

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE: :
: :
A PETITION FOR A DECLARATORY : PETITION NO. _____
RULING ON THE NEED TO OBTAIN A :
SITING COUNCIL CERTIFICATE FOR THE :
PROPOSED MODIFICATION OF AN :
EXISTING WIRELESS :
TELECOMMUNICATIONS FACILITY AT :
150 NORTH MAIN STREET, BRANFORD, : MAY 11, 2022
CONNECTICUT :

PETITION FOR A DECLARATORY RULING:
INSTALLATION HAVING NO
SUBSTANTIAL ADVERSE ENVIRONMENTAL EFFECT

I. Introduction

Pursuant to Sections 16-50j-38 and 16-50j-39 of the Regulations of Connecticut State Agencies (“R.C.S.A.”), DISH Wireless, LLC (“DISH”) hereby petitions the Connecticut Siting Council (the “Council”) for a declaratory ruling (“Petition”) that no Certificate of Environmental Compatibility and Public Need (“Certificate”) is required under Section 16-50k(a) of the Connecticut General Statutes (“C.G.S.”) for the modification of an existing wireless telecommunications facility at 150 North Main Street in Branford, Connecticut (the “Existing Facility”).

II. Existing Facility

The Existing Facility is located on an approximately 2.05-acre parcel that is developed as a car dealership. The Facility consists of a 147-foot monopole and associated compound, owned by Crown Castle, and currently includes the telecommunications equipment of several wireless carriers. **Attachment 1** contains the owner’s authorization permitting DISH to file this Petition. The Facility was originally approved by the Town of Branford Planning & Zoning Commission on September 18, 1997, as documented in **Attachment 2**.

III. DISH Facility

DISH’s proposed facility is illustrated on the plans submitted as **Attachment 3**. DISH proposes the shared use of the Existing Facility to provide FCC licensed services. DISH will install three (3) panel antennas and six (6) remote radiohead units (RRH) on a new T-Frame mount installed at the centerline height of approximately 136’ AGL.

DISH has confirmed that the Existing Facility is capable of supporting the addition of DISH’s

antennas and tower mounted equipment, as documented in the tower Structural Analysis Report annexed hereto as **Attachment 4**, and once new mounts are installed as documented in the Mount Analysis Report annexed hereto as **Attachment 5**.

DISH's 5' x 7' lease area is located to the northwest of the tower and adjacent to two existing equipment shelters. In order to fully enclose its ground equipment, DISH will install extend a 9-foot section of the existing compound fence by up to 4-feet at the widest point. Within its lease area, DISH will install a 5' x 7' steel platform for its ground equipment, supported by four (4) 12" x 12" footpads at grade.

IV. The Proposed Modification Will Not Have A Substantial Adverse Environmental Effect

1. Physical Environmental Effects

The attachment of DISH's antennas to the existing monopole, and the installation of radio and electrical equipment within the expanded compound will not involve a significant alteration to the physical and environmental characteristics of the Property. No native trees will need to be removed and no on-site or off-site wetlands or watercourses will be impacted by the proposed facility expansion.

2. Visual Effects

Given the height of the existing tower, 147' AGL, which has existing antennas at multiple levels, DISH's proposed antenna installation at a centerline height of approximately 136' AGL would have a minimal visual impact. The proposed compound expansion will impact only a portion of the existing fenced perimeter and will also have a minimal visual impact.

3. FCC Compliance

Radio frequency ("RF") emissions resulting from DISH's shared use of the Existing Facility will be well below the standards adopted by the Federal Communications Commission ("FCC"). Included in **Attachment 6** is a Radio Frequency Emissions Analysis Report prepared by EBI Consulting. This report confirms that the modified facility will operate well within the RF emission standards established by the FCC.

V. Notice to the City, Property Owner and Abutting Landowners

On May 11, 2022, a copy of this Petition was sent to James Cosgrove, First Selectman and Harry Smith, Town Planner for the Town of Branford. A notice of DISH's intent to file this Petition was also sent to the owners of land that may be considered to abut the Property. Included in **Attachment 7** is a sample abutter's letter and the list of those abutting landowners who were sent notice.

VI. Conclusion

Based on the information provided above, the Petitioners respectfully requests that the Council issue a determination in the form of a declaratory ruling that the installation of a temporary tower at the Property will not have a substantial adverse environmental effect and does not require the issuance of a Certificate of Environmental Compatibility and Public Need pursuant to § 16-50k of the General Statutes.

Respectfully submitted,

Denise Sabo
Northeast Site Solutions
Agent for DISH Wireless
(860) 209-4690
denise@northeastsitesolutions.com

Attachments

Cc:

James Cosgrove, First Selectman
Branford Town Hall
1019 Main Street
Branford, CT 06405

Harry Smith, Town Planner
Branford Town Hall
1019 Main Street
Branford, CT 06405

Premiere Realty Holdings LLC (property owner)
150 North Main Street
Branford, CT 06405

Crown Castle – Tower Owner

ATTACHMENT 1



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:
150 NORTH MAIN STREET, BRANFORD, CT 06405

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: 876321/BRANFORD BANM TOWER
Customer Site ID: BOHVN00025A/CT-CCI-T-876321
Site Address: 150 North Main Street, BRANFORD, CT 06405

Crown Castle

By:  _____ Date: 9/7/2021
Richard Zajac
Site Acquisition Specialist

ATTACHMENT 2

PLANNING AND ZONING COMMISSION
TOWN OF BRANFORD TOWN HALL DRIVE P.O. BOX 150
Branford, Connecticut 06405 488-1255

NOTICE OF DECISION

September 22, 1997

*recorded
9/29/97*

Sprint PCS
% Attorney John Knuff
Harris Beach & Wilcox, L.L.P
147 North Broad Street
Milford, Connecticut 06460

SUBJECT: Special Exception

LOCATION: 150 North Main Street

APPLICATION # 97-6.5

OWNER OF RECORD: Irene Maculaitis

Dear Sir:

At a meeting of the Branford Planning & Zoning Commission held on Thursday, September 18, 1997, the Commission voted to:

Approve your above subject application with the conditions noted below.

Very truly yours,

Shirley Rasmussen
Shirley Rasmussen
Town Planner

NOTE: This Special Exception shall become effective only after it is filed on the Land Records in the office of the Town Clerk.

1. Prior to issuance of a building permit, revise plan to show the following:
 - a. Revise width of eastern-most curb cut to 30 feet (Sect. 25.10a) by creating new landscaped island extending 15 feet back from streetline (Sect. 25.8.2) with new sidewalk (Sect. 31.5.3(b)).
 - b. Relocate proposed utility pole so that it is not in the access drive.
2. Provide for co-location of communications equipment to be operated by the Town of Branford Sewage Treatment Plant.
3. Change plantings around tower yard to 6' to 7' dark American Arborvitae and rearrange to screen parking area from street.

(OVER)

4. All users of the telecommunications facility must demonstrate compliance with current FCC regulations for electromagnetic frequency emissions and any future changes in these standards.
5. The owner of the telecommunication facility shall provide for and encourage co-location of other antennae on the facility.

NOTE: Special Exception shall become null and void in the event the applicant fails to obtain a building permit within one (1) year of date of approval.
(Per Section 31.7 of the Branford Zoning Regulations)

CC: Scott M. Thomae
Sprint PCS
Irene Maculaitis

RECEIVED FOR RECORD Sept. 25 1997
at 2:03 P.M., AND RECORDED BY

GEORGETTE A. LASKE
BRANFORD TOWN CLERK

SITE PLAN AND SPECIAL EXCEPTION

APPLICATION FOR CERTIFICATE OF ZONING COMPLIANCE
TOWN OF BRANFORD

ADDRESS OF SUBJECT PROPERTY 150 N. MAIN Street Branford, CT 06405

ASSESSOR'S MAP D-6 BLOCK 13 LOT 13 ZONE: IG-1

APPLICANT'S NAME Sprint PCS

TELEPHONE (203) 237-1737 ext.17

ADDRESS 300 RESEARCH Parkway 3rd fl. Meriden, CT 06450

Briefly describe the building, structure or use for which Zoning Compliance Application is made:

The erection of a monopole telecommunications facility and
placement of the associated equipment cabinets on property located
at 150 N. MAIN Street within the IG-1/ Industrial District.

PLEASE SUBMIT THE FOLLOWING WITH YOUR COMPLETED APPLICATION:

1. \$125.00 (which includes \$100.00 application fee, \$15.00 Zoning Compliance fee, and \$10.00 State surcharge)
2. Application materials described in Sect. 31.4 of the Branford Zoning Regulations including:

(1) Statement of Use	(6) Building Plans
(2) Site Plan Map	(7) Traffic Report
(3) Erosion Control Plan	(8) Drainage Report
(4) Tabulation of Standards	(9) Flood Requirements
(5) Staging Plan	(10) Agency Reports
3. Sufficient information to determine compliance with special standards listed on attached sheet.
4. Copy of any variance or Wetlands Commission approval pertinent to this application.
5. Additional information which may be necessary to determine compliance, as specified by the Branford Planning & Zoning Commission.

The undersigned states that information submitted with this application is correct and acknowledges that any approval based on erroneous or incomplete information shall be null and void.

SIGNATURE OF APPLICANT *Scott M. Thompson* DATE 6/10/97

SIGNATURE OF OWNER *J. M. [unclear] as agent* DATE 6/11/97

RECEIVED
JUN 11 1997
BRANFORD PLANNING & ZONING COMMISSION

ATTACHMENT 3



DISH Wireless L.L.C. SITE ID:

BOHVN00025A

DISH Wireless L.L.C. SITE ADDRESS:

**150 NORTH MAIN STREET
BRANFORD, CT 06405**

CONNECTICUT CODE COMPLIANCE

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

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

SHEET INDEX

SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
A-1	OVERALL AND ENLARGED SITE PLAN
A-1.1	ABUTTERS EXHIBIT
A-1.2	WETLANDS MAP
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
A-7	COMPOUND 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

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 TOWER PLATFORM MOUNT
 - INSTALL PROPOSED JUMPERS
 - INSTALL (6) PROPOSED RRU's (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 FIBER NID (IF REQUIRED)
 - FENCE EXPANSION 3'-9" X 9'-0"

SITE PHOTO



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



CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

GENERAL NOTES

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

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

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

SITE INFORMATION

PROPERTY OWNER: PREMIER REALTY HOLDINGS LLC
ADDRESS: 150 NORTH MAIN ST
BRANFORD, CT 06405

TOWER TYPE: MONOPOLE

TOWER CO SITE ID: 876321

TOWER APP NUMBER: 553366

COUNTY: NEW HAVEN

LATITUDE (NAD 83): 41° 17' 19.00" N
41.288611 N

LONGITUDE (NAD 83): 72° 48' 49.90" W
72.813861 W

ZONING JURISDICTION: CONNECTICUT SITING COUNCIL

ZONING DISTRICT: NE

PARCEL NUMBER: D06/E06/001/001.1

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: V-B

POWER COMPANY: CONNECTICUT LIGHT & POWER CO

TELEPHONE COMPANY: AT&T

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: B+T GROUP
1717 S. BOULDER AVE, SUITE 300
TULSA, OK 74119
(918) 587-4630

SITE ACQUISITION: SARAH PARSONS
SARAH.PARSONS@CROWNCastle.COM

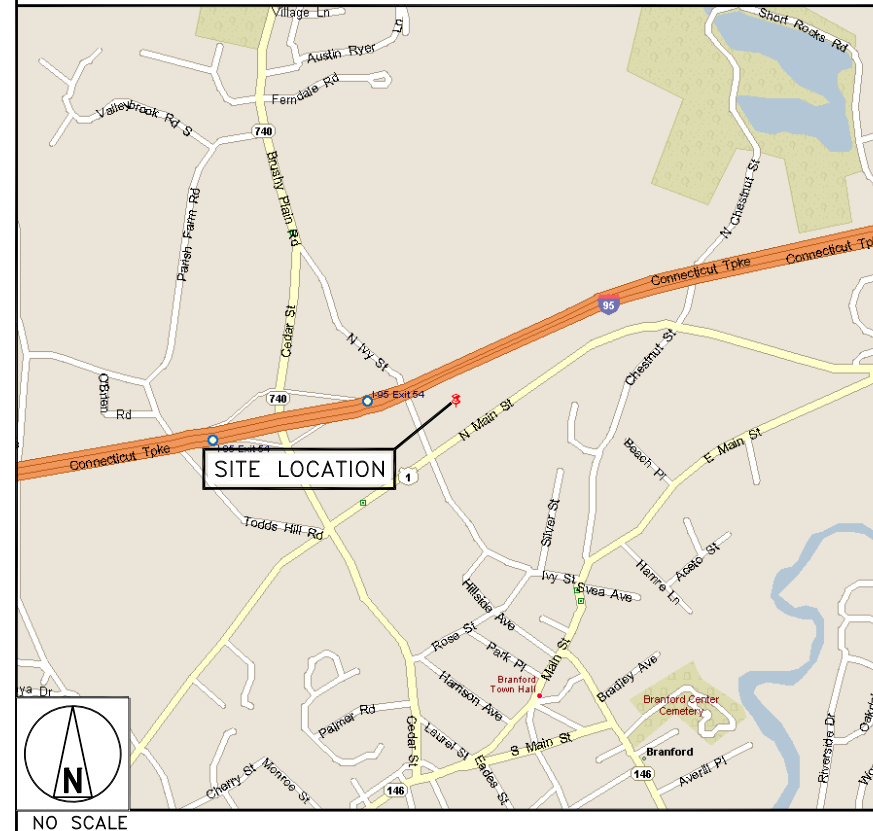
CONSTRUCTION MGR: JAVIER SOTO
JAVIER.SOTO@DISH.COM

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

DIRECTIONS

DIRECTIONS FROM DISH Wireless L.L.C. DISTRICT OFFICE:
GET ON I-91 S FROM UNIVERSAL DR N GET ON I-91 S FROM UNIVERSAL DR N MERGE WITH I-91 S USE THE LEFT LANE TO MERGE WITH I-95 N TOWARD NEW LONDON TAKE EXIT 54 FOR CEDAR ST TOWARD BRANFORD DRIVE TO US-1 N/N MAIN ST TURN RIGHT ONTO O CEDAR ST TURN LEFT ONTO US-1 N/N MAIN ST

VICINITY MAP



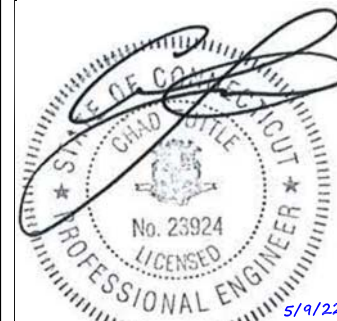
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



2000 CORPORATE DRIVE
CANONSBURG, PA 15317



1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.blgrp.com



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY: CHECKED BY: APPROVED BY:
JJR DAS KT

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
136457.005.01

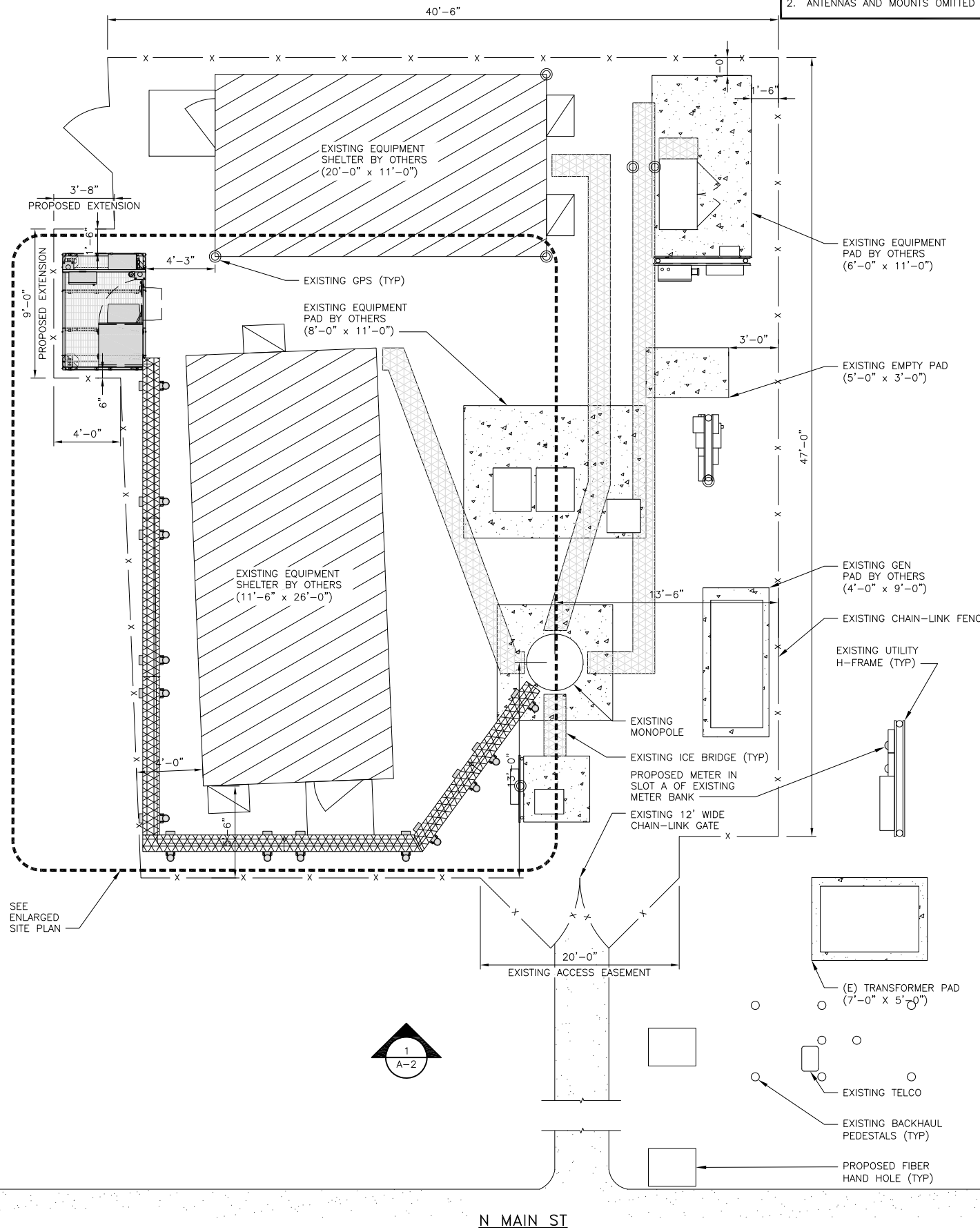
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

SHEET TITLE
TITLE SHEET

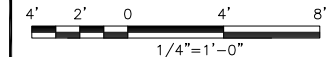
SHEET NUMBER
T-1

NOTES

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



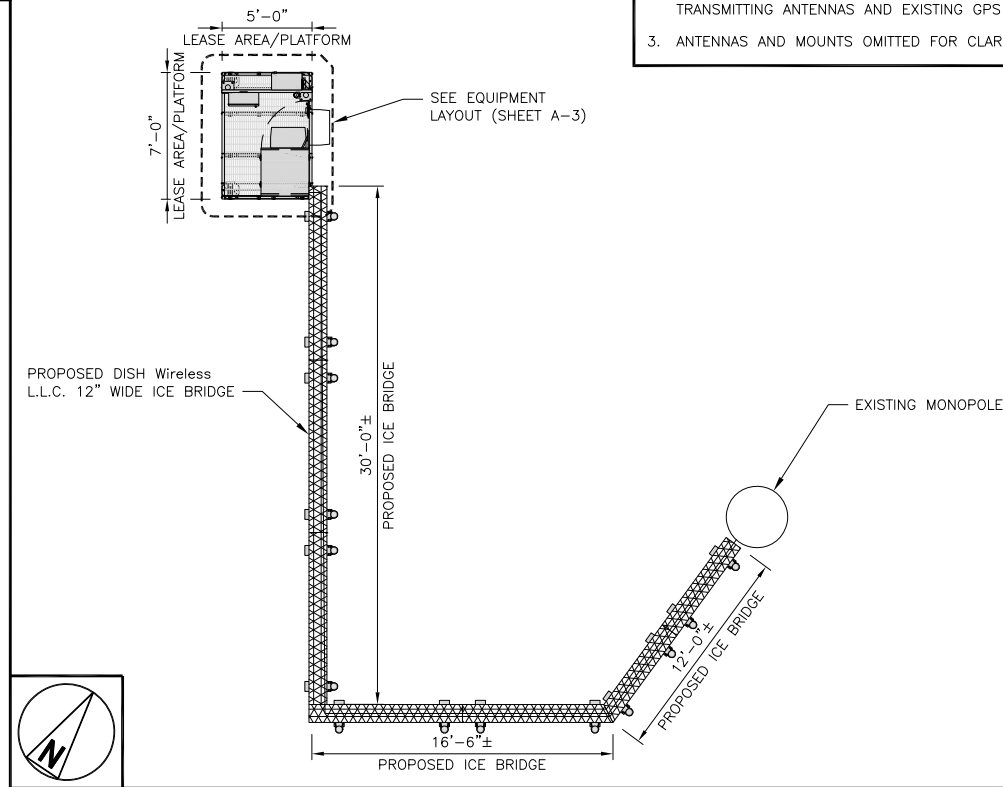
OVERALL SITE PLAN



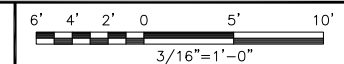
1

NOTES

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



ENLARGED SITE PLAN



2



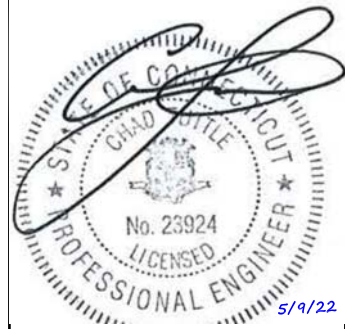
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



2000 CORPORATE DRIVE
CANONSBURG, PA 15317



1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJR	DAS	KT

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
136457.005.01

DISH Wireless L.L.C.
PROJECT INFORMATION

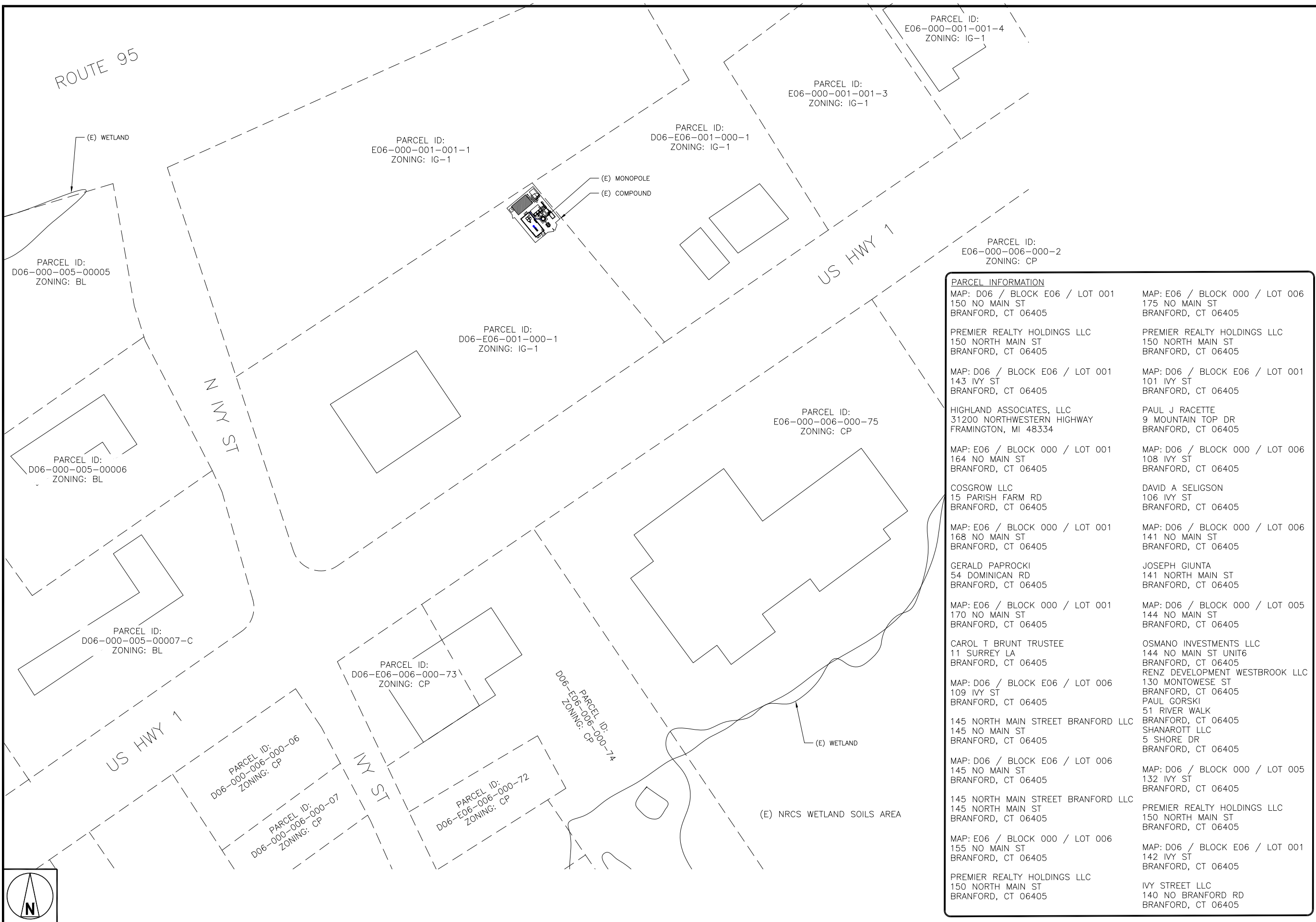
BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

SHEET TITLE
OVERALL AND ENLARGED
SITE PLAN

SHEET NUMBER

A-1

3



PARCEL INFORMATION	
MAP: D06 / BLOCK E06 / LOT 001 150 NORTH MAIN ST BRANFORD, CT 06405	MAP: E06 / BLOCK 000 / LOT 006 175 NO MAIN ST BRANFORD, CT 06405
PREMIER REALTY HOLDINGS LLC 150 NORTH MAIN ST BRANFORD, CT 06405	PREMIER REALTY HOLDINGS LLC 150 NORTH MAIN ST BRANFORD, CT 06405
MAP: D06 / BLOCK E06 / LOT 001 143 IVY ST BRANFORD, CT 06405	MAP: D06 / BLOCK E06 / LOT 001 101 IVY ST BRANFORD, CT 06405
HIGHLAND ASSOCIATES, LLC 31200 NORTHWESTERN HIGHWAY FRAMINGTON, MI 48334	PAUL J RACETTE 9 MOUNTAIN TOP DR BRANFORD, CT 06405
MAP: E06 / BLOCK 000 / LOT 001 164 NO MAIN ST BRANFORD, CT 06405	MAP: D06 / BLOCK 000 / LOT 006 108 IVY ST BRANFORD, CT 06405
COSGROW LLC 15 PARISH FARM RD BRANFORD, CT 06405	DAVID A SELIGSON 106 IVY ST BRANFORD, CT 06405
MAP: E06 / BLOCK 000 / LOT 001 168 NO MAIN ST BRANFORD, CT 06405	MAP: D06 / BLOCK 000 / LOT 006 141 NO MAIN ST BRANFORD, CT 06405
GERALD PAPROCKI 54 DOMINICAN RD BRANFORD, CT 06405	JOSEPH GIUNTA 141 NORTH MAIN ST BRANFORD, CT 06405
MAP: E06 / BLOCK 000 / LOT 001 170 NO MAIN ST BRANFORD, CT 06405	MAP: D06 / BLOCK 000 / LOT 005 144 NO MAIN ST BRANFORD, CT 06405
CAROL T BRUNT TRUSTEE 11 SURREY LA BRANFORD, CT 06405	OSMANO INVESTMENTS LLC 144 NO MAIN ST UNIT6 BRANFORD, CT 06405
MAP: D06 / BLOCK E06 / LOT 006 109 IVY ST BRANFORD, CT 06405	RENZ DEVELOPMENT WESTBROOK LLC 130 MONTOWESE ST BRANFORD, CT 06405
145 NORTH MAIN STREET BRANFORD LLC 145 NO MAIN ST BRANFORD, CT 06405	PAUL GORSKI 51 RIVER WALK BRANFORD, CT 06405
MAP: D06 / BLOCK E06 / LOT 006 145 NO MAIN ST BRANFORD, CT 06405	SHANAROTT LLC 5 SHORE DR BRANFORD, CT 06405
145 NORTH MAIN STREET BRANFORD LLC 145 NORTH MAIN ST BRANFORD, CT 06405	MAP: D06 / BLOCK 000 / LOT 005 132 IVY ST BRANFORD, CT 06405
MAP: E06 / BLOCK 000 / LOT 006 155 NO MAIN ST BRANFORD, CT 06405	PREMIER REALTY HOLDINGS LLC 150 NORTH MAIN ST BRANFORD, CT 06405
PREMIER REALTY HOLDINGS LLC 150 NORTH MAIN ST BRANFORD, CT 06405	MAP: D06 / BLOCK E06 / LOT 001 142 IVY ST BRANFORD, CT 06405
	IVY STREET LLC 140 NO BRANFORD RD BRANFORD, CT 06405



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJR	DAS	KT

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

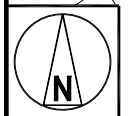
SUBMITTALS		
REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
136457.005.01

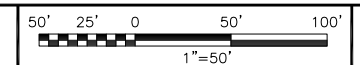
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

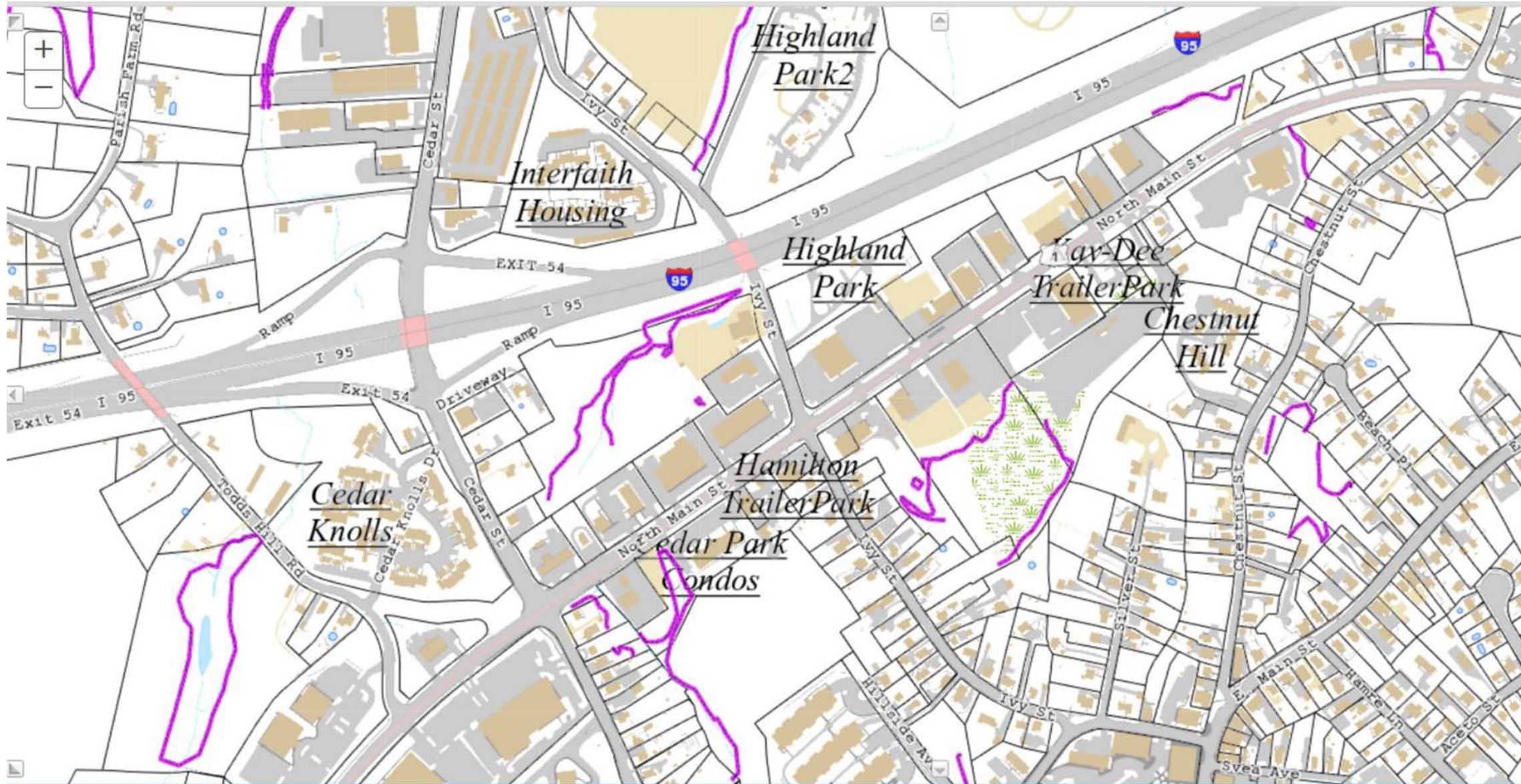
SHEET TITLE
ABUTTERS EXHIBIT
SITE PLAN

SHEET NUMBER
A-1.1



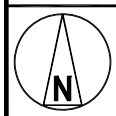
ABUTTERS EXHIBIT





- Zoning Districts
- Fire Department
- Open Space
- Town Facilities
- Inland Wetlands
- Transportation Info
- 2016 Contour Lines
- Branford Trails
- 2012 Contour Lines
- 2012 Spot Elevations
- Voting Districts
- Parks & Beaches
- School Districts
- Shellfish Beaches
- Sewer Service Area
- Buoys & Moorings
- Utility Poles
- Tidal Marsh Soils
- Trash Collection
- Historic Properties
- NRCS Wetland Soils
- Current FEMA Mapping

MapXpress v1.2 Scale: 1 in = 400 ft CT State Plane NAD 1983 - X,Y 98262



dish
wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

CROWN CASTLE

2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJR	DAS	KT

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
136457.005.01

DISH Wireless L.L.C.
PROJECT INFORMATION

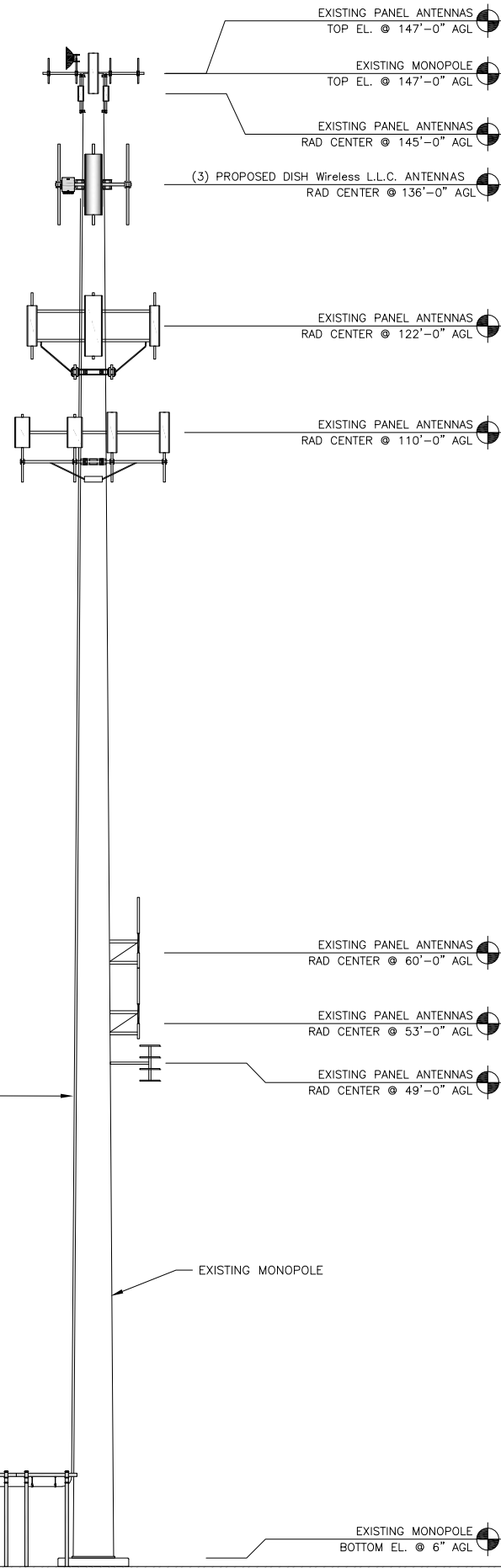
BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

SHEET TITLE
ABUTTERS EXHIBIT
SITE PLAN

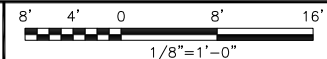
SHEET NUMBER
A-1.1

NOTES

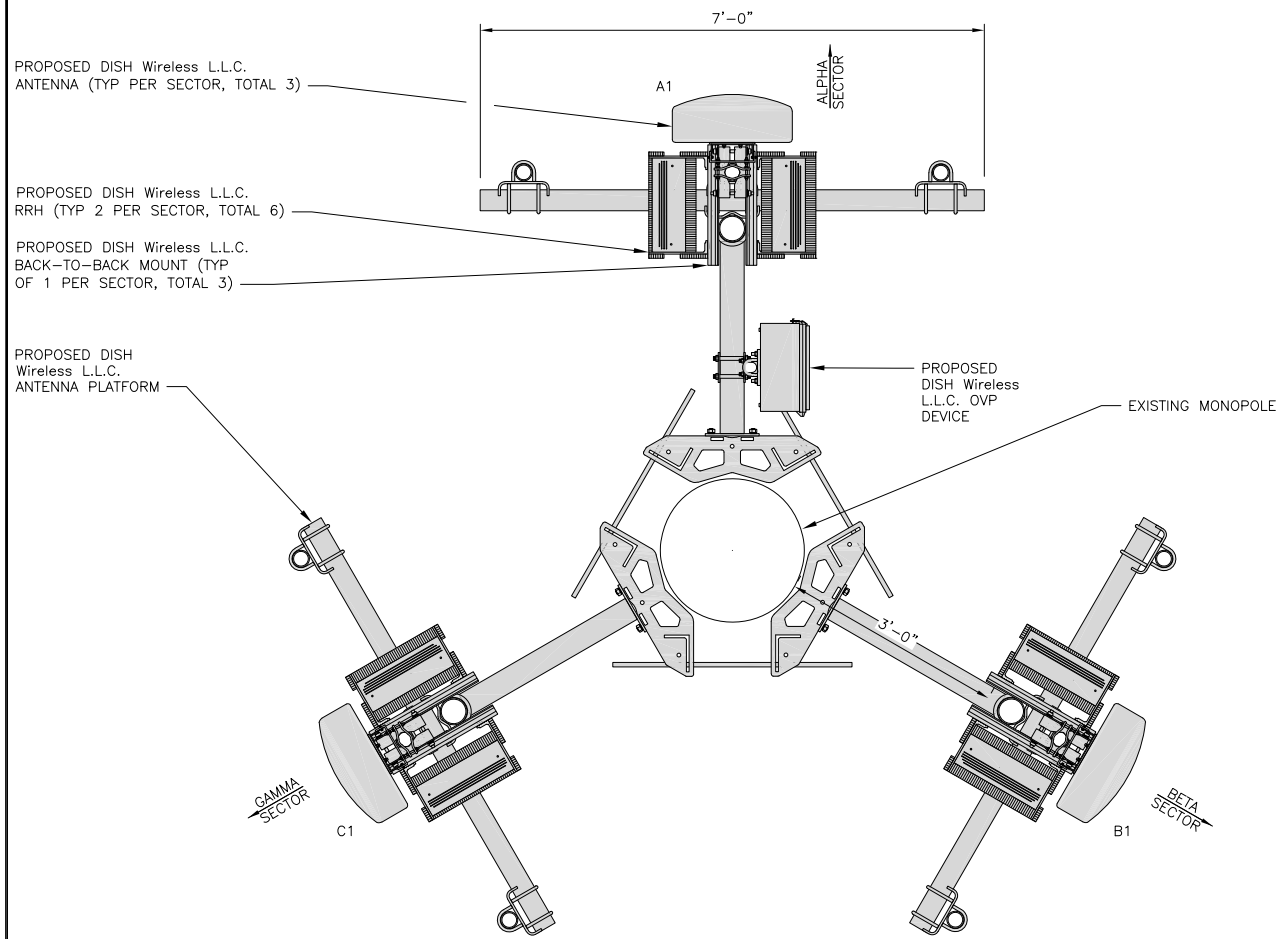
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



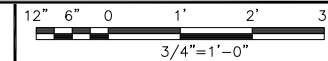
PROPOSED SOUTHEAST ELEVATION



1



ANTENNA LAYOUT



2

SECTOR	POSITION	ANTENNA					RAD CENTER	FEED LINE TYPE AND LENGTH
		EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH		
ALPHA	A1	PROPOSED	JMA WIRELESS/MX08FR0665-21	5G	72.0" x 20.0"	0'	(1) HIGH-CAPACITY HYBRID CABLE (220' LONG)	
BETA	B1	PROPOSED	JMA WIRELESS/MX08FR0665-21	5G	72.0" x 20.0"	120'		
GAMMA	C1	PROPOSED	JMA WIRELESS/MX08FR0665-21	5G	72.0" x 20.0"	240'		

SECTOR	POSITION	RRH		NOTES
		MANUFACTURER - MODEL NUMBER	TECHNOLOGY	
ALPHA	A1	FUJITSU - TA08025-B604	5G	1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS. 2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.
	A1	FUJITSU - TA08025-B605	5G	
BETA	B1	FUJITSU - TA08025-B604	5G	
	B1	FUJITSU - TA08025-B605	5G	
GAMMA	C1	FUJITSU - TA08025-B604	5G	
	C1	FUJITSU - TA08025-B605	5G	

ANTENNA SCHEDULE

NO SCALE

3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



2000 CORPORATE DRIVE
CANONSBURG, PA 15317



1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.blgrp.com



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY: CHECKED BY: APPROVED BY:
JJR DAS KT

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
136457.005.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



2000 CORPORATE DRIVE
CANONSBURG, PA 15317



1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY: CHECKED BY: APPROVED BY:
JJR DAS KT

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
136457.005.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

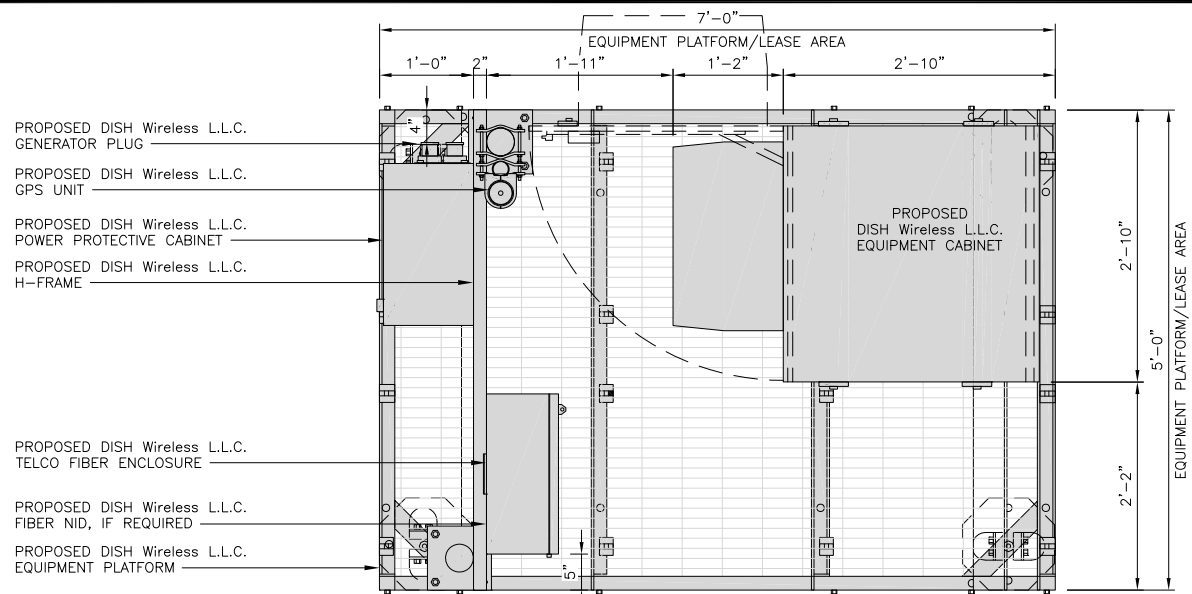
SHEET TITLE
EQUIPMENT PLATFORM AND
H-FRAME DETAILS

SHEET NUMBER

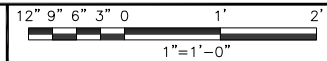
A-3

NOTES

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



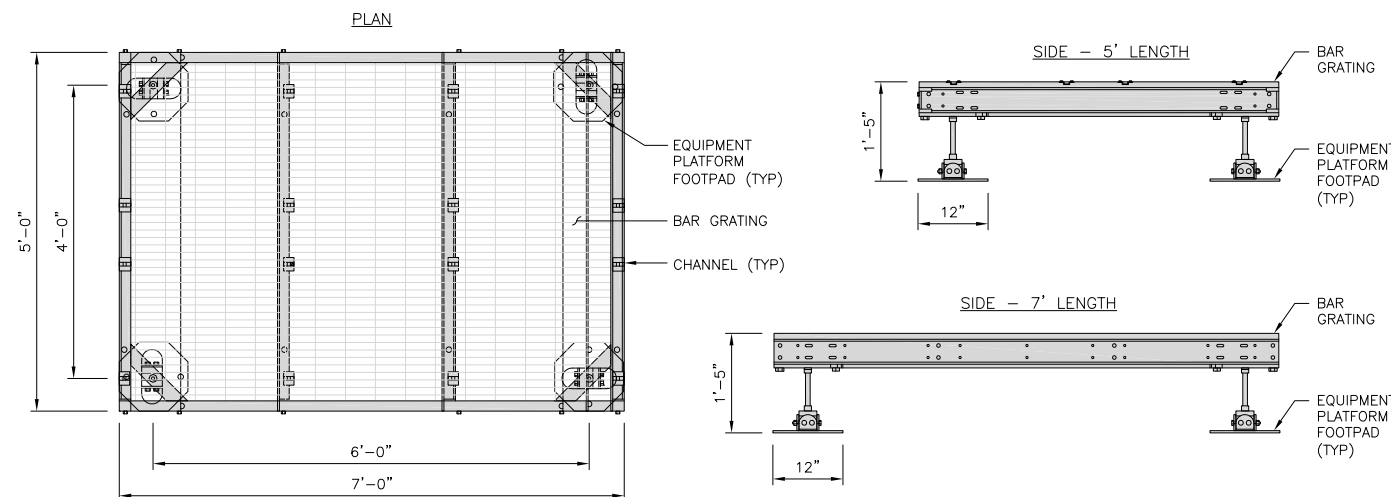
PLATFORM EQUIPMENT PLAN



1

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

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



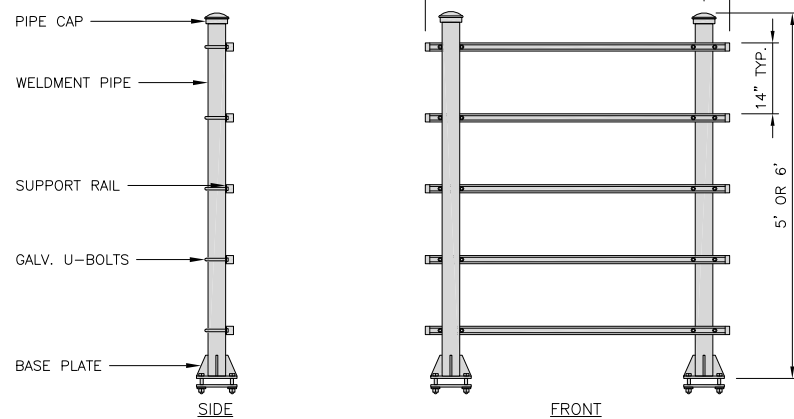
PLATFORM DETAIL

NO SCALE

2

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

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



H-FRAME DETAIL

NO SCALE

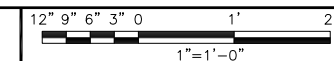
3

NOT USED

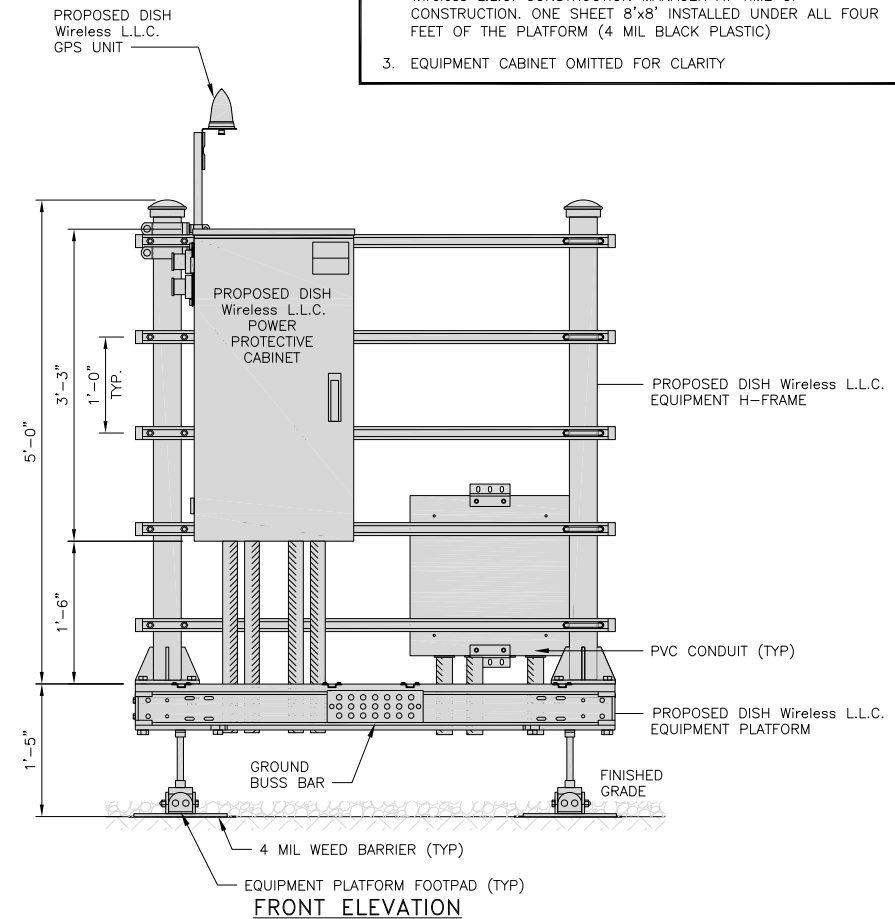
NO SCALE

4

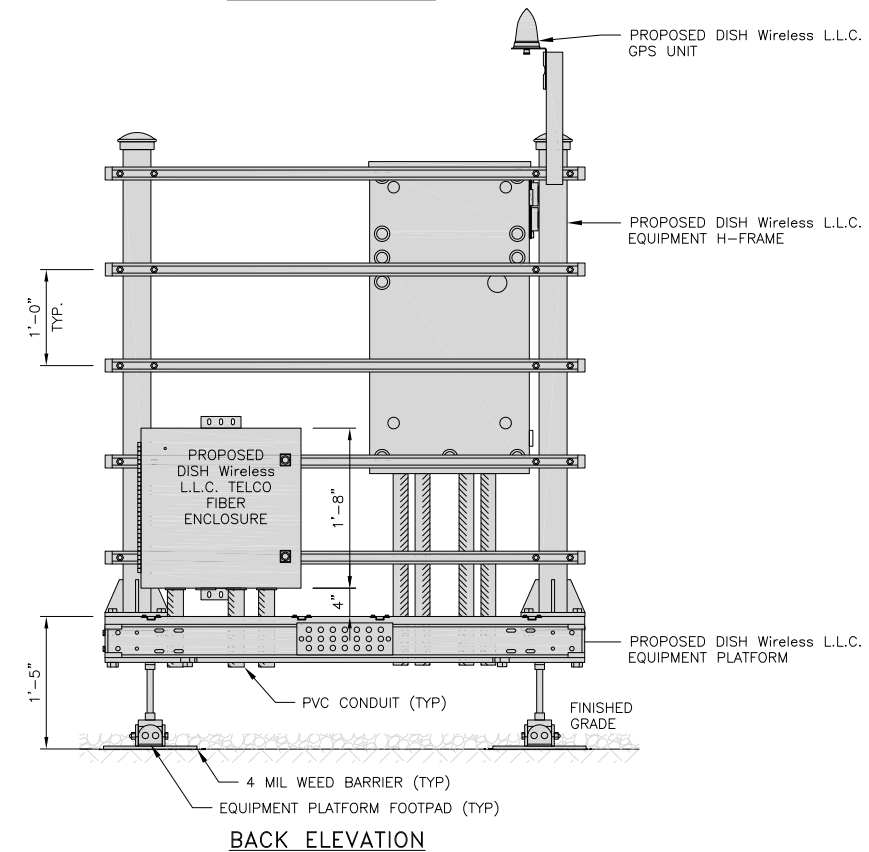
H-FRAME EQUIPMENT ELEVATION



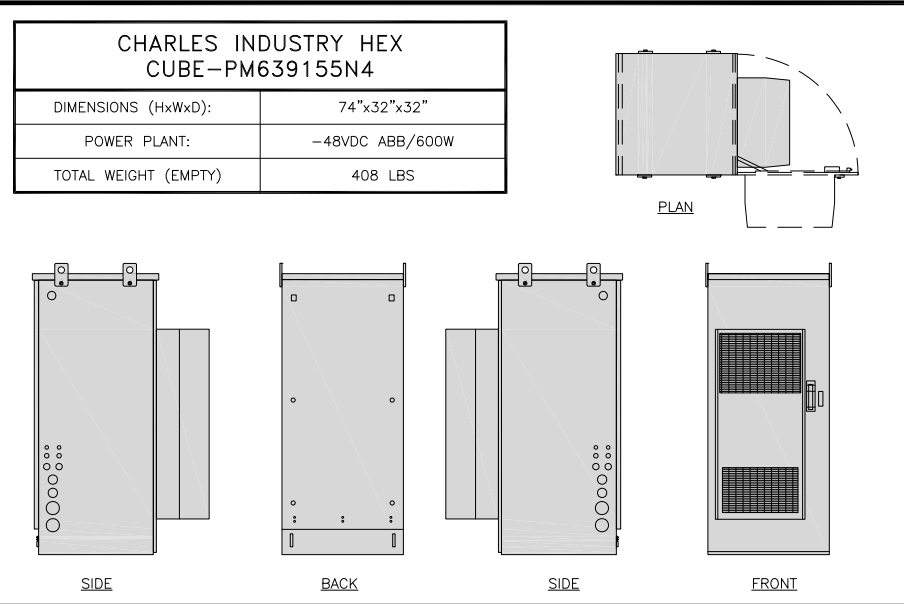
5



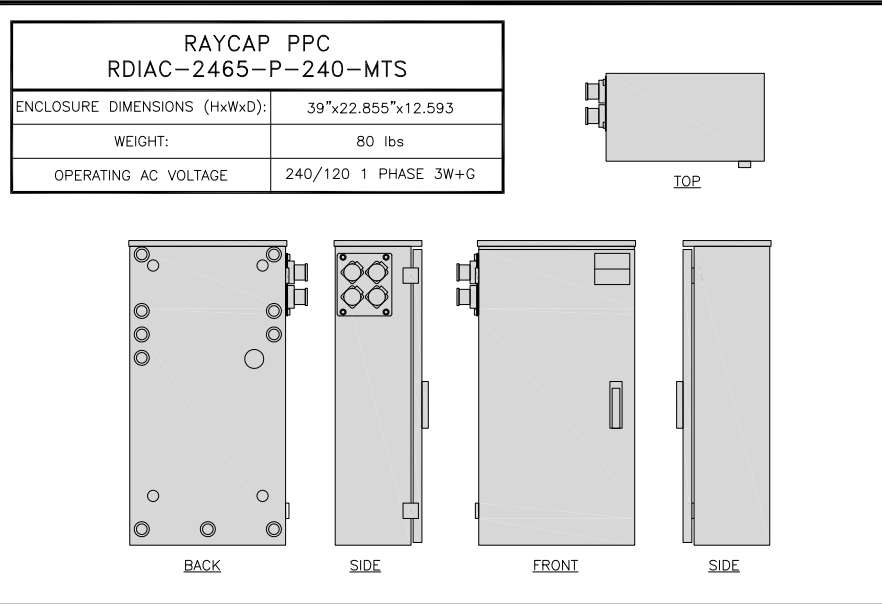
FRONT ELEVATION



BACK ELEVATION



CABINET DETAIL NO SCALE **1**

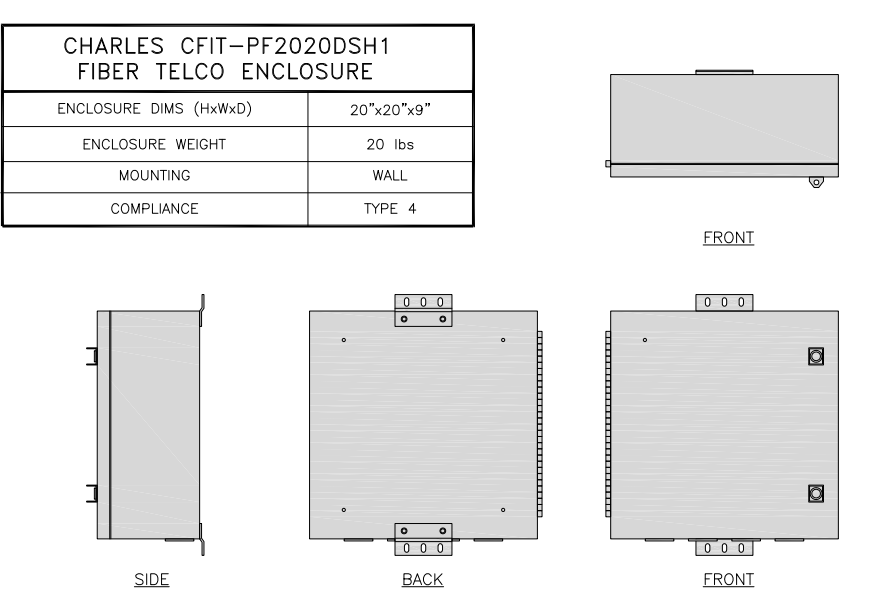


POWER PROTECTION CABINET (PPC) DETAIL NO SCALE **2**

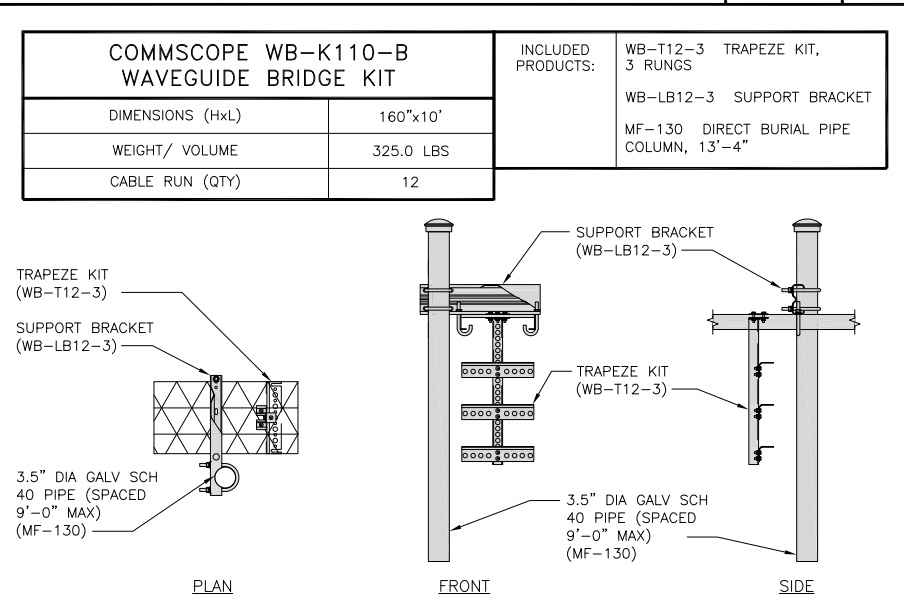
<u>NOT USED</u>	NO SCALE 3
-----------------	-------------------

<u>NOT USED</u>	NO SCALE 4
-----------------	-------------------

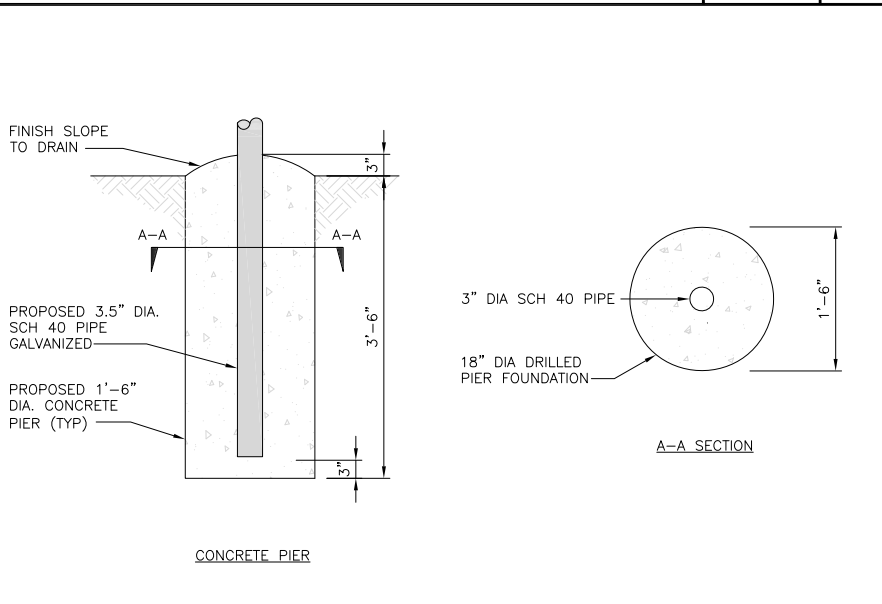
<u>NOT USED</u>	NO SCALE 5
-----------------	-------------------



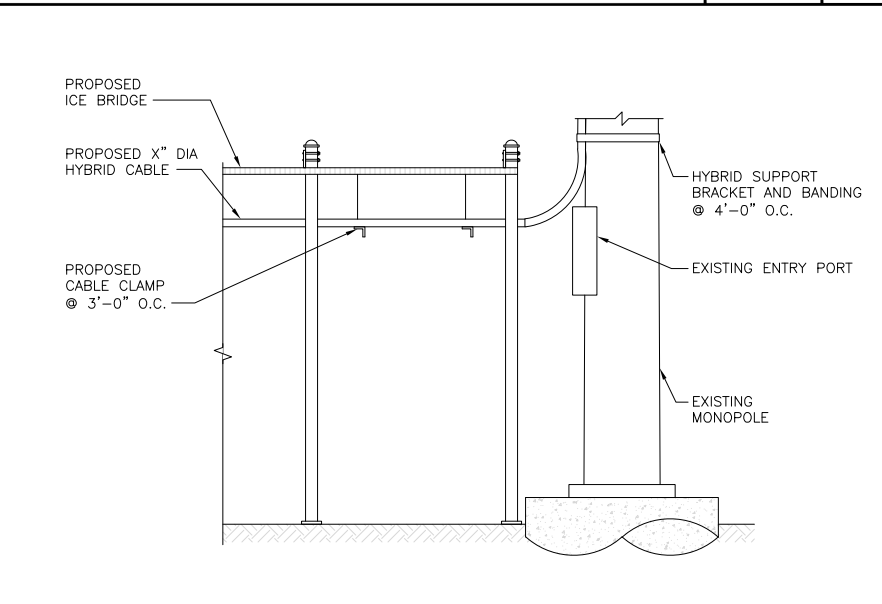
FIBER TELCO ENCLOSURE DETAIL NO SCALE **6**



ICE BRIDGE DETAIL NO SCALE **7**



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL NO SCALE **8**



HYBRID CABLE RUN NO SCALE **9**

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

2000 CORPORATE DRIVE
CANONSBURG, PA 15317

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.blgrp.com

5/9/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJR	DAS	KT

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
136457.005.01

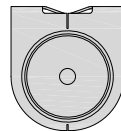
DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

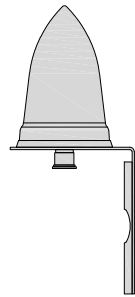
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

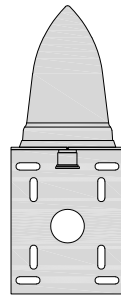
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



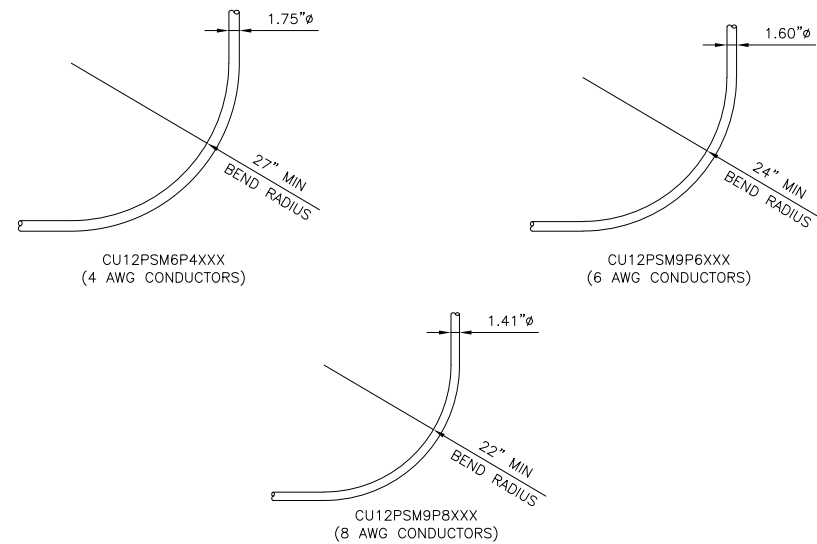
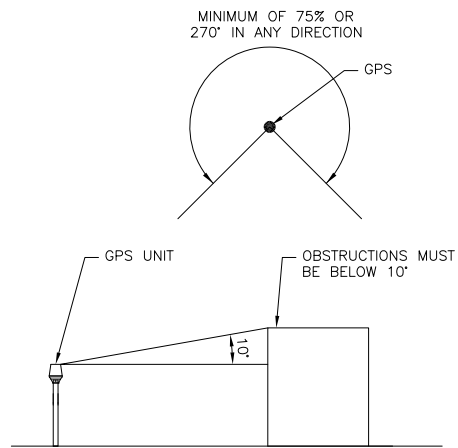
TOP



BACK



SIDE



GPS DETAIL

NO SCALE

1

GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

2

CABLES UNLIMITED HYBRID CABLE
MINIMUM BEND RADIUS

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



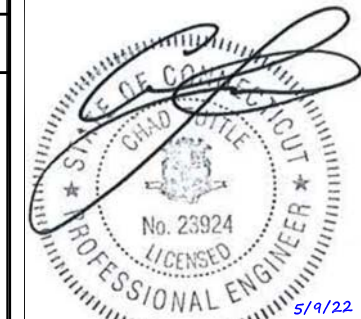
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



2000 CORPORATE DRIVE
CANONSBURG, PA 15317



1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.blgrp.com



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJR	DAS	KT

RFDS REV #: 1

CONSTRUCTION
DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
136457.005.01

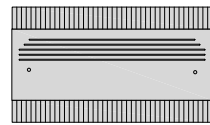
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

SHEET TITLE
EQUIPMENT DETAILS

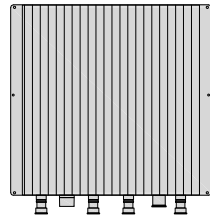
SHEET NUMBER

A-5

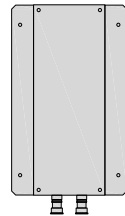
FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



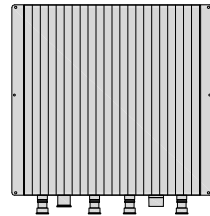
PLAN



BACK

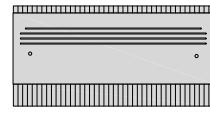


SIDE

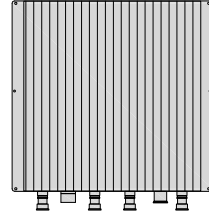


FRONT

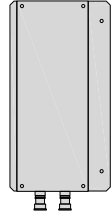
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



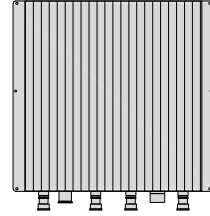
PLAN



BACK



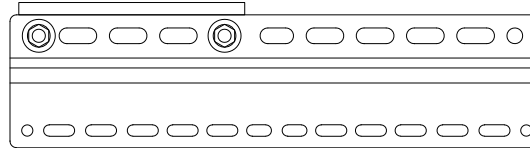
SIDE



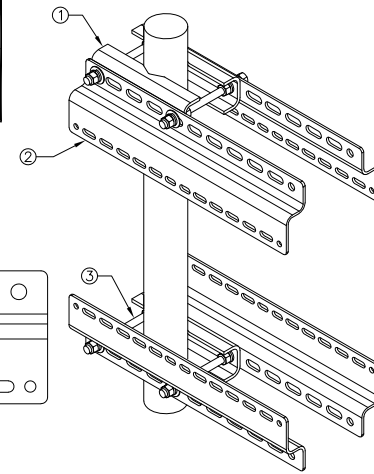
FRONT

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 DETAIL

NO SCALE

1

RRH DETAIL

NO SCALE

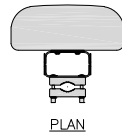
2

RRH MOUNT DETAIL

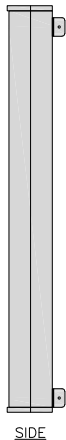
NO SCALE

3

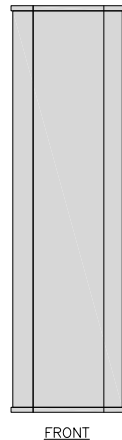
JMA MX08FRO665-21	
DIMENSIONS (HxWxD)	72"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.5 lbs



PLAN



SIDE



FRONT

ANTENNA DETAIL

NO SCALE

4

NOT USED

NO SCALE

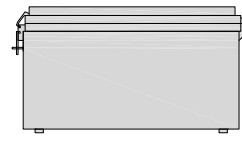
5

ANTENNA BRACKET DETAIL

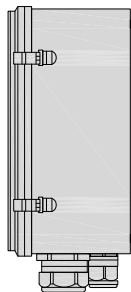
NO SCALE

6

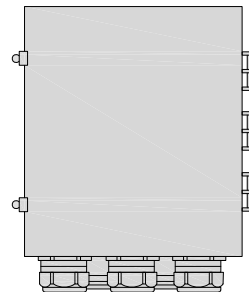
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



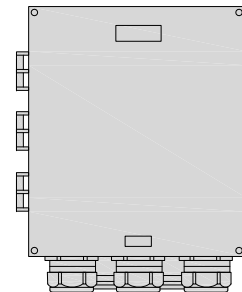
PLAN



SIDE



BACK



FRONT

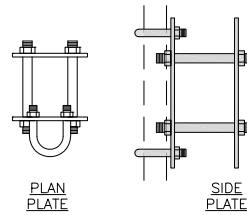
SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

7

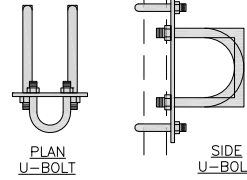
COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11 lbs

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



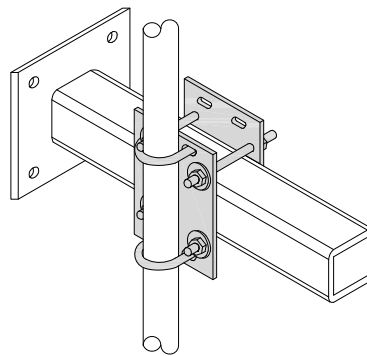
PLAN PLATE

SIDE PLATE



PLAN U-BOLT

SIDE U-BOLT



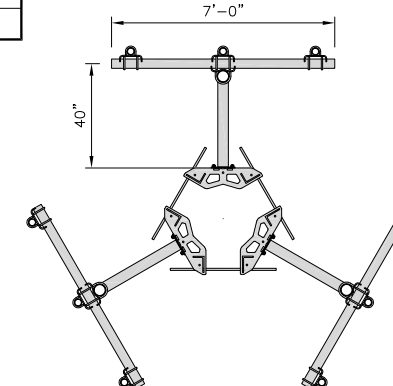
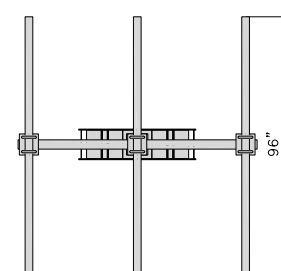
RRH/OVP MOUNT DETAIL

NO SCALE

8

COMMSCOPE MC-K6MHDX-9-96	
FACE WIDTH	7'-0"
WEIGHT	1203.31 lbs
NOTE: 15" TO 50" O.D.	

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



T-ARM MOUNT DETAIL

NO SCALE

9

dish
wireless.

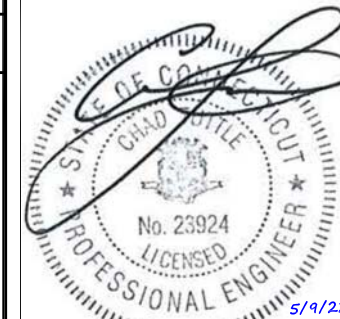
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

CROWN CASTLE

2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY: CHECKED BY: APPROVED BY:
JJR DAS KT

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
136457.005.01

DISH Wireless L.L.C.
PROJECT INFORMATION

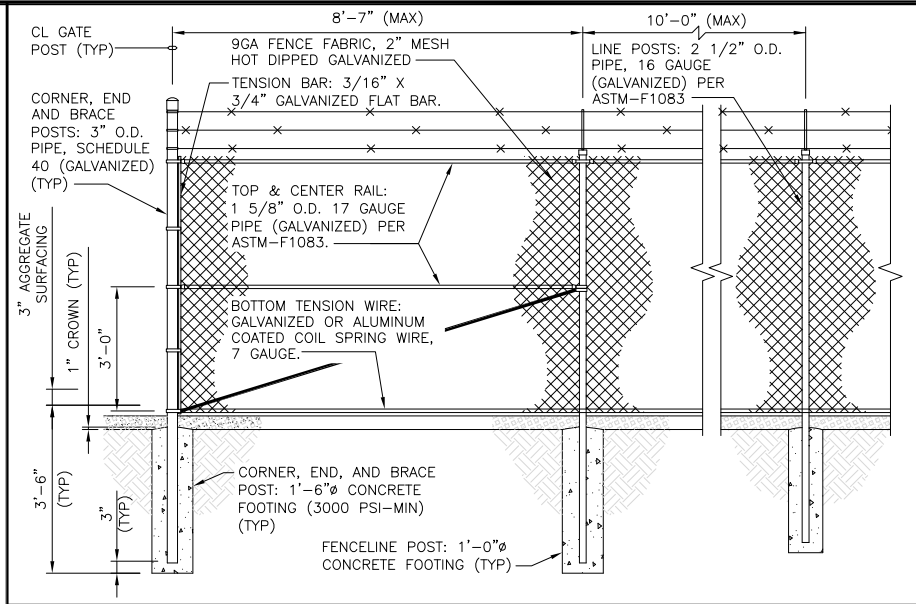
BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER

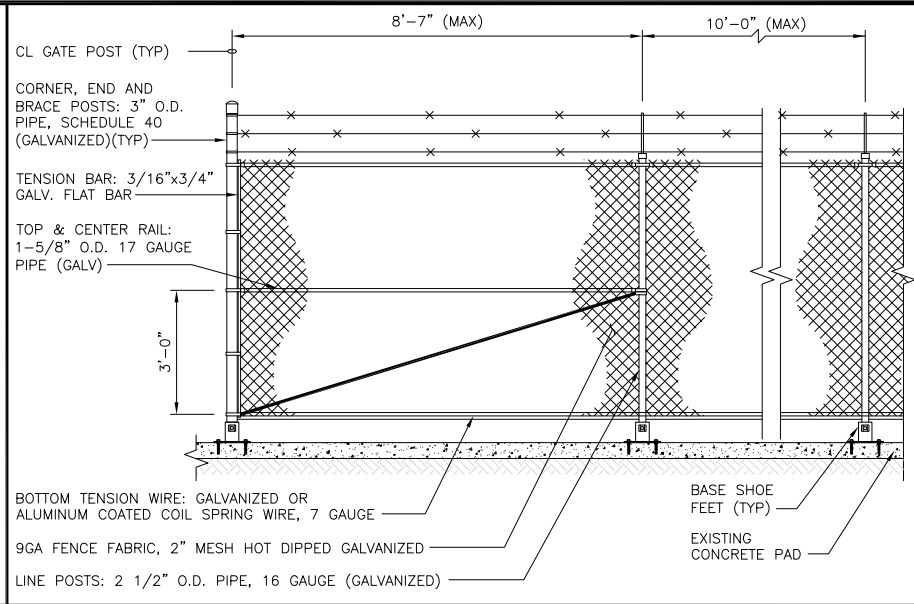
A-6

- 1 LINE POSTS: 2 1/2" O.D. PIPE, 16 GAUGE (GALVANIZED) PER ASTM-F1083.
- 2 CORNER, END AND BRACE POSTS: 3" O.D. PIPE, SCHEDULE 40 (GALVANIZED).
- 3 TOP RAIL: 1 5/8" O.D. 17 GAUGE PIPE (GALVANIZED) PER ASTM-F1083.
- 4 BRACE RAIL: 1 5/8" O.D. 17 GAUGE PIPE (GALVANIZED).
- 5 DIAGONAL TRUSS ROD: 3/8" GALVANIZED ROD WITH TURNBUCKLE.
- 6 TENSION BAR: 3/16" X 3/4" GALVANIZED FLAT BAR.
- 7 BOTTOM TENSION WIRE: GALVANIZED OR ALUMINUM COATED COIL SPRING WIRE, 7 GAUGE.
- 8 GATE POSTS: 2 7/8" O.D. SCHEDULE 40 PIPE (GALVANIZED).
- 9 COMBINATION PADLOCK ACCORDING TO DISH WIRELESS REQUIREMENTS.
- 10 GATE FRAMES: 1 7/8" O.D. SCHEDULE 40 PIPE (GALVANIZED).
- 11 BARBED WIRE SUPPORT ARM: SINGLE ARM TYPE (GALVANIZED). ARM SHALL BE INCLINED OUTWARD AT AN ANGLE OF 45 DEGREES.
- 12 BARBED WIRE: GALVANIZED, ASTM A121 CLASS 3; THREE 14 GAUGE MINIMUM STEEL WIRES WITH 4 POINT ROUND 14 GAUGE BARBS SPACED 4" APART.
- 13 9GA FENCE FABRIC, 2" MESH HOT DIPPED GALVANIZED
- 14 MISCELLANEOUS:
 - A. RAIL COUPLINGS: SLEEVE TYPE, 6" LONG EXPANSION SPRING EVERY FIFTH COUPLING.
 - B. POST TOPS: PRESSED STEEL, MALLEABLE IRON WITH PRESSED STEEL EXTENSION ARM, OR ONE-PIECE ALUMINUM CASTING; WITH HOLE FOR TOP, ALL DESIGNED TO FIT OVER THE OUTSIDE OF THE POSTS AND TO PREVENT ENTRY OF MOISTURE INTO TUBULAR POSTS.
 - C. LATCHES SHALL BE FORKED TYPE AND SHALL BE ARRANGED FOR PADLOCKING WITH THE PADLOCK ACCESSIBLE FROM BOTH SIDES OF THE GATE.
 - D. KEEPERS SHALL CONSIST OF MECHANICAL DEVICES FOR SECURING AND SUPPORTING THE FREE END OF THE GATES WHEN IN THE FULL OPEN POSITION. KEEPERS SHALL BE MOUNTED ON 2 7/8" O.D. PIPE POSTS FILLED WITH CONCRETE AND SET IN CONCRETE FOUNDATIONS.
 - E. INSTALL FENCING PER ASTM-F567.
 - F. INSTALL SWING GATES PER ASTM-F900.
 - G. LOCAL ORDINANCE OF BARBED WIRE PERMIT REQUIREMENT SHALL BE COMPLETED IF REQUIRED.
 - H. USE GALVANIZED HOG RING WIRE TO MOUNT ALL SIGNS.
 - I. ALL SIGNS MUST BE MOUNTED ON INSIDE OF FENCE.



TYPICAL FENCE DETAIL

NO SCALE 2



TYPICAL FENCE ELEVATION DETAIL

NO SCALE 3

MATERIAL DESCRIPTION

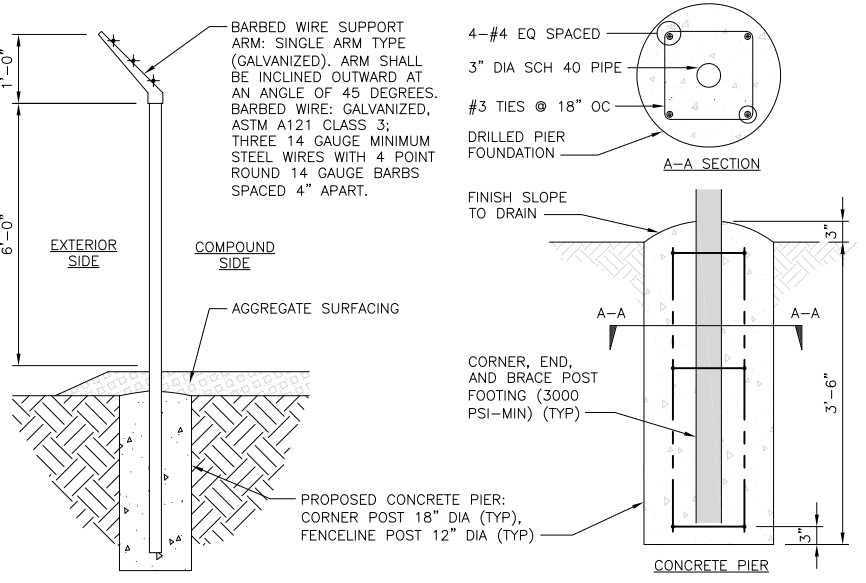
NO SCALE 1

NOT USED

NO SCALE 4

NOT USED

NO SCALE 5



TYPICAL FENCE & CONCRETE PIER SECTION

NO SCALE 6

NO SCALE 7

NO SCALE 8



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



2000 CORPORATE DRIVE
CANONSBURG, PA 15317



1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJR	DAS	KT

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

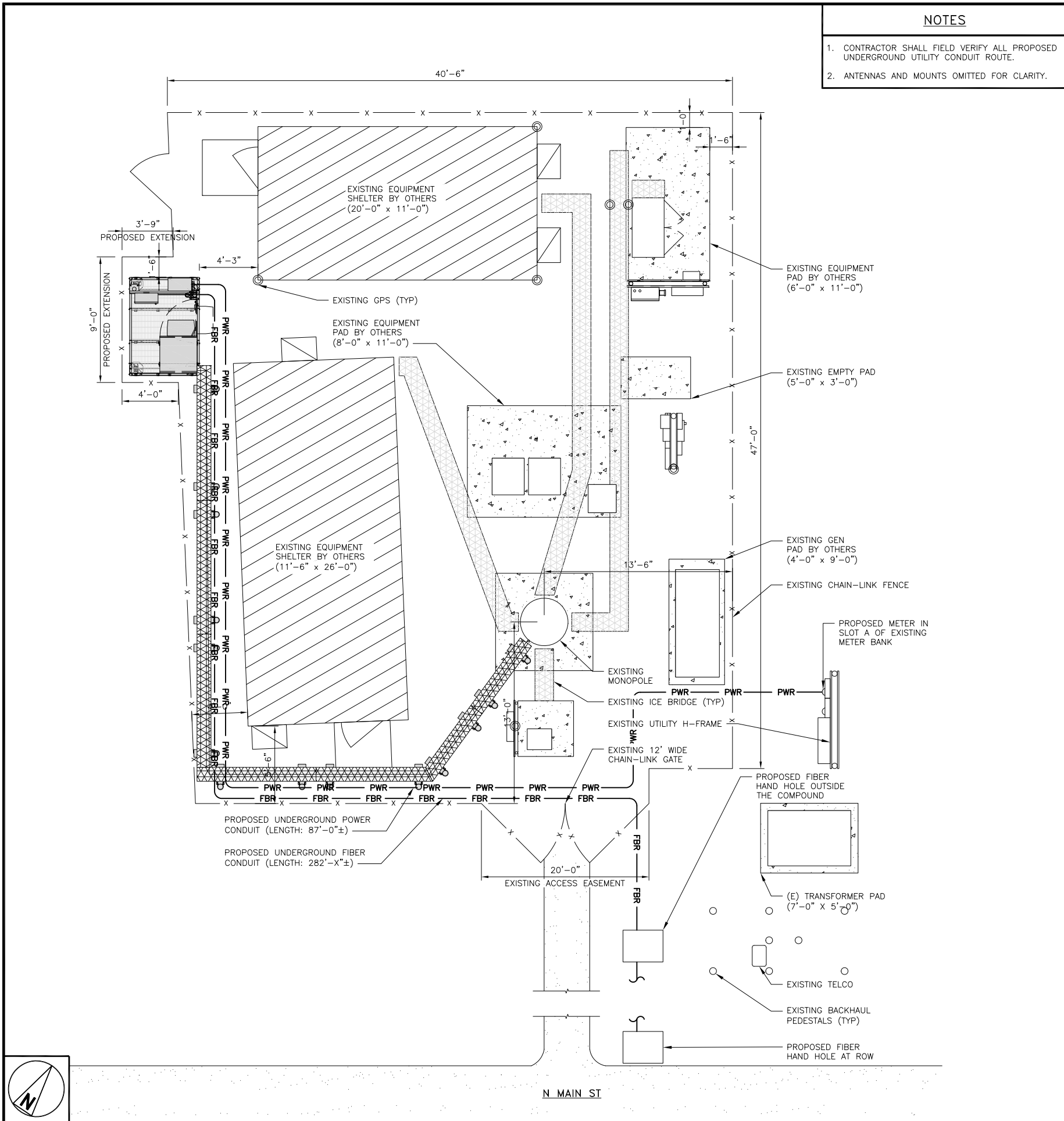
SUBMITTALS		
REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
136457.005.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6



NOTES

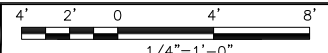
1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.

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

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



UTILITY ROUTE PLAN



ELECTRICAL NOTES



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



2000 CORPORATE DRIVE
CANONSBURG, PA 15317



1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJR	DAS	KT

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
136457.005.01

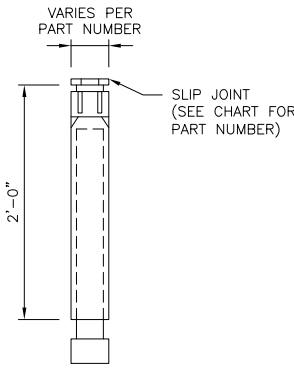
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

SHEET NUMBER
E-1

CARLON EXPANSION FITTINGS

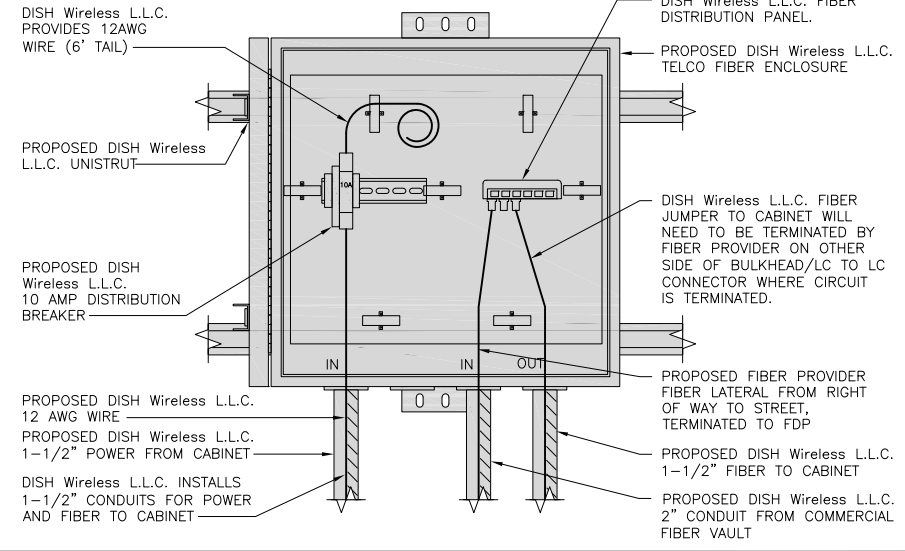
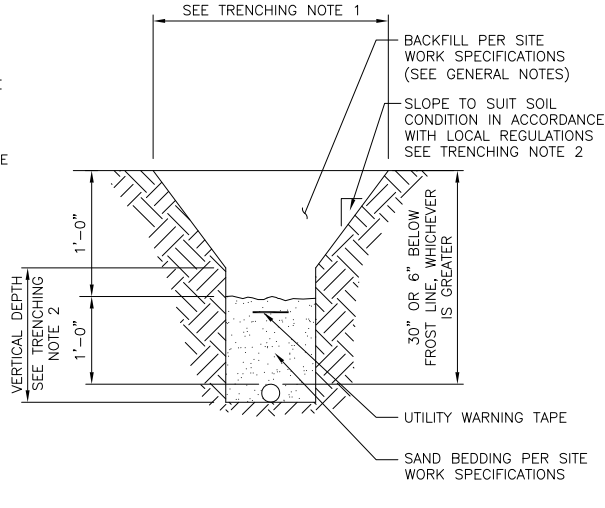
COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"
E945M	E945MX	3 1/2"	5	8"
E945N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



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

TRENCHING NOTES

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



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

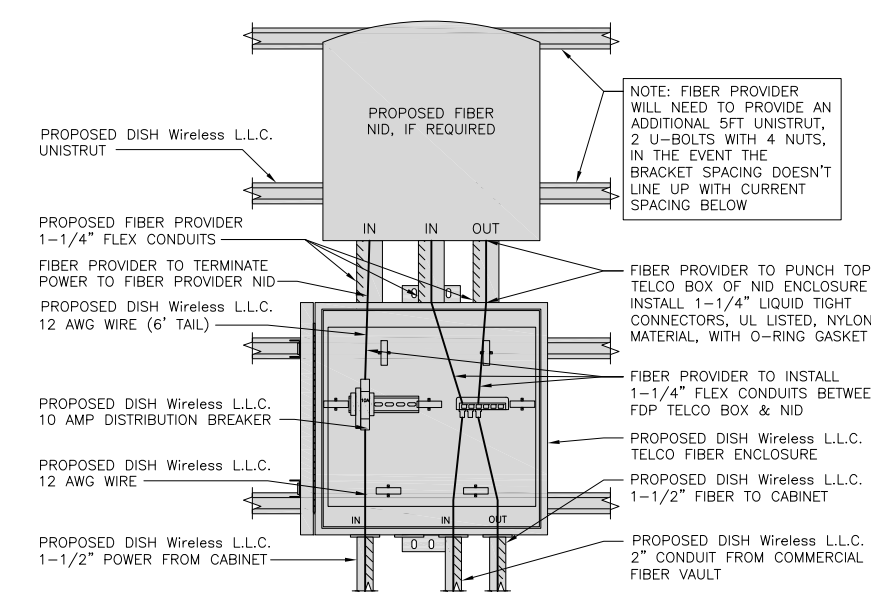
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

EXPANSION JOINT DETAIL NO SCALE 1

TYPICAL UNDERGROUND TRENCH DETAIL NO SCALE 2

DARK TELCO BOX – INTERIOR WIRING LAYOUT NO SCALE 3



LIT TELCO BOX – INTERIOR WIRING LAYOUT (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

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJR	DAS	KT
RFDS REV #:		1

CONSTRUCTION DOCUMENTS

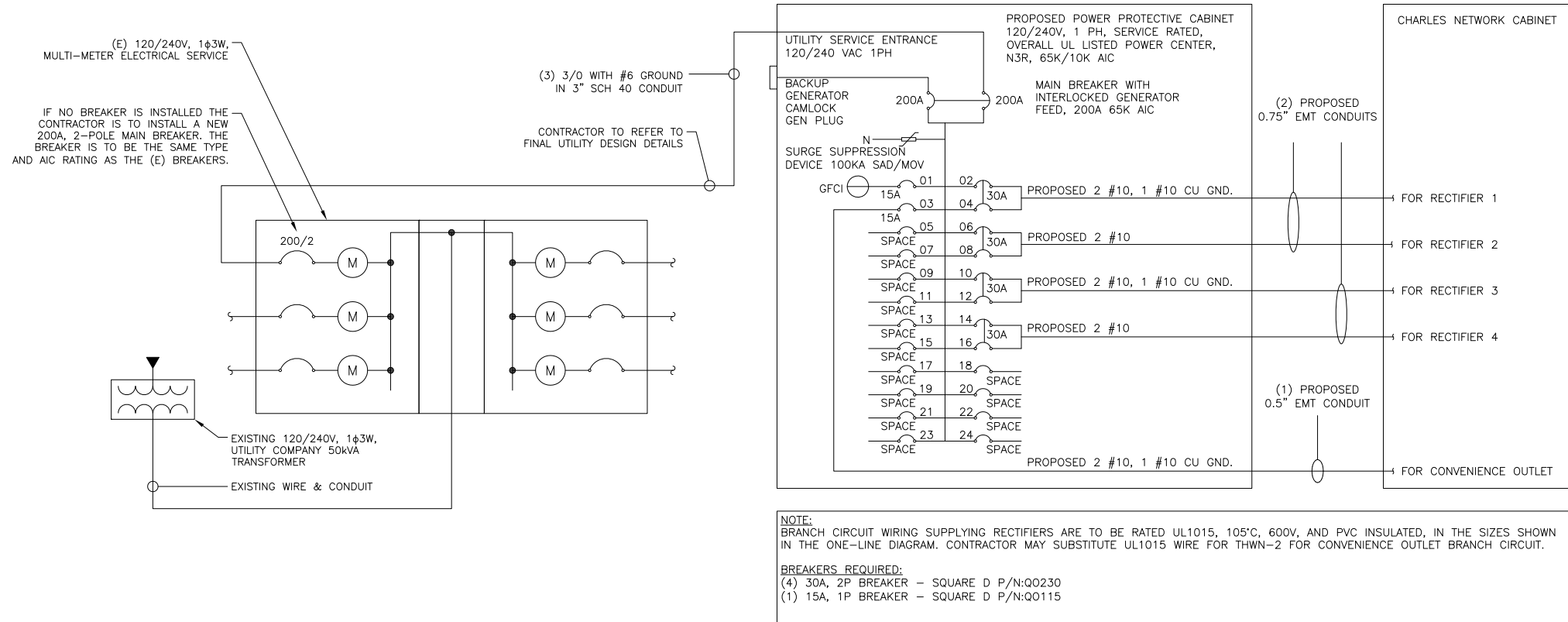
SUBMITTALS		
REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
136457.005.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2



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)(g) 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)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED
	L1	L2						L1	L2	
PPC GFCI OUTLET	180	180	15A	1	A	2	30A	2880	2880	ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET			15A	3	B	4	30A	2880	2880	ABB/GE INFINITY RECTIFIER 2
--SPACE--				5	A	6	30A	2880	2880	ABB/GE INFINITY RECTIFIER 3
--SPACE--				7	B	8	30A	2880	2880	ABB/GE INFINITY RECTIFIER 4
--SPACE--				9	A	10				--SPACE--
--SPACE--				11	B	12				--SPACE--
--SPACE--				13	A	14				--SPACE--
--SPACE--				15	B	16				--SPACE--
--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					
				98	98					
				98						
				123						

PANEL SCHEDULE

NO SCALE 2

NOT USED

NO SCALE 3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



2000 CORPORATE DRIVE
CANONSBURG, PA 15317



1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY: CHECKED BY: APPROVED BY:
JJR DAS KT

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

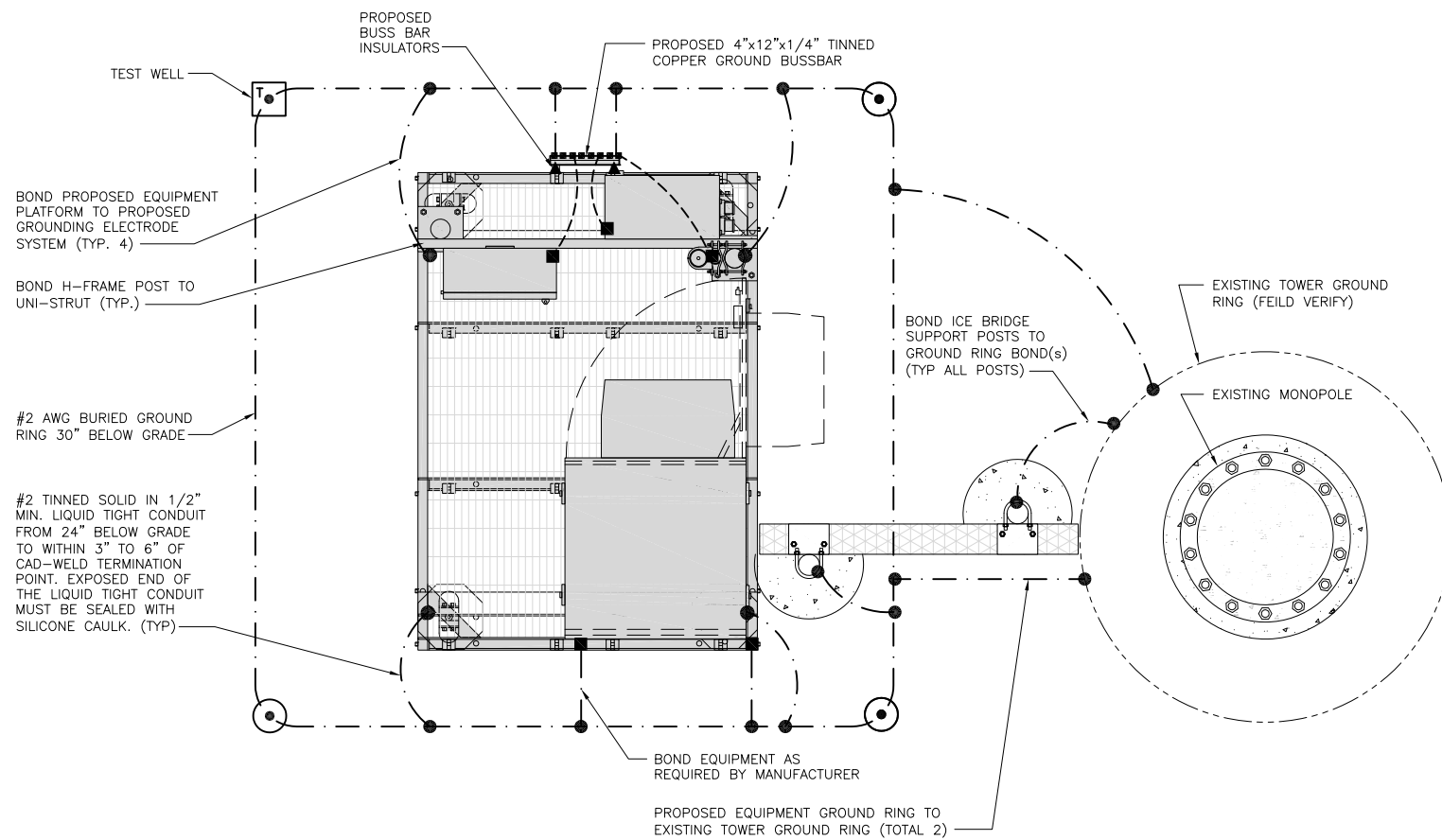
REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
136457.005.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

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

SHEET NUMBER
E-3

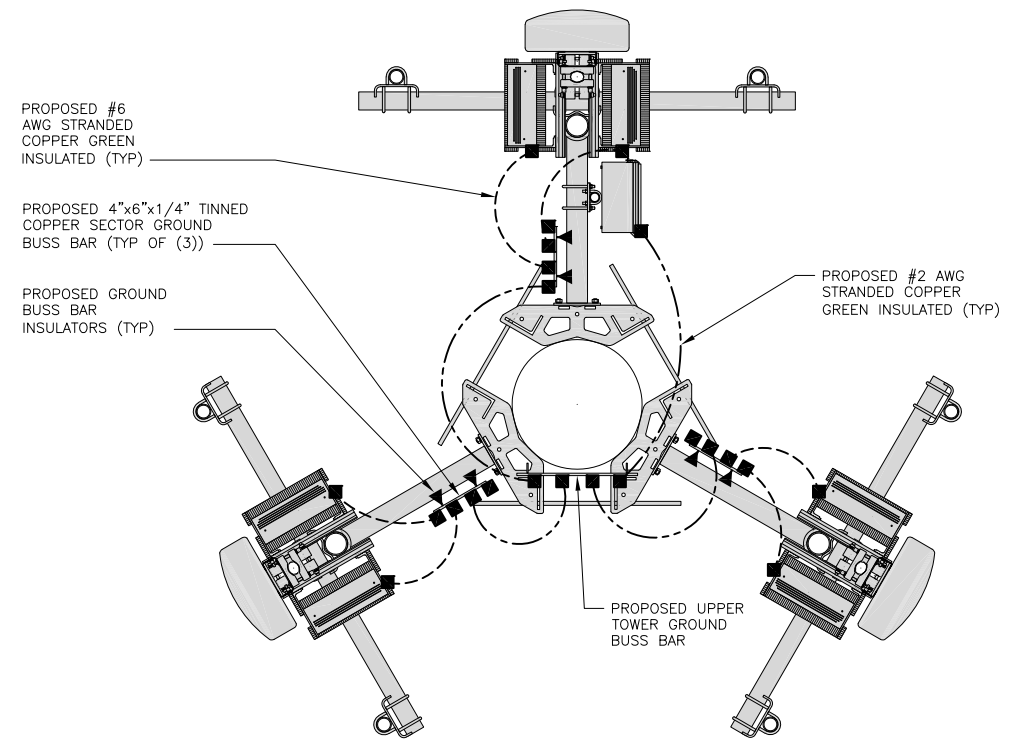


TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1

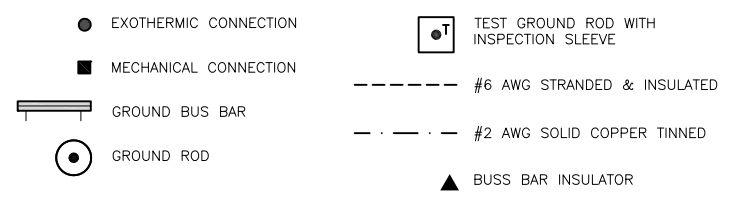
NOTES

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2



GROUNDING LEGEND

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

GROUNDING KEY NOTES

- (A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.
- (B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.
- (C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUND 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



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



2000 CORPORATE DRIVE
CANONSBURG, PA 15317



1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJR	DAS	KT

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

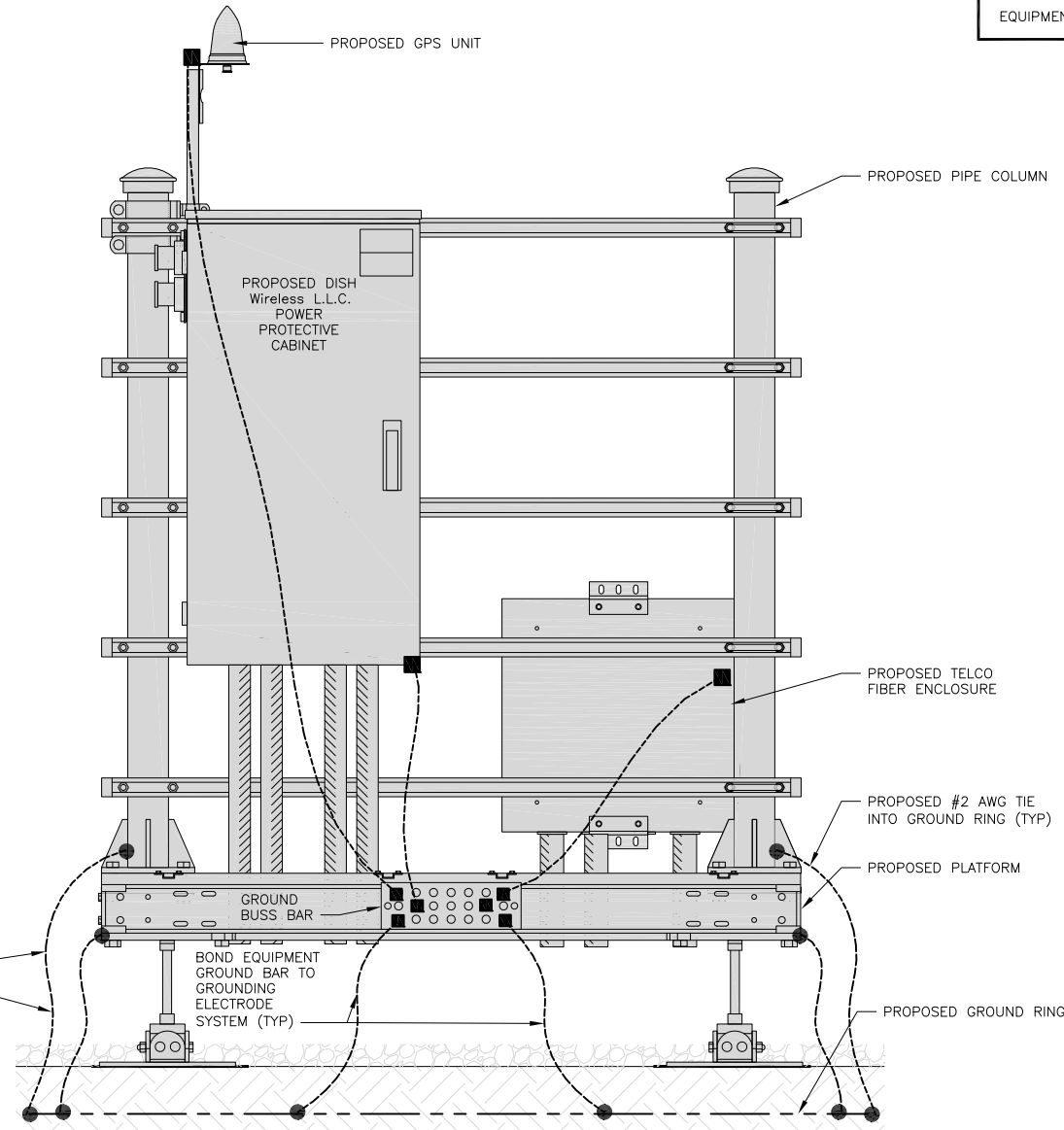
A&E PROJECT NUMBER
136457.005.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

SHEET TITLE
GROUNDING PLANS
AND NOTES

SHEET NUMBER
G-1

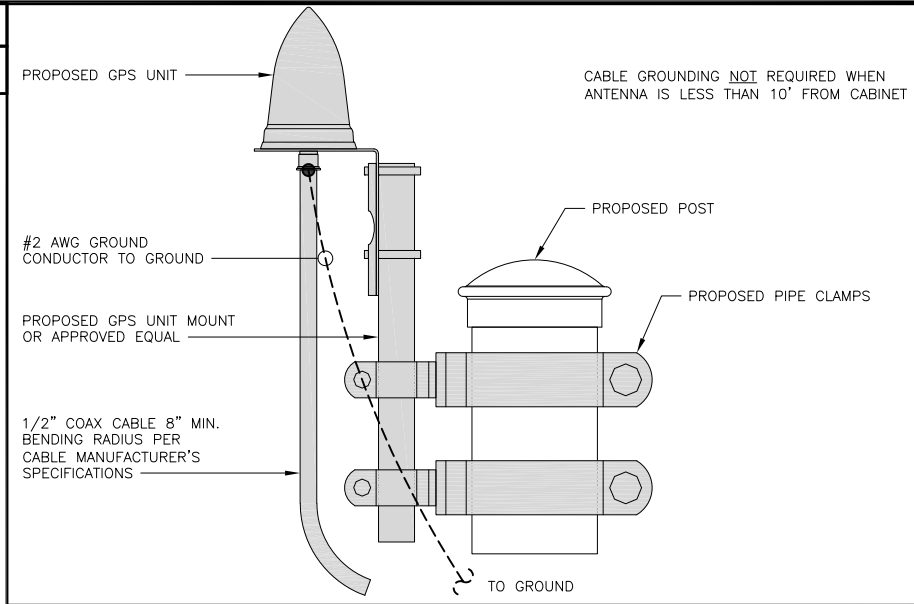
NOTES
EQUIPMENT CABINET OMITTED FOR CLARITY



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

H-FRAME GROUNDING DETAIL

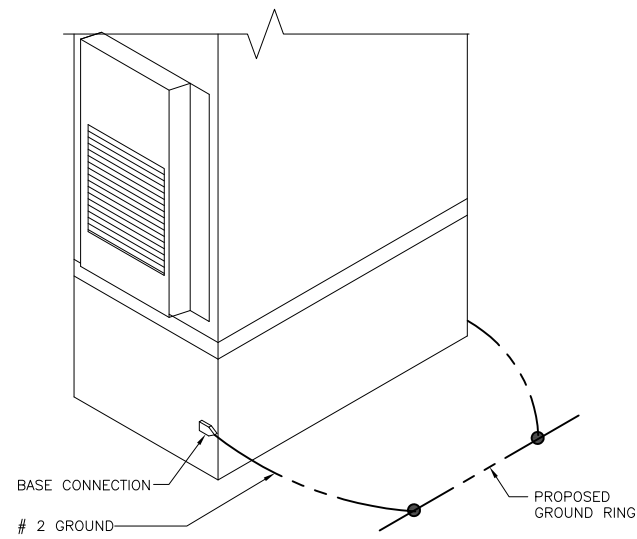
NO SCALE **1**



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

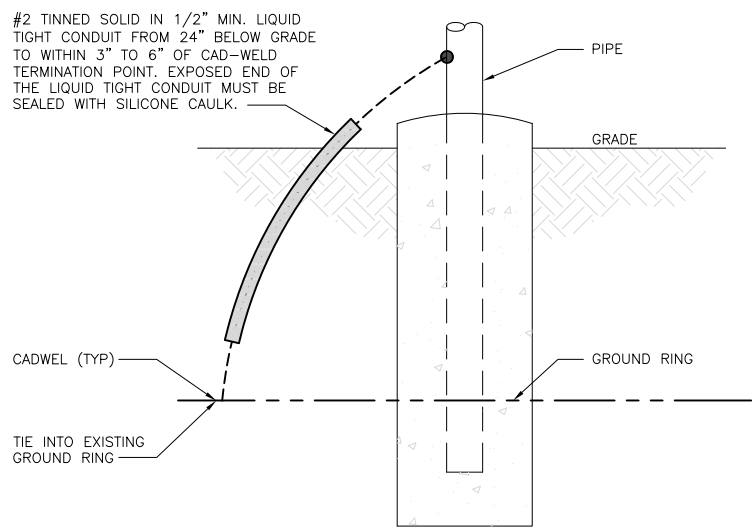
TYPICAL GPS UNIT GROUNDING

NO SCALE **2**



OUTDOOR CABINET GROUNDING

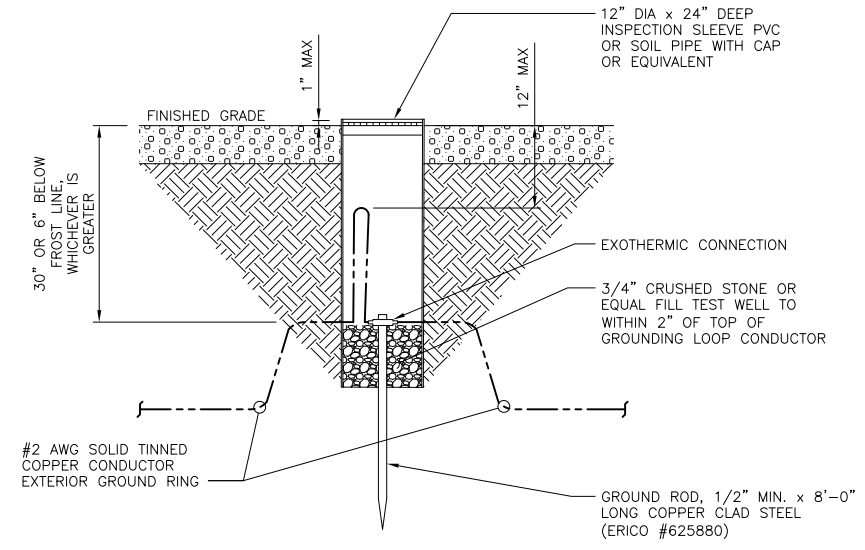
NO SCALE **3**



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

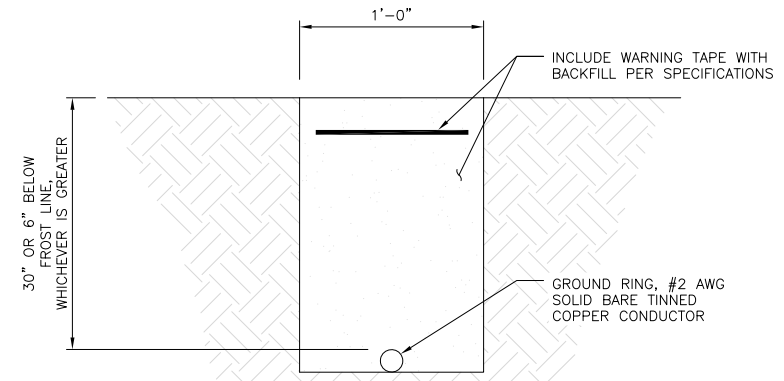
TRANSITIONING GROUND DETAIL

NO SCALE **4**



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE **5**



TYPICAL GROUND RING TRENCH

NO SCALE **6**



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



2000 CORPORATE DRIVE
CANONSBURG, PA 15317



1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.blgrp.com



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY: CHECKED BY: APPROVED BY:
JJR DAS KT

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

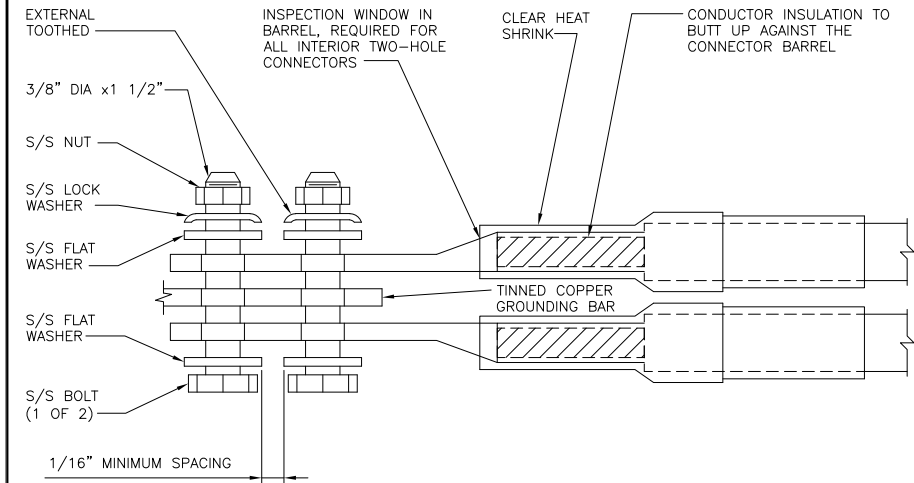
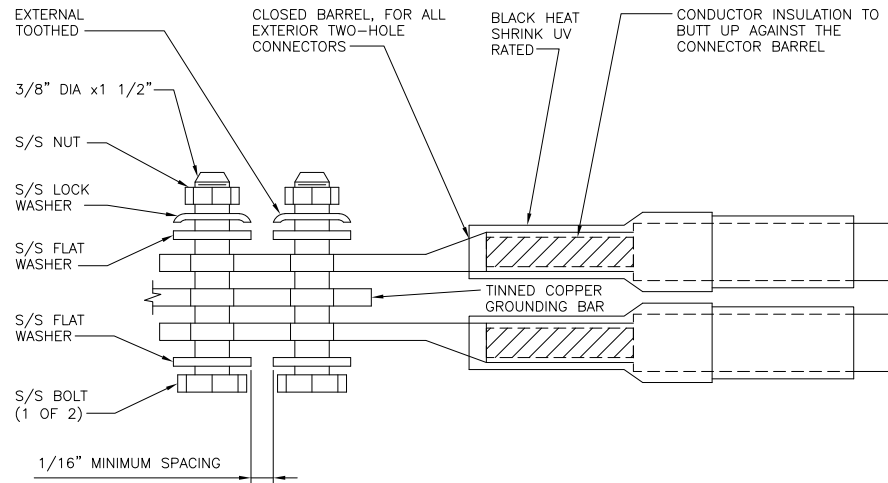
A&E PROJECT NUMBER
136457.005.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

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.
8. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).



TYPICAL GROUNDING NOTES

NO SCALE

1

TYPICAL EXTERIOR TWO HOLE LUG

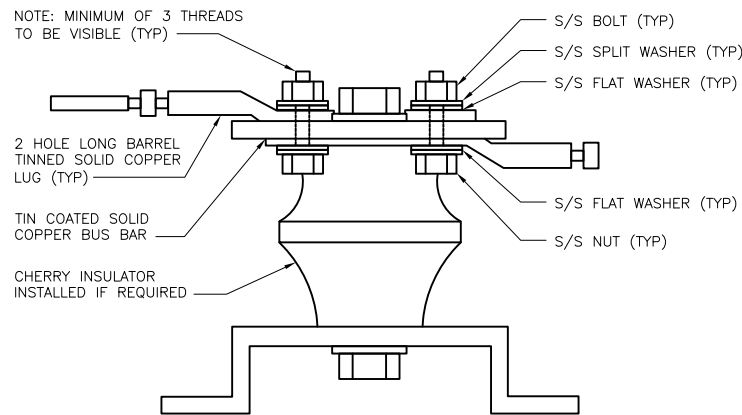
NO SCALE

2

TYPICAL INTERIOR TWO HOLE LUG

NO SCALE

3



LUG DETAIL

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9

dish
wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

CROWN
CASTLE

2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY: CHECKED BY: APPROVED BY:

JJR DAS KT

RFDS REV #: 1

CONSTRUCTION
DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
136457.005.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER

G-3

HYBRID/DISCREET CABLES												3/4" TAPE WIDTHS WITH 3/4" SPACING																																																																							
<p>LOW-BAND RRH (600 MHz N71 BASEBAND) + (850 MHz N26 BAND) + (700 MHz N29 BAND) - OPTIONAL PER MARKET</p> <p>ADD FREQUENCY COLOR TO SECTOR BAND (CBRS WILL USE YELLOW BAND)</p>												<p>ALPHA RRH</p> <table border="1"> <tr><th>PORT 1 + SLANT</th><th>PORT 2 - SLANT</th><th>PORT 3 + SLANT</th><th>PORT 4 - SLANT</th></tr> <tr><td>RED</td><td>RED</td><td>RED</td><td>RED</td></tr> <tr><td>ORANGE</td><td>ORANGE</td><td>RED</td><td>RED</td></tr> <tr><td></td><td>WHITE (-) PORT</td><td>ORANGE</td><td>ORANGE</td></tr> <tr><td></td><td></td><td></td><td>WHITE (-) PORT</td></tr> </table>				PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	RED	RED	RED	RED	ORANGE	ORANGE	RED	RED		WHITE (-) PORT	ORANGE	ORANGE				WHITE (-) PORT	<p>BETA RRH</p> <table border="1"> <tr><th>PORT 1 + SLANT</th><th>PORT 2 - SLANT</th><th>PORT 3 + SLANT</th><th>PORT 4 - SLANT</th></tr> <tr><td>BLUE</td><td>BLUE</td><td>BLUE</td><td>BLUE</td></tr> <tr><td>ORANGE</td><td>ORANGE</td><td>BLUE</td><td>BLUE</td></tr> <tr><td></td><td>WHITE (-) PORT</td><td>ORANGE</td><td>ORANGE</td></tr> <tr><td></td><td></td><td></td><td>WHITE (-) PORT</td></tr> </table>				PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	BLUE	BLUE	BLUE	BLUE	ORANGE	ORANGE	BLUE	BLUE		WHITE (-) PORT	ORANGE	ORANGE				WHITE (-) PORT	<p>GAMMA RRH</p> <table border="1"> <tr><th>PORT 1 + SLANT</th><th>PORT 2 - SLANT</th><th>PORT 3 + SLANT</th><th>PORT 4 - SLANT</th></tr> <tr><td>GREEN</td><td>GREEN</td><td>GREEN</td><td>GREEN</td></tr> <tr><td>ORANGE</td><td>ORANGE</td><td>GREEN</td><td>GREEN</td></tr> <tr><td></td><td>WHITE (-) PORT</td><td>ORANGE</td><td>ORANGE</td></tr> <tr><td></td><td></td><td></td><td>WHITE (-) PORT</td></tr> </table>				PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	GREEN	GREEN	GREEN	GREEN	ORANGE	ORANGE	GREEN	GREEN		WHITE (-) PORT	ORANGE	ORANGE				WHITE (-) PORT
PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT																																																																																
RED	RED	RED	RED																																																																																
ORANGE	ORANGE	RED	RED																																																																																
	WHITE (-) PORT	ORANGE	ORANGE																																																																																
			WHITE (-) PORT																																																																																
PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT																																																																																
BLUE	BLUE	BLUE	BLUE																																																																																
ORANGE	ORANGE	BLUE	BLUE																																																																																
	WHITE (-) PORT	ORANGE	ORANGE																																																																																
			WHITE (-) PORT																																																																																
PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT																																																																																
GREEN	GREEN	GREEN	GREEN																																																																																
ORANGE	ORANGE	GREEN	GREEN																																																																																
	WHITE (-) PORT	ORANGE	ORANGE																																																																																
			WHITE (-) PORT																																																																																
<p>MID-BAND RRH (AWS BANDS N66+N70)</p> <p>ADD FREQUENCY COLOR TO SECTOR BAND (CBRS WILL USE YELLOW BANDS)</p>												<table border="1"> <tr><td>RED</td><td>RED</td><td>RED</td><td>RED</td></tr> <tr><td>PURPLE</td><td>PURPLE</td><td>RED</td><td>RED</td></tr> <tr><td></td><td>WHITE (-) PORT</td><td>PURPLE</td><td>PURPLE</td></tr> <tr><td></td><td></td><td></td><td>WHITE (-) PORT</td></tr> </table>				RED	RED	RED	RED	PURPLE	PURPLE	RED	RED		WHITE (-) PORT	PURPLE	PURPLE				WHITE (-) PORT	<table border="1"> <tr><td>BLUE</td><td>BLUE</td><td>BLUE</td><td>BLUE</td></tr> <tr><td>PURPLE</td><td>PURPLE</td><td>BLUE</td><td>BLUE</td></tr> <tr><td></td><td>WHITE (-) PORT</td><td>PURPLE</td><td>PURPLE</td></tr> <tr><td></td><td></td><td></td><td>WHITE (-) PORT</td></tr> </table>				BLUE	BLUE	BLUE	BLUE	PURPLE	PURPLE	BLUE	BLUE		WHITE (-) PORT	PURPLE	PURPLE				WHITE (-) PORT	<table border="1"> <tr><td>GREEN</td><td>GREEN</td><td>GREEN</td><td>GREEN</td></tr> <tr><td>PURPLE</td><td>PURPLE</td><td>GREEN</td><td>GREEN</td></tr> <tr><td></td><td>WHITE (-) PORT</td><td>PURPLE</td><td>PURPLE</td></tr> <tr><td></td><td></td><td></td><td>WHITE (-) PORT</td></tr> </table>				GREEN	GREEN	GREEN	GREEN	PURPLE	PURPLE	GREEN	GREEN		WHITE (-) PORT	PURPLE	PURPLE				WHITE (-) PORT												
RED	RED	RED	RED																																																																																
PURPLE	PURPLE	RED	RED																																																																																
	WHITE (-) PORT	PURPLE	PURPLE																																																																																
			WHITE (-) PORT																																																																																
BLUE	BLUE	BLUE	BLUE																																																																																
PURPLE	PURPLE	BLUE	BLUE																																																																																
	WHITE (-) PORT	PURPLE	PURPLE																																																																																
			WHITE (-) PORT																																																																																
GREEN	GREEN	GREEN	GREEN																																																																																
PURPLE	PURPLE	GREEN	GREEN																																																																																
	WHITE (-) PORT	PURPLE	PURPLE																																																																																
			WHITE (-) PORT																																																																																
<p>HYBRID/DISCREET CABLES</p> <p>INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.</p> <p>EXAMPLE 1 - HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS.</p> <p>EXAMPLE 2 - HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS.</p> <p>EXAMPLE 3 - MAIN COAX WITH GROUND MOUNTED RRHS.</p>												<p>EXAMPLE 1</p> <table border="1"> <tr><td>RED</td></tr> <tr><td>BLUE</td></tr> <tr><td>GREEN</td></tr> <tr><td>ORANGE</td></tr> <tr><td>PURPLE</td></tr> </table>		RED	BLUE	GREEN	ORANGE	PURPLE	<p>EXAMPLE 2</p> <table border="1"> <tr><td>RED</td></tr> <tr><td>BLUE</td></tr> <tr><td>GREEN</td></tr> <tr><td>YELLOW</td></tr> </table>		RED	BLUE	GREEN	YELLOW	<p>EXAMPLE 3 COAX #1 (ALPHA)</p> <table border="1"> <tr><td>RED</td></tr> <tr><td>RED</td></tr> </table>		RED	RED	<p>COAX #2 (ALPHA)</p> <table border="1"> <tr><td>RED</td></tr> <tr><td>RED</td></tr> </table>		RED	RED	<p>CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RD DETAILS. FINAL RFDS IS IN NEXSYSONE.</p>																																																		
RED																																																																																			
BLUE																																																																																			
GREEN																																																																																			
ORANGE																																																																																			
PURPLE																																																																																			
RED																																																																																			
BLUE																																																																																			
GREEN																																																																																			
YELLOW																																																																																			
RED																																																																																			
RED																																																																																			
RED																																																																																			
RED																																																																																			
<p>FIBER JUMPERS TO RRHS</p> <p>LOW-BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.</p>												<p>LOW BAND RRH</p> <table border="1"> <tr><td>RED</td></tr> <tr><td>ORANGE</td></tr> </table>		RED	ORANGE	<p>MID BAND RRH</p> <table border="1"> <tr><td>RED</td></tr> <tr><td>PURPLE</td></tr> </table>		RED	PURPLE	<p>LOW BAND RRH</p> <table border="1"> <tr><td>BLUE</td></tr> <tr><td>ORANGE</td></tr> </table>		BLUE	ORANGE	<p>MID BAND RRH</p> <table border="1"> <tr><td>BLUE</td></tr> <tr><td>PURPLE</td></tr> </table>		BLUE	PURPLE	<p>LOW BAND RRH</p> <table border="1"> <tr><td>GREEN</td></tr> <tr><td>ORANGE</td></tr> </table>		GREEN	ORANGE	<p>MID BAND RRH</p> <table border="1"> <tr><td>GREEN</td></tr> <tr><td>PURPLE</td></tr> </table>		GREEN	PURPLE																																																
RED																																																																																			
ORANGE																																																																																			
RED																																																																																			
PURPLE																																																																																			
BLUE																																																																																			
ORANGE																																																																																			
BLUE																																																																																			
PURPLE																																																																																			
GREEN																																																																																			
ORANGE																																																																																			
GREEN																																																																																			
PURPLE																																																																																			
<p>POWER CABLES TO RRHS</p> <p>LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY</p>												<p>LOW BAND RRH</p> <table border="1"> <tr><td>RED</td></tr> <tr><td>ORANGE</td></tr> </table>		RED	ORANGE	<p>MID BAND RRH</p> <table border="1"> <tr><td>RED</td></tr> <tr><td>PURPLE</td></tr> </table>		RED	PURPLE	<p>LOW BAND RRH</p> <table border="1"> <tr><td>BLUE</td></tr> <tr><td>ORANGE</td></tr> </table>		BLUE	ORANGE	<p>MID BAND RRH</p> <table border="1"> <tr><td>BLUE</td></tr> <tr><td>PURPLE</td></tr> </table>		BLUE	PURPLE	<p>LOW BAND RRH</p> <table border="1"> <tr><td>GREEN</td></tr> <tr><td>ORANGE</td></tr> </table>		GREEN	ORANGE	<p>MID BAND RRH</p> <table border="1"> <tr><td>GREEN</td></tr> <tr><td>PURPLE</td></tr> </table>		GREEN	PURPLE																																																
RED																																																																																			
ORANGE																																																																																			
RED																																																																																			
PURPLE																																																																																			
BLUE																																																																																			
ORANGE																																																																																			
BLUE																																																																																			
PURPLE																																																																																			
GREEN																																																																																			
ORANGE																																																																																			
GREEN																																																																																			
PURPLE																																																																																			
<p>RET MOTORS AT ANTENNAS</p> <p>RET CONTROL IS HANDLED BY THE MID-BAND RRH WHEN ONE SET OF RET PORTS EXIST ON ANTENNA.</p> <p>SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.</p>												<p>ANTENNA 1 MID BAND</p> <p>IN</p> <table border="1"> <tr><td>RED</td></tr> <tr><td>PURPLE</td></tr> </table>		RED	PURPLE	<p>ANTENNA 1 LOW BAND</p> <p>IN</p> <table border="1"> <tr><td>RED</td></tr> <tr><td>ORANGE</td></tr> </table>		RED	ORANGE	<p>ANTENNA 1 MID BAND</p> <p>IN</p> <table border="1"> <tr><td>BLUE</td></tr> <tr><td>PURPLE</td></tr> </table>		BLUE	PURPLE	<p>ANTENNA 1 LOW BAND</p> <p>IN</p> <table border="1"> <tr><td>BLUE</td></tr> <tr><td>ORANGE</td></tr> </table>		BLUE	ORANGE	<p>ANTENNA 1 MID BAND</p> <p>IN</p> <table border="1"> <tr><td>GREEN</td></tr> <tr><td>PURPLE</td></tr> </table>		GREEN	PURPLE	<p>ANTENNA 1 LOW BAND</p> <p>IN</p> <table border="1"> <tr><td>GREEN</td></tr> <tr><td>ORANGE</td></tr> </table>		GREEN	ORANGE																																																
RED																																																																																			
PURPLE																																																																																			
RED																																																																																			
ORANGE																																																																																			
BLUE																																																																																			
PURPLE																																																																																			
BLUE																																																																																			
ORANGE																																																																																			
GREEN																																																																																			
PURPLE																																																																																			
GREEN																																																																																			
ORANGE																																																																																			
<p>MICROWAVE RADIO LINKS</p> <p>LINKS WILL HAVE A 1.5-2 INCH WHITE WRAP WITH THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE.</p> <p>ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH ADDITIONAL MW RADIO.</p> <p>MICROWAVE CABLES WILL REQUIRE P-TOUCH LABELS INSIDE THE CABINET TO IDENTIFY THE LOCAL AND REMOTE SITE ID'S.</p>												<p>FORWARD AZIMUTH OF 0-120 DEGREES</p> <p>PRIMARY SECONDARY</p> <table border="1"> <tr><td>WHITE</td><td>WHITE</td></tr> <tr><td>RED</td><td>RED</td></tr> <tr><td>WHITE</td><td>WHITE</td></tr> <tr><td></td><td>RED</td></tr> <tr><td></td><td>WHITE</td></tr> </table>		WHITE	WHITE	RED	RED	WHITE	WHITE		RED		WHITE	<p>FORWARD AZIMUTH OF 120-240 DEGREES</p> <p>PRIMARY SECONDARY</p> <table border="1"> <tr><td>WHITE</td><td>WHITE</td></tr> <tr><td>BLUE</td><td>BLUE</td></tr> <tr><td>WHITE</td><td>WHITE</td></tr> <tr><td></td><td>BLUE</td></tr> <tr><td></td><td>WHITE</td></tr> </table>		WHITE	WHITE	BLUE	BLUE	WHITE	WHITE		BLUE		WHITE	<p>FORWARD AZIMUTH OF 240-359 DEGREES</p> <p>PRIMARY SECONDARY</p> <table border="1"> <tr><td>WHITE</td><td>WHITE</td></tr> <tr><td>GREEN</td><td>GREEN</td></tr> <tr><td>WHITE</td><td>WHITE</td></tr> <tr><td></td><td>GREEN</td></tr> <tr><td></td><td>WHITE</td></tr> </table>		WHITE	WHITE	GREEN	GREEN	WHITE	WHITE		GREEN		WHITE																																				
WHITE	WHITE																																																																																		
RED	RED																																																																																		
WHITE	WHITE																																																																																		
	RED																																																																																		
	WHITE																																																																																		
WHITE	WHITE																																																																																		
BLUE	BLUE																																																																																		
WHITE	WHITE																																																																																		
	BLUE																																																																																		
	WHITE																																																																																		
WHITE	WHITE																																																																																		
GREEN	GREEN																																																																																		
WHITE	WHITE																																																																																		
	GREEN																																																																																		
	WHITE																																																																																		

RF CABLE COLOR CODES

NO SCALE

1

NOT USED

NO SCALE

4

LOW BANDS (N71+N26)
OPTIONAL - (N29)

ORANGE

AWS
(N66+N70+H-BLOCK)

PURPLE

CBRS TECH
(3 GHz)

YELLOW

NEGATIVE SLANT PORT
ON ANT/RRH

WHITE

ALPHA SECTOR

RED

BETA SECTOR

BLUE

GAMMA SECTOR

GREEN

COLOR IDENTIFIER

NO SCALE

2

NOT USED

NO SCALE

3

dish
wireless.

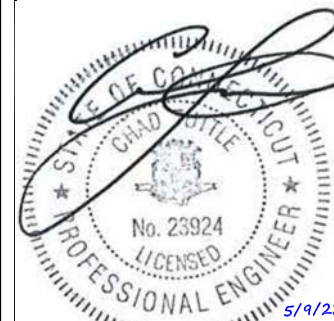
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

CROWN CASTLE

2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY: CHECKED BY: APPROVED BY:
JJR DAS KT

RFDS REV #: 1

CONSTRUCTION
DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

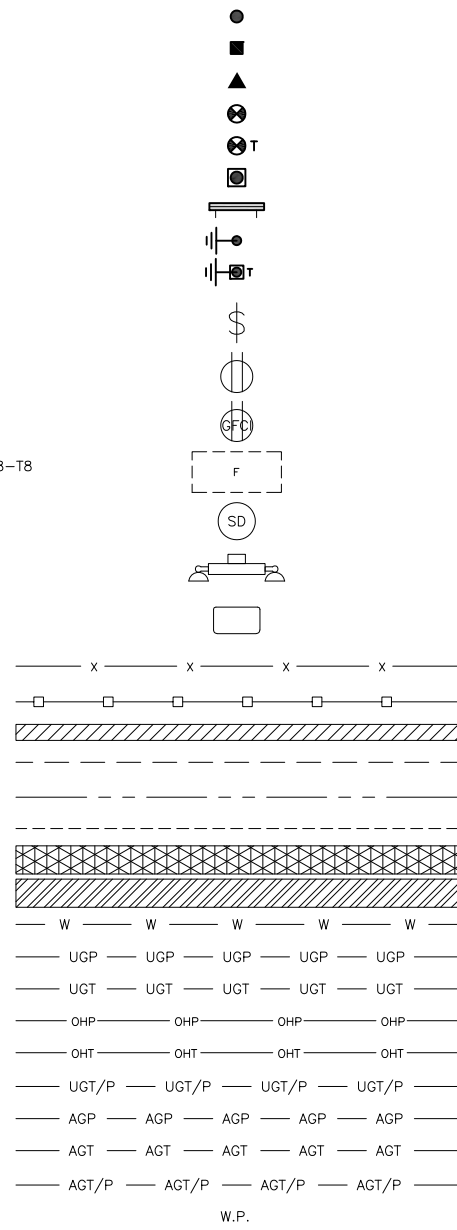
A&E PROJECT NUMBER
136457.005.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

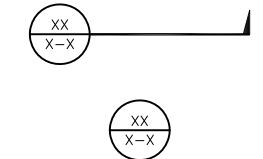
SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1

EXOTHERMIC CONNECTION
 MECHANICAL CONNECTION
 BUSS BAR INSULATOR
 CHEMICAL ELECTROLYTIC GROUNDING SYSTEM
 TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM
 EXOTHERMIC WITH INSPECTION SLEEVE
 GROUNDING BAR
 GROUND ROD
 TEST GROUND ROD WITH INSPECTION SLEEVE
 SINGLE POLE SWITCH
 DUPLEX RECEPTACLE
 DUPLEX GFCI RECEPTACLE
 FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48-T8
 SMOKE DETECTION (DC)
 EMERGENCY LIGHTING (DC)
 SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW
 LED-1-25A400/51K-SR4-120-PE-DOBXTD
 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	IN INCH
ABV ABOVE	INT INTERIOR
AC ALTERNATING CURRENT	LB(S) POUND(S)
ADDL ADDITIONAL	LF LINEAR FEET
AFF ABOVE FINISHED FLOOR	LTE LONG TERM EVOLUTION
AFG ABOVE FINISHED GRADE	MAS MASONRY
AGL ABOVE GROUND LEVEL	MAX MAXIMUM
AIC AMPERAGE INTERRUPTION CAPACITY	MB MACHINE BOLT
ALUM ALUMINUM	MECH MECHANICAL
ALT ALTERNATE	MFR MANUFACTURER
ANT ANTENNA	MGB MASTER GROUND BAR
APPROX APPROXIMATE	MIN MINIMUM
ARCH ARCHITECTURAL	MISC MISCELLANEOUS
ATS AUTOMATIC TRANSFER SWITCH	MTL METAL
AWG AMERICAN WIRE GAUGE	MTS MANUAL TRANSFER SWITCH
BATT BATTERY	MW MICROWAVE
BLDG BUILDING	NEC NATIONAL ELECTRIC CODE
BLK BLOCK	NM NEWTON METERS
BLKG BLOCKING	NO. NUMBER
BM BEAM	# NUMBER
BTC BARE TINNED COPPER CONDUCTOR	NTS NOT TO SCALE
BOF BOTTOM OF FOOTING	OC ON-CENTER
CAB CABINET	OSHA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
CANT CANTILEVERED	OPNG OPENING
CHG CHARGING	P/C PRECAST CONCRETE
CLG CEILING	PCS PERSONAL COMMUNICATION SERVICES
CLR CLEAR	PCU PRIMARY CONTROL UNIT
COL COLUMN	PRC PRIMARY RADIO CABINET
COMM COMMON	PP POLARIZING PRESERVING
CONC CONCRETE	PSF POUNDS PER SQUARE FOOT
CONSTR CONSTRUCTION	PSI POUNDS PER SQUARE INCH
DBL DOUBLE	PT PRESSURE TREATED
DC DIRECT CURRENT	PWR POWER CABINET
DEPT DEPARTMENT	QTY QUANTITY
DF DOUGLAS FIR	RAD RADIUS
DIA DIAMETER	RECT RECTIFIER
DIAG DIAGONAL	REF REFERENCE
DIM DIMENSION	REINF REINFORCEMENT
DWG DRAWING	REQ'D REQUIRED
DWL DOWEL	RET REMOTE ELECTRIC TILT
EA EACH	RF RADIO FREQUENCY
EC ELECTRICAL CONDUCTOR	RMC RIGID METALLIC CONDUIT
EL ELEVATION	RRH REMOTE RADIO HEAD
ELEC ELECTRICAL	RRU REMOTE RADIO UNIT
EMT ELECTRICAL METALLIC TUBING	RWY RACEWAY
ENG ENGINEER	SCH SCHEDULE
EQ EQUAL	SHT SHEET
EXP EXPANSION	SIAD SMART INTEGRATED ACCESS DEVICE
EXT EXTERIOR	SIM SIMILAR
EW EACH WAY	SPEC SPECIFICATION
FAB FABRICATION	SQ SQUARE
FF FINISH FLOOR	SS STAINLESS STEEL
FG FINISH GRADE	STD STANDARD
FIF FACILITY INTERFACE FRAME	STL STEEL
FIN FINISH(ED)	TEMP TEMPORARY
FLR FLOOR	THK THICKNESS
FDN FOUNDATION	TMA TOWER MOUNTED AMPLIFIER
FOC FACE OF CONCRETE	TN TOE NAIL
FOM FACE OF MASONRY	TOA TOP OF ANTENNA
FOS FACE OF STUD	TOC TOP OF CURB
FOW FACE OF WALL	TOF TOP OF FOUNDATION
FS FINISH SURFACE	TOP TOP OF PLATE (PARAPET)
FT FOOT	TOS TOP OF STEEL
FTG FOOTING	TOW TOP OF WALL
GA GAUGE	TVSS TRANSIENT VOLTAGE SURGE SUPPRESSION
GEN GENERATOR	TYP TYPICAL
GFCI GROUND FAULT CIRCUIT INTERRUPTER	UG UNDERGROUND
GLB GLUE LAMINATED BEAM	UL UNDERWRITERS LABORATORY
GLV GALVANIZED	UNO UNLESS NOTED OTHERWISE
GPS GLOBAL POSITIONING SYSTEM	UMTS UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
GND GROUND	UPS UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
GSM GLOBAL SYSTEM FOR MOBILE	VIF VERIFIED IN FIELD
HDG HOT DIPPED GALVANIZED	W WIDE
HDR HEADER	W/ WITH
HGR HANGER	WD WOOD
HVAC HEAT/VENTILATION/AIR CONDITIONING	WP WEATHERPROOF
HT HEIGHT	WT WEIGHT
IGR INTERIOR GROUND RING	

ABBREVIATIONS



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



2000 CORPORATE DRIVE
CANONSBURG, PA 15317



1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.blgrp.com



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJR	DAS	KT

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
136457.005.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

SHEET TITLE
LEGEND AND ABBREVIATIONS

SHEET NUMBER
GN-1

SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH Wireless L.L.C. AND TOWER OWNER NOC & THE DISH Wireless L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.
2. "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:
THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH Wireless L.L.C. AND TOWER OWNER, AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS AND RADIOS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
CARRIER: DISH Wireless L.L.C.
TOWER OWNER: TOWER OWNER
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH Wireless L.L.C. AND TOWER OWNER
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



2000 CORPORATE DRIVE
CANONSBURG, PA 15317



1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJR	DAS	KT

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
136457.005.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
 - ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
 - 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.
- 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.
- 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).
- PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
- TIE WRAPS ARE NOT ALLOWED.
- 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.
- 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.
- POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
- 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.
- 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).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
- ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

- ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
- WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
- SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH Wireless L.L.C.".
- ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



2000 CORPORATE DRIVE
CANONSBURG, PA 15317



1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.blgrp.com



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJR	DAS	KT

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
136457.005.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

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.



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



2000 CORPORATE DRIVE
CANONSBURG, PA 15317



1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.blgrp.com



B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJR	DAS	KT

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	6/18/21	ISSUED FOR REVIEW
0	7/10/21	ISSUED FOR CONSTRUCTION
1	10/21/21	ISSUED FOR CONSTRUCTION
2	04/20/22	ISSUED FOR CONSTRUCTION
3	05/9/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
136457.005.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00025A
150 NORTH MAIN STREET
BRANFORD, CT 06405

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4

ATTACHMENT 4

Date: **June 08, 2021**



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

Subject: **Structural Analysis Report**

Carrier Designation: **DISH Network Co-Locate**
Site Number: BOHVN00025A
Site Name: CT-CCI-T-876321

Crown Castle Designation: **BU Number:** 876321
Site Name: BRANFORD BANM TOWER
JDE Job Number: 645178
Work Order Number: 1964060
Order Number: 553366 Rev. 1

Engineering Firm Designation: **Crown Castle Project Number:** 1964060

Site Data: **150 North Main Street, BRANFORD, NEW HAVEN County, CT**
Latitude 41° 17' 19", Longitude -72° 48' 49.9"
147 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:


LC5: Proposed Equipment Configuration


Sufficient Capacity-99.1%

This analysis utilizes an ultimate 3-second gust wind speed of 130 mph as required by the 2018 Connecticut State Building Code and Appendix N. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Hayes Lei

Respectfully submitted by:

 Digitally signed by Maham Barimani
Date: 2021.06.09 13:54:59

A circular professional seal for Maham Barimani, a Licensed Professional Engineer in the State of Connecticut. The seal features the state coat of arms in the center, surrounded by the text 'STATE OF CONNECTICUT' at the top and 'PROFESSIONAL ENGINEER' at the bottom. The license number '30501' is printed at the bottom of the seal.

Maham Barimani, P.E.
Senior Project Engineer

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

Table 1 - Proposed Equipment Configuration

Table 2 - Other Considered Equipment

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

3.1) Analysis Method

3.2) Assumptions

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Table 5 - Tower Component Stresses vs. Capacity - LC5

4.1) Recommendations

5) APPENDIX A

tnxTower Output

6) APPENDIX B

Base Level Drawing

7) APPENDIX C

Additional Calculations

1) INTRODUCTION

This tower is a 147 ft Monopole tower designed by SUMMIT.

The tower has been modified multiple times to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	130 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
136.0	136.0	3	fujitsu	TA08025-B604	1	1-1/2
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-K6MHDX-9-96 (3)		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
147.0	149.0	1	andrew	VHLP2-18	6 3	1/2 1-1/4
		2	dragonwave	A-ANT-23G-2-C		
	147.0	3	alcatel lucent	TD-RRH8x20-25		
		1	powerwave technologies	P40-16-XLPP-RR-A w/ Mount Pipe		
		9	rfs celwave	ACU-A20-N		
		2	rfs celwave	APXVSP18-C-A20 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe		
	1	tower mounts	Platform Mount [LP 1201-1]			
145.0	146.0	3	alcatel lucent	800 EXTERNAL NOTCH FILTER	-	-
		3	alcatel lucent	TME-800MHZ RRH		
	145.0	1	tower mounts	Side Arm Mount [SO 102-3]		
	143.0	3	alcatel lucent	TME-1900MHz RRH (65 MHz)		
122.0	123.0	3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	13	1-5/8

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe		
		3	ericsson	KRY 112 144/1		
		3	ericsson	RADIO 4449 B71/B85A		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		1		RMQP-4096-HK		
110.0	112.0	3	andrew	SBNHH-1D65A w/ Mount Pipe	2 4 2 12 2	3/8 3/4 7/8 1-1/4 conduit
		3	cci antennas	DMP65R-BU4D w/ Mount Pipe		
		3	cci antennas	OPA65R-BU4D w/ Mount Pipe		
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 32 B66		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14_CCIV2		
		3	ericsson	RRUS-32 B30		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		6	powerwave technologies	LGP2140X		
		1	raycap	DC6-48-60-18-8C-EV		
		2	raycap	DC6-48-60-18-8F		
		110.0	1	tower mounts		
53.0	54.0	1	gps	GPS_A	1	1/2
	53.0	1	tower mounts	Side Arm Mount [SO 701-1]		
49.0	50.0	1	lucent	KS24019-L112A	1	1/2
	49.0	1	tower mounts	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	2135657	CCISITES
4-POST-MODIFICATION INSPECTION	4699667	CCISITES
4-POST-MODIFICATION INSPECTION	3890848	CCISITES
4-POST-MODIFICATION INSPECTION	2448190	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1613620	CCISITES
4-TOWER MANUFACTURER DRAWINGS	1614568	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	4988798	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3316256	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2431042	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.

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the pole. These calculations are included in Appendix C.

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
147 - 142	Pole	TP22.875x22x0.25	Pole	5.9%	Pass
142 - 137	Pole	TP23.75x22.875x0.25	Pole	11.3%	Pass
137 - 132	Pole	TP24.625x23.75x0.25	Pole	18.5%	Pass
132 - 127	Pole	TP25.5x24.625x0.25	Pole	25.5%	Pass
127 - 122	Pole	TP26.375x25.5x0.25	Pole	32.1%	Pass
122 - 117	Pole	TP27.25x26.375x0.25	Pole	42.0%	Pass
117 - 112	Pole	TP28.125x27.25x0.25	Pole	50.7%	Pass
112 - 107	Pole	TP29x28.125x0.25	Pole	62.9%	Pass
107 - 103.25	Pole	TP30.313x29x0.25	Pole	71.6%	Pass
103.25 - 98.25	Pole	TP30.032x29.157x0.3125	Pole	58.4%	Pass
98.25 - 93.25	Pole	TP30.907x30.032x0.3125	Pole	65.5%	Pass
93.25 - 88.25	Pole	TP31.782x30.907x0.3125	Pole	72.1%	Pass
88.25 - 83.25	Pole	TP32.657x31.782x0.3125	Pole	78.4%	Pass
83.25 - 78.25	Pole	TP33.531x32.657x0.3125	Pole	84.3%	Pass
78.25 - 73.25	Pole	TP34.406x33.531x0.3125	Pole	89.9%	Pass
73.25 - 69.5	Pole	TP35.063x34.406x0.3125	Pole	93.9%	Pass
69.5 - 69.25	Pole + Reinf.	TP35.106x35.063x0.4375	Reinf. 3 Tension Rupture	89.7%	Pass
69.25 - 64.25	Pole + Reinf.	TP35.981x35.106x0.4313	Reinf. 3 Tension Rupture	94.1%	Pass
64.25 - 63.75	Pole + Reinf.	TP36.9x35.981x0.4313	Reinf. 3 Tension Rupture	94.6%	Pass
63.75 - 58	Pole	TP36.45x35.444x0.375	Pole	84.1%	Pass
58 - 57.75	Pole	TP36.494x36.45x0.375	Pole	84.3%	Pass

57.75 - 57.5	Pole	TP36.537x36.494x0.375	Pole	84.5%	Pass
57.5 - 52.5	Pole	TP37.412x36.537x0.375	Pole	87.9%	Pass
52.5 - 50.5	Pole	TP37.762x37.412x0.375	Pole	89.2%	Pass
50.5 - 50.25	Pole + Reinf.	TP37.806x37.762x0.575	Reinf. 5 Tension Rupture	82.2%	Pass
50.25 - 50	Pole	TP37.85x37.806x0.375	Pole	89.6%	Pass
50 - 45	Pole	TP38.725x37.85x0.375	Pole	92.8%	Pass
45 - 40	Pole	TP39.6x38.725x0.375	Pole	95.9%	Pass
40 - 35	Pole	TP40.475x39.6x0.375	Pole	98.8%	Pass
35 - 34.5	Pole	TP41.481x40.475x0.375	Pole	99.1%	Pass
34.5 - 28.25	Pole	TP40.906x39.812x0.4375	Pole	85.8%	Pass
28.25 - 24	Pole	TP41.65x40.906x0.4375	Pole	87.5%	Pass
24 - 23.75	Pole + Reinf.	TP41.694x41.65x0.625	Reinf. 1 Tension Rupture	88.9%	Pass
23.75 - 18.75	Pole + Reinf.	TP42.569x41.694x0.6125	Reinf. 1 Tension Rupture	90.7%	Pass
18.75 - 13.75	Pole + Reinf.	TP43.444x42.569x0.6125	Reinf. 1 Tension Rupture	92.4%	Pass
13.75 - 8.75	Pole + Reinf.	TP44.319x43.444x0.6125	Reinf. 1 Tension Rupture	94.0%	Pass
8.75 - 3.75	Pole + Reinf.	TP45.194x44.319x0.6	Reinf. 1 Tension Rupture	95.5%	Pass
3.75 - 0	Pole + Reinf.	TP45.85x45.194x0.6	Reinf. 1 Tension Rupture	96.5%	Pass
				Summary	
			Pole	99.1%	Pass
			Reinforcement	96.5%	Pass
			Overall	99.1%	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	80.4	Pass
1	Base Plate	0	59.5	Pass
1	Base Foundation (Structure)	0	78.9	Pass
1	Base Foundation (Soil Interaction)	0	86.6	Pass

Structure Rating (max from all components) =	99.1%
---	--------------

Notes:

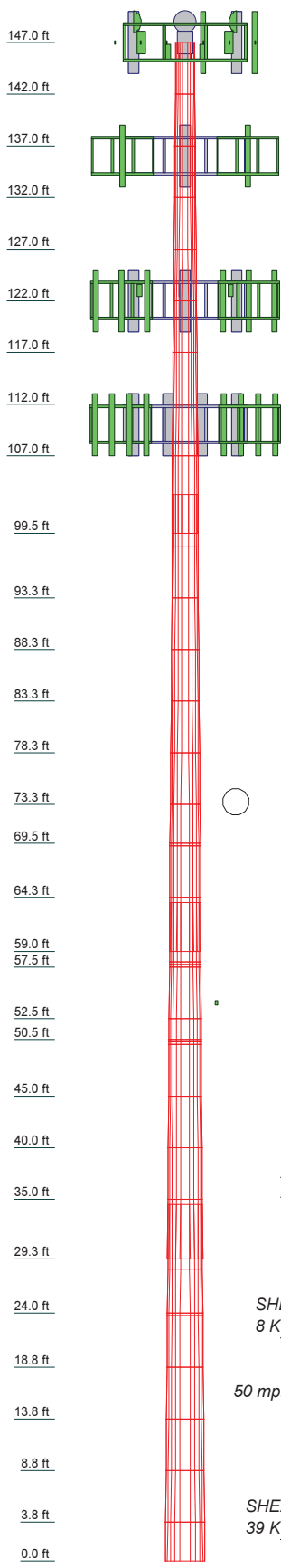
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
2		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
3		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
4		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
5		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
6		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
7		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
8		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
9		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
10		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
11		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
12		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
13		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
14		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
15		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
16		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
17		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
18		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
19		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
20		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
21		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
22		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
23		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
24		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
25		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
26		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
27		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
28		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
29		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
30		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
31		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
32		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
33		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
34		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
35		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
36		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
37		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3
38		12	0.2500	3.7500	28.1254	28.1254	A607-60	0.3



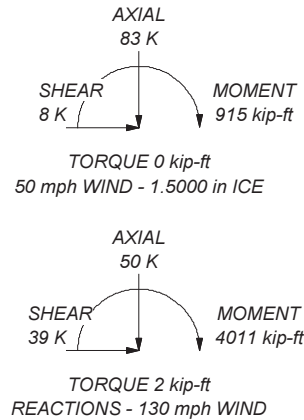
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-60	60 ksi	75 ksi	A607-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C 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 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.0000 ft
8. TOWER RATING: 99.1%

ALL REACTIONS
ARE FACTORED



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

Job: **BU# 876321**

Project:	Client: CCI	Drawn by: HLei	App'd:
Code: TIA-222-H	Date: 06/08/21	Scale: NTS	Dwg No. E-1

Path: C:\Temporary Working Space - No One Drive\876321\WO 1984060 - SAIProd\876321 - Reinf.dwg

Tower Input Data

The tower is a monopole.
 This tower is designed using the TIA-222-H standard.
 The following design criteria apply:

- Tower is located in New Haven County, Connecticut.
- Tower base elevation above sea level: 57.7000 ft.
- Basic wind speed of 130 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.0000 ft.
- Nominal ice thickness of 1.5000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56.00 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- TOWER RATING: 99.1%.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- 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 Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification ✓ Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination ✓ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs	Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <div style="text-align: center; background-color: #e0e0e0; padding: 2px;">Poles</div> ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
--	---	---

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	147.0000-142.0000	5.0000	0.00	12	22.0000	22.8751	0.2500	1.0000	A607-60 (60 ksi)
L2	142.0000-137.0000	5.0000	0.00	12	22.8751	23.7501	0.2500	1.0000	A607-60 (60 ksi)
L3	137.0000-132.0000	5.0000	0.00	12	23.7501	24.6252	0.2500	1.0000	A607-60 (60 ksi)
L4	132.0000-127.0000	5.0000	0.00	12	24.6252	25.5002	0.2500	1.0000	A607-60 (60 ksi)
L5	127.0000-122.0000	5.0000	0.00	12	25.5002	26.3753	0.2500	1.0000	A607-60 (60 ksi)
L6	122.0000-117.0000	5.0000	0.00	12	26.3753	27.2503	0.2500	1.0000	A607-60 (60 ksi)
L7	117.0000-112.0000	5.0000	0.00	12	27.2503	28.1254	0.2500	1.0000	A607-60 (60 ksi)
L8	112.0000-107.0000	5.0000	0.00	12	28.1254	29.0004	0.2500	1.0000	A607-60 (60 ksi)
L9	107.0000-99.5000	7.5000	3.75	12	29.0004	30.3130	0.2500	1.0000	A607-60 (60 ksi)
L10	99.5000-98.2500	5.0000	0.00	12	29.1567	30.0317	0.3125	1.2500	A607-65 (65 ksi)
L11	98.2500-93.2500	5.0000	0.00	12	30.0317	30.9066	0.3125	1.2500	A607-65 (65 ksi)
L12	93.2500-88.2500	5.0000	0.00	12	30.9066	31.7816	0.3125	1.2500	A607-65 (65 ksi)
L13	88.2500-83.2500	5.0000	0.00	12	31.7816	32.6565	0.3125	1.2500	A607-65 (65 ksi)
L14	83.2500-78.2500	5.0000	0.00	12	32.6565	33.5315	0.3125	1.2500	A607-65 (65 ksi)
L15	78.2500-73.2500	5.0000	0.00	12	33.5315	34.4064	0.3125	1.2500	A607-65 (65 ksi)
L16	73.2500-69.5000	3.7500	0.00	12	34.4064	35.0626	0.3125	1.2500	A607-65 (65 ksi)
L17	69.5000-69.2500	0.2500	0.00	12	35.0626	35.1064	0.4375	1.7500	A607-65 (65 ksi)
L18	69.2500-64.2500	5.0000	0.00	12	35.1064	35.9813	0.4313	1.7250	A607-65 (65 ksi)
L19	64.2500-59.0000	5.2500	4.75	12	35.9813	36.9000	0.4313	1.7250	A607-65 (65 ksi)
L20	59.0000-58.0000	5.7500	0.00	12	35.4438	36.4500	0.3750	1.5000	A607-65 (65 ksi)
L21	58.0000-57.7500	0.2500	0.00	12	36.4500	36.4937	0.3750	1.5000	A607-65 (65 ksi)
L22	57.7500-57.5000	0.2500	0.00	12	36.4937	36.5375	0.3750	1.5000	A607-65 (65 ksi)
L23	57.5000-52.5000	5.0000	0.00	12	36.5375	37.4125	0.3750	1.5000	A607-65 (65 ksi)
L24	52.5000-50.5000	2.0000	0.00	12	37.4125	37.7624	0.3750	1.5000	A607-65 (65 ksi)
L25	50.5000-50.2500	0.2500	0.00	12	37.7624	37.8062	0.5750	2.3000	A607-65 (65 ksi)
L26	50.2500-50.0000	0.2500	0.00	12	37.8062	37.8499	0.3750	1.5000	A607-65 (65 ksi)
L27	50.0000-45.0000	5.0000	0.00	12	37.8499	38.7249	0.3750	1.5000	A607-65 (65 ksi)
L28	45.0000-40.0000	5.0000	0.00	12	38.7249	39.5998	0.3750	1.5000	A607-65 (65 ksi)
L29	40.0000-35.0000	5.0000	0.00	12	39.5998	40.4748	0.3750	1.5000	A607-65 (65 ksi)
L30	35.0000-29.2500	5.7500	5.25	12	40.4748	41.4810	0.3750	1.5000	A607-65 (65 ksi)
L31	29.2500-28.2500	6.2500	0.00	12	39.8123	40.9061	0.4375	1.7500	A607-65 (65 ksi)
L32	28.2500-24.0000	4.2500	0.00	12	40.9061	41.6499	0.4375	1.7500	A607-65 (65 ksi)
L33	24.0000-23.7500	0.2500	0.00	12	41.6499	41.6936	0.6250	2.5000	A607-65 (65 ksi)
L34	23.7500-18.7500	5.0000	0.00	12	41.6936	42.5686	0.6125	2.4500	A607-65 (65 ksi)
L35	18.7500-	5.0000	0.00	12	42.5686	43.4437	0.6125	2.4500	A607-65

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
L36	13.7500 13.7500- 8.7500	5.0000	0.00	12	43.4437	44.3187	0.6125	2.4500	(65 ksi) A607-65
L37	8.7500-3.7500	5.0000	0.00	12	44.3187	45.1937	0.6000	2.4000	(65 ksi) A607-65
L38	3.7500-0.0000	3.7500		12	45.1937	45.8500	0.6000	2.4000	(65 ksi) A607-65

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	22.6879	17.5087	1057.2060	7.7865	11.3960	92.7699	2142.1860	8.6173	5.2260	20.904
	23.5938	18.2132	1190.0100	8.0998	11.8493	100.4289	2411.2830	8.9640	5.4605	21.842
L2	23.5938	18.2132	1190.0100	8.0998	11.8493	100.4289	2411.2830	8.9640	5.4605	21.842
	24.4997	18.9176	1333.4946	8.4130	12.3026	108.3917	2702.0215	9.3107	5.6950	22.78
L3	24.4997	18.9176	1333.4946	8.4130	12.3026	108.3917	2702.0215	9.3107	5.6950	22.78
	25.4056	19.6220	1488.0727	8.7263	12.7558	116.6582	3015.2387	9.6574	5.9295	23.718
L4	25.4056	19.6220	1488.0727	8.7263	12.7558	116.6582	3015.2387	9.6574	5.9295	23.718
	26.3116	20.3264	1654.1574	9.0396	13.2091	125.2285	3351.7714	10.0040	6.1641	24.656
L5	26.3116	20.3264	1654.1574	9.0396	13.2091	125.2285	3351.7714	10.0040	6.1641	24.656
	27.2175	21.0308	1832.1619	9.3528	13.6624	134.1026	3712.4568	10.3507	6.3986	25.594
L6	27.2175	21.0308	1832.1619	9.3528	13.6624	134.1026	3712.4568	10.3507	6.3986	25.594
	28.1234	21.7353	2022.4992	9.6661	14.1157	143.2805	4098.1317	10.6974	6.6331	26.532
L7	28.1234	21.7353	2022.4992	9.6661	14.1157	143.2805	4098.1317	10.6974	6.6331	26.532
	29.0293	22.4397	2225.5824	9.9794	14.5689	152.7621	4509.6333	11.0441	6.8676	27.47
L8	29.0293	22.4397	2225.5824	9.9794	14.5689	152.7621	4509.6333	11.0441	6.8676	27.47
	29.9353	23.1441	2441.8246	10.2927	15.0222	162.5475	4947.7986	11.3908	7.1021	28.408
L9	29.9353	23.1441	2441.8246	10.2927	15.0222	162.5475	4947.7986	11.3908	7.1021	28.408
	31.2941	24.2007	2791.7645	10.7626	15.7021	177.7952	5656.8718	11.9109	7.4539	29.816
L10	30.7544	29.0245	3082.2497	10.3262	15.1032	204.0796	6245.4735	14.2850	6.9765	22.325
	30.9808	29.9049	3371.3308	10.6395	15.5564	216.7167	6831.2302	14.7183	7.2110	23.075
L11	30.9808	29.9049	3371.3308	10.6395	15.5564	216.7167	6831.2302	14.7183	7.2110	23.075
	31.8866	30.7853	3677.9444	10.9527	16.0096	229.7334	7452.5126	15.1516	7.4455	23.826
L12	31.8866	30.7853	3677.9444	10.9527	16.0096	229.7334	7452.5126	15.1516	7.4455	23.826
	32.7924	31.6657	4002.6068	11.2659	16.4628	243.1297	8110.3664	15.5849	7.6800	24.576
L13	32.7924	31.6657	4002.6068	11.2659	16.4628	243.1297	8110.3664	15.5849	7.6800	24.576
	33.6983	32.5462	4345.8339	11.5792	16.9161	256.9057	8805.8377	16.0182	7.9144	25.326
L14	33.6983	32.5462	4345.8339	11.5792	16.9161	256.9057	8805.8377	16.0182	7.9144	25.326
	34.6041	33.4266	4708.1421	11.8924	17.3693	271.0613	9539.9723	16.4515	8.1489	26.077
L15	34.6041	33.4266	4708.1421	11.8924	17.3693	271.0613	9539.9723	16.4515	8.1489	26.077
	35.5099	34.3070	5090.0474	12.2056	17.8225	285.5965	10313.816	16.8849	8.3834	26.827
L16	35.5099	34.3070	5090.0474	12.2056	17.8225	285.5965	10313.816	16.8849	8.3834	26.827
	36.1892	34.9673	5389.6476	12.4405	18.1624	296.7470	10920.887	17.2098	8.5593	27.39
L17	36.1452	48.7781	7464.3731	12.3958	18.1624	410.9787	15124.843	24.0071	8.2243	18.798
	36.1904	48.8398	7492.7016	12.4115	18.1851	412.0244	15182.244	24.0374	8.2360	18.825
L18	36.1926	48.1507	7389.6581	12.4137	18.1851	406.3580	14973.450	23.6983	8.2528	19.137
	37.0985	49.3657	7963.2756	12.7269	18.6383	427.2530	16135.755	24.2963	8.4872	19.681
L19	37.0985	49.3657	7963.2756	12.7269	18.6383	427.2530	16135.755	24.2963	8.4872	19.681
	38.0496	50.6414	8596.7355	13.0558	19.1142	449.7565	17419.316	24.9242	8.7334	20.251
L20	37.4224	42.3456	6647.1547	12.5546	18.3599	362.0477	13468.937	20.8412	8.4939	22.651
	37.6035	43.5606	7235.8923	12.9148	18.8811	383.2347	14661.879	21.4392	8.7636	23.37
L21	37.6035	43.5606	7235.8923	12.9148	18.8811	383.2347	14661.879	21.4392	8.7636	23.37

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
	37.6488	43.6134	7262.2489	12.9305	18.9038	384.1695	14715.285	21.4652	8.7753	23.401
L22	37.6488	43.6134	7262.2489	12.9305	18.9038	384.1695	14715.285	21.4652	8.7753	23.401
	37.6941	43.6662	7288.6695	12.9462	18.9264	385.1055	14768.820	21.4912	8.7870	23.432
L23	37.6941	43.6662	7288.6695	12.9462	18.9264	385.1055	14768.820	21.4912	8.7870	23.432
	38.5999	44.7227	7830.6243	13.2594	19.3797	404.0643	15866.967	22.0112	9.0215	24.057
L24	38.5999	44.7227	7830.6243	13.2594	19.3797	404.0643	15866.967	22.0112	9.0215	24.057
	38.9623	45.1453	8054.7132	13.3847	19.5609	411.7753	16321.032	22.2192	9.1153	24.308
L25	38.8917	68.8525	12153.414	13.3131	19.5609	621.3103	24626.113	33.8871	8.5793	14.921
	38.9370	68.9335	12196.357	13.3288	19.5836	622.7842	24713.127	33.9270	8.5911	14.941
L26	39.0076	45.1982	8083.0213	13.4004	19.5836	412.7444	16378.392	22.2452	9.1271	24.339
	39.0528	45.2510	8111.3956	13.4160	19.6063	413.7145	16435.886	22.2712	9.1388	24.37
L27	39.0528	45.2510	8111.3956	13.4160	19.6063	413.7145	16435.886	22.2712	9.1388	24.37
	39.9587	46.3075	8692.9132	13.7293	20.0595	433.3566	17614.199	22.7911	9.3733	24.995
L28	39.9587	46.3075	8692.9132	13.7293	20.0595	433.3566	17614.199	22.7911	9.3733	24.995
	40.8645	47.3640	9301.5803	14.0425	20.5127	453.4543	18847.523	23.3111	9.6078	25.621
L29	40.8645	47.3640	9301.5803	14.0425	20.5127	453.4543	18847.523	23.3111	9.6078	25.621
	41.7703	48.4205	9938.0163	14.3557	20.9659	474.0075	20137.115	23.8311	9.8422	26.246
L30	41.7703	48.4205	9938.0163	14.3557	20.9659	474.0075	20137.115	23.8311	9.8422	26.246
	42.8120	49.6355	10705.051	14.7159	21.4872	498.2069	21691.335	24.4291	10.1119	26.965
L31	42.0136	55.4692	10976.776	14.0962	20.6228	532.2649	22241.924	27.3003	9.4972	21.708
	42.1948	57.0101	11917.189	14.4878	21.1894	562.4141	24147.457	28.0586	9.7903	22.378
L32	42.1948	57.0101	11917.189	14.4878	21.1894	562.4141	24147.457	28.0586	9.7903	22.378
	42.9648	58.0579	12586.421	14.7540	21.5746	583.3900	25503.501	28.5743	9.9897	22.834
L33	42.8986	82.5625	17736.302	14.6869	21.5746	822.0908	35938.557	40.6348	9.4872	15.179
	42.9439	82.6506	17793.108	14.7026	21.5973	823.8584	36053.661	40.6781	9.4989	15.198
L34	42.9483	81.0222	17453.173	14.7070	21.5973	808.1187	35364.860	39.8767	9.5324	15.563
	43.8542	82.7480	18592.357	15.0203	22.0506	843.1696	37673.156	40.7260	9.7669	15.946
L35	43.8542	82.7480	18592.357	15.0203	22.0506	843.1696	37673.156	40.7260	9.7669	15.946
	44.7601	84.4738	19780.063	15.3336	22.5038	878.9647	40079.771	41.5754	10.0014	16.329
L36	44.7601	84.4738	19780.063	15.3336	22.5038	878.9647	40079.771	41.5754	10.0014	16.329
	45.6660	86.1995	21017.304	15.6468	22.9571	915.5040	42586.756	42.4248	10.2359	16.712
L37	45.6704	84.4645	20606.049	15.6513	22.9571	897.5899	41753.442	41.5709	10.2694	17.116
	46.5763	86.1551	21868.269	15.9646	23.4104	934.1282	44311.041	42.4029	10.5039	17.507
L38	46.5763	86.1551	21868.269	15.9646	23.4104	934.1282	44311.041	42.4029	10.5039	17.507
	47.2558	87.4230	22848.033	16.1995	23.7503	962.0103	46296.309	43.0269	10.6798	17.8

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	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
ft	ft ²	in							
L1 147.0000-142.0000				1	1	1			
L2 142.0000-137.0000				1	1	1			
L3 137.0000-132.0000				1	1	1			
L4 132.0000-127.0000				1	1	1			
L5 127.0000-122.0000				1	1	1			
L6 122.0000-117.0000				1	1	1			
L7 117.0000-112.0000				1	1	1			
L8 112.0000-107.0000				1	1	1			
L9 107.0000-99.5000				1	1	1			
L10 99.5000-98.2500				1	1	1			
L11 98.2500-93.2500				1	1	1			
L12 93.2500-88.2500				1	1	1			
L13 88.2500-83.2500				1	1	1			
L14 83.2500-78.2500				1	1	1			
L15 78.2500-73.2500				1	1	1			
L16 73.2500-69.5000				1	1	1			
L17 69.5000-69.2500				1	1	0.970912			
L18 69.2500-64.2500				1	1	0.978402			
L19 64.2500-59.0000				1	1	0.977779			
L20 59.0000-58.0000				1	1	1			
L21 58.0000-57.7500				1	1	1			
L22 57.7500-57.5000				1	1	1			
L23 57.5000-52.5000				1	1	1			
L24 52.5000-50.5000				1	1	1			
L25 50.5000-50.2500				1	1	0.962934			
L26 50.2500-50.0000				1	1	1			
L27 50.0000-45.0000				1	1	1			
L28 45.0000-40.0000				1	1	1			
L29 40.0000-35.0000				1	1	1			
L30 35.0000-29.2500				1	1	1			
L31 29.2500-28.2500				1	1	1			
L32 28.2500-24.0000				1	1	1			
L33 24.0000-23.7500				1	1	1.00344			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	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
ft	ft ²	in							
L34 23.7500-18.7500				1	1	1.01716			
L35 18.7500-13.7500				1	1	1.01097			
L36 13.7500-8.7500				1	1	1.00503			
L37 8.7500-3.7500				1	1	1.01986			
L38 3.7500-0.0000				1	1	1.01564			

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
9011(1/2)	A	No	Surface Ar (CaAa)	147.0000 - 0.0000	5	2	0.167 0.192	0.4000		0.06
9011(1/2)	A	No	Surface Ar (CaAa)	147.0000 - 0.0000	1	1	0.183 0.183	0.4000		0.06
MLE Hybrid 9Power/18Fiber RL 2(1-5/8) ****	B	No	Surface Ar (CaAa)	119.0000 - 0.0000	1	1	0.342 0.342	1.6250		1.07
LDF4-50A(1/2)	A	No	Surface Ar (CaAa)	53.0000 - 0.0000	1	1	0.225 0.225	0.6300		0.15
LDF4-50A(1/2) ***	A	No	Surface Ar (CaAa)	49.0000 - 0.0000	1	1	0.225 0.225	0.6300		0.15
MP3-04 (L)	B	No	Surface Af (CaAa)	25.5000 - 0.0000	1	1	-0.267 -0.267	4.7800	12.7800	0.00
MP3-04 (L)	A	No	Surface Af (CaAa)	25.5000 - 0.0000	1	1	-0.267 -0.267	4.7800	12.7800	0.00
MP3-04 (L)	C	No	Surface Af (CaAa)	25.5000 - 0.0000	1	1	-0.267 -0.267	4.7800	12.7800	0.00
MP3-04 (L)	A	No	Surface Af (CaAa)	52.0000 - 32.0000	1	1	0.483 0.483	4.7800	12.7800	0.00
MP3-04 (L)	C	No	Surface Af (CaAa)	52.0000 - 32.0000	1	1	0.483 0.483	4.7800	12.7800	0.00
MP3-04 (L)	B	No	Surface Af (CaAa)	52.0000 - 32.0000	1	1	0.483 0.483	4.7800	12.7800	0.00
MP3-04 (L)	A	No	Surface Af (CaAa)	71.0000 - 61.0000	1	1	0.483 0.483	4.7800	12.7800	0.00
MP3-04 (L)	C	No	Surface Af (CaAa)	71.0000 - 61.0000	1	1	0.483 0.483	4.7800	12.7800	0.00
MP3-04 (L)	B	No	Surface Af (CaAa)	71.0000 - 61.0000	1	1	0.483 0.483	4.7800	12.7800	0.00
MP3-04 (L)	A	No	Surface Af (CaAa)	35.5000 - 0.0000	1	1	-0.017 -0.017	4.7800	12.7800	0.00
MP3-04 (L)	C	No	Surface Af (CaAa)	35.5000 - 0.0000	1	1	0.233 0.233	4.7800	12.7800	0.00
MP3-04 (L)	B	No	Surface Af (CaAa)	35.5000 - 0.0000	1	1	0.233 0.233	4.7800	12.7800	0.00
MP3-03 (L)	A	No	Surface Af (CaAa)	59.0000 - 49.0000	1	1	0.233 0.233	4.0600	11.2600	0.00
MP3-03 (L)	C	No	Surface Af (CaAa)	59.0000 - 49.0000	1	1	0.233 0.233	4.0600	11.2600	0.00
MP3-03 (L)	B	No	Surface Af (CaAa)	59.0000 - 49.0000	1	1	0.233 0.233	4.0600	11.2600	0.00
CU12PSM9P6XXX(1-1/2) ***	A	No	Surface Ar (CaAa)	136.0000 - 0.0000	1	1	0.500 0.500	1.6000		2.35

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

**										
*										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf
HB114-1-0813U4-M5J(1-1/4)	C	No	No	Inside Pole	147.0000 - 0.0000	3	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	1.20 1.20 1.20 1.20

HCS 6X12 4AWG(1-5/8)	B	No	No	Inside Pole	119.0000 - 0.0000	3	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	2.40 2.40 2.40 2.40
LDF7-50A(1-5/8)	B	No	No	Inside Pole	119.0000 - 0.0000	9	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.82 0.82 0.82 0.82

WR-VG66ST-BRD_CCIV2(7/8)	C	No	No	Inside Pole	110.0000 - 0.0000	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.88 0.88 0.88 0.88
LDF6-50A(1-1/4)	C	No	No	Inside Pole	110.0000 - 0.0000	12	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.60 0.60 0.60 0.60
FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	110.0000 - 0.0000	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.06 0.06 0.06 0.06
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	110.0000 - 0.0000	4	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.58 0.58 0.58 0.58
2" (Nominal) Conduit	C	No	No	Inside Pole	110.0000 - 0.0000	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.72 0.72 0.72 0.72

**									
*									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	147.0000-142.0000	A	0.000	0.000	0.600	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L2	142.0000-137.0000	A	0.000	0.000	0.600	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L3	137.0000-	A	0.000	0.000	1.240	0.000	0.01

Tower Section	Tower Elevation	Face	A _R	A _F	C _A A _A In Face	C _A A _A Out Face	Weight
n	ft		ft ²	ft ²	ft ²	ft ²	K
	132.0000	B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L4	132.0000-127.0000	A	0.000	0.000	1.400	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L5	127.0000-122.0000	A	0.000	0.000	1.400	0.000	0.01
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L6	122.0000-117.0000	A	0.000	0.000	1.400	0.000	0.01
		B	0.000	0.000	0.325	0.000	0.03
		C	0.000	0.000	0.000	0.000	0.02
L7	117.0000-112.0000	A	0.000	0.000	1.400	0.000	0.01
		B	0.000	0.000	0.813	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.02
L8	112.0000-107.0000	A	0.000	0.000	1.400	0.000	0.01
		B	0.000	0.000	0.813	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.06
L9	107.0000-99.5000	A	0.000	0.000	2.100	0.000	0.02
		B	0.000	0.000	1.219	0.000	0.12
		C	0.000	0.000	0.000	0.000	0.12
L10	99.5000-98.2500	A	0.000	0.000	0.350	0.000	0.00
		B	0.000	0.000	0.203	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.02
L11	98.2500-93.2500	A	0.000	0.000	1.400	0.000	0.01
		B	0.000	0.000	0.813	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.08
L12	93.2500-88.2500	A	0.000	0.000	1.400	0.000	0.01
		B	0.000	0.000	0.813	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.08
L13	88.2500-83.2500	A	0.000	0.000	1.400	0.000	0.01
		B	0.000	0.000	0.813	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.08
L14	83.2500-78.2500	A	0.000	0.000	1.400	0.000	0.01
		B	0.000	0.000	0.813	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.08
L15	78.2500-73.2500	A	0.000	0.000	1.400	0.000	0.01
		B	0.000	0.000	0.813	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.08
L16	73.2500-69.5000	A	0.000	0.000	2.221	0.000	0.01
		B	0.000	0.000	1.780	0.000	0.06
		C	0.000	0.000	1.171	0.000	0.06
L17	69.5000-69.2500	A	0.000	0.000	0.265	0.000	0.00
		B	0.000	0.000	0.236	0.000	0.00
		C	0.000	0.000	0.195	0.000	0.00
L18	69.2500-64.2500	A	0.000	0.000	5.303	0.000	0.01
		B	0.000	0.000	4.716	0.000	0.08
		C	0.000	0.000	3.903	0.000	0.08
L19	64.2500-59.0000	A	0.000	0.000	4.007	0.000	0.01
		B	0.000	0.000	3.390	0.000	0.08
		C	0.000	0.000	2.537	0.000	0.09
L20	59.0000-58.0000	A	0.000	0.000	0.957	0.000	0.00
		B	0.000	0.000	0.839	0.000	0.02
		C	0.000	0.000	0.677	0.000	0.02
L21	58.0000-57.7500	A	0.000	0.000	0.239	0.000	0.00
		B	0.000	0.000	0.210	0.000	0.00
		C	0.000	0.000	0.169	0.000	0.00
L22	57.7500-57.5000	A	0.000	0.000	0.239	0.000	0.00
		B	0.000	0.000	0.210	0.000	0.00
		C	0.000	0.000	0.169	0.000	0.00
L23	57.5000-52.5000	A	0.000	0.000	4.815	0.000	0.01
		B	0.000	0.000	4.196	0.000	0.08
		C	0.000	0.000	3.383	0.000	0.08
L24	52.5000-50.5000	A	0.000	0.000	3.234	0.000	0.01
		B	0.000	0.000	2.873	0.000	0.03
		C	0.000	0.000	2.548	0.000	0.03
L25	50.5000-50.2500	A	0.000	0.000	0.454	0.000	0.00
		B	0.000	0.000	0.409	0.000	0.00
		C	0.000	0.000	0.368	0.000	0.00
L26	50.2500-50.0000	A	0.000	0.000	0.454	0.000	0.00

Tower Sectio n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
		B	0.000	0.000	0.409	0.000	0.00
		C	0.000	0.000	0.368	0.000	0.00
L27	50.0000-45.0000	A	0.000	0.000	6.627	0.000	0.01
		B	0.000	0.000	5.473	0.000	0.08
		C	0.000	0.000	4.660	0.000	0.08
L28	45.0000-40.0000	A	0.000	0.000	6.013	0.000	0.02
		B	0.000	0.000	4.796	0.000	0.08
		C	0.000	0.000	3.983	0.000	0.08
L29	40.0000-35.0000	A	0.000	0.000	6.412	0.000	0.02
		B	0.000	0.000	5.194	0.000	0.08
		C	0.000	0.000	4.382	0.000	0.08
L30	35.0000-29.2500	A	0.000	0.000	9.305	0.000	0.02
		B	0.000	0.000	7.905	0.000	0.09
		C	0.000	0.000	6.971	0.000	0.09
L31	29.2500-28.2500	A	0.000	0.000	1.203	0.000	0.00
		B	0.000	0.000	0.959	0.000	0.02
		C	0.000	0.000	0.797	0.000	0.02
L32	28.2500-24.0000	A	0.000	0.000	6.306	0.000	0.01
		B	0.000	0.000	5.271	0.000	0.07
		C	0.000	0.000	4.581	0.000	0.07
L33	24.0000-23.7500	A	0.000	0.000	0.500	0.000	0.00
		B	0.000	0.000	0.439	0.000	0.00
		C	0.000	0.000	0.398	0.000	0.00
L34	23.7500-18.7500	A	0.000	0.000	9.997	0.000	0.02
		B	0.000	0.000	8.779	0.000	0.08
		C	0.000	0.000	7.967	0.000	0.08
L35	18.7500-13.7500	A	0.000	0.000	9.997	0.000	0.02
		B	0.000	0.000	8.779	0.000	0.08
		C	0.000	0.000	7.967	0.000	0.08
L36	13.7500-8.7500	A	0.000	0.000	9.997	0.000	0.02
		B	0.000	0.000	8.779	0.000	0.08
		C	0.000	0.000	7.967	0.000	0.08
L37	8.7500-3.7500	A	0.000	0.000	9.997	0.000	0.02
		B	0.000	0.000	8.779	0.000	0.08
		C	0.000	0.000	7.967	0.000	0.08
L38	3.7500-0.0000	A	0.000	0.000	7.498	0.000	0.01
		B	0.000	0.000	6.584	0.000	0.06
		C	0.000	0.000	5.975	0.000	0.06

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Sectio n	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	147.0000- 142.0000	A	1.478	0.000	0.000	4.025	0.000	0.04
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L2	142.0000- 137.0000	A	1.473	0.000	0.000	4.014	0.000	0.04
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L3	137.0000- 132.0000	A	1.467	0.000	0.000	5.815	0.000	0.07
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L4	132.0000- 127.0000	A	1.462	0.000	0.000	6.251	0.000	0.08
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L5	127.0000- 122.0000	A	1.456	0.000	0.000	6.232	0.000	0.08
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L6	122.0000- 117.0000	A	1.450	0.000	0.000	6.213	0.000	0.08
		B		0.000	0.000	0.905	0.000	0.04
		C		0.000	0.000	0.000	0.000	0.02
L7	117.0000- 112.0000	A	1.444	0.000	0.000	6.193	0.000	0.08
		B		0.000	0.000	2.256	0.000	0.11
		C		0.000	0.000	0.000	0.000	0.02
L8	112.0000-	A	1.437	0.000	0.000	6.172	0.000	0.08

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L9	107.0000-99.5000	B	1.429	0.000	0.000	2.250	0.000	0.11
		C		0.000	0.000	0.000	0.000	0.06
		A		0.000	0.000	9.216	0.000	0.12
L10	99.5000-98.2500	B	1.423	0.000	0.000	3.362	0.000	0.16
		C		0.000	0.000	0.000	0.000	0.12
		A		0.000	0.000	1.536	0.000	0.02
L11	98.2500-93.2500	B	1.418	0.000	0.000	0.560	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.02
		A		0.000	0.000	6.109	0.000	0.08
L12	93.2500-88.2500	B	1.411	0.000	0.000	2.231	0.000	0.10
		C		0.000	0.000	0.000	0.000	0.08
		A		0.000	0.000	6.085	0.000	0.08
L13	88.2500-83.2500	B	1.403	0.000	0.000	2.223	0.000	0.10
		C		0.000	0.000	0.000	0.000	0.08
		A		0.000	0.000	6.059	0.000	0.08
L14	83.2500-78.2500	B	1.394	0.000	0.000	2.215	0.000	0.10
		C		0.000	0.000	0.000	0.000	0.08
		A		0.000	0.000	6.032	0.000	0.08
L15	78.2500-73.2500	B	1.385	0.000	0.000	2.207	0.000	0.10
		C		0.000	0.000	0.000	0.000	0.08
		A		0.000	0.000	6.003	0.000	0.08
L16	73.2500-69.5000	B	1.377	0.000	0.000	2.198	0.000	0.10
		C		0.000	0.000	0.000	0.000	0.08
		A		0.000	0.000	5.874	0.000	0.07
L17	69.5000-69.2500	B	1.373	0.000	0.000	3.034	0.000	0.09
		C		0.000	0.000	1.392	0.000	0.08
		A		0.000	0.000	0.530	0.000	0.01
L18	69.2500-64.2500	B	1.373	0.000	0.000	0.341	0.000	0.01
		C		0.000	0.000	0.232	0.000	0.01
		A		0.000	0.000	10.582	0.000	0.12
L19	64.2500-59.0000	B	1.368	0.000	0.000	6.816	0.000	0.15
		C		0.000	0.000	4.636	0.000	0.13
		A		0.000	0.000	9.216	0.000	0.11
L20	59.0000-58.0000	B	1.357	0.000	0.000	5.288	0.000	0.14
		C		0.000	0.000	3.009	0.000	0.12
		A		0.000	0.000	2.033	0.000	0.02
L21	58.0000-57.7500	B	1.350	0.000	0.000	1.285	0.000	0.03
		C		0.000	0.000	0.851	0.000	0.03
		A		0.000	0.000	0.507	0.000	0.01
L22	57.7500-57.5000	B	1.349	0.000	0.000	0.321	0.000	0.01
		C		0.000	0.000	0.212	0.000	0.01
		A		0.000	0.000	0.507	0.000	0.01
L23	57.5000-52.5000	B	1.348	0.000	0.000	0.320	0.000	0.01
		C		0.000	0.000	0.212	0.000	0.01
		A		0.000	0.000	10.272	0.000	0.12
L24	52.5000-50.5000	B	1.342	0.000	0.000	6.400	0.000	0.15
		C		0.000	0.000	4.246	0.000	0.12
		A		0.000	0.000	6.283	0.000	0.07
L25	50.5000-50.2500	B	1.333	0.000	0.000	4.150	0.000	0.07
		C		0.000	0.000	3.291	0.000	0.06
		A		0.000	0.000	0.851	0.000	0.01
L26	50.2500-50.0000	B	1.330	0.000	0.000	0.585	0.000	0.01
		C		0.000	0.000	0.478	0.000	0.01
		A		0.000	0.000	0.851	0.000	0.01
L27	50.0000-45.0000	B	1.329	0.000	0.000	0.585	0.000	0.01
		C		0.000	0.000	0.478	0.000	0.01
		A		0.000	0.000	14.897	0.000	0.15
L28	45.0000-40.0000	B	1.322	0.000	0.000	8.287	0.000	0.16
		C		0.000	0.000	6.153	0.000	0.14
		A		0.000	0.000	14.286	0.000	0.15
L29	40.0000-35.0000	B	1.308	0.000	0.000	7.411	0.000	0.15
		C		0.000	0.000	5.291	0.000	0.13
		A		0.000	0.000	14.712	0.000	0.15
L30	35.0000-29.2500	B	1.291	0.000	0.000	7.906	0.000	0.15
		C		0.000	0.000	5.802	0.000	0.13
		A		0.000	0.000	19.322	0.000	0.19
L31	29.2500-28.2500	B	1.272	0.000	0.000	11.593	0.000	0.19
		C		0.000	0.000	9.196	0.000	0.17
		A		0.000	0.000	2.812	0.000	0.03

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
		B		0.000	0.000	1.468	0.000	0.03
		C		0.000	0.000	1.051	0.000	0.03
L32	28.2500-24.0000	A	1.246	0.000	0.000	13.382	0.000	0.13
		B		0.000	0.000	7.763	0.000	0.13
		C		0.000	0.000	6.013	0.000	0.12
L33	24.0000-23.7500	A	1.234	0.000	0.000	0.952	0.000	0.01
		B		0.000	0.000	0.624	0.000	0.01
		C		0.000	0.000	0.522	0.000	0.01
L34	23.7500-18.7500	A	1.220	0.000	0.000	18.942	0.000	0.18
		B		0.000	0.000	12.439	0.000	0.18
		C		0.000	0.000	10.407	0.000	0.16
L35	18.7500-13.7500	A	1.188	0.000	0.000	18.708	0.000	0.17
		B		0.000	0.000	12.342	0.000	0.18
		C		0.000	0.000	10.342	0.000	0.16
L36	13.7500-8.7500	A	1.145	0.000	0.000	18.397	0.000	0.16
		B		0.000	0.000	12.214	0.000	0.17
		C		0.000	0.000	10.256	0.000	0.16
L37	8.7500-3.7500	A	1.079	0.000	0.000	17.922	0.000	0.15
		B		0.000	0.000	12.017	0.000	0.17
		C		0.000	0.000	10.126	0.000	0.15
L38	3.7500-0.0000	A	0.957	0.000	0.000	12.775	0.000	0.10
		B		0.000	0.000	8.737	0.000	0.12
		C		0.000	0.000	7.410	0.000	0.11

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L1	147.0000-142.0000	-0.4456	-0.5635	-1.5161	-1.9201
L2	142.0000-137.0000	-0.4459	-0.5639	-1.5341	-1.9429
L3	137.0000-132.0000	-0.4205	-1.2765	-1.4221	-2.8754
L4	132.0000-127.0000	-0.4157	-1.4423	-1.4106	-3.1137
L5	127.0000-122.0000	-0.4169	-1.4455	-1.4271	-3.1497
L6	122.0000-117.0000	-0.0461	-1.3412	-0.8681	-2.9645
L7	117.0000-112.0000	0.4705	-1.1962	-0.0943	-2.6984
L8	112.0000-107.0000	0.4718	-1.2004	-0.0953	-2.7282
L9	107.0000-99.5000	0.4733	-1.2055	-0.0963	-2.7631
L10	99.5000-98.2500	0.4739	-1.2074	-0.0970	-2.7746
L11	98.2500-93.2500	0.4746	-1.2097	-0.0961	-2.7851
L12	93.2500-88.2500	0.4757	-1.2133	-0.0965	-2.8095
L13	88.2500-83.2500	0.4767	-1.2168	-0.0967	-2.8322
L14	83.2500-78.2500	0.4776	-1.2201	-0.0967	-2.8533
L15	78.2500-73.2500	0.4786	-1.2232	-0.0964	-2.8727
L16	73.2500-69.5000	0.3729	-0.9536	-0.0808	-2.4288
L17	69.5000-69.2500	0.2811	-0.7190	-0.0652	-1.9701
L18	69.2500-64.2500	0.2826	-0.7232	-0.0651	-1.9804
L19	64.2500-59.0000	0.3380	-0.8654	-0.0737	-2.2725
L20	59.0000-58.0000	0.3017	-0.7723	-0.0664	-2.0493
L21	58.0000-57.7500	0.3020	-0.7733	-0.0652	-2.0463
L22	57.7500-57.5000	0.3022	-0.7737	-0.0652	-2.0472
L23	57.5000-52.5000	0.2915	-0.7951	-0.1042	-2.1092
L24	52.5000-50.5000	0.1403	-0.7231	-0.3501	-2.0369
L25	50.5000-50.2500	0.1303	-0.6716	-0.3279	-1.9091
L26	50.2500-50.0000	0.1303	-0.6715	-0.3278	-1.9090
L27	50.0000-45.0000	0.0804	-0.9677	-0.6506	-2.6533
L28	45.0000-40.0000	0.0642	-1.0747	-0.7522	-2.8990

Section	Elevation	CP _x	CP _z	CP _x Ice	CP _z Ice
	ft	in	in	in	in
L29	40.0000-35.0000	-0.1315	-0.8784	-0.8914	-2.6934
L30	35.0000-29.2500	-1.6274	0.5327	-2.0688	-1.3072
L31	29.2500-28.2500	-1.9462	0.6371	-2.3988	-1.5158
L32	28.2500-24.0000	-1.7261	0.5651	-2.1672	-1.3480
L33	24.0000-23.7500	-1.4229	0.4658	-1.8452	-1.1397
L34	23.7500-18.7500	-1.4340	0.4694	-1.8541	-1.1347
L35	18.7500-13.7500	-1.4552	0.4763	-1.8687	-1.1197
L36	13.7500-8.7500	-1.4732	0.4822	-1.8788	-1.0927
L37	8.7500-3.7500	-1.4902	0.4877	-1.8794	-1.0408
L38	3.7500-0.0000	-1.5049	0.4925	-1.8533	-0.9221

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L1	1	9011(1/2)	142.00 - 147.00	1.0000	1.0000
L1	2	9011(1/2)	142.00 - 147.00	1.0000	1.0000
L2	1	9011(1/2)	137.00 - 142.00	1.0000	1.0000
L2	2	9011(1/2)	137.00 - 142.00	1.0000	1.0000
L3	1	9011(1/2)	132.00 - 137.00	1.0000	1.0000
L3	2	9011(1/2)	132.00 - 137.00	1.0000	1.0000
L3	36	CU12PSM9P6XXX(1-1/2)	132.00 - 136.00	1.0000	1.0000
L4	1	9011(1/2)	127.00 - 132.00	1.0000	1.0000
L4	2	9011(1/2)	127.00 - 132.00	1.0000	1.0000
L4	36	CU12PSM9P6XXX(1-1/2)	127.00 - 132.00	1.0000	1.0000
L5	1	9011(1/2)	122.00 - 127.00	1.0000	1.0000
L5	2	9011(1/2)	122.00 - 127.00	1.0000	1.0000
L5	36	CU12PSM9P6XXX(1-1/2)	122.00 - 127.00	1.0000	1.0000
L6	1	9011(1/2)	117.00 - 122.00	1.0000	1.0000
L6	2	9011(1/2)	117.00 - 122.00	1.0000	1.0000
L6	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	117.00 - 119.00	1.0000	1.0000
L6	36	CU12PSM9P6XXX(1-1/2)	117.00 - 122.00	1.0000	1.0000
L7	1	9011(1/2)	112.00 - 117.00	1.0000	1.0000
L7	2	9011(1/2)	112.00 - 117.00	1.0000	1.0000
L7	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	112.00 - 117.00	1.0000	1.0000
L7	36	CU12PSM9P6XXX(1-1/2)	112.00 - 117.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L8	1	9011(1/2)	107.00 - 112.00	1.0000	1.0000
L8	2	9011(1/2)	107.00 - 112.00	1.0000	1.0000
L8	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	107.00 - 112.00	1.0000	1.0000
L8	36	CU12PSM9P6XXX(1-1/2)	107.00 - 112.00	1.0000	1.0000
L9	1	9011(1/2)	99.50 - 107.00	1.0000	1.0000
L9	2	9011(1/2)	99.50 - 107.00	1.0000	1.0000
L9	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	99.50 - 107.00	1.0000	1.0000
L9	36	CU12PSM9P6XXX(1-1/2)	99.50 - 107.00	1.0000	1.0000
L10	1	9011(1/2)	98.25 - 99.50	1.0000	1.0000
L10	2	9011(1/2)	98.25 - 99.50	1.0000	1.0000
L10	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	98.25 - 99.50	1.0000	1.0000
L10	36	CU12PSM9P6XXX(1-1/2)	98.25 - 99.50	1.0000	1.0000
L11	1	9011(1/2)	93.25 - 98.25	1.0000	1.0000
L11	2	9011(1/2)	93.25 - 98.25	1.0000	1.0000
L11	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	93.25 - 98.25	1.0000	1.0000
L11	36	CU12PSM9P6XXX(1-1/2)	93.25 - 98.25	1.0000	1.0000
L12	1	9011(1/2)	88.25 - 93.25	1.0000	1.0000
L12	2	9011(1/2)	88.25 - 93.25	1.0000	1.0000
L12	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	88.25 - 93.25	1.0000	1.0000
L12	36	CU12PSM9P6XXX(1-1/2)	88.25 - 93.25	1.0000	1.0000
L13	1	9011(1/2)	83.25 - 88.25	1.0000	1.0000
L13	2	9011(1/2)	83.25 - 88.25	1.0000	1.0000
L13	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	83.25 - 88.25	1.0000	1.0000
L13	36	CU12PSM9P6XXX(1-1/2)	83.25 - 88.25	1.0000	1.0000
L14	1	9011(1/2)	78.25 - 83.25	1.0000	1.0000
L14	2	9011(1/2)	78.25 - 83.25	1.0000	1.0000
L14	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	78.25 - 83.25	1.0000	1.0000
L14	36	CU12PSM9P6XXX(1-1/2)	78.25 - 83.25	1.0000	1.0000
L15	1	9011(1/2)	73.25 - 78.25	1.0000	1.0000
L15	2	9011(1/2)	73.25 - 78.25	1.0000	1.0000
L15	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	73.25 - 78.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L15	36	CU12PSM9P6XXX(1-1/2) 5/8)	73.25 - 78.25	1.0000	1.0000
L16	1	9011(1/2)	69.50 - 73.25	1.0000	1.0000
L16	2	9011(1/2)	69.50 - 73.25	1.0000	1.0000
L16	7	MLE Hybrid 9Power/18Fiber RL 2(1- 5/8)	69.50 - 73.25	1.0000	1.0000
L16	26	MP3-04 (L)	69.50 - 71.00	1.0000	1.0000
L16	27	MP3-04 (L)	69.50 - 71.00	1.0000	1.0000
L16	28	MP3-04 (L)	69.50 - 71.00	1.0000	1.0000
L16	36	CU12PSM9P6XXX(1-1/2)	69.50 - 73.25	1.0000	1.0000
L17	1	9011(1/2)	69.25 - 69.50	1.0000	1.0000
L17	2	9011(1/2)	69.25 - 69.50	1.0000	1.0000
L17	7	MLE Hybrid 9Power/18Fiber RL 2(1- 5/8)	69.25 - 69.50	1.0000	1.0000
L17	26	MP3-04 (L)	69.25 - 69.50	1.0000	1.0000
L17	27	MP3-04 (L)	69.25 - 69.50	1.0000	1.0000
L17	28	MP3-04 (L)	69.25 - 69.50	1.0000	1.0000
L17	36	CU12PSM9P6XXX(1-1/2)	69.25 - 69.50	1.0000	1.0000
L18	1	9011(1/2)	64.25 - 69.25	1.0000	1.0000
L18	2	9011(1/2)	64.25 - 69.25	1.0000	1.0000
L18	7	MLE Hybrid 9Power/18Fiber RL 2(1- 5/8)	64.25 - 69.25	1.0000	1.0000
L18	26	MP3-04 (L)	64.25 - 69.25	1.0000	1.0000
L18	27	MP3-04 (L)	64.25 - 69.25	1.0000	1.0000
L18	28	MP3-04 (L)	64.25 - 69.25	1.0000	1.0000
L18	36	CU12PSM9P6XXX(1-1/2)	64.25 - 69.25	1.0000	1.0000
L19	1	9011(1/2)	59.00 - 64.25	1.0000	1.0000
L19	2	9011(1/2)	59.00 - 64.25	1.0000	1.0000
L19	7	MLE Hybrid 9Power/18Fiber RL 2(1- 5/8)	59.00 - 64.25	1.0000	1.0000
L19	26	MP3-04 (L)	61.00 - 64.25	1.0000	1.0000
L19	27	MP3-04 (L)	61.00 - 64.25	1.0000	1.0000
L19	28	MP3-04 (L)	61.00 - 64.25	1.0000	1.0000
L19	36	CU12PSM9P6XXX(1-1/2)	59.00 - 64.25	1.0000	1.0000
L20	1	9011(1/2)	58.00 - 59.00	1.0000	1.0000
L20	2	9011(1/2)	58.00 - 59.00	1.0000	1.0000
L20	7	MLE Hybrid 9Power/18Fiber RL 2(1-	58.00 - 59.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L20	32	MP3-03 (L)	58.00 - 59.00	1.0000	1.0000
L20	33	MP3-03 (L)	58.00 - 59.00	1.0000	1.0000
L20	34	MP3-03 (L)	58.00 - 59.00	1.0000	1.0000
L20	36	CU12PSM9P6XXX(1-1/2)	58.00 - 59.00	1.0000	1.0000
L21	1	9011(1/2)	57.75 - 58.00	1.0000	1.0000
L21	2	9011(1/2)	57.75 - 58.00	1.0000	1.0000
L21	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	57.75 - 58.00	1.0000	1.0000
L21	32	MP3-03 (L)	57.75 - 58.00	1.0000	1.0000
L21	33	MP3-03 (L)	57.75 - 58.00	1.0000	1.0000
L21	34	MP3-03 (L)	57.75 - 58.00	1.0000	1.0000
L21	36	CU12PSM9P6XXX(1-1/2)	57.75 - 58.00	1.0000	1.0000
L22	1	9011(1/2)	57.50 - 57.75	1.0000	1.0000
L22	2	9011(1/2)	57.50 - 57.75	1.0000	1.0000
L22	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	57.50 - 57.75	1.0000	1.0000
L22	32	MP3-03 (L)	57.50 - 57.75	1.0000	1.0000
L22	33	MP3-03 (L)	57.50 - 57.75	1.0000	1.0000
L22	34	MP3-03 (L)	57.50 - 57.75	1.0000	1.0000
L22	36	CU12PSM9P6XXX(1-1/2)	57.50 - 57.75	1.0000	1.0000
L23	1	9011(1/2)	52.50 - 57.50	1.0000	1.0000
L23	2	9011(1/2)	52.50 - 57.50	1.0000	1.0000
L23	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	52.50 - 57.50	1.0000	1.0000
L23	17	LDF4-50A(1/2)	52.50 - 53.00	1.0000	1.0000
L23	32	MP3-03 (L)	52.50 - 57.50	1.0000	1.0000
L23	33	MP3-03 (L)	52.50 - 57.50	1.0000	1.0000
L23	34	MP3-03 (L)	52.50 - 57.50	1.0000	1.0000
L23	36	CU12PSM9P6XXX(1-1/2)	52.50 - 57.50	1.0000	1.0000
L24	1	9011(1/2)	50.50 - 52.50	1.0000	1.0000
L24	2	9011(1/2)	50.50 - 52.50	1.0000	1.0000
L24	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	50.50 - 52.50	1.0000	1.0000
L24	17	LDF4-50A(1/2)	50.50 - 52.50	1.0000	1.0000
L24	23	MP3-04 (L)	50.50 - 52.00	1.0000	1.0000
L24	24	MP3-04 (L)	50.50 - 52.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L24	25	MP3-04 (L)	50.50 - 52.00	1.0000	1.0000
L24	32	MP3-03 (L)	50.50 - 52.50	1.0000	1.0000
L24	33	MP3-03 (L)	50.50 - 52.50	1.0000	1.0000
L24	34	MP3-03 (L)	50.50 - 52.50	1.0000	1.0000
L24	36	CU12PSM9P6XXX(1-1/2)	50.50 - 52.50	1.0000	1.0000
L25	1	9011(1/2)	50.25 - 50.50	1.0000	1.0000
L25	2	9011(1/2)	50.25 - 50.50	1.0000	1.0000
L25	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	50.25 - 50.50	1.0000	1.0000
L25	17	LDF4-50A(1/2)	50.25 - 50.50	1.0000	1.0000
L25	23	MP3-04 (L)	50.25 - 50.50	1.0000	1.0000
L25	24	MP3-04 (L)	50.25 - 50.50	1.0000	1.0000
L25	25	MP3-04 (L)	50.25 - 50.50	1.0000	1.0000
L25	32	MP3-03 (L)	50.25 - 50.50	1.0000	1.0000
L25	33	MP3-03 (L)	50.25 - 50.50	1.0000	1.0000
L25	34	MP3-03 (L)	50.25 - 50.50	1.0000	1.0000
L25	36	CU12PSM9P6XXX(1-1/2)	50.25 - 50.50	1.0000	1.0000
L26	1	9011(1/2)	50.00 - 50.25	1.0000	1.0000
L26	2	9011(1/2)	50.00 - 50.25	1.0000	1.0000
L26	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	50.00 - 50.25	1.0000	1.0000
L26	17	LDF4-50A(1/2)	50.00 - 50.25	1.0000	1.0000
L26	23	MP3-04 (L)	50.00 - 50.25	1.0000	1.0000
L26	24	MP3-04 (L)	50.00 - 50.25	1.0000	1.0000
L26	25	MP3-04 (L)	50.00 - 50.25	1.0000	1.0000
L26	32	MP3-03 (L)	50.00 - 50.25	1.0000	1.0000
L26	33	MP3-03 (L)	50.00 - 50.25	1.0000	1.0000
L26	34	MP3-03 (L)	50.00 - 50.25	1.0000	1.0000
L26	36	CU12PSM9P6XXX(1-1/2)	50.00 - 50.25	1.0000	1.0000
L27	1	9011(1/2)	45.00 - 50.00	1.0000	1.0000
L27	2	9011(1/2)	45.00 - 50.00	1.0000	1.0000
L27	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	45.00 - 50.00	1.0000	1.0000
L27	17	LDF4-50A(1/2)	45.00 - 50.00	1.0000	1.0000
L27	18	LDF4-50A(1/2)	45.00 - 49.00	1.0000	1.0000
L27	23	MP3-04 (L)	45.00 - 50.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L27	24	MP3-04 (L)	45.00 - 50.00	1.0000	1.0000
L27	25	MP3-04 (L)	45.00 - 50.00	1.0000	1.0000
L27	32	MP3-03 (L)	49.00 - 50.00	1.0000	1.0000
L27	33	MP3-03 (L)	49.00 - 50.00	1.0000	1.0000
L27	34	MP3-03 (L)	49.00 - 50.00	1.0000	1.0000
L27	36	CU12PSM9P6XXX(1-1/2)	45.00 - 50.00	1.0000	1.0000
L28	1	9011(1/2)	40.00 - 45.00	1.0000	1.0000
L28	2	9011(1/2)	40.00 - 45.00	1.0000	1.0000
L28	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	40.00 - 45.00	1.0000	1.0000
L28	17	LDF4-50A(1/2)	40.00 - 45.00	1.0000	1.0000
L28	18	LDF4-50A(1/2)	40.00 - 45.00	1.0000	1.0000
L28	23	MP3-04 (L)	40.00 - 45.00	1.0000	1.0000
L28	24	MP3-04 (L)	40.00 - 45.00	1.0000	1.0000
L28	25	MP3-04 (L)	40.00 - 45.00	1.0000	1.0000
L28	36	CU12PSM9P6XXX(1-1/2)	40.00 - 45.00	1.0000	1.0000
L29	1	9011(1/2)	35.00 - 40.00	1.0000	1.0000
L29	2	9011(1/2)	35.00 - 40.00	1.0000	1.0000
L29	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	35.00 - 40.00	1.0000	1.0000
L29	17	LDF4-50A(1/2)	35.00 - 40.00	1.0000	1.0000
L29	18	LDF4-50A(1/2)	35.00 - 40.00	1.0000	1.0000
L29	23	MP3-04 (L)	35.00 - 40.00	1.0000	1.0000
L29	24	MP3-04 (L)	35.00 - 40.00	1.0000	1.0000
L29	25	MP3-04 (L)	35.00 - 40.00	1.0000	1.0000
L29	29	MP3-04 (L)	35.00 - 35.50	1.0000	1.0000
L29	30	MP3-04 (L)	35.00 - 35.50	1.0000	1.0000
L29	31	MP3-04 (L)	35.00 - 35.50	1.0000	1.0000
L29	36	CU12PSM9P6XXX(1-1/2)	35.00 - 40.00	1.0000	1.0000
L30	1	9011(1/2)	29.25 - 35.00	1.0000	1.0000
L30	2	9011(1/2)	29.25 - 35.00	1.0000	1.0000
L30	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	29.25 - 35.00	1.0000	1.0000
L30	17	LDF4-50A(1/2)	29.25 - 35.00	1.0000	1.0000
L30	18	LDF4-50A(1/2)	29.25 - 35.00	1.0000	1.0000
L30	23	MP3-04 (L)	32.00 - 35.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L30	24	MP3-04 (L)	32.00 - 35.00	1.0000	1.0000
L30	25	MP3-04 (L)	32.00 - 35.00	1.0000	1.0000
L30	29	MP3-04 (L)	29.25 - 35.00	1.0000	1.0000
L30	30	MP3-04 (L)	29.25 - 35.00	1.0000	1.0000
L30	31	MP3-04 (L)	29.25 - 35.00	1.0000	1.0000
L30	36	CU12PSM9P6XXX(1-1/2)	29.25 - 35.00	1.0000	1.0000
L31	1	9011(1/2)	28.25 - 29.25	1.0000	1.0000
L31	2	9011(1/2)	28.25 - 29.25	1.0000	1.0000
L31	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	28.25 - 29.25	1.0000	1.0000
L31	17	LDF4-50A(1/2)	28.25 - 29.25	1.0000	1.0000
L31	18	LDF4-50A(1/2)	28.25 - 29.25	1.0000	1.0000
L31	29	MP3-04 (L)	28.25 - 29.25	1.0000	1.0000
L31	30	MP3-04 (L)	28.25 - 29.25	1.0000	1.0000
L31	31	MP3-04 (L)	28.25 - 29.25	1.0000	1.0000
L31	36	CU12PSM9P6XXX(1-1/2)	28.25 - 29.25	1.0000	1.0000
L32	1	9011(1/2)	24.00 - 28.25	1.0000	1.0000
L32	2	9011(1/2)	24.00 - 28.25	1.0000	1.0000
L32	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	24.00 - 28.25	1.0000	1.0000
L32	17	LDF4-50A(1/2)	24.00 - 28.25	1.0000	1.0000
L32	18	LDF4-50A(1/2)	24.00 - 28.25	1.0000	1.0000
L32	20	MP3-04 (L)	24.00 - 25.50	1.0000	1.0000
L32	21	MP3-04 (L)	24.00 - 25.50	1.0000	1.0000
L32	22	MP3-04 (L)	24.00 - 25.50	1.0000	1.0000
L32	29	MP3-04 (L)	24.00 - 28.25	1.0000	1.0000
L32	30	MP3-04 (L)	24.00 - 28.25	1.0000	1.0000
L32	31	MP3-04 (L)	24.00 - 28.25	1.0000	1.0000
L32	36	CU12PSM9P6XXX(1-1/2)	24.00 - 28.25	1.0000	1.0000
L33	1	9011(1/2)	23.75 - 24.00	1.0000	1.0000
L33	2	9011(1/2)	23.75 - 24.00	1.0000	1.0000
L33	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	23.75 - 24.00	1.0000	1.0000
L33	17	LDF4-50A(1/2)	23.75 - 24.00	1.0000	1.0000
L33	18	LDF4-50A(1/2)	23.75 - 24.00	1.0000	1.0000
L33	20	MP3-04 (L)	23.75 - 24.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L33	21	MP3-04 (L)	23.75 - 24.00	1.0000	1.0000
L33	22	MP3-04 (L)	23.75 - 24.00	1.0000	1.0000
L33	29	MP3-04 (L)	23.75 - 24.00	1.0000	1.0000
L33	30	MP3-04 (L)	23.75 - 24.00	1.0000	1.0000
L33	31	MP3-04 (L)	23.75 - 24.00	1.0000	1.0000
L33	36	CU12PSM9P6XXX(1-1/2)	23.75 - 24.00	1.0000	1.0000
L34	1	9011(1/2)	18.75 - 23.75	1.0000	1.0000
L34	2	9011(1/2)	18.75 - 23.75	1.0000	1.0000
L34	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	18.75 - 23.75	1.0000	1.0000
L34	17	LDF4-50A(1/2)	18.75 - 23.75	1.0000	1.0000
L34	18	LDF4-50A(1/2)	18.75 - 23.75	1.0000	1.0000
L34	20	MP3-04 (L)	18.75 - 23.75	1.0000	1.0000
L34	21	MP3-04 (L)	18.75 - 23.75	1.0000	1.0000
L34	22	MP3-04 (L)	18.75 - 23.75	1.0000	1.0000
L34	29	MP3-04 (L)	18.75 - 23.75	1.0000	1.0000
L34	30	MP3-04 (L)	18.75 - 23.75	1.0000	1.0000
L34	31	MP3-04 (L)	18.75 - 23.75	1.0000	1.0000
L34	36	CU12PSM9P6XXX(1-1/2)	18.75 - 23.75	1.0000	1.0000
L35	1	9011(1/2)	13.75 - 18.75	1.0000	1.0000
L35	2	9011(1/2)	13.75 - 18.75	1.0000	1.0000
L35	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	13.75 - 18.75	1.0000	1.0000
L35	17	LDF4-50A(1/2)	13.75 - 18.75	1.0000	1.0000
L35	18	LDF4-50A(1/2)	13.75 - 18.75	1.0000	1.0000
L35	20	MP3-04 (L)	13.75 - 18.75	1.0000	1.0000
L35	21	MP3-04 (L)	13.75 - 18.75	1.0000	1.0000
L35	22	MP3-04 (L)	13.75 - 18.75	1.0000	1.0000
L35	29	MP3-04 (L)	13.75 - 18.75	1.0000	1.0000
L35	30	MP3-04 (L)	13.75 - 18.75	1.0000	1.0000
L35	31	MP3-04 (L)	13.75 - 18.75	1.0000	1.0000
L35	36	CU12PSM9P6XXX(1-1/2)	13.75 - 18.75	1.0000	1.0000
L36	1	9011(1/2)	8.75 - 13.75	1.0000	1.0000
L36	2	9011(1/2)	8.75 - 13.75	1.0000	1.0000
L36	7	MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	8.75 - 13.75	1.0000	1.0000
L36	17	LDF4-50A(1/2)	8.75 - 13.75	1.0000	1.0000
L36	18	LDF4-50A(1/2)	8.75 - 13.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L36	20	MP3-04 (L)	8.75 - 13.75	1.0000	1.0000
L36	21	MP3-04 (L)	8.75 - 13.75	1.0000	1.0000
L36	22	MP3-04 (L)	8.75 - 13.75	1.0000	1.0000
L36	29	MP3-04 (L)	8.75 - 13.75	1.0000	1.0000
L36	30	MP3-04 (L)	8.75 - 13.75	1.0000	1.0000
L36	31	MP3-04 (L)	8.75 - 13.75	1.0000	1.0000
L36	36	CU12PSM9P6XXX(1-1/2)	8.75 - 13.75	1.0000	1.0000
L37	1	9011(1/2)	3.75 - 8.75	1.0000	1.0000
L37	2	9011(1/2)	3.75 - 8.75	1.0000	1.0000
L37	7	MLE Hybrid	3.75 - 8.75	1.0000	1.0000
		9Power/18Fiber RL 2(1-5/8)			
L37	17	LDF4-50A(1/2)	3.75 - 8.75	1.0000	1.0000
L37	18	LDF4-50A(1/2)	3.75 - 8.75	1.0000	1.0000
L37	20	MP3-04 (L)	3.75 - 8.75	1.0000	1.0000
L37	21	MP3-04 (L)	3.75 - 8.75	1.0000	1.0000
L37	22	MP3-04 (L)	3.75 - 8.75	1.0000	1.0000
L37	29	MP3-04 (L)	3.75 - 8.75	1.0000	1.0000
L37	30	MP3-04 (L)	3.75 - 8.75	1.0000	1.0000
L37	31	MP3-04 (L)	3.75 - 8.75	1.0000	1.0000
L37	36	CU12PSM9P6XXX(1-1/2)	3.75 - 8.75	1.0000	1.0000
L38	1	9011(1/2)	0.00 - 3.75	1.0000	1.0000
L38	2	9011(1/2)	0.00 - 3.75	1.0000	1.0000
L38	7	MLE Hybrid	0.00 - 3.75	1.0000	1.0000
		9Power/18Fiber RL 2(1-5/8)			
L38	17	LDF4-50A(1/2)	0.00 - 3.75	1.0000	1.0000
L38	18	LDF4-50A(1/2)	0.00 - 3.75	1.0000	1.0000
L38	20	MP3-04 (L)	0.00 - 3.75	1.0000	1.0000
L38	21	MP3-04 (L)	0.00 - 3.75	1.0000	1.0000
L38	22	MP3-04 (L)	0.00 - 3.75	1.0000	1.0000
L38	29	MP3-04 (L)	0.00 - 3.75	1.0000	1.0000
L38	30	MP3-04 (L)	0.00 - 3.75	1.0000	1.0000
L38	31	MP3-04 (L)	0.00 - 3.75	1.0000	1.0000
L38	36	CU12PSM9P6XXX(1-1/2)	0.00 - 3.75	1.0000	1.0000

Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L16	26	MP3-04 (L)	69.50 - 71.00	Auto	0.0000
L16	27	MP3-04 (L)	69.50 - 71.00	Auto	0.0000
L16	28	MP3-04 (L)	69.50 - 71.00	Auto	0.0000
L17	26	MP3-04 (L)	69.25 - 69.50	Auto	0.0000
L17	27	MP3-04 (L)	69.25 - 69.50	Auto	0.0000
L17	28	MP3-04 (L)	69.25 - 69.50	Auto	0.0000
L18	26	MP3-04 (L)	64.25 - 69.25	Auto	0.0000
L18	27	MP3-04 (L)	64.25 - 69.25	Auto	0.0000
L18	28	MP3-04 (L)	64.25 - 69.25	Auto	0.0000
L19	26	MP3-04 (L)	61.00 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L19	27	MP3-04 (L)	64.25 61.00 - 64.25	Auto	0.0000
L19	28	MP3-04 (L)	61.00 - 64.25	Auto	0.0000
L20	32	MP3-03 (L)	58.00 - 59.00	Auto	0.0000
L20	33	MP3-03 (L)	58.00 - 59.00	Auto	0.0000
L20	34	MP3-03 (L)	58.00 - 59.00	Auto	0.0000
L21	32	MP3-03 (L)	57.75 - 58.00	Auto	0.0000
L21	33	MP3-03 (L)	57.75 - 58.00	Auto	0.0000
L21	34	MP3-03 (L)	57.75 - 58.00	Auto	0.0000
L22	32	MP3-03 (L)	57.50 - 57.75	Auto	0.0000
L22	33	MP3-03 (L)	57.50 - 57.75	Auto	0.0000
L22	34	MP3-03 (L)	57.50 - 57.75	Auto	0.0000
L23	32	MP3-03 (L)	52.50 - 57.50	Auto	0.0000
L23	33	MP3-03 (L)	52.50 - 57.50	Auto	0.0000
L23	34	MP3-03 (L)	52.50 - 57.50	Auto	0.0000
L24	23	MP3-04 (L)	50.50 - 52.00	Auto	0.0000
L24	24	MP3-04 (L)	50.50 - 52.00	Auto	0.0000
L24	25	MP3-04 (L)	50.50 - 52.00	Auto	0.0000
L24	32	MP3-03 (L)	50.50 - 52.50	Auto	0.0000
L24	33	MP3-03 (L)	50.50 - 52.50	Auto	0.0000
L24	34	MP3-03 (L)	50.50 - 52.50	Auto	0.0000
L25	23	MP3-04 (L)	50.25 - 50.50	Auto	0.0000
L25	24	MP3-04 (L)	50.25 - 50.50	Auto	0.0000
L25	25	MP3-04 (L)	50.25 - 50.50	Auto	0.0000
L25	32	MP3-03 (L)	50.25 - 50.50	Auto	0.0000
L25	33	MP3-03 (L)	50.25 - 50.50	Auto	0.0000
L25	34	MP3-03 (L)	50.25 - 50.50	Auto	0.0000
L26	23	MP3-04 (L)	50.00 - 50.25	Auto	0.0000
L26	24	MP3-04 (L)	50.00 - 50.25	Auto	0.0000
L26	25	MP3-04 (L)	50.00 - 50.25	Auto	0.0000
L26	32	MP3-03 (L)	50.00 - 50.25	Auto	0.0000
L26	33	MP3-03 (L)	50.00 - 50.25	Auto	0.0000
L26	34	MP3-03 (L)	50.00 - 50.25	Auto	0.0000
L27	23	MP3-04 (L)	45.00 - 50.00	Auto	0.0000
L27	24	MP3-04 (L)	45.00 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L27	25	MP3-04 (L)	50.00 45.00 - 50.00	Auto	0.0000
L27	32	MP3-03 (L)	49.00 - 50.00	Auto	0.0000
L27	33	MP3-03 (L)	49.00 - 50.00	Auto	0.0000
L27	34	MP3-03 (L)	49.00 - 50.00	Auto	0.0000
L28	23	MP3-04 (L)	40.00 - 45.00	Auto	0.0000
L28	24	MP3-04 (L)	40.00 - 45.00	Auto	0.0000
L28	25	MP3-04 (L)	40.00 - 45.00	Auto	0.0000
L29	23	MP3-04 (L)	35.00 - 40.00	Auto	0.0000
L29	24	MP3-04 (L)	35.00 - 40.00	Auto	0.0000
L29	25	MP3-04 (L)	35.00 - 40.00	Auto	0.0000
L29	29	MP3-04 (L)	35.00 - 35.50	Auto	0.0000
L29	30	MP3-04 (L)	35.00 - 35.50	Auto	0.0000
L29	31	MP3-04 (L)	35.00 - 35.50	Auto	0.0000
L30	23	MP3-04 (L)	32.00 - 35.00	Auto	0.0000
L30	24	MP3-04 (L)	32.00 - 35.00	Auto	0.0000
L30	25	MP3-04 (L)	32.00 - 35.00	Auto	0.0000
L30	29	MP3-04 (L)	29.25 - 35.00	Auto	0.0000
L30	30	MP3-04 (L)	29.25 - 35.00	Auto	0.0000
L30	31	MP3-04 (L)	29.25 - 35.00	Auto	0.0000
L31	29	MP3-04 (L)	28.25 - 29.25	Auto	0.0000
L31	30	MP3-04 (L)	28.25 - 29.25	Auto	0.0000
L31	31	MP3-04 (L)	28.25 - 29.25	Auto	0.0000
L32	20	MP3-04 (L)	24.00 - 25.50	Auto	0.0000
L32	21	MP3-04 (L)	24.00 - 25.50	Auto	0.0000
L32	22	MP3-04 (L)	24.00 - 25.50	Auto	0.0000
L32	29	MP3-04 (L)	24.00 - 28.25	Auto	0.0000
L32	30	MP3-04 (L)	24.00 - 28.25	Auto	0.0000
L32	31	MP3-04 (L)	24.00 - 28.25	Auto	0.0000
L33	20	MP3-04 (L)	23.75 - 24.00	Auto	0.0000
L33	21	MP3-04 (L)	23.75 - 24.00	Auto	0.0000
L33	22	MP3-04 (L)	23.75 - 24.00	Auto	0.0000
L33	29	MP3-04 (L)	23.75 - 24.00	Auto	0.0000
L33	30	MP3-04 (L)	23.75 - 24.00	Auto	0.0000
L33	31	MP3-04 (L)	23.75 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L34	20	MP3-04 (L)	24.00 18.75 - 23.75	Auto	0.0000
L34	21	MP3-04 (L)	18.75 - 23.75	Auto	0.0000
L34	22	MP3-04 (L)	18.75 - 23.75	Auto	0.0000
L34	29	MP3-04 (L)	18.75 - 23.75	Auto	0.0000
L34	30	MP3-04 (L)	18.75 - 23.75	Auto	0.0000
L34	31	MP3-04 (L)	18.75 - 23.75	Auto	0.0000
L35	20	MP3-04 (L)	13.75 - 18.75	Auto	0.0000
L35	21	MP3-04 (L)	13.75 - 18.75	Auto	0.0000
L35	22	MP3-04 (L)	13.75 - 18.75	Auto	0.0000
L35	29	MP3-04 (L)	13.75 - 18.75	Auto	0.0000
L35	30	MP3-04 (L)	13.75 - 18.75	Auto	0.0000
L35	31	MP3-04 (L)	13.75 - 18.75	Auto	0.0000
L36	20	MP3-04 (L)	8.75 - 13.75	Auto	0.0000
L36	21	MP3-04 (L)	8.75 - 13.75	Auto	0.0000
L36	22	MP3-04 (L)	8.75 - 13.75	Auto	0.0000
L36	29	MP3-04 (L)	8.75 - 13.75	Auto	0.0000
L36	30	MP3-04 (L)	8.75 - 13.75	Auto	0.0000
L36	31	MP3-04 (L)	8.75 - 13.75	Auto	0.0000
L37	20	MP3-04 (L)	3.75 - 8.75	Auto	0.0000
L37	21	MP3-04 (L)	3.75 - 8.75	Auto	0.0000
L37	22	MP3-04 (L)	3.75 - 8.75	Auto	0.0000
L37	29	MP3-04 (L)	3.75 - 8.75	Auto	0.0000
L37	30	MP3-04 (L)	3.75 - 8.75	Auto	0.0000
L37	31	MP3-04 (L)	3.75 - 8.75	Auto	0.0000
L38	20	MP3-04 (L)	0.00 - 3.75	Auto	0.0000
L38	21	MP3-04 (L)	0.00 - 3.75	Auto	0.0000
L38	22	MP3-04 (L)	0.00 - 3.75	Auto	0.0000
L38	29	MP3-04 (L)	0.00 - 3.75	Auto	0.0000
L38	30	MP3-04 (L)	0.00 - 3.75	Auto	0.0000
L38	31	MP3-04 (L)	0.00 - 3.75	Auto	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment	Placement ft
Top Hat 10" Diameter x 4' 6" Tall 8' x 2" Lightning Rod	C C	None From Leg	0.5000 0.00 4.00	0.00 0.00	147.0000 147.0000
**** APXVSP18-C-A20 w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	147.0000

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement
			Horz Lateral ft	Vert ft		
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.0000	0.00	0.00	147.0000
			0.00			
			0.00			
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.0000	0.00	0.00	147.0000
			0.00			
			0.00			
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.0000	0.00	0.00	147.0000
			0.00			
			0.00			
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.0000	0.00	0.00	147.0000
			0.00			
			0.00			
TD-RRH8x20-25	A	From Leg	4.0000	0.00	0.00	147.0000
			0.00			
			0.00			
TD-RRH8x20-25	B	From Leg	4.0000	0.00	0.00	147.0000
			0.00			
			0.00			
TD-RRH8x20-25	C	From Leg	4.0000	0.00	0.00	147.0000
			0.00			
			0.00			
(3) ACU-A20-N	A	From Leg	4.0000	0.00	0.00	147.0000
			0.00			
			0.00			
(3) ACU-A20-N	B	From Leg	4.0000	0.00	0.00	147.0000
			0.00			
			0.00			
(3) ACU-A20-N	C	From Leg	4.0000	0.00	0.00	147.0000
			0.00			
			0.00			
P40-16-XLPP-RR-A w/ Mount Pipe	C	From Leg	4.0000	0.00	0.00	147.0000
			0.00			
			0.00			
(3) 6' x 2" Mount Pipe	A	From Leg	4.0000	0.00	0.00	147.0000
			0.00			
			0.00			
(3) 6' x 2" Mount Pipe	B	From Leg	4.0000	0.00	0.00	147.0000
			0.00			
			0.00			
(3) 6' x 2" Mount Pipe	C	From Leg	4.0000	0.00	0.00	147.0000
			0.00			
			0.00			
Platform Mount [LP 1201-1] ****	B	None			0.00	147.0000
TME-1900MHz RRH (65 MHz)	A	From Leg	1.0000	0.00	0.00	145.0000
			0.00		-2.00	
TME-1900MHz RRH (65 MHz)	B	From Leg	1.0000	0.00	0.00	145.0000
			0.00		-2.00	
TME-1900MHz RRH (65 MHz)	C	From Leg	1.0000	0.00	0.00	145.0000
			0.00		-2.00	
800 EXTERNAL NOTCH FILTER	A	From Leg	1.0000	0.00	0.00	145.0000
			0.00		1.00	
TME-800MHZ RRH	A	From Leg	1.0000	0.00	0.00	145.0000
			0.00		1.00	
800 EXTERNAL NOTCH FILTER	B	From Leg	1.0000	0.00	0.00	145.0000
			0.00		1.00	
TME-800MHZ RRH	B	From Leg	1.0000	0.00	0.00	145.0000
			0.00		1.00	

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
800 EXTERNAL NOTCH FILTER	C	From Leg	1.0000 0.00 1.00	0.00	145.0000
TME-800MHZ RRH	C	From Leg	1.0000 0.00 1.00	0.00	145.0000
Side Arm Mount [SO 102-3] 6' x 2" Mount Pipe	B A	None From Leg	1.0000 0.00 0.00	0.00 0.00	145.0000 145.0000
6' x 2" Mount Pipe	B	From Leg	1.0000 0.00 0.00	0.00	145.0000
6' x 2" Mount Pipe	C	From Leg	1.0000 0.00 0.00	0.00	145.0000

MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	136.0000
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	136.0000
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	136.0000
TA08025-B604	A	From Leg	4.0000 0.00 0.00	0.00	136.0000
TA08025-B604	B	From Leg	4.0000 0.00 0.00	0.00	136.0000
TA08025-B604	C	From Leg	4.0000 0.00 0.00	0.00	136.0000
TA08025-B605	A	From Leg	4.0000 0.00 0.00	0.00	136.0000
TA08025-B605	B	From Leg	4.0000 0.00 0.00	0.00	136.0000
TA08025-B605	C	From Leg	4.0000 0.00 0.00	0.00	136.0000
RDIDC-9181-PF-48	A	From Leg	4.0000 0.00 0.00	0.00	136.0000
(2) 8' x 2" Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	136.0000
(2) 8' x 2" Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	136.0000
(2) 8' x 2" Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	136.0000
Commscope MC-K6MHDX-9-96 (3) ****	C	None		0.00	136.0000
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.00	122.0000
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.00	122.0000
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.0000	0.00	122.0000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
			0.00		
			1.00		
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.0000	0.00	122.0000
			0.00		
			1.00		
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.0000	0.00	122.0000
			0.00		
			1.00		
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.0000	0.00	122.0000
			0.00		
			1.00		
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.0000	0.00	122.0000
			0.00		
			1.00		
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.0000	0.00	122.0000
			0.00		
			1.00		
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.0000	0.00	122.0000
			0.00		
			1.00		
KRY 112 144/1	A	From Leg	4.0000	0.00	122.0000
			0.00		
			1.00		
KRY 112 144/1	B	From Leg	4.0000	0.00	122.0000
			0.00		
			1.00		
KRY 112 144/1	C	From Leg	4.0000	0.00	122.0000
			0.00		
			1.00		
RADIO 4449 B71/B85A	A	From Leg	4.0000	0.00	122.0000
			0.00		
			1.00		
RADIO 4449 B71/B85A	B	From Leg	4.0000	0.00	122.0000
			0.00		
			1.00		
RADIO 4449 B71/B85A	C	From Leg	4.0000	0.00	122.0000
			0.00		
			1.00		
RMQP-4096-HK	C	None		0.00	122.0000
2.375" OD x 6' Mount Pipe	A	None		0.00	122.0000
2.375" OD x 6' Mount Pipe	B	None		0.00	122.0000
2.375" OD x 6' Mount Pipe	C	None		0.00	122.0000

DMP65R-BU4D w/ Mount Pipe	A	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
DMP65R-BU4D w/ Mount Pipe	B	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
DMP65R-BU4D w/ Mount Pipe	C	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
OPA65R-BU4D w/ Mount Pipe	A	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
OPA65R-BU4D w/ Mount Pipe	B	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
OPA65R-BU4D w/ Mount Pipe	C	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
RRUS 4478 B14_CCIV2	A	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
RRUS 4478 B14_CCIV2	B	From Leg	4.0000	0.00	110.0000

Description	Face or Leg	Offset Type	Offsets:		
			Horz Lateral Vert ft ft	Azimuth Adjustment °	Placement ft
			0.00		
			2.00		
RRUS 4478 B14_CCIV2	C	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
RRUS 4449 B5/B12	A	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
RRUS 4449 B5/B12	B	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
RRUS 4449 B5/B12	C	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
DC6-48-60-18-8C-EV	A	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
7770.00 w/ Mount Pipe	A	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
7770.00 w/ Mount Pipe	B	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
7770.00 w/ Mount Pipe	C	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
SBNHH-1D65A w/ Mount Pipe	A	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
SBNHH-1D65A w/ Mount Pipe	B	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
SBNHH-1D65A w/ Mount Pipe	C	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
(2) LGP2140X	A	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
(2) LGP2140X	B	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
(2) LGP2140X	C	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
RRUS 32 B2	A	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
RRUS 32 B2	B	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
RRUS 32 B2	C	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
RRUS 32 B66	A	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
RRUS 32 B66	B	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
RRUS 32 B66	C	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		
RRUS-32 B30	A	From Leg	4.0000	0.00	110.0000
			0.00		
			2.00		

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
RRUS-32 B30	B	From Leg	4.0000 0.00 2.00	0.00	110.0000
RRUS-32 B30	C	From Leg	4.0000 0.00 2.00	0.00	110.0000
DC6-48-60-18-8F	A	From Leg	4.0000 0.00 2.00	0.00	110.0000
DC6-48-60-18-8F	B	From Leg	4.0000 0.00 2.00	0.00	110.0000
Platform Mount [LP 1201-1_KCKR-HR-1] ****	B	None		0.00	110.0000
**** GPS_A	B	From Leg	2.0000 0.00 1.00	0.00	53.0000
Side Arm Mount [SO 701-1] ****	B	None		0.00	53.0000
**** KS24019-L112A	C	From Leg	2.0000 0.00 1.00	0.00	49.0000
Side Arm Mount [SO 701-1] ****	C	None		0.00	49.0000
**** ** *					

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft
A-ANT-23G-2-C	A	Paraboloid w/o Radome	From Leg	4.0000 0.00 2.00	0.00		147.0000	2.1750
A-ANT-23G-2-C	B	Paraboloid w/o Radome	From Leg	4.0000 0.00 2.00	0.00		147.0000	2.1750
VHLP2-18	C	Paraboloid w/o Radome	From Leg	4.0000 0.00 2.00	-60.00		147.0000	2.1750
*** ** *								

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

Comb. No.	Description
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

Sectio n No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	147 - 142	Pole	Max Tension	42	0.00	0.00	-0.00
			Max. Compression	26	-10.11	0.14	-0.03
			Max. Mx	20	-4.05	30.17	0.79
			Max. My	2	-3.99	1.58	32.13
			Max. Vy	20	-6.60	30.17	0.79
			Max. Vx	2	-6.88	1.58	32.13
			Max. Torque	4			1.55
L2	142 - 137	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-10.79	0.18	0.01
			Max. Mx	20	-4.38	64.67	1.32
			Max. My	2	-4.32	2.68	68.02
			Max. Vy	20	-7.20	64.67	1.32
			Max. Vx	2	-7.48	2.68	68.02
			Max. Torque	4			1.55
L3	137 - 132	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L4	132 - 127	Pole	Max. Compression	26	-17.24	0.26	0.53
			Max. Mx	20	-6.94	113.40	1.94
			Max. My	2	-6.87	3.81	118.46
			Max. Vy	20	-10.61	113.40	1.94
			Max. Vx	2	-10.94	3.81	118.46
			Max. Torque	6			1.78
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-18.00	0.34	0.59
			Max. Mx	20	-7.33	168.02	2.49
			Max. My	2	-7.26	4.95	174.72
L5	127 - 122	Pole	Max. Vy	20	-11.24	168.02	2.49
			Max. Vx	2	-11.57	4.95	174.72
			Max. Torque	6			1.78
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-18.78	0.43	0.66
			Max. Mx	20	-7.74	225.79	3.04
			Max. My	2	-7.67	6.09	234.13
			Max. Vy	20	-11.87	225.79	3.04
			Max. Vx	2	-12.20	6.09	234.13
			Max. Torque	6			1.78
L6	122 - 117	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.90	0.51	0.74
			Max. Mx	20	-11.87	311.94	3.61
			Max. My	2	-11.79	7.27	321.96
			Max. Vy	20	-17.05	311.94	3.61
			Max. Vx	2	-17.39	7.27	321.96
			Max. Torque	6			1.78
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-28.83	0.57	0.83
			Max. Mx	20	-12.44	398.81	4.18
L7	117 - 112	Pole	Max. My	2	-12.37	8.43	410.52
			Max. Vy	20	-17.70	398.81	4.18
			Max. Vx	2	-18.04	8.43	410.52
			Max. Torque	6			1.78
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.91	0.19	1.71
			Max. Mx	20	-17.84	518.70	4.97
			Max. My	2	-17.75	9.54	532.50
			Max. Vy	20	-25.41	518.70	4.97
			Max. Vx	2	-25.75	9.54	532.50
L8	112 - 107	Pole	Max. Torque	6			2.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.70	0.24	1.79
			Max. Mx	20	-18.40	614.83	5.41
			Max. My	2	-18.31	10.44	629.93
			Max. Vy	20	-25.88	614.83	5.41
			Max. Vx	2	-26.23	10.44	629.93
			Max. Torque	6			2.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.46	0.30	1.89
L9	107 - 99.5	Pole	Max. Mx	20	-19.58	746.05	6.00
			Max. My	2	-19.50	11.64	762.88
			Max. Vy	20	-26.61	746.05	6.00
			Max. Vx	2	-26.96	11.64	762.88
			Max. Torque	6			2.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.66	0.36	2.00
			Max. Mx	20	-20.49	880.63	6.58
			Max. My	2	-20.41	12.83	899.20
			Max. Vy	20	-27.25	880.63	6.58
L10	99.5 - 98.25	Pole	Max. Vx	2	-27.59	12.83	899.20
			Max. Torque	6			2.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.89	0.43	2.11
			Max. Mx	20	-21.43	1018.39	7.16
			Max. My	2	-21.36	14.02	1038.70
			Max. Vy	20	-27.88	1018.39	7.16
			Max. Vx	2	-27.59	12.83	899.20
			Max. Torque	6			2.00
			Max Tension	1	0.00	0.00	0.00
L11	98.25 - 93.25	Pole	Max. Compression	26	-45.66	0.36	2.00
			Max. Mx	20	-20.49	880.63	6.58
			Max. My	2	-20.41	12.83	899.20
			Max. Vy	20	-27.25	880.63	6.58
			Max. Vx	2	-27.59	12.83	899.20
			Max. Torque	6			2.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.89	0.43	2.11
			Max. Mx	20	-21.43	1018.39	7.16
			Max. My	2	-21.36	14.02	1038.70
L12	93.25 - 88.25	Pole	Max. Vy	20	-27.88	1018.39	7.16
			Max. Vx	2	-27.59	12.83	899.20
			Max. Torque	6			2.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.89	0.43	2.11
			Max. Mx	20	-21.43	1018.39	7.16
			Max. My	2	-21.36	14.02	1038.70
			Max. Vy	20	-27.88	1018.39	7.16
			Max. Vx	2	-27.59	12.83	899.20
			Max. Torque	6			2.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L13	88.25 - 83.25	Pole	Max. Vx	2	-28.23	14.02	1038.70
			Max. Torque	6			2.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.13	0.49	2.21
			Max. Mx	20	-22.41	1159.30	7.74
			Max. My	2	-22.34	15.21	1181.34
			Max. Vy	20	-28.51	1159.30	7.74
L14	83.25 - 78.25	Pole	Max. Vx	2	-28.85	15.21	1181.34
			Max. Torque	6			2.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.41	0.56	2.31
			Max. Mx	20	-23.42	1303.34	8.32
			Max. My	2	-23.36	16.38	1327.09
			Max. Vy	20	-29.13	1303.34	8.32
L15	78.25 - 73.25	Pole	Max. Vx	2	-29.47	16.38	1327.09
			Max. Torque	6			2.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.70	0.62	2.42
			Max. Mx	20	-24.46	1450.45	8.89
			Max. My	2	-24.41	17.56	1475.93
			Max. Vy	20	-29.75	1450.45	8.89
L16	73.25 - 69.5	Pole	Max. Vx	2	-30.09	17.56	1475.93
			Max. Torque	6			2.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.73	0.67	2.47
			Max. Mx	20	-25.26	1562.80	9.32
			Max. My	2	-25.21	18.43	1589.55
			Max. Vy	20	-30.21	1562.80	9.32
L17	69.5 - 69.25	Pole	Max. Vx	2	-30.55	18.43	1589.55
			Max. Torque	6			1.99
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.81	0.67	2.49
			Max. Mx	20	-25.35	1570.35	9.35
			Max. My	2	-25.30	18.49	1597.19
			Max. Vy	20	-30.23	1570.35	9.35
L18	69.25 - 64.25	Pole	Max. Vx	2	-30.57	18.49	1597.19
			Max. Torque	6			1.99
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-53.54	0.73	2.56
			Max. Mx	20	-26.63	1723.10	9.92
			Max. My	2	-26.58	19.65	1751.64
			Max. Vy	20	-30.89	1723.10	9.92
L19	64.25 - 59	Pole	Max. Vx	2	-31.23	19.65	1751.64
			Max. Torque	6			1.99
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-53.71	0.74	2.57
			Max. Mx	20	-26.77	1738.55	9.97
			Max. My	2	-26.72	19.76	1767.27
			Max. Vy	20	-30.95	1738.55	9.97
L20	59 - 58	Pole	Max. Vx	2	-31.29	19.76	1767.27
			Max. Torque	6			1.99
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.79	0.80	2.66
			Max. Mx	20	-29.03	1919.07	10.63
			Max. My	2	-28.98	21.10	1949.74
			Max. Vy	20	-31.83	1919.07	10.63
L21	58 - 57.75	Pole	Max. Vx	2	-32.16	21.10	1949.74
			Max. Torque	6			1.99
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.87	0.81	2.67
			Max. Mx	20	-29.11	1927.02	10.66
			Max. My	2	-29.06	21.16	1957.78
			Max. Vy	20	-31.85	1927.02	10.66
			Max. Vx	2	-32.19	21.16	1957.78
			Max. Torque	6			1.99

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L22	57.75 - 57.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.95	0.81	2.68
			Max. Mx	20	-29.17	1934.99	10.68
			Max. My	2	-29.12	21.21	1965.83
			Max. Vy	20	-31.88	1934.99	10.68
			Max. Vx	2	-32.22	21.21	1965.83
L23	57.5 - 52.5	Pole	Max. Torque	6			1.99
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.73	0.82	2.72
			Max. Mx	20	-30.51	2095.85	11.24
			Max. My	2	-30.47	22.36	2128.39
			Max. Vy	20	-32.57	2095.85	11.24
L24	52.5 - 50.5	Pole	Max. Vx	2	-32.91	22.36	2128.39
			Max. Torque	6			1.99
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.44	0.86	2.76
			Max. Mx	20	-31.03	2161.18	11.47
			Max. My	2	-30.99	22.82	2194.40
L25	50.5 - 50.25	Pole	Max. Vy	20	-32.80	2161.18	11.47
			Max. Vx	2	-33.14	22.82	2194.40
			Max. Torque	6			1.95
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.55	0.87	2.78
			Max. Mx	20	-31.13	2169.38	11.50
L26	50.25 - 50	Pole	Max. My	2	-31.09	22.88	2202.68
			Max. Vy	20	-32.82	2169.38	11.50
			Max. Vx	2	-33.16	22.88	2202.68
			Max. Torque	6			1.95
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.64	0.87	2.78
L27	50 - 45	Pole	Max. Mx	20	-31.20	2177.59	11.53
			Max. My	2	-31.16	22.94	2210.97
			Max. Vy	20	-32.85	2177.59	11.53
			Max. Vx	2	-33.19	22.94	2210.97
			Max. Torque	6			1.95
			Max Tension	1	0.00	0.00	0.00
L28	45 - 40	Pole	Max. Compression	26	-61.51	1.00	2.86
			Max. Mx	20	-32.59	2343.60	12.07
			Max. My	2	-32.55	24.10	2378.64
			Max. Vy	20	-33.52	2343.60	12.07
			Max. Vx	2	-33.85	24.10	2378.64
			Max. Torque	6			1.95
L29	40 - 35	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.26	1.11	2.97
			Max. Mx	20	-33.95	2512.46	12.63
			Max. My	2	-33.92	25.23	2549.17
			Max. Vy	20	-34.07	2512.46	12.63
			Max. Vx	2	-34.40	25.23	2549.17
L30	35 - 29.25	Pole	Max. Torque	6			1.95
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.03	1.22	3.08
			Max. Mx	20	-35.34	2684.02	13.18
			Max. My	2	-35.32	26.36	2722.38
			Max. Vy	20	-34.60	2684.02	13.18
L31	29.25 - 28.25	Pole	Max. Vx	2	-34.93	26.36	2722.38
			Max. Torque	6			1.95
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.22	1.23	3.09
			Max. Mx	20	-35.50	2701.32	13.23
			Max. My	2	-35.47	26.47	2739.85
			Max. Vy	20	-34.64	2701.32	13.23
			Max. Vx	2	-34.97	26.47	2739.85
			Max. Torque	6			1.95
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-69.10	1.39	3.18
			Max. Mx	20	-38.37	2920.34	13.92
			Max. My	2	-38.35	27.87	2960.92
			Max. Vy	20	-35.45	2920.34	13.92

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L32	28.25 - 24	Pole	Max. Vx	2	-35.77	27.87	2960.92
			Max. Torque	6			1.95
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-70.80	1.49	3.25
			Max. Mx	20	-39.72	3071.78	14.38
			Max. My	2	-39.70	28.81	3113.75
			Max. Vy	20	-35.86	3071.78	14.38
L33	24 - 23.75	Pole	Max. Vx	2	-36.19	28.81	3113.75
			Max. Torque	6			1.95
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-70.92	1.50	3.26
			Max. Mx	20	-39.84	3080.74	14.40
			Max. My	2	-39.82	28.87	3122.79
			Max. Vy	20	-35.87	3080.74	14.40
L34	23.75 - 18.75	Pole	Max. Vx	2	-36.20	28.87	3122.79
			Max. Torque	6			1.95
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.51	1.62	3.33
			Max. Mx	20	-41.88	3261.39	14.94
			Max. My	2	-41.87	29.97	3305.08
			Max. Vy	20	-36.41	3261.39	14.94
L35	18.75 - 13.75	Pole	Max. Vx	2	-36.74	29.97	3305.08
			Max. Torque	6			1.95
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-76.11	1.74	3.40
			Max. Mx	20	-43.97	3444.59	15.48
			Max. My	2	-43.96	31.06	3489.93
			Max. Vy	20	-36.90	3444.59	15.48
L36	13.75 - 8.75	Pole	Max. Vx	2	-37.23	31.06	3489.93
			Max. Torque	6			1.95
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-78.72	1.86	3.48
			Max. Mx	20	-46.08	3630.21	16.01
			Max. My	2	-46.08	32.15	3677.18
			Max. Vy	20	-37.38	3630.21	16.01
L37	8.75 - 3.75	Pole	Max. Vx	2	-37.70	32.15	3677.18
			Max. Torque	6			1.95
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-81.31	1.97	3.55
			Max. Mx	20	-48.23	3818.20	16.54
			Max. My	2	-48.23	33.23	3866.79
			Max. Vy	20	-37.85	3818.20	16.54
L38	3.75 - 0	Pole	Max. Vx	2	-38.17	33.23	3866.79
			Max. Torque	6			1.94
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-83.21	2.05	3.59
			Max. Mx	20	-49.86	3960.73	16.93
			Max. My	2	-49.86	34.04	4010.53
			Max. Vy	20	-38.21	3960.73	16.93

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	83.21	-0.00	-0.00
	Max. H _x	20	49.88	38.18	0.10
	Max. H _z	3	37.41	0.21	38.50
	Max. M _x	2	4010.53	0.21	38.50
	Max. M _z	8	3943.67	-38.08	0.07
	Max. Torsion	6	1.94	-33.01	19.41

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. Vert	15	37.41	0.04	-38.41
	Min. H _x	8	49.88	-38.08	0.07
	Min. H _z	14	49.88	0.04	-38.41
	Min. M _x	14	-3994.42	0.04	-38.41
	Min. M _z	20	-3960.73	38.18	0.10
	Min. Torsion	20	-1.00	38.18	0.10

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	41.56	-0.00	-0.00	-0.66	0.32	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	49.88	-0.21	-38.50	-4010.53	34.04	-0.96
0.9 Dead+1.0 Wind 0 deg - No Ice	37.41	-0.21	-38.50	-3952.27	33.33	-0.96
1.2 Dead+1.0 Wind 30 deg - No Ice	49.88	19.05	-33.26	-3460.87	-1973.79	-1.63
0.9 Dead+1.0 Wind 30 deg - No Ice	37.41	19.05	-33.26	-3410.57	-1945.40	-1.63
1.2 Dead+1.0 Wind 60 deg - No Ice	49.88	33.01	-19.41	-2032.01	-3420.47	-1.94
0.9 Dead+1.0 Wind 60 deg - No Ice	37.41	33.01	-19.41	-2002.28	-3371.19	-1.94
1.2 Dead+1.0 Wind 90 deg - No Ice	49.88	38.08	-0.07	-11.18	-3943.67	-0.42
0.9 Dead+1.0 Wind 90 deg - No Ice	37.41	38.08	-0.07	-10.77	-3886.82	-0.41
1.2 Dead+1.0 Wind 120 deg - No Ice	49.88	33.00	19.36	2022.13	-3418.57	-0.20
0.9 Dead+1.0 Wind 120 deg - No Ice	37.41	33.00	19.36	1992.98	-3369.32	-0.19
1.2 Dead+1.0 Wind 150 deg - No Ice	49.88	18.99	33.28	3462.33	-1963.17	-0.04
0.9 Dead+1.0 Wind 150 deg - No Ice	37.41	18.99	33.28	3412.41	-1934.97	-0.03
1.2 Dead+1.0 Wind 180 deg - No Ice	49.88	-0.04	38.41	3994.42	6.58	0.10
0.9 Dead+1.0 Wind 180 deg - No Ice	37.41	-0.04	38.41	3936.76	6.37	0.10
1.2 Dead+1.0 Wind 210 deg - No Ice	49.88	-19.05	33.26	3459.61	1973.88	0.03
0.9 Dead+1.0 Wind 210 deg - No Ice	37.41	-19.05	33.26	3409.74	1945.29	0.03
1.2 Dead+1.0 Wind 240 deg - No Ice	49.88	-33.21	19.24	2002.97	3453.50	0.58
0.9 Dead+1.0 Wind 240 deg - No Ice	37.41	-33.21	19.24	1974.17	3403.43	0.57
1.2 Dead+1.0 Wind 270 deg - No Ice	49.88	-38.18	-0.10	-16.93	3960.73	1.00
0.9 Dead+1.0 Wind 270 deg - No Ice	37.41	-38.18	-0.10	-16.42	3903.39	0.99
1.2 Dead+1.0 Wind 300 deg - No Ice	49.88	-33.09	-19.41	-2032.44	3434.29	-0.20
0.9 Dead+1.0 Wind 300 deg - No Ice	37.41	-33.09	-19.41	-2002.68	3384.57	-0.21
1.2 Dead+1.0 Wind 330 deg - No Ice	49.88	-19.18	-33.28	-3464.80	1994.95	-0.35
0.9 Dead+1.0 Wind 330 deg - No Ice	37.41	-19.18	-33.28	-3414.43	1965.98	-0.36
1.2 Dead+1.0 Ice+1.0 Temp	83.21	0.00	0.00	-3.59	2.05	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	83.21	-0.04	-8.08	-914.49	9.11	-0.16
1.2 Dead+1.0 Wind 30	83.21	4.00	-6.99	-789.86	-446.70	-0.32

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
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 60	83.21	6.94	-4.07	-464.06	-775.91	-0.40
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 90	83.21	8.01	-0.01	-5.57	-895.26	-0.14
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 120	83.21	6.94	4.06	455.27	-775.86	-0.10
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 150	83.21	4.00	6.99	783.05	-445.19	-0.05
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 180	83.21	-0.01	8.07	903.92	3.04	0.01
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 210	83.21	-4.00	6.99	782.19	450.88	0.03
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 240	83.21	-6.98	4.04	450.93	786.58	0.15
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 270	83.21	-8.03	-0.02	-7.38	902.78	0.24
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 300	83.21	-6.96	-4.07	-464.73	783.13	0.01
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 330	83.21	-4.03	-6.99	-790.98	455.61	-0.03
deg+1.0 Ice+1.0 Temp						
Dead+Wind 0 deg - Service	41.56	-0.04	-7.73	-799.82	7.03	-0.18
Dead+Wind 30 deg - Service	41.56	3.82	-6.68	-690.34	-393.15	-0.33
Dead+Wind 60 deg - Service	41.56	6.63	-3.90	-405.54	-681.50	-0.40
Dead+Wind 90 deg - Service	41.56	7.64	-0.01	-2.76	-785.65	-0.10
Dead+Wind 120 deg - Service	41.56	6.62	3.89	402.49	-681.12	-0.06
Dead+Wind 150 deg - Service	41.56	3.81	6.68	689.56	-391.04	-0.02
Dead+Wind 180 deg - Service	41.56	-0.01	7.71	795.57	1.57	0.02
Dead+Wind 210 deg - Service	41.56	-3.82	6.68	689.02	393.69	0.01
Dead+Wind 240 deg - Service	41.56	-6.67	3.86	398.69	688.61	0.12
Dead+Wind 270 deg - Service	41.56	-7.66	-0.02	-3.90	789.57	0.21
Dead+Wind 300 deg - Service	41.56	-6.64	-3.90	-405.62	684.79	-0.04
Dead+Wind 330 deg - Service	41.56	-3.85	-6.68	-691.14	397.90	-0.06

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-41.56	0.00	0.00	41.56	0.00	0.000%
2	-0.21	-49.88	-38.50	0.21	49.88	38.50	0.001%
3	-0.21	-37.41	-38.50	0.21	37.41	38.50	0.001%
4	19.05	-49.88	-33.26	-19.05	49.88	33.26	0.000%
5	19.05	-37.41	-33.26	-19.05	37.41	33.26	0.000%
6	33.01	-49.88	-19.41	-33.01	49.88	19.41	0.000%
7	33.01	-37.41	-19.41	-33.01	37.41	19.41	0.000%
8	38.08	-49.88	-0.07	-38.08	49.88	0.07	0.002%
9	38.08	-37.41	-0.07	-38.08	37.41	0.07	0.003%
10	33.00	-49.88	19.36	-33.00	49.88	-19.36	0.000%
11	33.00	-37.41	19.36	-33.00	37.41	-19.36	0.000%
12	18.99	-49.88	33.28	-18.99	49.88	-33.28	0.000%
13	18.99	-37.41	33.28	-18.99	37.41	-33.28	0.000%
14	-0.04	-49.88	38.41	0.04	49.88	-38.41	0.004%
15	-0.04	-37.41	38.41	0.04	37.41	-38.41	0.005%
16	-19.05	-49.88	33.26	19.05	49.88	-33.26	0.000%
17	-19.05	-37.41	33.26	19.05	37.41	-33.26	0.000%
18	-33.21	-49.88	19.24	33.21	49.88	-19.24	0.000%
19	-33.21	-37.41	19.24	33.21	37.41	-19.24	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
20	-38.18	-49.88	-0.10	38.18	49.88	0.10	0.001%
21	-38.18	-37.41	-0.10	38.18	37.41	0.10	0.001%
22	-33.09	-49.88	-19.41	33.09	49.88	19.41	0.000%
23	-33.09	-37.41	-19.41	33.09	37.41	19.41	0.000%
24	-19.18	-49.88	-33.28	19.18	49.88	33.28	0.000%
25	-19.18	-37.41	-33.28	19.18	37.41	33.28	0.000%
26	0.00	-83.21	0.00	-0.00	83.21	-0.00	0.001%
27	-0.04	-83.21	-8.08	0.04	83.21	8.08	0.000%
28	4.00	-83.21	-6.99	-4.00	83.21	6.99	0.000%
29	6.94	-83.21	-4.07	-6.94	83.21	4.07	0.000%
30	8.01	-83.21	-0.01	-8.01	83.21	0.01	0.000%
31	6.94	-83.21	4.06	-6.94	83.21	-4.06	0.000%
32	4.00	-83.21	6.99	-4.00	83.21	-6.99	0.000%
33	-0.01	-83.21	8.07	0.01	83.21	-8.07	0.000%
34	-4.00	-83.21	6.99	4.00	83.21	-6.99	0.000%
35	-6.98	-83.21	4.04	6.98	83.21	-4.04	0.000%
36	-8.03	-83.21	-0.02	8.03	83.21	0.02	0.000%
37	-6.96	-83.21	-4.07	6.96	83.21	4.07	0.000%
38	-4.03	-83.21	-6.99	4.03	83.21	6.99	0.000%
39	-0.04	-41.56	-7.73	0.04	41.56	7.73	0.003%
40	3.82	-41.56	-6.68	-3.82	41.56	6.68	0.001%
41	6.63	-41.56	-3.90	-6.63	41.56	3.90	0.001%
42	7.64	-41.56	-0.01	-7.64	41.56	0.01	0.003%
43	6.62	-41.56	3.89	-6.62	41.56	-3.89	0.001%
44	3.81	-41.56	6.68	-3.81	41.56	-6.68	0.001%
45	-0.01	-41.56	7.71	0.01	41.56	-7.71	0.003%
46	-3.82	-41.56	6.68	3.82	41.56	-6.68	0.001%
47	-6.67	-41.56	3.86	6.67	41.56	-3.86	0.001%
48	-7.66	-41.56	-0.02	7.66	41.56	0.02	0.003%
49	-6.64	-41.56	-3.90	6.64	41.56	3.90	0.001%
50	-3.85	-41.56	-6.68	3.85	41.56	6.68	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	21	0.00000001	0.00011984
3	Yes	21	0.00000001	0.00008340
4	Yes	26	0.00000001	0.00011355
5	Yes	25	0.00000001	0.00013981
6	Yes	26	0.00000001	0.00011935
7	Yes	25	0.00000001	0.00014717
8	Yes	20	0.00001971	0.00009582
9	Yes	19	0.00002342	0.00011715
10	Yes	26	0.00000001	0.00011626
11	Yes	25	0.00000001	0.00014331
12	Yes	26	0.00000001	0.00011477
13	Yes	25	0.00000001	0.00014145
14	Yes	19	0.00003687	0.00012108
15	Yes	18	0.00004429	0.00013470
16	Yes	26	0.00000001	0.00011534
17	Yes	25	0.00000001	0.00014213
18	Yes	26	0.00000001	0.00011630
19	Yes	25	0.00000001	0.00014325
20	Yes	21	0.00000001	0.00008854
21	Yes	20	0.00000001	0.00011465
22	Yes	26	0.00000001	0.00011774
23	Yes	25	0.00000001	0.00014498
24	Yes	26	0.00000001	0.00011744
25	Yes	25	0.00000001	0.00014466
26	Yes	11	0.00000001	0.00013062
27	Yes	23	0.00000001	0.00013215
28	Yes	24	0.00000001	0.00008986
29	Yes	24	0.00000001	0.00009072

30	Yes	23	0.00000001	0.00012869
31	Yes	24	0.00000001	0.00008921
32	Yes	24	0.00000001	0.00008896
33	Yes	23	0.00000001	0.00012999
34	Yes	24	0.00000001	0.00008937
35	Yes	24	0.00000001	0.00008980
36	Yes	23	0.00000001	0.00012985
37	Yes	24	0.00000001	0.00009126
38	Yes	24	0.00000001	0.00009115
39	Yes	17	0.00010652	0.00008694
40	Yes	19	0.00000001	0.00011489
41	Yes	19	0.00000001	0.00013147
42	Yes	17	0.00010646	0.00007920
43	Yes	19	0.00000001	0.00012048
44	Yes	19	0.00000001	0.00012003
45	Yes	17	0.00010650	0.00007869
46	Yes	19	0.00000001	0.00012081
47	Yes	19	0.00000001	0.00012008
48	Yes	17	0.00010648	0.00008536
49	Yes	19	0.00000001	0.00012328
50	Yes	19	0.00000001	0.00012441

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147 - 142	27.27	39	1.60	0.00
L2	142 - 137	25.60	39	1.59	0.00
L3	137 - 132	23.93	39	1.58	0.00
L4	132 - 127	22.29	39	1.56	0.00
L5	127 - 122	20.66	39	1.54	0.00
L6	122 - 117	19.07	39	1.50	0.00
L7	117 - 112	17.51	39	1.46	0.00
L8	112 - 107	16.01	39	1.41	0.00
L9	107 - 99.5	14.55	39	1.36	0.00
L10	103.25 - 98.25	13.51	39	1.31	0.00
L11	98.25 - 93.25	12.15	39	1.27	0.00
L12	93.25 - 88.25	10.86	39	1.20	0.00
L13	88.25 - 83.25	9.64	39	1.13	0.00
L14	83.25 - 78.25	8.49	39	1.06	0.00
L15	78.25 - 73.25	7.43	39	0.98	0.00
L16	73.25 - 69.5	6.45	39	0.90	0.00
L17	69.5 - 69.25	5.77	39	0.83	0.00
L18	69.25 - 64.25	5.72	39	0.83	0.00
L19	64.25 - 59	4.89	39	0.77	0.00
L20	63.75 - 58	4.81	39	0.76	0.00
L21	58 - 57.75	3.91	39	0.72	0.00
L22	57.75 - 57.5	3.87	39	0.71	0.00
L23	57.5 - 52.5	3.84	39	0.71	0.00
L24	52.5 - 50.5	3.14	39	0.63	0.00
L25	50.5 - 50.25	2.88	39	0.60	0.00
L26	50.25 - 50	2.85	39	0.60	0.00
L27	50 - 45	2.82	39	0.59	0.00
L28	45 - 40	2.23	39	0.52	0.00
L29	40 - 35	1.73	39	0.44	0.00
L30	35 - 29.25	1.32	39	0.36	0.00
L31	34.5 - 28.25	1.28	39	0.35	0.00
L32	28.25 - 24	0.85	39	0.30	0.00
L33	24 - 23.75	0.60	39	0.24	0.00
L34	23.75 - 18.75	0.59	39	0.24	0.00
L35	18.75 - 13.75	0.37	39	0.19	0.00
L36	13.75 - 8.75	0.20	39	0.14	0.00
L37	8.75 - 3.75	0.08	39	0.09	0.00
L38	3.75 - 0	0.01	39	0.04	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
149.0000	A-ANT-23G-2-C	39	27.27	1.60	0.01	38005
147.0000	Top Hat 10" Diameter x 4' 6" Tall	39	27.27	1.60	0.01	38005
145.0000	TME-1900MHz RRH (65 MHz)	39	26.60	1.60	0.00	38005
136.0000	MX08FRO665-21 w/ Mount Pipe	39	23.60	1.58	0.00	17782
122.0000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	39	19.07	1.50	0.00	7781
110.0000	DMP65R-BU4D w/ Mount Pipe	39	15.42	1.39	0.00	5007
53.0000	GPS_A	39	3.20	0.64	0.00	3758
49.0000	KS24019-L112A	39	2.69	0.58	0.00	3755

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147 - 142	136.70	2	8.03	0.01
L2	142 - 137	128.33	2	8.01	0.01
L3	137 - 132	120.00	2	7.95	0.01
L4	132 - 127	111.75	2	7.86	0.01
L5	127 - 122	103.61	2	7.72	0.01
L6	122 - 117	95.63	2	7.56	0.01
L7	117 - 112	87.84	2	7.35	0.01
L8	112 - 107	80.29	2	7.11	0.01
L9	107 - 99.5	73.01	2	6.82	0.01
L10	103.25 - 98.25	67.76	2	6.58	0.00
L11	98.25 - 93.25	60.97	2	6.37	0.00
L12	93.25 - 88.25	54.48	2	6.04	0.00
L13	88.25 - 83.25	48.36	2	5.68	0.00
L14	83.25 - 78.25	42.61	2	5.30	0.00
L15	78.25 - 73.25	37.27	2	4.91	0.00
L16	73.25 - 69.5	32.35	2	4.50	0.00
L17	69.5 - 69.25	28.94	2	4.19	0.00
L18	69.25 - 64.25	28.72	2	4.17	0.00
L19	64.25 - 59	24.52	2	3.86	0.00
L20	63.75 - 58	24.12	2	3.83	0.00
L21	58 - 57.75	19.63	2	3.59	0.00
L22	57.75 - 57.5	19.44	2	3.57	0.00
L23	57.5 - 52.5	19.25	2	3.55	0.00
L24	52.5 - 50.5	15.74	2	3.17	0.00
L25	50.5 - 50.25	14.44	2	3.01	0.00
L26	50.25 - 50	14.28	2	3.00	0.00
L27	50 - 45	14.13	2	2.98	0.00
L28	45 - 40	11.21	2	2.59	0.00
L29	40 - 35	8.70	2	2.20	0.00
L30	35 - 29.25	6.60	2	1.81	0.00
L31	34.5 - 28.25	6.41	2	1.77	0.00
L32	28.25 - 24	4.24	2	1.51	0.00
L33	24 - 23.75	3.03	2	1.21	0.00
L34	23.75 - 18.75	2.97	2	1.20	0.00
L35	18.75 - 13.75	1.85	2	0.94	0.00
L36	13.75 - 8.75	1.00	2	0.69	0.00
L37	8.75 - 3.75	0.40	2	0.44	0.00
L38	3.75 - 0	0.07	2	0.19	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
149.0000	A-ANT-23G-2-C	2	136.70	8.03	0.02	7812
147.0000	Top Hat 10" Diameter x 4' 6" Tall	2	136.70	8.03	0.02	7812
145.0000	TME-1900MHz RRH (65 MHz)	2	133.35	8.02	0.02	7812
136.0000	MX08FRO665-21 w/ Mount Pipe	2	118.34	7.93	0.02	3670
122.0000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	2	95.63	7.56	0.01	1601
110.0000	DMP65R-BU4D w/ Mount Pipe	2	77.34	7.00	0.01	1025
53.0000	GPS_A	2	16.07	3.21	0.00	752
49.0000	KS24019-L112A	2	13.51	2.90	0.00	751

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	147 - 142 (1)	TP22.8751x22x0.25	5.0000	0.0000	0.0	18.213 2	-3.99	983.51	0.004
L2	142 - 137 (2)	TP23.7501x22.8751x0.25	5.0000	0.0000	0.0	18.917 6	-4.32	1021.55	0.004
L3	137 - 132 (3)	TP24.6252x23.7501x0.25	5.0000	0.0000	0.0	19.622 0	-6.87	1059.59	0.006
L4	132 - 127 (4)	TP25.5002x24.6252x0.25	5.0000	0.0000	0.0	20.326 4	-7.26	1097.63	0.007
L5	127 - 122 (5)	TP26.3753x25.5002x0.25	5.0000	0.0000	0.0	21.030 8	-7.67	1135.67	0.007
L6	122 - 117 (6)	TP27.2503x26.3753x0.25	5.0000	0.0000	0.0	21.735 3	-11.79	1173.70	0.010
L7	117 - 112 (7)	TP28.1254x27.2503x0.25	5.0000	0.0000	0.0	22.439 7	-12.37	1211.74	0.010
L8	112 - 107 (8)	TP29.0004x28.1254x0.25	5.0000	0.0000	0.0	23.144 1	-17.75	1249.78	0.014
L9	107 - 99.5 (9)	TP30.313x29.0004x0.25	7.5000	0.0000	0.0	23.672 4	-18.31	1278.31	0.014
L10	99.5 - 98.25 (10)	TP30.0317x29.1567x0.31 25	5.0000	0.0000	0.0	29.904 9	-19.50	1749.44	0.011
L11	98.25 - 93.25 (11)	TP30.9066x30.0317x0.31 25	5.0000	0.0000	0.0	30.785 3	-20.41	1800.94	0.011
L12	93.25 - 88.25 (12)	TP31.7816x30.9066x0.31 25	5.0000	0.0000	0.0	31.665 7	-21.36	1852.45	0.012
L13	88.25 - 83.25 (13)	TP32.6565x31.7816x0.31 25	5.0000	0.0000	0.0	32.546 2	-22.34	1903.95	0.012
L14	83.25 - 78.25 (14)	TP33.5315x32.6565x0.31 25	5.0000	0.0000	0.0	33.426 6	-23.36	1955.45	0.012
L15	78.25 - 73.25 (15)	TP34.4064x33.5315x0.31 25	5.0000	0.0000	0.0	34.307 0	-24.41	2006.96	0.012
L16	73.25 - 69.5 (16)	TP35.0626x34.4064x0.31 25	3.7500	0.0000	0.0	34.967 3	-25.21	2045.59	0.012
L17	69.5 - 69.25 (17)	TP35.1064x35.0626x0.43 75	0.2500	0.0000	0.0	48.839 8	-25.30	2857.13	0.009
L18	69.25 - 64.25 (18)	TP35.9813x35.1064x0.43 13	5.0000	0.0000	0.0	49.365 7	-26.58	2887.89	0.009
L19	64.25 - 59 (19)	TP36.9x35.9813x0.4313	5.2500	0.0000	0.0	49.487 2	-26.72	2895.00	0.009
L20	59 - 58 (20)	TP36.45x35.4438x0.375	5.7500	0.0000	0.0	43.560 6	-28.98	2548.29	0.011
L21	58 - 57.75 (21)	TP36.4937x36.45x0.375	0.2500	0.0000	0.0	43.613 4	-29.06	2551.38	0.011
L22	57.75 - 57.5 (22)	TP36.5375x36.4937x0.37 5	0.2500	0.0000	0.0	43.666 2	-29.12	2554.47	0.011
L23	57.5 - 52.5	TP37.4125x36.5375x0.37	5.0000	0.0000	0.0	44.722	-30.47	2616.28	0.012

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
L24	(23) 52.5 - 50.5	5 TP37.7624x37.4125x0.37	2.0000	0.0000	0.0	45.145	-30.99	2641.00	0.012
L25	(24) 50.5 - 50.25	5 TP37.8062x37.7624x0.57	0.2500	0.0000	0.0	68.933	-31.09	4032.61	0.008
L26	(25) 50.25 - 50	5 TP37.8499x37.8062x0.37	0.2500	0.0000	0.0	45.251	-31.16	2647.18	0.012
L27	(26) 50 - 45 (27)	5 TP38.7249x37.8499x0.37	5.0000	0.0000	0.0	46.307	-32.55	2708.99	0.012
L28	(28) 45 - 40	5 TP39.5998x38.7249x0.37	5.0000	0.0000	0.0	47.364	-33.92	2770.79	0.012
L29	(29) 40 - 35	5 TP40.4748x39.5998x0.37	5.0000	0.0000	0.0	48.420	-35.32	2832.60	0.012
L30	(30) 35 - 29.25	5 TP41.481x40.4748x0.375	5.7500	0.0000	0.0	48.526	-35.47	2838.78	0.012
L31	(31) 29.25 - 28.25	75 TP40.9061x39.8123x0.43	6.2500	0.0000	0.0	57.010	-38.35	3335.09	0.011
L32	(32) 28.25 - 24	75 TP41.6499x40.9061x0.43	4.2500	0.0000	0.0	58.057	-39.70	3396.39	0.012
L33	(33) 24 - 23.75	5 TP41.6936x41.6499x0.62	0.2500	0.0000	0.0	82.650	-39.82	4835.06	0.008
L34	(34) 23.75 - 18.75	25 TP42.5686x41.6936x0.61	5.0000	0.0000	0.0	82.748	-41.87	4840.76	0.009
L35	(35) 18.75 - 13.75	25 TP43.4437x42.5686x0.61	5.0000	0.0000	0.0	84.473	-43.96	4941.72	0.009
L36	(36) 13.75 - 8.75	25 TP44.3187x43.4437x0.61	5.0000	0.0000	0.0	86.199	-46.08	5042.67	0.009
L37	(37) 8.75 - 3.75	1 TP45.1937x44.3187x0.6	5.0000	0.0000	0.0	86.155	-48.23	5040.07	0.010
L38	(38) 3.75 - 0	0 TP45.85x45.1937x0.6	3.7500	0.0000	0.0	87.423	-49.85	5114.25	0.010

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{nx} kip-ft	Ratio M _{ux} / φM _{nx}	M _{uy} kip-ft	φM _{ny} kip-ft	Ratio M _{uy} / φM _{ny}
L1	147 - 142 (1)	TP22.8751x22x0.25	32.17	559.16	0.058	0.00	559.16	0.000
L2	142 - 137 (2)	TP23.7501x22.8751x0.25	68.07	596.12	0.114	0.00	596.12	0.000
L3	137 - 132 (3)	TP24.6252x23.7501x0.25	118.52	633.65	0.187	0.00	633.65	0.000
L4	132 - 127 (4)	TP25.5002x24.6252x0.25	174.79	671.68	0.260	0.00	671.68	0.000
L5	127 - 122 (5)	TP26.3753x25.5002x0.25	234.21	710.15	0.330	0.00	710.15	0.000
L6	122 - 117 (6)	TP27.2503x26.3753x0.25	322.04	749.00	0.430	0.00	749.00	0.000
L7	117 - 112 (7)	TP28.1254x27.2503x0.25	410.61	788.17	0.521	0.00	788.17	0.000
L8	112 - 107 (8)	TP29.0004x28.1254x0.25	532.58	827.59	0.644	0.00	827.59	0.000
L9	107 - 99.5 (9)	TP30.313x29.0004x0.25	630.01	857.29	0.735	0.00	857.29	0.000
L10	(10) 99.5 - 98.25	25 TP30.0317x29.1567x0.31	762.97	1269.20	0.601	0.00	1269.20	0.000
L11	(11) 98.25 - 93.25	25 TP30.9066x30.0317x0.31	899.29	1331.33	0.675	0.00	1331.33	0.000
L12	(12) 93.25 - 88.25	25 TP31.7816x30.9066x0.31	1038.79	1394.04	0.745	0.00	1394.04	0.000
L13	(13) 88.25 - 83.25	25 TP32.6565x31.7816x0.31	1181.43	1457.26	0.811	0.00	1457.26	0.000
L14	(14) 83.25 - 78.25	25 TP33.5315x32.6565x0.31	1327.20	1520.92	0.873	0.00	1520.92	0.000
L15	(15) 78.25 - 73.25	25 TP34.4064x33.5315x0.31	1476.03	1584.94	0.931	0.00	1584.94	0.000
L16	(16) 73.25 - 69.5	25 TP35.0626x34.4064x0.31	1589.66	1633.17	0.973	0.00	1633.17	0.000
L17	(17) 69.5 - 69.25	75 TP35.1064x35.0626x0.43	1597.29	2530.86	0.631	0.00	2530.86	0.000
L18	(18) 69.25 - 64.25	13 TP35.9813x35.1064x0.43	1751.75	2620.83	0.668	0.00	2620.83	0.000
L19	64.25 - 59	TP36.9x35.9813x0.4313	1767.38	2631.92	0.672	0.00	2631.92	0.000

Section No.	Elevation ft	Size	M_{ux}	ϕM_{nx}	Ratio	M_{uy}	ϕM_{ny}	Ratio
			kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{nx}}$	kip-ft	kip-ft	$\frac{M_{uy}}{\phi M_{ny}}$
	(19)							
L20	59 - 58 (20)	TP36.45x35.4438x0.375	1949.85	2235.18	0.872	0.00	2235.18	0.000
L21	58 - 57.75 (21)	TP36.4937x36.45x0.375	1957.89	2239.64	0.874	0.00	2239.64	0.000
L22	57.75 - 57.5 (22)	TP36.5375x36.4937x0.375	1965.94	2244.12	0.876	0.00	2244.12	0.000
L23	57.5 - 52.5 (23)	TP37.4125x36.5375x0.375	2128.51	2333.93	0.912	0.00	2333.93	0.000
L24	52.5 - 50.5 (24)	TP37.7624x37.4125x0.375	2194.52	2370.04	0.926	0.00	2370.04	0.000
L25	50.5 - 50.25 (25)	TP37.8062x37.7624x0.375	2202.80	3825.45	0.576	0.00	3825.45	0.000
L26	50.25 - 50 (26)	TP37.8499x37.8062x0.375	2211.09	2379.09	0.929	0.00	2379.09	0.000
L27	50 - 45 (27)	TP38.7249x37.8499x0.375	2378.76	2469.88	0.963	0.00	2469.88	0.000
L28	45 - 40 (28)	TP39.5998x38.7249x0.375	2549.29	2561.22	0.995	0.00	2561.22	0.000
L29	40 - 35 (29)	TP40.4748x39.5998x0.375	2722.51	2653.07	1.026	0.00	2653.07	0.000
L30	35 - 29.25 (30)	TP41.481x40.4748x0.375	2739.97	2662.28	1.029	0.00	2662.28	0.000
L31	29.25 - 28.25 (31)	TP40.9061x39.8123x0.4375	2961.05	3325.84	0.890	0.00	3325.84	0.000
L32	28.25 - 24 (32)	TP41.6499x40.9061x0.4375	3113.88	3428.14	0.908	0.00	3428.14	0.000
L33	24 - 23.75 (33)	TP41.6936x41.6499x0.625	3122.93	5060.55	0.617	0.00	5060.55	0.000
L34	23.75 - 18.75 (34)	TP42.5686x41.6936x0.625	3305.22	5179.17	0.638	0.00	5179.17	0.000
L35	18.75 - 13.75 (35)	TP43.4437x42.5686x0.625	3490.07	5399.04	0.646	0.00	5399.04	0.000
L36	13.75 - 8.75 (36)	TP44.3187x43.4437x0.625	3677.32	5623.48	0.654	0.00	5623.48	0.000
L37	8.75 - 3.75 (37)	TP45.1937x44.3187x0.625	3866.93	5737.88	0.674	0.00	5737.88	0.000
L38	3.75 - 0 (38)	TP45.85x45.1937x0.625	4010.68	5909.15	0.679	0.00	5909.15	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	V_u	ϕV_n	Ratio	T_u	ϕT_n	Ratio
			K	K	$\frac{V_u}{\phi V_n}$	kip-ft	kip-ft	$\frac{T_u}{\phi T_n}$
L1	147 - 142 (1)	TP22.8751x22x0.25	6.88	295.05	0.023	1.26	587.21	0.002
L2	142 - 137 (2)	TP23.7501x22.8751x0.25	7.48	306.46	0.024	1.26	633.51	0.002
L3	137 - 132 (3)	TP24.6252x23.7501x0.25	10.94	317.88	0.034	1.26	681.56	0.002
L4	132 - 127 (4)	TP25.5002x24.6252x0.25	11.57	329.29	0.035	1.26	731.38	0.002
L5	127 - 122 (5)	TP26.3753x25.5002x0.25	12.20	340.70	0.036	1.26	782.95	0.002
L6	122 - 117 (6)	TP27.2503x26.3753x0.25	17.39	352.11	0.049	1.26	836.27	0.002
L7	117 - 112 (7)	TP28.1254x27.2503x0.25	18.04	363.52	0.050	1.26	891.36	0.001
L8	112 - 107 (8)	TP29.0004x28.1254x0.25	25.75	374.93	0.069	0.99	948.20	0.001
L9	107 - 99.5 (9)	TP30.313x29.0004x0.25	26.23	383.49	0.068	0.99	991.98	0.001
L10	99.5 - 98.25 (10)	TP30.0317x29.1567x0.3125	26.96	524.83	0.051	0.99	1372.01	0.001
L11	98.25 - 93.25 (11)	TP30.9066x30.0317x0.3125	27.59	540.28	0.051	0.99	1453.98	0.001
L12	93.25 - 88.25 (12)	TP31.7816x30.9066x0.3125	28.23	555.73	0.051	0.99	1538.33	0.001
L13	88.25 - 83.25 (13)	TP32.6565x31.7816x0.3125	28.85	571.18	0.051	0.99	1625.07	0.001
L14	83.25 - 78.25 (14)	TP33.5315x32.6565x0.3125	29.48	586.64	0.050	0.99	1714.18	0.001
L15	78.25 - 73.25 (15)	TP34.4064x33.5315x0.3125	30.09	602.09	0.050	0.99	1805.66	0.001
L16	73.25 - 69.5	TP35.0626x34.4064x0.3125	30.55	613.68	0.050	0.99	1875.84	0.001

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 $\frac{T_u}{\phi T_n}$
L17	69.5 - 69.25 (16)	TP35.1064x35.0626x0.43 25	30.57	857.14	0.036	0.99	2613.91	0.000
L18	69.25 - 64.25 (17)	TP35.9813x35.1064x0.43 75	31.23	866.37	0.036	0.99	2709.21	0.000
L19	64.25 - 59 (18)	TP36.9x35.9813x0.4313 13	31.29	868.50	0.036	0.99	2722.56	0.000
L20	59 - 58 (20) (19)	TP36.45x35.4438x0.375	32.17	764.49	0.042	0.99	2425.93	0.000
L21	58 - 57.75 (21)	TP36.4937x36.45x0.375	32.19	765.41	0.042	0.99	2431.81	0.000
L22	57.75 - 57.5 (22)	TP36.5375x36.4937x0.37 5	32.22	766.34	0.042	0.99	2437.70	0.000
L23	57.5 - 52.5 (23)	TP37.4125x36.5375x0.37 5	32.91	784.88	0.042	0.98	2557.09	0.000
L24	52.5 - 50.5 (24)	TP37.7624x37.4125x0.37 5	33.14	792.30	0.042	0.95	2605.65	0.000
L25	50.5 - 50.25 (25)	TP37.8062x37.7624x0.57 5	33.16	1209.78	0.027	0.95	3962.00	0.000
L26	50.25 - 50 (26)	TP37.8499x37.8062x0.37 5	33.19	794.15	0.042	0.95	2617.86	0.000
L27	50 - 45 (27) (27)	TP38.7249x37.8499x0.37 5	33.85	812.70	0.042	0.96	2741.53	0.000
L28	45 - 40 (28) (28)	TP39.5998x38.7249x0.37 5	34.40	831.24	0.041	0.96	2868.05	0.000
L29	40 - 35 (29) (29)	TP40.4748x39.5998x0.37 5	34.93	849.78	0.041	0.96	2997.43	0.000
L30	35 - 29.25 (30)	TP41.481x40.4748x0.375	34.97	851.63	0.041	0.96	3010.53	0.000
L31	29.25 - 28.25 (31)	TP40.9061x39.8123x0.43 75	35.78	1000.53	0.036	0.96	3561.62	0.000
L32	28.25 - 24 (32)	TP41.6499x40.9061x0.43 75	36.19	1018.92	0.036	0.96	3693.73	0.000
L33	24 - 23.75 (33)	TP41.6936x41.6499x0.62 5	36.20	1450.52	0.025	0.96	5240.02	0.000
L34	23.75 - 18.75 (34)	TP42.5686x41.6936x0.61 25	36.74	1452.23	0.025	0.96	5359.57	0.000
L35	18.75 - 13.75 (35)	TP43.4437x42.5686x0.61 25	37.23	1482.51	0.025	0.96	5585.46	0.000
L36	13.75 - 8.75 (36)	TP44.3187x43.4437x0.61 25	37.70	1512.80	0.025	0.96	5816.01	0.000
L37	8.75 - 3.75 (37)	TP45.1937x44.3187x0.6	38.17	1512.02	0.025	0.96	5931.05	0.000
L38	3.75 - 0 (38) (38)	TP45.85x45.1937x0.6	38.53	1534.27	0.025	0.96	6106.91	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	147 - 142 (1)	0.004	0.058	0.000	0.023	0.002	0.062	1.050	4.8.2
L2	142 - 137 (2)	0.004	0.114	0.000	0.024	0.002	0.119	1.050	4.8.2
L3	137 - 132 (3)	0.006	0.187	0.000	0.034	0.002	0.195	1.050	4.8.2
L4	132 - 127 (4)	0.007	0.260	0.000	0.035	0.002	0.268	1.050	4.8.2
L5	127 - 122 (5)	0.007	0.330	0.000	0.036	0.002	0.338	1.050	4.8.2
L6	122 - 117 (6)	0.010	0.430	0.000	0.049	0.002	0.443	1.050	4.8.2
L7	117 - 112 (7)	0.010	0.521	0.000	0.050	0.001	0.534	1.050	4.8.2
L8	112 - 107 (8)	0.014	0.644	0.000	0.069	0.001	0.663	1.050	4.8.2
L9	107 - 99.5 (9)	0.014	0.735	0.000	0.068	0.001	0.754	1.050	4.8.2
L10	99.5 - 98.25 (10)	0.011	0.601	0.000	0.051	0.001	0.615	1.050	4.8.2
L11	98.25 - 93.25 (11)	0.011	0.675	0.000	0.051	0.001	0.690	1.050	4.8.2
L12	93.25 - 88.25	0.012	0.745	0.000	0.051	0.001	0.759	1.050	4.8.2

Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		P_u	M_{ux}	M_{uy}	V_u	T_u			
		ϕP_n	ϕM_{nx}	ϕM_{ny}	ϕV_n	ϕT_n			
L13	88.25 - 83.25 (12)	0.012	0.811	0.000	0.051	0.001	0.825	1.050	4.8.2
L14	83.25 - 78.25 (13)	0.012	0.873	0.000	0.050	0.001	0.887	1.050	4.8.2
L15	78.25 - 73.25 (14)	0.012	0.931	0.000	0.050	0.001	0.946	1.050	4.8.2
L16	73.25 - 69.5 (15)	0.012	0.973	0.000	0.050	0.001	0.988	1.050	4.8.2
L17	69.5 - 69.25 (16)	0.009	0.631	0.000	0.036	0.000	0.641	1.050	4.8.2
L18	69.25 - 64.25 (17)	0.009	0.668	0.000	0.036	0.000	0.679	1.050	4.8.2
L19	64.25 - 59 (18)	0.009	0.672	0.000	0.036	0.000	0.682	1.050	4.8.2
L20	59 - 58 (20)	0.011	0.872	0.000	0.042	0.000	0.886	1.050	4.8.2
L21	58 - 57.75 (19)	0.011	0.874	0.000	0.042	0.000	0.887	1.050	4.8.2
L22	57.75 - 57.5 (21)	0.011	0.876	0.000	0.042	0.000	0.889	1.050	4.8.2
L23	57.5 - 52.5 (22)	0.012	0.912	0.000	0.042	0.000	0.925	1.050	4.8.2
L24	52.5 - 50.5 (23)	0.012	0.926	0.000	0.042	0.000	0.939	1.050	4.8.2
L25	50.5 - 50.25 (24)	0.008	0.576	0.000	0.027	0.000	0.584	1.050	4.8.2
L26	50.25 - 50 (25)	0.012	0.929	0.000	0.042	0.000	0.943	1.050	4.8.2
L27	50 - 45 (27)	0.012	0.963	0.000	0.042	0.000	0.977	1.050	4.8.2
L28	45 - 40 (28)	0.012	0.995	0.000	0.041	0.000	1.009	1.050	4.8.2
L29	40 - 35 (29)	0.012	1.026	0.000	0.041	0.000	1.040	1.050	4.8.2
L30	35 - 29.25 (30)	0.012	1.029	0.000	0.041	0.000	1.043	1.050	4.8.2
L31	29.25 - 28.25 (31)	0.011	0.890	0.000	0.036	0.000	0.903	1.050	4.8.2
L32	28.25 - 24 (32)	0.012	0.908	0.000	0.036	0.000	0.921	1.050	4.8.2
L33	24 - 23.75 (33)	0.008	0.617	0.000	0.025	0.000	0.626	1.050	4.8.2
L34	23.75 - 18.75 (34)	0.009	0.638	0.000	0.025	0.000	0.647	1.050	4.8.2
L35	18.75 - 13.75 (35)	0.009	0.646	0.000	0.025	0.000	0.656	1.050	4.8.2
L36	13.75 - 8.75 (36)	0.009	0.654	0.000	0.025	0.000	0.664	1.050	4.8.2
L37	8.75 - 3.75 (37)	0.010	0.674	0.000	0.025	0.000	0.684	1.050	4.8.2
L38	3.75 - 0 (38)	0.010	0.679	0.000	0.025	0.000	0.689	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	147 - 142	Pole	TP22.8751x22x0.25	1	-3.99	1032.69	5.9	Pass
L2	142 - 137	Pole	TP23.7501x22.8751x0.25	2	-4.32	1072.63	11.3	Pass
L3	137 - 132	Pole	TP24.6252x23.7501x0.25	3	-6.87	1112.57	18.6	Pass
L4	132 - 127	Pole	TP25.5002x24.6252x0.25	4	-7.26	1152.51	25.5	Pass
L5	127 - 122	Pole	TP26.3753x25.5002x0.25	5	-7.67	1192.45	32.2	Pass
L6	122 - 117	Pole	TP27.2503x26.3753x0.25	6	-11.79	1232.38	42.2	Pass
L7	117 - 112	Pole	TP28.1254x27.2503x0.25	7	-12.37	1272.33	50.8	Pass
L8	112 - 107	Pole	TP29.0004x28.1254x0.25	8	-17.75	1312.27	63.1	Pass
L9	107 - 99.5	Pole	TP30.313x29.0004x0.25	9	-18.31	1342.23	71.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail	
L10	99.5 - 98.25	Pole	TP30.0317x29.1567x0.3125	10	-19.50	1836.91	58.6	Pass	
L11	98.25 - 93.25	Pole	TP30.9066x30.0317x0.3125	11	-20.41	1890.99	65.7	Pass	
L12	93.25 - 88.25	Pole	TP31.7816x30.9066x0.3125	12	-21.36	1945.07	72.3	Pass	
L13	88.25 - 83.25	Pole	TP32.6565x31.7816x0.3125	13	-22.34	1999.15	78.6	Pass	
L14	83.25 - 78.25	Pole	TP33.5315x32.6565x0.3125	14	-23.36	2053.22	84.5	Pass	
L15	78.25 - 73.25	Pole	TP34.4064x33.5315x0.3125	15	-24.41	2107.31	90.1	Pass	
L16	73.25 - 69.5	Pole	TP35.0626x34.4064x0.3125	16	-25.21	2147.87	94.1	Pass	
L17	69.5 - 69.25	Pole	TP35.1064x35.0626x0.4375	17	-25.30	2999.99	61.1	Pass	
L18	69.25 - 64.25	Pole	TP35.9813x35.1064x0.4313	18	-26.58	3032.28	64.7	Pass	
L19	64.25 - 59	Pole	TP36.9x35.9813x0.4313	19	-26.72	3039.75	65.0	Pass	
L20	59 - 58	Pole	TP36.45x35.4438x0.375	20	-28.98	2675.70	84.3	Pass	
L21	58 - 57.75	Pole	TP36.4937x36.45x0.375	21	-29.06	2678.95	84.5	Pass	
L22	57.75 - 57.5	Pole	TP36.5375x36.4937x0.375	22	-29.12	2682.19	84.7	Pass	
L23	57.5 - 52.5	Pole	TP37.4125x36.5375x0.375	23	-30.47	2747.09	88.1	Pass	
L24	52.5 - 50.5	Pole	TP37.7624x37.4125x0.375	24	-30.99	2773.05	89.5	Pass	
L25	50.5 - 50.25	Pole	TP37.8062x37.7624x0.575	25	-31.09	4234.24	55.6	Pass	
L26	50.25 - 50	Pole	TP37.8499x37.8062x0.375	26	-31.16	2779.54	89.8	Pass	
L27	50 - 45	Pole	TP38.7249x37.8499x0.375	27	-32.55	2844.44	93.0	Pass	
L28	45 - 40	Pole	TP39.5998x38.7249x0.375	28	-33.92	2909.33	96.1	Pass	
L29	40 - 35	Pole	TP40.4748x39.5998x0.375	29	-35.32	2974.23	99.1	Pass	
L30	35 - 29.25	Pole	TP41.481x40.4748x0.375	30	-35.47	2980.72	99.4	Pass	
L31	29.25 - 28.25	Pole	TP40.9061x39.8123x0.4375	31	-38.35	3501.84	86.0	Pass	
L32	28.25 - 24	Pole	TP41.6499x40.9061x0.4375	32	-39.70	3566.21	87.7	Pass	
L33	24 - 23.75	Pole	TP41.6936x41.6499x0.625	33	-39.82	5076.81	59.6	Pass	
L34	23.75 - 18.75	Pole	TP42.5686x41.6936x0.6125	34	-41.87	5082.80	61.7	Pass	
L35	18.75 - 13.75	Pole	TP43.4437x42.5686x0.6125	35	-43.96	5188.81	62.5	Pass	
L36	13.75 - 8.75	Pole	TP44.3187x43.4437x0.6125	36	-46.08	5294.80	63.2	Pass	
L37	8.75 - 3.75	Pole	TP45.1937x44.3187x0.6	37	-48.23	5292.07	65.2	Pass	
L38	3.75 - 0	Pole	TP45.85x45.1937x0.6	38	-49.85	5369.96	65.6	Pass	
							Summary		
							Pole (L30)	99.4	Pass
							RATING =	99.4	Pass

***NOTE: Above stress ratios for reinforced sections are approximate. More exact calculations are presented in Appendix C.**

APPENDIX B
BASE LEVEL DRAWING



(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 53 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(6) 1/2" TO 147 FT LEVEL

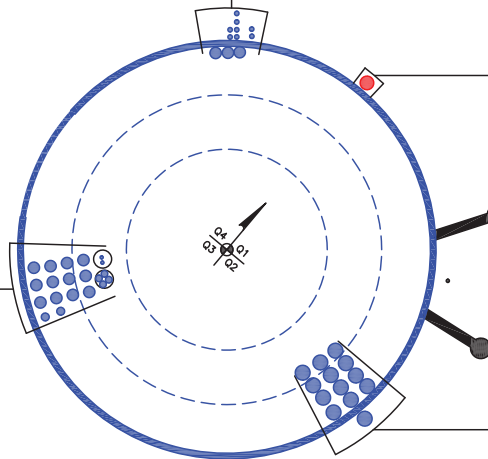
(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 49 FT LEVEL
(3) 1-1/4" TO 147 FT LEVEL

(OTHER CONSIDERED EQUIPMENT—IN CONDUITS)
(2) 3/8" TO 110 FT LEVEL
(4) 3/4" TO 110 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(2) 7/8" TO 110 FT LEVEL
(12) 1-1/4" TO 110 FT LEVEL

(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-1/2" TO 136 FT LEVEL

CLIMB PEGS
W/ SAFETY CLIMB

(OTHER CONSIDERED EQUIPMENT)
(13) 1-5/8" TO 122 FT LEVEL



APPENDIX C
ADDITIONAL CALCULATIONS

Site BU: 876321
Work Order: 1964060



Copyright © 2019 Crown Castle

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	147	47.5	3.75	12	22	30.313	0.25	Auto	A607-60
2	103.25	44.25	4.75	12	29.16	36.9	0.3125	Auto	A607-65
3	63.75	34.5	5.25	12	35.44	41.481	0.375	Auto	A607-65
4	34.5	34.5	0	12	39.81	45.85	0.4375	Auto	A607-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number												
						1	2	3	4	5	6	7	8	9	10	11	12
1	0	24	channel	MP3-04 (1.1875in)	3		x				x				x		
2	33.5	50.5	channel	MP3-04 (1.1875in)	3			x				x				x	
3	62.5	69.5	channel	MP3-04 (1.1875in)	3			x				x				x	
4	0	34	channel	MP3-04 (1.1875in)	3				x				x				x
5	50.25	57.75	channel	MP3-03 (1.1875in)	3				x				x				x
6																	
7																	
8																	
9																	
10																	

Reinforcement Details

	B (in)	H (in)	Gross Area (in ²)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in ²)	Bolt Hole Size (in)	Reinforcement Material
1	4.78	1.61	4.13	0.61	PC 8.8 - M20 (100)	17	PC 8.8 - M20 (100)	17.000	18.000	3.593	1.1875	A572-65
2	4.78	1.61	4.13	0.61	PC 8.8 - M20 (100)	17	PC 8.8 - M20 (100)	17.000	18.000	3.593	1.1875	A572-65
3	4.78	1.61	4.13	0.61	PC 8.8 - M20 (100)	17	PC 8.8 - M20 (100)	17.000	18.000	3.593	1.1875	A572-65
4	4.78	1.61	4.13	0.61	PC 8.8 - M20 (100)	17	PC 8.8 - M20 (100)	17.000	18.000	3.593	1.1875	A572-65
5	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.545	1.1875	A572-65

TNX Geometry Input

Increment (ft): [Export to TNX](#)

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	147 - 142	5		12	22.000	22.875	0.25	A607-60	1.000
2	142 - 137	5		12	22.875	23.750	0.25	A607-60	1.000
3	137 - 132	5		12	23.750	24.625	0.25	A607-60	1.000
4	132 - 127	5		12	24.625	25.500	0.25	A607-60	1.000
5	127 - 122	5		12	25.500	26.375	0.25	A607-60	1.000
6	122 - 117	5		12	26.375	27.250	0.25	A607-60	1.000
7	117 - 112	5		12	27.250	28.125	0.25	A607-60	1.000
8	112 - 107	5		12	28.125	29.000	0.25	A607-60	1.000
9	107 - 103.25	7.5	3.75	12	29.000	30.313	0.25	A607-60	1.000
10	103.25 - 98.25	5		12	29.157	30.032	0.3125	A607-65	1.000
11	98.25 - 93.25	5		12	30.032	30.907	0.3125	A607-65	1.000
12	93.25 - 88.25	5		12	30.907	31.782	0.3125	A607-65	1.000
13	88.25 - 83.25	5		12	31.782	32.657	0.3125	A607-65	1.000
14	83.25 - 78.25	5		12	32.657	33.531	0.3125	A607-65	1.000
15	78.25 - 73.25	5		12	33.531	34.406	0.3125	A607-65	1.000
16	73.25 - 69.5	3.75		12	34.406	35.063	0.3125	A607-65	1.000
17	69.5 - 69.25	0.25		12	35.063	35.106	0.4375	A607-65	0.971
18	69.25 - 64.25	5		12	35.106	35.981	0.43125	A607-65	0.978
19	64.25 - 63.75	5.25	4.75	12	35.981	36.900	0.43125	A607-65	0.978
20	63.75 - 58	5.75		12	35.444	36.450	0.375	A607-65	1.000
21	58 - 57.75	0.25		12	36.450	36.494	0.375	A607-65	1.000
22	57.75 - 57.5	0.25		12	36.494	36.537	0.375	A607-65	1.000
23	57.5 - 52.5	5		12	36.537	37.412	0.375	A607-65	1.000
24	52.5 - 50.5	2		12	37.412	37.762	0.375	A607-65	1.000
25	50.5 - 50.25	0.25		12	37.762	37.806	0.575	A607-65	0.963
26	50.25 - 50	0.25		12	37.806	37.850	0.375	A607-65	1.000
27	50 - 45	5		12	37.850	38.725	0.375	A607-65	1.000
28	45 - 40	5		12	38.725	39.600	0.375	A607-65	1.000
29	40 - 35	5		12	39.600	40.475	0.375	A607-65	1.000
30	35 - 34.5	5.75	5.25	12	40.475	41.481	0.375	A607-65	1.000
31	34.5 - 28.25	6.25		12	39.812	40.906	0.4375	A607-65	1.000
32	28.25 - 24	4.25		12	40.906	41.650	0.4375	A607-65	1.000
33	24 - 23.75	0.25		12	41.650	41.694	0.625	A607-65	1.003
34	23.75 - 18.75	5		12	41.694	42.569	0.6125	A607-65	1.017
35	18.75 - 13.75	5		12	42.569	43.444	0.6125	A607-65	1.011
36	13.75 - 8.75	5		12	43.444	44.319	0.6125	A607-65	1.005
37	8.75 - 3.75	5		12	44.319	45.194	0.6	A607-65	1.020
38	3.75 - 0	3.75		12	45.194	45.850	0.6	A607-65	1.016

TNX Section Forces

Increment (ft):		TNX Output		
	5	P _u	M _{ux} (kip-ft)	V _u (K)
	Section Height (ft)	(K)		
1	147 - 142	3.99	32.17	6.88
2	142 - 137	4.32	68.07	7.48
3	137 - 132	6.87	118.52	10.94
4	132 - 127	7.26	174.79	11.57
5	127 - 122	7.67	234.21	12.20
6	122 - 117	11.79	322.04	17.39
7	117 - 112	12.37	410.61	18.04
8	112 - 107	17.75	532.58	25.75
9	107 - 103.25	18.31	630.01	26.23
10	103.25 - 98.25	19.50	762.97	26.96
11	98.25 - 93.25	20.41	899.30	27.59
12	93.25 - 88.25	21.36	1038.79	28.23
13	88.25 - 83.25	22.34	1181.44	28.85
14	83.25 - 78.25	23.36	1327.20	29.48
15	78.25 - 73.25	24.41	1476.03	30.09
16	73.25 - 69.5	25.21	1589.66	30.55
17	69.5 - 69.25	25.30	1597.29	30.57
18	69.25 - 64.25	26.58	1751.75	31.23
19	64.25 - 63.75	26.72	1767.38	31.29
20	63.75 - 58	28.98	1949.85	32.17
21	58 - 57.75	29.06	1957.89	32.19
22	57.75 - 57.5	29.12	1965.94	32.22
23	57.5 - 52.5	30.47	2128.51	32.91
24	52.5 - 50.5	30.99	2194.52	33.14
25	50.5 - 50.25	31.09	2202.80	33.16
26	50.25 - 50	31.16	2211.09	33.19
27	50 - 45	32.55	2378.76	33.85
28	45 - 40	33.92	2549.29	34.40
29	40 - 35	35.32	2722.51	34.93
30	35 - 34.5	35.47	2739.98	34.97
31	34.5 - 28.25	38.35	2961.05	35.78
32	28.25 - 24	39.70	3113.88	36.19
33	24 - 23.75	39.82	3122.93	36.20
34	23.75 - 18.75	41.87	3305.22	36.74
35	18.75 - 13.75	43.96	3490.07	37.23
36	13.75 - 8.75	46.08	3677.32	37.70
37	8.75 - 3.75	48.23	3866.94	38.17
38	3.75 - 0	49.86	4010.68	38.53

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
147 - 142	Pole	TP22.875x22x0.25	Pole	5.9%	Pass
142 - 137	Pole	TP23.75x22.875x0.25	Pole	11.3%	Pass
137 - 132	Pole	TP24.625x23.75x0.25	Pole	18.5%	Pass
132 - 127	Pole	TP25.5x24.625x0.25	Pole	25.5%	Pass
127 - 122	Pole	TP26.375x25.5x0.25	Pole	32.1%	Pass
122 - 117	Pole	TP27.25x26.375x0.25	Pole	42.0%	Pass
117 - 112	Pole	TP28.125x27.25x0.25	Pole	50.7%	Pass
112 - 107	Pole	TP29x28.125x0.25	Pole	62.9%	Pass
107 - 103.25	Pole	TP30.313x29x0.25	Pole	71.6%	Pass
103.25 - 98.25	Pole	TP30.032x29.157x0.3125	Pole	58.4%	Pass
98.25 - 93.25	Pole	TP30.907x30.032x0.3125	Pole	65.5%	Pass
93.25 - 88.25	Pole	TP31.782x30.907x0.3125	Pole	72.1%	Pass
88.25 - 83.25	Pole	TP32.657x31.782x0.3125	Pole	78.4%	Pass
83.25 - 78.25	Pole	TP33.531x32.657x0.3125	Pole	84.3%	Pass
78.25 - 73.25	Pole	TP34.406x33.531x0.3125	Pole	89.9%	Pass
73.25 - 69.5	Pole	TP35.063x34.406x0.3125	Pole	93.9%	Pass
69.5 - 69.25	Pole + Reinf.	TP35.106x35.063x0.4375	Reinf. 3 Tension Rupture	89.7%	Pass
69.25 - 64.25	Pole + Reinf.	TP35.981x35.106x0.4313	Reinf. 3 Tension Rupture	94.1%	Pass
64.25 - 63.75	Pole + Reinf.	TP36.9x35.981x0.4313	Reinf. 3 Tension Rupture	94.6%	Pass
63.75 - 58	Pole	TP36.45x35.444x0.375	Pole	84.1%	Pass
58 - 57.75	Pole	TP36.494x36.45x0.375	Pole	84.3%	Pass
57.75 - 57.5	Pole	TP36.537x36.494x0.375	Pole	84.5%	Pass
57.5 - 52.5	Pole	TP37.412x36.537x0.375	Pole	87.9%	Pass
52.5 - 50.5	Pole	TP37.762x37.412x0.375	Pole	89.2%	Pass
50.5 - 50.25	Pole + Reinf.	TP37.806x37.762x0.575	Reinf. 5 Tension Rupture	82.2%	Pass
50.25 - 50	Pole	TP37.85x37.806x0.375	Pole	89.6%	Pass
50 - 45	Pole	TP38.725x37.85x0.375	Pole	92.8%	Pass
45 - 40	Pole	TP39.6x38.725x0.375	Pole	95.9%	Pass
40 - 35	Pole	TP40.475x39.6x0.375	Pole	98.8%	Pass
35 - 34.5	Pole	TP41.481x40.475x0.375	Pole	99.1%	Pass
34.5 - 28.25	Pole	TP40.906x39.812x0.4375	Pole	85.8%	Pass
28.25 - 24	Pole	TP41.65x40.906x0.4375	Pole	87.5%	Pass
24 - 23.75	Pole + Reinf.	TP41.694x41.65x0.625	Reinf. 1 Tension Rupture	88.9%	Pass
23.75 - 18.75	Pole + Reinf.	TP42.569x41.694x0.6125	Reinf. 1 Tension Rupture	90.7%	Pass
18.75 - 13.75	Pole + Reinf.	TP43.444x42.569x0.6125	Reinf. 1 Tension Rupture	92.4%	Pass
13.75 - 8.75	Pole + Reinf.	TP44.319x43.444x0.6125	Reinf. 1 Tension Rupture	94.0%	Pass
8.75 - 3.75	Pole + Reinf.	TP45.194x44.319x0.6	Reinf. 1 Tension Rupture	95.5%	Pass
3.75 - 0	Pole + Reinf.	TP45.85x45.194x0.6	Reinf. 1 Tension Rupture	96.5%	Pass
				Summary	
			Pole	99.1%	Pass
			Reinforcement	96.5%	Pass
			Overall	99.1%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in ⁴)			Area (in ²)			% Capacity*					
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5
147 - 142	1192	n/a	1192	18.19	n/a	18.19	5.9%					
142 - 137	1335	n/a	1335	18.89	n/a	18.89	11.3%					
137 - 132	1490	n/a	1490	19.59	n/a	19.59	18.5%					
132 - 127	1656	n/a	1656	20.30	n/a	20.30	25.5%					
127 - 122	1835	n/a	1835	21.00	n/a	21.00	32.1%					
122 - 117	2025	n/a	2025	21.70	n/a	21.70	42.0%					
117 - 112	2229	n/a	2229	22.41	n/a	22.41	50.7%					
112 - 107	2445	n/a	2445	23.11	n/a	23.11	62.9%					
107 - 103.25	2616	n/a	2616	23.64	n/a	23.64	71.6%					
103.25 - 98.25	3376	n/a	3376	29.86	n/a	29.86	58.4%					
98.25 - 93.25	3683	n/a	3683	30.74	n/a	30.74	65.5%					
93.25 - 88.25	4008	n/a	4008	31.62	n/a	31.62	72.1%					
88.25 - 83.25	4352	n/a	4352	32.50	n/a	32.50	78.4%					
83.25 - 78.25	4714	n/a	4714	33.38	n/a	33.38	84.3%					
78.25 - 73.25	5097	n/a	5097	34.26	n/a	34.26	89.9%					
73.25 - 69.5	5397	n/a	5397	34.92	n/a	34.92	93.9%					
69.5 - 69.25	5417	2050	7468	34.96	12.39	47.35	66.0%			89.7%		
69.25 - 64.25	5836	2150	7986	35.84	12.39	48.23	70.1%			94.1%		
64.25 - 63.75	5879	2160	8040	35.93	12.39	48.32	70.5%			94.6%		
63.75 - 58	7246	n/a	7246	43.50	n/a	43.50	84.1%					
58 - 57.75	7272	n/a	7272	43.55	n/a	43.55	84.3%					
57.75 - 57.5	7299	n/a	7299	43.60	n/a	43.60	84.5%					
57.5 - 52.5	7841	n/a	7841	44.66	n/a	44.66	87.9%					
52.5 - 50.5	8066	n/a	8066	45.08	n/a	45.08	89.2%					
50.5 - 50.25	8094	4033	12127	45.13	21.15	66.28	57.7%		81.8%			82.2%
50.25 - 50	8122	n/a	8122	45.19	n/a	45.19	89.6%					
50 - 45	8705	n/a	8705	46.24	n/a	46.24	92.8%					
45 - 40	9314	n/a	9314	47.30	n/a	47.30	95.9%					
40 - 35	9951	n/a	9951	48.35	n/a	48.35	98.8%					
35 - 34.5	10017	n/a	10017	48.46	n/a	48.46	99.1%					
34.5 - 28.25	11933	n/a	11933	56.93	n/a	56.93	85.8%					
28.25 - 24	12604	n/a	12604	57.97	n/a	57.97	87.5%					
24 - 23.75	12659	5069	17729	58.04	24.78	82.82	63.0%	88.9%			84.7%	
23.75 - 18.75	13482	5278	18760	59.27	24.78	84.05	64.8%	90.7%			86.5%	
18.75 - 13.75	14339	5491	19830	60.50	24.78	85.28	66.6%	92.4%			88.2%	
13.75 - 8.75	15231	5708	20940	61.73	24.78	86.51	68.3%	94.0%			89.7%	
8.75 - 3.75	16160	5930	22090	62.96	24.78	87.74	69.9%	95.5%			91.2%	
3.75 - 0	16881	6099	22980	63.88	24.78	88.66	71.1%	96.5%			92.3%	

Note: Section capacity checked using 5 degree increments.
Rating per TIA-222-H Section 15.5.

Monopole Base Plate Connection

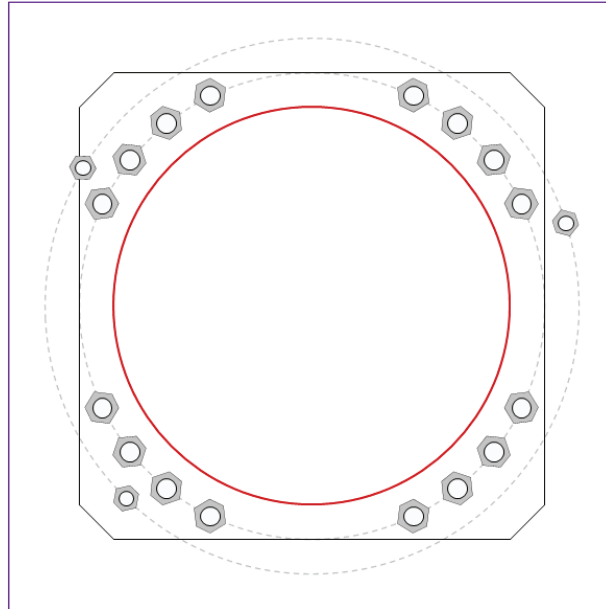


Site Info	
BU #	876321
Site Name	RANFORD BANM TOW
Order #	553366, Rev 1

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	See Custom Sheet
l_{ar} (in)	See Custom Sheet

Applied Loads	
Moment (kip-ft)	4010.68
Axial Force (kips)	49.86
Shear Force (kips)	38.53

*TIA-222-H Section 15.5 Applied



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

Anchor Rod Data
GROUP 1: (16) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 54" BC <i>Anchor Spacing: 6 in</i>
GROUP 2: (3) 1-3/4" ϕ bolts (A193 Gr. B7 N; $F_y=105$ ksi, $F_u=125$ ksi) on 61.85" BC <i>pos. (deg): 18, 149, 226</i>
Base Plate Data
54" W x 3.5" Plate (A572-50; $F_y=50$ ksi, $F_u=65$ ksi); Clip: 4 in
Stiffener Data
N/A
Pole Data
45.85" x 0.4375" 12-sided pole (A607-65; $F_y=65$ ksi, $F_u=80$ ksi)

Anchor Rod Summary (units of kips, kip-in)		
GROUP 1:		
$P_{u,t} = 205.89$	$\phi P_{n,t} = 243.75$	Stress Rating
$V_u = 2.41$	$\phi V_n = 149.1$	80.4%
$M_u = n/a$	$\phi M_n = n/a$	Pass
GROUP 2:		
$P_{u,t} = 129.17$	$\phi P_{n,t} = 178.13$	Stress Rating
$V_u = 0$	$\phi V_n = 112.75$	69.1%
$M_u = n/a$	$\phi M_n = n/a$	Pass
Base Plate Summary		
Max Stress (ksi):	28.12	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	59.5%	Pass

CCIplate

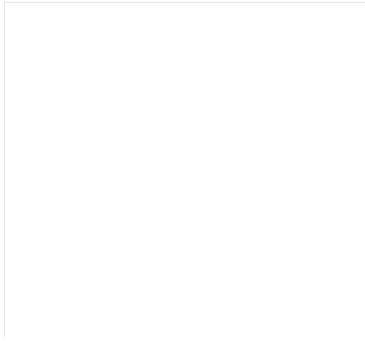
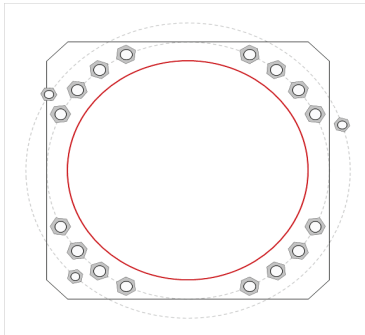
Elevation (ft) | 0 (Base)

note: Bending interaction not considered when Grout Considered = "Yes"

Bolt Group	Resist Axial	Resist Shear	Induce Plate Bending	Grout Considered	Apply at BARB Elevation	BARB CL Elevation (ft)
1	Yes	Yes	Yes	Yes	No	
2	No	No	No	Yes	No	

Custom Bolt Connection										
Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η	I_{br} (in):	Thread Type	Area Override, in ²	Tension Only
1	1	25.861889	2.25	A615-75	54	0.5	0	N-Included		No
2	1	38.62063	2.25	A615-75	54	0.5	0	N-Included		No
3	1	51.37937	2.25	A615-75	54	0.5	0	N-Included		No
4	1	64.138111	2.25	A615-75	54	0.5	0	N-Included		No
5	1	115.86189	2.25	A615-75	54	0.5	0	N-Included		No
6	1	128.62063	2.25	A615-75	54	0.5	0	N-Included		No
7	1	141.37937	2.25	A615-75	54	0.5	0	N-Included		No
8	1	154.13811	2.25	A615-75	54	0.5	0	N-Included		No
9	1	205.86189	2.25	A615-75	54	0.5	0	N-Included		No
10	1	218.62063	2.25	A615-75	54	0.5	0	N-Included		No
11	1	231.37937	2.25	A615-75	54	0.5	0	N-Included		No
12	1	244.13811	2.25	A615-75	54	0.5	0	N-Included		No
13	1	295.86189	2.25	A615-75	54	0.5	0	N-Included		No
14	1	308.62063	2.25	A615-75	54	0.5	0	N-Included		No
15	1	321.37937	2.25	A615-75	54	0.5	0	N-Included		No
16	1	334.13811	2.25	A615-75	54	0.5	0	N-Included		No
17	2	18	1.75	A193 Gr. B7	61.85	0.5	0	N-Included		No
18	2	149	1.75	A193 Gr. B7	61.85	0.5	0	N-Included		No
19	2	226	1.75	A193 Gr. B7	61.85	0.5	0	N-Included		No

Plot Graphic



Pier and Pad Foundation



BU #: 876321
 Site Name: BRANFORD BANM
 App. Number: 553366, Rev 1

TIA-222 Revision: H
 Tower Type: Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp} :	49.88	kips
Base Shear, V_{u_comp} :	38.5	kips
Moment, M_u :	4010.67	ft-kips
Tower Height, H :	147	ft
BP Dist. Above Fdn, bp_{dist} :		in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	348.10	38.50	10.5%	Pass
Bearing Pressure (ksf)	6.00	4.85	80.9%	Pass
Overturning (kip*ft)	5143.67	4453.42	86.6%	Pass
Pier Flexure (Comp.) (kip*ft)	5234.68	4337.92	78.9%	Pass
Pier Compression (kip)	23390.64	112.01	0.5%	Pass
Pad Flexure (kip*ft)	4322.10	2458.50	54.2%	Pass
Pad Shear - 1-way (kips)	624.22	364.08	55.5%	Pass
Pad Shear - 2-way (Comp) (ksi)	0.164	0.000	0.0%	Pass
Flexural 2-way (Comp) (kip*ft)	6631.37	2602.75	37.4%	Pass

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$:	7	ft
Ext. Above Grade, E :	0.5	ft
Pier Rebar Size, Sc :	11	
Pier Rebar Quantity, mc :	16	
Pier Tie/Spiral Size, St :	5	
Pier Tie/Spiral Quantity, mt :	12	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

*Rating per TIA-222-H Section 15.5

Structural Rating*:	78.9%
Soil Rating*:	86.6%

Pad Properties		
Depth, D :	11	ft
Pad Width, W_1 :	20.5	ft
Pad Thickness, T :	3	ft
Pad Rebar Size (Bottom dir. 2), Sp_2 :	11	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	21	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	3	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	125	pcf
Ultimate Gross Bearing, Q_{ult} :	8.000	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, ϕ :	35	degrees
SPT Blow Count, N_{blows} :	34	
Base Friction, μ :		
Neglected Depth, N :	3.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	4.5	ft

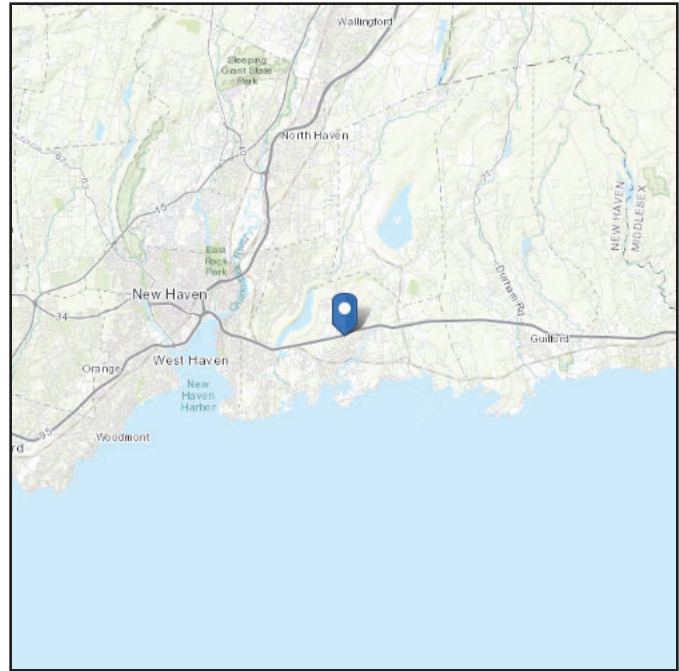
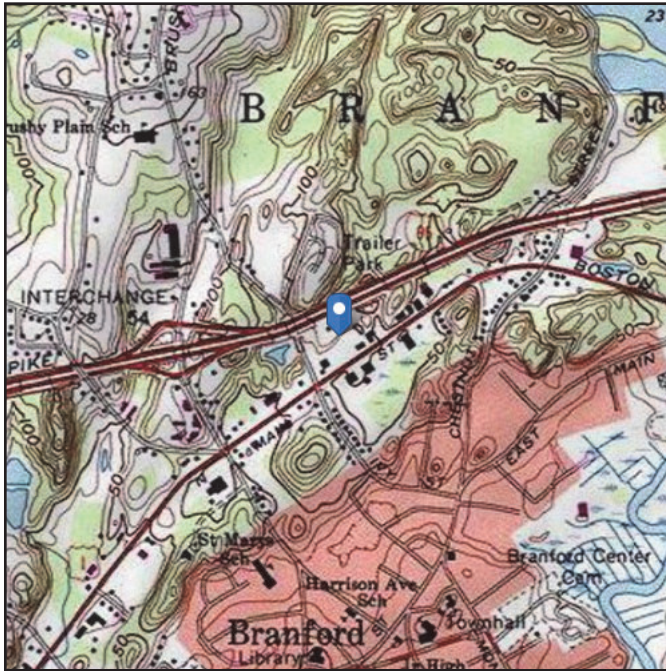
<--Toggle between Gross and Net

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 57.7 ft (NAVD 88)
Latitude: 41.288611
Longitude: -72.813861



Wind

Results:

Wind Speed:	127 Vmph
10-year MRI	78 Vmph
25-year MRI	88 Vmph
50-year MRI	95 Vmph
100-year MRI	103 Vmph

Data 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).

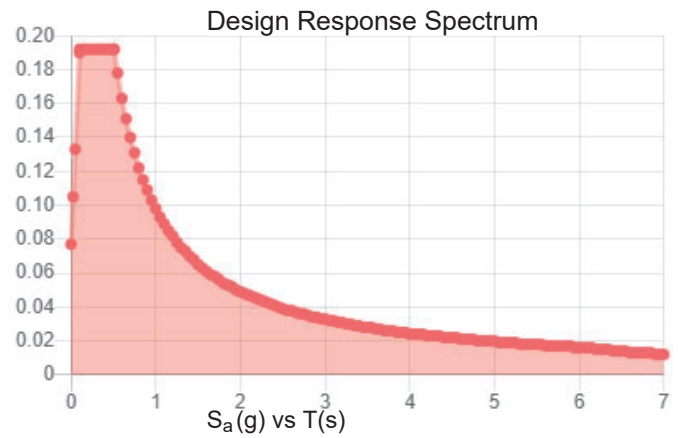
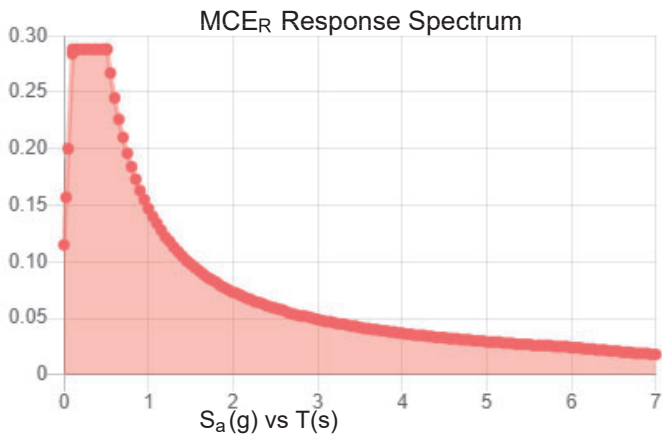
Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.18	S_{DS} :	0.192
S_1 :	0.061	S_{D1} :	0.098
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.093
S_{MS} :	0.288	PGA _M :	0.149
S_{M1} :	0.147	F _{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Mon Jun 07 2021

Date Source:

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

Ice

Results:

Ice Thickness: 0.75 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

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

Date Accessed: Mon Jun 07 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.

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

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

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

ATTACHMENT 5

Date: **October 1, 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: BOHVN00025A
Carrier Site Name: CT-CCI-T-876321

Crown Castle Designation: **Crown Castle BU Number:** 876321
Crown Castle Site Name: BRANFORD BANM TOWER
Crown Castle JDE Job Number: 645178
Crown Castle Order Number: 553366 Rev. 1

Engineering Firm Designation: **Trylon Report Designation:** 193136

Site Data: **150 North Main Street, Branford, New Haven County, CT, 06405**
Latitude 41°17'19.00" Longitude -72°48'49.90"

Structure Information: **Tower Height & Type:** **147.0 ft Monopole**
Mount Elevation: **136.0 ft**
Mount Type: **7.0 ft T-Arm**

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:

T-Arm

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: Andrei Florea

Respectfully Submitted by:
Cliff Abernathy, P.E



10/01/2021

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

Table 1 - Proposed Equipment Configuration

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

3.1) Analysis Method

3.2) Assumptions

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity

4.1) Recommendations

5) APPENDIX A

Wire Frame and Rendered Models

6) APPENDIX B

Software Input Calculations

7) APPENDIX C

Software Analysis Output

8) APPENDIX D

Additional Calculations

9) APPENDIX E

Supplemental Drawings

1) INTRODUCTION

This is a proposed 3 sector 7.0 ft T-Arm, designed by Commscope.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC / 2018 CTSCB
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	130 mph
Exposure Category:	C
Topographic Factor at Base:	1.000
Topographic Factor at Mount:	1.000
Ice Thickness:	1.50 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.18
Seismic S₁:	0.061
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
136.0	136.0	3	JMA WIRELESS	MX08FRO665-21	7.0 ft T-Arm [Commscope, MC-K6MHDX-9-96]
		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	553366 Rev.1	CCI Sites
Mount Manufacturer Drawings	Commscope	K6MHDX-9-96	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. Tylon 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 (T-Arm, Worst Case Sector)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,2	Mount Pipe(s)	MP1	136.0	22.3	Pass
	Horizontal(s)	H1		54.2	Pass
	Standoff(s)	M1		33.1	Pass
	Mount Connection(s)	-		56.7	Pass

Structure Rating (max from all components) =	56.7%
---	--------------

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

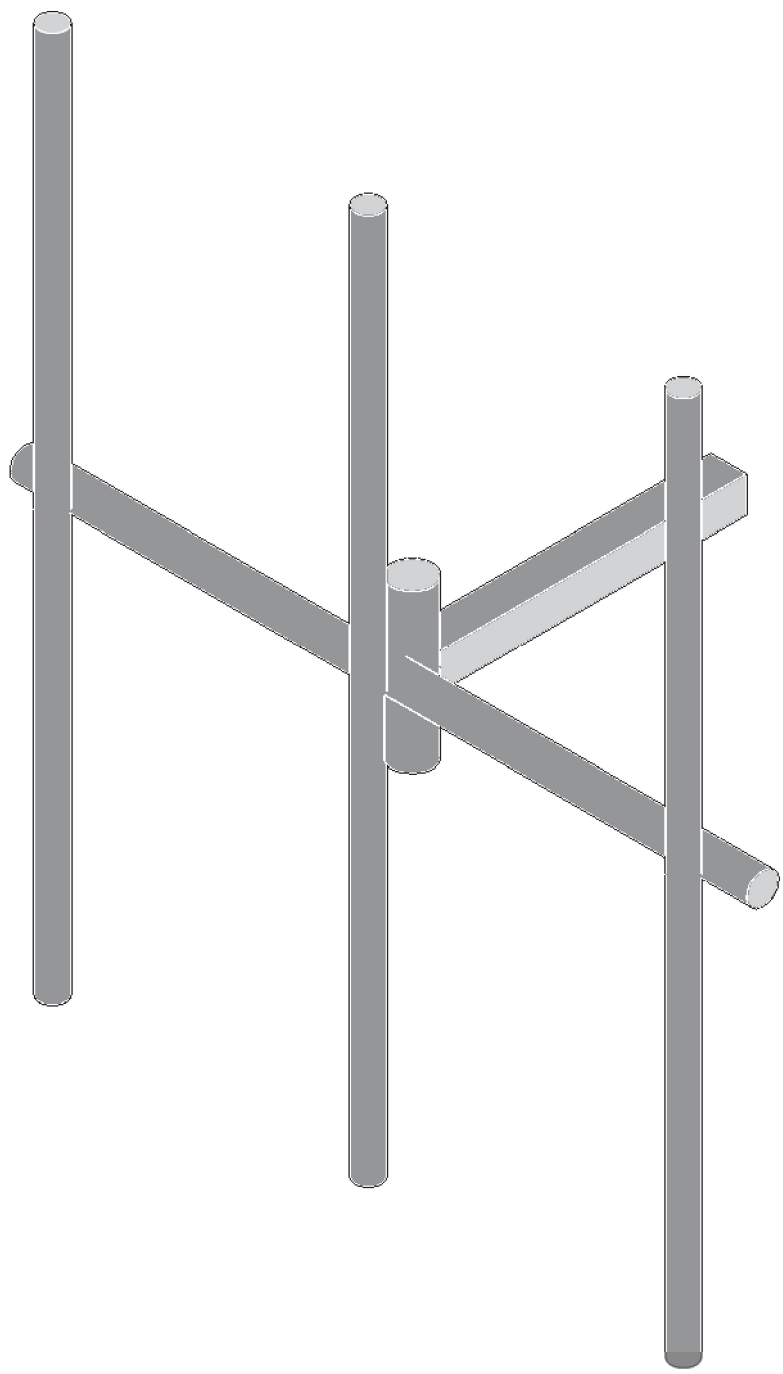
4.1) Recommendations

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-K6MHDX-9-96.

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

APPENDIX A
WIRE FRAME AND RENDERED MODELS

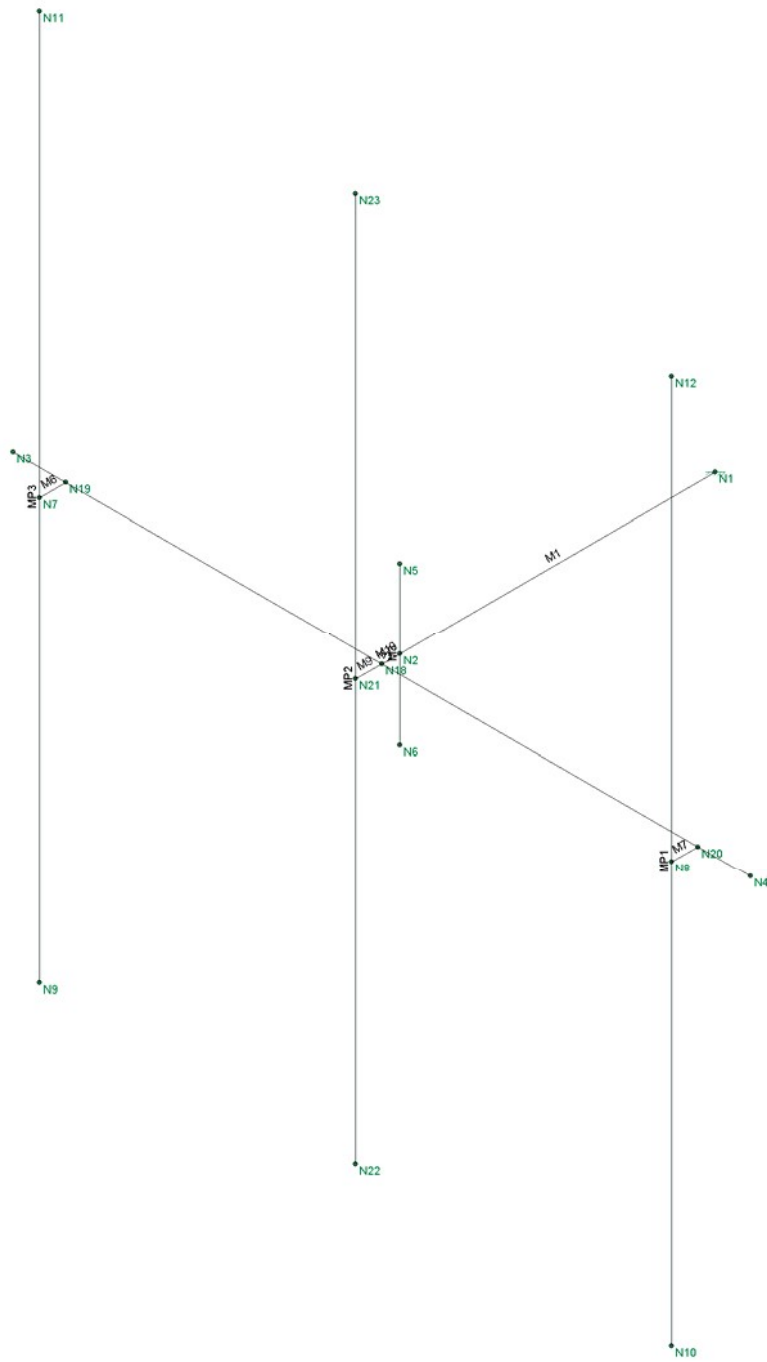


Envelope Only Solution

TRYLON
AF
193136

876321

SK - 1
Oct 1, 2021 at 12:36 PM
876321_loaded.r3d



Envelope Only Solution

TRYLON
AF
193136

876321

SK - 2
Oct 1, 2021 at 12:36 PM
876321_loaded.r3d

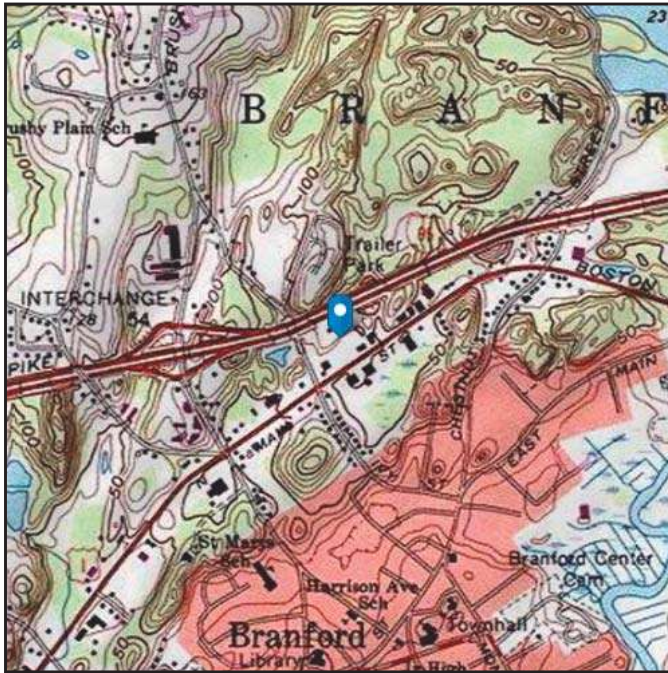
APPENDIX B
SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This
Location

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

Elevation: 57.7 ft (NAVD 88)
Latitude: 41.288611
Longitude: -72.813861

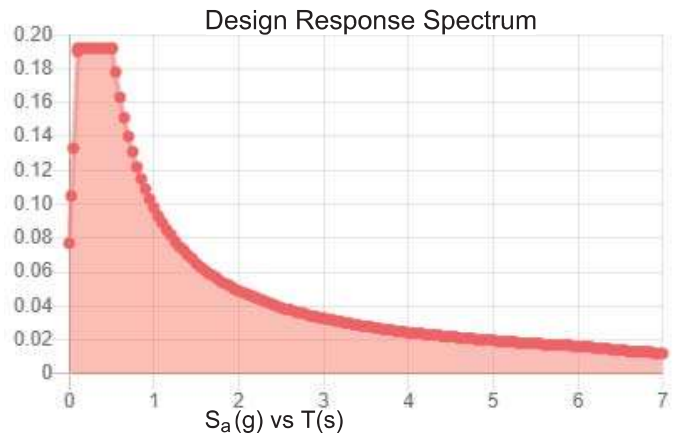
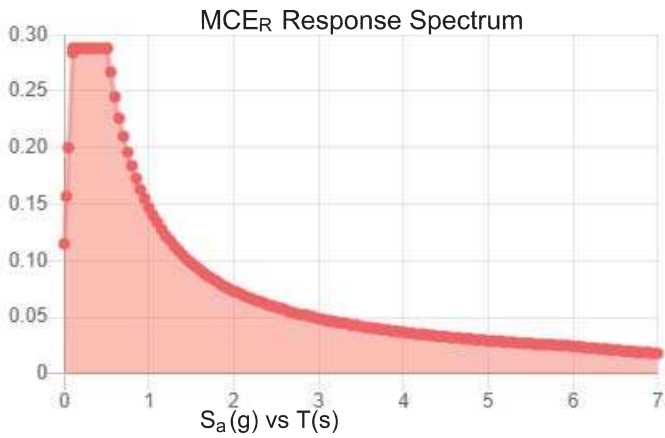


Site Soil Class: D - Stiff Soil

Results:

S_s :	0.18	S_{DS} :	0.192
S_1 :	0.061	S_{D1} :	0.098
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.093
S_{MS} :	0.288	PGA _M :	0.149
S_{M1} :	0.147	F _{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Fri Oct 01 2021

Date Source:

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

Ice

Results:

Ice Thickness: 0.75 in.
Concurrent Temperature: 15 F
Gust Speed: 50 mph

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

Date Accessed: Fri Oct 01 2021

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 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.

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

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

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

TIA LOAD CALCULATOR 2.1

PROJECT DATA	
Job Code:	193136
Carrier Site ID:	BOHVN00025A
Carrier Site Name:	CT-CCI-T-876321

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

STRUCTURE DETAILS		
Mount Type:	T-Arm	--
Mount Elevation:	136.0	ft.
Number of Sectors:	3	--
Structure Type:	Monopole	--
Structure Height:	147.0	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	C	--
Site Class:	D - Default	--
Ground Elevation:	57.7	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):	1.35	--
Directionality Factor (K_d):	0.95	--
Gust Effect Factor (G_h):	1.00	--
Shielding Factor (K_a):	0.90	--
Velocity Pressure (q_z):	55.38	psf
Ground Elevation Factor (K_e):	1.00	--

ICE PARAMETERS		
Design Ice Wind Speed:	50	mph
Design Ice Thickness (t_i):	1.50	in
Importance Factor (I_i):	1.00	--
Ice Velocity Pressure (q_{zi}):	55.38	psf
Mount Ice Thickness (t_z):	1.73	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	99.69	psf
Round Member Pressure:	59.81	psf
Ice Wind Pressure:	7.55	psf

SEISMIC PARAMETERS		
Importance Factor (I_e):	1.00	--
Short Period Accel. (S_s):	0.18	g
1 Second Accel. (S_1):	0.06	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 (C_s):	0.10	--
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

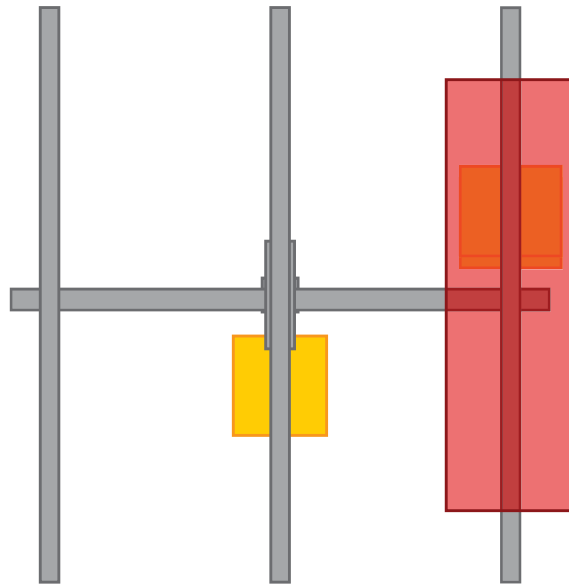
#	Description
42	1.2DL + 1DLi + 1WLi 180 AZI
43	1.2DL + 1DLi + 1WLi 210 AZI
44	1.2DL + 1DLi + 1WLi 225 AZI
45	1.2DL + 1DLi + 1WLi 240 AZI
46	1.2DL + 1DLi + 1WLi 270 AZI
47	1.2DL + 1DLi + 1WLi 300 AZI
48	1.2DL + 1DLi + 1WLi 315 AZI
49	1.2DL + 1DLi + 1WLi 330 AZI
50	(1.2+0.2Sds) + 1.0E 0 AZI
51	(1.2+0.2Sds) + 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

ELEVATION VIEW



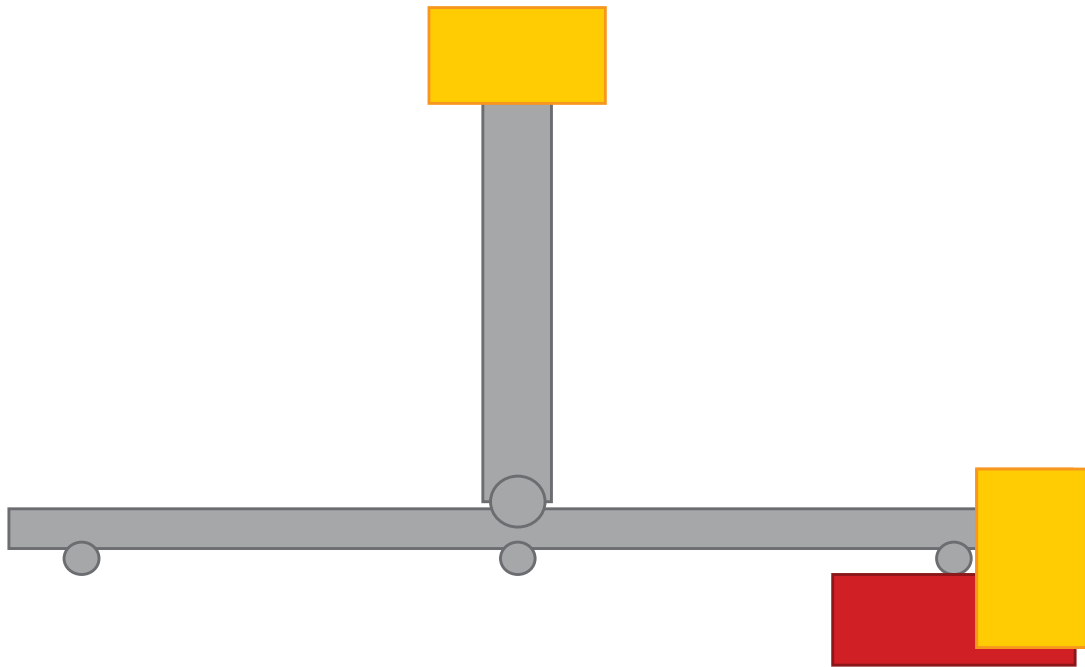
MP3

MP2

MP1

*Elevation View Shows Alpha Sector Only

PLAN VIEW



APPENDIX C
SOFTWARE ANALYSIS OUTPUT



Company : TRYLON
 Designer : AF
 Job Number : 193136
 Model Name : 876321

Oct 1, 2021
 12:37 PM
 Checked By: CA

(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 S100-16: LRFD
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

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

(Global) Model Settings, Continued

Seismic Code	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

Joint Coordinates and Temperatures

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
1	N1	-2	0	0	0	
2	N2	34	0	0	0	
3	N3	36	-42	0	0	
4	N4	36	42	0	0	
5	N5	34	0	9	0	
6	N6	34	0	-9	0	
7	N7	39	-36	0	0	
8	N8	39	36	0	0	
9	N9	39	-36	-48	0	
10	N10	39	36	-48	0	
11	N11	39	-36	48	0	
12	N12	39	36	48	0	
13	N19	36	-36	0	0	
14	N20	36	36	0	0	
15	N21	39	0	0	0	
16	N22	39	0	-48	0	
17	N23	39	0	48	0	
18	N18	36	0	0	0	

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	General				
2	RIGID		4	11	0
3	Total General		4	11	0
4					
5	Hot Rolled Steel				
6	A500 Gr.B Rect	HSS4X4X4	1	36	.037
7	A53 Gr.B	PIPE 2.5	3	288	.131
8	A53 Gr.B	PIPE 3.0	1	84	.049

Material Takeoff (Continued)

	Material	Size	Pieces	Length[in]	Weight[K]
9	A53 Gr.B	PIPE 4.0	1	18	.015
10	Total HR Steel		6	426	.233

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2			Standoffs	Beam	Tube	A500 Gr.B...	Typical
2	H1	N4	N3			Horizontals	Beam	Pipe	A53 Gr.B	Typical
3	M3	N6	N5			Vertical Standoff	Beam	Pipe	A53 Gr.B	Typical
4	MP1	N12	N10			Pipe Mounts	Beam	Pipe	A53 Gr.B	Typical
5	MP3	N11	N9			Pipe Mounts	Beam	Pipe	A53 Gr.B	Typical
6	M6	N7	N19			RIGID	None	None	RIGID	Typical
7	M7	N8	N20			RIGID	None	None	RIGID	Typical
8	MP2	N23	N22			Pipe Mounts	Beam	Pipe	A53 Gr.B	Typical
9	M9	N21	N18			RIGID	None	None	RIGID	Typical
10	M10	N18	N2			RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes				None
2	H1						Yes				None
3	M3						Yes				None
4	MP1						Yes				None
5	MP3						Yes				None
6	M6						Yes	** NA **			None
7	M7						Yes	** NA **			None
8	MP2						Yes				None
9	M9						Yes	** NA **			None
10	M10						Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[...]	Lcomp bot[...]	L-torg...	Kyy	Kzz	Cb	Functi...
1	M1	Standoffs	36	36	36	Lbyy		36	2.1	2.1		Lateral
2	H1	Horizontals	84	42	42	Lbyy		42	2.1	2.1		Lateral
3	M3	Vertical Standoff	18	9	9	Lbyy		9	2.1	2.1		Lateral
4	MP1	Pipe Mounts	96	48	48	Lbyy		48	2.1	2.1		Lateral
5	MP3	Pipe Mounts	96	48	48	Lbyy		48	2.1	2.1		Lateral
6	MP2	Pipe Mounts	96	48	48	Lbyy		48	2.1	2.1		Lateral

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
1	Standoffs	HSS4X4X4	Beam	Tube	A500 Gr.B Rect	Typical	3.37	7.8	7.8	12.8
2	Horizontals	PIPE 3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
3	Vertical Standoff	PIPE 4.0	Beam	Pipe	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
4	Pipe Mounts	PIPE 2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...	Density[k/ft...	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

Hot Rolled Steel Properties (Continued)

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...Density[k/ft...	Yield[psi]	Ry	Fu[psi]	Rt	
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

Member Point Loads (BLC 1 : Self Weight)

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	Z	-41.25	12
2	MP1	Z	-41.25	84
3	MP1	Z	-63.9	34
4	MP1	Z	-75	36
5	M1	Z	-21.85	18

Member Point Loads (BLC 4 : Wind Load 0 AZI)

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	X	-199.62	12
2	MP1	X	-199.62	84
3	MP1	X	-48.902	34
4	MP1	X	-56.296	36
5	M1	X	-100.277	18
6	MP1	Y	0	12
7	MP1	Y	0	84
8	MP1	Y	0	34
9	MP1	Y	0	36
10	M1	Y	0	18

Member Point Loads (BLC 5 : Wind Load 30 AZI)

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	X	-146.977	12
2	MP1	X	-146.977	84
3	MP1	X	-52.951	34
4	MP1	X	-57.754	36
5	M1	X	-77.738	18
6	MP1	Y	-84.857	12
7	MP1	Y	-84.857	84
8	MP1	Y	-30.572	34
9	MP1	Y	-33.344	36
10	M1	Y	-44.882	18

Member Point Loads (BLC 6 : Wind Load 45 AZI)

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	X	-98.86	12
2	MP1	X	-98.86	84
3	MP1	X	-51.89	34
4	MP1	X	-54.505	36
5	M1	X	-56.039	18
6	MP1	Y	-98.86	12
7	MP1	Y	-98.86	84
8	MP1	Y	-51.89	34
9	MP1	Y	-54.505	36
10	M1	Y	-56.039	18

Member Point Loads (BLC 7 : Wind Load 60 AZI)

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	X	-54.952	12
2	MP1	X	-54.952	84
3	MP1	X	-42.813	34
4	MP1	X	-43.737	36
5	M1	X	-34.369	18
6	MP1	Y	-95.179	12
7	MP1	Y	-95.179	84
8	MP1	Y	-74.154	34
9	MP1	Y	-75.755	36
10	M1	Y	-59.529	18

Member Point Loads (BLC 8 : Wind Load 90 AZI)

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	X	0	12
2	MP1	X	0	84
3	MP1	X	0	34
4	MP1	X	0	36
5	M1	X	0	18
6	MP1	Y	-79.998	12
7	MP1	Y	-79.998	84
8	MP1	Y	-97.866	34
9	MP1	Y	-97.866	36
10	M1	Y	-58.226	18

Member Point Loads (BLC 9 : Wind Load 120 AZI)

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	X	54.952	12
2	MP1	X	54.952	84
3	MP1	X	42.813	34
4	MP1	X	43.737	36
5	M1	X	34.369	18
6	MP1	Y	-95.179	12
7	MP1	Y	-95.179	84
8	MP1	Y	-74.154	34
9	MP1	Y	-75.755	36
10	M1	Y	-59.529	18

Member Point Loads (BLC 10 : Wind Load 135 AZI)

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	X	98.86	12
2	MP1	X	98.86	84
3	MP1	X	51.89	34
4	MP1	X	54.505	36
5	M1	X	56.039	18
6	MP1	Y	-98.86	12
7	MP1	Y	-98.86	84
8	MP1	Y	-51.89	34
9	MP1	Y	-54.505	36
10	M1	Y	-56.039	18

Member Point Loads (BLC 11 : Wind Load 150 AZI)

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	X	146.977	12
2	MP1	X	146.977	84
3	MP1	X	52.951	34

Member Point Loads (BLC 11 : Wind Load 150 AZI) (Continued)

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
4	MP1	X	57.754	36
5	M1	X	77.738	18
6	MP1	Y	-84.857	12
7	MP1	Y	-84.857	84
8	MP1	Y	-30.572	34
9	MP1	Y	-33.344	36
10	M1	Y	-44.882	18

Member Point Loads (BLC 12 : Ice Weight)

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	Z	-141.897	12
2	MP1	Z	-141.897	84
3	MP1	Z	-69.739	34
4	MP1	Z	-74.294	36
5	M1	Z	-73.222	18

Member Point Loads (BLC 15 : Ice Wind Load 0 AZI)

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	X	-35.469	12
2	MP1	X	-35.469	84
3	MP1	X	-9.661	34
4	MP1	X	-10.858	36
5	M1	X	-18.003	18
6	MP1	Y	0	12
7	MP1	Y	0	84
8	MP1	Y	0	34
9	MP1	Y	0	36
10	M1	Y	0	18

Member Point Loads (BLC 16 : Ice Wind Load 30 AZI)

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	X	-26.728	12
2	MP1	X	-26.728	84
3	MP1	X	-10.085	34
4	MP1	X	-10.863	36
5	M1	X	-14.128	18
6	MP1	Y	-15.431	12
7	MP1	Y	-15.431	84
8	MP1	Y	-5.823	34
9	MP1	Y	-6.272	36
10	M1	Y	-8.157	18

Member Point Loads (BLC 17 : Ice Wind Load 45 AZI)

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	X	-18.566	12
2	MP1	X	-18.566	84
3	MP1	X	-9.638	34
4	MP1	X	-10.061	36
5	M1	X	-10.341	18
6	MP1	Y	-18.566	12
7	MP1	Y	-18.566	84
8	MP1	Y	-9.638	34
9	MP1	Y	-10.061	36
10	M1	Y	-10.341	18

Member Point Loads (BLC 18 : Ice Wind Load 60 AZI)

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	X	-10.825	12
2	MP1	X	-10.825	84
3	MP1	X	-7.807	34
4	MP1	X	-7.957	36
5	M1	X	-6.467	18
6	MP1	Y	-18.749	12
7	MP1	Y	-18.749	84
8	MP1	Y	-13.523	34
9	MP1	Y	-13.782	36
10	M1	Y	-11.202	18

Member Point Loads (BLC 19 : Ice Wind Load 90 AZI)

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	X	0	12
2	MP1	X	0	84
3	MP1	X	0	34
4	MP1	X	0	36
5	M1	X	0	18
6	MP1	Y	-17.044	12
7	MP1	Y	-17.044	84
8	MP1	Y	-17.599	34
9	MP1	Y	-17.599	36
10	M1	Y	-11.245	18

Member Point Loads (BLC 20 : Ice Wind Load 120 AZI)

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	X	10.825	12
2	MP1	X	10.825	84
3	MP1	X	7.807	34
4	MP1	X	7.957	36
5	M1	X	6.467	18
6	MP1	Y	-18.749	12
7	MP1	Y	-18.749	84
8	MP1	Y	-13.523	34
9	MP1	Y	-13.782	36
10	M1	Y	-11.202	18

Member Point Loads (BLC 21 : Ice Wind Load 135 AZI)

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	X	18.566	12
2	MP1	X	18.566	84
3	MP1	X	9.638	34
4	MP1	X	10.061	36
5	M1	X	10.341	18
6	MP1	Y	-18.566	12
7	MP1	Y	-18.566	84
8	MP1	Y	-9.638	34
9	MP1	Y	-10.061	36
10	M1	Y	-10.341	18

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

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	X	26.728	12
2	MP1	X	26.728	84
3	MP1	X	10.085	34

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

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
4	MP1	X	10.863	36
5	M1	X	14.128	18
6	MP1	Y	-15.431	12
7	MP1	Y	-15.431	84
8	MP1	Y	-5.823	34
9	MP1	Y	-6.272	36
10	M1	Y	-8.157	18

Member Point Loads (BLC 23 : Seismic Load X)

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	X	-4.752	12
2	MP1	X	-4.752	84
3	MP1	X	-7.361	34
4	MP1	X	-8.64	36
5	M1	X	-2.517	18

Member Point Loads (BLC 24 : Seismic Load Y)

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	Y	-4.752	12
2	MP1	Y	-4.752	84
3	MP1	Y	-7.361	34
4	MP1	Y	-8.64	36
5	M1	Y	-2.517	18

Member Point Loads (BLC 25 : Live Load 1 (Lv))

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	H1	Z	-250	0

Member Point Loads (BLC 26 : Live Load 2 (Lv))

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	H1	Z	-250	%50

Member Point Loads (BLC 27 : Live Load 3 (Lv))

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	H1	Z	-250	%100

Member Point Loads (BLC 28 : Maintenance Load 1 (Lm))

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP1	Z	-500	%50

Member Point Loads (BLC 29 : Maintenance Load 2 (Lm))

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP3	Z	-500	%50

Member Point Loads (BLC 30 : Maintenance Load 3 (Lm))

	Member Label	Direction	Magnitude[lb.lb-ft]	Location[in.%]
1	MP2	Z	-500	%50

Member Distributed Loads (BLC 2 : Structure Wind X)

	Member Label	Direction	Start Magnitude[lb.ft,...	End Magnitude[lb.ft,F...	Start Location[in.%]	End Location[in.%]
1	M1	SX	-99.686	-99.686	0	%100



Member Distributed Loads (BLC 2 : Structure Wind X) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft....	End Magnitude[lb/ft.F...	Start Location[in.%]	End Location[in.%]
2	H1	SX	-59.811	-59.811	0	%100
3	M3	SX	-59.811	-59.811	0	%100
4	MP1	SX	-59.811	-59.811	0	%100
5	MP3	SX	-59.811	-59.811	0	%100
6	M6	SX	-99.686	-99.686	0	%100
7	M7	SX	-99.686	-99.686	0	%100
8	MP2	SX	-59.811	-59.811	0	%100
9	M9	SX	-99.686	-99.686	0	%100
10	M10	SX	-99.686	-99.686	0	%100

Member Distributed Loads (BLC 3 : Structure Wind Y)

	Member Label	Direction	Start Magnitude[lb/ft....	End Magnitude[lb/ft.F...	Start Location[in.%]	End Location[in.%]
1	M1	SY	-99.686	-99.686	0	%100
2	H1	SY	-59.811	-59.811	0	%100
3	M3	SY	-59.811	-59.811	0	%100
4	MP1	SY	-59.811	-59.811	0	%100
5	MP3	SY	-59.811	-59.811	0	%100
6	M6	SY	-99.686	-99.686	0	%100
7	M7	SY	-99.686	-99.686	0	%100
8	MP2	SY	-59.811	-59.811	0	%100
9	M9	SY	-99.686	-99.686	0	%100
10	M10	SY	-99.686	-99.686	0	%100

Member Distributed Loads (BLC 12 : Ice Weight)

	Member Label	Direction	Start Magnitude[lb/ft....	End Magnitude[lb/ft.F...	Start Location[in.%]	End Location[in.%]
1	M1	Z	-15.593	-15.593	0	%100
2	H1	Z	-11.039	-11.039	0	%100
3	M3	Z	-13.15	-13.15	0	%100
4	MP1	Z	-9.719	-9.719	0	%100
5	MP3	Z	-9.719	-9.719	0	%100
6	M6	Z	0	0	0	%100
7	M7	Z	0	0	0	%100
8	MP2	Z	-9.719	-9.719	0	%100
9	M9	Z	0	0	0	%100
10	M10	Z	0	0	0	%100

Member Distributed Loads (BLC 13 : Ice Structure Wind X)

	Member Label	Direction	Start Magnitude[lb/ft....	End Magnitude[lb/ft.F...	Start Location[in.%]	End Location[in.%]
1	M1	SX	-12.162	-12.162	0	%100
2	H1	SX	-15.005	-15.005	0	%100
3	M3	SX	-13.348	-13.348	0	%100
4	MP1	SX	-16.626	-16.626	0	%100
5	MP3	SX	-16.626	-16.626	0	%100
6	M6	SX	0	0	0	%100
7	M7	SX	0	0	0	%100
8	MP2	SX	-16.626	-16.626	0	%100
9	M9	SX	0	0	0	%100
10	M10	SX	0	0	0	%100

Member Distributed Loads (BLC 14 : Ice Structure Wind Y)

	Member Label	Direction	Start Magnitude[lb/ft....	End Magnitude[lb/ft.F...	Start Location[in.%]	End Location[in.%]
1	M1	SY	-12.162	-12.162	0	%100
2	H1	SY	-15.005	-15.005	0	%100
3	M3	SY	-13.348	-13.348	0	%100
4	MP1	SY	-16.626	-16.626	0	%100



Member Distributed Loads (BLC 14 : Ice Structure Wind Y) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft....	End Magnitude[lb/ft.F...	Start Location[in.-%]	End Location[in.-%]
5	MP3	SY	-16.626	-16.626	0	%100
6	M6	SY	0	0	0	%100
7	M7	SY	0	0	0	%100
8	MP2	SY	-16.626	-16.626	0	%100
9	M9	SY	0	0	0	%100
10	M10	SY	0	0	0	%100

Member Area Loads

Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
No Data to Print ...						

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
1	Self Weight	DL			-1		5		
2	Structure Wind X	WLX						10	
3	Structure Wind Y	WLY						10	
4	Wind Load 0 AZI	WLX					10		
5	Wind Load 30 AZI	None					10		
6	Wind Load 45 AZI	None					10		
7	Wind Load 60 AZI	None					10		
8	Wind Load 90 AZI	WLY					10		
9	Wind Load 120 AZI	None					10		
10	Wind Load 135 AZI	None					10		
11	Wind Load 150 AZI	None					10		
12	Ice Weight	OL1					5	10	
13	Ice Structure Wind X	OL2						10	
14	Ice Structure Wind Y	OL3						10	
15	Ice Wind Load 0 AZI	OL2					10		
16	Ice Wind Load 30 AZI	None					10		
17	Ice Wind Load 45 AZI	None					10		
18	Ice Wind Load 60 AZI	None					10		
19	Ice Wind Load 90 AZI	OL3					10		
20	Ice Wind Load 120 AZI	None					10		
21	Ice Wind Load 135 AZI	None					10		
22	Ice Wind Load 150 AZI	None					10		
23	Seismic Load X	ELX	-.115				5		
24	Seismic Load Y	ELY		-.115			5		
25	Live Load 1 (Lv)	None					1		
26	Live Load 2 (Lv)	None					1		
27	Live Load 3 (Lv)	None					1		
28	Maintenance Load 1 (...)	None					1		
29	Maintenance Load 2 (...)	None					1		
30	Maintenance Load 3 (...)	None					1		

Load Combinations

Description	Sol..	PD...	SR...	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..
1	1.4DL	Yes	Y	DL	1.4								
2	1.2DL + 1WL ...	Yes	Y	DL	1.2	2	1	3	4	1			
3	1.2DL + 1WL ...	Yes	Y	DL	1.2	2	.866	3	.5	5	1		
4	1.2DL + 1WL ...	Yes	Y	DL	1.2	2	.707	3	.707	6	1		
5	1.2DL + 1WL ...	Yes	Y	DL	1.2	2	.5	3	.866	7	1		
6	1.2DL + 1WL ...	Yes	Y	DL	1.2	2		3	1	8	1		



Company : TRYLON
 Designer : AF
 Job Number : 193136
 Model Name : 876321

Oct 1, 2021
 12:37 PM
 Checked By: CA

Load Combinations (Continued)

	Description	Sol.	PD	SR	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.
7	1.2DL + 1WL ...	Yes	Y		DL 1.2	2	-.5	3	.866	9	1				
8	1.2DL + 1WL ...	Yes	Y		DL 1.2	2	-.707	3	.707	10	1				
9	1.2DL + 1WL ...	Yes	Y		DL 1.2	2	-.866	3	.5	11	1				
10	1.2DL + 1WL ...	Yes	Y		DL 1.2	2	-.1	3		4	-1				
11	1.2DL + 1WL ...	Yes	Y		DL 1.2	2	-.866	3	-.5	5	-1				
12	1.2DL + 1WL ...	Yes	Y		DL 1.2	2	-.707	3	-.707	6	-1				
13	1.2DL + 1WL ...	Yes	Y		DL 1.2	2	-.5	3	-.866	7	-1				
14	1.2DL + 1WL ...	Yes	Y		DL 1.2	2		3	-.1	8	-1				
15	1.2DL + 1WL ...	Yes	Y		DL 1.2	2	.5	3	-.866	9	-1				
16	1.2DL + 1WL ...	Yes	Y		DL 1.2	2	.707	3	-.707	10	-1				
17	1.2DL + 1WL ...	Yes	Y		DL 1.2	2	.866	3	-.5	11	-1				
18	0.9DL + 1WL ...	Yes	Y		DL .9	2	1	3		4	1				
19	0.9DL + 1WL ...	Yes	Y		DL .9	2	.866	3	.5	5	1				
20	0.9DL + 1WL ...	Yes	Y		DL .9	2	.707	3	.707	6	1				
21	0.9DL + 1WL ...	Yes	Y		DL .9	2	.5	3	.866	7	1				
22	0.9DL + 1WL ...	Yes	Y		DL .9	2		3	1	8	1				
23	0.9DL + 1WL ...	Yes	Y		DL .9	2	-.5	3	.866	9	1				
24	0.9DL + 1WL ...	Yes	Y		DL .9	2	-.707	3	.707	10	1				
25	0.9DL + 1WL ...	Yes	Y		DL .9	2	-.866	3	.5	11	1				
26	0.9DL + 1WL ...	Yes	Y		DL .9	2	-.1	3		4	-1				
27	0.9DL + 1WL ...	Yes	Y		DL .9	2	-.866	3	-.5	5	-1				
28	0.9DL + 1WL ...	Yes	Y		DL .9	2	-.707	3	-.707	6	-1				
29	0.9DL + 1WL ...	Yes	Y		DL .9	2	-.5	3	-.866	7	-1				
30	0.9DL + 1WL ...	Yes	Y		DL .9	2		3	-.1	8	-1				
31	0.9DL + 1WL ...	Yes	Y		DL .9	2	.5	3	-.866	9	-1				
32	0.9DL + 1WL ...	Yes	Y		DL .9	2	.707	3	-.707	10	-1				
33	0.9DL + 1WL ...	Yes	Y		DL .9	2	.866	3	-.5	11	-1				
34	1.2DL + 1DLi ...	Yes	Y		DL 1.2	OL1	1	13	1	14		15	1		
35	1.2DL + 1DLi ...	Yes	Y		DL 1.2	OL1	1	13	.866	14	.5	16	1		
36	1.2DL + 1DLi ...	Yes	Y		DL 1.2	OL1	1	13	.707	14	.707	17	1		
37	1.2DL + 1DLi ...	Yes	Y		DL 1.2	OL1	1	13	.5	14	.866	18	1		
38	1.2DL + 1DLi ...	Yes	Y		DL 1.2	OL1	1	13		14	1	19	1		
39	1.2DL + 1DLi ...	Yes	Y		DL 1.2	OL1	1	13	-.5	14	.866	20	1		
40	1.2DL + 1DLi ...	Yes	Y		DL 1.2	OL1	1	13	-.707	14	.707	21	1		
41	1.2DL + 1DLi ...	Yes	Y		DL 1.2	OL1	1	13	-.866	14	.5	22	1		
42	1.2DL + 1DLi ...	Yes	Y		DL 1.2	OL1	1	13	-.1	14		15	-1		
43	1.2DL + 1DLi ...	Yes	Y		DL 1.2	OL1	1	13	-.866	14	-.5	16	-1		
44	1.2DL + 1DLi ...	Yes	Y		DL 1.2	OL1	1	13	-.707	14	-.707	17	-1		
45	1.2DL + 1DLi ...	Yes	Y		DL 1.2	OL1	1	13	-.5	14	-.866	18	-1		
46	1.2DL + 1DLi ...	Yes	Y		DL 1.2	OL1	1	13		14	-.1	19	-1		
47	1.2DL + 1DLi ...	Yes	Y		DL 1.2	OL1	1	13	.5	14	-.866	20	-1		
48	1.2DL + 1DLi ...	Yes	Y		DL 1.2	OL1	1	13	.707	14	-.707	21	-1		
49	1.2DL + 1DLi ...	Yes	Y		DL 1.2	OL1	1	13	.866	14	-.5	22	-1		
50	(1.2+0.2Sds)...	Yes	Y		DL 1.238	23	1	24							
51	(1.2+0.2Sds)...	Yes	Y		DL 1.238	23	.866	24	.5						
52	(1.2+0.2Sds)...	Yes	Y		DL 1.238	23	.707	24	.707						
53	(1.2+0.2Sds)...	Yes	Y		DL 1.238	23	.5	24	.866						
54	(1.2+0.2Sds)...	Yes	Y		DL 1.238	23		24	1						
55	(1.2+0.2Sds)...	Yes	Y		DL 1.238	23	-.5	24	.866						
56	(1.2+0.2Sds)...	Yes	Y		DL 1.238	23	-.707	24	.707						
57	(1.2+0.2Sds)...	Yes	Y		DL 1.238	23	-.866	24	.5						
58	(1.2+0.2Sds)...	Yes	Y		DL 1.238	23	-.1	24							
59	(1.2+0.2Sds)...	Yes	Y		DL 1.238	23	-.866	24	-.5						
60	(1.2+0.2Sds)...	Yes	Y		DL 1.238	23	-.707	24	-.707						
61	(1.2+0.2Sds)...	Yes	Y		DL 1.238	23	-.5	24	-.866						
62	(1.2+0.2Sds)...	Yes	Y		DL 1.238	23		24	-.1						
63	(1.2+0.2Sds)...	Yes	Y		DL 1.238	23	.5	24	-.866						



Company : TRYLON
 Designer : AF
 Job Number : 193136
 Model Name : 876321

Oct 1, 2021
 12:37 PM
 Checked By: CA

Load Combinations (Continued)

	Description	Sol.	PD	SR	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.
64	(1.2+0.2Sds)...	Yes	Y		DL 1.238	23 .707	24 -.707						
65	(1.2+0.2Sds)...	Yes	Y		DL 1.238	23 .866	24 -.5						
66	(0.9-0.2Sds)D...	Yes	Y		DL .862	23 1	24						
67	(0.9-0.2Sds)D...	Yes	Y		DL .862	23 .866	24 .5						
68	(0.9-0.2Sds)D...	Yes	Y		DL .862	23 .707	24 .707						
69	(0.9-0.2Sds)D...	Yes	Y		DL .862	23 .5	24 .866						
70	(0.9-0.2Sds)D...	Yes	Y		DL .862	23	24 1						
71	(0.9-0.2Sds)D...	Yes	Y		DL .862	23 -.5	24 .866						
72	(0.9-0.2Sds)D...	Yes	Y		DL .862	23 -.707	24 .707						
73	(0.9-0.2Sds)D...	Yes	Y		DL .862	23 -.866	24 .5						
74	(0.9-0.2Sds)D...	Yes	Y		DL .862	23 -1	24						
75	(0.9-0.2Sds)D...	Yes	Y		DL .862	23 -.866	24 -.5						
76	(0.9-0.2Sds)D...	Yes	Y		DL .862	23 -.707	24 -.707						
77	(0.9-0.2Sds)D...	Yes	Y		DL .862	23 -.5	24 -.866						
78	(0.9-0.2Sds)D...	Yes	Y		DL .862	23	24 -1						
79	(0.9-0.2Sds)D...	Yes	Y		DL .862	23 .5	24 -.866						
80	(0.9-0.2Sds)D...	Yes	Y		DL .862	23 .707	24 -.707						
81	(0.9-0.2Sds)D...	Yes	Y		DL .862	23 .866	24 -.5						
82	1.2DL + 1Lv1	Yes	Y		DL 1.2	25 1.5							
83	1.2DL + 1Lv2	Yes	Y		DL 1.2	26 1.5							
84	1.2DL + 1Lv3	Yes	Y		DL 1.2	27 1.5							
85	1.2DL + 1.5L...	Yes	Y		DL 1.2	28 1.5	2 .053	3	4 .053				
86	1.2DL + 1.5L...	Yes	Y		DL 1.2	28 1.5	2 .046	3 .027	5 .053				
87	1.2DL + 1.5L...	Yes	Y		DL 1.2	28 1.5	2 .038	3 .038	6 .053				
88	1.2DL + 1.5L...	Yes	Y		DL 1.2	28 1.5	2 .027	3 .046	7 .053				
89	1.2DL + 1.5L...	Yes	Y		DL 1.2	28 1.5	2	3 .053	8 .053				
90	1.2DL + 1.5L...	Yes	Y		DL 1.2	28 1.5	2 -.027	3 .046	9 .053				
91	1.2DL + 1.5L...	Yes	Y		DL 1.2	28 1.5	2 -.038	3 .038	10 .053				
92	1.2DL + 1.5L...	Yes	Y		DL 1.2	28 1.5	2 -.046	3 .027	11 .053				
93	1.2DL + 1.5L...	Yes	Y		DL 1.2	28 1.5	2 -.053	3	4 -.053				
94	1.2DL + 1.5L...	Yes	Y		DL 1.2	28 1.5	2 -.046	3 -.027	5 -.053				
95	1.2DL + 1.5L...	Yes	Y		DL 1.2	28 1.5	2 -.038	3 -.038	6 -.053				
96	1.2DL + 1.5L...	Yes	Y		DL 1.2	28 1.5	2 -.027	3 -.046	7 -.053				
97	1.2DL + 1.5L...	Yes	Y		DL 1.2	28 1.5	2	3 -.053	8 -.053				
98	1.2DL + 1.5L...	Yes	Y		DL 1.2	28 1.5	2 .027	3 -.046	9 -.053				
99	1.2DL + 1.5L...	Yes	Y		DL 1.2	28 1.5	2 .038	3 -.038	10 -.053				
100	1.2DL + 1.5L...	Yes	Y		DL 1.2	28 1.5	2 .046	3 -.027	11 -.053				
101	1.2DL + 1.5L...	Yes	Y		DL 1.2	29 1.5	2 .053	3	4 .053				
102	1.2DL + 1.5L...	Yes	Y		DL 1.2	29 1.5	2 .046	3 .027	5 .053				
103	1.2DL + 1.5L...	Yes	Y		DL 1.2	29 1.5	2 .038	3 .038	6 .053				
104	1.2DL + 1.5L...	Yes	Y		DL 1.2	29 1.5	2 .027	3 .046	7 .053				
105	1.2DL + 1.5L...	Yes	Y		DL 1.2	29 1.5	2	3 .053	8 .053				
106	1.2DL + 1.5L...	Yes	Y		DL 1.2	29 1.5	2 -.027	3 .046	9 .053				
107	1.2DL + 1.5L...	Yes	Y		DL 1.2	29 1.5	2 -.038	3 .038	10 .053				
108	1.2DL + 1.5L...	Yes	Y		DL 1.2	29 1.5	2 -.046	3 .027	11 .053				
109	1.2DL + 1.5L...	Yes	Y		DL 1.2	29 1.5	2 -.053	3	4 -.053				
110	1.2DL + 1.5L...	Yes	Y		DL 1.2	29 1.5	2 -.046	3 -.027	5 -.053				
111	1.2DL + 1.5L...	Yes	Y		DL 1.2	29 1.5	2 -.038	3 -.038	6 -.053				
112	1.2DL + 1.5L...	Yes	Y		DL 1.2	29 1.5	2 -.027	3 -.046	7 -.053				
113	1.2DL + 1.5L...	Yes	Y		DL 1.2	29 1.5	2	3 -.053	8 -.053				
114	1.2DL + 1.5L...	Yes	Y		DL 1.2	29 1.5	2 .027	3 -.046	9 -.053				
115	1.2DL + 1.5L...	Yes	Y		DL 1.2	29 1.5	2 .038	3 -.038	10 -.053				
116	1.2DL + 1.5L...	Yes	Y		DL 1.2	29 1.5	2 .046	3 -.027	11 -.053				
117	1.2DL + 1.5L...	Yes	Y		DL 1.2	30 1.5	2 .053	3	4 .053				
118	1.2DL + 1.5L...	Yes	Y		DL 1.2	30 1.5	2 .046	3 .027	5 .053				
119	1.2DL + 1.5L...	Yes	Y		DL 1.2	30 1.5	2 .038	3 .038	6 .053				
120	1.2DL + 1.5L...	Yes	Y		DL 1.2	30 1.5	2 .027	3 .046	7 .053				



Load Combinations (Continued)

Description	Sol...	PD...	SR...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...
121	1.2DL + 1.5L...	Yes	Y	DL	1.2	30	1.5	2		3	.053	8	.053	
122	1.2DL + 1.5L...	Yes	Y	DL	1.2	30	1.5	2	-.027	3	.046	9	.053	
123	1.2DL + 1.5L...	Yes	Y	DL	1.2	30	1.5	2	-.038	3	.038	10	.053	
124	1.2DL + 1.5L...	Yes	Y	DL	1.2	30	1.5	2	-.046	3	.027	11	.053	
125	1.2DL + 1.5L...	Yes	Y	DL	1.2	30	1.5	2	-.053	3		4	-.053	
126	1.2DL + 1.5L...	Yes	Y	DL	1.2	30	1.5	2	-.046	3	-.027	5	-.053	
127	1.2DL + 1.5L...	Yes	Y	DL	1.2	30	1.5	2	-.038	3	-.038	6	-.053	
128	1.2DL + 1.5L...	Yes	Y	DL	1.2	30	1.5	2	-.027	3	-.046	7	-.053	
129	1.2DL + 1.5L...	Yes	Y	DL	1.2	30	1.5	2		3	-.053	8	-.053	
130	1.2DL + 1.5L...	Yes	Y	DL	1.2	30	1.5	2	.027	3	-.046	9	-.053	
131	1.2DL + 1.5L...	Yes	Y	DL	1.2	30	1.5	2	.038	3	-.038	10	-.053	
132	1.2DL + 1.5L...	Yes	Y	DL	1.2	30	1.5	2	.046	3	-.027	11	-.053	

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	N1	max	1104.386	18	891.196	22	1449.465	39	3064.034	97	-1228.226	33	3078.522	23
2		min	-1104.386	10	-891.196	14	410.25	81	-1464.764	105	-4562.689	41	-3072.923	15
3	Totals:	max	1104.386	18	891.196	22	1449.465	39						
4		min	-1104.386	10	-891.196	14	410.25	81						

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

Member	Shape	Code Check	Loc[in]	LC	Shear	...	Loc[in]	Dir	LC	phi*Pnc	...	phi*Pnt	...	phi*Mn y	...	phi*Mn z	...	Cb	Eqn
1	H1	PIPE 3.0	.570	42	97	.110	42		92	48830.1...		65205		5748.75		5748.75		1...	H1-1b
2	M1	HSS4X4X4	.348	0	91	.258	0	y	97	118165...		139518		16180.5		16180.5		1...	H3-6
3	MP1	PIPE 2.5	.235	48	10	.024	48		10	28468.4...		50715		3596.25		3596.25		1...	H1-1b
4	MP2	PIPE 2.5	.032	48	12	.004	48		12	28468.4...		50715		3596.25		3596.25		1...	H1-1b
5	MP3	PIPE 2.5	.032	48	12	.004	48		12	28468.4...		50715		3596.25		3596.25		1...	H1-1b
6	M3	PIPE 4.0	.001	9	13	.001	9		13	92503.0...		93240		10631.25		10631.25		1...	H1-1b

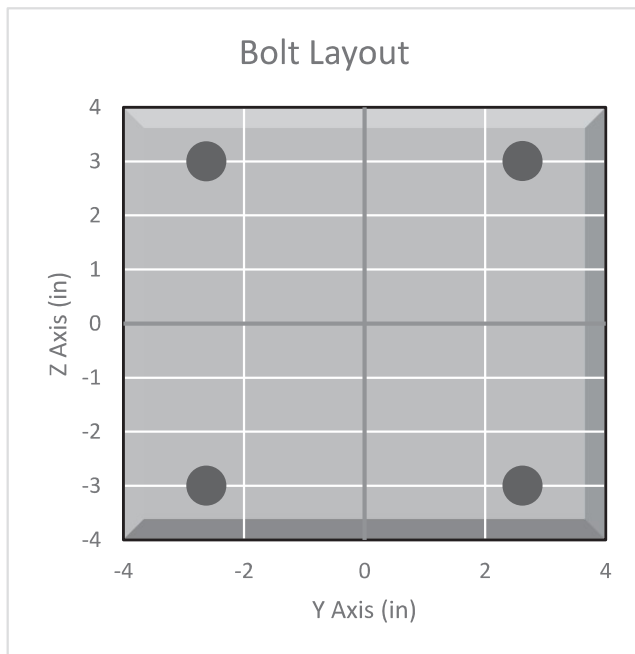
APPENDIX D
ADDITIONAL CALCUATIONS

BOLT TOOL 1.5.2

Project Data	
Job Code:	193136
Carrier Site ID:	BOHVN00025A
Carrier Site Name:	CT-CCI-T-876321

Code	
Design Standard:	TIA-222-H
Slip Check:	Yes
Pretension Standard:	TIA-222-H

Bolt Properties		
Connection Type:	U-Bolt	
Diameter:	0.625	in
Grade:	SAE J429 Gr.	--
Yield Strength (Fy):	57	ksi
Ultimate Strength (Fu):	74	ksi
Number of Bolts:	2	--
Threads Included:	Yes	--
Double Shear:	No	--
Connection Pipe Size:	4.5	in



Connection Description
Horizontal to Standoff

Bolt Check*		
Tensile Capacity (ϕT_n):	12543.1	lbs
Shear Capacity (ϕV_n):	8513.6	lbs
Tension Force (T_u):	519.1	lbs
Shear Force (V_u):	2526.0	lbs
Tension Usage:	3.9%	--
Shear Usage:	28.3%	--
Interaction:	28.3%	Pass
Controlling Member:	M10	--
Controlling LC:	97	--

*Rating per TIA-222-H Section 15.5

Slip Check*		
Sliding Capacity (ϕR_{ns}):	14143.9	lbs
Torsion Capacity (ϕR_{nr}):	2652.0	lb-ft
Sliding Force (V_{us}):	480.1	lbs
Torsional Force (T_{ur}):	1511.0	lb-ft
Sliding Usage:	3.2%	--
Torsion Usage:	56.6%	--
Interaction:	56.7%	Pass
Controlling Member:	M10	--
Controlling LC:	10	--

*Rating per TIA-222-H Section 15.5

BOLT TOOL 1.5.2

Project Data	
Job Code:	193136
Carrier Site ID:	BOHVN00025A
Carrier Site Name:	CT-CCI-T-876321

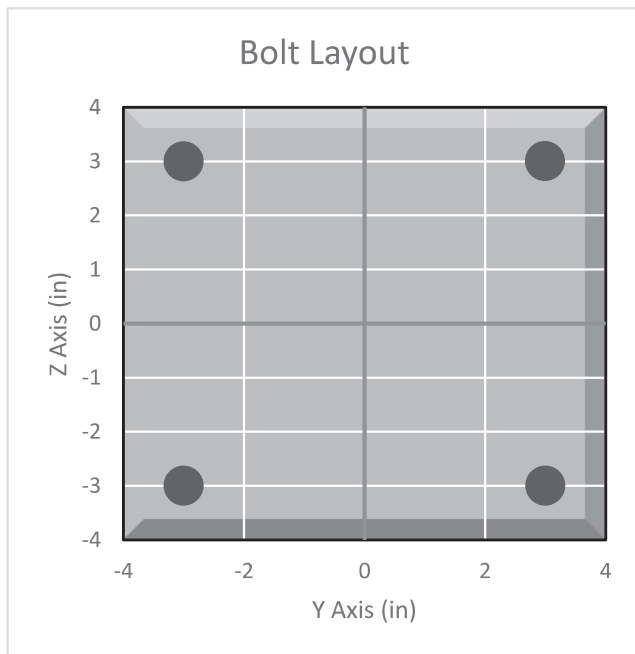
Code	
Design Standard:	TIA-222-H
Slip Check:	No
Pretension Standard:	AISC

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:	Yes	--
Double Shear:	No	--
Connection Pipe Size:	-	in

Connection Description
Standoff to Collar

Bolt Check*		
Tensile Capacity (ϕT_n):	20340.1	lbs
Shear Capacity (ϕV_n):	13805.8	lbs
Tension Force (T_u):	5254.2	lbs
Shear Force (V_u):	1759.9	lbs
Tension Usage:	24.6%	--
Shear Usage:	12.1%	--
Interaction:	24.6%	Pass
Controlling Member:	M1	--
Controlling LC:	39	--

*Rating per TIA-222-H Section 15.5

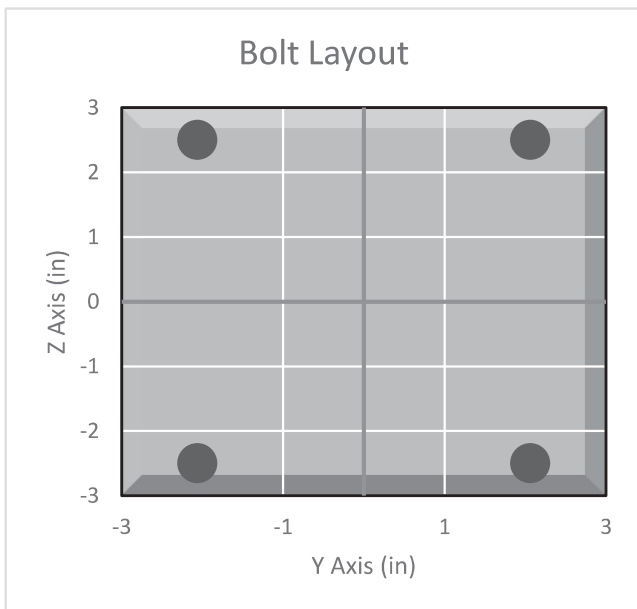


BOLT TOOL 1.5.2

Project Data	
Job Code:	193136
Carrier Site ID:	BOHVN00025A
Carrier Site Name:	CT-CCI-T-876321

Code	
Design Standard:	TIA-222-H
Slip Check:	Yes
Pretension Standard:	TIA-222-H

Bolt Properties		
Connection Type:	U-Bolt	
Diameter:	0.5	in
Grade:	AE J429 Gr.	--
Yield Strength (Fy):	57	ksi
Ultimate Strength (Fu):	74	ksi
Number of Bolts:	2	--
Threads Included:	Yes	--
Double Shear:	No	--
Connection Pipe Size:	3.5	in



Connection Description
Mount Pipe to Horizontal

Bolt Check*		
Tensile Capacity (ϕT_n):	7875.4	lbs
Shear Capacity (ϕV_n):	5448.7	lbs
Tension Force (T_u):	507.5	lbs
Shear Force (V_u):	41.4	lbs
Tension Usage:	6.1%	--
Shear Usage:	0.7%	--
Interaction:	6.1%	Pass
Controlling Member:	M7	--
Controlling LC:	11	--

*Rating per TIA-222-H Section 15.5

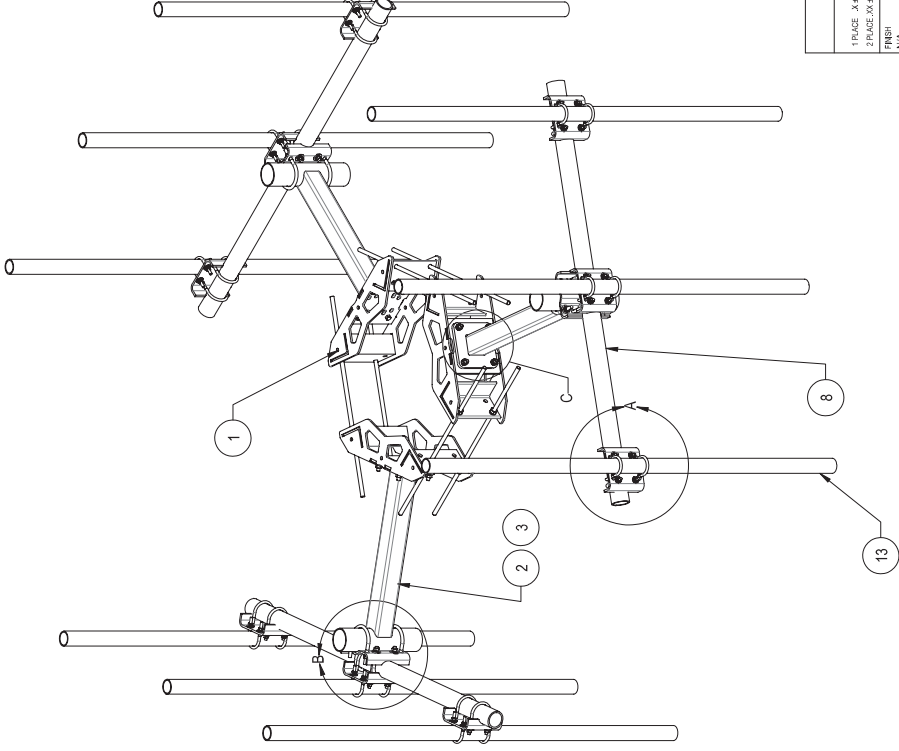
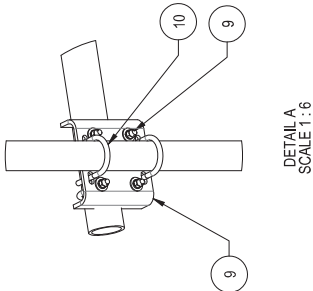
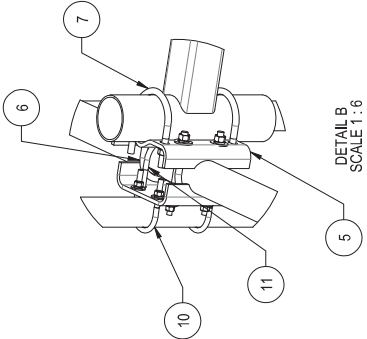
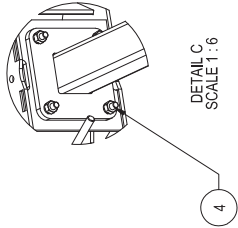
Slip Check*		
Sliding Capacity (ϕR_{ns}):	9408.7	lbs
Torsion Capacity (ϕR_{nr}):	1372.1	lb-ft
Sliding Force (V_{us}):	15.5	lbs
Torsional Force (T_{ur}):	276.0	lb-ft
Sliding Usage:	0.2%	--
Torsion Usage:	19.2%	--
Interaction:	19.2%	Pass
Controlling Member:	M7	--
Controlling LC:	92	--

*Rating per TIA-222-H Section 15.5

APPENDIX E
SUPPLEMENTAL DRAWINGS

NOTES:

- 1.0 GENERAL NOTES
- 1.1 ALL METRIC DIMENSIONS ARE IN BRACKETS.
- 2.0 DESIGN NOTES
- 2.1 FOR PATENT INFORMATION: [HTTPS://WWW.CS-PAT.COM](https://www.cs-pat.com)
- 2.2 USE STANDARD TORQUE VALUES FOR 3/8" BOLTS
- 2.3 TORQUE U-BOLTS TO 44 FT.LBS
- 3.0 MANUFACTURING/SPECIAL REQUIREMENTS
- 4.0 TESTING
- 5.0 PACKAGING
- 5.1 PACKAGING SHALL MEET COMMSCOPE REQUIREMENTS PER DOCUMENT IS-PL-3005



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	MC-RM1560-3	12" - 50" OD RINGMOUNT	1
2	MT197.01	36" SINGLE SUPPORT ARM	3
3	MT197H	HARDWARE KIT (NEXT ITEM)	3
4	GB-0524A	5/8" X 2-1/2" GALV BOLT KIT (A325)	12
5	MT216.13	CENTER BRACKET	3
6	GUB-53560	5/8" X 3-5/8" X 6" GALV U-BOLT	6
7	GUB-5456	5/8" X 4-5/8" X 6 1/2" GALV U-BOLT	6
8	MTC333912	84" X 3-1/2" OD PIPE	3
9	MT219H3501	3.5" OD Clamp Bracket	9
10	GUB-4352	1 1/2" X 3" X 5-1/4" GALV U-BOLT	18
11	GUB-4356	1 1/2" X 3-5/8" X 6" GALV U-BOLT	18
13	MT54686	Ø 2.875" O.D. X .96 PIPE	9

REV.	DATE	BY	DESCRIPTION
A	10/29/2021	XJ/MS	NEW RELEASED

COMMSCOPE, INC. OF NORTH CAROLINA
SIP MATERIAL MASTER

TOLERANCES:
1 PLACE X .12 3 PLACES MAX ± .03
2 PLACE X .10 ANGLES ± 2° FRACTIONS ± .132

FINISH:
N/A

MATERIAL: A36, A53

SCALE: 1:32

DOCUMENT NO: MC-K6MHDX-9-96

DATE: 10/29/2021

DESIGNER: XJ/MS

CHECKED: XJ/MS

APPROVED: XJ/MS

DATE: 10/29/2021

SCALE: 1:32

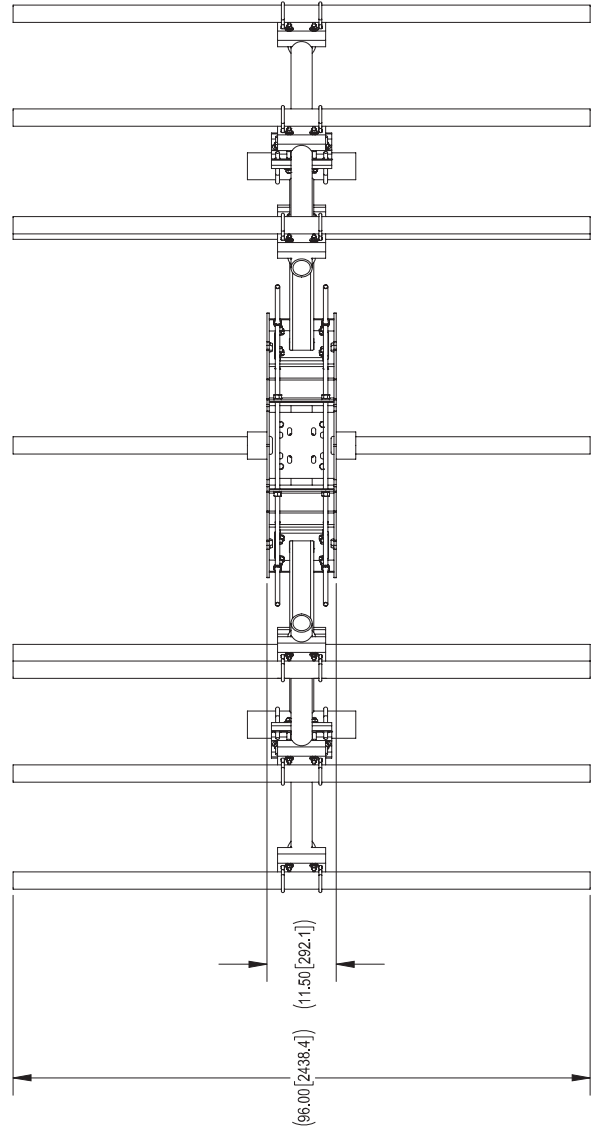
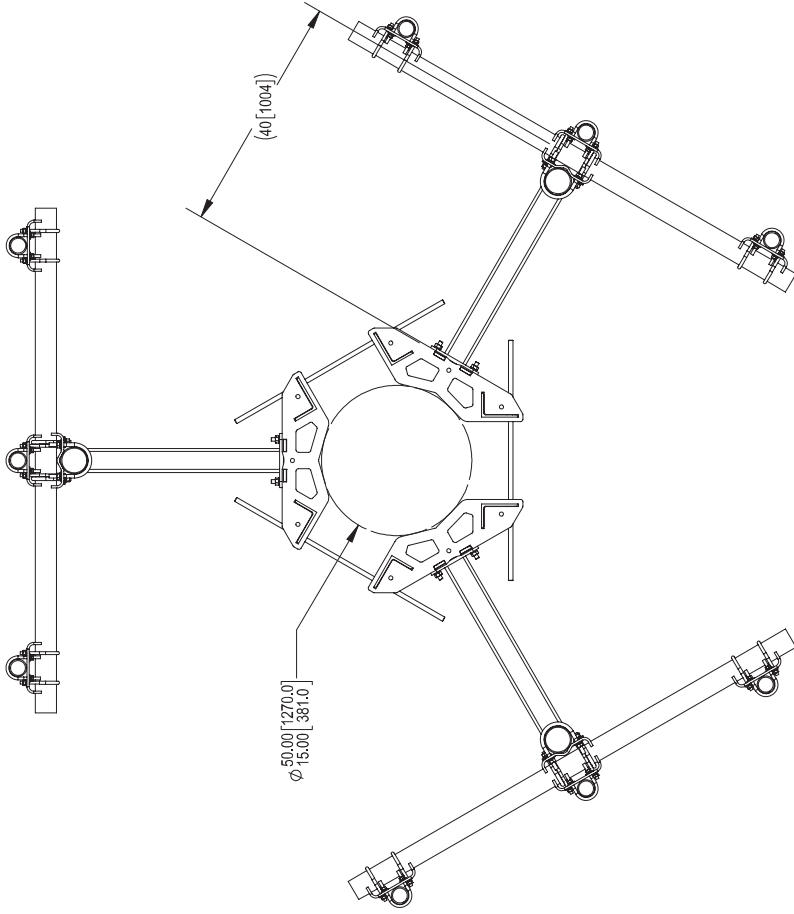
DOCUMENT NO: MC-K6MHDX-9-96

REV. DATE BY DESCRIPTION

1 OF 2

© 2021 Commscope, Inc. Confidential

NOTES:



D

C

B

A

D

C

B

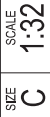
A

COMMSCOPE, INC. OF NORTH CAROLINA

TITLE
T-ARM, MCK6. 3, 4" x 84", 9, 2-7/8"x96

SIZE
C

SCALE
1:32



DOCUMENT NO.
MC-K6MHDx-9-96

VERSION	STATUS	REVISION
00	AD	A

DRAWING

SHEET
2 OF 2

1

2

3

4

1

2

3

4

ATTACHMENT 6

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

Dish Wireless Existing Facility

Site ID: BOHVN00025A

876321

150 North Main Street
Branford, Connecticut 06045

August 31, 2021

EBI Project Number: 6221004789

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	13.76%

August 31, 2021

Dish Wireless

Emissions Analysis for Site: BOHVN00025A - 876321

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **150 North Main Street** in **Branford, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless antenna facility located at 150 North Main Street in Branford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 4 n71 channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 4 n70 channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 3) 4 n66 channels (AWS Band - 2190 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 5) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative

estimate as gain reductions for these particular antennas are typically much higher in this direction.

- 6) The antennas used in this modeling are the JMA MX08FRO665-20 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the JMA MX08FRO665-20 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the JMA MX08FRO665-20 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 7) The antenna mounting height centerline of the proposed antennas is 136 feet above ground level (AGL).
- 8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 9) All calculations were done with respect to uncontrolled / general population threshold limits.

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-20	Make / Model:	JMA MX08FRO665-20	Make / Model:	JMA MX08FRO665-20
Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz
Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd
Height (AGL):	136 feet	Height (AGL):	136 feet	Height (AGL):	136 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	5,236.31	ERP (W):	5,236.31	ERP (W):	5,236.31
Antenna AI MPE %:	1.40%	Antenna BI MPE %:	1.40%	Antenna CI MPE %:	1.40%

Site Composite MPE %	
Carrier	MPE %
Dish Wireless (Max at Sector A):	1.40%
AT&T	6.96%
Metro PCS	0.53%
Pagenet	0.11%
Cingular	0.17%
Nextel	0.46%
Clearwire	0.1%
Sprint	0.32%
T-Mobile	3.71%
Site Total MPE % :	13.76%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	1.40%
Dish Wireless Sector B Total:	1.40%
Dish Wireless Sector C Total:	1.40%
Site Total MPE % :	13.76%

Dish Wireless Maximum MPE Power Values (Sector A)							
Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	136.0	1.90	600 MHz n71	400	0.48%
Dish Wireless 1900 MHz n70	4	542.70	136.0	4.62	1900 MHz n70	1000	0.46%
Dish Wireless 2190 MHz n66	4	542.70	136.0	4.62	2190 MHz n66	1000	0.46%
						Total:	1.40%

• 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:	1.40%
Sector B:	1.40%
Sector C:	1.40%
Dish Wireless Maximum MPE % (Sector A):	1.40%
Site Total:	13.76%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **13.76%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

ATTACHMENT 7

CERTIFICATION OF SERVICE

I hereby certify that on the 11th day of May 2022, DISH Wireless, LLC provided notice of its intent to file a Petition for a declaratory ruling that a Certificate of Environmental Compatibility and Public Need is not required for the modification of a wireless telecommunications facility at 150 North Main Street in Branford, Connecticut, to the following:

Abutters

PREMIER REALTY HOLDINGS LLC
150 NORTH MAIN ST
BRANFORD, CT 06405

HIGHLAND ASSOCIATES, LLC
31200 NORTHWESTERN HIGHWAY
FRAMINGTON, MI 48334

COSGROW LLC
15 PARISH FARM RD
BRANFORD, CT 06405

145 NORTH MAIN STREET BRANFORD LLC
145 NORTH MAIN ST
BRANFORD, CT 06405

JOSEPH GIUNTA
141 NORTH MAIN ST
BRANFORD, CT 06405

OSMANO INVESTMENTS LLC
144 NO MAIN ST UNIT6
BRANFORD, CT 06405

RENZ DEVELOPMENT WESTBROOK LLC
130 MONTOWESE ST
BRANFORD, CT 06405

PAUL GORSKI
51 RIVER WALK
BRANFORD, CT 06405

SHANAROTT LLC
5 SHORE DR
BRANFORD, CT 06405

Owner

PREMIER REALTY HOLDINGS LLC
150 NORTH MAIN ST
BRANFORD, CT 06405

Respectfully Submitted,

Victoria Masse
Northeast Site Solutions
420 Main Street #2
Sturbridge, MA 01566

May 11, 2022

***VIA USPS CERTIFIED MAIL/
RETURN RECEIPT REQUESTED***

PREMIER REALTY HOLDINGS LLC
150 NORTH MAIN ST
BRANFORD, CT 06405

**RE: Proposed Modification to Existing Wireless Telecommunications Facility at 150
North Main Street in Branford, Connecticut**

To Whom It May Concern:

I am writing to you on behalf of DISH Wireless, LLC (“DISH”). DISH intends to file with the Connecticut Siting Council (“Council”) a petition for declaratory ruling (“Petition”) that a Certificate of Environmental Compatibility and Public Need is not required.

The Petition will provide details of the Existing Facility modification and explain why it will have no significant adverse environmental effect.

This letter serves as notice to you as an abutting property owner pursuant to § 16-50j-40 of the Regulations of Connecticut State Agencies. DISH will file the Petition on or about May 11, 2022 and will request that the Council place the Petition on some future agenda.

You may review the Petition at the office of the Council, which is located at Ten Franklin Square, New Britain, Connecticut, 06051, or at the Office of the Town Clerk at the Branford Town Hall. All inquiries should be addressed to Council or to the undersigned.

Sincerely,

Victoria Masse
Northeast Site Solutions
420 Main Street #2
Sturbridge, MA 01566

7021 1970 0001 2284 4291

U.S. Postal Service™ CERTIFIED MAIL® RECEIPT

Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

Branch Office: Branford, CT 06405

Certified Mail Fee	\$3.75
Extra Services & Fees (check box, add fee as appropriate)	\$3.05
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$0.58
Total Postage and Fees	\$7.38

1106
17
Postmark Here
MAY 12 2022
WORCESTER MA 01605

Sent To: PAUL GORSKI
Street and Apt. No., or PO Box No.: 51 RIVER WALK
City, State, ZIP+4®: BRANFORD CT 06405

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7021 1970 0001 2284 4307

U.S. Postal Service™ CERTIFIED MAIL® RECEIPT

Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

Branch Office: Branford, CT 06405

Certified Mail Fee	\$3.75
Extra Services & Fees (check box, add fee as appropriate)	\$3.05
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$0.58
Total Postage and Fees	\$7.38

1106
17
Postmark Here
MAY 12 2022
WORCESTER MA 01605

Sent To: SHANAROTT LLC
Street and Apt. No., or PO Box No.: 5 SHORE DRIVE
City, State, ZIP+4®: BRANFORD CT 06405

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7021 1970 0001 2284 4284

U.S. Postal Service™ CERTIFIED MAIL® RECEIPT

Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

Branch Office: Branford, CT 06405

Certified Mail Fee	\$3.75
Extra Services & Fees (check box, add fee as appropriate)	\$3.05
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$0.58
Total Postage and Fees	\$7.38

1106
17
Postmark Here
MAY 12 2022
WORCESTER MA 01605

Sent To: RENZ DEVELOPMENT WESTBROOK
Street and Apt. No., or PO Box No.: 150 MONTWHESE ST
City, State, ZIP+4®: BRANFORD CT 06405

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7021 1970 0001 2284 4277

U.S. Postal Service™ CERTIFIED MAIL® RECEIPT

Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

Branch Office: Branford, CT 06405

Certified Mail Fee	\$3.75
Extra Services & Fees (check box, add fee as appropriate)	\$3.05
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$0.58
Total Postage and Fees	\$7.38

1106
17
Postmark Here
MAY 12 2022
WORCESTER MA 01605

Sent To: OSMANO INVESTMENTS LLC
Street and Apt. No., or PO Box No.: 144 NOL MAIN ST UNT 6
City, State, ZIP+4®: BRANFORD CT 06405

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7021 1970 0001 2284 4260

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

OFFICIAL USE	
Certified Mail Fee	\$3.75
\$	\$3.05
Extra Services & Fees (check box, add fee as appropriate)	
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$0.58
\$	\$7.38
Total Postage and Fees	\$7.38
\$	

Sent To **JOSEPH GIUNTA**
 Street and Apt. No., or PO Box No.
145 NORTH MAIN ST
 City, State, ZIP+4®
BRANFORD CT 06405

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions



7021 1970 0001 2284 4253

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

OFFICIAL USE	
Certified Mail Fee	\$3.75
\$	\$3.05
Extra Services & Fees (check box, add fee as appropriate)	
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$0.58
\$	\$7.38
Total Postage and Fees	\$7.38
\$	

Sent To **145 NORTH MAIN STREET BRANFORD CT**
 Street and Apt. No., or PO Box No.
145 NORTH MAIN ST
 City, State, ZIP+4®
BRANFORD CT 06405

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions



7021 1970 0001 2284 4246

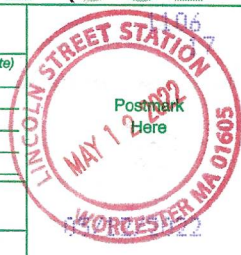
U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

OFFICIAL USE	
Certified Mail Fee	\$3.75
\$	\$3.05
Extra Services & Fees (check box, add fee as appropriate)	
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$0.58
\$	\$7.38
Total Postage and Fees	\$7.38
\$	

Sent To **COSGROV LLC**
 Street and Apt. No., or PO Box No.
15 PARSIPPA FARM ROAD
 City, State, ZIP+4®
BRANFORD CT 06405

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions



7021 1970 0001 2284 4239

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

OFFICIAL USE	
Certified Mail Fee	\$3.75
\$	\$3.05
Extra Services & Fees (check box, add fee as appropriate)	
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$0.58
\$	\$7.38
Total Postage and Fees	\$7.38
\$	

Sent To **HIGHLAND ASSOCIATES LLC**
 Street and Apt. No., or PO Box No.
51200 NORTHWESTERN HWY
 City, State, ZIP+4®
FARMINGTON MI 48334

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions



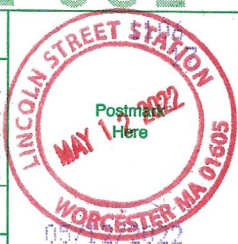
U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

Branford CT 06405

OFFICIAL USE

Certified Mail Fee	\$3.75
\$	\$7.05
Extra Services & Fees (check box, add fee as appropriate)	
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$0.58
Total Postage and Fees	\$7.38
\$	\$7.38



Sent To **Premier Realty Holdings LLC**
 Street and Apt. No., or PO Box No. **150 North Main St**
 City, State, ZIP+4® **Branford CT 06405**

PS Form 3800, April 2015 PSN 7530-02-000-9047

See Reverse for Instructions



LINCOLN MALL
 560 LINCOLN ST STE 8
 WORCESTER, MA 01605-1925
 (800)275-8777

05/12/2022

09:56 AM

Product	Qty	Unit Price	Price
---------	-----	------------	-------

First-Class Mail® Letter	1		\$0.58
--------------------------	---	--	--------

Branford, CT 06405
 Weight: 0 lb 0.40 oz
 Estimated Delivery Date
 Sat 05/14/2022

Certified Mail®			\$3.75
-----------------	--	--	--------

Tracking #:
 70211970000122844307

Return Receipt			\$3.05
----------------	--	--	--------

Tracking #:
 9590 9402 6489 0346 9812 33

Total			\$7.38
-------	--	--	--------

First-Class Mail® Letter	1		\$0.58
--------------------------	---	--	--------

Branford, CT 06405
 Weight: 0 lb 0.40 oz
 Estimated Delivery Date
 Sat 05/14/2022

Certified Mail®			\$3.75
-----------------	--	--	--------

Tracking #:
 70211970000122844307

Return Receipt			\$3.05
----------------	--	--	--------

Tracking #:
 9590 9402 6489 0346 9812 33

Total			\$7.38
-------	--	--	--------

First-Class Mail® Letter	1		\$0.58
--------------------------	---	--	--------

Branford, CT 06405
 Weight: 0 lb 0.40 oz
 Estimated Delivery Date
 Sat 05/14/2022

Certified Mail®			\$3.75
-----------------	--	--	--------

Tracking #:
 70211970000122844284

Return Receipt			\$3.05
----------------	--	--	--------

Tracking #:
 9590 9402 6930 1104 6428 60

Total			\$7.38
-------	--	--	--------

First-Class Mail® 1 \$0.58
Letter
Branford, CT 06405
Weight: 0 lb 0.40 oz
Estimated Delivery Date
Sat 05/14/2022
Certified Mail® \$3.75
Tracking #:
70211970000122844277
Return Receipt \$3.05
Tracking #:
9590 9402 7245 1284 4524 84
Total \$7.38

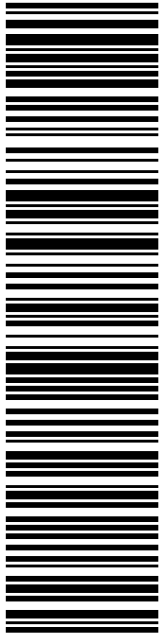
First-Class Mail® 1 \$0.58
Letter
Branford, CT 06405
Weight: 0 lb 0.40 oz
Estimated Delivery Date
Sat 05/14/2022
Certified Mail® \$3.75
Tracking #:
70211970000122844260
Return Receipt \$3.05
Tracking #:
9590 9402 7245 1284 4524 91
Total \$7.38

First-Class Mail® 1 \$0.58
Letter
Branford, CT 06405
Weight: 0 lb 0.40 oz
Estimated Delivery Date
Sat 05/14/2022
Certified Mail® \$3.75
Tracking #:
70211970000122844253
Return Receipt \$3.05
Tracking #:
9590 9402 6930 1104 6428 77
Total \$7.38

First-Class Mail® 1 \$0.58
Letter
Branford, CT 06405
Weight: 0 lb 0.40 oz
Estimated Delivery Date
Sat 05/14/2022
Certified Mail® \$3.75
Tracking #:
70211970000122844246
Return Receipt \$3.05
Tracking #:
9590 9402 6930 1104 6428 84
Total \$7.38

First-Class Mail® 1 \$0.58
Letter
Farmington, MI 48334
Weight: 0 lb 0.40 oz
Estimated Delivery Date
Mon 05/16/2022
Certified Mail® \$3.75
Tracking #:
70211970000122844239
Return Receipt \$3.05
Tracking #:
9590 9402 6930 1104 6428 91
Total \$7.38

First-Class Mail® 1 \$0.58
Letter
Branford, CT 06405
Weight: 0 lb 0.40 oz
Estimated Delivery Date
Sat 05/14/2022
Certified Mail® \$3.75
Tracking #:
70211970000122844222
Return Receipt \$3.05
Tracking #:
9590 9402 6930 1104 6429 07
Total \$7.38



USPS TRACKING #

9405 5036 9930 0247 5032 02

Electronic Rate Approved #038555749

SHIP

TO: JAMES COSGROVE
FIRST SELECTMAN
1019 MAIN ST
BRANFORD CT 06405-3731

P

05/12/2022

USPS.com
US POSTAGE
Flat Rate Env

U.S. POSTAGE PAID
click-n-ship®


Mailed from 01566

PRIORITY MAIL 2-DAY™

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

Expected Delivery Date: 05/14/22
Ref#: DS-876321
0006

C035



Click-N-Ship®



Cut on dotted line.

Instructions

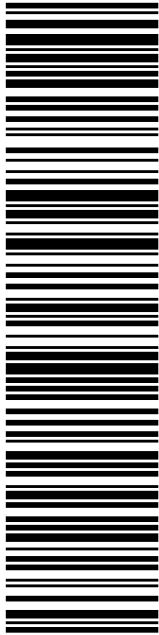
- Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
- Place your label so it does not wrap around the edge of the package.
- Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.
- 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.
- Mail your package on the "Ship Date" you selected when creating this label.

Click-N-Ship® Label Record

USPS TRACKING # :	
9405 5036 9930 0247 5032 02	
Trans. #: 563382390	Priority Mail® Postage: \$8.95
Print Date: 05/12/2022	Total: \$8.95
Ship Date: 05/12/2022	
Expected Delivery Date: 05/14/2022	
<hr/>	
From: DEBORAH CHASE NORTHEAST SITE SOLUTIONS 420 MAIN ST STE 1 STURBRIDGE MA 01566-1359	Ref#: DS-876321
<hr/>	
To: JAMES COSGROVE FIRST SELECTMAN 1019 MAIN ST BRANFORD CT 06405-3731	
* 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



USPS TRACKING #

9405 5036 9930 0247 5032 26

Electronic Rate Approved #038555749

SHIP

TO: HARRY SMITH
TOWN PLANNER- BRANFORD
1019 MAIN ST
BRANFORD CT 06405-3731

P

05/12/2022

USPS usps.com **US POSTAGE**
 Flat Rate Env

U.S. POSTAGE PAID
click-n-ship®


Mailed from 01566

PRIORITY MAIL 2-DAY™

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

Expected Delivery Date: 05/14/22
 Ref#: DS-876321
0006

C035



Click-N-Ship®



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 0247 5032 26

Trans. #: 563382390	Priority Mail® Postage: \$8.95
Print Date: 05/12/2022	Total: \$8.95
Ship Date: 05/12/2022	
Expected Delivery Date: 05/14/2022	

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


Ref#: DS-876321

To: HARRY SMITH
 TOWN PLANNER- BRANFORD
 1019 MAIN ST
 BRANFORD CT 06405-3731

* 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



**UNITED STATES
POSTAL SERVICE®**

Click-N-Ship®

P

USPS.com 9405 5036 9930 0247 5032 40 0089 5000 0031 4586
US POSTAGE
 Flat Rate Env
U.S. POSTAGE PAID
Click-N-Ship®

05/12/2022 Mailed from 01566

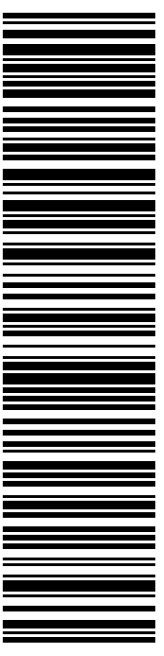
PRIORITY MAIL 2-DAY™

Expected Delivery Date: 05/14/22
 Ref#: DS-876321
0006

R013

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

USPS TRACKING #



9405 5036 9930 0247 5032 40

Electronic Rate Approved #038555749



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0247 5032 40

Trans. #: 563382390	Priority Mail® Postage: \$8.95
Print Date: 05/12/2022	Total: \$8.95
Ship Date: 05/12/2022	
Expected Delivery Date: 05/14/2022	

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

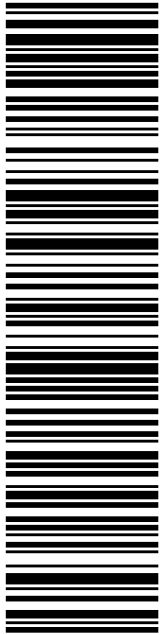
Ref#: DS-876321

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



USPS TRACKING #

9405 5036 9930 0247 5032 71

Electronic Rate Approved #038555749

SHIP TO:

PREMIERE REALTY HOLDINGS LLC
150 N MAIN ST
BRANFORD CT 06405-3065

P

USPS.com
US POSTAGE
Flat Rate Env
\$8.95

9405 5036 9930 0247 5032 71 0089 5000 0010 6405

05/12/2022


Mailed from 01566

U.S. POSTAGE PAID
click-n-ship®

PRIORITY MAIL 2-DAY™

Expected Delivery Date: 05/14/22
Ref#: DS-876321
0006

C018



Click-N-Ship®



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 0247 5032 71	
Trans. #:	563382390
Print Date:	05/12/2022
Ship Date:	05/12/2022
Expected Delivery Date:	05/14/2022
Priority Mail® Postage:	\$8.95
Total:	\$8.95
From:	DEBORAH CHASE NORTHEAST SITE SOLUTIONS 420 MAIN ST STE 1 STURBRIDGE MA 01566-1359
To:	PREMIERE REALTY HOLDINGS LLC 150 N MAIN ST BRANFORD CT 06405-3065
	Ref#: DS-876321
<p>* 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.</p>	



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

87b 321
Crown Dish



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

05/12/2022 02:33 PM

Product	Qty	Unit Price	Price
---------	-----	------------	-------

Prepaid Mail	1		\$0.00
Branford, CT 06405			
Weight: 0 lb 8.70 oz			
Acceptance Date:			
Thu 05/12/2022			
Tracking #:			
9405 5036 9930 0247 5032 02			

Prepaid Mail	1		\$0.00
Branford, CT 06405			
Weight: 0 lb 8.70 oz			
Acceptance Date:			
Thu 05/12/2022			
Tracking #:			
9405 5036 9930 0247 5032 26			

Prepaid Mail	1		\$0.00
West Henrietta, NY 14586			
Weight: 0 lb 8.70 oz			
Acceptance Date:			
Thu 05/12/2022			
Tracking #:			
9405 5036 9930 0247 5032 40			

Prepaid Mail	1		\$0.00
Branford, CT 06405			
Weight: 0 lb 8.70 oz			
Acceptance Date:			
Thu 05/12/2022			
Tracking #:			
9405 5036 9930 0247 5032 71			

Grand Total: \$0.00

Every household in the U.S. is now
eligible to receive a second set
of 4 free test kits.
Go to www.covidtests.gov

Preview your Mail
Track your Packages
Sign up for FREE @
<https://informedelivery.usps.com>

All sales final on stamps and postage.
Refunds for guaranteed services only.
Thank you for your business