



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

May 23, 2022

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

RE: Tower Share Application
126 Ledge Road, Darien, CT 06820
Latitude: 41.072441
Longitude: -73.478150
Site #: 806352_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 126 Ledge Road, Darien, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 76-foot level of the existing 117-foot monopole tower, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed on a proposed 3'x 3' concrete pad within the existing compound. Included are plans by Fullerton, dated December 16, 2021, Exhibit C. Also included is a structural analysis prepared by Crown Castle, dated June 28, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. The facility was approved by the Connecticut Siting Council, Docket No. 155 on December 30, 1992. 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 Monica McNally, First Selectman and Jeremy Ginsberg, Director of Land Use for the Town of Darien as well as the tower owner (Crown Castle) and property owner (Town of Darien).

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the existing tower is 117-feet and the Dish Wireless LLC antennas will be located at a center line height of 76-feet.
2. The proposed modifications will not result in an 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.

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. The combined site operations will result in a total power density of 60.86% as evidenced by Exhibit F.

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

A. Technical Feasibility. The existing 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 tower in Darien. 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 76-foot level of the existing 117-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

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

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



NSS

NORTHEAST
SITE SOLUTIONS

Turnkey Wireless Development

Attachments

Cc: Monica McNally, First Selectman & Property Owner
Darien Town Hall
2 Renshaw Road
Darien, CT 06820

Jeremy Ginsberg, Town Planner
Darien Town Hall
2 Renshaw Road
Darien, CT 06820

Crown Castle, Tower Owner

Exhibit A

Original Facility Approval

DOCKET NO. 155 - An application of Metro Mobile CTS of Fairfield County, Inc., for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a cellular telephone telecommunications tower, antennas, associated equipment, and building on a 17-acre parcel of land used and owned by the Town of Darien as the Town waste transfer station off Ledge Road, with an alternative site on a 1 acre parcel owned by the Noroton Heights Fire Department, Inc., located immediately adjacent to the Noroton Heights Fire Department Building at 209 Noroton Avenue in the Town of Darien, Connecticut.

Connecticut

Siting

Council

December 30, 1992

DECISION AND ORDER

Pursuant to the foregoing Findings of Fact, and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a cellular telecommunications tower and equipment building at the proposed Darien, Connecticut, prime site including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need as provided by section 16-50k of the Connecticut General Statutes (CGS), be issued to Metro Mobile CTS of Fairfield County, Inc. (Metro Mobile), for the construction, operation, and maintenance of a cellular telecommunications tower, associated equipment, and building within property owned by the Town of Darien located on Ledge Road, Darien, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The self-supporting monopole tower shall be no taller than necessary to provide the proposed communications service and the tower shall not exceed a total height of 113 feet above ground level (AGL), with antennas and appurtenances.

2. The Certificate holder shall prepare a Development and Management (D&M) plan for this site in compliance with sections 16-50j-75 through 16-50j-77 of the Regulations of State Agencies. The D&M plan shall include detailed plans of the tower, tower foundation, equipment building, access road including all upgrades, utility connection, security fence, and detailed plans for drainage, erosion, and sedimentation controls consistent with the Connecticut Guidelines for Soil Erosion and Sedimentation Control. In addition, the D&M plan shall include detailed landscaping plans for the facility site, with options to provide landscaping on the Town property boundary north of the site and on the Middlesex Common Condominium property subject to their approval.
3. The Certificate Holder shall comply with any existing and future radio frequency (RF) standard promulgated by State or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facility granted herein shall be brought into compliance with such standards.
4. The Certificate Holder shall provide the Council a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels originally calculated and provided in the application.
5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
6. If the facility does not initially provide, or permanently ceases to provide cellular or other services following completion of construction, this Decision and Order shall be void, and the Certificate holder shall dismantle the tower and remove all associated equipment or reapplication for any continued or new use shall be made to the Council before any such use is made.
7. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the effective date of this Decision and Order or within three years after all appeals to this Decision and Order have been resolved.

Pursuant to CGS section 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the Norwalk Hour, Stamford Advocate, and Darien News-Review.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with section 16-50j-17 of the Regulations of State Agencies.

The parties and intervenors to this proceeding are:

APPLICANT

Metro Mobile CTS of
Fairfield County, Inc.

ITS REPRESENTATIVES

Metro Mobile CTS of
Fairfield County, Inc.
20 Alexander Drive
Wallingford, CT 06492
Attn: David S. Malko, P.E.
Manager, Engineering and
Regulatory Services

Robinson & Cole
One Commercial Plaza
Hartford, CT 06103-3597
Attn: Earl W. Phillips, Jr., Esq.
Charles R. Wolfe, Esq.
Henry H. Sprague, III, Esq.

INTERVENOR

The Springwich Cellular
Limited Partnership

ITS REPRESENTATIVE

Peter J. Tyrrell
Senior Attorney
SNET Cellular, Inc.
227 Church Street
Room 1021
New Haven, CT 06506

PARTY

Middlesex Common Condominium
Association, Inc.

ITS REPRESENTATIVE

Rebecca Oldfield Smith
53 Hale Lane
Darien, Connecticut 06820

INTERVENOR

Bruce Fletcher
236 Noroton Avenue
Darien, Connecticut 06820

FOC
6689E

Exhibit B

Property Card

Profile

Parcel:	29014	Land Use Code:	MUNICIPAL
Alternate ID:	39 20&21		
Address:	126 LEDGE ROAD	NBHD:	1032
Owner:	TOWN OF DARIEN PUBLIC WORKS GARAGE	Land Acres:	20.4
Mailing Address:	C/O DPW 2 RENSHAW ROAD DARIEN CT 06820		

Value Summary:

Appraised Land:	7,330,400	Assessed Land:	5,131,280
Appraised Building:	4,908,900	Assessed Building:	3,436,230
Appraised Total:	12,239,300	Assessed Total:	8,567,510

Primary Residential Card:

Card:	Half Baths:	Fireplace Prefab:
Stories:	HT/AC:	Fireplace OP/ST: /
Use:	Fuel:	Basement Gar.:
Type:	System:	Grade:
Year Built:	Attic:	Cond (CDU):
Year Remodeled:	Basement:	% Complete:
Total Rooms:	RecRm-Not in Liv SF:	Family Room:
Bedrooms:	Finsh Bsmt-In Liv SF:	Ext. Material:
Full Baths:	Square Feet:	

Commercial Card:

Year Built:	1980	Stories:	332 - AUTO SERVICE
Eff. Yr. Built:	2010	Gross Flr. Area:	39102
Units:	1	Grade:	A-

Land:

Classification	Type:	Acres	SF
PRIMARY	A-ACREAGE	10	435600
UNDEVELOPED	A-ACREAGE	10.4	453024

Other Items:

Code	Description	Year Built	Square Ft.
RG6	GARAGE-1S FIN	2013	1100
TT4	TOWER	2007	117
PA1	ASPHALT OR	1985	35000
TT4	TOWER	2016	110

RS3	BRICK/STN	2000	90
SH3	FINISHED	2007	720
FN1	FENCE CHAIN	1980	4200

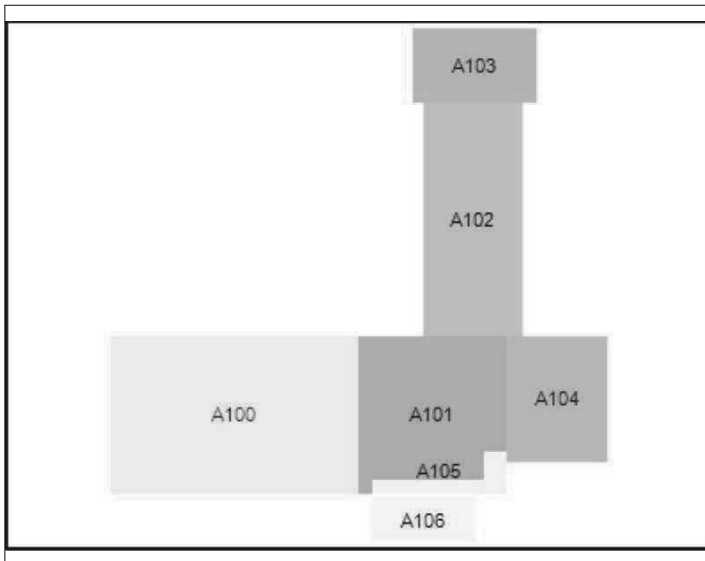
Sales History:

Date	Book-Page	Grantee	Amount
1800-JAN-01	0000--0000	TOWN OF DARIEN	

PHOTO



SKETCH



Sketch Legend

- 6 A100 - VB1:1S/B 7770 Sq. Ft.
- 7 A101 - VB1:1S/B 4130 Sq. Ft.
- 8 A102 - VB1:1S/B 4576 Sq. Ft.
- 9 A103 - VB1:1S/B 1815 Sq. Ft.
- 10 A104 - VS1:1S 2520 Sq. Ft.
- 11 CANPY RF/SLB - CP6:CANOPY ROOF/SLAB 490 Sq. Ft.
- 12 CANPY RF-AVG - CP8:CANOPY RF-AVERAGE 920 Sq. Ft.
- 1 AUTO PARTS/S - 047:AUTO PARTS/SERVICE 7770 Sq. Ft.
- 2 AUTO PARTS/S - 047:AUTO PARTS/SERVICE 7770 Sq. Ft.
- 3 AUTO PARTS/S - 047:AUTO PARTS/SERVICE 8706 Sq. Ft.
- 4 MULTI-USE OF - 082:MULTI-USE OFFICE 4130 Sq. Ft.
- 5 AUTO PARTS/S - 047:AUTO PARTS/SERVICE 4576 Sq. Ft.
- 6 AUTO PARTS/S - 047:AUTO PARTS/SERVICE 2520 Sq. Ft.
- 8 AUTO PARTS/S - 047:AUTO PARTS/SERVICE 1815 Sq. Ft.
- 9 AUTO PARTS/S - 047:AUTO PARTS/SERVICE 1815 Sq. Ft.
- 2 FENCE CHAI - FN1:FENCE CHAIN 4200 Sq. Ft.
- 3 BR/ST SHED - RS3:BRICK/STN UTILITY SHED 90 Sq. Ft.
- 4 GAR-1S FIN - RG6:GARAGE-1S FIN 1100 Sq. Ft.
- 5 TOWER CELL - TT4:TOWER CELLULAR 117 Sq. Ft.
- 6 METAL SHED - SH3:FINISHED METAL SHED 720 Sq. Ft.
- 2 OVRHD DR - OD1:OVERHEAD DR-WOOD/MTL 144 Sq. Ft.
- 1 ASPH PAVE - PA1:ASPHALT OR BLACKTOP PAVING 35000 Sq. Ft.
- 1 OVRHD DR - OD1:OVERHEAD DR-WOOD/MTL 196 Sq. Ft.
- 7 TOWER CELL - TT4:TOWER CELLULAR 110 Sq. Ft.

3 OVRHD DR - OD1:OVERHEAD DR-WOOD/MTL 120
Sq. Ft.
4 OVRHD DR - OD1:OVERHEAD DR-WOOD/MTL 160
Sq. Ft.

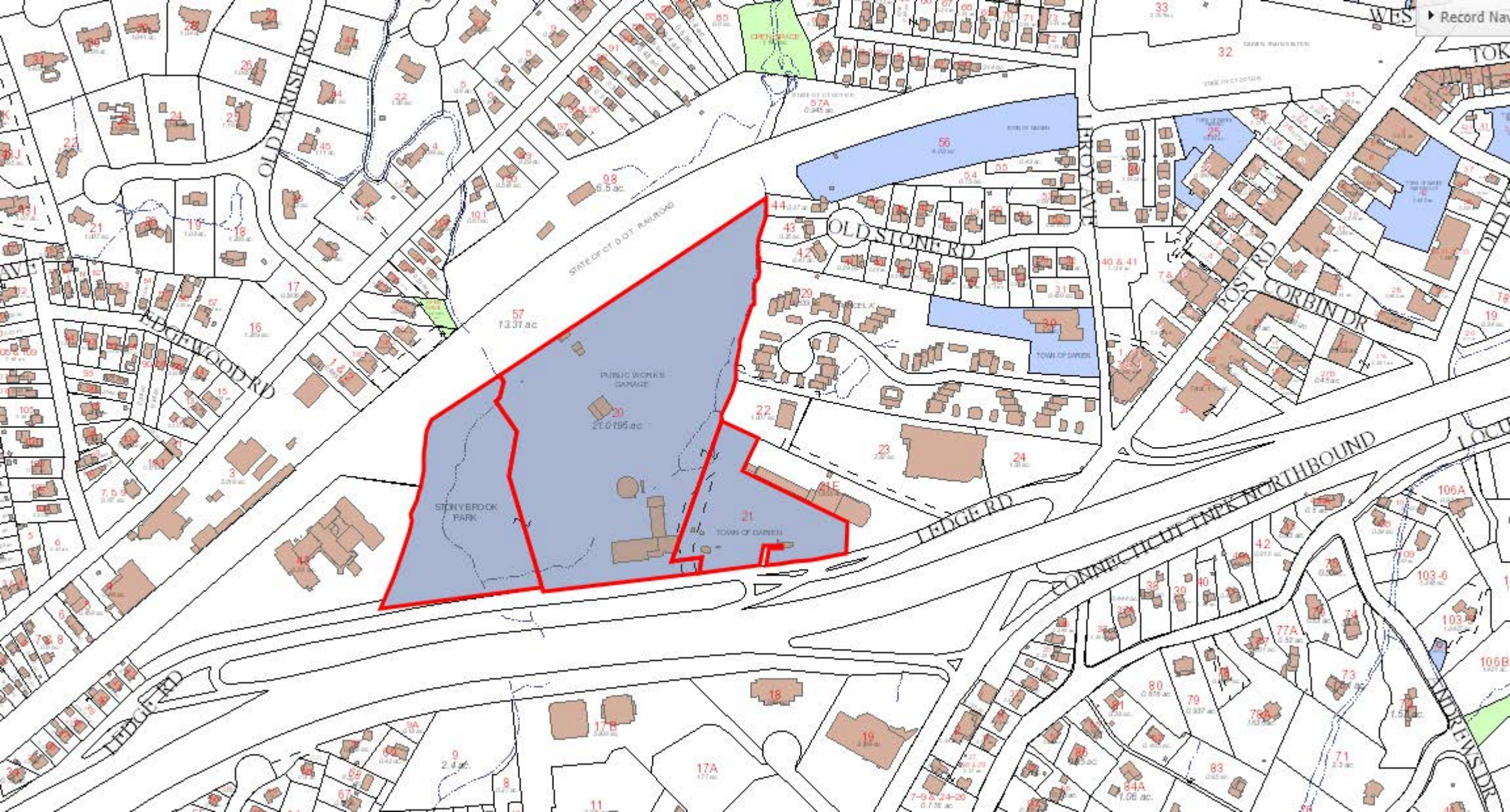


Exhibit C

Construction Drawings



DISH WIRELESS L.L.C. SITE ID:

NJJER01085A

DISH WIRELESS L.L.C. SITE ADDRESS:

**126 LEDGE ROAD
DARIEN, CT 06820**

SCOPE OF WORK
<p>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:</p> <p>TOWER SCOPE OF WORK:</p> <ul style="list-style-type: none"> • 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 (LENGTH: 159'-0") <p>GROUND SCOPE OF WORK:</p> <ul style="list-style-type: none"> • INSTALL (1) PROPOSED ICE BRIDGE • INSTALL (1) PROPOSED CABLE TRAY • INSTALL (1) PROPOSED CONCRETE PAD • 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) • INSTALL (1) METER IN EXISTING MULTI-METER SERVICE • INSTALL (1) UTILITY FRAME

SITE INFORMATION	PROJECT DIRECTORY
<p>PROPERTY OWNER: TOWN OF DARIEN ADDRESS: C/O FIRST SELECTMAN'S OFFICE 2 RENSHAW RD DARIEN, CT 06820</p> <p>TOWER TYPE: MONOPOLE</p> <p>TOWER CO SITE ID: 806352</p> <p>TOWER APP NUMBER: 548684</p> <p>COUNTY: FAIRFIELD</p> <p>LATITUDE (NAD 83): 41° 4' 20.75" N 41.072431° N</p> <p>LONGITUDE (NAD 83): -73° 28' 41.40" W -73.478167° W</p> <p>ZONING JURISDICTION: CT. SITING COUNCIL</p> <p>ZONING DISTRICT: SB</p> <p>PARCEL NUMBER: DARI-000039-0000 00-000020-000021 U</p> <p>OCCUPANCY GROUP: U</p> <p>CONSTRUCTION TYPE: II-B</p> <p>POWER COMPANY: NORTHEAST UTILITIES</p> <p>TELEPHONE COMPANY: TBD</p>	<p>APPLICANT: DISH WIRELESS L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120</p> <p>TOWER OWNER: CROWN CASTLE USA, INC. 2000 CORPORATE DRIVE CANONSBURG, PA 15317 (877) 486-9377</p> <p>SITE DESIGNER: FULLERTON ENGINEERING 1100 E WOODFIELD, STE 500 SCHAUMBURG, IL 60173 (847) 908-8400</p> <p>SITE ACQUISITION: COURTNEY PRESTON COURTNEY.PRESTON@CROWNCastle.COM</p> <p>CONSTRUCTION MANAGER: MICHAEL NARUCCI MICHAEL.NARUCCI@DISH.COM</p> <p>RF ENGINEER: MURUGABIRAN JAYAPAL MURUGABIRAN.JAYAPAL@DISH.COM</p>



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001899
www.FullertonEngineering.com



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

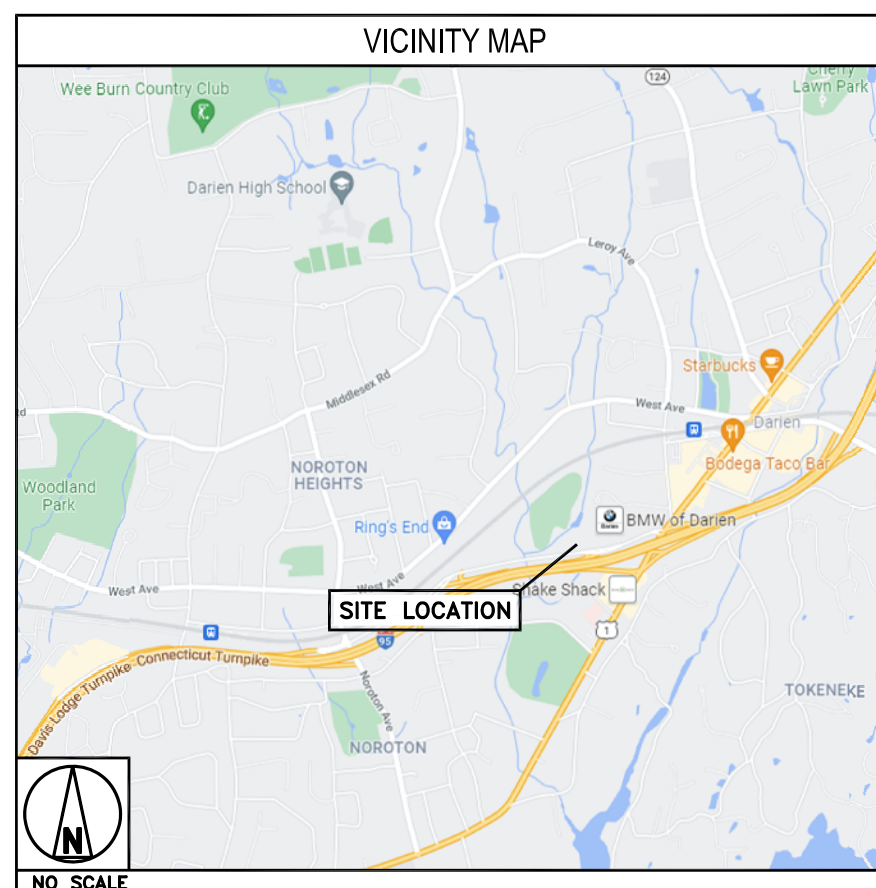
THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE, NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE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

DIRECTIONS

DIRECTIONS FROM 3 ADP BLVD, ROSELAND NJ 07068:
 HEAD NORTHEAST TOWARD ADP BLVD. TURN LEFT TOWARD ADP BLVD. TURN RIGHT ONTO CHOCTAW WAY. USE THE LEFT LANE TO TURN RIGHT ONTO LIVINGSTON AVE. USE THE RIGHT LANE TO TAKE THE RAMP ONTO I-280 E. CONTINUE ON I-280 E. TAKE GARDEN STATE PKWY, I-287 E AND I-95 N TO US-1/BOSTON POST RD/POST RD IN DARIEN. TAKE EXIT 11 FROM I-95 N. TURN LEFT ONTO US-1/BOSTON RD/POST RD. TURN LEFT ONTO LEDGE RD. DESTINATION WILL BE ON THE RIGHT.



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

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

DRAWN BY: SM	CHECKED BY: CJ	APPROVED BY: CJ
RFDS REV #:		1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	11/16/2021	ISSUED FOR REVIEW
1	12/16/2021	FINALS

A&E PROJECT NUMBER
2021.0025.0321

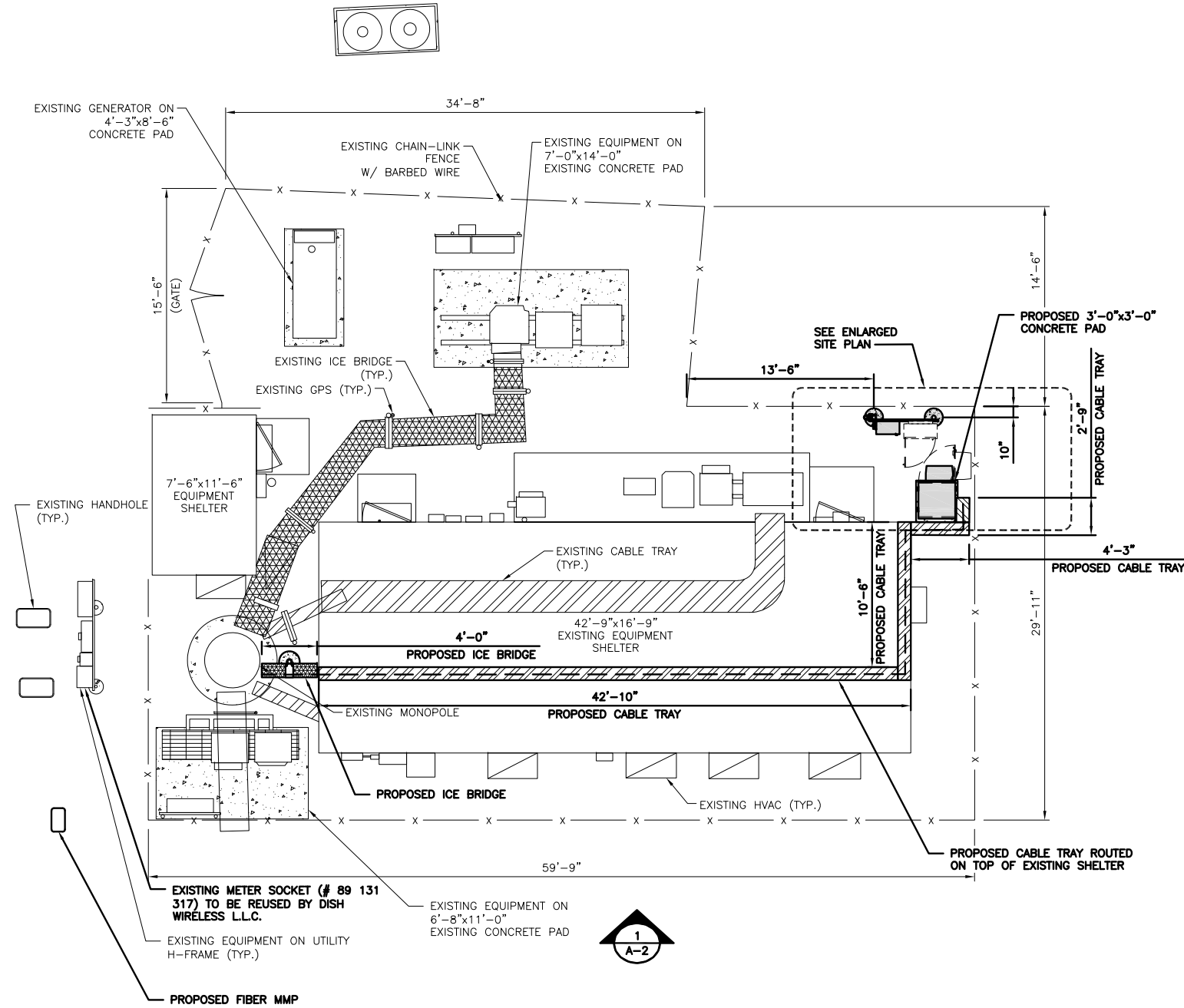
DISH WIRELESS L.L.C.
PROJECT INFORMATION
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126 LEDGE ROAD
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SHEET TITLE
TITLE SHEET

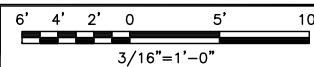
SHEET NUMBER
T-1

NOTES

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



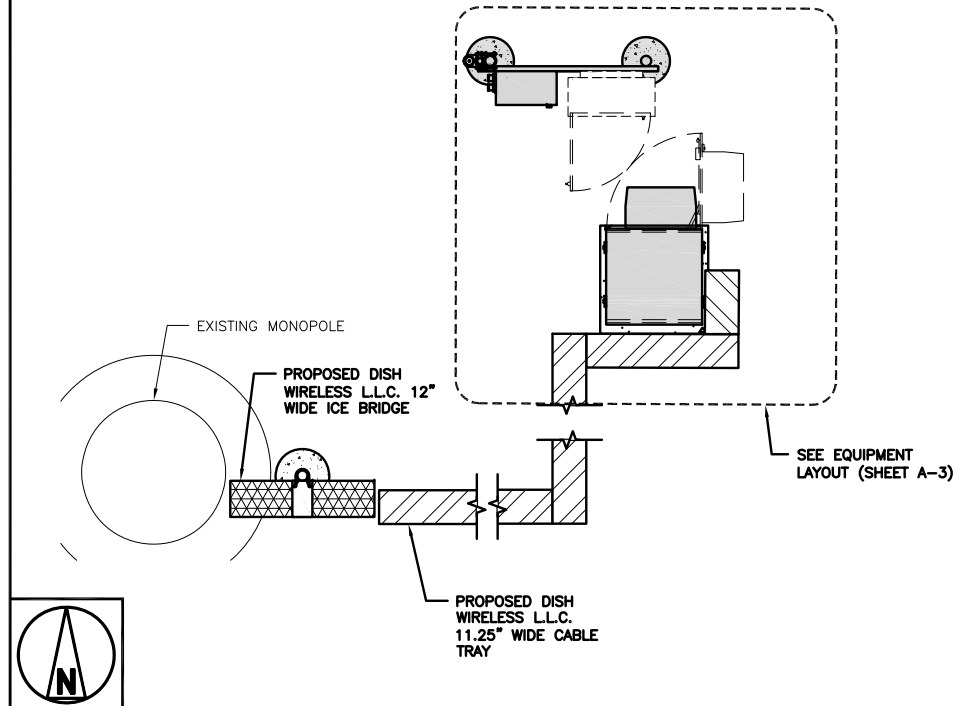
SITE PLAN



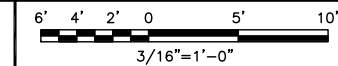
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NOTES

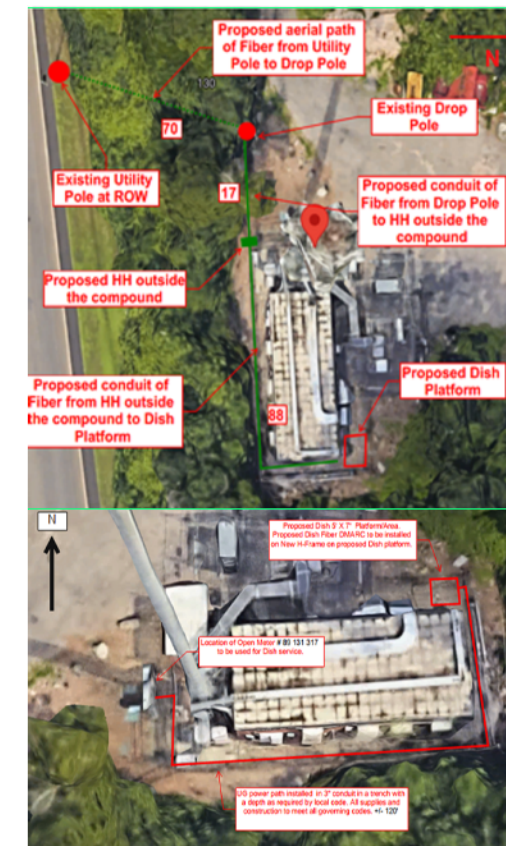
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



ENLARGED SITE PLAN



2



OVERALL SITE PLAN

NO SCALE

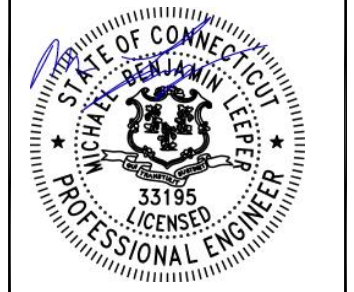
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5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
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DRAWN BY: CHECKED BY: APPROVED BY:
SM CJ CJ

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	11/16/2021	ISSUED FOR REVIEW
1	12/16/2021	FINALS

A&E PROJECT NUMBER
2021.0025.0321

DISH WIRELESS L.L.C.
PROJECT INFORMATION

NJJER01085A
126 LEDGE ROAD
DARIEN, CT 06820

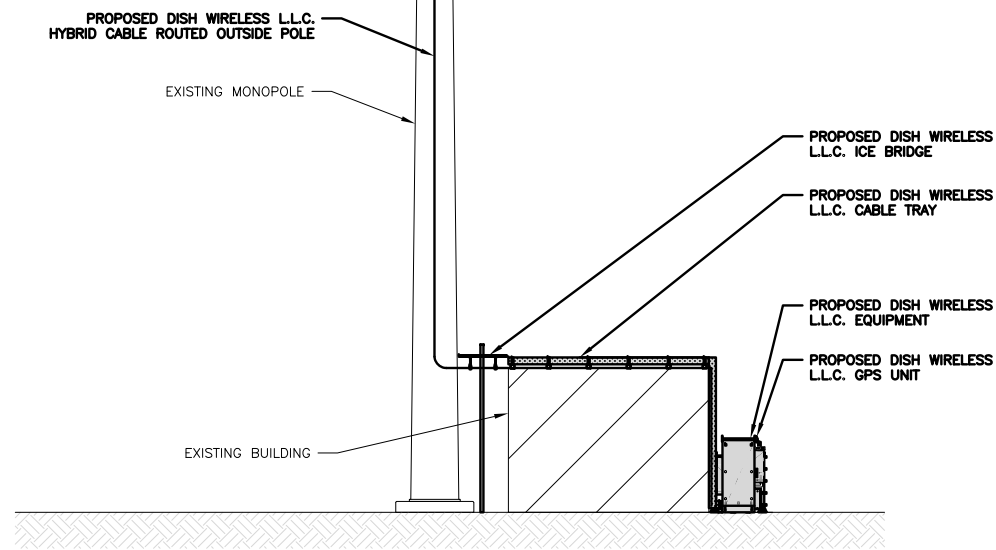
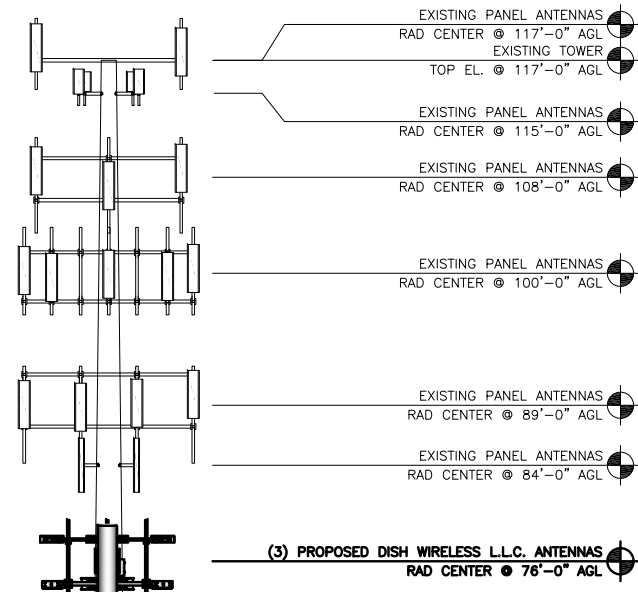
SHEET TITLE
OVERALL AND ENLARGED
SITE PLAN

SHEET NUMBER

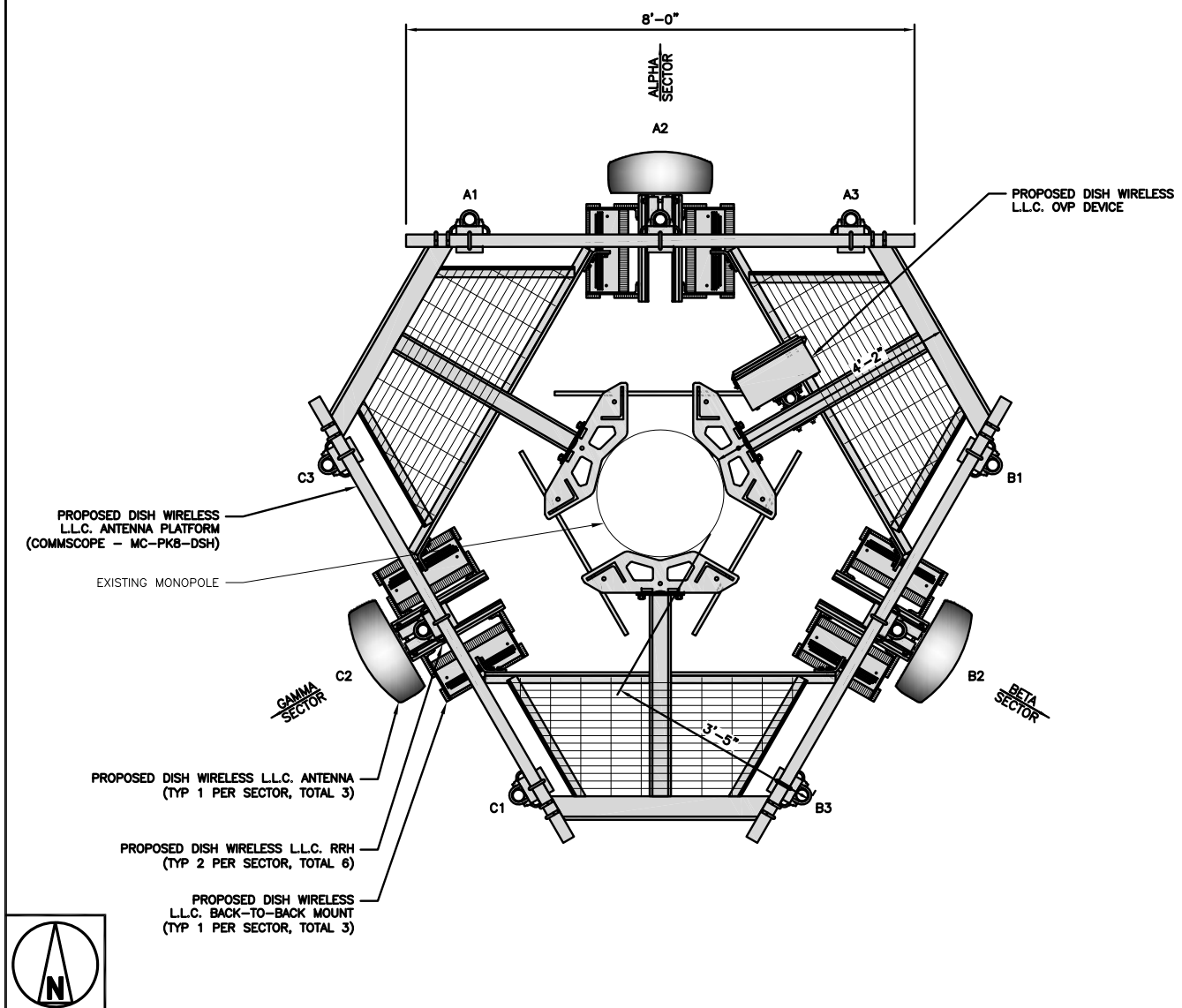
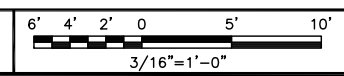
A-1

NOTES

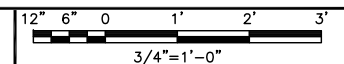
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED SOUTH ELEVATION



ANTENNA LAYOUT



SECTOR POS.	ANTENNA					TRANSMISSION CABLE	RRH			OVP
	EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECH	AZIMUTH	RAD CENTER		FEED LINE TYPE AND LENGTH	MANUFACTURER - MODEL NUMBER	TECH	
A1	--	--	--	--	--	(1) HIGH-CAPACITY HYBRID CABLE (159' LONG)	FUJITSU - TA08025-B604	5G	A2	RAYCAP RDIC-9181-PF-48
A2	PROPOSED	JMA MX08FR0665-21	5G	TBD	76'-0"		FUJITSU - TA08025-B605	5G	A2	
A3	--	--	--	--	--		--	--	--	
B1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU - TA08025-B604	5G	B2	SHARED W/ALPHA
B2	PROPOSED	JMA MX08FR0665-21	5G	TBD	76'-0"		FUJITSU - TA08025-B605	5G	B2	
B3	--	--	--	--	--		--	--	--	
C1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU - TA08025-B604	5G	C2	SHARED W/ALPHA
C2	PROPOSED	JMA MX08FR0665-21	5G	TBD	76'-0"		FUJITSU - TA08025-B605	5G	C2	
C3	--	--	--	--	--		--	--	--	

- NOTES**
1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
 2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.
 3. VERIFY AZIMUTHS WITH LATEST DISH RFDS PRIOR TO INSTALLATION.

ANTENNA SCHEDULE

NO SCALE 3



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SM CJ CJ

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CONSTRUCTION DOCUMENTS

SUBMITTALS		
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0	11/16/2021	ISSUED FOR REVIEW
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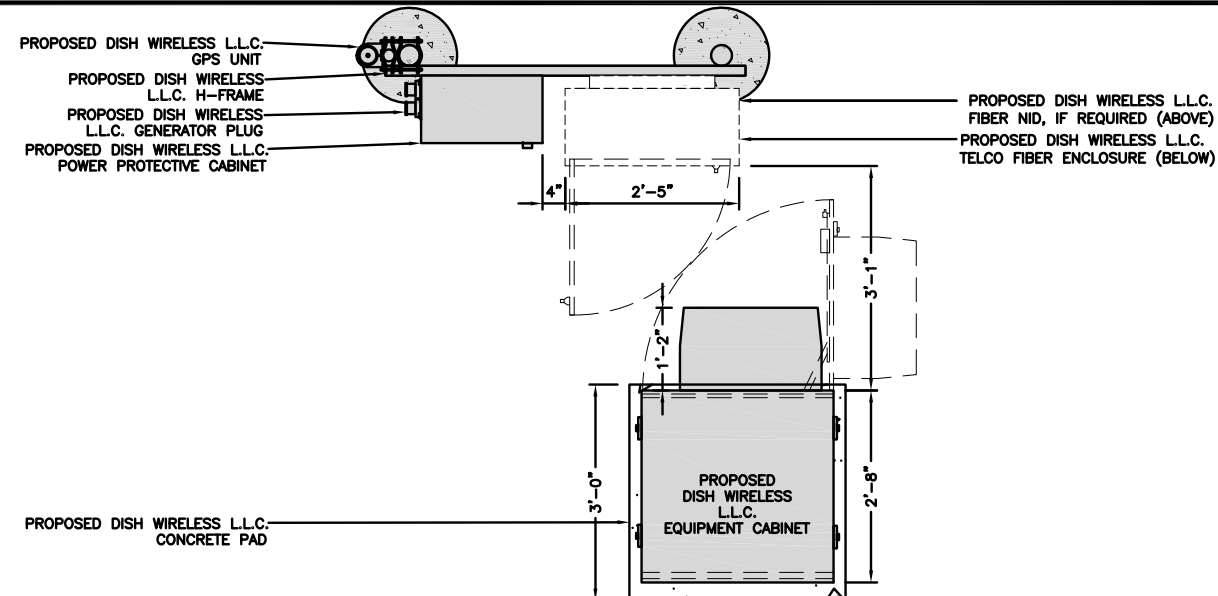
A&E PROJECT NUMBER
2021.0025.0321

DISH WIRELESS L.L.C. PROJECT INFORMATION
NJJER01085A
126 LEDGE ROAD
DARIEN, CT 06820

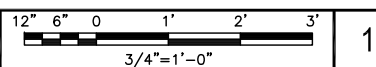
SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



EQUIPMENT PLAN



1

NOT USED

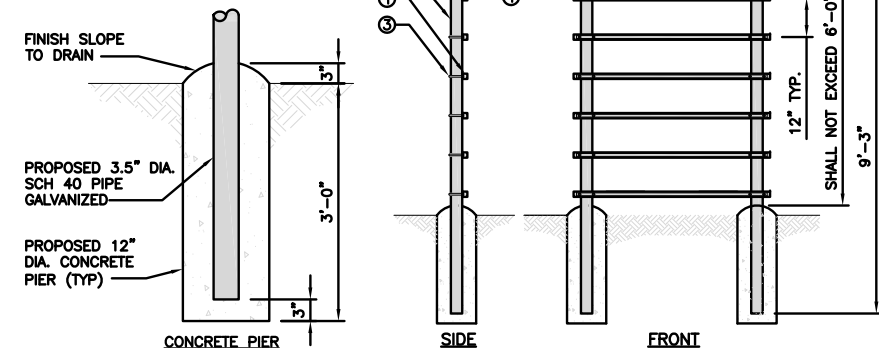
NO SCALE

2

H-FRAME	
UNISTRUT/SUPPORT RAIL	6
WEIGHT	273

ITEM#	DESCRIPTION
1	UNISTRUT, 1-5/8"x1-5/8"x5', SLOTTED
2	PIPE CAP FOR 3.5" OD PIPE, HDG
3	U-BOLT KIT, 3.5" OD (1 U-BOLT)
4	END CAP, RED, 1-5/8" UNISTRUT
5	3.5" OD PIPE, 126" LONG

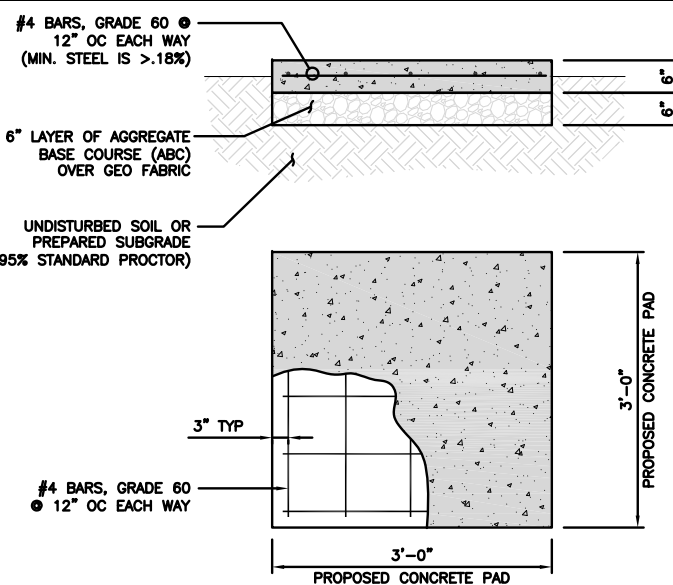
NOTE: PIPE (⊙) SHALL NOT EXCEED 6'-0"



H-FRAME CONCRETE PIER INSTALLATION DETAIL

NO SCALE

3



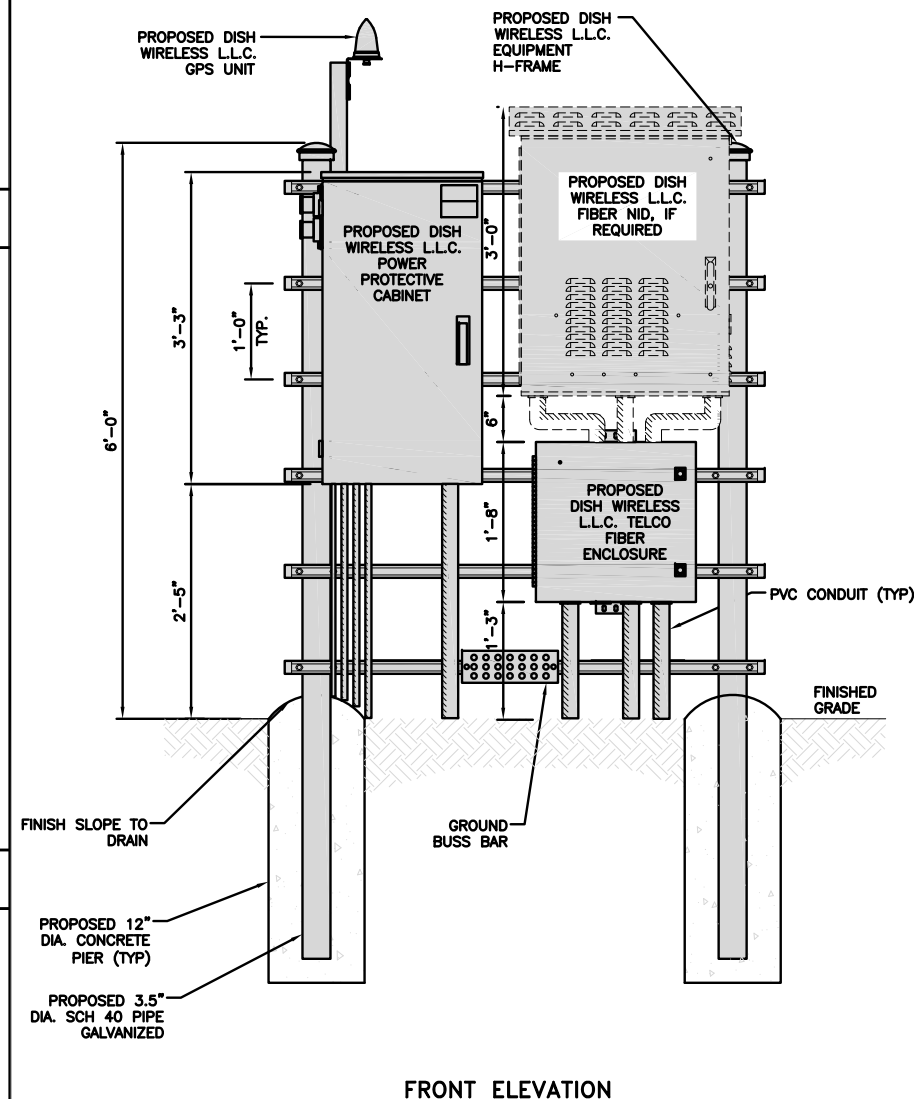
TYPICAL CONCRETE PAD DETAIL

NO SCALE

4

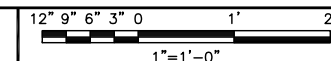
NOTES

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



FRONT ELEVATION

H-FRAME EQUIPMENT ELEVATION



5



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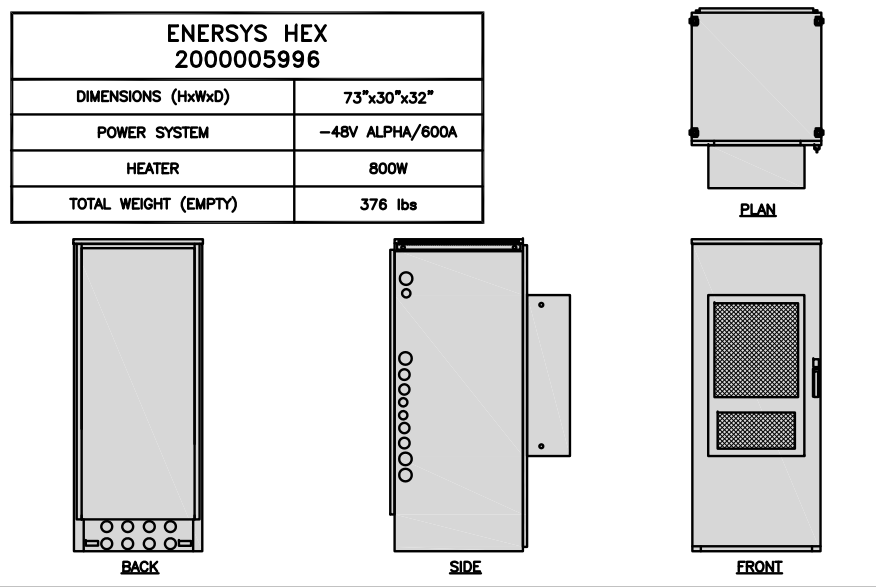
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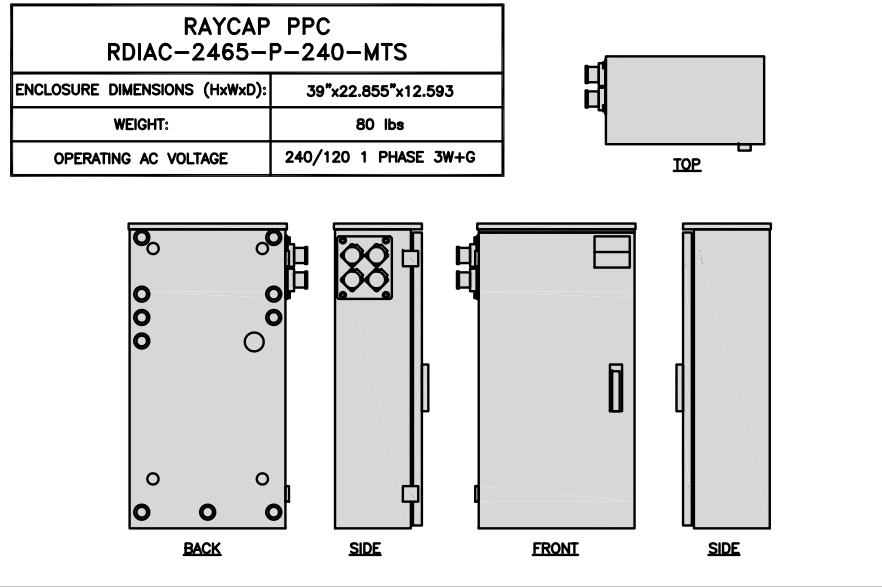
SHEET TITLE
EQUIPMENT PLATFORM AND
H-FRAME DETAILS

SHEET NUMBER

A-3



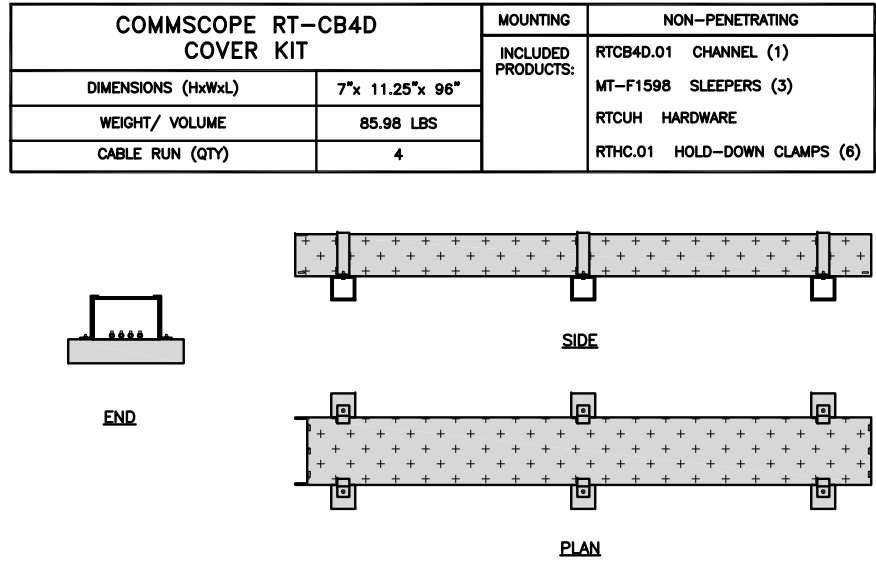
CABINET DETAIL NO SCALE 1



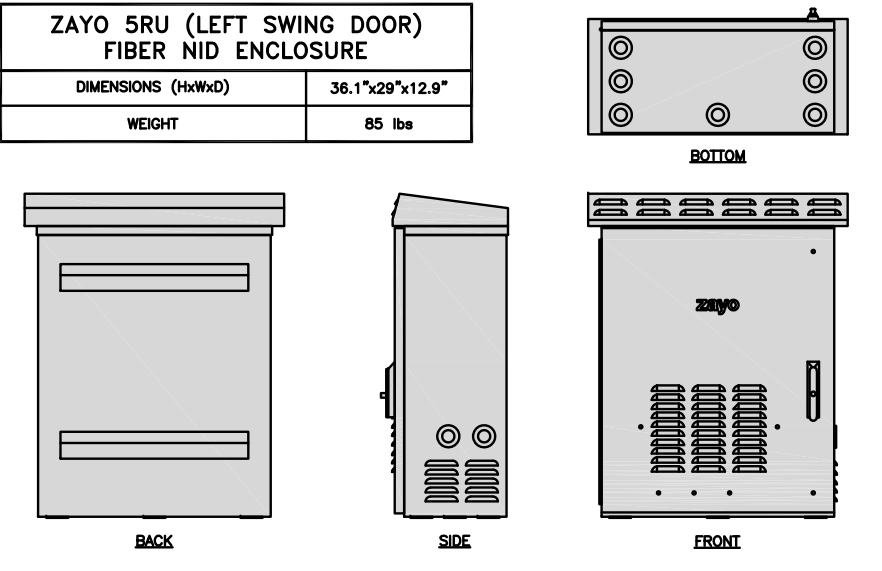
POWER PROTECTION CABINET (PPC) DETAIL NO SCALE 2



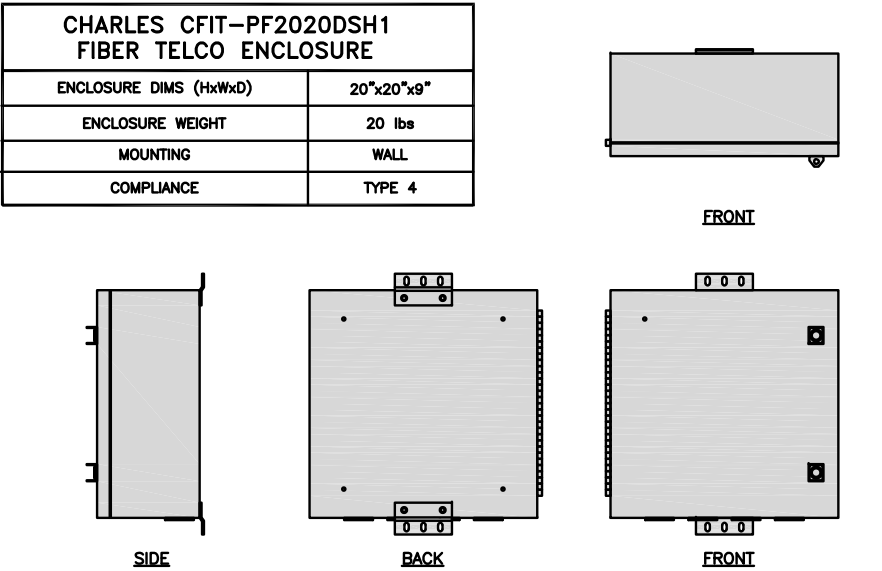
NOT USED NO SCALE 3



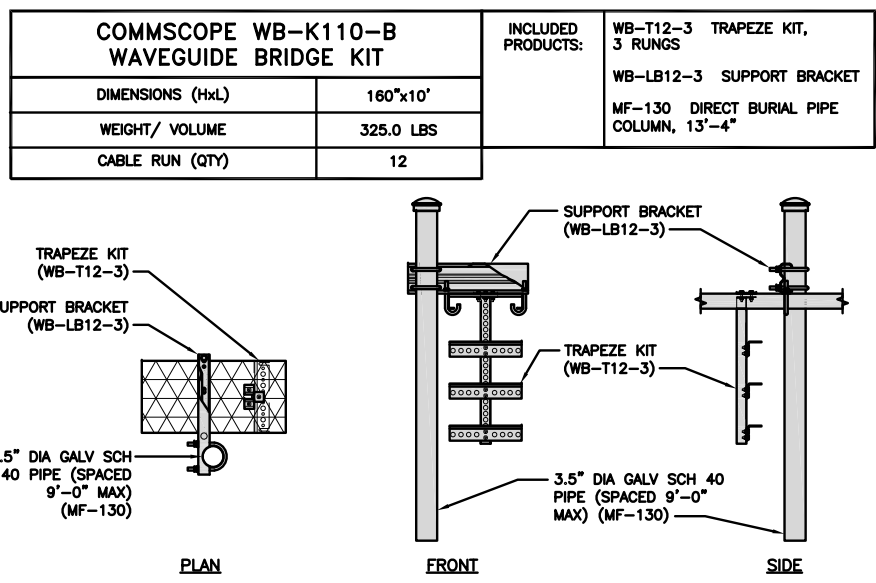
CABLE TRAY DETAIL NO SCALE 4



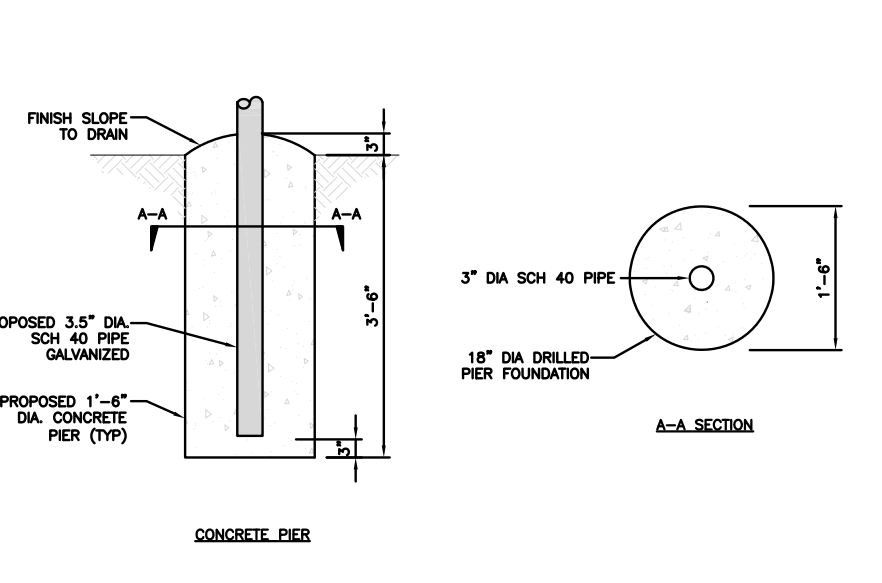
FIBER NID ENCLOSURE DETAIL NO SCALE 5



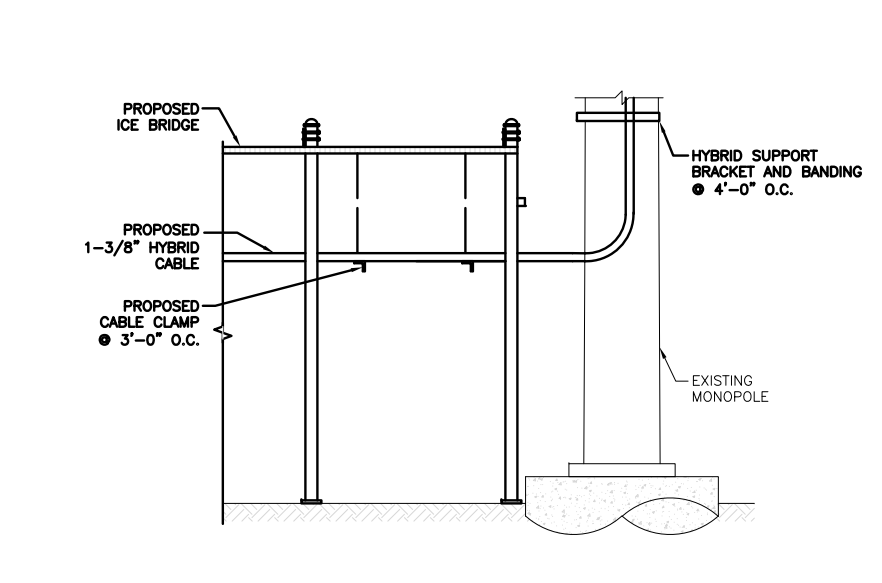
FIBER TELCO ENCLOSURE DETAIL NO SCALE 6



ICE BRIDGE DETAIL NO SCALE 7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL NO SCALE 8



HYBRID CABLE RUN NO SCALE 9



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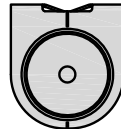
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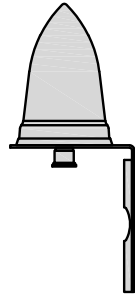
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

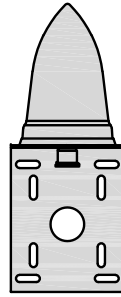
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



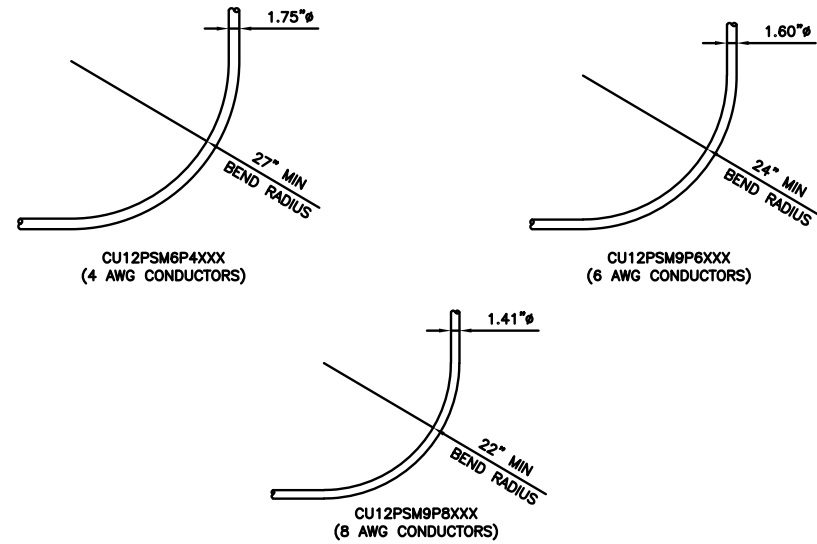
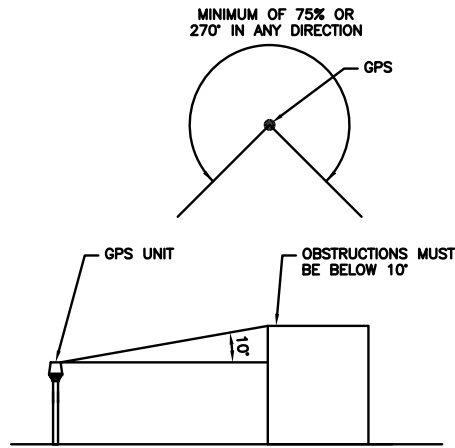
TOP



SIDE



FRONT



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

dish
wireless.

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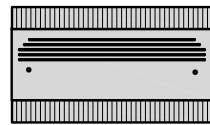
NJJER01085A
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SHEET TITLE
EQUIPMENT DETAILS

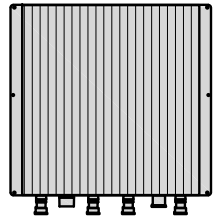
SHEET NUMBER

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



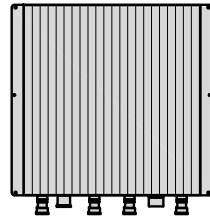
PLAN



BACK

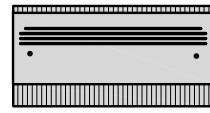


SIDE

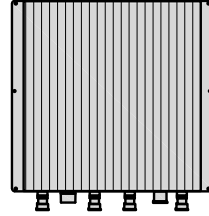


FRONT

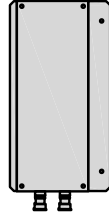
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



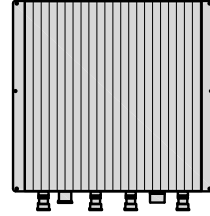
PLAN



BACK



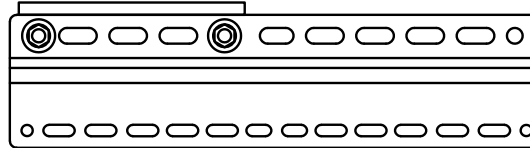
SIDE



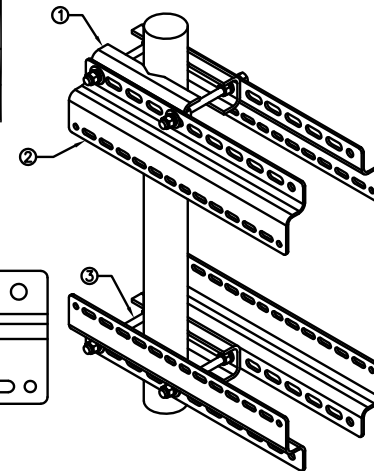
FRONT

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

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



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



RRH DETAIL

NO SCALE

1

RRH DETAIL

NO SCALE

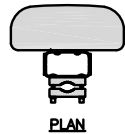
2

RRH MOUNT DETAIL

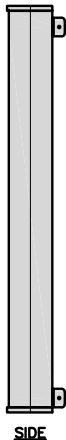
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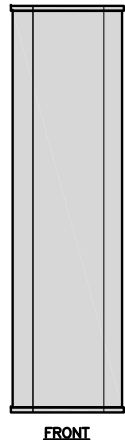
JMA MX08FRO665-21	
DIMENSIONS (HxWxD)	72"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.5 lbs



PLAN



SIDE



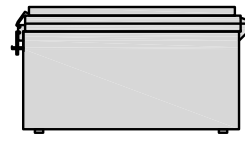
FRONT

ANTENNA DETAIL

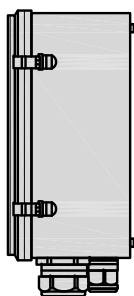
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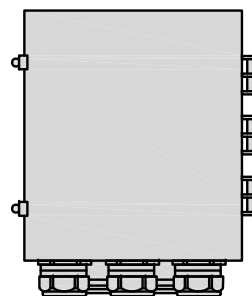
RAYCAP RDIC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



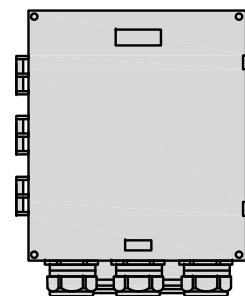
PLAN



SIDE



BACK



FRONT

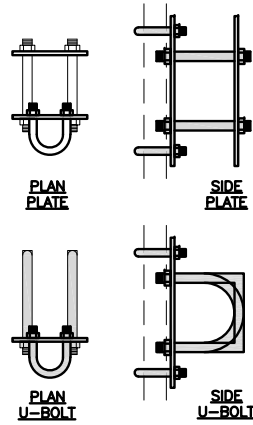
SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

7

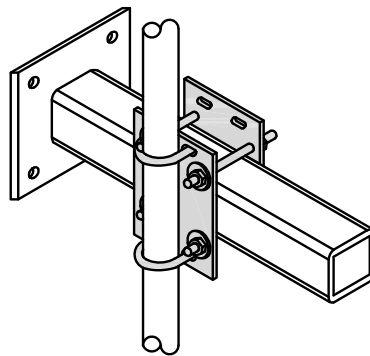
COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11 lbs

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



PLAN U-BOLT

SIDE U-BOLT



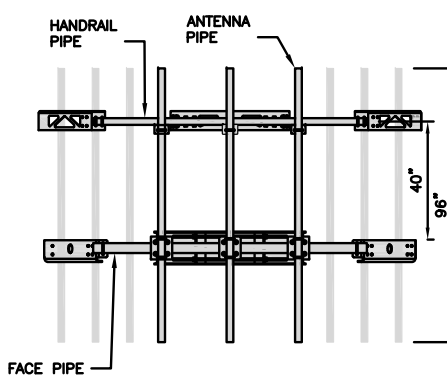
RRH/OVP MOUNT DETAIL

NO SCALE

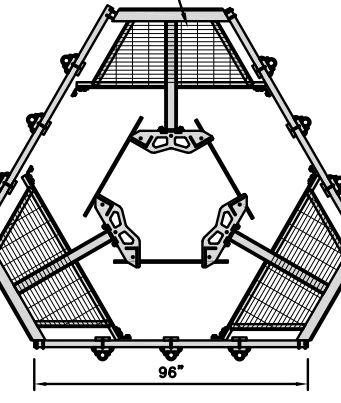
8

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

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



PLATFORM



ANTENNA PLATFORM DETAIL

NO SCALE

9



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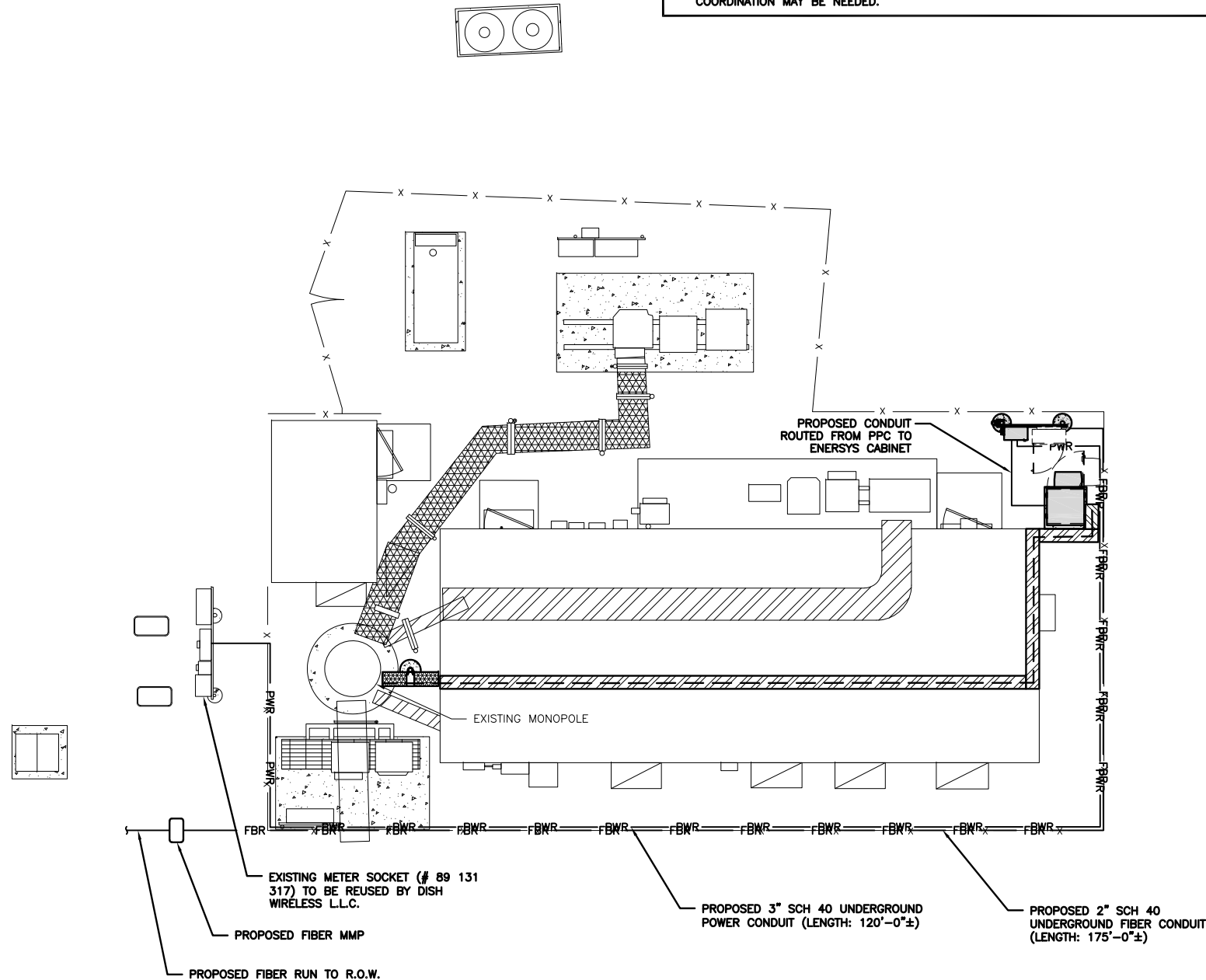
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER

A-6

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. DUE TO UTILITY EASEMENT RIGHTS SPECIFIED IN THE GROUND LEASE, CUSTOMER MAY INSTALL EQUIPMENT WITHIN SPECIFIED UTILITY EASEMENT AREA. "PWR" AND "FBR" PATHS DEPICTED ON A-1 AND E-1 ARE BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO A SURVEY, EXHIBITS, MEETS 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 CCRE AS FURTHER COORDINATION MAY BE NEEDED.



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.



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1	12/16/2021	FINALS

A&E PROJECT NUMBER
2021.0025.0321

DISH WIRELESS L.L.C.
PROJECT INFORMATION

NJJER01085A
126 LEDGE ROAD
DARIEN, CT 06820

SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

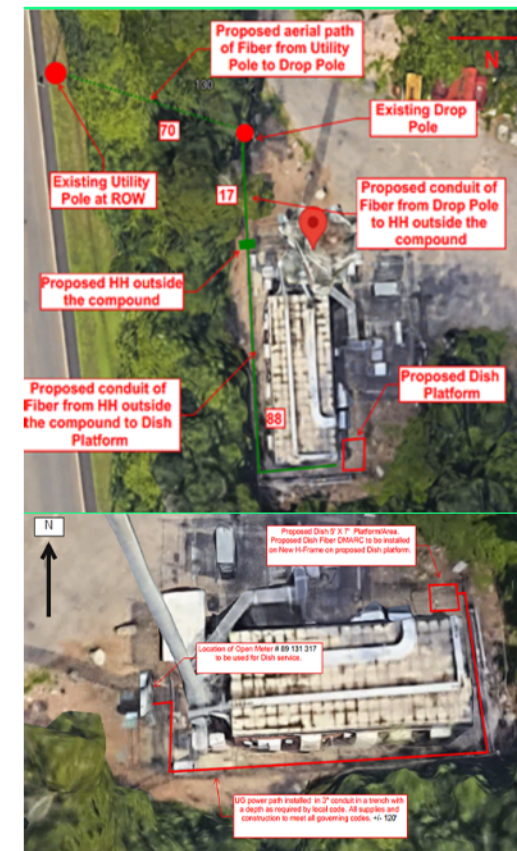
SHEET NUMBER

E-1

ELECTRICAL NOTES

NO SCALE

2

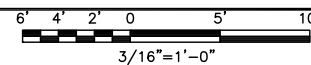


UTILITY ROUTE PLAN (OVERALL)

NO SCALE

3

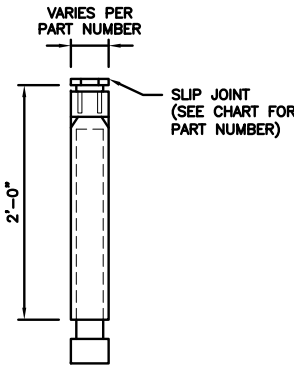
UTILITY ROUTE PLAN



1

CARLON EXPANSION FITTINGS

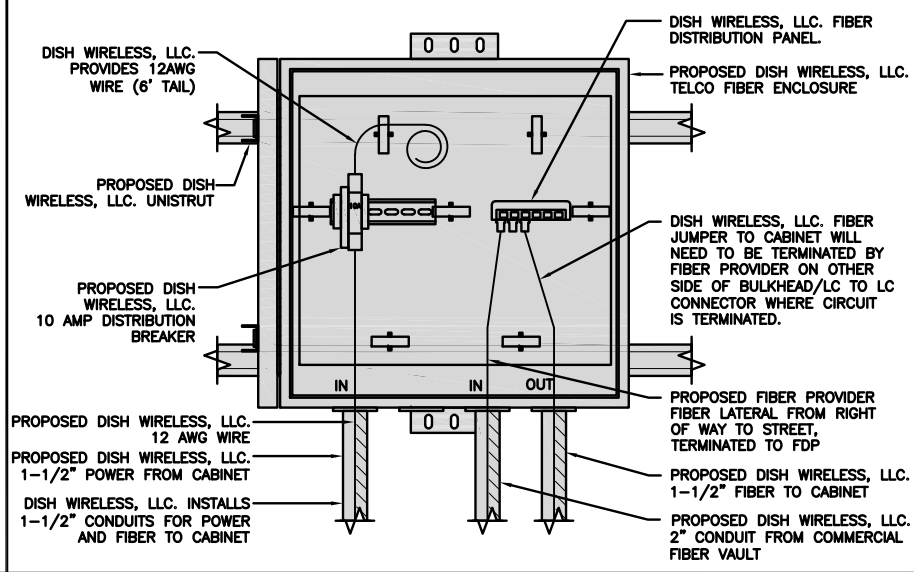
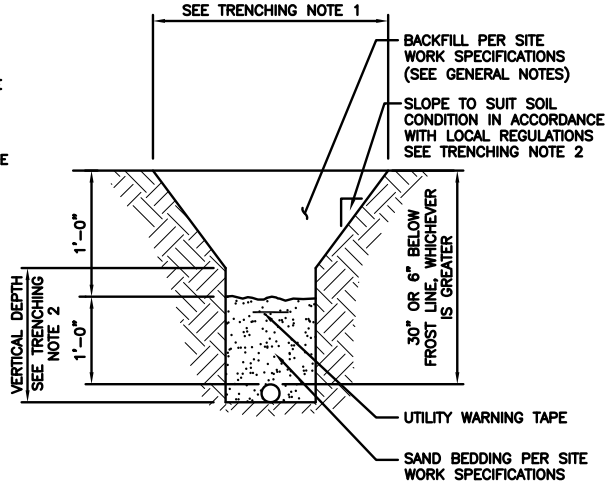
COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"
E945M	E945MX	3 1/2"	5	8"
E945N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



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

TRENCHING NOTES

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



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RFDS REV #: 1

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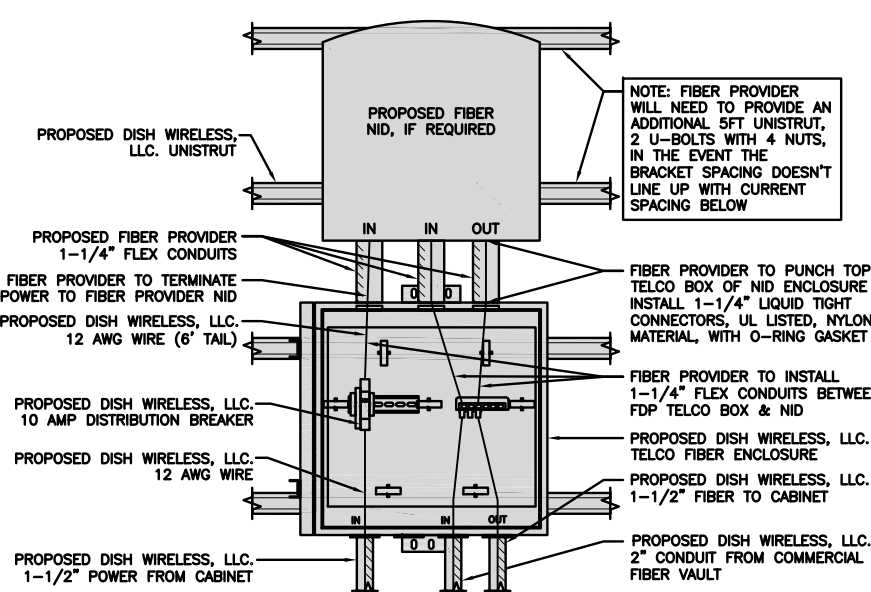
SHEET TITLE
ELECTRICAL
DETAILS

SHEET NUMBER
E-2

EXPANSION JOINT DETAIL NO SCALE 1

TYPICAL UNDERGROUND TRENCH DETAIL NO SCALE 2

DARK TELCO BOX – INTERIOR WIRING LAYOUT NO SCALE 3



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

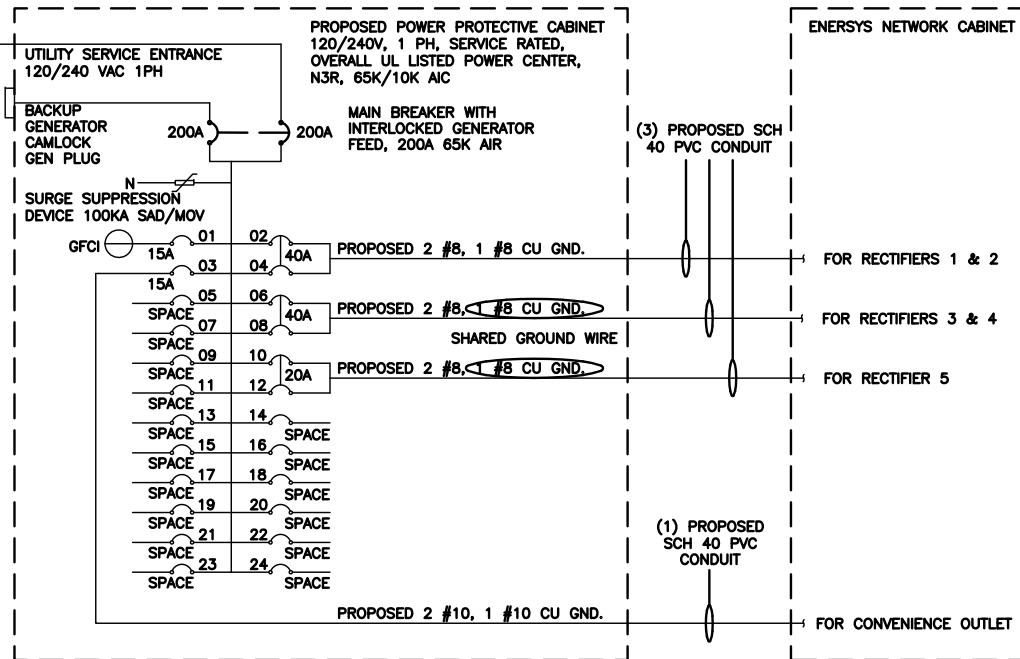
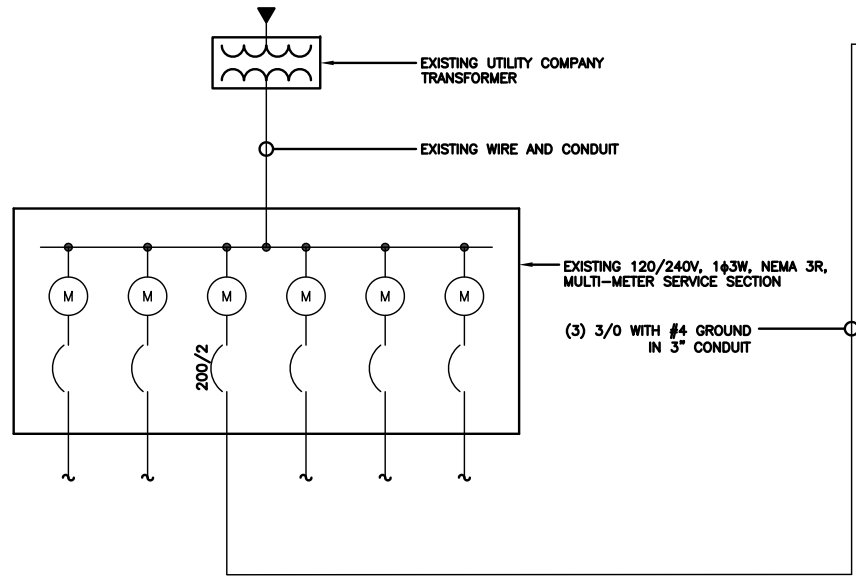
NOT USED NO SCALE 5

NOT USED NO SCALE 6

NOT USED NO SCALE 7

NOT USED NO SCALE 8

NOT USED NO SCALE 9



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:
(2) 40A, 2P BREAKER - SQUARE D P/N:Q0240
(1) 20A, 2P BREAKER - SQUARE D P/N:Q0220
(1) 20A, 1P BREAKER - SQUARE D P/N:Q0120

NOTES

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

CONDUIT SIZING: AT 40% FILL PER NEC CHAPTER 9, TABLE 4, ARTICLE 353.
2.0" CONDUIT - 1.316 SQ. IN AREA
3.0" CONDUIT - 2.907 SQ. IN AREA

RECTIFIER CONDUCTORS (3 CONDUITS): USING UL1015, CU.
#8 - 0.0552 SQ. IN X 2 = 0.1103 SQ. IN
#8 - 0.0131 SQ. IN X 1 = 0.0131 SQ. IN <BARE GROUND
TOTAL = 0.1234 SQ. IN

SCH 40 PVC CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

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

SCH 40 PVC CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

PPC FEED CONDUCTORS (1 CONDUIT): USING THWN-2, CU.
#3/0 - 0.2679 SQ. IN X 3 = 0.8037 SQ. IN
#4 - 0.0824 SQ. IN X 1 = 0.0824 SQ. IN <GROUND
TOTAL = 0.8861 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 ENERSYS PANEL SCHEDULE										
LOAD SERVED	VOLT AMPS (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED
	L1	L2						L1	L2	
PPC GFCI OUTLET	180	180	15A	1	A	2		3840	3840	ENERSYS ALPHA CORDEX
ENERSYS GFCI OUTLET				3	B	4	40A			RECTIFIERS 1 & 2
-SPACE-				5	A	6		3840	3840	ENERSYS ALPHA CORDEX
-SPACE-				7	B	8	40A			RECTIFIER 3 & 4
-SPACE-				9	A	10		1920	1920	ENERSYS ALPHA CORDEX
-SPACE-				11	B	12	20A			RECTIFIER 5
-SPACE-				13	A	14				-SPACE-
-SPACE-				15	B	16				-SPACE-
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
VOLTAGE AMPS	180	180						9500	9500	
200A MCB, 1φ, 24 SPACE, 120/240V				L1	L2					
MB RATING: 65,000 AIC				9680	9680					VOLTAGE AMPS
				81	81					AMPS
										MAX AMPS
										MAX 125%

PANEL SCHEDULE

NO SCALE 2

NOT USED

NO SCALE 3



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SM CJ CJ

RFDS REV #: 1

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2021.0025.0321

DISH WIRELESS L.L.C.
PROJECT INFORMATION
NJJER01085A
126 LEDGE ROAD
DARIEN, CT 06820

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

SHEET NUMBER
E-3



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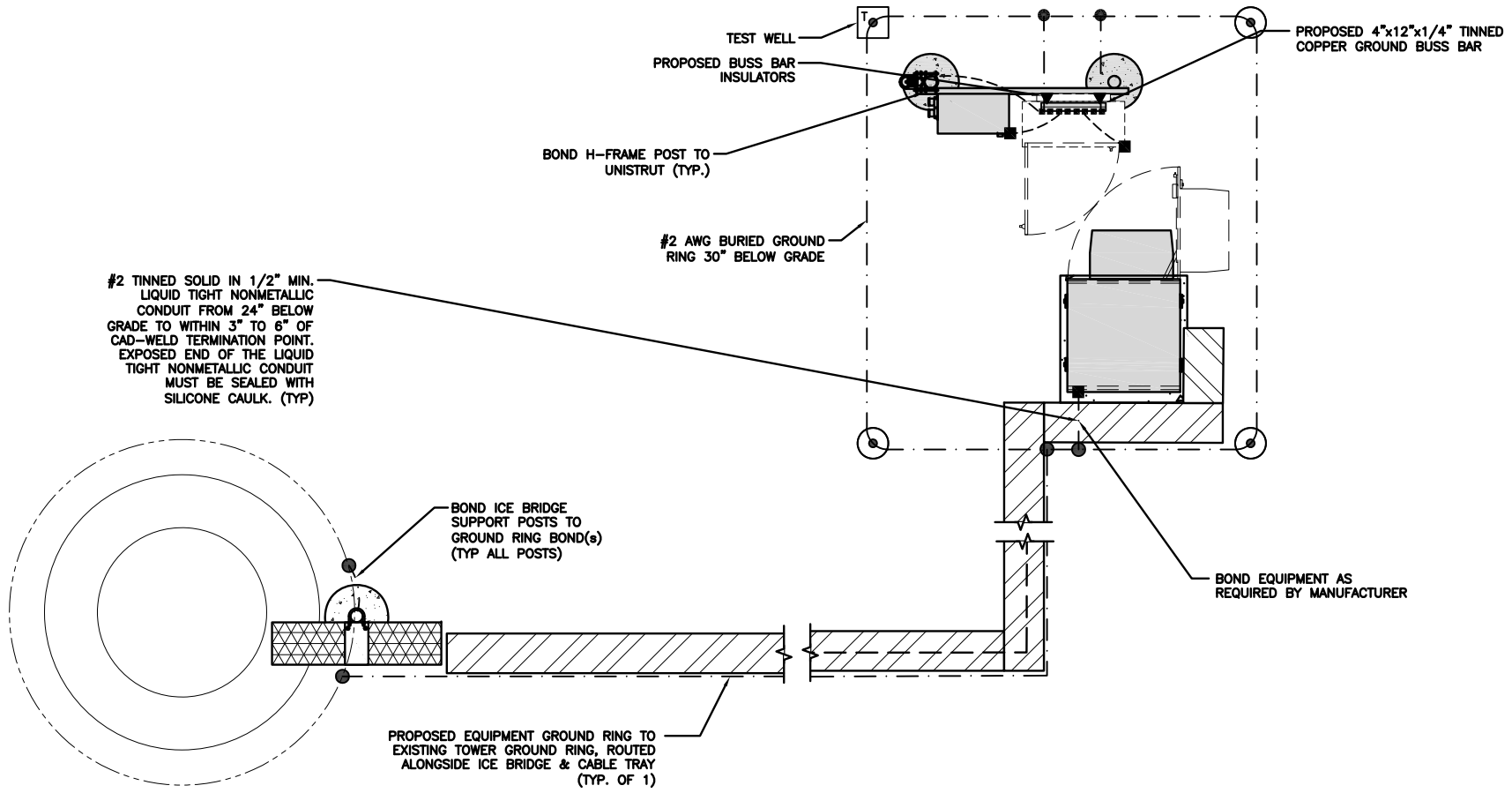
DISH WIRELESS L.L.C.
PROJECT INFORMATION

NJJER01085A
126 LEDGE ROAD
DARIEN, CT 06820

SHEET TITLE
GROUNDING PLANS
AND NOTES

SHEET NUMBER

G-1

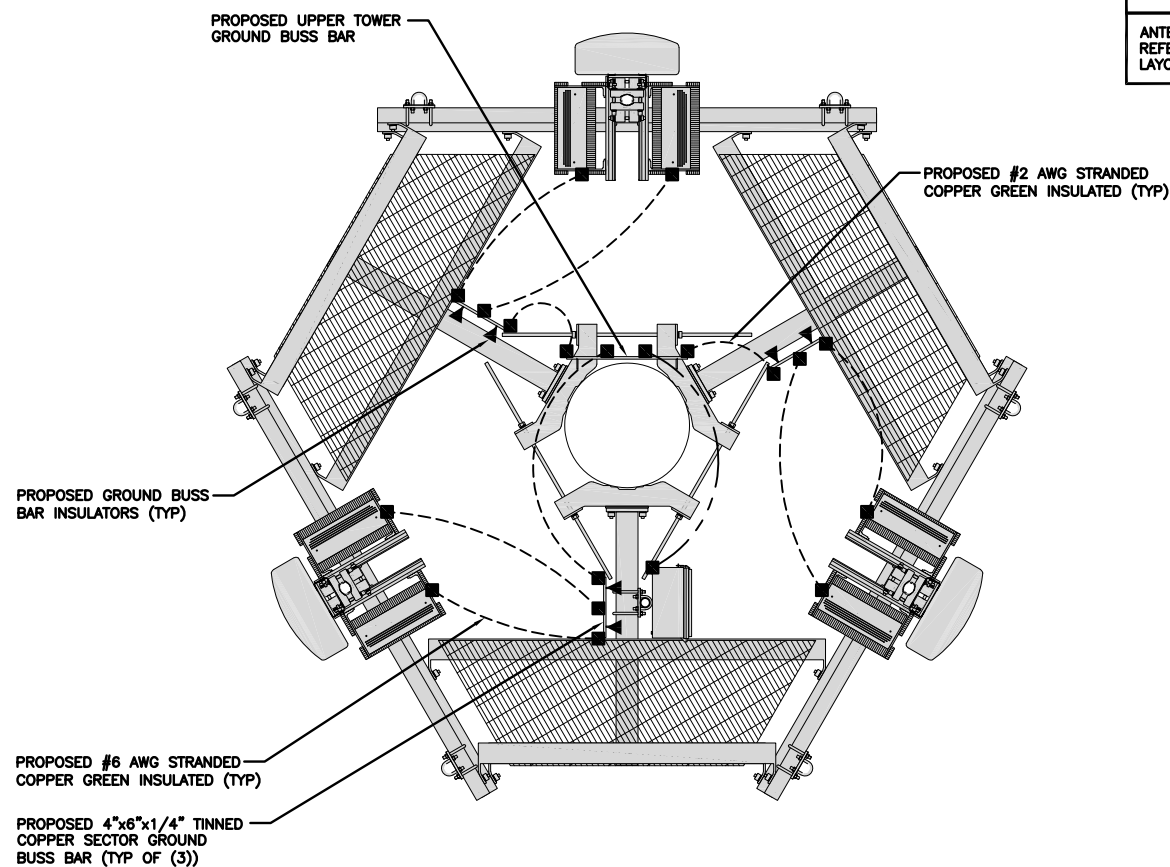


TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1

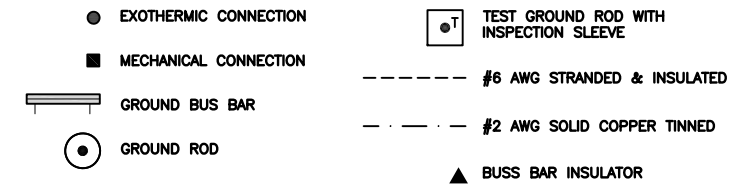
NOTES

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2



GROUNDING LEGEND

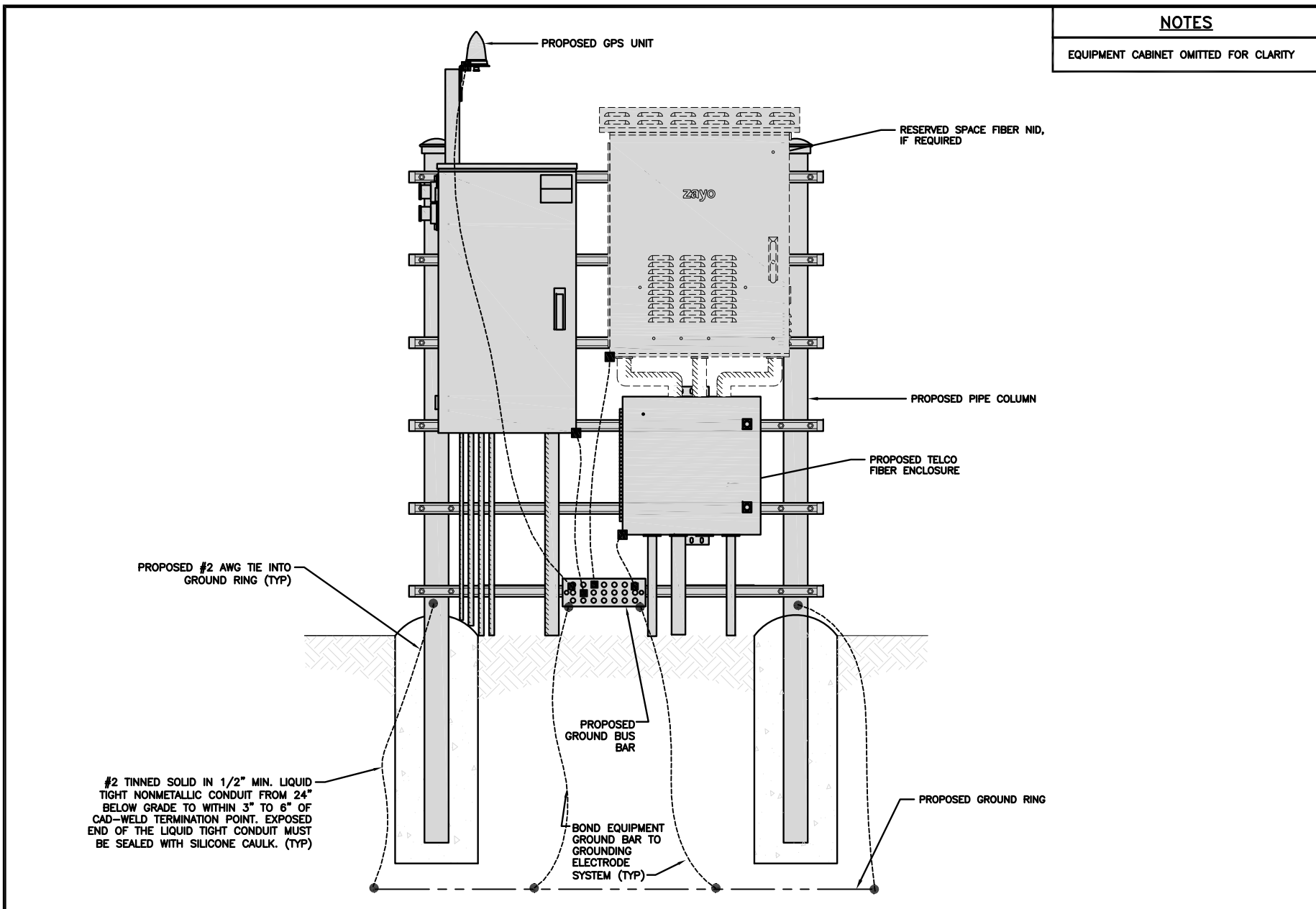
- GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
- CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND DISH WIRELESS, LLC. GROUNDING AND BONDING REQUIREMENTS AND MANUFACTURER'S SPECIFICATIONS.
- ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM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

GROUNDING KEY NOTES

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

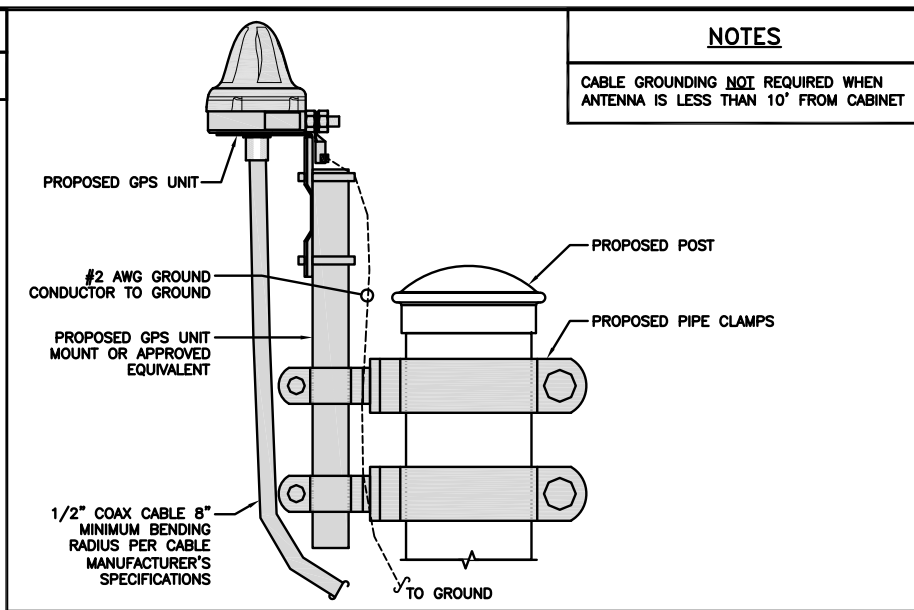
NO SCALE 3



H-FRAME GROUNDING DETAIL

NO SCALE 1

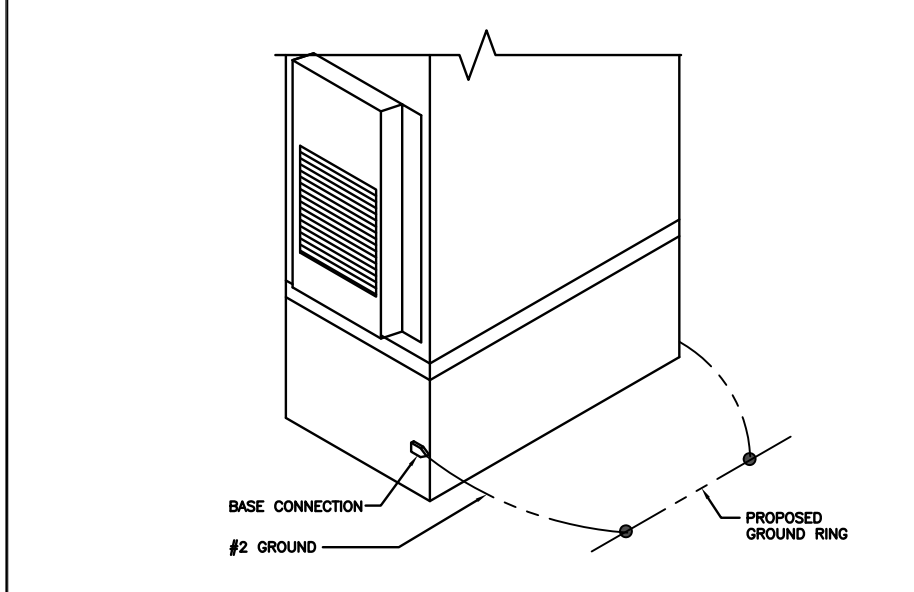
NOTES
EQUIPMENT CABINET OMITTED FOR CLARITY



TYPICAL GPS UNIT GROUNDING

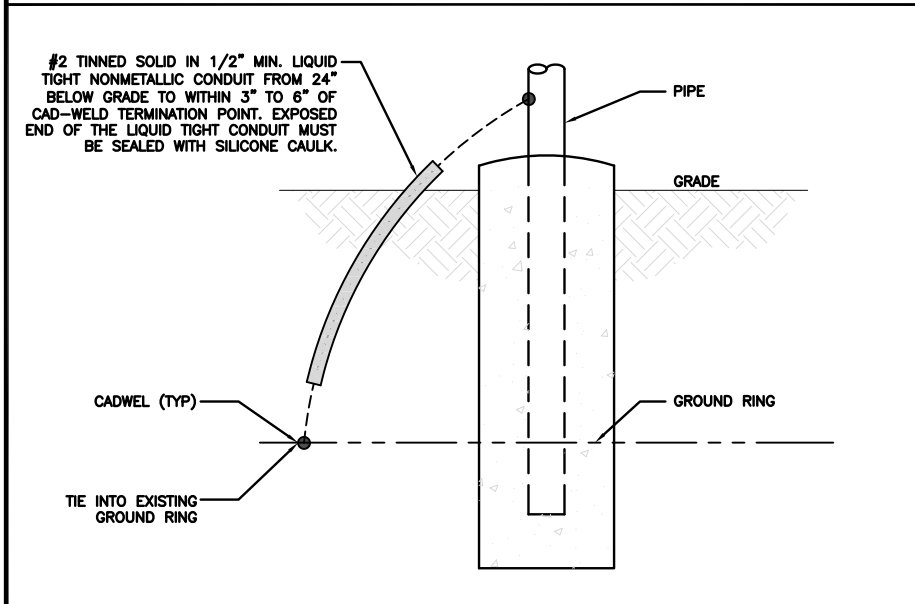
NO SCALE 2

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



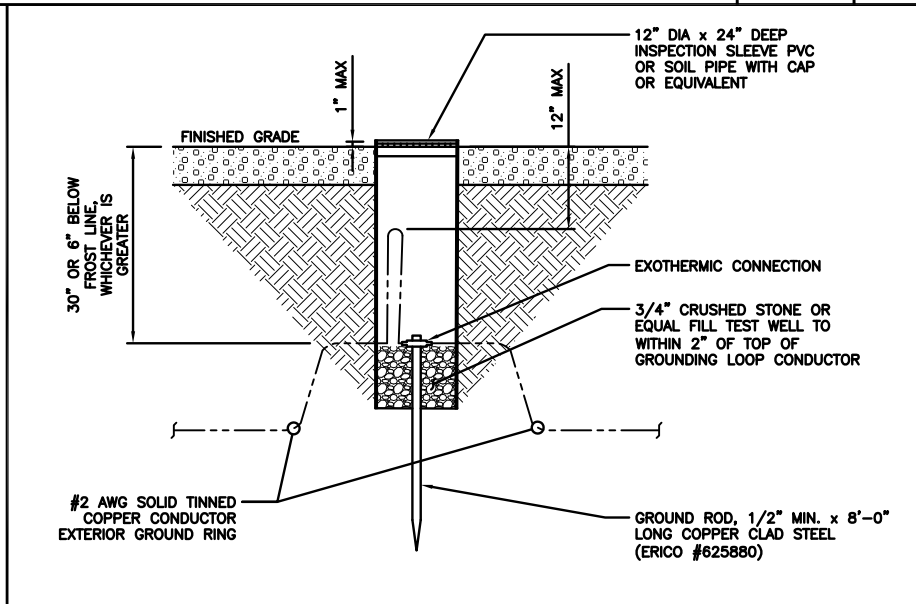
OUTDOOR CABINET GROUNDING

NO SCALE 3



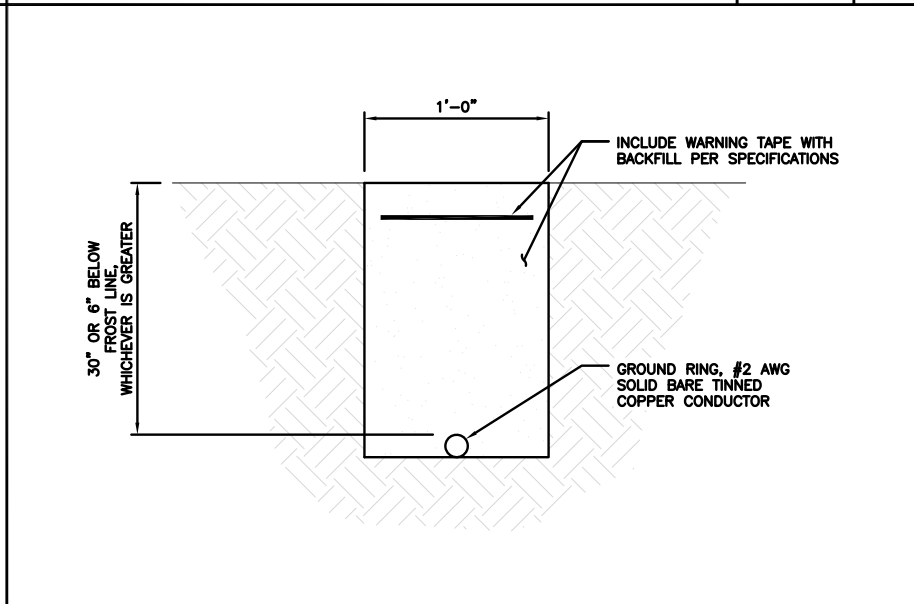
TRANSITIONING GROUND DETAIL

NO SCALE 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE 5



TYPICAL GROUND RING TRENCH

NO SCALE 6



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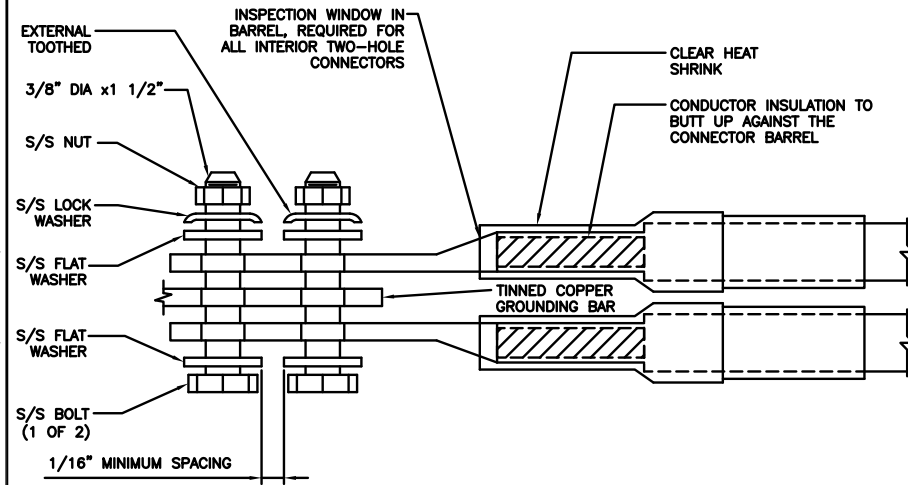
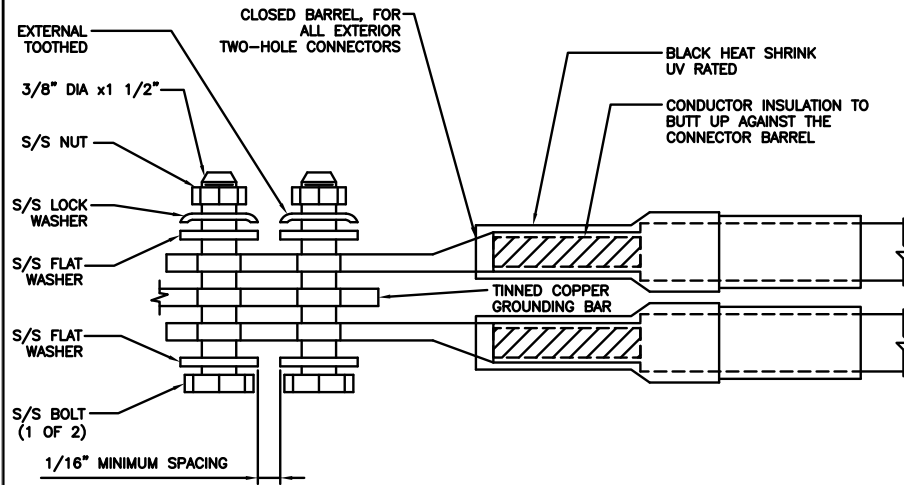
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SHEET TITLE
GROUNDING DETAILS

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).



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SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-3

TYPICAL GROUNDING NOTES

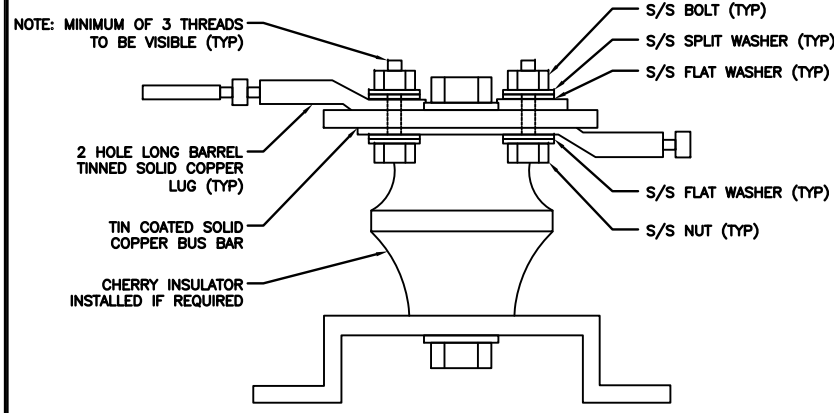
NO SCALE 1

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

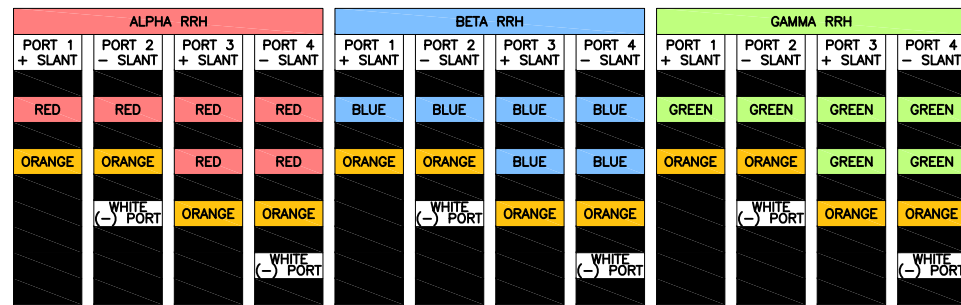
NOT USED

NO SCALE 9

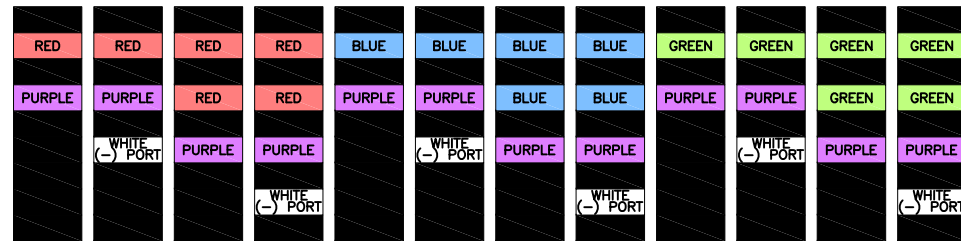
HYBRID/DISCREET CABLES

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

LOW-BAND RRH
(600 MHz N71 BASEBAND) +
(850 MHz N26 BAND) +
(700 MHz N29 BAND) - OPTIONAL PER MARKET
ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BAND)



MID-BAND RRH
(AWS BANDS N66+N70)
ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BANDS)



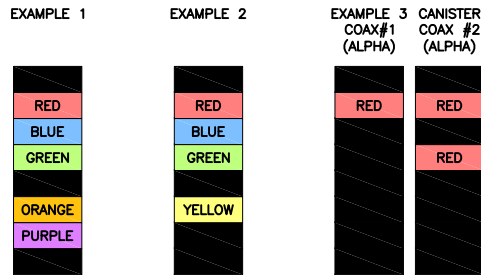
HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS.

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

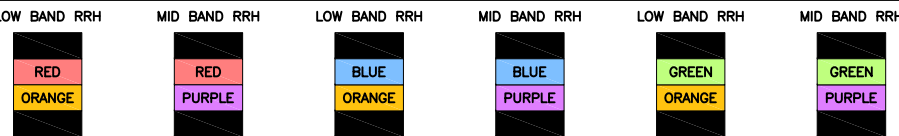
EXAMPLE 2 - HYBRID, OR DISCREET, SUPPORTS
CBRS ONLY, ALL SECTORS.

EXAMPLE 3 - MAIN COAX WITH GROUND
MOUNTED RRHS.



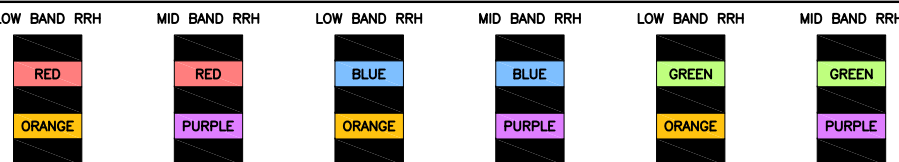
FIBER JUMPERS TO RRHS

LOW-BAND HHR FIBER CABLES HAVE SECTOR
STRIPE ONLY.



POWER CABLES TO RRHS

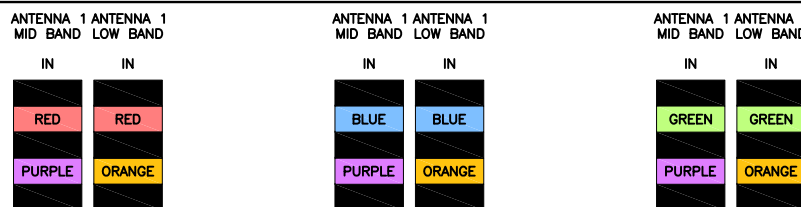
LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY



RET MOTORS AT ANTENNAS

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

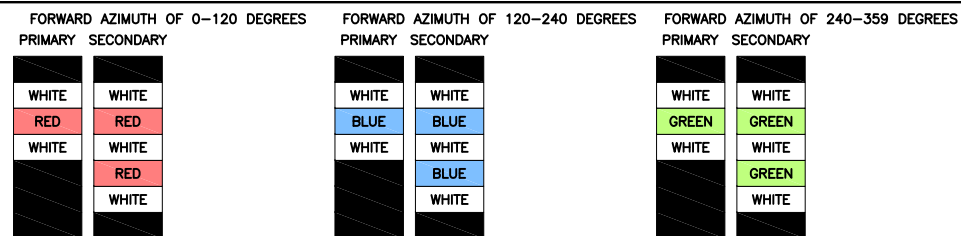
SEPARATE RET CABLES ARE USED WHEN
ANTENNA PORTS PROVIDE INPUTS FOR BOTH
LOW AND MID BANDS.



MICROWAVE RADIO LINKS

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

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



RF CABLE COLOR CODES

NO SCALE

1

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



AWS
(N66+N70+H-BLOCK)



CBRS TECH
(3 GHz)



NEGATIVE SLANT PORT
ON ANT/RRH



ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR



COLOR IDENTIFIER

NO SCALE

2

NOT USED

NO SCALE

3

NOT USED

NO SCALE

4



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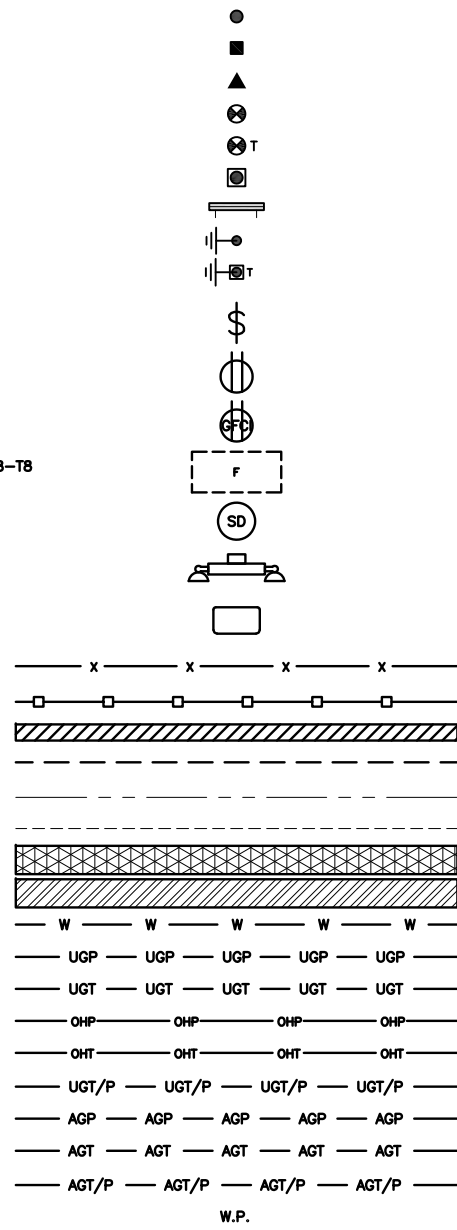
DISH WIRELESS L.L.C.
PROJECT INFORMATION

NJJER01085A
126 LEDGE ROAD
DARIEN, CT 06820

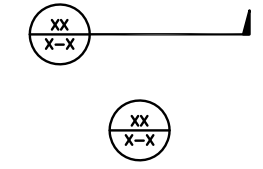
SHEET TITLE
RF
CABLE COLOR CODE

SHEET NUMBER
RF-1

EXOTHERMIC CONNECTION
 MECHANICAL CONNECTION
 BUSS BAR INSULATOR
 CHEMICAL ELECTROLYTIC GROUNDING SYSTEM
 TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM
 EXOTHERMIC WITH INSPECTION SLEEVE
 GROUNDING BAR
 GROUND ROD
 TEST GROUND ROD WITH INSPECTION SLEEVE
 SINGLE POLE SWITCH
 DUPLEX RECEPTACLE
 DUPLEX GFCI RECEPTACLE
 FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48-T8
 SMOKE DETECTION (DC)
 EMERGENCY LIGHTING (DC)
 SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW
 LED-1-25A400/51K-SR4-120-PE-DOBTXD
 CHAIN LINK FENCE
 WOOD/WROUGHT IRON FENCE
 WALL STRUCTURE
 LEASE AREA
 PROPERTY LINE (PL)
 SETBACKS
 ICE BRIDGE
 CABLE TRAY
 WATER LINE
 UNDERGROUND POWER
 UNDERGROUND TELCO
 OVERHEAD POWER
 OVERHEAD TELCO
 UNDERGROUND TELCO/POWER
 ABOVE GROUND POWER
 ABOVE GROUND TELCO
 ABOVE GROUND TELCO/POWER
 WORKPOINT



SECTION REFERENCE
 DETAIL REFERENCE



LEGEND

AB ANCHOR BOLT
 ABV ABOVE
 AC ALTERNATING CURRENT
 ADDL ADDITIONAL
 AFF ABOVE FINISHED FLOOR
 AFG ABOVE FINISHED GRADE
 AGL ABOVE GROUND LEVEL
 AIC AMPERAGE INTERRUPTION CAPACITY
 ALUM ALUMINUM
 ALT ALTERNATE
 ANT ANTENNA
 APPROX APPROXIMATE
 ARCH ARCHITECTURAL
 ATS AUTOMATIC TRANSFER SWITCH
 AWG AMERICAN WIRE GAUGE
 BATT BATTERY
 BLDG BUILDING
 BLK BLOCK
 BLKG BLOCKING
 BM BEAM
 BTC BARE TINNED COPPER CONDUCTOR
 BOF BOTTOM OF FOOTING
 CAB CABINET
 CANT CANTILEVERED
 CHG CHARGING
 CLG CEILING
 CLR CLEAR
 COL COLUMN
 COMM COMMON
 CONC CONCRETE
 CONSTR CONSTRUCTION
 DBL DOUBLE
 DC DIRECT CURRENT
 DEPT DEPARTMENT
 DF DOUGLAS FIR
 DIA DIAMETER
 DIAG DIAGONAL
 DIM DIMENSION
 DWG DRAWING
 DWL DOWEL
 EA EACH
 EC ELECTRICAL CONDUCTOR
 EL ELEVATION
 ELEC ELECTRICAL
 EMT ELECTRICAL METALLIC TUBING
 ENG ENGINEER
 EQ EQUAL
 EXP EXPANSION
 EXT EXTERIOR
 EW EACH WAY
 FAB FABRICATION
 FF FINISH FLOOR
 FG FINISH GRADE
 FIF FACILITY INTERFACE FRAME
 FIN FINISH(ED)
 FLR FLOOR
 FDN FOUNDATION
 FOC FACE OF CONCRETE
 FOM FACE OF MASONRY
 FOS FACE OF STUD
 FOW FACE OF WALL
 FS FINISH SURFACE
 FT FOOT
 FTG FOOTING
 GA GAUGE
 GEN GENERATOR
 GFCI GROUND FAULT CIRCUIT INTERRUPTER
 GLB GLUE LAMINATED BEAM
 GLV GALVANIZED
 GPS GLOBAL POSITIONING SYSTEM
 GND GROUND
 GSM GLOBAL SYSTEM FOR MOBILE
 HDG HOT DIPPED GALVANIZED
 HDR HEADER
 HGR HANGER
 HVAC HEAT/VENTILATION/AIR CONDITIONING
 HT HEIGHT
 IGR INTERIOR GROUND RING

IN INCH
 INT INTERIOR
 LB(S) POUND(S)
 LF LINEAR FEET
 LTE LONG TERM EVOLUTION
 MAS MASONRY
 MAX MAXIMUM
 MB MACHINE BOLT
 MECH MECHANICAL
 MFR MANUFACTURER
 MGB MASTER GROUND BAR
 MIN MINIMUM
 MISC MISCELLANEOUS
 MTL METAL
 MTS MANUAL TRANSFER SWITCH
 MW MICROWAVE
 NEC NATIONAL ELECTRIC CODE
 NM NEWTON METERS
 NO. NUMBER
 # NUMBER
 NTS NOT TO SCALE
 OC ON-CENTER
 OSHA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
 OPNG OPENING
 P/C PRECAST CONCRETE
 PCS PERSONAL COMMUNICATION SERVICES
 PCU PRIMARY CONTROL UNIT
 PRC PRIMARY RADIO CABINET
 PP POLARIZING PRESERVING
 PSF POUNDS PER SQUARE FOOT
 PSI POUNDS PER SQUARE INCH
 PT PRESSURE TREATED
 PWR POWER CABINET
 QTY QUANTITY
 RAD RADIUS
 RECT RECTIFIER
 REF REFERENCE
 REINF REINFORCEMENT
 REQ'D REQUIRED
 RET REMOTE ELECTRIC TILT
 RF RADIO FREQUENCY
 RMC RIGID METALLIC CONDUIT
 RRH REMOTE RADIO HEAD
 RRU REMOTE RADIO UNIT
 RWY RACEWAY
 SCH SCHEDULE
 SHT SHEET
 SIAD SMART INTEGRATED ACCESS DEVICE
 SIM SIMILAR
 SPEC SPECIFICATION
 SQ SQUARE
 SS STAINLESS STEEL
 STD STANDARD
 STL STEEL
 TEMP TEMPORARY
 THK THICKNESS
 TMA TOWER MOUNTED AMPLIFIER
 TN TOE NAIL
 TOA TOP OF ANTENNA
 TOC TOP OF CURB
 TOF TOP OF FOUNDATION
 TOP TOP OF PLATE (PARAPET)
 TOS TOP OF STEEL
 TOW TOP OF WALL
 TVSS TRANSIENT VOLTAGE SURGE SUPPRESSION
 TYP TYPICAL
 UG UNDERGROUND
 UL UNDERWRITERS LABORATORY
 UNO UNLESS NOTED OTHERWISE
 UMTS UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
 UPS UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
 VIF VERIFIED IN FIELD
 W WIDE
 W/ WITH
 WD WOOD
 WP WEATHERPROOF
 WT WEIGHT

ABBREVIATIONS



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SHEET TITLE
 LEGEND AND ABBREVIATIONS

SHEET NUMBER
GN-1

SITE ACTIVITY REQUIREMENTS:

- NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH Wireless L.L.C. AND TOWER OWNER NOC & THE DISH Wireless L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.
- "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:
THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
- 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.
- ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
- ALL SITE WORK TO COMPLY WITH DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
- IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
- 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.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.
- 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.
- ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
- 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.
- ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH Wireless L.L.C. AND TOWER OWNER, AND/OR LOCAL UTILITIES.
- 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.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- 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.
- 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.
- 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.
- 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.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
- 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:

- FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
CARRIER:DISH Wireless L.L.C.
TOWER OWNER:TOWER OWNER
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- 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.
- 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.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH Wireless L.L.C. AND TOWER OWNER
- 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.
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NJJER01085A
126 LEDGE ROAD
DARIEN, CT 06820

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
- UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
- CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.
- ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
 #4 BARS AND SMALLER 40 ksi
 #5 BARS AND LARGER 60 ksi
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
 - CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
 - CONCRETE EXPOSED TO EARTH OR WEATHER:
 - #6 BARS AND LARGER 2"
 - #5 BARS AND SMALLER 1-1/2"
 - CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
 - SLAB AND WALLS 3/4"
 - BEAMS AND COLUMNS 1-1/2"
- A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
 - ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
 - ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
- EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
- ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
- PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
- TIE WRAPS ARE NOT ALLOWED.
- ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
- ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

- ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
- WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
- SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
- CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
- EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.
- METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH Wireless L.L.C. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
- INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH Wireless L.L.C.".
- ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.



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DRAWN BY:	CHECKED BY:	APPROVED BY:
SM	CJ	CJ

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	11/16/2021	ISSUED FOR REVIEW
1	12/16/2021	FINALS

A&E PROJECT NUMBER
2021.0025.0321

DISH WIRELESS L.L.C.
PROJECT INFORMATION
NJJER01085A
126 LEDGE ROAD
DARIEN, CT 06820

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-3

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.



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DISH WIRELESS L.L.C.
PROJECT INFORMATION

NJJER01085A
126 LEDGE ROAD
DARIEN, CT 06820

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4

Exhibit D

Structural Analysis Report

Date: **June 28, 2021**



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

Subject: **Structural Analysis Report**

Carrier Designation: **DISH Network Co-Locate**
Site Number: NJJER01085A
Site Name: CT-CCI-T-806352

Crown Castle Designation: **BU Number:** 806352
Site Name: BRG 302 943052
JDE Job Number: 640162
Work Order Number: 1965407
Order Number: 548684 Rev. 5

Engineering Firm Designation: **Crown Castle Project Number:** 1965407

Site Data: **126 Ledge Road, DARIEN, FAIRFIELD County, CT**
Latitude 41° 4' 20.75", Longitude -73° 28' 41.4"
117 Foot - Monopole Tower

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

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

LC7: Proposed Equipment Configuration **Sufficient Capacity-97.8%**

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

Structural analysis prepared by: Abigail Ruiz / TS

Respectfully submitted by:

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

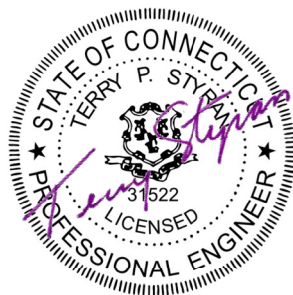


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1) INTRODUCTION

This tower is a 117 ft Monopole tower designed by VALMONT. 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:	120 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
76.0	76.0	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)
117.0	119.0	3	alcatel lucent	TD-RRH8X20-25	3 1	1-1/4 5/8
		9	rfs celwave	ACU-A20-N		
		3	rfs celwave	APXVSP18-C-A20 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-ALU-I20 w/ Mount Pipe		
	117.0	1	tower mounts	T-Arm Mount [TA 702-3]		
115.0	115.0	3	alcatel lucent	800 EXTERNAL NOTCH FILTER	-	-
		3	alcatel lucent	800MHZ RRH		
		3	alcatel lucent	PCS 1900MHz 4x45W-65MHz		
		1	tower mounts	Side Arm Mount [SO 102-3]		
108.0	108.0	3	commscope	SDX1926Q-43	13	1-5/8
		3	ericsson	AIR 32 B2A B66AA w/ Mount Pipe		
		3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe		
		3	ericsson	KRY 112 144/1		
		3	ericsson	RADIO 4449 B71 B85A_T-MOBILE		

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 4415 B25_CCIV2		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		1	tower mounts	Platform Mount [LP 303-1_HR-1]		
100.0	104.0	1	gps	GPS_A	7 1	7/8 1-5/8
	102.0	6	decibel	DB844G65ZAXY w/ Mount Pipe		
		6	jma wireless	MX06FRO660-02 w/ Mount Pipe		
		1	rfs celwave	DB-C1-12C-24AB-0Z		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		
		3	vzw	Sub6 Antenna - VZS01 w/ Mount Pipe		
100.0	1	tower mounts	Platform Mount [LP 715-1]			
93.0	95.0	1	andrew	VHLP1-23	4	7983A
	94.0	1	andrew	VHLP2-11		
		1	andrew	VHLP800-11		
	93.0	1	tower mounts	Pipe Mount [PM 601-3]		
	92.0	1	andrew	VHLP1-23		
89.0	89.0	2	cci antennas	HPA65R-BU6A	12 4 2 2 3	1-1/4 5/8 7/8 3/8 Conduit
		1	cci antennas	HPA65R-BU8A		
		2	cci antennas	OPA-65R-LCUU-H6		
		1	cci antennas	OPA-65R-LCUU-H8		
		1	cci antennas	TPA-65R-LCUUUU-H8		
		6	cci antennas	TPX-070821		
		3	ericsson	RRUS 11 B12		
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 32 B30		
		3	ericsson	RRUS 4426 B66		
		3	ericsson	RRUS E2 B29		
		3	powerwave technologies	7770.00		
		6	powerwave technologies	LGP21401		
		2	quintel technology	QS66512-2		
		1	raycap	DC6-48-60-18-8C-EV		
		2	raycap	DC6-48-60-18-8F		
		1	tower mounts	Platform Mount [LP 301-1_KCKR]		
84.0	84.0	3	kathrein	800 10504	6	1-5/8
		1	tower mounts	Pipe Mount [PM 601-3]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	217769	CCISITES
4-POST-MODIFICATION INSPECTION	6232380	CCISITES
4-POST-MODIFICATION INSPECTION	6122311	CCISITES
4-POST-MODIFICATION INSPECTION	5077215	CCISITES
4-POST-MODIFICATION INSPECTION	4069331	CCISITES
4-POST-MODIFICATION INSPECTION	2785508	CCISITES
4-POST-MODIFICATION INSPECTION	2218625	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	3907710	CCISITES
4-TOWER MANUFACTURER DRAWINGS	217772	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	6083070	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	5969651	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	5632030	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	4115809	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	4062469	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2743848	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	1094732	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 presented 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)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L1	117 - 112	Pole	TP15.489x14.36x0.1875	Pole	6.3%	Pass
L2	112 - 110	Pole	TP15.94x15.489x0.1875	Pole	8.3%	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L3	110 - 105	Pole	TP17.07x15.94x0.1875	Pole	19.0%	Pass
L4	105 - 100	Pole	TP18.2x17.07x0.1875	Pole	27.3%	Pass
L5	100 - 95	Pole	TP19.331x18.2x0.25	Pole	30.8%	Pass
L6	95 - 90	Pole	TP20.461x19.331x0.25	Pole	38.7%	Pass
L7	90 - 85	Pole	TP21.592x20.461x0.25	Pole	49.2%	Pass
L8	85 - 82.38	Pole	TP22.184x21.592x0.25	Pole	54.4%	Pass
L9	82.38 - 82.13	Pole	TP22.241x22.184x0.25	Pole	54.8%	Pass
L10	82.13 - 81.88	Pole	TP22.298x22.241x0.25	Pole	55.3%	Pass
L11	81.88 - 81.63	Pole + Reinf.	TP22.354x22.298x0.35	Reinf. 12 Tension Rupture	50.8%	Pass
L12	81.63 - 76.63	Pole + Reinf.	TP23.485x22.354x0.3563	Reinf. 12 Tension Rupture	58.9%	Pass
L13	76.63 - 76	Pole + Reinf.	TP23.627x23.485x0.3563	Reinf. 12 Tension Rupture	59.8%	Pass
L14	76 - 75.75	Pole + Reinf.	TP23.684x23.627x0.4625	Reinf. 13 Tension Rupture	54.9%	Pass
L15	75.75 - 70.75	Pole + Reinf.	TP24.814x23.684x0.45	Reinf. 13 Tension Rupture	62.8%	Pass
L16	70.75 - 70.5	Pole + Reinf.	TP24.871x24.814x0.675	Reinf. 5 Compression	50.5%	Pass
L17	70.5 - 67.98	Pole + Reinf.	TP25.441x24.871x0.7125	Reinf. 5 Compression	47.0%	Pass
L18	67.98 - 67.73	Pole + Reinf.	TP25.497x25.441x0.7125	Reinf. 5 Compression	47.3%	Pass
L19	67.73 - 63.5	Pole + Reinf.	TP26.454x25.497x0.6875	Reinf. 5 Compression	51.5%	Pass
L20	63.5 - 63.25	Pole + Reinf.	TP26.51x26.454x0.9	Reinf. 5 Compression	41.0%	Pass
L21	63.25 - 58.25	Pole + Reinf.	TP27.641x26.51x0.85	Reinf. 5 Compression	44.8%	Pass
L22	58.25 - 53.25	Pole + Reinf.	TP28.772x27.641x0.825	Reinf. 5 Compression	48.3%	Pass
L23	53.25 - 52	Pole + Reinf.	TP30.09x28.772x0.825	Reinf. 5 Compression	49.2%	Pass
L24	52 - 46.42	Pole + Reinf.	TP29.815x28.554x0.8438	Reinf. 7 Tension Rupture	52.9%	Pass
L25	46.42 - 43.5	Pole + Reinf.	TP30.474x29.815x0.8313	Reinf. 7 Tension Rupture	54.5%	Pass
L26	43.5 - 43.25	Pole + Reinf.	TP30.531x30.474x0.9938	Reinf. 7 Tension Rupture	46.0%	Pass
L27	43.25 - 38.25	Pole + Reinf.	TP31.66x30.531x0.9688	Reinf. 7 Tension Rupture	48.2%	Pass
L28	38.25 - 33.5	Pole + Reinf.	TP32.733x31.66x0.9438	Reinf. 7 Tension Rupture	50.3%	Pass
L29	33.5 - 33.25	Pole + Reinf.	TP32.79x32.733x0.9438	Reinf. 4 Compression	48.8%	Pass
L30	33.25 - 33	Pole + Reinf.	TP32.846x32.79x0.9438	Reinf. 4 Compression	48.9%	Pass
L31	33 - 32.75	Pole + Reinf.	TP32.902x32.846x0.9938	Reinf. 4 Compression	46.6%	Pass
L32	32.75 - 31.5	Pole + Reinf.	TP33.185x32.902x0.9938	Reinf. 4 Compression	47.0%	Pass
L33	31.5 - 31.25	Pole + Reinf.	TP33.241x33.185x0.8313	Reinf. 9 Tension Rupture	54.6%	Pass
L34	31.25 - 26.25	Pole + Reinf.	TP34.371x33.241x0.8188	Reinf. 9 Tension Rupture	56.5%	Pass
L35	26.25 - 21.25	Pole + Reinf.	TP35.5x34.371x0.7938	Reinf. 9 Tension Rupture	58.3%	Pass
L36	21.25 - 16.25	Pole + Reinf.	TP36.629x35.5x0.7813	Reinf. 9 Tension Rupture	59.9%	Pass
L37	16.25 - 13.5	Pole + Reinf.	TP37.251x36.629x0.7688	Reinf. 9 Tension Rupture	60.8%	Pass
L38	13.5 - 13.25	Pole + Reinf.	TP37.307x37.251x0.7688	Reinf. 6 Tension Rupture	61.7%	Pass
L39	13.25 - 9	Pole + Reinf.	TP38.267x37.307x0.7688	Reinf. 6 Tension Rupture	62.9%	Pass
L40	9 - 8.75	Pole + Reinf.	TP38.324x38.267x0.8188	Reinf. 6 Tension Rupture	61.0%	Pass
L41	8.75 - 3.75	Pole + Reinf.	TP39.453x38.324x0.8063	Reinf. 6 Tension Rupture	62.3%	Pass
L42	3.75 - 0	Pole + Reinf.	TP40.3x39.453x0.7938	Reinf. 6 Tension Rupture	63.2%	Pass
					Summary	
				Pole	55.3%	Pass
				Reinforcement	63.2%	Pass
				Overall	63.2%	Pass

Table 5 - Tower Component Stresses vs. Capacity-LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Bolts	110	5.6	Pass
1	Flange Plate		10.1	Pass
1	Flange Bolts	100	23.5	Pass
1	Flange Plate		26.1	Pass
1	Anchor Rods	0	43.1	Pass
1	Base Plate	0	17.4	Pass
1	Base Foundation (Structure)	0	97.8	Pass
1	Base Foundation (Soil Interaction)	0	36.4	Pass
Structure Rating (max from all components) =				97.8%

Notes:

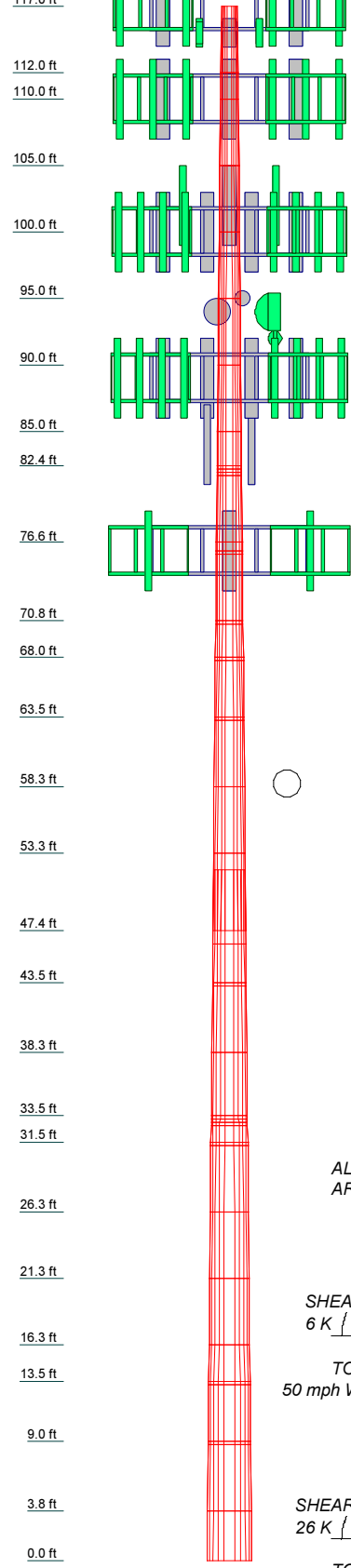
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

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	1	2	3	4	5	6	7	8	12	15	16	17	18	19	20	21	22	23	24	25	26	27	28	34	35	36	37	38	39	40	41	42
Length (ft)	5.00	2.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	3.75	
Number of Sides	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
Thickness (in)	0.1875	0.1875	0.1875	0.1875	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.7937	
Socket Length (ft)																																
Top Dia (in)	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	15.940015	
Bot Dia (in)	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	17.070015	
Grade	0.2	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Weight (K)	0.1875	0.1875	0.1875	0.1875	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500

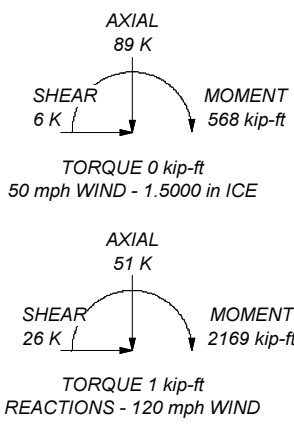


MATERIAL STRENGTH					
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 63.2%

ALL REACTIONS ARE FACTORED



<p>CROWN CASTLE The Pathway to Possible</p>	<p>Crown Castle 2000 Corporate Drive Canonsburg, PA 15317 Phone: (724) 416-2000 FAX:</p>		<p>Job: BU 806352</p>	
	Project:	Client:	Drawn by:	App'd:
	Code:	Date:	Scale:	NTS
	Path:	Dwg No. E-1		
	<p><small>C:\Users\AbRuiz\Desktop\WIP\806352\WQ_1965407 - SA\Prod\806352_R.rvt</small></p>			

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 Fairfield County, Connecticut.
- Tower base elevation above sea level: 71.00 ft.
- Basic wind speed of 120 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.5000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- TOWER RATING: 63.2%.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.05.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination ✓ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs	Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <div style="text-align: center; background-color: #e0e0e0; padding: 2px;">Poles</div> ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
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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	117.00-112.00	5.00	0.00	12	14.3600	15.4886	0.1875	0.7500	A572-65 (65 ksi)
L2	112.00-110.00	2.00	0.00	12	15.4886	15.9400	0.1875	0.7500	A572-65 (65 ksi)
L3	110.00-105.00	5.00	0.00	12	15.9400	17.0700	0.1875	0.7500	A572-65 (65 ksi)
L4	105.00-100.00	5.00	0.00	12	17.0700	18.2000	0.1875	0.7500	A572-65 (65 ksi)
L5	100.00-95.00	5.00	0.00	12	18.2000	19.3307	0.2500	1.0000	A572-65 (65 ksi)
L6	95.00-90.00	5.00	0.00	12	19.3307	20.4613	0.2500	1.0000	A572-65 (65 ksi)
L7	90.00-85.00	5.00	0.00	12	20.4613	21.5920	0.2500	1.0000	A572-65 (65 ksi)
L8	85.00-82.38	2.62	0.00	12	21.5920	22.1844	0.2500	1.0000	A572-65 (65 ksi)
L9	82.38-82.13	0.25	0.00	12	22.1844	22.2410	0.2500	1.0000	A572-65 (65 ksi)
L10	82.13-81.88	0.25	0.00	12	22.2410	22.2975	0.2500	1.0000	A572-65 (65 ksi)
L11	81.88-81.63	0.25	0.00	12	22.2975	22.3540	0.3500	1.4000	A572-65 (65 ksi)
L12	81.63-76.63	5.00	0.00	12	22.3540	23.4847	0.3563	1.4250	A572-65 (65 ksi)
L13	76.63-76.00	0.63	0.00	12	23.4847	23.6272	0.3563	1.4250	A572-65 (65 ksi)
L14	76.00-75.75	0.25	0.00	12	23.6272	23.6837	0.4625	1.8500	A572-65 (65 ksi)
L15	75.75-70.75	5.00	0.00	12	23.6837	24.8144	0.4500	1.8000	A572-65 (65 ksi)
L16	70.75-70.50	0.25	0.00	12	24.8144	24.8709	0.6750	2.7000	A572-65 (65 ksi)
L17	70.50-67.98	2.52	0.00	12	24.8709	25.4407	0.7125	2.8500	A572-65 (65 ksi)
L18	67.98-67.73	0.25	0.00	12	25.4407	25.4973	0.7125	2.8500	A572-65 (65 ksi)
L19	67.73-63.50	4.23	0.00	12	25.4973	26.4538	0.6875	2.7500	A572-65 (65 ksi)
L20	63.50-63.25	0.25	0.00	12	26.4538	26.5103	0.9000	3.6000	A572-65 (65 ksi)
L21	63.25-58.25	5.00	0.00	12	26.5103	27.6410	0.8500	3.4000	A572-65 (65 ksi)
L22	58.25-53.25	5.00	0.00	12	27.6410	28.7717	0.8250	3.3000	A572-65 (65 ksi)
L23	53.25-47.42	5.83	4.58	12	28.7717	30.0900	0.8250	3.3000	A572-65 (65 ksi)
L24	47.42-46.42	5.58	0.00	12	28.5543	29.8147	0.8438	3.3750	A572-65 (65 ksi)
L25	46.42-43.50	2.92	0.00	12	29.8147	30.4743	0.8313	3.3250	A572-65 (65 ksi)
L26	43.50-43.25	0.25	0.00	12	30.4743	30.5308	0.9938	3.9750	A572-65 (65 ksi)
L27	43.25-38.25	5.00	0.00	12	30.5308	31.6601	0.9688	3.8750	A572-65 (65 ksi)
L28	38.25-33.50	4.75	0.00	12	31.6601	32.7331	0.9437	3.7750	A572-65 (65 ksi)
L29	33.50-33.25	0.25	0.00	12	32.7331	32.7895	0.9437	3.7750	A572-65 (65 ksi)
L30	33.25-33.00	0.25	0.00	12	32.7895	32.8460	0.9437	3.7750	A572-65 (65 ksi)
L31	33.00-32.75	0.25	0.00	12	32.8460	32.9025	0.9938	3.9750	A572-65 (65 ksi)
L32	32.75-31.50	1.25	0.00	12	32.9025	33.1848	0.9938	3.9750	A572-65 (65 ksi)
L33	31.50-31.25	0.25	0.00	12	33.1848	33.2413	0.8313	3.3250	A572-65 (65 ksi)
L34	31.25-26.25	5.00	0.00	12	33.2413	34.3707	0.8187	3.2750	A572-65 (65 ksi)
L35	26.25-21.25	5.00	0.00	12	34.3707	35.5001	0.7937	3.1750	A572-65

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L36	21.25-16.25	5.00	0.00	12	35.5001	36.6295	0.7813	3.1250	(65 ksi) A572-65
L37	16.25-13.50	2.75	0.00	12	36.6295	37.2506	0.7688	3.0750	(65 ksi) A572-65
L38	13.50-13.25	0.25	0.00	12	37.2506	37.3071	0.7688	3.0750	(65 ksi) A572-65
L39	13.25-9.00	4.25	0.00	12	37.3071	38.2671	0.7688	3.0750	(65 ksi) A572-65
L40	9.00-8.75	0.25	0.00	12	38.2671	38.3236	0.8187	3.2750	(65 ksi) A572-65
L41	8.75-3.75	5.00	0.00	12	38.3236	39.4530	0.8063	3.2250	(65 ksi) A572-65
L42	3.75-0.00	3.75		12	39.4530	40.3000	0.7937	3.1750	(65 ksi) A572-65

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	14.8004	8.5566	219.3727	5.0738	7.4385	29.4916	444.5085	4.2113	3.3460	17.845
	15.9688	9.2380	276.0632	5.4778	8.0231	34.4086	559.3790	4.5467	3.6484	19.458
L2	15.9688	9.2380	276.0632	5.4778	8.0231	34.4086	559.3790	4.5467	3.6484	19.458
	16.4362	9.5106	301.2254	5.6394	8.2569	36.4816	610.3643	4.6808	3.7694	20.104
L3	16.4362	9.5106	301.2254	5.6394	8.2569	36.4816	610.3643	4.6808	3.7694	20.104
	17.6060	10.1928	370.8116	6.0439	8.8423	41.9363	751.3649	5.0166	4.0723	21.719
L4	17.6060	10.1928	370.8116	6.0439	8.8423	41.9363	751.3649	5.0166	4.0723	21.719
	18.7759	10.8750	450.3655	6.4485	9.4276	47.7710	912.5625	5.3524	4.3751	23.334
L5	18.7538	14.4498	594.2582	6.4261	9.4276	63.0339	1204.1282	7.1117	4.2076	16.83
	19.9244	15.3599	713.7759	6.8309	10.0133	71.2829	1446.3035	7.5597	4.5106	18.042
L6	19.9244	15.3599	713.7759	6.8309	10.0133	71.2829	1446.3035	7.5597	4.5106	18.042
	21.0949	16.2701	848.3315	7.2357	10.5990	80.0391	1718.9497	8.0077	4.8136	19.255
L7	21.0949	16.2701	848.3315	7.2357	10.5990	80.0391	1718.9497	8.0077	4.8136	19.255
	22.2655	17.1803	998.8162	7.6404	11.1846	89.3025	2023.8725	8.4556	5.1166	20.467
L8	22.2655	17.1803	998.8162	7.6404	11.1846	89.3025	2023.8725	8.4556	5.1166	20.467
	22.8788	17.6572	1084.3299	7.8525	11.4915	94.3590	2197.1463	8.6903	5.2754	21.102
L9	22.8788	17.6572	1084.3299	7.8525	11.4915	94.3590	2197.1463	8.6903	5.2754	21.102
	22.9374	17.7027	1092.7356	7.8728	11.5208	94.8487	2214.1787	8.7127	5.2906	21.162
L10	22.9374	17.7027	1092.7356	7.8728	11.5208	94.8487	2214.1787	8.7127	5.2906	21.162
	22.9959	17.7482	1101.1847	7.8930	11.5501	95.3398	2231.2988	8.7351	5.3057	21.223
L11	22.9606	24.7348	1520.7763	7.8572	11.5501	131.6677	3081.5051	12.1737	5.0377	14.394
	23.0191	24.7986	1532.5584	7.8774	11.5794	132.3522	3105.3788	12.2051	5.0529	14.437
L12	23.0169	25.2342	1558.5966	7.8752	11.5794	134.6009	3158.1393	12.4195	5.0361	14.137
	24.1875	26.5312	1811.4905	8.2800	12.1651	148.9091	3670.5708	13.0579	5.3391	14.987
L13	24.1875	26.5312	1811.4905	8.2800	12.1651	148.9091	3670.5708	13.0579	5.3391	14.987
	24.3350	26.6946	1845.1715	8.3310	12.2389	150.7632	3738.8177	13.1383	5.3773	15.094
L14	24.2975	34.4980	2362.8236	8.2929	12.2389	193.0590	4787.7211	16.9789	5.0926	11.011
	24.3560	34.5822	2380.1651	8.3132	12.2682	194.0117	4822.8598	17.0203	5.1077	11.044
L15	24.3604	33.6656	2319.5782	8.3177	12.2682	189.0731	4700.0943	16.5692	5.1412	11.425
	25.5310	35.3039	2674.9694	8.7224	12.8538	208.1067	5420.2133	17.3755	5.4442	12.098
L16	25.4516	52.4669	3902.3149	8.6419	12.8538	303.5915	7907.1479	25.8226	4.8412	7.172
	25.5101	52.5897	3929.7957	8.6621	12.8831	305.0345	7962.8314	25.8831	4.8564	7.195
L17	25.4969	55.4254	4128.8606	8.6487	12.8831	320.4862	8366.1910	27.2787	4.7559	6.675
	26.0868	56.7328	4427.9835	8.8527	13.1783	336.0057	8972.2951	27.9221	4.9086	6.889
L18	26.0868	56.7328	4427.9835	8.8527	13.1783	336.0057	8972.2951	27.9221	4.9086	6.889
	26.1454	56.8625	4458.4224	8.8729	13.2076	337.5653	9033.9725	27.9860	4.9238	6.911
L19	26.1542	54.9226	4315.0177	8.8819	13.2076	326.7076	8743.3957	27.0312	4.9908	7.259
	27.1445	57.0402	4833.6022	9.2243	13.7031	352.7386	9794.1885	28.0734	5.2471	7.632
L20	27.0695	74.0549	6172.3566	9.1483	13.7031	450.4360	12506.867	36.4476	4.6776	5.197
	27.1280	74.2188	6213.4128	9.1685	13.7324	452.4652	12590.059	36.5282	4.6928	5.214
L21	27.1457	70.2323	5902.6606	9.1864	13.7324	429.8360	11960.390	34.5662	4.8268	5.679

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
	28.3162	73.3270	6717.8032	9.5912	14.3180	469.1847	13612.090	36.0893	5.1298	6.035
L22	28.3250	71.2367	6538.4908	9.6001	14.3180	456.6612	13248.755	35.0605	5.1968	6.299
	29.4956	74.2403	7400.9109	10.0049	14.9037	496.5816	14996.252	36.5388	5.4998	6.666
L23	29.4956	74.2403	7400.9109	10.0049	14.9037	496.5816	14996.252	36.5388	5.4998	6.666
	30.8604	77.7425	8498.4819	10.4769	15.5866	545.2421	17220.228	38.2625	5.8531	7.095
L24	30.3350	75.2861	7378.9037	9.9204	14.7911	498.8734	14951.659	37.0536	5.3913	6.39
	30.5688	78.7105	8432.2733	10.3716	15.4440	545.9894	17086.071	38.7389	5.7291	6.79
L25	30.5732	77.5779	8318.1084	10.3761	15.4440	538.5972	16854.742	38.1815	5.7626	6.932
	31.2561	79.3433	8899.0056	10.6122	15.7857	563.7391	18031.798	39.0504	5.9394	7.145
L26	31.1987	94.3340	10464.658	10.5540	15.7857	662.9210	21204.234	46.4283	5.5039	5.538
	31.2572	94.5147	10524.907	10.5742	15.8149	665.5045	21326.316	46.5173	5.5190	5.554
L27	31.2660	92.2150	10286.204	10.5832	15.8149	650.4110	20842.638	45.3854	5.5860	5.766
	32.4353	95.7380	11510.747	10.9875	16.4000	701.8767	23323.894	47.1193	5.8887	6.079
L28	32.4441	93.3433	11241.120	10.9965	16.4000	685.4360	22777.557	45.9407	5.9557	6.311
	33.5548	96.6038	12460.701	11.3806	16.9557	734.8962	25248.760	47.5454	6.2432	6.615
L29	33.5548	96.6038	12460.701	11.3806	16.9557	734.8962	25248.760	47.5454	6.2432	6.615
	33.6133	96.7754	12527.223	11.4008	16.9850	737.5471	25383.551	47.6299	6.2583	6.631
L30	33.6133	96.7754	12527.223	11.4008	16.9850	737.5471	25383.551	47.6299	6.2583	6.631
	33.6718	96.9470	12593.982	11.4210	17.0142	740.2028	25518.823	47.7144	6.2735	6.647
L31	33.6541	101.9232	13198.959	11.4031	17.0142	775.7599	26744.669	50.1635	6.1395	6.178
	33.7126	102.1039	13269.283	11.4233	17.0435	778.5546	26887.166	50.2525	6.1546	6.193
L32	33.7126	102.1039	13269.283	11.4233	17.0435	778.5546	26887.166	50.2525	6.1546	6.193
	34.0049	103.0074	13624.654	11.5244	17.1897	792.6038	27607.243	50.6971	6.2303	6.269
L33	34.0622	86.5984	11570.187	11.5826	17.1897	673.0868	23444.336	42.6211	6.6658	8.019
	34.1207	86.7495	11630.875	11.6028	17.2190	675.4679	23567.307	42.6955	6.6809	8.037
L34	34.1251	85.4780	11469.235	11.6073	17.2190	666.0806	23239.781	42.0697	6.7144	8.201
	35.2943	88.4555	12710.013	12.0116	17.8040	713.8846	25753.932	43.5351	7.0171	8.57
L35	35.3032	85.8185	12349.485	12.0205	17.8040	693.6348	25023.405	42.2372	7.0841	8.925
	36.4724	88.7050	13638.032	12.4249	18.3890	741.6391	27634.350	43.6579	7.3868	9.306
L36	36.4768	87.3396	13437.769	12.4293	18.3890	730.7487	27228.563	42.9859	7.4203	9.498
	37.6460	90.1807	14792.268	12.8337	18.9741	779.6045	29973.146	44.3842	7.7229	9.885
L37	37.6504	88.7687	14570.823	12.8381	18.9741	767.9336	29524.439	43.6893	7.7564	10.09
	38.2935	90.3064	15341.186	13.0605	19.2958	795.0518	31085.402	44.4460	7.9229	10.306
L38	38.2935	90.3064	15341.186	13.0605	19.2958	795.0518	31085.402	44.4460	7.9229	10.306
	38.3520	90.4461	15412.535	13.0807	19.3251	797.5405	31229.976	44.5148	7.9381	10.326

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
L39	38.3520	90.4461	15412.5359	13.0807	19.3251	797.5405	31229.9763	44.5148	7.9381	10.326
	39.3458	92.8225	16659.5468	13.4244	19.8224	840.4424	33756.7584	45.6844	8.1953	10.661
L40	39.3282	98.7279	17672.2136	13.4065	19.8224	891.5295	35808.6960	48.5909	8.0613	9.846
	39.3866	98.8768	17752.2804	13.4267	19.8516	894.2491	35970.9329	48.6641	8.0765	9.864
L41	39.3911	97.3996	17498.7380	13.4312	19.8516	881.4772	35457.1874	47.9371	8.1100	10.059
	40.5603	100.3317	19127.0943	13.8355	20.4366	935.9221	38756.6787	49.3802	8.4126	10.434
L42	40.5647	98.8081	18848.8280	13.8400	20.4366	922.3060	38192.8356	48.6303	8.4461	10.641
	41.4416	100.9730	20115.1365	14.1432	20.8754	963.5809	40758.7200	49.6959	8.6731	10.927

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontal in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft ²	in							
L1 117.00-112.00				1	1	1			
L2 112.00-110.00				1	1	1			
L3 110.00-105.00				1	1	1			
L4 105.00-100.00				1	1	1			
L5 100.00-95.00				1	1	1			
L6 95.00-90.00				1	1	1			
L7 90.00-85.00				1	1	1			
L8 85.00-82.38				1	1	1			
L9 82.38-82.13				1	1	1			
L10 82.13-81.88				1	1	1			
L11 81.88-81.63				1	1	1.2627			
L12 81.63-76.63				1	1	1.21454			
L13 76.63-76.00				1	1	1.2114			
L14 76.00-75.75				1	1	1.19704			
L15 75.75-70.75				1	1	1.19835			
L16 70.75-70.50				1	1	1.0624			
L17 70.50-67.98				1	1	0.913471			
L18 67.98-67.73				1	1	0.912187			
L19 67.73-63.50				1	1	0.922845			
L20 63.50-63.25				1	1	0.892013			
L21 63.25-58.25				1	1	0.915274			
L22 58.25-53.25				1	1	0.916274			
L23 53.25-47.42				1	1	0.910134			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft ²	in							
L24 47.42-46.42				1	1	0.92972			
L25 46.42-43.50				1	1	0.931507			
L26 43.50-43.25				1	1	0.925683			
L27 43.25-38.25				1	1	0.926913			
L28 38.25-33.50				1	1	0.930899			
L29 33.50-33.25				1	1	0.929894			
L30 33.25-33.00				1	1	0.928893			
L31 33.00-32.75				1	1	0.926725			
L32 32.75-31.50				1	1	0.921631			
L33 31.50-31.25				1	1	0.939232			
L34 31.25-26.25				1	1	0.935251			
L35 26.25-21.25				1	1	0.946713			
L36 21.25-16.25				1	1	0.945083			
L37 16.25-13.50				1	1	0.951382			
L38 13.50-13.25				1	1	0.990739			
L39 13.25-9.00				1	1	0.976823			
L40 9.00-8.75				1	1	0.96322			
L41 8.75-3.75				1	1	0.961712			
L42 3.75-0.00				1	1	0.964889			

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 r in	Perimeter r in	Weight plf
Safety Line 3/8	B	No	Surface Ar (CaAa)	117.00 - 0.00	1	1	-0.250 -0.250	0.3750		0.22
HCS 6X12 4AWG(1-5/8) **93**	B	No	Surface Ar (CaAa)	110.00 - 0.00	5	5	0.000 0.000	1.6600		2.40
7983A(ELLIPTICAL) **84**	A	No	Surface Ar (CaAa)	93.00 - 0.00	4	4	0.250 0.250	0.5730		0.08
AVA7-50(1-5/8) ***	A	No	Surface Ar (CaAa)	84.00 - 0.00	6	3	0.000 0.000	2.0100		0.70
Mods										
(Area) CCI-65FP-060100 (H)	A	No	Surface Af (CaAa)	35.00 - 0.00	1	1	0.500 0.500	6.0000	14.0000	0.00
(Area) CCI-65FP-060100 (H)	C	No	Surface Af (CaAa)	35.00 - 0.00	1	1	0.500 0.500	6.0000	14.0000	0.00
(Area) CCI-65FP-060100 (H) **	B	No	Surface Af (CaAa)	35.00 - 0.00	1	1	0.500 0.500	6.0000	14.0000	0.00
(Area) CCI-65FP-045100 (H)	A	No	Surface Af (CaAa)	65.00 - 35.00	1	1	0.500 0.500	4.5000	11.0000	0.00

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
(Area) CCI-65FP-045100 (H)	C	No	Surface Af (CaAa)	65.00 - 35.00	1	1	0.500 0.500	4.5000	11.0000	0.00
(Area) CCI-65FP-045100 (H) **	B	No	Surface Af (CaAa)	65.00 - 35.00	1	1	0.500 0.500	4.5000	11.0000	0.00
(Area) Sabre MS450 (1.00x4.50) **	B	No	Surface Af (CaAa)	10.50 - 0.50	1	1	0.000 0.000	4.5000	11.0000	0.00
(Area) Sabre MS450 (1.00x4.50)	A	No	Surface Af (CaAa)	45.00 - 30.00	1	1	0.000 0.000	4.5000	11.0000	0.00
(Area) Sabre MS450 (1.00x4.50)	C	No	Surface Af (CaAa)	45.00 - 30.00	1	1	0.000 0.000	4.5000	11.0000	0.00
(Area) Sabre MS450 (1.00x4.50) ***	B	No	Surface Af (CaAa)	45.00 - 30.00	1	1	0.000 0.000	4.5000	11.0000	0.00
(Area) Sabre MS450 (1.00x4.50)	A	No	Surface Af (CaAa)	72.25 - 50.00	1	1	-0.250 -0.250	4.5000	11.0000	0.00
(Area) Sabre MS450 (1.00x4.50)	C	No	Surface Af (CaAa)	72.25 - 50.00	1	1	-0.250 -0.250	4.5000	11.0000	0.00
(Area) Sabre MS450 (1.00x4.50) **	B	No	Surface Af (CaAa)	72.25 - 50.00	1	1	-0.250 -0.250	4.5000	11.0000	0.00
(Area) CCI-65FP-045100 (H)	A	No	Surface Af (CaAa)	35.00 - 0.00	1	1	0.250 0.250	4.5000	11.0000	0.00
(Area) CCI-65FP-045100 (H)	C	No	Surface Af (CaAa)	35.00 - 0.00	1	1	0.250 0.250	4.5000	11.0000	0.00
(Area) CCI-65FP-045100 (H) **	B	No	Surface Af (CaAa)	35.00 - 0.00	1	1	0.250 0.250	4.5000	11.0000	0.00
(Area) CCI-65FP-040075 (H)	A	No	Surface Af (CaAa)	50.00 - 35.00	1	1	0.250 0.250	4.0000	9.5000	0.00
(Area) CCI-65FP-040075 (H)	C	No	Surface Af (CaAa)	50.00 - 35.00	1	1	0.250 0.250	4.0000	9.5000	0.00
(Area) CCI-65FP-040075 (H) **	B	No	Surface Af (CaAa)	50.00 - 35.00	1	1	0.250 0.250	4.0000	9.5000	0.00
(Area) CCI-65FP-045100 (H)	C	No	Surface Af (CaAa)	35.50 - 0.50	1	1	0.000 0.000	4.5000	11.0000	0.00
(Area) CCI-65FP-045100 (H) **	B	No	Surface Af (CaAa)	35.50 - 0.50	1	1	0.000 0.000	4.5000	11.0000	0.00
(Area) CCI-65FP-045100 (H) **	A	No	Surface Af (CaAa)	35.50 - 10.50	1	1	0.000 0.000	4.5000	11.0000	0.00
(Area) CCI-65FP-060100 (H)	A	No	Surface Af (CaAa)	70.58 - 35.58	1	1	0.000 0.000	6.0000	14.0000	0.00
(Area) CCI-65FP-060100 (H)	C	No	Surface Af (CaAa)	70.58 - 35.58	1	1	0.000 0.000	6.0000	14.0000	0.00
(Area) CCI-65FP-060100 (H) **	B	No	Surface Af (CaAa)	70.58 - 35.58	1	1	0.000 0.000	6.0000	14.0000	0.00
(Area) CCI-65FP-045100 (H) **	A	No	Surface Af (CaAa)	83.88 - 65.17	1	1	0.500 0.500	4.5000	11.0000	0.00
(Area) CCI-65FP-045100 (H)	C	No	Surface Af (CaAa)	83.88 - 70.67	1	1	0.000 0.000	4.5000	11.0000	0.00
(Area) CCI-65FP-045100 (H) **	B	No	Surface Af (CaAa)	83.88 - 70.67	1	1	0.000 0.000	4.5000	11.0000	0.00
(Area) CCI-65FP-040075 (H)	A	No	Surface Af (CaAa)	77.00 - 67.00	1	1	0.250 0.250	4.0000	9.5000	0.00
(Area) CCI-65FP-040075 (H)	C	No	Surface Af (CaAa)	77.00 - 67.00	1	1	0.250 0.250	4.0000	9.5000	0.00
(Area) CCI-65FP-040075 (H) ***	B	No	Surface Af (CaAa)	77.00 - 67.00	1	1	0.250 0.250	4.0000	9.5000	0.00

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
CU12PSM9P8XXX(1-3/8) *****	A	No	Surface Ar (CaAa)	76.00 - 0.00	1	1	0.370 0.410	1.4110		1.66

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		CAAA ft ² /ft	Weight plf
117									
LDF6-50A(1-1/4)	C	No	No	Inside Pole	117.00 - 0.00	3	No Ice	0.00	0.60
							1/2" Ice	0.00	0.60
							1" Ice	0.00	0.60
							2" Ice	0.00	0.60
HB058-1-08U1-S2F(5/8)	C	No	No	Inside Pole	117.00 - 0.00	1	No Ice	0.00	0.40
							1/2" Ice	0.00	0.40
							1" Ice	0.00	0.40
							2" Ice	0.00	0.40
**110*									
LDF7-50A(1-5/8)	B	No	No	Inside Pole	110.00 - 0.00	8	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
100									
HB158-1-13U6-S6F18(1-5/8)	C	No	No	Inside Pole	100.00 - 0.00	1	No Ice	0.00	1.90
							1/2" Ice	0.00	1.90
							1" Ice	0.00	1.90
							2" Ice	0.00	1.90
LDF5-50A(7/8)	C	No	No	Inside Pole	100.00 - 0.00	7	No Ice	0.00	0.33
							1/2" Ice	0.00	0.33
							1" Ice	0.00	0.33
							2" Ice	0.00	0.33
89									
LDF6-50A(1-1/4)	B	No	No	Inside Pole	89.00 - 0.00	12	No Ice	0.00	0.60
							1/2" Ice	0.00	0.60
							1" Ice	0.00	0.60
							2" Ice	0.00	0.60
WR-VG66ST-BRD_CCIV2(7/8)	B	No	No	Inside Pole	89.00 - 0.00	2	No Ice	0.00	0.88
							1/2" Ice	0.00	0.88
							1" Ice	0.00	0.88
							2" Ice	0.00	0.88
WR-VG82ST-BRDA(5/8)	B	No	No	Inside Pole	89.00 - 0.00	4	No Ice	0.00	0.31
							1/2" Ice	0.00	0.31
							1" Ice	0.00	0.31
							2" Ice	0.00	0.31
FB-L98-002-XXX(3/8)	B	No	No	Inside Pole	89.00 - 0.00	2	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
2" Flexible Conduit	B	No	No	Inside Pole	89.00 - 0.00	3	No Ice	0.00	0.34
							1/2" Ice	0.00	0.34
							1" Ice	0.00	0.34
							2" Ice	0.00	0.34

Feed Line/Linear Appurtenances Section Areas

Tower Sectio n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	117.00-112.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.01
L2	112.00-110.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.075	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L3	110.00-105.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	4.338	0.000	0.09
		C	0.000	0.000	0.000	0.000	0.01
L4	105.00-100.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	4.338	0.000	0.09
		C	0.000	0.000	0.000	0.000	0.01
L5	100.00-95.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	4.338	0.000	0.09
		C	0.000	0.000	0.000	0.000	0.03
L6	95.00-90.00	A	0.000	0.000	0.688	0.000	0.00
		B	0.000	0.000	4.338	0.000	0.09
		C	0.000	0.000	0.000	0.000	0.03
L7	90.00-85.00	A	0.000	0.000	1.146	0.000	0.00
		B	0.000	0.000	4.338	0.000	0.14
		C	0.000	0.000	0.000	0.000	0.03
L8	85.00-82.38	A	0.000	0.000	2.702	0.000	0.01
		B	0.000	0.000	3.398	0.000	0.08
		C	0.000	0.000	1.125	0.000	0.02
L9	82.38-82.13	A	0.000	0.000	0.396	0.000	0.00
		B	0.000	0.000	0.404	0.000	0.01
		C	0.000	0.000	0.188	0.000	0.00
L10	82.13-81.88	A	0.000	0.000	0.396	0.000	0.00
		B	0.000	0.000	0.404	0.000	0.01
		C	0.000	0.000	0.188	0.000	0.00
L11	81.88-81.63	A	0.000	0.000	0.396	0.000	0.00
		B	0.000	0.000	0.404	0.000	0.01
		C	0.000	0.000	0.188	0.000	0.00
L12	81.63-76.63	A	0.000	0.000	8.158	0.000	0.02
		B	0.000	0.000	8.334	0.000	0.15
		C	0.000	0.000	3.997	0.000	0.03
L13	76.63-76.00	A	0.000	0.000	1.417	0.000	0.00
		B	0.000	0.000	1.439	0.000	0.02
		C	0.000	0.000	0.892	0.000	0.00
L14	76.00-75.75	A	0.000	0.000	0.597	0.000	0.00
		B	0.000	0.000	0.571	0.000	0.01
		C	0.000	0.000	0.354	0.000	0.00
L15	75.75-70.75	A	0.000	0.000	13.075	0.000	0.03
		B	0.000	0.000	12.546	0.000	0.15
		C	0.000	0.000	8.208	0.000	0.03
L16	70.75-70.50	A	0.000	0.000	0.865	0.000	0.00
		B	0.000	0.000	0.711	0.000	0.01
		C	0.000	0.000	0.494	0.000	0.00
L17	70.50-67.98	A	0.000	0.000	10.433	0.000	0.02
		B	0.000	0.000	8.276	0.000	0.08
		C	0.000	0.000	6.090	0.000	0.02
L18	67.98-67.73	A	0.000	0.000	1.035	0.000	0.00
		B	0.000	0.000	0.821	0.000	0.01
		C	0.000	0.000	0.604	0.000	0.00
L19	67.73-63.50	A	0.000	0.000	15.051	0.000	0.03
		B	0.000	0.000	12.684	0.000	0.13
		C	0.000	0.000	9.014	0.000	0.03
L20	63.50-63.25	A	0.000	0.000	0.868	0.000	0.00
		B	0.000	0.000	0.842	0.000	0.01
		C	0.000	0.000	0.625	0.000	0.00
L21	63.25-58.25	A	0.000	0.000	17.366	0.000	0.03
		B	0.000	0.000	16.837	0.000	0.15
		C	0.000	0.000	12.500	0.000	0.03
L22	58.25-53.25	A	0.000	0.000	17.366	0.000	0.03
		B	0.000	0.000	16.837	0.000	0.15
		C	0.000	0.000	12.500	0.000	0.03
L23	53.25-47.42	A	0.000	0.000	20.034	0.000	0.04
		B	0.000	0.000	19.418	0.000	0.18

Tower Section	Tower Elevation	Face	A _R	A _F	C _{AA} In Face	C _{AA} Out Face	Weight
n	ft		ft ²	ft ²	ft ²	ft ²	K
L24	47.42-46.42	C	0.000	0.000	14.360	0.000	0.04
		A	0.000	0.000	3.390	0.000	0.01
		B	0.000	0.000	3.284	0.000	0.03
L25	46.42-43.50	C	0.000	0.000	2.417	0.000	0.01
		A	0.000	0.000	11.024	0.000	0.02
		B	0.000	0.000	10.715	0.000	0.09
L26	43.50-43.25	C	0.000	0.000	8.182	0.000	0.02
		A	0.000	0.000	1.035	0.000	0.00
		B	0.000	0.000	1.009	0.000	0.01
L27	43.25-38.25	C	0.000	0.000	0.792	0.000	0.00
		A	0.000	0.000	20.700	0.000	0.03
		B	0.000	0.000	20.171	0.000	0.15
L28	38.25-33.50	C	0.000	0.000	15.833	0.000	0.03
		A	0.000	0.000	19.585	0.000	0.03
		B	0.000	0.000	19.082	0.000	0.14
L29	33.50-33.25	C	0.000	0.000	14.962	0.000	0.03
		A	0.000	0.000	1.056	0.000	0.00
		B	0.000	0.000	1.029	0.000	0.01
L30	33.25-33.00	C	0.000	0.000	0.813	0.000	0.00
		A	0.000	0.000	1.056	0.000	0.00
		B	0.000	0.000	1.029	0.000	0.01
L31	33.00-32.75	C	0.000	0.000	0.813	0.000	0.00
		A	0.000	0.000	1.056	0.000	0.00
		B	0.000	0.000	1.029	0.000	0.01
L32	32.75-31.50	C	0.000	0.000	0.813	0.000	0.00
		A	0.000	0.000	5.279	0.000	0.01
		B	0.000	0.000	5.147	0.000	0.04
L33	31.50-31.25	C	0.000	0.000	4.063	0.000	0.01
		A	0.000	0.000	1.056	0.000	0.00
		B	0.000	0.000	1.029	0.000	0.01
L34	31.25-26.25	C	0.000	0.000	0.813	0.000	0.00
		A	0.000	0.000	18.304	0.000	0.03
		B	0.000	0.000	17.775	0.000	0.15
L35	26.25-21.25	C	0.000	0.000	13.438	0.000	0.03
		A	0.000	0.000	17.366	0.000	0.03
		B	0.000	0.000	16.837	0.000	0.15
L36	21.25-16.25	C	0.000	0.000	12.500	0.000	0.03
		A	0.000	0.000	17.366	0.000	0.03
		B	0.000	0.000	16.837	0.000	0.15
L37	16.25-13.50	C	0.000	0.000	12.500	0.000	0.03
		A	0.000	0.000	9.552	0.000	0.02
		B	0.000	0.000	9.261	0.000	0.08
L38	13.50-13.25	C	0.000	0.000	6.875	0.000	0.02
		A	0.000	0.000	0.868	0.000	0.00
		B	0.000	0.000	0.842	0.000	0.01
L39	13.25-9.00	C	0.000	0.000	0.625	0.000	0.00
		A	0.000	0.000	13.637	0.000	0.03
		B	0.000	0.000	15.437	0.000	0.13
L40	9.00-8.75	C	0.000	0.000	10.625	0.000	0.03
		A	0.000	0.000	0.681	0.000	0.00
		B	0.000	0.000	1.029	0.000	0.01
L41	8.75-3.75	C	0.000	0.000	0.625	0.000	0.00
		A	0.000	0.000	13.617	0.000	0.03
		B	0.000	0.000	20.587	0.000	0.15
L42	3.75-0.00	C	0.000	0.000	12.500	0.000	0.03
		A	0.000	0.000	10.212	0.000	0.02
		B	0.000	0.000	14.691	0.000	0.11
		C	0.000	0.000	9.000	0.000	0.02

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation	Face or Leg	Ice Thickness	A _R	A _F	C _{AA} In Face	C _{AA} Out Face	Weight
n	ft		in	ft ²	ft ²	ft ²	ft ²	K
L1	117.00-112.00	A	1.444	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.631	0.000	0.02

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L2	112.00-110.00	C	1.439	0.000	0.000	0.000	0.000	0.01
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.651	0.000	0.01
L3	110.00-105.00	C	1.435	0.000	0.000	0.000	0.000	0.00
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	8.603	0.000	0.18
L4	105.00-100.00	C	1.428	0.000	0.000	0.000	0.000	0.01
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	8.588	0.000	0.18
L5	100.00-95.00	C	1.421	0.000	0.000	0.000	0.000	0.01
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	8.572	0.000	0.18
L6	95.00-90.00	C	1.413	0.000	0.000	0.000	0.000	0.03
		A		0.000	0.000	1.920	0.000	0.02
		B		0.000	0.000	8.555	0.000	0.18
L7	90.00-85.00	C	1.406	0.000	0.000	0.000	0.000	0.03
		A		0.000	0.000	3.189	0.000	0.03
		B		0.000	0.000	8.538	0.000	0.22
L8	85.00-82.38	C	1.399	0.000	0.000	0.000	0.000	0.03
		A		0.000	0.000	5.000	0.000	0.06
		B		0.000	0.000	5.982	0.000	0.14
L9	82.38-82.13	C	1.397	0.000	0.000	1.515	0.000	0.03
		A		0.000	0.000	0.692	0.000	0.01
		B		0.000	0.000	0.678	0.000	0.01
L10	82.13-81.88	C	1.397	0.000	0.000	0.253	0.000	0.00
		A		0.000	0.000	0.692	0.000	0.01
		B		0.000	0.000	0.678	0.000	0.01
L11	81.88-81.63	C	1.396	0.000	0.000	0.252	0.000	0.00
		A		0.000	0.000	0.692	0.000	0.01
		B		0.000	0.000	0.678	0.000	0.01
L12	81.63-76.63	C	1.391	0.000	0.000	0.252	0.000	0.00
		A		0.000	0.000	14.139	0.000	0.17
		B		0.000	0.000	13.871	0.000	0.28
L13	76.63-76.00	C	1.386	0.000	0.000	5.365	0.000	0.08
		A		0.000	0.000	2.280	0.000	0.03
		B		0.000	0.000	2.247	0.000	0.04
L14	76.00-75.75	C	1.386	0.000	0.000	1.177	0.000	0.01
		A		0.000	0.000	1.009	0.000	0.01
		B		0.000	0.000	0.892	0.000	0.02
L15	75.75-70.75	C	1.381	0.000	0.000	0.467	0.000	0.01
		A		0.000	0.000	21.700	0.000	0.25
		B		0.000	0.000	19.354	0.000	0.33
L16	70.75-70.50	C	1.376	0.000	0.000	10.872	0.000	0.13
		A		0.000	0.000	1.365	0.000	0.01
		B		0.000	0.000	1.077	0.000	0.02
L17	70.50-67.98	C	1.373	0.000	0.000	0.653	0.000	0.01
		A		0.000	0.000	15.936	0.000	0.16
		B		0.000	0.000	12.221	0.000	0.18
L18	67.98-67.73	C	1.370	0.000	0.000	7.955	0.000	0.08
		A		0.000	0.000	1.580	0.000	0.02
		B		0.000	0.000	1.212	0.000	0.02
L19	67.73-63.50	C	1.366	0.000	0.000	0.789	0.000	0.01
		A		0.000	0.000	23.533	0.000	0.25
		B		0.000	0.000	19.020	0.000	0.29
L20	63.50-63.25	C	1.361	0.000	0.000	11.873	0.000	0.13
		A		0.000	0.000	1.363	0.000	0.01
		B		0.000	0.000	1.251	0.000	0.02
L21	63.25-58.25	C	1.355	0.000	0.000	0.829	0.000	0.01
		A		0.000	0.000	27.216	0.000	0.28
		B		0.000	0.000	24.990	0.000	0.36
L22	58.25-53.25	C	1.344	0.000	0.000	16.566	0.000	0.17
		A		0.000	0.000	27.140	0.000	0.28
		B		0.000	0.000	24.929	0.000	0.36
L23	53.25-47.42	C	1.330	0.000	0.000	16.531	0.000	0.17
		A		0.000	0.000	31.327	0.000	0.32
		B		0.000	0.000	28.768	0.000	0.42
L24	47.42-46.42	C	1.321	0.000	0.000	19.012	0.000	0.19
		A		0.000	0.000	5.327	0.000	0.05
		B		0.000	0.000	4.888	0.000	0.07

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L25	46.42-43.50	C		0.000	0.000	3.215	0.000	0.03
		A	1.315	0.000	0.000	17.018	0.000	0.17
		B		0.000	0.000	15.747	0.000	0.22
		C		0.000	0.000	10.880	0.000	0.10
L26	43.50-43.25	A	1.310	0.000	0.000	1.578	0.000	0.02
		B		0.000	0.000	1.470	0.000	0.02
		C		0.000	0.000	1.054	0.000	0.01
L27	43.25-38.25	A	1.302	0.000	0.000	31.506	0.000	0.31
		B		0.000	0.000	29.347	0.000	0.39
		C		0.000	0.000	21.042	0.000	0.20
L28	38.25-33.50	A	1.286	0.000	0.000	29.713	0.000	0.29
		B		0.000	0.000	27.681	0.000	0.37
		C		0.000	0.000	19.827	0.000	0.18
L29	33.50-33.25	A	1.276	0.000	0.000	1.587	0.000	0.02
		B		0.000	0.000	1.480	0.000	0.02
		C		0.000	0.000	1.068	0.000	0.01
L30	33.25-33.00	A	1.275	0.000	0.000	1.586	0.000	0.02
		B		0.000	0.000	1.480	0.000	0.02
		C		0.000	0.000	1.068	0.000	0.01
L31	33.00-32.75	A	1.275	0.000	0.000	1.586	0.000	0.02
		B		0.000	0.000	1.480	0.000	0.02
		C		0.000	0.000	1.067	0.000	0.01
L32	32.75-31.50	A	1.272	0.000	0.000	7.923	0.000	0.08
		B		0.000	0.000	7.393	0.000	0.10
		C		0.000	0.000	5.334	0.000	0.05
L33	31.50-31.25	A	1.269	0.000	0.000	1.584	0.000	0.02
		B		0.000	0.000	1.478	0.000	0.02
		C		0.000	0.000	1.066	0.000	0.01
L34	31.25-26.25	A	1.257	0.000	0.000	27.832	0.000	0.27
		B		0.000	0.000	25.729	0.000	0.36
		C		0.000	0.000	17.524	0.000	0.16
L35	26.25-21.25	A	1.234	0.000	0.000	26.426	0.000	0.25
		B		0.000	0.000	24.352	0.000	0.34
		C		0.000	0.000	16.201	0.000	0.15
L36	21.25-16.25	A	1.205	0.000	0.000	26.238	0.000	0.25
		B		0.000	0.000	24.200	0.000	0.34
		C		0.000	0.000	16.115	0.000	0.15
L37	16.25-13.50	A	1.177	0.000	0.000	14.333	0.000	0.13
		B		0.000	0.000	13.231	0.000	0.18
		C		0.000	0.000	8.818	0.000	0.08
L38	13.50-13.25	A	1.165	0.000	0.000	1.299	0.000	0.01
		B		0.000	0.000	1.200	0.000	0.02
		C		0.000	0.000	0.800	0.000	0.01
L39	13.25-9.00	A	1.144	0.000	0.000	20.496	0.000	0.19
		B		0.000	0.000	21.621	0.000	0.29
		C		0.000	0.000	13.541	0.000	0.12
L40	9.00-8.75	A	1.118	0.000	0.000	1.040	0.000	0.01
		B		0.000	0.000	1.407	0.000	0.02
		C		0.000	0.000	0.793	0.000	0.01
L41	8.75-3.75	A	1.079	0.000	0.000	20.593	0.000	0.19
		B		0.000	0.000	27.924	0.000	0.34
		C		0.000	0.000	15.738	0.000	0.13
L42	3.75-0.00	A	0.957	0.000	0.000	14.939	0.000	0.13
		B		0.000	0.000	19.511	0.000	0.23
		C		0.000	0.000	11.057	0.000	0.09

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L1	117.00-112.00	0.1142	-0.1979	0.5795	-1.0037
L2	112.00-110.00	0.1143	-0.1979	0.5860	-1.0150
L3	110.00-105.00	3.0188	-1.8254	2.8886	-2.0375
L4	105.00-100.00	3.0783	-1.8617	2.9875	-2.1078

Section	Elevation	CP _x	CP _z	CP _x	CP _z
	ft	in	in	Ice in	Ice in
L5	100.00-95.00	3.1354	-1.8966	3.0826	-2.1751
L6	95.00-90.00	2.7488	-2.2956	2.4061	-2.6211
L7	90.00-85.00	2.5298	-2.5590	2.0608	-2.9077
L8	85.00-82.38	2.6821	-2.7225	1.9527	-2.9238
L9	82.38-82.13	2.8638	-2.7569	2.0262	-2.9105
L10	82.13-81.88	2.8688	-2.7612	2.0305	-2.9157
L11	81.88-81.63	2.8753	-2.7668	2.0354	-2.9218
L12	81.63-76.63	2.8552	-2.7414	2.0433	-2.9237
L13	76.63-76.00	2.2251	-2.1317	1.7157	-2.4466
L14	76.00-75.75	2.1434	-2.3157	1.5829	-2.7513
L15	75.75-70.75	2.0157	-2.1735	1.5158	-2.6259
L16	70.75-70.50	1.1820	-2.1759	0.9061	-2.6189
L17	70.50-67.98	0.8143	-2.0432	0.6264	-2.4809
L18	67.98-67.73	0.8238	-2.0640	0.6340	-2.5050
L19	67.73-63.50	0.5776	-1.9708	0.3942	-2.4377
L20	63.50-63.25	0.0350	-1.3473	-0.0621	-1.8898
L21	63.25-58.25	0.0366	-1.3693	-0.0617	-1.9215
L22	58.25-53.25	0.0397	-1.4111	-0.0608	-1.9811
L23	53.25-47.42	0.0433	-1.4695	-0.0601	-2.0567
L24	47.42-46.42	0.0446	-1.4973	-0.0605	-2.0875
L25	46.42-43.50	0.0416	-1.3756	-0.0548	-1.9412
L26	43.50-43.25	0.0391	-1.2782	-0.0507	-1.8230
L27	43.25-38.25	0.0404	-1.2968	-0.0502	-1.8491
L28	38.25-33.50	0.0430	-1.3360	-0.0492	-1.9022
L29	33.50-33.25	0.0433	-1.3250	-0.0478	-1.8982
L30	33.25-33.00	0.0434	-1.3267	-0.0478	-1.9006
L31	33.00-32.75	0.0436	-1.3286	-0.0477	-1.9030
L32	32.75-31.50	0.0439	-1.3337	-0.0475	-1.9100
L33	31.50-31.25	0.0443	-1.3384	-0.0473	-1.9164
L34	31.25-26.25	0.0516	-1.5372	-0.0519	-2.1655
L35	26.25-21.25	0.0568	-1.6467	-0.0519	-2.3018
L36	21.25-16.25	0.0595	-1.6841	-0.0494	-2.3478
L37	16.25-13.50	0.0616	-1.7128	-0.0470	-2.3807
L38	13.50-13.25	0.0624	-1.7238	-0.0459	-2.3925
L39	13.25-9.00	0.7854	-1.7402	0.5541	-2.3955
L40	9.00-8.75	2.1137	-1.7567	1.6643	-2.3861
L41	8.75-3.75	2.1379	-1.7755	1.6906	-2.3993
L42	3.75-0.00	1.9402	-1.8508	1.5369	-2.4525

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L1	1	Safety Line 3/8	112.00 - 117.00	1.0000	1.0000
L2	1	Safety Line 3/8	110.00 - 112.00	1.0000	1.0000
L3	1	Safety Line 3/8	105.00 - 110.00	1.0000	1.0000
L3	7	HCS 6X12 4AWG(1-5/8)	105.00 - 110.00	1.0000	1.0000
L4	1	Safety Line 3/8	100.00 - 105.00	1.0000	1.0000
L4	7	HCS 6X12 4AWG(1-5/8)	100.00 - 105.00	1.0000	1.0000
L5	1	Safety Line 3/8	95.00 - 100.00	1.0000	1.0000
L5	7	HCS 6X12 4AWG(1-5/8)	95.00 - 100.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L6	1	Safety Line 3/8	90.00 - 95.00	1.0000	1.0000
L6	7	HCS 6X12 4AWG(1-5/8)	90.00 - 95.00	1.0000	1.0000
L6	18	7983A(ELLIPTICAL)	90.00 - 93.00	1.0000	1.0000
L7	1	Safety Line 3/8	85.00 - 90.00	1.0000	1.0000
L7	7	HCS 6X12 4AWG(1-5/8)	85.00 - 90.00	1.0000	1.0000
L7	18	7983A(ELLIPTICAL)	85.00 - 90.00	1.0000	1.0000
L8	1	Safety Line 3/8	82.38 - 85.00	1.0000	1.0000
L8	7	HCS 6X12 4AWG(1-5/8)	82.38 - 85.00	1.0000	1.0000
L8	18	7983A(ELLIPTICAL)	82.38 - 85.00	1.0000	1.0000
L8	20	AVA7-50(1-5/8)	82.38 - 84.00	1.0000	1.0000
L8	58	(Area) CCI-65FP-045100 (H)	82.38 - 83.88	1.0000	1.0000
L8	60	(Area) CCI-65FP-045100 (H)	82.38 - 83.88	1.0000	1.0000
L8	61	(Area) CCI-65FP-045100 (H)	82.38 - 83.88	1.0000	1.0000
L9	1	Safety Line 3/8	82.13 - 82.38	1.0000	1.0000
L9	7	HCS 6X12 4AWG(1-5/8)	82.13 - 82.38	1.0000	1.0000
L9	18	7983A(ELLIPTICAL)	82.13 - 82.38	1.0000	1.0000
L9	20	AVA7-50(1-5/8)	82.13 - 82.38	1.0000	1.0000
L9	58	(Area) CCI-65FP-045100 (H)	82.13 - 82.38	1.0000	1.0000
L9	60	(Area) CCI-65FP-045100 (H)	82.13 - 82.38	1.0000	1.0000
L9	61	(Area) CCI-65FP-045100 (H)	82.13 - 82.38	1.0000	1.0000
L10	1	Safety Line 3/8	81.88 - 82.13	1.0000	1.0000
L10	7	HCS 6X12 4AWG(1-5/8)	81.88 - 82.13	1.0000	1.0000
L10	18	7983A(ELLIPTICAL)	81.88 - 82.13	1.0000	1.0000
L10	20	AVA7-50(1-5/8)	81.88 - 82.13	1.0000	1.0000
L10	58	(Area) CCI-65FP-045100 (H)	81.88 - 82.13	1.0000	1.0000
L10	60	(Area) CCI-65FP-045100 (H)	81.88 - 82.13	1.0000	1.0000
L10	61	(Area) CCI-65FP-045100 (H)	81.88 - 82.13	1.0000	1.0000
L11	1	Safety Line 3/8	81.63 - 81.88	1.0000	1.0000
L11	7	HCS 6X12 4AWG(1-5/8)	81.63 - 81.88	1.0000	1.0000
L11	18	7983A(ELLIPTICAL)	81.63 - 81.88	1.0000	1.0000
L11	20	AVA7-50(1-5/8)	81.63 - 81.88	1.0000	1.0000
L11	58	(Area) CCI-65FP-045100 (H)	81.63 - 81.88	1.0000	1.0000
L11	60	(Area) CCI-65FP-045100 (H)	81.63 - 81.88	1.0000	1.0000
L11	61	(Area) CCI-65FP-045100 (H)	81.63 - 81.88	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L12	1	Safety Line 3/8	76.63 - 81.63	1.0000	1.0000
L12	7	HCS 6X12 4AWG(1-5/8)	76.63 - 81.63	1.0000	1.0000
L12	18	7983A(ELLIPTICAL)	76.63 - 81.63	1.0000	1.0000
L12	20	AVA7-50(1-5/8)	76.63 - 81.63	1.0000	1.0000
L12	58	(Area) CCI-65FP-045100 (H)	76.63 - 81.63	1.0000	1.0000
L12	60	(Area) CCI-65FP-045100 (H)	76.63 - 81.63	1.0000	1.0000
L12	61	(Area) CCI-65FP-045100 (H)	76.63 - 81.63	1.0000	1.0000
L12	63	(Area) CCI-65FP-040075 (H)	76.63 - 77.00	1.0000	1.0000
L12	64	(Area) CCI-65FP-040075 (H)	76.63 - 77.00	1.0000	1.0000
L12	65	(Area) CCI-65FP-040075 (H)	76.63 - 77.00	1.0000	1.0000
L13	1	Safety Line 3/8	76.00 - 76.63	1.0000	1.0000
L13	7	HCS 6X12 4AWG(1-5/8)	76.00 - 76.63	1.0000	1.0000
L13	18	7983A(ELLIPTICAL)	76.00 - 76.63	1.0000	1.0000
L13	20	AVA7-50(1-5/8)	76.00 - 76.63	1.0000	1.0000
L13	58	(Area) CCI-65FP-045100 (H)	76.00 - 76.63	1.0000	1.0000
L13	60	(Area) CCI-65FP-045100 (H)	76.00 - 76.63	1.0000	1.0000
L13	61	(Area) CCI-65FP-045100 (H)	76.00 - 76.63	1.0000	1.0000
L13	63	(Area) CCI-65FP-040075 (H)	76.00 - 76.63	1.0000	1.0000
L13	64	(Area) CCI-65FP-040075 (H)	76.00 - 76.63	1.0000	1.0000
L13	65	(Area) CCI-65FP-040075 (H)	76.00 - 76.63	1.0000	1.0000
L14	1	Safety Line 3/8	75.75 - 76.00	1.0000	1.0000
L14	7	HCS 6X12 4AWG(1-5/8)	75.75 - 76.00	1.0000	1.0000
L14	18	7983A(ELLIPTICAL)	75.75 - 76.00	1.0000	1.0000
L14	20	AVA7-50(1-5/8)	75.75 - 76.00	1.0000	1.0000
L14	58	(Area) CCI-65FP-045100 (H)	75.75 - 76.00	1.0000	1.0000
L14	60	(Area) CCI-65FP-045100 (H)	75.75 - 76.00	1.0000	1.0000
L14	61	(Area) CCI-65FP-045100 (H)	75.75 - 76.00	1.0000	1.0000
L14	63	(Area) CCI-65FP-040075 (H)	75.75 - 76.00	1.0000	1.0000
L14	64	(Area) CCI-65FP-040075 (H)	75.75 - 76.00	1.0000	1.0000
L14	65	(Area) CCI-65FP-040075 (H)	75.75 - 76.00	1.0000	1.0000
L14	69	CU12PSM9P8XXX(1-3/8)	75.75 - 76.00	1.0000	1.0000
L15	1	Safety Line 3/8	70.75 - 75.75	1.0000	1.0000
L15	7	HCS 6X12 4AWG(1-5/8)	70.75 - 75.75	1.0000	1.0000
L15	18	7983A(ELLIPTICAL)	70.75 - 75.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L15	20	AVA7-50(1-5/8)	70.75 - 75.75	1.0000	1.0000
L15	37	(Area) Sabre MS450 (1.00x4.50)	70.75 - 72.25	1.0000	1.0000
L15	38	(Area) Sabre MS450 (1.00x4.50)	70.75 - 72.25	1.0000	1.0000
L15	39	(Area) Sabre MS450 (1.00x4.50)	70.75 - 72.25	1.0000	1.0000
L15	58	(Area) CCI-65FP-045100 (H)	70.75 - 75.75	1.0000	1.0000
L15	60	(Area) CCI-65FP-045100 (H)	70.75 - 75.75	1.0000	1.0000
L15	61	(Area) CCI-65FP-045100 (H)	70.75 - 75.75	1.0000	1.0000
L15	63	(Area) CCI-65FP-040075 (H)	70.75 - 75.75	1.0000	1.0000
L15	64	(Area) CCI-65FP-040075 (H)	70.75 - 75.75	1.0000	1.0000
L15	65	(Area) CCI-65FP-040075 (H)	70.75 - 75.75	1.0000	1.0000
L15	69	CU12PSM9P8XXX(1-3/8)	70.75 - 75.75	1.0000	1.0000
L16	1	Safety Line 3/8	70.50 - 70.75	1.0000	1.0000
L16	7	HCS 6X12 4AWG(1-5/8)	70.50 - 70.75	1.0000	1.0000
L16	18	7983A(ELLIPTICAL)	70.50 - 70.75	1.0000	1.0000
L16	20	AVA7-50(1-5/8)	70.50 - 70.75	1.0000	1.0000
L16	37	(Area) Sabre MS450 (1.00x4.50)	70.50 - 70.75	1.0000	1.0000
L16	38	(Area) Sabre MS450 (1.00x4.50)	70.50 - 70.75	1.0000	1.0000
L16	39	(Area) Sabre MS450 (1.00x4.50)	70.50 - 70.75	1.0000	1.0000
L16	54	(Area) CCI-65FP-060100 (H)	70.50 - 70.58	1.0000	1.0000
L16	55	(Area) CCI-65FP-060100 (H)	70.50 - 70.58	1.0000	1.0000
L16	56	(Area) CCI-65FP-060100 (H)	70.50 - 70.58	1.0000	1.0000
L16	58	(Area) CCI-65FP-045100 (H)	70.50 - 70.75	1.0000	1.0000
L16	60	(Area) CCI-65FP-045100 (H)	70.67 - 70.75	1.0000	1.0000
L16	61	(Area) CCI-65FP-045100 (H)	70.67 - 70.75	1.0000	1.0000
L16	63	(Area) CCI-65FP-040075 (H)	70.50 - 70.75	1.0000	1.0000
L16	64	(Area) CCI-65FP-040075 (H)	70.50 - 70.75	1.0000	1.0000
L16	65	(Area) CCI-65FP-040075 (H)	70.50 - 70.75	1.0000	1.0000
L16	69	CU12PSM9P8XXX(1-3/8)	70.50 - 70.75	1.0000	1.0000
L17	1	Safety Line 3/8	67.98 - 70.50	1.0000	1.0000
L17	7	HCS 6X12 4AWG(1-5/8)	67.98 - 70.50	1.0000	1.0000
L17	18	7983A(ELLIPTICAL)	67.98 - 70.50	1.0000	1.0000
L17	20	AVA7-50(1-5/8)	67.98 - 70.50	1.0000	1.0000
L17	37	(Area) Sabre MS450 (1.00x4.50)	67.98 - 70.50	1.0000	1.0000
L17	38	(Area) Sabre MS450 (1.00x4.50)	67.98 - 70.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L17	39	(Area) Sabre MS450 (1.00x4.50)	67.98 - 70.50	1.0000	1.0000
L17	54	(Area) CCI-65FP-060100 (H)	67.98 - 70.50	1.0000	1.0000
L17	55	(Area) CCI-65FP-060100 (H)	67.98 - 70.50	1.0000	1.0000
L17	56	(Area) CCI-65FP-060100 (H)	67.98 - 70.50	1.0000	1.0000
L17	58	(Area) CCI-65FP-045100 (H)	67.98 - 70.50	1.0000	1.0000
L17	63	(Area) CCI-65FP-040075 (H)	67.98 - 70.50	1.0000	1.0000
L17	64	(Area) CCI-65FP-040075 (H)	67.98 - 70.50	1.0000	1.0000
L17	65	(Area) CCI-65FP-040075 (H)	67.98 - 70.50	1.0000	1.0000
L17	69	CU12PSM9P8XXX(1-3/8)	67.98 - 70.50	1.0000	1.0000
L18	1	Safety Line 3/8	67.73 - 67.98	1.0000	1.0000
L18	7	HCS 6X12 4AWG(1-5/8)	67.73 - 67.98	1.0000	1.0000
L18	18	7983A(ELLIPTICAL)	67.73 - 67.98	1.0000	1.0000
L18	20	AVA7-50(1-5/8)	67.73 - 67.98	1.0000	1.0000
L18	37	(Area) Sabre MS450 (1.00x4.50)	67.73 - 67.98	1.0000	1.0000
L18	38	(Area) Sabre MS450 (1.00x4.50)	67.73 - 67.98	1.0000	1.0000
L18	39	(Area) Sabre MS450 (1.00x4.50)	67.73 - 67.98	1.0000	1.0000
L18	54	(Area) CCI-65FP-060100 (H)	67.73 - 67.98	1.0000	1.0000
L18	55	(Area) CCI-65FP-060100 (H)	67.73 - 67.98	1.0000	1.0000
L18	56	(Area) CCI-65FP-060100 (H)	67.73 - 67.98	1.0000	1.0000
L18	58	(Area) CCI-65FP-045100 (H)	67.73 - 67.98	1.0000	1.0000
L18	63	(Area) CCI-65FP-040075 (H)	67.73 - 67.98	1.0000	1.0000
L18	64	(Area) CCI-65FP-040075 (H)	67.73 - 67.98	1.0000	1.0000
L18	65	(Area) CCI-65FP-040075 (H)	67.73 - 67.98	1.0000	1.0000
L18	69	CU12PSM9P8XXX(1-3/8)	67.73 - 67.98	1.0000	1.0000
L19	1	Safety Line 3/8	63.50 - 67.73	1.0000	1.0000
L19	7	HCS 6X12 4AWG(1-5/8)	63.50 - 67.73	1.0000	1.0000
L19	18	7983A(ELLIPTICAL)	63.50 - 67.73	1.0000	1.0000
L19	20	AVA7-50(1-5/8)	63.50 - 67.73	1.0000	1.0000
L19	27	(Area) CCI-65FP-045100 (H)	63.50 - 65.00	1.0000	1.0000
L19	28	(Area) CCI-65FP-045100 (H)	63.50 - 65.00	1.0000	1.0000
L19	29	(Area) CCI-65FP-045100 (H)	63.50 - 65.00	1.0000	1.0000
L19	37	(Area) Sabre MS450 (1.00x4.50)	63.50 - 67.73	1.0000	1.0000
L19	38	(Area) Sabre MS450 (1.00x4.50)	63.50 - 67.73	1.0000	1.0000
L19	39	(Area) Sabre MS450 (1.00x4.50)	63.50 - 67.73	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L19	54	(Area) CCI-65FP-060100 (H)	63.50 - 67.73	1.0000	1.0000
L19	55	(Area) CCI-65FP-060100 (H)	63.50 - 67.73	1.0000	1.0000
L19	56	(Area) CCI-65FP-060100 (H)	63.50 - 67.73	1.0000	1.0000
L19	58	(Area) CCI-65FP-045100 (H)	65.17 - 67.73	1.0000	1.0000
L19	63	(Area) CCI-65FP-040075 (H)	67.00 - 67.73	1.0000	1.0000
L19	64	(Area) CCI-65FP-040075 (H)	67.00 - 67.73	1.0000	1.0000
L19	65	(Area) CCI-65FP-040075 (H)	67.00 - 67.73	1.0000	1.0000
L19	69	CU12PSM9P8XXX(1-3/8)	63.50 - 67.73	1.0000	1.0000
L20	1	Safety Line 3/8	63.25 - 63.50	1.0000	1.0000
L20	7	HCS 6X12 4AWG(1-5/8)	63.25 - 63.50	1.0000	1.0000
L20	18	7983A(ELLIPTICAL)	63.25 - 63.50	1.0000	1.0000
L20	20	AVA7-50(1-5/8)	63.25 - 63.50	1.0000	1.0000
L20	27	(Area) CCI-65FP-045100 (H)	63.25 - 63.50	1.0000	1.0000
L20	28	(Area) CCI-65FP-045100 (H)	63.25 - 63.50	1.0000	1.0000
L20	29	(Area) CCI-65FP-045100 (H)	63.25 - 63.50	1.0000	1.0000
L20	37	(Area) Sabre MS450 (1.00x4.50)	63.25 - 63.50	1.0000	1.0000
L20	38	(Area) Sabre MS450 (1.00x4.50)	63.25 - 63.50	1.0000	1.0000
L20	39	(Area) Sabre MS450 (1.00x4.50)	63.25 - 63.50	1.0000	1.0000
L20	54	(Area) CCI-65FP-060100 (H)	63.25 - 63.50	1.0000	1.0000
L20	55	(Area) CCI-65FP-060100 (H)	63.25 - 63.50	1.0000	1.0000
L20	56	(Area) CCI-65FP-060100 (H)	63.25 - 63.50	1.0000	1.0000
L20	69	CU12PSM9P8XXX(1-3/8)	63.25 - 63.50	1.0000	1.0000
L21	1	Safety Line 3/8	58.25 - 63.25	1.0000	1.0000
L21	7	HCS 6X12 4AWG(1-5/8)	58.25 - 63.25	1.0000	1.0000
L21	18	7983A(ELLIPTICAL)	58.25 - 63.25	1.0000	1.0000
L21	20	AVA7-50(1-5/8)	58.25 - 63.25	1.0000	1.0000
L21	27	(Area) CCI-65FP-045100 (H)	58.25 - 63.25	1.0000	1.0000
L21	28	(Area) CCI-65FP-045100 (H)	58.25 - 63.25	1.0000	1.0000
L21	29	(Area) CCI-65FP-045100 (H)	58.25 - 63.25	1.0000	1.0000
L21	37	(Area) Sabre MS450 (1.00x4.50)	58.25 - 63.25	1.0000	1.0000
L21	38	(Area) Sabre MS450 (1.00x4.50)	58.25 - 63.25	1.0000	1.0000
L21	39	(Area) Sabre MS450 (1.00x4.50)	58.25 - 63.25	1.0000	1.0000
L21	54	(Area) CCI-65FP-060100 (H)	58.25 - 63.25	1.0000	1.0000
L21	55	(Area) CCI-65FP-060100 (H)	58.25 - 63.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L21	56	(Area) CCI-65FP-060100 (H)	58.25 - 63.25	1.0000	1.0000
L21	69	CU12PSM9P8XXX(1-3/8)	58.25 - 63.25	1.0000	1.0000
L22	1	Safety Line 3/8	53.25 - 58.25	1.0000	1.0000
L22	7	HCS 6X12 4AWG(1-5/8)	53.25 - 58.25	1.0000	1.0000
L22	18	7983A(ELLIPTICAL)	53.25 - 58.25	1.0000	1.0000
L22	20	AVA7-50(1-5/8)	53.25 - 58.25	1.0000	1.0000
L22	27	(Area) CCI-65FP-045100 (H)	53.25 - 58.25	1.0000	1.0000
L22	28	(Area) CCI-65FP-045100 (H)	53.25 - 58.25	1.0000	1.0000
L22	29	(Area) CCI-65FP-045100 (H)	53.25 - 58.25	1.0000	1.0000
L22	37	(Area) Sabre MS450 (1.00x4.50)	53.25 - 58.25	1.0000	1.0000
L22	38	(Area) Sabre MS450 (1.00x4.50)	53.25 - 58.25	1.0000	1.0000
L22	39	(Area) Sabre MS450 (1.00x4.50)	53.25 - 58.25	1.0000	1.0000
L22	54	(Area) CCI-65FP-060100 (H)	53.25 - 58.25	1.0000	1.0000
L22	55	(Area) CCI-65FP-060100 (H)	53.25 - 58.25	1.0000	1.0000
L22	56	(Area) CCI-65FP-060100 (H)	53.25 - 58.25	1.0000	1.0000
L22	69	CU12PSM9P8XXX(1-3/8)	53.25 - 58.25	1.0000	1.0000
L23	1	Safety Line 3/8	47.42 - 53.25	1.0000	1.0000
L23	7	HCS 6X12 4AWG(1-5/8)	47.42 - 53.25	1.0000	1.0000
L23	18	7983A(ELLIPTICAL)	47.42 - 53.25	1.0000	1.0000
L23	20	AVA7-50(1-5/8)	47.42 - 53.25	1.0000	1.0000
L23	27	(Area) CCI-65FP-045100 (H)	47.42 - 53.25	1.0000	1.0000
L23	28	(Area) CCI-65FP-045100 (H)	47.42 - 53.25	1.0000	1.0000
L23	29	(Area) CCI-65FP-045100 (H)	47.42 - 53.25	1.0000	1.0000
L23	37	(Area) Sabre MS450 (1.00x4.50)	50.00 - 53.25	1.0000	1.0000
L23	38	(Area) Sabre MS450 (1.00x4.50)	50.00 - 53.25	1.0000	1.0000
L23	39	(Area) Sabre MS450 (1.00x4.50)	50.00 - 53.25	1.0000	1.0000
L23	45	(Area) CCI-65FP-040075 (H)	47.42 - 50.00	1.0000	1.0000
L23	46	(Area) CCI-65FP-040075 (H)	47.42 - 50.00	1.0000	1.0000
L23	47	(Area) CCI-65FP-040075 (H)	47.42 - 50.00	1.0000	1.0000
L23	54	(Area) CCI-65FP-060100 (H)	47.42 - 53.25	1.0000	1.0000
L23	55	(Area) CCI-65FP-060100 (H)	47.42 - 53.25	1.0000	1.0000
L23	56	(Area) CCI-65FP-060100 (H)	47.42 - 53.25	1.0000	1.0000
L23	69	CU12PSM9P8XXX(1-3/8)	47.42 - 53.25	1.0000	1.0000
L24	1	Safety Line 3/8	46.42 - 47.42	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L24	7	HCS 6X12 4AWG(1-5/8)	46.42 - 47.42	1.0000	1.0000
L24	18	7983A(ELLIPTICAL)	46.42 - 47.42	1.0000	1.0000
L24	20	AVA7-50(1-5/8)	46.42 - 47.42	1.0000	1.0000
L24	27	(Area) CCI-65FP-045100 (H)	46.42 - 47.42	1.0000	1.0000
L24	28	(Area) CCI-65FP-045100 (H)	46.42 - 47.42	1.0000	1.0000
L24	29	(Area) CCI-65FP-045100 (H)	46.42 - 47.42	1.0000	1.0000
L24	45	(Area) CCI-65FP-040075 (H)	46.42 - 47.42	1.0000	1.0000
L24	46	(Area) CCI-65FP-040075 (H)	46.42 - 47.42	1.0000	1.0000
L24	47	(Area) CCI-65FP-040075 (H)	46.42 - 47.42	1.0000	1.0000
L24	54	(Area) CCI-65FP-060100 (H)	46.42 - 47.42	1.0000	1.0000
L24	55	(Area) CCI-65FP-060100 (H)	46.42 - 47.42	1.0000	1.0000
L24	56	(Area) CCI-65FP-060100 (H)	46.42 - 47.42	1.0000	1.0000
L24	69	CU12PSM9P8XXX(1-3/8)	46.42 - 47.42	1.0000	1.0000
L25	1	Safety Line 3/8	43.50 - 46.42	1.0000	1.0000
L25	7	HCS 6X12 4AWG(1-5/8)	43.50 - 46.42	1.0000	1.0000
L25	18	7983A(ELLIPTICAL)	43.50 - 46.42	1.0000	1.0000
L25	20	AVA7-50(1-5/8)	43.50 - 46.42	1.0000	1.0000
L25	27	(Area) CCI-65FP-045100 (H)	43.50 - 46.42	1.0000	1.0000
L25	28	(Area) CCI-65FP-045100 (H)	43.50 - 46.42	1.0000	1.0000
L25	29	(Area) CCI-65FP-045100 (H)	43.50 - 46.42	1.0000	1.0000
L25	33	(Area) Sabre MS450 (1.00x4.50)	43.50 - 45.00	1.0000	1.0000
L25	34	(Area) Sabre MS450 (1.00x4.50)	43.50 - 45.00	1.0000	1.0000
L25	35	(Area) Sabre MS450 (1.00x4.50)	43.50 - 45.00	1.0000	1.0000
L25	45	(Area) CCI-65FP-040075 (H)	43.50 - 46.42	1.0000	1.0000
L25	46	(Area) CCI-65FP-040075 (H)	43.50 - 46.42	1.0000	1.0000
L25	47	(Area) CCI-65FP-040075 (H)	43.50 - 46.42	1.0000	1.0000
L25	54	(Area) CCI-65FP-060100 (H)	43.50 - 46.42	1.0000	1.0000
L25	55	(Area) CCI-65FP-060100 (H)	43.50 - 46.42	1.0000	1.0000
L25	56	(Area) CCI-65FP-060100 (H)	43.50 - 46.42	1.0000	1.0000
L25	69	CU12PSM9P8XXX(1-3/8)	43.50 - 46.42	1.0000	1.0000
L26	1	Safety Line 3/8	43.25 - 43.50	1.0000	1.0000
L26	7	HCS 6X12 4AWG(1-5/8)	43.25 - 43.50	1.0000	1.0000
L26	18	7983A(ELLIPTICAL)	43.25 - 43.50	1.0000	1.0000
L26	20	AVA7-50(1-5/8)	43.25 - 43.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L26	27	(Area) CCI-65FP-045100 (H)	43.25 - 43.50	1.0000	1.0000
L26	28	(Area) CCI-65FP-045100 (H)	43.25 - 43.50	1.0000	1.0000
L26	29	(Area) CCI-65FP-045100 (H)	43.25 - 43.50	1.0000	1.0000
L26	33	(Area) Sabre MS450 (1.00x4.50)	43.25 - 43.50	1.0000	1.0000
L26	34	(Area) Sabre MS450 (1.00x4.50)	43.25 - 43.50	1.0000	1.0000
L26	35	(Area) Sabre MS450 (1.00x4.50)	43.25 - 43.50	1.0000	1.0000
L26	45	(Area) CCI-65FP-040075 (H)	43.25 - 43.50	1.0000	1.0000
L26	46	(Area) CCI-65FP-040075 (H)	43.25 - 43.50	1.0000	1.0000
L26	47	(Area) CCI-65FP-040075 (H)	43.25 - 43.50	1.0000	1.0000
L26	54	(Area) CCI-65FP-060100 (H)	43.25 - 43.50	1.0000	1.0000
L26	55	(Area) CCI-65FP-060100 (H)	43.25 - 43.50	1.0000	1.0000
L26	56	(Area) CCI-65FP-060100 (H)	43.25 - 43.50	1.0000	1.0000
L26	69	CU12PSM9P8XXX(1-3/8)	43.25 - 43.50	1.0000	1.0000
L27	1	Safety Line 3/8	38.25 - 43.25	1.0000	1.0000
L27	7	HCS 6X12 4AWG(1-5/8)	38.25 - 43.25	1.0000	1.0000
L27	18	7983A(ELLIPTICAL)	38.25 - 43.25	1.0000	1.0000
L27	20	AVA7-50(1-5/8)	38.25 - 43.25	1.0000	1.0000
L27	27	(Area) CCI-65FP-045100 (H)	38.25 - 43.25	1.0000	1.0000
L27	28	(Area) CCI-65FP-045100 (H)	38.25 - 43.25	1.0000	1.0000
L27	29	(Area) CCI-65FP-045100 (H)	38.25 - 43.25	1.0000	1.0000
L27	33	(Area) Sabre MS450 (1.00x4.50)	38.25 - 43.25	1.0000	1.0000
L27	34	(Area) Sabre MS450 (1.00x4.50)	38.25 - 43.25	1.0000	1.0000
L27	35	(Area) Sabre MS450 (1.00x4.50)	38.25 - 43.25	1.0000	1.0000
L27	45	(Area) CCI-65FP-040075 (H)	38.25 - 43.25	1.0000	1.0000
L27	46	(Area) CCI-65FP-040075 (H)	38.25 - 43.25	1.0000	1.0000
L27	47	(Area) CCI-65FP-040075 (H)	38.25 - 43.25	1.0000	1.0000
L27	54	(Area) CCI-65FP-060100 (H)	38.25 - 43.25	1.0000	1.0000
L27	55	(Area) CCI-65FP-060100 (H)	38.25 - 43.25	1.0000	1.0000
L27	56	(Area) CCI-65FP-060100 (H)	38.25 - 43.25	1.0000	1.0000
L27	69	CU12PSM9P8XXX(1-3/8)	38.25 - 43.25	1.0000	1.0000
L28	1	Safety Line 3/8	33.50 - 38.25	1.0000	1.0000
L28	7	HCS 6X12 4AWG(1-5/8)	33.50 - 38.25	1.0000	1.0000
L28	18	7983A(ELLIPTICAL)	33.50 - 38.25	1.0000	1.0000
L28	20	AVA7-50(1-5/8)	33.50 - 38.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L28	23	(Area) CCI-65FP-060100 (H)	33.50 - 35.00	1.0000	1.0000
L28	24	(Area) CCI-65FP-060100 (H)	33.50 - 35.00	1.0000	1.0000
L28	25	(Area) CCI-65FP-060100 (H)	33.50 - 35.00	1.0000	1.0000
L28	27	(Area) CCI-65FP-045100 (H)	35.00 - 38.25	1.0000	1.0000
L28	28	(Area) CCI-65FP-045100 (H)	35.00 - 38.25	1.0000	1.0000
L28	29	(Area) CCI-65FP-045100 (H)	35.00 - 38.25	1.0000	1.0000
L28	33	(Area) Sabre MS450 (1.00x4.50)	33.50 - 38.25	1.0000	1.0000
L28	34	(Area) Sabre MS450 (1.00x4.50)	33.50 - 38.25	1.0000	1.0000
L28	35	(Area) Sabre MS450 (1.00x4.50)	33.50 - 38.25	1.0000	1.0000
L28	41	(Area) CCI-65FP-045100 (H)	33.50 - 35.00	1.0000	1.0000
L28	42	(Area) CCI-65FP-045100 (H)	33.50 - 35.00	1.0000	1.0000
L28	43	(Area) CCI-65FP-045100 (H)	33.50 - 35.00	1.0000	1.0000
L28	45	(Area) CCI-65FP-040075 (H)	35.00 - 38.25	1.0000	1.0000
L28	46	(Area) CCI-65FP-040075 (H)	35.00 - 38.25	1.0000	1.0000
L28	47	(Area) CCI-65FP-040075 (H)	35.00 - 38.25	1.0000	1.0000
L28	49	(Area) CCI-65FP-045100 (H)	33.50 - 35.50	1.0000	1.0000
L28	50	(Area) CCI-65FP-045100 (H)	33.50 - 35.50	1.0000	1.0000
L28	52	(Area) CCI-65FP-045100 (H)	33.50 - 35.50	1.0000	1.0000
L28	54	(Area) CCI-65FP-060100 (H)	35.58 - 38.25	1.0000	1.0000
L28	55	(Area) CCI-65FP-060100 (H)	35.58 - 38.25	1.0000	1.0000
L28	56	(Area) CCI-65FP-060100 (H)	35.58 - 38.25	1.0000	1.0000
L28	69	CU12PSM9P8XXX(1-3/8)	33.50 - 38.25	1.0000	1.0000
L29	1	Safety Line 3/8	33.25 - 33.50	1.0000	1.0000
L29	7	HCS 6X12 4AWG(1-5/8)	33.25 - 33.50	1.0000	1.0000
L29	18	7983A(ELLIPTICAL)	33.25 - 33.50	1.0000	1.0000
L29	20	AVA7-50(1-5/8)	33.25 - 33.50	1.0000	1.0000
L29	23	(Area) CCI-65FP-060100 (H)	33.25 - 33.50	1.0000	1.0000
L29	24	(Area) CCI-65FP-060100 (H)	33.25 - 33.50	1.0000	1.0000
L29	25	(Area) CCI-65FP-060100 (H)	33.25 - 33.50	1.0000	1.0000
L29	33	(Area) Sabre MS450 (1.00x4.50)	33.25 - 33.50	1.0000	1.0000
L29	34	(Area) Sabre MS450 (1.00x4.50)	33.25 - 33.50	1.0000	1.0000
L29	35	(Area) Sabre MS450 (1.00x4.50)	33.25 - 33.50	1.0000	1.0000
L29	41	(Area) CCI-65FP-045100 (H)	33.25 - 33.50	1.0000	1.0000
L29	42	(Area) CCI-65FP-045100 (H)	33.25 - 33.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L29	43	(Area) CCI-65FP-045100 (H)	33.25 - 33.50	1.0000	1.0000
L29	49	(Area) CCI-65FP-045100 (H)	33.25 - 33.50	1.0000	1.0000
L29	50	(Area) CCI-65FP-045100 (H)	33.25 - 33.50	1.0000	1.0000
L29	52	(Area) CCI-65FP-045100 (H)	33.25 - 33.50	1.0000	1.0000
L29	69	CU12PSM9P8XXX(1-3/8)	33.25 - 33.50	1.0000	1.0000
L30	1	Safety Line 3/8	33.00 - 33.25	1.0000	1.0000
L30	7	HCS 6X12 4AWG(1-5/8)	33.00 - 33.25	1.0000	1.0000
L30	18	7983A(ELLIPTICAL)	33.00 - 33.25	1.0000	1.0000
L30	20	AVA7-50(1-5/8)	33.00 - 33.25	1.0000	1.0000
L30	23	(Area) CCI-65FP-060100 (H)	33.00 - 33.25	1.0000	1.0000
L30	24	(Area) CCI-65FP-060100 (H)	33.00 - 33.25	1.0000	1.0000
L30	25	(Area) CCI-65FP-060100 (H)	33.00 - 33.25	1.0000	1.0000
L30	33	(Area) Sabre MS450 (1.00x4.50)	33.00 - 33.25	1.0000	1.0000
L30	34	(Area) Sabre MS450 (1.00x4.50)	33.00 - 33.25	1.0000	1.0000
L30	35	(Area) Sabre MS450 (1.00x4.50)	33.00 - 33.25	1.0000	1.0000
L30	41	(Area) CCI-65FP-045100 (H)	33.00 - 33.25	1.0000	1.0000
L30	42	(Area) CCI-65FP-045100 (H)	33.00 - 33.25	1.0000	1.0000
L30	43	(Area) CCI-65FP-045100 (H)	33.00 - 33.25	1.0000	1.0000
L30	49	(Area) CCI-65FP-045100 (H)	33.00 - 33.25	1.0000	1.0000
L30	50	(Area) CCI-65FP-045100 (H)	33.00 - 33.25	1.0000	1.0000
L30	52	(Area) CCI-65FP-045100 (H)	33.00 - 33.25	1.0000	1.0000
L30	69	CU12PSM9P8XXX(1-3/8)	33.00 - 33.25	1.0000	1.0000
L31	1	Safety Line 3/8	32.75 - 33.00	1.0000	1.0000
L31	7	HCS 6X12 4AWG(1-5/8)	32.75 - 33.00	1.0000	1.0000
L31	18	7983A(ELLIPTICAL)	32.75 - 33.00	1.0000	1.0000
L31	20	AVA7-50(1-5/8)	32.75 - 33.00	1.0000	1.0000
L31	23	(Area) CCI-65FP-060100 (H)	32.75 - 33.00	1.0000	1.0000
L31	24	(Area) CCI-65FP-060100 (H)	32.75 - 33.00	1.0000	1.0000
L31	25	(Area) CCI-65FP-060100 (H)	32.75 - 33.00	1.0000	1.0000
L31	33	(Area) Sabre MS450 (1.00x4.50)	32.75 - 33.00	1.0000	1.0000
L31	34	(Area) Sabre MS450 (1.00x4.50)	32.75 - 33.00	1.0000	1.0000
L31	35	(Area) Sabre MS450 (1.00x4.50)	32.75 - 33.00	1.0000	1.0000
L31	41	(Area) CCI-65FP-045100 (H)	32.75 - 33.00	1.0000	1.0000
L31	42	(Area) CCI-65FP-045100 (H)	32.75 - 33.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L31	43	(Area) CCI-65FP-045100 (H)	32.75 - 33.00	1.0000	1.0000
L31	49	(Area) CCI-65FP-045100 (H)	32.75 - 33.00	1.0000	1.0000
L31	50	(Area) CCI-65FP-045100 (H)	32.75 - 33.00	1.0000	1.0000
L31	52	(Area) CCI-65FP-045100 (H)	32.75 - 33.00	1.0000	1.0000
L31	69	CU12PSM9P8XXX(1-3/8)	32.75 - 33.00	1.0000	1.0000
L32	1	Safety Line 3/8	31.50 - 32.75	1.0000	1.0000
L32	7	HCS 6X12 4AWG(1-5/8)	31.50 - 32.75	1.0000	1.0000
L32	18	7983A(ELLIPTICAL)	31.50 - 32.75	1.0000	1.0000
L32	20	AVA7-50(1-5/8)	31.50 - 32.75	1.0000	1.0000
L32	23	(Area) CCI-65FP-060100 (H)	31.50 - 32.75	1.0000	1.0000
L32	24	(Area) CCI-65FP-060100 (H)	31.50 - 32.75	1.0000	1.0000
L32	25	(Area) CCI-65FP-060100 (H)	31.50 - 32.75	1.0000	1.0000
L32	33	(Area) Sabre MS450 (1.00x4.50)	31.50 - 32.75	1.0000	1.0000
L32	34	(Area) Sabre MS450 (1.00x4.50)	31.50 - 32.75	1.0000	1.0000
L32	35	(Area) Sabre MS450 (1.00x4.50)	31.50 - 32.75	1.0000	1.0000
L32	41	(Area) CCI-65FP-045100 (H)	31.50 - 32.75	1.0000	1.0000
L32	42	(Area) CCI-65FP-045100 (H)	31.50 - 32.75	1.0000	1.0000
L32	43	(Area) CCI-65FP-045100 (H)	31.50 - 32.75	1.0000	1.0000
L32	49	(Area) CCI-65FP-045100 (H)	31.50 - 32.75	1.0000	1.0000
L32	50	(Area) CCI-65FP-045100 (H)	31.50 - 32.75	1.0000	1.0000
L32	52	(Area) CCI-65FP-045100 (H)	31.50 - 32.75	1.0000	1.0000
L32	69	CU12PSM9P8XXX(1-3/8)	31.50 - 32.75	1.0000	1.0000
L33	1	Safety Line 3/8	31.25 - 31.50	1.0000	1.0000
L33	7	HCS 6X12 4AWG(1-5/8)	31.25 - 31.50	1.0000	1.0000
L33	18	7983A(ELLIPTICAL)	31.25 - 31.50	1.0000	1.0000
L33	20	AVA7-50(1-5/8)	31.25 - 31.50	1.0000	1.0000
L33	23	(Area) CCI-65FP-060100 (H)	31.25 - 31.50	1.0000	1.0000
L33	24	(Area) CCI-65FP-060100 (H)	31.25 - 31.50	1.0000	1.0000
L33	25	(Area) CCI-65FP-060100 (H)	31.25 - 31.50	1.0000	1.0000
L33	33	(Area) Sabre MS450 (1.00x4.50)	31.25 - 31.50	1.0000	1.0000
L33	34	(Area) Sabre MS450 (1.00x4.50)	31.25 - 31.50	1.0000	1.0000
L33	35	(Area) Sabre MS450 (1.00x4.50)	31.25 - 31.50	1.0000	1.0000
L33	41	(Area) CCI-65FP-045100 (H)	31.25 - 31.50	1.0000	1.0000
L33	42	(Area) CCI-65FP-045100 (H)	31.25 - 31.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L33	43	(Area) CCI-65FP-045100 (H)	31.25 - 31.50	1.0000	1.0000
L33	49	(Area) CCI-65FP-045100 (H)	31.25 - 31.50	1.0000	1.0000
L33	50	(Area) CCI-65FP-045100 (H)	31.25 - 31.50	1.0000	1.0000
L33	52	(Area) CCI-65FP-045100 (H)	31.25 - 31.50	1.0000	1.0000
L33	69	CU12PSM9P8XXX(1-3/8)	31.25 - 31.50	1.0000	1.0000
L34	1	Safety Line 3/8	26.25 - 31.25	1.0000	1.0000
L34	7	HCS 6X12 4AWG(1-5/8)	26.25 - 31.25	1.0000	1.0000
L34	18	7983A(ELLIPTICAL)	26.25 - 31.25	1.0000	1.0000
L34	20	AVA7-50(1-5/8)	26.25 - 31.25	1.0000	1.0000
L34	23	(Area) CCI-65FP-060100 (H)	26.25 - 31.25	1.0000	1.0000
L34	24	(Area) CCI-65FP-060100 (H)	26.25 - 31.25	1.0000	1.0000
L34	25	(Area) CCI-65FP-060100 (H)	26.25 - 31.25	1.0000	1.0000
L34	33	(Area) Sabre MS450 (1.00x4.50)	30.00 - 31.25	1.0000	1.0000
L34	34	(Area) Sabre MS450 (1.00x4.50)	30.00 - 31.25	1.0000	1.0000
L34	35	(Area) Sabre MS450 (1.00x4.50)	30.00 - 31.25	1.0000	1.0000
L34	41	(Area) CCI-65FP-045100 (H)	26.25 - 31.25	1.0000	1.0000
L34	42	(Area) CCI-65FP-045100 (H)	26.25 - 31.25	1.0000	1.0000
L34	43	(Area) CCI-65FP-045100 (H)	26.25 - 31.25	1.0000	1.0000
L34	49	(Area) CCI-65FP-045100 (H)	26.25 - 31.25	1.0000	1.0000
L34	50	(Area) CCI-65FP-045100 (H)	26.25 - 31.25	1.0000	1.0000
L34	52	(Area) CCI-65FP-045100 (H)	26.25 - 31.25	1.0000	1.0000
L34	69	CU12PSM9P8XXX(1-3/8)	26.25 - 31.25	1.0000	1.0000
L35	1	Safety Line 3/8	21.25 - 26.25	1.0000	1.0000
L35	7	HCS 6X12 4AWG(1-5/8)	21.25 - 26.25	1.0000	1.0000
L35	18	7983A(ELLIPTICAL)	21.25 - 26.25	1.0000	1.0000
L35	20	AVA7-50(1-5/8)	21.25 - 26.25	1.0000	1.0000
L35	23	(Area) CCI-65FP-060100 (H)	21.25 - 26.25	1.0000	1.0000
L35	24	(Area) CCI-65FP-060100 (H)	21.25 - 26.25	1.0000	1.0000
L35	25	(Area) CCI-65FP-060100 (H)	21.25 - 26.25	1.0000	1.0000
L35	41	(Area) CCI-65FP-045100 (H)	21.25 - 26.25	1.0000	1.0000
L35	42	(Area) CCI-65FP-045100 (H)	21.25 - 26.25	1.0000	1.0000
L35	43	(Area) CCI-65FP-045100 (H)	21.25 - 26.25	1.0000	1.0000
L35	49	(Area) CCI-65FP-045100 (H)	21.25 - 26.25	1.0000	1.0000
L35	50	(Area) CCI-65FP-045100 (H)	21.25 - 26.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L35	52	(Area) CCI-65FP-045100 (H)	21.25 - 26.25	1.0000	1.0000
L35	69	CU12PSM9P8XXX(1-3/8)	21.25 - 26.25	1.0000	1.0000
L36	1	Safety Line 3/8	16.25 - 21.25	1.0000	1.0000
L36	7	HCS 6X12 4AWG(1-5/8)	16.25 - 21.25	1.0000	1.0000
L36	18	7983A(ELLIPTICAL)	16.25 - 21.25	1.0000	1.0000
L36	20	AVA7-50(1-5/8)	16.25 - 21.25	1.0000	1.0000
L36	23	(Area) CCI-65FP-060100 (H)	16.25 - 21.25	1.0000	1.0000
L36	24	(Area) CCI-65FP-060100 (H)	16.25 - 21.25	1.0000	1.0000
L36	25	(Area) CCI-65FP-060100 (H)	16.25 - 21.25	1.0000	1.0000
L36	41	(Area) CCI-65FP-045100 (H)	16.25 - 21.25	1.0000	1.0000
L36	42	(Area) CCI-65FP-045100 (H)	16.25 - 21.25	1.0000	1.0000
L36	43	(Area) CCI-65FP-045100 (H)	16.25 - 21.25	1.0000	1.0000
L36	49	(Area) CCI-65FP-045100 (H)	16.25 - 21.25	1.0000	1.0000
L36	50	(Area) CCI-65FP-045100 (H)	16.25 - 21.25	1.0000	1.0000
L36	52	(Area) CCI-65FP-045100 (H)	16.25 - 21.25	1.0000	1.0000
L36	69	CU12PSM9P8XXX(1-3/8)	16.25 - 21.25	1.0000	1.0000
L37	1	Safety Line 3/8	13.50 - 16.25	1.0000	1.0000
L37	7	HCS 6X12 4AWG(1-5/8)	13.50 - 16.25	1.0000	1.0000
L37	18	7983A(ELLIPTICAL)	13.50 - 16.25	1.0000	1.0000
L37	20	AVA7-50(1-5/8)	13.50 - 16.25	1.0000	1.0000
L37	23	(Area) CCI-65FP-060100 (H)	13.50 - 16.25	1.0000	1.0000
L37	24	(Area) CCI-65FP-060100 (H)	13.50 - 16.25	1.0000	1.0000
L37	25	(Area) CCI-65FP-060100 (H)	13.50 - 16.25	1.0000	1.0000
L37	41	(Area) CCI-65FP-045100 (H)	13.50 - 16.25	1.0000	1.0000
L37	42	(Area) CCI-65FP-045100 (H)	13.50 - 16.25	1.0000	1.0000
L37	43	(Area) CCI-65FP-045100 (H)	13.50 - 16.25	1.0000	1.0000
L37	49	(Area) CCI-65FP-045100 (H)	13.50 - 16.25	1.0000	1.0000
L37	50	(Area) CCI-65FP-045100 (H)	13.50 - 16.25	1.0000	1.0000
L37	52	(Area) CCI-65FP-045100 (H)	13.50 - 16.25	1.0000	1.0000
L37	69	CU12PSM9P8XXX(1-3/8)	13.50 - 16.25	1.0000	1.0000
L38	1	Safety Line 3/8	13.25 - 13.50	1.0000	1.0000
L38	7	HCS 6X12 4AWG(1-5/8)	13.25 - 13.50	1.0000	1.0000
L38	18	7983A(ELLIPTICAL)	13.25 - 13.50	1.0000	1.0000
L38	20	AVA7-50(1-5/8)	13.25 - 13.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L38	23	(Area) CCI-65FP-060100 (H)	13.25 - 13.50	1.0000	1.0000
L38	24	(Area) CCI-65FP-060100 (H)	13.25 - 13.50	1.0000	1.0000
L38	25	(Area) CCI-65FP-060100 (H)	13.25 - 13.50	1.0000	1.0000
L38	41	(Area) CCI-65FP-045100 (H)	13.25 - 13.50	1.0000	1.0000
L38	42	(Area) CCI-65FP-045100 (H)	13.25 - 13.50	1.0000	1.0000
L38	43	(Area) CCI-65FP-045100 (H)	13.25 - 13.50	1.0000	1.0000
L38	49	(Area) CCI-65FP-045100 (H)	13.25 - 13.50	1.0000	1.0000
L38	50	(Area) CCI-65FP-045100 (H)	13.25 - 13.50	1.0000	1.0000
L38	52	(Area) CCI-65FP-045100 (H)	13.25 - 13.50	1.0000	1.0000
L38	69	CU12PSM9P8XXX(1-3/8)	13.25 - 13.50	1.0000	1.0000
L39	1	Safety Line 3/8	9.00 - 13.25	1.0000	1.0000
L39	7	HCS 6X12 4AWG(1-5/8)	9.00 - 13.25	1.0000	1.0000
L39	18	7983A(ELLIPTICAL)	9.00 - 13.25	1.0000	1.0000
L39	20	AVA7-50(1-5/8)	9.00 - 13.25	1.0000	1.0000
L39	23	(Area) CCI-65FP-060100 (H)	9.00 - 13.25	1.0000	1.0000
L39	24	(Area) CCI-65FP-060100 (H)	9.00 - 13.25	1.0000	1.0000
L39	25	(Area) CCI-65FP-060100 (H)	9.00 - 13.25	1.0000	1.0000
L39	31	(Area) Sabre MS450 (1.00x4.50)	9.00 - 10.50	1.0000	1.0000
L39	41	(Area) CCI-65FP-045100 (H)	9.00 - 13.25	1.0000	1.0000
L39	42	(Area) CCI-65FP-045100 (H)	9.00 - 13.25	1.0000	1.0000
L39	43	(Area) CCI-65FP-045100 (H)	9.00 - 13.25	1.0000	1.0000
L39	49	(Area) CCI-65FP-045100 (H)	9.00 - 13.25	1.0000	1.0000
L39	50	(Area) CCI-65FP-045100 (H)	9.00 - 13.25	1.0000	1.0000
L39	52	(Area) CCI-65FP-045100 (H)	10.50 - 13.25	1.0000	1.0000
L39	69	CU12PSM9P8XXX(1-3/8)	9.00 - 13.25	1.0000	1.0000
L40	1	Safety Line 3/8	8.75 - 9.00	1.0000	1.0000
L40	7	HCS 6X12 4AWG(1-5/8)	8.75 - 9.00	1.0000	1.0000
L40	18	7983A(ELLIPTICAL)	8.75 - 9.00	1.0000	1.0000
L40	20	AVA7-50(1-5/8)	8.75 - 9.00	1.0000	1.0000
L40	23	(Area) CCI-65FP-060100 (H)	8.75 - 9.00	1.0000	1.0000
L40	24	(Area) CCI-65FP-060100 (H)	8.75 - 9.00	1.0000	1.0000
L40	25	(Area) CCI-65FP-060100 (H)	8.75 - 9.00	1.0000	1.0000
L40	31	(Area) Sabre MS450 (1.00x4.50)	8.75 - 9.00	1.0000	1.0000
L40	41	(Area) CCI-65FP-045100 (H)	8.75 - 9.00	1.0000	1.0000
L40	42	(Area) CCI-65FP-045100 (H)	8.75 - 9.00	1.0000	1.0000
L40	43	(Area) CCI-65FP-045100 (H)	8.75 - 9.00	1.0000	1.0000
L40	49	(Area) CCI-65FP-045100 (H)	8.75 - 9.00	1.0000	1.0000
L40	50	(Area) CCI-65FP-045100 (H)	8.75 - 9.00	1.0000	1.0000
L40	69	CU12PSM9P8XXX(1-3/8)	8.75 - 9.00	1.0000	1.0000
L41	1	Safety Line 3/8	3.75 - 8.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L41	7	HCS 6X12 4AWG(1-5/8)	3.75 - 8.75	1.0000	1.0000
L41	18	7983A(ELLIPTICAL)	3.75 - 8.75	1.0000	1.0000
L41	20	AVA7-50(1-5/8)	3.75 - 8.75	1.0000	1.0000
L41	23	(Area) CCI-65FP-060100 (H)	3.75 - 8.75	1.0000	1.0000
L41	24	(Area) CCI-65FP-060100 (H)	3.75 - 8.75	1.0000	1.0000
L41	25	(Area) CCI-65FP-060100 (H)	3.75 - 8.75	1.0000	1.0000
L41	31	(Area) Sabre MS450 (1.00x4.50)	3.75 - 8.75	1.0000	1.0000
L41	41	(Area) CCI-65FP-045100 (H)	3.75 - 8.75	1.0000	1.0000
L41	42	(Area) CCI-65FP-045100 (H)	3.75 - 8.75	1.0000	1.0000
L41	43	(Area) CCI-65FP-045100 (H)	3.75 - 8.75	1.0000	1.0000
L41	49	(Area) CCI-65FP-045100 (H)	3.75 - 8.75	1.0000	1.0000
L41	50	(Area) CCI-65FP-045100 (H)	3.75 - 8.75	1.0000	1.0000
L41	69	CU12PSM9P8XXX(1-3/8)	3.75 - 8.75	1.0000	1.0000
L42	1	Safety Line 3/8	0.00 - 3.75	1.0000	1.0000
L42	7	HCS 6X12 4AWG(1-5/8)	0.00 - 3.75	1.0000	1.0000
L42	18	7983A(ELLIPTICAL)	0.00 - 3.75	1.0000	1.0000
L42	20	AVA7-50(1-5/8)	0.00 - 3.75	1.0000	1.0000
L42	23	(Area) CCI-65FP-060100 (H)	0.00 - 3.75	1.0000	1.0000
L42	24	(Area) CCI-65FP-060100 (H)	0.00 - 3.75	1.0000	1.0000
L42	25	(Area) CCI-65FP-060100 (H)	0.00 - 3.75	1.0000	1.0000
L42	31	(Area) Sabre MS450 (1.00x4.50)	0.50 - 3.75	1.0000	1.0000
L42	41	(Area) CCI-65FP-045100 (H)	0.00 - 3.75	1.0000	1.0000
L42	42	(Area) CCI-65FP-045100 (H)	0.00 - 3.75	1.0000	1.0000
L42	43	(Area) CCI-65FP-045100 (H)	0.00 - 3.75	1.0000	1.0000
L42	49	(Area) CCI-65FP-045100 (H)	0.50 - 3.75	1.0000	1.0000
L42	50	(Area) CCI-65FP-045100 (H)	0.50 - 3.75	1.0000	1.0000
L42	69	CU12PSM9P8XXX(1-3/8)	0.00 - 3.75	1.0000	1.0000

Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L8	58	(Area) CCI-65FP-045100 (H)	82.38 - 83.88	Auto	0.0000
L8	60	(Area) CCI-65FP-045100 (H)	82.38 - 83.88	Auto	0.0000
L8	61	(Area) CCI-65FP-045100 (H)	82.38 - 83.88	Auto	0.0000
L9	58	(Area) CCI-65FP-045100 (H)	82.13 - 82.38	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L9	60	(Area) CCI-65FP-045100 (H)	82.13 - 82.38	Auto	0.0000
L9	61	(Area) CCI-65FP-045100 (H)	82.13 - 82.38	Auto	0.0000
L10	58	(Area) CCI-65FP-045100 (H)	81.88 - 82.13	Auto	0.0000
L10	60	(Area) CCI-65FP-045100 (H)	81.88 - 82.13	Auto	0.0000
L10	61	(Area) CCI-65FP-045100 (H)	81.88 - 82.13	Auto	0.0000
L11	58	(Area) CCI-65FP-045100 (H)	81.63 - 81.88	Auto	0.0000
L11	60	(Area) CCI-65FP-045100 (H)	81.63 - 81.88	Auto	0.0000
L11	61	(Area) CCI-65FP-045100 (H)	81.63 - 81.88	Auto	0.0000
L12	58	(Area) CCI-65FP-045100 (H)	76.63 - 81.63	Auto	0.0000
L12	60	(Area) CCI-65FP-045100 (H)	76.63 - 81.63	Auto	0.0000
L12	61	(Area) CCI-65FP-045100 (H)	76.63 - 81.63	Auto	0.0000
L12	63	(Area) CCI-65FP-040075 (H)	76.63 - 77.00	Auto	0.0000
L12	64	(Area) CCI-65FP-040075 (H)	76.63 - 77.00	Auto	0.0000
L12	65	(Area) CCI-65FP-040075 (H)	76.63 - 77.00	Auto	0.0000
L13	58	(Area) CCI-65FP-045100 (H)	76.00 - 76.63	Auto	0.0000
L13	60	(Area) CCI-65FP-045100 (H)	76.00 - 76.63	Auto	0.0000
L13	61	(Area) CCI-65FP-045100 (H)	76.00 - 76.63	Auto	0.0000
L13	63	(Area) CCI-65FP-040075 (H)	76.00 - 76.63	Auto	0.0000
L13	64	(Area) CCI-65FP-040075 (H)	76.00 - 76.63	Auto	0.0000
L13	65	(Area) CCI-65FP-040075 (H)	76.00 - 76.63	Auto	0.0000
L14	58	(Area) CCI-65FP-045100 (H)	75.75 - 76.00	Auto	0.0000
L14	60	(Area) CCI-65FP-045100 (H)	75.75 - 76.00	Auto	0.0000
L14	61	(Area) CCI-65FP-045100 (H)	75.75 - 76.00	Auto	0.0000
L14	63	(Area) CCI-65FP-040075 (H)	75.75 - 76.00	Auto	0.0000
L14	64	(Area) CCI-65FP-040075 (H)	75.75 - 76.00	Auto	0.0000
L14	65	(Area) CCI-65FP-040075 (H)	75.75 - 76.00	Auto	0.0000
L15	37	(Area) Sabre MS450 (1.00x4.50)	70.75 - 72.25	Auto	0.0000
L15	38	(Area) Sabre MS450 (1.00x4.50)	70.75 - 72.25	Auto	0.0000
L15	39	(Area) Sabre MS450 (1.00x4.50)	70.75 - 72.25	Auto	0.0000
L15	58	(Area) CCI-65FP-045100 (H)	70.75 - 75.75	Auto	0.0000
L15	60	(Area) CCI-65FP-045100 (H)	70.75 - 75.75	Auto	0.0000
L15	61	(Area) CCI-65FP-045100 (H)	70.75 - 75.75	Auto	0.0000
L15	63	(Area) CCI-65FP-040075 (H)	70.75 - 75.75	Auto	0.0000
L15	64	(Area) CCI-65FP-040075 (H)	70.75 - 75.75	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L15	65	(Area) CCI-65FP-040075 (H)	70.75 - 75.75	Auto	0.0000
L16	37	(Area) Sabre MS450 (1.00x4.50)	70.50 - 70.75	Auto	0.0000
L16	38	(Area) Sabre MS450 (1.00x4.50)	70.50 - 70.75	Auto	0.0000
L16	39	(Area) Sabre MS450 (1.00x4.50)	70.50 - 70.75	Auto	0.0000
L16	54	(Area) CCI-65FP-060100 (H)	70.50 - 70.58	Auto	0.1910
L16	55	(Area) CCI-65FP-060100 (H)	70.50 - 70.58	Auto	0.1910
L16	56	(Area) CCI-65FP-060100 (H)	70.50 - 70.58	Auto	0.1910
L16	58	(Area) CCI-65FP-045100 (H)	70.50 - 70.75	Auto	0.0000
L16	60	(Area) CCI-65FP-045100 (H)	70.67 - 70.75	Auto	0.0000
L16	61	(Area) CCI-65FP-045100 (H)	70.67 - 70.75	Auto	0.0000
L16	63	(Area) CCI-65FP-040075 (H)	70.50 - 70.75	Auto	0.0000
L16	64	(Area) CCI-65FP-040075 (H)	70.50 - 70.75	Auto	0.0000
L16	65	(Area) CCI-65FP-040075 (H)	70.50 - 70.75	Auto	0.0000
L17	37	(Area) Sabre MS450 (1.00x4.50)	67.98 - 70.50	Auto	0.0000
L17	38	(Area) Sabre MS450 (1.00x4.50)	67.98 - 70.50	Auto	0.0000
L17	39	(Area) Sabre MS450 (1.00x4.50)	67.98 - 70.50	Auto	0.0000
L17	54	(Area) CCI-65FP-060100 (H)	67.98 - 70.50	Auto	0.1946
L17	55	(Area) CCI-65FP-060100 (H)	67.98 - 70.50	Auto	0.1946
L17	56	(Area) CCI-65FP-060100 (H)	67.98 - 70.50	Auto	0.1946
L17	58	(Area) CCI-65FP-045100 (H)	67.98 - 70.50	Auto	0.0000
L17	63	(Area) CCI-65FP-040075 (H)	67.98 - 70.50	Auto	0.0000
L17	64	(Area) CCI-65FP-040075 (H)	67.98 - 70.50	Auto	0.0000
L17	65	(Area) CCI-65FP-040075 (H)	67.98 - 70.50	Auto	0.0000
L18	37	(Area) Sabre MS450 (1.00x4.50)	67.73 - 67.98	Auto	0.0000
L18	38	(Area) Sabre MS450 (1.00x4.50)	67.73 - 67.98	Auto	0.0000
L18	39	(Area) Sabre MS450 (1.00x4.50)	67.73 - 67.98	Auto	0.0000
L18	54	(Area) CCI-65FP-060100 (H)	67.73 - 67.98	Auto	0.1806
L18	55	(Area) CCI-65FP-060100 (H)	67.73 - 67.98	Auto	0.1806
L18	56	(Area) CCI-65FP-060100 (H)	67.73 - 67.98	Auto	0.1806
L18	58	(Area) CCI-65FP-045100 (H)	67.73 - 67.98	Auto	0.0000
L18	63	(Area) CCI-65FP-040075 (H)	67.73 - 67.98	Auto	0.0000
L18	64	(Area) CCI-65FP-040075 (H)	67.73 - 67.98	Auto	0.0000
L18	65	(Area) CCI-65FP-040075 (H)	67.73 - 67.98	Auto	0.0000
L19	27	(Area) CCI-65FP-045100 (H)	63.50 - 65.00	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L19	28	(Area) CCI-65FP-045100 (H)	63.50 - 65.00	Auto	0.0000
L19	29	(Area) CCI-65FP-045100 (H)	63.50 - 65.00	Auto	0.0000
L19	37	(Area) Sabre MS450 (1.00x4.50)	63.50 - 67.73	Auto	0.0000
L19	38	(Area) Sabre MS450 (1.00x4.50)	63.50 - 67.73	Auto	0.0000
L19	39	(Area) Sabre MS450 (1.00x4.50)	63.50 - 67.73	Auto	0.0000
L19	54	(Area) CCI-65FP-060100 (H)	63.50 - 67.73	Auto	0.1468
L19	55	(Area) CCI-65FP-060100 (H)	63.50 - 67.73	Auto	0.1468
L19	56	(Area) CCI-65FP-060100 (H)	63.50 - 67.73	Auto	0.1468
L19	58	(Area) CCI-65FP-045100 (H)	65.17 - 67.73	Auto	0.0000
L19	63	(Area) CCI-65FP-040075 (H)	67.00 - 67.73	Auto	0.0000
L19	64	(Area) CCI-65FP-040075 (H)	67.00 - 67.73	Auto	0.0000
L19	65	(Area) CCI-65FP-040075 (H)	67.00 - 67.73	Auto	0.0000
L20	27	(Area) CCI-65FP-045100 (H)	63.25 - 63.50	Auto	0.0000
L20	28	(Area) CCI-65FP-045100 (H)	63.25 - 63.50	Auto	0.0000
L20	29	(Area) CCI-65FP-045100 (H)	63.25 - 63.50	Auto	0.0000
L20	37	(Area) Sabre MS450 (1.00x4.50)	63.25 - 63.50	Auto	0.0000
L20	38	(Area) Sabre MS450 (1.00x4.50)	63.25 - 63.50	Auto	0.0000
L20	39	(Area) Sabre MS450 (1.00x4.50)	63.25 - 63.50	Auto	0.0000
L20	54	(Area) CCI-65FP-060100 (H)	63.25 - 63.50	Auto	0.2191
L20	55	(Area) CCI-65FP-060100 (H)	63.25 - 63.50	Auto	0.2191
L20	56	(Area) CCI-65FP-060100 (H)	63.25 - 63.50	Auto	0.2191
L21	27	(Area) CCI-65FP-045100 (H)	58.25 - 63.25	Auto	0.0000
L21	28	(Area) CCI-65FP-045100 (H)	58.25 - 63.25	Auto	0.0000
L21	29	(Area) CCI-65FP-045100 (H)	58.25 - 63.25	Auto	0.0000
L21	37	(Area) Sabre MS450 (1.00x4.50)	58.25 - 63.25	Auto	0.0000
L21	38	(Area) Sabre MS450 (1.00x4.50)	58.25 - 63.25	Auto	0.0000
L21	39	(Area) Sabre MS450 (1.00x4.50)	58.25 - 63.25	Auto	0.0000
L21	54	(Area) CCI-65FP-060100 (H)	58.25 - 63.25	Auto	0.1703
L21	55	(Area) CCI-65FP-060100 (H)	58.25 - 63.25	Auto	0.1703
L21	56	(Area) CCI-65FP-060100 (H)	58.25 - 63.25	Auto	0.1703
L22	27	(Area) CCI-65FP-045100 (H)	53.25 - 58.25	Auto	0.0000
L22	28	(Area) CCI-65FP-045100 (H)	53.25 - 58.25	Auto	0.0000
L22	29	(Area) CCI-65FP-045100 (H)	53.25 - 58.25	Auto	0.0000
L22	37	(Area) Sabre MS450 (1.00x4.50)	53.25 - 58.25	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L22	38	(Area) Sabre MS450 (1.00x4.50)	53.25 - 58.25	Auto	0.0000
L22	39	(Area) Sabre MS450 (1.00x4.50)	53.25 - 58.25	Auto	0.0000
L22	54	(Area) CCI-65FP-060100 (H)	53.25 - 58.25	Auto	0.1086
L22	55	(Area) CCI-65FP-060100 (H)	53.25 - 58.25	Auto	0.1086
L22	56	(Area) CCI-65FP-060100 (H)	53.25 - 58.25	Auto	0.1086
L23	27	(Area) CCI-65FP-045100 (H)	47.42 - 53.25	Auto	0.0000
L23	28	(Area) CCI-65FP-045100 (H)	47.42 - 53.25	Auto	0.0000
L23	29	(Area) CCI-65FP-045100 (H)	47.42 - 53.25	Auto	0.0000
L23	37	(Area) Sabre MS450 (1.00x4.50)	50.00 - 53.25	Auto	0.0000
L23	38	(Area) Sabre MS450 (1.00x4.50)	50.00 - 53.25	Auto	0.0000
L23	39	(Area) Sabre MS450 (1.00x4.50)	50.00 - 53.25	Auto	0.0000
L23	45	(Area) CCI-65FP-040075 (H)	47.42 - 50.00	Auto	0.0000
L23	46	(Area) CCI-65FP-040075 (H)	47.42 - 50.00	Auto	0.0000
L23	47	(Area) CCI-65FP-040075 (H)	47.42 - 50.00	Auto	0.0000
L23	54	(Area) CCI-65FP-060100 (H)	47.42 - 53.25	Auto	0.0539
L23	55	(Area) CCI-65FP-060100 (H)	47.42 - 53.25	Auto	0.0539
L23	56	(Area) CCI-65FP-060100 (H)	47.42 - 53.25	Auto	0.0539
L24	27	(Area) CCI-65FP-045100 (H)	46.42 - 47.42	Auto	0.0000
L24	28	(Area) CCI-65FP-045100 (H)	46.42 - 47.42	Auto	0.0000
L24	29	(Area) CCI-65FP-045100 (H)	46.42 - 47.42	Auto	0.0000
L24	45	(Area) CCI-65FP-040075 (H)	46.42 - 47.42	Auto	0.0000
L24	46	(Area) CCI-65FP-040075 (H)	46.42 - 47.42	Auto	0.0000
L24	47	(Area) CCI-65FP-040075 (H)	46.42 - 47.42	Auto	0.0000
L24	54	(Area) CCI-65FP-060100 (H)	46.42 - 47.42	Auto	0.0502
L24	55	(Area) CCI-65FP-060100 (H)	46.42 - 47.42	Auto	0.0502
L24	56	(Area) CCI-65FP-060100 (H)	46.42 - 47.42	Auto	0.0502
L25	27	(Area) CCI-65FP-045100 (H)	43.50 - 46.42	Auto	0.0000
L25	28	(Area) CCI-65FP-045100 (H)	43.50 - 46.42	Auto	0.0000
L25	29	(Area) CCI-65FP-045100 (H)	43.50 - 46.42	Auto	0.0000
L25	33	(Area) Sabre MS450 (1.00x4.50)	43.50 - 45.00	Auto	0.0000
L25	34	(Area) Sabre MS450 (1.00x4.50)	43.50 - 45.00	Auto	0.0000
L25	35	(Area) Sabre MS450 (1.00x4.50)	43.50 - 45.00	Auto	0.0000
L25	45	(Area) CCI-65FP-040075 (H)	43.50 - 46.42	Auto	0.0000
L25	46	(Area) CCI-65FP-040075 (H)	43.50 - 46.42	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L25	47	(Area) CCI-65FP-040075 (H)	43.50 - 46.42	Auto	0.0000
L25	54	(Area) CCI-65FP-060100 (H)	43.50 - 46.42	Auto	0.0248
L25	55	(Area) CCI-65FP-060100 (H)	43.50 - 46.42	Auto	0.0248
L25	56	(Area) CCI-65FP-060100 (H)	43.50 - 46.42	Auto	0.0248
L26	27	(Area) CCI-65FP-045100 (H)	43.25 - 43.50	Auto	0.0000
L26	28	(Area) CCI-65FP-045100 (H)	43.25 - 43.50	Auto	0.0000
L26	29	(Area) CCI-65FP-045100 (H)	43.25 - 43.50	Auto	0.0000
L26	33	(Area) Sabre MS450 (1.00x4.50)	43.25 - 43.50	Auto	0.0000
L26	34	(Area) Sabre MS450 (1.00x4.50)	43.25 - 43.50	Auto	0.0000
L26	35	(Area) Sabre MS450 (1.00x4.50)	43.25 - 43.50	Auto	0.0000
L26	45	(Area) CCI-65FP-040075 (H)	43.25 - 43.50	Auto	0.0000
L26	46	(Area) CCI-65FP-040075 (H)	43.25 - 43.50	Auto	0.0000
L26	47	(Area) CCI-65FP-040075 (H)	43.25 - 43.50	Auto	0.0000
L26	54	(Area) CCI-65FP-060100 (H)	43.25 - 43.50	Auto	0.0814
L26	55	(Area) CCI-65FP-060100 (H)	43.25 - 43.50	Auto	0.0814
L26	56	(Area) CCI-65FP-060100 (H)	43.25 - 43.50	Auto	0.0814
L27	27	(Area) CCI-65FP-045100 (H)	38.25 - 43.25	Auto	0.0000
L27	28	(Area) CCI-65FP-045100 (H)	38.25 - 43.25	Auto	0.0000
L27	29	(Area) CCI-65FP-045100 (H)	38.25 - 43.25	Auto	0.0000
L27	33	(Area) Sabre MS450 (1.00x4.50)	38.25 - 43.25	Auto	0.0000
L27	34	(Area) Sabre MS450 (1.00x4.50)	38.25 - 43.25	Auto	0.0000
L27	35	(Area) Sabre MS450 (1.00x4.50)	38.25 - 43.25	Auto	0.0000
L27	45	(Area) CCI-65FP-040075 (H)	38.25 - 43.25	Auto	0.0000
L27	46	(Area) CCI-65FP-040075 (H)	38.25 - 43.25	Auto	0.0000
L27	47	(Area) CCI-65FP-040075 (H)	38.25 - 43.25	Auto	0.0000
L27	54	(Area) CCI-65FP-060100 (H)	38.25 - 43.25	Auto	0.0438
L27	55	(Area) CCI-65FP-060100 (H)	38.25 - 43.25	Auto	0.0438
L27	56	(Area) CCI-65FP-060100 (H)	38.25 - 43.25	Auto	0.0438
L28	23	(Area) CCI-65FP-060100 (H)	33.50 - 35.00	Auto	0.0000
L28	24	(Area) CCI-65FP-060100 (H)	33.50 - 35.00	Auto	0.0000
L28	25	(Area) CCI-65FP-060100 (H)	33.50 - 35.00	Auto	0.0000
L28	27	(Area) CCI-65FP-045100 (H)	35.00 - 38.25	Auto	0.0000
L28	28	(Area) CCI-65FP-045100 (H)	35.00 - 38.25	Auto	0.0000
L28	29	(Area) CCI-65FP-045100 (H)	35.00 - 38.25	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L28	33	(Area) Sabre MS450 (1.00x4.50)	33.50 - 38.25	Auto	0.0000
L28	34	(Area) Sabre MS450 (1.00x4.50)	33.50 - 38.25	Auto	0.0000
L28	35	(Area) Sabre MS450 (1.00x4.50)	33.50 - 38.25	Auto	0.0000
L28	41	(Area) CCI-65FP-045100 (H)	33.50 - 35.00	Auto	0.0000
L28	42	(Area) CCI-65FP-045100 (H)	33.50 - 35.00	Auto	0.0000
L28	43	(Area) CCI-65FP-045100 (H)	33.50 - 35.00	Auto	0.0000
L28	45	(Area) CCI-65FP-040075 (H)	35.00 - 38.25	Auto	0.0000
L28	46	(Area) CCI-65FP-040075 (H)	35.00 - 38.25	Auto	0.0000
L28	47	(Area) CCI-65FP-040075 (H)	35.00 - 38.25	Auto	0.0000
L28	49	(Area) CCI-65FP-045100 (H)	33.50 - 35.50	Auto	0.0000
L28	50	(Area) CCI-65FP-045100 (H)	33.50 - 35.50	Auto	0.0000
L28	52	(Area) CCI-65FP-045100 (H)	33.50 - 35.50	Auto	0.0000
L28	54	(Area) CCI-65FP-060100 (H)	35.58 - 38.25	Auto	0.0010
L28	55	(Area) CCI-65FP-060100 (H)	35.58 - 38.25	Auto	0.0010
L28	56	(Area) CCI-65FP-060100 (H)	35.58 - 38.25	Auto	0.0010
L29	23	(Area) CCI-65FP-060100 (H)	33.25 - 33.50	Auto	0.0000
L29	24	(Area) CCI-65FP-060100 (H)	33.25 - 33.50	Auto	0.0000
L29	25	(Area) CCI-65FP-060100 (H)	33.25 - 33.50	Auto	0.0000
L29	33	(Area) Sabre MS450 (1.00x4.50)	33.25 - 33.50	Auto	0.0000
L29	34	(Area) Sabre MS450 (1.00x4.50)	33.25 - 33.50	Auto	0.0000
L29	35	(Area) Sabre MS450 (1.00x4.50)	33.25 - 33.50	Auto	0.0000
L29	41	(Area) CCI-65FP-045100 (H)	33.25 - 33.50	Auto	0.0000
L29	42	(Area) CCI-65FP-045100 (H)	33.25 - 33.50	Auto	0.0000
L29	43	(Area) CCI-65FP-045100 (H)	33.25 - 33.50	Auto	0.0000
L29	49	(Area) CCI-65FP-045100 (H)	33.25 - 33.50	Auto	0.0000
L29	50	(Area) CCI-65FP-045100 (H)	33.25 - 33.50	Auto	0.0000
L29	52	(Area) CCI-65FP-045100 (H)	33.25 - 33.50	Auto	0.0000
L30	23	(Area) CCI-65FP-060100 (H)	33.00 - 33.25	Auto	0.0000
L30	24	(Area) CCI-65FP-060100 (H)	33.00 - 33.25	Auto	0.0000
L30	25	(Area) CCI-65FP-060100 (H)	33.00 - 33.25	Auto	0.0000
L30	33	(Area) Sabre MS450 (1.00x4.50)	33.00 - 33.25	Auto	0.0000
L30	34	(Area) Sabre MS450 (1.00x4.50)	33.00 - 33.25	Auto	0.0000
L30	35	(Area) Sabre MS450 (1.00x4.50)	33.00 - 33.25	Auto	0.0000
L30	41	(Area) CCI-65FP-045100 (H)	33.00 - 33.25	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L30	42	(Area) CCI-65FP-045100 (H)	33.00 - 33.25	Auto	0.0000
L30	43	(Area) CCI-65FP-045100 (H)	33.00 - 33.25	Auto	0.0000
L30	49	(Area) CCI-65FP-045100 (H)	33.00 - 33.25	Auto	0.0000
L30	50	(Area) CCI-65FP-045100 (H)	33.00 - 33.25	Auto	0.0000
L30	52	(Area) CCI-65FP-045100 (H)	33.00 - 33.25	Auto	0.0000
L31	23	(Area) CCI-65FP-060100 (H)	32.75 - 33.00	Auto	0.0000
L31	24	(Area) CCI-65FP-060100 (H)	32.75 - 33.00	Auto	0.0000
L31	25	(Area) CCI-65FP-060100 (H)	32.75 - 33.00	Auto	0.0000
L31	33	(Area) Sabre MS450 (1.00x4.50)	32.75 - 33.00	Auto	0.0000
L31	34	(Area) Sabre MS450 (1.00x4.50)	32.75 - 33.00	Auto	0.0000
L31	35	(Area) Sabre MS450 (1.00x4.50)	32.75 - 33.00	Auto	0.0000
L31	41	(Area) CCI-65FP-045100 (H)	32.75 - 33.00	Auto	0.0000
L31	42	(Area) CCI-65FP-045100 (H)	32.75 - 33.00	Auto	0.0000
L31	43	(Area) CCI-65FP-045100 (H)	32.75 - 33.00	Auto	0.0000
L31	49	(Area) CCI-65FP-045100 (H)	32.75 - 33.00	Auto	0.0000
L31	50	(Area) CCI-65FP-045100 (H)	32.75 - 33.00	Auto	0.0000
L31	52	(Area) CCI-65FP-045100 (H)	32.75 - 33.00	Auto	0.0000
L32	23	(Area) CCI-65FP-060100 (H)	31.50 - 32.75	Auto	0.0000
L32	24	(Area) CCI-65FP-060100 (H)	31.50 - 32.75	Auto	0.0000
L32	25	(Area) CCI-65FP-060100 (H)	31.50 - 32.75	Auto	0.0000
L32	33	(Area) Sabre MS450 (1.00x4.50)	31.50 - 32.75	Auto	0.0000
L32	34	(Area) Sabre MS450 (1.00x4.50)	31.50 - 32.75	Auto	0.0000
L32	35	(Area) Sabre MS450 (1.00x4.50)	31.50 - 32.75	Auto	0.0000
L32	41	(Area) CCI-65FP-045100 (H)	31.50 - 32.75	Auto	0.0000
L32	42	(Area) CCI-65FP-045100 (H)	31.50 - 32.75	Auto	0.0000
L32	43	(Area) CCI-65FP-045100 (H)	31.50 - 32.75	Auto	0.0000
L32	49	(Area) CCI-65FP-045100 (H)	31.50 - 32.75	Auto	0.0000
L32	50	(Area) CCI-65FP-045100 (H)	31.50 - 32.75	Auto	0.0000
L32	52	(Area) CCI-65FP-045100 (H)	31.50 - 32.75	Auto	0.0000
L33	23	(Area) CCI-65FP-060100 (H)	31.25 - 31.50	Auto	0.0000
L33	24	(Area) CCI-65FP-060100 (H)	31.25 - 31.50	Auto	0.0000
L33	25	(Area) CCI-65FP-060100 (H)	31.25 - 31.50	Auto	0.0000
L33	33	(Area) Sabre MS450 (1.00x4.50)	31.25 - 31.50	Auto	0.0000
L33	34	(Area) Sabre MS450 (1.00x4.50)	31.25 - 31.50	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L33	35	(Area) Sabre MS450 (1.00x4.50)	31.25 - 31.50	Auto	0.0000
L33	41	(Area) CCI-65FP-045100 (H)	31.25 - 31.50	Auto	0.0000
L33	42	(Area) CCI-65FP-045100 (H)	31.25 - 31.50	Auto	0.0000
L33	43	(Area) CCI-65FP-045100 (H)	31.25 - 31.50	Auto	0.0000
L33	49	(Area) CCI-65FP-045100 (H)	31.25 - 31.50	Auto	0.0000
L33	50	(Area) CCI-65FP-045100 (H)	31.25 - 31.50	Auto	0.0000
L33	52	(Area) CCI-65FP-045100 (H)	31.25 - 31.50	Auto	0.0000
L34	23	(Area) CCI-65FP-060100 (H)	26.25 - 31.25	Auto	0.0000
L34	24	(Area) CCI-65FP-060100 (H)	26.25 - 31.25	Auto	0.0000
L34	25	(Area) CCI-65FP-060100 (H)	26.25 - 31.25	Auto	0.0000
L34	33	(Area) Sabre MS450 (1.00x4.50)	30.00 - 31.25	Auto	0.0000
L34	34	(Area) Sabre MS450 (1.00x4.50)	30.00 - 31.25	Auto	0.0000
L34	35	(Area) Sabre MS450 (1.00x4.50)	30.00 - 31.25	Auto	0.0000
L34	41	(Area) CCI-65FP-045100 (H)	26.25 - 31.25	Auto	0.0000
L34	42	(Area) CCI-65FP-045100 (H)	26.25 - 31.25	Auto	0.0000
L34	43	(Area) CCI-65FP-045100 (H)	26.25 - 31.25	Auto	0.0000
L34	49	(Area) CCI-65FP-045100 (H)	26.25 - 31.25	Auto	0.0000
L34	50	(Area) CCI-65FP-045100 (H)	26.25 - 31.25	Auto	0.0000
L34	52	(Area) CCI-65FP-045100 (H)	26.25 - 31.25	Auto	0.0000
L35	23	(Area) CCI-65FP-060100 (H)	21.25 - 26.25	Auto	0.0000
L35	24	(Area) CCI-65FP-060100 (H)	21.25 - 26.25	Auto	0.0000
L35	25	(Area) CCI-65FP-060100 (H)	21.25 - 26.25	Auto	0.0000
L35	41	(Area) CCI-65FP-045100 (H)	21.25 - 26.25	Auto	0.0000
L35	42	(Area) CCI-65FP-045100 (H)	21.25 - 26.25	Auto	0.0000
L35	43	(Area) CCI-65FP-045100 (H)	21.25 - 26.25	Auto	0.0000
L35	49	(Area) CCI-65FP-045100 (H)	21.25 - 26.25	Auto	0.0000
L35	50	(Area) CCI-65FP-045100 (H)	21.25 - 26.25	Auto	0.0000
L35	52	(Area) CCI-65FP-045100 (H)	21.25 - 26.25	Auto	0.0000
L36	23	(Area) CCI-65FP-060100 (H)	16.25 - 21.25	Auto	0.0000
L36	24	(Area) CCI-65FP-060100 (H)	16.25 - 21.25	Auto	0.0000
L36	25	(Area) CCI-65FP-060100 (H)	16.25 - 21.25	Auto	0.0000
L36	41	(Area) CCI-65FP-045100 (H)	16.25 - 21.25	Auto	0.0000
L36	42	(Area) CCI-65FP-045100 (H)	16.25 - 21.25	Auto	0.0000
L36	43	(Area) CCI-65FP-045100 (H)	16.25 - 21.25	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L36	49	(Area) CCI-65FP-045100 (H)	16.25 - 21.25	Auto	0.0000
L36	50	(Area) CCI-65FP-045100 (H)	16.25 - 21.25	Auto	0.0000
L36	52	(Area) CCI-65FP-045100 (H)	16.25 - 21.25	Auto	0.0000
L37	23	(Area) CCI-65FP-060100 (H)	13.50 - 16.25	Auto	0.0000
L37	24	(Area) CCI-65FP-060100 (H)	13.50 - 16.25	Auto	0.0000
L37	25	(Area) CCI-65FP-060100 (H)	13.50 - 16.25	Auto	0.0000
L37	41	(Area) CCI-65FP-045100 (H)	13.50 - 16.25	Auto	0.0000
L37	42	(Area) CCI-65FP-045100 (H)	13.50 - 16.25	Auto	0.0000
L37	43	(Area) CCI-65FP-045100 (H)	13.50 - 16.25	Auto	0.0000
L37	49	(Area) CCI-65FP-045100 (H)	13.50 - 16.25	Auto	0.0000
L37	50	(Area) CCI-65FP-045100 (H)	13.50 - 16.25	Auto	0.0000
L37	52	(Area) CCI-65FP-045100 (H)	13.50 - 16.25	Auto	0.0000
L38	23	(Area) CCI-65FP-060100 (H)	13.25 - 13.50	Auto	0.0000
L38	24	(Area) CCI-65FP-060100 (H)	13.25 - 13.50	Auto	0.0000
L38	25	(Area) CCI-65FP-060100 (H)	13.25 - 13.50	Auto	0.0000
L38	41	(Area) CCI-65FP-045100 (H)	13.25 - 13.50	Auto	0.0000
L38	42	(Area) CCI-65FP-045100 (H)	13.25 - 13.50	Auto	0.0000
L38	43	(Area) CCI-65FP-045100 (H)	13.25 - 13.50	Auto	0.0000
L38	49	(Area) CCI-65FP-045100 (H)	13.25 - 13.50	Auto	0.0000
L38	50	(Area) CCI-65FP-045100 (H)	13.25 - 13.50	Auto	0.0000
L38	52	(Area) CCI-65FP-045100 (H)	13.25 - 13.50	Auto	0.0000
L39	23	(Area) CCI-65FP-060100 (H)	9.00 - 13.25	Auto	0.0000
L39	24	(Area) CCI-65FP-060100 (H)	9.00 - 13.25	Auto	0.0000
L39	25	(Area) CCI-65FP-060100 (H)	9.00 - 13.25	Auto	0.0000
L39	31	(Area) Sabre MS450 (1.00x4.50)	9.00 - 10.50	Auto	0.0000
L39	41	(Area) CCI-65FP-045100 (H)	9.00 - 13.25	Auto	0.0000
L39	42	(Area) CCI-65FP-045100 (H)	9.00 - 13.25	Auto	0.0000
L39	43	(Area) CCI-65FP-045100 (H)	9.00 - 13.25	Auto	0.0000
L39	49	(Area) CCI-65FP-045100 (H)	9.00 - 13.25	Auto	0.0000
L39	50	(Area) CCI-65FP-045100 (H)	9.00 - 13.25	Auto	0.0000
L39	52	(Area) CCI-65FP-045100 (H)	10.50 - 13.25	Auto	0.0000
L40	23	(Area) CCI-65FP-060100 (H)	8.75 - 9.00	Auto	0.0000
L40	24	(Area) CCI-65FP-060100 (H)	8.75 - 9.00	Auto	0.0000
L40	25	(Area) CCI-65FP-060100 (H)	8.75 - 9.00	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L40	31	(Area) Sabre MS450 (1.00x4.50)	8.75 - 9.00	Auto	0.0000
L40	41	(Area) CCI-65FP-045100 (H)	8.75 - 9.00	Auto	0.0000
L40	42	(Area) CCI-65FP-045100 (H)	8.75 - 9.00	Auto	0.0000
L40	43	(Area) CCI-65FP-045100 (H)	8.75 - 9.00	Auto	0.0000
L40	49	(Area) CCI-65FP-045100 (H)	8.75 - 9.00	Auto	0.0000
L40	50	(Area) CCI-65FP-045100 (H)	8.75 - 9.00	Auto	0.0000
L41	23	(Area) CCI-65FP-060100 (H)	3.75 - 8.75	Auto	0.0000
L41	24	(Area) CCI-65FP-060100 (H)	3.75 - 8.75	Auto	0.0000
L41	25	(Area) CCI-65FP-060100 (H)	3.75 - 8.75	Auto	0.0000
L41	31	(Area) Sabre MS450 (1.00x4.50)	3.75 - 8.75	Auto	0.0000
L41	41	(Area) CCI-65FP-045100 (H)	3.75 - 8.75	Auto	0.0000
L41	42	(Area) CCI-65FP-045100 (H)	3.75 - 8.75	Auto	0.0000
L41	43	(Area) CCI-65FP-045100 (H)	3.75 - 8.75	Auto	0.0000
L41	49	(Area) CCI-65FP-045100 (H)	3.75 - 8.75	Auto	0.0000
L41	50	(Area) CCI-65FP-045100 (H)	3.75 - 8.75	Auto	0.0000
L42	23	(Area) CCI-65FP-060100 (H)	0.00 - 3.75	Auto	0.0000
L42	24	(Area) CCI-65FP-060100 (H)	0.00 - 3.75	Auto	0.0000
L42	25	(Area) CCI-65FP-060100 (H)	0.00 - 3.75	Auto	0.0000
L42	31	(Area) Sabre MS450 (1.00x4.50)	0.50 - 3.75	Auto	0.0000
L42	41	(Area) CCI-65FP-045100 (H)	0.00 - 3.75	Auto	0.0000
L42	42	(Area) CCI-65FP-045100 (H)	0.00 - 3.75	Auto	0.0000
L42	43	(Area) CCI-65FP-045100 (H)	0.00 - 3.75	Auto	0.0000
L42	49	(Area) CCI-65FP-045100 (H)	0.50 - 3.75	Auto	0.0000
L42	50	(Area) CCI-65FP-045100 (H)	0.50 - 3.75	Auto	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	CA _{AA} Front ft ²	CA _{AA} Side ft ²	Weight K	
117 APXVSP18-C-A20 w/ Mount Pipe	A	From Leg	3.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice	4.60 5.05 5.50	4.01 4.45 4.89	0.10 0.16 0.23

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
						1" Ice 2" Ice	6.44 5.82	0.42
APXVSP18-C-A20 w/ Mount Pipe	B	From Leg	3.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice	4.60 5.05 4.89	0.10 0.16 0.23
						1" Ice 2" Ice	6.44 5.82	0.42
APXVSP18-C-A20 w/ Mount Pipe	C	From Leg	3.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice	4.60 5.05 4.89	0.10 0.16 0.23
						1" Ice 2" Ice	6.44 5.82	0.42
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Leg	3.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice	4.09 4.48 3.61	0.08 0.13 0.19
						1" Ice 2" Ice	5.71 4.40	0.33
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Leg	3.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice	4.09 4.48 3.61	0.08 0.13 0.19
						1" Ice 2" Ice	5.71 4.40	0.33
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Leg	3.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice	4.09 4.48 3.61	0.08 0.13 0.19
						1" Ice 2" Ice	5.71 4.40	0.33
(3) ACU-A20-N	A	From Leg	3.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice	0.07 0.10 0.21	0.00 0.00 0.00
						1" Ice 2" Ice	0.26 0.34	0.01
(3) ACU-A20-N	B	From Leg	3.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice	0.07 0.10 0.21	0.00 0.00 0.00
						1" Ice 2" Ice	0.26 0.34	0.01
(3) ACU-A20-N	C	From Leg	3.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice	0.07 0.10 0.21	0.00 0.00 0.00
						1" Ice 2" Ice	0.26 0.34	0.01
TD-RRH8X20-25	A	From Leg	3.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice	4.05 4.30 1.90	0.07 0.10 0.13
						1" Ice 2" Ice	5.10 2.30	0.20
TD-RRH8X20-25	B	From Leg	3.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice	4.05 4.30 1.90	0.07 0.10 0.13
						1" Ice 2" Ice	5.10 2.30	0.20
TD-RRH8X20-25	C	From Leg	3.00 0.00 2.00	0.0000	117.00	No Ice 1/2" Ice	4.05 4.30 1.90	0.07 0.10 0.13
						1" Ice 2" Ice	5.10 2.30	0.20
1.9" x 5' Stabilizer	A	From Leg	1.50 0.00 0.00	0.0000	117.00	No Ice 1/2" Ice	0.95 1.37 1.68	0.01 0.02 0.03
						1" Ice 2" Ice	2.32 2.32	0.06
1.9" x 5' Stabilizer	B	From Leg	1.50 0.00 0.00	0.0000	117.00	No Ice 1/2" Ice	0.95 1.37 1.68	0.01 0.02 0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
						1" Ice	2.32	2.32	0.06
1.9" x 5' Stabilizer	C	From Leg	1.50 0.00 0.00	0.0000	117.00	2" Ice			
						No Ice	0.95	0.95	0.01
						1/2"	1.37	1.37	0.02
						Ice	1.68	1.68	0.03
T-Arm Mount [TA 702-3]	C	None		0.0000	117.00	1" Ice	2.32	2.32	0.06
						2" Ice			
						No Ice	4.75	4.75	0.34
						1/2"	5.82	5.82	0.43
115 PCS 1900MHz 4x45W-65MHz	A	From Leg	2.00 0.00 0.00	0.0000	115.00	Ice	6.98	6.98	0.55
						1" Ice	9.72	9.72	0.87
						2" Ice			
						No Ice	2.32	2.24	0.06
PCS 1900MHz 4x45W-65MHz	B	From Leg	2.00 0.00 0.00	0.0000	115.00	1/2"	2.53	2.44	0.08
						Ice	2.74	2.65	0.11
						1" Ice	3.19	3.09	0.17
						2" Ice			
PCS 1900MHz 4x45W-65MHz	C	From Leg	2.00 0.00 0.00	0.0000	115.00	No Ice	2.32	2.24	0.06
						1/2"	2.53	2.44	0.08
						Ice	2.74	2.65	0.11
						1" Ice	3.19	3.09	0.17
800 EXTERNAL NOTCH FILTER	A	From Leg	2.00 0.00 0.00	0.0000	115.00	2" Ice			
						No Ice	0.66	0.32	0.01
						1/2"	0.76	0.40	0.02
						Ice	0.87	0.48	0.02
800 EXTERNAL NOTCH FILTER	B	From Leg	2.00 0.00 0.00	0.0000	115.00	1" Ice	1.11	0.67	0.04
						2" Ice			
						No Ice	0.66	0.32	0.01
						1/2"	0.76	0.40	0.02
800 EXTERNAL NOTCH FILTER	C	From Leg	2.00 0.00 0.00	0.0000	115.00	Ice	0.87	0.48	0.02
						1" Ice	1.11	0.67	0.04
						2" Ice			
						No Ice	0.66	0.32	0.01
800MHZ RRH	A	From Leg	2.00 0.00 0.00	0.0000	115.00	1/2"	0.76	0.40	0.02
						Ice	0.87	0.48	0.02
						1" Ice	1.11	0.67	0.04
						2" Ice			
800MHZ RRH	B	From Leg	2.00 0.00 0.00	0.0000	115.00	No Ice	2.13	1.77	0.05
						1/2"	2.32	1.95	0.07
						Ice	2.51	2.13	0.10
						1" Ice	2.92	2.51	0.16
800MHZ RRH	C	From Leg	2.00 0.00 0.00	0.0000	115.00	2" Ice			
						No Ice	2.13	1.77	0.05
						1/2"	2.32	1.95	0.07
						Ice	2.51	2.13	0.10
(2) 2.4" Dia x 4-ft Mount Pipe	A	From Leg	0.50 0.00 0.00	0.0000	115.00	1" Ice	2.92	2.51	0.16
						2" Ice			
						No Ice	0.87	0.87	0.01
						1/2"	1.12	1.12	0.02
(2) 2.4" Dia x 4-ft Mount Pipe	B	From Leg	0.50 0.00	0.0000	115.00	Ice	1.37	1.37	0.03
						1" Ice	1.91	1.91	0.06
						2" Ice			
						No Ice	0.87	0.87	0.01
						1/2"	1.12	1.12	0.02
						Ice	1.37	1.37	0.03
						1" Ice	1.91	1.91	0.06
						2" Ice			
						No Ice	0.87	0.87	0.01
						1/2"	1.12	1.12	0.02

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	K
			0.00			1/2"	1.37	1.37	0.03
						Ice	1.91	1.91	0.06
						1" Ice			
						2" Ice			
(2) 2.4" Dia x 4-ft Mount Pipe	C	From Leg	0.50	0.0000	115.00	No Ice	0.87	0.87	0.01
			0.00			1/2"	1.12	1.12	0.02
			0.00			Ice	1.37	1.37	0.03
						1" Ice	1.91	1.91	0.06
						2" Ice			
Side Arm Mount [SO 102-3]	C	None		0.0000	115.00	No Ice	3.60	3.60	0.07
						1/2"	4.18	4.18	0.11
						Ice	4.75	4.75	0.14
						1" Ice	5.90	5.90	0.20
						2" Ice			
110									
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Centroid-Face	4.00	0.0000	110.00	No Ice	5.19	2.71	0.13
			0.00			1/2"	5.59	3.04	0.17
			0.00			Ice	6.02	3.38	0.23
						1" Ice	6.90	4.12	0.35
						2" Ice			
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Centroid-Face	4.00	0.0000	110.00	No Ice	5.19	2.71	0.13
			0.00			1/2"	5.59	3.04	0.17
			0.00			Ice	6.02	3.38	0.23
						1" Ice	6.90	4.12	0.35
						2" Ice			
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Centroid-Face	4.00	0.0000	110.00	No Ice	5.19	2.71	0.13
			0.00			1/2"	5.59	3.04	0.17
			0.00			Ice	6.02	3.38	0.23
						1" Ice	6.90	4.12	0.35
						2" Ice			
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Centroid-Face	4.00	0.0000	110.00	No Ice	14.69	6.87	0.19
			0.00			1/2"	15.46	7.55	0.31
			0.00			Ice	16.23	8.25	0.46
						1" Ice	17.82	9.67	0.79
						2" Ice			
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Centroid-Face	4.00	0.0000	110.00	No Ice	14.69	6.87	0.19
			0.00			1/2"	15.46	7.55	0.31
			0.00			Ice	16.23	8.25	0.46
						1" Ice	17.82	9.67	0.79
						2" Ice			
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Centroid-Face	4.00	0.0000	110.00	No Ice	14.69	6.87	0.19
			0.00			1/2"	15.46	7.55	0.31
			0.00			Ice	16.23	8.25	0.46
						1" Ice	17.82	9.67	0.79
						2" Ice			
AIR 32 B2A B66AA w/ Mount Pipe	A	From Centroid-Face	4.00	0.0000	110.00	No Ice	3.76	3.15	0.19
			0.00			1/2"	4.12	3.49	0.25
			0.00			Ice	4.48	3.84	0.32
						1" Ice	5.24	4.58	0.48
						2" Ice			
AIR 32 B2A B66AA w/ Mount Pipe	B	From Centroid-Face	4.00	0.0000	110.00	No Ice	3.76	3.15	0.19
			0.00			1/2"	4.12	3.49	0.25
			0.00			Ice	4.48	3.84	0.32
						1" Ice	5.24	4.58	0.48
						2" Ice			
AIR 32 B2A B66AA w/ Mount Pipe	C	From Centroid-Face	4.00	0.0000	110.00	No Ice	3.76	3.15	0.19
			0.00			1/2"	4.12	3.49	0.25
			0.00			Ice	4.48	3.84	0.32
						1" Ice	5.24	4.58	0.48
						2" Ice			
KRY 112 144/1	A	From Centroid-Face	4.00	0.0000	110.00	No Ice	0.35	0.17	0.01
			0.00			1/2"	0.43	0.23	0.01
			0.00			Ice	0.51	0.30	0.02
						1" Ice	0.70	0.46	0.03
						2" Ice			

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	K
KRY 112 144/1	B	From Centroid-Face	4.00	0.0000	110.00	No Ice	0.35	0.17	0.01
			0.00	0.00		1/2"	0.43	0.23	0.01
			0.00	0.00		Ice	0.51	0.30	0.02
						1" Ice	0.70	0.46	0.03
						2" Ice			
KRY 112 144/1	C	From Centroid-Face	4.00	0.0000	110.00	No Ice	0.35	0.17	0.01
			0.00	0.00		1/2"	0.43	0.23	0.01
			0.00	0.00		Ice	0.51	0.30	0.02
						1" Ice	0.70	0.46	0.03
						2" Ice			
SDX1926Q-43	A	From Centroid-Face	4.00	0.0000	110.00	No Ice	0.24	0.10	0.01
			0.00	0.00		1/2"	0.31	0.14	0.01
			0.00	0.00		Ice	0.38	0.19	0.01
						1" Ice	0.55	0.32	0.02
						2" Ice			
SDX1926Q-43	B	From Centroid-Face	4.00	0.0000	110.00	No Ice	0.24	0.10	0.01
			0.00	0.00		1/2"	0.31	0.14	0.01
			0.00	0.00		Ice	0.38	0.19	0.01
						1" Ice	0.55	0.32	0.02
						2" Ice			
SDX1926Q-43	C	From Centroid-Face	4.00	0.0000	110.00	No Ice	0.24	0.10	0.01
			0.00	0.00		1/2"	0.31	0.14	0.01
			0.00	0.00		Ice	0.38	0.19	0.01
						1" Ice	0.55	0.32	0.02
						2" Ice			
RADIO 4449 B71 B85A_T-MOBILE	A	From Centroid-Face	4.00	0.0000	110.00	No Ice	1.97	1.59	0.07
			0.00	0.00		1/2"	2.15	1.75	0.09
			0.00	0.00		Ice	2.33	1.92	0.12
						1" Ice	2.72	2.28	0.17
						2" Ice			
RADIO 4449 B71 B85A_T-MOBILE	B	From Centroid-Face	4.00	0.0000	110.00	No Ice	1.97	1.59	0.07
			0.00	0.00		1/2"	2.15	1.75	0.09
			0.00	0.00		Ice	2.33	1.92	0.12
						1" Ice	2.72	2.28	0.17
						2" Ice			
RADIO 4449 B71 B85A_T-MOBILE	C	From Centroid-Face	4.00	0.0000	110.00	No Ice	1.97	1.59	0.07
			0.00	0.00		1/2"	2.15	1.75	0.09
			0.00	0.00		Ice	2.33	1.92	0.12
						1" Ice	2.72	2.28	0.17
						2" Ice			
RRUS 4415 B25_CCIV2	A	From Centroid-Face	4.00	0.0000	110.00	No Ice	1.84	0.82	0.05
			0.00	0.00		1/2"	2.01	0.94	0.06
			0.00	0.00		Ice	2.19	1.07	0.08
						1" Ice	2.57	1.37	0.12
						2" Ice			
RRUS 4415 B25_CCIV2	B	From Centroid-Face	4.00	0.0000	110.00	No Ice	1.84	0.82	0.05
			0.00	0.00		1/2"	2.01	0.94	0.06
			0.00	0.00		Ice	2.19	1.07	0.08
						1" Ice	2.57	1.37	0.12
						2" Ice			
RRUS 4415 B25_CCIV2	C	From Centroid-Face	4.00	0.0000	110.00	No Ice	1.84	0.82	0.05
			0.00	0.00		1/2"	2.01	0.94	0.06
			0.00	0.00		Ice	2.19	1.07	0.08
						1" Ice	2.57	1.37	0.12
						2" Ice			
Platform Mount [LP 303-1_HR-1]	C	None		0.0000	110.00	No Ice	17.09	17.09	1.50
						1/2"	21.47	21.47	1.88
						Ice	25.72	25.72	2.35
						1" Ice	33.96	33.96	3.52
						2" Ice			
100 (2) DB844G65ZAXY w/ Mount Pipe	A	From Centroid-Leg	4.00	0.0000	100.00	No Ice	4.23	4.51	0.03
			0.00	0.00		1/2"	4.71	5.00	0.08
			2.00	0.00		Ice	5.21	5.50	0.13
						1" Ice	6.26	6.57	0.25

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} _{Front} ft ²	C _{AA} _{Side} ft ²	Weight K
(2) DB844G65ZAXY w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	100.00	2" Ice			
						No Ice	4.23	4.51	0.03
						1/2" Ice	4.71	5.00	0.08
						1" Ice	5.21	5.50	0.13
						2" Ice	6.26	6.57	0.25
(2) DB844G65ZAXY w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	100.00	2" Ice			
						No Ice	4.23	4.51	0.03
						1/2" Ice	4.71	5.00	0.08
						1" Ice	5.21	5.50	0.13
						2" Ice	6.26	6.57	0.25
(2) MX06FRO660-02 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	100.00	2" Ice			
						No Ice	6.54	5.54	0.08
						1/2" Ice	7.06	6.05	0.16
						1" Ice	7.60	6.57	0.26
						2" Ice	8.70	7.64	0.48
(2) MX06FRO660-02 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	100.00	2" Ice			
						No Ice	6.54	5.54	0.08
						1/2" Ice	7.06	6.05	0.16
						1" Ice	7.60	6.57	0.26
						2" Ice	8.70	7.64	0.48
(2) MX06FRO660-02 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	100.00	2" Ice			
						No Ice	6.54	5.54	0.08
						1/2" Ice	7.06	6.05	0.16
						1" Ice	7.60	6.57	0.26
						2" Ice	8.70	7.64	0.48
Sub6 Antenna - VZS01 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	100.00	2" Ice			
						No Ice	4.92	2.69	0.10
						1/2" Ice	5.26	3.15	0.14
						1" Ice	5.62	3.63	0.19
						2" Ice	6.37	4.64	0.29
Sub6 Antenna - VZS01 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	100.00	2" Ice			
						No Ice	4.92	2.69	0.10
						1/2" Ice	5.26	3.15	0.14
						1" Ice	5.62	3.63	0.19
						2" Ice	6.37	4.64	0.29
Sub6 Antenna - VZS01 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	100.00	2" Ice			
						No Ice	4.92	2.69	0.10
						1/2" Ice	5.26	3.15	0.14
						1" Ice	5.62	3.63	0.19
						2" Ice	6.37	4.64	0.29
GPS_A	C	From Centroid-Leg	4.00 0.00 4.00	0.0000	100.00	2" Ice			
						No Ice	0.26	0.26	0.00
						1/2" Ice	0.32	0.32	0.00
						1" Ice	0.39	0.39	0.01
						2" Ice	0.56	0.56	0.02
DB-C1-12C-24AB-0Z	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	100.00	2" Ice			
						No Ice	4.06	3.10	0.03
						1/2" Ice	4.32	3.34	0.07
						1" Ice	4.58	3.58	0.11
						2" Ice	5.14	4.09	0.20
RFV01U-D1A	A	From Centroid-Leg	4.00 0.00 2.00	0.0000	100.00	2" Ice			
						No Ice	1.88	1.25	0.08
						1/2" Ice	2.05	1.39	0.10
						1" Ice	2.22	1.54	0.12
						2" Ice	2.60	1.86	0.18
RFV01U-D1A	B	From Centroid-Leg	4.00 0.00 2.00	0.0000	100.00	2" Ice			
						No Ice	1.88	1.25	0.08
						1/2" Ice	2.05	1.39	0.10
						1" Ice	2.22	1.54	0.12
						2" Ice	2.60	1.86	0.18
RFV01U-D1A	C	From Centroid-Leg	4.00 0.00 2.00	0.0000	100.00	2" Ice			
						No Ice	1.88	1.25	0.08
						1/2" Ice	2.05	1.39	0.10
						1" Ice	2.22	1.54	0.12
						2" Ice	2.60	1.86	0.18

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Lateral						ft
							ft ²	ft ²	K	
RFV01U-D2A	B	From Centroid-Leg	4.00	0.00	0.0000	100.00	2" Ice			
							No Ice	1.88	1.01	0.07
							1/2" Ice	2.05	1.14	0.09
							Ice	2.22	1.28	0.11
							1" Ice	2.60	1.59	0.15
(2) RFV01U-D2A	C	From Centroid-Leg	4.00	0.00	0.0000	100.00	2" Ice			
							No Ice	1.88	1.01	0.07
							1/2" Ice	2.05	1.14	0.09
							Ice	2.22	1.28	0.11
							1" Ice	2.60	1.59	0.15
Platform Mount [LP 715-1]	C	None			0.0000	100.00	2" Ice			
							No Ice	46.77	46.77	1.77
							1/2" Ice	50.25	50.25	2.88
							Ice	53.97	53.97	4.09
							1" Ice	62.22	62.22	6.81
L1 1/2x1 1/2 x 1/8 x 12 ft	A	From Centroid-Leg	4.00	0.00	0.0000	100.00	2" Ice			
							No Ice	1.80	0.02	0.01
							1/2" Ice	2.61	0.04	0.03
							Ice	3.43	0.07	0.06
							1" Ice	5.09	0.14	0.15
L1 1/2x1 1/2 x 1/8 x 12 ft	B	From Centroid-Leg	4.00	0.00	0.0000	100.00	2" Ice			
							No Ice	1.80	0.02	0.01
							1/2" Ice	2.61	0.04	0.03
							Ice	3.43	0.07	0.06
							1" Ice	5.09	0.14	0.15
L1 1/2x1 1/2 x 1/8 x 12 ft	C	From Centroid-Leg	4.00	0.00	0.0000	100.00	2" Ice			
							No Ice	1.80	0.02	0.01
							1/2" Ice	2.61	0.04	0.03
							Ice	3.43	0.07	0.06
							1" Ice	5.09	0.14	0.15
93 Pipe Mount [PM 601-3]	C	None			0.0000	93.00	2" Ice			
							No Ice	3.17	3.17	0.20
							1/2" Ice	3.79	3.79	0.23
							Ice	4.42	4.42	0.28
							1" Ice	5.76	5.76	0.40
89 HPA65R-BU8A	A	From Centroid-Face	4.00	0.00	0.0000	89.00	2" Ice			
							No Ice	8.18	5.32	0.05
							1/2" Ice	8.97	6.08	0.12
							Ice	9.77	6.86	0.20
							1" Ice	11.42	8.45	0.37
HPA65R-BU6A	B	From Centroid-Face	4.00	0.00	0.0000	89.00	2" Ice			
							No Ice	5.88	3.82	0.05
							1/2" Ice	6.47	4.39	0.10
							Ice	7.07	4.96	0.16
							1" Ice	8.32	6.15	0.29
HPA65R-BU6A	C	From Centroid-Face	4.00	0.00	0.0000	89.00	2" Ice			
							No Ice	5.88	3.82	0.05
							1/2" Ice	6.47	4.39	0.10
							Ice	7.07	4.96	0.16
							1" Ice	8.32	6.15	0.29
TPA-65R-LCUUUU-H8	A	From Centroid-Face	4.00	0.00	0.0000	89.00	2" Ice			
							No Ice	11.87	7.02	0.08
							1/2" Ice	12.82	7.91	0.16
							Ice	13.77	8.82	0.25
							1" Ice	15.74	10.68	0.45
QS66512-2	B	From Centroid-Face	4.00	0.00	0.0000	89.00	2" Ice			
							No Ice	4.01	3.37	0.11
							1/2" Ice	4.41	3.76	0.17
							Ice	4.81	4.15	0.23
							1" Ice	5.65	4.97	0.38

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	K
QS66512-2	C	From Centroid-Face	4.00	0.0000	89.00	No Ice	4.01	3.37	0.11
			0.00	0.00		1/2"	4.41	3.76	0.17
			0.00	0.00		Ice	4.81	4.15	0.23
						1" Ice	5.65	4.97	0.38
						2" Ice			
OPA-65R-LCUU-H8	A	From Centroid-Face	4.00	0.0000	89.00	No Ice	11.95	6.03	0.07
			0.00	0.00		1/2"	12.92	6.93	0.14
			0.00	0.00		Ice	13.90	7.85	0.22
						1" Ice	15.92	9.74	0.41
						2" Ice			
OPA-65R-LCUU-H6	B	From Centroid-Face	4.00	0.0000	89.00	No Ice	9.20	4.63	0.08
			0.00	0.00		1/2"	9.97	5.34	0.14
			0.00	0.00		Ice	10.76	6.07	0.20
						1" Ice	12.39	7.57	0.35
						2" Ice			
OPA-65R-LCUU-H6	C	From Centroid-Face	4.00	0.0000	89.00	No Ice	9.20	4.63	0.08
			0.00	0.00		1/2"	9.97	5.34	0.14
			0.00	0.00		Ice	10.76	6.07	0.20
						1" Ice	12.39	7.57	0.35
						2" Ice			
7770.00	A	From Centroid-Face	4.00	0.0000	89.00	No Ice	5.51	2.93	0.04
			0.00	0.00		1/2"	5.87	3.27	0.07
			0.00	0.00		Ice	6.23	3.63	0.11
						1" Ice	6.99	4.35	0.20
						2" Ice			
7770.00	B	From Centroid-Face	4.00	0.0000	89.00	No Ice	5.51	2.93	0.04
			0.00	0.00		1/2"	5.87	3.27	0.07
			0.00	0.00		Ice	6.23	3.63	0.11
						1" Ice	6.99	4.35	0.20
						2" Ice			
7770.00	C	From Centroid-Face	4.00	0.0000	89.00	No Ice	5.51	2.93	0.04
			0.00	0.00		1/2"	5.87	3.27	0.07
			0.00	0.00		Ice	6.23	3.63	0.11
						1" Ice	6.99	4.35	0.20
						2" Ice			
RRUS E2 B29	A	From Centroid-Face	4.00	0.0000	89.00	No Ice	3.15	1.29	0.06
			0.00	0.00		1/2"	3.36	1.44	0.08
			0.00	0.00		Ice	3.59	1.60	0.11
						1" Ice	4.07	1.95	0.17
						2" Ice			
RRUS E2 B29	B	From Centroid-Face	4.00	0.0000	89.00	No Ice	3.15	1.29	0.06
			0.00	0.00		1/2"	3.36	1.44	0.08
			0.00	0.00		Ice	3.59	1.60	0.11
						1" Ice	4.07	1.95	0.17
						2" Ice			
RRUS E2 B29	C	From Centroid-Face	4.00	0.0000	89.00	No Ice	3.15	1.29	0.06
			0.00	0.00		1/2"	3.36	1.44	0.08
			0.00	0.00		Ice	3.59	1.60	0.11
						1" Ice	4.07	1.95	0.17
						2" Ice			
DC6-48-60-18-8C-EV	B	From Centroid-Face	4.00	0.0000	89.00	No Ice	1.14	1.14	0.03
			0.00	0.00		1/2"	1.79	1.79	0.05
			0.00	0.00		Ice	2.00	2.00	0.07
						1" Ice	2.45	2.45	0.13
						2" Ice			
RRUS 32 B2	A	From Centroid-Face	4.00	0.0000	89.00	No Ice	2.73	1.67	0.05
			0.00	0.00		1/2"	2.95	1.86	0.07
			0.00	0.00		Ice	3.18	2.05	0.10
						1" Ice	3.66	2.46	0.16
						2" Ice			
RRUS 32 B2	B	From Centroid-Face	4.00	0.0000	89.00	No Ice	2.73	1.67	0.05
			0.00	0.00		1/2"	2.95	1.86	0.07
			0.00	0.00		Ice	3.18	2.05	0.10
						1" Ice	3.66	2.46	0.16
						2" Ice			

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	K
RRUS 32 B2	C	From Centroid-Face	4.00	0.0000	89.00	No Ice	2.73	1.67	0.05
			0.00	0.00		1/2"	2.95	1.86	0.07
			0.00	0.00		Ice	3.18	2.05	0.10
						1" Ice	3.66	2.46	0.16
						2" Ice			
RRUS 4426 B66	A	From Centroid-Face	4.00	0.0000	89.00	No Ice	1.64	0.73	0.05
			0.00	0.00		1/2"	1.80	0.84	0.06
			0.00	0.00		Ice	1.97	0.97	0.08
						1" Ice	2.33	1.24	0.11
						2" Ice			
RRUS 4426 B66	B	From Centroid-Face	4.00	0.0000	89.00	No Ice	1.64	0.73	0.05
			0.00	0.00		1/2"	1.80	0.84	0.06
			0.00	0.00		Ice	1.97	0.97	0.08
						1" Ice	2.33	1.24	0.11
						2" Ice			
RRUS 4426 B66	C	From Centroid-Face	4.00	0.0000	89.00	No Ice	1.64	0.73	0.05
			0.00	0.00		1/2"	1.80	0.84	0.06
			0.00	0.00		Ice	1.97	0.97	0.08
						1" Ice	2.33	1.24	0.11
						2" Ice			
RRUS 11 B12	A	From Centroid-Face	4.00	0.0000	89.00	No Ice	2.83	1.18	0.05
			0.00	0.00		1/2"	3.04	1.33	0.07
			0.00	0.00		Ice	3.26	1.48	0.10
						1" Ice	3.71	1.83	0.15
						2" Ice			
RRUS 11 B12	B	From Centroid-Face	4.00	0.0000	89.00	No Ice	2.83	1.18	0.05
			0.00	0.00		1/2"	3.04	1.33	0.07
			0.00	0.00		Ice	3.26	1.48	0.10
						1" Ice	3.71	1.83	0.15
						2" Ice			
RRUS 11 B12	C	From Centroid-Face	4.00	0.0000	89.00	No Ice	2.83	1.18	0.05
			0.00	0.00		1/2"	3.04	1.33	0.07
			0.00	0.00		Ice	3.26	1.48	0.10
						1" Ice	3.71	1.83	0.15
						2" Ice			
RRUS 32 B30	A	From Centroid-Face	4.00	0.0000	89.00	No Ice	2.69	1.57	0.06
			0.00	0.00		1/2"	2.91	1.76	0.08
			0.00	0.00		Ice	3.14	1.95	0.10
						1" Ice	3.61	2.35	0.16
						2" Ice			
RRUS 32 B30	B	From Centroid-Face	4.00	0.0000	89.00	No Ice	2.69	1.57	0.06
			0.00	0.00		1/2"	2.91	1.76	0.08
			0.00	0.00		Ice	3.14	1.95	0.10
						1" Ice	3.61	2.35	0.16
						2" Ice			
RRUS 32 B30	C	From Centroid-Face	4.00	0.0000	89.00	No Ice	2.69	1.57	0.06
			0.00	0.00		1/2"	2.91	1.76	0.08
			0.00	0.00		Ice	3.14	1.95	0.10
						1" Ice	3.61	2.35	0.16
						2" Ice			
(2) TPX-070821	A	From Centroid-Face	4.00	0.0000	89.00	No Ice	0.47	0.10	0.01
			0.00	0.00		1/2"	0.56	0.15	0.01
			0.00	0.00		Ice	0.66	0.20	0.02
						1" Ice	0.87	0.33	0.03
						2" Ice			
(2) TPX-070821	B	From Centroid-Face	4.00	0.0000	89.00	No Ice	0.47	0.10	0.01
			0.00	0.00		1/2"	0.56	0.15	0.01
			0.00	0.00		Ice	0.66	0.20	0.02
						1" Ice	0.87	0.33	0.03
						2" Ice			
(2) TPX-070821	C	From Centroid-Face	4.00	0.0000	89.00	No Ice	0.47	0.10	0.01
			0.00	0.00		1/2"	0.56	0.15	0.01
			0.00	0.00		Ice	0.66	0.20	0.02
						1" Ice	0.87	0.33	0.03
						2" Ice			

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			ft	ft	°	ft	ft ²	ft ²	K
(2) LGP21401	A	From Centroid-Face	4.00	0.0000	89.00	No Ice	1.10	0.21	0.01
			0.00	0.00		1/2"	1.24	0.27	0.02
			0.00	0.00		Ice	1.38	0.35	0.03
						1" Ice	1.69	0.52	0.05
						2" Ice			
(2) LGP21401	B	From Centroid-Face	4.00	0.0000	89.00	No Ice	1.10	0.21	0.01
			0.00	0.00		1/2"	1.24	0.27	0.02
			0.00	0.00		Ice	1.38	0.35	0.03
						1" Ice	1.69	0.52	0.05
						2" Ice			
(2) LGP21401	C	From Centroid-Face	4.00	0.0000	89.00	No Ice	1.10	0.21	0.01
			0.00	0.00		1/2"	1.24	0.27	0.02
			0.00	0.00		Ice	1.38	0.35	0.03
						1" Ice	1.69	0.52	0.05
						2" Ice			
DC6-48-60-18-8F	A	From Centroid-Face	4.00	0.0000	89.00	No Ice	1.21	1.21	0.02
			0.00	0.00		1/2"	1.89	1.89	0.04
			0.00	0.00		Ice	2.11	2.11	0.07
						1" Ice	2.57	2.57	0.13
						2" Ice			
DC6-48-60-18-8F	C	From Centroid-Face	4.00	0.0000	89.00	No Ice	1.21	1.21	0.02
			0.00	0.00		1/2"	1.89	1.89	0.04
			0.00	0.00		Ice	2.11	2.11	0.07
						1" Ice	2.57	2.57	0.13
						2" Ice			
Platform Mount [LP 301-1_KCKR]	C	None		0.0000	89.00	No Ice	35.03	35.03	1.86
						1/2"	44.46	44.46	2.52
						Ice	53.72	53.72	3.33
						1" Ice	72.29	72.29	5.42
						2" Ice			
84 800 10504	A	From Face	1.00	0.0000	84.00	No Ice	2.69	1.27	0.02
			0.00	0.00		1/2"	3.15	1.70	0.04
			0.00	0.00		Ice	3.63	2.15	0.06
						1" Ice	4.63	3.10	0.12
						2" Ice			
800 10504	B	From Face	1.00	0.0000	84.00	No Ice	2.69	1.27	0.02
			0.00	0.00		1/2"	3.15	1.70	0.04
			0.00	0.00		Ice	3.63	2.15	0.06
						1" Ice	4.63	3.10	0.12
						2" Ice			
800 10504	B	From Face	1.00	0.0000	84.00	No Ice	2.69	1.27	0.02
			0.00	0.00		1/2"	3.15	1.70	0.04
			0.00	0.00		Ice	3.63	2.15	0.06
						1" Ice	4.63	3.10	0.12
						2" Ice			
Pipe Mount [PM 601-3]	C	None		0.0000	84.00	No Ice	3.17	3.17	0.20
						1/2"	3.79	3.79	0.23
						Ice	4.42	4.42	0.28
						1" Ice	5.76	5.76	0.40
						2" Ice			
*** MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00	0.0000	76.00	No Ice	8.01	4.23	0.11
			0.00	0.00		1/2"	8.52	4.69	0.19
			0.00	0.00		Ice	9.04	5.16	0.29
						1" Ice	10.11	6.12	0.52
						2" Ice			
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00	0.0000	76.00	No Ice	8.01	4.23	0.11
			0.00	0.00		1/2"	8.52	4.69	0.19
			0.00	0.00		Ice	9.04	5.16	0.29
						1" Ice	10.11	6.12	0.52
						2" Ice			
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00	0.0000	76.00	No Ice	8.01	4.23	0.11
			0.00	0.00		1/2"	8.52	4.69	0.19
			0.00	0.00		Ice	9.04	5.16	0.29

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
TA08025-B604	A	From Leg	4.00 0.00 0.00	0.0000	76.00	1" Ice	10.11	6.12	0.52
						2" Ice			
						No Ice	1.96	0.98	0.06
						1/2"	2.14	1.11	0.08
						Ice	2.32	1.25	0.10
TA08025-B604	B	From Leg	4.00 0.00 0.00	0.0000	76.00	1" Ice	2.71	1.55	0.15
						2" Ice			
						No Ice	1.96	0.98	0.06
						1/2"	2.14	1.11	0.08
						Ice	2.32	1.25	0.10
TA08025-B604	C	From Leg	4.00 0.00 0.00	0.0000	76.00	1" Ice	2.71	1.55	0.15
						2" Ice			
						No Ice	1.96	0.98	0.06
						1/2"	2.14	1.11	0.08
						Ice	2.32	1.25	0.10
TA08025-B605	A	From Leg	4.00 0.00 0.00	0.0000	76.00	1" Ice	2.71	1.72	0.16
						2" Ice			
						No Ice	1.96	1.13	0.08
						1/2"	2.14	1.27	0.09
						Ice	2.32	1.41	0.11
TA08025-B605	B	From Leg	4.00 0.00 0.00	0.0000	76.00	1" Ice	2.71	1.72	0.16
						2" Ice			
						No Ice	1.96	1.13	0.08
						1/2"	2.14	1.27	0.09
						Ice	2.32	1.41	0.11
TA08025-B605	C	From Leg	4.00 0.00 0.00	0.0000	76.00	1" Ice	2.71	1.72	0.16
						2" Ice			
						No Ice	1.96	1.13	0.08
						1/2"	2.14	1.27	0.09
						Ice	2.32	1.41	0.11
RDIDC-9181-PF-48	A	From Leg	4.00 0.00 0.00	0.0000	76.00	1" Ice	3.12	1.96	0.12
						2" Ice			
						No Ice	2.31	1.29	0.02
						1/2"	2.50	1.45	0.04
						Ice	2.70	1.61	0.06
(2) 8' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	76.00	1" Ice	4.40	4.40	0.12
						2" Ice			
						No Ice	1.90	1.90	0.03
						1/2"	2.73	2.73	0.04
						Ice	3.40	3.40	0.06
(2) 8' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	76.00	1" Ice	4.40	4.40	0.12
						2" Ice			
						No Ice	1.90	1.90	0.03
						1/2"	2.73	2.73	0.04
						Ice	3.40	3.40	0.06
(2) 8' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	76.00	1" Ice	4.40	4.40	0.12
						2" Ice			
						No Ice	1.90	1.90	0.03
						1/2"	2.73	2.73	0.04
						Ice	3.40	3.40	0.06
Commscope MC-PK8-DSH	C	None		0.0000	76.00	1" Ice	149.08	149.08	3.15
						2" Ice			
						No Ice	34.24	34.24	1.75
						1/2"	62.95	62.95	2.10
						Ice	91.66	91.66	2.45

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K	
VHLP2-11	A	Paraboloid w/Shroud (HP)	From Leg	2.00	48.0000		93.00	2.00	No Ice	3.72	0.03
				-1.00					1/2" Ice	4.01	0.05
				1.00					1" Ice	4.30	0.07
									2" Ice	4.88	0.11
VHLP1-23	A	Paraboloid w/Radome	From Leg	2.00	68.0000		93.00	1.27	No Ice	1.28	0.01
				1.00					1/2" Ice	1.45	0.02
				2.00					1" Ice	1.62	0.03
									2" Ice	1.97	0.04
VHLP800-11	B	Paraboloid w/Shroud (HP)	From Leg	2.00	90.0000		93.00	2.80	No Ice	6.16	0.02
				1.00					1/2" Ice	6.53	0.06
				1.00					1" Ice	6.90	0.09
									2" Ice	7.64	0.17
VHLP1-23	B	Paraboloid w/Radome	From Leg	2.00	-52.0000		93.00	1.27	No Ice	1.28	0.01
				-1.00					1/2" Ice	1.45	0.02
				-1.00					1" Ice	1.62	0.03
									2" Ice	1.97	0.04

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp

Comb. No.	Description
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	117 - 112	Pole	Max Tension	26	0.00	0.000	-0.000
			Max. Compression	26	-5.09	-0.010	0.009
			Max. Mx	8	-1.92	-13.309	0.005
			Max. My	2	-1.92	-0.004	13.307
			Max. Vy	20	-2.60	13.308	-0.002
			Max. Vx	2	-2.59	-0.004	13.307
			Max. Torque	8			-0.001
L2	112 - 110	Pole	Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-5.24	-0.014	0.013
			Max. Mx	8	-2.00	-18.600	0.008
			Max. My	2	-2.00	-0.005	18.596
			Max. Vy	20	-2.70	18.598	-0.002
			Max. Vx	2	-2.70	-0.005	18.596
			Max. Torque	8			-0.001
L3	110 - 105	Pole	Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-14.01	-0.118	0.085
			Max. Mx	8	-6.22	-47.134	0.052
			Max. My	2	-6.22	-0.064	47.102
			Max. Vy	20	-5.83	47.037	0.016
			Max. Vx	2	-5.83	-0.064	47.102
			Max. Torque	8			-0.001
L4	105 - 100	Pole	Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-14.61	-0.227	0.159
			Max. Mx	8	-6.57	-76.969	0.098
			Max. My	2	-6.57	-0.126	76.907
			Max. Vy	20	-6.09	76.771	0.036
			Max. Vx	2	-6.09	-0.126	76.907
			Max. Torque	8			-0.001
L5	100 - 95	Pole	Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-26.38	0.199	-0.005
			Max. Mx	20	-10.67	135.913	-0.396
			Max. My	14	-10.68	0.259	-135.935
			Max. Vy	20	-10.90	135.913	-0.396
			Max. Vx	2	-10.89	0.011	135.394
			Max. Torque	19			-0.201
L6	95 - 90	Pole	Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-27.80	-0.207	0.148
			Max. Mx	20	-11.47	192.806	-0.994
			Max. My	14	-11.48	0.888	-192.785
			Max. Vy	20	-11.67	192.806	-0.994
			Max. Vx	2	-11.68	-0.710	192.539
			Max. Torque	25			-0.544
L7	90 - 85	Pole	Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-38.86	0.088	0.508
			Max. Mx	8	-16.23	-269.695	1.551
			Max. My	14	-16.24	1.185	-269.383
			Max. Vy	20	-16.43	269.531	-1.616
			Max. Vx	2	-16.34	-1.490	269.160
			Max. Torque	17			-0.674

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L8	85 - 82.38	Pole	Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-40.03	-0.095	0.854
			Max. Mx	8	-16.87	-313.338	2.016
			Max. My	14	-16.88	1.428	-312.611
			Max. Vy	20	-16.86	313.148	-1.821
			Max. Vx	2	-16.72	-1.786	312.603
			Max. Torque	19			-0.696
L9	82.38 - 82.13	Pole	Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-40.09	-0.097	0.865
			Max. Mx	8	-16.92	-317.545	2.057
			Max. My	2	-16.93	-1.812	316.784
			Max. Vy	20	-16.86	317.359	-1.847
			Max. Vx	2	-16.72	-1.812	316.784
			Max. Torque	19			-0.695
L10	82.13 - 81.88	Pole	Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-40.14	-0.099	0.875
			Max. Mx	8	-16.96	-321.755	2.098
			Max. My	2	-16.97	-1.838	320.967
			Max. Vy	20	-16.87	321.574	-1.874
			Max. Vx	2	-16.73	-1.838	320.967
			Max. Torque	19			-0.695
L11	81.88 - 81.63	Pole	Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-40.21	-0.101	0.886
			Max. Mx	8	-17.00	-325.967	2.139
			Max. My	2	-17.01	-1.865	325.153
			Max. Vy	20	-16.89	325.791	-1.900
			Max. Vx	2	-16.74	-1.865	325.153
			Max. Torque	19			-0.695
L12	81.63 - 76.63	Pole	Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-41.63	-0.144	1.095
			Max. Mx	8	-17.96	-410.906	2.959
			Max. My	2	-17.97	-2.391	409.566
			Max. Vy	20	-17.16	410.828	-2.421
			Max. Vx	2	-17.01	-2.391	409.566
			Max. Torque	19			-0.695
L13	76.63 - 76	Pole	Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-41.83	-0.149	1.122
			Max. Mx	8	-18.09	-421.701	3.062
			Max. My	2	-18.10	-2.457	420.295
			Max. Vy	20	-17.19	421.635	-2.486
			Max. Vx	2	-17.04	-2.457	420.295
			Max. Torque	19			-0.695
L14	76 - 75.75	Pole	Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-47.67	-0.150	1.573
			Max. Mx	8	-21.28	-426.579	3.216
			Max. My	2	-21.29	-2.483	425.273
			Max. Vy	20	-19.55	426.518	-2.400
			Max. Vx	2	-19.43	-2.483	425.273
			Max. Torque	19			-0.847
L15	75.75 - 70.75	Pole	Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-49.48	-0.164	1.809
			Max. Mx	20	-22.45	524.950	-2.915
			Max. My	2	-22.46	-3.005	523.149
			Max. Vy	20	-19.85	524.950	-2.915
			Max. Vx	2	-19.71	-3.005	523.149
			Max. Torque	19			-0.847
L16	70.75 - 70.5	Pole	Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-49.58	-0.163	1.823
			Max. Mx	20	-22.53	529.910	-2.940
			Max. My	2	-22.54	-3.031	528.078
			Max. Vy	20	-19.86	529.910	-2.940
			Max. Vx	2	-19.72	-3.031	528.078
			Max. Torque	19			-0.847
L17	70.5 - 67.98	Pole	Max Tension	1	0.00	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L18	67.98 - 67.73	Pole	Max. Compression	26	-50.68	-0.150	1.955
			Max. Mx	20	-23.21	580.134	-3.198
			Max. My	2	-23.22	-3.293	577.997
			Max. Vy	20	-20.03	580.134	-3.198
			Max. Vx	2	-19.89	-3.293	577.997
			Max. Torque	19			-0.847
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-50.79	-0.148	1.968
L19	67.73 - 63.5	Pole	Max. Mx	20	-23.28	585.140	-3.224
			Max. My	2	-23.29	-3.319	582.972
			Max. Vy	20	-20.04	585.140	-3.224
			Max. Vx	2	-19.90	-3.319	582.972
			Max. Torque	19			-0.847
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-52.58	-0.131	2.152
			Max. Mx	20	-24.43	670.430	-3.655
L20	63.5 - 63.25	Pole	Max. My	2	-24.44	-3.761	667.729
			Max. Vy	20	-20.31	670.430	-3.655
			Max. Vx	2	-20.16	-3.761	667.729
			Max. Torque	19			-0.847
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-52.70	-0.131	2.163
			Max. Mx	20	-24.52	675.507	-3.680
			Max. My	2	-24.53	-3.787	672.772
L21	63.25 - 58.25	Pole	Max. Vy	20	-20.32	675.507	-3.680
			Max. Vx	2	-20.17	-3.787	672.772
			Max. Torque	19			-0.847
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-55.14	-0.122	2.348
			Max. Mx	20	-26.16	777.918	-4.187
			Max. My	2	-26.17	-4.309	774.489
			Max. Vy	20	-20.67	777.918	-4.187
L22	58.25 - 53.25	Pole	Max. Vx	2	-20.50	-4.309	774.489
			Max. Torque	19			-0.847
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-57.60	-0.114	2.540
			Max. Mx	20	-27.83	881.981	-4.691
			Max. My	2	-27.83	-4.832	877.812
			Max. Vy	20	-20.99	881.981	-4.691
			Max. Vx	2	-20.82	-4.832	877.812
L23	53.25 - 47.42	Pole	Max. Torque	19			-0.847
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-58.22	-0.112	2.590
			Max. Mx	20	-28.25	908.249	-4.816
			Max. My	2	-28.26	-4.963	903.891
			Max. Vy	20	-21.07	908.249	-4.816
			Max. Vx	2	-20.90	-4.963	903.891
			Max. Torque	19			-0.846
L24	47.42 - 46.42	Pole	Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-62.61	-0.103	2.812
			Max. Mx	20	-31.50	1026.963	-5.374
			Max. My	2	-31.50	-5.549	1021.747
			Max. Vy	20	-21.50	1026.963	-5.374
			Max. Vx	2	-21.32	-5.549	1021.747
			Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
L25	46.42 - 43.5	Pole	Max. Compression	26	-64.15	-0.099	2.929
			Max. Mx	20	-32.55	1089.952	-5.665
			Max. My	2	-32.56	-5.856	1084.270
			Max. Vy	20	-21.69	1089.952	-5.665
			Max. Vx	2	-21.50	-5.856	1084.270
			Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-64.30	-0.098	2.941
L26	43.5 - 43.25	Pole	Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L27	43.25 - 38.25	Pole	Max. Mx	20	-32.66	1095.370	-5.690
			Max. My	2	-32.67	-5.882	1089.646
			Max. Vy	20	-21.69	1095.370	-5.690
			Max. Vx	2	-21.50	-5.882	1089.646
			Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-67.28	-0.092	3.145
			Max. Mx	20	-34.74	1204.621	-6.186
			Max. My	2	-34.75	-6.407	1197.991
			Max. Vy	20	-22.04	1204.621	-6.186
L28	38.25 - 33.5	Pole	Max. Vx	2	-21.82	-6.407	1197.991
			Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-70.13	-0.086	3.345
			Max. Mx	20	-36.74	1309.946	-6.654
			Max. My	2	-36.75	-6.907	1302.331
			Max. Vy	20	-22.35	1309.946	-6.654
			Max. Vx	2	-22.10	-6.907	1302.331
			Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
L29	33.5 - 33.25	Pole	Max. Compression	26	-70.28	-0.086	3.357
			Max. Mx	20	-36.86	1315.530	-6.678
			Max. My	2	-36.86	-6.933	1307.860
			Max. Vy	20	-22.35	1315.530	-6.678
			Max. Vx	2	-22.11	-6.933	1307.860
			Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-70.43	-0.086	3.368
			Max. Mx	20	-36.96	1321.118	-6.703
			Max. My	2	-36.97	-6.959	1313.392
L30	33.25 - 33	Pole	Max. Vy	20	-22.37	1321.118	-6.703
			Max. Vx	2	-22.12	-6.959	1313.392
			Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-70.59	-0.085	3.379
			Max. Mx	20	-37.08	1326.709	-6.727
			Max. My	2	-37.08	-6.985	1318.929
			Max. Vy	20	-22.39	1326.709	-6.727
			Max. Vx	2	-22.14	-6.985	1318.929
			Max. Torque	19			-0.846
L31	33 - 32.75	Pole	Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-71.37	-0.084	3.430
			Max. Mx	20	-37.63	1354.728	-6.850
			Max. My	2	-37.64	-7.117	1346.667
			Max. Vy	20	-22.48	1354.728	-6.850
			Max. Vx	2	-22.22	-7.117	1346.667
			Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-71.52	-0.084	3.442
			Max. Mx	20	-37.73	1360.344	-6.874
L32	32.75 - 31.5	Pole	Max. My	2	-37.74	-7.143	1352.225
			Max. Vy	20	-22.48	1360.344	-6.874
			Max. Vx	2	-22.23	-7.143	1352.225
			Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-74.29	-0.079	3.658
			Max. Mx	20	-39.70	1473.364	-7.360
			Max. My	2	-39.71	-7.668	1464.106
			Max. Vy	20	-22.76	1473.364	-7.360
			Max. Vx	2	-22.51	-7.668	1464.106
L33	31.5 - 31.25	Pole	Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-77.04	-0.075	3.878
			Max. Mx	20	-41.71	1587.730	-7.842
			Max. My	2	-41.71	-8.193	1577.338
			Max. Vy	20	-23.03	1587.730	-7.842
			Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-77.04	-0.075	3.878
			Max. Mx	20	-41.71	1587.730	-7.842
L34	31.25 - 26.25	Pole	Max. My	2	-41.71	-8.193	1577.338
			Max. Vy	20	-23.03	1587.730	-7.842
			Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-77.04	-0.075	3.878
			Max. Mx	20	-41.71	1587.730	-7.842
			Max. My	2	-41.71	-8.193	1577.338
			Max. Vy	20	-23.03	1587.730	-7.842
			Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
L35	26.25 - 21.25	Pole	Max. Compression	26	-77.04	-0.075	3.878
			Max. Mx	20	-41.71	1587.730	-7.842
			Max. My	2	-41.71	-8.193	1577.338
			Max. Vy	20	-23.03	1587.730	-7.842
			Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-77.04	-0.075	3.878
			Max. Mx	20	-41.71	1587.730	-7.842
			Max. My	2	-41.71	-8.193	1577.338
			Max. Vy	20	-23.03	1587.730	-7.842

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L36	21.25 - 16.25	Pole	Max. Vx	2	-22.78	-8.193	1577.338
			Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-79.81	-0.073	4.101
			Max. Mx	20	-43.74	1703.445	-8.319
			Max. My	2	-43.75	-8.716	1691.928
			Max. Vy	20	-23.30	1703.445	-8.319
L37	16.25 - 13.5	Pole	Max. Vx	2	-23.05	-8.716	1691.928
			Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-81.34	-0.073	4.225
			Max. Mx	20	-44.87	1767.668	-8.579
			Max. My	2	-44.87	-9.004	1755.535
			Max. Vy	20	-23.46	1767.668	-8.579
L38	13.5 - 13.25	Pole	Max. Vx	2	-23.20	-9.004	1755.535
			Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-81.48	-0.073	4.237
			Max. Mx	20	-44.99	1773.527	-8.603
			Max. My	2	-44.99	-9.030	1761.338
			Max. Vy	20	-23.46	1773.527	-8.603
L39	13.25 - 9	Pole	Max. Vx	2	-23.20	-9.030	1761.338
			Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-83.90	-0.103	4.427
			Max. Mx	20	-46.81	1873.654	-9.002
			Max. My	2	-46.81	-9.473	1860.518
			Max. Vy	20	-23.70	1873.654	-9.002
L40	9 - 8.75	Pole	Max. Vx	2	-23.45	-9.473	1860.518
			Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-84.05	-0.108	4.439
			Max. Mx	20	-46.93	1879.575	-9.025
			Max. My	2	-46.93	-9.499	1866.383
			Max. Vy	20	-23.70	1879.575	-9.025
L41	8.75 - 3.75	Pole	Max. Vx	2	-23.45	-9.499	1866.383
			Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-86.97	-0.203	4.661
			Max. Mx	20	-49.18	1998.738	-9.489
			Max. My	2	-49.18	-10.019	1984.441
			Max. Vy	20	-24.00	1998.738	-9.489
L42	3.75 - 0	Pole	Max. Vx	2	-23.75	-10.019	1984.441
			Max. Torque	19			-0.846
			Max Tension	1	0.00	0.000	0.000
			Max. Compression	26	-89.11	-0.263	4.819
			Max. Mx	20	-50.89	2089.048	-9.833
			Max. My	2	-50.89	-10.408	2073.927
			Max. Vy	20	-24.22	2089.048	-9.833
	2	-23.97	-10.408	2073.927			
	19			-0.846			

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	89.11	-0.00	0.00
	Max. H _x	20	50.90	24.20	-0.11
	Max. H _z	3	38.18	-0.09	23.95
	Max. M _x	2	2073.927	-0.09	23.95
	Max. M _z	8	2087.722	-24.17	0.15
	Max. Torsion	7	0.650	-21.10	12.21
	Min. Vert	11	38.18	-20.76	-11.93

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. H _x	8	50.90	-24.17	0.15
	Min. H _z	14	50.90	0.12	-23.93
	Min. M _x	14	-2069.671	0.12	-23.93
	Min. M _z	20	-2089.048	24.20	-0.11
	Min. Torsion	19	-0.846	21.10	-12.19

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	42.42	0.00	0.00	-1.052	-0.815	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	50.90	0.09	-23.95	-2073.927	-10.408	-0.149
0.9 Dead+1.0 Wind 0 deg - No Ice	38.18	0.09	-23.95	-2054.457	-10.057	-0.148
1.2 Dead+1.0 Wind 30 deg - No Ice	50.90	13.01	-22.42	-1875.483	-1089.421	-0.542
0.9 Dead+1.0 Wind 30 deg - No Ice	38.18	13.01	-22.42	-1858.159	-1079.289	-0.544
1.2 Dead+1.0 Wind 60 deg - No Ice	50.90	21.10	-12.21	-1054.212	-1819.566	-0.646
0.9 Dead+1.0 Wind 60 deg - No Ice	38.18	21.10	-12.21	-1044.190	-1802.568	-0.650
1.2 Dead+1.0 Wind 90 deg - No Ice	50.90	24.17	-0.15	-15.873	-2087.722	-0.583
0.9 Dead+1.0 Wind 90 deg - No Ice	38.18	24.17	-0.15	-15.408	-2068.226	-0.588
1.2 Dead+1.0 Wind 120 deg - No Ice	50.90	20.76	11.93	1030.549	-1797.675	-0.573
0.9 Dead+1.0 Wind 120 deg - No Ice	38.18	20.76	11.93	1021.350	-1780.828	-0.579
1.2 Dead+1.0 Wind 150 deg - No Ice	50.90	12.06	20.98	1803.237	-1037.299	-0.120
0.9 Dead+1.0 Wind 150 deg - No Ice	38.18	12.06	20.98	1786.951	-1027.500	-0.124
1.2 Dead+1.0 Wind 180 deg - No Ice	50.90	-0.12	23.93	2069.671	10.548	0.473
0.9 Dead+1.0 Wind 180 deg - No Ice	38.18	-0.12	23.93	2050.877	10.702	0.472
1.2 Dead+1.0 Wind 210 deg - No Ice	50.90	-13.02	22.42	1873.188	1088.673	0.802
0.9 Dead+1.0 Wind 210 deg - No Ice	38.18	-13.02	22.42	1856.518	1079.055	0.804
1.2 Dead+1.0 Wind 240 deg - No Ice	50.90	-21.10	12.19	1050.480	1817.956	0.842
0.9 Dead+1.0 Wind 240 deg - No Ice	38.18	-21.10	12.19	1041.125	1801.480	0.846
1.2 Dead+1.0 Wind 270 deg - No Ice	50.90	-24.20	0.11	9.833	2089.048	0.706
0.9 Dead+1.0 Wind 270 deg - No Ice	38.18	-24.20	0.11	10.056	2070.045	0.712
1.2 Dead+1.0 Wind 300 deg - No Ice	50.90	-20.82	-11.88	-1028.640	1801.157	0.472
0.9 Dead+1.0 Wind 300 deg - No Ice	38.18	-20.82	-11.88	-1018.825	1784.783	0.477
1.2 Dead+1.0 Wind 330 deg - No Ice	50.90	-12.05	-21.02	-1809.347	1033.657	0.360
0.9 Dead+1.0 Wind 330 deg - No Ice	38.18	-12.05	-21.02	-1792.372	1024.396	0.364
1.2 Dead+1.0 Ice+1.0 Temp	89.11	0.00	-0.00	-4.819	-0.263	-0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	89.11	0.02	-6.14	-557.145	-2.449	-0.063
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	89.11	3.19	-5.50	-492.788	-283.205	-0.171

Load Combination	Vertical	Shear _x	Shear _z	Overturning Moment, M _x	Overturning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	89.11	5.34	-3.09	-282.865	-479.962	-0.184
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	89.11	6.16	-0.03	-8.327	-553.677	-0.162
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	89.11	5.32	3.06	270.012	-478.655	-0.138
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	89.11	3.06	5.32	472.732	-274.626	-0.017
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	89.11	-0.03	6.14	546.810	2.454	0.130
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	89.11	-3.19	5.51	482.896	283.018	0.224
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	89.11	-5.34	3.09	272.606	479.598	0.225
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	89.11	-6.16	0.02	-2.451	553.953	0.187
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	89.11	-5.34	-3.05	-279.140	479.393	0.118
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	89.11	-3.05	-5.32	-483.524	273.831	0.066
Dead+Wind 0 deg - Service	42.42	0.02	-5.64	-486.782	-3.041	-0.034
Dead+Wind 30 deg - Service	42.42	3.07	-5.28	-440.313	-255.922	-0.128
Dead+Wind 60 deg - Service	42.42	4.97	-2.88	-247.822	-427.015	-0.153
Dead+Wind 90 deg - Service	42.42	5.69	-0.03	-4.487	-489.852	-0.139
Dead+Wind 120 deg - Service	42.42	4.89	2.81	240.732	-421.878	-0.137
Dead+Wind 150 deg - Service	42.42	2.84	4.94	421.810	-243.693	-0.030
Dead+Wind 180 deg - Service	42.42	-0.03	5.64	484.243	1.865	0.111
Dead+Wind 210 deg - Service	42.42	-3.07	5.28	438.234	254.539	0.190
Dead+Wind 240 deg - Service	42.42	-4.97	2.87	245.404	425.428	0.200
Dead+Wind 270 deg - Service	42.42	-5.70	0.03	1.530	488.953	0.168
Dead+Wind 300 deg - Service	42.42	-4.91	-2.80	-241.828	421.483	0.113
Dead+Wind 330 deg - Service	42.42	-2.84	-4.95	-424.783	241.630	0.087

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-42.42	0.00	0.00	42.42	0.00	0.000%
2	0.09	-50.90	-23.95	-0.09	50.90	23.95	0.000%
3	0.09	-38.18	-23.95	-0.09	38.18	23.95	0.000%
4	13.01	-50.90	-22.42	-13.01	50.90	22.42	0.000%
5	13.01	-38.18	-22.42	-13.01	38.18	22.42	0.000%
6	21.10	-50.90	-12.21	-21.10	50.90	12.21	0.000%
7	21.10	-38.18	-12.21	-21.10	38.18	12.21	0.000%
8	24.17	-50.90	-0.15	-24.17	50.90	0.15	0.000%
9	24.17	-38.18	-0.15	-24.17	38.18	0.15	0.000%
10	20.76	-50.90	11.93	-20.76	50.90	-11.93	0.000%
11	20.76	-38.18	11.93	-20.76	38.18	-11.93	0.000%
12	12.06	-50.90	20.98	-12.06	50.90	-20.98	0.000%
13	12.06	-38.18	20.98	-12.06	38.18	-20.98	0.000%
14	-0.12	-50.90	23.93	0.12	50.90	-23.93	0.000%
15	-0.12	-38.18	23.93	0.12	38.18	-23.93	0.000%
16	-13.02	-50.90	22.42	13.02	50.90	-22.42	0.000%
17	-13.02	-38.18	22.42	13.02	38.18	-22.42	0.000%
18	-21.10	-50.90	12.19	21.10	50.90	-12.19	0.000%
19	-21.10	-38.18	12.19	21.10	38.18	-12.19	0.000%
20	-24.20	-50.90	0.11	24.20	50.90	-0.11	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
21	-24.20	-38.18	0.11	24.20	38.18	-0.11	0.000%
22	-20.82	-50.90	-11.88	20.82	50.90	11.88	0.000%
23	-20.82	-38.18	-11.88	20.82	38.18	11.88	0.000%
24	-12.05	-50.90	-21.02	12.05	50.90	21.02	0.000%
25	-12.05	-38.18	-21.02	12.05	38.18	21.02	0.000%
26	0.00	-89.11	0.00	-0.00	89.11	0.00	0.000%
27	0.02	-89.11	-6.14	-0.02	89.11	6.14	0.000%
28	3.19	-89.11	-5.50	-3.19	89.11	5.50	0.000%
29	5.34	-89.11	-3.09	-5.34	89.11	3.09	0.000%
30	6.16	-89.11	-0.03	-6.16	89.11	0.03	0.000%
31	5.32	-89.11	3.06	-5.32	89.11	-3.06	0.000%
32	3.06	-89.11	5.32	-3.06	89.11	-5.32	0.000%
33	-0.03	-89.11	6.14	0.03	89.11	-6.14	0.000%
34	-3.19	-89.11	5.51	3.19	89.11	-5.51	0.000%
35	-5.34	-89.11	3.09	5.34	89.11	-3.09	0.000%
36	-6.16	-89.11	0.02	6.16	89.11	-0.02	0.000%
37	-5.34	-89.11	-3.05	5.34	89.11	3.05	0.000%
38	-3.05	-89.11	-5.32	3.05	89.11	5.32	0.000%
39	0.02	-42.42	-5.64	-0.02	42.42	5.64	0.000%
40	3.07	-42.42	-5.28	-3.07	42.42	5.28	0.000%
41	4.97	-42.42	-2.88	-4.97	42.42	2.88	0.000%
42	5.69	-42.42	-0.03	-5.69	42.42	0.03	0.000%
43	4.89	-42.42	2.81	-4.89	42.42	-2.81	0.000%
44	2.84	-42.42	4.94	-2.84	42.42	-4.94	0.000%
45	-0.03	-42.42	5.64	0.03	42.42	-5.64	0.000%
46	-3.07	-42.42	5.28	3.07	42.42	-5.28	0.000%
47	-4.97	-42.42	2.87	4.97	42.42	-2.87	0.000%
48	-5.70	-42.42	0.03	5.70	42.42	-0.03	0.000%
49	-4.91	-42.42	-2.80	4.91	42.42	2.80	0.000%
50	-2.84	-42.42	-4.95	2.84	42.42	4.95	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	0.00008296
3	Yes	4	0.00000001	0.00087804
4	Yes	6	0.00000001	0.00012127
5	Yes	6	0.00000001	0.00004245
6	Yes	6	0.00000001	0.00012315
7	Yes	6	0.00000001	0.00004351
8	Yes	5	0.00000001	0.00017156
9	Yes	5	0.00000001	0.00008123
10	Yes	6	0.00000001	0.00011416
11	Yes	6	0.00000001	0.00004031
12	Yes	6	0.00000001	0.00011743
13	Yes	6	0.00000001	0.00004153
14	Yes	5	0.00000001	0.00014343
15	Yes	5	0.00000001	0.00006658
16	Yes	6	0.00000001	0.00012701
17	Yes	6	0.00000001	0.00004469
18	Yes	6	0.00000001	0.00011598
19	Yes	6	0.00000001	0.00004083
20	Yes	5	0.00000001	0.00012893
21	Yes	5	0.00000001	0.00005897
22	Yes	6	0.00000001	0.00011881
23	Yes	6	0.00000001	0.00004210
24	Yes	6	0.00000001	0.00011527
25	Yes	6	0.00000001	0.00004070
26	Yes	4	0.00000001	0.00014049
27	Yes	6	0.00000001	0.00034827
28	Yes	6	0.00000001	0.00037452
29	Yes	6	0.00000001	0.00037146
30	Yes	6	0.00000001	0.00034582
31	Yes	6	0.00000001	0.00036399
32	Yes	6	0.00000001	0.00036269
33	Yes	6	0.00000001	0.00034138
34	Yes	6	0.00000001	0.00036856
35	Yes	6	0.00000001	0.00036577
36	Yes	6	0.00000001	0.00034598
37	Yes	6	0.00000001	0.00036928
38	Yes	6	0.00000001	0.00036923
39	Yes	4	0.00000001	0.00034946
40	Yes	4	0.00000001	0.00099117
41	Yes	5	0.00000001	0.00004391
42	Yes	4	0.00000001	0.00037722
43	Yes	4	0.00000001	0.00092292
44	Yes	4	0.00000001	0.00097217
45	Yes	4	0.00000001	0.00036383
46	Yes	5	0.00000001	0.00004544
47	Yes	4	0.00000001	0.00093201
48	Yes	4	0.00000001	0.00037847
49	Yes	4	0.00000001	0.00099838
50	Yes	4	0.00000001	0.00093510

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	117 - 112	12.187	40	1.0530	0.0015
L2	112 - 110	11.088	40	1.0433	0.0015
L3	110 - 105	10.653	40	1.0360	0.0015
L4	105 - 100	9.583	40	1.0038	0.0015
L5	100 - 95	8.557	40	0.9538	0.0015
L6	95 - 90	7.585	40	0.8994	0.0014
L7	90 - 85	6.678	40	0.8301	0.0013
L8	85 - 82.38	5.851	40	0.7477	0.0011
L9	82.38 - 82.13	5.454	40	0.6990	0.0009
L10	82.13 - 81.88	5.417	40	0.6942	0.0009

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L11	81.88 - 81.63	5.381	40	0.6894	0.0009
L12	81.63 - 76.63	5.345	40	0.6859	0.0009
L13	76.63 - 76	4.664	40	0.6132	0.0007
L14	76 - 75.75	4.584	40	0.6037	0.0007
L15	75.75 - 70.75	4.552	40	0.6007	0.0007
L16	70.75 - 70.5	3.956	40	0.5372	0.0005
L17	70.5 - 67.98	3.928	40	0.5350	0.0005
L18	67.98 - 67.73	3.652	40	0.5132	0.0005
L19	67.73 - 63.5	3.625	40	0.5110	0.0005
L20	63.5 - 63.25	3.189	40	0.4722	0.0004
L21	63.25 - 58.25	3.164	40	0.4704	0.0004
L22	58.25 - 53.25	2.692	40	0.4319	0.0003
L23	53.25 - 47.42	2.261	40	0.3919	0.0003
L24	52 - 46.42	2.159	40	0.3819	0.0003
L25	46.42 - 43.5	1.726	40	0.3551	0.0003
L26	43.5 - 43.25	1.517	40	0.3308	0.0002
L27	43.25 - 38.25	1.499	40	0.3291	0.0002
L28	38.25 - 33.5	1.174	40	0.2933	0.0002
L29	33.5 - 33.25	0.899	40	0.2591	0.0002
L30	33.25 - 33	0.885	40	0.2573	0.0002
L31	33 - 32.75	0.872	40	0.2555	0.0002
L32	32.75 - 31.5	0.859	40	0.2538	0.0002
L33	31.5 - 31.25	0.793	40	0.2455	0.0002
L34	31.25 - 26.25	0.780	40	0.2435	0.0002
L35	26.25 - 21.25	0.546	40	0.2034	0.0001
L36	21.25 - 16.25	0.355	40	0.1631	0.0001
L37	16.25 - 13.5	0.205	40	0.1230	0.0001
L38	13.5 - 13.25	0.140	40	0.1011	0.0001
L39	13.25 - 9	0.135	40	0.0991	0.0001
L40	9 - 8.75	0.062	40	0.0657	0.0000
L41	8.75 - 3.75	0.058	40	0.0639	0.0000
L42	3.75 - 0	0.011	40	0.0273	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
117.00	APXVSP18-C-A20 w/ Mount Pipe	40	12.187	1.0530	0.0015	17639
115.00	PCS 1900MHz 4x45W-65MHz	40	11.746	1.0500	0.0015	17639
110.00	AIR6449 B41_T-MOBILE w/ Mount Pipe	40	10.653	1.0360	0.0015	12594
100.00	(2) DB844G65ZAXY w/ Mount Pipe	40	8.557	0.9538	0.0015	5473
95.00	VHLP1-23	40	7.585	0.8994	0.0014	4537
94.00	VHLP2-11	40	7.398	0.8869	0.0014	4367
93.00	Pipe Mount [PM 601-3]	40	7.214	0.8736	0.0013	4205
92.00	VHLP1-23	40	7.032	0.8596	0.0013	4051
89.00	HPA65R-BU8A	40	6.506	0.8146	0.0013	3640
84.00	800 10504	40	5.696	0.7294	0.0010	3281
76.00	MX08FRO665-21 w/ Mount Pipe	40	4.584	0.6037	0.0007	4186

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	117 - 112	52.010	4	4.5052	0.0063
L2	112 - 110	47.317	4	4.4640	0.0063
L3	110 - 105	45.457	4	4.4326	0.0064

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L4	105 - 100	40.887	4	4.2950	0.0064
L5	100 - 95	36.503	4	4.0809	0.0064
L6	95 - 90	32.352	4	3.8455	0.0058
L7	90 - 85	28.481	4	3.5471	0.0056
L8	85 - 82.38	24.949	4	3.1935	0.0046
L9	82.38 - 82.13	23.255	4	2.9847	0.0039
L10	82.13 - 81.88	23.099	4	2.9641	0.0039
L11	81.88 - 81.63	22.945	4	2.9435	0.0038
L12	81.63 - 76.63	22.791	4	2.9284	0.0038
L13	76.63 - 76	19.887	4	2.6171	0.0030
L14	76 - 75.75	19.545	4	2.5766	0.0029
L15	75.75 - 70.75	19.410	4	2.5639	0.0029
L16	70.75 - 70.5	16.867	4	2.2924	0.0022
L17	70.5 - 67.98	16.748	4	2.2828	0.0022
L18	67.98 - 67.73	15.568	4	2.1896	0.0020
L19	67.73 - 63.5	15.453	4	2.1803	0.0020
L20	63.5 - 63.25	13.596	4	2.0146	0.0017
L21	63.25 - 58.25	13.490	4	2.0068	0.0017
L22	58.25 - 53.25	11.475	4	1.8422	0.0015
L23	53.25 - 47.42	9.636	4	1.6715	0.0013
L24	52 - 46.42	9.204	4	1.6287	0.0012
L25	46.42 - 43.5	7.359	4	1.5143	0.0011
L26	43.5 - 43.25	6.465	4	1.4107	0.0010
L27	43.25 - 38.25	6.391	4	1.4033	0.0010
L28	38.25 - 33.5	5.002	4	1.2507	0.0008
L29	33.5 - 33.25	3.830	4	1.1045	0.0007
L30	33.25 - 33	3.773	4	1.0969	0.0007
L31	33 - 32.75	3.716	4	1.0893	0.0007
L32	32.75 - 31.5	3.659	4	1.0821	0.0007
L33	31.5 - 31.25	3.380	4	1.0464	0.0007
L34	31.25 - 26.25	3.326	4	1.0379	0.0006
L35	26.25 - 21.25	2.328	4	0.8672	0.0005
L36	21.25 - 16.25	1.511	4	0.6951	0.0004
L37	16.25 - 13.5	0.873	4	0.5242	0.0003
L38	13.5 - 13.25	0.598	4	0.4306	0.0002
L39	13.25 - 9	0.575	4	0.4222	0.0002
L40	9 - 8.75	0.263	4	0.2800	0.0001
L41	8.75 - 3.75	0.249	4	0.2722	0.0001
L42	3.75 - 0	0.046	4	0.1162	0.0001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
117.00	APXVSP18-C-A20 w/ Mount Pipe	4	52.010	4.5052	0.0063	4172
115.00	PCS 1900MHz 4x45W-65MHz	4	50.128	4.4926	0.0063	4172
110.00	AIR6449 B41_T-MOBILE w/ Mount Pipe	4	45.457	4.4326	0.0064	2978
100.00	(2) DB844G65ZAXY w/ Mount Pipe	4	36.503	4.0809	0.0064	1292
95.00	VHLP1-23	4	32.352	3.8455	0.0058	1074
94.00	VHLP2-11	4	31.553	3.7914	0.0058	1033
93.00	Pipe Mount [PM 601-3]	4	30.767	3.7341	0.0057	993
92.00	VHLP1-23	4	29.992	3.6740	0.0057	956
89.00	HPA65R-BU8A	4	27.745	3.4808	0.0054	857
84.00	800 10504	4	24.289	3.1150	0.0043	771
76.00	MX08FRO665-21 w/ Mount Pipe	4	19.545	2.5766	0.0029	983

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 P _u / φP _n
L1	117 - 116	TP15.4886x14.36x0.1875	5.00	0.00	0.0	8.6929	-1.24	508.54	0.002
	116 - 115					8.8292	-1.27	516.51	0.002
	115 - 114					8.9655	-1.85	524.48	0.004
	114 - 113					9.1018	-1.88	532.45	0.004
	113 - 112					9.2380	-1.92	540.42	0.004
L2	112 - 111	TP15.94x15.4886x0.1875	2.00	0.00	0.0	9.3743	-1.96	548.40	0.004
	111 - 110					9.5106	-2.00	556.37	0.004
L3	110 - 109	TP17.07x15.94x0.1875	5.00	0.00	0.0	9.6470	-5.96	564.35	0.011
	109 - 108					9.7835	-6.02	572.33	0.011
	108 - 107					9.9199	-6.09	580.32	0.010
	107 - 106					10.056	-6.15	588.30	0.010
L4	106 - 105	TP18.2x17.07x0.1875	5.00	0.00	0.0	10.192	-6.22	596.28	0.010
	105 - 104					10.329	-6.28	604.26	0.010
	104 - 103					10.465	-6.35	612.24	0.010
	103 - 102					10.602	-6.42	620.23	0.010
	102 - 101					10.738	-6.49	628.21	0.010
	101 - 100					10.875	-6.56	636.19	0.010
L5	100 - 99	TP19.3307x18.2x0.25	5.00	0.00	0.0	14.631	-10.28	855.96	0.012
	99 - 98					14.813	-10.37	866.61	0.012
	98 - 97					14.995	-10.47	877.26	0.012
	97 - 96					15.177	-10.57	887.91	0.012
	96 - 95					15.359	-10.67	898.56	0.012
L6	95 - 94	TP20.4613x19.3307x0.25	5.00	0.00	0.0	15.542	-10.78	909.21	0.012
	94 - 93					15.724	-10.91	919.85	0.012
	93 - 92					15.906	-11.24	930.50	0.012
	92 - 91					16.088	-11.35	941.15	0.012
	91 - 90					16.270	-11.46	951.80	0.012
L7	90 - 89	TP21.592x20.4613x0.25	5.00	0.00	0.0	16.452	-11.58	962.45	0.012
	89 - 88					16.634	-15.84	973.10	0.016
	88 - 87					16.816	-15.97	983.75	0.016
	87 - 86					16.998	-16.09	994.40	0.016
	86 - 85					17.180	-16.23	1005.05	0.016
L8	85 - 83.69	TP22.1844x21.592x0.25	2.62	0.00	0.0	17.418	-16.68	1019.00	0.016
	83.69 - 82.38					17.657	-16.87	1032.95	0.016
L9	82.38 - 82.13 (9)	TP22.241x22.1844x0.25	0.25	0.00	0.0	17.702	-16.92	1035.61	0.016
L10	82.13 - 81.88 (10)	TP22.2975x22.241x0.25	0.25	0.00	0.0	17.748	-16.95	1038.27	0.016
L11	81.88 - 81.63 (11)	TP22.354x22.2975x0.35	0.25	0.00	0.0	24.798	-17.00	1450.72	0.012

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
L12	81.63 - 80.63	TP23.4847x22.354x0.356 3	5.00	0.00	0.0	25.493 6	-17.18	1491.38	0.012
	80.63 - 79.63					25.753 0	-17.37	1506.55	0.012
	79.63 - 78.63					26.012 4	-17.57	1521.73	0.012
	78.63 - 77.63					26.271 8	-17.76	1536.90	0.012
	77.63 - 76.63					26.531 2	-17.96	1552.08	0.012
L13	76.63 - 76 (13)	TP23.6272x23.4847x0.35 63	0.63	0.00	0.0	26.694 6	-18.08	1561.64	0.012
L14	76 - 75.75 (14)	TP23.6837x23.6272x0.46 25	0.25	0.00	0.0	34.582 2	-21.28	2023.06	0.011
L15	75.75 - 74.75	TP24.8143x23.6837x0.45	5.00	0.00	0.0	33.993 3	-21.50	1988.61	0.011
	74.75 - 73.75					34.320 9	-21.73	2007.78	0.011
	73.75 - 72.75					34.648 6	-21.97	2026.94	0.011
	72.75 - 71.75					34.976 3	-22.21	2046.11	0.011
	71.75 - 70.75					35.303 9	-22.45	2065.28	0.011
L16	70.75 - 70.5 (16)	TP24.8709x24.8143x0.67 5	0.25	0.00	0.0	52.589 8	-22.53	3076.50	0.007
L17	70.5 - 69.24	TP25.4407x24.8709x0.71 25	2.52	0.00	0.0	56.079 1	-22.86	3280.63	0.007
	69.24 - 67.98					56.732 7	-23.20	3318.87	0.007
L18	67.98 - 67.73 (18)	TP25.4973x25.4407x0.71 25	0.25	0.00	0.0	56.862 5	-23.27	3326.45	0.007
L19	67.73 - 66.6725 66.6725 - 65.615 65.615 - 64.5575 64.5575 - 63.5	TP26.4538x25.4973x0.68 75	4.23	0.00	0.0	55.452 0	-23.54	3243.94	0.007
						55.981 4	-23.83	3274.91	0.007
						56.510 8	-24.12	3305.88	0.007
						57.040 2	-24.41	3336.85	0.007
L20	63.5 - 63.25 (20)	TP26.5103x26.4538x0.9	0.25	0.00	0.0	74.218 8	-24.50	4341.80	0.006
L21	63.25 - 62.25	TP27.641x26.5103x0.85	5.00	0.00	0.0	70.851 3	-24.81	4144.80	0.006
	62.25 - 61.25					71.470 2	-25.14	4181.01	0.006
	61.25 - 60.25					72.089 1	-25.47	4217.21	0.006
	60.25 - 59.25					72.708 0	-25.80	4253.42	0.006
	59.25 - 58.25					73.327 0	-26.13	4289.63	0.006
L22	58.25 - 57.25	TP28.7717x27.641x0.825	5.00	0.00	0.0	71.837 4	-26.46	4202.49	0.006
	57.25 - 56.25					72.438 1	-26.79	4237.63	0.006
	56.25 - 55.25					73.038 8	-27.12	4272.77	0.006
	55.25 - 54.25					73.639 6	-27.45	4307.91	0.006
	54.25 - 53.25					74.240 3	-27.79	4343.06	0.006
L23	53.25 - 52	TP30.09x28.7717x0.825	5.83	0.00	0.0	74.991 2	-28.21	4386.98	0.006
	52 - 47.42					77.742 5	-15.56	4547.93	0.003
L24	52 - 47.42	TP29.8147x28.5543x0.84 38	5.58	0.00	0.0	78.096 8	-15.53	4568.66	0.003

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
	47.42 - 46.42					78.710	-31.46	4604.56	0.007
L25	46.42 - 44.96	TP30.4743x29.8147x0.83	2.92	0.00	0.0	78.460	-31.98	4589.94	0.007
	44.96 - 43.5	13				79.343	-32.51	4641.58	0.007
L26	43.5 - 43.25	TP30.5308x30.4743x0.99	0.25	0.00	0.0	94.514	-32.62	5529.11	0.006
	(26)	38				92.919	-33.03	5435.80	0.006
L27	43.25 - 42.25	TP31.6601x30.5308x0.96	5.00	0.00	0.0	92.919	-33.03	5435.80	0.006
	42.25 - 41.25	88				93.624	-33.44	5477.01	0.006
	41.25 - 40.25					94.328	-33.86	5518.23	0.006
	40.25 - 39.25					95.033	-34.28	5559.45	0.006
	39.25 - 38.25					95.738	-34.70	5600.67	0.006
L28	38.25 - 37.0625	TP32.7331x31.6601x0.94	4.75	0.00	0.0	94.158	-35.20	5508.27	0.006
	37.0625 - 35.875	38				94.973	-35.70	5555.95	0.006
	35.875 - 34.6875					95.788	-36.20	5603.64	0.006
	34.6875 - 33.5					96.603	-36.71	5651.32	0.006
L29	33.5 - 33.25	TP32.7895x32.7331x0.94	0.25	0.00	0.0	96.775	-36.82	5661.36	0.007
	(29)	38				96.947	-36.93	5671.40	0.007
L30	33.25 - 33	TP32.846x32.7895x0.943	0.25	0.00	0.0	96.947	-36.93	5671.40	0.007
	(30)	8				102.10	-37.04	5973.08	0.006
L31	33 - 32.75	TP32.9025x32.846x0.993	0.25	0.00	0.0	102.10	-37.04	5973.08	0.006
	(31)	8				103.00	-37.59	6025.93	0.006
L32	32.75 - 31.5	TP33.1848x32.9025x0.99	1.25	0.00	0.0	103.00	-37.59	6025.93	0.006
	(32)	38				86.749	-37.70	5074.85	0.007
L33	31.5 - 31.25	TP33.2413x33.1848x0.83	0.25	0.00	0.0	86.749	-37.70	5074.85	0.007
	(33)	13				86.073	-38.08	5035.30	0.008
L34	31.25 - 30.25	TP34.3707x33.2413x0.81	5.00	0.00	0.0	86.073	-38.08	5035.30	0.008
	30.25 - 29.25	88				86.669	-38.48	5070.14	0.008
	29.25 - 28.25					87.264	-38.87	5104.97	0.008
	28.25 - 27.25					87.860	-39.27	5139.81	0.008
	27.25 - 26.25					88.455	-39.67	5174.65	0.008
L35	26.25 - 25.25	TP35.5001x34.3707x0.79	5.00	0.00	0.0	86.395	-40.07	5054.15	0.008
	25.25 - 24.25	38				86.973	-40.47	5087.93	0.008
	24.25 - 23.25					87.550	-40.87	5121.70	0.008
	23.25 - 22.25					88.127	-41.27	5155.47	0.008
	22.25 - 21.25					88.705	-41.68	5189.25	0.008
L36	21.25 - 20.25	TP36.6295x35.5001x0.78	5.00	0.00	0.0	87.907	-42.08	5142.61	0.008
	20.25 - 19.25	13				88.476	-42.49	5175.85	0.008
	19.25 - 18.25					89.044	-42.90	5209.09	0.008
	18.25 - 17.25					89.612	-43.31	5242.33	0.008
	17.25 - 16.25					90.180	-43.72	5275.57	0.008
L37	16.25 - 14.875	TP37.2506x36.6295x0.76	2.75	0.00	0.0	89.537	-44.28	5237.95	0.008
		88				89.537	-44.28	5237.95	0.008

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
	14.875 - 13.5					90.306	-44.85	5282.92	0.008
L38	13.5 - 13.25 (38)	TP37.3071x37.2506x0.76 88	0.25	0.00	0.0	90.446	-44.97	5291.10	0.008
L39	13.25 - 12.1875	TP38.2671x37.3071x0.76 88	4.25	0.00	0.0	91.040	-45.42	5325.85	0.009
	12.1875 - 11.125					91.634	-45.87	5360.61	0.009
	11.125 - 10.0625					92.228	-46.33	5395.36	0.009
	10.0625 - 9					92.822	-46.79	5430.11	0.009
L40	9 - 8.75 (40)	TP38.3236x38.2671x0.81 88	0.25	0.00	0.0	98.876	-46.91	5784.29	0.008
L41	8.75 - 7.75	TP39.453x38.3236x0.806 3	5.00	0.00	0.0	97.986	-47.36	5732.18	0.008
	7.75 - 6.75					98.572	-47.81	5766.49	0.008
	6.75 - 5.75					99.158	-48.26	5800.79	0.008
	5.75 - 4.75					99.745	-48.72	5835.10	0.008
	4.75 - 3.75					100.33	-49.17	5869.40	0.008
L42	3.75 - 2.5	TP40.3x39.453x0.7938	3.75	0.00	0.0	99.529	-49.74	5822.49	0.009
	2.5 - 1.25					100.25	-50.32	5864.71	0.009
	1.25 - 0					100.97	-50.89	5906.92	0.009

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	117 - 116	TP15.4886x14.36x0.1875	4.083	187.007	0.022	0.000	187.007	0.000
	116 - 115		5.747	192.954	0.030	0.000	192.954	0.000
	115 - 114		8.221	198.994	0.041	0.000	198.994	0.000
	114 - 113		10.744	205.128	0.052	0.000	205.128	0.000
	113 - 112		13.316	211.355	0.063	0.000	211.355	0.000
L2	112 - 111	TP15.94x15.4886x0.1875	15.938	217.088	0.073	0.000	217.088	0.000
	111 - 110		18.610	222.521	0.084	0.000	222.521	0.000
L3	110 - 109	TP17.07x15.94x0.1875	24.218	227.998	0.106	0.000	227.998	0.000
	109 - 108		29.879	233.511	0.128	0.000	233.511	0.000
	108 - 107		35.590	239.058	0.149	0.000	239.058	0.000
	107 - 106		41.353	244.639	0.169	0.000	244.639	0.000
	106 - 105		47.169	250.253	0.188	0.000	250.253	0.000
L4	105 - 104	TP18.2x17.07x0.1875	53.036	255.896	0.207	0.000	255.896	0.000
	104 - 103		58.956	261.570	0.225	0.000	261.570	0.000
	103 - 102		64.927	267.272	0.243	0.000	267.272	0.000
	102 - 101		70.952	273.003	0.260	0.000	273.003	0.000
	101 - 100		77.029	278.758	0.276	0.000	278.758	0.000
L5	100 - 99	TP19.3307x18.2x0.25	93.015	397.070	0.234	0.000	397.070	0.000
	99 - 98		103.731	407.080	0.255	0.000	407.080	0.000
	98 - 97		114.499	417.213	0.274	0.000	417.213	0.000
	97 - 96		125.319	427.473	0.293	0.000	427.473	0.000
	96 - 95		136.192	437.855	0.311	0.000	437.855	0.000
L6	95 - 94	TP20.4613x19.3307x0.25	147.119	448.363	0.328	0.000	448.363	0.000
	94 - 93		158.477	458.996	0.345	0.000	458.996	0.000
	93 - 92		170.058	469.753	0.362	0.000	469.753	0.000
	92 - 91		181.718	480.634	0.378	0.000	480.634	0.000
	91 - 90		193.440	491.640	0.393	0.000	491.640	0.000
L7	90 - 89	TP21.592x20.4613x0.25	205.214	502.771	0.408	0.000	502.771	0.000
	89 - 88		221.380	512.926	0.432	0.000	512.926	0.000

Section No.	Elevation ft	Size	M_{ux}	ϕM_{nx}	Ratio	M_{uy} kip-ft	ϕM_{ny}	Ratio
			kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{nx}}$		kip-ft	$\frac{M_{uy}}{\phi M_{ny}}$
	88 - 87		237.634	522.585	0.455	0.000	522.585	0.000
	87 - 86		253.935	532.295	0.477	0.000	532.295	0.000
	86 - 85		270.336	542.053	0.499	0.000	542.053	0.000
L8	85 - 83.69	TP22.1844x21.592x0.25	292.044	554.908	0.526	0.000	554.908	0.000
	83.69 - 82.38		314.084	567.843	0.553	0.000	567.843	0.000
L9	82.38 - 82.13	TP22.241x22.1844x0.25	318.299	570.321	0.558	0.000	570.321	0.000
	(9)							
L10	82.13 - 81.88	TP22.2975x22.241x0.25	322.516	572.800	0.563	0.000	572.800	0.000
	(10)							
L11	81.88 - 81.63	TP22.354x22.2975x0.35	326.737	812.973	0.402	0.000	812.973	0.000
	(11)							
L12	81.63 - 80.63	TP23.4847x22.354x0.356	343.651	844.008	0.407	0.000	844.008	0.000
		3						
	80.63 - 79.63		360.618	861.408	0.419	0.000	861.408	0.000
	79.63 - 78.63		377.637	878.983	0.430	0.000	878.983	0.000
	78.63 - 77.63		394.708	896.742	0.440	0.000	896.742	0.000
	77.63 - 76.63		411.832	914.675	0.450	0.000	914.675	0.000
L13	76.63 - 76	TP23.6272x23.4847x0.35	422.647	926.067	0.456	0.000	926.067	0.000
	(13)	63						
L14	76 - 75.75	TP23.6837x23.6272x0.46	427.596	1191.717	0.359	0.000	1191.717	0.000
	(14)	25						
L15	75.75 - 74.75	TP24.8143x23.6837x0.45	447.188	1184.317	0.378	0.000	1184.317	0.000
	74.75 - 73.75		466.846	1207.475	0.387	0.000	1207.475	0.000
	73.75 - 72.75		486.568	1230.858	0.395	0.000	1230.858	0.000
	72.75 - 71.75		506.354	1254.467	0.404	0.000	1254.467	0.000
	71.75 - 70.75		526.205	1278.292	0.412	0.000	1278.292	0.000
L16	70.75 - 70.5	TP24.8709x24.8143x0.67	531.179	1873.675	0.283	0.000	1873.675	0.000
	(16)	5						
L17	70.5 - 69.24	TP25.4407x24.8709x0.71	556.318	2015.967	0.276	0.000	2015.967	0.000
		25						
	69.24 - 67.98		581.581	2063.917	0.282	0.000	2063.917	0.000
L18	67.98 - 67.73	TP25.4973x25.4407x0.71	586.607	2073.492	0.283	0.000	2073.492	0.000
	(18)	25						
L19	67.73 - 66.6725	TP26.4538x25.4973x0.68	607.971	2046.200	0.297	0.000	2046.200	0.000
	66.6725 - 65.615	75	629.467	2085.983	0.302	0.000	2085.983	0.000
	65.615 - 64.5575		651.076	2126.150	0.306	0.000	2126.150	0.000
	64.5575 - 63.5		672.798	2166.700	0.311	0.000	2166.700	0.000
L20	63.5 - 63.25	TP26.5103x26.4538x0.9	677.949	2779.267	0.244	0.000	2779.267	0.000
	(20)							
L21	63.25 - 62.25	TP27.641x26.5103x0.85	698.622	2687.758	0.260	0.000	2687.758	0.000
	62.25 - 61.25		719.402	2735.675	0.263	0.000	2735.675	0.000
	61.25 - 60.25		740.287	2784.017	0.266	0.000	2784.017	0.000
	60.25 - 59.25		761.278	2832.783	0.269	0.000	2832.783	0.000
	59.25 - 58.25		782.378	2881.967	0.271	0.000	2881.967	0.000
L22	58.25 - 57.25	TP28.7717x27.641x0.825	803.582	2853.258	0.282	0.000	2853.258	0.000
	57.25 - 56.25		824.893	2901.892	0.284	0.000	2901.892	0.000
	56.25 - 55.25		846.308	2950.933	0.287	0.000	2950.933	0.000
	55.25 - 54.25		867.825	3000.392	0.289	0.000	3000.392	0.000
	54.25 - 53.25		889.450	3050.250	0.292	0.000	3050.250	0.000
L23	53.25 - 52	TP30.09x28.7717x0.825	916.617	3113.158	0.294	0.000	3113.158	0.000
	52 - 47.42		516.961	3349.150	0.154	0.000	3349.150	0.000
L24	52 - 47.42	TP29.8147x28.5543x0.84	500.435	3300.917	0.152	0.000	3300.917	0.000
		38						
	47.42 - 46.42		1039.667	3353.742	0.310	0.000	3353.742	0.000
L25	46.42 - 44.96	TP30.4743x29.8147x0.83	1072.342	3385.108	0.317	0.000	3385.108	0.000
		13						
	44.96 - 43.5		1105.242	3462.767	0.319	0.000	3462.767	0.000
L26	43.5 - 43.25	TP30.5308x30.4743x0.99	1110.892	4087.858	0.272	0.000	4087.858	0.000
	(26)	38						
L27	43.25 - 42.25	TP31.6601x30.5308x0.96	1133.575	4057.408	0.279	0.000	4057.408	0.000
		88						
	42.25 - 41.25		1156.367	4120.158	0.281	0.000	4120.158	0.000
	41.25 - 40.25		1179.258	4183.383	0.282	0.000	4183.383	0.000
	40.25 - 39.25		1202.250	4247.092	0.283	0.000	4247.092	0.000
	39.25 - 38.25		1225.358	4311.275	0.284	0.000	4311.275	0.000

Section No.	Elevation ft	Size	M_{ux}	ϕM_{nx}	Ratio	M_{uy}	ϕM_{ny}	Ratio
			kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{nx}}$	kip-ft	kip-ft	$\frac{M_{uy}}{\phi M_{ny}}$
L28	38.25 - 37.0625	TP32.7331x31.6601x0.94 38	1252.925	4285.250	0.292	0.000	4285.250	0.000
	37.0625 - 35.875		1280.642	4360.875	0.294	0.000	4360.875	0.000
	35.875 - 34.6875		1308.492	4437.158	0.295	0.000	4437.158	0.000
	34.6875 - 33.5		1336.492	4514.100	0.296	0.000	4514.100	0.000
	33.5 - 33.25		1342.408	4530.383	0.296	0.000	4530.383	0.000
L29	(29)	TP32.7895x32.7331x0.94 38	1342.408	4530.383	0.296	0.000	4530.383	0.000
L30	33.25 - 33 (30)	TP32.846x32.7895x0.943 8	1348.325	4546.692	0.297	0.000	4546.692	0.000
L31	33 - 32.75 (31)	TP32.9025x32.846x0.993 8	1354.250	4782.275	0.283	0.000	4782.275	0.000
L32	32.75 - 31.5 (32)	TP33.1848x32.9025x0.99 38	1383.975	4868.567	0.284	0.000	4868.567	0.000
L33	31.5 - 31.25 (33)	TP33.2413x33.1848x0.83 13	1389.933	4149.058	0.335	0.000	4149.058	0.000
L34	31.25 - 30.25	TP34.3707x33.2413x0.81 88	1413.833	4149.317	0.341	0.000	4149.317	0.000
	30.25 - 29.25		1437.808	4207.633	0.342	0.000	4207.633	0.000
	29.25 - 28.25		1461.850	4266.358	0.343	0.000	4266.358	0.000
	28.25 - 27.25		1485.958	4325.492	0.344	0.000	4325.492	0.000
	27.25 - 26.25		1510.142	4385.033	0.344	0.000	4385.033	0.000
L35	26.25 - 25.25	TP35.5001x34.3707x0.79 38	1534.392	4318.833	0.355	0.000	4318.833	0.000
	25.25 - 24.25		1558.717	4377.417	0.356	0.000	4377.417	0.000
	24.25 - 23.25		1583.100	4436.383	0.357	0.000	4436.383	0.000
	23.25 - 22.25		1607.558	4495.758	0.358	0.000	4495.758	0.000
	22.25 - 21.25		1632.083	4555.517	0.358	0.000	4555.517	0.000
L36	21.25 - 20.25	TP36.6295x35.5001x0.78 13	1656.675	4547.867	0.364	0.000	4547.867	0.000
	20.25 - 19.25		1681.342	4607.500	0.365	0.000	4607.500	0.000
	19.25 - 18.25		1706.067	4667.517	0.366	0.000	4667.517	0.000
	18.25 - 17.25		1730.867	4727.925	0.366	0.000	4727.925	0.000
	17.25 - 16.25		1755.733	4788.717	0.367	0.000	4788.717	0.000
L37	16.25 - 14.875	TP37.2506x36.6295x0.76 88	1790.033	4799.958	0.373	0.000	4799.958	0.000
	14.875 - 13.5		1824.458	4883.608	0.374	0.000	4883.608	0.000
L38	13.5 - 13.25 (38)	TP37.3071x37.2506x0.76 88	1830.733	4898.892	0.374	0.000	4898.892	0.000
L39	13.25 - 12.1875	TP38.2671x37.3071x0.76 88	1857.433	4964.125	0.374	0.000	4964.125	0.000
	12.1875 - 11.125		1884.217	5029.792	0.375	0.000	5029.792	0.000
	11.125 - 10.0625		1911.067	5095.892	0.375	0.000	5095.892	0.000
	10.0625 - 9		1938.000	5162.417	0.375	0.000	5162.417	0.000
	9 - 8.75 (40)		1944.342	5492.925	0.354	0.000	5492.925	0.000
L40	8.75 - 7.75	TP39.453x38.3236x0.806 3	1969.775	5480.558	0.359	0.000	5480.558	0.000
	7.75 - 6.75		1995.258	5547.042	0.360	0.000	5547.042	0.000
	6.75 - 5.75		2020.808	5613.925	0.360	0.000	5613.925	0.000
	5.75 - 4.75		2046.425	5681.217	0.360	0.000	5681.217	0.000
	4.75 - 3.75		2072.100	5748.900	0.360	0.000	5748.900	0.000
L42	3.75 - 2.5	TP40.3x39.453x0.7938	2104.283	5749.158	0.366	0.000	5749.158	0.000
	2.5 - 1.25		2136.558	5833.667	0.366	0.000	5833.667	0.000
	1.25 - 0		2168.933	5918.791	0.366	0.000	5918.791	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio	Actual	ϕT_n	Ratio
					V_u ϕV_n	T_u kip-ft	kip-ft	T_u ϕT_n
L1	117 - 116	TP15.4886x14.36x0.1875	1.64	152.56	0.011	0.000	193.220	0.000
	116 - 115		1.69	154.95	0.011	0.000	199.325	0.000
	115 - 114		2.50	157.34	0.016	0.000	205.526	0.000
	114 - 113		2.55	159.74	0.016	0.000	211.821	0.000
	113 - 112		2.60	162.13	0.016	0.000	218.212	0.000
L2	112 - 111	TP15.94x15.4886x0.1875	2.65	164.52	0.016	0.000	224.697	0.000
	111 - 110		2.70	166.91	0.016	0.000	231.278	0.000
L3	110 - 109	TP17.07x15.94x0.1875	5.63	169.31	0.033	0.000	237.961	0.000
	109 - 108		5.68	171.70	0.033	0.000	244.740	0.000
	108 - 107		5.73	174.10	0.033	0.000	251.614	0.000
	107 - 106		5.78	176.49	0.033	0.000	258.584	0.000
L4	106 - 105	TP18.2x17.07x0.1875	5.83	178.88	0.033	0.000	265.648	0.000
	105 - 104		5.89	181.28	0.032	0.000	272.808	0.000
	104 - 103		5.94	183.67	0.032	0.000	280.063	0.000
	103 - 102		5.99	186.07	0.032	0.000	287.414	0.000
	102 - 101		6.04	188.46	0.032	0.000	294.859	0.000
L5	101 - 100	TP19.3307x18.2x0.25	6.10	190.86	0.032	0.000	302.400	0.000
	100 - 99		10.70	256.79	0.042	0.200	410.559	0.000
	99 - 98		10.76	259.98	0.041	0.200	420.838	0.000
	98 - 97		10.81	263.18	0.041	0.200	431.245	0.000
	97 - 96		10.86	266.37	0.041	0.200	441.778	0.000
L6	96 - 95	TP20.4613x19.3307x0.25	10.91	269.57	0.040	0.200	452.438	0.000
	95 - 94		11.01	272.76	0.040	0.232	463.226	0.000
	94 - 93		11.45	275.96	0.041	0.052	474.141	0.000
	93 - 92		11.62	279.15	0.042	0.052	485.183	0.000
	92 - 91		11.71	282.35	0.041	0.049	496.352	0.000
L7	91 - 90	TP21.592x20.4613x0.25	11.77	285.54	0.041	0.049	507.647	0.000
	90 - 89		11.82	288.74	0.041	0.049	519.070	0.000
	89 - 88		16.25	291.93	0.056	0.671	530.621	0.001
	88 - 87		16.30	295.13	0.055	0.671	542.298	0.001
	87 - 86		16.35	298.32	0.055	0.671	554.102	0.001
L8	86 - 85	TP22.1844x21.592x0.25	16.42	301.51	0.054	0.437	566.033	0.001
	85 - 83.69		16.80	305.70	0.055	0.494	581.856	0.001
L9	83.69 - 82.38	TP22.241x22.1844x0.25	16.86	309.88	0.054	0.494	597.897	0.001
	82.38 - 82.13 (9)		16.86	310.68	0.054	0.494	600.982	0.001
L10	82.13 - 81.88 (10)	TP22.2975x22.241x0.25	16.87	311.48	0.054	0.494	604.076	0.001
L11	81.88 - 81.63 (11)	TP22.354x22.2975x0.35	16.88	435.21	0.039	0.494	842.375	0.001
L12	81.63 - 80.63	TP23.4847x22.354x0.356 3	16.94	447.41	0.038	0.494	874.642	0.001
	80.63 - 79.63		16.99	451.96	0.038	0.494	892.525	0.001
	79.63 - 78.63		17.04	456.52	0.037	0.494	910.600	0.001
	78.63 - 77.63		17.10	461.07	0.037	0.494	928.850	0.001
	77.63 - 76.63		17.15	465.62	0.037	0.494	947.283	0.001
L13	76.63 - 76 (13)	TP23.6272x23.4847x0.35 63	17.18	468.49	0.037	0.493	958.992	0.001
L14	76 - 75.75 (14)	TP23.6837x23.6272x0.46 25	19.55	606.92	0.032	0.647	1239.692	0.001
L15	75.75 - 74.75	TP24.8143x23.6837x0.45	19.62	596.58	0.033	0.647	1231.108	0.001
	74.75 - 73.75		19.69	602.33	0.033	0.647	1254.950	0.001
	73.75 - 72.75		19.75	608.08	0.032	0.647	1279.025	0.001
	72.75 - 71.75		19.82	613.83	0.032	0.647	1303.333	0.000
	71.75 - 70.75		19.88	619.58	0.032	0.647	1327.867	0.000
L16	70.75 - 70.5 (16)	TP24.8709x24.8143x0.67 5	19.89	922.95	0.022	0.647	1964.350	0.000
L17	70.5 - 69.24 25	TP25.4407x24.8709x0.71 25	20.00	984.19	0.020	0.647	2116.108	0.000
L18	69.24 - 67.98	TP25.4973x25.4407x0.71 25	20.10	995.66	0.020	0.647	2165.725	0.000
	67.98 - 67.73 (18)		20.11	997.94	0.020	0.647	2175.642	0.000
L19	67.73 - 66.6725	TP26.4538x25.4973x0.68 75	20.27	973.18	0.021	0.500	2144.283	0.000
	66.6725 - 65.615		20.37	982.47	0.021	0.501	2185.425	0.000
	65.615 - 64.5575		20.48	991.76	0.021	0.502	2226.950	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio V_u ϕV_n	Actual T_u kip-ft	ϕT_n kip-ft	Ratio T_u ϕT_n
	64.5575 - 63.5		20.59	1001.05	0.021	0.504	2268.875	0.000
L20	63.5 - 63.25 (20)	TP26.5103x26.4538x0.9	20.61	1302.54	0.016	0.504	2934.308	0.000
L21	63.25 - 62.25	TP27.641x26.5103x0.85	20.72	1243.44	0.017	0.506	2831.375	0.000
	62.25 - 61.25		20.82	1254.30	0.017	0.507	2881.058	0.000
	61.25 - 60.25		20.93	1265.16	0.017	0.509	2931.175	0.000
	60.25 - 59.25		21.04	1276.03	0.016	0.510	2981.717	0.000
	59.25 - 58.25		21.15	1286.89	0.016	0.512	3032.700	0.000
L22	58.25 - 57.25	TP28.7717x27.641x0.825	21.25	1260.75	0.017	0.513	2998.942	0.000
	57.25 - 56.25		21.35	1271.29	0.017	0.515	3049.308	0.000
	56.25 - 55.25		21.46	1281.83	0.017	0.517	3100.092	0.000
	55.25 - 54.25		21.56	1292.37	0.017	0.518	3151.300	0.000
	54.25 - 53.25		21.67	1302.92	0.017	0.520	3202.925	0.000
L23	53.25 - 52	TP30.09x28.7717x0.825	21.77	1316.10	0.017	0.520	3268.042	0.000
	52 - 47.42		11.39	1364.38	0.008	0.264	3512.233	0.000
L24	52 - 47.42	TP29.8147x28.5543x0.84 38	10.84	1370.60	0.008	0.256	3465.567	0.000
	47.42 - 46.42		22.30	1381.37	0.016	0.520	3520.242	0.000
L25	46.42 - 44.96	TP30.4743x29.8147x0.83 13	22.45	1376.98	0.016	0.522	3550.525	0.000
	44.96 - 43.5		22.60	1392.47	0.016	0.524	3630.867	0.000
L26	43.5 - 43.25 (26)	TP30.5308x30.4743x0.99 38	22.62	1658.73	0.014	0.525	4309.658	0.000
L27	43.25 - 42.25	TP31.6601x30.5308x0.96 88	22.73	1630.74	0.014	0.526	4272.908	0.000
	42.25 - 41.25		22.83	1643.10	0.014	0.528	4337.958	0.000
	41.25 - 40.25		22.94	1655.47	0.014	0.529	4403.500	0.000
	40.25 - 39.25		23.04	1667.84	0.014	0.531	4469.525	0.000
	39.25 - 38.25		23.15	1680.20	0.014	0.532	4536.050	0.000
L28	38.25 - 37.0625 38	TP32.7331x31.6601x0.94 38	23.27	1652.48	0.014	0.534	4503.833	0.000
	37.0625 - 35.875		23.39	1666.79	0.014	0.536	4582.150	0.000
	35.875 - 34.6875		23.51	1681.09	0.014	0.538	4661.142	0.000
	34.6875 - 33.5		23.63	1695.40	0.014	0.539	4740.808	0.000
L29	33.5 - 33.25 (29)	TP32.7895x32.7331x0.94 38	23.65	1698.41	0.014	0.540	4757.667	0.000
L30	33.25 - 33 (30)	TP32.846x32.7895x0.943 8	23.67	1701.42	0.014	0.540	4774.550	0.000
L31	33 - 32.75 (31)	TP32.9025x32.846x0.993 8	23.70	1791.92	0.013	0.540	5029.550	0.000
L32	32.75 - 31.5 (32)	TP33.1848x32.9025x0.99 38	23.83	1807.78	0.013	0.542	5118.950	0.000
L33	31.5 - 31.25 (33)	TP33.2413x33.1848x0.83 13	23.85	1522.45	0.016	0.543	4340.342	0.000
L34	31.25 - 30.25	TP34.3707x33.2413x0.81 88	23.93	1510.59	0.016	0.543	4338.192	0.000
	30.25 - 29.25		24.00	1521.04	0.016	0.543	4398.425	0.000
	29.25 - 28.25		24.07	1531.49	0.016	0.543	4459.075	0.000
	28.25 - 27.25		24.14	1541.94	0.016	0.543	4520.142	0.000
	27.25 - 26.25		24.21	1552.39	0.016	0.543	4581.625	0.000
L35	26.25 - 25.25	TP35.5001x34.3707x0.79 38	24.28	1516.25	0.016	0.543	4508.400	0.000
	25.25 - 24.25		24.35	1526.38	0.016	0.543	4568.850	0.000
	24.25 - 23.25		24.42	1536.51	0.016	0.543	4629.708	0.000
	23.25 - 22.25		24.48	1546.64	0.016	0.543	4690.967	0.000
	22.25 - 21.25		24.55	1556.77	0.016	0.543	4752.633	0.000
L36	21.25 - 20.25	TP36.6295x35.5001x0.78 13	24.62	1542.78	0.016	0.543	4742.267	0.000
	20.25 - 19.25		24.69	1552.75	0.016	0.542	4803.767	0.000
	19.25 - 18.25		24.76	1562.73	0.016	0.542	4865.667	0.000
	18.25 - 17.25		24.82	1572.70	0.016	0.542	4927.967	0.000
	17.25 - 16.25		24.89	1582.67	0.016	0.542	4990.658	0.000
L37	16.25 - 14.875 88	TP37.2506x36.6295x0.76 88	24.99	1571.38	0.016	0.542	4999.725	0.000
	14.875 - 13.5		25.08	1584.88	0.016	0.542	5085.958	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio V_u ϕV_n	Actual T_u kip-ft	ϕT_n kip-ft	Ratio T_u ϕT_n
L38	13.5 - 13.25 (38)	TP37.3071x37.2506x0.76 88	25.08	1587.33	0.016	0.542	5101.717	0.000
L39	13.25 - 12.1875 12.1875 - 11.125 11.125 - 10.0625	TP38.2671x37.3071x0.76 88	25.16 25.23 25.30	1597.76 1608.18 1618.61	0.016 0.016 0.016	0.542 0.542 0.542	5168.950 5236.633 5304.750	0.000 0.000 0.000
L40	10.0625 - 9 9 - 8.75 (40)	TP38.3236x38.2671x0.81 88	25.37 25.38	1629.03 1735.29	0.016 0.015	0.542 0.542	5373.317 5724.775	0.000 0.000
L41	8.75 - 7.75 7.75 - 6.75 6.75 - 5.75 5.75 - 4.75 4.75 - 3.75	TP39.453x38.3236x0.806 3	25.45 25.51 25.57 25.64 25.70	1719.66 1729.95 1740.24 1750.53 1760.82	0.015 0.015 0.015 0.015 0.015	0.542 0.542 0.542 0.542 0.542	5709.258 5777.800 5846.750 5916.108 5985.875	0.000 0.000 0.000 0.000 0.000
L42	3.75 - 2.5 2.5 - 1.25 1.25 - 0	TP40.3x39.453x0.7938	25.78 25.86 25.93	1746.75 1759.41 1772.08	0.015 0.015 0.015	0.542 0.542 0.542	5983.333 6070.408 6158.117	0.000 0.000 0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	117 - 116	0.002	0.022	0.000	0.011	0.000	0.024	1.050	4.8.2
	116 - 115	0.002	0.030	0.000	0.011	0.000	0.032	1.050	4.8.2
	115 - 114	0.004	0.041	0.000	0.016	0.000	0.045	1.050	4.8.2
	114 - 113	0.004	0.052	0.000	0.016	0.000	0.056	1.050	4.8.2
	113 - 112	0.004	0.063	0.000	0.016	0.000	0.067	1.050	4.8.2
L2	112 - 111	0.004	0.073	0.000	0.016	0.000	0.077	1.050	4.8.2
	111 - 110	0.004	0.084	0.000	0.016	0.000	0.087	1.050	4.8.2
L3	110 - 109	0.011	0.106	0.000	0.033	0.000	0.118	1.050	4.8.2
	109 - 108	0.011	0.128	0.000	0.033	0.000	0.140	1.050	4.8.2
	108 - 107	0.010	0.149	0.000	0.033	0.000	0.160	1.050	4.8.2
	107 - 106	0.010	0.169	0.000	0.033	0.000	0.181	1.050	4.8.2
	106 - 105	0.010	0.188	0.000	0.033	0.000	0.200	1.050	4.8.2
L4	105 - 104	0.010	0.207	0.000	0.032	0.000	0.219	1.050	4.8.2
	104 - 103	0.010	0.225	0.000	0.032	0.000	0.237	1.050	4.8.2
	103 - 102	0.010	0.243	0.000	0.032	0.000	0.254	1.050	4.8.2
	102 - 101	0.010	0.260	0.000	0.032	0.000	0.271	1.050	4.8.2
	101 - 100	0.010	0.276	0.000	0.032	0.000	0.288	1.050	4.8.2
L5	100 - 99	0.012	0.234	0.000	0.042	0.000	0.248	1.050	4.8.2
	99 - 98	0.012	0.255	0.000	0.041	0.000	0.269	1.050	4.8.2
	98 - 97	0.012	0.274	0.000	0.041	0.000	0.288	1.050	4.8.2
	97 - 96	0.012	0.293	0.000	0.041	0.000	0.307	1.050	4.8.2
	96 - 95	0.012	0.311	0.000	0.040	0.000	0.325	1.050	4.8.2
L6	95 - 94	0.012	0.328	0.000	0.040	0.000	0.342	1.050	4.8.2
	94 - 93	0.012	0.345	0.000	0.041	0.000	0.359	1.050	4.8.2
	93 - 92	0.012	0.362	0.000	0.042	0.000	0.376	1.050	4.8.2
	92 - 91	0.012	0.378	0.000	0.041	0.000	0.392	1.050	4.8.2
	91 - 90	0.012	0.393	0.000	0.041	0.000	0.407	1.050	4.8.2
L7	90 - 89	0.012	0.408	0.000	0.041	0.000	0.422	1.050	4.8.2
	89 - 88	0.016	0.432	0.000	0.056	0.001	0.451	1.050	4.8.2
	88 - 87	0.016	0.455	0.000	0.055	0.001	0.474	1.050	4.8.2
	87 - 86	0.016	0.477	0.000	0.055	0.001	0.496	1.050	4.8.2
	86 - 85	0.016	0.499	0.000	0.054	0.001	0.518	1.050	4.8.2
L8	85 - 83.69	0.016	0.526	0.000	0.055	0.001	0.546	1.050	4.8.2
	83.69 - 82.38	0.016	0.553	0.000	0.054	0.001	0.572	1.050	4.8.2
L9	82.38 - 82.13 (9)	0.016	0.558	0.000	0.054	0.001	0.577	1.050	4.8.2

Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		P_u	M_{ux}	M_{uy}	V_u	T_u			
		ϕP_n	ϕM_{nx}	ϕM_{ny}	ϕV_n	ϕT_n			
L10	82.13 - 81.88 (10)	0.016	0.563	0.000	0.054	0.001	0.582	1.050	4.8.2
L11	81.88 - 81.63 (11)	0.012	0.402	0.000	0.039	0.001	0.415	1.050	4.8.2
L12	81.63 - 80.63	0.012	0.407	0.000	0.038	0.001	0.420	1.050	4.8.2
	80.63 - 79.63	0.012	0.419	0.000	0.038	0.001	0.432	1.050	4.8.2
	79.63 - 78.63	0.012	0.430	0.000	0.037	0.001	0.443	1.050	4.8.2
	78.63 - 77.63	0.012	0.440	0.000	0.037	0.001	0.453	1.050	4.8.2
	77.63 - 76.63	0.012	0.450	0.000	0.037	0.001	0.463	1.050	4.8.2
L13	76.63 - 76 (13)	0.012	0.456	0.000	0.037	0.001	0.469	1.050	4.8.2
L14	76 - 75.75 (14)	0.011	0.359	0.000	0.032	0.001	0.370	1.050	4.8.2
L15	75.75 - 74.75	0.011	0.378	0.000	0.033	0.001	0.390	1.050	4.8.2
	74.75 - 73.75	0.011	0.387	0.000	0.033	0.001	0.399	1.050	4.8.2
	73.75 - 72.75	0.011	0.395	0.000	0.032	0.001	0.407	1.050	4.8.2
	72.75 - 71.75	0.011	0.404	0.000	0.032	0.000	0.416	1.050	4.8.2
	71.75 - 70.75	0.011	0.412	0.000	0.032	0.000	0.424	1.050	4.8.2
L16	70.75 - 70.5 (16)	0.007	0.283	0.000	0.022	0.000	0.291	1.050	4.8.2
L17	70.5 - 69.24	0.007	0.276	0.000	0.020	0.000	0.283	1.050	4.8.2
	69.24 - 67.98	0.007	0.282	0.000	0.020	0.000	0.289	1.050	4.8.2
L18	67.98 - 67.73 (18)	0.007	0.283	0.000	0.020	0.000	0.290	1.050	4.8.2
L19	67.73 - 66.6725	0.007	0.297	0.000	0.021	0.000	0.305	1.050	4.8.2
	66.6725 - 65.615	0.007	0.302	0.000	0.021	0.000	0.309	1.050	4.8.2
	65.615 - 64.5575	0.007	0.306	0.000	0.021	0.000	0.314	1.050	4.8.2
	64.5575 - 63.5	0.007	0.311	0.000	0.021	0.000	0.318	1.050	4.8.2
L20	63.5 - 63.25 (20)	0.006	0.244	0.000	0.016	0.000	0.250	1.050	4.8.2
L21	63.25 - 62.25	0.006	0.260	0.000	0.017	0.000	0.266	1.050	4.8.2
	62.25 - 61.25	0.006	0.263	0.000	0.017	0.000	0.269	1.050	4.8.2
	61.25 - 60.25	0.006	0.266	0.000	0.017	0.000	0.272	1.050	4.8.2
	60.25 - 59.25	0.006	0.269	0.000	0.016	0.000	0.275	1.050	4.8.2
	59.25 - 58.25	0.006	0.271	0.000	0.016	0.000	0.278	1.050	4.8.2
L22	58.25 - 57.25	0.006	0.282	0.000	0.017	0.000	0.288	1.050	4.8.2
	57.25 - 56.25	0.006	0.284	0.000	0.017	0.000	0.291	1.050	4.8.2
	56.25 - 55.25	0.006	0.287	0.000	0.017	0.000	0.293	1.050	4.8.2
	55.25 - 54.25	0.006	0.289	0.000	0.017	0.000	0.296	1.050	4.8.2
	54.25 - 53.25	0.006	0.292	0.000	0.017	0.000	0.298	1.050	4.8.2
L23	53.25 - 52	0.006	0.294	0.000	0.017	0.000	0.301	1.050	4.8.2
	52 - 47.42	0.003	0.154	0.000	0.008	0.000	0.158	1.050	4.8.2
L24	52 - 47.42	0.003	0.152	0.000	0.008	0.000	0.155	1.050	4.8.2
	47.42 - 46.42	0.007	0.310	0.000	0.016	0.000	0.317	1.050	4.8.2
L25	46.42 - 44.96	0.007	0.317	0.000	0.016	0.000	0.324	1.050	4.8.2
	44.96 - 43.5	0.007	0.319	0.000	0.016	0.000	0.326	1.050	4.8.2
L26	43.5 - 43.25 (26)	0.006	0.272	0.000	0.014	0.000	0.278	1.050	4.8.2
L27	43.25 - 42.25	0.006	0.279	0.000	0.014	0.000	0.286	1.050	4.8.2
	42.25 - 41.25	0.006	0.281	0.000	0.014	0.000	0.287	1.050	4.8.2
	41.25 - 40.25	0.006	0.282	0.000	0.014	0.000	0.288	1.050	4.8.2
	40.25 - 39.25	0.006	0.283	0.000	0.014	0.000	0.289	1.050	4.8.2
	39.25 - 38.25	0.006	0.284	0.000	0.014	0.000	0.291	1.050	4.8.2
L28	38.25 - 37.0625	0.006	0.292	0.000	0.014	0.000	0.299	1.050	4.8.2
	37.0625 - 35.875	0.006	0.294	0.000	0.014	0.000	0.300	1.050	4.8.2
	35.875 - 34.6875	0.006	0.295	0.000	0.014	0.000	0.302	1.050	4.8.2
	34.6875 - 33.5	0.006	0.296	0.000	0.014	0.000	0.303	1.050	4.8.2
L29	33.5 - 33.25 (29)	0.007	0.296	0.000	0.014	0.000	0.303	1.050	4.8.2
L30	33.25 - 33 (30)	0.007	0.297	0.000	0.014	0.000	0.303	1.050	4.8.2

Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		P_u	M_{ux}	M_{uy}	V_u	T_u			
		ϕP_n	ϕM_{nx}	ϕM_{ny}	ϕV_n	ϕT_n			
L31	33 - 32.75 (31)	0.006	0.283	0.000	0.013	0.000	0.290	1.050	4.8.2
L32	32.75 - 31.5 (32)	0.006	0.284	0.000	0.013	0.000	0.291	1.050	4.8.2
L33	31.5 - 31.25 (33)	0.007	0.335	0.000	0.016	0.000	0.343	1.050	4.8.2
L34	31.25 - 30.25	0.008	0.341	0.000	0.016	0.000	0.349	1.050	4.8.2
	30.25 - 29.25	0.008	0.342	0.000	0.016	0.000	0.350	1.050	4.8.2
	29.25 - 28.25	0.008	0.343	0.000	0.016	0.000	0.351	1.050	4.8.2
	28.25 - 27.25	0.008	0.344	0.000	0.016	0.000	0.351	1.050	4.8.2
	27.25 - 26.25	0.008	0.344	0.000	0.016	0.000	0.352	1.050	4.8.2
L35	26.25 - 25.25	0.008	0.355	0.000	0.016	0.000	0.363	1.050	4.8.2
	25.25 - 24.25	0.008	0.356	0.000	0.016	0.000	0.364	1.050	4.8.2
	24.25 - 23.25	0.008	0.357	0.000	0.016	0.000	0.365	1.050	4.8.2
	23.25 - 22.25	0.008	0.358	0.000	0.016	0.000	0.366	1.050	4.8.2
	22.25 - 21.25	0.008	0.358	0.000	0.016	0.000	0.367	1.050	4.8.2
L36	21.25 - 20.25	0.008	0.364	0.000	0.016	0.000	0.373	1.050	4.8.2
	20.25 - 19.25	0.008	0.365	0.000	0.016	0.000	0.373	1.050	4.8.2
	19.25 - 18.25	0.008	0.366	0.000	0.016	0.000	0.374	1.050	4.8.2
	18.25 - 17.25	0.008	0.366	0.000	0.016	0.000	0.375	1.050	4.8.2
	17.25 - 16.25	0.008	0.367	0.000	0.016	0.000	0.375	1.050	4.8.2
L37	16.25 - 14.875	0.008	0.373	0.000	0.016	0.000	0.382	1.050	4.8.2
	14.875 - 13.5	0.008	0.374	0.000	0.016	0.000	0.382	1.050	4.8.2
L38	13.5 - 13.25 (38)	0.008	0.374	0.000	0.016	0.000	0.382	1.050	4.8.2
L39	13.25 - 12.1875	0.009	0.374	0.000	0.016	0.000	0.383	1.050	4.8.2
	12.1875 - 11.125	0.009	0.375	0.000	0.016	0.000	0.383	1.050	4.8.2
	11.125 - 10.0625	0.009	0.375	0.000	0.016	0.000	0.384	1.050	4.8.2
	10.0625 - 9	0.009	0.375	0.000	0.016	0.000	0.384	1.050	4.8.2
L40	9 - 8.75 (40)	0.008	0.354	0.000	0.015	0.000	0.362	1.050	4.8.2
L41	8.75 - 7.75	0.008	0.359	0.000	0.015	0.000	0.368	1.050	4.8.2
	7.75 - 6.75	0.008	0.360	0.000	0.015	0.000	0.368	1.050	4.8.2
	6.75 - 5.75	0.008	0.360	0.000	0.015	0.000	0.369	1.050	4.8.2
	5.75 - 4.75	0.008	0.360	0.000	0.015	0.000	0.369	1.050	4.8.2
	4.75 - 3.75	0.008	0.360	0.000	0.015	0.000	0.369	1.050	4.8.2
L42	3.75 - 2.5	0.009	0.366	0.000	0.015	0.000	0.375	1.050	4.8.2
	2.5 - 1.25	0.009	0.366	0.000	0.015	0.000	0.375	1.050	4.8.2
	1.25 - 0	0.009	0.366	0.000	0.015	0.000	0.375	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	117 - 112	Pole	TP15.4886x14.36x0.1875	1	-1.92	567.45	6.4	Pass
L2	112 - 110	Pole	TP15.94x15.4886x0.1875	2	-2.00	584.19	8.3	Pass
L3	110 - 105	Pole	TP17.07x15.94x0.1875	3	-6.22	626.09	19.0	Pass
L4	105 - 100	Pole	TP18.2x17.07x0.1875	4	-6.56	668.00	27.4	Pass
L5	100 - 95	Pole	TP19.3307x18.2x0.25	5	-10.67	943.48	30.9	Pass
L6	95 - 90	Pole	TP20.4613x19.3307x0.25	6	-11.46	999.39	38.8	Pass
L7	90 - 85	Pole	TP21.592x20.4613x0.25	7	-16.23	1055.30	49.3	Pass
L8	85 - 82.38	Pole	TP22.1844x21.592x0.25	8	-16.87	1084.60	54.5	Pass
L9	82.38 - 82.13	Pole	TP22.241x22.1844x0.25	9	-16.92	1087.39	55.0	Pass
L10	82.13 - 81.88	Pole	TP22.2975x22.241x0.25	10	-16.95	1090.18	55.5	Pass
L11	81.88 - 81.63	Pole	TP22.354x22.2975x0.35	11	-17.00	1523.26	39.5	Pass
L12	81.63 - 76.63	Pole	TP23.4847x22.354x0.3563	12	-17.96	1629.68	44.1	Pass
L13	76.63 - 76	Pole	TP23.6272x23.4847x0.3563	13	-18.08	1639.72	44.7	Pass
L14	76 - 75.75	Pole	TP23.6837x23.6272x0.4625	14	-21.28	2124.21	35.3	Pass
L15	75.75 - 70.75	Pole	TP24.8143x23.6837x0.45	15	-22.45	2168.54	40.3	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail	
L16	70.75 - 70.5	Pole	TP24.8709x24.8143x0.675	16	-22.53	3230.32	27.7	Pass	
L17	70.5 - 67.98	Pole	TP25.4407x24.8709x0.7125	17	-23.20	3484.81	27.5	Pass	
L18	67.98 - 67.73	Pole	TP25.4973x25.4407x0.7125	18	-23.27	3492.77	27.6	Pass	
L19	67.73 - 63.5	Pole	TP26.4538x25.4973x0.6875	19	-24.41	3503.69	30.3	Pass	
L20	63.5 - 63.25	Pole	TP26.5103x26.4538x0.9	20	-24.50	4558.89	23.8	Pass	
L21	63.25 - 58.25	Pole	TP27.641x26.5103x0.85	21	-26.13	4504.11	26.5	Pass	
L22	58.25 - 53.25	Pole	TP28.7717x27.641x0.825	22	-27.79	4560.21	28.4	Pass	
L23	53.25 - 47.42	Pole	TP30.09x28.7717x0.825	23	-28.21	4606.33	28.7	Pass	
L24	47.42 - 46.42	Pole	TP29.8147x28.5543x0.8438	24	-31.46	4834.79	30.2	Pass	
L25	46.42 - 43.5	Pole	TP30.4743x29.8147x0.8313	25	-32.51	4873.66	31.1	Pass	
L26	43.5 - 43.25	Pole	TP30.5308x30.4743x0.9938	26	-32.62	5805.57	26.5	Pass	
L27	43.25 - 38.25	Pole	TP31.6601x30.5308x0.9688	27	-34.70	5880.70	27.7	Pass	
L28	38.25 - 33.5	Pole	TP32.7331x31.6601x0.9438	28	-36.71	5933.89	28.8	Pass	
L29	33.5 - 33.25	Pole	TP32.7895x32.7331x0.9438	29	-36.82	5944.43	28.9	Pass	
L30	33.25 - 33	Pole	TP32.846x32.7895x0.9438	30	-36.93	5954.97	28.9	Pass	
L31	33 - 32.75	Pole	TP32.9025x32.846x0.9938	31	-37.04	6271.73	27.6	Pass	
L32	32.75 - 31.5	Pole	TP33.1848x32.9025x0.9938	32	-37.59	6327.23	27.7	Pass	
L33	31.5 - 31.25	Pole	TP33.2413x33.1848x0.8313	33	-37.70	5328.59	32.6	Pass	
L34	31.25 - 26.25	Pole	TP34.3707x33.2413x0.8188	34	-39.67	5433.38	33.6	Pass	
L35	26.25 - 21.25	Pole	TP35.5001x34.3707x0.7938	35	-41.68	5448.71	34.9	Pass	
L36	21.25 - 16.25	Pole	TP36.6295x35.5001x0.7813	36	-43.72	5539.35	35.7	Pass	
L37	16.25 - 13.5	Pole	TP37.2506x36.6295x0.7688	37	-44.85	5547.07	36.4	Pass	
L38	13.5 - 13.25	Pole	TP37.3071x37.2506x0.7688	38	-44.97	5555.65	36.4	Pass	
L39	13.25 - 9	Pole	TP38.2671x37.3071x0.7688	39	-46.79	5701.62	36.6	Pass	
L40	9 - 8.75	Pole	TP38.3236x38.2671x0.8188	40	-46.91	6073.50	34.5	Pass	
L41	8.75 - 3.75	Pole	TP39.453x38.3236x0.8063	41	-49.17	6162.87	35.1	Pass	
L42	3.75 - 0	Pole	TP40.3x39.453x0.7938	42	-50.89	6202.27	35.7	Pass	
							Summary		
							Pole (L10)	55.5	Pass
							RATING =	55.5	Pass

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

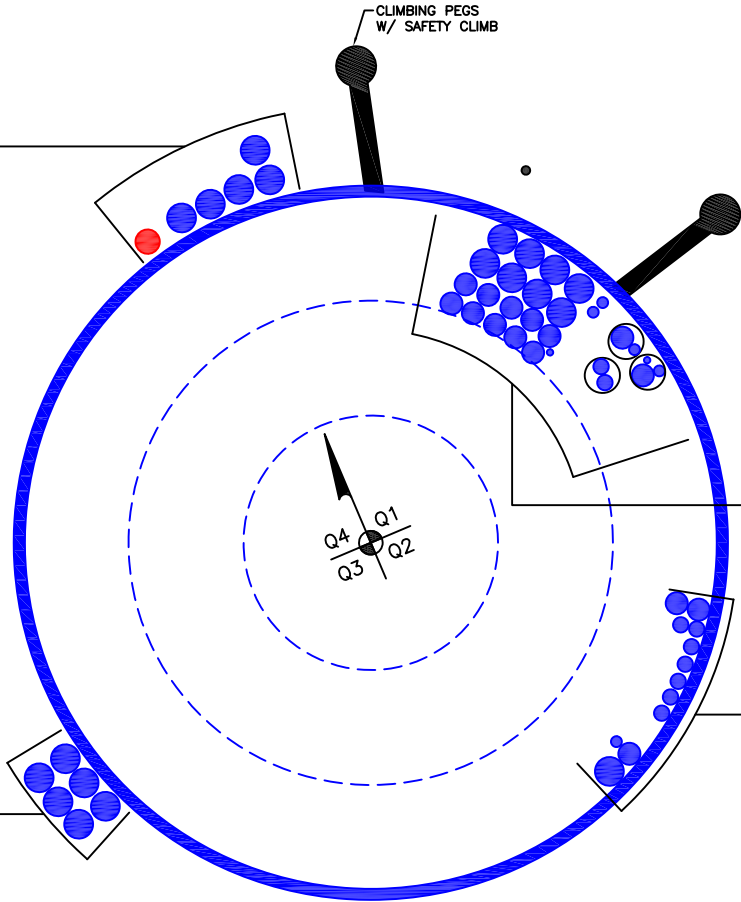
APPENDIX B
BASE LEVEL DRAWING



(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-3/8" TO 76 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(5) 1-5/8" TO 108 FT LEVEL

CLIMBING PEGS
W/ SAFETY CLIMB



(OTHER CONSIDERED EQUIPMENT—IN CONDUITS)
(1) 3/8" TO 89 FT LEVEL
(2) 5/8" TO 89 FT LEVEL
(2) 7/8" TO 89 FT LEVEL
(2) 1-1/4" TO 89 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 3/8" TO 89 FT LEVEL
(2) 5/8" TO 89 FT LEVEL
(10) 1-1/4" TO 89 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(8) 1-5/8" TO 108 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(7) 7/8" TO 100 FT LEVEL
(1) 1-5/8" TO 100 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(1) 5/8" TO 117 FT LEVEL
(3) 1-1/4" TO 117 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(6) 1-5/8" TO 84 FT LEVEL

APPENDIX C
ADDITIONAL CALCULATIONS

Site BU: 806352
Work Order: _____



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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	117	7	0	12	14.36	15.94	0.1875	Auto	A572-65
2	110	10	0	12	15.94	18.2	0.1875	Auto	A572-65
3	100	52.58	4.58	12	18.20	30.09	0.25	Auto	A572-65
4	52	52	0	12	28.55	40.3	0.34375	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
1	0	33	plate	CCI-WSFP-060100	3												
2	33	63.5	plate	CCI-WSFP-045100	3												
3	0	9	plate	MS-450 (1.1875")	1												
4	31.5	43.5	plate	MS-450 (1.1875")	3												
5	51.5	70.75	plate	MS-450 (1.1875")	3												
6	0	33.5	plate	CCI-SFP-045100	3												
7	33.5	49	plate	CCI-SFP-040075	3												
8	0	33.5	plate	CCI-AFP-045100	2												
9	13.5	33.5	plate	CCI-AFP-045100	1												
10	33.5	68.08	plate	CCI-AFP-060100	3												
11	68.08	82.38	plate	CCI-AFP-045100	1												
12	68.08	81.88	plate	CCI-AFP-045100	2												
13	68	76	plate	CCI-SFP-040075	3												
14	0	13.5	plate	TS 1.25 x 6.5	1			c									
15																	

Reinforcement Details

	B (in)	H (in)	Gross Area (in ²)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in ²)	Bolt Hole Size (in)	Reinforcement Material
1	6	1	6	0.5	Welded	n/a	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
2	4.5	1	4.5	0.5	Welded	n/a	PC 8.8 - M20 (100)	18.000	20.000	3.250	1.1875	A572-65
3	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
4	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
5	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
6	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.000	3.250	1.1875	A572-65
7	4	0.75	3	0.375	PC 8.8 - M20 (100)	12	PC 8.8 - M20 (100)	12.000	16.000	2.063	1.1875	A572-65
8	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	20.000	3.250	1.1875	A572-65
9	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	20.000	3.250	1.1875	A572-65
10	6	1	6	0.5	PC 8.8 - M20 (100)	30	PC 8.8 - M20 (100)	30.000	16.000	4.750	1.1875	A572-65
11	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	20.000	3.250	1.1875	A572-65
12	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	20.000	3.250	1.1875	A572-65
13	4	0.75	3	0.375	PC 8.8 - M20 (100)	12	PC 8.8 - M20 (100)	12.000	16.000	2.063	1.1875	A572-65
14	1.25	6.5	8.125	3.25	Welded	n/a	Welded	n/a	0.000	8.125	0.0000	A572-65

Connection Details for Custom Reinforcements

Reinforcement	End	# Bolts	N or X	Bolt Spacing (in)	Edge Dist (in)	Weld Grade (ksi)	Transverse (Horiz.) Weld Type	Horiz. Weld Length (in)	Horiz. Groove Depth (in)	Horiz. Groove Angle (deg)	Horiz. Fillet Size (in)	Vertical Weld Length (in)	Vertical Fillet Size (in)	Rev H Connection Capacity (kip)
TS 1.25 x 6.5	Top	-	-	-	-	70	None	-	-	-	-	65.25	0.313	-
	Bottom	-	-	-	-	70	CJP Groove	5.75	1.25	45	0.1875	-	-	-

TNX Geometry Input

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

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	117 - 112	5		12	14.360	15.489	0.1875	A572-65	1.000
2	112 - 110	2	0	12	15.489	15.940	0.1875	A572-65	1.000
3	110 - 105	5		12	15.940	17.070	0.1875	A572-65	1.000
4	105 - 100	5	0	12	17.070	18.200	0.1875	A572-65	1.000
5	100 - 95	5		12	18.200	19.331	0.25	A572-65	1.000
6	95 - 90	5		12	19.331	20.461	0.25	A572-65	1.000
7	90 - 85	5		12	20.461	21.592	0.25	A572-65	1.000
8	85 - 82.38	2.62		12	21.592	22.184	0.25	A572-65	1.000
9	82.38 - 82.13	0.25		12	22.184	22.241	0.25	A572-65	1.000
10	82.13 - 81.88	0.25		12	22.241	22.298	0.25	A572-65	1.000
11	81.88 - 81.63	0.25		12	22.298	22.354	0.35	A572-65	1.263
12	81.63 - 76.63	5		12	22.354	23.485	0.35625	A572-65	1.215
13	76.63 - 76	0.63		12	23.485	23.627	0.35625	A572-65	1.211
14	76 - 75.75	0.25		12	23.627	23.684	0.4625	A572-65	1.197
15	75.75 - 70.75	5		12	23.684	24.814	0.45	A572-65	1.198
16	70.75 - 70.5	0.25		12	24.814	24.871	0.675	A572-65	1.062
17	70.5 - 67.98	2.52		12	24.871	25.441	0.7125	A572-65	0.913
18	67.98 - 67.73	0.25		12	25.441	25.497	0.7125	A572-65	0.912
19	67.73 - 63.5	4.23		12	25.497	26.454	0.6875	A572-65	0.923
20	63.5 - 63.25	0.25		12	26.454	26.510	0.9	A572-65	0.892
21	63.25 - 58.25	5		12	26.510	27.641	0.85	A572-65	0.915
22	58.25 - 53.25	5		12	27.641	28.772	0.825	A572-65	0.916
23	53.25 - 52	5.83	4.58	12	28.772	30.090	0.825	A572-65	0.910
24	52 - 46.42	5.58		12	28.554	29.815	0.84375	A572-65	0.930
25	46.42 - 43.5	2.92		12	29.815	30.474	0.83125	A572-65	0.932
26	43.5 - 43.25	0.25		12	30.474	30.531	0.99375	A572-65	0.926
27	43.25 - 38.25	5		12	30.531	31.660	0.96875	A572-65	0.927
28	38.25 - 33.5	4.75		12	31.660	32.733	0.94375	A572-65	0.931
29	33.5 - 33.25	0.25		12	32.733	32.790	0.94375	A572-65	0.930
30	33.25 - 33	0.25		12	32.790	32.846	0.94375	A572-65	0.929
31	33 - 32.75	0.25		12	32.846	32.902	0.99375	A572-65	0.927
32	32.75 - 31.5	1.25		12	32.902	33.185	0.99375	A572-65	0.922
33	31.5 - 31.25	0.25		12	33.185	33.241	0.83125	A572-65	0.939
34	31.25 - 26.25	5		12	33.241	34.371	0.81875	A572-65	0.935
35	26.25 - 21.25	5		12	34.371	35.500	0.79375	A572-65	0.947
36	21.25 - 16.25	5		12	35.500	36.629	0.78125	A572-65	0.945
37	16.25 - 13.5	2.75		12	36.629	37.251	0.76875	A572-65	0.951
38	13.5 - 13.25	0.25		12	37.251	37.307	0.76875	A572-65	0.991
39	13.25 - 9	4.25		12	37.307	38.267	0.76875	A572-65	0.977
40	9 - 8.75	0.25		12	38.267	38.324	0.81875	A572-65	0.963
41	8.75 - 3.75	5		12	38.324	39.453	0.80625	A572-65	0.962
42	3.75 - 0	3.75		12	39.453	40.300	0.79375	A572-65	0.965

TNX Section Forces

Increment (ft):		TNX Output		
	5	P _u	M _{ux} (kip-ft)	V _u
	Section Height (ft)	(K)		(K)
1	117 - 112	1.92	13.32	2.60
2	112 - 110	2.00	18.61	2.70
3	110 - 105	6.22	47.17	5.83
4	105 - 100	6.56	77.03	6.10
5	100 - 95	10.67	136.19	10.91
6	95 - 90	11.46	193.44	11.77
7	90 - 85	16.23	270.34	16.42
8	85 - 82.38	16.87	314.08	16.86
9	82.38 - 82.13	16.92	318.30	16.86
10	82.13 - 81.88	16.95	322.52	16.87
11	81.88 - 81.63	17.00	326.74	16.88
12	81.63 - 76.63	17.96	411.83	17.15
13	76.63 - 76	18.08	422.65	17.18
14	76 - 75.75	21.28	427.60	19.55
15	75.75 - 70.75	22.45	526.21	19.88
16	70.75 - 70.5	22.53	531.18	19.89
17	70.5 - 67.98	23.20	581.58	20.10
18	67.98 - 67.73	23.27	586.61	20.11
19	67.73 - 63.5	24.41	672.80	20.59
20	63.5 - 63.25	24.50	677.95	20.61
21	63.25 - 58.25	26.13	782.38	21.15
22	58.25 - 53.25	27.79	889.45	21.67
23	53.25 - 52	28.21	916.61	21.77
24	52 - 46.42	31.46	1039.66	22.30
25	46.42 - 43.5	32.51	1105.24	22.60
26	43.5 - 43.25	32.62	1110.89	22.62
27	43.25 - 38.25	34.70	1225.36	23.15
28	38.25 - 33.5	36.71	1336.49	23.63
29	33.5 - 33.25	36.82	1342.41	23.65
30	33.25 - 33	36.93	1348.33	23.67
31	33 - 32.75	37.04	1354.25	23.70
32	32.75 - 31.5	37.59	1383.97	23.83
33	31.5 - 31.25	37.70	1389.94	23.85
34	31.25 - 26.25	39.67	1510.14	24.21
35	26.25 - 21.25	41.68	1632.08	24.55
36	21.25 - 16.25	43.72	1755.73	24.89
37	16.25 - 13.5	44.85	1824.46	25.08
38	13.5 - 13.25	44.97	1830.73	25.08
39	13.25 - 9	46.79	1938.00	25.37
40	9 - 8.75	46.91	1944.35	25.38
41	8.75 - 3.75	49.17	2072.10	25.70
42	3.75 - 0	50.89	2168.93	25.93

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
117 - 112	Pole	TP15.489x14.36x0.1875	Pole	6.3%	Pass
112 - 110	Pole	TP15.94x15.489x0.1875	Pole	8.3%	Pass
110 - 105	Pole	TP17.07x15.94x0.1875	Pole	19.0%	Pass
105 - 100	Pole	TP18.2x17.07x0.1875	Pole	27.3%	Pass
100 - 95	Pole	TP19.331x18.2x0.25	Pole	30.8%	Pass
95 - 90	Pole	TP20.461x19.331x0.25	Pole	38.7%	Pass
90 - 85	Pole	TP21.592x20.461x0.25	Pole	49.2%	Pass
85 - 82.38	Pole	TP22.184x21.592x0.25	Pole	54.4%	Pass
82.38 - 82.13	Pole	TP22.241x22.184x0.25	Pole	54.8%	Pass
82.13 - 81.88	Pole	TP22.298x22.241x0.25	Pole	55.3%	Pass
81.88 - 81.63	Pole + Reinf.	TP22.354x22.298x0.35	Reinf. 12 Tension Rupture	50.8%	Pass
81.63 - 76.63	Pole + Reinf.	TP23.485x22.354x0.3563	Reinf. 12 Tension Rupture	58.9%	Pass
76.63 - 76	Pole + Reinf.	TP23.627x23.485x0.3563	Reinf. 12 Tension Rupture	59.8%	Pass
76 - 75.75	Pole + Reinf.	TP23.684x23.627x0.4625	Reinf. 13 Tension Rupture	54.9%	Pass
75.75 - 70.75	Pole + Reinf.	TP24.814x23.684x0.45	Reinf. 13 Tension Rupture	62.8%	Pass
70.75 - 70.5	Pole + Reinf.	TP24.871x24.814x0.675	Reinf. 5 Compression	50.5%	Pass
70.5 - 67.98	Pole + Reinf.	TP25.441x24.871x0.7125	Reinf. 5 Compression	47.0%	Pass
67.98 - 67.73	Pole + Reinf.	TP25.497x25.441x0.7125	Reinf. 5 Compression	47.3%	Pass
67.73 - 63.5	Pole + Reinf.	TP26.454x25.497x0.6875	Reinf. 5 Compression	51.5%	Pass
63.5 - 63.25	Pole + Reinf.	TP26.51x26.454x0.9	Reinf. 5 Compression	41.0%	Pass
63.25 - 58.25	Pole + Reinf.	TP27.641x26.51x0.85	Reinf. 5 Compression	44.8%	Pass
58.25 - 53.25	Pole + Reinf.	TP28.772x27.641x0.825	Reinf. 5 Compression	48.3%	Pass
53.25 - 52	Pole + Reinf.	TP30.09x28.772x0.825	Reinf. 5 Compression	49.2%	Pass
52 - 46.42	Pole + Reinf.	TP29.815x28.554x0.8438	Reinf. 7 Tension Rupture	52.9%	Pass
46.42 - 43.5	Pole + Reinf.	TP30.474x29.815x0.8313	Reinf. 7 Tension Rupture	54.5%	Pass
43.5 - 43.25	Pole + Reinf.	TP30.531x30.474x0.9938	Reinf. 7 Tension Rupture	46.0%	Pass
43.25 - 38.25	Pole + Reinf.	TP31.66x30.531x0.9688	Reinf. 7 Tension Rupture	48.2%	Pass
38.25 - 33.5	Pole + Reinf.	TP32.733x31.66x0.9438	Reinf. 7 Tension Rupture	50.3%	Pass
33.5 - 33.25	Pole + Reinf.	TP32.79x32.733x0.9438	Reinf. 4 Compression	48.8%	Pass
33.25 - 33	Pole + Reinf.	TP32.846x32.79x0.9438	Reinf. 4 Compression	48.9%	Pass
33 - 32.75	Pole + Reinf.	TP32.902x32.846x0.9938	Reinf. 4 Compression	46.6%	Pass
32.75 - 31.5	Pole + Reinf.	TP33.185x32.902x0.9938	Reinf. 4 Compression	47.0%	Pass
31.5 - 31.25	Pole + Reinf.	TP33.241x33.185x0.8313	Reinf. 9 Tension Rupture	54.6%	Pass
31.25 - 26.25	Pole + Reinf.	TP34.371x33.241x0.8188	Reinf. 9 Tension Rupture	56.5%	Pass
26.25 - 21.25	Pole + Reinf.	TP35.5x34.371x0.7938	Reinf. 9 Tension Rupture	58.3%	Pass
21.25 - 16.25	Pole + Reinf.	TP36.629x35.5x0.7813	Reinf. 9 Tension Rupture	59.9%	Pass
16.25 - 13.5	Pole + Reinf.	TP37.251x36.629x0.7688	Reinf. 9 Tension Rupture	60.8%	Pass
13.5 - 13.25	Pole + Reinf.	TP37.307x37.251x0.7688	Reinf. 6 Tension Rupture	61.7%	Pass
13.25 - 9	Pole + Reinf.	TP38.267x37.307x0.7688	Reinf. 6 Tension Rupture	62.9%	Pass
9 - 8.75	Pole + Reinf.	TP38.324x38.267x0.8188	Reinf. 6 Tension Rupture	61.0%	Pass
8.75 - 3.75	Pole + Reinf.	TP39.453x38.324x0.8063	Reinf. 6 Tension Rupture	62.3%	Pass
3.75 - 0	Pole + Reinf.	TP40.3x39.453x0.7938	Reinf. 6 Tension Rupture	63.2%	Pass
				Summary	
			Pole	55.3%	Pass
			Reinforcement	63.2%	Pass
			Overall	63.2%	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	R13	R14	
117 - 112	276	n/a	276	9.22	n/a	9.22	6.3%															
112 - 110	302	n/a	302	9.50	n/a	9.50	8.3%															
110 - 105	371	n/a	371	10.18	n/a	10.18	19.0%															
105 - 100	451	n/a	451	10.86	n/a	10.86	27.3%															
100 - 95	715	n/a	715	15.34	n/a	15.34	30.8%															
95 - 90	849	n/a	849	16.25	n/a	16.25	38.7%															
90 - 85	1000	n/a	1000	17.16	n/a	17.16	49.2%															
85 - 82.38	1086	n/a	1086	17.63	n/a	17.63	54.4%															
82.38 - 82.13	1094	n/a	1094	17.68	n/a	17.68	54.8%															
82.13 - 81.88	1103	n/a	1103	17.72	n/a	17.72	55.3%															
81.88 - 81.63	1152	416	1569	17.77	13.50	31.27	43.7%													43.9%	50.8%	
81.63 - 76.63	1399	521	1859	18.68	13.50	32.18	50.1%													51.0%	58.9%	
76.63 - 76	1363	527	1890	18.79	13.50	32.29	50.9%													51.8%	59.8%	
76 - 75.75	1344	1076	2420	18.84	22.50	41.34	38.9%													40.7%	45.9%	54.9%
75.75 - 70.75	1547	1176	2723	19.75	22.50	42.25	45.1%													46.8%	52.6%	62.8%
70.75 - 70.5	1550	2365	3915	19.79	36.00	55.79	31.0%					50.5%								35.9%	39.3%	45.6%
70.5 - 67.98	1645	2792	4437	20.25	31.50	51.75	28.6%					47.0%								42.6%		
67.98 - 67.73	1656	2804	4460	20.29	31.50	51.79	28.7%					47.3%								42.8%		
67.73 - 63.5	1851	3007	4859	21.06	31.50	52.56	31.8%					51.5%								46.6%		
63.5 - 63.25	1863	4309	6172	21.11	45.00	66.11	25.3%		40.6%			41.0%								37.1%		
63.25 - 58.25	2114	4666	6780	22.02	45.00	67.02	28.2%		44.3%			44.8%								40.5%		
58.25 - 53.25	2387	5037	7425	22.93	45.00	67.93	31.0%		47.8%			48.3%								43.7%		
53.25 - 52	2459	5133	7591	23.15	45.00	68.15	31.7%		48.7%			49.2%								44.5%		
52 - 46.42	3621	4836	8457	32.57	40.50	73.07	29.6%		50.8%				52.9%							46.4%		
46.42 - 43.5	3870	5043	8913	33.30	40.50	73.80	30.7%		52.3%				54.5%							47.8%		
43.5 - 43.25	3892	6751	10643	33.37	54.00	87.37	25.9%		44.1%		44.6%			46.0%						40.3%		
43.25 - 38.25	4345	7240	11585	34.61	54.00	88.61	27.6%		46.3%		46.8%			48.2%						42.3%		
38.25 - 33.5	4807	7720	12527	35.80	54.00	89.80	29.1%		48.2%		48.7%			50.3%						44.1%		
33.5 - 33.25	4832	7755	12587	35.86	54.00	89.86	29.2%		48.3%		48.8%		48.3%		48.3%		48.3%			48.3%		
33.25 - 33	4858	7780	12638	35.92	54.00	89.92	29.2%		48.4%		48.9%		48.4%		48.4%		48.4%			48.4%		
33 - 32.75	4883	8468	13351	35.99	58.50	94.49	27.8%	42.1%			46.6%		46.1%		46.1%		46.1%			46.1%		
32.75 - 31.5	5011	8609	13620	36.30	58.50	94.80	28.2%	42.6%			47.0%		46.6%		46.6%		46.6%			46.6%		
31.5 - 31.25	5037	6647	11684	36.36	45.00	81.36	33.1%	49.9%				54.6%		54.6%		54.6%				54.6%		
31.25 - 26.25	5574	7089	12663	37.61	45.00	82.61	34.7%	51.6%				56.5%		56.5%		56.5%				56.5%		
26.25 - 21.25	6147	7546	13693	38.86	45.00	83.86	36.3%	53.3%				58.3%		58.3%		58.3%				58.3%		
21.25 - 16.25	6759	8017	14775	40.11	45.00	85.11	37.8%	54.8%				59.9%		59.9%		59.9%				59.9%		
16.25 - 13.5	7112	8282	15394	40.79	45.00	85.79	38.6%	55.5%				60.8%		60.8%		60.8%				60.8%		
13.5 - 13.25	7153	8387	15540	40.86	48.63	89.48	40.1%	56.2%				61.7%		61.6%		61.6%				61.6%		43.8%
13.25 - 9	7724	8810	16534	41.92	48.63	90.54	41.4%	57.3%				62.9%		62.8%		62.8%				62.8%		44.7%
9 - 8.75	7823	10105	17928	41.98	53.13	95.10	39.3%	54.6%		55.0%		61.0%		59.6%		59.6%				59.6%		44.8%
8.75 - 3.75	8540	10691	19231	43.23	53.13	96.35	40.7%	55.8%		56.3%		62.3%		60.9%		60.9%				60.9%		45.8%
3.75 - 0	9105	11142	20247	44.16	53.13	97.29	41.7%	56.6%		57.1%		63.2%		61.8%		61.8%				61.8%		49.5%

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

Monopole Flange Plate Connection

Elevation = 110 ft.

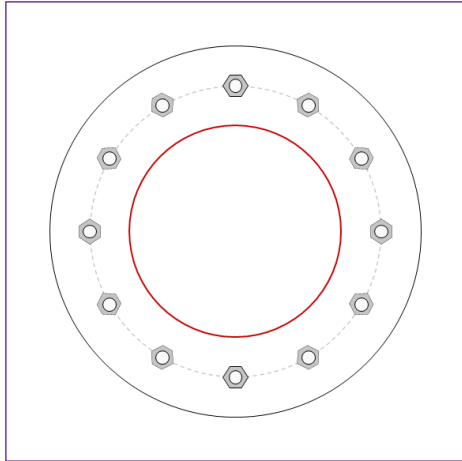


BU #	806352
Site Name	BRG 302 943052
Order #	548684 rev.5
TIA-222 Revision	H

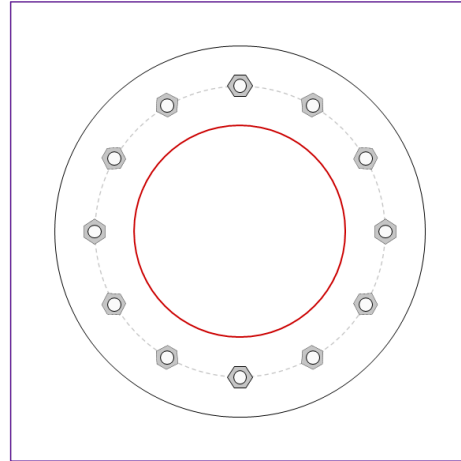
Applied Loads	
Moment (kip-ft)	18.61
Axial Force (kips)	2.00
Shear Force (kips)	2.70

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(12) 1" \emptyset bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 22" BC

Top Plate Data

28" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

15.94" x 0.1875" 12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Bottom Plate Data

28" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

15.94" x 0.1875" 12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	3.21
Allowable (kips)	54.54
Stress Rating:	5.6% Pass

Top Plate Capacity

Max Stress (ksi):	3.44	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	10.1%	Pass
Tension Side Stress Rating:	5.2%	Pass

Bottom Plate Capacity

Max Stress (ksi):	3.44	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	10.1%	Pass
Tension Side Stress Rating:	5.2%	Pass

Monopole Flange Plate Connection

Elevation = 100 ft.

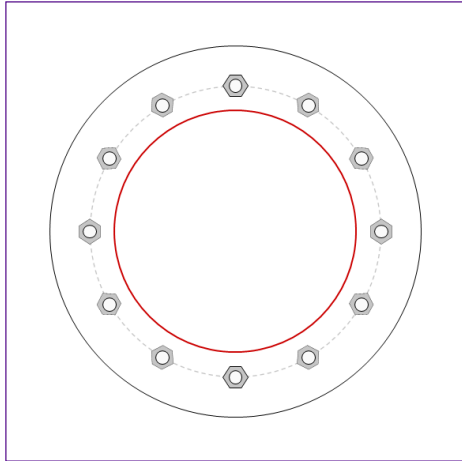


BU #	806352
Site Name	BRG 302 943052
Order #	548684 rev.5
TIA-222 Revision	H

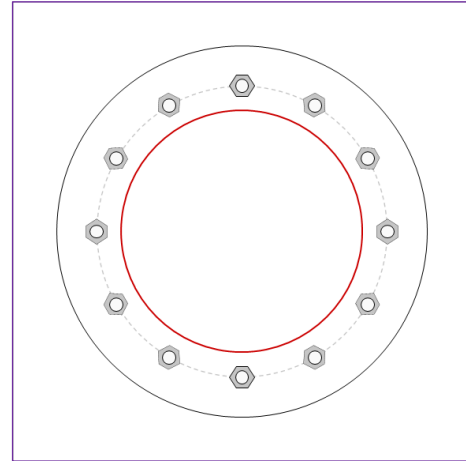
Applied Loads	
Moment (kip-ft)	77.03
Axial Force (kips)	6.56
Shear Force (kips)	6.10

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(12) 1" \emptyset bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 22" BC

Top Plate Data

28" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

18.2" x 0.1875" 12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Bottom Plate Data

28" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

18.2" x 0.25" 12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	13.45
Allowable (kips)	54.53
Stress Rating:	23.5% Pass

Top Plate Capacity

Max Stress (ksi):	8.89	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	26.1%	Pass
Tension Side Stress Rating:	10.4%	Pass

Bottom Plate Capacity

Max Stress (ksi):	8.89	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	26.1%	Pass
Tension Side Stress Rating:	10.4%	Pass

Monopole Base Plate Connection

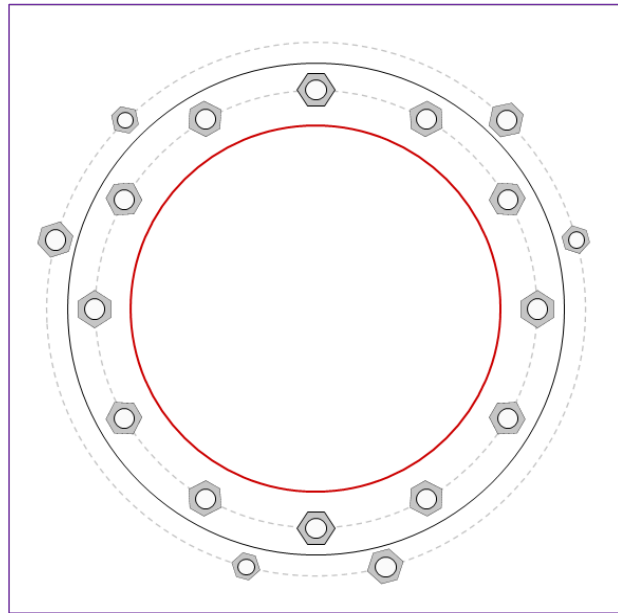


Site Info	
BU #	806352
Site Name	BRG 302 943052
Order #	548684 rev.5

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

Applied Loads	
Moment (kip-ft)	2168.93
Axial Force (kips)	50.89
Shear Force (kips)	25.93

*TIA-222-H Section 15.5 Applied



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

Anchor Rod Data
GROUP 1: (12) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 48.22" BC
GROUP 2: (3) 2-1/4" ϕ bolts (A193 Gr. B7 N; $F_y=105$ ksi, $F_u=125$ ksi) on 58.72" BC
GROUP 3: (3) 1-3/4" ϕ bolts (A193 Gr. B7 N; $F_y=105$ ksi, $F_u=125$ ksi) on 58.72" BC
Base Plate Data
54.22" OD x 2.5" Plate (A193 Gr. B7; $F_y=105$ ksi, $F_u=125$ ksi)
Stiffener Data
N/A
Pole Data
40.3" x 0.79375" 12-sided pole (A572-65; $F_y=65$ ksi, $F_u=80$ ksi)

Anchor Rod Summary			<i>(units of kips, kip-in)</i>
GROUP 1:			
$P_{u_t} = 109.01$	$\phi P_{n_t} = 243.75$	Stress Rating	
$V_u = 2.16$	$\phi V_n = 149.1$	42.6%	
$M_u = n/a$	$\phi M_n = n/a$	Pass	
GROUP 2:			
$P_{u_t} = 137.91$	$\phi P_{n_t} = 304.69$	Stress Rating	
$V_u = 0$	$\phi V_n = 186.38$	43.1%	
$M_u = n/a$	$\phi M_n = n/a$	Pass	
GROUP 3:			
$P_{u_t} = 80.63$	$\phi P_{n_t} = 178.13$	Stress Rating	
$V_u = 0$	$\phi V_n = 112.75$	43.1%	
$M_u = n/a$	$\phi M_n = n/a$	Pass	

Base Plate Summary		
Max Stress (ksi):	17.24	(Flexural)
Allowable Stress (ksi):	94.5	
Stress Rating:	17.4%	Pass

CClplate

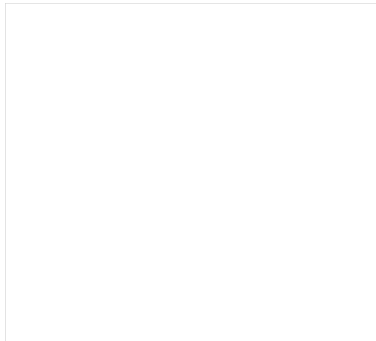
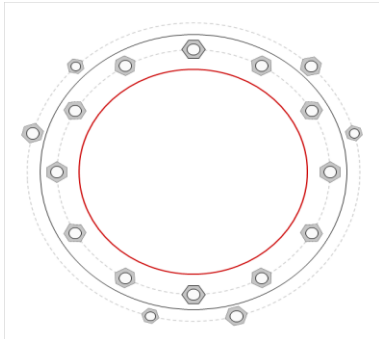
Elevation (ft) 0 (Base)

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

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

Custom Bolt Connection											
Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η :	I_{ar} (in):	Thread Type	Area Override, in ²	Tension Only	
1	1	0	2.25	A615-75	48.22	0.5	0	N-Included		No	
2	1	30	2.25	A615-75	48.22	0.5	0	N-Included		No	
3	1	60	2.25	A615-75	48.22	0.5	0	N-Included		No	
4	1	90	2.25	A615-75	48.22	0.5	0	N-Included		No	
5	1	120	2.25	A615-75	48.22	0.5	0	N-Included		No	
6	1	150	2.25	A615-75	48.22	0.5	0	N-Included		No	
7	1	180	2.25	A615-75	48.22	0.5	0	N-Included		No	
8	1	210	2.25	A615-75	48.22	0.5	0	N-Included		No	
9	1	240	2.25	A615-75	48.22	0.5	0	N-Included		No	
10	1	270	2.25	A615-75	48.22	0.5	0	N-Included		No	
11	1	300	2.25	A615-75	48.22	0.5	0	N-Included		No	
12	1	330	2.25	A615-75	48.22	0.5	0	N-Included		No	
13	2	45	2.25	A193 Gr. B7	58.72	0.5	0	N-Included		No	
14	2	165	2.25	A193 Gr. B7	58.72	0.5	0	N-Included		No	
15	2	285	2.25	A193 Gr. B7	58.72	0.5	0	N-Included		No	
16	3	15	1.75	A193 Gr. B7	58.72	0.5	0	N-Included		No	
17	3	135	1.75	A193 Gr. B7	58.72	0.5	0	N-Included		No	
18	3	255	1.75	A193 Gr. B7	58.72	0.5	0	N-Included		No	

Plot Graphic



Drilled Pier Foundation

BU # :	806352
Site Name:	BRG 302 943052
Order Number:	
TIA-222 Revison:	H
Tower Type:	Monopole



Applied Loads		
	Comp.	Uplift
Moment (kip-ft)	2168.93	
Axial Force (kips)	50.9	
Shear Force (kips)	25.92	

Material Properties		
Concrete Strength, f _c :	3	ksi
Rebar Strength, F _y :	60	ksi
Tie Yield Strength, F _y :	40	ksi

Pier Design Data		
Depth	16.4	ft
Ext. Above Grade	0.2	ft
Pier Section 1		
<i>From 0.2' above grade to 16.4' below grade</i>		
Pier Diameter	6.5	ft
Rebar Quantity	24	
Rebar Size	10	
Clear Cover to Ties	5	in
Tie Size	6	
Tie Spacing		in

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs

Analysis Results			
Soil Lateral Check			
	Compression	Uplift	
D _{v=0} (ft from TOC)	6.04	-	
Soil Safety Factor	3.48	-	
Max Moment (kip-ft)	2346.61	-	
Rating*	36.4%	-	
Soil Vertical Check			
	Compression	Uplift	
Skin Friction (kips)	569.51	-	
End Bearing (kips)	918.34	-	
Weight of Concrete (kips)	99.15	-	
Total Capacity (kips)	1487.85	-	
Axial (kips)	150.05	-	
Rating*	9.6%	-	
Reinforced Concrete Flexure			
	Compression	Uplift	
Critical Depth (ft from TOC)	5.79	-	
Critical Moment (kip-ft)	2346.08	-	
Critical Moment Capacity	4396.78	-	
Rating*	50.8%	-	
Reinforced Concrete Shear			
	Compression	Uplift	
Critical Depth (ft from TOC)	13.33	-	
Critical Shear (kip)	618.16	-	
Critical Shear Capacity	602.16	-	
Rating*	97.8%	-	
Structural Foundation Rating*		97.8%	
Soil Interaction Rating*		36.4%	

*Rating per TIA-222-H Section 15.5

Check Limitation	
Apply TIA-222-H Section 15.5:	<input checked="" type="checkbox"/>
N/A	<input type="checkbox"/>
Additional Longitudinal Rebar	
Input Effective Depths (else Actual):	<input checked="" type="checkbox"/>
Shear Design Options	
Check Shear along Depth of Pier:	<input checked="" type="checkbox"/>
Utilize Shear-Friction Methodology:	<input type="checkbox"/>
Override Critical Depth:	<input type="checkbox"/>

[Go to Soil Calculations](#)

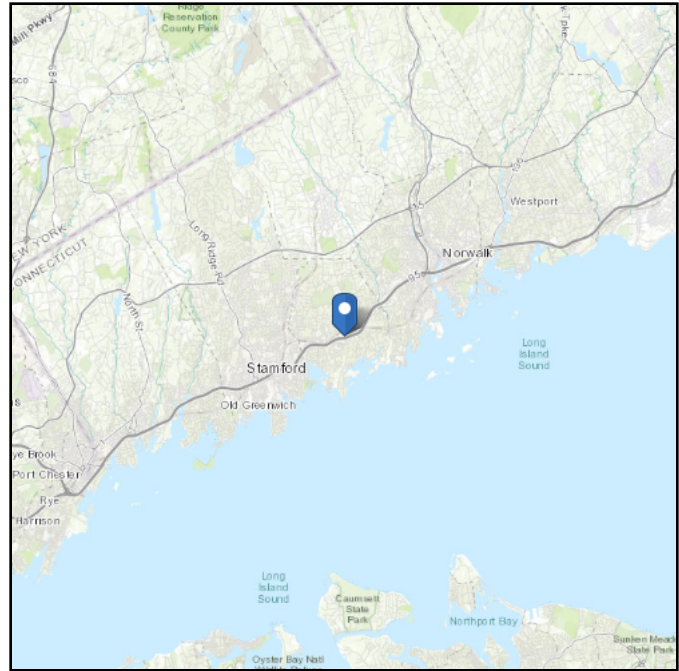
Soil Profile														
Groundwater Depth		N/A			# of Layers		4							
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	Y _{soil} (pcf)	Y _{concrete} (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	4	4	115	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	4	6	2	120	150	0	39	0.000	0.000	0.42	0.42			Cohesionless
3	6	11	5	135	150	0	45	0.000	0.000	2.15	2.15			Cohesionless
4	11	16.4	5.4	135	150	14	0	6.300	6.300	4.74	4.74	36.9		Cohesive

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 71.42 ft (NAVD 88)
Latitude: 41.072431
Longitude: -73.478167



Wind

Results:

Wind Speed:	119 Vmph
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	91 Vmph
100-year MRI	98 Vmph

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

Date Accessed: Thu Oct 15 2020

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

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

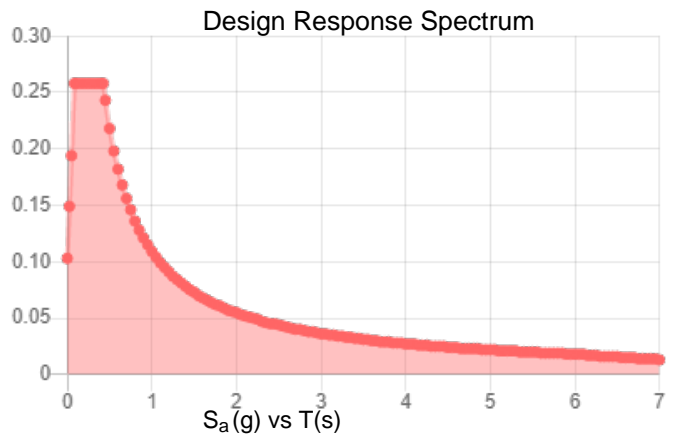
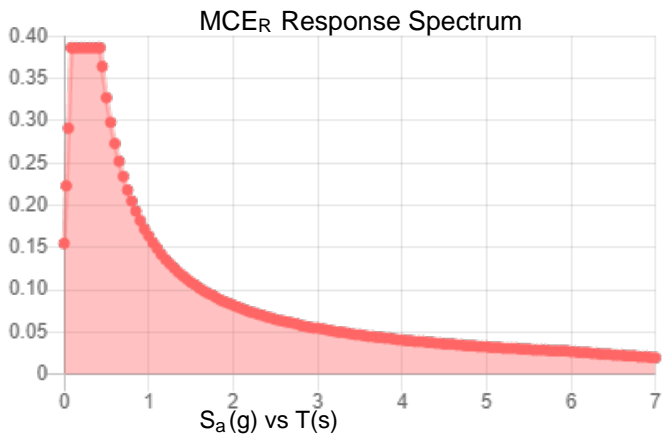
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.242	S_{DS} :	0.258
S_1 :	0.068	S_{D1} :	0.109
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.139
S_{MS} :	0.386	PGA _M :	0.212
S_{M1} :	0.164	F _{PGA} :	1.522
		I_e :	1

Seismic Design Category B



Data Accessed:

Thu Oct 15 2020

Date Source:

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

Ice

Results:

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

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

Date Accessed: Thu Oct 15 2020

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

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

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

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Exhibit E

Mount Analysis

Date: **July 29, 2021**

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



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

Subject: **Mount Replacement Analysis Report**

Carrier Designation: **Dish Network Dish 5G**
Carrier Site Number: NJJER01085A
Carrier Site Name: CT-CCI-T-806352

Crown Castle Designation: **Crown Castle BU Number:** 806352
Crown Castle Site Name: BRG 302 943052
Crown Castle JDE Job Number: 640162
Crown Castle Order Number: 548684 Rev. 5

Engineering Firm Designation: **Trylon Report Designation:** 188622

Site Data: **126 Ledge Road, Darien, Fairfield County, CT, 06820**
Latitude 41°4'20.75" Longitude -72°28'41.40"

Structure Information: **Tower Height & Type:** **117.0 ft Monopole**
Mount Elevation: **76.0 ft**
Mount Type: **8.0 ft Platform**

Dear Darcy Tarr,

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

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

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

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

Mount analysis prepared by: Ionela Neamtu

Respectfully Submitted by:
Cliff Abernathy, P.E.

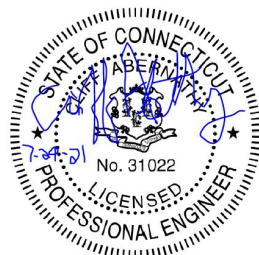


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Supplemental Drawings

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:	120 mph
Exposure Category:	B
Topographic Factor at Base:	1.00
Topographic Factor at Mount:	1.00
Ice Thickness:	1.50 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.242
Seismic S₁:	0.068
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
76.0	76.0	3	JMA Wireless	MX08FRO665-21	8.0 ft Platform [Commscope, MC-PK8-C]
		3	Fujitsu	TA08025-B604	
		3	Fujitsu	TA08025-B605	
		1	Raycap	RDIDC-9181-PF-48	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	Dish Network Application	548684 Rev. 5	CCI Sites
Mount Manufacturer Drawings	Commscope	MC-PK8-C	Trylon

3.1) Analysis Method

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

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

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

3.2) Assumptions

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

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

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

4) ANALYSIS RESULTS

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

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,2	Mount Pipe(s)	MP1	76.0	24.3	Pass
	Horizontal(s)	H1		9.2	Pass
	Standoff(s)	SA2		47.4	Pass
	Bracing(s)	PB2		33.3	Pass
	Handrail(s)	M19		11.4	Pass
	Plate(s)	CP4		17.7	Pass
	Mount Connection(s)	-		19.1	Pass

Structure Rating (max from all components) =	47.4%
---	--------------

Notes:

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

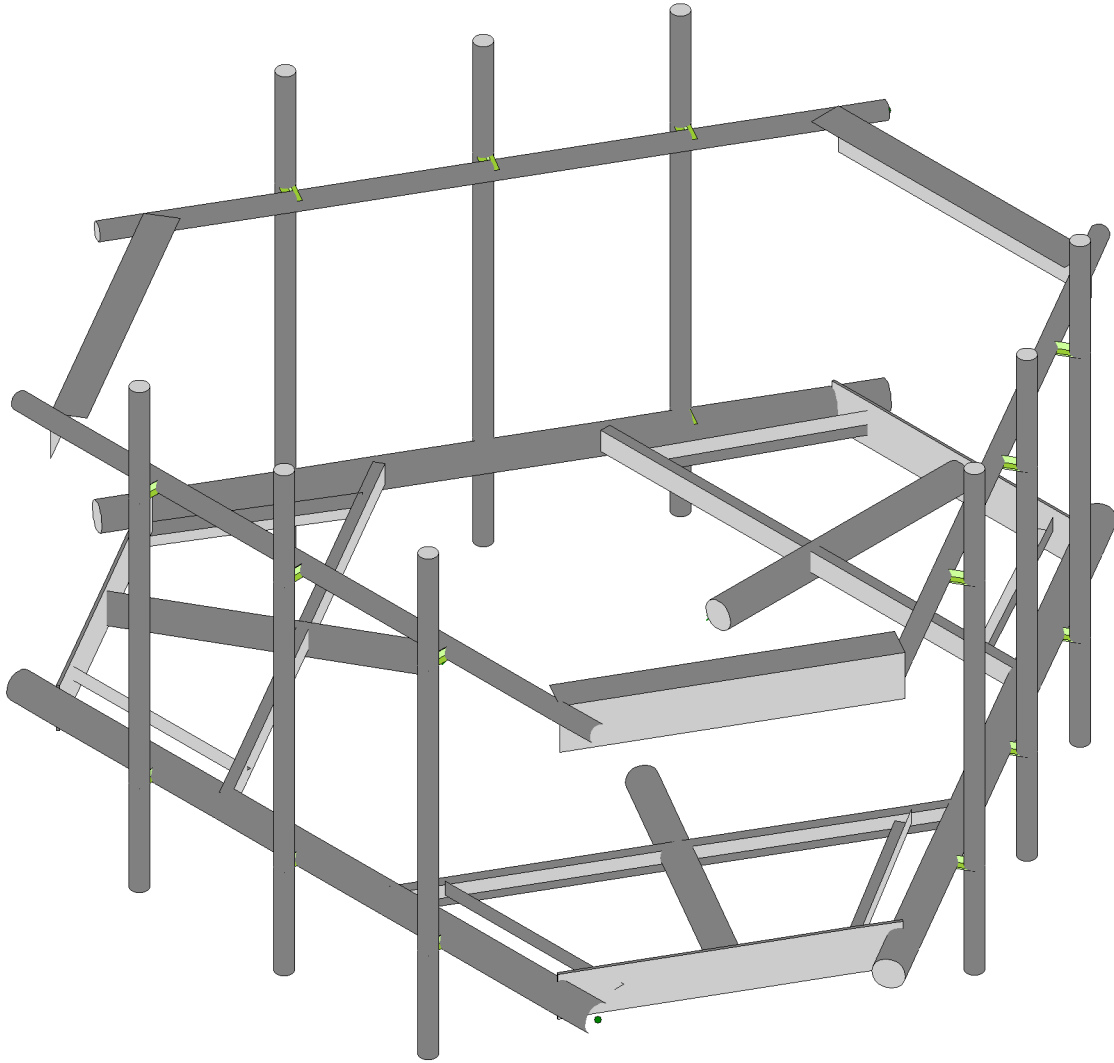
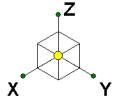
4.1) Recommendations

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

1. Commscope, MC-PK8-C.

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

APPENDIX A
WIRE FRAME AND RENDERED MODELS

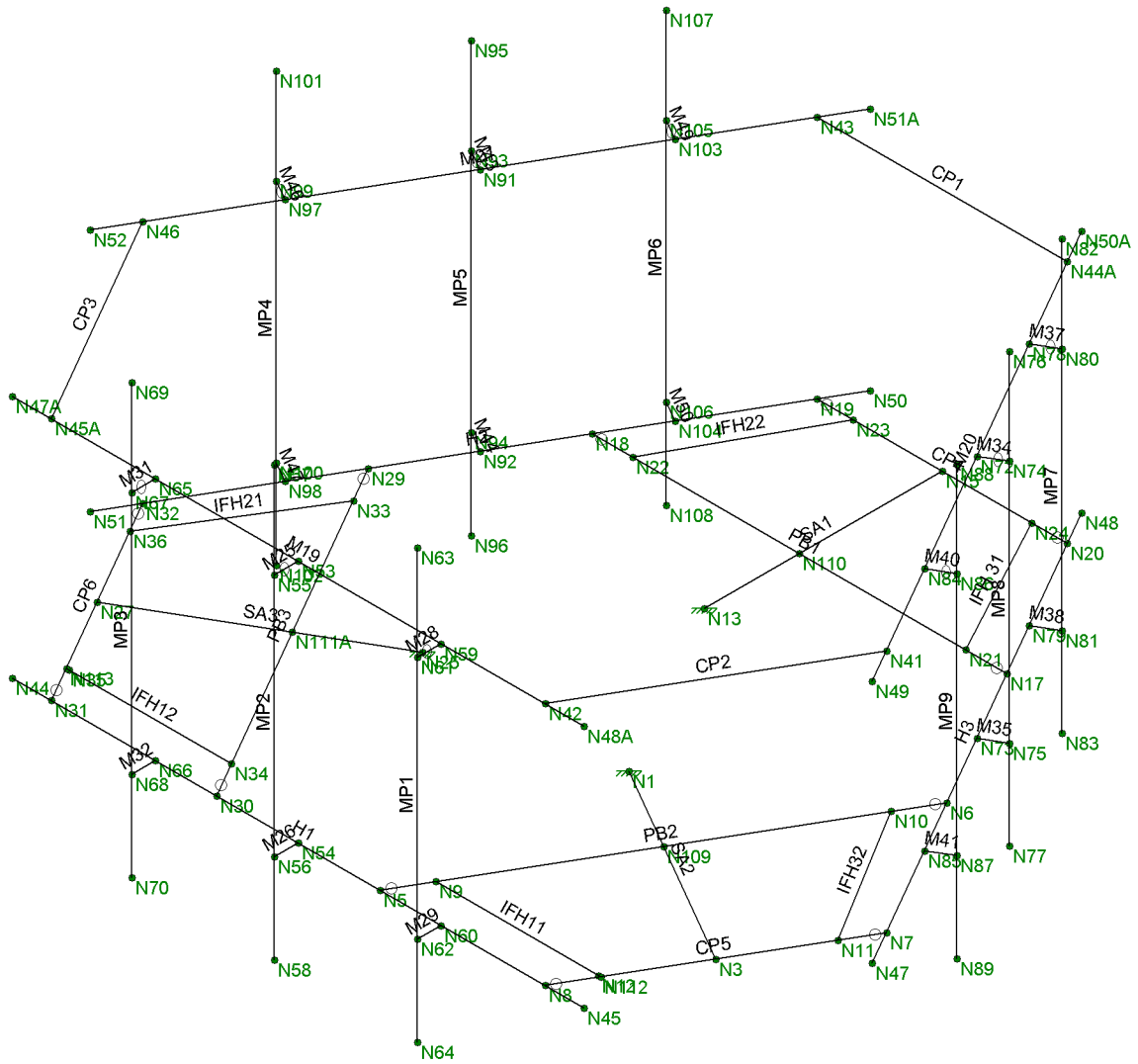
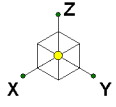


Envelope Only Solution

Trylon
IN
188622

806352_BRG 302 943052

SK - 1
July 27, 2021 at 1:01 PM
806352_BRG 302 943052.r3d



Envelope Only Solution

Trylon
IN
188622

806352_BRG 302 943052

SK - 2
July 27, 2021 at 1:01 PM
806352_BRG 302 943052.r3d

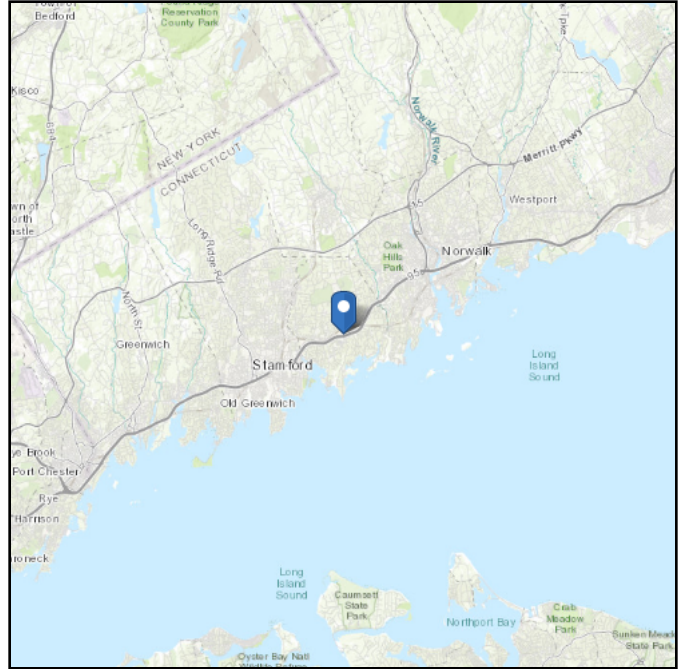
APPENDIX B
SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This
Location

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

Elevation: 71.42 ft (NAVD 88)
Latitude: 41.072431
Longitude: -73.478167

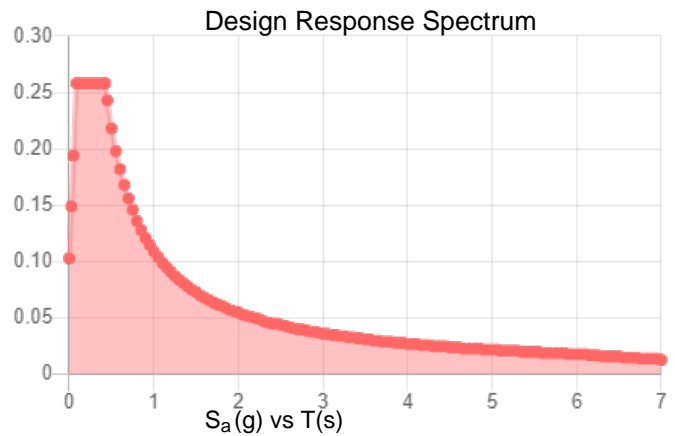
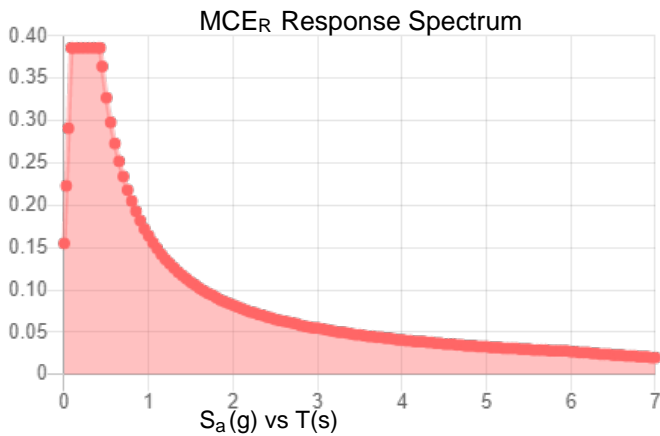


Site Soil Class: D - Stiff Soil

Results:

S_S :	0.242	S_{DS} :	0.258
S_1 :	0.068	S_{D1} :	0.109
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.139
S_{MS} :	0.386	PGA _M :	0.212
S_{M1} :	0.164	F _{PGA} :	1.522
		I_e :	1

Seismic Design Category B



Data Accessed:

Tue Jul 27 2021

Date Source:

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

Ice

Results:

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

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

Date Accessed: Tue Jul 27 2021

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

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

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

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TIA LOAD CALCULATOR 2.0

PROJECT DATA		
Job Code:	188622	
Carrier Site ID:	NJJER01085A	
Carrier Site Name:	CT-CCI-T-806352	

CODES AND STANDARDS		
Building Code:	2015 IBC	
Local Building Code:	Connecticut State Building	
Design Standard:	TIA-222-H	

STRUCTURE DETAILS		
Mount Type:	Platform	--
Mount Elevation:	76.0	ft.
Number of Sectors:	3	--
Structure Type:	Monopole	--
Structure Height:	117.0	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	B	--
Site Class:	D - Stiff Soil	--
Ground Elevation:	71.42	ft.

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

WIND PARAMETERS		
Design Wind Speed:	120	mph
Wind Escalation Factor (K_s):	1.00	--
Velocity Coefficient (K_z):	0.91	--
Directionality Factor (K_d):	0.95	--
Gust Effect Factor (G_h):	1.00	--
Shielding Factor (K_a):	0.90	--
Velocity Pressure (q_z):	31.92	psf

ICE PARAMETERS		
Design Ice Wind Speed:	50	mph
Design Ice Thickness (t_i):	1.50	in
Importance Factor (I_i):	1.00	--
Ice Velocity Pressure (q_{zi}):	31.92	psf
Mount Ice Thickness (t_{iz}):	1.63	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	57.45	psf
Round Member Pressure:	34.47	psf
Ice Wind Pressure:	7.12	psf

SEISMIC PARAMETERS		
Importance Factor (I_e):	1.00	--
Short Period Accel. (S_s):	0.242	g
1 Second Accel (S_1):	0.068	g
Short Period Des. (S_{DS}):	0.26	g
1 Second Des. (S_{D1}):	0.11	g
Short Period Coeff. (F_a):	1.60	--
1 Second Coeff. (F_v):	2.40	--
Response Coefficient (C_s):	0.13	--
Amplification Factor (A_S):	1.20	--

LOAD COMBINATIONS [LRFD]

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

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

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

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

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

APPENDIX C
SOFTWARE ANALYSIS OUTPUT

APPENDIX D
ADDITIONAL CALCUATIONS

BOLT TOOL 1.5.2

Project Data	
Job Code:	188622
Carrier Site ID:	NJJER01085A
Carrier Site Name:	CT-CCI-T-806352

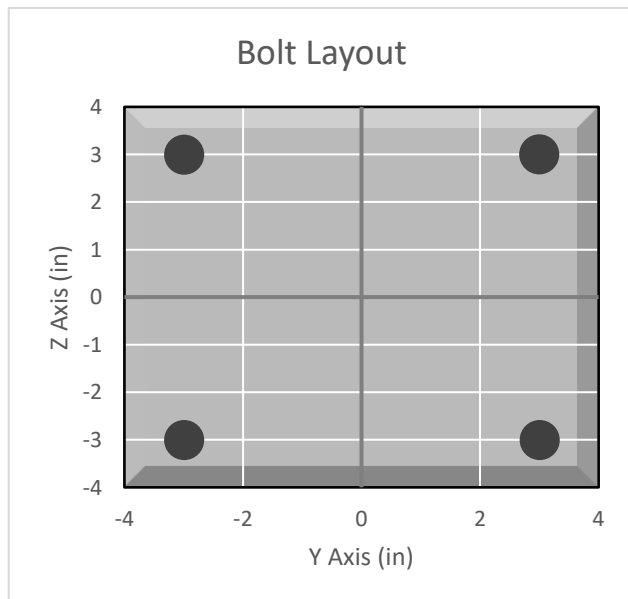
Code	
Design Standard:	TIA-222-H
Slip Check:	No
Pretension Standard:	TIA-222-H

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

Connection Description
Standoff to Monopole

Bolt Check*		
Tensile Capacity (ϕT_n):	20340.1	lbs
Shear Capacity (ϕV_n):	17257.3	lbs
Tension Force (T_u):	4075.5	lbs
Shear Force (V_u):	650.6	lbs
Tension Usage:	19.1%	--
Shear Usage:	3.6%	--
Interaction:	19.1%	Pass
Controlling Member:	SA2	--
Controlling LC:	42	--

*Rating per TIA-222-H Section 15.5



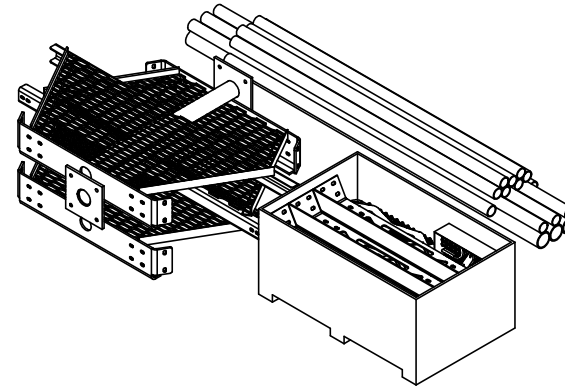
APPENDIX E
SUPPLEMENTAL DRAWINGS

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




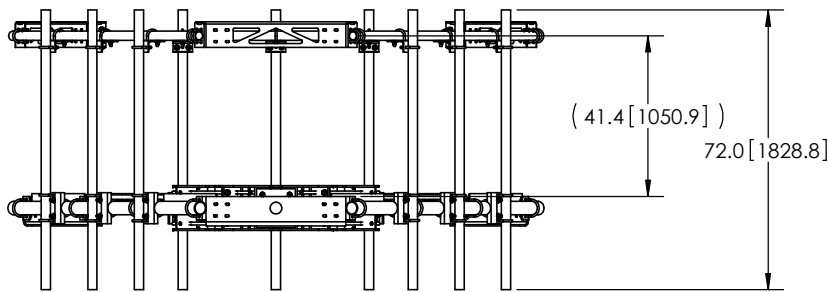
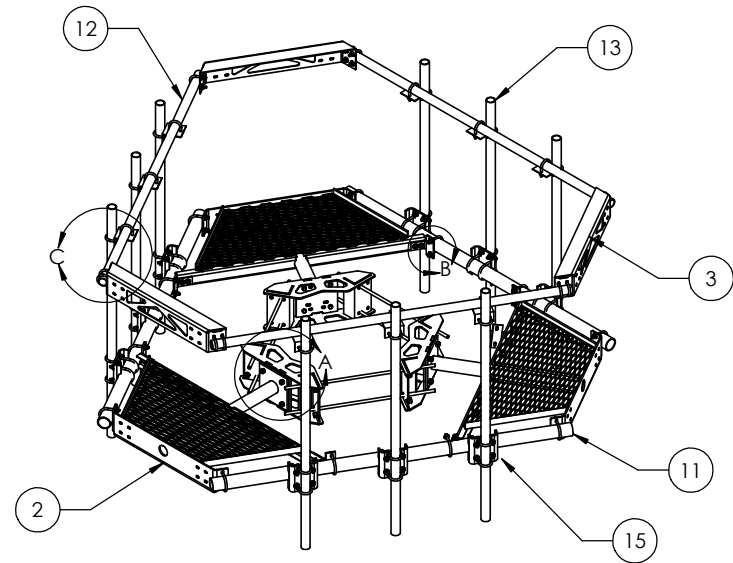
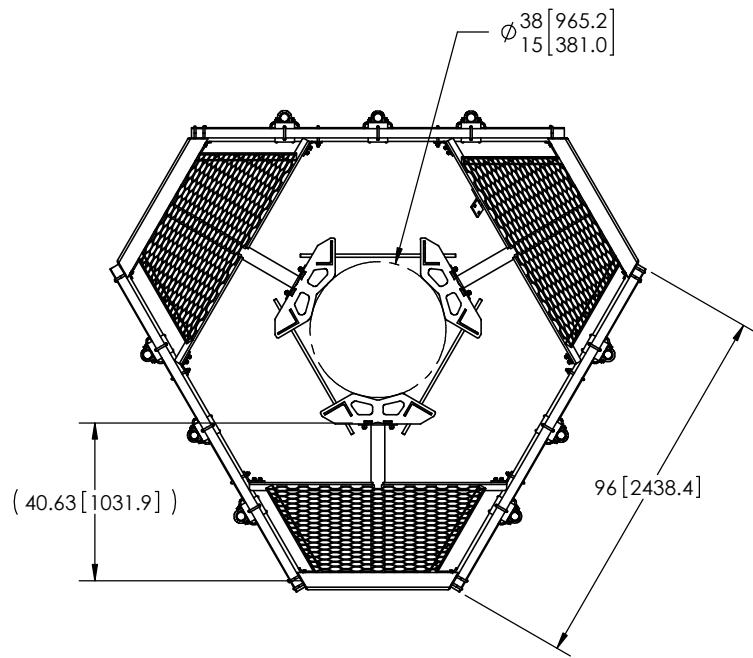
REVISIONS				
REV.	ECN	DESCRIPTION	BY	DATE
A		INITIAL RELEASE	DRR	12/27/11
B	8000005979	CHANGE NOSE CORNER BRKT, ADD GUB-4240	MSM	11/25/14
C	8000007579	NEW RINGMOUNT WELDMENT DESIGN	RJC	04/07/15

FOR BOM ENTRY ONLY




NOTES:
1. CUSTOMER ASSEMBLY SHEETS 2-3.

<small>These drawings and specifications are the proprietary property of ANDREW CORPORATION and may be used only for the specific purpose authorized in writing by Andrew Corporation.</small>			<small>DRAWN BY:</small> MSM	<small>SHEET:</small> 1 of 3	<small>PART NUMBER:</small> MC-PK8-C
<small>ALL DIMENSIONS ARE IN INCHES U.O.S. TOLERANCES UNLESS OTHERWISE SPECIFIED:</small>			<small>CHECKED BY:</small> TP	<small>SCALE:</small> NTS	<small>DESCRIPTION:</small> LOW PROFILE PLATFORM KIT 8' FACE
<small>.X = ± .12 ANGLES ±2° .XX = ± .06 FRACTIONS ±1/32 .XXX = ± .03</small>			<small>DATE:</small> 10/18/11	<small>MATERIAL:</small> A36, A500	<small>DRAWING TYPE:</small> ASSEMBLY DRAWING
<small>REMOVE BURRS AND BREAK EDGES .005</small>			<small>REVISION:</small> C	<small>FINISH:</small> GALV A123	 WESTCHESTER, IL. 60154 U.S.A.
<small>DO NOT SCALE THIS PRINT</small>				<small>WEIGHT:</small> 1410.14 LBS	

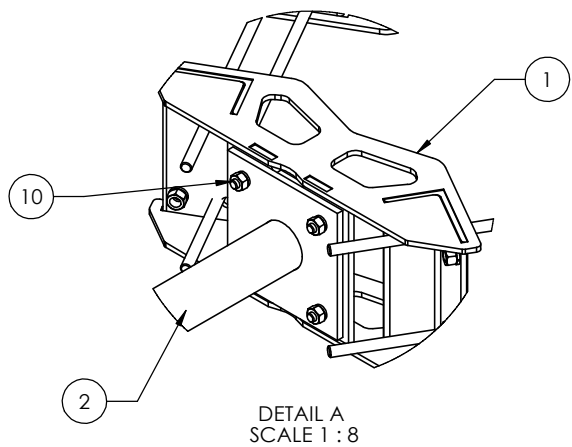


ITEM	PART NO.	DESCRIPTION	QTY.	WEIGHT
1	MC-RM1550-3	12" - 50" OD RINGMOUNT	1	230.42 LBS
2	MTC300601	Low Profile Co-Location Platform Snub Nose	3	134.21 LBS
3	MT195801	Corner Weldment Snub Nose Handrail	3	27.10 LBS
4	XA2020.01	CROSS OVER ANGLE	9	2.65 LBS
5	GUB-4356	1/2" X 3-5/8" X 6" GALV U-BOLT	18	0.82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

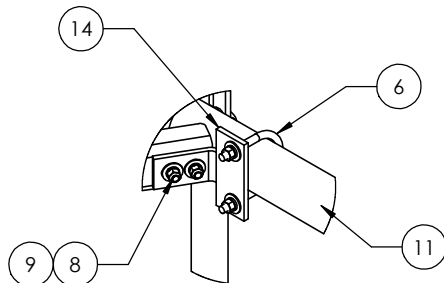
<small>These drawings and specifications are the proprietary property of ANDREW CORPORATION and may be used only for the specific purpose authorized in writing by Andrew Corporation.</small>			
DESIGNED BY: MSM	SHEET: 2 of 3	PART NUMBER: MC-PK8-C	
CHECKED BY: TP	SCALE: NTS	EQUIPMENT: 25" OD Snub Nose MT-196	
DATE: 10/18/11	MATERIAL: A36, A53	DRAWING TYPE: ASSEMBLY DRAWING	
REVISION: C	FINISH: GALV A123	 WESTCHESTER, IL. 60154 U.S.A.	
REMOVE BURRS AND BREAK EDGES .005			
DO NOT SCALE THIS PRINT		WEIGHT: 1361.27 LBS	

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

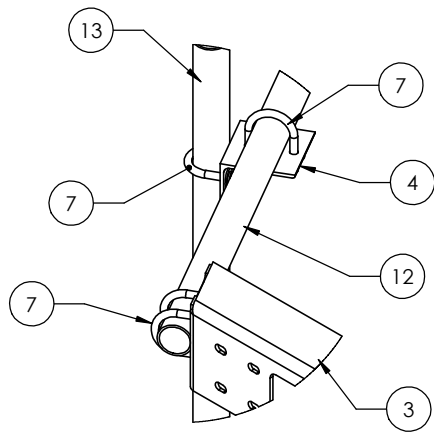
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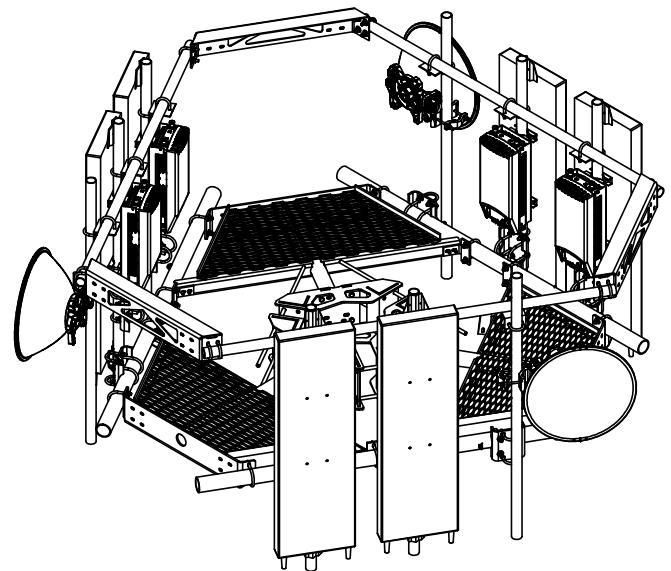
DETAIL A
SCALE 1 : 8



DETAIL B
SCALE 1 : 8




DETAIL C
SCALE 1 : 8



WITH ANTENNAS

NOTES:
1. ALL METRIC DIMENSIONS ARE IN BRACKETS.

<small>These drawings and specifications are the proprietary property of ANDREW CORPORATION and may be used only for the specific purpose authorized in writing by Andrew Corporation.</small>		<small>DRAWN BY:</small> MSM	<small>SHEET:</small> 3 of 3	<small>PART NUMBER:</small> MC-PK8-C
<small>ALL DIMENSIONS ARE IN INCHES U.O.S. TOLERANCES UNLESS OTHERWISE SPECIFIED:</small> .X = ± .12 ANGLES ±2° .XX = ± .06 FRACTIONS ±1/32 .XXX = ± .03 REMOVE BURRS AND BREAK EDGES .005 DO NOT SCALE THIS PRINT		<small>CHECKED BY:</small> TP	<small>SCALE:</small> NTS	<small>DESCRIPTION:</small> 25" OD Snub Nose MT-196
		<small>DATE:</small> 10/18/11	<small>MATERIAL:</small> A36, A53	<small>DRAWING TYPE:</small> ASSEMBLY DRAWING
		<small>REVISION:</small> C	<small>FINISH:</small> GALV A123	 WESTCHESTER, IL. 60154 U.S.A.
			<small>WEIGHT:</small> 1.361.27 LBS	

8 7 6 5 4 3 2 1

Exhibit F

Power Density/RF Emissions Report

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

Dish Wireless Existing Facility

Site ID: 806352

NJJER01085A
126 Ledge Road
Darien, Connecticut 06820

May 20, 2022

EBI Project Number: 6222003431

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	60.86%

May 20, 2022

Attn: Dish Wireless

Emissions Analysis for Site: 806352 - NJJER01085A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **126 Ledge Road in Darien, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at 126 Ledge Road in Darien, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

- 6) The antennas used in this modeling are the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 7) The antenna mounting height centerline of the proposed antennas is 76 feet above ground level (AGL).
- 8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 9) All calculations were done with respect to uncontrolled / general population threshold limits.

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21
Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz
Gain:	11.35 dBd / 15.75 dBd / 16.75 dBd	Gain:	11.35 dBd / 15.75 dBd / 16.75 dBd	Gain:	11.35 dBd / 15.75 dBd / 16.75 dBd
Height (AGL):	76 feet	Height (AGL):	76 feet	Height (AGL):	76 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440.00 Watts	Total TX Power (W):	440.00 Watts	Total TX Power (W):	440.00 Watts
ERP (W):	2,524.75	ERP (W):	2,524.75	ERP (W):	2,524.75
Antenna AI MPE %:	2.34%	Antenna BI MPE %:	2.34%	Antenna CI MPE %:	2.34%

Site Composite MPE %	
Carrier	MPE %
Dish Wireless (Max at Sector A):	2.34%
AT&T	10.67%
Verizon	19.21%
Clearwire	0.39%
Sprint	5.95%
Metro PCS	3.95%
T-Mobile	18.35%
Site Total MPE % :	60.86%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	2.34%
Dish Wireless Sector B Total:	2.34%
Dish Wireless Sector C Total:	2.34%
Site Total MPE % :	60.86%

Dish Wireless Maximum MPE Power Values (Sector A)							
Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
Dish Wireless 600 MHz n71	4	110.82	76.0	3.25	600 MHz n71	400	0.81%
Dish Wireless 1900 MHz n70	4	245.22	76.0	7.20	1900 MHz n70	1000	0.72%
Dish Wireless 2190 MHz n66	4	275.14	76.0	8.07	2190 MHz n66	1000	0.81%
						Total:	2.34%

• 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:	2.34%
Sector B:	2.34%
Sector C:	2.34%
Dish Wireless Maximum MPE % (Sector A):	2.34%
Site Total:	60.86%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **60.86%** 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



6325 Ardrey Kell Rd, Suite 600
Charlotte, NC 28277

Phone:
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:
126 LEDGE ROAD, DARIEN, CT 06820

CROWN ATLANTIC COMPANY LLC ("Crown Castle") hereby authorizes DISH NETWORK, 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: 806352/BRG 302 943052
Customer Site ID: NJJER01085A/CT-CCI-T-806352
Site Address: 126 Ledge Road, DARIEN, CT 06820

Crown Castle

By:  Date: 04/07/2022
Robin Cannizzaro
Real Estate Specialist

Exhibit H

Recipient Mailings



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P

usps.com 9405 5036 9930 0257 6674 13 0089 5000 0031 4586
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05/25/2022 Mailed from 01566


PRIORITY MAIL 2-DAY™

Expected Delivery Date: 05/27/22
 Ref#: DS-806352
0006

R013

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

USPS TRACKING #



9405 5036 9930 0257 6674 13

Electronic Rate Approved #038555749



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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0257 6674 13

Trans. #: 564256756	Priority Mail® Postage: \$8.95
Print Date: 05/25/2022	Total: \$8.95
Ship Date: 05/25/2022	
Expected Delivery Date: 05/27/2022	

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


Ref#: DS-806352

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

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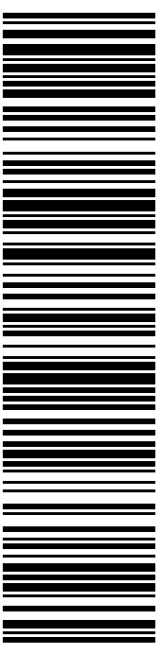
Expected Delivery Date: 05/27/22
 Ref#: DS-806352
0006

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

C014

SHIP TO: MONICA MCNALLY
 FIRST SELECTMAN
 2 RENSRAW RD
 DARIEN CT 06820-5344

USPS TRACKING #



9405 5036 9930 0257 6674 20

Electronic Rate Approved #038555749

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0257 6674 20


Trans. #: 564256756	Priority Mail® Postage: \$8.95
Print Date: 05/25/2022	Total: \$8.95
Ship Date: 05/25/2022	
Expected Delivery Date: 05/27/2022	


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

Ref#: DS-806352

To: MONICA MCNALLY
 FIRST SELECTMAN
 2 RENSRAW RD
 DARIEN CT 06820-5344

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US POSTAGE
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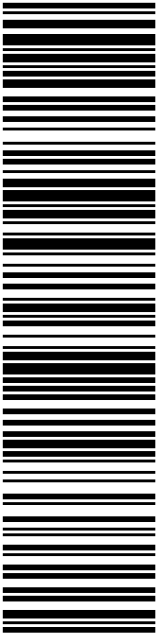
05/25/2022 Mailed from 01566

PRIORITY MAIL 2-DAY™

Expected Delivery Date: 05/27/22
 Ref#: DS-806352
0006

SHIP TO: JEREMY GINSBURG
 TOWN PLANNER
 2 RENSRAW RD
 DARIEN CT 06820-5344

USPS TRACKING #



9405 5036 9930 0257 6674 37

Electronic Rate Approved #038555749



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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0257 6674 37

Trans. #: 564256756	Priority Mail® Postage: \$8.95
Print Date: 05/25/2022	Total: \$8.95
Ship Date: 05/25/2022	
Expected Delivery Date: 05/27/2022	

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

Ref#: DS-806352

To: JEREMY GINSBURG
 TOWN PLANNER
 2 RENSRAW RD
 DARIEN CT 06820-5344

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806352
Crown Dish



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

05/25/2022 04:46 PM

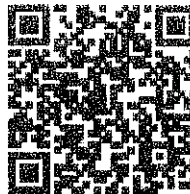
Product	Qty	Unit Price	Price
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Prepaid Mail Darien, CT 06820 Weight: 0 lb 9.70 oz Acceptance Date: Wed 05/25/2022 Tracking #: 9405 5036 9930 0257 6674 20	1		\$0.00
Grand Total:			\$0.00

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Clerk: 09