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 27, 2021

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

RE: Tower Share Application
60 South Main Street, East Granby CT 06026
Latitude: 41.94155278
Longitude: -72.73861111
Site# 876399_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 60 South Main Street in East Granby, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 5G MHz antenna and six (6) RRUs, at the 48-foot level of the existing 98-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 NB+C, dated October 8, 2021 Exhibit C. Also included is a structural analysis prepared by Crown Castle, dated September 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 East Granby on November 29, 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 James Hayden, First Selectman, and Gary Haynes, Zoning Enforcement Officer for the Town of East Granby, as well as the tower owner (Crown Castle) and property owner (Galasso Holding LLC)

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 98-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 48-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.

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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 50.99% 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 East Granby. 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 48-foot level of the existing 98-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 guyed 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 East Granby.

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:

James Hayden, First Selectman
Town of East Granby
9 Center Street, East Granby CT 06026

Gary Haynes, Zoning Enforcement Officer
Town of East Granby
9 Center Street, East Granby CT 06026

Galasso Holding LLC, Property Owner
PO Box 1776, East Granby CT 06026

Crown Castle, Tower Owner

Exhibit A

Original Facility Approval

TOWN OF EAST GRANBY
PLANNING & ZONING COMMISSION
9 CENTER STREET
P.O. BOX 1858
EAST GRANBY, CT 06026
653-3444

November 29, 2000

Sprint Spectrum L.P. dba Sprint PCS
9 Barnes Industrial Road
Wallingford, CT 06492

CERTIFIED MAIL

Dear Sirs,

At its meeting on November 28, 2000, the East Granby Planning & Zoning Commission voted to approve your Application #00-20 for a communication tower on the Galasso Holdings property subject to the following conditions:

1. A letter of approval be provided from the FAA that the proposed tower meets their requirements (ref. section IX, G3d of the Zoning Regulations).
2. A $50,000 bond shall be posted prior to construction to be used to remove the tower if abandoned per section IX, G7 of the Zoning Regulations.

Sincerely,

Frederick O'Brien (RHHC)

Frederick O'Brien
Chairman

Cc: Town Clerk
Building Official
Town Engineer
Assessor
Attorney Thomas Regan

Sprint PCS℠
Sprint Personal Communication Services℠

Site Development Northeast
Crossroads Corporate Center
1 International Boulevard, Suite 800
Mahwah, New Jersey 07495
Mailstop: NJMAHA0101
Telephone: 201-684-4000

Wayne Medlin, Property Specialist
Office: (201) 684-4063
Cell: (516) 850-5897
Fax: (201) 684-4070

December 26, 2000

VIA FEDEX
Rosalie McKenney
Town of East Granby
9 Center Street
P.O. Box 1858
East Granby, Connecticut 06026

Re: Tower removal bond for property located at 60 South Main Street, East Granby, CT 06026

Dear Rosalie:

Enclosed please a Tower removal bond, in the amount of ($50,000) fifty thousand dollars, prepared and executed in accordance with the conditions of zoning approved for Sprint's proposed site located at the above referenced location. Should you have any questions, or require something further, please do not hesitate to contact me.

Very truly yours,

Wayne Medlin
Property Specialist

Enclosures

Planimetrics

MEMORANDUM

To: East Granby Planning & Zoning Commission

From: Glenn Chalder, AICP

Date: October 8, 1997

Subject: **Adopted Zoning Regulation Changes**
Personal Communication Service (PCS) Towers

I am enclosing a copy of the PCS regulation as adopted by the Planning and Zoning Commission at their meeting on October 7, 1997.

It has been a pleasure working with the Commission on this. If we can be of additional service, please let us know.

The East Granby Planning & Zoning Commission approved the attached Zoning Regulation changes on 10/7/97 to be effective 10/17/97.

Frederick O'Brien

Frederick O'Brien, Chairman

10/22/97

Date

Planimetrics, LLP, Riverdale Farms, 136 Simsbury Road, Avon, CT 06001 Fax: 860-674-2693 Voice: 860-677-5267

ZONING REGULATION AMENDMENT

Personal Communication Service (PCS) Towers

(add the following)

II. INTERPRETATION

C. DEFINITIONS

Antenna - A device used to transmit or receive telecommunications or radio signals.

Concealed Antenna - A communication facility and associated antenna(s) that are designed to blend into the surrounding environment by being mounted and screened on buildings or being similarly disguised in the natural environment.

Communications Tower - A structure (including monopoles, guyed towers, or lattice structures) that is used to support one or more antenna as part of a communication facility.

Communication Facility - towers or antennas and accessory structures used in connection with the provision of telecommunication services such as cellular telephone service, personal communication services, paging services, radio or television broadcasting services, and similar broadcast services.

(modify the following)

III. GENERAL REGULATIONS

B. GENERAL PROVISIONS

4. Height Exceptions

The provisions of these Regulations limiting the maximum height of buildings shall not restrict the height of a spire, flagpole, (~~antenna~~), chimney, water tank, elevator bulkhead, solar panel or similar uses provided such uses shall not interfere with an airport approach surface.

(add the following)

III. GENERAL REGULATIONS

B. GENERAL PROVISIONS

6. Antennas

The provisions of these Regulations limiting the maximum height of buildings shall not restrict the height of an antenna that is erected solely for municipal purposes or that is clearly accessory to a permitted principal use in a residential zone, provided such antennae shall not interfere with an airport approach surface. The Commission may allow other proposed antennae in accordance with the requirements of Section IX. G. of these Regulations.

(add the following)

IX. SPECIAL REGULATIONS
G. ANTENNAE

1. Purpose

This section is intended to provide for telecommunications facilities within East Granby while protecting the public health, safety, and welfare and minimizing adverse visual and environmental impacts.

2. Application Process

a) An application for a new tower or a new antenna shall be processed as follows:

Zone Type	Communication Tower Type	Tower/Antenna Type	Application Type
Residential, Agricultural, and Quarry zones	No tower proposed	Concealed antenna on a non-residential building	Special Permit
		On an existing non-residential building or structure (such as a water tower or utility pole)	Special Permit
	Existing tower	New Antenna	Special Permit
	Concealed tower	Concealed Antenna	Special Permit
	New tower	Monopole (lower than or equal to 100 feet)	Special Permit
		Monopole (more than 100 feet)	Special Permit
		Lattice or Guyed	Special Permit
All other zones B Business P Professional I Industrial	No tower proposed	Concealed antenna	Site Plan
		On an existing non-residential building or structure (such as a water tower or utility pole)	Site Plan
	Existing tower	New Antenna	Site Plan
	Concealed tower	Concealed Antenna	Site Plan
	New tower	Monopole (lower than or equal to 100 feet)	Site Plan
		Monopole (more than 100 feet)	Special Permit
		Lattice or Guyed	Special Permit

b) The proposed height of an antenna shall be measured from the prevailing ground elevation at the base of the tower, antenna, or any other supporting structure (including existing buildings) to the top of any antenna or other appurtenances attached to the tower or antenna.

c) The Commission may retain its own experts, at the applicant's expense, to verify any information submitted in conjunction with any application.

d) The application fee for a tower or antenna proposed under this section as part of a communications facility shall be $250 plus the cost of any outside experts retained by the Commission. To cover these potential costs, the applicant shall submit a certified check for $250 plus $100 per foot of proposed tower/antenna height with the application. Any fees not utilized by the Commission shall be returned to the applicant following disposition of the application.

3. **Required Information**

a) The applicant shall submit documentation to demonstrate that it is a licensed provider authorized by the Federal Communications Commission to operate the proposed type of facility.

b) Any application under this section shall include the following site selection information:
- a map showing:
  - the extent of planned coverage in East Granby and in adjacent communities,
  - the location and service area of the proposed antenna and/or tower.
- a written statement describing:
  - the need for the proposed facility (coverage, signal strength, other),
  - the siting and design criteria used for the proposed facility,
  - the location of the site search area and sites identified (alternatives),
  - the process by which other possible sites in the search area were considered and/or eliminated for legal, technological, economic, or other reasons,
  - technological alternatives to the proposed facility and the economic or other implications associated with those alternatives, and
  - reasons for the selection of the proposed site and design (tower, antenna).

c) Any application under this section shall include the following design information:
- a description of the proposed tower, antennae and any associated equipment (transformer, generator),
- a site plan clearly locating the proposed facilities, proposed access, and any other activities on the proposed site,
- plan and elevation drawings showing the proposed tower, antenna, mounting locations (proposed and future), associated equipment, and other structures on the site,
- topographic profiles (running up/down slope and cross slope, at a minimum) showing the location of the proposed facilities in relation to surrounding areas and structures,
- architectural or photographic rendering of the proposed facility from a location designated by the Zoning Enforcement Officer, and
- a colored plan or plans clearly indicating the proposed color of any existing features or proposed facilities or equipment.

d) Any application under this section shall include the following additional information:
- a copy of any proposed lease(s) or agreements for the proposed facilities and required appurtenances,
- a written statement describing how the proposed facility complies with the concept of multiple use and/or concealment,
- written statements by competent professional describing the impact on public health and safety associated with the proposed activity with particular emphasis on radio emissions (signal frequency, intensity, and power density) and structural integrity, and
- a written statement describing any requirements of other government agencies regarding illumination, colors, airport approach surfaces, or other requirements.

6. Site & Building Design

a) Any facility shall be surrounded by a fence of appropriate design at least eight feet in height. Landscaping around the facility may be required by the Commission depending on site location and characteristics.

b) All utilities shall be located underground unless otherwise approved by the Commission.

c) Unless waived by the Commission, any accessory equipment building shall:
- shall not exceed 750 square feet of gross floor area,
- shall not exceed 12 feet in height, and
- shall have a gable roof and be architecturally finished to look like a residential or agricultural structure.

d) If located on the roof of a building, equipment building shall be screened or concealed.

7. Maintenance and Abandonment

a) The improvements associated with any facility shall be regularly inspected and maintained. Any facility that is not being maintained will be considered abandoned.

b) The facility owner shall submit an annual report (by the anniversary date of the approval of the application) to the Commission or its designee indicating:
- whether the facility is in use,
- that the facility has been inspected on a regular basis and the inspection dates of the facility during the past year,
- whether the facility is in compliance with governmental standards for radio frequency emissions at the designated frequencies and power levels,
- whether the facility is in compliance with the conditions of any approval, and
- that contact was made with the Building Department at Town Hall to identify any issues with regard to the tower, who was contacted, what the issues are, and detailing the proposed responses to any issues.

c) In the event that the Building Official shall determine that any component of a facility is unsafe, the applicant shall, within 30 days, repair or replace or remove the facility or the unsafe condition.

d) Any facility not in use for twelve months shall be considered abandoned. Any facility that fails to file an annual report shall be considered abandoned. An abandoned facility shall be removed within ninety days and the site restored.

e) A bond shall be required prior to the construction of any facility to ensure that any required repair, replacement, or removal shall be accomplished. Prior to using the bond to remove or repair the facility, the Commission shall notify the applicant that the bond will be utilized. Such bond or any remaining bond amount shall be returned to the applicant upon removal of the facility and restoration of the site.

Adopted: October 7, 1997
Effective Date: October 17, 1997

e) Any application for a new tower shall also include the following information:
- a description of the proposed tower and any associated equipment (including height, construction type, purpose, design features, means of power supply),
- a written statement describing the extent to which the proposed tower has been designed to be extended and/or accommodate additional service providers in the future,
- a plan showing the number and type of antennas that can be accommodated (proposed and future) as well as the proposed location of all mounting positions for co-located antennas and the minimum separating distances for antennas,
- a written statement that indicates how additional service providers will be accommodated on the proposed tower in the future, and
- a written statement indicating that local municipal and public safety departments were offered the opportunity to locate their facilities on the proposed tower.

4. Tower Location & Design

a) To maintain the natural state surrounding the public trail system and to avoid a negative visual impact on a large area of the town, no tower shall, unless modified by the Commission, be located within:
- 500 feet of the Metacomet Ridge if it extends above the existing tree line,
- one mile of the Metacomet Ridge if it extends above the top of the ridge,
- three miles of another tower.

b) In reviewing an application, the Commission may require the applicant to:
- simulate the tower height by balloon or other method that will evaluate scenic impact,
- investigate alternative locations and report back to the Commission on their feasibility.

c) Any proposed tower shall be located on a conforming lot. A tower shall be set back from property lines 125 percent of the height of the tower and all appendages unless the applicant has submitted, and the Commission has accepted, engineering data to show that the tower is collapsible and will fall within the property lines of the lot on which it is located.

d) Unless waived by the Commission, each tower shall be designed and built to accommodate the equipment of at least two other service providers:
- when initially built, or
- by vertically extension in the future.

e) No illumination of any tower shall be permitted unless specifically requested by the applicant and specifically approved by the Commission. Limitations on illumination shall be made a condition of any approval.

5. Antenna Limitations

a) Unless waived by the Commission:
- no more than two dish antennas shall be placed on any tower,
- all dish antenna be mesh design,
- no dish antenna shall be more than:
  - two feet in diameter in residential zones, or
  - six feet in diameter in non-residential zones.

Exhibit B

Property Card

60 SOUTH MAIN STREET

Location	60 SOUTH MAIN STREET	**Mblu**	11/ 11/ / /
Acct#	100819	**Owner**	GALASSO HOLDINGS LLC
Assessment	$1,365,600	**Appraisal**	$1,950,700
PID	341	**Building Count**	3

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$1,410,600	$540,100	$1,950,700
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$987,500	$378,100	$1,365,600

Owner of Record

Owner	GALASSO HOLDINGS LLC	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	PO BOX 1776 EAST GRANBY, CT 06026	**Book & Page**	0112/0814
		Sale Date	03/06/1997

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
GALASSO HOLDINGS LLC	$0		0112/0814	03/06/1997

Building Information

Building 1 : Section 1

Year Built:	1969
Living Area:	43,230
Replacement Cost:	$1,509,592
Building Percent Good:	61
Replacement Cost Less Depreciation:	$920,900

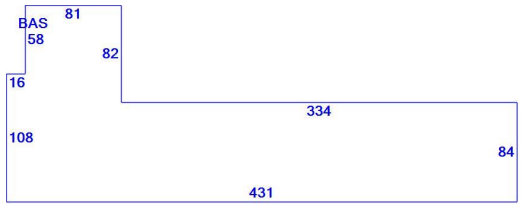
Building Attributes

Field	Description
Style:	Garage
Model	Industrial
Grade	Average
Stories:	1
Occupancy	1.00
Exterior Wall A	Concr/Cinder
Exterior Wall B	
Roof Structure	Gable/Hip
Roof Cover	Tar & Gravel
Interior Wall A	Unfin/Minimum
Interior Wall B	
Interior Floor A	Concr-Finished
Interior Floor B	
Heating Fuel	Oil
Heating Type	Steam
AC Type	None
Struct Class	
Bldg Use	Industrial C
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	3-1C
Heat/AC	NONE
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	NONE
Rooms/Prtns	AVERAGE
Wall Height	16.00
% Comn Wall	0.00

Building Photo

(http://images.vgsi.com/photos/EastGranbyCTPhotos//\00\01\17\92.jpg)

Building Layout



(ParcelSketch.ashx?pid=341&bid=341)

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	43,230	43,230
		43,230	43,230

Building 2 : Section 1

Year Built: 1969
Living Area: 5,720
Replacement Cost: $273,597
Building Percent Good: 61
Replacement Cost Less Depreciation: $166,900

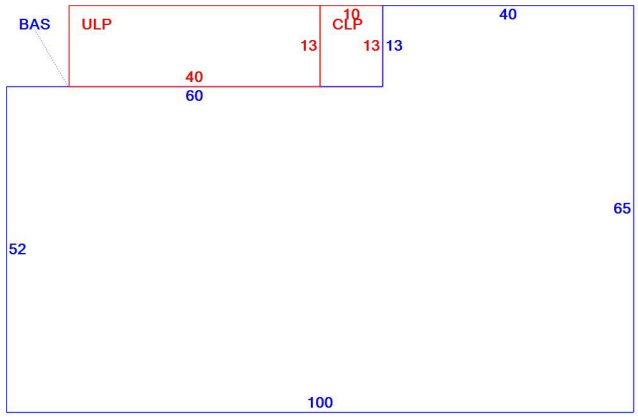
Building Attributes : Bldg 2 of 3	
Field	Description
Style:	Service Shop
Model	Industrial

Grade	Below Average
Stories:	1
Occupancy	1.00
Exterior Wall A	Concr/Cinder
Exterior Wall B	
Roof Structure	Gable/Hip
Roof Cover	Asphalt
Interior Wall A	Unfin/Minimum
Interior Wall B	
Interior Floor A	Concr-Finished
Interior Floor B	Minimum/Plywd
Heating Fuel	Oil
Heating Type	Forced Air-Duc
AC Type	None
Struct Class	
Bldg Use	Industrial C
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	3-1
Heat/AC	NONE
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	-DESCRIPTION-
Rooms/Prtns	AVERAGE
Wall Height	10.00
% Comn Wall	0.00

Building Photo

(http://images.vgsi.com/photos/EastGranbyCTPhotos/\00\01\17\94.jpg)

Building Layout



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Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	5,720	5,720
CLP	Loading Platform, Finished	130	0
ULP	Loading Platform, Unfinished	520	0
		6,370	5,720

Building 3 : Section 1

Year Built: 1972
Living Area: 8,000
Replacement Cost: $404,000
Building Percent Good: 61
Replacement Cost Less Depreciation: $246,400

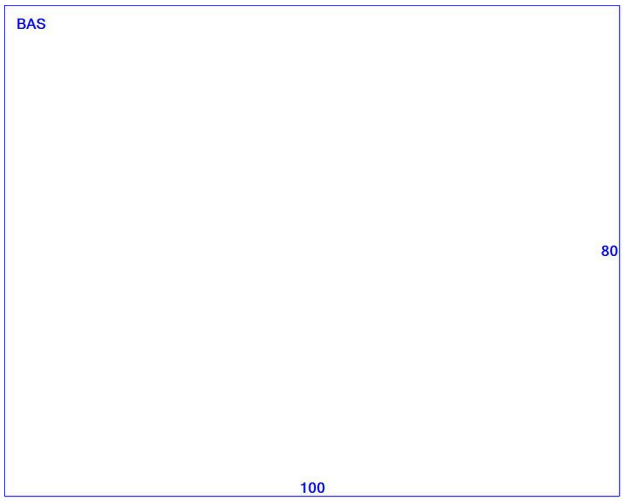
Building Attributes : Bldg 3 of 3	
Field	**Description**
Style:	Light Indust
Model	Industrial

Grade	Average
Stories:	1
Occupancy	1.00
Exterior Wall A	Concr/Cinder
Exterior Wall B	
Roof Structure	Flat
Roof Cover	Rolled Compos
Interior Wall A	Unfin/Minimum
Interior Wall B	
Interior Floor A	Concr-Finished
Interior Floor B	
Heating Fuel	Oil
Heating Type	Steam
AC Type	None
Struct Class	
Bldg Use	Industrial C
Total Rooms	0
Total Bedrms	0
Total Baths	0
1st Floor Use:	
Heat/AC	NONE
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	NONE
Rooms/Prtns	AVERAGE
Wall Height	16.00
% Comn Wall	0.00

Building Photo

(http://images.vgsi.com/photos/EastGranbyCTPhotos//\00\01\17\93.jpg)

Building Layout



(ParcelSketch.ashx?pid=341&bid=103821)

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	8,000	8,000
		8,000	8,000

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
MEZ	Mezzanine	960.00 S.F.	$8,800	3

Land

Land Use

Use Code	3-1
Description	Industrial C
Zone	I

Land Line Valuation

Size (Acres)	89.97
Frontage	0
Depth	0

Neighborhood		**Assessed Value**	$378,100
Alt Land Appr	No	**Appraised Value**	$540,100
Category			

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
SHED	Shed	A	Average	180.00 S.F.	$1,300	1
SHED	Shed	A	Average	640.00 S.F.	$3,500	2
LNT	Lean-To			350.00 S.F.	$1,400	1
SHED	Shed	A	Average	100.00 S.F.	$500	2
SHED	Shed	A	Average	200.00 S.F.	$2,200	3
LNT	Lean-To			240.00 S.F.	$1,000	2
SHED	Shed	A	Average	1250.00 S.F.	$11,300	1
GAR1	Garage	A	Average	1280.00 S.F.	$19,200	2
LNT	Lean-To			1472.00 S.F.	$8,800	1
SHED	Shed	A	Average	160.00 S.F.	$1,700	1
SHED	Shed	A	Average	252.00 S.F.	$1,400	2
SHED	Shed	A	Average	140.00 S.F.	$1,000	2
SHED	Shed	G	Good	360.00 S.F.	$5,200	1
SHED	Shed	A	Average	360.00 S.F.	$4,500	1
FNC	Chain Link Fence	06	6 Ft. Height	600.00 L.F.	$4,600	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$1,293,500	$536,600	$1,830,100
2012	$1,409,400	$359,400	$1,768,800
2007	$818,700	$429,800	$1,248,500

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$905,600	$375,600	$1,281,200
2012	$986,700	$251,600	$1,238,300
2007	$573,100	$300,900	$874,000


Hillcrest Rd
Hillcrest Rd
Creamery Brook
Galasso Materials
Google

Exhibit C

Construction Drawings

DISH Wireless L.L.C. SITE ID:

BOBDL00100A

DISH Wireless L.L.C. SITE ADDRESS:

60 SOUTH MAIN ST.
EAST GRANBY, CT 06026

CONNECTICUT CODE COMPLIANCE

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

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

SHEET INDEX

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

SCOPE OF WORK

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

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

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED METAL PLATFORM
- INSTALL (1) PROPOSED CABLE TRAY
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)

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:	GALASSO HOLDINGS LLC
ADDRESS:	PO BOX 1776 EAST GRANBY, CT 06026
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	876399
TOWER APP NUMBER:	556577
COUNTY:	HARTFORD
LATITUDE (NAD 83):	41° 56' 29.59" N 41.94155278 N
LONGITUDE (NAD 83):	-72° 44' 19.25" W -72.73861111 W
ZONING JURISDICTION:	TOWN OF EAST GRANBY
ZONING DISTRICT:	I
PARCEL NUMBER:	100819
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	V-B
POWER COMPANY:	NORTHEAST UTILITIES
TELEPHONE COMPANY:	LIGHTOWER

PROJECT DIRECTORY

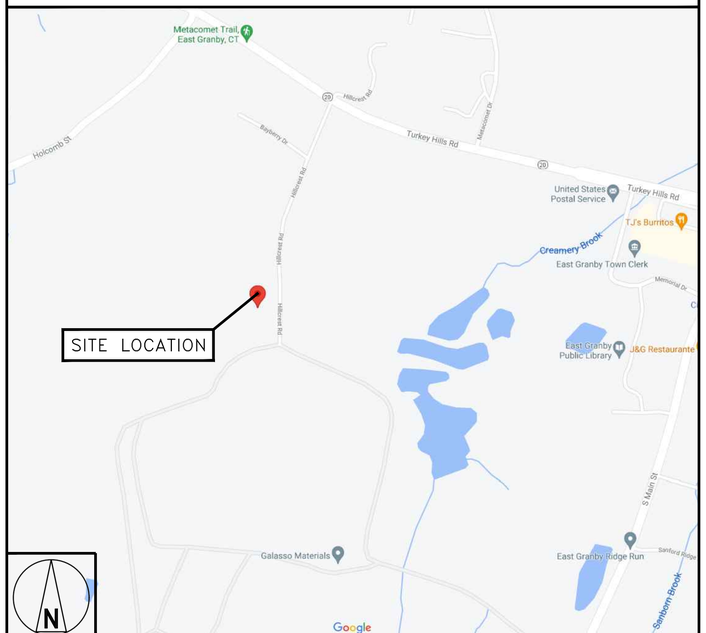
APPLICANT:	DISH WIRELESS, LLC. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	CROWN CASTLE USA INC. 2000 CORPORATE DR. CANONSBURG, PA 15317 (877) 486-9377
SITE DESIGNER:	NB+C ENGINEERING SERVICES 8601 SIX FORKS RD, SUITE 540 RALEIGH, NC 27615 (919) 657-9131
SITE ACQUISITION:	JEAN COTTRELL JEAN.COTTRELL@CROWNCASTLE.COM
CONSTRUCTION MANAGER:	JAVIER SOTO JAVIER.SOTO@DISH.COM
RF ENGINEER:	BOSSENER CHARLES BOSSENER.CHARLES@DISH.COM

DIRECTIONS

DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT:

START OUT GOING NORTHWEST ON SCHOEPHOESTER RD TOWARD BRADLEY INTERNATIONAL AIRPORT. SCHOEPHOESTER RD BECOMES BRADLEY INTERNATIONAL AIRPORT CONNECTOR. TURN LEFT TO STAY ON BRADLEY INTERNATIONAL AIRPORT CONNECTOR. MERGE ONTO CT-20 W. TURN LEFT ONTO HILLCREST RD. THE SITE IS ON THE RIGHT.

VICINITY MAP



NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NB+C TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC.
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

STATE OF CONNECTICUT · KRUPAKARAN KOLANDAIVELU · PEN.0028997 · LICENSED PROFESSIONAL ENGINEER

10/08/2021

KRUPAKARAN KOLANDAIVELU, P.E.
STATE OF CONNECTICUT
PROFESSIONAL ENGINEER
LICENSE #PEN.0028997

DRAWN BY:	CHECKED BY:	APPROVED BY:
BPC	BRN	TA

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	08/26/2021	ISSUED FOR CONSTRUCTION
1	10/08/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

876399

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00100A
60 SOUTH MAIN ST
EAST GRANBY, CT 06026

SHEET TITLE

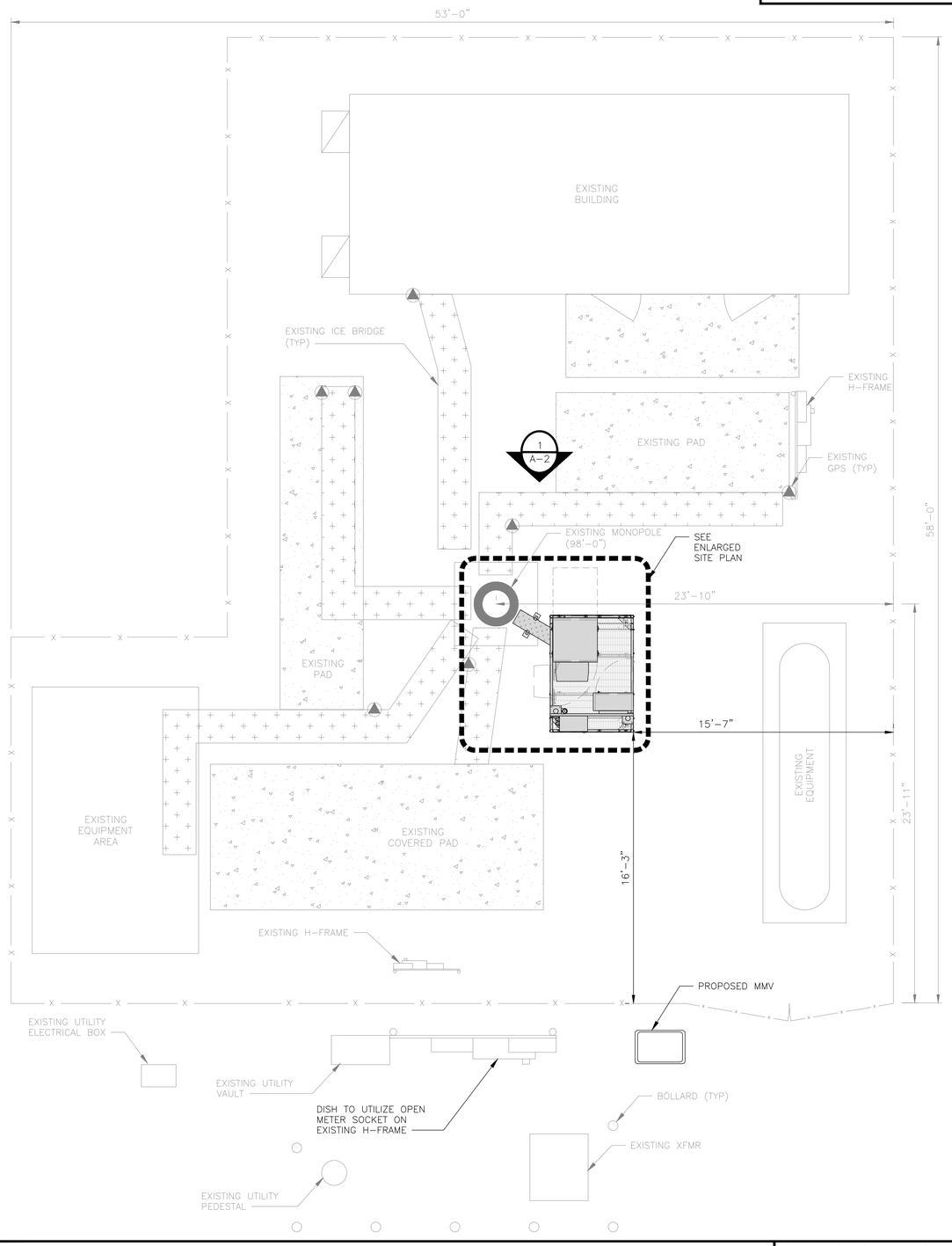
TITLE SHEET

SHEET NUMBER

T-1

NOTES

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



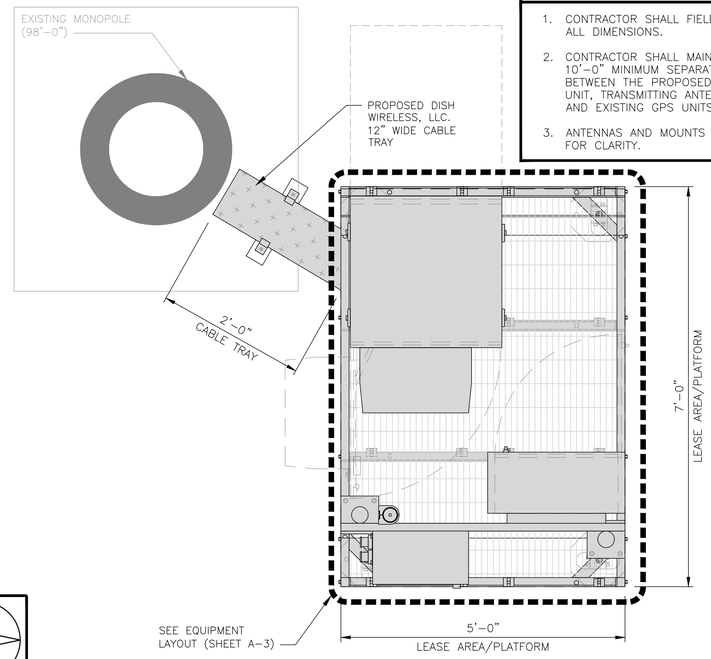
OVERALL SITE PLAN

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' 6' 7'
3/8"=1'-0"

2

NOT USED

3

dish wireless.

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EAST GRANBY, CT 06026

SHEET TITLE

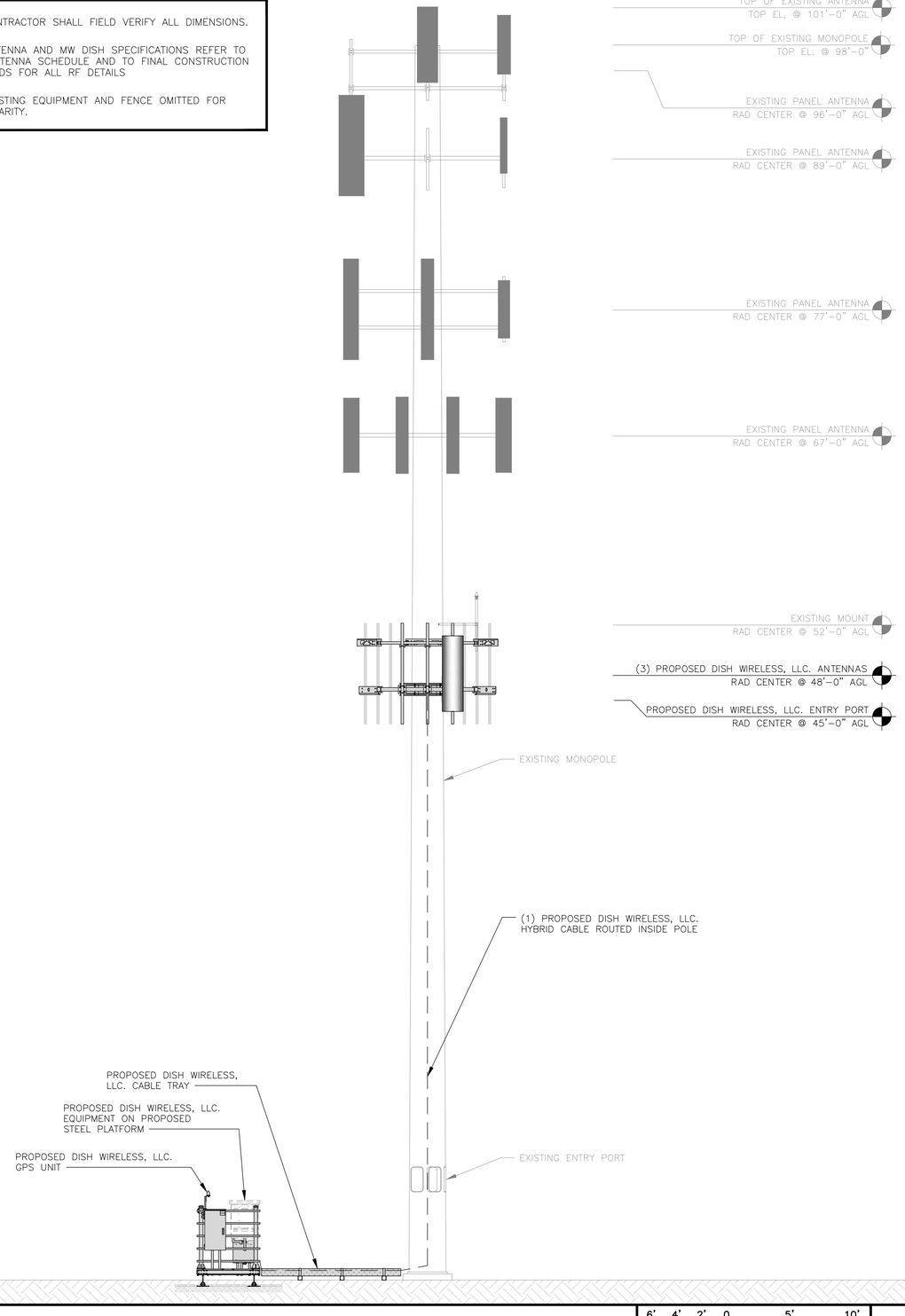
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

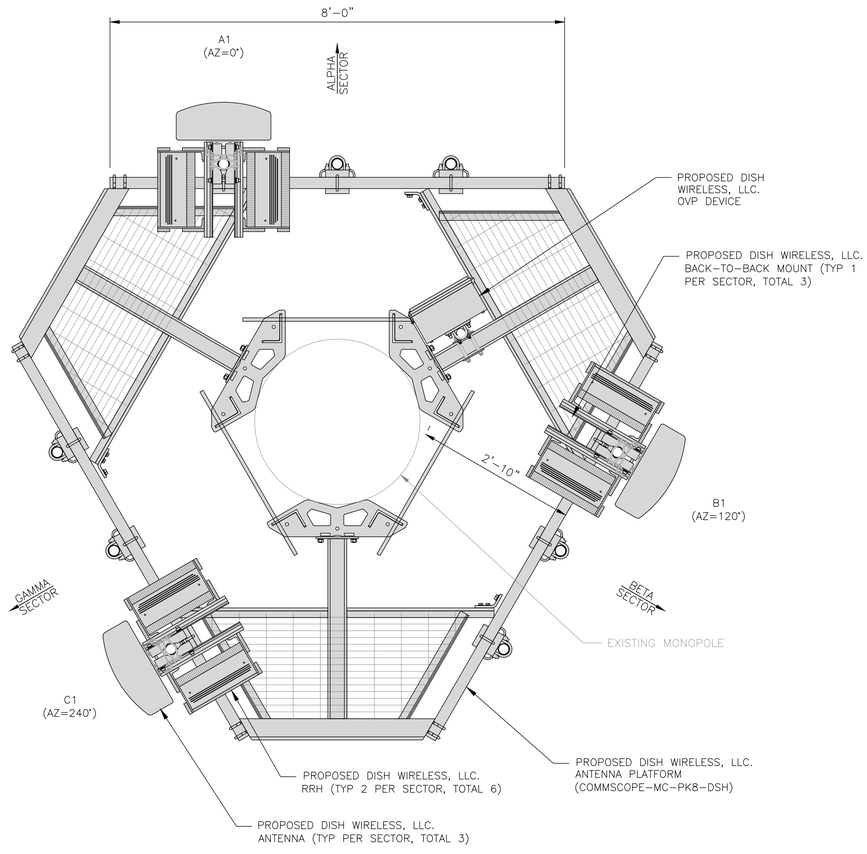
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED NORTH ELEVATION

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

1



N

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)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA – MX08FR0665-21	5G	72.0" x 20.0"	0°	48'-0"	(1) HIGH-CAPACITY HYBRID CABLE (73' LONG)
BETA	B1	PROPOSED	JMA – MX08FR0665-21	5G	72.0" x 20.0"	120°	48'-0"	
GAMMA	C1	PROPOSED	JMA – MX08FR0665-21	5G	72.0" x 20.0"	240°	48'-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	C1	FUJITSU – TA08025-B604	5G
	C1	FUJITSU – TA08025-B605	5G

NOTES

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

ANTENNA SCHEDULE

NO SCALE

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
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PROJECT INFORMATION

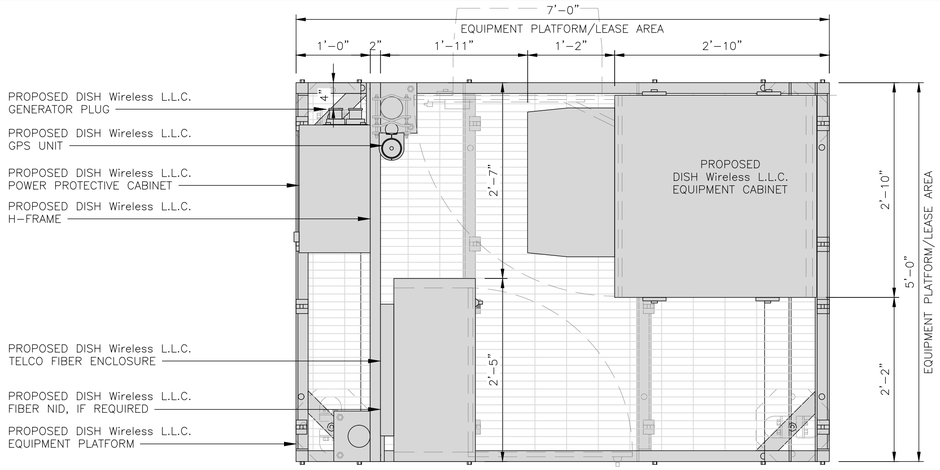
BOBDL00100A
60 SOUTH MAIN ST
EAST GRANBY, CT 06026

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



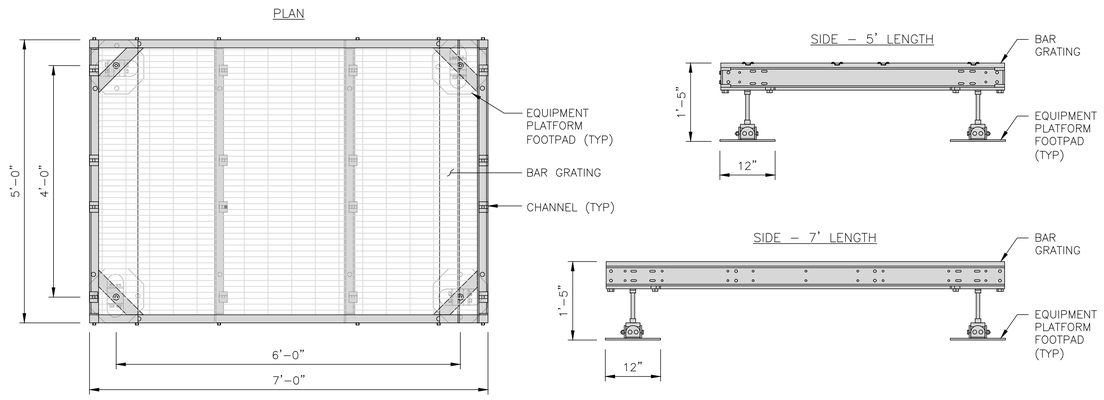
PLATFORM EQUIPMENT PLAN

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"

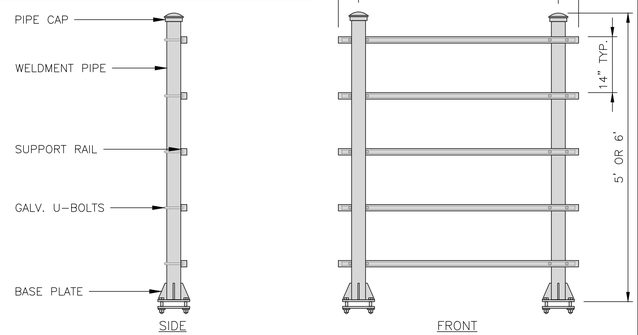


PLATFORM DETAIL

NO SCALE

2

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



H-FRAME DETAIL

NO SCALE

3

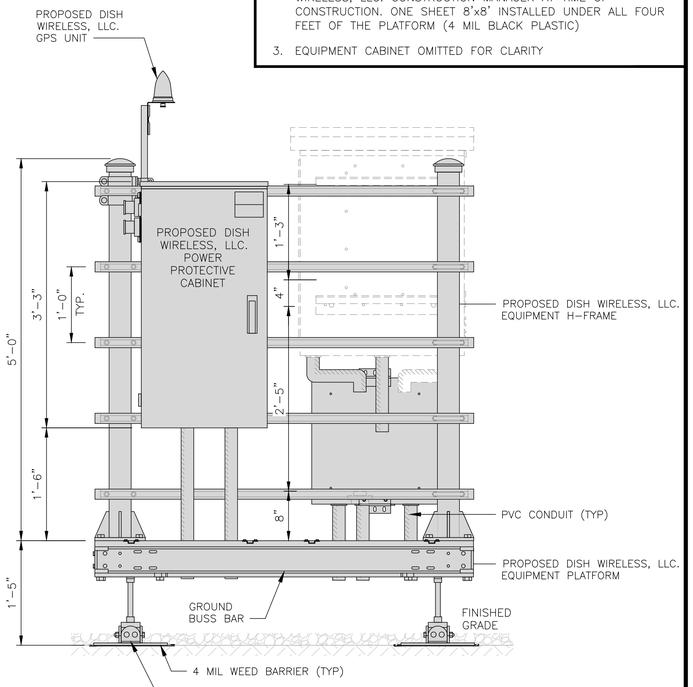
NOT USED

NO SCALE

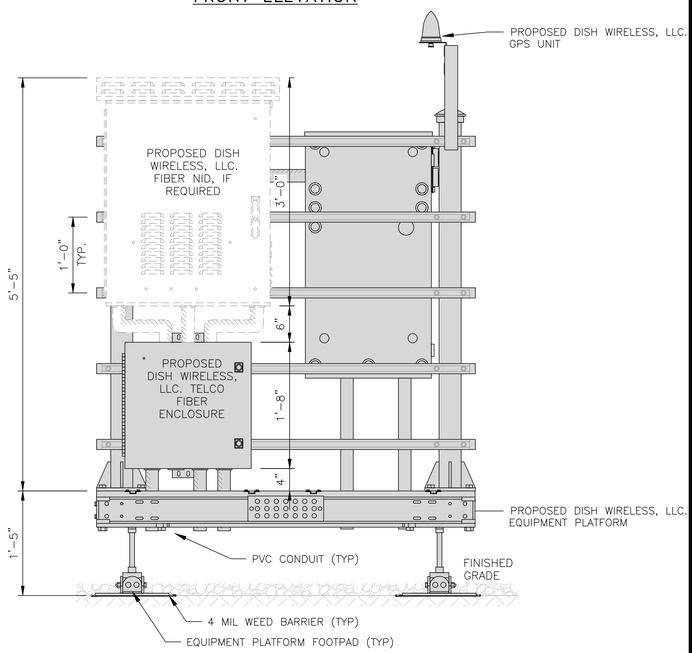
4

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, LLC. 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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10/08/2021

KRUPAKARAN KOLANDAIVELU, P.E.
STATE OF CONNECTICUT
PROFESSIONAL ENGINEER
LICENSE #PEN.0028997

DRAWN BY:	CHECKED BY:	APPROVED BY:
BPC	BRN	TA

RFDS REV #: ---

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DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00100A
60 SOUTH MAIN ST
EAST GRANBY, CT 06026

SHEET TITLE

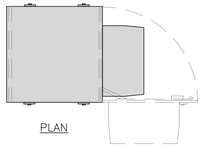
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER

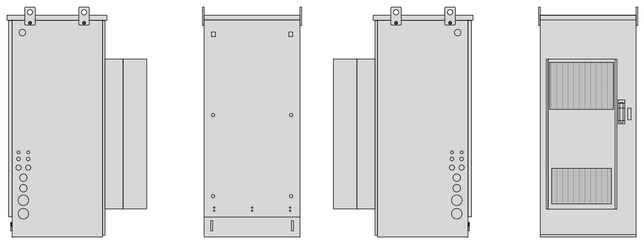
A-3

CHARLES INDUSTRY HEX CUBE–PM639155N4

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



PLAN



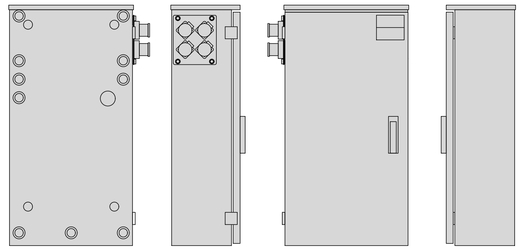
SIDE BACK SIDE FRONT

CABINET DETAIL | NO SCALE | 1

RAYCAP PPC RDIAC–2465–P–240–MTS

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

TOP



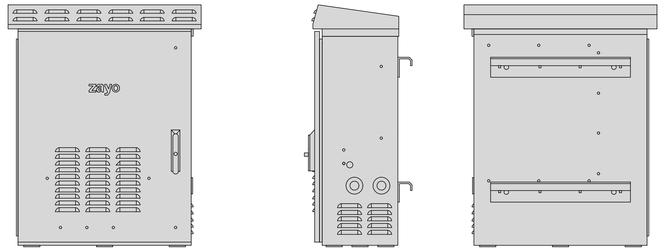
BACK SIDE FRONT SIDE

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

ZAYO 5RU CABINET LEFT SWING DOOR ("LIT" SITES)

DIMENSIONS (HxWxD)	36.115"x29"x12.9"
WEIGHT	85 LBS
POWER INPUT	20A, –48VDC

PLAN

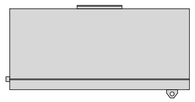


FRONT SIDE BACK

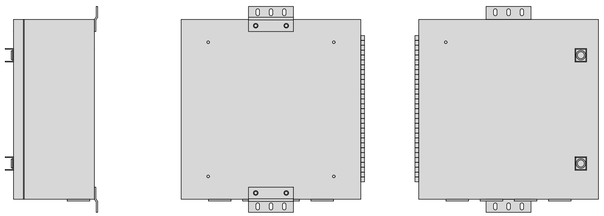
NETWORK INTERFACE UNIT DETAIL | NO SCALE | 3

CHARLES CFIT–PF2020DSH1 FIBER TELCO ENCLOSURE

ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



FRONT



SIDE BACK FRONT

FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 4

COMMSCOPE RT–CB4D ROOFTOP COVER KIT

DIMENSIONS (HxWxL)	7"x 11.25"x 96"
WEIGHT/ VOLUME	85.98 LBS
CABLE RUN (QTY)	4

MOUNTING	NON–PENETRATING
INCLUDED PRODUCTS:	RTCB4D.01 CHANNEL (1)
	MT–F1598 SLEEPERS (3)
	RTCUH HARDWARE
	RTHC.01 HOLD–DOWN CLAMPS (6)

END SIDE PLAN

ROOFTOP CABLE TRAY DETAIL | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

dish wireless.

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60 SOUTH MAIN ST
EAST GRANBY, CT 06026

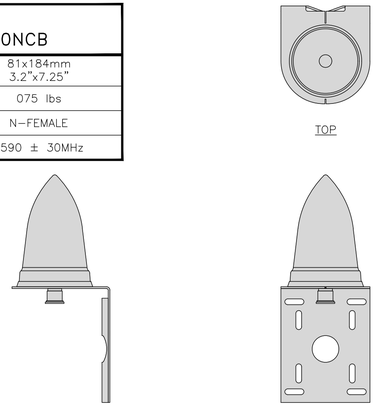
SHEET TITLE

EQUIPMENT DETAILS

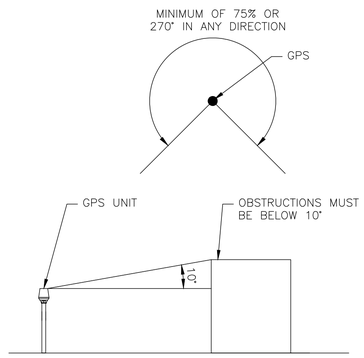
SHEET NUMBER

A-4

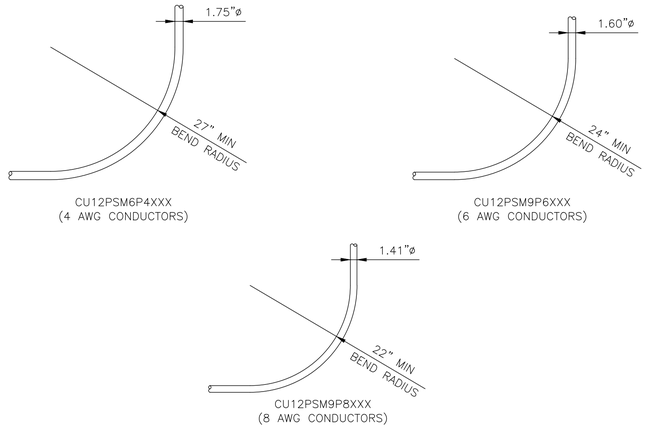
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



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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10/08/2021

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SHEET TITLE

EQUIPMENT DETAILS

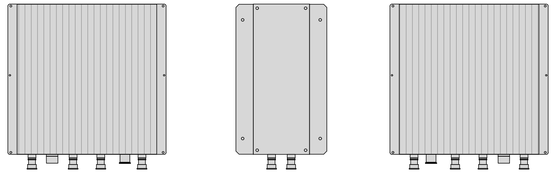
SHEET NUMBER

A-5

FUJITSU TRIPLE BAND TA08025-B605

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

PLAN

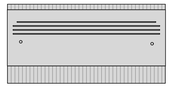


BACK SIDE FRONT

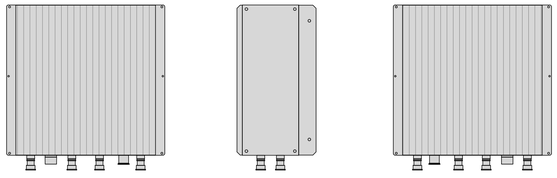
RRH DETAIL | NO SCALE | 1

FUJITSU DUAL BAND TA08025-B604

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



PLAN



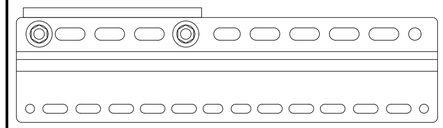
BACK SIDE FRONT

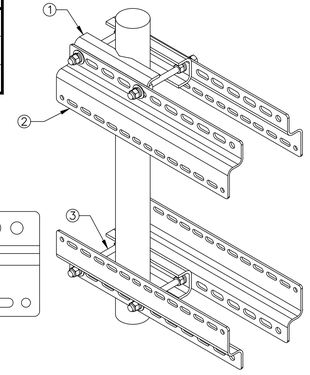
RRH DETAIL | NO SCALE | 2

SABRE DOUBLE Z-BRACKET C10123155

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

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



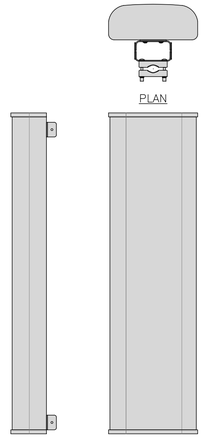


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

RRH MOUNT DETAIL | NO SCALE | 3

JMA MX08FRO665-21

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



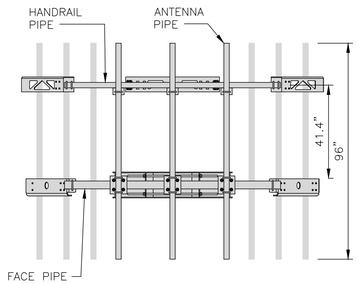
PLAN

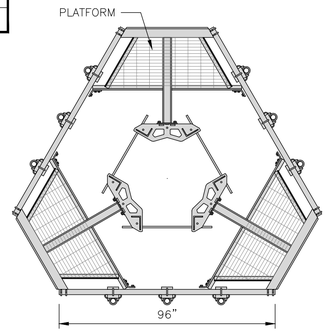
SIDE FRONT

ANTENNA DETAIL | NO SCALE | 4

COMMSCOPE MC-PK8-DSH

FACE WIDTH	96"
WEIGHT	1373.08 lbs
NOTE: 15" TO 38" O.D.	



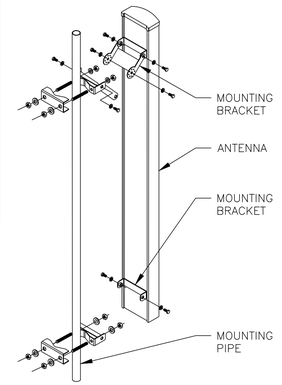


ANTENNA PLATFORM DETAIL | NO SCALE | 5

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

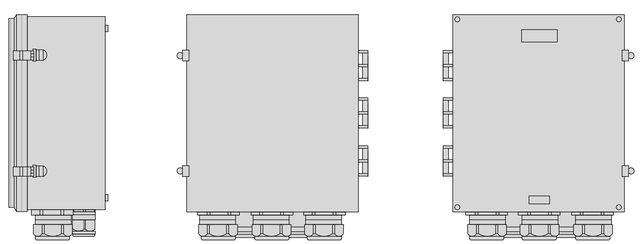


ANTENNA MOUNTING DETAIL | NO SCALE | 6

RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)

DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS

PLAN



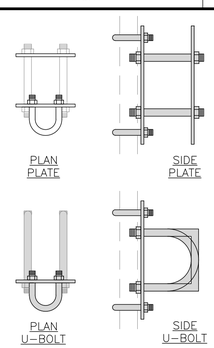
SIDE BACK FRONT

SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

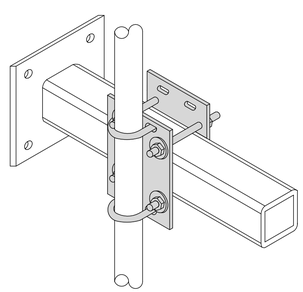
COMMSCOPE XP-2040 CROSSOVER PLATE

DIMENSIONS (HxW)	10"x12"
WEIGHT	11 lbs

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



PLAN PLATE SIDE PLATE
PLAN U-BOLT SIDE U-BOLT



RRH/OVP MOUNT DETAIL | NO SCALE | 8

NOT USED | NO SCALE | 9

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10/08/2021

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STATE OF CONNECTICUT
PROFESSIONAL ENGINEER
LICENSE #PEN.0028997

DRAWN BY:	CHECKED BY:	APPROVED BY:
BPC	BRN	TA

RFDS REV #: ---

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1	10/08/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

876399

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00100A
60 SOUTH MAIN ST
EAST GRANBY, CT 06026

SHEET TITLE

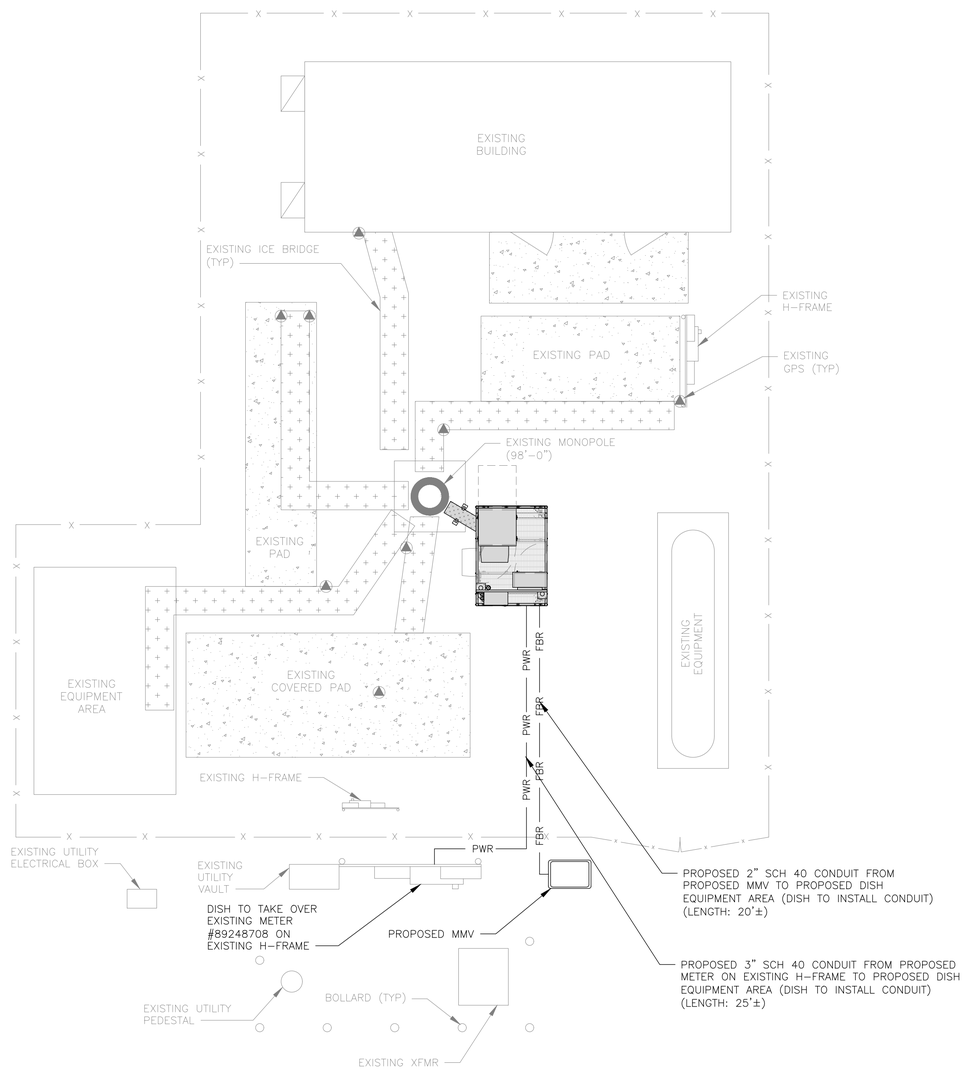
EQUIPMENT DETAILS

SHEET NUMBER

A-6

EASEMENT RIGHTS

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. DUE TO UTILITY EASEMENT RIGHTS SPECIFIED IN THE GROUND LEASE, CUSTOMER MAY INSTALL EQUIPMENT WITHIN SPECIFIED UTILITY EASEMENT AREA. "PWR" AND "FBR" PATH DEPICTED ON A-1 AND E-1 REPRESENT PLANNED ROUTING BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO A SURVEY, EXHIBITS, METES AND BOUNDS OF THE UTILITY EASEMENT, FIELD VERIFICATION, PRIOR PROJECT DOCUMENTATION AND OTHER REAL PROPERTY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLEASE LOCATE AND FOLLOW EXISTING PATH. IF EXISTING PATH IS MATERIALLY INCONSISTENT WITH THE "PWR" AND "FBR" PATH DEPICTED ON A-1 AND E-1 AND SAID VARIANCE IS NOT NOTED ON CDS, PLEASE NOTIFY CROWN CASTLE REAL ESTATE AS FURTHER COORDINATION MAY BE NEEDED.



N

UTILITY ROUTE PLAN

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

1

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

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

ELECTRICAL NOTES

NO SCALE

2

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STATE OF CONNECTICUT
PEN.0028997
LICENSED PROFESSIONAL ENGINEER

10/08/2021

KRUPAKARAN KOLANDAIVELU, P.E.
STATE OF CONNECTICUT
PROFESSIONAL ENGINEER
LICENSE #PEN.0028997

DRAWN BY:	CHECKED BY:	APPROVED BY:
BPC	BRN	TA

RFDS REV #: ---

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A&E PROJECT NUMBER

876399

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00100A
60 SOUTH MAIN ST
EAST GRANBY, CT 06026

SHEET TITLE

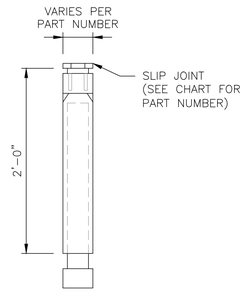
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

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"

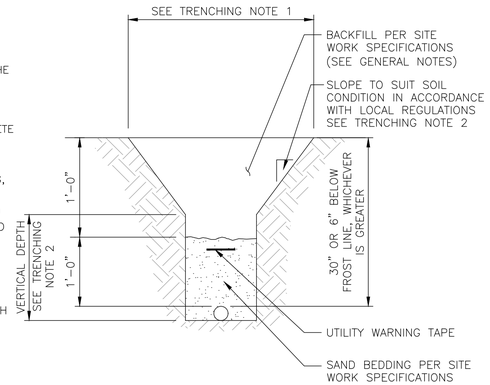


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

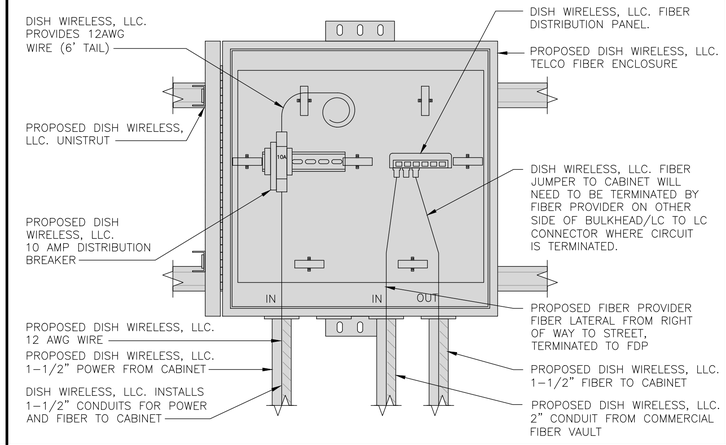
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

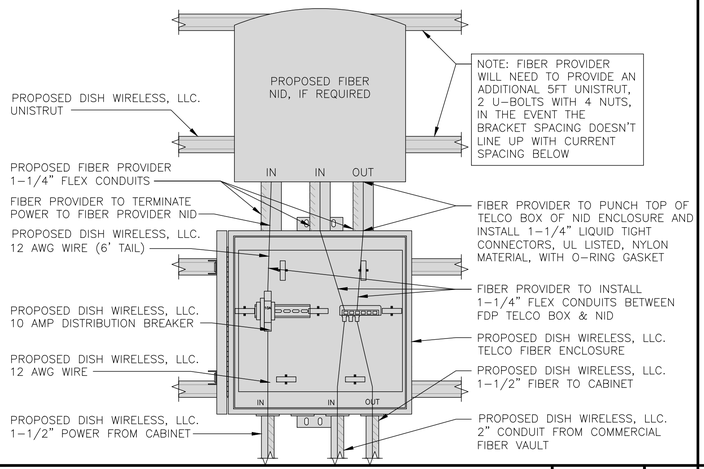
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT 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



DARK TELCO BOX – INTERIOR WIRING LAYOUT | NO SCALE | 3



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

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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10/08/2021

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LICENSE #PEN.0028997

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RFDS REV #: ---

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876399

DISH WIRELESS, LLC.
PROJECT INFORMATION

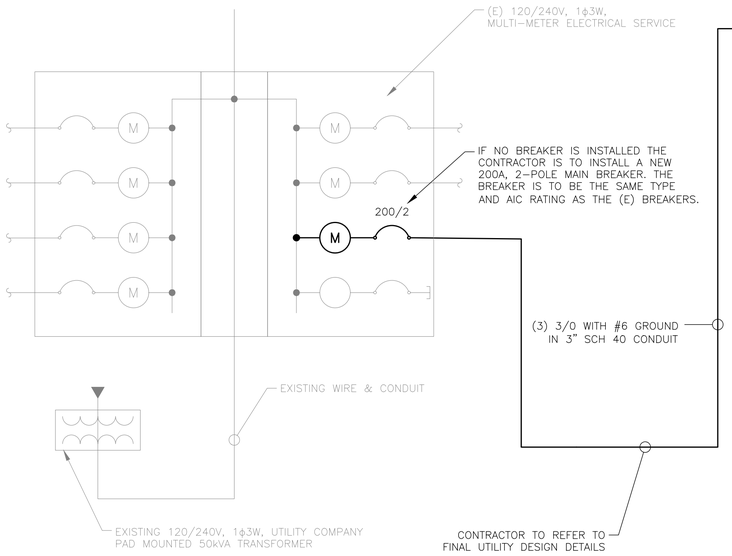
BOBDL00100A
60 SOUTH MAIN ST
EAST GRANBY, CT 06026

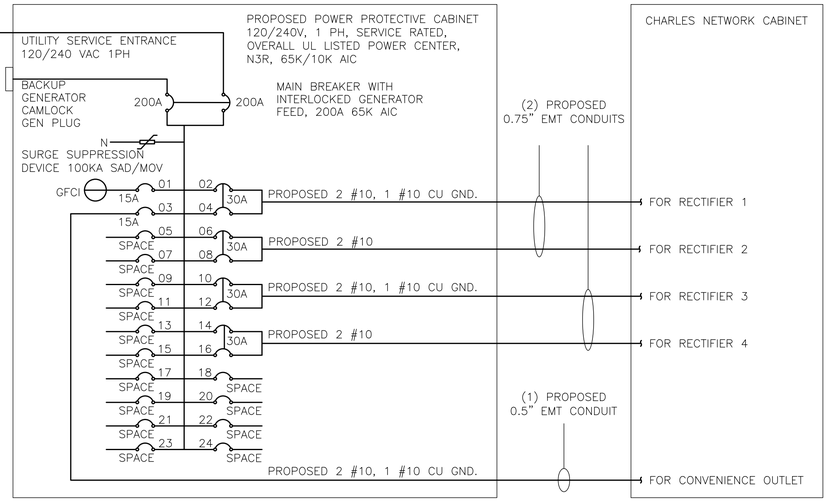
SHEET TITLE

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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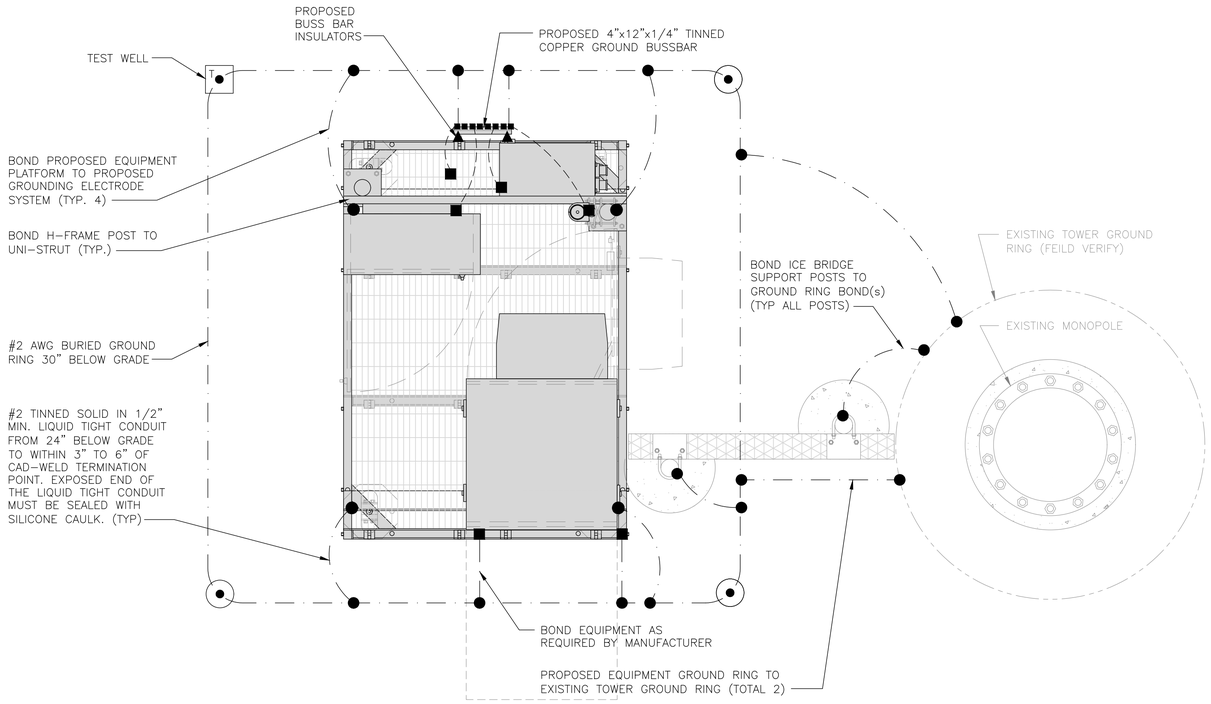
876399

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00100A
60 SOUTH MAIN ST
EAST GRANBY, CT 06026

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

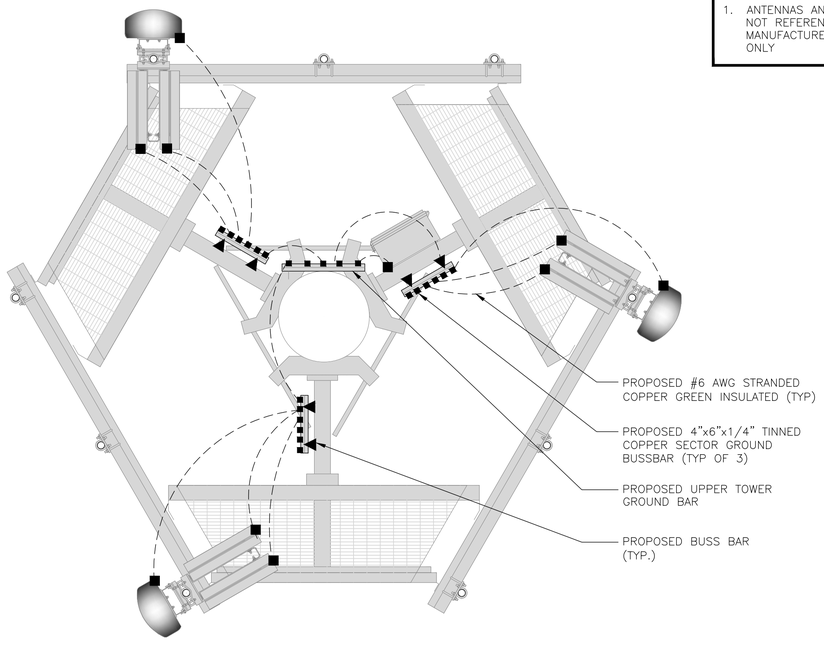
SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN | NO SCALE | 1

NOTES

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



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

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

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

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

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

(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, LLC. GROUNDING NOTES.

GROUNDING KEY NOTES | NO SCALE | 3

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(919) 657-9131

10/08/2021

KRUPAKARAN KOLANDAIVELU, P.E.
STATE OF CONNECTICUT
PROFESSIONAL ENGINEER
LICENSE #PEN.0028997

DRAWN BY:	CHECKED BY:	APPROVED BY:
BPC	BRN	TA

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
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1	10/08/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

876399

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00100A
60 SOUTH MAIN ST
EAST GRANBY, CT 06026

SHEET TITLE

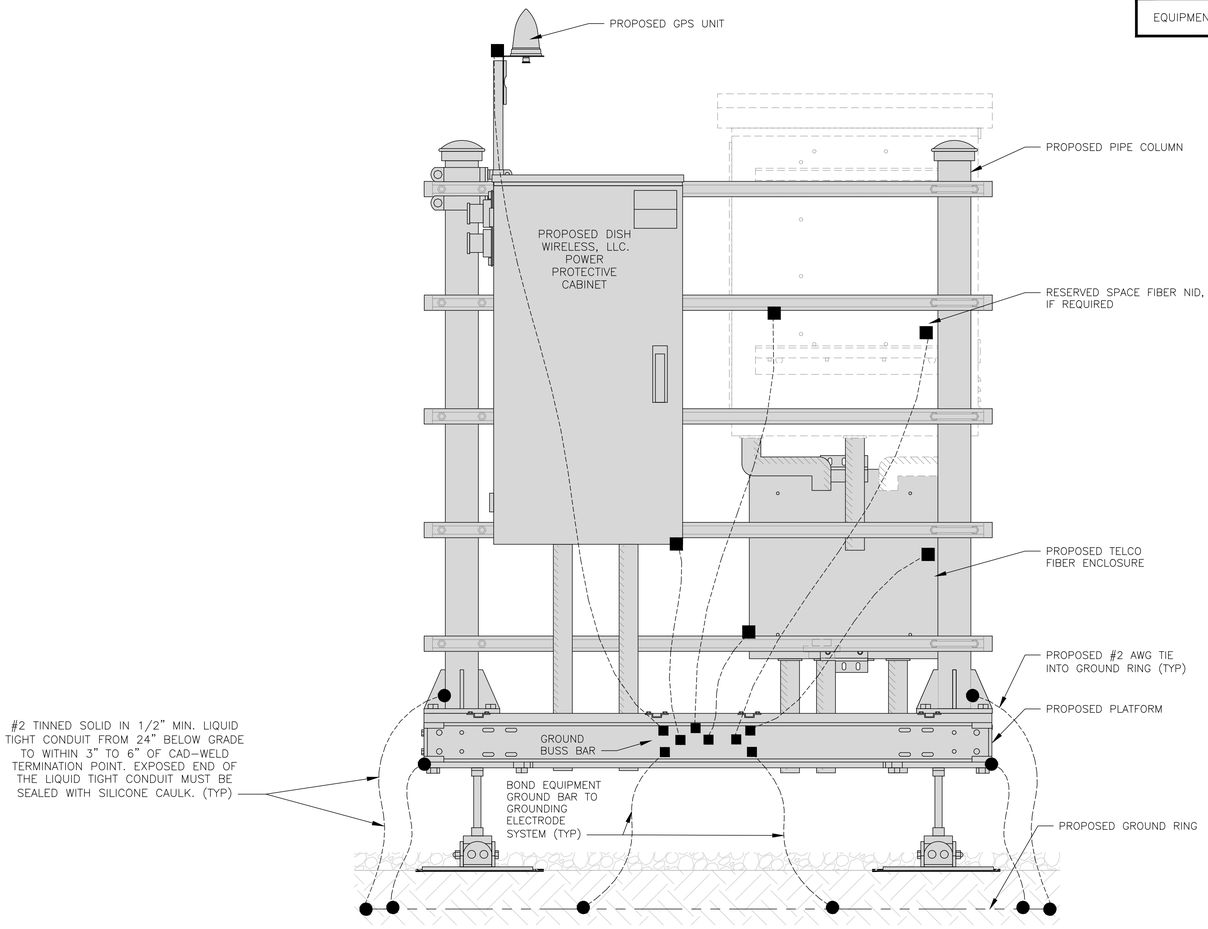
GROUNDING PLANS AND NOTES

SHEET NUMBER

G-1

NOTES

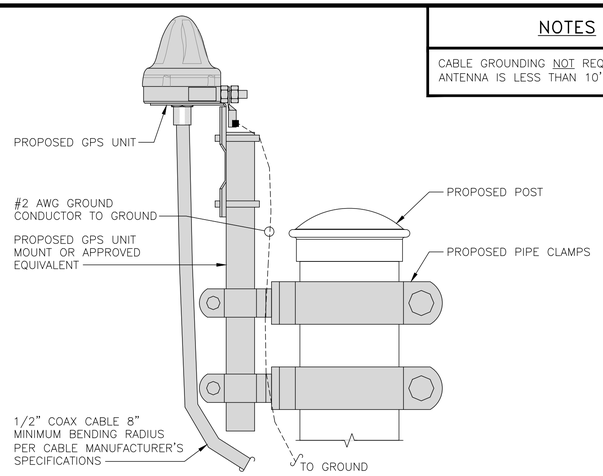
EQUIPMENT CABINET OMITTED FOR CLARITY



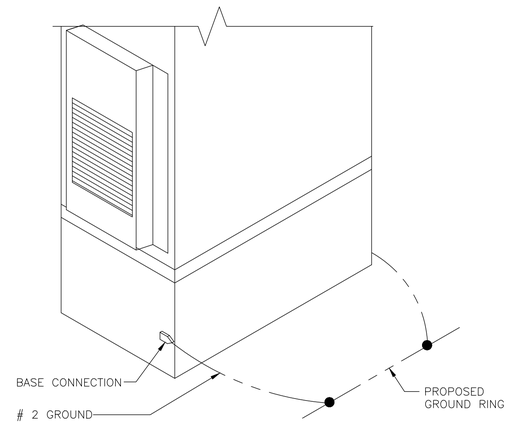
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

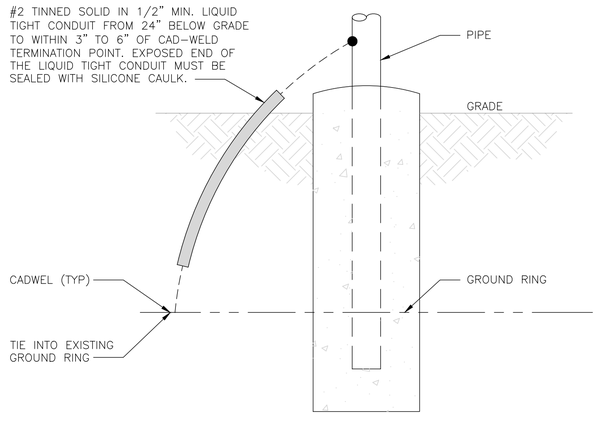
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



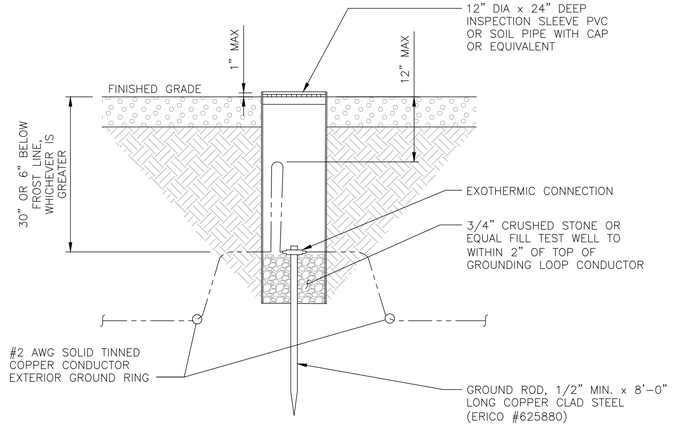
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



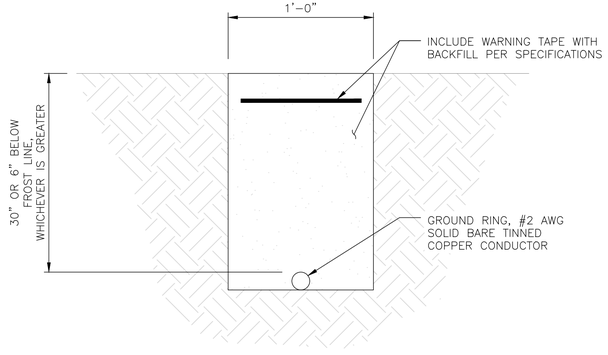
OUTDOOR CABINET GROUNDING | NO SCALE | 3



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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STATE OF CONNECTICUT — KRUPAKARAN KOLANDAIVELU — PEN.0028997 — LICENSED PROFESSIONAL ENGINEER

10/08/2021

KRUPAKARAN KOLANDAIVELU, P.E.
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LICENSE #PEN.0028997

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PROJECT INFORMATION

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60 SOUTH MAIN ST
EAST GRANBY, CT 06026

SHEET TITLE

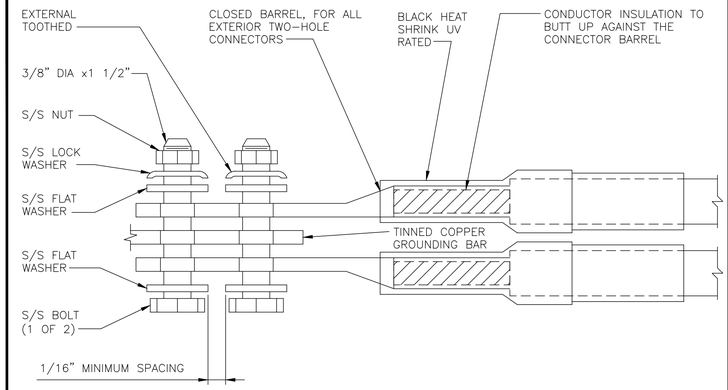
GROUNDING DETAILS

SHEET NUMBER

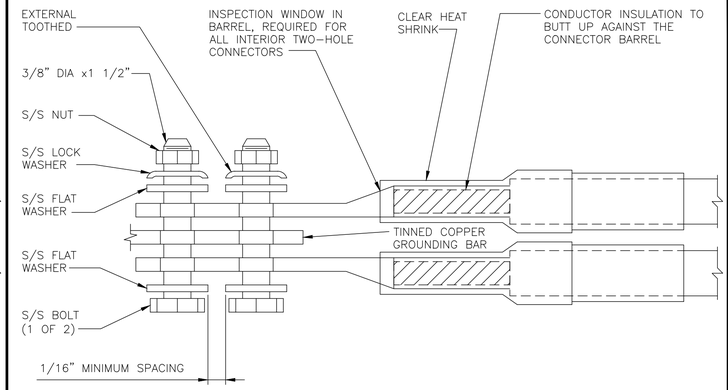
G-2

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).

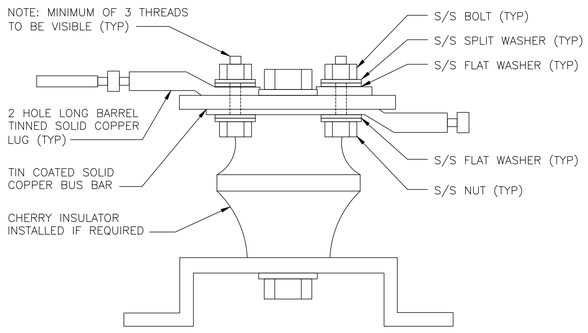
TYPICAL GROUNDING NOTES | NO SCALE | 1



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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60 SOUTH MAIN ST
EAST GRANBY, CT 06026

SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

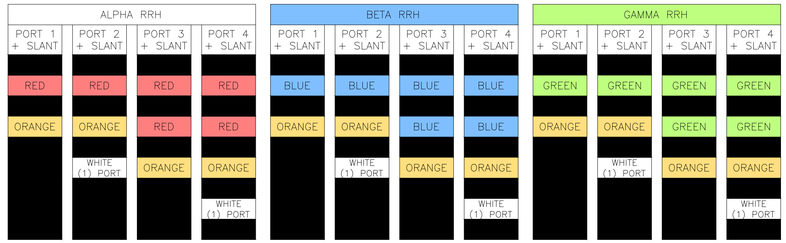
G-3

RF JUMPER COLOR CODING

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

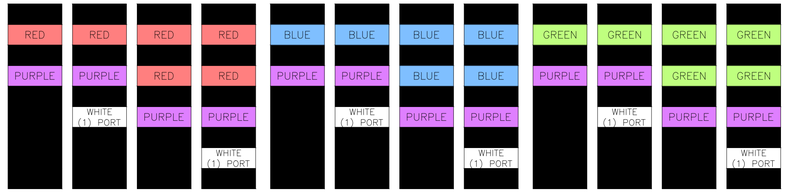
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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)

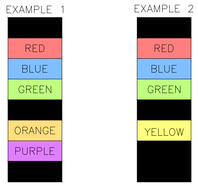


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED AM LONG WITH FREQUENCY BANDS

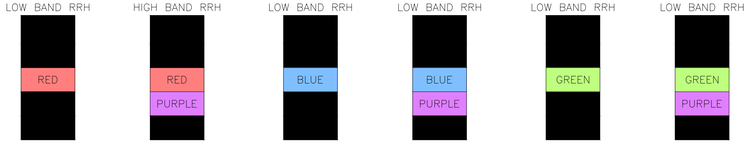
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

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



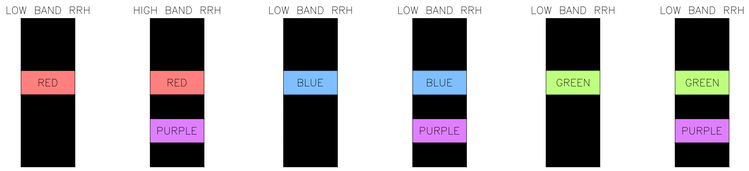
HYBRID/DISCREET CABLES

LOW-BAND RRH FIBER CABLES HAVE SECTOR STRIPE ONLY

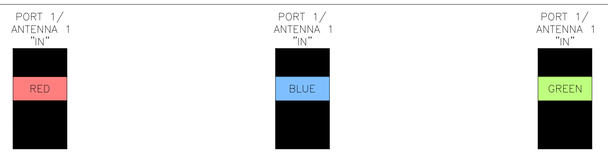


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



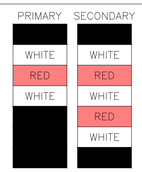
RET MOTORS AT ANTENNAS



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 CABINETS 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-N28)
OPTIONAL – (N29)
ORANGE

AWS
(N65+N70+H-BLOCK)
PURPLE

CBRS TECH
(3 GHz)
YELLOW

NEGATIVE SLANT PORT
ON ANTRRH
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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PROJECT INFORMATION
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60 SOUTH MAIN ST
EAST GRANBY, CT 06026

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

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NB+C TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC.
8601 SIX FORKS ROAD, SUITE 540
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10/08/2021

KRUPAKARAN KOLANDAIVELU, P.E.
STATE OF CONNECTICUT
PROFESSIONAL ENGINEER
LICENSE #PEN.0028997

DRAWN BY:	CHECKED BY:	APPROVED BY:
BPC	BRN	TA

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	08/26/2021	ISSUED FOR CONSTRUCTION
1	10/08/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

876399

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00100A
60 SOUTH MAIN ST
EAST GRANBY, CT 06026

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, LLC. AND TOWER OWNER NOC & THE DISH WIRELESS, LLC. AND TOWER OWNER CONSTRUCTION MANAGER.

2. "LOOK UP" – DISH WIRELESS, LLC. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GENERAL NOTES:

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

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH WIRELESS, LLC.

TOWER OWNER:TOWER OWNER

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

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

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

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

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

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

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

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

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

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

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

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

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

dish wireless.

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STATE OF CONNECTICUT
PEN.0028997
LICENSED
PROFESSIONAL ENGINEER

10/08/2021

KRUPAKARAN KOLANDAIVELU, P.E.
STATE OF CONNECTICUT
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A&E PROJECT NUMBER

876399

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00100A
60 SOUTH MAIN ST
EAST GRANBY, CT 06026

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

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

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

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

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

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

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

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

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

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

8. TIE WRAPS ARE NOT ALLOWED.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH WIRELESS, LLC.".

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

dish wireless.

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DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00100A
60 SOUTH MAIN ST
EAST GRANBY, CT 06026

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.

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NB+C ENGINEERING SERVICES, LLC.
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10/08/2021

KRUPAKARAN KOLANDAIVELU, P.E.
STATE OF CONNECTICUT
PROFESSIONAL ENGINEER
LICENSE #PEN.0028997

DRAWN BY:	CHECKED BY:	APPROVED BY:
BPC	BRN	TA

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	08/26/2021	ISSUED FOR CONSTRUCTION
1	10/08/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

876399

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00100A
60 SOUTH MAIN ST
EAST GRANBY, CT 06026

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

Exhibit D

Structural Analysis Report

Date: **September 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:	BOBDL00100A
	Site Name:	CT-CCI-T-876399
Crown Castle Designation:	**BU Number:**	876399
	Site Name:	(F) E. GRANBY 4Q2000 / GALASSO
	JDE Job Number:	650083
	Work Order Number:	1987173
	Order Number:	556577 Rev. 3
Engineering Firm Designation:	**Crown Castle Project Number:**	1987173
Site Data:	**60 South Main St., EAST GRANBY, HARTFORD County, CT**	
	Latitude *41° 56' 29.59"*, Longitude *-72° 44' 19.248"*	
	98 Foot - Monopole Tower	

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

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

LC5: Proposed Equipment Configuration **Sufficient Capacity - 93.5%**

This analysis has been performed in accordance with the 2018 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 115 mph. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Kibreab Gebremariam

Respectfully submitted by:

Maribel Dentinger
Maribel Dentinger, P.E.
Senior Project Engineer

Maribel Dentinger
Digitally signed by Maribel Dentinger
Date: 2021.09.03 12:49:52 -04'00'

STATE OF CONNECTICUT
MARIBEL DENTINGER
23524
LICENSED
PROFESSIONAL ENGINEER

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1) INTRODUCTION

This tower is a 98 ft Monopole tower designed by ENGINEERED ENDEAVORS, INC.. The tower has been modified multiple times to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	115 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
48.0	48.0	3	fujitsu	TA08025-B604	1	1-3/8
		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)
96.0	98.0	3	alcatel lucent	PCS 1900MHz 4x45W-65MHz	3 1	1-1/4 7/8
		6	alcatel lucent	RRH2X50-800		
		3	commscope	NNVV-65B-R4 w/ Mount Pipe		
		3	nokia	FZHN		
		3	rfs celwave	APXVTM14-ALU-I20 w/ Mount Pipe		
	96.0	1	tower mounts	Platform Mount [LP 714-1]		
		1	tower mounts	Miscellaneous [NA 510-1]		
89.0	90.0	3	ericsson	RADIO 4449 B12/B71	11 1	7/8 1-3/8
		3	rfs celwave	APXV18-209014-C w/ Mount Pipe		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		3	rfs celwave	ATMPP1412D-1CWA		
	89.0	1	tower mounts	Platform Mount [LP 305-1]		
74.0	77.0	1	andrew	SBNH-1D6565C w/ Mount Pipe	12 4 2	7/8 3/4 3/8
		3	cci antennas	TPA-65R-LCUUUU-H8 w/ Mount Pipe		
		3	ericsson	RRUS 32 B2		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	ericsson	RRUS 32 B30		
		3	kaelus	DBC0061F1V51-2		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		2	powerwave technologies	P65-17-XLH-RR w/ Mount Pipe		
		3	powerwave technologies	TT19-08BP111-001		
		2	raycap	DC6-48-60-18-8F		
	74.0	1	tower mounts	Platform Mount [LP 303-1_HR-1]		
67.0	67.0	3	alcatel lucent	B13 RRH 4X30	2 12	1-3/8 1-5/8
		3	alcatel lucent	B66A RRH4X45		
		6	antel	LPA-80063/6CFX2 w/ Mount Pipe		
		2	commscope	RC2DC-3315-PF-48		
		6	commscope	SBNHH-1D65B w/ Mount Pipe		
52.0	54.0	1	lucent	KS24019-L112A	1	7/8
	52.0	1	tower mounts	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1531971	CCISITES
4-POST-MODIFICATION INSPECTION	9024342	CCISITES
4-POST-MODIFICATION INSPECTION	6139057	CCISITES
4-POST-MODIFICATION INSPECTION	3713020	CCISITES
4-POST-MODIFICATION INSPECTION	2682749	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	2066334	CCISITES
4-TOWER MANUFACTURER DRAWINGS	1613691	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	8420875	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	5803194	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3713021	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2529017	CCISITES

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

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

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
98 - 93	Pole	TP13.078x12x0.1875	Pole	10.7%	Pass
93 - 88	Pole	TP14.156x13.078x0.1875	Pole	23.4%	Pass
88 - 85.21	Pole	TP15.28x14.156x0.1875	Pole	31.2%	Pass
85.21 - 80.21	Pole	TP15.445x14.384x0.25	Pole	33.9%	Pass
80.21 - 75.21	Pole	TP16.507x15.445x0.25	Pole	40.7%	Pass
75.21 - 70.21	Pole	TP17.569x16.507x0.25	Pole	52.0%	Pass
70.21 - 65.21	Pole	TP18.63x17.569x0.25	Pole	61.9%	Pass
65.21 - 60.21	Pole	TP19.692x18.63x0.25	Pole	72.2%	Pass
60.21 - 59.17	Pole	TP19.912x19.692x0.25	Pole	74.1%	Pass
59.17 - 58.9	Pole + Reinf.	TP19.97x19.912x0.5125	Reinf. 10 Compression	66.8%	Pass
58.9 - 58.75	Pole + Reinf.	TP20.001x19.97x0.5125	Reinf. 10 Compression	67.1%	Pass
58.75 - 54	Pole + Reinf.	TP21.01x20.001x0.5	Reinf. 10 Compression	75.7%	Pass
54 - 53.75	Pole + Reinf.	TP21.063x21.01x0.5125	Reinf. 10 Compression	67.9%	Pass
53.75 - 52.91	Pole + Reinf.	TP21.241x21.063x0.5	Reinf. 10 Compression	69.2%	Pass
52.91 - 52.66	Pole + Reinf.	TP21.294x21.241x0.675	Reinf. 8 Compression	66.8%	Pass
52.66 - 52.17	Pole + Reinf.	TP21.399x21.294x0.675	Reinf. 8 Compression	67.6%	Pass
52.17 - 51.92	Pole + Reinf.	TP21.452x21.399x0.525	Reinf. 9 Compression	72.3%	Pass
51.92 - 48.7	Pole + Reinf.	TP22.86x21.452x0.5125	Reinf. 9 Compression	77.1%	Pass
48.7 - 44.29	Pole + Reinf.	TP22.575x21.634x0.5625	Reinf. 7 Compression	76.2%	Pass
44.29 - 39.29	Pole + Reinf.	TP23.639x22.575x0.55	Reinf. 7 Compression	82.7%	Pass
39.29 - 34.29	Pole + Reinf.	TP24.703x23.639x0.5375	Reinf. 7 Compression	88.3%	Pass
34.29 - 33.5	Pole + Reinf.	TP24.87x24.703x0.525	Reinf. 7 Compression	89.2%	Pass
33.5 - 33.25	Pole + Reinf.	TP24.923x24.87x0.8375	Reinf. 7 Compression	60.4%	Pass
33.25 - 33	Pole + Reinf.	TP24.977x24.923x0.8375	Reinf. 7 Compression	60.6%	Pass
33 - 32.75	Pole + Reinf.	TP25.03x24.977x0.8125	Reinf. 7 Compression	65.8%	Pass
32.75 - 32	Pole + Reinf.	TP25.19x25.03x0.8	Reinf. 7 Compression	66.4%	Pass

32 - 31.75	Pole + Reinf.	TP25.243x25.19x0.5875	Reinf. 6 Tension Rupture	80.3%	Pass
31.75 - 28.5	Pole + Reinf.	TP25.934x25.243x0.575	Reinf. 6 Tension Rupture	83.1%	Pass
28.5 - 28.25	Pole + Reinf.	TP25.988x25.934x0.8625	Reinf. 6 Tension Rupture	57.9%	Pass
28.25 - 27.5	Pole + Reinf.	TP26.147x25.988x0.85	Reinf. 6 Tension Rupture	58.4%	Pass
27.5 - 27.25	Pole + Reinf.	TP26.2x26.147x0.575	Reinf. 5 Tension Rupture	84.1%	Pass
27.25 - 22.25	Pole + Reinf.	TP27.265x26.2x0.5625	Reinf. 5 Tension Rupture	87.9%	Pass
22.25 - 18	Pole + Reinf.	TP28.169x27.265x0.55	Reinf. 5 Tension Rupture	90.6%	Pass
18 - 17.75	Pole + Reinf.	TP28.222x28.169x0.5625	Reinf. 5 Tension Rupture	83.2%	Pass
17.75 - 15.45	Pole + Reinf.	TP28.712x28.222x0.425	Pole	84.2%	Pass
15.45 - 15.2	Pole + Reinf.	TP28.765x28.712x0.6875	Reinf. 3 Tension Rupture	82.7%	Pass
15.2 - 13.41	Pole + Reinf.	TP29.146x28.765x0.675	Reinf. 3 Tension Rupture	83.7%	Pass
13.41 - 13.16	Pole + Reinf.	TP29.199x29.146x0.5625	Reinf. 4 Tension Rupture	87.3%	Pass
13.16 - 8.16	Pole + Reinf.	TP30.263x29.199x0.55	Reinf. 4 Tension Rupture	89.8%	Pass
8.16 - 6.5	Pole + Reinf.	TP30.617x30.263x0.55	Reinf. 4 Tension Rupture	90.6%	Pass
6.5 - 6.25	Pole + Reinf.	TP30.67x30.617x0.6625	Reinf. 3 Tension Rupture	87.2%	Pass
6.25 - 4.45	Pole + Reinf.	TP31.053x30.67x0.65	Reinf. 3 Tension Rupture	88.0%	Pass
4.45 - 4.2	Pole + Reinf.	TP31.106x31.053x0.5125	Reinf. 1 Tension Rupture	89.3%	Pass
4.2 - 0	Pole + Reinf.	TP32x31.106x0.5	Reinf. 2 Tension Rupture	91.0%	Pass
				Summary	
			Pole	84.2%	Pass
			Reinforcement	91.0%	Pass
			Overall	91.0%	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	57.6	Pass
1	Base Plate	0	93.5	Pass
1	Base Foundation (Structure)	0	57.7	Pass
1	Base Foundation (Soil Interaction)	0	76.7	Pass

Structure Rating (max from all components) =	93.5%

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

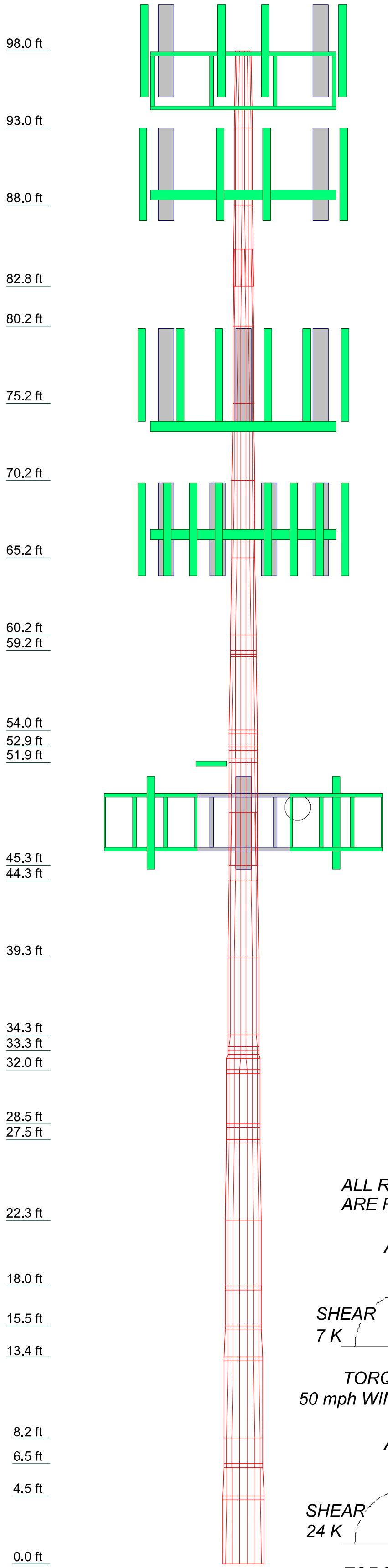
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.000	18	0.188		12.000	13.078	A572-65	0.1
2	5.000	18	0.188		13.078	14.156		0.1
3	5.210	18	0.188	2.417	14.156	15.280		0.2
4	5.000	18	0.250		14.384	15.445		0.2
5	5.000	18	0.250		15.445	16.507		0.2
6	5.000	18	0.250		16.507	17.569		0.2
7	5.000	18	0.250		17.569	18.630		0.2
8	5.000	18	0.250		18.630	19.692		0.3
9–11	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
12	4.750	18	0.500		20.001	21.010		0.5
13–17	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
18	6.633	18	0.512	3.417	21.452	22.860		0.8
19	4.417	18	0.563		21.634	22.575		0.6
20	5.000	18	0.550		22.575	23.639		0.7
21	5.000	18	0.537		23.639	24.703		0.7
22–31	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
32	5.000	18	0.563		26.200	27.265		0.7
33	4.250	18	0.550		27.265	28.169		0.6
34–38	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
39	5.000	18	0.550		29.199	30.263		0.9
40–43	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
44	4.200	18	0.500		31.106	32.000		0.7
								11.1



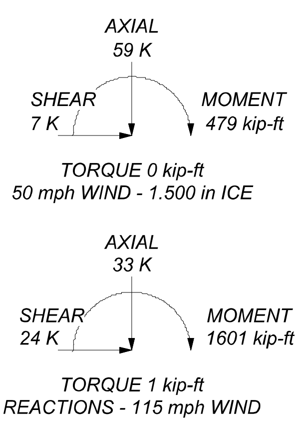
MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 115 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 0.000 ft
8. TIA-222-H Annex S
9. TOWER RATING: 91.0%

ALL REACTIONS ARE FACTORED



CROWN CASTLE
The pathway to Possible

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

Job: **BU# 876399**		
Project:		
Client: Crown Castle	Drawn by: KGebremariam	App'd:
Code: TIA-222-H	Date: 09/02/21	Scale: NTS
Path: C:\Users\KGebremariam\Desktop\Work Area\876399\WO 1987173 - SA\Prod\876399 R.eri		Dwg No. E-1

Tower Input Data

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

- Tower is located in Hartford County, Connecticut.
- Tower base elevation above sea level: 256.000 ft.
- Basic wind speed of 115 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.000 ft.
- Nominal ice thickness of 1.500 in.
- Ice thickness is considered to increase with height.
- Ice density of 56.000 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50.000 °F.
- Deflections calculated using a wind speed of 60 mph.
- TIA-222-H Annex S.
- TOWER RATING: 91.0%.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	98.000-93.000	5.000	0.000	18	12.000	13.078	0.188	0.750	A572-65 (65 ksi)
L2	93.000-88.000	5.000	0.000	18	13.078	14.156	0.188	0.750	A572-65 (65 ksi)
L3	88.000-82.790	5.210	2.417	18	14.156	15.280	0.188	0.750	A572-65 (65 ksi)
L4	82.790-80.207	5.000	0.000	18	14.384	15.445	0.250	1.000	A572-65 (65 ksi)
L5	80.207-75.207	5.000	0.000	18	15.445	16.507	0.250	1.000	A572-65 (65 ksi)
L6	75.207-70.207	5.000	0.000	18	16.507	17.569	0.250	1.000	A572-65 (65 ksi)
L7	70.207-65.207	5.000	0.000	18	17.569	18.630	0.250	1.000	A572-65 (65 ksi)
L8	65.207-60.207	5.000	0.000	18	18.630	19.692	0.250	1.000	A572-65 (65 ksi)
L9	60.207-59.170	1.037	0.000	18	19.692	19.912	0.250	1.000	A572-65 (65 ksi)
L10	59.170-58.900	0.270	0.000	18	19.912	19.970	0.512	2.050	A572-65 (65 ksi)
L11	58.900-58.750	0.150	0.000	18	19.970	20.001	0.512	2.050	A572-65 (65 ksi)
L12	58.750-54.000	4.750	0.000	18	20.001	21.010	0.500	2.000	A572-65 (65 ksi)
L13	54.000-53.750	0.250	0.000	18	21.010	21.063	0.512	2.050	A572-65 (65 ksi)
L14	53.750-52.910	0.840	0.000	18	21.063	21.241	0.500	2.000	A572-65 (65 ksi)
L15	52.910-52.660	0.250	0.000	18	21.241	21.294	0.675	2.700	A572-65 (65 ksi)
L16	52.660-52.170	0.490	0.000	18	21.294	21.399	0.675	2.700	A572-65 (65 ksi)
L17	52.170-51.920	0.250	0.000	18	21.399	21.452	0.525	2.100	A572-65 (65 ksi)
L18	51.920-45.287	6.633	3.417	18	21.452	22.860	0.512	2.050	A572-65 (65 ksi)
L19	45.287-44.287	4.417	0.000	18	21.634	22.575	0.563	2.250	A572-65 (65 ksi)
L20	44.287-39.287	5.000	0.000	18	22.575	23.639	0.550	2.200	A572-65 (65 ksi)
L21	39.287-34.287	5.000	0.000	18	23.639	24.703	0.537	2.150	A572-65 (65 ksi)
L22	34.287-33.500	0.787	0.000	18	24.703	24.870	0.525	2.100	A572-65 (65 ksi)
L23	33.500-33.250	0.250	0.000	18	24.870	24.923	0.838	3.350	A572-65 (65 ksi)
L24	33.250-33.000	0.250	0.000	18	24.923	24.977	0.838	3.350	A572-65 (65 ksi)
L25	33.000-32.750	0.250	0.000	18	24.977	25.030	0.813	3.250	A572-65 (65 ksi)
L26	32.750-32.000	0.750	0.000	18	25.030	25.190	0.800	3.200	A572-65 (65 ksi)
L27	32.000-31.750	0.250	0.000	18	25.190	25.243	0.588	2.350	A572-65 (65 ksi)
L28	31.750-28.500	3.250	0.000	18	25.243	25.934	0.575	2.300	A572-65 (65 ksi)
L29	28.500-28.250	0.250	0.000	18	25.934	25.988	0.863	3.450	A572-65 (65 ksi)
L30	28.250-27.500	0.750	0.000	18	25.988	26.147	0.850	3.400	A572-65 (65 ksi)
L31	27.500-27.250	0.250	0.000	18	26.147	26.200	0.575	2.300	A572-65 (65 ksi)
L32	27.250-22.250	5.000	0.000	18	26.200	27.265	0.563	2.250	A572-65 (65 ksi)
L33	22.250-18.000	4.250	0.000	18	27.265	28.169	0.550	2.200	A572-65 (65 ksi)
L34	18.000-17.750	0.250	0.000	18	28.169	28.222	0.563	2.250	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L35	17.750-15.450	2.300	0.000	18	28.222	28.712	0.425	1.700	A572-65 (65 ksi)
L36	15.450-15.200	0.250	0.000	18	28.712	28.765	0.688	2.750	A572-65 (65 ksi)
L37	15.200-13.410	1.790	0.000	18	28.765	29.146	0.675	2.700	A572-65 (65 ksi)
L38	13.410-13.160	0.250	0.000	18	29.146	29.199	0.563	2.250	A572-65 (65 ksi)
L39	13.160-8.160	5.000	0.000	18	29.199	30.263	0.550	2.200	A572-65 (65 ksi)
L40	8.160-6.500	1.660	0.000	18	30.263	30.617	0.550	2.200	A572-65 (65 ksi)
L41	6.500-6.250	0.250	0.000	18	30.617	30.670	0.662	2.650	A572-65 (65 ksi)
L42	6.250-4.450	1.800	0.000	18	30.670	31.053	0.650	2.600	A572-65 (65 ksi)
L43	4.450-4.200	0.250	0.000	18	31.053	31.106	0.512	2.050	A572-65 (65 ksi)
L44	4.200-0.000	4.200		18	31.106	32.000	0.500	2.000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	12.156	7.030	123.928	4.193	6.096	20.329	248.020	3.516	1.782	9.504
	13.251	7.672	161.057	4.576	6.644	24.242	322.325	3.837	1.972	10.516
L2	13.251	7.672	161.057	4.576	6.644	24.242	322.325	3.837	1.972	10.516
	14.346	8.313	204.946	4.959	7.191	28.498	410.162	4.157	2.162	11.528
L3	14.346	8.313	204.946	4.959	7.191	28.498	410.162	4.157	2.162	11.528
	15.487	8.982	258.481	5.358	7.762	33.300	517.303	4.492	2.359	12.583
L4	15.088	11.215	283.048	5.017	7.307	38.737	566.467	5.609	2.092	8.366
	15.645	12.058	351.741	5.394	7.846	44.829	703.946	6.030	2.278	9.114
L5	15.645	12.058	351.741	5.394	7.846	44.829	703.946	6.030	2.278	9.114
	16.723	12.900	430.737	5.771	8.386	51.366	862.041	6.451	2.465	9.861
L6	16.723	12.900	430.737	5.771	8.386	51.366	862.041	6.451	2.465	9.861
	17.801	13.742	520.754	6.148	8.925	58.348	1042.193	6.873	2.652	10.608
L7	17.801	13.742	520.754	6.148	8.925	58.348	1042.193	6.873	2.652	10.608
	18.879	14.585	622.512	6.525	9.464	65.775	1245.844	7.294	2.839	11.356
L8	18.879	14.585	622.512	6.525	9.464	65.775	1245.844	7.294	2.839	11.356
	19.957	15.427	736.732	6.902	10.004	73.647	1474.433	7.715	3.026	12.103
L9	19.957	15.427	736.732	6.902	10.004	73.647	1474.433	7.715	3.026	12.103
	20.181	15.602	762.048	6.980	10.115	75.335	1525.098	7.802	3.065	12.258
L10	20.140	31.557	1500.461	6.887	10.115	148.334	3002.896	15.782	2.603	5.078
	20.199	31.650	1513.802	6.907	10.145	149.223	3029.597	15.828	2.613	5.098
L11	20.199	31.650	1513.802	6.907	10.145	149.223	3029.597	15.828	2.613	5.098
	20.231	31.702	1521.248	6.919	10.161	149.719	3044.499	15.854	2.618	5.109
L12	20.233	30.949	1487.002	6.923	10.161	146.348	2975.962	15.477	2.640	5.28
	21.257	32.549	1729.853	7.281	10.673	162.077	3461.983	16.278	2.818	5.636
L13	21.255	33.343	1769.860	7.277	10.673	165.825	3542.048	16.675	2.796	5.455
	21.309	33.429	1783.646	7.295	10.700	166.695	3569.638	16.718	2.805	5.473
L14	21.311	32.634	1743.319	7.300	10.700	162.927	3488.933	16.320	2.827	5.654
	21.492	32.917	1789.077	7.363	10.791	165.799	3580.508	16.461	2.858	5.717
L15	21.465	44.062	2354.634	7.301	10.791	218.211	4712.367	22.035	2.550	3.779
	21.519	44.176	2372.913	7.320	10.818	219.357	4748.949	22.092	2.560	3.792
L16	21.519	44.176	2372.913	7.320	10.818	219.357	4748.949	22.092	2.560	3.792
	21.625	44.399	2409.015	7.357	10.870	221.611	4821.199	22.204	2.578	3.819
L17	21.648	34.783	1914.659	7.410	10.870	176.134	3831.838	17.395	2.842	5.414
	21.702	34.871	1929.304	7.429	10.897	177.042	3861.146	17.439	2.851	5.431
L18	21.703	34.061	1886.745	7.433	10.897	173.137	3775.972	17.034	2.873	5.607
	23.134	36.352	2293.639	7.933	11.613	197.508	4590.296	18.180	3.121	6.09
L19	22.620	37.621	2110.485	7.481	10.990	192.031	4223.746	18.814	2.818	5.009
	22.836	39.300	2405.730	7.814	11.468	209.780	4814.626	19.654	2.983	5.303
L20	22.838	38.448	2356.279	7.819	11.468	205.468	4715.659	19.228	3.005	5.464
	23.918	40.306	2714.584	8.196	12.008	226.056	5432.740	20.157	3.192	5.804

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
L21	23.920	39.411	2657.200	8.201	12.008	221.278	5317.897	19.709	3.214	5.98
	25.001	41.227	3041.580	8.579	12.549	242.376	6087.162	20.617	3.402	6.329
L22	25.003	40.289	2975.458	8.583	12.549	237.107	5954.831	20.148	3.424	6.521
	25.173	40.568	3037.726	8.643	12.634	240.439	6079.449	20.288	3.453	6.577
L23	25.125	63.885	4661.673	8.532	12.634	368.975	9329.481	31.948	2.903	3.466
	25.179	64.026	4692.704	8.551	12.661	370.638	9391.582	32.019	2.913	3.478
L24	25.179	64.026	4692.704	8.551	12.661	370.638	9391.582	32.019	2.913	3.478
	25.233	64.167	4723.871	8.569	12.688	372.305	9453.959	32.090	2.922	3.489
L25	25.237	62.316	4597.114	8.578	12.688	362.315	9200.277	31.164	2.966	3.65
	25.291	62.454	4627.548	8.597	12.715	363.938	9261.185	31.233	2.975	3.662
L26	25.293	61.525	4563.414	8.602	12.715	358.895	9132.832	30.768	2.997	3.747
	25.455	61.930	4654.197	8.658	12.796	363.715	9314.518	30.971	3.025	3.782
L27	25.487	45.876	3508.045	8.734	12.796	274.146	7020.706	22.942	3.399	5.786
	25.542	45.975	3530.855	8.753	12.823	275.347	7066.356	22.992	3.409	5.802
L28	25.543	45.020	3460.989	8.757	12.823	269.898	6926.532	22.514	3.431	5.966
	26.246	46.282	3760.370	9.003	13.175	285.424	7525.687	23.146	3.552	6.178
L29	26.201	68.636	5450.880	8.901	13.175	413.739	10908.932	34.325	3.046	3.532
	26.255	68.782	5485.657	8.919	13.202	415.526	10978.532	34.398	3.056	3.543
L30	26.257	67.819	5414.227	8.924	13.202	410.115	10835.579	33.916	3.078	3.621
	26.419	68.249	5518.022	8.981	13.283	415.426	11043.305	34.131	3.106	3.654
L31	26.462	46.671	3855.842	9.078	13.283	290.288	7716.758	23.340	3.590	6.243
	26.516	46.768	3879.960	9.097	13.310	291.511	7765.026	23.388	3.599	6.26
L32	26.518	45.773	3801.170	9.101	13.310	285.591	7607.343	22.891	3.621	6.438
	27.598	47.673	4294.405	9.479	13.850	310.056	8594.460	23.841	3.809	6.771
L33	27.600	46.636	4204.873	9.484	13.850	303.592	8415.280	23.322	3.831	6.965
	28.519	48.215	4646.610	9.805	14.310	324.713	9299.333	24.112	3.990	7.254
L34	28.517	49.288	4745.765	9.800	14.310	331.642	9497.774	24.649	3.968	7.054
	28.571	49.383	4773.258	9.819	14.337	332.934	9552.796	24.696	3.977	7.07
L35	28.592	37.497	3660.514	9.868	14.337	255.320	7325.844	18.752	4.219	9.927
	29.089	38.158	3857.321	10.042	14.586	264.461	7719.717	19.082	4.305	10.13
L36	29.049	61.153	6067.676	9.949	14.586	416.004	12143.336	30.582	3.843	5.59
	29.103	61.269	6102.302	9.968	14.613	417.604	12212.633	30.640	3.853	5.604
L37	29.105	60.181	5999.356	9.972	14.613	410.560	12006.607	30.096	3.875	5.74
	29.491	60.998	6246.774	10.107	14.806	421.904	12501.767	30.505	3.942	5.84
L38	29.509	51.032	5267.598	10.147	14.806	355.771	10542.126	25.521	4.140	7.359
	29.563	51.127	5297.068	10.166	14.833	357.109	10601.107	25.568	4.149	7.376
L39	29.565	50.013	5186.141	10.170	14.833	349.631	10379.106	25.011	4.171	7.584
	30.645	51.871	5785.769	10.548	15.374	376.340	11579.151	25.940	4.358	7.924
L40	30.645	51.871	5785.769	10.548	15.374	376.340	11579.151	25.940	4.358	7.924
	31.004	52.487	5994.612	10.674	15.553	385.425	11997.111	26.249	4.421	8.037
L41	30.987	62.987	7140.031	10.634	15.553	459.070	14289.458	31.499	4.223	6.374
	31.041	63.099	7178.147	10.653	15.580	460.720	14365.739	31.555	4.232	6.388
L42	31.043	61.934	7051.515	10.657	15.580	452.592	14112.309	30.973	4.254	6.544
	31.432	62.724	7324.932	10.793	15.775	464.341	14659.502	31.368	4.321	6.648
L43	31.453	49.679	5854.142	10.842	15.775	371.105	11715.986	24.844	4.563	8.904
	31.507	49.766	5884.792	10.861	15.802	372.410	11777.327	24.888	4.573	8.922
L44	31.509	48.572	5748.301	10.865	15.802	363.772	11504.165	24.291	4.595	9.189
	32.417	49.990	6266.803	11.182	16.256	385.507	12541.852	25.000	4.752	9.504

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 98.000-93.000				1	1	1			
L2 93.000-88.000				1	1	1			
L3 88.000-82.790				1	1	1			
L4 82.790-80.207				1	1	1			
L5 80.207-75.207				1	1	1			
L6 75.207-70.207				1	1	1			
L7 70.207-65.207				1	1	1			
L8 65.207-				1	1	1			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft^2	in					in	in	in
60.207									
L9 60.207-59.170				1	1	1			
L10 59.170-58.900				1	1	0.920938			
L11 58.900-58.750				1	1	0.92023			
L12 58.750-54.000				1	1	0.920865			
L13 54.000-53.750				1	1	1.08486			
L14 53.750-52.910				1	1	1.10605			
L15 52.910-52.660				1	1	0.926962			
L16 52.660-52.170				1	1	0.924168			
L17 52.170-51.920				1	1	1.04884			
L18 51.920-45.287				1	1	1.05527			
L19 45.287-44.287				1	1	1.06443			
L20 44.287-39.287				1	1	1.06405			
L21 39.287-34.287				1	1	1.06589			
L22 34.287-33.500				1	1	1.08729			
L23 33.500-33.250				1	1	0.970893			
L24 33.250-33.000				1	1	0.969575			
L25 33.000-32.750				1	1	0.896948			
L26 32.750-32.000				1	1	0.907091			
L27 32.000-31.750				1	1	0.929377			
L28 31.750-28.500				1	1	0.938036			
L29 28.500-28.250				1	1	0.893662			
L30 28.250-27.500				1	1	0.902954			
L31 27.500-27.250				1	1	0.93394			
L32 27.250-22.250				1	1	0.938341			
L33 22.250-18.000				1	1	0.946411			
L34 18.000-17.750				1	1	1.05165			
L35 17.750-15.450				1	1	1.21652			
L36 15.450-15.200				1	1	0.954361			
L37 15.200-13.410				1	1	0.964796			
L38 13.410-13.160				1	1	1.03473			
L39 13.160-8.160				1	1	1.04025			
L40 8.160-6.500				1	1	1.0347			
L41 6.500-6.250				1	1	0.956625			

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
L42 6.250-4.450				1	1	0.968393			
L43 4.450-4.200				1	1	0.980473			
L44 4.200-0.000				1	1	0.993803			

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 klf
_										
AVA7-50(1-5/8)	B	No	Surface Ar (CaAa)	67.000 - 0.000	14	7	-0.100 0.200	2.010		0.001
_										
Safety Line 3/8	C	No	Surface Ar (CaAa)	98.000 - 0.000	1	1	0.100 0.100	0.375		0.000
_										
**********										
Sabre MS-600 (6" x 1" Plate)	A	No	Surface Af (CaAa)	30.500 - 0.000	1	1	-0.500 -0.500	6.000	14.000	0.000
Sabre MS-600 (6" x 1" Plate)	B	No	Surface Af (CaAa)	30.500 - 0.000	1	1	-0.500 -0.500	6.000	14.000	0.000
Sabre MS-600 (6" x 1" Plate)	C	No	Surface Af (CaAa)	8.500 - 0.500	1	1	-0.500 -0.500	6.000	14.000	0.000
Sabre MS-600 (6" x 1" Plate)	C	No	Surface Af (CaAa)	17.450 - 2.450	1	1	-0.300 -0.300	6.000	14.000	0.000
Sabre MS-600 (6" x 1" Plate)	C	No	Surface Af (CaAa)	30.500 - 11.410	1	1	-0.500 -0.500	6.000	14.000	0.000
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Sabre MS-600 (6" x 1" Plate)	A	No	Surface Af (CaAa)	35.500 - 25.500	1	1	-0.300 -0.300	6.000	14.000	0.000
Sabre MS-600 (6" x 1" Plate)	B	No	Surface Af (CaAa)	35.500 - 25.500	1	1	-0.300 -0.300	6.000	14.000	0.000
Sabre MS-600 (6" x 1" Plate)	C	No	Surface Af (CaAa)	35.500 - 25.500	1	1	-0.300 -0.300	6.000	14.000	0.000
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Sabre MS-450 (4.5" x 1" Plate)	C	No	Surface Af (CaAa)	49.750 - 30.500	1	1	-0.500 -0.500	4.500	11.000	0.000
Sabre MS-450 (4.5" x 1" Plate)	A	No	Surface Af (CaAa)	60.500 - 30.500	1	1	-0.500 -0.500	4.500	11.000	0.000
Sabre MS-450 (4.5" x 1" Plate)	B	No	Surface Af (CaAa)	60.500 - 30.500	1	1	-0.500 -0.500	4.500	11.000	0.000
Sabre MS-450 (4.5" x 1" Plate)	C	No	Surface Af (CaAa)	60.670 - 50.670	1	1	-0.500 -0.500	4.500	11.000	0.000
Sabre MS-450 (4.5" x 1" Plate)	C	No	Surface Af (CaAa)	54.417 - 45.917	1	1	-0.300 -0.300	4.500	11.000	0.000
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CCI-5x1.25	B	No	Surface Af (CaAa)	20.000 - 0.000	1	1	0.000 0.000	5.000	12.500	0.000
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CCI-5x1.25	B	No	Surface Af (CaAa)	56.000 - 31.000	1	1	0.000 0.000	5.000	12.500	0.000
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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 klf
HB114-08U3M12-XXXF(7/8)	B	No	No	Inside Pole	96.000 - 0.000	1	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
HB114-1-08U4-M5F(1-1/4)	B	No	No	Inside Pole	96.000 - 0.000	3	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
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AVA5-50(7/8)	C	No	No	Inside Pole	89.000 - 0.000	6	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
LDF5-50A(7/8)	C	No	No	Inside Pole	89.000 - 0.000	5	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
HCS 6X12 6AWG(1-3/8)	C	No	No	Inside Pole	89.000 - 0.000	1	No Ice	0.000	0.002
							1/2" Ice	0.000	0.002
							1" Ice	0.000	0.002
							2" Ice	0.000	0.002
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LDF5-50A(7/8)	A	No	No	Inside Pole	74.000 - 0.000	12	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
FB-L98B-002-75000(3/8)	A	No	No	Inside Pole	74.000 - 0.000	2	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
WR-VG86ST-BRD(3/4)	A	No	No	Inside Pole	74.000 - 0.000	4	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
2" Rigid Conduit	A	No	No	Inside Pole	74.000 - 0.000	1	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
							2" Ice	0.000	0.003
2" Rigid Conduit	A	No	No	Inside Pole	74.000 - 0.000	1	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
							2" Ice	0.000	0.003
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LDF5-50A(7/8)	B	No	No	Inside Pole	52.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
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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	98.000-93.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.014
		C	0.000	0.000	0.188	0.000	0.001
L2	93.000-88.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.023
		C	0.000	0.000	0.188	0.000	0.006
L3	88.000-82.790	A	0.000	0.000	0.000	0.000	0.000

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
		B	0.000	0.000	0.000	0.000	0.024
		C	0.000	0.000	0.195	0.000	0.028
L4	82.790-80.207	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.012
		C	0.000	0.000	0.097	0.000	0.014
L5	80.207-75.207	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.023
		C	0.000	0.000	0.188	0.000	0.027
L6	75.207-70.207	A	0.000	0.000	0.000	0.000	0.046
		B	0.000	0.000	0.000	0.000	0.023
		C	0.000	0.000	0.188	0.000	0.027
L7	70.207-65.207	A	0.000	0.000	0.000	0.000	0.060
		B	0.000	0.000	2.523	0.000	0.040
		C	0.000	0.000	0.188	0.000	0.027
L8	65.207-60.207	A	0.000	0.000	0.220	0.000	0.060
		B	0.000	0.000	7.255	0.000	0.072
		C	0.000	0.000	0.535	0.000	0.027
L9	60.207-59.170	A	0.000	0.000	0.778	0.000	0.012
		B	0.000	0.000	2.237	0.000	0.015
		C	0.000	0.000	0.817	0.000	0.006
L10	59.170-58.900	A	0.000	0.000	0.203	0.000	0.003
		B	0.000	0.000	0.582	0.000	0.004
		C	0.000	0.000	0.213	0.000	0.001
L11	58.900-58.750	A	0.000	0.000	0.113	0.000	0.002
		B	0.000	0.000	0.324	0.000	0.002
		C	0.000	0.000	0.118	0.000	0.001
L12	58.750-54.000	A	0.000	0.000	3.563	0.000	0.057
		B	0.000	0.000	11.912	0.000	0.068
		C	0.000	0.000	4.038	0.000	0.026
L13	54.000-53.750	A	0.000	0.000	0.188	0.000	0.003
		B	0.000	0.000	0.748	0.000	0.004
		C	0.000	0.000	0.375	0.000	0.001
L14	53.750-52.910	A	0.000	0.000	0.630	0.000	0.010
		B	0.000	0.000	2.512	0.000	0.012
		C	0.000	0.000	1.261	0.000	0.005
L15	52.910-52.660	A	0.000	0.000	0.188	0.000	0.003
		B	0.000	0.000	0.748	0.000	0.004
		C	0.000	0.000	0.375	0.000	0.001
L16	52.660-52.170	A	0.000	0.000	0.367	0.000	0.006
		B	0.000	0.000	1.465	0.000	0.007
		C	0.000	0.000	0.736	0.000	0.003
L17	52.170-51.920	A	0.000	0.000	0.188	0.000	0.003
		B	0.000	0.000	0.748	0.000	0.004
		C	0.000	0.000	0.375	0.000	0.001
L18	51.920-45.287	A	0.000	0.000	4.975	0.000	0.080
		B	0.000	0.000	19.835	0.000	0.098
		C	0.000	0.000	8.820	0.000	0.036
L19	45.287-44.287	A	0.000	0.000	0.750	0.000	0.012
		B	0.000	0.000	2.990	0.000	0.015
		C	0.000	0.000	0.787	0.000	0.005
L20	44.287-39.287	A	0.000	0.000	3.750	0.000	0.060
		B	0.000	0.000	14.952	0.000	0.074
		C	0.000	0.000	3.938	0.000	0.027
L21	39.287-34.287	A	0.000	0.000	4.856	0.000	0.060
		B	0.000	0.000	16.058	0.000	0.074
		C	0.000	0.000	5.044	0.000	0.027
L22	34.287-33.500	A	0.000	0.000	1.308	0.000	0.009
		B	0.000	0.000	3.071	0.000	0.012
		C	0.000	0.000	1.338	0.000	0.004
L23	33.500-33.250	A	0.000	0.000	0.416	0.000	0.003
		B	0.000	0.000	0.976	0.000	0.004
		C	0.000	0.000	0.425	0.000	0.001
L24	33.250-33.000	A	0.000	0.000	0.416	0.000	0.003
		B	0.000	0.000	0.976	0.000	0.004
		C	0.000	0.000	0.425	0.000	0.001
L25	33.000-32.750	A	0.000	0.000	0.416	0.000	0.003
		B	0.000	0.000	0.976	0.000	0.004
		C	0.000	0.000	0.425	0.000	0.001
L26	32.750-32.000	A	0.000	0.000	1.247	0.000	0.009

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
		B	0.000	0.000	2.927	0.000	0.011
		C	0.000	0.000	1.275	0.000	0.004
L27	32.000-31.750	A	0.000	0.000	0.416	0.000	0.003
		B	0.000	0.000	0.976	0.000	0.004
		C	0.000	0.000	0.425	0.000	0.001
L28	31.750-28.500	A	0.000	0.000	5.902	0.000	0.039
		B	0.000	0.000	11.100	0.000	0.048
		C	0.000	0.000	6.024	0.000	0.017
L29	28.500-28.250	A	0.000	0.000	0.478	0.000	0.003
		B	0.000	0.000	0.830	0.000	0.004
		C	0.000	0.000	0.487	0.000	0.001
L30	28.250-27.500	A	0.000	0.000	1.434	0.000	0.009
		B	0.000	0.000	2.489	0.000	0.011
		C	0.000	0.000	1.462	0.000	0.004
L31	27.500-27.250	A	0.000	0.000	0.478	0.000	0.003
		B	0.000	0.000	0.830	0.000	0.004
		C	0.000	0.000	0.487	0.000	0.001
L32	27.250-22.250	A	0.000	0.000	6.596	0.000	0.060
		B	0.000	0.000	13.631	0.000	0.074
		C	0.000	0.000	6.784	0.000	0.027
L33	22.250-18.000	A	0.000	0.000	4.250	0.000	0.051
		B	0.000	0.000	11.896	0.000	0.063
		C	0.000	0.000	4.409	0.000	0.023
L34	18.000-17.750	A	0.000	0.000	0.250	0.000	0.003
		B	0.000	0.000	0.810	0.000	0.004
		C	0.000	0.000	0.259	0.000	0.001
L35	17.750-15.450	A	0.000	0.000	2.300	0.000	0.028
		B	0.000	0.000	7.453	0.000	0.034
		C	0.000	0.000	4.386	0.000	0.012
L36	15.450-15.200	A	0.000	0.000	0.250	0.000	0.003
		B	0.000	0.000	0.810	0.000	0.004
		C	0.000	0.000	0.509	0.000	0.001
L37	15.200-13.410	A	0.000	0.000	1.790	0.000	0.022
		B	0.000	0.000	5.800	0.000	0.026
		C	0.000	0.000	3.647	0.000	0.010
L38	13.410-13.160	A	0.000	0.000	0.250	0.000	0.003
		B	0.000	0.000	0.810	0.000	0.004
		C	0.000	0.000	0.509	0.000	0.001
L39	13.160-8.160	A	0.000	0.000	5.000	0.000	0.060
		B	0.000	0.000	16.202	0.000	0.074
		C	0.000	0.000	7.225	0.000	0.027
L40	8.160-6.500	A	0.000	0.000	1.660	0.000	0.020
		B	0.000	0.000	5.379	0.000	0.024
		C	0.000	0.000	3.127	0.000	0.009
L41	6.500-6.250	A	0.000	0.000	0.250	0.000	0.003
		B	0.000	0.000	0.810	0.000	0.004
		C	0.000	0.000	0.471	0.000	0.001
L42	6.250-4.450	A	0.000	0.000	1.800	0.000	0.022
		B	0.000	0.000	5.833	0.000	0.026
		C	0.000	0.000	3.391	0.000	0.010
L43	4.450-4.200	A	0.000	0.000	0.250	0.000	0.003
		B	0.000	0.000	0.810	0.000	0.004
		C	0.000	0.000	0.471	0.000	0.001
L44	4.200-0.000	A	0.000	0.000	4.200	0.000	0.050
		B	0.000	0.000	13.609	0.000	0.062
		C	0.000	0.000	5.039	0.000	0.023

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	98.000-93.000	A	1.418	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.014
		C		0.000	0.000	1.605	0.000	0.017
L2	93.000-88.000	A	1.410	0.000	0.000	0.000	0.000	0.000

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
		B		0.000	0.000	0.000	0.000	0.023
		C		0.000	0.000	1.598	0.000	0.022
L3	88.000-82.790	A	1.402	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.024
		C		0.000	0.000	1.656	0.000	0.044
L4	82.790-80.207	A	1.396	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.012
		C		0.000	0.000	0.821	0.000	0.022
L5	80.207-75.207	A	1.389	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.023
		C		0.000	0.000	1.576	0.000	0.042
L6	75.207-70.207	A	1.380	0.000	0.000	0.000	0.000	0.046
		B		0.000	0.000	0.000	0.000	0.023
		C		0.000	0.000	1.567	0.000	0.042
L7	70.207-65.207	A	1.370	0.000	0.000	0.000	0.000	0.060
		B		0.000	0.000	3.768	0.000	0.085
		C		0.000	0.000	1.557	0.000	0.041
L8	65.207-60.207	A	1.359	0.000	0.000	0.299	0.000	0.063
		B		0.000	0.000	10.793	0.000	0.199
		C		0.000	0.000	1.966	0.000	0.045
L9	60.207-59.170	A	1.353	0.000	0.000	1.058	0.000	0.021
		B		0.000	0.000	3.233	0.000	0.049
		C		0.000	0.000	1.257	0.000	0.017
L10	59.170-58.900	A	1.351	0.000	0.000	0.275	0.000	0.006
		B		0.000	0.000	0.842	0.000	0.013
		C		0.000	0.000	0.327	0.000	0.005
L11	58.900-58.750	A	1.351	0.000	0.000	0.153	0.000	0.003
		B		0.000	0.000	0.467	0.000	0.007
		C		0.000	0.000	0.182	0.000	0.003
L12	58.750-54.000	A	1.345	0.000	0.000	4.840	0.000	0.097
		B		0.000	0.000	16.996	0.000	0.244
		C		0.000	0.000	6.104	0.000	0.082
L13	54.000-53.750	A	1.339	0.000	0.000	0.254	0.000	0.005
		B		0.000	0.000	1.053	0.000	0.014
		C		0.000	0.000	0.516	0.000	0.006
L14	53.750-52.910	A	1.338	0.000	0.000	0.855	0.000	0.017
		B		0.000	0.000	3.538	0.000	0.047
		C		0.000	0.000	1.733	0.000	0.021
L15	52.910-52.660	A	1.336	0.000	0.000	0.254	0.000	0.005
		B		0.000	0.000	1.053	0.000	0.014
		C		0.000	0.000	0.516	0.000	0.006
L16	52.660-52.170	A	1.335	0.000	0.000	0.498	0.000	0.010
		B		0.000	0.000	2.063	0.000	0.028
		C		0.000	0.000	1.010	0.000	0.012
L17	52.170-51.920	A	1.334	0.000	0.000	0.254	0.000	0.005
		B		0.000	0.000	1.052	0.000	0.014
		C		0.000	0.000	0.515	0.000	0.006
L18	51.920-45.287	A	1.325	0.000	0.000	6.733	0.000	0.134
		B		0.000	0.000	27.882	0.000	0.373
		C		0.000	0.000	12.790	0.000	0.151
L19	45.287-44.287	A	1.315	0.000	0.000	1.015	0.000	0.020
		B		0.000	0.000	4.203	0.000	0.056
		C		0.000	0.000	1.318	0.000	0.016
L20	44.287-39.287	A	1.305	0.000	0.000	5.055	0.000	0.101
		B		0.000	0.000	20.953	0.000	0.278
		C		0.000	0.000	6.548	0.000	0.081
L21	39.287-34.287	A	1.289	0.000	0.000	6.312	0.000	0.111
		B		0.000	0.000	22.172	0.000	0.287
		C		0.000	0.000	7.788	0.000	0.091
L22	34.287-33.500	A	1.278	0.000	0.000	1.616	0.000	0.023
		B		0.000	0.000	4.109	0.000	0.050
		C		0.000	0.000	1.847	0.000	0.020
L23	33.500-33.250	A	1.276	0.000	0.000	0.513	0.000	0.007
		B		0.000	0.000	1.305	0.000	0.016
		C		0.000	0.000	0.587	0.000	0.006
L24	33.250-33.000	A	1.275	0.000	0.000	0.513	0.000	0.007
		B		0.000	0.000	1.305	0.000	0.016
		C		0.000	0.000	0.586	0.000	0.006
L25	33.000-32.750	A	1.275	0.000	0.000	0.513	0.000	0.007

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
		B		0.000	0.000	1.305	0.000	0.016
		C		0.000	0.000	0.586	0.000	0.006
L26	32.750-32.000	A	1.273	0.000	0.000	1.539	0.000	0.022
		B		0.000	0.000	3.913	0.000	0.048
		C		0.000	0.000	1.758	0.000	0.019
L27	32.000-31.750	A	1.271	0.000	0.000	0.513	0.000	0.007
		B		0.000	0.000	1.304	0.000	0.016
		C		0.000	0.000	0.586	0.000	0.006
L28	31.750-28.500	A	1.263	0.000	0.000	7.161	0.000	0.097
		B		0.000	0.000	14.718	0.000	0.188
		C		0.000	0.000	8.104	0.000	0.084
L29	28.500-28.250	A	1.256	0.000	0.000	0.574	0.000	0.008
		B		0.000	0.000	1.092	0.000	0.014
		C		0.000	0.000	0.646	0.000	0.007
L30	28.250-27.500	A	1.254	0.000	0.000	1.722	0.000	0.023
		B		0.000	0.000	3.276	0.000	0.042
		C		0.000	0.000	1.939	0.000	0.020
L31	27.500-27.250	A	1.251	0.000	0.000	0.574	0.000	0.008
		B		0.000	0.000	1.092	0.000	0.014
		C		0.000	0.000	0.646	0.000	0.007
L32	27.250-22.250	A	1.239	0.000	0.000	8.066	0.000	0.121
		B		0.000	0.000	18.408	0.000	0.249
		C		0.000	0.000	9.492	0.000	0.100
L33	22.250-18.000	A	1.213	0.000	0.000	5.281	0.000	0.088
		B		0.000	0.000	16.197	0.000	0.211
		C		0.000	0.000	6.472	0.000	0.070
L34	18.000-17.750	A	1.199	0.000	0.000	0.310	0.000	0.005
		B		0.000	0.000	1.093	0.000	0.013
		C		0.000	0.000	0.379	0.000	0.004
L35	17.750-15.450	A	1.190	0.000	0.000	2.848	0.000	0.047
		B		0.000	0.000	10.041	0.000	0.122
		C		0.000	0.000	5.883	0.000	0.054
L36	15.450-15.200	A	1.181	0.000	0.000	0.309	0.000	0.005
		B		0.000	0.000	1.090	0.000	0.013
		C		0.000	0.000	0.677	0.000	0.006
L37	15.200-13.410	A	1.173	0.000	0.000	2.210	0.000	0.037
		B		0.000	0.000	7.794	0.000	0.094
		C		0.000	0.000	4.843	0.000	0.044
L38	13.410-13.160	A	1.164	0.000	0.000	0.308	0.000	0.005
		B		0.000	0.000	1.087	0.000	0.013
		C		0.000	0.000	0.675	0.000	0.006
L39	13.160-8.160	A	1.139	0.000	0.000	6.139	0.000	0.101
		B		0.000	0.000	21.661	0.000	0.257
		C		0.000	0.000	9.782	0.000	0.095
L40	8.160-6.500	A	1.097	0.000	0.000	2.024	0.000	0.033
		B		0.000	0.000	7.146	0.000	0.083
		C		0.000	0.000	4.005	0.000	0.038
L41	6.500-6.250	A	1.082	0.000	0.000	0.304	0.000	0.005
		B		0.000	0.000	1.074	0.000	0.012
		C		0.000	0.000	0.602	0.000	0.006
L42	6.250-4.450	A	1.063	0.000	0.000	2.183	0.000	0.035
		B		0.000	0.000	7.709	0.000	0.088
		C		0.000	0.000	4.318	0.000	0.040
L43	4.450-4.200	A	1.041	0.000	0.000	0.302	0.000	0.005
		B		0.000	0.000	1.067	0.000	0.012
		C		0.000	0.000	0.598	0.000	0.005
L44	4.200-0.000	A	0.968	0.000	0.000	5.013	0.000	0.078
		B		0.000	0.000	17.728	0.000	0.193
		C		0.000	0.000	6.551	0.000	0.065

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	98.000-93.000	-0.062	0.292	-0.230	1.082
L2	93.000-88.000	-0.062	0.293	-0.235	1.104
L3	88.000-82.790	-0.062	0.293	-0.239	1.123
L4	82.790-80.207	-0.062	0.293	-0.241	1.133
L5	80.207-75.207	-0.062	0.293	-0.242	1.140
L6	75.207-70.207	-0.062	0.294	-0.245	1.153
L7	70.207-65.207	3.079	-1.186	2.106	-0.185
L8	65.207-60.207	4.282	-1.795	4.048	-1.296
L9	60.207-59.170	2.892	-1.224	2.501	-0.819
L10	59.170-58.900	2.907	-1.230	2.512	-0.822
L11	58.900-58.750	2.911	-1.232	2.516	-0.823
L12	58.750-54.000	3.460	-1.444	2.999	-1.031
L13	54.000-53.750	4.709	-1.122	4.098	-0.851
L14	53.750-52.910	4.729	-1.127	4.114	-0.854
L15	52.910-52.660	4.414	-1.051	4.128	-0.856
L16	52.660-52.170	4.424	-1.053	4.139	-0.858
L17	52.170-51.920	4.776	-1.137	4.151	-0.861
L18	51.920-45.287	4.663	-1.193	4.134	-0.919
L19	45.287-44.287	4.103	-1.948	3.713	-1.491
L20	44.287-39.287	4.187	-1.988	3.783	-1.521
L21	39.287-34.287	3.890	-1.847	3.613	-1.455
L22	34.287-33.500	3.017	-1.432	2.999	-1.208
L23	33.500-33.250	2.848	-1.352	3.003	-1.210
L24	33.250-33.000	2.852	-1.354	3.008	-1.212
L25	33.000-32.750	2.857	-1.357	3.013	-1.214
L26	32.750-32.000	2.866	-1.361	3.023	-1.219
L27	32.000-31.750	3.057	-1.452	3.036	-1.224
L28	31.750-28.500	2.183	-0.958	2.385	-0.828
L29	28.500-28.250	1.942	-0.820	2.162	-0.699
L30	28.250-27.500	1.948	-0.823	2.169	-0.701
L31	27.500-27.250	1.960	-0.828	2.182	-0.706
L32	27.250-22.250	2.682	-1.133	2.638	-0.855
L33	22.250-18.000	3.741	-1.694	3.485	-1.292
L34	18.000-17.750	4.330	-2.057	4.005	-1.625
L35	17.750-15.450	5.566	-1.106	5.050	-0.883
L36	15.450-15.200	5.766	-0.987	5.223	-0.788
L37	15.200-13.410	5.800	-0.992	5.251	-0.793
L38	13.410-13.160	5.834	-0.998	5.278	-0.797
L39	13.160-8.160	4.769	-0.687	4.346	-0.525
L40	8.160-6.500	5.743	-0.948	5.102	-0.731
L41	6.500-6.250	5.773	-0.953	5.129	-0.737
L42	6.250-4.450	5.805	-0.957	5.158	-0.743
L43	4.450-4.200	5.835	-0.962	5.187	-0.750
L44	4.200-0.000	4.798	-1.579	4.316	-1.253

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	19	Safety Line 3/8	93.00 - 98.00	1.0000	1.0000
L2	19	Safety Line 3/8	88.00 - 93.00	1.0000	1.0000
L3	19	Safety Line 3/8	82.79 - 88.00	1.0000	1.0000
L4	19	Safety Line 3/8	80.21 - 82.79	1.0000	1.0000
L5	19	Safety Line 3/8	75.21 - 80.21	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L6	19	Safety Line 3/8	70.21 - 75.21	1.0000	1.0000
L7	14	AVA7-50(1-5/8)	65.21 - 67.00	1.0000	1.0000
L7	19	Safety Line 3/8	65.21 - 70.21	1.0000	1.0000
L8	14	AVA7-50(1-5/8)	60.21 - 65.21	1.0000	1.0000
L8	19	Safety Line 3/8	60.21 - 65.21	1.0000	1.0000
L8	33	Sabre MS-450 (4.5" x 1" Plate)	60.21 - 60.50	1.0000	1.0000
L8	34	Sabre MS-450 (4.5" x 1" Plate)	60.21 - 60.50	1.0000	1.0000
L8	35	Sabre MS-450 (4.5" x 1" Plate)	60.21 - 60.67	1.0000	1.0000
L9	14	AVA7-50(1-5/8)	59.17 - 60.21	1.0000	1.0000
L9	19	Safety Line 3/8	59.17 - 60.21	1.0000	1.0000
L9	33	Sabre MS-450 (4.5" x 1" Plate)	59.17 - 60.21	1.0000	1.0000
L9	34	Sabre MS-450 (4.5" x 1" Plate)	59.17 - 60.21	1.0000	1.0000
L9	35	Sabre MS-450 (4.5" x 1" Plate)	59.17 - 60.21	1.0000	1.0000
L10	14	AVA7-50(1-5/8)	58.90 - 59.17	1.0000	1.0000
L10	19	Safety Line 3/8	58.90 - 59.17	1.0000	1.0000
L10	33	Sabre MS-450 (4.5" x 1" Plate)	58.90 - 59.17	1.0000	1.0000
L10	34	Sabre MS-450 (4.5" x 1" Plate)	58.90 - 59.17	1.0000	1.0000
L10	35	Sabre MS-450 (4.5" x 1" Plate)	58.90 - 59.17	1.0000	1.0000
L11	14	AVA7-50(1-5/8)	58.75 - 58.90	1.0000	1.0000
L11	19	Safety Line 3/8	58.75 - 58.90	1.0000	1.0000
L11	33	Sabre MS-450 (4.5" x 1" Plate)	58.75 - 58.90	1.0000	1.0000
L11	34	Sabre MS-450 (4.5" x 1" Plate)	58.75 - 58.90	1.0000	1.0000
L11	35	Sabre MS-450 (4.5" x 1" Plate)	58.75 - 58.90	1.0000	1.0000
L12	14	AVA7-50(1-5/8)	54.00 - 58.75	1.0000	1.0000
L12	19	Safety Line 3/8	54.00 - 58.75	1.0000	1.0000
L12	33	Sabre MS-450 (4.5" x 1" Plate)	54.00 - 58.75	1.0000	1.0000
L12	34	Sabre MS-450 (4.5" x 1" Plate)	54.00 - 58.75	1.0000	1.0000
L12	35	Sabre MS-450 (4.5" x 1" Plate)	54.00 - 58.75	1.0000	1.0000
L12	36	Sabre MS-450 (4.5" x 1" Plate)	54.00 - 54.42	1.0000	1.0000
L12	40	CCI-5x1.25	54.00 - 56.00	1.0000	1.0000
L13	14	AVA7-50(1-5/8)	53.75 - 54.00	1.0000	1.0000
L13	19	Safety Line 3/8	53.75 - 54.00	1.0000	1.0000
L13	33	Sabre MS-450 (4.5" x 1" Plate)	53.75 - 54.00	1.0000	1.0000
L13	34	Sabre MS-450 (4.5" x 1" Plate)	53.75 - 54.00	1.0000	1.0000
L13	35	Sabre MS-450 (4.5" x 1"	53.75 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		Plate)	54.00		
L13	36	Sabre MS-450 (4.5" x 1" Plate)	53.75 - 54.00	1.0000	1.0000
L13	40	CCI-5x1.25	53.75 - 54.00	1.0000	1.0000
L14	14	AVA7-50(1-5/8)	52.91 - 53.75	1.0000	1.0000
L14	19	Safety Line 3/8	52.91 - 53.75	1.0000	1.0000
L14	33	Sabre MS-450 (4.5" x 1" Plate)	52.91 - 53.75	1.0000	1.0000
L14	34	Sabre MS-450 (4.5" x 1" Plate)	52.91 - 53.75	1.0000	1.0000
L14	35	Sabre MS-450 (4.5" x 1" Plate)	52.91 - 53.75	1.0000	1.0000
L14	36	Sabre MS-450 (4.5" x 1" Plate)	52.91 - 53.75	1.0000	1.0000
L14	40	CCI-5x1.25	52.91 - 53.75	1.0000	1.0000
L15	14	AVA7-50(1-5/8)	52.66 - 52.91	1.0000	1.0000
L15	19	Safety Line 3/8	52.66 - 52.91	1.0000	1.0000
L15	33	Sabre MS-450 (4.5" x 1" Plate)	52.66 - 52.91	1.0000	1.0000
L15	34	Sabre MS-450 (4.5" x 1" Plate)	52.66 - 52.91	1.0000	1.0000
L15	35	Sabre MS-450 (4.5" x 1" Plate)	52.66 - 52.91	1.0000	1.0000
L15	36	Sabre MS-450 (4.5" x 1" Plate)	52.66 - 52.91	1.0000	1.0000
L15	40	CCI-5x1.25	52.66 - 52.91	1.0000	1.0000
L16	14	AVA7-50(1-5/8)	52.17 - 52.66	1.0000	1.0000
L16	19	Safety Line 3/8	52.17 - 52.66	1.0000	1.0000
L16	33	Sabre MS-450 (4.5" x 1" Plate)	52.17 - 52.66	1.0000	1.0000
L16	34	Sabre MS-450 (4.5" x 1" Plate)	52.17 - 52.66	1.0000	1.0000
L16	35	Sabre MS-450 (4.5" x 1" Plate)	52.17 - 52.66	1.0000	1.0000
L16	36	Sabre MS-450 (4.5" x 1" Plate)	52.17 - 52.66	1.0000	1.0000
L16	40	CCI-5x1.25	52.17 - 52.66	1.0000	1.0000
L17	14	AVA7-50(1-5/8)	51.92 - 52.17	1.0000	1.0000
L17	19	Safety Line 3/8	51.92 - 52.17	1.0000	1.0000
L17	33	Sabre MS-450 (4.5" x 1" Plate)	51.92 - 52.17	1.0000	1.0000
L17	34	Sabre MS-450 (4.5" x 1" Plate)	51.92 - 52.17	1.0000	1.0000
L17	35	Sabre MS-450 (4.5" x 1" Plate)	51.92 - 52.17	1.0000	1.0000
L17	36	Sabre MS-450 (4.5" x 1" Plate)	51.92 - 52.17	1.0000	1.0000
L17	40	CCI-5x1.25	51.92 - 52.17	1.0000	1.0000
L18	14	AVA7-50(1-5/8)	45.29 - 51.92	1.0000	1.0000
L18	19	Safety Line 3/8	45.29 - 51.92	1.0000	1.0000
L18	32	Sabre MS-450 (4.5" x 1" Plate)	45.29 - 49.75	1.0000	1.0000
L18	33	Sabre MS-450 (4.5" x 1" Plate)	45.29 - 51.92	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L18	34	Sabre MS-450 (4.5" x 1" Plate)	45.29 - 51.92	1.0000	1.0000
L18	35	Sabre MS-450 (4.5" x 1" Plate)	50.67 - 51.92	1.0000	1.0000
L18	36	Sabre MS-450 (4.5" x 1" Plate)	45.92 - 51.92	1.0000	1.0000
L18	40	CCI-5x1.25	45.29 - 51.92	1.0000	1.0000
L19	14	AVA7-50(1-5/8)	44.29 - 45.29	1.0000	1.0000
L19	19	Safety Line 3/8	44.29 - 45.29	1.0000	1.0000
L19	32	Sabre MS-450 (4.5" x 1" Plate)	44.29 - 45.29	1.0000	1.0000
L19	33	Sabre MS-450 (4.5" x 1" Plate)	44.29 - 45.29	1.0000	1.0000
L19	34	Sabre MS-450 (4.5" x 1" Plate)	44.29 - 45.29	1.0000	1.0000
L19	40	CCI-5x1.25	44.29 - 45.29	1.0000	1.0000
L20	14	AVA7-50(1-5/8)	39.29 - 44.29	1.0000	1.0000
L20	19	Safety Line 3/8	39.29 - 44.29	1.0000	1.0000
L20	32	Sabre MS-450 (4.5" x 1" Plate)	39.29 - 44.29	1.0000	1.0000
L20	33	Sabre MS-450 (4.5" x 1" Plate)	39.29 - 44.29	1.0000	1.0000
L20	34	Sabre MS-450 (4.5" x 1" Plate)	39.29 - 44.29	1.0000	1.0000
L20	40	CCI-5x1.25	39.29 - 44.29	1.0000	1.0000
L21	14	AVA7-50(1-5/8)	34.29 - 39.29	1.0000	1.0000
L21	19	Safety Line 3/8	34.29 - 39.29	1.0000	1.0000
L21	28	Sabre MS-600 (6" x 1" Plate)	34.29 - 35.50	1.0000	1.0000
L21	29	Sabre MS-600 (6" x 1" Plate)	34.29 - 35.50	1.0000	1.0000
L21	30	Sabre MS-600 (6" x 1" Plate)	34.29 - 35.50	1.0000	1.0000
L21	32	Sabre MS-450 (4.5" x 1" Plate)	34.29 - 39.29	1.0000	1.0000
L21	33	Sabre MS-450 (4.5" x 1" Plate)	34.29 - 39.29	1.0000	1.0000
L21	34	Sabre MS-450 (4.5" x 1" Plate)	34.29 - 39.29	1.0000	1.0000
L21	40	CCI-5x1.25	34.29 - 39.29	1.0000	1.0000
L22	14	AVA7-50(1-5/8)	33.50 - 34.29	1.0000	1.0000
L22	19	Safety Line 3/8	33.50 - 34.29	1.0000	1.0000
L22	28	Sabre MS-600 (6" x 1" Plate)	33.50 - 34.29	1.0000	1.0000
L22	29	Sabre MS-600 (6" x 1" Plate)	33.50 - 34.29	1.0000	1.0000
L22	30	Sabre MS-600 (6" x 1" Plate)	33.50 - 34.29	1.0000	1.0000
L22	32	Sabre MS-450 (4.5" x 1" Plate)	33.50 - 34.29	1.0000	1.0000
L22	33	Sabre MS-450 (4.5" x 1" Plate)	33.50 - 34.29	1.0000	1.0000
L22	34	Sabre MS-450 (4.5" x 1" Plate)	33.50 - 34.29	1.0000	1.0000
L22	40	CCI-5x1.25	33.50 - 34.29	1.0000	1.0000
L23	14	AVA7-50(1-5/8)	33.25 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			33.50		
L23	19	Safety Line 3/8	33.25 - 33.50	1.0000	1.0000
L23	28	Sabre MS-600 (6" x 1" Plate)	33.25 - 33.50	1.0000	1.0000
L23	29	Sabre MS-600 (6" x 1" Plate)	33.25 - 33.50	1.0000	1.0000
L23	30	Sabre MS-600 (6" x 1" Plate)	33.25 - 33.50	1.0000	1.0000
L23	32	Sabre MS-450 (4.5" x 1" Plate)	33.25 - 33.50	1.0000	1.0000
L23	33	Sabre MS-450 (4.5" x 1" Plate)	33.25 - 33.50	1.0000	1.0000
L23	34	Sabre MS-450 (4.5" x 1" Plate)	33.25 - 33.50	1.0000	1.0000
L23	40	CCI-5x1.25	33.25 - 33.50	1.0000	1.0000
L24	14	AVA7-50(1-5/8)	33.00 - 33.25	1.0000	1.0000
L24	19	Safety Line 3/8	33.00 - 33.25	1.0000	1.0000
L24	28	Sabre MS-600 (6" x 1" Plate)	33.00 - 33.25	1.0000	1.0000
L24	29	Sabre MS-600 (6" x 1" Plate)	33.00 - 33.25	1.0000	1.0000
L24	30	Sabre MS-600 (6" x 1" Plate)	33.00 - 33.25	1.0000	1.0000
L24	32	Sabre MS-450 (4.5" x 1" Plate)	33.00 - 33.25	1.0000	1.0000
L24	33	Sabre MS-450 (4.5" x 1" Plate)	33.00 - 33.25	1.0000	1.0000
L24	34	Sabre MS-450 (4.5" x 1" Plate)	33.00 - 33.25	1.0000	1.0000
L24	40	CCI-5x1.25	33.00 - 33.25	1.0000	1.0000
L25	14	AVA7-50(1-5/8)	32.75 - 33.00	1.0000	1.0000
L25	19	Safety Line 3/8	32.75 - 33.00	1.0000	1.0000
L25	28	Sabre MS-600 (6" x 1" Plate)	32.75 - 33.00	1.0000	1.0000
L25	29	Sabre MS-600 (6" x 1" Plate)	32.75 - 33.00	1.0000	1.0000
L25	30	Sabre MS-600 (6" x 1" Plate)	32.75 - 33.00	1.0000	1.0000
L25	32	Sabre MS-450 (4.5" x 1" Plate)	32.75 - 33.00	1.0000	1.0000
L25	33	Sabre MS-450 (4.5" x 1" Plate)	32.75 - 33.00	1.0000	1.0000
L25	34	Sabre MS-450 (4.5" x 1" Plate)	32.75 - 33.00	1.0000	1.0000
L25	40	CCI-5x1.25	32.75 - 33.00	1.0000	1.0000
L26	14	AVA7-50(1-5/8)	32.00 - 32.75	1.0000	1.0000
L26	19	Safety Line 3/8	32.00 - 32.75	1.0000	1.0000
L26	28	Sabre MS-600 (6" x 1" Plate)	32.00 - 32.75	1.0000	1.0000
L26	29	Sabre MS-600 (6" x 1" Plate)	32.00 - 32.75	1.0000	1.0000
L26	30	Sabre MS-600 (6" x 1" Plate)	32.00 - 32.75	1.0000	1.0000
L26	32	Sabre MS-450 (4.5" x 1" Plate)	32.00 - 32.75	1.0000	1.0000
L26	33	Sabre MS-450 (4.5" x 1" Plate)	32.00 - 32.75	1.0000	1.0000
L26	34	Sabre MS-450 (4.5" x 1" Plate)	32.00 - 32.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L26	40	CCI-5x1.25	32.00 - 32.75	1.0000	1.0000
L27	14	AVA7-50(1-5/8)	31.75 - 32.00	1.0000	1.0000
L27	19	Safety Line 3/8	31.75 - 32.00	1.0000	1.0000
L27	28	Sabre MS-600 (6" x 1" Plate)	31.75 - 32.00	1.0000	1.0000
L27	29	Sabre MS-600 (6" x 1" Plate)	31.75 - 32.00	1.0000	1.0000
L27	30	Sabre MS-600 (6" x 1" Plate)	31.75 - 32.00	1.0000	1.0000
L27	32	Sabre MS-450 (4.5" x 1" Plate)	31.75 - 32.00	1.0000	1.0000
L27	33	Sabre MS-450 (4.5" x 1" Plate)	31.75 - 32.00	1.0000	1.0000
L27	34	Sabre MS-450 (4.5" x 1" Plate)	31.75 - 32.00	1.0000	1.0000
L27	40	CCI-5x1.25	31.75 - 32.00	1.0000	1.0000
L28	14	AVA7-50(1-5/8)	28.50 - 31.75	1.0000	1.0000
L28	19	Safety Line 3/8	28.50 - 31.75	1.0000	1.0000
L28	22	Sabre MS-600 (6" x 1" Plate)	28.50 - 30.50	1.0000	1.0000
L28	23	Sabre MS-600 (6" x 1" Plate)	28.50 - 30.50	1.0000	1.0000
L28	26	Sabre MS-600 (6" x 1" Plate)	28.50 - 30.50	1.0000	1.0000
L28	28	Sabre MS-600 (6" x 1" Plate)	28.50 - 31.75	1.0000	1.0000
L28	29	Sabre MS-600 (6" x 1" Plate)	28.50 - 31.75	1.0000	1.0000
L28	30	Sabre MS-600 (6" x 1" Plate)	28.50 - 31.75	1.0000	1.0000
L28	32	Sabre MS-450 (4.5" x 1" Plate)	30.50 - 31.75	1.0000	1.0000
L28	33	Sabre MS-450 (4.5" x 1" Plate)	30.50 - 31.75	1.0000	1.0000
L28	34	Sabre MS-450 (4.5" x 1" Plate)	30.50 - 31.75	1.0000	1.0000
L28	40	CCI-5x1.25	31.00 - 31.75	1.0000	1.0000
L29	14	AVA7-50(1-5/8)	28.25 - 28.50	1.0000	1.0000
L29	19	Safety Line 3/8	28.25 - 28.50	1.0000	1.0000
L29	22	Sabre MS-600 (6" x 1" Plate)	28.25 - 28.50	1.0000	1.0000
L29	23	Sabre MS-600 (6" x 1" Plate)	28.25 - 28.50	1.0000	1.0000
L29	26	Sabre MS-600 (6" x 1" Plate)	28.25 - 28.50	1.0000	1.0000
L29	28	Sabre MS-600 (6" x 1" Plate)	28.25 - 28.50	1.0000	1.0000
L29	29	Sabre MS-600 (6" x 1" Plate)	28.25 - 28.50	1.0000	1.0000
L29	30	Sabre MS-600 (6" x 1" Plate)	28.25 - 28.50	1.0000	1.0000
L30	14	AVA7-50(1-5/8)	27.50 - 28.25	1.0000	1.0000
L30	19	Safety Line 3/8	27.50 - 28.25	1.0000	1.0000
L30	22	Sabre MS-600 (6" x 1" Plate)	27.50 - 28.25	1.0000	1.0000
L30	23	Sabre MS-600 (6" x 1" Plate)	27.50 - 28.25	1.0000	1.0000
L30	26	Sabre MS-600 (6" x 1"	27.50 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		Plate)	28.25		
L30	28	Sabre MS-600 (6" x 1" Plate)	27.50 - 28.25	1.0000	1.0000
L30	29	Sabre MS-600 (6" x 1" Plate)	27.50 - 28.25	1.0000	1.0000
L30	30	Sabre MS-600 (6" x 1" Plate)	27.50 - 28.25	1.0000	1.0000
L31	14	AVA7-50(1-5/8)	27.25 - 27.50	1.0000	1.0000
L31	19	Safety Line 3/8	27.25 - 27.50	1.0000	1.0000
L31	22	Sabre MS-600 (6" x 1" Plate)	27.25 - 27.50	1.0000	1.0000
L31	23	Sabre MS-600 (6" x 1" Plate)	27.25 - 27.50	1.0000	1.0000
L31	26	Sabre MS-600 (6" x 1" Plate)	27.25 - 27.50	1.0000	1.0000
L31	28	Sabre MS-600 (6" x 1" Plate)	27.25 - 27.50	1.0000	1.0000
L31	29	Sabre MS-600 (6" x 1" Plate)	27.25 - 27.50	1.0000	1.0000
L31	30	Sabre MS-600 (6" x 1" Plate)	27.25 - 27.50	1.0000	1.0000
L32	14	AVA7-50(1-5/8)	22.25 - 27.25	1.0000	1.0000
L32	19	Safety Line 3/8	22.25 - 27.25	1.0000	1.0000
L32	22	Sabre MS-600 (6" x 1" Plate)	22.25 - 27.25	1.0000	1.0000
L32	23	Sabre MS-600 (6" x 1" Plate)	22.25 - 27.25	1.0000	1.0000
L32	26	Sabre MS-600 (6" x 1" Plate)	22.25 - 27.25	1.0000	1.0000
L32	28	Sabre MS-600 (6" x 1" Plate)	25.50 - 27.25	1.0000	1.0000
L32	29	Sabre MS-600 (6" x 1" Plate)	25.50 - 27.25	1.0000	1.0000
L32	30	Sabre MS-600 (6" x 1" Plate)	25.50 - 27.25	1.0000	1.0000
L33	14	AVA7-50(1-5/8)	18.00 - 22.25	1.0000	1.0000
L33	19	Safety Line 3/8	18.00 - 22.25	1.0000	1.0000
L33	22	Sabre MS-600 (6" x 1" Plate)	18.00 - 22.25	1.0000	1.0000
L33	23	Sabre MS-600 (6" x 1" Plate)	18.00 - 22.25	1.0000	1.0000
L33	26	Sabre MS-600 (6" x 1" Plate)	18.00 - 22.25	1.0000	1.0000
L33	38	CCI-5x1.25	18.00 - 20.00	1.0000	1.0000
L34	14	AVA7-50(1-5/8)	17.75 - 18.00	1.0000	1.0000
L34	19	Safety Line 3/8	17.75 - 18.00	1.0000	1.0000
L34	22	Sabre MS-600 (6" x 1" Plate)	17.75 - 18.00	1.0000	1.0000
L34	23	Sabre MS-600 (6" x 1" Plate)	17.75 - 18.00	1.0000	1.0000
L34	26	Sabre MS-600 (6" x 1" Plate)	17.75 - 18.00	1.0000	1.0000
L34	38	CCI-5x1.25	17.75 - 18.00	1.0000	1.0000
L35	14	AVA7-50(1-5/8)	15.45 - 17.75	1.0000	1.0000
L35	19	Safety Line 3/8	15.45 - 17.75	1.0000	1.0000
L35	22	Sabre MS-600 (6" x 1" Plate)	15.45 - 17.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L35	23	Sabre MS-600 (6" x 1" Plate)	15.45 - 17.75	1.0000	1.0000
L35	25	Sabre MS-600 (6" x 1" Plate)	15.45 - 17.45	1.0000	1.0000
L35	26	Sabre MS-600 (6" x 1" Plate)	15.45 - 17.75	1.0000	1.0000
L35	38	CCI-5x1.25	15.45 - 17.75	1.0000	1.0000
L36	14	AVA7-50(1-5/8)	15.20 - 15.45	1.0000	1.0000
L36	19	Safety Line 3/8	15.20 - 15.45	1.0000	1.0000
L36	22	Sabre MS-600 (6" x 1" Plate)	15.20 - 15.45	1.0000	1.0000
L36	23	Sabre MS-600 (6" x 1" Plate)	15.20 - 15.45	1.0000	1.0000
L36	25	Sabre MS-600 (6" x 1" Plate)	15.20 - 15.45	1.0000	1.0000
L36	26	Sabre MS-600 (6" x 1" Plate)	15.20 - 15.45	1.0000	1.0000
L36	38	CCI-5x1.25	15.20 - 15.45	1.0000	1.0000
L37	14	AVA7-50(1-5/8)	13.41 - 15.20	1.0000	1.0000
L37	19	Safety Line 3/8	13.41 - 15.20	1.0000	1.0000
L37	22	Sabre MS-600 (6" x 1" Plate)	13.41 - 15.20	1.0000	1.0000
L37	23	Sabre MS-600 (6" x 1" Plate)	13.41 - 15.20	1.0000	1.0000
L37	25	Sabre MS-600 (6" x 1" Plate)	13.41 - 15.20	1.0000	1.0000
L37	26	Sabre MS-600 (6" x 1" Plate)	13.41 - 15.20	1.0000	1.0000
L37	38	CCI-5x1.25	13.41 - 15.20	1.0000	1.0000
L38	14	AVA7-50(1-5/8)	13.16 - 13.41	1.0000	1.0000
L38	19	Safety Line 3/8	13.16 - 13.41	1.0000	1.0000
L38	22	Sabre MS-600 (6" x 1" Plate)	13.16 - 13.41	1.0000	1.0000
L38	23	Sabre MS-600 (6" x 1" Plate)	13.16 - 13.41	1.0000	1.0000
L38	25	Sabre MS-600 (6" x 1" Plate)	13.16 - 13.41	1.0000	1.0000
L38	26	Sabre MS-600 (6" x 1" Plate)	13.16 - 13.41	1.0000	1.0000
L38	38	CCI-5x1.25	13.16 - 13.41	1.0000	1.0000
L39	14	AVA7-50(1-5/8)	8.16 - 13.16	1.0000	1.0000
L39	19	Safety Line 3/8	8.16 - 13.16	1.0000	1.0000
L39	22	Sabre MS-600 (6" x 1" Plate)	8.16 - 13.16	1.0000	1.0000
L39	23	Sabre MS-600 (6" x 1" Plate)	8.16 - 13.16	1.0000	1.0000
L39	24	Sabre MS-600 (6" x 1" Plate)	8.16 - 8.50	1.0000	1.0000
L39	25	Sabre MS-600 (6" x 1" Plate)	8.16 - 13.16	1.0000	1.0000
L39	26	Sabre MS-600 (6" x 1" Plate)	11.41 - 13.16	1.0000	1.0000
L39	38	CCI-5x1.25	8.16 - 13.16	1.0000	1.0000
L40	14	AVA7-50(1-5/8)	6.50 - 8.16	1.0000	1.0000
L40	19	Safety Line 3/8	6.50 - 8.16	1.0000	1.0000
L40	22	Sabre MS-600 (6" x 1" Plate)	6.50 - 8.16	1.0000	1.0000
L40	23	Sabre MS-600 (6" x 1" Plate)	6.50 - 8.16	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L40	24	Sabre MS-600 (6" x 1" Plate)	6.50 - 8.16	1.0000	1.0000
L40	25	Sabre MS-600 (6" x 1" Plate)	6.50 - 8.16	1.0000	1.0000
L40	38	CCI-5x1.25	6.50 - 8.16	1.0000	1.0000
L41	14	AVA7-50(1-5/8)	6.25 - 6.50	1.0000	1.0000
L41	19	Safety Line 3/8	6.25 - 6.50	1.0000	1.0000
L41	22	Sabre MS-600 (6" x 1" Plate)	6.25 - 6.50	1.0000	1.0000
L41	23	Sabre MS-600 (6" x 1" Plate)	6.25 - 6.50	1.0000	1.0000
L41	24	Sabre MS-600 (6" x 1" Plate)	6.25 - 6.50	1.0000	1.0000
L41	25	Sabre MS-600 (6" x 1" Plate)	6.25 - 6.50	1.0000	1.0000
L41	38	CCI-5x1.25	6.25 - 6.50	1.0000	1.0000
L42	14	AVA7-50(1-5/8)	4.45 - 6.25	1.0000	1.0000
L42	19	Safety Line 3/8	4.45 - 6.25	1.0000	1.0000
L42	22	Sabre MS-600 (6" x 1" Plate)	4.45 - 6.25	1.0000	1.0000
L42	23	Sabre MS-600 (6" x 1" Plate)	4.45 - 6.25	1.0000	1.0000
L42	24	Sabre MS-600 (6" x 1" Plate)	4.45 - 6.25	1.0000	1.0000
L42	25	Sabre MS-600 (6" x 1" Plate)	4.45 - 6.25	1.0000	1.0000
L42	38	CCI-5x1.25	4.45 - 6.25	1.0000	1.0000
L43	14	AVA7-50(1-5/8)	4.20 - 4.45	1.0000	1.0000
L43	19	Safety Line 3/8	4.20 - 4.45	1.0000	1.0000
L43	22	Sabre MS-600 (6" x 1" Plate)	4.20 - 4.45	1.0000	1.0000
L43	23	Sabre MS-600 (6" x 1" Plate)	4.20 - 4.45	1.0000	1.0000
L43	24	Sabre MS-600 (6" x 1" Plate)	4.20 - 4.45	1.0000	1.0000
L43	25	Sabre MS-600 (6" x 1" Plate)	4.20 - 4.45	1.0000	1.0000
L43	38	CCI-5x1.25	4.20 - 4.45	1.0000	1.0000
L44	14	AVA7-50(1-5/8)	0.00 - 4.20	1.0000	1.0000
L44	19	Safety Line 3/8	0.00 - 4.20	1.0000	1.0000
L44	22	Sabre MS-600 (6" x 1" Plate)	0.00 - 4.20	1.0000	1.0000
L44	23	Sabre MS-600 (6" x 1" Plate)	0.00 - 4.20	1.0000	1.0000
L44	24	Sabre MS-600 (6" x 1" Plate)	0.50 - 4.20	1.0000	1.0000
L44	25	Sabre MS-600 (6" x 1" Plate)	2.45 - 4.20	1.0000	1.0000
L44	38	CCI-5x1.25	0.00 - 4.20	1.0000	1.0000

Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L8	33	Sabre MS-450 (4.5" x 1" Plate)	60.21 - 60.50	Auto	0.3288
L8	34	Sabre MS-450 (4.5" x 1" Plate)	60.21 - 60.50	Auto	0.3288
L8	35	Sabre MS-450 (4.5" x 1"	60.21 -	Auto	0.3295

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
		Plate)	60.67		
L9	33	Sabre MS-450 (4.5" x 1"	59.17 -	Auto	0.3233
		Plate)	60.21		
L9	34	Sabre MS-450 (4.5" x 1"	59.17 -	Auto	0.3233
		Plate)	60.21		
L9	35	Sabre MS-450 (4.5" x 1"	59.17 -	Auto	0.3233
		Plate)	60.21		
L10	33	Sabre MS-450 (4.5" x 1"	58.90 -	Auto	0.4205
		Plate)	59.17		
L10	34	Sabre MS-450 (4.5" x 1"	58.90 -	Auto	0.4205
		Plate)	59.17		
L10	35	Sabre MS-450 (4.5" x 1"	58.90 -	Auto	0.4205
		Plate)	59.17		
L11	33	Sabre MS-450 (4.5" x 1"	58.75 -	Auto	0.4188
		Plate)	58.90		
L11	34	Sabre MS-450 (4.5" x 1"	58.75 -	Auto	0.4188
		Plate)	58.90		
L11	35	Sabre MS-450 (4.5" x 1"	58.75 -	Auto	0.4188
		Plate)	58.90		
L12	33	Sabre MS-450 (4.5" x 1"	54.00 -	Auto	0.3936
		Plate)	58.75		
L12	34	Sabre MS-450 (4.5" x 1"	54.00 -	Auto	0.3936
		Plate)	58.75		
L12	35	Sabre MS-450 (4.5" x 1"	54.00 -	Auto	0.3936
		Plate)	58.75		
L12	36	Sabre MS-450 (4.5" x 1"	54.00 -	Auto	0.3756
		Plate)	54.42		
L12	40	CCI-5x1.25	54.00 -	Auto	0.4439
			56.00		
L13	33	Sabre MS-450 (4.5" x 1"	53.75 -	Auto	0.3777
		Plate)	54.00		
L13	34	Sabre MS-450 (4.5" x 1"	53.75 -	Auto	0.3777
		Plate)	54.00		
L13	35	Sabre MS-450 (4.5" x 1"	53.75 -	Auto	0.3777
		Plate)	54.00		
L13	36	Sabre MS-450 (4.5" x 1"	53.75 -	Auto	0.3777
		Plate)	54.00		
L13	40	CCI-5x1.25	53.75 -	Auto	0.4399
			54.00		
L14	33	Sabre MS-450 (4.5" x 1"	52.91 -	Auto	0.3683
		Plate)	53.75		
L14	34	Sabre MS-450 (4.5" x 1"	52.91 -	Auto	0.3683
		Plate)	53.75		
L14	35	Sabre MS-450 (4.5" x 1"	52.91 -	Auto	0.3683
		Plate)	53.75		
L14	36	Sabre MS-450 (4.5" x 1"	52.91 -	Auto	0.3683
		Plate)	53.75		
L14	40	CCI-5x1.25	52.91 -	Auto	0.4314
			53.75		
L15	33	Sabre MS-450 (4.5" x 1"	52.66 -	Auto	0.4322
		Plate)	52.91		
L15	34	Sabre MS-450 (4.5" x 1"	52.66 -	Auto	0.4322
		Plate)	52.91		
L15	35	Sabre MS-450 (4.5" x 1"	52.66 -	Auto	0.4322
		Plate)	52.91		
L15	36	Sabre MS-450 (4.5" x 1"	52.66 -	Auto	0.4322
		Plate)	52.91		
L15	40	CCI-5x1.25	52.66 -	Auto	0.4890
			52.91		
L16	33	Sabre MS-450 (4.5" x 1"	52.17 -	Auto	0.4291
		Plate)	52.66		
L16	34	Sabre MS-450 (4.5" x 1"	52.17 -	Auto	0.4291
		Plate)	52.66		
L16	35	Sabre MS-450 (4.5" x 1"	52.17 -	Auto	0.4291
		Plate)	52.66		
L16	36	Sabre MS-450 (4.5" x 1"	52.17 -	Auto	0.4291
		Plate)	52.66		
L16	40	CCI-5x1.25	52.17 -	Auto	0.4862

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
			52.66		
L17	33	Sabre MS-450 (4.5" x 1" Plate)	51.92 - 52.17	Auto	0.3674
L17	34	Sabre MS-450 (4.5" x 1" Plate)	51.92 - 52.17	Auto	0.3674
L17	35	Sabre MS-450 (4.5" x 1" Plate)	51.92 - 52.17	Auto	0.3674
L17	36	Sabre MS-450 (4.5" x 1" Plate)	51.92 - 52.17	Auto	0.3674
L17	40	CCI-5x1.25	51.92 - 52.17	Auto	0.4306
L18	32	Sabre MS-450 (4.5" x 1" Plate)	45.29 - 49.75	Auto	0.3249
L18	33	Sabre MS-450 (4.5" x 1" Plate)	45.29 - 51.92	Auto	0.3339
L18	34	Sabre MS-450 (4.5" x 1" Plate)	45.29 - 51.92	Auto	0.3339
L18	35	Sabre MS-450 (4.5" x 1" Plate)	50.67 - 51.92	Auto	0.3563
L18	36	Sabre MS-450 (4.5" x 1" Plate)	45.92 - 51.92	Auto	0.3365
L18	40	CCI-5x1.25	45.29 - 51.92	Auto	0.4005
L19	32	Sabre MS-450 (4.5" x 1" Plate)	44.29 - 45.29	Auto	0.3412
L19	33	Sabre MS-450 (4.5" x 1" Plate)	44.29 - 45.29	Auto	0.3412
L19	34	Sabre MS-450 (4.5" x 1" Plate)	44.29 - 45.29	Auto	0.3412
L19	40	CCI-5x1.25	44.29 - 45.29	Auto	0.4071
L20	32	Sabre MS-450 (4.5" x 1" Plate)	39.29 - 44.29	Auto	0.3114
L20	33	Sabre MS-450 (4.5" x 1" Plate)	39.29 - 44.29	Auto	0.3114
L20	34	Sabre MS-450 (4.5" x 1" Plate)	39.29 - 44.29	Auto	0.3114
L20	40	CCI-5x1.25	39.29 - 44.29	Auto	0.3802
L21	28	Sabre MS-600 (6" x 1" Plate)	34.29 - 35.50	Auto	0.4368
L21	29	Sabre MS-600 (6" x 1" Plate)	34.29 - 35.50	Auto	0.4368
L21	30	Sabre MS-600 (6" x 1" Plate)	34.29 - 35.50	Auto	0.4368
L21	32	Sabre MS-450 (4.5" x 1" Plate)	34.29 - 39.29	Auto	0.2649
L21	33	Sabre MS-450 (4.5" x 1" Plate)	34.29 - 39.29	Auto	0.2649
L21	34	Sabre MS-450 (4.5" x 1" Plate)	34.29 - 39.29	Auto	0.2649
L21	40	CCI-5x1.25	34.29 - 39.29	Auto	0.3384
L22	28	Sabre MS-600 (6" x 1" Plate)	33.50 - 34.29	Auto	0.4269
L22	29	Sabre MS-600 (6" x 1" Plate)	33.50 - 34.29	Auto	0.4269
L22	30	Sabre MS-600 (6" x 1" Plate)	33.50 - 34.29	Auto	0.4269
L22	32	Sabre MS-450 (4.5" x 1" Plate)	33.50 - 34.29	Auto	0.2359
L22	33	Sabre MS-450 (4.5" x 1" Plate)	33.50 - 34.29	Auto	0.2359
L22	34	Sabre MS-450 (4.5" x 1" Plate)	33.50 - 34.29	Auto	0.2359
L22	40	CCI-5x1.25	33.50 - 34.29	Auto	0.3123
L23	28	Sabre MS-600 (6" x 1"	33.25 -	Auto	0.5154

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
		Plate)	33.50		
L23	29	Sabre MS-600 (6" x 1" Plate)	33.25 - 33.50	Auto	0.5154
L23	30	Sabre MS-600 (6" x 1" Plate)	33.25 - 33.50	Auto	0.5154
L23	32	Sabre MS-450 (4.5" x 1" Plate)	33.25 - 33.50	Auto	0.3538
L23	33	Sabre MS-450 (4.5" x 1" Plate)	33.25 - 33.50	Auto	0.3538
L23	34	Sabre MS-450 (4.5" x 1" Plate)	33.25 - 33.50	Auto	0.3538
L23	40	CCI-5x1.25	33.25 - 33.50	Auto	0.4184
L24	28	Sabre MS-600 (6" x 1" Plate)	33.00 - 33.25	Auto	0.5138
L24	29	Sabre MS-600 (6" x 1" Plate)	33.00 - 33.25	Auto	0.5138
L24	30	Sabre MS-600 (6" x 1" Plate)	33.00 - 33.25	Auto	0.5138
L24	32	Sabre MS-450 (4.5" x 1" Plate)	33.00 - 33.25	Auto	0.3517
L24	33	Sabre MS-450 (4.5" x 1" Plate)	33.00 - 33.25	Auto	0.3517
L24	34	Sabre MS-450 (4.5" x 1" Plate)	33.00 - 33.25	Auto	0.3517
L24	40	CCI-5x1.25	33.00 - 33.25	Auto	0.4166
L25	28	Sabre MS-600 (6" x 1" Plate)	32.75 - 33.00	Auto	0.5049
L25	29	Sabre MS-600 (6" x 1" Plate)	32.75 - 33.00	Auto	0.5049
L25	30	Sabre MS-600 (6" x 1" Plate)	32.75 - 33.00	Auto	0.5049
L25	32	Sabre MS-450 (4.5" x 1" Plate)	32.75 - 33.00	Auto	0.3399
L25	33	Sabre MS-450 (4.5" x 1" Plate)	32.75 - 33.00	Auto	0.3399
L25	34	Sabre MS-450 (4.5" x 1" Plate)	32.75 - 33.00	Auto	0.3399
L25	40	CCI-5x1.25	32.75 - 33.00	Auto	0.4059
L26	28	Sabre MS-600 (6" x 1" Plate)	32.00 - 32.75	Auto	0.4981
L26	29	Sabre MS-600 (6" x 1" Plate)	32.00 - 32.75	Auto	0.4981
L26	30	Sabre MS-600 (6" x 1" Plate)	32.00 - 32.75	Auto	0.4981
L26	32	Sabre MS-450 (4.5" x 1" Plate)	32.00 - 32.75	Auto	0.3308
L26	33	Sabre MS-450 (4.5" x 1" Plate)	32.00 - 32.75	Auto	0.3308
L26	34	Sabre MS-450 (4.5" x 1" Plate)	32.00 - 32.75	Auto	0.3308
L26	40	CCI-5x1.25	32.00 - 32.75	Auto	0.3977
L27	28	Sabre MS-600 (6" x 1" Plate)	31.75 - 32.00	Auto	0.4327
L27	29	Sabre MS-600 (6" x 1" Plate)	31.75 - 32.00	Auto	0.4327
L27	30	Sabre MS-600 (6" x 1" Plate)	31.75 - 32.00	Auto	0.4327
L27	32	Sabre MS-450 (4.5" x 1" Plate)	31.75 - 32.00	Auto	0.2435
L27	33	Sabre MS-450 (4.5" x 1" Plate)	31.75 - 32.00	Auto	0.2435
L27	34	Sabre MS-450 (4.5" x 1" Plate)	31.75 - 32.00	Auto	0.2435
L27	40	CCI-5x1.25	31.75 -	Auto	0.3192

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
			32.00		
L28	22	Sabre MS-600 (6" x 1" Plate)	28.50 - 30.50	Auto	0.4142
L28	23	Sabre MS-600 (6" x 1" Plate)	28.50 - 30.50	Auto	0.4142
L28	26	Sabre MS-600 (6" x 1" Plate)	28.50 - 30.50	Auto	0.4142
L28	28	Sabre MS-600 (6" x 1" Plate)	28.50 - 31.75	Auto	0.4181
L28	29	Sabre MS-600 (6" x 1" Plate)	28.50 - 31.75	Auto	0.4181
L28	30	Sabre MS-600 (6" x 1" Plate)	28.50 - 31.75	Auto	0.4181
L28	32	Sabre MS-450 (4.5" x 1" Plate)	30.50 - 31.75	Auto	0.2324
L28	33	Sabre MS-450 (4.5" x 1" Plate)	30.50 - 31.75	Auto	0.2324
L28	34	Sabre MS-450 (4.5" x 1" Plate)	30.50 - 31.75	Auto	0.2324
L28	40	CCI-5x1.25	31.00 - 31.75	Auto	0.3110
L29	22	Sabre MS-600 (6" x 1" Plate)	28.25 - 28.50	Auto	0.4915
L29	23	Sabre MS-600 (6" x 1" Plate)	28.25 - 28.50	Auto	0.4915
L29	26	Sabre MS-600 (6" x 1" Plate)	28.25 - 28.50	Auto	0.4915
L29	28	Sabre MS-600 (6" x 1" Plate)	28.25 - 28.50	Auto	0.4915
L29	29	Sabre MS-600 (6" x 1" Plate)	28.25 - 28.50	Auto	0.4915
L29	30	Sabre MS-600 (6" x 1" Plate)	28.25 - 28.50	Auto	0.4915
L30	22	Sabre MS-600 (6" x 1" Plate)	27.50 - 28.25	Auto	0.4847
L30	23	Sabre MS-600 (6" x 1" Plate)	27.50 - 28.25	Auto	0.4847
L30	26	Sabre MS-600 (6" x 1" Plate)	27.50 - 28.25	Auto	0.4847
L30	28	Sabre MS-600 (6" x 1" Plate)	27.50 - 28.25	Auto	0.4847
L30	29	Sabre MS-600 (6" x 1" Plate)	27.50 - 28.25	Auto	0.4847
L30	30	Sabre MS-600 (6" x 1" Plate)	27.50 - 28.25	Auto	0.4847
L31	22	Sabre MS-600 (6" x 1" Plate)	27.25 - 27.50	Auto	0.4009
L31	23	Sabre MS-600 (6" x 1" Plate)	27.25 - 27.50	Auto	0.4009
L31	26	Sabre MS-600 (6" x 1" Plate)	27.25 - 27.50	Auto	0.4009
L31	28	Sabre MS-600 (6" x 1" Plate)	27.25 - 27.50	Auto	0.4009
L31	29	Sabre MS-600 (6" x 1" Plate)	27.25 - 27.50	Auto	0.4009
L31	30	Sabre MS-600 (6" x 1" Plate)	27.25 - 27.50	Auto	0.4009
L32	22	Sabre MS-600 (6" x 1" Plate)	22.25 - 27.25	Auto	0.3808
L32	23	Sabre MS-600 (6" x 1" Plate)	22.25 - 27.25	Auto	0.3808
L32	26	Sabre MS-600 (6" x 1" Plate)	22.25 - 27.25	Auto	0.3808
L32	28	Sabre MS-600 (6" x 1" Plate)	25.50 - 27.25	Auto	0.3910
L32	29	Sabre MS-600 (6" x 1" Plate)	25.50 - 27.25	Auto	0.3910
L32	30	Sabre MS-600 (6" x 1"	25.50 -	Auto	0.3910

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
		Plate)	27.25		
L33	22	Sabre MS-600 (6" x 1" Plate)	18.00 - 22.25	Auto	0.3483
L33	23	Sabre MS-600 (6" x 1" Plate)	18.00 - 22.25	Auto	0.3483
L33	26	Sabre MS-600 (6" x 1" Plate)	18.00 - 22.25	Auto	0.3483
L33	38	CCI-5x1.25	18.00 - 20.00	Auto	0.2095
L34	22	Sabre MS-600 (6" x 1" Plate)	17.75 - 18.00	Auto	0.3379
L34	23	Sabre MS-600 (6" x 1" Plate)	17.75 - 18.00	Auto	0.3379
L34	26	Sabre MS-600 (6" x 1" Plate)	17.75 - 18.00	Auto	0.3379
L34	38	CCI-5x1.25	17.75 - 18.00	Auto	0.2055
L35	22	Sabre MS-600 (6" x 1" Plate)	15.45 - 17.75	Auto	0.2896
L35	23	Sabre MS-600 (6" x 1" Plate)	15.45 - 17.75	Auto	0.2896
L35	25	Sabre MS-600 (6" x 1" Plate)	15.45 - 17.45	Auto	0.2887
L35	26	Sabre MS-600 (6" x 1" Plate)	15.45 - 17.75	Auto	0.2896
L35	38	CCI-5x1.25	15.45 - 17.75	Auto	0.1476
L36	22	Sabre MS-600 (6" x 1" Plate)	15.20 - 15.45	Auto	0.3587
L36	23	Sabre MS-600 (6" x 1" Plate)	15.20 - 15.45	Auto	0.3587
L36	25	Sabre MS-600 (6" x 1" Plate)	15.20 - 15.45	Auto	0.3587
L36	26	Sabre MS-600 (6" x 1" Plate)	15.20 - 15.45	Auto	0.3587
L36	38	CCI-5x1.25	15.20 - 15.45	Auto	0.2304
L37	22	Sabre MS-600 (6" x 1" Plate)	13.41 - 15.20	Auto	0.3486
L37	23	Sabre MS-600 (6" x 1" Plate)	13.41 - 15.20	Auto	0.3486
L37	25	Sabre MS-600 (6" x 1" Plate)	13.41 - 15.20	Auto	0.3486
L37	26	Sabre MS-600 (6" x 1" Plate)	13.41 - 15.20	Auto	0.3486
L37	38	CCI-5x1.25	13.41 - 15.20	Auto	0.2184
L38	22	Sabre MS-600 (6" x 1" Plate)	13.16 - 13.41	Auto	0.3093
L38	23	Sabre MS-600 (6" x 1" Plate)	13.16 - 13.41	Auto	0.3093
L38	25	Sabre MS-600 (6" x 1" Plate)	13.16 - 13.41	Auto	0.3093
L38	26	Sabre MS-600 (6" x 1" Plate)	13.16 - 13.41	Auto	0.3093
L38	38	CCI-5x1.25	13.16 - 13.41	Auto	0.1711
L39	22	Sabre MS-600 (6" x 1" Plate)	8.16 - 13.16	Auto	0.2892
L39	23	Sabre MS-600 (6" x 1" Plate)	8.16 - 13.16	Auto	0.2892
L39	24	Sabre MS-600 (6" x 1" Plate)	8.16 - 8.50	Auto	0.2747
L39	25	Sabre MS-600 (6" x 1" Plate)	8.16 - 13.16	Auto	0.2892
L39	26	Sabre MS-600 (6" x 1" Plate)	11.41 - 13.16	Auto	0.2994
L39	38	CCI-5x1.25	8.16 - 13.16	Auto	0.1471

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L40	22	Sabre MS-600 (6" x 1" Plate)	6.50 - 8.16	Auto	0.2684
L40	23	Sabre MS-600 (6" x 1" Plate)	6.50 - 8.16	Auto	0.2684
L40	24	Sabre MS-600 (6" x 1" Plate)	6.50 - 8.16	Auto	0.2684
L40	25	Sabre MS-600 (6" x 1" Plate)	6.50 - 8.16	Auto	0.2684
L40	38	CCI-5x1.25	6.50 - 8.16	Auto	0.1221
L41	22	Sabre MS-600 (6" x 1" Plate)	6.25 - 6.50	Auto	0.2955
L41	23	Sabre MS-600 (6" x 1" Plate)	6.25 - 6.50	Auto	0.2955
L41	24	Sabre MS-600 (6" x 1" Plate)	6.25 - 6.50	Auto	0.2955
L41	25	Sabre MS-600 (6" x 1" Plate)	6.25 - 6.50	Auto	0.2955
L41	38	CCI-5x1.25	6.25 - 6.50	Auto	0.1546
L42	22	Sabre MS-600 (6" x 1" Plate)	4.45 - 6.25	Auto	0.2854
L42	23	Sabre MS-600 (6" x 1" Plate)	4.45 - 6.25	Auto	0.2854
L42	24	Sabre MS-600 (6" x 1" Plate)	4.45 - 6.25	Auto	0.2854
L42	25	Sabre MS-600 (6" x 1" Plate)	4.45 - 6.25	Auto	0.2854
L42	38	CCI-5x1.25	4.45 - 6.25	Auto	0.1425
L43	22	Sabre MS-600 (6" x 1" Plate)	4.20 - 4.45	Auto	0.2387
L43	23	Sabre MS-600 (6" x 1" Plate)	4.20 - 4.45	Auto	0.2387
L43	24	Sabre MS-600 (6" x 1" Plate)	4.20 - 4.45	Auto	0.2387
L43	25	Sabre MS-600 (6" x 1" Plate)	4.20 - 4.45	Auto	0.2387
L43	38	CCI-5x1.25	4.20 - 4.45	Auto	0.0864
L44	22	Sabre MS-600 (6" x 1" Plate)	0.00 - 4.20	Auto	0.2211
L44	23	Sabre MS-600 (6" x 1" Plate)	0.00 - 4.20	Auto	0.2211
L44	24	Sabre MS-600 (6" x 1" Plate)	0.50 - 4.20	Auto	0.2227
L44	25	Sabre MS-600 (6" x 1" Plate)	2.45 - 4.20	Auto	0.2288
L44	38	CCI-5x1.25	0.00 - 4.20	Auto	0.0653

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	96.000
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	96.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	96.000
NNVV-65B-R4 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	96.000
NNVV-65B-R4 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	96.000
NNVV-65B-R4 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	96.000
(2) RRH2X50-800	A	From Leg	4.000 0.000 2.000	0.000	96.000
(2) RRH2X50-800	B	From Leg	4.000 0.000 2.000	0.000	96.000
(2) RRH2X50-800	C	From Leg	4.000 0.000 2.000	0.000	96.000
PCS 1900MHz 4x45W-65MHz	A	From Leg	4.000 0.000 2.000	0.000	96.000
PCS 1900MHz 4x45W-65MHz	B	From Leg	4.000 0.000 2.000	0.000	96.000
PCS 1900MHz 4x45W-65MHz	C	From Leg	4.000 0.000 2.000	0.000	96.000
FZHN	A	From Leg	4.000 0.000 2.000	0.000	96.000
FZHN	B	From Leg	4.000 0.000 2.000	0.000	96.000
FZHN	C	From Leg	4.000 0.000 2.000	0.000	96.000
6' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	96.000
6' x 2" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	96.000
6' x 2" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	96.000
4'x2" Horizontal Mount Pipe	A	From Leg	2.000 0.000 4.000	0.000	96.000
4'x2" Horizontal Mount Pipe	B	From Leg	2.000 0.000 4.000	0.000	96.000
4'x2" Horizontal Mount Pipe	C	From Leg	2.000 0.000 4.000	0.000	96.000
Miscellaneous [NA 510-1]	C	None		0.000	96.000
Platform Mount [LP 714-1]	C	None		0.000	96.000
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APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	89.000
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.000 0.000	0.000	89.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	1.000 4.000 0.000	0.000	89.000
RADIO 4449 B12/B71	A	From Leg	1.000 4.000 0.000	0.000	89.000
RADIO 4449 B12/B71	B	From Leg	1.000 4.000 0.000	0.000	89.000
RADIO 4449 B12/B71	C	From Leg	1.000 4.000 0.000	0.000	89.000
APXV18-209014-C w/ Mount Pipe	A	From Leg	1.000 4.000 0.000	0.000	89.000
APXV18-209014-C w/ Mount Pipe	B	From Leg	1.000 4.000 0.000	0.000	89.000
APXV18-209014-C w/ Mount Pipe	C	From Leg	1.000 4.000 0.000	0.000	89.000
ATMPP1412D-1CWA	A	From Leg	1.000 4.000 0.000	0.000	89.000
ATMPP1412D-1CWA	B	From Leg	1.000 4.000 0.000	0.000	89.000
ATMPP1412D-1CWA	C	From Leg	1.000 4.000 0.000	0.000	89.000
6' x 2" Mount Pipe	A	From Leg	1.000 4.000 0.000	0.000	89.000
6' x 2" Mount Pipe	B	From Leg	0.000 4.000 0.000	0.000	89.000
6' x 2" Mount Pipe	C	From Leg	0.000 4.000 0.000	0.000	89.000
Platform Mount [LP 305-1]	C	None	0.000	0.000	89.000
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TPA-65R-LCUUUU-H8 w/ Mount Pipe	A	From Leg	4.000 0.000	0.000	74.000
TPA-65R-LCUUUU-H8 w/ Mount Pipe	B	From Leg	3.000 4.000 0.000	0.000	74.000
TPA-65R-LCUUUU-H8 w/ Mount Pipe	C	From Leg	3.000 4.000 0.000	0.000	74.000
P65-17-XLH-RR w/ Mount Pipe	A	From Leg	3.000 4.000 0.000	0.000	74.000
SBNH-1D6565C w/ Mount Pipe	B	From Leg	3.000 4.000 0.000	0.000	74.000
P65-17-XLH-RR w/ Mount Pipe	C	From Leg	3.000 4.000 0.000	0.000	74.000
7770.00 w/ Mount Pipe	A	From Leg	3.000 4.000 0.000	0.000	74.000
7770.00 w/ Mount Pipe	B	From Leg	3.000 4.000 0.000	0.000	74.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
7770.00 w/ Mount Pipe	C	From Leg	3.000 4.000 0.000	0.000	74.000
TT19-08BP111-001	A	From Leg	3.000 4.000 0.000	0.000	74.000
TT19-08BP111-001	B	From Leg	3.000 4.000 0.000	0.000	74.000
TT19-08BP111-001	C	From Leg	3.000 4.000 0.000	0.000	74.000
RRUS 32 B30	A	From Leg	3.000 4.000 0.000	0.000	74.000
RRUS 32 B30	B	From Leg	3.000 4.000 0.000	0.000	74.000
RRUS 32 B30	C	From Leg	3.000 4.000 0.000	0.000	74.000
DBC0061F1V51-2	A	From Leg	3.000 4.000 0.000	0.000	74.000
DBC0061F1V51-2	B	From Leg	3.000 4.000 0.000	0.000	74.000
DBC0061F1V51-2	C	From Leg	3.000 4.000 0.000	0.000	74.000
RRUS 32 B2	A	From Leg	3.000 4.000 0.000	0.000	74.000
RRUS 32 B2	B	From Leg	3.000 4.000 0.000	0.000	74.000
RRUS 32 B2	C	From Leg	3.000 4.000 0.000	0.000	74.000
DC6-48-60-18-8F	A	From Leg	3.000 4.000 0.000	0.000	74.000
DC6-48-60-18-8F	B	From Leg	3.000 2.000 0.000	0.000	74.000
3' x 2" Pipe Mount	B	From Leg	3.000 1.000 0.000	0.000	74.000
Platform Mount [LP 303-1_HR-1] **_**	C	None	0.000	0.000	74.000
6' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	67.000
6' x 2" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	67.000
6' x 2" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	67.000
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	67.000
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.000 0.000	0.000	67.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	0.000 4.000 0.000	0.000	67.000
(2) LPA-80063/6CFX2 w/ Mount Pipe	A	From Leg	0.000 4.000 0.000	0.000	67.000
(2) LPA-80063/6CFX2 w/ Mount Pipe	B	From Leg	0.000 4.000 0.000	0.000	67.000
(2) LPA-80063/6CFX2 w/ Mount Pipe	C	From Leg	0.000 4.000 0.000	0.000	67.000
B13 RRH 4X30	A	From Leg	0.000 4.000 0.000	0.000	67.000
B13 RRH 4X30	B	From Leg	0.000 4.000 0.000	0.000	67.000
B13 RRH 4X30	C	From Leg	0.000 4.000 0.000	0.000	67.000
B66A RRH4X45	A	From Leg	0.000 4.000 0.000	0.000	67.000
B66A RRH4X45	B	From Leg	0.000 4.000 0.000	0.000	67.000
B66A RRH4X45	C	From Leg	0.000 4.000 0.000	0.000	67.000
RC2DC-3315-PF-48	A	From Leg	0.000 4.000 0.000	0.000	67.000
RC2DC-3315-PF-48	B	From Leg	0.000 4.000 0.000	0.000	67.000
Platform Mount [LP 303-1_KCKR]	C	None	0.000	0.000	67.000
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KS24019-L112A	C	From Leg	3.000 0.000	0.000	52.000
Side Arm Mount [SO 701-1]	C	From Leg	2.000 1.500 0.000	0.000	52.000
_			0.000		
Commscope MC-PK8-DSH	C	None		0.000	48.000
(2) 8'x2" Mount Pipe	A	From Leg	3.000 0.000	0.000	48.000
(2) 8'x2" Mount Pipe	B	From Leg	0.000 3.000 0.000	0.000	48.000
(2) 8'x2" Mount Pipe	C	From Leg	0.000 3.000 0.000	0.000	48.000
MX08FRO665-21 w/ Mount Pipe	A	From Leg	0.000 4.000 0.000	0.000	48.000
MX08FRO665-21 w/ Mount Pipe	B	From Leg	0.000 4.000 0.000	0.000	48.000
MX08FRO665-21 w/ Mount Pipe	C	From Leg	0.000 4.000 0.000 0.000	0.000	48.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
TA08025-B604	A	From Leg	4.000 0.000 0.000	0.000	48.000
TA08025-B604	B	From Leg	4.000 0.000 0.000	0.000	48.000
TA08025-B604	C	From Leg	4.000 0.000 0.000	0.000	48.000
TA08025-B605	A	From Leg	4.000 0.000 0.000	0.000	48.000
TA08025-B605	B	From Leg	4.000 0.000 0.000	0.000	48.000
TA08025-B605	C	From Leg	4.000 0.000 0.000	0.000	48.000
RDIDC-9181-PF-48	A	From Leg	4.000 0.000 0.000	0.000	48.000
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Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp

Comb. No.	Description
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	98 - 93	Pole	Max Tension	2	0.000	0.000	-0.000
			Max. Compression	26	-7.925	-0.007	-0.005
			Max. Mx	20	-3.531	15.576	0.001
			Max. My	2	-3.526	-0.002	15.589
			Max. Vy	20	-4.089	15.576	0.001
			Max. Vx	2	-4.094	-0.002	15.589
			Max. Torque	22			0.001
L2	93 - 88	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-13.945	-0.020	-0.006
			Max. Mx	20	-6.019	40.648	0.004
			Max. My	2	-6.010	-0.004	40.686
			Max. Vy	20	-6.944	40.648	0.004
			Max. Vx	2	-6.952	-0.004	40.686
			Max. Torque	22			0.001
L3	88 - 82.79	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-14.161	-0.031	-0.004
			Max. Mx	20	-6.156	60.169	0.006
			Max. My	2	-6.147	-0.006	60.229
			Max. Vy	20	-7.043	60.169	0.006
			Max. Vx	2	-7.051	-0.006	60.229
			Max. Torque	22			0.001
L4	82.79 - 80.207	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-14.771	-0.052	-0.001
			Max. Mx	20	-6.552	95.878	0.009
			Max. My	2	-6.543	-0.010	95.978
			Max. Vy	20	-7.242	95.878	0.009
			Max. Vx	2	-7.250	-0.010	95.978
			Max. Torque	24			0.001
L5	80.207 - 75.207	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-15.249	-0.073	0.002
			Max. Mx	20	-6.899	132.505	0.013
			Max. My	2	-6.889	-0.014	132.648
			Max. Vy	20	-7.421	132.505	0.013
			Max. Vx	2	-7.430	-0.014	132.648
			Max. Torque	24			0.001
L6	75.207 - 70.207	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-23.297	-0.368	0.296
			Max. Mx	8	-10.356	-191.556	0.203
			Max. My	2	-10.339	-0.148	191.964
			Max. Vy	20	-11.209	191.522	-0.004

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	-11.240	-0.148	191.964
			Max. Torque	21			-0.174
L7	70.207 - 65.207	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-32.352	-1.013	0.659
			Max. Mx	8	-13.806	-256.146	0.340
			Max. My	2	-13.782	-0.347	256.681
			Max. Vy	20	-15.845	255.769	0.043
			Max. Vx	2	-15.900	-0.347	256.681
			Max. Torque	11			0.476
L8	65.207 - 60.207	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-33.169	-1.203	0.758
			Max. Mx	8	-14.454	-335.625	0.363
			Max. My	2	-14.413	-0.385	337.008
			Max. Vy	20	-15.958	335.158	0.087
			Max. Vx	2	-16.251	-0.385	337.008
			Max. Torque	13			0.547
L9	60.207 - 59.17	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-33.366	-1.242	0.778
			Max. Mx	8	-14.592	-352.176	0.367
			Max. My	2	-14.551	-0.395	353.868
			Max. Vy	20	-15.980	351.690	0.096
			Max. Vx	2	-16.287	-0.395	353.868
			Max. Torque	13			0.556
L10	59.17 - 58.9	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-33.432	-1.253	0.784
			Max. Mx	8	-14.655	-356.489	0.369
			Max. My	2	-14.613	-0.397	358.264
			Max. Vy	20	-15.977	355.998	0.098
			Max. Vx	2	-16.287	-0.397	358.264
			Max. Torque	13			0.558
L11	58.9 - 58.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-33.469	-1.260	0.788
			Max. Mx	8	-14.682	-358.887	0.370
			Max. My	2	-14.640	-0.399	360.708
			Max. Vy	20	-15.984	358.394	0.100
			Max. Vx	2	-16.297	-0.399	360.708
			Max. Torque	13			0.560
L12	58.75 - 54	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-34.661	-1.456	0.887
			Max. Mx	8	-15.497	-435.268	0.391
			Max. My	2	-15.453	-0.441	438.702
			Max. Vy	20	-16.176	434.686	0.142
			Max. Vx	2	-16.548	-0.441	438.702
			Max. Torque	13			0.612
L13	54 - 53.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-34.735	-1.469	0.892
			Max. Mx	8	-15.557	-439.313	0.393
			Max. My	2	-15.514	-0.444	442.840
			Max. Vy	20	-16.186	438.727	0.145
			Max. Vx	2	-16.554	-0.444	442.840
			Max. Torque	13			0.616
L14	53.75 - 52.91	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-34.981	-1.511	0.905
			Max. Mx	8	-15.721	-452.920	0.396
			Max. My	2	-15.678	-0.451	456.765
			Max. Vy	20	-16.251	452.336	0.152
			Max. Vx	2	-16.602	-0.451	456.765
			Max. Torque	13			0.628
L15	52.91 - 52.66	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-35.059	-1.525	0.910
			Max. Mx	8	-15.782	-456.976	0.398
			Max. My	2	-15.738	-0.454	460.917
			Max. Vy	20	-16.265	456.396	0.155
			Max. Vx	2	-16.616	-0.454	460.917

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	13			0.632
L16	52.66 - 52.17	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-35.212	-1.549	0.918
			Max. Mx	8	-15.887	-464.933	0.400
			Max. My	2	-15.842	-0.458	469.070
			Max. Vy	20	-16.305	464.369	0.159
			Max. Vx	2	-16.655	-0.458	469.070
			Max. Torque	13			0.639
L17	52.17 - 51.92	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-35.411	-1.289	0.765
			Max. Mx	8	-16.020	-468.826	0.300
			Max. My	2	-15.975	-0.286	473.143
			Max. Vy	20	-16.370	468.636	0.062
			Max. Vx	2	-16.730	-0.286	473.143
			Max. Torque	13			0.639
L18	51.92 - 45.287	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-36.354	-1.449	0.825
			Max. Mx	8	-16.671	-521.475	0.274
			Max. My	2	-16.625	-0.275	527.214
			Max. Vy	20	-16.503	521.436	0.134
			Max. Vx	2	-16.899	-0.275	527.214
			Max. Torque	12			0.531
L19	45.287 - 44.287	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-44.001	-1.671	1.336
			Max. Mx	20	-21.240	604.333	0.354
			Max. My	2	-21.195	-0.260	612.297
			Max. Vy	20	-19.307	604.333	0.354
			Max. Vx	2	-19.786	-0.260	612.297
			Max. Torque	12			0.688
L20	44.287 - 39.287	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-45.544	-1.914	1.465
			Max. Mx	20	-22.398	701.150	0.467
			Max. My	2	-22.355	-0.245	711.720
			Max. Vy	20	-19.470	701.150	0.467
			Max. Vx	2	-19.999	-0.245	711.720
			Max. Torque	12			0.761
L21	39.287 - 34.287	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-47.146	-2.160	1.595
			Max. Mx	20	-23.583	798.741	0.581
			Max. My	2	-23.544	-0.231	812.175
			Max. Vy	20	-19.620	798.741	0.581
			Max. Vx	2	-20.201	-0.231	812.175
			Max. Torque	12			0.824
L22	34.287 - 33.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-47.418	-2.199	1.615
			Max. Mx	20	-23.775	814.179	0.599
			Max. My	2	-23.737	-0.229	828.080
			Max. Vy	20	-19.666	814.179	0.599
			Max. Vx	2	-20.231	-0.229	828.080
			Max. Torque	12			0.832
L23	33.5 - 33.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-47.523	-2.213	1.623
			Max. Mx	20	-23.860	819.092	0.605
			Max. My	2	-23.822	-0.229	833.139
			Max. Vy	20	-19.677	819.092	0.605
			Max. Vx	2	-20.242	-0.229	833.139
			Max. Torque	12			0.834
L24	33.25 - 33	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-47.627	-2.225	1.629
			Max. Mx	20	-23.936	824.010	0.611
			Max. My	2	-23.899	-0.228	838.202
			Max. Vy	20	-19.697	824.010	0.611

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	-20.261	-0.228	838.202
			Max. Torque	12			0.836
L25	33 - 32.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-47.726	-2.237	1.636
			Max. Mx	20	-24.006	828.932	0.616
			Max. My	2	-23.969	-0.228	843.270
			Max. Vy	20	-19.716	828.932	0.616
			Max. Vx	2	-20.279	-0.228	843.270
			Max. Torque	12			0.839
L26	32.75 - 32	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-48.022	-2.273	1.655
			Max. Mx	20	-24.213	843.728	0.633
			Max. My	2	-24.176	-0.226	858.502
			Max. Vy	20	-19.776	843.728	0.633
			Max. Vx	2	-20.338	-0.226	858.502
			Max. Torque	12			0.845
L27	32 - 31.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-48.107	-2.287	1.662
			Max. Mx	20	-24.275	848.669	0.639
			Max. My	2	-24.239	-0.225	863.588
			Max. Vy	20	-19.789	848.669	0.639
			Max. Vx	2	-20.346	-0.225	863.588
			Max. Torque	12			0.848
L28	31.75 - 28.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-49.201	-2.428	1.734
			Max. Mx	20	-25.026	913.255	0.714
			Max. My	2	-24.993	-0.218	930.047
			Max. Vy	20	-20.004	913.255	0.714
			Max. Vx	2	-20.560	-0.218	930.047
			Max. Torque	12			0.867
L29	28.5 - 28.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-49.304	-2.440	1.741
			Max. Mx	20	-25.113	918.252	0.719
			Max. My	2	-25.081	-0.218	935.187
			Max. Vy	20	-20.010	918.252	0.719
			Max. Vx	2	-20.566	-0.218	935.187
			Max. Torque	12			0.866
L30	28.25 - 27.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-49.613	-2.467	1.754
			Max. Mx	20	-25.336	933.267	0.737
			Max. My	2	-25.304	-0.216	950.635
			Max. Vy	20	-20.070	933.267	0.737
			Max. Vx	2	-20.627	-0.216	950.635
			Max. Torque	12			0.866
L31	27.5 - 27.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-49.698	-2.477	1.759
			Max. Mx	20	-25.399	938.282	0.742
			Max. My	2	-25.367	-0.216	955.793
			Max. Vy	20	-20.083	938.282	0.742
			Max. Vx	2	-20.639	-0.216	955.793
			Max. Torque	12			0.866
L32	27.25 - 22.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-51.308	-2.668	1.854
			Max. Mx	20	-26.592	1038.933	0.857
			Max. My	2	-26.564	-0.207	1059.435
			Max. Vy	20	-20.226	1038.933	0.857
			Max. Vx	2	-20.825	-0.207	1059.435
			Max. Torque	12			0.866
L33	22.25 - 18	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-52.669	-2.851	1.947
			Max. Mx	20	-27.632	1124.980	0.956
			Max. My	2	-27.609	-0.201	1148.166
			Max. Vy	20	-20.328	1124.980	0.956
			Max. Vx	2	-20.951	-0.201	1148.166
			Max. Torque	12			0.866
L34	18 - 17.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-52.757	-2.864	1.954
			Max. Mx	20	-27.711	1130.055	0.961

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	2	-27.688	-0.200	1153.402
			Max. Vy	20	-20.321	1130.055	0.961
			Max. Vx	2	-20.945	-0.200	1153.402
			Max. Torque	12			0.869
L35	17.75 - 15.45	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-53.528	-2.986	1.989
			Max. Mx	20	-28.286	1176.781	1.015
			Max. My	2	-28.266	-0.198	1201.626
			Max. Vy	20	-20.369	1176.781	1.015
			Max. Vx	2	-21.004	-0.198	1201.626
			Max. Torque	12			0.899
L36	15.45 - 15.2	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-53.625	-3.001	1.993
			Max. Mx	20	-28.375	1181.865	1.020
			Max. My	2	-28.356	-0.197	1206.874
			Max. Vy	20	-20.355	1181.865	1.020
			Max. Vx	2	-20.991	-0.197	1206.874
			Max. Torque	12			0.903
L37	15.2 - 13.41	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-54.316	-3.097	2.018
			Max. Mx	20	-28.889	1218.312	1.062
			Max. My	2	-28.872	-0.196	1244.507
			Max. Vy	20	-20.425	1218.312	1.062
			Max. Vx	2	-21.070	-0.196	1244.507
			Max. Torque	12			0.927
L38	13.41 - 13.16	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-54.407	-3.111	2.022
			Max. Mx	20	-28.973	1223.409	1.068
			Max. My	2	-28.957	-0.195	1249.771
			Max. Vy	20	-20.410	1223.409	1.068
			Max. Vx	2	-21.056	-0.195	1249.771
			Max. Torque	12			0.930
L39	13.16 - 8.16	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-56.190	-3.354	2.125
			Max. Mx	20	-30.354	1325.623	1.184
			Max. My	2	-30.343	-0.192	1355.376
			Max. Vy	20	-20.526	1325.623	1.184
			Max. Vx	2	-21.193	-0.192	1355.376
			Max. Torque	12			0.986
L40	8.16 - 6.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-56.792	-3.444	2.150
			Max. Mx	20	-30.814	1359.673	1.223
			Max. My	2	-30.804	-0.191	1390.574
			Max. Vy	20	-20.572	1359.673	1.223
			Max. Vx	2	-21.245	-0.191	1390.574
			Max. Torque	12			1.008
L41	6.5 - 6.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-56.888	-3.458	2.154
			Max. Mx	20	-30.906	1364.806	1.228
			Max. My	2	-30.898	-0.191	1395.881
			Max. Vy	20	-20.554	1364.806	1.228
			Max. Vx	2	-21.228	-0.191	1395.881
			Max. Torque	12			1.011
L42	6.25 - 4.45	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-57.582	-3.554	2.181
			Max. Mx	20	-31.438	1401.813	1.270
			Max. My	2	-31.431	-0.191	1434.147
			Max. Vy	20	-20.624	1401.813	1.270
			Max. Vx	2	-21.305	-0.191	1434.147
			Max. Torque	12			1.036
L43	4.45 - 4.2	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-57.666	-3.567	2.185
			Max. Mx	20	-31.518	1406.959	1.276
			Max. My	2	-31.512	-0.191	1439.469
			Max. Vy	20	-20.607	1406.959	1.276
			Max. Vx	2	-21.288	-0.191	1439.469
			Max. Torque	12			1.036

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L44	4.2 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-59.033	-3.765	2.275
			Max. Mx	20	-32.613	1493.576	1.374
			Max. My	2	-32.613	-0.191	1529.068
			Max. Vy	20	-20.695	1493.576	1.374
			Max. Vx	2	-21.388	-0.191	1529.068
			Max. Torque	12			1.036

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	38	59.033	3.304	5.734
	Max. H_x	20	32.626	20.674	0.015
	Max. H_z	2	32.626	0.015	21.367
	Max. M_x	2	1529.068	0.015	21.367
	Max. M_z	8	1485.069	-20.401	-0.015
	Max. Torsion	12	1.036	-11.744	-20.397
	Min. Vert	7	24.470	-17.661	10.229
	Min. H_x	8	32.626	-20.401	-0.015
	Min. H_z	14	32.626	-0.015	-21.281
	Min. M_x	14	-1524.717	-0.015	-21.281
	Min. M_z	20	-1493.576	20.674	0.015
	Min. Torsion	24	-1.034	11.741	20.392

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	27.188	0.000	0.000	-0.556	-0.691	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	32.626	-0.015	-21.367	-1529.068	-0.191	0.266
0.9 Dead+1.0 Wind 0 deg - No Ice	24.470	-0.015	-21.367	-1508.457	0.030	0.266
1.2 Dead+1.0 Wind 30 deg - No Ice	32.626	10.217	-17.783	-1291.788	-743.345	-0.063
0.9 Dead+1.0 Wind 30 deg - No Ice	24.470	10.217	-17.783	-1274.199	-733.101	-0.063
1.2 Dead+1.0 Wind 60 deg - No Ice	32.626	17.661	-10.229	-744.760	-1285.888	-0.302
0.9 Dead+1.0 Wind 60 deg - No Ice	24.470	17.661	-10.229	-734.536	-1268.315	-0.302
1.2 Dead+1.0 Wind 90 deg - No Ice	32.626	20.401	0.015	-0.026	-1485.069	-0.461
0.9 Dead+1.0 Wind 90 deg - No Ice	24.470	20.401	0.015	0.153	-1464.811	-0.461
1.2 Dead+1.0 Wind 120 deg - No Ice	32.626	18.061	10.477	753.553	-1302.194	-0.497
0.9 Dead+1.0 Wind 120 deg - No Ice	24.470	18.061	10.477	743.618	-1284.497	-0.496
1.2 Dead+1.0 Wind 150 deg - No Ice	32.626	11.744	20.397	1386.600	-799.667	-1.036
0.9 Dead+1.0 Wind 150 deg - No Ice	24.470	11.744	20.397	1368.615	-788.980	-1.035
1.2 Dead+1.0 Wind 180 deg - No Ice	32.626	0.015	21.281	1524.717	-1.539	-0.266
0.9 Dead+1.0 Wind 180 deg - No Ice	24.470	0.015	21.281	1504.491	-1.311	-0.265
1.2 Dead+1.0 Wind 210 deg	32.626	-10.235	17.813	1291.601	742.315	0.064

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
- No Ice						
0.9 Dead+1.0 Wind 210 deg - No Ice	24.470	-10.235	17.813	1274.370	732.515	0.065
1.2 Dead+1.0 Wind 240 deg - No Ice	32.626	-17.899	10.366	748.520	1293.094	0.304
0.9 Dead+1.0 Wind 240 deg - No Ice	24.470	-17.899	10.366	738.626	1275.908	0.304
1.2 Dead+1.0 Wind 270 deg - No Ice	32.626	-20.674	-0.015	-1.374	1493.576	0.461
0.9 Dead+1.0 Wind 270 deg - No Ice	24.470	-20.674	-0.015	-1.188	1473.696	0.461
1.2 Dead+1.0 Wind 300 deg - No Ice	32.626	-18.031	-10.460	-755.055	1300.640	0.495
0.9 Dead+1.0 Wind 300 deg - No Ice	24.470	-18.031	-10.460	-744.748	1283.380	0.495
1.2 Dead+1.0 Wind 330 deg - No Ice	32.626	-11.741	-20.392	-1387.848	797.858	1.034
0.9 Dead+1.0 Wind 330 deg - No Ice	24.470	-11.741	-20.392	-1369.499	787.618	1.033
1.2 Dead+1.0 Ice+1.0 Temp	59.033	0.000	-0.000	-2.275	-3.765	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	59.033	-0.006	-6.269	-468.038	-3.516	0.044
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	59.033	3.107	-5.404	-404.032	-234.949	-0.033
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	59.033	5.387	-3.117	-234.062	-404.446	-0.086
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	59.033	6.224	0.006	-2.002	-466.603	-0.117
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	59.033	5.394	3.127	229.985	-404.780	-0.116
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	59.033	3.304	5.735	412.802	-243.047	-0.250
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	59.033	0.006	6.268	463.392	-4.143	-0.044
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	59.033	-3.107	5.405	399.411	227.294	0.033
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	59.033	-5.389	3.118	229.477	396.866	0.086
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	59.033	-6.226	-0.006	-2.629	459.017	0.117
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	59.033	-5.394	-3.127	-234.623	397.132	0.116
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	59.033	-3.304	-5.734	-417.426	235.385	0.250
Dead+Wind 0 deg - Service	27.188	-0.004	-5.484	-390.090	-0.546	0.072
Dead+Wind 30 deg - Service	27.188	2.623	-4.565	-329.598	-189.929	-0.016
Dead+Wind 60 deg - Service	27.188	4.533	-2.626	-190.194	-328.186	-0.081
Dead+Wind 90 deg - Service	27.188	5.237	0.004	-0.411	-378.945	-0.124
Dead+Wind 120 deg - Service	27.188	4.636	2.689	191.634	-332.354	-0.134
Dead+Wind 150 deg - Service	27.188	3.014	5.235	353.020	-204.323	-0.272
Dead+Wind 180 deg - Service	27.188	0.004	5.462	388.172	-0.891	-0.072
Dead+Wind 210 deg - Service	27.188	-2.627	4.572	328.744	188.671	0.016
Dead+Wind 240 deg - Service	27.188	-4.595	2.661	190.348	329.034	0.081
Dead+Wind 270 deg - Service	27.188	-5.307	-0.004	-0.755	380.125	0.124
Dead+Wind 300 deg - Service	27.188	-4.628	-2.685	-192.824	330.961	0.134
Dead+Wind 330 deg - Service	27.188	-3.013	-5.234	-354.146	202.864	0.272

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.000	-27.188	0.000	0.000	27.188	0.000	0.000%
2	-0.015	-32.626	-21.367	0.015	32.626	21.367	0.000%
3	-0.015	-24.470	-21.367	0.015	24.470	21.367	0.000%
4	10.217	-32.626	-17.783	-10.217	32.626	17.783	0.000%
5	10.217	-24.470	-17.783	-10.217	24.470	17.783	0.000%
6	17.661	-32.626	-10.229	-17.661	32.626	10.229	0.000%
7	17.661	-24.470	-10.229	-17.661	24.470	10.229	0.000%
8	20.401	-32.626	0.015	-20.401	32.626	-0.015	0.000%
9	20.401	-24.470	0.015	-20.401	24.470	-0.015	0.000%
10	18.061	-32.626	10.477	-18.061	32.626	-10.477	0.000%
11	18.061	-24.470	10.477	-18.061	24.470	-10.477	0.000%
12	11.744	-32.626	20.397	-11.744	32.626	-20.397	0.000%
13	11.744	-24.470	20.397	-11.744	24.470	-20.397	0.000%
14	0.015	-32.626	21.281	-0.015	32.626	-21.281	0.000%
15	0.015	-24.470	21.281	-0.015	24.470	-21.281	0.000%
16	-10.235	-32.626	17.813	10.235	32.626	-17.813	0.000%
17	-10.235	-24.470	17.813	10.235	24.470	-17.813	0.000%
18	-17.899	-32.626	10.366	17.899	32.626	-10.366	0.000%
19	-17.899	-24.470	10.366	17.899	24.470	-10.366	0.000%
20	-20.674	-32.626	-0.015	20.674	32.626	0.015	0.000%
21	-20.674	-24.470	-0.015	20.674	24.470	0.015	0.000%
22	-18.031	-32.626	-10.460	18.031	32.626	10.460	0.000%
23	-18.031	-24.470	-10.460	18.031	24.470	10.460	0.000%
24	-11.741	-32.626	-20.392	11.741	32.626	20.392	0.000%
25	-11.741	-24.470	-20.392	11.741	24.470	20.392	0.000%
26	0.000	-59.033	0.000	-0.000	59.033	0.000	0.000%
27	-0.006	-59.033	-6.269	0.006	59.033	6.269	0.000%
28	3.107	-59.033	-5.404	-3.107	59.033	5.404	0.000%
29	5.387	-59.033	-3.117	-5.387	59.033	3.117	0.000%
30	6.224	-59.033	0.006	-6.224	59.033	-0.006	0.000%
31	5.394	-59.033	3.127	-5.394	59.033	-3.127	0.000%
32	3.304	-59.033	5.735	-3.304	59.033	-5.735	0.000%
33	0.006	-59.033	6.268	-0.006	59.033	-6.268	0.000%
34	-3.107	-59.033	5.405	3.107	59.033	-5.405	0.000%
35	-5.389	-59.033	3.118	5.389	59.033	-3.118	0.000%
36	-6.226	-59.033	-0.006	6.226	59.033	0.006	0.000%
37	-5.394	-59.033	-3.127	5.394	59.033	3.127	0.000%
38	-3.304	-59.033	-5.734	3.304	59.033	5.734	0.000%
39	-0.004	-27.188	-5.484	0.004	27.188	5.484	0.000%
40	2.623	-27.188	-4.565	-2.623	27.188	4.565	0.000%
41	4.533	-27.188	-2.626	-4.533	27.188	2.626	0.000%
42	5.237	-27.188	0.004	-5.237	27.188	-0.004	0.000%
43	4.636	-27.188	2.689	-4.636	27.188	-2.689	0.000%
44	3.014	-27.188	5.235	-3.014	27.188	-5.235	0.000%
45	0.004	-27.188	5.462	-0.004	27.188	-5.462	0.000%
46	-2.627	-27.188	4.572	2.627	27.188	-4.572	0.000%
47	-4.595	-27.188	2.661	4.595	27.188	-2.661	0.000%
48	-5.307	-27.188	-0.004	5.307	27.188	0.004	0.000%
49	-4.628	-27.188	-2.685	4.628	27.188	2.685	0.000%
50	-3.013	-27.188	-5.234	3.013	27.188	5.234	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	0.00058841
3	Yes	5	0.00000001	0.00025841
4	Yes	7	0.00000001	0.00011674
5	Yes	6	0.00000001	0.00058510
6	Yes	7	0.00000001	0.00011796
7	Yes	6	0.00000001	0.00059175
8	Yes	5	0.00000001	0.00079515
9	Yes	5	0.00000001	0.00036482

10	Yes	7	0.00000001	0.00011584
11	Yes	6	0.00000001	0.00057956
12	Yes	7	0.00000001	0.00012781
13	Yes	6	0.00000001	0.00063396
14	Yes	5	0.00000001	0.00062522
15	Yes	5	0.00000001	0.00027679
16	Yes	7	0.00000001	0.00011667
17	Yes	6	0.00000001	0.00058516
18	Yes	7	0.00000001	0.00011582
19	Yes	6	0.00000001	0.00058040
20	Yes	5	0.00000001	0.00083333
21	Yes	5	0.00000001	0.00038292
22	Yes	7	0.00000001	0.00012024
23	Yes	6	0.00000001	0.00060232
24	Yes	7	0.00000001	0.00012095
25	Yes	6	0.00000001	0.00059883
26	Yes	4	0.00000001	0.00093213
27	Yes	7	0.00000001	0.00027724
28	Yes	7	0.00000001	0.00036420
29	Yes	7	0.00000001	0.00036478
30	Yes	7	0.00000001	0.00027682
31	Yes	7	0.00000001	0.00035864
32	Yes	7	0.00000001	0.00037175
33	Yes	7	0.00000001	0.00027415
34	Yes	7	0.00000001	0.00035319
35	Yes	7	0.00000001	0.00035230
36	Yes	7	0.00000001	0.00027225
37	Yes	7	0.00000001	0.00035908
38	Yes	7	0.00000001	0.00036548
39	Yes	5	0.00000001	0.00007862
40	Yes	5	0.00000001	0.00053528
41	Yes	5	0.00000001	0.00054968
42	Yes	5	0.00000001	0.00008593
43	Yes	5	0.00000001	0.00051812
44	Yes	5	0.00000001	0.00063995
45	Yes	5	0.00000001	0.00007864
46	Yes	5	0.00000001	0.00053076
47	Yes	5	0.00000001	0.00051948
48	Yes	5	0.00000001	0.00008627
49	Yes	5	0.00000001	0.00056989
50	Yes	5	0.00000001	0.00055672

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	98 - 93	18.924	50	1.787	0.002
L2	93 - 88	17.056	50	1.774	0.002
L3	88 - 82.79	15.223	50	1.722	0.002
L4	85.207 - 80.207	14.229	50	1.675	0.002
L5	80.207 - 75.207	12.505	50	1.605	0.002
L6	75.207 - 70.207	10.879	50	1.499	0.002
L7	70.207 - 65.207	9.372	50	1.376	0.002
L8	65.207 - 60.207	8.003	50	1.236	0.002
L9	60.207 - 59.17	6.790	50	1.078	0.001
L10	59.17 - 58.9	6.560	50	1.044	0.001
L11	58.9 - 58.75	6.501	50	1.040	0.001
L12	58.75 - 54	6.468	50	1.037	0.001
L13	54 - 53.75	5.479	50	0.951	0.001
L14	53.75 - 52.91	5.429	50	0.947	0.001
L15	52.91 - 52.66	5.264	50	0.932	0.001
L16	52.66 - 52.17	5.215	50	0.928	0.001
L17	52.17 - 51.92	5.120	50	0.921	0.001
L18	51.92 - 45.287	5.072	50	0.917	0.001
L19	48.704 - 44.287	4.474	50	0.858	0.001
L20	44.287 - 39.287	3.700	50	0.808	0.001
L21	39.287 - 34.287	2.904	50	0.712	0.001

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L22	34.287 - 33.5	2.210	50	0.614	0.001
L23	33.5 - 33.25	2.110	50	0.598	0.001
L24	33.25 - 33	2.079	50	0.595	0.001
L25	33 - 32.75	2.048	50	0.591	0.001
L26	32.75 - 32	2.017	50	0.588	0.001
L27	32 - 31.75	1.926	50	0.578	0.001
L28	31.75 - 28.5	1.895	50	0.573	0.001
L29	28.5 - 28.25	1.525	50	0.514	0.001
L30	28.25 - 27.5	1.499	50	0.510	0.001
L31	27.5 - 27.25	1.419	50	0.501	0.000
L32	27.25 - 22.25	1.393	50	0.496	0.000
L33	22.25 - 18	0.922	50	0.404	0.000
L34	18 - 17.75	0.598	50	0.324	0.000
L35	17.75 - 15.45	0.581	50	0.320	0.000
L36	15.45 - 15.2	0.440	50	0.266	0.000
L37	15.2 - 13.41	0.426	50	0.262	0.000
L38	13.41 - 13.16	0.333	50	0.236	0.000
L39	13.16 - 8.16	0.321	50	0.231	0.000
L40	8.16 - 6.5	0.125	50	0.142	0.000
L41	6.5 - 6.25	0.081	50	0.113	0.000
L42	6.25 - 4.45	0.075	50	0.110	0.000
L43	4.45 - 4.2	0.039	50	0.083	0.000
L44	4.2 - 0	0.035	50	0.079	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
96.000	APXVTM14-ALU-I20 w/ Mount Pipe	50	18.175	1.784	0.002	8590
89.000	APXVAARR24_43-U-NA20 w/ Mount Pipe	50	15.585	1.736	0.002	4667
74.000	TPA-65R-LCUUUU-H8 w/ Mount Pipe	50	10.504	1.471	0.002	2432
67.000	6' x 2" Mount Pipe	50	8.477	1.287	0.002	2004
52.000	KS24019-L112A	50	5.087	0.918	0.001	3407
48.000	Commscope MC-PK8-DSH	50	4.347	0.848	0.001	4115

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	98 - 93	74.228	24	7.033	0.008
L2	93 - 88	66.909	24	6.979	0.008
L3	88 - 82.79	59.726	24	6.774	0.008
L4	85.207 - 80.207	55.830	24	6.591	0.008
L5	80.207 - 75.207	49.071	24	6.313	0.008
L6	75.207 - 70.207	42.695	24	5.897	0.008
L7	70.207 - 65.207	36.783	24	5.411	0.007
L8	65.207 - 60.207	31.413	24	4.859	0.007
L9	60.207 - 59.17	26.653	24	4.237	0.005
L10	59.17 - 58.9	25.749	24	4.104	0.005
L11	58.9 - 58.75	25.518	24	4.086	0.005
L12	58.75 - 54	25.390	24	4.076	0.005
L13	54 - 53.75	21.506	24	3.739	0.004
L14	53.75 - 52.91	21.311	24	3.722	0.004
L15	52.91 - 52.66	20.663	24	3.661	0.004
L16	52.66 - 52.17	20.471	24	3.647	0.004
L17	52.17 - 51.92	20.099	24	3.620	0.004

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L18	51.92 - 45.287	19.910	24	3.603	0.004
L19	48.704 - 44.287	17.564	24	3.371	0.004
L20	44.287 - 39.287	14.525	24	3.174	0.003
L21	39.287 - 34.287	11.401	24	2.798	0.003
L22	34.287 - 33.5	8.675	24	2.410	0.002
L23	33.5 - 33.25	8.283	24	2.349	0.002
L24	33.25 - 33	8.161	24	2.336	0.002
L25	33 - 32.75	8.039	24	2.323	0.002
L26	32.75 - 32	7.918	24	2.310	0.002
L27	32 - 31.75	7.558	24	2.270	0.002
L28	31.75 - 28.5	7.440	24	2.252	0.002
L29	28.5 - 28.25	5.987	24	2.017	0.002
L30	28.25 - 27.5	5.882	24	2.005	0.002
L31	27.5 - 27.25	5.570	24	1.967	0.002
L32	27.25 - 22.25	5.468	24	1.949	0.002
L33	22.25 - 18	3.618	24	1.585	0.001
L34	18 - 17.75	2.347	24	1.273	0.001
L35	17.75 - 15.45	2.281	24	1.256	0.001
L36	15.45 - 15.2	1.727	24	1.043	0.001
L37	15.2 - 13.41	1.673	24	1.029	0.001
L38	13.41 - 13.16	1.306	24	0.925	0.001
L39	13.16 - 8.16	1.258	24	0.908	0.001
L40	8.16 - 6.5	0.492	24	0.557	0.000
L41	6.5 - 6.25	0.318	24	0.444	0.000
L42	6.25 - 4.45	0.295	24	0.430	0.000
L43	4.45 - 4.2	0.152	24	0.327	0.000
L44	4.2 - 0	0.135	24	0.309	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
96.000	APXVTM14-ALU-I20 w/ Mount Pipe	24	71.293	7.021	0.008	2242
89.000	APXVAARR24_43-U-NA20 w/ Mount Pipe	24	61.143	6.831	0.008	1216
74.000	TPA-65R-LCUUUU-H8 w/ Mount Pipe	24	41.222	5.784	0.008	629
67.000	6' x 2" Mount Pipe	24	33.272	5.061	0.007	516
52.000	KS24019-L112A	24	19.970	3.609	0.004	873
48.000	Commscope MC-PK8-DSH	24	17.066	3.334	0.004	1054

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	98 - 93 (1)	TP13.078x12x0.188	5.000	0.000	0.0	7.672	-3.519	448.789	0.008
L2	93 - 88 (2)	TP14.156x13.078x0.188	5.000	0.000	0.0	8.313	-5.999	486.327	0.012
L3	88 - 82.79 (3)	TP15.28x14.156x0.188	5.210	0.000	0.0	8.672	-6.136	507.296	0.012
L4	82.79 - 80.207 (4)	TP15.445x14.384x0.25	5.000	0.000	0.0	12.058	-6.531	705.368	0.009
L5	80.207 - 75.207 (5)	TP16.507x15.445x0.25	5.000	0.000	0.0	12.900	-6.877	754.650	0.009
L6	75.207 -	TP17.569x16.507x0.25	5.000	0.000	0.0	13.742	-10.323	803.931	0.013

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	70.207 (6)								
L7	70.207 - 65.207 (7)	TP18.63x17.569x0.25	5.000	0.000	0.0	14.585	-13.756	853.213	0.016
L8	65.207 - 60.207 (8)	TP19.692x18.63x0.25	5.000	0.000	0.0	15.427	-14.387	902.494	0.016
L9	60.207 - 59.17 (9)	TP19.912x19.692x0.25	1.037	0.000	0.0	15.602	-14.521	912.715	0.016
L10	59.17 - 58.9 (10)	TP19.97x19.912x0.513	0.270	0.000	0.0	31.650	-14.583	1851.540	0.008
L11	58.9 - 58.75 (11)	TP20.001x19.97x0.513	0.150	0.000	0.0	31.702	-14.610	1854.570	0.008
L12	58.75 - 54 (12)	TP21.01x20.001x0.5	4.750	0.000	0.0	32.549	-15.409	1904.140	0.008
L13	54 - 53.75 (13)	TP21.063x21.01x0.513	0.250	0.000	0.0	33.429	-15.469	1955.600	0.008
L14	53.75 - 52.91 (14)	TP21.241x21.063x0.5	0.840	0.000	0.0	32.917	-15.631	1925.620	0.008
L15	52.91 - 52.66 (15)	TP21.294x21.241x0.675	0.250	0.000	0.0	44.176	-15.691	2584.310	0.006
L16	52.66 - 52.17 (16)	TP21.399x21.294x0.675	0.490	0.000	0.0	44.399	-15.794	2597.350	0.006
L17	52.17 - 51.92 (17)	TP21.452x21.399x0.525	0.250	0.000	0.0	34.871	-15.925	2039.960	0.008
L18	51.92 - 45.287 (18)	TP22.86x21.452x0.513	6.633	0.000	0.0	35.172	-16.567	2057.560	0.008
L19	45.287 - 44.287 (19)	TP22.575x21.634x0.563	4.417	0.000	0.0	39.300	-21.124	2299.030	0.009
L20	44.287 - 39.287 (20)	TP23.639x22.575x0.55	5.000	0.000	0.0	40.306	-22.277	2357.890	0.009
L21	39.287 - 34.287 (21)	TP24.703x23.639x0.538	5.000	0.000	0.0	41.227	-23.464	2411.760	0.010
L22	34.287 - 33.5 (22)	TP24.87x24.703x0.525	0.787	0.000	0.0	40.568	-23.658	2373.220	0.010
L23	33.5 - 33.25 (23)	TP24.923x24.87x0.838	0.250	0.000	0.0	64.026	-23.744	3745.520	0.006
L24	33.25 - 33 (24)	TP24.977x24.923x0.838	0.250	0.000	0.0	64.167	-23.820	3753.800	0.006
L25	33 - 32.75 (25)	TP25.03x24.977x0.813	0.250	0.000	0.0	62.454	-23.891	3653.540	0.007
L26	32.75 - 32 (26)	TP25.19x25.03x0.8	0.750	0.000	0.0	61.930	-24.098	3622.900	0.007
L27	32 - 31.75 (27)	TP25.243x25.19x0.588	0.250	0.000	0.0	45.975	-24.161	2689.550	0.009
L28	31.75 - 28.5 (28)	TP25.934x25.243x0.575	3.250	0.000	0.0	46.282	-24.919	2707.510	0.009
L29	28.5 - 28.25 (29)	TP25.988x25.934x0.863	0.250	0.000	0.0	68.782	-25.007	4023.740	0.006
L30	28.25 - 27.5 (30)	TP26.147x25.988x0.85	0.750	0.000	0.0	68.249	-25.232	3992.590	0.006
L31	27.5 - 27.25 (31)	TP26.2x26.147x0.575	0.250	0.000	0.0	46.768	-25.296	2735.910	0.009
L32	27.25 - 22.25 (32)	TP27.265x26.2x0.563	5.000	0.000	0.0	47.673	-26.503	2788.890	0.010
L33	22.25 - 18 (33)	TP28.169x27.265x0.55	4.250	0.000	0.0	48.215	-27.558	2820.560	0.010
L34	18 - 17.75 (34)	TP28.222x28.169x0.563	0.250	0.000	0.0	49.383	-27.639	2888.910	0.010
L35	17.75 - 15.45 (35)	TP28.712x28.222x0.425	2.300	0.000	0.0	38.158	-28.221	2232.210	0.013
L36	15.45 - 15.2 (36)	TP28.765x28.712x0.688	0.250	0.000	0.0	61.269	-28.313	3584.220	0.008
L37	15.2 - 13.41 (37)	TP29.146x28.765x0.675	1.790	0.000	0.0	60.998	-28.829	3568.360	0.008
L38	13.41 - 13.16 (38)	TP29.199x29.146x0.563	0.250	0.000	0.0	51.127	-28.916	2990.940	0.010
L39	13.16 - 8.16 (39)	TP30.263x29.199x0.55	5.000	0.000	0.0	51.871	-30.314	3034.430	0.010
L40	8.16 - 6.5 (40)	TP30.617x30.263x0.55	1.660	0.000	0.0	52.487	-30.779	3070.510	0.010
L41	6.5 - 6.25 (41)	TP30.67x30.617x0.663	0.250	0.000	0.0	63.099	-30.876	3691.270	0.008

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L42	6.25 - 4.45 (42)	TP31.053x30.67x0.65	1.800	0.000	0.0	62.724	-31.411	3669.370	0.009
L43	4.45 - 4.2 (43)	TP31.106x31.053x0.513	0.250	0.000	0.0	49.766	-31.495	2911.300	0.011
L44	4.2 - 0 (44)	TP32x31.106x0.5	4.200	0.000	0.0	49.991	-32.610	2924.440	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	98 - 93 (1)	TP13.078x12x0.188	15.607	150.088	0.104	0.000	150.088	0.000
L2	93 - 88 (2)	TP14.156x13.078x0.188	40.739	176.441	0.231	0.000	176.441	0.000
L3	88 - 82.79 (3)	TP15.28x14.156x0.188	60.310	192.089	0.314	0.000	192.089	0.000
L4	82.79 - 80.207 (4)	TP15.445x14.384x0.25	96.113	277.548	0.346	0.000	277.548	0.000
L5	80.207 - 75.207 (5)	TP16.507x15.445x0.25	132.838	318.022	0.418	0.000	318.022	0.000
L6	75.207 - 70.207 (6)	TP17.569x16.507x0.25	192.083	361.249	0.532	0.000	361.249	0.000
L7	70.207 - 65.207 (7)	TP18.63x17.569x0.25	256.726	407.231	0.630	0.000	407.231	0.000
L8	65.207 - 60.207 (8)	TP19.692x18.63x0.25	337.112	455.967	0.739	0.000	455.967	0.000
L9	60.207 - 59.17 (9)	TP19.912x19.692x0.25	354.007	466.420	0.759	0.000	466.420	0.000
L10	59.17 - 58.9 (10)	TP19.97x19.912x0.513	358.420	923.883	0.388	0.000	923.883	0.000
L11	58.9 - 58.75 (11)	TP20.001x19.97x0.513	360.874	926.950	0.389	0.000	926.950	0.000
L12	58.75 - 54 (12)	TP21.01x20.001x0.5	439.702	1003.458	0.438	0.000	1003.458	0.000
L13	54 - 53.75 (13)	TP21.063x21.01x0.513	443.911	1032.050	0.430	0.000	1032.050	0.000
L14	53.75 - 52.91 (14)	TP21.241x21.063x0.5	458.098	1026.500	0.446	0.000	1026.500	0.000
L15	52.91 - 52.66 (15)	TP21.294x21.241x0.675	462.334	1358.092	0.340	0.000	1358.092	0.000
L16	52.66 - 52.17 (16)	TP21.399x21.294x0.675	470.657	1372.050	0.343	0.000	1372.050	0.000
L17	52.17 - 51.92 (17)	TP21.452x21.399x0.525	474.925	1096.117	0.433	0.000	1096.117	0.000
L18	51.92 - 45.287 (18)	TP22.86x21.452x0.513	530.445	1143.850	0.464	0.000	1143.850	0.000
L19	45.287 - 44.287 (19)	TP22.575x21.634x0.563	618.325	1298.800	0.476	0.000	1298.800	0.000
L20	44.287 - 39.287 (20)	TP23.639x22.575x0.55	722.093	1399.575	0.516	0.000	1399.575	0.000
L21	39.287 - 34.287 (21)	TP24.703x23.639x0.538	828.120	1500.608	0.552	0.000	1500.608	0.000
L22	34.287 - 33.5 (22)	TP24.87x24.703x0.525	845.008	1488.617	0.568	0.000	1488.617	0.000
L23	33.5 - 33.25 (23)	TP24.923x24.87x0.838	850.392	2294.717	0.371	0.000	2294.717	0.000
L24	33.25 - 33 (24)	TP24.977x24.923x0.838	855.775	2305.033	0.371	0.000	2305.033	0.000
L25	33 - 32.75 (25)	TP25.03x24.977x0.813	861.167	2253.233	0.382	0.000	2253.233	0.000
L26	32.75 - 32 (26)	TP25.19x25.03x0.8	877.367	2251.850	0.390	0.000	2251.850	0.000
L27	32 - 31.75 (27)	TP25.243x25.19x0.588	882.783	1704.742	0.518	0.000	1704.742	0.000
L28	31.75 - 28.5 (28)	TP25.934x25.243x0.575	953.650	1767.133	0.540	0.000	1767.133	0.000
L29	28.5 - 28.25 (29)	TP25.988x25.934x0.863	959.133	2572.625	0.373	0.000	2572.625	0.000

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 $\frac{M_{uy}}{\phi M_{ny}}$
L30	28.25 - 27.5 (30)	TP26.147x25.988x0.85	975.625	2572.008	0.379	0.000	2572.008	0.000
L31	27.5 - 27.25 (31)	TP26.2x26.147x0.575	981.125	1804.817	0.544	0.000	1804.817	0.000
L32	27.25 - 22.25 (32)	TP27.265x26.2x0.563	1091.725	1919.633	0.569	0.000	1919.633	0.000
L33	22.25 - 18 (33)	TP28.169x27.265x0.55	1186.492	2010.375	0.590	0.000	2010.375	0.000
L34	18 - 17.75 (34)	TP28.222x28.169x0.563	1192.083	2061.283	0.578	0.000	2061.283	0.000
L35	17.75 - 15.45 (35)	TP28.712x28.222x0.425	1243.767	1637.342	0.760	0.000	1637.342	0.000
L36	15.45 - 15.2 (36)	TP28.765x28.712x0.688	1249.408	2585.492	0.483	0.000	2585.492	0.000
L37	15.2 - 13.41 (37)	TP29.146x28.765x0.675	1289.933	2612.108	0.494	0.000	2612.108	0.000
L38	13.41 - 13.16 (38)	TP29.199x29.146x0.563	1295.617	2210.950	0.586	0.000	2210.950	0.000
L39	13.16 - 8.16 (39)	TP30.263x29.199x0.55	1410.192	2330.017	0.605	0.000	2330.017	0.000
L40	8.16 - 6.5 (40)	TP30.617x30.263x0.55	1448.650	2386.267	0.607	0.000	2386.267	0.000
L41	6.5 - 6.25 (41)	TP30.67x30.617x0.663	1454.458	2852.433	0.510	0.000	2852.433	0.000
L42	6.25 - 4.45 (42)	TP31.053x30.67x0.65	1496.433	2874.850	0.521	0.000	2874.850	0.000
L43	4.45 - 4.2 (43)	TP31.106x31.053x0.513	1502.283	2305.683	0.652	0.000	2305.683	0.000
L44	4.2 - 0 (44)	TP32x31.106x0.5	1600.842	2386.767	0.671	0.000	2386.767	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	98 - 93 (1)	TP13.078x12x0.188	4.099	134.637	0.030	0.000	151.992	0.000
L2	93 - 88 (2)	TP14.156x13.078x0.188	6.962	145.898	0.048	0.000	178.482	0.000
L3	88 - 82.79 (3)	TP15.28x14.156x0.188	7.061	152.189	0.046	0.000	194.205	0.000
L4	82.79 - 80.207 (4)	TP15.445x14.384x0.25	7.261	211.610	0.034	0.000	281.598	0.000
L5	80.207 - 75.207 (5)	TP16.507x15.445x0.25	7.441	226.395	0.033	0.000	322.322	0.000
L6	75.207 - 70.207 (6)	TP17.569x16.507x0.25	11.239	241.179	0.047	0.095	365.794	0.000
L7	70.207 - 65.207 (7)	TP18.63x17.569x0.25	15.915	255.964	0.062	0.464	412.015	0.001
L8	65.207 - 60.207 (8)	TP19.692x18.63x0.25	16.270	270.748	0.060	0.546	460.986	0.001
L9	60.207 - 59.17 (9)	TP19.912x19.692x0.25	16.348	273.815	0.060	0.555	471.487	0.001
L10	59.17 - 58.9 (10)	TP19.97x19.912x0.513	16.359	555.463	0.029	0.557	946.483	0.001
L11	58.9 - 58.75 (11)	TP20.001x19.97x0.513	16.373	556.372	0.029	0.559	949.583	0.001
L12	58.75 - 54 (12)	TP21.01x20.001x0.5	16.834	571.241	0.029	0.611	1026.042	0.001
L13	54 - 53.75 (13)	TP21.063x21.01x0.513	16.851	586.680	0.029	0.615	1055.858	0.001
L14	53.75 - 52.91 (14)	TP21.241x21.063x0.5	16.941	577.687	0.029	0.627	1049.325	0.001
L15	52.91 - 52.66 (15)	TP21.294x21.241x0.675	16.961	775.293	0.022	0.631	1399.983	0.000
L16	52.66 - 52.17 (16)	TP21.399x21.294x0.675	17.014	779.205	0.022	0.638	1414.150	0.000
L17	52.17 - 51.92 (17)	TP21.452x21.399x0.525	17.109	611.987	0.028	0.638	1121.558	0.001
L18	51.92 - 45.287 (18)	TP22.86x21.452x0.513	17.434	617.267	0.028	0.530	1168.825	0.000

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 $\frac{T_u}{\phi T_n}$
L19	45.287 - 44.287 (19)	TP22.575x21.634x0.563	20.539	689.710	0.030	0.687	1329.558	0.001
L20	44.287 - 39.287 (20)	TP23.639x22.575x0.55	20.999	707.368	0.030	0.759	1430.292	0.001
L21	39.287 - 34.287 (21)	TP24.703x23.639x0.538	21.445	723.527	0.030	0.823	1531.183	0.001
L22	34.287 - 33.5 (22)	TP24.87x24.703x0.525	21.510	711.965	0.030	0.830	1517.933	0.001
L23	33.5 - 33.25 (23)	TP24.923x24.87x0.838	21.526	1123.660	0.019	0.832	2370.167	0.000
L24	33.25 - 33 (24)	TP24.977x24.923x0.838	21.551	1126.140	0.019	0.835	2380.650	0.000
L25	33 - 32.75 (25)	TP25.03x24.977x0.813	21.576	1096.060	0.020	0.837	2324.575	0.000
L26	32.75 - 32 (26)	TP25.19x25.03x0.8	21.655	1086.870	0.020	0.844	2321.458	0.000
L27	32 - 31.75 (27)	TP25.243x25.19x0.588	21.673	806.865	0.027	0.846	1742.167	0.000
L28	31.75 - 28.5 (28)	TP25.934x25.243x0.575	21.957	812.253	0.027	0.865	1803.892	0.000
L29	28.5 - 28.25 (29)	TP25.988x25.934x0.863	21.961	1207.120	0.018	0.865	2656.075	0.000
L30	28.25 - 27.5 (30)	TP26.147x25.988x0.85	22.022	1197.780	0.018	0.865	2653.567	0.000
L31	27.5 - 27.25 (31)	TP26.2x26.147x0.575	22.028	820.774	0.027	0.865	1841.942	0.000
L32	27.25 - 22.25 (32)	TP27.265x26.2x0.563	22.234	836.666	0.027	0.865	1956.492	0.000
L33	22.25 - 18 (33)	TP28.169x27.265x0.55	22.395	846.168	0.026	0.864	2046.658	0.000
L34	18 - 17.75 (34)	TP28.222x28.169x0.563	22.401	866.674	0.026	0.867	2099.350	0.000
L35	17.75 - 15.45 (35)	TP28.712x28.222x0.425	22.573	669.664	0.034	0.898	1658.900	0.001
L36	15.45 - 15.2 (36)	TP28.765x28.712x0.688	22.571	1075.270	0.021	0.901	2643.958	0.000
L37	15.2 - 13.41 (37)	TP29.146x28.765x0.675	22.738	1070.510	0.021	0.925	2669.150	0.000
L38	13.41 - 13.16 (38)	TP29.199x29.146x0.563	22.735	897.283	0.025	0.928	2250.258	0.000
L39	13.16 - 8.16 (39)	TP30.263x29.199x0.55	23.121	910.328	0.025	0.984	2368.808	0.000
L40	8.16 - 6.5 (40)	TP30.617x30.263x0.55	23.258	921.152	0.025	1.006	2425.475	0.000
L41	6.5 - 6.25 (41)	TP30.67x30.617x0.663	23.252	1107.380	0.021	1.010	2910.075	0.000
L42	6.25 - 4.45 (42)	TP31.053x30.67x0.65	23.423	1100.810	0.021	1.034	2930.950	0.000
L43	4.45 - 4.2 (43)	TP31.106x31.053x0.513	23.408	873.391	0.027	1.034	2340.025	0.000
L44	4.2 - 0 (44)	TP32x31.106x0.5	23.552	877.333	0.027	1.034	2420.225	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	98 - 93 (1)	0.008	0.104	0.000	0.030	0.000	0.113	1.050	4.8.2
L2	93 - 88 (2)	0.012	0.231	0.000	0.048	0.000	0.246	1.050	4.8.2
L3	88 - 82.79 (3)	0.012	0.314	0.000	0.046	0.000	0.328	1.050	4.8.2
L4	82.79 - 80.207 (4)	0.009	0.346	0.000	0.034	0.000	0.357	1.050	4.8.2
L5	80.207 - 75.207 (5)	0.009	0.418	0.000	0.033	0.000	0.428	1.050	4.8.2
L6	75.207 - 70.207 (6)	0.013	0.532	0.000	0.047	0.000	0.547	1.050	4.8.2

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
L7	70.207 - 65.207 (7)	0.016	0.630	0.000	0.062	0.001	0.651	1.050	4.8.2
L8	65.207 - 60.207 (8)	0.016	0.739	0.000	0.060	0.001	0.759	1.050	4.8.2
L9	60.207 - 59.17 (9)	0.016	0.759	0.000	0.060	0.001	0.779	1.050	4.8.2
L10	59.17 - 58.9 (10)	0.008	0.388	0.000	0.029	0.001	0.397	1.050	4.8.2
L11	58.9 - 58.75 (11)	0.008	0.389	0.000	0.029	0.001	0.398	1.050	4.8.2
L12	58.75 - 54 (12)	0.008	0.438	0.000	0.029	0.001	0.447	1.050	4.8.2
L13	54 - 53.75 (13)	0.008	0.430	0.000	0.029	0.001	0.439	1.050	4.8.2
L14	53.75 - 52.91 (14)	0.008	0.446	0.000	0.029	0.001	0.455	1.050	4.8.2
L15	52.91 - 52.66 (15)	0.006	0.340	0.000	0.022	0.000	0.347	1.050	4.8.2
L16	52.66 - 52.17 (16)	0.006	0.343	0.000	0.022	0.000	0.350	1.050	4.8.2
L17	52.17 - 51.92 (17)	0.008	0.433	0.000	0.028	0.001	0.442	1.050	4.8.2
L18	51.92 - 45.287 (18)	0.008	0.464	0.000	0.028	0.000	0.473	1.050	4.8.2
L19	45.287 - 44.287 (19)	0.009	0.476	0.000	0.030	0.001	0.486	1.050	4.8.2
L20	44.287 - 39.287 (20)	0.009	0.516	0.000	0.030	0.001	0.526	1.050	4.8.2
L21	39.287 - 34.287 (21)	0.010	0.552	0.000	0.030	0.001	0.562	1.050	4.8.2
L22	34.287 - 33.5 (22)	0.010	0.568	0.000	0.030	0.001	0.579	1.050	4.8.2
L23	33.5 - 33.25 (23)	0.006	0.371	0.000	0.019	0.000	0.377	1.050	4.8.2
L24	33.25 - 33 (24)	0.006	0.371	0.000	0.019	0.000	0.378	1.050	4.8.2
L25	33 - 32.75 (25)	0.007	0.382	0.000	0.020	0.000	0.389	1.050	4.8.2
L26	32.75 - 32 (26)	0.007	0.390	0.000	0.020	0.000	0.397	1.050	4.8.2
L27	32 - 31.75 (27)	0.009	0.518	0.000	0.027	0.000	0.528	1.050	4.8.2
L28	31.75 - 28.5 (28)	0.009	0.540	0.000	0.027	0.000	0.550	1.050	4.8.2
L29	28.5 - 28.25 (29)	0.006	0.373	0.000	0.018	0.000	0.379	1.050	4.8.2
L30	28.25 - 27.5 (30)	0.006	0.379	0.000	0.018	0.000	0.386	1.050	4.8.2
L31	27.5 - 27.25 (31)	0.009	0.544	0.000	0.027	0.000	0.554	1.050	4.8.2
L32	27.25 - 22.25 (32)	0.010	0.569	0.000	0.027	0.000	0.579	1.050	4.8.2
L33	22.25 - 18 (33)	0.010	0.590	0.000	0.026	0.000	0.601	1.050	4.8.2
L34	18 - 17.75 (34)	0.010	0.578	0.000	0.026	0.000	0.589	1.050	4.8.2
L35	17.75 - 15.45 (35)	0.013	0.760	0.000	0.034	0.001	0.773	1.050	4.8.2
L36	15.45 - 15.2 (36)	0.008	0.483	0.000	0.021	0.000	0.492	1.050	4.8.2
L37	15.2 - 13.41 (37)	0.008	0.494	0.000	0.021	0.000	0.502	1.050	4.8.2
L38	13.41 - 13.16 (38)	0.010	0.586	0.000	0.025	0.000	0.596	1.050	4.8.2
L39	13.16 - 8.16 (39)	0.010	0.605	0.000	0.025	0.000	0.616	1.050	4.8.2
L40	8.16 - 6.5 (40)	0.010	0.607	0.000	0.025	0.000	0.618	1.050	4.8.2
L41	6.5 - 6.25 (41)	0.008	0.510	0.000	0.021	0.000	0.519	1.050	4.8.2
L42	6.25 - 4.45	0.009	0.521	0.000	0.021	0.000	0.530	1.050	4.8.2

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
	(42)								
L43	4.45 - 4.2 (43)	0.011	0.652	0.000	0.027	0.000	0.663	1.050	4.8.2
L44	4.2 - 0 (44)	0.011	0.671	0.000	0.027	0.000	0.683	1.050	4.8.2

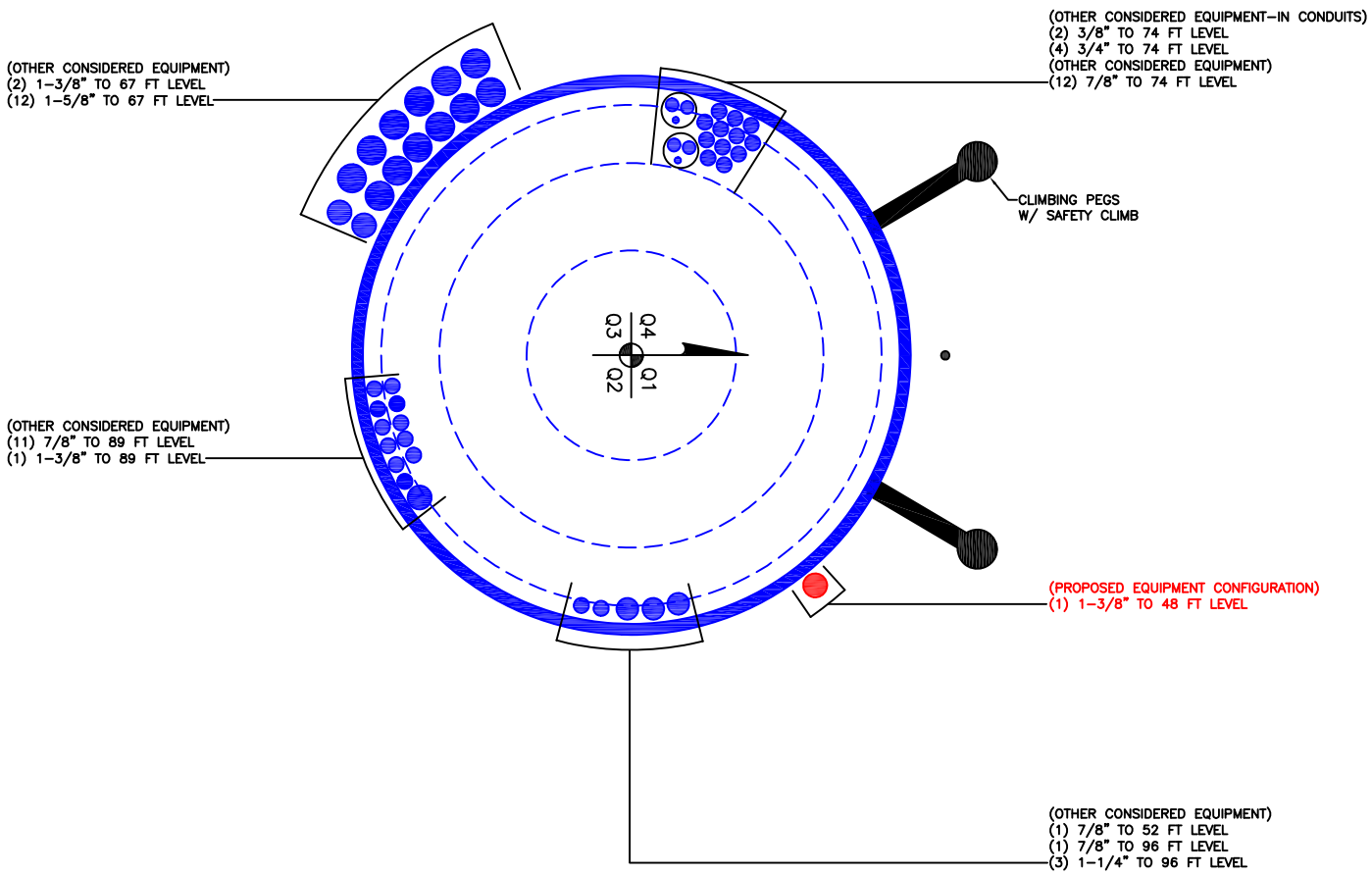
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	98 - 93	Pole	TP13.078x12x0.188	1	-3.519	471.228	10.7	Pass
L2	93 - 88	Pole	TP14.156x13.078x0.188	2	-5.999	510.643	23.4	Pass
L3	88 - 82.79	Pole	TP15.28x14.156x0.188	3	-6.136	532.661	31.3	Pass
L4	82.79 - 80.207	Pole	TP15.445x14.384x0.25	4	-6.531	740.636	34.0	Pass
L5	80.207 - 75.207	Pole	TP16.507x15.445x0.25	5	-6.877	792.382	40.8	Pass
L6	75.207 - 70.207	Pole	TP17.569x16.507x0.25	6	-10.323	844.128	52.1	Pass
L7	70.207 - 65.207	Pole	TP18.63x17.569x0.25	7	-13.756	895.874	62.0	Pass
L8	65.207 - 60.207	Pole	TP19.692x18.63x0.25	8	-14.387	947.619	72.3	Pass
L9	60.207 - 59.17	Pole	TP19.912x19.692x0.25	9	-14.521	958.351	74.2	Pass
L10	59.17 - 58.9	Pole	TP19.97x19.912x0.513	10	-14.583	1944.117	37.8	Pass
L11	58.9 - 58.75	Pole	TP20.001x19.97x0.513	11	-14.610	1947.298	37.9	Pass
L12	58.75 - 54	Pole	TP21.01x20.001x0.5	12	-15.409	1999.347	42.6	Pass
L13	54 - 53.75	Pole	TP21.063x21.01x0.513	13	-15.469	2053.380	41.8	Pass
L14	53.75 - 52.91	Pole	TP21.241x21.063x0.5	14	-15.631	2021.901	43.4	Pass
L15	52.91 - 52.66	Pole	TP21.294x21.241x0.675	15	-15.691	2713.525	33.0	Pass
L16	52.66 - 52.17	Pole	TP21.399x21.294x0.675	16	-15.794	2727.217	33.3	Pass
L17	52.17 - 51.92	Pole	TP21.452x21.399x0.525	17	-15.925	2141.958	42.1	Pass
L18	51.92 - 45.287	Pole	TP22.86x21.452x0.513	18	-16.567	2160.438	45.0	Pass
L19	45.287 - 44.287	Pole	TP22.575x21.634x0.563	19	-21.124	2413.981	46.3	Pass
L20	44.287 - 39.287	Pole	TP23.639x22.575x0.55	20	-22.277	2475.784	50.1	Pass
L21	39.287 - 34.287	Pole	TP24.703x23.639x0.538	21	-23.464	2532.348	53.6	Pass
L22	34.287 - 33.5	Pole	TP24.87x24.703x0.525	22	-23.658	2491.881	55.1	Pass
L23	33.5 - 33.25	Pole	TP24.923x24.87x0.838	23	-23.744	3932.796	35.9	Pass
L24	33.25 - 33	Pole	TP24.977x24.923x0.838	24	-23.820	3941.490	36.0	Pass
L25	33 - 32.75	Pole	TP25.03x24.977x0.813	25	-23.891	3836.217	37.1	Pass
L26	32.75 - 32	Pole	TP25.19x25.03x0.8	26	-24.098	3804.045	37.8	Pass
L27	32 - 31.75	Pole	TP25.243x25.19x0.588	27	-24.161	2824.027	50.2	Pass
L28	31.75 - 28.5	Pole	TP25.934x25.243x0.575	28	-24.919	2842.885	52.3	Pass
L29	28.5 - 28.25	Pole	TP25.988x25.934x0.863	29	-25.007	4224.927	36.1	Pass
L30	28.25 - 27.5	Pole	TP26.147x25.988x0.85	30	-25.232	4192.219	36.8	Pass
L31	27.5 - 27.25	Pole	TP26.2x26.147x0.575	31	-25.296	2872.705	52.7	Pass
L32	27.25 - 22.25	Pole	TP27.265x26.2x0.563	32	-26.503	2928.334	55.1	Pass
L33	22.25 - 18	Pole	TP28.169x27.265x0.55	33	-27.558	2961.588	57.2	Pass
L34	18 - 17.75	Pole	TP28.222x28.169x0.563	34	-27.639	3033.355	56.1	Pass
L35	17.75 - 15.45	Pole	TP28.712x28.222x0.425	35	-28.221	2343.820	73.7	Pass
L36	15.45 - 15.2	Pole	TP28.765x28.712x0.688	36	-28.313	3763.431	46.8	Pass
L37	15.2 - 13.41	Pole	TP29.146x28.765x0.675	37	-28.829	3746.778	47.8	Pass
L38	13.41 - 13.16	Pole	TP29.199x29.146x0.563	38	-28.916	3140.487	56.8	Pass
L39	13.16 - 8.16	Pole	TP30.263x29.199x0.55	39	-30.314	3186.151	58.7	Pass
L40	8.16 - 6.5	Pole	TP30.617x30.263x0.55	40	-30.779	3224.035	58.8	Pass
L41	6.5 - 6.25	Pole	TP30.67x30.617x0.663	41	-30.876	3875.833	49.4	Pass
L42	6.25 - 4.45	Pole	TP31.053x30.67x0.65	42	-31.411	3852.838	50.4	Pass
L43	4.45 - 4.2	Pole	TP31.106x31.053x0.513	43	-31.495	3056.865	63.2	Pass
L44	4.2 - 0	Pole	TP32x31.106x0.5	44	-32.610	3070.662	65.0	Pass
							Summary	
						Pole (L9)	74.2	Pass
						RATING =	**74.2**	**Pass**

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

APPENDIX B

BASE LEVEL DRAWING


(OTHER CONSIDERED EQUIPMENT)
(2) 1-3/8" TO 67 FT LEVEL
(12) 1-5/8" TO 67 FT LEVEL
(OTHER CONSIDERED EQUIPMENT-IN CONDUITS)
(2) 3/8" TO 74 FT LEVEL
(4) 3/4" TO 74 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(12) 7/8" TO 74 FT LEVEL
CLIMBING PEGS
W/ SAFETY CLIMB
Q4
Q3
Q1
Q2
(OTHER CONSIDERED EQUIPMENT)
(11) 7/8" TO 89 FT LEVEL
(1) 1-3/8" TO 89 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-3/8" TO 48 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 7/8" TO 52 FT LEVEL
(1) 7/8" TO 96 FT LEVEL
(3) 1-1/4" TO 96 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 876399

Work Order: 1987173

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	98	15.21	2.417	18	12	15.28	0.1875	Auto	A572-65
2	85.207	39.92	3.417	18	14.38	22.86	0.25	Auto	A572-65
3	48.704	48.704	0	18	21.63	32	0.3125	Auto	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	6.5	plate	MS-600 (1.1875")	1																		
2	0	28.5	plate	MS-600 (1.1875")	1																		
3	0	28.5	plate	MS-600 (1.1875")	1																		
4	4.45	15.45	plate	MS-600 (1.1875")	1																		
5	13.41	28.5	plate	MS-600 (1.1875")	1																		
6	27.5	33.5	plate	MS-600 (1.1875")	3																		
7	32	48.25	plate	MS-450 (1.1875")	1																		
8	32	59	plate	MS-450 (1.1875")	2																		
9	47.41	52.91	plate	MS-450 (1.1875")	1																		
10	52.17	59.17	plate	MS-450 (1.1875")	1																		
11	0	18	plate	CCI-WSFP-050125	1																		
12	33	54	plate	CCI-SFP-050125	1																		
13																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in2)	Bolt Hole Size (in)	Reinforcement Material
1	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.375	4.750	1.1875	A572-65
2	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.375	4.750	1.1875	A572-65
3	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.375	4.750	1.1875	A572-65
4	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.375	4.750	1.1875	A572-65
5	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.375	4.750	1.1875	A572-65
6	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.375	4.750	1.1875	A572-65
7	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.625	3.250	1.1875	A572-65
8	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.625	3.250	1.1875	A572-65
9	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.625	3.250	1.1875	A572-65
10	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.625	3.250	1.1875	A572-65
11	5	1.25	6.25	0.625	Welded	n/a	PC 8.8 - M20 (100)	24.000	23.000	4.688	1.1875	A572-65
12	5	1.25	6.25	0.625	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	23.000	4.688	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5 Export to TNX

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	98 - 93	5		18	12.000	13.078	0.1875	A572-65	1.000
2	93 - 88	5		18	13.078	14.156	0.1875	A572-65	1.000
3	88 - 85.207	5.21	2.417	18	14.156	15.280	0.1875	A572-65	1.000
4	85.207 - 80.207	5		18	14.384	15.445	0.25	A572-65	1.000
5	80.207 - 75.207	5		18	15.445	16.507	0.25	A572-65	1.000
6	75.207 - 70.207	5		18	16.507	17.569	0.25	A572-65	1.000
7	70.207 - 65.207	5		18	17.569	18.630	0.25	A572-65	1.000
8	65.207 - 60.207	5		18	18.630	19.692	0.25	A572-65	1.000
9	60.207 - 59.17	1.037		18	19.692	19.912	0.25	A572-65	1.000
10	59.17 - 58.9	0.27		18	19.912	19.970	0.5125	A572-65	0.921
11	58.9 - 58.75	0.15		18	19.970	20.001	0.5125	A572-65	0.920
12	58.75 - 54	4.75		18	20.001	21.010	0.5	A572-65	0.921
13	54 - 53.75	0.25		18	21.010	21.063	0.5125	A572-65	1.085
14	53.75 - 52.91	0.84		18	21.063	21.241	0.5	A572-65	1.106
15	52.91 - 52.66	0.25		18	21.241	21.294	0.675	A572-65	0.927
16	52.66 - 52.17	0.49		18	21.294	21.399	0.675	A572-65	0.924
17	52.17 - 51.92	0.25		18	21.399	21.452	0.525	A572-65	1.049
18	51.92 - 48.704	6.633	3.417	18	21.452	22.860	0.5125	A572-65	1.055
19	48.704 - 44.287	4.417		18	21.634	22.575	0.5625	A572-65	1.064
20	44.287 - 39.287	5		18	22.575	23.639	0.55	A572-65	1.064
21	39.287 - 34.287	5		18	23.639	24.703	0.5375	A572-65	1.066
22	34.287 - 33.5	0.787		18	24.703	24.870	0.525	A572-65	1.087
23	33.5 - 33.25	0.25		18	24.870	24.923	0.8375	A572-65	0.971
24	33.25 - 33	0.25		18	24.923	24.977	0.8375	A572-65	0.970
25	33 - 32.75	0.25		18	24.977	25.030	0.8125	A572-65	0.897
26	32.75 - 32	0.75		18	25.030	25.190	0.8	A572-65	0.907
27	32 - 31.75	0.25		18	25.190	25.243	0.5875	A572-65	0.929
28	31.75 - 28.5	3.25		18	25.243	25.934	0.575	A572-65	0.938
29	28.5 - 28.25	0.25		18	25.934	25.988	0.8625	A572-65	0.894
30	28.25 - 27.5	0.75		18	25.988	26.147	0.85	A572-65	0.903
31	27.5 - 27.25	0.25		18	26.147	26.200	0.575	A572-65	0.934
32	27.25 - 22.25	5		18	26.200	27.265	0.5625	A572-65	0.938
33	22.25 - 18	4.25		18	27.265	28.169	0.55	A572-65	0.946
34	18 - 17.75	0.25		18	28.169	28.222	0.5625	A572-65	1.052
35	17.75 - 15.45	2.3		18	28.222	28.712	0.425	A572-65	1.217
36	15.45 - 15.2	0.25		18	28.712	28.765	0.6875	A572-65	0.954
37	15.2 - 13.41	1.79		18	28.765	29.146	0.675	A572-65	0.965
38	13.41 - 13.16	0.25		18	29.146	29.199	0.5625	A572-65	1.035
39	13.16 - 8.16	5		18	29.199	30.263	0.55	A572-65	1.040
40	8.16 - 6.5	1.66		18	30.263	30.617	0.55	A572-65	1.035
41	6.5 - 6.25	0.25		18	30.617	30.670	0.6625	A572-65	0.957
42	6.25 - 4.45	1.8		18	30.670	31.053	0.65	A572-65	0.968
43	4.45 - 4.2	0.25		18	31.053	31.106	0.5125	A572-65	0.980
44	4.2 - 0	4.2		18	31.106	32.000	0.5	A572-65	0.994

TNX Section Forces

Increment (ft): 5

	Section Height (ft)	TNX Output P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	98 - 93	3.52	15.61	4.10
2	93 - 88	6.00	40.74	6.96
3	88 - 85.207	6.14	60.31	7.06
4	85.207 - 80.207	6.53	96.11	7.26
5	80.207 - 75.207	6.88	132.84	7.44
6	75.207 - 70.207	10.32	192.08	11.24
7	70.207 - 65.207	13.76	256.73	15.91
8	65.207 - 60.207	14.39	337.11	16.27
9	60.207 - 59.17	14.52	354.01	16.35
10	59.17 - 58.9	14.58	358.42	16.36
11	58.9 - 58.75	14.61	360.87	16.37
12	58.75 - 54	15.41	439.70	16.83
13	54 - 53.75	15.47	443.91	16.85
14	53.75 - 52.91	15.63	458.10	16.94
15	52.91 - 52.66	15.69	462.33	16.96
16	52.66 - 52.17	15.79	470.66	17.01
17	52.17 - 51.92	15.93	474.93	17.11
18	51.92 - 48.704	16.57	530.44	17.43
19	48.704 - 44.287	21.12	618.33	20.54
20	44.287 - 39.287	22.28	722.09	21.00
21	39.287 - 34.287	23.46	828.12	21.44
22	34.287 - 33.5	23.66	845.01	21.51
23	33.5 - 33.25	23.74	850.39	21.53
24	33.25 - 33	23.82	855.77	21.55
25	33 - 32.75	23.89	861.16	21.58
26	32.75 - 32	24.10	877.37	21.66
27	32 - 31.75	24.16	882.78	21.67
28	31.75 - 28.5	24.92	953.65	21.96
29	28.5 - 28.25	25.01	959.13	21.96
30	28.25 - 27.5	25.23	975.62	22.02
31	27.5 - 27.25	25.30	981.13	22.03
32	27.25 - 22.25	26.50	1091.73	22.23
33	22.25 - 18	27.56	1186.49	22.40
34	18 - 17.75	27.64	1192.08	22.40
35	17.75 - 15.45	28.22	1243.77	22.57
36	15.45 - 15.2	28.31	1249.41	22.57
37	15.2 - 13.41	28.83	1289.93	22.74
38	13.41 - 13.16	28.92	1295.61	22.74
39	13.16 - 8.16	30.31	1410.19	23.12
40	8.16 - 6.5	30.78	1448.65	23.26
41	6.5 - 6.25	30.88	1454.46	23.25
42	6.25 - 4.45	31.41	1496.44	23.42
43	4.45 - 4.2	31.50	1502.28	23.41
44	4.2 - 0	32.61	1600.84	23.55

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
98 - 93	Pole	TP13.078x12x0.1875	Pole	10.7%	Pass
93 - 88	Pole	TP14.156x13.078x0.1875	Pole	23.4%	Pass
88 - 85.21	Pole	TP15.28x14.156x0.1875	Pole	31.2%	Pass
85.21 - 80.21	Pole	TP15.445x14.384x0.25	Pole	33.9%	Pass
80.21 - 75.21	Pole	TP16.507x15.445x0.25	Pole	40.7%	Pass
75.21 - 70.21	Pole	TP17.569x16.507x0.25	Pole	52.0%	Pass
70.21 - 65.21	Pole	TP18.63x17.569x0.25	Pole	61.9%	Pass
65.21 - 60.21	Pole	TP19.692x18.63x0.25	Pole	72.2%	Pass
60.21 - 59.17	Pole	TP19.912x19.692x0.25	Pole	74.1%	Pass
59.17 - 58.9	Pole + Reinf.	TP19.97x19.912x0.5125	Reinf. 10 Compression	66.8%	Pass
58.9 - 58.75	Pole + Reinf.	TP20.001x19.97x0.5125	Reinf. 10 Compression	67.1%	Pass
58.75 - 54	Pole + Reinf.	TP21.01x20.001x0.5	Reinf. 10 Compression	75.7%	Pass
54 - 53.75	Pole + Reinf.	TP21.063x21.01x0.5125	Reinf. 10 Compression	67.9%	Pass
53.75 - 52.91	Pole + Reinf.	TP21.241x21.063x0.5	Reinf. 10 Compression	69.2%	Pass
52.91 - 52.66	Pole + Reinf.	TP21.294x21.241x0.675	Reinf. 8 Compression	66.8%	Pass
52.66 - 52.17	Pole + Reinf.	TP21.399x21.294x0.675	Reinf. 8 Compression	67.6%	Pass
52.17 - 51.92	Pole + Reinf.	TP21.452x21.399x0.525	Reinf. 9 Compression	72.3%	Pass
51.92 - 48.7	Pole + Reinf.	TP22.86x21.452x0.5125	Reinf. 9 Compression	77.1%	Pass
48.7 - 44.29	Pole + Reinf.	TP22.575x21.634x0.5625	Reinf. 7 Compression	76.2%	Pass
44.29 - 39.29	Pole + Reinf.	TP23.639x22.575x0.55	Reinf. 7 Compression	82.7%	Pass
39.29 - 34.29	Pole + Reinf.	TP24.703x23.639x0.5375	Reinf. 7 Compression	88.3%	Pass
34.29 - 33.5	Pole + Reinf.	TP24.87x24.703x0.525	Reinf. 7 Compression	89.2%	Pass
33.5 - 33.25	Pole + Reinf.	TP24.923x24.87x0.8375	Reinf. 7 Compression	60.4%	Pass
33.25 - 33	Pole + Reinf.	TP24.977x24.923x0.8375	Reinf. 7 Compression	60.6%	Pass
33 - 32.75	Pole + Reinf.	TP25.03x24.977x0.8125	Reinf. 7 Compression	65.8%	Pass
32.75 - 32	Pole + Reinf.	TP25.19x25.03x0.8	Reinf. 7 Compression	66.4%	Pass
32 - 31.75	Pole + Reinf.	TP25.243x25.19x0.5875	Reinf. 6 Tension Rupture	80.3%	Pass
31.75 - 28.5	Pole + Reinf.	TP25.934x25.243x0.575	Reinf. 6 Tension Rupture	83.1%	Pass
28.5 - 28.25	Pole + Reinf.	TP25.988x25.934x0.8625	Reinf. 6 Tension Rupture	57.9%	Pass
28.25 - 27.5	Pole + Reinf.	TP26.147x25.988x0.85	Reinf. 6 Tension Rupture	58.4%	Pass
27.5 - 27.25	Pole + Reinf.	TP26.2x26.147x0.575	Reinf. 5 Tension Rupture	84.1%	Pass
27.25 - 22.25	Pole + Reinf.	TP27.265x26.2x0.5625	Reinf. 5 Tension Rupture	87.9%	Pass
22.25 - 18	Pole + Reinf.	TP28.169x27.265x0.55	Reinf. 5 Tension Rupture	90.6%	Pass
18 - 17.75	Pole + Reinf.	TP28.222x28.169x0.5625	Reinf. 5 Tension Rupture	83.2%	Pass
17.75 - 15.45	Pole + Reinf.	TP28.712x28.222x0.425	Pole	84.2%	Pass
15.45 - 15.2	Pole + Reinf.	TP28.765x28.712x0.6875	Reinf. 3 Tension Rupture	82.7%	Pass
15.2 - 13.41	Pole + Reinf.	TP29.146x28.765x0.675	Reinf. 3 Tension Rupture	83.7%	Pass
13.41 - 13.16	Pole + Reinf.	TP29.199x29.146x0.5625	Reinf. 4 Tension Rupture	87.3%	Pass
13.16 - 8.16	Pole + Reinf.	TP30.263x29.199x0.55	Reinf. 4 Tension Rupture	89.8%	Pass
8.16 - 6.5	Pole + Reinf.	TP30.617x30.263x0.55	Reinf. 4 Tension Rupture	90.6%	Pass
6.5 - 6.25	Pole + Reinf.	TP30.67x30.617x0.6625	Reinf. 3 Tension Rupture	87.2%	Pass
6.25 - 4.45	Pole + Reinf.	TP31.053x30.67x0.65	Reinf. 3 Tension Rupture	88.0%	Pass
4.45 - 4.2	Pole + Reinf.	TP31.106x31.053x0.5125	Reinf. 1 Tension Rupture	89.3%	Pass
4.2 - 0	Pole + Reinf.	TP32x31.106x0.5	Reinf. 2 Tension Rupture	91.0%	Pass
				Summary	
			Pole	84.2%	Pass
			Reinforcement	91.0%	Pass
			Overall	91.0%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity*												
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
98 - 93	161	n/a	161	7.67	n/a	7.67	10.7%												
93 - 88	205	n/a	205	8.31	n/a	8.31	23.4%												
88 - 85.21	233	n/a	233	8.67	n/a	8.67	31.2%												
85.21 - 80.21	352	n/a	352	12.06	n/a	12.06	33.9%												
80.21 - 75.21	431	n/a	431	12.90	n/a	12.90	40.7%												
75.21 - 70.21	521	n/a	521	13.74	n/a	13.74	52.0%												
70.21 - 65.21	622	n/a	622	14.58	n/a	14.58	61.9%												
65.21 - 60.21	736	n/a	736	15.43	n/a	15.43	72.2%												
60.21 - 59.17	762	n/a	762	15.60	n/a	15.60	74.1%												
59.17 - 58.9	768	754	1522	15.65	13.50	29.15	37.1%								66.8%		66.8%		
58.9 - 58.75	772	756	1528	15.67	13.50	29.17	37.3%								67.1%		67.1%		
58.75 - 54	897	829	1726	16.47	13.50	29.97	42.2%								75.7%		75.7%		
54 - 53.75	905	864	1769	16.51	19.75	36.26	42.8%								67.9%		67.9%		44.6%
53.75 - 52.91	929	877	1806	16.66	19.75	36.41	43.6%								69.2%		69.2%		45.5%
52.91 - 52.66	1003	1447	2449	16.70	24.25	40.95	37.9%								66.8%	53.5%	50.0%		45.9%
52.66 - 52.17	1018	1460	2478	16.78	24.25	41.03	38.3%								67.6%	54.1%	50.5%		46.4%
52.17 - 51.92	958	956	1914	16.82	19.75	36.57	43.4%								68.4%	72.3%			50.5%
51.92 - 48.7	1054	1013	2067	17.36	19.75	37.11	46.3%								72.9%	77.1%			54.0%
48.7 - 44.29	1387	1008	2395	22.08	19.75	41.83	48.1%							76.2%	76.2%				52.5%
44.29 - 39.29	1595	1099	2694	23.14	19.75	42.89	52.2%							82.7%	82.7%				57.4%
39.29 - 34.29	1823	1194	3017	24.19	19.75	43.94	55.8%							88.3%	88.3%				61.9%
34.29 - 33.5	1861	1209	3070	24.36	19.75	44.11	56.3%							89.2%	89.2%				62.5%
33.5 - 33.25	1872	2805	4677	24.41	37.75	62.16	37.4%						58.0%	60.4%	60.4%				46.8%
33.25 - 33	1885	2816	4701	24.46	37.75	62.21	37.5%						58.2%	60.6%	60.6%				47.0%
33 - 32.75	1892	2708	4599	24.52	31.50	56.02	36.9%						59.4%	65.8%	65.8%				
32.75 - 32	1929	2740	4669	24.67	31.50	56.17	37.2%						60.0%	66.4%	66.4%				
32 - 31.75	1941	1577	3518	24.73	18.00	42.73	49.8%						80.3%						
31.75 - 28.5	2107	1660	3767	25.41	18.00	43.41	51.6%						83.1%						
28.5 - 28.25	2120	3333	5453	25.47	36.00	61.47	35.9%		57.9%	57.9%		57.9%	57.9%						
28.25 - 27.5	2160	3372	5532	25.62	36.00	61.62	36.2%		58.4%	58.4%		58.4%	58.4%						
27.5 - 27.25	2173	1692	3866	25.68	18.00	43.68	52.2%		84.1%	84.1%		84.1%							
27.25 - 22.25	2453	1825	4278	26.73	18.00	44.73	54.6%		87.9%	87.9%		87.9%							
22.25 - 18	2708	1942	4650	27.63	18.00	45.63	56.4%		90.6%	90.6%		90.6%							
18 - 17.75	2729	2035	4765	27.68	24.25	51.93	57.7%		83.2%	81.1%		83.2%						67.9%	
17.75 - 15.45	3303	945	4247	28.17	18.25	46.42	84.2%		83.9%			83.9%						83.3%	
15.45 - 15.2	2998	3180	6178	28.22	30.25	58.47	52.4%		77.6%	82.7%	66.0%	62.9%						69.1%	
15.2 - 13.41	3118	3262	6380	28.60	30.25	58.85	53.0%		78.5%	83.7%	66.8%	63.8%						70.0%	
13.41 - 13.16	3024	2280	5304	28.65	24.25	52.90	57.4%		80.9%	84.5%	87.3%							76.1%	
13.16 - 8.16	3371	2441	5812	29.71	24.25	53.96	59.2%		83.3%	87.0%	89.8%							78.5%	
8.16 - 6.5	3492	2496	5987	30.06	24.25	54.31	59.9%		84.1%	87.7%	90.6%							79.3%	
6.5 - 6.25	3632	3601	7233	30.11	30.25	60.36	55.6%	66.9%	81.9%	87.2%	70.0%							73.3%	
6.25 - 4.45	3769	3689	7458	30.49	30.25	60.74	56.3%	67.6%	82.7%	88.0%	70.7%							74.1%	
4.45 - 4.2	3716	2201	5918	30.54	18.25	48.79	68.9%	89.3%	89.3%									88.6%	
4.2 - 0	4047	2326	6373	31.43	18.25	49.68	70.5%	91.0%	91.0%									90.2%	

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

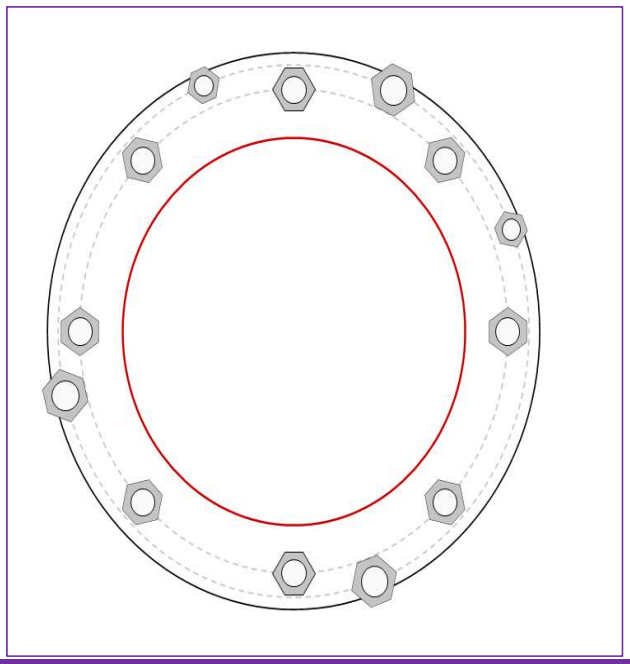
Monopole Base Plate Connection

Site Info	
BU #	876399
Site Name	
Order #	556577 rev#3

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

Applied Loads	
Moment (kip-ft)	1600.84
Axial Force (kips)	32.61
Shear Force (kips)	23.55

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (8) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 40" BC

GROUP 2: (3) 2-1/2" ø bolts (Williams N; Fy=127.7 ksi, Fu=125 ksi) on 44" BC

pos. (deg): 65, 194, 290

GROUP 3: (2) 1-3/4" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 44" BC

Base Plate Data

46" OD x 1.5" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

32" x 0.3125" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

GROUP 1:		
Pu_t = 147.31	ϕPn_t = 243.75	**Stress Rating**
Vu = 2.94	ϕVn = 149.1	**57.6%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2:		
Pu_t = 194.96	ϕPn_t = 375	**Stress Rating**
Vu = 0	ϕVn = 230.1	**49.5%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 3:		
Pu_t = 88.62	ϕPn_t = 178.13	**Stress Rating**
Vu = 0	ϕVn = 112.75	**47.4%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	53	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**93.5%**	**Pass**

Pile Foundation

Checks the capacity of pile foundation configurations for monopoles or self-support towers with individual foundations in Rev. F, G, and H.

BU #:	876399
Site Name:	
Order:	556577 Rev# 3

Tower Type:	Monopole
TIA Revision:	H

Top & Bot. Pad Rein. Different?: ☐

Factored Design Reactions At Base		
Moment, M:	1601	ft-kips
Axial, Pu:	33	kips
Shear, Sc:	24	kips
Load Eccentricity, Ecc:	0	in
Bolt Circle / Bearing Plate Width, BC:	40	in

Pile Properties		
Pile Shape:	Round	
Pile Material:	Steel	
Length of Pile, Lpile:	32	ft
Pile Diameter:	1.8	in
Pile (Soil) Capacity Given?	Yes	
Steel Grade, Fy:	150	ksi
Rebar Quantity Factor:		

Pile Group		
Group Configuration:	Rectangular	
Number of Columns, Nx:	2	
Number of Rows, Ny:	2	
Column Spacing, Dx:	120	in
Row Spacing, Dy:	120	in
Orientation of Neutral Axis, θ:	0	deg
Group Efficiency Given in Geotech?	No	

Program Calculated Group Efficiency, Eg: 1.00

Pile Cap		
Cap Type:	Block	
Depth to Bottom of Block, D:	3.00	ft
Thickness of Block, T:	3.00	ft
Block Width, Wx:	14.00	ft
Block Length, Wy:	14.00	ft
Pad Rebar Size (Bot.), Spad:	8	
Pad Rebar Quantity (X-direction) (Bot.), Mpad:	15	
Pad Rebar Quantity (Y-direction) (Bot.), Mpad_y:	15	

Material Properties		
Rebar Grade, Fy:	60	ksi
Concrete Strength, Fc:	4	ksi
Clear Cover, cc:	3	in

Soil Properties		
Groundwater Depth, GW:	99.00	ft
Soil Unit Weight:	105	pcf
Cohesion, Co:	0	ksf
Friction Angle, ϕ:	0	deg
Neglected Depth, ND:	2	ft
Negative Friction Force (per pile), Sw:	0	kips
SPT Blow Count, N_{blows}:	10	

Design Checks	Capacity	Demand	Rating*	Check
PILE CHECKS				
Soil Compression (kips per pile):	190.00	152.92	**76.7%**	**Pass**
Soil Uplift (kips per pile):	190.00	92.03	**46.1%**	**Pass**
Pile Tensile Strength (kips):	203.00	92.03	**43.2%**	**Pass**
PAD CHECKS				
One-Way Shear (kips):	502.04	183.67	**34.8%**	**Pass**
Pad Shear - Comp Two-Way (ksi):	0.164	0.004	**2.2%**	**Pass**
*Flexural Two-Way (Comp) (kip*ft):*	2062.85	0.00	**0.0%**	**Pass**
*Pad Flexure (kip*ft):*	1646.55	997.74	**57.7%**	**Pass**

*Rating per TIA-222-H Section 15.5

Structural Rating:	**57.7%**
Soil Rating:	**76.7%**

Ultimate Pile Capacities		
Ultimate Compression, Cn:	253.3333	kips
Ultimate Tension, Tn:	253.3333	kips

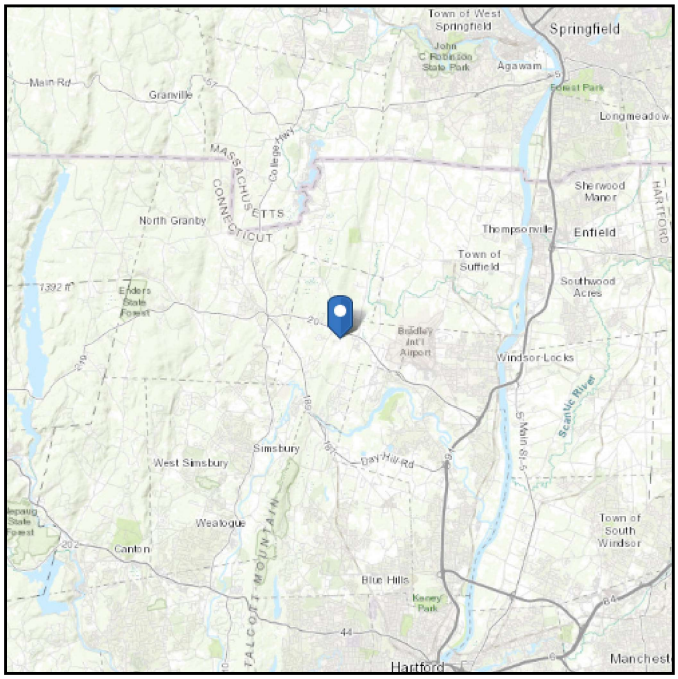
Per CCIsites Doc. # 8420875

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 255.76 ft (NAVD 88)
Latitude: 41.941553
Longitude: -72.73868



Wind

Results:

Wind Speed:	115 Vmph
10-year MRI	75 Vmph
25-year MRI	83 Vmph
50-year MRI	89 Vmph
100-year MRI	96 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Thu Sep 02 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

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

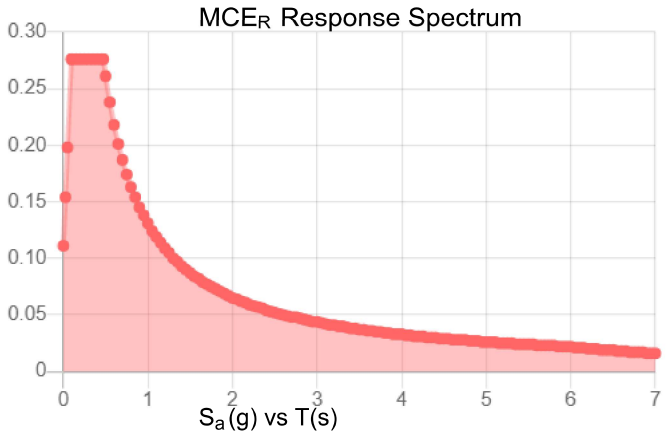
Seismic

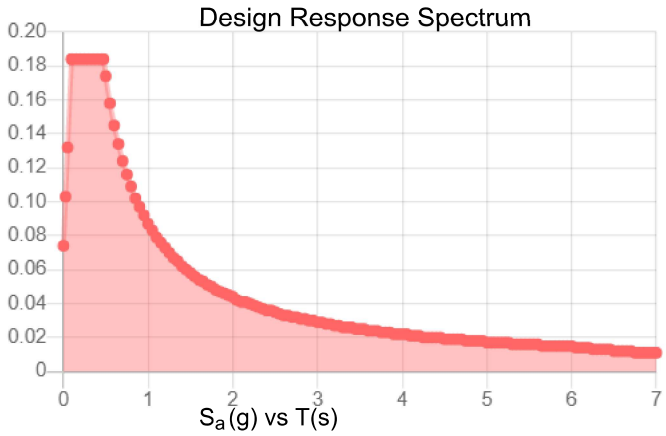
Site Soil Class: D - Stiff Soil

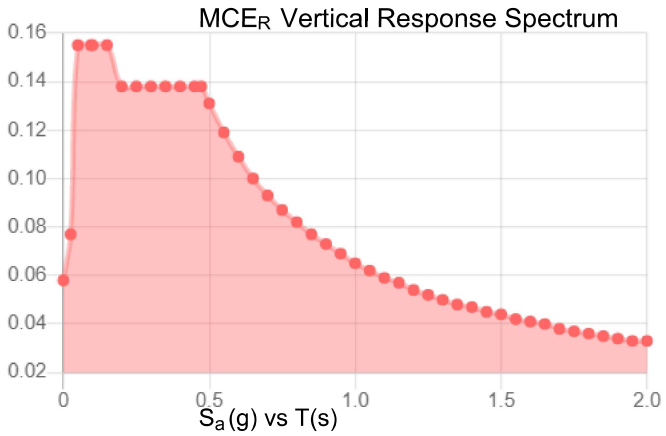
Results:

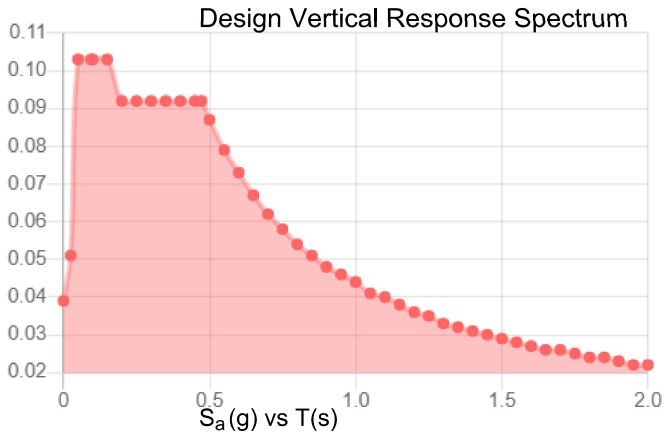
S_S :	0.173	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.091
F_v :	2.4	PGA_M :	0.145
S_{MS} :	0.276	F_{PGA} :	1.6
S_{M1} :	0.131	I_e :	1
S_{DS} :	0.184	C_v :	0.7

Seismic Design Category B









Data Accessed: Thu Sep 02 2021

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.50 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Thu Sep 02 2021

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

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

Exhibit E

Mount Analysis

Date: **September 14, 2021**

Jacob Montoya
Crown Castle
2055 S. Stearman Drive
Chandler, AZ 85286
(480) 298-9641

Infinigy Engineering, PLLC
1033 Watervliet Shaker Road
Albany, NY 12205
518-690-0790
structural@infinigy.com

Subject:	**Mount Analysis Report**	
Carrier Designation:	**Dish Network 5G**	
	Carrier Site Number:	BOBDL00100A
	Carrier Site Name:	CT-CCI-T-876399
Crown Castle Designation:	**Crown Castle BU Number:**	876399
	Crown Castle Site Name:	(F) E. GRANBY 4Q2000 / GALASSO
	Crown Castle JDE Job Number:	650083
	Crown Castle Order Number:	556577 Rev. 3
Engineering Firm Designation:	**Infinigy Engineering, PLLC Report Designation:** 1039-Z0001-B	
Site Data:	**60 South Main Street, East Granby, Hartford County, CT, 06026** **Latitude 41°56'29.59", Longitude -72°44'19.25"**	
Structure Information:	**Tower Height & Type:**	**98.0 ft Monopole**
	Mount Elevation:	**48.0 ft**
	Mount Type:	**8.0 ft Platform**

Dear Jacob Montoya,

Infinigy Engineering, PLLC is pleased to submit this **"Mount 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.

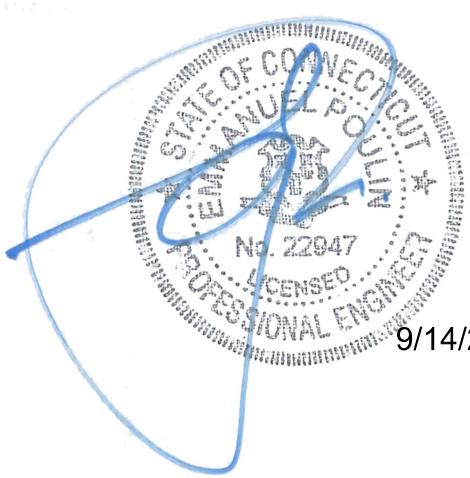
The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

Platform **Sufficient - 33.6%**
***Sufficient upon completion of the changes listed in the 'Recommendations' section of this report.**

This analysis has been performed in accordance with the 2015 International Building Code based upon an ultimate 3-second gust wind speed of 115 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Andrew Gloriani, E.I.T.

Respectfully Submitted by:
Emmanuel Poulin, P.E.
518-690-0790
structural@infinigy.com
CT PE License No. 22947



9/14/21

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3.1) Analysis Method
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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:	115 mph
Exposure Category:	C
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	2.0 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.177
Seismic S_1:	0.065
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
48.0	48.0	3	JMA Wireless	MX08FRO665-21	8.0 ft Platform [MC-PK8-DSH]
		3	Fujitsu	TA08025-B604	
		3	Fujitsu	TA08025-B605	
		1	Raycap	RDIDC-9181-PF-48	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	Dish Network Application	556577 Rev. 3	CCI Sites
Mount Manufacturer Drawings	Commscope	Document No. MC-PK8-DSH	Infinigy

3.1) Analysis Method

RISA-3D (Version 19.0.4), 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.

Infinigy Mount Analysis Tool V2.1.6, a tool internally developed by Infinigy, was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B "Software Input Calculations".

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. Infinigy Engineering, PLLC should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

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

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1, 2	Mount Pipe(s)	MP1	48.0	32.9	Pass
	Horizontal(s)	MH3		9.2	Pass
	Standoff(s)	MS3		26.3	Pass
	Handrail(s)	MR1		12.5	Pass
	Support Channel(s)	M53		33.6	Pass
	Mount Connection(s)	-		21.0	Pass

Structure Rating (max from all components) =	33.6%

Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) See additional documentation in “Appendix D - Additional Calculations” for detailed mount connection calculations.

4.1) Recommendations

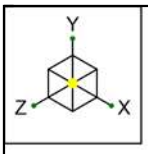
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the proposed mount listed below must be installed.

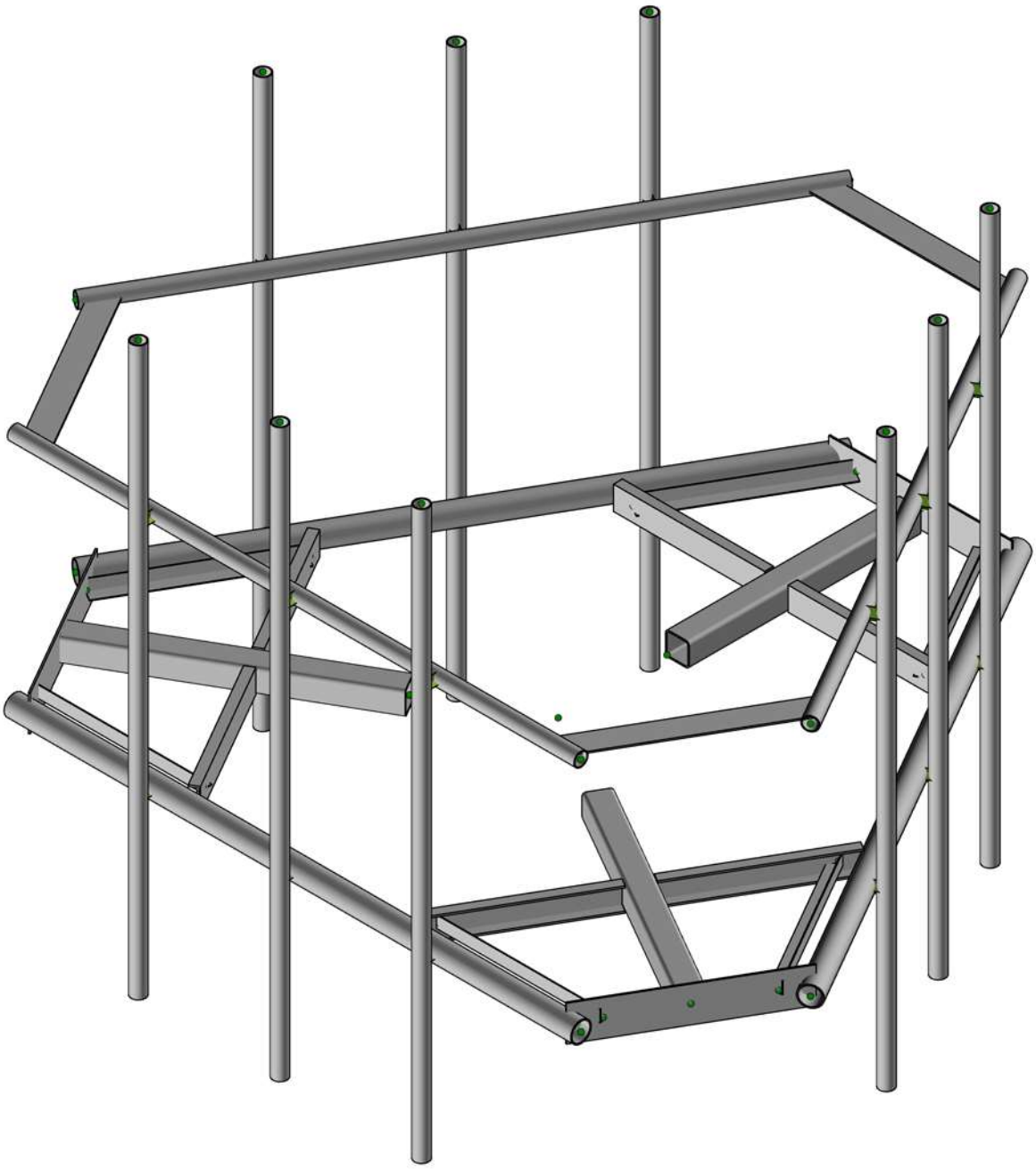
1. Commscope MC-PK8-DSH.

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

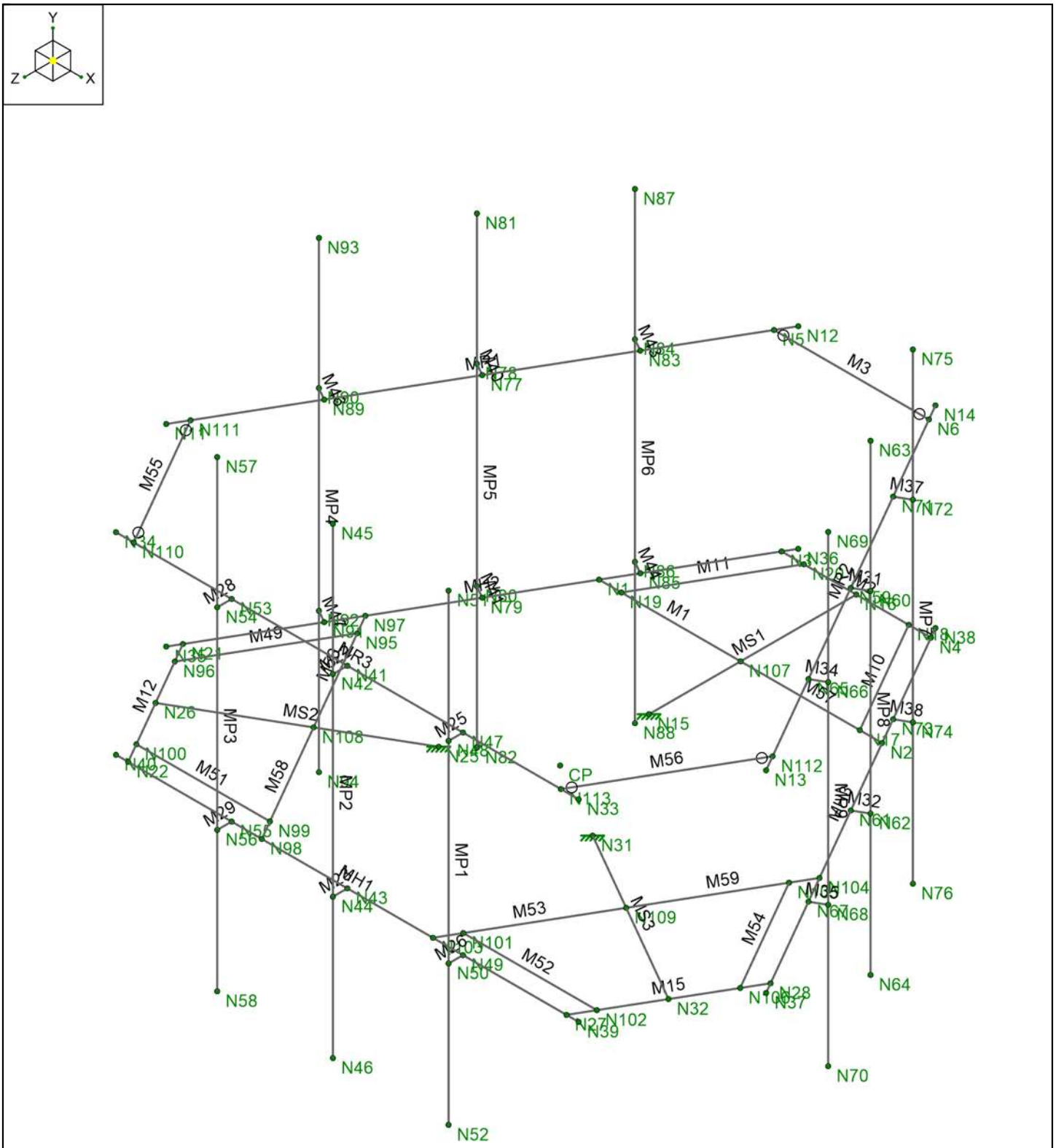
APPENDIX A

WIRE FRAME AND RENDERED MODELS





Infinigy Engineering, PLLC	876399	Render
AG		Sep 14, 2021
1039-Z0001-B		876399_loaded.r3d



Infinigy Engineering, PLLC	876399	Wireframe
AG		Sep 14, 2021
1039-Z0001-B		876399_loaded.r3d

APPENDIX B

SOFTWARE INPUT CALCULATIONS

Program Inputs

PROJECT INFORMATION	
Client:	Crown Castle
Carrier:	DISH Network
Engineer:	Andrew Gloriani

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	255.76	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	48.00	ft
Tower Height AGL:	98.00	ft

TOPOGRAPHIC DATA		
Topo Feature:	N/A	
Slope Distance:	N/A	ft
Crest Distance:	N/A	ft
Crest Height:	N/A	ft

FACTORS		
Directionality Fact. (K_d):	0.950	
Ground Ele. Factor (K_e):	0.991	*Rev H Only
Rooftop Speed-Up (K_s):	1.000	*Rev H Only
Topographic Factor (K_{zt}):	1.000	
Gust Effect Factor (G_h):	1.000	

CODE STANDARDS		
Building Code:	2015 IBC	
TIA Standard:	TIA-222-H	
ASCE Standard:	ASCE 7-10	

WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	115	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	2.0	in
Flat Pressure:	69.114	psf
Round Pressure:	41.468	psf
Ice Wind Pressure:	7.839	psf

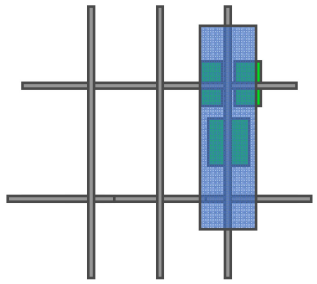
SEISMIC DATA		
Short-Period Accel. (S_s):	0.177	g
1-Second Accel. (S_1):	0.065	g
Short-Period Design (S_{DS}):	0.189	
1-Second Design (S_{D1}):	0.104	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	2.000	

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

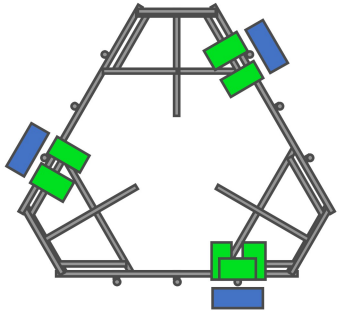
Infinigy Load Calculator V2.1.6

Program Inputs

ELEVATION VIEW



PLAN VIEW



INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Infinigy Load Calculator V2.1.6

APPURTENANCE INFORMATION

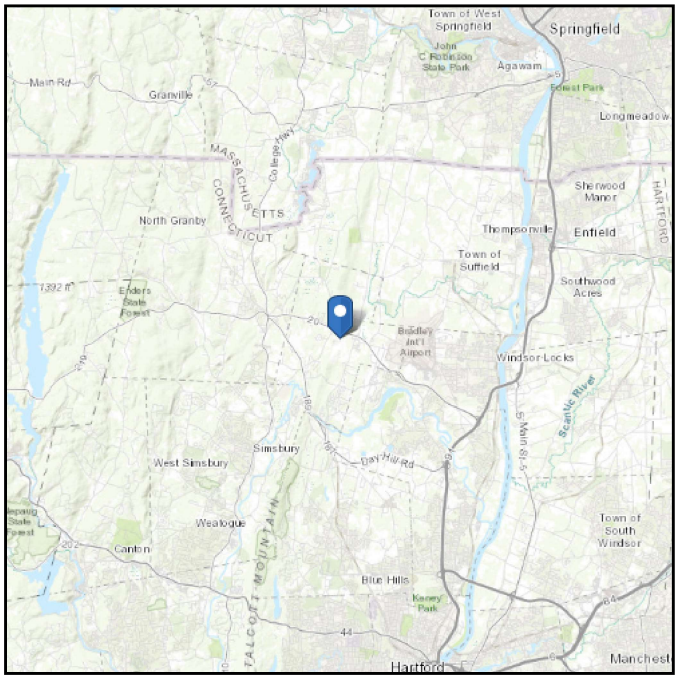
Appurtenance Name	Elevation	Qty.	K_a	q_z (psf)	EPA_N (ft^2)	EPA_T (ft^2)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)
JMA WIRELESS MX08FRO665-21	48.0	3	0.90	34.56	8.01	3.21	249.12	99.83	82.50	23.36	MP1
FUJITSU TA08025-B604	48.0	3	0.90	34.56	1.96	1.03	61.07	32.13	63.90	18.10	MP1
FUJITSU TA08025-B605	48.0	3	0.90	34.56	1.96	1.19	61.07	36.98	75.00	21.24	MP1
RAYCAP RDIDC-9181-PF-48	48.0	1	0.90	34.56	2.01	1.17	62.57	36.33	21.85	6.19	MP1

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 255.76 ft (NAVD 88)
Latitude: 41.941553
Longitude: -72.738681



Wind

Results:	115 Vmph per the State of Connecticut allowing ASCE 7-16 wind speed values
Wind Speed:	
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	91 Vmph
100-year MRI	98 Vmph

Data Accessed: Mon Sep 13 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.

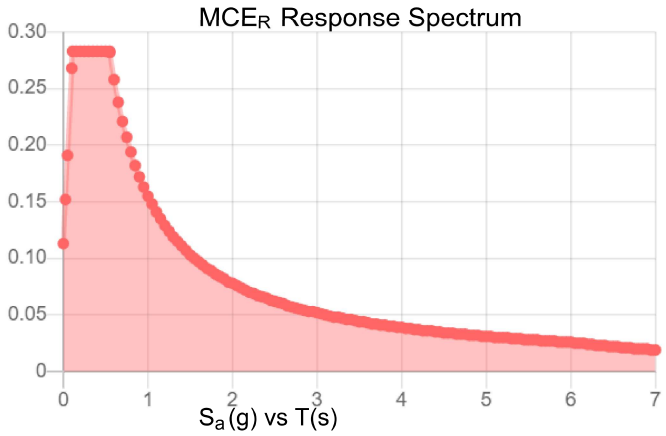
Seismic

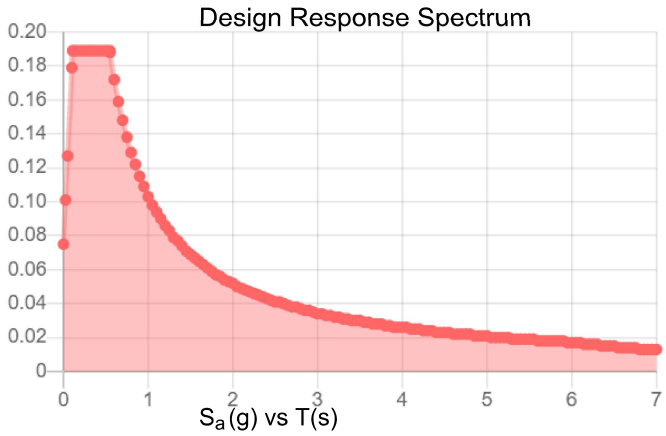
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.177	S_{DS} :	0.189
S_1 :	0.065	S_{D1} :	0.103
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.087
S_{MS} :	0.283	PGA_M :	0.14
S_{M1} :	0.155	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Mon Sep 13 2021

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Mon Sep 13 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.

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	M1	N1	N107	180	Standoff Support	Beam	Channel	A36 Gr.36	Typical
2	M2	N3	N4		Corner Plate	Beam	RECT	A36 Gr.36	Typical
3	M3	N5	N6	90	Handrail Plate	Beam	RECT	A36 Gr.36	Typical
4	MR1	N11	N12		Handrail	Beam	Pipe	A53 Gr.B	Typical
5	MR2	N13	N14		Handrail	Beam	Pipe	A53 Gr.B	Typical
6	MS1	N15	N16		Standoff	Beam	Tube	A500 Gr.B RECT	Typical
7	M10	N17	N18	270	Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
8	M11	N19	N20		Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
9	M12	N21	N22		Corner Plate	Beam	RECT	A36 Gr.36	Typical
10	MS2	N25	N26		Standoff	Beam	Tube	A500 Gr.B RECT	Typical
11	M15	N27	N28		Corner Plate	Beam	RECT	A36 Gr.36	Typical
12	MS3	N31	N32		Standoff	Beam	Tube	A500 Gr.B RECT	Typical
13	MR3	N33	N34		Handrail	Beam	Pipe	A53 Gr.B	Typical
14	MH2	N35	N36		Horizontal	Beam	Pipe	A53 Gr.B	Typical
15	MH3	N37	N38		Horizontal	Beam	Pipe	A53 Gr.B	Typical
16	MH1	N39	N40		Horizontal	Beam	Pipe	A53 Gr.B	Typical
17	M22	N41	N42		RIGID	None	None	RIGID	Typical
18	M23	N43	N44		RIGID	None	None	RIGID	Typical
19	MP2	N45	N46		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
20	M25	N47	N48		RIGID	None	None	RIGID	Typical
21	M26	N49	N50		RIGID	None	None	RIGID	Typical
22	MP1	N51	N52		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
23	M28	N53	N54		RIGID	None	None	RIGID	Typical
24	M29	N55	N56		RIGID	None	None	RIGID	Typical
25	MP3	N57	N58		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
26	M31	N59	N60		RIGID	None	None	RIGID	Typical
27	M32	N61	N62		RIGID	None	None	RIGID	Typical
28	MP8	N63	N64		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
29	M34	N65	N66		RIGID	None	None	RIGID	Typical
30	M35	N67	N68		RIGID	None	None	RIGID	Typical
31	MP9	N69	N70		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
32	M37	N71	N72		RIGID	None	None	RIGID	Typical
33	M38	N73	N74		RIGID	None	None	RIGID	Typical
34	MP7	N75	N76		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
35	M40	N77	N78		RIGID	None	None	RIGID	Typical
36	M41	N79	N80		RIGID	None	None	RIGID	Typical
37	MP5	N81	N82		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
38	M43	N83	N84		RIGID	None	None	RIGID	Typical
39	M44	N85	N86		RIGID	None	None	RIGID	Typical
40	MP6	N87	N88		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
41	M46	N89	N90		RIGID	None	None	RIGID	Typical
42	M47	N91	N92		RIGID	None	None	RIGID	Typical
43	MP4	N93	N94		Mount Pipe	Column	Pipe	A53 Gr.B	Typical
44	M49	N95	N96	270	Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
45	M50	N97	N108		Standoff Support	Beam	Channel	A36 Gr.36	Typical
46	M51	N99	N100		Grating Angle	Beam	Single Angle	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
47	M52	N101	N102	270	Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
48	M53	N103	N109		Standoff Support	Beam	Channel	A36 Gr.36	Typical
49	M54	N105	N106		Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
50	M55	N110	N111	90	Handrail Plate	Beam	RECT	A36 Gr.36	Typical
51	M56	N112	N113	90	Handrail Plate	Beam	RECT	A36 Gr.36	Typical
52	M57	N107	N2	180	Standoff Support	Beam	Channel	A36 Gr.36	Typical
53	M58	N108	N98		Standoff Support	Beam	Channel	A36 Gr.36	Typical
54	M59	N109	N104		Standoff Support	Beam	Channel	A36 Gr.36	Typical

Material Take-Off

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General Members				
2	RIGID		18	54	0
3	Total General		18	54	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	4x0.25	3	96.5	27.354
7	A36 Gr.36	6x0.25	3	93	39.557
8	A36 Gr.36	C4X4.5	6	153.6	58.379
9	A36 Gr.36	L2x2x2	6	166.3	23.151
10	A500 Gr.B RECT	HSS4X4X4	3	125.2	128.729
11	A53 Gr.B	PIPE_2.0	12	1152	333.2
12	A53 Gr.B	PIPE_3.0	3	288	169.05
13	Total HR Steel		36	2074.6	779.42

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Member)
1	Self Weight	DL		-1			20		3
2	Wind Load AZI 0	WLZ					40		
3	Wind Load AZI 30	None					40		
4	Wind Load AZI 60	None					40		
5	Wind Load AZI 90	WLX					40		
6	Wind Load AZI 120	None					40		
7	Wind Load AZI 150	None					40		
8	Wind Load AZI 180	None					40		
9	Wind Load AZI 210	None					40		
10	Wind Load AZI 240	None					40		
11	Wind Load AZI 270	None					40		
12	Wind Load AZI 300	None					40		
13	Wind Load AZI 330	None					40		
14	Distr. Wind Load Z	WLZ						54	
15	Distr. Wind Load X	WLX						54	
16	Ice Weight	OL1					20	54	3
17	Ice Wind Load AZI 0	OL2					40		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Member)
18	Ice Wind Load AZI 30	None					40		
19	Ice Wind Load AZI 60	None					40		
20	Ice Wind Load AZI 90	OL3					40		
21	Ice Wind Load AZI 120	None					40		
22	Ice Wind Load AZI 150	None					40		
23	Ice Wind Load AZI 180	None					40		
24	Ice Wind Load AZI 210	None					40		
25	Ice Wind Load AZI 240	None					40		
26	Ice Wind Load AZI 270	None					40		
27	Ice Wind Load AZI 300	None					40		
28	Ice Wind Load AZI 330	None					40		
29	Distr. Ice Wind Load Z	OL2						54	
30	Distr. Ice Wind Load X	OL3						54	
31	Seismic Load Z	ELZ			-0.283		20		
32	Seismic Load X	ELX	-0.283				20		
33	Service Live Loads	LL				1			
34	Maintenance Load 1	LL				1			
35	Maintenance Load 2	LL				1			
36	Maintenance Load 3	LL				1			
37	Maintenance Load 4	LL				1			
38	Maintenance Load 5	LL				1			
39	Maintenance Load 6	LL				1			
40	Maintenance Load 7	LL				1			
41	Maintenance Load 8	LL				1			
42	Maintenance Load 9	LL				1			
43	BLC 1 Transient Area Loads	None						18	
44	BLC 16 Transient Area Loads	None						18	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4DL	Yes	Y	1	1.4								
2	1.2DL + 1WL AZI 0	Yes	Y	1	1.2	2	1	14	1	15			
3	1.2DL + 1WL AZI 30	Yes	Y	1	1.2	3	1	14	0.866	15	0.5		
4	1.2DL + 1WL AZI 60	Yes	Y	1	1.2	4	1	14	0.5	15	0.866		
5	1.2DL + 1WL AZI 90	Yes	Y	1	1.2	5	1	14		15	1		
6	1.2DL + 1WL AZI 120	Yes	Y	1	1.2	6	1	14	-0.5	15	0.866		
7	1.2DL + 1WL AZI 150	Yes	Y	1	1.2	7	1	14	-0.866	15	0.5		
8	1.2DL + 1WL AZI 180	Yes	Y	1	1.2	8	1	14	-1	15			
9	1.2DL + 1WL AZI 210	Yes	Y	1	1.2	9	1	14	-0.866	15	-0.5		
10	1.2DL + 1WL AZI 240	Yes	Y	1	1.2	10	1	14	-0.5	15	-0.866		
11	1.2DL + 1WL AZI 270	Yes	Y	1	1.2	11	1	14		15	-1		
12	1.2DL + 1WL AZI 300	Yes	Y	1	1.2	12	1	14	0.5	15	-0.866		
13	1.2DL + 1WL AZI 330	Yes	Y	1	1.2	13	1	14	0.866	15	-0.5		
14	0.9DL + 1WL AZI 0	Yes	Y	1	0.9	2	1	14	1	15			
15	0.9DL + 1WL AZI 30	Yes	Y	1	0.9	3	1	14	0.866	15	0.5		
16	0.9DL + 1WL AZI 60	Yes	Y	1	0.9	4	1	14	0.5	15	0.866		

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
17	0.9DL + 1WL AZI 90	Yes	Y	1	0.9	5	1	14		15	1		
18	0.9DL + 1WL AZI 120	Yes	Y	1	0.9	6	1	14	-0.5	15	0.866		
19	0.9DL + 1WL AZI 150	Yes	Y	1	0.9	7	1	14	-0.866	15	0.5		
20	0.9DL + 1WL AZI 180	Yes	Y	1	0.9	8	1	14	-1	15			
21	0.9DL + 1WL AZI 210	Yes	Y	1	0.9	9	1	14	-0.866	15	-0.5		
22	0.9DL + 1WL AZI 240	Yes	Y	1	0.9	10	1	14	-0.5	15	-0.866		
23	0.9DL + 1WL AZI 270	Yes	Y	1	0.9	11	1	14		15	-1		
24	0.9DL + 1WL AZI 300	Yes	Y	1	0.9	12	1	14	0.5	15	-0.866		
25	0.9DL + 1WL AZI 330	Yes	Y	1	0.9	13	1	14	0.866	15	-0.5		
26	1.2D + 1.0Di	Yes	Y	1	1.2	16	1						
27	1.2D + 1.0Di +1.0Wi AZI 0	Yes	Y	1	1.2	16	1	17	1	29	1	30	
28	1.2D + 1.0Di +1.0Wi AZI 30	Yes	Y	1	1.2	16	1	18	1	29	0.866	30	0.5
29	1.2D + 1.0Di +1.0Wi AZI 60	Yes	Y	1	1.2	16	1	19	1	29	0.5	30	0.866
30	1.2D + 1.0Di +1.0Wi AZI 90	Yes	Y	1	1.2	16	1	20	1	29		30	1
31	1.2D + 1.0Di +1.0Wi AZI 120	Yes	Y	1	1.2	16	1	21	1	29	-0.5	30	0.866
32	1.2D + 1.0Di +1.0Wi AZI 150	Yes	Y	1	1.2	16	1	22	1	29	-0.866	30	0.5
33	1.2D + 1.0Di +1.0Wi AZI 180	Yes	Y	1	1.2	16	1	23	1	29	-1	30	
34	1.2D + 1.0Di +1.0Wi AZI 210	Yes	Y	1	1.2	16	1	24	1	29	-0.866	30	-0.5
35	1.2D + 1.0Di +1.0Wi AZI 240	Yes	Y	1	1.2	16	1	25	1	29	-0.5	30	-0.866
36	1.2D + 1.0Di +1.0Wi AZI 270	Yes	Y	1	1.2	16	1	26	1	29		30	-1
37	1.2D + 1.0Di +1.0Wi AZI 300	Yes	Y	1	1.2	16	1	27	1	29	0.5	30	-0.866
38	1.2D + 1.0Di +1.0Wi AZI 330	Yes	Y	1	1.2	16	1	28	1	29	0.866	30	-0.5
39	(1.2 + 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	1.238	31	1	32					
40	(1.2 + 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	1.238	31	0.866	32	0.5				
41	(1.2 + 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	1.238	31	0.5	32	0.866				
42	(1.2 + 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	1.238	31		32	1				
43	(1.2 + 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	1.238	31	-0.5	32	0.866				
44	(1.2 + 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	1.238	31	-0.866	32	0.5				
45	(1.2 + 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	1.238	31	-1	32					
46	(1.2 + 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	1.238	31	-0.866	32	-0.5				
47	(1.2 + 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	1.238	31	-0.5	32	-0.866				
48	(1.2 + 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	1.238	31		32	-1				
49	(1.2 + 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	1.238	31	0.5	32	-0.866				
50	(1.2 + 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	1.238	31	0.866	32	-0.5				
51	(0.9 - 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	0.862	31	1	32					
52	(0.9 - 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	0.862	31	0.866	32	0.5				
53	(0.9 - 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	0.862	31	0.5	32	0.866				
54	(0.9 - 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	0.862	31		32	1				
55	(0.9 - 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	0.862	31	-0.5	32	0.866				
56	(0.9 - 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	0.862	31	-0.866	32	0.5				
57	(0.9 - 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	0.862	31	-1	32					
58	(0.9 - 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	0.862	31	-0.866	32	-0.5				
59	(0.9 - 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	0.862	31	-0.5	32	-0.866				
60	(0.9 - 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	0.862	31		32	-1				
61	(0.9 - 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	0.862	31	0.5	32	-0.866				
62	(0.9 - 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	0.862	31	0.866	32	-0.5				

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
63	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 0	Yes	Y	1	1	2	0.272	14	0.272	15		33	1.5
64	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 30	Yes	Y	1	1	3	0.272	14	0.236	15	0.136	33	1.5
65	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 60	Yes	Y	1	1	4	0.272	14	0.136	15	0.236	33	1.5
66	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 90	Yes	Y	1	1	5	0.272	14		15	0.272	33	1.5
67	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 120	Yes	Y	1	1	6	0.272	14	-0.136	15	0.236	33	1.5
68	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 150	Yes	Y	1	1	7	0.272	14	-0.236	15	0.136	33	1.5
69	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 180	Yes	Y	1	1	8	0.272	14	-0.272	15		33	1.5
70	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 210	Yes	Y	1	1	9	0.272	14	-0.236	15	-0.136	33	1.5
71	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 240	Yes	Y	1	1	10	0.272	14	-0.136	15	-0.236	33	1.5
72	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 270	Yes	Y	1	1	11	0.272	14		15	-0.272	33	1.5
73	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 300	Yes	Y	1	1	12	0.272	14	0.136	15	-0.236	33	1.5
74	1.0DL + 1.5LL + 1.0SWL (60 mph) AZI 330	Yes	Y	1	1	13	0.272	14	0.236	15	-0.136	33	1.5
75	1.2DL + 1.5LL	Yes	Y	1	1.2	33	1.5						
76	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	34	1.5	2	0.068	14	0.068	15	
77	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	34	1.5	3	0.068	14	0.059	15	0.034
78	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	34	1.5	4	0.068	14	0.034	15	0.059
79	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	34	1.5	5	0.068	14		15	0.068
80	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	34	1.5	6	0.068	14	-0.034	15	0.059
81	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	34	1.5	7	0.068	14	-0.059	15	0.034
82	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	34	1.5	8	0.068	14	-0.068	15	
83	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	34	1.5	9	0.068	14	-0.059	15	-0.034
84	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	34	1.5	10	0.068	14	-0.034	15	-0.059
85	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	34	1.5	11	0.068	14		15	-0.068
86	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	34	1.5	12	0.068	14	0.034	15	-0.059
87	1.2DL + 1.5LM-MP1 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	34	1.5	13	0.068	14	0.059	15	-0.034
88	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	35	1.5	2	0.068	14	0.068	15	
89	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	35	1.5	3	0.068	14	0.059	15	0.034
90	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	35	1.5	4	0.068	14	0.034	15	0.059
91	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	35	1.5	5	0.068	14		15	0.068
92	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	35	1.5	6	0.068	14	-0.034	15	0.059
93	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	35	1.5	7	0.068	14	-0.059	15	0.034
94	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	35	1.5	8	0.068	14	-0.068	15	
95	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	35	1.5	9	0.068	14	-0.059	15	-0.034
96	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	35	1.5	10	0.068	14	-0.034	15	-0.059
97	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	35	1.5	11	0.068	14		15	-0.068
98	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	35	1.5	12	0.068	14	0.034	15	-0.059
99	1.2DL + 1.5LM-MP2 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	35	1.5	13	0.068	14	0.059	15	-0.034
100	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	36	1.5	2	0.068	14	0.068	15	
101	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	36	1.5	3	0.068	14	0.059	15	0.034
102	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	36	1.5	4	0.068	14	0.034	15	0.059
103	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	36	1.5	5	0.068	14		15	0.068
104	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	36	1.5	6	0.068	14	-0.034	15	0.059
105	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	36	1.5	7	0.068	14	-0.059	15	0.034
106	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	36	1.5	8	0.068	14	-0.068	15	
107	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	36	1.5	9	0.068	14	-0.059	15	-0.034
108	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	36	1.5	10	0.068	14	-0.034	15	-0.059

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
109	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	36	1.5	11	0.068	14		15	-0.068
110	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	36	1.5	12	0.068	14	0.034	15	-0.059
111	1.2DL + 1.5LM-MP3 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	36	1.5	13	0.068	14	0.059	15	-0.034
112	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	37	1.5	2	0.068	14	0.068	15	
113	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	37	1.5	3	0.068	14	0.059	15	0.034
114	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	37	1.5	4	0.068	14	0.034	15	0.059
115	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	37	1.5	5	0.068	14		15	0.068
116	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	37	1.5	6	0.068	14	-0.034	15	0.059
117	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	37	1.5	7	0.068	14	-0.059	15	0.034
118	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	37	1.5	8	0.068	14	-0.068	15	
119	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	37	1.5	9	0.068	14	-0.059	15	-0.034
120	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	37	1.5	10	0.068	14	-0.034	15	-0.059
121	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	37	1.5	11	0.068	14		15	-0.068
122	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	37	1.5	12	0.068	14	0.034	15	-0.059
123	1.2DL + 1.5LM-MP4 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	37	1.5	13	0.068	14	0.059	15	-0.034
124	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	38	1.5	2	0.068	14	0.068	15	
125	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	38	1.5	3	0.068	14	0.059	15	0.034
126	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	38	1.5	4	0.068	14	0.034	15	0.059
127	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	38	1.5	5	0.068	14		15	0.068
128	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	38	1.5	6	0.068	14	-0.034	15	0.059
129	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	38	1.5	7	0.068	14	-0.059	15	0.034
130	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	38	1.5	8	0.068	14	-0.068	15	
131	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	38	1.5	9	0.068	14	-0.059	15	-0.034
132	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	38	1.5	10	0.068	14	-0.034	15	-0.059
133	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	38	1.5	11	0.068	14		15	-0.068
134	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	38	1.5	12	0.068	14	0.034	15	-0.059
135	1.2DL + 1.5LM-MP5 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	38	1.5	13	0.068	14	0.059	15	-0.034
136	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	39	1.5	2	0.068	14	0.068	15	
137	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	39	1.5	3	0.068	14	0.059	15	0.034
138	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	39	1.5	4	0.068	14	0.034	15	0.059
139	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	39	1.5	5	0.068	14		15	0.068
140	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	39	1.5	6	0.068	14	-0.034	15	0.059
141	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	39	1.5	7	0.068	14	-0.059	15	0.034
142	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	39	1.5	8	0.068	14	-0.068	15	
143	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	39	1.5	9	0.068	14	-0.059	15	-0.034
144	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	39	1.5	10	0.068	14	-0.034	15	-0.059
145	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	39	1.5	11	0.068	14		15	-0.068
146	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	39	1.5	12	0.068	14	0.034	15	-0.059
147	1.2DL + 1.5LM-MP6 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	39	1.5	13	0.068	14	0.059	15	-0.034
148	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	40	1.5	2	0.068	14	0.068	15	
149	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	40	1.5	3	0.068	14	0.059	15	0.034
150	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	40	1.5	4	0.068	14	0.034	15	0.059
151	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	40	1.5	5	0.068	14		15	0.068
152	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	40	1.5	6	0.068	14	-0.034	15	0.059
153	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	40	1.5	7	0.068	14	-0.059	15	0.034
154	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	40	1.5	8	0.068	14	-0.068	15	

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
155	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	40	1.5	9	0.068	14	-0.059	15	-0.034
156	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	40	1.5	10	0.068	14	-0.034	15	-0.059
157	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	40	1.5	11	0.068	14		15	-0.068
158	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	40	1.5	12	0.068	14	0.034	15	-0.059
159	1.2DL + 1.5LM-MP7 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	40	1.5	13	0.068	14	0.059	15	-0.034
160	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	41	1.5	2	0.068	14	0.068	15	
161	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	41	1.5	3	0.068	14	0.059	15	0.034
162	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	41	1.5	4	0.068	14	0.034	15	0.059
163	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	41	1.5	5	0.068	14		15	0.068
164	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	41	1.5	6	0.068	14	-0.034	15	0.059
165	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	41	1.5	7	0.068	14	-0.059	15	0.034
166	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	41	1.5	8	0.068	14	-0.068	15	
167	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	41	1.5	9	0.068	14	-0.059	15	-0.034
168	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	41	1.5	10	0.068	14	-0.034	15	-0.059
169	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	41	1.5	11	0.068	14		15	-0.068
170	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	41	1.5	12	0.068	14	0.034	15	-0.059
171	1.2DL + 1.5LM-MP8 + 1SWL (30 mph) AZI 330	Yes	Y	1	1.2	41	1.5	13	0.068	14	0.059	15	-0.034
172	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 0	Yes	Y	1	1.2	42	1.5	2	0.068	14	0.068	15	
173	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 30	Yes	Y	1	1.2	42	1.5	3	0.068	14	0.059	15	0.034
174	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 60	Yes	Y	1	1.2	42	1.5	4	0.068	14	0.034	15	0.059
175	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 90	Yes	Y	1	1.2	42	1.5	5	0.068	14		15	0.068
176	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 120	Yes	Y	1	1.2	42	1.5	6	0.068	14	-0.034	15	0.059
177	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 150	Yes	Y	1	1.2	42	1.5	7	0.068	14	-0.059	15	0.034
178	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 180	Yes	Y	1	1.2	42	1.5	8	0.068	14	-0.068	15	
179	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 210	Yes	Y	1	1.2	42	1.5	9	0.068	14	-0.059	15	-0.034
180	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 240	Yes	Y	1	1.2	42	1.5	10	0.068	14	-0.034	15	-0.059
181	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 270	Yes	Y	1	1.2	42	1.5	11	0.068	14		15	-0.068
182	1.2DL + 1.5LM-MP9 + 1SWL (30 mph) AZI 300	Yes	Y	1	1.2	42	1.5	12	0.068	14	0.034	15	-0.059

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N15	max	1094.619	5	2034.309	27	338.378	14	3801.011	27	1457.856	11	879.293	146
2		min	-1094.569	23	-69.986	20	-341.427	8	-366.629	20	-1456.074	17	-664.773	164
3	N31	max	512.109	6	2179.695	35	1012.224	13	311.963	15	1433.277	7	3260.245	35
4		min	-510.08	24	-33.789	16	-1011.534	19	-2453.609	34	-1431.42	25	-254.306	16
5	N25	max	665.096	16	2098.96	31	917.57	3	238.637	25	1390.608	3	312.744	23
6		min	-667.443	10	-45.358	24	-916.995	9	-1824.444	105	-1389.148	21	-3465.885	31
7	Totals:	max	2047.032	17	5852.814	29	2128.222	14						
8		min	-2047.038	11	1290.458	59	-2128.222	20						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
1	M53	C4X4.5	0.336	25.606	34	0.104	25.606	y	37	36462.434	43416	1093.41	5535	1.894	H1-1b
2	MP1	PIPE_2.0	0.329	65.684	2	0.048	65.684		11	14916.096	32130	1871.625	1871.625	3	H1-1b

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
3	M50	C4X4.5	0.322	25.606	31	0.102	2.695	y	34	36462.434	43416	1093.41	5535	1.964	H1-1b
4	M58	C4X4.5	0.318	0	31	0.151	22.911	y	29	36462.434	43416	1093.41	5535	1.703	H1-1b
5	M59	C4X4.5	0.314	0	35	0.153	22.911	y	33	36462.434	43416	1093.41	5535	1.744	H1-1b
6	M57	C4X4.5	0.312	0	27	0.095	22.911	y	30	36462.434	43416	1093.41	5535	1.905	H1-1b
7	M1	C4X4.5	0.302	25.606	27	0.139	2.695	y	37	36462.434	43416	1093.41	5535	1.762	H1-1b
8	MP4	PIPE_2.0	0.301	65.684	10	0.047	65.684		7	14916.096	32130	1871.625	1871.625	1.899	H1-1b
9	MP7	PIPE_2.0	0.301	65.684	6	0.046	65.684		3	14916.096	32130	1871.625	1871.625	1.803	H1-1b
10	M15	6x0.25	0.29	15.5	9	0.043	15.5	y	34	1836.566	48600	253.125	2751.917	1.321	H1-1b
11	M2	6x0.25	0.279	15.5	13	0.04	15.5	y	38	1836.566	48600	253.125	2723.567	1.308	H1-1b
12	M12	6x0.25	0.273	15.5	5	0.041	15.5	y	30	1836.566	48600	253.125	2744.478	1.318	H1-1b
13	MS3	HSS4X4X4	0.263	0	33	0.099	0	y	94	132218.494	139518	16180.5	16180.5	2.587	H1-1b
14	MP9	PIPE_2.0	0.26	65.684	7	0.07	65.684		8	14916.096	32130	1871.625	1871.625	2.42	H1-1b
15	MP3	PIPE_2.0	0.258	65.684	3	0.068	65.684		5	14916.096	32130	1871.625	1871.625	3	H1-1b
16	MP6	PIPE_2.0	0.258	65.684	11	0.066	65.684		13	14916.096	32130	1871.625	1871.625	2.658	H1-1b
17	MS2	HSS4X4X4	0.249	0	29	0.095	0	y	174	132218.494	139518	16180.5	16180.5	2.619	H1-1b
18	MP2	PIPE_2.0	0.248	65.684	2	0.056	65.684		7	14916.096	32130	1871.625	1871.625	3	H1-1b
19	MP8	PIPE_2.0	0.238	65.684	6	0.057	65.684		9	14916.096	32130	1871.625	1871.625	2.396	H1-1b
20	MP5	PIPE_2.0	0.238	65.684	10	0.055	65.684		13	14916.096	32130	1871.625	1871.625	2.515	H1-1b
21	MS1	HSS4X4X4	0.229	0	37	0.099	0	y	146	133409.052	139518	16180.5	16180.5	2.515	H1-1b
22	MR1	PIPE_2.0	0.125	25.263	5	0.082	48		3	14916.096	32130	1871.625	1871.625	1.833	H1-1b
23	MR3	PIPE_2.0	0.125	25.263	9	0.08	48		7	14916.096	32130	1871.625	1871.625	1.771	H1-1b
24	MR2	PIPE_2.0	0.122	70.737	2	0.082	48		11	14916.096	32130	1871.625	1871.625	1.596	H1-1b
25	MH3	PIPE_3.0	0.092	27.789	33	0.108	27.789		32	46290.523	65205	5748.75	5748.75	1.926	H1-1b
26	MH1	PIPE_3.0	0.089	68.211	29	0.106	68.211		28	46290.523	65205	5748.75	5748.75	1.823	H1-1b
27	MH2	PIPE_3.0	0.082	68.211	37	0.099	68.211		36	46290.523	65205	5748.75	5748.75	1.896	H1-1b
28	M52	L2x2x2	0.077	0	9	0.007	27.713	z	35	11286.78	15908.4	402.563	821.791	1.5	H2-1
29	M49	L2x2x2	0.071	0	5	0.007	27.713	z	31	11286.78	15908.4	402.563	821.791	1.5	H2-1
30	M10	L2x2x2	0.07	0	13	0.006	27.713	z	27	11286.78	15908.4	402.563	821.791	1.5	H2-1
31	M56	4x0.25	0.051	16.077	34	0.038	32.155	y	8	32074.159	32400	168.75	2700	1	H1-1b
32	M55	4x0.25	0.051	16.077	30	0.037	32.155	y	4	32074.159	32400	168.75	2700	1	H1-1b
33	M3	4x0.25	0.051	16.077	38	0.036	32.155	y	12	32074.159	32400	168.75	2700	1	H1-1b
34	M51	L2x2x2	0.044	0	13	0.009	0	y	30	11286.78	15908.4	402.563	821.791	1.5	H2-1
35	M54	L2x2x2	0.044	0	5	0.009	0	y	34	11286.78	15908.4	402.563	821.791	1.5	H2-1
36	M11	L2x2x2	0.043	0	15	0.009	27.713	y	27	11286.78	15908.4	402.563	821.791	1.5	H2-1

APPENDIX D

ADDITIONAL CALCUATIONS

INFINIGY

FROM ZERO TO INFINIGY

the solutions are endless

Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	F) E. GRANBY 4Q2000 / GALASS
Site Number:	876399
Connection Description:	Standoff to Collar

MAXIMUM BOLT LOADS		
Bolt Tension:	4272.83	lbs
Bolt Shear:	900.16	lbs

WORST CASE BOLT LOADS[1]		
Bolt Tension:	4272.83	lbs
Bolt Shear:	432.98	lbs

BOLT PROPERTIES		
Bolt Type:	Bolt	-
Bolt Diameter:	0.625	in
Bolt Grade:	A325	-
# of Bolts:	4	-
Threads Excluded?	No	-

[1] *Worst case bolt loads correspond to Load combination #33 on member MS3 in RISA-3D, which causes the maximum demand on the bolts.*

Member Information
I nodes of MS1, MS2, MS3

BOLT CHECK		
Tensile Strength	20340.15	
Shear Strength	13805.83	
Max Tensile Usage	21.0%	
Max Shear Usage	6.5%	
Interaction Check (Worst Case)	0.05	***≤1.05***
Result	Pass	

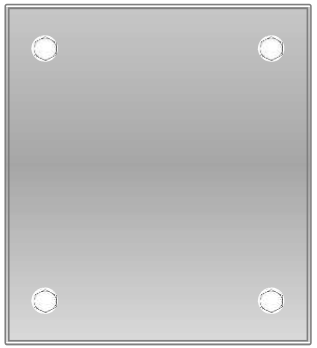


Exhibit F

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: BOBDL00100A

876399
60 South Main Street
East Granby, Connecticut 06026

October 26, 2021

EBI Project Number: 6221006490

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**50.99%**

21 B Street, Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

October 26, 2021

Dish Wireless

Emissions Analysis for Site: BOBDL00100A - 876399

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **60 South Main Street** in **East Granby, 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 60 South Main Street in East Granby, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

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

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

6) The antenna mounting height centerline of the proposed antennas is 48 feet above ground level (AGL).

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

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

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21
Frequency Bands:	600 MHz / 1900 MHz	Frequency Bands:	600 MHz / 1900 MHz	Frequency Bands:	600 MHz / 1900 MHz
Gain:	17.45 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd
Height (AGL):	48 feet	Height (AGL):	48 feet	Height (AGL):	48 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 %:	**8.98%**	Antenna B1 MPE %:	**8.98%**	Antenna C1 MPE %:	**8.98%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	8.98%
AT&T	10.66%
Metro PCS	1.36%
Verizon	17.97%
Sprint	8%
T-Mobile	4.02%
Site Total MPE % :	50.99%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	8.98%
Dish Wireless Sector B Total:	8.98%
Dish Wireless Sector C Total:	8.98%
Site Total MPE % :	50.99%

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	48.0	18.23	600 MHz n71	400	4.56%
Dish Wireless 1900 MHz n70	4	542.70	48.0	44.24	1900 MHz n70	1000	4.42%
						Total:	**8.98%**

• 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:	8.98%
Sector B:	8.98%
Sector C:	8.98%
Dish Wireless Maximum MPE % (Sector A):	8.98%
Site Total:	50.99%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **50.99%** 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

CROWN CASTLE

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:
60 SOUTH MAIN ST., EAST GRANBY, CT 06026

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

Crown Site ID/Name: 876399/(F) E. GRANBY 4Q2000 / GALASSO
Customer Site ID: BOBDL00100A/CT-CCI-T-876399
Site Address: 60 South Main St., EAST GRANBY, CT 06026

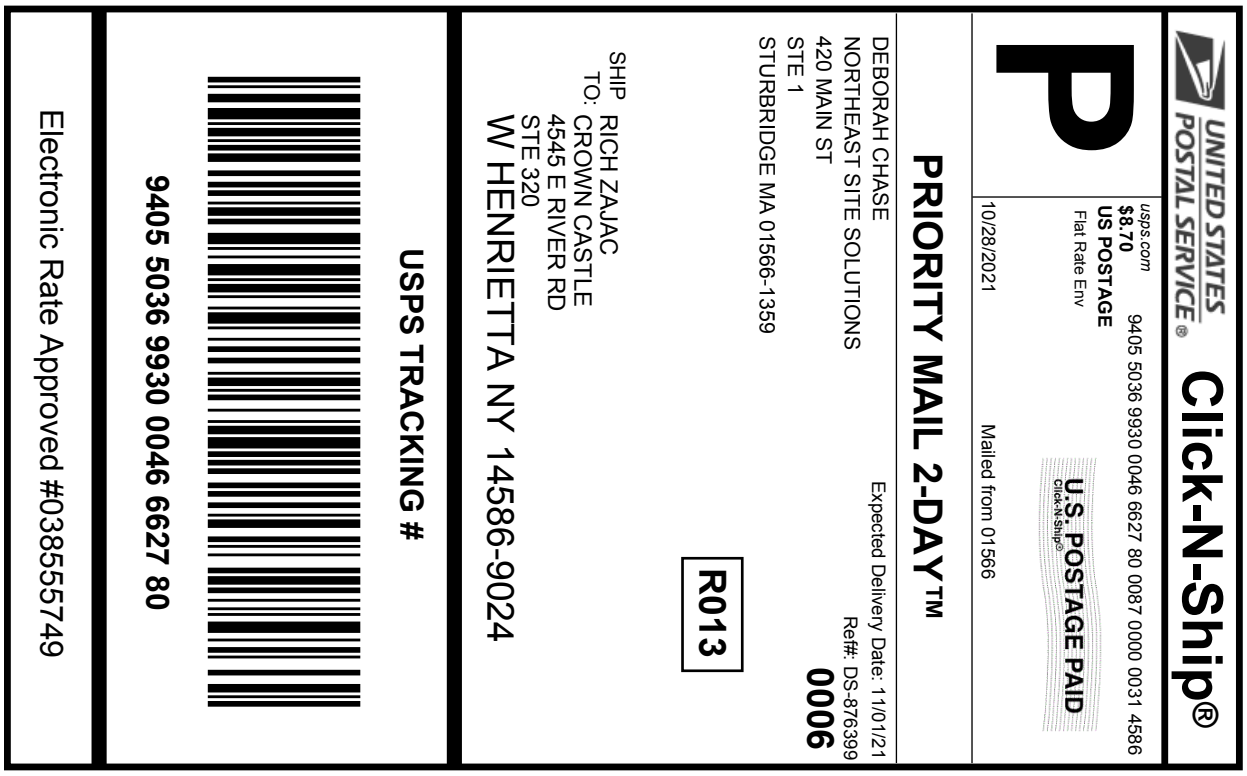
Crown Castle

By: _____ Date: 10/26/2021

Richard Zajac
Site Acquisition Specialist

Exhibit H

Recipient Mailings



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0046 6627 80

Trans. #:	547091810
Print Date:	10/28/2021
Ship Date:	10/28/2021
Expected Delivery Date:	11/01/2021

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

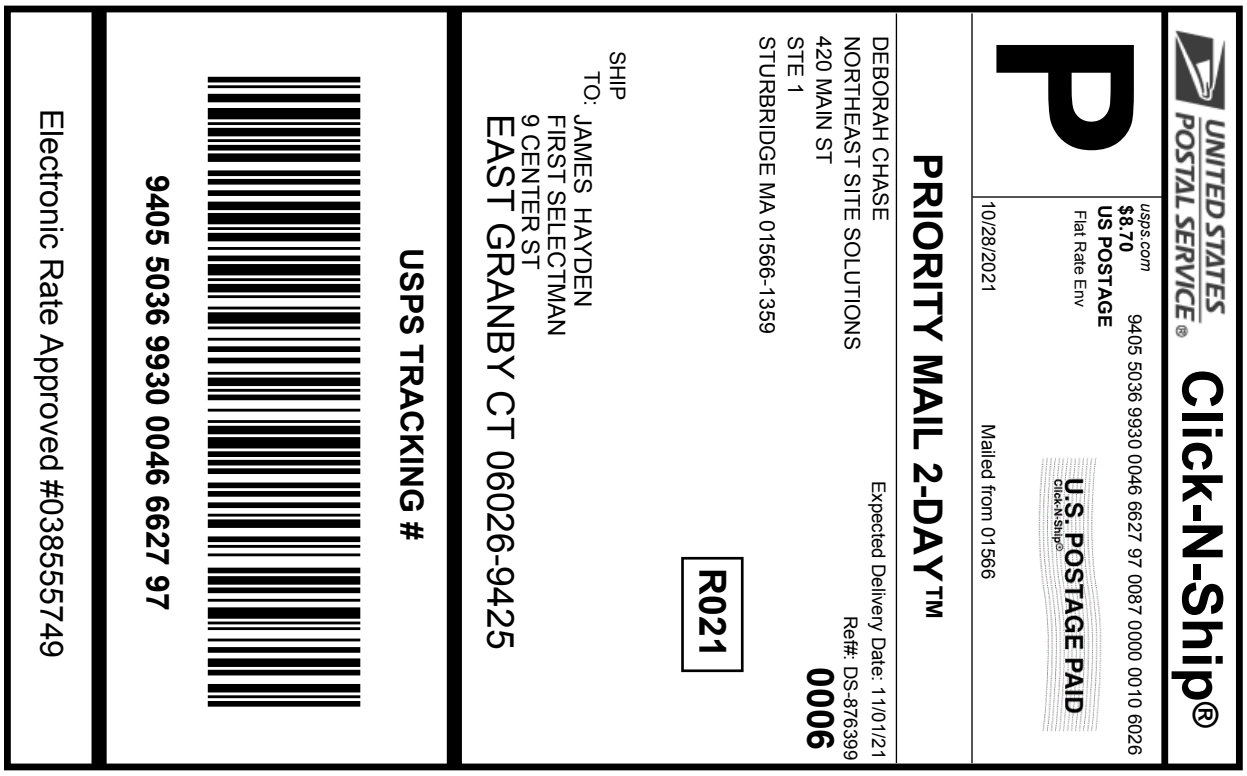
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-876399

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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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0046 6627 97

Trans. #:	547091810
Print Date:	10/28/2021
Ship Date:	10/28/2021
Expected Delivery Date:	11/01/2021

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-876399

To: JAMES HAYDEN
FIRST SELECTMAN
9 CENTER ST
EAST GRANBY CT 06026-9425

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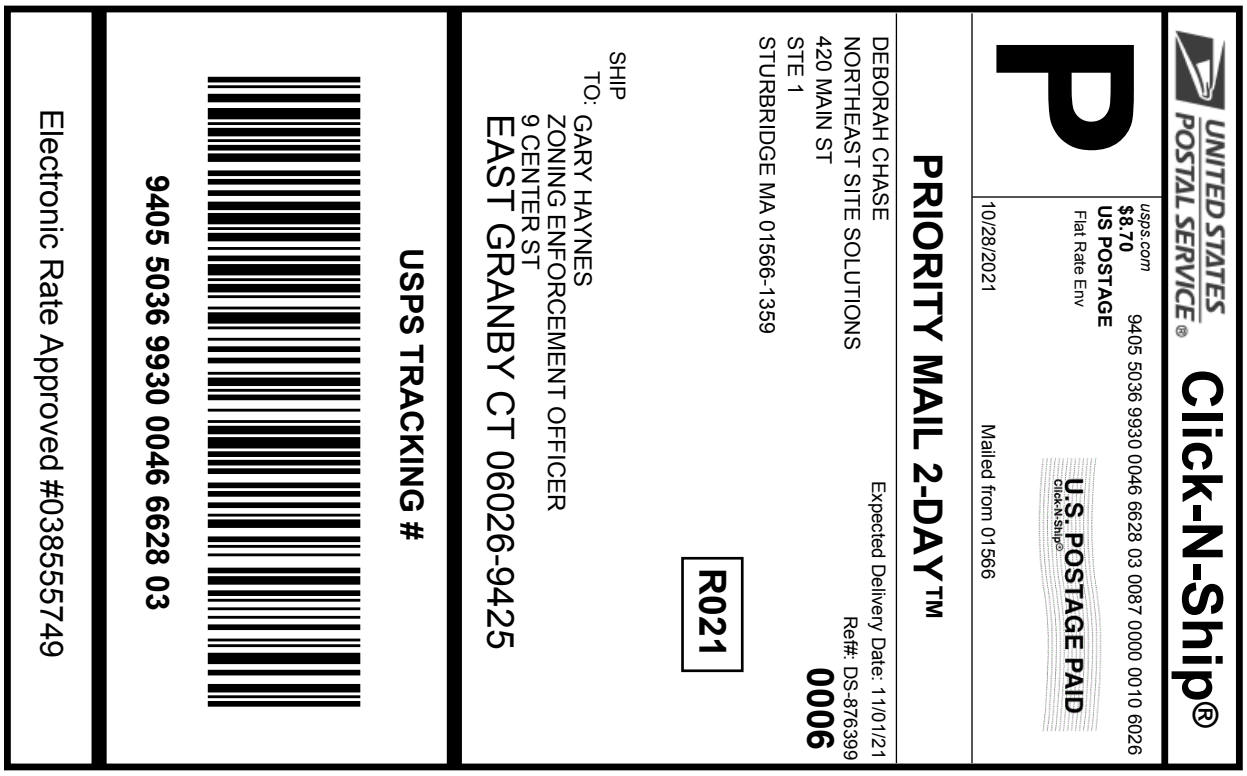

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0046 6628 03

Trans. #:	547091810
Print Date:	10/28/2021
Ship Date:	10/28/2021
Expected Delivery Date:	11/01/2021

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

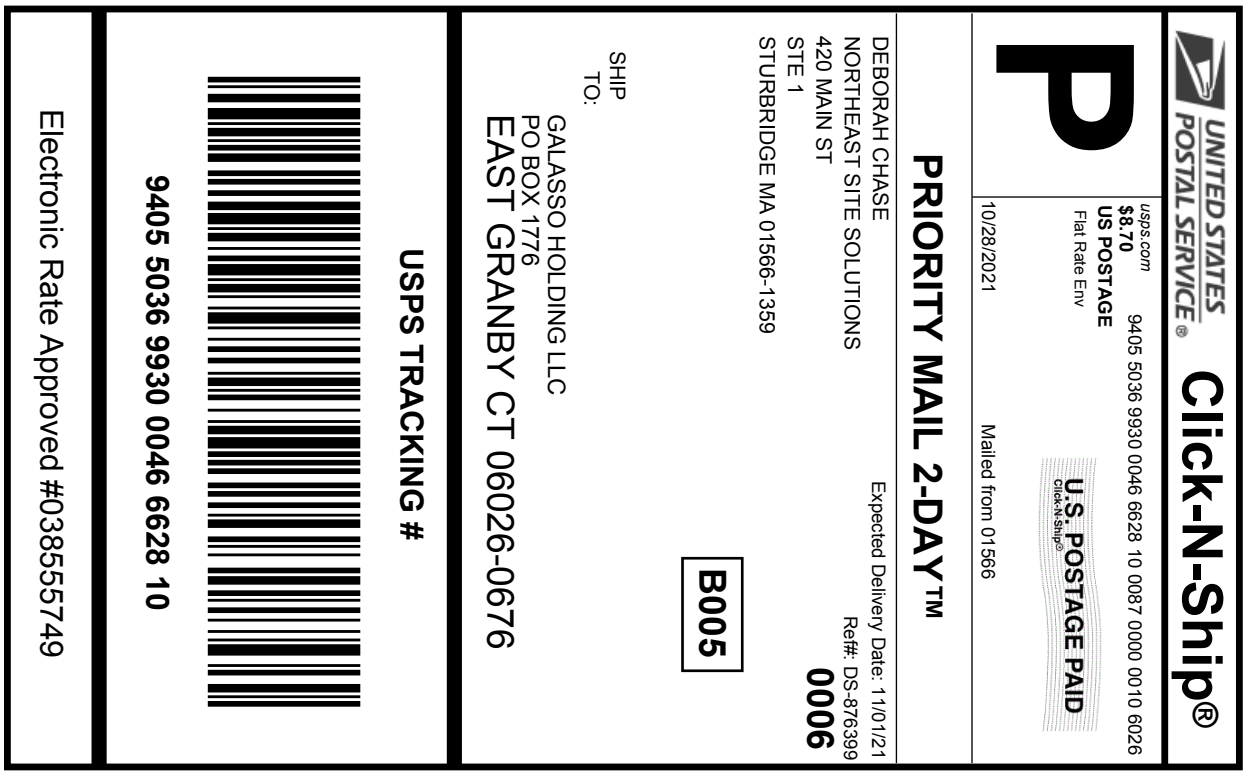
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-876399

To: GARY HAYNES
ZONING ENFORCEMENT OFFICER
9 CENTER ST
EAST GRANBY CT 06026-9425

* 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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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0046 6628 10

Trans. #:	547091810
Print Date:	10/28/2021
Ship Date:	10/28/2021
Expected Delivery Date:	11/01/2021

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-876399

To: GALASSO HOLDING LLC
PO BOX 1776
EAST GRANBY CT 06026-0676

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Check the status of your shipment on the USPS Tracking® page at usps.com

876399

UNITED STATES POSTAL SERVICE.

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

10/29/2021 02:28 PM

Product	Qty	Unit Price	Price
Prepaid Mail West Henrietta, NY 14586 Weight: 0 lb 2.00 oz Acceptance Date: Fri 10/29/2021 Tracking #: 9405 5036 9930 0046 6627 80	1		$0.00
Prepaid Mail East Granby, CT 06026 Weight: 0 lb 13.60 oz Acceptance Date: Fri 10/29/2021 Tracking #: 9405 5036 9930 0046 6627 97	1		$0.00
Prepaid Mail East Granby, CT 06026 Weight: 0 lb 13.60 oz Acceptance Date: Fri 10/29/2021 Tracking #: 9405 5036 9930 0046 6628 10	1		$0.00
Prepaid Mail East Granby, CT 06026 Weight: 0 lb 13.60 oz Acceptance Date: Fri 10/29/2021 Tracking #: 9405 5036 9930 0046 6628 03	1		$0.00
Grand Total:			$0.00

****