NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
Denise Sabo
4 Angela's Way, Burlington CT 06013
203-435-3640
denise@northeastsitesolutions.com

June 15, 2022

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

RE: Tower Share Application
1439 Voluntown Road, Griswold, CT 06351
Latitude: 41.576388
Longitude: -71.887777
Site #: 876367_Crown_Dish

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 1439 Voluntown Road, Griswold, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 147-foot level of the existing 180-foot monopole tower, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within a 7' x 5' lease area within the existing fenced compound. Included are plans by Hudson Design Group, dated June 9, 2022, Exhibit C. Also included is a structural analysis prepared by Crown Castle, dated December 14, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. The facility was approved by the Town of Griswold Planning & Zoning Commission on November 8, 1999. 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 Dana Bennet, First Selectman, and Mario Tristany Jr., Town Planner for the Town of Griswold, as well as the tower owner (Crown Castle) and property owner (Robert & Mildred Rose).

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 modification will not result in an increase in the height of the existing structure. The top of the existing tower is 180-feet and the Dish Wireless LLC antennas will be located at a centerline height of 147-feet.

2. The proposed modifications will not result in an increase of the site boundary as depicted on the attached site plan.

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3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed local and state criteria. The incremental effect of the proposed changes will be negligent.

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. The combined site operations will result in a total power density of 23.49% as evidenced by Exhibit F.

Connecticut General Statutes 16-50aa 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 submits that the shared use of this facility satisfies these criteria.

A. Technical Feasibility. The existing tower has been deemed structurally capable of supporting Dish Wireless LLC proposed loading. The structural analysis is included as 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 tower in Griswold. 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 147-foot level of the existing 180-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

Sincerely,

Denise Sabo

Denise Sabo
Mobile: 203-435-3640
Fax: 413-521-0558
Office: 4 Angela's Way, Burlington CT 06013
Email: denise@northeastsitesolutions.com

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Attachments

Cc: Dana Bennet, First Selectman
Griswold Town Hall
28 Main Street
Jewett City, CT 06351

Mario Tristany Jr., Town Planner
Griswold Town Hall
28 Main Street
Jewett City, CT 06351

Robert & Mildred Rose - Property Owners
1440 Voluntown Road
Griswold, CT 06351

Crown Castle, Tower Owner

Exhibit A

Original Facility Approval

File: 10226/22676.011 42
cc: Susan Lester, Esq.
CEM.

Town of Griswold

TOWN HALL, 32 SCHOOL STREET
JEWETT CITY, CONNECTICUT 06351

SELECTMEN	376-7061
ASSESSOR	376-7071
TAX COLLECTOR	376-7068
SOCIAL SERVICES	376-7067
PUBLIC HEALTH NURSES	376-7077

RECEIVED
NOV 24 1999

TOWN CLERK	376-7063
BUILDING INSPECTOR	376-7065
PLANNING & ZONING	376-7073
BOOKKEEPING	376-7074
SANITARIAN	376-7065

PLANNING & ZONING COMMISSION

November 22, 1999

CERTIFIED MAIL: Z 307 858 482
RETURN RECEIPT REQUESTED

Sprint Spectrum
9 Barnes Industrial Road
Wallingford, CT 06492

Re: Sprint Spectrum, LP, Special Exception Application SE 3-00
and Zoning Permit Application ZP 6-00
1439 Voluntown Road, Griswold, CT

Gentlemen:

The Griswold Planning & Zoning Commission, at its Regular Meeting held on November 8, 1999, reviewed the above-referenced applications to erect a 190 ft telecommunications tower and support facilities at 1439 Voluntown Road in accordance with Section 11.19 of the Griswold Zoning Regulations.

Following a public hearing and a discussion on the proposed facility, the commission unanimously voted to approve applications SE 3-00 and ZP 6-00 with the following conditions:

1. The proposed equipment cabinets shall be designed to stand alone or shall be placed in a structure that conforms to Section 11.19.3.n. of the Griswold Zoning Regulations. The metal roof structure over the equipment cabinets as proposed is not permitted by the Regulations and, therefore, must be removed from the site plan.

2. A $29,000.00 cash bond shall be made payable to the Treasurer of the Town of Griswold in accordance with Section 11.19.7 of the Griswold Zoning Regulations.

Please be advised that it will be necessary for your engineer to file one set of fixed line mylars, one set of regular mylars, and five sets of paper prints with the above-noted corrections and with original seals and signatures for endorsement by the undersigned.

Should you have any questions regarding the above, please contact Mario J. Tristany, Jr., at (860)376-7084.

Very truly yours,

F. Clyde Seaman
Chairman

cc: Atty. Tom Regan, Brown, Rudnick, Freed & Gesmer, P.C.
Donald Duthaler, P.E., O'Brien & Geer Engineers, Inc.

Exhibit B

Property Card

1439 VOLUNTOWN RD

Location	1439 VOLUNTOWN RD	**Mblu**	61/ 113/ 11/ /
Acct#	R0359300	**Owner**	ROSE ROBERT E & MILDRED
Assessment	$127,120	**Appraisal**	$181,600
PID	4613	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$57,800	$123,800	$181,600

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$40,460	$86,660	$127,120

Owner of Record

Owner	ROSE ROBERT E & MILDRED	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	1440 VOLUNTOWN ROAD GRISWOLD, CT 06351	**Book & Page**	00080/0040
		Sale Date	11/30/1976

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
ROSE ROBERT E & MILDRED	$0		00080/0040	11/30/1976

Building Information

Building 1 : Section 1

Year Built:	1978
Living Area:	2,250
Replacement Cost:	$93,191
Building Percent Good:	62
Replacement Cost Less Depreciation:	$57,800

Building Attributes	
Field	**Description**
STYLE	Warehouse
MODEL	Serv Station
Grade	Below Average
Stories:	1 Story
Occupancy	1.00
Exterior Wall 1	Pre-finsh Metl
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Metal/Tin
Interior Wall 1	Wall Brd/Wood
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Oil
Heating Type	Hot Air-no Duc
AC Type	None
Struct Class	
Bldg Use	WHS/GAR/AUTO M95
Total Rooms	
Total Bedrms	00
Total Baths	1
1st Floor Use:	322I
Heat/AC	NONE
Frame Type	STEEL
Baths/Plumbing	LIGHT
Ceiling/Wall	NONE
Rooms/Prtns	AVERAGE
Wall Height	12.00
% Comn Wall	0.00

Building Photo

(https://images.vgsi.com/photos2/GriswoldCTPhotos///0022/100_0031_227

No data available for the following modules: Building Data, Building Data, Commercial Building.

Developed by Schneider GEOSPATIAL

Last Data Upload: 3/16/2021, 8:47:46 PM

Version 2.3.112

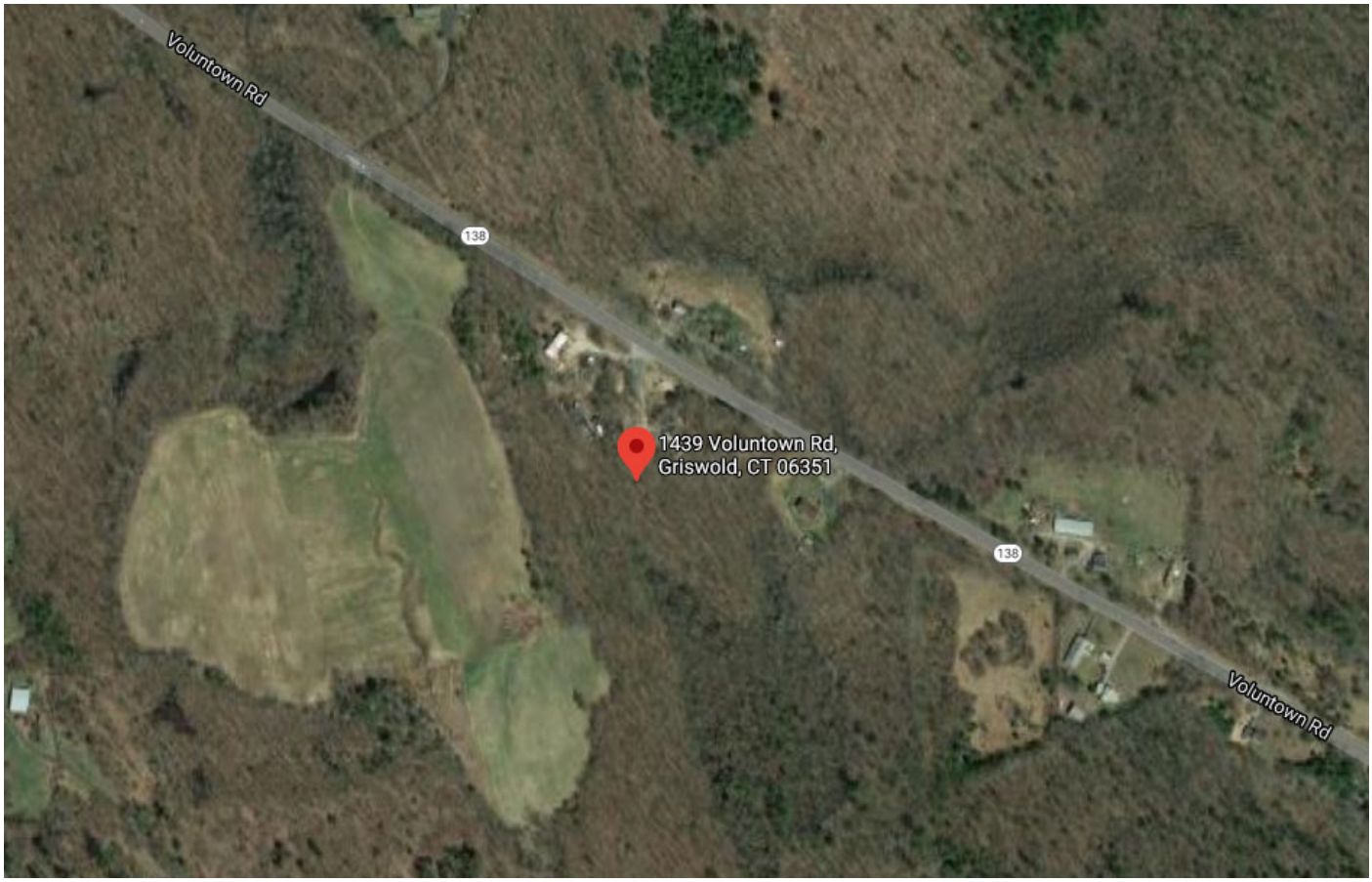


Exhibit C

Construction Drawings

DISH Wireless L.L.C. SITE ID:

BOBOS01002A

DISH Wireless L.L.C. SITE ADDRESS:

1439 VOLUNTOWN RD
N1, JEWETT CITY, 06351

CONNECTICUT CODE OF COMPLIANCE

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

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

SHEET INDEX

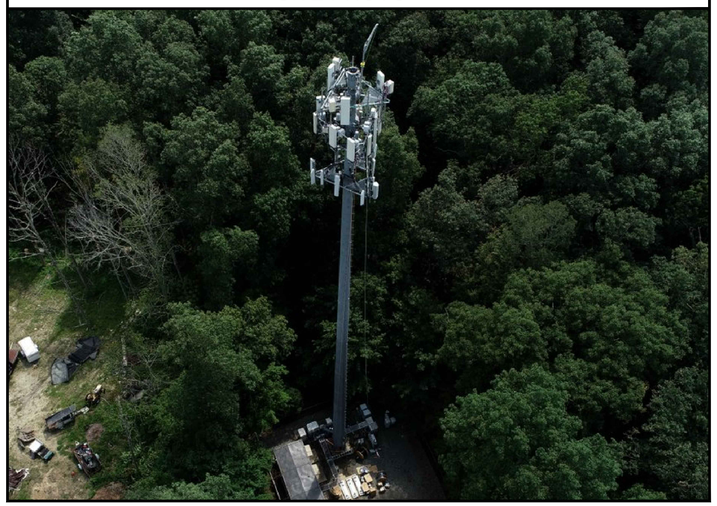
SCOPE OF WORK

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

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

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED METAL PLATFORM
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
- INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)
- INSTALL (1) PROPOSED 200A METER IN EXISTING SOCKET

SITE PHOTO



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

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

811

GENERAL NOTES

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

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

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

SITE INFORMATION

PROPERTY OWNER:	ROBERT E & MILDRED ROSE
PROPERTY OWNER ADDRESS:	1439 VOLUNTOWN RD C/O WAPPINGERS FALLS GRISWOLD, CT 06351
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	876367
TOWER APP NUMBER:	576667
COUNTY:	NEW LONDON
LATITUDE (NAD 83):	41° 34' 34.30" N 41.57619
LONGITUDE (NAD 83):	71° 53' 15.40" W -71.88761
ZONING JURISDICTION:	TOWN OF GRISWOLD-CT
ZONING DISTRICT:	R80
PARCEL NUMBER:	GRIS-000061-000113 -000011
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	TBD

PROJECT DIRECTORY

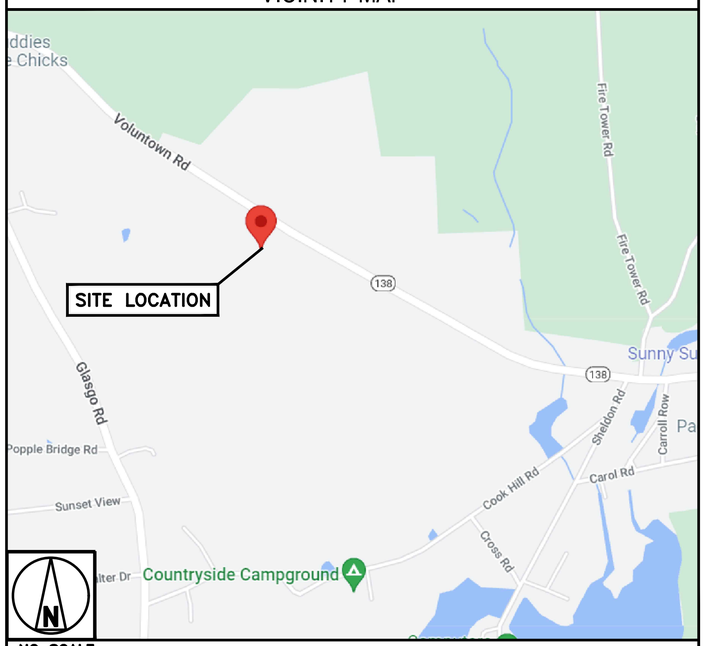
APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317 (877) 486-9377
SITE DESIGNER:	HUDSON DESIGN GROUP, LLC. 45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845 (978) 557-5553
SITE ACQUISITION:	COURTNEY PRESTON COURTNEY.PRESTON.CONTRACTOR @CROWNCASTLE.COM
CONSTRUCTION MANAGER:	JAVIER SOTO JAVIER.SOTO@DISH.COM
RF ENGINEER:	ARVIN SEBASTIAN ARVIN.SEBASTIAN@DISH.COM

DIRECTIONS

DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT:

GET ON BRADLEY INTERNATIONAL AIRPORT CON IN EAST GRANBY FROM BRADLEY INTERNATIONAL AIRPORT. HEAD NORTH TOWARD BRADLEY INTERNATIONAL AIRPORT. SLIGHT LEFT ONTO BRADLEY INTERNATIONAL AIRPORT. CONTINUE STRAIGHT. KEEP RIGHT TO CONTINUE TOWARD BRADLEY INTERNATIONAL AIRPORT CON. TAKE I-91 S, CT-2 E AND I-395 N TO GRISWOLD EXPY IN GRISWOLD. TAKE EXIT 22 FROM I-395 N
CONTINUE ONTO BRADLEY INTERNATIONAL AIRPORT CON. CONTINUE ONTO CT-20 E/BRADLEY INTERNATIONAL AIRPORT CON. TAKE THE EXIT ONTO I-91 S TOWARD HARTFORD.TAKE EXIT 30 ON THE LEFT TO MERGE ONTO I-84 E. TAKE EXIT 55 FOR CT-2 E TOWARD NORWICH/NEW LONDON/I-84 E.
CONTINUE ONTO CT-2 E. KEEP LEFT AT THE FORK TO STAY ON CT-2 E, FOLLOW SIGNS FOR 2 E. TAKE EXIT 28N TO MERGE ONTO I-395 N TOWARD PROVIDENCE. TAKE EXIT 22 FOR CT-164 TOWARD CT-138/PRESTON CITY/PACHAUG. DRIVE TO CT-138 E. CONTINUE STRAIGHT ONTO GRISWOLD EXPY. TURN RIGHT ONTO CT-138 E.
1439 VOLUNTOWN RD. GRISWOLD, CT 06351.

VICINITY MAP



NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

HDG HUDSON Design Group LLC

45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845

TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJ	SMA	DPH

RFDS REV #: 2

PRELIMINARY DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	01/21/2022	ISSUED FOR REVIEW
B	04/05/2022	ISSUED FOR REVIEW
C	06/09/2022	ISSUED FOR REVIEW

A&E PROJECT NUMBER

BOBOS01002A

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS01002A
CROWN CASTLE BU#876367
1439 VOLUNTOWN RD
N1, JEWETT CITY, 06351

SHEET TITLE

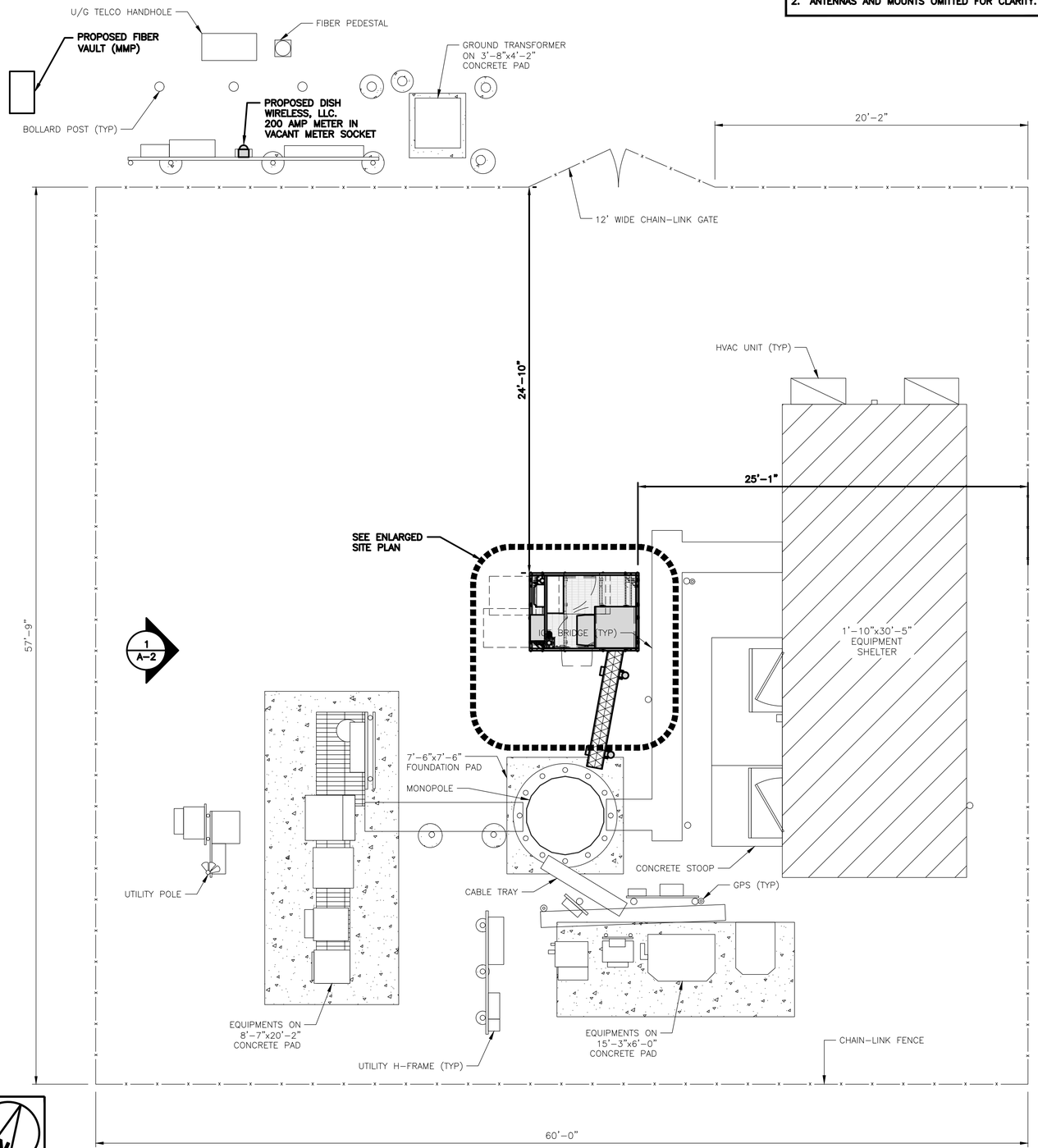
TITLE SHEET

SHEET NUMBER

T-1

NOTES

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



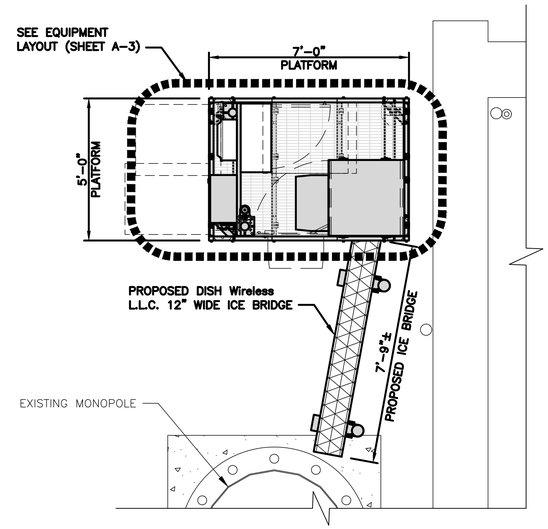
OVERALL SITE PLAN

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

1

NOTES

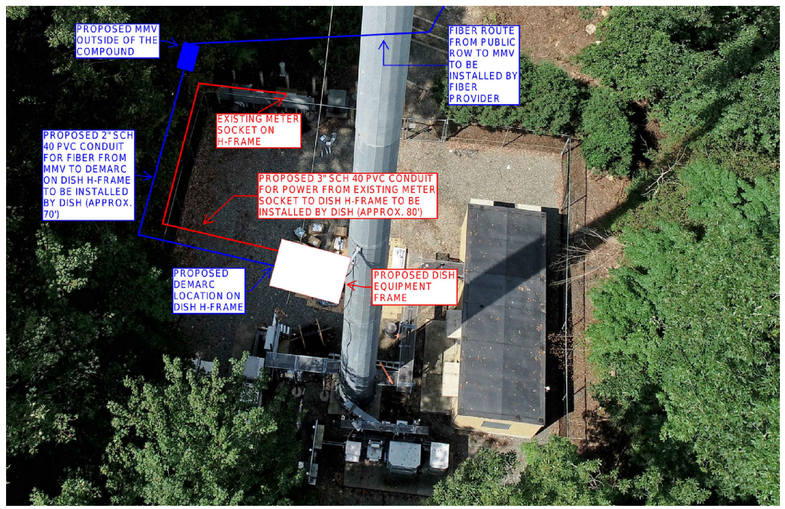
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



ENLARGED SITE PLAN

12" 6" 0 1' 2' 3' 4' 5' 6' 7'
3/8"=1'-0"

2



OVERALL UTILITY ROUTE PLAN

NO SCALE

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

HDG HUDSON Design Group LLC

45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845

TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

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BOBOS01002A

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS01002A
CROWN CASTLE BU#876367
1439 VOLUNTOWN RD
N1, JEWETT CITY, 06351

SHEET TITLE

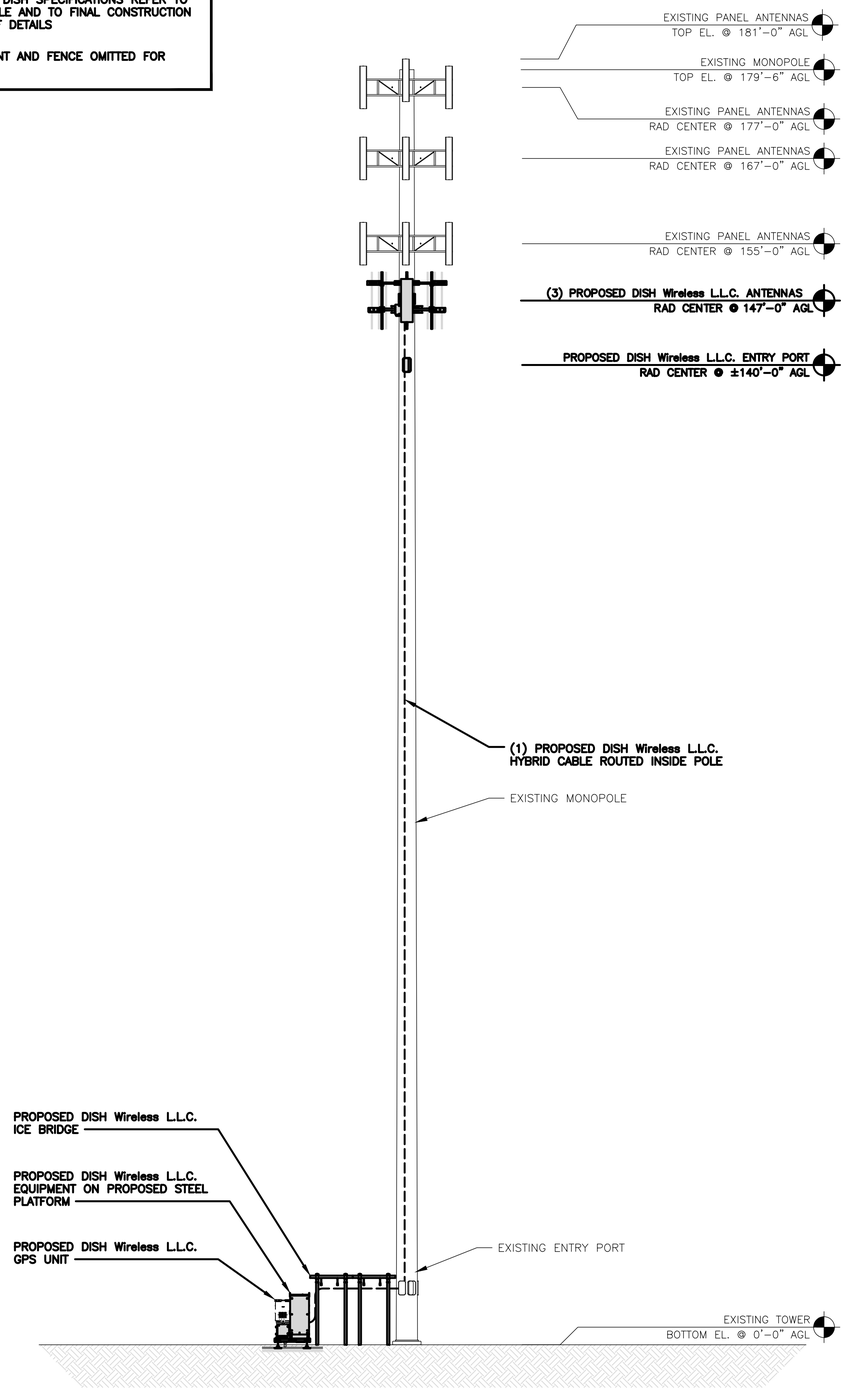
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

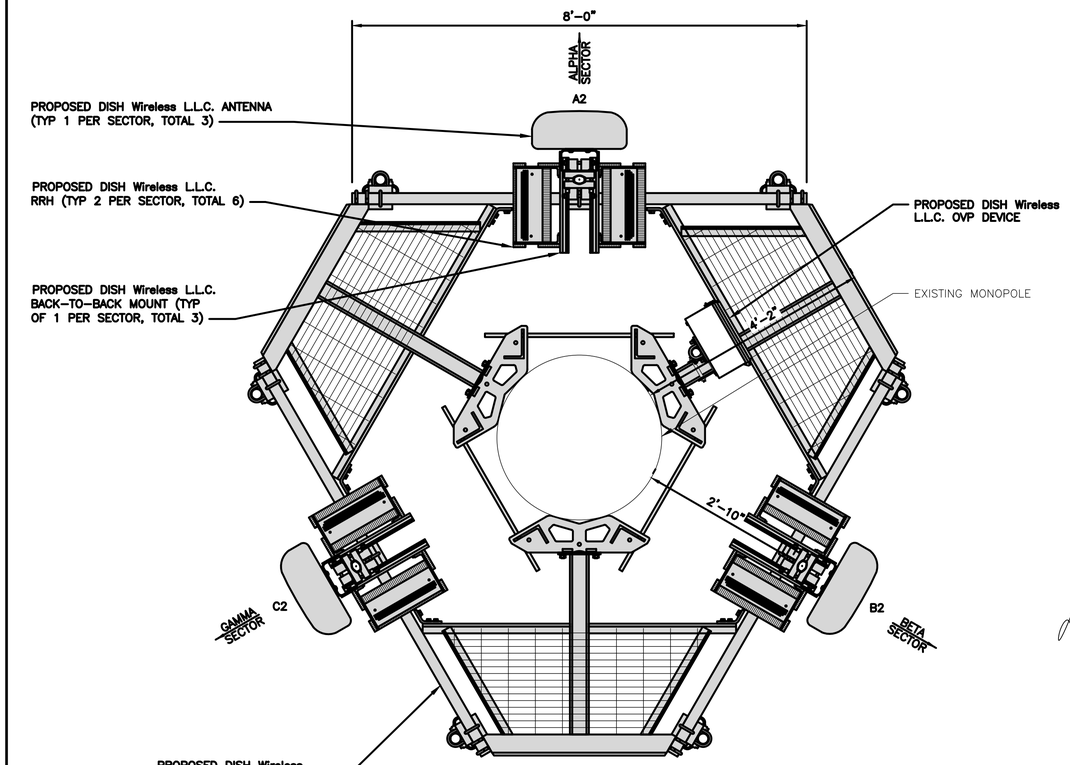
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED ELEVATION

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

1



ANTENNA LAYOUT

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

2

SECTOR POS.	ANTENNA					TRANSMISSION CABLE	RRH			OVP
	EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECH	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH	MANUFACTURER – MODEL NUMBER	TECH	POS.	MANUFACTURER MODEL
A1	--	--	--	--	--	(1) HIGH-CAPACITY HYBRID CABLE (180' LONG)	FUJITSU / TA08025-B604	5G	A2	RAYCAP / RDIDC-9181 -PF-48
A2	PROPOSED	JMA WIRELESS/MX08FRO665-21	5G	0°	147'-0"		FUJITSU / TA08025-B605	5G	A2	
A3	--	--	--	--	--		--	--	--	
B1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU / TA08025-B604	5G	B2	SHARED W/ALPHA
B2	PROPOSED	JMA WIRELESS/MX08FRO665-21	5G	120°	147'-0"		FUJITSU / TA08025-B605	5G	B2	
B3	--	--	--	--	--		--	--	--	
C1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU / TA08025-B604	5G	C2	SHARED W/ALPHA
C2	PROPOSED	JMA WIRELESS/MX08FRO665-21	5G	240°	147'-0"		FUJITSU / TA08025-B605	5G	C2	
C3	--	--	--	--	--		--	--	--	

NOTES

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

ANTENNA SCHEDULE

NO SCALE

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

HDG HUDSON Design Group LLC

45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845

TEL: (978) 557-5553
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STATE OF CONNECTICUT
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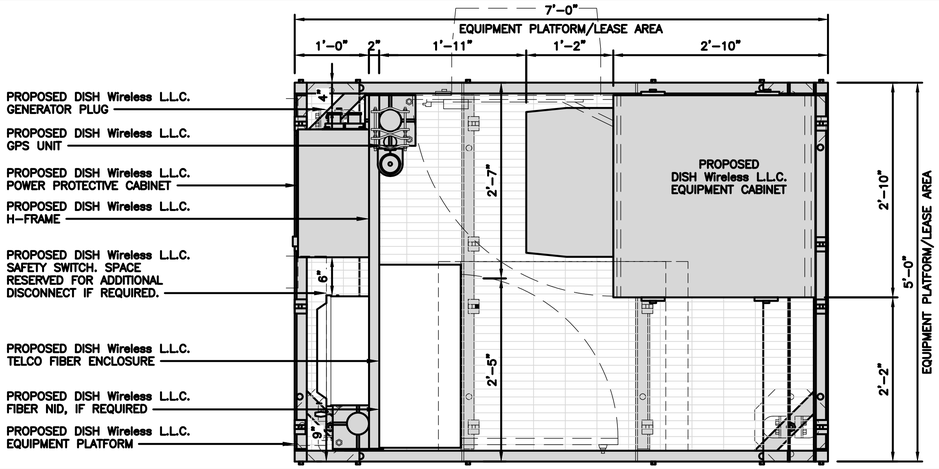
CROWN CASTLE BU#876367
1439 VOLUNTOWN RD
N1, JEWETT CITY, 06351

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



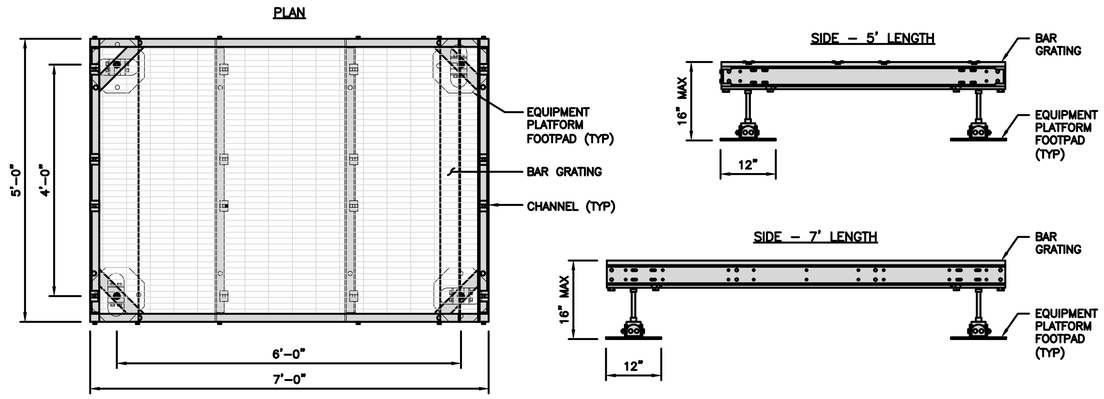
PLATFORM EQUIPMENT PLAN

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

1

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

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



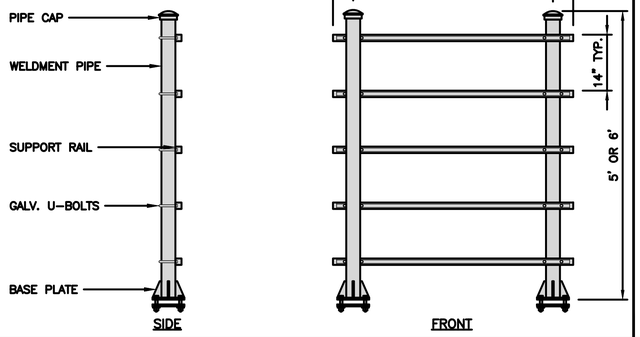
PLATFORM DETAIL

NO SCALE

2

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

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



H-FRAME DETAIL

NO SCALE

3

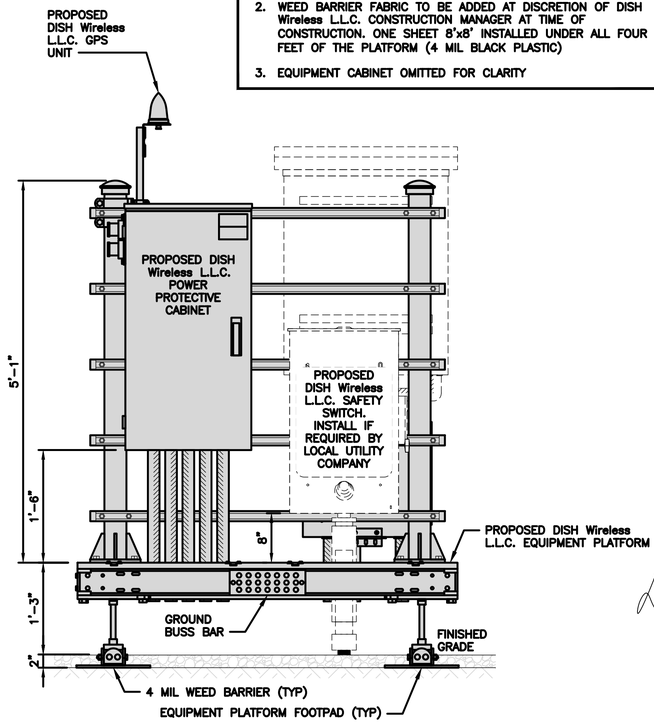
NOT USED

NO SCALE

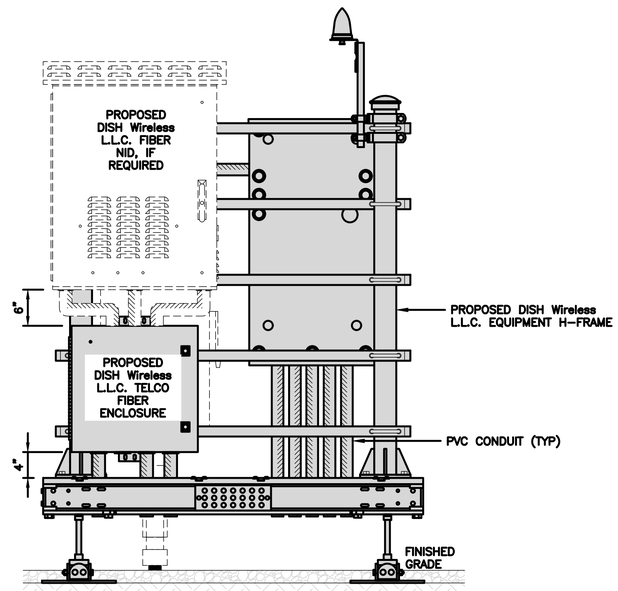
4

NOTES

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



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION

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

5

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FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED
PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJ	SMA	DPH

RFDS REV #: 2

PRELIMINARY DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	01/21/2022	ISSUED FOR REVIEW
B	04/05/2022	ISSUED FOR REVIEW
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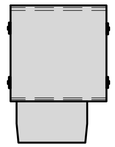
A&E PROJECT NUMBER
BOBOS01002A

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS01002A
CROWN CASTLE BU#876367
1439 VOLUNTOWN RD
N1, JEWETT CITY, 06351

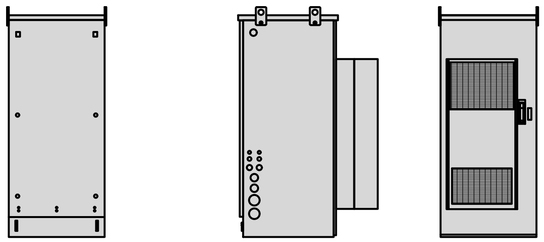
SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

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



PLAN

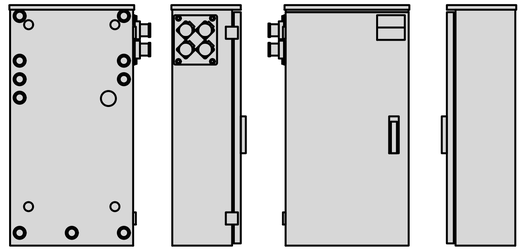


BACK SIDE FRONT

CABINET DETAIL — NO SCALE — 1

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

TOP

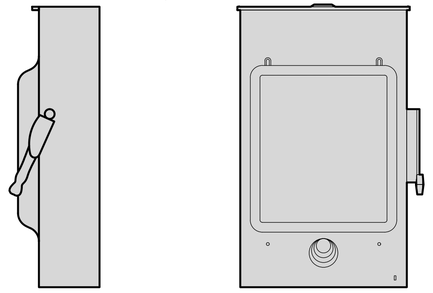


BACK SIDE FRONT SIDE

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

SQUARE D SAFETY SWITCHES D224NRB	
ENCLOSURE DIM (HxWxD)	29.25"x19.00"x8.50"
ENCLOSURE TYPE	NEMA 3R RAINPROOF
UL LISTED	FILE E–2875

TOP

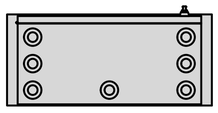


SIDE FRONT

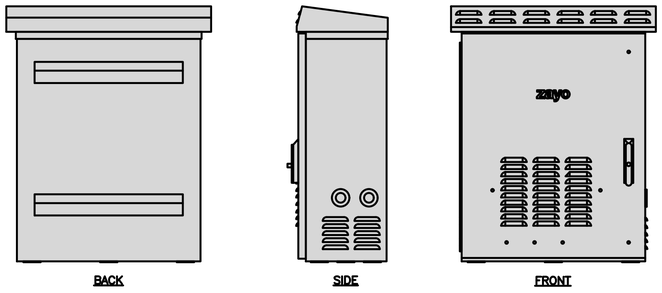
SAFETY SWITCH DETAIL — NO SCALE — 3

NOT USED — NO SCALE — 4

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



BOTTOM

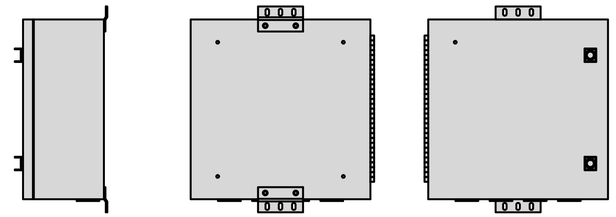


BACK SIDE FRONT

FIBER NID ENCLOSURE DETAIL — NO SCALE — 5

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

FRONT

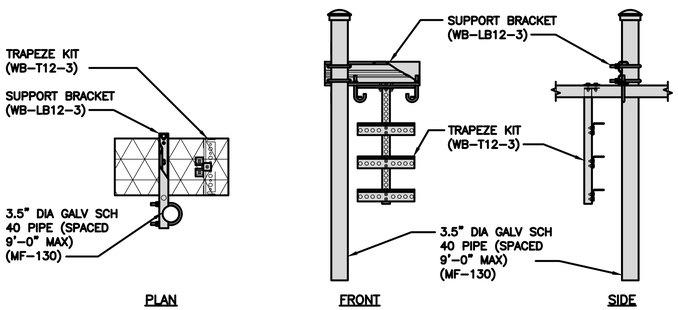


SIDE BACK FRONT

FIBER TELCO ENCLOSURE DETAIL — NO SCALE — 6

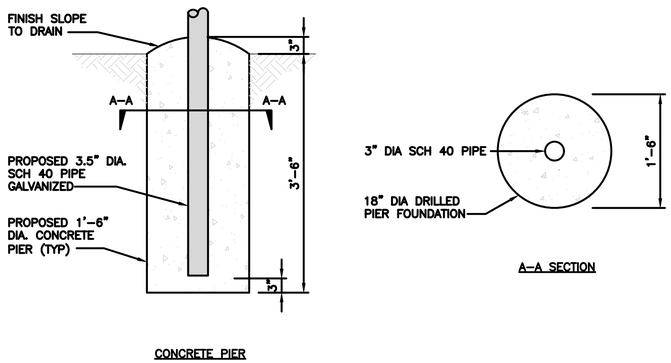
COMMSCOPE WB–K110–B WAVEGUIDE BRIDGE KIT	
DIMENSIONS (HxL)	160"x10'
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

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



PLAN FRONT SIDE

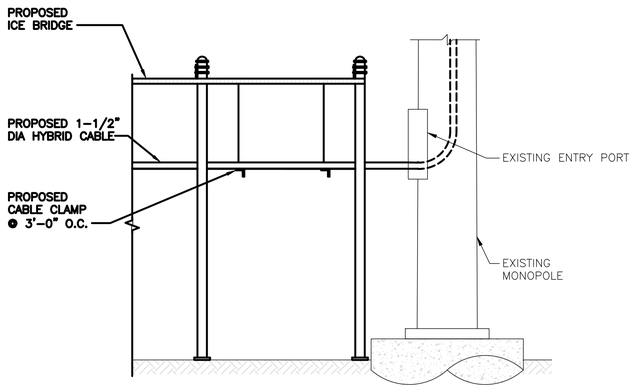
ICE BRIDGE DETAIL — NO SCALE — 7



CONCRETE PIER

A–A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL — NO SCALE — 8



HYBRID CABLE RUN — NO SCALE — 9

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HDG HUDSON Design Group LLC

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N1, JEWETT CITY, 06351

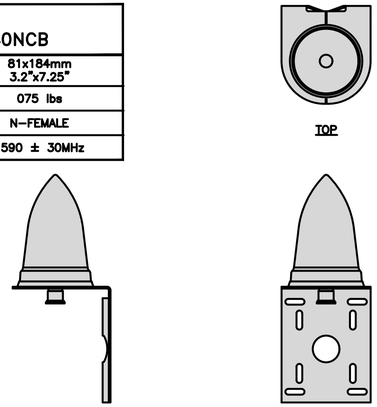
SHEET TITLE

EQUIPMENT DETAILS

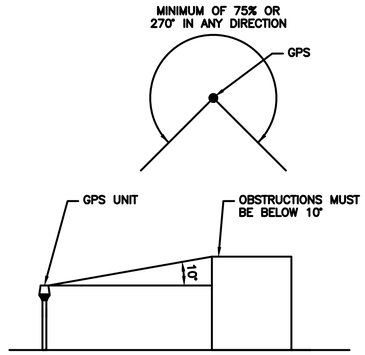
SHEET NUMBER

A-4

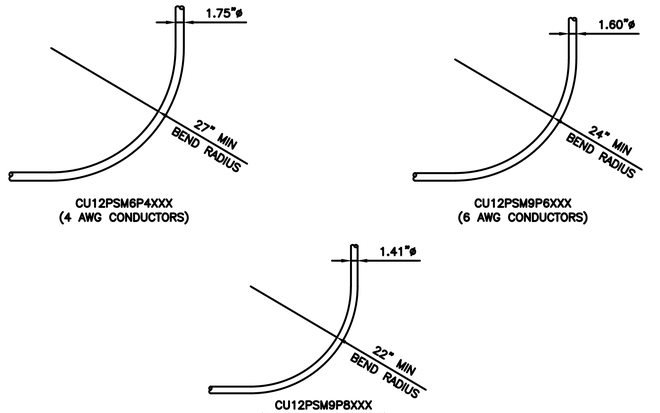
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



GPS DETAIL — NO SCALE — 1



GPS MINIMUM SKY VIEW REQUIREMENTS — NO SCALE — 2



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

NOT USED — NO SCALE — 4

NOT USED — NO SCALE — 5

NOT USED — NO SCALE — 6

NOT USED — NO SCALE — 7

NOT USED — NO SCALE — 8

NOT USED — NO SCALE — 9

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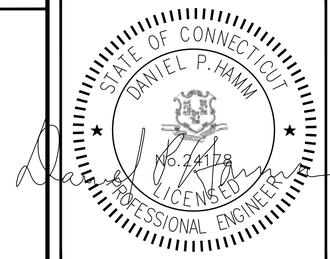

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PROJECT INFORMATION
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CROWN CASTLE BU#876367
1439 VOLUNTOWN RD
N1, JEWETT CITY, 06351

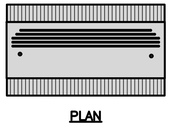
SHEET TITLE

EQUIPMENT DETAILS

SHEET NUMBER

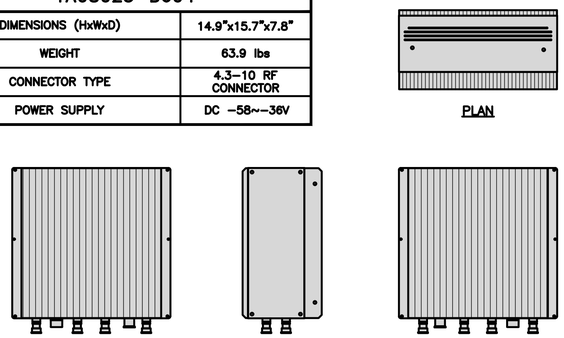
A-5

FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



RRH DETAIL | NO SCALE | 1

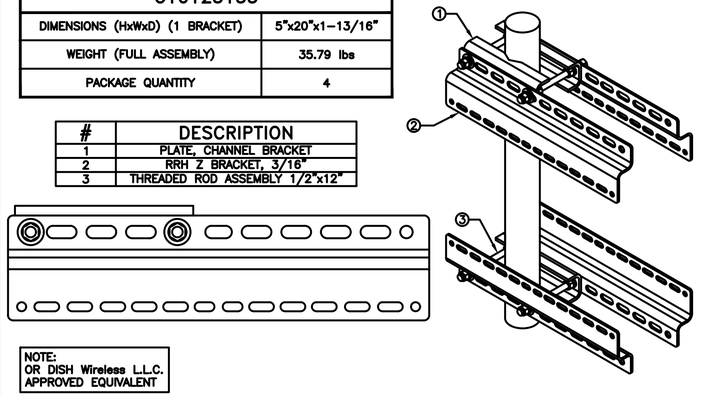
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



RRH DETAIL | NO SCALE | 2

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

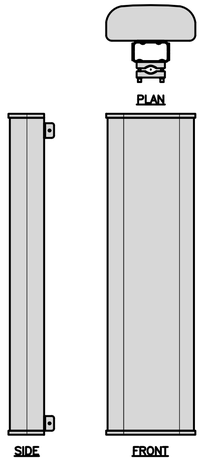
#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"



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

RRH MOUNT DETAIL | NO SCALE | 3

JMA MX08FRO665-21	
DIMENSIONS (HxWxD)	72"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.5 lbs



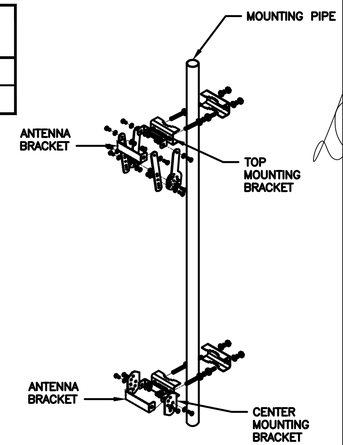
ANTENNA DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

JMA ANTENNA MOUNT BRACKET #91900318	
TOTAL WEIGHT (WITH BRACKETS)	18 lbs (8.18 Kg)
POLE DIAMETER RANGE	2.5" TO 4.5"

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

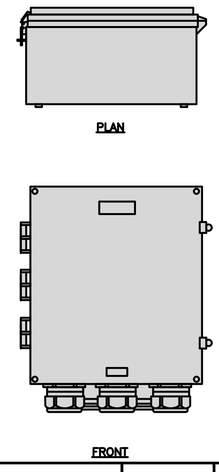
ANTENNA BRACKET NOT PART OF KIT



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

ANTENNA BRACKET DETAIL | NO SCALE | 6

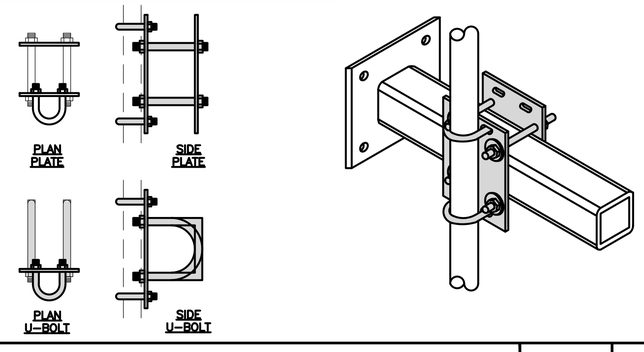
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11 lbs

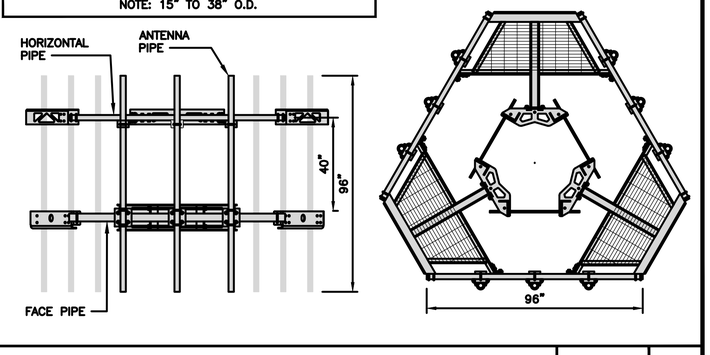
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT



RRH/OVP MOUNT DETAIL | NO SCALE | 8

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

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



ANTENNA PLATFORM DETAIL | NO SCALE | 9

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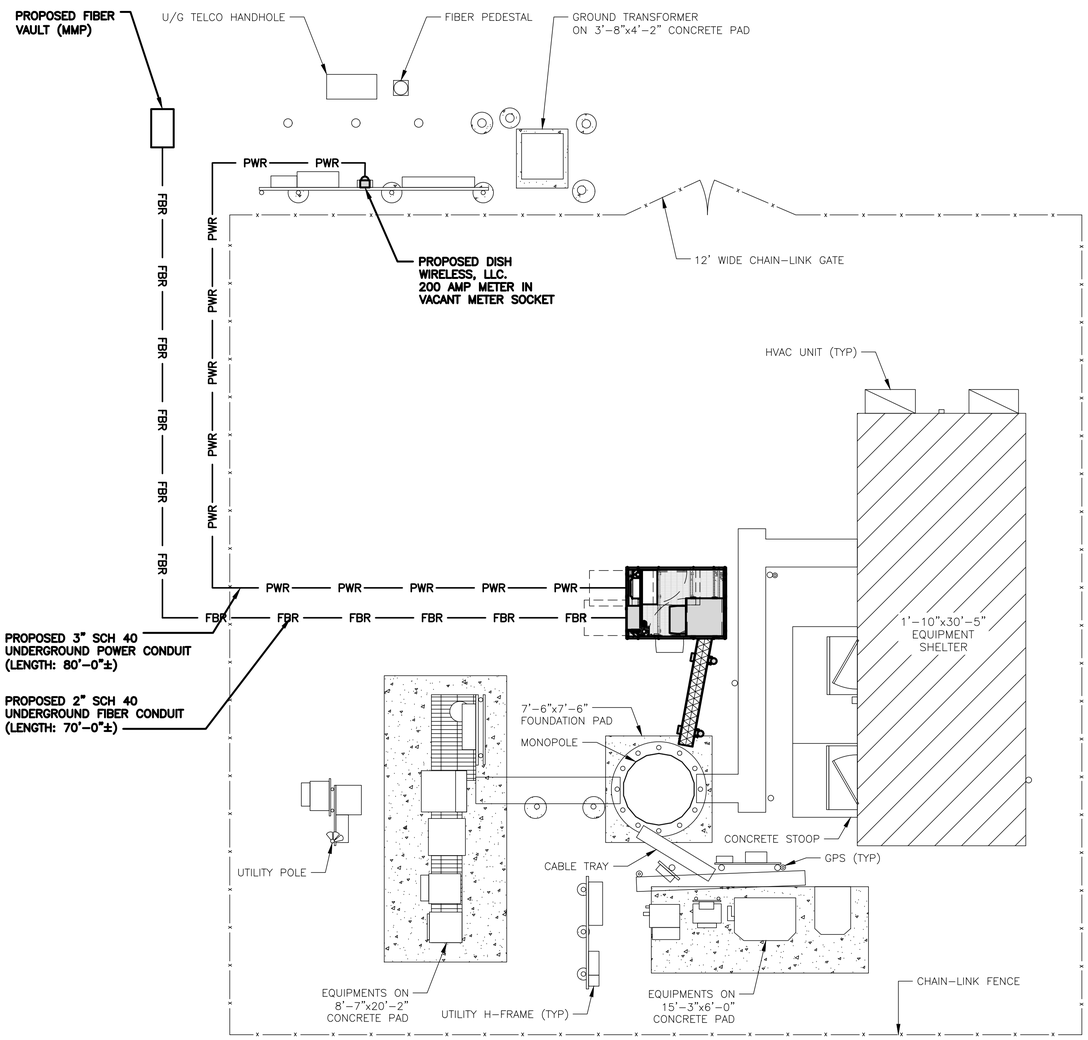
1439 VOLUNTOWN RD
N1, JEWETT CITY, 06351

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.
3. DUE TO UTILITY EASEMENT RIGHTS SPECIFIED IN THE GROUND LEASE, CUSTOMER MAY INSTALL EQUIPMENT WITHIN SPECIFIED UTILITY EASEMENT AREA. "PWR" AND "FBR" PATH DEPICTED ON A–1 AND E–1 REPRESENT PLANNED ROUTING BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO A SURVEY, EXHIBITS, METES AND BOUNDS OF THE UTILITY EASEMENT, FIELD VERIFICATION, PRIOR PROJECT DOCUMENTATION AND OTHER REAL PROPETY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLEASE LOCATE AND FOLLOW EXISTING PATH. IF EXISTING PATH IS MATERIALLY INCONSISTENT WITH "PWR" AND "FBR" PATH DEPICTED ON A–1 AND E–1 AND SAID VARIANCE IS NOT NOTED ON CDs, PLEASE NOTIFY TOWER OWNER AS FURTHER COORDINATION MAY BE NEEDED.



UTILITY ROUTE PLAN

6' 4' 2' 0 5' 10'
3/16"=1'–0"

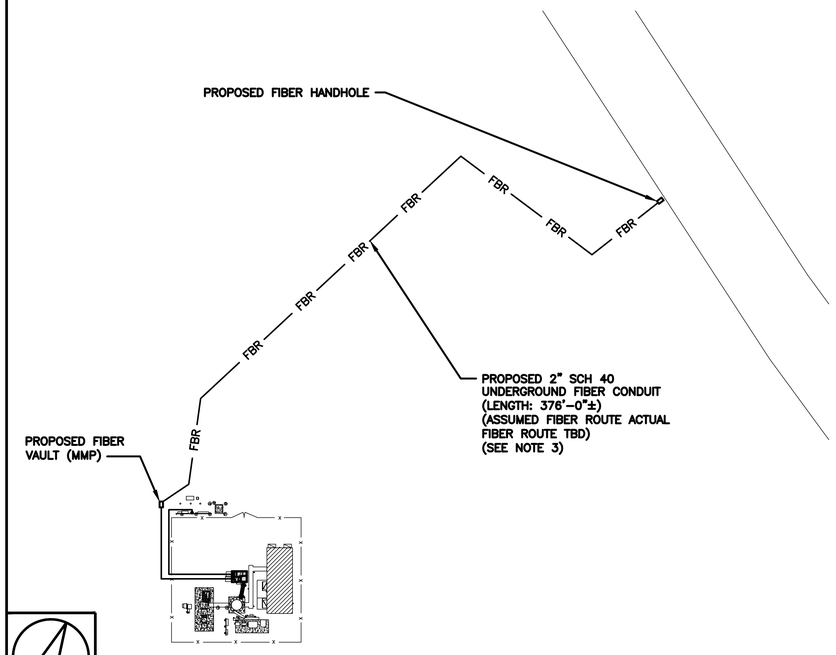
1

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

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

ELECTRICAL NOTES

2



OVERALL UTILITY ROUTE PLAN

3

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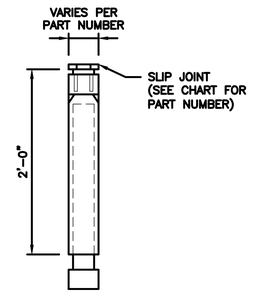
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER
E-1

CARLON EXPANSION FITTINGS

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

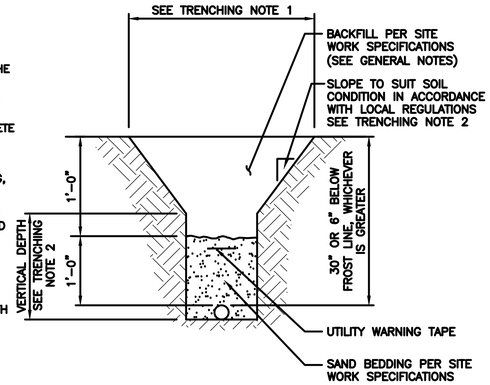


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

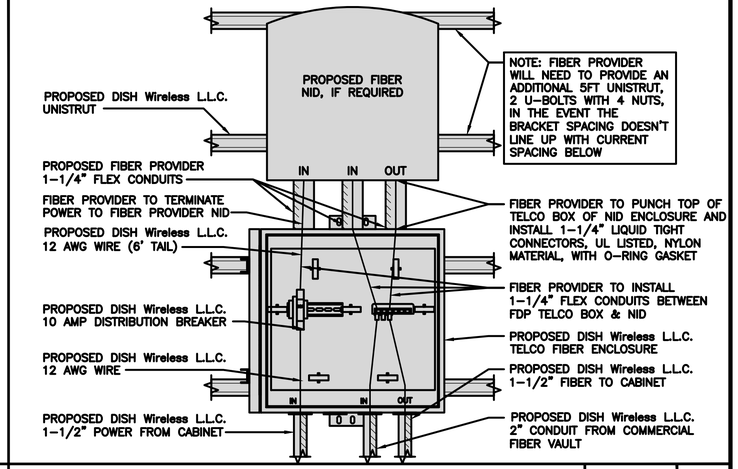
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

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



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL) | 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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LICENSED PROFESSIONAL ENGINEER

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JJ	SMA	DPH

RFDS REV #: 2

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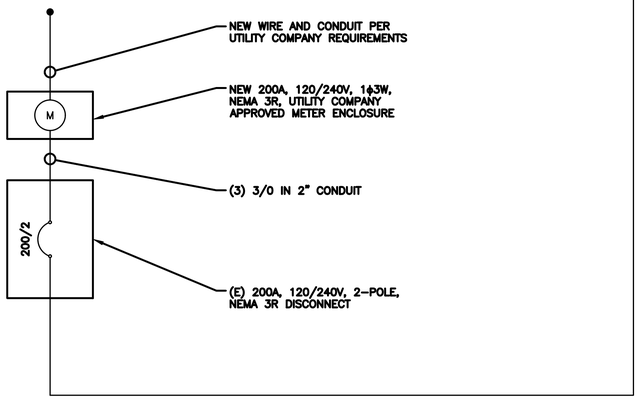
A&E PROJECT NUMBER

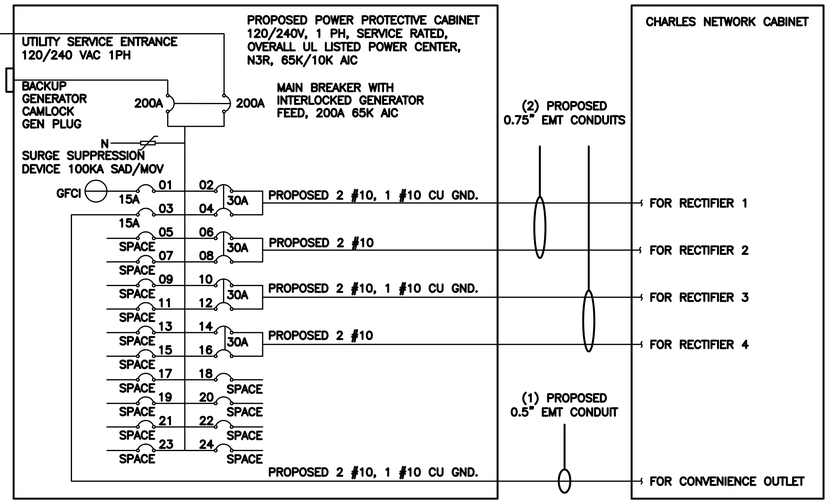
BOBOS01002A

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS01002A
CROWN CASTLE BU#876367
1439 VOLUNTOWN RD
N1, JEWETT CITY, 06351

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2





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

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

NOTES

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED SHORT CIRCUIT CALCULATIONS AND THE AIC RATINGS FOR EACH DEVICE IS ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED VOLTAGE DROP CALCULATIONS AND ALL BRANCH CIRCUIT AND FEEDERS COMPLY WITH THE NEC (LISTED ON T-1) ARTICLE 210.19(A)(1) FPN NO. 4.

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

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

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

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

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

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

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

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

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

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

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

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

PPC ONE-LINE DIAGRAM

NO SCALE | 1

PROPOSED CHARLES PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	30A	2880		ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET		180	15A	3	B	4			2880	
-SPACE-				5	A	6	30A	2880		ABB/GE INFINITY RECTIFIER 2
-SPACE-				7	B	8			2880	
-SPACE-				9	A	10	30A	2880		ABB/GE INFINITY RECTIFIER 3
-SPACE-				11	B	12			2880	
-SPACE-				13	A	14	30A	2880		ABB/GE INFINITY RECTIFIER 4
-SPACE-				15	B	16			2880	
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
VOLTAGE AMPS	180	180						11520	11520	
200A MCB, 1ϕ, 24 SPACE, 120/240V			L1		L2					
MB RATING: 65,000 AIC			11700		11700		VOLTAGE AMPS			
			98		98		AMPS			
			98				MAX AMPS			
			123				MAX 125%			

PANEL SCHEDULE | NO SCALE | 2

NOT USED | NO SCALE | 3

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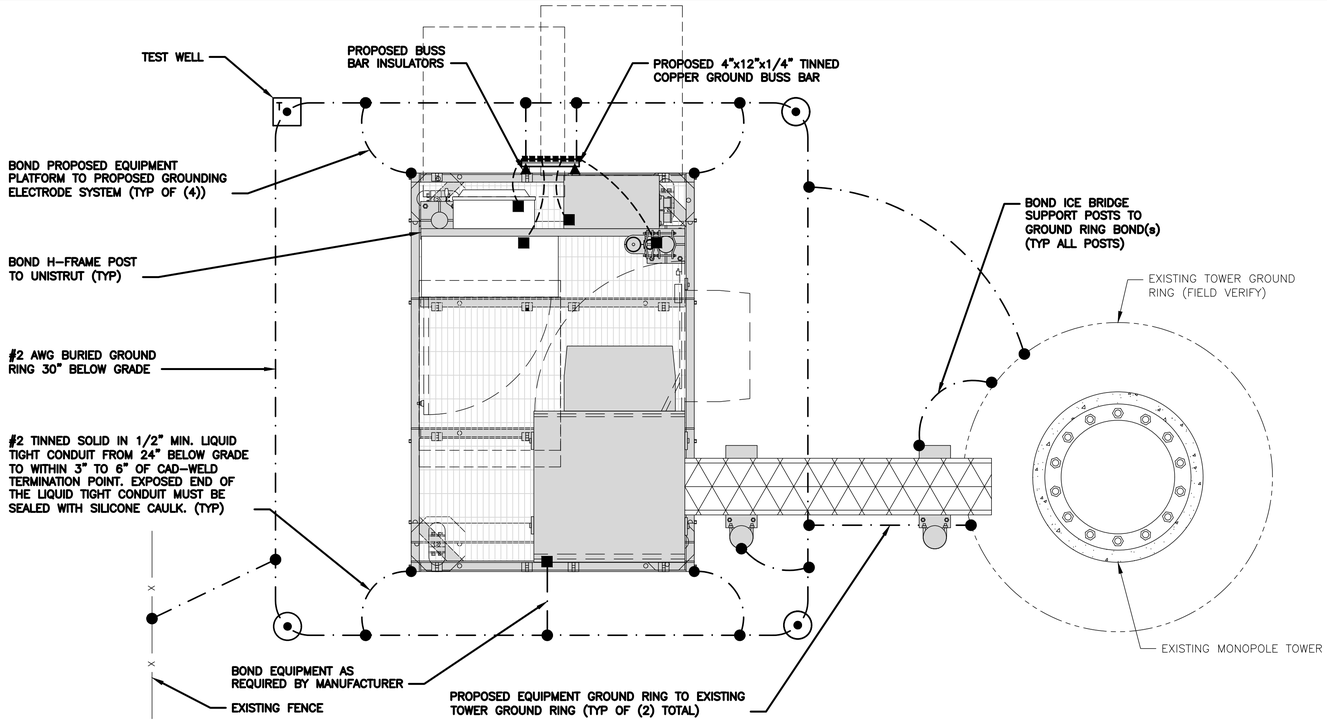
1439 VOLUNTOWN RD
N1, JEWETT CITY, 06351

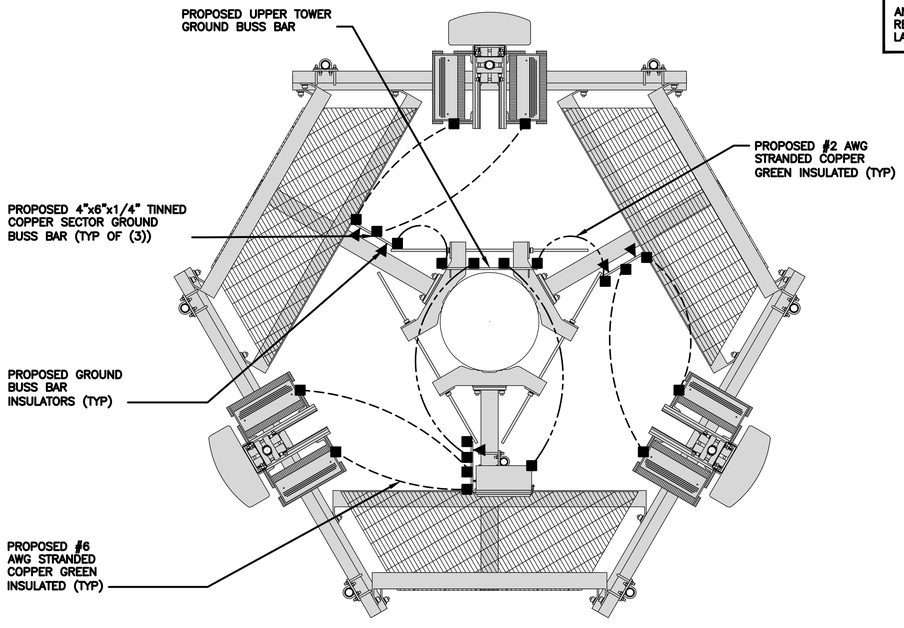
SHEET TITLE
ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE

SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE | 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2

NOTES

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

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GROUNDING KEY NOTES

NO SCALE | 3

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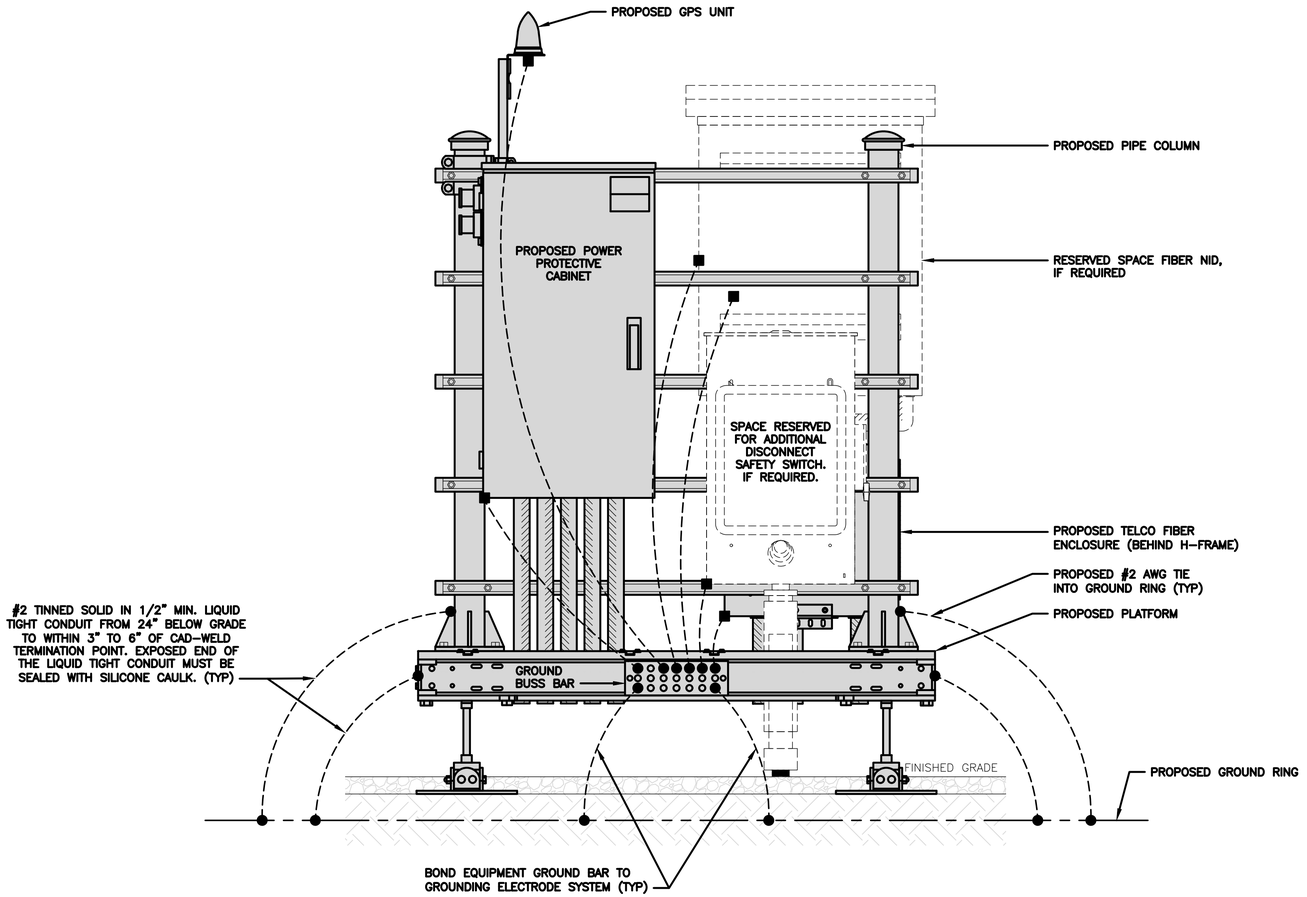
N1, JEWETT CITY, 06351

SHEET TITLE
GROUNDING PLANS AND NOTES

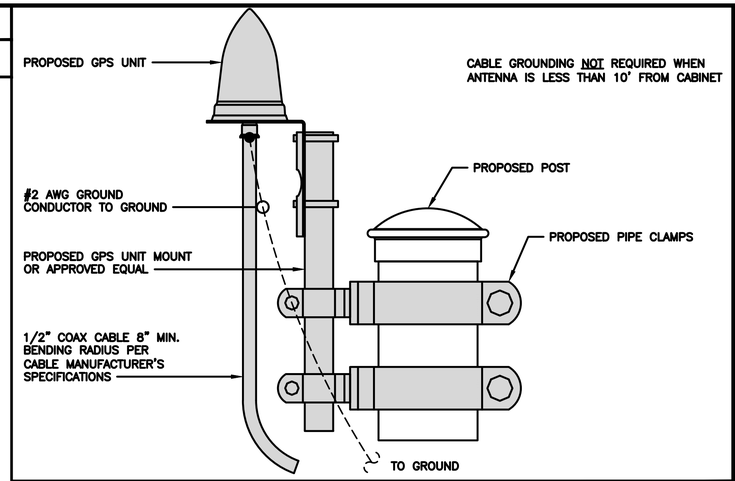
SHEET NUMBER
G-1

NOTES

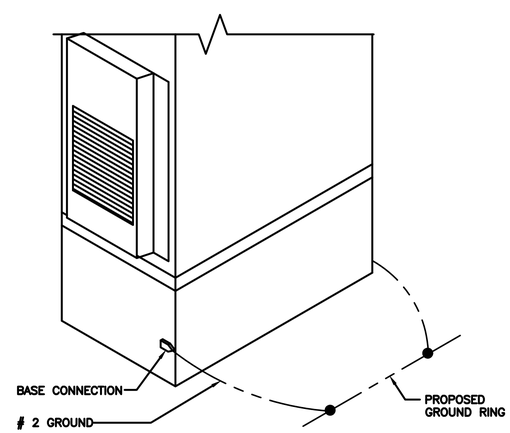
EQUIPMENT CABINET OMITTED FOR CLARITY



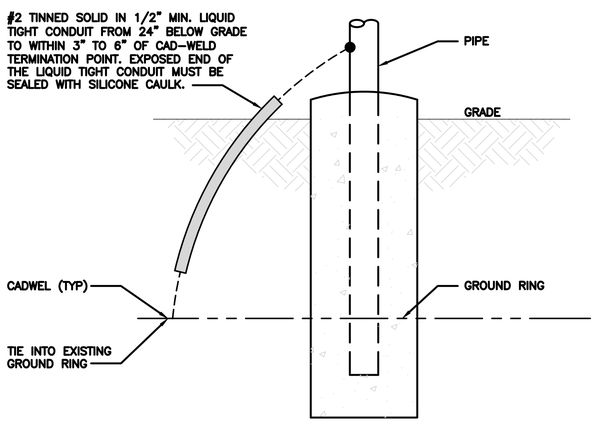
H-FRAME GROUNDING DETAIL | NO SCALE | 1



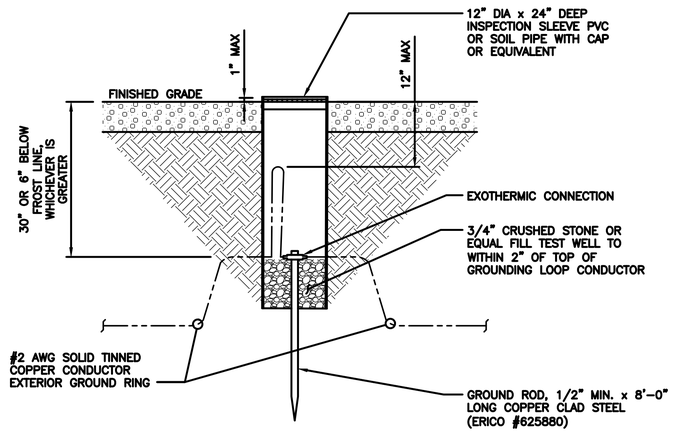
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



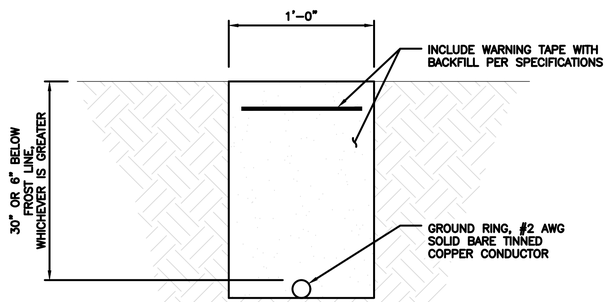
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



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



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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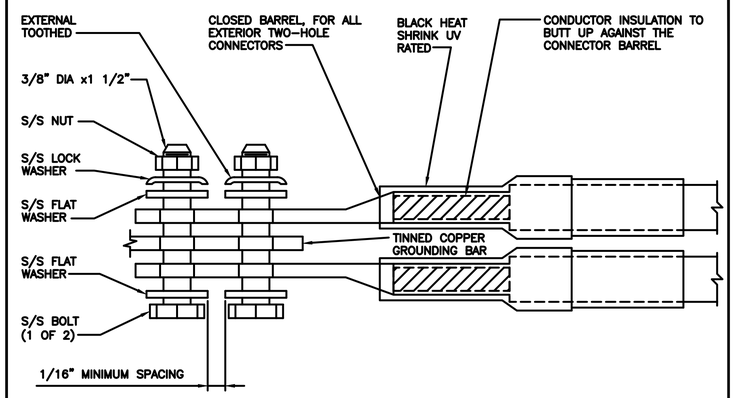
GROUNDING DETAILS

SHEET NUMBER

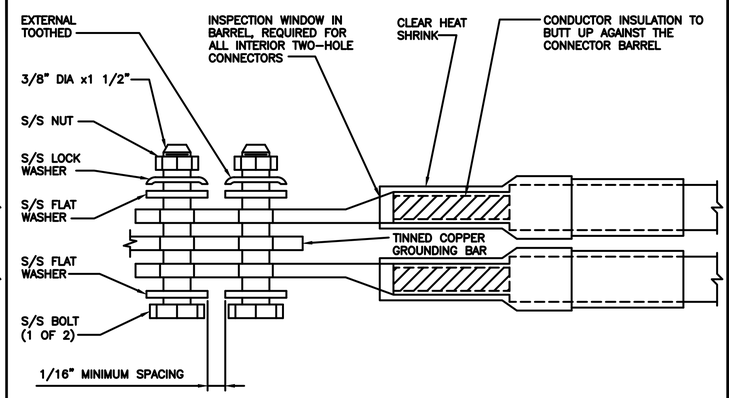
G-2

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

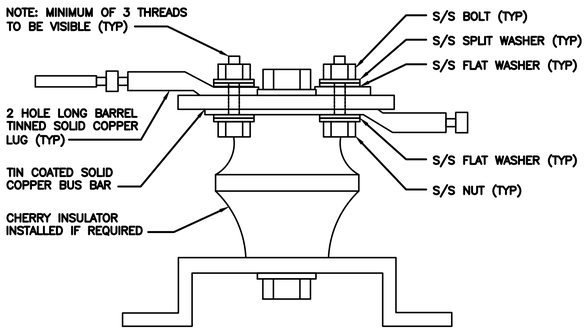
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

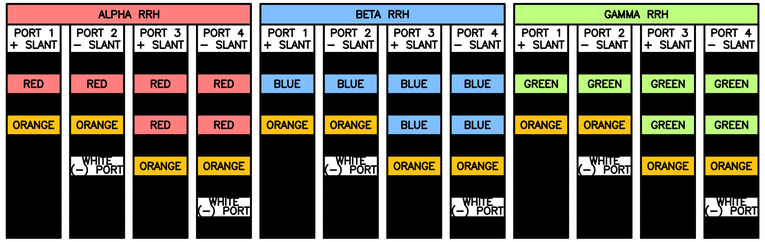
G-3

HYBRID/DISCREET CABLES

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

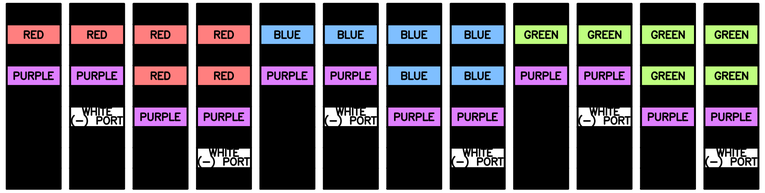
LOW-BAND RRH
(600 MHz N71 BASEBAND) +
(850 MHz N26 BAND) +
(700 MHz N29 BAND) – OPTIONAL PER MARKET

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



MID-BAND RRH
(AWS BANDS N66+N70)

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



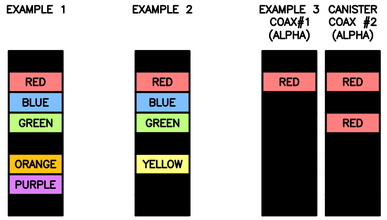
HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.

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

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

EXAMPLE 3 – MAIN COAX WITH GROUND MOUNTED RRHs.

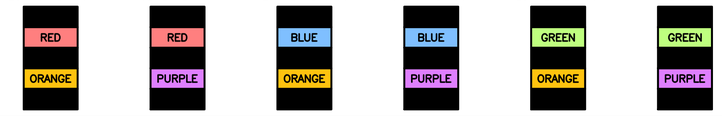


FIBER JUMPERS TO RRHs

LOW-BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.

POWER CABLES TO RRHs

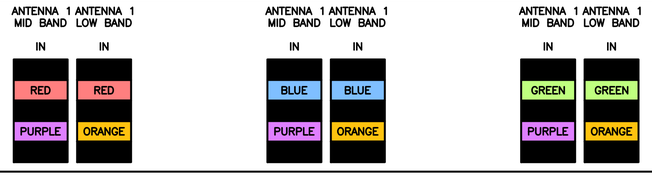
LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



RET MOTORS AT ANTENNAS

RET CONTROL IS HANDLED BY THE MID-BAND RRH WHEN ONE SET OF RET PORTS EXIST ON ANTENNA.

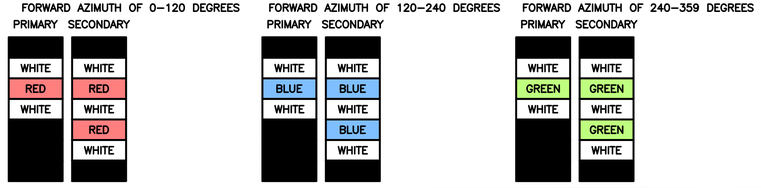
SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.



MICROWAVE RADIO LINKS

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

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



RF CABLE COLOR CODES | NO SCALE | 1

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

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

CBRS TECH (3 GHz): YELLOW

NEGATIVE SLANT PORT ON ANT/RRH: WHITE

ALPHA SECTOR: RED

BETA SECTOR: BLUE

GAMMA SECTOR: GREEN

COLOR IDENTIFIER | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

dish wireless.
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STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
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SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48–T8

SMOKE DETECTION (DC)

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE — X — X — X — X —

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE — W — W — W — W — W —

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

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

OVERHEAD POWER — OHP — OHP — OHP — OHP —

OVERHEAD TELCO — OHT — OHT — OHT — OHT —

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

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

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

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

WORKPOINT W.P.

SECTION REFERENCE XX / X–X

DETAIL REFERENCE XX / X–X

LEGEND

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

ABBREVIATIONS

dish wireless.

5701 SOUTH SANTA FE DRIVE
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CROWN CASTLE BU#876367
1439 VOLUNTOWN RD
N1, JEWETT CITY, 06351

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SIGN TYPES		
TYPE	COLOR	COLOR CODE PURPOSE
INFORMATION	GREEN	"INFORMATIONAL SIGN" TO NOTIFY OTHERS OF SITE OWNERSHIP & CONTACT NUMBER AND POTENTIAL RF EXPOSURE.
NOTICE	BLUE	"NOTICE BEYOND THIS POINT" RF FIELDS BEYOND THIS POINT MAY EXCEED THE FCC GENERAL PUBLIC EXPOSURE LIMIT. OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)
CAUTION	YELLOW	"CAUTION BEYOND THIS POINT" RF FIELDS BEYOND THIS POINT MAY EXCEED THE FCC GENERAL PUBLIC EXPOSURE LIMIT. OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)
WARNING	ORANGE/RED	"WARNING BEYOND THIS POINT" RF FIELDS AT THIS SITE EXCEED FCC RULES FOR HUMAN EXPOSURE. FAILURE TO OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS COULD RESULT IN SERIOUS INJURY. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)

SIGN PLACEMENT:

- RF SIGNAGE PLACEMENT SHALL FOLLOW THE RECOMMENDATIONS OF AN EXISTING EME REPORT, CREATED BY A THIRD PARTY PREVIOUSLY AUTHORIZED BY DISH Wireless L.L.C.
- INFORMATION SIGN (GREEN) SHALL BE LOCATED ON EXISTING DISH Wireless L.L.C EQUIPMENT.
  A) IF THE INFORMATION SIGN IS A STICKER, IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C EQUIPMENT CABINET.
  B) IF THE INFORMATION SIGH IS A METAL SIGN IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C H-FRAME WITH A SECURE ATTACH METHOD.
- IF EME REPORT IS NOT AVAILABLE AT THE TIME OF CREATION OF CONSTRUCTION DOCUMENTS; PLEASE CONTACT DISH Wireless L.L.C. CONSTRUCTION MANAGER FOR FURTHER INSTRUCTION ON HOW TO PROCEED.

NOTES:

1. FOR DISH Wireless L.L.C. LOGO, SEE DISH Wireless L.L.C. DESIGN SPECIFICATIONS (PROVIDED BY DISH Wireless L.L.C.)
2. SITE ID SHALL BE APPLIED TO SIGNS USING "LASER ENGRAVING" OR ANY OTHER WEATHER RESISTANT METHOD (DISH Wireless L.L.C. APPROVAL REQUIRED)
3. TEXT FOR SIGNAGE SHALL INDICATE CORRECT SITE NAME AND NUMBER AS PER DISH Wireless L.L.C. CONSTRUCTION MANAGER RECOMMENDATIONS.
4. CABINET/SHELTER MOUNTING APPLICATION REQUIRES ANOTHER PLATE APPLIED TO THE FACE OF THE CABINET WITH WATER PROOF POLYURETHANE ADHESIVE
5. ALL SIGNS WILL BE SECURED WITH EITHER STAINLESS STEEL ZIP TIES OR STAINLESS STEEL TECH SCREWS
6. ALL SIGNS TO BE 8.5"x11" AND MADE WITH 0.04" OF ALUMINUM MATERIAL

INFORMATION

This is an access point to an area with transmitting antennas.

Obey all signs and barriers beyond this point.
Call the DISH Wireless L.L.C. NOC at 1-866-624-6874

Site ID: _____

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

NOTICE

Transmitting Antenna(s)

Radio frequency fields beyond this point MAY *EXCEED* the FCC Occupational exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

Call the DISH Wireless L.L.C. NOC at 1-866-624-6874 prior to working beyond this point.

Site ID: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

⚠ CAUTION

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dish

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RF SIGNAGE

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RF SIGNAGE

SHEET NUMBER
GN-2

SITE ACTIVITY REQUIREMENTS:

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

2. "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.

4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).

5. ALL SITE WORK TO COMPLY WITH DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."

6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.

10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.

11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.

12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH Wireless L.L.C. AND TOWER OWNER, AND/OR LOCAL UTILITIES.

14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.

15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.

16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.

18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS AND RADIOS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1.FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER

2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.

3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.

4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.

5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.

6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.

12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH Wireless L.L.C. AND TOWER OWNER

13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

dish wireless.

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DANIEL P. HAMM
No. 24178
LICENSED
PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJ	SMA	DPH

RFDS REV #: 2

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DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS01002A
CROWN CASTLE BU#876367
1439 VOLUNTOWN RD
N1, JEWETT CITY, 06351

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

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

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

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

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

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.

5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.

6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).

7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.

8. TIE WRAPS ARE NOT ALLOWED.

9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.

12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).

14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.

18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.

20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.

21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).

22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).

23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.

24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.

25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH Wireless L.L.C. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.

29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH Wireless L.L.C.".

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

dish wireless.

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STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJ	SMA	DPH

RFDS REV #: 2

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A&E PROJECT NUMBER

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DISH Wireless L.L.C.
PROJECT INFORMATION
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CROWN CASTLE BU#876367
1439 VOLUNTOWN RD
N1, JEWETT CITY, 06351

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

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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CROWN CASTLE BU#876367
1439 VOLUNTOWN RD
N1, JEWETT CITY, 06351

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-5

Exhibit D

Structural Analysis Report

Date: **December 14, 2021**

Crown Castle
2000 Corporate Drive
Canonsburg. PA 15317
(724) 416-2000

Subject:	**Structural Analysis Report**	
Carrier Designation:	***DISH Network* Co-Locate**	
	Site Number:	BOBOS01002A
Crown Castle Designation:	**BU Number:**	876367
	Site Name:	WAPPINGERS FALLS / BOB'S ANTIQ
	JDE Job Number:	675286
	Work Order Number:	2013154
	Order Number:	576667 Rev. 2
Engineering Firm Designation:	**Crown Castle Project Number:**	2013154
Site Data:	**1439 Voluntown Rd, GRISWOLD, NEW LONDON County, CT**	
	Latitude *41° 34' 34.3"*, Longitude *-71° 53' 15.4"*	
	179.5 Foot - Monopole Tower	

Crown Castle is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity-71.7%**

"This analysis utilizes an ultimate 3-second gust wind speed of 135 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Hayes Lei

Respectfully submitted by:

Digitally signed by Maham Barimani
Date: 2021.12.15 16:15:03 -05'00'

STATE OF CONNECTICUT
MAHAM BARIMANI
30501
LICENSED
PROFESSIONAL ENGINEER

Maham Barimani, P.E.
Senior Project Engineer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 179.5 ft Monopole tower designed by ENGINEERED ENDEAVORS, INC.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	135 mph
Exposure Category:	B
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)
147.0	147.0	3	fujitsu	TA08025-B604	1	1-1/2
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
177.0	177.0	1	site pro 1	RMQP-496 + HRK12-U 12.5' Platform with Handrails	4	1-3/8
		3	ericsson	AIR6449 B41_T-MOBILE		
		3	ericsson	RADIO 4415 B66A		
		3	ericsson	RADIO 4424 B25_TMO		
		3	ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	rfs celwave	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe		
		3	rfs celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe		
167.0	169.0	3	powerwave technologies	7770.00 w/ Mount Pipe	2 2 4 12 3	3/8 7/16 3/4 1-1/4 conduit
	167.0	1	tower mounts	Platform Mount [LP 303-1_HR-1]		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14		
		3	ericsson	RRUS 8843 B2/B66A		
		3	kathrein	782 10253		
		2	kathrein	80010964 w/ Mount Pipe		
		4	kathrein	80010966 w/ Mount Pipe		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		6	powerwave technologies	LGP 17201		
		3	raycap	DC6-48-60-18-8F		
155.0	157.0	2	antel	LPA-80063/4CF w/ Mount Pipe	8	1-5/8
		4	antel	LPA-80080/4CF w/ Mount Pipe		
		6	jma wireless	MX06FRO660-03 w/ Mount Pipe		
		1	raycap	RVZDC-6627-PF-48		
		3	samsung telecommunications	MT6407-77A w/ Mount Pipe		
		3	samsung telecommunications	RF4439D-25A		
		3	samsung telecommunications	RF4440D-13A		
	155.0	3	jam wirless	91900314 Dual-mount Antenna Bracket		
		1	tower mounts	Platform Mount [LP 303-1]		
60.0	60.0	1	tower mounts	Side Arm Mount [SO 701-1]	1	1/2
		1	gps	GPS_A		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1613525	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1613910	CCISITES
4-TOWER MANUFACTURER DRAWINGS	1999079	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1999146	CCISITES

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. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

1) Tower and structures were maintained in accordance with the TIA-222 Standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle 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	179.5 - 129.75	Pole	TP31.86x19.59x0.3125	1	-18.81	1854.45	48.2	Pass
L2	129.75 - 84.58	Pole	TP42.26x30.1252x0.375	2	-29.19	2958.12	63.1	Pass
L3	84.58 - 40.7	Pole	TP52.21x40.0857x0.4375	3	-43.70	4268.71	61.7	Pass
L4	40.7 - 0	Pole	TP61.25x49.6082x0.5	4	-65.49	5922.00	57.2	Pass
							Summary	
						Pole (L2)	63.1	Pass
						Rating =	63.1	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	64.6	Pass
1	Base Plate	0	66.7	Pass
1	Base Foundation (Structure)	0	71.7	Pass
1	Base Foundation (Soil Interaction)	0	61.1	Pass

Structure Rating (max from all components) =	**71.7%**

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.

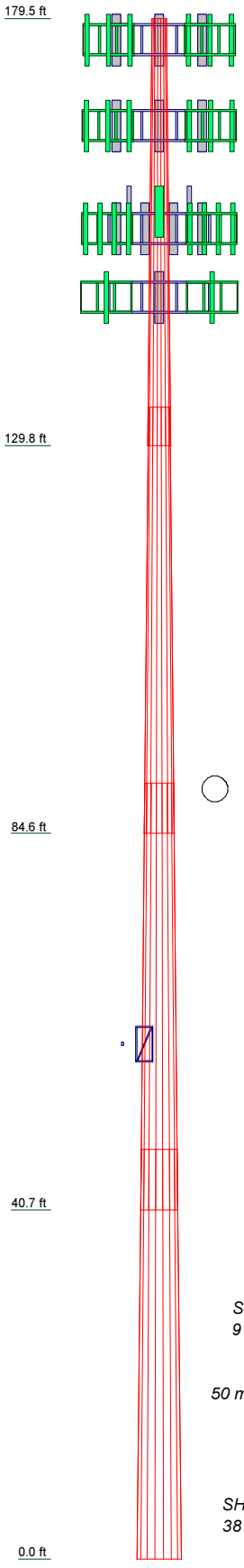
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	49.75	18	0.3125	4.50	19.5900	31.8600	A572-65	4.3
2	49.67	18	0.3750	5.83	30.1252	42.2600		7.2
3	49.71	18	0.4375	7.08	40.0857	52.2100		10.7
4	47.78	18	0.5000		49.6082	61.2500		14.2
								36.4



MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 135 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 0.00 ft
8. TOWER RATING: 63.1%

ALL REACTIONS ARE FACTORED

AXIAL 98 K

SHEAR 9 K *MOMENT 1182 kip-ft*

TORQUE 0 kip-ft
50 mph WIND - 1.5000 in ICE

AXIAL 66 K

SHEAR 38 K *MOMENT 4918 kip-ft*

TORQUE 1 kip-ft
REACTIONS - 135 mph WIND

CROWN CASTLE
The Pathway To Possible

Crown Castle
2000 Corporate Drive
Canonsburg. PA 15317
Phone: (724) 416-2000
FAX:

Job: *BU# 876367*			
Project:			
Client: Crown Castle	Drawn by: HLei		App'd:
Code: TIA-222-H	Date: 12/14/21		Scale: NTS
Path: C:\Temporary Working Space - No One Drive\876367\WO 2013154 - SA\Prod\876367.eri			Dwg No. E-1

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 New London County, Connecticut.
- Tower base elevation above sea level: 286.00 ft.
- Basic wind speed of 135 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.5000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	179.50-129.75	49.75	4.50	18	19.5900	31.8600	0.3125	1.2500	A572-65 (65 ksi)
L2	129.75-84.58	49.67	5.83	18	30.1252	42.2600	0.3750	1.5000	A572-65 (65 ksi)
L3	84.58-40.70	49.71	7.08	18	40.0857	52.2100	0.4375	1.7500	A572-65 (65 ksi)
L4	40.70-0.00	47.78		18	49.6082	61.2500	0.5000	2.0000	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	19.8440	19.1209	897.7316	6.8435	9.9517	90.2087	1796.6445	9.5623	2.8978	9.273
	32.3033	31.2912	3934.4972	11.1994	16.1849	243.0971	7874.1715	15.6486	5.0574	16.184
L2	31.6484	35.4101	3959.5257	10.5613	15.3036	258.7320	7924.2614	17.7084	4.6420	12.379
	42.8541	49.8536	11049.7181	14.8692	21.4681	514.7045	22113.9758	24.9315	6.7778	18.074
L3	42.0804	55.0564	10934.3273	14.0751	20.3635	536.9565	21883.0422	27.5335	6.2851	14.366
	52.9479	71.8926	24345.5640	18.3792	26.5227	917.9149	48723.1625	35.9531	8.4190	19.243
L4	52.0480	77.9347	23745.2034	17.4334	25.2010	942.2343	47521.6513	38.9747	7.8510	15.702
	62.1177	96.4103	44952.4352	21.5663	31.1150	1444.7191	89964.0200	48.2143	9.9000	19.8

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 179.50-129.75				1	1	1			
L2 129.75-84.58				1	1	1			
L3 84.58-40.70				1	1	1			
L4 40.70-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
Safety Line 3/8 ***60***	A	No	Surface Ar (CaAa)	179.50 - 8.00	1	1	0.250 0.260	0.3750		0.22
LDF4-50A(1/2) **** ** *	A	No	Surface Ar (CaAa)	60.00 - 7.00	1	1	-0.125 -0.120	0.0000		0.15

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_A ft^2/ft	Weight plf
177									
HB158-21U6S24-xxM_TMO(1-5/8)	C	No	No	Inside Pole	177.00 - 0.00	4	No Ice	0.00	2.50
							1/2" Ice	0.00	2.50
							1" Ice	0.00	2.50
							2" Ice	0.00	2.50
167									
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	165.00 - 0.00	4	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
							2" Ice	0.00	0.58
FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	165.00 - 0.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
LDF6-50A(1-1/4)	C	No	No	Inside Pole	165.00 - 0.00	12	No Ice	0.00	0.60
							1/2" Ice	0.00	0.60
							1" Ice	0.00	0.60
							2" Ice	0.00	0.60
FB-L98B-002-75000(3/8)	C	No	No	Inside Pole	165.00 - 0.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
WR-VG122ST-BRDA(7/16)	C	No	No	Inside Pole	165.00 - 0.00	2	No Ice	0.00	0.14
							1/2" Ice	0.00	0.14
							1" Ice	0.00	0.14
							2" Ice	0.00	0.14
2" innerduct conduit	C	No	No	Inside Pole	165.00 - 0.00	3	No Ice	0.00	0.20
							1/2" Ice	0.00	0.20
							1" Ice	0.00	0.20
							2" Ice	0.00	0.20
155									
FLC 158-50J(1-5/8)	C	No	No	Inside Pole	155.00 - 0.00	10	No Ice	0.00	0.92
							1/2" Ice	0.00	0.92
							1" Ice	0.00	0.92
							2" Ice	0.00	0.92
****									
CU12PSM9P6XXX (1-1/2)	B	No	No	Inside Pole	147.00 - 0.00	1	No Ice	0.00	2.35
							1/2" Ice	0.00	2.35
							1" Ice	0.00	2.35
							2" Ice	0.00	2.35
****									
**									
*									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	179.50-129.75	A	0.000	0.000	1.866	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.04
		C	0.000	0.000	0.000	0.000	1.08
L2	129.75-84.58	A	0.000	0.000	1.694	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.11
		C	0.000	0.000	0.000	0.000	1.34
L3	84.58-40.70	A	0.000	0.000	1.646	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.10
		C	0.000	0.000	0.000	0.000	1.30
L4	40.70-0.00	A	0.000	0.000	1.226	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.10
		C	0.000	0.000	0.000	0.000	1.21

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_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	179.50-129.75	A	1.486	0.000	0.000	16.654	0.000	0.18
		B		0.000	0.000	0.000	0.000	0.04
		C		0.000	0.000	0.000	0.000	1.08
L2	129.75-84.58	A	1.433	0.000	0.000	15.121	0.000	0.16
		B		0.000	0.000	0.000	0.000	0.11
		C		0.000	0.000	0.000	0.000	1.34
L3	84.58-40.70	A	1.359	0.000	0.000	19.757	0.000	0.20
		B		0.000	0.000	0.000	0.000	0.10
		C		0.000	0.000	0.000	0.000	1.30
L4	40.70-0.00	A	1.211	0.000	0.000	19.271	0.000	0.18
		B		0.000	0.000	0.000	0.000	0.10
		C		0.000	0.000	0.000	0.000	1.21

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	179.50-129.75	-0.1480	-0.2626	-0.6620	-1.1749
L2	129.75-84.58	-0.1483	-0.2632	-0.7017	-1.2453
L3	84.58-40.70	-0.1485	-0.2635	-1.2405	-1.3701
L4	40.70-0.00	-0.1176	-0.2087	-1.4652	-1.1945

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	1	Safety Line 3/8	129.75 - 179.50	1.0000	1.0000
L2	1	Safety Line 3/8	84.58 - 129.75	1.0000	1.0000
L3	1	Safety Line 3/8	40.70 - 84.58	1.0000	1.0000
L3	17	LDF4-50A(1/2)	40.70 - 60.00	1.0000	1.0000
L4	1	Safety Line 3/8	8.00 - 40.70	1.0000	1.0000
L4	17	LDF4-50A(1/2)	7.00 - 40.70	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
177					
Site Pro 1 RMQP-496 + HRK12-U 12.5' Platform with Handrails	C	None		0.0000	177.00
(2) 8'x2" Mount Pipe	A	From Face	3.00 0.00 0.00	0.0000	177.00
(2) 8'x2" Mount Pipe	B	From Face	3.00 0.00 0.00	0.0000	177.00
(2) 8'x2" Mount Pipe	C	From Face	3.00 0.00 0.00	0.0000	177.00
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	A	From Face	3.00 0.00 0.00	0.0000	177.00
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	B	From Face	3.00 0.00 0.00	0.0000	177.00
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	C	From Face	3.00 0.00 0.00	0.0000	177.00
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	A	From Face	3.00 0.00 0.00	0.0000	177.00
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	B	From Face	3.00 0.00 0.00	0.0000	177.00
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	C	From Face	3.00 0.00 0.00	0.0000	177.00
AIR6449 B41_T-MOBILE	A	From Face	3.00 0.00 0.00	0.0000	177.00
AIR6449 B41_T-MOBILE	B	From Face	3.00 0.00 0.00	0.0000	177.00
AIR6449 B41_T-MOBILE	C	From Face	3.00 0.00 0.00	0.0000	177.00
RADIO 4415 B66A	A	From Face	3.00 0.00 0.00	0.0000	177.00
RADIO 4415 B66A	B	From Face	3.00 0.00 0.00	0.0000	177.00
RADIO 4415 B66A	C	From Face	3.00 0.00 0.00	0.0000	177.00
RADIO 4424 B25_TMO	A	From Face	3.00 0.00 0.00	0.0000	177.00
RADIO 4424 B25_TMO	B	From Face	3.00 0.00 0.00	0.0000	177.00
RADIO 4424 B25_TMO	C	From Face	3.00 0.00 0.00	0.0000	177.00
RADIO 4449 B71 B85A_T-MOBILE	A	From Face	3.00 0.00 0.00	0.0000	177.00
RADIO 4449 B71 B85A_T-MOBILE	B	From Face	3.00 0.00 0.00	0.0000	177.00
RADIO 4449 B71 B85A_T-MOBILE	C	From Face	3.00 0.00	0.0000	177.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
			0.00		
167					
Platform Mount [LP 303-1_HR-1]	C	None		0.0000	167.00
6'x2" Mount Pipe	A	From Leg	3.00 0.00 0.00	0.0000	167.00
6'x2" Mount Pipe	B	From Leg	3.00 0.00 0.00	0.0000	167.00
6'x2" Mount Pipe	C	From Leg	3.00 0.00 0.00	0.0000	167.00
80010964 w/ Mount Pipe	A	From Leg	3.00 0.00 0.00	0.0000	167.00
80010964 w/ Mount Pipe	A	From Leg	3.00 0.00 0.00	0.0000	167.00
(2) 80010966 w/ Mount Pipe	B	From Leg	3.00 0.00 0.00	0.0000	167.00
(2) 80010966 w/ Mount Pipe	C	From Leg	3.00 0.00 0.00	0.0000	167.00
7770.00 w/ Mount Pipe	A	From Leg	3.00 0.00 2.00	0.0000	167.00
7770.00 w/ Mount Pipe	B	From Leg	3.00 0.00 2.00	0.0000	167.00
7770.00 w/ Mount Pipe	C	From Leg	3.00 0.00 2.00	0.0000	167.00
DC6-48-60-18-8F	A	From Leg	1.00 0.00 0.00	0.0000	167.00
DC6-48-60-18-8F	B	From Leg	1.00 0.00 0.00	0.0000	167.00
DC6-48-60-18-8F	C	From Leg	1.00 0.00 0.00	0.0000	167.00
RRUS 4478 B14	A	From Leg	3.00 0.00 0.00	0.0000	167.00
RRUS 4478 B14	B	From Leg	3.00 0.00 0.00	0.0000	167.00
RRUS 4478 B14	C	From Leg	3.00 0.00 0.00	0.0000	167.00
RRUS 8843 B2/B66A	A	From Leg	3.00 0.00 0.00	0.0000	167.00
RRUS 8843 B2/B66A	B	From Leg	3.00 0.00 0.00	0.0000	167.00
RRUS 8843 B2/B66A	C	From Leg	3.00 0.00 0.00	0.0000	167.00
RRUS 4449 B5/B12	A	From Leg	3.00 0.00 0.00	0.0000	167.00
RRUS 4449 B5/B12	B	From Leg	3.00 0.00	0.0000	167.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
RRUS 4449 B5/B12	C	From Leg	0.00 3.00 0.00	0.0000	167.00
(2) LGP 17201	A	From Leg	0.00 3.00 0.00	0.0000	167.00
(2) LGP 17201	B	From Leg	0.00 3.00 0.00	0.0000	167.00
(2) LGP 17201	C	From Leg	0.00 3.00 0.00	0.0000	167.00
782 10253	A	From Leg	0.00 3.00 0.00	0.0000	167.00
782 10253	B	From Leg	0.00 3.00 0.00	0.0000	167.00
782 10253	C	From Leg	0.00 3.00 0.00	0.0000	167.00
155			0.00		
Platform Mount [LP 303-1]	C	None		0.0000	155.00
Mount Reinforcement Specifications	C	None		0.0000	155.00
JAM Wirless 91900314 Dual-mount Antenna Bracket	A	From Face	3.00 0.00	0.0000	155.00
JAM Wirless 91900314 Dual-mount Antenna Bracket	B	From Face	0.00 3.00 0.00	0.0000	155.00
JAM Wirless 91900314 Dual-mount Antenna Bracket	C	From Face	0.00 3.00 0.00	0.0000	155.00
(2) LPA-80080/4CF w/ Mount Pipe	A	From Face	0.00 3.00 0.00	0.0000	155.00
(2) LPA-80080/4CF w/ Mount Pipe	B	From Face	2.00 3.00 0.00	0.0000	155.00
(2) LPA-80063/4CF w/ Mount Pipe	C	From Face	2.00 3.00 0.00	0.0000	155.00
(2) MX06FRO660-03 w/ Mount Pipe	A	From Face	2.00 3.00 0.00	0.0000	155.00
(2) MX06FRO660-03 w/ Mount Pipe	B	From Face	2.00 3.00 0.00	0.0000	155.00
(2) MX06FRO660-03 w/ Mount Pipe	C	From Face	2.00 3.00 0.00	0.0000	155.00
MT6407-77A w/ Mount Pipe	A	From Face	2.00 3.00 0.00	0.0000	155.00
MT6407-77A w/ Mount Pipe	B	From Face	2.00 3.00 0.00	0.0000	155.00
MT6407-77A w/ Mount Pipe	C	From Face	2.00 3.00 0.00	0.0000	155.00
RF4439D-25A	A	From Face	2.00 3.00 0.00	0.0000	155.00
RF4439D-25A	B	From Face	2.00 3.00	0.0000	155.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
			0.00 2.00		
RF4439D-25A	C	From Face	3.00 0.00	0.0000	155.00
			2.00		
RF4440D-13A	A	From Face	3.00 0.00	0.0000	155.00
			2.00		
RF4440D-13A	B	From Face	3.00 0.00	0.0000	155.00
			2.00		
RF4440D-13A	C	From Face	3.00 0.00	0.0000	155.00
			2.00		
RVZDC-6627-PF-48	A	From Face	3.00 0.00	0.0000	155.00
			2.00		
***					
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00 0.00	0.0000	147.00
			0.00		
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00 0.00	0.0000	147.00
			0.00		
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00 0.00	0.0000	147.00
			0.00		
TA08025-B604	A	From Leg	4.00 0.00	0.0000	147.00
			0.00		
TA08025-B604	B	From Leg	4.00 0.00	0.0000	147.00
			0.00		
TA08025-B604	C	From Leg	4.00 0.00	0.0000	147.00
			0.00		
TA08025-B605	A	From Leg	4.00 0.00	0.0000	147.00
			0.00		
TA08025-B605	B	From Leg	4.00 0.00	0.0000	147.00
			0.00		
TA08025-B605	C	From Leg	4.00 0.00	0.0000	147.00
			0.00		
RDIDC-9181-PF-48	A	From Leg	4.00 0.00	0.0000	147.00
			0.00		
(2) 8' x 2'' Mount Pipe	A	From Leg	4.00 0.00	0.0000	147.00
			0.00		
(2) 8' x 2'' Mount Pipe	B	From Leg	4.00 0.00	0.0000	147.00
			0.00		
(2) 8' x 2'' Mount Pipe	C	From Leg	4.00 0.00	0.0000	147.00
			0.00		
Commscope MC-PK8-DSH	C	None		0.0000	147.00
60					
Side Arm Mount [SO 701-1]	A	From Face	0.00 0.00	0.0000	60.00
			0.00		
GPS_A	A	From Face	3.00 0.00	0.0000	60.00
			0.00		

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft
***					
***					
***					
***					

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
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	179.5 - 129.75	Pole	Max Tension	3	0.00	-0.00	-0.00
			Max. Compression	26	-41.64	0.71	-1.22
			Max. Mx	20	-18.81	686.35	0.28
			Max. My	14	-18.81	-0.44	-683.98
			Max. Vy	20	-24.90	686.35	0.28
			Max. Vx	14	24.93	-0.44	-683.98
			Max. Torque	9			-0.90
L2	129.75 - 84.58	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.66	0.92	-1.10
			Max. Mx	20	-29.19	1871.85	1.34
			Max. My	14	-29.19	-1.47	-1870.72
			Max. Vy	20	-29.19	1871.85	1.34
			Max. Vx	14	29.21	-1.47	-1870.72
			Max. Torque	23			0.56
L3	84.58 - 40.7	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-72.47	1.51	-0.77
			Max. Mx	20	-43.70	3210.07	2.27
			Max. My	14	-43.70	-2.15	-3210.14
			Max. Vy	20	-33.50	3210.07	2.27
			Max. Vx	14	33.54	-2.15	-3210.14
			Max. Torque	25			0.62
L4	40.7 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-98.26	1.94	-0.52
			Max. Mx	20	-65.49	4913.73	2.74
			Max. My	14	-65.49	-2.57	-4915.93
			Max. Vy	20	-37.70	4913.73	2.74
			Max. Vx	14	37.75	-2.57	-4915.93
			Max. Torque	25			0.62

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	36	98.26	8.76	-0.00
	Max. H_x	21	49.13	37.67	0.01
	Max. H_z	3	49.13	0.01	37.71
	Max. M_x	2	4915.54	0.01	37.71
	Max. M_z	8	4912.99	-37.67	-0.01
	Max. Torsion	25	0.62	18.84	32.66
	Min. Vert	11	49.13	-32.62	-18.86
	Min. H_x	9	49.13	-37.67	-0.01
	Min. H_z	15	49.13	-0.01	-37.71
	Min. M_x	14	-4915.93	-0.01	-37.71
	Min. M_z	20	-4913.73	37.67	0.01
	Min. Torsion	13	-0.61	-18.84	-32.66

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	54.59	0.00	0.00	0.14	0.29	0.00
1.2 Dead+1.0 Wind 0 deg -	65.51	-0.01	-37.71	-4915.54	3.30	-0.51

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
No Ice 0.9 Dead+1.0 Wind 0 deg - No Ice	49.13	-0.01	-37.71	-4849.80	3.15	-0.51
1.2 Dead+1.0 Wind 30 deg - No Ice	65.51	18.82	-32.65	-4255.50	-2453.78	-0.27
0.9 Dead+1.0 Wind 30 deg - No Ice	49.13	18.82	-32.65	-4198.61	-2421.02	-0.27
1.2 Dead+1.0 Wind 60 deg - No Ice	65.51	32.61	-18.85	-2455.14	-4253.27	0.04
0.9 Dead+1.0 Wind 60 deg - No Ice	49.13	32.61	-18.85	-2422.34	-4196.41	0.04
1.2 Dead+1.0 Wind 90 deg - No Ice	65.51	37.67	0.01	3.12	-4912.99	0.34
0.9 Dead+1.0 Wind 90 deg - No Ice	49.13	37.67	0.01	3.02	-4847.27	0.34
1.2 Dead+1.0 Wind 120 deg - No Ice	65.51	32.62	18.86	2460.59	-4256.19	0.54
0.9 Dead+1.0 Wind 120 deg - No Ice	49.13	32.62	18.86	2427.60	-4199.27	0.54
1.2 Dead+1.0 Wind 150 deg - No Ice	65.51	18.84	32.66	4258.80	-2458.85	0.61
0.9 Dead+1.0 Wind 150 deg - No Ice	49.13	18.84	32.66	4201.75	-2426.00	0.61
1.2 Dead+1.0 Wind 180 deg - No Ice	65.51	0.01	37.71	4915.93	-2.57	0.52
0.9 Dead+1.0 Wind 180 deg - No Ice	49.13	0.01	37.71	4850.08	-2.61	0.52
1.2 Dead+1.0 Wind 210 deg - No Ice	65.51	-18.82	32.65	4255.90	2454.52	0.28
0.9 Dead+1.0 Wind 210 deg - No Ice	49.13	-18.82	32.65	4198.90	2421.57	0.28
1.2 Dead+1.0 Wind 240 deg - No Ice	65.51	-32.61	18.85	2455.53	4254.01	-0.03
0.9 Dead+1.0 Wind 240 deg - No Ice	49.13	-32.61	18.85	2422.63	4196.95	-0.03
1.2 Dead+1.0 Wind 270 deg - No Ice	65.51	-37.67	-0.01	-2.74	4913.73	-0.34
0.9 Dead+1.0 Wind 270 deg - No Ice	49.13	-37.67	-0.01	-2.74	4847.81	-0.34
1.2 Dead+1.0 Wind 300 deg - No Ice	65.51	-32.62	-18.86	-2460.20	4256.92	-0.56
0.9 Dead+1.0 Wind 300 deg - No Ice	49.13	-32.62	-18.86	-2427.33	4199.81	-0.56
1.2 Dead+1.0 Wind 330 deg - No Ice	65.51	-18.84	-32.66	-4258.41	2459.58	-0.62
0.9 Dead+1.0 Wind 330 deg - No Ice	49.13	-18.84	-32.66	-4201.47	2426.54	-0.62
1.2 Dead+1.0 Ice+1.0 Temp	98.26	-0.00	0.00	0.52	1.94	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	98.26	0.00	-8.77	-1180.19	2.47	-0.10
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	98.26	4.38	-7.60	-1021.82	-587.64	-0.06
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	98.26	7.59	-4.39	-589.48	-1019.72	-0.01
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	98.26	8.76	-0.00	1.00	-1177.99	0.05
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	98.26	7.59	4.39	591.39	-1020.04	0.10
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	98.26	4.38	7.60	1023.50	-588.21	0.12
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	98.26	-0.00	8.77	1181.54	1.81	0.10
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	98.26	-4.38	7.60	1023.17	591.92	0.07
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	98.26	-7.59	4.39	590.82	1024.00	0.01
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	98.26	-8.76	0.00	0.35	1182.27	-0.05
1.2 Dead+1.0 Wind 300	98.26	-7.59	-4.39	-590.04	1024.32	-0.10

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	98.26	-4.38	-7.60	-1022.15	592.49	-0.12
Dead+Wind 0 deg - Service	54.59	-0.00	-7.02	-908.54	0.85	-0.10
Dead+Wind 30 deg - Service	54.59	3.50	-6.08	-786.53	-453.36	-0.05
Dead+Wind 60 deg - Service	54.59	6.07	-3.51	-453.72	-786.00	0.01
Dead+Wind 90 deg - Service	54.59	7.01	0.00	0.70	-907.95	0.06
Dead+Wind 120 deg - Service	54.59	6.07	3.51	454.98	-786.54	0.10
Dead+Wind 150 deg - Service	54.59	3.51	6.08	787.39	-454.29	0.12
Dead+Wind 180 deg - Service	54.59	0.00	7.02	908.87	-0.23	0.10
Dead+Wind 210 deg - Service	54.59	-3.50	6.08	786.85	453.97	0.05
Dead+Wind 240 deg - Service	54.59	-6.07	3.51	454.05	786.62	-0.01
Dead+Wind 270 deg - Service	54.59	-7.01	-0.00	-0.38	908.57	-0.06
Dead+Wind 300 deg - Service	54.59	-6.07	-3.51	-454.66	787.16	-0.10
Dead+Wind 330 deg - Service	54.59	-3.51	-6.08	-787.07	454.91	-0.12

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-54.59	0.00	0.00	54.59	0.00	0.000%
2	-0.01	-65.51	-37.71	0.01	65.51	37.71	0.000%
3	-0.01	-49.13	-37.71	0.01	49.13	37.71	0.000%
4	18.82	-65.51	-32.65	-18.82	65.51	32.65	0.000%
5	18.82	-49.13	-32.65	-18.82	49.13	32.65	0.000%
6	32.61	-65.51	-18.85	-32.61	65.51	18.85	0.000%
7	32.61	-49.13	-18.85	-32.61	49.13	18.85	0.000%
8	37.67	-65.51	0.01	-37.67	65.51	-0.01	0.000%
9	37.67	-49.13	0.01	-37.67	49.13	-0.01	0.000%
10	32.62	-65.51	18.86	-32.62	65.51	-18.86	0.000%
11	32.62	-49.13	18.86	-32.62	49.13	-18.86	0.000%
12	18.84	-65.51	32.66	-18.84	65.51	-32.66	0.000%
13	18.84	-49.13	32.66	-18.84	49.13	-32.66	0.000%
14	0.01	-65.51	37.71	-0.01	65.51	-37.71	0.000%
15	0.01	-49.13	37.71	-0.01	49.13	-37.71	0.000%
16	-18.82	-65.51	32.65	18.82	65.51	-32.65	0.000%
17	-18.82	-49.13	32.65	18.82	49.13	-32.65	0.000%
18	-32.61	-65.51	18.85	32.61	65.51	-18.85	0.000%
19	-32.61	-49.13	18.85	32.61	49.13	-18.85	0.000%
20	-37.67	-65.51	-0.01	37.67	65.51	0.01	0.000%
21	-37.67	-49.13	-0.01	37.67	49.13	0.01	0.000%
22	-32.62	-65.51	-18.86	32.62	65.51	18.86	0.000%
23	-32.62	-49.13	-18.86	32.62	49.13	18.86	0.000%
24	-18.84	-65.51	-32.66	18.84	65.51	32.66	0.000%
25	-18.84	-49.13	-32.66	18.84	49.13	32.66	0.000%
26	0.00	-98.26	0.00	0.00	98.26	-0.00	0.000%
27	0.00	-98.26	-8.77	-0.00	98.26	8.77	0.000%
28	4.38	-98.26	-7.60	-4.38	98.26	7.60	0.000%
29	7.59	-98.26	-4.39	-7.59	98.26	4.39	0.000%
30	8.76	-98.26	-0.00	-8.76	98.26	0.00	0.000%
31	7.59	-98.26	4.39	-7.59	98.26	-4.39	0.000%
32	4.38	-98.26	7.60	-4.38	98.26	-7.60	0.000%
33	-0.00	-98.26	8.77	0.00	98.26	-8.77	0.000%
34	-4.38	-98.26	7.60	4.38	98.26	-7.60	0.000%
35	-7.59	-98.26	4.39	7.59	98.26	-4.39	0.000%
36	-8.76	-98.26	0.00	8.76	98.26	-0.00	0.000%
37	-7.59	-98.26	-4.39	7.59	98.26	4.39	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
38	-4.38	-98.26	-7.60	4.38	98.26	7.60	0.000%
39	-0.00	-54.59	-7.02	0.00	54.59	7.02	0.000%
40	3.50	-54.59	-6.08	-3.50	54.59	6.08	0.000%
41	6.07	-54.59	-3.51	-6.07	54.59	3.51	0.000%
42	7.01	-54.59	0.00	-7.01	54.59	-0.00	0.000%
43	6.07	-54.59	3.51	-6.07	54.59	-3.51	0.000%
44	3.51	-54.59	6.08	-3.51	54.59	-6.08	0.000%
45	0.00	-54.59	7.02	-0.00	54.59	-7.02	0.000%
46	-3.50	-54.59	6.08	3.50	54.59	-6.08	0.000%
47	-6.07	-54.59	3.51	6.07	54.59	-3.51	0.000%
48	-7.01	-54.59	-0.00	7.01	54.59	0.00	0.000%
49	-6.07	-54.59	-3.51	6.07	54.59	3.51	0.000%
50	-3.51	-54.59	-6.08	3.51	54.59	6.08	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00002945
3	Yes	4	0.00000001	0.00045501
4	Yes	6	0.00000001	0.00014100
5	Yes	6	0.00000001	0.00004482
6	Yes	6	0.00000001	0.00014098
7	Yes	6	0.00000001	0.00004481
8	Yes	5	0.00000001	0.00003183
9	Yes	4	0.00000001	0.00047094
10	Yes	6	0.00000001	0.00014273
11	Yes	6	0.00000001	0.00004539
12	Yes	6	0.00000001	0.00014075
13	Yes	5	0.00000001	0.00099978
14	Yes	5	0.00000001	0.00002385
15	Yes	4	0.00000001	0.00042201
16	Yes	6	0.00000001	0.00014148
17	Yes	6	0.00000001	0.00004498
18	Yes	6	0.00000001	0.00014168
19	Yes	6	0.00000001	0.00004505
20	Yes	5	0.00000001	0.00002594
21	Yes	4	0.00000001	0.00043447
22	Yes	6	0.00000001	0.00014081
23	Yes	6	0.00000001	0.00004469
24	Yes	6	0.00000001	0.00014259
25	Yes	6	0.00000001	0.00004534
26	Yes	4	0.00000001	0.00000595
27	Yes	5	0.00000001	0.00056026
28	Yes	5	0.00000001	0.00069480
29	Yes	5	0.00000001	0.00069488
30	Yes	5	0.00000001	0.00056049
31	Yes	5	0.00000001	0.00070054
32	Yes	5	0.00000001	0.00069894
33	Yes	5	0.00000001	0.00056325
34	Yes	5	0.00000001	0.00070248
35	Yes	5	0.00000001	0.00070251
36	Yes	5	0.00000001	0.00056321
37	Yes	5	0.00000001	0.00069877
38	Yes	5	0.00000001	0.00070026
39	Yes	4	0.00000001	0.00006439
40	Yes	4	0.00000001	0.00030338
41	Yes	4	0.00000001	0.00030277
42	Yes	4	0.00000001	0.00006484
43	Yes	4	0.00000001	0.00031469
44	Yes	4	0.00000001	0.00030053
45	Yes	4	0.00000001	0.00006434
46	Yes	4	0.00000001	0.00030772
47	Yes	4	0.00000001	0.00030882

48	Yes	4	0.00000001	0.00006474
49	Yes	4	0.00000001	0.00030022
50	Yes	4	0.00000001	0.00031389

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	179.5 - 129.75	24.387	44	1.2602	0.0011
L2	134.25 - 84.58	13.145	49	1.0281	0.0004
L3	90.41 - 40.7	5.509	49	0.6131	0.0002
L4	47.78 - 0	1.460	49	0.2820	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
177.00	Site Pro 1 RMQP-496 + HRK12-U 12.5' Platform with Handrails	44	23.727	1.2505	0.0011	52699
167.00	Platform Mount [LP 303-1_HR-1]	44	21.102	1.2108	0.0009	21079
155.00	Platform Mount [LP 303-1]	44	18.031	1.1565	0.0007	10754
147.00	MX08FRO665-21 w/ Mount Pipe	44	16.068	1.1135	0.0006	8106
60.00	Side Arm Mount [SO 701-1]	49	2.295	0.3653	0.0001	6901

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	179.5 - 129.75	131.948	20	6.8299	0.0064
L2	134.25 - 84.58	71.132	22	5.5736	0.0022
L3	90.41 - 40.7	29.825	12	3.3219	0.0008
L4	47.78 - 0	7.901	24	1.5272	0.0003

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
177.00	Site Pro 1 RMQP-496 + HRK12-U 12.5' Platform with Handrails	20	128.379	6.7777	0.0061	9975
167.00	Platform Mount [LP 303-1_HR-1]	20	114.180	6.5627	0.0050	3988
155.00	Platform Mount [LP 303-1]	20	97.568	6.2694	0.0038	2032
147.00	MX08FRO665-21 w/ Mount Pipe	20	86.948	6.0363	0.0031	1529
60.00	Side Arm Mount [SO 701-1]	12	12.423	1.9787	0.0004	1277

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 $\frac{P_u}{\phi P_n}$
L1	179.5 - 129.75 (1)	TP31.86x19.59x0.3125	49.75	0.00	0.0	30.1903	-18.81	1766.14	0.011
L2	129.75 - 84.58 (2)	TP42.26x30.1252x0.375	49.67	0.00	0.0	48.1583	-29.19	2817.26	0.010
L3	84.58 - 40.7 (3)	TP52.21x40.0857x0.4375	49.71	0.00	0.0	69.4947	-43.70	4065.44	0.011
L4	40.7 - 0 (4)	TP61.25x49.6082x0.5	47.78	0.00	0.0	96.4102	-65.49	5640.00	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	179.5 - 129.75 (1)	TP31.86x19.59x0.3125	686.35	1392.33	0.493	0.00	1392.33	0.000
L2	129.75 - 84.58 (2)	TP42.26x30.1252x0.375	1872.78	2877.03	0.651	0.00	2877.03	0.000
L3	84.58 - 40.7 (3)	TP52.21x40.0857x0.4375	3212.11	5051.43	0.636	0.00	5051.43	0.000
L4	40.7 - 0 (4)	TP61.25x49.6082x0.5	4917.68	8351.67	0.589	0.00	8351.67	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	179.5 - 129.75 (1)	TP31.86x19.59x0.3125	24.90	529.84	0.047	0.43	1412.33	0.000
L2	129.75 - 84.58 (2)	TP42.26x30.1252x0.375	29.21	845.18	0.035	0.54	2994.76	0.000
L3	84.58 - 40.7 (3)	TP52.21x40.0857x0.4375	33.52	1219.63	0.027	0.56	5345.34	0.000
L4	40.7 - 0 (4)	TP61.25x49.6082x0.5	37.75	1692.00	0.022	0.62	9001.75	0.000

Pole Interaction Design Data

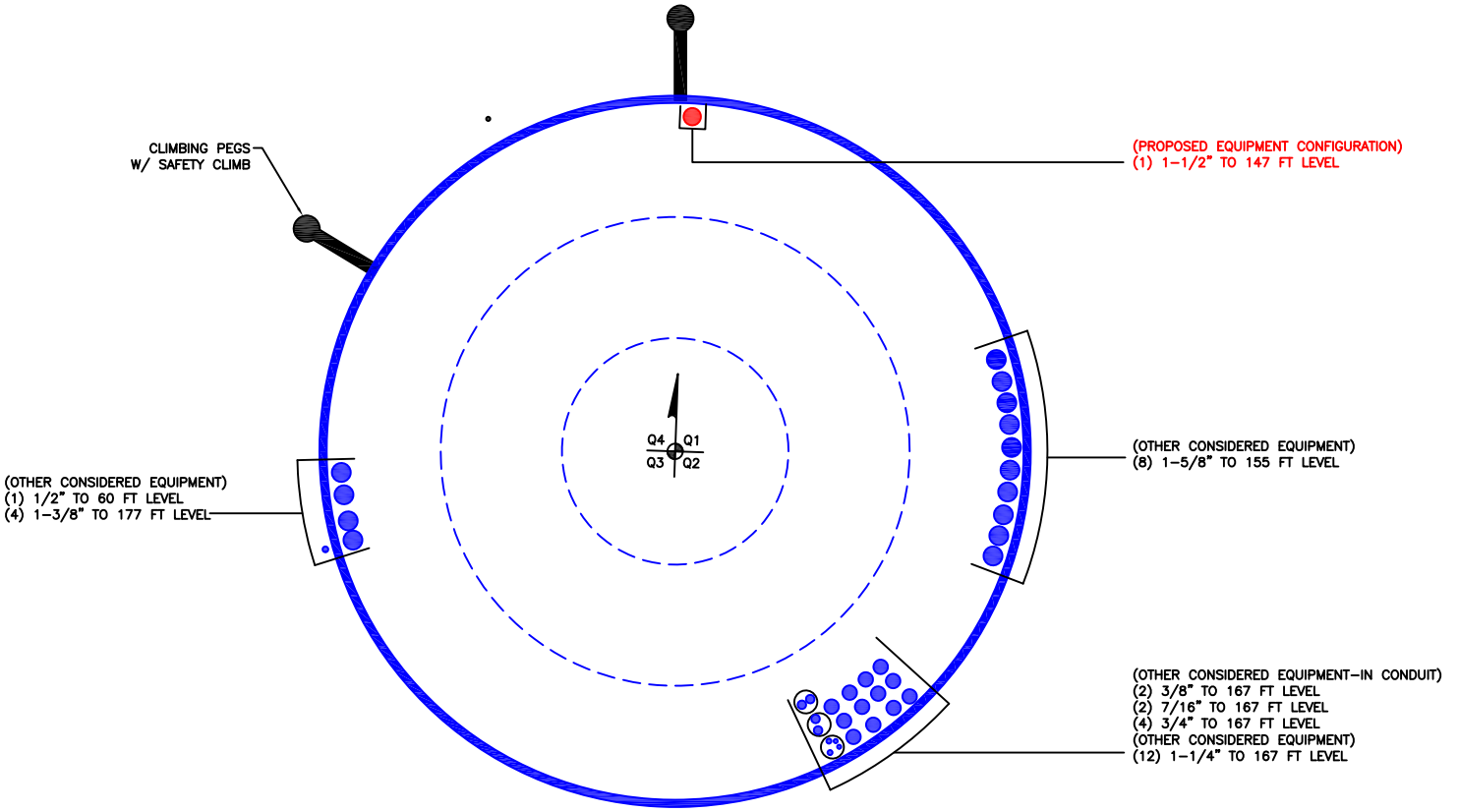
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	179.5 - 129.75 (1)	0.011	0.493	0.000	0.047	0.000	0.506	1.050	4.8.2
L2	129.75 - 84.58 (2)	0.010	0.651	0.000	0.035	0.000	0.663	1.050	4.8.2
L3	84.58 - 40.7 (3)	0.011	0.636	0.000	0.027	0.000	0.647	1.050	4.8.2
L4	40.7 - 0 (4)	0.012	0.589	0.000	0.022	0.000	0.601	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	179.5 - 129.75	Pole	TP31.86x19.59x0.3125	1	-18.81	1854.45	48.2	Pass
L2	129.75 - 84.58	Pole	TP42.26x30.1252x0.375	2	-29.19	2958.12	63.1	Pass
L3	84.58 - 40.7	Pole	TP52.21x40.0857x0.4375	3	-43.70	4268.71	61.7	Pass
L4	40.7 - 0	Pole	TP61.25x49.6082x0.5	4	-65.49	5922.00	57.2	Pass
							Summary	
						Pole (L2)	63.1	Pass
						RATING =	**63.1**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


CLIMBING PEGS
W/ SAFETY CLIMB
(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-1/2" TO 147 FT LEVEL
Q4
Q1
Q3
Q2
(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 60 FT LEVEL
(4) 1-3/8" TO 177 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(8) 1-5/8" TO 155 FT LEVEL
(OTHER CONSIDERED EQUIPMENT-IN CONDUIT)
(2) 3/8" TO 167 FT LEVEL
(2) 7/16" TO 167 FT LEVEL
(4) 3/4" TO 167 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(12) 1-1/4" TO 167 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

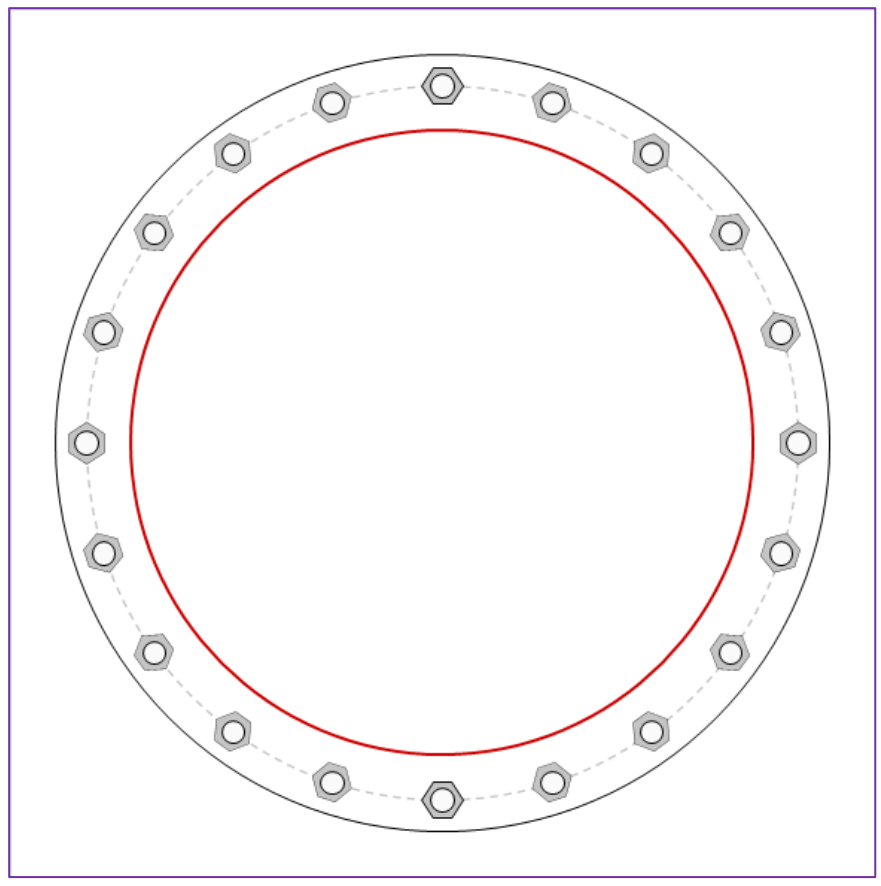
Monopole Base Plate Connection

Site Info	
BU #	876367
Site Name	ppingers Falls / BOB's A
Order #	576667, Rev 2

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	3.1875

Applied Loads	
Moment (kip-ft)	4917.69
Axial Force (kips)	65.49
Shear Force (kips)	37.75

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(20) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 70" BC

Base Plate Data

76" OD x 2.25" Plate (A871-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

61.25" x 0.5" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_t = 165.26	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.89	ϕVn = 149.1	**64.6%**
Mu = 3.91	ϕMn = 128.14	**Pass**

Base Plate Summary

Max Stress (ksi):	37.83	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**66.7%**	**Pass**

Pier and Pad Foundation

BU # :	876367
Site Name:	Wappingers Falls /
App. Number:	576667, Rev 2

TIA-222 Revision:	H
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	☐
Block Foundation?:	☐
Rectangular Pad?:	☐

Superstructure Analysis Reactions

Compression, P_{comp}:	65.51	kips
Base Shear, Vu_comp:	37.7	kips
Moment, M_u:	4917.68	ft-kips
Tower Height, **H**:	179.5	ft
BP Dist. Above Fdn, bp_{dist}:	7.625	in

Pier Properties

Pier Shape:	Square	
Pier Diameter, **dpier**:	7.5	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	11	
Pier Rebar Quantity, **mc**:	24	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	2	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	6.5	ft
Pad Width, W_1:	27	ft
Pad Thickness, **T**:	6	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	11	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	27	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties

Total Soil Unit Weight, γ:	100	pcf
Ultimate Net Bearing, Qnet:	16.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	30	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:	0.5	
Neglected Depth, **N**:	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks

	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	350.07	37.70	**10.3%**	**Pass**
Bearing Pressure (ksf)	12.49	2.58	**20.7%**	**Pass**
*Overturning (kip*ft)*	8549.02	5224.39	**61.1%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	6603.70	4974.23	**71.7%**	**Pass**
Pier Compression (kip)	35802.00	80.70	**0.2%**	**Pass**
*Pad Flexure (kip*ft)*	12459.97	1916.98	**14.7%**	**Pass**
Pad Shear - 1-way (kips)	2055.87	190.03	**8.8%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.012	**6.1%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	23200.14	2984.54	**12.3%**	**Pass**

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

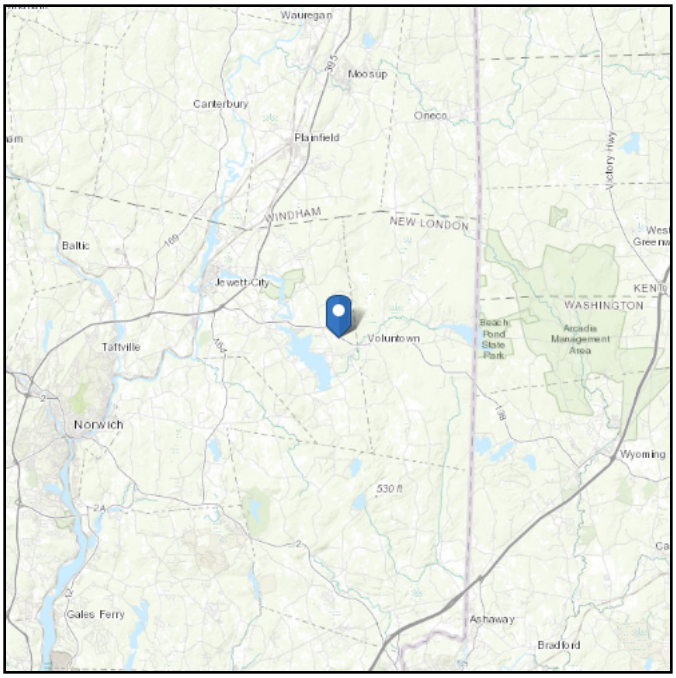
Structural Rating*:	**71.7%**
Soil Rating*:	**61.1%**

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 285.92 ft (NAVD 88)
Latitude: 41.576108
Longitude: -71.888044



Wind

Results:

Wind Speed:	133 Vmph	135 Vmph required by jurisdiction
10-year MRI	79 Vmph	
25-year MRI	89 Vmph	
50-year MRI	99 Vmph	
100-year MRI	108 Vmph	

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

Date Accessed: Thu Feb 04 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 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

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

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

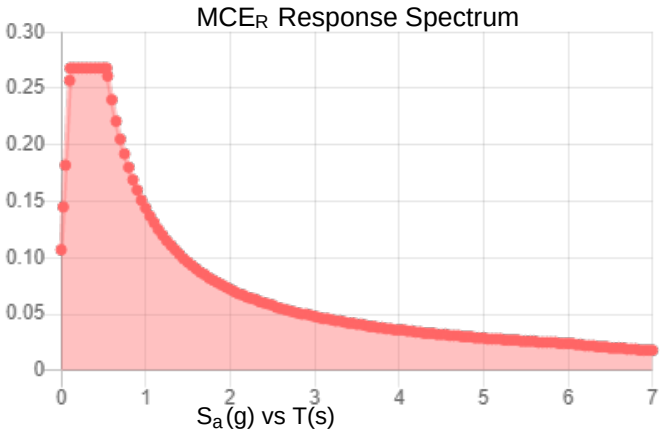
Seismic

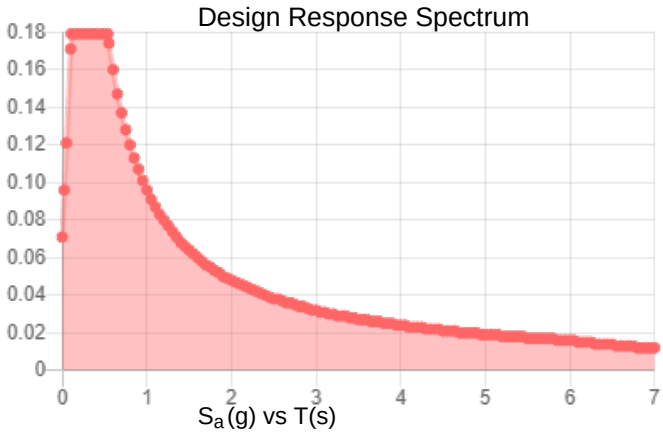
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.167	S_{DS} :	0.179
S_1 :	0.06	S_{D1} :	0.096
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.084
S_{MS} :	0.268	PGA_M :	0.134
S_{M1} :	0.144	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Thu Feb 04 2021

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Thu Feb 04 2021

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

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

Exhibit E

Mount Analysis

Date: **April 4, 2022**

Black & Veatch Corp.
11401 Lamar Avenue
Overland Park, KS 66211
(913) 458-9263

Subject:	**Mount Analysis Report**	
Carrier Designation:	***DISH Network* Equipment Change-Out**	
	Carrier Site Number:	BOBOS01002A
Crown Castle Designation:	**Crown Castle BU Number:**	876367
	Crown Castle Site Name:	WAPPINGERS FALLS /BOB'S ANTIQ
	Crown Castle JDE Number:	675286
	Crown Castle Order Number:	576667 Revision 2
Engineering Firm Designation:	**Black & Veatch Corp. Project Number:**	406642
Site Data:	**1439 Voluntown Rd, Griswold, New London County, CT 06384** **Latitude: 41° 34′ 34.30″ Longitude: -71° 53′ 15.40″**	
Structure Information	**Tower Height & Type:**	179.5 ft Monopole
	Mount Elevation:	147 ft
	Mount Width & Type:	8 ft Platform Mount

Black & Veatch Corp. is pleased to submit this **"Mount Analysis Report"** to determine the structural integrity of Dish Network antenna mounting system with the proposed appurtenance and equipment addition on the above mentioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

Commscope P/N: MC-PK8-DSH Platform Mount **Sufficient - 35.4%**

This analysis utilizes an ultimate 3-second gust wind speed of 135 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Jyoti Mahamulkar / Joohwan Jung

Respectfully Submitted by:

Ping Jiang, P.E.
Professional Engineer

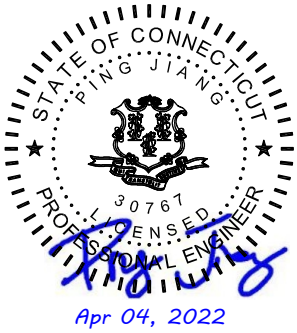


TABLE OF CONTENTS

1) INTRODUCTION

This is a proposed 3-sector 8 ft Platform Mount, designed by Commscope.

2) ANALYSIS CRITERIA

TIA-222 Revision: TIA-222-H
Risk Category: II
Ultimate Wind Speed: 135 mph
Exposure Category: B
Topographic Factor: 1
Ice Thickness: 1.5 in
Wind Speed with Ice: 50 mph
Live Loading Wind Speed: 30 mph
Live Loading at Mid/End-Points: 250 lb
Man Live Loading at Mount Pipes: 500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount Details
147.0	147.0	3	jma wireless	MX08FRO665-21	8 ft Platform Mount (Commscope P/N: MC-PK8-DSH)
		3	fujitsu	TA08025-B604	
		3	fujitsu	TA08025-B605	
		1	raycap	RDIDC-9181-PF-48	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
4-MOUNT MANUFACTURER DRAWING	Commscope	MC-PK8-DSH	Internal
4-MOUNT APPLICATION	APP. 576667 Rev. 2	-	CCISites

3.1) Analysis Method

RISA-3D (Version No. 17.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed, using Microsoft Excel, by Black & Veatch Corp. was used to calculate wind loading on all appurtenances, dishes, and mount members for various load cases. Selected output from the analysis is included in Appendix B.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision D).

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Tables 1 and the referenced drawings.

3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
4) This analysis was performed under the assumption that all information provided to Black & Veatch is current and correct. This is to include site data, existing/proposed appurtenance loading. The existing/proposed loading on the structure is based on CAD level drawings and carrier orders provided by the owner. If any of this information is not current and correct, this report should be considered obsolete and further analysis will be required.
5) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
6) Commscope MC-PK8-DSH Platform members shall use steel grade and dimensions specified on mount manufacturing drawings.
7) Proposed Raycap RDIDC-9181-PF-48 is assumed to be installed on pos. 1 mount pipe in alpha sector.
8) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM 500 (GR B-46)
Pipe	ASTM A53 (GR B-35)
Connection Bolts	ASTM A325

This analysis may be affected if any assumptions are not valid or have been made in error. Black & Veatch should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Platform Mount)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1	Cross Arm	16	147	35.4	Pass
	Perimeter Corner Plate	3		31.6	Pass
	Grating Angle	6		31.3	Pass
	Support rail corner	22		27.3	Pass
	Arm	21		26.7	Pass
	Mount Pipes	28		22.2	Pass
	Perimeter	11		14.7	Pass
	Support rail	25		14.6	Pass
2	Bolt Connection Check	21		25.2	Pass
	Weld Connection Check	21		30.2	Pass

Structure Rating (max from all components) =	35.4%

Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed. Rating per TIA-222-H, Section 15.5.
2) See additional documentation in "Appendix D - Additional Calculations" for detailed mount connection calculations.

4.1) Recommendations

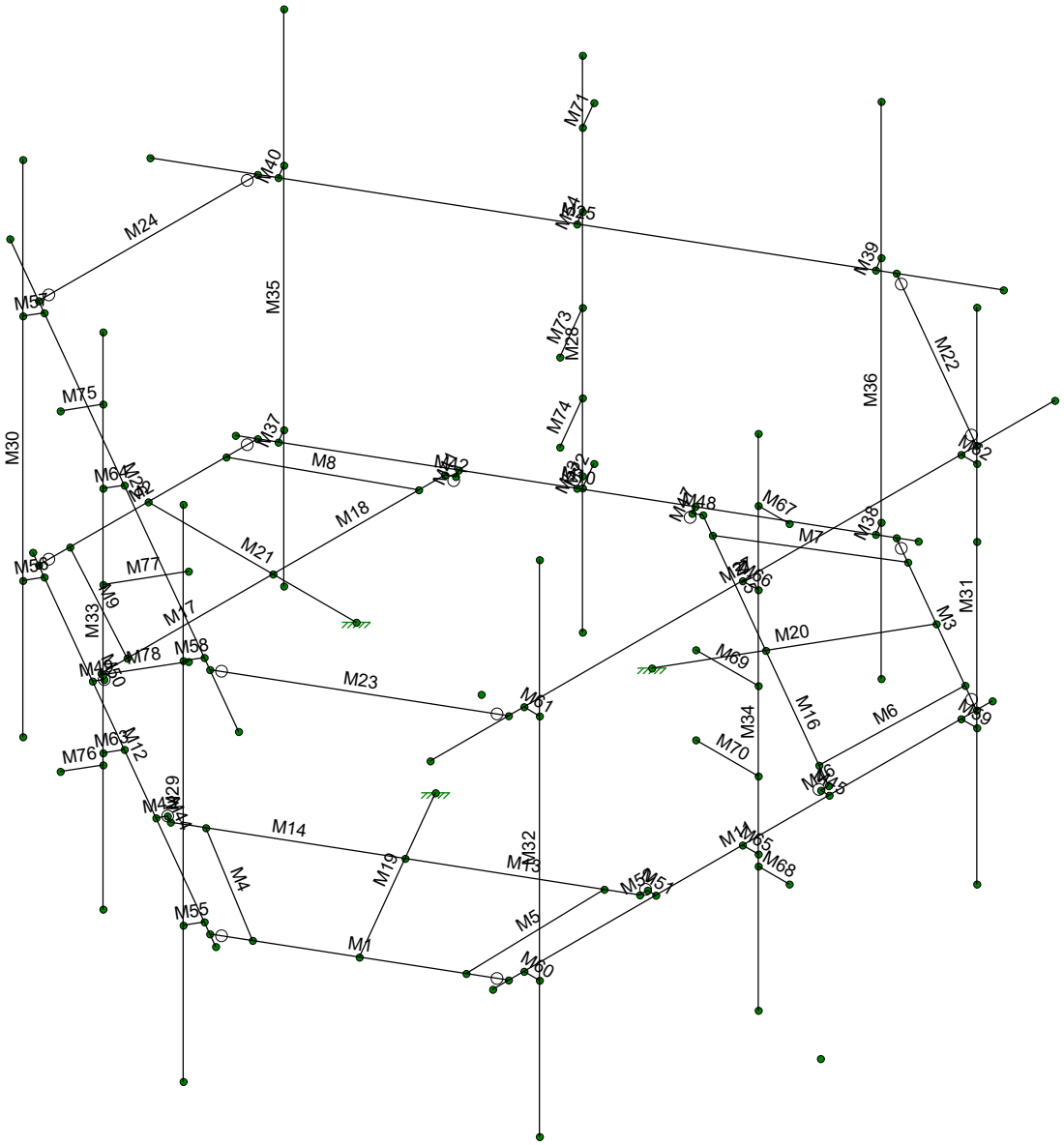
The proposed mount has sufficient capacity to support the proposed loading configuration. In order for the results of this analysis to be considered valid, the mount listed below shall be installed.

1. Install Commscope P/N: MC-PK8-DSH Platform Mount.
2. Install proposed antennas such that they are vertically centered in between the platform base and support rail.

Beyond the proposed mount installation, no structural modifications are required at this time, provided that the above- listed changes are implemented.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

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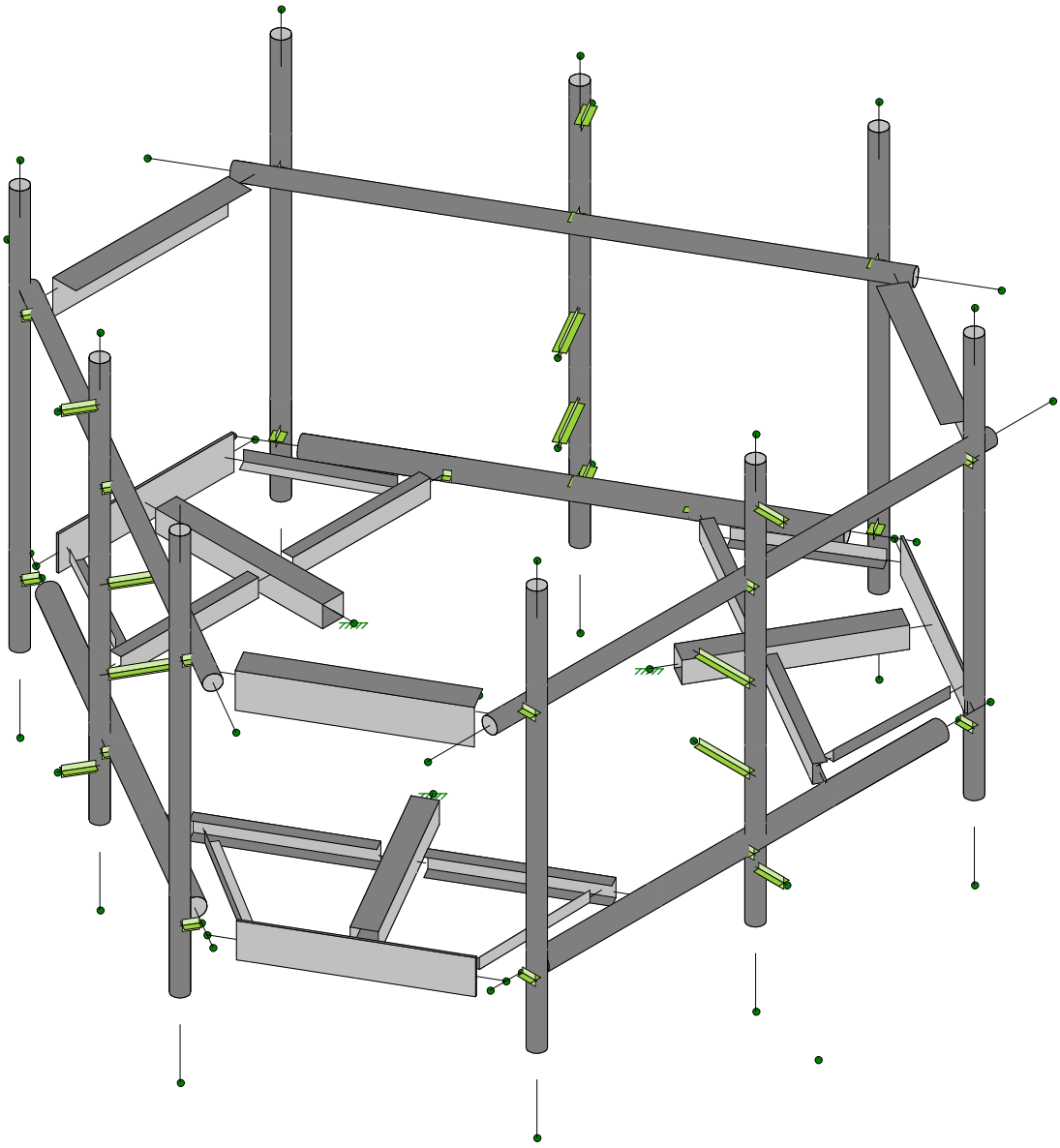

Envelope Only Solution

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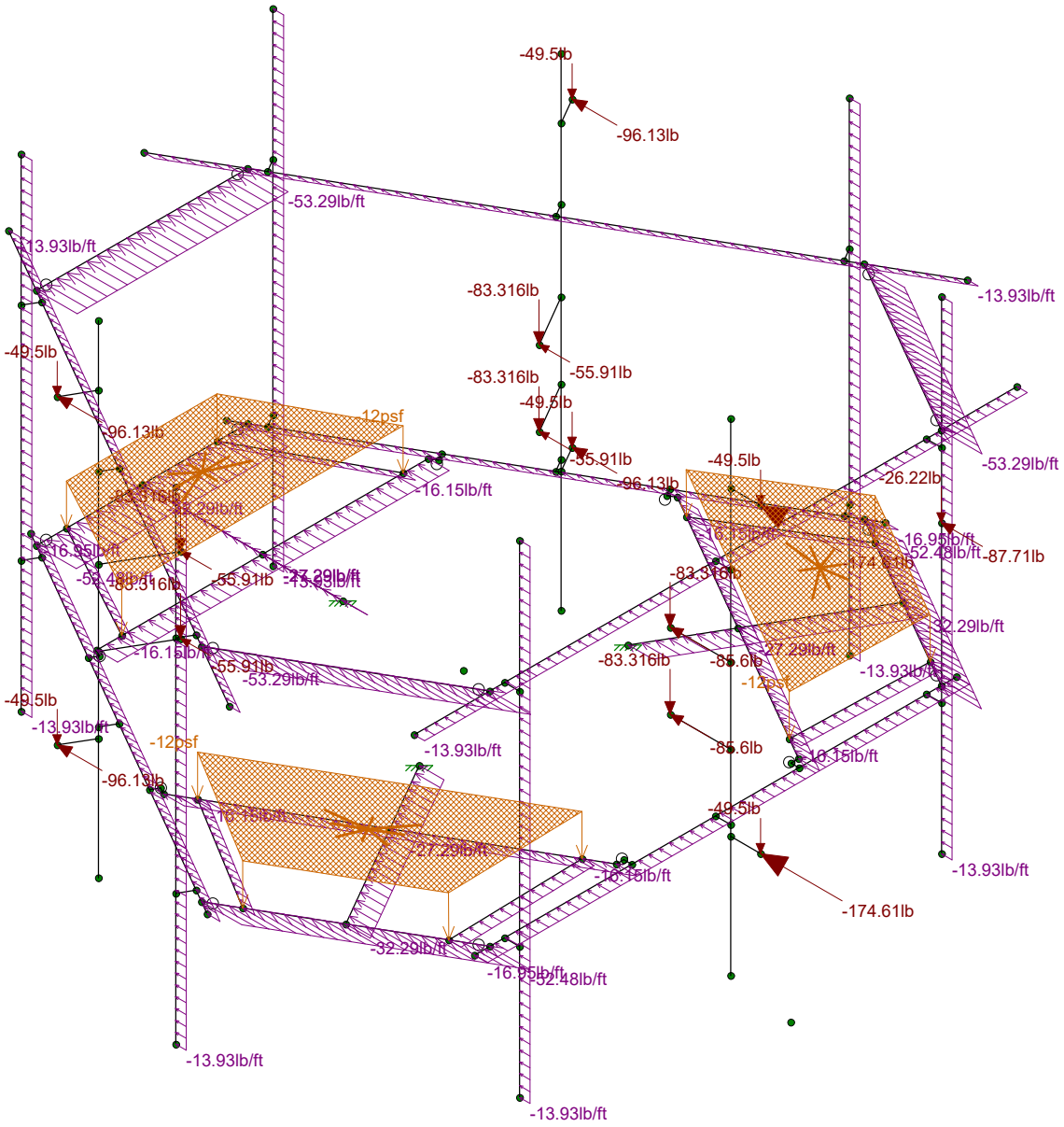

Loads: LC 2, 1.2DL + WL (0 DEG)
Envelope Only Solution

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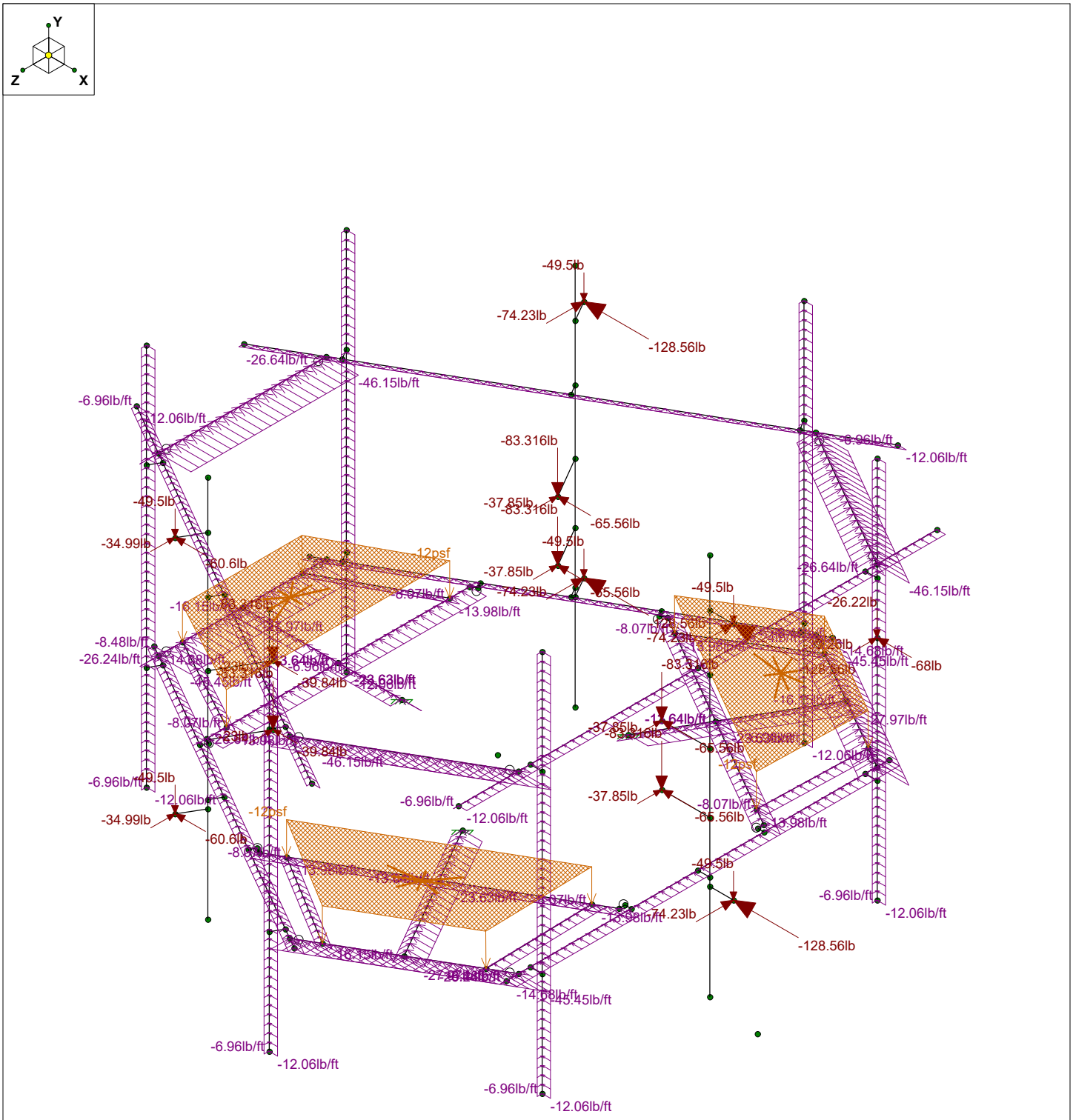

Loads: LC 3, 1.2DL + WL (30 DEG)
Envelope Only Solution

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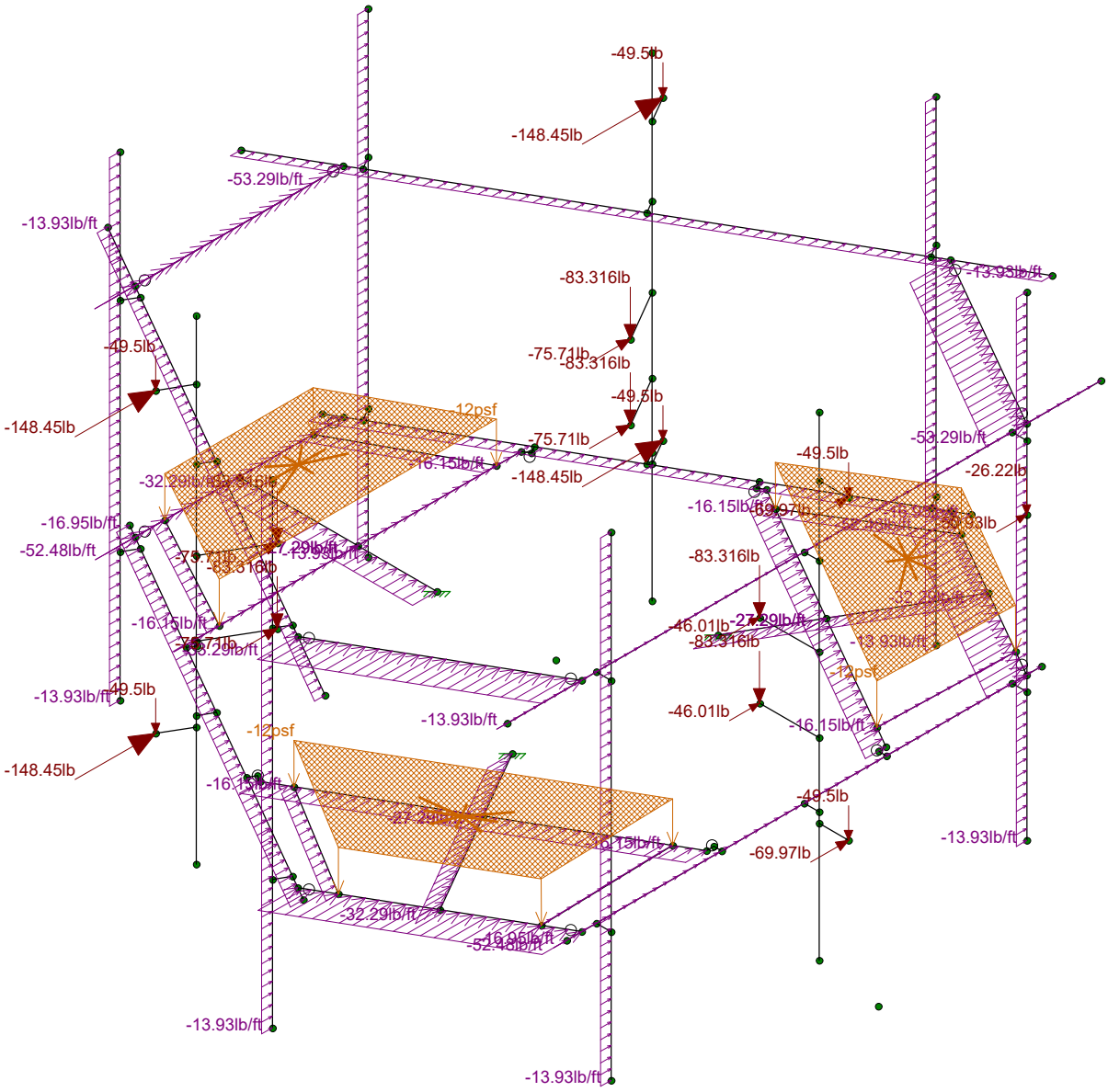
Jyoti M.		Apr 4, 2022 at 12:03 PM
406642.6057		876367.20220331576667 RISA M...



Loads: LC 5, 1.2DL + WL (90 DEG)
Envelope Only Solution

Black & Veatch Corp.	876367.20220331576667 RISA Model	SK - 5
Jyoti M.		Apr 4, 2022 at 12:03 PM
406642.6057		876367.20220331576667 RISA M...

APPENDIX B

SOFTWARE INPUT CALCULATIONS

Dead and Live Loads

Grating Dead Load: DL = 10 psf
Maintenance Live Load: L_V = 250 lb
Installation Live Load: L_M = 500 lb

Appurtenance Dead Loads	
Name	Weight (lb)
MX08FRO665-21	82.5
TA08025-B604	63.9
TA08025-B605	74.96
RDIDC-9181-PF-48	21.85

BLACK & VEATCH	Client:	CCI	Computed By: Jyoti M.
	Site Name:	WAPPINGERS FALLS /BOB'S ANTIQ (BOBOS01002A)	Date: 4/1/2022
	Work Order:	876367.576667	Verified By: Joohwan Jung
	Title:	MOUNT ANALYSIS REPORT	Date: 4/4/2022

Appurtenance Wind Loading

			Equations	TIA-222-H
Exposure Category =	B		$K_z = 2.01\ (z / z_g)^{2/\alpha}$	2.6.5.2
Risk Category =	II			
Topographic Category =	1		$K_h = e^{(f \cdot z / H)}$	2.6.6.2.1
Basic Wind Speed, V =	135	mph		
Height Above Ground, z =	147	ft	$K_{zt} = [1 + K_c K_t / K_h]^2$	2.6.6.2.1
Crest Height, H =	N/A	ft		
Velocity Pressure Coefficient, K_z =	1.10		$K_e = e^{-0.000032 z s}$	2.6.8
Topographic Factor, K_{zt} =	1.00			
Wind Directionality Factor, K_d =	0.95		$q_z = 0.00256\ K_z K_{zt} K_e K_d V^2$	2.6.11.6
Shielding Factor, K_a =	0.90			
Ground Elevation Factor, K_e =	0.991		$F_A = q_z G_h (EPA)$	2.6.11.2
Wind Velocity Pressure, q_z =	48.44	psf		
Gust Effect Factor, G_h =	1.00		$F_M = q_z G_h C_f D_p$	2.6.11.2

Appurtenance Wind Loads

Name	Height (ft)	Width (ft)	Depth (ft)	Normal			Tangential		
				C_a	CaAaf	F_A (lb)	C_a	CaAas	F_A (lb)
MX08FRO665-21	6.00	1.67	0.67	-	8.01	349.22	-	3.21	139.95
TA08025-B604	1.25	1.31	0.66	1.20	1.96	85.60	1.20	0.98	42.78
TA08025-B605	1.25	1.31	0.76	1.20	1.96	85.60	1.20	1.13	49.24
RDIDC-9181-PF-48	1.38	1.21	0.71	1.20	2.01	87.71	1.20	1.17	50.93

BLACK & VEATCH	Client:	CCI	Computed By: Jyoti M.
	Site Name:	WAPPINGERS FALLS /BOB'S ANTIQ (BOBOS01002A)	Date: 4/1/2022
	Work Order:	876367.576667	Verified By: Joohwan Jung
	Title:	MOUNT ANALYSIS REPORT	Date: 4/4/2022

Member Wind Loading

			Equations	TIA-222-H
Exposure Category =	B		$K_z = 2.01\ (z / z_g)^{2/\alpha}$	2.6.5.2
Risk Category =	II			
Topographic Category =	1		$K_h = e^{(f \cdot z / H)}$	2.6.6.2.1
Basic Wind Speed, V =	135	mph		
Height Above Ground, z =	147	ft	$K_{zt} = [1 + K_c K_t / K_h]^2$	2.6.6.2.1
Crest Height, H =	N/A	ft		
Velocity Pressure Coefficient, K_z =	1.10		$K_e = e^{-0.000032 z s}$	2.6.8
Topographic Factor, K_{zt} =	1.00			
Wind Directionality Factor, K_d =	0.95		$q_z = 0.00256\ K_z K_{zt} K_e K_d V^2$	2.6.11.6
Shielding Factor, K_a =	0.90			
Ground Elevation Factor, K_e =	0.991		$F_A = q_z G_h (EPA)$	2.6.11.2
Wind Velocity Pressure, q_z =	48.44	psf		
Gust Effect Factor, G_h =	1.00		$F_M = q_z G_h C_f D_p$	2.6.11.2

Member Wind Loads

Name	Depth (ft)	Width (ft)	C_f	D_p (ft)	F_M (lb/ft)
Perimeter Corner Plate: PL6.5x0.375	0.54	0.03	2	0.54	52.48
Grating Angle: L2x2x4	0.17	0.17	2	0.17	16.15
Perimeter: HSS3.500X0.165	0.29		1.2	0.29	16.95
Cross Arm: C3.38x2.06x0.25	0.28	0.17	2	0.28	27.29
Arm: HSS4X4X6	0.33	0.33	2	0.33	32.29
Support rail corner: L6.6x4.46x0.25	0.55	0.37	2	0.55	53.29
Support rail: Pipe 2.5 Std	0.24		1.2	0.24	13.93
Mount Pipes: Pipe 2.5 Std	0.24		1.2	0.24	13.93

Client:	CCI	Computed By:	Jyoti M.
Site Name:	WAPPINGERS FALLS /BOB'S ANTIQ (BOBOS01002A)	Date:	4/1/2022
Work Order:	876367.576667	Verified By:	Joohwan Jung
Title:	MOUNT ANALYSIS REPORT	Date:	4/4/2022

BLACK & VEATCH

Appurtenance Ice Dead Loading

			Equations	TIA-222-H
Exposure Category =	B			
Risk Category =	II		$K_h = e^{(f \cdot z/H)}$	2.6.6.2.1
Topographic Category =	1			
Height Above Ground, z =	147	ft	$K_{zt} = [1 + K_c K_t / K_h]^2$	2.6.6.2.1
Crest Height, H =	N/A	ft		
Design Ice Thickness, T_i =	1.50	in	$K_{iz} = (z/33)^{0.10}$	2.6.10
Importance Factor, I =	1			
Topographic Factor, K_{zt} =	1.00		$T_{iz} = T_i I K_{iz}(K_{zt})^{0.35}$	2.6.10
Height Escalation Factor, K_{iz} =	1.16			
Factored Ice Thickness, T_{iz} =	1.74	in	$DL_{ice}=[(H_{ice}*D_{ice}*W_{ice}) - (H*W*D)]*56pcf$	
Grating Ice Dead Load, D_{Gice} =	8.13	psf		

Appurtenance Ice Dead Loads

Name	Height w/ ice (ft)	Width w/ice (ft)	Depth w/ ice (ft)	V_{ice} (ft^3)	DL_{ice} (lb)
MX08FRO665-21	6.29	1.96	0.96	5.11	236.76
TA08025-B604	1.54	1.60	0.95	1.26	70.42
TA08025-B605	1.54	1.60	1.05	1.34	75.02
RDIDC-9181-PF-48	1.67	1.50	1.00	1.32	73.94

BLACK & VEATCH	Client:	CCI	Computed By: Jyoti M.
	Site Name:	WAPPINGERS FALLS /BOB'S ANTIQ (BOBOS01002A)	Date: 4/1/2022
	Work Order:	876367.576667	Verified By: Joohwan Jung
	Title:	MOUNT ANALYSIS REPORT	Date: 4/4/2022

Member Ice Dead Loading

Exposure Category =	B		
Risk Category =	II		
Topographic Category =	1		
Height Above Ground, z =	147	ft	
Crest Height, H =	N/A	ft	
Design Ice Thickness, T_i =	1.50	in	
Importance Factor, I =	1		
Topographic Factor, K_{zt} =	1.00		
Height Escalation Factor, K_{iz} =	1.16		
Factored Ice Thickness, T_{iz} =	1.74	in	
Grating Ice Dead Load, D_{Gice} =	8.13	psf	

Equations

	TIA-222-H
$K_h = e^{(f \cdot z/H)}$	2.6.6.2.1
$K_{zt} = [1 + K_c K_t / K_h]^2$	2.6.6.2.1
$K_{iz} = (z/33)^{0.10}$	2.6.10
$T_{iz} = T_i I K_{iz}(K_{zt})^{0.35}$	2.6.10
Aiz = pi*Tiz*(Dc+Tiz)	2.6.10
DL_{ice}=Aiz*56pcf	

Member Ice Dead Loads

Name	Depth w/ ice (ft)	Width w/ ice (ft)	Dc (ft)	Aiz (ft^2)	DL_{ice} (lb/ft)
Perimeter Corner Plate: PL6.5x0.375	0.83	0.32	0.54	0.31	17.56
Grating Angle: L2x2x4	0.46	0.46	0.24	0.17	9.72
Perimeter: HSS3.500X0.165	0.58		0.29	0.20	11.15
Cross Arm: C3.38x2.06x0.25	0.57	0.46	0.33	0.22	12.13
Arm: HSS4X4X6	0.62	0.62	0.47	0.28	15.74
Support rail corner: L6.6x4.46x0.25	0.84	0.66	0.66	0.37	20.66
Support rail: Pipe 2.5 Std	0.53		0.24	0.18	9.82
Mount Pipes: Pipe 2.5 Std	0.53		0.24	0.18	9.82

BLACK & VEATCH	Client:	CCI	Computed By: Jyoti M.
	Site Name:	WAPPINGERS FALLS /BOB'S ANTIQ (BOBOS01002A)	Date: 4/1/2022
	Work Order:	876367.576667	Verified By: Joohwan Jung
	Title:	MOUNT ANALYSIS REPORT	Date: 4/4/2022

Appurtenance Ice Wind Loading

			Equations	TIA-222-H
Exposure Category =	B		$K_z = 2.01\ (z / z_g)^{2/\alpha}$	2.6.5.2
Risk Category =	II			
Topographic Category =	1		$K_h = e^{(f \cdot z / H)}$	2.6.6.2.1
Ice Wind Speed, V_{ice} =	50	mph		
Height Above Ground, z =	147	ft	$K_{zt} = [1 + K_c K_t / K_h]^2$	2.6.6.2.1
Crest Height, H =	N/A	ft		
Velocity Pressure Coefficient, K_z =	1.10	psf	$K_e = e^{-0.000032 \cdot z s}$	2.6.8
Topographic Factor, K_{zt} =	1.00			
Wind Directionality Factor, K_d =	0.95		$q_z = 0.00256\ K_z K_{zt} K_e K_d V^2$	2.6.11.6
Shielding Factor, K_a =	0.90			
Ground Elevation Factory, K_e =	0.991		$F_{A(ice)} = q_{z(ice)} G_h (EPA)_{A(ice)}$	2.6.11.2
Ice Wind Velocity Pressure, $q_{z(ice)}$ =	6.645			
Factored Ice Thickness, T_{iz} =	1.74	in	$F_{M(ice)} = q_{z(ice)} G_h C_f D_{p(ice)}$	2.6.11.2
Gust Effect Factor, G_h =	1			

Appurtenance Ice Wind Loads

Name	Height w/ Ice (ft)	Width w/ Ice (ft)	Depth w/ Ice (ft)	Normal			Tangential		
				C_a	CaAaf	F_A (lb)	C_a	CaAas	F_A (lb)
MX08FRO665-21	6.29	1.96	0.96	-	9.05	54.12	-	4.12	24.64
TA08025-B604	1.54	1.60	0.95	-	2.34	13.97	-	1.27	7.57
TA08025-B605	1.54	1.60	1.05	-	2.34	13.97	-	1.43	8.53
RDIDC-9181-PF-48	1.67	1.50	1.00	-	2.39	14.29	-	1.48	8.83

Client:	CCI	Computed By:	Jyoti M.
Site Name:	WAPPINGERS FALLS /BOB'S ANTIQ (BOBOS01002A)	Date:	4/1/2022
Work Order:	876367.576667C	Verified By:	Joohwan Jung
Title:	MOUNT ANALYSIS REPORT	Date:	4/4/2022

BLACK & VEATCH

Member Ice Wind Loading

			Equations	TIA-222-H
Exposure Category =	B		$K_z = 2.01\ (z / z_g)^{2/\alpha}$	2.6.5.2
Risk Category =	II			
Topographic Category =	1		$K_h = e^{(f \cdot z / H)}$	2.6.6.2.1
Ice Wind Speed, V_{ice} =	50	mph		
Height Above Ground, z =	147	ft	$K_{zt} = [1 + K_c K_t / K_h]^2$	2.6.6.2.1
Crest Height, H =	N/A	ft		
Velocity Pressure Coefficient, K_z =	1.10	psf	$K_e = e^{-0.000032 z^{2.5}}$	2.6.8
Topographic Factor, K_{zt} =	1.00			
Wind Directionality Factor, K_d =	0.95		$q_z = 0.00256\ K_z K_{zt} K_e K_d V^2$	2.6.11.6
Shielding Factor, K_a =	0.90			
Ground Elevation Factory, K_e =	0.991		$F_{A(ice)} = q_{z(ice)} G_h (EPA)_{A(ice)}$	2.6.11.2
Ice Wind Velocity Pressure, $q_{z(ice)}$ =	6.645			
Factored Ice Thickness, T_{iz} =	1.74	in	$F_{M(ice)} = q_{z(ice)} G_h C_f D_{p(ice)}$	2.6.11.2
Gust Effect Factor, G_h =	1			

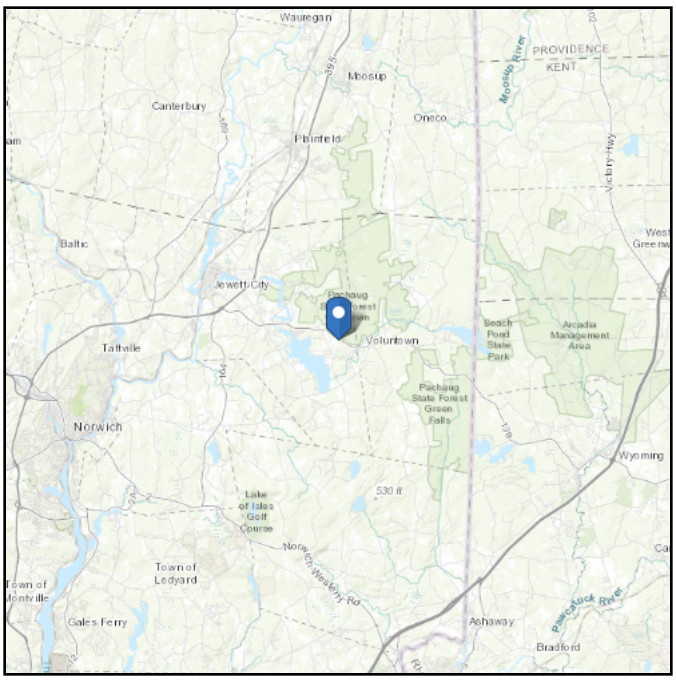
Member Ice Wind Loads

Name	Depth w/ Ice (ft)	Width w/ Ice (ft)	C_f	$D_{p(ice)}$ (ft)	$F_{M(ice)}$ (lb/ft)
Perimeter Corner Plate: PL6.5x0.375	0.83	0.32	2	0.83	11.06
Grating Angle: L2x2x4	0.46	0.46	2	0.46	6.07
Perimeter: HSS3.500X0.165	0.58		1.2	0.58	4.64
Cross Arm: C3.38x2.06x0.25	0.57	0.46	2	0.57	7.60
Arm: HSS4X4X6	0.62	0.62	2	0.62	8.29
Support rail corner: L6.6x4.46x0.25	0.84	0.66	2	0.84	11.17
Support rail: Pipe 2.5 Std	0.53		1.2	0.53	4.23
Mount Pipes: Pipe 2.5 Std	0.53		1.2	0.53	4.23

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	258.94 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.576194
Soil Class:	D - Stiff Soil	**Longitude:**	-71.887611



Wind

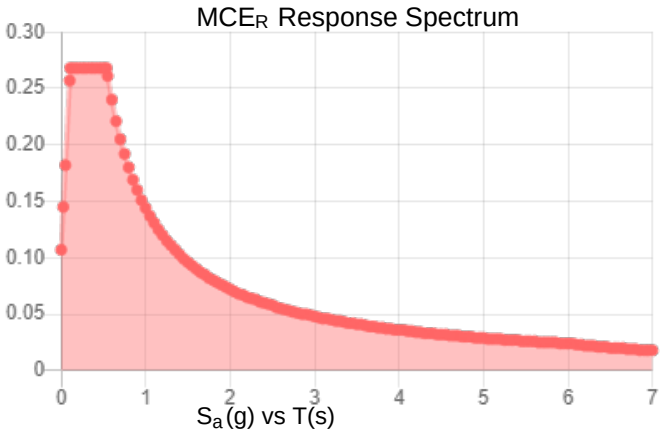
Seismic

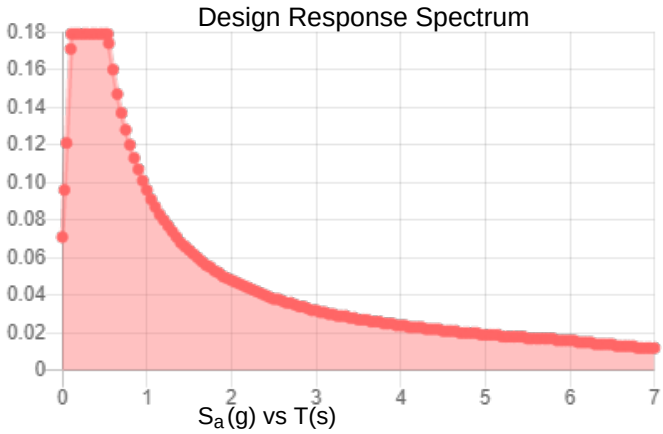
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.167	S_{DS} :	0.179
S_1 :	0.06	S_{D1} :	0.096
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.084
S_{MS} :	0.268	PGA_M :	0.134
S_{M1} :	0.144	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: **Mon Apr 04 2022**

Date Source:

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Mon Apr 04 2022

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

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

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	None
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	None
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1...	Density[k/f...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A529 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
3	A500 Gr. C	29000	11154	.3	.65	.49	46	1.6	60	1.2
4	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2

General Material Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 F)	Density[k/ft^3]
1	RIGID	1e+6		.3	0	0

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Perimeter Corner Plate	PL6.5x0.375	Beam	None	A36 Gr.36	Typical	2.438	.029	8.582	.11
2	Grating Angle	L2x2x4	Beam	None	A36 Gr.36	Typical	.944	.346	.346	.021
3	Perimeter	HSS3.500x0.1...	Beam	None	A500 Gr. C	Typical	1.729	2.409	2.409	4.819
4	Cross Arm	C3.38x2.06x0....	Beam	None	A36 Gr.36	Typical	1.75	.715	3.026	.034
5	Arm	HSS4X4X6	Beam	None	A500 Gr. C	Typical	4.78	10.3	10.3	17.5
6	Support rail corner	L6.6x4.46x0.25	Beam	None	A36 Gr.36	Typical	2.703	4.759	12.473	.055
7	Support rail	PIPE_2.5	Beam	None	A500 Gr. C	Typical	1.61	1.45	1.45	2.89
8	Mount Pipes	PIPE_2.5	Column	None	A500 Gr. C	Typical	1.61	1.45	1.45	2.89

General Section Sets

	Label	Shape	Type	Material	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	GEN1	RE4X4	Beam	RIGID	16	21.333	21.333	31.573
2	RIGID		None	RIGID	1e+6	1e+6	1e+6	1e+6

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N20	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N11	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N5	N6			Perimeter Cor...	Beam	None	A36 Gr.36	Typical
2	M2	N23	N24			Perimeter Cor...	Beam	None	A36 Gr.36	Typical
3	M3	N14	N15			Perimeter Cor...	Beam	None	A36 Gr.36	Typical
4	M4	N7	N10		270	Grating Angle	Beam	None	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
5	M5	N8	N9			Grating Angle	Beam	None	A36 Gr.36	Typical
6	M6	N16	N19		270	Grating Angle	Beam	None	A36 Gr.36	Typical
7	M7	N17	N18			Grating Angle	Beam	None	A36 Gr.36	Typical
8	M8	N25	N28		270	Grating Angle	Beam	None	A36 Gr.36	Typical
9	M9	N26	N27			Grating Angle	Beam	None	A36 Gr.36	Typical
10	M10	N29	N30			Perimeter	Beam	None	A500 Gr. C	Typical
11	M11	N87	N88			Perimeter	Beam	None	A500 Gr. C	Typical
12	M12	N73	N74			Perimeter	Beam	None	A500 Gr. C	Typical
13	M13	N4	N49			Cross Arm	Beam	None	A36 Gr.36	Typical
14	M14	N4	N50		180	Cross Arm	Beam	None	A36 Gr.36	Typical
15	M15	N13	N51			Cross Arm	Beam	None	A36 Gr.36	Typical
16	M16	N13	N52		180	Cross Arm	Beam	None	A36 Gr.36	Typical
17	M17	N22	N53			Cross Arm	Beam	None	A36 Gr.36	Typical
18	M18	N22	N54		180	Cross Arm	Beam	None	A36 Gr.36	Typical
19	M19	N3	N1			Arm	Beam	None	A500 Gr. C	Typical
20	M20	N12	N11			Arm	Beam	None	A500 Gr. C	Typical
21	M21	N21	N20			Arm	Beam	None	A500 Gr. C	Typical
22	M22	N42	N41		180	Support rail co...	Beam	None	A36 Gr.36	Typical
23	M23	N40	N39		180	Support rail co...	Beam	None	A36 Gr.36	Typical
24	M24	N44	N43		180	Support rail co...	Beam	None	A36 Gr.36	Typical
25	M25	N116	N117			Support rail	Beam	None	A500 Gr. C	Typical
26	M26	N118	N119			Support rail	Beam	None	A500 Gr. C	Typical
27	M27	N97	N98			Support rail	Beam	None	A500 Gr. C	Typical
28	M28	N69	N70			Mount Pipes	Column	None	A500 Gr. C	Typical
29	M29	N80	N82			Mount Pipes	Column	None	A500 Gr. C	Typical
30	M30	N79	N81			Mount Pipes	Column	None	A500 Gr. C	Typical
31	M31	N94	N96			Mount Pipes	Column	None	A500 Gr. C	Typical
32	M32	N93	N95			Mount Pipes	Column	None	A500 Gr. C	Typical
33	M33	N106	N107			Mount Pipes	Column	None	A500 Gr. C	Typical
34	M34	N112	N113			Mount Pipes	Column	None	A500 Gr. C	Typical
35	M35	N36	N38			Mount Pipes	Column	None	A500 Gr. C	Typical
36	M36	N35	N37			Mount Pipes	Column	None	A500 Gr. C	Typical
37	M37	N32	N46			RIGID	None	None	RIGID	Typical
38	M38	N31	N45			RIGID	None	None	RIGID	Typical
39	M39	N33	N47			RIGID	None	None	RIGID	Typical
40	M40	N34	N48			RIGID	None	None	RIGID	Typical
41	M41	N56	N55			RIGID	None	None	RIGID	Typical
42	M42	N54	N55			RIGID	None	None	RIGID	Typical
43	M43	N58	N57			RIGID	None	None	RIGID	Typical
44	M44	N50	N57			RIGID	None	None	RIGID	Typical
45	M45	N60	N59			RIGID	None	None	RIGID	Typical
46	M46	N52	N59			RIGID	None	None	RIGID	Typical
47	M47	N62	N61			RIGID	None	None	RIGID	Typical
48	M48	N51	N61			RIGID	None	None	RIGID	Typical
49	M49	N64	N63			RIGID	None	None	RIGID	Typical
50	M50	N53	N63			RIGID	None	None	RIGID	Typical
51	M51	N66	N65			RIGID	None	None	RIGID	Typical
52	M52	N49	N65			RIGID	None	None	RIGID	Typical
53	M53	N67	N71			RIGID	None	None	RIGID	Typical
54	M54	N68	N72			RIGID	None	None	RIGID	Typical
55	M55	N76	N84			RIGID	None	None	RIGID	Typical
56	M56	N75	N83			RIGID	None	None	RIGID	Typical
57	M57	N77	N85			RIGID	None	None	RIGID	Typical
58	M58	N78	N86			RIGID	None	None	RIGID	Typical
59	M59	N90	N100			RIGID	None	None	RIGID	Typical
60	M60	N89	N99			RIGID	None	None	RIGID	Typical
61	M61	N91	N101			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
62	M62	N92	N102			RIGID	None	None	RIGID	Typical
63	M63	N104	N108			RIGID	None	None	RIGID	Typical
64	M64	N105	N109			RIGID	None	None	RIGID	Typical
65	M65	N110	N114			RIGID	None	None	RIGID	Typical
66	M66	N111	N115			RIGID	None	None	RIGID	Typical
67	M67	N122	N124			RIGID	None	None	RIGID	Typical
68	M68	N121	N123			RIGID	None	None	RIGID	Typical
69	M69	N126	N120			RIGID	None	None	RIGID	Typical
70	M70	N127	N125			RIGID	None	None	RIGID	Typical
71	M71	N131	N133			RIGID	None	None	RIGID	Typical
72	M72	N130	N132			RIGID	None	None	RIGID	Typical
73	M73	N135	N129			RIGID	None	None	RIGID	Typical
74	M74	N136	N134			RIGID	None	None	RIGID	Typical
75	M75	N139	N141			RIGID	None	None	RIGID	Typical
76	M76	N138	N140			RIGID	None	None	RIGID	Typical
77	M77	N143	N137			RIGID	None	None	RIGID	Typical
78	M78	N144	N142			RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1	BenPIN	BenPIN				Yes	Default			None
2	M2	BenPIN	BenPIN				Yes	Default			None
3	M3	BenPIN	BenPIN				Yes	Default			None
4	M4						Yes				None
5	M5						Yes				None
6	M6						Yes				None
7	M7						Yes				None
8	M8						Yes				None
9	M9						Yes				None
10	M10						Yes				None
11	M11						Yes				None
12	M12						Yes				None
13	M13						Yes	Default			None
14	M14						Yes	Default			None
15	M15						Yes	Default			None
16	M16						Yes	Default			None
17	M17						Yes	Default			None
18	M18						Yes	Default			None
19	M19						Yes				None
20	M20						Yes				None
21	M21						Yes	Default			None
22	M22	OOOOOX	OOOOOX				Yes				None
23	M23	OOOOOX	OOOOOX				Yes				None
24	M24	OOOOOX	OOOOOX				Yes	Default			None
25	M25						Yes				None
26	M26						Yes				None
27	M27						Yes				None
28	M28						Yes	** NA **	+y+3		None
29	M29						Yes	** NA **	+y+3		None
30	M30						Yes	** NA **	+y+3		None
31	M31						Yes	** NA **	+y+3		None
32	M32						Yes	** NA **	+y+3		None
33	M33						Yes	** NA **	+y+3		None
34	M34						Yes	** NA **	+y+3		None
35	M35						Yes	** NA **	+y+3		None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
36	M36						Yes	** NA **	+y+3		None
37	M37						Yes	** NA **			None
38	M38						Yes	** NA **			None
39	M39						Yes	** NA **			None
40	M40						Yes	** NA **			None
41	M41	BenPIN					Yes	** NA **			None
42	M42						Yes	** NA **			None
43	M43	BenPIN					Yes	** NA **			None
44	M44						Yes	** NA **			None
45	M45	BenPIN					Yes	** NA **			None
46	M46						Yes	** NA **			None
47	M47	BenPIN					Yes	** NA **			None
48	M48						Yes	** NA **			None
49	M49	BenPIN					Yes	** NA **			None
50	M50						Yes	** NA **			None
51	M51	BenPIN					Yes	** NA **			None
52	M52						Yes	** NA **			None
53	M53						Yes	** NA **			None
54	M54						Yes	** NA **			None
55	M55						Yes	** NA **			None
56	M56						Yes	** NA **			None
57	M57						Yes	** NA **			None
58	M58						Yes	** NA **			None
59	M59						Yes	** NA **			None
60	M60						Yes	** NA **			None
61	M61						Yes	** NA **			None
62	M62						Yes	** NA **			None
63	M63						Yes	** NA **			None
64	M64						Yes	** NA **			None
65	M65						Yes	** NA **			None
66	M66						Yes	** NA **			None
67	M67						Yes	** NA **			None
68	M68						Yes	** NA **			None
69	M69						Yes	** NA **			None
70	M70						Yes	** NA **			None
71	M71						Yes	** NA **			None
72	M72						Yes	** NA **			None
73	M73						Yes	** NA **			None
74	M74						Yes	** NA **			None
75	M75						Yes	** NA **			None
76	M76						Yes	** NA **			None
77	M77						Yes	** NA **			None
78	M78						Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	Perimeter C...	3.5									Lateral
2	M2	Perimeter C...	3.5									Lateral
3	M3	Perimeter C...	3.5									Lateral
4	M4	Grating Angle	2.275									Lateral
5	M5	Grating Angle	2.275									Lateral
6	M6	Grating Angle	2.275									Lateral
7	M7	Grating Angle	2.275									Lateral
8	M8	Grating Angle	2.275									Lateral
9	M9	Grating Angle	2.275									Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
10	M10	Perimeter	8	2.773	3.5							Lateral
11	M11	Perimeter	8	2.773	3.5							Lateral
12	M12	Perimeter	8	2.773	3.5							Lateral
13	M13	Cross Arm	2.75									Lateral
14	M14	Cross Arm	2.75									Lateral
15	M15	Cross Arm	2.75									Lateral
16	M16	Cross Arm	2.75									Lateral
17	M17	Cross Arm	2.75									Lateral
18	M18	Cross Arm	2.75									Lateral
19	M19	Arm	3.333									Lateral
20	M20	Arm	3.333									Lateral
21	M21	Arm	3.333									Lateral
22	M22	Support rail ...	3.5									Lateral
23	M23	Support rail ...	3.5									Lateral
24	M24	Support rail ...	3.5									Lateral
25	M25	Support rail	10		3.5							Lateral
26	M26	Support rail	10		3.5							Lateral
27	M27	Support rail	10		3.5							Lateral
28	M28	Mount Pipes	8									Lateral
29	M29	Mount Pipes	8									Lateral
30	M30	Mount Pipes	8									Lateral
31	M31	Mount Pipes	8									Lateral
32	M32	Mount Pipes	8									Lateral
33	M33	Mount Pipes	8									Lateral
34	M34	Mount Pipes	8									Lateral
35	M35	Mount Pipes	8									Lateral
36	M36	Mount Pipes	8									Lateral

Member Area Loads (BLC 1 : DL)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N16	N17	N18	N19	Y	Two Way	-10
2	N7	N8	N9	N10	Y	Two Way	-10
3	N25	N26	N27	N28	Y	Two Way	-10

Member Area Loads (BLC 28 : Ice DL)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N16	N17	N18	N19	Y	Two Way	-8.128
2	N7	N8	N9	N10	Y	Two Way	-8.128
3	N25	N26	N27	N28	Y	Two Way	-8.128

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	DL	DL		-1		19			3	
2	Maintenance LL - LV	LL				1				
3	Installation LL - LM	LL				1				
4	Wind - 0 Deg (X)	WL				19		33		
5	Wind - 30 Deg (X)	WL				19		33		
6	Wind - 60 Deg (X)	WL				19		33		
7	Wind - 90 Deg (X)	WL				19		33		
8	Wind - 120 Deg (X)	WL				19		33		
9	Wind - 150 Deg (X)	WL				19		33		
10	Wind - 180 Deg (X)	WL				19		33		
11	Wind - 210 Deg (X)	WL				19		33		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
12	Wind - 240 Deg (X)	WL				19		33		
13	Wind - 270 Deg (X)	WL				19		33		
14	Wind - 300 Deg (X)	WL				19		33		
15	Wind - 330 Deg (X)	WL				19		33		
16	Wind - 0 Deg (Z)	WL				19		33		
17	Wind - 30 Deg (Z)	WL				19		33		
18	Wind - 60 Deg (Z)	WL				19		33		
19	Wind - 90 Deg (Z)	WL				19		33		
20	Wind - 120 Deg (Z)	WL				19		33		
21	Wind - 150 Deg (Z)	WL				19		33		
22	Wind - 180 Deg (Z)	WL				19		33		
23	Wind - 210 Deg (Z)	WL				19		33		
24	Wind - 240 Deg (Z)	WL				19		33		
25	Wind - 270 Deg (Z)	WL				19		33		
26	Wind - 300 Deg (Z)	WL				19		33		
27	Wind - 330 Deg (Z)	WL				19		33		
28	Ice DL	DL				19		33	3	
29	Ice Wind - 0 Deg (X)	WL				19		33		
30	Ice Wind - 30 Deg (X)	WL				19		33		
31	Ice Wind - 60 Deg (X)	WL				19		33		
32	Ice Wind - 90 Deg (X)	WL				19		33		
33	Ice Wind - 120 Deg (X)	WL				19		33		
34	Ice Wind - 150 Deg (X)	WL				19		33		
35	Ice Wind - 180 Deg (X)	WL				19		33		
36	Ice Wind - 210 Deg (X)	WL				19		33		
37	Ice Wind - 240 Deg (X)	WL				19		33		
38	Ice Wind - 270 Deg (X)	WL				19		33		
39	Ice Wind - 300 Deg (X)	WL				19		33		
40	Ice Wind - 330 Deg (X)	WL				19		33		
41	Ice Wind - 0 Deg (Z)	WL				19		33		
42	Ice Wind - 30 Deg (Z)	WL				19		33		
43	Ice Wind - 60 Deg (Z)	WL				19		33		
44	Ice Wind - 90 Deg (Z)	WL				19		33		
45	Ice Wind - 120 Deg (Z)	WL				19		33		
46	Ice Wind - 150 Deg (Z)	WL				19		33		
47	Ice Wind - 180 Deg (Z)	WL				19		33		
48	Ice Wind - 210 Deg (Z)	WL				19		33		
49	Ice Wind - 240 Deg (Z)	WL				19		33		
50	Ice Wind - 270 Deg (Z)	WL				19		33		
51	Ice Wind - 300 Deg (Z)	WL				19		33		
52	Ice Wind - 330 Deg (Z)	WL				19		33		
53	BLC 1 Transient Area...	None						9		
54	BLC 28 Transient Are...	None						9		

Load Combinations

	Description	S...	P...	SR...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	WIND LOAD COMBOS (135 MPH)																									
2	1.2DL + WL (0 DEG)	Yes	Y		1	1.2	4	1	16	1																
3	1.2DL + WL (30 DEG)	Yes	Y		1	1.2	5	1	17	1																
4	1.2DL + WL (60 DEG)	Yes	Y		1	1.2	6	1	18	1																
5	1.2DL + WL (90 DEG)	Yes	Y		1	1.2	7	1	19	1																
6	1.2DL + WL (120 DEG)	Yes	Y		1	1.2	8	1	20	1																
7	1.2DL + WL (150 DEG)	Yes	Y		1	1.2	9	1	21	1																
8	1.2DL + WL (180 DEG)	Yes	Y		1	1.2	10	1	22	1																
9	1.2DL + WL (210 DEG)	Yes	Y		1	1.2	11	1	23	1																

Load Combinations (Continued)

	Description	S...	P...	SR..	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
10	1.2DL + WL (240 DEG)	Yes	Y		1	1.2	12	1	24	1																
11	1.2DL + WL (270 DEG)	Yes	Y		1	1.2	13	1	25	1																
12	1.2DL + WL (300 DEG)	Yes	Y		1	1.2	14	1	26	1																
13	1.2DL + WL (330 DEG)	Yes	Y		1	1.2	15	1	27	1																
14																										
15	MOUNT LOAD COMBOS (30 MPH)																									
16	1.4DL	Yes	Y		1	1.4																				
17	1.2DL + 1.5LV	Yes	Y		1	1.2	2	1.5																		
18	1.2DL + 1.5LM + WL (0 DEG)	Yes	Y		1	1.2	3	1.5	4	.049	16	.049														
19	1.2DL + 1.5LM + WL (30 DEG)	Yes	Y		1	1.2	3	1.5	5	.049	17	.049														
20	1.2DL + 1.5LM + WL (60 DEG)	Yes	Y		1	1.2	3	1.5	6	.049	18	.049														
21	1.2DL + 1.5LM + WL (90 DEG)	Yes	Y		1	1.2	3	1.5	7	.049	19	.049														
22	1.2DL + 1.5LM + WL (120 DEG)	Yes	Y		1	1.2	3	1.5	8	.049	20	.049														
23	1.2DL + 1.5LM + WL (150 DEG)	Yes	Y		1	1.2	3	1.5	9	.049	21	.049														
24	1.2DL + 1.5LM + WL (180 DEG)	Yes	Y		1	1.2	3	1.5	10	.049	22	.049														
25	1.2DL + 1.5LM + WL (210 DEG)	Yes	Y		1	1.2	3	1.5	11	.049	23	.049														
26	1.2DL + 1.5LM + WL (240 DEG)	Yes	Y		1	1.2	3	1.5	12	.049	24	.049														
27	1.2DL + 1.5LM + WL (270 DEG)	Yes	Y		1	1.2	3	1.5	13	.049	25	.049														
28	1.2DL + 1.5LM + WL (300 DEG)	Yes	Y		1	1.2	3	1.5	14	.049	26	.049														
29	1.2DL + 1.5LM + WL (330 DEG)	Yes	Y		1	1.2	3	1.5	15	.049	27	.049														
30																										
31	ICE LOAD COMBOS (1", 50 MPH)																									
32	1.2DL + Ice DL + Ice WL (0 DEG)	Yes	Y		1	1.2	28	1	29	1	41	1														
33	1.2DL + Ice DL + Ice WL (30 DEG)	Yes	Y		1	1.2	28	1	30	1	42	1														
34	1.2DL + Ice DL + Ice WL (60 DEG)	Yes	Y		1	1.2	28	1	31	1	43	1														
35	1.2DL + Ice DL + Ice WL (90 DEG)	Yes	Y		1	1.2	28	1	32	1	44	1														
36	1.2DL + Ice DL + Ice WL (120 DEG)	Yes	Y		1	1.2	28	1	33	1	45	1														
37	1.2DL + Ice DL + Ice WL (150 DEG)	Yes	Y		1	1.2	28	1	34	1	46	1														
38	1.2DL + Ice DL + Ice WL (180 DEG)	Yes	Y		1	1.2	28	1	35	1	47	1														
39	1.2DL + Ice DL + Ice WL (210 DEG)	Yes	Y		1	1.2	28	1	36	1	48	1														
40	1.2DL + Ice DL + Ice WL (240 DEG)	Yes	Y		1	1.2	28	1	37	1	49	1														
41	1.2DL + Ice DL + Ice WL (270 DEG)	Yes	Y		1	1.2	28	1	38	1	50	1														
42	1.2DL + Ice DL + Ice WL (300 DEG)	Yes	Y		1	1.2	28	1	39	1	51	1														
43	1.2DL + Ice DL + Ice WL (330 DEG)	Yes	Y		1	1.2	28	1	40	1	52	1														

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N20	max	1021.379	2	2295.696	32	2242.759	5	525.362	11	2588.588	5	1468.265	8
2		min	-1025.248	8	-232.616	8	-2242.221	11	-530.478	5	-2588.857	11	-5269.628	32
3	N11	max	1997.637	3	2328.909	36	1390.504	4	4524.59	36	2680.786	9	2822.12	36
4		min	-1999.227	9	-226.54	12	-1402.496	10	-1265.825	12	-2657.019	3	-666.72	12
5	N1	max	1948.541	13	2229.917	40	1395.08	6	1309.836	4	2576.847	13	2546.049	40
6		min	-1949.95	7	-250.041	4	-1383.75	12	-4332.962	40	-2601.499	7	-731.011	4
7	Totals:	max	4813.828	2	6100.174	34	4776.92	5						
8		min	-4813.827	8	2507.165	10	-4776.92	11						

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear...	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M1	PL6.5x0.375	.309	1.75	10	.136	3.026	y	6	3658.14	78975	616.993	7439.783	1...	H1-1b
2	M2	PL6.5x0.375	.313	1.75	2	.130	.474	y	6	3658.14	78975	616.993	7436.339	1...	H1-1b
3	M3	PL6.5x0.375	.316	1.75	6	.139	3.026	y	3	3658.14	78975	616.993	7487.053	1...	H1-1b
4	M4	L2x2x4	.271	0	10	.025	0	y	4	23539....	30585.6	690.934	1576.849	2...	H2-1
5	M5	L2x2x4	.309	0	10	.027	0	z	4	23539....	30585.6	690.934	1576.849	2...	H2-1
6	M6	L2x2x4	.313	0	6	.027	0	y	12	23539....	30585.6	690.934	1576.849	2...	H2-1

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear..	Loc[ft]	Dir	LC	phi*Pnc..	phi*Pnt...	phi*Mn ..	phi*Mn ..	Cb	Eqn
7	M7	L2x2x4	.271	0	6	.025	0	z	12	23539....	30585.6	690.934	1576.849	2...	H2-1
8	M8	L2x2x4	.288	0	2	.026	0	y	8	23539....	30585.6	690.934	1576.849	2...	H2-1
9	M9	L2x2x4	.287	0	2	.026	0	z	8	23539....	30585.6	690.934	1576.849	2...	H2-1
10	M10	HSS3.500x0.165	.142	2.583	2	.064	4		2	65728....	71569....	6336.493	6336.493	1...	H1-1b
11	M11	HSS3.500x0.165	.147	2.583	6	.078	4		4	65728....	71569....	6336.493	6336.493	1...	H1-1b
12	M12	HSS3.500x0.165	.139	5.417	2	.063	4		4	65728....	71569....	6336.493	6336.493	1...	H1-1b
13	M13	C3.38x2.06x0.25	.352	0	10	.046	2.349	y	34	47760....	56700	2202.821	5751.945	1...	H1-1b
14	M14	C3.38x2.06x0.25	.337	0	10	.044	2.349	y	34	47760....	56700	2202.821	5751.945	1...	H1-1b
15	M15	C3.38x2.06x0.25	.338	0	6	.046	2.349	y	42	47760....	56700	2202.821	5751.945	1...	H1-1b
16	M16	C3.38x2.06x0.25	.354	0	6	.045	2.349	y	42	47760....	56700	2202.821	5751.945	1...	H1-1b
17	M17	C3.38x2.06x0.25	.341	0	2	.045	2.349	y	38	47760....	56700	2202.821	5751.945	1...	H1-1b
18	M18	C3.38x2.06x0.25	.342	0	2	.045	2.349	y	38	47760....	56700	2202.821	5751.945	1...	H1-1b
19	M19	HSS4X4X6	.259	3.333	9	.074	3.333	z	13	188250...	197892	22045.5	22045.5	1...	H1-1b
20	M20	HSS4X4X6	.267	3.333	7	.077	3.333	z	3	188250...	197892	22045.5	22045.5	1...	H1-1b
21	M21	HSS4X4X6	.267	3.333	13	.071	3.333	z	5	188250...	197892	22045.5	22045.5	1...	H1-1b
22	M22	L6.6x4.46x0.25	.273	.036	10	.028	3.5	z	9	51170....	87561	2464.809	7125.374	1...	H2-1
23	M23	L6.6x4.46x0.25	.264	3.464	6	.027	0	z	13	51170....	87561	2464.809	7125.374	1...	H2-1
24	M24	L6.6x4.46x0.25	.256	3.464	10	.028	0	z	5	51170....	87561	2464.809	7125.374	1...	H2-1
25	M25	PIPE_2.5	.146	1.562	7	.067	1.458		2	22748....	66654	4726.5	4726.5	1...	H1-1b
26	M26	PIPE_2.5	.143	8.437	9	.063	8.542		2	22748....	66654	4726.5	4726.5	1...	H1-1b
27	M27	PIPE_2.5	.139	8.646	10	.066	8.542		10	22748....	66654	4726.5	4726.5	1...	H1-1b
28	M28	PIPE_2.5	.222	2.167	7	.086	4.5		13	33487....	66654	4726.5	4726.5	4...	H1-1b
29	M29	PIPE_2.5	.168	2.167	9	.080	2.167		7	33487....	66654	4726.5	4726.5	3...	H1-1b
30	M30	PIPE_2.5	.155	2.167	3	.081	2.167		5	33487....	66654	4726.5	4726.5	4...	H1-1b
31	M31	PIPE_2.5	.171	2.167	5	.080	4.75		3	33487....	66654	4726.5	4726.5	3...	H1-1b
32	M32	PIPE_2.5	.168	2.167	11	.078	2.167		13	33487....	66654	4726.5	4726.5	3...	H1-1b
33	M33	PIPE_2.5	.218	2.167	9	.084	4.5		3	33487....	66654	4726.5	4726.5	4...	H1-1b
34	M34	PIPE_2.5	.203	2.167	11	.090	4.5		11	33487....	66654	4726.5	4726.5	1...	H1-1b
35	M35	PIPE_2.5	.157	2.167	13	.080	2.167		11	33487....	66654	4726.5	4726.5	4...	H1-1b
36	M36	PIPE_2.5	.170	2.167	7	.083	2.167		9	33487....	66654	4726.5	4726.5	4...	H1-1b

APPENDIX D

ADDITIONAL CALCUATIONS

	Client: CCI	Computed By:	Jyoti M.
	Site Name: WAPPINGERS FALLS /BOB'S ANTIQ (BOBOS01002A)	Date:	4/1/2022
	Work Order: 876367.576667	Verified By:	Joohwan Jung
BLACK & VEATCH	Title: MOUNT ANALYSIS REPORT	Date:	4/4/2022

Rectangular Weld Analysis for Antenna Mount to Tower Connection

The forces acting on the plate are from M21 from RISA-3D Load Combination 13

Design Method: LRFD

Applied Loads:

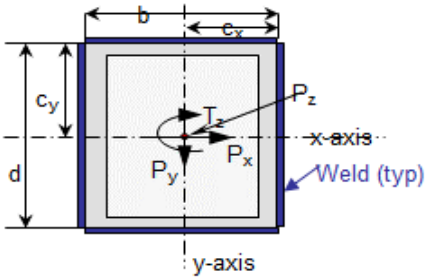
P_x =	0.987	kip	M_x =	56.683	kip-in
P_y =	1.785	kip	M_y =	13.438	kip-in
P_z =	0.883	kip	M_z =	2.336	kip-in
ϕF_w =	1.392	($^{kip}/_{in}$)/($^{1}/_{16}$" weld)	AISC Eq. (8-2a)		

Base Metal Properties:

$d_{(arm)}$ =	4	in	$t_{(arm)}$ =	0.349	in
$b_{(arm)}$ =	4	in	$t_{(plate)}$ =	0.625	in
$F_{y(arm)}$ =	46	ksi	$F_{y(plate)}$ =	50	ksi
$F_{u(arm)}$ =	58	ksi	$F_{u(plate)}$ =	65	ksi

CALCULATIONS

Distance from y-axis to Edge of Weld, c_x =	2	in
Distance from x-axis to Edge of Weld, c_y =	2	in
Total Length of Weld in x-direction, L_x =	8	in
Total Length of Weld in y-direction, L_y =	8	in
Total Length of Weld, L_w =	16	in
Section Modulus of Weld About x-axis, S_x =	21.333	in^2
Section Modulus of Weld About y-axis, S_y =	21.333	in^2
Polar Moment of Inertia About z-axis, I_z =	85.333	in^3
Shear Stress on x-axis of Weld, f_{vx} =	0.123	kip/in
Shear Stress on y-axis of Weld, f_{vy} =	0.223	kip/in
Torsional Stress on x-axis of Weld, f_{tx} =	0.055	kip/in
Torsional Stress on y-axis of Weld, f_{ty} =	0.055	kip/in
Axial Stress on Weld, f_a =	0.055	kip/in
Bending Stress about x-axis of Weld, f_{bx} =	2.657	kip/in
Bending Stress about y-axis of Weld, f_{by} =	0.63	kip/in
Total Force Acting in x-direction, f_1 =	0.178	kip/in
Total Force Acting in y-direction, f_2 =	0.278	kip/in
Total Force Acting in z-direction, f_3 =	3.342	kip/in
Resultant Force on Weld, f_r =	3.358	kip/in



Weld Strength Check

Existing Weld Size, t_w =	0.5	in
Weld Stress Ratio, SR_w =	30.15%	

Base Metal Check

Arm Tensile Rupture Strength, ϕT_{arm} =	242.9	kip
Arm Shear Rupture Strength, ϕV_{arm} =	57.79	kip
Plate Tensile Rupture Strength, ϕT_{plate} =	487.5	kip
Plate Shear Rupture Strength, ϕV_{plate} =	112.5	kip
Base Metal Stress Ratio, SR_b =	22.01%	

P_x = Major axis load (x-axis) | P_y = Minor axis load (y-axis) | P_z = Axial Load (z-axis) | F_{EXX} = 70 ksi Assumed

M_x = Moment about x-axis | M_y = Moment about y-axis | T_z = Torque about z-axis

$c_x = b/2$	$L_y = 2d$	$f_{vy} = P_y/L_y$	$f_{by} = M_y/S_y$	$S_y = b/3(3d + b)$	$f_1 = f_{vx} + f_{tx}$	$f_r = (f_1^2 + f_2^2 + f_3^2)^{1/2}$
$c_y = d/2$	$L_w = L_x + L_y$	$f_a = P_z/L_w$	$f_{tx} = T_z(c_y/I_z)$	$S_x = d/3(3b + d)$	$f_2 = f_{vy} + f_{ty}$	$\phi T = 0.75(F_u t L_w)$
$L_x = 2b$	$f_{vx} = P_x/L_x$	$f_{bx} = M_x/S_x$	$f_{ty} = T_z(c_x/I_z)$	$I_z = [(b + d)^3]/6$	$f_3 = f_a + f_{bx} + f_{by}$	$\phi V = 0.75(0.6F_y t L_x)$
	$SR_T = f_3 L_w/\phi T_{plate}$			$SR_w = f_r/(\phi F_w t_w 16)$		$SR_V = f_2 L_x/\phi V_{plate}$

BLACK & VEATCH

Client:	CCI	Computed By:	Jyoti M.
Site Name:	WAPPINGERS FALLS /BOB'S ANTIQ (BOBOS01002A)	Date:	4/1/2022
Work Order:	876367.576667	Verified By:	Joohwan Jung
Title:	MOUNT ANALYSIS REPORT	Date:	4/4/2022

Bolt Analysis of Antenna Mount Arm to Tower Connection

The forces acting on the plate are from M21 from RISA-3D Load Combination 13

Design Method: LRFD

Applied Loads:

P_x =	0.987	kip
P_y =	1.785	kip
P_z =	0.883	kip
M_x =	56.683	kip-in
M_y =	13.438	kip-in
M_z =	2.336	kip-in

Bolt Properties:

d_b =	0.625	in
A_b =	0.307	in^2
N_b =	4	

Load Location Coordinates:

X_o =	4.5	in
Y_o =	4.5	in

Bolt Strength: A325 AISC Table (J3.2)

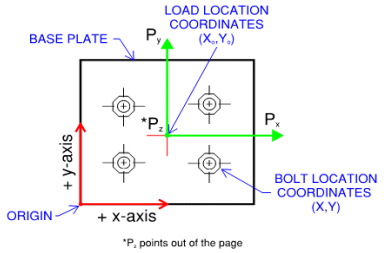
F_{nt} =	90	ksi
F_{nv} =	54	ksi

Bolt Location Coordinates (in):

Bolt #	X_b	Y_b
#1	1	1
#2	1	8
#3	8	8
#4	8	1

CALCULATIONS

Bolt Group Centroid y-coordinate, Y_c =	4.5	in
Bolt Group Centroid x-coordinate, X_c =	4.5	in
Load Eccentricity in x-direction, e_x =	0	in
Load Eccentricity in y-direction, e_y =	0	in
Total Moment Including Load Eccentricity, ΣM_x =	56.68	kip-in
Total Moment Including Load Eccentricity, ΣM_y =	13.44	kip-in
Total Moment Including Load Eccentricity, ΣM_z =	2.34	kip-in



Bolt #	Centroid Dist. (in)		Polar Moments of Inertia (in^4/in^2)			Force per Bolt (kip)	
	d_x	d_y	I_x	I_y	I_{xy}	Tension	Shear
#1	-3.5	-3.5	12.25	12.25	12.25	2.868	0.491
#2	-3.5	3.5	12.25	12.25	-12.25	5.229	0.398
#3	3.5	3.5	12.25	12.25	12.25	3.309	0.554
#4	3.5	-3.5	12.25	12.25	-12.25	4.788	0.624
	SUM:		49	49	0		

Bolt Shear Strength Check

Available Shear Strength per Bolt, ϕV_n =	12.43	kip	AISC Eq. (J3-1)
Bolt Shear Stress Ratio, SR_V =	5.02%		

Bolt Tensile Strength Check

Nom. Tensile Stress (Including Effects of Shear), F'_{nt} =	90	ksi	AISC Eq. (J3-3a)
Available Tensile Strength per Bolt, ϕT_n =	20.72	kip	AISC Eq. (J3-2)
Bolt Tension Stress Ratio, SR_T =	25.24%		

P_x = Major Axis Load (X-Axis)
P_y = Minor Axis Load (Y-Axis)
P_z = Axial Load (Z-Axis)

M_x = Moment About X-Axis
M_y = Moment About Y-Axis
M_z = Torque About Z-Axis

d_b = Diameter of Bolt
A_b = Cross-Sectional Area of Bolt
N_b = Number of Bolts

$d_x = Y_b - Y_c$
$d_y = X_b - X_c$
$I_x = d_y^2$
$I_y = d_x^2$

$I_{xy} = d_x d_y$
$\Sigma M_x = M_x + P_z(e_y)$
$\Sigma M_y = M_y + P_z(e_x)$
$\Sigma M_z = M_z + P_x(e_y) + P_y(e_x)$

$SR_V = V_u/\phi V_n$
$SR_T = T_u/\phi T_n$
$\phi V_n = 0.75 F_{nv} A_b$
$\phi T_n = 0.75 F'_{nt} A_b$

$F'_{nt} = 1.3F_{nt} - (F_{nt}/\phi F_{nv})(V_u/A_b) \le F_{nt}$

$T_{ui} = \Sigma P_z/N_b - [(\Sigma M_x \Sigma I_y + \Sigma M_y \Sigma I_{xy})/(\Sigma I_x \Sigma I_y - \Sigma I_{xy}^2)]d_x + [(\Sigma M_y \Sigma I_x + \Sigma M_x \Sigma I_{xy})/(\Sigma I_x \Sigma I_y - \Sigma I_{xy}^2)]d_y$

$V_{ui} = [(\Sigma P_x/N_b - \Sigma M_z d_y/(\Sigma I_x + \Sigma I_y))^2 + (\Sigma P_y/N_b - \Sigma M_z d_x/(\Sigma I_x + \Sigma I_y))^2]^{1/2}$

Exhibit F

Power Density/RF Emissions Report

Exhibit G

Letter of Authorization

4545 E River Rd, Suite 320
West Henrietta, NY 14586

Phone: (585) 445-5896
Fax: (724) 416-4461
www.crowncastle.com

Crown Castle Letter of Authorization

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

Re: Tower Share Application
Crown Castle telecommunications site at:
1439 VOLUNTOWN RD, GRISWOLD, CT 06384

GLOBAL SIGNAL ACQUISITIONS II LLC ("Crown Castle") hereby authorizes DISH Wireless LLC, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CT - CONNECTICUT SITING COUNCIL for the existing wireless communications site described below:

Crown Site ID/Name:	**876367/WAPPINGERS FALLS / BOB'S ANTIQ**
Customer Site ID:	**BOBOS01002A/**
Site Address:	**1439 Voluntown Rd, GRISWOLD, CT 06384**

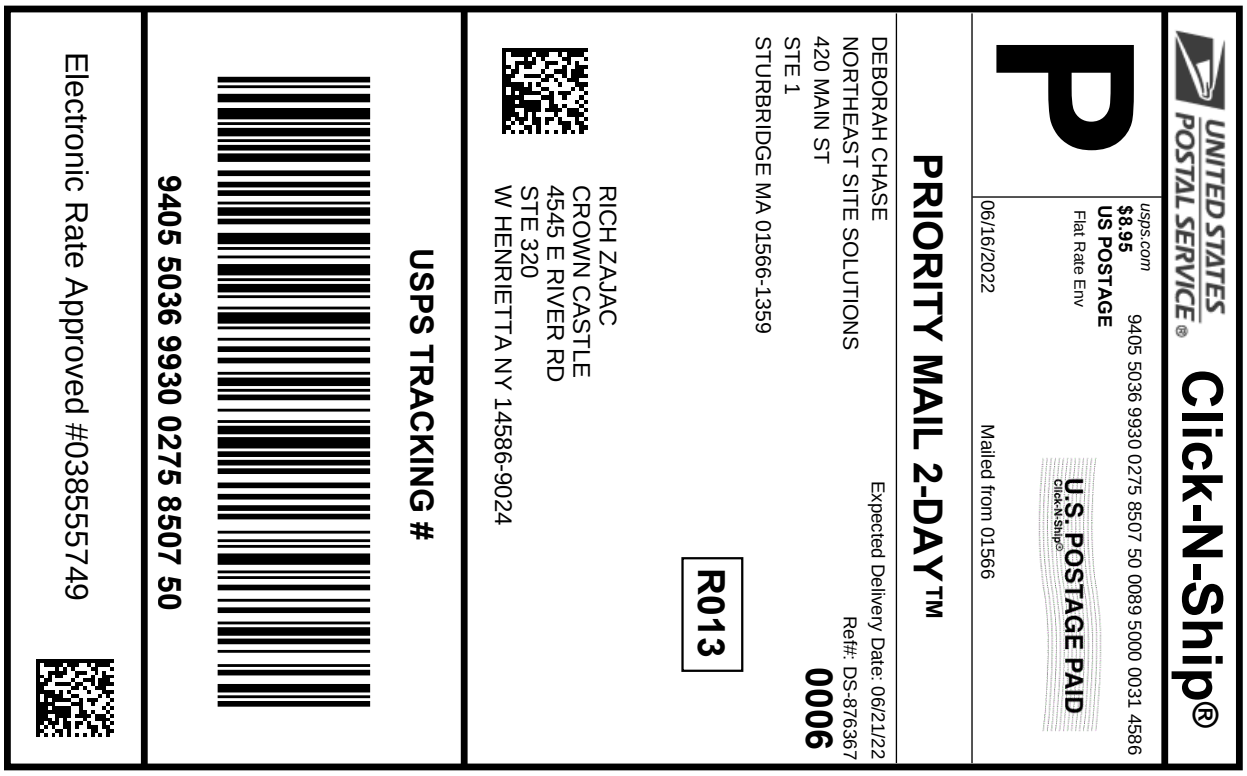
Crown Castle

By: _____ Date: 6/13/2022

Richard Zajac
Site Acquisition Specialist

Exhibit H

Recipient Mailings



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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 0275 8507 50

Trans. #:	565819830
Print Date:	06/16/2022
Ship Date:	06/16/2022
Expected Delivery Date:	06/21/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

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

Ref#: DS-876367

To: RICH ZAJAC
CROWN CASTLE
4545 E RIVER RD
STE 320
W HENRIETTA NY 14586-9024

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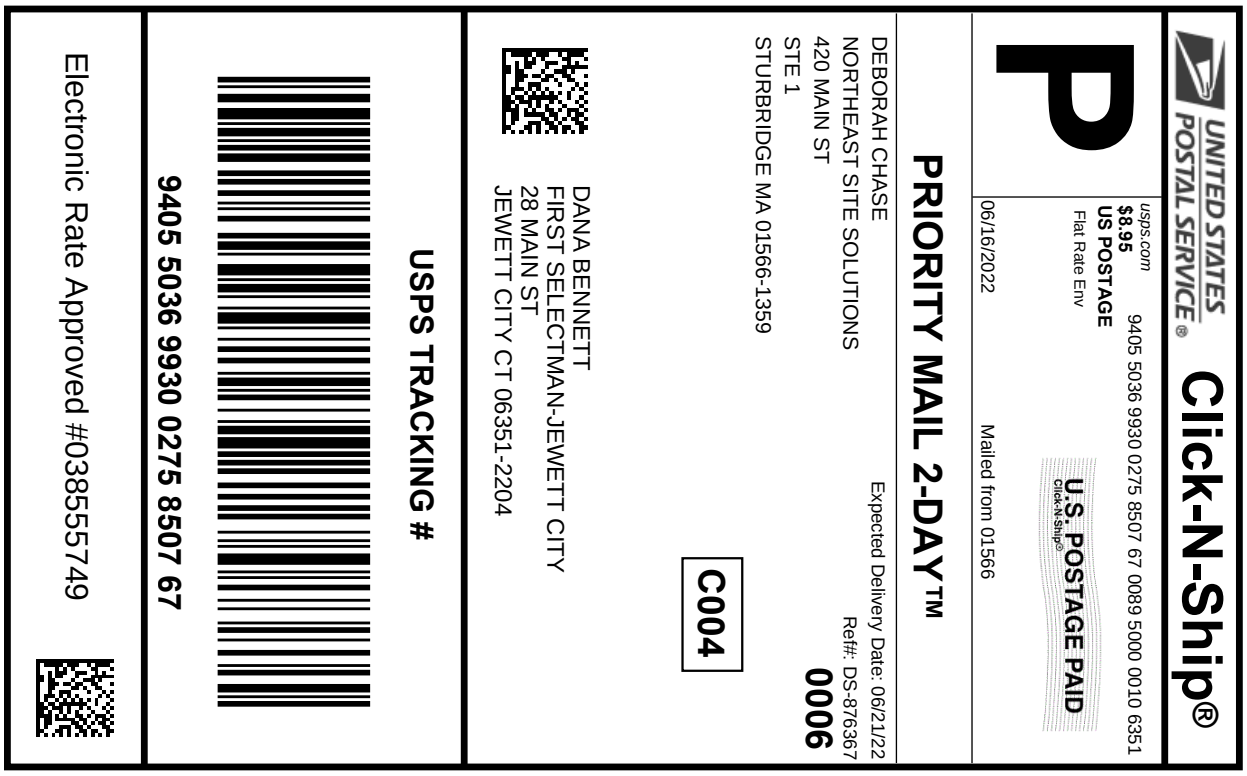

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4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0275 8507 67

Trans. #:	565819830
Print Date:	06/16/2022
Ship Date:	06/16/2022
Expected Delivery Date:	06/21/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

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

Ref#: DS-876367

To: DANA BENNETT
FIRST SELECTMAN-JEWETT CITY
28 MAIN ST
JEWETT CITY CT 06351-2204

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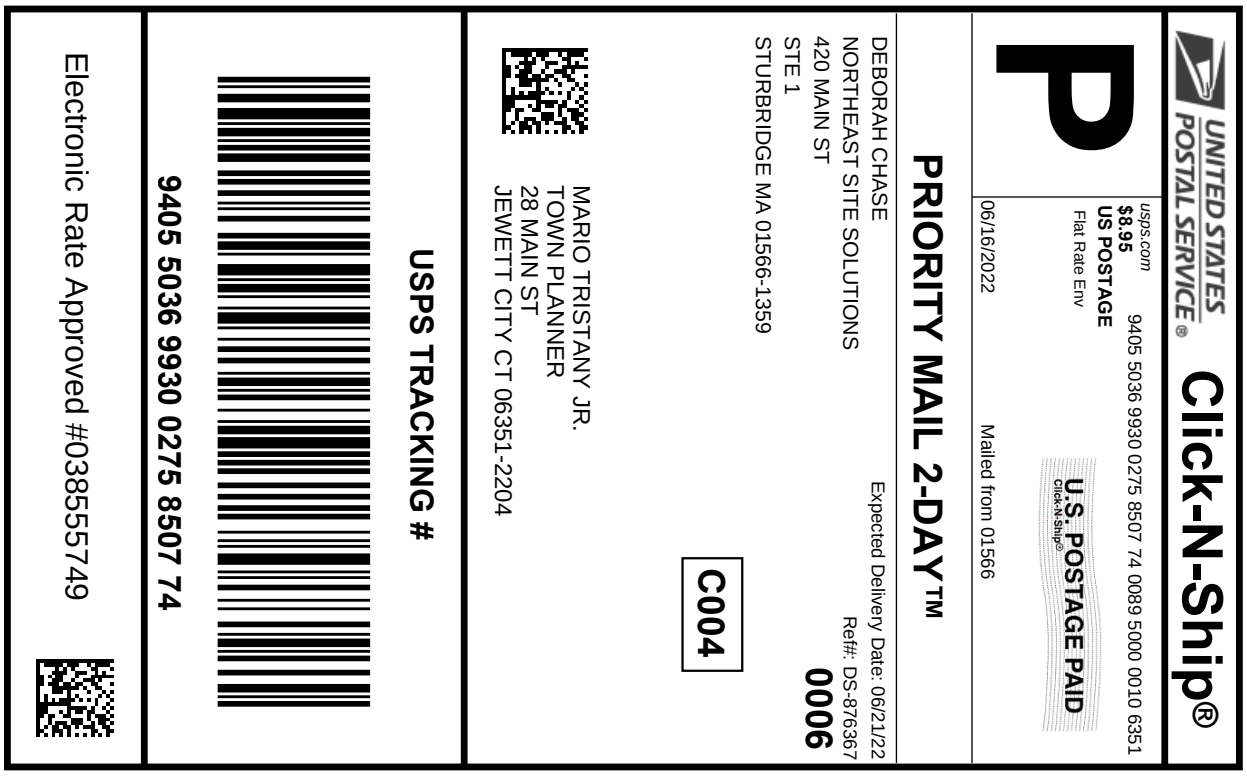

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Instructions

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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 0275 8507 74

Trans. #:	565819830
Print Date:	06/16/2022
Ship Date:	06/16/2022
Expected Delivery Date:	06/21/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

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

Ref#: DS-876367

To: MARIO TRISTANY JR.
TOWN PLANNER
28 MAIN ST
JEWETT CITY CT 06351-2204

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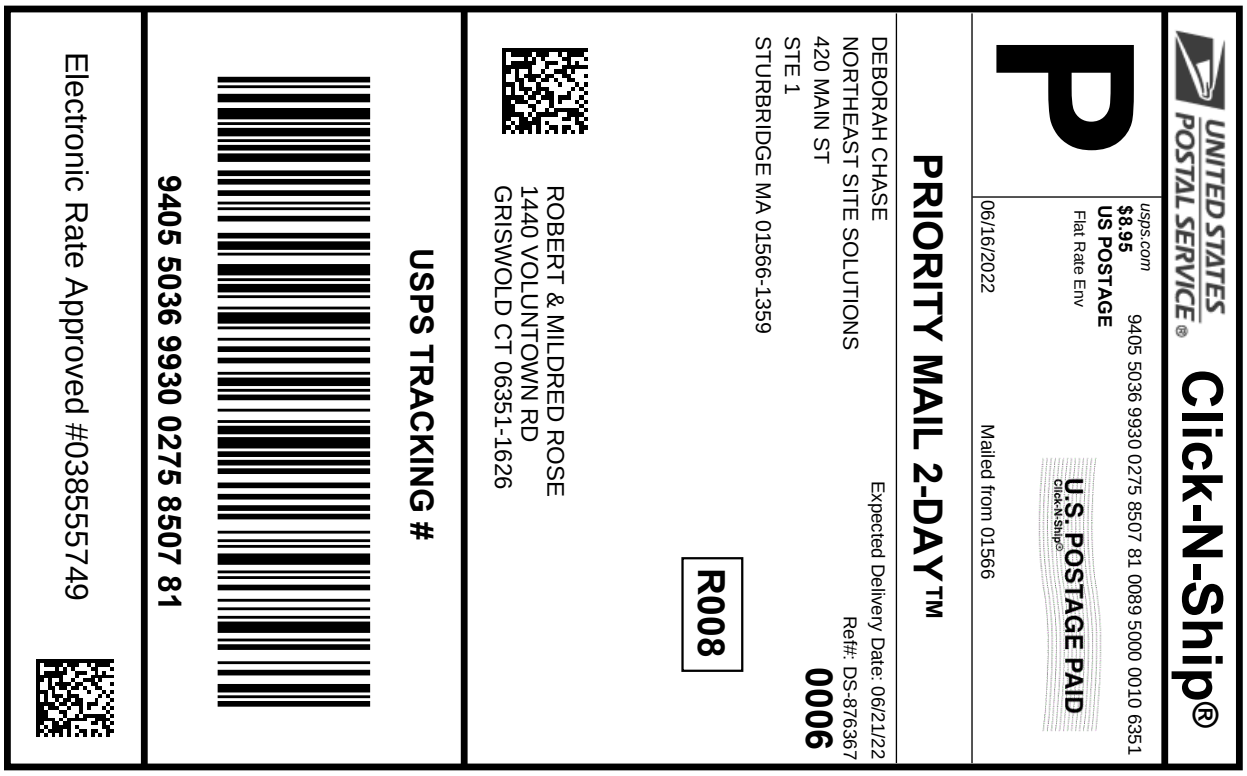

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Instructions

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 0275 8507 81

Trans. #:	565819830
Print Date:	06/16/2022
Ship Date:	06/16/2022
Expected Delivery Date:	06/21/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

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

Ref#: DS-876367

To: ROBERT & MILDRED ROSE
1440 VOLUNTOWN RD
GRISWOLD CT 06351-1626

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UNITED STATES POSTAL SERVICE.

FARMINGTON
210 MAIN ST
FARMINGTON, CT 06032-9998
(800)275-8777

06/22/2022 10:38 AM

Product	Qty	Unit Price	Price
Prepaid Mail West Henrietta, NY 14586 Weight: 0 lb 1.90 oz Acceptance Date: Wed 06/22/2022 Tracking #: 9405 5036 9930 0275 8507 50	1		$0.00
Prepaid Mail Jewett City, CT 06351 Weight: 0 lb 10.10 oz Acceptance Date: Wed 06/22/2022 Tracking #: 9405 5036 9930 0275 8507 81	1		$0.00
Prepaid Mail Jewett City, CT 06351 Weight: 0 lb 10.10 oz Acceptance Date: Wed 06/22/2022 Tracking #: 9405 5036 9930 0275 8507 67	1		$0.00
Prepaid Mail Jewett City, CT 06351 Weight: 0 lb 10.10 oz Acceptance Date: Wed 06/22/2022 Tracking #: 9405 5036 9930 0275 8507 74	1		$0.00
Grand Total:			$0.00

****
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