



Northeast Site Solutions
Carolyn Seeley
1053 Farmington Ave, Unit G,
Farmington CT 06032
cseeley@northeastsitesolutions.com

January 11, 2022

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

RE: Tower Share Application
47 Turnpike Road, Willington CT 06279
Latitude: 41.9256 N
Longitude: -72.2524 W
Site#: BOBDL00108A

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 47 Turnpike Road, Willington, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900/2100 5G MHz antenna and six (6) RRUs, at the 149-foot level of the existing 170-foot monopole tower, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within 7x5 lease area. Included are plans by Infinigy, dated January 10, 2022, Exhibit C. Also included is a structural analysis prepared by Paul J Ford & Company, dated October 27, 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. 267 on February 3, 2004. 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 Erika G. Wiczenski, First Selectman for the Town of Willington, Michael D'Amato, Zoning Agent for the Town of Willington, as well as the property owner Kelley M Barber and Everest, 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 170-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 149-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 negligible.



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 20.11% 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 monopole in Willington. 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 149-foot level of the existing 170-foot tower would have an insignificant visual impact on the area around the monopole. 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 Willington.

Sincerely,

Carolyn Seeley
Mobile: 978-760-5577
Fax: 413-521-0558
Office: 1053 Farmington Ave, Unit G, Farmington CT 06032
Email: cseeley@northeastitesolutions.com



Attachments

Cc:

Erika G. Wiccenski, First Selectman
Town of Willington
40 Old Farms Road,
Willington, CT 06279

Michael D'Amato, Zoning Agent
Town of Willington
40 Old Farms Road,
Willington, CT 06279

Kelley M Barber, Property Owner
29 Cassidy Hill Road
Coventry, CT 06238

Everest, Tower Owner
100 Summer Street, Suite 1600
Boston, MA 02110

NORTHEAST SITE SOLUTIONS, LLC
1053 FARMINGTON AVE. STE G
FARMINGTON, CT 06032

WEBSTER BANK
51-7910/2111

0243

01/13/2022

PAY TO THE ORDER OF Connecticut Siting Council

\$ *625.00

EXACTLY SIX HUNDRED TWENTY-FIVE DOLLARS

DOLLARS

Connecticut Siting Council
10 Franklin Square
New Britain CT 06051

MEMO

Lisa J. Allen
AUTHORIZED SIGNATURE

⑈000243⑈ ⑆211170101⑆10 0011489092⑈

NORTHEAST SITE SOLUTIONS, LLC

0243

Check#: 243 Date: 01/13/2022 Vendor#: 10023 Connecticut Siting Council Total: *625.00

Invoice#	Invoice Date	Job/Description	Balance	Retain	Discount	This Check
BOBDL00108A	01/13/2022	506 DISH 5G NSD BOS	625.00			625.00

NORTHEAST SITE SOLUTIONS, LLC

0243

Check#: 243 Date: 01/13/2022 Vendor#: 10023 Connecticut Siting Co. Total: *625.00

Invoice#	Invoice Date	Job/Description	Balance	Retain	Discount	This Check
BOBDL00108A	01/13/2022	506 DISH 5G NSD BOS	625.00			625.00

Exhibit A

Original Facility Approval

Connecticut Siting Council^(/CSC)

[CT.gov Home](#) [\(/\)](#) [Connecticut Siting Council](#) [\(/CSC\)](#) Docket 267 Decision and Order

[Decisions \(/CSC/Decisions/Decisions\)](#) >

[Meetings and Minutes \(/CSC/Common-Elements/v4-template/Council-Activity\)](#) >

[Pending Matters \(/CSC/1_Applications-and-Other-Pending-Matters/Pending-Matters\)](#) >

[About Us \(/CSC/Common-Elements/Common-Elements/Connecticut-Siting-Council---Description\)](#) >

[Contact Us \(/CSC/Common-Elements/Common-Elements/Contact-Us\)](#) >

Search Connecticut Siting Council



DOCKET NO. 267 - Cordless Data Transfer, Inc. application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility at one of two sites at Turnpike Road, Map 45-Lot 4, Willington, Connecticut.

} Connecticut

} Siting

} Council

February 3, 2004

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Cordless Data Transfer, Inc. for the construction, maintenance and operation of a wireless telecommunications facility at the prime site on Turnpike Road, Map 45-Lot 4, Willington, Connecticut. The Council denies certification of the alternate site.

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

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of AT&T Wireless PCS LLC and other entities, both public and private, but such tower shall not exceed a total height of 170 feet above ground level.

2. The tower enclosure shall be moved approximately 25 feet to the southeast. Development of the site shall not disturb the intermittent watercourse (wetland drain) adjacent to the site.

3. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include:

a) a detailed site development plan that depicts the location of the access road, compound, tower, utility line, erosion and sedimentation control features, extent of site clearing and grading, and landscaping. Erosion and sedimentation controls shall be consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended; and

b) specifications for the tower, tower foundation, antennas, equipment building, and security fence.

4. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case

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

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

6. 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. The Certificate Holder shall provide reasonable space on the tower for no compensation for any municipal antennas, provided tower space is available and such antennas are compatible with the structural integrity of the tower.

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

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

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

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

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

The parties and intervenors to this proceeding are:

Applicant

Cordless Data Transfer, Inc.

Its Representative

Charles Andres, Esq.

Tyler Cooper & Alcorn, LLP

205 Church Street

P.O. Box 1936

New Haven, Connecticut 06509-1910

Robert J. Francis, President

Cordless Data Transfer, Inc.

P.O. Box 363

17 Ridgewood Drive

Marlborough, Connecticut 06447

Intervenor

AT&T Wireless PCS, LLC

d/b/a AT&T Wireless

Its Representative

Christopher B. Fisher, Esq.

Cuddy & Feder LLP

90 Maple Avenue

White Plains, New York 10601

Exhibit B

Property Card

47 TURNPIKE RD

Location 47 TURNPIKE RD

Mblu 45 / / 004-0A / /

Acct# 00007401

Owner BARBER KELLEY M

Assessment \$39,010

Appraisal \$55,730

PID 6225

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2018	\$0	\$55,730	\$55,730

Assessment			
Valuation Year	Improvements	Land	Total
2018	\$0	\$39,010	\$39,010

Owner of Record

Owner BARBER KELLEY M
Co-Owner MURRAY BRIAN P
Address 29 CASSIDY HILL RD
COVENTRY, CT 06238

Sale Price \$0
Certificate
Book & Page 225/967
Sale Date 02/18/2021

Building Information

Building 1 : Section 1

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

Building Attributes	
Field	Description
Style	Vacant Land
Model	
Grade:	
Stories:	
Occupancy	

Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Fireplaces	
Bsmt Garage	

Building Photo



(<http://images.vgsi.com/photos/WillingtonCTPhotos//default.jpg>)

Building Layout

(ParcelSketch.ashx?pid=62225&bid=20274)

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

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 1300
Description Vacant Land
Zone
Neighborhood 302
Alt Land Appr Category No

Land Line Valuation

Size (Acres) 11.61
Frontage
Depth
Assessed Value \$39,010
Appraised Value \$55,730

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

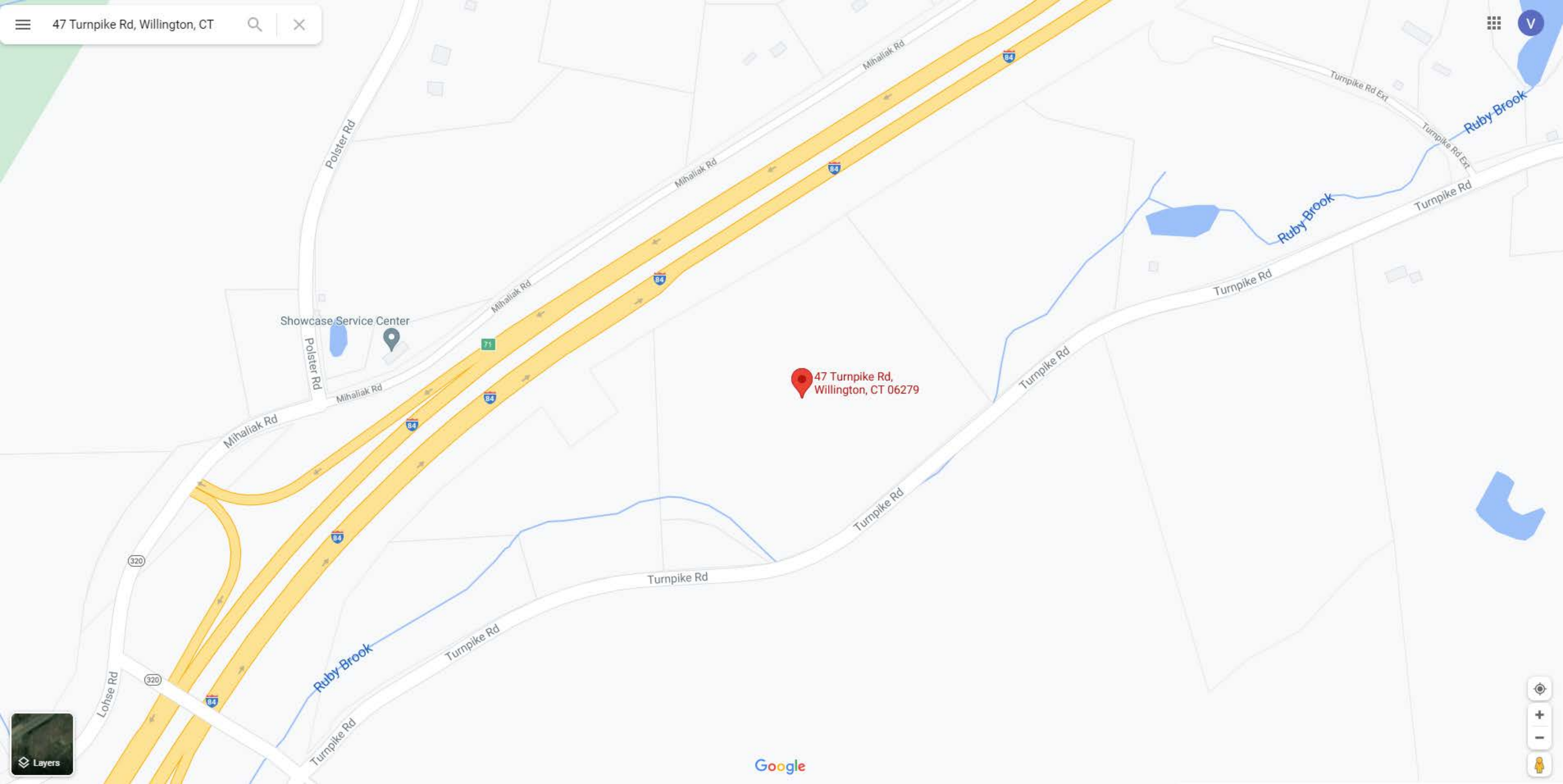
Valuation History

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Appraisal			
Valuation Year	Improvements	Land	Total
2019	\$0	\$55,730	\$55,730

Assessment			
Valuation Year	Improvements	Land	Total
2019	\$0	\$1,950	\$1,950

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Showcase Service Center

47 Turnpike Rd, Willington, CT 06279



Exhibit C

Construction Drawings



DISH WIRELESS, LLC. SITE ID:

BOBDL00108A

DISH WIRELESS, LLC. SITE ADDRESS:

**47 TURNPIKE ROAD
WILLINGTON, CT 06279**

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 	

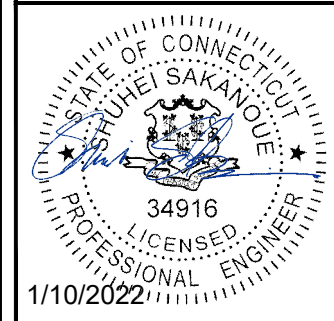
SITE INFORMATION	PROJECT DIRECTORY
PROPERTY OWNER: EVEREST	APPLICANT: DISH WIRELESS, LLC. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
ADDRESS: 47 TURNPIKE ROAD WILLINGTON, CT 06279	TOWER OWNER: EVEREST 100 SUMMER STREET, SUITE 1600 BOSTON, MA 02110
TOWER TYPE: MONOPOLE	SITE DESIGNER: INFINIGY 1033 WATERLIET SHAKER RD ALBANY, NY 12205 (518) 690-0790
TOWER CO SITE ID: 702498	SITE ACQUISITION: APRIL PARROTT (203) 927-4317
TOWER APP NUMBER: TBD	CONSTRUCTION MANAGER: CHAD WILCOX CHAD.WILCOX@DISH.COM
COUNTY: TOLLAND	RF ENGINEER: BOSSENER CHARLES (917) 567-9837
LATITUDE (NAD 83): 41° 55' 32.2" N 41.925600 N	
LONGITUDE (NAD 83): 72° 15' 08.6" W -72.252400 W	
ZONING JURISDICTION: TOLLAND COUNTY	
ZONING DISTRICT: TBD	
PARCEL NUMBER: TBD	
OCCUPANCY GROUP: U	
CONSTRUCTION TYPE: V-B	
POWER COMPANY: CITY OF OCALA	
TELEPHONE COMPANY: AT&T	



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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HOFFMAN ESTATES, IL 60169
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WWW.INFINIGY.COM



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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	10/28/21	ISSUED FOR PERMIT
1	01/10/22	ISSUED FOR PERMIT

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00108A
WILLINGTON CDT
47 TURNPIKE ROAD
WILLINGTON, CT 06279

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

SITE PHOTO



UNDERGROUND SERVICE ALERT CBYD 811
UTILITY NOTIFICATION CENTER OF CONNECTICUT
(800) 922-4455
WWW.CBYD.COM
CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

GENERAL NOTES

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

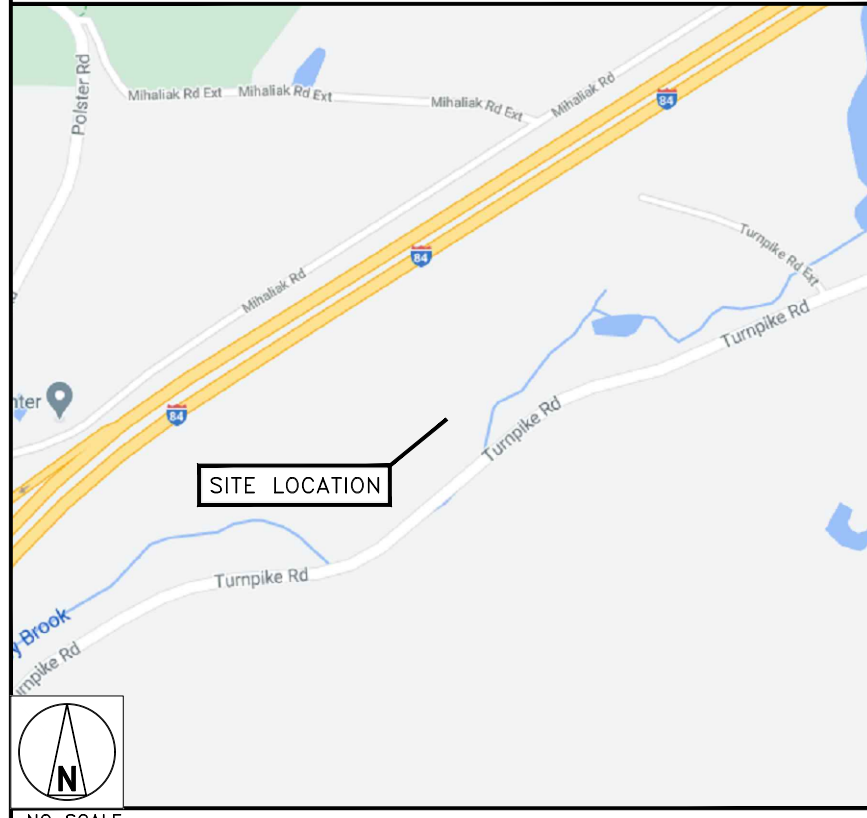
11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED

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 BRADLEY INTERNATIONAL AIRPORT:
HEAD NORTHWEST ON BRADLEY INTERNATIONAL AIRPORT TOWARD BRADLEY INTERNATIONAL AIRPORT CONNECTOR, BEAR RIGHT ONTO BRADLEY INTERNATIONAL AIRPORT CONNECTOR, TAKE THE RAMP ON THE RIGHT FOR BRADLEY INTERNATIONAL AIRPORT CONNECTOR, KEEP STRAIGHT TO GET ONTO BRADLEY FIELD CONNECTOR E, ROAD NAME CHANGES TO CT-20 E, TAKE THE RAMP ON THE RIGHT FOR I-91 SOUTH AND HEAD TOWARD HARTFORD, AT EXIT 35A, HEAD RIGHT ON THE RAMP FOR I-291 TOWARD MANCHESTER, TAKE THE RAMP ON THE LEFT FOR I-84 EAST AND HEAD TOWARD BOSTON, AT EXIT 71, HEAD ON THE RAMP RIGHT AND FOLLOW SIGNS FOR RUBY RD, TURN LEFT ONTO CT-320 / RUBY RD TOWARD RUBY RD, KEEP STRAIGHT TO GET ONTO TURNPIKE RD, ARRIVE AT 47 TURNPIKE ROAD, WILLINGTON, CT 06279

VICINITY MAP



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:

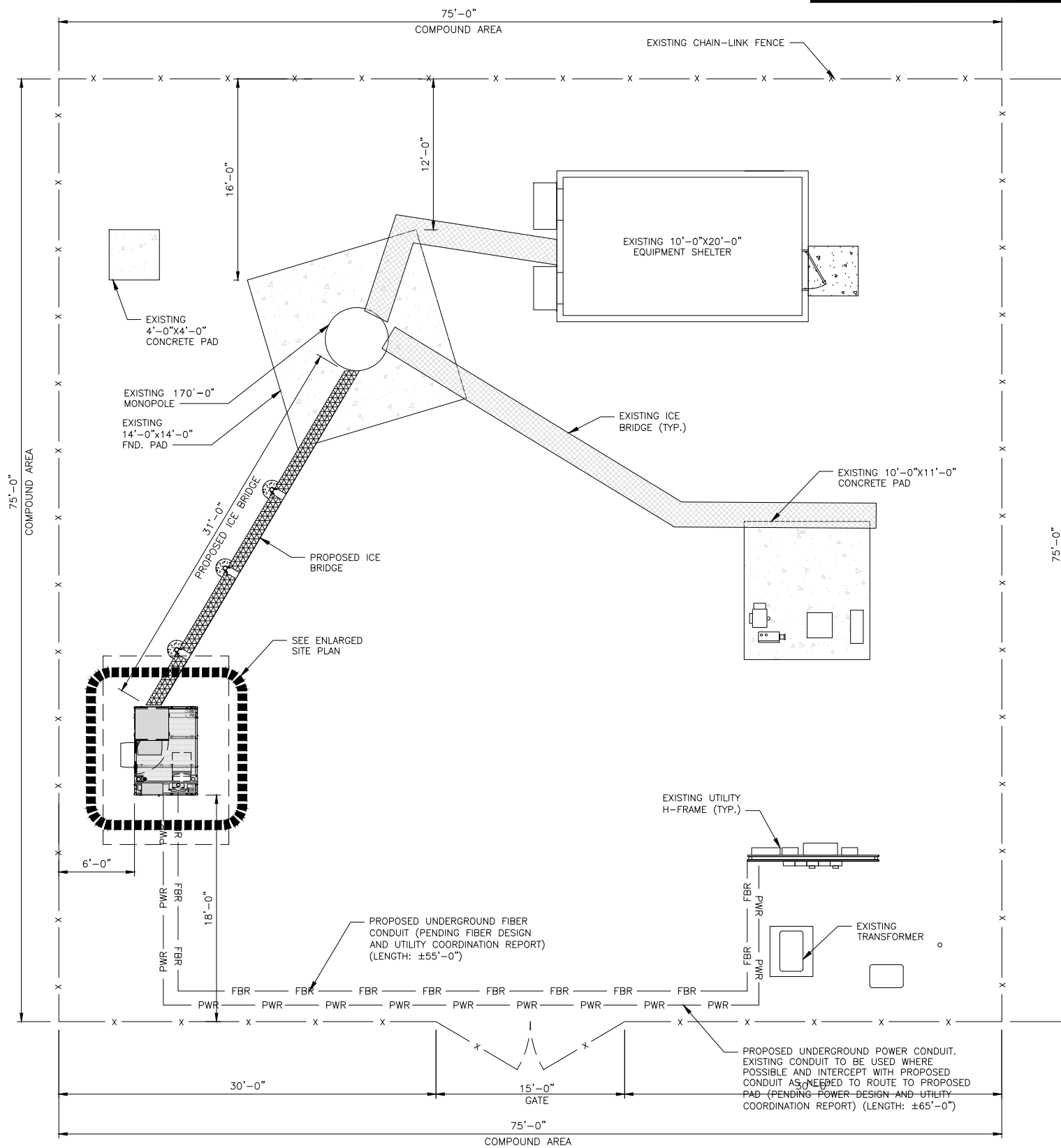
CODE TYPE	CODE
BUILDING	2018 CT STATE BUILDING CODE/2015 IBC W/ CT AMENDMENTS
MECHANICAL	2018 CT STATE BUILDING CODE/2015 IMC W/ CT AMENDMENTS
ELECTRICAL	2018 CT STATE BUILDING CODE/2017 NEC W/ CT AMENDMENTS

SHEET INDEX

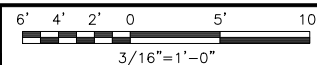
SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
A-1	OVERALL AND ENLARGED SITE PLAN
A-2	ELEVATION, ANTENNA LAYOUT AND SCHEDULE
A-3	EQUIPMENT PLATFORM AND H-FRAME DETAILS
A-4	EQUIPMENT DETAILS
A-5	EQUIPMENT DETAILS
A-6	EQUIPMENT DETAILS
E-1	ELECTRICAL ROUTE PLAN AND NOTES
E-2	ELECTRICAL DETAILS
E-3	ELECTRICAL ONE-LINE,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



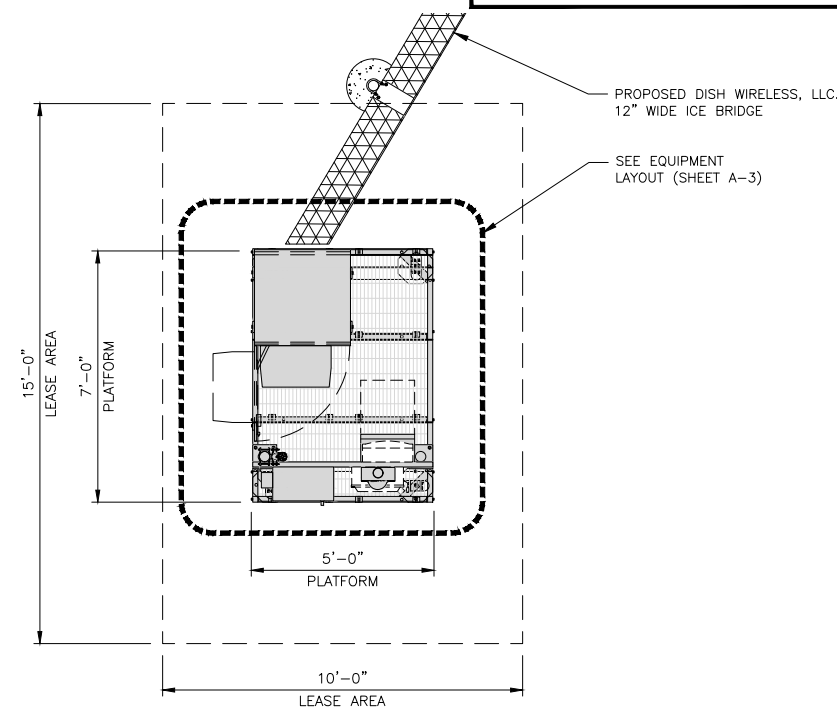
COMPOUND PLAN



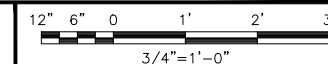
1

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.



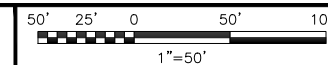
ENLARGED SITE PLAN



2



SITE PLAN



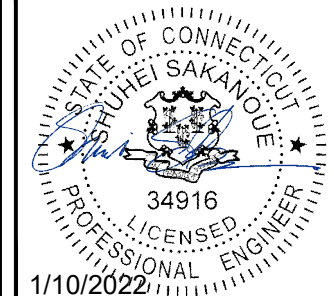
3



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

RFDS REV #: N/A

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SUBMITTALS		
REV	DATE	DESCRIPTION
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1	01/10/22	ISSUED FOR PERMIT

A&E PROJECT NUMBER
1197-F0001-C

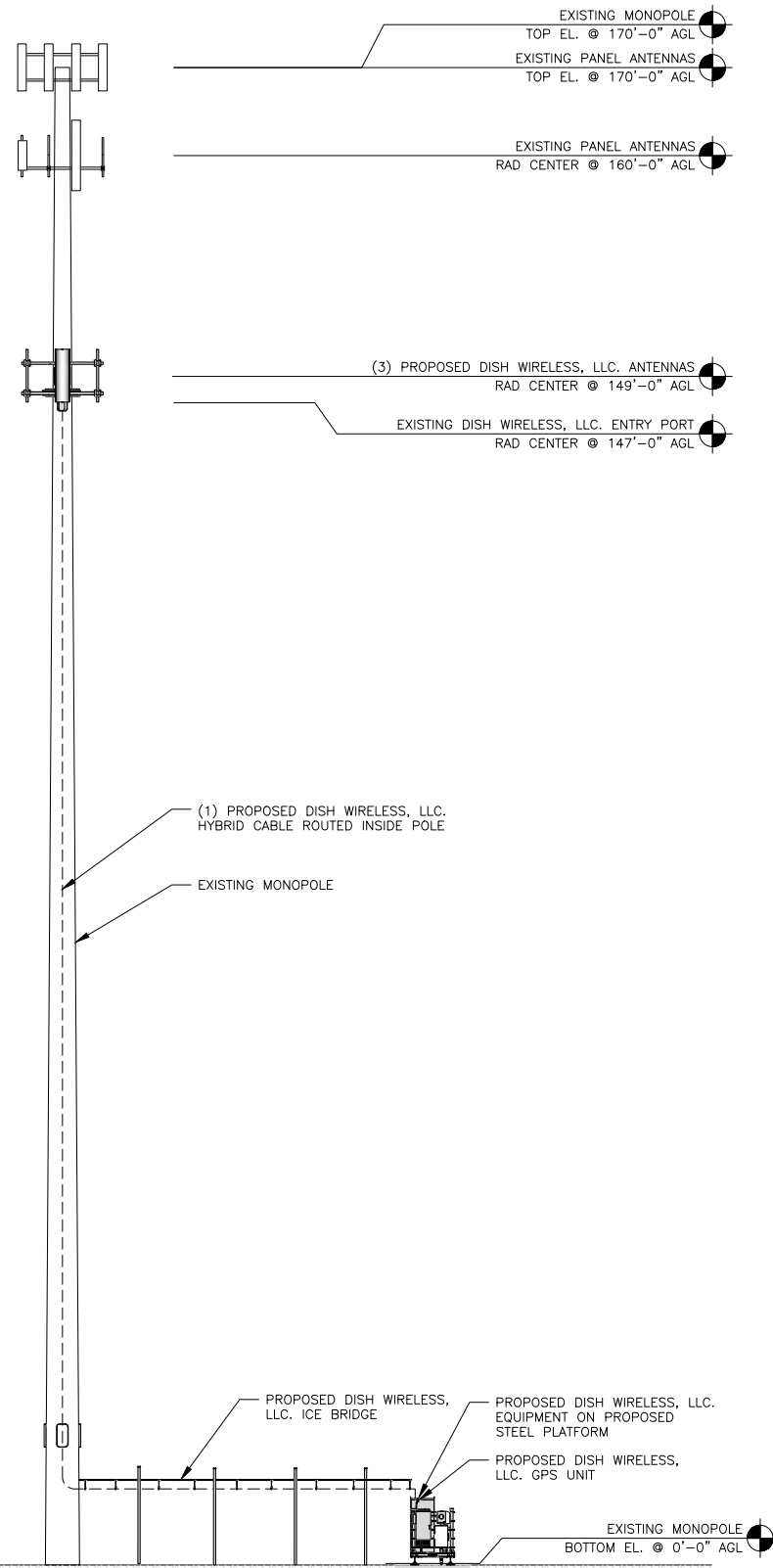
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00108A
WILLINGTON CDT
47 TURNPIKE ROAD
WILLINGTON, CT 06279

SHEET TITLE
OVERALL AND ENLARGED
SITE PLAN

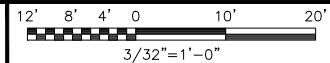
SHEET NUMBER
A-1

NOTES

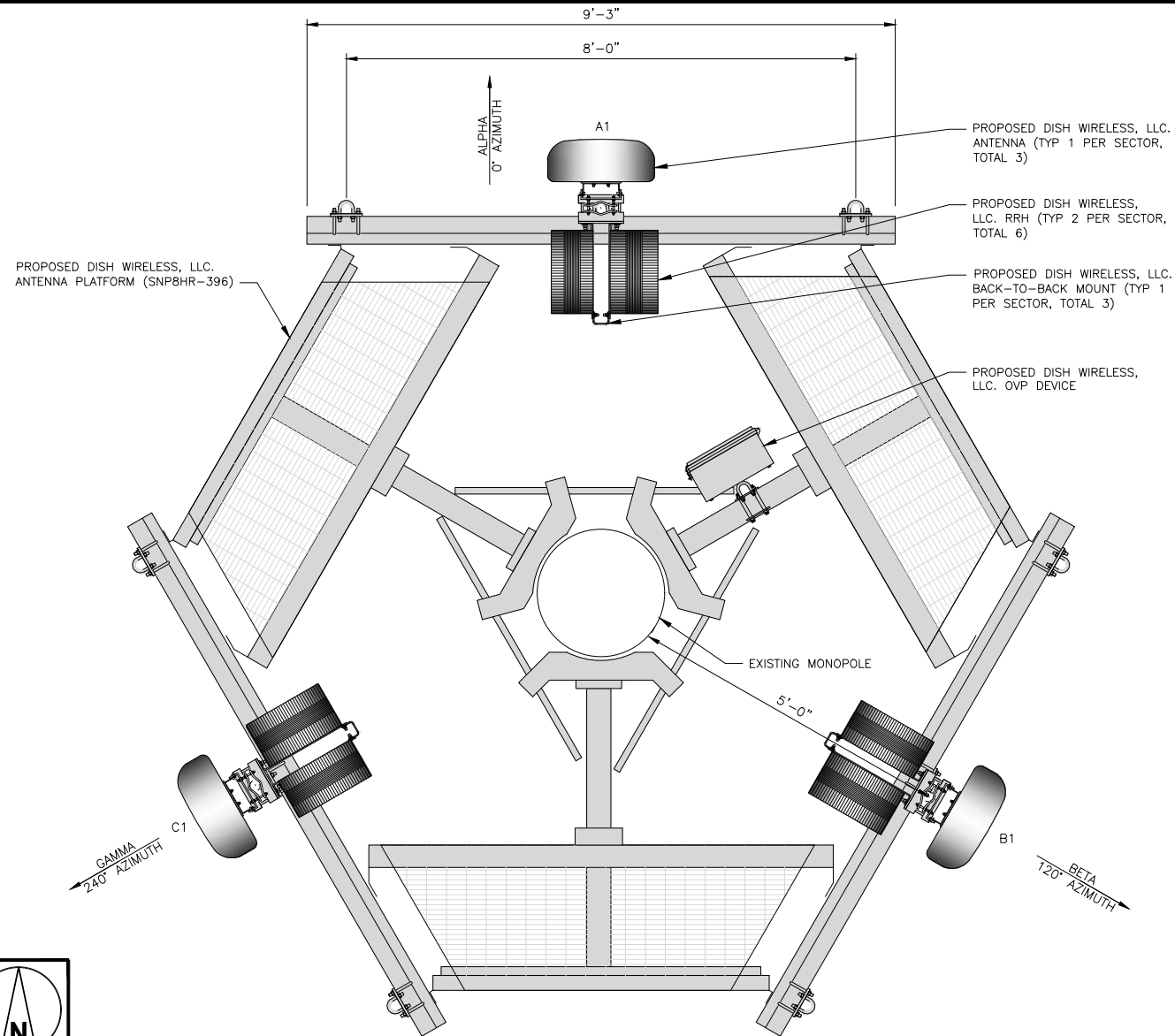
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. INFINIGY HAS NOT EVALUATED THE TOWER OR MOUNT STRUCTURE AND ASSUMES NO RESPONSIBILITY FOR THEIR STRUCTURAL INTEGRITY REGARDING PROPOSED LOADINGS. FINAL INSTALLATION SHALL COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSES PERFORMED BY OTHERS.



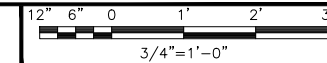
PROPOSED SOUTH ELEVATION



1



ANTENNA LAYOUT



2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE FEED LINE TYPE AND LENGTH	SURGE MANUFACTURER - MODEL NUMBER
		EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZMUTH	RAD CENTER		
ALPHA	A1	PROPOSED	JMA WIRELESS - MX08FR0665-20	5G	72.0" x 20.0"	0°	149'-0"	(1) HIGH-CAPACITY HYBRID CABLE (195' LONG)	(1) RAYCAP - RDIDC-9181-PF-48
BETA	B1	PROPOSED	JMA WIRELESS - MX08FR0665-20	5G	72.0" x 20.0"	120°	149'-0"		
GAMMA	C1	PROPOSED	JMA WIRELESS - MX08FR0665-20	5G	72.0" x 20.0"	240°	149'-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	

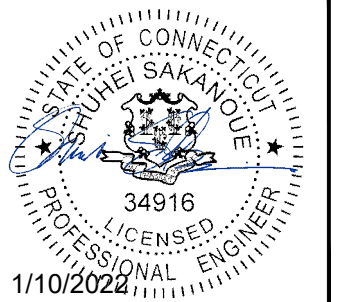
ANTENNA SCHEDULE

NO SCALE

3



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CHECKED BY: SS
APPROVED BY: CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	10/28/21	ISSUED FOR PERMIT
1	01/10/22	ISSUED FOR PERMIT

A&E PROJECT NUMBER

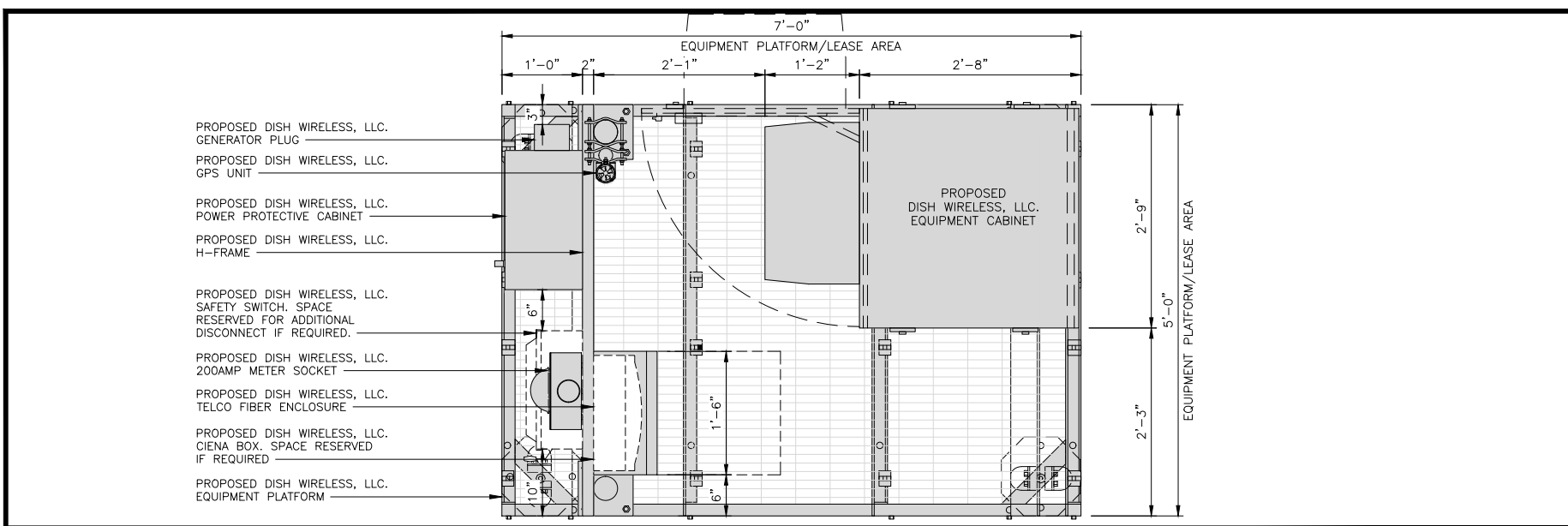
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00108A
WILLINGTON CDT
47 TURNPIKE ROAD
WILLINGTON, CT 06279

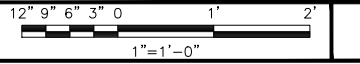
SHEET TITLE
ELEVATION, ANTENNA
LAYOUT AND SCHEDULE

SHEET NUMBER

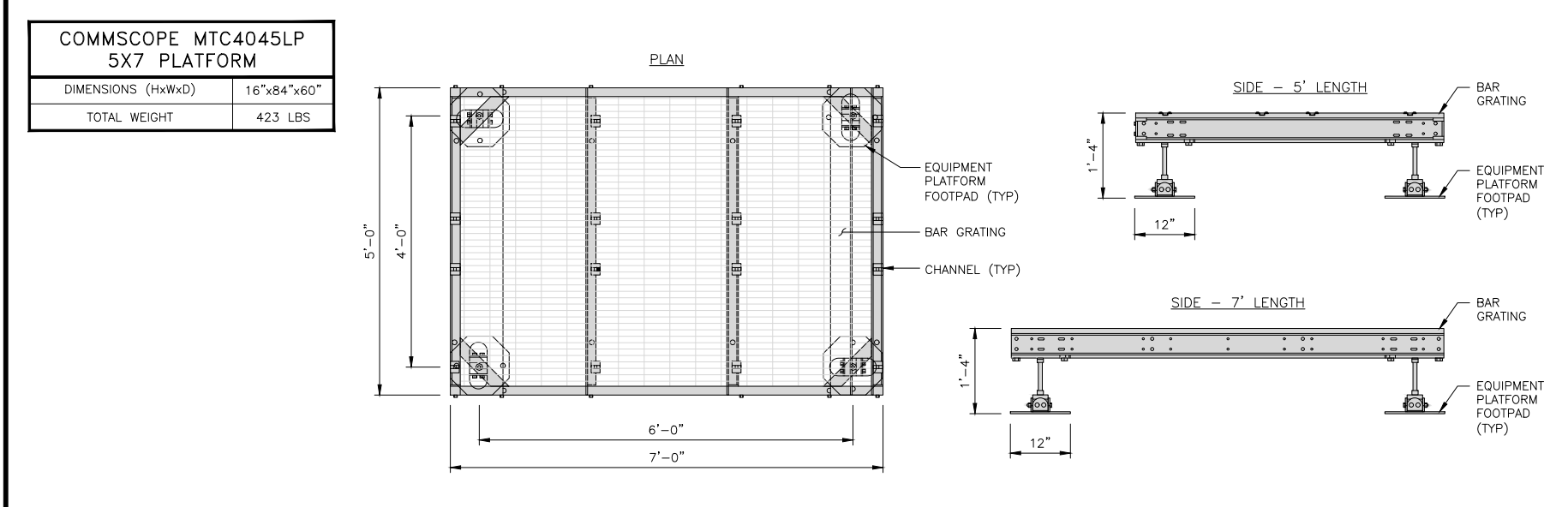
A-2



PLATFORM EQUIPMENT PLAN

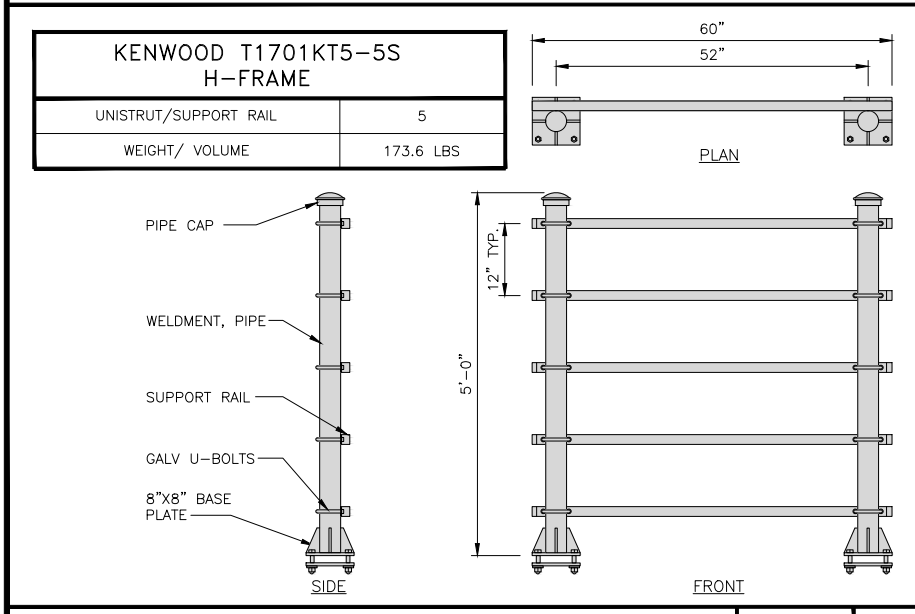


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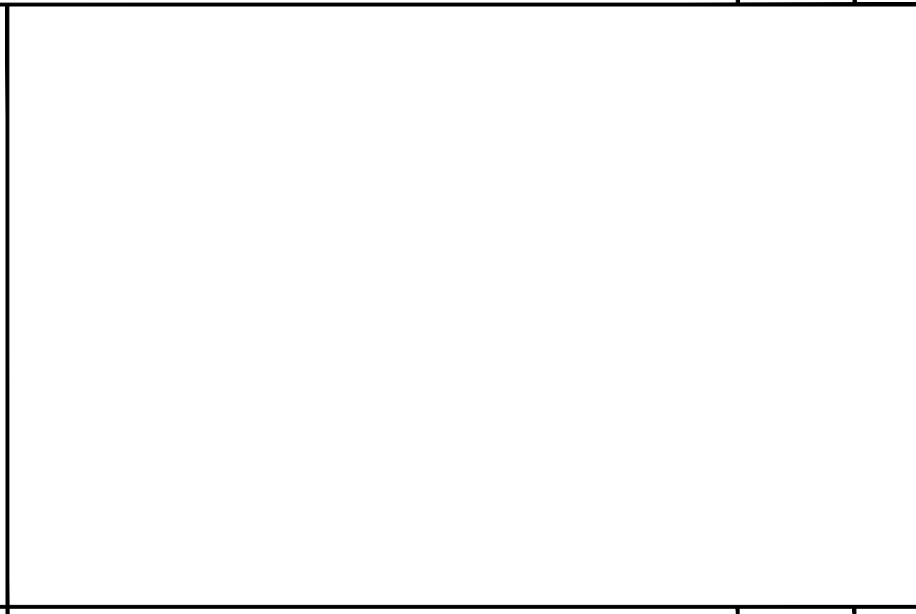
PLATFORM DETAIL

NO SCALE 2



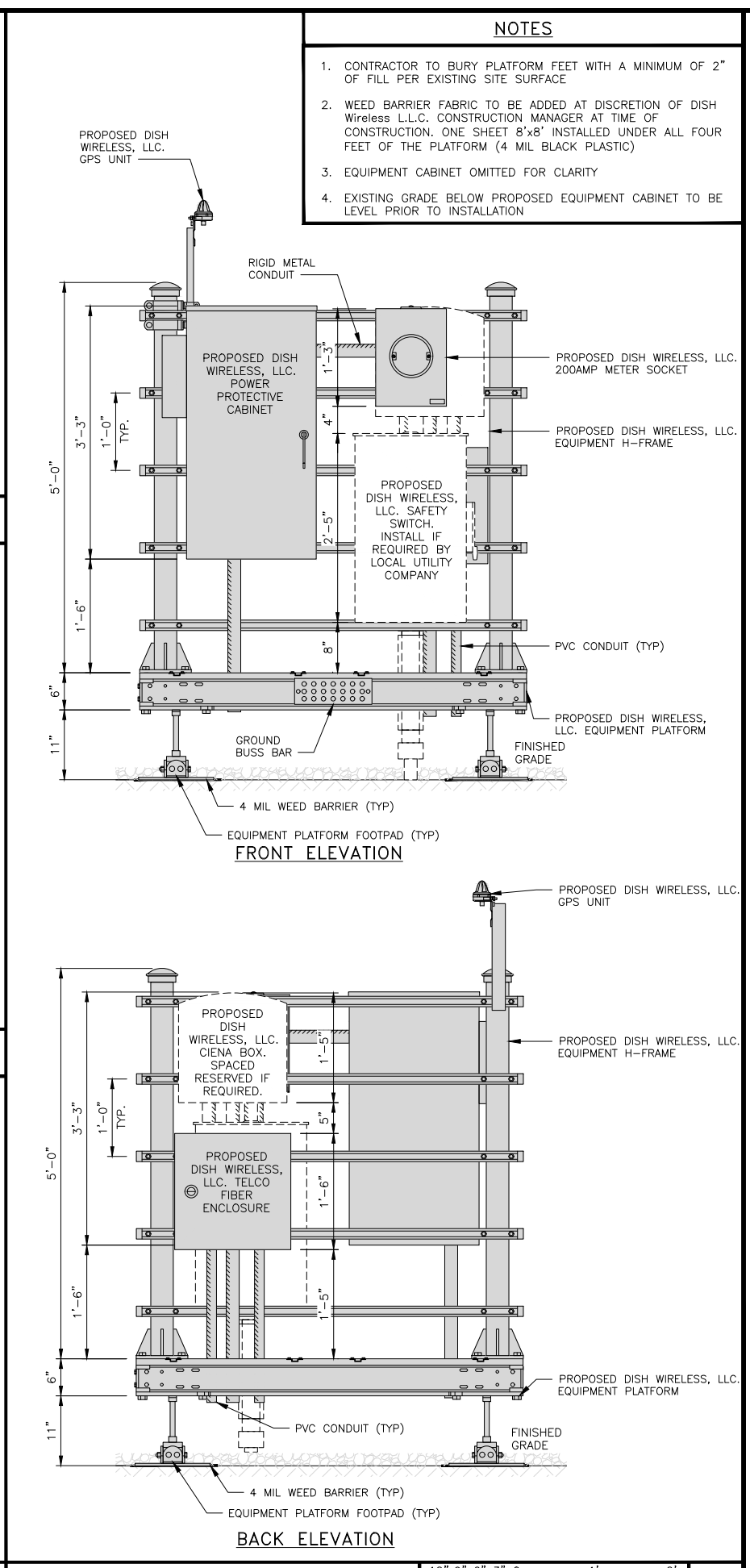
H-FRAME DETAIL

NO SCALE 3

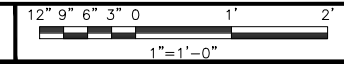


NOT USED

NO SCALE 4



H-FRAME EQUIPMENT ELEVATION



5

- NOTES**
- CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
 - WEED BARRIER FABRIC TO BE ADDED AT DISCRETION OF DISH WIRELESS L.L.C. CONSTRUCTION MANAGER AT TIME OF CONSTRUCTION. ONE SHEET 8'x8' INSTALLED UNDER ALL FOUR FEET OF THE PLATFORM (4 MIL BLACK PLASTIC)
 - EQUIPMENT CABINET OMITTED FOR CLARITY
 - EXISTING GRADE BELOW PROPOSED EQUIPMENT CABINET TO BE LEVEL PRIOR TO INSTALLATION

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RFDS REV #:	N/A	

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1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00108A
WILLINGTON CDT
47 TURNPIKE ROAD
WILLINGTON, CT 06279

SHEET TITLE
EQUIPMENT PLATFORM AND
H-FRAME DETAILS

SHEET NUMBER
A-3

CHARLES INDUSTRY HEX CUBE-PM369155N4	
DIMENSIONS (HxWxD):	74"x32"x32"
POWER PLANT:	-48VDC ABB
TOTAL WEIGHT (EMPTY)	394 LBS

CABINET DETAIL NO SCALE 1

RAYCAP RDIAC-6512-P-240-MTS POWER & TELCO PROTECTION CABINET	
DIMENSIONS (HxWxD)	40"x20"x10"
WEIGHT/ VOLUME	124 LBS
MANUAL TRANSFER SWITCH	200A
LOAD CENTER	30 POSITION
MAIN BREAKER	200A, 65KA AIC
GENERATOR RECEPTACLE	CAMLOCK
NEMA RATING	3R POWDER COATED ALUMINUM
SURGE PROTECTION DEVICE	UL 1449 4TH EDITION LISTED

POWER PROTECTION CABINET (PPC) DETAIL NO SCALE 2

SQUARE D SAFETY SWITCH D324NRB	
ENCLOSURE DIM (HxWxD)	29.25"x17.25"x8.25"
TOTAL WEIGHT (EMPTY)	45.33 LBS
MAX VOLTAGE/AMPS/WATT	240V/200A/48000W
ENCLOSURE RATING	OUTDOOR NEMA 3R

SAFETY SWITCH NO SCALE 3

EATON METER SOCKET UNRRS213BEUSE	
METER SOCKET TYPE	RING
ENCLOSURE DIM (HxWxD)	16"x12"x6"
MAIN AMPERE RATING	200A
WEIGHT	18 LBS

METER SOCKET DETAIL NO SCALE 4

CIENA 3931 SERVICE DELIVERY SWITCH	
DIMENSIONS (HxWxD)	17.0"x16.8"x7.0" 431x427x178mm
WEIGHT	28.6 LBS/13.0 KG
POWER INPUT	60W MAX

CIENA DETAIL NO SCALE 5

CHARLES FIBER TELCO ENCLOSURE CUBE-MP1818WB-A	
ENCLOSURE DIM (HxWxD)	18.0"x18.0"x9.25"
NEMA RATING	4X
THERMAL	SEALED
MOUNTING BACKBOARD	WOOD

FIBER TELCO ENCLOSURE DETAIL NO SCALE 6

COMMSCOPE WB-K110-B WAVEGUIDE BRIDGE KIT		INCLUDED PRODUCTS:	WB-T12-3 TRAPEZE KIT, 3 RUNGS
DIMENSIONS (HxL)	160"x10"	WB-LB12-3 SUPPORT BRACKET	
WEIGHT/ VOLUME	325.0 LBS	MF-130 DIRECT BURIAL PIPE COLUMN, 13'-4"	
CABLE RUN (QTY)	12		

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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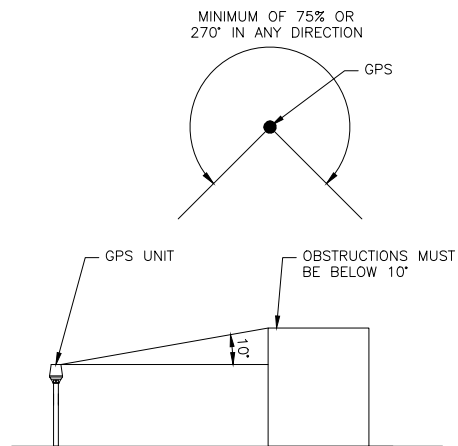
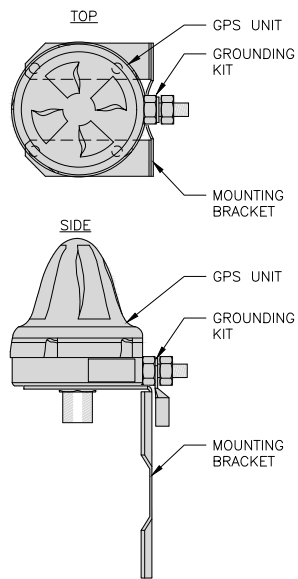
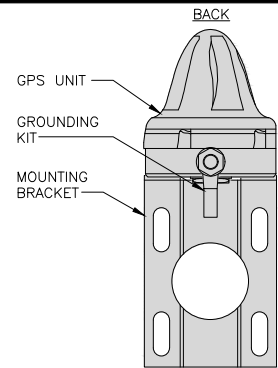
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1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00108A
WILLINGTON CDT
47 TURNPIKE ROAD
WILLINGTON, CT 06279

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

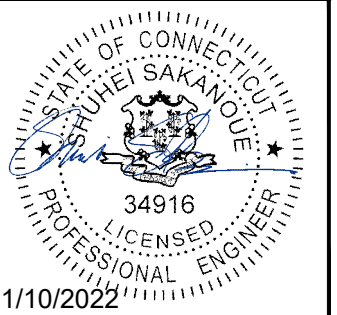
NO SCALE 9

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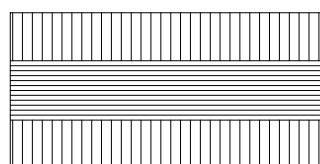
A&E PROJECT NUMBER
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DISH WIRELESS, LLC.
PROJECT INFORMATION
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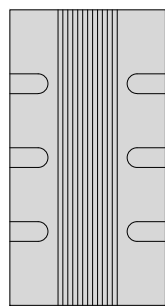
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

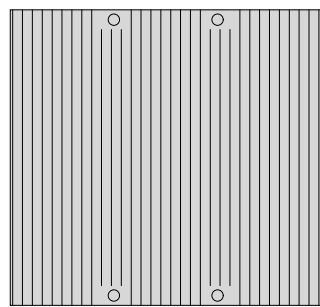
FUJITSU TA08025-B604 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x200/14.9"x15.7"x7.8"
WEIGHT(KG,LB)/ VOLUME	29kg,63.9lb/ 30L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE



FRONT

NOTES

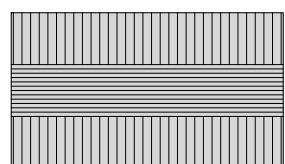
FINAL RRH SPECIFICATIONS TO BE CONFIRMED BY GC

REMOTE RADIO HEAD DETAIL

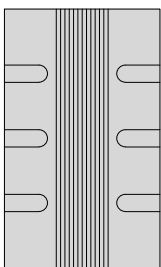
NO SCALE

1

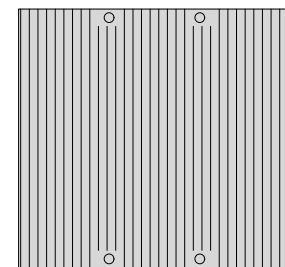
FUJITSU TA08025-B605 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x230/14.9"x15.7"x9.0"
WEIGHT(KG,LB)/ VOLUME	34kg,74.9lb/ 35L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE



FRONT

NOTES

FINAL RRH SPECIFICATIONS TO BE CONFIRMED BY GC

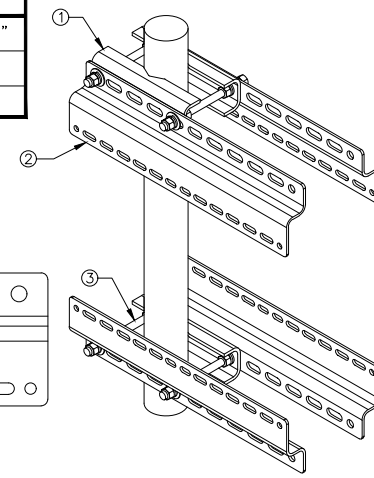
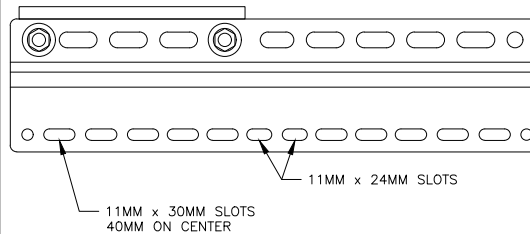
REMOTE RADIO HEAD DETAIL

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"



REMOTE RADIO MOUNT DETAIL

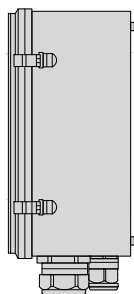
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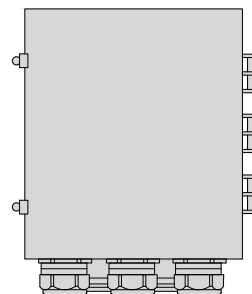
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



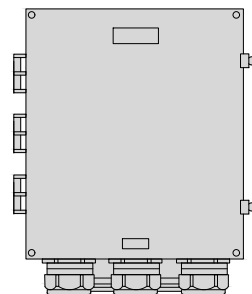
PLAN



SIDE



BACK



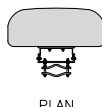
FRONT

SURGE SUPPRESSION DETAIL

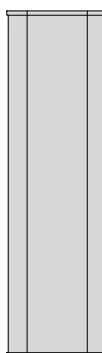
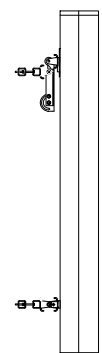
NO SCALE

4

JMA WIRELESS MX08FR0665-20 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

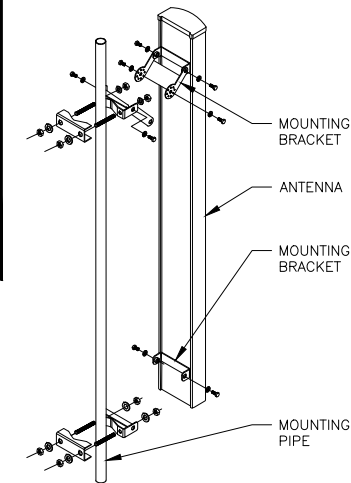
FINAL ANTENNA SPECIFICATIONS TO BE CONFIRMED BY GC

ANTENNA DETAIL

NO SCALE

5

JMA MOUNTING BRACKET	
WIDTH	5"
DEPTH	2"
HEIGHT	8"
TOTAL WEIGHT	1.5 lbs
HOUSING MATERIAL	ASA/ABS/ALUMINUM
RADOME COLOR	LIGHT GRAY
CONNECTOR	1x8-PIN DAISY CHAIN



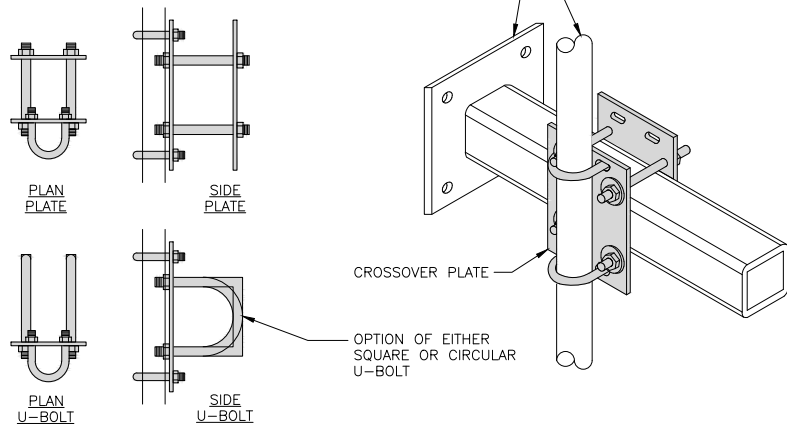
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

ANTENNA MOUNTING DETAIL

NO SCALE

6

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

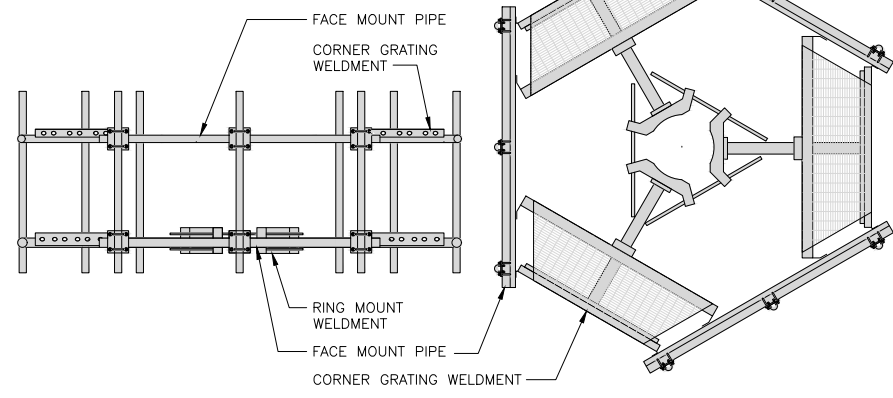


RRH/OVP MOUNT DETAIL

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

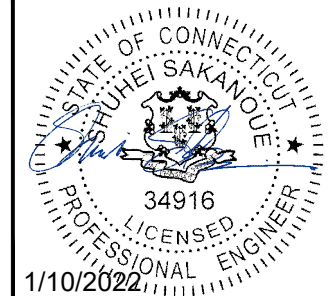
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BOBDL00108A
WILLINGTON CDT
47 TURNPIKE ROAD
WILLINGTON, CT 06279

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.

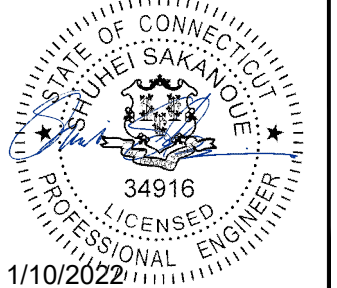
1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, 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.



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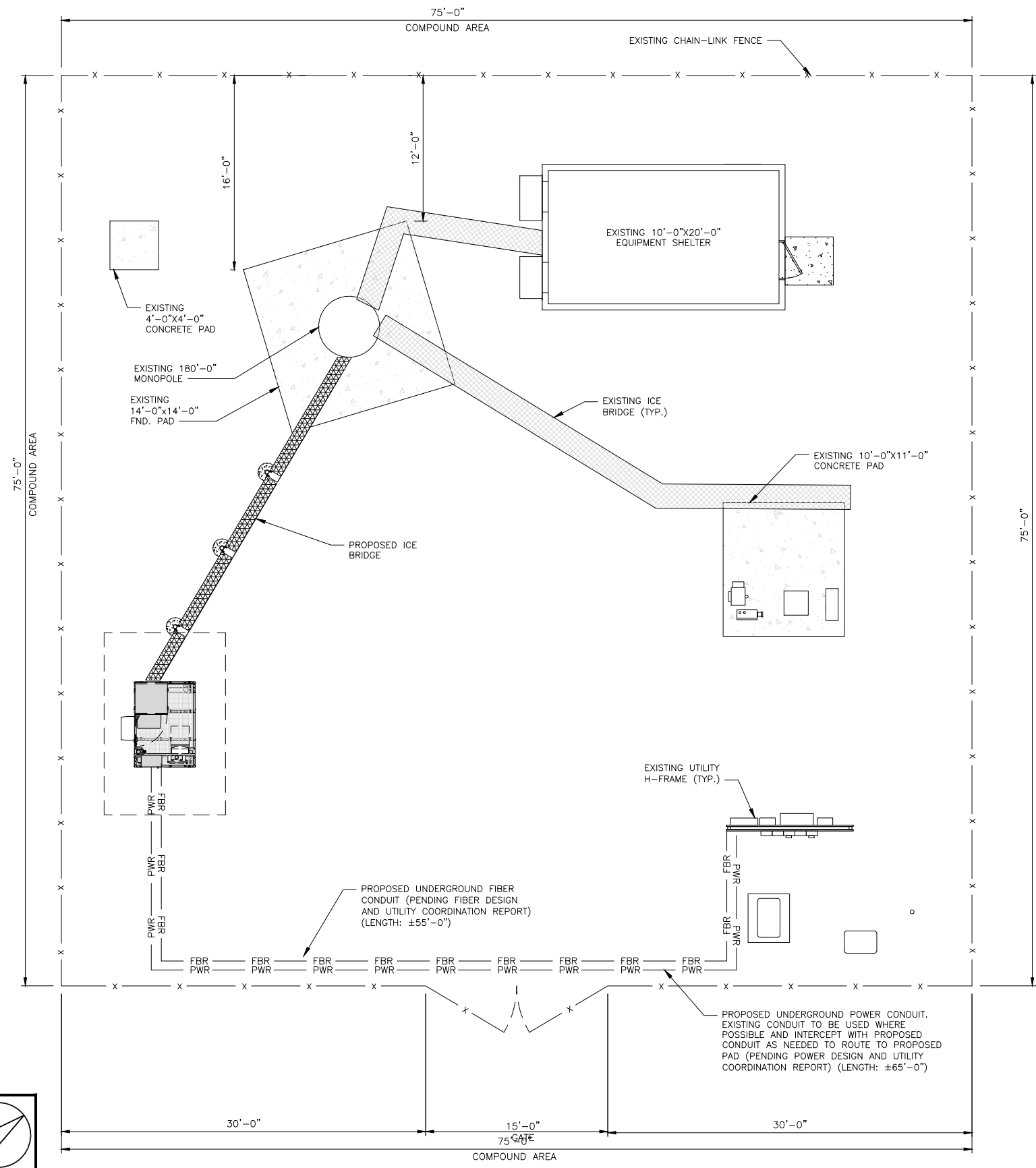
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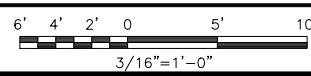
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00108A
WILLINGTON CDT
47 TURNPIKE ROAD
WILLINGTON, CT 06279

SHEET TITLE
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

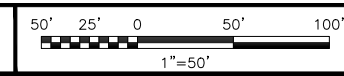
SHEET NUMBER
E-1



UTILITY ROUTE PLAN

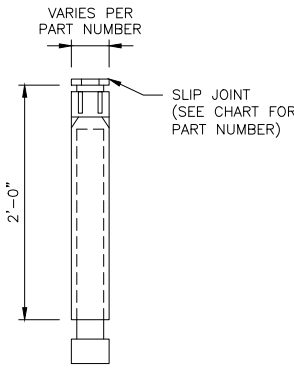


OVERALL UTILITY ROUTE PLAN



ELECTRICAL NOTES

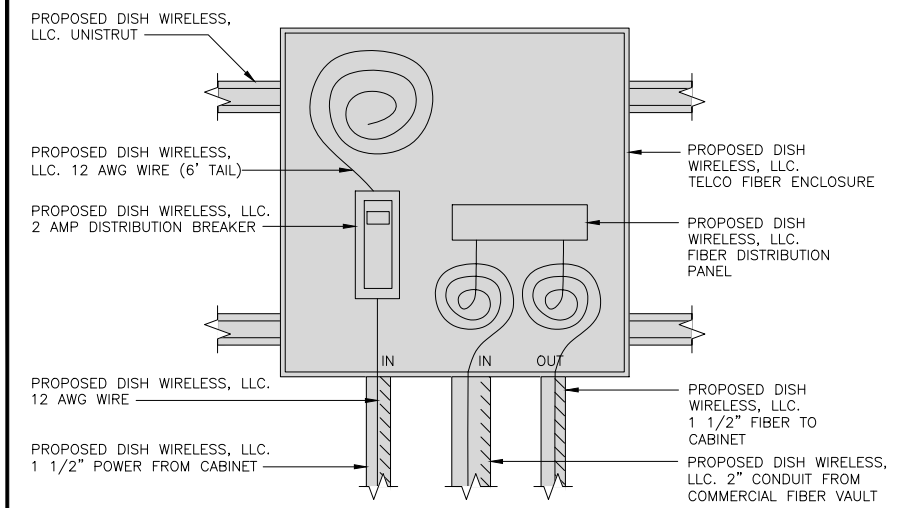
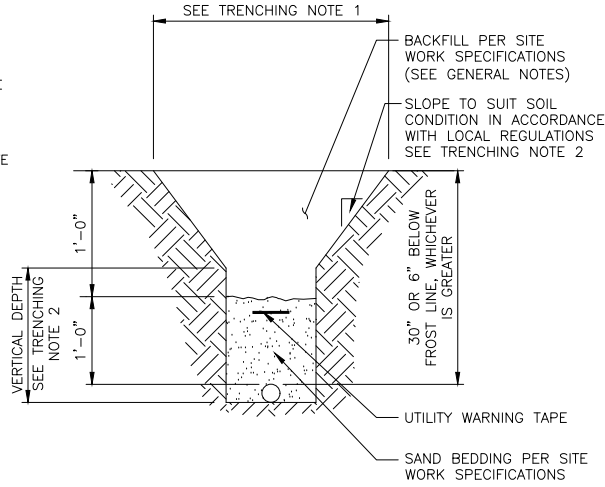
CARLON EXPANSION FITTINGS				
COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"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



EXPANSION JOINT DETAIL

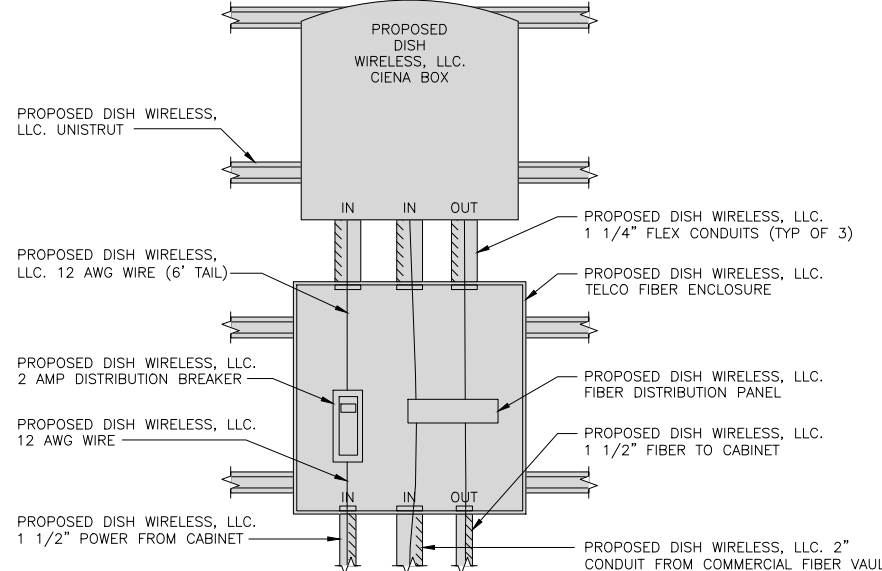
NO SCALE 1

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

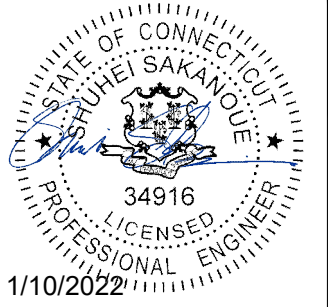
NO SCALE 9



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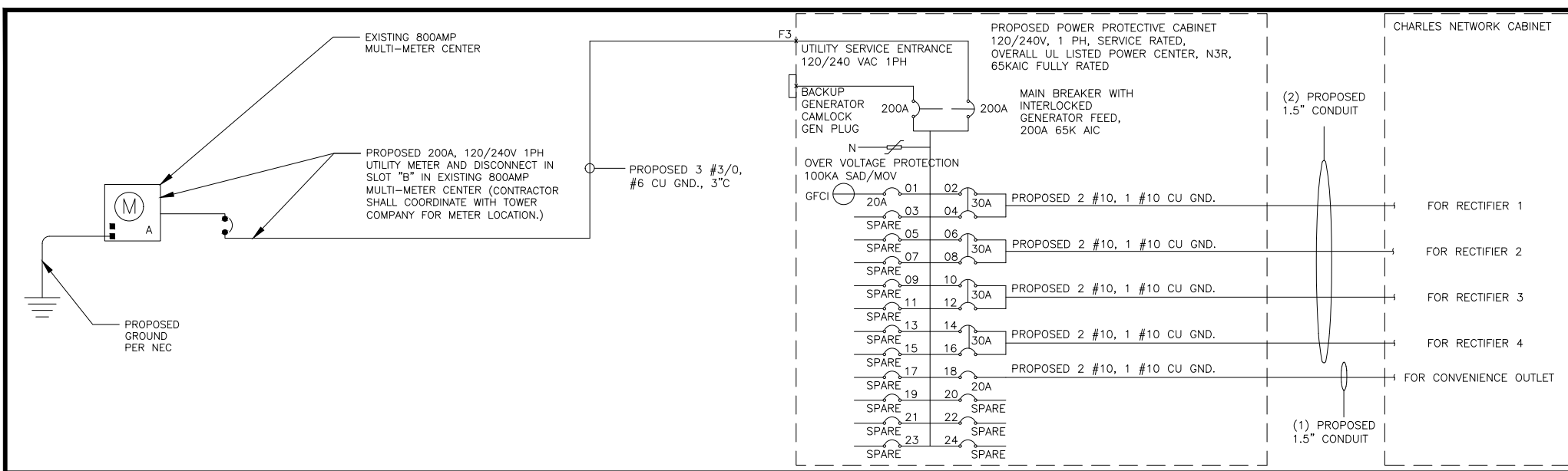
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A&E PROJECT NUMBER
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DISH WIRELESS, LLC.
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WILLINGTON CDT
47 TURNPIKE ROAD
WILLINGTON, CT 06279

SHEET TITLE
ELECTRICAL
DETAILS

SHEET NUMBER
E-2



NOTES

THERE ARE A TOTAL OF (10) CURRENT CARRYING CONDUCTORS IN A SINGLE CONDUIT. ADJUSTABLE FACTOR OF 50% PER NEC TABLE 310.15(B)(3)(c) SHALL APPLY.

#10 FOR 15A/1P BREAKER: $0.5 \times 40A = 15.0A$
 #8 FOR 20A-25A/2P BREAKER: $0.5 \times 55A = 27.5A$

CONDUIT SIZING: ASSUME 1.5" EMT AT 40% FILL PER NEC 358, TABLE 4 - 0.814A SQ. IN AREA
 WIRES: USING THWN-2, CU. (INCLUDING 3 GROUND WIRES)
 #6 - $0.0507 \text{ SQ. IN} \times 8 = 0.4056 \text{ SQ. IN}$
 #8 - $0.0366 \text{ SQ. IN} \times 2 = 0.0732 \text{ SQ. IN}$
 #10 - $0.0211 \text{ SQ. IN} \times 4 = 0.0844 \text{ SQ. IN} < \text{GROUND}$
 #12 - $0.0133 \text{ SQ. IN} \times 1 = 0.0133 \text{ SQ. IN} < \text{GROUND}$
 TOTAL = 0.5765 SQ. IN

1.5" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OR (15) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

CONDUIT SIZING: ASSUME 3.0" SCH 40 PVC AT 40% FILL PER NEC 352, TABLE 4 - 1.216A SQ. IN AREA
 WIRES: USING THHN, CU. (INCLUDING 2 GROUND WIRES)
 #3/0 - $0.1318 \text{ SQ. IN} \times 3 = 0.3954 \text{ SQ. IN}$
 #2 - $0.0521 \text{ SQ. IN} \times 1 = 0.0521 \text{ SQ. IN}$
 TOTAL = 0.4475 SQ. IN

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

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

NO SCALE 1

PROPOSED PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED
	L1	L2						L1	L2	
-SPARE-				1	A	2		2880	2880	ABB/GE INFINITY RECTIFIER 1
-SPARE-				3	B	4	30A	2880	2880	ABB/GE INFINITY RECTIFIER 1
-SPARE-				5	A	6		2880	2880	ABB/GE INFINITY RECTIFIER 2
-SPARE-				7	B	8	30A	2880	2880	ABB/GE INFINITY RECTIFIER 2
-SPARE-				9	A	10		2880	2880	ABB/GE INFINITY RECTIFIER 3
-SPARE-				11	B	12	30A	2880	2880	ABB/GE INFINITY RECTIFIER 3
-SPARE-				13	A	14		2880	2880	ABB/GE INFINITY RECTIFIER 4
-SPARE-				15	B	16	30A	2880	2880	ABB/GE INFINITY RECTIFIER 4
-SPARE-				17	A	18	20A	1920	2880	CHARLES GFCI OUTLET
-SPARE-				19	B	20				-SPARE-
-SPARE-				21	A	22				-SPARE-
-SPARE-				23	B	24				-SPARE-
VOLT AMPS								13440	11520	
200A MCB, 1φ, 3W, 120/240V				L1	L2					
MB RATING: 65,000 AIC				13440	11520					
				140	96					
				140						
				175						

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

NO SCALE 2

NOT USED

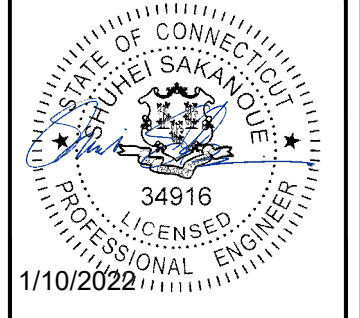
NO SCALE 3

FAULT CALCULATIONS

NO SCALE 4



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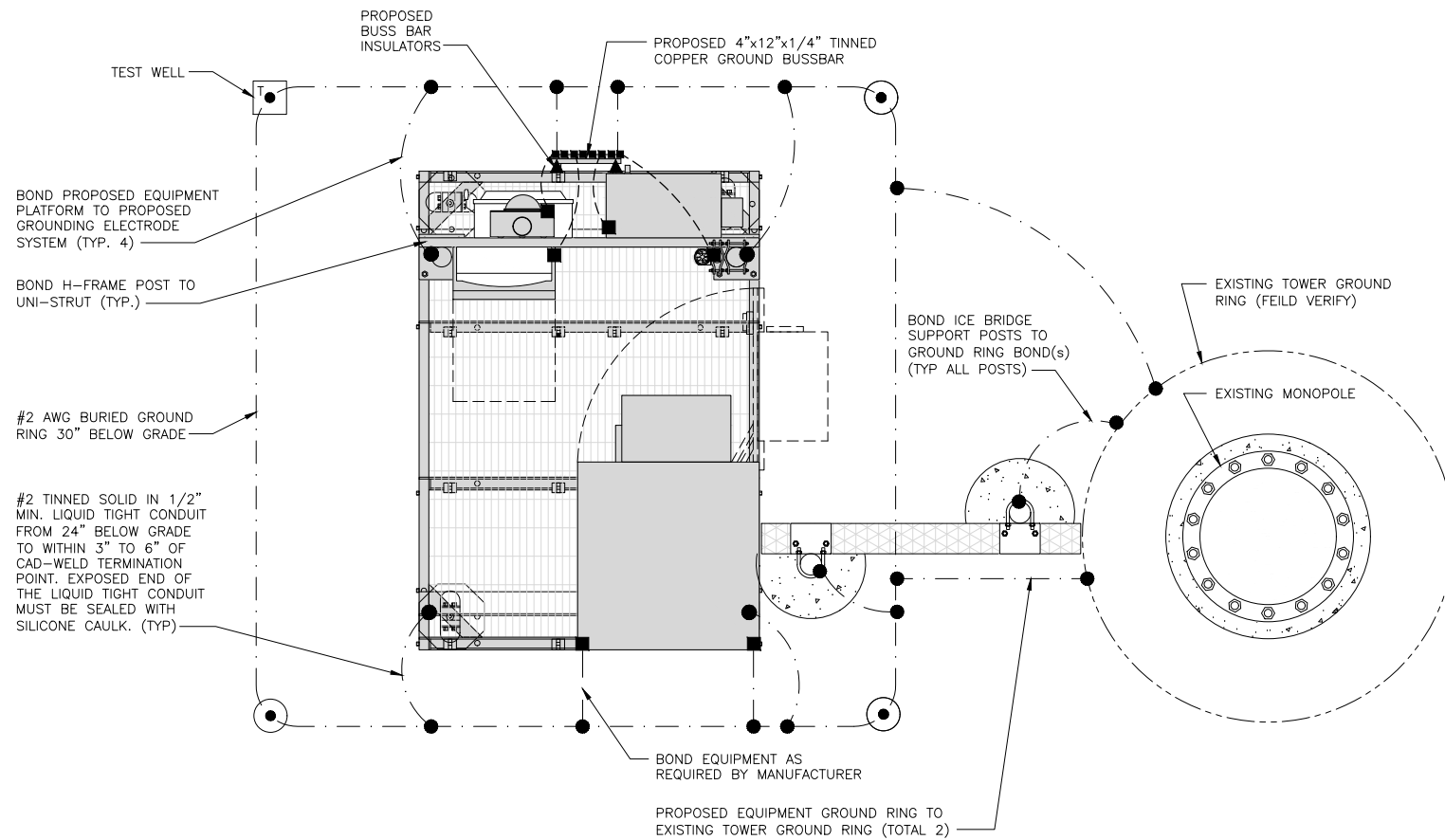
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PROJECT INFORMATION
BOBDL00108A
WILLINGTON CDT
47 TURNPIKE ROAD
WILLINGTON, CT 06279

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

SHEET NUMBER
E-3

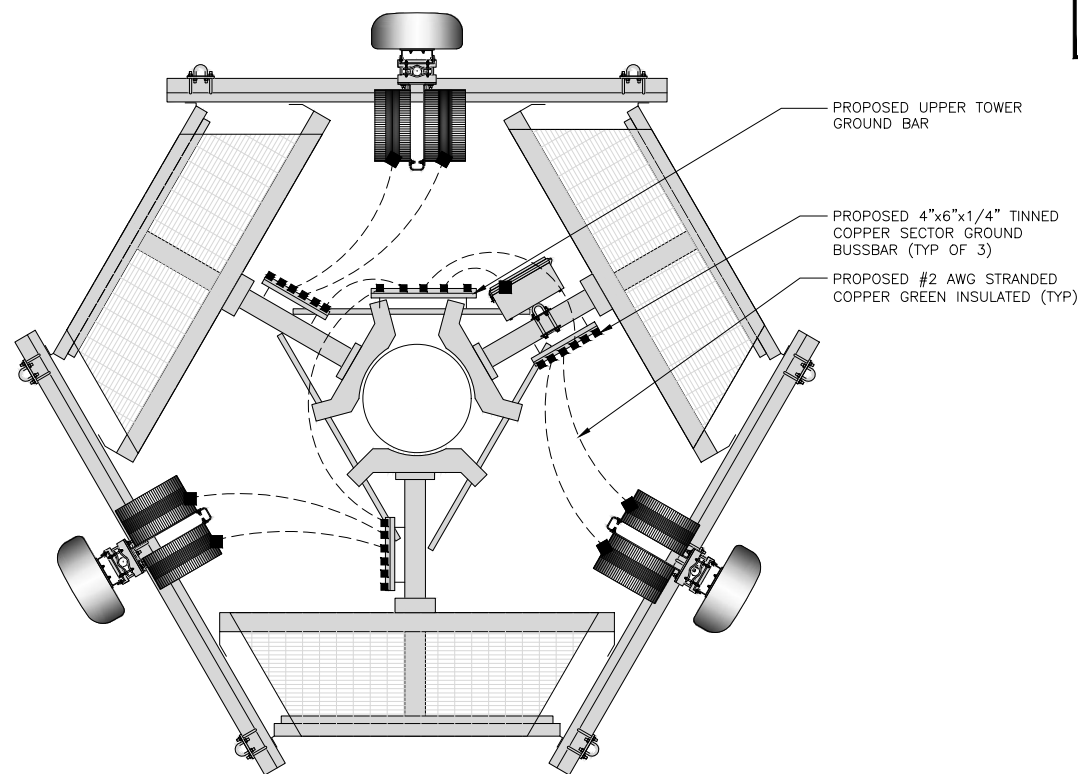


TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1

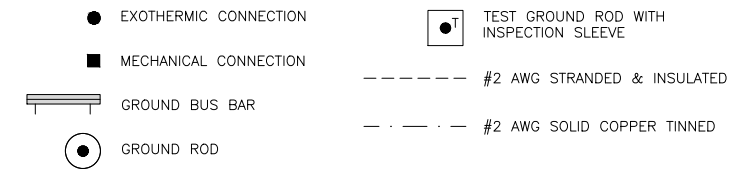
NOTES

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2



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

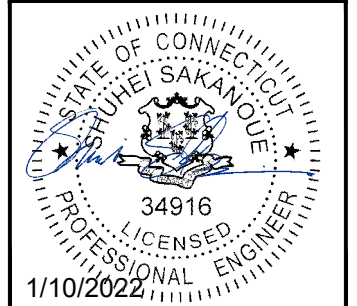
NO SCALE 3



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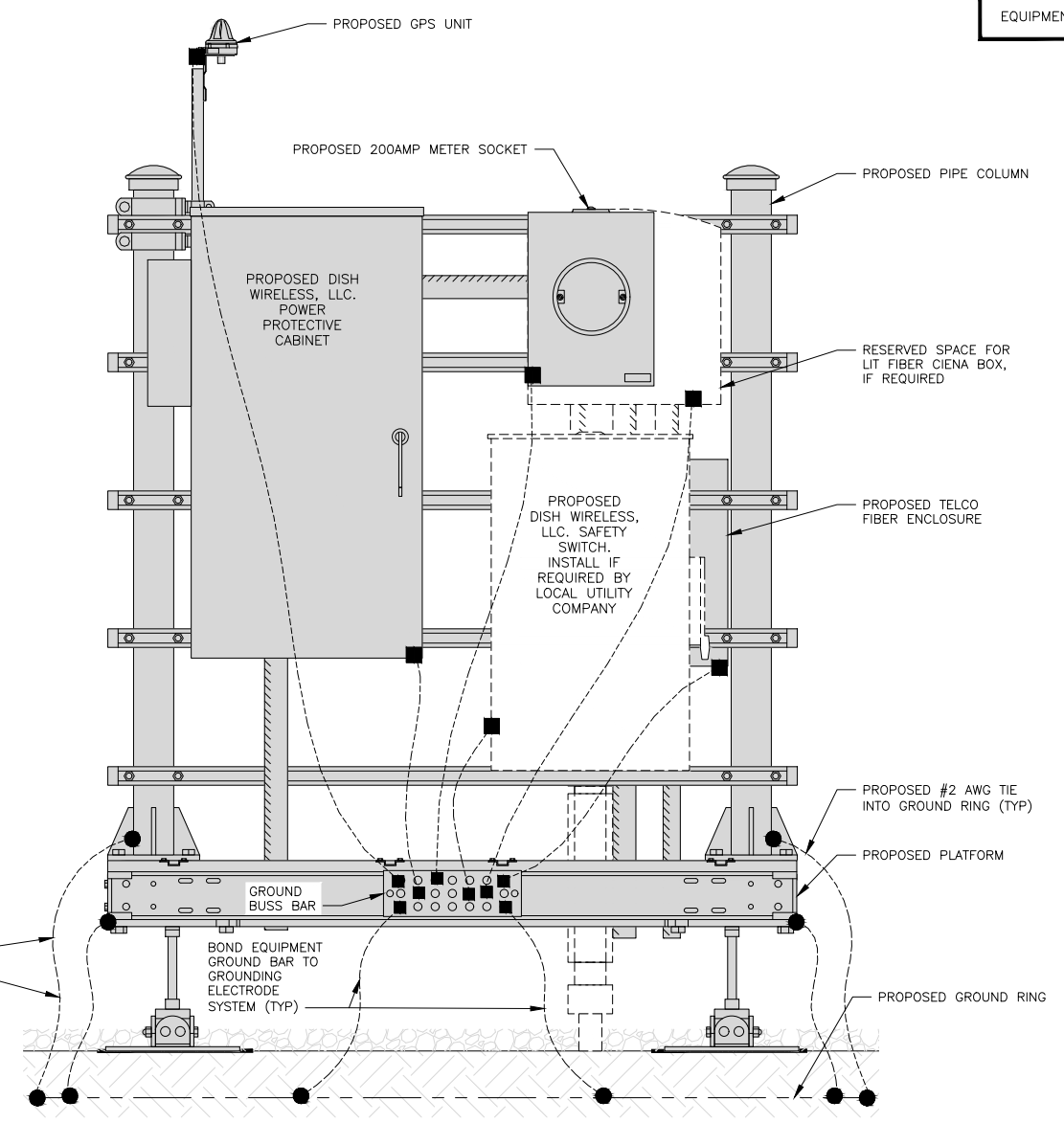
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00108A
WILLINGTON CDT
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SHEET TITLE
GROUNDING PLANS
AND NOTES

SHEET NUMBER

G-1

NOTES
EQUIPMENT CABINET OMITTED FOR CLARITY

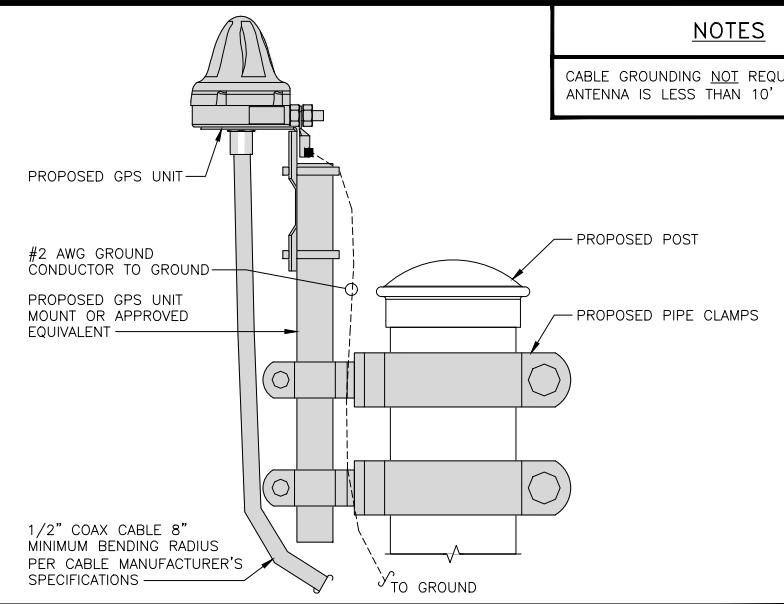


#2 TINNED SOLID IN 1/2" MIN. LIQUID TIGHT CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. EXPOSED END OF THE LIQUID TIGHT CONDUIT MUST BE SEALED WITH SILICONE CAULK. (TYP)

H-FRAME GROUNDING DETAIL

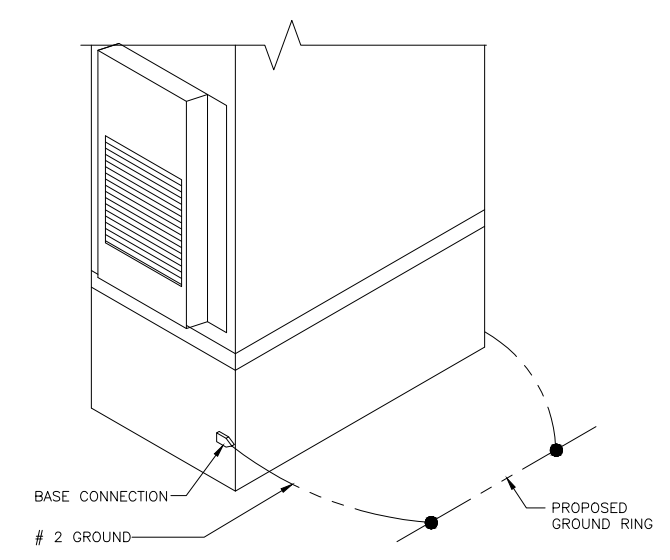
NO SCALE 1

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



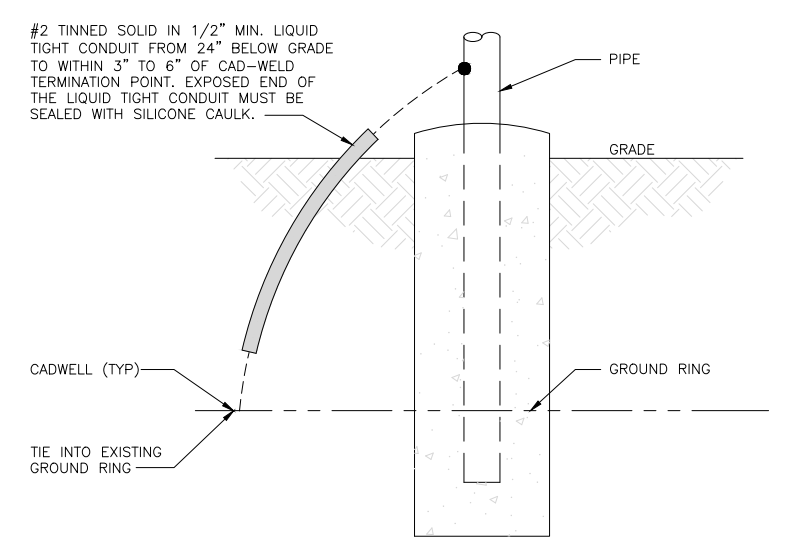
TYPICAL GPS UNIT GROUNDING

NO SCALE 2



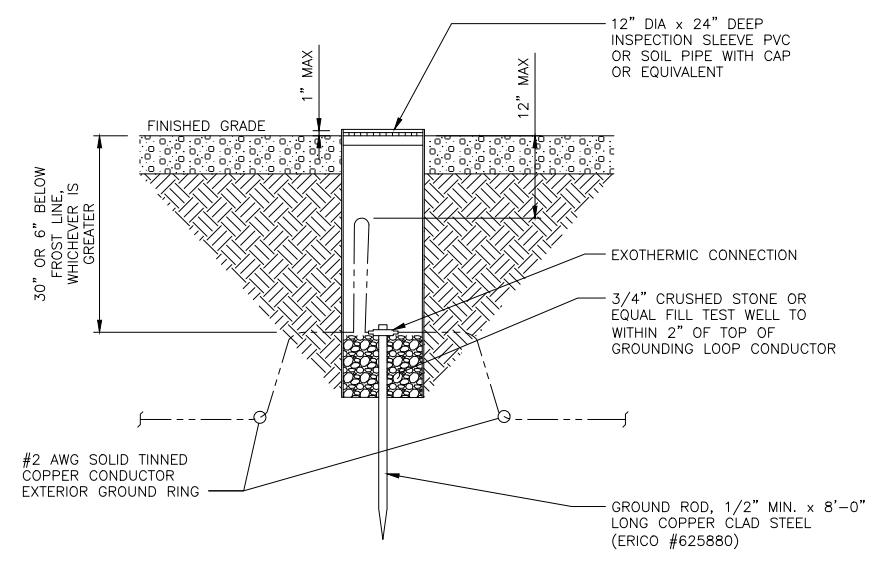
OUTDOOR CABINET GROUNDING

NO SCALE 3



TRANSITIONING GROUND DETAIL

NO SCALE 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE 5

NOT USED

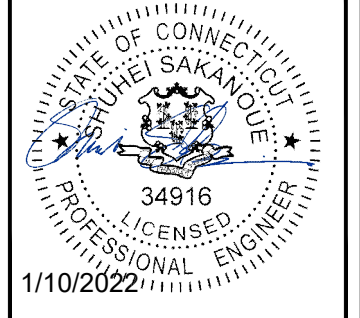
NO SCALE 6



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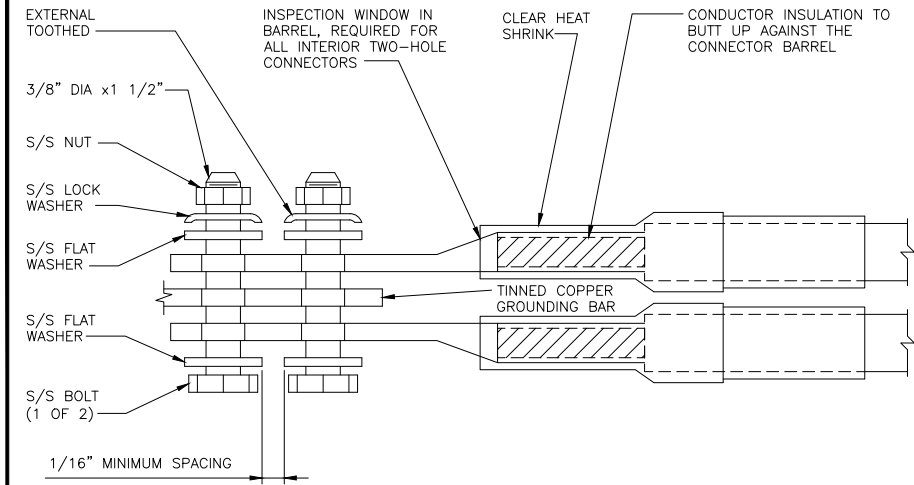
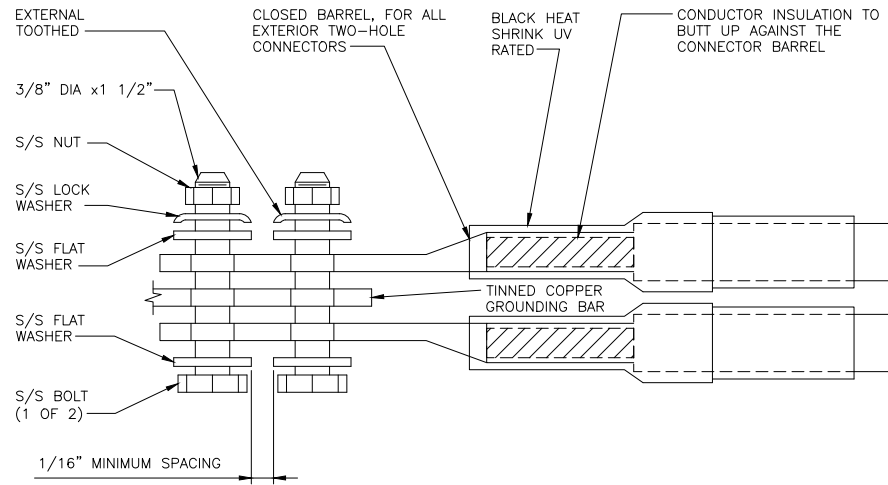
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47 TURNPIKE ROAD
WILLINGTON, CT 06279

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-2

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



TYPICAL GROUNDING NOTES

NO SCALE

1

TYPICAL EXTERIOR TWO HOLE LUG

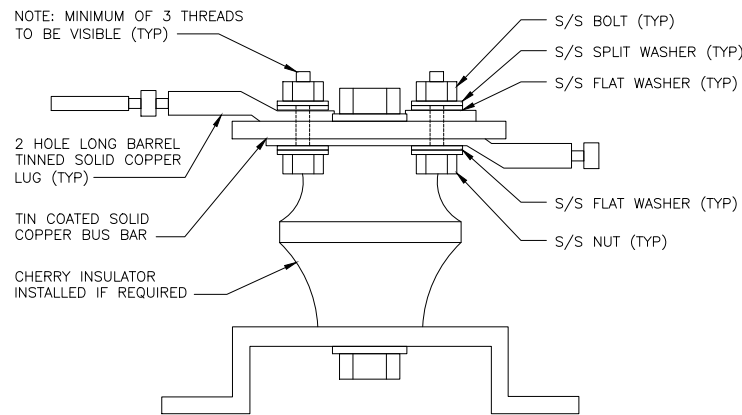
NO SCALE

2

TYPICAL INTERIOR TWO HOLE LUG

NO SCALE

3



LUG DETAIL

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

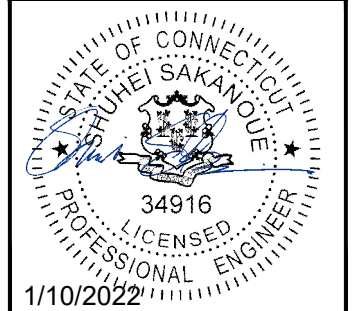
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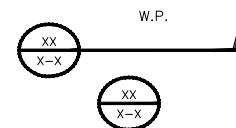
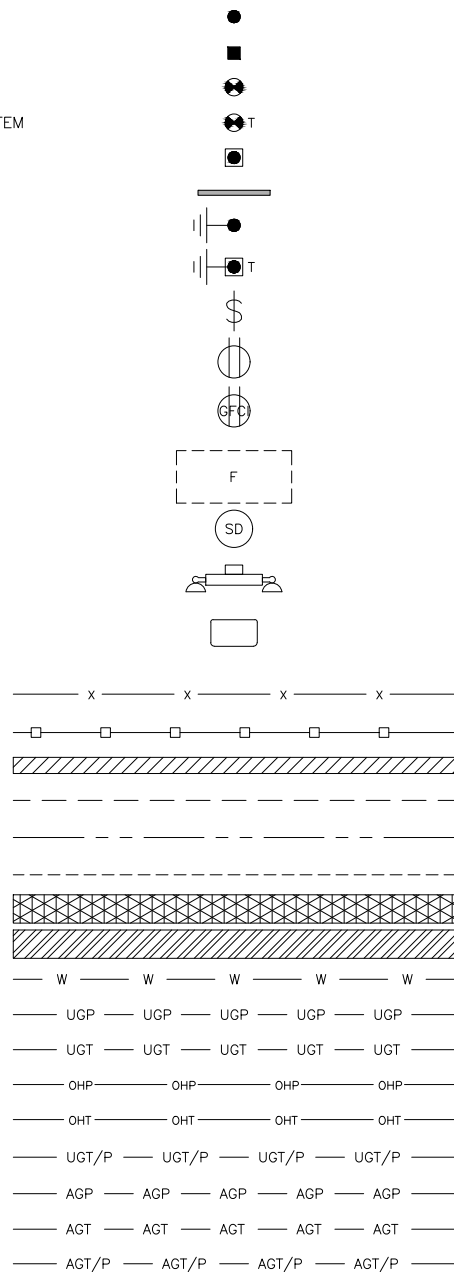
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SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-3

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 48-18
 SMOKE DETECTION (DC)
 EMERGENCY LIGHTING (DC)
 SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW
 LED-1-25A400/51K-SR4-120-PE-DDBTXD



SECTION REFERENCE
 DETAIL REFERENCE

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

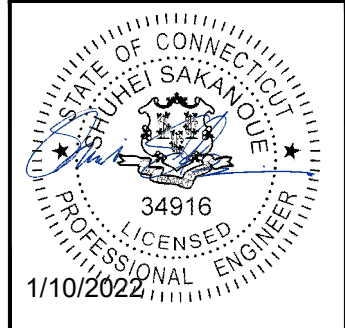
ABBREVIATIONS



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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	10/28/21	ISSUED FOR PERMIT
1	01/10/22	ISSUED FOR PERMIT

A&E PROJECT NUMBER
 1197-F0001-C

DISH WIRELESS, LLC.
 PROJECT INFORMATION
 BOBDL00108A
 WILLINGTON CDT
 47 TURNPIKE ROAD
 WILLINGTON, CT 06279

SHEET TITLE
 LEGEND AND ABBREVIATIONS

SHEET NUMBER
GN-1

LEGEND

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:

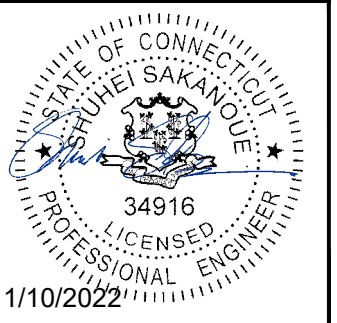
- 1.FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
CARRIER:DISH WIRELESS, LLC.
TOWER OWNER:TOWER OWNER
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED 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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DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	10/28/21	ISSUED FOR PERMIT
1	01/10/22	ISSUED FOR PERMIT

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00108A
WILLINGTON CDT
47 TURNPIKE ROAD
WILLINGTON, CT 06279

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.

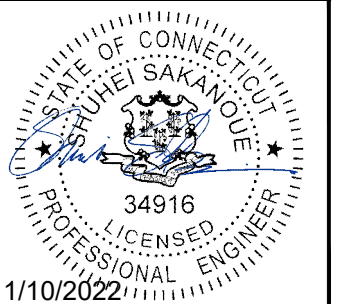
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL 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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DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	10/28/21	ISSUED FOR PERMIT
1	01/10/22	ISSUED FOR PERMIT

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00108A
WILLINGTON CDT
47 TURNPIKE ROAD
WILLINGTON, CT 06279

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-3

GROUNDING NOTES:

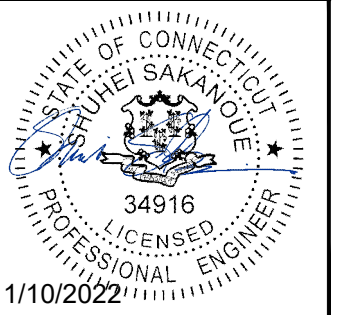
1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (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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DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	10/28/21	ISSUED FOR PERMIT
1	01/10/22	ISSUED FOR PERMIT

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00108A
WILLINGTON CDT
47 TURNPIKE ROAD
WILLINGTON, CT 06279

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4

Exhibit D

Structural Analysis Report

Report Date: October 27, 2021

Client: Everest Infrastructure Partners
Two Allegheny Center
Pittsburgh, PA 15212
Attn: Thomas Rigg
(603) 498-7462
tom.rigg@everestinfrastructure.com

Structure: Existing 170-ft Monopole
Site Name: Willington
Site Reference #: 702498
Site Address: 47 Turnpike Road
City, County, State: Willington, Tolland County, CT
Latitude, Longitude: 41.9255°, -72.2524°

PJF Project: A13320-0004.003.7805

Paul J. Ford and Company is pleased to submit this “**Structural Analysis Report**” to determine the tower stress level.

Analysis Criteria:

This analysis has been performed in accordance with the 2018 Connecticut Building Code based upon an ultimate 3-second gust wind speed of 118 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Proposed Appurtenance Loads:

The structure was analyzed with the proposed loading configuration shown in Table 1 combined with the other considered equipment shown in Table 2 of this report.

Summary of Analysis Results:

Existing Structure: Pass – 70.9%
Existing Foundation: Pass – 79.5%

We at Paul J. Ford and Company appreciate the opportunity of providing our continuing professional services to you and Everest Infrastructure Partners. If you have any questions or need further assistance on this or any other projects, please give us a call.

Respectfully Submitted by:
Paul J. Ford and Company



Jake Gold
Structural Designer
jgold@pauljford.com

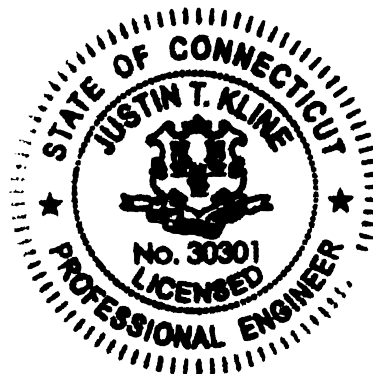


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tnxTower Output

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Additional Calculations

1) INTRODUCTION

This tower is a 170 ft Monopole tower designed by Nudd in February of 2004.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	118 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
149.0	149.0	1	Site Pro 1	Site Pro 1 SNP8HR-396	1	1-5/8
		3	fujitsu	TA08025-B604		
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-20 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Notes
170.0	170.0	1	tower mounts	(3) 12' T-Arm Mounts	12 3 6	1-5/8 3/8 3/4	1
		3	cci antennas	DMP65R-BU6D w/ Mount Pipe			
		3	cci antennas	HPA65R-BU6A w/ Mount Pipe			
		3	cci antennas	OPA65R-BU6A w/ Mount Pipe			
		3	ericsson	RRUS 32 B2			
		3	ericsson	RRUS 4449 B5/B12			
		3	ericsson	RRUS 8843 B2/B66A			
		3	powerwave technologies	7770 w/ Mount Pipe			
		6	powerwave technologies	LGP21401			
		2	raycap	DC6-48-60-18-8C			
		1	raycap	DC6-48-60-18-8F			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Notes
159.0	159.0	3	commscope	LNx-6515DS-VTM w/ Mount Pipe	12	1-5/8	1
		3	ems wireless	RR90-17-02DP w/ Mount Pipe			
		3	ericsson	KRY 112 71			
		3	kathrein	Smart Bias Tee			
		1	pole mounts	12' Low Profile Platform			

Notes:

- Existing Equipment

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Structural Analysis	Nudd, 11/13/2016	116-23148	Everest

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- Tower and structures were maintained in accordance with the TIA-222 Standard.
- The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- All coaxial cables are assumed to run internal to the monopole shaft.

This analysis may be affected if any assumptions are not valid or have been made in error. Paul J. Ford and Company should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	170 - 160	Pole	TP26.25x22x0.25	1	-3.77	1206.91	8.7	Pass
L2	160 - 130	Pole	TP32.56x26.25x0.25	2	-10.66	1455.89	38.5	Pass
L3	130 - 84.5	Pole	TP41.63x31.1135x0.3125	3	-19.14	2330.31	56.7	Pass
L4	84.5 - 40	Pole	TP50.38x39.8482x0.375	4	-31.17	3386.50	58.9	Pass
L5	40 - 0	Pole	TP58x48.2609x0.375	5	-46.85	4012.41	70.9	Pass
							Summary	
						Pole (L5)	70.9	Pass
						RATING =	70.9	Pass

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	61.7	Pass
1	Base Plate	0	57.4	Pass
1	Base Foundation (Structural Steel)	0	79.5	Pass

Structure Rating (max from all components) =	79.5%
---	--------------

Notes:

- 1) See additional documentation in "Appendix B – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

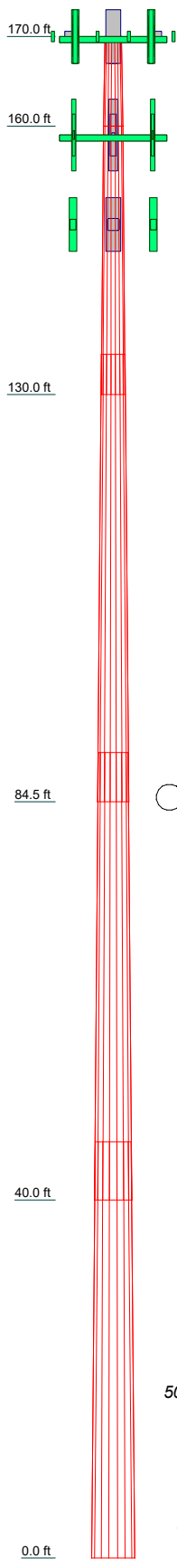
The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING SERVICES ON
EXISTING STRUCTURES BY PAUL J. FORD AND COMPANY

- 1) Paul J. Ford and Company has not made a field inspection to verify the monopole dimensions or the antenna/coax loading. If the existing conditions are not as represented on these sketches, we should be contacted immediately to reevaluate any conclusions stated in this report.
- 2) No allowance was made for any damaged, missing, or rusted material. The analysis of this monopole assumes that no physical deterioration has occurred in any of the structural components of the monopole and that all the structural members have the same load carrying capacity as the day the monopole was erected.
- 3) It is not possible to have all the detailed information to perform a thorough analysis of every structural sub-component of an existing monopole. The structural analysis provided by Paul J. Ford and Company verifies the adequacy of the main structural members of the monopole. Paul J. Ford and Company provides a limited scope of service in that we cannot verify the adequacy of every weld, plate, connection detail, etc.

APPENDIX A
TNXTOWER OUTPUT

Section	1	2	3	4	5	
Length (ft)	10.0000	30.0000	50.0000	50.0000	46.5000	
Number of Sides	18	18	18	18	18	
Thickness (in)	0.2500	0.2500	0.3125	0.3750	0.3750	
Socket Length (ft)	0.2500	4.5000	5.5000	6.5000	6.5000	
Top Dia (in)	22.0000	26.2500	31.1135	39.8482	48.2609	
Bot Dia (in)	26.2500	32.5600	41.6300	50.3800	58.0000	
Grade			A572-65			
Weight (K)	0.6	2.4	6.1	9.1	9.9	28.1

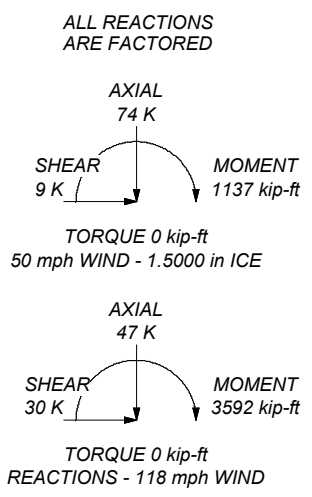


MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Tolland County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 118 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.0000 ft
8. TOWER RATING: 70.9%



Paul J. Ford and Company
 250 E Broad St., Ste 600
 Columbus, OH 43215
 Phone: 614-221-6679
 FAX:

Job: **170' Monopole | Willington, CT**

Project: 13320-0004.003.7805	Drawn by: Jake Gold	App'd:
Client: Everest Infrastructure Partners	Date: 10/26/21	Scale: NTS
Code: TIA-222-H	Path:	Dwg No. E-1

©11/10/2021 1:30 Everest Infrastructure Partners\2020\13320-0004 Willington, CT\13320-0004.003.7805 SAIT\N\13320-0004.003.7805.dwg

Tower Input Data

The tower is a monopole.

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

The following design criteria apply:

- Tower is located in Tolland County, Connecticut.
- Tower base elevation above sea level: 642.0000 ft.
- Basic wind speed of 118 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.0000 ft.
- Nominal ice thickness of 1.5000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56.00 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension 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	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 <div style="text-align: center; background-color: #e0e0e0; padding: 2px;">Poles</div> ✓ 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
--	---	---

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	170.0000- 160.0000	10.0000	0.00	18	22.0000	26.2500	0.2500	1.0000	A572-65 (65 ksi)
L2	160.0000- 130.0000	30.0000	4.50	18	26.2500	32.5600	0.2500	1.0000	A572-65 (65 ksi)
L3	130.0000- 84.5000	50.0000	5.50	18	31.1135	41.6300	0.3125	1.2500	A572-65 (65 ksi)
L4	84.5000- 40.0000	50.0000	6.50	18	39.8482	50.3800	0.3750	1.5000	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L5	40.0000- 0.0000	46.5000		18	48.2609	58.0000	0.3750	1.5000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	22.3008	17.2586	1031.4832	7.7212	11.1760	92.2945	2064.3237	8.6310	3.4320	13.728
	26.6164	20.6310	1761.9940	9.2300	13.3350	132.1330	3526.3065	10.3175	4.1800	16.72
L2	26.6164	20.6310	1761.9940	9.2300	13.3350	132.1330	3526.3065	10.3175	4.1800	16.72
	33.0237	25.6380	3381.3899	11.4701	16.5405	204.4312	6767.2292	12.8214	5.2906	21.162
L3	32.5064	30.5507	3661.7513	10.9344	15.8057	231.6734	7328.3208	15.2783	4.9260	15.763
	42.2240	40.9818	8838.8650	14.6677	21.1480	417.9520	17689.360	20.4948	6.7769	21.686
L4	41.5814	46.9830	9248.7310	14.0130	20.2429	456.8881	18509.631	23.4959	6.3533	16.942
	51.0993	59.5185	18802.514	17.7518	25.5930	734.6730	37629.770	29.7649	8.2069	21.885
L5	50.3299	56.9961	16511.921	16.9995	24.5165	673.5019	33045.570	28.5035	7.8339	20.89
	58.8369	68.5882	28774.544	20.4569	29.4640	976.6001	57586.951	34.3006	9.5480	25.461

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontal in	Double Angle Stitch Bolt Spacing Redundants in
L1 170.0000- 160.0000				1	1	1			
L2 160.0000- 130.0000				1	1	1			
L3 130.0000- 84.5000				1	1	1			
L4 84.5000- 40.0000				1	1	1			
L5 40.0000- 0.0000				1	1	1			

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
Coax (1 5/8" foam)	C	No	No	Inside Pole	170.0000 - 0.0000	12	No Ice	0.0000
							1/2" Ice	0.0000
							1" Ice	0.0000
							2" Ice	0.0000
DC (3/4")	C	No	No	Inside Pole	170.0000 - 0.0000	2	No Ice	0.0000
							1/2" Ice	0.0000
							1" Ice	0.0000
							2" Ice	0.0000
DC (3/4")	C	No	No	Inside Pole	170.0000 - 0.0000	4	No Ice	0.0000
							1/2" Ice	0.0000
							1" Ice	0.0000
							2" Ice	0.0000
Fiber (3/8" foam)	C	No	No	Inside Pole	170.0000 - 0.0000	1	No Ice	0.0000
							1/2" Ice	0.0000
							1" Ice	0.0000
							2" Ice	0.0000
Fiber (3/8" foam)	C	No	No	Inside Pole	170.0000 - 0.0000	2	No Ice	0.0000
							1/2" Ice	0.0000
							1" Ice	0.0000
							2" Ice	0.0000

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight klf

Coax (1 5/8" foam)	C	No	No	Inside Pole	159.0000 - 0.0000	12	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.00 0.00 0.00 0.00

Coax (1 5/8" foam)	C	No	No	Inside Pole	149.0000 - 0.0000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.00 0.00 0.00 0.00

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	170.0000-160.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.15
L2	160.0000-130.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.78
L3	130.0000-84.5000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	1.21
L4	84.5000-40.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	1.18
L5	40.0000-0.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	1.06

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	170.0000-160.0000	A	1.762	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.15
L2	160.0000-130.0000	A	1.739	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.78
L3	130.0000-84.5000	A	1.686	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	1.21
L4	84.5000-40.0000	A	1.597	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	1.18
L5	40.0000-0.0000	A	1.428	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	1.06

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L1	170.0000-160.0000	0.0000	0.0000	0.0000	0.0000
L2	160.0000-130.0000	0.0000	0.0000	0.0000	0.0000
L3	130.0000-84.5000	0.0000	0.0000	0.0000	0.0000

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L4	84.5000-40.0000	0.0000	0.0000	0.0000	0.0000
L5	40.0000-0.0000	0.0000	0.0000	0.0000	0.0000

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

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
7770_TIA w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	5.7460	4.2543	0.06
						1/2" Ice	6.1791	5.0137	0.10
						Ice	6.6067	5.7109	0.16
						1" Ice	7.4880	7.1553	0.29
						2" Ice			
7770_TIA w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	5.7460	4.2543	0.06
						1/2" Ice	6.1791	5.0137	0.10
						Ice	6.6067	5.7109	0.16
						1" Ice	7.4880	7.1553	0.29
						2" Ice			
7770_TIA w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	5.7460	4.2543	0.06
						1/2" Ice	6.1791	5.0137	0.10
						Ice	6.6067	5.7109	0.16
						1" Ice	7.4880	7.1553	0.29
						2" Ice			
HPA65R-BU6A_TIA w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	8.0881	7.1928	0.08
						1/2" Ice	8.6418	8.3606	0.15
						Ice	9.1599	9.2408	0.22
						1" Ice	10.2212	11.0512	0.41
						2" Ice			
HPA65R-BU6A_TIA w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	8.0881	7.1928	0.08
						1/2" Ice	8.6418	8.3606	0.15
						Ice	9.1599	9.2408	0.22
						1" Ice	10.2212	11.0512	0.41
						2" Ice			
HPA65R-BU6A_TIA w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	8.0881	7.1928	0.08
						1/2" Ice	8.6418	8.3606	0.15
						Ice	9.1599	9.2408	0.22
						1" Ice	10.2212	11.0512	0.41
						2" Ice			
OPA65R-BU6A_TIA w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	8.0881	7.6536	0.10
						1/2" Ice	8.6418	8.8257	0.17
						Ice	9.1599	9.7102	0.24
						1" Ice	10.2212	11.5082	0.43
						2" Ice			
OPA65R-BU6A_TIA w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	8.0881	7.6536	0.10
						1/2" Ice	8.6418	8.8257	0.17
						Ice	9.1599	9.7102	0.24
						1" Ice	10.2212	11.5082	0.43
						2" Ice			
OPA65R-BU6A_TIA w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	8.0881	7.6536	0.10
						1/2" Ice	8.6418	8.8257	0.17
						Ice	9.1599	9.7102	0.24
						1" Ice	10.2212	11.5082	0.43
						2" Ice			
DMP65R-BU6D_TIA w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	12.9469	7.2619	0.11
						1/2" Ice	13.5467	8.4329	0.21
						Ice	14.1107	9.3147	0.31
						1" Ice	15.2638	11.1283	0.54
						2" Ice			
DMP65R-BU6D_TIA w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	12.9469	7.2619	0.11
						1/2" Ice	13.5467	8.4329	0.21
						Ice	14.1107	9.3147	0.31
						1" Ice	15.2638	11.1283	0.54
						2" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
DMP65R-BU6D_TIA w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	12.9469	7.2619	0.11
						1/2" Ice	13.5467	8.4329	0.21
						Ice	14.1107	9.3147	0.31
						1" Ice	15.2638	11.1283	0.54
						2" Ice			
RRUS 32 B2	A	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	2.7427	1.6681	0.05
						1/2" Ice	2.9647	1.8552	0.07
						Ice	3.1941	2.0493	0.10
						1" Ice	3.6753	2.4585	0.16
						2" Ice			
RRUS 32 B2	B	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	2.7427	1.6681	0.05
						1/2" Ice	2.9647	1.8552	0.07
						Ice	3.1941	2.0493	0.10
						1" Ice	3.6753	2.4585	0.16
						2" Ice			
RRUS 32 B2	C	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	2.7427	1.6681	0.05
						1/2" Ice	2.9647	1.8552	0.07
						Ice	3.1941	2.0493	0.10
						1" Ice	3.6753	2.4585	0.16
						2" Ice			
RRUS 4449 B5/B12	A	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	1.9675	1.4081	0.07
						1/2" Ice	2.1439	1.5637	0.09
						Ice	2.3278	1.7267	0.11
						1" Ice	2.7177	2.0749	0.16
						2" Ice			
RRUS 4449 B5/B12	B	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	1.9675	1.4081	0.07
						1/2" Ice	2.1439	1.5637	0.09
						Ice	2.3278	1.7267	0.11
						1" Ice	2.7177	2.0749	0.16
						2" Ice			
RRUS 4449 B5/B12	C	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	1.9675	1.4081	0.07
						1/2" Ice	2.1439	1.5637	0.09
						Ice	2.3278	1.7267	0.11
						1" Ice	2.7177	2.0749	0.16
						2" Ice			
RRUS 8843 B2/B66A	A	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	1.6390	1.3534	0.07
						1/2" Ice	1.7988	1.5005	0.09
						Ice	1.9660	1.6549	0.11
						1" Ice	2.3227	1.9860	0.16
						2" Ice			
RRUS 8843 B2/B66A	B	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	1.6390	1.3534	0.07
						1/2" Ice	1.7988	1.5005	0.09
						Ice	1.9660	1.6549	0.11
						1" Ice	2.3227	1.9860	0.16
						2" Ice			
RRUS 8843 B2/B66A	C	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	1.6390	1.3534	0.07
						1/2" Ice	1.7988	1.5005	0.09
						Ice	1.9660	1.6549	0.11
						1" Ice	2.3227	1.9860	0.16
						2" Ice			
(2) LGP21401	A	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	1.1040	0.3471	0.01
						1/2" Ice	1.2388	0.4422	0.02
						Ice	1.3810	0.5444	0.03
						1" Ice	1.6877	0.7696	0.05
						2" Ice			
(2) LGP21401	B	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	1.1040	0.3471	0.01
						1/2" Ice	1.2388	0.4422	0.02
						Ice	1.3810	0.5444	0.03
						1" Ice	1.6877	0.7696	0.05
						2" Ice			
(2) LGP21401	C	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	1.1040	0.3471	0.01
						1/2" Ice	1.2388	0.4422	0.02
						Ice	1.3810	0.5444	0.03
						1" Ice	1.6877	0.7696	0.05
						2" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
DC6-48-60-18-8F	A	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	1.2117	1.2117	0.03
						1/2" Ice	1.8924	1.8924	0.05
						Ice	2.1051	2.1051	0.08
						1" Ice	2.5703	2.5703	0.14
						2" Ice			
DC6-48-60-18-8C	B	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	1.1450	1.1450	0.03
						1/2" Ice	1.7924	1.7924	0.05
						Ice	2.0024	2.0024	0.07
						1" Ice	2.4512	2.4512	0.13
						2" Ice			
DC6-48-60-18-8C	C	From Leg	4.0000 0.00 0.00	0.0000	170.0000	No Ice	1.1450	1.1450	0.03
						1/2" Ice	1.7924	1.7924	0.05
						Ice	2.0024	2.0024	0.07
						1" Ice	2.4512	2.4512	0.13
						2" Ice			
(3) 12' T-Arm Mounts	C	None		0.0000	170.0000	No Ice	12.0000	12.0000	1.14
						1/2" Ice	18.0000	18.0000	1.27
						Ice	24.0000	24.0000	1.41
						1" Ice	36.0000	36.0000	1.68
						2" Ice			

LNX-6515DS-VTM_TIA w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.0000	159.0000	No Ice	11.7110	9.8662	0.08
						1/2" Ice	12.4336	11.3929	0.17
						Ice	13.1656	12.9438	0.27
						1" Ice	14.5466	15.3049	0.50
						2" Ice			
LNX-6515DS-VTM_TIA w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.0000	159.0000	No Ice	11.7110	9.8662	0.08
						1/2" Ice	12.4336	11.3929	0.17
						Ice	13.1656	12.9438	0.27
						1" Ice	14.5466	15.3049	0.50
						2" Ice			
LNX-6515DS-VTM_TIA w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.0000	159.0000	No Ice	11.7110	9.8662	0.08
						1/2" Ice	12.4336	11.3929	0.17
						Ice	13.1656	12.9438	0.27
						1" Ice	14.5466	15.3049	0.50
						2" Ice			
RR90-17-02DP_TIA w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.0000	159.0000	No Ice	4.5931	3.3194	0.03
						1/2" Ice	5.0183	4.0888	0.07
						Ice	5.4362	4.7844	0.12
						1" Ice	6.2979	6.2255	0.22
						2" Ice			
RR90-17-02DP_TIA w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.0000	159.0000	No Ice	4.5931	3.3194	0.03
						1/2" Ice	5.0183	4.0888	0.07
						Ice	5.4362	4.7844	0.12
						1" Ice	6.2979	6.2255	0.22
						2" Ice			
RR90-17-02DP_TIA w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.0000	159.0000	No Ice	4.5931	3.3194	0.03
						1/2" Ice	5.0183	4.0888	0.07
						Ice	5.4362	4.7844	0.12
						1" Ice	6.2979	6.2255	0.22
						2" Ice			
Smart Bias Tee	A	From Leg	4.0000 0.00 0.00	0.0000	159.0000	No Ice	0.1421	0.0800	0.00
						1/2" Ice	0.1936	0.1221	0.00
						Ice	0.2525	0.1727	0.01
						1" Ice	0.3925	0.2972	0.01
						2" Ice			
Smart Bias Tee	B	From Leg	4.0000 0.00 0.00	0.0000	159.0000	No Ice	0.1421	0.0800	0.00
						1/2" Ice	0.1936	0.1221	0.00
						Ice	0.2525	0.1727	0.01
						1" Ice	0.3925	0.2972	0.01
						2" Ice			
Smart Bias Tee	C	From Leg	4.0000 0.00 0.00	0.0000	159.0000	No Ice	0.1421	0.0800	0.00
						1/2" Ice	0.1936	0.1221	0.00
						Ice	0.2525	0.1727	0.01
						1" Ice	0.3925	0.2972	0.01
						2" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft	Azimuth Adjustmen t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
KRY 112 71	A	From Leg	4.0000 0.00 0.00	0.0000	159.0000	2" Ice			
						No Ice	0.5833	0.3980	0.01
						1/2"	0.6876	0.4883	0.02
						Ice	0.7993	0.5856	0.03
						1" Ice	1.0448	0.8047	0.04
KRY 112 71	B	From Leg	4.0000 0.00 0.00	0.0000	159.0000	2" Ice			
						No Ice	0.5833	0.3980	0.01
						1/2"	0.6876	0.4883	0.02
						Ice	0.7993	0.5856	0.03
						1" Ice	1.0448	0.8047	0.04
KRY 112 71	C	From Leg	4.0000 0.00 0.00	0.0000	159.0000	2" Ice			
						No Ice	0.5833	0.3980	0.01
						1/2"	0.6876	0.4883	0.02
						Ice	0.7993	0.5856	0.03
						1" Ice	1.0448	0.8047	0.04
12' Low Profile Platform	C	None		0.0000	159.0000	2" Ice			
						No Ice	30.0000	30.0000	1.10
						1/2"	35.0000	35.0000	1.70
						Ice	40.0000	40.0000	2.30
						1" Ice	50.0000	50.0000	3.50

MX08FRO665-20_TIA w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.0000	149.0000	2" Ice			
						No Ice	12.7264	7.5292	0.10
						1/2"	13.3273	8.7153	0.19
						Ice	13.8933	9.6153	0.29
						1" Ice	15.0479	11.4489	0.52
MX08FRO665-20_TIA w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.0000	149.0000	2" Ice			
						No Ice	12.7264	7.5292	0.10
						1/2"	13.3273	8.7153	0.19
						Ice	13.8933	9.6153	0.29
						1" Ice	15.0479	11.4489	0.52
MX08FRO665-20_TIA w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.0000	149.0000	2" Ice			
						No Ice	12.7264	7.5292	0.10
						1/2"	13.3273	8.7153	0.19
						Ice	13.8933	9.6153	0.29
						1" Ice	15.0479	11.4489	0.52
TA08025-B604	A	From Leg	4.0000 0.00 0.00	0.0000	149.0000	2" Ice			
						No Ice	1.9635	0.9811	0.06
						1/2"	2.1378	1.1117	0.08
						Ice	2.3195	1.2496	0.10
						1" Ice	2.7052	1.5477	0.15
TA08025-B604	B	From Leg	4.0000 0.00 0.00	0.0000	149.0000	2" Ice			
						No Ice	1.9635	0.9811	0.06
						1/2"	2.1378	1.1117	0.08
						Ice	2.3195	1.2496	0.10
						1" Ice	2.7052	1.5477	0.15
TA08025-B604	C	From Leg	4.0000 0.00 0.00	0.0000	149.0000	2" Ice			
						No Ice	1.9635	0.9811	0.06
						1/2"	2.1378	1.1117	0.08
						Ice	2.3195	1.2496	0.10
						1" Ice	2.7052	1.5477	0.15
TA08025-B605	A	From Leg	4.0000 0.00 0.00	0.0000	149.0000	2" Ice			
						No Ice	1.9635	1.1295	0.08
						1/2"	2.1378	1.2666	0.09
						Ice	2.3195	1.4112	0.11
						1" Ice	2.7052	1.7225	0.16
TA08025-B605	B	From Leg	4.0000 0.00 0.00	0.0000	149.0000	2" Ice			
						No Ice	1.9635	1.1295	0.08
						1/2"	2.1378	1.2666	0.09
						Ice	2.3195	1.4112	0.11
						1" Ice	2.7052	1.7225	0.16
TA08025-B605	C	From Leg	4.0000 0.00 0.00	0.0000	149.0000	2" Ice			
						No Ice	1.9635	1.1295	0.08
						1/2"	2.1378	1.2666	0.09
						Ice	2.3195	1.4112	0.11
						1" Ice	2.7052	1.7225	0.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
RDIDC-9181-PF-48	A	From Leg	4.0000 0.00 0.00	0.0000	149.0000	1" Ice	2.7052	1.7225	0.16
						2" Ice	2.0119	1.1682	0.02
						No Ice	2.1886	1.3109	0.04
						1/2"	2.3727	1.4611	0.06
						Ice	2.7631	1.7837	0.11
Site Pro 1 SNP8HR-396	C	None		0.0000	149.0000	1" Ice	26.9000	26.0000	1.47
						2" Ice	31.5600	30.6700	1.71
						No Ice	35.7300	34.6500	2.00
						1/2"	45.5400	44.6800	2.58
						Ice			

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 _{AA} In Face ft ²	C _{AA} Out Face ft ²
L1 170.0000-160.0000	164.8532	1.406	0.047	20.382	A	0.000	20.382	20.382	100.00	0.000	0.000
					B	0.000	20.382		100.00	0.000	0.000
					C	0.000	20.382		100.00	0.000	0.000
L2 160.0000-130.0000	144.4635	1.368	0.045	74.550	A	0.000	74.550	74.550	100.00	0.000	0.000
					B	0.000	74.550		100.00	0.000	0.000
					C	0.000	74.550		100.00	0.000	0.000
L3 130.0000-84.5000	106.5180	1.283	0.042	141.676	A	0.000	141.676	141.676	100.00	0.000	0.000
					B	0.000	141.676		100.00	0.000	0.000
					C	0.000	141.676		100.00	0.000	0.000
L4 84.5000-40.0000	61.9115	1.144	0.038	171.846	A	0.000	171.846	171.846	100.00	0.000	0.000
					B	0.000	171.846		100.00	0.000	0.000
					C	0.000	171.846		100.00	0.000	0.000
L5 40.0000-0.0000	20.1981	0.904	0.030	181.945	A	0.000	181.945	181.945	100.00	0.000	0.000
					B	0.000	181.945		100.00	0.000	0.000
					C	0.000	181.945		100.00	0.000	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 _{AA} In Face ft ²	C _{AA} Out Face ft ²
L1 170.0000-160.0000	164.8532	1.406	0.008	1.7618	23.318	A	0.000	23.318	23.318	100.00	0.000	0.000
						B	0.000	23.318		100.00	0.000	0.000
						C	0.000	23.318		100.00	0.000	0.000
L2 160.0000-130.0000	144.4635	1.368	0.008	1.7387	83.243	A	0.000	83.243	83.243	100.00	0.000	0.000
						B	0.000	83.243		100.00	0.000	0.000
						C	0.000	83.243		100.00	0.000	0.000
L3 130.0000-84.5000	106.5180	1.283	0.008	1.6865	154.861	A	0.000	154.861	154.861	100.00	0.000	0.000
						B	0.000	154.861		100.00	0.000	0.000
						C	0.000	154.861		100.00	0.000	0.000
L4 84.5000-40.0000	61.9115	1.144	0.007	1.5974	184.354	A	0.000	184.354	184.354	100.00	0.000	0.000
						B	0.000	184.354		100.00	0.000	0.000
						C	0.000	184.354		100.00	0.000	0.000
L5 40.0000-0.0000	20.1981	0.904	0.005	1.4281	192.594	A	0.000	192.594	192.594	100.00	0.000	0.000
						B	0.000	192.594		100.00	0.000	0.000
						C	0.000	192.594		100.00	0.000	0.000

Tower Pressure - Service

$G_H = 1.100$

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_{AA} In Face ft ²	C_{AA} Out Face ft ²
L1 170.0000- 160.0000	164.8532	1.406	0.011	20.382	A	0.000	20.382	20.382	100.00	0.000	0.000
					B	0.000	20.382		100.00	0.000	0.000
					C	0.000	20.382		100.00	0.000	0.000
L2 160.0000- 130.0000	144.4635	1.368	0.010	74.550	A	0.000	74.550	74.550	100.00	0.000	0.000
					B	0.000	74.550		100.00	0.000	0.000
					C	0.000	74.550		100.00	0.000	0.000
L3 130.0000- 84.5000	106.5180	1.283	0.010	141.67 6	A	0.000	141.676	141.676	100.00	0.000	0.000
					B	0.000	141.676		100.00	0.000	0.000
					C	0.000	141.676		100.00	0.000	0.000
L4 84.5000- 40.0000	61.9115	1.144	0.009	171.84 6	A	0.000	171.846	171.846	100.00	0.000	0.000
					B	0.000	171.846		100.00	0.000	0.000
					C	0.000	171.846		100.00	0.000	0.000
L5 40.0000- 0.0000	20.1981	0.904	0.007	181.94 5	A	0.000	181.945	181.945	100.00	0.000	0.000
					B	0.000	181.945		100.00	0.000	0.000
					C	0.000	181.945		100.00	0.000	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
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

Comb. No.	Description
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	170 - 160	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-10.16	0.00	0.06
			Max. Mx	8	-3.77	-67.12	0.00
			Max. My	2	-3.77	0.00	67.12
			Max. Vy	8	7.15	-67.12	0.00
			Max. Vx	2	-7.15	0.00	67.12
			Max. Torque	9			0.02
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-25.82	0.00	0.59
L2	160 - 130	Pole	Max. Mx	8	-10.66	-413.43	0.11
			Max. My	2	-10.66	0.00	414.08
			Max. Vy	8	16.35	-413.43	0.11
			Max. Vx	2	-16.39	0.00	414.08
			Max. Torque	8			0.26
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.97	0.00	0.59
			Max. Mx	8	-19.14	-1246.68	0.13
			Max. My	2	-19.14	0.00	1248.91
L3	130 - 84.5	Pole	Max. Vy	8	21.12	-1246.68	0.13
			Max. Vx	2	-21.16	0.00	1248.91
			Max. Torque	8			0.26
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.07	0.00	0.59
			Max. Mx	8	-31.17	-2272.27	0.13
			Max. My	2	-31.17	0.00	2276.04
			Max. Vy	8	25.97	-2272.27	0.13
			Max. Vx	2	-26.00	0.00	2276.04
L4	84.5 - 40	Pole	Max. Torque	8			0.26
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.17	0.00	0.59
			Max. Mx	8	-46.85	-3586.32	0.13
			Max. My	2	-46.85	0.00	3591.70
			Max. Vy	8	30.29	-3586.32	0.13
			Max. Vx	2	-30.32	0.00	3591.70
			Max. Torque	8			0.26
			Max Tension	1	0.00	0.00	0.00
L5	40 - 0	Pole	Max. Compression	26	-74.17	0.00	0.59
			Max. Mx	8	-46.85	-3586.32	0.13
			Max. My	2	-46.85	0.00	3591.70
			Max. Vy	8	30.29	-3586.32	0.13
			Max. Vx	2	-30.32	0.00	3591.70
			Max. Torque	8			0.26
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.17	0.00	0.59
			Max. Mx	8	-46.85	-3586.32	0.13

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	74.17	0.00	0.00
	Max. H _x	20	46.87	30.26	0.00
	Max. H _z	2	46.87	0.00	30.29
	Max. M _x	2	3591.70	0.00	30.29
	Max. M _z	8	3586.32	-30.26	0.00
	Max. Torsion	8	0.26	-30.26	0.00
	Min. Vert	3	35.15	0.00	30.29
	Min. H _x	8	46.87	-30.26	0.00
	Min. H _z	14	46.87	0.00	-30.29
	Min. M _x	14	-3591.43	0.00	-30.29
	Min. M _z	20	-3586.32	30.26	0.00

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. Torsion	20	-0.26	30.26	0.00

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	39.06	0.00	-0.00	-0.10	0.00	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	46.87	0.00	-30.29	-3591.70	0.00	0.00
0.9 Dead+1.0 Wind 0 deg - No Ice	35.15	0.00	-30.29	-3552.77	0.00	0.00
1.2 Dead+1.0 Wind 30 deg - No Ice	46.87	15.13	-26.24	-3110.99	-1793.42	-0.13
0.9 Dead+1.0 Wind 30 deg - No Ice	35.15	15.13	-26.24	-3077.43	-1774.10	-0.13
1.2 Dead+1.0 Wind 60 deg - No Ice	46.87	26.21	-15.15	-1796.19	-3106.30	-0.22
0.9 Dead+1.0 Wind 60 deg - No Ice	35.15	26.21	-15.15	-1776.80	-3072.84	-0.22
1.2 Dead+1.0 Wind 90 deg - No Ice	46.87	30.26	-0.00	-0.13	-3586.32	-0.26
0.9 Dead+1.0 Wind 90 deg - No Ice	35.15	30.26	-0.00	-0.10	-3547.48	-0.26
1.2 Dead+1.0 Wind 120 deg - No Ice	46.87	26.21	15.15	1795.93	-3106.30	-0.22
0.9 Dead+1.0 Wind 120 deg - No Ice	35.15	26.21	15.15	1776.61	-3072.84	-0.22
1.2 Dead+1.0 Wind 150 deg - No Ice	46.87	15.13	26.24	3110.72	-1793.42	-0.13
0.9 Dead+1.0 Wind 150 deg - No Ice	35.15	15.13	26.24	3077.24	-1774.10	-0.13
1.2 Dead+1.0 Wind 180 deg - No Ice	46.87	0.00	30.29	3591.43	0.00	0.00
0.9 Dead+1.0 Wind 180 deg - No Ice	35.15	0.00	30.29	3552.57	0.00	0.00
1.2 Dead+1.0 Wind 210 deg - No Ice	46.87	-15.13	26.24	3110.72	1793.42	0.13
0.9 Dead+1.0 Wind 210 deg - No Ice	35.15	-15.13	26.24	3077.24	1774.10	0.13
1.2 Dead+1.0 Wind 240 deg - No Ice	46.87	-26.21	15.15	1795.93	3106.30	0.22
0.9 Dead+1.0 Wind 240 deg - No Ice	35.15	-26.21	15.15	1776.61	3072.84	0.22
1.2 Dead+1.0 Wind 270 deg - No Ice	46.87	-30.26	-0.00	-0.13	3586.32	0.26
0.9 Dead+1.0 Wind 270 deg - No Ice	35.15	-30.26	-0.00	-0.10	3547.48	0.26
1.2 Dead+1.0 Wind 300 deg - No Ice	46.87	-26.21	-15.15	-1796.19	3106.30	0.22
0.9 Dead+1.0 Wind 300 deg - No Ice	35.15	-26.21	-15.15	-1776.80	3072.84	0.22
1.2 Dead+1.0 Wind 330 deg - No Ice	46.87	-15.13	-26.24	-3110.99	1793.42	0.13
0.9 Dead+1.0 Wind 330 deg - No Ice	35.15	-15.13	-26.24	-3077.43	1774.10	0.13
1.2 Dead+1.0 Ice+1.0 Temp	74.17	0.00	-0.00	-0.59	0.00	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	74.17	0.00	-9.28	-1136.96	0.00	0.00
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	74.17	4.64	-8.04	-984.85	-567.64	-0.04
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	74.17	8.03	-4.64	-568.90	-983.18	-0.06
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	74.17	9.28	0.00	-0.69	-1135.14	-0.07
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	74.17	8.03	4.64	567.51	-983.18	-0.06

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
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	74.17	4.64	8.04	983.47	-567.64	-0.04
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	74.17	0.00	9.28	1135.58	0.00	0.00
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	74.17	-4.64	8.04	983.47	567.64	0.04
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	74.17	-8.03	4.64	567.51	983.18	0.06
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	74.17	-9.28	0.00	-0.69	1135.14	0.07
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	74.17	-8.03	-4.64	-568.90	983.18	0.06
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	74.17	-4.64	-8.04	-984.85	567.64	0.04
Dead+Wind 0 deg - Service	39.06	0.00	-7.01	-826.76	0.00	0.00
Dead+Wind 30 deg - Service	39.06	3.50	-6.07	-716.01	-412.72	-0.03
Dead+Wind 60 deg - Service	39.06	6.07	-3.51	-413.44	-714.85	-0.05
Dead+Wind 90 deg - Service	39.06	7.00	0.00	-0.11	-825.44	-0.06
Dead+Wind 120 deg - Service	39.06	6.07	3.51	413.21	-714.85	-0.05
Dead+Wind 150 deg - Service	39.06	3.50	6.07	715.79	-412.72	-0.03
Dead+Wind 180 deg - Service	39.06	0.00	7.01	826.54	0.00	0.00
Dead+Wind 210 deg - Service	39.06	-3.50	6.07	715.79	412.72	0.03
Dead+Wind 240 deg - Service	39.06	-6.07	3.51	413.21	714.85	0.05
Dead+Wind 270 deg - Service	39.06	-7.00	0.00	-0.11	825.44	0.06
Dead+Wind 300 deg - Service	39.06	-6.07	-3.51	-413.44	714.85	0.05
Dead+Wind 330 deg - Service	39.06	-3.50	-6.07	-716.01	412.72	0.03

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	0.00	-39.06	0.00	0.00	39.06	0.00	0.000%
2	0.00	-46.87	-30.30	0.00	46.87	30.29	0.007%
3	0.00	-35.15	-30.30	0.00	35.15	30.29	0.011%
4	15.13	-46.87	-26.24	-15.13	46.87	26.24	0.000%
5	15.13	-35.15	-26.24	-15.13	35.15	26.24	0.000%
6	26.21	-46.87	-15.15	-26.21	46.87	15.15	0.000%
7	26.21	-35.15	-15.15	-26.21	35.15	15.15	0.000%
8	30.26	-46.87	0.00	-30.26	46.87	0.00	0.007%
9	30.26	-35.15	0.00	-30.26	35.15	0.00	0.011%
10	26.21	-46.87	15.15	-26.21	46.87	-15.15	0.000%
11	26.21	-35.15	15.15	-26.21	35.15	-15.15	0.000%
12	15.13	-46.87	26.24	-15.13	46.87	-26.24	0.000%
13	15.13	-35.15	26.24	-15.13	35.15	-26.24	0.000%
14	0.00	-46.87	30.30	0.00	46.87	-30.29	0.007%
15	0.00	-35.15	30.30	0.00	35.15	-30.29	0.011%
16	-15.13	-46.87	26.24	15.13	46.87	-26.24	0.000%
17	-15.13	-35.15	26.24	15.13	35.15	-26.24	0.000%
18	-26.21	-46.87	15.15	26.21	46.87	-15.15	0.000%
19	-26.21	-35.15	15.15	26.21	35.15	-15.15	0.000%
20	-30.26	-46.87	0.00	30.26	46.87	0.00	0.007%
21	-30.26	-35.15	0.00	30.26	35.15	0.00	0.011%
22	-26.21	-46.87	-15.15	26.21	46.87	15.15	0.000%
23	-26.21	-35.15	-15.15	26.21	35.15	15.15	0.000%
24	-15.13	-46.87	-26.24	15.13	46.87	26.24	0.000%
25	-15.13	-35.15	-26.24	15.13	35.15	26.24	0.000%
26	0.00	-74.17	0.00	0.00	74.17	0.00	0.000%
27	0.00	-74.17	-9.28	0.00	74.17	9.28	0.002%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
28	4.64	-74.17	-8.04	-4.64	74.17	8.04	0.001%
29	8.03	-74.17	-4.64	-8.03	74.17	4.64	0.001%
30	9.28	-74.17	0.00	-9.28	74.17	-0.00	0.002%
31	8.03	-74.17	4.64	-8.03	74.17	-4.64	0.001%
32	4.64	-74.17	8.04	-4.64	74.17	-8.04	0.001%
33	0.00	-74.17	9.28	0.00	74.17	-9.28	0.002%
34	-4.64	-74.17	8.04	4.64	74.17	-8.04	0.001%
35	-8.03	-74.17	4.64	8.03	74.17	-4.64	0.001%
36	-9.28	-74.17	0.00	9.28	74.17	-0.00	0.002%
37	-8.03	-74.17	-4.64	8.03	74.17	4.64	0.001%
38	-4.64	-74.17	-8.04	4.64	74.17	8.04	0.001%
39	0.00	-39.06	-7.01	0.00	39.06	7.01	0.004%
40	3.50	-39.06	-6.07	-3.50	39.06	6.07	0.004%
41	6.07	-39.06	-3.51	-6.07	39.06	3.51	0.004%
42	7.01	-39.06	0.00	-7.00	39.06	-0.00	0.004%
43	6.07	-39.06	3.51	-6.07	39.06	-3.51	0.004%
44	3.50	-39.06	6.07	-3.50	39.06	-6.07	0.004%
45	0.00	-39.06	7.01	0.00	39.06	-7.01	0.004%
46	-3.50	-39.06	6.07	3.50	39.06	-6.07	0.004%
47	-6.07	-39.06	3.51	6.07	39.06	-3.51	0.004%
48	-7.01	-39.06	0.00	7.00	39.06	-0.00	0.004%
49	-6.07	-39.06	-3.51	6.07	39.06	3.51	0.004%
50	-3.50	-39.06	-6.07	3.50	39.06	6.07	0.004%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	16	0.00008079	0.00008348
3	Yes	15	0.00010986	0.00013743
4	Yes	21	0.00000001	0.00010507
5	Yes	21	0.00000001	0.00007681
6	Yes	21	0.00000001	0.00010561
7	Yes	21	0.00000001	0.00007723
8	Yes	16	0.00008081	0.00008703
9	Yes	15	0.00010988	0.00014232
10	Yes	21	0.00000001	0.00010484
11	Yes	21	0.00000001	0.00007665
12	Yes	21	0.00000001	0.00010545
13	Yes	21	0.00000001	0.00007711
14	Yes	16	0.00008080	0.00008347
15	Yes	15	0.00010986	0.00013741
16	Yes	21	0.00000001	0.00010545
17	Yes	21	0.00000001	0.00007711
18	Yes	21	0.00000001	0.00010484
19	Yes	21	0.00000001	0.00007665
20	Yes	16	0.00008081	0.00008703
21	Yes	15	0.00010988	0.00014232
22	Yes	21	0.00000001	0.00010561
23	Yes	21	0.00000001	0.00007723
24	Yes	21	0.00000001	0.00010507
25	Yes	21	0.00000001	0.00007681
26	Yes	6	0.00000001	0.00000001
27	Yes	17	0.00012973	0.00011165
28	Yes	18	0.00006777	0.00011698
29	Yes	18	0.00006776	0.00011747
30	Yes	17	0.00012972	0.00011142
31	Yes	18	0.00006776	0.00011628
32	Yes	18	0.00006775	0.00011683
33	Yes	17	0.00012970	0.00011135
34	Yes	18	0.00006775	0.00011683
35	Yes	18	0.00006776	0.00011628
36	Yes	17	0.00012972	0.00011142
37	Yes	18	0.00006776	0.00011747
38	Yes	18	0.00006777	0.00011698
39	Yes	15	0.00013221	0.00004788
40	Yes	15	0.00013206	0.00008545
41	Yes	15	0.00013206	0.00008750
42	Yes	15	0.00013221	0.00004789
43	Yes	15	0.00013206	0.00008467
44	Yes	15	0.00013206	0.00008687
45	Yes	15	0.00013221	0.00004785
46	Yes	15	0.00013206	0.00008687
47	Yes	15	0.00013206	0.00008467
48	Yes	15	0.00013221	0.00004789
49	Yes	15	0.00013206	0.00008750
50	Yes	15	0.00013206	0.00008545

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	170 - 160	24.95	39	1.2877	0.0004
L2	160 - 130	22.27	39	1.2730	0.0004
L3	134.5 - 84.5	15.79	39	1.1239	0.0003
L4	90 - 40	7.00	39	0.7306	0.0001
L5	46.5 - 0	1.90	39	0.3707	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
170.0000	7770_TIA w/ Mount Pipe	39	24.95	1.2877	0.0004	38619
159.0000	LNx-6515DS-VTM_TIA w/ Mount Pipe	39	22.00	1.2703	0.0004	18274
149.0000	MX08FRO665-20_TIA w/ Mount Pipe	39	19.38	1.2260	0.0004	10919

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	170 - 160	108.39	2	5.5971	0.0018
L2	160 - 130	96.74	2	5.5338	0.0017
L3	134.5 - 84.5	68.63	2	4.8869	0.0012
L4	90 - 40	30.42	2	3.1772	0.0005
L5	46.5 - 0	8.25	2	1.6117	0.0002

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
170.0000	7770_TIA w/ Mount Pipe	2	108.39	5.5971	0.0018	9079
159.0000	LNx-6515DS-VTM_TIA w/ Mount Pipe	2	95.58	5.5218	0.0017	4292
149.0000	MX08FRO665-20_TIA w/ Mount Pipe	2	84.22	5.3297	0.0016	2558

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u φP _n
L1	170 - 160 (1)	TP26.25x22x0.25	10.000	0.0000	0.0	20.631	-3.77	1206.91	0.003
L2	160 - 130 (2)	TP32.56x26.25x0.25	30.000	0.0000	0.0	24.886	-10.66	1455.89	0.007
L3	130 - 84.5 (3)	TP41.63x31.1135x0.3125	50.000	0.0000	0.0	39.834	-19.14	2330.31	0.008
L4	84.5 - 40 (4)	TP50.38x39.8482x0.375	50.000	0.0000	0.0	57.888	-31.17	3386.50	0.009
L5	40 - 0 (5)	TP58x48.2609x0.375	46.500	0.0000	0.0	68.588	-46.85	4012.41	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{nx} kip-ft	Ratio M _{ux} φM _{nx}	M _{uy} kip-ft	φM _{ny} kip-ft	Ratio M _{uy} φM _{ny}
L1	170 - 160 (1)	TP26.25x22x0.25	67.13	799.73	0.084	0.00	799.73	0.000
L2	160 - 130 (2)	TP32.56x26.25x0.25	414.08	1101.47	0.376	0.00	1101.47	0.000
L3	130 - 84.5 (3)	TP41.63x31.1135x0.3125	1248.91	2239.21	0.558	0.00	2239.21	0.000
L4	84.5 - 40 (4)	TP50.38x39.8482x0.375	2276.04	3928.36	0.579	0.00	3928.36	0.000
L5	40 - 0 (5)	TP58x48.2609x0.375	3591.70	5157.82	0.696	0.00	5157.82	0.000

Section No.	Elevation ft	Size	M_{ux}	ϕM_{nx}	Ratio	M_{uy}	ϕM_{ny}	Ratio
			kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{nx}}$	kip-ft	kip-ft	$\frac{M_{uy}}{\phi M_{ny}}$

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual	ϕV_n	Ratio	Actual	ϕT_n	Ratio
			V_u K	K	$\frac{V_u}{\phi V_n}$	T_u kip-ft	kip-ft	$\frac{T_u}{\phi T_n}$
L1	170 - 160 (1)	TP26.25x22x0.25	7.15	362.07	0.020	0.01	824.42	0.000
L2	160 - 130 (2)	TP32.56x26.25x0.25	16.39	436.77	0.038	0.00	1199.65	0.000
L3	130 - 84.5 (3)	TP41.63x31.1135x0.3125	21.16	699.09	0.030	0.00	2458.76	0.000
L4	84.5 - 40 (4)	TP50.38x39.8482x0.375	26.00	1015.95	0.026	0.00	4327.22	0.000
L5	40 - 0 (5)	TP58x48.2609x0.375	30.32	1203.72	0.025	0.00	6074.59	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		P_u	M_{ux}	M_{uy}	V_u	T_u			
L1	170 - 160 (1)	0.003	0.084	0.000	0.020	0.000	0.087	1.000	4.8.2
L2	160 - 130 (2)	0.007	0.376	0.000	0.038	0.000	0.385	1.000	4.8.2
L3	130 - 84.5 (3)	0.008	0.558	0.000	0.030	0.000	0.567	1.000	4.8.2
L4	84.5 - 40 (4)	0.009	0.579	0.000	0.026	0.000	0.589	1.000	4.8.2
L5	40 - 0 (5)	0.012	0.696	0.000	0.025	0.000	0.709	1.000	4.8.2

Section Capacity Table

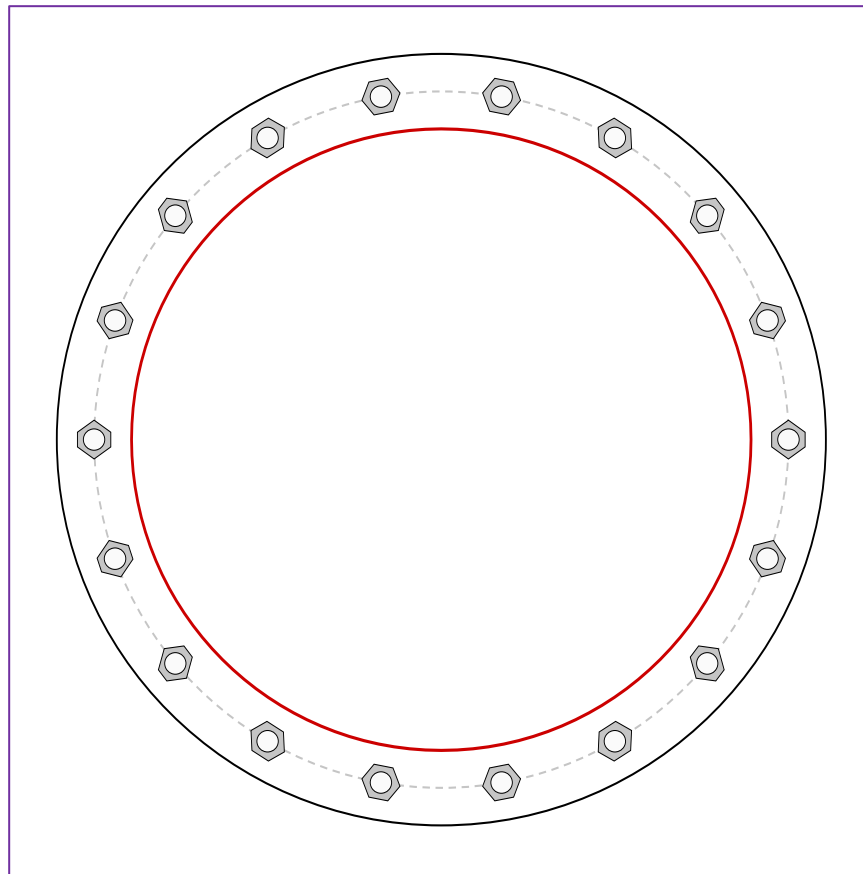
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	170 - 160	Pole	TP26.25x22x0.25	1	-3.77	1206.91	8.7	Pass
L2	160 - 130	Pole	TP32.56x26.25x0.25	2	-10.66	1455.89	38.5	Pass
L3	130 - 84.5	Pole	TP41.63x31.1135x0.3125	3	-19.14	2330.31	56.7	Pass
L4	84.5 - 40	Pole	TP50.38x39.8482x0.375	4	-31.17	3386.50	58.9	Pass
L5	40 - 0	Pole	TP58x48.2609x0.375	5	-46.85	4012.41	70.9	Pass
Summary								
Pole (L5)							70.9	Pass
RATING =							70.9	Pass

APPENDIX B
ADDITIONAL CALCULATIONS

Monopole Base Plate Connection

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0

Applied Loads	
Moment (kip-ft)	3591.70
Axial Force (kips)	46.85
Shear Force (kips)	30.32



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

Anchor Rod Data
(18) 2" ϕ bolts (A687 N; $F_y=105$ ksi, $F_u=125$ ksi) on 65" BC
Base Plate Data
72" OD x 2.25" Plate (A572-50; $F_y=50$ ksi, $F_u=65$ ksi)
Stiffener Data
N/A
Pole Data
58" x 0.375" 18-sided pole (A572-65; $F_y=65$ ksi, $F_u=80$ ksi)

Anchor Rod Summary			<i>(units of kips, kip-in)</i>
$P_{u_t} = 144.69$	$\phi P_{n_t} = 234.38$	Stress Rating	
$V_u = 1.68$	$\phi V_n = 147.26$	61.7%	
$M_u = n/a$	$\phi M_n = n/a$	Pass	
Base Plate Summary			
Max Stress (ksi):	25.82	(Flexural)	
Allowable Stress (ksi):	45		
Stress Rating:	57.4%	Pass	

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TIA Standard:	TIA-H
Reactions at Pole Base*	
Moment	3591.7 k*ft
Axial	46.85 k
Shear	30.32 k

1.2*Dead - Tension/Compression		0.9*Dead - Tension/Compression																																																					
$T = \frac{MY}{I} - \frac{1.2 * W_F}{N} - \frac{A_{POLE}}{N}$ $C = \frac{MY}{I} + \frac{1.2 * W_F}{N} + \frac{A_{POLE}}{N}$		$T = \frac{MY}{I} - \frac{0.9 * W_F}{N} - \frac{.9 \left(\frac{A_{POLE}}{1.2} \right)}{N}$ $C = \frac{MY}{I} + \frac{0.9 * W_F}{N} + \frac{.9 \left(\frac{A_{POLE}}{1.2} \right)}{N}$																																																					
Foundation Dimensions		Factored Weights																																																					
<table border="1"> <tr> <th colspan="2">Pier</th> <th colspan="2">Mat</th> </tr> <tr> <td>Width</td> <td>0 ft</td> <td>Width</td> <td>14 ft</td> </tr> <tr> <td>Height*</td> <td>0 ft</td> <td>Thickness</td> <td>6 ft</td> </tr> <tr> <td>Projection</td> <td>0.5 ft</td> <td>Fdn Depth</td> <td>5.5 ft</td> </tr> <tr> <td>Shape</td> <td>Square</td> <td>Shape</td> <td>Square</td> </tr> <tr> <td>Water</td> <td>99 pcf</td> <td>Soil:</td> <td>0 pcf</td> </tr> </table>		Pier		Mat		Width	0 ft	Width	14 ft	Height*	0 ft	Thickness	6 ft	Projection	0.5 ft	Fdn Depth	5.5 ft	Shape	Square	Shape	Square	Water	99 pcf	Soil:	0 pcf	<table border="1"> <tr> <th colspan="2">Foundation Weight</th> <th colspan="2">Factored Weights</th> </tr> <tr> <td>Pier</td> <td>0.00 k</td> <td>1.2 *Dead</td> <td>0.9 *Dead</td> </tr> <tr> <td>Soil</td> <td>0.00 k</td> <td>0.00 k</td> <td>0.00 k</td> </tr> <tr> <td>Pole*</td> <td>46.85 k</td> <td>46.85 k</td> <td>35.1375 k</td> </tr> <tr> <td>Mat</td> <td>176.40 k</td> <td>211.68 k</td> <td>158.76 k</td> </tr> <tr> <td>Total**</td> <td></td> <td>258.53 k</td> <td>193.90 k</td> </tr> <tr> <td>Total**</td> <td></td> <td>258.53 k</td> <td>193.90 k</td> </tr> </table>		Foundation Weight		Factored Weights		Pier	0.00 k	1.2 *Dead	0.9 *Dead	Soil	0.00 k	0.00 k	0.00 k	Pole*	46.85 k	46.85 k	35.1375 k	Mat	176.40 k	211.68 k	158.76 k	Total**		258.53 k	193.90 k	Total**		258.53 k	193.90 k
Pier		Mat																																																					
Width	0 ft	Width	14 ft																																																				
Height*	0 ft	Thickness	6 ft																																																				
Projection	0.5 ft	Fdn Depth	5.5 ft																																																				
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Total**		258.53 k	193.90 k																																																				
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*From InxTower

*Includes Projection

Induced Moment			
Load	Distance (ft)	Moment	
Moment	3591.7	3591.7	k*ft
Axial	46.85	0	
Shear	30.32	181.92	k*ft
Total Induced Moment		3773.62	k*ft

*From TnxTower. Contains 1.2 factors from output

**Water Table Below Foundation

Anchor Type	Rock Anchor
Number of anchors:	8

Check assuming wind into the corner

Anchor Loads:

Group #	# Anchors	ybar (in)	Anchor	A _{gross} (in ²)	I' (in ⁴)	(MY/I)*A (kips)	1.2*Dead		0.9*Dead		Factored Capacity		Ratio	
							T (kips)	C (kips)	T (kips)	C (kips)	T (kips)	C (kips)	T	C
1	4	42.43	1.75" Williams R71	2.663	19173.59	133.418	101.10	165.73	109.18	157.65	312.00	312.00	35.0%	53.1%
2	2	60.00	1.75" Williams R71	2.663	19173.60	188.681	156.36	221.00	164.44	212.92	312.00	312.00	52.7%	70.8%
3														
4														
5														
6														
7														
8														
				5.33	38347.19								Max Ratio	52.7% 70.8%

Check assuming wind into the corner

Anchor Loads:

Group #	# Anchors	ybar (in)	Anchor	A _{gross} (in ²)	I' (in ⁴)	(MY/I)*A (kips)	1.2*Dead		0.9*Dead		Factored Capacity		Ratio	
							T (kips)	C (kips)	T (kips)	C (kips)	T (kips)	C (kips)	T	C
1	4	22.96	1.75" Williams R71	2.663	5615.81	72.205	39.89	104.52	47.97	96.44	312.00	312.00	15.4%	33.5%
2	4	55.43	1.75" Williams R71	2.663	32731.42	174.318	142.00	206.63	150.08	198.56	312.00	312.00	48.1%	66.2%
3														
4														
5														
6														
7														
8														
				5.33	38347.23								Max Ratio	48.1% 66.2%

Check assuming wind into the Side

Anchor Loads:

Group #	# Anchors	ybar (in)	Anchor	A _{gross} (in ²)	I' (in ⁴)	(MY/I)*A (kips)	1.2*Dead		0.9*Dead		Factored Capacity		Ratio	
							T (kips)	C (kips)	T (kips)	C (kips)	T (kips)	C (kips)	T	C
1	4	42.43	1.75" Williams R71	2.663	19173.59	133.418	101.10	165.73	109.18	157.65	312.00	312.00	35.0%	53.1%
2	2	60.00	1.75" Williams R71	2.663	19173.60	188.681	156.36	221.00	164.44	212.92	312.00	312.00	52.7%	70.8%
3														
4														
5														
6														
7														
8														
				5.33	38347.19								Max Ratio	52.7% 70.8%

Max Foundation Bending
 Mat (Tension) 1594.24 k*ft
 Mat (Compression) 2276.90 k*ft

Factored Capacities*
 Mat (Tension) 2904.63 k*ft
 Mat (Compression) 2904.63 k*ft

*Obtained From SPColumn

Foundation Reinforcing Ratios
 Mat (Tension) 54.9%
 Mat (Compression) 78.4%

Check assuming wind into the Side

Anchor Loads:

Group #	# Anchors	ybar (in)	Anchor	A _{gross} (in ²)	I' (in ⁴)	(MY/I)*A (kips)	1.2*Dead		0.9*Dead		Factored Capacity		Ratio	
							T (kips)	C (kips)	T (kips)	C (kips)	T (kips)	C (kips)	T	C
1	4	22.96	1.75" Williams R71	2.663	5615.81	72.205	39.89	104.52	47.97	96.44	312.00	312.00	15.4%	33.5%
2	4	55.43	1.75" Williams R71	2.663	32731.42	174.318	142.00	206.63	150.08	198.56	312.00	312.00	48.1%	66.2%
3														
4														
5														
6														
7														
8														
				5.33	38347.23								Max Ratio	48.1% 66.2%

Max Foundation Bending
 Mat (Tension) 1570.14 k*ft
 Mat (Compression) 2309.04 k*ft

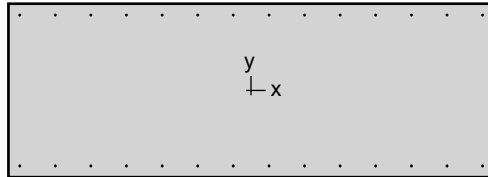
Factored Capacities*
 Mat (Tension) 2904.63 k*ft
 Mat (Compression) 2904.63 k*ft

*Obtained From SPColumn

Foundation Reinforcing Ratios
 Mat (Tension) 54.1%
 Mat (Compression) 79.5%



spColumn v6.00
Computer program for the Strength Design of Reinforced Concrete Sections
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1. General Information

File Name	G:\TOWER\133_Everest Infrastructure Pa...\Mat.col
Project	13320-0004.001.7805
Column	---
Engineer	NCM
Code	ACI 318-14
Bar Set	ASTM A615
Units	English
Run Option	Investigation
Run Axis	X - axis
Slenderness	Not Considered
Column Type	Structural

2. Material Properties

2.1. Concrete

Type	Standard
f'_c	3 ksi
E_c	3122.02 ksi
f_c	2.55 ksi
ϵ_u	0.003 in/in
β_1	0.85

2.2. Steel

Type	Standard
f_y	60 ksi
E_s	29000 ksi
ϵ_{yt}	0.00206897 in/in

3. Section

3.1. Shape and Properties

Type	Rectangular
Width	168 in
Depth	60 in
A_g	10080 in ²
I_x	3.024e+006 in ⁴
I_y	2.37082e+007 in ⁴
r_x	17.3205 in
r_y	48.4974 in
X_o	0 in
Y_o	0 in

3.2. Section Figure

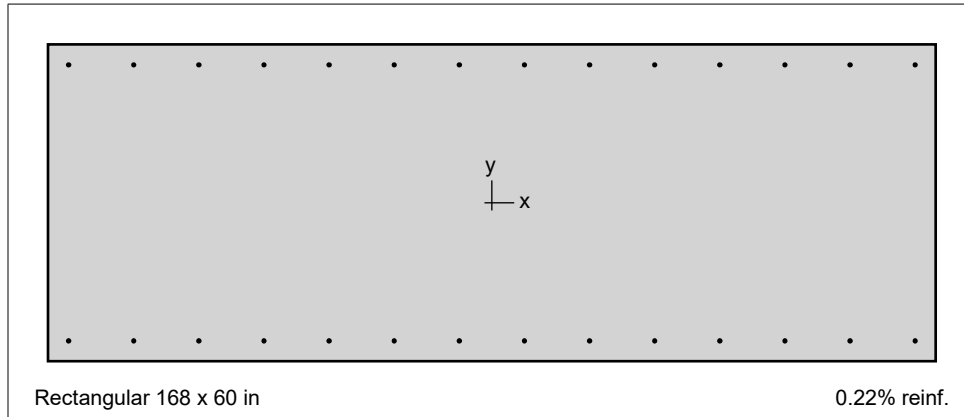


Figure 1: Column section

4. Reinforcement

4.1. Bar Set: ASTM A615

Bar	Diameter in	Area in ²	Bar	Diameter in	Area in ²	Bar	Diameter in	Area in ²
#3	0.38	0.11	#4	0.50	0.20	#5	0.63	0.31
#6	0.75	0.44	#7	0.88	0.60	#8	1.00	0.79
#9	1.13	1.00	#10	1.27	1.27	#11	1.41	1.56
#14	1.69	2.25	#18	2.26	4.00			

4.2. Confinement and Factors

Confinement type	Tied
For #10 bars or less	#3 ties
For larger bars	#4 ties
Capacity Reduction Factors	
Axial compression, (a)	0.8
Tension controlled ϕ , (b)	0.9
Compression controlled ϕ , (c)	0.65

4.3. Arrangement

Pattern	Sides different
Bar layout	Rectangular
Cover to	Transverse bars
Clear cover	---
Bars	---
Total steel area, A_s	22.12 in ²
Rho	0.22 %
Minimum clear spacing	11.32 in

(Note: Rho < 0.50%)

4.4. Bars Provided

		Bars	Cover in
Top	14	#8	3
Bottom	14	#8	3
Left	0	#3	3
Right	0	#3	3

5. Factored Loads and Moments with Corresponding Capacities

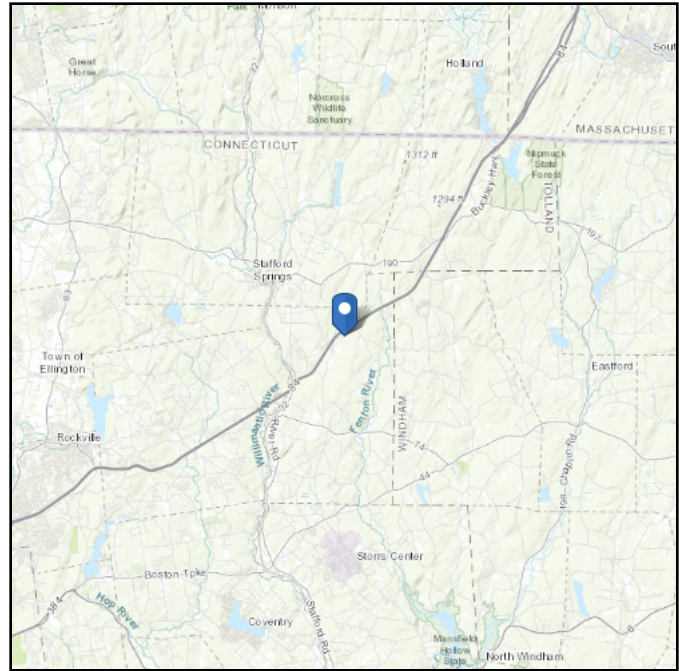
No	P_u kip	M_{ux} k-ft	ϕM_{nx} k-ft	$\phi M_n/M_u$	NA Depth in	d_t Depth in	ϵ_t	ϕ
1			2904.63		2.88	56.13	0.05556	0.900 #

ASCE 7 Hazards Report

Address:
No Address at This
Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 641.46 ft (NAVD 88)
Latitude: 41.924353
Longitude: -72.252547



Wind

Results:

Wind Speed:	118 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	98 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: Fri Oct 01 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).

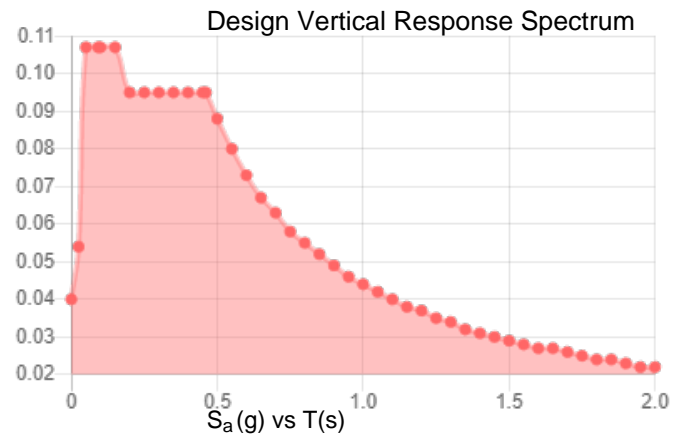
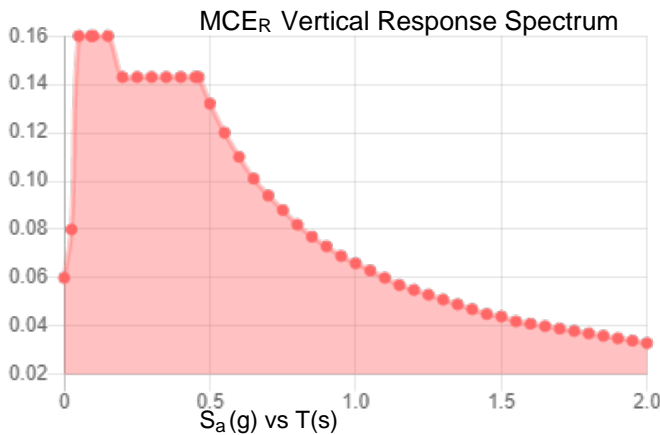
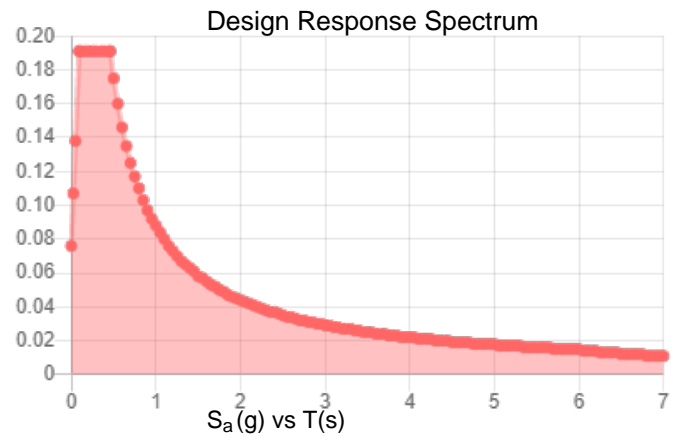
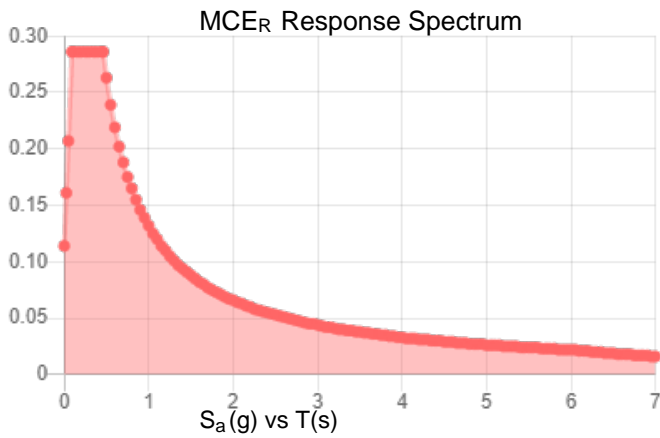
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.179	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.095
F_v :	2.4	PGA _M :	0.152
S_{MS} :	0.286	F_{PGA} :	1.6
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.191	C_v :	0.7

Seismic Design Category B



Data Accessed:

Fri Oct 01 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: Fri Oct 01 2021

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

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

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

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

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.

Exhibit E

Mount Analysis

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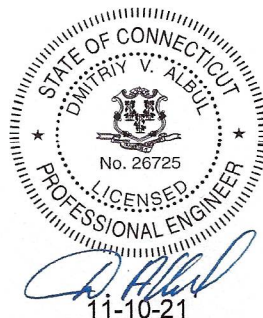
1033 WATERLIET SHAKER RD, ALBANY, NY 12205

Mount Analysis Report

November 10, 2021

Dish Wireless Site Number	BOBDL00108A
Job Number	2039-Z5555C
Client	Crown Castle
Carrier	Dish Wireless
Site Location	47 Turnpike Road, Willington, CT 06279 41.9256 N NAD 83 72.2524 W NAD 83
Mount Centerline EL.	149 ft
Mount Classification	Platform
Structural Usage Ratio	64%
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

AZ CA CO FL GA MD NC NH NJ NY TX WA

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 platform 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 19.0.1 analysis software.

Supporting Documentation

Platform Drawings	SitePro1 Assembly Drawings No. SNP8HR-396
Construction Drawings	Infinigy Engineering PLLC, Job No. 2039-Z5555C, dated June 08, 2021
RF Design Sheet	Dish Wireless, dated February 19, 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
Adopted IBC	2018 Connecticut State Building Code (2015 IBC)
Structure Class	II
Exposure Category	B
Topographic Method	Method 2
Topographic Category	1
Spectral Response	S _s =0.174, S ₁ =0.063
Site Class	D – Stiff Soil (Assumed)
HMSL	680.42 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
149.0	149.0	-	4	3	JMA MX08FRO665-20 V0F	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	64%	Pass
Cross Arms	53%	Pass
Arms	38%	Pass
Mount Pipes	50%	Pass
Angle	32%	Pass
Handrails	21%	Pass
Frame Rails	17%	Pass
Rating	64%	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.

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Date:	11/10/2021
Site Name:	BOBBL00108A
Project Engineer:	DVA
Project No.:	2039-Z5595G
Customer:	Crown Castle
Carrier:	Dish Wireless

Building Code:	2015	
ASCE Standard:	ASCE 7-10	
TIA Standard:	G	
Mount Type:	Platform Proposed	
Mount Centerline:	149	ft
Superstructure Height:	180	ft
Structure Type:	Tower	

Factors	
Gh:	1.000
K _{gmin} :	0.700
K _z :	1.107
K _a :	0.950
K _d :	1.000
K _e :	
K _f :	
K _g :	
K _h :	
K _i :	
K _j :	
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K _{zc} :	

q _z :	25.25	psf
Surface Wind Pressure:	0.00	psf

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

Run Seismic?	
Site Soil:	D (Default)
Short-Period Accel. (S _s):	0.1740
1-Second Accel. (S ₁):	0.0630
Short-Period Design (SDS):	0.1850
1-Second Design (SD ₁):	0.1020
Short-Period Coeff. (F _a):	1.0000
1-Second Coeff. (F _v):	2.4000
C _s	0.0325
C _{s min}	0.0300
Amplification Factor (a _p):	1.00
Response Mod. (R _p):	2.50
Overstrength (O _o):	1.00

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

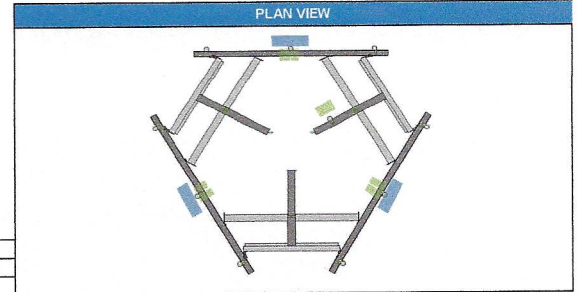
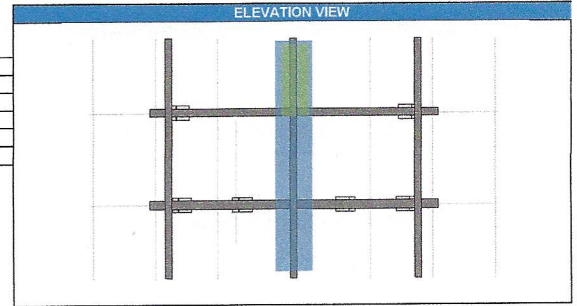


Table 1. Equipment Specifications and Wind Pressure

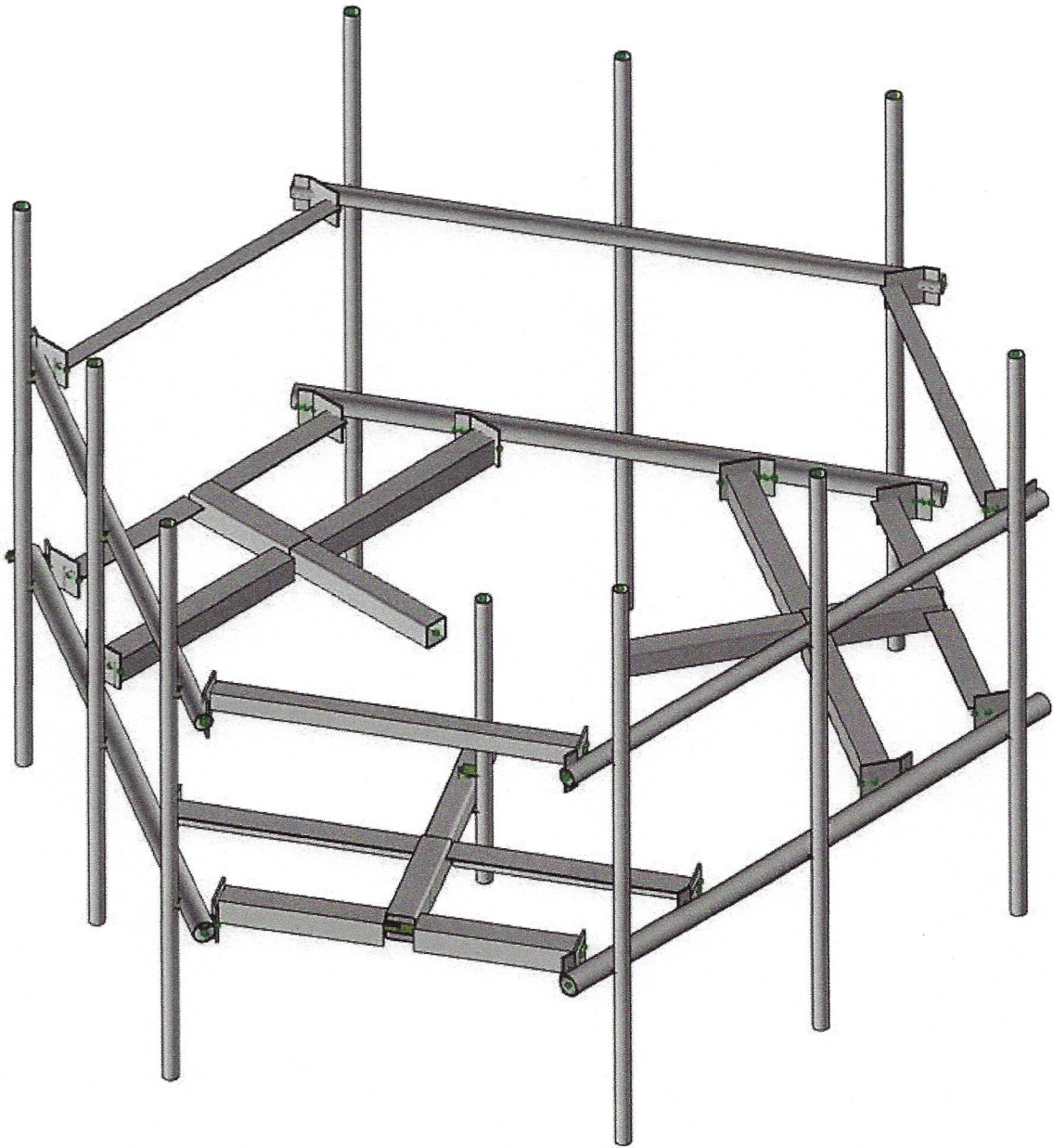
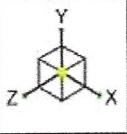
Manufacturer	Model	Elevation	Pipe Label	Weight (lb)	Height (in)	Width (in)	Depth (in)	EPA ₁₀	EPA ₁₅	EPA ₂₀	EPA ₂₅	q _z	q _{s, ice}	q _{s, brv}
JMA WIRELESS	MX08FRO685-20_V0F	149	4, 118, 107	54.00	72	20	8	12.49	5.87	16.10	9.15	25.25	6.73	2.42
Fujitsu	TA08025-B605	149	4, 118, 107	74.95	15.75	14.96	9.06	1.86	1.16	3.15	2.24	25.25	6.73	2.42
Fujitsu	TA08025-B604	149	4, 118, 107	63.93	15.75	14.96	7.87	1.86	1.01	3.15	2.06	25.25	6.73	2.42
RAYCAP	RDIDC-9181-PF-48	149	104	21.85	16	14	8	1.77	1.05	3.04	2.11	25.25	6.73	2.42

Table 2. Equipment Wind and Seismic Loads

Manufacturer	Model	Wind Load (F _w) lb	Wind Load Ice Case (F _{w, ice}) lb	Wind Load Service Case (F _{w, s}) lb	Seismic Load				
JMA WIRELESS	MX08FRO685-20_V0F	284	133	98	55	416	27	13	5.0
Fujitsu	TA08025-B605	42	26	19	14	76	4	3	6.9
Fujitsu	TA08025-B604	42	23	19	12	73	4	2	5.9
RAYCAP	RDIDC-9181-PF-48	40	24	18	13	71	4	2	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	16.83	4.49	2.09	38%	18%	38%	64%
Arm 2	HSS4.5X4.5X3	18.94	5.05	2.21	7%	15%	15%	
Cross Arm	L4X4X4	16.83	4.49	2.09	53%	12%	53%	
Frame Rail	PIPE 3.0	8.84	2.36	1.97	11%	17%	17%	
Handrail	PIPE 2.5	7.26	1.94	1.82	16%	21%	21%	
Mount Pipe	PIPE 2.0	6.00	1.60	1.70	50%	22%	50%	
Plate	6"x0.375" Plate	25.25	6.73	2.58	57%	64%	64%	
Angle	L3X3X3	12.63	3.37	1.85	32%	3%	32%	

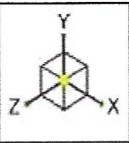


Envelope Only Solution

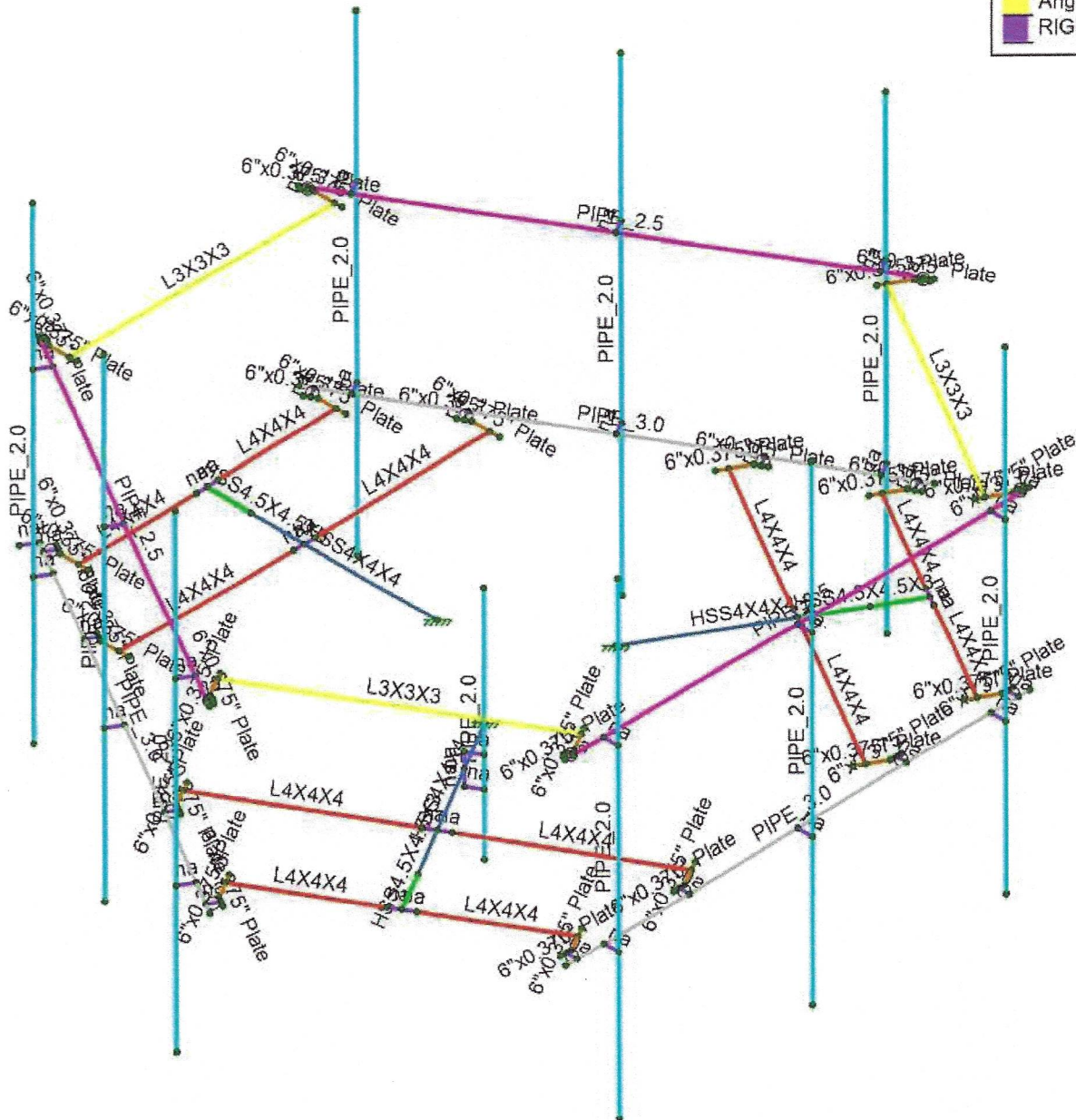
Infinigy Engineering, PLLC
DVA
2039-Z5555C

BOBDL00108A
Proposed Configuration Model

SK-1
Nov 10, 2021
BOBDL00108A.R3D

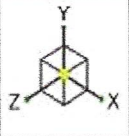


Section Sets	
Blue	Arm
Green	Arm 2
Red	Cross Arm
Grey	Frame Rail
Pink	Handrail
Cyan	Mount Pipe
Brown	Plate
Yellow	Angle
Purple	RIGID

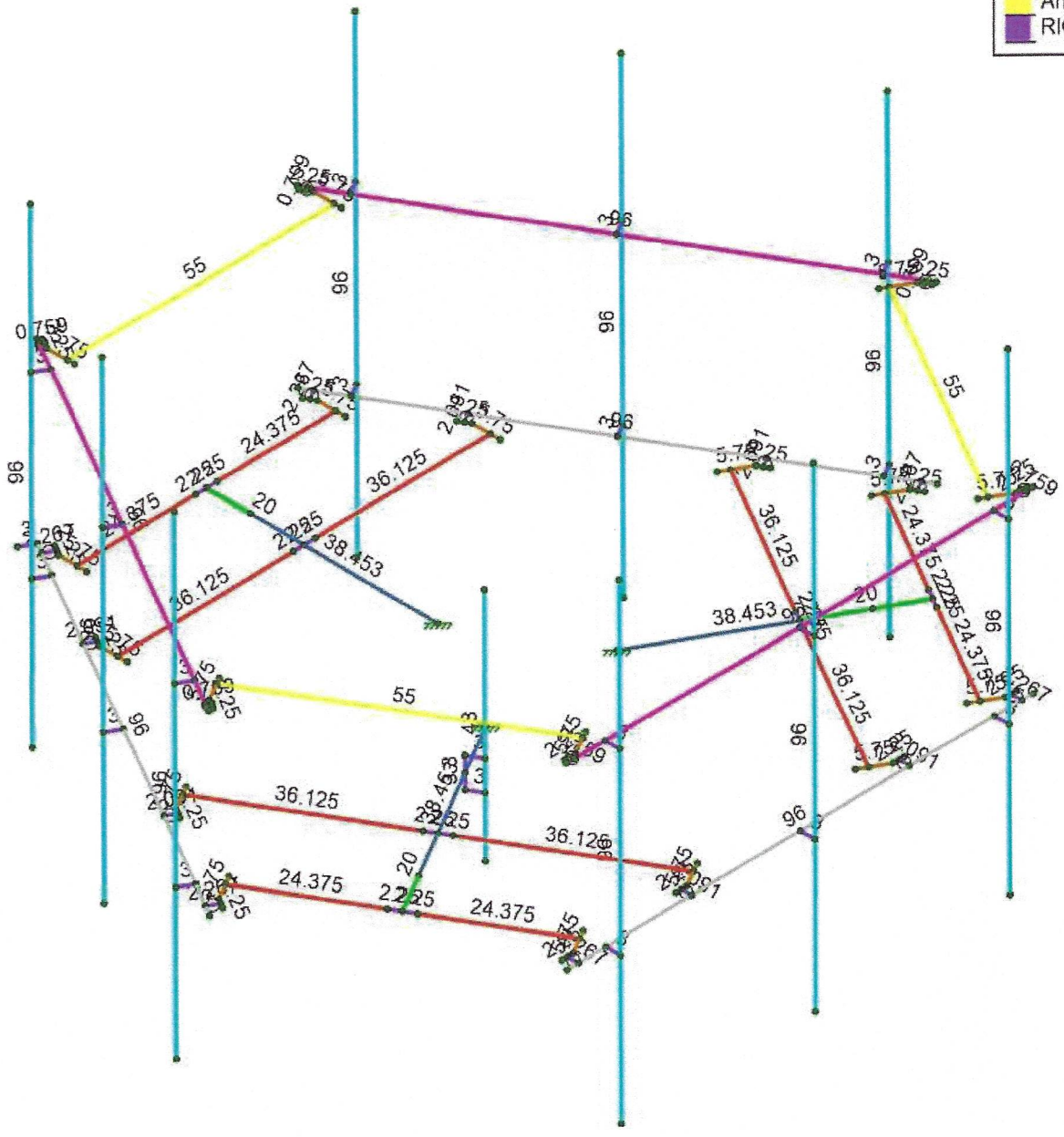


Envelope Only Solution

Infinigy Engineering, PLLC	BOBDL00108A	SK-2
DVA	Member Shapes	Nov 10, 2021
2039-Z5555C		BOBDL00108A.R3D



Section Sets	
Blue	Arm
Green	Arm 2
Red	Cross Arm
Grey	Frame Rail
Pink	Handrail
Cyan	Mount Pipe
Brown	Plate
Yellow	Angle
Purple	RIGID

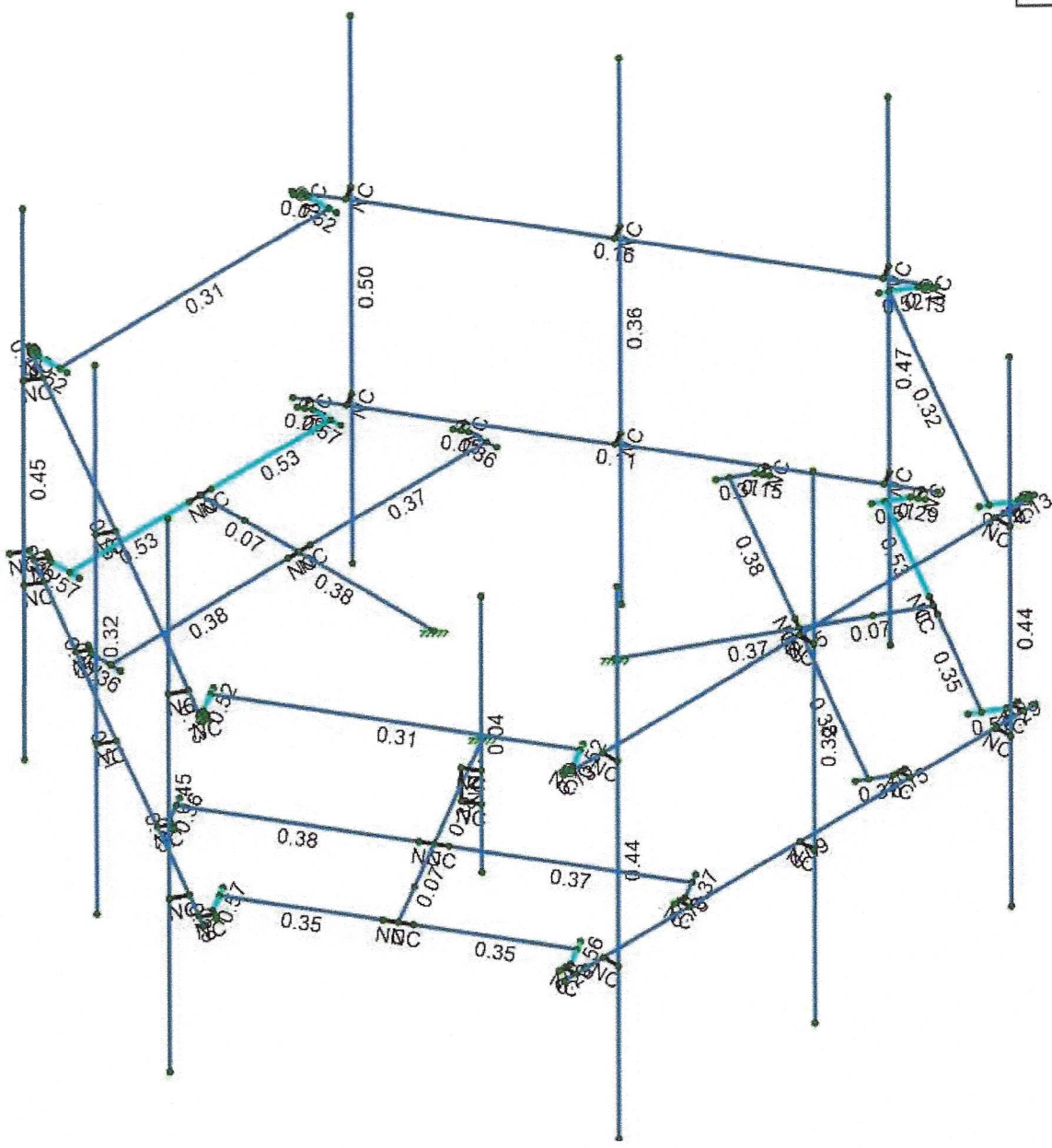
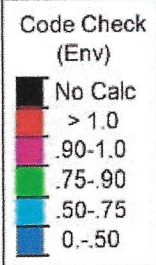


Member Length (in) Displayed
Envelope Only Solution

Infinigy Engineering, PLLC
DVA
2039-Z5555C

BOBDL00108A
Member Lengths

SK-3
Nov 10, 2021
BOBDL00108A.R3D

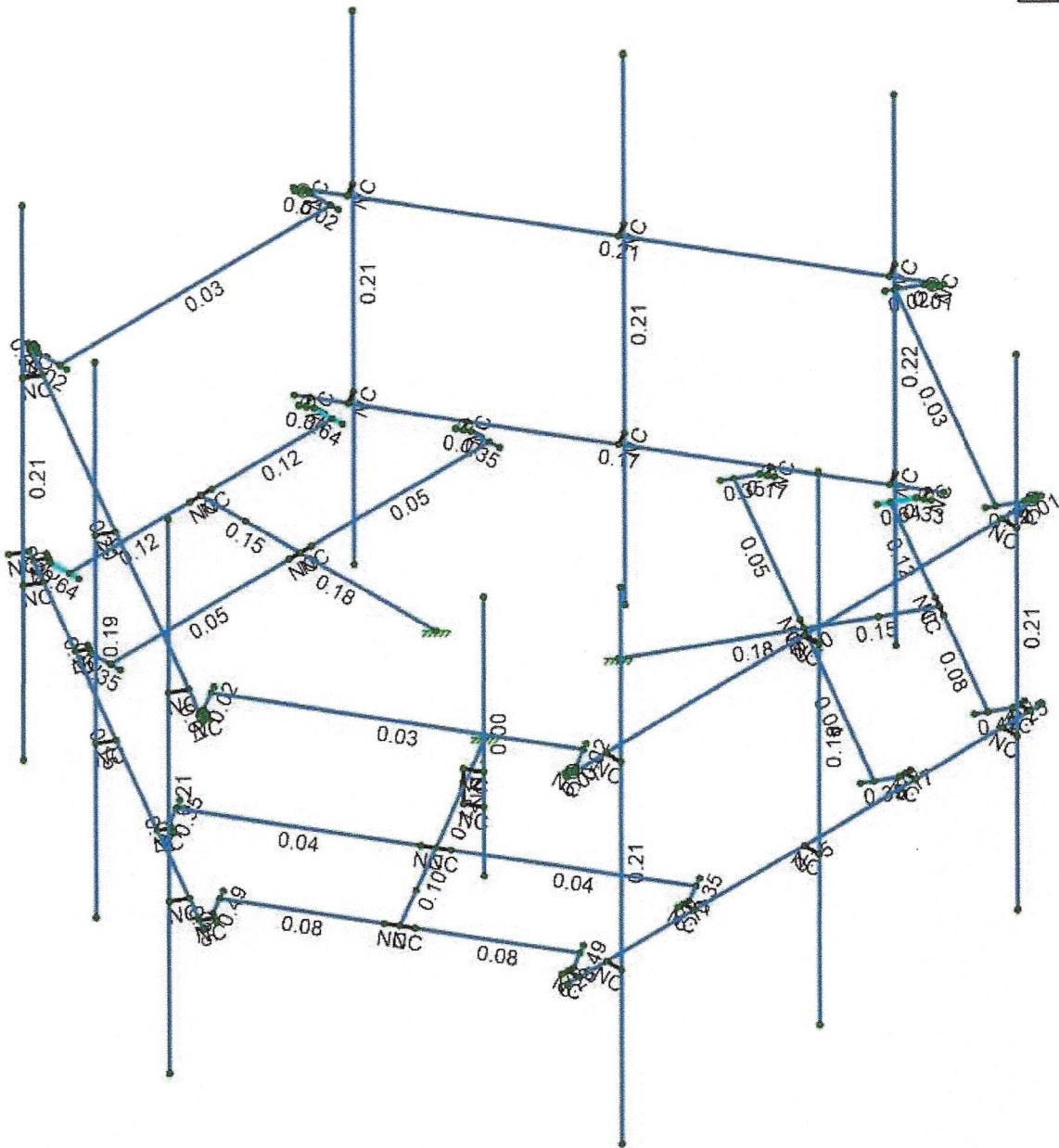
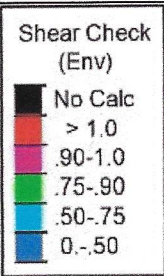
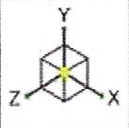


Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Infinigy Engineering, PLLC
DVA
2039-Z5555C

BOBDL00108A
Member Bending Check

SK-5
Nov 10, 2021
BOBDL00108A.R3D



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Infinigy Engineering, PLLC
DVA
2039-Z5555C

BOBDL00108A
Member Shear Check

SK-6
Nov 10, 2021
BOBDL00108A.R3D



Company : Infinigy Engineering, PLLC
Designer : DVA
Job Number : 2039-Z5555C
Model Name : BOBDL00108A

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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
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Plate Axis

Plate Local Axis Orientation	Nodal
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Codes

Hot Rolled Steel	AISC 15th (360-16): LRFD
Stiffness Adjustment	Yes (Iterative)
Notional Annex	None
Connections	AISC 15th (360-16): 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	AAADM1-15: 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
List forces which were ignored for design in the Detail Report	Yes

Rebar

Column Min Steel	1
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Model Settings (Continued)

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 7-16
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_i (g)	1
SD_i (g)	1
SD_s (g)	1
T_L (sec)	5

Structure Characteristics

T Z (sec)	
T X (sec)	
C_x	0.02
$C_{i,Exp. Z}$	0.75
$C_{i,Exp. X}$	0.75
R Z	3
R X	3
$\Omega_o Z$	1
$\Omega_o X$	1
$C_o Z$	4
$C_o X$	4
ρZ	1
ρX	1



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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	N70	N69		Arm 2	Beam	Tube	A500 Gr.B Rect	Typical
43	M43	N74	N91	90	Cross Arm	Beam	Single Angle	A36 Gr.36	Typical
44	M44	N89	N72	90	Cross Arm	Beam	Single Angle	A36 Gr.36	Typical
45	M45	N71	N90	90	Cross Arm	Beam	Single Angle	A36 Gr.36	Typical
46	M46	N92	N73	90	Cross Arm	Beam	Single Angle	A36 Gr.36	Typical
47	M47	N76	N78		Plate	Beam	BAR	A36 Gr.36	Typical
48	M48	N75	N77		Plate	Beam	BAR	A36 Gr.36	Typical
49	M49	N79	N80		Plate	Beam	BAR	A36 Gr.36	Typical
50	M50	N81	N82		Plate	Beam	BAR	A36 Gr.36	Typical
51	M51	N86	N83	90	Angle	HBrace	Single Angle	A36 Gr.36	Typical
52	M52	N84	N85		Plate	Beam	BAR	A36 Gr.36	Typical
53	M53	N87	N88		Plate	Beam	BAR	A36 Gr.36	Typical
54	M54	N70	N91		RIGID	None	None	RIGID	Typical
55	M55	N70	N89		RIGID	None	None	RIGID	Typical
56	M56	N69	N90		RIGID	None	None	RIGID	Typical
57	M57	N92	N69		RIGID	None	None	RIGID	Typical
58	M58	N77	N93		Plate	Beam	BAR	A36 Gr.36	Typical



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Member Primary Data (Continued)

Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule	
59	M59	N80	N94	Plate	Beam	BAR	A36 Gr.36	Typical	
60	M60	N95	N97	RIGID	None	None	RIGID	Typical	
61	M61	N96	N98	RIGID	None	None	RIGID	Typical	
62	M62	N85	N99	Plate	Beam	BAR	A36 Gr.36	Typical	
63	M63	N100	N101	RIGID	None	None	RIGID	Typical	
64	M64	N78	N102	Plate	Beam	BAR	A36 Gr.36	Typical	
65	M65	N82	N103	Plate	Beam	BAR	A36 Gr.36	Typical	
66	M66	N104	N106	RIGID	None	None	RIGID	Typical	
67	M67	N105	N107	RIGID	None	None	RIGID	Typical	
68	M68	N88	N108	Plate	Beam	BAR	A36 Gr.36	Typical	
69	M69	N109	N110	RIGID	None	None	RIGID	Typical	
70	M70	N111	N112	Arm	Beam	Tube	A500 Gr.B Rect	Typical	
71	M71	N114	N113	Arm 2	Beam	Tube	A500 Gr.B Rect	Typical	
72	M72	N118	N135	90	Cross Arm	Beam	Single Angle	A36 Gr.36	Typical
73	M73	N133	N116	90	Cross Arm	Beam	Single Angle	A36 Gr.36	Typical
74	M74	N115	N134	90	Cross Arm	Beam	Single Angle	A36 Gr.36	Typical
75	M75	N136	N117	90	Cross Arm	Beam	Single Angle	A36 Gr.36	Typical
76	M76	N120	N122	Plate	Beam	BAR	A36 Gr.36	Typical	
77	M77	N119	N121	Plate	Beam	BAR	A36 Gr.36	Typical	
78	M78	N123	N124	Plate	Beam	BAR	A36 Gr.36	Typical	
79	M79	N125	N126	Plate	Beam	BAR	A36 Gr.36	Typical	
80	M80	N130	N127	90	Angle	HBrace	Single Angle	A36 Gr.36	Typical
81	M81	N128	N129	Plate	Beam	BAR	A36 Gr.36	Typical	
82	M82	N131	N132	Plate	Beam	BAR	A36 Gr.36	Typical	
83	M83	N114	N135	RIGID	None	None	RIGID	Typical	
84	M84	N114	N133	RIGID	None	None	RIGID	Typical	
85	M85	N113	N134	RIGID	None	None	RIGID	Typical	
86	M86	N136	N113	RIGID	None	None	RIGID	Typical	
87	M87	N121	N137	Plate	Beam	BAR	A36 Gr.36	Typical	
88	M88	N124	N138	Plate	Beam	BAR	A36 Gr.36	Typical	
89	M89	N139	N141	RIGID	None	None	RIGID	Typical	
90	M90	N140	N142	RIGID	None	None	RIGID	Typical	
91	M91	N129	N143	Plate	Beam	BAR	A36 Gr.36	Typical	
92	M92	N144	N145	RIGID	None	None	RIGID	Typical	
93	M93	N122	N146	Plate	Beam	BAR	A36 Gr.36	Typical	
94	M94	N126	N147	Plate	Beam	BAR	A36 Gr.36	Typical	
95	M95	N148	N150	RIGID	None	None	RIGID	Typical	
96	M96	N149	N151	RIGID	None	None	RIGID	Typical	
97	M97	N132	N152	Plate	Beam	BAR	A36 Gr.36	Typical	
98	M98	N153	N154	RIGID	None	None	RIGID	Typical	
99	M99	N156	N155	RIGID	None	None	RIGID	Typical	
100	M100	N157	N158	RIGID	None	None	RIGID	Typical	
101	M101	N159	N157	RIGID	None	None	RIGID	Typical	
102	M102	N158	N160	RIGID	None	None	RIGID	Typical	
103	M103	N159	N161	RIGID	None	None	RIGID	Typical	
104	M104	N162	N163	Mount Pipe	Column	Pipe	A53 Gr.B	Typical	
105	M105	N164	N165	Frame Rail	Beam	Pipe	A53 Gr.B	Typical	
106	M106	N166	N167	Handrail	HBrace	Pipe	A53 Gr.B	Typical	
107	M107	N169	N170	Mount Pipe	Column	Pipe	A53 Gr.B	Typical	
108	M108	N172	N168	RIGID	None	None	RIGID	Typical	
109	M109	N173	N171	RIGID	None	None	RIGID	Typical	
110	M110	N175	N176	Mount Pipe	Column	Pipe	A53 Gr.B	Typical	
111	M111	N178	N174	RIGID	None	None	RIGID	Typical	
112	M112	N179	N177	RIGID	None	None	RIGID	Typical	
113	M113	N181	N182	Mount Pipe	Column	Pipe	A53 Gr.B	Typical	
114	M114	N184	N180	RIGID	None	None	RIGID	Typical	
115	M115	N185	N183	RIGID	None	None	RIGID	Typical	
116	M116	N156	N186	Frame Rail	Beam	Pipe	A53 Gr.B	Typical	



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Member Primary Data (Continued)

Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
117	M117	N187	N188	Handrail	HBrace	Pipe	A53 Gr.B	Typical
118	M118	N190	N191	Mount Pipe	Column	Pipe	A53 Gr.B	Typical
119	M119	N193	N189	RIGID	None	None	RIGID	Typical
120	M120	N194	N192	RIGID	None	None	RIGID	Typical
121	M121	N196	N197	Mount Pipe	Column	Pipe	A53 Gr.B	Typical
122	M122	N199	N195	RIGID	None	None	RIGID	Typical
123	M123	N200	N198	RIGID	None	None	RIGID	Typical
124	M124	N202	N203	Mount Pipe	Column	Pipe	A53 Gr.B	Typical
125	M125	N205	N201	RIGID	None	None	RIGID	Typical
126	M126	N206	N204	RIGID	None	None	RIGID	Typical

Material Take-Off

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General Members				
2	RIGID		53	126.7	0
3	Total General		53	126.7	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	L3X3X3	3	165	50.999
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	1078.032

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	260	
3	Wind Load AZI 30	None				40	260	
4	Wind Load AZI 60	None				40	260	
5	Wind Load AZI 90	WLZ				40	260	
6	Wind Load AZI 120	None				40	260	
7	Wind Load AZI 150	None				40	260	
8	Wind Load AZI 180	None				40	260	
9	Wind Load AZI 210	None				40	260	
10	Wind Load AZI 240	None				40	260	
11	Wind Load AZI 270	None				40	260	
12	Wind Load AZI 300	None				40	260	
13	Wind Load AZI 330	None				40	260	
14	Ice Weight	OL1				20	126	3
15	Ice Wind Load AZI 0	OL2				40	260	
16	Ice Wind Load AZI 30	None				40	260	
17	Ice Wind Load AZI 60	None				40	260	
18	Ice Wind Load AZI 90	OL3				40	260	
19	Ice Wind Load AZI 120	None				40	260	
20	Ice Wind Load AZI 150	None				40	260	
21	Ice Wind Load AZI 180	None				40	260	
22	Ice Wind Load AZI 210	None				40	260	
23	Ice Wind Load AZI 240	None				40	260	
24	Ice Wind Load AZI 270	None				40	260	
25	Ice Wind Load AZI 300	None				40	260	
26	Ice Wind Load AZI 330	None				40	260	



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Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Point	Distributed	Area(Member)
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		
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



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Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
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
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



Company : Infinigy Engineering, PLLC
 Designer : DVA
 Job Number : 2039-Z5555C
 Model Name : BOBDL00108A

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Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
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
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



Company : Infinigy Engineering, PLLC
 Designer : DVA
 Job Number : 2039-Z5555C
 Model Name : BOBDL00108A

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Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
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
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



Company : Infinigy Engineering, PLLC
 Designer : DVA
 Job Number : 2039-Z5555C
 Model Name : BOBDL00108A

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Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
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
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



Company : Infinigy Engineering, PLLC
 Designer : DVA
 Job Number : 2039-Z5555C
 Model Name : BOBDL00108A

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Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
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	1198.282	25	1703.748	27	1190.725	6	22652.447	108	25024.383	6	19025.401	20
2		min	-1347.969	8	-160.085	20	-1191.621	10	-22657.866	90	-25242.229	12	-64620.309	2
3	N67	max	1514.478	2	1824.067	35	1373.356	5	16560.067	16	32045.095	13	34863.019	145
4		min	-1423.864	20	-125.834	16	-1241.687	24	-56715.17	10	-26177.087	6	-9426.751	16
5	N111	max	1441.41	2	1704.205	31	1163.403	16	65677.731	127	25483.81	10	34490.93	209
6		min	-1350.753	20	-175.753	24	-1355.798	12	-17300.202	24	-25253.181	4	-9994.296	24
7	Totals:	max	4098.466	14	4795.836	35	3591.718	17						
8		min	-4098.466	20	1682.365	52	-3766.671	24						

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

Member	Shape	Code Check	Loc[in]	LC	Shear	Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-in]	phi*Mn z-z [lb-in]	Cb	Eqn
1	M12	6"x0.375" Plate	0.571	2.036	2	0.644	2.036	y	110	62706.402	72900	6836.4	109350	2.522	H1-1b
2	M79	6"x0.375" Plate	0.572	2.036	6	0.641	2.036	y	127	62706.402	72900	6836.4	109350	2.521	H1-1b
3	M13	6"x0.375" Plate	0.571	2.036	2	0.641	2.036	y	87	62706.402	72900	6836.4	109350	2.521	H1-1b
4	M78	6"x0.375" Plate	0.565	2.036	6	0.494	2.036	y	6	62706.402	72900	6836.4	109350	2.52	H1-1b
5	M50	6"x0.375" Plate	0.565	2.036	10	0.494	2.036	y	10	62706.402	72900	6836.4	109350	2.52	H1-1b
6	M49	6"x0.375" Plate	0.572	2.036	10	0.493	2.036	y	10	62706.402	72900	6836.4	109350	2.521	H1-1b
7	M77	6"x0.375" Plate	0.368	2.036	10	0.351	2.036	y	37	62706.402	72900	6836.4	109350	2.197	H1-1b
8	M48	6"x0.375" Plate	0.365	2.036	2	0.35	2.036	y	29	62706.402	72900	6836.4	109350	2.195	H1-1b
9	M76	6"x0.375" Plate	0.366	2.036	13	0.35	2.036	y	37	62706.402	72900	6836.4	109350	2.244	H1-1b
10	M11	6"x0.375" Plate	0.362	2.036	6	0.349	2.036	y	33	62706.402	72900	6836.4	109350	2.195	H1-1b
11	M10	6"x0.375" Plate	0.363	2.036	10	0.349	2.036	y	33	62706.402	72900	6836.4	109350	2.195	H1-1b
12	M47	6"x0.375" Plate	0.368	2.036	6	0.349	2.036	y	29	62706.402	72900	6836.4	109350	2.196	H1-1b
13	M24	6"x0.375" Plate	0.288	0	2	0.336	0	y	110	71237.906	72900	6836.4	109350	1.353	H1-1b
14	M94	6"x0.375" Plate	0.289	0	6	0.334	0	y	127	71237.906	72900	6836.4	109350	1.353	H1-1b
15	M30	6"x0.375" Plate	0.288	0	2	0.334	0	y	87	71237.906	72900	6836.4	109350	1.353	H1-1b
16	M88	6"x0.375" Plate	0.285	0	6	0.253	0	y	6	71237.906	72900	6836.4	109350	1.353	H1-1b



Company : Infinigy Engineering, PLLC
 Designer : DVA
 Job Number : 2039-Z5555C
 Model Name : BOBDL00108A

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

Member	Shape	Code	Check	Loc[in]	LC	Shear	Check	Loc[in]	Dir	LC	phi*	Pnc [lb]	phi*	Pnt [lb]	phi*	Mn y-y [lb-in]	phi*	Mn z-z [lb-in]	Cb	Eqn
17	M65	6"x0.375" Plate	0.285	0	10	0.253	0	y	10	71237.906	72900	6836.4	109350	1.353	H1-1b					
18	M59	6"x0.375" Plate	0.289	0	10	0.253	0	y	10	71237.906	72900	6836.4	109350	1.353	H1-1b					
19	M113	PIPE 2.0	0.467	30	25	0.216	30	13	14916.096	32130	22459.5	22459.5	3	H1-1b						
20	M110	PIPE 2.0	0.502	30	13	0.215	30	13	14916.096	32130	22459.5	22459.5	2.693	H1-1b						
21	M106	PIPE 2.5	0.155	88	13	0.213	88	13	30038.461	50715	43155	43155	1.709	H1-1b						
22	M107	PIPE 2.0	0.358	30	13	0.212	38	13	14916.096	32130	22459.5	22459.5	3	H1-1b						
23	M124	PIPE 2.0	0.451	30	3	0.208	30	8	14916.096	32130	22459.5	22459.5	2.401	H1-1b						
24	M121	PIPE 2.0	0.451	30	9	0.208	30	4	14916.096	32130	22459.5	22459.5	3	H1-1b						
25	M38	PIPE 2.0	0.441	30	10	0.208	30	4	14916.096	32130	22459.5	22459.5	3	H1-1b						
26	M35	PIPE 2.0	0.441	30	6	0.208	30	12	14916.096	32130	22459.5	22459.5	3	H1-1b						
27	M117	PIPE 2.5	0.146	8	2	0.204	8	2	30038.461	50715	43155	43155	1.724	H1-1b						
28	M3	PIPE 2.5	0.146	88	6	0.203	88	6	30038.461	50715	43155	43155	1.724	H1-1b						
29	M118	PIPE 2.0	0.318	30	8	0.191	38	9	14916.096	32130	22459.5	22459.5	3	H1-1b						
30	M4	PIPE 2.0	0.324	30	12	0.185	38	5	14916.096	32130	22459.5	22459.5	2.158	H1-1b						
31	M1	HSS4X4X4	0.38	0	13	0.18	0	y	109	133649.326	139518	194166	194166	1.664	H1-1b					
32	M70	HSS4X4X4	0.366	0	4	0.18	0	y	129	133649.326	139518	194166	194166	1.708	H1-1b					
33	M105	PIPE 3.0	0.112	48	122	0.168	88	13	60482.561	65205	68985	68985	1	H1-1b						
34	M87	6"x0.375" Plate	0.148	0	12	0.166	0	y	37	71237.906	72900	6836.4	109350	1.351	H1-1b					
35	M58	6"x0.375" Plate	0.147	0	4	0.166	0	y	29	71237.906	72900	6836.4	109350	1.351	H1-1b					
36	M93	6"x0.375" Plate	0.154	0	13	0.166	0	y	37	71237.906	72900	6836.4	109350	1.35	H1-1b					
37	M23	6"x0.375" Plate	0.147	0	8	0.165	0	y	33	71237.906	72900	6836.4	109350	1.351	H1-1b					
38	M29	6"x0.375" Plate	0.148	0	8	0.165	0	y	33	71237.906	72900	6836.4	109350	1.351	H1-1b					
39	M64	6"x0.375" Plate	0.148	0	4	0.165	0	y	29	71237.906	72900	6836.4	109350	1.351	H1-1b					
40	M5	HSS4.5X4.5X3	0.066	20	2	0.153	8.958	y	109	120246.398	121302	194994	194994	1.495	H1-1b					
41	M71	HSS4.5X4.5X3	0.066	20	6	0.153	8.958	y	129	120246.398	121302	194994	194994	1.495	H1-1b					
42	M116	PIPE 3.0	0.111	48	75	0.153	8	3	60482.561	65205	68985	68985	1	H1-1b						
43	M2	PIPE 3.0	0.095	48	31	0.15	8	10	60482.561	65205	68985	68985	1	H1-1b						
44	M41	HSS4X4X4	0.377	0	12	0.122	12.017	z	13	133649.326	139518	194166	194166	1.721	H1-1b					
45	M7	L4X4X4	0.532	0	110	0.117	0	z	109	49342.393	62532	37651.159	80578.632	1.5	H2-1					
46	M72	L4X4X4	0.53	24.375	129	0.117	24.375	z	129	49342.393	62532	37651.159	80578.632	1.5	H2-1					
47	M6	L4X4X4	0.53	24.375	89	0.117	24.375	z	89	49342.393	62532	37651.159	80578.632	1.5	H2-1					
48	M42	HSS4.5X4.5X3	0.066	20	10	0.096	8.958	y	146	120246.398	121302	194994	194994	1.495	H1-1b					
49	M43	L4X4X4	0.353	24.375	12	0.084	24.375	z	12	49342.393	62532	37651.159	80578.632	1.471	H2-1					
50	M73	L4X4X4	0.347	0	4	0.083	24.375	z	10	49342.393	62532	37651.159	80578.632	1.47	H2-1					
51	M44	L4X4X4	0.348	0	8	0.083	24.375	z	2	49342.393	62532	37651.159	80578.632	1.469	H2-1					
52	M8	L4X4X4	0.375	36.125	31	0.054	36.125	z	109	47915.922	62532	37651.159	80578.632	1.5	H2-1					
53	M75	L4X4X4	0.375	0	27	0.054	0	z	129	47915.922	62532	37651.159	80578.632	1.5	H2-1					
54	M9	L4X4X4	0.375	0	35	0.054	0	z	89	47915.922	62532	37651.159	80578.632	1.5	H2-1					
55	M46	L4X4X4	0.374	0	31	0.036	0	z	146	47915.922	62532	37651.159	80578.632	1.5	H2-1					
56	M45	L4X4X4	0.376	36.125	38	0.036	36.125	z	225	47915.922	62532	37651.159	80578.632	1.5	H2-1					
57	M74	L4X4X4	0.376	36.125	35	0.035	36.125	z	209	47915.922	62532	37651.159	80578.632	1.5	H2-1					
58	M80	L3X3X3	0.316	27.5	12	0.034	55	z	130	22210.997	35316	15841.16	28376.401	1.016	H2-1					
59	M14	L3X3X3	0.311	27.5	8	0.034	0	z	108	22210.997	35316	15841.16	28378.499	1.016	H2-1					
60	M51	L3X3X3	0.311	27.5	4	0.03	1.719	y	13	22210.997	35316	15841.16	28378.517	1.016	H2-1					
61	M15	6"x0.375" Plate	0.525	1.557	2	0.021	5.75	z	13	62706.402	72900	6836.4	109350	2.199	H1-1b					
62	M16	6"x0.375" Plate	0.525	1.557	2	0.021	5.75	z	2	62706.402	72900	6836.4	109350	2.2	H1-1b					
63	M82	6"x0.375" Plate	0.524	1.557	6	0.021	5.75	z	6	62706.402	72900	6836.4	109350	2.195	H1-1b					
64	M52	6"x0.375" Plate	0.524	1.557	10	0.021	5.75	z	10	62706.402	72900	6836.4	109350	2.198	H1-1b					
65	M53	6"x0.375" Plate	0.524	1.557	10	0.021	5.75	z	10	62706.402	72900	6836.4	109350	2.2	H1-1b					
66	M81	6"x0.375" Plate	0.524	1.557	6	0.021	5.75	z	6	62706.402	72900	6836.4	109350	2.203	H1-1b					
67	M27	6"x0.375" Plate	0.132	0	2	0.014	0	z	2	71237.906	72900	6836.4	109350	1.35	H1-1b					
68	M33	6"x0.375" Plate	0.132	0	2	0.014	0	z	2	71237.906	72900	6836.4	109350	1.35	H1-1b					
69	M62	6"x0.375" Plate	0.132	0	10	0.014	0	z	10	71237.906	72900	6836.4	109350	1.35	H1-1b					
70	M91	6"x0.375" Plate	0.132	0	6	0.014	0	z	6	71237.906	72900	6836.4	109350	1.35	H1-1b					
71	M68	6"x0.375" Plate	0.132	0	10	0.014	0	z	10	71237.906	72900	6836.4	109350	1.35	H1-1b					
72	M97	6"x0.375" Plate	0.132	0	6	0.014	0	z	6	71237.906	72900	6836.4	109350	1.35	H1-1b					
73	M104	PIPE 2.0	0.038	18	7	0.004	38	19	26521.424	32130	22459.5	22459.5	1.981	H1-1b						

INFINIGY

FROM ZERO TO INFINIGY
the solutions are endless

BOLT CONNECTION CALCULATION

BOLT PROPERTIES

Date:	11/10/2021
Site:	BOBDL00108A
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

INFINIGY8

FROM ZERO TO INFINIGY
the solutions are endless

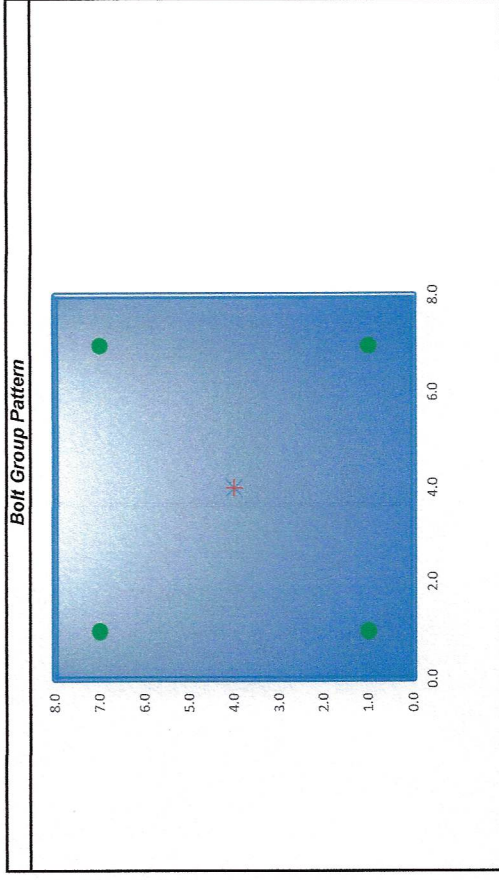
BOLT CONNECTION CALCULATION

BOLT GROUP CHECK

Date: 11/10/2021
 Contractor: Albul Engineering, LLC
 Site: BOBDL00108A
 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, P _x (lbs)	-626.000
Shear Load, P _y (lbs)	1401.000
Axial Load, P _z (lbs)	0
Moment, M _x (lb-in)	59336.000
Moment, M _y (lb-in)	-12301.000
Moment, M _z (lb-in)	6232.000

Member Properties	
Start Coordinates:	X
Dimensions:	Y
	8.0
	8.0



No.	Bolt Type	Bolt Coordinates		Bolt Loads			Steel Bolt Usage			Adhesive Bolt Usage			Max. Capacity
		Xo (in)	Yo (in)	Axial (lbs)	Shear (lbs)	Tension	Shear	Tension	Shear	Tension	Shear	Combined	
1	Main Type	1.00	1.00	-5685.25	738.37	0.0%	5.9%	N/A	N/A	N/A	N/A	N/A	5.9%
2	Main Type	7.00	1.00	-3635.08	425.91	0.0%	3.4%	N/A	N/A	N/A	N/A	N/A	3.4%
3	Main Type	1.00	7.00	4204.08	618.58	20.7%	5.0%	N/A	N/A	N/A	N/A	N/A	20.7%
4	Main Type	7.00	7.00	6254.25	137.29	30.7%	1.1%	N/A	N/A	N/A	N/A	N/A	30.7%

Loads at Center of Gravity of Bolt Group:

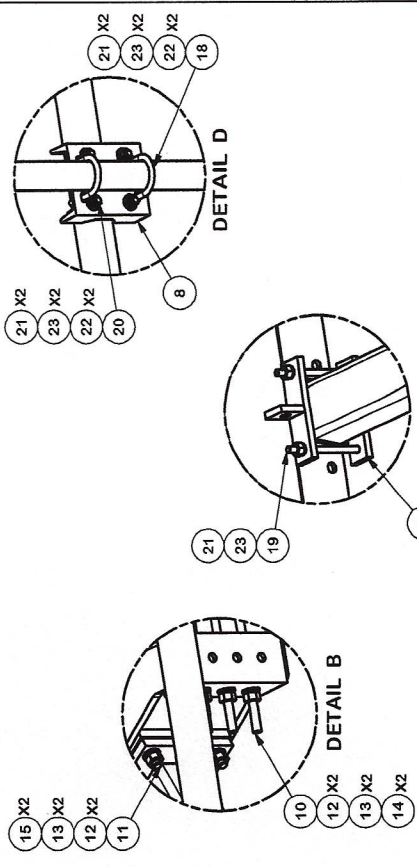
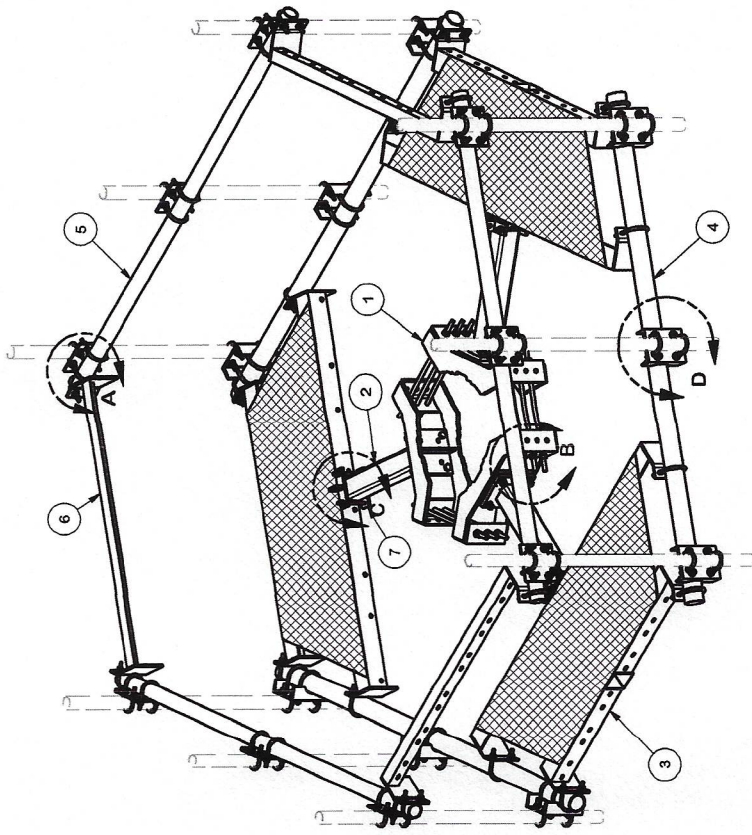
P _z =	1138.00	lbs
P _x =	-626.00	lbs
P _y =	1401.00	lbs
M _x =	59336.00	lb-in
M _y =	-12301.00	lb-in
M _z =	6232.00	lb-in

Bolt Group Properties:

X _c =	4.00	in.
Y _c =	4.00	in.
I _{c,y} =	11.04	in. ²
I _{c,x} =	11.04	in. ²
I _{c,xy} =	22.09	in. ²

Total Capacity of Bolt Group: 30.7%

U-bolt Connection No



2-3/8" O.D. VERTICAL MOUNTING PIPES					
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 (± 0.0007)
 DRILLED AND GAS CUT HOLES (± 0.0007) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES (± 0.0107) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING (± 0.0007)
 ALL OTHER ASSEMBLY (± 0.0007)

PROPRIETARY NOTE:
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 VALMONT PIPE AND TECHNOLOGIES IS STRICTLY PROHIBITED.

DESCRIPTION
 8' SNUB NOSE
 PLATFORM WITH
 HANDRAIL

DRAWN BY
 CEK 11/19/2014

ENG. APPROVAL
 CHECKED BY
 BMC 11/21/2014

CLASS/ SUBJ
 81 02 CUSTOMER

Locations:
 New York, NY
 Englewood
 Simpson Tool
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX

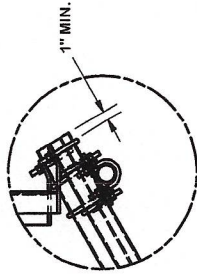
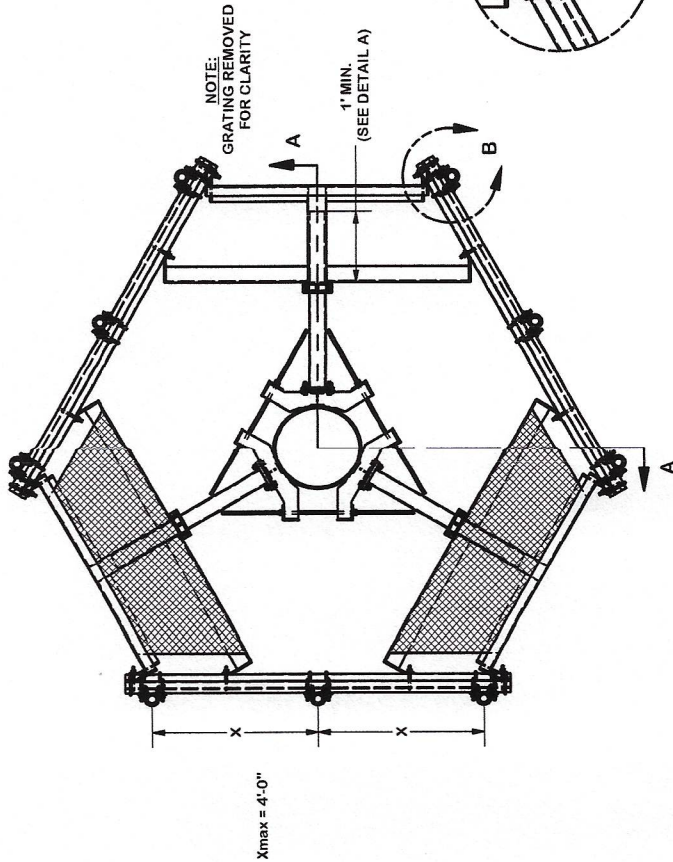
SITE PRO
 A valmont COMPANY

PART NO.
 SEE ASSEMBLY NO.
 SNP8HR-3XX

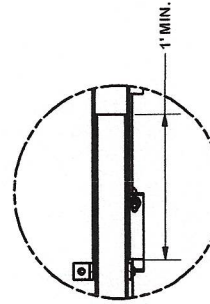
DWG. NO.
 11/21/2014

PAGE
 1 OF 2

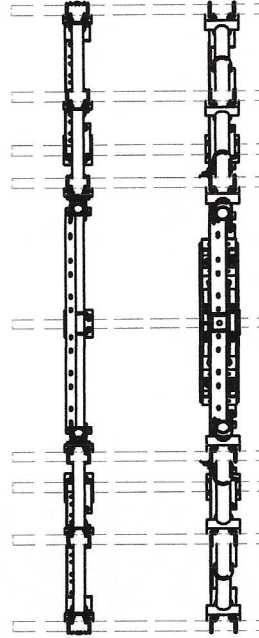
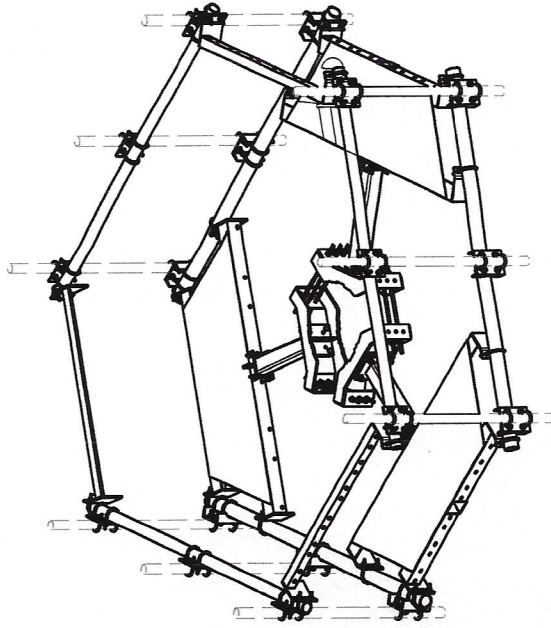
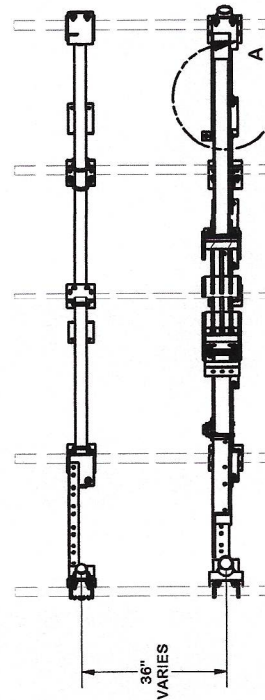
PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-LWRM	RING MOUNT WELDMENT		68.81	206.42
2	3	X-SNP-ST8	SNB8 TELESCOPING ARM FOR GRATING		60.39	181.16
3	3	X-SNPC	CORNER GRATING WELDMENT		194.33	582.99
4	3	P396	3" SCH. 40 PIPE (3.5" O.D. x 0.216" WALL) A500	96.000 in	60.75	182.25
5	3	P3096	2-7/8" OD X 96" Sch 40 Galvanized Pipe		46.45	139.36
6	3	X-SNP-HRA	CORNER BRACKET FOR SNPX PLATFORMS		25.95	77.86
7	3	X-SNPP-IG	CLAMP PLATE	7.250 in	2.03	6.10
8	9	X-SP219	SMALL SUPPORT CROSS PLATE	8.250 in	8.61	77.50
9	9	SCX2	CROSSOVER PLATE	7.000 in	4.80	43.17
10	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)		0.55	4.94
10	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)		0.55	4.94
11	12	A58Z34	5/8" x 2-3/4" HDG A325 HEX BOLT	2.75	0.36	4.27
12	30	A58FW	5/8" HDG A325 FLATWASHER		0.03	1.02
13	30	G58LW	5/8" HDG LOCKWASHER		0.03	0.78
14	18	A58NUT	5/8" HDG A325 HEX NUT		0.13	2.34
15	12	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	1.56
16	12	X-UB1358	1/2" X 3-5/8" X 5-1/2" X 3" U-BOLT (HDG.)		0.73	8.78
17	24	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.73	17.56
18	36	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.73	26.34
19	6	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	7-1/2	0.41	2.46
20	18	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.73	13.17
21	186	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	13.32
22	180	G12FEW	1/2" HDG USS FLATWASHER		0.03	6.13
23	186	G12LW	1/2" HDG LOCKWASHER		0.01	2.59
24	9	A	2" SCH. 40 PIPE (2.375" O.D. x 0.154" WALL) A500	B	C	D



DETAIL B



DETAIL A



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 ASSEMBLY ($\pm 0.030''$)

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DESCRIPTION	8' SNUB NOSE PLATFORM WITH HANDRAIL		ENG. APPROVAL	
CPD NO.	DRAWN BY	CEK 11/19/2014	CHECKED BY	BMC 11/21/2014
CLASS	SUB	DRAWING USAGE	CUSTOMER	
81	02			

SITE PRO
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Locations:
 New York, NY
 Los Angeles, CA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX

Engineering
 Support Team:
 1-888-753-7446

PAGE
2 OF 2

PART NO. SEE ASSEMBLY NO.
 DWG. NO. SNP8HR-3XX

Exhibit F

Power Density/RF Emissions Report



Fox Hill Telecom

Radio Frequency Emissions Analysis Report



Site ID: BOBDL00108A

Wilmington CDT
47 Turnpike Road
Wilmington, CT 06279

January 6, 2022

Fox Hill Telecom Project Number: 210853

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	19.20 %



January 6, 2022

Dish Wireless
5701 South Santa Fe Drive
Littleton, CO 80120

Emissions Analysis for Site: **BOBDL00108A – Willington CDT**

Fox Hill Telecom, Inc (“Fox Hill”) was directed to analyze the proposed radio installation for Dish Wireless, LLC (Dish) facility located at **47 Turnpike Road, Willington, CT**, for the purpose of determining whether the emissions from the Proposed Dish radio and 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.

Population 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 & 700 MHz 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) and 2100 MHz (AWS / AWS-4) 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 performed for the proposed radio system installation for **Dish** on the subject site located at **47 Turnpike Road, Willington, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since **Dish** 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 manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

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. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
5G	n71 (600 MHz)	4	61.5
5G	n70 (AWS-4 / 1995-2020)	4	40
5G	n66 (AWS-4 / 2180-2200)	4	40

Table 1: Channel Data Table



The following antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz (n71) frequency band, and the 2100 MHz (AWS 4) frequency bands at 1995-2020 MHz (n70) and 2180-2200 MHz (n66). This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	JMA MX08FRO665-20	149
B	1	JMA MX08FRO665-20	149
C	1	JMA MX08FRO665-20	149

Table 2: Antenna Data

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



RESULTS

Per the calculations completed for the proposed **Dish** configurations *Table 3* shows resulting emissions power levels and percentages of the FCC’s allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	JMA MX08FRO665-20	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	3.97
Sector A Composite MPE%							3.97
Antenna B1	JMA MX08FRO665-20	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	3.97
Sector B Composite MPE%							3.97
Antenna C1	JMA MX08FRO665-20	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	3.97
Sector C Composite MPE%							3.97

Table 3: Dish Emissions Levels



The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum **Dish** MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each **Dish** Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	MPE%
Dish – Max Per Sector Value	3.97 %
AT&T	10.35 %
T-Mobile	4.88 %
Site Total MPE %:	19.20 %

Table 4: All Carrier MPE Contributions

Dish Sector A Total:	3.97 %
Dish Sector B Total:	3.97 %
Dish Sector C Total:	3.97 %
Site Total:	19.20 %

Table 5: Site MPE Summary



FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated **Dish** sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

Dish _ Frequency Band / Technology Max Power Values (Per Sector)	# 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 n71 (600 MHz) 5G	4	858.77	149	6.04	n71 (600 MHz)	400	1.51%
Dish n70 (AWS-4 / 1995-2020) 5G	4	1,648.39	149	11.59	n70 (AWS-4 / 1995-2020)	1000	1.16%
Dish n66 (AWS-4 / 2180-2200) 5G	4	1,849.52	149	13.01	n66 (AWS-4 / 2180-2200)	1000	1.30%
						Total:	3.97%

Table 6: Dish Maximum Sector MPE Power Values



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 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 Sector	Power Density Value (%)
Sector A:	3.97 %
Sector B:	3.97 %
Sector C:	3.97 %
Dish Maximum Total (per sector):	3.97 %
Site Total:	19.20 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **19.20 %** 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.

Scott Heffernan
Principal RF Engineer
Fox Hill Telecom, Inc
Holden, MA 01520
(978)660-3998

Exhibit G

Letter of Authorization

LETTER OF AUTHORIZATION

I, Michael Ashley Culbert, the owner representative for the telecommunications tower located at 47 Turnpike Rd, Willington, Tolland County, Connecticut, as evidenced by the Easement Agreement recorded with the Tolland County Registry of Deeds on April 16, 2019, Document Number 000454910010.

As owner of the above-referenced telecommunications tower, I hereby authorize DISH Wireless L.L.C., through its designated agent, Northeast Site Solutions, to apply for all necessary municipal, state, federal and other permits necessary to accommodate the installation of DISH Wireless L.L.C.'s antennas and ancillary equipment on the subject tower and base station equipment on the ground on our leasehold property.

EIP Communications I, LLC


Michael Ashley Culbert

Michael Ashley Culbert
Vice President of Site Development

Date: December 17, 2021

Exhibit H

Recipient Mailings



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P

usps.com 9405 5036 9930 0136 2902 75 0089 5000 0010 6279
US POSTAGE
 Flat Rate Env
 01/14/2022

U.S. POSTAGE PAID
click-n-ship®

Mailed from 01566

PRIORITY MAIL 2-DAY™

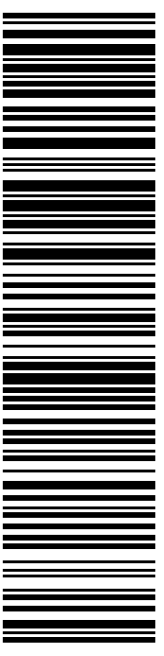
Expected Delivery Date: 01/18/22
 Ref#: DD-001008A
0006

DEBORAH CHASE
 NORTHEAST SITE SOLUTIONS
 420 MAIN ST
 STE 1
 STURBRIDGE MA 01566-1359

R021

SHIP
 TO: ERIKA G WIECENSKI
 FIRST SELECTMAN
 40 OLD FARMS RD
 WILLINGTON CT 06279-1720

USPS TRACKING #



9405 5036 9930 0136 2902 75

Electronic Rate Approved #038555749



Cut on dotted line.

Instructions

1. Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
2. Place your label so it does not wrap around the edge of the package.
3. 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.
4. To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.
5. Mail your package on the "Ship Date" you selected when creating this label.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0136 2902 75

Trans. #: 554055690	Priority Mail® Postage: \$8.95
Print Date: 01/14/2022	Total: \$8.95
Ship Date: 01/14/2022	
Expected Delivery Date: 01/18/2022	

From: DEBORAH CHASE
 NORTHEAST SITE SOLUTIONS
 420 MAIN ST
 STE 1
 STURBRIDGE MA 01566-1359

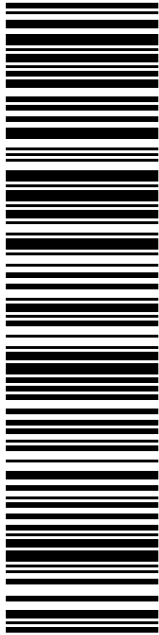
To: ERIKA G WIECENSKI
 FIRST SELECTMAN
 40 OLD FARMS RD
 WILLINGTON CT 06279-1720

Ref#: DD-001008A

* 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.



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USPS TRACKING #

9405 5036 9930 0136 2902 99

Electronic Rate Approved #038555749

SHIP

TO: MICHAEL D'AMATO
ZONING AGENT
40 OLD FARMS RD
WILLINGTON CT 06279-1720

P

PRIORITY MAIL 2-DAY™

DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Expected Delivery Date: 01/18/22
Ref#: DD-00108A
0006

R021

UNITED STATES POSTAL SERVICE®

Click-N-Ship®

U.S. POSTAGE PAID

Flat Rate Env
\$8.95
usps.com 9405 5036 9930 0136 2902 99 0089 5000 0010 6279

Mailed from 01566
01/14/2022



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Click-N-Ship® Label Record

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9405 5036 9930 0136 2902 99

Trans. #: 554055690	Priority Mail® Postage: \$8.95
Print Date: 01/14/2022	Total: \$8.95
Ship Date: 01/14/2022	
Expected Delivery Date: 01/18/2022	

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359


Ref#: DD-00108A

To: MICHAEL D'AMATO
ZONING AGENT
40 OLD FARMS RD
WILLINGTON CT 06279-1720

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**UNITED STATES
POSTAL SERVICE®**

Click-N-Ship®

P

usps.com 9405 5036 9930 0136 2903 05 0089 5000 0010 6238
\$8.95
US POSTAGE
 Flat Rate Env
 U.S. POSTAGE PAID
click-n-ship®

01/14/2022 Mailed from 01566

PRIORITY MAIL 3-DAY™

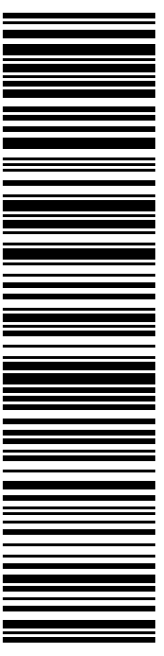
Expected Delivery Date: 01/19/22
 Ref#: DD-00108A
0006

DEBORAH CHASE
 NORTHEAST SITE SOLUTIONS
 420 MAIN ST
 STE 1
 STURBRIDGE MA 01566-1359

R015

SHIP TO:
 KELLY BARBER
 29 CASSIDY HILL RD
 COVENTRY CT 06238-1386

USPS TRACKING #



9405 5036 9930 0136 2903 05

Electronic Rate Approved #038555749



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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0136 2903 05

Trans. #: 554055690	Priority Mail® Postage: \$8.95
Print Date: 01/14/2022	Total: \$8.95
Ship Date: 01/14/2022	
Expected Delivery Date: 01/19/2022	

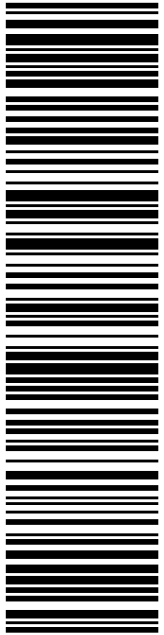
From: DEBORAH CHASE Ref#: DD-00108A
 NORTHEAST SITE SOLUTIONS
 420 MAIN ST
 STE 1
 STURBRIDGE MA 01566-1359

To: KELLY BARBER
 29 CASSIDY HILL RD
 COVENTRY CT 06238-1386

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USPS TRACKING #



9405 5036 9930 0136 2903 12

Electronic Rate Approved #038555749

SHIP TO: EVEREST INFRASTRUCTURE PARTNERS
100 SUMMER ST
STE 1600
BOSTON MA 02110-2104

SHIP TO: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

C076

P

01/14/2022

Mailed from 01566

U.S. POSTAGE PAID
click-n-ship®

USPS.com 9405 5036 9930 0136 2903 12 0089 5000 0010 2110
US POSTAGE
Flat Rate Env
\$8.95

PRIORITY MAIL 1-DAY™

Expected Delivery Date: 01/15/22
Ref#: DD-00108A
0006



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Trans. #: 554055690	Priority Mail® Postage: \$8.95
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Expected Delivery Date: 01/15/2022	

From: DEBORAH CHASE Ref#: DD-00108A
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

To: EVEREST INFRASTRUCTURE PARTNERS
100 SUMMER ST
STE 1600
BOSTON MA 02110-2104

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BOB DL 00108A



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

01/14/2022 03:08 PM

Product	Qty	Unit Price	Price
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Prepaid Mail	1		\$0.00
Wilmington, CT 06279			
Weight: 0 lb 7.80 oz			
Acceptance Date:			
Fri 01/14/2022			
Tracking #:			
9405 5036 9930 0136 2902 99			

Prepaid Mail	1		\$0.00
Wilmington, CT 06279			
Weight: 0 lb 7.80 oz			
Acceptance Date:			
Fri 01/14/2022			
Tracking #:			
9405 5036 9930 0136 2902 75			

Prepaid Mail	1		\$0.00
Coventry, CT 06238			
Weight: 0 lb 7.90 oz			
Acceptance Date:			
Fri 01/14/2022			
Tracking #:			
9405 5036 9930 0136 2903 05			

Prepaid Mail	1		\$0.00
Boston, MA 02110			
Weight: 0 lb 7.90 oz			
Acceptance Date:			
Fri 01/14/2022			