NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

October 13, 2021

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

RE: Exempt Modification Application
400 Riley Mountain Road, Coventry CT 06238
Latitude: 41.798947
Longitude: -72.332189
Site#: 876385_ Crown_Dish

Dear Ms. Bachman:

Based on the 2020 merger between T-Mobile and Sprint, and as part of the agreement, the DOJ required T-Mobile to divest some sites to Dish in order to create an additional wireless provider. This site is part of the agreement.

Dish Wireless LLC is requesting to file an exempt modification for an existing tower located at 400 Riley Mountain Road, Coventry CT 06238. Dish Wireless LLC proposes to install three (3) antennas at the 107-foot level of the existing 152-foot tower. The property is owned by James & Concetta Wallbeoff Trustees and the tower is owned by Crown Castle. This modification includes hardware that is 5G capable.

Dish Wireless LLC Planned Modifications:
Remove:
(3) Antenna mount
(3) APX18

Remove and Replace: NONE

Install New:
(1) Commscope MC-PK8-DSH platform mount
(3) LMA MX08FRO665-20 Antenna
(3) TA08025-B604 RRU
(3) TA08025-B605 RRU
(1) Raycap
(1) 1-5/8" Hybrid (Inside Pole)

Existing to Remain: NONE

NORTHEAST SITE SOLUTIONS
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Ground Work: (within existing compound)
New H-Frame
Equipment Cabinet
Power/Telco Cabinet
Ice Bridge
7'x5' Steel Platform

The facility was approved by the Town of Coventry Planning and Zoning on September 6, 2000. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to John Elsesser, Town Manger and Eric Trott, Coventry Director of Land Use for the Town of Guilford, as well as the property owner and the tower owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

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

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, Dish Wireless LLC respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

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:

John Elsesser, Coventry Town Manger
Coventry Town Hall
1712 Main Street, Coventry CT 06238

Eric Trott, Coventry Director of Land Use
Coventry Town Hall
1712 Main Street, Coventry CT 06238

James & Concetta Wallbeoff Trustees, Property Owner
PO Box 8430, Kansas City MO 64114

Crown Castle, Tower Owner

Exhibit A

Original Facility Approval

By: Pollansky Seconded: Terry
Motion carried with the following vote:
For: Unanimous Against: None Abstain: None

3. **Town of Andover - P&Z referral re: Planned residential development for older persons - Bear Swamp Road.**

Trott briefly reviewed this project for 9 buildings (31 total units) of elderly housing on 18.2 acres off of Bear Swamp Road in Andover. This proposed project has no significant impact to the Town of Coventry.

NEW BUSINESS -

None.

DECISIONS -

1. **00-18S - Special permit application of Sprint Spectrum, LP (DBA Sprint PCS); to establish a telecommunications facility, 150' monopole, and associated ground equipment; property located on Riley Mountain Road (Assessor's Map 11, Block 29-A, Lots 2,3); RU-40 Zone.**

MOTION: The Planning and Zoning Commission here by approves 00-18S - Special permit application of Sprint Spectrum, LP (DBA Sprint PCS); to establish a telecommunications facility, 150' monopole, and associated ground equipment; property located on Riley Mountain Road (Assessor's Map 11, Block 29-A, Lots 2,3); RU-40 Zone, with the following conditions:

1. The pole is to be expandable for possible future use.
2. The amount of carriers on the 150' pole is to be 6 rather than 3.
3. The Town of Coventry has access to public safety communication.

By: Pollansky Seconded: Terry
Motion carried with the following vote:
For: Unanimous Against: None Abstain: None

4. **00-19ZR - Zoning amendment application of William and Karen Mudano to revise Sections 2.6.1.a, 2.6.2.a, 3.4.1, and 16 (River Aquifer Zone) of the zoning regulations.**

There was further discussion of Merlsotis' concerns that the proposed amendments may be contrary to the goals for the RA Zone. It was his opinion that these proposals would not add to the protection of the zone, but would increase the property value and facilitate the potential of subdivision. Pollansky felt that the RA Zone is sufficiently protected within the regulations, allowing for a large house would not reduce this protection. Pollansky felt it was unlikely that the proposed changes would significantly change the value of property in the zone.

Town of Coventry

CT33XC55 JW

1712 Main Street • Coventry, CT 06238 • Fax (860) 742-8911

CERTIFIED MAIL # 7099 3400 0007 2017 0083
September 6, 2000

Attorney Thomas J. Regan, Esq.
Brown, Rudnik, Freed, and Gesmer
185 Asylum Street
Hartford CT 06107

Dear Attorney Regan:

At its regular meeting on August 28, 2000, the Coventry Planning and Zoning Commission made the following decision:

> To approve application 00-18S of Sprint Spectrum, LP (DBA sprint PCS), to establish a telecommunications facility, 150' monopole, and associated ground equipment; property located on Riley Mountain Road (Assessor's Map 11, Block 29-A, Lots 2,3); RU-40 Zone.
>
> The following conditions apply:
>
> 1. The pole is to be expandable for possible future use.
> 2. The amount of carriers on the 150' pole is to be six rather than three.
> 3. The town of Coventry has access to public safety communication.

I wish to remind you that you must file an 8-3d form with the Town Clerk's office in addition to final mylar(s) of the approved plan. Please see the attached information for further instruction. Also, it is requested that you place this approval letter on the final plans.

Sincerely,

Eric M. Trott
Director of Planning and Development

EMT/lpe

/enclosure

cc: Sprint Spectrum, L.P.
Goodkind & O'Dea, Inc.
James Wallbeoff, Jr.

00-185 SPRINT

POST APPROVAL GUIDE FOR SPECIAL PERMIT/ EXCEPTION OR VARIANCE

If you have received approval from the Coventry Zoning Board of Appeals or the Planning and Zoning Commission for a special permit/exception or variance, the following requirements must be completed before the issuance of a zoning permit:

FOR SPECIAL EXCEPTION, PERMIT, OR *VARIANCE:

1. An 8-3d form of approval must be filed with the Town Clerk's office. The form cannot be filed until the fifteen day appeal period has ended (15 days from the date of legal notice publication; not date of Commission/Board approval). The form will be prepared at the Planning office and available for filing after September 16, 2000 (There is a filing fee which you pay at the Clerk's office at the time you file the 8-3d form).

FOR SPECIAL EXCEPTION/PERMIT:

1. You must file a Mylar of final plans with the Town Clerk's office within 90 days of approval date. However, the Mylar cannot be filed until after the fifteen day appeal period has ended, which will be after September 16, 2000 (There is a filing fee which you pay at the Clerk's office at the time you file the Mylar.)

Section 4.3.c.5 of the zoning regulations states:

Endorsement and Filing. Within sixty-five days of the Commission/Board approval, the applicant shall submit one (1) set of final plans on Mylar and six (6) sets on paper (please note: in some cases we may accept three (3) copies for special exceptions), reflecting all conditions or modifications required by the Commission/Board, and accompanied by signed, sworn statements of the applicant's land surveyor, engineer, architect, and any other professional who has participated in the preparation of the application materials, to the effect that the plans submitted are the same as those approved by the Commission/Board except for the depiction of modifications and conditions required by the Commission/Board in its approval vote. If, upon considering the statements and reviewing the plans submitted, the Commission/Board shall find them to be in accordance with the final approval, they shall be endorsed by the signature of the Chairman, Vice-Chairman, or Secretary of the Commission/Board, as the case may be. Thereafter, it shall be the responsibility of the applicant to file one (1) set of endorsed Mylar plans in the office of the Town Clerk. In accordance with Section 8-3d of the Connecticut General Statutes, no Special Permit/Exception shall be effective until the final, endorsed plans are filed with the Town Clerk, and **any plans not so filed within ninety (90) days following the Commission's/Board's vote of approval shall become null and void**. Any Special Permit/Exception site plan filed in the Town Clerk's office without the endorsement of the Commission's/Board's Chairman, Vice-Chairman, or Secretary shall likewise be void.

*In the case where a variance has been granted, it is recommended that if you have not already done so, you may want to submit your application for building permit and zoning permit to the Building office prior to the appeal period ending. This may possibly help to speed up your application process/review and avoid a delay in obtaining your permits.

Revised 03/10/98

Exhibit B

Property Card

TOWN OF COVENTRY
CONNECTICUT
GIS & Real Property Information
1712 Main St.
Coventry, CT 06238
ph 860-742-6324

Property Search

Name: ex. Smith

House No:
400

Street:
RILEY MOUNTAIN RD

Parcel Id: ex. 018 0049 0001

GO

Information Updates

GIS Parcel Maps Updated
TBD

Property Info Data Updated
TBD

Current Parcel Count
6,671 +/-

Detailed Parcel Information

GIS ID
011 0029A 0003T

Parcel ID
011 0029A 0003T

Unique ID
6054

Owner
WALLBEOFF JAMES +
CONCETTA TRUSTEES

Location
400 RILEY MOUNTAIN RD

MAILING ADDRESS
PO BOX 8430
KANSAS CITY MO 64114

Quick Links: Quick Map Summary Card Assessor Tax Map

Scroll Down For Complete Property Detail

PARCEL VALUATIONS

	Appraised Value	Assessed Value
Buildings	0	0
Land	357500	250300

Property Search
Name: ex. Smith
House No:
400
Street:
RILEY MOUNTAIN RD
Parcel Id: ex. 018 0049 0001
GO
Information Updates
GIS Parcel Maps Updated
TBD
Property Info Data Updated
TBD
Current Parcel Count
6,671 +/-

PARCEL VALUATIONS

	Appraised Value	Assessed Value
Buildings	0	0
Land	357500	250300
TOTAL:	568900	398200

PROPERTY INFORMATION

Total Acres	1
Land Use	Resid Vacant
Land Class Code	R
Zoning	GR80
Census Tract	
Neighborhood	
Lot Utilities	Septic

SALE INFORMATION

Sale Date	2002-09-23
Sale Price	0
Book / Page	0770/0286

Property Search

Name: ex. Smith

House No:
400

Street:
RILEY MOUNTAIN RD

Parcel Id: ex. 018 0049 0001

GO

Information Updates

GIS Parcel Maps Updated
TBD

Property Info Data Updated
TBD

Current Parcel Count
6,671 +/-

Sale Price	0
Book / Page	0770/0286

BUILDING AREA

Building Gross - sqft	
Living Area - sqft	0

CONSTRUCTION DETAILS

Building Style	UNKNOWN
Building Condition	
Number of Rooms	0
Number of Bedrooms	0
Number of Bathrooms	0
Stories	
Roof Structure	NA
Primary Exterior Wall Type	NA
Heating/Cooling Type	NA
AC_Type	NA
Heating Fuel	NA

Back

Exhibit C

Construction Drawings

DISH Wireless L.L.C. SITE ID:

BOBDL00098A

DISH Wireless L.L.C. SITE ADDRESS:

REILLY MTN. RD.
COVENTRY, CT 06238

SCOPE OF WORK

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

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

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED METAL PLATFORM
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
- INSTALL (1) PROPOSED CIENA BOX (IF REQUIRED)
- EXISTING METER SOCKET ON EXISTING H-FRAME TO BE UTILIZED

SITE INFORMATION

PROPERTY OWNER:	J & C WALLBEOFF FAMILY TR
ADDRESS:	4 KNOTTY PINE LANE C/O AMI BETH DEGRAY DEERFIELD VA 24432
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	876385
TOWER APP NUMBER:	556602
COUNTY:	TOLLAND
LATITUDE (NAD 83):	41° 47' 56.21" N 41.798947 N
LONGITUDE (NAD 83):	-72° 19' 55.88" W -72.332189 W
ZONING JURISDICTION:	CT – TOWN OF COVENTRY
ZONING DISTRICT:	TBD
PARCEL NUMBER:	COVE-000011-000029A-000003
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:	INFINIGY 2500 W. HIGGINS RD. STE. 500 HOFFMAN ESTATES, IL 60169 (847) 648-4068
SITE ACQUISITION:	SARAH PARSONS SARAH.PARSONS@CROWNCASTLE.COM
CONSTRUCTION MANAGER:	JAVIER SOTO JAVIER.SOTO@DISH.COM
RF ENGINEER:	BOSSENER CHARLES BOSSENER.CHARLES@DISH.COM

CONNECTICUT CODE COMPLIANCE

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

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

SITE PHOTO

DIRECTIONS

DIRECTIONS FROM WINDHAM AIRPORT:

HEAD SOUTHEAST ON AIRPORT RD TOWARDS MARK DR, TURN RIGHT ONTO US-6 W / BOSTON POST RD, TAKE THE RAMP ON THE RIGHT FOR US-6 WEST AND HEAD TOWARDS HARTFORD / WILLIMANTIC, TAKE THE RAMP ON THE RIGHT FOR CT-32 AND HEAD TOWARDS STAFFORD SPRINGS / WILLIMANTIC, TURN RIGHT ONTO CT-32 / MAIN ST, TURN LEFT ONTO CT-31 / HIGGINS HWY, TURN RIGHT ONTO N RIVER RD, TURN RIGHT ONTO RILEY MOUNTAIN RD, TURN RIGHT TO STAY ON RILEY MOUNTAIN RD, ARRIVE AT, REILLY MTN. RD., COVENTRY, CT 6238.

SHEET INDEX

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

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.

VICINITY MAP

NO SCALE

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

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WWW.INFINIGY.COM

STATE OF CONNECTICUT
TSUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
7/14/2021

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	06/09/2021	ISSUED FOR REVIEW
0	07/08/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
6039-Z0001C

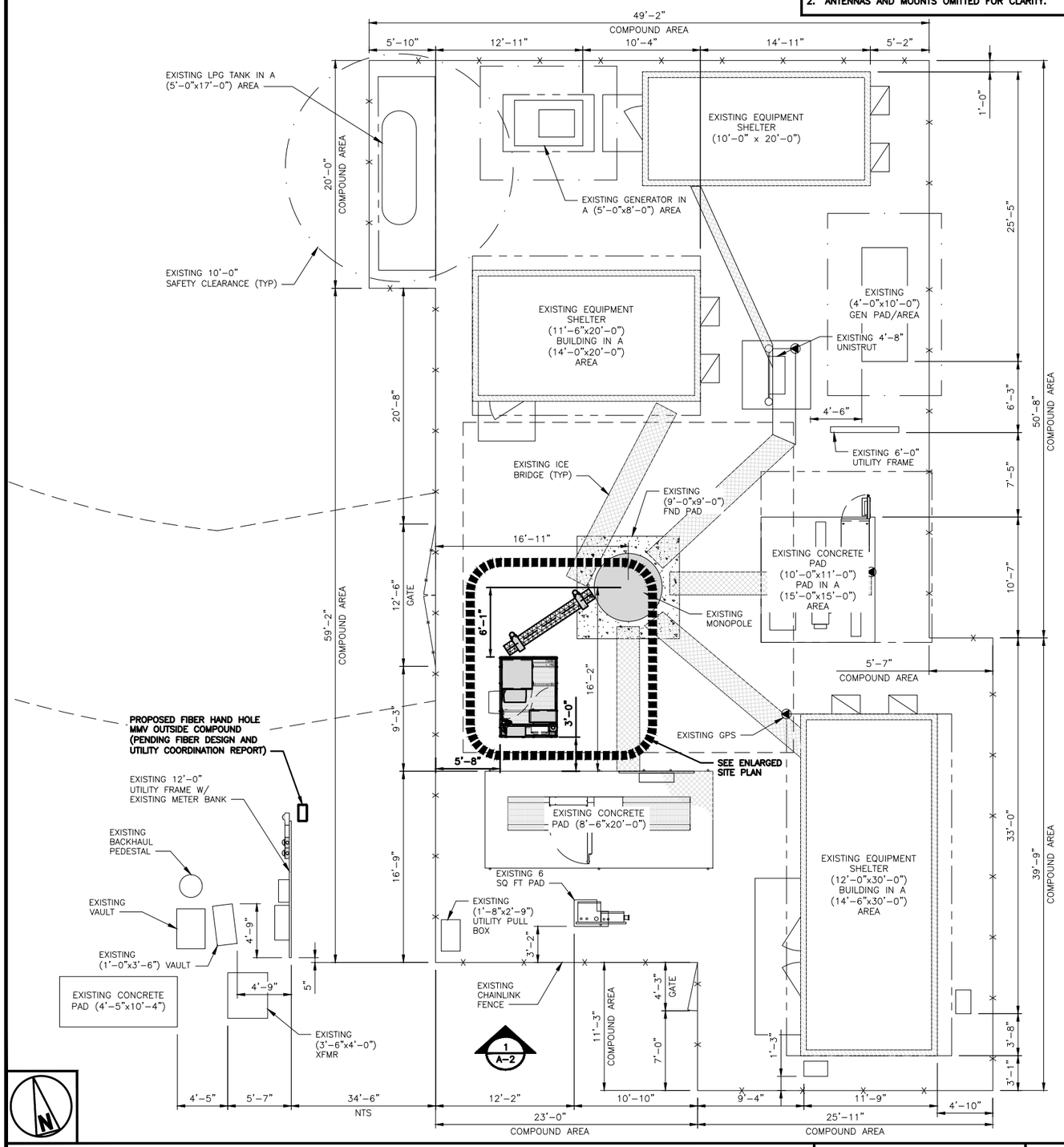
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00098A
REILLY MTN. RD.
COVENTRY, CT 06238

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

NOTES

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



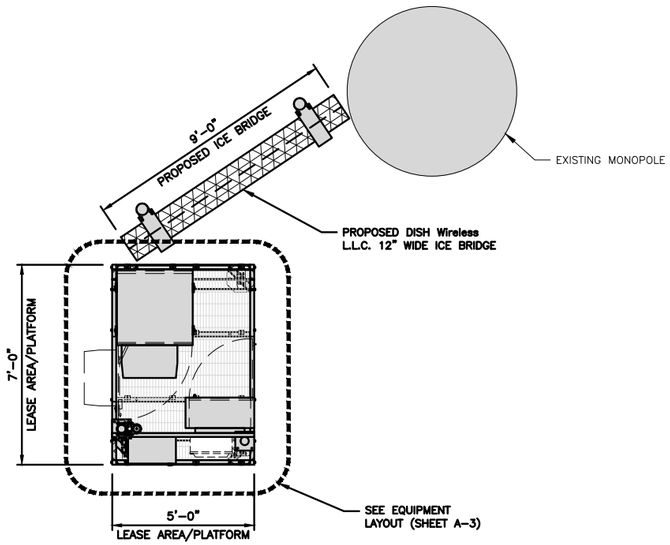
COMPOUND PLAN

6' 4' 2' 0 5' 10'
3/16"=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

SITE PLAN

200' 100' 0 200' 400'
1"=200'

3

dish wireless.
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COVENTRY, CT 06238

SHEET TITLE

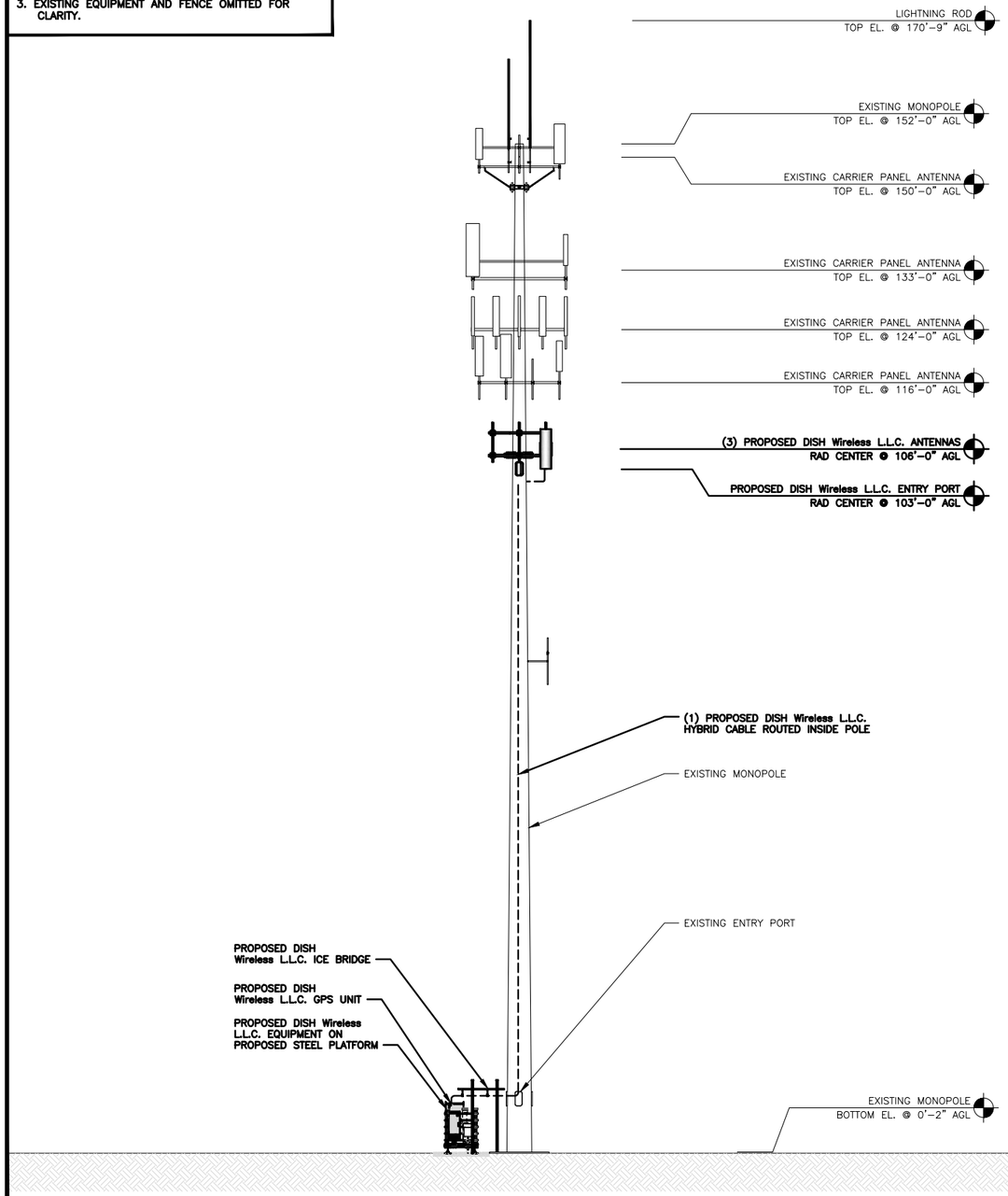
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

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



PROPOSED EAST 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	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZMUITH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	72.0" x 20.0"	0°	106'-0"	(1) HIGH-CAPACITY HYBRID CABLE (138' LONG)
BETA	B1	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	72.0" x 20.0"	120°	106'-0"	
GAMMA	C1	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	72.0" x 20.0"	240°	106'-0"	

NOTES

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

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

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

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STATE OF CONNECTICUT
YUHEI SAKAMOTO
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DRAWN BY:	CHECKED BY:	APPROVED BY:
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RFDS REV #: N/A

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SUBMITTALS

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DISH Wireless L.L.C.
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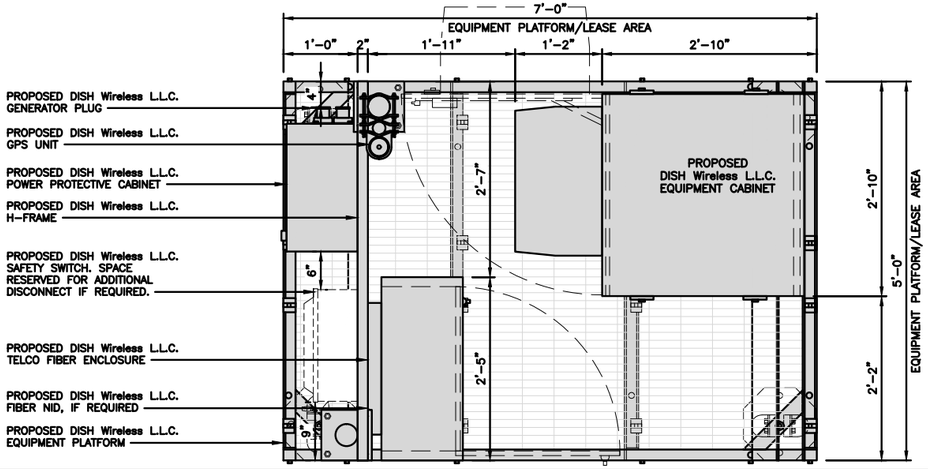
REILLY MTN. RD.
COVENTRY, CT 06238

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2



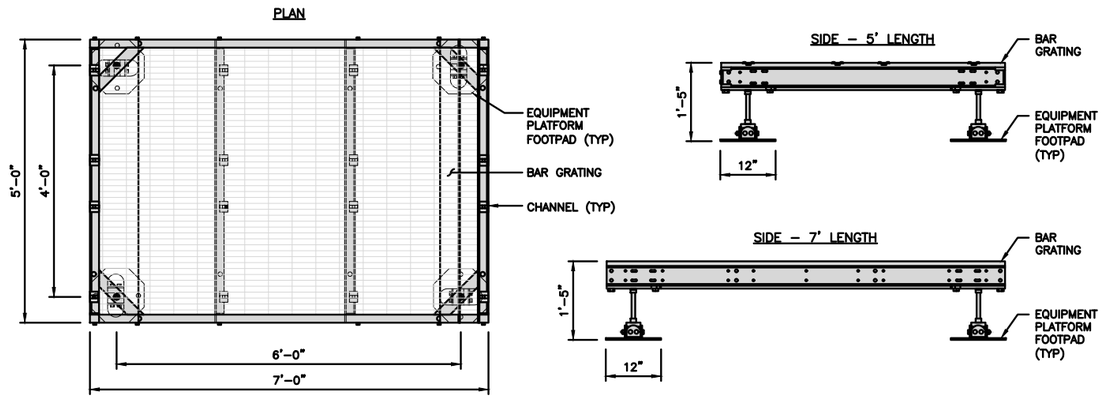
PLATFORM EQUIPMENT PLAN

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"

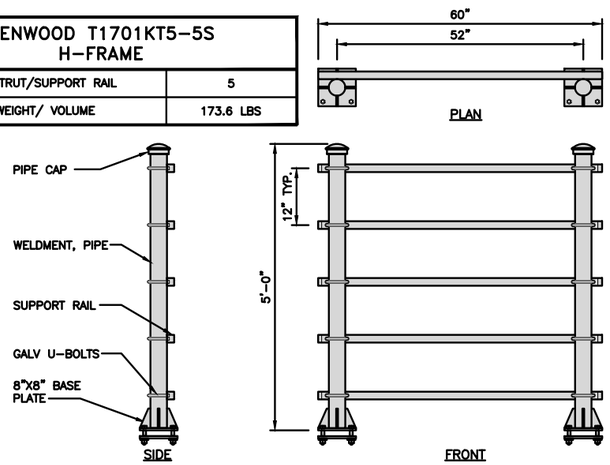


PLATFORM DETAIL

NO SCALE

2

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



H-FRAME DETAIL

NO SCALE

3

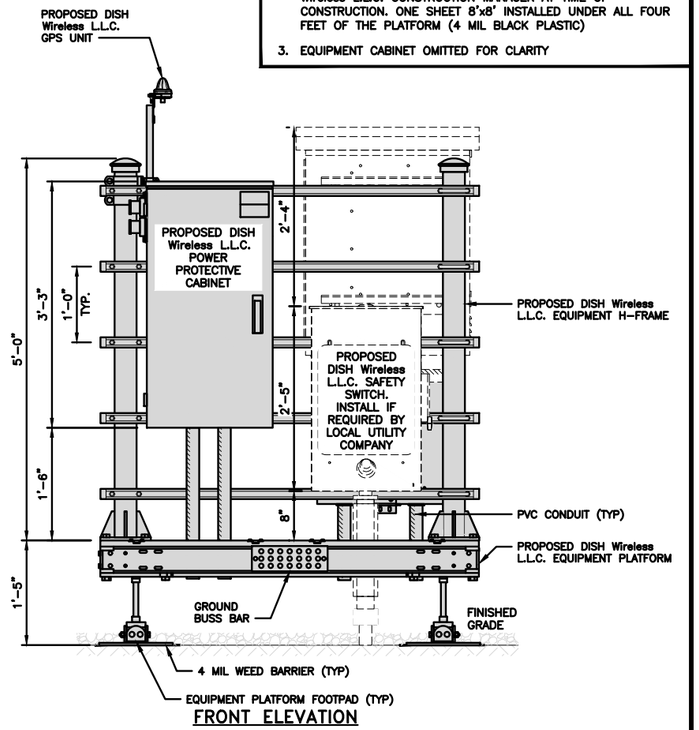
NOT USED

NO SCALE

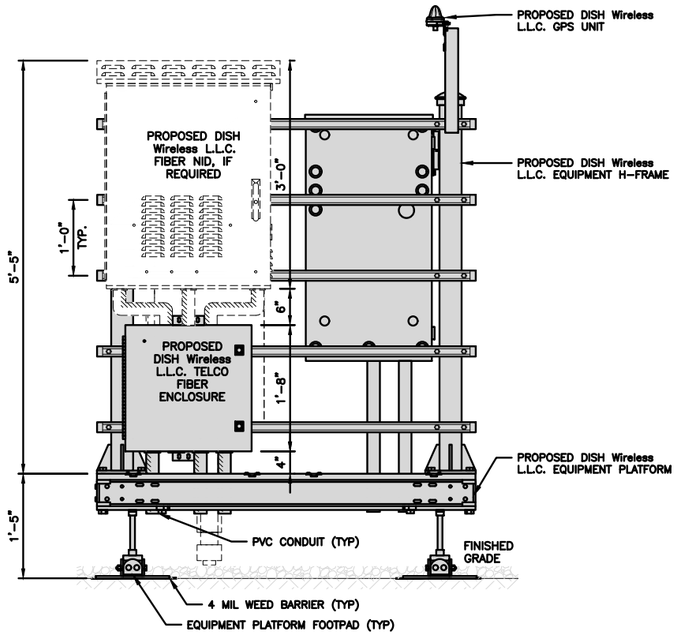
4

NOTES

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



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION

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

5

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YUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
7/14/2021

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

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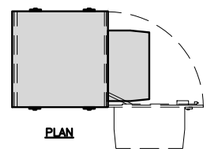
A&E PROJECT NUMBER
6039-Z0001C

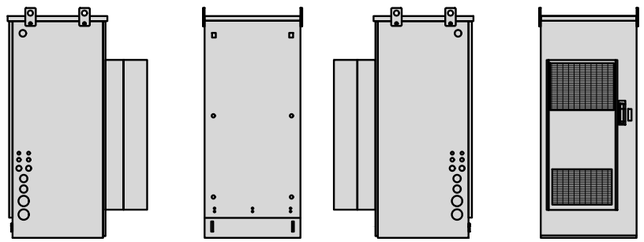
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00098A
REILLY MTN. RD.
COVENTRY, CT 06238

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

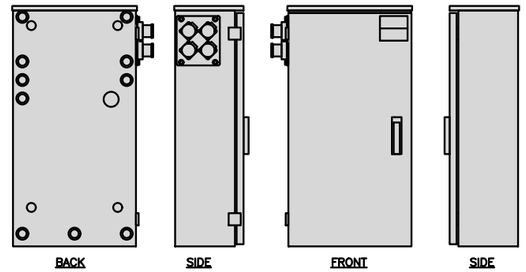
CHARLES INDUSTRY HEX CUBE–PM639155N4	
DIMENSIONS (HxWxD):	74"x32"x32"
POWER PLANT:	–48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	408 LBS





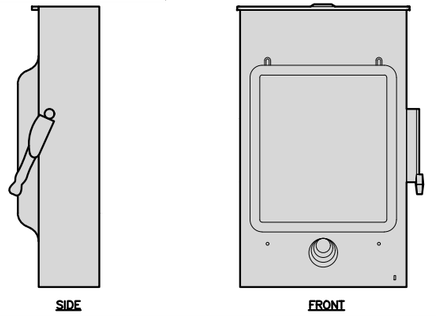
CABINET DETAIL | NO SCALE | 1

RAYCAP 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



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

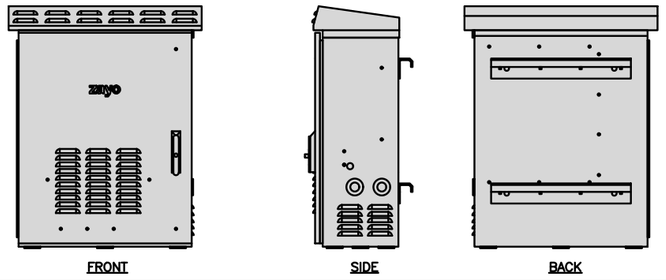
SQUARE D SAFETY SWITCHES D224NRB	
ENCLOSURE DIM (HxWxD)	29.25"x19.00"x8.50"
ENCLOSURE TYPE	NEMA 3R RAINPROOF
UL LISTED	FILE E–2875



SAFETY SWITCH DETAIL | NO SCALE | 3

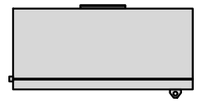
NOT USED | NO SCALE | 4

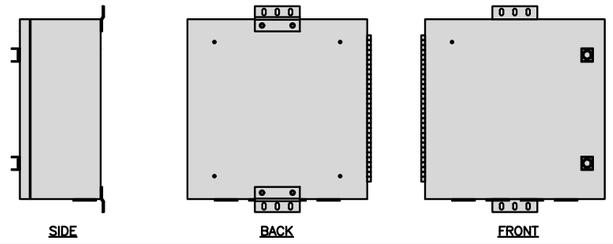
ZAYO 5RU CABINET LEFT SWING DOOR ("LIT" SITES)	
DIMENSIONS (HxWxD)	36.115"x29"x12.9"
WEIGHT	85 LBS
POWER INPUT	20A, –48VDC



NETWORK INTERFACE UNIT 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

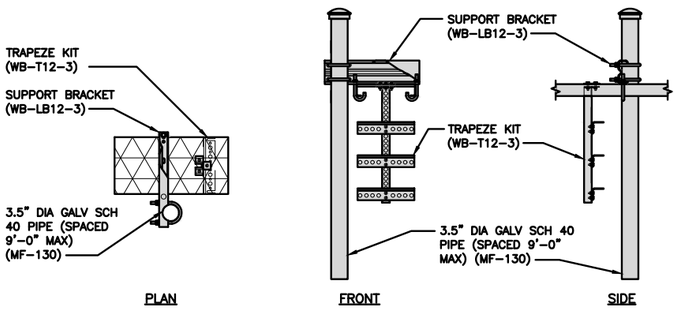




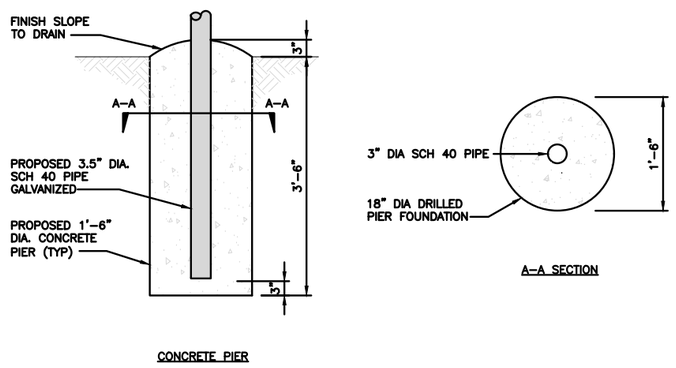
FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

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

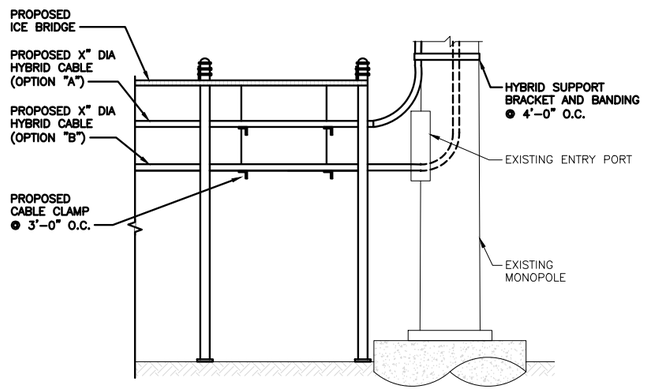
INCLUDED PRODUCTS:	
	WB–T12–3 TRAPEZE KIT, 3 RUNGS
	WB–LB12–3 SUPPORT BRACKET
	MF–130 DIRECT BURIAL PIPE COLUMN, 13'–4"



ICE BRIDGE DETAIL | NO SCALE | 7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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FUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER
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DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

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DISH Wireless L.L.C.
PROJECT INFORMATION
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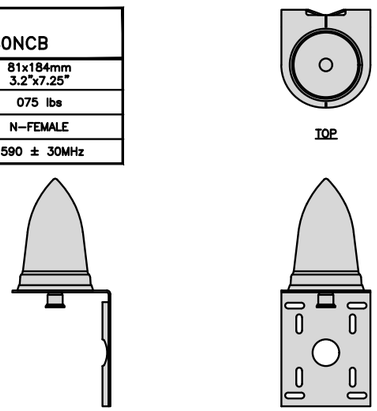
REILLY MTN. RD.
COVENTRY, CT 06238

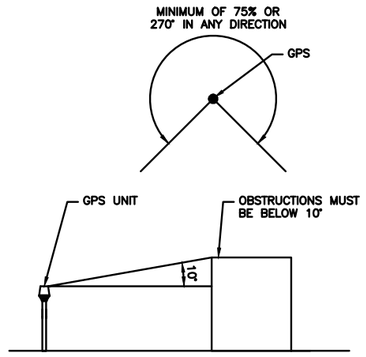
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

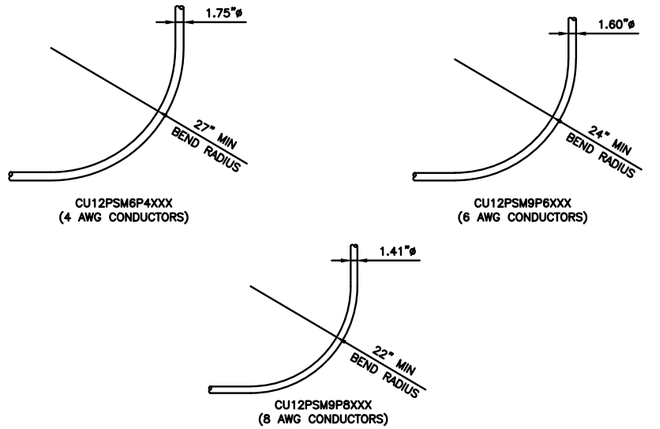
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



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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PROJECT INFORMATION
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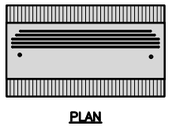
REILLY MTN. RD.
COVENTRY, CT 06238

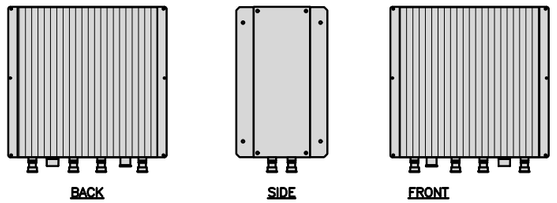
SHEET TITLE
EQUIPMENT DETAILS

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



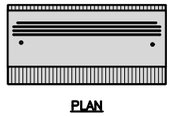
PLAN



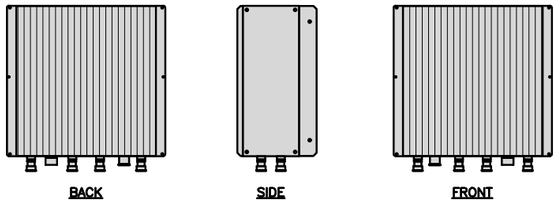
BACK SIDE FRONT

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



PLAN

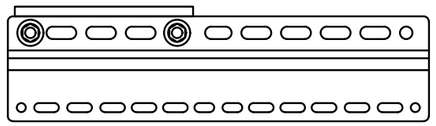


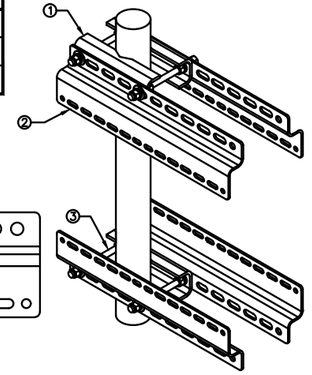
BACK SIDE FRONT

RRH DETAIL | NO SCALE | 2

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

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



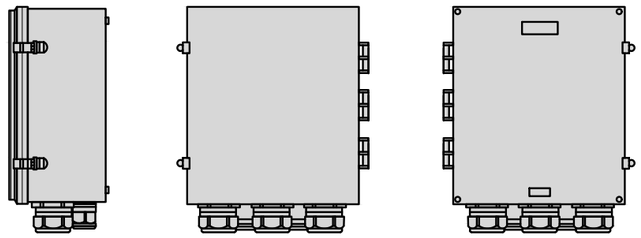


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

RRH MOUNT DETAIL | NO SCALE | 3

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

PLAN



SIDE BACK FRONT

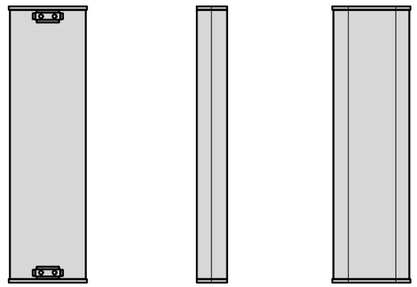
SURGE SUPPRESSION DETAIL | NO SCALE | 4

JMA WIRELESS MX08FRO665-21 ANTENNA	
DIMENSIONS (HxWxD)	72.8"x20.0"x8.0"
TOTAL WEIGHT	64.5 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE

NOTES

FINAL ANTENNA SPECIFICATIONS TO BE CONFIRMED BY GC

PLAN

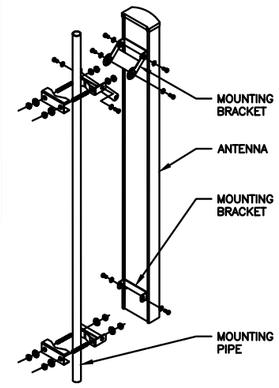


BACK SIDE FRONT

ANTENNA DETAIL | NO SCALE | 5

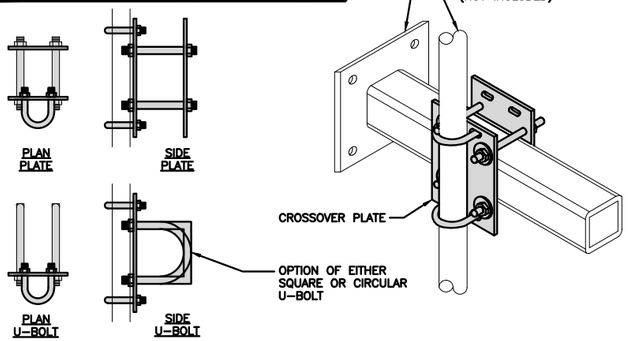
M04 MOUNTING BRACKET HPA-33R-BUU-H4-K	
WIDTH	5"
DEPTH	2"
HEIGHT	8"
TOTAL WEIGHT	1.5 lbs
HOUSING MATERIAL	ASA/ABS/ALUMINUM
RADOME COLOR	LIGHT GRAY
CONNECTOR	1x8-PIN DAISY CHAIN

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



ANTENNA MOUNTING DETAIL | NO SCALE | 6

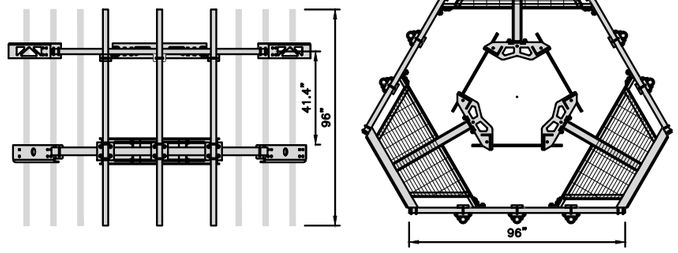
COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11.023 LBS



RRH/OVP MOUNT DETAIL | NO SCALE | 7

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 | 8

NOT USED | NO SCALE | 9

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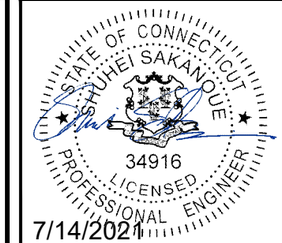

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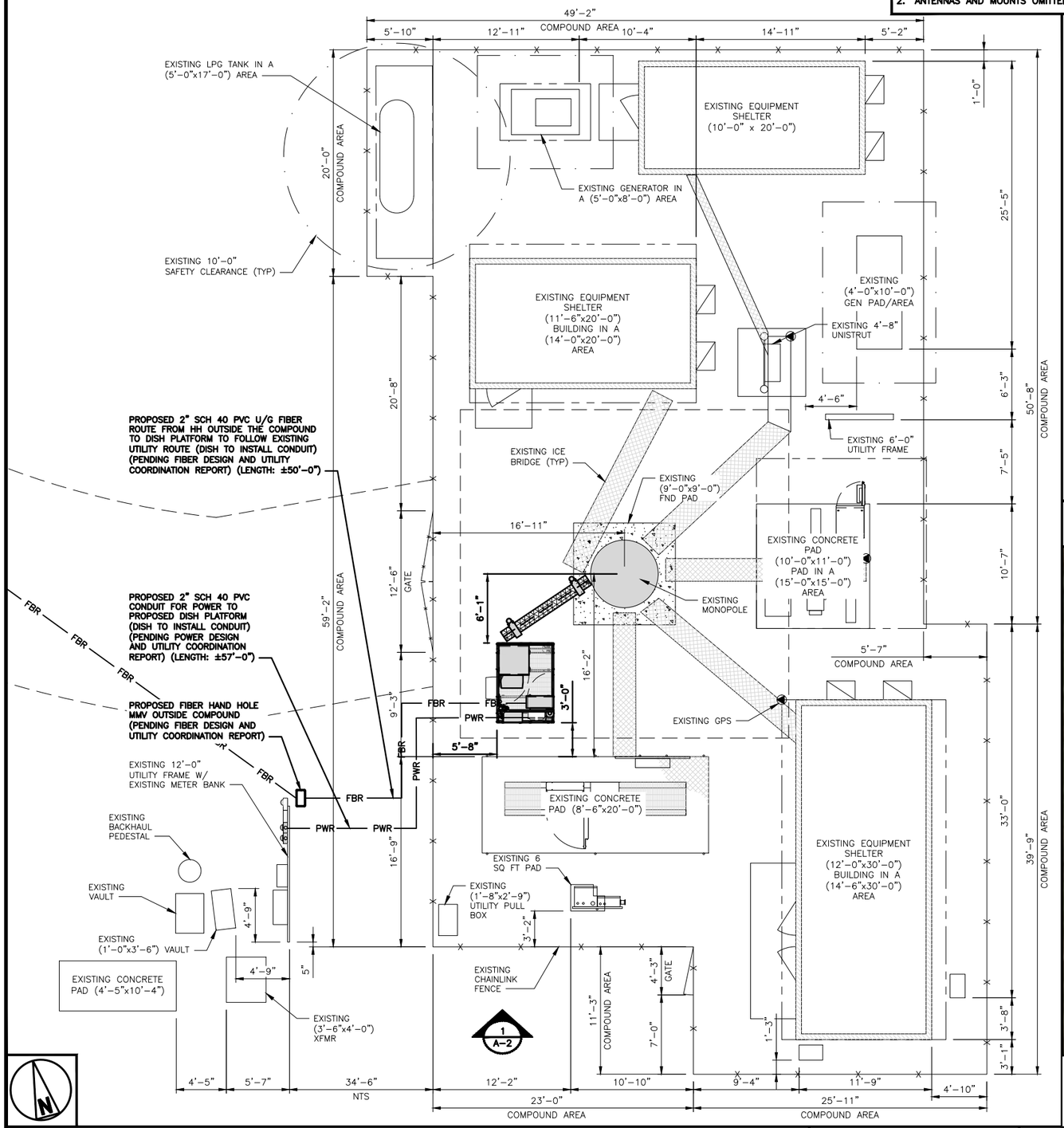
COVENTRY, CT 06238

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.



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

200' 100' 0 200' 400'
1"=200'

3

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STATE OF CONNECTICUT
TSUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
7/14/2021

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	06/09/2021	ISSUED FOR REVIEW
0	07/08/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
6039-Z0001C

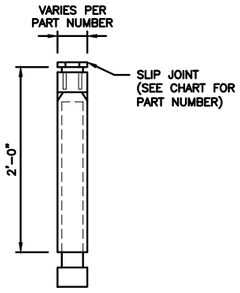
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00098A
REILLY MTN. RD.
COVENTRY, CT 06238

SHEET TITLE
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER
E-1

CARLON EXPANSION FITTINGS

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

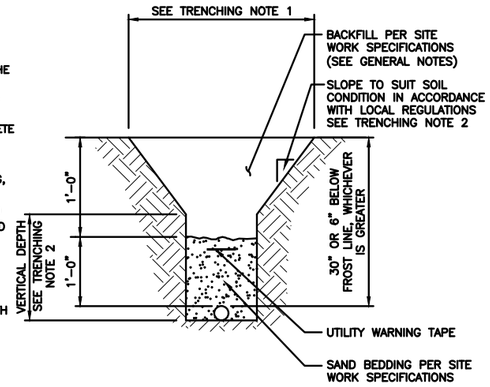


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

EXPANSION JOINT DETAIL | NO SCALE | 1

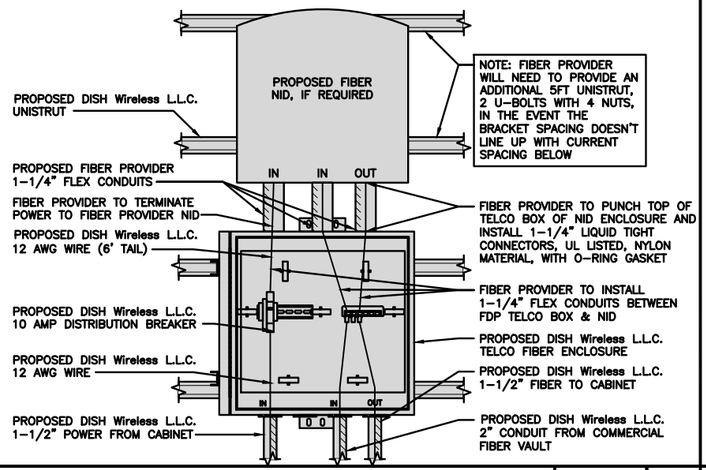
TRENCHING NOTES

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

NOT USED | NO SCALE | 3



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL) | 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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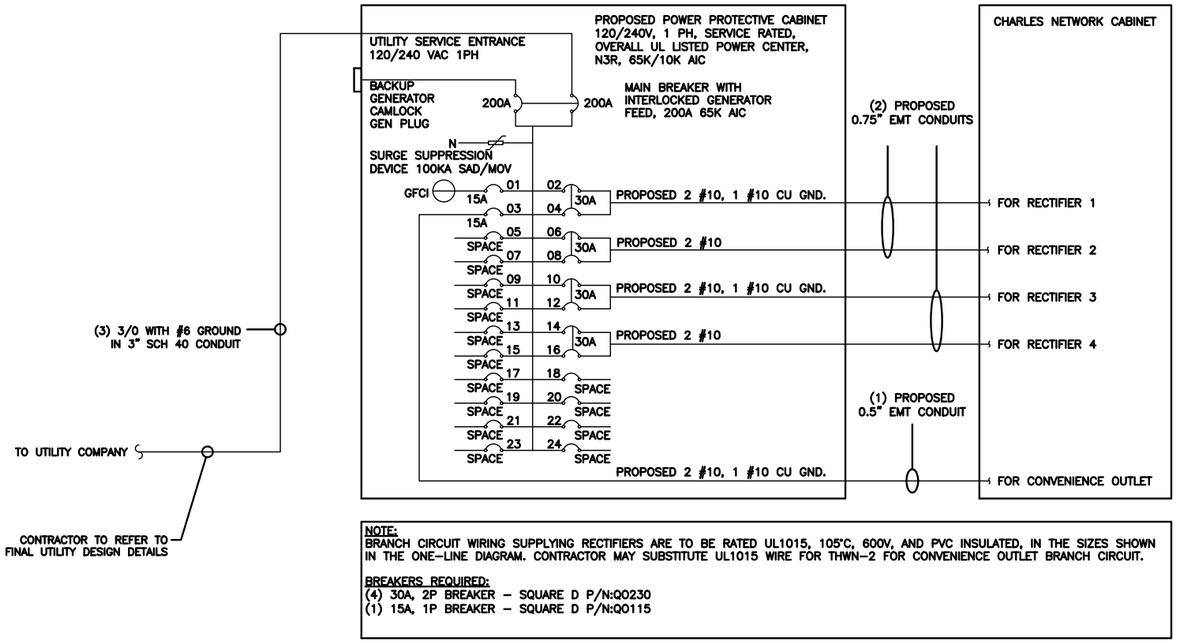
REILLY MTN. RD.
COVENTRY, CT 06238

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 (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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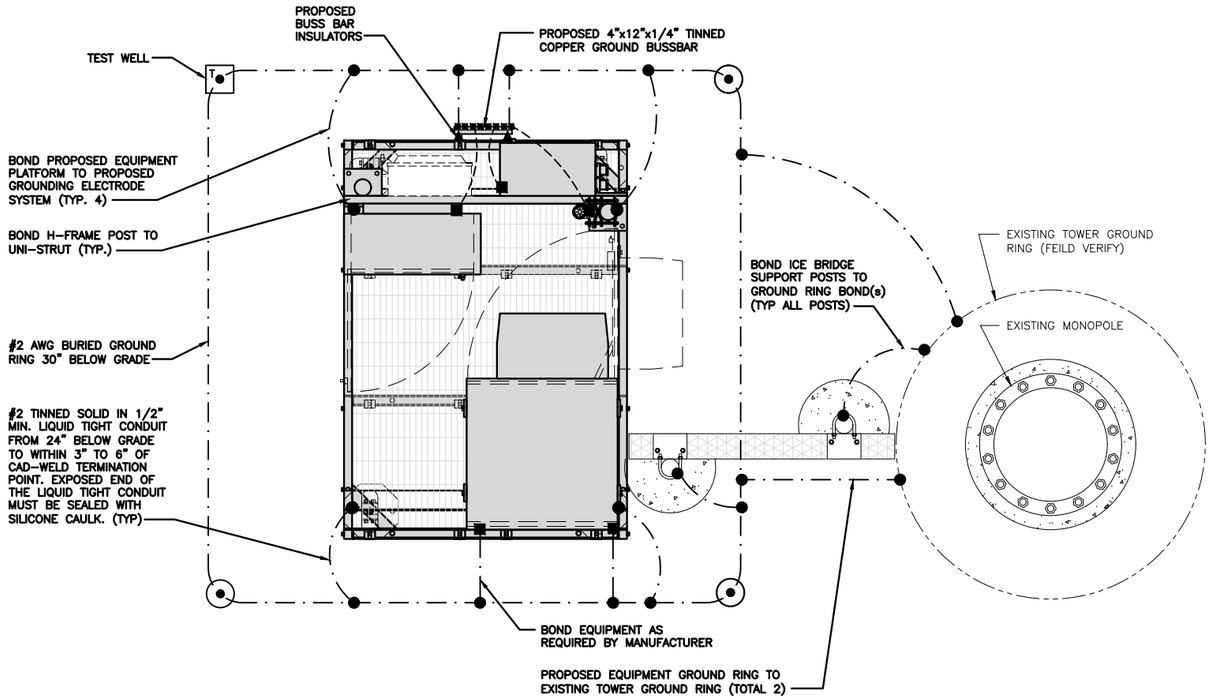
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00098A
REILLY MTN. RD.
COVENTRY, CT 06238

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

SHEET NUMBER
E-3

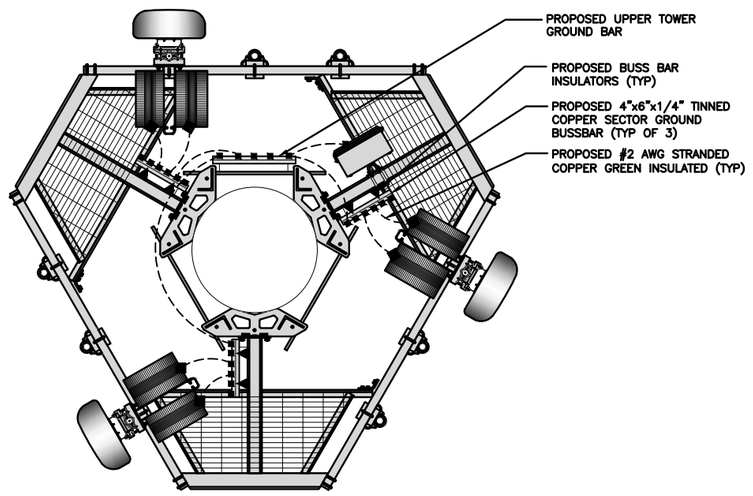


TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE | 1

NOTES

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

(E) GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 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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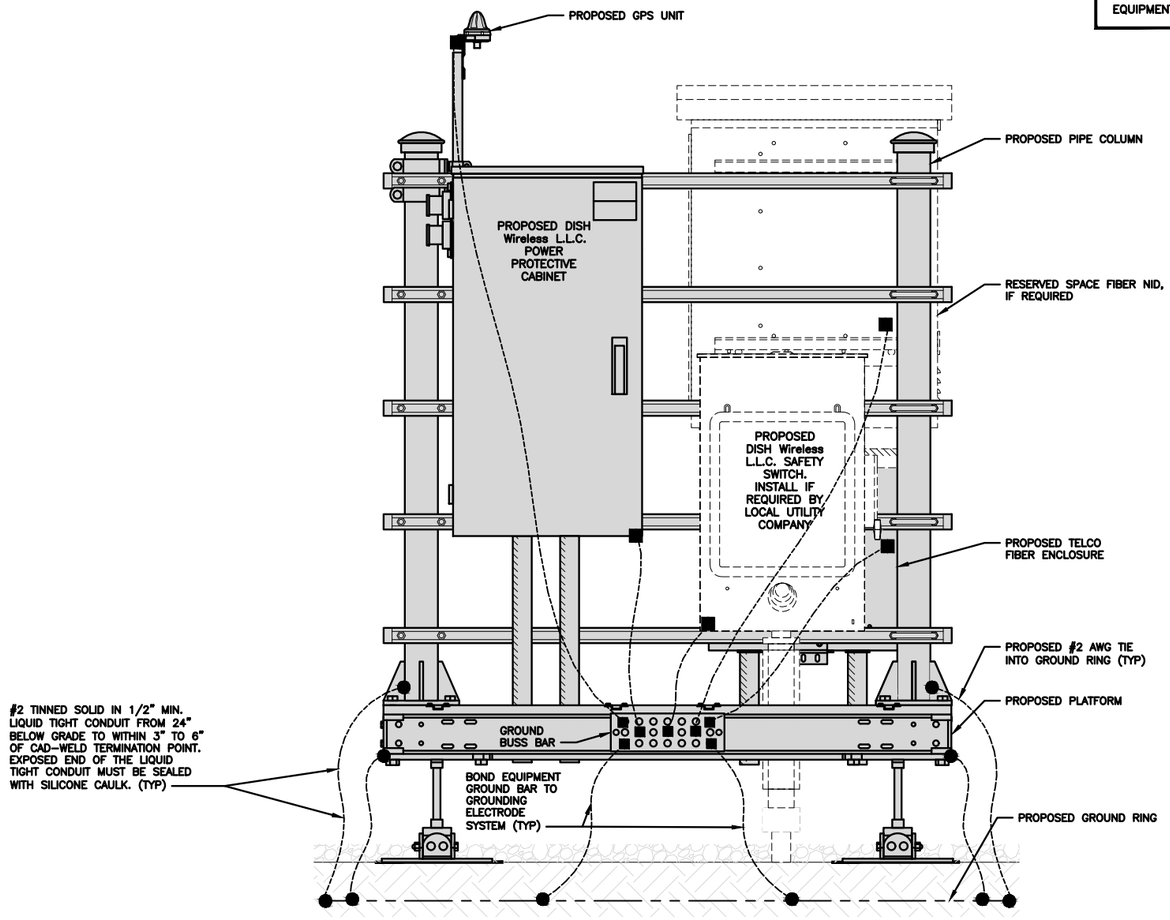
COVENTRY, CT 06238

SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

NOTES

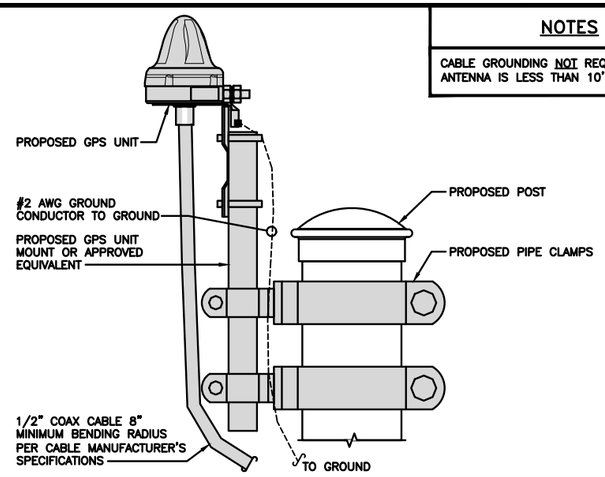
EQUIPMENT CABINET OMITTED FOR CLARITY



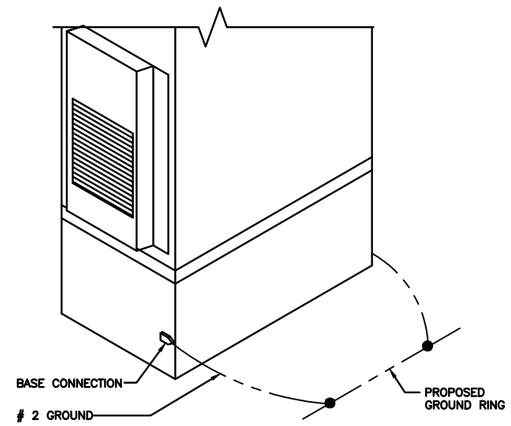
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

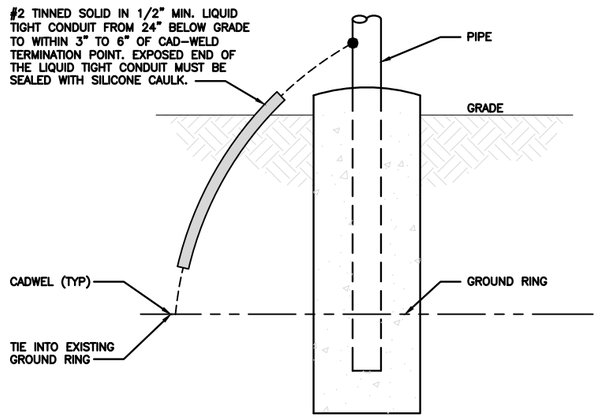
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



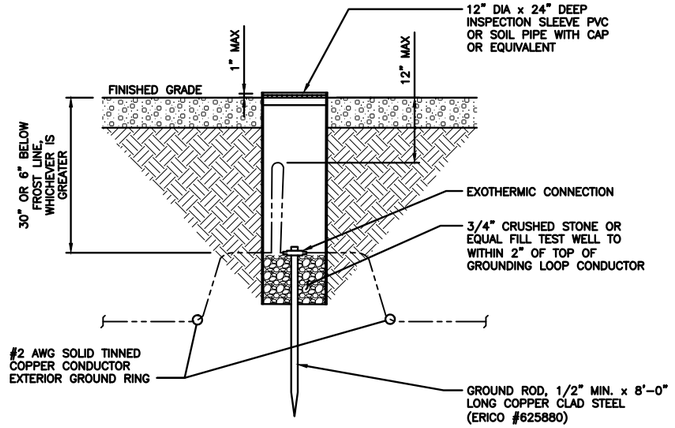
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



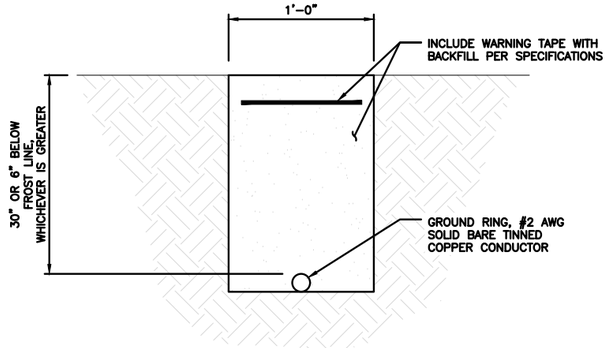
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



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



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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COVENTRY, CT 06238

SHEET TITLE

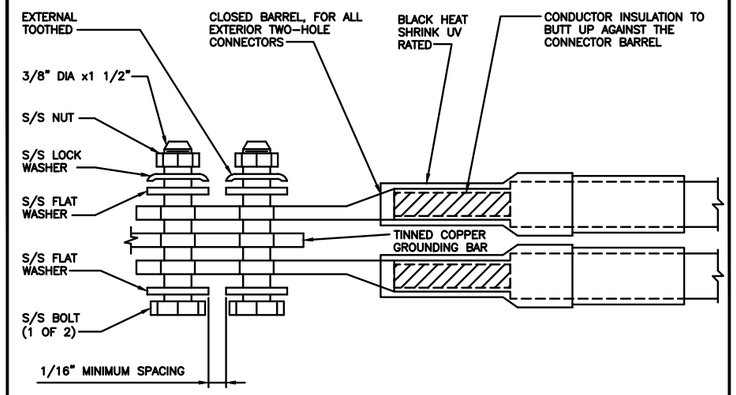
GROUNDING DETAILS

SHEET NUMBER

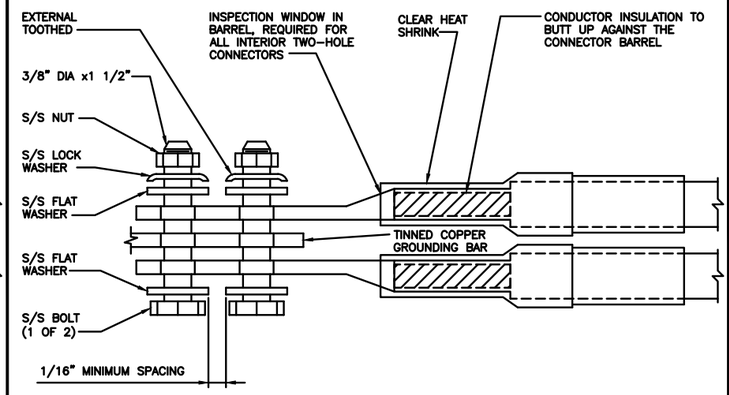
G-2

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

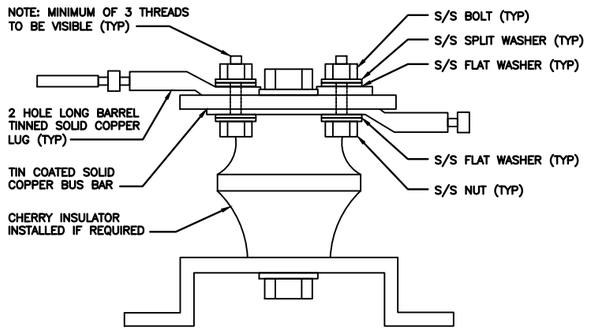
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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LITTLETON, CO 80120

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2000 CORPORATE DRIVE
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STATE OF CONNECTICUT
TSUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
7/14/2021

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	06/09/2021	ISSUED FOR REVIEW
0	07/08/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
6039-Z0001C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00098A
REILLY MTN. RD.
COVENTRY, CT 06238

SHEET TITLE
GROUNDING DETAILS

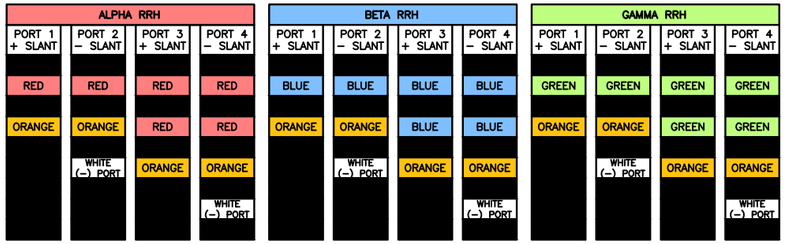
SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

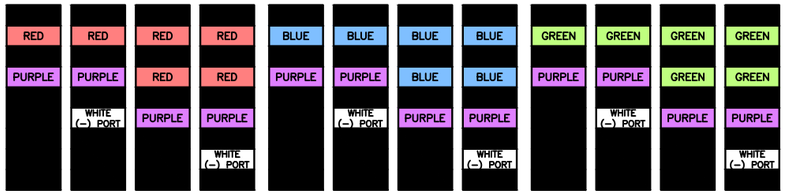
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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



MID-BAND RRH –
(AWS BANDS N66+N70)

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

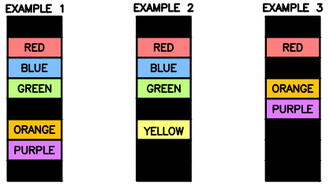


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

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

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

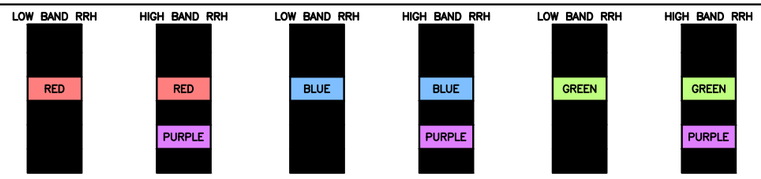


FIBER JUMPERS TO RRHs

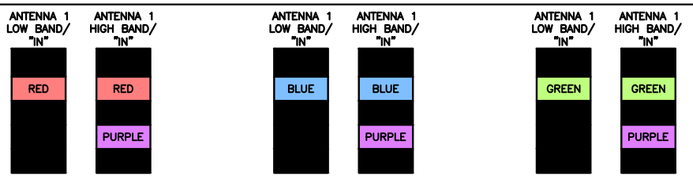
LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY



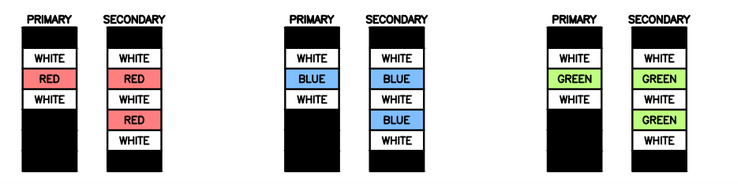
RET MOTORS AT ANTENNAS



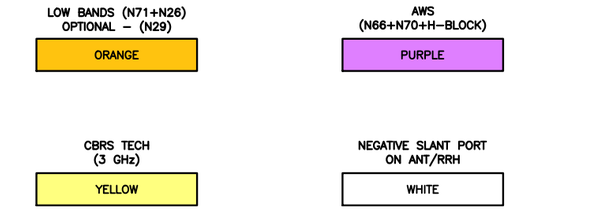
MICROWAVE RADIO LINKS

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

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



RF CABLE COLOR CODES | NO SCALE | 1



COLOR IDENTIFIER | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

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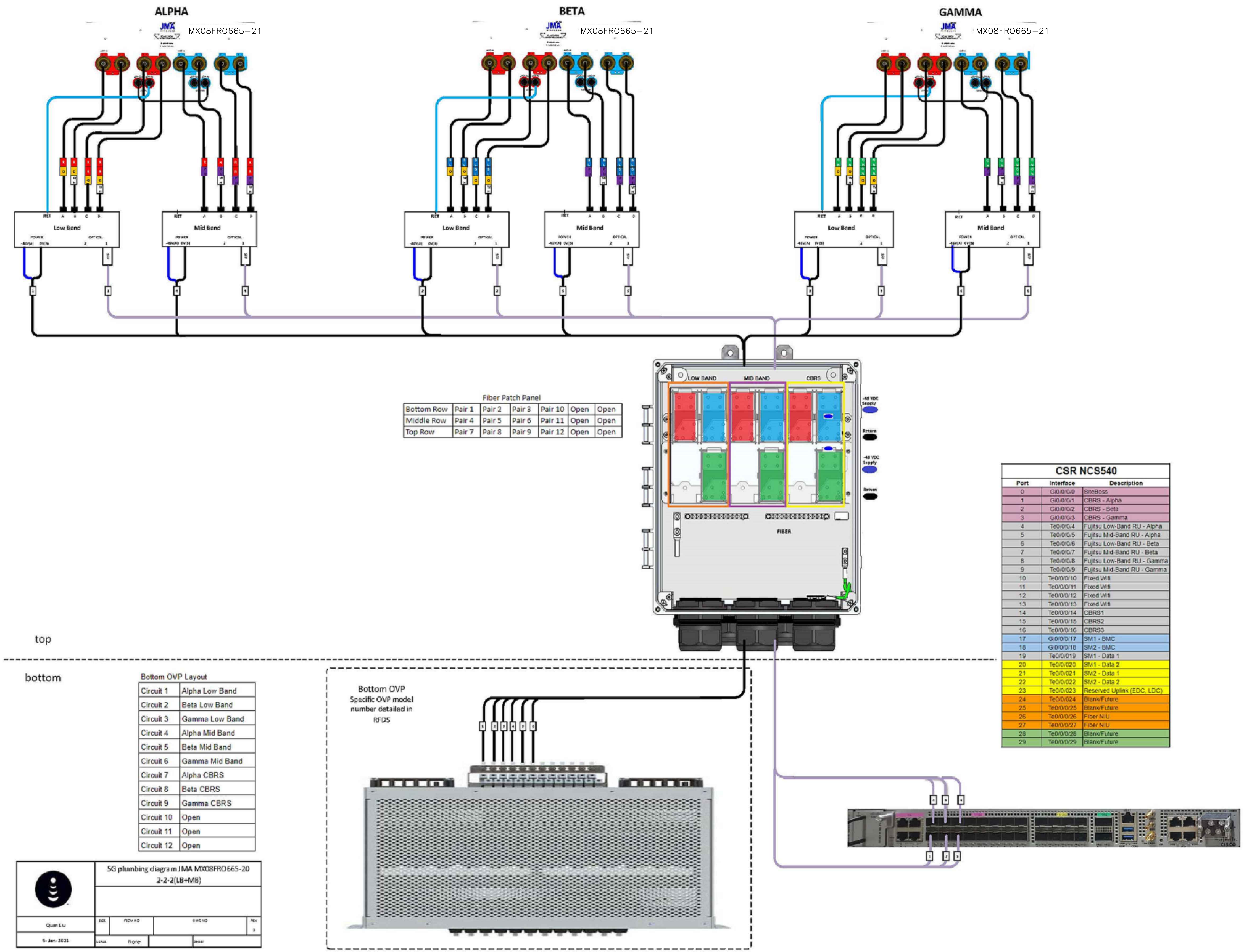
SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1



Fiber Patch Panel

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

Bottom OVP Layout

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

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

Quan Liu | 5-Jan-2021 | REV 3 | SCALE None

CSR NCS540

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

PLUMBING DIAGRAM

NO SCALE 1

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COVENTRY, CT 06238

SHEET TITLE
RF
PLUMBING DIAGRAM

SHEET NUMBER
RF-2

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

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

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE

UNDERGROUND POWER

UNDERGROUND TELCO

OVERHEAD POWER

OVERHEAD TELCO

UNDERGROUND TELCO/POWER

ABOVE GROUND POWER

ABOVE GROUND TELCO

ABOVE GROUND TELCO/POWER

WORKPOINT

SECTION REFERENCE

DETAIL REFERENCE

LEGEND

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

ABBREVIATIONS

dish wireless.

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COVENTRY, CT 06238

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GENERAL NOTES:

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

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER

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

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

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

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

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

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

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

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

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

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

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

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

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

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34916
LICENSED
PROFESSIONAL ENGINEER
7/14/2021

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

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A&E PROJECT NUMBER

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00098A
REILLY MTN. RD.
COVENTRY, CT 06238

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

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

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

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

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

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

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

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

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

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

8. TIE WRAPS ARE NOT ALLOWED.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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KAZUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
7/14/2021

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	06/09/2021	ISSUED FOR REVIEW
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A&E PROJECT NUMBER

6039-Z0001C

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00098A
REILLY MTN. RD.
COVENTRY, CT 06238

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.

4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.

7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.

8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.

11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.

13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.

14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.

15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.

17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.

19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).

21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.

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COVENTRY, CT 06238

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

Exhibit D

Structural Analysis Report

Date: **May 28, 2021**

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***DISH Network* Co-Locate**	
	Site Number:	BOBDL00098A
	Site Name:	CT-CCI-T-876385
Crown Castle Designation:	**BU Number:**	876385
	Site Name:	N. COVENTRY / WALLBEOFF
	JDE Job Number:	650081
	Work Order Number:	1968773
	Order Number:	556602 Rev. 1
Engineering Firm Designation:	**Crown Castle Project Number:**	1968773
Site Data:	**Reilly Mtn. Rd., COVENTRY, TOLLAND County, CT** **Latitude *41° 47' 56.21"*, Longitude *-72° 19' 55.88"*** **152 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**

This analysis utilizes an ultimate 3-second gust wind speed of 130 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: Matthew Schmitt

Respectfully submitted by:

Digitally signed by Bradley E Byrom
Date: 2021.05.30 12:47:21 -04'00'

Bradley E. Byrom, P.E., S.E.
Senior Project Engineer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 152 ft Monopole tower designed by Engineered Endeavors, Inc.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	130 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	2 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)
107.0	107.0	1	tower mounts	Commscope MC-PK8-DSH	1	1-1/2
	106.0	3	fujitsu	TA08025-B604		
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		

Table 2 - Non-Carrier Equipment To Be Removed

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
107.0	107.0	3	kathrein	742 213	-	-
		1	tower mounts	Pipe Mount [PM 601-3]		

Table 3 - 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)
151.0	161.0	1	dbspectra	DS9A09F36D-N	2 2 1	1-5/8 7/8 1/2
	158.0	1	dbspectra	DS4C00F36D-D		
	151.0	1	bird technologies group	430-94C-09168-M-110/48		
		2	tower mounts	Pipe Mount [PM 601-1]		
150.0	152.0	3	alcatel lucent	PCS 1900MHZ 4X45W-65MHZ	4	1-1/4
		3	commscope	NNVV-65B-R4 w/ Mount Pipe		
		3	nokia	FZHN		
		3	rfs celwave	APXVTM14-ALU-I20 w/ Mount Pipe		
	150.0	6	alcatel lucent	RRH2X50-800		
		1	tower mounts	Platform Mount [LP 602-1_KCKR]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
133.0	136.0	3	ems wireless	RR90-17-02DP w/ Mount Pipe	13	1-5/8
		3	ericsson	KRY 112 144/2		
		3	ericsson	RADIO 4449 B12/B71		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
	133.0	3	ericsson	KRY 112 71/2		
		1	tower mounts	Platform Mount [LP 304-1_HR-1]		
124.0	126.0	3	alcatel lucent	RRH2X60-PCS	20	1-5/8
		3	alcatel lucent	RRH2x60-700		
		3	alcatel lucent	RRH4X45-AWS4 B66		
		6	andrew	SBNHH-1D65B w/ Mount Pipe		
		3	antel	LPA-171080-12CF-EDIN-2 w/ Mount Pipe		
		6	antel	LPA-80080/6CF w/ Mount Pipe		
		2	rfs celwave	DB-T1-6Z-8AB-0Z		
	124.0	1	tower mounts	Platform Mount [LP 304-1]		
116.0	120.0	2	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe	12 4 2 2	1-1/4 3/4 3/8 Conduit
		1	cci antennas	HPA-65R-BUU-H8 w/ Mount Pipe		
		3	ericsson	RRUS 32		
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 4478 B14		
		3	ericsson	RRUS-11		
		2	kathrein	80010965 w/ Mount Pipe		
		1	kathrein	80010966 w/ Mount Pipe		
		6	powerwave technologies	7020.00		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		2	raycap	DC6-48-60-18-8F		
	116.0	6	powerwave technologies	LGP21401		
		1	tower mounts	Miscellaneous [NA 510-1]		
		1	tower mounts	Platform Mount [LP 714-1]		
107.0	107.0	-	-	-	6	1-5/8
74.0	75.0	1	lucent	KS24019-L112A	1	1/2
	74.0	1	tower mounts	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1531969	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1441268	CCISITES
4-TOWER MANUFACTURER DRAWINGS	1614566	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.9.0), 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 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	152 - 137.42	Pole	TP37.31x33.03x0.313	1	-5.095	2161.645	2.8	Pass
L2	137.42 - 91.09	Pole	TP50.15x35.167x0.375	2	-30.217	3493.833	21.4	Pass
L3	91.09 - 44.79	Pole	TP62.86x47.413x0.438	3	-48.549	5115.600	31.5	Pass
L4	44.79 - 0	Pole	TP75x59.537x0.5	4	-78.444	7262.367	34.8	Pass
							Summary	
						Pole (L4)	34.8	Pass
						Rating =	34.8	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	31.4	Pass
1	Base Plate	0	43.0	Pass
1	Base Foundation (Structure)	0	39.5	Pass
1	Base Foundation (Soil Interaction)	0	38.6	Pass

Structure Rating (max from all components) =	43%

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

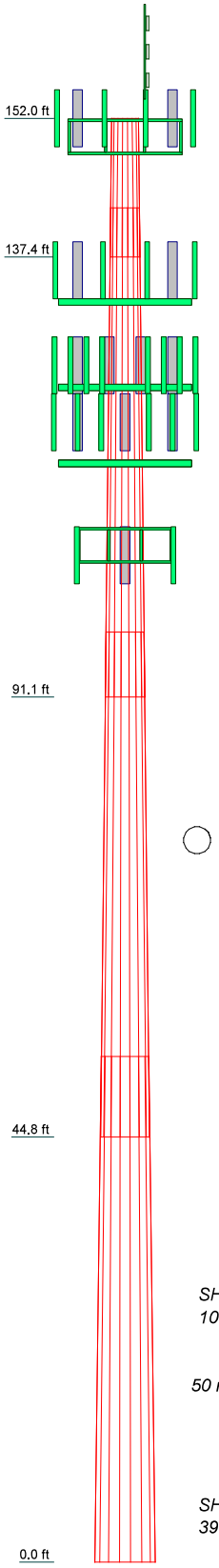
4.1) Recommendations

Once the equipment in Table 2 is removed, 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	14.580	18	0.313	5.170	33.030	37.310		1.7
2	51.500	18	0.375	6.830	35.167	50.150		8.8
3	53.130	18	0.438	8.420	47.413	62.860	A572-65	13.7
4	53.210	18	0.500		59.537	75.000		19.2
								43.5



ALL REACTIONS ARE FACTORED

AXIAL 135 K

SHEAR 10 K *MOMENT 1085 kip-ft*

TORQUE 0 kip-ft

50 mph WIND - 2.000 in ICE

AXIAL 78 K

SHEAR 39 K *MOMENT 4125 kip-ft*

TORQUE 2 kip-ft

REACTIONS - 130 mph WIND

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Tolland County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 130 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 2.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 34.8%

CROWN CASTLE
The Foundation for a Wireless World

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

Job: ***BU# 876385***			
Project:			
Client: Crown Castle	Drawn by: Matthew Schmitt		App'd:
Code: TIA-222-H	Date: 05/28/21		Scale: NTS
Path: C:\Work Area\876385\WO 1968773 - SA\Prod\876385.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 Tolland County, Connecticut.
- Tower base elevation above sea level: 707.000 ft.
- Basic wind speed of 130 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.000 ft.
- Nominal ice thickness of 2.000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56.000 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50.000 °F.
- Deflections calculated using a wind speed of 60 mph.
- 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	152.000-137.420	14.580	5.170	18	33.030	37.310	0.313	1.250	A572-65 (65 ksi)
L2	137.420-91.090	51.500	6.830	18	35.167	50.150	0.375	1.500	A572-65 (65 ksi)
L3	91.090-44.790	53.130	8.420	18	47.413	62.860	0.438	1.750	A572-65 (65 ksi)
L4	44.790-0.000	53.210		18	59.537	75.000	0.500	2.000	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	33.491	32.452	4388.688	11.615	16.779	261.555	8783.151	16.229	5.263	16.842
	37.837	36.697	6346.168	13.134	18.953	334.829	12700.685	18.352	6.017	19.253
L2	37.179	41.412	6333.245	12.351	17.865	354.506	12674.822	20.710	5.529	14.745
	50.866	59.245	18544.257	17.670	25.476	727.905	37112.916	29.628	8.166	21.777
L3	50.093	65.231	18185.953	16.676	24.086	755.049	36395.835	32.622	7.575	17.314
	63.762	86.681	42672.286	22.160	31.933	1336.312	85400.720	43.349	10.293	23.528
L4	62.863	93.692	41255.943	20.958	30.245	1364.068	82566.172	46.855	9.599	19.197
	76.080	118.232	82905.472	26.448	38.100	2175.997	165920.033	59.127	12.320	24.64

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 152.000-137.420				1	1	1			
L2 137.420-91.090				1	1	1			
L3 91.090-44.790				1	1	1			
L4 44.790-0.000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
HB158-1-08U8-S8J18(1-5/8) **	A	No	Surface Ar (CaAa)	124.000 - 0.000	2	2	-0.250 -0.200	1.980		1.300

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
HCA78-50J(7/8)	A	No	No	Inside Pole	151.000 - 0.000	2	No Ice	0.000	0.460
							1/2" Ice	0.000	0.460
							1" Ice	0.000	0.460
							2" Ice	0.000	0.460

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
FLC 12-50J(1/2")	A	No	No	Inside Pole	151.000 - 0.000	1	No Ice	0.000	0.170
							1/2" Ice	0.000	0.170
							1" Ice	0.000	0.170
							2" Ice	0.000	0.170
FLC 158-50J(1-5/8")	A	No	No	Inside Pole	151.000 - 0.000	2	No Ice	0.000	0.920
							1/2" Ice	0.000	0.920
							1" Ice	0.000	0.920
							2" Ice	0.000	0.920
*									
HB114-1-0813U4-M5J(1-1/4)	A	No	No	Inside Pole	150.000 - 0.000	3	No Ice	0.000	1.200
							1/2" Ice	0.000	1.200
							1" Ice	0.000	1.200
							2" Ice	0.000	1.200
HB114-13U3M12-XXXF(1-1/4)	A	No	No	Inside Pole	150.000 - 0.000	1	No Ice	0.000	0.992
							1/2" Ice	0.000	0.992
							1" Ice	0.000	0.992
							2" Ice	0.000	0.992
*									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	133.000 - 0.000	6	No Ice	0.000	0.820
							1/2" Ice	0.000	0.820
							1" Ice	0.000	0.820
							2" Ice	0.000	0.820
HCS 6X12 4AWG(1-5/8")	C	No	No	Inside Pole	133.000 - 0.000	1	No Ice	0.000	2.400
							1/2" Ice	0.000	2.400
							1" Ice	0.000	2.400
							2" Ice	0.000	2.400
AVA7-50(1-5/8)	C	No	No	Inside Pole	133.000 - 0.000	6	No Ice	0.000	0.700
							1/2" Ice	0.000	0.700
							1" Ice	0.000	0.700
							2" Ice	0.000	0.700
*									
LDF7-50A(1 5/8)	A	No	No	Inside Pole	124.000 - 0.000	18	No Ice	0.000	0.820
							1/2" Ice	0.000	0.820
							1" Ice	0.000	0.820
							2" Ice	0.000	0.820
*									
LCF114-50J(1-1/4)	A	No	No	Inside Pole	116.000 - 0.000	12	No Ice	0.000	0.700
							1/2" Ice	0.000	0.700
							1" Ice	0.000	0.700
							2" Ice	0.000	0.700
WR-VG86ST-BRD(3/4)	A	No	No	Inside Pole	116.000 - 0.000	4	No Ice	0.000	0.584
							1/2" Ice	0.000	0.584
							1" Ice	0.000	0.584
							2" Ice	0.000	0.584
FB-L98B-034-XXX(3/8)	A	No	No	Inside Pole	116.000 - 0.000	2	No Ice	0.000	0.057
							1/2" Ice	0.000	0.057
							1" Ice	0.000	0.057
							2" Ice	0.000	0.057
2" Rigid Conduit	A	No	No	Inside Pole	116.000 - 0.000	2	No Ice	0.000	2.800
							1/2" Ice	0.000	2.800
							1" Ice	0.000	2.800
							2" Ice	0.000	2.800
*									
CU12PSM9P6XXX (1-1/2)	B	No	No	Inside Pole	107.000 - 0.000	1	No Ice	0.000	2.350
							1/2" Ice	0.000	2.350
							1" Ice	0.000	2.350
							2" Ice	0.000	2.350
*									
LDF4-50A(1/2)	A	No	No	Inside Pole	74.000 - 0.000	1	No Ice	0.000	0.150
							1/2" Ice	0.000	0.150
							1" Ice	0.000	0.150
							2" Ice	0.000	0.150
**									

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	152.000-137.420	A	0.000	0.000	0.000	0.000	0.098
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
L2	137.420-91.090	A	0.000	0.000	13.032	0.000	1.330
		B	0.000	0.000	0.000	0.000	0.037
		C	0.000	0.000	0.000	0.000	0.483
L3	91.090-44.790	A	0.000	0.000	18.335	0.000	1.918
		B	0.000	0.000	0.000	0.000	0.109
		C	0.000	0.000	0.000	0.000	0.533
L4	44.790-0.000	A	0.000	0.000	17.737	0.000	1.858
		B	0.000	0.000	0.000	0.000	0.105
		C	0.000	0.000	0.000	0.000	0.516

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	152.000-137.420	A	1.971	0.000	0.000	0.000	0.000	0.098
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
L2	137.420-91.090	A	1.923	0.000	0.000	32.504	0.000	1.753
		B		0.000	0.000	0.000	0.000	0.037
		C		0.000	0.000	0.000	0.000	0.483
L3	91.090-44.790	A	1.826	0.000	0.000	45.181	0.000	2.495
		B		0.000	0.000	0.000	0.000	0.109
		C		0.000	0.000	0.000	0.000	0.533
L4	44.790-0.000	A	1.631	0.000	0.000	42.621	0.000	2.379
		B		0.000	0.000	0.000	0.000	0.105
		C		0.000	0.000	0.000	0.000	0.516

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	152.000-137.420	0.000	0.000	0.000	0.000
L2	137.420-91.090	-2.247	-0.118	-2.758	-0.145
L3	91.090-44.790	-2.977	-0.156	-3.648	-0.191
L4	44.790-0.000	-3.015	-0.158	-3.750	-0.197

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
L2	17	HB158-1-08U8-S8J18(1-5/8)	91.09 - 124.00	1.0000	1.0000
L3	17	HB158-1-08U8-S8J18(1-5/8)	44.79 - 91.09	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L4	17	HB158-1-08U8-S8J18(1-5/8)	0.00 - 44.79	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
*									
DS9A09F36D-N	A	From Leg	1.000 0.000 10.000	0.000	152.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.760 7.713 9.683 13.673	5.760 7.713 9.683 13.673	0.047 0.088 0.142 0.287
DS4C00F36D-D	B	From Leg	1.000 0.000 7.000	0.000	152.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.214 2.841 3.292 4.222	2.214 2.841 3.292 4.222	0.014 0.030 0.051 0.109
430-94C-09168-M-110/48	B	From Leg	1.000 0.000 0.000	0.000	152.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.031 1.174 1.323 1.644	1.031 1.174 1.323 1.644	0.020 0.030 0.042 0.074
Pipe Mount [PM 601-1]	A	From Leg	0.000 0.000 0.000	0.000	152.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.320 1.580 1.840 2.400	1.320 1.580 1.840 2.400	0.065 0.077 0.093 0.134
Pipe Mount [PM 601-1]	B	From Leg	0.000 0.000 0.000	0.000	152.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.320 1.580 1.840 2.400	1.320 1.580 1.840 2.400	0.065 0.077 0.093 0.134
*									
NNVV-65B-R4 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	7.550 8.040 8.530 9.560	4.230 4.670 5.120 6.050	0.110 0.197 0.296 0.529
NNVV-65B-R4 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	7.550 8.040 8.530 9.560	4.230 4.670 5.120 6.050	0.110 0.197 0.296 0.529
NNVV-65B-R4 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	7.550 8.040 8.530 9.560	4.230 4.670 5.120 6.050	0.110 0.197 0.296 0.529
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.090 4.480 4.880 5.710	2.860 3.230 3.610 4.400	0.077 0.127 0.185 0.331
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	150.000	No Ice 1/2" Ice	4.090 4.480 4.880	2.860 3.230 3.610	0.077 0.127 0.185

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice 2" Ice	5.710	4.400	0.331
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.090 4.480 4.880 5.710	2.860 3.230 3.610 4.400	0.077 0.127 0.185 0.331
FZHN	A	From Leg	4.000 0.000 2.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.020 2.197 2.381 2.772	0.607 0.715 0.829 1.089	0.044 0.058 0.075 0.116
FZHN	B	From Leg	4.000 0.000 2.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.020 2.197 2.381 2.772	0.607 0.715 0.829 1.089	0.044 0.058 0.075 0.116
FZHN	C	From Leg	4.000 0.000 2.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.020 2.197 2.381 2.772	0.607 0.715 0.829 1.089	0.044 0.058 0.075 0.116
PCS 1900MHZ 4X45W-65MHZ	A	From Leg	4.000 0.000 2.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.322 2.527 2.739 3.185	2.238 2.441 2.651 3.093	0.060 0.083 0.110 0.173
PCS 1900MHZ 4X45W-65MHZ	B	From Leg	4.000 0.000 2.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.322 2.527 2.739 3.185	2.238 2.441 2.651 3.093	0.060 0.083 0.110 0.173
PCS 1900MHZ 4X45W-65MHZ	C	From Leg	4.000 0.000 2.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.322 2.527 2.739 3.185	2.238 2.441 2.651 3.093	0.060 0.083 0.110 0.173
(2) RRH2X50-800	A	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.701 1.864 2.035 2.398	1.282 1.428 1.580 1.908	0.053 0.070 0.090 0.138
(2) RRH2X50-800	B	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.701 1.864 2.035 2.398	1.282 1.428 1.580 1.908	0.053 0.070 0.090 0.138
(2) RRH2X50-800	C	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.701 1.864 2.035 2.398	1.282 1.428 1.580 1.908	0.053 0.070 0.090 0.138
Platform Mount [LP 602-1_KCKR]	C	None		0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	42.300 49.040 55.870 69.850	42.300 49.040 55.870 69.850	1.618 2.384 3.267 5.398
Transition Ladder	C	From Leg	2.000 0.000 -5.000	0.000	150.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.000 8.000 10.000 14.000	6.000 8.000 10.000 14.000	0.160 0.240 0.320 0.480
6' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice Ice	1.425 1.925 2.294	1.425 1.925 2.294	0.022 0.033 0.048

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	3.060	3.060	0.090
						2" Ice			
6' x 2" Mount Pipe	B	From Leg	4.000	0.000	150.000	No Ice	1.425	1.425	0.022
			0.000			1/2"	1.925	1.925	0.033
			0.000			Ice	2.294	2.294	0.048
						1" Ice	3.060	3.060	0.090
						2" Ice			
6' x 2" Mount Pipe	C	From Leg	4.000	0.000	150.000	No Ice	1.425	1.425	0.022
			0.000			1/2"	1.925	1.925	0.033
			0.000			Ice	2.294	2.294	0.048
						1" Ice	3.060	3.060	0.090
						2" Ice			
*									
RR90-17-02DP w/ Mount Pipe	A	From Leg	4.000	0.000	133.000	No Ice	4.470	2.920	0.034
			0.000			1/2"	5.080	3.500	0.067
			3.000			Ice	5.700	4.100	0.108
						1" Ice	7.010	5.350	0.216
						2" Ice			
RR90-17-02DP w/ Mount Pipe	B	From Leg	4.000	0.000	133.000	No Ice	4.470	2.920	0.034
			0.000			1/2"	5.080	3.500	0.067
			3.000			Ice	5.700	4.100	0.108
						1" Ice	7.010	5.350	0.216
						2" Ice			
RR90-17-02DP w/ Mount Pipe	C	From Leg	4.000	0.000	133.000	No Ice	4.470	2.920	0.034
			0.000			1/2"	5.080	3.500	0.067
			3.000			Ice	5.700	4.100	0.108
						1" Ice	7.010	5.350	0.216
						2" Ice			
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.000	0.000	133.000	No Ice	14.690	6.870	0.186
			0.000			1/2"	15.460	7.550	0.315
			3.000			Ice	16.230	8.250	0.458
						1" Ice	17.820	9.670	0.788
						2" Ice			
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.000	0.000	133.000	No Ice	14.690	6.870	0.186
			0.000			1/2"	15.460	7.550	0.315
			3.000			Ice	16.230	8.250	0.458
						1" Ice	17.820	9.670	0.788
						2" Ice			
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.000	0.000	133.000	No Ice	14.690	6.870	0.186
			0.000			1/2"	15.460	7.550	0.315
			3.000			Ice	16.230	8.250	0.458
						1" Ice	17.820	9.670	0.788
						2" Ice			
KRY 112 71/2	A	From Leg	4.000	0.000	133.000	No Ice	0.583	0.398	0.013
			0.000			1/2"	0.688	0.488	0.018
			0.000			Ice	0.799	0.586	0.025
						1" Ice	1.045	0.805	0.044
						2" Ice			
KRY 112 71/2	B	From Leg	4.000	0.000	133.000	No Ice	0.583	0.398	0.013
			0.000			1/2"	0.688	0.488	0.018
			0.000			Ice	0.799	0.586	0.025
						1" Ice	1.045	0.805	0.044
						2" Ice			
KRY 112 71/2	C	From Leg	4.000	0.000	133.000	No Ice	0.583	0.398	0.013
			0.000			1/2"	0.688	0.488	0.018
			0.000			Ice	0.799	0.586	0.025
						1" Ice	1.045	0.805	0.044
						2" Ice			
KRY 112 144/2	A	From Leg	4.000	0.000	133.000	No Ice	0.479	0.232	0.010
			0.000			1/2"	0.568	0.299	0.014
			3.000			Ice	0.664	0.376	0.019
						1" Ice	0.879	0.552	0.035
						2" Ice			
KRY 112 144/2	B	From Leg	4.000	0.000	133.000	No Ice	0.479	0.232	0.010
			0.000			1/2"	0.568	0.299	0.014

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			3.000			Ice	0.664	0.376	0.019
						1" Ice	0.879	0.552	0.035
						2" Ice			
KRY 112 144/2	B	From Leg	4.000	0.000	133.000	No Ice	0.479	0.232	0.010
			0.000			1/2"	0.568	0.299	0.014
			3.000			Ice	0.664	0.376	0.019
						1" Ice	0.879	0.552	0.035
						2" Ice			
RADIO 4449 B12/B71	A	From Leg	4.000	0.000	133.000	No Ice	1.650	1.163	0.074
			0.000			1/2"	1.810	1.301	0.090
			3.000			Ice	1.978	1.447	0.109
						1" Ice	2.336	1.762	0.155
						2" Ice			
RADIO 4449 B12/B71	B	From Leg	4.000	0.000	133.000	No Ice	1.650	1.163	0.074
			0.000			1/2"	1.810	1.301	0.090
			3.000			Ice	1.978	1.447	0.109
						1" Ice	2.336	1.762	0.155
						2" Ice			
RADIO 4449 B12/B71	C	From Leg	4.000	0.000	133.000	No Ice	1.650	1.163	0.074
			0.000			1/2"	1.810	1.301	0.090
			3.000			Ice	1.978	1.447	0.109
						1" Ice	2.336	1.762	0.155
						2" Ice			
Platform Mount [LP 304-1_HR-1]	C	None		0.000	133.000	No Ice	21.410	21.410	1.605
						1/2"	26.620	26.620	2.056
						Ice	31.660	31.660	2.598
						1" Ice	41.380	41.380	3.958
						2" Ice			
6' x 2" Mount Pipe	A	From Leg	4.000	0.000	133.000	No Ice	1.425	1.425	0.022
			0.000			1/2"	1.925	1.925	0.033
			2.000			Ice	2.294	2.294	0.048
						1" Ice	3.060	3.060	0.090
						2" Ice			
6' x 2" Mount Pipe	B	From Leg	4.000	0.000	133.000	No Ice	1.425	1.425	0.022
			0.000			1/2"	1.925	1.925	0.033
			2.000			Ice	2.294	2.294	0.048
						1" Ice	3.060	3.060	0.090
						2" Ice			
6' x 2" Mount Pipe	C	From Leg	4.000	0.000	133.000	No Ice	1.425	1.425	0.022
			0.000			1/2"	1.925	1.925	0.033
			2.000			Ice	2.294	2.294	0.048
						1" Ice	3.060	3.060	0.090
						2" Ice			
*									
(2) LPA-80080/6CF w/ Mount Pipe	A	From Leg	4.000	0.000	124.000	No Ice	4.564	10.259	0.046
			0.000			1/2"	5.105	11.427	0.113
			2.000			Ice	5.612	12.312	0.187
						1" Ice	6.651	14.129	0.363
						2" Ice			
(2) LPA-80080/6CF w/ Mount Pipe	B	From Leg	4.000	0.000	124.000	No Ice	4.564	10.259	0.046
			0.000			1/2"	5.105	11.427	0.113
			2.000			Ice	5.612	12.312	0.187
						1" Ice	6.651	14.129	0.363
						2" Ice			
(2) LPA-80080/6CF w/ Mount Pipe	C	From Leg	4.000	0.000	124.000	No Ice	4.564	10.259	0.046
			0.000			1/2"	5.105	11.427	0.113
			2.000			Ice	5.612	12.312	0.187
						1" Ice	6.651	14.129	0.363
						2" Ice			
LPA-171080-12CF-EDIN-2 w/ Mount Pipe	A	From Leg	4.000	0.000	124.000	No Ice	3.956	7.095	0.037
			0.000			1/2"	4.508	8.302	0.086
			2.000			Ice	5.029	9.242	0.143
						1" Ice	6.087	11.104	0.282
						2" Ice			
LPA-171080-12CF-EDIN-2	B	From Leg	4.000	0.000	124.000	No Ice	3.956	7.095	0.037

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
w/ Mount Pipe			0.000 2.000			1/2" Ice	4.508 5.029	8.302 9.242	0.086 0.143
						1" Ice	6.087	11.104	0.282
						2" Ice			
LPA-171080-12CF-EDIN-2 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.956 4.508 5.029 6.087	7.095 8.302 9.242 11.104	0.037 0.086 0.143 0.282
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.090 4.490 4.890 5.720	3.300 3.680 4.070 4.870	0.066 0.130 0.204 0.386
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.090 4.490 4.890 5.720	3.300 3.680 4.070 4.870	0.066 0.130 0.204 0.386
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.090 4.490 4.890 5.720	3.300 3.680 4.070 4.870	0.066 0.130 0.204 0.386
RRH2x60-700	A	From Leg	4.000 0.000 2.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.500 3.761 4.029 4.585	1.816 2.052 2.289 2.785	0.060 0.083 0.109 0.173
RRH2x60-700	B	From Leg	4.000 0.000 2.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.500 3.761 4.029 4.585	1.816 2.052 2.289 2.785	0.060 0.083 0.109 0.173
RRH2x60-700	C	From Leg	4.000 0.000 2.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.500 3.761 4.029 4.585	1.816 2.052 2.289 2.785	0.060 0.083 0.109 0.173
RRH4X45-AWS4 B66	A	From Leg	4.000 0.000 2.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.660 2.878 3.104 3.577	1.586 1.769 1.959 2.359	0.064 0.084 0.108 0.165
RRH4X45-AWS4 B66	B	From Leg	4.000 0.000 2.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.660 2.878 3.104 3.577	1.586 1.769 1.959 2.359	0.064 0.084 0.108 0.165
RRH4X45-AWS4 B66	C	From Leg	4.000 0.000 2.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.660 2.878 3.104 3.577	1.586 1.769 1.959 2.359	0.064 0.084 0.108 0.165
RRH2X60-PCS	A	From Leg	4.000 0.000 2.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.200 2.393 2.593 3.015	1.723 1.901 2.087 2.480	0.055 0.075 0.099 0.155
RRH2X60-PCS	B	From Leg	4.000 0.000 2.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.200 2.393 2.593 3.015	1.723 1.901 2.087 2.480	0.055 0.075 0.099 0.155
RRH2X60-PCS	C	From Leg	4.000	0.000	124.000	No Ice	2.200	1.723	0.055

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000 2.000			1/2" Ice 1" Ice 2" Ice	2.393 2.593 3.015	1.901 2.087 2.480	0.075 0.099 0.155
(2) DB-T1-6Z-8AB-0Z	A	From Leg	4.000 0.000 2.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.800 5.070 5.348 5.926	2.000 2.193 2.393 2.815	0.044 0.080 0.120 0.213
Platform Mount [LP 304-1]	C	None		0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice	17.490 21.370 25.280 33.170	17.490 21.370 25.280 33.170	1.349 1.709 2.131 3.164
6' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
6' x 2" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
6' x 2" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
* 7770.00 w/ Mount Pipe	A	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.746 6.179 6.607 7.488	4.254 5.014 5.711 7.155	0.055 0.103 0.157 0.287
7770.00 w/ Mount Pipe	B	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.746 6.179 6.607 7.488	4.254 5.014 5.711 7.155	0.055 0.103 0.157 0.287
7770.00 w/ Mount Pipe	C	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.746 6.179 6.607 7.488	4.254 5.014 5.711 7.155	0.055 0.103 0.157 0.287
80010965 w/ Mount Pipe	A	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice 1" Ice 2" Ice	12.260 13.030 13.800 15.410	5.790 6.470 7.170 8.600	0.136 0.226 0.328 0.570
80010965 w/ Mount Pipe	B	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice 1" Ice 2" Ice	12.260 13.030 13.800 15.410	5.790 6.470 7.170 8.600	0.136 0.226 0.328 0.570
80010966 w/ Mount Pipe	C	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice 1" Ice 2" Ice	14.610 15.470 16.350 18.140	6.840 7.630 8.420 10.060	0.159 0.267 0.389 0.677
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice 1" Ice 2" Ice	9.220 9.980 10.760 12.360	6.250 6.960 7.700 9.220	0.074 0.143 0.224 0.420

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
HPA-65R-BUU-H6 w/ Mount Pipe	B	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice 1" Ice 2" Ice	9.220 9.980 10.760 12.360	6.250 6.960 7.700 9.220	0.074 0.143 0.224 0.420
HPA-65R-BUU-H8 w/ Mount Pipe	C	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice 1" Ice 2" Ice	12.250 13.190 14.160 16.140	8.330 9.230 10.150 12.050	0.105 0.194 0.297 0.543
(2) LGP21401	A	From Leg	4.000 0.000 0.000	0.000	116.000	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.104 1.239 1.381 1.688	0.207 0.274 0.348 0.521	0.014 0.021 0.030 0.055
(2) LGP21401	B	From Leg	4.000 0.000 0.000	0.000	116.000	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.104 1.239 1.381 1.688	0.207 0.274 0.348 0.521	0.014 0.021 0.030 0.055
(2) LGP21401	C	From Leg	4.000 0.000 0.000	0.000	116.000	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.104 1.239 1.381 1.688	0.207 0.274 0.348 0.521	0.014 0.021 0.030 0.055
(2) 7020.00	A	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice Ice 1" Ice 2" Ice	0.102 0.147 0.199 0.326	0.175 0.239 0.311 0.476	0.002 0.005 0.009 0.022
(2) 7020.00	B	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice Ice 1" Ice 2" Ice	0.102 0.147 0.199 0.326	0.175 0.239 0.311 0.476	0.002 0.005 0.009 0.022
(2) 7020.00	C	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice Ice 1" Ice 2" Ice	0.102 0.147 0.199 0.326	0.175 0.239 0.311 0.476	0.002 0.005 0.009 0.022
RRUS 4478 B14	A	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.843 2.012 2.190 2.566	1.059 1.197 1.342 1.656	0.060 0.076 0.094 0.140
RRUS 4478 B14	B	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.843 2.012 2.190 2.566	1.059 1.197 1.342 1.656	0.060 0.076 0.094 0.140
RRUS 4478 B14	C	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.843 2.012 2.190 2.566	1.059 1.197 1.342 1.656	0.060 0.076 0.094 0.140
RRUS 32	A	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice Ice 1" Ice 2" Ice	2.857 3.083 3.316 3.805	1.777 1.968 2.166 2.583	0.055 0.077 0.103 0.165
RRUS 32	B	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice Ice 1" Ice 2" Ice	2.857 3.083 3.316 3.805	1.777 1.968 2.166 2.583	0.055 0.077 0.103 0.165

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RRUS 32	C	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.857 3.083 3.316 3.805	1.777 1.968 2.166 2.583	0.055 0.077 0.103 0.165
RRUS 32 B2	A	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.731 2.953 3.182 3.663	1.668 1.855 2.049 2.458	0.053 0.074 0.098 0.157
RRUS 32 B2	B	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.731 2.953 3.182 3.663	1.668 1.855 2.049 2.458	0.053 0.074 0.098 0.157
RRUS 32 B2	C	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.731 2.953 3.182 3.663	1.668 1.855 2.049 2.458	0.053 0.074 0.098 0.157
RRUS-11	A	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.784 2.992 3.207 3.658	1.187 1.334 1.490 1.833	0.048 0.068 0.092 0.150
RRUS-11	B	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.784 2.992 3.207 3.658	1.187 1.334 1.490 1.833	0.048 0.068 0.092 0.150
RRUS-11	C	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.784 2.992 3.207 3.658	1.187 1.334 1.490 1.833	0.048 0.068 0.092 0.150
(2) DC6-48-60-18-8F	A	From Leg	4.000 0.000 4.000	0.000	116.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.212 1.892 2.105 2.570	1.212 1.892 2.105 2.570	0.020 0.042 0.067 0.126
Platform Mount [LP 714-1]	C	None		0.000	116.000	No Ice 1/2" Ice 1" Ice 2" Ice	37.510 41.700 45.890 54.290	37.510 41.700 45.890 54.290	1.600 2.496 3.458 5.583
Miscellaneous [NA 510-1]	C	None		0.000	116.000	No Ice 1/2" Ice 1" Ice 2" Ice	6.360 8.520 10.620 14.640	6.360 8.520 10.620 14.640	0.256 0.344 0.459 0.769
*									
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.000 0.000 -1.000	0.000	107.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.010 8.520 9.040 10.110	4.230 4.690 5.160 6.120	0.108 0.194 0.292 0.522
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.000 0.000 -1.000	0.000	107.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.010 8.520 9.040 10.110	4.230 4.690 5.160 6.120	0.108 0.194 0.292 0.522
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.000 0.000 -1.000	0.000	107.000	No Ice 1/2" Ice 1" Ice	8.010 8.520 9.040 10.110	4.230 4.690 5.160 6.120	0.108 0.194 0.292 0.522

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
TA08025-B604	A	From Leg	4.000 0.000 -1.000	0.000	107.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.964 2.138 2.320 2.705	0.981 1.112 1.250 1.548	0.064 0.081 0.100 0.148
TA08025-B604	B	From Leg	4.000 0.000 -1.000	0.000	107.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.964 2.138 2.320 2.705	0.981 1.112 1.250 1.548	0.064 0.081 0.100 0.148
TA08025-B604	C	From Leg	4.000 0.000 -1.000	0.000	107.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.964 2.138 2.320 2.705	0.981 1.112 1.250 1.548	0.064 0.081 0.100 0.148
TA08025-B605	A	From Leg	4.000 0.000 -1.000	0.000	107.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.964 2.138 2.320 2.705	1.129 1.267 1.411 1.723	0.075 0.093 0.114 0.164
TA08025-B605	B	From Leg	4.000 0.000 -1.000	0.000	107.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.964 2.138 2.320 2.705	1.129 1.267 1.411 1.723	0.075 0.093 0.114 0.164
TA08025-B605	C	From Leg	4.000 0.000 -1.000	0.000	107.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.964 2.138 2.320 2.705	1.129 1.267 1.411 1.723	0.075 0.093 0.114 0.164
RDIDC-9181-PF-48	A	From Leg	4.000 0.000 -1.000	0.000	107.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.312 2.502 2.700 3.118	1.293 1.448 1.610 1.957	0.022 0.041 0.063 0.117
Commscope MC-PK8-DSH	C	None		0.000	107.000	No Ice 1/2" Ice 1" Ice 2" Ice	34.240 62.950 91.660 149.080	34.240 62.950 91.660 149.080	1.749 2.099 2.450 3.151
(2) 8' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	107.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.900 2.728 3.401 4.396	1.900 2.728 3.401 4.396	0.029 0.044 0.063 0.119
(2) 8' x 2" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	107.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.900 2.728 3.401 4.396	1.900 2.728 3.401 4.396	0.029 0.044 0.063 0.119
(2) 8' x 2" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	107.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.900 2.728 3.401 4.396	1.900 2.728 3.401 4.396	0.029 0.044 0.063 0.119
*									
KS24019-L112A	C	From Leg	3.000 0.000 1.000	0.000	74.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.100 0.180 0.260 0.420	0.100 0.180 0.260 0.420	0.005 0.006 0.008 0.011
Side Arm Mount [SO 701-1]	C	From Leg	1.500 0.000 0.000	0.000	74.000	No Ice 1/2" Ice	0.850 1.140 1.430	1.670 2.340 3.010	0.065 0.079 0.093

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
*						1" Ice 2" Ice	2.010	4.350	0.121

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	152 - 137.42	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-13.941	0.939	-0.278
			Max. Mx	20	-5.096	48.696	-0.184
			Max. My	14	-5.094	0.381	-48.501
			Max. Vy	20	-6.005	48.696	-0.184
			Max. Vx	2	-6.006	0.380	48.127
			Max. Torque	10			0.643
L2	137.42 - 91.09	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-70.698	2.580	4.162
			Max. Mx	20	-30.228	815.042	0.274
			Max. My	2	-30.217	0.284	821.574
			Max. Vy	20	-27.467	815.042	0.274
			Max. Vx	2	-27.716	0.284	821.574
			Max. Torque	6			1.730
L3	91.09 - 44.79	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-95.967	4.425	4.679
			Max. Mx	20	-48.556	2169.321	-0.617
			Max. My	2	-48.549	-0.048	2186.714
			Max. Vy	20	-33.051	2169.321	-0.617
			Max. Vx	2	-33.314	-0.048	2186.714
			Max. Torque	6			1.730
L4	44.79 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-134.685	6.381	5.807
			Max. Mx	20	-78.444	4093.727	-1.063
			Max. My	2	-78.444	-0.317	4124.844
			Max. Vy	20	-39.190	4093.727	-1.063
			Max. Vx	2	-39.449	-0.317	4124.844
			Max. Torque	6			1.729

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	134.685	-0.000	-0.000
	Max. H_x	21	58.841	39.168	-0.013
	Max. H_z	3	58.841	-0.013	39.426
	Max. M_x	2	4124.844	-0.013	39.426
	Max. M_z	8	4090.222	-39.168	0.013
	Max. Torsion	6	1.729	-33.928	19.725
	Min. Vert	3	58.841	-0.013	39.426
	Min. H_x	9	58.841	-39.168	0.013
	Min. H_z	15	58.841	0.013	-39.426
	Min. M_x	14	-4122.831	0.013	-39.426
	Min. M_z	20	-4093.727	39.168	-0.013
	Min. Torsion	18	-1.728	33.928	-19.725

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	65.379	0.000	0.000	-0.816	1.425	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	78.455	0.013	-39.426	-4124.844	-0.317	-1.117

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
0.9 Dead+1.0 Wind 0 deg - No Ice	58.841	0.013	-39.426	-4105.063	-0.752	-1.116
1.2 Dead+1.0 Wind 30 deg - No Ice	78.455	19.595	-34.151	-3573.569	-2046.126	-1.643
0.9 Dead+1.0 Wind 30 deg - No Ice	58.841	19.596	-34.151	-3556.339	-2036.845	-1.642
1.2 Dead+1.0 Wind 60 deg - No Ice	78.455	33.928	-19.725	-2064.822	-3543.211	-1.729
0.9 Dead+1.0 Wind 60 deg - No Ice	58.841	33.928	-19.725	-2054.760	-3526.820	-1.728
1.2 Dead+1.0 Wind 90 deg - No Ice	78.455	39.168	-0.013	-3.074	-4090.222	-1.351
0.9 Dead+1.0 Wind 90 deg - No Ice	58.841	39.168	-0.013	-2.806	-4071.300	-1.350
1.2 Dead+1.0 Wind 120 deg - No Ice	78.455	33.915	19.702	2059.228	-3541.142	-0.612
0.9 Dead+1.0 Wind 120 deg - No Ice	58.841	33.915	19.703	2049.699	-3524.763	-0.611
1.2 Dead+1.0 Wind 150 deg - No Ice	78.455	19.573	34.138	3569.488	-2042.542	0.291
0.9 Dead+1.0 Wind 150 deg - No Ice	58.841	19.573	34.139	3552.784	-2033.281	0.291
1.2 Dead+1.0 Wind 180 deg - No Ice	78.455	-0.013	39.426	4122.831	3.821	1.115
0.9 Dead+1.0 Wind 180 deg - No Ice	58.841	-0.013	39.426	4103.564	3.363	1.115
1.2 Dead+1.0 Wind 210 deg - No Ice	78.455	-19.595	34.151	3571.557	2049.629	1.641
0.9 Dead+1.0 Wind 210 deg - No Ice	58.841	-19.596	34.151	3554.841	2039.455	1.640
1.2 Dead+1.0 Wind 240 deg - No Ice	78.455	-33.928	19.725	2062.812	3546.715	1.728
0.9 Dead+1.0 Wind 240 deg - No Ice	58.841	-33.928	19.725	2053.262	3529.431	1.727
1.2 Dead+1.0 Wind 270 deg - No Ice	78.455	-39.168	0.013	1.063	4093.727	1.353
0.9 Dead+1.0 Wind 270 deg - No Ice	58.841	-39.168	0.013	1.309	4073.912	1.352
1.2 Dead+1.0 Wind 300 deg - No Ice	78.455	-33.915	-19.702	-2061.240	3544.648	0.614
0.9 Dead+1.0 Wind 300 deg - No Ice	58.841	-33.915	-19.703	-2051.197	3527.376	0.613
1.2 Dead+1.0 Wind 330 deg - No Ice	78.455	-19.573	-34.138	-3571.501	2046.048	-0.290
0.9 Dead+1.0 Wind 330 deg - No Ice	58.841	-19.573	-34.139	-3554.283	2035.893	-0.291
1.2 Dead+1.0 Ice+1.0 Temp	134.685	0.000	0.000	-5.807	6.381	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	134.685	-0.002	-10.173	-1084.087	6.656	-0.342
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	134.685	5.061	-8.809	-939.662	-529.477	-0.466
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	134.685	8.769	-5.085	-545.089	-921.954	-0.466
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	134.685	10.126	0.002	-6.093	-1065.612	-0.341
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	134.685	8.770	5.088	532.901	-921.958	-0.124
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	134.685	5.065	8.811	927.471	-529.483	0.125
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	134.685	0.002	10.173	1071.893	6.649	0.342
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	134.685	-5.061	8.809	927.468	542.781	0.466
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	134.685	-8.769	5.085	532.895	935.259	0.466
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	134.685	-10.126	-0.002	-6.101	1078.917	0.341
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	134.685	-8.770	-5.088	-545.095	935.262	0.125

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
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	134.685	-5.065	-8.811	-939.666	542.788	-0.125
Dead+Wind 0 deg - Service	65.379	0.003	-7.913	-826.050	1.041	-0.224
Dead+Wind 30 deg - Service	65.379	3.933	-6.854	-715.699	-408.323	-0.339
Dead+Wind 60 deg - Service	65.379	6.809	-3.959	-413.801	-707.888	-0.362
Dead+Wind 90 deg - Service	65.379	7.861	-0.003	-1.249	-817.385	-0.289
Dead+Wind 120 deg - Service	65.379	6.807	3.954	411.414	-707.474	-0.138
Dead+Wind 150 deg - Service	65.379	3.928	6.852	713.614	-407.607	0.049
Dead+Wind 180 deg - Service	65.379	-0.003	7.913	824.379	1.869	0.224
Dead+Wind 210 deg - Service	65.379	-3.933	6.854	714.028	411.233	0.339
Dead+Wind 240 deg - Service	65.379	-6.809	3.959	412.130	710.798	0.362
Dead+Wind 270 deg - Service	65.379	-7.861	0.003	-0.422	820.295	0.289
Dead+Wind 300 deg - Service	65.379	-6.807	-3.954	-413.084	710.384	0.138
Dead+Wind 330 deg - Service	65.379	-3.928	-6.852	-715.285	410.517	-0.049

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	0.000	-65.379	0.000	0.000	65.379	0.000	0.000%
2	0.013	-78.455	-39.427	-0.013	78.455	39.426	0.002%
3	0.013	-58.841	-39.427	-0.013	58.841	39.426	0.002%
4	19.596	-78.455	-34.151	-19.595	78.455	34.151	0.000%
5	19.596	-58.841	-34.151	-19.596	58.841	34.151	0.000%
6	33.928	-78.455	-19.725	-33.928	78.455	19.725	0.000%
7	33.928	-58.841	-19.725	-33.928	58.841	19.725	0.000%
8	39.169	-78.455	-0.013	-39.168	78.455	0.013	0.002%
9	39.169	-58.841	-0.013	-39.168	58.841	0.013	0.002%
10	33.915	-78.455	19.703	-33.915	78.455	-19.702	0.000%
11	33.915	-58.841	19.703	-33.915	58.841	-19.703	0.000%
12	19.574	-78.455	34.139	-19.573	78.455	-34.138	0.000%
13	19.574	-58.841	34.139	-19.573	58.841	-34.139	0.000%
14	-0.013	-78.455	39.427	0.013	78.455	-39.426	0.002%
15	-0.013	-58.841	39.427	0.013	58.841	-39.426	0.002%
16	-19.596	-78.455	34.151	19.595	78.455	-34.151	0.000%
17	-19.596	-58.841	34.151	19.596	58.841	-34.151	0.000%
18	-33.928	-78.455	19.725	33.928	78.455	-19.725	0.000%
19	-33.928	-58.841	19.725	33.928	58.841	-19.725	0.000%
20	-39.169	-78.455	0.013	39.168	78.455	-0.013	0.002%
21	-39.169	-58.841	0.013	39.168	58.841	-0.013	0.002%
22	-33.915	-78.455	-19.703	33.915	78.455	19.702	0.000%
23	-33.915	-58.841	-19.703	33.915	58.841	19.703	0.000%
24	-19.574	-78.455	-34.139	19.573	78.455	34.138	0.000%
25	-19.574	-58.841	-34.139	19.573	58.841	34.139	0.000%
26	0.000	-134.685	0.000	-0.000	134.685	-0.000	0.000%
27	-0.002	-134.685	-10.173	0.002	134.685	10.173	0.000%
28	5.061	-134.685	-8.809	-5.061	134.685	8.809	0.000%
29	8.769	-134.685	-5.085	-8.769	134.685	5.085	0.000%
30	10.126	-134.685	0.002	-10.126	134.685	-0.002	0.000%
31	8.771	-134.685	5.088	-8.770	134.685	-5.088	0.000%
32	5.065	-134.685	8.811	-5.065	134.685	-8.811	0.000%
33	0.002	-134.685	10.173	-0.002	134.685	-10.173	0.000%
34	-5.061	-134.685	8.809	5.061	134.685	-8.809	0.000%
35	-8.769	-134.685	5.085	8.769	134.685	-5.085	0.000%
36	-10.126	-134.685	-0.002	10.126	134.685	0.002	0.000%
37	-8.771	-134.685	-5.088	8.770	134.685	5.088	0.000%
38	-5.065	-134.685	-8.811	5.065	134.685	8.811	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
39	0.003	-65.379	-7.913	-0.003	65.379	7.913	0.000%
40	3.933	-65.379	-6.854	-3.933	65.379	6.854	0.000%
41	6.809	-65.379	-3.959	-6.809	65.379	3.959	0.000%
42	7.861	-65.379	-0.003	-7.861	65.379	0.003	0.000%
43	6.807	-65.379	3.954	-6.807	65.379	-3.954	0.000%
44	3.929	-65.379	6.852	-3.928	65.379	-6.852	0.000%
45	-0.003	-65.379	7.913	0.003	65.379	-7.913	0.000%
46	-3.933	-65.379	6.854	3.933	65.379	-6.854	0.000%
47	-6.809	-65.379	3.959	6.809	65.379	-3.959	0.000%
48	-7.861	-65.379	0.003	7.861	65.379	-0.003	0.000%
49	-6.807	-65.379	-3.954	6.807	65.379	3.954	0.000%
50	-3.929	-65.379	-6.852	3.928	65.379	6.852	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	4	0.00000001	0.00023935
3	Yes	4	0.00000001	0.00021045
4	Yes	5	0.00000001	0.00036895
5	Yes	5	0.00000001	0.00030462
6	Yes	5	0.00000001	0.00041576
7	Yes	5	0.00000001	0.00034443
8	Yes	4	0.00000001	0.00029579
9	Yes	4	0.00000001	0.00025990
10	Yes	5	0.00000001	0.00037870
11	Yes	5	0.00000001	0.00031322
12	Yes	5	0.00000001	0.00038460
13	Yes	5	0.00000001	0.00031803
14	Yes	4	0.00000001	0.00024580
15	Yes	4	0.00000001	0.00021603
16	Yes	5	0.00000001	0.00041617
17	Yes	5	0.00000001	0.00034449
18	Yes	5	0.00000001	0.00036795
19	Yes	5	0.00000001	0.00030382
20	Yes	4	0.00000001	0.00028943
21	Yes	4	0.00000001	0.00025435
22	Yes	5	0.00000001	0.00039855
23	Yes	5	0.00000001	0.00032959
24	Yes	5	0.00000001	0.00039408
25	Yes	5	0.00000001	0.00032565
26	Yes	4	0.00000001	0.00000445
27	Yes	5	0.00000001	0.00023330
28	Yes	5	0.00000001	0.00024108
29	Yes	5	0.00000001	0.00023969
30	Yes	5	0.00000001	0.00022800
31	Yes	5	0.00000001	0.00023650
32	Yes	5	0.00000001	0.00023703
33	Yes	5	0.00000001	0.00022898
34	Yes	5	0.00000001	0.00023987
35	Yes	5	0.00000001	0.00024007
36	Yes	5	0.00000001	0.00023180
37	Yes	5	0.00000001	0.00024297
38	Yes	5	0.00000001	0.00024364
39	Yes	4	0.00000001	0.00002056
40	Yes	4	0.00000001	0.00002545
41	Yes	4	0.00000001	0.00003899
42	Yes	4	0.00000001	0.00002217
43	Yes	4	0.00000001	0.00002591
44	Yes	4	0.00000001	0.00002742
45	Yes	4	0.00000001	0.00002052
46	Yes	4	0.00000001	0.00003850
47	Yes	4	0.00000001	0.00002578
48	Yes	4	0.00000001	0.00002224

49	Yes	4	0.00000001	0.00003222
50	Yes	4	0.00000001	0.00002983

Maximum Tower Deflections - Service Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
L1	152 - 137.42	6.530	39	0.345	0.001
L2	142.59 - 91.09	5.852	39	0.343	0.001
L3	97.92 - 44.79	2.876	39	0.273	0.000
L4	53.21 - 0	0.857	39	0.145	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
152.000	DS9A09F36D-N	39	6.530	0.345	0.001	233749
150.000	NNVV-65B-R4 w/ Mount Pipe	39	6.386	0.344	0.001	233749
133.000	RR90-17-02DP w/ Mount Pipe	39	5.170	0.336	0.001	65507
124.000	(2) LPA-80080/6CF w/ Mount Pipe	39	4.544	0.325	0.000	45354
116.000	7770.00 w/ Mount Pipe	39	4.006	0.312	0.000	35509
107.000	MX08FRO665-21 w/ Mount Pipe	39	3.426	0.294	0.000	28523
74.000	KS24019-L112A	39	1.636	0.207	0.000	18489

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
L1	152 - 137.42	32.617	2	1.722	0.003
L2	142.59 - 91.09	29.231	2	1.711	0.003
L3	97.92 - 44.79	14.365	2	1.366	0.002
L4	53.21 - 0	4.281	2	0.725	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
152.000	DS9A09F36D-N	2	32.617	1.722	0.003	47776
150.000	NNVV-65B-R4 w/ Mount Pipe	2	31.896	1.721	0.003	47776
133.000	RR90-17-02DP w/ Mount Pipe	2	25.821	1.678	0.003	13243
124.000	(2) LPA-80080/6CF w/ Mount Pipe	2	22.696	1.624	0.002	9111
116.000	7770.00 w/ Mount Pipe	2	20.008	1.560	0.002	7127
107.000	MX08FRO665-21 w/ Mount Pipe	2	17.113	1.471	0.002	5724
74.000	KS24019-L112A	2	8.172	1.036	0.001	3705

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	152 - 137.42 (1)	TP37.31x33.03x0.313	14.580	0.000	0.0	35.192	-5.095	2058.710	0.002
L2	137.42 - 91.09 (2)	TP50.15x35.167x0.375	51.500	0.000	0.0	56.880	-30.217	3327.460	0.009
L3	91.09 - 44.79 (3)	TP62.86x47.413x0.438	53.130	0.000	0.0	83.282	-48.549	4872.000	0.010
L4	44.79 - 0 (4)	TP75x59.537x0.5	53.210	0.000	0.0	118.231	-78.444	6916.540	0.011

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	152 - 137.42 (1)	TP37.31x33.03x0.313	48.746	1817.458	0.027	0.000	1817.458	0.000
L2	137.42 - 91.09 (2)	TP50.15x35.167x0.375	821.574	3815.617	0.215	0.000	3815.617	0.000
L3	91.09 - 44.79 (3)	TP62.86x47.413x0.438	2186.717	6830.525	0.320	0.000	6830.525	0.000
L4	44.79 - 0 (4)	TP75x59.537x0.5	4124.842	11650.000	0.354	0.000	11650.000	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	152 - 137.42 (1)	TP37.31x33.03x0.313	6.012	617.612	0.010	0.250	1919.008	0.000
L2	137.42 - 91.09 (2)	TP50.15x35.167x0.375	27.716	984.902	0.028	0.891	4177.658	0.000
L3	91.09 - 44.79 (3)	TP62.86x47.413x0.438	33.314	1446.690	0.023	1.117	7676.708	0.000
L4	44.79 - 0 (4)	TP75x59.537x0.5	39.449	2055.880	0.019	1.117	13537.749	0.000

Pole Interaction Design Data

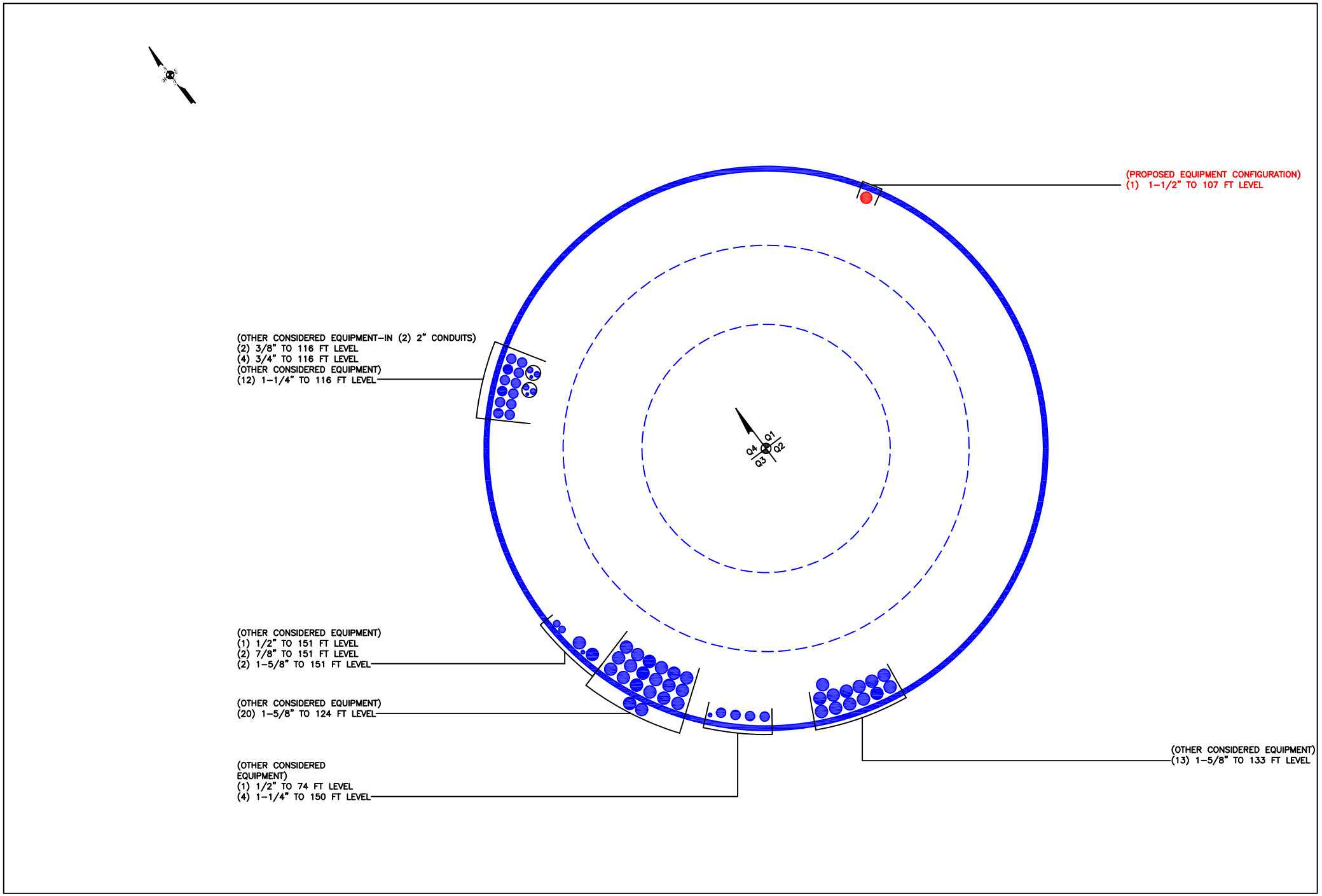
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	152 - 137.42 (1)	0.002	0.027	0.000	0.010	0.000	0.029	1.050	4.8.2
L2	137.42 - 91.09 (2)	0.009	0.215	0.000	0.028	0.000	0.225	1.050	4.8.2
L3	91.09 - 44.79 (3)	0.010	0.320	0.000	0.023	0.000	0.331	1.050	4.8.2
L4	44.79 - 0 (4)	0.011	0.354	0.000	0.019	0.000	0.366	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	152 - 137.42	Pole	TP37.31x33.03x0.313	1	-5.095	2161.645	2.8	Pass
L2	137.42 - 91.09	Pole	TP50.15x35.167x0.375	2	-30.217	3493.833	21.4	Pass
L3	91.09 - 44.79	Pole	TP62.86x47.413x0.438	3	-48.549	5115.600	31.5	Pass
L4	44.79 - 0	Pole	TP75x59.537x0.5	4	-78.444	7262.367	34.8	Pass
							Summary	
						Pole (L4)	34.8	Pass
						RATING =	**34.8**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-1/2" TO 107 FT LEVEL
(OTHER CONSIDERED EQUIPMENT-IN (2) 2" CONDUITS)
(2) 3/8" TO 116 FT LEVEL
(4) 3/4" TO 116 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(12) 1-1/4" TO 116 FT LEVEL
Q1
Q2
Q3
Q4
(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 151 FT LEVEL
(2) 7/8" TO 151 FT LEVEL
(2) 1-5/8" TO 151 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(20) 1-5/8" TO 124 FT LEVEL
(OTHER CONSIDERED
EQUIPMENT)
(1) 1/2" TO 74 FT LEVEL
(4) 1-1/4" TO 150 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(13) 1-5/8" TO 133 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

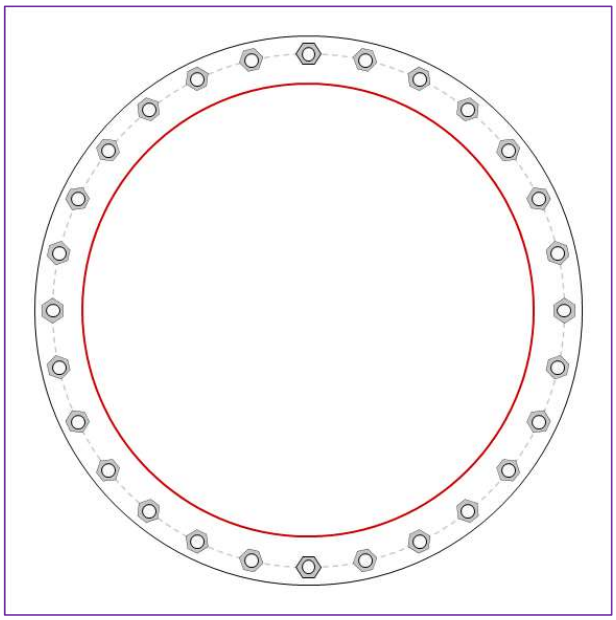
Monopole Base Plate Connection

Site Info	
BU #	876385
Site Name	COVENTRY / WALLBEC
Order #	556602 Rev 1

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0.75

Applied Loads	
Moment (kip-ft)	4124.84
Axial Force (kips)	78.44
Shear Force (kips)	39.45

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(28) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 85" BC

Base Plate Data

91" OD x 2.25" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

75" 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 = 80.36	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.41	ϕVn = 149.1	**31.4%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	24.38	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**43.0%**	**Pass**

Pier and Pad Foundation

BU # :	876385
Site Name:	N. COVENTRY / W
App. Number:	556602 Rev 1

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp}:	78.46	kips
Base Shear, Vu_comp:	39.43	kips
Moment, M_u:	4124.84	ft-kips
Tower Height, **H**:	152	ft
BP Dist. Above Fdn, bp_{dist}:	3	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, **dpier**:	9	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	8	
Pier Rebar Quantity, **mc**:	62	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	10	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	8	ft
Pad Width, W_1:	29	ft
Pad Thickness, **T**:	3	ft
Pad Rebar Size (Top dir.2), Sp_{top2}:	9	
Pad Rebar Quantity (Top dir. 2), mp_{top2}:	25	
Pad Rebar Size (Bottom dir. 2), Sp_2:	9	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	54	
Pad Clear Cover, cc_{pad}:	3	in

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

Soil Properties		
Total Soil Unit Weight, γ:	127	pcf
Ultimate Net Bearing, Qnet:	16.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	40	degrees
SPT Blow Count, N_{blows}:	50	
Base Friction, μ:	0.55	
Neglected Depth, **N**:	4.50	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, **gw**:	n/a	ft

<--Toggle between Gross and Net

Foundation Analysis Checks	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	628.08	39.43	**6.0%**	**Pass**
Bearing Pressure (ksf)	12.76	2.55	**19.7%**	**Pass**
*Overturning (kip*ft)*	11642.54	4489.57	**38.6%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	10518.46	4361.42	**39.5%**	**Pass**
Pier Compression (kip)	51554.88	165.94	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	7275.14	1413.03	**18.5%**	**Pass**
Pad Shear - 1-way (kips)	1033.61	202.96	**18.7%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.034	**17.1%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	6624.33	2616.85	**37.6%**	**Pass**

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

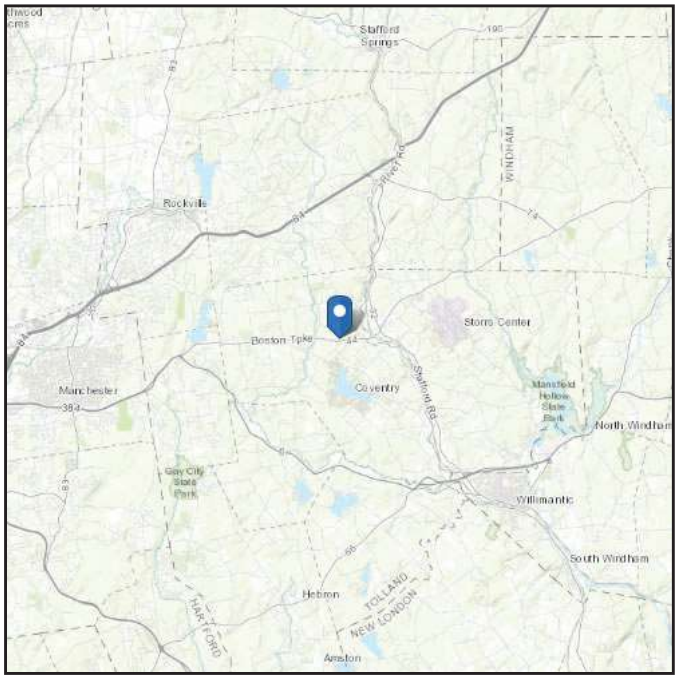
Structural Rating*:	**39.5%**
Soil Rating*:	**38.6%**

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 707.05 ft (NAVD 88)
Latitude: 41.798947
Longitude: -72.332189



Wind

Results:

Wind Speed:	~~126 Vmph~~ 130 mph
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	95 Vmph
100-year MRI	102 Vmph

Data Accessed: Fri May 21 2021

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

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

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

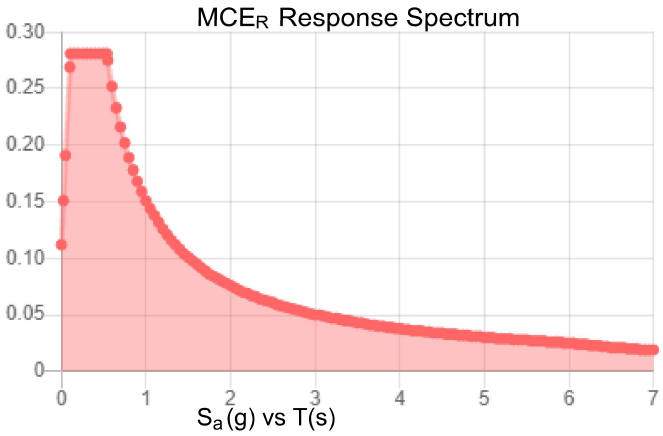
Seismic

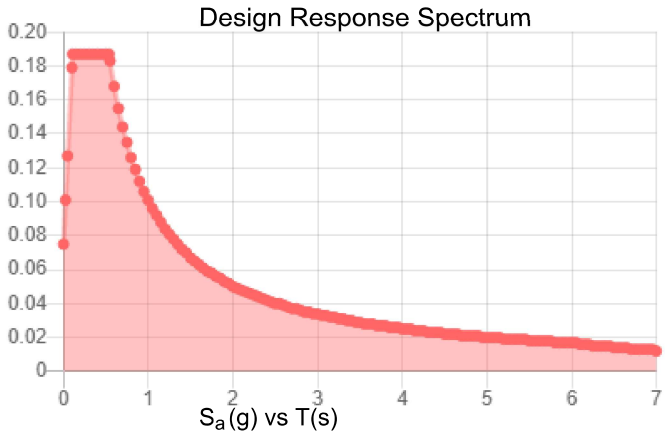
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.176	S_{DS} :	0.187
S_1 :	0.063	S_{D1} :	0.101
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.088
S_{MS} :	0.281	PGA_M :	0.14
S_{M1} :	0.151	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Fri May 21 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:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Fri May 21 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: **August 2, 2021**

Darcy Tarr
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
(704) 405-6589

Trylon
1825 W. Walnut Hill Lane,
Suite 302
Irving, TX 75038
214-930-1730

Subject:	**Mount Replacement Analysis Report**	
Carrier Designation:	**Dish Network Dish 5G**	
	Carrier Site Number:	BOBDL00098A
	Carrier Site Name:	CT-CCI-T-876385
Crown Castle Designation:	**Crown Castle BU Number:**	876385
	Crown Castle Site Name:	N. Coventry / Wallbeoff
	Crown Castle JDE Job Number:	650081
	Crown Castle Order Number:	556602 Rev. 1
Engineering Firm Designation:	**Trylon Report Designation:**	189046
Site Data:	**Reilly Mtn. Rd., Coventry, Tolland County, CT, 6238** **Latitude 41°47'56.21" Longitude -72°19'55.88"**	
Structure Information:	**Tower Height & Type:**	**152.0 ft Monopole**
	Mount Elevation:	**107.0 ft**
	Mount Type:	**8.0 ft Platform**

Dear Darcy Tarr,

Trylon is pleased to submit this **"Mount Replacement Analysis Report"** to determine the structural integrity of Dish Network's antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned 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:

Platform **Sufficient***

***Sufficient upon completion of the changes listed in the 'Recommendations' section of this report.**

This analysis utilizes an ultimate 3-second gust wind speed of 130 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: Aura Baltoiu

Respectfully Submitted by:
Cliff Abernathy, P.E.

Cliff Abernathy Digitally signed by Cliff Abernathy
Date: 2021.08.02 16:14:08 -04'00'

TABLE OF CONTENTS

1) INTRODUCTION

This is a proposed 3 sector 8.0 ft Platform, designed by Commscope.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC / 2018 CTSBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	130 mph
Exposure Category:	B
Topographic Factor at Base:	1.00
Topographic Factor at Mount:	1.00
Ice Thickness:	2.0 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.176
Seismic S_1:	0.063
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
107.0	106.0	3	JMA WIRELESS	MX08FRO665-21	8.0 ft Platform **[Commscope, MC-PK8-C]**
		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
Crown Application	Dish Network Application	556602, Rev.1	CCI Sites
Mount Manufacturer Drawings	Commscope	MC–PK8–C	Trylon

3.1) Analysis Method

RISA-3D (Version 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 Trylon 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 B).

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 Table 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) 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.
5) Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
6) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM A500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

This analysis may be affected if any assumptions are not valid or have been made in error. Trylon 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, All Sectors)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,2	Mount Pipe(s)	MP1	107.0	43.9	Pass
	Horizontal(s)	H1		14.9	Pass
	Standoff(s)	SA1		47.3	Pass
	Bracing(s)	PB3		38.0	Pass
	Handrail(s)	M21		20.0	Pass
	Corner Angle(s)	CP3		7.9	Pass
	Plate(s)	CP4		24.2	Pass
	Mount Connection(s)	-		26.2	Pass

Structure Rating (max from all components) =	47.3%

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

4.1) Recommendations

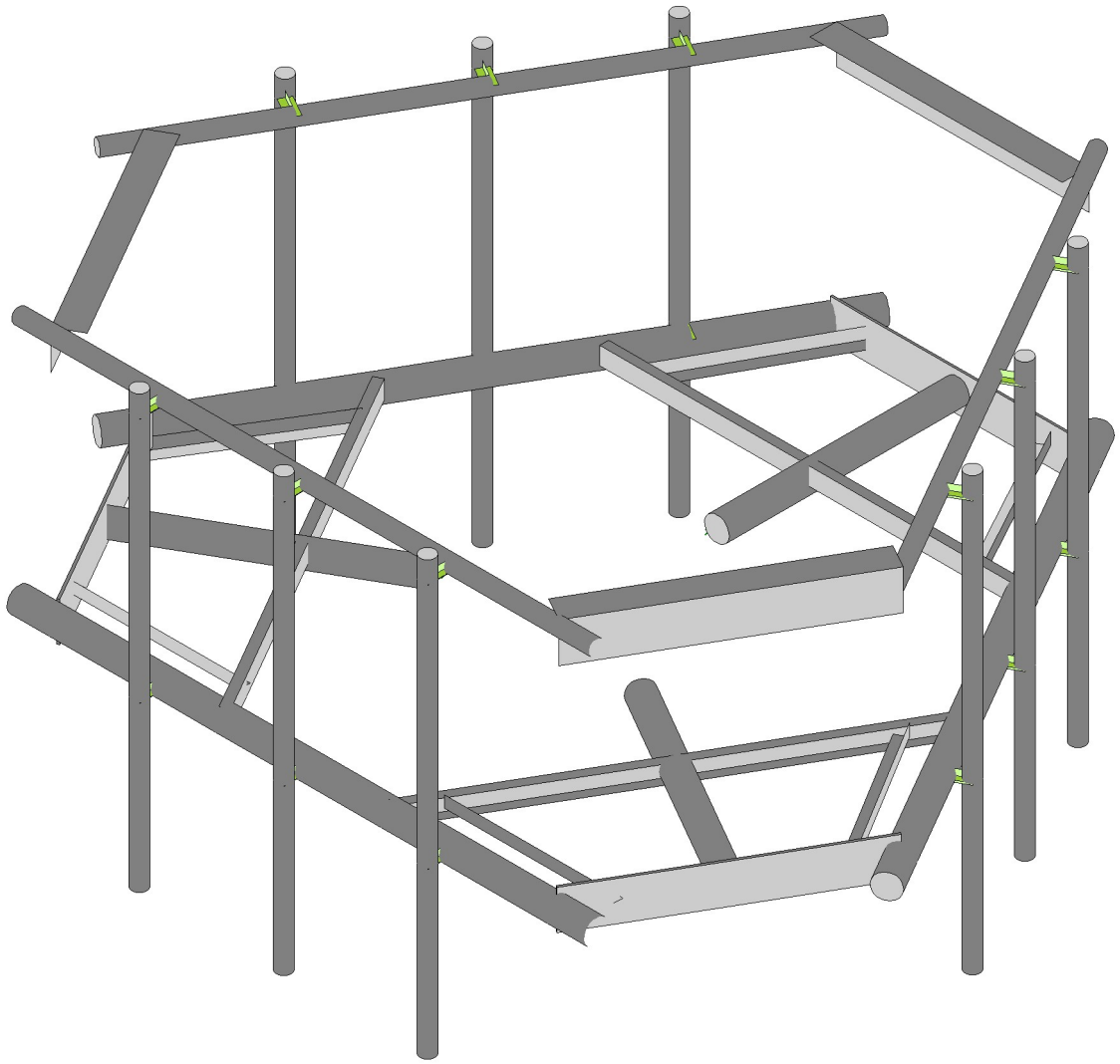
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the proposed mount listed below must be installed.

1. Commscope, MC−PK8−C.

No structural modifications are required at this time, provided that the above-listed changes are implemented.

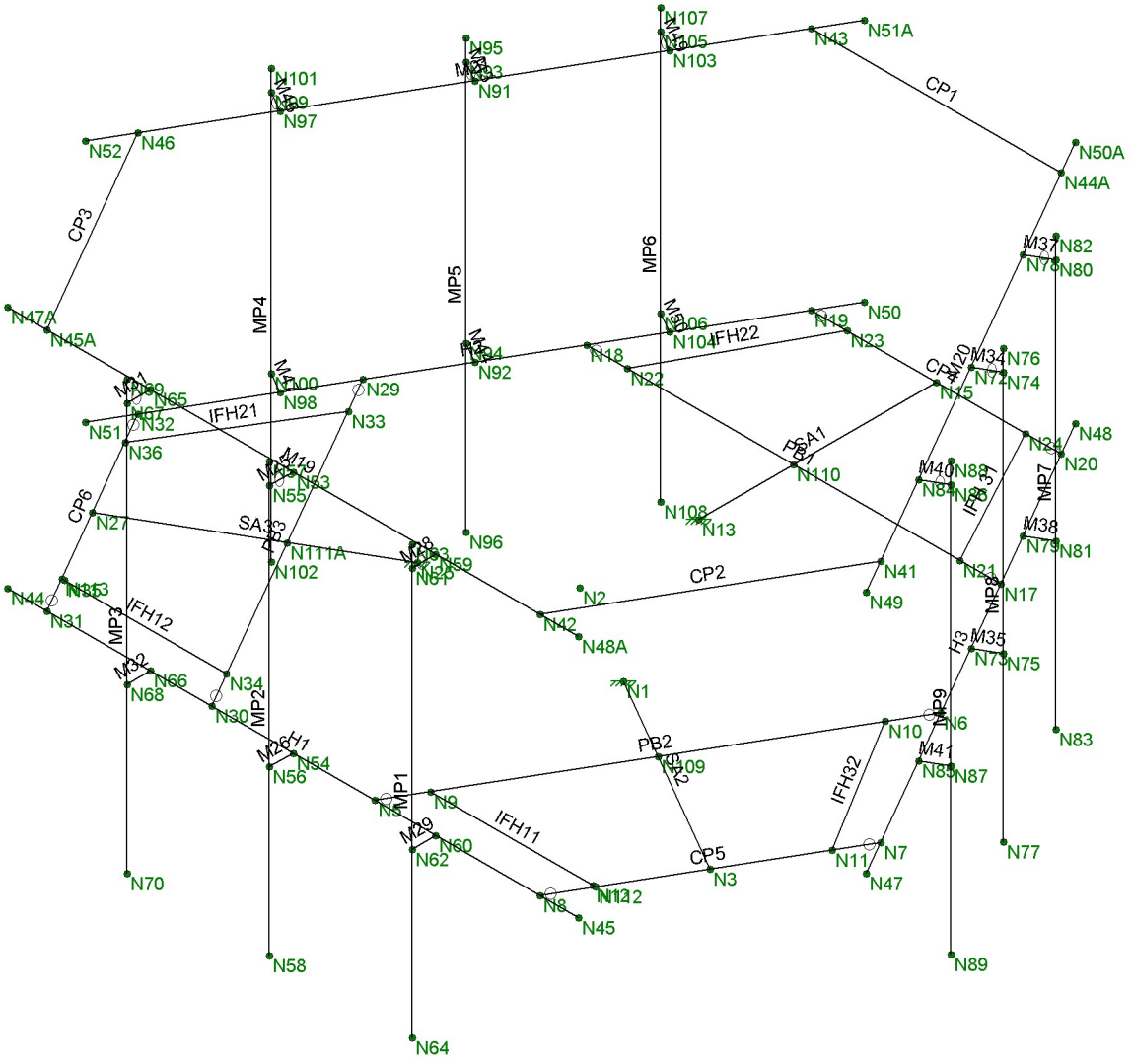
APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

Trylon	876385	SK - 1
AB		Aug 2, 2021 at 2:56 PM
189046		876385.r3d



Envelope Only Solution

Trylon	876385	SK - 2
AB		Aug 2, 2021 at 2:56 PM
189046		876385.r3d

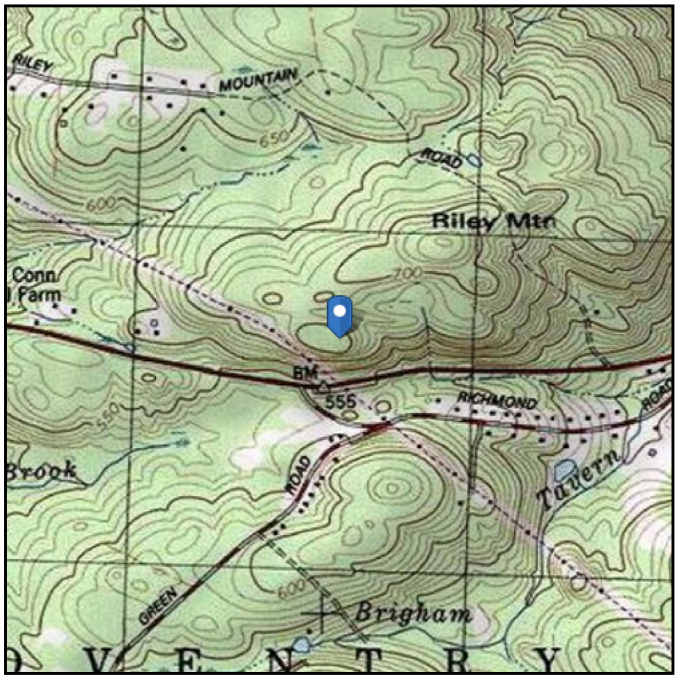
APPENDIX B

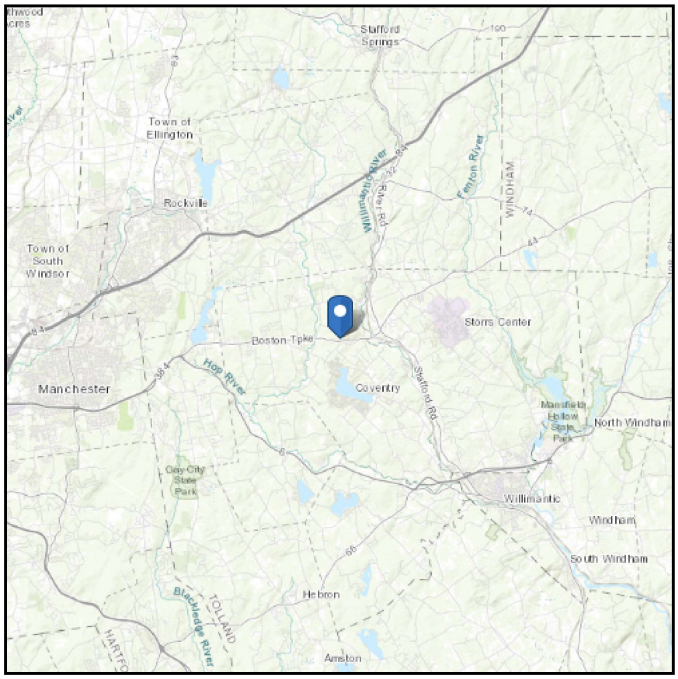
SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	707.05 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.798947
Soil Class:	D - Stiff Soil	**Longitude:**	-72.332189





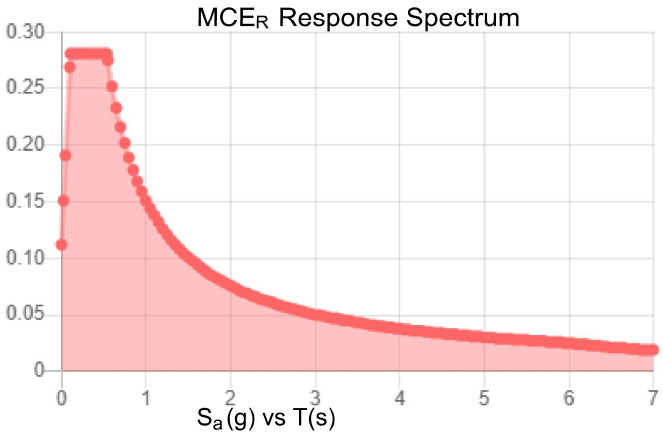
Seismic

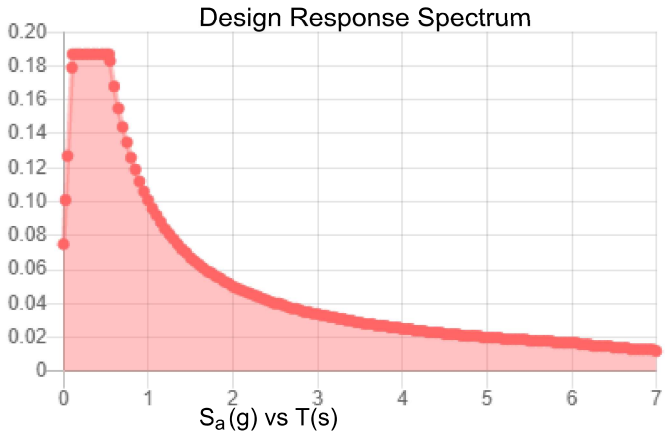
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.176	S_{DS} :	0.187
S_1 :	0.063	S_{D1} :	0.101
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.088
S_{MS} :	0.281	PGA_M :	0.14
S_{M1} :	0.151	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Thu Jul 29 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:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Thu Jul 29 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.

Trylon
1825 W. Walnut Hill Lane Suite 120
Irving, TX 75038

TIA LOAD CALCULATOR 2.0

PROJECT DATA	
Job Code:	189046
Carrier Site ID:	BOBDL00098A
Carrier Site Name:	CT-CCI-T-876385

CODES AND STANDARDS	
Building Code:	2015 IBC
Local Building Code:	2018 CSBC
Design Standard:	TIA-222-H

STRUCTURE DETAILS		
Mount Type:	Platform	--
Mount Elevation:	107.0	ft.
Number of Sectors:	3	--
Structure Type:	Monopole	--
Structure Height:	152.0	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	B	--
Site Class:	D - Stiff Soil	--
Ground Elevation:	707.05	ft.

TOPOGRAPHIC DATA		
Topographic Category:	1.00	--
Topographic Feature:	N/A	--
Crest Point Elevation:	0.00	ft.
Base Point Elevation:	0.00	ft.
Crest to Mid-Height (L/2):	0.00	ft.
Distance from Crest (x):	0.00	ft.
Base Topo Factor (K_{zt}):	1.00	--
Mount Topo Factor (K_{zt}):	1.00	--

WIND PARAMETERS		
Design Wind Speed:	130	mph
Wind Escalation Factor (K_s):	1.00	--
Velocity Coefficient (K_z):	1.01	--
Directionality Factor (K_d):	0.95	--
Gust Effect Factor (Gh):	1.00	--
Shielding Factor (K_a):	0.90	--
Velocity Pressure (q_z):	40.36	psf

ICE PARAMETERS		
Design Ice Wind Speed:	50	mph
Design Ice Thickness (t_i):	2.00	in
Importance Factor (I_i):	1.00	--
Ice Velocity Pressure (q_{zi}):	40.36	psf
Mount Ice Thickness (t_{iz}):	2.25	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	72.65	psf
Round Member Pressure:	43.59	psf
Ice Wind Pressure:	7.20	psf

SEISMIC PARAMETERS		
Importance Factor (I_e):	1.00	--
Short Period Accel .(S_s):	0.176	g
1 Second Accel (S_1):	0.063	g
Short Period Des. (S_{DS}):	0.19	g
1 Second Des. (S_{D1}):	0.10	g
Short Period Coeff. (F_a):	1.60	--
1 Second Coeff. (F_v):	2.40	--
Response Coefficient (Cs):	0.09	--
Amplification Factor (A_S):	1.20	--

LOAD COMBINATIONS [LRFD]

#	Description
1	1.4DL
2	1.2DL + 1WL 0 AZI
3	1.2DL + 1WL 30 AZI
4	1.2DL + 1WL 45 AZI
5	1.2DL + 1WL 60 AZI
6	1.2DL + 1WL 90 AZI
7	1.2DL + 1WL 120 AZI
8	1.2DL + 1WL 135 AZI
9	1.2DL + 1WL 150 AZI
10	1.2DL + 1WL 180 AZI
11	1.2DL + 1WL 210 AZI
12	1.2DL + 1WL 225 AZI
13	1.2DL + 1WL 240 AZI
14	1.2DL + 1WL 270 AZI
15	1.2DL + 1WL 300 AZI
16	1.2DL + 1WL 315 AZI
17	1.2DL + 1WL 330 AZI
18	0.9DL + 1WL 0 AZI
19	0.9DL + 1WL 30 AZI
20	0.9DL + 1WL 45 AZI
21	0.9DL + 1WL 60 AZI
22	0.9DL + 1WL 90 AZI
23	0.9DL + 1WL 120 AZI
24	0.9DL + 1WL 135 AZI
25	0.9DL + 1WL 150 AZI
26	0.9DL + 1WL 180 AZI
27	0.9DL + 1WL 210 AZI
28	0.9DL + 1WL 225 AZI
29	0.9DL + 1WL 240 AZI
30	0.9DL + 1WL 270 AZI
31	0.9DL + 1WL 300 AZI
32	0.9DL + 1WL 315 AZI
33	0.9DL + 1WL 330 AZI
34	1.2DL + 1DLi + 1WLi 0 AZI
35	1.2DL + 1DLi + 1WLi 30 AZI
36	1.2DL + 1DLi + 1WLi 45 AZI
37	1.2DL + 1DLi + 1WLi 60 AZI
38	1.2DL + 1DLi + 1WLi 90 AZI
39	1.2DL + 1DLi + 1WLi 120 AZI
40	1.2DL + 1DLi + 1WLi 135 AZI
41	1.2DL + 1DLi + 1WLi 150 AZI

#	Description
42	1.2DL + 1DLi + 1WLi 180 AZI
43	1.2DL + 1DLi + 1WLi 210 AZI
44	1.2DL + 1DLi + 1WLi 225 AZI
45	1.2DL + 1DLi + 1WLi 240 AZI
46	1.2DL + 1DLi + 1WLi 270 AZI
47	1.2DL + 1DLi + 1WLi 300 AZI
48	1.2DL + 1DLi + 1WLi 315 AZI
49	1.2DL + 1DLi + 1WLi 330 AZI
50	(1.2+0.2Sds) + 1.0E 0 AZI
51	(1.2+0.2Sds) + 1.0E 30 AZI
52	(1.2+0.2Sds) + 1.0E 45 AZI
53	(1.2+0.2Sds) + 1.0E 60 AZI
54	(1.2+0.2Sds) + 1.0E 90 AZI
55	(1.2+0.2Sds) + 1.0E 120 AZI
56	(1.2+0.2Sds) + 1.0E 135 AZI
57	(1.2+0.2Sds) + 1.0E 150 AZI
58	(1.2+0.2Sds) + 1.0E 180 AZI
59	(1.2+0.2Sds) + 1.0E 210 AZI
60	(1.2+0.2Sds) + 1.0E 225 AZI
61	(1.2+0.2Sds) + 1.0E 240 AZI
62	(1.2+0.2Sds) + 1.0E 270 AZI
63	(1.2+0.2Sds) + 1.0E 300 AZI
64	(1.2+0.2Sds) + 1.0E 315 AZI
65	(1.2+0.2Sds) + 1.0E 330 AZI
66	(0.9-0.2Sds) + 1.0E 0 AZI
67	(0.9-0.2Sds) + 1.0E 30 AZI
68	(0.9-0.2Sds) + 1.0E 45 AZI
69	(0.9-0.2Sds) + 1.0E 60 AZI
70	(0.9-0.2Sds) + 1.0E 90 AZI
71	(0.9-0.2Sds) + 1.0E 120 AZI
72	(0.9-0.2Sds) + 1.0E 135 AZI
73	(0.9-0.2Sds) + 1.0E 150 AZI
74	(0.9-0.2Sds) + 1.0E 180 AZI
75	(0.9-0.2Sds) + 1.0E 210 AZI
76	(0.9-0.2Sds) + 1.0E 225 AZI
77	(0.9-0.2Sds) + 1.0E 240 AZI
78	(0.9-0.2Sds) + 1.0E 270 AZI
79	(0.9-0.2Sds) + 1.0E 300 AZI
80	(0.9-0.2Sds) + 1.0E 315 AZI
81	(0.9-0.2Sds) + 1.0E 330 AZI
82-88	1.2D + 1.5 Lv1

#	Description
89	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP1
90	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP1
91	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP1
92	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP1
93	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP1
94	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP1
95	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP1
96	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP1
97	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP1
98	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP1
99	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP1
100	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP1
101	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP1
102	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP1
103	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP1
104	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP1
105	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP2
106	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP2
107	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP2
108	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP2
109	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP2
110	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP2
111	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP2
112	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP2
113	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP2
114	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP2
115	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP2
116	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP2
117	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP2
118	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP2
119	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP2
120	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP2

#	Description
121	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP3
122	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP3
123	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP3
124	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP3
125	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP3
126	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP3
127	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP3
128	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP3
129	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP3
130	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP3
131	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP3
132	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP3
133	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP3
134	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP3
135	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP3
136	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP3
137	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP4
138	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP4
139	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP4
140	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP4
141	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP4
142	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP4
143	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP4
144	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP4
145	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP4
146	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP4
147	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP4
148	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP4
149	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP4
150	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP4
151	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP4
152	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP4

*This page shows an example of maintenance loads for (4) pipes, the number of mount pipe LCs may vary per site

EQUIPMENT LOADING

Appurtenance Name/Location	Qty.	Elevation [ft]	--	EPA $_N$ (ft2)	EPA $_T$ (ft2)	Weight (lbs)
MX08FRO665-21	3	106	No Ice	8.01	3.21	82.50
MP1/MP4/MP7, 0/120/240	--	--	w/ Ice	10.18	5.12	385.41
TA08025-B604	3	106	No Ice	1.96	0.98	63.90
MP1/MP4/MP7, 0/120/240	--	--	w/ Ice	2.53	1.43	97.74
TA08025-B605	3	106	No Ice	1.96	1.13	75.00
MP1/MP4/MP7, 0/120/240	--	--	w/ Ice	2.53	1.59	103.84
RDIDC-9181-PF-48	1	106	No Ice	2.01	1.17	21.85
MP1, 0	--	--	w/ Ice	2.59	1.65	102.42
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
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			No Ice			
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			No Ice			
--	--	--	w/ Ice			

EQUIPMENT LOADING [CONT.]

Appurtenance Name/Location	Qty.	Elevation [ft]	--	EPA $_N$ (ft2)	EPA $_T$ (ft2)	Weight (lbs)
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
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			No Ice			
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			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			

EQUIPMENT WIND CALCULATIONS

Appurtenance Name	Qty.	Elevation [ft]	K_{zt}	K_z	K_d	t_d	q_z [psf]	q_{zi} [psf]
MX08FRO665-21	3	106	1.00	1.00	0.95	2.25	40.26	5.95
TA08025-B604	3	106	1.00	1.00	0.95	2.25	40.26	5.95
TA08025-B605	3	106	1.00	1.00	0.95	2.25	40.26	5.95
RDIDC-9181-PF-48	1	106	1.00	1.00	0.95	2.25	40.26	5.95

EQUIPMENT LATERAL WIND FORCE CALCULATIONS

Appurtenance Name	Qty.	--	0° 180°	30° 210°	60° 240°	90° 270°	120° 300°	150° 330°
MX08FRO665-21	3	No Ice	290.20	159.77	246.72	116.30	246.72	159.77
MP1/MP4/MP7, 0/120/240	--	w/ Ice	54.57	34.22	47.79	27.43	47.79	34.22
TA08025-B604	3	No Ice	71.14	44.44	62.24	35.55	62.24	44.44
MP1/MP4/MP7, 0/120/240	--	w/ Ice	13.56	9.12	12.08	7.64	12.08	9.12
TA08025-B605	3	No Ice	71.14	48.47	63.58	40.92	63.58	48.47
MP1/MP4/MP7, 0/120/240	--	w/ Ice	13.56	9.79	12.31	8.53	12.31	9.79
RDIDC-9181-PF-48	1	No Ice	72.89	49.96	65.25	42.32	65.25	49.96
MP1, 0	--	w/ Ice	13.87	10.10	12.61	8.84	12.61	10.10
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
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		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						

EQUIPMENT LATERAL WIND FORCE CALCULATIONS [CONT.]

Appurtenance Name	Qty.	--	0° 180°	30° 210°	60° 240°	90° 270°	120° 300°	150° 330°
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
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		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						

EQUIPMENT SEISMIC FORCE CALCULATIONS

Appurtenance Name	Qty.	Elevation [ft]	Weight [lbs]	F_p [lbs]
MX08FRO665-21	3	106	82.5	9.29
TA08025-B604	3	106	63.9	7.20
TA08025-B605	3	106	75	8.45
RDIDC-9181-PF-48	1	106	21.85	2.46

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 (in/sec^2)	386.4
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Z
Global Member Orientation Plane	XY
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-12: LRFD
Wood Code	AWC NDS-15: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-14
Masonry Code	ACI 530-13: Strength
Aluminum Code	AA ADM1-10: LRFD - Building
Stainless Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)

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?	Yes
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	ASCE 7-10
Seismic Base Elevation (in)	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
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 F)	Density[k/ft^3]	Yield[psi]	Ry	Fu[psi]	Rt
1	A992	29000	11154	.3	.65	.49	50000	1.1	65000	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36000	1.5	58000	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50000	1.1	65000	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42000	1.4	58000	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46000	1.4	58000	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35000	1.6	60000	1.2
7	A1085	29000	11154	.3	.65	.49	50000	1.4	65000	1.3

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 F)	Density[k/ft^3]	Yield[psi]	Fu[psi]
1	A653 SS Gr33	29500	11346	.3	.65	.49	33000	45000
2	A653 SS Gr50/1	29500	11346	.3	.65	.49	50000	65000

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Plates	6.5"x0.37" Plate	Beam	RECT	A53 Gr.B	Typical	2.405	.027	8.468	.106
2	Grating Bracing	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	.722	.271	.271	.009
3	Standoffs	PIPE_3.5	Beam	Pipe	A53 Gr.B	Typical	2.5	4.52	4.52	9.04
4	Standoff Bracing	C3X5	Beam	Channel	A36 Gr.36	Typical	1.47	.241	1.85	.043
5	Handrails	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
6	Handrail Corners	6.6x4.46x0.25	Beam	Single Angle	A36 Gr.36	Typical	2.703	4.759	12.473	.055
7	Horizontals	PIPE_3.5	Beam	Pipe	A53 Gr.B	Typical	2.5	4.52	4.52	9.04

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
8	Mount Pipes	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	CF1A	8CU1.25X057	Beam	None	A653 SS ...	Typical	.581	.057	4.41	.00063

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	N25	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N13	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Basic Load Cases

	BLC Description	Category	X Gravi..	Y Gravi..	Z Gravity	Joint	Point	Distrib...	Area(Memb..	Surface...
1	Self Weight	DL			-1		13		3	
2	Structure Wind X	WLX						33		
3	Structure Wind Y	WLY						33		
4	Wind Load 0 AZI	WLX					13			
5	Wind Load 30 AZI	None					26			
6	Self Weight	DL			-1		26			
7	Structure Wind X	WLX					26			
8	Structure Wind Y	WLY					13			
9	Wind Load 0 AZI	WLX					26			
10	Wind Load 30 AZI	None					26			
11	Wind Load 45 AZI	None					26			
12	Wind Load 60 AZI	None					13	33	3	
13	Wind Load 90 AZI	WLY						33		
14	Wind Load 120 AZI	None						33		
15	Wind Load 135 AZI	None					13			
16	Wind Load 150 AZI	None					26			
17	Ice Weight	OL1					26			
18	Structure Ice Wind X	OL2					26			
19	Structure Ice Wind Y	OL3					13			
20	Ice Wind Load 0 AZI	OL2					26			
21	Ice Wind Load 30 AZI	None					26			
22	Ice Wind Load 45 AZI	None					26			
23	Ice Wind Load 60 AZI	None					13			
24	Ice Wind Load 90 AZI	OL3					13			
25	Ice Wind Load 120 AZI	None					1			
26	Ice Wind Load 135 AZI	None					1			
27	Ice Wind Load 150 AZI	None					1			
28	Seismic Load X	ELX	-.113				1			
29	Seismic Load Y	ELY		-.113			1			
30	Live Load 1 (Lv)	LL					1			
31	Live Load 2 (Lv)	LL					1			
32	Live Load 3 (Lv)	LL					1			
33	Live Load 4 (Lv)	LL					1			

Basic Load Cases (Continued)

	BLC Description	Category	X Gravi...	Y Gravi...	Z Gravity	Joint	Point	Distrib...	Area (Memb...	Surface...
34	Live Load 5 (Lv)	LL					1			
35	Live Load 6 (Lv)	LL					1			
36	Maintenance Load 1 (Lm)	None					1			
37	Maintenance Load 2 (Lm)	None					1			
38	Maintenance Load 3 (Lm)	None					1			
39	Maintenance Load 4 (Lm)	None					1			
40	Maintenance Load 5 (Lm)	None								
41	Maintenance Load 6 (Lm)	None								
42	Maintenance Load 7 (Lm)	None								
43	Maintenance Load 8 (Lm)	None								
44	Maintenance Load 9 (Lm)	None								
45	BLC 1 Transient Area Loads	None						9		

Load Combinations

	Description	Solve	PD...	S...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Factor	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4DL	Yes	Y		DL	1.4																				
2	1.2DL + 1WL 0 AZI	Yes	Y		DL	1.2	2	1	3		4	1														
3	1.2DL + 1WL 30 AZI	Yes	Y		DL	1.2	2	.866	3	.5	5	1														
4	1.2DL + 1WL 45 AZI	Yes	Y		DL	1.2	2	.707	3	.707	6	1														
5	1.2DL + 1WL 60 AZI	Yes	Y		DL	1.2	2	.5	3	.866	7	1														
6	1.2DL + 1WL 90 AZI	Yes	Y		DL	1.2	2		3	1	8	1														
7	1.2DL + 1WL 120 AZI	Yes	Y		DL	1.2	2	-.5	3	.866	9	1														
8	1.2DL + 1WL 135 AZI	Yes	Y		DL	1.2	2	-.7...	3	.707	10	1														
9	1.2DL + 1WL 150 AZI	Yes	Y		DL	1.2	2	-.8...	3	.5	11	1														
10	1.2DL + 1WL 180 AZI	Yes	Y		DL	1.2	2	-1	3		4	-1														
11	1.2DL + 1WL 210 AZI	Yes	Y		DL	1.2	2	-.8...	3	-.5	5	-1														
12	1.2DL + 1WL 225 AZI	Yes	Y		DL	1.2	2	-.7...	3	-.7...	6	-1														
13	1.2DL + 1WL 240 AZI	Yes	Y		DL	1.2	2	-.5	3	-.8...	7	-1														
14	1.2DL + 1WL 270 AZI	Yes	Y		DL	1.2	2		3	-1	8	-1														
15	1.2DL + 1WL 300 AZI	Yes	Y		DL	1.2	2	.5	3	-.8...	9	-1														
16	1.2DL + 1WL 315 AZI	Yes	Y		DL	1.2	2	.707	3	-.7...	10	-1														
17	1.2DL + 1WL 330 AZI	Yes	Y		DL	1.2	2	.866	3	-.5	11	-1														
18	0.9DL + 1WL 0 AZI	Yes	Y		DL	.9	2	1	3		4	1														
19	0.9DL + 1WL 30 AZI	Yes	Y		DL	.9	2	.866	3	.5	5	1														
20	0.9DL + 1WL 45 AZI	Yes	Y		DL	.9	2	.707	3	.707	6	1														
21	0.9DL + 1WL 60 AZI	Yes	Y		DL	.9	2	.5	3	.866	7	1														
22	0.9DL + 1WL 90 AZI	Yes	Y		DL	.9	2		3	1	8	1														
23	0.9DL + 1WL 120 AZI	Yes	Y		DL	.9	2	-.5	3	.866	9	1														
24	0.9DL + 1WL 135 AZI	Yes	Y		DL	.9	2	-.7...	3	.707	10	1														
25	0.9DL + 1WL 150 AZI	Yes	Y		DL	.9	2	-.8...	3	.5	11	1														
26	0.9DL + 1WL 180 AZI	Yes	Y		DL	.9	2	-1	3		4	-1														
27	0.9DL + 1WL 210 AZI	Yes	Y		DL	.9	2	-.8...	3	-.5	5	-1														
28	0.9DL + 1WL 225 AZI	Yes	Y		DL	.9	2	-.7...	3	-.7...	6	-1														
29	0.9DL + 1WL 240 AZI	Yes	Y		DL	.9	2	-.5	3	-.8...	7	-1														
30	0.9DL + 1WL 270 AZI	Yes	Y		DL	.9	2		3	-1	8	-1														
31	0.9DL + 1WL 300 AZI	Yes	Y		DL	.9	2	.5	3	-.8...	9	-1														
32	0.9DL + 1WL 315 AZI	Yes	Y		DL	.9	2	.707	3	-.7...	10	-1														
33	0.9DL + 1WL 330 AZI	Yes	Y		DL	.9	2	.866	3	-.5	11	-1														
34	1.2DL + 1DLi + 1WLi 0...	Yes	Y		DL	1.2	O...	1	13	1	14		15	1												
35	1.2DL + 1DLi + 1WLi 3...	Yes	Y		DL	1.2	O...	1	13	.866	14	.5	16	1												

Load Combinations (Continued)

	Description	Solve	PD...	S...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Factor	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
36	1.2DL + 1DLi + 1W Li 4...	Yes	Y		DL	1.2	O...	1	13	.707	14	.707	17	1										
37	1.2DL + 1DLi + 1W Li 6...	Yes	Y		DL	1.2	O...	1	13	.5	14	.866	18	1										
38	1.2DL + 1DLi + 1W Li 9...	Yes	Y		DL	1.2	O...	1	13		14	1	19	1										
39	1.2DL + 1DLi + 1W Li 1...	Yes	Y		DL	1.2	O...	1	13	-.5	14	.866	20	1										
40	1.2DL + 1DLi + 1W Li 1...	Yes	Y		DL	1.2	O...	1	13	-.7...	14	.707	21	1										
41	1.2DL + 1DLi + 1W Li 1...	Yes	Y		DL	1.2	O...	1	13	-.8...	14	.5	22	1										
42	1.2DL + 1DLi + 1W Li 1...	Yes	Y		DL	1.2	O...	1	13	-1	14		15	-1										
43	1.2DL + 1DLi + 1W Li 2...	Yes	Y		DL	1.2	O...	1	13	-.8...	14	-.5	16	-1										
44	1.2DL + 1DLi + 1W Li 2...	Yes	Y		DL	1.2	O...	1	13	-.7...	14	-.7...	17	-1										
45	1.2DL + 1DLi + 1W Li 2...	Yes	Y		DL	1.2	O...	1	13	-.5	14	-.8...	18	-1										
46	1.2DL + 1DLi + 1W Li 2...	Yes	Y		DL	1.2	O...	1	13		14	-1	19	-1										
47	1.2DL + 1DLi + 1W Li 3...	Yes	Y		DL	1.2	O...	1	13	.5	14	-.8...	20	-1										
48	1.2DL + 1DLi + 1W Li 3...	Yes	Y		DL	1.2	O...	1	13	.707	14	-.7...	21	-1										
49	1.2DL + 1DLi + 1W Li 3...	Yes	Y		DL	1.2	O...	1	13	.866	14	-.5	22	-1										
50	(1.2+0.2Sds) + 1.0E 0 ...	Yes	Y		DL	1.2...	E...	1	E...															
51	(1.2+0.2Sds) + 1.0E 3...	Yes	Y		DL	1.2...	E...	.866	E...	.5														
52	(1.2+0.2Sds) + 1.0E 4...	Yes	Y		DL	1.2...	E...	.707	E...	.707														
53	(1.2+0.2Sds) + 1.0E 6...	Yes	Y		DL	1.2...	E...	.5	E...	.866														
54	(1.2+0.2Sds) + 1.0E 9...	Yes	Y		DL	1.2...	E...		E...	1														
55	(1.2+0.2Sds) + 1.0E 1...	Yes	Y		DL	1.2...	E...	-.5	E...	.866														
56	(1.2+0.2Sds) + 1.0E 1...	Yes	Y		DL	1.2...	E...	-.7...	E...	.707														
57	(1.2+0.2Sds) + 1.0E 1...	Yes	Y		DL	1.2...	E...	-.8...	E...	.5														
58	(1.2+0.2Sds) + 1.0E 1...	Yes	Y		DL	1.2...	E...	-1	E...															
59	(1.2+0.2Sds) + 1.0E 2...	Yes	Y		DL	1.2...	E...	-.8...	E...	-.5														
60	(1.2+0.2Sds) + 1.0E 2...	Yes	Y		DL	1.2...	E...	-.7...	E...	-.7...														
61	(1.2+0.2Sds) + 1.0E 2...	Yes	Y		DL	1.2...	E...	-.5	E...	-.8...														
62	(1.2+0.2Sds) + 1.0E 2...	Yes	Y		DL	1.2...	E...		E...	-1														
63	(1.2+0.2Sds) + 1.0E 3...	Yes	Y		DL	1.2...	E...	.5	E...	-.8...														
64	(1.2+0.2Sds) + 1.0E 3...	Yes	Y		DL	1.2...	E...	.707	E...	-.7...														
65	(1.2+0.2Sds) + 1.0E 3...	Yes	Y		DL	1.2...	E...	.866	E...	-.5														
66	(0.9-0.2Sds) + 1.0E 0 ...	Yes	Y		DL	.862	E...	1	E...															
67	(0.9-0.2Sds) + 1.0E 30...	Yes	Y		DL	.862	E...	.866	E...	.5														
68	(0.9-0.2Sds) + 1.0E 45...	Yes	Y		DL	.862	E...	.707	E...	.707														
69	(0.9-0.2Sds) + 1.0E 60...	Yes	Y		DL	.862	E...	.5	E...	.866														
70	(0.9-0.2Sds) + 1.0E 90...	Yes	Y		DL	.862	E...		E...	1														
71	(0.9-0.2Sds) + 1.0E 12...	Yes	Y		DL	.862	E...	-.5	E...	.866														
72	(0.9-0.2Sds) + 1.0E 13...	Yes	Y		DL	.862	E...	-.7...	E...	.707														
73	(0.9-0.2Sds) + 1.0E 15...	Yes	Y		DL	.862	E...	-.8...	E...	.5														
74	(0.9-0.2Sds) + 1.0E 18...	Yes	Y		DL	.862	E...	-1	E...															
75	(0.9-0.2Sds) + 1.0E 21...	Yes	Y		DL	.862	E...	-.8...	E...	-.5														
76	(0.9-0.2Sds) + 1.0E 22...	Yes	Y		DL	.862	E...	-.7...	E...	-.7...														
77	(0.9-0.2Sds) + 1.0E 24...	Yes	Y		DL	.862	E...	-.5	E...	-.8...														
78	(0.9-0.2Sds) + 1.0E 27...	Yes	Y		DL	.862	E...		E...	-1														
79	(0.9-0.2Sds) + 1.0E 30...	Yes	Y		DL	.862	E...	.5	E...	-.8...														
80	(0.9-0.2Sds) + 1.0E 31...	Yes	Y		DL	.862	E...	.707	E...	-.7...														
81	(0.9-0.2Sds) + 1.0E 33...	Yes	Y		DL	.862	E...	.866	E...	-.5														
82	1.2D + 1.5 Lv1	Yes	Y		DL	1.2	25	1.5																
83	1.2D + 1.5 Lv2	Yes	Y		DL	1.2	26	1.5																
84	1.2D + 1.5 Lv3	Yes	Y		DL	1.2	27	1.5																
85	1.2D + 1.5 Lv4	Yes	Y		DL	1.2	28	1.5																
86	1.2D + 1.5 Lv5	Yes	Y		DL	1.2	29	1.5																
87	1.2D + 1.5 Lv6	Yes	Y		DL	1.2	30	1.5																

Load Combinations (Continued)

	Description	Solve	PD...	S...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Factor	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
88	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	31	1.5	4	.053	2	.053	3											
89	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	31	1.5	5	.053	2	.046	3	.027										
90	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	31	1.5	6	.053	2	.038	3	.038										
91	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	31	1.5	7	.053	2	.027	3	.046										
92	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	31	1.5	8	.053	2		3	.053										
93	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	31	1.5	9	.053	2	-.0...	3	.046										
94	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	31	1.5	10	.053	2	-.0...	3	.038										
95	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	31	1.5	11	.053	2	-.0...	3	.027										
96	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	31	1.5	4	.053	2	-.0...	3											
97	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	31	1.5	5	.053	2	-.0...	3	-.027										
98	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	31	1.5	6	.053	2	-.0...	3	-.038										
99	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	31	1.5	7	.053	2	-.0...	3	-.046										
100	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	31	1.5	8	.053	2		3	-.053										
101	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	31	1.5	9	.053	2	.027	3	-.046										
102	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	31	1.5	10	.053	2	.038	3	-.038										
103	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	31	1.5	11	.053	2	.046	3	-.027										
104	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	32	1.5	4	.053	2	.053	3											
105	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	32	1.5	5	.053	2	.046	3	.027										
106	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	32	1.5	6	.053	2	.038	3	.038										
107	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	32	1.5	7	.053	2	.027	3	.046										
108	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	32	1.5	8	.053	2		3	.053										
109	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	32	1.5	9	.053	2	-.0...	3	.046										
110	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	32	1.5	10	.053	2	-.0...	3	.038										
111	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	32	1.5	11	.053	2	-.0...	3	.027										
112	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	32	1.5	4	.053	2	-.0...	3											
113	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	32	1.5	5	.053	2	-.0...	3	-.027										
114	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	32	1.5	6	.053	2	-.0...	3	-.038										
115	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	32	1.5	7	.053	2	-.0...	3	-.046										
116	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	32	1.5	8	.053	2		3	-.053										
117	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	32	1.5	9	.053	2	.027	3	-.046										
118	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	32	1.5	10	.053	2	.038	3	-.038										
119	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	32	1.5	11	.053	2	.046	3	-.027										
120	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	33	1.5	4	.053	2	.053	3											
121	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	33	1.5	5	.053	2	.046	3	.027										
122	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	33	1.5	6	.053	2	.038	3	.038										
123	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	33	1.5	7	.053	2	.027	3	.046										
124	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	33	1.5	8	.053	2		3	.053										
125	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	33	1.5	9	.053	2	-.0...	3	.046										
126	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	33	1.5	10	.053	2	-.0...	3	.038										
127	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	33	1.5	11	.053	2	-.0...	3	.027										
128	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	33	1.5	4	.053	2	-.0...	3											
129	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	33	1.5	5	.053	2	-.0...	3	-.027										
130	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	33	1.5	6	.053	2	-.0...	3	-.038										
131	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	33	1.5	7	.053	2	-.0...	3	-.046										
132	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	33	1.5	8	.053	2		3	-.053										
133	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	33	1.5	9	.053	2	.027	3	-.046										
134	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	33	1.5	10	.053	2	.038	3	-.038										
135	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	33	1.5	11	.053	2	.046	3	-.027										
136	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	34	1.5	4	.053	2	.053	3											
137	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	34	1.5	5	.053	2	.046	3	.027										
138	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	34	1.5	6	.053	2	.038	3	.038										
139	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	34	1.5	7	.053	2	.027	3	.046										

Load Combinations (Continued)

	Description	Solve	PD...	S...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Factor	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
140	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	34	1.5	8	.053	2		3	.053										
141	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	34	1.5	9	.053	2	-.0...	3	.046										
142	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	34	1.5	10	.053	2	-.0...	3	.038										
143	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	34	1.5	11	.053	2	-.0...	3	.027										
144	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	34	1.5	4	.053	2	-.0...	3											
145	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	34	1.5	5	.053	2	-.0...	3	-.027										
146	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	34	1.5	6	.053	2	-.0...	3	-.038										
147	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	34	1.5	7	.053	2	-.0...	3	-.046										
148	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	34	1.5	8	.053	2		3	-.053										
149	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	34	1.5	9	.053	2	.027	3	-.046										
150	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	34	1.5	10	.053	2	.038	3	-.038										
151	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	34	1.5	11	.053	2	.046	3	-.027										
152	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	35	1.5	4	.053	2	.053	3											
153	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	35	1.5	5	.053	2	.046	3	.027										
154	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	35	1.5	6	.053	2	.038	3	.038										
155	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	35	1.5	7	.053	2	.027	3	.046										
156	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	35	1.5	8	.053	2		3	.053										
157	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	35	1.5	9	.053	2	-.0...	3	.046										
158	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	35	1.5	10	.053	2	-.0...	3	.038										
159	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	35	1.5	11	.053	2	-.0...	3	.027										
160	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	35	1.5	4	.053	2	-.0...	3											
161	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	35	1.5	5	.053	2	-.0...	3	-.027										
162	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	35	1.5	6	.053	2	-.0...	3	-.038										
163	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	35	1.5	7	.053	2	-.0...	3	-.046										
164	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	35	1.5	8	.053	2		3	-.053										
165	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	35	1.5	9	.053	2	.027	3	-.046										
166	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	35	1.5	10	.053	2	.038	3	-.038										
167	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	35	1.5	11	.053	2	.046	3	-.027										
168	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	36	1.5	4	.053	2	.053	3											
169	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	36	1.5	5	.053	2	.046	3	.027										
170	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	36	1.5	6	.053	2	.038	3	.038										
171	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	36	1.5	7	.053	2	.027	3	.046										
172	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	36	1.5	8	.053	2		3	.053										
173	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	36	1.5	9	.053	2	-.0...	3	.046										
174	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	36	1.5	10	.053	2	-.0...	3	.038										
175	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	36	1.5	11	.053	2	-.0...	3	.027										
176	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	36	1.5	4	.053	2	-.0...	3											
177	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	36	1.5	5	.053	2	-.0...	3	-.027										
178	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	36	1.5	6	.053	2	-.0...	3	-.038										
179	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	36	1.5	7	.053	2	-.0...	3	-.046										
180	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	36	1.5	8	.053	2		3	-.053										
181	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	36	1.5	9	.053	2	.027	3	-.046										
182	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	36	1.5	10	.053	2	.038	3	-.038										
183	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	36	1.5	11	.053	2	.046	3	-.027										
184	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	37	1.5	4	.053	2	.053	3											
185	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	37	1.5	5	.053	2	.046	3	.027										
186	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	37	1.5	6	.053	2	.038	3	.038										
187	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	37	1.5	7	.053	2	.027	3	.046										
188	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	37	1.5	8	.053	2		3	.053										
189	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	37	1.5	9	.053	2	-.0...	3	.046										
190	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	37	1.5	10	.053	2	-.0...	3	.038										
191	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	37	1.5	11	.053	2	-.0...	3	.027										

Load Combinations (Continued)

	Description	Solve	PD...	S...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Factor	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
192	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	37	1.5	4	.053	2	-.0...	3											
193	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	37	1.5	5	.053	2	-.0...	3	-.027										
194	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	37	1.5	6	.053	2	-.0...	3	-.038										
195	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	37	1.5	7	.053	2	-.0...	3	-.046										
196	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	37	1.5	8	.053	2		3	-.053										
197	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	37	1.5	9	.053	2	.027	3	-.046										
198	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	37	1.5	10	.053	2	.038	3	-.038										
199	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	37	1.5	11	.053	2	.046	3	-.027										
200	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	38	1.5	4	.053	2	.053	3											
201	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	38	1.5	5	.053	2	.046	3	.027										
202	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	38	1.5	6	.053	2	.038	3	.038										
203	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	38	1.5	7	.053	2	.027	3	.046										
204	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	38	1.5	8	.053	2		3	.053										
205	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	38	1.5	9	.053	2	-.0...	3	.046										
206	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	38	1.5	10	.053	2	-.0...	3	.038										
207	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	38	1.5	11	.053	2	-.0...	3	.027										
208	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	38	1.5	4	.053	2	-.0...	3											
209	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	38	1.5	5	.053	2	-.0...	3	-.027										
210	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	38	1.5	6	.053	2	-.0...	3	-.038										
211	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	38	1.5	7	.053	2	-.0...	3	-.046										
212	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	38	1.5	8	.053	2		3	-.053										
213	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	38	1.5	9	.053	2	.027	3	-.046										
214	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	38	1.5	10	.053	2	.038	3	-.038										
215	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	38	1.5	11	.053	2	.046	3	-.027										
216	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	39	1.5	4	.053	2	.053	3											
217	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	39	1.5	5	.053	2	.046	3	.027										
218	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	39	1.5	6	.053	2	.038	3	.038										
219	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	39	1.5	7	.053	2	.027	3	.046										
220	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	39	1.5	8	.053	2		3	.053										
221	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	39	1.5	9	.053	2	-.0...	3	.046										
222	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	39	1.5	10	.053	2	-.0...	3	.038										
223	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	39	1.5	11	.053	2	-.0...	3	.027										
224	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	39	1.5	4	.053	2	-.0...	3											
225	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	39	1.5	5	.053	2	-.0...	3	-.027										
226	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	39	1.5	6	.053	2	-.0...	3	-.038										
227	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	39	1.5	7	.053	2	-.0...	3	-.046										
228	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	39	1.5	8	.053	2		3	-.053										
229	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	39	1.5	9	.053	2	.027	3	-.046										
230	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	39	1.5	10	.053	2	.038	3	-.038										
231	1.2D + 1.5Lm + 1.0W...	Yes	Y		DL	1.2	39	1.5	11	.053	2	.046	3	-.027										

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	N25	max	2103.7994	3	1375.1615	4	1698.5329	138	-597.5077	28	-68.9102	33	2529.9651	3
2		min	-896.7653	27	-561.3963	28	400.8893	28	-3737.2294	138	-2194.6729	127	-1053.9051	27
3	N1	max	1604.1721	17	873.9655	8	1475.2662	98	3071.2814	226	83.6993	19	1647.9538	25
4		min	-1375.9924	25	-799.4665	32	258.3489	21	254.5384	21	-2087.9268	95	-1843.1844	17
5	N13	max	340.001	2	1782.0479	6	1763.1368	170	550.4764	192	3930.3942	186	1188.5133	30
6		min	-297.2078	26	-1192.1447	30	274.3452	28	-702.3325	172	473.9561	28	-1739.6245	6
7	Totals:	max	3652.9188	2	3467.4287	6	3803.2561	4						

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
8		min	-2174.7581	26	-1989.2629	30	1341.6247	28						

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

	Member	Shape	Code Check	Loc...	L...	She...	Loc...	...	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y...	phi*Mn ...	Cb	Eqn
1	SA1	PIPE_3.5	.497	40	1...	.174	40		172	64491.4237	78750	7953.75	7953.75	2.0...	H1-1b
2	SA3	PIPE_3.5	.496	40	4	.216	40		4	64491.4237	78750	7953.75	7953.75	2.0...	H1-1b
3	MP1	PIPE_2.0	.461	44....	4	.064	44....		3	20866.7334	32130	1871.625	1871.625	1	H1-1b
4	MP4	PIPE_2.0	.419	44....	3	.055	44....		3	20866.7334	32130	1871.625	1871.625	1	H1-1b
5	PB3	C3X5	.400	34....	6	.121	63....	y	4	32858.7668	47628	981.263	4104	1.3...	H1-1b
6	SA2	PIPE_3.5	.400	40	98	.156	40		216	64491.4237	78750	7953.75	7953.75	2.0...	H1-1b
7	MP3	PIPE_2.0	.398	44....	5	.036	44....		5	20866.7334	32130	1871.625	1871.625	1	H1-1b
8	MP2	PIPE_2.0	.387	44....	5	.040	44....		8	20866.7334	32130	1871.625	1871.625	1	H1-1b
9	PB1	C3X5	.369	34....	4	.106	6.5...	y	170	32858.7668	47628	981.263	4104	1.3...	H1-1b
10	MP7	PIPE_2.0	.368	44....	4	.045	44....		6	20866.7334	32130	1871.625	1871.625	1	H1-1b
11	PB2	C3X5	.353	34....	2...	.117	6.5...	y	218	32858.7668	47628	981.263	4104	1.4...	H1-1b
12	MP9	PIPE_2.0	.337	44....	2	.045	44....		3	20866.7334	32130	1871.625	1871.625	1	H1-1b
13	MP8	PIPE_2.0	.326	44....	2	.036	44....		6	20866.7334	32130	1871.625	1871.625	1	H1-1b
14	MP5	PIPE_2.0	.277	44....	2	.063	44....		3	20866.7334	32130	1871.625	1871.625	1.5...	H1-1b
15	CP4	6.5"x0.37" Plate	.255	21	2	.090	21	y	170	27548.2459	75757.5	583.9628	6297.4...	1.1...	H1-1b
16	MP6	PIPE_2.0	.241	44....	17	.043	44....		8	20866.7334	32130	1871.625	1871.625	1.5...	H1-1b
17	CP6	6.5"x0.37" Plate	.239	20....	7	.103	20....	y	138	27548.2459	75757.5	583.9628	6863.8...	1.2...	H1-1b
18	IFH11	L2x2x3	.238	0	3	.029	0	y	2	18084.2002	23392.8	557.7166	1179.3...	1	H2-1
19	M21	PIPE_2.0	.210	72....	4	.135	72....		5	14916.0955	32130	1871.625	1871.625	1.5...	H1-1b
20	IFH21	L2x2x3	.199	0	6	.021	0	y	6	18084.2002	23392.8	557.7166	1239.2...	2.3...	H2-1
21	CP5	6.5"x0.37" Plate	.178	21	3	.085	6.5...	y	88	27548.2459	75757.5	583.9628	8784.8...	1	H1-1b
22	H1	PIPE_3.5	.149	34....	4	.086	48....		4	60666.1271	78750	7953.75	7953.75	1	H1-1b
23	M19	PIPE_2.0	.145	72....	2	.169	72....		2	14916.0955	32130	1871.625	1871.625	1	H1-1b
24	IFH 31	L2x2x3	.143	0	17	.024	27....	y	4	18084.2002	23392.8	557.7166	1239.2...	2.2...	H2-1
25	H3	PIPE_3.5	.116	34....	2	.075	24....		16	60666.1271	78750	7953.75	7953.75	1.0...	H1-1b
26	M20	PIPE_2.0	.115	24....	16	.109	72....		8	14916.0955	32130	1871.625	1871.625	1.5...	H1-1b
27	IFH32	L2x2x3	.115	0	5	.020	0	y	95	18084.2002	23392.8	557.7166	1239.2...	2.4...	H2-1
28	H2	PIPE_3.5	.107	34....	7	.103	24....		6	60666.1271	78750	7953.75	7953.75	1.2...	H1-1b
29	IFH12	L2x2x3	.104	0	8	.023	0	y	138	18084.2002	23392.8	557.7166	1179.3...	1	H2-1
30	IFH22	L2x2x3	.094	0	2	.020	0	y	194	18084.2002	23392.8	557.7166	1182.4...	1	H2-1
31	CP3	6.6x4.46x0.25	.083	0	5	.042	0	y	4	51170.9492	87561	2464.80...	7125.3...	1	H2-1
32	CP2	6.6x4.46x0.25	.061	0	2	.031	42	y	17	51170.9492	87561	4505.35...	13024....	1.2...	H2-1
33	CP1	6.6x4.46x0.25	.043	0	32	.032	42....	y	6	51170.9492	87561	2464.80...	7125.3...	1	H2-1

Envelope AISI S100-12: LRFD Cold Formed Steel Code Checks

Member	Shape	Code...	Loc[in]	LC	Shear...	Loc[in]	Dir	LC	phi*Pn[lb]	phi*Tn[lb]	phi*Mn...	phi*Mn...	Cb	Cmyy	Cmzz	Eqn
No Data to Print ...																

APPENDIX D

ADDITIONAL CALCUATIONS

Trylon

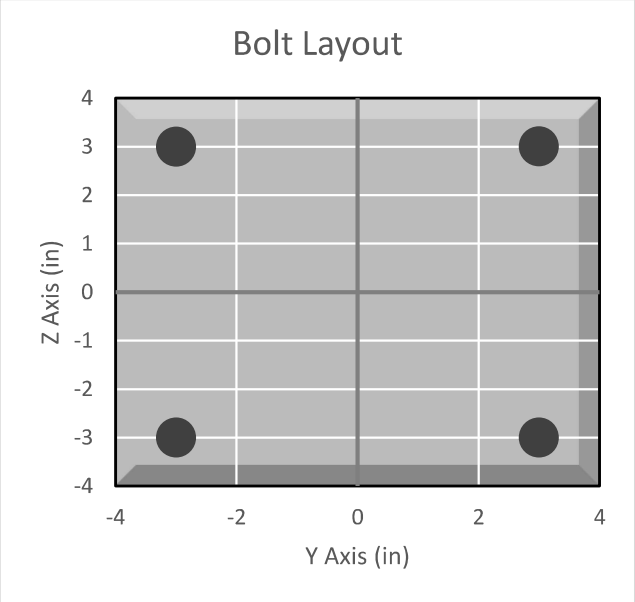
Analysis date: 8/2/2021

BOLT TOOL 1.5.2

Project Data	
Job Code:	189046
Carrier Site ID:	BOBDL00098A
Carrier Site Name:	CT-CCI-T-876385

Code	
Design Standard:	TIA-222-H
Slip Check:	No
Pretension Standard:	AISC

Bolt Properties		
Connection Type:	Bolt	
Diameter:	0.625	in
Grade:	A325	--
Yield Strength (Fy):	92	ksi
Ultimate Strength (Fu):	120	ksi
Number of Bolts:	4	--
Threads Included:	No	--
Double Shear:	No	--
Connection Pipe Size:	-	in



Connection Description
Standoff to Monopole

Bolt Check*		
Tensile Capacity (ϕT_n):	20340.1	lbs
Shear Capacity (ϕV_n):	17257.3	lbs
Tension Force (T_u):	5588.7	lbs
Shear Force (V_u):	1180.1	lbs
Tension Usage:	26.2%	--
Shear Usage:	6.5%	--
Interaction:	26.2%	Pass
Controlling Member:	SA3	--
Controlling LC:	4	--

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

APPENDIX E

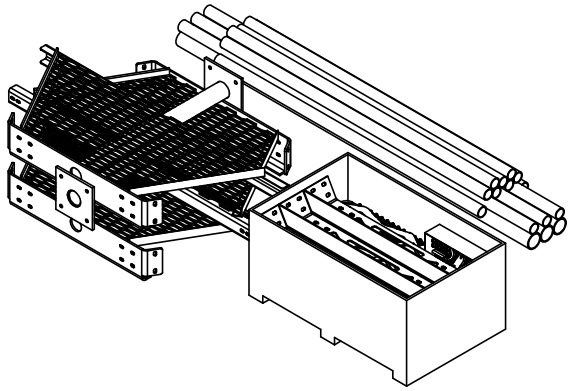
SUPPLEMENTAL DRAWINGS

ITEM	PART NO.	DESCRIPTION	QTY.	WEIGHT	NOTE NO.
1	MTC3006SB	STEEL BUNDLE FOR SNUB NOSE PLATFORM	1	402.64 LBS	
2	MCPK8CSB	PIPE STEEL BUNDLE FOR MC-PK8-C	1	464.27 LBS	
3	MCPK8CHWK	HARDWARE KIT FOR MC-PK8-C	1	543.22 LBS	

C

REVISIONS				
REV.	ECN	DESCRIPTION	BY	DATE
A		INITIAL RELEASE	DRR	12/27/11
B	8000005979	CHANGE NOSE CORNER BRKT, ADD GUB-4240	MSM	11/25/14
C	8000007579	NEW RINGMOUNT WELDMENT DESIGN	RJC	04/07/15

FOR BOM ENTRY ONLY

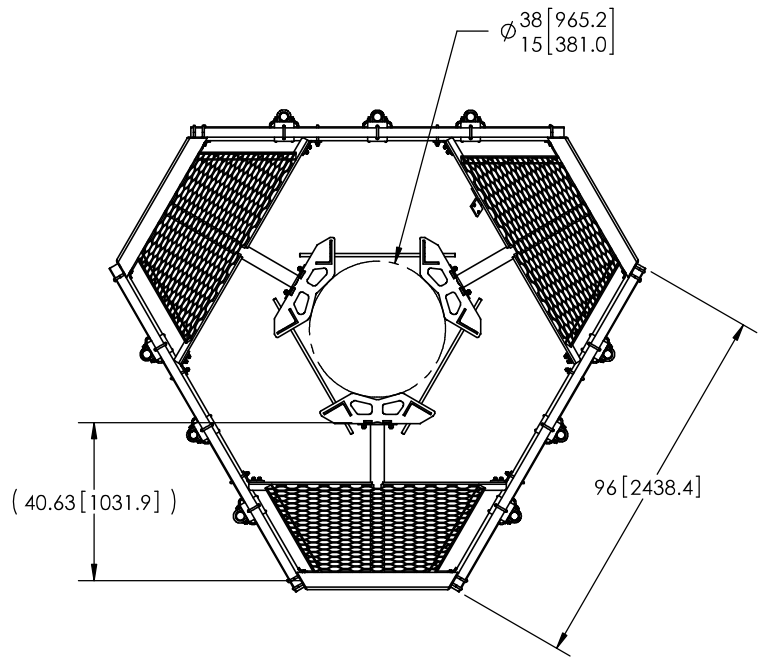


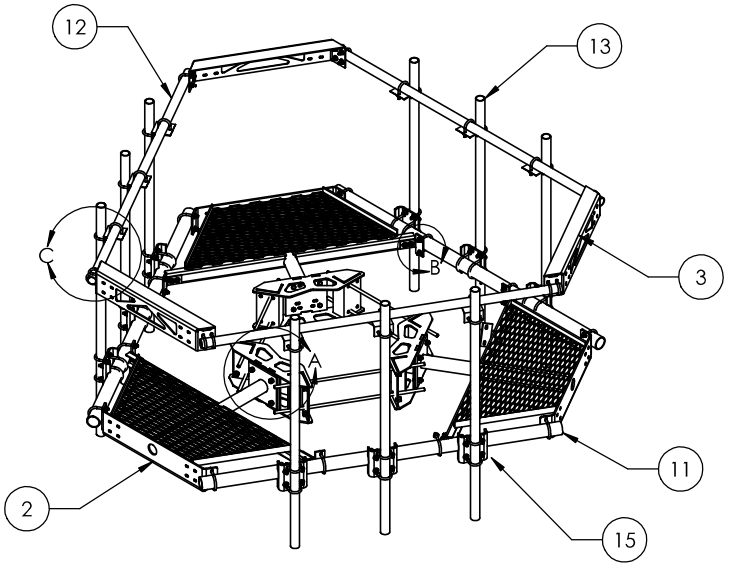
NOTES:
1. CUSTOMER ASSEMBLY SHEETS 2–3.

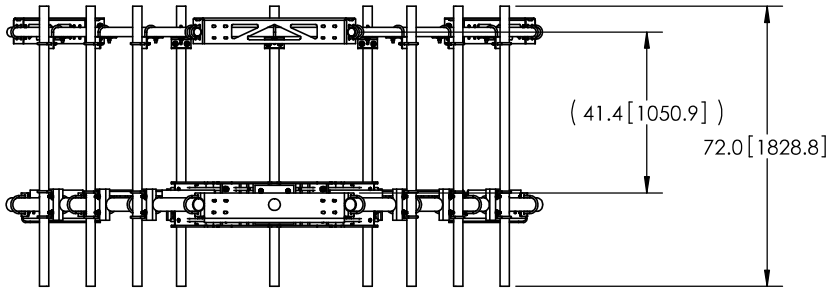
ALL DIMENSIONS ARE IN INCHES U.O.S.
TOLERANCES UNLESS OTHERWISE SPECIFIED:
.X = ± .12 ANGLES ±2°
.XX = ± .06 FRACTIONS ±1/32
.XXX= ± .03
REMOVE BURRS AND BREAK EDGES .005

DO NOT SCALE THIS PRINT

DRAWN BY: MSM	SHEET: 1 of 3	PART NUMBER: MC-PK8-C	
CHECKED BY: TP	SCALE: NTS	DESCRIPTION: LOW PROFILE PLATFORM KIT 8' FACE	
DATE: 10/18/11	MATERIAL: A36, A500	DRAWING TYPE: ASSEMBLY DRAWING	
REVISION: C	FINISH: GALV A123		
	WEIGHT: 1410.14 LBS	ANDREW® WESTCHESTER, IL. 60154 U.S.A.	





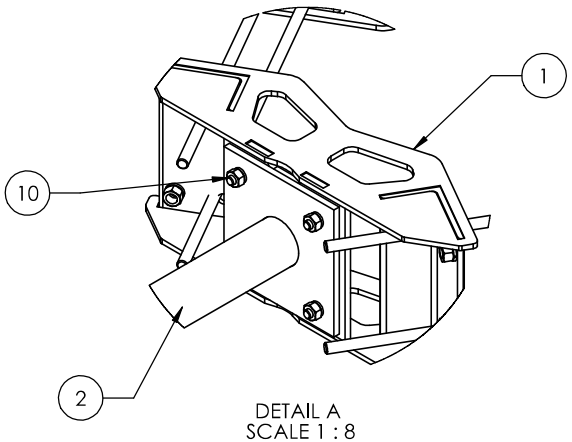


ITEM	PART NO.	DESCRIPTION	QTY.	WEIGHT
C				
1	MC-RM1550-3	12" - 50" OD RINGMOUNT	1	230.42 LBS
2	MTC300601	Low Profile Co-Location Platform Snub Nose	3	134.21 LBS
3	MT195801	Corner Weldment Snub Nose Handrail	3	27.10 LBS
4	XA2020.01	CROSS OVER ANGLE	9	2.65 LBS
5	GUB-4356	1/2" X 3-5/8" X 6" GALV U-BOLT	18	0.82 LBS
6	GUB-4355	1/2" X 3-5/8" X 5" GALV U-BOLT	12	0.71 LBS
7	GUB-4240	1/2" X 2-1/2" X 4" GALV U-BOLT	48	0.56 LBS
8	GB-04145	1/2" X 1-1/2" GALV BOLT KIT	12	0.13 LBS
9	GWF-04	1/2" GALV FLAT WASHER	24	0.03 LBS
10	GB-0520A	5/8" X 2" GALV BOLT KIT (A325)	12	0.27 LBS
11	MT54796	3.50" OD X 96" GALV PIPE	3	60.28 LBS
12	MT-651-96	Ø2.375" OD X 96" PIPE	3	29.07 LBS
13	MT-651	2.375" OD x 72" PIPE	9	21.80 LBS
14	MT19617	MT196 Pipe Mount Plate	6	2.49 LBS
15	MT21701	PIPE MOUNT PLATE	9	7.93 LBS

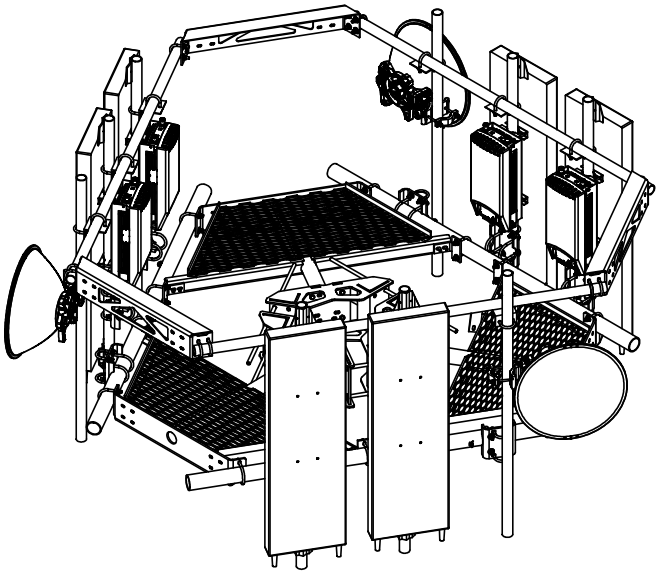
NOTES:
1. ALL METRIC DIMENSIONS ARE IN BRACKETS.
2. WILL FIT MONOPOLES 15"–38" OD.

ALL DIMENSIONS ARE IN INCHES U.O.S.
TOLERANCES UNLESS OTHERWISE SPECIFIED:
.X = ± .12 ANGLES ±2°
.XX = ± .06 FRACTIONS ±1/32
.XXX= ± .03
REMOVE BURRS AND BREAK EDGES .005
DO NOT SCALE THIS PRINT

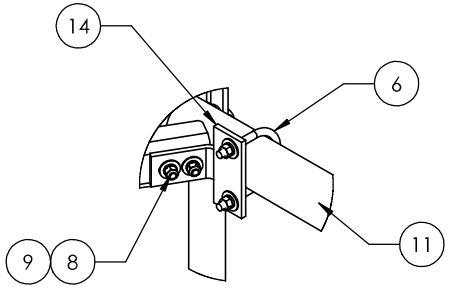
DRAWN BY: MSM	SHEET: 2 of 3	PART NUMBER: MC-PK8-C	
CHECKED BY: TP	SCALE: NTS	DESCRIPTION: 25" OD Snub Nose MT-196	
DATE: 10/18/11	MATERIAL: A36, A53	DRAWING TYPE: ASSEMBLY DRAWING	
REVISION: C	FINISH: GALV A123	WEIGHT: 1361.27 LBS	ANDREW® WESTCHESTER, IL. 60154 U.S.A.



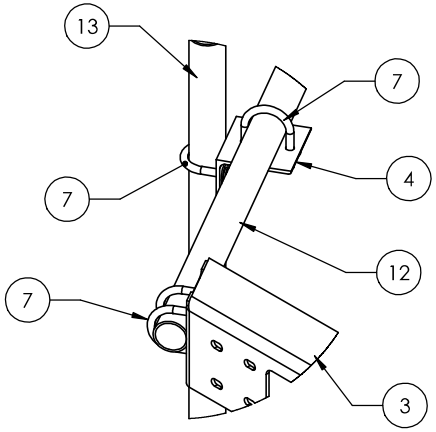
DETAIL A
SCALE 1 : 8



WITH ANTENNAS



DETAIL B
SCALE 1 : 8



DETAIL C
SCALE 1 : 8

NOTES:
1. ALL METRIC DIMENSIONS ARE IN BRACKETS.

ALL DIMENSIONS ARE IN INCHES U.O.S.
TOLERANCES UNLESS OTHERWISE SPECIFIED:
.X = ± .12 ANGLES ±2°
.XX = ± .06 FRACTIONS ±1/32
.XXX= ± .03
REMOVE BURRS AND BREAK EDGES .005
DO NOT SCALE THIS PRINT

DRAWN BY: MSM	SHEET: 3 of 3	PART NUMBER: MC-PK8-C
CHECKED BY: TP	SCALE: NTS	DESCRIPTION: 25" OD Snub Nose MT-196
DATE: 10/18/11	MATERIAL: A36, A53	DRAWING TYPE: ASSEMBLY DRAWING
REVISION: C	FINISH: GALV A123	
	WEIGHT: 1361.27 LBS	

ANDREW®
WESTCHESTER, IL. 60154
U.S.A.

Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

Dish Wireless Existing Facility

Site ID: BOBDL00098A

876385
Reilly Mtn. Rd.
Coventry, Connecticut 06238

October 5, 2021

EBI Project Number: 6221005699

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**17.26%**

October 5, 2021

Dish Wireless

Emissions Analysis for Site: BOBDL00098A - 876385

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **Reilly Mtn. Rd.** in **Coventry, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu W/cm^2$). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at Reilly Mtn. Rd. in Coventry, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 4 n71 channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 4 n70 channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

3) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

4) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

5) The antennas used in this modeling are the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz channel(s) in Sector A, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz channel(s) in Sector B, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

6) The antenna mounting height centerline of the proposed antennas is 106 feet above ground level (AGL).

7) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21
Frequency Bands:	600 MHz / 1900 MHz	Frequency Bands:	600 MHz / 1900 MHz	Frequency Bands:	600 MHz / 1900 MHz
Gain:	17.45 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd
Height (AGL):	106 feet	Height (AGL):	106 feet	Height (AGL):	106 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	280 Watts	Total TX Power (W):	280 Watts	Total TX Power (W):	280 Watts
ERP (W):	3,065.51	ERP (W):	3,065.51	ERP (W):	3,065.51
Antenna A1 MPE %:	**1.58%**	Antenna B1 MPE %:	**1.58%**	Antenna C1 MPE %:	**1.58%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	1.58%
AT&T	5.9%
Metro PCS	0.67%
EVERSOURCE	0.42%
Sprint	2.77%
T-Mobile	2.92%
Verizon	3%
Site Total MPE % :	17.26%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	1.58%
Dish Wireless Sector B Total:	1.58%
Dish Wireless Sector C Total:	1.58%
Site Total MPE % :	17.26%

Dish Wireless Maximum MPE Power Values (Sector A)

Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	106.0	3.22	600 MHz n71	400	0.80%
Dish Wireless 1900 MHz n70	4	542.70	106.0	7.80	1900 MHz n70	1000	0.78%
						Total:	**1.58%**

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

Summary

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

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

Dish Wireless Sector	Power Density Value (%)
Sector A:	1.58%
Sector B:	1.58%
Sector C:	1.58%
Dish Wireless Maximum MPE % (Sector A):	1.58%
Site Total:	17.26%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **17.26%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Exhibit G

Letter of Authorization

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:
REILLY MTN. RD., COVENTRY, CT 6238

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: 876385/N. COVENTRY / WALLBEOFF
Customer Site ID: BOBDL00098A/CT-CCI-T-876385
Site Address: Reilly Mtn. Rd., COVENTRY, CT 6238

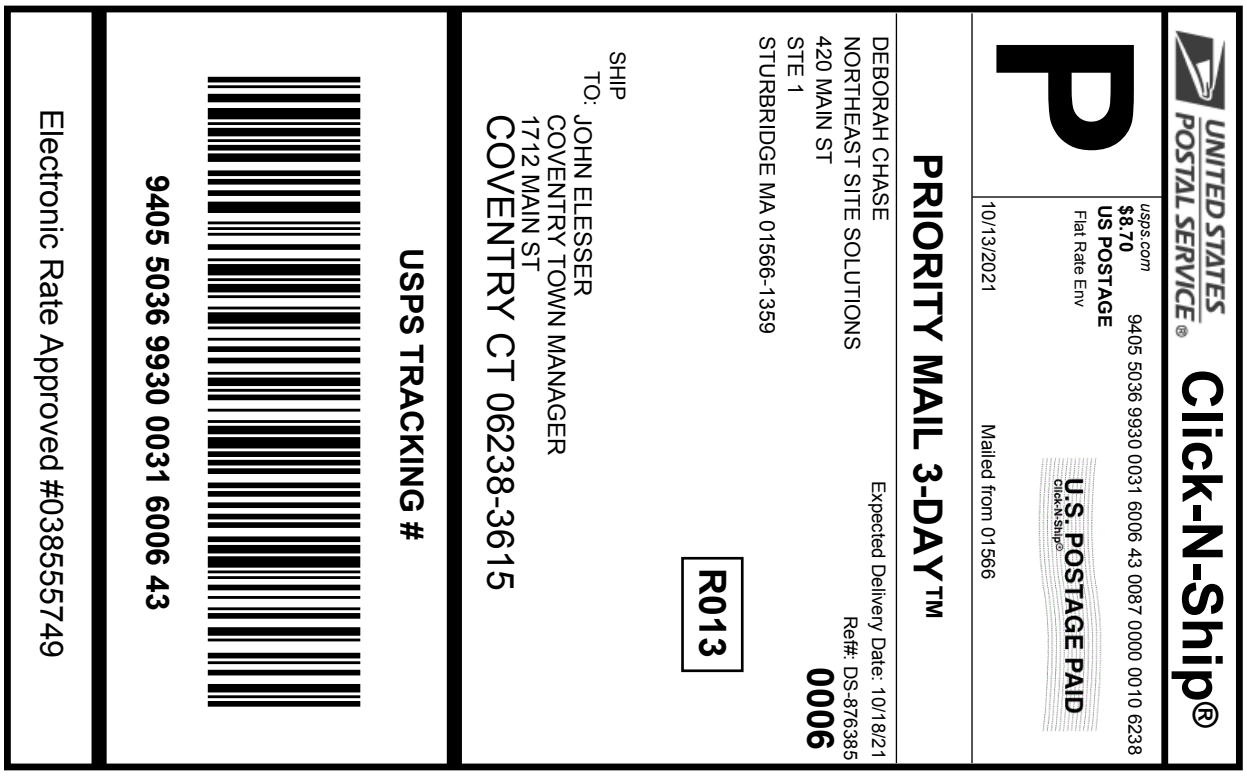
Crown Castle

By: _____ Date: 10/11/2021

Richard Zajac
Site Acquisition Specialist

Exhibit H

Recipient Mailings



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0031 6006 43

Trans. #:	545870320
Print Date:	10/13/2021
Ship Date:	10/13/2021
Expected Delivery Date:	10/18/2021

Priority Mail® Postage:	**$8.70**
Total:	**$8.70**

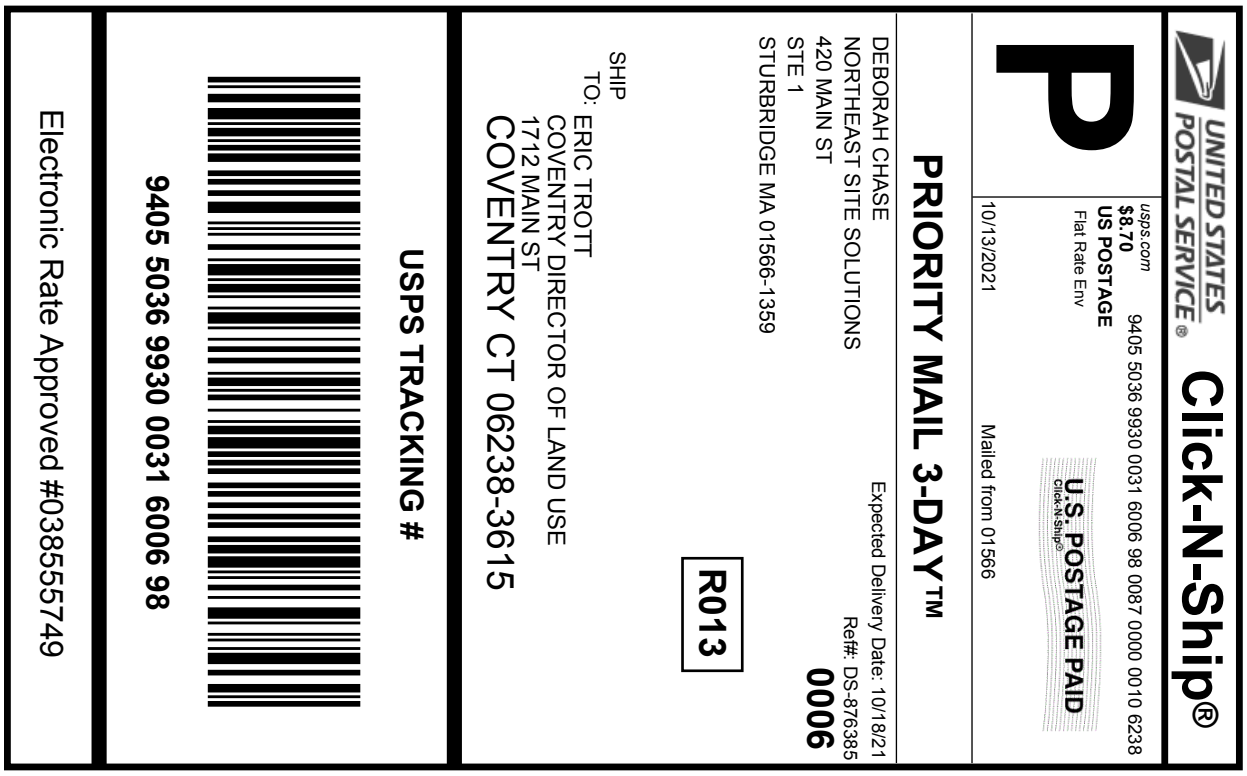
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-876385

To: JOHN ELESSER
COVENTRY TOWN MANAGER
1712 MAIN ST
COVENTRY CT 06238-3615

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0031 6006 98

Trans. #:	545870320
Print Date:	10/13/2021
Ship Date:	10/13/2021
Expected Delivery Date:	10/18/2021

Priority Mail® Postage:	**$8.70**
Total:	**$8.70**

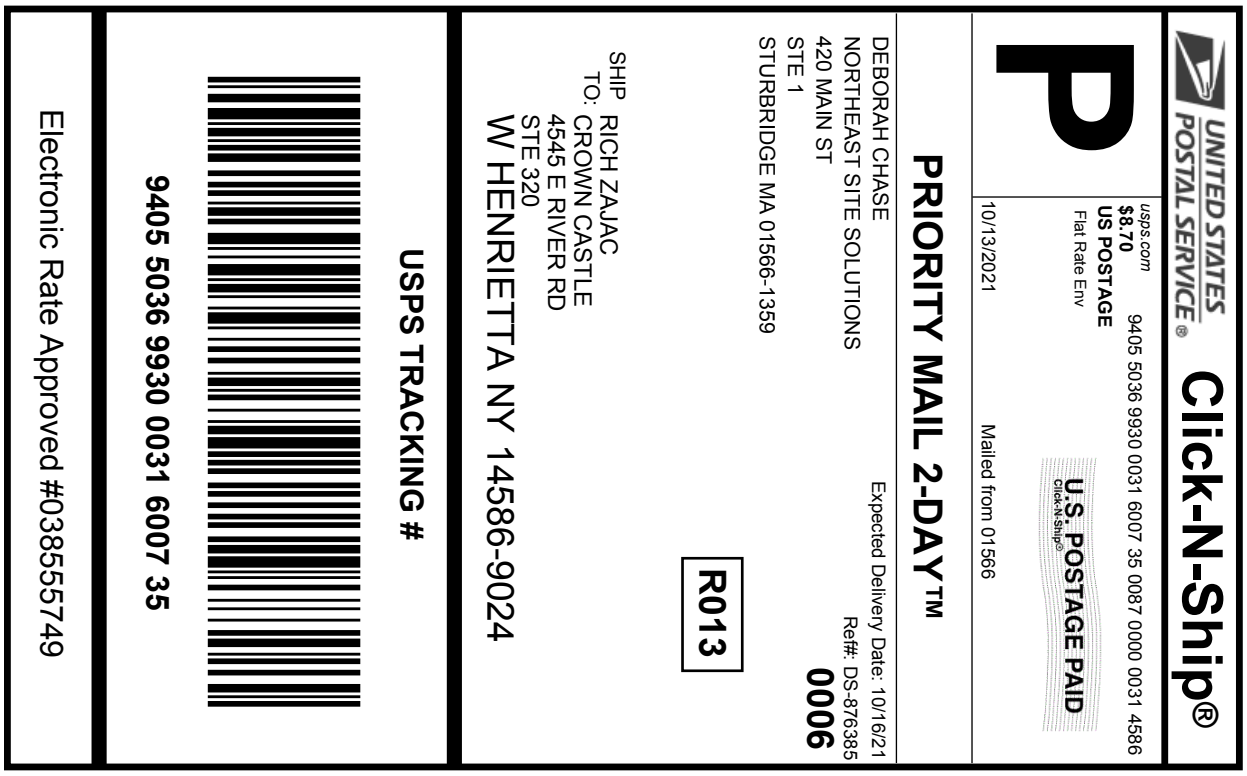
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-876385

To: ERIC TROTT
COVENTRY DIRECTOR OF LAND USE
1712 MAIN ST
COVENTRY CT 06238-3615

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0031 6007 35

Trans. #:	545870320
Print Date:	10/13/2021
Ship Date:	10/13/2021
Expected Delivery Date:	10/16/2021

Priority Mail® Postage:	**$8.70**
Total:	**$8.70**

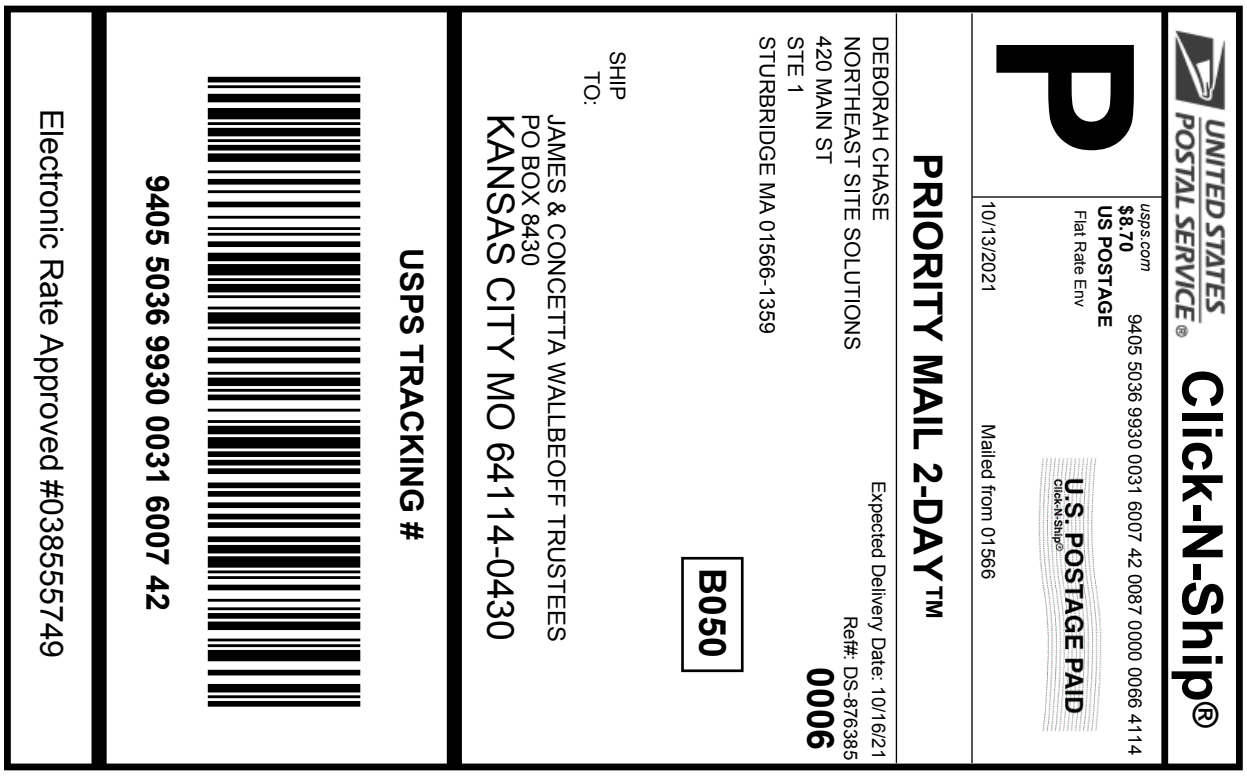
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-876385

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

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



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9405 5036 9930 0031 6007 42

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

Ref#: DS-876385

To: JAMES & CONCETTA WALLBEOFF TRUSTEES
PO BOX 8430
KANSAS CITY MO 64114-0430

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

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876385

UNITED STATES POSTAL SERVICE.

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

10/19/2021 11:54 AM

Product	Qty	Unit Price	Price
Prepaid Mail Coventry, CT 06238 Weight: 0 lb 11.60 oz Acceptance Date: Tue 10/19/2021 Tracking #: 9405 5036 9930 0031 6006 98	1		$0.00
Prepaid Mail Coventry, CT 06238 Weight: 0 lb 11.60 oz Acceptance Date: Tue 10/19/2021 Tracking #: 9405 5036 9930 0031 6006 43	1		$0.00
Prepaid Mail West Henrietta, NY 14586 Weight: 0 lb 2.00 oz Acceptance Date: Tue 10/19/2021 Tracking #: 9405 5036 9930 0031 6007 35	1		$0.00
Prepaid Mail Kansas City, MO 64114 Weight: 0 lb 11.70 oz Acceptance Date: Tue 10/19/2021 Tracking #: 9405 5036 9930 0031 6007 42	1		$0.00
Grand Total:			$0.00