NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

October 12, 2021

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

RE: Tower Share Application
580 Chapel Street, Thomaston CT 06789
Latitude: 41.663467
Longitude: 73.074281
Site# 823530_Crown_Dish

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the tower site located at 580 Chapel Street in Thomaston, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 5G MHz antenna and six (6) RRUs, at the 130-foot level of the existing 175-foot monopole tower, one (1) Fiber cables will also be installed. Dish Wireless LLC equipment cabinets will be placed within 7x5 lease area. Included are plans by Infinigy, dated August 24, 2021 Exhibit C. Also included is a structural analysis prepared by Crown Castle, dated June 2 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. The facility was approved by the Town of Thomaston on July 18, 2000. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to First Selectman Edmond .V. Mone and Stacey Sefcik - Land Use Administrator/Zoning Enforcement Officer for the Town of Thomaston, as well as the tower owner (Crown Castle) and property owner (Town of Thomaston)

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the tower is 175-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 130-feet.

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

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

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total power density of 24.52% as evidenced by Exhibit F.

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

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

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

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 130-foot level of the existing 175-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

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

Sincerely,

Denise Sabo

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

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Attachments cc:

First Selectman Edmond .V. Mone
Town of Thomaston
158 Main Street, Thomaston CT 06787

Stacey Sefcik - Land Use Administrator/Zoning Enforcement Officer
Town of Thomaston
158 Main Street, Thomaston CT 06787

Town of Thomaston
c/o Town Clerk Cathy DuPont (Property Owner)
158 Main Street, Thomaston CT 06787

Crown Castle, Tower Owner

Exhibit A

Original Facility Approval

THOMASTON ZONING BOARD OF APPEALS
TOWN HALL
THOMASTON, CT 06787

CERTIFICATE OF VARIANCE

This is to certify that the Thomaston Zoning Board of Appeals held a public hearing on July 18, 2000, at 7:45 pm in Meeting Room 1 of the Town Hall on an application from Voice Stream Wireless Corporation of 100 Filley St., Bloomfield, CT. The applicants sought a variance to permit their locating a ground mounted tower for a wireless communications facility on the west side of Chapel Street, approximately 1,000 feet distant from the intersection of Chapel Street with Prospect Street. The proposed tower is 175 feet in height. The applicants requested permission to locate the tower 201 feet from the property line. The property is owned by the Town of Thomaston and is located in an RA-40 zone.

Sec. 27.4.e of the Zoning Regulations of the Town of Thomaston provides that: "...the minimum distance from the base of any proposed ground mounted regulated facility to any property line, roadway, habitable dwelling, business or industrial use, public recreational areas, or public pathway shall be the height of the facility and mount, including any antennas or other appurtenances plus fifty per cent." Thus, 262.5 feet was the required setback.

With quorum present, the Board voted unanimously to grant the variance. The reasons were: topographic considerations; soil conditions on other parts of the site; and concerns over elevation on the site.

ATTEST: Joseph F. Wassong, Jr.

Joseph F. Wassong, Jr.

Chairman, TZBA

Town of Thomaston
Planning & Zoning Board
158 Main Street
Thomaston, Connecticut 06787

Return Receipt Requested

November 9, 2000

Voice Stream Wireless
100 Filley Street
Bloomfield, CT 06002

Re: Special Permit Approval for a Commercial Cellular Telecommunications Tower
Chapel Street, Thomaston, Conn.

Dear Sirs:

At its meeting on Wednesday, November 1, 2000, the Thomaston Planning and Zoning Commission approved your Special Permit Application to construct a commercial cellular communications tower on municipal property at the end of Chapel Street.

The application was approved with the following conditions:

1. Conduct an annual RF inspection and submit the results to the Commission.

2. Regrade the driveway as noted in Land Tech's letter dated October 6, 2000.

3. Agreed to the terms and conditions as noted in a FAX from Planimetrics dated November 1, 2000, regarding items 12-15.

4. If the Town decides not to have the tower removed, then the site plan and mylar must be revised. Any undertaking regarding the Town's tower shall be done in accordance with the conditions of the signed contract.

Sincerely,

Samuel Barto
Staff, TPZC
Land Use Officer / ZEO

Town of Thomaston

SELECTMAN'S OFFICE
TOWN HALL
158 MAIN STREET
THOMASTON, CONNECTICUT 06787
283-4421

April 25, 2000

SELECTMEN'S MEETING
MINUTES

At a meeting of the Board of Selectmen held on April 25, 2000 the following business was conducted:

The meeting opened at 4:00 p.m. with the Entire Board in attendance.

Also attending were Thomas C. Cusa of In Telecom, Inc., Sam Barto Town Planner and Attorney George Seabourne.

Selectman Brammer read a Fair Housing Resolution and a Fair Housing Policy Statement. (Copies Attached)

Selectman DuPont made a motion to adopt the Fair Housing Resolution and the Fair Housing Policy Statement seconded by Selectman O'Connell and passed unanimously by Selectman Brammer.

Selectman Brammer explained that as recipients of Small Cities Funding from the Department of Economic and Community Development we must adopt the above to reaffirm our commitment to Fair Housing. Larry Wagner the Town's Grants Coordinator has been the administrator of the Town's projects and programs and Lorraine Babb is our designated representative and is responsible for the enforcement and implementation of the Fair Housing Regulations.

Sam Barto reported to the Board of Selectmen that the roadway system in Phase III of the Highwood Farms Subdivision has been inspected by Town Engineer Bob Oley, Highway Superintendent Gerry Grohoski and by himself and it is their recommendation that it be accepted as a Town Road.

Selectman O'Connell made a motion to approve Phase III Section of the Highwood Farms Subdivision as a Town approved road seconded by Selectman DuPont and passed unanimously by Selectman Brammer.

Selectman DuPont made a motion to add Highwood Farms Subdivision--Phase V to today's Agenda seconded by Selectman O'Connell and passed unanimously by Selectman Brammer.

Selectman O'Connell made a motion to release the lots in Phase V of the Highwood Farms Subdivision in exchange for an irrevocable letter of credit in the amount of $60,000.00 seconded by Selectman DuPont and passed unanimously by Selectman Brammer.

(Copy of Irrevocable Standby Letter of Credit Attached)

Selectman Brammer reported that Representatives from the Water Company will be meeting with him at 9:30 a.m. in his office on April 27th to discuss the design of the Water Extension to upper High Street.

SELECTMEN'S MEETING
MINUTES (Cont'd)

The Board of Selectmen briefly went over Town Attorney Rybak's suggestions for the Proposed Lease Agreement between the Town of Thomaston and Omnipoint Communications, Inc. regarding the Communications Tower on Chapel Street.

Mr. Cusa said looking over the suggested changes, they will be acceptable, however items that might involve Federal Regulations would be out of their control.

Selectman O'Connell made a motion to accept the Proposed Lease Agreement between the Town of Thomaston and Omnipoint Communications, Inc. with the suggested changes made by Attorney Rybak and subject to the approval of the Inland Wetlands Commission, Planning and Zoning Commission and Town Meeting Approval seconded by Selectman DuPont and passed unanimously by Selectman Brammer.

Selectman DuPont made a motion to approve Glenn C. Clarks request that his remaining vacation time for this year (4 days) be held past his anniversary date of July 6,2000 as he is going on a cruise in May of 2001 seconded by Selectman O'Connell and passed unanimously by Selectman Brammer.

At 4:32 p.m. Selectman DuPont made a motion to adjourn the meeting seconded by Selectman O'Connell and passed unanimously by Selectman Brammer.

Signed _____
Clifford C. Brammer, Jr.
First Selectman

Signed _____
Roger DuPont
Selectman

Signed _____
Richard A. O'Connell
Selectman

Town of Thomaston
Planning & Zoning Board
158 Main Street
Thomaston, Connecticut 06787

August 7, 2000

Voice Stream Wireless
100 Filley Street
Bloomfield, CT 06002

Attn: Mr. Rick Frazier

Re: Special Permit Application for a Commercial Telecommunications Tower and Facility

Dear Mr. Frazier:

At its meeting on August 2, 2000, the Thomaston Planning and Zoning Commission accepted your Special Permit Application. The public hearing is scheduled for Wednesday, September 6, 2000, at 7:00 p.m. The meeting will be held in the Lena Morton Art Gallery.

The Commission has scheduled an on-site inspection for Wednesday, August 30, 2000, at 6:30 p.m. In accordance with the Zoning Regulations, Section 27.7, Part L, the Commission requests that you send aloft a site identification balloon on or just prior to the day of inspection. My office will publish a legal notice prior to the raising. The site walk will be open to the public.

Please make sure to address each of the requirements in Article XXVII at the public hearing. This should insure a very thorough and informative public hearing.

If you have any questions, comments or suggestions, please feel free to call the Land Use Office at 283-8411.

Sincerely,

Samuel Barto
Land Use Officer

Please Note: The balloon shall also be raised at least 3 days prior to the public hearing.

cc: Bruce Hoben

SPECIAL PERMIT APPLICATION

Town of Thomaston, Connecticut

Date Received:

Application for a Special Permit

Applicant: VoiceStream/Omnipoint Wireless

Address: 100 Filley St Bloomfield, CT 06002

The undersigned hereby makes application to the Planning and Zoning Commission for a SPECIAL PERMIT in accordance with the provisions of Section 3.11 - Schedule A - Permitted Uses and Article IX of the Thomaston Zoning Regulations.

Signature: [signature] Date: 7/29/00

Section 1. Previous Application

Has a previous Special Permit Application been filed with the Commission for the same premises? Yes: _____ No: ✓

Section 2. Placement on Agenda

In order for the Commission to consider your application, it must be received in the Planning and Zoning Office (Land-Use Office) no later than five (5) working days prior to the next regularly scheduled meeting.

Section 3. Plans and Documentation

All Special Permit applications, unless otherwise prescribed in the Zoning Regulations or directed by the Commission, must be accompanied by the following documentation:

Town of Thomaston
Planning & Zoning Board
158 Main Street
Thomaston, Connecticut 06787

August 7, 2000

Voice Stream Wireless
100 Filley Street
Bloomfield, CT 06002

Attn: Mr. Rick Frazier

Re: Special Permit Application for a Commercial Telecommunications Tower and Facility

Dear Mr. Frazier:

At its meeting on August 2, 2000, the Thomaston Planning and Zoning Commission accepted your Special Permit Application. The public hearing is scheduled for Wednesday, September 6, 2000, at 7:00 p.m. The meeting will be held in the Lena Morton Art Gallery.

The Commission has scheduled an on-site inspection for Wednesday, August 30, 2000, at 6:30 p.m. In accordance with the Zoning Regulations, Section 27.7, Part L, the Commission requests that you send aloft a site identification balloon on or just prior to the day of inspection. My office will publish a legal notice prior to the raising. The site walk will be open to the public.

Please make sure to address each of the requirements in Article XXVII at the public hearing. This should insure a very thorough and informative public hearing.

If you have any questions, comments or suggestions, please feel free to call the Land Use Office at 283-8411.

Sincerely,

Samuel Barto
Land Use Officer

Please Note: The balloon shall also be raised at least 3 days prior to the public hearing.

cc: Bruce Hoben

a. A "Statement of Use" which shall detail the proposed use of the site.

b. Site Plan and Landscaping Plan.

c. Architectural and Construction Plan

d. Flood Hazard Area Data

e. Soil Erosion and Sedimentation Control Plan

f. All other pertinent information and documentation that may be required by the Commission in order to make a decision on the application.

Section 4. Application Fees

a. Standard Application Fee: $ 150.00

b. Home Occupation Permit: $ 100.00

Section 5. Waiver of Requirements

Does the applicant request the Commission to waive any of the required documentation as specified in Sections 9.3.2, 9.3.3 or 9.3.4 of the Zoning Regulations?

Yes: _____ No: _____

If yes, please specify: _____

_____

Section 6. Extension of Review Period

Will the applicant consent to a formal extension of time in order for the Commission to take action on this application?

Yes: _____ No: _____

If yes, please specify period or date: _____

_____

Section 7. Failure to Submit

Failure by an applicant to submit any or all of the required or requested documentation under Section 3.11 or Article IX may be grounds for the Commission to consider the application as being incomplete.

Section 8. Review by Town Engineer

The applicant shall be responsible for paying all inspection and review costs incurred by the Town Engineer during the review process.

If additional on-site inspection and review is necessary and required by the Commission after the approval is granted and prior to completion of the project, the applicant shall also be responsible for these costs.

The costs shall be no more per hour than what is assessed to the Town in any given year by the Town Engineer.

Section 9. Public Hearing

The Thomaston Planning and Zoning Commission will conduct a "Public Hearing" on this application. The applicant, or their authorized agent, must be present at the hearing and should be prepared to present information showing how the proposed use of the site along with the buildings, structures, and facilities will conform to the standards as specified in these Regulations.

All standards as specified in Article IX are in addition to other requirements as contained in the Regulations which may be applicable in the District in which the Special Permit is proposed.

Section 10. Inspection of Property

The Commission is authorized by the submission of this application to inspect the premises.

Section 11. Additional Information

The Commission may obtain additional documentation and information on its own initiative but will need to rely upon data presented to it by the applicant.

Section 12. Modification of Approval

If approval is granted by the Planning and Zoning Commission, it may be subject to modifications deemed necessary to conform to specific standards of the Regulations. It may also be subject to appropriate conditions and safeguards necessary to conserve public health and safety, convenience, welfare and property values in the neighborhood.

Applicants Signature: _____

Home Phone: 860 693 2724 Business Phone: 860-677 5267

OFFICE USE

Commission date when application was received: _____

Date of initial Public Hearing: _____

Public Hearing was continued to: _____

Date of Approval: _____ Disapproval: _____

Was approval modified: Yes: _____ No: _____

If yes, give specifics: _____

_____

Land-Use Officer: _____ Date: _____

Samuel L. Barto
Staff, PZC

Exhibit B

Property Card

Thomaston, CT : Commercial Property Record Card

[Back to Search Results]

[Start a New Search][Help with Printing]

Search For Properties

Account | **Name** | **Street Name**

CHAPEL ST ▼ Search Reset

Account	Card	Map-Block-Lot	Location	Zoning	State Class	Acres
T0304400	1	55-03-08	580 CHAPEL ST	RA80	MUNICIPALITIES	6.540

Living Units
0

Owner Information

Thomaston Town Of
158 Main St
Thomaston CT 06787

Property Picture

Deed Information

Book/Page: 56/664
Deed Date: 1966/05/04

Building Information

Building No: 0
Year Built: 0
No of Units: 0
Structure Type:
Grade:
Identical Units: 0

Valuation

Land:	$218,700
Building:	$0
Total:	$218,700
Net Assessment:	$153,090

Sales History

Book/Page	Date	Price	Type	Validity

Out Building Information

Structure Code	Width	Lgth/SqFt	Year	RCNLD

Exterior/Interior Information

Levels	Size	Use Type	Ext. Walls	Const. Type	Partitions	Heating	A/C	Plumbing	Condition	Func.	Utility	Unadj.	RCNLD

Building Sketch

Notice

Tax Year 2019 Values

The information delivered through this on-line database is provided in the spirit of open access to government information and is intended as an enhanced service and convenience for citizens of Thomaston, CT.

The providers of this database: CLT, Big Room Studios, and Thomaston, CT assume no liability for any error or omission in the information provided here.

Comments regarding this service should be directed to: rdudek@thomastonct.org.

BUILT BY
big room
STUDIOS

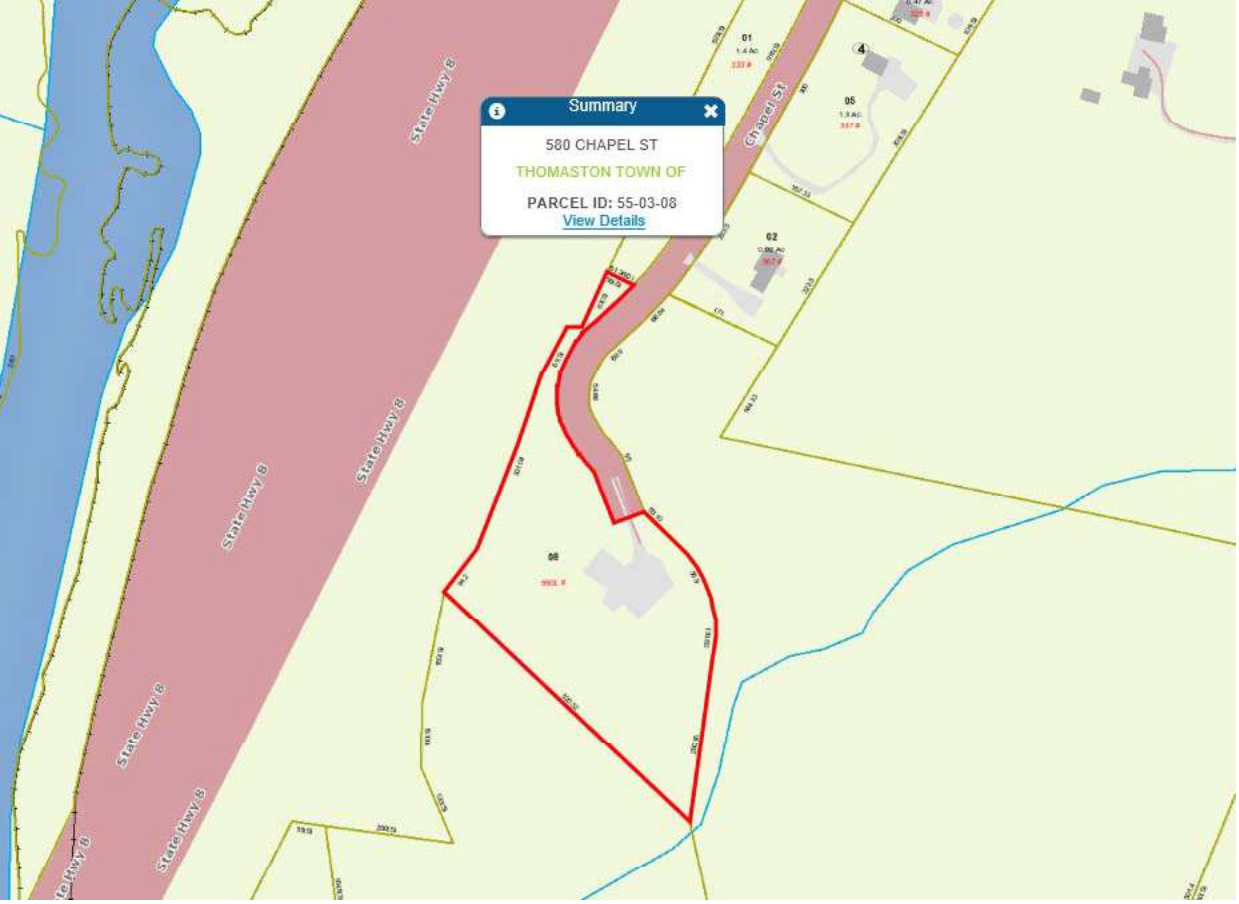

Summary
580 CHAPEL ST
THOMASTON TOWN OF
PARCEL ID: 55-03-08
View Details
State Hwy 8
Chapel St

Exhibit C

Construction Drawings

DISH Wireless L.L.C. SITE ID:

BOHVN00013A

DISH Wireless L.L.C. SITE ADDRESS:

580 CHAPEL STREET
THOMASTON, CT 06787

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

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 ANTENNA PLATFORM MOUNT
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE

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

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:	TOWN OF THOMASTON
ADDRESS:	158 MAIN ST TOWN HALL THOMASTON, CT 06787
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	823530
TOWER APP NUMBER:	553357
COUNTY:	LITCHFIELD
LATITUDE (NAD 83):	41° 39' 48.48" N 41.663467 N
LONGITUDE (NAD 83):	73° 4' 27.41" W 73.074281 W
ZONING JURISDICTION:	CT – CONNECTICUT SITING COUNCIL
ZONING DISTRICT:	RA-80
PARCEL NUMBER:	55-03-08
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	CONNECTICUT LIGHT & POWER
TELEPHONE COMPANY:	AT&T

PROJECT DIRECTORY

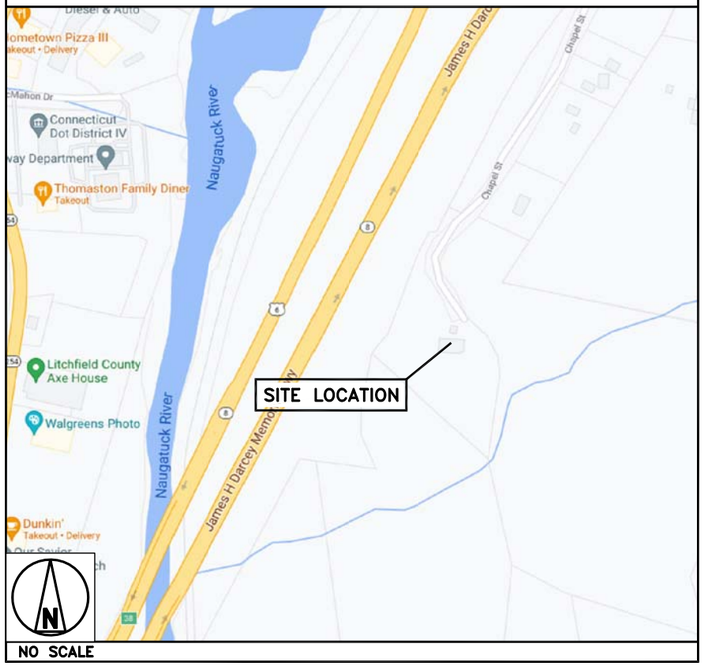
APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317 (877) 486-9377
SITE DESIGNER:	INFINIGY 2500 W. HIGGINS RD. STE. 500 HOFFMAN ESTATES, IL 60169 (847) 648-4068
SITE ACQUISITION:	NICHOLAS CURRY NICHOLAS.CURRY@CROWNCASTLE.COM
CONSTRUCTION MANAGER:	JAVIER SOTO JAVIER.SOTO@DISH.COM
RF ENGINEER:	SYED ZAIDI SYED.ZAIDI@DISH.COM

DIRECTIONS

DIRECTIONS FROM TOURS OF DISTINCTION AIRPORT:

DEPART AND HEAD TOWARD MASSACO ST, TURN RIGHT ONTO MASSACO ST, TURN RIGHT ONTO US-202 W / CT-10 / HOPMEADOW ST, MODERATE CONGESTION, TURN RIGHT ONTO CT-167 / WEST ST, TURN LEFT TO STAY ON CT-167 / BUSHY HILL RD, TURN RIGHT ONTO CANTON RD, KEEP RIGHT TO GET ONTO WILDWOOD RD, BEAR LEFT ONTO NOTCH RD, ROAD NAME CHANGES TO WASHBURN RD, BEAR LEFT ONTO LAWTON RD, BEAR RIGHT ONTO US-202 E / US-44 E / ALBANY TPKE, TURN LEFT ONTO DOWD AVE, ROAD NAME CHANGES TO MAPLE AVE, KEEP STRAIGHT TO GET ONTO CT-179 / MAPLE AVE, TURN RIGHT ONTO CT-4 / SPIELMAN HWY, PASS CUMBERLAND FARMS IN 4.4 KM, KEEP STRAIGHT TO GET ONTO CT-118 / LITCHFIELD RD, TAKE THE RAMP ON THE LEFT FOR CT-8 SOUTH AND HEAD TOWARD WATERBURY, AT EXIT 39, HEAD RIGHT ON THE RAMP FOR MAIN ST E TOWARD BRISTOL / PLYMOUTH / TERRYVILLE, TURN LEFT ONTO CT-222 / E MAIN ST TOWARD BRISTOL / PLYMOUTH / TERRYVILLE / MAIN ST E, KEEP STRAIGHT TO GET ONTO US-6 E / E MAIN ST, TURN RIGHT ONTO PROSPECT ST, TURN RIGHT ONTO CHAPEL ST, ARRIVE A 580 CHAPEL STREET THOMASTON, CT 06787

VICINITY MAP



NO SCALE

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

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

STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
8/24/2021

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	06/23/2021	ISSUED FOR REVIEW
0	08/23/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
6039-Z0001-C

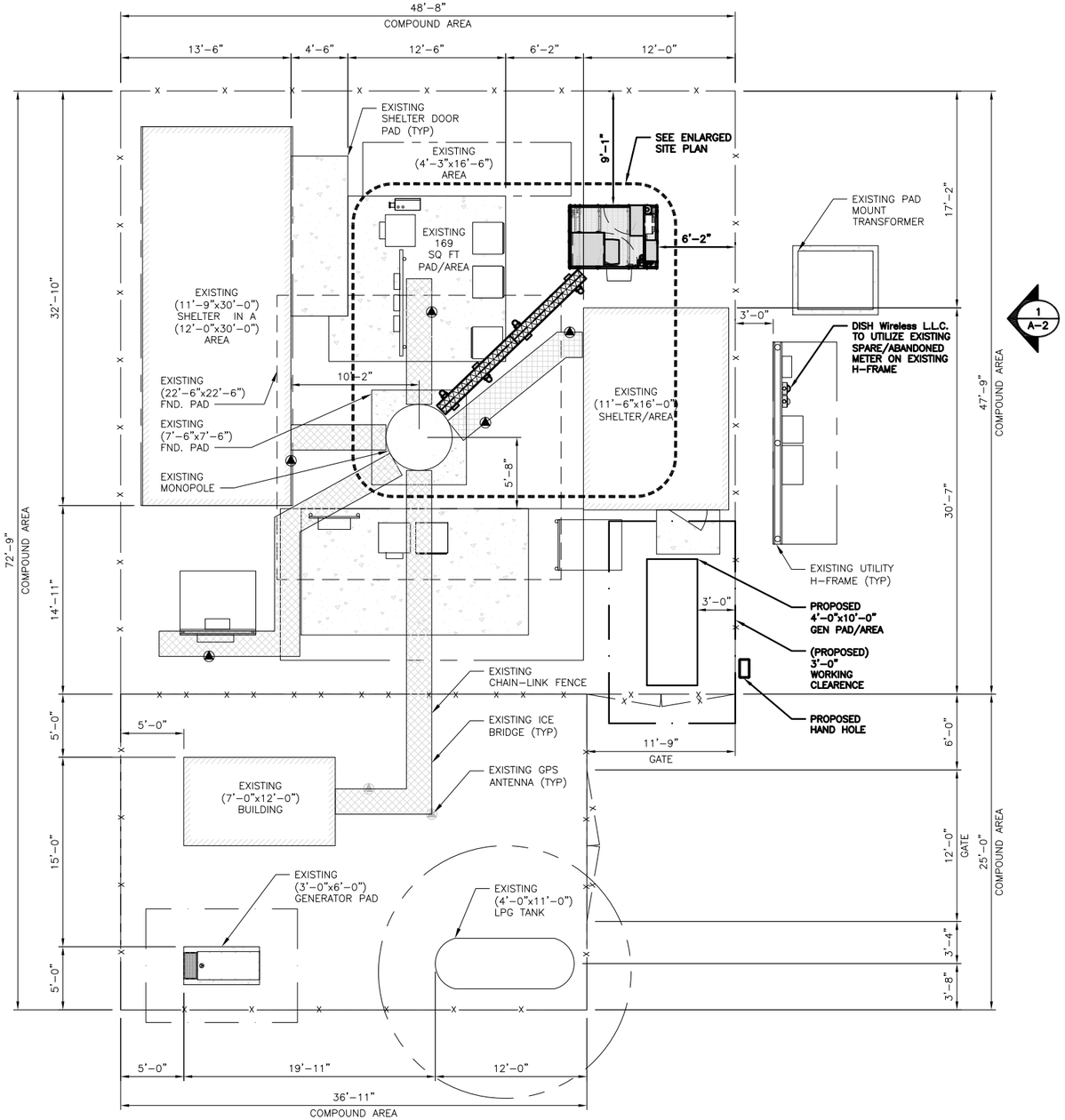
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00013A
580 CHAPEL STREET
THOMASTON, CT 06787

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

NOTES

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



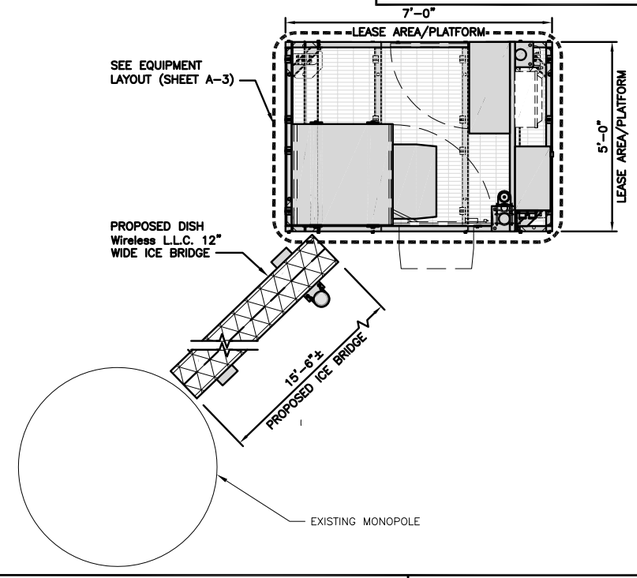
OVERALL SITE PLAN

6' 4' 2' 0 5' 10'
3/16"=1'-0"

1

NOTES

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



ENLARGED SITE PLAN

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

2

SITE PLAN

40' 20' 0 40' 80'
1"=40'

3

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

CROWN CASTLE
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STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
8/24/2021

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	06/23/2021	ISSUED FOR REVIEW
0	08/23/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

6039-Z0001-C

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00013A
580 CHAPEL STREET
THOMASTON, CT 06787

SHEET TITLE

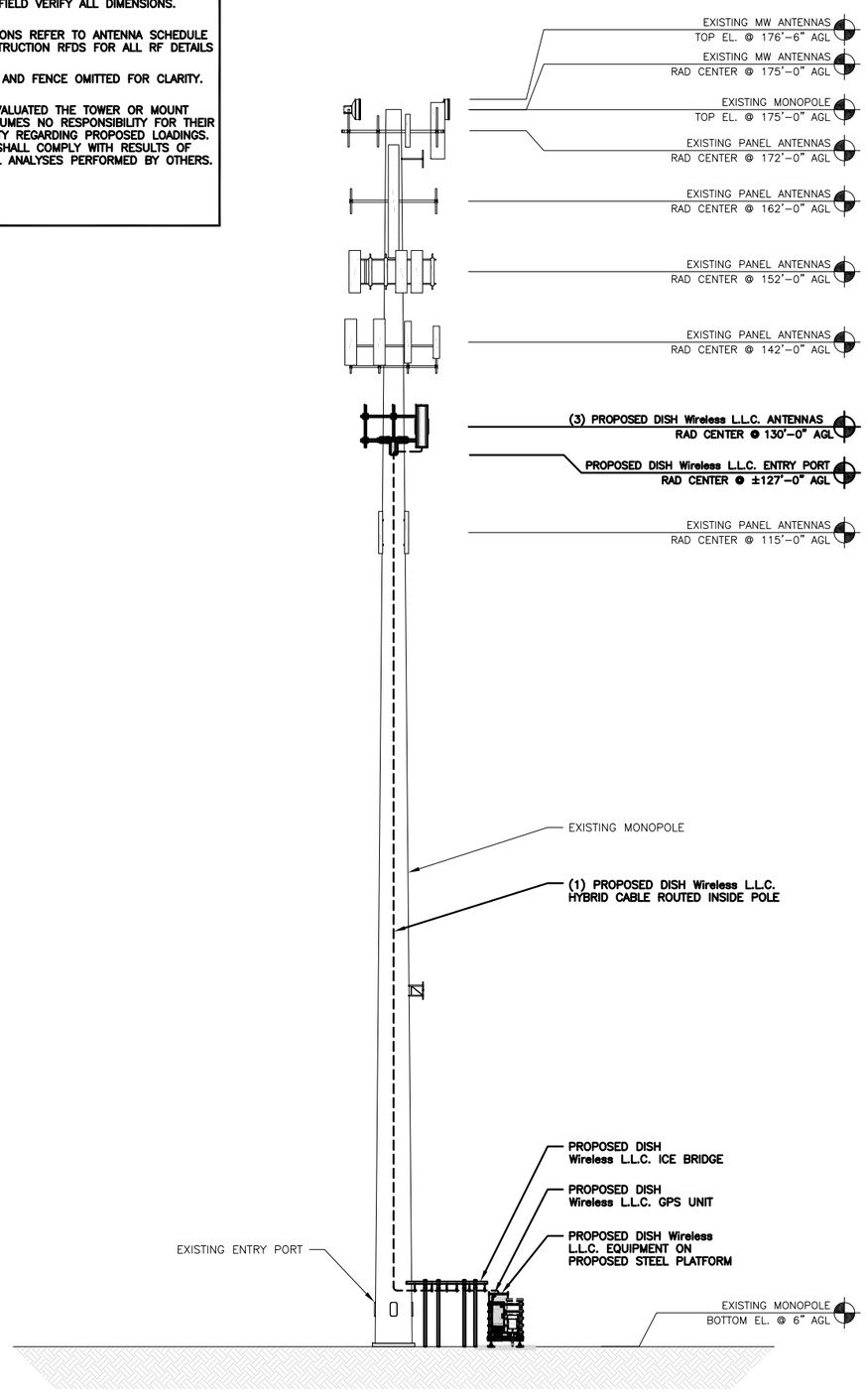
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

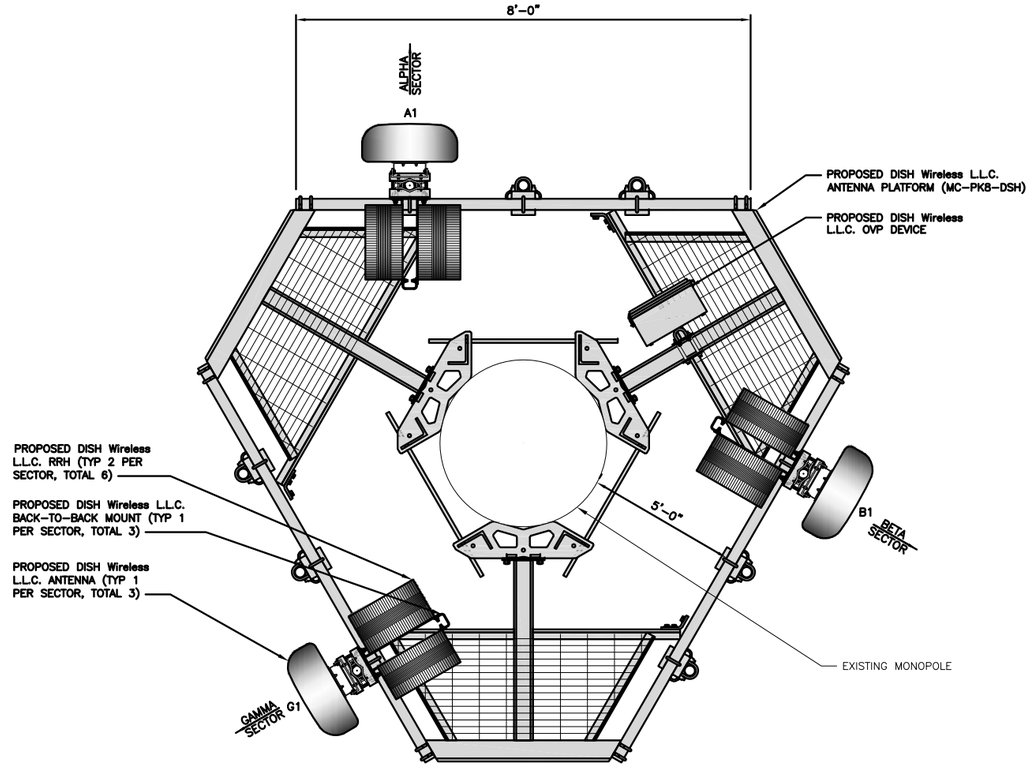
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. INFINIGY HAS NOT EVALUATED THE TOWER OR MOUNT STRUCTURE AND ASSUMES NO RESPONSIBILITY FOR THEIR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



PROPOSED NORTHEAST ELEVATION

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

1



ANTENNA LAYOUT

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

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZMUITH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	72.0" x 20.0"	0°	130'-0"	(1) HIGH-CAPACITY HYBRID CABLE (180' LONG)
BETA	B1	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	72.0" x 20.0"	120°	130'-0"	
GAMMA	G1	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	72.0" x 20.0"	240°	130'-0"	

SECTOR	POSITION	RRH	
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY
ALPHA	A1	FUJITSU – TA08025-B604	5G
	A1	FUJITSU – TA08025-B605	5G
BETA	B1	FUJITSU – TA08025-B604	5G
	B1	FUJITSU – TA08025-B605	5G
GAMMA	G1	FUJITSU – TA08025-B604	5G
	G1	FUJITSU – TA08025-B605	5G

NOTES

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

ANTENNA SCHEDULE

NO SCALE

3

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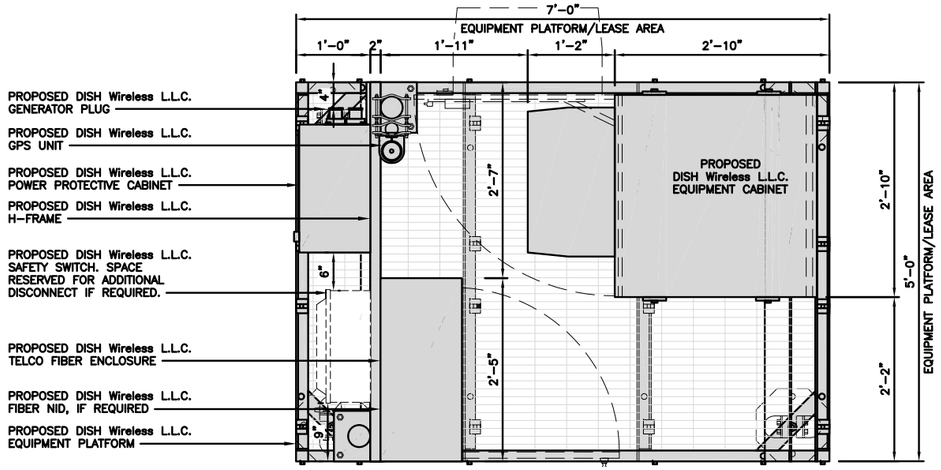
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00013A
580 CHAPEL STREET
THOMASTON, CT 06787

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2



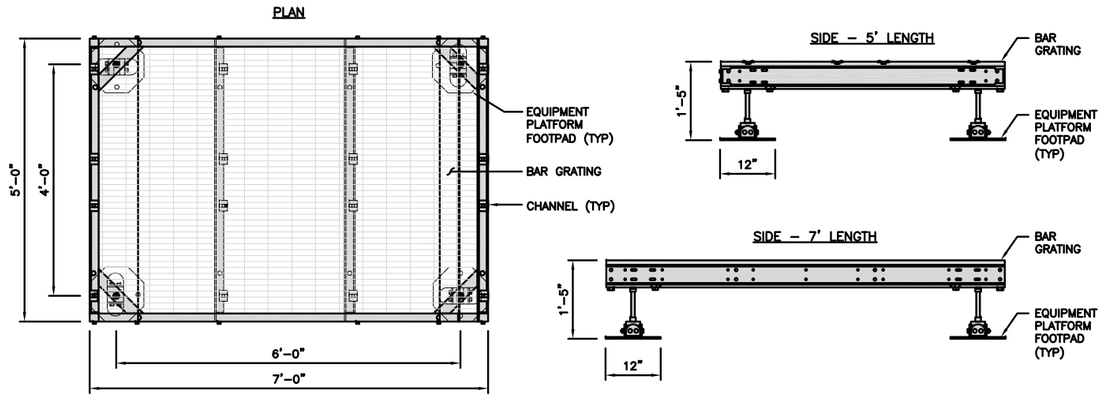
PLATFORM EQUIPMENT PLAN

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

1

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

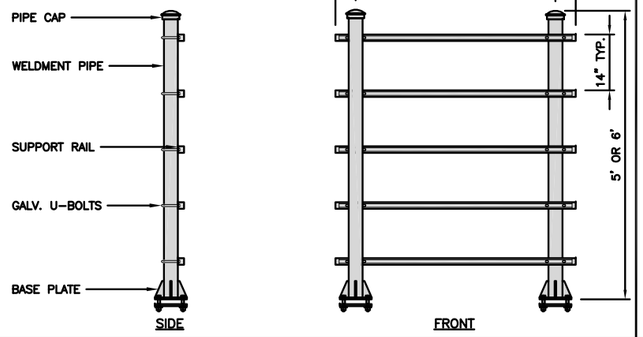
NOTE:
GC TO PROVIDE EXTENDED THREAD FOR PLATFORM IF REQUIRED HEIGHT EXCEEDS 17"



PLATFORM DETAIL — NO SCALE — 2

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

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

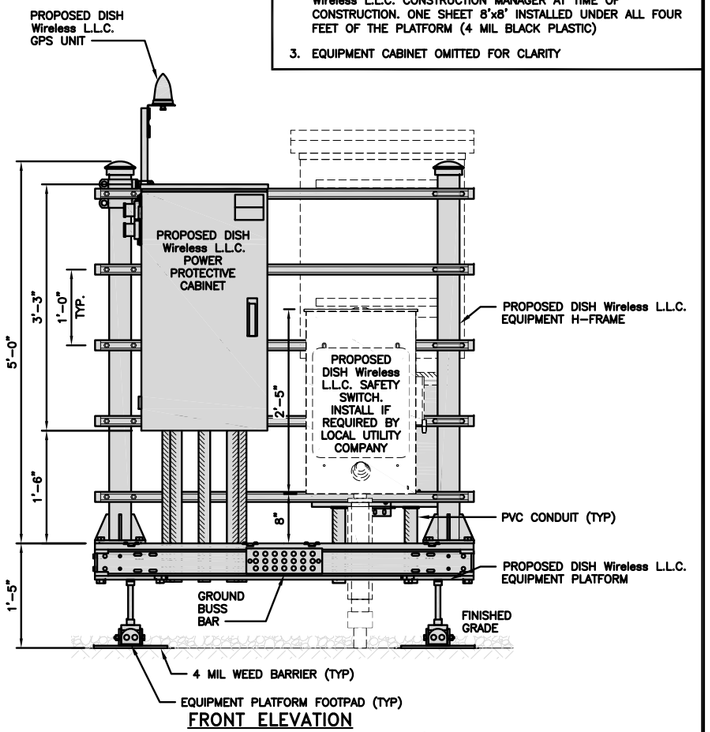


H-FRAME DETAIL — NO SCALE — 3

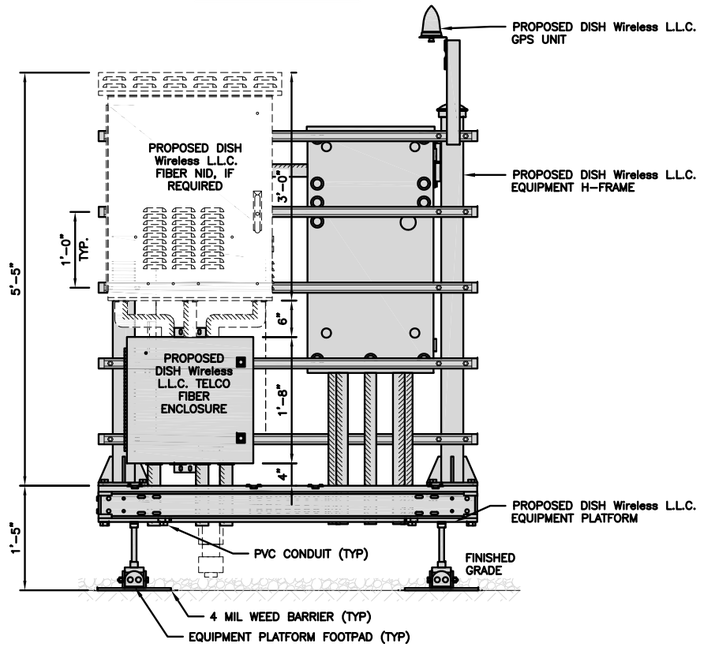
NOT USED — NO SCALE — 4

NOTES

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



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION — 12" 9" 6" 3" 0 1' 2' — 1"=1'-0" — 5

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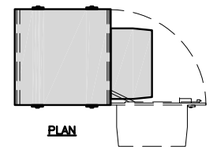
DISH Wireless L.L.C.
PROJECT INFORMATION

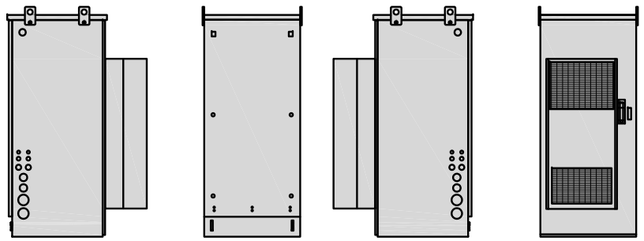
BOHVN00013A
580 CHAPEL STREET
THOMASTON, CT 06787

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

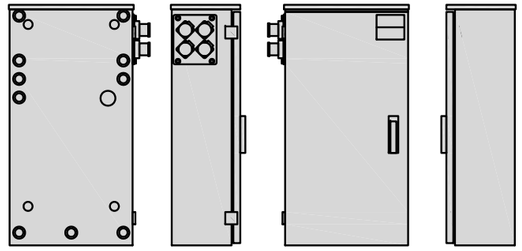
CHARLES INDUSTRY HEX CUBE–PM639155N4	
DIMENSIONS (HxWxD):	74"x32"x32"
POWER PLANT:	–48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	408 LBS





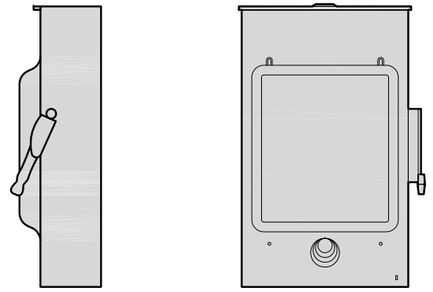
CABINET DETAIL — NO SCALE — 1

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



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

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



SAFETY SWITCH DETAIL — NO SCALE — 3

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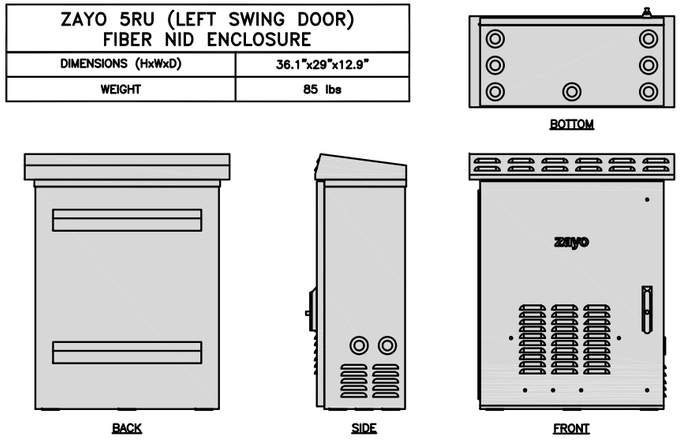
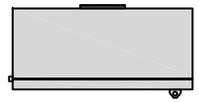
NOT USED — NO SCALE — 4

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



FIBER NID ENCLOSURE DETAIL — NO SCALE — 5

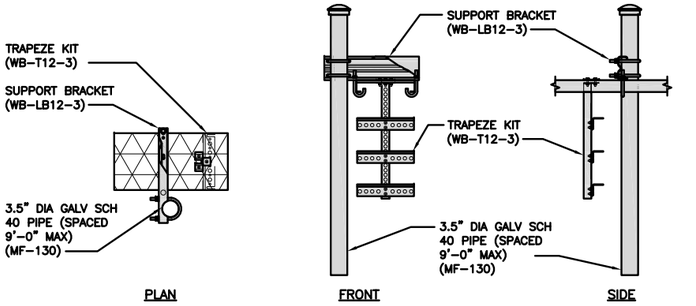
CHARLES CFIT–PF2020DSH1 FIBER TELCO ENCLOSURE	
ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



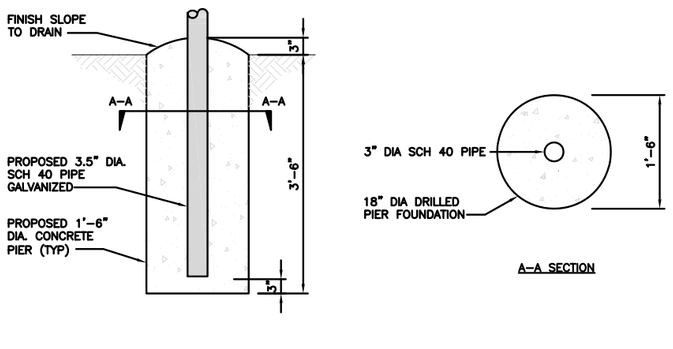
FIBER TELCO ENCLOSURE DETAIL — NO SCALE — 6

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

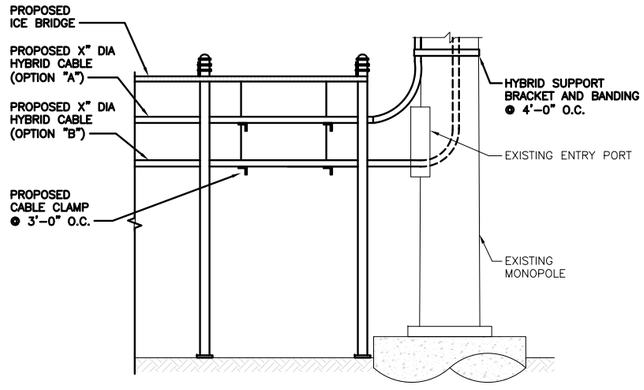
INCLUDED PRODUCTS:
- WB–T12–3 TRAPEZE KIT, 3 RUNGS
- WB–LB12–3 SUPPORT BRACKET
- MF–130 DIRECT BURIAL PIPE COLUMN, 13'–4"



ICE BRIDGE DETAIL — NO SCALE — 7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL — NO SCALE — 8



HYBRID CABLE RUN — NO SCALE — 9

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PROJECT INFORMATION

BOHVN00013A
580 CHAPEL STREET
THOMASTON, CT 06787

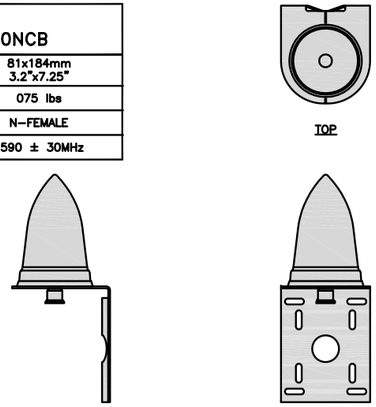
SHEET TITLE

EQUIPMENT DETAILS

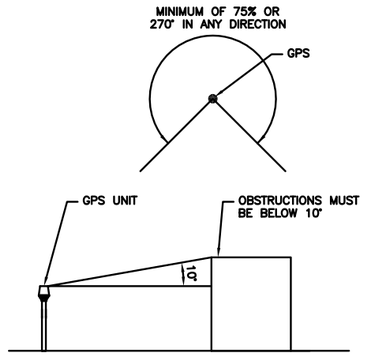
SHEET NUMBER

A-4

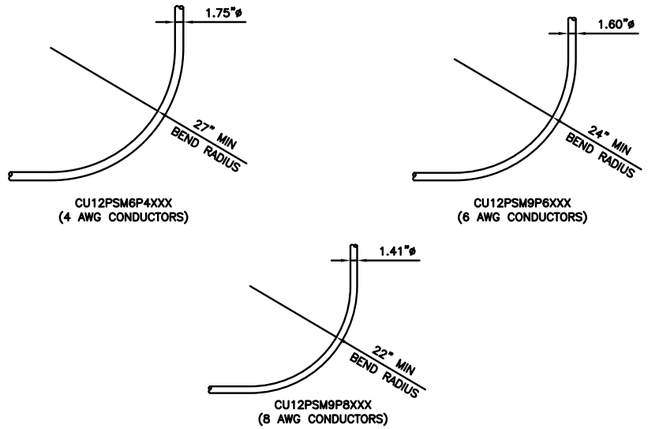
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



GPS DETAIL — NO SCALE — 1



GPS MINIMUM SKY VIEW REQUIREMENTS — NO SCALE — 2



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

NOT USED — NO SCALE — 4

NOT USED — NO SCALE — 5

NOT USED — NO SCALE — 6

NOT USED — NO SCALE — 7

NOT USED — NO SCALE — 8

NOT USED — NO SCALE — 9

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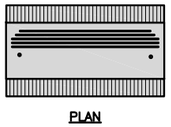
PROJECT INFORMATION

BOHVN00013A
580 CHAPEL STREET
THOMASTON, CT 06787

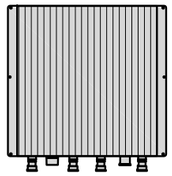
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

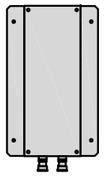
FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



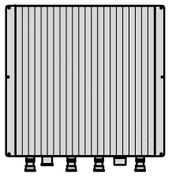
PLAN



BACK



SIDE

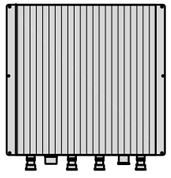


FRONT

RRH DETAIL | NO SCALE | 1

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

PLAN



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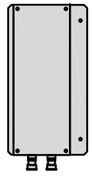
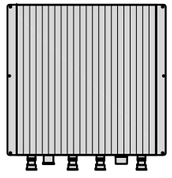


SIDE

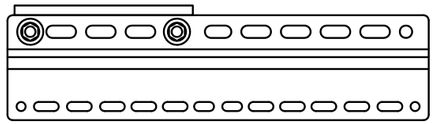


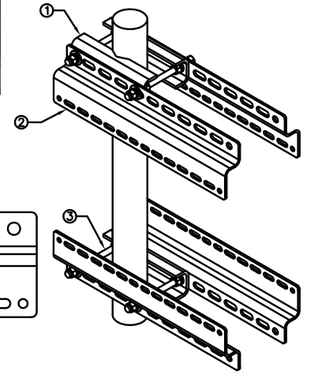
FRONT

RRH DETAIL | NO SCALE | 2

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

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



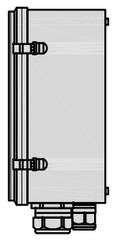


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

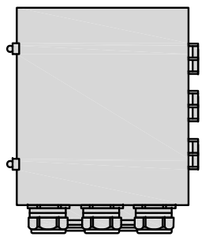
RRH MOUNT DETAIL | NO SCALE | 3

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

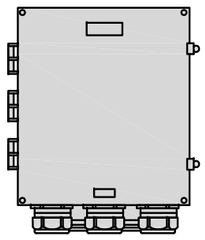
PLAN



SIDE



BACK

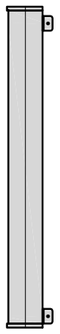


FRONT

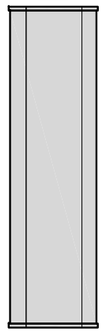
SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 4

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



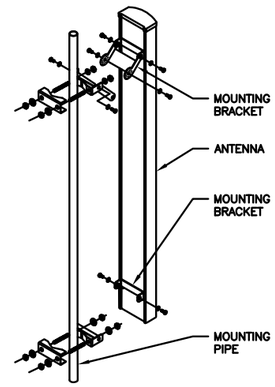
SIDE



FRONT

ANTENNA DETAIL | NO SCALE | 5

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



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

ANTENNA MOUNTING DETAIL | NO SCALE | 6

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

NOTE:
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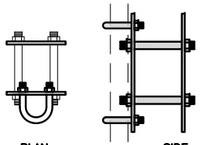
APPROVED EQUIVALENT

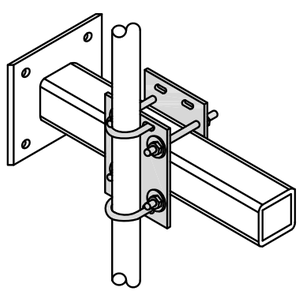


PLAN PLATE

SIDE PLATE

PLAN U-BOLT

SIDE U-BOLT



RRH/OVP MOUNT DETAIL | NO SCALE | 7

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

NOTE:
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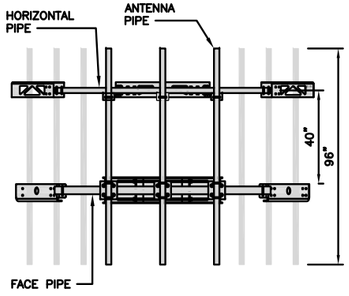
APPROVED EQUIVALENT



ANTENNA PLATFORM DETAIL | NO SCALE | 8

NOT USED | NO SCALE | 9

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SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
8/24/2021

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

RFDS REV #: N/A

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6039-Z0001-C

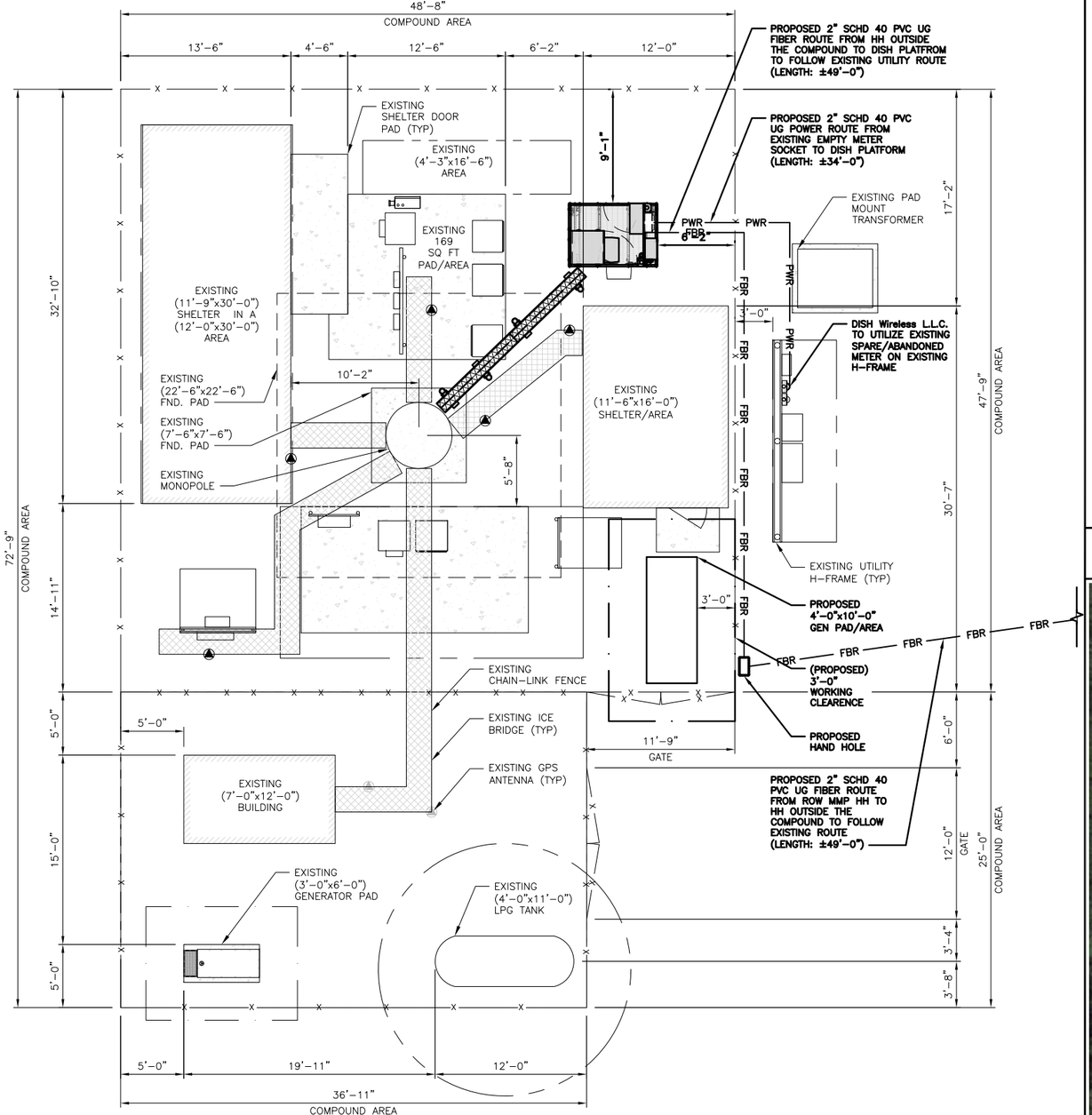
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00013A
580 CHAPEL STREET
THOMASTON, CT 06787

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6

NOTES

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



UTILITY ROUTE PLAN

6' 4' 2' 0 5' 10'
3/16"=1'-0"

1

ELECTRICAL NOTES

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

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

ELECTRICAL NOTES

2

40' 20' 0 40' 80'
1"=40'

3

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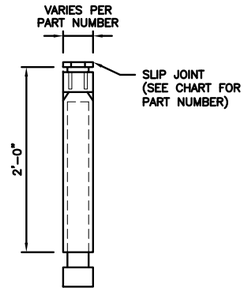
580 CHAPEL STREET
THOMASTON, CT 06787

SHEET TITLE
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER
E-1

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

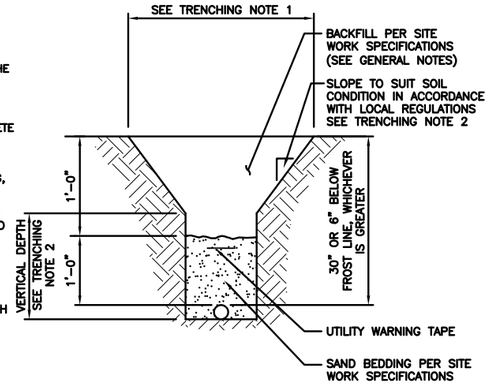


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

EXPANSION JOINT DETAIL | NO SCALE | 1

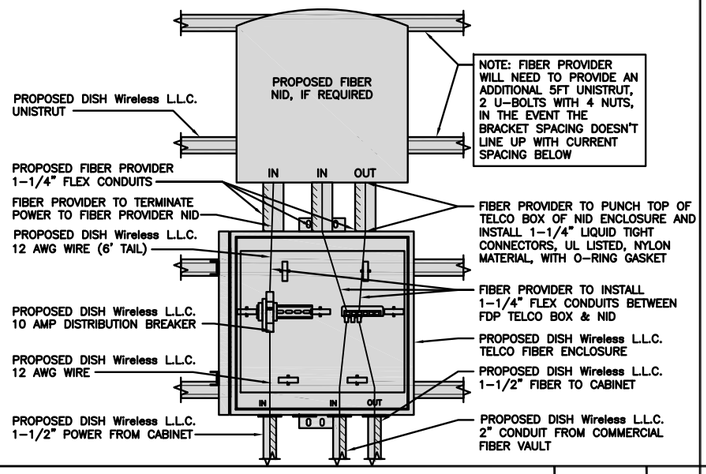
TRENCHING NOTES

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



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2

NOT USED | NO SCALE | 3



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL) | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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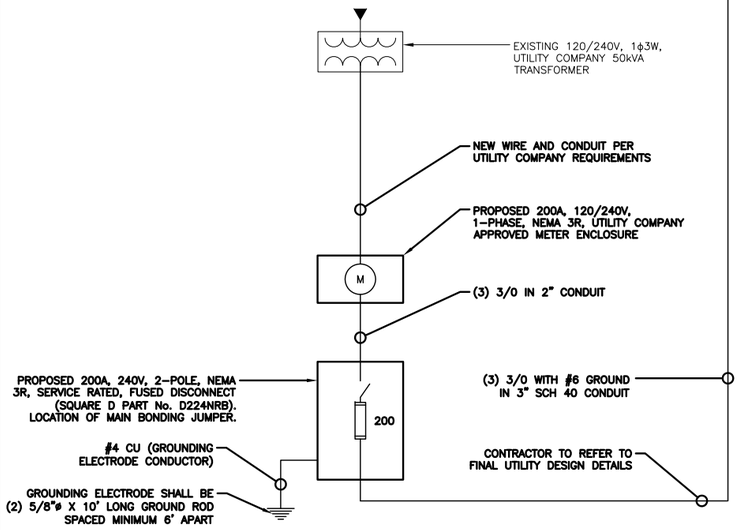
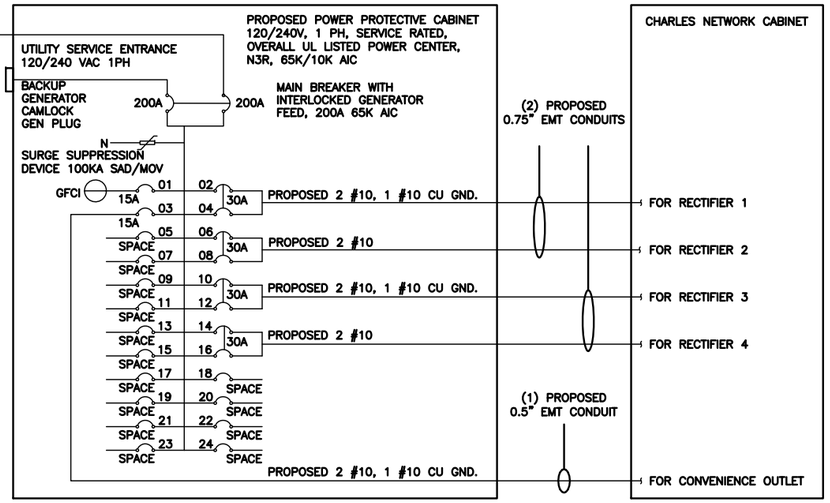
PROJECT INFORMATION
BOHVN00013A
580 CHAPEL STREET
THOMASTON, CT 06787

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2





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

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

NOTES

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

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

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

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

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

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

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

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

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

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

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

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

PPC ONE-LINE DIAGRAM

NO SCALE | 1

PROPOSED CHARLES PANEL SCHEDULE

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

PANEL SCHEDULE

NO SCALE | 2

NOT USED

NO SCALE | 3

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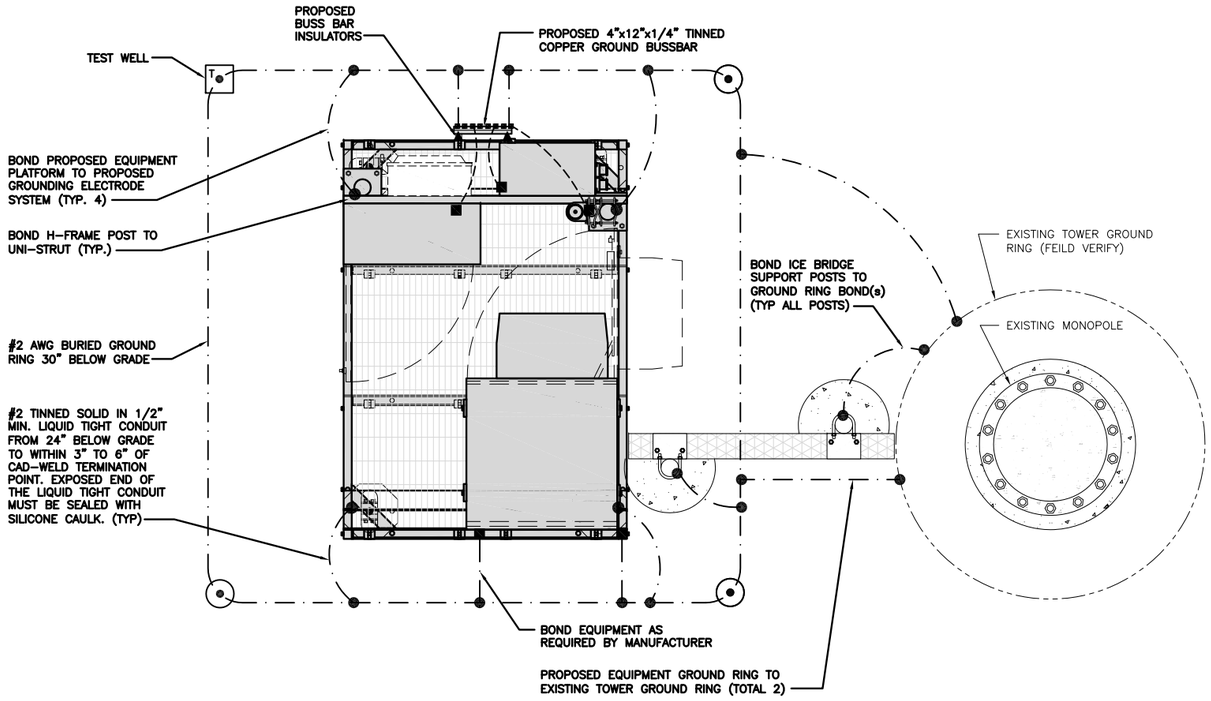
580 CHAPEL STREET
THOMASTON, CT 06787

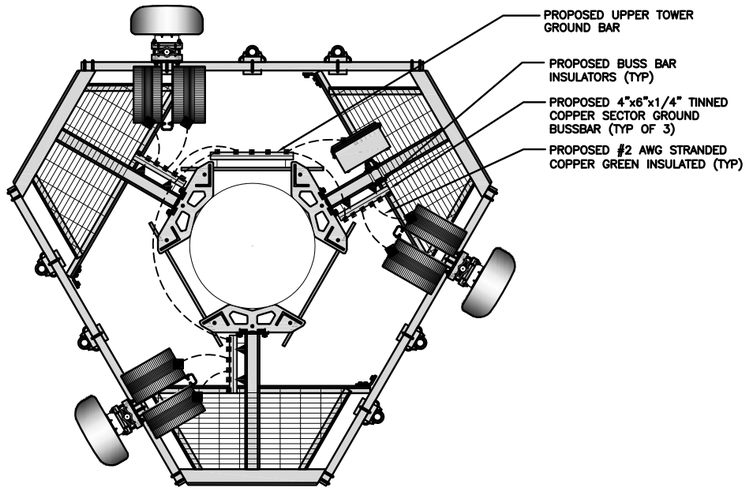
SHEET TITLE
ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE

SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE | 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2

NOTES

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

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GROUNDING KEY NOTES

NO SCALE | 3

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8/24/2021

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

RFDS REV #: N/A

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A&E PROJECT NUMBER
6039-Z0001-C

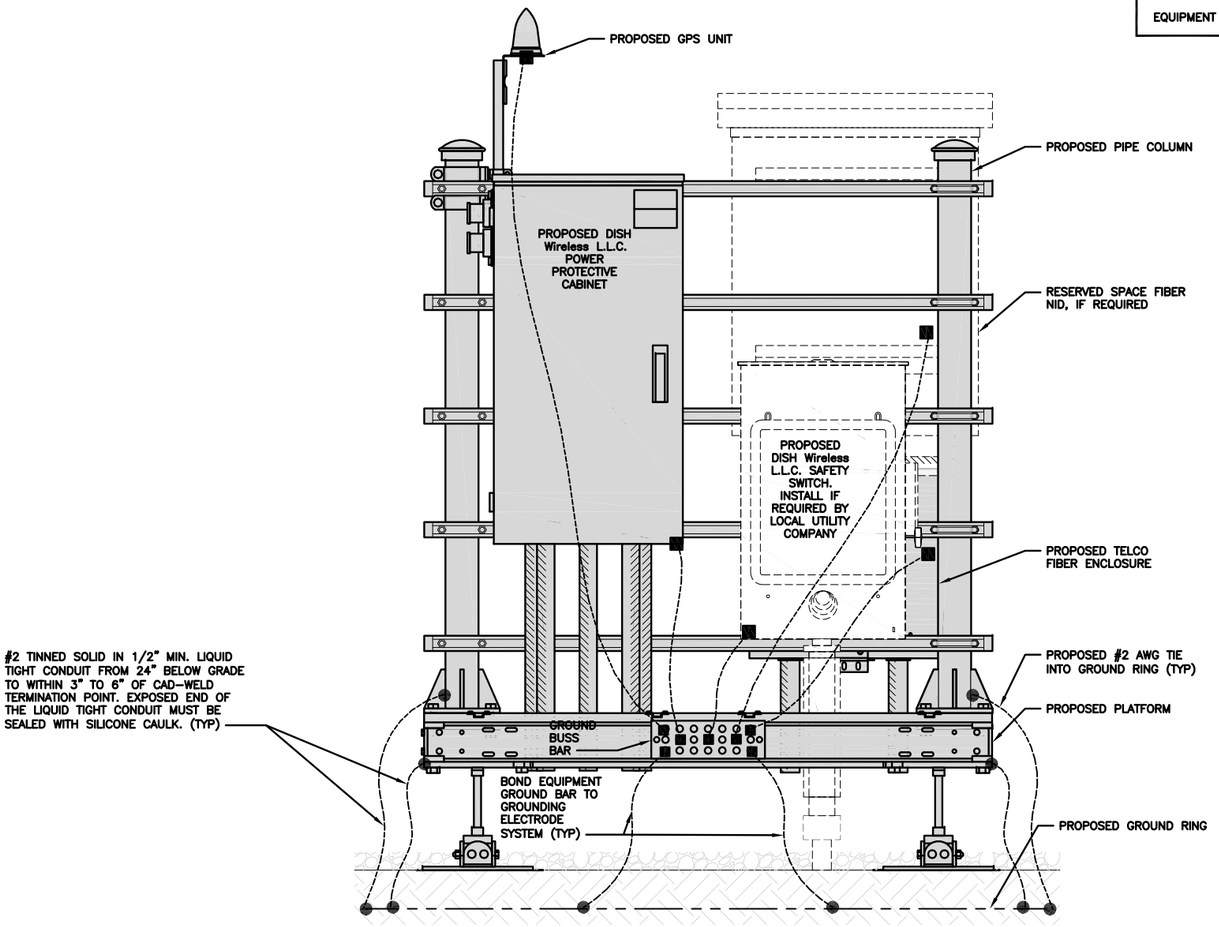
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00013A
580 CHAPEL STREET
THOMASTON, CT 06787

SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

NOTES

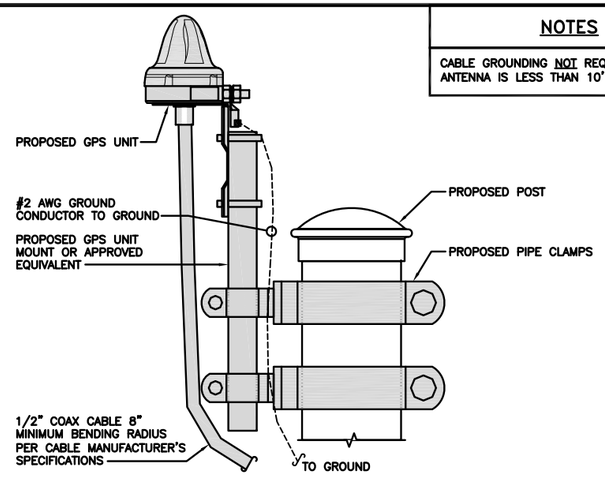
EQUIPMENT CABINET OMITTED FOR CLARITY



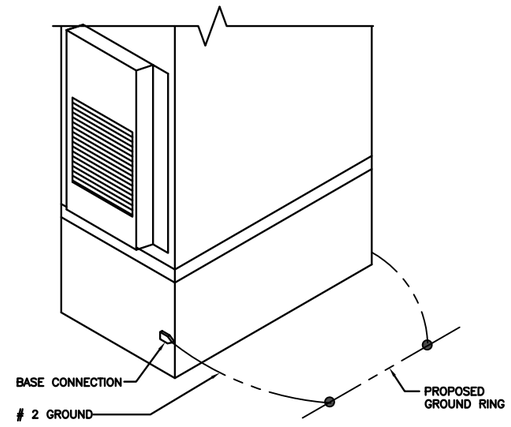
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

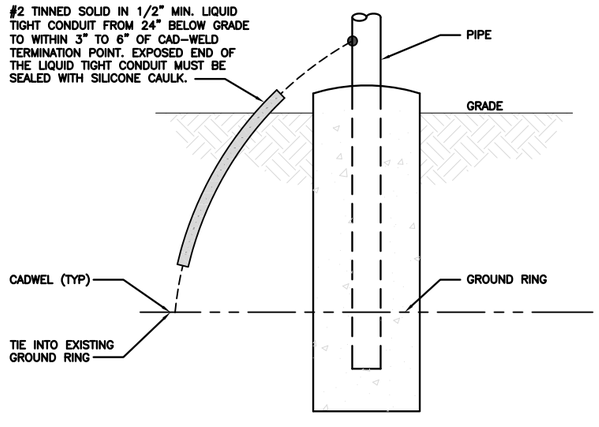
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



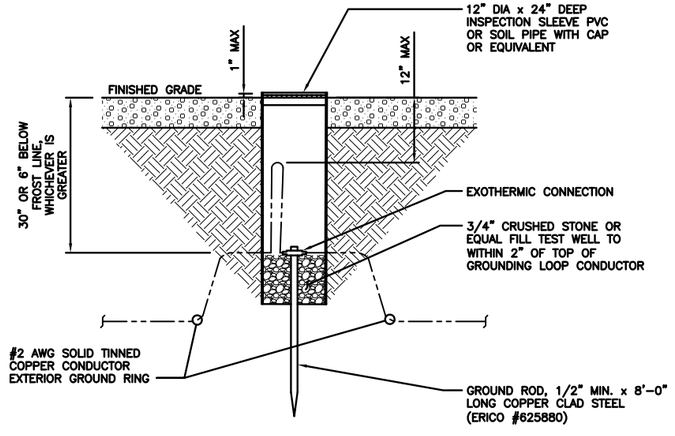
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



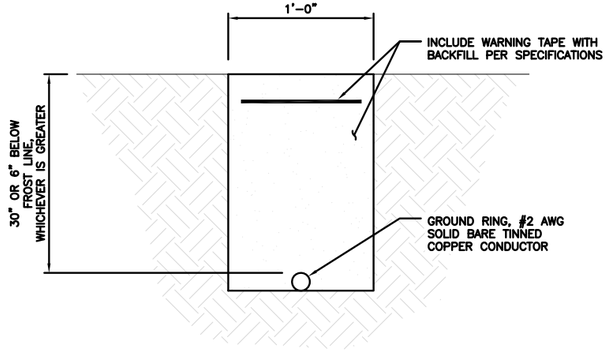
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



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



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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PROJECT INFORMATION

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THOMASTON, CT 06787

SHEET TITLE

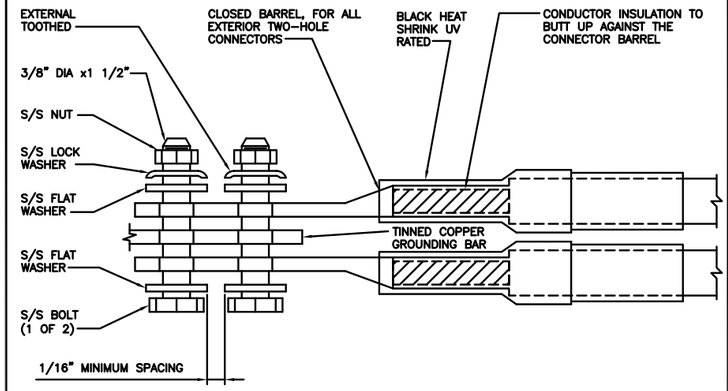
GROUNDING DETAILS

SHEET NUMBER

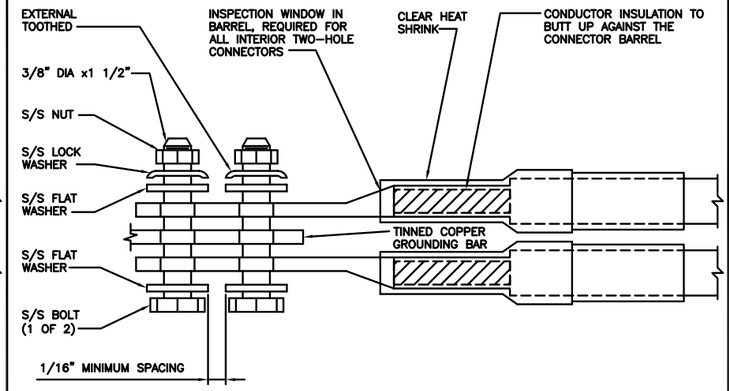
G-2

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).

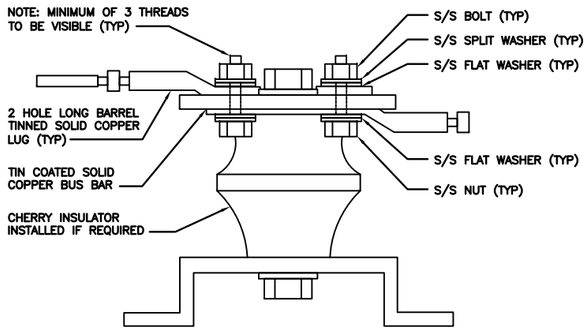
TYPICAL GROUNDING NOTES | NO SCALE | 1



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

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THOMASTON, CT 06787

SHEET TITLE
GROUNDING DETAILS

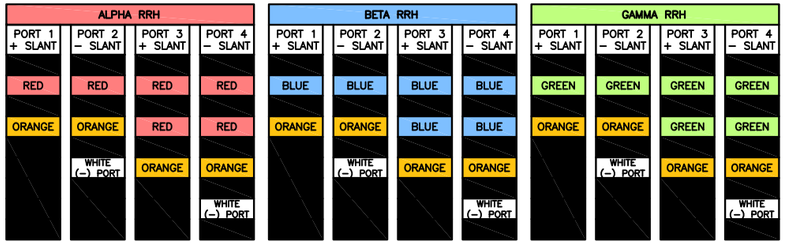
SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

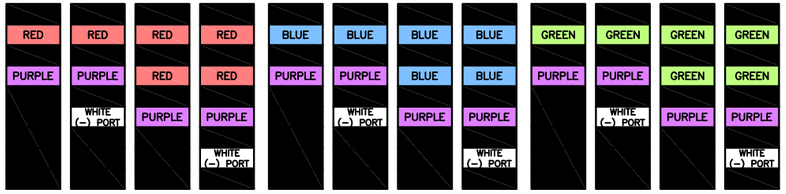
LOW–BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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



MID–BAND RRH –
(AWS BANDS N66+N70)

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

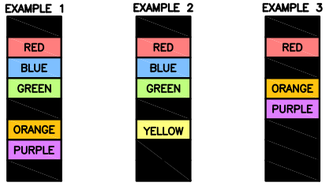


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

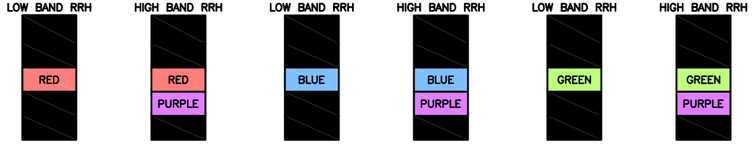
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS
ALL SECTORS, BOTH LOW–BANDS AND MID–BANDS

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



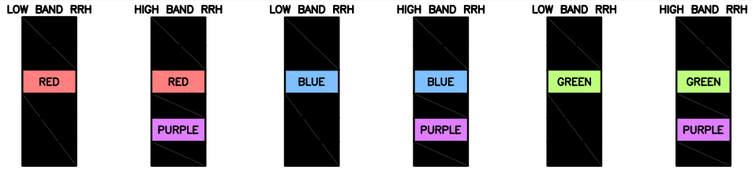
FIBER JUMPERS TO RRHs

LOW–BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

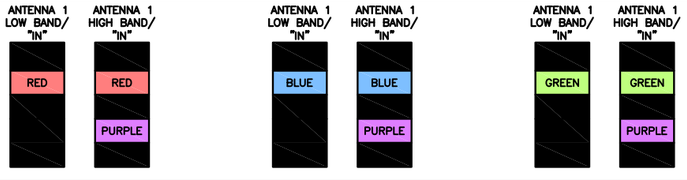


POWER CABLES TO RRHs

LOW–BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY



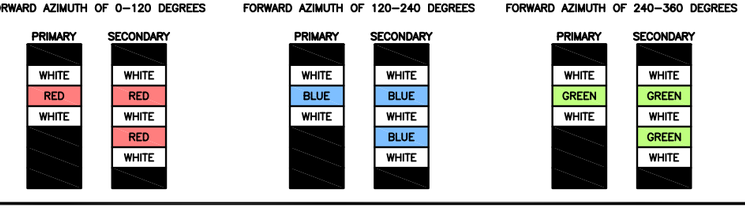
RET MOTORS AT ANTENNAS



MICROWAVE RADIO LINKS

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

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



RF CABLE COLOR CODES | NO SCALE | 1

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

AWS (N66+N70+H–BLOCK): PURPLE

CBRS TECH (3 GHz): YELLOW

NEGATIVE SLANT PORT ON ANT/RRH: WHITE

ALPHA SECTOR: RED | BETA SECTOR: BLUE | GAMMA SECTOR: GREEN

COLOR IDENTIFIER | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

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THOMASTON, CT 06787

SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1

LEGEND

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM — T

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE — T

SINGLE POLE SWITCH — $

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE — GFCI

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48–T8 — F

SMOKE DETECTION (DC) — SD

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE — X — X — X — X

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE — W — W — W — W — W

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

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

OVERHEAD POWER — OHP — OHP — OHP — OHP

OVERHEAD TELCO — OHT — OHT — OHT — OHT

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

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

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

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

WORKPOINT — W.P.

SECTION REFERENCE — XX / X–X

DETAIL REFERENCE — XX / X–X

ABBREVIATIONS

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

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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.

dish wireless.

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STATE OF CONNECTICUT
SHUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER
8/24/2021

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	06/23/2021	ISSUED FOR REVIEW
0	08/23/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

6039–Z0001–C

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00013A
580 CHAPEL STREET
THOMASTON, CT 06787

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

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

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

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

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

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

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

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

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

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

8. TIE WRAPS ARE NOT ALLOWED.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
8/24/2021

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	06/23/2021	ISSUED FOR REVIEW
0	08/23/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

6039-Z0001-C

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00013A
580 CHAPEL STREET
THOMASTON, CT 06787

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.

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

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STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
8/24/2021

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	06/23/2021	ISSUED FOR REVIEW
0	08/23/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

6039-Z0001-C

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00013A
580 CHAPEL STREET
THOMASTON, CT 06787

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

Exhibit D

Structural Analysis Report

Date: **June 02, 2021**

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***DISH Network* Co-Locate**	
	Site Number:	BOHVN00013A
	Site Name:	CT-CCI-T-823530
Crown Castle Designation:	**BU Number:**	823530
	Site Name:	CT364/Chapel St. Monopole
	JDE Job Number:	645124
	Work Order Number:	1966382
	Order Number:	553357 Rev. 1
Engineering Firm Designation:	**Crown Castle Project Number:**	1966382
Site Data:	**580 Chapel Street, Thomaston, Litchfield County, CT** **Latitude *41° 39' 48.48"*, Longitude *-73° 4' 27.41"*** **175 Foot - Monopole Tower**	

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

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

LC7: Proposed Equipment Configuration **Sufficient Capacity – 75.0%**

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Emma McCarty

Respectfully submitted by:

STATE OF CONNECTICUT
TERRY P. STYRAN
31522
LICENSED
PROFESSIONAL ENGINEER

Terry P Styran
2021.06.03
11:31:21 -04'00'

Terry P. Styran, P.E.
Senior Project Engineer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 175 ft Monopole tower designed by Pirod Manufactures Inc..

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
130.0	130.0	3	fujitsu	TA08025-B604	1	1-1/2
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
172.0	175.0	2	andrew	VHLP2.6	3 13	7/8 1-5/8
	172.0	3	ems wireless	RR90-17-02DP w/ Mount Pipe		
		3	ericsson	KRY 112 144/1		
		3	ericsson	KRY 112 489/2		
		3	ericsson	RADIO 4449 B12/B71		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		1	tower mounts	Platform Mount [LP 701-1]		
	168.0	1	bird technologies group	OA20-67-DIN		
		1	lone star electronics	LS-230C w/ Mount Pipe		
168.0	171.0	1	lone star electronics	LS-230C	6	7/8
	168.0	1	tower mounts	Side Arm Mount [SO 701-1]		
162.0	162.0	3	alcatel lucent	800MHZ 2X50W RRH W/FILTER	4	1-1/4
		3	alcatel lucent	PCS 1900MHZ 2X40W		
		3	alcatel lucent	TD-RRH8X20-25		
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe		
		1	tower mounts	Platform Mount [LP 1201-1]		
152.0	152.0	6	antel	LPA-80080/4CF w/ Mount Pipe	1 6	1-3/8 1-5/8
		6	commscope	NNHH-65B-R4 w/ Mount Pipe		
		1	raycap	RVZDC-6600-PF-48		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		
		1	tower mounts	Platform Mount [LP 402-1_KCKR]		
140.0	142.0	1	cci antennas	HPA65R-BU4A w/ Mount Pipe	2 6 12 2	3/8 3/4 1-5/8 Conduit
		2	cci antennas	HPA65R-BU6A w/ Mount Pipe		
		3	ericsson	RADIO 4415 B30		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14		
		3	ericsson	RRUS 8843 B2/B66A		
		2	kathrein	80010964 w/ Mount Pipe		
		4	kathrein	80010965 w/ Mount Pipe		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		6	powerwave technologies	LGP21401		
		3	raycap	DC6-48-60-18-8F		
	140.0	1	tower mounts	Platform Mount [LP 303-1_HR-1]		
115.0	115.0	3	rfs celwave	APXV18-206517S-C w/ Mount Pipe	6	1-5/8
50.0	50.0	1	crown mounts	Side Arm Mount [SO 701-1]	1	1/2
		1	pctel	GPS-TMG-HR-26NCM		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	3462674	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	3464631	CCISITES
4-TOWER MANUFACTURER DRAWINGS	3462695	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.9.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

1) Tower and structures were maintained in accordance with the TIA-222 Standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
3) Base plate design methodology of the manufacturer has been reviewed and found to be an acceptable means of designing to resist the full capacity of the bolts and shaft.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	175 - 164.25	Pole	TP26x22x0.25	1	-5.06	1202.11	4.5	Pass
L2	164.25 - 129.67	Pole	TP34.0625x24.4135x0.3125	2	-22.02	1996.21	30.1	Pass
L3	129.67 - 96	Pole	TP41.75x32.452x0.375	3	-33.57	2940.31	44.4	Pass
L4	96 - 63.17	Pole	TP49.0625x39.8421x0.375	4	-43.60	3460.73	56.6	Pass
L5	63.17 - 31.17	Pole	TP56.125x46.9602x0.375	5	-55.03	3964.26	65.0	Pass
L6	31.17 - 0	Pole	TP62.9375x53.8475x0.375	6	-70.21	4574.01	72.4	Pass
							Summary	
						Pole (L6)	72.4	Pass
						Rating =	72.4	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Splice Check	164.3	5.4	Pass
1	Splice Check	129.7	32.3	Pass
1	Splice Check	96.0	48.1	Pass
1	Splice Check	63.2	61.5	Pass
1	Splice Check	31.2	71.8	Pass
1	Anchor Rods	0	69.9	Pass
1,2	Base Plate	0	72.4	Pass
1	Base Foundation (Structure)	0	72.3	Pass
1	Base Foundation (Soil Interaction)	0	75.0	Pass

Structure Rating (max from all components) =	75.0%

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.
2) Base plate is assumed to have the same capacity as respective shaft.

4.1) Recommendations

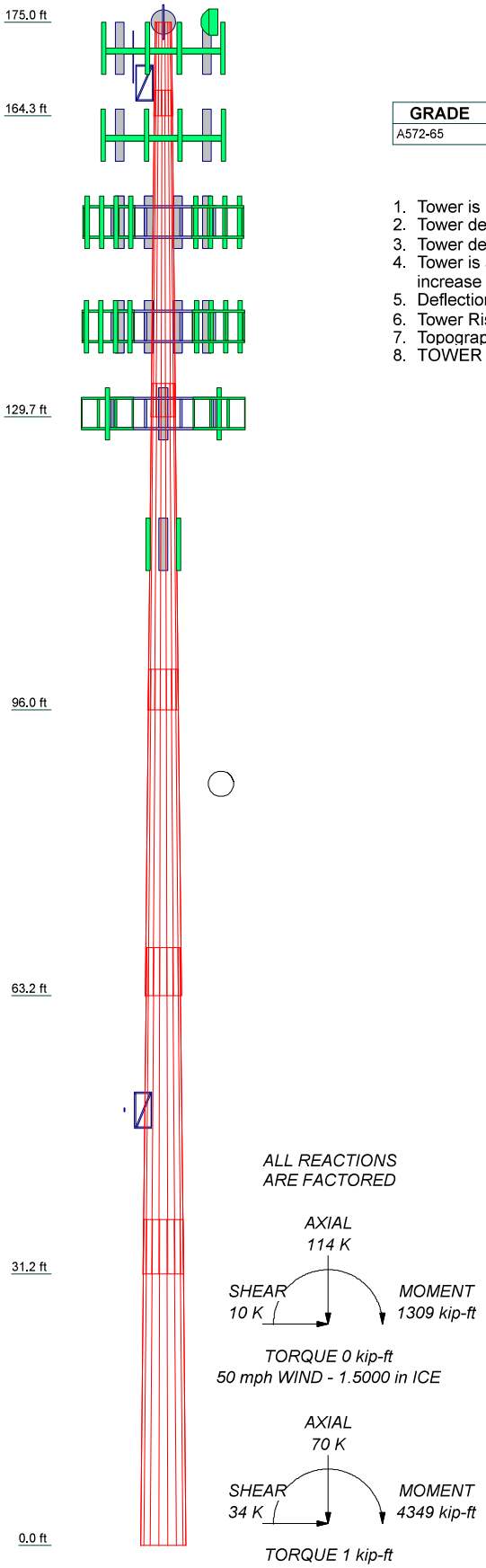
The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	1	2	3	4	5	6
Length (ft)	10.75	37.50	37.50	37.50	37.50	37.42
Number of Sides	18	18	18	18	18	18
Thickness (in)	0.2500	0.3125	0.3750	0.3750	0.3750	0.3750
Socket Length (ft)	2.92	3.83	4.67	5.50	6.25	
Top Dia (in)	22.0000	24.4135	32.4520	39.8421	46.9602	53.8475
Bot Dia (in)	26.0000	34.0625	41.7500	49.0625	56.1250	62.9375
Grade	A572-65					
Weight (K)	0.7	3.7	5.6	6.7	7.8	8.8

33.2



MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Litchfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 72.4%

CROWN CASTLE
The Pathway to Possible

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

Job: ***BU# 823530***			
Project:			
Client: Crown Castle	Drawn by: EMcCarty		App'd:
Code: TIA-222-H	Date: 06/02/21		Scale: NTS
Path: C:\WORK AREA\823530\WO 1966382 - SA\Prod\823530_RPA.er			Dwg No. E-1

Tower Input Data

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

- Tower is located in Litchfield County, Connecticut.
- Tower base elevation above sea level: 543.00 ft.
- Basic wind speed of 120 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.5000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.05.
- 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.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	175.00-164.25	10.75	2.92	18	22.0000	26.0000	0.2500	1.0000	A572-65 (65 ksi)
L2	164.25-129.67	37.50	3.83	18	24.4135	34.0625	0.3125	1.2500	A572-65 (65 ksi)
L3	129.67-96.00	37.50	4.67	18	32.4520	41.7500	0.3750	1.5000	A572-65 (65 ksi)
L4	96.00-63.17	37.50	5.50	18	39.8421	49.0625	0.3750	1.5000	A572-65 (65 ksi)
L5	63.17-31.17	37.50	6.25	18	46.9602	56.1250	0.3750	1.5000	A572-65 (65 ksi)
L6	31.17-0.00	37.42		18	53.8475	62.9375	0.3750	1.5000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	22.3008	17.2586	1031.4832	7.7212	11.1760	92.2945	2064.3237	8.6310	3.4320	13.728
	26.3625	20.4326	1711.6544	9.1412	13.2080	129.5922	3425.5610	10.2183	4.1360	16.544
L2	25.5048	23.9052	1754.2801	8.5559	12.4021	141.4508	3510.8685	11.9549	3.7468	11.99
	34.5398	33.4758	4817.4335	11.9812	17.3038	278.4040	9641.2058	16.7411	5.4450	17.424
L3	33.8591	38.1797	4963.1505	11.3873	16.4856	301.0593	9932.8316	19.0935	5.0516	13.471
	42.3362	49.2466	10650.9822	14.6881	21.2090	502.1916	21315.9793	24.6280	6.6880	17.835
L4	41.5648	46.9757	9244.4482	14.0108	20.2398	456.7464	18501.0604	23.4923	6.3522	16.939
	49.7615	57.9503	17355.1378	17.2841	24.9238	696.3293	34733.1119	28.9807	7.9750	21.267
L5	48.9917	55.4480	15202.6318	16.5377	23.8558	637.2728	30425.2677	27.7293	7.6050	20.28
	56.9330	66.3564	26056.1506	19.7913	28.5115	913.8821	52146.5865	33.1845	9.2180	24.581
L6	56.1620	63.6457	22991.5269	18.9827	27.3545	840.5012	46013.3066	31.8289	8.8172	23.512
	63.8506	74.4650	36822.8946	22.2097	31.9722	1151.7142	73694.2417	37.2396	10.4170	27.779

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 175.00-164.25				1	1	1			
L2 164.25-129.67				1	1	1			
L3 129.67-96.00				1	1	1			
L4 96.00-63.17				1	1	1			
L5 63.17-31.17				1	1	1			
L6 31.17-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

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

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
MLCH 12X6 AWG(1-3/8)	A	No	Surface Ar (CaAa)	152.00 - 0.00	1	1	-0.250 -0.230	1.4300		1.72
***										
CU12PSM9P6XXX(1-1/2)	B	No	Surface Ar (CaAa)	130.00 - 0.00	1	1	-0.480 -0.450	1.6000		2.35
***										
LDF7-50A(1-5/8)	C	No	Surface Ar (CaAa)	115.00 - 0.00	6	6	-0.180 -0.030	1.9800		0.82
**										
LDF4-50A(1/2)	C	No	Surface Ar (CaAa)	50.00 - 0.00	1	1	-0.340 -0.330	0.6300		0.15

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
***									
AVA5-50(7/8)	A	No	No	Inside Pole	172.00 - 0.00	3	No Ice	0.00	0.30
							1/2" Ice	0.00	0.30
							1" Ice	0.00	0.30
							2" Ice	0.00	0.30
LDF7-50A(1-5/8)	A	No	No	Inside Pole	172.00 - 0.00	12	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
HCS 6X12 4AWG(1-5/8)	A	No	No	Inside Pole	172.00 - 0.00	1	No Ice	0.00	2.40
							1/2" Ice	0.00	2.40
							1" Ice	0.00	2.40
							2" Ice	0.00	2.40
***									
LDF5-50A(7/8)	B	No	No	Inside Pole	168.00 - 0.00	6	No Ice	0.00	0.33
							1/2" Ice	0.00	0.33
							1" Ice	0.00	0.33
							2" Ice	0.00	0.33
***									
HB114-21U3M12-XXXF(1-1/4)	C	No	No	Inside Pole	162.00 - 0.00	1	No Ice	0.00	1.22
							1/2" Ice	0.00	1.22
							1" Ice	0.00	1.22
							2" Ice	0.00	1.22
HB114-1-08U4-M5J(1-1/4)	C	No	No	Inside Pole	162.00 - 0.00	3	No Ice	0.00	1.08
							1/2" Ice	0.00	1.08
							1" Ice	0.00	1.08
							2" Ice	0.00	1.08
***									
LDF7-50A(1-5/8)	A	No	No	Inside Pole	152.00 - 0.00	6	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
***									
AVA7-50(1-5/8)	B	No	No	Inside Pole	140.00 - 0.00	12	No Ice	0.00	0.70
							1/2" Ice	0.00	0.70
							1" Ice	0.00	0.70
							2" Ice	0.00	0.70
FB-L98-002-XXX(3/8)	B	No	No	Inside Pole	140.00 - 0.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
FB-L98B-034-XXX(3/8)	B	No	No	Inside Pole	140.00 - 0.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
WR-VG86ST-BRD(3/4)	B	No	No	Inside Pole	140.00 - 0.00	6	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
2" Rigid Conduit	B	No	No	Inside Pole	140.00 - 0.00	2	1" Ice	0.00	0.58
							2" Ice	0.00	0.58
							No Ice	0.00	2.80
							1/2" Ice	0.00	2.80
							1" Ice	0.00	2.80
							2" Ice	0.00	2.80

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	175.00-164.25	A	0.000	0.000	0.000	0.000	0.10
		B	0.000	0.000	0.000	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.00
L2	164.25-129.67	A	0.000	0.000	3.193	0.000	0.60
		B	0.000	0.000	0.053	0.000	0.25
		C	0.000	0.000	0.000	0.000	0.14
L3	129.67-96.00	A	0.000	0.000	4.815	0.000	0.67
		B	0.000	0.000	5.387	0.000	0.74
		C	0.000	0.000	22.572	0.000	0.24
L4	96.00-63.17	A	0.000	0.000	4.695	0.000	0.65
		B	0.000	0.000	5.253	0.000	0.72
		C	0.000	0.000	39.002	0.000	0.31
L5	63.17-31.17	A	0.000	0.000	4.576	0.000	0.63
		B	0.000	0.000	5.120	0.000	0.70
		C	0.000	0.000	39.202	0.000	0.30
L6	31.17-0.00	A	0.000	0.000	4.457	0.000	0.62
		B	0.000	0.000	4.987	0.000	0.68
		C	0.000	0.000	38.994	0.000	0.30

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	175.00-164.25	A	1.502	0.000	0.000	0.000	0.000	0.10
		B		0.000	0.000	0.000	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.00
L2	164.25-129.67	A	1.480	0.000	0.000	9.900	0.000	0.72
		B		0.000	0.000	0.152	0.000	0.25
		C		0.000	0.000	0.000	0.000	0.14
L3	129.67-96.00	A	1.441	0.000	0.000	14.779	0.000	0.84
		B		0.000	0.000	15.351	0.000	0.93
		C		0.000	0.000	35.243	0.000	0.61
L4	96.00-63.17	A	1.392	0.000	0.000	14.158	0.000	0.82
		B		0.000	0.000	14.716	0.000	0.90
		C		0.000	0.000	60.581	0.000	0.92
L5	63.17-31.17	A	1.321	0.000	0.000	13.484	0.000	0.79
		B		0.000	0.000	14.028	0.000	0.87
		C		0.000	0.000	65.083	0.000	0.95
L6	31.17-0.00	A	1.180	0.000	0.000	12.695	0.000	0.75
		B		0.000	0.000	13.224	0.000	0.83
		C		0.000	0.000	66.785	0.000	0.93

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	175.00-164.25	0.0000	0.0000	0.0000	0.0000
L2	164.25-129.67	-0.7831	-0.0305	-1.2991	-0.0490
L3	129.67-96.00	0.1418	3.1451	-0.4979	1.8858
L4	96.00-63.17	0.7129	5.4956	0.0259	3.8759
L5	63.17-31.17	0.8746	5.8555	0.4342	4.4918
L6	31.17-0.00	0.9919	6.1368	0.7180	4.9559

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L2	12	MLCH 12X6 AWG(1-3/8)	129.67 - 152.00	1.0000	1.0000
L2	20	CU12PSM9P6XXX(1-1/2)	129.67 - 130.00	1.0000	1.0000
L3	12	MLCH 12X6 AWG(1-3/8)	96.00 - 129.67	1.0000	1.0000
L3	20	CU12PSM9P6XXX(1-1/2)	96.00 - 129.67	1.0000	1.0000
L3	22	LDF7-50A(1-5/8)	96.00 - 115.00	1.0000	1.0000
L4	12	MLCH 12X6 AWG(1-3/8)	63.17 - 96.00	1.0000	1.0000
L4	20	CU12PSM9P6XXX(1-1/2)	63.17 - 96.00	1.0000	1.0000
L4	22	LDF7-50A(1-5/8)	63.17 - 96.00	1.0000	1.0000
L5	12	MLCH 12X6 AWG(1-3/8)	31.17 - 63.17	1.0000	1.0000
L5	20	CU12PSM9P6XXX(1-1/2)	31.17 - 63.17	1.0000	1.0000
L5	22	LDF7-50A(1-5/8)	31.17 - 63.17	1.0000	1.0000
L5	24	LDF4-50A(1/2)	31.17 - 50.00	1.0000	1.0000
L6	12	MLCH 12X6 AWG(1-3/8)	0.00 - 31.17	1.0000	1.0000
L6	20	CU12PSM9P6XXX(1-1/2)	0.00 - 31.17	1.0000	1.0000
L6	22	LDF7-50A(1-5/8)	0.00 - 31.17	1.0000	1.0000
L6	24	LDF4-50A(1/2)	0.00 - 31.17	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
***									
Lightning Rod 5/8x6'	A	From Leg	0.00	0.0000	175.00	No Ice	0.38	0.38	0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00 0.00			1/2" Ice 1" Ice 2" Ice	0.99 1.62 2.46	0.99 1.62 2.46	0.05 0.06 0.09
172 OA20-67-DIN	C	From Leg	4.00 0.00 -4.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.02 7.96 10.93 16.91	4.40 6.80 9.20 13.99	0.01 0.04 0.08 0.13
LS-230C w/ Mount Pipe	A	From Leg	4.00 0.00 -4.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.51 5.07 6.20 8.07	3.51 5.07 6.20 8.07	0.04 0.07 0.11 0.22
RR90-17-02DP w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.47 5.08 5.70 7.01	2.92 3.50 4.10 5.35	0.03 0.07 0.11 0.22
RR90-17-02DP w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.47 5.08 5.70 7.01	2.92 3.50 4.10 5.35	0.03 0.07 0.11 0.22
RR90-17-02DP w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.47 5.08 5.70 7.01	2.92 3.50 4.10 5.35	0.03 0.07 0.11 0.22
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.19 0.31 0.46 0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.19 0.31 0.46 0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.19 0.31 0.46 0.79
KRY 112 144/1	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.17 0.23 0.30 0.46	0.01 0.01 0.02 0.03
KRY 112 144/1	B	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.17 0.23 0.30 0.46	0.01 0.01 0.02 0.03
KRY 112 144/1	C	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.17 0.23 0.30 0.46	0.01 0.01 0.02 0.03
KRY 112 489/2	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.56 0.66 0.76 1.00	0.37 0.45 0.54 0.75	0.02 0.02 0.03 0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
KRY 112 489/2	B	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.56 0.66 0.76 1.00	0.37 0.45 0.54 0.75	0.02 0.02 0.03 0.05
KRY 112 489/2	C	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.56 0.66 0.76 1.00	0.37 0.45 0.54 0.75	0.02 0.02 0.03 0.05
(2) RADIO 4449 B12/B71	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.16 1.30 1.45 1.76	0.07 0.09 0.11 0.16
RADIO 4449 B12/B71	B	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.16 1.30 1.45 1.76	0.07 0.09 0.11 0.16
6' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
(3) 6' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
(2) 6' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
Platform Mount [LP 701-1]	C	None		0.0000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	58.68 66.01 73.41 88.40	58.68 66.01 73.41 88.40	2.75 3.84 5.07 7.94
168 LS-230C	A	From Face	3.00 0.00 3.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.61 2.34 2.80 3.68	1.61 2.34 2.80 3.68	0.01 0.02 0.04 0.09
Side Arm Mount [SO 701-1]	A	From Face	1.50 0.00 0.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.85 1.14 1.43 2.01	1.67 2.34 3.01 4.35	0.07 0.08 0.09 0.12
162 APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	162.00	No Ice 1/2" Ice	4.09 4.48 4.88	2.86 3.23 3.61	0.08 0.13 0.19

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	5.71	4.40	0.33
						2" Ice			
TD-RRH8X20-25	A	From Leg	4.00	0.0000	162.00	No Ice	4.05	1.53	0.07
			0.00			1/2" Ice	4.30	1.71	0.10
			0.00			1" Ice	4.56	1.90	0.13
						2" Ice	5.10	2.30	0.20
TD-RRH8X20-25	B	From Leg	4.00	0.0000	162.00	No Ice	4.05	1.53	0.07
			0.00			1/2" Ice	4.30	1.71	0.10
			0.00			1" Ice	4.56	1.90	0.13
						2" Ice	5.10	2.30	0.20
TD-RRH8X20-25	C	From Leg	4.00	0.0000	162.00	No Ice	4.05	1.53	0.07
			0.00			1/2" Ice	4.30	1.71	0.10
			0.00			1" Ice	4.56	1.90	0.13
						2" Ice	5.10	2.30	0.20
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00	0.0000	162.00	No Ice	4.60	4.01	0.10
			0.00			1/2" Ice	5.05	4.45	0.16
			0.00			1" Ice	5.50	4.89	0.23
						2" Ice	6.44	5.82	0.42
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00	0.0000	162.00	No Ice	4.60	4.01	0.10
			0.00			1/2" Ice	5.05	4.45	0.16
			0.00			1" Ice	5.50	4.89	0.23
						2" Ice	6.44	5.82	0.42
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00	0.0000	162.00	No Ice	4.60	4.01	0.10
			0.00			1/2" Ice	5.05	4.45	0.16
			0.00			1" Ice	5.50	4.89	0.23
						2" Ice	6.44	5.82	0.42
800MHZ 2X50W RRH W/FILTER	A	From Leg	4.00	0.0000	162.00	No Ice	2.06	1.93	0.06
			0.00			1/2" Ice	2.24	2.11	0.09
			0.00			1" Ice	2.43	2.29	0.11
						2" Ice	2.83	2.68	0.17
800MHZ 2X50W RRH W/FILTER	B	From Leg	4.00	0.0000	162.00	No Ice	2.06	1.93	0.06
			0.00			1/2" Ice	2.24	2.11	0.09
			0.00			1" Ice	2.43	2.29	0.11
						2" Ice	2.83	2.68	0.17
800MHZ 2X50W RRH W/FILTER	C	From Leg	4.00	0.0000	162.00	No Ice	2.06	1.93	0.06
			0.00			1/2" Ice	2.24	2.11	0.09
			0.00			1" Ice	2.43	2.29	0.11
						2" Ice	2.83	2.68	0.17
PCS 1900MHZ 2X40W	A	From Leg	4.00	0.0000	162.00	No Ice	2.35	1.28	0.04
			0.00			1/2" Ice	2.55	1.43	0.06
			0.00			1" Ice	2.75	1.60	0.08
						2" Ice	3.18	1.95	0.14
PCS 1900MHZ 2X40W	B	From Leg	4.00	0.0000	162.00	No Ice	2.35	1.28	0.04
			0.00			1/2" Ice	2.55	1.43	0.06
			0.00			1" Ice	2.75	1.60	0.08
						2" Ice	3.18	1.95	0.14
PCS 1900MHZ 2X40W	C	From Leg	4.00	0.0000	162.00	No Ice	2.35	1.28	0.04
			0.00			1/2" Ice	2.55	1.43	0.06
			0.00			1" Ice	2.75	1.60	0.08
						2" Ice	3.18	1.95	0.14
6' x 2" Mount Pipe	A	From Leg	4.00	0.0000	162.00	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	3.06	3.06	0.09
						2" Ice			
6' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
6' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
Platform Mount [LP 1201-1]	C	None		0.0000	162.00	No Ice 1/2" Ice 1" Ice 2" Ice	18.38 22.11 25.87 33.47	18.38 22.11 25.87 33.47	2.10 2.65 3.26 4.66
152									
(2) LPA-80080/4CF w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.86 3.22 3.59 4.34	6.57 7.19 7.84 9.17	0.03 0.08 0.13 0.25
(2) LPA-80080/4CF w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.86 3.22 3.59 4.34	6.57 7.19 7.84 9.17	0.03 0.08 0.13 0.25
(2) LPA-80080/4CF w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.86 3.22 3.59 4.34	6.57 7.19 7.84 9.17	0.03 0.08 0.13 0.25
(2) NNHH-65B-R4 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.55 8.04 8.53 9.56	4.23 4.67 5.12 6.05	0.11 0.20 0.30 0.53
(2) NNHH-65B-R4 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.55 8.04 8.53 9.56	4.23 4.67 5.12 6.05	0.11 0.20 0.30 0.53
(2) NNHH-65B-R4 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.55 8.04 8.53 9.56	4.23 4.67 5.12 6.05	0.11 0.20 0.30 0.53
RVZDC-6600-PF-48	C	From Leg	4.00 0.00 0.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.06 4.32 4.58 5.14	3.10 3.34 3.58 4.09	0.03 0.07 0.11 0.20
RFV01U-D1A	B	From Leg	4.00 0.00 0.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.25 1.39 1.54 1.86	0.08 0.10 0.12 0.18
(2) RFV01U-D1A	C	From Leg	4.00 0.00 0.00	0.0000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.25 1.39 1.54 1.86	0.08 0.10 0.12 0.18
(3) RFV01U-D2A	B	From Leg	4.00 0.00	0.0000	152.00	No Ice 1/2"	1.88 2.05	1.01 1.14	0.07 0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			Ice	2.22	1.28	0.11
						1" Ice	2.60	1.59	0.15
						2" Ice			
6' x 2" Mount Pipe	A	From Leg	4.00	0.0000	152.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
6' x 2" Mount Pipe	B	From Leg	4.00	0.0000	152.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
6' x 2" Mount Pipe	C	From Leg	4.00	0.0000	152.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
Platform Mount [LP 402-1_KCKR]	C	None		0.0000	152.00	No Ice	38.87	38.87	2.44
						1/2"	48.96	48.96	3.25
						Ice	59.00	59.00	4.23
						1" Ice	79.39	79.39	6.69
						2" Ice			
140									
HPA65R-BU6A w/ Mount Pipe	A	From Leg	4.00	0.0000	140.00	No Ice	5.83	5.00	0.08
			0.00			1/2"	6.40	5.56	0.14
			2.00			Ice	6.99	6.13	0.22
						1" Ice	8.19	7.32	0.40
						2" Ice			
HPA65R-BU4A w/ Mount Pipe	B	From Leg	4.00	0.0000	140.00	No Ice	3.83	3.30	0.06
			0.00			1/2"	4.23	3.68	0.11
			2.00			Ice	4.64	4.08	0.16
						1" Ice	5.50	4.92	0.29
						2" Ice			
HPA65R-BU6A w/ Mount Pipe	C	From Leg	4.00	0.0000	140.00	No Ice	5.83	5.00	0.08
			0.00			1/2"	6.40	5.56	0.14
			2.00			Ice	6.99	6.13	0.22
						1" Ice	8.19	7.32	0.40
						2" Ice			
(2) 80010965 w/ Mount Pipe	A	From Leg	4.00	0.0000	140.00	No Ice	12.26	5.79	0.14
			0.00			1/2"	13.03	6.47	0.23
			2.00			Ice	13.80	7.17	0.33
						1" Ice	15.41	8.60	0.57
						2" Ice			
(2) 80010964 w/ Mount Pipe	B	From Leg	4.00	0.0000	140.00	No Ice	8.61	4.10	0.12
			0.00			1/2"	9.18	4.59	0.19
			2.00			Ice	9.77	5.10	0.26
						1" Ice	10.98	6.16	0.45
						2" Ice			
(2) 80010965 w/ Mount Pipe	C	From Leg	4.00	0.0000	140.00	No Ice	12.26	5.79	0.14
			0.00			1/2"	13.03	6.47	0.23
			2.00			Ice	13.80	7.17	0.33
						1" Ice	15.41	8.60	0.57
						2" Ice			
7770.00 w/ Mount Pipe	A	From Leg	4.00	0.0000	140.00	No Ice	5.75	4.25	0.06
			0.00			1/2"	6.18	5.01	0.10
			2.00			Ice	6.61	5.71	0.16
						1" Ice	7.49	7.16	0.29
						2" Ice			
7770.00 w/ Mount Pipe	B	From Leg	4.00	0.0000	140.00	No Ice	5.75	4.25	0.06
			0.00			1/2"	6.18	5.01	0.10
			2.00			Ice	6.61	5.71	0.16
						1" Ice	7.49	7.16	0.29
						2" Ice			
7770.00 w/ Mount Pipe	C	From Leg	4.00	0.0000	140.00	No Ice	5.75	4.25	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2"	6.18	5.01	0.10
			2.00			Ice	6.61	5.71	0.16
						1" Ice	7.49	7.16	0.29
						2" Ice			
RADIO 4415 B30	A	From Leg	4.00	0.0000	140.00	No Ice	1.64	0.64	0.04
			0.00			1/2"	1.80	0.75	0.05
			2.00			Ice	1.97	0.87	0.07
						1" Ice	2.33	1.13	0.11
						2" Ice			
RADIO 4415 B30	B	From Leg	4.00	0.0000	140.00	No Ice	1.64	0.64	0.04
			0.00			1/2"	1.80	0.75	0.05
			2.00			Ice	1.97	0.87	0.07
						1" Ice	2.33	1.13	0.11
						2" Ice			
RADIO 4415 B30	C	From Leg	4.00	0.0000	140.00	No Ice	1.64	0.64	0.04
			0.00			1/2"	1.80	0.75	0.05
			2.00			Ice	1.97	0.87	0.07
						1" Ice	2.33	1.13	0.11
						2" Ice			
RRUS 4449 B5/B12	A	From Leg	4.00	0.0000	140.00	No Ice	1.97	1.41	0.07
			0.00			1/2"	2.14	1.56	0.09
			2.00			Ice	2.33	1.73	0.11
						1" Ice	2.72	2.07	0.16
						2" Ice			
RRUS 4449 B5/B12	B	From Leg	4.00	0.0000	140.00	No Ice	1.97	1.41	0.07
			0.00			1/2"	2.14	1.56	0.09
			2.00			Ice	2.33	1.73	0.11
						1" Ice	2.72	2.07	0.16
						2" Ice			
RRUS 4449 B5/B12	C	From Leg	4.00	0.0000	140.00	No Ice	1.97	1.41	0.07
			0.00			1/2"	2.14	1.56	0.09
			2.00			Ice	2.33	1.73	0.11
						1" Ice	2.72	2.07	0.16
						2" Ice			
RRUS 4478 B14	A	From Leg	4.00	0.0000	140.00	No Ice	1.84	1.06	0.06
			0.00			1/2"	2.01	1.20	0.08
			2.00			Ice	2.19	1.34	0.09
						1" Ice	2.57	1.66	0.14
						2" Ice			
RRUS 4478 B14	B	From Leg	4.00	0.0000	140.00	No Ice	1.84	1.06	0.06
			0.00			1/2"	2.01	1.20	0.08
			2.00			Ice	2.19	1.34	0.09
						1" Ice	2.57	1.66	0.14
						2" Ice			
RRUS 4478 B14	C	From Leg	4.00	0.0000	140.00	No Ice	1.84	1.06	0.06
			0.00			1/2"	2.01	1.20	0.08
			2.00			Ice	2.19	1.34	0.09
						1" Ice	2.57	1.66	0.14
						2" Ice			
RRUS 8843 B2/B66A	A	From Leg	4.00	0.0000	140.00	No Ice	1.64	1.35	0.07
			0.00			1/2"	1.80	1.50	0.09
			2.00			Ice	1.97	1.65	0.11
						1" Ice	2.32	1.99	0.16
						2" Ice			
RRUS 8843 B2/B66A	B	From Leg	4.00	0.0000	140.00	No Ice	1.64	1.35	0.07
			0.00			1/2"	1.80	1.50	0.09
			2.00			Ice	1.97	1.65	0.11
						1" Ice	2.32	1.99	0.16
						2" Ice			
RRUS 8843 B2/B66A	C	From Leg	4.00	0.0000	140.00	No Ice	1.64	1.35	0.07
			0.00			1/2"	1.80	1.50	0.09
			2.00			Ice	1.97	1.65	0.11
						1" Ice	2.32	1.99	0.16
						2" Ice			
(2) LGP21401	A	From Leg	4.00	0.0000	140.00	No Ice	1.10	0.21	0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2"	1.24	0.27	0.02
			2.00			Ice	1.38	0.35	0.03
						1" Ice	1.69	0.52	0.05
						2" Ice			
(2) LGP21401	B	From Leg	4.00	0.0000	140.00	No Ice	1.10	0.21	0.01
			0.00			1/2"	1.24	0.27	0.02
			2.00			Ice	1.38	0.35	0.03
						1" Ice	1.69	0.52	0.05
						2" Ice			
(2) LGP21401	C	From Leg	4.00	0.0000	140.00	No Ice	1.10	0.21	0.01
			0.00			1/2"	1.24	0.27	0.02
			2.00			Ice	1.38	0.35	0.03
						1" Ice	1.69	0.52	0.05
						2" Ice			
DC6-48-60-18-8F	A	From Leg	4.00	0.0000	140.00	No Ice	1.21	1.21	0.02
			0.00			1/2"	1.89	1.89	0.04
			2.00			Ice	2.11	2.11	0.07
						1" Ice	2.57	2.57	0.13
						2" Ice			
DC6-48-60-18-8F	B	From Leg	4.00	0.0000	140.00	No Ice	1.21	1.21	0.02
			0.00			1/2"	1.89	1.89	0.04
			2.00			Ice	2.11	2.11	0.07
						1" Ice	2.57	2.57	0.13
						2" Ice			
DC6-48-60-18-8F	C	From Leg	4.00	0.0000	140.00	No Ice	1.21	1.21	0.02
			0.00			1/2"	1.89	1.89	0.04
			2.00			Ice	2.11	2.11	0.07
						1" Ice	2.57	2.57	0.13
						2" Ice			
(2) 6' x 2" Mount Pipe	A	From Leg	4.00	0.0000	140.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
(2) 6' x 2" Mount Pipe	B	From Leg	4.00	0.0000	140.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
(2) 6' x 2" Mount Pipe	C	From Leg	4.00	0.0000	140.00	No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
			0.00			Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice			
Platform Mount [LP 303-1_HR-1]	C	None		0.0000	140.00	No Ice	17.09	17.09	1.50
						1/2"	21.47	21.47	1.88
						Ice	25.72	25.72	2.35
						1" Ice	33.96	33.96	3.52
						2" Ice			
130									
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00	0.0000	130.00	No Ice	8.01	4.23	0.11
			0.00			1/2"	8.52	4.69	0.19
			0.00			Ice	9.04	5.16	0.29
						1" Ice	10.11	6.12	0.52
						2" Ice			
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00	0.0000	130.00	No Ice	8.01	4.23	0.11
			0.00			1/2"	8.52	4.69	0.19
			0.00			Ice	9.04	5.16	0.29
						1" Ice	10.11	6.12	0.52
						2" Ice			
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00	0.0000	130.00	No Ice	8.01	4.23	0.11
			0.00			1/2"	8.52	4.69	0.19
			0.00			Ice	9.04	5.16	0.29
						1" Ice	10.11	6.12	0.52
						2" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
TA08025-B604	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B604	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B604	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B605	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
TA08025-B605	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
TA08025-B605	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
RDIDC-9181-PF-48	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.31 2.50 2.70 3.12	1.29 1.45 1.61 1.96	0.02 0.04 0.06 0.12
(2) 8' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
(2) 8' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
(2) 8' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
Commscope MC-PK8-DSH	C	None		0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	34.24 62.95 91.66 149.08	34.24 62.95 91.66 149.08	1.75 2.10 2.45 3.15
115									
APXV18-206517S-C w/ Mount Pipe	A	From Leg	0.50 0.00 0.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.79 4.38 4.99 6.25	3.16 3.75 4.35 5.59	0.05 0.09 0.15 0.28
APXV18-206517S-C w/ Mount Pipe	B	From Leg	0.50 0.00 0.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice	3.79 4.38 4.99 6.25	3.16 3.75 4.35 5.59	0.05 0.09 0.15 0.28

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment ° t	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
APXV18-206517S-C w/ Mount Pipe	C	From Leg	0.50 0.00 0.00	0.0000	115.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.79 4.38 4.99 6.25	3.16 3.75 4.35 5.59	0.05 0.09 0.15 0.28
50									
Side Arm Mount [SO 701-1]	A	From Face	0.50 0.00 0.00	0.0000	50.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.85 1.14 1.43 2.01	1.67 2.34 3.01 4.35	0.07 0.08 0.09 0.12
GPS-TMG-HR-26NCM	A	From Face	3.00 0.00 0.00	0.0000	50.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.13 0.18 0.24 0.37	0.13 0.18 0.24 0.37	0.00 0.00 0.01 0.01
*****									
***									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
VHLP2.6	A	Paraboloid w/Shroud (HP)	From Leg	4.00 0.00 3.00	0.0000		172.00	2.92	No Ice 1/2" Ice 1" Ice 2" Ice	6.68 7.07 7.46 8.23	0.05 0.08 0.12 0.19
VHLP2.6	B	Paraboloid w/Shroud (HP)	From Leg	4.00 0.00 3.00	0.0000		172.00	2.92	No Ice 1/2" Ice 1" Ice 2" Ice	6.68 7.07 7.46 8.23	0.05 0.08 0.12 0.19
***											

Load Combinations

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

Comb. No.	Description
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	175 - 164.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-12.57	-0.69	1.91
			Max. Mx	8	-5.08	-29.54	0.40
			Max. My	2	-5.07	0.95	30.77
			Max. Vy	20	-6.20	29.17	2.04
			Max. Vx	14	6.29	-1.35	-29.23
			Max. Torque	21			-1.03
L2	164.25 - 129.67	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.65	0.26	-0.07
			Max. Mx	20	-22.03	476.45	5.07
			Max. My	14	-22.02	-4.70	-480.08
			Max. Vy	20	-20.51	476.45	5.07
			Max. Vx	14	20.59	-4.70	-480.08
			Max. Torque	3			1.04
L3	129.67 - 96	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.47	0.23	0.10
			Max. Mx	20	-33.58	1282.01	8.21
			Max. My	14	-33.57	-6.63	-1289.03
			Max. Vy	20	-26.39	1282.01	8.21
			Max. Vx	14	26.50	-6.63	-1289.03
			Max. Torque	3			1.04
L4	96 - 63.17	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.87	0.18	-0.87
			Max. Mx	20	-43.61	2169.63	10.96
			Max. My	14	-43.60	-8.50	-2180.34

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-29.01	2169.63	10.96
			Max. Vx	14	29.12	-8.50	-2180.34
			Max. Torque	3			1.04
L5	63.17 - 31.17	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-94.95	0.41	-1.97
			Max. Mx	20	-55.03	3114.45	13.47
			Max. My	14	-55.03	-9.96	-3128.61
			Max. Vy	20	-31.32	3114.45	13.47
			Max. Vx	14	31.44	-9.96	-3128.61
			Max. Torque	3			1.17
L6	31.17 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-114.41	0.33	-3.77
			Max. Mx	20	-70.21	4330.35	15.92
			Max. My	14	-70.21	-11.60	-4349.16
			Max. Vy	20	-33.58	4330.35	15.92
			Max. Vx	14	33.69	-11.60	-4349.16
			Max. Torque	3			1.17

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	33	114.41	-0.00	-9.71
	Max. H_x	20	70.23	33.55	0.07
	Max. H_z	2	70.23	0.11	33.60
	Max. M_x	2	4337.40	0.11	33.60
	Max. M_z	8	4318.78	-33.48	0.01
	Max. Torsion	3	1.17	0.11	33.60
	Min. Vert	11	52.67	-28.93	-16.89
	Min. H_x	8	70.23	-33.48	0.01
	Min. H_z	15	52.67	-0.04	-33.66
	Min. M_x	14	-4349.16	-0.04	-33.66
	Min. M_z	20	-4330.35	33.55	0.07
	Min. Torsion	19	-1.06	29.04	-16.83

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	58.52	0.00	0.00	0.74	-0.52	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	70.23	-0.11	-33.60	-4337.40	22.59	-1.16
0.9 Dead+1.0 Wind 0 deg - No Ice	52.67	-0.11	-33.60	-4269.67	22.33	-1.17
1.2 Dead+1.0 Wind 30 deg - No Ice	70.23	16.75	-29.10	-3754.82	-2158.46	-0.92
0.9 Dead+1.0 Wind 30 deg - No Ice	52.67	16.75	-29.10	-3696.23	-2124.50	-0.93
1.2 Dead+1.0 Wind 60 deg - No Ice	70.23	29.01	-16.82	-2167.96	-3741.90	-1.05
0.9 Dead+1.0 Wind 60 deg - No Ice	52.67	29.01	-16.82	-2134.25	-3683.12	-1.06
1.2 Dead+1.0 Wind 90 deg - No Ice	70.23	33.48	-0.01	2.43	-4318.78	-0.90
0.9 Dead+1.0 Wind 90 deg - No Ice	52.67	33.48	-0.01	2.13	-4250.97	-0.90
1.2 Dead+1.0 Wind 120 deg - No Ice	70.23	28.93	16.89	2190.32	-3730.71	0.11

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
0.9 Dead+1.0 Wind 120 deg - No Ice	52.67	28.93	16.89	2155.69	-3672.11	0.11
1.2 Dead+1.0 Wind 150 deg - No Ice	70.23	16.73	29.14	3767.60	-2161.86	0.74
0.9 Dead+1.0 Wind 150 deg - No Ice	52.67	16.73	29.14	3708.29	-2127.79	0.74
1.2 Dead+1.0 Wind 180 deg - No Ice	70.23	0.04	33.66	4349.16	-11.60	0.97
0.9 Dead+1.0 Wind 180 deg - No Ice	52.67	0.04	33.66	4280.73	-11.17	0.98
1.2 Dead+1.0 Wind 210 deg - No Ice	70.23	-16.71	29.20	3775.65	2150.18	0.91
0.9 Dead+1.0 Wind 210 deg - No Ice	52.67	-16.71	29.20	3716.22	2116.74	0.92
1.2 Dead+1.0 Wind 240 deg - No Ice	70.23	-29.04	16.83	2172.80	3745.55	1.05
0.9 Dead+1.0 Wind 240 deg - No Ice	52.67	-29.04	16.83	2138.54	3687.07	1.06
1.2 Dead+1.0 Wind 270 deg - No Ice	70.23	-33.55	-0.07	-15.92	4330.35	0.91
0.9 Dead+1.0 Wind 270 deg - No Ice	52.67	-33.55	-0.07	-15.83	4262.68	0.91
1.2 Dead+1.0 Wind 300 deg - No Ice	70.23	-29.01	-16.86	-2182.61	3744.08	0.08
0.9 Dead+1.0 Wind 300 deg - No Ice	52.67	-29.01	-16.86	-2148.57	3685.60	0.08
1.2 Dead+1.0 Wind 330 deg - No Ice	70.23	-16.77	-29.12	-3761.74	2167.33	-0.74
0.9 Dead+1.0 Wind 330 deg - No Ice	52.67	-16.77	-29.12	-3703.00	2133.52	-0.74
1.2 Dead+1.0 Ice+1.0 Temp	114.41	0.00	0.00	3.77	0.33	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	114.41	-0.01	-9.70	-1298.23	4.33	-0.44
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	114.41	4.84	-8.40	-1124.03	-649.45	-0.37
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	114.41	8.38	-4.86	-648.03	-1124.83	-0.33
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	114.41	9.67	-0.01	3.22	-1297.82	-0.20
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	114.41	8.36	4.86	658.62	-1121.22	0.11
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	114.41	4.83	8.40	1133.39	-648.18	0.32
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	114.41	0.00	9.71	1308.52	-0.85	0.41
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	114.41	-4.84	8.42	1136.32	648.70	0.37
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	114.41	-8.39	4.86	656.79	1126.70	0.33
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	114.41	-9.69	-0.01	1.52	1301.43	0.20
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	114.41	-8.38	-4.86	-649.23	1125.22	-0.07
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	114.41	-4.84	-8.40	-1124.40	650.45	-0.32
Dead+Wind 0 deg - Service	58.52	-0.03	-7.92	-1011.85	4.85	-0.28
Dead+Wind 30 deg - Service	58.52	3.95	-6.86	-875.86	-504.23	-0.22
Dead+Wind 60 deg - Service	58.52	6.83	-3.96	-505.48	-873.83	-0.25
Dead+Wind 90 deg - Service	58.52	7.89	-0.00	1.12	-1008.47	-0.21
Dead+Wind 120 deg - Service	58.52	6.82	3.98	511.79	-871.21	0.03
Dead+Wind 150 deg - Service	58.52	3.94	6.87	879.96	-505.02	0.18
Dead+Wind 180 deg - Service	58.52	0.01	7.93	1015.71	-3.11	0.23
Dead+Wind 210 deg - Service	58.52	-3.94	6.88	881.85	501.49	0.22
Dead+Wind 240 deg - Service	58.52	-6.84	3.97	507.71	873.85	0.25

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+Wind 270 deg - Service	58.52	-7.90	-0.02	-3.15	1010.34	0.22
Dead+Wind 300 deg - Service	58.52	-6.83	-3.97	-508.88	873.50	0.02
Dead+Wind 330 deg - Service	58.52	-3.95	-6.86	-877.49	505.48	-0.18

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-58.52	0.00	0.00	58.52	0.00	0.000%
2	-0.11	-70.23	-33.60	0.11	70.23	33.60	0.000%
3	-0.11	-52.67	-33.60	0.11	52.67	33.60	0.000%
4	16.75	-70.23	-29.10	-16.75	70.23	29.10	0.000%
5	16.75	-52.67	-29.10	-16.75	52.67	29.10	0.000%
6	29.01	-70.23	-16.82	-29.01	70.23	16.82	0.000%
7	29.01	-52.67	-16.82	-29.01	52.67	16.82	0.000%
8	33.48	-70.23	-0.01	-33.48	70.23	0.01	0.000%
9	33.48	-52.67	-0.01	-33.48	52.67	0.01	0.000%
10	28.93	-70.23	16.89	-28.93	70.23	-16.89	0.000%
11	28.93	-52.67	16.89	-28.93	52.67	-16.89	0.000%
12	16.73	-70.23	29.14	-16.73	70.23	-29.14	0.000%
13	16.73	-52.67	29.14	-16.73	52.67	-29.14	0.000%
14	0.04	-70.23	33.66	-0.04	70.23	-33.66	0.000%
15	0.04	-52.67	33.66	-0.04	52.67	-33.66	0.000%
16	-16.71	-70.23	29.20	16.71	70.23	-29.20	0.000%
17	-16.71	-52.67	29.20	16.71	52.67	-29.20	0.000%
18	-29.04	-70.23	16.83	29.04	70.23	-16.83	0.000%
19	-29.04	-52.67	16.83	29.04	52.67	-16.83	0.000%
20	-33.55	-70.23	-0.07	33.55	70.23	0.07	0.000%
21	-33.55	-52.67	-0.07	33.55	52.67	0.07	0.000%
22	-29.01	-70.23	-16.86	29.01	70.23	16.86	0.000%
23	-29.01	-52.67	-16.86	29.01	52.67	16.86	0.000%
24	-16.77	-70.23	-29.12	16.77	70.23	29.12	0.000%
25	-16.77	-52.67	-29.12	16.77	52.67	29.12	0.000%
26	0.00	-114.41	0.00	0.00	114.41	0.00	0.000%
27	-0.01	-114.41	-9.70	0.01	114.41	9.70	0.000%
28	4.84	-114.41	-8.40	-4.84	114.41	8.40	0.000%
29	8.38	-114.41	-4.86	-8.38	114.41	4.86	0.000%
30	9.67	-114.41	-0.01	-9.67	114.41	0.01	0.000%
31	8.36	-114.41	4.86	-8.36	114.41	-4.86	0.000%
32	4.83	-114.41	8.40	-4.83	114.41	-8.40	0.000%
33	0.00	-114.41	9.71	-0.00	114.41	-9.71	0.000%
34	-4.84	-114.41	8.42	4.84	114.41	-8.42	0.000%
35	-8.39	-114.41	4.86	8.39	114.41	-4.86	0.000%
36	-9.69	-114.41	-0.01	9.69	114.41	0.01	0.000%
37	-8.38	-114.41	-4.86	8.38	114.41	4.86	0.000%
38	-4.84	-114.41	-8.40	4.84	114.41	8.40	0.000%
39	-0.03	-58.52	-7.92	0.03	58.52	7.92	0.000%
40	3.95	-58.52	-6.86	-3.95	58.52	6.86	0.000%
41	6.83	-58.52	-3.96	-6.83	58.52	3.96	0.000%
42	7.89	-58.52	-0.00	-7.89	58.52	0.00	0.000%
43	6.82	-58.52	3.98	-6.82	58.52	-3.98	0.000%
44	3.94	-58.52	6.87	-3.94	58.52	-6.87	0.000%
45	0.01	-58.52	7.93	-0.01	58.52	-7.93	0.000%
46	-3.94	-58.52	6.88	3.94	58.52	-6.88	0.000%
47	-6.84	-58.52	3.97	6.84	58.52	-3.97	0.000%
48	-7.90	-58.52	-0.02	7.90	58.52	0.02	0.000%
49	-6.83	-58.52	-3.97	6.83	58.52	3.97	0.000%
50	-3.95	-58.52	-6.86	3.95	58.52	6.86	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00019676
3	Yes	5	0.00000001	0.00009573
4	Yes	6	0.00000001	0.00033184
5	Yes	6	0.00000001	0.00011611
6	Yes	6	0.00000001	0.00033913
7	Yes	6	0.00000001	0.00011897
8	Yes	5	0.00000001	0.00011773
9	Yes	5	0.00000001	0.00005461
10	Yes	6	0.00000001	0.00033854
11	Yes	6	0.00000001	0.00011849
12	Yes	6	0.00000001	0.00033554
13	Yes	6	0.00000001	0.00011728
14	Yes	5	0.00000001	0.00009374
15	Yes	4	0.00000001	0.00086296
16	Yes	6	0.00000001	0.00033968
17	Yes	6	0.00000001	0.00011907
18	Yes	6	0.00000001	0.00033218
19	Yes	6	0.00000001	0.00011619
20	Yes	5	0.00000001	0.00016860
21	Yes	5	0.00000001	0.00008110
22	Yes	6	0.00000001	0.00033905
23	Yes	6	0.00000001	0.00011870
24	Yes	6	0.00000001	0.00034115
25	Yes	6	0.00000001	0.00011951
26	Yes	4	0.00000001	0.00000001
27	Yes	6	0.00000001	0.00024851
28	Yes	6	0.00000001	0.00031748
29	Yes	6	0.00000001	0.00031936
30	Yes	6	0.00000001	0.00024779
31	Yes	6	0.00000001	0.00032002
32	Yes	6	0.00000001	0.00031898
33	Yes	6	0.00000001	0.00024975
34	Yes	6	0.00000001	0.00032175
35	Yes	6	0.00000001	0.00031938
36	Yes	6	0.00000001	0.00024861
37	Yes	6	0.00000001	0.00031895
38	Yes	6	0.00000001	0.00032037
39	Yes	4	0.00000001	0.00023819
40	Yes	4	0.00000001	0.00095475
41	Yes	5	0.00000001	0.00006590
42	Yes	4	0.00000001	0.00022876
43	Yes	4	0.00000001	0.00099548
44	Yes	4	0.00000001	0.00097065
45	Yes	4	0.00000001	0.00022703
46	Yes	5	0.00000001	0.00006560
47	Yes	4	0.00000001	0.00095096
48	Yes	4	0.00000001	0.00023292
49	Yes	4	0.00000001	0.00099214
50	Yes	5	0.00000001	0.00006565

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	175 - 164.25	25.258	45	1.2091	0.0017
L2	167.17 - 129.67	23.279	45	1.2058	0.0013
L3	133.5 - 96	15.145	45	1.0650	0.0008
L4	100.67 - 63.17	8.593	45	0.8179	0.0004
L5	68.67 - 31.17	3.967	45	0.5445	0.0002
L6	37.42 - 0	1.189	45	0.2869	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
175.00	VHLP2.6	45	25.258	1.2091	0.0018	63660
172.00	OA20-67-DIN	45	24.499	1.2086	0.0016	63660
168.00	LS-230C	45	23.488	1.2066	0.0014	45875
162.00	APXVTM14-C-120 w/ Mount Pipe	45	21.979	1.1973	0.0012	26076
152.00	(2) LPA-80080/4CF w/ Mount Pipe	45	19.502	1.1651	0.0012	15421
140.00	HPA65R-BU6A w/ Mount Pipe	45	16.633	1.1049	0.0010	10217
130.00	MX08FRO665-21 w/ Mount Pipe	45	14.368	1.0419	0.0008	8368
115.00	APXV18-206517S-C w/ Mount Pipe	45	11.241	0.9331	0.0006	7441
50.00	Side Arm Mount [SO 701-1]	45	2.084	0.3884	0.0002	6202

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	175 - 164.25	108.356	14	5.1933	0.0066
L2	167.17 - 129.67	99.857	14	5.1784	0.0052
L3	133.5 - 96	64.965	14	4.5735	0.0033
L4	100.67 - 63.17	36.853	14	3.5111	0.0018
L5	68.67 - 31.17	17.009	14	2.3362	0.0010
L6	37.42 - 0	5.095	14	1.2300	0.0004

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
175.00	VHLP2.6	14	108.356	5.1933	0.0079	15953
172.00	OA20-67-DIN	14	105.096	5.1909	0.0072	15953
168.00	LS-230C	14	100.756	5.1818	0.0063	11447
162.00	APXVTM14-C-120 w/ Mount Pipe	14	94.279	5.1417	0.0052	6334
152.00	(2) LPA-80080/4CF w/ Mount Pipe	14	83.650	5.0039	0.0047	3659
140.00	HPA65R-BU6A w/ Mount Pipe	14	71.345	4.7451	0.0039	2418
130.00	MX08FRO665-21 w/ Mount Pipe	14	61.630	4.4743	0.0031	1979
115.00	APXV18-206517S-C w/ Mount Pipe	14	48.217	4.0065	0.0024	1750
50.00	Side Arm Mount [SO 701-1]	14	8.931	1.6655	0.0007	1447

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	175 - 164.25 (1)	TP26x22x0.25	10.75	0.00	0.0	19.5705	-5.06	1144.87	0.004
L2	164.25 - 129.67 (2)	TP34.0625x24.4135x0.3125	37.50	0.00	0.0	32.4983	-22.02	1901.15	0.012
L3	129.67 - 96 (3)	TP41.75x32.452x0.375	37.50	0.00	0.0	47.8684	-33.57	2800.30	0.012
L4	96 - 63.17 (4)	TP49.0625x39.8421x0.375	37.50	0.00	0.0	56.3407	-43.60	3295.93	0.013
L5	63.17 - 31.17 (5)	TP56.125x46.9602x0.375	37.50	0.00	0.0	64.5384	-55.03	3775.49	0.015
L6	31.17 - 0 (6)	TP62.9375x53.8475x0.375	37.42	0.00	0.0	74.4650	-70.21	4356.20	0.016

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	175 - 164.25 (1)	TP26x22x0.25	31.00	729.12	0.043	0.00	729.12	0.000
L2	164.25 - 129.67 (2)	TP34.0625x24.4135x0.3125	480.64	1584.18	0.303	0.00	1584.18	0.000
L3	129.67 - 96 (3)	TP41.75x32.452x0.375	1289.05	2847.12	0.453	0.00	2847.12	0.000
L4	96 - 63.17 (4)	TP49.0625x39.8421x0.375	2180.36	3755.71	0.581	0.00	3755.71	0.000
L5	63.17 - 31.17 (5)	TP56.125x46.9602x0.375	3128.63	4686.62	0.668	0.00	4686.62	0.000
L6	31.17 - 0 (6)	TP62.9375x53.8475x0.375	4349.18	5847.24	0.744	0.00	5847.24	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	175 - 164.25 (1)	TP26x22x0.25	6.29	343.46	0.018	0.44	741.85	0.001
L2	164.25 - 129.67 (2)	TP34.0625x24.4135x0.3125	20.56	570.35	0.036	0.78	1636.53	0.000
L3	129.67 - 96 (3)	TP41.75x32.452x0.375	26.50	840.09	0.032	0.85	2958.81	0.000
L4	96 - 63.17 (4)	TP49.0625x39.8421x0.375	29.12	988.78	0.029	0.85	4098.86	0.000
L5	63.17 - 31.17 (5)	TP56.125x46.9602x0.375	31.44	1132.65	0.028	0.98	5378.43	0.000
L6	31.17 - 0 (6)	TP62.9375x53.8475x0.375	33.69	1306.86	0.026	0.97	7160.17	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	175 - 164.25	0.004	0.043	0.000	0.018	0.001	0.047	1.050	4.8.2

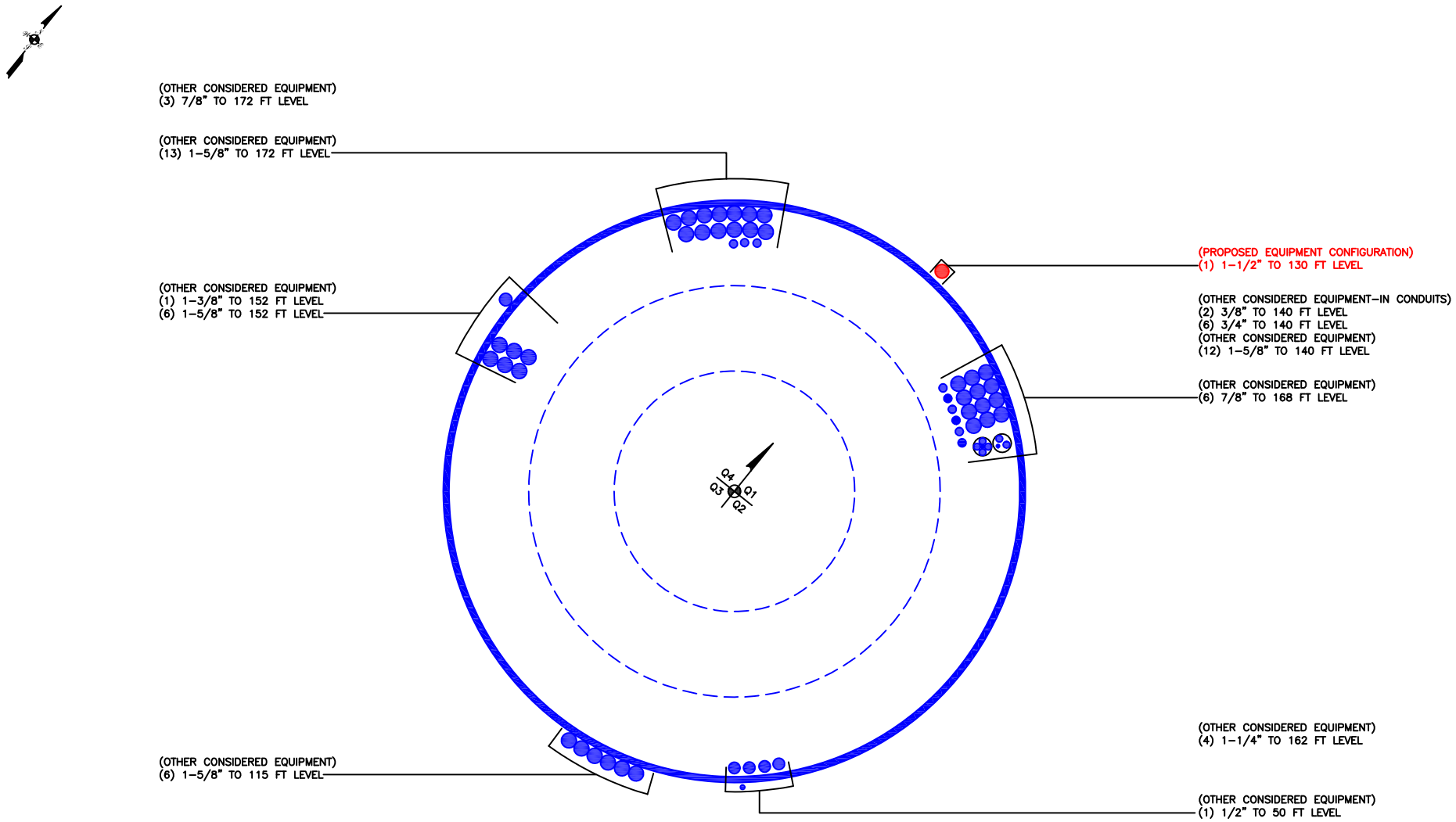
Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L2	164.25 - 129.67 (1) (2)	0.012	0.303	0.000	0.036	0.000	0.316	1.050	4.8.2
L3	129.67 - 96 (3)	0.012	0.453	0.000	0.032	0.000	0.466	1.050	4.8.2
L4	96 - 63.17 (4)	0.013	0.581	0.000	0.029	0.000	0.595	1.050	4.8.2
L5	63.17 - 31.17 (5)	0.015	0.668	0.000	0.028	0.000	0.683	1.050	4.8.2
L6	31.17 - 0 (6)	0.016	0.744	0.000	0.026	0.000	0.761	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	175 - 164.25	Pole	TP26x22x0.25	1	-5.06	1202.11	4.5	Pass
L2	164.25 - 129.67	Pole	TP34.0625x24.4135x0.3125	2	-22.02	1996.21	30.1	Pass
L3	129.67 - 96	Pole	TP41.75x32.452x0.375	3	-33.57	2940.31	44.4	Pass
L4	96 - 63.17	Pole	TP49.0625x39.8421x0.375	4	-43.60	3460.73	56.6	Pass
L5	63.17 - 31.17	Pole	TP56.125x46.9602x0.375	5	-55.03	3964.26	65.0	Pass
L6	31.17 - 0	Pole	TP62.9375x53.8475x0.375	6	-70.21	4574.01	72.4	Pass
							Summary	
						Pole (L6)	72.4	Pass
						RATING =	**72.4**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(OTHER CONSIDERED EQUIPMENT)
(3) 7/8" TO 172 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(13) 1-5/8" TO 172 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 1-3/8" TO 152 FT LEVEL
(6) 1-5/8" TO 152 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(6) 1-5/8" TO 115 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-1/2" TO 130 FT LEVEL
(OTHER CONSIDERED EQUIPMENT-IN CONDUITS)
(2) 3/8" TO 140 FT LEVEL
(6) 3/4" TO 140 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(12) 1-5/8" TO 140 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(6) 7/8" TO 168 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(4) 1-1/4" TO 162 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 50 FT LEVEL
Q1
Q2
Q3
Q4

APPENDIX C

ADDITIONAL CALCULATIONS

BU:	823530
WO:	1966382
APP:	553357 Rev. 1
TIA:	TIA-222-H

☐ Reinforced Tower

☑ Apply TIA-222-H Section 15.5

Table 1: Tower Geometry

	Height Above Ground (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	175.000	10.750	2.920	18	22.0000	26.0000	0.2500	1.0000	A572-65
2	167.170	37.500	3.830	18	24.4135	34.0625	0.3125	1.2500	A572-65
3	133.500	37.500	4.670	18	32.4520	41.7500	0.3750	1.5000	A572-65
4	100.670	37.500	5.500	18	39.8421	49.0625	0.3750	1.5000	A572-65
5	68.670	37.500	6.250	18	46.9602	56.1250	0.3750	1.5000	A572-65
6	37.420	37.420	0.000	18	53.8475	62.9375	0.3750	1.5000	A572-65

Table 2: Splice Check

(Highlighted values can be taken from the Tapered Pole Properties table of the TNX Output)

	Lap Splice Length (in)	Bottom Inner Diameter (in)	Required Splice (in)	Splice Check	Tip Diameter (in)	A (in^2)	I (in^4)	Bottom w/t	S (in^3)
1	35.040	25.500	38.250	Reduce Strength	26.363	20.433	1711.654	16.544	129.855
2	45.960	33.438	50.156	Reduce Strength	34.540	33.476	4817.434	17.424	278.950
3	56.040	41.000	61.500	Reduce Strength	42.336	49.247	10650.982	17.835	503.162
4	66.000	48.313	72.469	Reduce Strength	49.762	57.950	17355.138	21.267	697.533
5	75.000	55.375	83.063	Reduce Strength	56.933	66.356	26056.151	24.581	915.327

Table 3: Loading

(Highlighted values can be taken from the MPAUXDATA worksheet created with the TNX output)

	$\sqrt{(F_y/E)}*(w/t)$	Reduction Factor	F'_y (ksi)	ΦP_n (kip)	ΦM_n (kip-ft)	ΦV_n (kip)	P_u (kip)	M_u (kip-ft)	V_u (kip)
1	0.783	0.87	71.63	1045	698	313	10.17	31.00	14.50
2	0.825	0.87	70.75	1713	1480	514	20.72	480.64	27.43
3	0.844	0.87	69.71	2497	2631	749	33.57	1289.05	26.50
4	1.007	0.87	66.16	2936	3461	881	43.60	2180.36	29.12
5	1.164	0.85	61.93	3317	4252	995	55.03	3128.63	31.44

Results

	Ratio (%)
1	5.4%
2	32.3%
3	48.1%
4	61.5%
5	71.8%

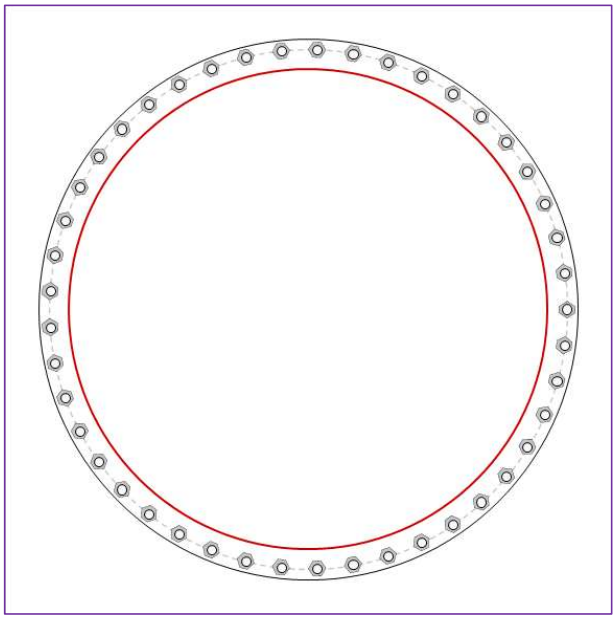
Monopole Base Plate Connection

Site Info	
BU #	823530
Site Name	364/Chapel St. Monop
Order #	553357 Rev. 1

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1.25

Applied Loads	
Moment (kip-ft)	4349.18
Axial Force (kips)	70.21
Shear Force (kips)	33.69

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(45) 1-1/4" ø bolts (A687 N; Fy=105 ksi, Fu=125 ksi) on 68" BC

Base Plate Data

71" OD x 1.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Stiffener Data

N/A

Pole Data

62.9375" x 0.375" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

Pu_t = 66.65	ϕPn_t = 90.84	**Stress Rating**
Vu = 0.75	ϕVn = 57.52	**69.9%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**Pirod OK**

Pier and Pad Foundation

BU # :	823530
Site Name:	CT364/Chapel St. M
App. Number:	553357 Rev. 1

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions

Compression, P_{comp}:	70.23	kips
Base Shear, Vu_comp:	33.66	kips
Moment, M_u:	4349.18	ft-kips
Tower Height, **H**:	175	ft
BP Dist. Above Fdn, bp_{dist}:	2.5	in

Pier Properties

Pier Shape:	Circular	
Pier Diameter, **dpier**:	7.5	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	9	
Pier Rebar Quantity, **mc**:	36	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	10	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	8	ft
Pad Width, W_1:	22.5	ft
Pad Thickness, **T**:	2.75	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	9	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	23	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	3	ksi
Dry Concrete Density, δc:	150	pcf

Soil Properties

Total Soil Unit Weight, γ:	110	pcf
Ultimate Net Bearing, Qnet:	30.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	28	degrees
SPT Blow Count, N_{blows}:	27	
Base Friction, μ:	0.45	
Neglected Depth, **N**:	3.75	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	12	ft

<--Toggle between Gross and Net

Foundation Analysis Checks

	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	279.08	33.66	**11.5%**	**Pass**
Bearing Pressure (ksf)	23.16	4.31	**18.6%**	**Pass**
*Overturning (kip*ft)*	6188.81	4642.30	**75.0%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	6247.60	4542.73	**69.2%**	**Pass**
Pier Compression (kip)	21089.12	115.95	**0.5%**	**Pass**
*Pad Flexure (kip*ft)*	2826.15	2146.94	**72.3%**	**Pass**
Pad Shear - 1-way (kips)	627.95	383.81	**58.2%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.000	**0.0%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	3889.71	2725.64	**66.7%**	**Pass**

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

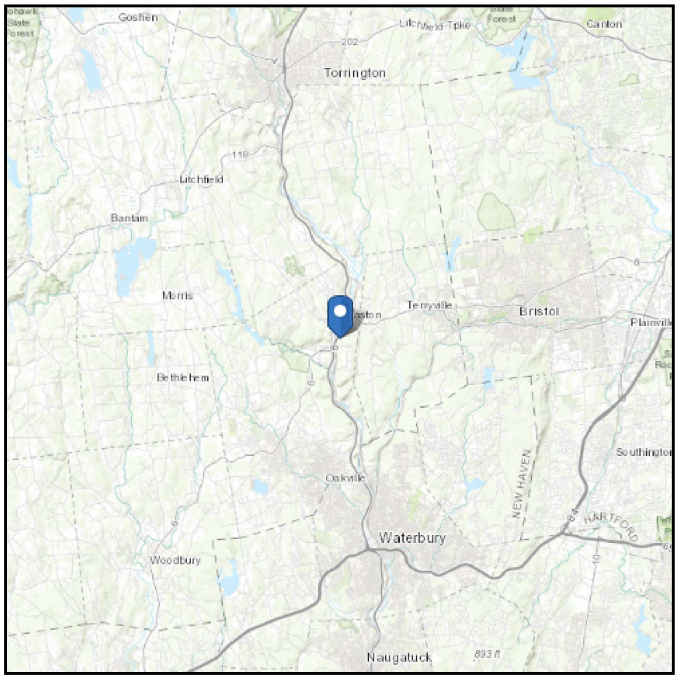
Structural Rating*:	**72.3%**
Soil Rating*:	**75.0%**

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 543 ft (NAVD 88)
Latitude: 41.663467
Longitude: -73.074281



Wind

Results:

Wind Speed:	118 Vmph
10-year MRI	76 Vmph
25-year MRI	85 Vmph
50-year MRI	91 Vmph
100-year MRI	97 Vmph

Data Accessed: Wed May 19 2021

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

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

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

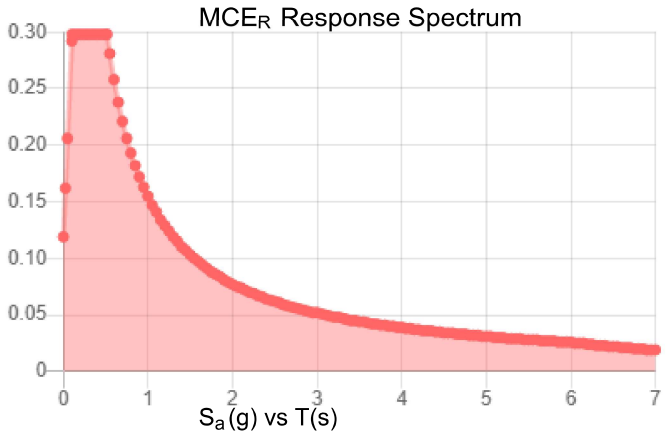
Seismic

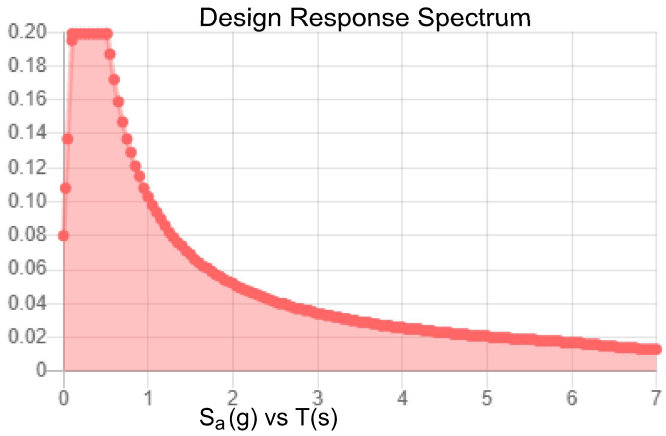
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.186	S_{DS} :	0.199
S_1 :	0.064	S_{D1} :	0.103
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.096
S_{MS} :	0.298	PGA_M :	0.153
S_{M1} :	0.155	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Wed May 19 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:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Wed May 19 2021

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

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

Exhibit E

Mount Analysis

Date: **August 10, 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:	BOHVN00013A
	Carrier Site Name:	CT-CCI-T-823530
Crown Castle Designation:	**Crown Castle BU Number:**	823530
	Crown Castle Site Name:	CT364/Chapel St. Monopole
	Crown Castle JDE Job Number:	645124
	Crown Castle Order Number:	553357 Rev. 1
Engineering Firm Designation:	**Trylon Report Designation:**	189624
Site Data:	**580 Chapel Street, Thomaston, Litchfield County, CT, 06787** **Latitude 41°39'48.48" Longitude -73°4'27.41"**	
Structure Information:	**Tower Height & Type:**	**175.0 ft Monopole**
	Mount Elevation:	**130.0 ft**
	Mount Type:	**8.0 ft Platform**

Dear Darcy Tarr,

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

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

Platform **Sufficient***

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

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

Mount analysis prepared by: Marius Balan

Respectfully Submitted by:
Jinshan Wang, P.E.

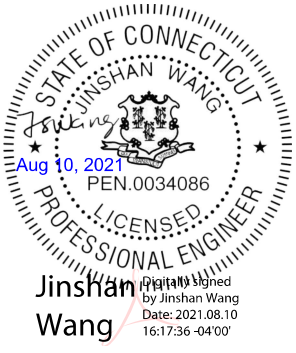


TABLE OF CONTENTS

1) INTRODUCTION

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

2) ANALYSIS CRITERIA

Building Code:	2015 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	130 mph
Exposure Category:	B
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.172
Seismic S_1:	0.063
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
130.0	130.0	3	JMA WIRELESS	MX08FRO665-21	8.0 ft Platform **[Commscope MC-PK8-C]**
		3	FUJITSU	TA08025-B604	
		3	FUJITSU	TA08025-B605	
		1	RAYCAP	RDIDC-9181-PF-48	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	Dish Network Application	553357, Rev. 1	CCI Sites
Mount Manufacturer Drawings	Commscope	MC-PK8-C	Trylon
Structural Analysis Report	Crown Castle	9807339	CCI Sites

3.1) Analysis Method

RISA-3D (Version 17.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

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

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

3.2) Assumptions

1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
4) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
5) Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
6) Steel grades have been assumed as follows, unless noted otherwise:

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

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

4) ANALYSIS RESULTS

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

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1, 2	Mount Pipe(s)	MP3	130.0	32.6	Pass
	Horizontal(s)	H1		11.0	Pass
	Standoff(s)	M2		48.2	Pass
	Bracing(s)	M1		36.0	Pass
	Plate(s)	M10		24.0	Pass
	Handrail(s)	M19		16.2	Pass
	Mount Connection(s)	-		19.5	Pass

Structure Rating (max from all components) =	48.2%

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

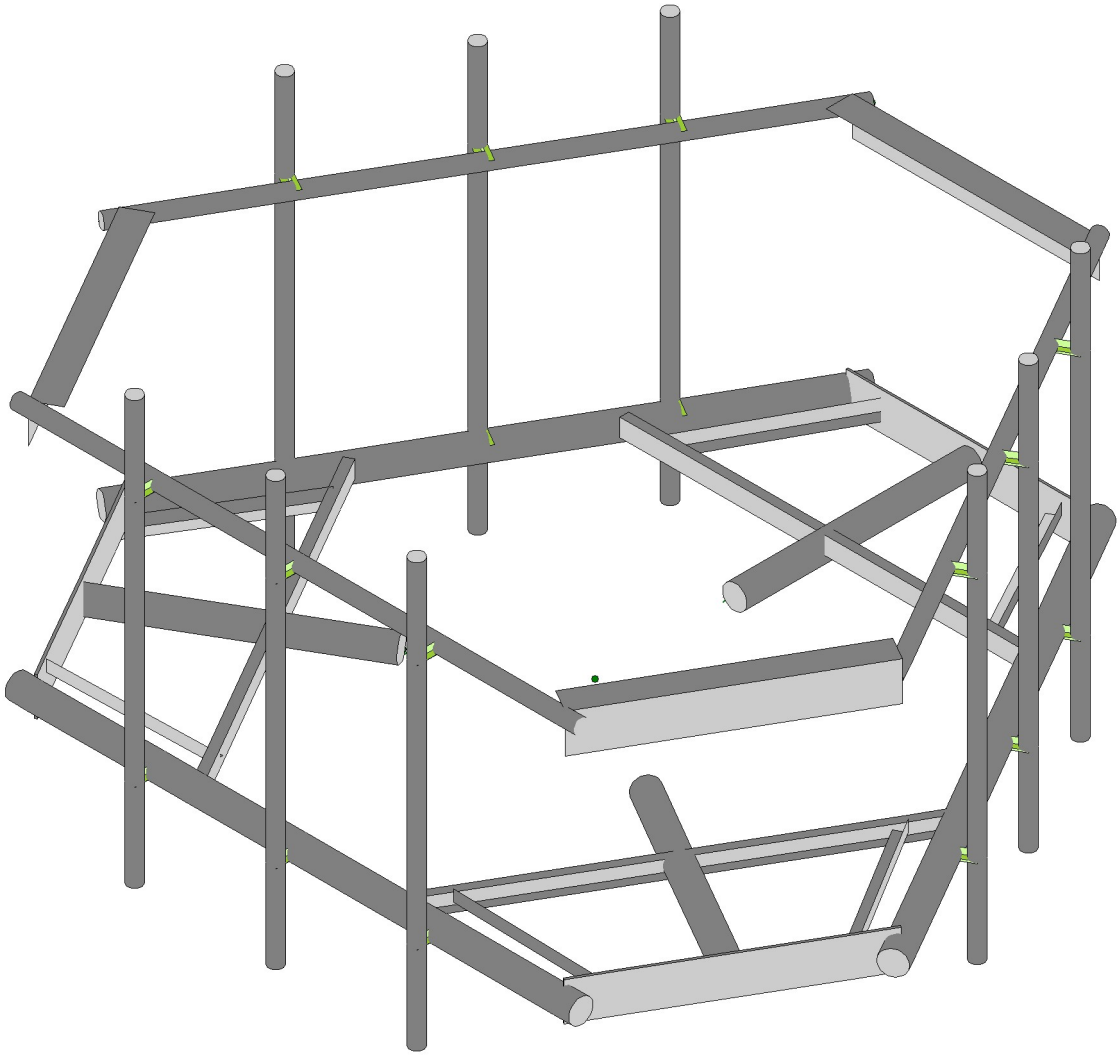
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the proposed mount listed below must be installed.

1. Commscope, part no MC-PK8-C.

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

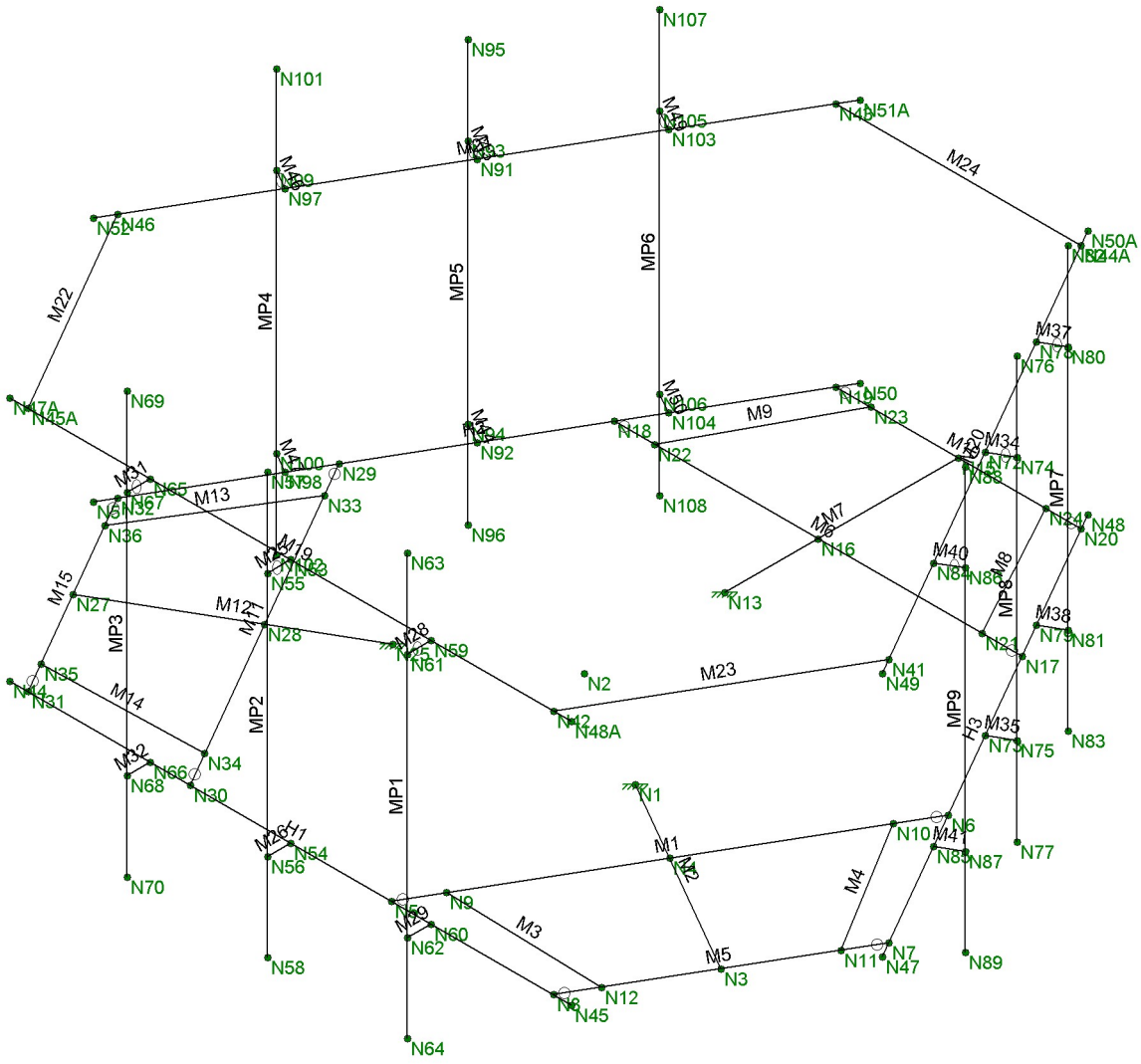
APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

Trylon	823530	SK - 1
MB		Aug 6, 2021 at 11:29 AM
189624		823530.r3d



Envelope Only Solution

Trylon	823530	SK - 2
MB		Aug 6, 2021 at 11:29 AM
189624		823530.r3d

APPENDIX B

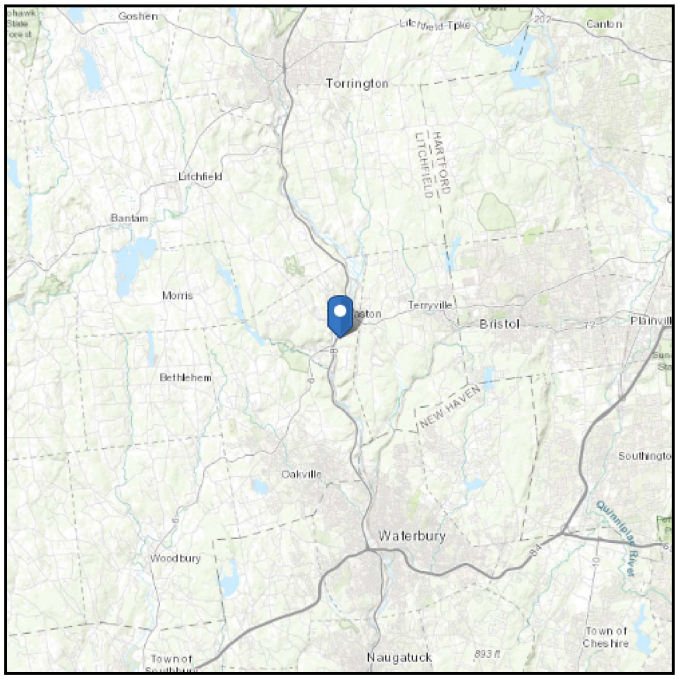
SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 543 ft (NAVD 88)
Latitude: 41.663467
Longitude: -73.074281



Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph

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

Date Accessed: Fri Aug 06 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.

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

TIA LOAD CALCULATOR 2.0

PROJECT DATA	
Job Code:	189624
Carrier Site ID:	BOHVN00013A
Carrier Site Name:	CT-CCI-T-823530

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

STRUCTURE DETAILS		
Mount Type:	Platform	--
Mount Elevation:	130.0	ft.
Number of Sectors:	3	--
Structure Type:	Monopole	--
Structure Height:	175.0	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	B	--
Site Class:	D - Stiff Soil	--
Ground Elevation:	543	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):	1.07	--
Directionality Factor (K_d):	0.95	--
Gust Effect Factor (Gh):	1.00	--
Shielding Factor (K_a):	0.90	--
Velocity Pressure (q_z):	42.93	psf
Ground Elevation Factor (K_e):	0.98	--

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}):	42.93	psf
Mount Ice Thickness (t_{iz}):	1.72	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	77.27	psf
Round Member Pressure:	46.36	psf
Ice Wind Pressure:	7.38	psf

SEISMIC PARAMETERS		
Importance Factor (I_e):	1.00	--
Short Period Accel .(S_s):	0.172	g
1 Second Accel (S_1):	0.063	g
Short Period Des. (S_{DS}):	0.18	g
1 Second Des. (S_{D1}):	0.10	g
Short Period Coeff. (F_a):	1.60	--
1 Second Coeff. (F_v):	2.40	--
Response Coefficient (Cs):	0.09	--
Amplification Factor (A_S):	1.20	--

LOAD COMBINATIONS [LRFD]

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

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

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

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

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

EQUIPMENT LOADING

Appurtenance Name/Location	Qty.	Elevation [ft]	--	EPA_N (ft2)	EPA_T (ft2)	Weight (lbs)
MX08FRO665-21	3	130	No Ice	8.01	3.21	82.50
MP1/MP4/MP7, 0/120/240	--	--	w/ Ice	9.62	4.62	282.33
TA08025-B604	3	130	No Ice	1.96	0.98	63.90
MP1/MP4/MP7, 0/120/240	--	--	w/ Ice	2.38	1.31	69.35
TA08025-B605	3	130	No Ice	1.96	1.13	75.00
MP1/MP4/MP7, 0/120/240	--	--	w/ Ice	2.38	1.47	73.88
RDIDC-9181-PF-48	1	130	No Ice	2.01	1.17	21.85
MP1/MP/MP, 0/120/240	--	--	w/ Ice	2.44	1.52	72.81
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
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			No Ice			
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			No Ice			
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			No Ice			
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			No Ice			
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			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			

EQUIPMENT LOADING [CONT.]

Appurtenance Name/Location	Qty.	Elevation [ft]	--	EPA_N (ft2)	EPA_T (ft2)	Weight (lbs)
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			

EQUIPMENT WIND CALCULATIONS

Appurtenance Name	Qty.	Elevation [ft]	K_{zt}	K_z	K_d	t_d	q_z [psf]	q_{zi} [psf]
MX08FRO665-21	3	130	1.00	1.07	0.95	1.72	42.93	6.35
TA08025-B604	3	130	1.00	1.07	0.95	1.72	42.93	6.35
TA08025-B605	3	130	1.00	1.07	0.95	1.72	42.93	6.35
RDIDC-9181-PF-48	1	130	1.00	1.07	0.95	1.72	42.93	6.35

EQUIPMENT LATERAL WIND FORCE CALCULATIONS

Appurtenance Name	Qty.	--	0° 180°	30° 210°	60° 240°	90° 270°	120° 300°	150° 330°
MX08FRO665-21	3	No Ice	309.46	170.38	263.10	124.02	263.10	170.38
MP1/MP4/MP7, 0/120/240	--	w/ Ice	54.99	33.56	47.84	26.42	47.84	33.56
TA08025-B604	3	No Ice	75.86	47.39	66.37	37.90	66.37	47.39
MP1/MP4/MP7, 0/120/240	--	w/ Ice	13.63	9.02	12.09	7.48	12.09	9.02
TA08025-B605	3	No Ice	75.86	51.69	67.80	43.64	67.80	51.69
MP1/MP4/MP7, 0/120/240	--	w/ Ice	13.63	9.71	12.32	8.41	12.32	9.71
RDIDC-9181-PF-48	1	No Ice	77.73	53.28	69.58	45.13	69.58	53.28
MP1/MP/MP, 0/120/240	--	w/ Ice	13.94	10.02	12.63	8.71	12.63	10.02
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
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		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						

EQUIPMENT LATERAL WIND FORCE CALCULATIONS [CONT.]

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

EQUIPMENT SEISMIC FORCE CALCULATIONS

Appurtenance Name	*Qty.*	*Elevation [ft]*	*Weight [lbs]*	F_p [lbs]
MX08FRO665-21	3	130	82.5	9.08
TA08025-B604	3	130	63.9	7.03
TA08025-B605	3	130	75	8.26
RDIDC-9181-PF-48	1	130	21.85	2.41

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Z
Global Member Orientation Plane	XY
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	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 7-16
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/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
3	A572 Gr.50	29000	11154	.3	.65	.49	50000	1.1	65000	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42000	1.4	58000	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46000	1.4	58000	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35000	1.6	60000	1.2
7	A1085	29000	11154	.3	.65	.49	50000	1.4	65000	1.3

Cold Formed Steel Properties

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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	6.5"x0.37" Plate	6.5"x0.37" Plate	Beam	RECT	A36 Gr.36	Typical	2.405	.027	8.468	.106
2	L2x2x3	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	.722	.271	.271	.009
3	PIPE 3.5	PIPE 3.5	Beam	Pipe	A53 Gr.B	Typical	2.5	4.52	4.52	9.04
4	C3X5	C3X5	Beam	Channel	A36 Gr.36	Typical	1.47	.241	1.85	.043
5	PIPE 2.0	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
6	L6.6"X4.46"X0.25"	L6.6"X4.46"X0.25"	Beam	Single Angle	A36 Gr.36	Typical	2.703	4.759	12.473	.055

Cold Formed Steel Section Sets

	Label	Shape	Type	Design Li...	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	CF1A	8CU1.25X057	Beam	None	A653 S S Gr33	Typical	.581	.057	4.41	.00063

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N25	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N13	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
1	Self Weight	DL			-1		20		3	
2	Structure Wind X	WLX						33		
3	Structure Wind Y	WLY						33		
4	Wind Load 0 AZI	WLX					20			
5	Wind Load 30 AZI	None					40			
6	Wind Load 45 AZI	None					40			
7	Wind Load 60 AZI	None					40			
8	Wind Load 90 AZI	WLY					20			
9	Wind Load 120 AZI	None					40			
10	Wind Load 135 AZI	None					40			
11	Wind Load 150 AZI	None					40			
12	Ice Weight	OL1					20	33	3	
13	Structure Ice Wind X	OL2						33		
14	Structure Ice Wind Y	OL3						33		
15	Ice Wind Load 0 AZI	OL2					20			
16	Ice Wind Load 30 AZI	None					40			
17	Ice Wind Load 45 AZI	None					40			
18	Ice Wind Load 60 AZI	None					40			
19	Ice Wind Load 90 AZI	OL3					20			
20	Ice Wind Load 120 AZI	None					40			
21	Ice Wind Load 135 AZI	None					40			
22	Ice Wind Load 150 AZI	None					40			
23	Seismic Load X	ELX	-.11				20			
24	Seismic Load Y	ELY		-.11			20			
25	Live Load 1 (Lv)	LL				1				
26	Live Load 2 (Lv)	LL				1				
27	Live Load 3 (Lv)	LL				1				
28	Live Load 4 (Lv)	LL				1				
29	Live Load 5 (Lv)	LL				1				
30	Live Load 6 (Lv)	LL				1				
31	Maintenance Load 1 (Lm)	None				1				
32	Maintenance Load 2 (Lm)	None				1				
33	Maintenance Load 3 (Lm)	None				1				
34	Maintenance Load 4 (Lm)	None				1				
35	Maintenance Load 5 (Lm)	None				1				
36	Maintenance Load 6 (Lm)	None				1				
37	Maintenance Load 7 (Lm)	None				1				
38	Maintenance Load 8 (Lm)	None				1				

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
39	Maintenance Load 9 (Lm)	None				1				
40	BLC 1 Transient Area Loads	None						9		
41	BLC 12 Transient Area Loa...	None						9		

Load Combinations

	Description	S...	P...	S...	B...	Factor	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac...
1	1.4DL	Yes	Y		DL	1.4																						
2	1.2DL + 1WL 0 AZI	Yes	Y		DL	1.2	2	1	3		4	1																
3	1.2DL + 1WL 30 AZI	Yes	Y		DL	1.2	2	.866	3	.5	5	1																
4	1.2DL + 1WL 45 AZI	Yes	Y		DL	1.2	2	.707	3	.707	6	1																
5	1.2DL + 1WL 60 AZI	Yes	Y		DL	1.2	2	.5	3	.866	7	1																
6	1.2DL + 1WL 90 AZI	Yes	Y		DL	1.2	2		3	1	8	1																
7	1.2DL + 1WL 120 AZI	Yes	Y		DL	1.2	2	-.5	3	.866	9	1																
8	1.2DL + 1WL 135 AZI	Yes	Y		DL	1.2	2	-.707	3	.707	10	1																
9	1.2DL + 1WL 150 AZI	Yes	Y		DL	1.2	2	-.866	3	.5	11	1																
10	1.2DL + 1WL 180 AZI	Yes	Y		DL	1.2	2	-1	3		4	-1																
11	1.2DL + 1WL 210 AZI	Yes	Y		DL	1.2	2	-.866	3	-.5	5	-1																
12	1.2DL + 1WL 225 AZI	Yes	Y		DL	1.2	2	-.707	3	-.707	6	-1																
13	1.2DL + 1WL 240 AZI	Yes	Y		DL	1.2	2	-.5	3	-.866	7	-1																
14	1.2DL + 1WL 270 AZI	Yes	Y		DL	1.2	2		3	-1	8	-1																
15	1.2DL + 1WL 300 AZI	Yes	Y		DL	1.2	2	.5	3	-.866	9	-1																
16	1.2DL + 1WL 315 AZI	Yes	Y		DL	1.2	2	.707	3	-.707	10	-1																
17	1.2DL + 1WL 330 AZI	Yes	Y		DL	1.2	2	.866	3	-.5	11	-1																
18	0.9DL + 1WL 0 AZI	Yes	Y		DL	.9	2	1	3		4	1																
19	0.9DL + 1WL 30 AZI	Yes	Y		DL	.9	2	.866	3	.5	5	1																
20	0.9DL + 1WL 45 AZI	Yes	Y		DL	.9	2	.707	3	.707	6	1																
21	0.9DL + 1WL 60 AZI	Yes	Y		DL	.9	2	.5	3	.866	7	1																
22	0.9DL + 1WL 90 AZI	Yes	Y		DL	.9	2		3	1	8	1																
23	0.9DL + 1WL 120 AZI	Yes	Y		DL	.9	2	-.5	3	.866	9	1																
24	0.9DL + 1WL 135 AZI	Yes	Y		DL	.9	2	-.707	3	.707	10	1																
25	0.9DL + 1WL 150 AZI	Yes	Y		DL	.9	2	-.866	3	.5	11	1																
26	0.9DL + 1WL 180 AZI	Yes	Y		DL	.9	2	-1	3		4	-1																
27	0.9DL + 1WL 210 AZI	Yes	Y		DL	.9	2	-.866	3	-.5	5	-1																
28	0.9DL + 1WL 225 AZI	Yes	Y		DL	.9	2	-.707	3	-.707	6	-1																
29	0.9DL + 1WL 240 AZI	Yes	Y		DL	.9	2	-.5	3	-.866	7	-1																
30	0.9DL + 1WL 270 AZI	Yes	Y		DL	.9	2		3	-1	8	-1																
31	0.9DL + 1WL 300 AZI	Yes	Y		DL	.9	2	.5	3	-.866	9	-1																
32	0.9DL + 1WL 315 AZI	Yes	Y		DL	.9	2	.707	3	-.707	10	-1																
33	0.9DL + 1WL 330 AZI	Yes	Y		DL	.9	2	.866	3	-.5	11	-1																
34	1.2DL + 1DLi + 1WLi 0 A...	Yes	Y		DL	1.2	O...	1	13	1	14		15	1														
35	1.2DL + 1DLi + 1WLi 30 ...	Yes	Y		DL	1.2	O...	1	13	.866	14	.5	16	1														
36	1.2DL + 1DLi + 1WLi 45 ...	Yes	Y		DL	1.2	O...	1	13	.707	14	.707	17	1														
37	1.2DL + 1DLi + 1WLi 60 ...	Yes	Y		DL	1.2	O...	1	13	.5	14	.866	18	1														
38	1.2DL + 1DLi + 1WLi 90 ...	Yes	Y		DL	1.2	O...	1	13		14	1	19	1														
39	1.2DL + 1DLi + 1WLi 12...	Yes	Y		DL	1.2	O...	1	13	-.5	14	.866	20	1														
40	1.2DL + 1DLi + 1WLi 13...	Yes	Y		DL	1.2	O...	1	13	-.707	14	.707	21	1														
41	1.2DL + 1DLi + 1WLi 15...	Yes	Y		DL	1.2	O...	1	13	-.866	14	.5	22	1														
42	1.2DL + 1DLi + 1WLi 18...	Yes	Y		DL	1.2	O...	1	13	-1	14		15	-1														
43	1.2DL + 1DLi + 1WLi 21...	Yes	Y		DL	1.2	O...	1	13	-.866	14	-.5	16	-1														
44	1.2DL + 1DLi + 1WLi 22...	Yes	Y		DL	1.2	O...	1	13	-.707	14	-.707	17	-1														

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Factor	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...
45	1.2DL + 1DLi + 1W Li 24...	Yes	Y		DL	1.2	O...	1	13	-.5	14	-.866	18	-1												
46	1.2DL + 1DLi + 1W Li 27...	Yes	Y		DL	1.2	O...	1	13		14	-1	19	-1												
47	1.2DL + 1DLi + 1W Li 30...	Yes	Y		DL	1.2	O...	1	13	.5	14	-.866	20	-1												
48	1.2DL + 1DLi + 1W Li 31...	Yes	Y		DL	1.2	O...	1	13	.707	14	-.707	21	-1												
49	1.2DL + 1DLi + 1W Li 33...	Yes	Y		DL	1.2	O...	1	13	.866	14	-.5	22	-1												
50	(1.2+0.2Sds) + 1.0E 0 AZI	Yes	Y		DL	1.237	E...	1	E...																	
51	(1.2+0.2Sds) + 1.0E 30 ...	Yes	Y		DL	1.237	E...	.866	E...	.5																
52	(1.2+0.2Sds) + 1.0E 45 ...	Yes	Y		DL	1.237	E...	.707	E...	.707																
53	(1.2+0.2Sds) + 1.0E 60 ...	Yes	Y		DL	1.237	E...	.5	E...	.866																
54	(1.2+0.2Sds) + 1.0E 90 ...	Yes	Y		DL	1.237	E...		E...	1																
55	(1.2+0.2Sds) + 1.0E 120 ...	Yes	Y		DL	1.237	E...	-.5	E...	.866																
56	(1.2+0.2Sds) + 1.0E 135 ...	Yes	Y		DL	1.237	E...	-.707	E...	.707																
57	(1.2+0.2Sds) + 1.0E 150 ...	Yes	Y		DL	1.237	E...	-.866	E...	.5																
58	(1.2+0.2Sds) + 1.0E 180 ...	Yes	Y		DL	1.237	E...	-1	E...																	
59	(1.2+0.2Sds) + 1.0E 210 ...	Yes	Y		DL	1.237	E...	-.866	E...	-.5																
60	(1.2+0.2Sds) + 1.0E 225 ...	Yes	Y		DL	1.237	E...	-.707	E...	-.707																
61	(1.2+0.2Sds) + 1.0E 240 ...	Yes	Y		DL	1.237	E...	-.5	E...	-.866																
62	(1.2+0.2Sds) + 1.0E 270 ...	Yes	Y		DL	1.237	E...		E...	-1																
63	(1.2+0.2Sds) + 1.0E 300 ...	Yes	Y		DL	1.237	E...	.5	E...	-.866																
64	(1.2+0.2Sds) + 1.0E 315 ...	Yes	Y		DL	1.237	E...	.707	E...	-.707																
65	(1.2+0.2Sds) + 1.0E 330 ...	Yes	Y		DL	1.237	E...	.866	E...	-.5																
66	(0.9-0.2Sds) + 1.0E 0 AZI	Yes	Y		DL	.863	E...	1	E...																	
67	(0.9-0.2Sds) + 1.0E 30 A...	Yes	Y		DL	.863	E...	.866	E...	.5																
68	(0.9-0.2Sds) + 1.0E 45 A...	Yes	Y		DL	.863	E...	.707	E...	.707																
69	(0.9-0.2Sds) + 1.0E 60 A...	Yes	Y		DL	.863	E...	.5	E...	.866																
70	(0.9-0.2Sds) + 1.0E 90 A...	Yes	Y		DL	.863	E...		E...	1																
71	(0.9-0.2Sds) + 1.0E 120 ...	Yes	Y		DL	.863	E...	-.5	E...	.866																
72	(0.9-0.2Sds) + 1.0E 135 ...	Yes	Y		DL	.863	E...	-.707	E...	.707																
73	(0.9-0.2Sds) + 1.0E 150 ...	Yes	Y		DL	.863	E...	-.866	E...	.5																
74	(0.9-0.2Sds) + 1.0E 180 ...	Yes	Y		DL	.863	E...	-1	E...																	
75	(0.9-0.2Sds) + 1.0E 210 ...	Yes	Y		DL	.863	E...	-.866	E...	-.5																
76	(0.9-0.2Sds) + 1.0E 225 ...	Yes	Y		DL	.863	E...	-.707	E...	-.707																
77	(0.9-0.2Sds) + 1.0E 240 ...	Yes	Y		DL	.863	E...	-.5	E...	-.866																
78	(0.9-0.2Sds) + 1.0E 270 ...	Yes	Y		DL	.863	E...		E...	-1																
79	(0.9-0.2Sds) + 1.0E 300 ...	Yes	Y		DL	.863	E...	.5	E...	-.866																
80	(0.9-0.2Sds) + 1.0E 315 ...	Yes	Y		DL	.863	E...	.707	E...	-.707																
81	(0.9-0.2Sds) + 1.0E 330 ...	Yes	Y		DL	.863	E...	.866	E...	-.5																
82	1.2D + 1.5 Lv1	Yes	Y		DL	1.2	25	1.5																		
83	1.2D + 1.5 Lv2	Yes	Y		DL	1.2	26	1.5																		
84	1.2D + 1.5 Lv3	Yes	Y		DL	1.2	27	1.5																		
85	1.2D + 1.5 Lv4	Yes	Y		DL	1.2	28	1.5																		
86	1.2D + 1.5 Lv5	Yes	Y		DL	1.2	29	1.5																		
87	1.2D + 1.5 Lv6	Yes	Y		DL	1.2	30	1.5																		
88	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	4	.053	2	.053	3													
89	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	5	.053	2	.046	3	.027												
90	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	6	.053	2	.038	3	.038												
91	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	7	.053	2	.027	3	.046												
92	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	8	.053	2	3.2...	3	.053												
93	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	9	.053	2	-.027	3	.046												
94	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	10	.053	2	-.038	3	.038												
95	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	11	.053	2	-.046	3	.027												
96	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	4	.053	2	-.053	3	6.5...												

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Factor	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac...
97	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	5	.053	2	-.046	3	-.027												
98	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	6	.053	2	-.038	3	-.038												
99	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	7	.053	2	-.027	3	-.046												
100	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	8	.053	2	-9....	3	-.053												
101	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	9	.053	2	.027	3	-.046												
102	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	10	.053	2	.038	3	-.038												
103	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	11	.053	2	.046	3	-.027												
104	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	4	.053	2	.053	3													
105	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	5	.053	2	.046	3	.027												
106	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	6	.053	2	.038	3	.038												
107	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	7	.053	2	.027	3	.046												
108	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	8	.053	2	3.2...	3	.053												
109	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	9	.053	2	-.027	3	.046												
110	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	10	.053	2	-.038	3	.038												
111	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	11	.053	2	-.046	3	.027												
112	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	4	.053	2	-.053	3	6.5...												
113	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	5	.053	2	-.046	3	-.027												
114	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	6	.053	2	-.038	3	-.038												
115	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	7	.053	2	-.027	3	-.046												
116	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	8	.053	2	-9....	3	-.053												
117	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	9	.053	2	.027	3	-.046												
118	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	10	.053	2	.038	3	-.038												
119	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	11	.053	2	.046	3	-.027												
120	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	4	.053	2	.053	3													
121	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	5	.053	2	.046	3	.027												
122	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	6	.053	2	.038	3	.038												
123	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	7	.053	2	.027	3	.046												
124	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	8	.053	2	3.2...	3	.053												
125	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	9	.053	2	-.027	3	.046												
126	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	10	.053	2	-.038	3	.038												
127	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	11	.053	2	-.046	3	.027												
128	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	4	.053	2	-.053	3	6.5...												
129	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	5	.053	2	-.046	3	-.027												
130	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	6	.053	2	-.038	3	-.038												
131	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	7	.053	2	-.027	3	-.046												
132	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	8	.053	2	-9....	3	-.053												
133	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	9	.053	2	.027	3	-.046												
134	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	10	.053	2	.038	3	-.038												
135	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	11	.053	2	.046	3	-.027												
136	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	4	.053	2	.053	3													
137	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	5	.053	2	.046	3	.027												
138	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	6	.053	2	.038	3	.038												
139	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	7	.053	2	.027	3	.046												
140	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	8	.053	2	3.2...	3	.053												
141	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	9	.053	2	-.027	3	.046												
142	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	10	.053	2	-.038	3	.038												
143	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	11	.053	2	-.046	3	.027												
144	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	4	.053	2	-.053	3	6.5...												
145	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	5	.053	2	-.046	3	-.027												
146	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	6	.053	2	-.038	3	-.038												
147	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	7	.053	2	-.027	3	-.046												
148	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	8	.053	2	-9....	3	-.053												

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Factor	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac...
149	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	9	.053	2	.027	3	-.046												
150	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	10	.053	2	.038	3	-.038												
151	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	11	.053	2	.046	3	-.027												
152	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	4	.053	2	.053	3													
153	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	5	.053	2	.046	3	.027												
154	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	6	.053	2	.038	3	.038												
155	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	7	.053	2	.027	3	.046												
156	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	8	.053	2	3.2...	3	.053												
157	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	9	.053	2	-.027	3	.046												
158	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	10	.053	2	-.038	3	.038												
159	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	11	.053	2	-.046	3	.027												
160	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	4	.053	2	-.053	3	6.5...												
161	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	5	.053	2	-.046	3	-.027												
162	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	6	.053	2	-.038	3	-.038												
163	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	7	.053	2	-.027	3	-.046												
164	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	8	.053	2	-9....	3	-.053												
165	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	9	.053	2	.027	3	-.046												
166	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	10	.053	2	.038	3	-.038												
167	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	11	.053	2	.046	3	-.027												
168	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	4	.053	2	.053	3													
169	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	5	.053	2	.046	3	.027												
170	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	6	.053	2	.038	3	.038												
171	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	7	.053	2	.027	3	.046												
172	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	8	.053	2	3.2...	3	.053												
173	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	9	.053	2	-.027	3	.046												
174	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	10	.053	2	-.038	3	.038												
175	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	11	.053	2	-.046	3	.027												
176	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	4	.053	2	-.053	3	6.5...												
177	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	5	.053	2	-.046	3	-.027												
178	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	6	.053	2	-.038	3	-.038												
179	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	7	.053	2	-.027	3	-.046												
180	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	8	.053	2	-9....	3	-.053												
181	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	9	.053	2	.027	3	-.046												
182	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	10	.053	2	.038	3	-.038												
183	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	11	.053	2	.046	3	-.027												
184	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	4	.053	2	.053	3													
185	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	5	.053	2	.046	3	.027												
186	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	6	.053	2	.038	3	.038												
187	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	7	.053	2	.027	3	.046												
188	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	8	.053	2	3.2...	3	.053												
189	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	9	.053	2	-.027	3	.046												
190	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	10	.053	2	-.038	3	.038												
191	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	11	.053	2	-.046	3	.027												
192	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	4	.053	2	-.053	3	6.5...												
193	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	5	.053	2	-.046	3	-.027												
194	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	6	.053	2	-.038	3	-.038												
195	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	7	.053	2	-.027	3	-.046												
196	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	8	.053	2	-9....	3	-.053												
197	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	9	.053	2	.027	3	-.046												
198	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	10	.053	2	.038	3	-.038												
199	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	11	.053	2	.046	3	-.027												
200	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	4	.053	2	.053	3													

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Factor	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac...
201	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	5	.053	2	.046	3	.027												
202	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	6	.053	2	.038	3	.038												
203	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	7	.053	2	.027	3	.046												
204	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	8	.053	2	3.2...	3	.053												
205	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	9	.053	2	-.027	3	.046												
206	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	10	.053	2	-.038	3	.038												
207	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	11	.053	2	-.046	3	.027												
208	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	4	.053	2	-.053	3	6.5...												
209	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	5	.053	2	-.046	3	-.027												
210	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	6	.053	2	-.038	3	-.038												
211	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	7	.053	2	-.027	3	-.046												
212	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	8	.053	2	-9....	3	-.053												
213	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	9	.053	2	.027	3	-.046												
214	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	10	.053	2	.038	3	-.038												
215	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	11	.053	2	.046	3	-.027												
216	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	4	.053	2	.053	3													
217	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	5	.053	2	.046	3	.027												
218	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	6	.053	2	.038	3	.038												
219	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	7	.053	2	.027	3	.046												
220	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	8	.053	2	3.2...	3	.053												
221	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	9	.053	2	-.027	3	.046												
222	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	10	.053	2	-.038	3	.038												
223	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	11	.053	2	-.046	3	.027												
224	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	4	.053	2	-.053	3	6.5...												
225	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	5	.053	2	-.046	3	-.027												
226	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	6	.053	2	-.038	3	-.038												
227	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	7	.053	2	-.027	3	-.046												
228	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	8	.053	2	-9....	3	-.053												
229	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	9	.053	2	.027	3	-.046												
230	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	10	.053	2	.038	3	-.038												
231	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	11	.053	2	.046	3	-.027												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N25	max	1452.242	3	958.957	20	1872.281	39	264.167	30	343.528	33	1720.2	19
2		min	-1446.436	27	-963.433	12	-7.747	31	-3426.195	38	-1871.602	127	-1723.319	11
3	N1	max	1517.777	17	863.066	8	1923.902	45	3346.005	45	374.087	19	1750.968	25
4		min	-1515.792	25	-855.503	32	.766	21	-227.231	21	-2287.568	43	-1755.46	17
5	N13	max	391.463	18	1478.54	22	1825.815	34	652.999	192	3792.043	34	1446.956	30
6		min	-399.526	10	-1481.334	14	-42.337	26	-543.51	172	-382.482	26	-1449.913	6
7	Totals:	max	2988.667	18	2793.703	22	5390.033	42						
8		min	-2988.668	10	-2793.703	14	1369.429	66						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Lo...	...	...	phi*P...	phi*P...	phi*M...	phi*M...	...	Eqn
1	M2	PIPE 3.5	.506	0	45	.178	0		9	6449...	78750	7953...	7953...	...	H1-1b
2	M12	PIPE 3.5	.489	0	39	.169	0		3	6449...	78750	7953...	7953...	...	H1-1b
3	M7	PIPE 3.5	.477	0	34	.156	0		14	6449...	78750	7953...	7953...	...	H1-1b
4	M1	C3X5	.378	34.856	45	.136	63....	y	41	3710...	47628	981.2...	4104	...	H1-1b

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Lo...	...	...	phi*P ...	phi*P ...	phi*M...	phi*M...	...	Eqn
5	M11	C3X5	.367	34.856	40	.135	63....	y	35	3710....	47628	981.2...	4104	...	H1-1b
6	M6	C3X5	.356	34.856	34	.130	63....	y	46	3710....	47628	981.2...	4104	...	H1-1b
7	MP3	PIPE_2.0	.343	57	5	.040	57		10	2086....	32130	1871....	1871....	1	H1-1b
8	MP9	PIPE_2.0	.339	57	10	.028	57		3	2086....	32130	1871....	1871....	....	H1-1b
9	MP1	PIPE_2.0	.336	57	16	.042	57		16	2086....	32130	1871....	1871....	....	H1-1b
10	MP2	PIPE_2.0	.330	57	5	.050	57		9	2086....	32130	1871....	1871....	1	H1-1b
11	MP8	PIPE_2.0	.324	57	10	.040	57		10	2086....	32130	1871....	1871....	....	H1-1b
12	MP4	PIPE_2.0	.323	57	11	.048	57		11	2086....	32130	1871....	1871....	....	H1-1b
13	MP7	PIPE_2.0	.308	57	10	.038	57		9	2086....	32130	1871....	1871....	....	H1-1b
14	MP5	PIPE_2.0	.295	57	16	.048	57		3	2086....	32130	1871....	1871....	....	H1-1b
15	MP6	PIPE_2.0	.294	57	15	.032	57		5	2086....	32130	1871....	1871....	....	H1-1b
16	M10	6.5"x0.37" Pl...	.252	21	2	.089	21	y	48	3513....	77922	600.6...	6348....	....	H1-1b
17	M15	6.5"x0.37" Pl...	.248	21	7	.091	21	y	37	3513....	77922	600.6...	6309....	....	H1-1b
18	M5	6.5"x0.37" Pl...	.242	21	12	.096	21	y	42	3513....	77922	600.6...	6608....	....	H1-1b
19	M13	L2x2x3	.179	0	14	.027	0	z	43	2096....	2339....	557.7...	1182....	1	H2-1
20	M19	PIPE_2.0	.171	72	10	.158	72		2	1491....	32130	1871....	1871....	....	H1-1b
21	M3	L2x2x3	.168	0	3	.027	0	z	49	2096....	2339....	557.7...	1182....	1	H2-1
22	M8	L2x2x3	.153	0	9	.026	0	z	38	2096....	2339....	557.7...	1182....	1	H2-1
23	M21	PIPE_2.0	.145	72	5	.138	72		13	1491....	32130	1871....	1871....	....	H1-1b
24	M20	PIPE_2.0	.143	24	16	.137	72		8	1491....	32130	1871....	1871....	....	H1-1b
25	M4	L2x2x3	.138	0	13	.029	0	y	42	2096....	2339....	557.7...	1182....	1	H2-1
26	M9	L2x2x3	.123	0	2	.028	0	y	47	2096....	2339....	557.7...	1182....	1	H2-1
27	H1	PIPE_3.5	.116	72	88	.104	24		10	6066....	78750	7953....	7953....	1	H1-1b
28	H3	PIPE_3.5	.113	72	187	.100	24		16	6066....	78750	7953....	7953....	1	H1-1b
29	H2	PIPE_3.5	.113	72	143	.092	24		5	6066....	78750	7953....	7953....	1	H1-1b
30	M14	L2x2x3	.111	0	7	.029	0	y	36	2096....	2339....	557.7...	1182....	1	H2-1
31	M23	L6.6"X4.46"X...	.072	0	26	.040	0	y	9	5117....	87561	2464....	7125....	1	H2-1
32	M22	L6.6"X4.46"X...	.071	0	21	.038	42	z	4	5117....	87561	2464....	7125....	1	H2-1
33	M24	L6.6"X4.46"X...	.057	0	32	.034	0	y	14	5117....	87561	2464....	7125....	1	H2-1

Envelope None Cold Formed Steel Code Checks

Member	Shape	Code Check	Loc[in]	LC	Shea...	Loc[i...	Dir	LC	Pn[lb]	Tn[lb]	Mnyy[l...	Mnzz[l...	Cb	Cmyy	Cmzz	Eqn
No Data to Print ...																

APPENDIX D

ADDITIONAL CALCUATIONS

Trylon

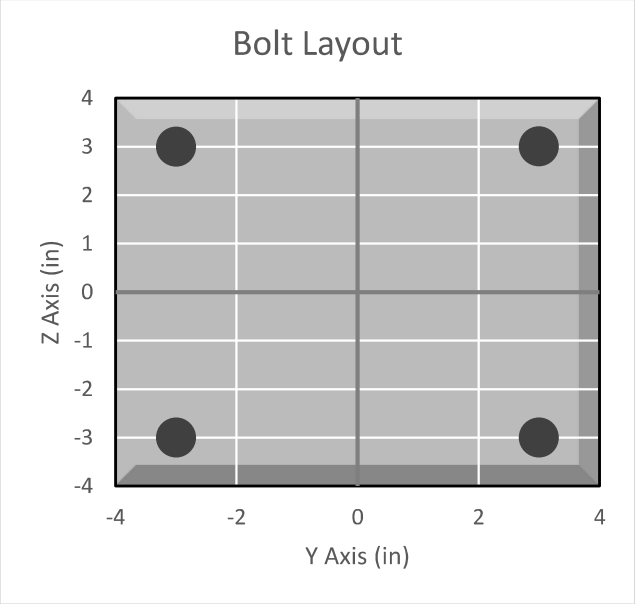
Analysis date: 8/6/2021

BOLT TOOL 1.5.2

Project Data	
Job Code:	189625
Carrier Site ID:	BOHVN00008A
Carrier Site Name:	CT-CCI-T-801367

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):	4161.0	lbs
Shear Force (V_u):	317.3	lbs
Tension Usage:	19.5%	--
Shear Usage:	2.2%	--
Interaction:	19.5%	Pass
Controlling Member:	M2	--
Controlling LC:	42	--

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

1825 W. Walnut Hill Lane, Suite 120
Irving, Texas 75038

APPENDIX E

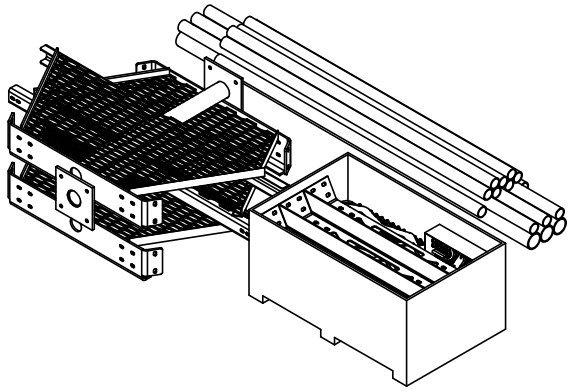
SUPPLEMENTAL DRAWINGS

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

C

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

FOR BOM ENTRY ONLY

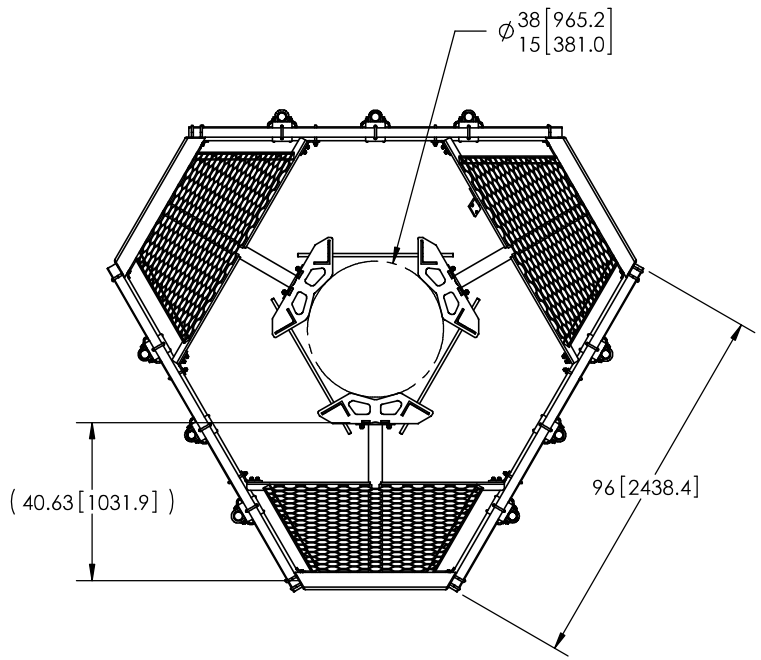


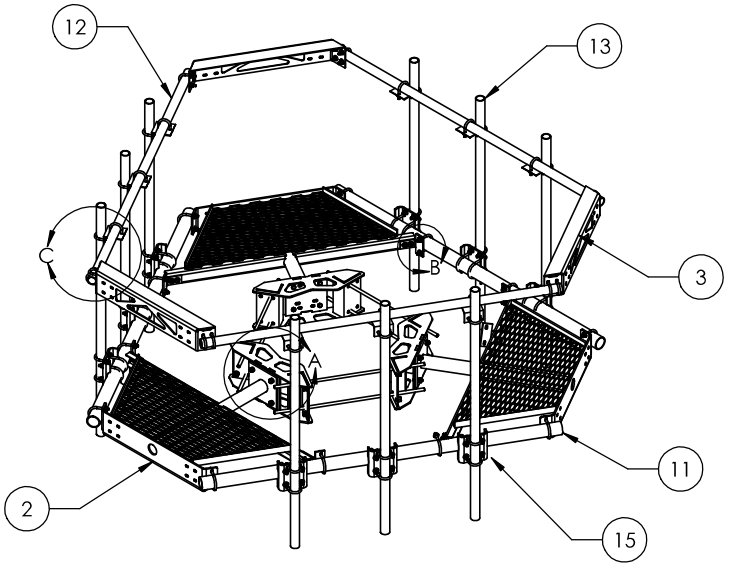
NOTES:
1. CUSTOMER ASSEMBLY SHEETS 2–3.

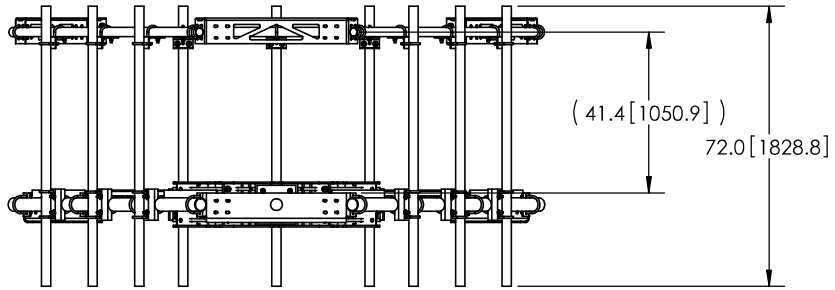
ALL DIMENSIONS ARE IN INCHES U.O.S.
TOLERANCES UNLESS OTHERWISE SPECIFIED:
.X = ± .12 ANGLES ±2°
.XX = ± .06 FRACTIONS ±1/32
.XXX= ± .03
REMOVE BURRS AND BREAK EDGES .005

DO NOT SCALE THIS PRINT

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





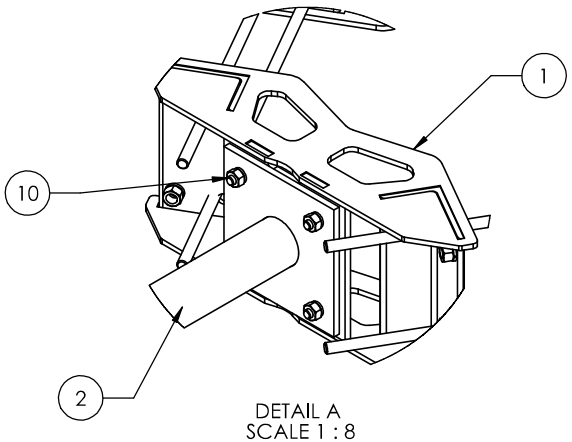


ITEM	PART NO.	DESCRIPTION	QTY.	WEIGHT
C				
1	MC-RM1550-3	12" - 50" OD RINGMOUNT	1	230.42 LBS
2	MTC300601	Low Profile Co-Location Platform Snub Nose	3	134.21 LBS
3	MT195801	Corner Weldment Snub Nose Handrail	3	27.10 LBS
4	XA2020.01	CROSS OVER ANGLE	9	2.65 LBS
5	GUB-4356	1/2" X 3-5/8" X 6" GALV U-BOLT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

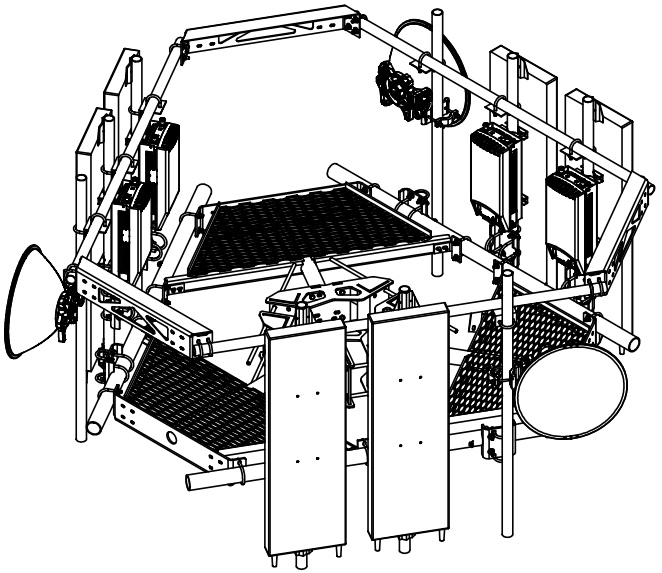
NOTES:
1. ALL METRIC DIMENSIONS ARE IN BRACKETS.
2. WILL FIT MONOPOLES 15"–38" OD.

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

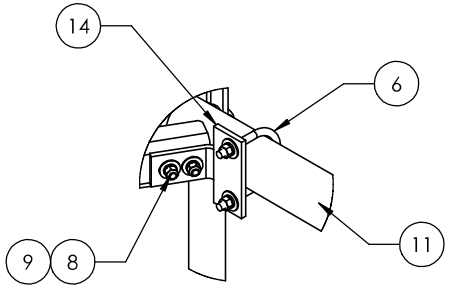
DRAWN BY: MSM	SHEET: 2 of 3	PART NUMBER: MC-PK8-C	
CHECKED BY: TP	SCALE: NTS	DESCRIPTION: 25" OD Snub Nose MT-196	
DATE: 10/18/11	MATERIAL: A36, A53	DRAWING TYPE: ASSEMBLY DRAWING	
REVISION: C	FINISH: GALV A123	WEIGHT: 1361.27 LBS	ANDREW® WESTCHESTER, IL. 60154 U.S.A.



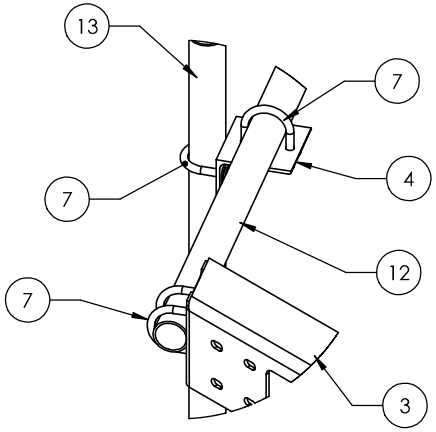
DETAIL A
SCALE 1 : 8



WITH ANTENNAS



DETAIL B
SCALE 1 : 8



DETAIL C
SCALE 1 : 8

NOTES:
1. ALL METRIC DIMENSIONS ARE IN BRACKETS.

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

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

Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

Dish Wireless Existing Facility

Site ID: BOHVN00013A

823530
580 Chapel Street
Thomaston, Connecticut 06787

October 6, 2021

EBI Project Number: 6221005719

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**24.52%**

October 6, 2021

Dish Wireless

Emissions Analysis for Site: BOHVN00013A - 823530

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **580 Chapel Street** in **Thomaston, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at 580 Chapel Street in Thomaston, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

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

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

6) The antenna mounting height centerline of the proposed antennas is 130 feet above ground level (AGL).

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

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

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-20	Make / Model:	JMA MX08FRO665-20	Make / Model:	JMA MX08FRO665-20
Frequency Bands:	600 MHz / 1900 MHz	Frequency Bands:	600 MHz / 1900 MHz	Frequency Bands:	600 MHz / 1900 MHz
Gain:	17.45 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd
Height (AGL):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	280 Watts	Total TX Power (W):	280 Watts	Total TX Power (W):	280 Watts
ERP (W):	3,065.51	ERP (W):	3,065.51	ERP (W):	3,065.51
Antenna A1 MPE %:	**1.03%**	Antenna B1 MPE %:	**1.03%**	Antenna C1 MPE %:	**1.03%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	1.03%
Thomaston FD	0.18%
Thomaston PD	0.03%
Litch. Co. FD	0.18%
CT State Police	0.06%
Sprint	2.18%
T-Mobile	1.42%
Metro PCS	0.57%
Verizon	4.18%
AT&T	14.69%
Site Total MPE % :	24.52%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	1.03%
Dish Wireless Sector B Total:	1.03%
Dish Wireless Sector C Total:	1.03%
Site Total MPE % :	24.52%

Dish Wireless Maximum MPE Power Values (Sector A)

Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	130.0	2.09	600 MHz n71	400	0.52%
Dish Wireless 1900 MHz n70	4	542.70	130.0	5.08	1900 MHz n70	1000	0.51%
						Total:	**1.03%**

• 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:	1.03%
Sector B:	1.03%
Sector C:	1.03%
Dish Wireless Maximum MPE % (Sector A):	1.03%
Site Total:	24.52%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **24.52%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Exhibit G

Letter of Authorization

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

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

Crown Castle Letter of Authorization

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

Re: Tower Share Application
Crown Castle telecommunications site at:
580 CHAPEL STREET, THOMASTON, CT 06787

T-MOBILE USA TOWER 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: 823530/CT364/Chapel St. Monopole
Customer Site ID: BOHVN00013A/CT-CCI-T-823530
Site Address: 580 Chapel Street, Thomaston, CT 06787

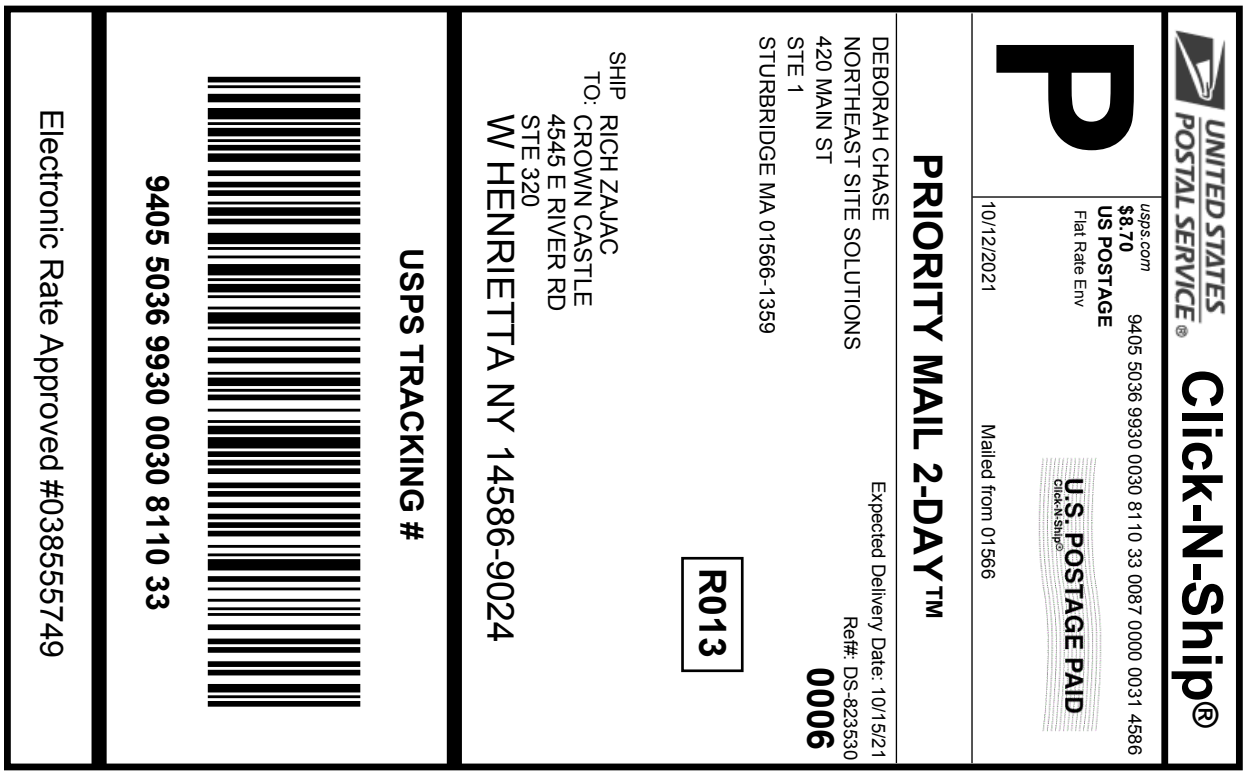
Crown Castle

By: _____ Date: 10/11/2021

Richard Zajac
Site Acquisition Specialist

Exhibit H

Recipient Mailings



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Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0030 8110 33

Trans. #:	545805766
Print Date:	10/12/2021
Ship Date:	10/12/2021
Expected Delivery Date:	10/15/2021

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

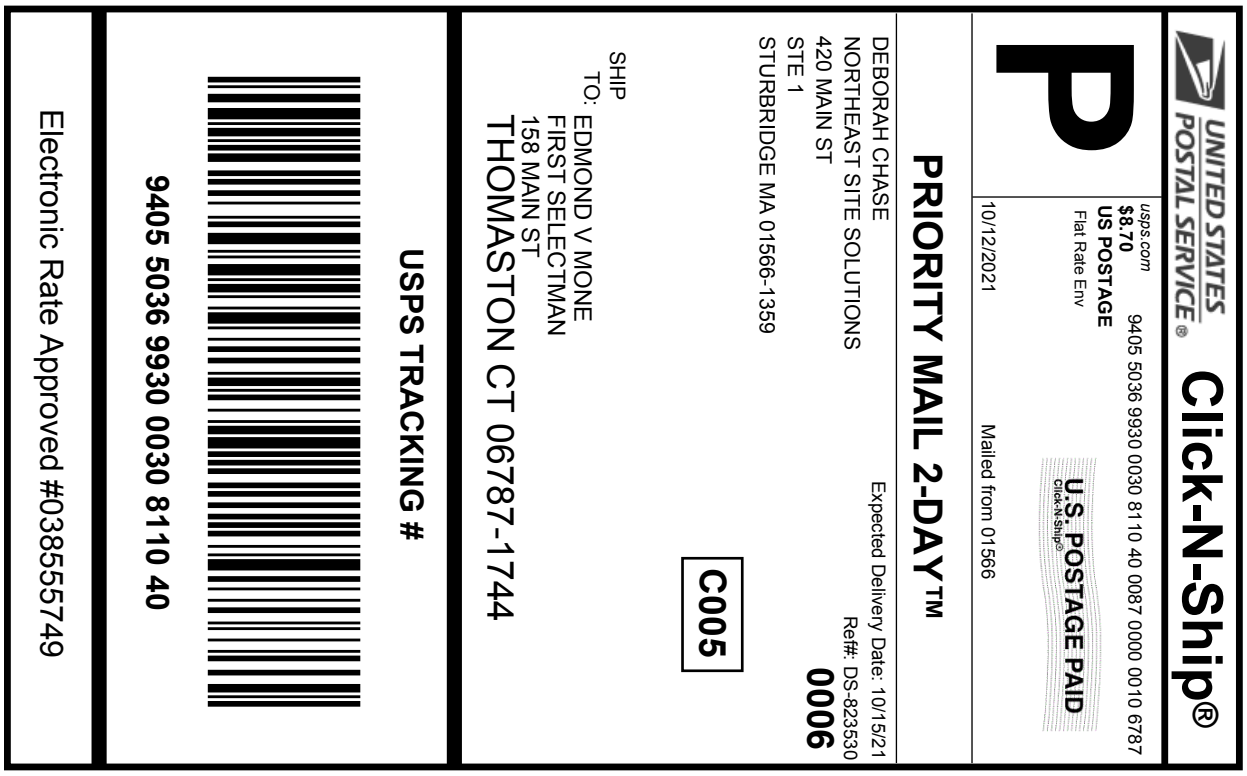
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-823530

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

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

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



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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 0030 8110 40

Trans. #:	545805766
Print Date:	10/12/2021
Ship Date:	10/12/2021
Expected Delivery Date:	10/15/2021

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

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

Ref#: DS-823530

To: EDMOND V MONE
FIRST SELECTMAN
158 MAIN ST
THOMASTON CT 06787-1744

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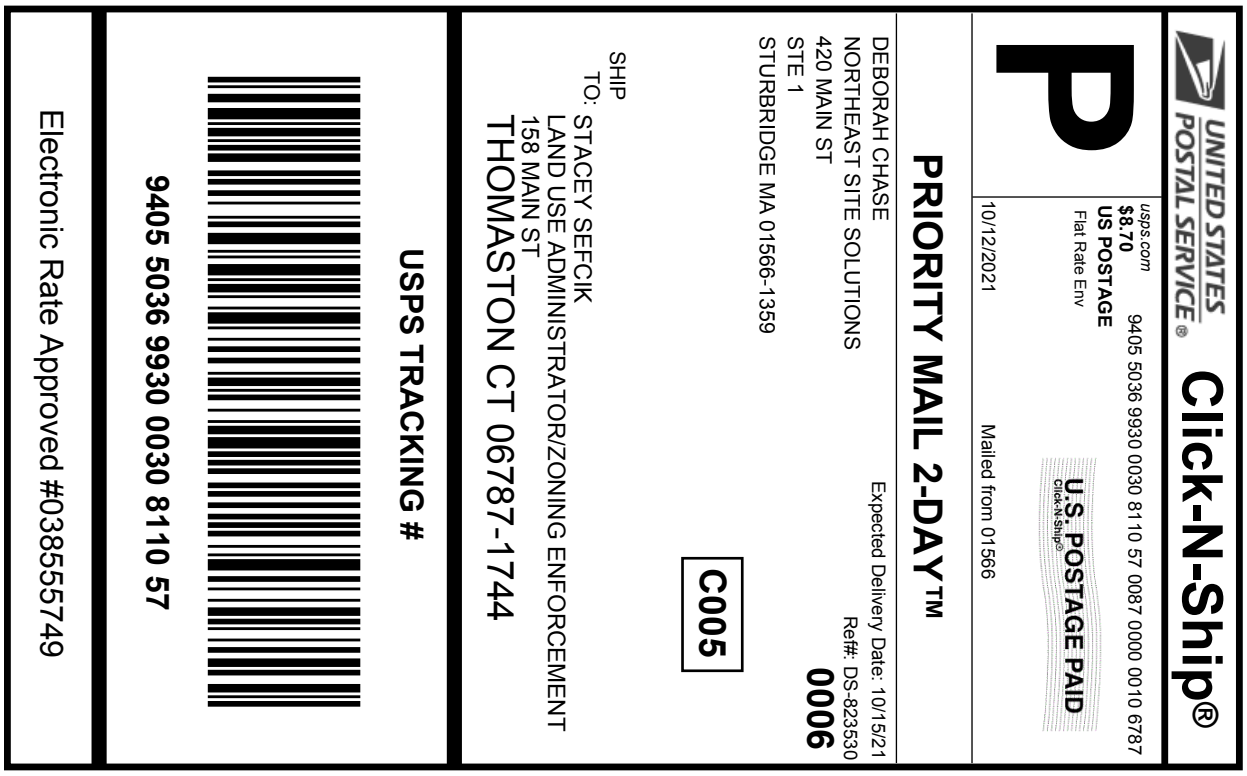

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2. **Place your label so it does not wrap around the edge of the package.**
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4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0030 8110 57

Trans. #:	545805766
Print Date:	10/12/2021
Ship Date:	10/12/2021
Expected Delivery Date:	10/15/2021

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

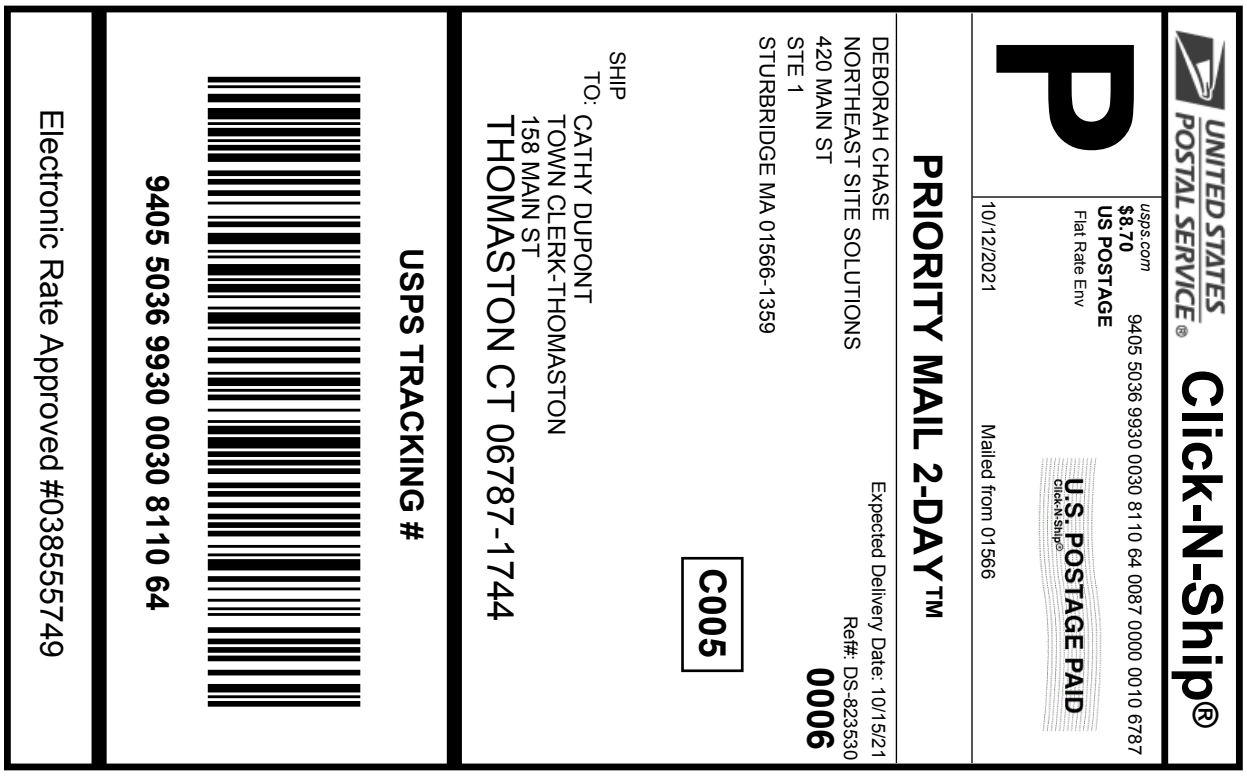
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-823530

To: STACEY SEFCIK
LAND USE ADMINISTRATOR/ZONING ENFORCEMENT OFFICER
158 MAIN ST
THOMASTON CT 06787-1744

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

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



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5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0030 8110 64

Trans. #:	545805766
Print Date:	10/12/2021
Ship Date:	10/12/2021
Expected Delivery Date:	10/15/2021

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

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

Ref#: DS-823530

To: CATHY DUPONT
TOWN CLERK-THOMASTON
158 MAIN ST
THOMASTON CT 06787-1744

* 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

823530

UNITED STATES POSTAL SERVICE.

NEW BRITAIN
135 CHESTNUT ST
NEW BRITAIN, CT 06050-9998
(800)275-8777

10/14/2021 12:53 PM

Product	Qty	Unit Price	Price
Prepaid Mail West Henrietta, NY 14586 Weight: 0 lb 2.00 oz Acceptance Date: Thu 10/14/2021 Tracking #: 9405 5036 9930 0030 8110 33	1		$0.00
Prepaid Mail Thomaston, CT 06787 Weight: 0 lb 12.10 oz Acceptance Date: Thu 10/14/2021 Tracking #: 9405 5036 9930 0030 8110 57	1		$0.00
Prepaid Mail Thomaston, CT 06787 Weight: 0 lb 12.20 oz Acceptance Date: Thu 10/14/2021 Tracking #: 9405 5036 9930 0030 8110 64	1		$0.00
Prepaid Mail Thomaston, CT 06787 Weight: 0 lb 12.10 oz Acceptance Date: Thu 10/14/2021 Tracking #: 9405 5036 9930 0030 8110 40	1		$0.00
Grand Total:			$0.00

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