NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

April 28, 2022

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

RE: Tower Share Application
24 Dinglebrook Lane, Newtown, CT 06470
Latitude: 41.466947
Longitude: -73.333902
Site #: 857525_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 24 Dinglebrook Lane, Newtown, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 119-foot level of the existing 150-foot monopole tower, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within a 7' x 5' lease area within the existing compound. Included are plans by Kimley Horn, dated December 3, 2021, Exhibit C. Also included is a structural analysis prepared by Crown Castle, dated September 27, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. The facility was originally approved by the Connecticut Siting Council, Docket No. 376 on August 27, 2009, please see attached.

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 Daniel Rosenthal, First Selectman and George Benson, Director of Planning for the Town of Newtown, as well as the tower owner (Crown Castle) and property owner (Genesis TT LLC).

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the existing tower is 150-feet and the Dish Wireless LLC antennas will be located at a center line height of 119-feet.

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

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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 8.86% 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 Newtown. 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 119-foot level of the existing 150-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 Newtown.

Sincerely,

Denise Sabo

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

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Attachments

Cc: Daniel Rosenthal, First Selectman
Newtown Municipal Center
3 Primrose Street
Newtown, CT 06470

George Benson, Director of Planning
Newtown Municipal Center
3 Primrose Street
Newtown, CT 06470

Genesis TT LLC, Property Owner
C/O Tarpon Towers II, LLC
8916 77th Terrace East, #103
Lakewood Ranch, FL 34202

Crown Castle, Tower Owner

Exhibit A

Original Facility Approval

DOCKET NO. 376 - New Cingular Wireless PCS, LLC (AT&T) application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility located at 24 Dinglebrook Lane, Newtown, Connecticut.	}	Connecticut Siting Council August 27, 2009

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 telecommunications facility, 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 General Statutes § 16-50k, be issued to New Cingular Wireless PCS, LLC (AT&T), hereinafter referred to as the Certificate Holder, for a telecommunications facility located at 24 Dinglebrook Lane, Newtown, 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 tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of the Certificate Holder and other entities, both public and private, but such tower shall not exceed a height of 150 feet above ground level. The height at the top of the Certificate Holder's antennas shall not exceed 152-foot 6-inches feet above ground level.

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 Connecticut State Agencies. The D&M Plan shall be served on the Town of Newtown for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
    a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road including its possible relocation, utility line, and landscaping; and
    b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

4. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

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. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of Newtown public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.

7. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline.

8. Not later than 45 days after the installation of the monopole, at least one carrier's antennas shall be installed on the tower.

9. Any request for extension of the time period referred to in Condition 7 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Newtown. Any proposed modifications to this Decision and Order shall likewise be so served.

10. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

11. The Certificate Holder shall remove any nonfunctioning antenna, and associated antenna mounting equipment, within 60 days of the date the antenna ceased to function.

12. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction and the commencement of site operation.

Pursuant to General Statutes § 16-50p, the Council hereby directs 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 Newtown Bee.

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 Connecticut State Agencies.

The parties and intervenors to this proceeding are:

Applicant	**Its Representative**
New Cingular Wireless PCS, LLC (AT&T)	Christopher B. Fisher, Esq. Cuddy & Feder LLP 445 Hamilton Avenue, 14th Floor White Plains, NY 10601 AT&T 500 Enterprise Drive Rocky Hill, CT 06067 Attention: Michele Briggs
Intervenor	**Its Representative**
Cellco Partnership d/b/a Verizon Wireless	Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103-3597

Exhibit B

Property Card

24 DINGLEBROOK LANE

Location	24 DINGLEBROOK LANE	**M/B/L**	22/ 3/ 4/C /
Acct#	00174600C	**Owner**	GENESIS TT LLC
Assessment	$329,410	**Appraisal**	$470,580
PID	15217	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$110,580	$360,000	$470,580
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$77,410	$252,000	$329,410

Owner of Record

Owner	GENESIS TT LLC
Co-Owner	C/O TARPON TOWERS II, LLC
Address	8916 77TH TERRACE EAST #103 LAKEWOOD RANCH, FL 34202

Sale Price	$620,000
Book & Page	1120/ 239
Sale Date	12/05/2018
Instrument	38

Ownership History

Ownership History				
Owner	**Sale Price**	**Book & Page**	**Instrument**	**Sale Date**
GENESIS TT LLC	$620,000	1120/ 239	38	12/05/2018
LINDA LUNDGREN LIFE USE	$0	1112/ 725	34	06/04/2018
LUNDGREN PAUL R EST	$0	0857/0723		12/25/2009

Building Information

Building 1 : Section 1

Year Built:

Living Area: 0

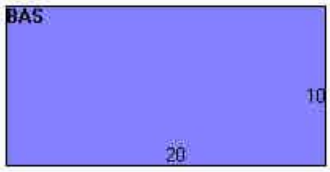
Building Attributes	
Field	**Description**

Style	Outbuildings
Model	
Grade:	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Full Bthrms:	
Half Baths:	
Extra Fixtures	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Extra Kitchens	
Fireplace(s)	
Extra Opening(s)	
Gas Fireplace(s)	
Blocked FPL(s)	
Woodstove(s)	
SF Fin Bsmt	
Fin Bsmt Qual	
Bsmt Garage	
Int Millwork	
Ext. Millwork	
Foundation	
MH Park	

Building Photo

(https://images.vgsi.com/photos/NewtownCTPhotos//\00\02\10/13.jpg)

Building Layout



(https://images.vgsi.com/photos/NewtownCTPhotos//Sketches/15217_205

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend

No Data for Extra Features

Land

Land Use

Use Code	4310
Description	CELL SITE
Zone	R-2
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0
Frontage	
Depth	
Assessed Value	$252,000
Appraised Value	$360,000

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
CELL	Cell Tower			1 Units	$96,000	1
SHD4	Cellular Shed			400 S.F.	$7,200	1
SHD4	Cellular Shed			360 S.F.	$6,480	1
FN1	Fence			250 L.F.	$900	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$110,580	$360,000	$470,580
2019	$110,580	$360,000	$470,580
2018	$110,580	$360,000	$470,580

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$77,410	$252,000	$329,410
2019	$77,410	$252,000	$329,410
2018	$77,410	$252,000	$329,410

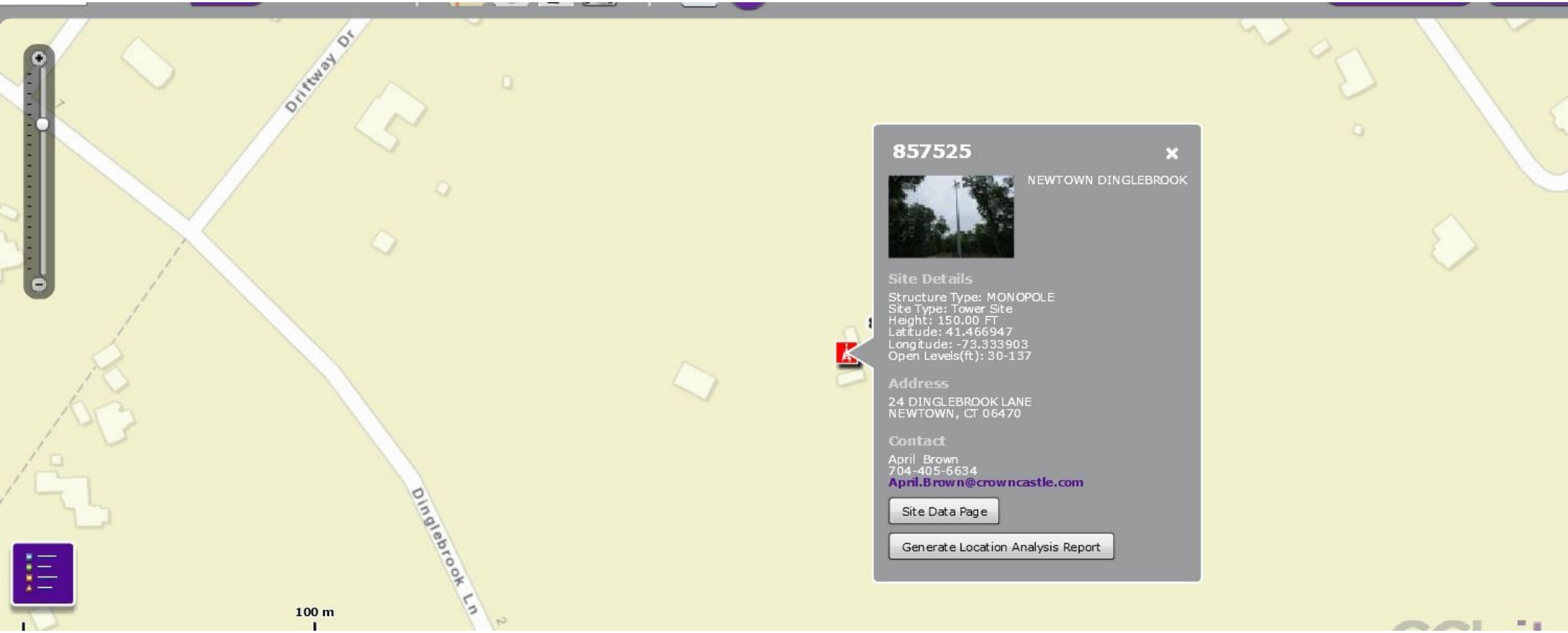

Driftway Dr
Dinglebrook Ln
857525
NEWTOWN DINGLEBROOK
Site Details
Structure Type: MONOPOLE
Site Type: Tower Site
Height: 150.00 FT
Latitude: 41.466947
Longitude: -73.333903
Open Levels(ft): 30-137
Address
24 DINGLEBROOK LANE
NEWTOWN, CT 06470
Contact
April Brown
704-405-6634
April.Brown@crowncastle.com
Site Data Page
Generate Location Analysis Report
100 m

Exhibit C

Construction Drawings

DISH Wireless L.L.C. SITE ID:

NJJER01095A

DISH Wireless L.L.C. SITE ADDRESS:

24 DINGLEBROOK LANE
NEWTON, CT 06470

CONNECTICUT CODE OF COMPLIANCE

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

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

SHEET INDEX

SCOPE OF WORK

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

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

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED METAL PLATFORM
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
- INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)
- DISH WIRELESS L.L.C. TO UTILIZE EXISTING EMPTY METER SOCKET

SITE PHOTO

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

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

GENERAL NOTES

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

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

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

SITE INFORMATION

PROPERTY OWNER:	DE MAGALHAES VINICIUS T
ADDRESS:	24 DINGLEBROOK LANE NEWTON, CT 06470
TOWER TYPE:	MONOPOLE
CROWN CASTLE SITE ID:	857525
CROWN CASTLE APP NUMBER:	548691
COUNTY:	FAIRFIELD
LATITUDE (NAD 83):	41° 28' 1.01" N 41.466947° N
LONGITUDE (NAD 83):	73° 20' 2.05" W 73.333903° W
ZONING JURISDICTION:	CONNECTICUT SITTING COUNCIL
ZONING DISTRICT:	R-2
PARCEL NUMBER:	22-3-4
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	NORTHEAST UTILITIES
TELEPHONE COMPANY:	ATT

PROJECT DIRECTORY

APPLICANT:	DISH WIRELESS, LLC. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317 (877) 486-9377
SITE DESIGNER:	KIMLEY-HORN & ASSOCIATES 3875 EMBASSY PKWY, SUITE 280 AKRON, OH 44333 (216) 505-7771 COA #: PEC.0000738
SITE ACQUISITION:	VICTOR NUNEZ VICTOR.NUNEZ@CROWNCASTLE.COM
CONSTRUCTION MANAGER:	JOSEPH DIPIAZZA JOSEPH.DIPIAZZA@DISH.COM
RF ENGINEER:	MURUGABIRAN JAYAPAL MURUGABIRAN.JAYAPAL@DISH.COM

DIRECTIONS

DIRECTIONS FROM 3 ADP BOULEVARD, ROSELAND, NJ 07068:

x GET ON I-280 W FROM LIVINGSTON AVE
x TAKE I-287 N, I-684 N AND I-84 E TO CT-25 N IN NEWTOWN. TAKE EXIT 9 FROM I-84 E
x CONTINUE ON CT-25 N. TAKE POND BROOK RD TO DINGLEBROOK LN

12/03/21
Exp. 01/31/22

VICINITY MAP

NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN K. BREWER
29510
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
XQD	MCK	MCK

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/28/2021	ISSUED FOR REVIEW
0	11/30/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE-16295

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01095A
24 DINGLEBROOK LANE
NEWTON, CT 06470

SHEET TITLE

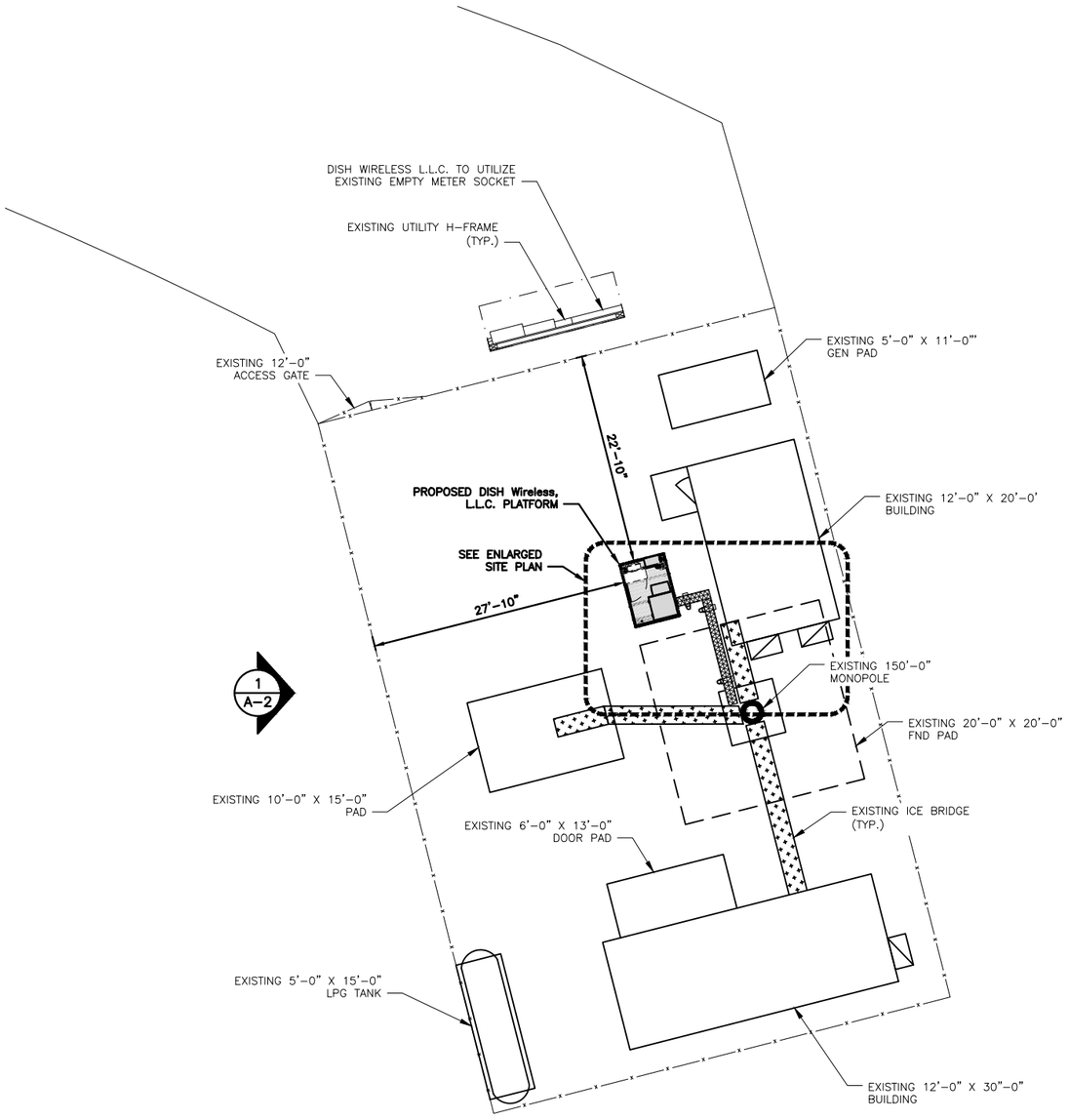
TITLE SHEET

SHEET NUMBER

T-1

NOTES

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

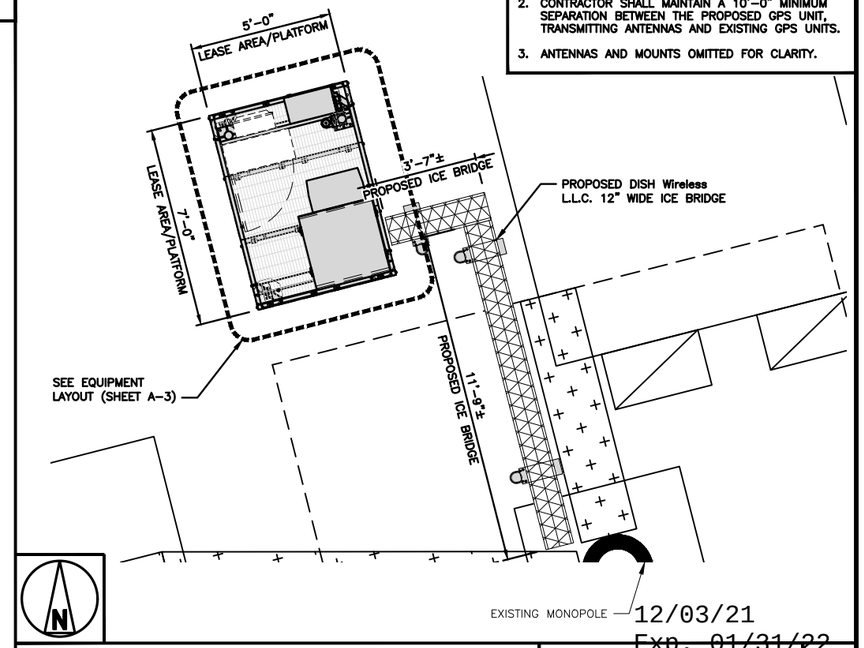


N

OVERALL SITE PLAN | 6' 4' 2' 0 5' 10' 3/16"=1'-0" | 1

NOTES

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



N

ENLARGED SITE PLAN | 12" 6" 0 1' 2' 3' 4' 5' 6' 7' 3/8"=1'-0" | 2

OVERALL UTILITY ROUTE PLAN | NO SCALE | 3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN C. BREWER
29510
LICENSED PROFESSIONAL ENGINEER

12/03/21
Exp. 01/31/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
XQD	MCK	MCK

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/28/2021	ISSUED FOR REVIEW
0	11/30/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE-16295

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01095A
24 DINGLEBROOK LANE
NEWTON, CT 06470

SHEET TITLE

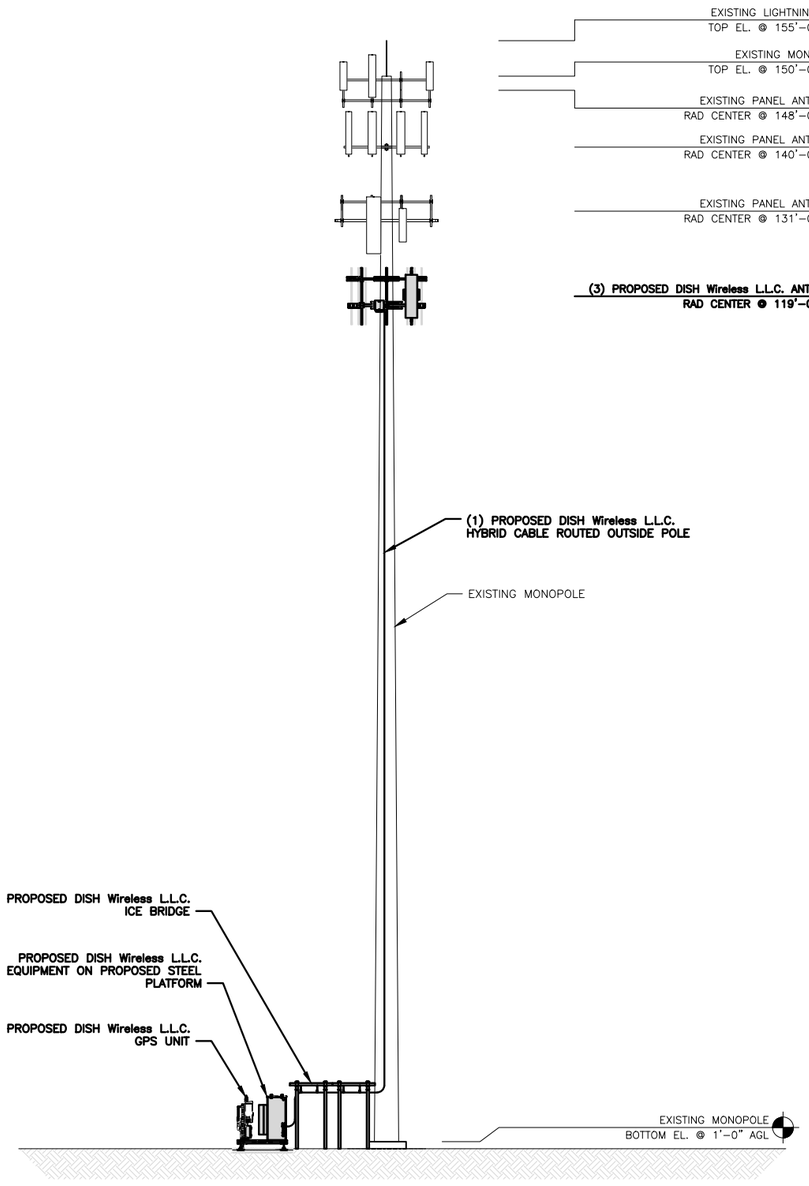
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

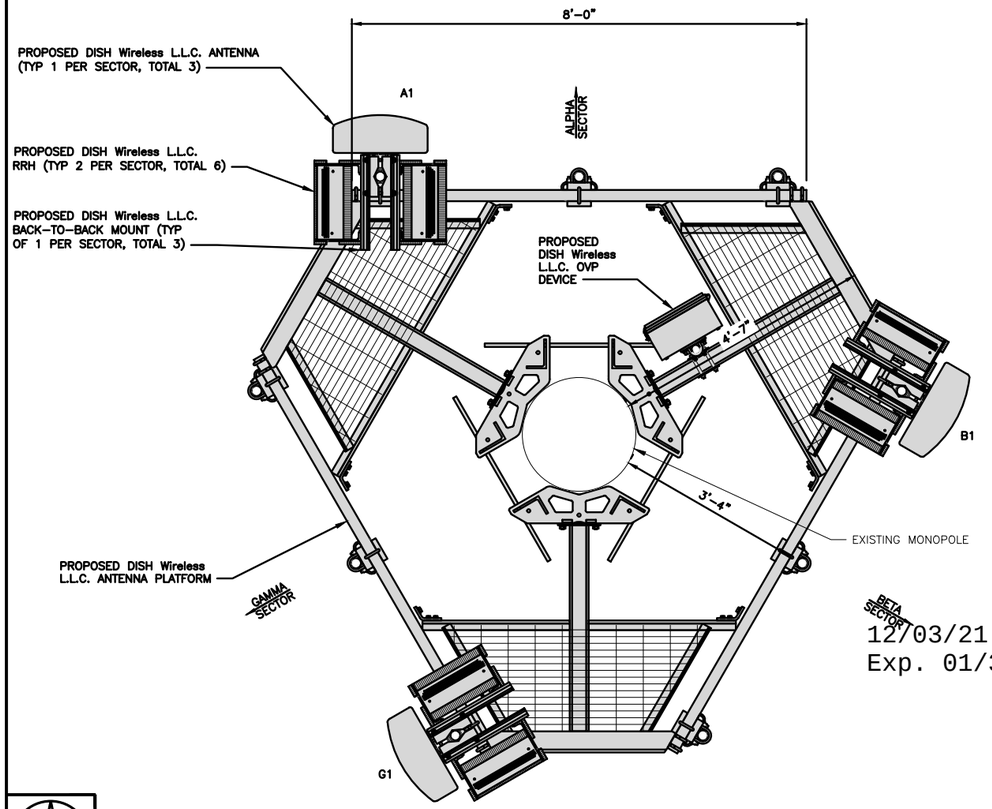
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED WEST ELEVATION

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

1



ANTENNA LAYOUT

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

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	0°	119'-0"	(1) HIGH-CAPACITY HYBRID CABLE (160'-0" LONG)
BETA	B1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	120°	119'-0"	
GAMMA	G1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	240°	119'-0"	

SECTOR	POSITION	OVP			
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)
ALPHA	A1	PROPOSED	RAYCAP – RDIDC-9181-PF-48	5G	18.98" x 14.39" x 8.15"

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

NOTES

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

ANTENNA SCHEDULE

NO SCALE

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN BREWER
29510
LICENSED PROFESSIONAL ENGINEER

12/03/21
Exp. 01/31/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
XQD	MCK	MCK

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/28/2021	ISSUED FOR REVIEW
0	11/30/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE-16295

DISH Wireless L.L.C.
PROJECT INFORMATION

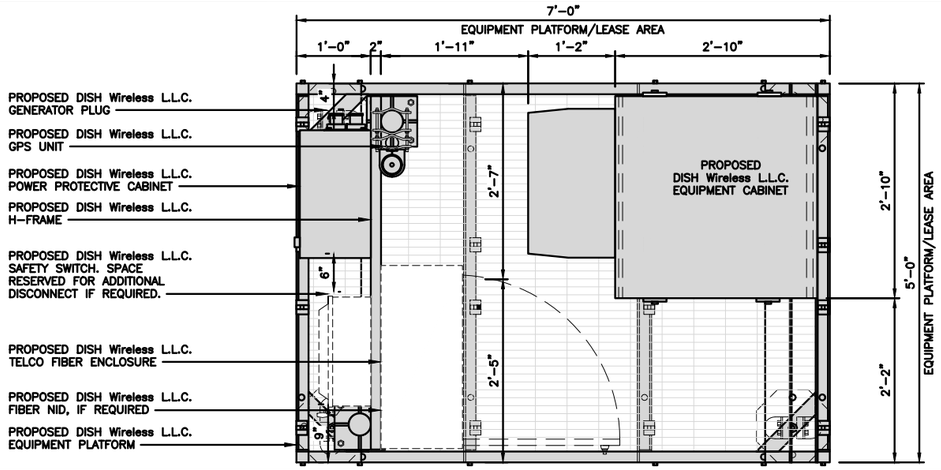
NJJER01095A
24 DINGLEBROOK LANE
NEWTON, CT 06470

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



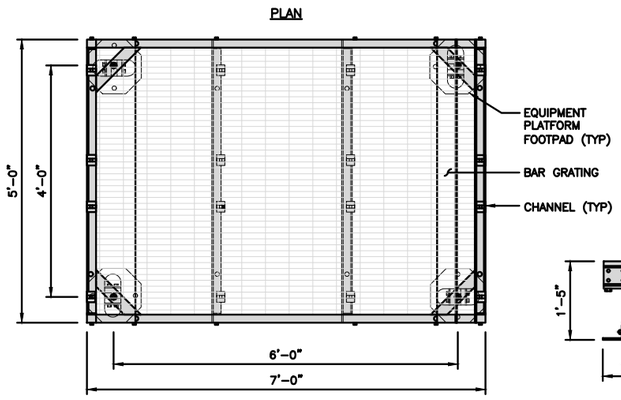
PLATFORM EQUIPMENT PLAN

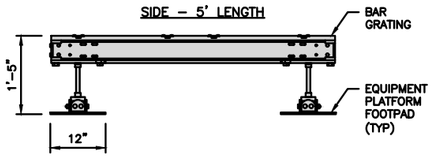
12" 9" 6" 3" 0 1' 2'
1"=1'-0"

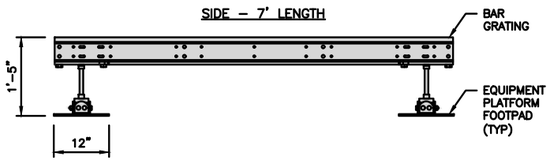
1

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

NOTE:
1. GC TO PROVIDE EXTENDED THREAD FOR PLATFORM IF REQUIRED HEIGHT EXCEEDS 17"
2. PLATFORM TO BE LEVEL WITHIN 1"





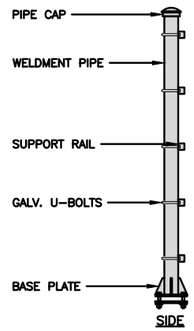


PLATFORM DETAIL

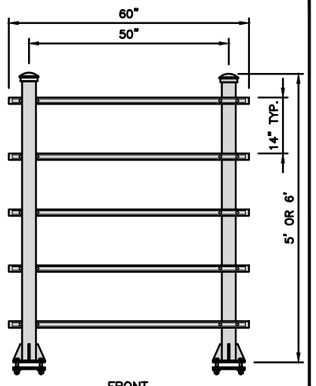
NO SCALE

2

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



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



H-FRAME DETAIL

NO SCALE

3

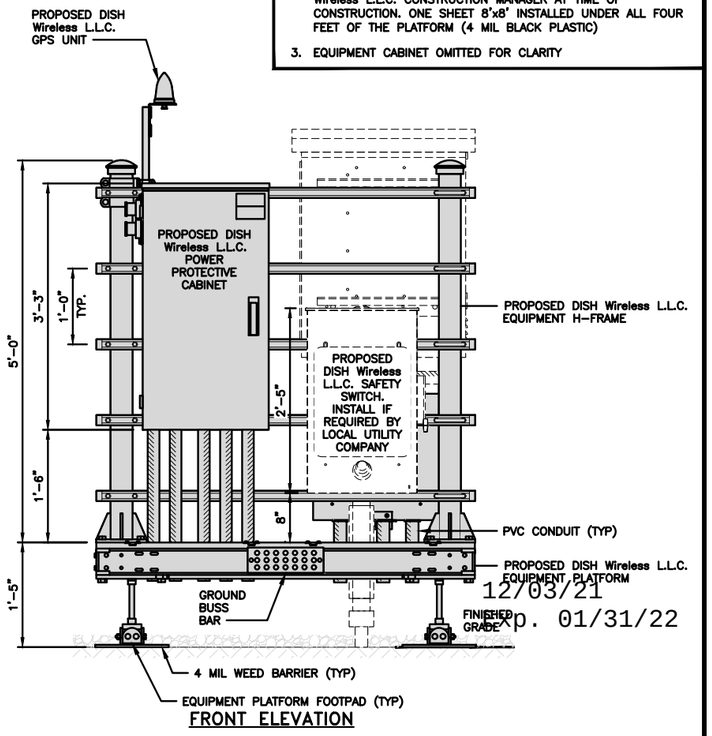
NOT USED

NO SCALE

4

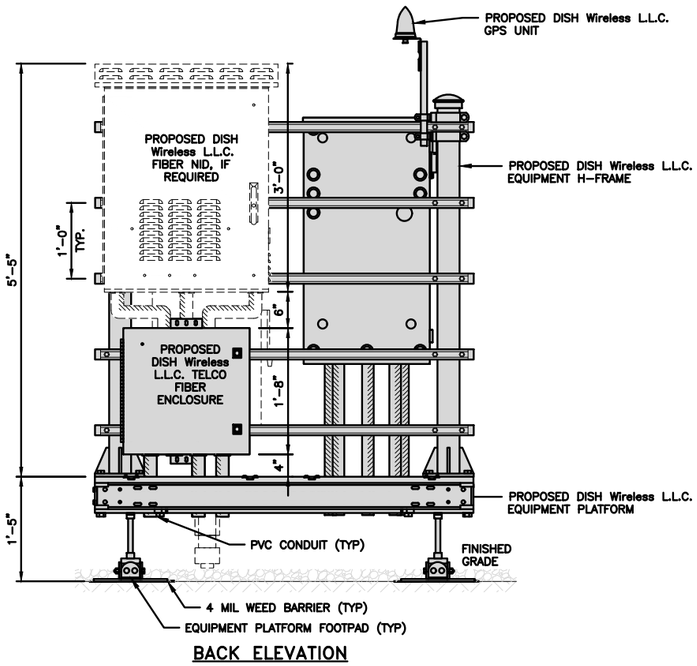
NOTES

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



FRONT ELEVATION

12/03/21
Exp. 01/31/22



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION

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

5

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

Kimley»Horn
COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN K. BREWER
29510
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
XQD	MCK	MCK

RFDS REV #: ---

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PROJECT INFORMATION
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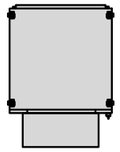
24 DINGLEBROOK LANE
NEWTON, CT 06470

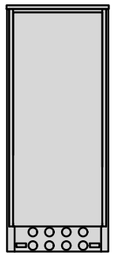
SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

ENERSYS HEX 20000059996	
DIMENSIONS (HxWxD)	73"x30"x32"
POWER SYSTEM	-48V ALPHA/600A
HEATER	800W
TOTAL WEIGHT (EMPTY)	376 lbs



PLAN



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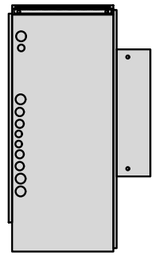
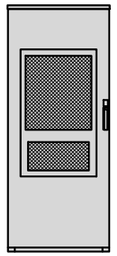


SIDE

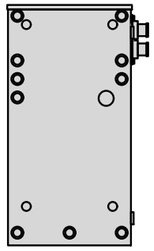


FRONT

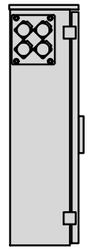
CABINET DETAIL | NO SCALE | 1

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

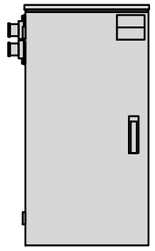
TOP



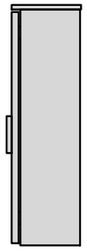
BACK



SIDE



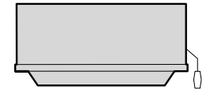
FRONT



SIDE

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

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



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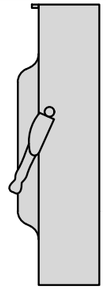
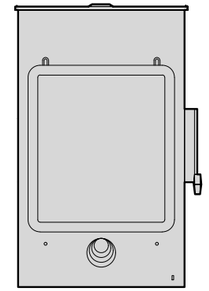


SIDE



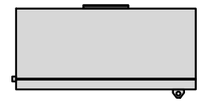
FRONT

SAFETY SWITCH DETAIL | NO SCALE | 3

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

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



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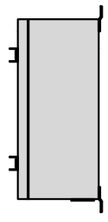
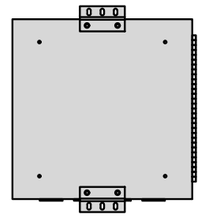


SIDE



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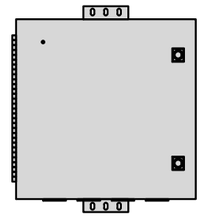
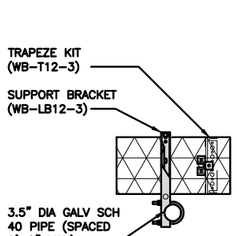


FRONT

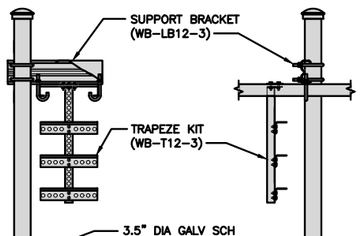
FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

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

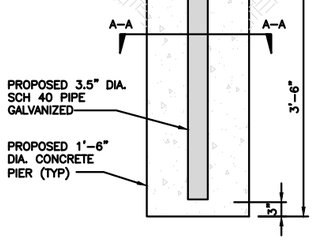
INCLUDED PRODUCTS:	WB-T12-3 TRAPEZE KIT, 3 RUNGS
	WB-LB12-3 SUPPORT BRACKET
	MF-130 DIRECT BURIAL PIPE COLUMN, 13'-4"



PLAN



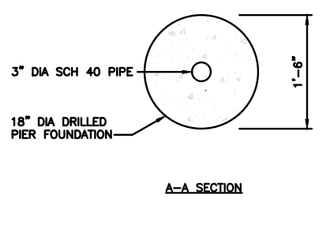
FRONT



SIDE

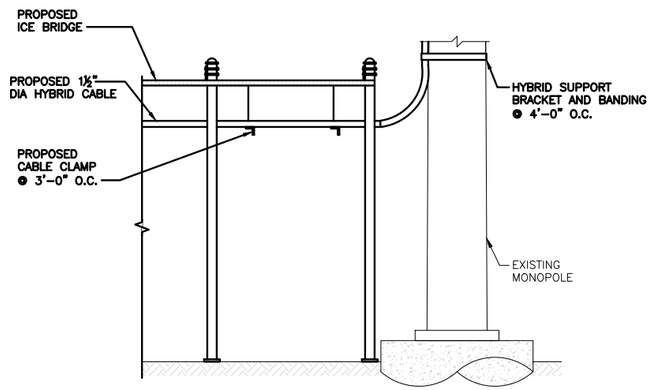
ICE BRIDGE DETAIL | NO SCALE | 7

CONCRETE PIER



A-A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

DISH Wireless L.L.C. TEMPLATE VERSION 43 - 09/17/2021

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

12/03/21
Exp. 01/31/22

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NJJER01095A
24 DINGLEBROOK LANE
NEWTON, CT 06470

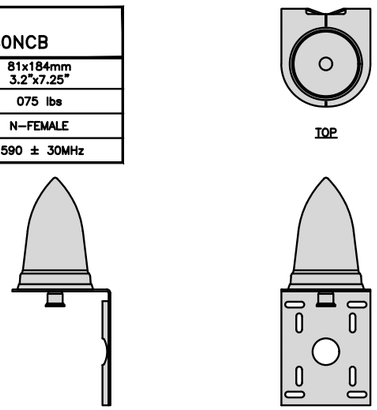
SHEET TITLE

EQUIPMENT DETAILS

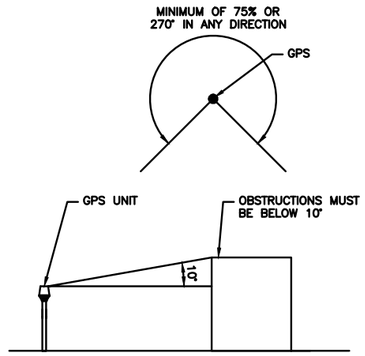
SHEET NUMBER

A-4

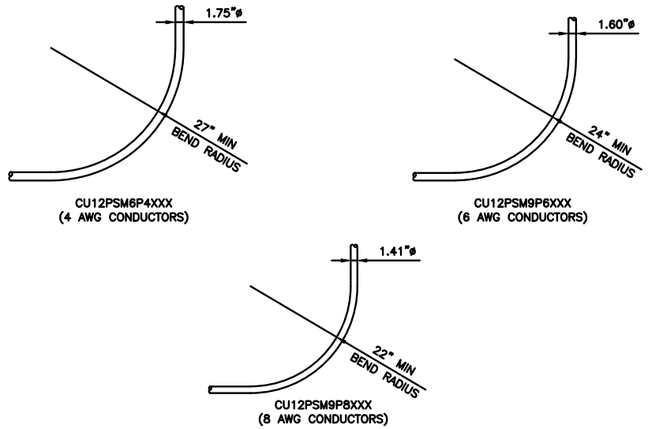
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



GPS DETAIL | NO SCALE | 1



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 2



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

12/03/21
Exp. 01/31/22

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.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
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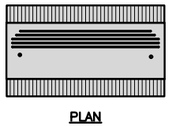
SHEET TITLE

EQUIPMENT DETAILS

SHEET NUMBER

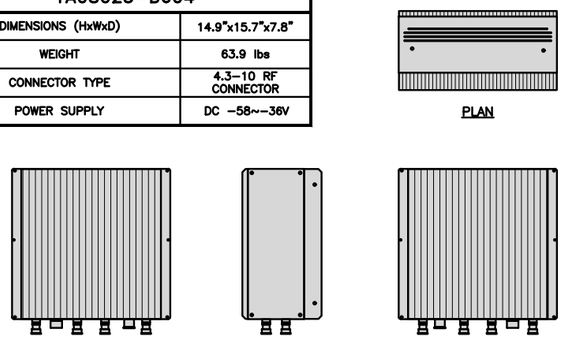
A-5

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



RRH DETAIL | NO SCALE | 1

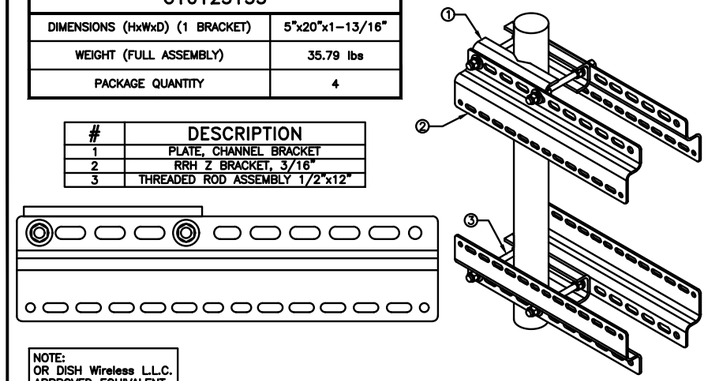
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



RRH DETAIL | NO SCALE | 2

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

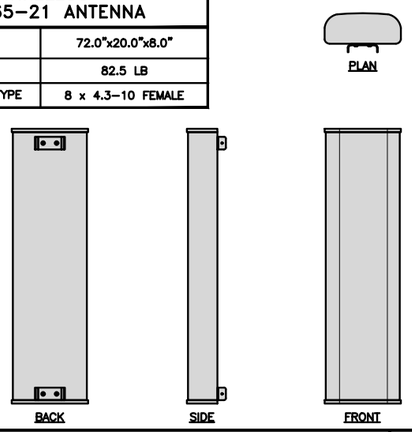
#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"



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

RRH MOUNT DETAIL | NO SCALE | 3

JMA WIRELESS MX08FRO665-21 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	82.5 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE



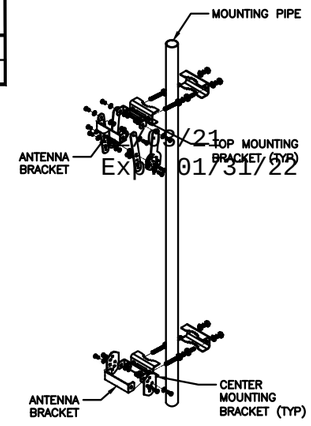
ANTENNA DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

JMA ANTENNA MOUNTING BRACKET #91900318	
TOTAL WEIGHT (WITH BRACKETS)	18 lbs (8.18 Kg)
POLE DIAMETER RANGE	2.5 TO 4.5 INCHES

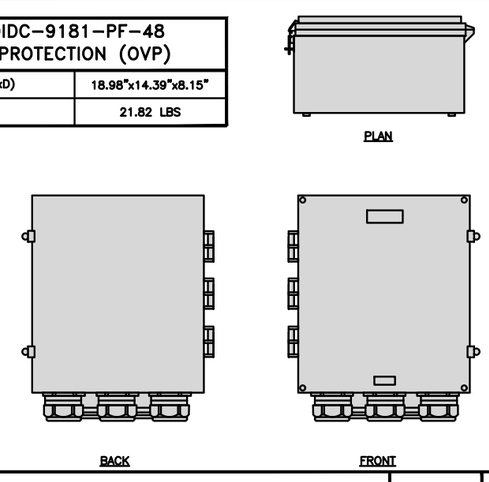
NOTE:
KIT #91900318: TOP AND BOTTOM BRACKETS FOR 4-,6-, AND 8-FOOT ANTENNAS

ANTENNA BRACKET NOT PART OF KIT



ANTENNA BRACKET DETAIL | NO SCALE | 6

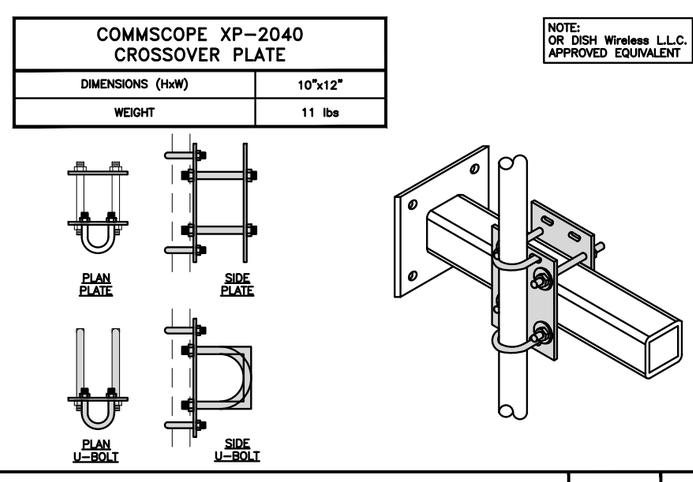
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

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

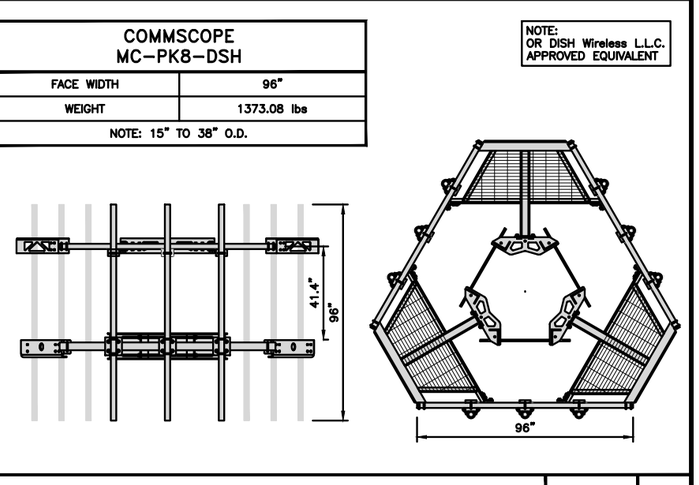
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT



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



ANTENNA PLATFORM DETAIL | NO SCALE | 9

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

Kimley»Horn
COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN J. BREWER
29510
LICENSED PROFESSIONAL ENGINEER
11/18/21
Exp. 01/31/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
XQD	MCK	MCK

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/28/2021	ISSUED FOR REVIEW
0	11/30/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
KHCLE-16295

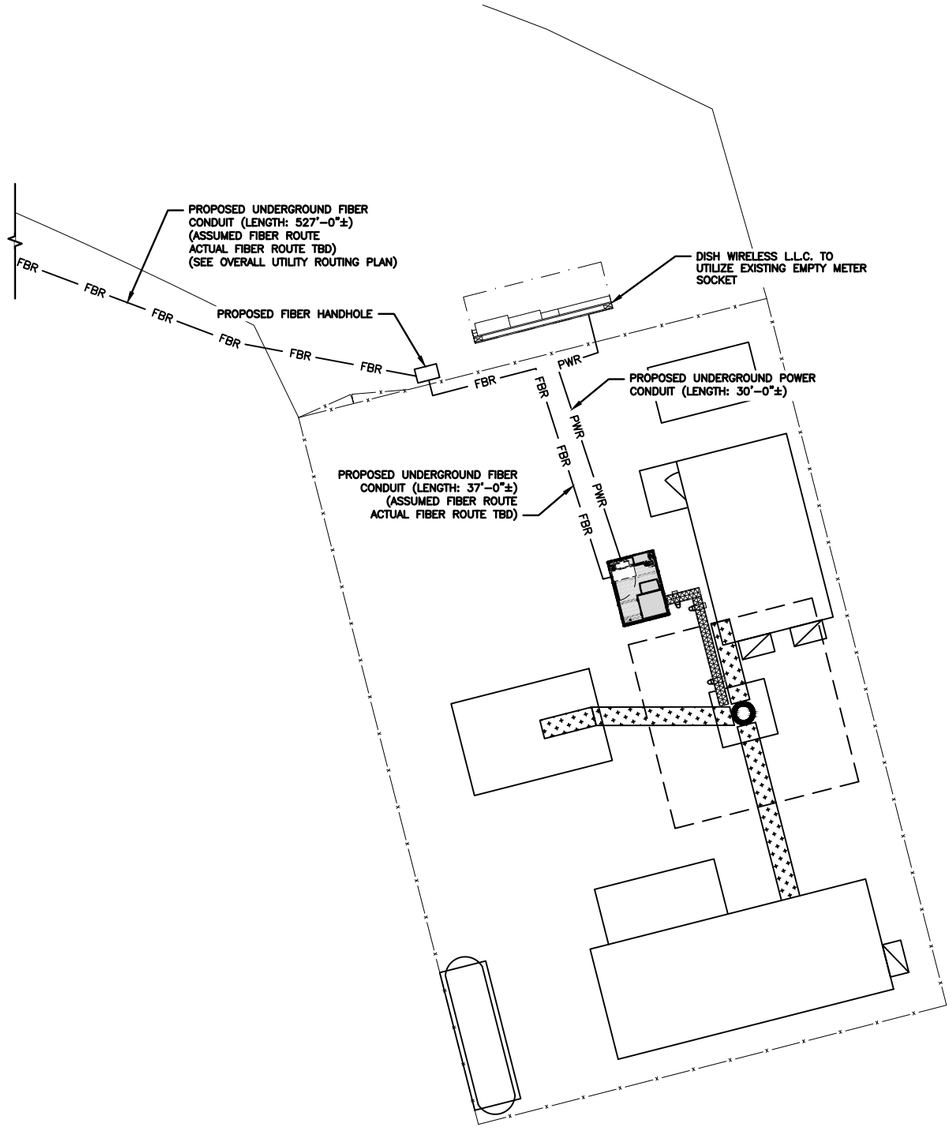
DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER01095A
24 DINGLEBROOK LANE
NEWTON, CT 06470

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. THE GROUND LEASE PROVIDES BROAD/BLANKET UTILITY RIGHTS. "PWR" AND "FBR" PATH DEPICTED ON A–1 AND E–1 ARE BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO 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 NOT AN OPTION, PLEASE NOTIFY TOWER OWNER AS FURTHER COORDINATION MAY BE NEEDED.



N

UTILITY ROUTE PLAN

8' 4' 0 8' 16'
1/8"=1'–0"

1

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

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

12/03/21
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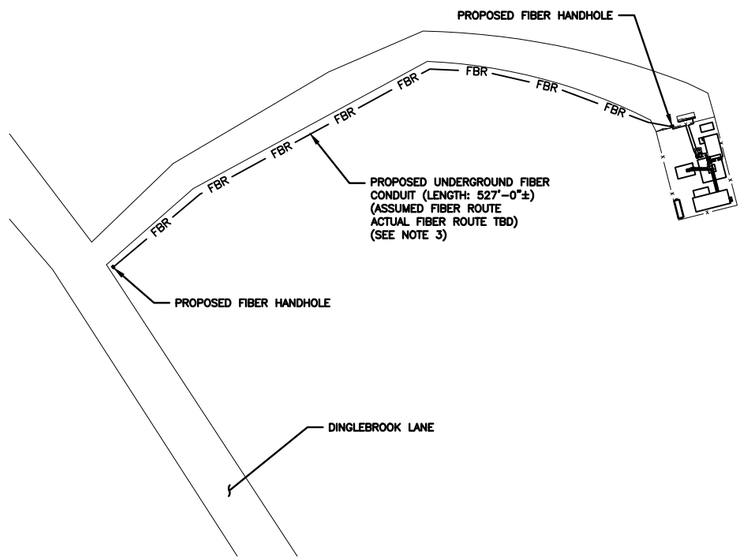
ELECTRICAL NOTES

NO SCALE

2



OVERALL UTILITY ROUTE PLAN

64' 32' 0 64' 128'
1/64"=1'–0"

3

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5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

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NEWTON, CT 06470

SHEET TITLE

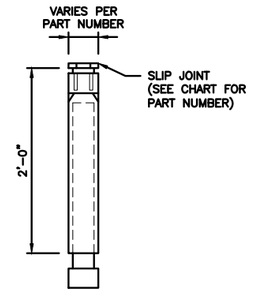
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER

E-1

CARLON EXPANSION FITTINGS

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

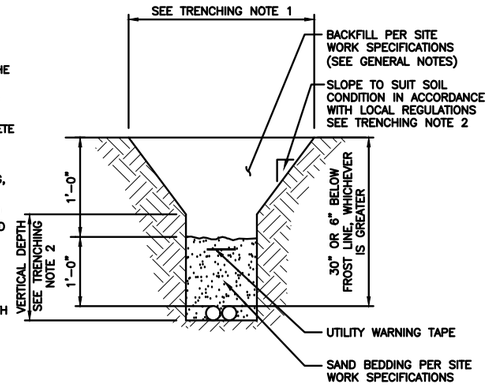


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

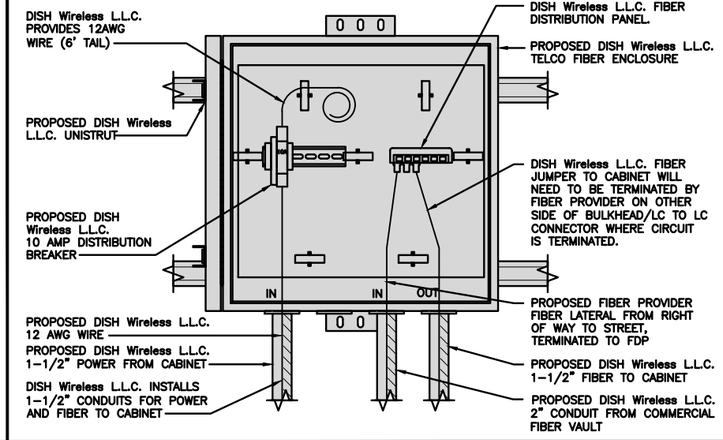
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

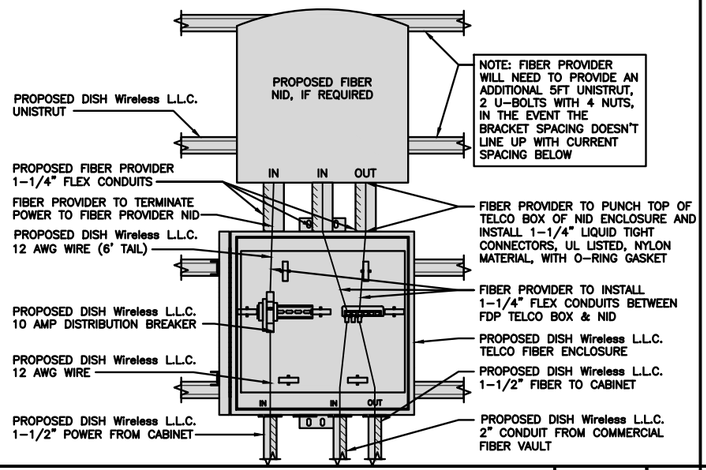
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT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



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2



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



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

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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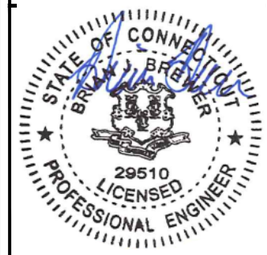

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PROJECT INFORMATION
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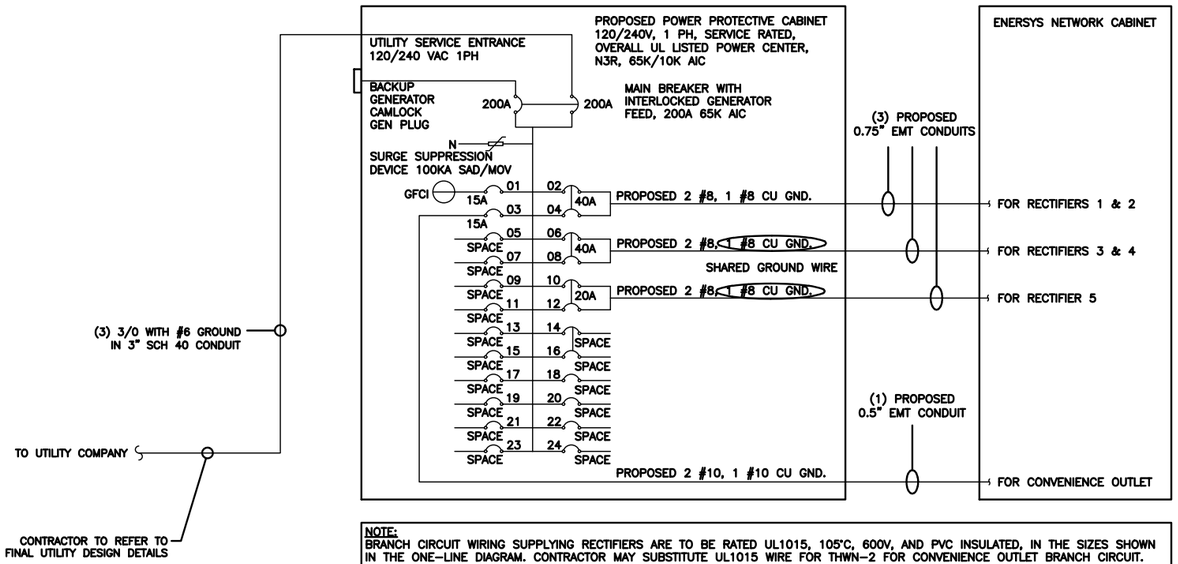
NEWTON, CT 06470

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2



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

BREAKERS REQUIRED:
(2) 40A, 2P BREAKER – SQUARE D P/N:QO240
(1) 20A, 2P BREAKER – SQUARE D P/N:QO220
(1) 20A, 1P BREAKER – SQUARE D P/N:QO120

NOTES

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED SHORT CIRCUIT CALCULATIONS AND THE AIC RATINGS FOR EACH DEVICE IS ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED VOLTAGE DROP CALCULATIONS AND ALL BRANCH CIRCUIT AND FEEDERS COMPLY WITH THE NEC (LISTED ON T-1) ARTICLE 210.19(A)(1) FPN NO. 4.

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

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

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

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

RECTIFIER CONDUCTORS (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

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

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

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

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

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PPC ONE-LINE DIAGRAM

NO SCALE | 1

PROPOSED ENERSYS PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	40A	3840		ENERSYS ALPHA CORDEX
ENERSYS GFCI OUTLET		180	15A	3	B	4			3840	RECTIFIERS 1 & 2
-SPACE-				5	A	6	40A	3840		ENERSYS ALPHA CORDEX
-SPACE-				7	B	8			3840	RECTIFIER 3 & 4
-SPACE-				9	A	10	20A	1920		ENERSYS ALPHA CORDEX
-SPACE-				11	B	12			1920	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			
			81				MAX AMPS			
			102				MAX 125%			

PANEL SCHEDULE | NO SCALE | 2

NOT USED | NO SCALE | 3

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DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER01095A
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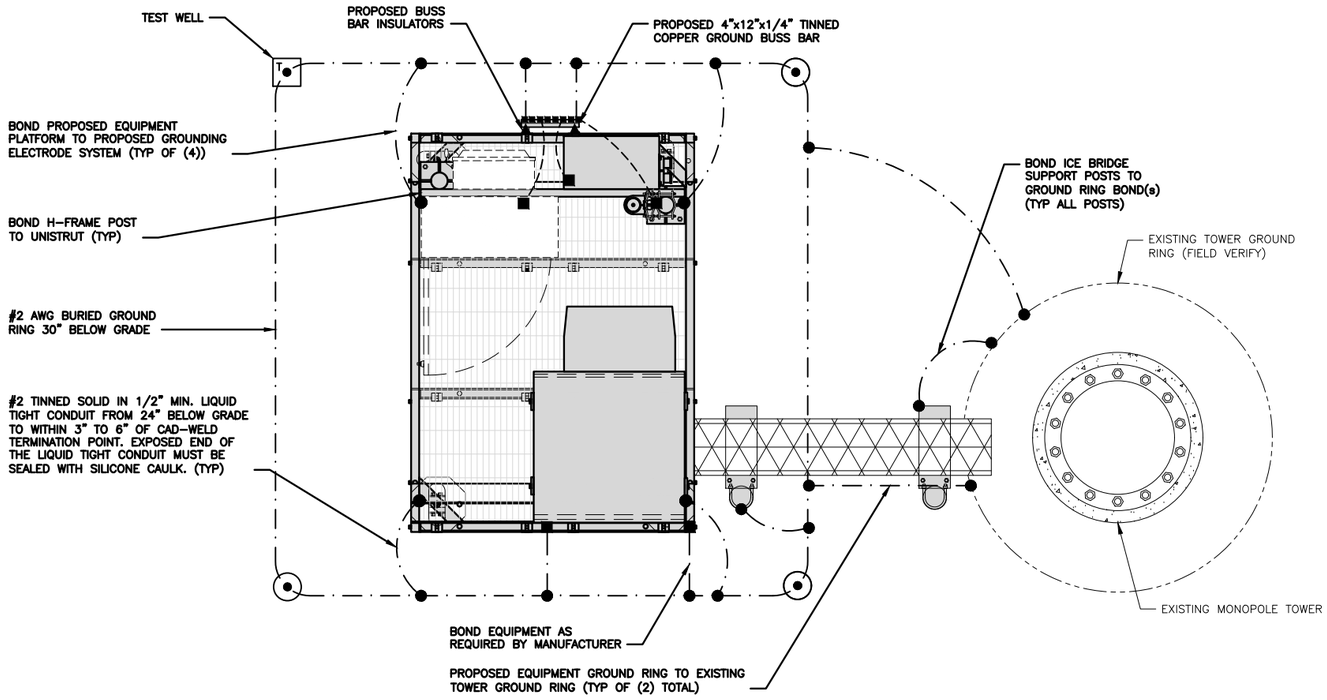
NEWTON, CT 06470

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

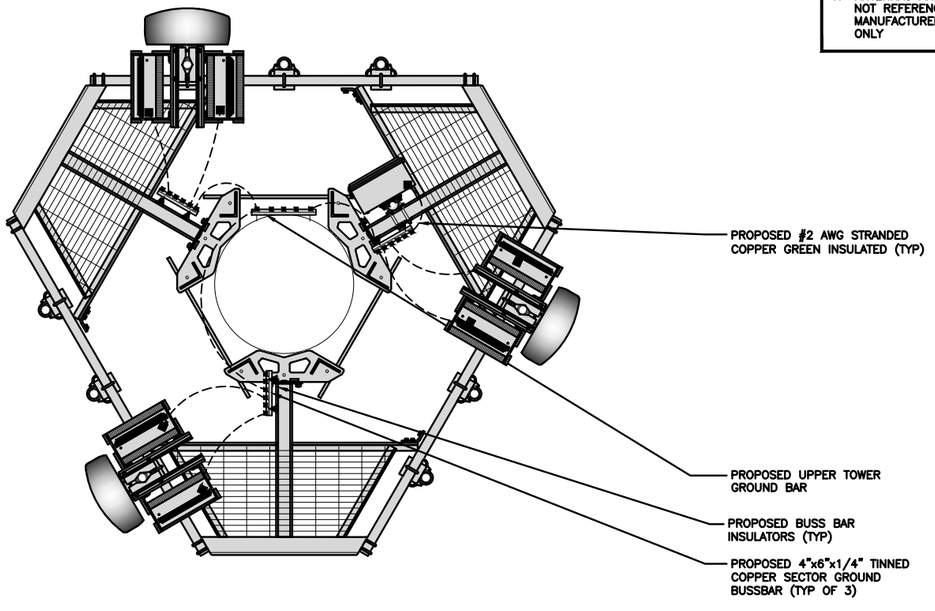
SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN | NO SCALE | 1

NOTES

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



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GROUNDING KEY NOTES | NO SCALE | 3

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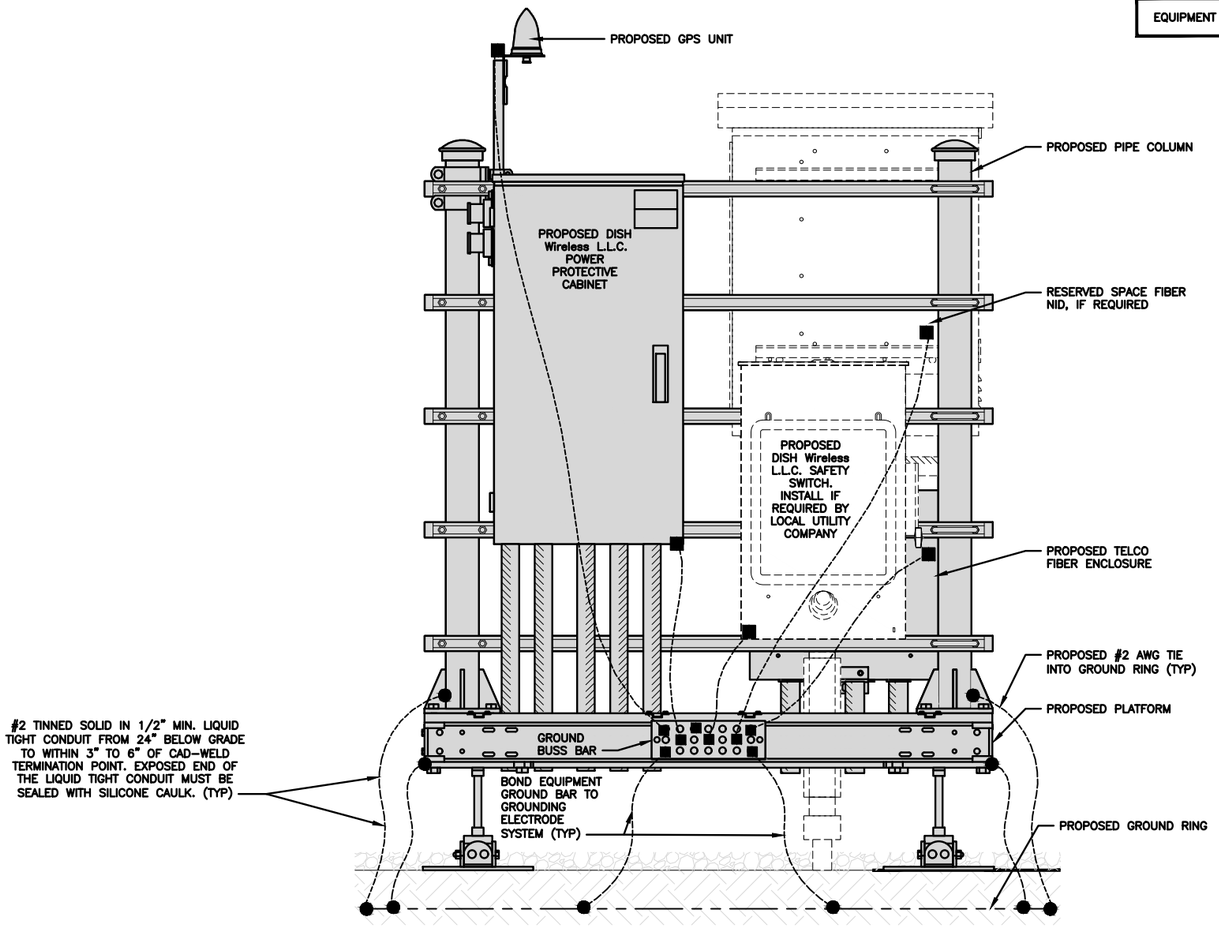
SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

NOTES

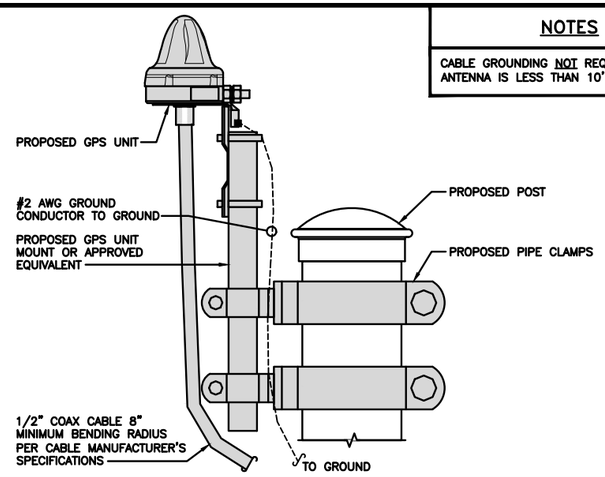
EQUIPMENT CABINET OMITTED FOR CLARITY



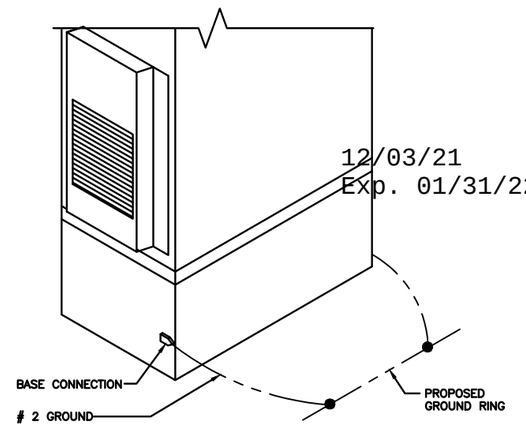
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

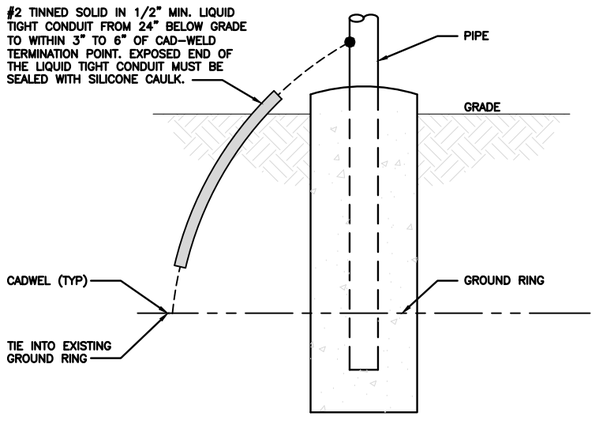
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



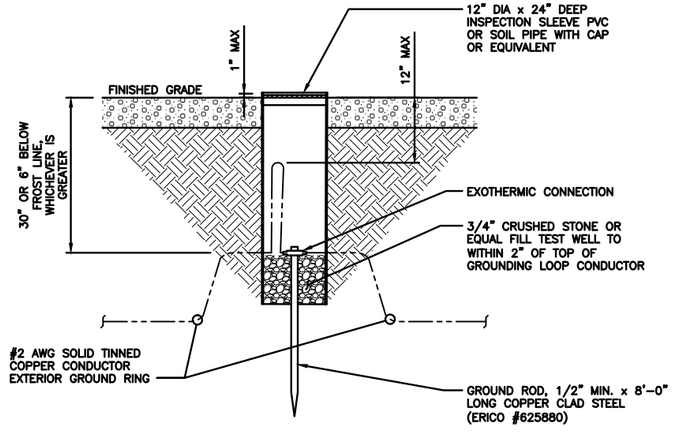
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



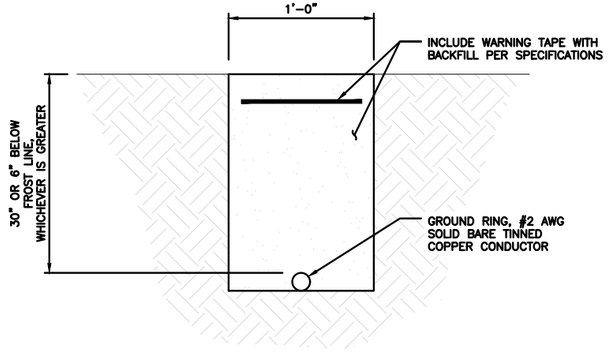
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



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



TYPICAL GROUND RING TRENCH | NO SCALE | 6

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT BRIAN K. BREWER 29510 LICENSED PROFESSIONAL ENGINEER

12/03/21
Exp. 01/31/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
XQD	MCK	MCK

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
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A&E PROJECT NUMBER

KHCLE-16295

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01095A
24 DINGLEBROOK LANE
NEWTON, CT 06470

SHEET TITLE

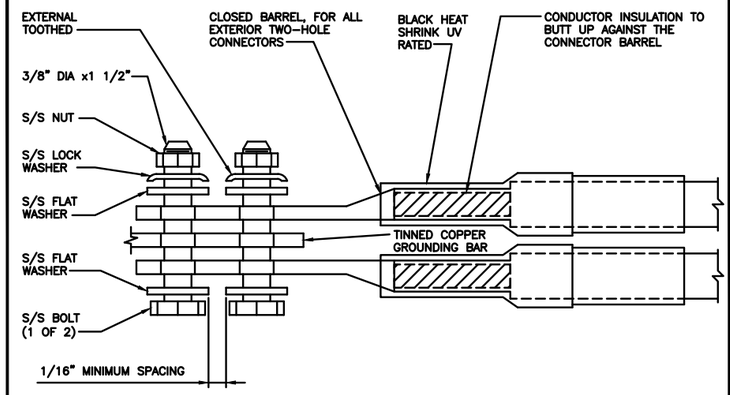
GROUNDING DETAILS

SHEET NUMBER

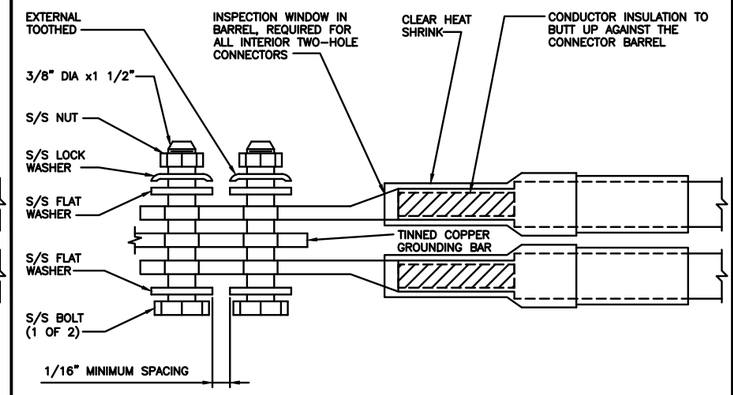
G-2

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

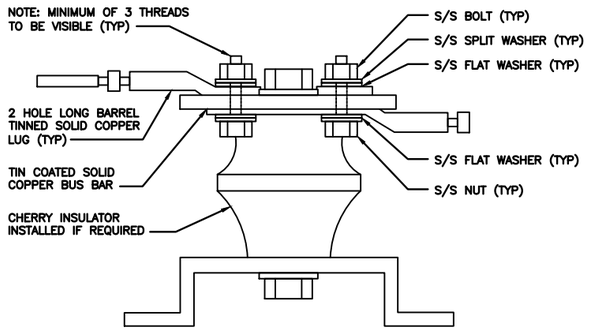
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

12/03/21
Exp. 01/31/22

dish wireless.

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NEWTON, CT 06470

SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

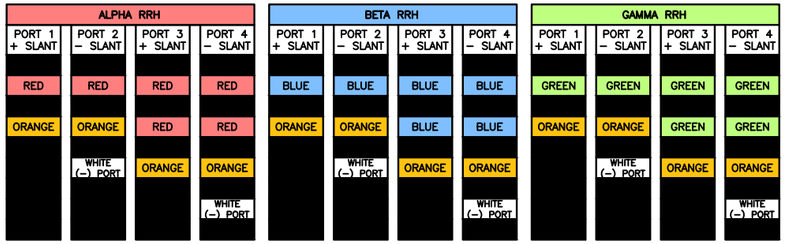
G-3

RF JUMPER COLOR CODING

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

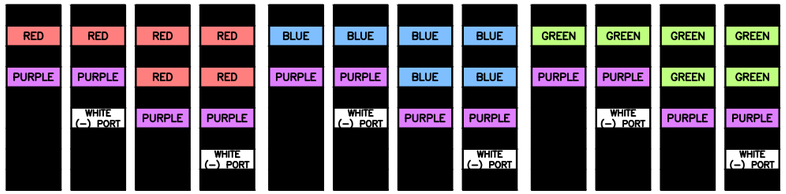
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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



MID-BAND RRH –
(AWS BANDS N66+N70)

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

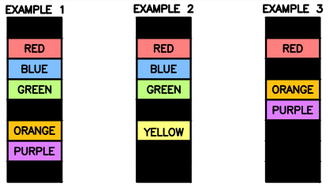


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

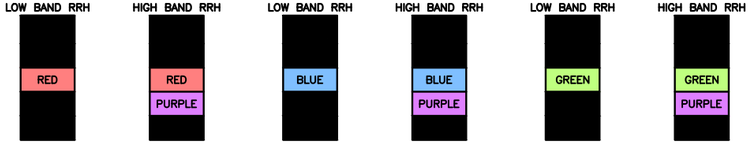
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS
ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

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



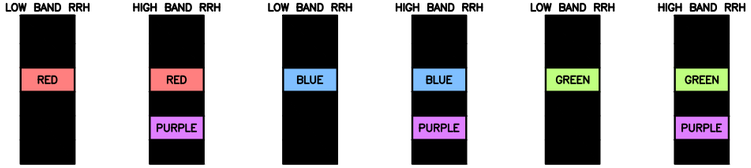
FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

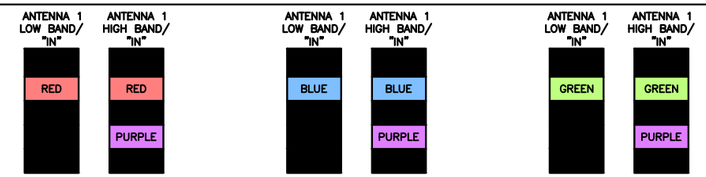


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY



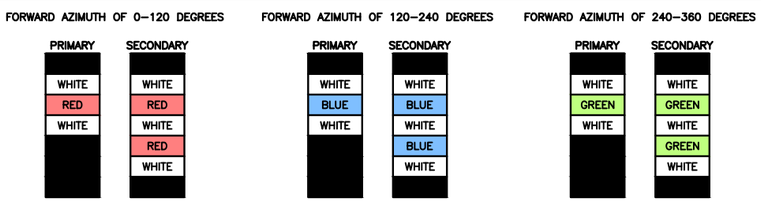
RET MOTORS AT ANTENNAS



MICROWAVE RADIO LINKS

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

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



RF CABLE COLOR CODES	NO SCALE	1

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

AWS
(N66+N70+H-BLOCK)
PURPLE

CBRS TECH
(3 GHz)
YELLOW

NEGATIVE SLANT PORT
ON ANT/RRH
WHITE

ALPHA SECTOR
RED

BETA SECTOR
BLUE

GAMMA SECTOR
GREEN

COLOR IDENTIFIER	NO SCALE	2

NOT USED	NO SCALE	3

NOT USED	NO SCALE	4

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NEWTON, CT 06470

SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48–T8

SMOKE DETECTION (DC)

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE — X — X — X — X —

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE — W — W — W — W — W —

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

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

OVERHEAD POWER — OHP — OHP — OHP — OHP —

OVERHEAD TELCO — OHT — OHT — OHT — OHT —

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

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

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

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

WORKPOINT W.P.

SECTION REFERENCE XX / X–X

DETAIL REFERENCE XX / X–X

LEGEND

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

ABBREVIATIONS

12/03/21
Exp. 01/31/22

dish wireless.

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DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01095A
24 DINGLEBROOK LANE
NEWTON, CT 06470

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GENERAL NOTES:

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

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER

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

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

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

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

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

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

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

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

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

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

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

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

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

dish wireless.

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STATE OF CONNECTICUT
BRIAN C. BREWER
29510
LICENSED
PROFESSIONAL ENGINEER

05/31/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
XQD	MCK	MCK

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

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0	11/30/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE–16295

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01095A
24 DINGLEBROOK LANE
NEWTON, CT 06470

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

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

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

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

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

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

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

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

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

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

8. TIE WRAPS ARE NOT ALLOWED.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

10/03/21
Exp. 01/31/22

dish wireless.

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STATE OF CONNECTICUT
BRIAN K. BREWER
29510
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
XQD	MCK	MCK

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

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A	09/28/2021	ISSUED FOR REVIEW
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A&E PROJECT NUMBER

KHCLE-16295

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01095A
24 DINGLEBROOK LANE
NEWTON, CT 06470

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.

12/03/21
Exp. 01/31/22

dish wireless.

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DRAWN BY:	CHECKED BY:	APPROVED BY:
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DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01095A
24 DINGLEBROOK LANE
NEWTON, CT 06470

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

Exhibit D

Structural Analysis Report

Date: **September 27, 2021**

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***DISH Network* Co-Locate**	
	Site Number:	NJJER01095A
	Site Name:	CT-CCI-T-857525
Crown Castle Designation:	**BU Number:**	857525
	Site Name:	NEWTOWN DINGLEBROOK
	JDE Job Number:	640190
	Work Order Number:	1966691
	Order Number:	548691 Rev. 1
Engineering Firm Designation:	**Crown Castle Project Number:**	1966691
Site Data:	**24 DINGLEBROOK LANE, NEWTOWN, FAIRFIELD County, CT**	
	Latitude *41° 28' 1.01"*, Longitude *-73° 20' 2.05"*	
	149 Foot - Monopole Tower	

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

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

LC5: Proposed Equipment Configuration **Sufficient Capacity - 99.1%**

This analysis utilizes an ultimate 3-second gust wind speed of 115 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: Hayes Lei

Respectfully submitted by:

STATE OF CONNECTICUT
TERRY P. STYRAN
31522
LICENSED
PROFESSIONAL ENGINEER

Terry P Styran
2021.10.01
14:56:05 -04'00'

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

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 149 ft Monopole tower designed by SABRE COMMUNICATIONS. The tower has been modified multiple times to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	115 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1 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)
119.0	119.0	3	fujitsu	TA08025-B604	1	1-1/2
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
148.0	150.0	3	ericsson	RRUS-11	1 2 12	1/2 3/4 1-5/8
		3	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe		
		6	powerwave technologies	P90-14-XLH-RR w/ Mount Pipe		
		6	powerwave technologies	TT19-08BP111-001		
		1	raycap	DC6-48-60-18-8F		
	148.0	1	crown mounts	Platform Mount [LP 602-1]		
140.0	142.0	3	alcatel lucent	B13 RRH 4X30	8	1-5/8
		3	alcatel lucent	B66A RRH4X45		
		6	andrew	DB846F65ZAXY w/ Mount Pipe		
		6	commscope	JAHH-65B-R3B w/ Mount Pipe		
		3	nokia	AHCA		
		1	rfs celwave	DB-C1-12C-24AB-0Z		
	140.0	3	commscope	BSAMNT-SBS-2-2		
		1	tower mounts	T-Arm Mount [TA 602-3]		
131.0	131.0	4	ericsson	RADIO 4449 B12/B71	4	1-3/8
		1	tower mounts	F4P-12W Platform Mount		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
	129.0	4	ericsson	AIR 32 B2A/B66AA w/ Mount Pipe		
		4	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	4308150	CCISITES
4-POST-MODIFICATION INSPECTION	8504433	CCISITES
4-POST-MODIFICATION INSPECTION	5652840	CCISITES
4-POST-MODIFICATION INSPECTION	4871327	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	4895572	CCISITES
4-TOWER MANUFACTURER DRAWINGS	4570932	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	7839699	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	5461906	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	4860017	CCISITES

3.1) Analysis Method

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

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

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
149 - 144	Pole	TP16.865x16x0.1875	Pole	7.4%	Pass
144 - 139	Pole	TP17.73x16.865x0.1875	Pole	17.5%	Pass
139 - 134	Pole	TP18.595x17.73x0.1875	Pole	29.0%	Pass
134 - 129	Pole	TP19.459x18.595x0.1875	Pole	40.5%	Pass
129 - 124.5	Pole	TP20.238x19.459x0.1875	Pole	54.2%	Pass
124.5 - 124.25	Pole + Reinf.	TP20.281x20.238x0.35	Reinf. 9 Bolt-Shaft Bearing	54.0%	Pass
124.25 - 119.25	Pole + Reinf.	TP21.146x20.281x0.3438	Reinf. 9 Tension Rupture	66.4%	Pass
119.25 - 118.5	Pole + Reinf.	TP21.276x21.146x0.3438	Reinf. 9 Tension Rupture	68.9%	Pass
118.5 - 118.25	Pole + Reinf.	TP21.319x21.276x0.7	Reinf. 5 Bolt-Shaft Bearing	51.0%	Pass
118.25 - 116	Pole + Reinf.	TP21.708x21.319x0.6875	Reinf. 5 Tension Rupture	41.2%	Pass
116 - 115.75	Pole + Reinf.	TP21.751x21.708x0.6875	Reinf. 5 Tension Rupture	41.7%	Pass
115.75 - 110.75	Pole + Reinf.	TP22.616x21.751x0.6625	Reinf. 5 Tension Rupture	50.1%	Pass
110.75 - 105.75	Pole + Reinf.	TP23.481x22.616x0.6375	Reinf. 5 Tension Rupture	57.9%	Pass
105.75 - 102	Pole + Reinf.	TP24.735x23.481x0.6125	Reinf. 5 Tension Rupture	63.4%	Pass
102 - 97	Pole + Reinf.	TP24.62x23.755x0.675	Reinf. 5 Tension Rupture	64.8%	Pass
97 - 96.75	Pole + Reinf.	TP24.663x24.62x0.825	Reinf. 5 Tension Rupture	54.5%	Pass
96.75 - 93.98	Pole + Reinf.	TP25.142x24.663x0.8125	Reinf. 5 Tension Rupture	57.2%	Pass
93.98 - 93.73	Pole + Reinf.	TP25.186x25.142x0.8	Reinf. 5 Tension Rupture	57.4%	Pass
93.73 - 91.5	Pole + Reinf.	TP25.572x25.186x0.8	Reinf. 5 Bolt-Shaft Bearing	61.6%	Pass
91.5 - 91.25	Pole + Reinf.	TP25.615x25.572x0.6375	Reinf. 24 Tension Rupture	70.9%	Pass
91.25 - 90.25	Pole + Reinf.	TP25.788x25.615x0.6375	Reinf. 24 Tension Rupture	72.0%	Pass
90.25 - 90	Pole + Reinf.	TP25.831x25.788x0.975	Reinf. 24 Tension Rupture	49.2%	Pass
90 - 89	Pole + Reinf.	TP26.004x25.831x0.975	Reinf. 24 Tension Rupture	49.9%	Pass
89 - 88.75	Pole + Reinf.	TP26.047x26.004x0.825	Reinf. 24 Tension Rupture	57.8%	Pass
88.75 - 83.75	Pole + Reinf.	TP26.913x26.047x0.8	Reinf. 24 Tension Rupture	61.9%	Pass
83.75 - 80.08	Pole + Reinf.	TP27.548x26.913x0.775	Reinf. 24 Tension Rupture	64.7%	Pass
80.08 - 79.83	Pole + Reinf.	TP27.591x27.548x0.95	Reinf. 23 Tension Rupture	55.8%	Pass
79.83 - 74.83	Pole + Reinf.	TP28.456x27.591x0.925	Reinf. 23 Tension Rupture	59.0%	Pass
74.83 - 73.5	Pole + Reinf.	TP28.686x28.456x0.925	Reinf. 23 Tension Rupture	59.9%	Pass
73.5 - 73.25	Pole + Reinf.	TP28.73x28.686x1.125	Reinf. 23 Tension Rupture	50.2%	Pass
73.25 - 71	Pole + Reinf.	TP29.119x28.73x1.1	Reinf. 23 Tension Rupture	51.5%	Pass
71 - 70.75	Pole + Reinf.	TP29.162x29.119x1	Reinf. 24 Tension Rupture	56.3%	Pass
70.75 - 65.75	Pole + Reinf.	TP30.027x29.162x0.975	Reinf. 24 Tension Rupture	59.2%	Pass
65.75 - 63	Pole + Reinf.	TP30.503x30.027x0.95	Reinf. 24 Tension Rupture	60.8%	Pass
63 - 62.75	Pole + Reinf.	TP30.547x30.503x0.9	Reinf. 22 Tension Rupture	64.3%	Pass
62.75 - 62.08	Pole + Reinf.	TP30.663x30.547x0.9	Reinf. 22 Tension Rupture	64.7%	Pass

62.08 - 61.83	Pole + Reinf.	TP30.706x30.663x0.7625	Reinf. 21 Tension Rupture	73.0%	Pass
61.83 - 60.67	Pole + Reinf.	TP30.907x30.706x0.75	Reinf. 21 Tension Rupture	73.7%	Pass
60.67 - 60.42	Pole + Reinf.	TP30.95x30.907x0.75	Reinf. 21 Tension Rupture	73.8%	Pass
60.42 - 59	Pole + Reinf.	TP31.196x30.95x0.75	Reinf. 21 Tension Rupture	74.7%	Pass
59 - 58.75	Pole + Reinf.	TP31.239x31.196x0.825	Reinf. 14 Tension Rupture	66.5%	Pass
58.75 - 53.75	Pole + Reinf.	TP32.104x31.239x0.8	Reinf. 14 Tension Rupture	69.1%	Pass
53.75 - 53.25	Pole + Reinf.	TP33.013x32.104x0.8	Reinf. 14 Tension Rupture	69.4%	Pass
53.25 - 47.5	Pole + Reinf.	TP32.682x31.691x0.8625	Reinf. 3 Tension Rupture	66.3%	Pass
47.5 - 45.75	Pole + Reinf.	TP32.984x32.682x0.8625	Reinf. 3 Tension Rupture	67.1%	Pass
45.75 - 45.5	Pole + Reinf.	TP33.027x32.984x0.8625	Reinf. 11 Tension Rupture	65.6%	Pass
45.5 - 45	Pole + Reinf.	TP33.113x33.027x0.8625	Reinf. 11 Tension Rupture	65.8%	Pass
45 - 44.75	Pole + Reinf.	TP33.157x33.113x0.9125	Reinf. 18 Tension Rupture	63.6%	Pass
44.75 - 43.5	Pole + Reinf.	TP33.372x33.157x0.9125	Reinf. 18 Tension Rupture	64.1%	Pass
43.5 - 43.25	Pole + Reinf.	TP33.415x33.372x1.0125	Reinf. 6 Tension Rupture	61.4%	Pass
43.25 - 38.25	Pole + Reinf.	TP34.278x33.415x1	Reinf. 6 Tension Rupture	63.3%	Pass
38.25 - 33.25	Pole + Reinf.	TP35.14x34.278x0.9875	Reinf. 6 Tension Rupture	65.1%	Pass
33.25 - 30.5	Pole + Reinf.	TP35.614x35.14x0.9625	Reinf. 6 Tension Rupture	66.1%	Pass
30.5 - 30.25	Pole + Reinf.	TP35.658x35.614x0.9625	Reinf. 6 Tension Rupture	65.9%	Pass
30.25 - 29.67	Pole + Reinf.	TP35.758x35.658x0.9625	Reinf. 6 Tension Rupture	66.1%	Pass
29.67 - 29.42	Pole + Reinf.	TP35.801x35.758x0.7625	Reinf. 11 Tension Rupture	76.9%	Pass
29.42 - 28	Pole + Reinf.	TP36.046x35.801x0.7625	Reinf. 11 Tension Rupture	77.3%	Pass
28 - 27.75	Pole + Reinf.	TP36.089x36.046x0.9125	Reinf. 13 Tension Rupture	71.3%	Pass
27.75 - 26.92	Pole + Reinf.	TP36.232x36.089x0.9125	Reinf. 13 Tension Rupture	71.6%	Pass
26.92 - 26.67	Pole + Reinf.	TP36.275x36.232x0.875	Reinf. 13 Tension Rupture	72.5%	Pass
26.67 - 26.5	Pole + Reinf.	TP36.304x36.275x0.875	Reinf. 13 Tension Rupture	72.5%	Pass
26.5 - 26.25	Pole + Reinf.	TP36.347x36.304x0.8375	Reinf. 13 Tension Rupture	73.2%	Pass
26.25 - 24.92	Pole + Reinf.	TP36.577x36.347x0.8375	Reinf. 13 Tension Rupture	73.6%	Pass
24.92 - 24.67	Pole + Reinf.	TP36.62x36.577x0.8	Reinf. 1 Tension Rupture	72.7%	Pass
24.67 - 22.17	Pole + Reinf.	TP37.051x36.62x0.7875	Reinf. 1 Tension Rupture	73.5%	Pass
22.17 - 21.92	Pole + Reinf.	TP37.094x37.051x0.8625	Reinf. 1 Tension Rupture	66.3%	Pass
21.92 - 16.92	Pole + Reinf.	TP37.957x37.094x0.8375	Reinf. 1 Tension Rupture	67.8%	Pass
16.92 - 11.92	Pole + Reinf.	TP38.819x37.957x0.825	Reinf. 1 Tension Rupture	69.1%	Pass
11.92 - 6.92	Pole + Reinf.	TP39.681x38.819x0.8125	Reinf. 1 Tension Rupture	70.3%	Pass
6.92 - 3.25	Pole + Reinf.	TP40.314x39.681x0.8	Reinf. 1 Tension Rupture	71.2%	Pass
3.25 - 3	Pole + Reinf.	TP40.358x40.314x0.725	Reinf. 1 Tension Rupture	79.4%	Pass
3 - 2.75	Pole + Reinf.	TP40.401x40.358x0.4875	Reinf. 26 Tension Yield	98.2%	Pass
2.75 - 2.33	Pole + Reinf.	TP40.473x40.401x0.4875	Reinf. 26 Tension Yield	98.2%	Pass
2.33 - 2.08	Pole + Reinf.	TP40.516x40.473x0.5375	Reinf. 26 Tension Yield	89.4%	Pass
2.08 - 1.75	Pole + Reinf.	TP40.573x40.516x0.5375	Reinf. 26 Tension Yield	89.4%	Pass

1.75 - 1.4	Pole + Reinf.	TP40.634x40.573x0.4813	Reinf. 29 Tension Yield	98.9%	Pass
1.4 - 1.17	Pole + Reinf.	TP40.673x40.634x0.4813	Reinf. 29 Tension Yield	98.9%	Pass
1.17 - 0.25	Pole + Reinf.	TP40.832x40.673x0.4813	Reinf. 29 Tension Yield	99.1%	Pass
0.25 - 0	Pole	TP40.875x40.832x0.3125	Pole	81.5%	Pass
				Summary	
			Pole	81.5%	Pass
			Reinforcement	99.1%	Pass
			Overall	99.1%	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Additional Anchor Rod Brackets	0	62.5	Pass
1	Additional Anchor Rods	0	65.2	Pass
1	Anchor Rods	0	60.4	Pass
1	Base Plate	0	79.7	Pass
1	Base Foundation (Structure)	0	87.4	Pass
1	Base Foundation (Soil Interaction)	0	47.3	Pass

Structure Rating (max from all components) =	99.1%

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

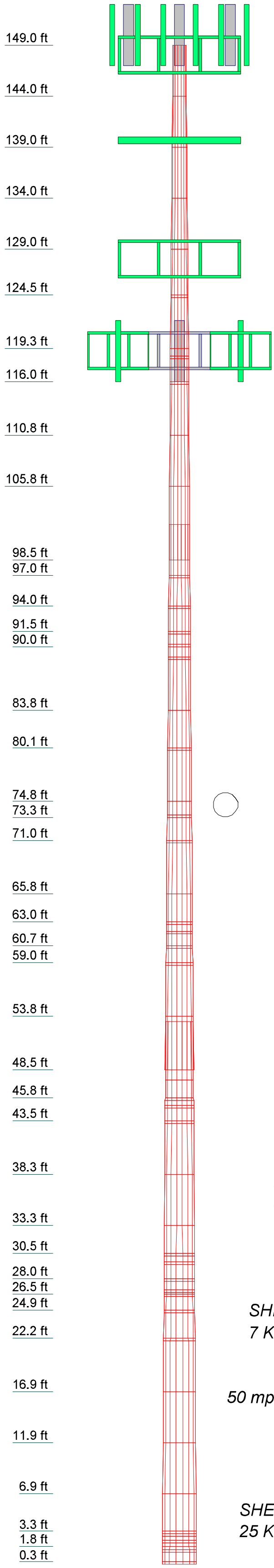
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	18	0.1875		16.0000	16.8649		0.2
2	5.00	18	0.1875		16.8649	17.7297		0.2
3	5.00	18	0.1875		17.7297	18.5946		0.2
4	5.00	18	0.1875		18.5946	19.4594		0.2
5–12	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
13	5.00	18	0.6375		22.6161	23.4810		0.7
14	[illegible]	18	0.6125	3.50	23.4810	24.7350		1.0
15–51	[illegible]	18	[illegible]	4.75	[illegible]	[illegible]	A572-65	[illegible]
52	5.00	18	0.9875		34.2777	35.1401		1.7
53–67	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
68	5.00	18	0.8250		37.9567	38.8191		1.7
69	5.00	18	0.8125		38.8191	39.6815		1.7
70–	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
								33.0



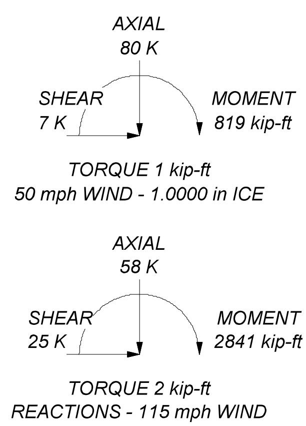
MATERIAL STRENGTH

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 C to the TIA-222-H Standard.
3. Tower designed for a 115 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 99.1%

ALL REACTIONS ARE FACTORED



CROWN CASTLE The Pathway To Possible	**Crown Castle** 2000 Corporate Drive Canonsburg. PA 15317 Phone: (724) 416-2000 FAX:	Job: **857525**	
		Project:	
		Client: Crown Castle	Drawn by: HLei / App'd:
		Code: TIA-222-H	Date: 09/27/21 / Scale: NTS
		Path: C:\Temporary Working Space - No One Drive\857525\WO 1966691 - SA\Prod\857525 - Reinf - v2.2.eri	Dwg No. E-1

Tower Input Data

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

- Tower is located in Fairfield County, Connecticut.
- Tower base elevation above sea level: 437.70 ft.
- Basic wind speed of 115 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.0000 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: 99.1%.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	149.00-144.00	5.00	0.00	18	16.0000	16.8649	0.1875	0.7500	A572-65 (65 ksi)
L2	144.00-139.00	5.00	0.00	18	16.8649	17.7297	0.1875	0.7500	A572-65 (65 ksi)
L3	139.00-134.00	5.00	0.00	18	17.7297	18.5946	0.1875	0.7500	A572-65 (65 ksi)
L4	134.00-129.00	5.00	0.00	18	18.5946	19.4594	0.1875	0.7500	A572-65 (65 ksi)
L5	129.00-124.50	4.50	0.00	18	19.4594	20.2378	0.1875	0.7500	A572-65 (65 ksi)
L6	124.50-124.25	0.25	0.00	18	20.2378	20.2810	0.3500	1.4000	A572-65 (65 ksi)
L7	124.25-119.25	5.00	0.00	18	20.2810	21.1459	0.3438	1.3750	A572-65 (65 ksi)
L8	119.25-118.50	0.75	0.00	18	21.1459	21.2756	0.3438	1.3750	A572-65 (65 ksi)
L9	118.50-118.25	0.25	0.00	18	21.2756	21.3188	0.7000	2.8000	A572-65 (65 ksi)
L10	118.25-116.00	2.25	0.00	18	21.3188	21.7080	0.6875	2.7500	A572-65 (65 ksi)
L11	116.00-115.75	0.25	0.00	18	21.7080	21.7513	0.6875	2.7500	A572-65 (65 ksi)
L12	115.75-110.75	5.00	0.00	18	21.7513	22.6161	0.6625	2.6500	A572-65 (65 ksi)
L13	110.75-105.75	5.00	0.00	18	22.6161	23.4810	0.6375	2.5500	A572-65 (65 ksi)
L14	105.75-98.50	7.25	3.50	18	23.4810	24.7350	0.6125	2.4500	A572-65 (65 ksi)
L15	98.50-97.00	5.00	0.00	18	23.7546	24.6198	0.6750	2.7000	A572-65 (65 ksi)
L16	97.00-96.75	0.25	0.00	18	24.6198	24.6631	0.8250	3.3000	A572-65 (65 ksi)
L17	96.75-93.98	2.77	0.00	18	24.6631	25.1424	0.8125	3.2500	A572-65 (65 ksi)
L18	93.98-93.73	0.25	0.00	18	25.1424	25.1857	0.8000	3.2000	A572-65 (65 ksi)
L19	93.73-91.50	2.23	0.00	18	25.1857	25.5716	0.8000	3.2000	A572-65 (65 ksi)
L20	91.50-91.25	0.25	0.00	18	25.5716	25.6148	0.6375	2.5500	A572-65 (65 ksi)
L21	91.25-90.25	1.00	0.00	18	25.6148	25.7879	0.6375	2.5500	A572-65 (65 ksi)
L22	90.25-90.00	0.25	0.00	18	25.7879	25.8311	0.9750	3.9000	A572-65 (65 ksi)
L23	90.00-89.00	1.00	0.00	18	25.8311	26.0042	0.9750	3.9000	A572-65 (65 ksi)
L24	89.00-88.75	0.25	0.00	18	26.0042	26.0474	0.8250	3.3000	A572-65 (65 ksi)
L25	88.75-83.75	5.00	0.00	18	26.0474	26.9127	0.8000	3.2000	A572-65 (65 ksi)
L26	83.75-80.08	3.67	0.00	18	26.9127	27.5477	0.7750	3.1000	A572-65 (65 ksi)
L27	80.08-79.83	0.25	0.00	18	27.5477	27.5910	0.9500	3.8000	A572-65 (65 ksi)
L28	79.83-74.83	5.00	0.00	18	27.5910	28.4562	0.9250	3.7000	A572-65 (65 ksi)
L29	74.83-73.50	1.33	0.00	18	28.4562	28.6864	0.9250	3.7000	A572-65 (65 ksi)
L30	73.50-73.25	0.25	0.00	18	28.6864	28.7296	1.1250	4.5000	A572-65 (65 ksi)
L31	73.25-71.00	2.25	0.00	18	28.7296	29.1190	1.1000	4.4000	A572-65 (65 ksi)
L32	71.00-70.75	0.25	0.00	18	29.1190	29.1623	1.0000	4.0000	A572-65 (65 ksi)
L33	70.75-65.75	5.00	0.00	18	29.1623	30.0275	0.9750	3.9000	A572-65 (65 ksi)
L34	65.75-63.00	2.75	0.00	18	30.0275	30.5034	0.9500	3.8000	A572-65 (65 ksi)
L35	63.00-62.75	0.25	0.00	18	30.5034	30.5466	0.9000	3.6000	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	62.75-62.08	0.67	0.00	18	30.5466	30.6626	0.9000	3.6000	(65 ksi) A572-65
L37	62.08-61.83	0.25	0.00	18	30.6626	30.7058	0.7625	3.0500	(65 ksi) A572-65
L38	61.83-60.67	1.16	0.00	18	30.7058	30.9065	0.7500	3.0000	(65 ksi) A572-65
L39	60.67-60.42	0.25	0.00	18	30.9065	30.9498	0.7500	3.0000	(65 ksi) A572-65
L40	60.42-59.00	1.42	0.00	18	30.9498	31.1955	0.7500	3.0000	(65 ksi) A572-65
L41	59.00-58.75	0.25	0.00	18	31.1955	31.2388	0.8250	3.3000	(65 ksi) A572-65
L42	58.75-53.75	5.00	0.00	18	31.2388	32.1040	0.8000	3.2000	(65 ksi) A572-65
L43	53.75-48.50	5.25	4.75	18	32.1040	33.0125	0.8000	3.2000	(65 ksi) A572-65
L44	48.50-47.50	5.75	0.00	18	31.6905	32.6823	0.8625	3.4500	(65 ksi) A572-65
L45	47.50-45.75	1.75	0.00	18	32.6823	32.9841	0.8625	3.4500	(65 ksi) A572-65
L46	45.75-45.50	0.25	0.00	18	32.9841	33.0272	0.8625	3.4500	(65 ksi) A572-65
L47	45.50-45.00	0.50	0.00	18	33.0272	33.1135	0.8625	3.4500	(65 ksi) A572-65
L48	45.00-44.75	0.25	0.00	18	33.1135	33.1566	0.9125	3.6500	(65 ksi) A572-65
L49	44.75-43.50	1.25	0.00	18	33.1566	33.3722	0.9125	3.6500	(65 ksi) A572-65
L50	43.50-43.25	0.25	0.00	18	33.3722	33.4153	1.0125	4.0500	(65 ksi) A572-65
L51	43.25-38.25	5.00	0.00	18	33.4153	34.2777	1.0000	4.0000	(65 ksi) A572-65
L52	38.25-33.25	5.00	0.00	18	34.2777	35.1401	0.9875	3.9500	(65 ksi) A572-65
L53	33.25-30.50	2.75	0.00	18	35.1401	35.6144	0.9625	3.8500	(65 ksi) A572-65
L54	30.50-30.25	0.25	0.00	18	35.6144	35.6575	0.9625	3.8500	(65 ksi) A572-65
L55	30.25-29.67	0.58	0.00	18	35.6575	35.7576	0.9625	3.8500	(65 ksi) A572-65
L56	29.67-29.42	0.25	0.00	18	35.7576	35.8007	0.7625	3.0500	(65 ksi) A572-65
L57	29.42-28.00	1.42	0.00	18	35.8007	36.0456	0.7625	3.0500	(65 ksi) A572-65
L58	28.00-27.75	0.25	0.00	18	36.0456	36.0887	0.9125	3.6500	(65 ksi) A572-65
L59	27.75-26.92	0.83	0.00	18	36.0887	36.2319	0.9125	3.6500	(65 ksi) A572-65
L60	26.92-26.67	0.25	0.00	18	36.2319	36.2750	0.8750	3.5000	(65 ksi) A572-65
L61	26.67-26.50	0.17	0.00	18	36.2750	36.3043	0.8750	3.5000	(65 ksi) A572-65
L62	26.50-26.25	0.25	0.00	18	36.3043	36.3474	0.8375	3.3500	(65 ksi) A572-65
L63	26.25-24.92	1.33	0.00	18	36.3474	36.5768	0.8375	3.3500	(65 ksi) A572-65
L64	24.92-24.67	0.25	0.00	18	36.5768	36.6200	0.8000	3.2000	(65 ksi) A572-65
L65	24.67-22.17	2.50	0.00	18	36.6200	37.0512	0.7875	3.1500	(65 ksi) A572-65
L66	22.17-21.92	0.25	0.00	18	37.0512	37.0943	0.8625	3.4500	(65 ksi) A572-65
L67	21.92-16.92	5.00	0.00	18	37.0943	37.9567	0.8375	3.3500	(65 ksi) A572-65
L68	16.92-11.92	5.00	0.00	18	37.9567	38.8191	0.8250	3.3000	(65 ksi) A572-65
L69	11.92-6.92	5.00	0.00	18	38.8191	39.6815	0.8125	3.2500	(65 ksi) A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L70	6.92-3.25	3.67	0.00	18	39.6815	40.3144	0.8000	3.2000	A572-65 (65 ksi)
L71	3.25-3.00	0.25	0.00	18	40.3144	40.3576	0.7250	2.9000	A572-65 (65 ksi)
L72	3.00-2.75	0.25	0.00	18	40.3576	40.4007	0.4875	1.9500	A572-65 (65 ksi)
L73	2.75-2.33	0.42	0.00	18	40.4007	40.4731	0.4875	1.9500	A572-65 (65 ksi)
L74	2.33-2.08	0.25	0.00	18	40.4731	40.5162	0.5375	2.1500	A572-65 (65 ksi)
L75	2.08-1.75	0.33	0.00	18	40.5162	40.5732	0.5375	2.1500	A572-65 (65 ksi)
L76	1.75-1.40	0.35	0.00	18	40.5732	40.6335	0.4813	1.9250	A572-65 (65 ksi)
L77	1.40-1.17	0.23	0.00	18	40.6335	40.6732	0.4813	1.9250	A572-65 (65 ksi)
L78	1.17-0.25	0.92	0.00	18	40.6732	40.8319	0.4813	1.9250	A572-65 (65 ksi)
L79	0.25-0.00	0.25		18	40.8319	40.8750	0.3125	1.2500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	16.2179	9.4104	297.2674	5.6134	8.1280	36.5733	594.9259	4.7061	2.4860	13.259
	17.0961	9.9251	348.7602	5.9205	8.5673	40.7081	697.9793	4.9635	2.6382	14.07
L2	17.0961	9.9251	348.7602	5.9205	8.5673	40.7081	697.9793	4.9635	2.6382	14.07
	17.9743	10.4398	405.8804	6.2275	9.0067	45.0643	812.2948	5.2209	2.7904	14.882
L3	17.9743	10.4398	405.8804	6.2275	9.0067	45.0643	812.2948	5.2209	2.7904	14.882
	18.8525	10.9545	468.9198	6.5345	9.4460	49.6420	938.4565	5.4783	2.9426	15.694
L4	18.8525	10.9545	468.9198	6.5345	9.4460	49.6420	938.4565	5.4783	2.9426	15.694
	19.7307	11.4692	538.1702	6.8415	9.8854	54.4410	1077.0485	5.7357	3.0949	16.506
L5	19.7307	11.4692	538.1702	6.8415	9.8854	54.4410	1077.0485	5.7357	3.0949	16.506
	20.5210	11.9324	606.0472	7.1178	10.2808	58.9495	1212.8919	5.9673	3.2318	17.237
L6	20.4960	22.0933	1104.0045	7.0602	10.2808	107.3852	2209.4616	11.0488	2.9458	8.417
	20.5399	22.1414	1111.2216	7.0755	10.3028	107.8567	2223.9053	11.0728	2.9535	8.438
L7	20.5409	21.7528	1092.4053	7.0777	10.3028	106.0304	2186.2481	10.8785	2.9645	8.624
	21.4190	22.6964	1240.8224	7.3848	10.7421	115.5102	2483.2776	11.3504	3.1167	9.067
L8	21.4190	22.6964	1240.8224	7.3848	10.7421	115.5102	2483.2776	11.3504	3.1167	9.067
	21.5508	22.8380	1264.1819	7.4308	10.8080	116.9672	2530.0271	11.4211	3.1395	9.133
L9	21.4958	45.7149	2445.1165	7.3043	10.8080	226.2321	4893.4504	22.8618	2.5125	3.589
	21.5397	45.8109	2460.5652	7.3197	10.8300	227.1997	4924.3682	22.9098	2.5201	3.6
L10	21.5417	45.0202	2421.0244	7.3241	10.8300	223.5486	4845.2345	22.5144	2.5421	3.698
	21.9368	45.8694	2560.6335	7.4623	11.0277	232.2007	5124.6364	22.9391	2.6106	3.797
L11	21.9368	45.8694	2560.6335	7.4623	11.0277	232.2007	5124.6364	22.9391	2.6106	3.797
	21.9808	45.9638	2576.4690	7.4776	11.0496	233.1722	5156.3281	22.9862	2.6182	3.808
L12	21.9846	44.3449	2491.6299	7.4865	11.0496	225.4942	4986.5384	22.1767	2.6622	4.018
	22.8628	46.1635	2810.9189	7.7935	11.4890	244.6621	5625.5365	23.0861	2.8144	4.248
L13	22.8667	44.4721	2714.0976	7.8024	11.4890	236.2347	5431.7665	22.2403	2.8584	4.484
	23.7449	46.2220	3047.2671	8.1094	11.9283	255.4647	6098.5439	23.1154	3.0106	4.723
L14	23.7487	44.4580	2937.3894	8.1183	11.9283	246.2532	5878.6440	22.2332	3.0546	4.987
	25.0221	46.8959	3447.6043	8.5635	12.5654	274.3733	6899.7450	23.4524	3.2754	5.348
L15	24.6319	49.4469	3327.6160	8.1933	12.0673	275.7539	6659.6105	24.7281	2.9928	4.434
	24.8955	51.3006	3716.0650	8.5004	12.5069	297.1218	7437.0197	25.6552	3.1451	4.659
L16	24.8724	62.3079	4457.0348	8.4472	12.5069	356.3669	8919.9343	31.1599	2.8811	3.492
	24.9163	62.4212	4481.3889	8.4625	12.5288	357.6856	8968.6746	31.2165	2.8887	3.501
L17	24.9182	61.5077	4420.4356	8.4670	12.5288	352.8206	8846.6878	30.7597	2.9107	3.582
	25.4049	62.7438	4692.3452	8.6371	12.7724	367.3830	9390.8647	31.3779	2.9951	3.686
L18	25.4069	61.8103	4627.2800	8.6416	12.7724	362.2888	9260.6487	30.9110	3.0171	3.771
	25.4508	61.9201	4651.9946	8.6569	12.7943	363.5982	9310.1104	30.9659	3.0247	3.781
L19	25.4508	61.9201	4651.9946	8.6569	12.7943	363.5982	9310.1104	30.9659	3.0247	3.781
	25.8426	62.9000	4876.3535	8.7939	12.9904	375.3825	9759.1234	31.4560	3.0926	3.866
L20	25.8677	50.4522	3962.8196	8.8516	12.9904	305.0585	7930.8536	25.2309	3.3786	5.3
	25.9116	50.5398	3983.4822	8.8670	13.0123	306.1312	7972.2059	25.2747	3.3862	5.312

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L21	25.9116	50.5398	3983.4822	8.8670	13.0123	306.1312	7972.2059	25.2747	3.3862	5.312
	26.0874	50.8899	4066.8507	8.9284	13.1002	310.4409	8139.0526	25.4498	3.4167	5.359
L22	26.0353	76.7872	5972.8351	8.8086	13.1002	455.9331	11953.529 4	38.4009	2.8227	2.895
	26.0792	76.9211	6004.1305	8.8239	13.1222	457.5545	12016.161 3	38.4678	2.8303	2.903
L23	26.0792	76.9211	6004.1305	8.8239	13.1222	457.5545	12016.161 3	38.4678	2.8303	2.903
	26.2549	77.4566	6130.4051	8.8854	13.2101	464.0686	12268.876 8	38.7356	2.8607	2.934
L24	26.2781	65.9330	5281.0878	8.9386	13.2101	399.7757	10569.124 6	32.9727	3.1247	3.788
	26.3220	66.0462	5308.3554	8.9540	13.2321	401.1725	10623.695 7	33.0294	3.1324	3.797
L25	26.3259	64.1083	5162.8177	8.9628	13.2321	390.1736	10332.428 7	32.0603	3.1764	3.97
	27.2044	66.3053	5712.0009	9.2700	13.6716	417.7993	11431.517 8	33.1589	3.3286	4.161
L26	27.2083	64.2948	5549.4092	9.2789	13.6716	405.9067	11106.120 5	32.1535	3.3726	4.352
	27.8532	65.8569	5963.8239	9.5043	13.9943	426.1623	11935.495 2	32.9347	3.4844	4.496
L27	27.8262	80.2002	7168.0737	9.4422	13.9943	512.2155	14345.579 4	40.1077	3.1764	3.344
	27.8701	80.3306	7203.1072	9.4576	14.0162	513.9118	14415.692 5	40.1729	3.1840	3.352
L28	27.8739	78.2901	7033.3149	9.4664	14.0162	501.7979	14075.884 5	39.1525	3.2280	3.49
	28.7525	80.8303	7740.3926	9.7736	14.4558	535.4537	15490.970 1	40.4228	3.3803	3.654
L29	28.7525	80.8303	7740.3926	9.7736	14.4558	535.4537	15490.970 1	40.4228	3.3803	3.654
	28.9862	81.5060	7936.1392	9.8553	14.5727	544.5902	15882.720 9	40.7608	3.4208	3.698
L30	28.9554	98.4148	9444.9527	9.7843	14.5727	648.1273	18902.333 4	49.2168	3.0688	2.728
	28.9993	98.5693	9489.4978	9.7996	14.5947	650.2035	18991.482 2	49.2940	3.0764	2.735
L31	29.0031	96.4661	9303.8524	9.8085	14.5947	637.4834	18619.947 0	48.2422	3.1204	2.837
	29.3985	97.8255	9702.7445	9.9467	14.7924	655.9255	19418.256 1	48.9221	3.1889	2.899
L32	29.4139	89.2497	8915.4575	9.9822	14.7924	602.7033	17842.646 1	44.6333	3.3649	3.365
	29.4579	89.3870	8956.6702	9.9976	14.8144	604.5912	17925.125 8	44.7020	3.3726	3.373
L33	29.4617	87.2297	8756.0306	10.0065	14.8144	591.0476	17523.582 7	43.6231	3.4166	3.504
	30.3403	89.9072	9587.3483	10.3136	15.2540	628.5154	19187.311 9	44.9622	3.5688	3.66
L34	30.3441	87.6773	9365.6551	10.3225	15.2540	613.9819	18743.633 8	43.8470	3.6128	3.803
	30.8274	89.1122	9833.0479	10.4914	15.4957	634.5661	19679.034 4	44.5646	3.6966	3.891
L35	30.8351	84.5649	9362.8807	10.5092	15.4957	604.2244	18738.081 3	42.2905	3.7846	4.205
	30.8790	84.6885	9403.9883	10.5245	15.5177	606.0177	18820.350 7	42.3523	3.7922	4.214
L36	30.8790	84.6885	9403.9883	10.5245	15.5177	606.0177	18820.350 7	42.3523	3.7922	4.214
	30.9967	85.0197	9514.7499	10.5657	15.5766	610.8370	19042.019 5	42.5179	3.8126	4.236
L37	31.0179	72.3634	8173.3490	10.6145	15.5766	524.7205	16357.452 7	36.1886	4.0546	5.318
	31.0619	72.4681	8208.8774	10.6299	15.5986	526.2589	16428.556 3	36.2409	4.0622	5.328
L38	31.0638	71.3098	8084.4219	10.6343	15.5986	518.2802	16179.481 4	35.6617	4.0842	5.446
	31.2676	71.7877	8248.0329	10.7056	15.7005	525.3349	16506.918 8	35.9006	4.1196	5.493

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	31.2676	71.7877	8248.0329	10.7056	15.7005	525.3349	16506.9188	35.9006	4.1196	5.493
	31.3116	71.8906	8283.5806	10.7209	15.7225	526.8615	16578.0609	35.9522	4.1272	5.503
L40	31.3116	71.8906	8283.5806	10.7209	15.7225	526.8615	16578.0609	35.9522	4.1272	5.503
	31.5611	72.4756	8487.4307	10.8082	15.8473	535.5748	16986.0294	36.2447	4.1704	5.561
L41	31.5495	79.5268	9267.3470	10.7815	15.8473	584.7892	18546.8881	39.7709	4.0384	4.895
	31.5934	79.6400	9307.0059	10.7969	15.8693	586.4785	18626.2582	39.8276	4.0460	4.904
L42	31.5973	77.2902	9047.2492	10.8058	15.8693	570.1100	18106.4030	38.6524	4.0900	5.113
	32.4759	79.4872	9840.8924	11.1129	16.3088	603.4085	19694.7337	39.7511	4.2423	5.303
L43	32.4759	79.4872	9840.8924	11.1129	16.3088	603.4085	19694.7337	39.7511	4.2423	5.303
	33.3984	81.7940	10722.7864	11.4354	16.7704	639.3895	21459.6821	40.9048	4.4022	5.503
L44	32.8783	84.3941	10133.0714	10.9440	16.0988	629.4305	20279.4761	42.2051	4.0595	4.707
	33.0534	87.1091	11142.8240	11.2960	16.6026	671.1493	22300.3100	43.5628	4.2341	4.909
L45	33.0534	87.1091	11142.8240	11.2960	16.6026	671.1493	22300.3100	43.5628	4.2341	4.909
	33.3599	87.9354	11462.9379	11.4032	16.7559	684.1121	22940.9591	43.9760	4.2872	4.971
L46	33.3599	87.9354	11462.9379	11.4032	16.7559	684.1121	22940.9591	43.9760	4.2872	4.971
	33.4037	88.0534	11509.1629	11.4185	16.7778	685.9741	23033.4699	44.0351	4.2948	4.979
L47	33.4037	88.0534	11509.1629	11.4185	16.7778	685.9741	23033.4699	44.0351	4.2948	4.979
	33.4913	88.2895	11601.9854	11.4491	16.8216	689.7056	23219.2369	44.1531	4.3100	4.997
L48	33.4835	93.2629	12217.5634	11.4313	16.8216	726.3000	24451.2030	46.6403	4.2220	4.627
	33.5273	93.3878	12266.7099	11.4467	16.8436	728.2733	24549.5606	46.7028	4.2296	4.635
L49	33.5273	93.3878	12266.7099	11.4467	16.8436	728.2733	24549.5606	46.7028	4.2296	4.635
	33.7463	94.0122	12514.4201	11.5232	16.9531	738.1798	25045.3069	47.0150	4.2675	4.677
L50	33.7308	103.9936	13757.9220	11.4877	16.9531	811.5295	27533.9470	52.0067	4.0915	4.041
	33.7746	104.1321	13812.9929	11.5030	16.9750	813.7265	27644.1613	52.0760	4.0991	4.048
L51	33.7765	102.8862	13658.2567	11.5074	16.9750	804.6110	27334.4854	51.4529	4.1211	4.121
	34.6522	105.6235	14777.6258	11.8136	17.4131	848.6511	29574.6964	52.8218	4.2729	4.273
L52	34.6542	104.3423	14609.3561	11.8180	17.4131	838.9876	29237.9356	52.1811	4.2949	4.349
	35.5299	107.0454	15774.3989	12.1242	17.8512	883.6618	31569.5542	53.5328	4.4467	4.503
L53	35.5337	104.4117	15408.8358	12.1330	17.8512	863.1835	30837.9469	52.2158	4.4907	4.666
	36.0153	105.8607	16059.3092	12.3014	18.0921	887.6409	32139.7496	52.9404	4.5741	4.752
L54	36.0153	105.8607	16059.3092	12.3014	18.0921	887.6409	32139.7496	52.9404	4.5741	4.752
	36.0591	105.9925	16119.3346	12.3167	18.1140	889.8813	32259.8794	53.0063	4.5817	4.76
L55	36.0591	105.9925	16119.3346	12.3167	18.1140	889.8813	32259.8794	53.0063	4.5817	4.76
	36.1607	106.2981	16259.1692	12.3523	18.1648	895.0898	32539.7327	53.1591	4.5993	4.779
L56	36.1916	84.6942	13104.0312	12.4233	18.1648	721.3951	26225.3049	42.3551	4.9513	6.494

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
	36.2353	84.7986	13152.5297	12.4386	18.1868	723.1929	26322.3658	42.4073	4.9589	6.504
L57	36.2353	84.7986	13152.5297	12.4386	18.1868	723.1929	26322.3658	42.4073	4.9589	6.504
	36.4840	85.3913	13430.2729	12.5255	18.3112	733.4470	26878.2178	42.7038	5.0020	6.56
L58	36.4609	101.7552	15868.1784	12.4723	18.3112	866.5846	31757.2366	50.8872	4.7380	5.192
	36.5047	101.8800	15926.6761	12.4876	18.3331	868.7400	31874.3089	50.9497	4.7456	5.201
L59	36.5047	101.8800	15926.6761	12.4876	18.3331	868.7400	31874.3089	50.9497	4.7456	5.201
	36.6501	102.2947	16121.9192	12.5384	18.4058	875.9152	32265.0520	51.1570	4.7708	5.228
L60	36.6558	98.1949	15508.6683	12.5517	18.4058	842.5969	31037.7434	49.1068	4.8368	5.528
	36.6996	98.3147	15565.4784	12.5670	18.4277	844.6781	31151.4383	49.1667	4.8444	5.536
L61	36.6996	98.3147	15565.4784	12.5670	18.4277	844.6781	31151.4383	49.1667	4.8444	5.536
	36.7294	98.3961	15604.1884	12.5774	18.4426	846.0949	31228.9092	49.2074	4.8496	5.542
L62	36.7352	94.2788	14982.9127	12.5907	18.4426	812.4079	29985.5403	47.1484	4.9156	5.869
	36.7790	94.3934	15037.6266	12.6060	18.4645	814.4073	30095.0400	47.2057	4.9232	5.878
L63	36.7790	94.3934	15037.6266	12.6060	18.4645	814.4073	30095.0400	47.2057	4.9232	5.878
	37.0119	95.0032	15330.9446	12.6875	18.5810	825.0855	30682.0621	47.5106	4.9635	5.927
L64	37.0177	90.8446	14690.6306	12.7008	18.5810	790.6249	29400.5915	45.4309	5.0295	6.287
	37.0615	90.9541	14743.8117	12.7161	18.6029	792.5527	29507.0237	45.4857	5.0371	6.296
L65	37.0634	89.5641	14528.6391	12.7205	18.6029	780.9861	29076.3953	44.7906	5.0591	6.424
	37.5012	90.6419	15059.4738	12.8736	18.8220	800.1000	30138.7633	45.3296	5.1350	6.521
L66	37.4897	99.0692	16391.5847	12.8470	18.8220	870.8742	32804.7380	49.5440	5.0030	5.801
	37.5335	99.1872	16450.2473	12.8623	18.8439	872.9750	32922.1403	49.6030	5.0106	5.809
L67	37.5373	96.3787	16006.5165	12.8712	18.8439	849.4272	32034.0948	48.1985	5.0546	6.035
	38.4130	98.6711	17176.0752	13.1773	19.2820	890.7834	34374.7512	49.3449	5.2064	6.217
L68	38.4149	97.2311	16936.8150	13.1817	19.2820	878.3749	33895.9158	48.6248	5.2284	6.337
	39.2906	99.4893	18144.5182	13.4879	19.7201	920.1036	36312.9114	49.7541	5.3802	6.521
L69	39.2926	98.0142	17887.2443	13.4923	19.7201	907.0573	35798.0250	49.0164	5.4022	6.649
	40.1683	100.2382	19132.6974	13.7985	20.1582	949.1284	38290.5702	50.1286	5.5539	6.836
L70	40.1702	98.7278	18856.5290	13.8029	20.1582	935.4283	37737.8698	49.3733	5.5759	6.97
	40.8129	100.3351	19792.5636	14.0276	20.4797	966.4461	39611.1708	50.1771	5.6873	7.109
L71	40.8245	91.1013	18039.3403	14.0543	20.4797	880.8384	36102.4172	45.5593	5.8193	8.027
	40.8683	91.2005	18098.3481	14.0696	20.5016	882.7755	36220.5104	45.6089	5.8269	8.037
L72	40.9049	61.6919	12389.6729	14.1539	20.5016	604.3258	24795.6484	30.8518	6.2449	12.81
	40.9487	61.7587	12429.9147	14.1692	20.5235	605.6416	24876.1850	30.8852	6.2525	12.826
L73	40.9487	61.7587	12429.9147	14.1692	20.5235	605.6416	24876.1850	30.8852	6.2525	12.826
	41.0223	61.8708	12497.7170	14.1949	20.5603	607.8553	25011.8788	30.9413	6.2653	12.852

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
L74	41.0146	68.1312	13727.9069	14.1771	20.5603	667.6885	27473.8774	34.0721	6.1773	11.493
	41.0584	68.2047	13772.4221	14.1925	20.5823	669.1407	27562.9663	34.1089	6.1849	11.507
L75	41.0584	68.2047	13772.4221	14.1925	20.5823	669.1407	27562.9663	34.1089	6.1849	11.507
	41.1162	68.3018	13831.3293	14.2127	20.6112	671.0600	27680.8583	34.1574	6.1949	11.525
L76	41.1248	61.2399	12436.1359	14.2326	20.6112	603.3688	24888.6356	30.6258	6.2939	13.078
	41.1861	61.3321	12492.3967	14.2541	20.6418	605.1980	25001.2312	30.6719	6.3045	13.1
L77	41.1861	61.3321	12492.3967	14.2541	20.6418	605.1980	25001.2312	30.6719	6.3045	13.1
	41.2264	61.3927	12529.4603	14.2681	20.6620	606.4016	25075.4072	30.7022	6.3115	13.115
L78	41.2264	61.3927	12529.4603	14.2681	20.6620	606.4016	25075.4072	30.7022	6.3115	13.115
	41.3875	61.6351	12678.4479	14.3245	20.7426	611.2277	25373.5784	30.8234	6.3394	13.173
L79	41.4136	40.1902	8336.4814	14.3844	20.7426	401.9016	16683.9321	20.0989	6.6364	21.237
	41.4574	40.2329	8363.1240	14.3997	20.7645	402.7607	16737.2524	20.1203	6.6440	21.261

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 149.00-144.00				1	1	1			
L2 144.00-139.00				1	1	1			
L3 139.00-134.00				1	1	1			
L4 134.00-129.00				1	1	1			
L5 129.00-124.50				1	1	1			
L6 124.50-124.25				1	1	0.946576			
L7 124.25-119.25				1	1	0.946104			
L8 119.25-118.50				1	1	0.943621			
L9 118.50-118.25				1	1	0.863915			
L10 118.25-116.00				1	1	0.867863			
L11 116.00-115.75				1	1	0.866642			
L12 115.75-110.75				1	1	0.874041			
L13 110.75-105.75				1	1	0.88407			
L14 105.75-98.50				1	1	0.90224			
L15 98.50-97.00				1	1	0.903273			
L16 97.00-96.75				1	1	0.887087			
L17 96.75-93.98				1	1	0.888588			
L18 93.98-93.73				1	1	0.900963			
L19 93.73-91.50				1	1	0.891796			
L20 91.50-				1	1	0.932493			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft^2	in					in	in	in
91.25									
L21 91.25-90.25				1	1	0.928775			
L22 90.25-90.00				1	1	0.883053			
L23 90.00-89.00				1	1	0.87872			
L24 89.00-88.75				1	1	0.894777			
L25 88.75-83.75				1	1	0.901636			
L26 83.75-80.08				1	1	0.915426			
L27 80.08-79.83				1	1	0.93765			
L28 79.83-74.83				1	1	0.940347			
L29 74.83-73.50				1	1	0.934792			
L30 73.50-73.25				1	1	0.910284			
L31 73.25-71.00				1	1	0.920363			
L32 71.00-70.75				1	1	0.906944			
L33 70.75-65.75				1	1	0.909332			
L34 65.75-63.00				1	1	0.921682			
L35 63.00-62.75				1	1	0.945139			
L36 62.75-62.08				1	1	0.942539			
L37 62.08-61.83				1	1	0.982066			
L38 61.83-60.67				1	1	0.993592			
L39 60.67-60.42				1	1	0.980475			
L40 60.42-59.00				1	1	0.975252			
L41 59.00-58.75				1	1	0.906784			
L42 58.75-53.75				1	1	0.917166			
L43 53.75-48.50				1	1	0.915499			
L44 48.50-47.50				1	1	0.94977			
L45 47.50-45.75				1	1	0.94425			
L46 45.75-45.50				1	1	0.94347			
L47 45.50-45.00				1	1	0.941916			
L48 45.00-44.75				1	1	0.987328			
L49 44.75-43.50				1	1	0.983045			
L50 43.50-43.25				1	1	0.931136			
L51 43.25-38.25				1	1	0.926087			
L52 38.25-33.25				1	1	0.921777			
L53 33.25-30.50				1	1	0.936536			

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L54 30.50-30.25				1	1	0.944031			
L55 30.25-29.67				1	1	0.942251			
L56 29.67-29.42				1	1	1.05782			
L57 29.42-28.00				1	1	1.05332			
L58 28.00-27.75				1	1	0.944618			
L59 27.75-26.92				1	1	0.942178			
L60 26.92-26.67				1	1	0.919723			
L61 26.67-26.50				1	1	0.919258			
L62 26.50-26.25				1	1	0.911017			
L63 26.25-24.92				1	1	0.907564			
L64 24.92-24.67				1	1	0.975925			
L65 24.67-22.17				1	1	0.984004			
L66 22.17-21.92				1	1	0.972757			
L67 21.92-16.92				1	1	0.986514			
L68 16.92-11.92				1	1	0.986999			
L69 11.92-6.92				1	1	0.988159			
L70 6.92-3.25				1	1	0.993462			
L71 3.25-3.00				1	1	0.945405			
L72 3.00-2.75				1	1	0.951496			
L73 2.75-2.33				1	1	0.950934			
L74 2.33-2.08				1	1	0.95489			
L75 2.08-1.75				1	1	0.954359			
L76 1.75-1.40				1	1	0.937422			
L77 1.40-1.17				1	1	0.937137			
L78 1.17-0.25				1	1	0.936006			
L79 0.25-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
***										
***										
CU12PSM9P6XXX(1-1/2)	A	No	Surface Ar (CaAa)	119.00 - 0.00	1	1	0.100 0.150	1.6000		2.35
***										
***										
***										
5.5" x 1.25" Flat Plate (G)	C	No	Surface Af (CaAa)	30.50 - 0.50	1	1	-0.167 -0.167	5.5000	13.5000	0.00
5.5" x 1.25" Flat Plate (G)	B	No	Surface Af (CaAa)	30.50 - 0.50	1	1	0.000 0.000	5.5000	13.5000	0.00
5.5" x 1.25" Flat Plate (G)	A	No	Surface Af (CaAa)	30.50 - 0.50	1	1	0.333 0.333	5.5000	13.5000	0.00
5.5" x 1.25" Flat Plate	A	No	Surface Af	30.50 -	1	1	-0.500	5.5000	13.5000	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
(G)			(CaAa)	0.50			-0.500			
***										
5.5" x 1.25" Flat Plate (G)	C	No	Surface Af (CaAa)	48.25 - 30.50	1	1	-0.333 -0.333	5.5000	13.5000	0.00
5.5" x 1.25" Flat Plate (G)	B	No	Surface Af (CaAa)	48.25 - 30.50	1	1	-0.333 -0.333	5.5000	13.5000	0.00
5.5" x 1.25" Flat Plate (G)	A	No	Surface Af (CaAa)	48.25 - 30.50	1	1	-0.333 -0.333	5.5000	13.5000	0.00
***										
5.5" x 1.25" Flat Plate (G)	C	No	Surface Af (CaAa)	65.50 - 48.25	1	1	-0.167 -0.167	5.5000	13.5000	0.00
5.5" x 1.25" Flat Plate (G)	B	No	Surface Af (CaAa)	65.50 - 48.25	1	1	-0.167 -0.167	5.5000	13.5000	0.00
5.5" x 1.25" Flat Plate (G)	A	No	Surface Af (CaAa)	65.50 - 48.25	1	1	-0.167 -0.167	5.5000	13.5000	0.00
***										
5.5" x 1.25" Flat Plate (G)	B	No	Surface Af (CaAa)	92.75 - 65.50	1	1	0.333 0.333	5.5000	13.5000	0.00
5.5" x 1.25" Flat Plate (G)	A	No	Surface Af (CaAa)	92.75 - 65.50	1	1	0.333 0.333	5.5000	13.5000	0.00
5.5" x 1.25" Flat Plate (G)	C	No	Surface Af (CaAa)	92.75 - 65.50	1	1	0.333 0.333	5.5000	13.5000	0.00
***										
4" x 1.25" Flat Plate (G)	C	No	Surface Af (CaAa)	120.00 - 92.75	1	1	-0.167 -0.167	4.0000	10.5000	0.00
4" x 1.25" Flat Plate (G)	B	No	Surface Af (CaAa)	120.00 - 92.75	1	1	-0.167 -0.167	4.0000	10.5000	0.00
4" x 1.25" Flat Plate (G)	A	No	Surface Af (CaAa)	120.00 - 92.75	1	1	-0.167 -0.167	4.0000	10.5000	0.00
***										
4.5" x 1" Flat Plate (G)	B	No	Surface Af (CaAa)	45.00 - 25.00	1	1	0.167 0.167	4.5000	11.0000	0.00
4.5" x 1" Flat Plate (G)	A	No	Surface Af (CaAa)	45.00 - 25.00	1	1	0.167 0.167	4.5000	11.0000	0.00
4.5" x 1" Flat Plate (G)	C	No	Surface Af (CaAa)	45.00 - 25.00	1	1	0.167 0.167	4.5000	11.0000	0.00
***										
***										
4.5" x 1" Flat Plate (G)	C	No	Surface Af (CaAa)	75.00 - 50.00	1	1	0.000 0.000	4.5000	11.0000	0.00
4.5" x 1" Flat Plate (G)	B	No	Surface Af (CaAa)	75.00 - 50.00	1	1	0.000 0.000	4.5000	11.0000	0.00
4.5" x 1" Flat Plate (G)	A	No	Surface Af (CaAa)	75.00 - 50.00	1	1	0.000 0.000	4.5000	11.0000	0.00
***										
4" x 0.75" Flat Plate (G)	C	No	Surface Af (CaAa)	98.00 - 88.00	1	1	0.000 0.000	4.0000	9.5000	0.00
4" x 0.75" Flat Plate (G)	B	No	Surface Af (CaAa)	98.00 - 88.00	1	1	0.000 0.000	4.0000	9.5000	0.00
4" x 0.75" Flat Plate (G)	A	No	Surface Af (CaAa)	98.00 - 88.00	1	1	0.000 0.000	4.0000	9.5000	0.00
***										
4" x 0.75" Flat Plate (G)	B	No	Surface Af (CaAa)	126.00 - 116.00	1	1	0.167 0.167	4.0000	9.5000	0.00
4" x 0.75" Flat Plate (G)	A	No	Surface Af (CaAa)	126.00 - 116.00	1	1	0.167 0.167	4.0000	9.5000	0.00
4" x 0.75" Flat Plate (G)	C	No	Surface Af (CaAa)	126.00 - 116.00	1	1	0.167 0.167	4.0000	9.5000	0.00
***										
6.5" x 1.25" Flat Plate (G)	C	No	Surface Af (CaAa)	27.67 - 0.50	1	1	-0.333 -0.333	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	A	No	Surface Af (CaAa)	27.67 - 0.50	1	1	-0.333 -0.333	6.5000	15.5000	0.00
***										
6.5" x 1.25" Flat Plate (G)	B	No	Surface Af (CaAa)	24.92 - 0.50	1	1	0.167 0.167	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	A	No	Surface Af (CaAa)	24.92 - 0.50	1	1	0.167 0.168	6.5000	15.5000	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
***										
6" x 1" Flat Plate (G)	C	No	Surface Af (CaAa)	61.00 - 26.00	1	1	-0.500 -0.500	6.0000	14.0000	0.00
6" x 1" Flat Plate (G)	B	No	Surface Af (CaAa)	61.00 - 26.00	1	1	-0.500 -0.500	6.0000	14.0000	0.00
***										
6" x 1" Flat Plate (G)	C	No	Surface Af (CaAa)	62.67 - 26.00	1	1	0.333 0.333	6.0000	14.0000	0.00
***										
6" x 1" Flat Plate (G)	A	No	Surface Af (CaAa)	49.92 - 30.58	1	1	0.000 0.000	6.0000	14.0000	0.00
6" x 1" Flat Plate (G)	A	No	Surface Af (CaAa)	49.92 - 24.92	1	1	0.000 0.000	6.0000	14.0000	0.00
***										
4" x 0.75" Flat Plate (G)	C	No	Surface Af (CaAa)	81.08 - 61.08	1	1	-0.500 -0.500	4.0000	9.5000	0.00
4" x 0.75" Flat Plate (G)	B	No	Surface Af (CaAa)	81.08 - 61.08	1	1	0.167 0.167	4.0000	9.5000	0.00
4" x 0.75" Flat Plate (G)	B	No	Surface Af (CaAa)	81.08 - 61.08	1	1	-0.500 -0.500	4.0000	9.5000	0.00
4" x 0.75" Flat Plate (G)	A	No	Surface Af (CaAa)	81.08 - 61.08	1	1	0.167 0.167	4.0000	9.5000	0.00
4" x 0.75" Flat Plate (G)	C	No	Surface Af (CaAa)	81.08 - 61.08	1	1	0.167 0.167	4.0000	9.5000	0.00
***										
4" x 0.75" Flat Plate (G)	C	No	Surface Af (CaAa)	89.92 - 65.58	1	1	-0.167 -0.167	4.0000	9.5000	0.00
4" x 0.75" Flat Plate (G)	B	No	Surface Af (CaAa)	89.92 - 65.58	1	1	-0.167 -0.167	4.0000	9.5000	0.00
4" x 0.75" Flat Plate (G)	A	No	Surface Af (CaAa)	89.92 - 65.58	1	1	-0.167 -0.167	4.0000	9.5000	0.00
***										
4" x 0.75" Flat Plate (G)	C	No	Surface Af (CaAa)	95.00 - 70.00	1	1	-0.333 -0.333	4.0000	9.5000	0.00
4" x 0.75" Flat Plate (G)	B	No	Surface Af (CaAa)	95.00 - 70.00	1	1	-0.333 -0.333	4.0000	9.5000	0.00
4" x 0.75" Flat Plate (G)	A	No	Surface Af (CaAa)	95.00 - 70.00	1	1	-0.333 -0.333	4.0000	9.5000	0.00
***										
***										
4" x 0.75" Flat Plate (G)	B	No	Surface Af (CaAa)	115.92 - 95.08	1	1	0.167 0.167	4.0000	9.5000	0.00
4" x 0.75" Flat Plate (G)	A	No	Surface Af (CaAa)	115.92 - 95.08	1	1	0.167 0.167	4.0000	9.5000	0.00
4" x 0.75" Flat Plate (G)	C	No	Surface Af (CaAa)	115.92 - 95.08	1	1	0.167 0.167	4.0000	9.5000	0.00
***										
**										
*										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
***									
LDF4-50A(1/2")	A	No	No	Inside Pole	148.00 - 8.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
9776(3/4")	A	No	No	Inside Pole	148.00 - 8.00	2	No Ice	0.00	0.31
							1/2" Ice	0.00	0.31
							1" Ice	0.00	0.31
LDF7-50A(1-5/8")	A	No	No	Inside Pole	148.00 - 8.00	12	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
							1" Ice	0.00	0.82
***									
HJ7-50A(1-5/8")	B	No	No	Inside Pole	140.00 - 8.00	2	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04
LDF7-50A(1-5/8")	B	No	No	Inside Pole	140.00 - 8.00	6	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
***									
HCS 6X12 6AWG(1-3/8)	B	No	No	Inside Pole	131.00 - 8.00	4	No Ice	0.00	1.70
							1/2" Ice	0.00	1.70
							1" Ice	0.00	1.70
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Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	149.00-144.00	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L2	144.00-139.00	A	0.000	0.000	0.000	0.000	0.05
		B	0.000	0.000	0.000	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.00
L3	139.00-134.00	A	0.000	0.000	0.000	0.000	0.05
		B	0.000	0.000	0.000	0.000	0.04
		C	0.000	0.000	0.000	0.000	0.00
L4	134.00-129.00	A	0.000	0.000	0.000	0.000	0.05
		B	0.000	0.000	0.000	0.000	0.05
		C	0.000	0.000	0.000	0.000	0.00
L5	129.00-124.50	A	0.000	0.000	1.000	0.000	0.05
		B	0.000	0.000	1.000	0.000	0.06
		C	0.000	0.000	1.000	0.000	0.00
L6	124.50-124.25	A	0.000	0.000	0.167	0.000	0.00
		B	0.000	0.000	0.167	0.000	0.00
		C	0.000	0.000	0.167	0.000	0.00
L7	124.25-119.25	A	0.000	0.000	3.833	0.000	0.05
		B	0.000	0.000	3.833	0.000	0.07
		C	0.000	0.000	3.833	0.000	0.00
L8	119.25-118.50	A	0.000	0.000	1.080	0.000	0.01
		B	0.000	0.000	1.000	0.000	0.01
		C	0.000	0.000	1.000	0.000	0.00
L9	118.50-118.25	A	0.000	0.000	0.373	0.000	0.00
		B	0.000	0.000	0.333	0.000	0.00
		C	0.000	0.000	0.333	0.000	0.00
L10	118.25-116.00	A	0.000	0.000	3.360	0.000	0.03
		B	0.000	0.000	3.000	0.000	0.03
		C	0.000	0.000	3.000	0.000	0.00
L11	116.00-115.75	A	0.000	0.000	0.320	0.000	0.00
		B	0.000	0.000	0.280	0.000	0.00
		C	0.000	0.000	0.280	0.000	0.00
L12	115.75-110.75	A	0.000	0.000	7.467	0.000	0.06
		B	0.000	0.000	6.667	0.000	0.07
		C	0.000	0.000	6.667	0.000	0.00
L13	110.75-105.75	A	0.000	0.000	7.467	0.000	0.06
		B	0.000	0.000	6.667	0.000	0.07

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	6.667	0.000	0.00
L14	105.75-98.50	A	0.000	0.000	10.827	0.000	0.09
		B	0.000	0.000	9.667	0.000	0.10
		C	0.000	0.000	9.667	0.000	0.00
L15	98.50-97.00	A	0.000	0.000	2.907	0.000	0.02
		B	0.000	0.000	2.667	0.000	0.02
		C	0.000	0.000	2.667	0.000	0.00
L16	97.00-96.75	A	0.000	0.000	0.540	0.000	0.00
		B	0.000	0.000	0.500	0.000	0.00
		C	0.000	0.000	0.500	0.000	0.00
L17	96.75-93.98	A	0.000	0.000	5.930	0.000	0.04
		B	0.000	0.000	5.487	0.000	0.04
		C	0.000	0.000	5.487	0.000	0.00
L18	93.98-93.73	A	0.000	0.000	0.540	0.000	0.00
		B	0.000	0.000	0.500	0.000	0.00
		C	0.000	0.000	0.500	0.000	0.00
L19	93.73-91.50	A	0.000	0.000	5.129	0.000	0.03
		B	0.000	0.000	4.773	0.000	0.03
		C	0.000	0.000	4.773	0.000	0.00
L20	91.50-91.25	A	0.000	0.000	0.603	0.000	0.00
		B	0.000	0.000	0.563	0.000	0.00
		C	0.000	0.000	0.563	0.000	0.00
L21	91.25-90.25	A	0.000	0.000	2.410	0.000	0.01
		B	0.000	0.000	2.250	0.000	0.01
		C	0.000	0.000	2.250	0.000	0.00
L22	90.25-90.00	A	0.000	0.000	0.603	0.000	0.00
		B	0.000	0.000	0.563	0.000	0.00
		C	0.000	0.000	0.563	0.000	0.00
L23	90.00-89.00	A	0.000	0.000	3.023	0.000	0.01
		B	0.000	0.000	2.863	0.000	0.01
		C	0.000	0.000	2.863	0.000	0.00
L24	89.00-88.75	A	0.000	0.000	0.769	0.000	0.00
		B	0.000	0.000	0.729	0.000	0.00
		C	0.000	0.000	0.729	0.000	0.00
L25	88.75-83.75	A	0.000	0.000	12.550	0.000	0.06
		B	0.000	0.000	11.750	0.000	0.07
		C	0.000	0.000	11.750	0.000	0.00
L26	83.75-80.08	A	0.000	0.000	9.511	0.000	0.05
		B	0.000	0.000	9.591	0.000	0.05
		C	0.000	0.000	9.591	0.000	0.00
L27	80.08-79.83	A	0.000	0.000	0.769	0.000	0.00
		B	0.000	0.000	0.896	0.000	0.00
		C	0.000	0.000	0.896	0.000	0.00
L28	79.83-74.83	A	0.000	0.000	15.511	0.000	0.06
		B	0.000	0.000	18.044	0.000	0.07
		C	0.000	0.000	18.044	0.000	0.00
L29	74.83-73.50	A	0.000	0.000	5.089	0.000	0.02
		B	0.000	0.000	5.763	0.000	0.02
		C	0.000	0.000	5.763	0.000	0.00
L30	73.50-73.25	A	0.000	0.000	0.957	0.000	0.00
		B	0.000	0.000	1.083	0.000	0.00
		C	0.000	0.000	1.083	0.000	0.00
L31	73.25-71.00	A	0.000	0.000	8.610	0.000	0.03
		B	0.000	0.000	9.750	0.000	0.03
		C	0.000	0.000	9.750	0.000	0.00
L32	71.00-70.75	A	0.000	0.000	0.957	0.000	0.00
		B	0.000	0.000	1.083	0.000	0.00
		C	0.000	0.000	1.083	0.000	0.00
L33	70.75-65.75	A	0.000	0.000	16.300	0.000	0.06
		B	0.000	0.000	18.833	0.000	0.07
		C	0.000	0.000	18.833	0.000	0.00
L34	65.75-63.00	A	0.000	0.000	6.970	0.000	0.04
		B	0.000	0.000	8.363	0.000	0.04
		C	0.000	0.000	8.363	0.000	0.00
L35	63.00-62.75	A	0.000	0.000	0.623	0.000	0.00
		B	0.000	0.000	0.750	0.000	0.00
		C	0.000	0.000	0.750	0.000	0.00
L36	62.75-62.08	A	0.000	0.000	1.671	0.000	0.01
		B	0.000	0.000	2.010	0.000	0.01

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	2.600	0.000	0.00
L37	62.08-61.83	A	0.000	0.000	0.623	0.000	0.00
		B	0.000	0.000	0.750	0.000	0.00
		C	0.000	0.000	1.000	0.000	0.00
L38	61.83-60.67	A	0.000	0.000	2.619	0.000	0.02
		B	0.000	0.000	3.263	0.000	0.02
		C	0.000	0.000	4.423	0.000	0.00
L39	60.67-60.42	A	0.000	0.000	0.457	0.000	0.00
		B	0.000	0.000	0.667	0.000	0.00
		C	0.000	0.000	0.917	0.000	0.00
L40	60.42-59.00	A	0.000	0.000	2.594	0.000	0.02
		B	0.000	0.000	3.787	0.000	0.02
		C	0.000	0.000	5.207	0.000	0.00
L41	59.00-58.75	A	0.000	0.000	0.457	0.000	0.00
		B	0.000	0.000	0.667	0.000	0.00
		C	0.000	0.000	0.917	0.000	0.00
L42	58.75-53.75	A	0.000	0.000	9.133	0.000	0.06
		B	0.000	0.000	13.333	0.000	0.07
		C	0.000	0.000	18.333	0.000	0.00
L43	53.75-48.50	A	0.000	0.000	11.305	0.000	0.07
		B	0.000	0.000	12.875	0.000	0.07
		C	0.000	0.000	18.125	0.000	0.00
L44	48.50-47.50	A	0.000	0.000	3.077	0.000	0.01
		B	0.000	0.000	1.917	0.000	0.01
		C	0.000	0.000	2.917	0.000	0.00
L45	47.50-45.75	A	0.000	0.000	5.384	0.000	0.02
		B	0.000	0.000	3.354	0.000	0.02
		C	0.000	0.000	5.104	0.000	0.00
L46	45.75-45.50	A	0.000	0.000	0.769	0.000	0.00
		B	0.000	0.000	0.479	0.000	0.00
		C	0.000	0.000	0.729	0.000	0.00
L47	45.50-45.00	A	0.000	0.000	1.538	0.000	0.01
		B	0.000	0.000	0.958	0.000	0.01
		C	0.000	0.000	1.458	0.000	0.00
L48	45.00-44.75	A	0.000	0.000	0.957	0.000	0.00
		B	0.000	0.000	0.667	0.000	0.00
		C	0.000	0.000	0.917	0.000	0.00
L49	44.75-43.50	A	0.000	0.000	4.783	0.000	0.02
		B	0.000	0.000	3.333	0.000	0.02
		C	0.000	0.000	4.583	0.000	0.00
L50	43.50-43.25	A	0.000	0.000	0.957	0.000	0.00
		B	0.000	0.000	0.667	0.000	0.00
		C	0.000	0.000	0.917	0.000	0.00
L51	43.25-38.25	A	0.000	0.000	19.133	0.000	0.06
		B	0.000	0.000	13.333	0.000	0.07
		C	0.000	0.000	18.333	0.000	0.00
L52	38.25-33.25	A	0.000	0.000	19.133	0.000	0.06
		B	0.000	0.000	13.333	0.000	0.07
		C	0.000	0.000	18.333	0.000	0.00
L53	33.25-30.50	A	0.000	0.000	10.443	0.000	0.04
		B	0.000	0.000	7.333	0.000	0.04
		C	0.000	0.000	10.083	0.000	0.00
L54	30.50-30.25	A	0.000	0.000	0.936	0.000	0.00
		B	0.000	0.000	0.667	0.000	0.00
		C	0.000	0.000	0.917	0.000	0.00
L55	30.25-29.67	A	0.000	0.000	2.171	0.000	0.01
		B	0.000	0.000	1.547	0.000	0.01
		C	0.000	0.000	2.127	0.000	0.00
L56	29.67-29.42	A	0.000	0.000	0.936	0.000	0.00
		B	0.000	0.000	0.667	0.000	0.00
		C	0.000	0.000	0.917	0.000	0.00
L57	29.42-28.00	A	0.000	0.000	5.316	0.000	0.02
		B	0.000	0.000	3.787	0.000	0.02
		C	0.000	0.000	5.207	0.000	0.00
L58	28.00-27.75	A	0.000	0.000	0.936	0.000	0.00
		B	0.000	0.000	0.667	0.000	0.00
		C	0.000	0.000	0.917	0.000	0.00
L59	27.75-26.92	A	0.000	0.000	3.919	0.000	0.01
		B	0.000	0.000	2.213	0.000	0.01

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	3.856	0.000	0.00
L60	26.92-26.67	A	0.000	0.000	1.207	0.000	0.00
		B	0.000	0.000	0.667	0.000	0.00
		C	0.000	0.000	1.188	0.000	0.00
L61	26.67-26.50	A	0.000	0.000	0.821	0.000	0.00
		B	0.000	0.000	0.453	0.000	0.00
		C	0.000	0.000	0.808	0.000	0.00
L62	26.50-26.25	A	0.000	0.000	1.207	0.000	0.00
		B	0.000	0.000	0.667	0.000	0.00
		C	0.000	0.000	1.188	0.000	0.00
L63	26.25-24.92	A	0.000	0.000	6.359	0.000	0.02
		B	0.000	0.000	2.407	0.000	0.02
		C	0.000	0.000	4.098	0.000	0.00
L64	24.92-24.67	A	0.000	0.000	1.040	0.000	0.00
		B	0.000	0.000	0.500	0.000	0.00
		C	0.000	0.000	0.500	0.000	0.00
L65	24.67-22.17	A	0.000	0.000	10.400	0.000	0.03
		B	0.000	0.000	5.000	0.000	0.03
		C	0.000	0.000	5.000	0.000	0.00
L66	22.17-21.92	A	0.000	0.000	1.040	0.000	0.00
		B	0.000	0.000	0.500	0.000	0.00
		C	0.000	0.000	0.500	0.000	0.00
L67	21.92-16.92	A	0.000	0.000	20.800	0.000	0.06
		B	0.000	0.000	10.000	0.000	0.07
		C	0.000	0.000	10.000	0.000	0.00
L68	16.92-11.92	A	0.000	0.000	20.800	0.000	0.06
		B	0.000	0.000	10.000	0.000	0.07
		C	0.000	0.000	10.000	0.000	0.00
L69	11.92-6.92	A	0.000	0.000	20.800	0.000	0.05
		B	0.000	0.000	10.000	0.000	0.05
		C	0.000	0.000	10.000	0.000	0.00
L70	6.92-3.25	A	0.000	0.000	15.267	0.000	0.01
		B	0.000	0.000	7.340	0.000	0.00
		C	0.000	0.000	7.340	0.000	0.00
L71	3.25-3.00	A	0.000	0.000	1.040	0.000	0.00
		B	0.000	0.000	0.500	0.000	0.00
		C	0.000	0.000	0.500	0.000	0.00
L72	3.00-2.75	A	0.000	0.000	1.040	0.000	0.00
		B	0.000	0.000	0.500	0.000	0.00
		C	0.000	0.000	0.500	0.000	0.00
L73	2.75-2.33	A	0.000	0.000	1.747	0.000	0.00
		B	0.000	0.000	0.840	0.000	0.00
		C	0.000	0.000	0.840	0.000	0.00
L74	2.33-2.08	A	0.000	0.000	1.040	0.000	0.00
		B	0.000	0.000	0.500	0.000	0.00
		C	0.000	0.000	0.500	0.000	0.00
L75	2.08-1.75	A	0.000	0.000	1.373	0.000	0.00
		B	0.000	0.000	0.660	0.000	0.00
		C	0.000	0.000	0.660	0.000	0.00
L76	1.75-1.40	A	0.000	0.000	1.456	0.000	0.00
		B	0.000	0.000	0.700	0.000	0.00
		C	0.000	0.000	0.700	0.000	0.00
L77	1.40-1.17	A	0.000	0.000	0.957	0.000	0.00
		B	0.000	0.000	0.460	0.000	0.00
		C	0.000	0.000	0.460	0.000	0.00
L78	1.17-0.25	A	0.000	0.000	2.827	0.000	0.00
		B	0.000	0.000	1.340	0.000	0.00
		C	0.000	0.000	1.340	0.000	0.00
L79	0.25-0.00	A	0.000	0.000	0.040	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	149.00-144.00	A	0.987	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L2	144.00-139.00	A	0.983	0.000	0.000	0.000	0.000	0.05
		B		0.000	0.000	0.000	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.00
L3	139.00-134.00	A	0.980	0.000	0.000	0.000	0.000	0.05
		B		0.000	0.000	0.000	0.000	0.04
		C		0.000	0.000	0.000	0.000	0.00
L4	134.00-129.00	A	0.976	0.000	0.000	0.000	0.000	0.05
		B		0.000	0.000	0.000	0.000	0.05
		C		0.000	0.000	0.000	0.000	0.00
L5	129.00-124.50	A	0.972	0.000	0.000	1.226	0.000	0.06
		B		0.000	0.000	1.226	0.000	0.07
		C		0.000	0.000	1.226	0.000	0.01
L6	124.50-124.25	A	0.971	0.000	0.000	0.204	0.000	0.00
		B		0.000	0.000	0.204	0.000	0.00
		C		0.000	0.000	0.204	0.000	0.00
L7	124.25-119.25	A	0.969	0.000	0.000	4.731	0.000	0.08
		B		0.000	0.000	4.731	0.000	0.10
		C		0.000	0.000	4.731	0.000	0.03
L8	119.25-118.50	A	0.966	0.000	0.000	1.434	0.000	0.02
		B		0.000	0.000	1.258	0.000	0.02
		C		0.000	0.000	1.258	0.000	0.01
L9	118.50-118.25	A	0.966	0.000	0.000	0.507	0.000	0.01
		B		0.000	0.000	0.419	0.000	0.01
		C		0.000	0.000	0.419	0.000	0.00
L10	118.25-116.00	A	0.965	0.000	0.000	4.566	0.000	0.06
		B		0.000	0.000	3.772	0.000	0.05
		C		0.000	0.000	3.772	0.000	0.02
L11	116.00-115.75	A	0.964	0.000	0.000	0.449	0.000	0.01
		B		0.000	0.000	0.361	0.000	0.01
		C		0.000	0.000	0.361	0.000	0.00
L12	115.75-110.75	A	0.962	0.000	0.000	10.351	0.000	0.13
		B		0.000	0.000	8.590	0.000	0.12
		C		0.000	0.000	8.590	0.000	0.05
L13	110.75-105.75	A	0.957	0.000	0.000	10.338	0.000	0.13
		B		0.000	0.000	8.581	0.000	0.12
		C		0.000	0.000	8.581	0.000	0.05
L14	105.75-98.50	A	0.952	0.000	0.000	14.966	0.000	0.19
		B		0.000	0.000	12.426	0.000	0.17
		C		0.000	0.000	12.426	0.000	0.07
L15	98.50-97.00	A	0.947	0.000	0.000	3.912	0.000	0.04
		B		0.000	0.000	3.387	0.000	0.04
		C		0.000	0.000	3.387	0.000	0.02
L16	97.00-96.75	A	0.947	0.000	0.000	0.719	0.000	0.01
		B		0.000	0.000	0.632	0.000	0.01
		C		0.000	0.000	0.632	0.000	0.00
L17	96.75-93.98	A	0.945	0.000	0.000	7.896	0.000	0.08
		B		0.000	0.000	6.929	0.000	0.08
		C		0.000	0.000	6.929	0.000	0.04
L18	93.98-93.73	A	0.944	0.000	0.000	0.719	0.000	0.01
		B		0.000	0.000	0.631	0.000	0.01
		C		0.000	0.000	0.631	0.000	0.00
L19	93.73-91.50	A	0.942	0.000	0.000	6.720	0.000	0.07
		B		0.000	0.000	5.943	0.000	0.07
		C		0.000	0.000	5.943	0.000	0.03
L20	91.50-91.25	A	0.941	0.000	0.000	0.781	0.000	0.01
		B		0.000	0.000	0.694	0.000	0.01
		C		0.000	0.000	0.694	0.000	0.00
L21	91.25-90.25	A	0.940	0.000	0.000	3.122	0.000	0.03
		B		0.000	0.000	2.774	0.000	0.03
		C		0.000	0.000	2.774	0.000	0.02
L22	90.25-90.00	A	0.940	0.000	0.000	0.780	0.000	0.01
		B		0.000	0.000	0.693	0.000	0.01
		C		0.000	0.000	0.693	0.000	0.00
L23	90.00-89.00	A	0.939	0.000	0.000	3.907	0.000	0.04
		B		0.000	0.000	3.559	0.000	0.03
		C		0.000	0.000	3.559	0.000	0.02

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L24	89.00-88.75	A	0.939	0.000	0.000	0.994	0.000	0.01
		B		0.000	0.000	0.907	0.000	0.01
		C		0.000	0.000	0.907	0.000	0.01
L25	88.75-83.75	A	0.936	0.000	0.000	16.403	0.000	0.16
		B		0.000	0.000	14.667	0.000	0.15
		C		0.000	0.000	14.667	0.000	0.08
L26	83.75-80.08	A	0.931	0.000	0.000	12.431	0.000	0.12
		B		0.000	0.000	12.013	0.000	0.12
		C		0.000	0.000	12.013	0.000	0.07
L27	80.08-79.83	A	0.929	0.000	0.000	1.001	0.000	0.01
		B		0.000	0.000	1.128	0.000	0.01
		C		0.000	0.000	1.128	0.000	0.01
L28	79.83-74.83	A	0.926	0.000	0.000	20.170	0.000	0.18
		B		0.000	0.000	22.703	0.000	0.19
		C		0.000	0.000	22.703	0.000	0.13
L29	74.83-73.50	A	0.922	0.000	0.000	6.560	0.000	0.05
		B		0.000	0.000	7.234	0.000	0.06
		C		0.000	0.000	7.234	0.000	0.04
L30	73.50-73.25	A	0.921	0.000	0.000	1.233	0.000	0.01
		B		0.000	0.000	1.360	0.000	0.01
		C		0.000	0.000	1.360	0.000	0.01
L31	73.25-71.00	A	0.919	0.000	0.000	11.092	0.000	0.09
		B		0.000	0.000	12.232	0.000	0.10
		C		0.000	0.000	12.232	0.000	0.07
L32	71.00-70.75	A	0.918	0.000	0.000	1.232	0.000	0.01
		B		0.000	0.000	1.359	0.000	0.01
		C		0.000	0.000	1.359	0.000	0.01
L33	70.75-65.75	A	0.914	0.000	0.000	21.007	0.000	0.18
		B		0.000	0.000	23.541	0.000	0.20
		C		0.000	0.000	23.541	0.000	0.13
L34	65.75-63.00	A	0.909	0.000	0.000	9.000	0.000	0.09
		B		0.000	0.000	10.393	0.000	0.09
		C		0.000	0.000	10.393	0.000	0.06
L35	63.00-62.75	A	0.907	0.000	0.000	0.805	0.000	0.01
		B		0.000	0.000	0.931	0.000	0.01
		C		0.000	0.000	0.931	0.000	0.01
L36	62.75-62.08	A	0.906	0.000	0.000	2.156	0.000	0.02
		B		0.000	0.000	2.496	0.000	0.02
		C		0.000	0.000	3.192	0.000	0.02
L37	62.08-61.83	A	0.905	0.000	0.000	0.804	0.000	0.01
		B		0.000	0.000	0.931	0.000	0.01
		C		0.000	0.000	1.226	0.000	0.01
L38	61.83-60.67	A	0.904	0.000	0.000	3.384	0.000	0.03
		B		0.000	0.000	4.014	0.000	0.04
		C		0.000	0.000	5.384	0.000	0.03
L39	60.67-60.42	A	0.903	0.000	0.000	0.592	0.000	0.01
		B		0.000	0.000	0.802	0.000	0.01
		C		0.000	0.000	1.097	0.000	0.01
L40	60.42-59.00	A	0.902	0.000	0.000	3.362	0.000	0.04
		B		0.000	0.000	4.555	0.000	0.04
		C		0.000	0.000	6.231	0.000	0.03
L41	59.00-58.75	A	0.901	0.000	0.000	0.592	0.000	0.01
		B		0.000	0.000	0.802	0.000	0.01
		C		0.000	0.000	1.097	0.000	0.01
L42	58.75-53.75	A	0.897	0.000	0.000	11.823	0.000	0.13
		B		0.000	0.000	16.023	0.000	0.15
		C		0.000	0.000	21.920	0.000	0.12
L43	53.75-48.50	A	0.888	0.000	0.000	14.340	0.000	0.15
		B		0.000	0.000	15.406	0.000	0.15
		C		0.000	0.000	21.588	0.000	0.11
L44	48.50-47.50	A	0.882	0.000	0.000	3.787	0.000	0.03
		B		0.000	0.000	2.272	0.000	0.03
		C		0.000	0.000	3.449	0.000	0.02
L45	47.50-45.75	A	0.880	0.000	0.000	6.616	0.000	0.06
		B		0.000	0.000	3.970	0.000	0.04
		C		0.000	0.000	6.028	0.000	0.03
L46	45.75-45.50	A	0.878	0.000	0.000	0.945	0.000	0.01
		B		0.000	0.000	0.567	0.000	0.01
		C		0.000	0.000	0.861	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L47	45.50-45.00	A	0.877	0.000	0.000	1.889	0.000	0.02
		B		0.000	0.000	1.134	0.000	0.01
		C		0.000	0.000	1.722	0.000	0.01
L48	45.00-44.75	A	0.877	0.000	0.000	1.176	0.000	0.01
		B		0.000	0.000	0.798	0.000	0.01
		C		0.000	0.000	1.092	0.000	0.01
L49	44.75-43.50	A	0.875	0.000	0.000	5.877	0.000	0.05
		B		0.000	0.000	3.990	0.000	0.04
		C		0.000	0.000	5.458	0.000	0.03
L50	43.50-43.25	A	0.874	0.000	0.000	1.175	0.000	0.01
		B		0.000	0.000	0.798	0.000	0.01
		C		0.000	0.000	1.091	0.000	0.01
L51	43.25-38.25	A	0.868	0.000	0.000	23.474	0.000	0.19
		B		0.000	0.000	15.938	0.000	0.15
		C		0.000	0.000	21.806	0.000	0.11
L52	38.25-33.25	A	0.857	0.000	0.000	23.417	0.000	0.19
		B		0.000	0.000	15.904	0.000	0.15
		C		0.000	0.000	21.761	0.000	0.11
L53	33.25-30.50	A	0.847	0.000	0.000	12.759	0.000	0.10
		B		0.000	0.000	8.731	0.000	0.08
		C		0.000	0.000	11.947	0.000	0.06
L54	30.50-30.25	A	0.843	0.000	0.000	1.147	0.000	0.01
		B		0.000	0.000	0.793	0.000	0.01
		C		0.000	0.000	1.085	0.000	0.01
L55	30.25-29.67	A	0.842	0.000	0.000	2.659	0.000	0.02
		B		0.000	0.000	1.840	0.000	0.02
		C		0.000	0.000	2.517	0.000	0.01
L56	29.67-29.42	A	0.841	0.000	0.000	1.146	0.000	0.01
		B		0.000	0.000	0.793	0.000	0.01
		C		0.000	0.000	1.085	0.000	0.01
L57	29.42-28.00	A	0.838	0.000	0.000	6.506	0.000	0.05
		B		0.000	0.000	4.501	0.000	0.04
		C		0.000	0.000	6.159	0.000	0.03
L58	28.00-27.75	A	0.836	0.000	0.000	1.145	0.000	0.01
		B		0.000	0.000	0.792	0.000	0.01
		C		0.000	0.000	1.084	0.000	0.01
L59	27.75-26.92	A	0.834	0.000	0.000	4.737	0.000	0.03
		B		0.000	0.000	2.629	0.000	0.02
		C		0.000	0.000	4.535	0.000	0.02
L60	26.92-26.67	A	0.832	0.000	0.000	1.456	0.000	0.01
		B		0.000	0.000	0.792	0.000	0.01
		C		0.000	0.000	1.396	0.000	0.01
L61	26.67-26.50	A	0.832	0.000	0.000	0.990	0.000	0.01
		B		0.000	0.000	0.538	0.000	0.00
		C		0.000	0.000	0.949	0.000	0.00
L62	26.50-26.25	A	0.831	0.000	0.000	1.456	0.000	0.01
		B		0.000	0.000	0.791	0.000	0.01
		C		0.000	0.000	1.395	0.000	0.01
L63	26.25-24.92	A	0.829	0.000	0.000	7.669	0.000	0.06
		B		0.000	0.000	2.876	0.000	0.03
		C		0.000	0.000	4.828	0.000	0.02
L64	24.92-24.67	A	0.826	0.000	0.000	1.247	0.000	0.01
		B		0.000	0.000	0.583	0.000	0.01
		C		0.000	0.000	0.583	0.000	0.00
L65	24.67-22.17	A	0.821	0.000	0.000	12.453	0.000	0.09
		B		0.000	0.000	5.821	0.000	0.06
		C		0.000	0.000	5.821	0.000	0.03
L66	22.17-21.92	A	0.816	0.000	0.000	1.244	0.000	0.01
		B		0.000	0.000	0.582	0.000	0.01
		C		0.000	0.000	0.582	0.000	0.00
L67	21.92-16.92	A	0.806	0.000	0.000	24.830	0.000	0.19
		B		0.000	0.000	11.612	0.000	0.12
		C		0.000	0.000	11.612	0.000	0.06
L68	16.92-11.92	A	0.782	0.000	0.000	24.712	0.000	0.18
		B		0.000	0.000	11.565	0.000	0.12
		C		0.000	0.000	11.565	0.000	0.05
L69	11.92-6.92	A	0.750	0.000	0.000	24.549	0.000	0.17
		B		0.000	0.000	11.500	0.000	0.10
		C		0.000	0.000	11.500	0.000	0.05

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L70	6.92-3.25	A	0.705	0.000	0.000	17.854	0.000	0.09
		B		0.000	0.000	8.375	0.000	0.03
		C		0.000	0.000	8.375	0.000	0.03
L71	3.25-3.00	A	0.672	0.000	0.000	1.208	0.000	0.01
		B		0.000	0.000	0.567	0.000	0.00
		C		0.000	0.000	0.567	0.000	0.00
L72	3.00-2.75	A	0.666	0.000	0.000	1.206	0.000	0.01
		B		0.000	0.000	0.567	0.000	0.00
		C		0.000	0.000	0.567	0.000	0.00
L73	2.75-2.33	A	0.658	0.000	0.000	2.023	0.000	0.01
		B		0.000	0.000	0.950	0.000	0.00
		C		0.000	0.000	0.950	0.000	0.00
L74	2.33-2.08	A	0.648	0.000	0.000	1.202	0.000	0.01
		B		0.000	0.000	0.565	0.000	0.00
		C		0.000	0.000	0.565	0.000	0.00
L75	2.08-1.75	A	0.639	0.000	0.000	1.584	0.000	0.01
		B		0.000	0.000	0.744	0.000	0.00
		C		0.000	0.000	0.744	0.000	0.00
L76	1.75-1.40	A	0.627	0.000	0.000	1.675	0.000	0.01
		B		0.000	0.000	0.788	0.000	0.00
		C		0.000	0.000	0.788	0.000	0.00
L77	1.40-1.17	A	0.614	0.000	0.000	1.098	0.000	0.00
		B		0.000	0.000	0.517	0.000	0.00
		C		0.000	0.000	0.517	0.000	0.00
L78	1.17-0.25	A	0.579	0.000	0.000	3.244	0.000	0.01
		B		0.000	0.000	1.495	0.000	0.01
		C		0.000	0.000	1.495	0.000	0.01
L79	0.25-0.00	A	0.487	0.000	0.000	0.064	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	149.00-144.00	0.0000	0.0000	0.0000	0.0000
L2	144.00-139.00	0.0000	0.0000	0.0000	0.0000
L3	139.00-134.00	0.0000	0.0000	0.0000	0.0000
L4	134.00-129.00	0.0000	0.0000	0.0000	0.0000
L5	129.00-124.50	0.0000	0.0000	0.0000	0.0000
L6	124.50-124.25	0.0000	0.0000	0.0000	0.0000
L7	124.25-119.25	0.0000	0.0000	0.0000	0.0000
L8	119.25-118.50	-0.1591	-0.1591	-0.2499	-0.2499
L9	118.50-118.25	-0.2368	-0.2368	-0.3699	-0.3699
L10	118.25-116.00	-0.2385	-0.2385	-0.3722	-0.3722
L11	116.00-115.75	-0.2718	-0.2718	-0.4114	-0.4114
L12	115.75-110.75	-0.2436	-0.2436	-0.3731	-0.3731
L13	110.75-105.75	-0.2500	-0.2500	-0.3818	-0.3818
L14	105.75-98.50	-0.2577	-0.2577	-0.3921	-0.3921
L15	98.50-97.00	-0.2108	-0.2108	-0.3301	-0.3301
L16	97.00-96.75	-0.1934	-0.1934	-0.3055	-0.3055
L17	96.75-93.98	-0.1964	-0.1964	-0.3097	-0.3097
L18	93.98-93.73	-0.1964	-0.1964	-0.3097	-0.3097
L19	93.73-91.50	-0.1875	-0.1875	-0.2995	-0.2995
L20	91.50-91.25	-0.1813	-0.1813	-0.2924	-0.2924
L21	91.25-90.25	-0.1819	-0.1819	-0.2933	-0.2933
L22	90.25-90.00	-0.1625	-0.1625	-0.2934	-0.2934
L23	90.00-89.00	-0.1362	-0.1362	-0.2436	-0.2436
L24	89.00-88.75	-0.1352	-0.1352	-0.2414	-0.2414
L25	88.75-83.75	-0.1797	-0.1797	-0.2869	-0.2869
L26	83.75-80.08	-0.0694	-0.5343	-0.1775	-0.6161
L27	80.08-79.83	0.1479	-1.0980	0.0632	-1.2343
L28	79.83-74.83	0.1627	-1.2092	0.0639	-1.2446
L29	74.83-73.50	0.1296	-0.9641	0.0557	-1.0817

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L30	73.50-73.25	0.1296	-0.9641	0.0558	-1.0822
L31	73.25-71.00	0.1305	-0.9709	0.0563	-1.0898
L32	71.00-70.75	0.1316	-0.9793	0.0569	-1.0989
L33	70.75-65.75	0.1635	-1.2183	0.0653	-1.2573
L34	65.75-63.00	0.2011	-1.4993	0.0799	-1.5312
L35	63.00-62.75	0.2048	-1.5276	0.0815	-1.5582
L36	62.75-62.08	-1.2163	-0.9754	-1.1711	-1.0662
L37	62.08-61.83	-1.3946	-0.9087	-1.3299	-1.0063
L38	61.83-60.67	-1.4482	-1.0615	-1.3931	-1.1232
L39	60.67-60.42	-1.3806	-1.7482	-1.3670	-1.6960
L40	60.42-59.00	-1.3859	-1.7548	-1.3717	-1.7018
L41	59.00-58.75	-1.3912	-1.7615	-1.3765	-1.7078
L42	58.75-53.75	-1.4075	-1.7822	-1.3911	-1.7261
L43	53.75-48.50	-2.2427	-2.2963	-2.1416	-2.1896
L44	48.50-47.50	-4.4113	-3.5643	-4.1067	-3.3449
L45	47.50-45.75	-4.4362	-3.5846	-4.1264	-3.3609
L46	45.75-45.50	-4.4542	-3.5993	-4.1416	-3.3734
L47	45.50-45.00	-4.4610	-3.6049	-4.1473	-3.3780
L48	45.00-44.75	-3.6439	-2.9446	-3.4231	-2.7882
L49	44.75-43.50	-3.6554	-2.9540	-3.4332	-2.7964
L50	43.50-43.25	-3.6672	-2.9636	-3.4435	-2.8048
L51	43.25-38.25	-3.7075	-2.9964	-3.4784	-2.8334
L52	38.25-33.25	-3.7837	-3.0584	-3.5440	-2.8870
L53	33.25-30.50	-3.8139	-3.0918	-3.5679	-2.9146
L54	30.50-30.25	-0.6818	-1.7025	-0.7107	-1.6471
L55	30.25-29.67	-0.6829	-1.7053	-0.7116	-1.6495
L56	29.67-29.42	-0.6838	-1.7078	-0.7123	-1.6515
L57	29.42-28.00	-0.6859	-1.7134	-0.7142	-1.6563
L58	28.00-27.75	-0.6881	-1.7191	-0.7161	-1.6612
L59	27.75-26.92	-0.2582	0.0037	-0.3230	-0.1074
L60	26.92-26.67	-0.2195	0.1603	-0.2871	0.0361
L61	26.67-26.50	-0.2197	0.1604	-0.2872	0.0361
L62	26.50-26.25	-0.2198	0.1605	-0.2873	0.0362
L63	26.25-24.92	0.7024	1.4635	0.5306	1.1863
L64	24.92-24.67	3.9022	1.2865	3.3737	1.0196
L65	24.67-22.17	3.9219	1.2930	3.3898	1.0250
L66	22.17-21.92	3.9420	1.2997	3.4062	1.0305
L67	21.92-16.92	3.9795	1.3121	3.4367	1.0409
L68	16.92-11.92	4.0505	1.3357	3.4946	1.0612
L69	11.92-6.92	4.1207	1.3590	3.5521	1.0823
L70	6.92-3.25	4.1811	1.3790	3.6019	1.1025
L71	3.25-3.00	4.2080	1.3879	3.6245	1.1132
L72	3.00-2.75	4.2105	1.3887	3.6265	1.1145
L73	2.75-2.33	4.2152	1.3903	3.6305	1.1166
L74	2.33-2.08	4.2200	1.3919	3.6348	1.1190
L75	2.08-1.75	4.2240	1.3932	3.6383	1.1211
L76	1.75-1.40	4.2284	1.3947	3.6423	1.1238
L77	1.40-1.17	4.2324	1.3960	3.6460	1.1263
L78	1.17-0.25	3.7992	1.2017	3.1428	0.9040
L79	0.25-0.00	-0.8959	-0.8959	-0.8587	-0.8587

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
L5	54	4" x 0.75" Flat Plate (G)	124.50 - 126.00	1.0000	1.0000
L5	55	4" x 0.75" Flat Plate (G)	124.50 - 126.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L5	56	4" x 0.75" Flat Plate (G)	124.50 - 126.00	1.0000	1.0000
L6	54	4" x 0.75" Flat Plate (G)	124.25 - 124.50	1.0000	1.0000
L6	55	4" x 0.75" Flat Plate (G)	124.25 - 124.50	1.0000	1.0000
L6	56	4" x 0.75" Flat Plate (G)	124.25 - 124.50	1.0000	1.0000
L7	34	4" x 1.25" Flat Plate (G)	119.25 - 120.00	1.0000	1.0000
L7	35	4" x 1.25" Flat Plate (G)	119.25 - 120.00	1.0000	1.0000
L7	36	4" x 1.25" Flat Plate (G)	119.25 - 120.00	1.0000	1.0000
L7	54	4" x 0.75" Flat Plate (G)	119.25 - 124.25	1.0000	1.0000
L7	55	4" x 0.75" Flat Plate (G)	119.25 - 124.25	1.0000	1.0000
L7	56	4" x 0.75" Flat Plate (G)	119.25 - 124.25	1.0000	1.0000
L8	13	CU12PSM9P6XXX(1-1/2)	118.50 - 119.00	1.0000	1.0000
L8	34	4" x 1.25" Flat Plate (G)	118.50 - 119.25	1.0000	1.0000
L8	35	4" x 1.25" Flat Plate (G)	118.50 - 119.25	1.0000	1.0000
L8	36	4" x 1.25" Flat Plate (G)	118.50 - 119.25	1.0000	1.0000
L8	54	4" x 0.75" Flat Plate (G)	118.50 - 119.25	1.0000	1.0000
L8	55	4" x 0.75" Flat Plate (G)	118.50 - 119.25	1.0000	1.0000
L8	56	4" x 0.75" Flat Plate (G)	118.50 - 119.25	1.0000	1.0000
L9	13	CU12PSM9P6XXX(1-1/2)	118.25 - 118.50	1.0000	1.0000
L9	34	4" x 1.25" Flat Plate (G)	118.25 - 118.50	1.0000	1.0000
L9	35	4" x 1.25" Flat Plate (G)	118.25 - 118.50	1.0000	1.0000
L9	36	4" x 1.25" Flat Plate (G)	118.25 - 118.50	1.0000	1.0000
L9	54	4" x 0.75" Flat Plate (G)	118.25 - 118.50	1.0000	1.0000
L9	55	4" x 0.75" Flat Plate (G)	118.25 - 118.50	1.0000	1.0000
L9	56	4" x 0.75" Flat Plate (G)	118.25 - 118.50	1.0000	1.0000
L10	13	CU12PSM9P6XXX(1-1/2)	116.00 - 118.25	1.0000	1.0000
L10	34	4" x 1.25" Flat Plate (G)	116.00 - 118.25	1.0000	1.0000
L10	35	4" x 1.25" Flat Plate (G)	116.00 - 118.25	1.0000	1.0000
L10	36	4" x 1.25" Flat Plate (G)	116.00 - 118.25	1.0000	1.0000
L10	54	4" x 0.75" Flat Plate (G)	116.00 - 118.25	1.0000	1.0000
L10	55	4" x 0.75" Flat Plate (G)	116.00 - 118.25	1.0000	1.0000
L10	56	4" x 0.75" Flat Plate (G)	116.00 - 118.25	1.0000	1.0000
L11	13	CU12PSM9P6XXX(1-1/2)	115.75 - 116.00	1.0000	1.0000
L11	34	4" x 1.25" Flat Plate (G)	115.75 - 116.00	1.0000	1.0000
L11	35	4" x 1.25" Flat Plate (G)	115.75 - 116.00	1.0000	1.0000
L11	36	4" x 1.25" Flat Plate (G)	115.75 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L11	87	4" x 0.75" Flat Plate (G)	116.00 - 115.75	1.0000	1.0000
L11	88	4" x 0.75" Flat Plate (G)	115.92 - 115.75	1.0000	1.0000
L11	89	4" x 0.75" Flat Plate (G)	115.92 - 115.75	1.0000	1.0000
L12	13	CU12PSM9P6XXX(1-1/2)	115.92 - 110.75	1.0000	1.0000
L12	34	4" x 1.25" Flat Plate (G)	115.75 - 110.75	1.0000	1.0000
L12	35	4" x 1.25" Flat Plate (G)	115.75 - 110.75	1.0000	1.0000
L12	36	4" x 1.25" Flat Plate (G)	115.75 - 110.75	1.0000	1.0000
L12	87	4" x 0.75" Flat Plate (G)	115.75 - 110.75	1.0000	1.0000
L12	88	4" x 0.75" Flat Plate (G)	115.75 - 110.75	1.0000	1.0000
L12	89	4" x 0.75" Flat Plate (G)	115.75 - 110.75	1.0000	1.0000
L13	13	CU12PSM9P6XXX(1-1/2)	110.75 - 105.75	1.0000	1.0000
L13	34	4" x 1.25" Flat Plate (G)	110.75 - 105.75	1.0000	1.0000
L13	35	4" x 1.25" Flat Plate (G)	110.75 - 105.75	1.0000	1.0000
L13	36	4" x 1.25" Flat Plate (G)	110.75 - 105.75	1.0000	1.0000
L13	87	4" x 0.75" Flat Plate (G)	110.75 - 105.75	1.0000	1.0000
L13	88	4" x 0.75" Flat Plate (G)	110.75 - 105.75	1.0000	1.0000
L13	89	4" x 0.75" Flat Plate (G)	110.75 - 105.75	1.0000	1.0000
L14	13	CU12PSM9P6XXX(1-1/2)	105.75 - 98.50	1.0000	1.0000
L14	34	4" x 1.25" Flat Plate (G)	105.75 - 98.50	1.0000	1.0000
L14	35	4" x 1.25" Flat Plate (G)	105.75 - 98.50	1.0000	1.0000
L14	36	4" x 1.25" Flat Plate (G)	105.75 - 98.50	1.0000	1.0000
L14	87	4" x 0.75" Flat Plate (G)	105.75 - 98.50	1.0000	1.0000
L14	88	4" x 0.75" Flat Plate (G)	105.75 - 98.50	1.0000	1.0000
L14	89	4" x 0.75" Flat Plate (G)	105.75 - 98.50	1.0000	1.0000
L15	13	CU12PSM9P6XXX(1-1/2)	98.50 - 97.00	1.0000	1.0000
L15	34	4" x 1.25" Flat Plate (G)	98.50 - 97.00	1.0000	1.0000
L15	35	4" x 1.25" Flat Plate (G)	98.50 - 97.00	1.0000	1.0000
L15	36	4" x 1.25" Flat Plate (G)	98.50 - 97.00	1.0000	1.0000
L15	50	4" x 0.75" Flat Plate (G)	98.50 - 98.00	1.0000	1.0000
L15	51	4" x 0.75" Flat Plate (G)	98.00 - 97.00	1.0000	1.0000
L15	52	4" x 0.75" Flat Plate (G)	98.00 - 97.00	1.0000	1.0000
L15	87	4" x 0.75" Flat Plate (G)	98.00 - 97.00	1.0000	1.0000
L15	88	4" x 0.75" Flat Plate (G)	98.50 - 97.00	1.0000	1.0000
L15	89	4" x 0.75" Flat Plate (G)	98.50 - 97.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L16	13	CU12PSM9P6XXX(1-1/2)	96.75 - 97.00	1.0000	1.0000
L16	34	4" x 1.25" Flat Plate (G)	96.75 - 97.00	1.0000	1.0000
L16	35	4" x 1.25" Flat Plate (G)	96.75 - 97.00	1.0000	1.0000
L16	36	4" x 1.25" Flat Plate (G)	96.75 - 97.00	1.0000	1.0000
L16	50	4" x 0.75" Flat Plate (G)	96.75 - 97.00	1.0000	1.0000
L16	51	4" x 0.75" Flat Plate (G)	96.75 - 97.00	1.0000	1.0000
L16	52	4" x 0.75" Flat Plate (G)	96.75 - 97.00	1.0000	1.0000
L16	87	4" x 0.75" Flat Plate (G)	96.75 - 97.00	1.0000	1.0000
L16	88	4" x 0.75" Flat Plate (G)	96.75 - 97.00	1.0000	1.0000
L16	89	4" x 0.75" Flat Plate (G)	96.75 - 97.00	1.0000	1.0000
L17	13	CU12PSM9P6XXX(1-1/2)	93.98 - 96.75	1.0000	1.0000
L17	34	4" x 1.25" Flat Plate (G)	93.98 - 96.75	1.0000	1.0000
L17	35	4" x 1.25" Flat Plate (G)	93.98 - 96.75	1.0000	1.0000
L17	36	4" x 1.25" Flat Plate (G)	93.98 - 96.75	1.0000	1.0000
L17	50	4" x 0.75" Flat Plate (G)	93.98 - 96.75	1.0000	1.0000
L17	51	4" x 0.75" Flat Plate (G)	93.98 - 96.75	1.0000	1.0000
L17	52	4" x 0.75" Flat Plate (G)	93.98 - 96.75	1.0000	1.0000
L17	82	4" x 0.75" Flat Plate (G)	93.98 - 95.00	1.0000	1.0000
L17	83	4" x 0.75" Flat Plate (G)	93.98 - 95.00	1.0000	1.0000
L17	84	4" x 0.75" Flat Plate (G)	93.98 - 95.00	1.0000	1.0000
L17	87	4" x 0.75" Flat Plate (G)	95.08 - 96.75	1.0000	1.0000
L17	88	4" x 0.75" Flat Plate (G)	95.08 - 96.75	1.0000	1.0000
L17	89	4" x 0.75" Flat Plate (G)	95.08 - 96.75	1.0000	1.0000
L18	13	CU12PSM9P6XXX(1-1/2)	93.73 - 93.98	1.0000	1.0000
L18	34	4" x 1.25" Flat Plate (G)	93.73 - 93.98	1.0000	1.0000
L18	35	4" x 1.25" Flat Plate (G)	93.73 - 93.98	1.0000	1.0000
L18	36	4" x 1.25" Flat Plate (G)	93.73 - 93.98	1.0000	1.0000
L18	50	4" x 0.75" Flat Plate (G)	93.73 - 93.98	1.0000	1.0000
L18	51	4" x 0.75" Flat Plate (G)	93.73 - 93.98	1.0000	1.0000
L18	52	4" x 0.75" Flat Plate (G)	93.73 - 93.98	1.0000	1.0000
L18	82	4" x 0.75" Flat Plate (G)	93.73 - 93.98	1.0000	1.0000
L18	83	4" x 0.75" Flat Plate (G)	93.73 - 93.98	1.0000	1.0000
L18	84	4" x 0.75" Flat Plate (G)	93.73 - 93.98	1.0000	1.0000
L19	13	CU12PSM9P6XXX(1-1/2)	91.50 - 93.73	1.0000	1.0000
L19	30	5.5" x 1.25" Flat Plate (G)	91.50 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L19	31	5.5" x 1.25" Flat Plate (G)	92.75 91.50 - 92.75	1.0000	1.0000
L19	32	5.5" x 1.25" Flat Plate (G)	91.50 - 92.75	1.0000	1.0000
L19	34	4" x 1.25" Flat Plate (G)	92.75 - 93.73	1.0000	1.0000
L19	35	4" x 1.25" Flat Plate (G)	92.75 - 93.73	1.0000	1.0000
L19	36	4" x 1.25" Flat Plate (G)	92.75 - 93.73	1.0000	1.0000
L19	50	4" x 0.75" Flat Plate (G)	91.50 - 93.73	1.0000	1.0000
L19	51	4" x 0.75" Flat Plate (G)	91.50 - 93.73	1.0000	1.0000
L19	52	4" x 0.75" Flat Plate (G)	91.50 - 93.73	1.0000	1.0000
L19	82	4" x 0.75" Flat Plate (G)	91.50 - 93.73	1.0000	1.0000
L19	83	4" x 0.75" Flat Plate (G)	91.50 - 93.73	1.0000	1.0000
L19	84	4" x 0.75" Flat Plate (G)	91.50 - 93.73	1.0000	1.0000
L20	13	CU12PSM9P6XXX(1-1/2)	91.25 - 91.50	1.0000	1.0000
L20	30	5.5" x 1.25" Flat Plate (G)	91.25 - 91.50	1.0000	1.0000
L20	31	5.5" x 1.25" Flat Plate (G)	91.25 - 91.50	1.0000	1.0000
L20	32	5.5" x 1.25" Flat Plate (G)	91.25 - 91.50	1.0000	1.0000
L20	50	4" x 0.75" Flat Plate (G)	91.25 - 91.50	1.0000	1.0000
L20	51	4" x 0.75" Flat Plate (G)	91.25 - 91.50	1.0000	1.0000
L20	52	4" x 0.75" Flat Plate (G)	91.25 - 91.50	1.0000	1.0000
L20	82	4" x 0.75" Flat Plate (G)	91.25 - 91.50	1.0000	1.0000
L20	83	4" x 0.75" Flat Plate (G)	91.25 - 91.50	1.0000	1.0000
L20	84	4" x 0.75" Flat Plate (G)	91.25 - 91.50	1.0000	1.0000
L21	13	CU12PSM9P6XXX(1-1/2)	90.25 - 91.25	1.0000	1.0000
L21	30	5.5" x 1.25" Flat Plate (G)	90.25 - 91.25	1.0000	1.0000
L21	31	5.5" x 1.25" Flat Plate (G)	90.25 - 91.25	1.0000	1.0000
L21	32	5.5" x 1.25" Flat Plate (G)	90.25 - 91.25	1.0000	1.0000
L21	50	4" x 0.75" Flat Plate (G)	90.25 - 91.25	1.0000	1.0000
L21	51	4" x 0.75" Flat Plate (G)	90.25 - 91.25	1.0000	1.0000
L21	52	4" x 0.75" Flat Plate (G)	90.25 - 91.25	1.0000	1.0000
L21	82	4" x 0.75" Flat Plate (G)	90.25 - 91.25	1.0000	1.0000
L21	83	4" x 0.75" Flat Plate (G)	90.25 - 91.25	1.0000	1.0000
L21	84	4" x 0.75" Flat Plate (G)	90.25 - 91.25	1.0000	1.0000
L22	13	CU12PSM9P6XXX(1-1/2)	90.00 - 90.25	1.0000	1.0000
L22	30	5.5" x 1.25" Flat Plate (G)	90.00 - 90.25	1.0000	1.0000
L22	31	5.5" x 1.25" Flat Plate (G)	90.00 - 90.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L22	32	5.5" x 1.25" Flat Plate (G)	90.00 - 90.25	1.0000	1.0000
L22	50	4" x 0.75" Flat Plate (G)	90.00 - 90.25	1.0000	1.0000
L22	51	4" x 0.75" Flat Plate (G)	90.00 - 90.25	1.0000	1.0000
L22	52	4" x 0.75" Flat Plate (G)	90.00 - 90.25	1.0000	1.0000
L22	82	4" x 0.75" Flat Plate (G)	90.00 - 90.25	1.0000	1.0000
L22	83	4" x 0.75" Flat Plate (G)	90.00 - 90.25	1.0000	1.0000
L22	84	4" x 0.75" Flat Plate (G)	90.00 - 90.25	1.0000	1.0000
L23	13	CU12PSM9P6XXX(1-1/2)	89.00 - 90.00	1.0000	1.0000
L23	30	5.5" x 1.25" Flat Plate (G)	89.00 - 90.00	1.0000	1.0000
L23	31	5.5" x 1.25" Flat Plate (G)	89.00 - 90.00	1.0000	1.0000
L23	32	5.5" x 1.25" Flat Plate (G)	89.00 - 90.00	1.0000	1.0000
L23	50	4" x 0.75" Flat Plate (G)	89.00 - 90.00	1.0000	1.0000
L23	51	4" x 0.75" Flat Plate (G)	89.00 - 90.00	1.0000	1.0000
L23	52	4" x 0.75" Flat Plate (G)	89.00 - 90.00	1.0000	1.0000
L23	78	4" x 0.75" Flat Plate (G)	89.00 - 89.92	1.0000	1.0000
L23	79	4" x 0.75" Flat Plate (G)	89.00 - 89.92	1.0000	1.0000
L23	80	4" x 0.75" Flat Plate (G)	89.00 - 89.92	1.0000	1.0000
L23	82	4" x 0.75" Flat Plate (G)	89.00 - 90.00	1.0000	1.0000
L23	83	4" x 0.75" Flat Plate (G)	89.00 - 90.00	1.0000	1.0000
L23	84	4" x 0.75" Flat Plate (G)	89.00 - 90.00	1.0000	1.0000
L24	13	CU12PSM9P6XXX(1-1/2)	88.75 - 89.00	1.0000	1.0000
L24	30	5.5" x 1.25" Flat Plate (G)	88.75 - 89.00	1.0000	1.0000
L24	31	5.5" x 1.25" Flat Plate (G)	88.75 - 89.00	1.0000	1.0000
L24	32	5.5" x 1.25" Flat Plate (G)	88.75 - 89.00	1.0000	1.0000
L24	50	4" x 0.75" Flat Plate (G)	88.75 - 89.00	1.0000	1.0000
L24	51	4" x 0.75" Flat Plate (G)	88.75 - 89.00	1.0000	1.0000
L24	52	4" x 0.75" Flat Plate (G)	88.75 - 89.00	1.0000	1.0000
L24	78	4" x 0.75" Flat Plate (G)	88.75 - 89.00	1.0000	1.0000
L24	79	4" x 0.75" Flat Plate (G)	88.75 - 89.00	1.0000	1.0000
L24	80	4" x 0.75" Flat Plate (G)	88.75 - 89.00	1.0000	1.0000
L24	82	4" x 0.75" Flat Plate (G)	88.75 - 89.00	1.0000	1.0000
L24	83	4" x 0.75" Flat Plate (G)	88.75 - 89.00	1.0000	1.0000
L24	84	4" x 0.75" Flat Plate (G)	88.75 - 89.00	1.0000	1.0000
L25	13	CU12PSM9P6XXX(1-1/2)	83.75 - 88.75	1.0000	1.0000
L25	30	5.5" x 1.25" Flat Plate (G)	83.75 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L25	31	5.5" x 1.25" Flat Plate (G)	83.75 - 88.75	1.0000	1.0000
L25	32	5.5" x 1.25" Flat Plate (G)	83.75 - 88.75	1.0000	1.0000
L25	50	4" x 0.75" Flat Plate (G)	88.00 - 88.75	1.0000	1.0000
L25	51	4" x 0.75" Flat Plate (G)	88.00 - 88.75	1.0000	1.0000
L25	52	4" x 0.75" Flat Plate (G)	88.00 - 88.75	1.0000	1.0000
L25	78	4" x 0.75" Flat Plate (G)	83.75 - 88.75	1.0000	1.0000
L25	79	4" x 0.75" Flat Plate (G)	83.75 - 88.75	1.0000	1.0000
L25	80	4" x 0.75" Flat Plate (G)	83.75 - 88.75	1.0000	1.0000
L25	82	4" x 0.75" Flat Plate (G)	83.75 - 88.75	1.0000	1.0000
L25	83	4" x 0.75" Flat Plate (G)	83.75 - 88.75	1.0000	1.0000
L25	84	4" x 0.75" Flat Plate (G)	83.75 - 88.75	1.0000	1.0000
L26	13	CU12PSM9P6XXX(1-1/2)	80.08 - 83.75	1.0000	1.0000
L26	30	5.5" x 1.25" Flat Plate (G)	80.08 - 83.75	1.0000	1.0000
L26	31	5.5" x 1.25" Flat Plate (G)	80.08 - 83.75	1.0000	1.0000
L26	32	5.5" x 1.25" Flat Plate (G)	80.08 - 83.75	1.0000	1.0000
L26	72	4" x 0.75" Flat Plate (G)	80.08 - 81.08	1.0000	1.0000
L26	73	4" x 0.75" Flat Plate (G)	80.08 - 81.08	1.0000	1.0000
L26	74	4" x 0.75" Flat Plate (G)	80.08 - 81.08	1.0000	1.0000
L26	75	4" x 0.75" Flat Plate (G)	80.08 - 81.08	1.0000	1.0000
L26	76	4" x 0.75" Flat Plate (G)	80.08 - 81.08	1.0000	1.0000
L26	78	4" x 0.75" Flat Plate (G)	80.08 - 83.75	1.0000	1.0000
L26	79	4" x 0.75" Flat Plate (G)	80.08 - 83.75	1.0000	1.0000
L26	80	4" x 0.75" Flat Plate (G)	80.08 - 83.75	1.0000	1.0000
L26	82	4" x 0.75" Flat Plate (G)	80.08 - 83.75	1.0000	1.0000
L26	83	4" x 0.75" Flat Plate (G)	80.08 - 83.75	1.0000	1.0000
L26	84	4" x 0.75" Flat Plate (G)	80.08 - 83.75	1.0000	1.0000
L27	13	CU12PSM9P6XXX(1-1/2)	79.83 - 80.08	1.0000	1.0000
L27	30	5.5" x 1.25" Flat Plate (G)	79.83 - 80.08	1.0000	1.0000
L27	31	5.5" x 1.25" Flat Plate (G)	79.83 - 80.08	1.0000	1.0000
L27	32	5.5" x 1.25" Flat Plate (G)	79.83 - 80.08	1.0000	1.0000
L27	72	4" x 0.75" Flat Plate (G)	79.83 - 80.08	1.0000	1.0000
L27	73	4" x 0.75" Flat Plate (G)	79.83 - 80.08	1.0000	1.0000
L27	74	4" x 0.75" Flat Plate (G)	79.83 - 80.08	1.0000	1.0000
L27	75	4" x 0.75" Flat Plate (G)	79.83 - 80.08	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L27	76	4" x 0.75" Flat Plate (G)	79.83 - 80.08	1.0000	1.0000
L27	78	4" x 0.75" Flat Plate (G)	79.83 - 80.08	1.0000	1.0000
L27	79	4" x 0.75" Flat Plate (G)	79.83 - 80.08	1.0000	1.0000
L27	80	4" x 0.75" Flat Plate (G)	79.83 - 80.08	1.0000	1.0000
L27	82	4" x 0.75" Flat Plate (G)	79.83 - 80.08	1.0000	1.0000
L27	83	4" x 0.75" Flat Plate (G)	79.83 - 80.08	1.0000	1.0000
L27	84	4" x 0.75" Flat Plate (G)	79.83 - 80.08	1.0000	1.0000
L28	13	CU12PSM9P6XXX(1-1/2)	74.83 - 79.83	1.0000	1.0000
L28	30	5.5" x 1.25" Flat Plate (G)	74.83 - 79.83	1.0000	1.0000
L28	31	5.5" x 1.25" Flat Plate (G)	74.83 - 79.83	1.0000	1.0000
L28	32	5.5" x 1.25" Flat Plate (G)	74.83 - 79.83	1.0000	1.0000
L28	46	4.5" x 1" Flat Plate (G)	74.83 - 75.00	1.0000	1.0000
L28	47	4.5" x 1" Flat Plate (G)	74.83 - 75.00	1.0000	1.0000
L28	48	4.5" x 1" Flat Plate (G)	74.83 - 75.00	1.0000	1.0000
L28	72	4" x 0.75" Flat Plate (G)	74.83 - 79.83	1.0000	1.0000
L28	73	4" x 0.75" Flat Plate (G)	74.83 - 79.83	1.0000	1.0000
L28	74	4" x 0.75" Flat Plate (G)	74.83 - 79.83	1.0000	1.0000
L28	75	4" x 0.75" Flat Plate (G)	74.83 - 79.83	1.0000	1.0000
L28	76	4" x 0.75" Flat Plate (G)	74.83 - 79.83	1.0000	1.0000
L28	78	4" x 0.75" Flat Plate (G)	74.83 - 79.83	1.0000	1.0000
L28	79	4" x 0.75" Flat Plate (G)	74.83 - 79.83	1.0000	1.0000
L28	80	4" x 0.75" Flat Plate (G)	74.83 - 79.83	1.0000	1.0000
L28	82	4" x 0.75" Flat Plate (G)	74.83 - 79.83	1.0000	1.0000
L28	83	4" x 0.75" Flat Plate (G)	74.83 - 79.83	1.0000	1.0000
L28	84	4" x 0.75" Flat Plate (G)	74.83 - 79.83	1.0000	1.0000
L29	13	CU12PSM9P6XXX(1-1/2)	73.50 - 74.83	1.0000	1.0000
L29	30	5.5" x 1.25" Flat Plate (G)	73.50 - 74.83	1.0000	1.0000
L29	31	5.5" x 1.25" Flat Plate (G)	73.50 - 74.83	1.0000	1.0000
L29	32	5.5" x 1.25" Flat Plate (G)	73.50 - 74.83	1.0000	1.0000
L29	46	4.5" x 1" Flat Plate (G)	73.50 - 74.83	1.0000	1.0000
L29	47	4.5" x 1" Flat Plate (G)	73.50 - 74.83	1.0000	1.0000
L29	48	4.5" x 1" Flat Plate (G)	73.50 - 74.83	1.0000	1.0000
L29	72	4" x 0.75" Flat Plate (G)	73.50 - 74.83	1.0000	1.0000
L29	73	4" x 0.75" Flat Plate (G)	73.50 - 74.83	1.0000	1.0000
L29	74	4" x 0.75" Flat Plate (G)	73.50 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L29	75	4" x 0.75" Flat Plate (G)	73.50 - 74.83	1.0000	1.0000
L29	76	4" x 0.75" Flat Plate (G)	73.50 - 74.83	1.0000	1.0000
L29	78	4" x 0.75" Flat Plate (G)	73.50 - 74.83	1.0000	1.0000
L29	79	4" x 0.75" Flat Plate (G)	73.50 - 74.83	1.0000	1.0000
L29	80	4" x 0.75" Flat Plate (G)	73.50 - 74.83	1.0000	1.0000
L29	82	4" x 0.75" Flat Plate (G)	73.50 - 74.83	1.0000	1.0000
L29	83	4" x 0.75" Flat Plate (G)	73.50 - 74.83	1.0000	1.0000
L29	84	4" x 0.75" Flat Plate (G)	73.50 - 74.83	1.0000	1.0000
L30	13	CU12PSM9P6XXX(1-1/2)	73.25 - 73.50	1.0000	1.0000
L30	30	5.5" x 1.25" Flat Plate (G)	73.25 - 73.50	1.0000	1.0000
L30	31	5.5" x 1.25" Flat Plate (G)	73.25 - 73.50	1.0000	1.0000
L30	32	5.5" x 1.25" Flat Plate (G)	73.25 - 73.50	1.0000	1.0000
L30	46	4.5" x 1" Flat Plate (G)	73.25 - 73.50	1.0000	1.0000
L30	47	4.5" x 1" Flat Plate (G)	73.25 - 73.50	1.0000	1.0000
L30	48	4.5" x 1" Flat Plate (G)	73.25 - 73.50	1.0000	1.0000
L30	72	4" x 0.75" Flat Plate (G)	73.25 - 73.50	1.0000	1.0000
L30	73	4" x 0.75" Flat Plate (G)	73.25 - 73.50	1.0000	1.0000
L30	74	4" x 0.75" Flat Plate (G)	73.25 - 73.50	1.0000	1.0000
L30	75	4" x 0.75" Flat Plate (G)	73.25 - 73.50	1.0000	1.0000
L30	76	4" x 0.75" Flat Plate (G)	73.25 - 73.50	1.0000	1.0000
L30	78	4" x 0.75" Flat Plate (G)	73.25 - 73.50	1.0000	1.0000
L30	79	4" x 0.75" Flat Plate (G)	73.25 - 73.50	1.0000	1.0000
L30	80	4" x 0.75" Flat Plate (G)	73.25 - 73.50	1.0000	1.0000
L30	82	4" x 0.75" Flat Plate (G)	73.25 - 73.50	1.0000	1.0000
L30	83	4" x 0.75" Flat Plate (G)	73.25 - 73.50	1.0000	1.0000
L30	84	4" x 0.75" Flat Plate (G)	73.25 - 73.50	1.0000	1.0000
L31	13	CU12PSM9P6XXX(1-1/2)	71.00 - 73.25	1.0000	1.0000
L31	30	5.5" x 1.25" Flat Plate (G)	71.00 - 73.25	1.0000	1.0000
L31	31	5.5" x 1.25" Flat Plate (G)	71.00 - 73.25	1.0000	1.0000
L31	32	5.5" x 1.25" Flat Plate (G)	71.00 - 73.25	1.0000	1.0000
L31	46	4.5" x 1" Flat Plate (G)	71.00 - 73.25	1.0000	1.0000
L31	47	4.5" x 1" Flat Plate (G)	71.00 - 73.25	1.0000	1.0000
L31	48	4.5" x 1" Flat Plate (G)	71.00 - 73.25	1.0000	1.0000
L31	72	4" x 0.75" Flat Plate (G)	71.00 - 73.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L31	73	4" x 0.75" Flat Plate (G)	71.00 - 73.25	1.0000	1.0000
L31	74	4" x 0.75" Flat Plate (G)	71.00 - 73.25	1.0000	1.0000
L31	75	4" x 0.75" Flat Plate (G)	71.00 - 73.25	1.0000	1.0000
L31	76	4" x 0.75" Flat Plate (G)	71.00 - 73.25	1.0000	1.0000
L31	78	4" x 0.75" Flat Plate (G)	71.00 - 73.25	1.0000	1.0000
L31	79	4" x 0.75" Flat Plate (G)	71.00 - 73.25	1.0000	1.0000
L31	80	4" x 0.75" Flat Plate (G)	71.00 - 73.25	1.0000	1.0000
L31	82	4" x 0.75" Flat Plate (G)	71.00 - 73.25	1.0000	1.0000
L31	83	4" x 0.75" Flat Plate (G)	71.00 - 73.25	1.0000	1.0000
L31	84	4" x 0.75" Flat Plate (G)	71.00 - 73.25	1.0000	1.0000
L32	13	CU12PSM9P6XXX(1-1/2)	70.75 - 71.00	1.0000	1.0000
L32	30	5.5" x 1.25" Flat Plate (G)	70.75 - 71.00	1.0000	1.0000
L32	31	5.5" x 1.25" Flat Plate (G)	70.75 - 71.00	1.0000	1.0000
L32	32	5.5" x 1.25" Flat Plate (G)	70.75 - 71.00	1.0000	1.0000
L32	46	4.5" x 1" Flat Plate (G)	70.75 - 71.00	1.0000	1.0000
L32	47	4.5" x 1" Flat Plate (G)	70.75 - 71.00	1.0000	1.0000
L32	48	4.5" x 1" Flat Plate (G)	70.75 - 71.00	1.0000	1.0000
L32	72	4" x 0.75" Flat Plate (G)	70.75 - 71.00	1.0000	1.0000
L32	73	4" x 0.75" Flat Plate (G)	70.75 - 71.00	1.0000	1.0000
L32	74	4" x 0.75" Flat Plate (G)	70.75 - 71.00	1.0000	1.0000
L32	75	4" x 0.75" Flat Plate (G)	70.75 - 71.00	1.0000	1.0000
L32	76	4" x 0.75" Flat Plate (G)	70.75 - 71.00	1.0000	1.0000
L32	78	4" x 0.75" Flat Plate (G)	70.75 - 71.00	1.0000	1.0000
L32	79	4" x 0.75" Flat Plate (G)	70.75 - 71.00	1.0000	1.0000
L32	80	4" x 0.75" Flat Plate (G)	70.75 - 71.00	1.0000	1.0000
L32	82	4" x 0.75" Flat Plate (G)	70.75 - 71.00	1.0000	1.0000
L32	83	4" x 0.75" Flat Plate (G)	70.75 - 71.00	1.0000	1.0000
L32	84	4" x 0.75" Flat Plate (G)	70.75 - 71.00	1.0000	1.0000
L33	13	CU12PSM9P6XXX(1-1/2)	65.75 - 70.75	1.0000	1.0000
L33	30	5.5" x 1.25" Flat Plate (G)	65.75 - 70.75	1.0000	1.0000
L33	31	5.5" x 1.25" Flat Plate (G)	65.75 - 70.75	1.0000	1.0000
L33	32	5.5" x 1.25" Flat Plate (G)	65.75 - 70.75	1.0000	1.0000
L33	46	4.5" x 1" Flat Plate (G)	65.75 - 70.75	1.0000	1.0000
L33	47	4.5" x 1" Flat Plate (G)	65.75 - 70.75	1.0000	1.0000
L33	48	4.5" x 1" Flat Plate (G)	65.75 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L33	72	4" x 0.75" Flat Plate (G)	65.75 - 70.75	1.0000	1.0000
L33	73	4" x 0.75" Flat Plate (G)	65.75 - 70.75	1.0000	1.0000
L33	74	4" x 0.75" Flat Plate (G)	65.75 - 70.75	1.0000	1.0000
L33	75	4" x 0.75" Flat Plate (G)	65.75 - 70.75	1.0000	1.0000
L33	76	4" x 0.75" Flat Plate (G)	65.75 - 70.75	1.0000	1.0000
L33	78	4" x 0.75" Flat Plate (G)	65.75 - 70.75	1.0000	1.0000
L33	79	4" x 0.75" Flat Plate (G)	65.75 - 70.75	1.0000	1.0000
L33	80	4" x 0.75" Flat Plate (G)	65.75 - 70.75	1.0000	1.0000
L33	82	4" x 0.75" Flat Plate (G)	70.00 - 70.75	1.0000	1.0000
L33	83	4" x 0.75" Flat Plate (G)	70.00 - 70.75	1.0000	1.0000
L33	84	4" x 0.75" Flat Plate (G)	70.00 - 70.75	1.0000	1.0000
L34	13	CU12PSM9P6XXX(1-1/2)	63.00 - 65.75	1.0000	1.0000
L34	26	5.5" x 1.25" Flat Plate (G)	63.00 - 65.50	1.0000	1.0000
L34	27	5.5" x 1.25" Flat Plate (G)	63.00 - 65.50	1.0000	1.0000
L34	28	5.5" x 1.25" Flat Plate (G)	63.00 - 65.50	1.0000	1.0000
L34	30	5.5" x 1.25" Flat Plate (G)	65.50 - 65.75	1.0000	1.0000
L34	31	5.5" x 1.25" Flat Plate (G)	65.50 - 65.75	1.0000	1.0000
L34	32	5.5" x 1.25" Flat Plate (G)	65.50 - 65.75	1.0000	1.0000
L34	46	4.5" x 1" Flat Plate (G)	63.00 - 65.75	1.0000	1.0000
L34	47	4.5" x 1" Flat Plate (G)	63.00 - 65.75	1.0000	1.0000
L34	48	4.5" x 1" Flat Plate (G)	63.00 - 65.75	1.0000	1.0000
L34	72	4" x 0.75" Flat Plate (G)	63.00 - 65.75	1.0000	1.0000
L34	73	4" x 0.75" Flat Plate (G)	63.00 - 65.75	1.0000	1.0000
L34	74	4" x 0.75" Flat Plate (G)	63.00 - 65.75	1.0000	1.0000
L34	75	4" x 0.75" Flat Plate (G)	63.00 - 65.75	1.0000	1.0000
L34	76	4" x 0.75" Flat Plate (G)	63.00 - 65.75	1.0000	1.0000
L34	78	4" x 0.75" Flat Plate (G)	65.58 - 65.75	1.0000	1.0000
L34	79	4" x 0.75" Flat Plate (G)	65.58 - 65.75	1.0000	1.0000
L34	80	4" x 0.75" Flat Plate (G)	65.58 - 65.75	1.0000	1.0000
L35	13	CU12PSM9P6XXX(1-1/2)	62.75 - 63.00	1.0000	1.0000
L35	26	5.5" x 1.25" Flat Plate (G)	62.75 - 63.00	1.0000	1.0000
L35	27	5.5" x 1.25" Flat Plate (G)	62.75 - 63.00	1.0000	1.0000
L35	28	5.5" x 1.25" Flat Plate (G)	62.75 - 63.00	1.0000	1.0000
L35	46	4.5" x 1" Flat Plate (G)	62.75 - 63.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L35	47	4.5" x 1" Flat Plate (G)	62.75 - 63.00	1.0000	1.0000
L35	48	4.5" x 1" Flat Plate (G)	62.75 - 63.00	1.0000	1.0000
L35	72	4" x 0.75" Flat Plate (G)	62.75 - 63.00	1.0000	1.0000
L35	73	4" x 0.75" Flat Plate (G)	62.75 - 63.00	1.0000	1.0000
L35	74	4" x 0.75" Flat Plate (G)	62.75 - 63.00	1.0000	1.0000
L35	75	4" x 0.75" Flat Plate (G)	62.75 - 63.00	1.0000	1.0000
L35	76	4" x 0.75" Flat Plate (G)	62.75 - 63.00	1.0000	1.0000
L36	13	CU12PSM9P6XXX(1-1/2)	62.08 - 62.75	1.0000	1.0000
L36	26	5.5" x 1.25" Flat Plate (G)	62.08 - 62.75	1.0000	1.0000
L36	27	5.5" x 1.25" Flat Plate (G)	62.08 - 62.75	1.0000	1.0000
L36	28	5.5" x 1.25" Flat Plate (G)	62.08 - 62.75	1.0000	1.0000
L36	46	4.5" x 1" Flat Plate (G)	62.08 - 62.75	1.0000	1.0000
L36	47	4.5" x 1" Flat Plate (G)	62.08 - 62.75	1.0000	1.0000
L36	48	4.5" x 1" Flat Plate (G)	62.08 - 62.75	1.0000	1.0000
L36	67	6" x 1" Flat Plate (G)	62.08 - 62.67	1.0000	1.0000
L36	72	4" x 0.75" Flat Plate (G)	62.08 - 62.75	1.0000	1.0000
L36	73	4" x 0.75" Flat Plate (G)	62.08 - 62.75	1.0000	1.0000
L36	74	4" x 0.75" Flat Plate (G)	62.08 - 62.75	1.0000	1.0000
L36	75	4" x 0.75" Flat Plate (G)	62.08 - 62.75	1.0000	1.0000
L36	76	4" x 0.75" Flat Plate (G)	62.08 - 62.75	1.0000	1.0000
L37	13	CU12PSM9P6XXX(1-1/2)	61.83 - 62.08	1.0000	1.0000
L37	26	5.5" x 1.25" Flat Plate (G)	61.83 - 62.08	1.0000	1.0000
L37	27	5.5" x 1.25" Flat Plate (G)	61.83 - 62.08	1.0000	1.0000
L37	28	5.5" x 1.25" Flat Plate (G)	61.83 - 62.08	1.0000	1.0000
L37	46	4.5" x 1" Flat Plate (G)	61.83 - 62.08	1.0000	1.0000
L37	47	4.5" x 1" Flat Plate (G)	61.83 - 62.08	1.0000	1.0000
L37	48	4.5" x 1" Flat Plate (G)	61.83 - 62.08	1.0000	1.0000
L37	67	6" x 1" Flat Plate (G)	61.83 - 62.08	1.0000	1.0000
L37	72	4" x 0.75" Flat Plate (G)	61.83 - 62.08	1.0000	1.0000
L37	73	4" x 0.75" Flat Plate (G)	61.83 - 62.08	1.0000	1.0000
L37	74	4" x 0.75" Flat Plate (G)	61.83 - 62.08	1.0000	1.0000
L37	75	4" x 0.75" Flat Plate (G)	61.83 - 62.08	1.0000	1.0000
L37	76	4" x 0.75" Flat Plate (G)	61.83 - 62.08	1.0000	1.0000
L38	13	CU12PSM9P6XXX(1-1/2)	60.67 - 61.83	1.0000	1.0000
L38	26	5.5" x 1.25" Flat Plate (G)	60.67 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L38	27	5.5" x 1.25" Flat Plate (G)	60.67 - 61.83	1.0000	1.0000
L38	28	5.5" x 1.25" Flat Plate (G)	60.67 - 61.83	1.0000	1.0000
L38	46	4.5" x 1" Flat Plate (G)	60.67 - 61.83	1.0000	1.0000
L38	47	4.5" x 1" Flat Plate (G)	60.67 - 61.83	1.0000	1.0000
L38	48	4.5" x 1" Flat Plate (G)	60.67 - 61.83	1.0000	1.0000
L38	64	6" x 1" Flat Plate (G)	60.67 - 61.00	1.0000	1.0000
L38	65	6" x 1" Flat Plate (G)	60.67 - 61.00	1.0000	1.0000
L38	67	6" x 1" Flat Plate (G)	60.67 - 61.83	1.0000	1.0000
L38	72	4" x 0.75" Flat Plate (G)	61.08 - 61.83	1.0000	1.0000
L38	73	4" x 0.75" Flat Plate (G)	61.08 - 61.83	1.0000	1.0000
L38	74	4" x 0.75" Flat Plate (G)	61.08 - 61.83	1.0000	1.0000
L38	75	4" x 0.75" Flat Plate (G)	61.08 - 61.83	1.0000	1.0000
L38	76	4" x 0.75" Flat Plate (G)	61.08 - 61.83	1.0000	1.0000
L39	13	CU12PSM9P6XXX(1-1/2)	60.42 - 60.67	1.0000	1.0000
L39	26	5.5" x 1.25" Flat Plate (G)	60.42 - 60.67	1.0000	1.0000
L39	27	5.5" x 1.25" Flat Plate (G)	60.42 - 60.67	1.0000	1.0000
L39	28	5.5" x 1.25" Flat Plate (G)	60.42 - 60.67	1.0000	1.0000
L39	46	4.5" x 1" Flat Plate (G)	60.42 - 60.67	1.0000	1.0000
L39	47	4.5" x 1" Flat Plate (G)	60.42 - 60.67	1.0000	1.0000
L39	48	4.5" x 1" Flat Plate (G)	60.42 - 60.67	1.0000	1.0000
L39	64	6" x 1" Flat Plate (G)	60.42 - 60.67	1.0000	1.0000
L39	65	6" x 1" Flat Plate (G)	60.42 - 60.67	1.0000	1.0000
L39	67	6" x 1" Flat Plate (G)	60.42 - 60.67	1.0000	1.0000
L40	13	CU12PSM9P6XXX(1-1/2)	59.00 - 60.42	1.0000	1.0000
L40	26	5.5" x 1.25" Flat Plate (G)	59.00 - 60.42	1.0000	1.0000
L40	27	5.5" x 1.25" Flat Plate (G)	59.00 - 60.42	1.0000	1.0000
L40	28	5.5" x 1.25" Flat Plate (G)	59.00 - 60.42	1.0000	1.0000
L40	46	4.5" x 1" Flat Plate (G)	59.00 - 60.42	1.0000	1.0000
L40	47	4.5" x 1" Flat Plate (G)	59.00 - 60.42	1.0000	1.0000
L40	48	4.5" x 1" Flat Plate (G)	59.00 - 60.42	1.0000	1.0000
L40	64	6" x 1" Flat Plate (G)	59.00 - 60.42	1.0000	1.0000
L40	65	6" x 1" Flat Plate (G)	59.00 - 60.42	1.0000	1.0000
L40	67	6" x 1" Flat Plate (G)	59.00 - 60.42	1.0000	1.0000
L41	13	CU12PSM9P6XXX(1-1/2)	58.75 - 59.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L41	26	5.5" x 1.25" Flat Plate (G)	58.75 - 59.00	1.0000	1.0000
L41	27	5.5" x 1.25" Flat Plate (G)	58.75 - 59.00	1.0000	1.0000
L41	28	5.5" x 1.25" Flat Plate (G)	58.75 - 59.00	1.0000	1.0000
L41	46	4.5" x 1" Flat Plate (G)	58.75 - 59.00	1.0000	1.0000
L41	47	4.5" x 1" Flat Plate (G)	58.75 - 59.00	1.0000	1.0000
L41	48	4.5" x 1" Flat Plate (G)	58.75 - 59.00	1.0000	1.0000
L41	64	6" x 1" Flat Plate (G)	58.75 - 59.00	1.0000	1.0000
L41	65	6" x 1" Flat Plate (G)	58.75 - 59.00	1.0000	1.0000
L41	67	6" x 1" Flat Plate (G)	58.75 - 59.00	1.0000	1.0000
L42	13	CU12PSM9P6XXX(1-1/2)	53.75 - 58.75	1.0000	1.0000
L42	26	5.5" x 1.25" Flat Plate (G)	53.75 - 58.75	1.0000	1.0000
L42	27	5.5" x 1.25" Flat Plate (G)	53.75 - 58.75	1.0000	1.0000
L42	28	5.5" x 1.25" Flat Plate (G)	53.75 - 58.75	1.0000	1.0000
L42	46	4.5" x 1" Flat Plate (G)	53.75 - 58.75	1.0000	1.0000
L42	47	4.5" x 1" Flat Plate (G)	53.75 - 58.75	1.0000	1.0000
L42	48	4.5" x 1" Flat Plate (G)	53.75 - 58.75	1.0000	1.0000
L42	64	6" x 1" Flat Plate (G)	53.75 - 58.75	1.0000	1.0000
L42	65	6" x 1" Flat Plate (G)	53.75 - 58.75	1.0000	1.0000
L42	67	6" x 1" Flat Plate (G)	53.75 - 58.75	1.0000	1.0000
L43	13	CU12PSM9P6XXX(1-1/2)	48.50 - 53.75	1.0000	1.0000
L43	26	5.5" x 1.25" Flat Plate (G)	48.50 - 53.75	1.0000	1.0000
L43	27	5.5" x 1.25" Flat Plate (G)	48.50 - 53.75	1.0000	1.0000
L43	28	5.5" x 1.25" Flat Plate (G)	48.50 - 53.75	1.0000	1.0000
L43	46	4.5" x 1" Flat Plate (G)	50.00 - 53.75	1.0000	1.0000
L43	47	4.5" x 1" Flat Plate (G)	50.00 - 53.75	1.0000	1.0000
L43	48	4.5" x 1" Flat Plate (G)	50.00 - 53.75	1.0000	1.0000
L43	64	6" x 1" Flat Plate (G)	48.50 - 53.75	1.0000	1.0000
L43	65	6" x 1" Flat Plate (G)	48.50 - 53.75	1.0000	1.0000
L43	67	6" x 1" Flat Plate (G)	48.50 - 53.75	1.0000	1.0000
L43	69	6" x 1" Flat Plate (G)	48.50 - 49.92	1.0000	1.0000
L43	70	6" x 1" Flat Plate (G)	48.50 - 49.92	1.0000	1.0000
L44	13	CU12PSM9P6XXX(1-1/2)	47.50 - 48.50	1.0000	1.0000
L44	22	5.5" x 1.25" Flat Plate (G)	47.50 - 48.25	1.0000	1.0000
L44	23	5.5" x 1.25" Flat Plate (G)	47.50 - 48.25	1.0000	1.0000
L44	24	5.5" x 1.25" Flat Plate (G)	47.50 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			48.25		
L44	26	5.5" x 1.25" Flat Plate (G)	48.25 - 48.50	1.0000	1.0000
L44	27	5.5" x 1.25" Flat Plate (G)	48.25 - 48.50	1.0000	1.0000
L44	28	5.5" x 1.25" Flat Plate (G)	48.25 - 48.50	1.0000	1.0000
L44	64	6" x 1" Flat Plate (G)	47.50 - 48.50	1.0000	1.0000
L44	65	6" x 1" Flat Plate (G)	47.50 - 48.50	1.0000	1.0000
L44	67	6" x 1" Flat Plate (G)	47.50 - 48.50	1.0000	1.0000
L44	69	6" x 1" Flat Plate (G)	47.50 - 48.50	1.0000	1.0000
L44	70	6" x 1" Flat Plate (G)	47.50 - 48.50	1.0000	1.0000
L45	13	CU12PSM9P6XXX(1-1/2)	45.75 - 47.50	1.0000	1.0000
L45	22	5.5" x 1.25" Flat Plate (G)	45.75 - 47.50	1.0000	1.0000
L45	23	5.5" x 1.25" Flat Plate (G)	45.75 - 47.50	1.0000	1.0000
L45	24	5.5" x 1.25" Flat Plate (G)	45.75 - 47.50	1.0000	1.0000
L45	64	6" x 1" Flat Plate (G)	45.75 - 47.50	1.0000	1.0000
L45	65	6" x 1" Flat Plate (G)	45.75 - 47.50	1.0000	1.0000
L45	67	6" x 1" Flat Plate (G)	45.75 - 47.50	1.0000	1.0000
L45	69	6" x 1" Flat Plate (G)	45.75 - 47.50	1.0000	1.0000
L45	70	6" x 1" Flat Plate (G)	45.75 - 47.50	1.0000	1.0000
L46	13	CU12PSM9P6XXX(1-1/2)	45.50 - 45.75	1.0000	1.0000
L46	22	5.5" x 1.25" Flat Plate (G)	45.50 - 45.75	1.0000	1.0000
L46	23	5.5" x 1.25" Flat Plate (G)	45.50 - 45.75	1.0000	1.0000
L46	24	5.5" x 1.25" Flat Plate (G)	45.50 - 45.75	1.0000	1.0000
L46	64	6" x 1" Flat Plate (G)	45.50 - 45.75	1.0000	1.0000
L46	65	6" x 1" Flat Plate (G)	45.50 - 45.75	1.0000	1.0000
L46	67	6" x 1" Flat Plate (G)	45.50 - 45.75	1.0000	1.0000
L46	69	6" x 1" Flat Plate (G)	45.50 - 45.75	1.0000	1.0000
L46	70	6" x 1" Flat Plate (G)	45.50 - 45.75	1.0000	1.0000
L47	13	CU12PSM9P6XXX(1-1/2)	45.00 - 45.50	1.0000	1.0000
L47	22	5.5" x 1.25" Flat Plate (G)	45.00 - 45.50	1.0000	1.0000
L47	23	5.5" x 1.25" Flat Plate (G)	45.00 - 45.50	1.0000	1.0000
L47	24	5.5" x 1.25" Flat Plate (G)	45.00 - 45.50	1.0000	1.0000
L47	64	6" x 1" Flat Plate (G)	45.00 - 45.50	1.0000	1.0000
L47	65	6" x 1" Flat Plate (G)	45.00 - 45.50	1.0000	1.0000
L47	67	6" x 1" Flat Plate (G)	45.00 - 45.50	1.0000	1.0000
L47	69	6" x 1" Flat Plate (G)	45.00 - 45.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L47	70	6" x 1" Flat Plate (G)	45.00 - 45.50	1.0000	1.0000
L48	13	CU12PSM9P6XXX(1-1/2)	44.75 - 45.00	1.0000	1.0000
L48	22	5.5" x 1.25" Flat Plate (G)	44.75 - 45.00	1.0000	1.0000
L48	23	5.5" x 1.25" Flat Plate (G)	44.75 - 45.00	1.0000	1.0000
L48	24	5.5" x 1.25" Flat Plate (G)	44.75 - 45.00	1.0000	1.0000
L48	38	4.5" x 1" Flat Plate (G)	44.75 - 45.00	1.0000	1.0000
L48	39	4.5" x 1" Flat Plate (G)	44.75 - 45.00	1.0000	1.0000
L48	40	4.5" x 1" Flat Plate (G)	44.75 - 45.00	1.0000	1.0000
L48	64	6" x 1" Flat Plate (G)	44.75 - 45.00	1.0000	1.0000
L48	65	6" x 1" Flat Plate (G)	44.75 - 45.00	1.0000	1.0000
L48	67	6" x 1" Flat Plate (G)	44.75 - 45.00	1.0000	1.0000
L48	69	6" x 1" Flat Plate (G)	44.75 - 45.00	1.0000	1.0000
L48	70	6" x 1" Flat Plate (G)	44.75 - 45.00	1.0000	1.0000
L49	13	CU12PSM9P6XXX(1-1/2)	43.50 - 44.75	1.0000	1.0000
L49	22	5.5" x 1.25" Flat Plate (G)	43.50 - 44.75	1.0000	1.0000
L49	23	5.5" x 1.25" Flat Plate (G)	43.50 - 44.75	1.0000	1.0000
L49	24	5.5" x 1.25" Flat Plate (G)	43.50 - 44.75	1.0000	1.0000
L49	38	4.5" x 1" Flat Plate (G)	43.50 - 44.75	1.0000	1.0000
L49	39	4.5" x 1" Flat Plate (G)	43.50 - 44.75	1.0000	1.0000
L49	40	4.5" x 1" Flat Plate (G)	43.50 - 44.75	1.0000	1.0000
L49	64	6" x 1" Flat Plate (G)	43.50 - 44.75	1.0000	1.0000
L49	65	6" x 1" Flat Plate (G)	43.50 - 44.75	1.0000	1.0000
L49	67	6" x 1" Flat Plate (G)	43.50 - 44.75	1.0000	1.0000
L49	69	6" x 1" Flat Plate (G)	43.50 - 44.75	1.0000	1.0000
L49	70	6" x 1" Flat Plate (G)	43.50 - 44.75	1.0000	1.0000
L50	13	CU12PSM9P6XXX(1-1/2)	43.25 - 43.50	1.0000	1.0000
L50	22	5.5" x 1.25" Flat Plate (G)	43.25 - 43.50	1.0000	1.0000
L50	23	5.5" x 1.25" Flat Plate (G)	43.25 - 43.50	1.0000	1.0000
L50	24	5.5" x 1.25" Flat Plate (G)	43.25 - 43.50	1.0000	1.0000
L50	38	4.5" x 1" Flat Plate (G)	43.25 - 43.50	1.0000	1.0000
L50	39	4.5" x 1" Flat Plate (G)	43.25 - 43.50	1.0000	1.0000
L50	40	4.5" x 1" Flat Plate (G)	43.25 - 43.50	1.0000	1.0000
L50	64	6" x 1" Flat Plate (G)	43.25 - 43.50	1.0000	1.0000
L50	65	6" x 1" Flat Plate (G)	43.25 - 43.50	1.0000	1.0000
L50	67	6" x 1" Flat Plate (G)	43.25 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L50	69	6" x 1" Flat Plate (G)	43.50 43.25 -	1.0000	1.0000
L50	70	6" x 1" Flat Plate (G)	43.50 43.25 -	1.0000	1.0000
L51	13	CU12PSM9P6XXX(1-1/2)	43.50 38.25 -	1.0000	1.0000
L51	22	5.5" x 1.25" Flat Plate (G)	43.25 38.25 -	1.0000	1.0000
L51	23	5.5" x 1.25" Flat Plate (G)	43.25 38.25 -	1.0000	1.0000
L51	24	5.5" x 1.25" Flat Plate (G)	43.25 38.25 -	1.0000	1.0000
L51	38	4.5" x 1" Flat Plate (G)	43.25 38.25 -	1.0000	1.0000
L51	39	4.5" x 1" Flat Plate (G)	43.25 38.25 -	1.0000	1.0000
L51	40	4.5" x 1" Flat Plate (G)	43.25 38.25 -	1.0000	1.0000
L51	64	6" x 1" Flat Plate (G)	43.25 38.25 -	1.0000	1.0000
L51	65	6" x 1" Flat Plate (G)	43.25 38.25 -	1.0000	1.0000
L51	67	6" x 1" Flat Plate (G)	43.25 38.25 -	1.0000	1.0000
L51	69	6" x 1" Flat Plate (G)	43.25 38.25 -	1.0000	1.0000
L51	70	6" x 1" Flat Plate (G)	43.25 38.25 -	1.0000	1.0000
L52	13	CU12PSM9P6XXX(1-1/2)	43.25 33.25 -	1.0000	1.0000
L52	22	5.5" x 1.25" Flat Plate (G)	38.25 33.25 -	1.0000	1.0000
L52	23	5.5" x 1.25" Flat Plate (G)	38.25 33.25 -	1.0000	1.0000
L52	24	5.5" x 1.25" Flat Plate (G)	38.25 33.25 -	1.0000	1.0000
L52	38	4.5" x 1" Flat Plate (G)	38.25 33.25 -	1.0000	1.0000
L52	39	4.5" x 1" Flat Plate (G)	38.25 33.25 -	1.0000	1.0000
L52	40	4.5" x 1" Flat Plate (G)	38.25 33.25 -	1.0000	1.0000
L52	64	6" x 1" Flat Plate (G)	38.25 33.25 -	1.0000	1.0000
L52	65	6" x 1" Flat Plate (G)	38.25 33.25 -	1.0000	1.0000
L52	67	6" x 1" Flat Plate (G)	38.25 33.25 -	1.0000	1.0000
L52	69	6" x 1" Flat Plate (G)	38.25 33.25 -	1.0000	1.0000
L52	70	6" x 1" Flat Plate (G)	38.25 33.25 -	1.0000	1.0000
L53	13	CU12PSM9P6XXX(1-1/2)	38.25 30.50 -	1.0000	1.0000
L53	22	5.5" x 1.25" Flat Plate (G)	33.25 30.50 -	1.0000	1.0000
L53	23	5.5" x 1.25" Flat Plate (G)	33.25 30.50 -	1.0000	1.0000
L53	24	5.5" x 1.25" Flat Plate (G)	33.25 30.50 -	1.0000	1.0000
L53	38	4.5" x 1" Flat Plate (G)	33.25 30.50 -	1.0000	1.0000
L53	39	4.5" x 1" Flat Plate (G)	33.25 30.50 -	1.0000	1.0000
L53	40	4.5" x 1" Flat Plate (G)	33.25 30.50 -	1.0000	1.0000
L53	64	6" x 1" Flat Plate (G)	33.25 30.50 -	1.0000	1.0000
			33.25		

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L53	65	6" x 1" Flat Plate (G)	30.50 - 33.25	1.0000	1.0000
L53	67	6" x 1" Flat Plate (G)	30.50 - 33.25	1.0000	1.0000
L53	69	6" x 1" Flat Plate (G)	30.58 - 33.25	1.0000	1.0000
L53	70	6" x 1" Flat Plate (G)	30.50 - 33.25	1.0000	1.0000
L54	13	CU12PSM9P6XXX(1-1/2)	30.25 - 30.50	1.0000	1.0000
L54	17	5.5" x 1.25" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L54	18	5.5" x 1.25" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L54	19	5.5" x 1.25" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L54	20	5.5" x 1.25" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L54	38	4.5" x 1" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L54	39	4.5" x 1" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L54	40	4.5" x 1" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L54	64	6" x 1" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L54	65	6" x 1" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L54	67	6" x 1" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L54	70	6" x 1" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L55	13	CU12PSM9P6XXX(1-1/2)	29.67 - 30.25	1.0000	1.0000
L55	17	5.5" x 1.25" Flat Plate (G)	29.67 - 30.25	1.0000	1.0000
L55	18	5.5" x 1.25" Flat Plate (G)	29.67 - 30.25	1.0000	1.0000
L55	19	5.5" x 1.25" Flat Plate (G)	29.67 - 30.25	1.0000	1.0000
L55	20	5.5" x 1.25" Flat Plate (G)	29.67 - 30.25	1.0000	1.0000
L55	38	4.5" x 1" Flat Plate (G)	29.67 - 30.25	1.0000	1.0000
L55	39	4.5" x 1" Flat Plate (G)	29.67 - 30.25	1.0000	1.0000
L55	40	4.5" x 1" Flat Plate (G)	29.67 - 30.25	1.0000	1.0000
L55	64	6" x 1" Flat Plate (G)	29.67 - 30.25	1.0000	1.0000
L55	65	6" x 1" Flat Plate (G)	29.67 - 30.25	1.0000	1.0000
L55	67	6" x 1" Flat Plate (G)	29.67 - 30.25	1.0000	1.0000
L55	70	6" x 1" Flat Plate (G)	29.67 - 30.25	1.0000	1.0000
L56	13	CU12PSM9P6XXX(1-1/2)	29.42 - 29.67	1.0000	1.0000
L56	17	5.5" x 1.25" Flat Plate (G)	29.42 - 29.67	1.0000	1.0000
L56	18	5.5" x 1.25" Flat Plate (G)	29.42 - 29.67	1.0000	1.0000
L56	19	5.5" x 1.25" Flat Plate (G)	29.42 - 29.67	1.0000	1.0000
L56	20	5.5" x 1.25" Flat Plate (G)	29.42 - 29.67	1.0000	1.0000
L56	38	4.5" x 1" Flat Plate (G)	29.42 - 29.67	1.0000	1.0000
L56	39	4.5" x 1" Flat Plate (G)	29.42 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L56	40	4.5" x 1" Flat Plate (G)	29.67 29.42 - 29.67	1.0000	1.0000
L56	64	6" x 1" Flat Plate (G)	29.42 - 29.67	1.0000	1.0000
L56	65	6" x 1" Flat Plate (G)	29.42 - 29.67	1.0000	1.0000
L56	67	6" x 1" Flat Plate (G)	29.42 - 29.67	1.0000	1.0000
L56	70	6" x 1" Flat Plate (G)	29.42 - 29.67	1.0000	1.0000
L57	13	CU12PSM9P6XXX(1-1/2)	28.00 - 29.42	1.0000	1.0000
L57	17	5.5" x 1.25" Flat Plate (G)	28.00 - 29.42	1.0000	1.0000
L57	18	5.5" x 1.25" Flat Plate (G)	28.00 - 29.42	1.0000	1.0000
L57	19	5.5" x 1.25" Flat Plate (G)	28.00 - 29.42	1.0000	1.0000
L57	20	5.5" x 1.25" Flat Plate (G)	28.00 - 29.42	1.0000	1.0000
L57	38	4.5" x 1" Flat Plate (G)	28.00 - 29.42	1.0000	1.0000
L57	39	4.5" x 1" Flat Plate (G)	28.00 - 29.42	1.0000	1.0000
L57	40	4.5" x 1" Flat Plate (G)	28.00 - 29.42	1.0000	1.0000
L57	64	6" x 1" Flat Plate (G)	28.00 - 29.42	1.0000	1.0000
L57	65	6" x 1" Flat Plate (G)	28.00 - 29.42	1.0000	1.0000
L57	67	6" x 1" Flat Plate (G)	28.00 - 29.42	1.0000	1.0000
L57	70	6" x 1" Flat Plate (G)	28.00 - 29.42	1.0000	1.0000
L58	13	CU12PSM9P6XXX(1-1/2)	27.75 - 28.00	1.0000	1.0000
L58	17	5.5" x 1.25" Flat Plate (G)	27.75 - 28.00	1.0000	1.0000
L58	18	5.5" x 1.25" Flat Plate (G)	27.75 - 28.00	1.0000	1.0000
L58	19	5.5" x 1.25" Flat Plate (G)	27.75 - 28.00	1.0000	1.0000
L58	20	5.5" x 1.25" Flat Plate (G)	27.75 - 28.00	1.0000	1.0000
L58	38	4.5" x 1" Flat Plate (G)	27.75 - 28.00	1.0000	1.0000
L58	39	4.5" x 1" Flat Plate (G)	27.75 - 28.00	1.0000	1.0000
L58	40	4.5" x 1" Flat Plate (G)	27.75 - 28.00	1.0000	1.0000
L58	64	6" x 1" Flat Plate (G)	27.75 - 28.00	1.0000	1.0000
L58	65	6" x 1" Flat Plate (G)	27.75 - 28.00	1.0000	1.0000
L58	67	6" x 1" Flat Plate (G)	27.75 - 28.00	1.0000	1.0000
L58	70	6" x 1" Flat Plate (G)	27.75 - 28.00	1.0000	1.0000
L59	13	CU12PSM9P6XXX(1-1/2)	26.92 - 27.75	1.0000	1.0000
L59	17	5.5" x 1.25" Flat Plate (G)	26.92 - 27.75	1.0000	1.0000
L59	18	5.5" x 1.25" Flat Plate (G)	26.92 - 27.75	1.0000	1.0000
L59	19	5.5" x 1.25" Flat Plate (G)	26.92 - 27.75	1.0000	1.0000
L59	20	5.5" x 1.25" Flat Plate (G)	26.92 - 27.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L59	38	4.5" x 1" Flat Plate (G)	26.92 - 27.75	1.0000	1.0000
L59	39	4.5" x 1" Flat Plate (G)	26.92 - 27.75	1.0000	1.0000
L59	40	4.5" x 1" Flat Plate (G)	26.92 - 27.75	1.0000	1.0000
L59	58	6.5" x 1.25" Flat Plate (G)	26.92 - 27.67	1.0000	1.0000
L59	59	6.5" x 1.25" Flat Plate (G)	26.92 - 27.67	1.0000	1.0000
L59	64	6" x 1" Flat Plate (G)	26.92 - 27.75	1.0000	1.0000
L59	65	6" x 1" Flat Plate (G)	26.92 - 27.75	1.0000	1.0000
L59	67	6" x 1" Flat Plate (G)	26.92 - 27.75	1.0000	1.0000
L59	70	6" x 1" Flat Plate (G)	26.92 - 27.75	1.0000	1.0000
L60	13	CU12PSM9P6XXX(1-1/2)	26.67 - 26.92	1.0000	1.0000
L60	17	5.5" x 1.25" Flat Plate (G)	26.67 - 26.92	1.0000	1.0000
L60	18	5.5" x 1.25" Flat Plate (G)	26.67 - 26.92	1.0000	1.0000
L60	19	5.5" x 1.25" Flat Plate (G)	26.67 - 26.92	1.0000	1.0000
L60	20	5.5" x 1.25" Flat Plate (G)	26.67 - 26.92	1.0000	1.0000
L60	38	4.5" x 1" Flat Plate (G)	26.67 - 26.92	1.0000	1.0000
L60	39	4.5" x 1" Flat Plate (G)	26.67 - 26.92	1.0000	1.0000
L60	40	4.5" x 1" Flat Plate (G)	26.67 - 26.92	1.0000	1.0000
L60	58	6.5" x 1.25" Flat Plate (G)	26.67 - 26.92	1.0000	1.0000
L60	59	6.5" x 1.25" Flat Plate (G)	26.67 - 26.92	1.0000	1.0000
L60	64	6" x 1" Flat Plate (G)	26.67 - 26.92	1.0000	1.0000
L60	65	6" x 1" Flat Plate (G)	26.67 - 26.92	1.0000	1.0000
L60	67	6" x 1" Flat Plate (G)	26.67 - 26.92	1.0000	1.0000
L60	70	6" x 1" Flat Plate (G)	26.67 - 26.92	1.0000	1.0000
L61	13	CU12PSM9P6XXX(1-1/2)	26.50 - 26.67	1.0000	1.0000
L61	17	5.5" x 1.25" Flat Plate (G)	26.50 - 26.67	1.0000	1.0000
L61	18	5.5" x 1.25" Flat Plate (G)	26.50 - 26.67	1.0000	1.0000
L61	19	5.5" x 1.25" Flat Plate (G)	26.50 - 26.67	1.0000	1.0000
L61	20	5.5" x 1.25" Flat Plate (G)	26.50 - 26.67	1.0000	1.0000
L61	38	4.5" x 1" Flat Plate (G)	26.50 - 26.67	1.0000	1.0000
L61	39	4.5" x 1" Flat Plate (G)	26.50 - 26.67	1.0000	1.0000
L61	40	4.5" x 1" Flat Plate (G)	26.50 - 26.67	1.0000	1.0000
L61	58	6.5" x 1.25" Flat Plate (G)	26.50 - 26.67	1.0000	1.0000
L61	59	6.5" x 1.25" Flat Plate (G)	26.50 - 26.67	1.0000	1.0000
L61	64	6" x 1" Flat Plate (G)	26.50 - 26.67	1.0000	1.0000
L61	65	6" x 1" Flat Plate (G)	26.50 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L61	67	6" x 1" Flat Plate (G)	26.50 - 26.67	1.0000	1.0000
L61	70	6" x 1" Flat Plate (G)	26.50 - 26.67	1.0000	1.0000
L62	13	CU12PSM9P6XXX(1-1/2)	26.25 - 26.50	1.0000	1.0000
L62	17	5.5" x 1.25" Flat Plate (G)	26.25 - 26.50	1.0000	1.0000
L62	18	5.5" x 1.25" Flat Plate (G)	26.25 - 26.50	1.0000	1.0000
L62	19	5.5" x 1.25" Flat Plate (G)	26.25 - 26.50	1.0000	1.0000
L62	20	5.5" x 1.25" Flat Plate (G)	26.25 - 26.50	1.0000	1.0000
L62	38	4.5" x 1" Flat Plate (G)	26.25 - 26.50	1.0000	1.0000
L62	39	4.5" x 1" Flat Plate (G)	26.25 - 26.50	1.0000	1.0000
L62	40	4.5" x 1" Flat Plate (G)	26.25 - 26.50	1.0000	1.0000
L62	58	6.5" x 1.25" Flat Plate (G)	26.25 - 26.50	1.0000	1.0000
L62	59	6.5" x 1.25" Flat Plate (G)	26.25 - 26.50	1.0000	1.0000
L62	64	6" x 1" Flat Plate (G)	26.25 - 26.50	1.0000	1.0000
L62	65	6" x 1" Flat Plate (G)	26.25 - 26.50	1.0000	1.0000
L62	67	6" x 1" Flat Plate (G)	26.25 - 26.50	1.0000	1.0000
L62	70	6" x 1" Flat Plate (G)	26.25 - 26.50	1.0000	1.0000
L63	13	CU12PSM9P6XXX(1-1/2)	24.92 - 26.25	1.0000	1.0000
L63	17	5.5" x 1.25" Flat Plate (G)	24.92 - 26.25	1.0000	1.0000
L63	18	5.5" x 1.25" Flat Plate (G)	24.92 - 26.25	1.0000	1.0000
L63	19	5.5" x 1.25" Flat Plate (G)	24.92 - 26.25	1.0000	1.0000
L63	20	5.5" x 1.25" Flat Plate (G)	24.92 - 26.25	1.0000	1.0000
L63	38	4.5" x 1" Flat Plate (G)	25.00 - 26.25	1.0000	1.0000
L63	39	4.5" x 1" Flat Plate (G)	25.00 - 26.25	1.0000	1.0000
L63	40	4.5" x 1" Flat Plate (G)	25.00 - 26.25	1.0000	1.0000
L63	58	6.5" x 1.25" Flat Plate (G)	24.92 - 26.25	1.0000	1.0000
L63	59	6.5" x 1.25" Flat Plate (G)	24.92 - 26.25	1.0000	1.0000
L63	64	6" x 1" Flat Plate (G)	26.00 - 26.25	1.0000	1.0000
L63	65	6" x 1" Flat Plate (G)	26.00 - 26.25	1.0000	1.0000
L63	67	6" x 1" Flat Plate (G)	26.00 - 26.25	1.0000	1.0000
L63	70	6" x 1" Flat Plate (G)	24.92 - 26.25	1.0000	1.0000
L64	13	CU12PSM9P6XXX(1-1/2)	24.67 - 24.92	1.0000	1.0000
L64	17	5.5" x 1.25" Flat Plate (G)	24.67 - 24.92	1.0000	1.0000
L64	18	5.5" x 1.25" Flat Plate (G)	24.67 - 24.92	1.0000	1.0000
L64	19	5.5" x 1.25" Flat Plate (G)	24.67 - 24.92	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L64	20	5.5" x 1.25" Flat Plate (G)	24.67 - 24.92	1.0000	1.0000
L64	58	6.5" x 1.25" Flat Plate (G)	24.67 - 24.92	1.0000	1.0000
L64	59	6.5" x 1.25" Flat Plate (G)	24.67 - 24.92	1.0000	1.0000
L64	61	6.5" x 1.25" Flat Plate (G)	24.67 - 24.92	1.0000	1.0000
L64	62	6.5" x 1.25" Flat Plate (G)	24.67 - 24.92	1.0000	1.0000
L65	13	CU12PSM9P6XXX(1-1/2)	22.17 - 24.67	1.0000	1.0000
L65	17	5.5" x 1.25" Flat Plate (G)	22.17 - 24.67	1.0000	1.0000
L65	18	5.5" x 1.25" Flat Plate (G)	22.17 - 24.67	1.0000	1.0000
L65	19	5.5" x 1.25" Flat Plate (G)	22.17 - 24.67	1.0000	1.0000
L65	20	5.5" x 1.25" Flat Plate (G)	22.17 - 24.67	1.0000	1.0000
L65	58	6.5" x 1.25" Flat Plate (G)	22.17 - 24.67	1.0000	1.0000
L65	59	6.5" x 1.25" Flat Plate (G)	22.17 - 24.67	1.0000	1.0000
L65	61	6.5" x 1.25" Flat Plate (G)	22.17 - 24.67	1.0000	1.0000
L65	62	6.5" x 1.25" Flat Plate (G)	22.17 - 24.67	1.0000	1.0000
L66	13	CU12PSM9P6XXX(1-1/2)	21.92 - 22.17	1.0000	1.0000
L66	17	5.5" x 1.25" Flat Plate (G)	21.92 - 22.17	1.0000	1.0000
L66	18	5.5" x 1.25" Flat Plate (G)	21.92 - 22.17	1.0000	1.0000
L66	19	5.5" x 1.25" Flat Plate (G)	21.92 - 22.17	1.0000	1.0000
L66	20	5.5" x 1.25" Flat Plate (G)	21.92 - 22.17	1.0000	1.0000
L66	58	6.5" x 1.25" Flat Plate (G)	21.92 - 22.17	1.0000	1.0000
L66	59	6.5" x 1.25" Flat Plate (G)	21.92 - 22.17	1.0000	1.0000
L66	61	6.5" x 1.25" Flat Plate (G)	21.92 - 22.17	1.0000	1.0000
L66	62	6.5" x 1.25" Flat Plate (G)	21.92 - 22.17	1.0000	1.0000
L67	13	CU12PSM9P6XXX(1-1/2)	16.92 - 21.92	1.0000	1.0000
L67	17	5.5" x 1.25" Flat Plate (G)	16.92 - 21.92	1.0000	1.0000
L67	18	5.5" x 1.25" Flat Plate (G)	16.92 - 21.92	1.0000	1.0000
L67	19	5.5" x 1.25" Flat Plate (G)	16.92 - 21.92	1.0000	1.0000
L67	20	5.5" x 1.25" Flat Plate (G)	16.92 - 21.92	1.0000	1.0000
L67	58	6.5" x 1.25" Flat Plate (G)	16.92 - 21.92	1.0000	1.0000
L67	59	6.5" x 1.25" Flat Plate (G)	16.92 - 21.92	1.0000	1.0000
L67	61	6.5" x 1.25" Flat Plate (G)	16.92 - 21.92	1.0000	1.0000
L67	62	6.5" x 1.25" Flat Plate (G)	16.92 - 21.92	1.0000	1.0000
L68	13	CU12PSM9P6XXX(1-1/2)	11.92 - 16.92	1.0000	1.0000
L68	17	5.5" x 1.25" Flat Plate (G)	11.92 - 16.92	1.0000	1.0000
L68	18	5.5" x 1.25" Flat Plate (G)	11.92 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			16.92		
L68	19	5.5" x 1.25" Flat Plate (G)	11.92 - 16.92	1.0000	1.0000
L68	20	5.5" x 1.25" Flat Plate (G)	11.92 - 16.92	1.0000	1.0000
L68	58	6.5" x 1.25" Flat Plate (G)	11.92 - 16.92	1.0000	1.0000
L68	59	6.5" x 1.25" Flat Plate (G)	11.92 - 16.92	1.0000	1.0000
L68	61	6.5" x 1.25" Flat Plate (G)	11.92 - 16.92	1.0000	1.0000
L68	62	6.5" x 1.25" Flat Plate (G)	11.92 - 16.92	1.0000	1.0000
L69	13	CU12PSM9P6XXX(1-1/2)	6.92 - 11.92	1.0000	1.0000
L69	17	5.5" x 1.25" Flat Plate (G)	6.92 - 11.92	1.0000	1.0000
L69	18	5.5" x 1.25" Flat Plate (G)	6.92 - 11.92	1.0000	1.0000
L69	19	5.5" x 1.25" Flat Plate (G)	6.92 - 11.92	1.0000	1.0000
L69	20	5.5" x 1.25" Flat Plate (G)	6.92 - 11.92	1.0000	1.0000
L69	58	6.5" x 1.25" Flat Plate (G)	6.92 - 11.92	1.0000	1.0000
L69	59	6.5" x 1.25" Flat Plate (G)	6.92 - 11.92	1.0000	1.0000
L69	61	6.5" x 1.25" Flat Plate (G)	6.92 - 11.92	1.0000	1.0000
L69	62	6.5" x 1.25" Flat Plate (G)	6.92 - 11.92	1.0000	1.0000
L70	13	CU12PSM9P6XXX(1-1/2)	3.25 - 6.92	1.0000	1.0000
L70	17	5.5" x 1.25" Flat Plate (G)	3.25 - 6.92	1.0000	1.0000
L70	18	5.5" x 1.25" Flat Plate (G)	3.25 - 6.92	1.0000	1.0000
L70	19	5.5" x 1.25" Flat Plate (G)	3.25 - 6.92	1.0000	1.0000
L70	20	5.5" x 1.25" Flat Plate (G)	3.25 - 6.92	1.0000	1.0000
L70	58	6.5" x 1.25" Flat Plate (G)	3.25 - 6.92	1.0000	1.0000
L70	59	6.5" x 1.25" Flat Plate (G)	3.25 - 6.92	1.0000	1.0000
L70	61	6.5" x 1.25" Flat Plate (G)	3.25 - 6.92	1.0000	1.0000
L70	62	6.5" x 1.25" Flat Plate (G)	3.25 - 6.92	1.0000	1.0000
L71	13	CU12PSM9P6XXX(1-1/2)	3.00 - 3.25	1.0000	1.0000
L71	17	5.5" x 1.25" Flat Plate (G)	3.00 - 3.25	1.0000	1.0000
L71	18	5.5" x 1.25" Flat Plate (G)	3.00 - 3.25	1.0000	1.0000
L71	19	5.5" x 1.25" Flat Plate (G)	3.00 - 3.25	1.0000	1.0000
L71	20	5.5" x 1.25" Flat Plate (G)	3.00 - 3.25	1.0000	1.0000
L71	58	6.5" x 1.25" Flat Plate (G)	3.00 - 3.25	1.0000	1.0000
L71	59	6.5" x 1.25" Flat Plate (G)	3.00 - 3.25	1.0000	1.0000
L71	61	6.5" x 1.25" Flat Plate (G)	3.00 - 3.25	1.0000	1.0000
L71	62	6.5" x 1.25" Flat Plate (G)	3.00 - 3.25	1.0000	1.0000
L72	13	CU12PSM9P6XXX(1-1/2)	2.75 - 3.00	1.0000	1.0000
L72	17	5.5" x 1.25" Flat Plate (G)	2.75 - 3.00	1.0000	1.0000
L72	18	5.5" x 1.25" Flat Plate (G)	2.75 - 3.00	1.0000	1.0000
L72	19	5.5" x 1.25" Flat Plate (G)	2.75 - 3.00	1.0000	1.0000
L72	20	5.5" x 1.25" Flat Plate (G)	2.75 - 3.00	1.0000	1.0000
L72	58	6.5" x 1.25" Flat Plate (G)	2.75 - 3.00	1.0000	1.0000
L72	59	6.5" x 1.25" Flat Plate (G)	2.75 - 3.00	1.0000	1.0000
L72	61	6.5" x 1.25" Flat Plate (G)	2.75 - 3.00	1.0000	1.0000
L72	62	6.5" x 1.25" Flat Plate (G)	2.75 - 3.00	1.0000	1.0000
L73	13	CU12PSM9P6XXX(1-1/2)	2.33 - 2.75	1.0000	1.0000
L73	17	5.5" x 1.25" Flat Plate (G)	2.33 - 2.75	1.0000	1.0000
L73	18	5.5" x 1.25" Flat Plate (G)	2.33 - 2.75	1.0000	1.0000
L73	19	5.5" x 1.25" Flat Plate (G)	2.33 - 2.75	1.0000	1.0000
L73	20	5.5" x 1.25" Flat Plate (G)	2.33 - 2.75	1.0000	1.0000
L73	58	6.5" x 1.25" Flat Plate (G)	2.33 - 2.75	1.0000	1.0000
L73	59	6.5" x 1.25" Flat Plate (G)	2.33 - 2.75	1.0000	1.0000
L73	61	6.5" x 1.25" Flat Plate (G)	2.33 - 2.75	1.0000	1.0000
L73	62	6.5" x 1.25" Flat Plate (G)	2.33 - 2.75	1.0000	1.0000
L74	13	CU12PSM9P6XXX(1-1/2)	2.08 - 2.33	1.0000	1.0000
L74	17	5.5" x 1.25" Flat Plate (G)	2.08 - 2.33	1.0000	1.0000
L74	18	5.5" x 1.25" Flat Plate (G)	2.08 - 2.33	1.0000	1.0000
L74	19	5.5" x 1.25" Flat Plate (G)	2.08 - 2.33	1.0000	1.0000
L74	20	5.5" x 1.25" Flat Plate (G)	2.08 - 2.33	1.0000	1.0000
L74	58	6.5" x 1.25" Flat Plate (G)	2.08 - 2.33	1.0000	1.0000
L74	59	6.5" x 1.25" Flat Plate (G)	2.08 - 2.33	1.0000	1.0000
L74	61	6.5" x 1.25" Flat Plate (G)	2.08 - 2.33	1.0000	1.0000
L74	62	6.5" x 1.25" Flat Plate (G)	2.08 - 2.33	1.0000	1.0000
L75	13	CU12PSM9P6XXX(1-1/2)	1.75 - 2.08	1.0000	1.0000
L75	17	5.5" x 1.25" Flat Plate (G)	1.75 - 2.08	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L75	18	5.5" x 1.25" Flat Plate (G)	1.75 - 2.08	1.0000	1.0000
L75	19	5.5" x 1.25" Flat Plate (G)	1.75 - 2.08	1.0000	1.0000
L75	20	5.5" x 1.25" Flat Plate (G)	1.75 - 2.08	1.0000	1.0000
L75	58	6.5" x 1.25" Flat Plate (G)	1.75 - 2.08	1.0000	1.0000
L75	59	6.5" x 1.25" Flat Plate (G)	1.75 - 2.08	1.0000	1.0000
L75	61	6.5" x 1.25" Flat Plate (G)	1.75 - 2.08	1.0000	1.0000
L75	62	6.5" x 1.25" Flat Plate (G)	1.75 - 2.08	1.0000	1.0000
L76	13	CU12PSM9P6XXX(1-1/2)	1.40 - 1.75	1.0000	1.0000
L76	17	5.5" x 1.25" Flat Plate (G)	1.40 - 1.75	1.0000	1.0000
L76	18	5.5" x 1.25" Flat Plate (G)	1.40 - 1.75	1.0000	1.0000
L76	19	5.5" x 1.25" Flat Plate (G)	1.40 - 1.75	1.0000	1.0000
L76	20	5.5" x 1.25" Flat Plate (G)	1.40 - 1.75	1.0000	1.0000
L76	58	6.5" x 1.25" Flat Plate (G)	1.40 - 1.75	1.0000	1.0000
L76	59	6.5" x 1.25" Flat Plate (G)	1.40 - 1.75	1.0000	1.0000
L76	61	6.5" x 1.25" Flat Plate (G)	1.40 - 1.75	1.0000	1.0000
L76	62	6.5" x 1.25" Flat Plate (G)	1.40 - 1.75	1.0000	1.0000
L77	13	CU12PSM9P6XXX(1-1/2)	1.17 - 1.40	1.0000	1.0000
L77	17	5.5" x 1.25" Flat Plate (G)	1.17 - 1.40	1.0000	1.0000
L77	18	5.5" x 1.25" Flat Plate (G)	1.17 - 1.40	1.0000	1.0000
L77	19	5.5" x 1.25" Flat Plate (G)	1.17 - 1.40	1.0000	1.0000
L77	20	5.5" x 1.25" Flat Plate (G)	1.17 - 1.40	1.0000	1.0000
L77	58	6.5" x 1.25" Flat Plate (G)	1.17 - 1.40	1.0000	1.0000
L77	59	6.5" x 1.25" Flat Plate (G)	1.17 - 1.40	1.0000	1.0000
L77	61	6.5" x 1.25" Flat Plate (G)	1.17 - 1.40	1.0000	1.0000
L77	62	6.5" x 1.25" Flat Plate (G)	1.17 - 1.40	1.0000	1.0000
L78	13	CU12PSM9P6XXX(1-1/2)	0.25 - 1.17	1.0000	1.0000
L78	17	5.5" x 1.25" Flat Plate (G)	0.50 - 1.17	1.0000	1.0000
L78	18	5.5" x 1.25" Flat Plate (G)	0.50 - 1.17	1.0000	1.0000
L78	19	5.5" x 1.25" Flat Plate (G)	0.50 - 1.17	1.0000	1.0000
L78	20	5.5" x 1.25" Flat Plate (G)	0.50 - 1.17	1.0000	1.0000
L78	58	6.5" x 1.25" Flat Plate (G)	0.50 - 1.17	1.0000	1.0000
L78	59	6.5" x 1.25" Flat Plate (G)	0.50 - 1.17	1.0000	1.0000
L78	61	6.5" x 1.25" Flat Plate (G)	0.50 - 1.17	1.0000	1.0000
L78	62	6.5" x 1.25" Flat Plate (G)	0.50 - 1.17	1.0000	1.0000
L79	13	CU12PSM9P6XXX(1-1/2)	0.00 - 0.25	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
L5	54	4" x 0.75" Flat Plate (G)	124.50 - 126.00	Auto	0.1977
L5	55	4" x 0.75" Flat Plate (G)	124.50 - 126.00	Auto	0.1977
L5	56	4" x 0.75" Flat Plate (G)	124.50 - 126.00	Auto	0.1977
L6	54	4" x 0.75" Flat Plate (G)	124.25 - 124.50	Auto	0.2626
L6	55	4" x 0.75" Flat Plate (G)	124.25 - 124.50	Auto	0.2626
L6	56	4" x 0.75" Flat Plate (G)	124.25 - 124.50	Auto	0.2626
L7	34	4" x 1.25" Flat Plate (G)	119.25 - 120.00	Auto	0.2237
L7	35	4" x 1.25" Flat Plate (G)	119.25 - 120.00	Auto	0.2237
L7	36	4" x 1.25" Flat Plate (G)	119.25 - 120.00	Auto	0.2237
L7	54	4" x 0.75" Flat Plate (G)	119.25 -	Auto	0.2399

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L7	55	4" x 0.75" Flat Plate (G)	124.25 - 119.25	Auto	0.2399
L7	56	4" x 0.75" Flat Plate (G)	124.25 - 119.25	Auto	0.2399
L8	34	4" x 1.25" Flat Plate (G)	124.25 - 118.50	Auto	0.2180
L8	35	4" x 1.25" Flat Plate (G)	119.25 - 118.50	Auto	0.2180
L8	36	4" x 1.25" Flat Plate (G)	119.25 - 118.50	Auto	0.2180
L8	54	4" x 0.75" Flat Plate (G)	119.25 - 118.50	Auto	0.2180
L8	55	4" x 0.75" Flat Plate (G)	119.25 - 118.50	Auto	0.2180
L8	56	4" x 0.75" Flat Plate (G)	119.25 - 118.50	Auto	0.2180
L9	34	4" x 1.25" Flat Plate (G)	119.25 - 118.25	Auto	0.3709
L9	35	4" x 1.25" Flat Plate (G)	118.50 - 118.25	Auto	0.3709
L9	36	4" x 1.25" Flat Plate (G)	118.50 - 118.25	Auto	0.3709
L9	54	4" x 0.75" Flat Plate (G)	118.50 - 118.25	Auto	0.3709
L9	55	4" x 0.75" Flat Plate (G)	118.50 - 118.25	Auto	0.3709
L9	56	4" x 0.75" Flat Plate (G)	118.50 - 118.25	Auto	0.3709
L10	34	4" x 1.25" Flat Plate (G)	118.25 - 116.00	Auto	0.3559
L10	35	4" x 1.25" Flat Plate (G)	118.25 - 116.00	Auto	0.3559
L10	36	4" x 1.25" Flat Plate (G)	118.25 - 116.00	Auto	0.3559
L10	54	4" x 0.75" Flat Plate (G)	118.25 - 116.00	Auto	0.3559
L10	55	4" x 0.75" Flat Plate (G)	118.25 - 116.00	Auto	0.3559
L10	56	4" x 0.75" Flat Plate (G)	118.25 - 116.00	Auto	0.3559
L11	34	4" x 1.25" Flat Plate (G)	118.25 - 115.75	Auto	0.3464
L11	35	4" x 1.25" Flat Plate (G)	116.00 - 115.75	Auto	0.3464
L11	36	4" x 1.25" Flat Plate (G)	116.00 - 115.75	Auto	0.3464
L11	87	4" x 0.75" Flat Plate (G)	116.00 - 115.75	Auto	0.3461
L11	88	4" x 0.75" Flat Plate (G)	115.92 - 115.75	Auto	0.3461
L11	89	4" x 0.75" Flat Plate (G)	115.92 - 115.75	Auto	0.3461
L12	34	4" x 1.25" Flat Plate (G)	115.92 - 115.75	Auto	0.3154
L12	35	4" x 1.25" Flat Plate (G)	115.75 - 115.75	Auto	0.3154
L12	36	4" x 1.25" Flat Plate (G)	115.75 - 115.75	Auto	0.3154
L12	87	4" x 0.75" Flat Plate (G)	115.75 - 115.75	Auto	0.3154
L12	88	4" x 0.75" Flat Plate (G)	115.75 - 115.75	Auto	0.3154
L12	89	4" x 0.75" Flat Plate (G)	115.75 - 115.75	Auto	0.3154
L13	34	4" x 1.25" Flat Plate (G)	115.75 - 110.75	Auto	0.2664
L13	35	4" x 1.25" Flat Plate (G)	110.75 -	Auto	0.2664

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L13	36	4" x 1.25" Flat Plate (G)	110.75 105.75 -	Auto	0.2664
L13	87	4" x 0.75" Flat Plate (G)	110.75 105.75 -	Auto	0.2664
L13	88	4" x 0.75" Flat Plate (G)	110.75 105.75 -	Auto	0.2664
L13	89	4" x 0.75" Flat Plate (G)	110.75 105.75 -	Auto	0.2664
L14	34	4" x 1.25" Flat Plate (G)	110.75 98.50 -	Auto	0.2087
L14	35	4" x 1.25" Flat Plate (G)	105.75 98.50 -	Auto	0.2087
L14	36	4" x 1.25" Flat Plate (G)	105.75 98.50 -	Auto	0.2087
L14	87	4" x 0.75" Flat Plate (G)	105.75 98.50 -	Auto	0.2087
L14	88	4" x 0.75" Flat Plate (G)	105.75 98.50 -	Auto	0.2087
L14	89	4" x 0.75" Flat Plate (G)	105.75 98.50 -	Auto	0.2087
L15	34	4" x 1.25" Flat Plate (G)	105.75 97.00 -	Auto	0.2194
L15	35	4" x 1.25" Flat Plate (G)	98.50 97.00 -	Auto	0.2194
L15	36	4" x 1.25" Flat Plate (G)	98.50 97.00 -	Auto	0.2194
L15	50	4" x 0.75" Flat Plate (G)	98.50 97.00 -	Auto	0.2175
L15	51	4" x 0.75" Flat Plate (G)	98.00 97.00 -	Auto	0.2175
L15	52	4" x 0.75" Flat Plate (G)	98.00 97.00 -	Auto	0.2175
L15	87	4" x 0.75" Flat Plate (G)	98.00 97.00 -	Auto	0.2194
L15	88	4" x 0.75" Flat Plate (G)	98.50 97.00 -	Auto	0.2194
L15	89	4" x 0.75" Flat Plate (G)	98.50 97.00 -	Auto	0.2194
L16	34	4" x 1.25" Flat Plate (G)	98.50 96.75 -	Auto	0.2788
L16	35	4" x 1.25" Flat Plate (G)	97.00 96.75 -	Auto	0.2788
L16	36	4" x 1.25" Flat Plate (G)	97.00 96.75 -	Auto	0.2788
L16	50	4" x 0.75" Flat Plate (G)	97.00 96.75 -	Auto	0.2788
L16	51	4" x 0.75" Flat Plate (G)	97.00 96.75 -	Auto	0.2788
L16	52	4" x 0.75" Flat Plate (G)	97.00 96.75 -	Auto	0.2788
L16	87	4" x 0.75" Flat Plate (G)	97.00 96.75 -	Auto	0.2788
L16	88	4" x 0.75" Flat Plate (G)	97.00 96.75 -	Auto	0.2788
L16	89	4" x 0.75" Flat Plate (G)	97.00 96.75 -	Auto	0.2788
L17	34	4" x 1.25" Flat Plate (G)	97.00 93.98 -	Auto	0.2618
L17	35	4" x 1.25" Flat Plate (G)	96.75 93.98 -	Auto	0.2618
L17	36	4" x 1.25" Flat Plate (G)	96.75 93.98 -	Auto	0.2618
L17	50	4" x 0.75" Flat Plate (G)	96.75 93.98 -	Auto	0.2618
L17	51	4" x 0.75" Flat Plate (G)	96.75 93.98 -	Auto	0.2618
L17	52	4" x 0.75" Flat Plate (G)	96.75 93.98 -	Auto	0.2618

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L17	82	4" x 0.75" Flat Plate (G)	96.75 93.98 - 95.00	Auto	0.2551
L17	83	4" x 0.75" Flat Plate (G)	93.98 - 95.00	Auto	0.2551
L17	84	4" x 0.75" Flat Plate (G)	93.98 - 95.00	Auto	0.2551
L17	87	4" x 0.75" Flat Plate (G)	95.08 - 96.75	Auto	0.2660
L17	88	4" x 0.75" Flat Plate (G)	95.08 - 96.75	Auto	0.2660
L17	89	4" x 0.75" Flat Plate (G)	95.08 - 96.75	Auto	0.2660
L18	34	4" x 1.25" Flat Plate (G)	93.73 - 93.98	Auto	0.2448
L18	35	4" x 1.25" Flat Plate (G)	93.73 - 93.98	Auto	0.2448
L18	36	4" x 1.25" Flat Plate (G)	93.73 - 93.98	Auto	0.2448
L18	50	4" x 0.75" Flat Plate (G)	93.73 - 93.98	Auto	0.2448
L18	51	4" x 0.75" Flat Plate (G)	93.73 - 93.98	Auto	0.2448
L18	52	4" x 0.75" Flat Plate (G)	93.73 - 93.98	Auto	0.2448
L18	82	4" x 0.75" Flat Plate (G)	93.73 - 93.98	Auto	0.2448
L18	83	4" x 0.75" Flat Plate (G)	93.73 - 93.98	Auto	0.2448
L18	84	4" x 0.75" Flat Plate (G)	93.73 - 93.98	Auto	0.2448
L19	30	5.5" x 1.25" Flat Plate (G)	91.50 - 92.75	Auto	0.4412
L19	31	5.5" x 1.25" Flat Plate (G)	91.50 - 92.75	Auto	0.4412
L19	32	5.5" x 1.25" Flat Plate (G)	91.50 - 92.75	Auto	0.4412
L19	34	4" x 1.25" Flat Plate (G)	92.75 - 93.73	Auto	0.2401
L19	35	4" x 1.25" Flat Plate (G)	92.75 - 93.73	Auto	0.2401
L19	36	4" x 1.25" Flat Plate (G)	92.75 - 93.73	Auto	0.2401
L19	50	4" x 0.75" Flat Plate (G)	91.50 - 93.73	Auto	0.2353
L19	51	4" x 0.75" Flat Plate (G)	91.50 - 93.73	Auto	0.2353
L19	52	4" x 0.75" Flat Plate (G)	91.50 - 93.73	Auto	0.2353
L19	82	4" x 0.75" Flat Plate (G)	91.50 - 93.73	Auto	0.2353
L19	83	4" x 0.75" Flat Plate (G)	91.50 - 93.73	Auto	0.2353
L19	84	4" x 0.75" Flat Plate (G)	91.50 - 93.73	Auto	0.2353
L20	30	5.5" x 1.25" Flat Plate (G)	91.25 - 91.50	Auto	0.3850
L20	31	5.5" x 1.25" Flat Plate (G)	91.25 - 91.50	Auto	0.3850
L20	32	5.5" x 1.25" Flat Plate (G)	91.25 - 91.50	Auto	0.3850
L20	50	4" x 0.75" Flat Plate (G)	91.25 - 91.50	Auto	0.1544
L20	51	4" x 0.75" Flat Plate (G)	91.25 - 91.50	Auto	0.1544
L20	52	4" x 0.75" Flat Plate (G)	91.25 - 91.50	Auto	0.1544
L20	82	4" x 0.75" Flat Plate (G)	91.25 -	Auto	0.1544

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L20	83	4" x 0.75" Flat Plate (G)	91.50 91.25 - 91.50	Auto	0.1544
L20	84	4" x 0.75" Flat Plate (G)	91.25 - 91.50	Auto	0.1544
L21	30	5.5" x 1.25" Flat Plate (G)	90.25 - 91.25	Auto	0.3816
L21	31	5.5" x 1.25" Flat Plate (G)	90.25 - 91.25	Auto	0.3816
L21	32	5.5" x 1.25" Flat Plate (G)	90.25 - 91.25	Auto	0.3816
L21	50	4" x 0.75" Flat Plate (G)	90.25 - 91.25	Auto	0.1496
L21	51	4" x 0.75" Flat Plate (G)	90.25 - 91.25	Auto	0.1496
L21	52	4" x 0.75" Flat Plate (G)	90.25 - 91.25	Auto	0.1496
L21	82	4" x 0.75" Flat Plate (G)	90.25 - 91.25	Auto	0.1496
L21	83	4" x 0.75" Flat Plate (G)	90.25 - 91.25	Auto	0.1496
L21	84	4" x 0.75" Flat Plate (G)	90.25 - 91.25	Auto	0.1496
L22	30	5.5" x 1.25" Flat Plate (G)	90.00 - 90.25	Auto	0.4861
L22	31	5.5" x 1.25" Flat Plate (G)	90.00 - 90.25	Auto	0.4861
L22	32	5.5" x 1.25" Flat Plate (G)	90.00 - 90.25	Auto	0.4861
L22	50	4" x 0.75" Flat Plate (G)	90.00 - 90.25	Auto	0.2934
L22	51	4" x 0.75" Flat Plate (G)	90.00 - 90.25	Auto	0.2934
L22	52	4" x 0.75" Flat Plate (G)	90.00 - 90.25	Auto	0.2934
L22	82	4" x 0.75" Flat Plate (G)	90.00 - 90.25	Auto	0.2934
L22	83	4" x 0.75" Flat Plate (G)	90.00 - 90.25	Auto	0.2934
L22	84	4" x 0.75" Flat Plate (G)	90.00 - 90.25	Auto	0.2934
L23	30	5.5" x 1.25" Flat Plate (G)	89.00 - 90.00	Auto	0.4826
L23	31	5.5" x 1.25" Flat Plate (G)	89.00 - 90.00	Auto	0.4826
L23	32	5.5" x 1.25" Flat Plate (G)	89.00 - 90.00	Auto	0.4826
L23	50	4" x 0.75" Flat Plate (G)	89.00 - 90.00	Auto	0.2886
L23	51	4" x 0.75" Flat Plate (G)	89.00 - 90.00	Auto	0.2886
L23	52	4" x 0.75" Flat Plate (G)	89.00 - 90.00	Auto	0.2886
L23	78	4" x 0.75" Flat Plate (G)	89.00 - 89.92	Auto	0.2883
L23	79	4" x 0.75" Flat Plate (G)	89.00 - 89.92	Manual	1.0000
L23	80	4" x 0.75" Flat Plate (G)	89.00 - 89.92	Auto	0.2883
L23	82	4" x 0.75" Flat Plate (G)	89.00 - 90.00	Auto	0.2886
L23	83	4" x 0.75" Flat Plate (G)	89.00 - 90.00	Auto	0.2886
L23	84	4" x 0.75" Flat Plate (G)	89.00 - 90.00	Auto	0.2886
L24	30	5.5" x 1.25" Flat Plate (G)	88.75 - 89.00	Auto	0.4312
L24	31	5.5" x 1.25" Flat Plate (G)	88.75 -	Auto	0.4312

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L24	32	5.5" x 1.25" Flat Plate (G)	89.00 88.75 - 89.00	Auto	0.4312
L24	50	4" x 0.75" Flat Plate (G)	88.75 - 89.00	Auto	0.2179
L24	51	4" x 0.75" Flat Plate (G)	88.75 - 89.00	Auto	0.2179
L24	52	4" x 0.75" Flat Plate (G)	88.75 - 89.00	Auto	0.2179
L24	78	4" x 0.75" Flat Plate (G)	88.75 - 89.00	Auto	0.2179
L24	79	4" x 0.75" Flat Plate (G)	88.75 - 89.00	Manual	1.0000
L24	80	4" x 0.75" Flat Plate (G)	88.75 - 89.00	Auto	0.2179
L24	82	4" x 0.75" Flat Plate (G)	88.75 - 89.00	Auto	0.2179
L24	83	4" x 0.75" Flat Plate (G)	88.75 - 89.00	Auto	0.2179
L24	84	4" x 0.75" Flat Plate (G)	88.75 - 89.00	Auto	0.2179
L25	30	5.5" x 1.25" Flat Plate (G)	83.75 - 88.75	Auto	0.4086
L25	31	5.5" x 1.25" Flat Plate (G)	83.75 - 88.75	Auto	0.4086
L25	32	5.5" x 1.25" Flat Plate (G)	83.75 - 88.75	Auto	0.4086
L25	50	4" x 0.75" Flat Plate (G)	88.00 - 88.75	Auto	0.2031
L25	51	4" x 0.75" Flat Plate (G)	88.00 - 88.75	Auto	0.2031
L25	52	4" x 0.75" Flat Plate (G)	88.00 - 88.75	Auto	0.2031
L25	78	4" x 0.75" Flat Plate (G)	83.75 - 88.75	Auto	0.1869
L25	79	4" x 0.75" Flat Plate (G)	83.75 - 88.75	Manual	1.0000
L25	80	4" x 0.75" Flat Plate (G)	83.75 - 88.75	Auto	0.1869
L25	82	4" x 0.75" Flat Plate (G)	83.75 - 88.75	Auto	0.1869
L25	83	4" x 0.75" Flat Plate (G)	83.75 - 88.75	Auto	0.1869
L25	84	4" x 0.75" Flat Plate (G)	83.75 - 88.75	Auto	0.1869
L26	30	5.5" x 1.25" Flat Plate (G)	80.08 - 83.75	Auto	0.3766
L26	31	5.5" x 1.25" Flat Plate (G)	80.08 - 83.75	Auto	0.3766
L26	32	5.5" x 1.25" Flat Plate (G)	80.08 - 83.75	Auto	0.3766
L26	72	4" x 0.75" Flat Plate (G)	80.08 - 81.08	Auto	0.1327
L26	73	4" x 0.75" Flat Plate (G)	80.08 - 81.08	Auto	0.1327
L26	74	4" x 0.75" Flat Plate (G)	80.08 - 81.08	Auto	0.1327
L26	75	4" x 0.75" Flat Plate (G)	80.08 - 81.08	Auto	0.1327
L26	76	4" x 0.75" Flat Plate (G)	80.08 - 81.08	Auto	0.1327
L26	78	4" x 0.75" Flat Plate (G)	80.08 - 83.75	Auto	0.1429
L26	79	4" x 0.75" Flat Plate (G)	80.08 - 83.75	Manual	1.0000
L26	80	4" x 0.75" Flat Plate (G)	80.08 - 83.75	Auto	0.1429
L26	82	4" x 0.75" Flat Plate (G)	80.08 -	Auto	0.1429

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L26	83	4" x 0.75" Flat Plate (G)	83.75 80.08 - 83.75	Auto	0.1429
L26	84	4" x 0.75" Flat Plate (G)	80.08 - 83.75	Auto	0.1429
L27	30	5.5" x 1.25" Flat Plate (G)	79.83 - 80.08	Auto	0.4218
L27	31	5.5" x 1.25" Flat Plate (G)	79.83 - 80.08	Auto	0.4218
L27	32	5.5" x 1.25" Flat Plate (G)	79.83 - 80.08	Auto	0.4218
L27	72	4" x 0.75" Flat Plate (G)	79.83 - 80.08	Auto	0.2049
L27	73	4" x 0.75" Flat Plate (G)	79.83 - 80.08	Auto	0.2049
L27	74	4" x 0.75" Flat Plate (G)	79.83 - 80.08	Auto	0.2049
L27	75	4" x 0.75" Flat Plate (G)	79.83 - 80.08	Auto	0.2049
L27	76	4" x 0.75" Flat Plate (G)	79.83 - 80.08	Auto	0.2049
L27	78	4" x 0.75" Flat Plate (G)	79.83 - 80.08	Auto	0.2049
L27	79	4" x 0.75" Flat Plate (G)	79.83 - 80.08	Manual	1.0000
L27	80	4" x 0.75" Flat Plate (G)	79.83 - 80.08	Auto	0.2049
L27	82	4" x 0.75" Flat Plate (G)	79.83 - 80.08	Auto	0.2049
L27	83	4" x 0.75" Flat Plate (G)	79.83 - 80.08	Auto	0.2049
L27	84	4" x 0.75" Flat Plate (G)	79.83 - 80.08	Auto	0.2049
L28	30	5.5" x 1.25" Flat Plate (G)	74.83 - 79.83	Auto	0.3992
L28	31	5.5" x 1.25" Flat Plate (G)	74.83 - 79.83	Auto	0.3992
L28	32	5.5" x 1.25" Flat Plate (G)	74.83 - 79.83	Auto	0.3992
L28	46	4.5" x 1" Flat Plate (G)	74.83 - 75.00	Auto	0.2494
L28	47	4.5" x 1" Flat Plate (G)	74.83 - 75.00	Auto	0.2494
L28	48	4.5" x 1" Flat Plate (G)	74.83 - 75.00	Auto	0.2494
L28	72	4" x 0.75" Flat Plate (G)	74.83 - 79.83	Auto	0.1740
L28	73	4" x 0.75" Flat Plate (G)	74.83 - 79.83	Auto	0.1740
L28	74	4" x 0.75" Flat Plate (G)	74.83 - 79.83	Auto	0.1740
L28	75	4" x 0.75" Flat Plate (G)	74.83 - 79.83	Auto	0.1740
L28	76	4" x 0.75" Flat Plate (G)	74.83 - 79.83	Auto	0.1740
L28	78	4" x 0.75" Flat Plate (G)	74.83 - 79.83	Auto	0.1740
L28	79	4" x 0.75" Flat Plate (G)	74.83 - 79.83	Manual	1.0000
L28	80	4" x 0.75" Flat Plate (G)	74.83 - 79.83	Auto	0.1740
L28	82	4" x 0.75" Flat Plate (G)	74.83 - 79.83	Auto	0.1740
L28	83	4" x 0.75" Flat Plate (G)	74.83 - 79.83	Auto	0.1740
L28	84	4" x 0.75" Flat Plate (G)	74.83 - 79.83	Auto	0.1740
L29	30	5.5" x 1.25" Flat Plate (G)	73.50 -	Auto	0.3817

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L29	31	5.5" x 1.25" Flat Plate (G)	74.83 73.50 - 74.83	Auto	0.3817
L29	32	5.5" x 1.25" Flat Plate (G)	73.50 - 74.83	Auto	0.3817
L29	46	4.5" x 1" Flat Plate (G)	73.50 - 74.83	Auto	0.2443
L29	47	4.5" x 1" Flat Plate (G)	73.50 - 74.83	Auto	0.2443
L29	48	4.5" x 1" Flat Plate (G)	73.50 - 74.83	Auto	0.2443
L29	72	4" x 0.75" Flat Plate (G)	73.50 - 74.83	Auto	0.1499
L29	73	4" x 0.75" Flat Plate (G)	73.50 - 74.83	Auto	0.1499
L29	74	4" x 0.75" Flat Plate (G)	73.50 - 74.83	Auto	0.1499
L29	75	4" x 0.75" Flat Plate (G)	73.50 - 74.83	Auto	0.1499
L29	76	4" x 0.75" Flat Plate (G)	73.50 - 74.83	Auto	0.1499
L29	78	4" x 0.75" Flat Plate (G)	73.50 - 74.83	Auto	0.1499
L29	79	4" x 0.75" Flat Plate (G)	73.50 - 74.83	Manual	1.0000
L29	80	4" x 0.75" Flat Plate (G)	73.50 - 74.83	Auto	0.1499
L29	82	4" x 0.75" Flat Plate (G)	73.50 - 74.83	Auto	0.1499
L29	83	4" x 0.75" Flat Plate (G)	73.50 - 74.83	Auto	0.1499
L29	84	4" x 0.75" Flat Plate (G)	73.50 - 74.83	Auto	0.1499
L30	30	5.5" x 1.25" Flat Plate (G)	73.25 - 73.50	Auto	0.4413
L30	31	5.5" x 1.25" Flat Plate (G)	73.25 - 73.50	Auto	0.4413
L30	32	5.5" x 1.25" Flat Plate (G)	73.25 - 73.50	Auto	0.4413
L30	46	4.5" x 1" Flat Plate (G)	73.25 - 73.50	Auto	0.3172
L30	47	4.5" x 1" Flat Plate (G)	73.25 - 73.50	Auto	0.3172
L30	48	4.5" x 1" Flat Plate (G)	73.25 - 73.50	Auto	0.3172
L30	72	4" x 0.75" Flat Plate (G)	73.25 - 73.50	Auto	0.2318
L30	73	4" x 0.75" Flat Plate (G)	73.25 - 73.50	Auto	0.2318
L30	74	4" x 0.75" Flat Plate (G)	73.25 - 73.50	Auto	0.2318
L30	75	4" x 0.75" Flat Plate (G)	73.25 - 73.50	Auto	0.2318
L30	76	4" x 0.75" Flat Plate (G)	73.25 - 73.50	Auto	0.2318
L30	78	4" x 0.75" Flat Plate (G)	73.25 - 73.50	Auto	0.2318
L30	79	4" x 0.75" Flat Plate (G)	73.25 - 73.50	Manual	1.0000
L30	80	4" x 0.75" Flat Plate (G)	73.25 - 73.50	Auto	0.2318
L30	82	4" x 0.75" Flat Plate (G)	73.25 - 73.50	Auto	0.2318
L30	83	4" x 0.75" Flat Plate (G)	73.25 - 73.50	Auto	0.2318
L30	84	4" x 0.75" Flat Plate (G)	73.25 - 73.50	Auto	0.2318
L31	30	5.5" x 1.25" Flat Plate (G)	71.00 -	Auto	0.4264

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L31	31	5.5" x 1.25" Flat Plate (G)	73.25 71.00 - 73.25	Auto	0.4264
L31	32	5.5" x 1.25" Flat Plate (G)	71.00 - 73.25	Auto	0.4264
L31	46	4.5" x 1" Flat Plate (G)	71.00 - 73.25	Auto	0.2990
L31	47	4.5" x 1" Flat Plate (G)	71.00 - 73.25	Auto	0.2990
L31	48	4.5" x 1" Flat Plate (G)	71.00 - 73.25	Auto	0.2990
L31	72	4" x 0.75" Flat Plate (G)	71.00 - 73.25	Auto	0.2113
L31	73	4" x 0.75" Flat Plate (G)	71.00 - 73.25	Auto	0.2113
L31	74	4" x 0.75" Flat Plate (G)	71.00 - 73.25	Auto	0.2113
L31	75	4" x 0.75" Flat Plate (G)	71.00 - 73.25	Auto	0.2113
L31	76	4" x 0.75" Flat Plate (G)	71.00 - 73.25	Auto	0.2113
L31	78	4" x 0.75" Flat Plate (G)	71.00 - 73.25	Auto	0.2113
L31	79	4" x 0.75" Flat Plate (G)	71.00 - 73.25	Manual	1.0000
L31	80	4" x 0.75" Flat Plate (G)	71.00 - 73.25	Auto	0.2113
L31	82	4" x 0.75" Flat Plate (G)	71.00 - 73.25	Auto	0.2113
L31	83	4" x 0.75" Flat Plate (G)	71.00 - 73.25	Auto	0.2113
L31	84	4" x 0.75" Flat Plate (G)	71.00 - 73.25	Auto	0.2113
L32	30	5.5" x 1.25" Flat Plate (G)	70.75 - 71.00	Auto	0.3875
L32	31	5.5" x 1.25" Flat Plate (G)	70.75 - 71.00	Auto	0.3875
L32	32	5.5" x 1.25" Flat Plate (G)	70.75 - 71.00	Auto	0.3875
L32	46	4.5" x 1" Flat Plate (G)	70.75 - 71.00	Auto	0.2514
L32	47	4.5" x 1" Flat Plate (G)	70.75 - 71.00	Auto	0.2514
L32	48	4.5" x 1" Flat Plate (G)	70.75 - 71.00	Auto	0.2514
L32	72	4" x 0.75" Flat Plate (G)	70.75 - 71.00	Auto	0.1578
L32	73	4" x 0.75" Flat Plate (G)	70.75 - 71.00	Auto	0.1578
L32	74	4" x 0.75" Flat Plate (G)	70.75 - 71.00	Auto	0.1578
L32	75	4" x 0.75" Flat Plate (G)	70.75 - 71.00	Auto	0.1578
L32	76	4" x 0.75" Flat Plate (G)	70.75 - 71.00	Auto	0.1578
L32	78	4" x 0.75" Flat Plate (G)	70.75 - 71.00	Auto	0.1578
L32	79	4" x 0.75" Flat Plate (G)	70.75 - 71.00	Manual	1.0000
L32	80	4" x 0.75" Flat Plate (G)	70.75 - 71.00	Auto	0.1578
L32	82	4" x 0.75" Flat Plate (G)	70.75 - 71.00	Auto	0.1578
L32	83	4" x 0.75" Flat Plate (G)	70.75 - 71.00	Auto	0.1578
L32	84	4" x 0.75" Flat Plate (G)	70.75 - 71.00	Auto	0.1578
L33	30	5.5" x 1.25" Flat Plate (G)	65.75 -	Auto	0.3650

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L33	31	5.5" x 1.25" Flat Plate (G)	70.75 65.75 - 70.75	Auto	0.3650
L33	32	5.5" x 1.25" Flat Plate (G)	65.75 - 70.75	Auto	0.3650
L33	46	4.5" x 1" Flat Plate (G)	65.75 - 70.75	Auto	0.2238
L33	47	4.5" x 1" Flat Plate (G)	65.75 - 70.75	Auto	0.2238
L33	48	4.5" x 1" Flat Plate (G)	65.75 - 70.75	Auto	0.2238
L33	72	4" x 0.75" Flat Plate (G)	65.75 - 70.75	Auto	0.1268
L33	73	4" x 0.75" Flat Plate (G)	65.75 - 70.75	Auto	0.1268
L33	74	4" x 0.75" Flat Plate (G)	65.75 - 70.75	Auto	0.1268
L33	75	4" x 0.75" Flat Plate (G)	65.75 - 70.75	Auto	0.1268
L33	76	4" x 0.75" Flat Plate (G)	65.75 - 70.75	Auto	0.1268
L33	78	4" x 0.75" Flat Plate (G)	65.75 - 70.75	Auto	0.1268
L33	79	4" x 0.75" Flat Plate (G)	65.75 - 70.75	Manual	1.0000
L33	80	4" x 0.75" Flat Plate (G)	65.75 - 70.75	Auto	0.1268
L33	82	4" x 0.75" Flat Plate (G)	70.00 - 70.75	Auto	0.1430
L33	83	4" x 0.75" Flat Plate (G)	70.00 - 70.75	Auto	0.1430
L33	84	4" x 0.75" Flat Plate (G)	70.00 - 70.75	Auto	0.1430
L34	26	5.5" x 1.25" Flat Plate (G)	63.00 - 65.50	Auto	0.3348
L34	27	5.5" x 1.25" Flat Plate (G)	63.00 - 65.50	Auto	0.3348
L34	28	5.5" x 1.25" Flat Plate (G)	63.00 - 65.50	Auto	0.3348
L34	30	5.5" x 1.25" Flat Plate (G)	65.50 - 65.75	Auto	0.3424
L34	31	5.5" x 1.25" Flat Plate (G)	65.50 - 65.75	Auto	0.3424
L34	32	5.5" x 1.25" Flat Plate (G)	65.50 - 65.75	Auto	0.3424
L34	46	4.5" x 1" Flat Plate (G)	63.00 - 65.75	Auto	0.1878
L34	47	4.5" x 1" Flat Plate (G)	63.00 - 65.75	Auto	0.1878
L34	48	4.5" x 1" Flat Plate (G)	63.00 - 65.75	Auto	0.1878
L34	72	4" x 0.75" Flat Plate (G)	63.00 - 65.75	Auto	0.0863
L34	73	4" x 0.75" Flat Plate (G)	63.00 - 65.75	Auto	0.0863
L34	74	4" x 0.75" Flat Plate (G)	63.00 - 65.75	Auto	0.0863
L34	75	4" x 0.75" Flat Plate (G)	63.00 - 65.75	Auto	0.0863
L34	76	4" x 0.75" Flat Plate (G)	63.00 - 65.75	Auto	0.0863
L34	78	4" x 0.75" Flat Plate (G)	65.58 - 65.75	Auto	0.0961
L34	79	4" x 0.75" Flat Plate (G)	65.58 - 65.75	Manual	1.0000
L34	80	4" x 0.75" Flat Plate (G)	65.58 - 65.75	Auto	0.0961
L35	26	5.5" x 1.25" Flat Plate (G)	62.75 -	Auto	0.3112

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L35	27	5.5" x 1.25" Flat Plate (G)	63.00 62.75 - 63.00	Auto	0.3112
L35	28	5.5" x 1.25" Flat Plate (G)	62.75 - 63.00	Auto	0.3112
L35	46	4.5" x 1" Flat Plate (G)	62.75 - 63.00	Auto	0.1581
L35	47	4.5" x 1" Flat Plate (G)	62.75 - 63.00	Auto	0.1581
L35	48	4.5" x 1" Flat Plate (G)	62.75 - 63.00	Auto	0.1581
L35	72	4" x 0.75" Flat Plate (G)	62.75 - 63.00	Auto	0.0529
L35	73	4" x 0.75" Flat Plate (G)	62.75 - 63.00	Auto	0.0529
L35	74	4" x 0.75" Flat Plate (G)	62.75 - 63.00	Auto	0.0529
L35	75	4" x 0.75" Flat Plate (G)	62.75 - 63.00	Auto	0.0529
L35	76	4" x 0.75" Flat Plate (G)	62.75 - 63.00	Auto	0.0529
L36	26	5.5" x 1.25" Flat Plate (G)	62.08 - 62.75	Auto	0.3087
L36	27	5.5" x 1.25" Flat Plate (G)	62.08 - 62.75	Auto	0.3087
L36	28	5.5" x 1.25" Flat Plate (G)	62.08 - 62.75	Auto	0.3087
L36	46	4.5" x 1" Flat Plate (G)	62.08 - 62.75	Auto	0.1550
L36	47	4.5" x 1" Flat Plate (G)	62.08 - 62.75	Auto	0.1550
L36	48	4.5" x 1" Flat Plate (G)	62.08 - 62.75	Auto	0.1550
L36	67	6" x 1" Flat Plate (G)	62.08 - 62.67	Auto	0.3661
L36	72	4" x 0.75" Flat Plate (G)	62.08 - 62.75	Auto	0.0494
L36	73	4" x 0.75" Flat Plate (G)	62.08 - 62.75	Auto	0.0494
L36	74	4" x 0.75" Flat Plate (G)	62.08 - 62.75	Auto	0.0494
L36	75	4" x 0.75" Flat Plate (G)	62.08 - 62.75	Auto	0.0494
L36	76	4" x 0.75" Flat Plate (G)	62.08 - 62.75	Auto	0.0494
L37	26	5.5" x 1.25" Flat Plate (G)	61.83 - 62.08	Auto	0.2621
L37	27	5.5" x 1.25" Flat Plate (G)	61.83 - 62.08	Auto	0.2621
L37	28	5.5" x 1.25" Flat Plate (G)	61.83 - 62.08	Auto	0.2621
L37	46	4.5" x 1" Flat Plate (G)	61.83 - 62.08	Auto	0.0981
L37	47	4.5" x 1" Flat Plate (G)	61.83 - 62.08	Auto	0.0981
L37	48	4.5" x 1" Flat Plate (G)	61.83 - 62.08	Auto	0.0981
L37	67	6" x 1" Flat Plate (G)	61.83 - 62.08	Auto	0.3236
L37	72	4" x 0.75" Flat Plate (G)	61.83 - 62.08	Auto	0.0000
L37	73	4" x 0.75" Flat Plate (G)	61.83 - 62.08	Auto	0.0000
L37	74	4" x 0.75" Flat Plate (G)	61.83 - 62.08	Auto	0.0000
L37	75	4" x 0.75" Flat Plate (G)	61.83 - 62.08	Auto	0.0000
L37	76	4" x 0.75" Flat Plate (G)	61.83 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L38	26	5.5" x 1.25" Flat Plate (G)	62.08 60.67 - 61.83	Auto	0.2542
L38	27	5.5" x 1.25" Flat Plate (G)	60.67 - 61.83	Auto	0.2542
L38	28	5.5" x 1.25" Flat Plate (G)	60.67 - 61.83	Auto	0.2542
L38	46	4.5" x 1" Flat Plate (G)	60.67 - 61.83	Auto	0.0885
L38	47	4.5" x 1" Flat Plate (G)	60.67 - 61.83	Auto	0.0885
L38	48	4.5" x 1" Flat Plate (G)	60.67 - 61.83	Auto	0.0885
L38	64	6" x 1" Flat Plate (G)	60.67 - 61.00	Auto	0.3142
L38	65	6" x 1" Flat Plate (G)	60.67 - 61.00	Auto	0.3142
L38	67	6" x 1" Flat Plate (G)	60.67 - 61.83	Auto	0.3164
L38	72	4" x 0.75" Flat Plate (G)	61.08 - 61.83	Auto	0.0000
L38	73	4" x 0.75" Flat Plate (G)	61.08 - 61.83	Auto	0.0000
L38	74	4" x 0.75" Flat Plate (G)	61.08 - 61.83	Auto	0.0000
L38	75	4" x 0.75" Flat Plate (G)	61.08 - 61.83	Auto	0.0000
L38	76	4" x 0.75" Flat Plate (G)	61.08 - 61.83	Auto	0.0000
L39	26	5.5" x 1.25" Flat Plate (G)	60.42 - 60.67	Auto	0.2503
L39	27	5.5" x 1.25" Flat Plate (G)	60.42 - 60.67	Auto	0.2503
L39	28	5.5" x 1.25" Flat Plate (G)	60.42 - 60.67	Auto	0.2503
L39	46	4.5" x 1" Flat Plate (G)	60.42 - 60.67	Auto	0.0837
L39	47	4.5" x 1" Flat Plate (G)	60.42 - 60.67	Auto	0.0837
L39	48	4.5" x 1" Flat Plate (G)	60.42 - 60.67	Auto	0.0837
L39	64	6" x 1" Flat Plate (G)	60.42 - 60.67	Auto	0.3128
L39	65	6" x 1" Flat Plate (G)	60.42 - 60.67	Auto	0.3128
L39	67	6" x 1" Flat Plate (G)	60.42 - 60.67	Auto	0.3128
L40	26	5.5" x 1.25" Flat Plate (G)	59.00 - 60.42	Auto	0.2457
L40	27	5.5" x 1.25" Flat Plate (G)	59.00 - 60.42	Auto	0.2457
L40	28	5.5" x 1.25" Flat Plate (G)	59.00 - 60.42	Auto	0.2457
L40	46	4.5" x 1" Flat Plate (G)	59.00 - 60.42	Auto	0.0780
L40	47	4.5" x 1" Flat Plate (G)	59.00 - 60.42	Auto	0.0780
L40	48	4.5" x 1" Flat Plate (G)	59.00 - 60.42	Auto	0.0780
L40	64	6" x 1" Flat Plate (G)	59.00 - 60.42	Auto	0.3085
L40	65	6" x 1" Flat Plate (G)	59.00 - 60.42	Auto	0.3085
L40	67	6" x 1" Flat Plate (G)	59.00 - 60.42	Auto	0.3085
L41	26	5.5" x 1.25" Flat Plate (G)	58.75 - 59.00	Auto	0.2651
L41	27	5.5" x 1.25" Flat Plate (G)	58.75 -	Auto	0.2651

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L41	28	5.5" x 1.25" Flat Plate (G)	59.00 58.75 - 59.00	Auto	0.2651
L41	46	4.5" x 1" Flat Plate (G)	58.75 - 59.00	Auto	0.1017
L41	47	4.5" x 1" Flat Plate (G)	58.75 - 59.00	Auto	0.1017
L41	48	4.5" x 1" Flat Plate (G)	58.75 - 59.00	Auto	0.1017
L41	64	6" x 1" Flat Plate (G)	58.75 - 59.00	Auto	0.3263
L41	65	6" x 1" Flat Plate (G)	58.75 - 59.00	Auto	0.3263
L41	67	6" x 1" Flat Plate (G)	58.75 - 59.00	Auto	0.3263
L42	26	5.5" x 1.25" Flat Plate (G)	53.75 - 58.75	Auto	0.2425
L42	27	5.5" x 1.25" Flat Plate (G)	53.75 - 58.75	Auto	0.2425
L42	28	5.5" x 1.25" Flat Plate (G)	53.75 - 58.75	Auto	0.2425
L42	46	4.5" x 1" Flat Plate (G)	53.75 - 58.75	Auto	0.0742
L42	47	4.5" x 1" Flat Plate (G)	53.75 - 58.75	Auto	0.0742
L42	48	4.5" x 1" Flat Plate (G)	53.75 - 58.75	Auto	0.0742
L42	64	6" x 1" Flat Plate (G)	53.75 - 58.75	Auto	0.3056
L42	65	6" x 1" Flat Plate (G)	53.75 - 58.75	Auto	0.3056
L42	67	6" x 1" Flat Plate (G)	53.75 - 58.75	Auto	0.3056
L43	26	5.5" x 1.25" Flat Plate (G)	48.50 - 53.75	Auto	0.2141
L43	27	5.5" x 1.25" Flat Plate (G)	48.50 - 53.75	Auto	0.2141
L43	28	5.5" x 1.25" Flat Plate (G)	48.50 - 53.75	Auto	0.2141
L43	46	4.5" x 1" Flat Plate (G)	50.00 - 53.75	Auto	0.0446
L43	47	4.5" x 1" Flat Plate (G)	50.00 - 53.75	Auto	0.0446
L43	48	4.5" x 1" Flat Plate (G)	50.00 - 53.75	Auto	0.0446
L43	64	6" x 1" Flat Plate (G)	48.50 - 53.75	Auto	0.2796
L43	65	6" x 1" Flat Plate (G)	48.50 - 53.75	Auto	0.2796
L43	67	6" x 1" Flat Plate (G)	48.50 - 53.75	Auto	0.2796
L43	69	6" x 1" Flat Plate (G)	48.50 - 49.92	Auto	0.2699
L43	70	6" x 1" Flat Plate (G)	48.50 - 49.92	Auto	0.2699
L44	22	5.5" x 1.25" Flat Plate (G)	47.50 - 48.25	Auto	0.2322
L44	23	5.5" x 1.25" Flat Plate (G)	47.50 - 48.25	Auto	0.2322
L44	24	5.5" x 1.25" Flat Plate (G)	47.50 - 48.25	Auto	0.2322
L44	26	5.5" x 1.25" Flat Plate (G)	48.25 - 48.50	Auto	0.2350
L44	27	5.5" x 1.25" Flat Plate (G)	48.25 - 48.50	Auto	0.2350
L44	28	5.5" x 1.25" Flat Plate (G)	48.25 - 48.50	Auto	0.2350
L44	64	6" x 1" Flat Plate (G)	47.50 -	Auto	0.2968

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L44	65	6" x 1" Flat Plate (G)	48.50 47.50 -	Auto	0.2968
L44	67	6" x 1" Flat Plate (G)	48.50 47.50 -	Auto	0.2968
L44	69	6" x 1" Flat Plate (G)	48.50 47.50 -	Auto	0.2968
L44	70	6" x 1" Flat Plate (G)	48.50 47.50 -	Auto	0.2968
L45	22	5.5" x 1.25" Flat Plate (G)	48.50 45.75 -	Auto	0.2253
L45	23	5.5" x 1.25" Flat Plate (G)	47.50 45.75 -	Auto	0.2253
L45	24	5.5" x 1.25" Flat Plate (G)	47.50 45.75 -	Auto	0.2253
L45	64	6" x 1" Flat Plate (G)	47.50 45.75 -	Auto	0.2899
L45	65	6" x 1" Flat Plate (G)	47.50 45.75 -	Auto	0.2899
L45	67	6" x 1" Flat Plate (G)	47.50 45.75 -	Auto	0.2899
L45	69	6" x 1" Flat Plate (G)	47.50 45.75 -	Auto	0.2899
L45	70	6" x 1" Flat Plate (G)	47.50 45.75 -	Auto	0.2899
L46	22	5.5" x 1.25" Flat Plate (G)	47.50 45.50 -	Auto	0.2198
L46	23	5.5" x 1.25" Flat Plate (G)	45.75 45.50 -	Auto	0.2198
L46	24	5.5" x 1.25" Flat Plate (G)	45.75 45.50 -	Auto	0.2198
L46	64	6" x 1" Flat Plate (G)	45.75 45.50 -	Auto	0.2848
L46	65	6" x 1" Flat Plate (G)	45.75 45.50 -	Auto	0.2848
L46	67	6" x 1" Flat Plate (G)	45.75 45.50 -	Auto	0.2848
L46	69	6" x 1" Flat Plate (G)	45.75 45.50 -	Auto	0.2848
L46	70	6" x 1" Flat Plate (G)	45.75 45.50 -	Auto	0.2848
L47	22	5.5" x 1.25" Flat Plate (G)	45.75 45.00 -	Auto	0.2177
L47	23	5.5" x 1.25" Flat Plate (G)	45.50 45.00 -	Auto	0.2177
L47	24	5.5" x 1.25" Flat Plate (G)	45.50 45.00 -	Auto	0.2177
L47	64	6" x 1" Flat Plate (G)	45.50 45.00 -	Auto	0.2829
L47	65	6" x 1" Flat Plate (G)	45.50 45.00 -	Auto	0.2829
L47	67	6" x 1" Flat Plate (G)	45.50 45.00 -	Auto	0.2829
L47	69	6" x 1" Flat Plate (G)	45.50 45.00 -	Auto	0.2829
L47	70	6" x 1" Flat Plate (G)	45.50 45.00 -	Auto	0.2829
L48	22	5.5" x 1.25" Flat Plate (G)	45.50 44.75 -	Auto	0.2317
L48	23	5.5" x 1.25" Flat Plate (G)	45.00 44.75 -	Auto	0.2317
L48	24	5.5" x 1.25" Flat Plate (G)	45.00 44.75 -	Auto	0.2317
L48	38	4.5" x 1" Flat Plate (G)	45.00 44.75 -	Auto	0.0609
L48	39	4.5" x 1" Flat Plate (G)	45.00 44.75 -	Auto	0.0609
L48	40	4.5" x 1" Flat Plate (G)	45.00 44.75 -	Auto	0.0609

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L48	64	6" x 1" Flat Plate (G)	45.00 44.75 - 45.00	Auto	0.2957
L48	65	6" x 1" Flat Plate (G)	44.75 - 45.00	Auto	0.2957
L48	67	6" x 1" Flat Plate (G)	44.75 - 45.00	Auto	0.2957
L48	69	6" x 1" Flat Plate (G)	44.75 - 45.00	Auto	0.2957
L48	70	6" x 1" Flat Plate (G)	44.75 - 45.00	Auto	0.2957
L49	22	5.5" x 1.25" Flat Plate (G)	43.50 - 44.75	Auto	0.2275
L49	23	5.5" x 1.25" Flat Plate (G)	43.50 - 44.75	Auto	0.2275
L49	24	5.5" x 1.25" Flat Plate (G)	43.50 - 44.75	Auto	0.2275
L49	38	4.5" x 1" Flat Plate (G)	43.50 - 44.75	Auto	0.0559
L49	39	4.5" x 1" Flat Plate (G)	43.50 - 44.75	Auto	0.0559
L49	40	4.5" x 1" Flat Plate (G)	43.50 - 44.75	Auto	0.0559
L49	64	6" x 1" Flat Plate (G)	43.50 - 44.75	Auto	0.2919
L49	65	6" x 1" Flat Plate (G)	43.50 - 44.75	Auto	0.2919
L49	67	6" x 1" Flat Plate (G)	43.50 - 44.75	Auto	0.2919
L49	69	6" x 1" Flat Plate (G)	43.50 - 44.75	Auto	0.2919
L49	70	6" x 1" Flat Plate (G)	43.50 - 44.75	Auto	0.2919
L50	22	5.5" x 1.25" Flat Plate (G)	43.25 - 43.50	Auto	0.2554
L50	23	5.5" x 1.25" Flat Plate (G)	43.25 - 43.50	Auto	0.2554
L50	24	5.5" x 1.25" Flat Plate (G)	43.25 - 43.50	Auto	0.2554
L50	38	4.5" x 1" Flat Plate (G)	43.25 - 43.50	Auto	0.0899
L50	39	4.5" x 1" Flat Plate (G)	43.25 - 43.50	Auto	0.0899
L50	40	4.5" x 1" Flat Plate (G)	43.25 - 43.50	Auto	0.0899
L50	64	6" x 1" Flat Plate (G)	43.25 - 43.50	Auto	0.3174
L50	65	6" x 1" Flat Plate (G)	43.25 - 43.50	Auto	0.3174
L50	67	6" x 1" Flat Plate (G)	43.25 - 43.50	Auto	0.3174
L50	69	6" x 1" Flat Plate (G)	43.25 - 43.50	Auto	0.3174
L50	70	6" x 1" Flat Plate (G)	43.25 - 43.50	Auto	0.3174
L51	22	5.5" x 1.25" Flat Plate (G)	38.25 - 43.25	Auto	0.2369
L51	23	5.5" x 1.25" Flat Plate (G)	38.25 - 43.25	Auto	0.2369
L51	24	5.5" x 1.25" Flat Plate (G)	38.25 - 43.25	Auto	0.2369
L51	38	4.5" x 1" Flat Plate (G)	38.25 - 43.25	Auto	0.0673
L51	39	4.5" x 1" Flat Plate (G)	38.25 - 43.25	Auto	0.0673
L51	40	4.5" x 1" Flat Plate (G)	38.25 - 43.25	Auto	0.0673
L51	64	6" x 1" Flat Plate (G)	38.25 -	Auto	0.3005

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L51	65	6" x 1" Flat Plate (G)	43.25 38.25 -	Auto	0.3005
L51	67	6" x 1" Flat Plate (G)	43.25 38.25 -	Auto	0.3005
L51	69	6" x 1" Flat Plate (G)	43.25 38.25 -	Auto	0.3005
L51	70	6" x 1" Flat Plate (G)	43.25 38.25 -	Auto	0.3005
L52	22	5.5" x 1.25" Flat Plate (G)	43.25 33.25 -	Auto	0.2053
L52	23	5.5" x 1.25" Flat Plate (G)	38.25 33.25 -	Auto	0.2053
L52	24	5.5" x 1.25" Flat Plate (G)	38.25 33.25 -	Auto	0.2053
L52	38	4.5" x 1" Flat Plate (G)	38.25 33.25 -	Auto	0.0287
L52	39	4.5" x 1" Flat Plate (G)	38.25 33.25 -	Auto	0.0287
L52	40	4.5" x 1" Flat Plate (G)	38.25 33.25 -	Auto	0.0287
L52	64	6" x 1" Flat Plate (G)	38.25 33.25 -	Auto	0.2715
L52	65	6" x 1" Flat Plate (G)	38.25 33.25 -	Auto	0.2715
L52	67	6" x 1" Flat Plate (G)	38.25 33.25 -	Auto	0.2715
L52	69	6" x 1" Flat Plate (G)	38.25 33.25 -	Auto	0.2715
L52	70	6" x 1" Flat Plate (G)	38.25 33.25 -	Auto	0.2715
L53	22	5.5" x 1.25" Flat Plate (G)	38.25 30.50 -	Auto	0.1759
L53	23	5.5" x 1.25" Flat Plate (G)	33.25 30.50 -	Auto	0.1759
L53	24	5.5" x 1.25" Flat Plate (G)	33.25 30.50 -	Auto	0.1759
L53	38	4.5" x 1" Flat Plate (G)	33.25 30.50 -	Auto	0.0001
L53	39	4.5" x 1" Flat Plate (G)	33.25 30.50 -	Auto	0.0001
L53	40	4.5" x 1" Flat Plate (G)	33.25 30.50 -	Auto	0.0001
L53	64	6" x 1" Flat Plate (G)	33.25 30.50 -	Auto	0.2446
L53	65	6" x 1" Flat Plate (G)	33.25 30.50 -	Auto	0.2446
L53	67	6" x 1" Flat Plate (G)	33.25 30.50 -	Auto	0.2446
L53	69	6" x 1" Flat Plate (G)	33.25 30.58 -	Auto	0.2448
L53	70	6" x 1" Flat Plate (G)	33.25 30.50 -	Auto	0.2446
L54	17	5.5" x 1.25" Flat Plate (G)	33.25 30.25 -	Auto	0.1676
L54	18	5.5" x 1.25" Flat Plate (G)	30.50 30.25 -	Auto	0.1676
L54	19	5.5" x 1.25" Flat Plate (G)	30.50 30.25 -	Auto	0.1676
L54	20	5.5" x 1.25" Flat Plate (G)	30.50 30.25 -	Auto	0.1676
L54	38	4.5" x 1" Flat Plate (G)	30.50 30.25 -	Auto	0.0000
L54	39	4.5" x 1" Flat Plate (G)	30.50 30.25 -	Auto	0.0000
L54	40	4.5" x 1" Flat Plate (G)	30.50 30.25 -	Auto	0.0000
L54	64	6" x 1" Flat Plate (G)	30.50 30.25 -	Auto	0.2370

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L54	65	6" x 1" Flat Plate (G)	30.50 30.25 - 30.50	Auto	0.2370
L54	67	6" x 1" Flat Plate (G)	30.25 - 30.50	Auto	0.2370
L54	70	6" x 1" Flat Plate (G)	30.25 - 30.50	Auto	0.2370
L55	17	5.5" x 1.25" Flat Plate (G)	29.67 - 30.25	Auto	0.1654
L55	18	5.5" x 1.25" Flat Plate (G)	29.67 - 30.25	Auto	0.1654
L55	19	5.5" x 1.25" Flat Plate (G)	29.67 - 30.25	Auto	0.1654
L55	20	5.5" x 1.25" Flat Plate (G)	29.67 - 30.25	Auto	0.1654
L55	38	4.5" x 1" Flat Plate (G)	29.67 - 30.25	Auto	0.0000
L55	39	4.5" x 1" Flat Plate (G)	29.67 - 30.25	Auto	0.0000
L55	40	4.5" x 1" Flat Plate (G)	29.67 - 30.25	Auto	0.0000
L55	64	6" x 1" Flat Plate (G)	29.67 - 30.25	Auto	0.2349
L55	65	6" x 1" Flat Plate (G)	29.67 - 30.25	Auto	0.2349
L55	67	6" x 1" Flat Plate (G)	29.67 - 30.25	Auto	0.2349
L55	70	6" x 1" Flat Plate (G)	29.67 - 30.25	Auto	0.2349
L56	17	5.5" x 1.25" Flat Plate (G)	29.42 - 29.67	Auto	0.0991
L56	18	5.5" x 1.25" Flat Plate (G)	29.42 - 29.67	Auto	0.0991
L56	19	5.5" x 1.25" Flat Plate (G)	29.42 - 29.67	Auto	0.0991
L56	20	5.5" x 1.25" Flat Plate (G)	29.42 - 29.67	Auto	0.0991
L56	38	4.5" x 1" Flat Plate (G)	29.42 - 29.67	Auto	0.0000
L56	39	4.5" x 1" Flat Plate (G)	29.42 - 29.67	Auto	0.0000
L56	40	4.5" x 1" Flat Plate (G)	29.42 - 29.67	Auto	0.0000
L56	64	6" x 1" Flat Plate (G)	29.42 - 29.67	Auto	0.1741
L56	65	6" x 1" Flat Plate (G)	29.42 - 29.67	Auto	0.1741
L56	67	6" x 1" Flat Plate (G)	29.42 - 29.67	Auto	0.1741
L56	70	6" x 1" Flat Plate (G)	29.42 - 29.67	Auto	0.1741
L57	17	5.5" x 1.25" Flat Plate (G)	28.00 - 29.42	Auto	0.0945
L57	18	5.5" x 1.25" Flat Plate (G)	28.00 - 29.42	Auto	0.0945
L57	19	5.5" x 1.25" Flat Plate (G)	28.00 - 29.42	Auto	0.0945
L57	20	5.5" x 1.25" Flat Plate (G)	28.00 - 29.42	Auto	0.0945
L57	38	4.5" x 1" Flat Plate (G)	28.00 - 29.42	Auto	0.0000
L57	39	4.5" x 1" Flat Plate (G)	28.00 - 29.42	Auto	0.0000
L57	40	4.5" x 1" Flat Plate (G)	28.00 - 29.42	Auto	0.0000
L57	64	6" x 1" Flat Plate (G)	28.00 - 29.42	Auto	0.1699
L57	65	6" x 1" Flat Plate (G)	28.00 -	Auto	0.1699

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L57	67	6" x 1" Flat Plate (G)	29.42 28.00 - 29.42	Auto	0.1699
L57	70	6" x 1" Flat Plate (G)	28.00 - 29.42	Auto	0.1699
L58	17	5.5" x 1.25" Flat Plate (G)	27.75 - 28.00	Auto	0.1379
L58	18	5.5" x 1.25" Flat Plate (G)	27.75 - 28.00	Auto	0.1379
L58	19	5.5" x 1.25" Flat Plate (G)	27.75 - 28.00	Auto	0.1379
L58	20	5.5" x 1.25" Flat Plate (G)	27.75 - 28.00	Auto	0.1379
L58	38	4.5" x 1" Flat Plate (G)	27.75 - 28.00	Auto	0.0000
L58	39	4.5" x 1" Flat Plate (G)	27.75 - 28.00	Auto	0.0000
L58	40	4.5" x 1" Flat Plate (G)	27.75 - 28.00	Auto	0.0000
L58	64	6" x 1" Flat Plate (G)	27.75 - 28.00	Auto	0.2097
L58	65	6" x 1" Flat Plate (G)	27.75 - 28.00	Auto	0.2097
L58	67	6" x 1" Flat Plate (G)	27.75 - 28.00	Auto	0.2097
L58	70	6" x 1" Flat Plate (G)	27.75 - 28.00	Auto	0.2097
L59	17	5.5" x 1.25" Flat Plate (G)	26.92 - 27.75	Auto	0.1349
L59	18	5.5" x 1.25" Flat Plate (G)	26.92 - 27.75	Auto	0.1349
L59	19	5.5" x 1.25" Flat Plate (G)	26.92 - 27.75	Auto	0.1349
L59	20	5.5" x 1.25" Flat Plate (G)	26.92 - 27.75	Auto	0.1349
L59	38	4.5" x 1" Flat Plate (G)	26.92 - 27.75	Auto	0.0000
L59	39	4.5" x 1" Flat Plate (G)	26.92 - 27.75	Auto	0.0000
L59	40	4.5" x 1" Flat Plate (G)	26.92 - 27.75	Auto	0.0000
L59	58	6.5" x 1.25" Flat Plate (G)	26.92 - 27.67	Auto	0.2678
L59	59	6.5" x 1.25" Flat Plate (G)	26.92 - 27.67	Auto	0.2678
L59	64	6" x 1" Flat Plate (G)	26.92 - 27.75	Auto	0.2070
L59	65	6" x 1" Flat Plate (G)	26.92 - 27.75	Auto	0.2070
L59	67	6" x 1" Flat Plate (G)	26.92 - 27.75	Auto	0.2070
L59	70	6" x 1" Flat Plate (G)	26.92 - 27.75	Auto	0.2070
L60	17	5.5" x 1.25" Flat Plate (G)	26.67 - 26.92	Auto	0.1199
L60	18	5.5" x 1.25" Flat Plate (G)	26.67 - 26.92	Auto	0.1199
L60	19	5.5" x 1.25" Flat Plate (G)	26.67 - 26.92	Auto	0.1199
L60	20	5.5" x 1.25" Flat Plate (G)	26.67 - 26.92	Auto	0.1199
L60	38	4.5" x 1" Flat Plate (G)	26.67 - 26.92	Auto	0.0000
L60	39	4.5" x 1" Flat Plate (G)	26.67 - 26.92	Auto	0.0000
L60	40	4.5" x 1" Flat Plate (G)	26.67 - 26.92	Auto	0.0000
L60	58	6.5" x 1.25" Flat Plate (G)	26.67 -	Auto	0.2553

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L60	59	6.5" x 1.25" Flat Plate (G)	26.92 26.67 - 26.92	Auto	0.2553
L60	64	6" x 1" Flat Plate (G)	26.67 - 26.92	Auto	0.1932
L60	65	6" x 1" Flat Plate (G)	26.67 - 26.92	Auto	0.1932
L60	67	6" x 1" Flat Plate (G)	26.67 - 26.92	Auto	0.1932
L60	70	6" x 1" Flat Plate (G)	26.67 - 26.92	Auto	0.1932
L61	17	5.5" x 1.25" Flat Plate (G)	26.50 - 26.67	Auto	0.1187
L61	18	5.5" x 1.25" Flat Plate (G)	26.50 - 26.67	Auto	0.1187
L61	19	5.5" x 1.25" Flat Plate (G)	26.50 - 26.67	Auto	0.1187
L61	20	5.5" x 1.25" Flat Plate (G)	26.50 - 26.67	Auto	0.1187
L61	38	4.5" x 1" Flat Plate (G)	26.50 - 26.67	Auto	0.0000
L61	39	4.5" x 1" Flat Plate (G)	26.50 - 26.67	Auto	0.0000
L61	40	4.5" x 1" Flat Plate (G)	26.50 - 26.67	Auto	0.0000
L61	58	6.5" x 1.25" Flat Plate (G)	26.50 - 26.67	Auto	0.2543
L61	59	6.5" x 1.25" Flat Plate (G)	26.50 - 26.67	Auto	0.2543
L61	64	6" x 1" Flat Plate (G)	26.50 - 26.67	Auto	0.1922
L61	65	6" x 1" Flat Plate (G)	26.50 - 26.67	Auto	0.1922
L61	67	6" x 1" Flat Plate (G)	26.50 - 26.67	Auto	0.1922
L61	70	6" x 1" Flat Plate (G)	26.50 - 26.67	Auto	0.1922
L62	17	5.5" x 1.25" Flat Plate (G)	26.25 - 26.50	Auto	0.1056
L62	18	5.5" x 1.25" Flat Plate (G)	26.25 - 26.50	Auto	0.1056
L62	19	5.5" x 1.25" Flat Plate (G)	26.25 - 26.50	Auto	0.1056
L62	20	5.5" x 1.25" Flat Plate (G)	26.25 - 26.50	Auto	0.1056
L62	38	4.5" x 1" Flat Plate (G)	26.25 - 26.50	Auto	0.0000
L62	39	4.5" x 1" Flat Plate (G)	26.25 - 26.50	Auto	0.0000
L62	40	4.5" x 1" Flat Plate (G)	26.25 - 26.50	Auto	0.0000
L62	58	6.5" x 1.25" Flat Plate (G)	26.25 - 26.50	Auto	0.2432
L62	59	6.5" x 1.25" Flat Plate (G)	26.25 - 26.50	Auto	0.2432
L62	64	6" x 1" Flat Plate (G)	26.25 - 26.50	Auto	0.1801
L62	65	6" x 1" Flat Plate (G)	26.25 - 26.50	Auto	0.1801
L62	67	6" x 1" Flat Plate (G)	26.25 - 26.50	Auto	0.1801
L62	70	6" x 1" Flat Plate (G)	26.25 - 26.50	Auto	0.1801
L63	17	5.5" x 1.25" Flat Plate (G)	24.92 - 26.25	Auto	0.1012
L63	18	5.5" x 1.25" Flat Plate (G)	24.92 - 26.25	Auto	0.1012
L63	19	5.5" x 1.25" Flat Plate (G)	24.92 -	Auto	0.1012

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L63	20	5.5" x 1.25" Flat Plate (G)	26.25 24.92 - 26.25	Auto	0.1012
L63	38	4.5" x 1" Flat Plate (G)	25.00 - 26.25	Auto	0.0000
L63	39	4.5" x 1" Flat Plate (G)	25.00 - 26.25	Auto	0.0000
L63	40	4.5" x 1" Flat Plate (G)	25.00 - 26.25	Auto	0.0000
L63	58	6.5" x 1.25" Flat Plate (G)	24.92 - 26.25	Auto	0.2395
L63	59	6.5" x 1.25" Flat Plate (G)	24.92 - 26.25	Auto	0.2395
L63	64	6" x 1" Flat Plate (G)	26.00 - 26.25	Auto	0.1788
L63	65	6" x 1" Flat Plate (G)	26.00 - 26.25	Auto	0.1788
L63	67	6" x 1" Flat Plate (G)	26.00 - 26.25	Auto	0.1788
L63	70	6" x 1" Flat Plate (G)	24.92 - 26.25	Auto	0.1761
L64	17	5.5" x 1.25" Flat Plate (G)	24.67 - 24.92	Auto	0.0849
L64	18	5.5" x 1.25" Flat Plate (G)	24.67 - 24.92	Auto	0.0849
L64	19	5.5" x 1.25" Flat Plate (G)	24.67 - 24.92	Auto	0.0849
L64	20	5.5" x 1.25" Flat Plate (G)	24.67 - 24.92	Auto	0.0849
L64	58	6.5" x 1.25" Flat Plate (G)	24.67 - 24.92	Auto	0.2256
L64	59	6.5" x 1.25" Flat Plate (G)	24.67 - 24.92	Auto	0.2256
L64	61	6.5" x 1.25" Flat Plate (G)	24.67 - 24.92	Auto	0.2256
L64	62	6.5" x 1.25" Flat Plate (G)	24.67 - 24.92	Auto	0.2256
L65	17	5.5" x 1.25" Flat Plate (G)	22.17 - 24.67	Auto	0.0733
L65	18	5.5" x 1.25" Flat Plate (G)	22.17 - 24.67	Auto	0.0733
L65	19	5.5" x 1.25" Flat Plate (G)	22.17 - 24.67	Auto	0.0733
L65	20	5.5" x 1.25" Flat Plate (G)	22.17 - 24.67	Auto	0.0733
L65	58	6.5" x 1.25" Flat Plate (G)	22.17 - 24.67	Auto	0.2158
L65	59	6.5" x 1.25" Flat Plate (G)	22.17 - 24.67	Auto	0.2158
L65	61	6.5" x 1.25" Flat Plate (G)	22.17 - 24.67	Auto	0.2158
L65	62	6.5" x 1.25" Flat Plate (G)	22.17 - 24.67	Auto	0.2158
L66	17	5.5" x 1.25" Flat Plate (G)	21.92 - 22.17	Auto	0.0897
L66	18	5.5" x 1.25" Flat Plate (G)	21.92 - 22.17	Auto	0.0897
L66	19	5.5" x 1.25" Flat Plate (G)	21.92 - 22.17	Auto	0.0897
L66	20	5.5" x 1.25" Flat Plate (G)	21.92 - 22.17	Auto	0.0897
L66	58	6.5" x 1.25" Flat Plate (G)	21.92 - 22.17	Auto	0.2297
L66	59	6.5" x 1.25" Flat Plate (G)	21.92 - 22.17	Auto	0.2297
L66	61	6.5" x 1.25" Flat Plate (G)	21.92 - 22.17	Auto	0.2297
L66	62	6.5" x 1.25" Flat Plate (G)	21.92 -	Auto	0.2297

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L67	17	5.5" x 1.25" Flat Plate (G)	22.17 16.92 - 21.92	Auto	0.0672
L67	18	5.5" x 1.25" Flat Plate (G)	16.92 - 21.92	Auto	0.0672
L67	19	5.5" x 1.25" Flat Plate (G)	16.92 - 21.92	Auto	0.0672
L67	20	5.5" x 1.25" Flat Plate (G)	16.92 - 21.92	Auto	0.0672
L67	58	6.5" x 1.25" Flat Plate (G)	16.92 - 21.92	Auto	0.2107
L67	59	6.5" x 1.25" Flat Plate (G)	16.92 - 21.92	Auto	0.2107
L67	61	6.5" x 1.25" Flat Plate (G)	16.92 - 21.92	Auto	0.2107
L67	62	6.5" x 1.25" Flat Plate (G)	16.92 - 21.92	Auto	0.2107
L68	17	5.5" x 1.25" Flat Plate (G)	11.92 - 16.92	Auto	0.0356
L68	18	5.5" x 1.25" Flat Plate (G)	11.92 - 16.92	Auto	0.0356
L68	19	5.5" x 1.25" Flat Plate (G)	11.92 - 16.92	Auto	0.0356
L68	20	5.5" x 1.25" Flat Plate (G)	11.92 - 16.92	Auto	0.0356
L68	58	6.5" x 1.25" Flat Plate (G)	11.92 - 16.92	Auto	0.1840
L68	59	6.5" x 1.25" Flat Plate (G)	11.92 - 16.92	Auto	0.1840
L68	61	6.5" x 1.25" Flat Plate (G)	11.92 - 16.92	Auto	0.1840
L68	62	6.5" x 1.25" Flat Plate (G)	11.92 - 16.92	Auto	0.1840
L69	17	5.5" x 1.25" Flat Plate (G)	6.92 - 11.92	Auto	0.0057
L69	18	5.5" x 1.25" Flat Plate (G)	6.92 - 11.92	Auto	0.0057
L69	19	5.5" x 1.25" Flat Plate (G)	6.92 - 11.92	Auto	0.0057
L69	20	5.5" x 1.25" Flat Plate (G)	6.92 - 11.92	Auto	0.0057
L69	58	6.5" x 1.25" Flat Plate (G)	6.92 - 11.92	Auto	0.1572
L69	59	6.5" x 1.25" Flat Plate (G)	6.92 - 11.92	Auto	0.1572
L69	61	6.5" x 1.25" Flat Plate (G)	6.92 - 11.92	Auto	0.1572
L69	62	6.5" x 1.25" Flat Plate (G)	6.92 - 11.92	Auto	0.1572
L70	17	5.5" x 1.25" Flat Plate (G)	3.25 - 6.92	Auto	0.0000
L70	18	5.5" x 1.25" Flat Plate (G)	3.25 - 6.92	Auto	0.0000
L70	19	5.5" x 1.25" Flat Plate (G)	3.25 - 6.92	Auto	0.0000
L70	20	5.5" x 1.25" Flat Plate (G)	3.25 - 6.92	Auto	0.0000
L70	58	6.5" x 1.25" Flat Plate (G)	3.25 - 6.92	Auto	0.1336
L70	59	6.5" x 1.25" Flat Plate (G)	3.25 - 6.92	Auto	0.1336
L70	61	6.5" x 1.25" Flat Plate (G)	3.25 - 6.92	Auto	0.1336
L70	62	6.5" x 1.25" Flat Plate (G)	3.25 - 6.92	Auto	0.1336
L71	17	5.5" x 1.25" Flat Plate (G)	3.00 - 3.25	Auto	0.0000
L71	18	5.5" x 1.25" Flat Plate (G)	3.00 - 3.25	Auto	0.0000
L71	19	5.5" x 1.25" Flat Plate (G)	3.00 - 3.25	Auto	0.0000
L71	20	5.5" x 1.25" Flat Plate (G)	3.00 - 3.25	Auto	0.0000
L71	58	6.5" x 1.25" Flat Plate (G)	3.00 - 3.25	Auto	0.1041
L71	59	6.5" x 1.25" Flat Plate (G)	3.00 - 3.25	Auto	0.1041
L71	61	6.5" x 1.25" Flat Plate (G)	3.00 - 3.25	Auto	0.1041
L71	62	6.5" x 1.25" Flat Plate (G)	3.00 - 3.25	Auto	0.1041
L72	17	5.5" x 1.25" Flat Plate (G)	2.75 - 3.00	Auto	0.0000
L72	18	5.5" x 1.25" Flat Plate (G)	2.75 - 3.00	Auto	0.0000
L72	19	5.5" x 1.25" Flat Plate (G)	2.75 - 3.00	Auto	0.0000
L72	20	5.5" x 1.25" Flat Plate (G)	2.75 - 3.00	Auto	0.0000
L72	58	6.5" x 1.25" Flat Plate (G)	2.75 - 3.00	Auto	0.0387
L72	59	6.5" x 1.25" Flat Plate (G)	2.75 - 3.00	Auto	0.0387
L72	61	6.5" x 1.25" Flat Plate (G)	2.75 - 3.00	Auto	0.0387
L72	62	6.5" x 1.25" Flat Plate (G)	2.75 - 3.00	Auto	0.0387
L73	17	5.5" x 1.25" Flat Plate (G)	2.33 - 2.75	Auto	0.0000
L73	18	5.5" x 1.25" Flat Plate (G)	2.33 - 2.75	Auto	0.0000
L73	19	5.5" x 1.25" Flat Plate (G)	2.33 - 2.75	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L73	20	5.5" x 1.25" Flat Plate (G)	2.33 - 2.75	Auto	0.0000
L73	58	6.5" x 1.25" Flat Plate (G)	2.33 - 2.75	Auto	0.0371
L73	59	6.5" x 1.25" Flat Plate (G)	2.33 - 2.75	Auto	0.0371
L73	61	6.5" x 1.25" Flat Plate (G)	2.33 - 2.75	Auto	0.0371
L73	62	6.5" x 1.25" Flat Plate (G)	2.33 - 2.75	Auto	0.0371
L74	17	5.5" x 1.25" Flat Plate (G)	2.08 - 2.33	Auto	0.0000
L74	18	5.5" x 1.25" Flat Plate (G)	2.08 - 2.33	Auto	0.0000
L74	19	5.5" x 1.25" Flat Plate (G)	2.08 - 2.33	Auto	0.0000
L74	20	5.5" x 1.25" Flat Plate (G)	2.08 - 2.33	Auto	0.0000
L74	58	6.5" x 1.25" Flat Plate (G)	2.08 - 2.33	Auto	0.0491
L74	59	6.5" x 1.25" Flat Plate (G)	2.08 - 2.33	Auto	0.0491
L74	61	6.5" x 1.25" Flat Plate (G)	2.08 - 2.33	Auto	0.0491
L74	62	6.5" x 1.25" Flat Plate (G)	2.08 - 2.33	Auto	0.0491
L75	17	5.5" x 1.25" Flat Plate (G)	1.75 - 2.08	Auto	0.0000
L75	18	5.5" x 1.25" Flat Plate (G)	1.75 - 2.08	Auto	0.0000
L75	19	5.5" x 1.25" Flat Plate (G)	1.75 - 2.08	Auto	0.0000
L75	20	5.5" x 1.25" Flat Plate (G)	1.75 - 2.08	Auto	0.0000
L75	58	6.5" x 1.25" Flat Plate (G)	1.75 - 2.08	Auto	0.0477
L75	59	6.5" x 1.25" Flat Plate (G)	1.75 - 2.08	Auto	0.0477
L75	61	6.5" x 1.25" Flat Plate (G)	1.75 - 2.08	Auto	0.0477
L75	62	6.5" x 1.25" Flat Plate (G)	1.75 - 2.08	Auto	0.0477
L76	17	5.5" x 1.25" Flat Plate (G)	1.40 - 1.75	Auto	0.0000
L76	18	5.5" x 1.25" Flat Plate (G)	1.40 - 1.75	Auto	0.0000
L76	19	5.5" x 1.25" Flat Plate (G)	1.40 - 1.75	Auto	0.0000
L76	20	5.5" x 1.25" Flat Plate (G)	1.40 - 1.75	Auto	0.0000
L76	58	6.5" x 1.25" Flat Plate (G)	1.40 - 1.75	Auto	0.0309
L76	59	6.5" x 1.25" Flat Plate (G)	1.40 - 1.75	Auto	0.0309
L76	61	6.5" x 1.25" Flat Plate (G)	1.40 - 1.75	Auto	0.0309
L76	62	6.5" x 1.25" Flat Plate (G)	1.40 - 1.75	Auto	0.0309
L77	17	5.5" x 1.25" Flat Plate (G)	1.17 - 1.40	Auto	0.0000
L77	18	5.5" x 1.25" Flat Plate (G)	1.17 - 1.40	Auto	0.0000
L77	19	5.5" x 1.25" Flat Plate (G)	1.17 - 1.40	Auto	0.0000
L77	20	5.5" x 1.25" Flat Plate (G)	1.17 - 1.40	Auto	0.0000
L77	58	6.5" x 1.25" Flat Plate (G)	1.17 - 1.40	Auto	0.0295
L77	59	6.5" x 1.25" Flat Plate (G)	1.17 - 1.40	Auto	0.0295
L77	61	6.5" x 1.25" Flat Plate (G)	1.17 - 1.40	Auto	0.0295
L77	62	6.5" x 1.25" Flat Plate (G)	1.17 - 1.40	Auto	0.0295
L78	17	5.5" x 1.25" Flat Plate (G)	0.50 - 1.17	Auto	0.0000
L78	18	5.5" x 1.25" Flat Plate (G)	0.50 - 1.17	Auto	0.0000
L78	19	5.5" x 1.25" Flat Plate (G)	0.50 - 1.17	Auto	0.0000
L78	20	5.5" x 1.25" Flat Plate (G)	0.50 - 1.17	Auto	0.0000
L78	58	6.5" x 1.25" Flat Plate (G)	0.50 - 1.17	Auto	0.0274
L78	59	6.5" x 1.25" Flat Plate (G)	0.50 - 1.17	Auto	0.0274
L78	61	6.5" x 1.25" Flat Plate (G)	0.50 - 1.17	Auto	0.0274
L78	62	6.5" x 1.25" Flat Plate (G)	0.50 - 1.17	Auto	0.0274

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft
Lightning Rod 5/8x4'	C	From Leg	0.00 0.00 2.00	0.0000	149.00
***					
Platform Mount [LP 602-1]	C	None		0.0000	148.00
(2) P90-14-XLH-RR w/ Mount Pipe	A	From Leg	4.00	0.0000	148.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
			0.00 2.00		
(2) P90-14-XLH-RR w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	148.00
(2) P90-14-XLH-RR w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	148.00
AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	148.00
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	148.00
AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	148.00
(2) TT19-08BP111-001	A	From Leg	4.00 0.00 2.00	0.0000	148.00
(2) TT19-08BP111-001	B	From Leg	4.00 0.00 2.00	0.0000	148.00
(2) TT19-08BP111-001	C	From Leg	4.00 0.00 2.00	0.0000	148.00
RRUS-11	A	From Leg	4.00 0.00 2.00	0.0000	148.00
RRUS-11	B	From Leg	4.00 0.00 2.00	0.0000	148.00
RRUS-11	C	From Leg	4.00 0.00 2.00	0.0000	148.00
DC6-48-60-18-8F	A	From Leg	4.00 0.00 2.00	0.0000	148.00
***					
(2) DB846F65ZAXY w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	140.00
(2) DB846F65ZAXY w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	140.00
(2) DB846F65ZAXY w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	140.00
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	140.00
(2) JAHH-65B-R3B w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	140.00
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	140.00
B13 RRH 4X30	A	From Leg	4.00 0.00 2.00	0.0000	140.00
B13 RRH 4X30	B	From Leg	4.00 0.00 2.00	0.0000	140.00
B13 RRH 4X30	C	From Leg	4.00 0.00	0.0000	140.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
B66A RRH4X45	A	From Leg	2.00 4.00 0.00	0.0000	140.00
B66A RRH4X45	B	From Leg	2.00 4.00 0.00	0.0000	140.00
B66A RRH4X45	C	From Leg	2.00 4.00 0.00	0.0000	140.00
AHCA	A	From Leg	2.00 4.00 0.00	0.0000	140.00
AHCA	B	From Leg	2.00 4.00 0.00	0.0000	140.00
AHCA	C	From Leg	2.00 4.00 0.00	0.0000	140.00
DB-C1-12C-24AB-0Z	B	From Leg	2.00 4.00 0.00	0.0000	140.00
BSAMNT-SBS-2-2	A	From Face	2.00 4.00 0.00	0.0000	140.00
BSAMNT-SBS-2-2	B	From Face	0.00 4.00 0.00	0.0000	140.00
BSAMNT-SBS-2-2	C	From Face	0.00 4.00 0.00	0.0000	140.00
Pipe Mount	A	From Leg	0.00 4.00 0.00	0.0000	140.00
Pipe Mount	B	From Leg	0.00 4.00 0.00	0.0000	140.00
Pipe Mount	C	From Leg	0.00 4.00 0.00	0.0000	140.00
T-Arm Mount [TA 602-3] ***	C	None	0.00	0.0000	140.00
AIR 32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.00 0.00	0.0000	131.00
(2) AIR 32 B2A/B66AA w/ Mount Pipe	B	From Leg	-2.00 4.00 0.00	0.0000	131.00
AIR 32 B2A/B66AA w/ Mount Pipe	C	From Leg	-2.00 4.00 0.00	0.0000	131.00
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	-2.00 4.00 0.00	0.0000	131.00
(2) APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	-2.00 4.00 0.00	0.0000	131.00
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	-2.00 4.00 0.00	0.0000	131.00
RADIO 4449 B12/B71	A	From Leg	-2.00 4.00 0.00	0.0000	131.00
(2) RADIO 4449 B12/B71	B	From Leg	0.00 4.00 0.00	0.0000	131.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
RADIO 4449 B12/B71	C	From Leg	0.00 4.00 0.00	0.0000	131.00
Pipe Mount	C	From Leg	0.00 4.00 0.00	-50.0000	128.00
Pipe Mount	C	From Leg	0.00 4.00 0.00	70.0000	128.00
Pipe Mount	A	From Leg	0.00 5.00 0.00	40.0000	128.00
Pipe Mount	B	From Leg	0.00 4.00 0.00	0.0000	128.00
F4P-12W Platform Mount ***	C	None	0.00	0.0000	128.00
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00 0.00	0.0000	119.00
MX08FRO665-21 w/ Mount Pipe	B	From Leg	0.00 4.00 0.00	0.0000	119.00
MX08FRO665-21 w/ Mount Pipe	C	From Leg	0.00 4.00 0.00	0.0000	119.00
TA08025-B604	A	From Leg	0.00 4.00 0.00	0.0000	119.00
TA08025-B604	B	From Leg	0.00 4.00 0.00	0.0000	119.00
TA08025-B604	C	From Leg	0.00 4.00 0.00	0.0000	119.00
TA08025-B605	A	From Leg	0.00 4.00 0.00	0.0000	119.00
TA08025-B605	B	From Leg	0.00 4.00 0.00	0.0000	119.00
TA08025-B605	C	From Leg	0.00 4.00 0.00	0.0000	119.00
RDIDC-9181-PF-48	A	From Leg	0.00 4.00 0.00	0.0000	119.00
(2) 8' x 2" Mount Pipe	A	From Leg	0.00 4.00 0.00	0.0000	119.00
(2) 8' x 2" Mount Pipe	B	From Leg	0.00 4.00 0.00	0.0000	119.00
(2) 8' x 2" Mount Pipe	C	From Leg	0.00 4.00 0.00	0.0000	119.00
Commscope MC-PK8-DSH *** ** *	C	None	0.00	0.0000	119.00

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
***								

Load Combinations

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	149 - 144	Pole	Max Tension	20	0.00	-0.00	0.00
			Max. Compression	26	-5.15	0.01	0.31
			Max. Mx	20	-2.56	18.38	0.08
			Max. My	2	-2.56	0.02	18.44
			Max. Vy	20	-3.78	18.38	0.08
			Max. Vx	14	3.78	-0.00	-18.25
			Max. Torque	8			0.27
L2	144 - 139	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-11.13	-0.48	0.03
			Max. Mx	8	-5.40	-48.34	-0.07
			Max. My	14	-5.40	-0.18	-48.15
			Max. Vy	20	-8.11	48.10	0.07
			Max. Vx	14	8.09	-0.18	-48.15
			Max. Torque	2			-0.46
L3	139 - 134	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-11.57	-0.53	0.00
			Max. Mx	8	-5.73	-89.53	-0.18
			Max. My	14	-5.73	-0.30	-89.26
			Max. Vy	20	-8.37	89.29	0.15
			Max. Vx	14	8.35	-0.30	-89.26
			Max. Torque	2			-0.46
L4	134 - 129	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-15.90	-4.58	-2.33
			Max. Mx	8	-8.03	-135.07	-1.50
			Max. My	14	-8.04	-2.52	-133.75
			Max. Vy	20	-11.12	130.35	-0.94
			Max. Vx	14	10.95	-2.52	-133.75
			Max. Torque	16			2.54
L5	129 - 124.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-21.66	-4.44	-2.42
			Max. Mx	8	-11.50	-193.09	-2.26
			Max. My	14	-11.51	-3.19	-191.13
			Max. Vy	20	-13.51	188.59	-0.27
			Max. Vx	14	13.34	-3.19	-191.13
			Max. Torque	16			2.54
L6	124.5 - 124.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-21.70	-4.45	-2.42
			Max. Mx	8	-11.54	-196.47	-2.31
			Max. My	14	-11.55	-3.23	-194.46
			Max. Vy	20	-13.52	191.97	-0.23
			Max. Vx	14	13.34	-3.23	-194.46
			Max. Torque	16			2.41
L7	124.25 - 119.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-22.49	-4.49	-2.45
			Max. Mx	8	-12.15	-264.70	-3.12
			Max. My	14	-12.16	-4.05	-261.84
			Max. Vy	20	-13.80	260.24	0.56
			Max. Vx	14	13.62	-4.05	-261.84
			Max. Torque	16			2.41
L8	119.25 - 118.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.51	-4.50	-2.13
			Max. Mx	8	-15.23	-276.62	-3.14
			Max. My	14	-15.23	-4.18	-273.53
			Max. Vy	20	-16.98	272.17	0.78
			Max. Vx	14	16.83	-4.18	-273.53
			Max. Torque	16			2.41
L9	118.5 - 118.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.58	-4.50	-2.13
			Max. Mx	8	-15.28	-280.86	-3.18
			Max. My	14	-15.29	-4.22	-277.74
			Max. Vy	20	-16.99	276.41	0.82
			Max. Vx	14	16.84	-4.22	-277.74

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	16			2.30
L10	118.25 - 116	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-28.15	-4.51	-2.13
			Max. Mx	8	-15.72	-319.22	-3.55
			Max. My	14	-15.73	-4.59	-315.79
			Max. Vy	20	-17.14	314.80	1.18
			Max. Vx	14	16.99	-4.59	-315.79
			Max. Torque	16			2.30
L11	116 - 115.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-28.21	-4.51	-2.13
			Max. Mx	8	-15.78	-323.50	-3.59
			Max. My	14	-15.78	-4.63	-320.04
			Max. Vy	20	-17.15	319.08	1.22
			Max. Vx	14	17.00	-4.63	-320.04
			Max. Torque	16			2.30
L12	115.75 - 110.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-29.48	-4.54	-2.14
			Max. Mx	8	-16.77	-409.95	-4.41
			Max. My	14	-16.78	-5.46	-405.82
			Max. Vy	20	-17.47	405.61	2.02
			Max. Vx	14	17.32	-5.46	-405.82
			Max. Torque	16			2.30
L13	110.75 - 105.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.77	-4.55	-2.14
			Max. Mx	8	-17.79	-497.95	-5.23
			Max. My	14	-17.80	-6.28	-493.16
			Max. Vy	20	-17.78	493.69	2.83
			Max. Vx	14	17.63	-6.28	-493.16
			Max. Torque	16			2.30
L14	105.75 - 98.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-31.75	-4.56	-2.15
			Max. Mx	8	-18.57	-564.95	-5.84
			Max. My	14	-18.58	-6.90	-559.67
			Max. Vy	20	-18.01	560.76	3.44
			Max. Vx	14	17.86	-6.90	-559.67
			Max. Torque	16			2.30
L15	98.5 - 97	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.87	-4.58	-2.15
			Max. Mx	8	-20.28	-655.84	-6.65
			Max. My	14	-20.29	-7.72	-649.91
			Max. Vy	20	-18.39	651.75	4.25
			Max. Vx	14	18.24	-7.72	-649.91
			Max. Torque	16			2.30
L16	97 - 96.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.95	-4.58	-2.15
			Max. Mx	8	-20.36	-660.43	-6.70
			Max. My	14	-20.36	-7.76	-654.47
			Max. Vy	20	-18.39	656.35	4.29
			Max. Vx	14	18.25	-7.76	-654.47
			Max. Torque	16			2.30
L17	96.75 - 93.98	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.88	-4.58	-2.15
			Max. Mx	8	-21.09	-711.57	-7.15
			Max. My	14	-21.09	-8.22	-705.25
			Max. Vy	20	-18.58	707.55	4.74
			Max. Vx	14	18.44	-8.22	-705.25
			Max. Torque	16			2.30
L18	93.98 - 93.73	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.96	-4.58	-2.15
			Max. Mx	8	-21.17	-716.21	-7.19
			Max. My	14	-21.17	-8.26	-709.86
			Max. Vy	20	-18.59	712.19	4.78
			Max. Vx	14	18.44	-8.26	-709.86
			Max. Torque	16			2.30

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L19	93.73 - 91.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.72	-4.58	-2.15
			Max. Mx	8	-21.76	-757.78	-7.55
			Max. My	14	-21.76	-8.62	-751.14
			Max. Vy	20	-18.74	753.81	5.15
			Max. Vx	14	18.59	-8.62	-751.14
			Max. Torque	16			2.30
L20	91.5 - 91.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.80	-4.58	-2.15
			Max. Mx	8	-21.82	-762.46	-7.59
			Max. My	14	-21.83	-8.66	-755.79
			Max. Vy	20	-18.75	758.50	5.19
			Max. Vx	14	18.60	-8.66	-755.79
			Max. Torque	16			2.30
L21	91.25 - 90.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-36.10	-4.59	-2.15
			Max. Mx	8	-22.06	-781.22	-7.76
			Max. My	14	-22.06	-8.83	-774.42
			Max. Vy	20	-18.82	777.27	5.35
			Max. Vx	14	18.67	-8.83	-774.42
			Max. Torque	16			2.30
L22	90.25 - 90	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-36.20	-4.59	-2.15
			Max. Mx	8	-22.14	-785.92	-7.80
			Max. My	14	-22.14	-8.87	-779.08
			Max. Vy	20	-18.84	781.98	5.39
			Max. Vx	14	18.69	-8.87	-779.08
			Max. Torque	16			2.30
L23	90 - 89	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-36.60	-4.59	-2.15
			Max. Mx	8	-22.45	-804.78	-7.96
			Max. My	14	-22.45	-9.03	-797.83
			Max. Vy	20	-18.96	800.87	5.55
			Max. Vx	14	18.81	-9.03	-797.83
			Max. Torque	16			2.30
L24	89 - 88.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-36.69	-4.59	-2.15
			Max. Mx	8	-22.53	-809.52	-8.00
			Max. My	14	-22.52	-9.07	-802.53
			Max. Vy	20	-18.98	805.61	5.59
			Max. Vx	14	18.83	-9.07	-802.53
			Max. Torque	16			2.30
L25	88.75 - 83.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.47	-4.59	-2.15
			Max. Mx	8	-23.93	-905.09	-8.82
			Max. My	14	-23.92	-9.89	-898.03
			Max. Vy	20	-19.53	901.87	6.41
			Max. Vx	14	19.38	-9.89	-898.03
			Max. Torque	16			2.30
L26	83.75 - 80.08	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.81	-4.60	-2.14
			Max. Mx	8	-24.98	-976.24	-9.41
			Max. My	14	-24.96	-10.49	-969.86
			Max. Vy	20	-19.93	974.24	7.01
			Max. Vx	14	19.78	-10.49	-969.86
			Max. Torque	16			2.30
L27	80.08 - 79.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.92	-4.60	-2.14
			Max. Mx	8	-25.08	-981.12	-9.45
			Max. My	14	-25.05	-10.53	-974.80
			Max. Vy	20	-19.95	979.23	7.05
			Max. Vx	14	19.80	-10.53	-974.80
			Max. Torque	16			2.30
L28	79.83 - 74.83	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-42.14	-4.64	-2.13
			Max. Mx	20	-26.76	1080.40	7.86
			Max. My	14	-26.77	-11.34	-1075.23
			Max. Vy	20	-20.53	1080.40	7.86
			Max. Vx	14	20.39	-11.34	-1075.23
			Max. Torque	16			2.30
L29	74.83 - 73.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.76	-4.64	-2.12
			Max. Mx	20	-27.22	1107.80	8.08
			Max. My	14	-27.24	-11.56	-1102.44
			Max. Vy	20	-20.69	1107.80	8.08
			Max. Vx	14	20.55	-11.56	-1102.44
			Max. Torque	16			2.30
L30	73.5 - 73.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.89	-4.65	-2.12
			Max. Mx	20	-27.33	1112.97	8.12
			Max. My	14	-27.34	-11.60	-1107.57
			Max. Vy	20	-20.71	1112.97	8.12
			Max. Vx	14	20.57	-11.60	-1107.57
			Max. Torque	16			2.30
L31	73.25 - 71	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.05	-4.66	-2.11
			Max. Mx	20	-28.23	1159.88	8.49
			Max. My	14	-28.25	-11.96	-1154.15
			Max. Vy	20	-20.99	1159.88	8.49
			Max. Vx	14	20.85	-11.96	-1154.15
			Max. Torque	16			2.30
L32	71 - 70.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.17	-4.66	-2.11
			Max. Mx	20	-28.33	1165.13	8.53
			Max. My	14	-28.34	-12.00	-1159.37
			Max. Vy	20	-21.02	1165.13	8.53
			Max. Vx	14	20.87	-12.00	-1159.37
			Max. Torque	16			2.30
L33	70.75 - 65.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.53	-4.70	-2.10
			Max. Mx	20	-30.17	1271.64	9.34
			Max. My	14	-30.18	-12.81	-1265.16
			Max. Vy	20	-21.60	1271.64	9.34
			Max. Vx	14	21.46	-12.81	-1265.16
			Max. Torque	16			2.30
L34	65.75 - 63	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.79	-4.71	-2.09
			Max. Mx	20	-31.20	1331.26	9.79
			Max. My	14	-31.21	-13.26	-1324.41
			Max. Vy	20	-21.79	1331.26	9.79
			Max. Vx	14	21.65	-13.26	-1324.41
			Max. Torque	16			2.29
L35	63 - 62.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.90	-4.72	-2.09
			Max. Mx	20	-31.30	1336.71	9.83
			Max. My	14	-31.31	-13.30	-1329.82
			Max. Vy	20	-21.79	1336.71	9.83
			Max. Vx	14	21.66	-13.30	-1329.82
			Max. Torque	16			2.29
L36	62.75 - 62.08	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.21	-4.72	-2.09
			Max. Mx	20	-31.55	1351.32	9.94
			Max. My	14	-31.56	-13.41	-1344.34
			Max. Vy	20	-21.84	1351.32	9.94
			Max. Vx	14	21.70	-13.41	-1344.34
			Max. Torque	16			2.29
L37	62.08 - 61.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.32	-4.72	-2.09
			Max. Mx	20	-31.63	1356.78	9.98
			Max. My	14	-31.64	-13.45	-1349.76

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-21.85	1356.78	9.98
			Max. Vx	14	21.71	-13.45	-1349.76
			Max. Torque	16			2.29
L38	61.83 - 60.67	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.80	-4.72	-2.09
			Max. Mx	20	-32.02	1382.17	10.17
			Max. My	14	-32.03	-13.63	-1374.98
			Max. Vy	20	-21.93	1382.17	10.17
			Max. Vx	14	21.79	-13.63	-1374.98
			Max. Torque	16			2.29
L39	60.67 - 60.42	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.90	-4.72	-2.10
			Max. Mx	20	-32.11	1387.65	10.21
			Max. My	14	-32.12	-13.67	-1380.43
			Max. Vy	20	-21.94	1387.65	10.21
			Max. Vx	14	21.80	-13.67	-1380.43
			Max. Torque	16			2.29
L40	60.42 - 59	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.48	-4.72	-2.10
			Max. Mx	20	-32.57	1418.85	10.44
			Max. My	14	-32.58	-13.90	-1411.43
			Max. Vy	20	-22.03	1418.85	10.44
			Max. Vx	14	21.90	-13.90	-1411.43
			Max. Torque	16			2.29
L41	59 - 58.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.59	-4.72	-2.10
			Max. Mx	20	-32.67	1424.36	10.48
			Max. My	14	-32.68	-13.94	-1416.90
			Max. Vy	20	-22.03	1424.36	10.48
			Max. Vx	14	21.90	-13.94	-1416.90
			Max. Torque	16			2.29
L42	58.75 - 53.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.67	-4.71	-2.11
			Max. Mx	20	-34.36	1535.24	11.30
			Max. My	14	-34.37	-14.74	-1527.09
			Max. Vy	20	-22.33	1535.24	11.30
			Max. Vx	14	22.20	-14.74	-1527.09
			Max. Torque	16			2.29
L43	53.75 - 48.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.88	-4.71	-2.11
			Max. Mx	20	-34.54	1546.41	11.38
			Max. My	14	-34.55	-14.82	-1538.19
			Max. Vy	20	-22.36	1546.41	11.38
			Max. Vx	14	22.22	-14.82	-1538.19
			Max. Torque	16			2.29
L44	48.5 - 47.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.09	-4.67	-2.10
			Max. Mx	20	-38.11	1676.30	12.31
			Max. My	14	-38.11	-15.74	-1667.28
			Max. Vy	20	-22.81	1676.30	12.31
			Max. Vx	14	22.68	-15.74	-1667.28
			Max. Torque	16			2.29
L45	47.5 - 45.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.88	-4.65	-2.08
			Max. Mx	20	-38.77	1716.29	12.60
			Max. My	14	-38.78	-16.02	-1707.02
			Max. Vy	20	-22.92	1716.29	12.60
			Max. Vx	14	22.79	-16.02	-1707.02
			Max. Torque	16			2.29
L46	45.75 - 45.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.00	-4.64	-2.08
			Max. Mx	20	-38.88	1722.02	12.64
			Max. My	14	-38.89	-16.06	-1712.71
			Max. Vy	20	-22.92	1722.02	12.64
			Max. Vx	14	22.78	-16.06	-1712.71
			Max. Torque	16			2.29

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L47	45.5 - 45	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.23	-4.63	-2.08
			Max. Mx	20	-39.07	1733.48	12.72
			Max. My	14	-39.08	-16.14	-1724.11
			Max. Vy	20	-22.95	1733.48	12.72
			Max. Vx	14	22.81	-16.14	-1724.11
			Max. Torque	16			2.29
L48	45 - 44.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.35	-4.63	-2.08
			Max. Mx	20	-39.18	1739.22	12.76
			Max. My	14	-39.19	-16.18	-1729.81
			Max. Vy	20	-22.96	1739.22	12.76
			Max. Vx	14	22.82	-16.18	-1729.81
			Max. Torque	16			2.29
L49	44.75 - 43.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.99	-4.61	-2.07
			Max. Mx	20	-39.70	1767.96	12.96
			Max. My	14	-39.71	-16.38	-1758.38
			Max. Vy	20	-23.04	1767.96	12.96
			Max. Vx	14	22.91	-16.38	-1758.38
			Max. Torque	16			2.29
L50	43.5 - 43.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.12	-4.61	-2.07
			Max. Mx	20	-39.82	1773.72	13.00
			Max. My	14	-39.82	-16.42	-1764.10
			Max. Vy	20	-23.05	1773.72	13.00
			Max. Vx	14	22.91	-16.42	-1764.10
			Max. Torque	16			2.29
L51	43.25 - 38.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-60.76	-4.53	-2.03
			Max. Mx	20	-42.00	1889.66	13.82
			Max. My	14	-42.01	-17.21	-1879.35
			Max. Vy	20	-23.35	1889.66	13.82
			Max. Vx	14	23.21	-17.21	-1879.35
			Max. Torque	16			2.29
L52	38.25 - 33.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.41	-4.45	-2.00
			Max. Mx	20	-44.22	2007.04	14.62
			Max. My	14	-44.23	-18.00	-1996.03
			Max. Vy	20	-23.62	2007.04	14.62
			Max. Vx	14	23.49	-18.00	-1996.03
			Max. Torque	16			2.29
L53	33.25 - 30.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.87	-4.41	-1.98
			Max. Mx	20	-45.45	2072.18	15.07
			Max. My	14	-45.45	-18.44	-2060.79
			Max. Vy	20	-23.78	2072.18	15.07
			Max. Vx	14	23.64	-18.44	-2060.79
			Max. Torque	16			2.29
L54	30.5 - 30.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.01	-4.40	-1.98
			Max. Mx	20	-45.57	2078.12	15.11
			Max. My	14	-45.57	-18.47	-2066.69
			Max. Vy	20	-23.78	2078.12	15.11
			Max. Vx	14	23.64	-18.47	-2066.69
			Max. Torque	16			2.29
L55	30.25 - 29.67	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.32	-4.39	-1.97
			Max. Mx	20	-45.83	2091.92	15.20
			Max. My	14	-45.84	-18.57	-2080.41
			Max. Vy	20	-23.81	2091.92	15.20
			Max. Vx	14	23.67	-18.57	-2080.41
			Max. Torque	16			2.29
L56	29.67 - 29.42	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.44	-4.39	-1.97

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-45.94	2097.87	15.24
			Max. My	14	-45.94	-18.60	-2086.33
			Max. Vy	20	-23.82	2097.87	15.24
			Max. Vx	14	23.68	-18.60	-2086.33
			Max. Torque	16			2.29
L57	29.42 - 28	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.15	-4.37	-1.97
			Max. Mx	20	-46.51	2131.73	15.47
			Max. My	14	-46.52	-18.83	-2119.99
			Max. Vy	20	-23.90	2131.73	15.47
			Max. Vx	14	23.77	-18.83	-2119.99
			Max. Torque	16			2.29
L58	28 - 27.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.28	-4.37	-1.96
			Max. Mx	20	-46.63	2137.70	15.51
			Max. My	14	-46.64	-18.87	-2125.93
			Max. Vy	20	-23.89	2137.70	15.51
			Max. Vx	14	23.76	-18.87	-2125.93
			Max. Torque	16			2.29
L59	27.75 - 26.92	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.72	-4.35	-1.97
			Max. Mx	20	-46.99	2157.54	15.64
			Max. My	14	-47.00	-18.99	-2145.65
			Max. Vy	20	-23.94	2157.54	15.64
			Max. Vx	14	23.81	-18.99	-2145.65
			Max. Torque	16			2.29
L60	26.92 - 26.67	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.85	-4.35	-1.97
			Max. Mx	20	-47.10	2163.53	15.68
			Max. My	14	-47.11	-19.03	-2151.60
			Max. Vy	20	-23.94	2163.53	15.68
			Max. Vx	14	23.81	-19.03	-2151.60
			Max. Torque	16			2.29
L61	26.67 - 26.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.94	-4.34	-1.97
			Max. Mx	20	-47.17	2167.60	15.71
			Max. My	14	-47.18	-19.06	-2155.65
			Max. Vy	20	-23.95	2167.60	15.71
			Max. Vx	14	23.82	-19.06	-2155.65
			Max. Torque	16			2.29
L62	26.5 - 26.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.06	-4.34	-1.97
			Max. Mx	20	-47.27	2173.59	15.75
			Max. My	14	-47.28	-19.10	-2161.60
			Max. Vy	20	-23.96	2173.59	15.75
			Max. Vx	14	23.83	-19.10	-2161.60
			Max. Torque	16			2.29
L63	26.25 - 24.92	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.70	-4.30	-1.97
			Max. Mx	20	-47.79	2205.49	15.96
			Max. My	14	-47.80	-19.31	-2193.32
			Max. Vy	20	-24.04	2205.49	15.96
			Max. Vx	14	23.90	-19.31	-2193.32
			Max. Torque	16			2.29
L64	24.92 - 24.67	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.82	-4.30	-1.97
			Max. Mx	20	-47.91	2211.50	16.00
			Max. My	14	-47.91	-19.34	-2199.30
			Max. Vy	20	-24.03	2211.50	16.00
			Max. Vx	14	23.90	-19.34	-2199.30
			Max. Torque	16			2.29
L65	24.67 - 22.17	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-69.02	-4.26	-1.96
			Max. Mx	20	-48.92	2271.70	16.40

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	14	-48.93	-19.73	-2259.15
			Max. Vy	20	-24.15	2271.70	16.40
			Max. Vx	14	24.02	-19.73	-2259.15
			Max. Torque	16			2.29
L66	22.17 - 21.92	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-69.15	-4.26	-1.96
			Max. Mx	20	-49.04	2277.73	16.44
			Max. My	14	-49.05	-19.77	-2265.15
			Max. Vy	20	-24.14	2277.73	16.44
			Max. Vx	14	24.01	-19.77	-2265.15
			Max. Torque	16			2.29
L67	21.92 - 16.92	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-71.69	-4.18	-1.93
			Max. Mx	20	-51.24	2398.93	17.24
			Max. My	14	-51.25	-20.54	-2385.66
			Max. Vy	20	-24.35	2398.93	17.24
			Max. Vx	14	24.22	-20.54	-2385.66
			Max. Torque	16			2.29
L68	16.92 - 11.92	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.25	-4.11	-1.90
			Max. Mx	20	-53.47	2521.06	18.03
			Max. My	14	-53.47	-21.30	-2507.11
			Max. Vy	20	-24.53	2521.06	18.03
			Max. Vx	14	24.40	-21.30	-2507.11
			Max. Torque	16			2.29
L69	11.92 - 6.92	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-76.78	-4.03	-1.87
			Max. Mx	20	-55.68	2644.05	18.81
			Max. My	14	-55.68	-22.05	-2629.41
			Max. Vy	20	-24.70	2644.05	18.81
			Max. Vx	14	24.57	-22.05	-2629.41
			Max. Torque	16			2.29
L70	6.92 - 3.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-78.54	-3.98	-1.85
			Max. Mx	20	-57.23	2734.84	19.39
			Max. My	14	-57.23	-22.60	-2719.71
			Max. Vy	20	-24.82	2734.84	19.39
			Max. Vx	14	24.69	-22.60	-2719.71
			Max. Torque	16			2.29
L71	3.25 - 3	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-78.65	-3.97	-1.85
			Max. Mx	20	-57.33	2741.04	19.42
			Max. My	14	-57.33	-22.64	-2725.88
			Max. Vy	20	-24.81	2741.04	19.42
			Max. Vx	14	24.68	-22.64	-2725.88
			Max. Torque	16			2.29
L72	3 - 2.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-78.73	-3.97	-1.85
			Max. Mx	20	-57.40	2747.24	19.46
			Max. My	14	-57.40	-22.67	-2732.05
			Max. Vy	20	-24.81	2747.24	19.46
			Max. Vx	14	24.68	-22.67	-2732.05
			Max. Torque	16			2.29
L73	2.75 - 2.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-78.86	-3.96	-1.85
			Max. Mx	20	-57.51	2757.66	19.53
			Max. My	14	-57.51	-22.74	-2742.41
			Max. Vy	20	-24.82	2757.66	19.53
			Max. Vx	14	24.69	-22.74	-2742.41
			Max. Torque	16			2.29
L74	2.33 - 2.08	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-78.94	-3.96	-1.85
			Max. Mx	20	-57.58	2763.87	19.57
			Max. My	14	-57.58	-22.77	-2748.58
			Max. Vy	20	-24.82	2763.87	19.57
			Max. Vx	14	24.69	-22.77	-2748.58

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	16			2.29
L75	2.08 - 1.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.06	-3.96	-1.85
			Max. Mx	20	-57.68	2772.06	19.62
			Max. My	14	-57.68	-22.82	-2756.72
			Max. Vy	20	-24.82	2772.06	19.62
			Max. Vx	14	24.70	-22.82	-2756.72
			Max. Torque	16			2.29
L76	1.75 - 1.4	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.16	-3.95	-1.84
			Max. Mx	20	-57.77	2780.74	19.67
			Max. My	14	-57.77	-22.87	-2765.36
			Max. Vy	20	-24.83	2780.74	19.67
			Max. Vx	14	24.70	-22.87	-2765.36
			Max. Torque	16			2.29
L77	1.4 - 1.17	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.23	-3.95	-1.84
			Max. Mx	20	-57.83	2786.45	19.71
			Max. My	14	-57.83	-22.91	-2771.04
			Max. Vy	20	-24.83	2786.45	19.71
			Max. Vx	14	24.70	-22.91	-2771.04
			Max. Torque	16			2.29
L78	1.17 - 0.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.50	-3.94	-1.84
			Max. Mx	20	-58.07	2809.29	19.85
			Max. My	14	-58.07	-23.04	-2793.76
			Max. Vy	20	-24.86	2809.29	19.85
			Max. Vx	14	24.73	-23.04	-2793.76
			Max. Torque	16			2.29
L79	0.25 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.55	-3.94	-1.84
			Max. Mx	20	-58.13	2815.50	19.89
			Max. My	14	-58.13	-23.08	-2799.93
			Max. Vy	20	-24.83	2815.50	19.89
			Max. Vx	14	24.70	-23.08	-2799.93
			Max. Torque	16			2.29

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	79.55	-0.00	-0.00
	Max. H_x	20	58.13	24.82	0.15
	Max. H_z	2	58.13	0.15	23.81
	Max. M_x	2	2726.10	0.15	23.81
	Max. M_z	8	2749.39	-23.96	-0.15
	Max. Torsion	16	2.29	12.37	-21.45
	Min. Vert	5	43.60	-11.87	20.60
	Min. H_x	9	43.60	-23.96	-0.15
	Min. H_z	14	58.13	-0.15	-24.69
	Min. M_x	14	-2799.93	-0.15	-24.69
	Min. M_z	20	-2815.50	24.82	0.15
	Min. Torsion	4	-2.29	-11.87	20.60

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	48.44	0.00	0.00	0.85	-1.65	0.00

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 0 deg - No Ice	58.13	-0.15	-23.81	-2726.10	18.88	2.14
0.9 Dead+1.0 Wind 0 deg - No Ice	43.60	-0.15	-23.81	-2685.02	19.12	2.08
1.2 Dead+1.0 Wind 30 deg - No Ice	58.13	11.87	-20.60	-2350.73	-1357.69	2.29
0.9 Dead+1.0 Wind 30 deg - No Ice	43.60	11.87	-20.60	-2315.36	-1336.56	2.22
1.2 Dead+1.0 Wind 60 deg - No Ice	58.13	20.91	-11.92	-1352.53	-2384.73	1.82
0.9 Dead+1.0 Wind 60 deg - No Ice	43.60	20.91	-11.92	-1332.33	-2348.05	1.77
1.2 Dead+1.0 Wind 90 deg - No Ice	58.13	23.96	0.15	22.07	-2749.39	0.89
0.9 Dead+1.0 Wind 90 deg - No Ice	43.60	23.96	0.15	21.44	-2707.11	0.85
1.2 Dead+1.0 Wind 120 deg - No Ice	58.13	21.21	12.26	1392.94	-2409.00	-0.27
0.9 Dead+1.0 Wind 120 deg - No Ice	43.60	21.21	12.26	1371.60	-2372.04	-0.27
1.2 Dead+1.0 Wind 150 deg - No Ice	58.13	12.75	21.81	2449.74	-1437.83	-1.35
0.9 Dead+1.0 Wind 150 deg - No Ice	43.60	12.75	21.81	2412.72	-1415.70	-1.32
1.2 Dead+1.0 Wind 180 deg - No Ice	58.13	0.15	24.69	2799.93	-23.08	-2.09
0.9 Dead+1.0 Wind 180 deg - No Ice	43.60	0.15	24.69	2757.51	-22.17	-2.03
1.2 Dead+1.0 Wind 210 deg - No Ice	58.13	-12.37	21.45	2421.59	1393.15	-2.29
0.9 Dead+1.0 Wind 210 deg - No Ice	43.60	-12.37	21.45	2384.92	1372.76	-2.22
1.2 Dead+1.0 Wind 240 deg - No Ice	58.13	-21.67	12.36	1390.24	2442.09	-1.88
0.9 Dead+1.0 Wind 240 deg - No Ice	43.60	-21.67	12.36	1369.08	2405.91	-1.82
1.2 Dead+1.0 Wind 270 deg - No Ice	58.13	-24.82	-0.15	-19.89	2815.50	-0.94
0.9 Dead+1.0 Wind 270 deg - No Ice	43.60	-24.82	-0.15	-19.86	2773.65	-0.91
1.2 Dead+1.0 Wind 300 deg - No Ice	58.13	-21.22	-12.27	-1398.11	2417.52	0.27
0.9 Dead+1.0 Wind 300 deg - No Ice	43.60	-21.22	-12.27	-1377.26	2381.53	0.27
1.2 Dead+1.0 Wind 330 deg - No Ice	58.13	-12.22	-20.89	-2386.74	1398.51	1.40
0.9 Dead+1.0 Wind 330 deg - No Ice	43.60	-12.22	-20.89	-2350.88	1377.86	1.37
1.2 Dead+1.0 Ice+1.0 Temp	79.55	0.00	0.00	1.84	-3.94	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	79.55	-0.03	-7.01	-805.62	0.14	0.54
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	79.55	3.49	-6.06	-695.25	-406.13	0.58
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	79.55	6.08	-3.48	-398.16	-704.69	0.46
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	79.55	7.04	0.03	6.14	-815.54	0.22
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	79.55	6.11	3.53	409.35	-709.00	-0.08
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	79.55	3.55	6.09	703.79	-413.74	-0.35
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	79.55	0.03	7.03	810.53	-8.32	-0.54
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	79.55	-3.50	6.08	700.47	398.76	-0.58
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	79.55	-6.10	3.49	402.78	697.89	-0.46
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	79.55	-7.05	-0.03	-2.32	808.30	-0.22

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 300 deg+1.0 Ice+1.0 Temp	79.55	-6.12	-3.53	-405.65	701.02	0.08
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	79.55	-3.55	-6.09	-699.60	405.35	0.36
Dead+Wind 0 deg - Service	48.44	-0.04	-6.11	-692.27	3.59	0.54
Dead+Wind 30 deg - Service	48.44	3.05	-5.28	-596.86	-346.28	0.58
Dead+Wind 60 deg - Service	48.44	5.36	-3.06	-343.16	-607.33	0.46
Dead+Wind 90 deg - Service	48.44	6.14	0.04	6.23	-700.02	0.22
Dead+Wind 120 deg - Service	48.44	5.44	3.14	354.69	-613.53	-0.07
Dead+Wind 150 deg - Service	48.44	3.27	5.59	623.36	-366.70	-0.35
Dead+Wind 180 deg - Service	48.44	0.04	6.33	712.34	-7.06	-0.54
Dead+Wind 210 deg - Service	48.44	-3.17	5.50	616.17	352.93	-0.58
Dead+Wind 240 deg - Service	48.44	-5.56	3.17	354.02	619.57	-0.47
Dead+Wind 270 deg - Service	48.44	-6.36	-0.04	-4.43	714.49	-0.23
Dead+Wind 300 deg - Service	48.44	-5.44	-3.15	-354.76	613.31	0.07
Dead+Wind 330 deg - Service	48.44	-3.13	-5.36	-606.04	354.27	0.36

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-48.44	0.00	-0.00	48.44	-0.00	0.000%
2	-0.15	-58.13	-23.81	0.15	58.13	23.81	0.000%
3	-0.15	-43.60	-23.81	0.15	43.60	23.81	0.000%
4	11.87	-58.13	-20.60	-11.87	58.13	20.60	0.000%
5	11.87	-43.60	-20.60	-11.87	43.60	20.60	0.000%
6	20.91	-58.13	-11.92	-20.91	58.13	11.92	0.000%
7	20.91	-43.60	-11.92	-20.91	43.60	11.92	0.000%
8	23.96	-58.13	0.15	-23.96	58.13	-0.15	0.000%
9	23.96	-43.60	0.15	-23.96	43.60	-0.15	0.000%
10	21.21	-58.13	12.26	-21.21	58.13	-12.26	0.000%
11	21.21	-43.60	12.26	-21.21	43.60	-12.26	0.000%
12	12.75	-58.13	21.81	-12.75	58.13	-21.81	0.000%
13	12.75	-43.60	21.81	-12.75	43.60	-21.81	0.000%
14	0.15	-58.13	24.69	-0.15	58.13	-24.69	0.000%
15	0.15	-43.60	24.69	-0.15	43.60	-24.69	0.000%
16	-12.37	-58.13	21.45	12.37	58.13	-21.45	0.000%
17	-12.37	-43.60	21.45	12.37	43.60	-21.45	0.000%
18	-21.67	-58.13	12.36	21.67	58.13	-12.36	0.000%
19	-21.67	-43.60	12.36	21.67	43.60	-12.36	0.000%
20	-24.82	-58.13	-0.15	24.82	58.13	0.15	0.000%
21	-24.82	-43.60	-0.15	24.82	43.60	0.15	0.000%
22	-21.22	-58.13	-12.27	21.22	58.13	12.27	0.000%
23	-21.22	-43.60	-12.27	21.22	43.60	12.27	0.000%
24	-12.22	-58.13	-20.89	12.22	58.13	20.89	0.000%
25	-12.22	-43.60	-20.89	12.22	43.60	20.89	0.000%
26	0.00	-79.55	0.00	-0.00	79.55	-0.00	0.000%
27	-0.03	-79.55	-7.01	0.03	79.55	7.01	0.000%
28	3.49	-79.55	-6.06	-3.49	79.55	6.06	0.000%
29	6.08	-79.55	-3.48	-6.08	79.55	3.48	0.000%
30	7.04	-79.55	0.03	-7.04	79.55	-0.03	0.000%
31	6.11	-79.55	3.53	-6.11	79.55	-3.53	0.000%
32	3.55	-79.55	6.09	-3.55	79.55	-6.09	0.000%
33	0.03	-79.55	7.03	-0.03	79.55	-7.03	0.000%
34	-3.50	-79.55	6.08	3.50	79.55	-6.08	0.000%
35	-6.10	-79.55	3.49	6.10	79.55	-3.49	0.000%
36	-7.05	-79.55	-0.03	7.05	79.55	0.03	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
37	-6.12	-79.55	-3.53	6.12	79.55	3.53	0.000%
38	-3.55	-79.55	-6.09	3.55	79.55	6.09	0.000%
39	-0.04	-48.44	-6.11	0.04	48.44	6.11	0.000%
40	3.05	-48.44	-5.28	-3.05	48.44	5.28	0.000%
41	5.36	-48.44	-3.06	-5.36	48.44	3.06	0.000%
42	6.14	-48.44	0.04	-6.14	48.44	-0.04	0.000%
43	5.44	-48.44	3.14	-5.44	48.44	-3.14	0.000%
44	3.27	-48.44	5.59	-3.27	48.44	-5.59	0.000%
45	0.04	-48.44	6.33	-0.04	48.44	-6.33	0.000%
46	-3.17	-48.44	5.50	3.17	48.44	-5.50	0.000%
47	-5.56	-48.44	3.17	5.56	48.44	-3.17	0.000%
48	-6.36	-48.44	-0.04	6.36	48.44	0.04	0.000%
49	-5.44	-48.44	-3.15	5.44	48.44	3.15	0.000%
50	-3.13	-48.44	-5.36	3.13	48.44	5.36	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000749
2	Yes	6	0.00000001	0.00015680
3	Yes	6	0.00000001	0.00005610
4	Yes	7	0.00000001	0.00016640
5	Yes	6	0.00000001	0.00089712
6	Yes	7	0.00000001	0.00015445
7	Yes	6	0.00000001	0.00083067
8	Yes	6	0.00000001	0.00013814
9	Yes	5	0.00000001	0.00099408
10	Yes	7	0.00000001	0.00016493
11	Yes	6	0.00000001	0.00088491
12	Yes	7	0.00000001	0.00017522
13	Yes	6	0.00000001	0.00093833
14	Yes	6	0.00000001	0.00024964
15	Yes	6	0.00000001	0.00008923
16	Yes	7	0.00000001	0.00015673
17	Yes	6	0.00000001	0.00084125
18	Yes	7	0.00000001	0.00017188
19	Yes	6	0.00000001	0.00092304
20	Yes	5	0.00000001	0.00079614
21	Yes	5	0.00000001	0.00035080
22	Yes	7	0.00000001	0.00016693
23	Yes	6	0.00000001	0.00089764
24	Yes	7	0.00000001	0.00016031
25	Yes	6	0.00000001	0.00086239
26	Yes	5	0.00000001	0.00016337
27	Yes	7	0.00000001	0.00014681
28	Yes	7	0.00000001	0.00017907
29	Yes	7	0.00000001	0.00017762
30	Yes	7	0.00000001	0.00015033
31	Yes	7	0.00000001	0.00018291
32	Yes	7	0.00000001	0.00018350
33	Yes	7	0.00000001	0.00014894
34	Yes	7	0.00000001	0.00017508
35	Yes	7	0.00000001	0.00017701
36	Yes	7	0.00000001	0.00014632
37	Yes	7	0.00000001	0.00017656
38	Yes	7	0.00000001	0.00017556
39	Yes	5	0.00000001	0.00018569
40	Yes	5	0.00000001	0.00072038
41	Yes	5	0.00000001	0.00058109
42	Yes	5	0.00000001	0.00012711
43	Yes	5	0.00000001	0.00065981
44	Yes	5	0.00000001	0.00075098
45	Yes	5	0.00000001	0.00020796
46	Yes	5	0.00000001	0.00058676

47	Yes	5	0.00000001	0.00073319
48	Yes	5	0.00000001	0.00011481
49	Yes	5	0.00000001	0.00066625
50	Yes	5	0.00000001	0.00060663

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	149 - 144	24.616	44	1.5885	0.0075
L2	144 - 139	22.956	44	1.5792	0.0077
L3	139 - 134	21.316	44	1.5511	0.0078
L4	134 - 129	19.719	44	1.4943	0.0073
L5	129 - 124.5	18.195	44	1.4132	0.0062
L6	124.5 - 124.25	16.907	44	1.3174	0.0046
L7	124.25 - 119.25	16.838	44	1.3141	0.0045
L8	119.25 - 118.5	15.499	44	1.2411	0.0036
L9	118.5 - 118.25	15.305	44	1.2293	0.0035
L10	118.25 - 116	15.241	44	1.2272	0.0034
L11	116 - 115.75	14.667	44	1.2073	0.0033
L12	115.75 - 110.75	14.604	44	1.2050	0.0032
L13	110.75 - 105.75	13.368	44	1.1543	0.0029
L14	105.75 - 98.5	12.189	44	1.0967	0.0025
L15	102 - 97	11.347	44	1.0493	0.0022
L16	97 - 96.75	10.266	44	1.0076	0.0021
L17	96.75 - 93.98	10.213	44	1.0049	0.0020
L18	93.98 - 93.73	9.639	44	0.9746	0.0019
L19	93.73 - 91.5	9.588	44	0.9718	0.0019
L20	91.5 - 91.25	9.140	44	0.9466	0.0018
L21	91.25 - 90.25	9.091	44	0.9432	0.0018
L22	90.25 - 90	8.895	44	0.9294	0.0017
L23	90 - 89	8.846	44	0.9270	0.0017
L24	89 - 88.75	8.653	44	0.9175	0.0017
L25	88.75 - 83.75	8.605	44	0.9148	0.0017
L26	83.75 - 80.08	7.677	44	0.8574	0.0015
L27	80.08 - 79.83	7.035	44	0.8138	0.0014
L28	79.83 - 74.83	6.992	44	0.8113	0.0014
L29	74.83 - 73.5	6.169	44	0.7605	0.0012
L30	73.5 - 73.25	5.959	44	0.7471	0.0012
L31	73.25 - 71	5.920	44	0.7450	0.0012
L32	71 - 70.75	5.574	44	0.7254	0.0011
L33	70.75 - 65.75	5.536	44	0.7230	0.0011
L34	65.75 - 63	4.804	44	0.6746	0.0010
L35	63 - 62.75	4.424	44	0.6475	0.0009
L36	62.75 - 62.08	4.390	44	0.6449	0.0009
L37	62.08 - 61.83	4.300	44	0.6381	0.0009
L38	61.83 - 60.67	4.266	44	0.6351	0.0009
L39	60.67 - 60.42	4.114	44	0.6210	0.0009
L40	60.42 - 59	4.081	44	0.6180	0.0009
L41	59 - 58.75	3.900	44	0.6009	0.0009
L42	58.75 - 53.75	3.869	44	0.5982	0.0008
L43	53.75 - 48.5	3.272	44	0.5412	0.0007
L44	53.25 - 47.5	3.216	44	0.5355	0.0007
L45	47.5 - 45.75	2.591	44	0.4981	0.0007
L46	45.75 - 45.5	2.411	44	0.4793	0.0006
L47	45.5 - 45	2.386	44	0.4766	0.0006
L48	45 - 44.75	2.337	44	0.4712	0.0006
L49	44.75 - 43.5	2.312	44	0.4686	0.0006
L50	43.5 - 43.25	2.191	44	0.4559	0.0006
L51	43.25 - 38.25	2.167	44	0.4536	0.0006
L52	38.25 - 33.25	1.717	44	0.4068	0.0005
L53	33.25 - 30.5	1.316	44	0.3601	0.0004
L54	30.5 - 30.25	1.116	44	0.3342	0.0004
L55	30.25 - 29.67	1.098	44	0.3318	0.0004
L56	29.67 - 29.42	1.058	44	0.3264	0.0004
L57	29.42 - 28	1.041	44	0.3235	0.0004
L58	28 - 27.75	0.947	44	0.3073	0.0004

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L59	27.75 - 26.92	0.931	44	0.3048	0.0004
L60	26.92 - 26.67	0.879	44	0.2968	0.0003
L61	26.67 - 26.5	0.864	44	0.2942	0.0003
L62	26.5 - 26.25	0.853	44	0.2925	0.0003
L63	26.25 - 24.92	0.838	44	0.2899	0.0003
L64	24.92 - 24.67	0.759	44	0.2761	0.0003
L65	24.67 - 22.17	0.745	44	0.2733	0.0003
L66	22.17 - 21.92	0.609	44	0.2457	0.0003
L67	21.92 - 16.92	0.596	44	0.2432	0.0003
L68	16.92 - 11.92	0.368	44	0.1918	0.0002
L69	11.92 - 6.92	0.194	44	0.1407	0.0002
L70	6.92 - 3.25	0.074	44	0.0897	0.0001
L71	3.25 - 3	0.019	44	0.0524	0.0001
L72	3 - 2.75	0.016	44	0.0497	0.0001
L73	2.75 - 2.33	0.014	44	0.0456	0.0000
L74	2.33 - 2.08	0.010	44	0.0389	0.0000
L75	2.08 - 1.75	0.008	44	0.0352	0.0000
L76	1.75 - 1.4	0.006	44	0.0304	0.0000
L77	1.4 - 1.17	0.004	44	0.0247	0.0000
L78	1.17 - 0.25	0.003	44	0.0210	0.0000
L79	0.25 - 0	0.000	44	0.0061	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
149.00	Lightning Rod 5/8x4'	44	24.616	1.5885	0.0075	14994
148.00	Platform Mount [LP 602-1]	44	24.284	1.5872	0.0076	14994
140.00	(2) DB846F65ZAXY w/ Mount Pipe	44	21.641	1.5591	0.0078	7699
131.00	AIR 32 B2A/B66AA w/ Mount Pipe	44	18.794	1.4510	0.0068	3380
128.00	Pipe Mount	44	17.901	1.3903	0.0058	2931
119.00	MX08FRO665-21 w/ Mount Pipe	44	15.434	1.2366	0.0035	4493

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	149 - 144	96.365	12	6.2080	0.0298
L2	144 - 139	89.898	12	6.1708	0.0304
L3	139 - 134	83.508	12	6.0600	0.0306
L4	134 - 129	77.290	12	5.8372	0.0288
L5	129 - 124.5	71.351	12	5.5245	0.0246
L6	124.5 - 124.25	66.322	12	5.1597	0.0179
L7	124.25 - 119.25	66.053	12	5.1472	0.0177
L8	119.25 - 118.5	60.817	12	4.8662	0.0142
L9	118.5 - 118.25	60.058	12	4.8205	0.0137
L10	118.25 - 116	59.807	12	4.8124	0.0136
L11	116 - 115.75	57.561	12	4.7353	0.0129
L12	115.75 - 110.75	57.314	12	4.7264	0.0128
L13	110.75 - 105.75	52.475	12	4.5295	0.0113
L14	105.75 - 98.5	47.856	12	4.3051	0.0099
L15	102 - 97	44.552	12	4.1199	0.0089
L16	97 - 96.75	40.315	12	3.9571	0.0081
L17	96.75 - 93.98	40.108	12	3.9466	0.0081
L18	93.98 - 93.73	37.856	12	3.8277	0.0076
L19	93.73 - 91.5	37.656	12	3.8168	0.0075
L20	91.5 - 91.25	35.898	12	3.7185	0.0072

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L21	91.25 - 90.25	35.704	12	3.7049	0.0071
L22	90.25 - 90	34.935	12	3.6508	0.0069
L23	90 - 89	34.744	12	3.6415	0.0069
L24	89 - 88.75	33.986	12	3.6045	0.0067
L25	88.75 - 83.75	33.798	12	3.5936	0.0067
L26	83.75 - 80.08	30.156	12	3.3688	0.0059
L27	80.08 - 79.83	27.635	12	3.1976	0.0054
L28	79.83 - 74.83	27.468	12	3.1879	0.0054
L29	74.83 - 73.5	24.237	12	2.9884	0.0048
L30	73.5 - 73.25	23.412	12	2.9360	0.0047
L31	73.25 - 71	23.259	12	2.9276	0.0047
L32	71 - 70.75	21.898	12	2.8506	0.0045
L33	70.75 - 65.75	21.750	12	2.8414	0.0044
L34	65.75 - 63	18.876	12	2.6514	0.0040
L35	63 - 62.75	17.380	12	2.5449	0.0038
L36	62.75 - 62.08	17.247	12	2.5347	0.0037
L37	62.08 - 61.83	16.893	12	2.5077	0.0037
L38	61.83 - 60.67	16.763	12	2.4959	0.0037
L39	60.67 - 60.42	16.163	12	2.4409	0.0035
L40	60.42 - 59	16.036	12	2.4289	0.0035
L41	59 - 58.75	15.324	12	2.3619	0.0034
L42	58.75 - 53.75	15.200	12	2.3510	0.0033
L43	53.75 - 48.5	12.857	12	2.1271	0.0029
L44	53.25 - 47.5	12.635	12	2.1048	0.0029
L45	47.5 - 45.75	10.179	12	1.9578	0.0026
L46	45.75 - 45.5	9.475	12	1.8839	0.0025
L47	45.5 - 45	9.377	12	1.8732	0.0025
L48	45 - 44.75	9.182	12	1.8520	0.0024
L49	44.75 - 43.5	9.085	12	1.8419	0.0024
L50	43.5 - 43.25	8.610	12	1.7919	0.0023
L51	43.25 - 38.25	8.516	12	1.7827	0.0023
L52	38.25 - 33.25	6.746	12	1.5987	0.0020
L53	33.25 - 30.5	5.169	12	1.4153	0.0017
L54	30.5 - 30.25	4.383	12	1.3133	0.0016
L55	30.25 - 29.67	4.314	12	1.3041	0.0016
L56	29.67 - 29.42	4.157	12	1.2828	0.0015
L57	29.42 - 28	4.091	12	1.2714	0.0015
L58	28 - 27.75	3.722	12	1.2075	0.0014
L59	27.75 - 26.92	3.659	12	1.1979	0.0014
L60	26.92 - 26.67	3.453	12	1.1662	0.0014
L61	26.67 - 26.5	3.393	12	1.1563	0.0014
L62	26.5 - 26.25	3.352	12	1.1495	0.0014
L63	26.25 - 24.92	3.292	12	1.1392	0.0013
L64	24.92 - 24.67	2.982	12	1.0848	0.0013
L65	24.67 - 22.17	2.925	12	1.0741	0.0013
L66	22.17 - 21.92	2.392	12	0.9656	0.0011
L67	21.92 - 16.92	2.341	12	0.9557	0.0011
L68	16.92 - 11.92	1.447	12	0.7538	0.0008
L69	11.92 - 6.92	0.763	12	0.5527	0.0006
L70	6.92 - 3.25	0.289	12	0.3525	0.0004
L71	3.25 - 3	0.075	12	0.2060	0.0002
L72	3 - 2.75	0.064	12	0.1951	0.0002
L73	2.75 - 2.33	0.054	12	0.1793	0.0002
L74	2.33 - 2.08	0.040	12	0.1527	0.0002
L75	2.08 - 1.75	0.032	12	0.1383	0.0001
L76	1.75 - 1.4	0.023	12	0.1194	0.0001
L77	1.4 - 1.17	0.015	12	0.0971	0.0001
L78	1.17 - 0.25	0.011	12	0.0824	0.0001
L79	0.25 - 0	0.001	12	0.0241	0.0000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
149.00	Lightning Rod 5/8x4'	12	96.365	6.2080	0.0300	3948
148.00	Platform Mount [LP 602-1]	12	95.069	6.2029	0.0301	3948
140.00	(2) DB846F65ZAXY w/ Mount Pipe	12	84.776	6.0914	0.0308	2010
131.00	AIR 32 B2A/B66AA w/ Mount Pipe	12	73.687	5.6695	0.0270	901
128.00	Pipe Mount	12	70.205	5.4374	0.0231	789
119.00	MX08FRO665-21 w/ Mount Pipe	12	60.564	4.8487	0.0140	1186

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	149 - 144 (1)	TP16.8649x16x0.1875	5.00	0.00	0.0	9.9251	-2.56	580.62	0.004
L2	144 - 139 (2)	TP17.7297x16.8649x0.1875	5.00	0.00	0.0	10.4398	-5.39	610.73	0.009
L3	139 - 134 (3)	TP18.5946x17.7297x0.1875	5.00	0.00	0.0	10.9545	-5.72	640.84	0.009
L4	134 - 129 (4)	TP19.4594x18.5946x0.1875	5.00	0.00	0.0	11.4692	-8.01	670.95	0.012
L5	129 - 124.5 (5)	TP20.2378x19.4594x0.1875	4.50	0.00	0.0	11.9324	-11.48	698.05	0.016
L6	124.5 - 124.25 (6)	TP20.281x20.2378x0.35	0.25	0.00	0.0	22.1414	-11.52	1295.27	0.009
L7	124.25 - 119.25 (7)	TP21.1459x20.281x0.3438	5.00	0.00	0.0	22.6964	-12.13	1327.74	0.009
L8	119.25 - 118.5 (8)	TP21.2756x21.1459x0.3438	0.75	0.00	0.0	22.8379	-15.21	1336.02	0.011
L9	118.5 - 118.25 (9)	TP21.3188x21.2756x0.7	0.25	0.00	0.0	45.8109	-15.26	2679.94	0.006
L10	118.25 - 116 (10)	TP21.708x21.3188x0.6875	2.25	0.00	0.0	45.8694	-15.70	2683.36	0.006
L11	116 - 115.75 (11)	TP21.7513x21.708x0.6875	0.25	0.00	0.0	45.9638	-15.76	2688.88	0.006
L12	115.75 - 110.75 (12)	TP22.6161x21.7513x0.6625	5.00	0.00	0.0	46.1635	-16.76	2700.57	0.006
L13	110.75 - 105.75 (13)	TP23.481x22.6161x0.6375	5.00	0.00	0.0	46.2220	-17.78	2703.99	0.007
L14	105.75 - 98.5 (14)	TP24.735x23.481x0.6125	7.25	0.00	0.0	45.7190	-18.56	2674.56	0.007
L15	98.5 - 97 (15)	TP24.6198x23.7546x0.675	5.00	0.00	0.0	51.3006	-20.27	3001.09	0.007
L16	97 - 96.75 (16)	TP24.6631x24.6198x0.825	0.25	0.00	0.0	62.4212	-20.34	3651.64	0.006
L17	96.75 - 93.98 (17)	TP25.1424x24.6631x0.8125	2.77	0.00	0.0	62.7438	-21.08	3670.51	0.006
L18	93.98 - 93.73 (18)	TP25.1857x25.1424x0.8	0.25	0.00	0.0	61.9201	-21.15	3622.33	0.006
L19	93.73 - 91.5 (19)	TP25.5716x25.1857x0.8	2.23	0.00	0.0	62.9000	-21.74	3679.65	0.006
L20	91.5 - 91.25 (20)	TP25.6148x25.5716x0.6375	0.25	0.00	0.0	50.5398	-21.81	2956.58	0.007
L21	91.25 - 90.25 (21)	TP25.7879x25.6148x0.6375	1.00	0.00	0.0	50.8899	-22.04	2977.06	0.007
L22	90.25 - 90 (22)	TP25.8311x25.7879x0.975	0.25	0.00	0.0	76.9211	-22.13	4499.88	0.005
L23	90 - 89 (23)	TP26.0042x25.8311x0.975	1.00	0.00	0.0	77.4566	-22.44	4531.21	0.005
L24	89 - 88.75	TP26.0474x26.0042x0.82	0.25	0.00	0.0	66.046	-22.51	3863.71	0.006

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	(24)	5				2			
L25	88.75 - 83.75	TP26.9127x26.0474x0.8	5.00	0.00	0.0	66.305	-23.92	3878.86	0.006
	(25)					3			
L26	83.75 - 80.08	TP27.5477x26.9127x0.77	3.67	0.00	0.0	65.856	-24.97	3852.63	0.006
	(26)	5				9			
L27	80.08 - 79.83	TP27.591x27.5477x0.95	0.25	0.00	0.0	80.330	-25.07	4699.34	0.005
	(27)					6			
L28	79.83 - 74.83	TP28.4562x27.591x0.925	5.00	0.00	0.0	80.830	-26.75	4728.57	0.006
	(28)					3			
L29	74.83 - 73.5	TP28.6864x28.4562x0.92	1.33	0.00	0.0	81.506	-27.22	4768.10	0.006
	(29)	5				0			
L30	73.5 - 73.25	TP28.7296x28.6864x1.12	0.25	0.00	0.0	98.569	-27.33	5766.30	0.005
	(30)	5				3			
L31	73.25 - 71	TP29.119x28.7296x1.1	2.25	0.00	0.0	97.825	-28.23	5722.79	0.005
	(31)					5			
L32	71 - 70.75	TP29.1623x29.119x1	0.25	0.00	0.0	89.387	-28.32	5229.14	0.005
	(32)					0			
L33	70.75 - 65.75	TP30.0275x29.1623x0.97	5.00	0.00	0.0	89.907	-30.16	5259.57	0.006
	(33)	5				2			
L34	65.75 - 63	TP30.5034x30.0275x0.95	2.75	0.00	0.0	89.112	-31.20	5213.07	0.006
	(34)					2			
L35	63 - 62.75	TP30.5466x30.5034x0.9	0.25	0.00	0.0	84.688	-31.30	4954.28	0.006
	(35)					5			
L36	62.75 - 62.08	TP30.6626x30.5466x0.9	0.67	0.00	0.0	85.019	-31.54	4973.65	0.006
	(36)					7			
L37	62.08 - 61.83	TP30.7058x30.6626x0.76	0.25	0.00	0.0	72.468	-31.63	4239.38	0.007
	(37)	25				1			
L38	61.83 - 60.67	TP30.9065x30.7058x0.75	1.16	0.00	0.0	71.787	-32.01	4199.58	0.008
	(38)					7			
L39	60.67 - 60.42	TP30.9498x30.9065x0.75	0.25	0.00	0.0	71.890	-32.10	4205.60	0.008
	(39)					6			
L40	60.42 - 59	TP31.1955x30.9498x0.75	1.42	0.00	0.0	72.475	-32.57	4239.82	0.008
	(40)					6			
L41	59 - 58.75	TP31.2388x31.1955x0.82	0.25	0.00	0.0	79.640	-32.66	4658.94	0.007
	(41)	5				0			
L42	58.75 - 53.75	TP32.104x31.2388x0.8	5.00	0.00	0.0	79.487	-34.36	4650.00	0.007
	(42)					2			
L43	53.75 - 48.5	TP33.0125x32.104x0.8	5.25	0.00	0.0	79.706	-34.53	4662.85	0.007
	(43)					9			
L44	48.5 - 47.5	TP32.6823x31.6905x0.86	5.75	0.00	0.0	87.109	-38.10	5095.88	0.007
	(44)	25				1			
L45	47.5 - 45.75	TP32.9841x32.6823x0.86	1.75	0.00	0.0	87.935	-38.76	5144.22	0.008
	(45)	25				4			
L46	45.75 - 45.5	TP33.0272x32.9841x0.86	0.25	0.00	0.0	88.053	-38.87	5151.12	0.008
	(46)	25				4			
L47	45.5 - 45 (47)	TP33.1135x33.0272x0.86	0.50	0.00	0.0	88.289	-39.06	5164.93	0.008
		25				5			
L48	45 - 44.75	TP33.1566x33.1135x0.91	0.25	0.00	0.0	93.387	-39.17	5463.19	0.007
	(48)	25				8			
L49	44.75 - 43.5	TP33.3722x33.1566x0.91	1.25	0.00	0.0	94.012	-39.69	5499.71	0.007
	(49)	25				2			
L50	43.5 - 43.25	TP33.4153x33.3722x1.01	0.25	0.00	0.0	104.13	-39.80	6091.73	0.007
	(50)	25				20			
L51	43.25 - 38.25	TP34.2777x33.4153x1	5.00	0.00	0.0	105.62	-41.99	6178.97	0.007
	(51)					30			
L52	38.25 - 33.25	TP35.1401x34.2777x0.98	5.00	0.00	0.0	107.04	-44.20	6262.15	0.007
	(52)	75				50			
L53	33.25 - 30.5	TP35.6144x35.1401x0.96	2.75	0.00	0.0	105.86	-45.43	6192.85	0.007
	(53)	25				10			
L54	30.5 - 30.25	TP35.6575x35.6144x0.96	0.25	0.00	0.0	105.99	-45.55	6200.56	0.007
	(54)	25				20			
L55	30.25 - 29.67	TP35.7576x35.6575x0.96	0.58	0.00	0.0	106.29	-45.82	6218.44	0.007
	(55)	25				80			
L56	29.67 - 29.42	TP35.8007x35.7576x0.76	0.25	0.00	0.0	84.798	-45.92	4960.72	0.009
	(56)	25				6			
L57	29.42 - 28	TP36.0456x35.8007x0.76	1.42	0.00	0.0	85.391	-46.50	4995.39	0.009
	(57)	25				3			
L58	28 - 27.75	TP36.0887x36.0456x0.91	0.25	0.00	0.0	101.88	-46.62	5959.98	0.008
	(58)	25				00			

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L59	27.75 - 26.92 (59)	TP36.2319x36.0887x0.9125	0.83	0.00	0.0	102.2950	-46.98	5984.24	0.008
L60	26.92 - 26.67 (60)	TP36.275x36.2319x0.875	0.25	0.00	0.0	98.3147	-47.09	5751.41	0.008
L61	26.67 - 26.5 (61)	TP36.3043x36.275x0.875	0.17	0.00	0.0	98.3961	-47.16	5756.17	0.008
L62	26.5 - 26.25 (62)	TP36.3474x36.3043x0.8375	0.25	0.00	0.0	94.3934	-47.26	5522.02	0.009
L63	26.25 - 24.92 (63)	TP36.5768x36.3474x0.8375	1.33	0.00	0.0	95.0032	-47.78	5557.69	0.009
L64	24.92 - 24.67 (64)	TP36.62x36.5768x0.8	0.25	0.00	0.0	90.9540	-47.89	5320.81	0.009
L65	24.67 - 22.17 (65)	TP37.0512x36.62x0.7875	2.50	0.00	0.0	90.6419	-48.91	5302.55	0.009
L66	22.17 - 21.92 (66)	TP37.0943x37.0512x0.8625	0.25	0.00	0.0	99.1872	-49.03	5802.45	0.008
L67	21.92 - 16.92 (67)	TP37.9567x37.0943x0.8375	5.00	0.00	0.0	98.6711	-51.23	5772.26	0.009
L68	16.92 - 11.92 (68)	TP38.8191x37.9567x0.825	5.00	0.00	0.0	99.4893	-53.46	5820.13	0.009
L69	11.92 - 6.92 (69)	TP39.6815x38.8191x0.8125	5.00	0.00	0.0	100.2380	-55.67	5863.93	0.009
L70	6.92 - 3.25 (70)	TP40.3144x39.6815x0.8	3.67	0.00	0.0	100.3350	-57.23	5869.60	0.010
L71	3.25 - 3 (71)	TP40.3576x40.3144x0.725	0.25	0.00	0.0	91.2005	-57.33	5335.23	0.011
L72	3 - 2.75 (72)	TP40.4007x40.3576x0.4875	0.25	0.00	0.0	61.7587	-57.39	3612.88	0.016
L73	2.75 - 2.33 (73)	TP40.4731x40.4007x0.4875	0.42	0.00	0.0	61.8708	-57.51	3619.44	0.016
L74	2.33 - 2.08 (74)	TP40.5162x40.4731x0.5375	0.25	0.00	0.0	68.2047	-57.58	3989.98	0.014
L75	2.08 - 1.75 (75)	TP40.5732x40.5162x0.5375	0.33	0.00	0.0	68.3018	-57.68	3995.66	0.014
L76	1.75 - 1.4 (76)	TP40.6335x40.5732x0.4813	0.35	0.00	0.0	61.3321	-57.77	3587.93	0.016
L77	1.4 - 1.17 (77)	TP40.6732x40.6335x0.4813	0.23	0.00	0.0	61.3927	-57.83	3591.47	0.016
L78	1.17 - 0.25 (78)	TP40.8319x40.6732x0.4813	0.92	0.00	0.0	61.6351	-58.07	3605.65	0.016
L79	0.25 - 0 (79)	TP40.875x40.8319x0.3125 4.8.2 (1.27 CR) - 79	0.25	0.00	0.0	40.2329	-58.13	2353.63	0.025

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	149 - 144 (1)	TP16.8649x16x0.1875	18.45	252.03	0.073	0.00	252.03	0.000
L2	144 - 139 (2)	TP17.7297x16.8649x0.1875	48.36	279.00	0.173	0.00	279.00	0.000
L3	139 - 134 (3)	TP18.5946x17.7297x0.1875	89.61	304.95	0.294	0.00	304.95	0.000
L4	134 - 129 (4)	TP19.4594x18.5946x0.1875	135.57	330.53	0.410	0.00	330.53	0.000
L5	129 - 124.5 (5)	TP20.2378x19.4594x0.1875	194.04	354.11	0.548	0.00	354.11	0.000
L6	124.5 - 124.25 (6)	TP20.281x20.2378x0.35	197.44	667.77	0.296	0.00	667.77	0.000
L7	124.25 - 119.25 (7)	TP21.1459x20.281x0.3438	266.15	715.15	0.372	0.00	715.15	0.000
L8	119.25 - 118.5 (8)	TP21.2756x21.1459x0.3438	278.09	724.17	0.384	0.00	724.17	0.000
L9	118.5 -	TP21.3188x21.2756x0.7	282.35	1406.65	0.201	0.00	1406.65	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	118.25 (9)							
L10	118.25 - 116 (10)	TP21.708x21.3188x0.6875	320.94	1437.62	0.223	0.00	1437.62	0.000
L11	116 - 115.75 (11)	TP21.7513x21.708x0.6875	325.25	1443.63	0.225	0.00	1443.63	0.000
L12	115.75 - 110.75 (12)	TP22.6161x21.7513x0.6625	412.22	1514.77	0.272	0.00	1514.77	0.000
L13	110.75 - 105.75 (13)	TP23.481x22.6161x0.6375	500.75	1581.64	0.317	0.00	1581.64	0.000
L14	105.75 - 98.5 (14)	TP24.735x23.481x0.6125	568.14	1613.49	0.352	0.00	1613.49	0.000
L15	98.5 - 97 (15)	TP24.6198x23.7546x0.675	659.57	1839.56	0.359	0.00	1839.56	0.000
L16	97 - 96.75 (16)	TP24.6631x24.6198x0.825	664.18	2214.53	0.300	0.00	2214.53	0.000
L17	96.75 - 93.98 (17)	TP25.1424x24.6631x0.8125	715.62	2274.56	0.315	0.00	2274.56	0.000
L18	93.98 - 93.73 (18)	TP25.1857x25.1424x0.8	720.28	2251.13	0.320	0.00	2251.13	0.000
L19	93.73 - 91.5 (19)	TP25.5716x25.1857x0.8	762.09	2324.08	0.328	0.00	2324.08	0.000
L20	91.5 - 91.25 (20)	TP25.6148x25.5716x0.6375	766.79	1895.33	0.405	0.00	1895.33	0.000
L21	91.25 - 90.25 (21)	TP25.7879x25.6148x0.6375	785.65	1922.02	0.409	0.00	1922.02	0.000
L22	90.25 - 90 (22)	TP25.8311x25.7879x0.975	790.38	2832.83	0.279	0.00	2832.83	0.000
L23	90 - 89 (23)	TP26.0042x25.8311x0.975	809.36	2873.17	0.282	0.00	2873.17	0.000
L24	89 - 88.75 (24)	TP26.0474x26.0042x0.825	814.12	2483.76	0.328	0.00	2483.76	0.000
L25	88.75 - 83.75 (25)	TP26.9127x26.0474x0.8	910.22	2586.70	0.352	0.00	2586.70	0.000
L26	83.75 - 80.08 (26)	TP27.5477x26.9127x0.775	981.76	2638.47	0.372	0.00	2638.47	0.000
L27	80.08 - 79.83 (27)	TP27.591x27.5477x0.95	986.67	3181.76	0.310	0.00	3181.76	0.000
L28	79.83 - 74.83 (28)	TP28.4562x27.591x0.925	1086.22	3315.13	0.328	0.00	3315.13	0.000
L29	74.83 - 73.5 (29)	TP28.6864x28.4562x0.925	1113.63	3371.69	0.330	0.00	3371.69	0.000
L30	73.5 - 73.25 (30)	TP28.7296x28.6864x1.125	1118.81	4025.57	0.278	0.00	4025.57	0.000
L31	73.25 - 71 (31)	TP29.119x28.7296x1.1	1165.73	4061.00	0.287	0.00	4061.00	0.000
L32	71 - 70.75 (32)	TP29.1623x29.119x1	1170.99	3743.18	0.313	0.00	3743.18	0.000
L33	70.75 - 65.75 (33)	TP30.0275x29.1623x0.975	1277.53	3891.30	0.328	0.00	3891.30	0.000
L34	65.75 - 63 (34)	TP30.5034x30.0275x0.95	1337.15	3928.76	0.340	0.00	3928.76	0.000
L35	63 - 62.75 (35)	TP30.5466x30.5034x0.9	1342.60	3752.01	0.358	0.00	3752.01	0.000
L36	62.75 - 62.08 (36)	TP30.6626x30.5466x0.9	1357.22	3781.84	0.359	0.00	3781.84	0.000
L37	62.08 - 61.83 (37)	TP30.7058x30.6626x0.7625	1362.68	3258.20	0.418	0.00	3258.20	0.000
L38	61.83 - 60.67 (38)	TP30.9065x30.7058x0.75	1388.06	3252.48	0.427	0.00	3252.48	0.000
L39	60.67 - 60.42 (39)	TP30.9498x30.9065x0.75	1393.54	3261.93	0.427	0.00	3261.93	0.000
L40	60.42 - 59 (40)	TP31.1955x30.9498x0.75	1424.75	3315.88	0.430	0.00	3315.88	0.000
L41	59 - 58.75 (41)	TP31.2388x31.1955x0.825	1430.25	3631.03	0.394	0.00	3631.03	0.000
L42	58.75 - 53.75 (42)	TP32.104x31.2388x0.8	1541.15	3735.85	0.413	0.00	3735.85	0.000
L43	53.75 - 48.5 (43)	TP33.0125x32.104x0.8	1552.32	3756.79	0.413	0.00	3756.79	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L44	48.5 - 47.5 (44)	TP32.6823x31.6905x0.8625	1682.23	4155.25	0.405	0.00	4155.25	0.000
L45	47.5 - 45.75 (45)	TP32.9841x32.6823x0.8625	1722.38	4235.51	0.407	0.00	4235.51	0.000
L46	45.75 - 45.5 (46)	TP33.0272x32.9841x0.8625	1728.14	4247.03	0.407	0.00	4247.03	0.000
L47	45.5 - 45 (47)	TP33.1135x33.0272x0.8625	1739.67	4270.14	0.407	0.00	4270.14	0.000
L48	45 - 44.75 (48)	TP33.1566x33.1135x0.9125	1745.44	4508.93	0.387	0.00	4508.93	0.000
L49	44.75 - 43.5 (49)	TP33.3722x33.1566x0.9125	1774.39	4570.26	0.388	0.00	4570.26	0.000
L50	43.5 - 43.25 (50)	TP33.4153x33.3722x1.0125	1780.21	5037.98	0.353	0.00	5037.98	0.000
L51	43.25 - 38.25 (51)	TP34.2777x33.4153x1	1897.79	5254.21	0.361	0.00	5254.21	0.000
L52	38.25 - 33.25 (52)	TP35.1401x34.2777x0.9875	2017.39	5470.98	0.369	0.00	5470.98	0.000
L53	33.25 - 30.5 (53)	TP35.6144x35.1401x0.9625	2083.75	5495.61	0.379	0.00	5495.61	0.000
L54	30.5 - 30.25 (54)	TP35.6575x35.6144x0.9625	2089.80	5509.48	0.379	0.00	5509.48	0.000
L55	30.25 - 29.67 (55)	TP35.7576x35.6575x0.9625	2103.86	5541.73	0.380	0.00	5541.73	0.000
L56	29.67 - 29.42 (56)	TP35.8007x35.7576x0.7625	2109.93	4477.47	0.471	0.00	4477.47	0.000
L57	29.42 - 28 (57)	TP36.0456x35.8007x0.7625	2144.42	4540.95	0.472	0.00	4540.95	0.000
L58	28 - 27.75 (58)	TP36.0887x36.0456x0.9125	2150.49	5378.58	0.400	0.00	5378.58	0.000
L59	27.75 - 26.92 (59)	TP36.2319x36.0887x0.9125	2170.71	5423.01	0.400	0.00	5423.01	0.000
L60	26.92 - 26.67 (60)	TP36.275x36.2319x0.875	2176.80	5229.62	0.416	0.00	5229.62	0.000
L61	26.67 - 26.5 (61)	TP36.3043x36.275x0.875	2180.95	5238.38	0.416	0.00	5238.38	0.000
L62	26.5 - 26.25 (62)	TP36.3474x36.3043x0.8375	2187.05	5042.20	0.434	0.00	5042.20	0.000
L63	26.25 - 24.92 (63)	TP36.5768x36.3474x0.8375	2219.54	5108.31	0.434	0.00	5108.31	0.000
L64	24.92 - 24.67 (64)	TP36.62x36.5768x0.8	2225.66	4906.89	0.454	0.00	4906.89	0.000
L65	24.67 - 22.17 (65)	TP37.0512x36.62x0.7875	2286.97	4953.62	0.462	0.00	4953.62	0.000
L66	22.17 - 21.92 (66)	TP37.0943x37.0512x0.8625	2293.11	5404.81	0.424	0.00	5404.81	0.000
L67	21.92 - 16.92 (67)	TP37.9567x37.0943x0.8375	2416.53	5515.07	0.438	0.00	5515.07	0.000
L68	16.92 - 11.92 (68)	TP38.8191x37.9567x0.825	2540.86	5696.59	0.446	0.00	5696.59	0.000
L69	11.92 - 6.92 (69)	TP39.6815x38.8191x0.8125	2666.04	5876.29	0.454	0.00	5876.29	0.000
L70	6.92 - 3.25 (70)	TP40.3144x39.6815x0.8	2758.45	5983.51	0.461	0.00	5983.51	0.000
L71	3.25 - 3 (71)	TP40.3576x40.3144x0.725	2764.76	5465.48	0.506	0.00	5465.48	0.000
L72	3 - 2.75 (72)	TP40.4007x40.3576x0.4875	2771.07	3749.68	0.739	0.00	3749.68	0.000
L73	2.75 - 2.33 (73)	TP40.4731x40.4007x0.4875	2781.68	3763.38	0.739	0.00	3763.38	0.000
L74	2.33 - 2.08 (74)	TP40.5162x40.4731x0.5375	2787.98	4142.82	0.673	0.00	4142.82	0.000
L75	2.08 - 1.75 (75)	TP40.5732x40.5162x0.5375	2796.32	4154.70	0.673	0.00	4154.70	0.000
L76	1.75 - 1.4 (76)	TP40.6335x40.5732x0.4813	2805.16	3746.93	0.749	0.00	3746.93	0.000
L77	1.4 - 1.17 (77)	TP40.6732x40.6335x0.4813	2810.97	3754.38	0.749	0.00	3754.38	0.000
L78	1.17 - 0.25	TP40.8319x40.6732x0.48	2834.21	3784.27	0.749	0.00	3784.27	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	(78)	13						
L79	0.25 - 0 (79)	TP40.875x40.8319x0.3125	2840.53	2276.38	1.248	0.00	2276.38	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	149 - 144 (1)	TP16.8649x16x0.1875	3.78	174.19	0.022	0.13	254.40	0.000
L2	144 - 139 (2)	TP17.7297x16.8649x0.1875	8.12	183.22	0.044	0.22	281.47	0.001
L3	139 - 134 (3)	TP18.5946x17.7297x0.1875	8.38	192.25	0.044	0.22	309.91	0.001
L4	134 - 129 (4)	TP19.4594x18.5946x0.1875	11.21	201.28	0.056	0.22	339.71	0.001
L5	129 - 124.5 (5)	TP20.2378x19.4594x0.1875	13.60	209.41	0.065	0.08	367.71	0.000
L6	124.5 - 124.25 (6)	TP20.281x20.2378x0.35	13.61	388.58	0.035	0.08	678.25	0.000
L7	124.25 - 119.25 (7)	TP21.1459x20.281x0.3438	13.88	398.32	0.035	0.08	725.64	0.000
L8	119.25 - 118.5 (8)	TP21.2756x21.1459x0.3438	17.07	400.81	0.043	0.27	734.72	0.000
L9	118.5 - 118.25 (9)	TP21.3188x21.2756x0.7	17.08	803.98	0.021	0.27	1451.74	0.000
L10	118.25 - 116 (10)	TP21.708x21.3188x0.6875	17.23	805.01	0.021	0.27	1481.92	0.000
L11	116 - 115.75 (11)	TP21.7513x21.708x0.6875	17.24	806.66	0.021	0.27	1488.02	0.000
L12	115.75 - 110.75 (12)	TP22.6161x21.7513x0.6625	17.56	810.17	0.022	0.27	1557.63	0.000
L13	110.75 - 105.75 (13)	TP23.481x22.6161x0.6375	17.87	811.20	0.022	0.27	1622.81	0.000
L14	105.75 - 98.5 (14)	TP24.735x23.481x0.6125	18.10	802.37	0.023	0.27	1652.48	0.000
L15	98.5 - 97 (15)	TP24.6198x23.7546x0.675	18.48	900.33	0.021	0.27	1887.95	0.000
L16	97 - 96.75 (16)	TP24.6631x24.6198x0.825	18.48	1095.49	0.017	0.27	2286.97	0.000
L17	96.75 - 93.98 (17)	TP25.1424x24.6631x0.8125	18.67	1101.15	0.017	0.27	2346.22	0.000
L18	93.98 - 93.73 (18)	TP25.1857x25.1424x0.8	18.68	1086.70	0.017	0.27	2320.72	0.000
L19	93.73 - 91.5 (19)	TP25.5716x25.1857x0.8	18.83	1103.89	0.017	0.27	2394.76	0.000
L20	91.5 - 91.25 (20)	TP25.6148x25.5716x0.6375	18.84	886.97	0.021	0.27	1940.16	0.000
L21	91.25 - 90.25 (21)	TP25.7879x25.6148x0.6375	18.90	893.12	0.021	0.27	1967.13	0.000
L22	90.25 - 90 (22)	TP25.8311x25.7879x0.975	18.93	1349.96	0.014	0.27	2938.57	0.000
L23	90 - 89 (23)	TP26.0042x25.8311x0.975	19.04	1359.36	0.014	0.27	2979.63	0.000
L24	89 - 88.75 (24)	TP26.0474x26.0042x0.825	19.07	1159.11	0.016	0.27	2560.31	0.000
L25	88.75 - 83.75 (25)	TP26.9127x26.0474x0.8	19.39	1163.66	0.017	0.27	2661.07	0.000
L26	83.75 - 80.08 (26)	TP27.5477x26.9127x0.775	19.63	1155.79	0.017	0.27	2709.89	0.000
L27	80.08 - 79.83 (27)	TP27.591x27.5477x0.95	19.65	1409.80	0.014	0.27	3289.19	0.000
L28	79.83 - 74.83 (28)	TP28.4562x27.591x0.925	20.55	1418.57	0.014	1.35	3420.24	0.000
L29	74.83 - 73.5	TP28.6864x28.4562x0.92	20.70	1430.43	0.014	1.35	3477.67	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
	(29)	5						
L30	73.5 - 73.25	TP28.7296x28.6864x1.12	20.73	1729.89	0.012	1.35	4181.97	0.000
	(30)	5						
L31	73.25 - 71	TP29.119x28.7296x1.1	21.01	1716.84	0.012	1.35	4212.71	0.000
	(31)							
L32	71 - 70.75	TP29.1623x29.119x1	21.03	1568.74	0.013	1.35	3869.00	0.000
	(32)							
L33	70.75 - 65.75	TP30.0275x29.1623x0.97	21.61	1577.87	0.014	1.35	4014.53	0.000
	(33)	5						
L34	65.75 - 63	TP30.5034x30.0275x0.95	21.79	1563.92	0.014	1.35	4047.63	0.000
	(34)							
L35	63 - 62.75	TP30.5466x30.5034x0.9	21.80	1486.28	0.015	1.35	3858.84	0.000
	(35)							
L36	62.75 - 62.08	TP30.6626x30.5466x0.9	21.85	1492.10	0.015	1.35	3889.08	0.000
	(36)							
L37	62.08 - 61.83	TP30.7058x30.6626x0.76	21.86	1271.81	0.017	1.35	3335.06	0.000
	(37)	25						
L38	61.83 - 60.67	TP30.9065x30.7058x0.75	21.94	1259.87	0.017	1.35	3327.28	0.000
	(38)							
L39	60.67 - 60.42	TP30.9498x30.9065x0.75	21.94	1261.68	0.017	1.35	3336.82	0.000
	(39)							
L40	60.42 - 59	TP31.1955x30.9498x0.75	22.04	1271.95	0.017	1.35	3391.35	0.000
	(40)							
L41	59 - 58.75	TP31.2388x31.1955x0.82	22.04	1397.68	0.016	1.35	3722.71	0.000
	(41)	5						
L42	58.75 - 53.75	TP32.104x31.2388x0.8	22.34	1395.00	0.016	1.35	3824.32	0.000
	(42)							
L43	53.75 - 48.5	TP33.0125x32.104x0.8	22.36	1398.86	0.016	1.35	3845.49	0.000
	(43)							
L44	48.5 - 47.5	TP32.6823x31.6905x0.86	22.87	1528.76	0.015	1.35	4260.08	0.000
	(44)	25						
L45	47.5 - 45.75	TP32.9841x32.6823x0.86	23.06	1543.27	0.015	1.35	4341.28	0.000
	(45)	25						
L46	45.75 - 45.5	TP33.0272x32.9841x0.86	23.05	1545.34	0.015	1.35	4352.95	0.000
	(46)	25						
L47	45.5 - 45 (47)	TP33.1135x33.0272x0.86	23.08	1549.48	0.015	1.35	4376.32	0.000
		25						
L48	45 - 44.75	TP33.1566x33.1135x0.91	23.10	1638.96	0.014	1.35	4628.04	0.000
	(48)	25						
L49	44.75 - 43.5	TP33.3722x33.1566x0.91	23.25	1649.91	0.014	1.35	4690.14	0.000
	(49)	25						
L50	43.5 - 43.25	TP33.4153x33.3722x1.01	23.26	1827.52	0.013	1.35	5185.91	0.000
	(50)	25						
L51	43.25 - 38.25	TP34.2777x33.4153x1	23.80	1853.69	0.013	1.35	5402.20	0.000
	(51)							
L52	38.25 - 33.25	TP35.1401x34.2777x0.98	24.08	1878.65	0.013	1.35	5618.87	0.000
	(52)	75						
L53	33.25 - 30.5	TP35.6144x35.1401x0.96	24.23	1857.86	0.013	1.35	5637.92	0.000
	(53)	25						
L54	30.5 - 30.25	TP35.6575x35.6144x0.96	24.23	1860.17	0.013	1.35	5651.97	0.000
	(54)	25						
L55	30.25 - 29.67	TP35.7576x35.6575x0.96	24.26	1865.53	0.013	1.35	5684.61	0.000
	(55)	25						
L56	29.67 - 29.42	TP35.8007x35.7576x0.76	24.27	1488.21	0.016	1.35	4566.54	0.000
	(56)	25						
L57	29.42 - 28	TP36.0456x35.8007x0.76	24.35	1498.62	0.016	1.35	4630.60	0.000
	(57)	25						
L58	28 - 27.75	TP36.0887x36.0456x0.91	24.34	1787.99	0.014	1.35	5508.02	0.000
	(58)	25						
L59	27.75 - 26.92	TP36.2319x36.0887x0.91	24.39	1795.27	0.014	1.35	5552.94	0.000
	(59)	25						
L60	26.92 - 26.67	TP36.275x36.2319x0.875	24.39	1725.42	0.014	1.35	5349.07	0.000
	(60)							
L61	26.67 - 26.5	TP36.3043x36.275x0.875	24.40	1726.85	0.014	1.35	5357.94	0.000
	(61)							
L62	26.5 - 26.25	TP36.3474x36.3043x0.83	24.41	1656.60	0.015	1.35	5151.68	0.000
	(62)	75						
L63	26.25 - 24.92	TP36.5768x36.3474x0.83	24.49	1667.31	0.015	1.35	5218.46	0.000
	(63)	75						

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L64	24.92 - 24.67 (64)	TP36.62x36.5768x0.8	24.48	1596.24	0.015	1.35	5007.31	0.000
L65	24.67 - 22.17 (65)	TP37.0512x36.62x0.7875	24.60	1590.77	0.015	1.35	5051.93	0.000
L66	22.17 - 21.92 (66)	TP37.0943x37.0512x0.8625	24.59	1740.74	0.014	1.35	5523.35	0.000
L67	21.92 - 16.92 (67)	TP37.9567x37.0943x0.8375	24.80	1731.68	0.014	1.35	5629.18	0.000
L68	16.92 - 11.92 (68)	TP38.8191x37.9567x0.825	24.98	1746.04	0.014	1.35	5809.64	0.000
L69	11.92 - 6.92 (69)	TP39.6815x38.8191x0.8125	25.14	1759.18	0.014	1.35	5988.16	0.000
L70	6.92 - 3.25 (70)	TP40.3144x39.6815x0.8	25.27	1760.88	0.014	1.35	6093.48	0.000
L71	3.25 - 3 (71)	TP40.3576x40.3144x0.725	25.25	1600.57	0.016	1.35	5555.28	0.000
L72	3 - 2.75 (72)	TP40.4007x40.3576x0.4875	25.26	1083.86	0.023	1.35	3788.53	0.000
L73	2.75 - 2.33 (73)	TP40.4731x40.4007x0.4875	25.27	1085.83	0.023	1.35	3802.30	0.000
L74	2.33 - 2.08 (74)	TP40.5162x40.4731x0.5375	25.26	1196.99	0.021	1.35	4190.84	0.000
L75	2.08 - 1.75 (75)	TP40.5732x40.5162x0.5375	25.27	1198.70	0.021	1.35	4202.78	0.000
L76	1.75 - 1.4 (76)	TP40.6335x40.5732x0.4813	25.27	1076.38	0.023	1.35	3784.91	0.000
L77	1.4 - 1.17 (77)	TP40.6732x40.6335x0.4813	25.27	1077.44	0.023	1.35	3792.39	0.000
L78	1.17 - 0.25 (78)	TP40.8319x40.6732x0.4813	25.30	1081.70	0.023	1.35	3822.39	0.000
L79	0.25 - 0 (79)	TP40.875x40.8319x0.3125	25.28	706.09	0.036	1.35	2508.21	0.001

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	149 - 144 (1)	0.004	0.073	0.000	0.022	0.000	0.078	1.050	4.8.2
L2	144 - 139 (2)	0.009	0.173	0.000	0.044	0.001	0.184	1.050	4.8.2
L3	139 - 134 (3)	0.009	0.294	0.000	0.044	0.001	0.305	1.050	4.8.2
L4	134 - 129 (4)	0.012	0.410	0.000	0.056	0.001	0.425	1.050	4.8.2
L5	129 - 124.5 (5)	0.016	0.548	0.000	0.065	0.000	0.569	1.050	4.8.2
L6	124.5 - 124.25 (6)	0.009	0.296	0.000	0.035	0.000	0.306	1.050	4.8.2
L7	124.25 - 119.25 (7)	0.009	0.372	0.000	0.035	0.000	0.383	1.050	4.8.2
L8	119.25 - 118.5 (8)	0.011	0.384	0.000	0.043	0.000	0.397	1.050	4.8.2
L9	118.5 - 118.25 (9)	0.006	0.201	0.000	0.021	0.000	0.207	1.050	4.8.2
L10	118.25 - 116 (10)	0.006	0.223	0.000	0.021	0.000	0.230	1.050	4.8.2
L11	116 - 115.75 (11)	0.006	0.225	0.000	0.021	0.000	0.232	1.050	4.8.2
L12	115.75 - 110.75 (12)	0.006	0.272	0.000	0.022	0.000	0.279	1.050	4.8.2
L13	110.75 - 105.75 (13)	0.007	0.317	0.000	0.022	0.000	0.324	1.050	4.8.2
L14	105.75 - 98.5 (14)	0.007	0.352	0.000	0.023	0.000	0.360	1.050	4.8.2
L15	98.5 - 97 (15)	0.007	0.359	0.000	0.021	0.000	0.366	1.050	4.8.2

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L16	97 - 96.75 (16)	0.006	0.300	0.000	0.017	0.000	0.306	1.050	4.8.2
L17	96.75 - 93.98 (17)	0.006	0.315	0.000	0.017	0.000	0.321	1.050	4.8.2
L18	93.98 - 93.73 (18)	0.006	0.320	0.000	0.017	0.000	0.326	1.050	4.8.2
L19	93.73 - 91.5 (19)	0.006	0.328	0.000	0.017	0.000	0.334	1.050	4.8.2
L20	91.5 - 91.25 (20)	0.007	0.405	0.000	0.021	0.000	0.412	1.050	4.8.2
L21	91.25 - 90.25 (21)	0.007	0.409	0.000	0.021	0.000	0.417	1.050	4.8.2
L22	90.25 - 90 (22)	0.005	0.279	0.000	0.014	0.000	0.284	1.050	4.8.2
L23	90 - 89 (23)	0.005	0.282	0.000	0.014	0.000	0.287	1.050	4.8.2
L24	89 - 88.75 (24)	0.006	0.328	0.000	0.016	0.000	0.334	1.050	4.8.2
L25	88.75 - 83.75 (25)	0.006	0.352	0.000	0.017	0.000	0.358	1.050	4.8.2
L26	83.75 - 80.08 (26)	0.006	0.372	0.000	0.017	0.000	0.379	1.050	4.8.2
L27	80.08 - 79.83 (27)	0.005	0.310	0.000	0.014	0.000	0.316	1.050	4.8.2
L28	79.83 - 74.83 (28)	0.006	0.328	0.000	0.014	0.000	0.334	1.050	4.8.2
L29	74.83 - 73.5 (29)	0.006	0.330	0.000	0.014	0.000	0.336	1.050	4.8.2
L30	73.5 - 73.25 (30)	0.005	0.278	0.000	0.012	0.000	0.283	1.050	4.8.2
L31	73.25 - 71 (31)	0.005	0.287	0.000	0.012	0.000	0.292	1.050	4.8.2
L32	71 - 70.75 (32)	0.005	0.313	0.000	0.013	0.000	0.318	1.050	4.8.2
L33	70.75 - 65.75 (33)	0.006	0.328	0.000	0.014	0.000	0.334	1.050	4.8.2
L34	65.75 - 63 (34)	0.006	0.340	0.000	0.014	0.000	0.347	1.050	4.8.2
L35	63 - 62.75 (35)	0.006	0.358	0.000	0.015	0.000	0.364	1.050	4.8.2
L36	62.75 - 62.08 (36)	0.006	0.359	0.000	0.015	0.000	0.365	1.050	4.8.2
L37	62.08 - 61.83 (37)	0.007	0.418	0.000	0.017	0.000	0.426	1.050	4.8.2
L38	61.83 - 60.67 (38)	0.008	0.427	0.000	0.017	0.000	0.435	1.050	4.8.2
L39	60.67 - 60.42 (39)	0.008	0.427	0.000	0.017	0.000	0.435	1.050	4.8.2
L40	60.42 - 59 (40)	0.008	0.430	0.000	0.017	0.000	0.438	1.050	4.8.2
L41	59 - 58.75 (41)	0.007	0.394	0.000	0.016	0.000	0.401	1.050	4.8.2
L42	58.75 - 53.75 (42)	0.007	0.413	0.000	0.016	0.000	0.420	1.050	4.8.2
L43	53.75 - 48.5 (43)	0.007	0.413	0.000	0.016	0.000	0.421	1.050	4.8.2
L44	48.5 - 47.5 (44)	0.007	0.405	0.000	0.015	0.000	0.413	1.050	4.8.2
L45	47.5 - 45.75 (45)	0.008	0.407	0.000	0.015	0.000	0.414	1.050	4.8.2
L46	45.75 - 45.5 (46)	0.008	0.407	0.000	0.015	0.000	0.415	1.050	4.8.2
L47	45.5 - 45 (47)	0.008	0.407	0.000	0.015	0.000	0.415	1.050	4.8.2
L48	45 - 44.75 (48)	0.007	0.387	0.000	0.014	0.000	0.394	1.050	4.8.2
L49	44.75 - 43.5 (49)	0.007	0.388	0.000	0.014	0.000	0.396	1.050	4.8.2
L50	43.5 - 43.25 (50)	0.007	0.353	0.000	0.013	0.000	0.360	1.050	4.8.2
L51	43.25 - 38.25	0.007	0.361	0.000	0.013	0.000	0.368	1.050	4.8.2

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	(51)								
L52	38.25 - 33.25	0.007	0.369	0.000	0.013	0.000	0.376	1.050	4.8.2
	(52)								
L53	33.25 - 30.5	0.007	0.379	0.000	0.013	0.000	0.387	1.050	4.8.2
	(53)								
L54	30.5 - 30.25	0.007	0.379	0.000	0.013	0.000	0.387	1.050	4.8.2
	(54)								
L55	30.25 - 29.67	0.007	0.380	0.000	0.013	0.000	0.387	1.050	4.8.2
	(55)								
L56	29.67 - 29.42	0.009	0.471	0.000	0.016	0.000	0.481	1.050	4.8.2
	(56)								
L57	29.42 - 28	0.009	0.472	0.000	0.016	0.000	0.482	1.050	4.8.2
	(57)								
L58	28 - 27.75	0.008	0.400	0.000	0.014	0.000	0.408	1.050	4.8.2
	(58)								
L59	27.75 - 26.92	0.008	0.400	0.000	0.014	0.000	0.408	1.050	4.8.2
	(59)								
L60	26.92 - 26.67	0.008	0.416	0.000	0.014	0.000	0.425	1.050	4.8.2
	(60)								
L61	26.67 - 26.5	0.008	0.416	0.000	0.014	0.000	0.425	1.050	4.8.2
	(61)								
L62	26.5 - 26.25	0.009	0.434	0.000	0.015	0.000	0.443	1.050	4.8.2
	(62)								
L63	26.25 - 24.92	0.009	0.434	0.000	0.015	0.000	0.443	1.050	4.8.2
	(63)								
L64	24.92 - 24.67	0.009	0.454	0.000	0.015	0.000	0.463	1.050	4.8.2
	(64)								
L65	24.67 - 22.17	0.009	0.462	0.000	0.015	0.000	0.471	1.050	4.8.2
	(65)								
L66	22.17 - 21.92	0.008	0.424	0.000	0.014	0.000	0.433	1.050	4.8.2
	(66)								
L67	21.92 - 16.92	0.009	0.438	0.000	0.014	0.000	0.447	1.050	4.8.2
	(67)								
L68	16.92 - 11.92	0.009	0.446	0.000	0.014	0.000	0.455	1.050	4.8.2
	(68)								
L69	11.92 - 6.92	0.009	0.454	0.000	0.014	0.000	0.463	1.050	4.8.2
	(69)								
L70	6.92 - 3.25	0.010	0.461	0.000	0.014	0.000	0.471	1.050	4.8.2
	(70)								
L71	3.25 - 3 (71)	0.011	0.506	0.000	0.016	0.000	0.517	1.050	4.8.2
L72	3 - 2.75 (72)	0.016	0.739	0.000	0.023	0.000	0.755	1.050	4.8.2
L73	2.75 - 2.33	0.016	0.739	0.000	0.023	0.000	0.756	1.050	4.8.2
	(73)								
L74	2.33 - 2.08	0.014	0.673	0.000	0.021	0.000	0.688	1.050	4.8.2
	(74)								
L75	2.08 - 1.75	0.014	0.673	0.000	0.021	0.000	0.688	1.050	4.8.2
	(75)								
L76	1.75 - 1.4 (76)	0.016	0.749	0.000	0.023	0.000	0.765	1.050	4.8.2
L77	1.4 - 1.17 (77)	0.016	0.749	0.000	0.023	0.000	0.765	1.050	4.8.2
L78	1.17 - 0.25	0.016	0.749	0.000	0.023	0.000	0.766	1.050	4.8.2
	(78)								
L79	0.25 - 0 (79)	0.025	1.248	0.000	0.036	0.001	**1.274**	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	149 - 144	Pole	TP16.8649x16x0.1875	1	-2.56	609.65	7.4	Pass
L2	144 - 139	Pole	TP17.7297x16.8649x0.1875	2	-5.39	641.27	17.5	Pass
L3	139 - 134	Pole	TP18.5946x17.7297x0.1875	3	-5.72	672.88	29.0	Pass
L4	134 - 129	Pole	TP19.4594x18.5946x0.1875	4	-8.01	704.50	40.5	Pass
L5	129 - 124.5	Pole	TP20.2378x19.4594x0.1875	5	-11.48	732.95	54.2	Pass

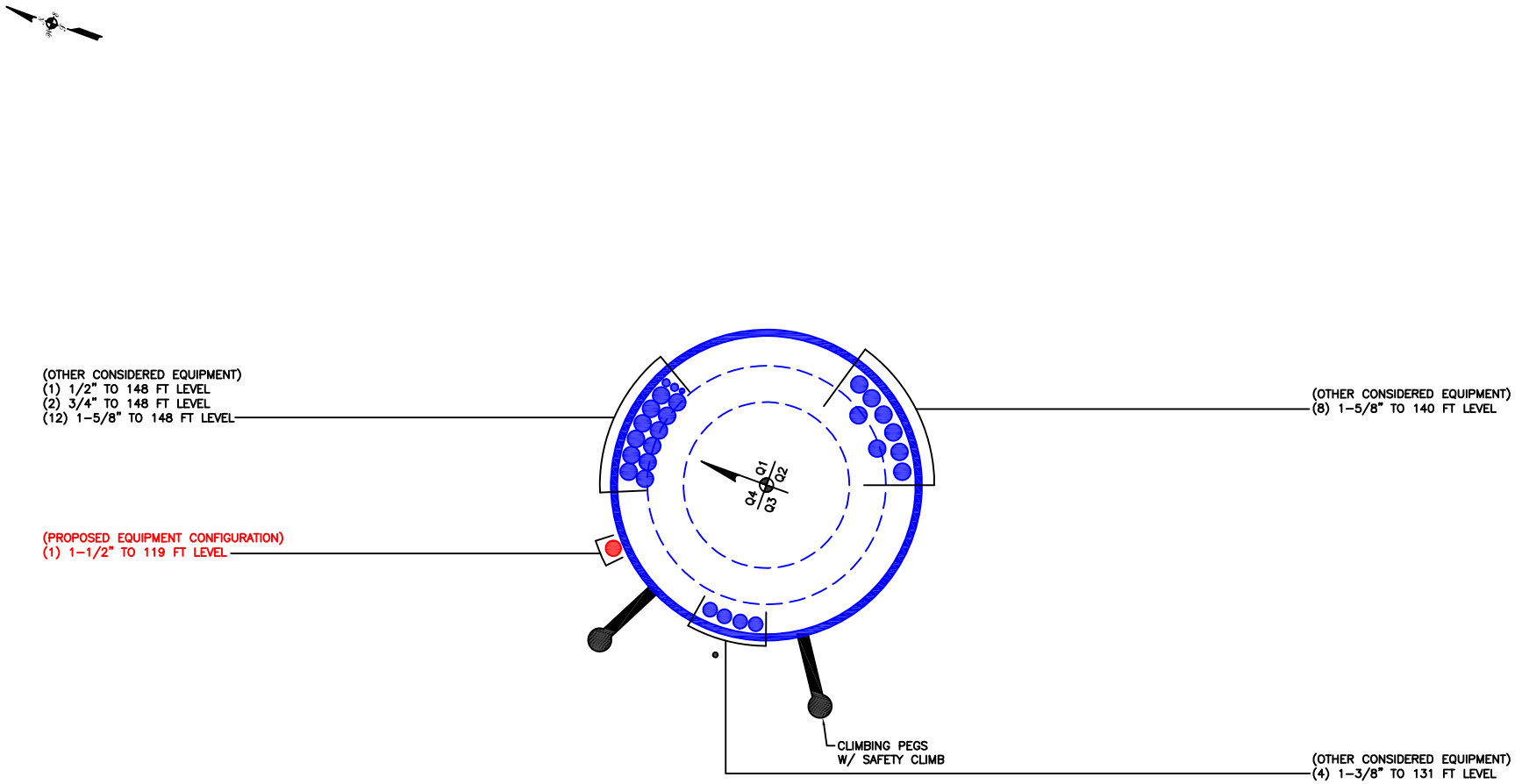
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L6	124.5 - 124.25	Pole	TP20.281x20.2378x0.35	6	-11.52	1360.03	29.1	Pass
L7	124.25 - 119.25	Pole	TP21.1459x20.281x0.3438	7	-12.13	1394.13	36.4	Pass
L8	119.25 - 118.5	Pole	TP21.2756x21.1459x0.3438	8	-15.21	1402.82	37.8	Pass
L9	118.5 - 118.25	Pole	TP21.3188x21.2756x0.7	9	-15.26	2813.94	19.7	Pass
L10	118.25 - 116	Pole	TP21.708x21.3188x0.6875	10	-15.70	2817.53	21.9	Pass
L11	116 - 115.75	Pole	TP21.7513x21.708x0.6875	11	-15.76	2823.32	22.1	Pass
L12	115.75 - 110.75	Pole	TP22.6161x21.7513x0.6625	12	-16.76	2835.60	26.6	Pass
L13	110.75 - 105.75	Pole	TP23.481x22.6161x0.6375	13	-17.78	2839.19	30.8	Pass
L14	105.75 - 98.5	Pole	TP24.735x23.481x0.6125	14	-18.56	2808.29	34.2	Pass
L15	98.5 - 97	Pole	TP24.6198x23.7546x0.675	15	-20.27	3151.14	34.8	Pass
L16	97 - 96.75	Pole	TP24.6631x24.6198x0.825	16	-20.34	3834.22	29.1	Pass
L17	96.75 - 93.98	Pole	TP25.1424x24.6631x0.8125	17	-21.08	3854.04	30.5	Pass
L18	93.98 - 93.73	Pole	TP25.1857x25.1424x0.8	18	-21.15	3803.45	31.1	Pass
L19	93.73 - 91.5	Pole	TP25.5716x25.1857x0.8	19	-21.74	3863.63	31.8	Pass
L20	91.5 - 91.25	Pole	TP25.6148x25.5716x0.6375	20	-21.81	3104.41	39.3	Pass
L21	91.25 - 90.25	Pole	TP25.7879x25.6148x0.6375	21	-22.04	3125.91	39.7	Pass
L22	90.25 - 90	Pole	TP25.8311x25.7879x0.975	22	-22.13	4724.87	27.1	Pass
L23	90 - 89	Pole	TP26.0042x25.8311x0.975	23	-22.44	4757.77	27.3	Pass
L24	89 - 88.75	Pole	TP26.0474x26.0042x0.825	24	-22.51	4056.90	31.8	Pass
L25	88.75 - 83.75	Pole	TP26.9127x26.0474x0.8	25	-23.92	4072.80	34.1	Pass
L26	83.75 - 80.08	Pole	TP27.5477x26.9127x0.775	26	-24.97	4045.26	36.1	Pass
L27	80.08 - 79.83	Pole	TP27.591x27.5477x0.95	27	-25.07	4934.31	30.1	Pass
L28	79.83 - 74.83	Pole	TP28.4562x27.591x0.925	28	-26.75	4965.00	31.8	Pass
L29	74.83 - 73.5	Pole	TP28.6864x28.4562x0.925	29	-27.22	5006.50	32.0	Pass
L30	73.5 - 73.25	Pole	TP28.7296x28.6864x1.125	30	-27.33	6054.61	26.9	Pass
L31	73.25 - 71	Pole	TP29.119x28.7296x1.1	31	-28.23	6008.93	27.8	Pass
L32	71 - 70.75	Pole	TP29.1623x29.119x1	32	-28.32	5490.60	30.3	Pass
L33	70.75 - 65.75	Pole	TP30.0275x29.1623x0.975	33	-30.16	5522.55	31.8	Pass
L34	65.75 - 63	Pole	TP30.5034x30.0275x0.95	34	-31.20	5473.72	33.0	Pass
L35	63 - 62.75	Pole	TP30.5466x30.5034x0.9	35	-31.30	5201.99	34.7	Pass
L36	62.75 - 62.08	Pole	TP30.6626x30.5466x0.9	36	-31.54	5222.33	34.8	Pass
L37	62.08 - 61.83	Pole	TP30.7058x30.6626x0.7625	37	-31.63	4451.35	40.6	Pass
L38	61.83 - 60.67	Pole	TP30.9065x30.7058x0.75	38	-32.01	4409.56	41.4	Pass
L39	60.67 - 60.42	Pole	TP30.9498x30.9065x0.75	39	-32.10	4415.88	41.4	Pass
L40	60.42 - 59	Pole	TP31.1955x30.9498x0.75	40	-32.57	4451.81	41.7	Pass
L41	59 - 58.75	Pole	TP31.2388x31.1955x0.825	41	-32.66	4891.89	38.2	Pass
L42	58.75 - 53.75	Pole	TP32.104x31.2388x0.8	42	-34.36	4882.50	40.0	Pass
L43	53.75 - 48.5	Pole	TP33.0125x32.104x0.8	43	-34.53	4895.99	40.1	Pass
L44	48.5 - 47.5	Pole	TP32.6823x31.6905x0.8625	44	-38.10	5350.67	39.3	Pass
L45	47.5 - 45.75	Pole	TP32.9841x32.6823x0.8625	45	-38.76	5401.43	39.5	Pass
L46	45.75 - 45.5	Pole	TP33.0272x32.9841x0.8625	46	-38.87	5408.68	39.5	Pass
L47	45.5 - 45	Pole	TP33.1135x33.0272x0.8625	47	-39.06	5423.18	39.5	Pass
L48	45 - 44.75	Pole	TP33.1566x33.1135x0.9125	48	-39.17	5736.35	37.6	Pass
L49	44.75 - 43.5	Pole	TP33.3722x33.1566x0.9125	49	-39.69	5774.70	37.7	Pass
L50	43.5 - 43.25	Pole	TP33.4153x33.3722x1.0125	50	-39.80	6396.32	34.3	Pass
L51	43.25 - 38.25	Pole	TP34.2777x33.4153x1	51	-41.99	6487.92	35.1	Pass
L52	38.25 - 33.25	Pole	TP35.1401x34.2777x0.9875	52	-44.20	6575.26	35.8	Pass
L53	33.25 - 30.5	Pole	TP35.6144x35.1401x0.9625	53	-45.43	6502.49	36.8	Pass
L54	30.5 - 30.25	Pole	TP35.6575x35.6144x0.9625	54	-45.55	6510.59	36.8	Pass
L55	30.25 - 29.67	Pole	TP35.7576x35.6575x0.9625	55	-45.82	6529.36	36.9	Pass
L56	29.67 - 29.42	Pole	TP35.8007x35.7576x0.7625	56	-45.92	5208.76	45.8	Pass
L57	29.42 - 28	Pole	TP36.0456x35.8007x0.7625	57	-46.50	5245.16	45.9	Pass
L58	28 - 27.75	Pole	TP36.0887x36.0456x0.9125	58	-46.62	6257.98	38.8	Pass
L59	27.75 - 26.92	Pole	TP36.2319x36.0887x0.9125	59	-46.98	6283.45	38.9	Pass
L60	26.92 - 26.67	Pole	TP36.275x36.2319x0.875	60	-47.09	6038.98	40.4	Pass
L61	26.67 - 26.5	Pole	TP36.3043x36.275x0.875	61	-47.16	6043.98	40.5	Pass
L62	26.5 - 26.25	Pole	TP36.3474x36.3043x0.8375	62	-47.26	5798.12	42.1	Pass
L63	26.25 - 24.92	Pole	TP36.5768x36.3474x0.8375	63	-47.78	5835.57	42.2	Pass
L64	24.92 - 24.67	Pole	TP36.62x36.5768x0.8	64	-47.89	5586.85	44.1	Pass
L65	24.67 - 22.17	Pole	TP37.0512x36.62x0.7875	65	-48.91	5567.68	44.9	Pass
L66	22.17 - 21.92	Pole	TP37.0943x37.0512x0.8625	66	-49.03	6092.57	41.2	Pass
L67	21.92 - 16.92	Pole	TP37.9567x37.0943x0.8375	67	-51.23	6060.87	42.6	Pass
L68	16.92 - 11.92	Pole	TP38.8191x37.9567x0.825	68	-53.46	6111.14	43.4	Pass
L69	11.92 - 6.92	Pole	TP39.6815x38.8191x0.8125	69	-55.67	6157.13	44.1	Pass
L70	6.92 - 3.25	Pole	TP40.3144x39.6815x0.8	70	-57.23	6163.08	44.9	Pass
L71	3.25 - 3	Pole	TP40.3576x40.3144x0.725	71	-57.33	5601.99	49.2	Pass
L72	3 - 2.75	Pole	TP40.4007x40.3576x0.4875	72	-57.39	3793.52	71.9	Pass
L73	2.75 - 2.33	Pole	TP40.4731x40.4007x0.4875	73	-57.51	3800.41	72.0	Pass
L74	2.33 - 2.08	Pole	TP40.5162x40.4731x0.5375	74	-57.58	4189.48	65.5	Pass
L75	2.08 - 1.75	Pole	TP40.5732x40.5162x0.5375	75	-57.68	4195.44	65.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L76	1.75 - 1.4	Pole	TP40.6335x40.5732x0.4813	76	-57.77	3767.33	72.9	Pass
L77	1.4 - 1.17	Pole	TP40.6732x40.6335x0.4813	77	-57.83	3771.04	72.9	Pass
L78	1.17 - 0.25	Pole	TP40.8319x40.6732x0.4813	78	-58.07	3785.93	72.9	Pass
L79	0.25 - 0	Pole	TP40.875x40.8319x0.3125	79	-58.13	2471.31	121.3	Fail
							Summary	
						Pole (L79)	121.3	Fail
						RATING =	**121.3**	**Fail**

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

APPENDIX B

BASE LEVEL DRAWING


(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 148 FT LEVEL
(2) 3/4" TO 148 FT LEVEL
(12) 1-5/8" TO 148 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-1/2" TO 119 FT LEVEL
Q1
Q2
Q3
Q4
(OTHER CONSIDERED EQUIPMENT)
(8) 1-5/8" TO 140 FT LEVEL
CLIMBING PEGS
W/ SAFETY CLIMB
(OTHER CONSIDERED EQUIPMENT)
(4) 1-3/8" TO 131 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 857525

Work Order: 1966691

CROWN CASTLE

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	149	50.5	3.5	18	16	24.735	0.1875	Auto	A572-65
2	102	53.5	4.75	18	23.75	33.0125	0.25	Auto	A572-65
3	53.25	53.25	0	18	31.69	40.875	0.3125	Auto	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	3	28	plate	CFP-055125	3		E1									E1					E1		
2	28	45.75	plate	CFP-055125	1									E1									
3	45.75	63	plate	CFP-055125	3		E1						E1						E1				
4	63	90.25	plate	CFP-055125	2					E1						E1							
5	91.5	118.5	plate	CFP-040150	3		E1						E1						E1				
6	26.5	43.5	plate	CCI-SFP-045100	1																		E2
7	51.5	73.5	plate	CCI-SFP-045100	1	E2																	
8	89	97	plate	CCI-SFP-040075	3	E2						E2						E2					
9	116	124.5	plate	CCI-SFP-040075	3						E2						E2						E2
10	3	30.5	plate	CFP-055125	1							E1											
11	24.92	45.75	plate	CFP-055125	2			E1												E1			
12	60.67	90.25	plate	CFP-055125	1																	E1	
13	22.17	45	plate	CCI-SFP-045100	2						E2						E1						
14	47.92	73.5	plate	CCI-SFP-045100	2							E2						E1					
15	3.25	24.92	plate	CCI-SFP-065125	2			E3												E3			
16	3.25	22.17	plate	CCI-SFP-065125	2						E3						E3						
17	28	59	plate	CCI-SFP-060100	2				E3						E3								
18	29.67	60.67	plate	CCI-SFP-060100	1																	E3	
19	30.5	47.92	plate	CCI-SFP-060100	1							E3											
20	26.92	47.92	plate	CCI-SFP-060100	1													E3					
21	59	80.08	plate	CCI-SFP-040075	2				E3						E3								
22	62.08	80.08	plate	CCI-SFP-040075	3						E3						E3						E3
23	71	94	plate	CCI-SFP-040075	3			E3						E3						E3			
24	63	91.5	plate	CCI-SFP-040075	3		E3						E3						E3				
25	94.08	116	plate	CCI-SFP-040075	3						E3						E3						E3
26	1.75	3.25	plate	TS 1"x3.5"	4				E3				E3						E3			E3	
27	2.33	3.25	plate	TS 1.25"x1"	4	E1				E1					E1				E1				
28	1.42	2.33	plate	TS 1.25"x2.25"	4	E1				E1					E1				E1				
29	0.25	1.42	plate	TS 1.25"x3.5"	4	E1				E1					E1				E1				
30	0.25	1.75	plate	TS 1"x3.5"-bottom	4				E3				E3						E3			E3	

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in2)	Bolt Hole Size (in)	Reinforcement Material
1	5.5	1.25	6.875	0.625	PC 8.8 - M20 (100)	30	PC 8.8 - M20 (100)	30.000	18.000	5.313	1.1875	A572-65
2	5.5	1.25	6.875	0.625	PC 8.8 - M20 (100)	30	PC 8.8 - M20 (100)	30.000	18.000	5.313	1.1875	A572-65
3	5.5	1.25	6.875	0.625	PC 8.8 - M20 (100)	30	PC 8.8 - M20 (100)	30.000	18.000	5.313	1.1875	A572-65
4	5.5	1.25	6.875	0.625	PC 8.8 - M20 (100)	30	PC 8.8 - M20 (100)	30.000	18.000	5.313	1.1875	A572-65
5	4	1.5	6	0.75	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	18.000	4.125	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	4.5	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
8	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
9	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
10	5.5	1.25	6.875	0.625	PC 8.8 - M20 (100)	30	PC 8.8 - M20 (100)	30.000	18.000	5.313	1.1875	A572-65
11	5.5	1.25	6.875	0.625	PC 8.8 - M20 (100)	30	PC 8.8 - M20 (100)	30.000	18.000	5.313	1.1875	A572-65
12	5.5	1.25	6.875	0.625	PC 8.8 - M20 (100)	30	PC 8.8 - M20 (100)	30.000	18.000	5.313	1.1875	A572-65
13	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
14	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
15	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	33	PC 8.8 - M20 (100)	33.000	19.000	6.563	1.1875	A572-65
16	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	33	PC 8.8 - M20 (100)	33.000	19.000	6.563	1.1875	A572-65
17	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
18	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
19	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
20	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
21	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
22	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
23	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
24	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
25	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
26	1	3.5	3.5	1.75	Welded	n/a	Welded	n/a	0.000	3.500	0.0000	A572-65
27	1.25	1	1.25	0.5	Welded	n/a	Welded	n/a	0.000	1.250	0.0000	A572-65
28	1.25	2.25	2.8125	1.125	Welded	n/a	Welded	n/a	0.000	2.813	0.0000	A572-65
29	1.25	3.5	4.375	1.75	Welded	n/a	Welded	n/a	0.000	4.375	0.0000	A572-65
30	1	3.5	3.5	1.75	Welded	n/a	Welded	n/a	0.000	3.500	0.0000	A572-50

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)
CFP-055125	Top	10	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	10	N	3	3	-	-	-	-	-	-	-	-	-
CFP-040150	Top	6	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	6	N	3	3	-	-	-	-	-	-	-	-	-
TS 1"x3.5"	Top	-	-	-	-	70	None	-	-	-	-	54	0.313	-
	Bottom	-	-	-	-	70	None	-	-	-	-	12	0.900	-
TS 1.25"x1"	Top	-	-	-	-	70	None	-	-	-	-	36	0.313	-
	Bottom	-	-	-	-	70	None	-	-	-	-	36	0.313	-
TS 1.25"x2.25"	Top	-	-	-	-	70	None	-	-	-	-	36	0.313	-
	Bottom	-	-	-	-	70	None	-	-	-	-	36	0.313	-
TS 1.25"x3.5"	Top	-	-	-	-	70	None	-	-	-	-	36	0.313	-
	Bottom	-	-	-	-	70	None	-	-	-	-	14	0.900	-
TS 1"x3.5"-bottom	Top	-	-	-	-	70	None	-	-	-	-	54	0.313	-
	Bottom	-	-	-	-	70	None	-	-	-	-	12	0.900	-

TNX Geometry Input

Increment (ft): 5 Export to TNX

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	149 - 144	5		18	16.000	16.865	0.1875	A572-65	1.000
2	144 - 139	5		18	16.865	17.730	0.1875	A572-65	1.000
3	139 - 134	5		18	17.730	18.595	0.1875	A572-65	1.000
4	134 - 129	5		18	18.595	19.459	0.1875	A572-65	1.000
5	129 - 124.5	4.5		18	19.459	20.238	0.1875	A572-65	1.000
6	124.5 - 124.25	0.25		18	20.238	20.281	0.35	A572-65	0.947
7	124.25 - 119.25	5		18	20.281	21.146	0.34375	A572-65	0.946
8	119.25 - 118.5	0.75		18	21.146	21.276	0.34375	A572-65	0.944
9	118.5 - 118.25	0.25		18	21.276	21.319	0.7	A572-65	0.864
10	118.25 - 116	2.25		18	21.319	21.708	0.6875	A572-65	0.868
11	116 - 115.75	0.25		18	21.708	21.751	0.6875	A572-65	0.867
12	115.75 - 110.75	5		18	21.751	22.616	0.6625	A572-65	0.874
13	110.75 - 105.75	5		18	22.616	23.481	0.6375	A572-65	0.884
14	105.75 - 102	7.25	3.5	18	23.481	24.735	0.6125	A572-65	0.902
15	102 - 97	5		18	23.755	24.620	0.675	A572-65	0.903
16	97 - 96.75	0.25		18	24.620	24.663	0.825	A572-65	0.887
17	96.75 - 93.98	2.77		18	24.663	25.142	0.8125	A572-65	0.889
18	93.98 - 93.73	0.25		18	25.142	25.186	0.8	A572-65	0.901
19	93.73 - 91.5	2.23		18	25.186	25.572	0.8	A572-65	0.892
20	91.5 - 91.25	0.25		18	25.572	25.615	0.6375	A572-65	0.932
21	91.25 - 90.25	1		18	25.615	25.788	0.6375	A572-65	0.929
22	90.25 - 90	0.25		18	25.788	25.831	0.975	A572-65	0.883
23	90 - 89	1		18	25.831	26.004	0.975	A572-65	0.879
24	89 - 88.75	0.25		18	26.004	26.047	0.825	A572-65	0.895
25	88.75 - 83.75	5		18	26.047	26.913	0.8	A572-65	0.902
26	83.75 - 80.08	3.67		18	26.913	27.548	0.775	A572-65	0.915
27	80.08 - 79.83	0.25		18	27.548	27.591	0.95	A572-65	0.938
28	79.83 - 74.83	5		18	27.591	28.456	0.925	A572-65	0.940
29	74.83 - 73.5	1.33		18	28.456	28.686	0.925	A572-65	0.935
30	73.5 - 73.25	0.25		18	28.686	28.730	1.125	A572-65	0.910
31	73.25 - 71	2.25		18	28.730	29.119	1.1	A572-65	0.920
32	71 - 70.75	0.25		18	29.119	29.162	1	A572-65	0.907
33	70.75 - 65.75	5		18	29.162	30.027	0.975	A572-65	0.909
34	65.75 - 63	2.75		18	30.027	30.503	0.95	A572-65	0.922
35	63 - 62.75	0.25		18	30.503	30.547	0.9	A572-65	0.945
36	62.75 - 62.08	0.67		18	30.547	30.663	0.9	A572-65	0.943
37	62.08 - 61.83	0.25		18	30.663	30.706	0.7625	A572-65	0.982
38	61.83 - 60.67	1.16		18	30.706	30.907	0.75	A572-65	0.994
39	60.67 - 60.42	0.25		18	30.907	30.950	0.75	A572-65	0.980
40	60.42 - 59	1.42		18	30.950	31.196	0.75	A572-65	0.975
41	59 - 58.75	0.25		18	31.196	31.239	0.825	A572-65	0.907
42	58.75 - 53.75	5		18	31.239	32.104	0.8	A572-65	0.917
43	53.75 - 53.25	5.25	4.75	18	32.104	33.013	0.8	A572-65	0.915
44	53.25 - 47.5	5.75		18	31.691	32.682	0.8625	A572-65	0.950
45	47.5 - 45.75	1.75		18	32.682	32.984	0.8625	A572-65	0.944
46	45.75 - 45.5	0.25		18	32.984	33.027	0.8625	A572-65	0.943
47	45.5 - 45	0.5		18	33.027	33.113	0.8625	A572-65	0.942
48	45 - 44.75	0.25		18	33.113	33.157	0.9125	A572-65	0.987
49	44.75 - 43.5	1.25		18	33.157	33.372	0.9125	A572-65	0.983
50	43.5 - 43.25	0.25		18	33.372	33.415	1.0125	A572-65	0.931
51	43.25 - 38.25	5		18	33.415	34.278	1	A572-65	0.926
52	38.25 - 33.25	5		18	34.278	35.140	0.9875	A572-65	0.922
53	33.25 - 30.5	2.75		18	35.140	35.614	0.9625	A572-65	0.937
54	30.5 - 30.25	0.25		18	35.614	35.658	0.9625	A572-65	0.944
55	30.25 - 29.67	0.58		18	35.658	35.758	0.9625	A572-65	0.942
56	29.67 - 29.42	0.25		18	35.758	35.801	0.7625	A572-65	1.058
57	29.42 - 28	1.42		18	35.801	36.046	0.7625	A572-65	1.053
58	28 - 27.75	0.25		18	36.046	36.089	0.9125	A572-65	0.945
59	27.75 - 26.92	0.83		18	36.089	36.232	0.9125	A572-65	0.942
60	26.92 - 26.67	0.25		18	36.232	36.275	0.875	A572-65	0.920
61	26.67 - 26.5	0.17		18	36.275	36.304	0.875	A572-65	0.919
62	26.5 - 26.25	0.25		18	36.304	36.347	0.8375	A572-65	0.911
63	26.25 - 24.92	1.33		18	36.347	36.577	0.8375	A572-65	0.908
64	24.92 - 24.67	0.25		18	36.577	36.620	0.8	A572-65	0.976
65	24.67 - 22.17	2.5		18	36.620	37.051	0.7875	A572-65	0.984
66	22.17 - 21.92	0.25		18	37.051	37.094	0.8625	A572-65	0.973
67	21.92 - 16.92	5		18	37.094	37.957	0.8375	A572-65	0.987
68	16.92 - 11.92	5		18	37.957	38.819	0.825	A572-65	0.987
69	11.92 - 6.92	5		18	38.819	39.681	0.8125	A572-65	0.988
70	6.92 - 3.25	3.67		18	39.681	40.314	0.8	A572-65	0.993
71	3.25 - 3	0.25		18	40.314	40.358	0.725	A572-65	0.945
72	3 - 2.75	0.25		18	40.358	40.401	0.4875	A572-65	0.951
73	2.75 - 2.33	0.42		18	40.401	40.473	0.4875	A572-65	0.951
74	2.33 - 2.08	0.25		18	40.473	40.516	0.5375	A572-65	0.955
75	2.08 - 1.75	0.33		18	40.516	40.573	0.5375	A572-65	0.954
76	1.75 - 1.4	0.35		18	40.573	40.634	0.48125	A572-65	0.937
77	1.4 - 1.17	0.23		18	40.634	40.673	0.48125	A572-65	0.937
78	1.17 - 0.25	0.92		18	40.673	40.832	0.48125	A572-65	0.936
79	0.25 - 0	0.25		18	40.832	40.875	0.3125	A572-65	1.000

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	149 - 144	2.56	18.45	3.78
2	144 - 139	5.39	48.36	8.12
3	139 - 134	5.72	89.61	8.38
4	134 - 129	8.01	135.57	11.21
5	129 - 124.5	11.48	194.04	13.60
6	124.5 - 124.25	11.52	197.44	13.61
7	124.25 - 119.25	12.13	266.15	13.88
8	119.25 - 118.5	15.21	278.09	17.07
9	118.5 - 118.25	15.26	282.35	17.08
10	118.25 - 116	15.70	320.94	17.23
11	116 - 115.75	15.76	325.25	17.24
12	115.75 - 110.75	16.76	412.22	17.56
13	110.75 - 105.75	17.78	500.75	17.87
14	105.75 - 102	18.56	568.14	18.10
15	102 - 97	20.27	659.57	18.48
16	97 - 96.75	20.34	664.18	18.48
17	96.75 - 93.98	21.08	715.62	18.67
18	93.98 - 93.73	21.15	720.28	18.68
19	93.73 - 91.5	21.74	762.09	18.83
20	91.5 - 91.25	21.81	766.79	18.84
21	91.25 - 90.25	22.04	785.65	18.90
22	90.25 - 90	22.13	790.38	18.93
23	90 - 89	22.44	809.35	19.04
24	89 - 88.75	22.51	814.12	19.07
25	88.75 - 83.75	23.92	910.21	19.39
26	83.75 - 80.08	24.97	981.76	19.63
27	80.08 - 79.83	25.06	986.67	19.65
28	79.83 - 74.83	26.75	1086.22	20.55
29	74.83 - 73.5	27.22	1113.63	20.70
30	73.5 - 73.25	27.33	1118.81	20.73
31	73.25 - 71	28.23	1165.74	21.01
32	71 - 70.75	28.32	1170.99	21.03
33	70.75 - 65.75	30.16	1277.52	21.61
34	65.75 - 63	31.20	1337.15	21.79
35	63 - 62.75	31.30	1342.60	21.80
36	62.75 - 62.08	31.54	1357.21	21.85
37	62.08 - 61.83	31.63	1362.68	21.86
38	61.83 - 60.67	32.01	1388.06	21.94
39	60.67 - 60.42	32.10	1393.54	21.94
40	60.42 - 59	32.57	1424.75	22.04
41	59 - 58.75	32.66	1430.25	22.04
42	58.75 - 53.75	34.36	1541.15	22.34
43	53.75 - 53.25	34.53	1552.32	22.36
44	53.25 - 47.5	38.10	1682.24	22.87
45	47.5 - 45.75	38.76	1722.38	23.06
46	45.75 - 45.5	38.87	1728.14	23.05
47	45.5 - 45	39.06	1739.67	23.08
48	45 - 44.75	39.17	1745.44	23.10
49	44.75 - 43.5	39.69	1774.39	23.25
50	43.5 - 43.25	39.80	1780.20	23.26
51	43.25 - 38.25	41.99	1897.79	23.80
52	38.25 - 33.25	44.20	2017.39	24.08
53	33.25 - 30.5	45.43	2083.75	24.23
54	30.5 - 30.25	45.55	2089.80	24.22
55	30.25 - 29.67	45.82	2103.86	24.26
56	29.67 - 29.42	45.92	2109.92	24.27
57	29.42 - 28	46.50	2144.41	24.35
58	28 - 27.75	46.62	2150.49	24.34
59	27.75 - 26.92	46.98	2170.71	24.39
60	26.92 - 26.67	47.09	2176.80	24.39
61	26.67 - 26.5	47.16	2180.95	24.40
62	26.5 - 26.25	47.26	2187.05	24.41
63	26.25 - 24.92	47.78	2219.54	24.49
64	24.92 - 24.67	47.89	2225.66	24.48
65	24.67 - 22.17	48.91	2286.96	24.60
66	22.17 - 21.92	49.03	2293.11	24.59
67	21.92 - 16.92	51.23	2416.52	24.80
68	16.92 - 11.92	53.46	2540.86	24.98
69	11.92 - 6.92	55.67	2666.04	25.14
70	6.92 - 3.25	57.23	2758.45	25.27
71	3.25 - 3	57.33	2764.76	25.25
72	3 - 2.75	57.39	2771.07	25.26
73	2.75 - 2.33	57.51	2781.67	25.27
74	2.33 - 2.08	57.58	2787.98	25.26
75	2.08 - 1.75	57.68	2796.32	25.27
76	1.75 - 1.4	57.77	2805.16	25.27
77	1.4 - 1.17	57.83	2810.97	25.27
78	1.17 - 0.25	58.07	2834.21	25.30
79	0.25 - 0	58.13	1889.55	25.28

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
149 - 144	Pole	TP16.865x16x0.1875	Pole	7.4%	Pass
144 - 139	Pole	TP17.73x16.865x0.1875	Pole	17.5%	Pass
139 - 134	Pole	TP18.595x17.73x0.1875	Pole	29.0%	Pass
134 - 129	Pole	TP19.459x18.595x0.1875	Pole	40.5%	Pass
129 - 124.5	Pole	TP20.238x19.459x0.1875	Pole	54.2%	Pass
124.5 - 124.25	Pole + Reinf.	TP20.281x20.238x0.35	Reinf. 9 Bolt-Shaft Bearing	54.0%	Pass
124.25 - 119.25	Pole + Reinf.	TP21.146x20.281x0.3438	Reinf. 9 Tension Rupture	66.4%	Pass
119.25 - 118.5	Pole + Reinf.	TP21.276x21.146x0.3438	Reinf. 9 Tension Rupture	68.9%	Pass
118.5 - 118.25	Pole + Reinf.	TP21.319x21.276x0.7	Reinf. 5 Bolt-Shaft Bearing	51.0%	Pass
118.25 - 116	Pole + Reinf.	TP21.708x21.319x0.6875	Reinf. 5 Tension Rupture	41.2%	Pass
116 - 115.75	Pole + Reinf.	TP21.751x21.708x0.6875	Reinf. 5 Tension Rupture	41.7%	Pass
115.75 - 110.75	Pole + Reinf.	TP22.616x21.751x0.6625	Reinf. 5 Tension Rupture	50.1%	Pass
110.75 - 105.75	Pole + Reinf.	TP23.481x22.616x0.6375	Reinf. 5 Tension Rupture	57.9%	Pass
105.75 - 102	Pole + Reinf.	TP24.735x23.481x0.6125	Reinf. 5 Tension Rupture	63.4%	Pass
102 - 97	Pole + Reinf.	TP24.62x23.755x0.675	Reinf. 5 Tension Rupture	64.8%	Pass
97 - 96.75	Pole + Reinf.	TP24.663x24.62x0.825	Reinf. 5 Tension Rupture	54.5%	Pass
96.75 - 93.98	Pole + Reinf.	TP25.142x24.663x0.8125	Reinf. 5 Tension Rupture	57.2%	Pass
93.98 - 93.73	Pole + Reinf.	TP25.186x25.142x0.8	Reinf. 5 Tension Rupture	57.4%	Pass
93.73 - 91.5	Pole + Reinf.	TP25.572x25.186x0.8	Reinf. 5 Bolt-Shaft Bearing	61.6%	Pass
91.5 - 91.25	Pole + Reinf.	TP25.615x25.572x0.6375	Reinf. 24 Tension Rupture	70.9%	Pass
91.25 - 90.25	Pole + Reinf.	TP25.788x25.615x0.6375	Reinf. 24 Tension Rupture	72.0%	Pass
90.25 - 90	Pole + Reinf.	TP25.831x25.788x0.975	Reinf. 24 Tension Rupture	49.2%	Pass
90 - 89	Pole + Reinf.	TP26.004x25.831x0.975	Reinf. 24 Tension Rupture	49.9%	Pass
89 - 88.75	Pole + Reinf.	TP26.047x26.004x0.825	Reinf. 24 Tension Rupture	57.8%	Pass
88.75 - 83.75	Pole + Reinf.	TP26.913x26.047x0.8	Reinf. 24 Tension Rupture	61.9%	Pass
83.75 - 80.08	Pole + Reinf.	TP27.548x26.913x0.775	Reinf. 24 Tension Rupture	64.7%	Pass
80.08 - 79.83	Pole + Reinf.	TP27.591x27.548x0.95	Reinf. 23 Tension Rupture	55.8%	Pass
79.83 - 74.83	Pole + Reinf.	TP28.456x27.591x0.925	Reinf. 23 Tension Rupture	59.0%	Pass
74.83 - 73.5	Pole + Reinf.	TP28.686x28.456x0.925	Reinf. 23 Tension Rupture	59.9%	Pass
73.5 - 73.25	Pole + Reinf.	TP28.73x28.686x1.125	Reinf. 23 Tension Rupture	50.2%	Pass
73.25 - 71	Pole + Reinf.	TP29.119x28.73x1.1	Reinf. 23 Tension Rupture	51.5%	Pass
71 - 70.75	Pole + Reinf.	TP29.162x29.119x1	Reinf. 24 Tension Rupture	56.3%	Pass
70.75 - 65.75	Pole + Reinf.	TP30.027x29.162x0.975	Reinf. 24 Tension Rupture	59.2%	Pass
65.75 - 63	Pole + Reinf.	TP30.503x30.027x0.95	Reinf. 24 Tension Rupture	60.8%	Pass
63 - 62.75	Pole + Reinf.	TP30.547x30.503x0.9	Reinf. 22 Tension Rupture	64.3%	Pass
62.75 - 62.08	Pole + Reinf.	TP30.663x30.547x0.9	Reinf. 22 Tension Rupture	64.7%	Pass
62.08 - 61.83	Pole + Reinf.	TP30.706x30.663x0.7625	Reinf. 21 Tension Rupture	73.0%	Pass
61.83 - 60.67	Pole + Reinf.	TP30.907x30.706x0.75	Reinf. 21 Tension Rupture	73.7%	Pass
60.67 - 60.42	Pole + Reinf.	TP30.95x30.907x0.75	Reinf. 21 Tension Rupture	73.8%	Pass
60.42 - 59	Pole + Reinf.	TP31.196x30.95x0.75	Reinf. 21 Tension Rupture	74.7%	Pass
59 - 58.75	Pole + Reinf.	TP31.239x31.196x0.825	Reinf. 14 Tension Rupture	66.5%	Pass
58.75 - 53.75	Pole + Reinf.	TP32.104x31.239x0.8	Reinf. 14 Tension Rupture	69.1%	Pass
53.75 - 53.25	Pole + Reinf.	TP33.013x32.104x0.8	Reinf. 14 Tension Rupture	69.4%	Pass
53.25 - 47.5	Pole + Reinf.	TP32.682x31.691x0.8625	Reinf. 3 Tension Rupture	66.3%	Pass
47.5 - 45.75	Pole + Reinf.	TP32.984x32.682x0.8625	Reinf. 3 Tension Rupture	67.1%	Pass
45.75 - 45.5	Pole + Reinf.	TP33.027x32.984x0.8625	Reinf. 11 Tension Rupture	65.6%	Pass
45.5 - 45	Pole + Reinf.	TP33.113x33.027x0.8625	Reinf. 11 Tension Rupture	65.8%	Pass
45 - 44.75	Pole + Reinf.	TP33.157x33.113x0.9125	Reinf. 18 Tension Rupture	63.6%	Pass
44.75 - 43.5	Pole + Reinf.	TP33.372x33.157x0.9125	Reinf. 18 Tension Rupture	64.1%	Pass
43.5 - 43.25	Pole + Reinf.	TP33.415x33.372x1.0125	Reinf. 6 Tension Rupture	61.4%	Pass
43.25 - 38.25	Pole + Reinf.	TP34.278x33.415x1	Reinf. 6 Tension Rupture	63.3%	Pass
38.25 - 33.25	Pole + Reinf.	TP35.14x34.278x0.9875	Reinf. 6 Tension Rupture	65.1%	Pass
33.25 - 30.5	Pole + Reinf.	TP35.614x35.14x0.9625	Reinf. 6 Tension Rupture	66.1%	Pass
30.5 - 30.25	Pole + Reinf.	TP35.658x35.614x0.9625	Reinf. 6 Tension Rupture	65.9%	Pass
30.25 - 29.67	Pole + Reinf.	TP35.758x35.658x0.9625	Reinf. 6 Tension Rupture	66.1%	Pass
29.67 - 29.42	Pole + Reinf.	TP35.801x35.758x0.7625	Reinf. 11 Tension Rupture	76.9%	Pass
29.42 - 28	Pole + Reinf.	TP36.046x35.801x0.7625	Reinf. 11 Tension Rupture	77.3%	Pass
28 - 27.75	Pole + Reinf.	TP36.089x36.046x0.9125	Reinf. 13 Tension Rupture	71.3%	Pass
27.75 - 26.92	Pole + Reinf.	TP36.232x36.089x0.9125	Reinf. 13 Tension Rupture	71.6%	Pass
26.92 - 26.67	Pole + Reinf.	TP36.275x36.232x0.875	Reinf. 13 Tension Rupture	72.5%	Pass
26.67 - 26.5	Pole + Reinf.	TP36.304x36.275x0.875	Reinf. 13 Tension Rupture	72.5%	Pass
26.5 - 26.25	Pole + Reinf.	TP36.347x36.304x0.8375	Reinf. 13 Tension Rupture	73.2%	Pass
26.25 - 24.92	Pole + Reinf.	TP36.577x36.347x0.8375	Reinf. 13 Tension Rupture	73.6%	Pass
24.92 - 24.67	Pole + Reinf.	TP36.62x36.577x0.8	Reinf. 1 Tension Rupture	72.7%	Pass
24.67 - 22.17	Pole + Reinf.	TP37.051x36.62x0.7875	Reinf. 1 Tension Rupture	73.5%	Pass
22.17 - 21.92	Pole + Reinf.	TP37.094x37.051x0.8625	Reinf. 1 Tension Rupture	66.3%	Pass
21.92 - 16.92	Pole + Reinf.	TP37.957x37.094x0.8375	Reinf. 1 Tension Rupture	67.8%	Pass
16.92 - 11.92	Pole + Reinf.	TP38.819x37.957x0.825	Reinf. 1 Tension Rupture	69.1%	Pass
11.92 - 6.92	Pole + Reinf.	TP39.681x38.819x0.8125	Reinf. 1 Tension Rupture	70.3%	Pass
6.92 - 3.25	Pole + Reinf.	TP40.314x39.681x0.8	Reinf. 1 Tension Rupture	71.2%	Pass
3.25 - 3	Pole + Reinf.	TP40.358x40.314x0.725	Reinf. 1 Tension Rupture	79.4%	Pass
3 - 2.75	Pole + Reinf.	TP40.401x40.358x0.4875	Reinf. 26 Tension Yield	98.2%	Pass
2.75 - 2.33	Pole + Reinf.	TP40.473x40.401x0.4875	Reinf. 26 Tension Yield	98.2%	Pass
2.33 - 2.08	Pole + Reinf.	TP40.516x40.473x0.5375	Reinf. 26 Tension Yield	89.4%	Pass
2.08 - 1.75	Pole + Reinf.	TP40.573x40.516x0.5375	Reinf. 26 Tension Yield	89.4%	Pass
1.75 - 1.4	Pole + Reinf.	TP40.634x40.573x0.4813	Reinf. 29 Tension Yield	98.9%	Pass
1.4 - 1.17	Pole + Reinf.	TP40.673x40.634x0.4813	Reinf. 29 Tension Yield	98.9%	Pass
1.17 - 0.25	Pole + Reinf.	TP40.832x40.673x0.4813	Reinf. 29 Tension Yield	99.1%	Pass
0.25 - 0	Pole	TP40.875x40.832x0.3125	Pole	81.5%	Pass
				Summary	
			Pole	81.5%	Pass
			Reinforcement	99.1%	Pass
			Overall	99.1%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in⁴)			Area (in²)			% Capacity*	Axial (kips)																														
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	R22	R23	R24	R25	R26	R27	R28	R29	R30
149 - 144	349	n/a	349	9.92	n/a	9.92	7.4%																															
144 - 139	406	n/a	406	10.44	n/a	10.44	17.5%																															
139 - 134	469	n/a	469	10.95	n/a	10.95	29.0%																															
134 - 129	538	n/a	538	11.47	n/a	11.47	40.5%																															
129 - 124.5	606	n/a	606	11.93	n/a	11.93	54.2%																															
124.5 - 124.25	610	504	1114	11.96	9.00	20.96	29.6%									68.8																						
124.25 - 119.25	692	546	1238	12.47	9.00	21.47	37.7%									86.5																						
119.25 - 118.5	705	552	1257	12.55	9.00	21.55	39.3%									89.8																						
118.5 - 118.25	709	1739	2449	12.58	27.00	39.58	20.5%					97.0				47.0																						
118.25 - 116	749	1799	2548	12.81	27.00	39.81	22.9%					107.6				52.1																						
116 - 115.75	754	1806	2560	12.83	27.00	39.83	23.1%					108.7																				52.7						
115.75 - 110.75	848	1943	2791	13.35	27.00	40.35	28.2%					130.7																				63.4						
110.75 - 105.75	950	2085	3034	13.86	27.00	40.86	33.9%					151.0																				73.3						
105.75 - 102	1032	2194	3226	14.25	27.00	41.25	36.5%					165.2																				80.2						
102 - 97	1450	2279	3729	19.34	27.00	46.34	34.5%					168.9																				82.1						
97 - 96.75	1458	3019	4478	19.37	36.00	55.37	29.9%					141.9			69.0																	69.0						
96.75 - 93.98	1546	3132	4677	19.75	36.00	55.75	30.7%					149.0			72.4																72.4							
93.98 - 93.73	1554	3142	4696	19.79	36.00	55.79	30.8%					149.6			72.7																72.7							
93.73 - 91.5	1627	3234	4861	20.09	36.00	56.09	32.1%					155.1			75.4																75.4							
91.5 - 91.25	1635	2365	4000	20.13	27.00	47.13	39.3%								92.4																92.4	92.4						
91.25 - 90.25	1669	2396	4065	20.26	27.00	47.26	40.0%								93.7																93.7	93.7						
90.25 - 90	1678	4321	5999	20.30	47.63	67.92	27.3%				149.4				64.0				149.4												64.0	64.0						
90 - 89	1712	4377	6089	20.44	47.63	68.06	27.8%				151.7				65.0				151.7												65.0	65.0						
89 - 88.75	1721	3577	5297	20.47	38.63	59.09	32.2%				175.7								175.7												75.3	75.3						
88.75 - 83.75	1900	3806	5706	21.16	38.63	59.78	34.8%				188.1								188.1												80.6	80.6						
83.75 - 80.08	2039	3980	6018	21.66	38.63	60.28	36.6%				196.6								196.6												84.3	84.3						
80.08 - 79.83	2055	5220	7275	21.69	53.63	75.32	32.9%				154.5								169.1									65.1	70.6	72.8	70.6						
79.83 - 74.83	2256	5538	7794	22.38	53.63	76.01	34.3%				163.5								179.0									68.9	74.8	76.8	74.8						
74.83 - 73.5	2311	5624	7936	22.56	53.63	76.19	34.8%				166.0								181.6									70.0	75.9	78.0	75.9						
73.5 - 73.25	2320	7150	9470	22.60	67.13	89.72	29.2%				141.1			93.7					152.3		93.7							59.7	63.9	65.4	63.9						
73.25 - 71	2416	7337	9753	22.91	67.13	90.03	30.1%				144.7			96.1					156.1		96.1							61.2	65.5	67.0	65.5						
71 - 70.75	2427	6524	8951	22.94	58.13	81.07	33.9%				161.0			107.2					175.2		107.2							68.0	73.4		73.4						
70.75 - 65.75	2651	6901	9552	23.63	58.13	81.75	35.9%				169.3			112.7					184.1		112.7							71.6	77.1		77.1						
65.75 - 63	2780	7113	9893	24.01	58.13	82.13	36.1%				173.8			115.7					188.9		115.7							73.5	79.2		79.2						
63 - 62.75	2790	6573	9362	24.04	56.00	80.04	37.6%			189.8				110.2					164.2		126.4							83.0	83.7								
62.75 - 62.08	2822	6621	9442	24.13	56.00	80.13	37.9%			190.9				110.9					165.2		127.1							83.5	84.2								
62.08 - 61.83	2831	5375	8206	24.17	47.00	71.17	43.4%			216.9				124.4					184.4		144.8							95.1									
61.83 - 60.67	2887	5442	8329	24.33	47.00	71.33	44.0%			219.0				125.7					186.3		146.3							96.1									
60.67 - 60.42	2900	5440	8340	24.36	46.13	70.48	44.2%			221.8				128.4							147.1				167.7			96.1									
60.42 - 59	2970	5523	8493	24.55	46.13	70.68	44.9%			224.4				129.9							148.8				169.7			97.3									
59 - 58.75	2982	6243	9226	24.59	47.63	72.21	41.2%			219.1											136.4			183.7	188.4												
58.75 - 53.75	3239	6578	9817	25.28	47.63	72.90	43.3%			227.7											141.9			191.0	195.9												
53.75 - 53.25	3266	6612	9878	25.34	47.63	72.97	43.5%			228.6											142.4			191.7	196.8												
53.25 - 47.5	4269	6936	11205	32.11	50.63	82.73	41.7%			222.4														181.9	189.3	169.8	176.5										
47.5 - 45.75	4389	7059	11448	32.40	50.63	83.03	42.3%			224.8														184.0	191.3	171.5	178.5										
45.75 - 45.5	4397	7214	11611	32.45	50.63	83.07	41.4%		202.2									220.0						184.2	191.6	171.8	178.8										
45.5 - 45	4432	7250	11682	32.53	50.63	83.16	41.5%		202.8									220.7						184.8	192.1	172.3	179.3										
45 - 44.75	4527	7815	12342	32.58	59.63	92.20	42.0%		186.2									202.7		116.3				162.8	190.6	153.2	153.7										
44.75 - 43.5	4616	7913	12530	32.79	59.63	92.41	42.4%		187.6									204.2		117.2				164.1	192.1	154.5	155.0										
43.5 - 43.25	4566	9385	13951	32.83	64.13	96.96	36.1%		176.7				126.0					190.0		117.0				159.9	165.2	150.7	155.9										
43.25 - 38.25	4932	9856	14787	33.69	64.13	97.81	37.5%		182.3				129.9					195.8		120.7				164.9	170.3	155.4	160.8										
38.25 - 33.25	5316	10339	15655	34.54	64.13	98.67	38.9%		187.6				133.6					201.4		124.2				169.7	175.2	160.0	165.5										
33.25 - 30.5	5536	10609	16145	35.01	64.13	99.14	39.7%		190.4				135.6					204.3		126.0				172.2	177.8	162.4	168.0										
30.5 - 30.25	5564	10719	16282	35.06	65.00	100.06	40.1%		187.6				135.3				182.7	204.3		126.3				171.1	176.8		168.1										
30.25 - 29.67	5611	10777	16388	35.16	65.00	100.16	40.3%		188.2				135.7				183.3	204.9		126.7				171.6	177.3		168.7										
29.67 - 29.42	5890	7584	13474	35.20	54.50	89.70	54.0%		219.4								205.2	257.0		126.4				185.4			173.5										
29.42 - 28	6011	7685	13696	35.44	54.50	89.94	54.4%		220.9								206.7	258.2		127.4				186.7			174.7										
28 - 27.75	5827	10166	15993	35.48	60.75	96.23	44.2%	212.7					137.8				236.8	199.1		146.4							158.2										
27.75 - 26.92	5897	10244	16141	35.63	60.75	96.38	44.5%	213.6					138.4				237.8	199.9		147.0							158.9										
26.92 - 26.67	5850	9713	15563	35.67	54.75	90.42	44.4%	237.5					137.7				237.5	210.9		148.8																	
26.67 - 26.5	5864	9728	15593	35.70	54.75	90.45	44.4%	237.6					137.8				237.6	211.1		148.9																	
26.5 - 26.25	5866	9106	14972	35.74	50.25	85.99	45.5%	245.0									245.0	223.0		150.2																	
26.25 - 24.92	5978	9217	15195	35.97	50.25	86.22	45.9%	246.4									246.4	224.3		151.1																	
24.92 - 24.67	6012	8760	14772	36.01	52.75	88.76	48.2%	243.9									243.9			147.9		254.8																
24.67 - 22.17	6229	8959	15187	36.44	52.75	89.19	48.9%	246.5									246.5			149.5		257.7																
22.17 - 21.92	6234	10079	16313	36.48	60.00	96.48	44.1%	222.5									222.5					242.7	242.7														
21.92 - 16.92	6682	10533	17215	37.34	60.00	97.34	45.4%	227.2									227.2					248.0	248.0														
16.92 - 11.92	7152	10997	18149	38.19	60.00	98.19	46.7%	231.8									231.8					253.0	253.0														
11.92 - 6.92	7644	11471	19114	39.05	60.00	99.05	47.9%	235.8									235.8					257.6	257.6														
6.92 - 3.25	8018	11825	19843	39.68	60.00	99.68	48.8%	238.7									238.7					260.9	260.9														
3.25 - 3	8044	10084	18129	39.72	46.50	86.22	53.7%	266.3									266.7														145.8	48.6					
3 - 2.75	8070	4291	12361	39.76	19.00	58.76	79.3%																								209.3	72.9					
2.75 - 2.33	8114	4305	12420	39.83	19.00	58.83	79.4%																								209.5	73.0					
2.33 - 2.08	8140	5586	13727	39.88	25.25	65.13	72.3%																								190.1		150.0				
2.08 - 1.75	8175	5601	13776	39.93	25.25	65.18	72.4%																								190.3		150.1				
1.75 - 1.4	8212	4271	12483	39.99	17.50	57.49	80.1%																													263.8	
1.4 - 1.17	8236	4278	12514	40.03	17.50	57.53	80.2%																													263.9	
1.17 - 0.25	8333	4309	12643	40.19	17.50	57.69	80.4%																													264.3	
0.25 - 0	8360	n/a	8360	40.23	n/a	40.23	81.5%																														

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

Monopole Base Plate Connection

Site Info	
BU #	857525
Site Name	EWTOWN DINGLEBROO
Order #	548691, Rev 1

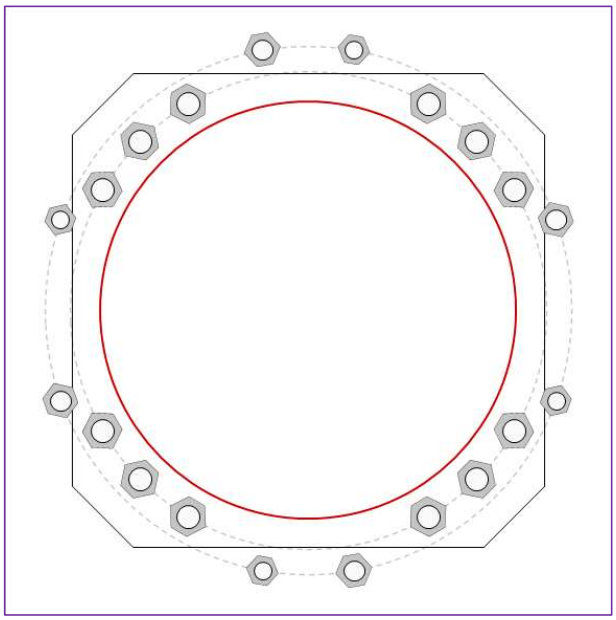
Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	See Custom Sheet
l_{ar} (in)	See Custom Sheet

Applied Loads	
Moment (kip-ft)	2840.52
Axial Force (kips)	58.13
Shear Force (kips)	25.28

**TIA-222-H Section 15.5 Applied*

Adjusted Pole Reactions	
Moment (kip-ft)	1889.55
Axial Force (kips)	58.13
Shear Force (kips)	25.28

**Reactions to enter in CCIpole; BARB CL = 0.25 ft*



Connection Properties

Anchor Rod Data

GROUP 1: (12) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 46.875" BC
Anchor Spacing: 6 in
GROUP 2: (4) 2" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 51.875" BC
pos. (deg): 20, 100, 200, 280

GROUP 3: (4) 1-3/4" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 51.875" BC
pos. (deg): 80, 160, 260, 340

Base Plate Data

46.5" W x 2.25" Plate (A572-50; Fy=50 ksi, Fu=65 ksi); Clip: 6 in

Stiffener Data

N/A

Pole Data

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

Analysis Results

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

GROUP 1:		
Pu_t = 154.61	ϕPn_t = 243.75	**Stress Rating**
Vu = 2.11	ϕVn = 149.1	**60.4%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2: (BARB)		
Pu_t = 158.72	ϕPn_t = 234.38	**Stress Rating**
Vu = 0	ϕVn = 147.26	**64.5%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 3: (BARB)		
Pu_t = 121.85	ϕPn_t = 178.13	**Stress Rating**
Vu = 0	ϕVn = 112.75	**65.2%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	37.66	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**79.7%**	**Pass**

CCIplate

Elevation (ft)	0	*(Base)*

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

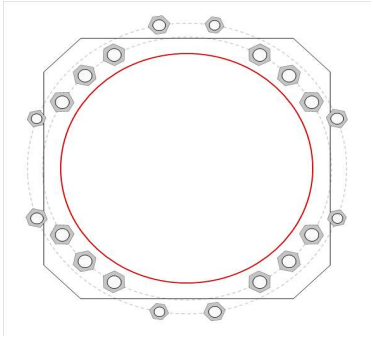
Bolt Group	Resist Axial	Resist Shear	Induce Plate Bending	Grout Considered	Apply at BARB Elevation	BARB CL Elevation (ft)
1	Yes	Yes	Yes	No	No	0.25
2	No	No	No	No	Yes	
3	No	No	No	No	Yes	

☑ Include Pole Reactions in Report

Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η:	l_{ar} (in):	Thread Type	Area Override, in^2	Tension Only
1	1	30.29193	2.25	A615-75	46.875	0.5	1.125	N-Included		No
2	1	45	2.25	A615-75	46.875	0.5	1.125	N-Included		No
3	1	59.70807	2.25	A615-75	46.875	0.5	1.125	N-Included		No
4	1	120.29193	2.25	A615-75	46.875	0.5	1.125	N-Included		No
5	1	135	2.25	A615-75	46.875	0.5	1.125	N-Included		No
6	1	149.70807	2.25	A615-75	46.875	0.5	1.125	N-Included		No
7	1	210.29193	2.25	A615-75	46.875	0.5	1.125	N-Included		No
8	1	225	2.25	A615-75	46.875	0.5	1.125	N-Included		No
9	1	239.70807	2.25	A615-75	46.875	0.5	1.125	N-Included		No
10	1	300.29193	2.25	A615-75	46.875	0.5	1.125	N-Included		No
11	1	315	2.25	A615-75	46.875	0.5	1.125	N-Included		No
12	1	329.70807	2.25	A615-75	46.875	0.5	1.125	N-Included		No
13	2	20	2	A193 Gr. B7	51.875	0.5	0	N-Included		No
14	2	100	2	A193 Gr. B7	51.875	0.5	0	N-Included		No
15	2	200	2	A193 Gr. B7	51.875	0.5	0	N-Included		No
16	2	280	2	A193 Gr. B7	51.875	0.5	0	N-Included		No
17	3	80	1.75	A193 Gr. B7	51.875	0.5	0	N-Included		No
18	3	160	1.75	A193 Gr. B7	51.875	0.5	0	N-Included		No
19	3	260	1.75	A193 Gr. B7	51.875	0.5	0	N-Included		No
20	3	340	1.75	A193 Gr. B7	51.875	0.5	0	N-Included		No

Plot Graphic



BU: 857525
WO: 1966691

Done By: HL
Checked By:
Date: 9/30/2021

Additional Anchor Rod Calculations

Tower Reactions From tnx:

$Moment := 2841 \cdot kip \cdot ft$

$Axial := 58 \cdot kip$

$Shear := 25 \cdot kip$

Existing Anchor Rod Group Moment of Inertia:

$N_{existing} := 12$ $D_{existing} := 2.25 \cdot in$

$BC_{existing} := 46.875 \cdot in$ $A_{existing} := 3.25 in^2$

$$I_{existing} := \left(\frac{N_{existing}}{8}\right) \cdot \left(BC_{existing}^{2}\right) \cdot \left(A_{existing}\right) = 1.071 \times 10^{4} \cdot in^4$$

Additonal (New) Anchor Rod Group Moment of Inertia:

$N_{new} := 3$ $D_{new} := 2 \cdot in$ $Fu_{rod} := 125 ksi$

$BC_{new} := 51.875 \cdot i$ $A_{new} := 2.5 \cdot in^2$ $Fy_{rod} := 105 ksi$

$$I_{new} := \left(\frac{N_{new}}{8}\right) \cdot \left(BC_{new}^{2}\right) \cdot \left(A_{new}\right) = 2.523 \times 10^{3} \cdot in^4$$

--See attached CCIplate output for additional anchor rod group capacity and structural rating values--

Anchor Rod Bracket Calculations

Design the anchor rod bracket and all components to resist the max demanding load of the additional anchors.

Bracket Demanding Load

$\phi P_{nc} := 1.0 \cdot Fy_{rod} \cdot A_{new} = 262.5 \cdot kip$

$\phi P_{nt} := 0.75 \cdot Fu_{rod} \cdot A_{new} = 234.375 \cdot kip$

$\phi P_n := 158.72kip$

Tube Design (Pipe)

Member Size: P3.5 XX-strong

Member Properties
(AISC 15th Ed., Table 1-13):

Outside Diameter: $D_{pipe} := 4 \cdot in$

Thickness: $t_{pipe} := 0.636 \cdot in$

Yield Strength: $F_{ypipe} := 42 \cdot ksi$ $F_{upipe} := 58 \cdot ksi$

Length: $L_{pipe} := 14 \cdot in$

Inside Diameter: $ID_{pipe} := D_{pipe} - 2 \cdot t_{pipe} = 2.728 \cdot in$

Area: $A_{pipe} := \frac{\pi \cdot \left(D_{pipe}^{2} - ID_{pipe}^{2} \right)}{4} = 6.721 \cdot in^2$

Moment of Inertia: $I_{pipe} := \frac{\pi \cdot \left(D_{pipe}^{4} - ID_{pipe}^{4} \right)}{64} = 9.848 \cdot in^4$

Radius of Gyration: $r_{pipe} := \sqrt{\frac{I_{pipe}}{A_{pipe}}} = 1.21 \cdot in$

Bearing Check
(AISC 15th Ed., Equation J7-1):

$\phi_b := 0.75$

$\phi P_n = \phi_b \cdot R_n = \phi_b \cdot 1.8 \cdot F_{ypipe} \cdot A_{pipe}$

$A_{pb} := \frac{\phi P_n}{\phi_b \cdot 1.8 \cdot F_{ypipe}} = 2.799 \cdot in^2$

$Check_{bear} := \begin{cases} \text{"OK"} & \text{if } A_{pipe} \geq A_{pb} \\ \text{"N/G"} & \text{otherwise} \end{cases}$

$Check_{bear} = \text{"OK"}$

Compression Check
(AISC 15th Ed., Eqs. E3-1 to E3-4):

$\phi_c := 0.9$

$K := 1$

$\phi P_{n\_comp} = \phi_c \cdot F_{cr} \cdot A_g$

$L_c := K \cdot L_{pipe} = 14 \cdot in$

$F_e := \frac{\pi^2 \cdot 29000ksi}{\left(\frac{L_c}{r_{pipe}}\right)^2} = 2.14 \times 10^3 \cdot ksi$

$\frac{L_c}{r_{pipe}} = 11.566 < 4.71 \cdot \sqrt{\frac{29000 \cdot ksi}{F_{ypipe}}} = 123.764$

$\therefore \quad F_{cr} := 0.658^{\frac{F_{ypipe}}{F_e}} \cdot F_{ypipe} = 41.656 \cdot ksi$

(AISC 15th Ed., Equation J4-6):

$$\phi P_{n\_comp} := \begin{cases} \phi_c \cdot F_{ypipe} \cdot A_{pipe} & \text{if } \frac{L_c}{r_{pipe}} \le 25 \\ \phi_c \cdot F_{cr} \cdot A_{pipe} & \text{otherwise} \end{cases}$$

$\phi P_{n\_comp} = 254.071 \cdot kip$

$$Check_{comp} := \begin{cases} \text{"OK"} & \text{if } \phi P_{n\_comp} \ge \phi P_n \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$Check_{comp} = \text{"OK"}$

$\frac{\phi P_n}{\phi P_{n\_comp}} = 62.471 \cdot \%$

Gusset Plate Design

Gusset Plate width: $w_{plate} := 3.5 \cdot in$

Gusset Plate thickness: $t_{plate} := 1.25in$

$L_{plate1} := 36in$

$L_{plate2} := 14in$

Gusset Plate Strength: $Fy_{plate} := 65ksi$

$Fu_{plate} := 80ksi$

Pole thickness: $t_{pole} := 0.3125in$

Shear Check
(AISC 15th Ed., Eqs. J4-3 and J4-4):

$A_g := t_{plate} \cdot L_{plate2} = 17.5 \cdot in^2$

$A_{nv} := A_g = 17.5 \cdot in^2$

Shear Yielding

$\phi_v := 1$

$\phi V_{plate} := \phi_v \cdot 0.6 \cdot A_g \cdot Fy_{plate} = 682.5 \cdot kip$

$$Check_{shear} := \begin{cases} \text{"OK"} & \text{if } \phi V_{plate} \geq \phi P_n \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$Check_{shear} = \text{"OK"}$

$\frac{\phi P_n}{\phi V_{plate}} = 23.256 \cdot \%$

Shear Rupture

$\phi_v := 0.75$

$\phi V_{plate} := \phi_v \cdot 0.6 \cdot A_{nv} \cdot Fu_{plate} = 630 \cdot kip$

$$Check_{shear} := \begin{cases} \text{"OK"} & \text{if } \phi V_{plate} \geq \phi P_n \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$Check_{shear} = \text{"OK"}$

$\frac{\phi P_n}{\phi V_{plate}} = 25.194 \cdot \%$

Gusset Plate to Pole and Base Plate Weld Design (Horizontal and Vertical Weld):
(AISC 15th Ed., Part 8)

Gusset plate thickness: $t_{plate} = 1.25 \cdot in$

Pole Grade: $Fy_{pole} := 65ksi$ $Fu_{pole} := 80ksi$

Gussett Plate Grade: $Fy_{plate} = 65 \cdot ksi$ $Fu_{plate} = 80 \cdot ksi$

Height of vertical weld from base plate: $H := L_{plate1} = 36 \cdot in$

Electrode Strength: $F_{EXX} := 70ksi$

Weld Size (in sixteenths of an inch): $D_1 := 5$ $\quad weldsize_1 := \frac{D_1}{16} = \frac{5}{16}$

Assume the worst-case installation scenario where the rod is positioned directly against the far side of the HSS.

$$ecc_1 := w_{plate} + D_{pipe} - t_{pipe} - \frac{D_{new}}{2} = 5.864 \cdot in$$

Load not in plane with weld group: $k := 0$

$$a := \frac{ecc_1}{L_{plate1}} = 0.163$$

$C_1 = 1$

$Coeff_1 := 3.51$

$\phi_w := 0.75$

$$D_{min1} := ceil\left(\frac{\phi P_n \cdot in}{\phi_w \cdot Coeff_1\, C_1 \cdot L_{plate1} \cdot kip}\right) = 2$$

$$minweldsize := \frac{D_{min1}}{16} = \frac{1}{8}$$

$$Check_{weld} := \begin{cases} "OK" & \text{if } D_1 \geq D_{min1} \wedge D_1 \geq Min_{weldsize} \wedge D_1 \leq Max_{weldsize} \\ "N/G" & \text{otherwise} \end{cases}$$

$Check_{weld} = "OK"$

$\phi Rn_{weld1} := \phi_w \cdot Coeff_1\, ksi \cdot in \cdot C_1 \cdot D_1 \cdot L_{plate1} = 473.85 \cdot kip$

$$Check_{weld1} := \begin{cases} "OK" & \text{if } \phi Rn_{weld1} \geq \phi P_n \\ "N/G" & \text{otherwise} \end{cases}$$

$Check_{weld1} = "OK"$

$$\frac{\phi P_n}{\phi Rn_{weld1}} = 33.5 \cdot \%$$

Gusset Plate to HSS Weld Design (AISC 15th Ed., Table 8-4)

Electrode Strength: $F_{EXX} := 70ksi$

Weld Size (in sixteenths of an inch): $D_1 := 14$ $\quad weldsize_1 := \frac{D_1}{16} = \frac{7}{8}$

Assume the worst-case installation scenario where the rod is positioned directly against the far side of the HSS.

$$ecc_2 := D_{pipe} - t_{pipe} - \frac{D_{new}}{2} = 2.364 \cdot in$$

Load not in plane with weld group: $k := 0$

$$a := \frac{ecc_2}{L_{plate2}} = 0.169$$

$C_1 = 1$

$Coeff_1 := 3.51$

$\phi_w := 0.75$

$$D_{min1} := ceil\left(\frac{\phi P_n \cdot in}{\phi_w \cdot Coeff_1\ C_1 \cdot L_{plate2} \cdot kip}\right) = 5$$

$$minweldsize := \frac{D_{min1}}{16} = \frac{5}{16}$$

$$Check_{weld} := \begin{cases} \text{"OK"} & \text{if } D_1 \geq D_{min1} \wedge D_1 \geq Min_{weldsize} \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$Check_{weld} = \text{"OK"}$

$\phi Rn_{weld1} := \phi_w \cdot Coeff_1\ ksi \cdot in \cdot C_1 \cdot D_1 \cdot L_{plate2} = 515.97 \cdot kip$

$$Check_{weld1} := \begin{cases} \text{"OK"} & \text{if } \phi Rn_{weld1} \geq \phi P_n \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$Check_{weld1} = \text{"OK"}$

$$\frac{\phi P_n}{\phi Rn_{weld1}} = 30.76 \cdot \%$$

Gusset Plate to Pole Punching Shear Check (max per unit length): (AISC 15th Ed., Section J4.2)

$\phi_{sy} := 1.0$

$\phi_{sr} := 0.75$

$ecc_1 := w_{plate} + D_{pipe} - t_{pipe} - \frac{D_{new}}{2} = 5.864 \cdot in$

$M_1 := \phi P_n \cdot ecc_1 = 930.734 \cdot kip \cdot in$

$S_1 := \frac{t_{plate} \cdot L_{plate1}^2}{6} = 270 \cdot in^3$

$f_v := \frac{M_1}{S_1} \cdot t_{plate} \cdot 1in = 4.309 \cdot kip$

AISC 15th Ed., Equation J4-3:

$\phi F_{sy} := \phi_{sy} \cdot 0.6 \cdot Fy_{pole} \cdot 2 \cdot t_{pole} \cdot 1in = 24.375 \cdot kip$

AISC 15th Ed., Equation J4-4:

$\phi F_{sr} := \phi_{sr} \cdot 0.6 \cdot Fu_{pole} \cdot 2 \cdot t_{pole} \cdot 1in = 22.5 \cdot kip$

$\phi F_v := \min(\phi F_{sy}, \phi F_{sr}) = 22.5 \cdot kip$

$Check_{PS1} := \begin{cases} \text{"OK"} & \text{if } \phi F_v \geq f_v \\ \text{"N/G"} & \text{otherwise} \end{cases}$

$Check_{PS1} = \text{"OK"}$

$\frac{f_v}{\phi F_v} = 19.15 \cdot \%$

Gusset Plate to HSS Punching Shear Check (max per unit length): (AISC 15th Ed., Section J4.2)

Assume the worst-case installation scenario where the rod is positioned directly against the far side of the HSS.

$ecc_2 := D_{pipe} - t_{pipe} - \frac{D_{new}}{2} = 2.364 \cdot in$

$M_2 := \phi P_n \cdot ecc_2 = 375.214 \cdot kip \cdot in$

$S_2 := \frac{t_{plate} \cdot L_{plate2}^2}{6} = 40.833 \cdot in^3$

$f_w := \frac{M_2}{S_2} \cdot t_{plate} \cdot 1in = 11.486 \cdot kip$

AISC 15th Ed., Equation J4-3:

$\phi F_{sy} := \phi_{sy} \cdot 0.6 \cdot F_{ypipe} \cdot 2 \cdot t_{pipe} \cdot 1in = 32.054 \cdot kip$

AISC 15th Ed., Equation J4-4:

$\phi F_{sr} := \phi_{sr} \cdot 0.6 \cdot F_{upipe} \cdot 2 \cdot t_{pipe} \cdot 1in = 33.199 \cdot kip$

$\phi F_w := \min(\phi F_{sy}, \phi F_{sr}) = 32.054 \cdot kip$

$$Check_{PS2} := \begin{cases} \text{"OK"} & \text{if } \phi F_v \geq f_v \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$Check_{PS2} = \text{"OK"}$

$$\frac{f_v}{\phi F_v} = 35.833 \cdot \%$$

BU: 857525
WO: 1966691

Done By: HL
Checked By:
Date: 9/27/2021

Additional Anchor Rod Calculations

Tower Reactions From tnx:

$Moment := 2841 \cdot kip \cdot ft$

$Axial := 58 \cdot kip$

$Shear := 25 \cdot kip$

Existing Anchor Rod Group Moment of Inertia:

$N_{existing} := 12$ $D_{existing} := 2.25 \cdot in$

$BC_{existing} := 46.875 \cdot in$ $A_{existing} := 3.25 in^2$

$$I_{existing} := \left(\frac{N_{existing}}{8}\right) \cdot \left(BC_{existing}^{2}\right) \cdot \left(A_{existing}\right) = 1.071 \times 10^{4} \cdot in^{4}$$

Additonal (New) Anchor Rod Group Moment of Inertia:

$N_{new} := 3$ $D_{new} := 1.75 \cdot in$ $Fu_{rod} := 125 ksi$

$BC_{new} := 51.875 \cdot i$ $A_{new} := 1.9 \cdot in^2$ $Fy_{rod} := 105 ksi$

$$I_{new} := \left(\frac{N_{new}}{8}\right) \cdot \left(BC_{new}^{2}\right) \cdot \left(A_{new}\right) = 1.917 \times 10^{3} \cdot in^{4}$$

--See attached CCIplate output for additional anchor rod group capacity and structural rating values--

Anchor Rod Bracket Calculations

Design the anchor rod bracket and all components to resist the full capacity of the additional anchors.

Bracket Design Load

$$\phi P_{nc} := 1.0 \cdot Fy_{rod} \cdot A_{new} = 199.5 \cdot kip$$

$$\phi P_{nt} := 0.75 \cdot Fu_{rod} \cdot A_{new} = 178.125 \cdot kip$$

$$\phi P_{n} := \max\left(\phi P_{nt}, \phi P_{nc}\right) = 199.5 \cdot kip$$

Tube Design (Pipe)

Member Size: P3 XX-strong

Member Properties
(AISC 15th Ed., Table 1-13):

Outside Diameter: $D_{pipe} := 3.5 \cdot in$

Thickness: $t_{pipe} := 0.6 \cdot in$

Yield Strength: $F_{ypipe} := 42 \cdot ksi$ $F_{upipe} := 58 \cdot ksi$

Length: $L_{pipe} := 12 \cdot in$

Inside Diameter: $ID_{pipe} := D_{pipe} - 2 \cdot t_{pipe} = 2.3 \cdot in$

Area: $$A_{pipe} := \frac{\pi \cdot \left(D_{pipe}^{2} - ID_{pipe}^{2}\right)}{4} = 5.466 \cdot in^{2}$$

Moment of Inertia: $$I_{pipe} := \frac{\pi \cdot \left(D_{pipe}^{4} - ID_{pipe}^{4}\right)}{64} = 5.993 \cdot in^{4}$$

Radius of Gyration: $$r_{pipe} := \sqrt{\frac{I_{pipe}}{A_{pipe}}} = 1.047 \cdot in$$

Bearing Check
(AISC 15th Ed., Equation J7-1):

$$\phi_b := 0.75$$

$$\phi P_n = \phi_b \cdot R_n = \phi_b \cdot 1.8 \cdot F_{ypipe} \cdot A_{pipe}$$

$$A_{pb} := \frac{\phi P_n}{\phi_b \cdot 1.8 \cdot F_{ypipe}} = 3.519 \cdot in^{2}$$

$$Check_{bear} := \begin{cases} \text{"OK"} & \text{if } A_{pipe} \geq A_{pb} \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$Check_{bear} = \text{"OK"}$

Compression Check
(AISC 15th Ed., Eqs. E3-1 to E3-4):

$\phi_c := 0.9$

$K := 1$

$\phi P_{n\_comp} = \phi_c \cdot F_{cr} \cdot A_g$

$L_c := K \cdot L_{pipe} = 12 \cdot in$

$F_e := \frac{\pi^2 \cdot 29000ksi}{\left(\frac{L_c}{r_{pipe}}\right)^2} = 2.179 \times 10^3 \cdot ksi$

$\frac{L_c}{r_{pipe}} = 11.461 < 4.71 \cdot \sqrt{\frac{29000 \cdot ksi}{F_{ypipe}}} = 123.764$

$\therefore \quad F_{cr} := 0.658^{\frac{F_{ypipe}}{F_e}} \cdot F_{ypipe} = 41.663 \cdot ksi$

(AISC 15th Ed., Equation J4-6):

$$\phi P_{n\_comp} := \begin{cases} \phi_c \cdot F_{ypipe} \cdot A_{pipe} & \text{if } \frac{L_c}{r_{pipe}} \le 25 \\ \phi_c \cdot F_{cr} \cdot A_{pipe} & \text{otherwise} \end{cases}$$

$\phi P_{n\_comp} = 206.629 \cdot kip$

$$Check_{comp} := \begin{cases} \text{"OK"} & \text{if } \phi P_{n\_comp} \ge \phi P_n \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$Check_{comp} = \text{"OK"}$

Gusset Plate Design

Gusset Plate width: $w_{plate} := 3.75 \cdot in$

Gusset Plate thickness: $t_{plate} := 1in$

$L_{plate1} := 54in$

$L_{plate2} := 12in$

Gusset Plate Strength: $Fy_{plate} := 50ksi$

$Fu_{plate} := 65ksi$

Pole thickness: $t_{pole} := 0.3125in$

Shear Check
(AISC 15th Ed., Eqs. J4-3 and J4-4):

$A_g := t_{plate} \cdot L_{plate2} = 12 \cdot in^2$

$A_{nv} := A_g = 12 \cdot in^2$

Shear Yielding

$\phi_v := 1$

$\phi V_{plate} := \phi_v \cdot 0.6 \cdot A_g \cdot Fy_{plate} = 360 \cdot kip$

$$Check_{shear} := \begin{cases} \text{"OK"} & \text{if } \phi V_{plate} \geq \phi P_n \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$Check_{shear} = \text{"OK"}$

Shear Rupture

$\phi_v := 0.75$

$\phi V_{plate} := \phi_v \cdot 0.6 \cdot A_{nv} \cdot Fu_{plate} = 351 \cdot kip$

$$Check_{shear} := \begin{cases} \text{"OK"} & \text{if } \phi V_{plate} \geq \phi P_n \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$Check_{shear} = \text{"OK"}$

Gusset Plate to Pole and Base Plate Weld Design (Horizontal and Vertical Weld):
(AISC 15th Ed., Part 8)

Gusset plate thickness: $t_{plate} = 1 \cdot in$

Pole Grade: $Fy_{pole} := 65ksi$ $Fu_{pole} := 80ksi$

Gussett Plate Grade: $Fy_{plate} = 50 \cdot ksi$ $Fu_{plate} = 65 \cdot ksi$

Height of vertical weld from base plate: $H := L_{plate1} = 54 \cdot in$

Electrode Strength: $F_{EXX} := 70ksi$

Weld Size (in sixteenths of an inch): $D_1 := 5$ $\quad weldsize_1 := \frac{D_1}{16} = \frac{5}{16}$

Assume the worst-case installation scenario where the rod is positioned directly against the far side of the HSS.

$$ecc_1 := w_{plate} + D_{pipe} - t_{pipe} - \frac{D_{new}}{2} = 5.775 \cdot in$$

Load not in plane with weld group: $k := 0$

$$a := \frac{ecc_1}{L_{plate1}} = 0.107$$

$C_1 = 1$

$Coeff_1 := 3.67$

$\phi_w := 0.75$

$$D_{min1} := ceil\left(\frac{\phi P_n \cdot in}{\phi_w \cdot Coeff_1\, C_1 \cdot L_{plate1} \cdot kip}\right) = 2$$

$$minweldsize := \frac{D_{min1}}{16} = \frac{1}{8}$$

$$Check_{weld} := \begin{cases} \text{"OK"} & \text{if } D_1 \geq D_{min1} \wedge D_1 \geq Min_{weldsize} \wedge D_1 \leq Max_{weldsize} \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$Check_{weld} = \text{"OK"}$

$\phi Rn_{weld1} := \phi_w \cdot Coeff_1\, ksi \cdot in \cdot C_1 \cdot D_1 \cdot L_{plate1} = 743.175 \cdot kip$

$$Check_{weld1} := \begin{cases} \text{"OK"} & \text{if } \phi Rn_{weld1} \geq \phi P_n \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$Check_{weld1} = \text{"OK"}$

Gusset Plate to HSS Weld Design (AISC 15th Ed., Table 8-4)

Electrode Strength: $F_{EXX} := 70ksi$

Weld Size (in sixteenths of an inch): $D_1 := 14$ $\quad weldsize_1 := \frac{D_1}{16} = \frac{7}{8}$

Assume the worst-case installation scenario where the rod is positioned directly against the far side of the HSS.

$$ecc_2 := D_{pipe} - t_{pipe} - \frac{D_{new}}{2} = 2.025 \cdot in$$

Load not in plane with weld group: $k := 0$

$$a := \frac{ecc_2}{L_{plate2}} = 0.169$$

$C_1 = 1$

$Coeff_1 := 3.51$

$\phi_w := 0.75$

$$D_{min1} := ceil\left(\frac{\phi P_n \cdot in}{\phi_w \cdot Coeff_1\, C_1 \cdot L_{plate2} \cdot kip}\right) = 7$$

$$minweldsize := \frac{D_{min1}}{16} = \frac{7}{16}$$

$$Check_{weld} := \begin{cases} \text{"OK"} & \text{if } D_1 \geq D_{min1} \wedge D_1 \geq Min_{weldsize} \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$Check_{weld} = \text{"OK"}$

$$\phi Rn_{weld1} := \phi_w \cdot Coeff_1\, ksi \cdot in \cdot C_1 \cdot D_1 \cdot L_{plate2} = 442.26 \cdot kip$$

$$Check_{weld1} := \begin{cases} \text{"OK"} & \text{if } \phi Rn_{weld1} \geq \phi P_n \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$Check_{weld1} = \text{"OK"}$

Gusset Plate to Pole Punching Shear Check (max per unit length): (AISC 15th Ed., Section J4.2)

$\phi_{sy} := 1.0$

$\phi_{sr} := 0.75$

$ecc_1 := w_{plate} + D_{pipe} - t_{pipe} - \frac{D_{new}}{2} = 5.775 \cdot in$

$M_1 := \phi P_n \cdot ecc_1 = 1.152 \times 10^3 \cdot kip \cdot in$

$S_1 := \frac{t_{plate} \cdot L_{plate1}^2}{6} = 486 \cdot in^3$

$f_v := \frac{M_1}{S_1} \cdot t_{plate} \cdot 1in = 2.371 \cdot kip$

AISC 15th Ed., Equation J4-3:

$\phi F_{sy} := \phi_{sy} \cdot 0.6 \cdot Fy_{pole} \cdot 2 \cdot t_{pole} \cdot 1in = 24.375 \cdot kip$

AISC 15th Ed., Equation J4-4:

$\phi F_{sr} := \phi_{sr} \cdot 0.6 \cdot Fu_{pole} \cdot 2 \cdot t_{pole} \cdot 1in = 22.5 \cdot kip$

$\phi F_v := \min(\phi F_{sy}, \phi F_{sr}) = 22.5 \cdot kip$

$$Check_{PS1} := \begin{cases} \text{"OK"} & \text{if } \phi F_v \geq f_v \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$Check_{PS1} = \text{"OK"}$

Gusset Plate to HSS Punching Shear Check (max per unit length): (AISC 15th Ed., Section J4.2)

Assume the worst-case installation scenario where the rod is positioned directly against the far side of the HSS.

$ecc_2 := D_{pipe} - t_{pipe} - \frac{D_{new}}{2} = 2.025 \cdot in$

$M_2 := \phi P_n \cdot ecc_2 = 403.987 \cdot kip \cdot in$

$S_2 := \frac{t_{plate} \cdot L_{plate2}^2}{6} = 24 \cdot in^3$

$f_w := \frac{M_2}{S_2} \cdot t_{plate} \cdot 1in = 16.833 \cdot kip$

AISC 15th Ed., Equation J4-3:

$\phi F_{sy} := \phi_{sy} \cdot 0.6 \cdot F_{ypipe} \cdot 2 \cdot t_{pipe} \cdot 1in = 30.24 \cdot kip$

AISC 15th Ed., Equation J4-4:

$\phi F_{sr} := \phi_{sr} \cdot 0.6 \cdot F_{upipe} \cdot 2 \cdot t_{pipe} \cdot 1in = 31.32 \cdot kip$

$\phi F_w := \min(\phi F_{sy}, \phi F_{sr}) = 30.24 \cdot kip$

$$Check_{PS2} := \begin{cases} \text{"OK"} & \text{if } \phi F_v \geq f_v \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$Check_{PS2} = \text{"OK"}$

BU# 857525
WO# 1966691

Done By: HL
Checked By:
Date: 9/30/2021

Dowel Embedment Calculation

TIA-222-H

Description:

This sheet will determine the tension capacity of foundation dowels and design the required post-installed embedment into the existing pier and the cast-in-place embedment into the new collar.

1. Foundation Properties

Apply TIA-222-H Section 15.5? No / Yes

Pier Concrete Strength: $f_{ce} := 4000psi$

New Concrete Compressive Strength: $f_{cn} := 4000psi$

Grade: $Fy_{dowel} := 60ksi$ $Fu_{dowel} := 90ksi$

2. Dowel Embedment

2.1 Check Dowel Development in Existing Foundation (Charney et al., ACI 318-14 Chapter 17)

Dowel Embedment into Exisiting Pier: $L_{de} := 15in$

Horizontal Dowel Size: #7

Cracked Concrete Bond Strength: (HILTI HIT-RE 500 Provided) $\tau_{cr} := 1410psi$

Uncracked Concrete Bond Strength: (HILTI HIT-RE 500 Provided) $\tau_{uncr} := 1670psi$

Spectral Response Coefficient for Short Period: $S_s := 0.206$

Pier Concrete Modification Factor: $\lambda_a := 1.0$

Dowel Diameter: $D_{dowel} := vlookup(dowel, Rebar, 2)\cdot in = 0.875\cdot in$

Singel Dowel Area: $A_{dowel} := vlookup(dowel, Rebar, 3)\cdot in^2 = 0.6\cdot in^2$

Adjusted Cracked Concrete Bond Strength Per HILTI:

$$\tau_{cr\_adjust} := \begin{cases} \tau_{cr} & \text{if } f_{ce} < 2500psi \\ \tau_{cr}\cdot\left(\frac{f_{ce}}{2500psi}\right)^{0.1} & \text{if } 2500psi \le f_{ce} \le 8000psi \\ \tau_{cr} & \text{otherwise} \end{cases} = 1.02 \times 10^7$$

Adjusted Uncracked Concrete Bond Strength Per HILTI:

$$\tau_{uncr\_adjust} := \begin{cases} \tau_{uncr} & \text{if } f_{ce} < 2500psi \\ \tau_{uncr}\cdot\left(\frac{f_{ce}}{2500psi}\right)^{0.1} & \text{if } 2500psi \le f_{ce} \le 8000psi \\ \tau_{uncr} & \text{otherwise} \end{cases} = 1.21 \times 10^7$$

Required Bond Strength:

$$\tau_{required} := \begin{cases} \tau_{uncr\_adjust} & \text{if } S_s \le 1.0 \\ \tau_{cr\_adjust} & \text{otherwise} \end{cases} = 1.21 \times 10^7$$

Required Embedment:

$$h_{ef} := \frac{1.25\cdot Fy_{dowel}\cdot A_{dowel}}{\lambda_a\cdot\tau_{required}\cdot\pi\cdot D_{dowel}} = 9.35\cdot in$$

Minimum Embedment from HILTI: $L_{d\_min} = 3.5\cdot in$

$$Check := \begin{cases} \text{"Okay"} & \text{if } L_{de} \ge h_{ef} \wedge L_{de} \ge L_{d\_min} \\ \text{"No Good"} & \text{otherwise} \end{cases}$$

Check = "Okay"

Minimum Spacing of Adhesive Anchors: $S := 6\cdot D_{dowel} = 5.25\cdot in$ — ACI 318-14 17.7.1

Minimum Distance from Edge of Concrete for Adhesive Anchors: $Edge := 6\cdot D_{dowel} = 5.25\cdot in$ — ACI 318-14 17.7.3

Anchor Reinforcement Design Strength: $\phi T_n := 4\cdot 0.75\cdot\left(Fy_{dowel}\cdot A_{dowel}\right) = 108\cdot kip$ — ACI 318-14 17.4.2.9

4.1 Vertical Dowel Development into to New Collar (ACI 318-14 Chapter 25)

Assumed Development Length:

$L_d := 12in$

New Concrete Modification Factor:

$\lambda_n := 1.0$

Modification Factors:

$\psi_c := 0.7$ $\psi_e := 1$ $\psi_r := 1.0$

Required Embedment Length:
(Deformed Bars Termination in a standard hook)

ACI 318-14 25.4.3.2

$$l_d := \frac{1}{50} \cdot \frac{\frac{Fy_{dowel}}{psi}}{\lambda_n \cdot \sqrt{\frac{f_{cn}}{psi}}} \cdot \psi_c \cdot \psi_e \cdot \psi_r \cdot D_{dowel} = 11.62 \cdot in$$

$$l_{d\_req} := \max\left(l_d, 8 \cdot D_{dowel}, 6in\right) = 11.62 \cdot in$$

$$Check := \begin{cases} \text{"Okay"} & \text{if } L_d \geq l_{d\_req} \\ \text{"No Good"} & \text{otherwise} \end{cases}$$

Check = "Okay"

Designed Development Length:

$L_{dh} := L_d = 12 \cdot in$

Required Hook Extension Length:
(90 degree hook)

$L_{ext} := \max\left(4 \cdot D_{dowel}, 2.5in\right) = 3.5 \cdot in$

ACI 318-14 Table 25.3.1

Minimum Inside Bend Diameter:
(90 degree hook)

$d_{bend} = 5.25 \cdot in$

ACI 318-14 Table 25.3.1

Pier and Pad Foundation

BU # :	857525
Site Name:	NEWTOWN DINGL
App. Number:	548691, Rev 1

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions

Compression, P_{comp}:	58.13	kips
Base Shear, Vu_comp:	25.26	kips
Moment, M_u:	2129.62	ft-kips
Tower Height, **H**:	149	ft
BP Dist. Above Fdn, bp_{dist}:	3.25	in

Pier Properties

Pier Shape:	Square	
Pier Diameter, **dpier**:	10.5	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	7	
Pier Rebar Quantity, **mc**:	30	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	7	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	5.5	ft
Pad Width, W_1:	22	ft
Pad Thickness, **T**:	1.5	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	24	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

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

Soil Properties

Total Soil Unit Weight, γ:	107	pcf
Ultimate Net Bearing, Qnet:	30.000	ksf
Cohesion, **Cu**:	15.000	ksf
Friction Angle, φ:	0	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:		
Neglected Depth, **N**:	3.30	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, **gw**:	N/A	ft

Foundation Analysis Checks

	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	6367.61	25.26	**0.4%**	**Pass**
Bearing Pressure (ksf)	22.94	2.98	**12.4%**	**Pass**
*Overturning (kip*ft)*	4859.86	2300.65	**47.3%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	4992.00	2255.92	**43.0%**	**Pass**
Pier Compression (kip)	55135.08	157.36	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	1097.75	698.63	**60.6%**	**Pass**
Pad Shear - 1-way (kips)	338.11	160.59	**45.2%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.050	**24.9%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	1474.77	1353.55	**87.4%**	**Pass**

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

Structural Rating*:	**87.4%**
Soil Rating*:	**47.3%**

Moment, Mu:	2840.52	ft-kips
Additional Moment from Eccentricity:, Me: (58.13kips + 49.69kips)x1.42ft	153.1	ft-kips
Rock Anchor Controlling Design Capacity, Cn:	108	kips
Additional Moment Resistance (Orthogonal), Rn_1: (Cn x 8ft)	864	ft-kips
Additional Moment Resistance (Diagonal), Rn_2: (2 x Cn x 5.66ft)	1222.56	ft-kips
Additional Moment Resistance, Rn	864	ft-kips
Moment for Pier and Pad Foundation, Mu	2129.62	ft-kips

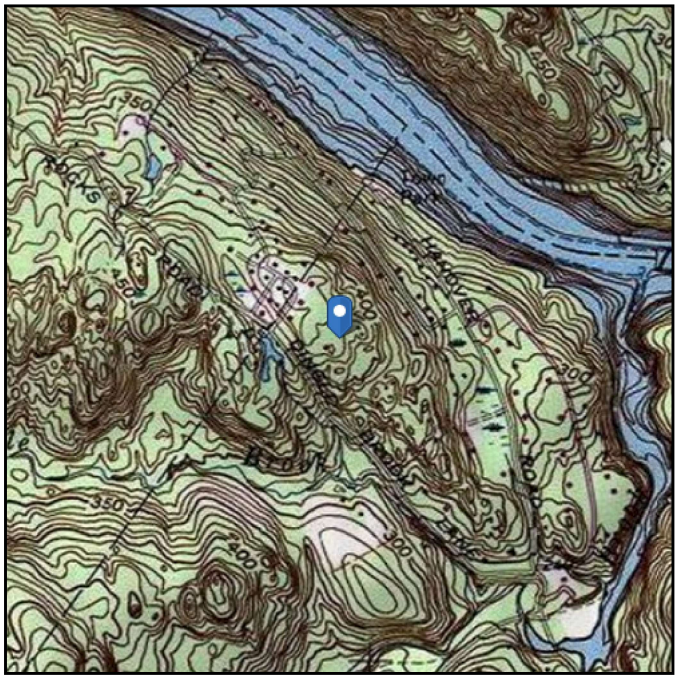
<--Toggle between Gross and Net

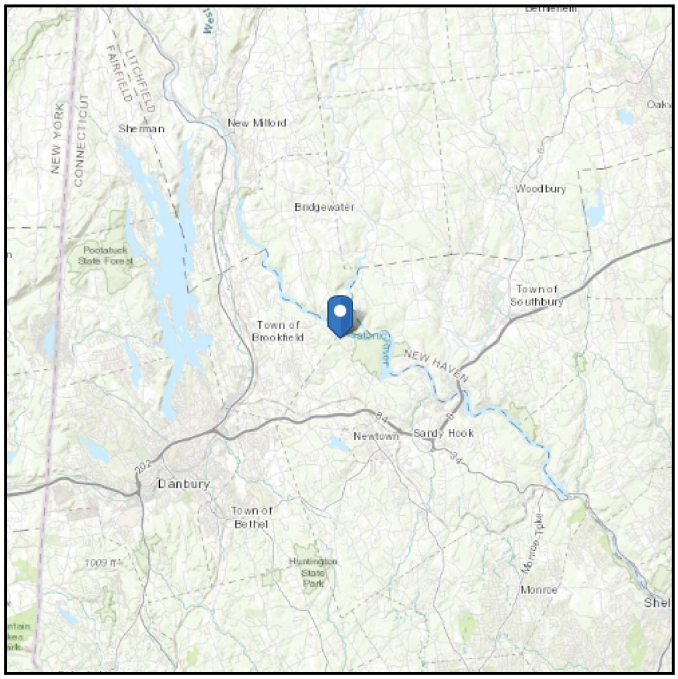
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 437.7 ft (NAVD 88)
Latitude: 41.466947
Longitude: -73.333903





Wind

Results:

Wind Speed:	115 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Fri Sep 24 2021

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

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

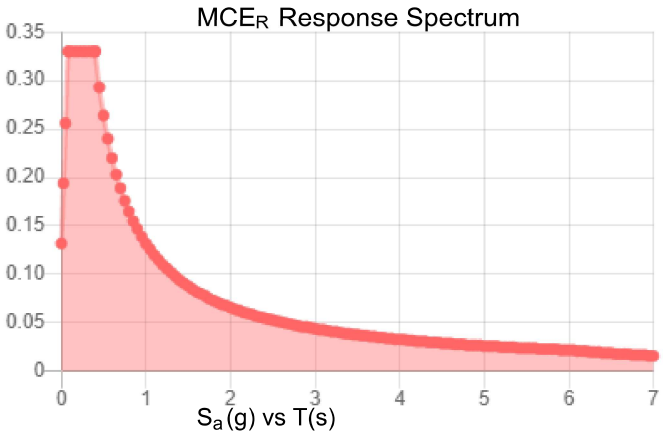
Seismic

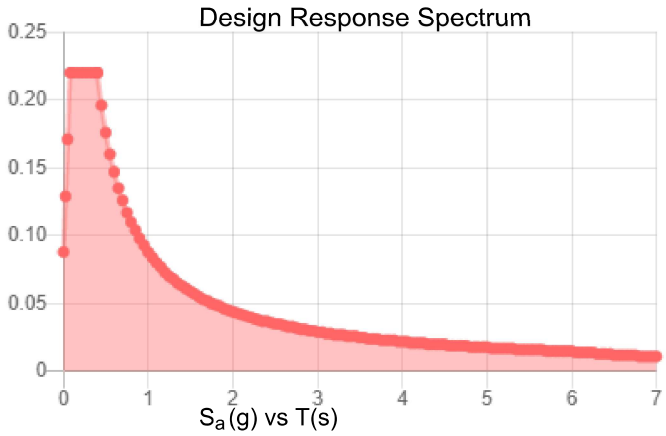
Site Soil Class: D - Default (see Section 11.4.3)

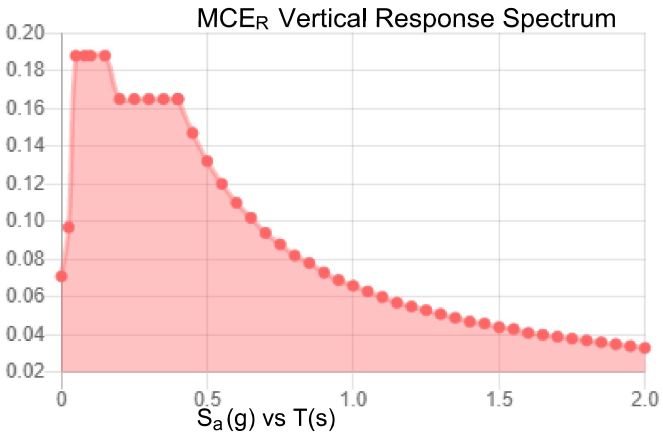
Results:

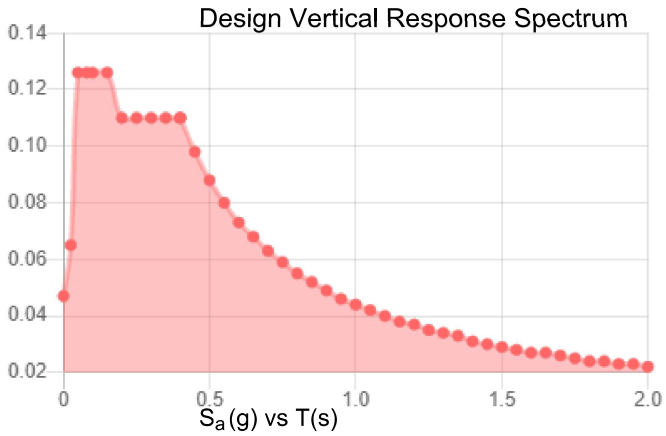
S_S :	0.206	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.116
F_v :	2.4	PGA_M :	0.182
S_{MS} :	0.33	F_{PGA} :	1.567
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.22	C_v :	0.713

Seismic Design Category B









Data Accessed: Fri Sep 24 2021

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Fri Sep 24 2021

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

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

Exhibit E

Mount Analysis

Date: **March 7, 2022**

Kimley-Horn and Associates, Inc.
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
(919) 677-2000
CrownMounts@kimley-horn.com

Subject:	**Mount Analysis - Conditional Passing Report**	
Carrier Designation:	**DISH Network Equipment Change-Out**	
	Carrier Site Number:	NJJER01095A
	Carrier Site Name:	CT-CCI-T-857525
Crown Castle Designation:	**BU Number:**	827525
	Site Name:	NEWTOWN DINGLEBROOK
	JDE Job Number:	640190
	Order Number:	548691, Rev. 1
Engineering Firm Designation:	**Kimley-Horn Project Number:**	019558058
Site Data:	**24 Dinglebrook Lane, Newton, Fairfield County, CT 06470**	
	Latitude 41° 28′ 1.01″ Longitude -73° 20′ 2.05″	
Structure Information:	**Tower Height & Type:**	**149 ft Monopole**
	Mount Elevation:	**119 ft**
	Mount Type:	**8 ft Platform w/ Support Rails**

Kimley-Horn is pleased to submit this **"Mount Analysis - Conditional Passing 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 w/ Support Rails **Sufficient**

*** See Section 4.1 for loading and structural modifications required for the mount to support the loading listed in Table 1.**

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

Mount analysis prepared by: Jeff Sparks

Respectfully Submitted by:

Kyle Freehart, P.E.

Lic. #PEN.0034906, Exp. 1/31/2022
Kimley-Horn and Associates, Inc. COA #PEC.0000738

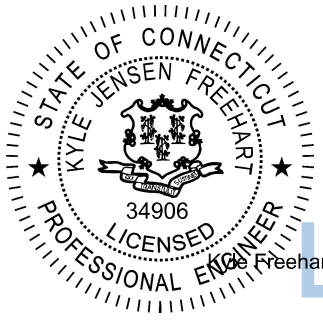


TABLE OF CONTENTS

1) INTRODUCTION

The mounting configuration consists of a proposed 8 ft Platform w/ Support Rails designed by CommScope.

2) ANALYSIS CRITERIA

Building Code:	2018 Connecticut State Building Code
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	115 mph
Exposure Category:	C
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
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

Elevation (ft)		Antennas			Mount / Modification Details
Mount	Centerline	#	Manufacturer	Model	
119	119	3	Fujitsu	TA08025-B605	Proposed 8 ft Platform w/ Support Rails designed by CommScope
		1	Raycap	RDIDC-9181-PF-48	
		3	Fujitsu	TA08025-B604	
		3	JMA	MX08FRO665-21	

3) ANALYSIS PROCEDURE

Table 2 – Documents Provided

Document	Remarks	Reference	Source
Structural Analysis	Crown Castle	9998877	CCISites
Mount Design Drawings	Commscope	MC-PK8-DSH	On File
Site Photos	-	-	CCISites

3.1) Analysis Method

RISA-3D (v. 17.02.00), 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 proprietary tool internally developed by Kimley-Horn 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 *Mount Analysis* (Rev. E).

3.2) Assumptions

1) The antenna mounting system (including any considered modifications) was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the provided reference information.
3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected members 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 that could not be verified at this time.
5) Any referenced prior structural modifications to the tower mounting system are assumed to be installed as shown per available data unless noted otherwise.
6) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (Gr. 36)
HSS (Rectangular)	ASTM A36 (Gr. 36)
Pipe	ASTM A53 (Gr. 35)
Connection Bolts	ASTM A325
U-Bolts	ASTM A36 (Gr. 36)
Threaded Rods	ASTM A36 (Gr. 36)

If any assumptions are not valid or have been made in error, Kimley-Horn 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

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1, 2	Connections	-	119	25%	Pass
1, 2	Cross Horizontals	M63A		23%	Pass
1, 2	Corner Plates	M10		20%	Pass
1, 2	Stand Off Horizontals	M12		16%	Pass
1, 2	Mount Pipes	MP6		15%	Pass
1, 2	Face Horizontals	M62		10%	Pass
1, 2	Support Rails	M29		9%	Pass

Structure Rating (max from all components) =	25%

Notes:
1) See additional documentation in Appendix C and Appendix D for calculations supporting the % capacity consumed.
2) A structure rating of 105% or less is within engineering tolerances and considered acceptable.

4.1) Recommendations

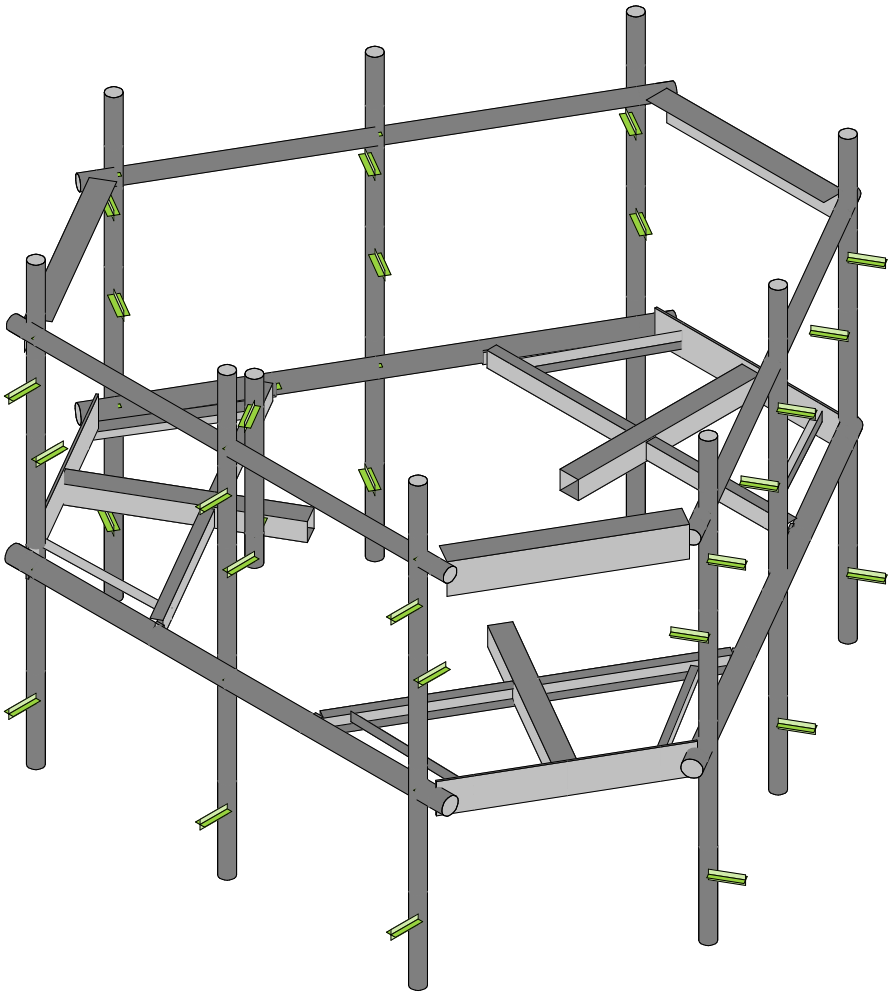
The mounting configuration will have sufficient capacity to carry the referenced loading once the following modifications are completed:

- **Install new Commscope MC-PK8-DSH platform. Vertically center antennas and mount pipes on mount face horizontals.**

No additional modifications are required at this time provided that the above-listed changes are completed.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

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JSS		Mar 7, 2022 at 2:23 PM
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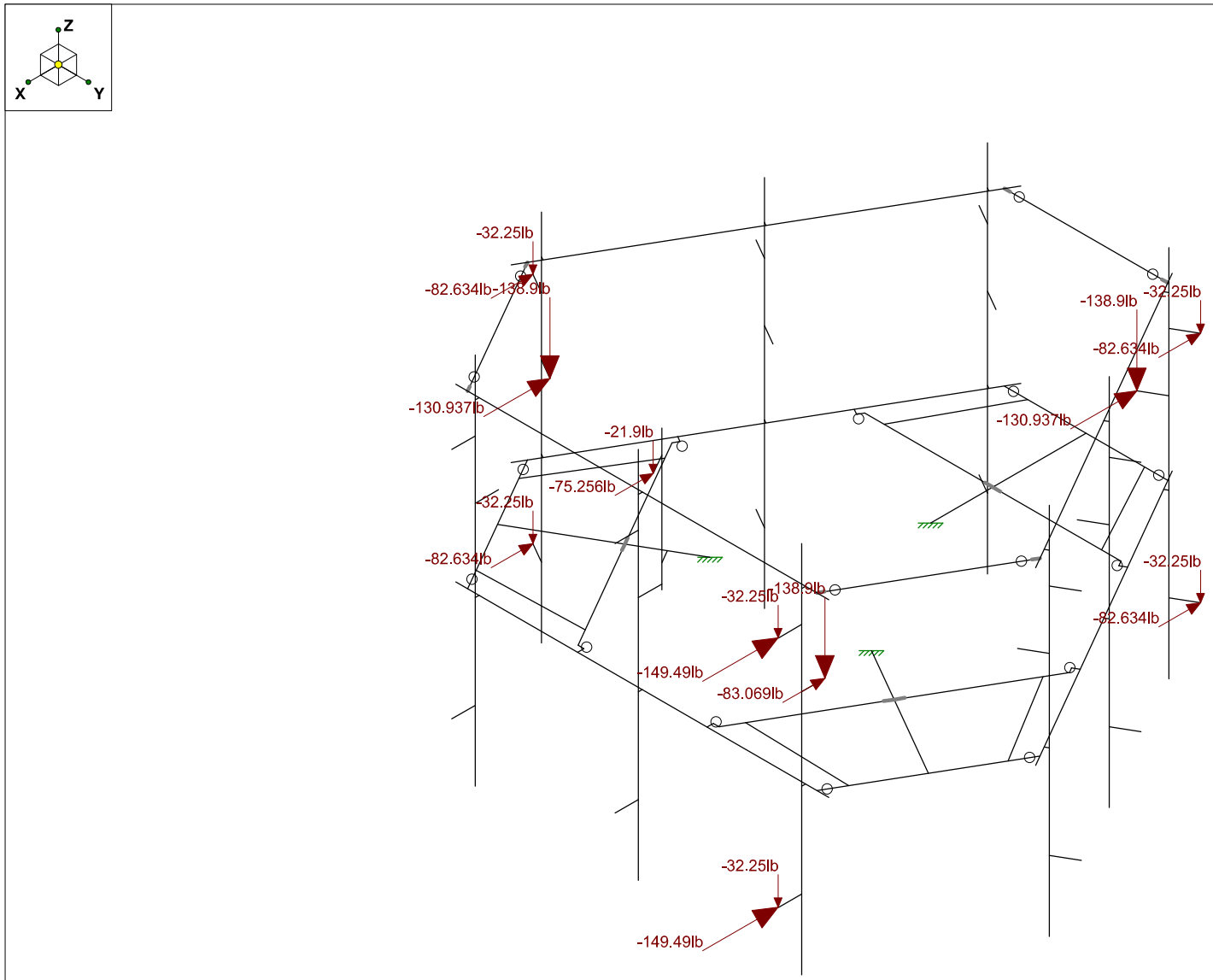

Loads: LC 1, Summary: 1.0D + 1.0W
Envelope Only Solution

Kimley-Horn and Associates, Inc.	857525 - NEWTOWN DINGLEBROOK	SK - 2
JSS		Mar 7, 2022 at 2:23 PM
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APPENDIX B

SOFTWARE INPUT CALCULATIONS

General Criteria	
TIA Standard	H
IBC Edition	2018
Structure Class	-
Risk Category	II

Site-Specific Criteria	
Exposure Category	C
Topographic Factor, K_{zt}	1.00
Structure Base Elev. (AMSL), z_s (ft)	437.00
Ground Effect Factor, K_e	0.98

Mount & Structure Criteria	
Mount Elevation (AGL) (ft)	119.00
Structure Height (ft)	149.00
Structure Type	Monopole

Constants	
Wind Direction Probability Factor, K_d	0.95
Gust Effect Factor, G_h	1
Shielding Factor, K_a (antenna)	0.9
Shielding Factor, K_a (mount)	0.9

Wind Summary	
Basic Wind Speed w/o Ice, V (mph)	115.00
Velocity Pressure Coeff., K_z	1.31
Velocity Pressure, q_z (w/o Ice) (psf)	41.56

Ice Load Summary	
Basic Wind Speed w/ Ice, V_i (mph)	50.00
Design Ice Thick. (ASCE 7-16) , t_i (in)	1
Velocity Pressure, q_z (w/ Ice) (psf)	7.86
Escalated Ice Thick. @ Mount, t_{iz} (in)	1.14

Seismic Load Summary	
Spectral Response (Short Periods), S_s	-
Spectral Response (1-Sec. Period), S_1	-
Site Class	D
Seismic Design Category	-
Seismic Risk Category	-

Snow Load Summary	
Ground Snow Load, p_g (psf)	-
Snow Load on Flat Roofs, p_f (psf)	-

Kimley»Horn

Date	March 07, 2022
Client	Crown Castle
Site #	827525
Site Name	NEWTOWN DINGLEBROOK
Project #	195580585

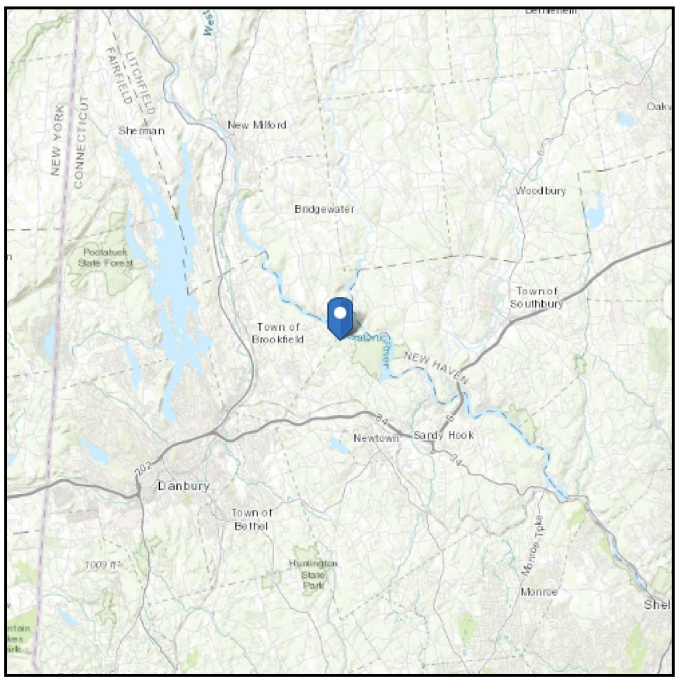
Antenna Name	Qty	Shape	Dimensions (in)			Weight (lb)	Joint Labels								EPA (ft²)		Wind Force, F_A (lb)			
																	No Ice		With Ice	
			H	W	D		Alpha		Beta		Gamma		Delta		Front	Side	Front	Side	Front	Side
MX08FRO665-21	3	Flat	72	20	8	64.5	A1T	A1B	B1T	B1B	G1T	G1B			7.99	3.23	298.98	120.7	64.32	29.01
TA08025-B604	3	Flat	15.8	15	7.9	63.9	A1R		B1R		G1R				1.03	1.96	38.64	73.45	10.77	18.3
TA08025-B605	3	Flat	15.8	15	9.1	75	A1R		B1R		G1R				1.19	1.96	44.43	73.45	12.03	18.3
RDIDC-9181-PF-48	1	Flat	16.6	14.6	8.5	21.9	RC1								2.01	1.17	75.26	43.7	18.7	11.92

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 437.7 ft (NAVD 88)
Latitude: 41.466947
Longitude: -73.333903



Wind

Results:

Wind Speed	115 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Mon Mar 07 2022

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

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

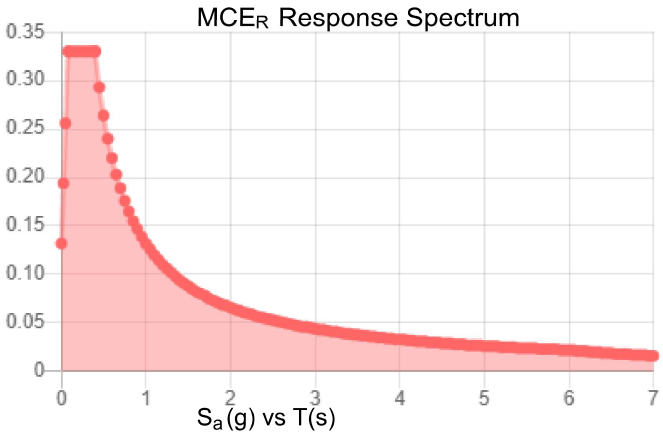
Seismic

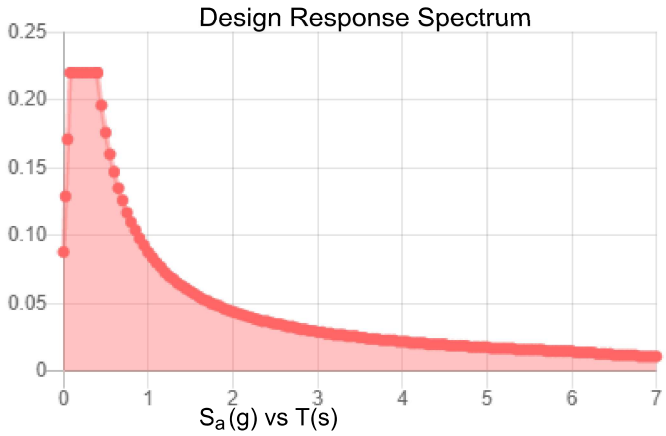
Site Soil Class: D - Default (see Section 11.4.3)

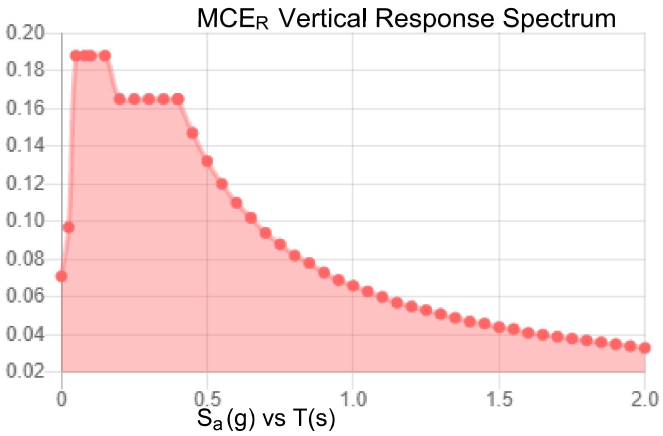
Results:

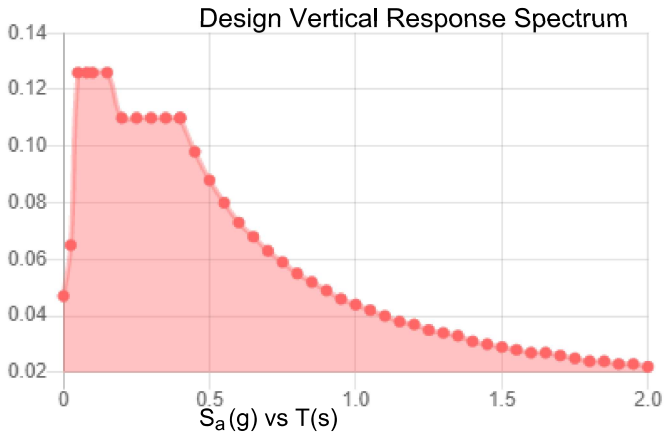
S_S :	0.206	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.116
F_v :	2.4	PGA_M :	0.182
S_{MS} :	0.33	F_{PGA} :	1.567
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.22	C_v :	0.713

Seismic Design Category B









Data Accessed: **Mon Mar 07 2022**

Date Source:

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Mon Mar 07 2022

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

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

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B Rnd	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3
8	A913 Gr.65	29000	11154	.3	.65	.49	65	1.1	80	1.1
9	A500 Gr.C Rnd	29000	11154	.3	.65	.49	46	1.6	62	1.2
10	A500 Gr.C Rect	29000	11154	.3	.65	.49	50	1.5	62	1.2
11	A529 Gr. 50	29000	11154	.3	.65	.49	50	1.1	65	1.1
12	A1011-33 ksi	29000	11154	.3	.65	.49	33	1.5	58	1.2
13	A1011 36 ksi	29000	11154	.3	.65	.49	36	1.5	58	1.2
14	A1018 50 ksi	29000	11154	.3	.65	.49	50	1.5	65	1.2
15	Q235	29000	11154	.3	.65	.49	35	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Corner Plate	PL6-1/2x3/8	Beam	None	A1011 3...	Typical	2.438	.029	8.582	.11
2	Side Plate	PL2-3/8x1/2	Beam	None	A1011 3...	Typical	1.188	.025	.558	.086
3	Grating Horiz	L2x2x4	Beam	None	A529 Gr...	Typical	.944	.346	.346	.021
4	Face Horiz	HSS3.500x0.165	Beam	None	A500 Gr...	Typical	1.729	2.409	2.409	4.819
5	Mount Pipe	HSS2.875x0.120	Column	None	A500 Gr...	Typical	1.039	.987	.987	1.975
6	Cross Horiz	C3.38x2.06x1/4	Beam	None	A1011 3...	Typical	1.75	.715	3.026	.034
7	Stand-Off Horiz	HSS4X4X6	Beam	None	A500 Gr...	Typical	4.78	10.3	10.3	17.5
8	Support Rail	HSS2.875x0.120	Beam	None	A500 Gr...	Typical	1.039	.987	.987	1.975
9	SR Corner Brace	L6.6x4.46x0.25	Beam	None	A1011 3...	Typical	2.703	4.759	12.473	.055

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	M3	Grating Horiz	27.295			Lbyy						Lateral
2	M8	Grating Horiz	27.295			Lbyy						Lateral
3	M13	Grating Horiz	27.295			Lbyy						Lateral
4	M28	SR Corner ...	42			Lbyy						Lateral
5	M29	SR Corner ...	42			Lbyy						Lateral
6	M30	SR Corner ...	42			Lbyy						Lateral
7	M63A	Cross Horiz	33			Lbyy						Lateral
8	M61B	Cross Horiz	33			Lbyy						Lateral
9	M63B	Cross Horiz	33			Lbyy						Lateral
10	M25	Support Rail	96			Lbyy						Lateral
11	M51	Support Rail	96			Lbyy						Lateral
12	M65A	Support Rail	96			Lbyy						Lateral
13	M2	Stand-Off H...	40			Lbyy						Lateral
14	M7	Stand-Off H...	40			Lbyy						Lateral
15	M12	Stand-Off H...	40			Lbyy						Lateral
16	MP9	Mount Pipe	96			Lbyy						Lateral
17	MP7	Mount Pipe	96			Lbyy						Lateral
18	MP8	Mount Pipe	96			Lbyy						Lateral
19	MP3	Mount Pipe	96			Lbyy						Lateral
20	MP1	Mount Pipe	96			Lbyy						Lateral
21	MP6	Mount Pipe	96			Lbyy						Lateral
22	MP4	Mount Pipe	96			Lbyy						Lateral
23	MP2	Mount Pipe	96			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
24	MP5	Mount Pipe	96			Lbyy						Lateral
25	M4	Grating Horiz	27.295			Lbyy						Lateral
26	M9	Grating Horiz	27.295			Lbyy						Lateral
27	M14	Grating Horiz	27.295			Lbyy						Lateral
28	M18	Face Horiz	96			Lbyy						Lateral
29	M48	Face Horiz	96			Lbyy						Lateral
30	M62	Face Horiz	96			Lbyy						Lateral
31	M61A	Cross Horiz	33			Lbyy						Lateral
32	M60A	Cross Horiz	33			Lbyy						Lateral
33	M62A	Cross Horiz	33			Lbyy						Lateral
34	M5	Corner Plate	42			Lbyy						Lateral
35	M10	Corner Plate	42			Lbyy						Lateral
36	M15	Corner Plate	42			Lbyy						Lateral
37	M88A	Side Plate	1.5			Lbyy						Lateral
38	M89A	Side Plate	1.5			Lbyy						Lateral
39	M90A	Side Plate	1.5			Lbyy						Lateral
40	M91A	Side Plate	1.5			Lbyy						Lateral
41	M92A	Side Plate	1.5			Lbyy						Lateral
42	M93A	Side Plate	1.5			Lbyy						Lateral
43	M101	Mount Pipe	36									Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(...	Surface...
1	Dead	DL			-1	13				
2	Dead of Ice	RL				13		43		
4	Structure Wind (0)	None						86		
5	Structure Wind (30)	None						86		
6	Structure Wind (45)	None						86		
7	Structure Wind (60)	None						86		
8	Structure Wind (90)	None						86		
9	Structure Wind (120)	None						86		
10	Structure Wind (135)	None						86		
11	Structure Wind (150)	None						86		
12	Structure Wind w/ Ice (0)	None						86		
13	Structure Wind w/ Ice (30)	None						86		
14	Structure Wind w/ Ice (45)	None						86		
15	Structure Wind w/ Ice (60)	None						86		
16	Structure Wind w/ Ice (90)	None						86		
17	Structure Wind w/ Ice (120)	None						86		
18	Structure Wind w/ Ice (135)	None						86		
19	Structure Wind w/ Ice (150)	None						86		
20	Antenna Wind (0)	None				26				
21	Antenna Wind (30)	None				26				
22	Antenna Wind (45)	None				26				
23	Antenna Wind (60)	None				26				
24	Antenna Wind (90)	None				26				
25	Antenna Wind (120)	None				26				
26	Antenna Wind (135)	None				26				
27	Antenna Wind (150)	None				26				
28	Antenna Wind w/ Ice (0)	None				26				
29	Antenna Wind w/ Ice (30)	None				26				
30	Antenna Wind w/ Ice (45)	None				26				
31	Antenna Wind w/ Ice (60)	None				26				
32	Antenna Wind w/ Ice (90)	None				26				
33	Antenna Wind w/ Ice (120)	None				26				

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(...	Surface...
34	Antenna Wind w/ Ice (135)	None				26				
35	Antenna Wind w/ Ice (150)	None				26				
36	Maintenance Live Lm (1)	OL1				1				
37	Maintenance Live Lm (2)	OL2				1				
38	Maintenance Live Lm (3)	OL3				1				
41	Maintenance Live Lv (1)	OL6					1			
42	Maintenance Live Lv (2)	OL7					1			
43	Maintenance Live Lv (3)	OL8					1			

Load Combinations

	Description	S...	P...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	Summary: 1.0D + 1.0W	Yes	Y		DL	1	20	1																
2	1.4D	Yes	Y		DL	1.4																		
3	1.2D + 1.0W(0)	Yes	Y		DL	1.2	4	1	20	1														
4	1.2D + 1.0W(30)	Yes	Y		DL	1.2	5	1	21	1														
5	1.2D + 1.0W(45)	Yes	Y		DL	1.2	6	1	22	1														
6	1.2D + 1.0W(60)	Yes	Y		DL	1.2	7	1	23	1														
7	1.2D + 1.0W(90)	Yes	Y		DL	1.2	8	1	24	1														
8	1.2D + 1.0W(120)	Yes	Y		DL	1.2	9	1	25	1														
9	1.2D + 1.0W(135)	Yes	Y		DL	1.2	10	1	26	1														
10	1.2D + 1.0W(150)	Yes	Y		DL	1.2	11	1	27	1														
11	1.2D + 1.0W(180)	Yes	Y		DL	1.2	4	-1	20	-1														
12	1.2D + 1.0W(210)	Yes	Y		DL	1.2	5	-1	21	-1														
13	1.2D + 1.0W(225)	Yes	Y		DL	1.2	6	-1	22	-1														
14	1.2D + 1.0W(240)	Yes	Y		DL	1.2	7	-1	23	-1														
15	1.2D + 1.0W(270)	Yes	Y		DL	1.2	8	-1	24	-1														
16	1.2D + 1.0W(300)	Yes	Y		DL	1.2	9	-1	25	-1														
17	1.2D + 1.0W(315)	Yes	Y		DL	1.2	10	-1	26	-1														
18	1.2D + 1.0W(330)	Yes	Y		DL	1.2	11	-1	27	-1														
19	1.2D + 1.0Di + 1.0Wi(0)	Yes	Y		DL	1.2	RL	1	12	1	28	1												
20	1.2D + 1.0Di + 1.0Wi(30)	Yes	Y		DL	1.2	RL	1	13	1	29	1												
21	1.2D + 1.0Di + 1.0Wi(45)	Yes	Y		DL	1.2	RL	1	14	1	30	1												
22	1.2D + 1.0Di + 1.0Wi(60)	Yes	Y		DL	1.2	RL	1	15	1	31	1												
23	1.2D + 1.0Di + 1.0Wi(90)	Yes	Y		DL	1.2	RL	1	16	1	32	1												
24	1.2D + 1.0Di + 1.0Wi(1...	Yes	Y		DL	1.2	RL	1	17	1	33	1												
25	1.2D + 1.0Di + 1.0Wi(1...	Yes	Y		DL	1.2	RL	1	18	1	34	1												
26	1.2D + 1.0Di + 1.0Wi(1...	Yes	Y		DL	1.2	RL	1	19	1	35	1												
27	1.2D + 1.0Di + 1.0Wi(1...	Yes	Y		DL	1.2	RL	1	12	-1	28	-1												
28	1.2D + 1.0Di + 1.0Wi(2...	Yes	Y		DL	1.2	RL	1	13	-1	39	-1												
29	1.2D + 1.0Di + 1.0Wi(2...	Yes	Y		DL	1.2	RL	1	14	-1	30	-1												
30	1.2D + 1.0Di + 1.0Wi(2...	Yes	Y		DL	1.2	RL	1	15	-1	31	-1												
31	1.2D + 1.0Di + 1.0Wi(2...	Yes	Y		DL	1.2	RL	1	16	-1	32	-1												
32	1.2D + 1.0Di + 1.0Wi(3...	Yes	Y		DL	1.2	RL	1	17	-1	33	-1												
33	1.2D + 1.0Di + 1.0Wi(3...	Yes	Y		DL	1.2	RL	1	18	-1	34	-1												
34	1.2D + 1.0Di + 1.0Wi(3...	Yes	Y		DL	1.2	RL	1	19	-1	35	-1												
35	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	4	.068	20	.068	O...	1.5												
36	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	5	.068	21	.068	O...	1.5												
37	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	6	.068	22	.068	O...	1.5												
38	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	7	.068	23	.068	O...	1.5												
39	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	8	.068	24	.068	O...	1.5												
40	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	9	.068	25	.068	O...	1.5												
41	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	10	.068	26	.068	O...	1.5												
42	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	11	.068	27	.068	O...	1.5												
43	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	4	-.068	20	-.068	O...	1.5												
44	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	5	-.068	21	-.068	O...	1.5												

Load Combinations (Continued)

	Description	S...	P...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
45	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	6	-.068	22	-.068	O...	1.5														
46	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	7	-.068	23	-.068	O...	1.5														
47	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	8	-.068	24	-.068	O...	1.5														
48	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	9	-.068	25	-.068	O...	1.5														
49	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	10	-.068	26	-.068	O...	1.5														
50	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	11	-.068	27	-.068	O...	1.5														
51	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL	1.2	4	.068	20	.068	O...	1.5														
52	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL	1.2	5	.068	21	.068	O...	1.5														
53	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL	1.2	6	.068	22	.068	O...	1.5														
54	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL	1.2	7	.068	23	.068	O...	1.5														
55	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL	1.2	8	.068	24	.068	O...	1.5														
56	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL	1.2	9	.068	25	.068	O...	1.5														
57	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL	1.2	10	.068	26	.068	O...	1.5														
58	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL	1.2	11	.068	27	.068	O...	1.5														
59	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL	1.2	4	-.068	20	-.068	O...	1.5														
60	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL	1.2	5	-.068	21	-.068	O...	1.5														
61	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL	1.2	6	-.068	22	-.068	O...	1.5														
62	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL	1.2	7	-.068	23	-.068	O...	1.5														
63	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL	1.2	8	-.068	24	-.068	O...	1.5														
64	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL	1.2	9	-.068	25	-.068	O...	1.5														
65	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL	1.2	10	-.068	26	-.068	O...	1.5														
66	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL	1.2	11	-.068	27	-.068	O...	1.5														
67	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL	1.2	4	.068	20	.068	O...	1.5														
68	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL	1.2	5	.068	21	.068	O...	1.5														
69	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL	1.2	6	.068	22	.068	O...	1.5														
70	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL	1.2	7	.068	23	.068	O...	1.5														
71	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL	1.2	8	.068	24	.068	O...	1.5														
72	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL	1.2	9	.068	25	.068	O...	1.5														
73	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL	1.2	10	.068	26	.068	O...	1.5														
74	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL	1.2	11	.068	27	.068	O...	1.5														
75	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL	1.2	4	-.068	20	-.068	O...	1.5														
76	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL	1.2	5	-.068	21	-.068	O...	1.5														
77	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL	1.2	6	-.068	22	-.068	O...	1.5														
78	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL	1.2	7	-.068	23	-.068	O...	1.5														
79	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL	1.2	8	-.068	24	-.068	O...	1.5														
80	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL	1.2	9	-.068	25	-.068	O...	1.5														
81	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL	1.2	10	-.068	26	-.068	O...	1.5														
82	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL	1.2	11	-.068	27	-.068	O...	1.5														
83	1.2D + 1.5Lv(1) + 1.0W...	Yes	Y		DL	1.2	4	.068	20	.068	O...	1.5														
84	1.2D + 1.5Lv(1) + 1.0W...	Yes	Y		DL	1.2	5	.068	21	.068	O...	1.5														
85	1.2D + 1.5Lv(1) + 1.0W...	Yes	Y		DL	1.2	6	.068	22	.068	O...	1.5														
86	1.2D + 1.5Lv(1) + 1.0W...	Yes	Y		DL	1.2	7	.068	23	.068	O...	1.5														
87	1.2D + 1.5Lv(1) + 1.0W...	Yes	Y		DL	1.2	8	.068	24	.068	O...	1.5														
88	1.2D + 1.5Lv(1) + 1.0W...	Yes	Y		DL	1.2	9	.068	25	.068	O...	1.5														
89	1.2D + 1.5Lv(1) + 1.0W...	Yes	Y		DL	1.2	10	.068	26	.068	O...	1.5														
90	1.2D + 1.5Lv(1) + 1.0W...	Yes	Y		DL	1.2	11	.068	27	.068	O...	1.5														
91	1.2D + 1.5Lv(1) + 1.0W...	Yes	Y		DL	1.2	4	-.068	20	-.068	O...	1.5														
92	1.2D + 1.5Lv(1) + 1.0W...	Yes	Y		DL	1.2	5	-.068	21	-.068	O...	1.5														
93	1.2D + 1.5Lv(1) + 1.0W...	Yes	Y		DL	1.2	6	-.068	22	-.068	O...	1.5														
94	1.2D + 1.5Lv(1) + 1.0W...	Yes	Y		DL	1.2	7	-.068	23	-.068	O...	1.5														
95	1.2D + 1.5Lv(1) + 1.0W...	Yes	Y		DL	1.2	8	-.068	24	-.068	O...	1.5														
96	1.2D + 1.5Lv(1) + 1.0W...	Yes	Y		DL	1.2	9	-.068	25	-.068	O...	1.5														
97	1.2D + 1.5Lv(1) + 1.0W...	Yes	Y		DL	1.2	10	-.068	26	-.068	O...	1.5														
98	1.2D + 1.5Lv(1) + 1.0W...	Yes	Y		DL	1.2	11	-.068	27	-.068	O...	1.5														
99	1.2D + 1.5Lv(2) + 1.0W...	Yes	Y		DL	1.2	4	.068	20	.068	O...	1.5														
100	1.2D + 1.5Lv(2) + 1.0W...	Yes	Y		DL	1.2	5	.068	21	.068	O...	1.5														
101	1.2D + 1.5Lv(2) + 1.0W...	Yes	Y		DL	1.2	6	.068	22	.068	O...	1.5														

Load Combinations (Continued)

	Description	S...	P...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
102	1.2D + 1.5Lv(2) + 1.0W...	Yes	Y		DL	1.2	7	.068	23	.068	O...	1.5														
103	1.2D + 1.5Lv(2) + 1.0W...	Yes	Y		DL	1.2	8	.068	24	.068	O...	1.5														
104	1.2D + 1.5Lv(2) + 1.0W...	Yes	Y		DL	1.2	9	.068	25	.068	O...	1.5														
105	1.2D + 1.5Lv(2) + 1.0W...	Yes	Y		DL	1.2	10	.068	26	.068	O...	1.5														
106	1.2D + 1.5Lv(2) + 1.0W...	Yes	Y		DL	1.2	11	.068	27	.068	O...	1.5														
107	1.2D + 1.5Lv(2) + 1.0W...	Yes	Y		DL	1.2	4	-.068	20	-.068	O...	1.5														
108	1.2D + 1.5Lv(2) + 1.0W...	Yes	Y		DL	1.2	5	-.068	21	-.068	O...	1.5														
109	1.2D + 1.5Lv(2) + 1.0W...	Yes	Y		DL	1.2	6	-.068	22	-.068	O...	1.5														
110	1.2D + 1.5Lv(2) + 1.0W...	Yes	Y		DL	1.2	7	-.068	23	-.068	O...	1.5														
111	1.2D + 1.5Lv(2) + 1.0W...	Yes	Y		DL	1.2	8	-.068	24	-.068	O...	1.5														
112	1.2D + 1.5Lv(2) + 1.0W...	Yes	Y		DL	1.2	9	-.068	25	-.068	O...	1.5														
113	1.2D + 1.5Lv(2) + 1.0W...	Yes	Y		DL	1.2	10	-.068	26	-.068	O...	1.5														
114	1.2D + 1.5Lv(2) + 1.0W...	Yes	Y		DL	1.2	11	-.068	27	-.068	O...	1.5														
115	1.2D + 1.5Lv(3) + 1.0W...	Yes	Y		DL	1.2	4	.068	20	.068	O...	1.5														
116	1.2D + 1.5Lv(3) + 1.0W...	Yes	Y		DL	1.2	5	.068	21	.068	O...	1.5														
117	1.2D + 1.5Lv(3) + 1.0W...	Yes	Y		DL	1.2	6	.068	22	.068	O...	1.5														
118	1.2D + 1.5Lv(3) + 1.0W...	Yes	Y		DL	1.2	7	.068	23	.068	O...	1.5														
119	1.2D + 1.5Lv(3) + 1.0W...	Yes	Y		DL	1.2	8	.068	24	.068	O...	1.5														
120	1.2D + 1.5Lv(3) + 1.0W...	Yes	Y		DL	1.2	9	.068	25	.068	O...	1.5														
121	1.2D + 1.5Lv(3) + 1.0W...	Yes	Y		DL	1.2	10	.068	26	.068	O...	1.5														
122	1.2D + 1.5Lv(3) + 1.0W...	Yes	Y		DL	1.2	11	.068	27	.068	O...	1.5														
123	1.2D + 1.5Lv(3) + 1.0W...	Yes	Y		DL	1.2	4	-.068	20	-.068	O...	1.5														
124	1.2D + 1.5Lv(3) + 1.0W...	Yes	Y		DL	1.2	5	-.068	21	-.068	O...	1.5														
125	1.2D + 1.5Lv(3) + 1.0W...	Yes	Y		DL	1.2	6	-.068	22	-.068	O...	1.5														
126	1.2D + 1.5Lv(3) + 1.0W...	Yes	Y		DL	1.2	7	-.068	23	-.068	O...	1.5														
127	1.2D + 1.5Lv(3) + 1.0W...	Yes	Y		DL	1.2	8	-.068	24	-.068	O...	1.5														
128	1.2D + 1.5Lv(3) + 1.0W...	Yes	Y		DL	1.2	9	-.068	25	-.068	O...	1.5														
129	1.2D + 1.5Lv(3) + 1.0W...	Yes	Y		DL	1.2	10	-.068	26	-.068	O...	1.5														
130	1.2D + 1.5Lv(3) + 1.0W...	Yes	Y		DL	1.2	11	-.068	27	-.068	O...	1.5														

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	P24	max	1196.762	18	966.063	16	1479.234	30	-.298	6	.083	6	1.841	18
2		min	-1196.646	10	-964.271	8	307.808	6	-3.185	30	-2.613	78	-1.834	9
3	P13	max	596.389	3	1302.557	15	1350.572	19	.722	31	3.162	19	1.74	7
4		min	-604.497	11	-1306.711	7	255.973	11	.157	7	.311	11	-1.735	15
5	P1	max	1183.68	3	720.905	14	1410.346	40	2.303	40	-.354	16	1.695	12
6		min	-1176.409	11	-718.248	6	247.21	16	.093	16	-3.098	40	-1.703	4
7	Totals:	max	2934.279	3	2902.869	15	3909.877	33						
8		min	-2934.28	11	-2902.876	7	1601.881	1						

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

	Member	Shape	Code Check	Loc[in]	LC	She...	Lo...	...	LC	phi*P...	phi*P...	phi*M...	phi*M...	...	Eqn
1	M63A	C3.38x2.06x1/4	.228	0	9	.034	0	y	50	4828...	56700	2.203	5.751	...	H1-1b
2	M61B	C3.38x2.06x1/4	.222	0	3	.035	26....	z	12	4828...	56700	2.203	5.751	...	H1-1b
3	M63B	C3.38x2.06x1/4	.217	0	14	.033	26....	z	7	4828...	56700	2.203	5.751	...	H1-1b
4	M62A	C3.38x2.06x1/4	.200	0	14	.038	26....	y	21	4828...	56700	2.203	5.751	...	H1-1b
5	M61A	C3.38x2.06x1/4	.200	0	8	.037	26....	y	32	4828...	56700	2.203	5.751	...	H1-1b
6	M10	PL6-1/2x3/8	.197	21	3	.085	36....	y	31	3658....	78975	.617	8.197	...	H1-1b
7	M60A	C3.38x2.06x1/4	.192	0	3	.036	26....	y	27	4828...	56700	2.203	5.751	...	H1-1b
8	M15	PL6-1/2x3/8	.192	21	14	.074	5.9...	y	67	3658....	78975	.617	8.178	...	H1-1b
9	M5	PL6-1/2x3/8	.185	21	8	.102	36....	y	35	3658....	78975	.617	8.189	...	H1-1b
10	M93A	PL2-3/8x1/2	.178	1.5	3	.150	0	y	22	3825...	38475	.401	1.904	...	H1-1b
11	M89A	PL2-3/8x1/2	.175	1.5	16	.190	0	y	60	3825...	38475	.401	1.904	...	H1-1b

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

	Member	Shape	Code Check	Loc[in]	LC	She...	Lo...	...	LC	phi*P...	phi*P...	phi*M...	phi*M...	...	Eqn
12	M92A	PL2-3/8x1/2	.171	1.5	18	.111	0	y	20	3825...	38475	.401	1.904	...	H1-1b
13	M91A	PL2-3/8x1/2	.171	1.5	13	.152	0	y	34	3825...	38475	.401	1.904	...	H1-1b
14	M88A	PL2-3/8x1/2	.167	1.5	7	.181	0	y	58	3825...	38475	.401	1.904	...	H1-1b
15	M90A	PL2-3/8x1/2	.164	1.5	12	.119	0	y	30	3825...	38475	.401	1.904	...	H1-1b
16	M8	L2x2x4	.164	0	4	.010	0	y	12	2952...	42480	.96	2.19	...	H2-1
17	M12	HSS4X4X6	.162	40	16	.069	40	y	79	2037...	2151...	23.963	23.963	...	H1-1b
18	M13	L2x2x4	.157	0	15	.010	0	y	7	2952...	42480	.96	2.19	...	H2-1
19	M3	L2x2x4	.153	0	9	.010	0	y	17	2952...	42480	.96	2.19	...	H2-1
20	M7	HSS4X4X6	.153	40	6	.065	24	y	32	2037...	2151...	23.963	23.963	...	H1-1b
21	M2	HSS4X4X6	.151	40	43	.099	40	y	39	2037...	2151...	23.963	23.963	...	H1-1b
22	MP6	HSS2.875x0.1...	.150	42.442	9	.046	42....		6	2239...	4301...	3.143	3.143	...	H1-1b
23	MP3	HSS2.875x0.1...	.145	42.442	7	.055	85....		11	2239...	4301...	3.143	3.143	...	H1-1b
24	MP9	HSS2.875x0.1...	.141	42.442	4	.065	42....		3	2239...	4301...	3.143	3.143	...	H1-1b
25	MP8	HSS2.875x0.1...	.135	42.442	4	.042	42....		12	2239...	4301...	3.143	3.143	...	H1-1b
26	MP2	HSS2.875x0.1...	.129	42.442	15	.043	42....		7	2239...	4301...	3.143	3.143	...	H1-1b
27	MP5	HSS2.875x0.1...	.124	42.442	10	.047	42....		18	2239...	4301...	3.143	3.143	...	H1-1b
28	MP4	HSS2.875x0.1...	.117	42.442	18	.042	42....		11	2239...	4301...	3.143	3.143	...	H1-1b
29	M4	L2x2x4	.113	0	16	.014	27....	y	36	2952...	42480	.96	2.19	...	H2-1
30	M14	L2x2x4	.112	0	6	.013	0	z	21	2952...	42480	.96	2.19	...	H2-1
31	MP1	HSS2.875x0.1...	.108	42.442	7	.044	42....		8	2239...	4301...	3.143	3.143	...	H1-1b
32	MP7	HSS2.875x0.1...	.104	42.442	12	.046	42....		14	2239...	4301...	3.143	3.143	...	H1-1b
33	M9	L2x2x4	.104	0	11	.012	27....	y	31	2952...	42480	.96	2.19	...	H2-1
34	M62	HSS3.500x0.1...	.099	31.326	3	.036	48		4	4587...	7158...	6.338	6.338	...	H1-1b
35	M48	HSS3.500x0.1...	.097	31.326	8	.042	92....		39	4587...	7158...	6.338	6.338	...	H1-1b
36	M18	HSS3.500x0.1...	.097	31.326	14	.033	48		7	4587...	7158...	6.338	6.338	...	H1-1b
37	M29	L6.6x4.46x0.25	.088	39	3	.012	39	z	11	5143...	87561	2.465	7.125	...	H2-1
38	M25	HSS2.875x0.1...	.082	6.063	12	.033	92....		8	2239...	4301...	3.143	3.143	...	H1-1b
39	M28	L6.6x4.46x0.25	.082	39	13	.012	0	z	7	5143...	87561	2.465	7.125	...	H2-1
40	M65A	HSS2.875x0.1...	.082	6.063	18	.035	5.5...		3	2239...	4301...	3.143	3.143	...	H1-1b
41	M30	L6.6x4.46x0.25	.082	39	8	.012	39	z	17	5143...	87561	2.465	7.125	...	H2-1
42	M51	HSS2.875x0.1...	.079	6.063	7	.035	92....		11	2239...	4301...	3.143	3.143	...	H1-1b
43	M101	HSS2.875x0.1...	.063	29.937	11	.018	29....		12	3924...	4301...	3.143	3.143	...	H1-1b

APPENDIX D

ADDITIONAL CALCULATIONS

Square/Rectangular Flange Connection

TIA-222-H

Kimley»Horn

Site Number	857525
Job number	019558058
Code	TIA-222-H

Member/Node Under Consideration	M12
Controlling Load Combination (X-Direction)	LC78
Controlling Load Combination (Y-Direction)	LC9

Normalize usages per TIA-222-H, Sec. 15.5	☐

X and Y Reactions Simultaneous?	No

REACTIONS (ABOUT X - HORIZONTAL)	
Moment, Mu (kip-ft)	3.673
Shear, Vu (kips)	-1.476
Axial, Pu (kips) - *Negative for tension*	-0.047

REACTIONS (ABOUT Y - VERTICAL)	
Moment, Mu (kip-ft)	1.834
Shear, Vu (kips)	1.398
Axial, Pu (kips) - *Negative for tension*	0.234

BOLT CONFIGURATION	
Bolt Quantity, n_b	4
Bolt Diameter, d_b (in)	0.625
Bolt Grade	A325
Width between bolts, s (in)	7.00

BOLT USAGE	
Maximum Tension in Bolt, Tub (kip)	3.160
Nominal Tensile Strength, ϕRnt (kip)	20.340
Tensile Usage (Section 4.9.6.1)	**16%**

PLATE CONFIGURATION	
Plate Shape	Square
Plate Grade	A572-50
Thickness of plate, t (in)	0.750
Width of plate, w (in)	9.00

PLATE USAGE	
Effective width of plate, b_{eff} (in)	4.493
Ultimate flexural load in plate, Mu (kip-in)	7.098
Factored flexural capacity, ϕMn (kip-in)	28.430
Flexural Usage	**25%**

SUPPORT ARM CONFIGURATION	
Member Shape	Square
Member Grade	A500-50
Thickness of Member, t (in)	0.375
Width of member, w (in)	4.000

Stiffeners present?	☐

APPENDIX E

SUPPLEMENTAL DRAWINGS

NOTES:

1.0 GENERAL
- 1.1 ALL METRIC DIMENSIONS ARE IN BRACKETS
- 1.2 FOR PATENTS, SEE WWW.CS-PAT.COM

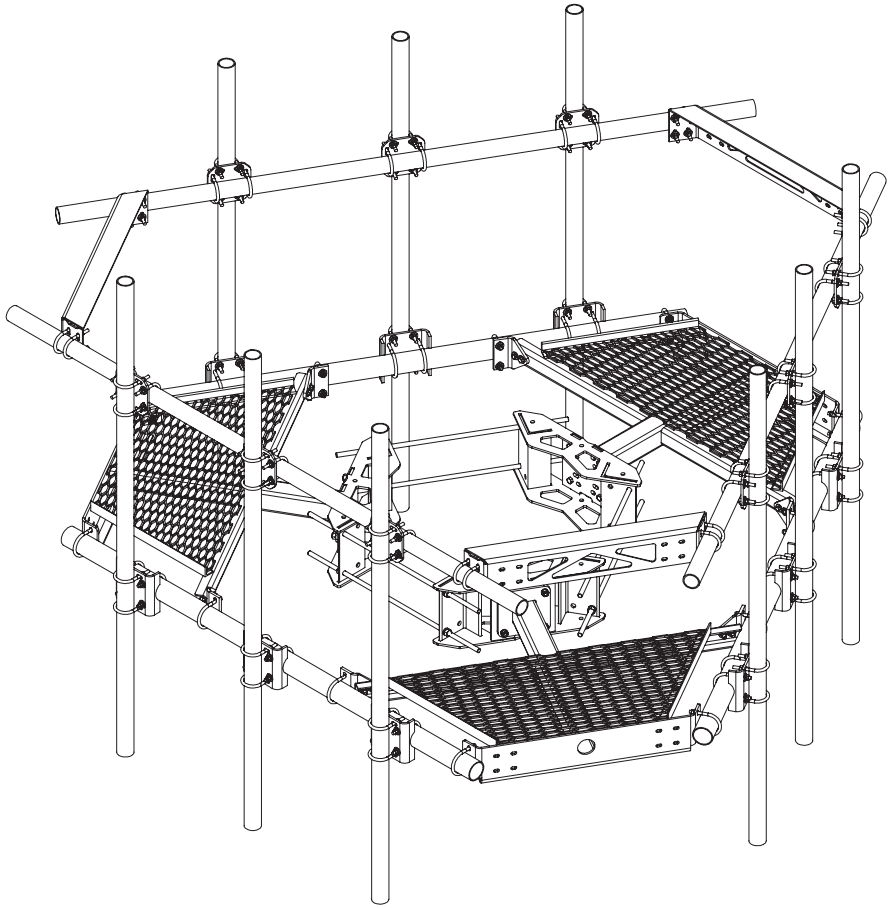
2.0 DESIGN NOTES
- 2.1 TORQUE U-BOLTS TO 44 FT-LBS

3.0 MANUFACTURING/SPECIAL REQUIREMENTS

4.0 TEST

5.0 PACKAGING

REVISIONS				
REV.	ECN	DESCRIPTION	BY	DATE
A	10272PC	INITIAL RELEASE	HDAI	03/08/2021



PATENT PENDING

DENSITY	lbs/in³
MASS	lbs
VOLUME	in³
SURFACE AREA	in²
HEIGHT	96"
LENGTH	46"
WIDTH	29"

COMMSCOPE, INC. OF NORTH CAROLINA

TOLERANCES
1 PLACE .X ± .25
2 PLACE .XX ± 0.12
3 PLACE .XXX ± 0.06
ANGLES ± 2°

SAP MATERIAL MASTER: MC-PK8-DSH

FINISH: GALV A123

MATERIAL: A500, A1011/A1018

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES INTERPRET PER ANSI Y-14.5M-1994

	NAME	DATE
CE	MRC	02/17/20
RW	ROGHANSON	03/16/2021
AD	BCROSS	03/17/2021
RE	FA1024	02/27/2020

ECN 10272PC

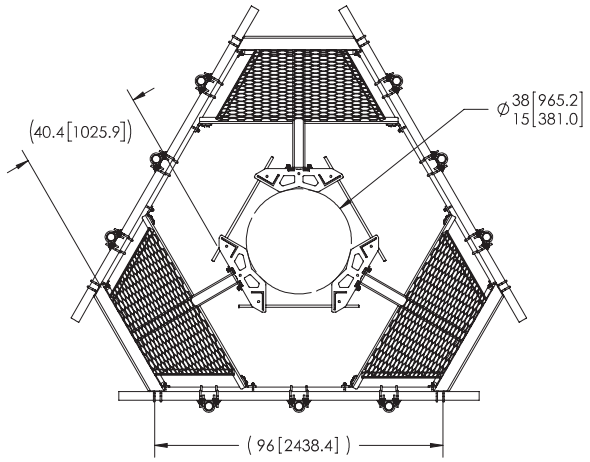
TITLE: **LOW PROFILE PLATFORM FACE**

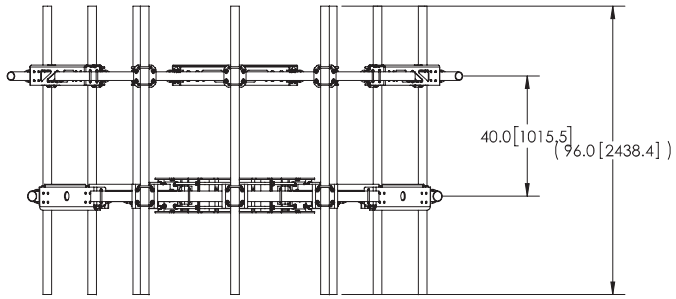
SCALE: 1:32

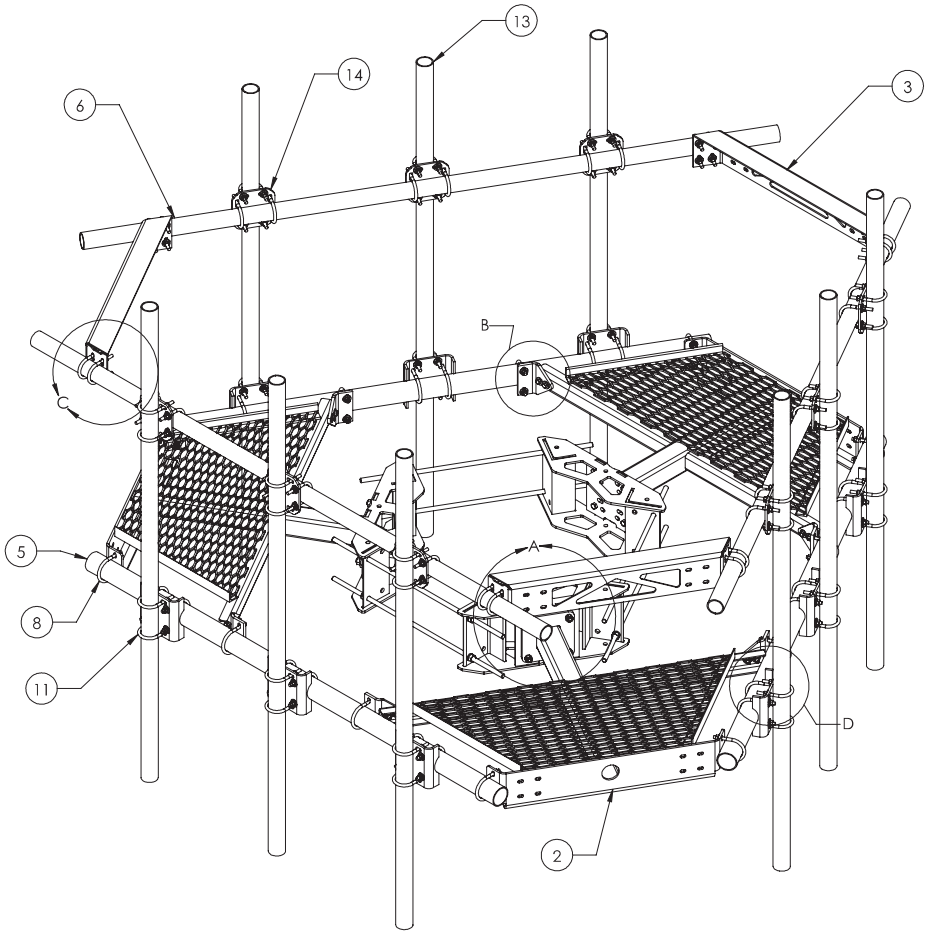
DOCUMENT NO.: MC-PK8-DSH

SIZE	Auth Group	MODEL			DRAWING			SHEET
	INSL	VERSION	STATUS	REVISION	VERSION	STATUS	REVISION	
C		01	AD		00	AD	A	1 OF 3

NOTES:







ITEM	PART NO.	DESCRIPTION	QTY.
1	MC-RM1550-3	12" - 50" OD RINGMOUNT	1
2	MTC300602	SECTOR WELDMENT FOR SNUB NOSE PLATFORM	3
3	MT195801	Corner Weldment Snub Nose Handrail	3
4	GB-0520A	5/8" X 2" GALV BOLT KIT (A325)	12
5	MT54796	3.50" OD X 96" GALV PIPE	3
6	MT546120	2.875" O.D. X 120" PIPE	3
7	GWF-04	1/2" GALV FLAT WASHER	12
8	GUB-4355	1/2" X 3-5/8" X 5" GALV U-BOLT	12
9	MTC300618	MOUNTING PLATE FOR MT-196	6
10	GB-04205	1/2" X 2" GALV BOLT KIT	12
11	MT-219M-H	3.5" OD X 2-7/8" OD Clamp Bracket Assembly	9
12	GUB-4352	1/2" X 3" X 5-1/4" GALV U-BOLT	12
13	MT54696	Ø2.875" O.D. X 96 PIPE	9
14	XP-2525	CROSSOVER PLATE KIT, 2-7/8 OD X 2-7/8 OD	9

COMMSCOPE, INC. OF NORTH CAROLINA

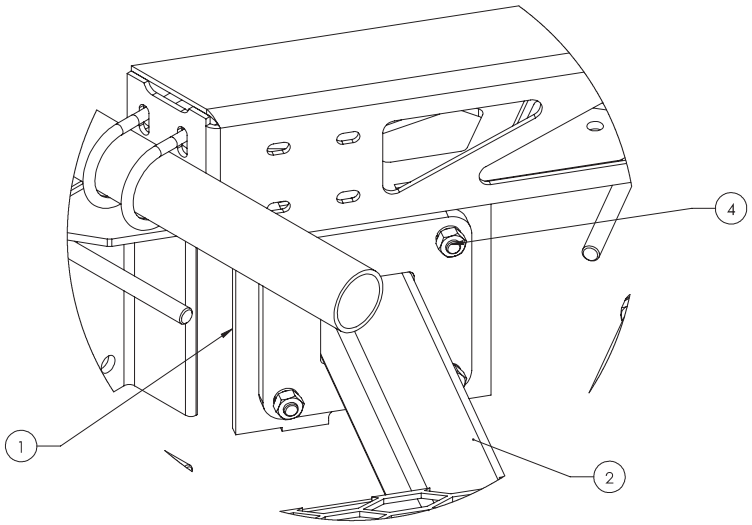
TITLE

LOW PROFILE PLATFORM FACE

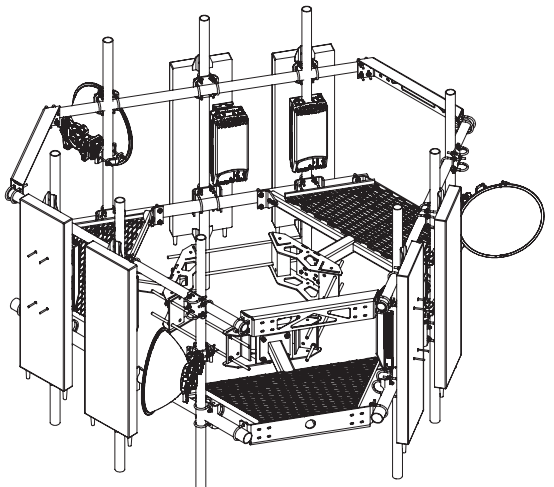
SIZE	SCALE	DOCUMENT NO.
C	1:32	MC-PK8-DSH

DRAWING			SHEET
VERSION	STATUS	REVISION	
00	AD	A	

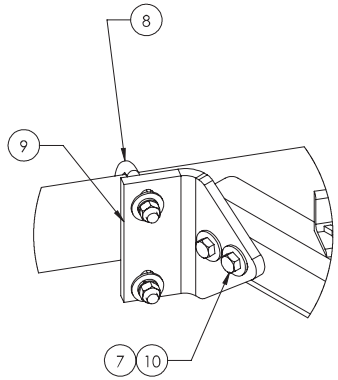
NOTES:



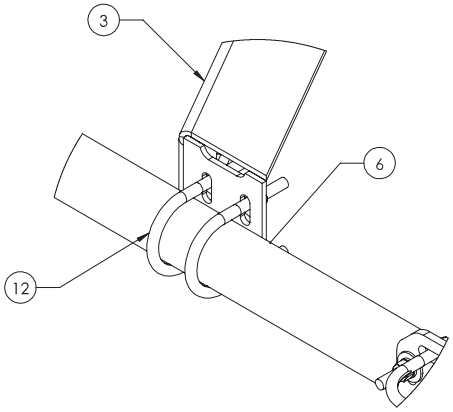
DETAIL A
SCALE 1 : 4



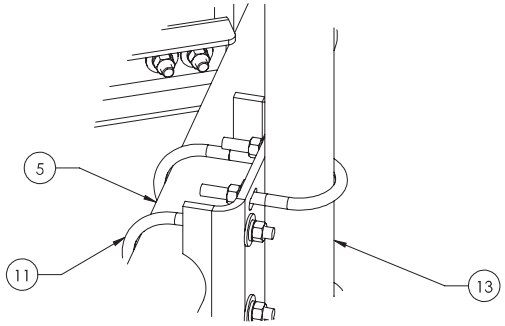
WITH ANTENNAS



DETAIL B
SCALE 1 : 4



DETAIL C
SCALE 1 : 4



DETAIL D
SCALE 1 : 4

COMMSCOPE, INC. OF NORTH CAROLINA			
TITLE: LOW PROFILE PLATFORM FACE			
SIZE: C	SCALE: 1:24	DOCUMENT NO.: MC-PK8-DSH	
		DRAWING: VERSION 00 / STATUS AD / REVISION A	SHEET: 3 OF 3

Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

Dish Wireless Existing Facility

Site ID: NJJER01095A

857525
24 Dinglebrook Lane
Newton, Connecticut 06470

April 27, 2022

EBI Project Number: 6222002987

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**8.86%**

April 27, 2022

Attn: Dish Wireless

Emissions Analysis for Site: NJJER01095A - 857525

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **24 Dinglebrook Lane** in **Newton, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at 24 Dinglebrook Lane in Newton, 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 119 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:	11.45 dBd / 15.75 dBd / 16.75 dBd	Gain:	11.45 dBd / 15.75 dBd / 16.75 dBd	Gain:	11.45 dBd / 15.75 dBd / 16.75 dBd
Height (AGL):	119 feet	Height (AGL):	119 feet	Height (AGL):	119 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):	2,529.88	ERP (W):	2,529.88	ERP (W):	2,529.88
Antenna A1 MPE %:	**0.90%**	Antenna B1 MPE %:	**0.90%**	Antenna C1 MPE %:	**0.90%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	0.90%
T-Mobile	2.37%
AT&T	1.55%
Verizon	4.04%
Site Total MPE % :	8.86%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	0.90%
Dish Wireless Sector B Total:	0.90%
Dish Wireless Sector C Total:	0.90%
Site Total MPE % :	8.86%

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 (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Dish Wireless 600 MHz n71	4	112.10	119.0	1.26	600 MHz n71	400	0.32%
Dish Wireless 1900 MHz n70	4	245.22	119.0	2.76	1900 MHz n70	1000	0.28%
Dish Wireless 2190 MHz n66	4	275.14	119.0	3.10	2190 MHz n66	1000	0.31%
						Total:	**0.90%**

• 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:	0.90%
Sector B:	0.90%
Sector C:	0.90%
Dish Wireless Maximum MPE % (Sector A):	0.90%
Site Total:	8.86%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **8.86%** 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

1200 MacArthur Blvd, Suite 200
Mahwah, NJ 07430

Phone: (862) 226-6814
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:
24 DINGLEBROOK LANE, NEWTOWN, CT 06470

CCATT 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:	**857525/NEWTOWN DINGLEBROOK**
Customer Site ID:	**NJJER01095A/CT-CCI-T-857525**
Site Address:	**24 DINGLEBROOK LANE, NEWTOWN, CT 06470**

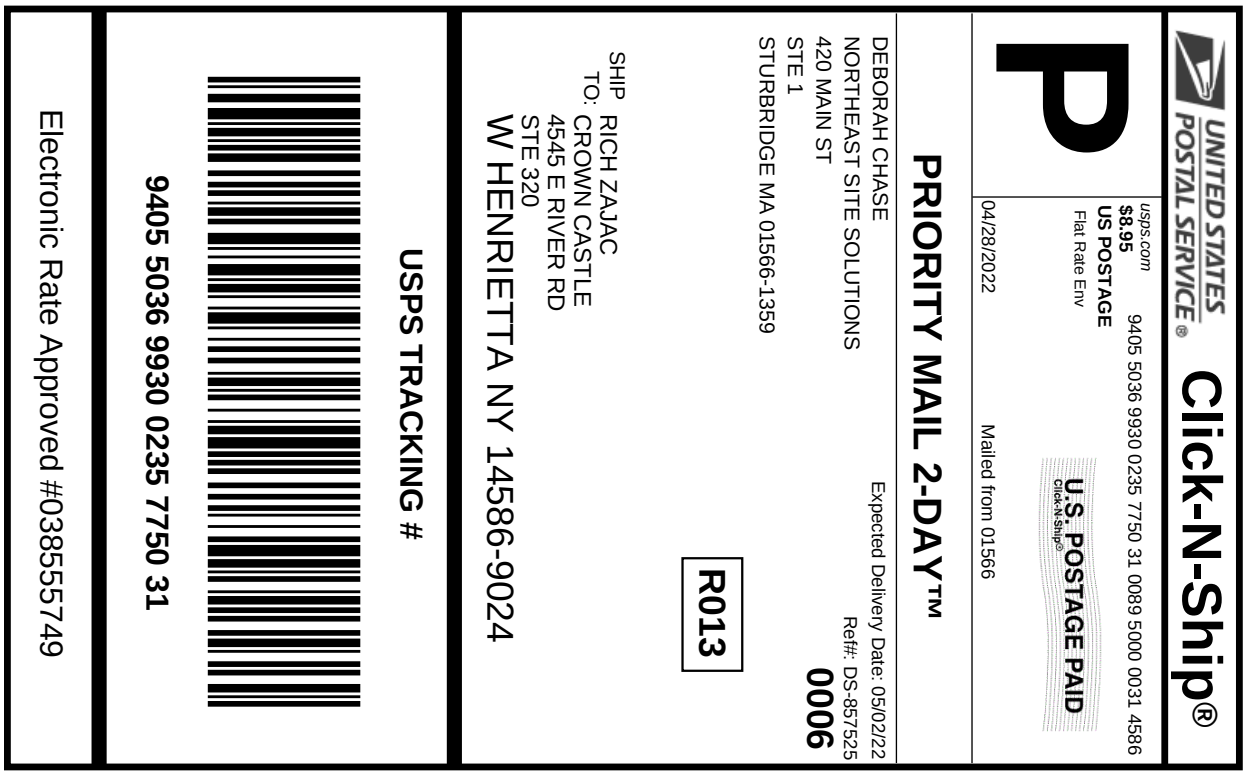
Crown Castle

By: _____ Date: 04/27/2022

Robin Cannizzaro
Real Estate Specialist

Exhibit H

Recipient Mailings



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Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0235 7750 31

Trans. #:	562385031
Print Date:	04/28/2022
Ship Date:	04/28/2022
Expected Delivery Date:	05/02/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

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

Ref#: DS-857525

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

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

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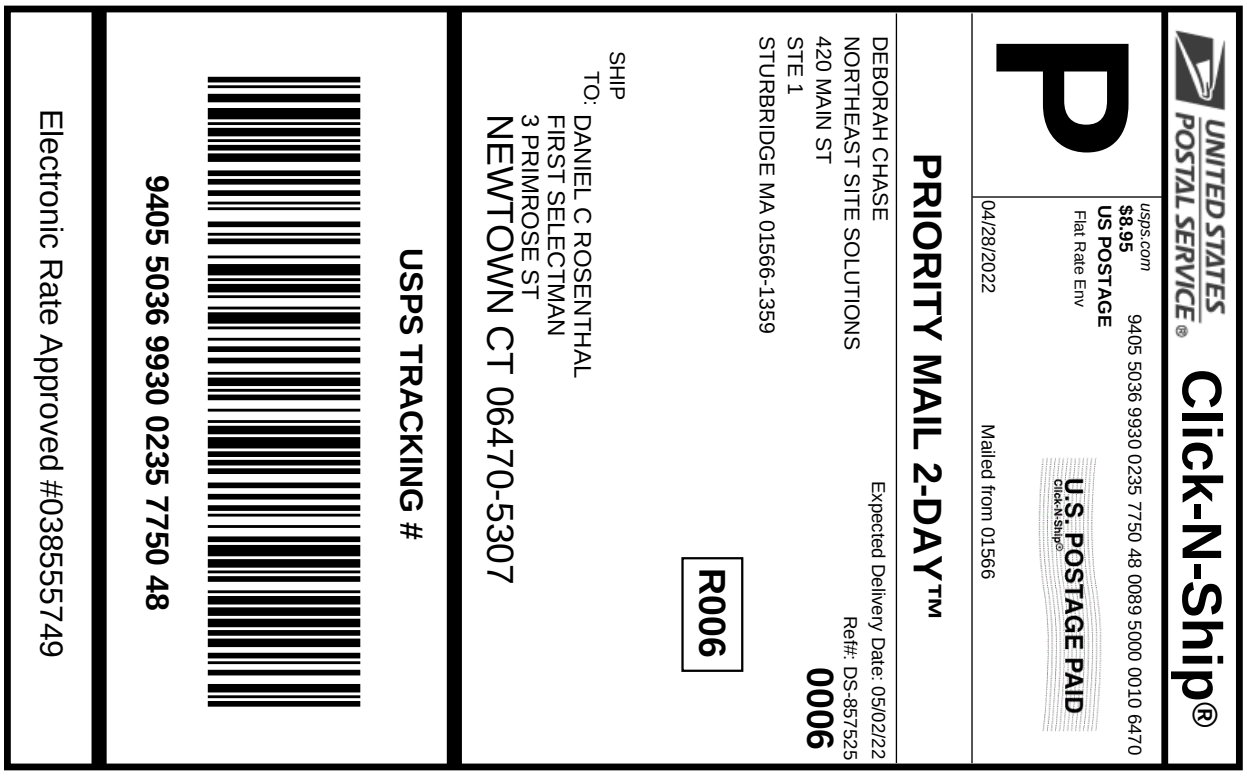
Check the status of your shipment on the USPS Tracking® page at usps.com



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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0235 7750 48

Trans. #:	562385031
Print Date:	04/28/2022
Ship Date:	04/28/2022
Expected Delivery Date:	05/02/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

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

Ref#: DS-857525

To: DANIEL C ROSENTHAL
FIRST SELECTMAN
3 PRIMROSE ST
NEWTOWN CT 06470-5307

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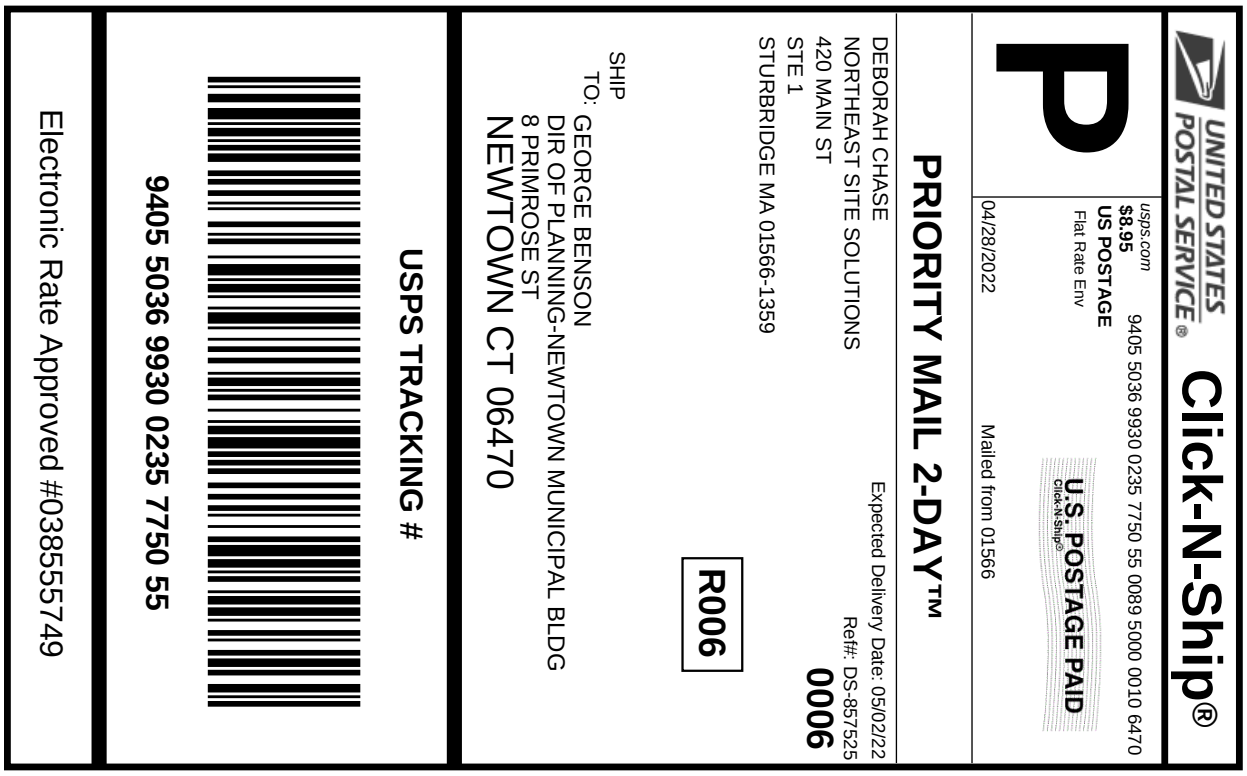

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0235 7750 55

Trans. #:	562385031
Print Date:	04/28/2022
Ship Date:	04/28/2022
Expected Delivery Date:	05/02/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

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

Ref#: DS-857525

To: GEORGE BENSON
DIR OF PLANNING-NEWTOWN MUNICIPAL BLDG
8 PRIMROSE ST
NEWTOWN CT 06470

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

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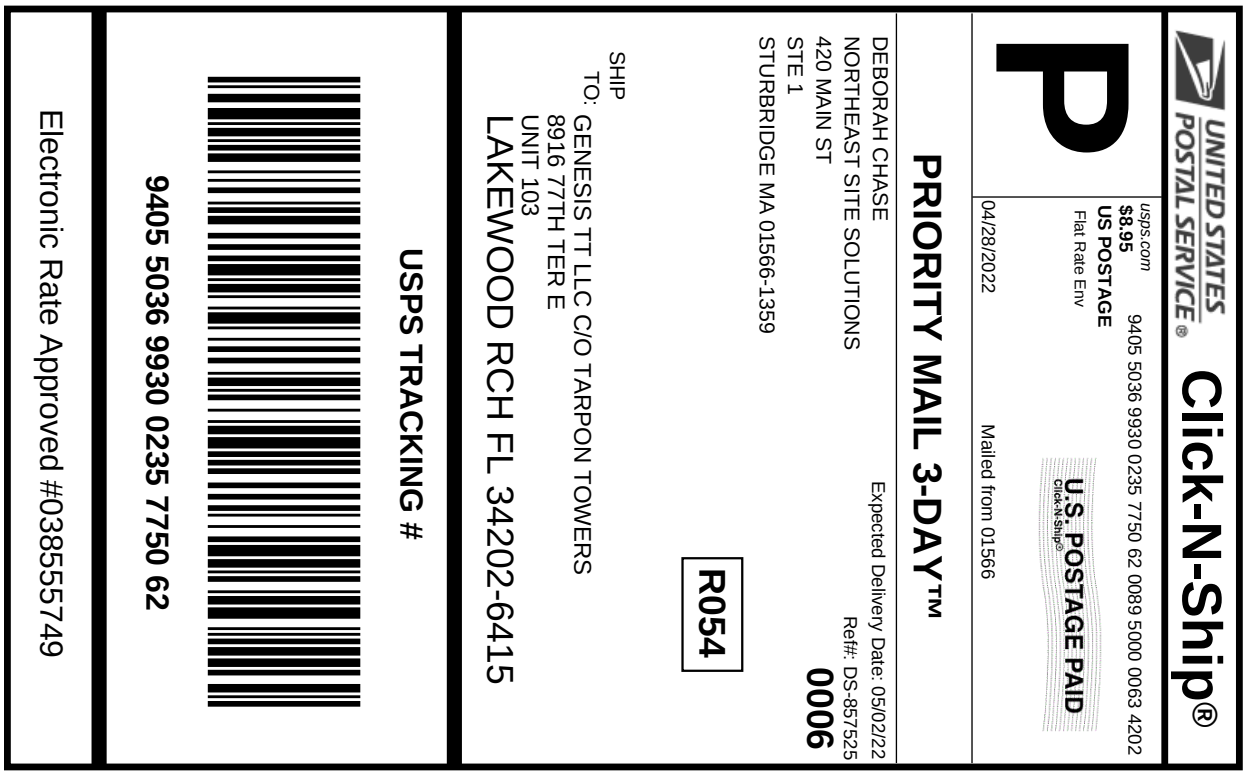

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0235 7750 62

Trans. #:	562385031
Print Date:	04/28/2022
Ship Date:	04/28/2022
Expected Delivery Date:	05/02/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

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

Ref#: DS-857525

To: GENESIS TT LLC C/O TARPON TOWERS
8916 77TH TER E
UNIT 103
LAKEWOOD RCH FL 34202-6415

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

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857525 Crown 5282

UNITED STATES POSTAL SERVICE.

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

04/29/2022 04:26 PM

Product	Qty	Unit Price	Price
Prepaid Mail West Henrietta, NY 14586 Weight: 0 lb 1.90 oz Acceptance Date: Fri 04/29/2022 Tracking #: 9405 5036 9930 0235 7750 31	1		$0.00
Prepaid Mail Newtown, CT 06470 Weight: 0 lb 9.90 oz Acceptance Date: Fri 04/29/2022 Tracking #: 9405 5036 9930 0235 7750 48	1		$0.00
Prepaid Mail Bradenton, FL 34202 Weight: 0 lb 10.00 oz Acceptance Date: Fri 04/29/2022 Tracking #: 9405 5036 9930 0235 7750 62	1		$0.00
Prepaid Mail Newtown, CT 06470 Weight: 0 lb 10.00 oz Acceptance Date: Fri 04/29/2022 Tracking #: 9405 5036 9930 0235 7750 55	1		$0.00
Grand Total:			$0.00

****
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****

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