	0.002%
71	-1.193	-56.813	-0.689	1.192	56.813	0.688	0.002%
72	-1.193	-39.642	-0.689	1.192	39.642	0.688	0.002%
73	-0.689	-56.813	-1.193	0.688	56.813	1.192	0.002%
74	-0.689	-39.642	-1.193	0.688	39.642	1.192	0.002%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.0000001	0.0000001
2	Yes	13	0.0000001	0.00003922
3	Yes	12	0.00006130	0.00009298
4	Yes	14	0.0000001	0.00009742
5	Yes	14	0.0000001	0.00008004
6	Yes	14	0.0000001	0.00009812
7	Yes	14	0.0000001	0.00008063
8	Yes	13	0.0000001	0.00003916
9	Yes	12	0.00006130	0.00009288
10	Yes	14	0.0000001	0.00009862
11	Yes	14	0.0000001	0.00008106
12	Yes	14	0.0000001	0.00009633
13	Yes	14	0.0000001	0.00007914
14	Yes	13	0.0000001	0.00003926
15	Yes	12	0.00006131	0.00009304
16	Yes	14	0.0000001	0.00009857
17	Yes	14	0.0000001	0.00008099
18	Yes	14	0.0000001	0.00009813
19	Yes	14	0.0000001	0.00008060
20	Yes	13	0.0000001	0.00003917
21	Yes	12	0.00006130	0.00009289
22	Yes	14	0.0000001	0.00009635
23	Yes	14	0.0000001	0.00007917
24	Yes	14	0.0000001	0.00009824
25	Yes	14	0.0000001	0.00008077
26	Yes	6	0.0000001	0.0000001
27	Yes	13	0.0000001	0.00008229
28	Yes	13	0.0000001	0.00008976
29	Yes	13	0.0000001	0.00008986
30	Yes	13	0.0000001	0.00008265
31	Yes	13	0.0000001	0.00009028
32	Yes	13	0.0000001	0.00009019
33	Yes	13	0.0000001	0.00008292
34	Yes	13	0.0000001	0.00009060
35	Yes	13	0.0000001	0.00009059

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36	Yes	13	0.00000001	0.00008279
37	Yes	13	0.00000001	0.00008977
38	Yes	13	0.00000001	0.00008973
39	Yes	12	0.00000001	0.00003159
40	Yes	12	0.00000001	0.00002647
41	Yes	12	0.00000001	0.00002662
42	Yes	12	0.00000001	0.00003165
43	Yes	12	0.00000001	0.00002680
44	Yes	12	0.00000001	0.00002640
45	Yes	12	0.00000001	0.00003162
46	Yes	12	0.00000001	0.00002673
47	Yes	12	0.00000001	0.00002663
48	Yes	12	0.00000001	0.00003164
49	Yes	12	0.00000001	0.00002643
50	Yes	12	0.00000001	0.00002675
51	Yes	10	0.00000001	0.00004311
52	Yes	10	0.00000001	0.00004325
53	Yes	10	0.00000001	0.00004277
54	Yes	10	0.00000001	0.00004292
55	Yes	10	0.00000001	0.00004282
56	Yes	10	0.00000001	0.00004296
57	Yes	10	0.00000001	0.00004323
58	Yes	10	0.00000001	0.00004334
59	Yes	10	0.00000001	0.00004303
60	Yes	10	0.00000001	0.00004312
61	Yes	10	0.00000001	0.00004315
62	Yes	10	0.00000001	0.00004321
63	Yes	10	0.00000001	0.00004356
64	Yes	10	0.00000001	0.00004359
65	Yes	10	0.00000001	0.00004325
66	Yes	10	0.00000001	0.00004328
67	Yes	10	0.00000001	0.00004320
68	Yes	10	0.00000001	0.00004325
69	Yes	10	0.00000001	0.00004344
70	Yes	10	0.00000001	0.00004350
71	Yes	10	0.00000001	0.00004299
72	Yes	10	0.00000001	0.00004309
73	Yes	10	0.00000001	0.00004287
74	Yes	10	0.00000001	0.00004300

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	179 - 141.5	16.064	47	0.9086	0.0006
L2	145.75 - 92.25	10.136	47	0.7391	0.0003
L3	98.5 - 45	4.301	47	0.4313	0.0001
L4	53.25 - 0	1.225	47	0.2116	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
175.250	CCISeismic Tower Section 1 - 1	47	15.360	0.8910	0.0006	46318

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<i>Elevation</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>
175.000	VHLP1-23	47	15.313	0.8898	0.0006	46318
174.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (169ft to179ft)	47	15.126	0.8851	0.0006	46318
172.000	CCISeismic (3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175 (169ft to175ft)	47	14.752	0.8756	0.0005	33084
166.500	CCISeismic Tower Section 1 - 2	47	13.733	0.8492	0.0005	18527
164.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (159ft to169ft)	47	13.275	0.8370	0.0005	15439
156.500	CCISeismic Tower Section 1 - 3	47	11.936	0.7988	0.0004	10292
155.000	SNP8HR-3xx (0.67 Ka included)	47	11.675	0.7909	0.0004	9649
154.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (149ft to159ft)	47	11.503	0.7856	0.0004	9263
152.000	CCISeismic b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155 (149ft to155ft)	47	11.162	0.7747	0.0003	8577
146.500	CCISeismic Tower Section 1 - 4	47	10.256	0.7435	0.0003	7269
144.000	CCISeismic Tower Section 2 - 1	47	9.860	0.7286	0.0003	7124
137.250	CCISeismic Tower Section 2 - 2	47	8.844	0.6865	0.0002	7461
134.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (129ft to139ft)	47	8.381	0.6654	0.0002	7669
127.250	CCISeismic Tower Section 2 - 3	47	7.472	0.6204	0.0002	8143
124.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (119ft to129ft)	47	7.058	0.5984	0.0002	8393
117.250	CCISeismic Tower Section 2 - 4	47	6.247	0.5526	0.0001	8963
114.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (109ft to119ft)	47	5.878	0.5306	0.0001	9267
107.250	CCISeismic Tower Section 2 - 5	47	5.156	0.4860	0.0001	9968
104.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (99ft to109ft)	47	4.828	0.4652	0.0001	10344
97.250	CCISeismic Tower Section 2 - 6	47	4.186	0.4238	0.0001	10991
96.750	CCISeismic Tower Section 3 - 1	47	4.140	0.4209	0.0001	11004
94.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (89ft to99ft)	47	3.894	0.4050	0.0001	11016
90.000	CCISeismic Tower Section 3 - 2	47	3.551	0.3828	0.0001	10985
84.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (79ft to89ft)	47	3.070	0.3511	0.0001	10939
80.000	CCISeismic Tower Section 3 - 3	47	2.771	0.3310	0.0001	10909
74.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (69ft to79ft)	47	2.355	0.3023	0.0001	10864
70.000	CCISeismic Tower Section 3 - 4	47	2.100	0.2839	0.0000	10834
64.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (59ft to69ft)	47	1.751	0.2573	0.0000	10789
60.000	CCISeismic Tower Section 3 - 5	47	1.540	0.2400	0.0000	10760
54.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (49ft to59ft)	47	1.257	0.2147	0.0000	10823
51.625	CCISeismic Tower Section 4 - 1	47	1.157	0.2048	0.0000	11104

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<i>Elevation</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>
50.000	CCISeismic Tower Section 3 - 6	47	1.091	0.1981	0.0000	11415
45.000	CCISeismic Tower Section 4 - 2	47	0.907	0.1776	0.0000	12674
44.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (39ft to49ft)	47	0.873	0.1735	0.0000	12962
35.000	CCISeismic Tower Section 4 - 3	47	0.607	0.1372	0.0000	16295
34.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (29ft to39ft)	47	0.582	0.1332	0.0000	16774
25.000	CCISeismic Tower Section 4 - 4	47	0.381	0.0975	0.0000	22812
24.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (19ft to29ft)	47	0.362	0.0935	0.0000	23763
15.000	CCISeismic Tower Section 4 - 5	47	0.208	0.0583	0.0000	38020
14.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (9ft to19ft)	47	0.192	0.0544	0.0000	40736
8.500	CCISeismic (3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175 (8ft to9ft)	47	0.113	0.0330	0.0000	67095
7.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (5ft to9ft)	47	0.093	0.0272	0.0000	81472
5.000	CCISeismic Tower Section 4 - 6	47	0.066	0.0194	0.0000	114061

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	179 - 141.5	63.990	8	3.6199	0.0025
L2	145.75 - 92.25	40.390	6	2.9461	0.0011
L3	98.5 - 45	17.140	6	1.7194	0.0003
L4	53.25 - 0	4.881	6	0.8433	0.0001

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>
175.250	CCISeismic Tower Section 1 - 1	8	61.187	3.5499	0.0023	11719
175.000	VHLP1-23	8	61.001	3.5452	0.0023	11719
174.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (169ft to179ft)	6	60.255	3.5265	0.0023	11719
172.000	CCISeismic (3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175 (169ft to175ft)	6	58.767	3.4888	0.0022	8370
166.500	CCISeismic Tower Section 1 - 2	6	54.710	3.3840	0.0019	4686
164.000	CCISeismic b&p	6	52.890	3.3353	0.0018	3905

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<i>Elevation</i>	<i>Appurtenance</i>	<i>Gov. Load Comb.</i>	<i>Deflection</i>	<i>Tilt</i>	<i>Twist</i>	<i>Radius of Curvature</i>
<i>ft</i>			<i>in</i>	<i>°</i>	<i>°</i>	<i>ft</i>
	database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (159ft to169ft)					
156.500	CCISeismic Tower Section 1 - 3	6	47.557	3.1838	0.0015	2602
155.000	SNP8HR-3xx (0.67 Ka included)	6	46.519	3.1522	0.0014	2439
154.000	CCISeismic b&p	6	45.833	3.1310	0.0014	2342
	database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (149ft to159ft)					
152.000	CCISeismic b&p	6	44.477	3.0877	0.0013	2168
	database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155 (149ft to155ft)					
146.500	CCISeismic Tower Section 1 - 4	6	40.867	2.9637	0.0011	1837
144.000	CCISeismic Tower Section 2 - 1	6	39.291	2.9045	0.0011	1799
137.250	CCISeismic Tower Section 2 - 2	6	35.243	2.7368	0.0009	1883
134.000	CCISeismic b&p	6	33.399	2.6527	0.0008	1935
	database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (129ft to139ft)					
127.250	CCISeismic Tower Section 2 - 3	6	29.777	2.4734	0.0007	2052
124.000	CCISeismic b&p	6	28.129	2.3857	0.0006	2114
	database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (119ft to129ft)					
117.250	CCISeismic Tower Section 2 - 4	6	24.897	2.2030	0.0005	2256
114.000	CCISeismic b&p	6	23.428	2.1156	0.0005	2332
	database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (109ft to119ft)					
107.250	CCISeismic Tower Section 2 - 5	6	20.549	1.9377	0.0004	2506
104.000	CCISeismic b&p	6	19.242	1.8546	0.0004	2599
	database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (99ft to109ft)					
97.250	CCISeismic Tower Section 2 - 6	6	16.681	1.6897	0.0003	2759
96.750	CCISeismic Tower Section 3 - 1	6	16.500	1.6780	0.0003	2763
94.000	CCISeismic b&p	6	15.520	1.6146	0.0003	2765
	database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (89ft to99ft)					
90.000	CCISeismic Tower Section 3 - 2	6	14.153	1.5258	0.0003	2758
84.000	CCISeismic b&p	6	12.233	1.3996	0.0002	2746
	database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (79ft to89ft)					
80.000	CCISeismic Tower Section 3 - 3	6	11.041	1.3196	0.0002	2738
74.000	CCISeismic b&p	6	9.384	1.2049	0.0002	2727
	database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (69ft to79ft)					
70.000	CCISeismic Tower Section 3 - 4	6	8.367	1.1316	0.0002	2719
64.000	CCISeismic b&p	6	6.975	1.0254	0.0002	2708
	database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (59ft to69ft)					
60.000	CCISeismic Tower Section 3 - 5	6	6.136	0.9566	0.0001	2700
54.000	CCISeismic b&p	6	5.010	0.8558	0.0001	2716
	database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (49ft to59ft)					
51.625	CCISeismic Tower Section 4 - 1	6	4.609	0.8164	0.0001	2787
50.000	CCISeismic Tower Section 3 - 6	6	4.348	0.7896	0.0001	2865
45.000	CCISeismic Tower Section 4 - 2	6	3.615	0.7077	0.0001	3181
44.000	CCISeismic b&p	6	3.480	0.6914	0.0001	3253
	database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (39ft to49ft)					
35.000	CCISeismic Tower Section 4 - 3	6	2.420	0.5466	0.0001	4089
34.000	CCISeismic b&p	6	2.318	0.5307	0.0001	4209
	database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (29ft to39ft)					
25.000	CCISeismic Tower Section 4 - 4	6	1.519	0.3884	0.0000	5724

tnxTower Vertical Bridge REIT, LLC 750 Park of Commerce Dr. Suite 200 Boca Raton, FL 33487 Phone: 561-948-6367 FAX:	Job US-CT-5017	Page 31 of 32
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	Client Vertical Bridge	Designed by JHesson

Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
24.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (19ft to29ft)	6	1.442	0.3727	0.0000	5963
15.000	CCISeismic Tower Section 4 - 5	6	0.827	0.2322	0.0000	9540
14.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (9ft to19ft)	6	0.767	0.2167	0.0000	10222
8.500	CCISeismic (3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175 (8ft to9ft)	6	0.451	0.1314	0.0000	16835
7.000	CCISeismic b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179 (5ft to9ft)	6	0.369	0.1082	0.0000	20443
5.000	CCISeismic Tower Section 4 - 6	6	0.262	0.0773	0.0000	28620

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
L1	179 - 141.5 (1)	TP30.28x18.75x0.25	37.500	179.000	210.7	22.7919	-9.162	116.032	0.079
L2	141.5 - 92.25 (2)	TP44.93x28.4733x0.375	53.500	179.000	141.9	50.7433	-18.234	569.099	0.032
L3	92.25 - 45 (3)	TP58.7x42.2575x0.4375	53.500	179.000	108.6	77.3839	-32.662	1482.890	0.022
L4	45 - 0 (4)	TP71.67x55.2895x0.4375	53.250	179.000	84.9	98.9152	-55.108	2914.510	0.019

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M _{uy} kip-ft	φM _{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	179 - 141.5 (1)	TP30.28x18.75x0.25	298.832	949.625	0.315	0.000	949.625	0.000
L2	141.5 - 92.25 (2)	TP44.93x28.4733x0.375	1045.942	3147.725	0.332	0.000	3147.725	0.000
L3	92.25 - 45 (3)	TP58.7x42.2575x0.4375	1995.100	6054.425	0.330	0.000	6054.425	0.000
L4	45 - 0 (4)	TP71.67x55.2895x0.4375	3431.275	8950.833	0.383	0.000	8950.833	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	179 - 141.5 (1)	TP30.28x18.75x0.25	13.553	399.998	0.034	0.000	1006.175	0.000

tnxTower Vertical Bridge REIT, LLC 750 Park of Commerce Dr. Suite 200 Boca Raton, FL 33487 Phone: 561-948-6367 FAX:	Job	US-CT-5017	Page	32 of 32
	Project	Monopole Structural Analysis	Date	11:28:21 05/20/21
	Client	Vertical Bridge	Designed by	JHesson

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 $\frac{T_u}{\phi T_n}$
L2	141.5 - 92.25 (2)	TP44.93x28.4733x0.375	18.277	890.545	0.021	0.000	3324.883	0.000
L3	92.25 - 45 (3)	TP58.7x42.2575x0.4375	23.740	1358.090	0.017	0.000	6627.858	0.000
L4	45 - 0 (4)	TP71.67x55.2895x0.4375	29.999	1735.960	0.017	0.000	10829.250	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	179 - 141.5 (1)	0.079	0.315	0.000	0.034	0.000	0.395	1.000	4.8.2 ✓
L2	141.5 - 92.25 (2)	0.032	0.332	0.000	0.021	0.000	0.365	1.000	4.8.2 ✓
L3	92.25 - 45 (3)	0.022	0.330	0.000	0.017	0.000	0.352	1.000	4.8.2 ✓
L4	45 - 0 (4)	0.019	0.383	0.000	0.017	0.000	0.403	1.000	4.8.2 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	179 - 141.5	Pole	TP30.28x18.75x0.25	1	-9.162	116.032	39.5	Pass
L2	141.5 - 92.25	Pole	TP44.93x28.4733x0.375	2	-18.234	569.099	36.5	Pass
L3	92.25 - 45	Pole	TP58.7x42.2575x0.4375	3	-32.662	1482.890	35.2	Pass
L4	45 - 0	Pole	TP71.67x55.2895x0.4375	4	-55.108	2914.510	40.3	Pass
Summary								
Pole (L4)							40.3	Pass
RATING =							40.3	Pass

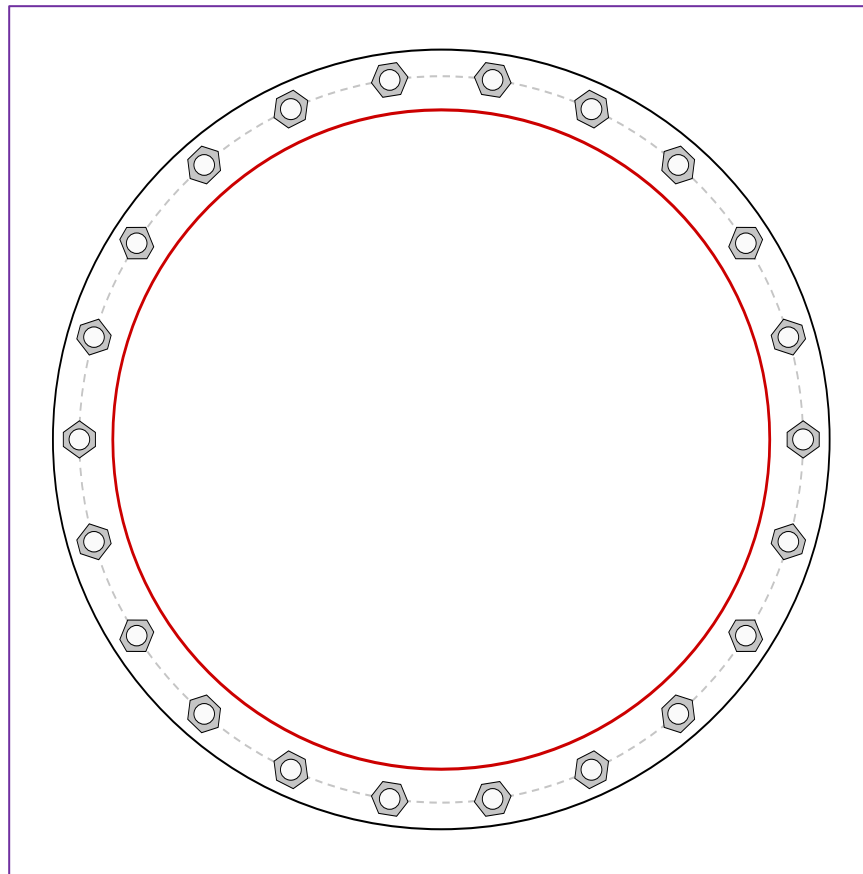
Monopole Base Plate Connection



Site Info	
BU #	
Site Name	
Order #	

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1

Applied Loads	
Moment (kip-ft)	3431.28
Axial Force (kips)	55.11
Shear Force (kips)	30.00



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

Anchor Rod Data
(22) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 79" BC
Base Plate Data
84.75" OD x 2.25" Plate (A572-50; $F_y=50$ ksi, $F_u=65$ ksi)
Stiffener Data
N/A
Pole Data
71.67" x 0.4375" 18-sided pole (A572-65; $F_y=65$ ksi, $F_u=80$ ksi)

Anchor Rod Summary			<i>(units of kips, kip-in)</i>
$P_{u_c} = 97.24$	$\phi P_{n_c} = 268.39$	Stress Rating	
$V_u = 1.36$	$\phi V_n = 120.77$		36.2%
$M_u = n/a$	$\phi M_n = n/a$		Pass
Base Plate Summary			
Max Stress (ksi):	17.64		(Flexural)
Allowable Stress (ksi):	45		
Stress Rating:	39.2%		Pass

Monopole Base Plate Connection - Seismic

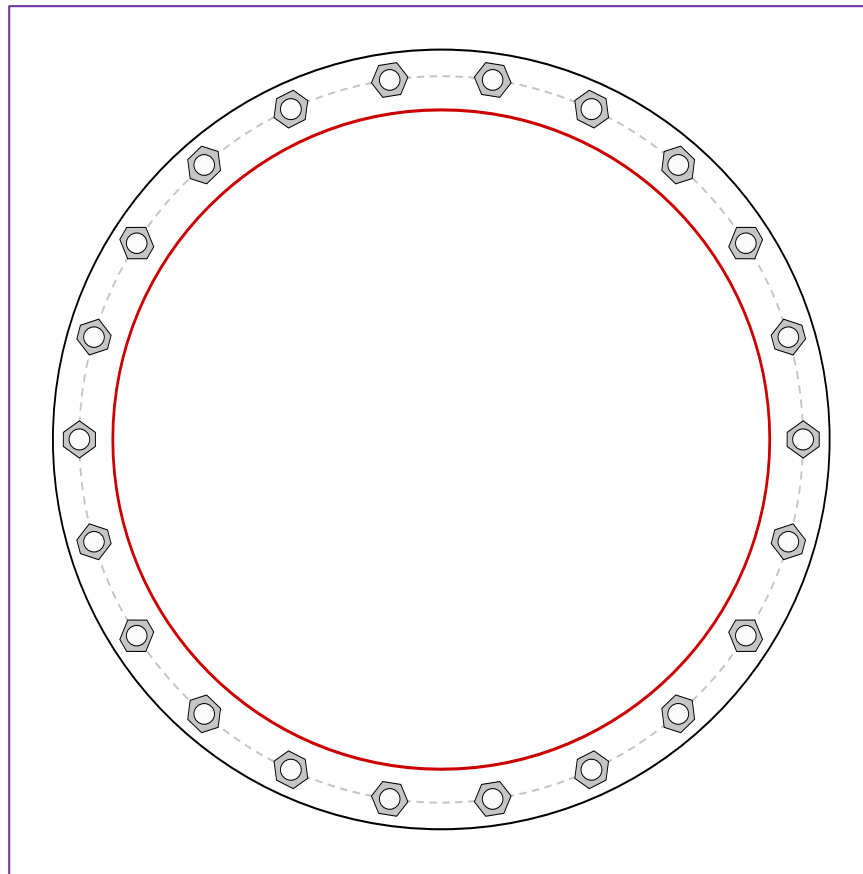


Site Info	
BU #	
Site Name	
Order #	

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1

Applied Loads	
Moment (kip-ft)	192.53
Axial Force (kips)	56.81
Shear Force (kips)	1.38

*1.5 Overstrength Factor Applied



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

Anchor Rod Data
(22) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 79" BC
Base Plate Data
84.75" OD x 2.25" Plate (A572-50; $F_y=50$ ksi, $F_u=65$ ksi)
Stiffener Data
N/A
Pole Data
71.67" x 0.4375" 18-sided pole (A572-65; $F_y=65$ ksi, $F_u=80$ ksi)

Anchor Rod Summary			<i>(units of kips, kip-in)</i>
$P_{u_c} = 10.56$	$\phi P_{n_c} = 268.39$	Stress Rating	
$V_u = 0.09$	$\phi V_n = 120.77$	3.9%	
$M_u = n/a$	$\phi M_n = n/a$	Pass	
Base Plate Summary			
Max Stress (ksi):	1.44	(Flexural)	
Allowable Stress (ksi):	45		
Stress Rating:	3.2%	Pass	

Pier and Pad Foundation



BU #:

Site Name:

App. Number:

TIA-222 Revision:

Tower Type:

Top & Bot. Pad Rein. Different?:

Block Foundation?:

Rectangular Pad?:

Superstructure Analysis Reactions		
Compression, P_{comp} :	55.12	kips
Base Shear, Vu_{comp} :	29.98	kips
Moment, M_u :	3431.28	ft-kips
Tower Height, H :	179	ft
BP Dist. Above Fdn, bp_{dist} :	3	in

Foundation Analysis Checks				
	Capacity	Demand	Rating	Check
<i>Lateral (Sliding) (kips)</i>	349.81	29.98	8.6%	Pass
<i>Bearing Pressure (ksf)</i>	23.00	1.56	6.8%	Pass
<i>Overturning (kip*ft)</i>	9042.47	3633.65	40.2%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	9313.24	3566.19	38.3%	Pass
<i>Pier Compression (kip)</i>	35992.10	95.84	0.3%	Pass
<i>Pad Flexure (kip*ft)</i>	5226.35	1231.62	23.6%	Pass
<i>Pad Shear - 1-way (kips)</i>	687.76	179.52	26.1%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.201	0.061	30.3%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	4982.71	2139.71	42.9%	Pass

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, $dpier$:	8	ft
Ext. Above Grade, E :	0.5	ft
Pier Rebar Size, Sc :	9	
Pier Rebar Quantity, mc :	50	
Pier Tie/Spiral Size, St :	5	
Pier Tie/Spiral Quantity, mt :	8	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

Soil Rating:	40.2%
Structural Rating:	42.9%

Pad Properties		
Depth, D :	6	ft
Pad Width, W_1 :	29.5	ft
Pad Thickness, T :	2	ft
Pad Rebar Size (Bottom dir. 2), Sp_2 :	9	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	65	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	4.5	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	110	pcf
Ultimate Net Bearing, Q_{net} :	30.000	ksf
Cohesion, C_u :		ksf
Friction Angle, ϕ :	40	degrees
SPT Blow Count, N_{blows} :	41	
Base Friction, μ :		
Neglected Depth, N :	4.00	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	7.5	ft

<--Toggle between Gross and Net



BU:
 WO:
 Order:

Structure:
 Rev:

Location

	Decimal Degrees	Deg	Min	Sec
Lat:	<input type="text"/>	<input type="text" value="+"/>	<input type="text"/>	<input type="text"/>
Long:	<input type="text"/>	<input type="text" value="-"/>	<input type="text"/>	<input type="text"/>

Code and Site Parameters

Seismic Design Code:	<input type="text" value="TIA-222-H-1"/>	
Site Soil:	<input type="text" value="D (Default)"/>	Stiff Soil (Default)
Risk Category:	<input type="text" value="II"/>	
<u>USGS Seismic Reference</u>		
S _s :	<input type="text" value="0.1730"/>	g
S ₁ :	<input type="text" value="0.0550"/>	g
T _L :	<input type="text" value="6"/>	s

Seismic Design Category Determination

Importance Factor, I _e :	<input type="text" value="1"/>
Acceleration-based site coefficient, F _a :	<input type="text" value="1.6000"/>
Velocity-based site coefficient, F _v :	<input type="text" value="2.4000"/>
Design spectral response acceleration short period, S _{DS} :	<input type="text" value="0.1845"/> g
Design spectral response acceleration 1 s period, S _{D1} :	<input type="text" value="0.0880"/> g
T _s :	<input type="text" value="0.4769"/>
Seismic Design Category Based on S _{DS} :	<input type="text" value="B"/>
Seismic Design Category Based on S _{D1} :	<input type="text" value="B"/>
Seismic Design Category Based on S ₁ :	<input type="text" value="N/A"/>
Controlling Seismic Design Category:	<input type="text" value="B"/>



BU:
 WO:
 Order:

Structure:
 Rev:

Tower Details

Tower Type:	Tapered Monopole		
Height, h:	179	ft	
Effective Seismic Weight, W:	45.93	kips	
Amplification Factor, A _s :	1.0		2.7.8.1

Seismic Base Shear

Response Modification Factor, R:	1.5		
Discrete Appurtenance Weight in Top 1/3 of Structure, W _u :	5.893	kips	
W _L :	40.03641476	kips	
E:	29000.0	ksi	
g:	386.088	in/s ²	
Average Moment of Inertia, I _{avg} :	20507.84597	in ⁴	
F _a :	0.338763239	hz	
Approximate Fundamental Period Monopole, T _a :	2.9519	s	2.7.7.1.3.3
Seismic Response Coefficient, C _s :	0.1230		2.7.7.1.1
Seismic Response Coefficient Max 1, C _{smax} :	0.0199		2.7.7.1.1
Seismic Response Coefficient Max 2, C _{smax} :	N/A		2.7.7.1.1
Seismic Response Coefficient Min 1, C _{smin} :	0.0300		2.7.7.1.1
Seismic Response Coefficient Min 2, C _{smin} :	N/A		2.7.7.1.1
Controlling Seismic Response Coefficient, C _{sc} :	0.0300		
Seismic Base Shear, V:	1.378	kips	2.7.7.1.1

Vertical Distribution Factors

Period Related Exponent, k:	2.000		
Sum of w _i h _i ^k :	429303.84		

Tower Section Loads								
Section Number	Length	Top Height	Mid Height, h_x	Section Weight, w_x	$w_x h_x^k$	C_{vx}	F_{xh}	F_{xv}
1 - 1	7.50	179.00	175.25	0.3980	12222.81	0.0285	0.0392	0.0147
1 - 2	10.00	171.50	166.50	0.6033	16724.04	0.0390	0.0537	0.0223
1 - 3	10.00	161.50	156.50	0.6863	16808.73	0.0392	0.0539	0.0253
1 - 4	10.00	151.50	146.50	0.7693	16510.99	0.0385	0.0530	0.0284
2 - 1	3.50	145.75	144.00	0.4059	8417.25	0.0196	0.0270	0.0150
2 - 2	10.00	142.25	137.25	1.2439	23431.58	0.0546	0.0752	0.0459
2 - 3	10.00	132.25	127.25	1.3685	22158.78	0.0516	0.0711	0.0505
2 - 4	10.00	122.25	117.25	1.4930	20525.58	0.0478	0.0659	0.0551
2 - 5	10.00	112.25	107.25	1.6176	18606.70	0.0433	0.0597	0.0597
2 - 6	10.00	102.25	97.25	1.7422	16476.89	0.0384	0.0529	0.0643
3 - 1	3.50	98.50	96.75	0.7005	6557.02	0.0153	0.0210	0.0259
3 - 2	10.00	95.00	90.00	2.0994	17005.41	0.0396	0.0546	0.0775
3 - 3	10.00	85.00	80.00	2.2447	14365.76	0.0335	0.0461	0.0828
3 - 4	10.00	75.00	70.00	2.3899	11710.35	0.0273	0.0376	0.0882
3 - 5	10.00	65.00	60.00	2.5351	9126.30	0.0213	0.0293	0.0936
3 - 6	10.00	55.00	50.00	2.6803	6700.75	0.0156	0.0215	0.0989
4 - 1	3.25	53.25	51.63	0.8500	2265.37	0.0053	0.0073	0.0314
4 - 2	10.00	50.00	45.00	2.7117	5491.14	0.0128	0.0176	0.1001
4 - 3	10.00	40.00	35.00	2.8570	3499.85	0.0082	0.0112	0.1054
4 - 4	10.00	30.00	25.00	3.0024	1876.48	0.0044	0.0060	0.1108
4 - 5	10.00	20.00	15.00	3.1477	708.24	0.0016	0.0023	0.1162
4 - 6	10.00	10.00	5.00	3.2931	82.33	0.0002	0.0003	0.1215
			Sum	38.8396	251272.37			

Discrete Loads						
Name	h_x	w_x	$w_x h_x^k$	C_{vx}	F_{xh}	F_{xv}
Sector Frames	175.00	2.0000	61250.00	0.1427	0.1966	0.0738
rfs celwave APXV18-206517S-C w/ Mount Pipe	175.00	0.0520	1592.50	0.0037	0.0051	0.0019
rfs celwave APXV18-206517S-C w/ Mount Pipe	175.00	0.0520	1592.50	0.0037	0.0051	0.0019
rfs celwave APXV18-206517S-C w/ Mount Pipe	175.00	0.0520	1592.50	0.0037	0.0051	0.0019
(2) andrew LNX-6515DS-A1M w/ pipe mount	175.00	0.1220	3736.25	0.0087	0.0120	0.0045
(2) andrew LNX-6515DS-A1M w/ pipe mount	175.00	0.1220	3736.25	0.0087	0.0120	0.0045
(2) andrew LNX-6515DS-A1M w/ pipe mount	175.00	0.1220	3736.25	0.0087	0.0120	0.0045
(2) ericsson RRUS 11	175.00	0.1020	3123.75	0.0073	0.0100	0.0038
(2) ericsson RRUS 11	175.00	0.1020	3123.75	0.0073	0.0100	0.0038
(2) ericsson RRUS 11	175.00	0.1020	3123.75	0.0073	0.0100	0.0038
1/3 Remaining Reserve Rights	175.00	0.2650	8115.63	0.0189	0.0260	0.0098
1/3 Remaining Reserve Rights	175.00	0.2650	8115.63	0.0189	0.0260	0.0098
1/3 Remaining Reserve Rights	175.00	0.2650	8115.63	0.0189	0.0260	0.0098
site pro 1 SNP8HR-3xx (0.67 Ka included)	155.00	1.4720	35364.80	0.0824	0.1135	0.0543
jma MX08FRO665-20_V0F w/ MP (72x20x8)	155.00	0.0540	1297.35	0.0030	0.0042	0.0020
jma MX08FRO665-20_V0F w/ MP (72x20x8)	155.00	0.0540	1297.35	0.0030	0.0042	0.0020
jma MX08FRO665-20_V0F w/ MP (72x20x8)	155.00	0.0540	1297.35	0.0030	0.0042	0.0020
fujitsu TA08025-B604 (15.75x14.96x7.87)	155.00	0.0630	1513.58	0.0035	0.0049	0.0023
fujitsu TA08025-B604 (15.75x14.96x7.87)	155.00	0.0630	1513.58	0.0035	0.0049	0.0023
fujitsu TA08025-B604 (15.75x14.96x7.87)	155.00	0.0630	1513.58	0.0035	0.0049	0.0023
fujitsu TA08025-B605 (15.75x14.96x9.06)	155.00	0.0750	1801.88	0.0042	0.0058	0.0028
fujitsu TA08025-B605 (15.75x14.96x9.06)	155.00	0.0750	1801.88	0.0042	0.0058	0.0028
fujitsu TA08025-B605 (15.75x14.96x9.06)	155.00	0.0750	1801.88	0.0042	0.0058	0.0028
raycap RDIDC-9181-PF-48 (16x14x8)	155.00	0.0220	528.55	0.0012	0.0017	0.0008
1/3 Remaining Reserve Rights	155.00	0.0620	1489.55	0.0035	0.0048	0.0023
1/3 Remaining Reserve Rights	155.00	0.0620	1489.55	0.0035	0.0048	0.0023
1/3 Remaining Reserve Rights	155.00	0.0620	1489.55	0.0035	0.0048	0.0023
andrew VHLP1-23	175.00	0.0140	428.75	0.0010	0.0014	0.0005
Sum		5.8930	165583.53			

Linear Loads								
Name	Start Height	End Height	h_x	w_x	$w_x h_x^k$	C_{vx}	F_{xh}	F_{xv}
b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179	169.00	179.00	174.00	0.0022	66.61	0.0002	0.0002	0.0001
b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179	159.00	169.00	164.00	0.0022	59.17	0.0001	0.0002	0.0001
b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179	149.00	159.00	154.00	0.0022	52.18	0.0001	0.0002	0.0001
b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179	139.00	149.00	144.00	0.0022	45.62	0.0001	0.0001	0.0001
b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179	129.00	139.00	134.00	0.0022	39.50	0.0001	0.0001	0.0001
b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179	119.00	129.00	124.00	0.0022	33.83	0.0001	0.0001	0.0001
b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179	109.00	119.00	114.00	0.0022	28.59	0.0001	0.0001	0.0001
b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179	99.00	109.00	104.00	0.0022	23.80	0.0001	0.0001	0.0001
b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179	89.00	99.00	94.00	0.0022	19.44	0.0000	0.0001	0.0001
b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179	79.00	89.00	84.00	0.0022	15.52	0.0000	0.0000	0.0001
b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179	69.00	79.00	74.00	0.0022	12.05	0.0000	0.0000	0.0001
b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179	59.00	69.00	64.00	0.0022	9.01	0.0000	0.0000	0.0001
b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179	49.00	59.00	54.00	0.0022	6.42	0.0000	0.0000	0.0001
b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179	39.00	49.00	44.00	0.0022	4.26	0.0000	0.0000	0.0001
b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179	29.00	39.00	34.00	0.0022	2.54	0.0000	0.0000	0.0001
b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179	19.00	29.00	24.00	0.0022	1.27	0.0000	0.0000	0.0001
b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179	9.00	19.00	14.00	0.0022	0.43	0.0000	0.0000	0.0001
b&p database_mike-laptop_1 Safety Line 3/8 From 5 to 179	5.00	9.00	7.00	0.0009	0.04	0.0000	0.0000	0.0000
b&p database_mike-laptop_1 Step Pegs From 5 to 179	169.00	179.00	174.00	0.0150	454.14	0.0011	0.0015	0.0006
b&p database_mike-laptop_1 Step Pegs From 5 to 179	159.00	169.00	164.00	0.0150	403.44	0.0009	0.0013	0.0006
b&p database_mike-laptop_1 Step Pegs From 5 to 179	149.00	159.00	154.00	0.0150	355.74	0.0008	0.0011	0.0006
b&p database_mike-laptop_1 Step Pegs From 5 to 179	139.00	149.00	144.00	0.0150	311.04	0.0007	0.0010	0.0006
b&p database_mike-laptop_1 Step Pegs From 5 to 179	129.00	139.00	134.00	0.0150	269.34	0.0006	0.0009	0.0006
b&p database_mike-laptop_1 Step Pegs From 5 to 179	119.00	129.00	124.00	0.0150	230.64	0.0005	0.0007	0.0006
b&p database_mike-laptop_1 Step Pegs From 5 to 179	109.00	119.00	114.00	0.0150	194.94	0.0005	0.0006	0.0006
b&p database_mike-laptop_1 Step Pegs From 5 to 179	99.00	109.00	104.00	0.0150	162.24	0.0004	0.0005	0.0006
b&p database_mike-laptop_1 Step Pegs From 5 to 179	89.00	99.00	94.00	0.0150	132.54	0.0003	0.0004	0.0006
b&p database_mike-laptop_1 Step Pegs From 5 to 179	79.00	89.00	84.00	0.0150	105.84	0.0002	0.0003	0.0006
b&p database_mike-laptop_1 Step Pegs From 5 to 179	69.00	79.00	74.00	0.0150	82.14	0.0002	0.0003	0.0006
b&p database_mike-laptop_1 Step Pegs From 5 to 179	59.00	69.00	64.00	0.0150	61.44	0.0001	0.0002	0.0006
b&p database_mike-laptop_1 Step Pegs From 5 to 179	49.00	59.00	54.00	0.0150	43.74	0.0001	0.0001	0.0006
b&p database_mike-laptop_1 Step Pegs From 5 to 179	39.00	49.00	44.00	0.0150	29.04	0.0001	0.0001	0.0006
b&p database_mike-laptop_1 Step Pegs From 5 to 179	29.00	39.00	34.00	0.0150	17.34	0.0000	0.0001	0.0006
b&p database_mike-laptop_1 Step Pegs From 5 to 179	19.00	29.00	24.00	0.0150	8.64	0.0000	0.0000	0.0006
b&p database_mike-laptop_1 Step Pegs From 5 to 179	9.00	19.00	14.00	0.0150	2.94	0.0000	0.0000	0.0006
b&p database_mike-laptop_1 Step Pegs From 5 to 179	5.00	9.00	7.00	0.0060	0.29	0.0000	0.0000	0.0002
(3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175	169.00	175.00	172.00	0.0234	692.27	0.0016	0.0022	0.0009
(3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175	159.00	169.00	164.00	0.0390	1048.94	0.0024	0.0034	0.0014
(3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175	149.00	159.00	154.00	0.0390	924.92	0.0022	0.0030	0.0014
(3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175	139.00	149.00	144.00	0.0390	808.70	0.0019	0.0026	0.0014
(3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175	129.00	139.00	134.00	0.0390	700.28	0.0016	0.0022	0.0014
(3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175	119.00	129.00	124.00	0.0390	599.66	0.0014	0.0019	0.0014
(3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175	109.00	119.00	114.00	0.0390	506.84	0.0012	0.0016	0.0014
(3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175	99.00	109.00	104.00	0.0390	421.82	0.0010	0.0014	0.0014
(3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175	89.00	99.00	94.00	0.0390	344.60	0.0008	0.0011	0.0014
(3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175	79.00	89.00	84.00	0.0390	275.18	0.0006	0.0009	0.0014
(3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175	69.00	79.00	74.00	0.0390	213.56	0.0005	0.0007	0.0014
(3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175	59.00	69.00	64.00	0.0390	159.74	0.0004	0.0005	0.0014
(3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175	49.00	59.00	54.00	0.0390	113.72	0.0003	0.0004	0.0014
(3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175	39.00	49.00	44.00	0.0390	75.50	0.0002	0.0002	0.0014
(3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175	29.00	39.00	34.00	0.0390	45.08	0.0001	0.0001	0.0014
(3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175	19.00	29.00	24.00	0.0390	22.46	0.0001	0.0001	0.0014
(3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175	9.00	19.00	14.00	0.0390	7.64	0.0000	0.0000	0.0014
(3) b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 175	8.00	9.00	8.50	0.0039	0.28	0.0000	0.0000	0.0001
andrew LDF5-50A(7/8") From 8 to 175	169.00	175.00	172.00	0.0020	58.58	0.0001	0.0002	0.0001
andrew LDF5-50A(7/8") From 8 to 175	159.00	169.00	164.00	0.0033	88.76	0.0002	0.0003	0.0001
andrew LDF5-50A(7/8") From 8 to 175	149.00	159.00	154.00	0.0033	78.26	0.0002	0.0003	0.0001
andrew LDF5-50A(7/8") From 8 to 175	139.00	149.00	144.00	0.0033	68.43	0.0002	0.0002	0.0001
andrew LDF5-50A(7/8") From 8 to 175	129.00	139.00	134.00	0.0033	59.25	0.0001	0.0002	0.0001
andrew LDF5-50A(7/8") From 8 to 175	119.00	129.00	124.00	0.0033	50.74	0.0001	0.0002	0.0001
andrew LDF5-50A(7/8") From 8 to 175	109.00	119.00	114.00	0.0033	42.89	0.0001	0.0001	0.0001
andrew LDF5-50A(7/8") From 8 to 175	99.00	109.00	104.00	0.0033	35.69	0.0001	0.0001	0.0001
andrew LDF5-50A(7/8") From 8 to 175	89.00	99.00	94.00	0.0033	29.16	0.0001	0.0001	0.0001
andrew LDF5-50A(7/8") From 8 to 175	79.00	89.00	84.00	0.0033	23.28	0.0001	0.0001	0.0001
andrew LDF5-50A(7/8") From 8 to 175	69.00	79.00	74.00	0.0033	18.07	0.0000	0.0001	0.0001
andrew LDF5-50A(7/8") From 8 to 175	59.00	69.00	64.00	0.0033	13.52	0.0000	0.0000	0.0001
andrew LDF5-50A(7/8") From 8 to 175	49.00	59.00	54.00	0.0033	9.62	0.0000	0.0000	0.0001
andrew LDF5-50A(7/8") From 8 to 175	39.00	49.00	44.00	0.0033	6.39	0.0000	0.0000	0.0001
andrew LDF5-50A(7/8") From 8 to 175	29.00	39.00	34.00	0.0033	3.81	0.0000	0.0000	0.0001
andrew LDF5-50A(7/8") From 8 to 175	19.00	29.00	24.00	0.0033	1.90	0.0000	0.0000	0.0001
andrew LDF5-50A(7/8") From 8 to 175	9.00	19.00	14.00	0.0033	0.65	0.0000	0.0000	0.0001
andrew LDF5-50A(7/8") From 8 to 175	8.00	9.00	8.50	0.0003	0.02	0.0000	0.0000	0.0000
b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155	149.00	155.00	152.00	0.0078	180.21	0.0004	0.0006	0.0003
b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155	139.00	149.00	144.00	0.0130	269.57	0.0006	0.0009	0.0005
b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155	129.00	139.00	134.00	0.0130	233.43	0.0005	0.0007	0.0005
b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155	119.00	129.00	124.00	0.0130	199.89	0.0005	0.0006	0.0005
b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155	109.00	119.00	114.00	0.0130	168.95	0.0004	0.0005	0.0005
b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155	99.00	109.00	104.00	0.0130	140.61	0.0003	0.0005	0.0005
b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155	89.00	99.00	94.00	0.0130	114.87	0.0003	0.0004	0.0005
b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155	79.00	89.00	84.00	0.0130	91.73	0.0002	0.0003	0.0005
b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 155	69.00	79.00	74.00	0.0130	71.19	0.0002	0.0002	0.0005

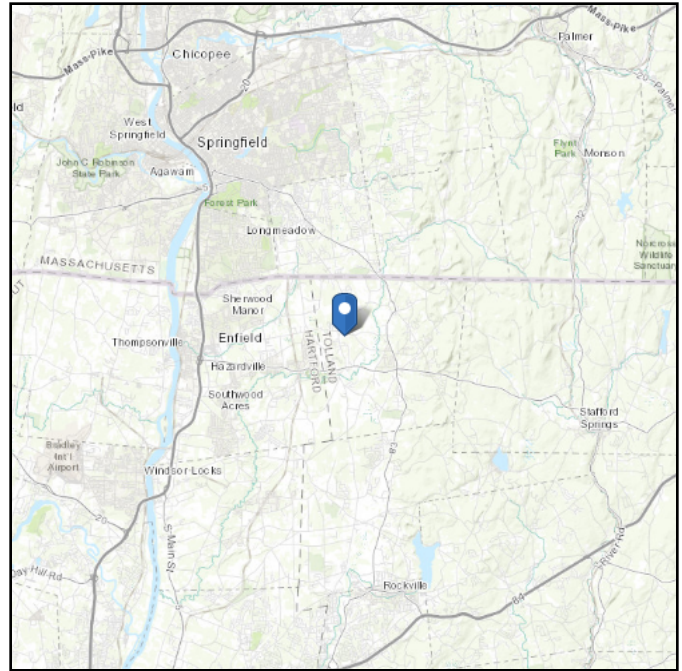
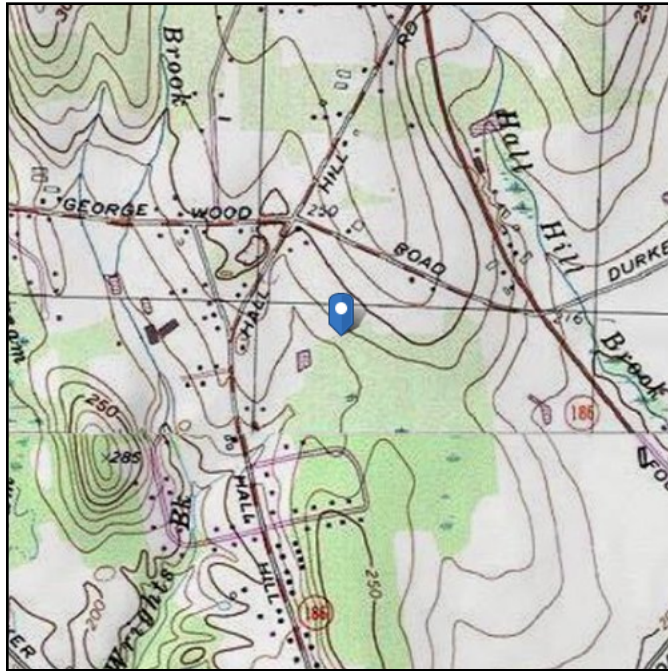
b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 15	59.00	69.00	64.00	0.0130	53.25	0.0001	0.0002	0.0005
b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 15	49.00	59.00	54.00	0.0130	37.91	0.0001	0.0001	0.0005
b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 15	39.00	49.00	44.00	0.0130	25.17	0.0001	0.0001	0.0005
b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 15	29.00	39.00	34.00	0.0130	15.03	0.0000	0.0000	0.0005
b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 15	19.00	29.00	24.00	0.0130	7.49	0.0000	0.0000	0.0005
b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 15	9.00	19.00	14.00	0.0130	2.55	0.0000	0.0000	0.0005
b&p database_mike-laptop_1 1 5/8 Hybrid Flex (1.98" 1.3lbs) From 8 to 15	8.00	9.00	8.50	0.0013	0.09	0.0000	0.0000	0.0000
				Sum	1.1968	12447.94		

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: 234.15 ft (NAVD 88)
Latitude: 42.002594
Longitude: -72.484997



Wind

Results:

Wind Speed:	116 Vmph
10-year MRI	75 Vmph
25-year MRI	83 Vmph
50-year MRI	90 Vmph
100-year MRI	97 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: Mon May 17 2021

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

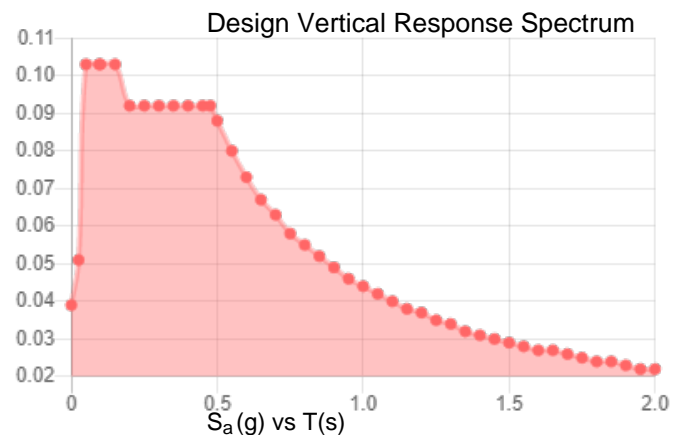
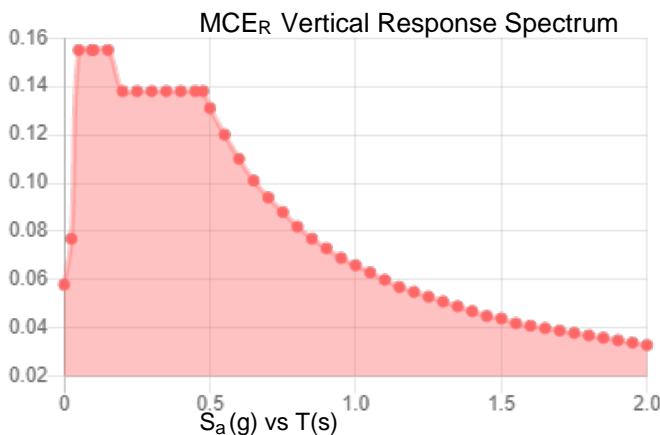
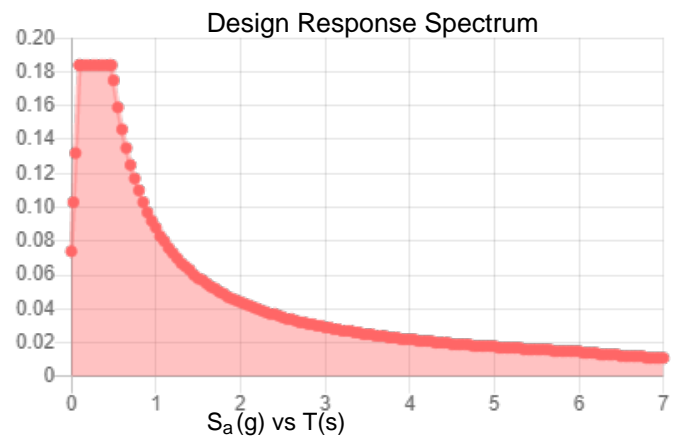
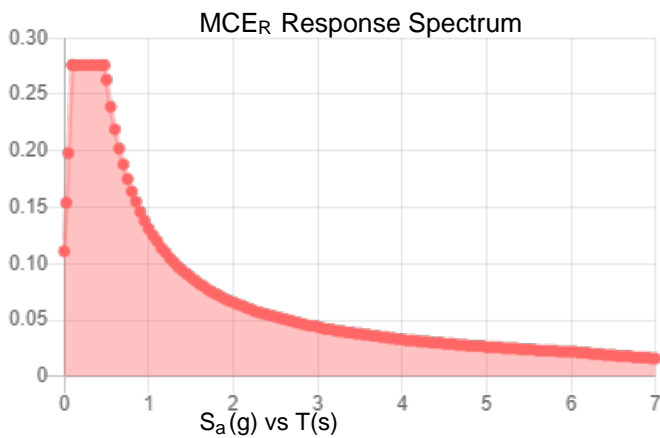
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

Results:

S_S :	0.173	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.091
F_v :	2.4	PGA _M :	0.145
S_{MS} :	0.276	F_{PGA} :	1.6
S_{M1} :	0.131	I_e :	1
S_{DS} :	0.184	C_v :	0.7

Seismic Design Category B



Data Accessed:

Mon May 17 2021

Date Source:

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

Ice

Results:

Ice Thickness: 1.50 in.

Concurrent Temperature: 5 F

Gust Speed: 50 mph

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

Date Accessed: Mon May 17 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.

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In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

Attachment 2:
Collocation Application



SUMMARY

PRIMARY INFO

Application #: P-006913
Application Version: 4 (Submitted: 5/19/2021 6:10:00 PM)
Application Type: Broadband
Application Name: DISH Wireless BOBDL00103A
Lease Type: New Lease
Description:
Dish proposes to place 3 antennas, 6 RRUs, 1 junction box(s), and 1 cable(s) at the 155 foot RAD. Dish will require a 5' x 7' lease area for ground equipment

VERTICAL BRIDGE SITE INFO

VB Site #: US-CT-5017
VB Site Name: Blue Ridge
Latitude: 42.00259444
Longitude: -72.48499722
Structure Type: Monopole
Structure Height: 181.0000
Site Address: 248 Hall Hill Road -
Somers, CT 06071

VERTICAL BRIDGE DEAL TEAM

RLM: Floyd Jenkins
FJenkins@verticalbridge.com
(301) 667-0069

RLS: Sam Bowden
SBowden@verticalbridge.com

ROM: Joe Bascelli
JBascelli@verticalbridge.com
(484) 288-9586

TENANT LEGAL INFO

Tenant Legal Name: DISH Wireless L.L.C.
State of Registration: Colorado
Type of Entity: LLC
Carrier NOC #: 2039274317
Tenant Site #: BOBDL00103A
Tenant Site Name: BOBDL00103A

APPLICANT

Name: Mai Conaway
Address: 1053 Farmington Avenue
Farmington, CT 06032
Phone Number::: (410) 409-3822
Email Address: mai@northeastssitesolutions.com

FINAL LEASED RIGHTS CONFIGURATION TOTALS

This is a summary of your remaining existing equipment plus the new equipment.

FINAL EQUIPMENT

Qty	Equipment Type
1	Junction Box
3	Panel
6	RRU

FINAL LINES

Qty	Line Type
1	Hybrid



COLOCATION APPLICATION
US-CT-5017
Version 4
DISH Wireless L.L.C.

Vertical Bridge REIT, LLC.
750 Park of Commerce Drive
Suite 200
Boca Raton, FL 33487

FREQUENCY & TECHNOLOGY INFO

Type of Technology:	Broadband Wireless
Is TX Frequency Licensed:	Yes
TX Frequency:	82.1884683
Is RX Frequency Licensed:	Yes
RX Frequency:	9085.919815

MOUNT & STRUCTURAL ANALYSIS

MOUNT ANALYSIS	STRUCTURAL HARD COPIES
Provided by Tenant: No	Required: Yes
To Be Run by VB: Yes	Number of Hard Copies: 1
Include Mount Mapping: Yes	

CONTACTS

INVOICE CONTACT						
Attention To	Name	Address	Phone Number 1	Phone Number 2	Email 1	Email 2
Real Estate	Jeanne Cottrell	5701 South Sante Fe Road Littleton, CO 80120	(203) 927-4317		jean.cottrell@dish.com	

PO CONTACT		
Name	Phone Number	Email
Jeanne Cottrell	(203) 927-4317	jean.cottrell@dish.com

LEASING CONTACT		
Name	Phone Number	Email
Mai Conaway	(410) 409-3822	mai@northeastsitesolutions.com

STRUCTURAL HARD COPIES CONTACT	
Name	Address
Matt Bardle	1053 Farmington Avenue Farmington, CT 06032

NOTICE CONTACT			
Notice To	Attention To	Name	Address
DISH Wireless LLC	Real Estate	Jeanne Cottrell	5701 South Sante Fe Blvd Littleton, CO 80120



COLOCATION APPLICATION
US-CT-5017
Version 4
DISH Wireless L.L.C.

Vertical Bridge REIT, LLC.
750 Park of Commerce Drive
Suite 200
Boca Raton, FL 33487

RF CONTACT

Name	Phone Number	Email
Jared Robinson	(978) 855-5870	jared.robinson@dish.com

TENANT CONSTRUCTION MANAGER CONTACT

Name	Phone Number	Email
Javier Soto	(617) 839-6514	javier.soto@dish.com

LINE & EQUIPMENT

NEW LINE(S)

Qty	Line Type	Line Size(in.)	Line Location	Comments
1	Hybrid	1.75	Interior	

NEW EQUIPMENT

Qty	Equipment Type	RAD Height	Mount (H')	Mount Type	Manufacturer	Model Number	Dimensions (H"xW"xD")	Weight (Lbs.)	Azimuth	Comments
3	RRU	155.00	155.00	Sector Frames	Fujitsu	TA0802 5-B604	15.75 x 14.96 x 7.87	63.93	0, 120, 240	
1	Junction Box	155.00	155.00	Sector Frames	0	0	16.00 x 14.00 x 8.00	21.85	na	
3	Panel	155.00	155.00	Sector Frames	JMA	MX08F RO665-20_V0F	72.80 x 20.00 x 8.00	64.50	0, 120, 240	
3	RRU	155.00	155.00	Sector Frames	Fujitsu	TA0802 5-B605	15.75 x 14.96 x 9.05	74.95	0, 120, 240	

NEW EQUIPMENT CABINET(S)

Quantity of Cabinets	Cabinet Dimensions (H x W x D)	Manufacturer	Comments
1	32.00 x 32.00 x 74.00	Charles(Amphentol) -H/EX	Outdoor cabinet with base mount - Commscope MTC4045LP

ADDITIONAL SITE REQUIREMENTS

GROUND & INTERIOR SPACE REQUIREMENTS

Requirement Type	Total Lease Area (L x W)	Cabinet Required	Cabinet Area (L x W)	Shelter Required	Shelter Pad (L x W)	Comments
New	5.00 x 7.00	Yes	3.00 x 5.00		x	

GENERATOR REQUIREMENTS

Requirement Type	Fuel Type	Kilowatt Size	Pad Dimensions (L x D)	Generator Manufacturer	Fuel Tank Manufacturer	Comments
New	Diesel	NA	0.00 x 0.00	NA	NA	No generator required



COLOCATION APPLICATION
US-CT-5017
Version 4
DISH Wireless L.L.C.

Vertical Bridge REIT, LLC.
750 Park of Commerce Drive
Suite 200
Boca Raton, FL 33487

AC POWER REQUIREMENTS

Meter Type	Additional Details	Comments
New Tenant Meter		

BACKHAUL REQUIREMENTS

Requirement Type	Cable Type	Number Of Points Of Entry	Riser Size (Inches)	Comments
New	Fiber	1		

Exhibit E

Mount Analysis

Mount Analysis Report

October 27, 2021

Dish Wireless Site Number	BOBDL00103A
Infinigy Job Number	2039-Z5555C
Client	Northeast Site Solutions
Carrier	Dish Wireless
Site Location	248 Hall Hill Road, Somers, CT 6071 42.0026 N NAD83 72.4850 W NAD83
Mount Centerline EL.	155 ft
Mount Classification	Platform
Structural Usage Ratio	81%
Overall Result	Pass

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA and ASCE code requirements. The proposed platform for the proposed carrier is therefore deemed **adequate** to support the final loading configuration as listed in this report.



Dmitriy Albul, P.E.
Engineering Consultant to Infinigy

Contents

Introduction.....	3
Supporting Documentation.....	3
Analysis Code Requirements.....	3
Conclusion.....	3
Final Configuration Loading.....	4
Structure Usages.....	4
Assumptions and Limitations.....	4
Calculations.....	Appended

Introduction

Infinigy Engineering has been requested to perform a mount analysis of proposed antenna mount from the Dish Wireless equipment. All 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 19.0 analysis software.

Supporting Documentation

Platform Drawings	Site Pro 1 Assembly Drawings No. SNP8HR-396
Construction Drawings	Infinigy Engineering PLLC, Job No. 2039-Z5555C, dated June 7, 2021
RF Design Sheet	Dish Wireless, dated February 15, 2021

Analysis Code Requirements

Wind Speed	125 mph (3-second Gust, Vult.)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 1" ice
TIA Revision	ANSI/TIA-222-G / 2018 Connecticut State Building Code (2015 IBC)
Structure Class	II
Exposure Category	C
Topographic Method	Method 2
Topographic Category	1
Spectral Response	S _s =0.174, S ₁ =0.064
Site Class	D – Stiff Soil
HMSL	233.4 ft.

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The proposed platform is therefore deemed adequate to support the final loading configuration as listed in this report.

If you have any questions, require additional information, or actual conditions differ from those as detailed in this report please contact me via the information below:

Dmitriy Albul, P.E.
 Professional Engineer | Engineering Consultant to Infinigy
 1033 Watervliet Shaker Road, Albany, NY 12205
 (O) (518) 690-0790 | (M) (518) 699-4428
www.infinigy.com

Final Configuration Loading

Mount CL (ft)	Rad. HT (ft)	Vert. O/S (ft)	Horiz. O/S (ft)*	Qty	Appurtenance	Carrier
155.0	155.0	-	4	3	JMA MX08FRO665-20	Dish Wireless
			4	3	Fujitsu TA08025-B605	
			4	3	Fujitsu TA08025-B604	
			-	1	Raycap RDIDC-9181-PF-48	

*Horizontal Offset is defined as the distance from the left most edge of the mount face horizontal when viewed facing the tower.

Structure Usages

Plates	81%	Pass
Mount Pipes	47%	Pass
Arms	37%	Pass
Cross Arms	34%	Pass
Connections	30%	Pass
Handrails	15%	Pass
Frame Rails	13%	Pass
<u>Rating</u>	<u>81%</u>	Pass

Assumptions and Limitations

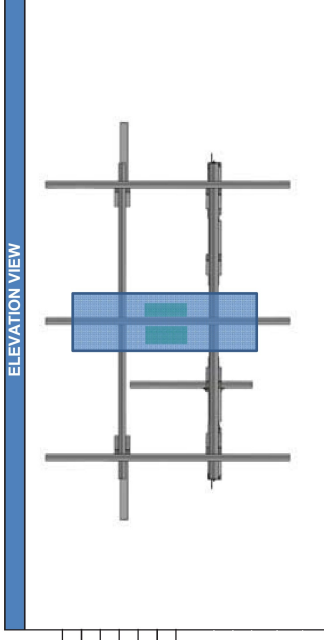
Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of “like new” and all members and connections to be free of corrosion and/or structural 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 Engineering should be notified immediately to complete a revised evaluation.

Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others that are or are not based on our supplied assumptions and conclusions.

This report is an evaluation of the proposed carriers mount structure only and does not reflect adequacy of the existing tower, other mounts, or coax mounting attachments. These elements are assumed to be adequate for the purposes of this analysis and are assumed to have been installed per their manufacturer requirements.

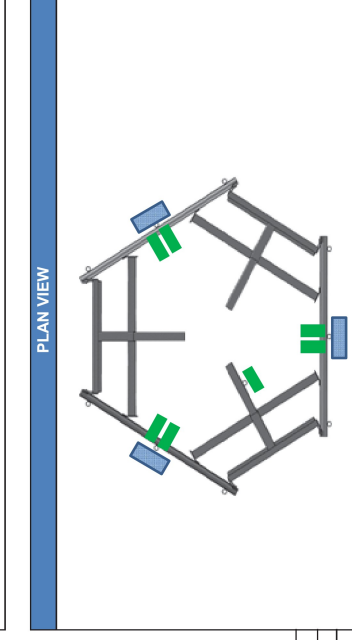
Date:	10/27/2021
Site Name:	BOBDL0103A
Project Engineer:	DVA
Project No.:	2039-Z5555C
Customer:	Northeast Site Solutions
Carrier:	Dish Wireless
Building Code:	2015
ASCE Standard:	ASCE 7-10
TIA Standard:	G
Mount Type:	Platform
Proposed	
Mount Centerline:	155
Superstructure Height:	180
Structure Type:	Tower

Site Information	
Exposure Category:	C
Risk Category:	II
Ultimate Wind Speed:	125 mph
Design Wind Speed:	97 mph
Ice Thickness:	1.00 in
Escalated Ice Thickness:	50.0 mph
Topographic Method:	2.33 in
Topographic Category:	2
	1



Factors	
Gh:	1.000
K_{min} :	0.850
K_z :	1.388
K_d :	0.950
K_{zt} :	1.000
K_a :	0.900
I wind:	1.000
I ice:	1.000
q_z :	31.65 psf
Surface Wind Pressure:	0.00 psf

Run Seismic?		Yes
Site Soil:	D (Default)	
Short-Period Accel. (S _s):	0.1740	
1-Second Accel. (S ₁):	0.0640	
Short-Period Design (SDS):	0.1860	
1-Second Design (SD1):	0.1030	
Short-Period Coeff. (F _s):	1.6000	
1-Second Coeff. (F _v):	2.4000	
C _s	0.0930	
C _{s min}	0.0300	
Amplification Factor (ap):	1.00	
Response Mod. (Rp):	2.50	
Overstrength (Do):	1.00	



Service Wind:	30.0 mph
L _m (man live load) =	500.0 lb
L _v (man live load) =	250.0 lb

Table 1. Equipment Specifications and Wind Pressure

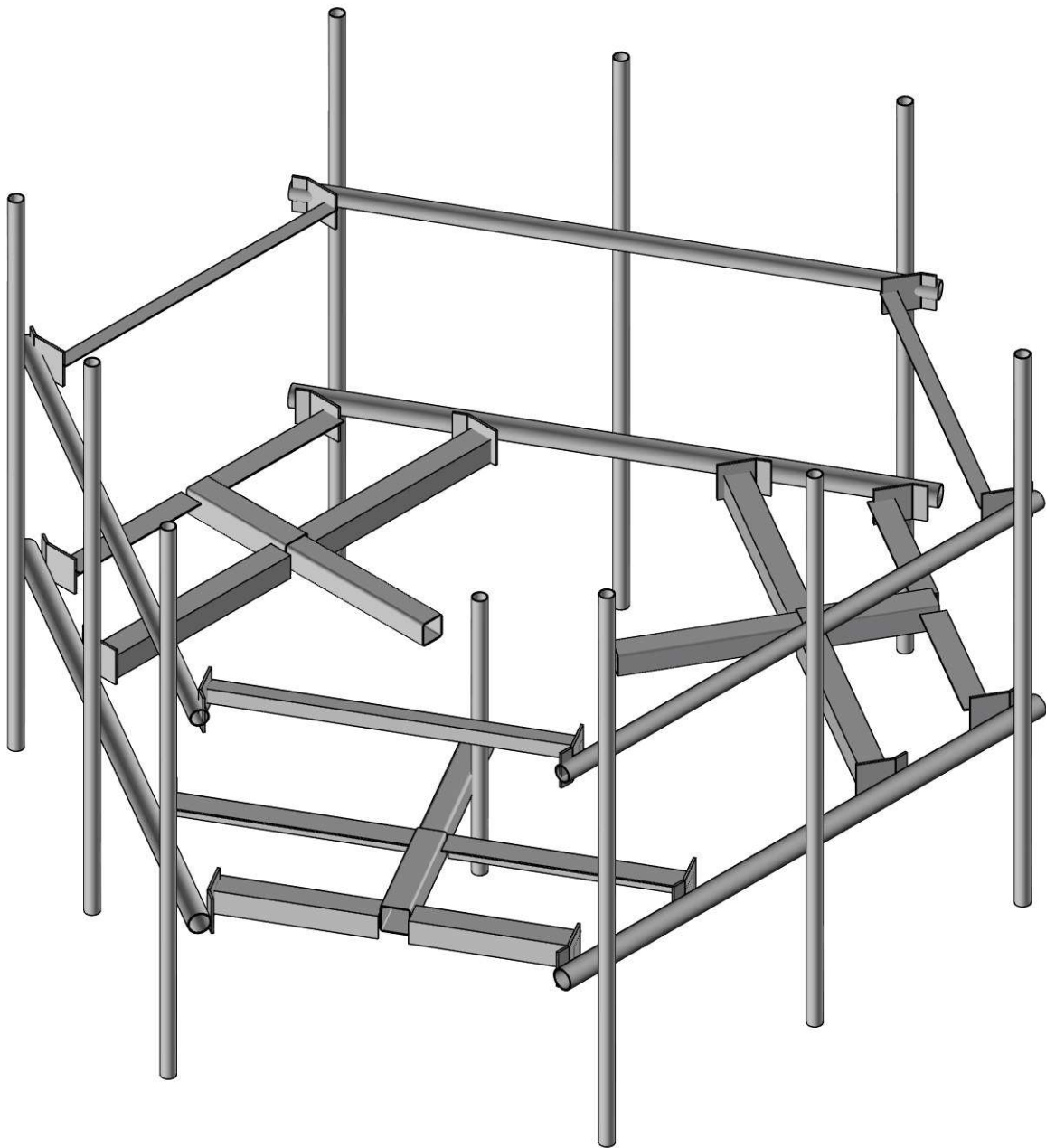
Manufacturer	Model	Elevation	Pipe Label	Weight (lb)	Height (in)	Width (in)	Depth (in)	EPA _N	EPA _T	EPA _{N w/ ice}	EPA _{T w/ ice}	q _{z ice}	q _{z live}
JMA	MX08FR0665-20	155	4, 74, 42	64.50	72	20	8	8.01	3.21	9.08	4.15	31.65	8.44
Fujitsu	TA08025-B605	155	4, 74, 42	74.95	15.75	14.96	9.06	1.86	1.16	3.16	2.25	31.65	8.44
Fujitsu	TA08025-B604	155	4, 74, 42	63.93	15.75	14.96	7.87	1.86	1.01	3.16	2.06	31.65	8.44
Raycap	RDIDC-9181-1PF-48	155	125	21.85	18.98	14.39	8.15	2.18	1.28	3.58	2.47	31.65	8.44

Table 2. Equipment Wind and Seismic Loads

Manufacturer	Model	Wind Load (F _w), lb	Wind Load Ice Case (F _w), lb	Wind Load Service Case	Seismic
JMA	MX08FR0665-20	228	91	418	6.0
Fujitsu	TA08025-B605	53	33	24	7.0
Fujitsu	TA08025-B604	53	29	24	5.9
Raycap	RDIDC-9181-1PF-48	62	36	27	2.0

Table 3. Member Capacities

Member Name	Member Shape	Wind load (plf)	Wind Load Ice (plf)	Weight Ice (plf)	Bending Check	Shear Check	Total Capacity	Controlling Capacity
Arm	HSS4X4X4	21.10	5.63	2.11	37%	13%	37%	
Arm 2	HSS4.5X4.5X3	23.73	6.33	2.23	6%	9%	9%	
Cross Arm	L4X4X4	21.10	5.63	2.11	34%	23%	34%	81%
Frame Rail	PIPE 3.0	11.08	2.95	1.98	13%	12%	13%	
Handrail	PIPE 2.0	9.10	2.43	1.83	15%	13%	15%	
Mount Pipe	PIPE 2.0	7.52	2.00	1.71	47%	14%	47%	
Plate	6"x0.375" Plate	31.65	8.44	2.59	39%	81%	81%	
Angle	L2.5x2.5x3	13.19	3.52	1.74	15%	16%	16%	



Envelope Only Solution

Infinigy Engineering, PLLC
DVA
2039-Z5555C

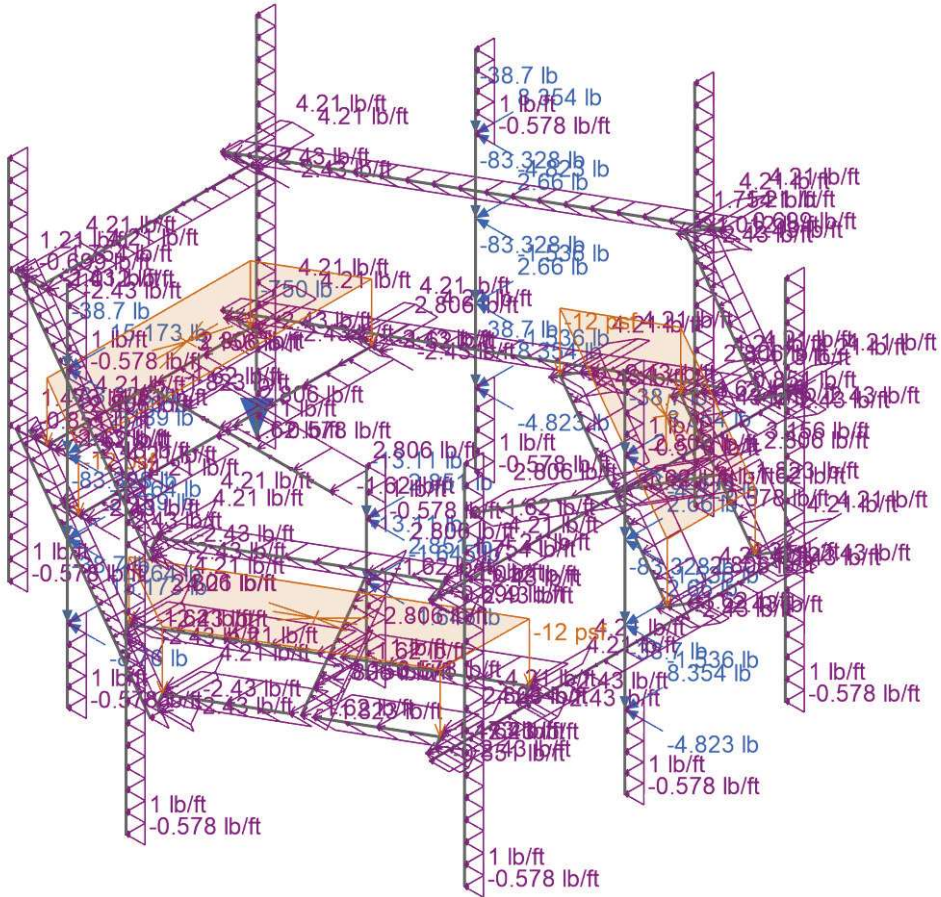
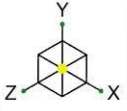
BOBDL00103A

Proposed Configuration Model

SK-1

Oct 27, 2021

BOBDL00103A.R3D

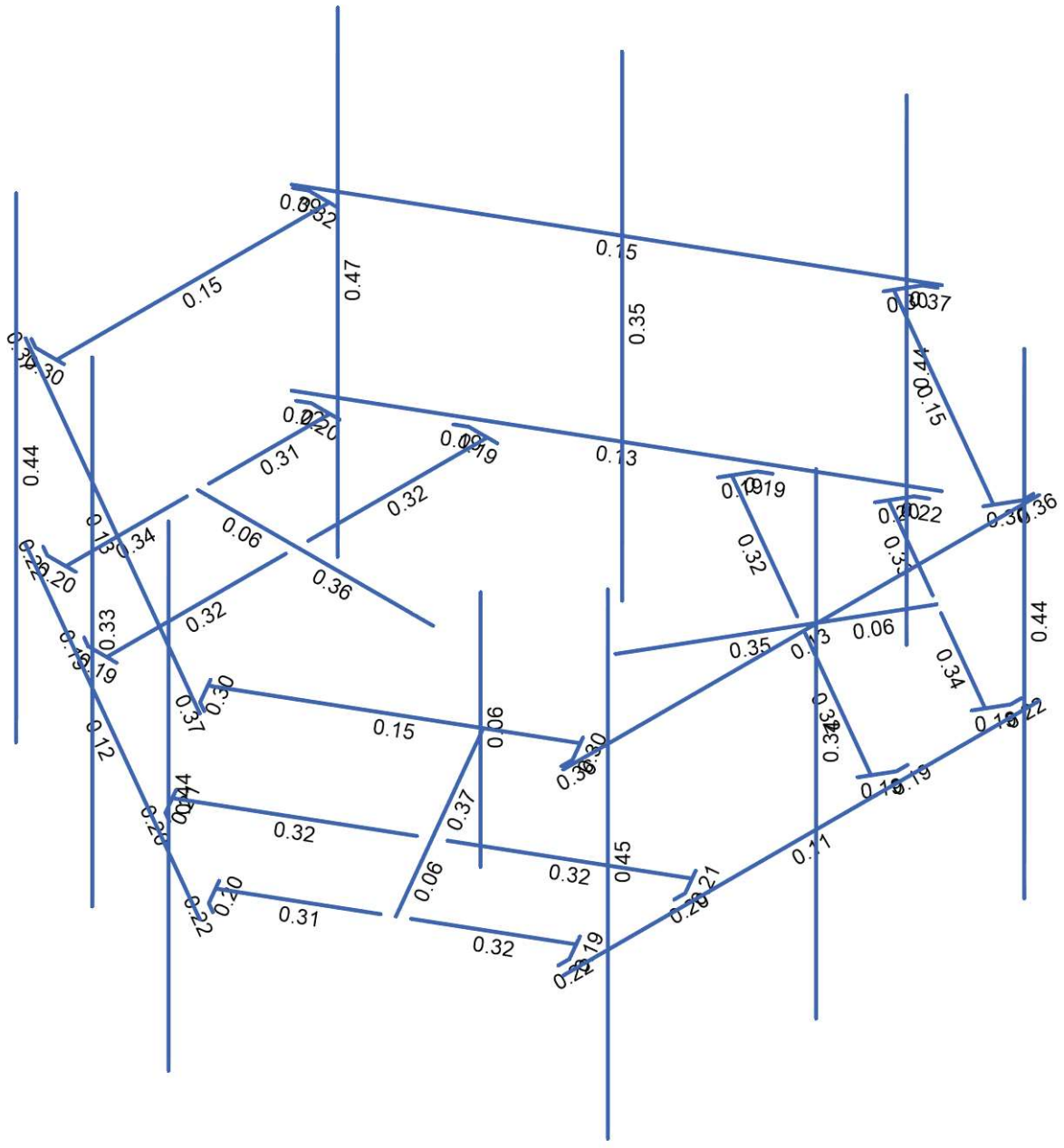
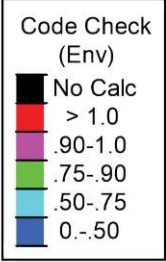
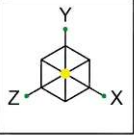


Loads: LC 109, 1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 300
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BOBDL00103A
Controlling Load Case

SK-2
Oct 27, 2021
BOBDL00103A.R3D

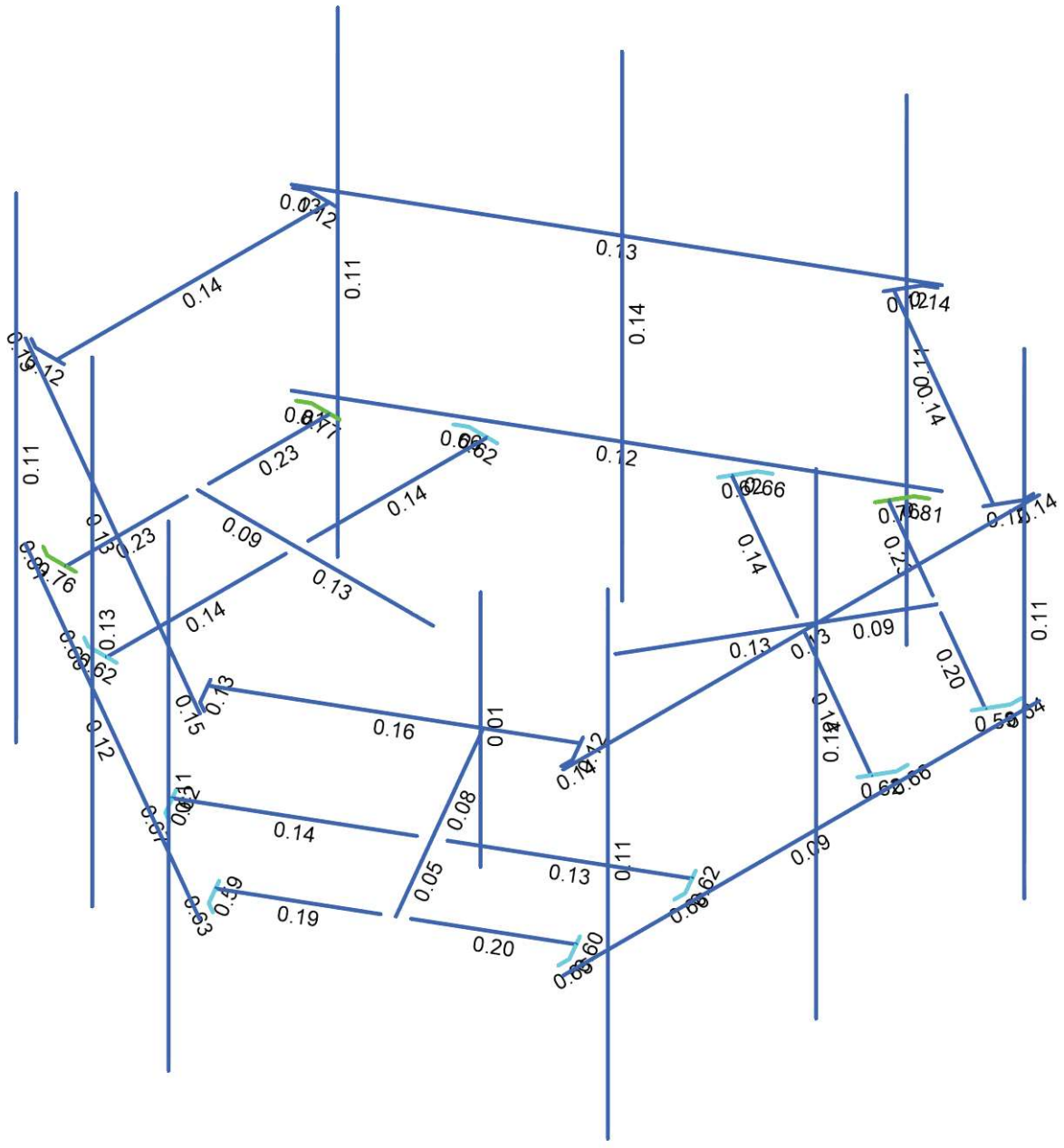
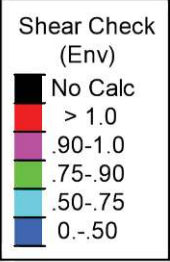


Member Code Checks Displayed (Enveloped)
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BOBDL00103A
Member Bending Check

SK-3
Oct 27, 2021
BOBDL00103A.R3D



Member Shear Checks Displayed (Enveloped)
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2039-Z5555C

BOBDL00103A
Member Shear Check

SK-4
Oct 27, 2021
BOBDL00103A.R3D

Model Settings

Solution

Members

Number of Reported Sections	5
Number of Internal Sections	100
Member Area Load Mesh Size (in ²)	144
Consider Shear Deformation	Yes
Consider Torsional Warping	Yes

Wall Panels

Approximate Mesh Size (in)	12
Transfer Forces Between Intersecting Wood Walls	Yes
Increase Wood Wall Nailing Capacity for Wind Loads	Yes
Include P-Delta for Walls	Yes
Optimize Masonry and Wood Walls	Yes
Maximum Number of Iterations	3

Processor Core Utilization

Single	No
Multiple (Optimum)	Yes
Maximum	No

Axis

Vertical Global Axis

Global Axis corresponding to vertical direction	Y
Convert Existing Data	Yes

Default Member Orientation

Default Global Plane for z-axis	XZ
---------------------------------	----

Plate Axis

Plate Local Axis Orientation	Nodal
------------------------------	-------

Codes

Hot Rolled Steel	AISC 14th (360-10): LRFD
Stiffness Adjustment	Yes (Iterative)
Notional Annex	None
Connections	AISC 14th (360-10): LRFD
Cold Formed Steel	AISI S100-16: LRFD
Stiffness Adjustment	Yes (Iterative)
Wood	AWC NDS-18: LRFD
Temperature	< 100F
Concrete	ACI 318-19
Masonry	TMS 402-16: Strength
Aluminum	AA ADM1-15: LRFD
Structure Type	Building
Stiffness Adjustment	Yes (Iterative)
Stainless	AISC 14th (360-10): LRFD
Stiffness Adjustment	Yes (Iterative)

Concrete

Compression Stress Block	Rectangular Stress Block
Analyze using Cracked Sections	Yes
Leave room for horizontal rebar splices (2*d bar spacing)	No

Model Settings (Continued)

List forces which were ignored for design in the Detail Report	Yes
--	-----

Rebar

Column Min Steel	1
Column Max Steel	8
Rebar Material Spec	ASTM A615
Warn if beam-column framing arrangement is not understood	No

Shear Reinforcement

Number of Shear Regions	4
Region 2 & 3 Spacing Increase Increment (in)	4

Seismic

RISA-3D Seismic Load Options

Code	ASCE 7-10
Risk Category	I or II
Drift Cat	Other
Base Elevation (ft)	
Include the weight of the structure in base shear calcs	Yes

Site Parameters

S ₁ (g)	1
SD ₁ (g)	1
SD _s (g)	1
T _L (sec)	5

Structure Characteristics

T Z (sec)	
T X (sec)	
C ₁ X	0.02
C ₁ Exp. Z	0.75
C ₁ Exp. X	0.75
R Z	3
R X	3
Ω ₀ Z	1
Ω ₀ X	1
C ₂ Z	4
C ₂ X	4
ρ Z	1
ρ X	1

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	M1	N1	N2		Arm	Beam	Tube	A500 Gr.B Rect	Typical
2	M2	N5	N6		Frame Rail	Beam	Pipe	A53 Gr.B	Typical
3	M3	N7	N8		Handrail	HBrace	Pipe	A53 Gr.B	Typical
4	M4	N10	N11		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
5	M5	N4	N3		Arm 2	Beam	Tube	A500 Gr.B Rect	Typical
6	M6	N15	N35	90	Cross Arm	Beam	Single Angle	A36 Gr.36	Typical
7	M7	N33	N13	90	Cross Arm	Beam	Single Angle	A36 Gr.36	Typical
8	M8	N12	N34	90	Cross Arm	Beam	Single Angle	A36 Gr.36	Typical
9	M9	N36	N14	90	Cross Arm	Beam	Single Angle	A36 Gr.36	Typical
10	M10	N18	N20		Plate	Beam	BAR	A36 Gr.36	Typical
11	M11	N17	N19		Plate	Beam	BAR	A36 Gr.36	Typical
12	M12	N21	N22		Plate	Beam	BAR	A36 Gr.36	Typical
13	M13	N23	N24		Plate	Beam	BAR	A36 Gr.36	Typical
14	M14	N28	N25	90	Angle	HBrace	Single Angle	A36 Gr.36	Typical
15	M15	N26	N27		Plate	Beam	BAR	A36 Gr.36	Typical
16	M16	N29	N30		Plate	Beam	BAR	A36 Gr.36	Typical
17	M17	N31	N9		RIGID	None	None	RIGID	Typical
18	M18	N32	N16		RIGID	None	None	RIGID	Typical
19	M19	N4	N35		RIGID	None	None	RIGID	Typical
20	M20	N4	N33		RIGID	None	None	RIGID	Typical
21	M21	N3	N34		RIGID	None	None	RIGID	Typical
22	M22	N36	N3		RIGID	None	None	RIGID	Typical
23	M23	N19	N37		Plate	Beam	BAR	A36 Gr.36	Typical
24	M24	N22	N38		Plate	Beam	BAR	A36 Gr.36	Typical
25	M25	N39	N41		RIGID	None	None	RIGID	Typical
26	M26	N40	N42		RIGID	None	None	RIGID	Typical
27	M27	N27	N43		Plate	Beam	BAR	A36 Gr.36	Typical
28	M28	N44	N45		RIGID	None	None	RIGID	Typical
29	M29	N20	N46		Plate	Beam	BAR	A36 Gr.36	Typical
30	M30	N24	N47		Plate	Beam	BAR	A36 Gr.36	Typical
31	M31	N48	N50		RIGID	None	None	RIGID	Typical
32	M32	N49	N51		RIGID	None	None	RIGID	Typical
33	M33	N30	N52		Plate	Beam	BAR	A36 Gr.36	Typical
34	M34	N53	N54		RIGID	None	None	RIGID	Typical
35	M35	N56	N57		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
36	M36	N59	N55		RIGID	None	None	RIGID	Typical
37	M37	N60	N58		RIGID	None	None	RIGID	Typical
38	M38	N62	N63		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
39	M39	N65	N61		RIGID	None	None	RIGID	Typical
40	M40	N66	N64		RIGID	None	None	RIGID	Typical
41	M41	N67	N68		Arm	Beam	Tube	A500 Gr.B Rect	Typical
42	M42	N72	N73		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
43	M43	N70	N69		Arm 2	Beam	Tube	A500 Gr.B Rect	Typical
44	M44	N77	N97	90	Cross Arm	Beam	Single Angle	A36 Gr.36	Typical
45	M45	N95	N75	90	Cross Arm	Beam	Single Angle	A36 Gr.36	Typical
46	M46	N74	N96	90	Cross Arm	Beam	Single Angle	A36 Gr.36	Typical
47	M47	N98	N76	90	Cross Arm	Beam	Single Angle	A36 Gr.36	Typical
48	M48	N80	N82		Plate	Beam	BAR	A36 Gr.36	Typical
49	M49	N79	N81		Plate	Beam	BAR	A36 Gr.36	Typical
50	M50	N83	N84		Plate	Beam	BAR	A36 Gr.36	Typical
51	M51	N85	N86		Plate	Beam	BAR	A36 Gr.36	Typical
52	M52	N90	N87	90	Angle	HBrace	Single Angle	A36 Gr.36	Typical
53	M53	N88	N89		Plate	Beam	BAR	A36 Gr.36	Typical
54	M54	N91	N92		Plate	Beam	BAR	A36 Gr.36	Typical
55	M55	N93	N71		RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
56	M56	N94	N78		RIGID	None	None	RIGID	Typical
57	M57	N70	N97		RIGID	None	None	RIGID	Typical
58	M58	N70	N95		RIGID	None	None	RIGID	Typical
59	M59	N69	N96		RIGID	None	None	RIGID	Typical
60	M60	N98	N69		RIGID	None	None	RIGID	Typical
61	M61	N81	N99		Plate	Beam	BAR	A36 Gr.36	Typical
62	M62	N84	N100		Plate	Beam	BAR	A36 Gr.36	Typical
63	M63	N101	N103		RIGID	None	None	RIGID	Typical
64	M64	N102	N104		RIGID	None	None	RIGID	Typical
65	M65	N89	N105		Plate	Beam	BAR	A36 Gr.36	Typical
66	M66	N106	N107		RIGID	None	None	RIGID	Typical
67	M67	N82	N108		Plate	Beam	BAR	A36 Gr.36	Typical
68	M68	N86	N109		Plate	Beam	BAR	A36 Gr.36	Typical
69	M69	N110	N112		RIGID	None	None	RIGID	Typical
70	M70	N111	N113		RIGID	None	None	RIGID	Typical
71	M71	N92	N114		Plate	Beam	BAR	A36 Gr.36	Typical
72	M72	N115	N116		RIGID	None	None	RIGID	Typical
73	M73	N117	N118		Arm	Beam	Tube	A500 Gr.B Rect	Typical
74	M74	N122	N123		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
75	M75	N120	N119		Arm 2	Beam	Tube	A500 Gr.B Rect	Typical
76	M76	N127	N147	90	Cross Arm	Beam	Single Angle	A36 Gr.36	Typical
77	M77	N145	N125	90	Cross Arm	Beam	Single Angle	A36 Gr.36	Typical
78	M78	N124	N146	90	Cross Arm	Beam	Single Angle	A36 Gr.36	Typical
79	M79	N148	N126	90	Cross Arm	Beam	Single Angle	A36 Gr.36	Typical
80	M80	N130	N132		Plate	Beam	BAR	A36 Gr.36	Typical
81	M81	N129	N131		Plate	Beam	BAR	A36 Gr.36	Typical
82	M82	N133	N134		Plate	Beam	BAR	A36 Gr.36	Typical
83	M83	N135	N136		Plate	Beam	BAR	A36 Gr.36	Typical
84	M84	N140	N137	90	Angle	HBrace	Single Angle	A36 Gr.36	Typical
85	M85	N138	N139		Plate	Beam	BAR	A36 Gr.36	Typical
86	M86	N141	N142		Plate	Beam	BAR	A36 Gr.36	Typical
87	M87	N143	N121		RIGID	None	None	RIGID	Typical
88	M88	N144	N128		RIGID	None	None	RIGID	Typical
89	M89	N120	N147		RIGID	None	None	RIGID	Typical
90	M90	N120	N145		RIGID	None	None	RIGID	Typical
91	M91	N119	N146		RIGID	None	None	RIGID	Typical
92	M92	N148	N119		RIGID	None	None	RIGID	Typical
93	M93	N131	N149		Plate	Beam	BAR	A36 Gr.36	Typical
94	M94	N134	N150		Plate	Beam	BAR	A36 Gr.36	Typical
95	M95	N151	N153		RIGID	None	None	RIGID	Typical
96	M96	N152	N154		RIGID	None	None	RIGID	Typical
97	M97	N139	N155		Plate	Beam	BAR	A36 Gr.36	Typical
98	M98	N156	N157		RIGID	None	None	RIGID	Typical
99	M99	N132	N158		Plate	Beam	BAR	A36 Gr.36	Typical
100	M100	N136	N159		Plate	Beam	BAR	A36 Gr.36	Typical
101	M101	N160	N162		RIGID	None	None	RIGID	Typical
102	M102	N161	N163		RIGID	None	None	RIGID	Typical
103	M103	N142	N164		Plate	Beam	BAR	A36 Gr.36	Typical
104	M104	N165	N166		RIGID	None	None	RIGID	Typical
105	M105	N167	N168		Frame Rail	Beam	Pipe	A53 Gr.B	Typical
106	M106	N169	N170		Handrail	HBrace	Pipe	A53 Gr.B	Typical
107	M107	N172	N173		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
108	M108	N175	N171		RIGID	None	None	RIGID	Typical
109	M109	N176	N174		RIGID	None	None	RIGID	Typical
110	M110	N178	N179		Mount Pipe	Column	Pipe	A53 Gr.B	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
111	M111	N181	N177		RIGID	None	None	RIGID	Typical
112	M112	N182	N180		RIGID	None	None	RIGID	Typical
113	M113	N183	N184		Frame Rail	Beam	Pipe	A53 Gr.B	Typical
114	M114	N185	N186		Handrail	HBrace	Pipe	A53 Gr.B	Typical
115	M115	N188	N189		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
116	M116	N191	N187		RIGID	None	None	RIGID	Typical
117	M117	N192	N190		RIGID	None	None	RIGID	Typical
118	M118	N194	N195		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
119	M119	N197	N193		RIGID	None	None	RIGID	Typical
120	M120	N198	N196		RIGID	None	None	RIGID	Typical
121	M121	N199	N200		RIGID	None	None	RIGID	Typical
122	M122	N201	N199		RIGID	None	None	RIGID	Typical
123	M123	N200	N202		RIGID	None	None	RIGID	Typical
124	M124	N201	N203		RIGID	None	None	RIGID	Typical
125	M125	N204	N205		Mount Pipe	Column	Pipe	A53 Gr.B	Typical

Material Take-Off

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General Members				
2	RIGID		52	123.7	0
3	Total General		52	123.7	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	6"x0.375" Plate	36	144	91.875
7	A36 Gr.36	L4X4X4	12	363	198.663
8	A36 Gr.36	L2.5x2.5x3	3	165	42.156
9	A500 Gr.B Rect	HSS4.5X4.5X3	3	60	53.615
10	A500 Gr.B Rect	HSS4X4X4	3	115.4	118.563
11	A53 Gr.B	PIPE 2.0	10	912	263.783
12	A53 Gr.B	PIPE 2.5	3	288	131.483
13	A53 Gr.B	PIPE 3.0	3	288	169.05
14	Total HR Steel		73	2335.4	1069.189

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Point	Distributed	Area(Member)
1	Self Weight	DL		-1		20		3
2	Wind Load AZI 0	WLX				40	258	
3	Wind Load AZI 30	None				40	258	
4	Wind Load AZI 60	None				40	258	
5	Wind Load AZI 90	WLZ				40	258	
6	Wind Load AZI 120	None				40	258	
7	Wind Load AZI 150	None				40	258	
8	Wind Load AZI 180	None				40	258	
9	Wind Load AZI 210	None				40	258	
10	Wind Load AZI 240	None				40	258	
11	Wind Load AZI 270	None				40	258	
12	Wind Load AZI 300	None				40	258	
13	Wind Load AZI 330	None				40	258	
14	Ice Weight	OL1				20	125	3
15	Ice Wind Load AZI 0	OL2				40	258	
16	Ice Wind Load AZI 30	None				40	258	
17	Ice Wind Load AZI 60	None				40	258	
18	Ice Wind Load AZI 90	OL3				40	258	

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Point	Distributed	Area(Member)
19	Ice Wind Load AZI 120	None				40	258	
20	Ice Wind Load AZI 150	None				40	258	
21	Ice Wind Load AZI 180	None				40	258	
22	Ice Wind Load AZI 210	None				40	258	
23	Ice Wind Load AZI 240	None				40	258	
24	Ice Wind Load AZI 270	None				40	258	
25	Ice Wind Load AZI 300	None				40	258	
26	Ice Wind Load AZI 330	None				40	258	
27	Seismic Load X	ELX			-0.093	20		
28	Seismic Load Z	ELZ	-0.093			20		
29	Service Live Loads	LL						
30	Maintenance Load 1	LL				1		
31	Maintenance Load 2	LL				1		
32	Maintenance Load 3	LL				1		
33	Maintenance Load 4	LL				1		
34	Maintenance Load 5	LL				1		
35	Maintenance Load 6	LL				1		
36	Maintenance Load 7	LL				1		
37	Maintenance Load 8	LL				1		
38	Maintenance Load 9	LL				1		
39	Maintenance Load 10	LL				1		
40	Maintenance Load 11	LL				1		
41	Maintenance Load 12	LL				1		
42	Maintenance Load 13	LL				1		
43	Maintenance Load 14	LL				1		
44	Maintenance Load 15	LL				1		
45	Maintenance Load 16	LL				1		
46	Maintenance Load 17	LL				1		
47	Maintenance Load 18	LL				1		
52	BLC 1 Transient Area Loads	None					144	
53	BLC 14 Transient Area Loads	None					144	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4DL	Yes	Y	1	1.4				
2	1.2DL + 1.6WL AZI 0	Yes	Y	1	1.2	2	1.6		
3	1.2DL + 1.6WL AZI 30	Yes	Y	1	1.2	3	1.6		
4	1.2DL + 1.6WL AZI 60	Yes	Y	1	1.2	4	1.6		
5	1.2DL + 1.6WL AZI 90	Yes	Y	1	1.2	5	1.6		
6	1.2DL + 1.6WL AZI 120	Yes	Y	1	1.2	6	1.6		
7	1.2DL + 1.6WL AZI 150	Yes	Y	1	1.2	7	1.6		
8	1.2DL + 1.6WL AZI 180	Yes	Y	1	1.2	8	1.6		
9	1.2DL + 1.6WL AZI 210	Yes	Y	1	1.2	9	1.6		
10	1.2DL + 1.6WL AZI 240	Yes	Y	1	1.2	10	1.6		
11	1.2DL + 1.6WL AZI 270	Yes	Y	1	1.2	11	1.6		
12	1.2DL + 1.6WL AZI 300	Yes	Y	1	1.2	12	1.6		
13	1.2DL + 1.6WL AZI 330	Yes	Y	1	1.2	13	1.6		
14	0.9DL + 1.6WL AZI 0	Yes	Y	1	0.9	2	1.6		
15	0.9DL + 1.6WL AZI 30	Yes	Y	1	0.9	3	1.6		
16	0.9DL + 1.6WL AZI 60	Yes	Y	1	0.9	4	1.6		
17	0.9DL + 1.6WL AZI 90	Yes	Y	1	0.9	5	1.6		
18	0.9DL + 1.6WL AZI 120	Yes	Y	1	0.9	6	1.6		
19	0.9DL + 1.6WL AZI 150	Yes	Y	1	0.9	7	1.6		
20	0.9DL + 1.6WL AZI 180	Yes	Y	1	0.9	8	1.6		
21	0.9DL + 1.6WL AZI 210	Yes	Y	1	0.9	9	1.6		

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
22	0.9DL + 1.6WL AZI 240	Yes	Y	1	0.9	10	1.6		
23	0.9DL + 1.6WL AZI 270	Yes	Y	1	0.9	11	1.6		
24	0.9DL + 1.6WL AZI 300	Yes	Y	1	0.9	12	1.6		
25	0.9DL + 1.6WL AZI 330	Yes	Y	1	0.9	13	1.6		
26	1.2D + 1.0Di	Yes	Y	1	1.2	14	1		
27	1.2D + 1.0Di + 1.0Wi AZI 0	Yes	Y	1	1.2	14	1	15	1
28	1.2D + 1.0Di + 1.0Wi AZI 30	Yes	Y	1	1.2	14	1	16	1
29	1.2D + 1.0Di + 1.0Wi AZI 60	Yes	Y	1	1.2	14	1	17	1
30	1.2D + 1.0Di + 1.0Wi AZI 90	Yes	Y	1	1.2	14	1	18	1
31	1.2D + 1.0Di + 1.0Wi AZI 120	Yes	Y	1	1.2	14	1	19	1
32	1.2D + 1.0Di + 1.0Wi AZI 150	Yes	Y	1	1.2	14	1	20	1
33	1.2D + 1.0Di + 1.0Wi AZI 180	Yes	Y	1	1.2	14	1	21	1
34	1.2D + 1.0Di + 1.0Wi AZI 210	Yes	Y	1	1.2	14	1	22	1
35	1.2D + 1.0Di + 1.0Wi AZI 240	Yes	Y	1	1.2	14	1	23	1
36	1.2D + 1.0Di + 1.0Wi AZI 270	Yes	Y	1	1.2	14	1	24	1
37	1.2D + 1.0Di + 1.0Wi AZI 300	Yes	Y	1	1.2	14	1	25	1
38	1.2D + 1.0Di + 1.0Wi AZI 330	Yes	Y	1	1.2	14	1	26	1
39	(1.2 + 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	1.237	27	1	28	
40	(1.2 + 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	1.237	27	0.866	28	0.5
41	(1.2 + 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	1.237	27	0.5	28	0.866
42	(1.2 + 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	1.237	27		28	1
43	(1.2 + 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	1.237	27	-0.5	28	0.866
44	(1.2 + 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	1.237	27	-0.866	28	0.5
45	(1.2 + 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	1.237	27	-1	28	
46	(1.2 + 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	1.237	27	-0.866	28	-0.5
47	(1.2 + 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	1.237	27	-0.5	28	-0.866
48	(1.2 + 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	1.237	27		28	-1
49	(1.2 + 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	1.237	27	0.5	28	-0.866
50	(1.2 + 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	1.237	27	0.866	28	-0.5
51	(0.9 - 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	0.863	27	1	28	
52	(0.9 - 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	0.863	27	0.866	28	0.5
53	(0.9 - 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	0.863	27	0.5	28	0.866
54	(0.9 - 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	0.863	27		28	1
55	(0.9 - 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	0.863	27	-0.5	28	0.866
56	(0.9 - 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	0.863	27	-0.866	28	0.5
57	(0.9 - 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	0.863	27	-1	28	
58	(0.9 - 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	0.863	27	-0.866	28	-0.5
59	(0.9 - 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	0.863	27	-0.5	28	-0.866
60	(0.9 - 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	0.863	27		28	-1
61	(0.9 - 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	0.863	27	0.5	28	-0.866
62	(0.9 - 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	0.863	27	0.866	28	-0.5
63	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 0	Yes	Y	1	1	2	0.096	29	1.5
64	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 30	Yes	Y	1	1	3	0.096	29	1.5
65	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 60	Yes	Y	1	1	4	0.096	29	1.5
66	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 90	Yes	Y	1	1	5	0.096	29	1.5
67	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 120	Yes	Y	1	1	6	0.096	29	1.5
68	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 150	Yes	Y	1	1	7	0.096	29	1.5
69	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 180	Yes	Y	1	1	8	0.096	29	1.5
70	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 210	Yes	Y	1	1	9	0.096	29	1.5
71	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 240	Yes	Y	1	1	10	0.096	29	1.5
72	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 270	Yes	Y	1	1	11	0.096	29	1.5
73	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 300	Yes	Y	1	1	12	0.096	29	1.5
74	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 330	Yes	Y	1	1	13	0.096	29	1.5
75	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	34	1.5	2	0.154
76	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	34	1.5	3	0.154

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
77	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	34	1.5	4	0.154
78	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	34	1.5	5	0.154
79	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	34	1.5	6	0.154
80	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	34	1.5	7	0.154
81	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	34	1.5	8	0.154
82	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	34	1.5	9	0.154
83	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	34	1.5	10	0.154
84	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	34	1.5	11	0.154
85	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	34	1.5	12	0.154
86	1.2DL + 1.5LM1 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	34	1.5	13	0.154
87	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	35	1.5	2	0.154
88	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	35	1.5	3	0.154
89	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	35	1.5	4	0.154
90	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	35	1.5	5	0.154
91	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	35	1.5	6	0.154
92	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	35	1.5	7	0.154
93	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	35	1.5	8	0.154
94	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	35	1.5	9	0.154
95	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	35	1.5	10	0.154
96	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	35	1.5	11	0.154
97	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	35	1.5	12	0.154
98	1.2DL + 1.5LM2 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	35	1.5	13	0.154
99	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	36	1.5	2	0.154
100	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	36	1.5	3	0.154
101	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	36	1.5	4	0.154
102	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	36	1.5	5	0.154
103	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	36	1.5	6	0.154
104	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	36	1.5	7	0.154
105	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	36	1.5	8	0.154
106	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	36	1.5	9	0.154
107	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	36	1.5	10	0.154
108	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	36	1.5	11	0.154
109	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	36	1.5	12	0.154
110	1.2DL + 1.5LM3 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	36	1.5	13	0.154
111	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	37	1.5	2	0.154
112	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	37	1.5	3	0.154
113	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	37	1.5	4	0.154
114	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	37	1.5	5	0.154
115	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	37	1.5	6	0.154
116	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	37	1.5	7	0.154
117	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	37	1.5	8	0.154
118	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	37	1.5	9	0.154
119	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	37	1.5	10	0.154
120	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	37	1.5	11	0.154
121	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	37	1.5	12	0.154
122	1.2DL + 1.5LM4 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	37	1.5	13	0.154
123	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	38	1.5	2	0.154
124	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	38	1.5	3	0.154
125	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	38	1.5	4	0.154
126	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	38	1.5	5	0.154
127	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	38	1.5	6	0.154
128	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	38	1.5	7	0.154
129	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	38	1.5	8	0.154
130	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	38	1.5	9	0.154
131	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	38	1.5	10	0.154

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
132	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	38	1.5	11	0.154
133	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	38	1.5	12	0.154
134	1.2DL + 1.5LM5 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	38	1.5	13	0.154
135	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	39	1.5	2	0.154
136	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	39	1.5	3	0.154
137	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	39	1.5	4	0.154
138	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	39	1.5	5	0.154
139	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	39	1.5	6	0.154
140	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	39	1.5	7	0.154
141	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	39	1.5	8	0.154
142	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	39	1.5	9	0.154
143	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	39	1.5	10	0.154
144	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	39	1.5	11	0.154
145	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	39	1.5	12	0.154
146	1.2DL + 1.5LM6 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	39	1.5	13	0.154
147	1.2DL + 1.5LM7 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	40	1.5	2	0.154
148	1.2DL + 1.5LM7 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	40	1.5	3	0.154
149	1.2DL + 1.5LM7 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	40	1.5	4	0.154
150	1.2DL + 1.5LM7 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	40	1.5	5	0.154
151	1.2DL + 1.5LM7 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	40	1.5	6	0.154
152	1.2DL + 1.5LM7 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	40	1.5	7	0.154
153	1.2DL + 1.5LM7 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	40	1.5	8	0.154
154	1.2DL + 1.5LM7 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	40	1.5	9	0.154
155	1.2DL + 1.5LM7 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	40	1.5	10	0.154
156	1.2DL + 1.5LM7 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	40	1.5	11	0.154
157	1.2DL + 1.5LM7 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	40	1.5	12	0.154
158	1.2DL + 1.5LM7 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	40	1.5	13	0.154
159	1.2DL + 1.5LM8 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	41	1.5	2	0.154
160	1.2DL + 1.5LM8 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	41	1.5	3	0.154
161	1.2DL + 1.5LM8 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	41	1.5	4	0.154
162	1.2DL + 1.5LM8 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	41	1.5	5	0.154
163	1.2DL + 1.5LM8 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	41	1.5	6	0.154
164	1.2DL + 1.5LM8 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	41	1.5	7	0.154
165	1.2DL + 1.5LM8 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	41	1.5	8	0.154
166	1.2DL + 1.5LM8 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	41	1.5	9	0.154
167	1.2DL + 1.5LM8 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	41	1.5	10	0.154
168	1.2DL + 1.5LM8 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	41	1.5	11	0.154
169	1.2DL + 1.5LM8 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	41	1.5	12	0.154
170	1.2DL + 1.5LM8 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	41	1.5	13	0.154
171	1.2DL + 1.5LM9 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	42	1.5	2	0.154
172	1.2DL + 1.5LM9 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	42	1.5	3	0.154
173	1.2DL + 1.5LM9 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	42	1.5	4	0.154
174	1.2DL + 1.5LM9 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	42	1.5	5	0.154
175	1.2DL + 1.5LM9 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	42	1.5	6	0.154
176	1.2DL + 1.5LM9 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	42	1.5	7	0.154
177	1.2DL + 1.5LM9 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	42	1.5	8	0.154
178	1.2DL + 1.5LM9 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	42	1.5	9	0.154
179	1.2DL + 1.5LM9 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	42	1.5	10	0.154
180	1.2DL + 1.5LM9 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	42	1.5	11	0.154
181	1.2DL + 1.5LM9 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	42	1.5	12	0.154
182	1.2DL + 1.5LM9 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	42	1.5	13	0.154
183	1.2DL + 1.5LM10 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	43	1.5	2	0.154
184	1.2DL + 1.5LM10 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	43	1.5	3	0.154
185	1.2DL + 1.5LM10 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	43	1.5	4	0.154
186	1.2DL + 1.5LM10 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	43	1.5	5	0.154

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
187	1.2DL + 1.5LM10 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	43	1.5	6	0.154
188	1.2DL + 1.5LM10 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	43	1.5	7	0.154
189	1.2DL + 1.5LM10 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	43	1.5	8	0.154
190	1.2DL + 1.5LM10 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	43	1.5	9	0.154
191	1.2DL + 1.5LM10 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	43	1.5	10	0.154
192	1.2DL + 1.5LM10 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	43	1.5	11	0.154
193	1.2DL + 1.5LM10 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	43	1.5	12	0.154
194	1.2DL + 1.5LM10 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	43	1.5	13	0.154
195	1.2DL + 1.5LM11 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	44	1.5	2	0.154
196	1.2DL + 1.5LM11 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	44	1.5	3	0.154
197	1.2DL + 1.5LM11 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	44	1.5	4	0.154
198	1.2DL + 1.5LM11 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	44	1.5	5	0.154
199	1.2DL + 1.5LM11 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	44	1.5	6	0.154
200	1.2DL + 1.5LM11 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	44	1.5	7	0.154
201	1.2DL + 1.5LM11 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	44	1.5	8	0.154
202	1.2DL + 1.5LM11 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	44	1.5	9	0.154
203	1.2DL + 1.5LM11 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	44	1.5	10	0.154
204	1.2DL + 1.5LM11 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	44	1.5	11	0.154
205	1.2DL + 1.5LM11 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	44	1.5	12	0.154
206	1.2DL + 1.5LM11 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	44	1.5	13	0.154
207	1.2DL + 1.5LM12 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	45	1.5	2	0.154
208	1.2DL + 1.5LM12 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	45	1.5	3	0.154
209	1.2DL + 1.5LM12 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	45	1.5	4	0.154
210	1.2DL + 1.5LM12 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	45	1.5	5	0.154
211	1.2DL + 1.5LM12 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	45	1.5	6	0.154
212	1.2DL + 1.5LM12 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	45	1.5	7	0.154
213	1.2DL + 1.5LM12 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	45	1.5	8	0.154
214	1.2DL + 1.5LM12 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	45	1.5	9	0.154
215	1.2DL + 1.5LM12 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	45	1.5	10	0.154
216	1.2DL + 1.5LM12 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	45	1.5	11	0.154
217	1.2DL + 1.5LM12 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	45	1.5	12	0.154
218	1.2DL + 1.5LM12 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	45	1.5	13	0.154
219	1.2DL + 1.5LM13 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	46	1.5	2	0.154
220	1.2DL + 1.5LM13 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	46	1.5	3	0.154
221	1.2DL + 1.5LM13 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	46	1.5	4	0.154
222	1.2DL + 1.5LM13 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	46	1.5	5	0.154
223	1.2DL + 1.5LM13 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	46	1.5	6	0.154
224	1.2DL + 1.5LM13 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	46	1.5	7	0.154
225	1.2DL + 1.5LM13 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	46	1.5	8	0.154
226	1.2DL + 1.5LM13 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	46	1.5	9	0.154
227	1.2DL + 1.5LM13 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	46	1.5	10	0.154
228	1.2DL + 1.5LM13 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	46	1.5	11	0.154
229	1.2DL + 1.5LM13 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	46	1.5	12	0.154
230	1.2DL + 1.5LM13 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	46	1.5	13	0.154
231	1.2DL + 1.5LM14 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	47	1.5	2	0.154
232	1.2DL + 1.5LM14 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	47	1.5	3	0.154
233	1.2DL + 1.5LM14 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	47	1.5	4	0.154
234	1.2DL + 1.5LM14 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	47	1.5	5	0.154
235	1.2DL + 1.5LM14 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	47	1.5	6	0.154
236	1.2DL + 1.5LM14 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	47	1.5	7	0.154
237	1.2DL + 1.5LM14 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	47	1.5	8	0.154
238	1.2DL + 1.5LM14 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	47	1.5	9	0.154
239	1.2DL + 1.5LM14 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	47	1.5	10	0.154
240	1.2DL + 1.5LM14 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	47	1.5	11	0.154
241	1.2DL + 1.5LM14 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	47	1.5	12	0.154

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
242	1.2DL + 1.5LM14 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	47	1.5	13	0.154
243	1.2DL + 1.5LM15 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	48	1.5	2	0.154
244	1.2DL + 1.5LM15 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	48	1.5	3	0.154
245	1.2DL + 1.5LM15 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	48	1.5	4	0.154
246	1.2DL + 1.5LM15 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	48	1.5	5	0.154
247	1.2DL + 1.5LM15 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	48	1.5	6	0.154
248	1.2DL + 1.5LM15 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	48	1.5	7	0.154
249	1.2DL + 1.5LM15 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	48	1.5	8	0.154
250	1.2DL + 1.5LM15 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	48	1.5	9	0.154
251	1.2DL + 1.5LM15 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	48	1.5	10	0.154
252	1.2DL + 1.5LM15 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	48	1.5	11	0.154
253	1.2DL + 1.5LM15 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	48	1.5	12	0.154
254	1.2DL + 1.5LM15 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	48	1.5	13	0.154
255	1.2DL + 1.5LM16 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	49	1.5	2	0.154
256	1.2DL + 1.5LM16 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	49	1.5	3	0.154
257	1.2DL + 1.5LM16 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	49	1.5	4	0.154
258	1.2DL + 1.5LM16 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	49	1.5	5	0.154
259	1.2DL + 1.5LM16 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	49	1.5	6	0.154
260	1.2DL + 1.5LM16 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	49	1.5	7	0.154
261	1.2DL + 1.5LM16 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	49	1.5	8	0.154
262	1.2DL + 1.5LM16 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	49	1.5	9	0.154
263	1.2DL + 1.5LM16 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	49	1.5	10	0.154
264	1.2DL + 1.5LM16 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	49	1.5	11	0.154
265	1.2DL + 1.5LM16 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	49	1.5	12	0.154
266	1.2DL + 1.5LM16 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	49	1.5	13	0.154
267	1.2DL + 1.5LM17 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	50	1.5	2	0.154
268	1.2DL + 1.5LM17 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	50	1.5	3	0.154
269	1.2DL + 1.5LM17 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	50	1.5	4	0.154
270	1.2DL + 1.5LM17 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	50	1.5	5	0.154
271	1.2DL + 1.5LM17 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	50	1.5	6	0.154
272	1.2DL + 1.5LM17 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	50	1.5	7	0.154
273	1.2DL + 1.5LM17 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	50	1.5	8	0.154
274	1.2DL + 1.5LM17 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	50	1.5	9	0.154
275	1.2DL + 1.5LM17 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	50	1.5	10	0.154
276	1.2DL + 1.5LM17 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	50	1.5	11	0.154
277	1.2DL + 1.5LM17 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	50	1.5	12	0.154
278	1.2DL + 1.5LM17 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	50	1.5	13	0.154
279	1.2DL + 1.5LM18 + 1.6SWL (30 mph) AZI 0	Yes	Y	1	1.2	51	1.5	2	0.154
280	1.2DL + 1.5LM18 + 1.6SWL (30 mph) AZI 30	Yes	Y	1	1.2	51	1.5	3	0.154
281	1.2DL + 1.5LM18 + 1.6SWL (30 mph) AZI 60	Yes	Y	1	1.2	51	1.5	4	0.154
282	1.2DL + 1.5LM18 + 1.6SWL (30 mph) AZI 90	Yes	Y	1	1.2	51	1.5	5	0.154
283	1.2DL + 1.5LM18 + 1.6SWL (30 mph) AZI 120	Yes	Y	1	1.2	51	1.5	6	0.154
284	1.2DL + 1.5LM18 + 1.6SWL (30 mph) AZI 150	Yes	Y	1	1.2	51	1.5	7	0.154
285	1.2DL + 1.5LM18 + 1.6SWL (30 mph) AZI 180	Yes	Y	1	1.2	51	1.5	8	0.154
286	1.2DL + 1.5LM18 + 1.6SWL (30 mph) AZI 210	Yes	Y	1	1.2	51	1.5	9	0.154
287	1.2DL + 1.5LM18 + 1.6SWL (30 mph) AZI 240	Yes	Y	1	1.2	51	1.5	10	0.154
288	1.2DL + 1.5LM18 + 1.6SWL (30 mph) AZI 270	Yes	Y	1	1.2	51	1.5	11	0.154
289	1.2DL + 1.5LM18 + 1.6SWL (30 mph) AZI 300	Yes	Y	1	1.2	51	1.5	12	0.154
290	1.2DL + 1.5LM18 + 1.6SWL (30 mph) AZI 330	Yes	Y	1	1.2	51	1.5	13	0.154

Envelope Node Reactions

Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-in]	LC	MY [lb-in]	LC	MZ [lb-in]	LC	
1	N1	max	1364.711	25	1741.977	27	1326.809	18	14984.94	108	24585.68	18	12888.139	20
2		min	-1544.331	8	-125.284	20	-1345.065	24	-15001.015	90	-25047.68	24	-62939.32	87
3	N67	max	1716.418	2	1879.765	35	1573.15	5	12206.145	16	31979.023	25	32225.818	35

Envelope Node Reactions (Continued)

Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-in]	LC	MY [lb-in]	LC	MZ [lb-in]	LC	
4		min	-1611.594	20	-91.719	16	-1410.272	24	-55044.408	35	-26022.959	18	-6924.346	16
5	N117	max	1614.364	2	1742.686	31	1298.764	16	61781.876	127	25096.865	22	30887.778	31
6		min	-1509.676	20	-146.567	24	-1559.647	12	-12066.604	24	-25027.913	16	-6976.741	24
7	Totals:	max	4633.852	14	4976.947	35	4060.357	4						
8		min	-4633.852	20	1701.478	52	-4287.468	12						

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

Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-in]	phi*Mn z-z [lb-in]	Cb	Eqn	
1	M24	6"x0.375" Plate	0.223	1.125	2	0.807	0	y	109	71110.261	72900	6834.391	109350	3	H1-1b
2	M100	6"x0.375" Plate	0.224	1.125	6	0.806	0	y	129	71110.261	72900	6834.391	109350	3	H1-1b
3	M30	6"x0.375" Plate	0.223	1.125	2	0.806	0	y	89	71110.261	72900	6834.391	109350	3	H1-1b
4	M12	6"x0.375" Plate	0.197	2.036	2	0.766	2.036	y	109	62722.329	72900	6834.391	109350	2.458	H1-1b
5	M83	6"x0.375" Plate	0.198	2.036	6	0.765	2.036	y	129	62722.329	72900	6834.391	109350	2.459	H1-1b
6	M13	6"x0.375" Plate	0.197	2.036	2	0.765	2.036	y	89	62722.329	72900	6834.391	109350	2.461	H1-1b
7	M61	6"x0.375" Plate	0.196	1.125	13	0.665	0	y	33	71110.261	72900	6834.391	109350	3	H1-1b
8	M67	6"x0.375" Plate	0.196	1.125	25	0.664	0	y	38	71110.261	72900	6834.391	109350	3	H1-1b
9	M93	6"x0.375" Plate	0.19	1.125	9	0.664	0	y	29	71110.261	72900	6834.391	109350	3	H1-1b
10	M23	6"x0.375" Plate	0.186	1.125	5	0.663	0	y	37	71110.261	72900	6834.391	109350	3	H1-1b
11	M99	6"x0.375" Plate	0.19	1.125	3	0.663	0	y	33	71110.261	72900	6834.391	109350	3	H1-1b
12	M29	6"x0.375" Plate	0.187	1.125	11	0.662	0	y	29	71110.261	72900	6834.391	109350	3	H1-1b
13	M68	6"x0.375" Plate	0.221	1.125	10	0.65	0	y	12	71110.261	72900	6834.391	109350	3	H1-1b
14	M94	6"x0.375" Plate	0.221	1.125	6	0.638	0	y	4	71110.261	72900	6834.391	109350	3	H1-1b
15	M62	6"x0.375" Plate	0.223	1.125	10	0.634	0	y	8	71110.261	72900	6834.391	109350	3	H1-1b
16	M49	6"x0.375" Plate	0.206	2.036	25	0.624	2.036	y	33	62722.329	72900	6834.391	109350	1.708	H1-1b
17	M81	6"x0.375" Plate	0.191	2.036	3	0.622	2.036	y	29	62722.329	72900	6834.391	109350	2.068	H1-1b
18	M48	6"x0.375" Plate	0.207	2.036	13	0.622	2.036	y	38	62722.329	72900	6834.391	109350	2.037	H1-1b
19	M11	6"x0.375" Plate	0.186	2.036	11	0.622	2.036	y	37	62722.329	72900	6834.391	109350	2.083	H1-1b
20	M80	6"x0.375" Plate	0.191	2.036	9	0.621	2.036	y	33	62722.329	72900	6834.391	109350	2.069	H1-1b
21	M10	6"x0.375" Plate	0.187	2.036	5	0.621	2.036	y	29	62722.329	72900	6834.391	109350	2.081	H1-1b
22	M51	6"x0.375" Plate	0.191	2.036	10	0.604	2.036	y	12	62722.329	72900	6834.391	109350	2.461	H1-1b
23	M82	6"x0.375" Plate	0.192	2.036	6	0.592	2.036	y	4	62722.329	72900	6834.391	109350	2.459	H1-1b
24	M50	6"x0.375" Plate	0.197	2.036	10	0.588	2.036	y	8	62722.329	72900	6834.391	109350	2.458	H1-1b
25	M6	L4X4X4	0.339	24.375	25	0.232	24.375	z	98	54411.715	62532	37651.159	82764.473	1.5	H2-1
26	M7	L4X4X4	0.31	0	8	0.23	0	z	100	54411.715	62532	37651.159	80578.632	1.5	H2-1
27	M76	L4X4X4	0.329	24.375	24	0.23	24.375	z	126	54411.715	62532	37651.159	80578.632	1.5	H2-1
28	M77	L4X4X4	0.342	0	25	0.196	0	y	7	54411.715	62532	37651.159	80578.632	1.5	H2-1
29	M44	L4X4X4	0.315	24.375	16	0.196	24.375	y	9	54411.715	62532	37651.159	80578.632	1.5	H2-1
30	M45	L4X4X4	0.311	0	16	0.192	0	y	12	54411.715	62532	37651.159	80578.632	1.5	H2-1
31	M52	L2.5x2.5x3	0.148	27.5	10	0.155	55	z	13	14632.678	29192.4	10470.885	20131.203	1.08	H2-1
32	M65	6"x0.375" Plate	0.374	1.125	9	0.151	1.125	y	13	71110.261	72900	6834.391	109350	2.958	H1-1b
33	M42	PIPE 2.0	0.351	30	13	0.139	38	13	14916.096	32130	22459.5	22459.5	3	H1-1b	
34	M84	L2.5x2.5x3	0.148	27.5	6	0.139	55	z	9	14632.678	29192.4	10470.885	20131.14	1.08	H2-1
35	M97	6"x0.375" Plate	0.365	1.125	5	0.137	1.125	y	9	71110.261	72900	6834.391	109350	2.974	H1-1b
36	M103	6"x0.375" Plate	0.374	1.125	7	0.137	1.125	y	3	71110.261	72900	6834.391	109350	2.958	H1-1b
37	M9	L4X4X4	0.318	0	38	0.137	0	z	97	51466.784	62532	37651.159	80578.632	1.5	H2-1
38	M8	L4X4X4	0.316	36.125	27	0.136	36.125	z	101	51466.784	62532	37651.159	80578.632	1.5	H2-1
39	M71	6"x0.375" Plate	0.365	1.125	11	0.136	1.125	y	7	71110.261	72900	6834.391	109350	2.975	H1-1b
40	M79	L4X4X4	0.317	0	31	0.136	0	z	125	51466.784	62532	37651.159	80578.632	1.5	H2-1
41	M14	L2.5x2.5x3	0.148	27.5	2	0.136	55	y	12	14632.678	29192.4	10470.885	20131.388	1.08	H2-1
42	M78	L4X4X4	0.317	36.125	31	0.136	36.125	z	8	51466.784	62532	37651.159	80578.632	1.5	H2-1
43	M46	L4X4X4	0.317	36.125	35	0.135	36.125	z	12	51466.784	62532	37651.159	80578.632	1.5	H2-1
44	M53	6"x0.375" Plate	0.304	5.75	9	0.135	5.75	y	13	62722.329	72900	6834.391	109350	1.349	H1-1b
45	M47	L4X4X4	0.317	0	35	0.134	0	z	8	51466.784	62532	37651.159	80578.632	1.5	H2-1
46	M1	HSS4X4X4	0.355	0	13	0.134	0	y	109	133649.326	139518	194166	194166	1.721	H1-1b
47	M73	HSS4X4X4	0.352	0	4	0.134	0	y	129	133649.326	139518	194166	194166	1.757	H1-1b

Envelope AISC 14TH (360-10): LRFD Member Steel Code Checks (Continued)

Member	Shape	Code	Check	Loc[in]	LC	Shear	Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-in]	phi*Mn z-z [lb-in]	Cb	Eqn
48	M33	6"x0.375" Plate	0.373	1.125	3	0.133	1.125	y	11	71110.261	72900	6834.391	109350	2.958	H1-1b	
49	M27	6"x0.375" Plate	0.39	1.125	13	0.133	1.125	y	5	71110.261	72900	6834.391	109350	2.941	H1-1b	
50	M3	PIPE 2.5	0.133	90	6	0.133	90		6	30038.461	50715	43155	43155	1.789	H1-1b	
51	M106	PIPE 2.5	0.148	90	13	0.133	6		6	30038.461	50715	43155	43155	1.769	H1-1b	
52	M114	PIPE 2.5	0.132	6	2	0.133	6		2	30038.461	50715	43155	43155	1.789	H1-1b	
53	M74	PIPE 2.0	0.333	30	8	0.127	38		9	14916.096	32130	22459.5	22459.5	3	H1-1b	
54	M4	PIPE 2.0	0.34	30	12	0.123	38		12	14916.096	32130	22459.5	22459.5	2.45	H1-1b	
55	M85	6"x0.375" Plate	0.297	5.75	5	0.122	5.75	y	9	62722.329	72900	6834.391	109350	1.355	H1-1b	
56	M86	6"x0.375" Plate	0.304	5.75	7	0.122	5.75	y	3	62722.329	72900	6834.391	109350	1.347	H1-1b	
57	M54	6"x0.375" Plate	0.297	5.75	11	0.122	5.75	y	7	62722.329	72900	6834.391	109350	1.357	H1-1b	
58	M105	PIPE 3.0	0.126	48	122	0.121	93		110	60482.561	65205	68985	68985	1	H1-1b	
59	M113	PIPE 3.0	0.125	48	81	0.121	3		89	60482.561	65205	68985	68985	1	H1-1b	
60	M16	6"x0.375" Plate	0.304	5.75	3	0.119	5.75	y	11	62722.329	72900	6834.391	109350	1.346	H1-1b	
61	M15	6"x0.375" Plate	0.316	5.75	13	0.119	5.75	y	5	62722.329	72900	6834.391	109350	1.318	H1-1b	
62	M110	PIPE 2.0	0.445	30	8	0.106	30		6	14916.096	32130	22459.5	22459.5	3	H1-1b	
63	M35	PIPE 2.0	0.445	30	4	0.106	30		6	14916.096	32130	22459.5	22459.5	3	H1-1b	
64	M107	PIPE 2.0	0.473	30	13	0.106	30		2	14916.096	32130	22459.5	22459.5	2.782	H1-1b	
65	M38	PIPE 2.0	0.449	30	12	0.106	30		10	14916.096	32130	22459.5	22459.5	3	H1-1b	
66	M118	PIPE 2.0	0.445	30	4	0.106	30		2	14916.096	32130	22459.5	22459.5	2.666	H1-1b	
67	M115	PIPE 2.0	0.444	30	8	0.106	30		10	14916.096	32130	22459.5	22459.5	3	H1-1b	
68	M2	PIPE 3.0	0.107	48	37	0.089	3		12	60482.561	65205	68985	68985	1	H1-1b	
69	M5	HSS4.5X4.5X3	0.063	8.958	13	0.089	8.958	y	109	120246.398	121302	194994	194994	1.434	H1-1b	
70	M75	HSS4.5X4.5X3	0.059	8.958	7	0.089	8.958	y	129	120246.398	121302	194994	194994	1.437	H1-1b	
71	M41	HSS4X4X4	0.366	0	12	0.085	0	y	81	133649.326	139518	194166	194166	1.773	H1-1b	
72	M43	HSS4.5X4.5X3	0.059	8.958	12	0.054	8.958	y	145	120246.398	121302	194994	194994	1.446	H1-1b	
73	M125	PIPE 2.0	0.062	18	10	0.012	18		10	26521.424	32130	22459.5	22459.5	2.402	H1-1b	

INFINIGY

FROM ZERO TO INFINIGY
the solutions are endless

BOLT CONNECTION CALCULATION

BOLT PROPERTIES

Date:	10/27/2021
Site:	BOBDL00103A
Engineer:	DVA
Project No.:	2039-Z5555C
Connection Location:	Arm to Collar

Bolt Capacity Equation	TIA-222-G	
Connection Type	Steel	
Bolt Size, d	5/8	in
Threads per Inch, n	11	
Steel Grade	A325	
Bolt Ultimate Tensile Stress, F_u	120	ksi
Threads Exclusion	N	
Shear Plane	1	
Net Bolt Cross-Sectional Area, A_n	0.226	in ²
Gross Bolt Cross-Sectional Area, A_g	0.307	in ²
Tensile Steel Strength (per bolt), φR_{nt}	20340	lbs
Shear Steel Strength (per bolt), φR_{nv}	12425	lbs

BOLT CONNECTION CALCULATION

BOLT GROUP CHECK

Date:	10/27/2021
Site:	BOBDL00103A
Engineer:	DVA
Project No:	2039-Z5555C
Connection Location:	Arm to Collar

Loads Properties	
Controlling LC:	13
Load Point Number:	N1
X-Coordinate (in.)	4.00
Y-Coordinate (in.)	4.00
Z-Coordinate (in.)	0.00
Shear Load, Px (lbs)	0
Shear Load, Py (lbs)	0
Axial Load, Pz (lbs)	0
Moment, Mx (lb-in)	0
Moment, My (lb-in)	0
Moment, Mz (lb-in)	0

Member Properties	
X	Y
0.0	0.0
8.0	8.0

Number of Bolts: 4

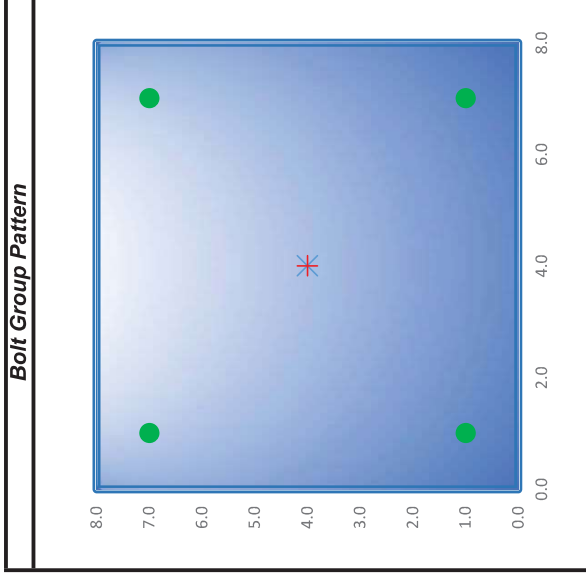
No.	Bolt Type	Bolt Coordinates		Bolt Loads			Steel Bolt Usage		Max. Capacity
		Xo (in)	Yo (in)	Axial (lbs)	Shear (lbs)	Tension	Shear	Combined	
1	Main Type	1.0	1.0	-5339.75	511.14	0.0%	4.1%	4.1%	4.1%
2	Main Type	7.0	1.0	-3272.25	372.82	0.0%	3.0%	3.0%	3.0%
3	Main Type	1.0	7.0	3939.25	447.36	19.4%	3.6%	19.4%	19.4%
4	Main Type	7.0	7.0	6006.75	279.05	29.5%	2.2%	29.5%	29.5%

Bolt Group Properties:

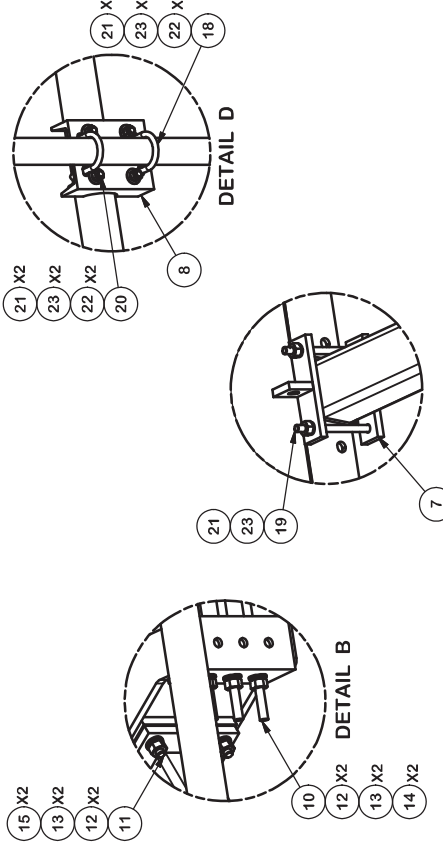
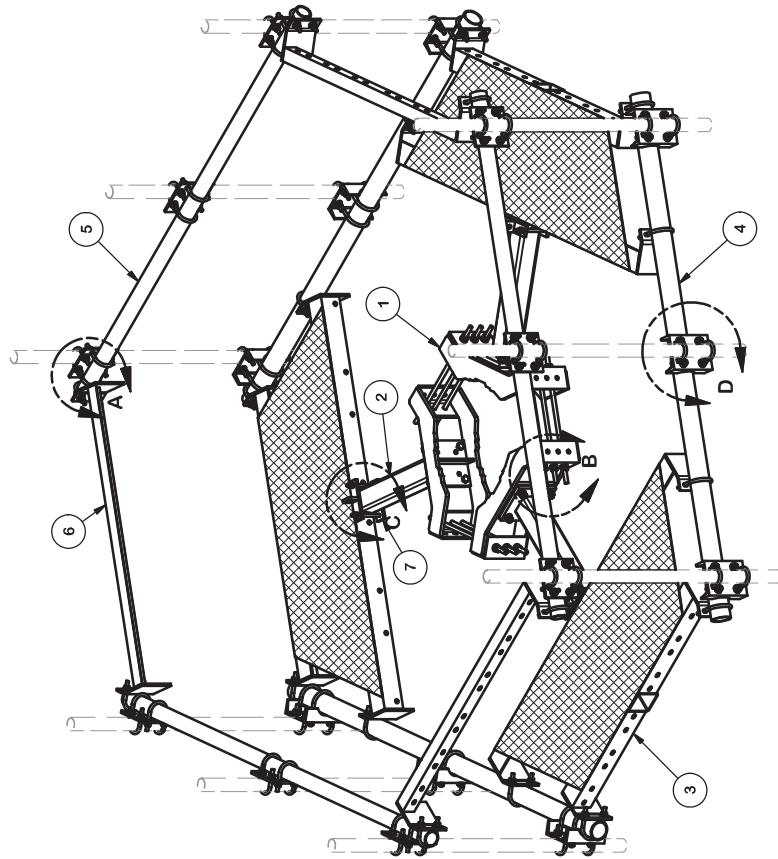
Xc =	4.00	in.
Yc =	4.00	in.
Ic.y =	11.04	in.^2
Ic.x =	11.04	in.^2
Ic.xy =	22.09	in.^2

Loads at Center of Gravity of Bolt Group:

Pz =	1334.00	lbs
Px =	-703.00	lbs
Py =	1406.00	lbs
Mx =	55674.00	lb-in
My =	-12405.00	lb-in
Mz =	2087.00	lb-in



Total Capacity of Bolt Group: 29.5%



ASSEMBLY NO.	PART NO. "A"	LENGTH "B"	UNIT WEIGHT "C"	NET WEIGHT "D"	TOTAL WEIGHT
SNP8HR-372	P272	6'-0"	23.07	207.63	1717.07
SNP8HR-384	P284	7'-0"	26.91	242.19	1751.63
SNP8HR-396	P296	8'-0"	30.76	276.84	1786.28
SNP8HR-3126	P2126	10'-6"	40.75	366.75	1876.19

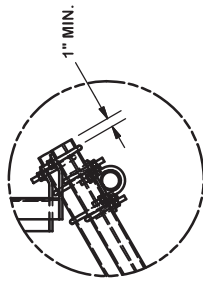
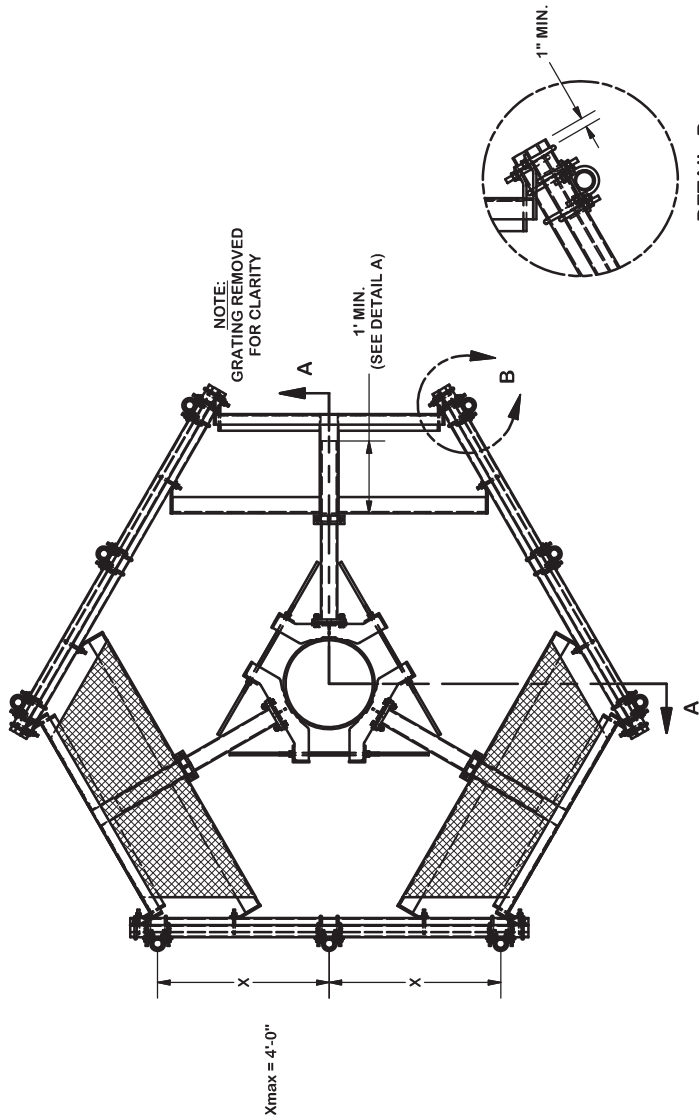
TOLERANCE NOTES

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

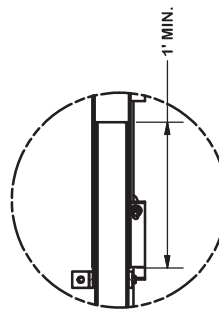
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PARTS LIST				NET WT.
ITEM	QTY	PART NO.	PART DESCRIPTION	UNIT WT.
1	3	X-LWRM	RING MOUNT WELDMENT	68.81
2	3	X-SNP-ST8	SIN88 TELESCOPING ARM FOR GRATING	60.39
3	3	X-SNPC	CORNER GRATING WELDMENT	194.33
4	3	P3096	3" SCH. 40 PIPE (3.5" O.D. x 0.216" WALL) A500	60.75
5	3	P3096	2-7/8" OD X 96" Sch 40 Galvanized Pipe	182.25
6	3	X-SNP-HRA	CORNER BRACKET FOR SNPX PLATFORMS	46.45
7	3	X-SNPP1G	CLAMP PLATE	25.95
8	9	X-SP219	SMALL SUPPORT CROSS PLATE	2.03
9	9	SCX2	CROSSOVER PLATE	8.61
10	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)	8.250 in
11	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)	7.000 in
12	12	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	0.55
13	30	A58FW	5/8" HDG A325 FLATWASHER	0.55
14	30	G58LW	5/8" HDG LOCKWASHER	0.55
15	12	A58NUT	5/8" HDG A325 HEX NUT	0.36
16	12	X-UB1358	1/2" X 3-5/8" X 5-1/2" X 3" U-BOLT (HDG.)	0.03
17	24	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)	0.03
18	36	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)	0.13
19	6	G12065	1/2" X 6-1/2" HDG HEX BOLT GR5 FULL THREAD	0.73
20	18	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)	0.41
21	186	G12NUT	1/2" HDG HEAVY 2H HEX NUT	0.73
22	180	G12FW	1/2" HDG USS FLATWASHER	0.07
23	186	G12LW	1/2" HDG LOCKWASHER	0.03
24	9	A	2" SCH. 40 PIPE (2.375" O.D. x 0.154" WALL) A500	0.01

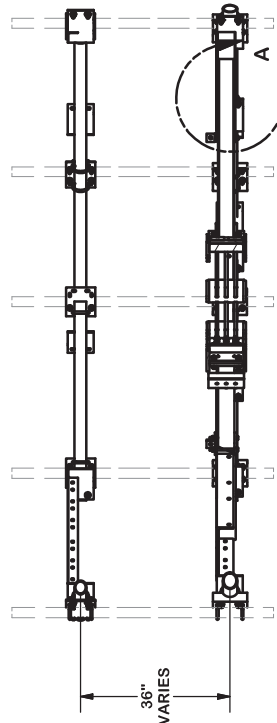
 A valmont COMPANY	Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX	Engineering Support Team 1-888-753-7446	PART NO. SEE ASSEMBLY NO. DWG. NO. SNP8HR-3XX	PAGE 1 OF 2
	DESCRIPTION 8' SNUB NOSE PLATFORM WITH HANDRAIL	DRAWN BY CEK 11/19/2014	ENG. APPROVAL CHECKED BY BMC 11/21/2014	CLASS / SUB 81 / 02



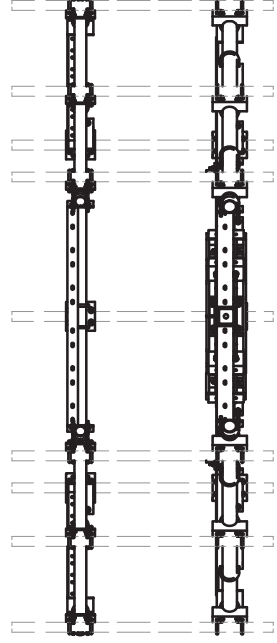
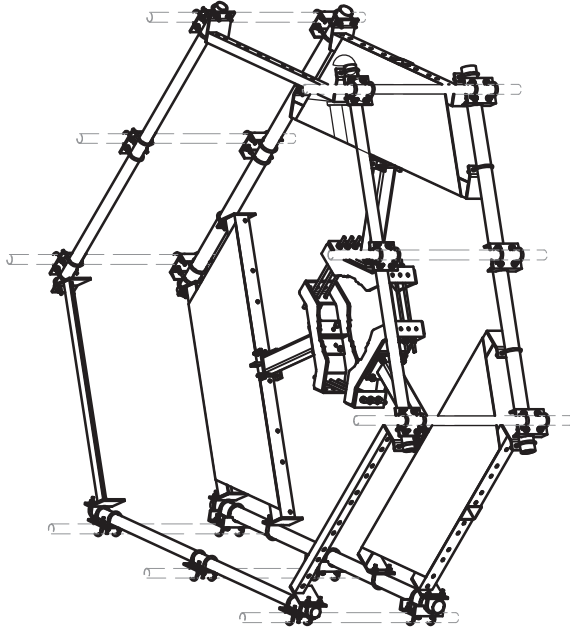
DETAIL B



DETAIL A



SECTION A-A



TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES (± 0.0307)
 DRILLED AND GAS CUT HOLES (± 0.0307) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES (± 0.0107) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING (± 0.0307)
 ALL OTHER MACHINING (± 0.0607)

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 VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION
 8' SNUB NOSE
 PLATFORM WITH
 HANDRAIL

CFD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
81	CEK	11/19/2014	SEE ASSEMBLY NO.
CLASS	DRAWING USAGE	CHECKED BY	DWG. NO.
81	CUSTOMER	BMC	SNP8HR-3XX
SUB			
02			



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

Engineering
 Support Team:
 1-888-753-7446

Exhibit F

Power Density/RF Emissions Report

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

Dish Wireless Existing Facility

Site ID: BOBDL00103A

248 Hall Hill Road
Somers, Connecticut 06071

October 4, 2021

EBI Project Number: 6221005423

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	1.76%

October 4, 2021

Dish Wireless

Emissions Analysis for Site: BOBDL00103A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **248 Hall Hill Road in Somers, 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 Wireless antenna facility located at 248 Hall Hill Road in Somers, 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 MX08FRO665-20 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the JMA MX08FRO665-20 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the JMA MX08FRO665-20 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 155 feet above ground level (AGL).
- 8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 9) All calculations were done with respect to uncontrolled / general population threshold limits.

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-20	Make / Model:	JMA MX08FRO665-20	Make / Model:	JMA MX08FRO665-20
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):	155 feet	Height (AGL):	155 feet	Height (AGL):	155 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 %:	1.07%	Antenna BI MPE %:	1.07%	Antenna CI MPE %:	1.07%

Site Composite MPE %	
Carrier	MPE %
Dish Wireless (Max at Sector A):	1.07%
T-Mobile	0.69%
Site Total MPE % :	1.76%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	1.07%
Dish Wireless Sector B Total:	1.07%
Dish Wireless Sector C Total:	1.07%
Site Total MPE % :	1.76%

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	155.0	1.45	600 MHz n71	400	0.36%
Dish Wireless 1900 MHz n70	4	542.70	155.0	3.52	1900 MHz n70	1000	0.35%
Dish Wireless 2190 MHz n66	4	542.70	155.0	3.52	2190 MHz n66	1000	0.35%
						Total:	1.07%

• 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:	1.07%
Sector B:	1.07%
Sector C:	1.07%
Dish Wireless Maximum MPE % (Sector A):	1.07%
Site Total:	1.76%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **1.76%** 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.

Exhibit G

Letter of Authorization



Eco-Site, LLC

750 Park of Commerce Drive, Suite 200

Boca Raton, FL 33487

Phone: 561.406.4076

Eco-Site, LLC - Letter of Authorization

CT - CONNECTICUT SITING COUNCIL

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

Re: Tower Share Application
Eco-Site, LLC - telecommunications site at:
248 HALL HILL ROAD, SOMERS, CT 06071

Eco-Site, LLC, a Delaware limited liability company, d/b/a Vertical Bridge (“Eco Site”) hereby authorizes DISH Wireless LLC, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CT - CONNECTICUT SITING COUNCIL for the existing wireless communications site described below:

Eco-Site ID/Name: US-CT-5017/Blue Ridge
Customer Site ID: BOBDL00103A /ECO-Hall Hill Road
Site Address: 248 Hall Hill Road, Somers, CT 06071

Ec-o Site, LLC

DocuSigned by:
By: Tim Tuck Date: 9/30/2021
Name: TIM TUCK
Title: Vice President - Lease Administration

Exhibit H

Recipient Mailings





POBDL00103A



UNIONVILLE
24 MILL ST
UNIONVILLE, CT 06085-9998
(800)275-8777

10/27/2021 01:59 PM

Product	Qty	Unit Price	Price
Prepaid Mail Boca Raton, FL 33487 Weight: 0 lb 2.00 oz Acceptance Date: Wed 10/27/2021 Tracking #: 9405 5036 9930 0045 1420 61	1		\$0.00
Prepaid Mail Somers, CT 06071 Weight: 0 lb 12.90 oz Acceptance Date: Wed 10/27/2021 Tracking #: 9405 5036 9930 0045 1420 23	1		\$0.00
Prepaid Mail Somers, CT 06071 Weight: 0 lb 12.70 oz Acceptance Date: Wed 10/27/2021 Tracking #: 9405 5036 9930 0045 1420 30	1		\$0.00
Prepaid Mail Somers, CT 06071 Weight: 0 lb 12.60 oz Acceptance Date: Wed 10/27/2021 Tracking #: 9405 5036 9930 0045 1420 47	1		\$0.00
Grand Total:			\$0.00

 UNITED STATES POSTAL SERVICE®		Click-N-Ship®	
		<small>usps.com</small> 9405 5036 9930 0045 1420 23 0087 0000 0010 6071 US POSTAGE <small>Flat Rate Env</small>	
PRIORITY MAIL 2-DAY™			
DEBORAH CHASE NORTHEAST SITE SOLUTIONS 420 MAIN ST STE 1 STURBRIDGE MA 01566-1359		Mailed from 01566 Expected Delivery Date: 10/30/21 0006	
SHIP TO: THE HONORABLE C.G. BUDD KNORR, JR TOWN OF SOMERS- FIRST SELECTMAN 600 MAIN ST SOMERS CT 06071-2119		R005	
USPS TRACKING #			
			
9405 5036 9930 0045 1420 23			
Electronic Rate Approved #038555749			

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- Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, **DO NOT TAPE OVER BARCODE.** Be sure all edges are secure.
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USPS TRACKING # : 9405 5036 9930 0045 1420 23	
Trans. #: 546968111 Print Date: 10/27/2021 Ship Date: 10/27/2021 Expected Delivery Date: 10/30/2021	Priority Mail® Postage: \$8.70 Total: \$8.70
From: DEBORAH CHASE NORTHEAST SITE SOLUTIONS 420 MAIN ST STE 1 STURBRIDGE MA 01566-1359	
To: THE HONORABLE C.G. BUDD KNORR, JR TOWN OF SOMERS- FIRST SELECTMAN 600 MAIN ST SOMERS CT 06071-2119	
<small>* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.</small>	



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		<small>usps.com</small> 9405 5036 9930 0045 1420 30 0087 0000 0010 8071 US POSTAGE <small>Flat Rate Env</small>	
PRIORITY MAIL 2-DAY™			
DEBORAH CHASE NORTHEAST SITE SOLUTIONS 420 MAIN ST STE 1 STURBRIDGE MA 01566-1359		Expected Delivery Date: 10/30/21 0006	
SHIP TO: JENNIFER ROY TOWN OF SOMERS-ZONING ENFORCEMENT 600 MAIN ST SOMERS CT 06071-2119		R005	
USPS TRACKING #		Mailed from 01566	
		9405 5036 9930 0045 1420 30	
Electronic Rate Approved #038555749			

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Instructions

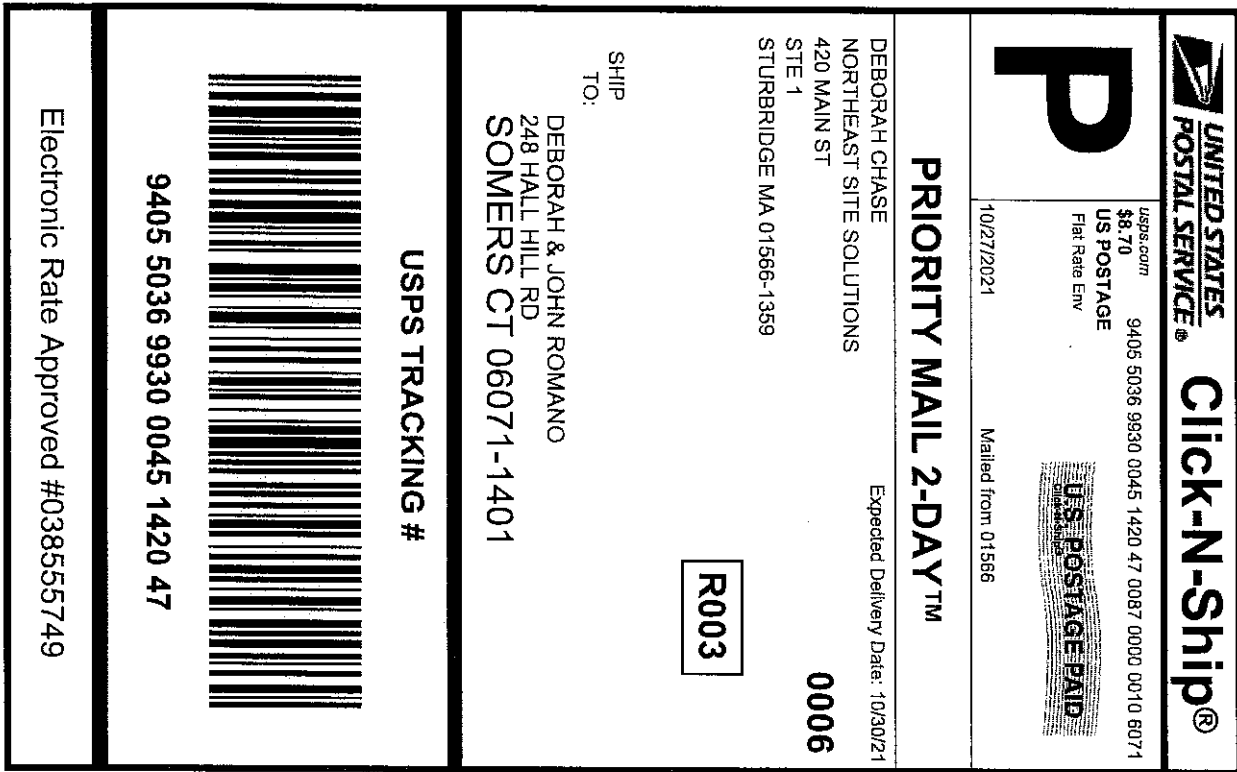
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USPS TRACKING # : 9405 5036 9930 0045 1420 30			
Trans. #:	546968111	Priority Mail® Postage:	\$8.70
Print Date:	10/27/2021	Total:	\$8.70
Ship Date:	10/27/2021		
Expected Delivery Date:	10/30/2021		
From: DEBORAH CHASE NORTHEAST SITE SOLUTIONS 420 MAIN ST STE 1 STURBRIDGE MA 01566-1359			
To: JENNIFER ROY TOWN OF SOMERS-ZONING ENFORCEMENT OFFICER 600 MAIN ST SOMERS CT 06071-2119			
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USPS TRACKING # :	
9405 5036 9930 0045 1420 47	
Trans. #:	546968111
Print Date:	10/27/2021
Ship Date:	10/27/2021
Expected Delivery Date:	10/30/2021
Priority Mail® Postage:	\$8.70
Total:	\$8.70
From:	DEBORAH CHASE NORTHEAST SITE SOLUTIONS 420 MAIN ST STE 1 STURBRIDGE MA 01566-1359
To:	DEBORAH & JOHN ROMANO 248 HALL HILL RD SOMERS CT 06071-1401
<small>* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.</small>	



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 Click-N-Ship®	
	<small>usps.com</small> US POSTAGE <small>Flat Rate Env</small>
10/27/2021	9405 5036 9930 0045 1420 61 0087 0000 0063 3487 
PRIORITY MAIL 2-DAY™	
Expected Delivery Date: 10/30/21	
DEBORAH CHASE NORTHEAST SITE SOLUTIONS 420 MAIN ST STE 1 STURBRIDGE MA 01566-1359	
C057	
SHIP TO: VERTICAL BRIDGE, REIT, LLC. 750 PARK OF COMMERCE DR STE 200 BOCA RATON FL 33487-3650	
USPS TRACKING #	
	
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USPS TRACKING # : 9405 5036 9930 0045 1420 61			
Trans. #:	546968111	Priority Mail® Postage:	\$8.70
Print Date:	10/27/2021	Total:	\$8.70
Ship Date:	10/27/2021		
Expected Delivery Date:	10/30/2021		
From: DEBORAH CHASE NORTHEAST SITE SOLUTIONS 420 MAIN ST STE 1 STURBRIDGE MA 01566-1359			
To: VERTICAL BRIDGE, REIT, LLC. 750 PARK OF COMMERCE DR STE 200 BOCA RATON FL 33487-3650			
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