NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

December 17, 2021

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

RE: Tower Share Application
430 Middlesex Turnpike, Old Saybrook, CT 06475
Latitude: 41.313211
Longitude: -72.381108
Site# 876336_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 430 Middlesex Turnpike in Old Saybrook, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900/2100 MHz antenna and six (6) RRUs, at the 153-foot level of the existing 179.6-foot monopole tower, one (1) Fiber cables will also be installed as well as an antenna platform mount. Dish Wireless LLC equipment cabinets will be placed within 7x5 lease area. Included are plans by Infinigy, dated December 8, 2021 Exhibit C. Also included is a structural analysis prepared by Crown Castle, dated May 21, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. This facility was approved by the Town of Old Saybrook planning and zoning commission on May 27, 1998. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Carl P. Fortuna, Jr., First Selectman for the Town of Old Saybrook, Christina M. Costa, Town Planner, CZEO, as well as the tower owner (Crown Castle) and property owner (Robert C Sorensen- C/O Sprint Sites CT 03XC102).

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the tower is 179.6-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 153-feet.

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

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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. As indicated in the attached power density calculations, the combined site operations will result in a total power density of 1.480% as evidenced by Exhibit F.

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

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

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this tower in Old Saybrook. 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 153-foot level of the existing 179.6-foot monopole 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 monopole. 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 Old Saybrook.

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:

Carl P. Fortuna, Jr., First Selectman
302 Main Street
Old Saybrook, CT 06475

Christina M. Costa, Town Planner, CZEO
302 Main Street
Old Saybrook, CT 06475

Robert C Sorensen (property owner)
C/O Sprint Sites CT 03XC102
BOX 12913 Prop Tax Department
Shawnee Mission, KS 66282

Crown Castle, Tower Owner (tower owner)

Exhibit A

Original Facility Approval

VOL. 0356 PAGE 0104

TOWN OF OLD SAYBROOK

ZONING DEPARTMENT
302 Main Street
Old Saybrook, Connecticut 06475
Tel. (860) 395-3131 • Fax (860) 395-3125

MAY 27

TO: TOWN CLERK
TOWN OF OLD SAYBROOK
302 MAIN STREET
OLD SAYBROOK, CT 06475

SPECIAL EXCEPTION PERMIT

Notice is hereby given that the Zoning Commission, Town of Old Saybrook, has granted a SPECIAL EXCEPTION PERMIT to Sprint Spectrum L.P. (Sprint PCS) folllowing a Public Hearing completed on April 6, 1998.

Said SPECIAL EXCEPTION applies to application for 175' monopole, 187 s.f. building and 999 lin. ft. chain link fence, 430 Middlesex Turnpike, Map 52 & 57, Lot 57 & 41.

This SPECIAL EXCEPTION is required under Section 52 of the Old Saybrook Zoning Regulations.

Pursuant to Chapter 124, Section 8-3d, Statutes Governing Municipal Planning and Zoning, revised to January 1, 1995, this SPECIAL EXCEPTION shall be recorded in the Office of the Town Clerk.

Certified: Carol Suits
Carol Suits, Administrative Assistant
Zoning Commission
Town of Old Saybrook

Dated: May 27, 1998

May 27, 1998
Rec'd for Record at 3:20 PM
Recorded by Sarah V. Becker Town Clerk

Exhibit B

Property Card

430 MIDDLESEX TPKE

Location	430 MIDDLESEX TPKE	**MBLU**	057/ 41T/ / /
Acct#	00596650	**Owner**	SORENSEN ROBERT C
Assessment	$574,900	**Appraisal**	$821,200
PID	102712	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$716,000	$105,200	$821,200

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$501,200	$73,700	$574,900

Owner of Record

Owner	SORENSEN ROBERT C	**Sale Price**	$0
Co-Owner	C/O SPRINT SITES CT 03XC102	**Certificate**	
Address	BOX 12913 PROP TAX DEPT SHAWNEE MISSION, KS 66282-2913	**Book & Page**	0600/0597
		Sale Date	12/05/2014

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
SORENSEN ROBERT C	$0		0554/0096	11/18/2010
SORENSEN ROBERT C & GEORGIANNA	$0		0344/0075	05/12/1997

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:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Num Kitchens	
Cndtn	
Usrfld 103	
Usrfld 104	
Usrfld 105	
Usrfld 106	
Usrfld 107	
Num Park	
Fireplaces	
Usrfld 108	
Usrfld 101	
Usrfld 102	
Usrfld 100	
Usrfld 300	
Usrfld 301	

Building Photo

(http://images.vgsi.com/photos/OldSaybrookCTPhotos//\00\01\37\47.jpg)

Building Layout

Building Layout
(http://images.vgsi.com/photos/OldSaybrookCTPhotos//Sketches/102712_

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	0431
Description	TEL REL TW
Zone	AA-1

Land Line Valuation

Size (Acres)	3
Depth	
Assessed Value	$73,700
Appraised Value	$105,200

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN3	FENCE-6' CHAIN			156.00 L.F.	$1,100	1
PAV2	PAVING-CONC			600.00 S.F.	$1,200	1
SHD6	COMM,MAS			216.00 S.F.	$4,900	1
CELL	CELL TOWER			125.00 UNITS	$101,300	1
MSC1	ARRAYS			3.00 UNIT	$607,500	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$716,000	$105,200	$821,200
2016	$7,600	$239,800	$247,400
2015	$7,600	$239,800	$247,400

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$501,200	$73,600	$574,800
2016	$5,300	$167,900	$173,200
2015	$5,300	$167,900	$173,200

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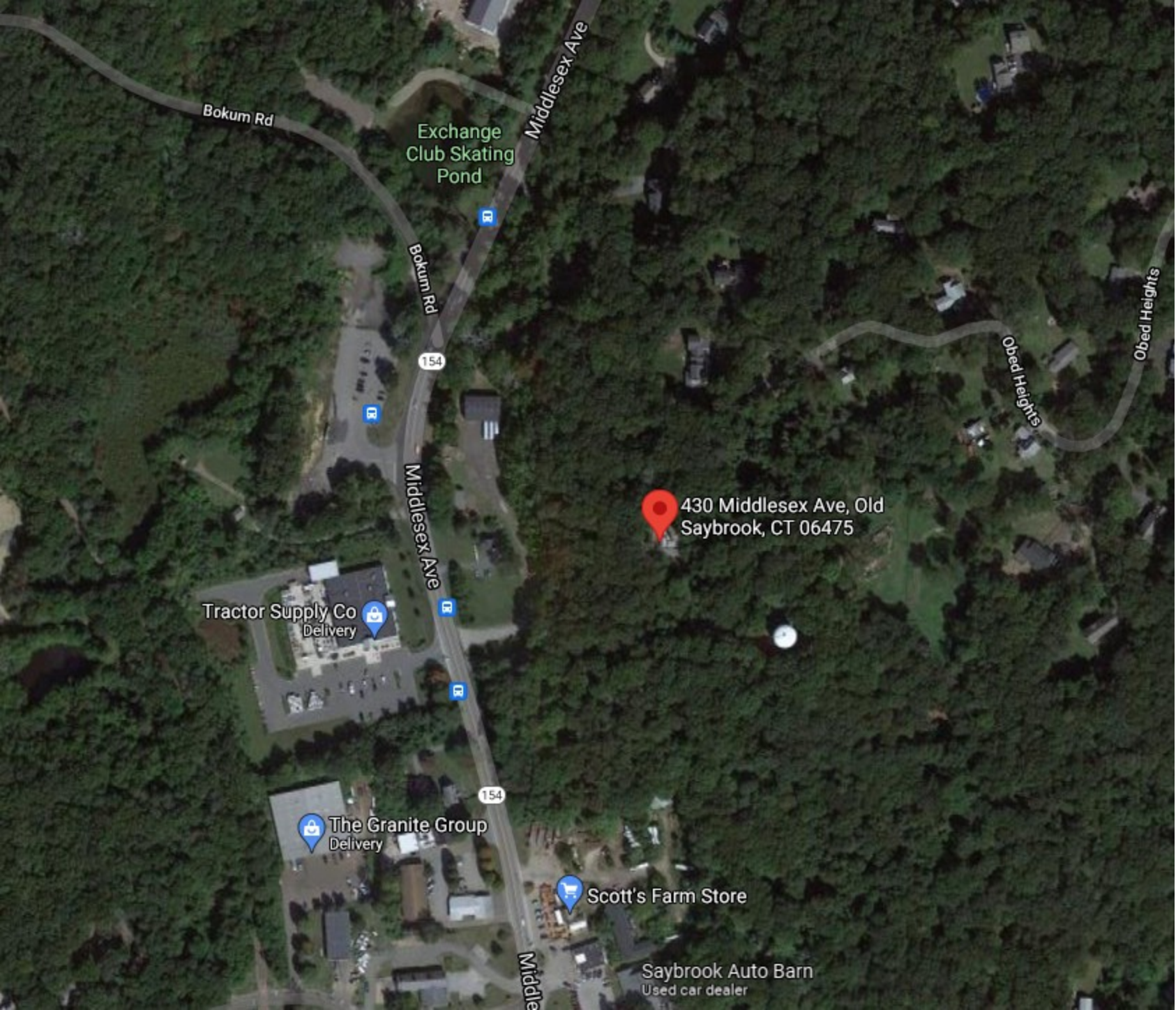

Bokum Rd
Exchange Club Skating Pond
Middlesex Ave
Bokum Rd
154
Middlesex Ave
Obed Heights
Obed Heights
430 Middlesex Ave, Old Saybrook, CT 06475
Tractor Supply Co
Delivery
154
The Granite Group
Delivery
Scott's Farm Store
Saybrook Auto Barn
Used car dealer

Exhibit C

Construction Drawings

DISH WIRELESS, LLC. SITE ID:

BOBDL00088A

DISH WIRELESS, LLC. SITE ADDRESS:

430 MIDDLESEX TURNPIKE
OLD SAYBROOK, CT 06475

CONNECTICUT CODE COMPLIANCE

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

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

SHEET INDEX

SCOPE OF WORK

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

TOWER SCOPE OF WORK:
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL PROPOSED T-ARM MOUNT (1 PER SECTOR)
- 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 CIENA BOX (IF REQUIRED)
- EXISTING METER SOCKET ON EXISTING H-FRAME TO BE UTILIZED

SITE PHOTO

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

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

811

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:	SORENSEN ROBERT C
ADDRESS:	430 MIDDLESEX TURNPIKE OLD SAYBROOK, CT 06475
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	876336
TOWER APP NUMBER:	553289
COUNTY:	MIDDLESEX
LATITUDE (NAD 83):	41° 18' 47.56" N 41.313211 N
LONGITUDE (NAD 83):	-72° 22' 51.99" W -72.381108 W
ZONING JURISDICTION:	CONNECTICUT SITING COUNCIL
ZONING DISTRICT:	AA-1
PARCEL NUMBER:	102712
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	V-B
POWER COMPANY:	NORTHEAST UTILITIES
TELEPHONE COMPANY:	AT&T

PROJECT DIRECTORY

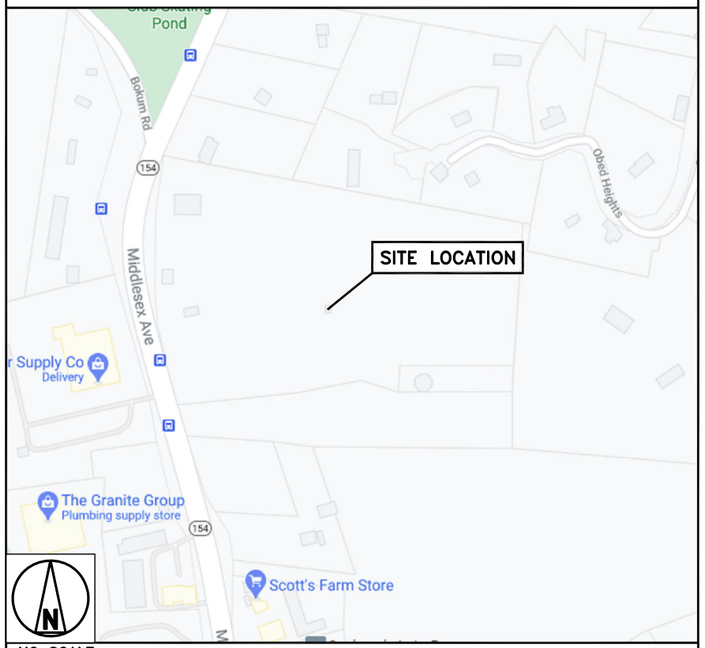
APPLICANT:	DISH WIRELESS, LLC. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317 (877) 486-9377
SITE DESIGNER:	INFINIGY 2500 W. HIGGINS RD. STE. 500 HOFFMAN ESTATES, IL 60169 (847) 648-4068
SITE ACQUISITION:	NICHOLAS CURRY NICHOLAS.CURRY@CROWNCASTLE.COM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

DIRECTIONS

DIRECTIONS FROM CHESTER AIRPORT:

HEAD NORTHWEST ON CHESTER AIRPORT TOWARDS CROSS RD, TURN RIGHT ONTO CT-145 / WINTHROP RD, TURN RIGHT ONTO CT-148 / W MAIN ST, TAKE THE RAMP ON THE RIGHT FOR CT-9 SOUTH AND HEAD TOWARDS OLD SAYBROOK, CONSTRUCTION ON CONSTRUCTION ON CT-9 SB NEAR I-84, EXPECT DELAYS, AT JUNCTION 2, HEAD RIGHT ON THE RAMP FOR CT-154 TOWARDS OLD SAYBROOK / R R STATION, TURN RIGHT ONTO CT-154 / MIDDLESEX TPKE TOWARDS OLD SAYBROOK / R R STATION, TURN LEFT ONTO OBED HEIGHTS, ARRIVE AT 430 MIDDLESEX TURNPIKE, OLD SAYBROOK, CT 06475

VICINITY MAP



NO SCALE

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

INFINIGY
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PHONE: 847-648-4068 | FAX: 518-690-0793
WWW.INFINIGY.COM

STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
12/9/2021

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

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	04/19/2021	PRELIM CDS
0	05/18/2021	FINAL CDS
1	12/08/2021	FINAL CDS

A&E PROJECT NUMBER

1039-Z5555C

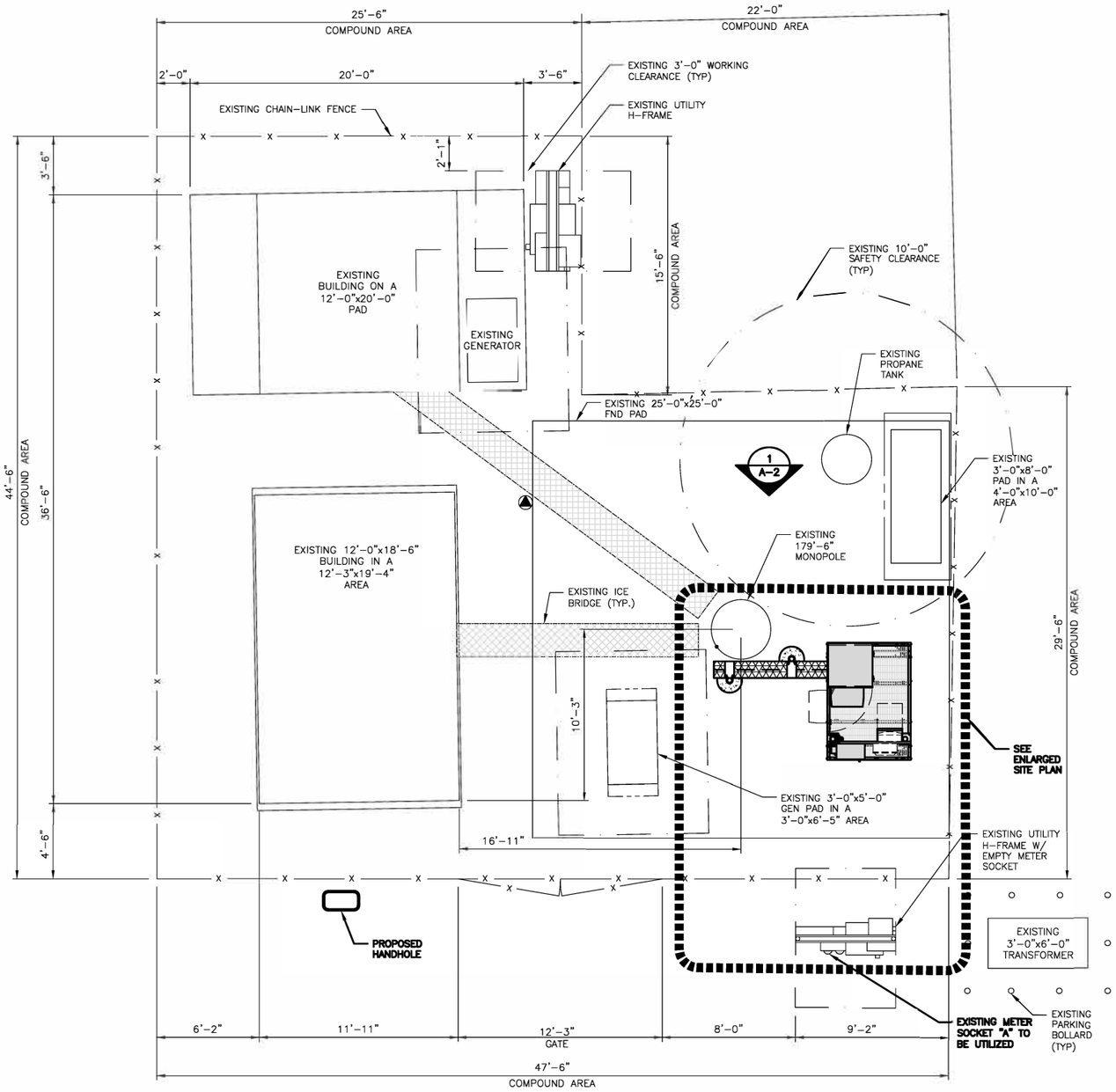
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00088A
430 MIDDLESEX TURNPIKE
OLD SAYBROOK, CT 06475

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

NOTES

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



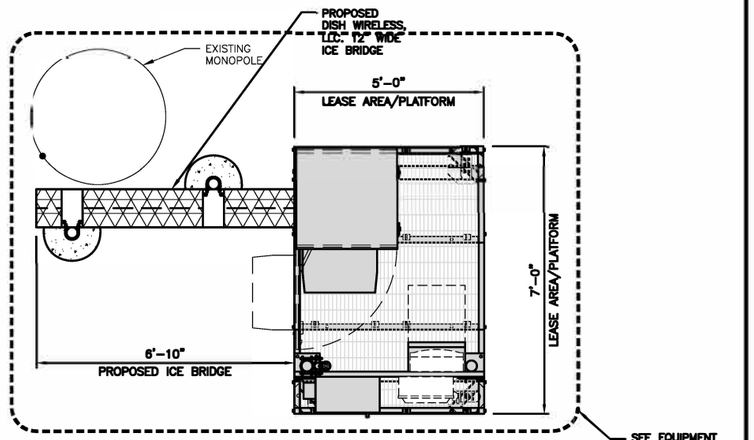
COMPOUND PLAN

4' 2' 0 4' 8'
1/4"=1'-0"

1

NOTES

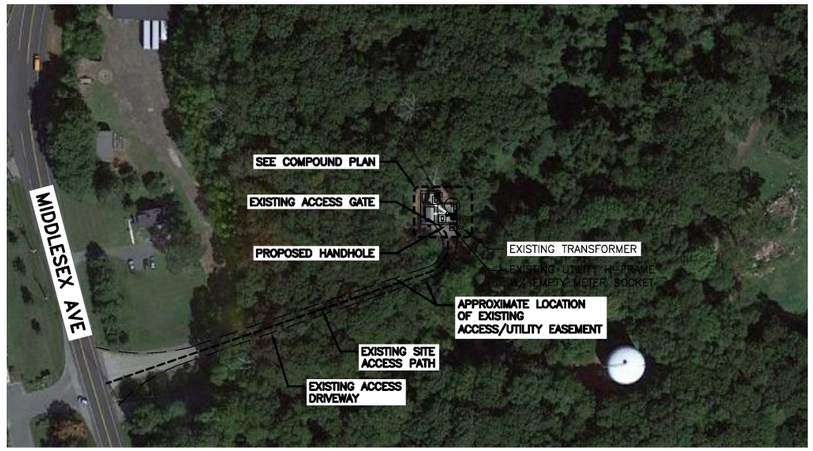
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



ENLARGED SITE PLAN

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

2



SITE PLAN

100' 50' 0 100' 200'
1"=100'

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
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RCD	SS	CJW

RFDS REV #: N/A

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SUBMITTALS

REV	DATE	DESCRIPTION
A	04/19/2021	PRELIM CDS
0	05/18/2021	FINAL CDS
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A&E PROJECT NUMBER
1039-Z5555C

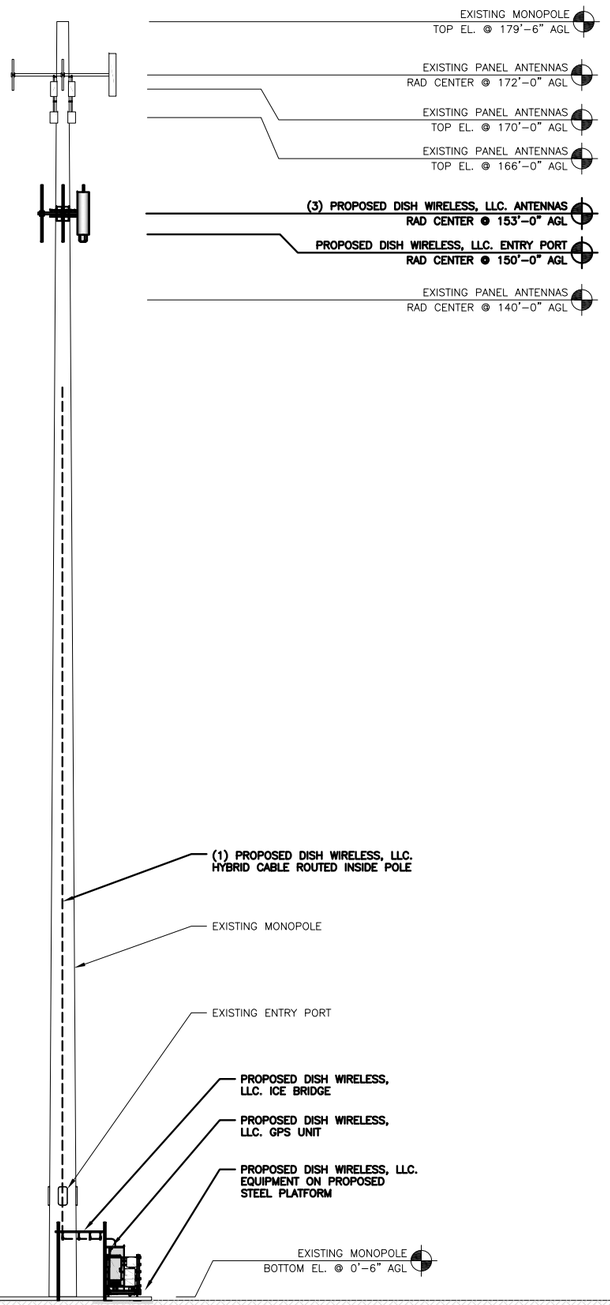
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00088A
430 MIDDLESEX TURNPIKE
OLD SAYBROOK, CT 06475

SHEET TITLE
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER
A-1

NOTES

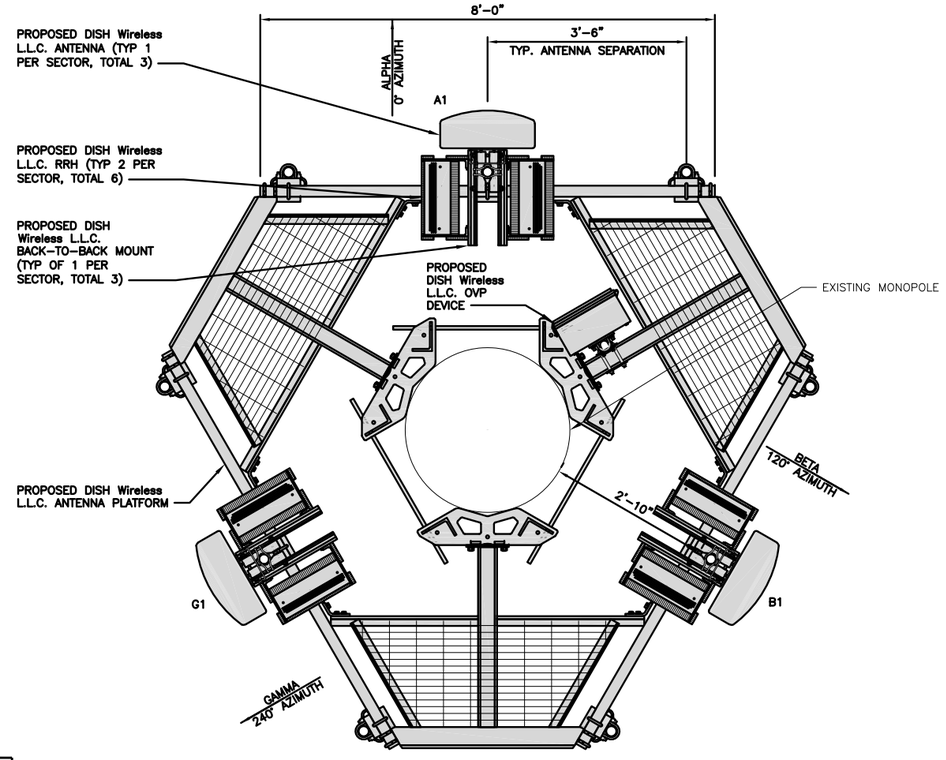
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. INFINIGY HAS NOT EVALUATED THE TOWER OR MOUNT STRUCTURE AND ASSUMES NO RESPONSIBILITY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



PROPOSED NORTH ELEVATION

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

1



ANTENNA LAYOUT

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

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZMUITH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA WIRELESS – MX08FRO665-20	5G	72.0" x 20.0"	0°	153'-0"	(1) HIGH-CAPACITY HYBRID CABLE (240' LONG)
BETA	B1	PROPOSED	JMA WIRELESS – MX08FRO665-20	5G	72.0" x 20.0"	120°	153'-0"	
GAMMA	C1	PROPOSED	JMA WIRELESS – MX08FRO665-20	5G	72.0" x 20.0"	240°	153'-0"	

NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
2. ANTENNA OR 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.

SECTOR	POSITION	RRH	
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY
ALPHA	A1	FUJITSU – TA08025-B604	5G
	A1	FUJITSU – TA08025-B605	5G
BETA	B1	FUJITSU – TA08025-B604	5G
	B1	FUJITSU – TA08025-B605	5G
GAMMA	C1	FUJITSU – TA08025-B604	5G
	C1	FUJITSU – TA08025-B605	5G

NOTES

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

ANTENNA SCHEDULE

NO SCALE

3

dish wireless.
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LITTLETON, CO 80120

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

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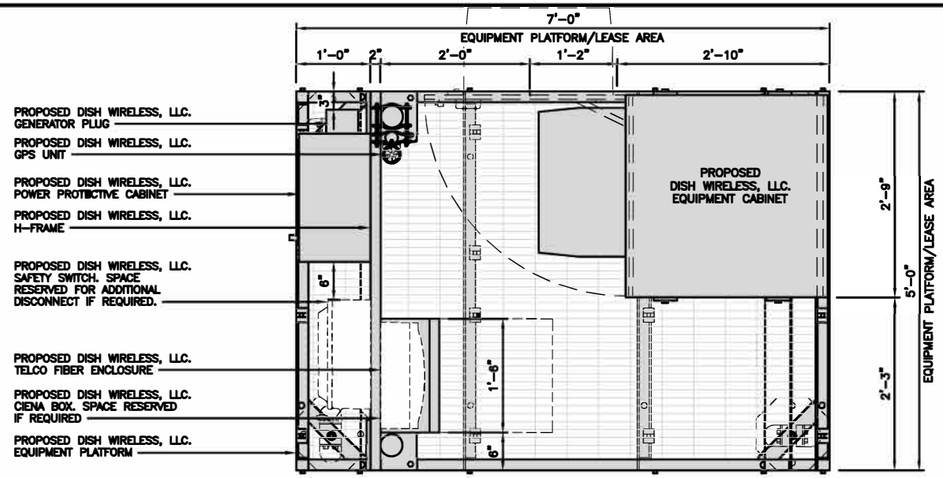
430 MIDDLESEX TURNPIKE
OLD SAYBROOK, CT 06475

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2

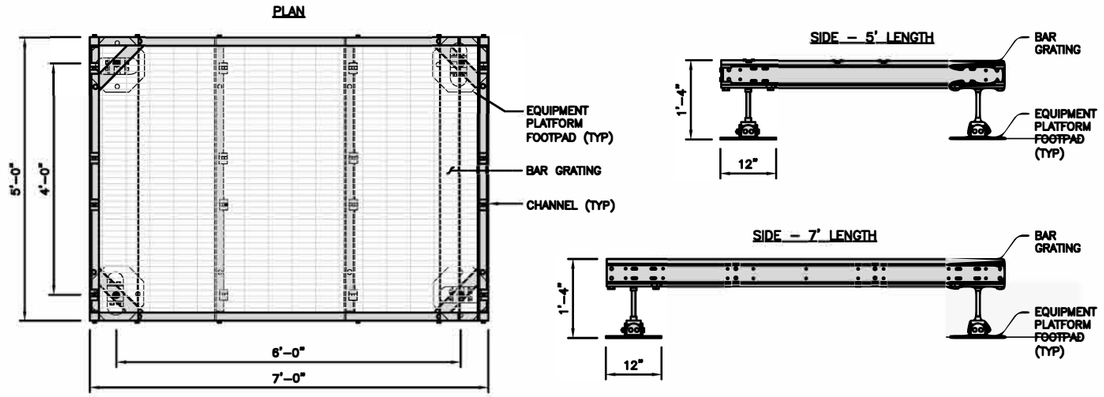


PLATFORM EQUIPMENT PLAN

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

1

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

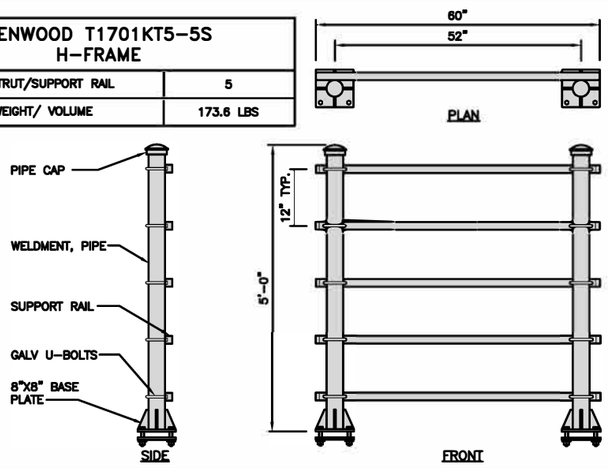


PLATFORM DETAIL

NO SCALE

2

KENWOOD T1701KT5-5S H-FRAME	
UNISTRUT/SUPPORT RAIL	5
WEIGHT/ VOLUME	173.6 LBS



H-FRAME DETAIL

NO SCALE

3

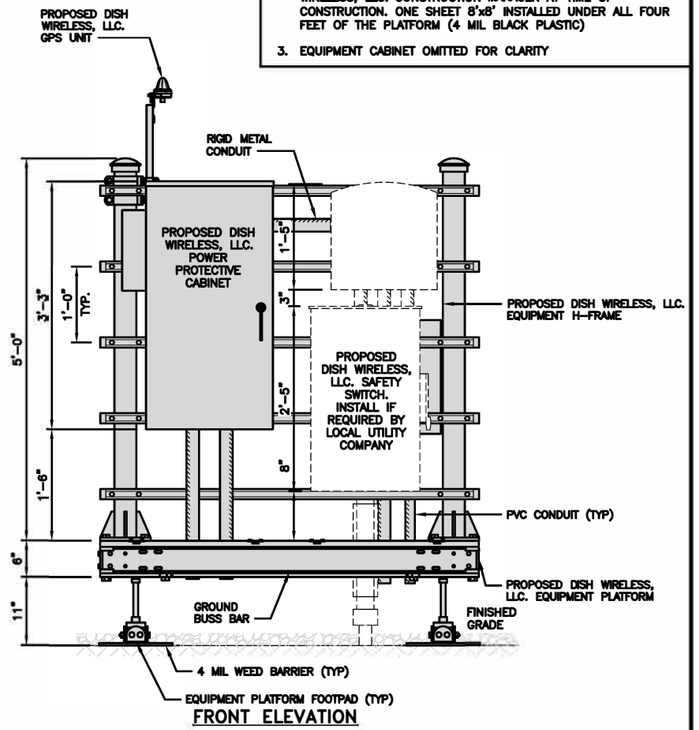
NOT USED

NO SCALE

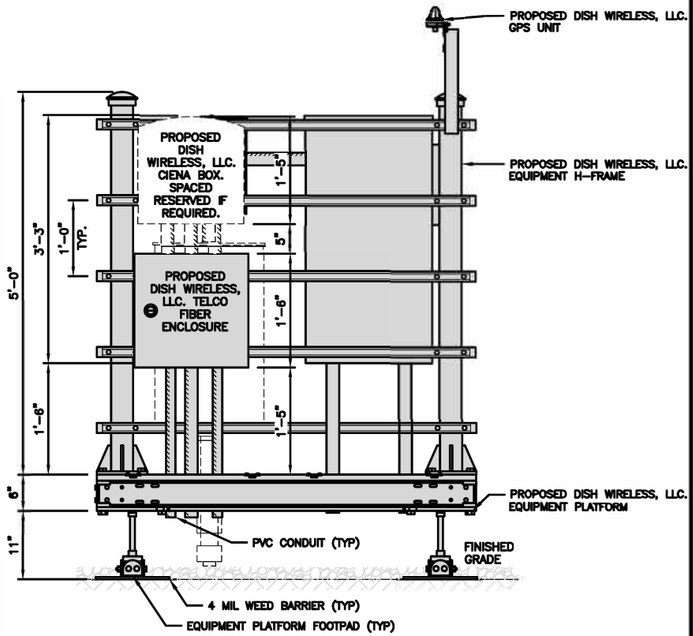
4

NOTES

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



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION

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

5

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STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
12/9/2021

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	04/19/2021	PRELIM CDS
0	05/18/2021	FINAL CDS
1	12/08/2021	FINAL CDS

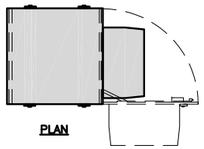
A&E PROJECT NUMBER
1039-Z5555C

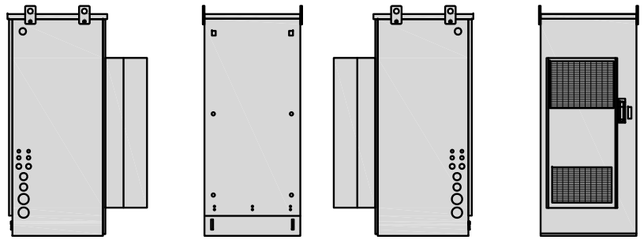
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00088A
430 MIDDLESEX TURNPIKE
OLD SAYBROOK, CT 06475

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

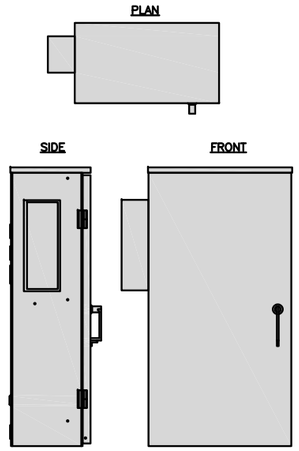
CHARLES INDUSTRY HEX CUBE–PM369155N4	
DIMENSIONS (HxWxD):	74"x32"x32"
POWER PLANT:	–48VDC ABB
TOTAL WEIGHT (EMPTY)	394 LBS





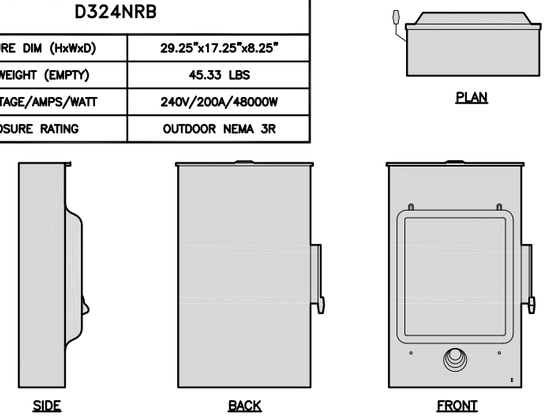
CABINET DETAIL | NO SCALE | 1

RAYCAP RDIAC–6512–P–240–MTS POWER & TELCO PROTECTION CABINET	
DIMENSIONS (HxWxD)	40"x20"x10"
WEIGHT/ VOLUME	124 LBS
MANUAL TRANSFER SWITCH	200A
LOAD CENTER	30 POSITION
MAIN BREAKER	200A, 65kA AIC
GENERATOR RECEPTACLE	CAMLOCK
NEMA RATING	3R POWDER COATED ALUMINUM
SURGE PROTECTION DEVICE	UL 1449 4TH EDITION LISTED



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

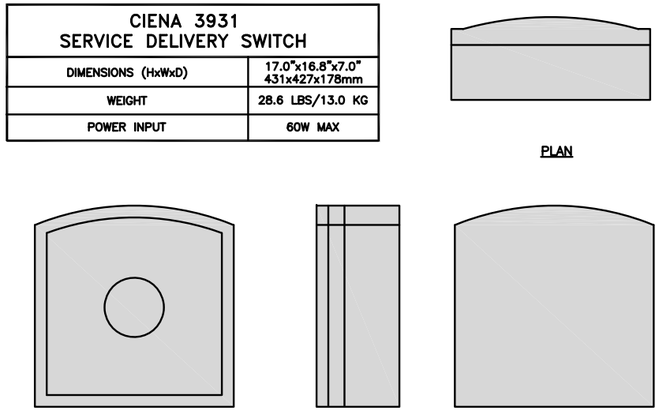
SQUARE D SAFETY SWITCH D324NRB	
ENCLOSURE DIM (HxWxD)	29.25"x17.25"x8.25"
TOTAL WEIGHT (EMPTY)	45.33 LBS
MAX VOLTAGE/AMPS/WATT	240V/200A/48000W
ENCLOSURE RATING	OUTDOOR NEMA 3R



SAFETY SWITCH | NO SCALE | 3

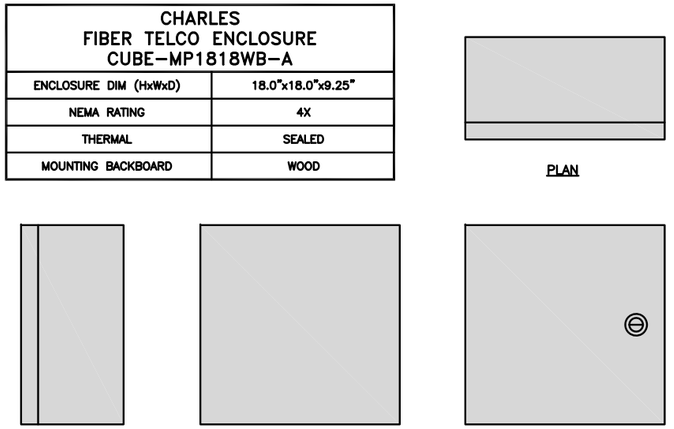
NOT USED | NO SCALE | 4

CIENA 3931 SERVICE DELIVERY SWITCH	
DIMENSIONS (HxWxD)	17.0"x16.8"x7.0" 431x427x178mm
WEIGHT	28.6 LBS/13.0 KG
POWER INPUT	60W MAX



CIENA DETAIL | NO SCALE | 5

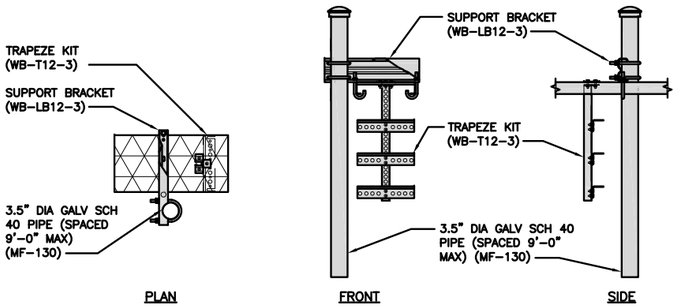
CHARLES FIBER TELCO ENCLOSURE CUBE–MP1818WB–A	
ENCLOSURE DIM (HxWxD)	18.0"x18.0"x9.25"
NEMA RATING	4X
THERMAL	SEALED
MOUNTING BACKBOARD	WOOD



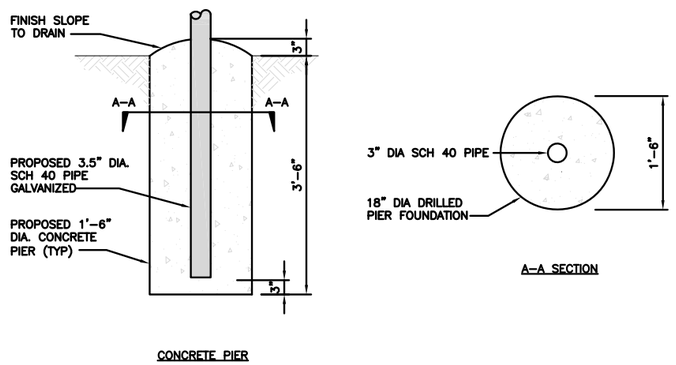
FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

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

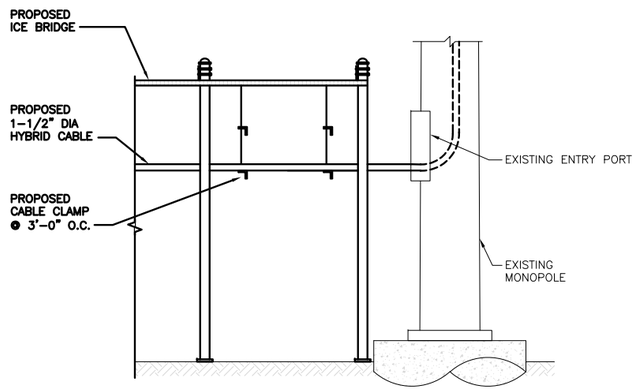
INCLUDED PRODUCTS:
- WB–T12–3 TRAPEZE KIT, 3 RUNGS
- WB–LB12–3 SUPPORT BRACKET
- MF–130 DIRECT BURIAL PIPE COLUMN, 13'–4"



ICE BRIDGE DETAIL | NO SCALE | 7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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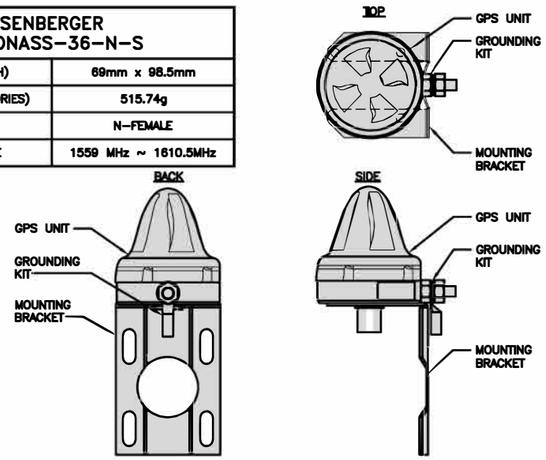
1039–Z5555C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00088A
430 MIDDLESEX TURNPIKE
OLD SAYBROOK, CT 06475

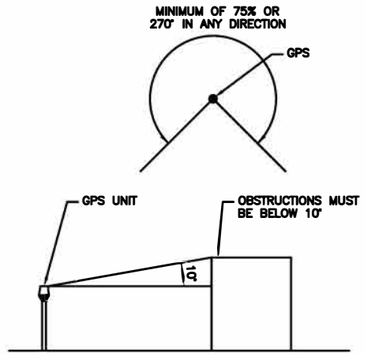
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

ROSENBERGER GPSGLONASS-36-N-S	
DIMENSION (DIA x H)	69mm x 98.5mm
WEIGHT (WITH ACCESSORIES)	515.74g
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1559 MHz ~ 1610.5MHz



GPS ANTENNA DETAIL | NO SCALE | 1



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00088A
430 MIDDLESEX TURNPIKE
OLD SAYBROOK, CT 06475

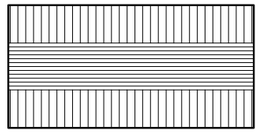
SHEET TITLE

EQUIPMENT DETAILS

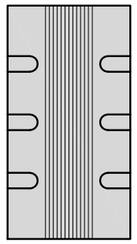
SHEET NUMBER

A-5

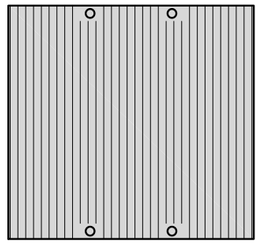
FUJITSU TA08025-B604 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x200/14.9"x15.7"x7.8"
WEIGHT(KG,LB)/ VOLUME	29kg,63.9lb/ 30L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE



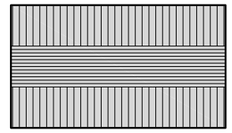
FRONT

NOTES

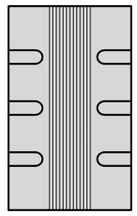
FINAL RRH SPECIFICATIONS TO BE CONFIRMED BY GC

REMOTE RADIO HEAD DETAIL | NO SCALE | 1

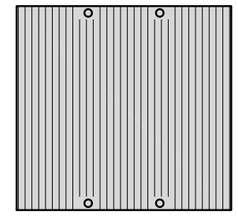
FUJITSU TA08025-B605 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x230/14.9"x15.7"x9.0"
WEIGHT(KG,LB)/ VOLUME	34kg,74.9lb/ 35L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE



FRONT

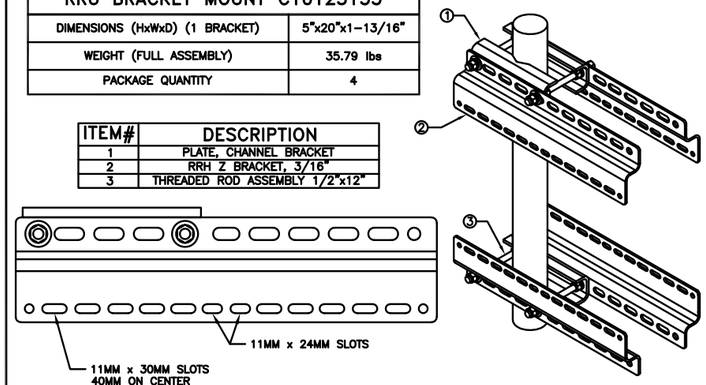
NOTES

FINAL RRH SPECIFICATIONS TO BE CONFIRMED BY GC

REMOTE RADIO HEAD DETAIL | NO SCALE | 2

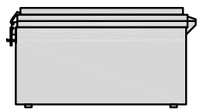
SABRE INDUSTRIES RRU BRACKET MOUNT C10123155	
DIMENSIONS (HxWxD) (1 BRACKET)	5"x20"x1-13/16"
WEIGHT (FULL ASSEMBLY)	35.79 lbs
PACKAGE QUANTITY	4

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

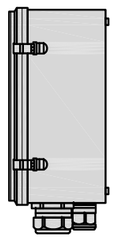


REMOTE RADIO MOUNT DETAIL | NO SCALE | 3

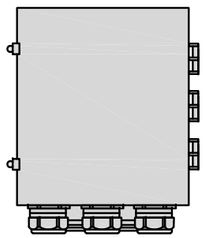
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



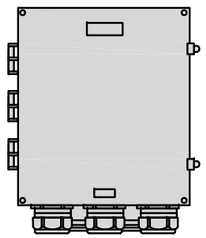
PLAN



SIDE



BACK

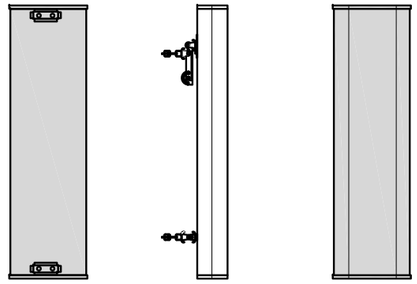


FRONT

SURGE SUPPRESSION DETAIL | NO SCALE | 4

JMA WIRELESS MX08FRO665-20 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	54 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE

PLAN

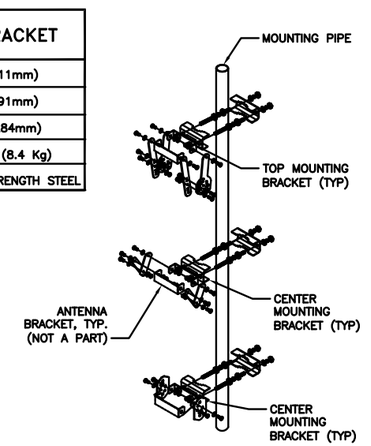


NOTES

FINAL ANTENNA SPECIFICATIONS TO BE CONFIRMED BY GC

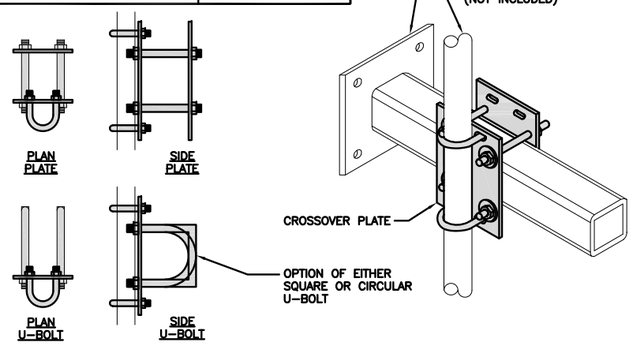
ANTENNA DETAIL | NO SCALE | 5

JMA 91900318 MOUNTING BRACKET	
WIDTH	8.3" (211mm)
DEPTH	7.5" (191mm)
HEIGHT	11.2" (284mm)
TOTAL WEIGHT (WITH BRACKETS)	18.5 LBS (8.4 Kg)
HOUSING MATERIAL	GALV. HIGH STRENGTH STEEL



ANTENNA MOUNTING DETAIL | NO SCALE | 6

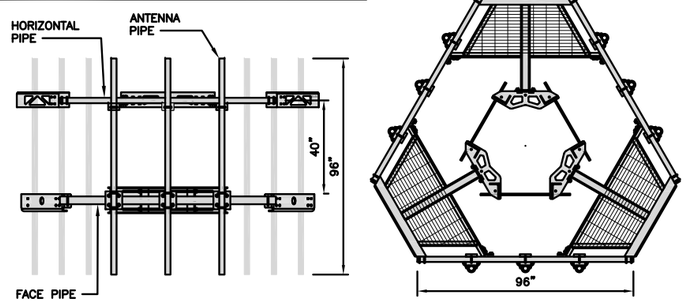
COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11.023 LBS



RRH/OVP MOUNT DETAIL | NO SCALE | 7

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

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



ANTENNA PLATFORM DETAIL | NO SCALE | 8

NOT USED | NO SCALE | 9

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PROJECT INFORMATION
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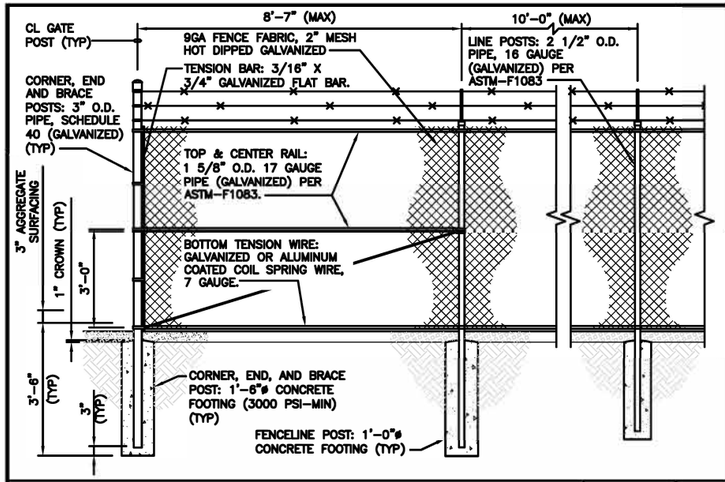
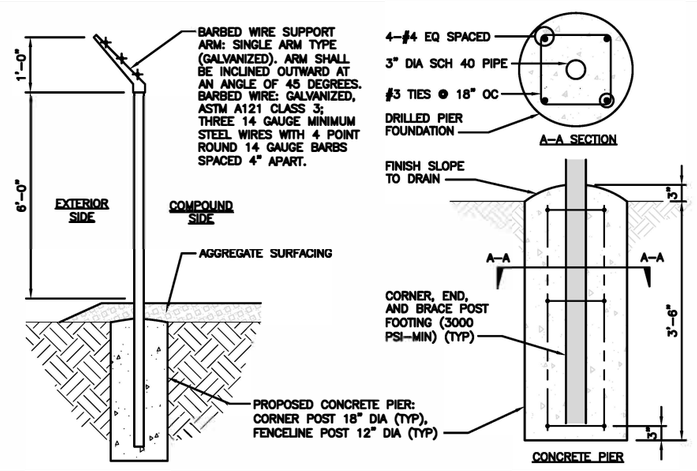
430 MIDDLESEX TURNPIKE
OLD SAYBROOK, CT 06475

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6



TYPICAL FENCE DETAIL | NO SCALE | 1



TYPICAL FENCE & CONCRETE PIER SECTION | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

MATERIAL DESCRIPTION | NO SCALE | 8

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

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SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
12/9/2021

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RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	04/19/2021	PRELIM CDS
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1	12/08/2021	FINAL CDS

A&E PROJECT NUMBER
1039-Z5555C

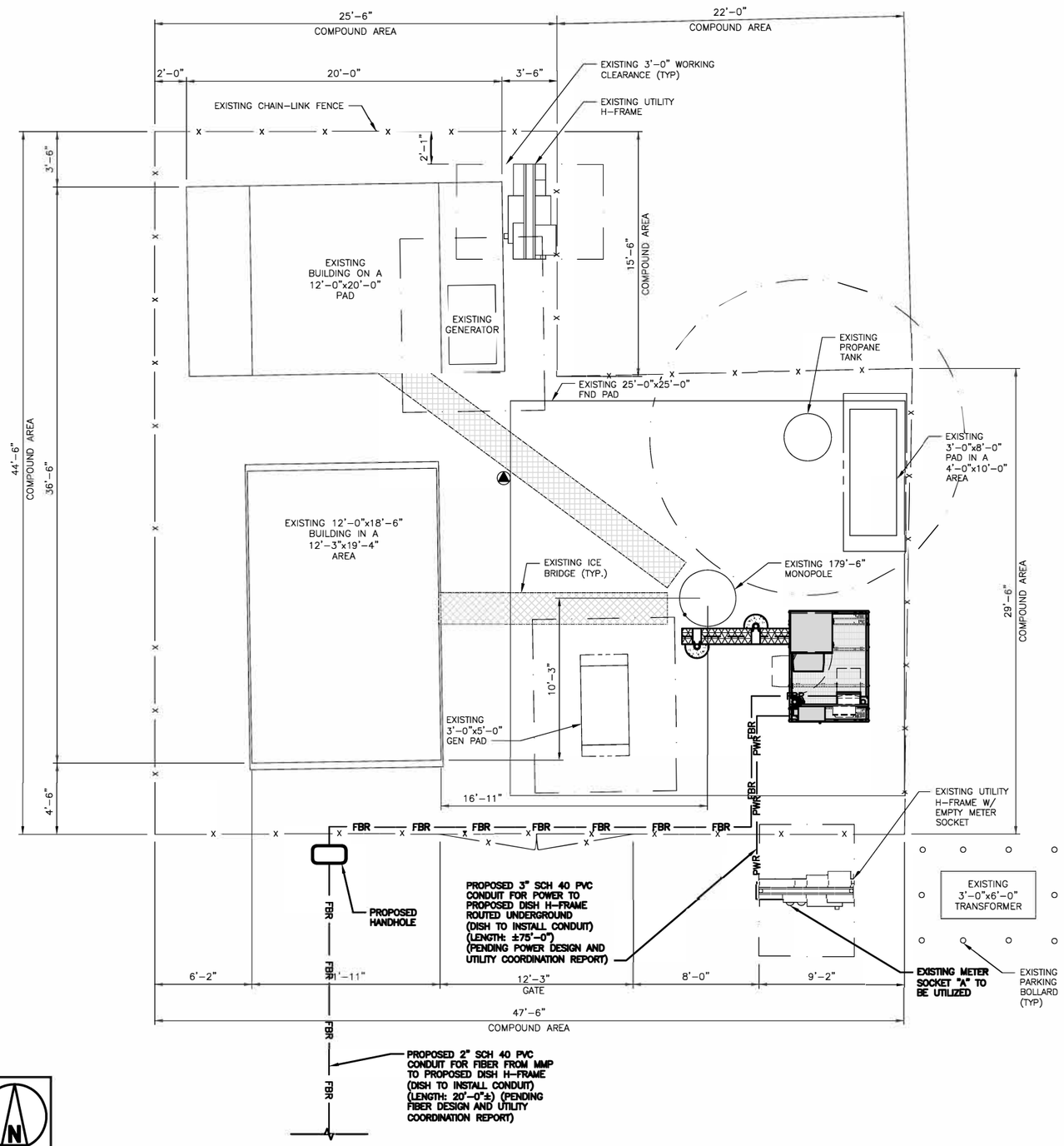
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00088A
430 MIDDLESEX TURNPIKE
OLD SAYBROOK, CT 06475

SHEET TITLE
FENCING DETAILS

SHEET NUMBER
A-7

NOTES

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



UTILITY ROUTE PLAN

4' 2' 0 4' 8'
1/4"=1'-0"

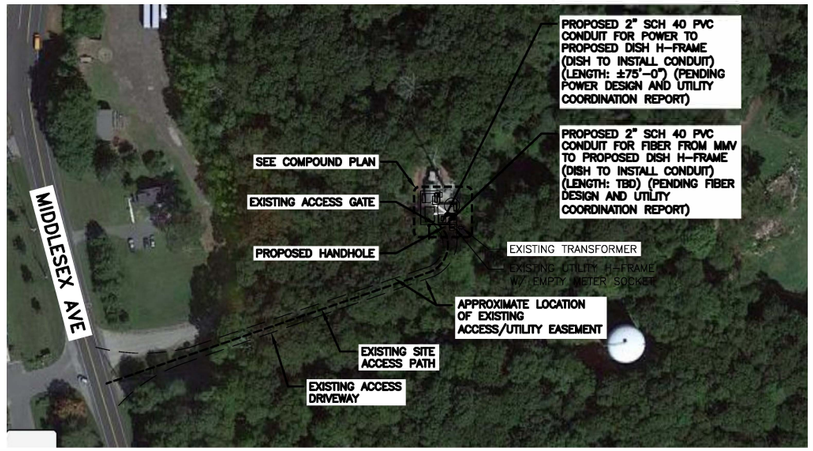
1

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. FIBER ROUTE IS PRELIMINARY, FINAL FIBER ROUTE TO BE DETERMINED ONCE UCR (UTILITY COORDINATION REPORT) HAS BEEN FINALIZED.

ELECTRICAL NOTES

2



OVERALL UTILITY ROUTE PLAN

100' 50' 0 100' 200'
1"=100'

3

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1039-Z5555C

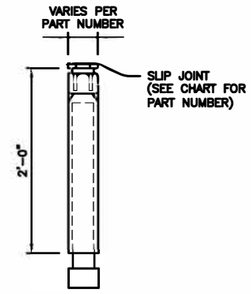
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00088A
430 MIDDLESEX TURNPIKE
OLD SAYBROOK, CT 06475

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"

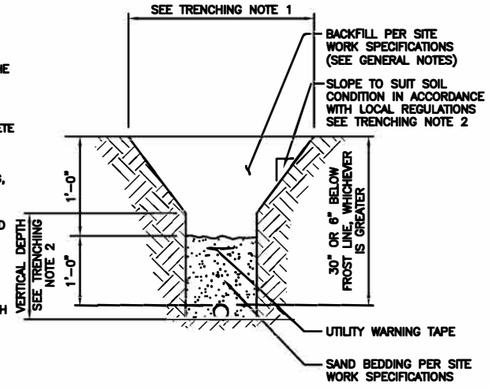


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

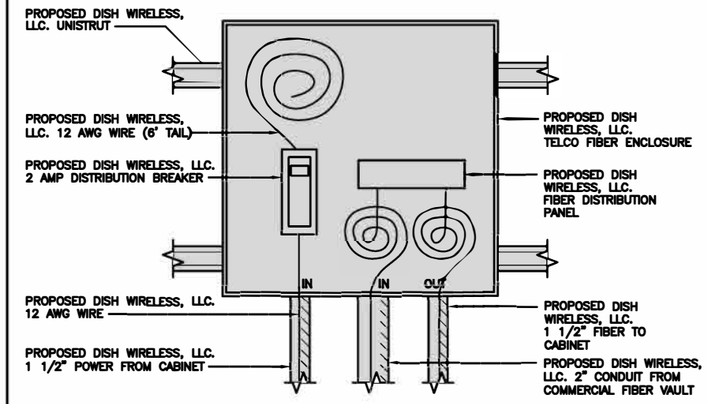
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

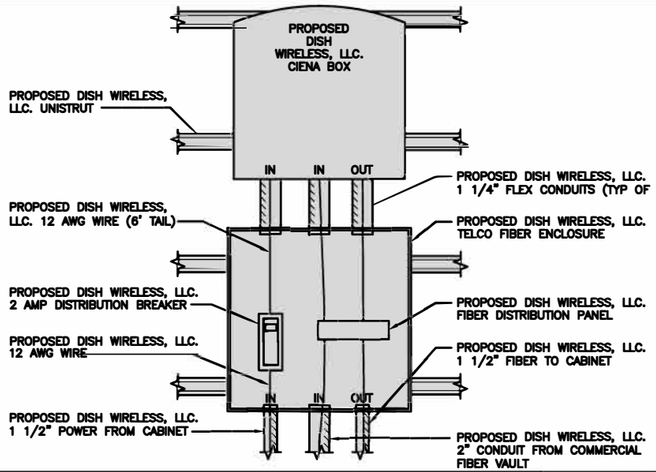
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT 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 | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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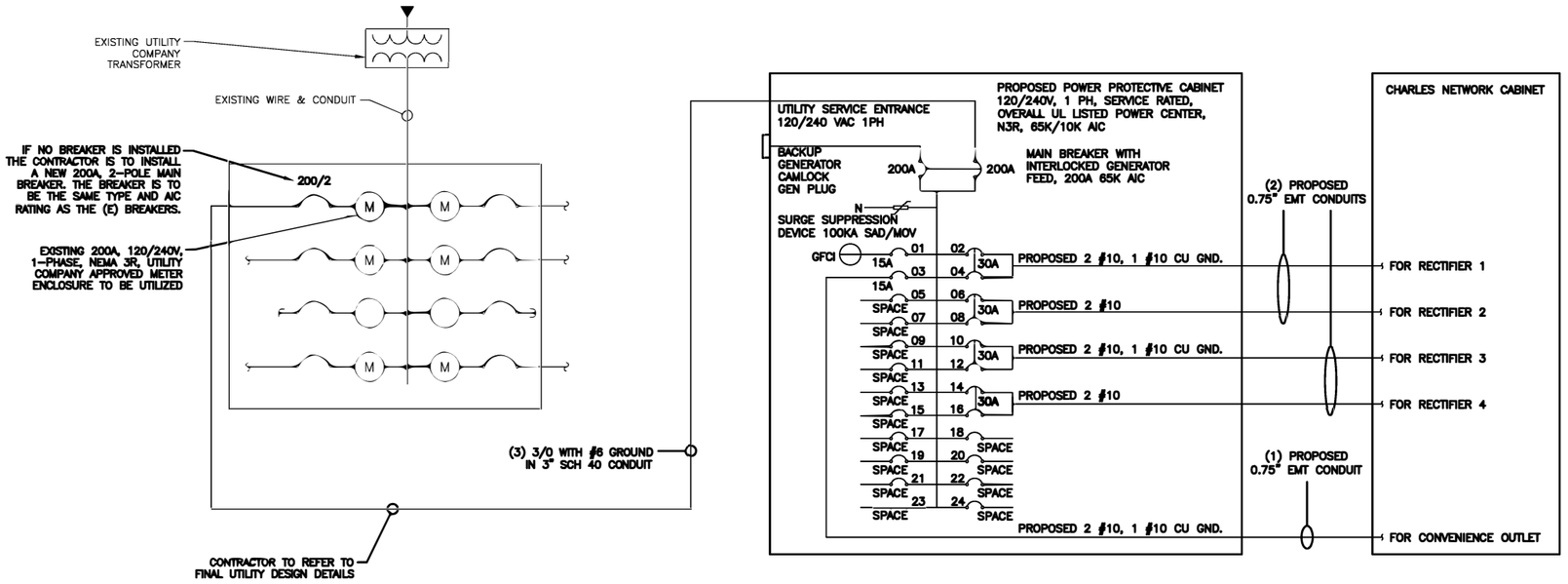
PROJECT INFORMATION
BOBDL00088A
430 MIDDLESEX TURNPIKE
OLD SAYBROOK, CT 06475

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2



PPC ONE-LINE DIAGRAM

NO SCALE | 1

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.

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

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

CONDUIT SIZING: AT 40% FILL PER NEC CHAPTER 9, TABLE 4, ARTICLE 358.
0.75" 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

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

RECTIFIER CONDUCTORS (2 CONDUITS): USING THWN-2, CU.

#10 - 0.0211 SQ. IN X 4 = 0.0844 SQ. IN
#10 - 0.0211 SQ. IN X 1 = 0.0211 SQ. IN <GROUND
TOTAL = 0.1055 SQ. IN

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

PROPOSED CHARLES PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	30A	2880		ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET		180	15A	3	B	4			2880	
-SPACE-				5	A	6	30A	2880		ABB/GE INFINITY RECTIFIER 2
-SPACE-				7	B	8			2880	
-SPACE-				9	A	10	30A	2880		ABB/GE INFINITY RECTIFIER 3
-SPACE-				11	B	12			2880	
-SPACE-				13	A	14	30A	2880		ABB/GE INFINITY RECTIFIER 4
-SPACE-				15	B	16			2880	
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
VOLTAGE AMPS	160	180						11520	11520	
200A MCB, 1Φ, 24 SPACE, 120/240V			L1		L2					
MB RATING: 65,000 AIC			11700		11700		VOLTAGE AMPS			
			98		98		AMPS			
			98				MAX AMPS			
			123				MAX 125%			

PANEL SCHEDULE | NO SCALE | 2

NOT USED | NO SCALE | 3

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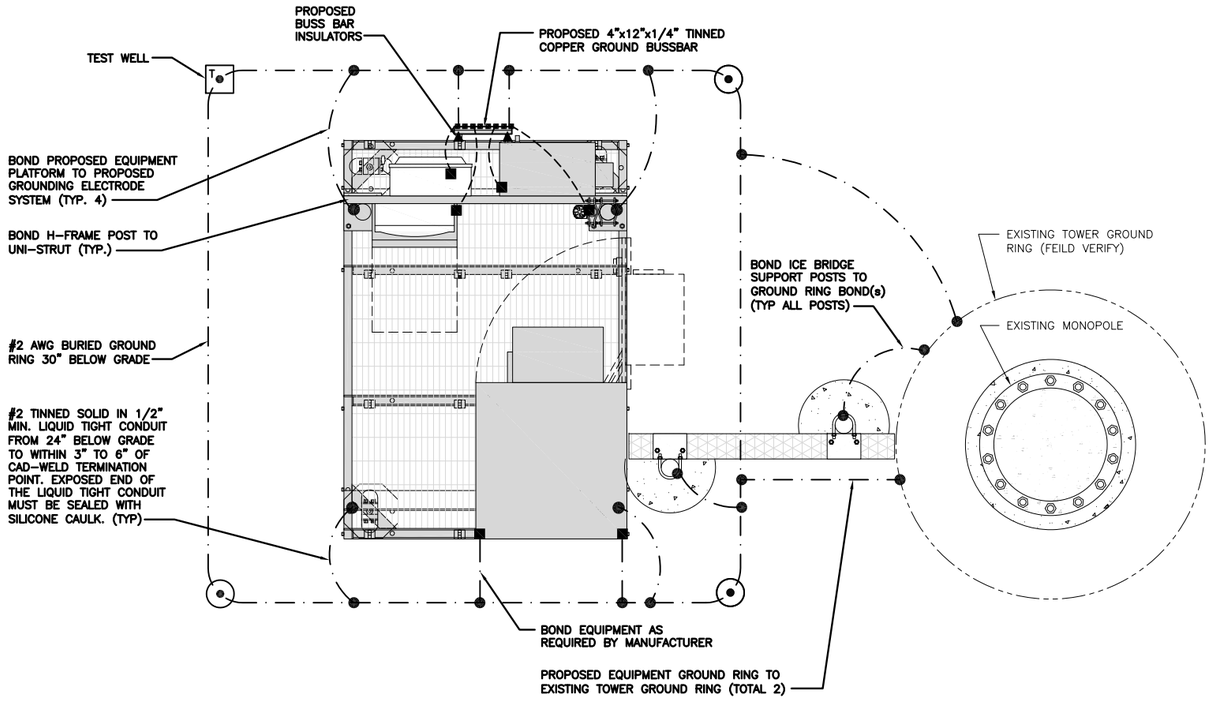
A&E PROJECT NUMBER
1039-Z5555C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00088A
430 MIDDLESEX TURNPIKE
OLD SAYBROOK, CT 06475

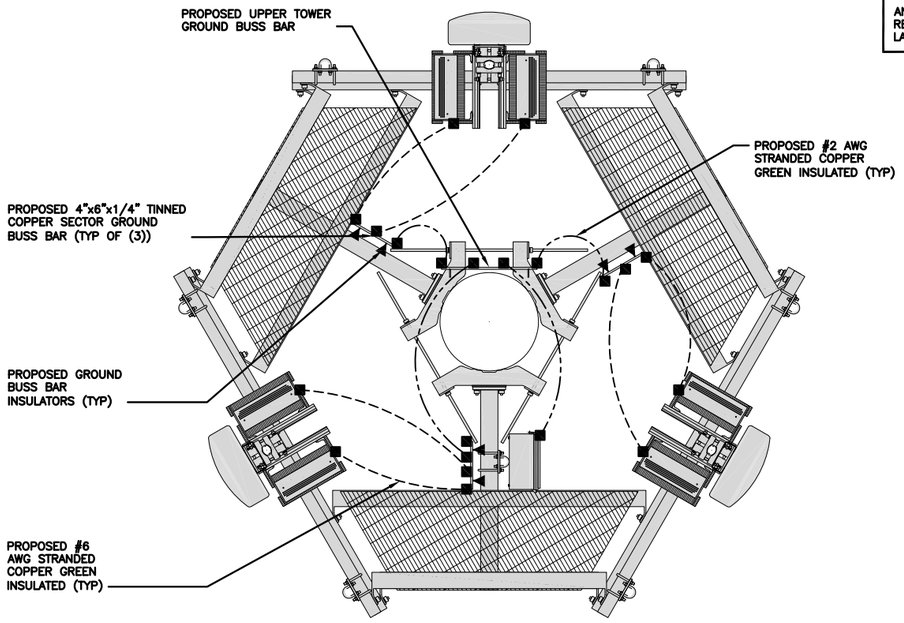
SHEET TITLE
ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE

SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE | 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2

NOTES

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

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

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

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

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

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

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

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

(L) 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.

(M) 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.

(N) 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

(P) 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.

(Q) 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

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

REFER TO DISH WIRELESS, LLC. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE | 3

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SHUHEI SAKANOUE
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12/9/2021

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RCD	SS	CJW

RFDS REV #: N/A

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1	12/08/2021	FINAL CDS

A&E PROJECT NUMBER
1039-Z5555C

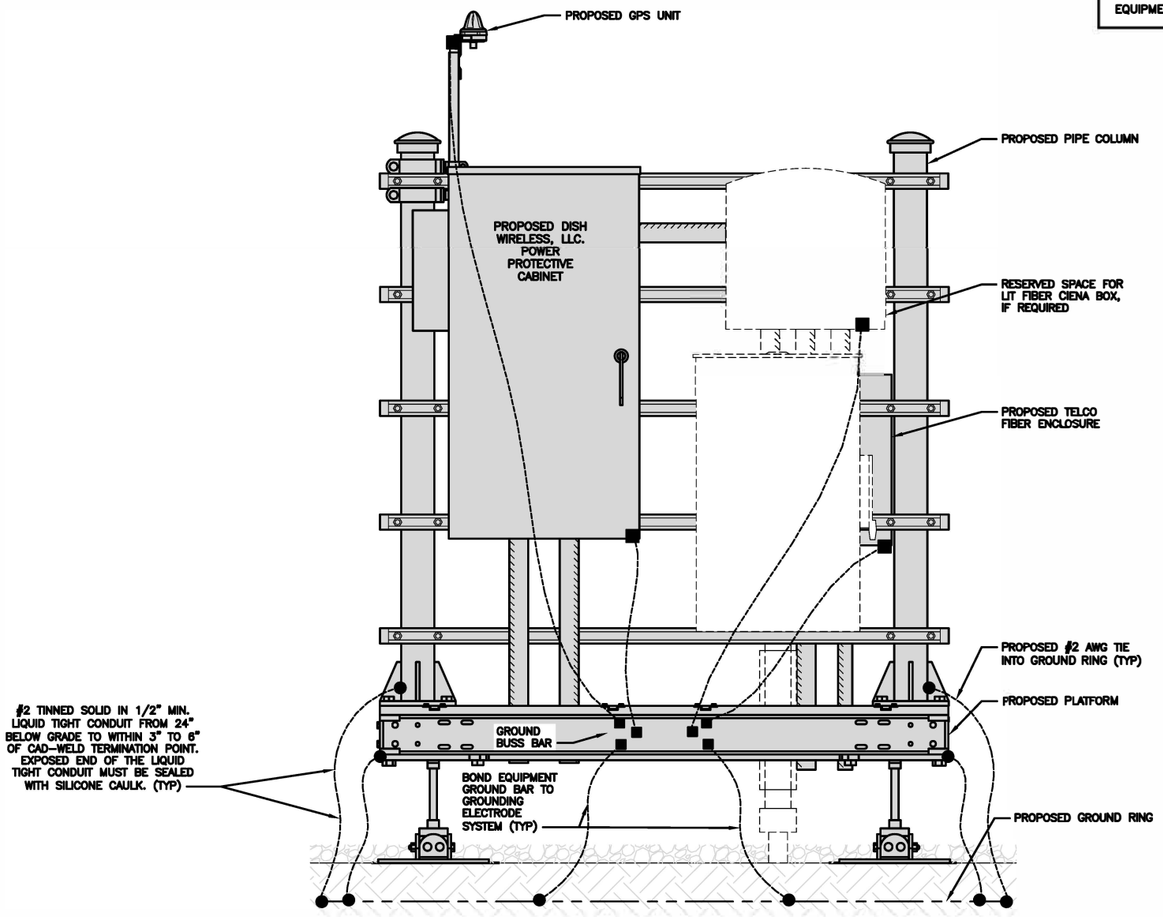
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00088A
430 MIDDLESEX TURNPIKE
OLD SAYBROOK, CT 06475

SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

NOTES

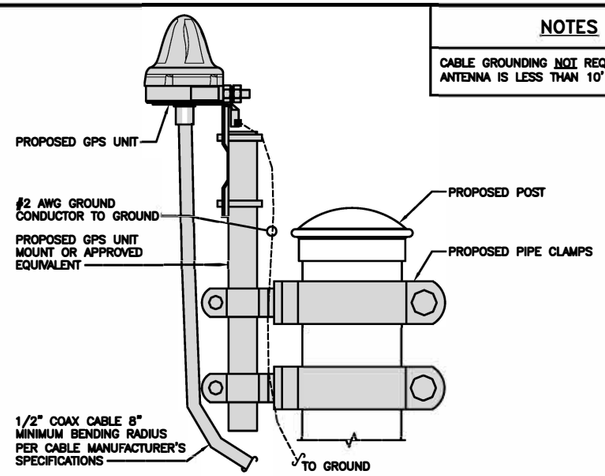
EQUIPMENT CABINET OMITTED FOR CLARITY



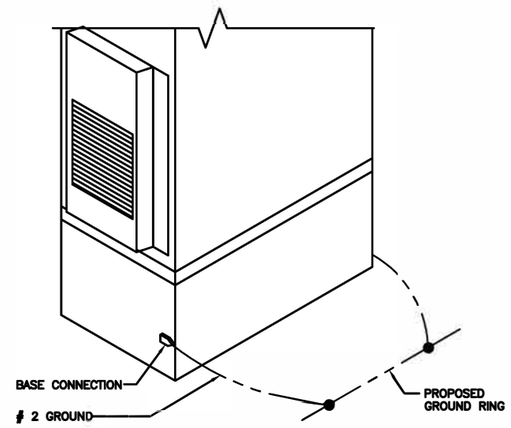
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

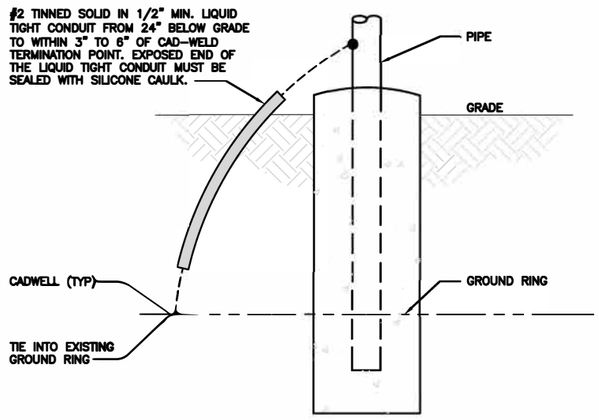
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



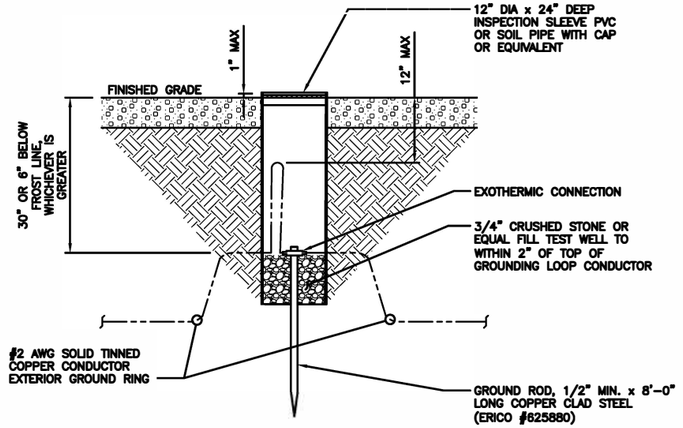
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



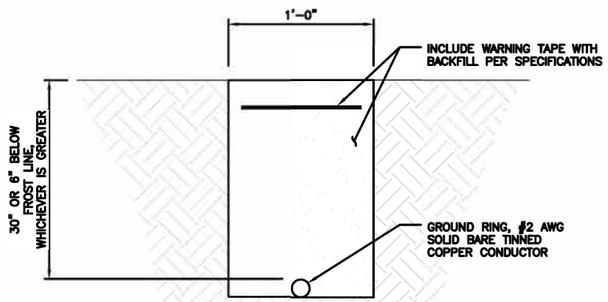
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



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



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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1039-Z5555C

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00088A
430 MIDDLESEX TURNPIKE
OLD SAYBROOK, CT 06475

SHEET TITLE

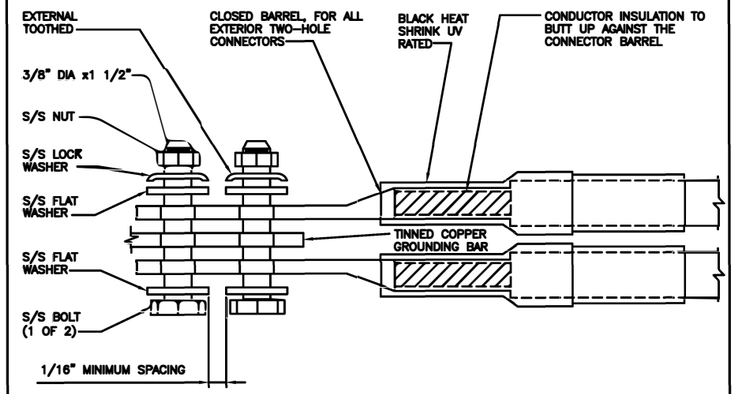
GROUNDING DETAILS

SHEET NUMBER

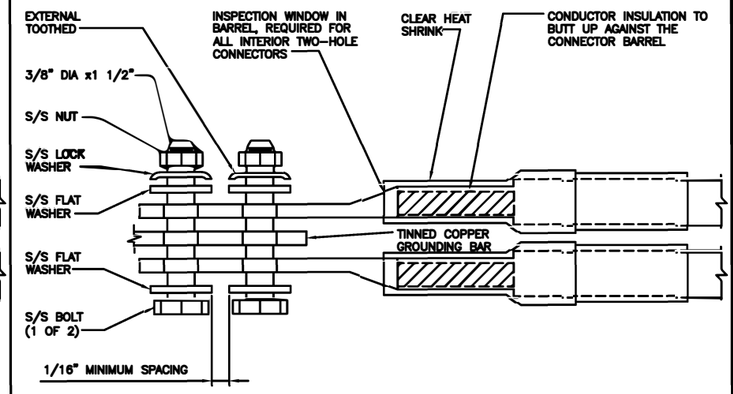
G-2

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

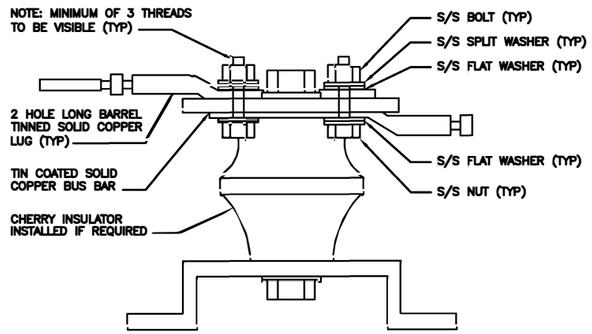
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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OLD SAYBROOK, CT 06475

SHEET TITLE
GROUNDING DETAILS

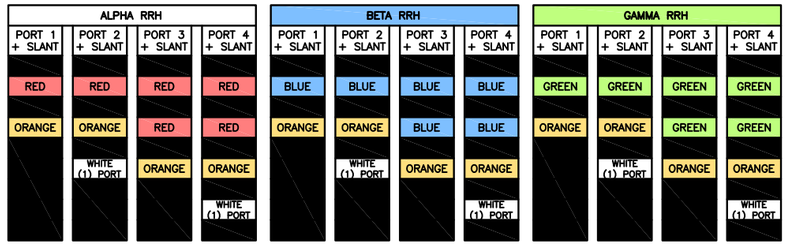
SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

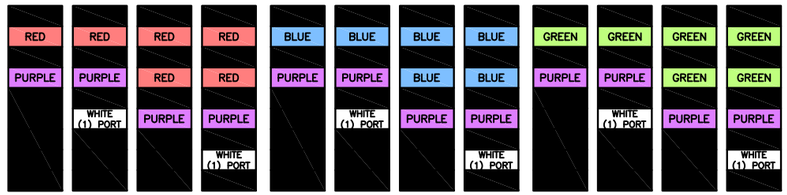
LOW–BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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



MID–BAND RRH –
(AWS BANDS N66+N70)

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

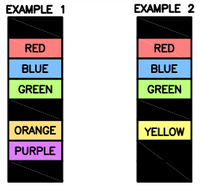


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED AM LONG WITH FREQUENCY BANDS

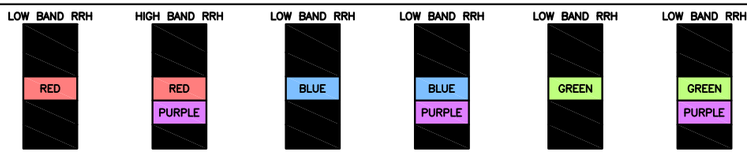
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW–BANDS AND MID–BANDS

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



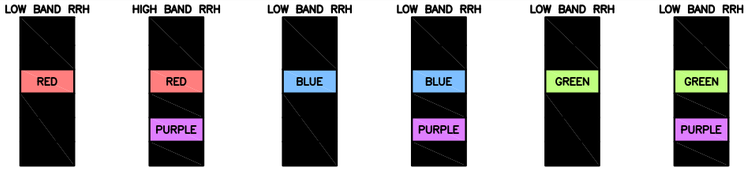
HYBRID/DISCREET CABLES

LOW–BAND RRH FIBER CABLES HAVE SECTOR STRIPE ONLY

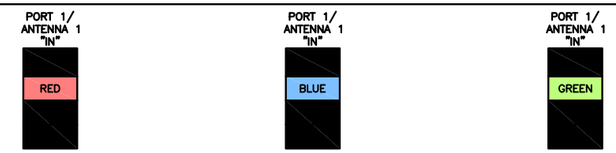


POWER CABLES TO RRHs

LOW–BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



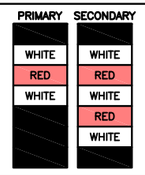
RET MOTORS AT ANTENNAS



MICROWAVE RADIO LINKS

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

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



RF CABLE COLOR CODES | NO SCALE | 1

LOW BANDS (N71–N28)
OPTIONAL – (N29)
ORANGE

AWS
(N65+N70+H–BLOCK)
PURPLE

CBRS TECH
(3 GHz)
YELLOW

NEGATIVE SLANT PORT
ON ANTRRH
WHITE

ALPHA SECTOR
RED

BETA SECTOR
BLUE

GAMMA SECTOR
GREEN

COLOR IDENTIFIER | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

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BOBDL00088A
430 MIDDLESEX TURNPIKE
OLD SAYBROOK, CT 06475

SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1

LEGEND

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

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

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE

UNDERGROUND POWER

UNDERGROUND TELCO

OVERHEAD POWER

OVERHEAD TELCO

UNDERGROUND TELCO/POWER

ABOVE GROUND POWER

ABOVE GROUND TELCO

ABOVE GROUND TELCO/POWER

WORKPOINT

SECTION REFERENCE

DETAIL REFERENCE

ABBREVIATIONS

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

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BOBDL00088A
430 MIDDLESEX TURNPIKE
OLD SAYBROOK, CT 06475

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GENERAL NOTES:

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

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH WIRELESS, LLC.

TOWER OWNER:TOWER OWNER

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

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

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

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

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

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

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

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

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

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

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

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

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

dish wireless.
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STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
12/9/2021

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

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	04/19/2021	PRELIM CDS
0	05/18/2021	FINAL CDS
1	12/08/2021	FINAL CDS

A&E PROJECT NUMBER

1039–Z5555C

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00088A
430 MIDDLESEX TURNPIKE
OLD SAYBROOK, CT 06475

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

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

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

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

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

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

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

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

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

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

8. TIE WRAPS ARE NOT ALLOWED.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

dish wireless.
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LITTLETON, CO 80120

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SHUHEI SAKANOUE
34916
LICENSED
PROFESSIONAL ENGINEER
12/9/2021

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	04/19/2021	PRELIM CDS
0	05/18/2021	FINAL CDS
1	12/08/2021	FINAL CDS

A&E PROJECT NUMBER

1039-Z5555C

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00088A
430 MIDDLESEX TURNPIKE
OLD SAYBROOK, CT 06475

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.

4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.

7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.

8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.

11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.

13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.

14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.

15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.

17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.

19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).

21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

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STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
12/9/2021

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

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	04/19/2021	PRELIM CDS
0	05/18/2021	FINAL CDS
1	12/06/2021	FINAL CDS

A&E PROJECT NUMBER

1039-Z5555C

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00088A
430 MIDDLESEX TURNPIKE
OLD SAYBROOK, CT 06475

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

Exhibit D

Structural Analysis Report

Date: **May 21, 2021**

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***DISH Network* Co-Locate**	
	Site Number:	BOBDL00088A
	Site Name:	CT-CCI-T-876336
Crown Castle Designation:	**BU Number:**	876336
	Site Name:	OLD SAYBROOK
	JDE Job Number:	645179
	Work Order Number:	1973705
	Order Number:	553289 Rev. 2
Engineering Firm Designation:	**Crown Castle Project Number:**	1973705
Site Data:	**430 Middlesex Turnpike, OLD SAYBROOK, MIDDLESEX County, CT** **Latitude *41° 18' 47.56"*, Longitude *-72° 22' 51.99"*** **175 Foot - Monopole Tower**	

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

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

LC7: Proposed Equipment Configuration **Sufficient Capacity-86.9%**

This analysis has been performed in accordance with the 2018 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 135 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Hayes Lei

Respectfully submitted by:

Digitally signed by Maham Barimani
Date: 2021.05.23 08:59:40 -04'00'

STATE OF CONNECTICUT
MAHAM BARIMANI
30501
LICENSED
PROFESSIONAL ENGINEER

Maham Barimani, P.E.
Senior Project Engineer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 175 ft Monopole tower designed by SUMMIT.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	135 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
153.0	153.0	3	fujitsu	TA08025-B604	1	1-3/4
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-20 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
172.0	178.0	1	rfs celwave	ALG6	3 2	1-1/4 7/8
	172.0	3	alcatel lucent	TD-RRH8x20-25		
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe		
		1	tower mounts	Platform Mount [LP 712-1]		
	165.0	1	sinclair	SC381-HL		
170.0	170.0	3	alcatel lucent	PCS 1900MHz 4x45W-65MHz w/ Mount Pipe	-	-
		1	tower mounts	Side Arm Mount [SO 102-3]		
	166.0	3	alcatel lucent	800MHz 2X50W RRH W/FILTER		
85.0	85.0	1		HE2-105	1	EW90
		1	tower mounts	Pipe Mount [PM 601-1]		
72.0	72.0	1	lucent	KS24019-L112A	1	1/2
		1	tower mounts	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1531893	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1614591	CCISITES
4-TOWER MANUFACTURER DRAWINGS	2264466	CCISITES

3.1) Analysis Method

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

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	175 - 125.667	Pole	TP27.49x17.63x0.188	1	-8.04	975.46	67.8	Pass
L2	125.667 - 84.75	Pole	TP35.3x26.249x0.281	2	-13.42	1889.61	65.3	Pass
L3	84.75 - 38.75	Pole	TP43.94x33.687x0.344	3	-23.07	2879.09	67.0	Pass
L4	38.75 - 0	Pole	TP51x42.002x0.406	4	-36.63	4065.28	64.1	Pass
							Summary	
						Pole (L1)	67.8	Pass
						Rating =	67.8	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	55.0	Pass
1	Base Plate	0	34.3	Pass
1	Anchor Rod Concrete Breakout	0	86.9	Pass
1	Base Foundation (Structure)	0	21.7	Pass
1	Base Foundation (Soil Interaction)	0	48.8	Pass

Structure Rating (max from all components) =	86.9%

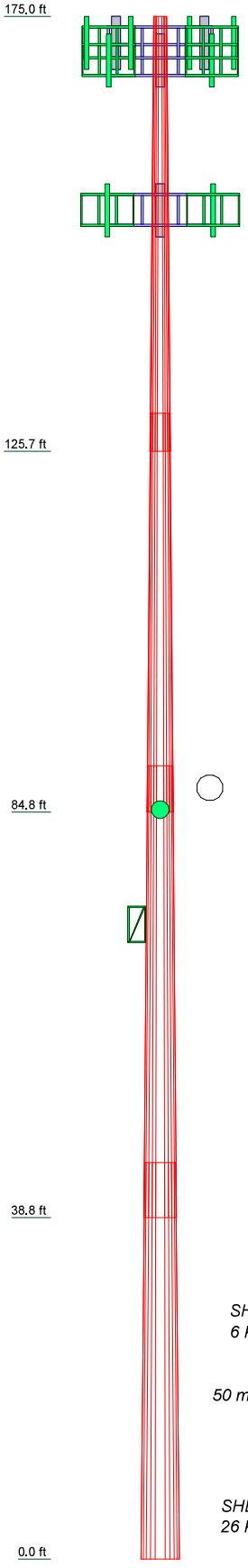
4.1) Recommendations

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	49.33	12	0.188	4.33	17.630	27.490	A572-65	2.3
2	45.25	12	0.281	5.25	26.249	35.300		4.3
3	51.25	12	0.344	6.25	33.687	43.940		7.4
4	45.00	12	0.406		42.002	51.000		9.2
								23.2



ALL REACTIONS ARE FACTORED

AXIAL 58 K
SHEAR 6 K
MOMENT 703 kip-ft
TORQUE 0 kip-ft
50 mph WIND - 1.500 in ICE

AXIAL 37 K
SHEAR 26 K
MOMENT 2828 kip-ft
TORQUE 2 kip-ft
REACTIONS - 135 mph WIND

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 135 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 67.8%

CROWN CASTLE
The Pathway To Possible

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

Job: ***BU 876336***			
Project:			
Client: Crown Castle	Drawn by: HLei		App'd:
Code: TIA-222-H	Date: 05/21/21		Scale: NTS
Path: C:\Temporary Working Space - No One Drive\876336\WO 1973705 - SA\Prod\876336_RPA.er			Dwg No. E-1

Tower Input Data

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

- Tower is located in Middlesex County, Connecticut.
- Tower base elevation above sea level: 143.32 ft.
- Basic wind speed of 135 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.500 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- 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	175.00-125.67	49.33	4.333	12	17.630	27.490	0.188	0.750	A572-65 (65 ksi)
L2	125.67-84.75	45.25	5.250	12	26.249	35.300	0.281	1.125	A572-65 (65 ksi)
L3	84.75-38.75	51.25	6.250	12	33.687	43.940	0.344	1.375	A572-65 (65 ksi)
L4	38.75-0.00	45.00		12	42.002	51.000	0.406	1.625	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	18.186	10.531	408.949	6.244	9.132	44.780	828.642	5.183	4.222	22.519
	28.394	16.484	1568.377	9.774	14.240	110.140	3177.956	8.113	6.865	36.612
L2	27.973	23.517	2024.106	9.296	13.597	148.865	4101.388	11.574	6.281	22.332
	36.446	31.714	4964.051	12.537	18.285	271.476	10058.514	15.609	8.707	30.957
L3	35.842	36.907	5237.487	11.937	17.450	300.141	10612.569	18.165	8.107	23.584
	45.369	48.256	11706.631	15.607	22.761	514.330	23720.808	23.750	10.855	31.577
L4	44.634	54.413	12016.769	14.891	21.757	552.314	24349.232	26.780	10.168	25.029
	52.656	66.183	21623.491	18.113	26.418	818.514	43815.055	32.573	12.579	30.964

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 175.00-125.67				1	1	1			
L2 125.67-84.75				1	1	1			
L3 84.75-38.75				1	1	1			
L4 38.75-0.00				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
Safety										
Step Pegs (5/8" SR) 7-in. w/30" step	C	No	Surface Ar (CaAa)	175.00 - 0.00	1	1	0.000 0.000	0.350		0.487
Safety Line 3/8	C	No	Surface Ar (CaAa)	175.00 - 0.00	1	1	0.000 0.000	0.375		0.220
Detuner										
AM Detuner	A	No	Surface Ar (CaAa)	113.00 - 4.00	1	1	0.500 0.500	0.280		1.000
AM Detuner	A	No	Surface Ar (CaAa)	113.00 - 4.00	1	1	-0.250 -0.250	0.280		1.000
AM Detuner	B	No	Surface Ar (CaAa)	113.00 - 4.00	1	1	0.250 0.250	0.280		1.000
***										
***										
***										
**										
*										

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
172									
LDF5-50A(7/8)	B	No	No	Inside Pole	172.00 - 0.00	2	No Ice	0.00	0.330
							1/2" Ice	0.00	0.330
							1" Ice	0.00	0.330
							2" Ice	0.00	0.330
HB114-1-08U4-M5J(1-1/4)	A	No	No	Inside Pole	172.00 - 0.00	3	No Ice	0.00	1.080
							1/2" Ice	0.00	1.080
							1" Ice	0.00	1.080
							2" Ice	0.00	1.080
HB114-21U3M12-XXXF(1-1/4)	A	No	No	Inside Pole	172.00 - 0.00	1	No Ice	0.00	1.220
							1/2" Ice	0.00	1.220
							1" Ice	0.00	1.220
							2" Ice	0.00	1.220
85									
EW90(ELLIPTICAL)	B	No	No	Inside Pole	85.00 - 0.00	1	No Ice	0.00	0.320
							1/2" Ice	0.00	0.320
							1" Ice	0.00	0.320
							2" Ice	0.00	0.320
72									
LDF4-50A(1/2)	A	No	No	Inside Pole	72.00 - 0.00	1	No Ice	0.00	0.150
							1/2" Ice	0.00	0.150
							1" Ice	0.00	0.150
							2" Ice	0.00	0.150
***									
***									
***									
CU12PSM6P4XXX (1-3/4)	A	No	No	Inside Pole	153.00 - 0.00	1	No Ice	0.00	2.720
							1/2" Ice	0.00	2.720
							1" Ice	0.00	2.720
							2" Ice	0.00	2.720
***									
**									
*									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	175.00-125.67	A	0.000	0.000	0.000	0.000	0.28
		B	0.000	0.000	0.000	0.000	0.03
		C	0.000	0.000	3.577	0.000	0.03
L2	125.67-84.75	A	0.000	0.000	1.582	0.000	0.35
		B	0.000	0.000	0.791	0.000	0.06
		C	0.000	0.000	2.966	0.000	0.03
L3	84.75-38.75	A	0.000	0.000	2.576	0.000	0.43
		B	0.000	0.000	1.288	0.000	0.09
		C	0.000	0.000	3.335	0.000	0.03
L4	38.75-0.00	A	0.000	0.000	1.946	0.000	0.35
		B	0.000	0.000	0.973	0.000	0.07
		C	0.000	0.000	2.809	0.000	0.03

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	175.00-125.67	A	1.482	0.000	0.000	0.000	0.000	0.28
		B		0.000	0.000	0.000	0.000	0.03
		C		0.000	0.000	32.827	0.000	0.36
L2	125.67-84.75	A	1.431	0.000	0.000	18.332	0.000	0.53
		B		0.000	0.000	9.166	0.000	0.15
		C		0.000	0.000	27.226	0.000	0.30
L3	84.75-38.75	A	1.357	0.000	0.000	28.905	0.000	0.70
		B		0.000	0.000	14.452	0.000	0.23
		C		0.000	0.000	29.664	0.000	0.32
L4	38.75-0.00	A	1.206	0.000	0.000	20.806	0.000	0.54
		B		0.000	0.000	10.403	0.000	0.17
		C		0.000	0.000	23.840	0.000	0.25

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	175.00-125.67	0.000	0.483	0.000	2.317
L2	125.67-84.75	0.000	0.343	0.000	1.411
L3	84.75-38.75	0.000	0.292	0.000	1.111
L4	38.75-0.00	0.000	0.315	0.000	1.272

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	2	Step Pegs (5/8" SR) 7-in. w/30" step	125.67 - 175.00	1.0000	1.0000
L1	3	Safety Line 3/8	125.67 - 175.00	1.0000	1.0000
L2	2	Step Pegs (5/8" SR) 7-in. w/30" step	84.75 - 125.67	1.0000	1.0000
L2	3	Safety Line 3/8	84.75 - 125.67	1.0000	1.0000
L2	13	AM Detuner	84.75 - 113.00	1.0000	1.0000
L2	14	AM Detuner	84.75 - 113.00	1.0000	1.0000
L2	15	AM Detuner	84.75 - 113.00	1.0000	1.0000
L3	2	Step Pegs (5/8" SR) 7-in. w/30" step	38.75 - 84.75	1.0000	1.0000
L3	3	Safety Line 3/8	38.75 - 84.75	1.0000	1.0000
L3	13	AM Detuner	38.75 - 84.75	1.0000	1.0000
L3	14	AM Detuner	38.75 - 84.75	1.0000	1.0000
L3	15	AM Detuner	38.75 - 84.75	1.0000	1.0000
L4	2	Step Pegs (5/8" SR) 7-in. w/30" step	0.00 - 38.75	1.0000	1.0000
L4	3	Safety Line 3/8	0.00 - 38.75	1.0000	1.0000
L4	13	AM Detuner	4.00 - 38.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L4	14	AM Detuner	4.00 - 38.75	1.0000	1.0000
L4	15	AM Detuner	4.00 - 38.75	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
LR									
1/2" x 5' LRod	C	From Leg	0.00 0.000 2.500	0.000	175.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.25 0.76 1.29 1.92	0.25 0.76 1.29 1.92	0.00 0.01 0.01 0.04
172									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.000 0.000	0.000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVSPP18-C-A20 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.000 0.000	0.000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVSPP18-C-A20 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.000 0.000	0.000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVTM14-C-120 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.000 0.000	0.000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
APXVTM14-C-120 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.000 0.000	0.000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
APXVTM14-C-120 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.000 0.000	0.000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
ALG6	C	From Centroid-Leg	4.00 0.000 6.000	0.000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.65 4.76 5.26 6.30	2.65 4.76 5.26 6.30	0.04 0.07 0.11 0.22
SC381-HL	C	From Centroid-Leg	4.00 0.000 -7.000	0.000	172.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.31 7.38 8.76 10.39	4.31 7.38 8.76 10.39	0.05 0.09 0.14 0.27
TD-RRH8x20-25	A	From Centroid-Leg	4.00 0.000 0.000	0.000	172.00	No Ice 1/2" Ice	4.05 4.30 4.56	1.53 1.71 1.90	0.07 0.10 0.13

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	5.10	2.30	0.20
						2" Ice			
TD-RRH8x20-25	B	From Centroid-Leg	4.00 0.000 0.000	0.000	172.00	No Ice	4.05	1.53	0.07
						1/2" Ice	4.30	1.71	0.10
						1" Ice	4.56	1.90	0.13
						2" Ice	5.10	2.30	0.20
TD-RRH8x20-25	C	From Centroid-Leg	4.00 0.000 0.000	0.000	172.00	No Ice	4.05	1.53	0.07
						1/2" Ice	4.30	1.71	0.10
						1" Ice	4.56	1.90	0.13
						2" Ice	5.10	2.30	0.20
2.4" Dia. x 6' Mount Pipe	A	From Centroid-Leg	4.00 0.000 0.000	0.000	172.00	No Ice	1.43	1.43	0.02
						1/2" Ice	1.93	1.93	0.04
						1" Ice	2.32	2.32	0.06
						2" Ice	3.15	3.15	0.10
2.4" Dia. x 6' Mount Pipe	B	From Centroid-Leg	4.00 0.000 0.000	0.000	172.00	No Ice	1.43	1.43	0.02
						1/2" Ice	1.93	1.93	0.04
						1" Ice	2.32	2.32	0.06
						2" Ice	3.15	3.15	0.10
2.4" Dia. x 6' Mount Pipe	C	From Centroid-Leg	4.00 0.000 0.000	0.000	172.00	No Ice	1.43	1.43	0.02
						1/2" Ice	1.93	1.93	0.04
						1" Ice	2.32	2.32	0.06
						2" Ice	3.15	3.15	0.10
Platform Mount [LP 712-1]	C	None		0.000	172.00	No Ice	24.56	24.56	1.34
						1/2" Ice	27.92	27.92	1.91
						1" Ice	31.27	31.27	2.55
						2" Ice	37.98	37.98	3.97
170									
800MHz 2X50W RRH W/FILTER	A	From Leg	1.00 0.000 -4.000	0.000	170.00	No Ice	2.06	1.93	0.06
						1/2" Ice	2.24	2.11	0.09
						1" Ice	2.43	2.29	0.11
						2" Ice	2.83	2.68	0.17
800MHz 2X50W RRH W/FILTER	B	From Leg	1.00 0.000 -4.000	0.000	170.00	No Ice	2.06	1.93	0.06
						1/2" Ice	2.24	2.11	0.09
						1" Ice	2.43	2.29	0.11
						2" Ice	2.83	2.68	0.17
800MHz 2X50W RRH W/FILTER	C	From Leg	1.00 0.000 -4.000	0.000	170.00	No Ice	2.06	1.93	0.06
						1/2" Ice	2.24	2.11	0.09
						1" Ice	2.43	2.29	0.11
						2" Ice	2.83	2.68	0.17
PCS 1900MHz 4x45W-65MHz w/ Mount Pipe	A	From Leg	1.00 0.000 0.000	0.000	170.00	No Ice	2.52	2.84	0.07
						1/2" Ice	2.79	3.24	0.10
						1" Ice	3.06	3.65	0.14
						2" Ice	3.65	4.53	0.23
PCS 1900MHz 4x45W-65MHz w/ Mount Pipe	B	From Leg	1.00 0.000 0.000	0.000	170.00	No Ice	2.52	2.84	0.07
						1/2" Ice	2.79	3.24	0.10
						1" Ice	3.06	3.65	0.14
						2" Ice	3.65	4.53	0.23
PCS 1900MHz 4x45W-65MHz w/ Mount Pipe	C	From Leg	1.00 0.000 0.000	0.000	170.00	No Ice	2.52	2.84	0.07
						1/2" Ice	2.79	3.24	0.10
						1" Ice	3.06	3.65	0.14
						2" Ice	3.65	4.53	0.23
Side Arm Mount [SO 102-3]	C	None		0.000	170.00	No Ice	3.60	3.60	0.07
						1/2" Ice	4.18	4.18	0.11

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						Ice	4.75	4.75	0.14
						1" Ice	5.90	5.90	0.20
						2" Ice			
132									
MX08FRO665-20 w/ Mount Pipe	A	From Leg	4.00 0.000 0.000	0.000	153.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.10 0.18 0.28 0.51
MX08FRO665-20 w/ Mount Pipe	B	From Leg	4.00 0.000 0.000	0.000	153.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.10 0.18 0.28 0.51
MX08FRO665-20 w/ Mount Pipe	C	From Leg	4.00 0.000 0.000	0.000	153.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.10 0.18 0.28 0.51
TA08025-B604	A	From Leg	4.00 0.000 0.000	0.000	153.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B604	B	From Leg	4.00 0.000 0.000	0.000	153.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B604	C	From Leg	4.00 0.000 0.000	0.000	153.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B605	A	From Leg	4.00 0.000 0.000	0.000	153.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
TA08025-B605	B	From Leg	4.00 0.000 0.000	0.000	153.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
TA08025-B605	C	From Leg	4.00 0.000 0.000	0.000	153.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
RDIDC-9181-PF-48	A	From Leg	4.00 0.000 0.000	0.000	153.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.31 2.50 2.70 3.12	1.29 1.45 1.61 1.96	0.02 0.04 0.06 0.12
(2) 8' x 2" Mount Pipe	A	From Leg	4.00 0.000 0.000	0.000	153.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
(2) 8' x 2" Mount Pipe	B	From Leg	4.00 0.000 0.000	0.000	153.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
(2) 8' x 2" Mount Pipe	C	From Leg	4.00	0.000	153.00	No Ice	1.90	1.90	0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000 0.000			1/2" Ice 1" Ice 2" Ice	2.73 3.40 4.40	2.73 3.40 4.40	0.04 0.06 0.12
Commscope MC-PK8-DSH	C	None		0.000	153.00	No Ice 1/2" Ice 1" Ice 2" Ice	34.24 62.95 91.66 149.08	34.24 62.95 91.66 149.08	1.75 2.10 2.45 3.15
85									
Pipe Mount [PM 601-1]	C	From Face	0.50 0.000 0.000	0.000	85.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.32 1.58 1.84 2.40	1.32 1.58 1.84 2.40	0.07 0.08 0.09 0.13
72									
KS24019-L112A	C	From Leg	3.00 0.000 0.000	0.000	72.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.10 0.18 0.26 0.42	0.10 0.18 0.26 0.42	0.01 0.01 0.01 0.01
2.4" Dia x 18" Pipe	C	From Leg	3.00 0.000 0.000	0.000	72.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.24 0.34 0.46 0.70	0.24 0.34 0.46 0.70	0.01 0.01 0.01 0.03
Side Arm Mount [SO 701-1]	C	From Leg	1.50 0.000 0.000	0.000	72.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.85 1.14 1.43 2.01	1.67 2.34 3.01 4.35	0.07 0.08 0.09 0.12
****									
Detuner Brace 28" (PL3"x3/16")	A	From Leg	1.00 0.000 0.000	0.000	113.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.01 0.03 0.06 0.13	0.70 0.88 1.06 1.45	0.00 0.01 0.01 0.03
Detuner Brace 28" (PL3"x3/16")	B	From Leg	1.00 0.000 0.000	0.000	113.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.01 0.03 0.06 0.13	0.70 0.88 1.06 1.45	0.00 0.01 0.01 0.03
Detuner Brace 28" (PL3"x3/16")	C	From Leg	1.00 0.000 0.000	0.000	113.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.01 0.03 0.06 0.13	0.70 0.88 1.06 1.45	0.00 0.01 0.01 0.03
Detuner Brace 28" (PL3"x3/16")	A	From Leg	1.00 0.000 0.000	0.000	4.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.01 0.03 0.06 0.13	0.70 0.88 1.06 1.45	0.00 0.01 0.01 0.03
Detuner Brace 28" (PL3"x3/16")	B	From Leg	1.00 0.000 0.000	0.000	4.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.01 0.03 0.06 0.13	0.70 0.88 1.06 1.45	0.00 0.01 0.01 0.03
Detuner Brace 28" (PL3"x3/16")	C	From Leg	1.00 0.000 0.000	0.000	4.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.01 0.03 0.06 0.13	0.70 0.88 1.06 1.45	0.00 0.01 0.01 0.03
*** ** *									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
85											
HE2-105	C	Paraboloid w/Shroud (HP)	From Face	1.00 0.000 0.000	-9.000		85.00	2.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.14 3.41 3.68 4.21	0.06 0.07 0.09 0.12

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

Comb. No.	Description
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	175 - 125.667	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-18.86	1.54	-0.75
			Max. Mx	20	-8.05	350.16	-0.12
			Max. My	14	-8.04	0.32	-350.97
			Max. Vy	20	-11.98	350.16	-0.12
			Max. Vx	14	12.02	0.32	-350.97
			Max. Torque	13			-1.29
L2	125.667 - 84.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.18	1.79	-1.00
			Max. Mx	20	-13.43	912.54	-0.12
			Max. My	14	-13.42	0.40	-915.09
			Max. Vy	20	-16.17	912.54	-0.12
			Max. Vx	2	-16.22	0.45	914.84
			Max. Torque	25			1.15
L3	84.75 - 38.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-40.66	2.50	-1.87
			Max. Mx	20	-23.08	1759.00	0.68
			Max. My	2	-23.07	1.82	1766.60
			Max. Vy	8	21.23	-1757.60	-2.23
			Max. Vx	2	-21.37	1.82	1766.60
			Max. Torque	13			-1.60
L4	38.75 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.95	2.77	-1.98
			Max. Mx	20	-36.63	2813.86	2.29
			Max. My	2	-36.63	3.27	2828.14
			Max. Vy	8	25.62	-2812.47	-4.21
			Max. Vx	2	-25.77	3.27	2828.14
			Max. Torque	13			-1.59

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	33	57.95	-0.01	-5.82
	Max. H_x	21	27.48	25.59	0.03
	Max. H_z	2	36.65	0.03	25.74
	Max. M_x	2	2828.14	0.03	25.74
	Max. M_z	8	2812.47	-25.60	-0.05
	Max. Torsion	25	1.59	12.82	22.32
	Min. Vert	19	27.48	22.14	-12.86
	Min. H_x	9	27.48	-25.60	-0.05
	Min. H_z	14	36.65	-0.02	-25.71
	Min. M_x	14	-2826.00	-0.02	-25.71
	Min. M_z	20	-2813.86	25.59	0.03
	Min. Torsion	13	-1.59	-12.81	-22.28

Tower Mast Reaction Summary

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
Dead Only	30.54	0.00	0.00	0.38	0.69	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	36.65	-0.03	-25.74	-2828.14	3.27	-1.38
0.9 Dead+1.0 Wind 0 deg - No Ice	27.48	-0.03	-25.74	-2794.22	3.02	-1.38
1.2 Dead+1.0 Wind 30 deg - No Ice	36.65	12.75	-22.30	-2449.83	-1402.08	-0.82
0.9 Dead+1.0 Wind 30 deg - No Ice	27.48	12.75	-22.30	-2420.46	-1385.39	-0.82
1.2 Dead+1.0 Wind 60 deg - No Ice	36.65	22.13	-12.88	-1414.50	-2432.50	0.01
0.9 Dead+1.0 Wind 60 deg - No Ice	27.48	22.13	-12.88	-1397.60	-2403.40	0.01
1.2 Dead+1.0 Wind 90 deg - No Ice	36.65	25.60	0.05	4.21	-2812.47	0.89
0.9 Dead+1.0 Wind 90 deg - No Ice	27.48	25.60	0.05	4.06	-2778.79	0.89
1.2 Dead+1.0 Wind 120 deg - No Ice	36.65	22.16	12.90	1417.57	-2434.82	1.40
0.9 Dead+1.0 Wind 120 deg - No Ice	27.48	22.16	12.90	1400.40	-2405.69	1.40
1.2 Dead+1.0 Wind 150 deg - No Ice	36.65	12.81	22.28	2448.83	-1406.47	1.59
0.9 Dead+1.0 Wind 150 deg - No Ice	27.48	12.81	22.28	2419.23	-1389.74	1.59
1.2 Dead+1.0 Wind 180 deg - No Ice	36.65	0.02	25.71	2826.00	-1.05	1.35
0.9 Dead+1.0 Wind 180 deg - No Ice	27.48	0.02	25.71	2791.85	-1.27	1.36
1.2 Dead+1.0 Wind 210 deg - No Ice	36.65	-12.75	22.27	2448.05	1403.63	0.79
0.9 Dead+1.0 Wind 210 deg - No Ice	27.48	-12.75	22.27	2418.45	1386.48	0.79
1.2 Dead+1.0 Wind 240 deg - No Ice	36.65	-22.14	12.86	1413.89	2435.18	-0.06
0.9 Dead+1.0 Wind 240 deg - No Ice	27.48	-22.14	12.86	1396.74	2405.61	-0.06
1.2 Dead+1.0 Wind 270 deg - No Ice	36.65	-25.59	-0.03	-2.29	2813.86	-0.87
0.9 Dead+1.0 Wind 270 deg - No Ice	27.48	-25.59	-0.03	-2.39	2779.72	-0.87
1.2 Dead+1.0 Wind 300 deg - No Ice	36.65	-22.16	-12.94	-1419.34	2436.81	-1.37
0.9 Dead+1.0 Wind 300 deg - No Ice	27.48	-22.16	-12.94	-1402.39	2407.23	-1.37
1.2 Dead+1.0 Wind 330 deg - No Ice	36.65	-12.82	-22.32	-2451.07	1409.06	-1.59
0.9 Dead+1.0 Wind 330 deg - No Ice	27.48	-12.82	-22.32	-2421.69	1391.88	-1.59
1.2 Dead+1.0 Ice+1.0 Temp	57.95	-0.00	0.00	1.98	2.77	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	57.95	-0.01	-5.83	-699.29	3.45	-0.42
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	57.95	2.89	-5.05	-605.36	-345.63	-0.24
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	57.95	5.02	-2.91	-348.60	-601.50	0.01
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	57.95	5.80	0.01	2.86	-695.71	0.26
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	57.95	5.03	2.92	353.35	-602.07	0.43
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	57.95	2.91	5.05	609.29	-346.67	0.49
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	57.95	0.01	5.82	702.86	2.38	0.41
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	57.95	-2.89	5.04	608.99	351.35	0.24

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 240 deg+1.0 Ice+1.0 Temp	57.95	-5.02	2.91	352.43	607.42	-0.02
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	57.95	-5.80	-0.01	1.41	701.40	-0.26
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	57.95	-5.03	-2.93	-349.72	607.86	-0.42
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	57.95	-2.91	-5.05	-605.74	352.58	-0.49
Dead+Wind 0 deg - Service	30.54	-0.01	-4.82	-527.90	1.18	-0.36
Dead+Wind 30 deg - Service	30.54	2.39	-4.17	-457.24	-261.32	-0.21
Dead+Wind 60 deg - Service	30.54	4.14	-2.41	-263.87	-453.77	0.00
Dead+Wind 90 deg - Service	30.54	4.79	0.01	1.09	-524.73	0.23
Dead+Wind 120 deg - Service	30.54	4.15	2.42	265.06	-454.20	0.37
Dead+Wind 150 deg - Service	30.54	2.40	4.17	457.68	-262.13	0.42
Dead+Wind 180 deg - Service	30.54	0.00	4.81	528.13	0.37	0.36
Dead+Wind 210 deg - Service	30.54	-2.39	4.17	457.53	262.74	0.21
Dead+Wind 240 deg - Service	30.54	-4.15	2.41	264.38	455.40	-0.01
Dead+Wind 270 deg - Service	30.54	-4.79	-0.01	-0.11	526.13	-0.22
Dead+Wind 300 deg - Service	30.54	-4.15	-2.42	-264.76	455.71	-0.36
Dead+Wind 330 deg - Service	30.54	-2.40	-4.18	-457.47	263.75	-0.42

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	-30.54	0.00	0.00	30.54	0.00	0.000%
2	-0.03	-36.65	-25.74	0.03	36.65	25.74	0.000%
3	-0.03	-27.48	-25.74	0.03	27.48	25.74	0.000%
4	12.75	-36.65	-22.30	-12.75	36.65	22.30	0.000%
5	12.75	-27.48	-22.30	-12.75	27.48	22.30	0.000%
6	22.13	-36.65	-12.88	-22.13	36.65	12.88	0.000%
7	22.13	-27.48	-12.88	-22.13	27.48	12.88	0.000%
8	25.60	-36.65	0.05	-25.60	36.65	-0.05	0.000%
9	25.60	-27.48	0.05	-25.60	27.48	-0.05	0.000%
10	22.16	-36.65	12.90	-22.16	36.65	-12.90	0.000%
11	22.16	-27.48	12.90	-22.16	27.48	-12.90	0.000%
12	12.81	-36.65	22.28	-12.81	36.65	-22.28	0.000%
13	12.81	-27.48	22.28	-12.81	27.48	-22.28	0.000%
14	0.02	-36.65	25.71	-0.02	36.65	-25.71	0.000%
15	0.02	-27.48	25.71	-0.02	27.48	-25.71	0.000%
16	-12.75	-36.65	22.27	12.75	36.65	-22.27	0.000%
17	-12.75	-27.48	22.27	12.75	27.48	-22.27	0.000%
18	-22.14	-36.65	12.86	22.14	36.65	-12.86	0.000%
19	-22.14	-27.48	12.86	22.14	27.48	-12.86	0.000%
20	-25.59	-36.65	-0.03	25.59	36.65	0.03	0.000%
21	-25.59	-27.48	-0.03	25.59	27.48	0.03	0.000%
22	-22.16	-36.65	-12.94	22.16	36.65	12.94	0.000%
23	-22.16	-27.48	-12.94	22.16	27.48	12.94	0.000%
24	-12.82	-36.65	-22.32	12.82	36.65	22.32	0.000%
25	-12.82	-27.48	-22.32	12.82	27.48	22.32	0.000%
26	0.00	-57.95	0.00	0.00	57.95	-0.00	0.000%
27	-0.01	-57.95	-5.83	0.01	57.95	5.83	0.000%
28	2.89	-57.95	-5.05	-2.89	57.95	5.05	0.000%
29	5.02	-57.95	-2.91	-5.02	57.95	2.91	0.000%
30	5.80	-57.95	0.01	-5.80	57.95	-0.01	0.000%
31	5.03	-57.95	2.92	-5.03	57.95	-2.92	0.000%
32	2.91	-57.95	5.05	-2.91	57.95	-5.05	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
33	0.01	-57.95	5.82	-0.01	57.95	-5.82	0.000%
34	-2.89	-57.95	5.04	2.89	57.95	-5.04	0.000%
35	-5.02	-57.95	2.91	5.02	57.95	-2.91	0.000%
36	-5.80	-57.95	-0.01	5.80	57.95	0.01	0.000%
37	-5.03	-57.95	-2.93	5.03	57.95	2.93	0.000%
38	-2.91	-57.95	-5.05	2.91	57.95	5.05	0.000%
39	-0.01	-30.54	-4.82	0.01	30.54	4.82	0.000%
40	2.39	-30.54	-4.17	-2.39	30.54	4.17	0.000%
41	4.14	-30.54	-2.41	-4.14	30.54	2.41	0.000%
42	4.79	-30.54	0.01	-4.79	30.54	-0.01	0.000%
43	4.15	-30.54	2.42	-4.15	30.54	-2.42	0.000%
44	2.40	-30.54	4.17	-2.40	30.54	-4.17	0.000%
45	0.00	-30.54	4.81	-0.00	30.54	-4.81	0.000%
46	-2.39	-30.54	4.17	2.39	30.54	-4.17	0.000%
47	-4.15	-30.54	2.41	4.15	30.54	-2.41	0.000%
48	-4.79	-30.54	-0.01	4.79	30.54	0.01	0.000%
49	-4.15	-30.54	-2.42	4.15	30.54	2.42	0.000%
50	-2.40	-30.54	-4.18	2.40	30.54	4.18	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00009889
3	Yes	5	0.00000001	0.00004501
4	Yes	6	0.00000001	0.00012223
5	Yes	5	0.00000001	0.00090067
6	Yes	6	0.00000001	0.00012480
7	Yes	5	0.00000001	0.00092029
8	Yes	5	0.00000001	0.00005483
9	Yes	4	0.00000001	0.00067001
10	Yes	6	0.00000001	0.00012787
11	Yes	5	0.00000001	0.00094301
12	Yes	6	0.00000001	0.00012100
13	Yes	5	0.00000001	0.00089135
14	Yes	5	0.00000001	0.00009285
15	Yes	5	0.00000001	0.00004231
16	Yes	6	0.00000001	0.00012669
17	Yes	5	0.00000001	0.00093389
18	Yes	6	0.00000001	0.00012447
19	Yes	5	0.00000001	0.00091740
20	Yes	5	0.00000001	0.00004610
21	Yes	4	0.00000001	0.00059651
22	Yes	6	0.00000001	0.00012191
23	Yes	5	0.00000001	0.00089828
24	Yes	6	0.00000001	0.00012854
25	Yes	5	0.00000001	0.00094762
26	Yes	4	0.00000001	0.00004298
27	Yes	5	0.00000001	0.00057762
28	Yes	5	0.00000001	0.00078137
29	Yes	5	0.00000001	0.00078621
30	Yes	5	0.00000001	0.00057240
31	Yes	5	0.00000001	0.00080589
32	Yes	5	0.00000001	0.00078728
33	Yes	5	0.00000001	0.00058326
34	Yes	5	0.00000001	0.00081626
35	Yes	5	0.00000001	0.00080958
36	Yes	5	0.00000001	0.00058176
37	Yes	5	0.00000001	0.00079372
38	Yes	5	0.00000001	0.00081418
39	Yes	4	0.00000001	0.00011111
40	Yes	4	0.00000001	0.00030996
41	Yes	4	0.00000001	0.00033601
42	Yes	4	0.00000001	0.00007263

43	Yes	4	0.00000001	0.00038614
44	Yes	4	0.00000001	0.00030050
45	Yes	4	0.00000001	0.00011023
46	Yes	4	0.00000001	0.00037004
47	Yes	4	0.00000001	0.00033662
48	Yes	4	0.00000001	0.00007197
49	Yes	4	0.00000001	0.00030633
50	Yes	4	0.00000001	0.00039985

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	175 - 125.667	26.229	45	1.410	0.009
L2	130 - 84.75	13.932	45	1.093	0.003
L3	90 - 38.75	6.335	45	0.696	0.001
L4	45 - 0	1.521	45	0.309	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
175.00	1/2" x 5' LRod	45	26.229	1.410	0.009	42819
172.00	APXVSPP18-C-A20 w/ Mount Pipe	45	25.353	1.392	0.009	42819
170.00	800MHz 2X50W RRH W/FILTER	45	24.770	1.379	0.008	42819
153.00	MX08FRO665-20 w/ Mount Pipe	45	19.901	1.270	0.006	9731
113.00	Detuner Brace 28" (PL3"x3/16")	45	10.277	0.931	0.002	5409
85.00	HE2-105	45	5.612	0.648	0.001	6561
72.00	KS24019-L112A	45	3.949	0.529	0.001	6382
4.00	Detuner Brace 28" (PL3"x3/16")	50	0.076	0.026	0.000	54355

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	175 - 125.667	139.801	14	7.494	0.033
L2	130 - 84.75	74.428	2	5.837	0.010
L3	90 - 38.75	33.885	2	3.723	0.004
L4	45 - 0	8.143	2	1.657	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
175.00	1/2" x 5' LRod	14	139.801	7.494	0.033	8365
172.00	APXVSPP18-C-A20 w/ Mount Pipe	14	135.146	7.398	0.031	8365
170.00	800MHz 2X50W RRH W/FILTER	14	132.046	7.334	0.030	8365
153.00	MX08FRO665-20 w/ Mount Pipe	2	106.175	6.765	0.020	1897
113.00	Detuner Brace 28" (PL3"x3/16")	2	54.944	4.973	0.006	1036
85.00	HE2-105	2	30.023	3.464	0.004	1235

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
72.00	KS24019-L112A	2	21.132	2.827	0.003	1199
4.00	Detuner Brace 28" (PL3"x3/16")	2	0.408	0.141	0.000	10169

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	175 - 125.667 (1)	TP27.49x17.63x0.188	49.33	0.00	0.0	15.961	-8.04	929.01	0.009
L2	125.667 - 84.75 (2)	TP35.3x26.249x0.281	45.25	0.00	0.0	30.763	-13.42	1799.63	0.007
L3	84.75 - 38.75 (3)	TP43.94x33.687x0.344	51.25	0.00	0.0	46.872	-23.07	2741.99	0.008
L4	38.75 - 0 (4)	TP51x42.002x0.406	45.00	0.00	0.0	66.183	-36.63	3871.70	0.009

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	175 - 125.667 (1)	TP27.49x17.63x0.188	350.97	500.76	0.701	0.00	500.76	0.000
L2	125.667 - 84.75 (2)	TP35.3x26.249x0.281	915.09	1351.86	0.677	0.00	1351.86	0.000
L3	84.75 - 38.75 (3)	TP43.94x33.687x0.344	1766.60	2542.50	0.695	0.00	2542.50	0.000
L4	38.75 - 0 (4)	TP51x42.002x0.406	2828.14	4265.40	0.663	0.00	4265.40	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	175 - 125.667 (1)	TP27.49x17.63x0.188	12.02	280.12	0.043	1.11	651.39	0.002
L2	125.667 - 84.75 (2)	TP35.3x26.249x0.281	16.22	539.89	0.030	1.10	1613.18	0.001
L3	84.75 - 38.75 (3)	TP43.94x33.687x0.344	21.37	822.60	0.026	1.38	3064.07	0.000
L4	38.75 - 0 (4)	TP51x42.002x0.406	25.77	1161.51	0.022	1.38	5169.16	0.000

Pole Interaction Design Data

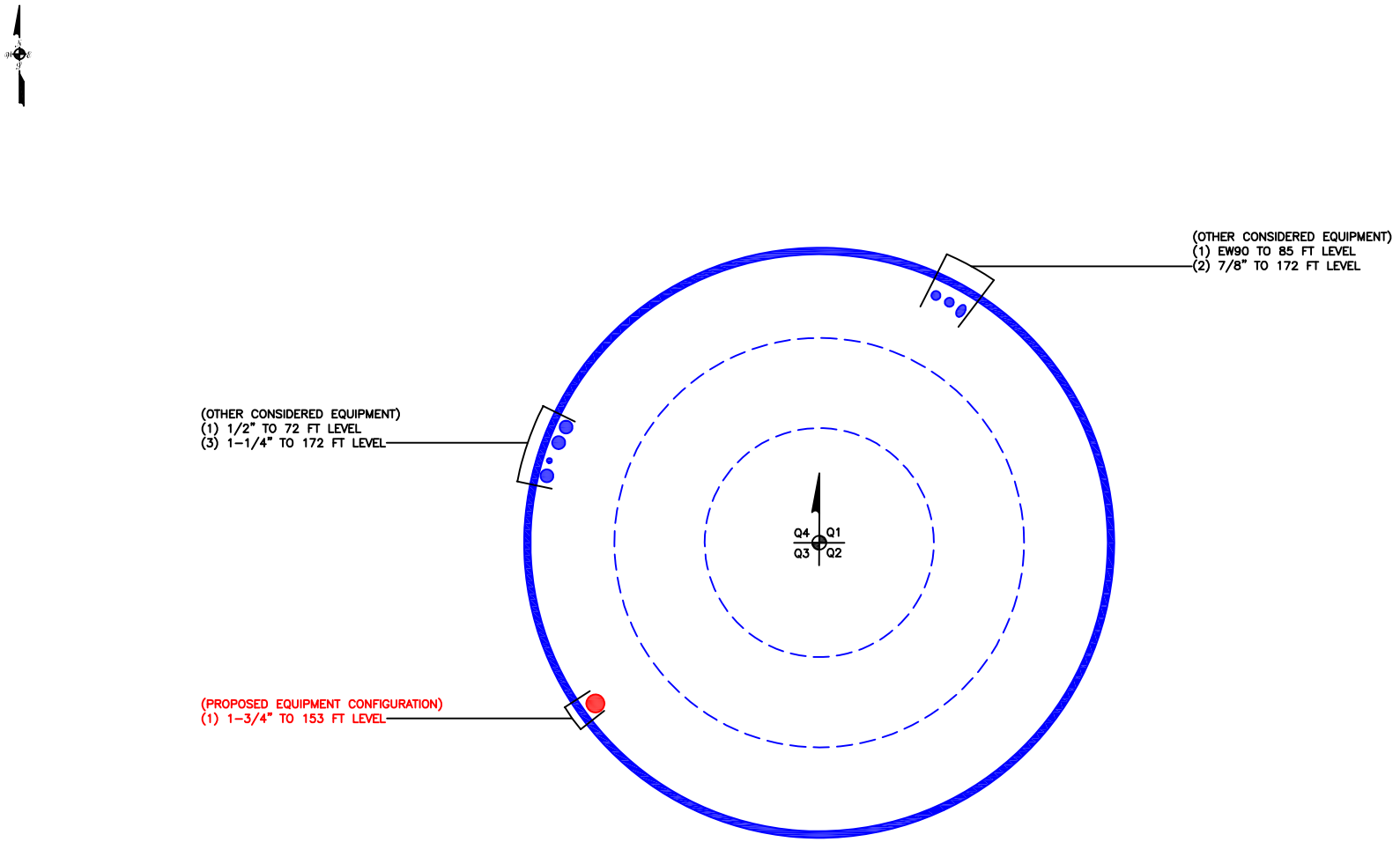
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	175 - 125.667 (1)	0.009	0.701	0.000	0.043	0.002	0.712	1.050	4.8.2
L2	125.667 - 84.75 (2)	0.007	0.677	0.000	0.030	0.001	0.685	1.050	4.8.2
L3	84.75 - 38.75 (3)	0.008	0.695	0.000	0.026	0.000	0.704	1.050	4.8.2
L4	38.75 - 0 (4)	0.009	0.663	0.000	0.022	0.000	0.673	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	175 - 125.667	Pole	TP27.49x17.63x0.188	1	-8.04	975.46	67.8	Pass
L2	125.667 - 84.75	Pole	TP35.3x26.249x0.281	2	-13.42	1889.61	65.3	Pass
L3	84.75 - 38.75	Pole	TP43.94x33.687x0.344	3	-23.07	2879.09	67.0	Pass
L4	38.75 - 0	Pole	TP51x42.002x0.406	4	-36.63	4065.28	64.1	Pass
							Summary	
						Pole (L1)	67.8	Pass
						RATING =	**67.8**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(OTHER CONSIDERED EQUIPMENT)
(1) EW90 TO 85 FT LEVEL
(2) 7/8" TO 172 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 72 FT LEVEL
(3) 1-1/4" TO 172 FT LEVEL
Q4
Q1
Q3
Q2
(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-3/4" TO 153 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

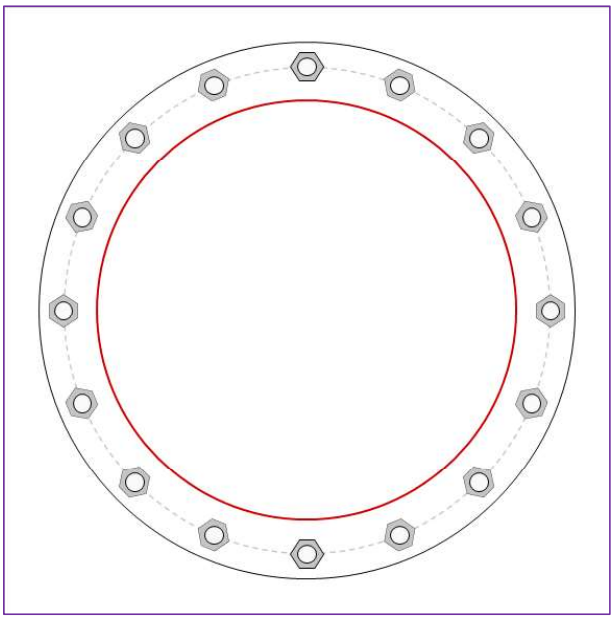
Monopole Base Plate Connection

Site Info	
BU #	876336
Site Name	OLD SAYBROOK
Order #	

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1.75

Applied Loads	
Moment (kip-ft)	2828.14
Axial Force (kips)	36.63
Shear Force (kips)	25.77

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(16) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 59.3" BC

Base Plate Data

65.3" OD x 2.75" Plate (S-128; Fy=60 ksi, Fu=80 ksi)

Stiffener Data

N/A

Pole Data

51" x 0.40625" 12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

Pu_t = 140.7	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.61	ϕVn = 149.1	**55.0%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	19.43	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**34.3%**	**Pass**

Anchor Rod Concrete Breakout Strength

TIA-222-H

Description:

This sheet will determine a concrete breakout strength for a single anchor or for a group of anchors in the case that there is no existing rebar to transfer load into.

1. Inputs

- ○ Undercut Anchors
- ○ Torque-Controlled Anchors
- ○ Displacement-Controlled Anchors
- ◉ Adhesive Anchor

- ◉ Cast-in
- ○ Post-installed

- ○ Cracked
- ◉ Uncracked

- ◉ Headed Rods
- ○ Non-Headed Rods

- ○ Single Anchor Concrete Breakout Strength
- ◉ Group of Anchors Concrete Breakout Strength

Concrete Compressive Strength: $f_c := 3000psi$

Concrete Weight Modification Factor: $\lambda := 1.0$ [ACI 318-14 25.4.2.4]

Anchor Effective Embedment Depth: $h_{ef} := 58.5in$ [ACI 318-14 17.4.2.3]

Total Tension from Anchor Rods: $T_n := 702.85kip$

Projected Concrete Failure Area: $A_{Nc} := 306.78ft^2$ [ACI 318-14 17.4.2.1]
(See Fig. R17.4.2.1(b))

Eccentricity from Anchor Group Centroid to Tension Resultant: $e_N := 2.35in$ [ACI 318-14 17.5.2.4]
(*See Fig. R17.4.2.4)*

Minimum Distance from Anchor to Edge of Concrete: $c_{a\_min} := 120.35in$ [ACI 318-14 17.4.2.5]
(*See Fig. R17.4..2.1)*

2. Maximum Projected Area of a Single Anchor

Projected Concrete Failure Area: (*See Fig. R17.4.2.1(a)*)

$$A_{Nco} := 9 \cdot h_{ef}^{\ 2} = 213.89\ ft^2$$

[ACI 318-14 Eq. 17.4.2.1c]

3. Breakout Strength of a Single Anchor

Coefficient for Basic Concrete Breakout:

$$k_c = 24$$

[ACI 318-14 17.4.2.2]

Breakout Strength:

$$N_b := k_c \cdot \lambda \cdot \sqrt{f'_c} \cdot h_{ef}^{\ 1.5} = 588.17 \cdot kip$$

[ACI 318-14 Eq. 17.4.2.2a]

4. Breakout Strength of a Single Headed Anchor

Breakout Strength:

$$N_{hb} := 16 \cdot \lambda \cdot \sqrt{f'_c} \cdot h_{ef}^{\ \frac{5}{3}} = 772.57 \cdot kip$$

[ACI 318-14 Eq. 17.4.2.2b]

5. Modification Factors

Modification Factor for Anchor Rod Groups Loaded Eccentrically:

$$\psi_{ec\_N} := \begin{cases} \dfrac{1}{\left(1 + \dfrac{2 \cdot e_N}{3 \cdot h_{ef}}\right)} & \text{if } \dfrac{1}{\left(1 + \dfrac{2 \cdot e_N}{3 \cdot h_{ef}}\right)} \le 1 \\ 1 & \text{otherwise} \end{cases}$$

$$\psi_{ec\_N} = 0.97$$

[ACI 318-14 17.4.2.4]

Modification Factor for Edge Effects:

$$\psi_{ed\_N} := \begin{cases} 0.7 + 0.3 \cdot \dfrac{c_{a\_min}}{1.5 \cdot h_{ef}} & \text{if } c_{a\_min} < 1.5 \cdot h_{ef} \\ 1 & \text{otherwise} \end{cases}$$

$$\psi_{ed\_N} = 1$$

[ACI 318-14 Eq. 17.4.2.5a 17.4.2.5b]

Non-Cracked Effects:

$$\psi_{c\_N} = 1.25$$

[ACI 318-14 17.4.2.6]

6. Post-Installed Anchors without Supplementary Reinforcement

Critical Edge Distance: $c_{ac} = 9.75\ ft$ [ACI 318-14 17.7.6]

Modification Factor:

$$\psi_{cp\_N} := \begin{cases} \frac{c_{a\_min}}{c_{ac}} & \text{if } c_{a\_min} < c_{ac} \\ 1 & \text{otherwise} \end{cases}$$

[ACI 318-14 Eq. 17.4.2.7a, 17.4.7.2b]

$$\psi_{cp\_N} := \begin{cases} \psi_{cp\_N} & \text{if } \psi_{cp\_N} \geq 1.5 \cdot \frac{h_{ef}}{c_{ac}} \\ 1.5 \cdot \frac{h_{ef}}{c_{ac}} & \text{otherwise} \end{cases}$$

[ACI 318-14 17.4.2.7]

$$\psi_{cp\_N} = 1$$

7. Concrete Breakout Strength

Tensile Strength Reduction Factor: $\phi := 0.75$

Case 1 [ACI 318-14 17.3.3]

Single Anchor Nominal Breakout Strength:

$$N_{cbs} := \frac{A_{Nc}}{A_{Nco}} \cdot \psi_{ed\_N} \cdot \psi_{c\_N} \cdot \psi_{cp\_N} \cdot N_b$$

[ACI 318-14 Eq. 17.4.2.1a]

$$N_{cbs} = 1054.51 \cdot kip$$

Case 2

Single Anchor in a Group Breakout Strength:

$$N_{cbg} := \frac{A_{Nc}}{A_{Nco}} \cdot \psi_{ec\_N} \cdot \psi_{ed\_N} \cdot \psi_{c\_N} \cdot \psi_{cp\_N} \cdot N_b$$

[ACI 318-14 Eq. 17.4.2.1b]

$$N_{cbg} = 1027.01 \cdot kip$$

Controlling Case

Concrete Breakout Case: $Case = \text{"Case 2"}$

Breakout Strength: $\phi N_{cb} = 770.26 \cdot kip$

Breakout Rating:

$$Rating := \frac{T_n}{1.05 \cdot \phi N_{cb}} = 86.9 \cdot \%$$

SUMMARY

1. Inputs

Concrete Compressive Strength: $f_c = 3000\,psi$

Concrete Weight Modification Factor: $\lambda = 1$

Anchor Effective Embedment Depth: $h_{ef} = 58.5 \cdot in$

Projected Concrete Failure Area: $A_{Nc} = 306.78\,ft^2$

Eccentricity from Anchor Group Centroid to Tension Resultant: $e_N = 2.35 \cdot in$

Minimum Distance from Anchor to Edge of Concrete: $c_{a\_min} = 120.35 \cdot in$

2. Maximum Projected Area of a Single Anchor

Projected Concrete Failure Area: $A_{Nco} = 213.89\,ft^2$

3. Breakout Strength of a Single Anchor

Coefficient for Basic Concrete Breakout: $k_c = 24$

Breakout Strength: $N_{b1} = 588.17 \cdot kip$

4. Breakout Strength of a Single Headed Anchor

Breakout Strength: $N_{b2} = 772.57 \cdot kip$

5. Modification Factors

Anchor Rod Groups Loaded Eccentrically: $\psi_{ec\_N} = 0.97$

Edge Effects: $\psi_{ed\_N} = 1$

Non-Cracked Effects: $\psi_{c\_N} = 1.25$

6. Post-Installed Anchors without Supplementary Reinforcement

Critical Edge Distance: $c_{ac} = 9.75\,ft$

Modification Factor: $\psi_{cp\_N} = 1$

7. Concrete Breakout Strength

Concrete Breakout Case: Case = "Group of Anchors Concrete Breakout Strength"

Breakout Strength: $\phi N_{cb} = 770.26 \cdot kip$

Breakout Rating: $Rating := \frac{T_n}{1.05 \cdot \phi N_{cb}} = 86.9 \cdot \%$

Pier and Pad Foundation

BU # :	876336
Site Name:	OLD SAYBROOK
App. Number:	553289, Rev 2

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp}:	36.65	kips
Base Shear, Vu_comp:	25.74	kips
Moment, M_u:	2828.14	ft-kips
Tower Height, **H**:	175	ft
BP Dist. Above Fdn, bp_{dist}:	4	in
Bolt Circle / Bearing Plate Width, **BC**:	59.3	in

Foundation Analysis Checks	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	221.97	25.74	**11.0%**	**Pass**
Bearing Pressure (ksf)	90.46	2.71	**3.0%**	**Pass**
*Overturning (kip*ft)*	6105.97	2978.29	**48.8%**	**Pass**
*Pad Flexure (kip*ft)*	5183.74	1182.49	**21.7%**	**Pass**
Pad Shear - 1-way (kips)	1515.82	126.81	**8.0%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.001	**0.7%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	6715.64	0.00	**0.0%**	**Pass**

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

Soil Rating*:	**48.8%**
Structural Rating*:	**21.7%**

Pad Properties		
Depth, **D**:	5.1	ft
Pad Width, W_1:	25	ft
Pad Thickness, **T**:	5.5	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**:	3	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	120	pcf
Ultimate Net Bearing, Qnet:	120.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	30	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:		
Neglected Depth, **N**:		ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, **gw**:	N/A	ft

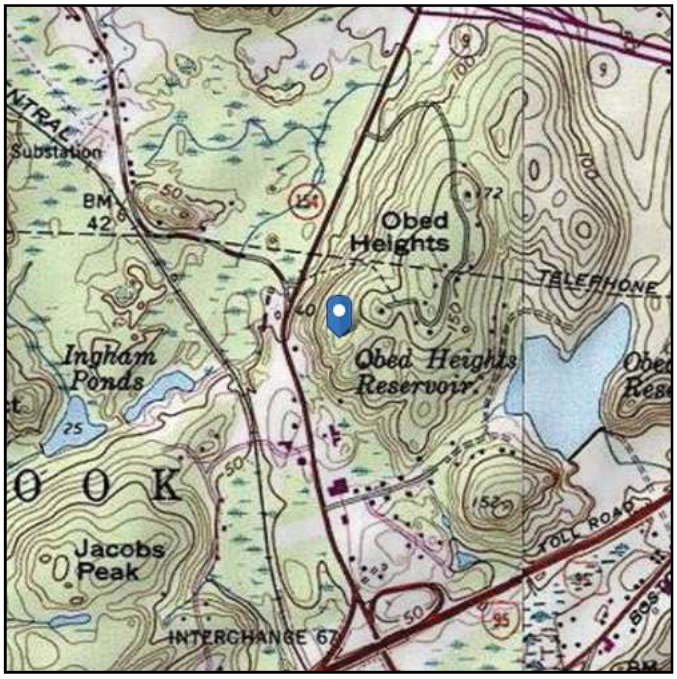
<--Toggle between Gross and Net

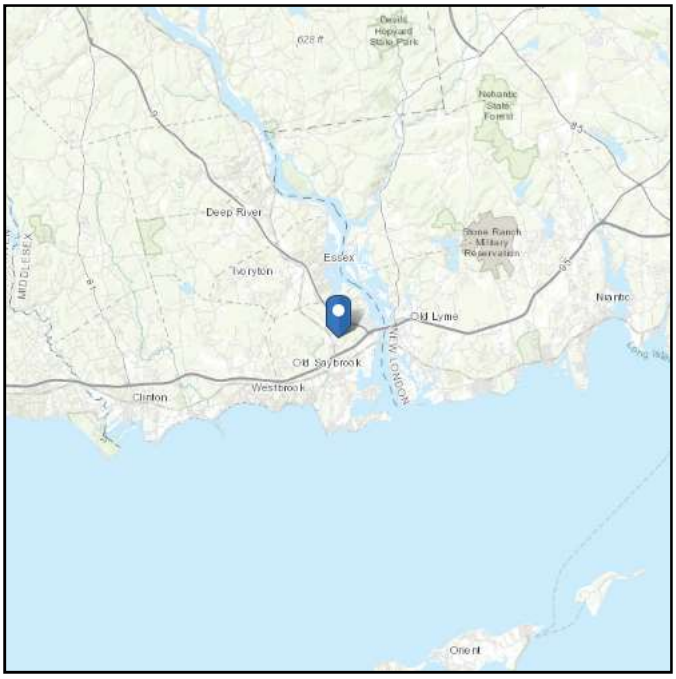
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 143.32 ft (NAVD 88)
Latitude: 41.313211
Longitude: -72.381108





Wind

Results:

Wind Speed:	132 Vmph
10-year MRI	79 Vmph
25-year MRI	89 Vmph
50-year MRI	97 Vmph
100-year MRI	107 Vmph

Data Accessed: Tue Mar 30 2021
Date Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

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

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

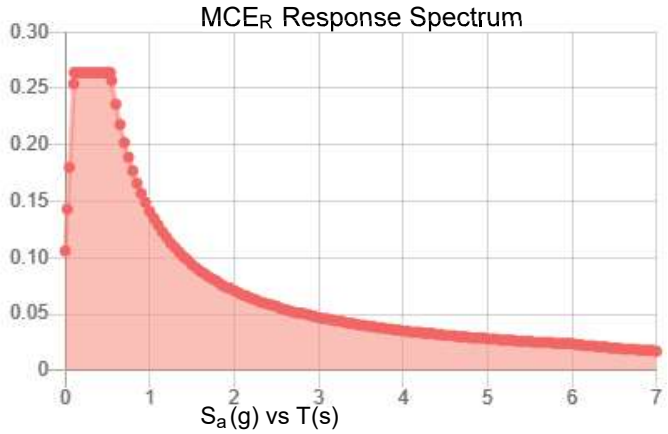
Seismic

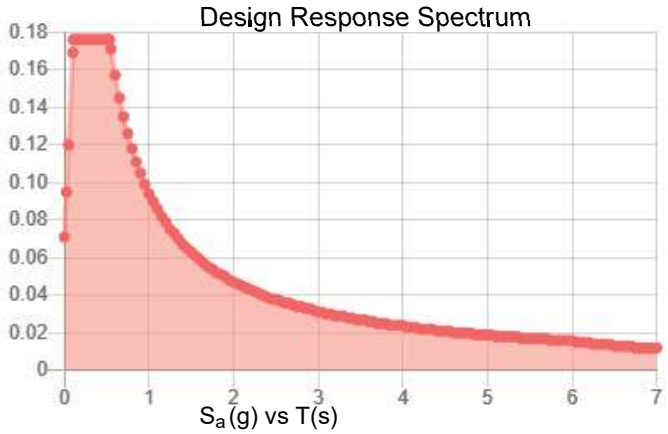
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.165	S_{DS} :	0.176
S_1 :	0.059	S_{D1} :	0.094
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.083
S_{MS} :	0.264	PGA_M :	0.133
S_{M1} :	0.141	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Tue Mar 30 2021

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Tue Mar 30 2021

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

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

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Exhibit E

Mount Analysis

Date: **July 23, 2021**

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

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

Subject:	**Mount Replacement Analysis Report**	
Carrier Designation:	**Dish Network Equipment Change Out**	
	Carrier Site Number:	BOBDL00088A
	Carrier Site Name:	CT-CCI-T-876336
Crown Castle Designation:	**Crown Castle BU Number:**	876336
	Crown Castle Site Name:	Old Saybrook
	Crown Castle JDE Job Number:	645179
	Crown Castle Order Number:	553289 Rev. 2
Engineering Firm Designation:	**Trylon Report Designation:**	188197
Site Data:	**430 Middlesex Turnpike, Old Saybrook, Middlesex County, CT, 06475**	
	Latitude 41°18'47.56" Longitude -72°22'51.99"	
Structure Information:	**Tower Height & Type:**	**179.5 ft Monopole**
	Mount Elevation:	**153.0 ft**
	Mount Type:	**8.0 ft Platform**

Dear Darcy Tarr,

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

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

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

This analysis utilizes an ultimate 3-second gust wind speed of 135 mph as required by the 2015 International Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Bryan P. Mawhinney

Respectfully Submitted by:
Jinshan Wang, P.E.

STATE OF CONNECTICUT
JINSHAN WANG
Jul 23, 2021
PEN.0034086
LICENSED
PROFESSIONAL ENGINEER

Jinshan Wang
Digitally signed by Jinshan Wang
Date: 2021.07.23 18:16:58 -04'00'

TABLE OF CONTENTS

1) INTRODUCTION

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

2) ANALYSIS CRITERIA

Building Code:	2015 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	135 mph
Exposure Category:	C
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.164
Seismic S_1:	0.059
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
153.0	153.0	3	JMA WIRELESS	MX08FRO665-20	8.0 ft Platform [Commscope MC-PK8-DSH]
		3	FUJITSU	TA08025-B604	
		3	FUJITSU	TA08025-B605	
		1	RAYCAP	RDIDC-9181-PF-48	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	Dish Network Application	553289 Rev. 2	CCI Sites
Construction Drawings	Infinigy	Site ID: BOBDL00088A	TSA
Mount Manufacturer Drawings	Commscope	MC-PK8-DSH	TSA

3.1) Analysis Method

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

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

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

3.2) Assumptions

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

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

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

4) ANALYSIS RESULTS

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

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1, 2	Mount Pipe(s)	MP4	153.0	39.7	Pass
	Horizontal(s)	H3		13.6	Pass
	Standoff(s)	M12		50.7	Pass
	Mount Connection(s)	--		21.0	Pass

Structure Rating (max from all components) =	50.7%

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

4.1) Recommendations

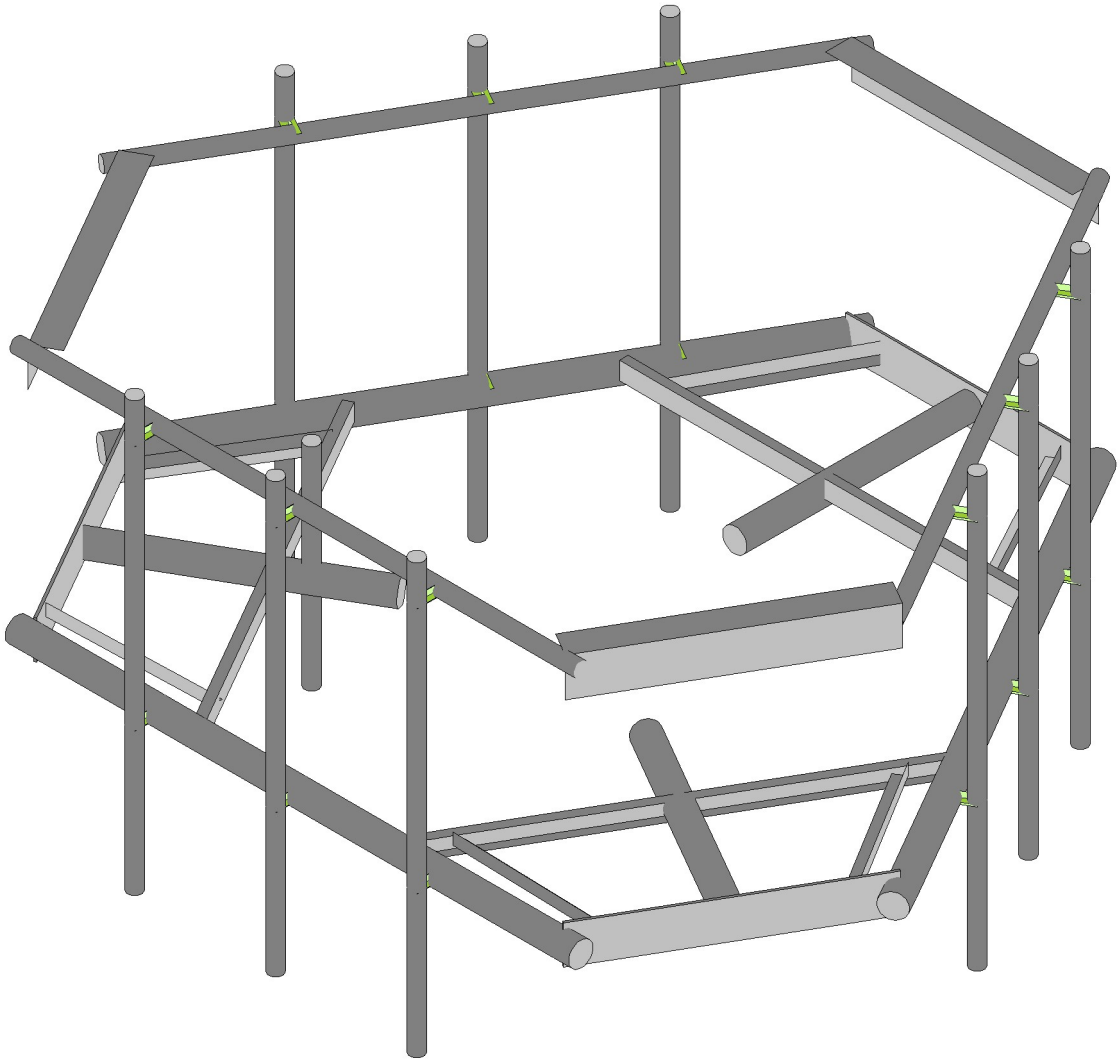
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the proposed mount listed below must be installed.

1. Commscope MC-PK8-DSH.

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

APPENDIX A

WIRE FRAME AND RENDERED MODELS



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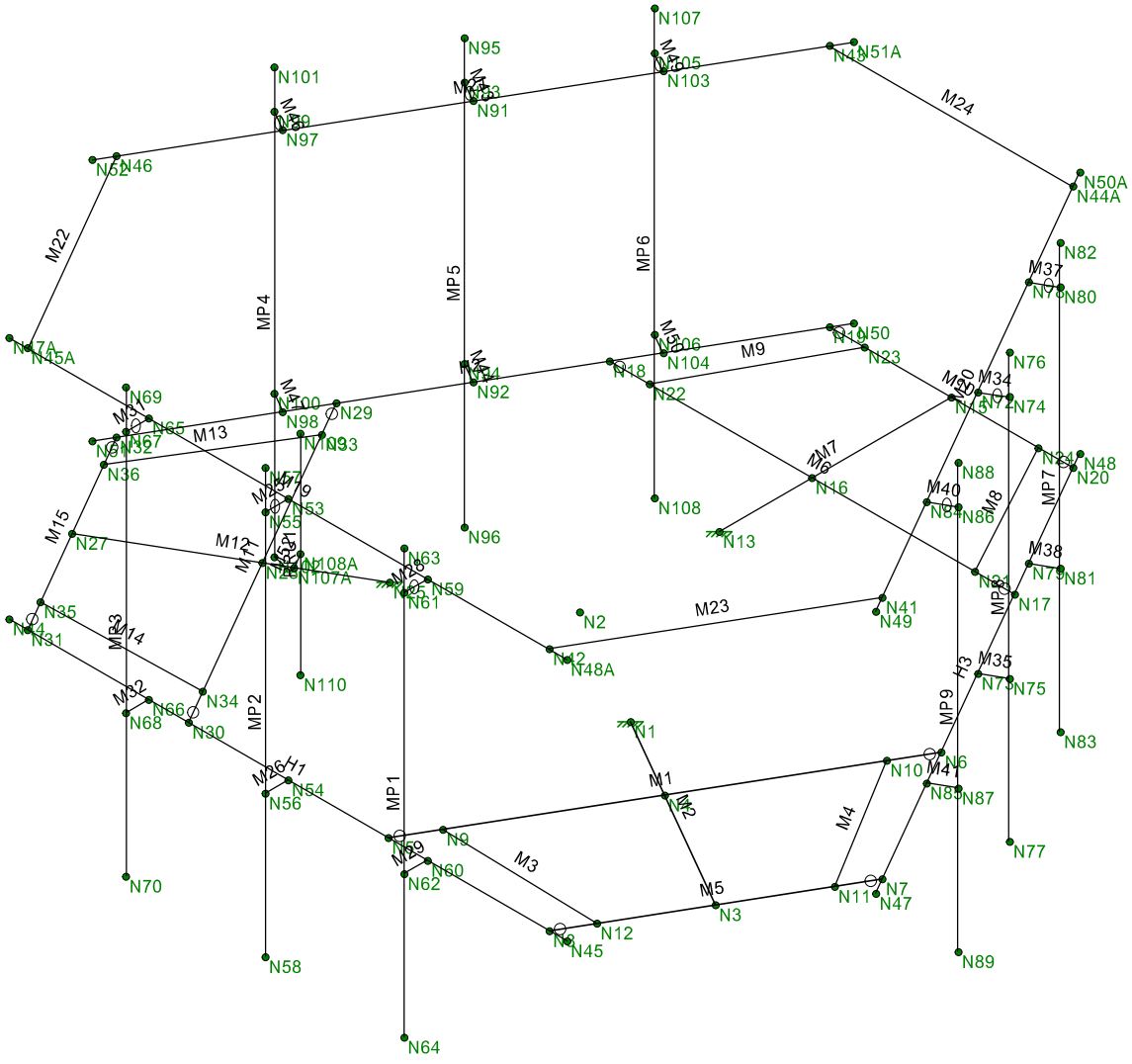

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APPENDIX B

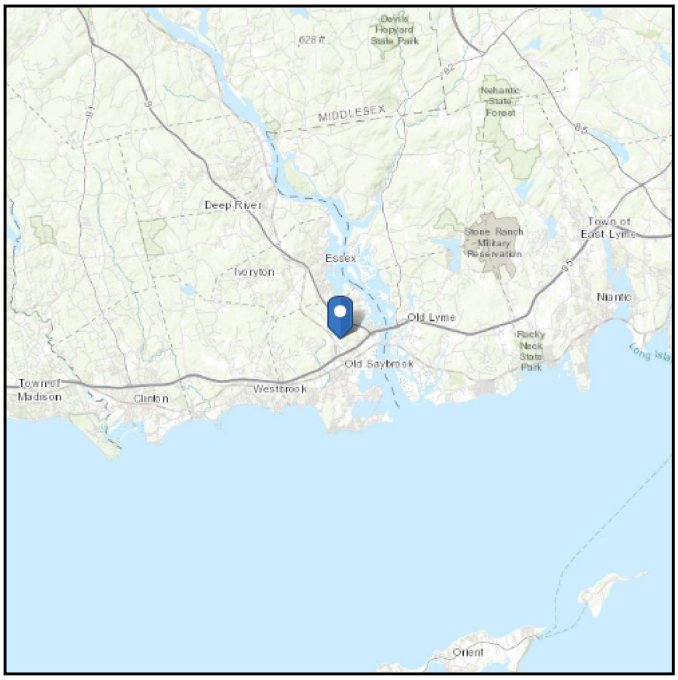
SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 143.32 ft (NAVD 88)
Latitude: 41.313211
Longitude: -72.381108



Ice

Results:

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

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

Date Accessed: Fri Jul 23 2021

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

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

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

TIA LOAD CALCULATOR 2.0

PROJECT DATA	
Job Code:	188197
Carrier Site ID:	BOBDL00088A
Carrier Site Name:	BOBDL00088A

CODES AND STANDARDS	
Building Code:	2015 IBC
Local Building Code:	0
Design Standard:	TIA-222-H

STRUCTURE DETAILS		
Mount Type:	Platform	--
Mount Elevation:	153.0	ft.
Number of Sectors:	3	--
Structure Type:	Monopole	--
Structure Height:	179.5	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	C	--
Site Class:	D - Default	--
Ground Elevation:	143	ft.

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

WIND PARAMETERS		
Design Wind Speed:	135	mph
Wind Escalation Factor (K_s):	1.00	--
Velocity Coefficient (K_z):	1.38	--
Directionality Factor (K_d):	0.95	--
Gust Effect Factor (Gh):	1.00	--
Shielding Factor (K_a):	0.90	--
Velocity Pressure (q_z):	61.03	psf

ICE PARAMETERS		
Design Ice Wind Speed:	50	mph
Design Ice Thickness (t_i):	1.50	in
Importance Factor (I_i):	1.00	--
Ice Velocity Pressure (q_{zi}):	61.03	psf
Mount Ice Thickness (t_{iz}):	1.75	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	109.86	psf
Round Member Pressure:	65.92	psf
Ice Wind Pressure:	7.62	psf

SEISMIC PARAMETERS		
Importance Factor (I_e):	1.00	--
Short Period Accel .(S_s):	0.16	g
1 Second Accel (S_1):	0.06	g
Short Period Des. (S_{DS}):	0.17	g
1 Second Des. (S_{D1}):	0.09	g
Short Period Coeff. (F_a):	1.60	--
1 Second Coeff. (F_v):	2.40	--
Response Coefficient (Cs):	0.09	--
Amplification Factor (A_S):	1.20	--

LOAD COMBINATIONS [LRFD]

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

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

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

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

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

EQUIPMENT LOADING

Appurtenance Name/Location	Qty.	Elevation [ft]	--	EPA $_N$ (ft2)	EPA $_T$ (ft2)	Weight (lbs)
MX08FRO665-20	3	153	No Ice	8.01	3.21	82.50
MP1/MP4/MP7, 0/120/240	--	--	w/ Ice	9.63	4.63	290.51
TA08025-B604	3	153	No Ice	1.96	0.98	63.90
MP1/MP4/MP7, 0/120/240	--	--	w/ Ice	2.39	1.31	70.78
TA08025-B605	3	153	No Ice	1.96	1.13	75.00
MP1/MP4/MP7, 0/120/240	--	--	w/ Ice	2.39	1.48	75.39
RDIDC-9181-PF-48	1	153	No Ice	2.01	1.17	21.85
RRU1, 0	--	--	w/ Ice	2.45	1.53	74.31
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
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			No Ice			
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			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			

EQUIPMENT LOADING [CONT.]

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

EQUIPMENT WIND CALCULATIONS

Appurtenance Name	Qty.	Elevation [ft]	K_{zt}	K_z	K_d	t_d	q_z [psf]	q_{zi} [psf]
MX08FRO665-20	3	153	1.00	1.38	0.95	1.75	61.03	8.37
TA08025-B604	3	153	1.00	1.38	0.95	1.75	61.03	8.37
TA08025-B605	3	153	1.00	1.38	0.95	1.75	61.03	8.37
RDIDC-9181-PF-48	1	153	1.00	1.38	0.95	1.75	61.03	8.37

EQUIPMENT LATERAL WIND FORCE CALCULATIONS

Appurtenance Name	Qty.	--	0° 180°	30° 210°	60° 240°	90° 270°	120° 300°	150° 330°
MX08FRO665-20	3	No Ice	439.99	242.24	374.07	176.33	374.07	242.24
MP1/MP4/MP7, 0/120/240	--	w/ Ice	72.59	44.33	63.17	34.91	63.17	44.33
TA08025-B604	3	No Ice	107.86	67.38	94.36	53.89	94.36	67.38
MP1/MP4/MP7, 0/120/240	--	w/ Ice	18.03	11.94	16.00	9.91	16.00	11.94
TA08025-B605	3	No Ice	107.86	73.50	96.40	62.04	96.40	73.50
MP1/MP4/MP7, 0/120/240	--	w/ Ice	18.03	12.86	16.30	11.13	16.30	12.86
RDIDC-9181-PF-48	1	No Ice	110.51	75.75	98.93	64.17	98.93	75.75
RRU1, 0	--	w/ Ice	18.44	13.26	16.71	11.53	16.71	13.26
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
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		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						

EQUIPMENT LATERAL WIND FORCE CALCULATIONS [CONT.]

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

EQUIPMENT SEISMIC FORCE CALCULATIONS

Appurtenance Name	***Qty.***	***Elevation [ft]***	***Weight [lbs]***	F_p [lbs]
MX08FRO665-20	3	153	82.5	8.66
TA08025-B604	3	153	63.9	6.71
TA08025-B605	3	153	75	7.87
RDIDC-9181-PF-48	1	153	21.85	2.29

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

(Global) Model Settings

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

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-12: LRFD
Wood Code	AWC NDS-15: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-14
Masonry Code	ACI 530-13: Strength
Aluminum Code	AA ADM1-10: LRFD - Building
Stainless Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)

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

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	General				
2	RIGID		19	75	0
3	Total General		19	75	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	C3X5	3	209.1	.087
7	A36 Gr.36	L6 5/8x4 7/16x3/16	3	126	.073
8	A36 Gr.36	L2x2x3	6	163.8	.034
9	A53 Gr.B	6.5"x0.37" Plate	3	126	.086
10	A53 Gr.B	PIPE_2.0	13	981	.284
11	A53 Gr.B	PIPE_3.5	6	408	.289
12	Total HR Steel		34	2013.9	.852

Joint Coordinates and Temperatures

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
1	N1	20.78461	0	-12	0	
2	N2	0	0	-24	0	
3	N3	55.425626	0	8	0	
4	N4	34.641016	0	-4	0	
5	N5	17.212813	0	26.186533	0	
6	N6	52.069219	0	-34.186533	0	
7	N7	65.925626	0	-10.186533	0	
8	N8	44.925626	0	26.186533	0	
9	N9	20.641016	0	20.248711	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
10	N10	48.641016	0	-28.248711	0	
11	N11	62.925626	0	-4.990381	0	
12	N12	47.925626	0	20.990381	0	
13	N13	-0.	0	-48	0	
14	N15	-0.	0	-88	0	
15	N16	-0.	0	-64	0	
16	N17	34.856406	0	-64	0	
17	N18	-34.856406	0	-64	0	
18	N19	-21	0	-88	0	
19	N20	21	0	-88	0	
20	N21	28	0	-64	0	
21	N22	-28	0	-64	0	
22	N23	-15	0	-88	0	
23	N24	15	0	-88	0	
24	N25	-20.78461	0	-12	0	
25	N27	-55.425626	0	8	0	
26	N28	-34.641016	0	-4	0	
27	N29	-52.069219	0	-34.186533	0	
28	N30	-17.212813	0	26.186533	0	
29	N31	-44.925626	0	26.186533	0	
30	N32	-65.925626	0	-10.186533	0	
31	N33	-48.641016	0	-28.248711	0	
32	N34	-20.641016	0	20.248711	0	
33	N35	-47.925626	0	20.990381	0	
34	N36	-62.925626	0	-4.990381	0	
35	N44	-48.000126	0	26.186533	0	
36	N45	48.000126	0	26.186533	0	
37	N47	67.462876	0	-7.523938	0	
38	N48	19.46275	0	-90.662595	0	
39	N50	-19.46275	0	-90.662595	0	
40	N51	-67.462876	0	-7.523938	0	
41	N41	65.925626	42	-10.186533	0	
42	N42	44.925626	42	26.186533	0	
43	N43	-21	42	-88	0	
44	N44A	21	42	-88	0	
45	N45A	-44.925626	42	26.186533	0	
46	N46	-65.925626	42	-10.186533	0	
47	N47A	-48.000126	42	26.186533	0	
48	N48A	48.000126	42	26.186533	0	
49	N49	67.462876	42	-7.523938	0	
50	N50A	19.46275	42	-90.662595	0	
51	N51A	-19.46275	42	-90.662595	0	
52	N52	-67.462876	42	-7.523938	0	
53	N53	0	42	26.186533	0	
54	N54	0	0	26.186533	0	
55	N55	0	42	30.186533	0	
56	N56	0	0	30.186533	0	
57	N57	0	48.625	30.186533	0	
58	N58	0	-24.375	30.186533	0	
59	N59	24	42	26.186533	0	
60	N60	24	0	26.186533	0	
61	N61	24	42	30.186533	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
62	N62	24	0	30.186533	0	
63	N63	24	48.625	30.186533	0	
64	N64	24	-24.375	30.186533	0	
65	N65	-24	42	26.186533	0	
66	N66	-24	0	26.186533	0	
67	N67	-24	42	30.186533	0	
68	N68	-24	0	30.186533	0	
69	N69	-24	48.625	30.186533	0	
70	N70	-24	-24.375	30.186533	0	
71	N72	43.462813	42	-49.093267	0	
72	N73	43.462813	0	-49.093267	0	
73	N74	46.926915	42	-51.093267	0	
74	N75	46.926915	0	-51.093267	0	
75	N76	46.926915	48.625	-51.093267	0	
76	N77	46.926915	-24.375	-51.093267	0	
77	N78	31.462813	42	-69.877876	0	
78	N79	31.462813	0	-69.877876	0	
79	N80	34.926915	42	-71.877876	0	
80	N81	34.926915	0	-71.877876	0	
81	N82	34.926915	48.625	-71.877876	0	
82	N83	34.926915	-24.375	-71.877876	0	
83	N84	55.462813	42	-28.308657	0	
84	N85	55.462813	0	-28.308657	0	
85	N86	58.926915	42	-30.308657	0	
86	N87	58.926915	0	-30.308657	0	
87	N88	58.926915	48.625	-30.308657	0	
88	N89	58.926915	-24.375	-30.308657	0	
89	N91	-43.462813	42	-49.093267	0	
90	N92	-43.462813	0	-49.093267	0	
91	N93	-46.926915	42	-51.093267	0	
92	N94	-46.926915	0	-51.093267	0	
93	N95	-46.926915	48.625	-51.093267	0	
94	N96	-46.926915	-24.375	-51.093267	0	
95	N97	-55.462813	42	-28.308657	0	
96	N98	-55.462813	0	-28.308657	0	
97	N99	-58.926915	42	-30.308657	0	
98	N100	-58.926915	0	-30.308657	0	
99	N101	-58.926915	48.625	-30.308657	0	
100	N102	-58.926915	-24.375	-30.308657	0	
101	N103	-31.462813	42	-69.877876	0	
102	N104	-31.462813	0	-69.877876	0	
103	N105	-34.926915	42	-71.877876	0	
104	N106	-34.926915	0	-71.877876	0	
105	N107	-34.926915	48.625	-71.877876	0	
106	N108	-34.926915	-24.375	-71.877876	0	
107	N107A	-31.176915	0	-6.	0	
108	N108A	-32.676915	0	-8.598076	0	
109	N109	-32.676915	18	-8.598076	0	
110	N110	-32.676915	-18	-8.598076	0	

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(de...	Section/Shape	Type	Design List	Material	Design Rul...
1	M1	N5	N6			Standoff Bracing	Beam	Channel	A36 Gr.36	Typical
2	M2	N3	N1			Standoffs	Beam	Pipe	A53 Gr.B	Typical
3	M3	N9	N12		270	Grating Bracing	Beam	Single Angle	A36 Gr.36	Typical
4	M4	N10	N11			Grating Bracing	Beam	Single Angle	A36 Gr.36	Typical
5	M5	N8	N7			Plates	Beam	RECT	A53 Gr.B	Typical
6	M6	N17	N18			Standoff Bracing	Beam	Channel	A36 Gr.36	Typical
7	M7	N15	N13			Standoffs	Beam	Pipe	A53 Gr.B	Typical
8	M8	N21	N24		270	Grating Bracing	Beam	Single Angle	A36 Gr.36	Typical
9	M9	N22	N23			Grating Bracing	Beam	Single Angle	A36 Gr.36	Typical
10	M10	N20	N19			Plates	Beam	RECT	A53 Gr.B	Typical
11	M11	N29	N30			Standoff Bracing	Beam	Channel	A36 Gr.36	Typical
12	M12	N27	N25			Standoffs	Beam	Pipe	A53 Gr.B	Typical
13	M13	N33	N36		270	Grating Bracing	Beam	Single Angle	A36 Gr.36	Typical
14	M14	N34	N35			Grating Bracing	Beam	Single Angle	A36 Gr.36	Typical
15	M15	N32	N31			Plates	Beam	RECT	A53 Gr.B	Typical
16	H1	N44	N45			Horizontals	Beam	Pipe	A53 Gr.B	Typical
17	H3	N47	N48			Horizontals	Beam	Pipe	A53 Gr.B	Typical
18	H2	N50	N51			Horizontals	Beam	Pipe	A53 Gr.B	Typical
19	M19	N47A	N48A			Handrails	Beam	Pipe	A53 Gr.B	Typical
20	M20	N49	N50A			Handrails	Beam	Pipe	A53 Gr.B	Typical
21	M21	N51A	N52			Handrails	Beam	Pipe	A53 Gr.B	Typical
22	M22	N46	N45A		180	Handrail Corners	Beam	Single Angle	A36 Gr.36	Typical
23	M23	N42	N41		180	Handrail Corners	Beam	Single Angle	A36 Gr.36	Typical
24	M24	N44A	N43		180	Handrail Corners	Beam	Single Angle	A36 Gr.36	Typical
25	M25	N55	N53			RIGID	None	None	RIGID	Typical
26	M26	N56	N54			RIGID	None	None	RIGID	Typical
27	MP2	N57	N58			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
28	M28	N61	N59			RIGID	None	None	RIGID	Typical
29	M29	N62	N60			RIGID	None	None	RIGID	Typical
30	MP1	N63	N64			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
31	M31	N67	N65			RIGID	None	None	RIGID	Typical
32	M32	N68	N66			RIGID	None	None	RIGID	Typical
33	MP3	N69	N70			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
34	M34	N74	N72			RIGID	None	None	RIGID	Typical
35	M35	N75	N73			RIGID	None	None	RIGID	Typical
36	MP8	N76	N77			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
37	M37	N80	N78			RIGID	None	None	RIGID	Typical
38	M38	N81	N79			RIGID	None	None	RIGID	Typical
39	MP7	N82	N83			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
40	M40	N86	N84			RIGID	None	None	RIGID	Typical
41	M41	N87	N85			RIGID	None	None	RIGID	Typical
42	MP9	N88	N89			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
43	M43	N93	N91			RIGID	None	None	RIGID	Typical
44	M44	N94	N92			RIGID	None	None	RIGID	Typical
45	MP5	N95	N96			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
46	M46	N99	N97			RIGID	None	None	RIGID	Typical
47	M47	N100	N98			RIGID	None	None	RIGID	Typical
48	MP4	N101	N102			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
49	M49	N105	N103			RIGID	None	None	RIGID	Typical
50	M50	N106	N104			RIGID	None	None	RIGID	Typical
51	MP6	N107	N108			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(de...	Section/Shape	Type	Design List	Material	Design Rul...
52	M52	N107A	N108A			RIGID	None	None	RIGID	Typical
53	RRU1	N109	N110			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic ...
1	M1	BenPIN	BenPIN				Yes				None
2	M2						Yes				None
3	M3						Yes				None
4	M4						Yes				None
5	M5	OOOOXO	OOOOXO				Yes	Default			None
6	M6	BenPIN	BenPIN				Yes				None
7	M7						Yes				None
8	M8						Yes				None
9	M9						Yes				None
10	M10	OOOOXO	OOOOXO				Yes	Default			None
11	M11	BenPIN	BenPIN				Yes				None
12	M12						Yes				None
13	M13						Yes				None
14	M14						Yes				None
15	M15	OOOOXO	OOOOXO				Yes	Default			None
16	H1						Yes	Default			None
17	H3						Yes				None
18	H2						Yes				None
19	M19						Yes				None
20	M20						Yes				None
21	M21						Yes				None
22	M22						Yes				None
23	M23						Yes				None
24	M24						Yes				None
25	M25	OOOXOO					Yes	** NA **			None
26	M26						Yes	** NA **			None
27	MP2						Yes				None
28	M28	OOOXOO					Yes	** NA **			None
29	M29						Yes	** NA **			None
30	MP1						Yes				None
31	M31	OOOXOO					Yes	** NA **			None
32	M32						Yes	** NA **			None
33	MP3						Yes				None
34	M34	OOOXOO					Yes	** NA **			None
35	M35						Yes	** NA **			None
36	MP8						Yes				None
37	M37	OOOXOO					Yes	** NA **			None
38	M38						Yes	** NA **			None
39	MP7						Yes				None
40	M40	OOOXOO					Yes	** NA **			None
41	M41						Yes	** NA **			None
42	MP9						Yes				None
43	M43	OOOXOO					Yes	** NA **			None
44	M44						Yes	** NA **			None
45	MP5						Yes				None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic ...
46	M46	OOOXOO					Yes	** NA **			None
47	M47						Yes	** NA **			None
48	MP4						Yes				None
49	M49	OOOXOO					Yes	** NA **			None
50	M50						Yes	** NA **			None
51	MP6						Yes				None
52	M52						Yes	** NA **			None
53	RRU1						Yes				None

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	M1	Standoff Br...	69.713			Lbyy						Lateral
2	M2	Standoffs	40			Lbyy						Lateral
3	M3	Grating Bra...	27.295			Lbyy						Lateral
4	M4	Grating Bra...	27.295			Lbyy						Lateral
5	M5	Plates	42			Lbyy						Lateral
6	M6	Standoff Br...	69.713	28	28	28	28	28				Lateral
7	M7	Standoffs	40			Lbyy						Lateral
8	M8	Grating Bra...	27.295			Lbyy						Lateral
9	M9	Grating Bra...	27.295			Lbyy						Lateral
10	M10	Plates	42			Lbyy						Lateral
11	M11	Standoff Br...	69.713			Lbyy						Lateral
12	M12	Standoffs	40			Lbyy						Lateral
13	M13	Grating Bra...	27.295			Lbyy						Lateral
14	M14	Grating Bra...	27.295			Lbyy						Lateral
15	M15	Plates	42			Lbyy						Lateral
16	H1	Horizontals	96			Lbyy						Lateral
17	H3	Horizontals	96			Lbyy						Lateral
18	H2	Horizontals	96			Lbyy						Lateral
19	M19	Handrails	96			Lbyy						Lateral
20	M20	Handrails	96			Lbyy						Lateral
21	M21	Handrails	96			Lbyy						Lateral
22	M22	Handrail Co...	42			Lbyy						Lateral
23	M23	Handrail Co...	42			Lbyy						Lateral
24	M24	Handrail Co...	42			Lbyy						Lateral
25	MP2	Mount Pipes	73			Lbyy						Lateral
26	MP1	Mount Pipes	73			Lbyy						Lateral
27	MP3	Mount Pipes	73			Lbyy						Lateral
28	MP8	Mount Pipes	73			Lbyy						Lateral
29	MP7	Mount Pipes	73			Lbyy						Lateral
30	MP9	Mount Pipes	73			Lbyy						Lateral
31	MP5	Mount Pipes	73			Lbyy						Lateral
32	MP4	Mount Pipes	73			Lbyy						Lateral
33	MP6	Mount Pipes	73			Lbyy						Lateral
34	RRU1	Mount Pipes	36			Lbyy						Lateral

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Plates	6.5"x0.37" Plate	Beam	RECT	A53 Gr.B	Typical	2.405	.027	8.468	.106
2	Grating Bracing	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	.722	.271	.271	.009
3	Standoffs	PIPE_3.5	Beam	Pipe	A53 Gr.B	Typical	2.5	4.52	4.52	9.04
4	Standoff Bracing	C3X5	Beam	Channel	A36 Gr.36	Typical	1.47	.241	1.85	.043
5	Handrails	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
6	Handrail Corners	L6 5/8x4 7/16x3/16	Beam	Single Angle	A36 Gr.36	Typical	2.039	3.593	9.575	.023
7	Horizontals	PIPE_3.5	Beam	Pipe	A53 Gr.B	Typical	2.5	4.52	4.52	9.04
8	Mount Pipes	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E..	Density[k/ft...	Yield[psi]	Ry	Fu[psi]	Rt
1	A992	29000	11154	.3	.65	.49	50000	1.1	65000	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36000	1.5	58000	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50000	1.1	65000	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42000	1.4	58000	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46000	1.4	58000	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35000	1.6	60000	1.2
7	A1085	29000	11154	.3	.65	.49	50000	1.4	65000	1.3

Member Point Loads (BLC 1 : Self Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-41.25	0
2	MP1	Y	-41.25	72.8
3	MP1	Y	-63.9	%25
4	MP1	Y	-75	%25
5	RRU1	Y	-21.85	%25
6	MP4	Y	-41.25	0
7	MP4	Y	-41.25	72.8
8	MP4	Y	-63.9	%25
9	MP4	Y	-75	%25
10	MP7	Y	-41.25	0
11	MP7	Y	-41.25	72.8
12	MP7	Y	-63.9	%25
13	MP7	Y	-75	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-219.995	0
2	MP1	Z	-219.995	72.8
3	MP1	Z	-107.855	%25
4	MP1	Z	-107.855	%25
5	RRU1	Z	-110.513	%25
6	MP4	Z	-121.121	0
7	MP4	Z	-121.121	72.8
8	MP4	Z	-67.384	%25
9	MP4	Z	-73.496	%25
10	MP7	Z	-121.121	0

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
11	MP7	Z	-121.121	72.8
12	MP7	Z	-67.384	%25
13	MP7	Z	-73.496	%25
14	MP1	X	0	0
15	MP1	X	0	72.8
16	MP1	X	0	%25
17	MP1	X	0	%25
18	RRU1	X	0	%25
19	MP4	X	0	0
20	MP4	X	0	72.8
21	MP4	X	0	%25
22	MP4	X	0	%25
23	MP7	X	0	0
24	MP7	X	0	72.8
25	MP7	X	0	%25
26	MP7	X	0	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-161.979	0
2	MP1	Z	-161.979	72.8
3	MP1	Z	-81.722	%25
4	MP1	Z	-83.487	%25
5	RRU1	Z	-85.673	%25
6	MP4	Z	-161.979	0
7	MP4	Z	-161.979	72.8
8	MP4	Z	-81.722	%25
9	MP4	Z	-83.487	%25
10	MP7	Z	-76.351	0
11	MP7	Z	-76.351	72.8
12	MP7	Z	-46.673	%25
13	MP7	Z	-53.73	%25
14	MP1	X	-93.519	0
15	MP1	X	-93.519	72.8
16	MP1	X	-47.182	%25
17	MP1	X	-48.201	%25
18	RRU1	X	-49.463	%25
19	MP4	X	-93.519	0
20	MP4	X	-93.519	72.8
21	MP4	X	-47.182	%25
22	MP4	X	-48.201	%25
23	MP7	X	-44.081	0
24	MP7	X	-44.081	72.8
25	MP7	X	-26.947	%25
26	MP7	X	-31.021	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-108.95	0
2	MP1	Z	-108.95	72.8
3	MP1	Z	-57.187	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
4	MP1	Z	-60.068	%25
5	RRU1	Z	-61.759	%25
6	MP4	Z	-149.316	0
7	MP4	Z	-149.316	72.8
8	MP4	Z	-73.709	%25
9	MP4	Z	-74.095	%25
10	MP7	Z	-68.585	0
11	MP7	Z	-68.585	72.8
12	MP7	Z	-40.664	%25
13	MP7	Z	-46.041	%25
14	MP1	X	-108.95	0
15	MP1	X	-108.95	72.8
16	MP1	X	-57.187	%25
17	MP1	X	-60.068	%25
18	RRU1	X	-61.759	%25
19	MP4	X	-149.316	0
20	MP4	X	-149.316	72.8
21	MP4	X	-73.709	%25
22	MP4	X	-74.095	%25
23	MP7	X	-68.585	0
24	MP7	X	-68.585	72.8
25	MP7	X	-40.664	%25
26	MP7	X	-46.041	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-60.56	0
2	MP1	Z	-60.56	72.8
3	MP1	Z	-33.692	%25
4	MP1	Z	-36.748	%25
5	RRU1	Z	-37.877	%25
6	MP4	Z	-109.998	0
7	MP4	Z	-109.998	72.8
8	MP4	Z	-53.928	%25
9	MP4	Z	-53.928	%25
10	MP7	Z	-60.56	0
11	MP7	Z	-60.56	72.8
12	MP7	Z	-33.692	%25
13	MP7	Z	-36.748	%25
14	MP1	X	-104.894	0
15	MP1	X	-104.894	72.8
16	MP1	X	-58.356	%25
17	MP1	X	-63.649	%25
18	RRU1	X	-65.605	%25
19	MP4	X	-190.521	0
20	MP4	X	-190.521	72.8
21	MP4	X	-93.405	%25
22	MP4	X	-93.405	%25
23	MP7	X	-104.894	0
24	MP7	X	-104.894	72.8
25	MP7	X	-58.356	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
26	MP7	X	-63.649	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-5.398e-15	0
2	MP1	Z	-5.398e-15	72.8
3	MP1	Z	-3.3e-15	%25
4	MP1	Z	-3.799e-15	%25
5	RRU1	Z	-3.929e-15	%25
6	MP4	Z	-1.145e-14	0
7	MP4	Z	-1.145e-14	72.8
8	MP4	Z	-5.778e-15	%25
9	MP4	Z	-5.903e-15	%25
10	MP7	Z	-1.145e-14	0
11	MP7	Z	-1.145e-14	72.8
12	MP7	Z	-5.778e-15	%25
13	MP7	Z	-5.903e-15	%25
14	MP1	X	-88.163	0
15	MP1	X	-88.163	72.8
16	MP1	X	-53.893	%25
17	MP1	X	-62.043	%25
18	RRU1	X	-64.169	%25
19	MP4	X	-187.037	0
20	MP4	X	-187.037	72.8
21	MP4	X	-94.365	%25
22	MP4	X	-96.402	%25
23	MP7	X	-187.037	0
24	MP7	X	-187.037	72.8
25	MP7	X	-94.365	%25
26	MP7	X	-96.402	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	60.56	0
2	MP1	Z	60.56	72.8
3	MP1	Z	33.692	%25
4	MP1	Z	36.748	%25
5	RRU1	Z	37.877	%25
6	MP4	Z	60.56	0
7	MP4	Z	60.56	72.8
8	MP4	Z	33.692	%25
9	MP4	Z	36.748	%25
10	MP7	Z	109.998	0
11	MP7	Z	109.998	72.8
12	MP7	Z	53.928	%25
13	MP7	Z	53.928	%25
14	MP1	X	-104.894	0
15	MP1	X	-104.894	72.8
16	MP1	X	-58.356	%25
17	MP1	X	-63.649	%25
18	RRU1	X	-65.605	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
19	MP4	X	-104.894	0
20	MP4	X	-104.894	72.8
21	MP4	X	-58.356	%25
22	MP4	X	-63.649	%25
23	MP7	X	-190.521	0
24	MP7	X	-190.521	72.8
25	MP7	X	-93.405	%25
26	MP7	X	-93.405	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	108.95	0
2	MP1	Z	108.95	72.8
3	MP1	Z	57.187	%25
4	MP1	Z	60.068	%25
5	RRU1	Z	61.759	%25
6	MP4	Z	68.585	0
7	MP4	Z	68.585	72.8
8	MP4	Z	40.664	%25
9	MP4	Z	46.041	%25
10	MP7	Z	149.316	0
11	MP7	Z	149.316	72.8
12	MP7	Z	73.709	%25
13	MP7	Z	74.095	%25
14	MP1	X	-108.95	0
15	MP1	X	-108.95	72.8
16	MP1	X	-57.187	%25
17	MP1	X	-60.068	%25
18	RRU1	X	-61.759	%25
19	MP4	X	-68.585	0
20	MP4	X	-68.585	72.8
21	MP4	X	-40.664	%25
22	MP4	X	-46.041	%25
23	MP7	X	-149.316	0
24	MP7	X	-149.316	72.8
25	MP7	X	-73.709	%25
26	MP7	X	-74.095	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	161.979	0
2	MP1	Z	161.979	72.8
3	MP1	Z	81.722	%25
4	MP1	Z	83.487	%25
5	RRU1	Z	85.673	%25
6	MP4	Z	76.351	0
7	MP4	Z	76.351	72.8
8	MP4	Z	46.673	%25
9	MP4	Z	53.73	%25
10	MP7	Z	161.979	0
11	MP7	Z	161.979	72.8

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
12	MP7	Z	81.722	%25
13	MP7	Z	83.487	%25
14	MP1	X	-93.519	0
15	MP1	X	-93.519	72.8
16	MP1	X	-47.182	%25
17	MP1	X	-48.201	%25
18	RRU1	X	-49.463	%25
19	MP4	X	-44.081	0
20	MP4	X	-44.081	72.8
21	MP4	X	-26.947	%25
22	MP4	X	-31.021	%25
23	MP7	X	-93.519	0
24	MP7	X	-93.519	72.8
25	MP7	X	-47.182	%25
26	MP7	X	-48.201	%25

Member Point Loads (BLC 12 : Ice Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-145.255	0
2	MP1	Y	-145.255	72.8
3	MP1	Y	-70.777	%25
4	MP1	Y	-75.391	%25
5	RRU1	Y	-74.305	%25
6	MP4	Y	-145.255	0
7	MP4	Y	-145.255	72.8
8	MP4	Y	-70.777	%25
9	MP4	Y	-75.391	%25
10	MP7	Y	-145.255	0
11	MP7	Y	-145.255	72.8
12	MP7	Y	-70.777	%25
13	MP7	Y	-75.391	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-36.293	0
2	MP1	Z	-36.293	72.8
3	MP1	Z	-18.027	%25
4	MP1	Z	-18.027	%25
5	RRU1	Z	-18.44	%25
6	MP4	Z	-22.163	0
7	MP4	Z	-22.163	72.8
8	MP4	Z	-11.936	%25
9	MP4	Z	-12.855	%25
10	MP7	Z	-22.163	0
11	MP7	Z	-22.163	72.8
12	MP7	Z	-11.936	%25
13	MP7	Z	-12.855	%25
14	MP1	X	0	0
15	MP1	X	0	72.8
16	MP1	X	0	%25
17	MP1	X	0	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
18	RRU1	X	0	%25
19	MP4	X	0	0
20	MP4	X	0	72.8
21	MP4	X	0	%25
22	MP4	X	0	%25
23	MP7	X	0	0
24	MP7	X	0	72.8
25	MP7	X	0	%25
26	MP7	X	0	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-27.352	0
2	MP1	Z	-27.352	72.8
3	MP1	Z	-13.854	%25
4	MP1	Z	-14.119	%25
5	RRU1	Z	-14.473	%25
6	MP4	Z	-27.352	0
7	MP4	Z	-27.352	72.8
8	MP4	Z	-13.854	%25
9	MP4	Z	-14.119	%25
10	MP7	Z	-15.115	0
11	MP7	Z	-15.115	72.8
12	MP7	Z	-8.579	%25
13	MP7	Z	-9.64	%25
14	MP1	X	-15.792	0
15	MP1	X	-15.792	72.8
16	MP1	X	-7.998	%25
17	MP1	X	-8.152	%25
18	RRU1	X	-8.356	%25
19	MP4	X	-15.792	0
20	MP4	X	-15.792	72.8
21	MP4	X	-7.998	%25
22	MP4	X	-8.152	%25
23	MP7	X	-8.727	0
24	MP7	X	-8.727	72.8
25	MP7	X	-4.953	%25
26	MP7	X	-5.566	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-19.002	0
2	MP1	Z	-19.002	72.8
3	MP1	Z	-9.876	%25
4	MP1	Z	-10.309	%25
5	RRU1	Z	-10.595	%25
6	MP4	Z	-24.771	0
7	MP4	Z	-24.771	72.8
8	MP4	Z	-12.363	%25
9	MP4	Z	-12.421	%25
10	MP7	Z	-13.234	0

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
11	MP7	Z	-13.234	72.8
12	MP7	Z	-7.389	%25
13	MP7	Z	-8.198	%25
14	MP1	X	-19.002	0
15	MP1	X	-19.002	72.8
16	MP1	X	-9.876	%25
17	MP1	X	-10.309	%25
18	RRU1	X	-10.595	%25
19	MP4	X	-24.771	0
20	MP4	X	-24.771	72.8
21	MP4	X	-12.363	%25
22	MP4	X	-12.421	%25
23	MP7	X	-13.234	0
24	MP7	X	-13.234	72.8
25	MP7	X	-7.389	%25
26	MP7	X	-8.198	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-11.082	0
2	MP1	Z	-11.082	72.8
3	MP1	Z	-5.968	%25
4	MP1	Z	-6.428	%25
5	RRU1	Z	-6.628	%25
6	MP4	Z	-18.146	0
7	MP4	Z	-18.146	72.8
8	MP4	Z	-9.014	%25
9	MP4	Z	-9.014	%25
10	MP7	Z	-11.082	0
11	MP7	Z	-11.082	72.8
12	MP7	Z	-5.968	%25
13	MP7	Z	-6.428	%25
14	MP1	X	-19.194	0
15	MP1	X	-19.194	72.8
16	MP1	X	-10.337	%25
17	MP1	X	-11.133	%25
18	RRU1	X	-11.48	%25
19	MP4	X	-31.431	0
20	MP4	X	-31.431	72.8
21	MP4	X	-15.612	%25
22	MP4	X	-15.612	%25
23	MP7	X	-19.194	0
24	MP7	X	-19.194	72.8
25	MP7	X	-10.337	%25
26	MP7	X	-11.133	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-1.069e-15	0
2	MP1	Z	-1.069e-15	72.8
3	MP1	Z	-6.066e-16	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
4	MP1	Z	-6.816e-16	%25
5	RRU1	Z	-7.059e-16	%25
6	MP4	Z	-1.934e-15	0
7	MP4	Z	-1.934e-15	72.8
8	MP4	Z	-9.795e-16	%25
9	MP4	Z	-9.983e-16	%25
10	MP7	Z	-1.934e-15	0
11	MP7	Z	-1.934e-15	72.8
12	MP7	Z	-9.795e-16	%25
13	MP7	Z	-9.983e-16	%25
14	MP1	X	-17.454	0
15	MP1	X	-17.454	72.8
16	MP1	X	-9.906	%25
17	MP1	X	-11.131	%25
18	RRU1	X	-11.528	%25
19	MP4	X	-31.583	0
20	MP4	X	-31.583	72.8
21	MP4	X	-15.997	%25
22	MP4	X	-16.303	%25
23	MP7	X	-31.583	0
24	MP7	X	-31.583	72.8
25	MP7	X	-15.997	%25
26	MP7	X	-16.303	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	11.082	0
2	MP1	Z	11.082	72.8
3	MP1	Z	5.968	%25
4	MP1	Z	6.428	%25
5	RRU1	Z	6.628	%25
6	MP4	Z	11.082	0
7	MP4	Z	11.082	72.8
8	MP4	Z	5.968	%25
9	MP4	Z	6.428	%25
10	MP7	Z	18.146	0
11	MP7	Z	18.146	72.8
12	MP7	Z	9.014	%25
13	MP7	Z	9.014	%25
14	MP1	X	-19.194	0
15	MP1	X	-19.194	72.8
16	MP1	X	-10.337	%25
17	MP1	X	-11.133	%25
18	RRU1	X	-11.48	%25
19	MP4	X	-19.194	0
20	MP4	X	-19.194	72.8
21	MP4	X	-10.337	%25
22	MP4	X	-11.133	%25
23	MP7	X	-31.431	0
24	MP7	X	-31.431	72.8
25	MP7	X	-15.612	%25

Member Point Loads (BLC 20 : Ice Wind Load 120 A ZI) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
26	MP7	X	-15.612	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	19.002	0
2	MP1	Z	19.002	72.8
3	MP1	Z	9.876	%25
4	MP1	Z	10.309	%25
5	RRU1	Z	10.595	%25
6	MP4	Z	13.234	0
7	MP4	Z	13.234	72.8
8	MP4	Z	7.389	%25
9	MP4	Z	8.198	%25
10	MP7	Z	24.771	0
11	MP7	Z	24.771	72.8
12	MP7	Z	12.363	%25
13	MP7	Z	12.421	%25
14	MP1	X	-19.002	0
15	MP1	X	-19.002	72.8
16	MP1	X	-9.876	%25
17	MP1	X	-10.309	%25
18	RRU1	X	-10.595	%25
19	MP4	X	-13.234	0
20	MP4	X	-13.234	72.8
21	MP4	X	-7.389	%25
22	MP4	X	-8.198	%25
23	MP7	X	-24.771	0
24	MP7	X	-24.771	72.8
25	MP7	X	-12.363	%25
26	MP7	X	-12.421	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	27.352	0
2	MP1	Z	27.352	72.8
3	MP1	Z	13.854	%25
4	MP1	Z	14.119	%25
5	RRU1	Z	14.473	%25
6	MP4	Z	15.115	0
7	MP4	Z	15.115	72.8
8	MP4	Z	8.579	%25
9	MP4	Z	9.64	%25
10	MP7	Z	27.352	0
11	MP7	Z	27.352	72.8
12	MP7	Z	13.854	%25
13	MP7	Z	14.119	%25
14	MP1	X	-15.792	0
15	MP1	X	-15.792	72.8
16	MP1	X	-7.998	%25
17	MP1	X	-8.152	%25
18	RRU1	X	-8.356	%25

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
19	MP4	X	-8.727	0
20	MP4	X	-8.727	72.8
21	MP4	X	-4.953	%25
22	MP4	X	-5.566	%25
23	MP7	X	-15.792	0
24	MP7	X	-15.792	72.8
25	MP7	X	-7.998	%25
26	MP7	X	-8.152	%25

Member Point Loads (BLC 23 : Seismic Load Z)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-4.33	0
2	MP1	Z	-4.33	72.8
3	MP1	Z	-6.707	%25
4	MP1	Z	-7.872	%25
5	RRU1	Z	-2.293	%25
6	MP4	Z	-4.33	0
7	MP4	Z	-4.33	72.8
8	MP4	Z	-6.707	%25
9	MP4	Z	-7.872	%25
10	MP7	Z	-4.33	0
11	MP7	Z	-4.33	72.8
12	MP7	Z	-6.707	%25
13	MP7	Z	-7.872	%25

Member Point Loads (BLC 24 : Seismic Load X)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-4.33	0
2	MP1	X	-4.33	72.8
3	MP1	X	-6.707	%25
4	MP1	X	-7.872	%25
5	RRU1	X	-2.293	%25
6	MP4	X	-4.33	0
7	MP4	X	-4.33	72.8
8	MP4	X	-6.707	%25
9	MP4	X	-7.872	%25
10	MP7	X	-4.33	0
11	MP7	X	-4.33	72.8
12	MP7	X	-6.707	%25
13	MP7	X	-7.872	%25

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

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

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

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

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

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

Member Point Loads (BLC 28 : Live Load 4 (Lv))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	H3	Y	-250	0

Member Point Loads (BLC 29 : Live Load 5 (Lv))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	H3	Y	-250	%50

Member Point Loads (BLC 30 : Live Load 6 (Lv))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	H3	Y	-250	%100

Member Point Loads (BLC 31 : Live Load 7 (Lv))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	H2	Y	-250	0

Member Point Loads (BLC 32 : Live Load 8 (Lv))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	H2	Y	-250	%50

Member Point Loads (BLC 33 : Live Load 9 (Lv))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	H2	Y	-250	%100

Member Point Loads (BLC 34 : Maintenance Load 1 (Lm))

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

Member Point Loads (BLC 35 : Maintenance Load 2 (Lm))

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

Member Point Loads (BLC 36 : Maintenance Load 3 (Lm))

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

Member Point Loads (BLC 37 : Maintenance Load 4 (Lm))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP8	Y	-500	%50

Member Point Loads (BLC 38 : Maintenance Load 5 (Lm))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP7	Y	-500	%50

Member Point Loads (BLC 39 : Maintenance Load 6 (Lm))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP9	Y	-500	%50

Member Point Loads (BLC 40 : Maintenance Load 7 (Lm))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP5	Y	-500	%50

Member Point Loads (BLC 41 : Maintenance Load 8 (Lm))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP4	Y	-500	%50

Member Point Loads (BLC 42 : Maintenance Load 9 (Lm))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP6	Y	-500	%50

Member Distributed Loads (BLC 2 : Structure Wind Z)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	SZ	-109.86	-109.86	0	%100
2	M2	SZ	-65.916	-65.916	0	%100
3	M3	SZ	-109.86	-109.86	0	%100
4	M4	SZ	-109.86	-109.86	0	%100
5	M5	SZ	-109.86	-109.86	0	%100
6	M6	SZ	-109.86	-109.86	0	%100
7	M7	SZ	-65.916	-65.916	0	%100
8	M8	SZ	-109.86	-109.86	0	%100
9	M9	SZ	-109.86	-109.86	0	%100
10	M10	SZ	-109.86	-109.86	0	%100
11	M11	SZ	-109.86	-109.86	0	%100
12	M12	SZ	-65.916	-65.916	0	%100
13	M13	SZ	-109.86	-109.86	0	%100
14	M14	SZ	-109.86	-109.86	0	%100
15	M15	SZ	-109.86	-109.86	0	%100
16	H1	SZ	-65.916	-65.916	0	%100
17	H3	SZ	-65.916	-65.916	0	%100
18	H2	SZ	-65.916	-65.916	0	%100
19	M19	SZ	-65.916	-65.916	0	%100
20	M20	SZ	-65.916	-65.916	0	%100
21	M21	SZ	-65.916	-65.916	0	%100
22	M22	SZ	-109.86	-109.86	0	%100
23	M23	SZ	-109.86	-109.86	0	%100
24	M24	SZ	-109.86	-109.86	0	%100
25	M25	SZ	-109.86	-109.86	0	%100
26	M26	SZ	-109.86	-109.86	0	%100
27	MP2	SZ	-65.916	-65.916	0	%100
28	M28	SZ	-109.86	-109.86	0	%100
29	M29	SZ	-109.86	-109.86	0	%100
30	MP1	SZ	-65.916	-65.916	0	%100
31	M31	SZ	-109.86	-109.86	0	%100
32	M32	SZ	-109.86	-109.86	0	%100
33	MP3	SZ	-65.916	-65.916	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
34	M34	SZ	-109.86	-109.86	0	%100
35	M35	SZ	-109.86	-109.86	0	%100
36	MP8	SZ	-65.916	-65.916	0	%100
37	M37	SZ	-109.86	-109.86	0	%100
38	M38	SZ	-109.86	-109.86	0	%100
39	MP7	SZ	-65.916	-65.916	0	%100
40	M40	SZ	-109.86	-109.86	0	%100
41	M41	SZ	-109.86	-109.86	0	%100
42	MP9	SZ	-65.916	-65.916	0	%100
43	M43	SZ	-109.86	-109.86	0	%100
44	M44	SZ	-109.86	-109.86	0	%100
45	MP5	SZ	-65.916	-65.916	0	%100
46	M46	SZ	-109.86	-109.86	0	%100
47	M47	SZ	-109.86	-109.86	0	%100
48	MP4	SZ	-65.916	-65.916	0	%100
49	M49	SZ	-109.86	-109.86	0	%100
50	M50	SZ	-109.86	-109.86	0	%100
51	MP6	SZ	-65.916	-65.916	0	%100
52	M52	SZ	-109.86	-109.86	0	%100
53	RRU1	SZ	-65.916	-65.916	0	%100

Member Distributed Loads (BLC 3 : Structure Wind X)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	SX	-109.86	-109.86	0	%100
2	M2	SX	-65.916	-65.916	0	%100
3	M3	SX	-109.86	-109.86	0	%100
4	M4	SX	-109.86	-109.86	0	%100
5	M5	SX	-109.86	-109.86	0	%100
6	M6	SX	-109.86	-109.86	0	%100
7	M7	SX	-65.916	-65.916	0	%100
8	M8	SX	-109.86	-109.86	0	%100
9	M9	SX	-109.86	-109.86	0	%100
10	M10	SX	-109.86	-109.86	0	%100
11	M11	SX	-109.86	-109.86	0	%100
12	M12	SX	-65.916	-65.916	0	%100
13	M13	SX	-109.86	-109.86	0	%100
14	M14	SX	-109.86	-109.86	0	%100
15	M15	SX	-109.86	-109.86	0	%100
16	H1	SX	-65.916	-65.916	0	%100
17	H3	SX	-65.916	-65.916	0	%100
18	H2	SX	-65.916	-65.916	0	%100
19	M19	SX	-65.916	-65.916	0	%100
20	M20	SX	-65.916	-65.916	0	%100
21	M21	SX	-65.916	-65.916	0	%100
22	M22	SX	-109.86	-109.86	0	%100
23	M23	SX	-109.86	-109.86	0	%100
24	M24	SX	-109.86	-109.86	0	%100
25	M25	SX	-109.86	-109.86	0	%100
26	M26	SX	-109.86	-109.86	0	%100
27	MP2	SX	-65.916	-65.916	0	%100
28	M28	SX	-109.86	-109.86	0	%100

Member Distributed Loads (BLC 3 : Structure Wind X) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
29	M29	SX	-109.86	-109.86	0	%100
30	MP1	SX	-65.916	-65.916	0	%100
31	M31	SX	-109.86	-109.86	0	%100
32	M32	SX	-109.86	-109.86	0	%100
33	MP3	SX	-65.916	-65.916	0	%100
34	M34	SX	-109.86	-109.86	0	%100
35	M35	SX	-109.86	-109.86	0	%100
36	MP8	SX	-65.916	-65.916	0	%100
37	M37	SX	-109.86	-109.86	0	%100
38	M38	SX	-109.86	-109.86	0	%100
39	MP7	SX	-65.916	-65.916	0	%100
40	M40	SX	-109.86	-109.86	0	%100
41	M41	SX	-109.86	-109.86	0	%100
42	MP9	SX	-65.916	-65.916	0	%100
43	M43	SX	-109.86	-109.86	0	%100
44	M44	SX	-109.86	-109.86	0	%100
45	MP5	SX	-65.916	-65.916	0	%100
46	M46	SX	-109.86	-109.86	0	%100
47	M47	SX	-109.86	-109.86	0	%100
48	MP4	SX	-65.916	-65.916	0	%100
49	M49	SX	-109.86	-109.86	0	%100
50	M50	SX	-109.86	-109.86	0	%100
51	MP6	SX	-65.916	-65.916	0	%100
52	M52	SX	-109.86	-109.86	0	%100
53	RRU1	SX	-65.916	-65.916	0	%100

Member Distributed Loads (BLC 12 : Ice Weight)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	Y	-10.902	-10.902	0	%100
2	M2	Y	-12.282	-12.282	0	%100
3	M3	Y	-9.779	-9.779	0	%100
4	M4	Y	-9.779	-9.779	0	%100
5	M5	Y	-17.645	-17.645	0	%100
6	M6	Y	-10.902	-10.902	0	%100
7	M7	Y	-12.282	-12.282	0	%100
8	M8	Y	-9.779	-9.779	0	%100
9	M9	Y	-9.779	-9.779	0	%100
10	M10	Y	-17.645	-17.645	0	%100
11	M11	Y	-10.902	-10.902	0	%100
12	M12	Y	-12.282	-12.282	0	%100
13	M13	Y	-9.779	-9.779	0	%100
14	M14	Y	-9.779	-9.779	0	%100
15	M15	Y	-17.645	-17.645	0	%100
16	H1	Y	-12.282	-12.282	0	%100
17	H3	Y	-12.282	-12.282	0	%100
18	H2	Y	-12.282	-12.282	0	%100
19	M19	Y	-8.81	-8.81	0	%100
20	M20	Y	-8.81	-8.81	0	%100
21	M21	Y	-8.81	-8.81	0	%100
22	M22	Y	-20.771	-20.771	0	%100
23	M23	Y	-20.771	-20.771	0	%100

Member Distributed Loads (BLC 12 : Ice Weight) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
24	M24	Y	-20.771	-20.771	0	%100
25	M25	Y	0	0	0	%100
26	M26	Y	0	0	0	%100
27	MP2	Y	-8.81	-8.81	0	%100
28	M28	Y	0	0	0	%100
29	M29	Y	0	0	0	%100
30	MP1	Y	-8.81	-8.81	0	%100
31	M31	Y	0	0	0	%100
32	M32	Y	0	0	0	%100
33	MP3	Y	-8.81	-8.81	0	%100
34	M34	Y	0	0	0	%100
35	M35	Y	0	0	0	%100
36	MP8	Y	-8.81	-8.81	0	%100
37	M37	Y	0	0	0	%100
38	M38	Y	0	0	0	%100
39	MP7	Y	-8.81	-8.81	0	%100
40	M40	Y	0	0	0	%100
41	M41	Y	0	0	0	%100
42	MP9	Y	-8.81	-8.81	0	%100
43	M43	Y	0	0	0	%100
44	M44	Y	0	0	0	%100
45	MP5	Y	-8.81	-8.81	0	%100
46	M46	Y	0	0	0	%100
47	M47	Y	0	0	0	%100
48	MP4	Y	-8.81	-8.81	0	%100
49	M49	Y	0	0	0	%100
50	M50	Y	0	0	0	%100
51	MP6	Y	-8.81	-8.81	0	%100
52	M52	Y	0	0	0	%100
53	RRU1	Y	-8.81	-8.81	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	SZ	-15.556	-15.556	0	%100
2	M2	SZ	-14.274	-14.274	0	%100
3	M3	SZ	-17.032	-17.032	0	%100
4	M4	SZ	-17.032	-17.032	0	%100
5	M5	SZ	-11.706	-11.706	0	%100
6	M6	SZ	-15.556	-15.556	0	%100
7	M7	SZ	-14.274	-14.274	0	%100
8	M8	SZ	-17.032	-17.032	0	%100
9	M9	SZ	-17.032	-17.032	0	%100
10	M10	SZ	-11.706	-11.706	0	%100
11	M11	SZ	-15.556	-15.556	0	%100
12	M12	SZ	-14.274	-14.274	0	%100
13	M13	SZ	-17.032	-17.032	0	%100
14	M14	SZ	-17.032	-17.032	0	%100
15	M15	SZ	-11.706	-11.706	0	%100
16	H1	SZ	-14.274	-14.274	0	%100
17	H3	SZ	-14.274	-14.274	0	%100
18	H2	SZ	-14.274	-14.274	0	%100

Member Distributed Loads (BLC 13 : Ice Structure Wind Z) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
19	M19	SZ	-18.83	-18.83	0	%100
20	M20	SZ	-18.83	-18.83	0	%100
21	M21	SZ	-18.83	-18.83	0	%100
22	M22	SZ	-10.956	-10.956	0	%100
23	M23	SZ	-10.956	-10.956	0	%100
24	M24	SZ	-10.956	-10.956	0	%100
25	M25	SZ	0	0	0	%100
26	M26	SZ	0	0	0	%100
27	MP2	SZ	-18.83	-18.83	0	%100
28	M28	SZ	0	0	0	%100
29	M29	SZ	0	0	0	%100
30	MP1	SZ	-18.83	-18.83	0	%100
31	M31	SZ	0	0	0	%100
32	M32	SZ	0	0	0	%100
33	MP3	SZ	-18.83	-18.83	0	%100
34	M34	SZ	0	0	0	%100
35	M35	SZ	0	0	0	%100
36	MP8	SZ	-18.83	-18.83	0	%100
37	M37	SZ	0	0	0	%100
38	M38	SZ	0	0	0	%100
39	MP7	SZ	-18.83	-18.83	0	%100
40	M40	SZ	0	0	0	%100
41	M41	SZ	0	0	0	%100
42	MP9	SZ	-18.83	-18.83	0	%100
43	M43	SZ	0	0	0	%100
44	M44	SZ	0	0	0	%100
45	MP5	SZ	-18.83	-18.83	0	%100
46	M46	SZ	0	0	0	%100
47	M47	SZ	0	0	0	%100
48	MP4	SZ	-18.83	-18.83	0	%100
49	M49	SZ	0	0	0	%100
50	M50	SZ	0	0	0	%100
51	MP6	SZ	-18.83	-18.83	0	%100
52	M52	SZ	0	0	0	%100
53	RRU1	SZ	-18.83	-18.83	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	SX	-15.556	-15.556	0	%100
2	M2	SX	-14.274	-14.274	0	%100
3	M3	SX	-17.032	-17.032	0	%100
4	M4	SX	-17.032	-17.032	0	%100
5	M5	SX	-11.706	-11.706	0	%100
6	M6	SX	-15.556	-15.556	0	%100
7	M7	SX	-14.274	-14.274	0	%100
8	M8	SX	-17.032	-17.032	0	%100
9	M9	SX	-17.032	-17.032	0	%100
10	M10	SX	-11.706	-11.706	0	%100
11	M11	SX	-15.556	-15.556	0	%100
12	M12	SX	-14.274	-14.274	0	%100
13	M13	SX	-17.032	-17.032	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
14	M14	SX	-17.032	-17.032	0	%100
15	M15	SX	-11.706	-11.706	0	%100
16	H1	SX	-14.274	-14.274	0	%100
17	H3	SX	-14.274	-14.274	0	%100
18	H2	SX	-14.274	-14.274	0	%100
19	M19	SX	-18.83	-18.83	0	%100
20	M20	SX	-18.83	-18.83	0	%100
21	M21	SX	-18.83	-18.83	0	%100
22	M22	SX	-10.956	-10.956	0	%100
23	M23	SX	-10.956	-10.956	0	%100
24	M24	SX	-10.956	-10.956	0	%100
25	M25	SX	0	0	0	%100
26	M26	SX	0	0	0	%100
27	MP2	SX	-18.83	-18.83	0	%100
28	M28	SX	0	0	0	%100
29	M29	SX	0	0	0	%100
30	MP1	SX	-18.83	-18.83	0	%100
31	M31	SX	0	0	0	%100
32	M32	SX	0	0	0	%100
33	MP3	SX	-18.83	-18.83	0	%100
34	M34	SX	0	0	0	%100
35	M35	SX	0	0	0	%100
36	MP8	SX	-18.83	-18.83	0	%100
37	M37	SX	0	0	0	%100
38	M38	SX	0	0	0	%100
39	MP7	SX	-18.83	-18.83	0	%100
40	M40	SX	0	0	0	%100
41	M41	SX	0	0	0	%100
42	MP9	SX	-18.83	-18.83	0	%100
43	M43	SX	0	0	0	%100
44	M44	SX	0	0	0	%100
45	MP5	SX	-18.83	-18.83	0	%100
46	M46	SX	0	0	0	%100
47	M47	SX	0	0	0	%100
48	MP4	SX	-18.83	-18.83	0	%100
49	M49	SX	0	0	0	%100
50	M50	SX	0	0	0	%100
51	MP6	SX	-18.83	-18.83	0	%100
52	M52	SX	0	0	0	%100
53	RRU1	SX	-18.83	-18.83	0	%100

Member Distributed Loads (BLC 43 : BLC 1 Transient Area Loads)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	M12	Y	-18.202	-18.202	0	23.596
2	M13	Y	-9.173	-9.173	3.828	27.295
3	M14	Y	-9.173	-9.173	3.828	27.295
4	M7	Y	-18.202	-18.202	0	23.596
5	M8	Y	-9.173	-9.173	3.828	27.295
6	M9	Y	-9.173	-9.173	3.828	27.295
7	M2	Y	-18.202	-18.202	0	23.596
8	M3	Y	-9.173	-9.173	3.828	27.295

Member Distributed Loads (BLC 43 : BLC 1 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
9	M4	Y	-9.173	-9.173	3.828	27.295

Member Distributed Loads (BLC 44 : BLC 12 Transient Area Loads)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	M12	Y	-29.669	-29.669	0	23.596
2	M13	Y	-14.951	-14.951	3.828	27.295
3	M14	Y	-14.951	-14.951	3.828	27.295
4	M7	Y	-29.669	-29.669	0	23.596
5	M8	Y	-14.951	-14.951	3.828	27.295
6	M9	Y	-14.951	-14.951	3.828	27.295
7	M2	Y	-29.669	-29.669	0	23.596
8	M3	Y	-14.951	-14.951	3.828	27.295
9	M4	Y	-14.951	-14.951	3.828	27.295

Member Area Loads (BLC 1 : Self Weight)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N35	N36	N33	N34	Y	Two Way	-10
2	N23	N24	N21	N22	Y	Two Way	-10
3	N11	N12	N9	N10	Y	Two Way	-10

Member Area Loads (BLC 12 : Ice Weight)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N35	N36	N33	N34	Y	Two Way	-16.3
2	N23	N24	N21	N22	Y	Two Way	-16.3
3	N11	N12	N9	N10	Y	Two Way	-16.3

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
1	Self Weight	DL		-1			13		3	
2	Structure Wind Z	WLZ						53		
3	Structure Wind X	WLX						53		
4	Wind Load 0 AZI	WLZ					26			
5	Wind Load 30 AZI	None					26			
6	Wind Load 45 AZI	None					26			
7	Wind Load 60 AZI	None					26			
8	Wind Load 90 AZI	WLX					26			
9	Wind Load 120 AZI	None					26			
10	Wind Load 135 AZI	None					26			
11	Wind Load 150 AZI	None					26			
12	Ice Weight	OL1					13	53	3	
13	Ice Structure Wind Z	OL2						53		
14	Ice Structure Wind X	OL3						53		
15	Ice Wind Load 0 AZI	OL2					26			
16	Ice Wind Load 30 AZI	None					26			
17	Ice Wind Load 45 AZI	None					26			
18	Ice Wind Load 60 AZI	None					26			
19	Ice Wind Load 90 AZI	OL3					26			
20	Ice Wind Load 120 AZI	None					26			

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
21	Ice Wind Load 135 AZI	None					26			
22	Ice Wind Load 150 AZI	None					26			
23	Seismic Load Z	ELZ			-.105		13			
24	Seismic Load X	ELX	-.105				13			
25	Live Load 1 (Lv)	None					1			
26	Live Load 2 (Lv)	None					1			
27	Live Load 3 (Lv)	None					1			
28	Live Load 4 (Lv)	None					1			
29	Live Load 5 (Lv)	None					1			
30	Live Load 6 (Lv)	None					1			
31	Live Load 7 (Lv)	None					1			
32	Live Load 8 (Lv)	None					1			
33	Live Load 9 (Lv)	None					1			
34	Maintenance Load 1 (Lm)	None					1			
35	Maintenance Load 2 (Lm)	None					1			
36	Maintenance Load 3 (Lm)	None					1			
37	Maintenance Load 4 (Lm)	None					1			
38	Maintenance Load 5 (Lm)	None					1			
39	Maintenance Load 6 (Lm)	None					1			
40	Maintenance Load 7 (Lm)	None					1			
41	Maintenance Load 8 (Lm)	None					1			
42	Maintenance Load 9 (Lm)	None					1			
43	BLC 1 Transient Area Loads	None						9		
44	BLC 12 Transient Area Loa...	None						9		

Load Combinations

	Description	Solve	PDelta	SRSS	BLC	Fa...	B...	Fa...	B...	Fact...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4DL	Yes	Y		DL	1.4																				
2	1.2DL + 1WL 0 AZI	Yes	Y		DL	1.2	2	1	3		4	1														
3	1.2DL + 1WL 30 AZI	Yes	Y		DL	1.2	2	.866	3	.5	5	1														
4	1.2DL + 1WL 45 AZI	Yes	Y		DL	1.2	2	.707	3	.707	6	1														
5	1.2DL + 1WL 60 AZI	Yes	Y		DL	1.2	2	.5	3	.866	7	1														
6	1.2DL + 1WL 90 AZI	Yes	Y		DL	1.2	2		3	1	8	1														
7	1.2DL + 1WL 120 AZI	Yes	Y		DL	1.2	2	-.5	3	.866	9	1														
8	1.2DL + 1WL 135 AZI	Yes	Y		DL	1.2	2	-.7...	3	.707	10	1														
9	1.2DL + 1WL 150 AZI	Yes	Y		DL	1.2	2	-.8...	3	.5	11	1														
10	1.2DL + 1WL 180 AZI	Yes	Y		DL	1.2	2	-1	3		4	-1														
11	1.2DL + 1WL 210 AZI	Yes	Y		DL	1.2	2	-.8...	3	-.5	5	-1														
12	1.2DL + 1WL 225 AZI	Yes	Y		DL	1.2	2	-.7...	3	-.707	6	-1														
13	1.2DL + 1WL 240 AZI	Yes	Y		DL	1.2	2	-.5	3	-.866	7	-1														
14	1.2DL + 1WL 270 AZI	Yes	Y		DL	1.2	2		3	-1	8	-1														
15	1.2DL + 1WL 300 AZI	Yes	Y		DL	1.2	2	.5	3	-.866	9	-1														
16	1.2DL + 1WL 315 AZI	Yes	Y		DL	1.2	2	.707	3	-.707	10	-1														
17	1.2DL + 1WL 330 AZI	Yes	Y		DL	1.2	2	.866	3	-.5	11	-1														
18	0.9DL + 1WL 0 AZI	Yes	Y		DL	.9	2	1	3		4	1														
19	0.9DL + 1WL 30 AZI	Yes	Y		DL	.9	2	.866	3	.5	5	1														
20	0.9DL + 1WL 45 AZI	Yes	Y		DL	.9	2	.707	3	.707	6	1														
21	0.9DL + 1WL 60 AZI	Yes	Y		DL	.9	2	.5	3	.866	7	1														
22	0.9DL + 1WL 90 AZI	Yes	Y		DL	.9	2		3	1	8	1														
23	0.9DL + 1WL 120 AZI	Yes	Y		DL	.9	2	-.5	3	.866	9	1														

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Fa...	B...	Fa...	B...	Fact...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
24	0.9DL + 1WL 135 AZI	Yes	Y		DL	.9	2	-.7...	3	.707	10	1														
25	0.9DL + 1WL 150 AZI	Yes	Y		DL	.9	2	-.8...	3	.5	11	1														
26	0.9DL + 1WL 180 AZI	Yes	Y		DL	.9	2	-1	3		4	-1														
27	0.9DL + 1WL 210 AZI	Yes	Y		DL	.9	2	-.8...	3	-.5	5	-1														
28	0.9DL + 1WL 225 AZI	Yes	Y		DL	.9	2	-.7...	3	-.707	6	-1														
29	0.9DL + 1WL 240 AZI	Yes	Y		DL	.9	2	-.5	3	-.866	7	-1														
30	0.9DL + 1WL 270 AZI	Yes	Y		DL	.9	2		3	-1	8	-1														
31	0.9DL + 1WL 300 AZI	Yes	Y		DL	.9	2	.5	3	-.866	9	-1														
32	0.9DL + 1WL 315 AZI	Yes	Y		DL	.9	2	.707	3	-.707	10	-1														
33	0.9DL + 1WL 330 AZI	Yes	Y		DL	.9	2	.866	3	-.5	11	-1														
34	1.2DL + 1DLi + 1W Li 0 ...	Yes	Y		DL	1.2	O...	1	13	1	14		15	1												
35	1.2DL + 1DLi + 1W Li 30 ...	Yes	Y		DL	1.2	O...	1	13	.866	14	.5	16	1												
36	1.2DL + 1DLi + 1W Li 45 ...	Yes	Y		DL	1.2	O...	1	13	.707	14	.707	17	1												
37	1.2DL + 1DLi + 1W Li 60 ...	Yes	Y		DL	1.2	O...	1	13	.5	14	.866	18	1												
38	1.2DL + 1DLi + 1W Li 90 ...	Yes	Y		DL	1.2	O...	1	13		14	1	19	1												
39	1.2DL + 1DLi + 1W Li 12...	Yes	Y		DL	1.2	O...	1	13	-.5	14	.866	20	1												
40	1.2DL + 1DLi + 1W Li 13...	Yes	Y		DL	1.2	O...	1	13	-.707	14	.707	21	1												
41	1.2DL + 1DLi + 1W Li 15...	Yes	Y		DL	1.2	O...	1	13	-.866	14	.5	22	1												
42	1.2DL + 1DLi + 1W Li 18...	Yes	Y		DL	1.2	O...	1	13	-1	14		15	-1												
43	1.2DL + 1DLi + 1W Li 21...	Yes	Y		DL	1.2	O...	1	13	-.866	14	-.5	16	-1												
44	1.2DL + 1DLi + 1W Li 22...	Yes	Y		DL	1.2	O...	1	13	-.707	14	-.7...	17	-1												
45	1.2DL + 1DLi + 1W Li 24...	Yes	Y		DL	1.2	O...	1	13	-.5	14	-.8...	18	-1												
46	1.2DL + 1DLi + 1W Li 27...	Yes	Y		DL	1.2	O...	1	13		14	-1	19	-1												
47	1.2DL + 1DLi + 1W Li 30...	Yes	Y		DL	1.2	O...	1	13	.5	14	-.8...	20	-1												
48	1.2DL + 1DLi + 1W Li 31...	Yes	Y		DL	1.2	O...	1	13	.707	14	-.7...	21	-1												
49	1.2DL + 1DLi + 1W Li 33...	Yes	Y		DL	1.2	O...	1	13	.866	14	-.5	22	-1												
50	(1.2+0.2Sds)DL + 1E 0 ...	Yes	Y		DL	1....	23	1	24																	
51	(1.2+0.2Sds)DL + 1E 30...	Yes	Y		DL	1....	23	.866	24	.5																
52	(1.2+0.2Sds)DL + 1E 45...	Yes	Y		DL	1....	23	.707	24	.707																
53	(1.2+0.2Sds)DL + 1E 60...	Yes	Y		DL	1....	23	.5	24	.866																
54	(1.2+0.2Sds)DL + 1E 90...	Yes	Y		DL	1....	23		24	1																
55	(1.2+0.2Sds)DL + 1E 12...	Yes	Y		DL	1....	23	-.5	24	.866																
56	(1.2+0.2Sds)DL + 1E 13...	Yes	Y		DL	1....	23	-.7...	24	.707																
57	(1.2+0.2Sds)DL + 1E 15...	Yes	Y		DL	1....	23	-.8...	24	.5																
58	(1.2+0.2Sds)DL + 1E 18...	Yes	Y		DL	1....	23	-1	24																	
59	(1.2+0.2Sds)DL + 1E 21...	Yes	Y		DL	1....	23	-.8...	24	-.5																
60	(1.2+0.2Sds)DL + 1E 22...	Yes	Y		DL	1....	23	-.7...	24	-.707																
61	(1.2+0.2Sds)DL + 1E 24...	Yes	Y		DL	1....	23	-.5	24	-.866																
62	(1.2+0.2Sds)DL + 1E 27...	Yes	Y		DL	1....	23		24	-1																
63	(1.2+0.2Sds)DL + 1E 30...	Yes	Y		DL	1....	23	.5	24	-.866																
64	(1.2+0.2Sds)DL + 1E 31...	Yes	Y		DL	1....	23	.707	24	-.707																
65	(1.2+0.2Sds)DL + 1E 33...	Yes	Y		DL	1....	23	.866	24	-.5																
66	(0.9-0.2Sds)DL + 1E 0 A...	Yes	Y		DL	.865	23	1	24																	
67	(0.9-0.2Sds)DL + 1E 30 ...	Yes	Y		DL	.865	23	.866	24	.5																
68	(0.9-0.2Sds)DL + 1E 45 ...	Yes	Y		DL	.865	23	.707	24	.707																
69	(0.9-0.2Sds)DL + 1E 60 ...	Yes	Y		DL	.865	23	.5	24	.866																
70	(0.9-0.2Sds)DL + 1E 90 ...	Yes	Y		DL	.865	23		24	1																
71	(0.9-0.2Sds)DL + 1E 12...	Yes	Y		DL	.865	23	-.5	24	.866																
72	(0.9-0.2Sds)DL + 1E 13...	Yes	Y		DL	.865	23	-.7...	24	.707																
73	(0.9-0.2Sds)DL + 1E 15...	Yes	Y		DL	.865	23	-.8...	24	.5																
74	(0.9-0.2Sds)DL + 1E 18...	Yes	Y		DL	.865	23	-1	24																	
75	(0.9-0.2Sds)DL + 1E 21...	Yes	Y		DL	.865	23	-.8...	24	-.5																

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Fa...	B...	Fa...	B...	Fact...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
76	(0.9-0.2Sds)DL + 1E 22...	Yes	Y		DL	.865	23	-.7..	24	-.707																
77	(0.9-0.2Sds)DL + 1E 24...	Yes	Y		DL	.865	23	-.5	24	-.866																
78	(0.9-0.2Sds)DL + 1E 27...	Yes	Y		DL	.865	23		24	-1																
79	(0.9-0.2Sds)DL + 1E 30...	Yes	Y		DL	.865	23	.5	24	-.866																
80	(0.9-0.2Sds)DL + 1E 31...	Yes	Y		DL	.865	23	.707	24	-.707																
81	(0.9-0.2Sds)DL + 1E 33...	Yes	Y		DL	.865	23	.866	24	-.5																
82	1.2DL + 1Lv1	Yes	Y		DL	1.2	25	1.5																		
83	1.2DL + 1Lv2	Yes	Y		DL	1.2	26	1.5																		
84	1.2DL + 1Lv3	Yes	Y		DL	1.2	27	1.5																		
85	1.2DL + 1Lv4	Yes	Y		DL	1.2	28	1.5																		
86	1.2DL + 1Lv5	Yes	Y		DL	1.2	29	1.5																		
87	1.2DL + 1Lv6	Yes	Y		DL	1.2	30	1.5																		
88	1.2DL + 1Lv7	Yes	Y		DL	1.2	31	1.5																		
89	1.2DL + 1Lv8	Yes	Y		DL	1.2	32	1.5																		
90	1.2DL + 1Lv9	Yes	Y		DL	1.2	33	1.5																		
91	1.2DL + 1.5Lm + 1Wm 0...	Yes	Y		DL	1.2	34	1.5	2	.049	3		4	.049												
92	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	34	1.5	2	.043	3	.025	5	.049												
93	1.2DL + 1.5Lm + 1Wm 4...	Yes	Y		DL	1.2	34	1.5	2	.035	3	.035	6	.049												
94	1.2DL + 1.5Lm + 1Wm 6...	Yes	Y		DL	1.2	34	1.5	2	.025	3	.043	7	.049												
95	1.2DL + 1.5Lm + 1Wm 9...	Yes	Y		DL	1.2	34	1.5	2		3	.049	8	.049												
96	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	34	1.5	2	-.025	3	.043	9	.049												
97	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	34	1.5	2	-.035	3	.035	10	.049												
98	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	34	1.5	2	-.043	3	.025	11	.049												
99	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	34	1.5	2	-.049	3		4	-.0...												
100	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2	34	1.5	2	-.043	3	-.0...	5	-.0...												
101	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2	34	1.5	2	-.035	3	-.0...	6	-.0...												
102	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2	34	1.5	2	-.025	3	-.0...	7	-.0...												
103	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2	34	1.5	2		3	-.0...	8	-.0...												
104	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	34	1.5	2	.025	3	-.0...	9	-.0...												
105	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	34	1.5	2	.035	3	-.0...	10	-.0...												
106	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	34	1.5	2	.043	3	-.0...	11	-.0...												
107	1.2DL + 1.5Lm + 1Wm 0...	Yes	Y		DL	1.2	35	1.5	2	.049	3		4	.049												
108	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	35	1.5	2	.043	3	.025	5	.049												
109	1.2DL + 1.5Lm + 1Wm 4...	Yes	Y		DL	1.2	35	1.5	2	.035	3	.035	6	.049												
110	1.2DL + 1.5Lm + 1Wm 6...	Yes	Y		DL	1.2	35	1.5	2	.025	3	.043	7	.049												
111	1.2DL + 1.5Lm + 1Wm 9...	Yes	Y		DL	1.2	35	1.5	2		3	.049	8	.049												
112	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	35	1.5	2	-.025	3	.043	9	.049												
113	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	35	1.5	2	-.035	3	.035	10	.049												
114	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	35	1.5	2	-.043	3	.025	11	.049												
115	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	35	1.5	2	-.049	3		4	-.0...												
116	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2	35	1.5	2	-.043	3	-.0...	5	-.0...												
117	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2	35	1.5	2	-.035	3	-.0...	6	-.0...												
118	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2	35	1.5	2	-.025	3	-.0...	7	-.0...												
119	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2	35	1.5	2		3	-.0...	8	-.0...												
120	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	35	1.5	2	.025	3	-.0...	9	-.0...												
121	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	35	1.5	2	.035	3	-.0...	10	-.0...												
122	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	35	1.5	2	.043	3	-.0...	11	-.0...												
123	1.2DL + 1.5Lm + 1Wm 0...	Yes	Y		DL	1.2	36	1.5	2	.049	3		4	.049												
124	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	36	1.5	2	.043	3	.025	5	.049												
125	1.2DL + 1.5Lm + 1Wm 4...	Yes	Y		DL	1.2	36	1.5	2	.035	3	.035	6	.049												
126	1.2DL + 1.5Lm + 1Wm 6...	Yes	Y		DL	1.2	36	1.5	2	.025	3	.043	7	.049												
127	1.2DL + 1.5Lm + 1Wm 9...	Yes	Y		DL	1.2	36	1.5	2		3	.049	8	.049												

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Fa..B..	Fa..B..	Fact..	B..	Fa..	B..	Fa..	B..	Fa..	B..	Fa..	B..	Fa..	B..	Fa..	B..	Fa..	B..	Fa..	B..	Fa..
128	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	36	1.5	2	-.025	3	.043	9	.049												
129	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	36	1.5	2	-.035	3	.035	10	.049												
130	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	36	1.5	2	-.043	3	.025	11	.049												
131	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	36	1.5	2	-.049	3		4	-.0...												
132	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2	36	1.5	2	-.043	3	-.0...	5	-.0...												
133	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2	36	1.5	2	-.035	3	-.0...	6	-.0...												
134	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2	36	1.5	2	-.025	3	-.0...	7	-.0...												
135	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2	36	1.5	2		3	-.0...	8	-.0...												
136	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	36	1.5	2	.025	3	-.0...	9	-.0...												
137	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	36	1.5	2	.035	3	-.0...	10	-.0...												
138	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	36	1.5	2	.043	3	-.0...	11	-.0...												
139	1.2DL + 1.5Lm + 1Wm 0...	Yes	Y		DL	1.2	37	1.5	2	.049	3		4	.049												
140	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	37	1.5	2	.043	3	.025	5	.049												
141	1.2DL + 1.5Lm + 1Wm 4...	Yes	Y		DL	1.2	37	1.5	2	.035	3	.035	6	.049												
142	1.2DL + 1.5Lm + 1Wm 6...	Yes	Y		DL	1.2	37	1.5	2	.025	3	.043	7	.049												
143	1.2DL + 1.5Lm + 1Wm 9...	Yes	Y		DL	1.2	37	1.5	2		3	.049	8	.049												
144	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	37	1.5	2	-.025	3	.043	9	.049												
145	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	37	1.5	2	-.035	3	.035	10	.049												
146	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	37	1.5	2	-.043	3	.025	11	.049												
147	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	37	1.5	2	-.049	3		4	-.0...												
148	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2	37	1.5	2	-.043	3	-.0...	5	-.0...												
149	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2	37	1.5	2	-.035	3	-.0...	6	-.0...												
150	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2	37	1.5	2	-.025	3	-.0...	7	-.0...												
151	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2	37	1.5	2		3	-.0...	8	-.0...												
152	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	37	1.5	2	.025	3	-.0...	9	-.0...												
153	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	37	1.5	2	.035	3	-.0...	10	-.0...												
154	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	37	1.5	2	.043	3	-.0...	11	-.0...												
155	1.2DL + 1.5Lm + 1Wm 0...	Yes	Y		DL	1.2	38	1.5	2	.049	3		4	.049												
156	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	38	1.5	2	.043	3	.025	5	.049												
157	1.2DL + 1.5Lm + 1Wm 4...	Yes	Y		DL	1.2	38	1.5	2	.035	3	.035	6	.049												
158	1.2DL + 1.5Lm + 1Wm 6...	Yes	Y		DL	1.2	38	1.5	2	.025	3	.043	7	.049												
159	1.2DL + 1.5Lm + 1Wm 9...	Yes	Y		DL	1.2	38	1.5	2		3	.049	8	.049												
160	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	38	1.5	2	-.025	3	.043	9	.049												
161	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	38	1.5	2	-.035	3	.035	10	.049												
162	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	38	1.5	2	-.043	3	.025	11	.049												
163	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	38	1.5	2	-.049	3		4	-.0...												
164	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2	38	1.5	2	-.043	3	-.0...	5	-.0...												
165	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2	38	1.5	2	-.035	3	-.0...	6	-.0...												
166	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2	38	1.5	2	-.025	3	-.0...	7	-.0...												
167	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2	38	1.5	2		3	-.0...	8	-.0...												
168	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	38	1.5	2	.025	3	-.0...	9	-.0...												
169	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	38	1.5	2	.035	3	-.0...	10	-.0...												
170	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	38	1.5	2	.043	3	-.0...	11	-.0...												
171	1.2DL + 1.5Lm + 1Wm 0...	Yes	Y		DL	1.2	39	1.5	2	.049	3		4	.049												
172	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	39	1.5	2	.043	3	.025	5	.049												
173	1.2DL + 1.5Lm + 1Wm 4...	Yes	Y		DL	1.2	39	1.5	2	.035	3	.035	6	.049												
174	1.2DL + 1.5Lm + 1Wm 6...	Yes	Y		DL	1.2	39	1.5	2	.025	3	.043	7	.049												
175	1.2DL + 1.5Lm + 1Wm 9...	Yes	Y		DL	1.2	39	1.5	2		3	.049	8	.049												
176	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	39	1.5	2	-.025	3	.043	9	.049												
177	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	39	1.5	2	-.035	3	.035	10	.049												
178	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	39	1.5	2	-.043	3	.025	11	.049												
179	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2	39	1.5	2	-.049	3		4	-.0...												

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Fa..B..Fa..B..Fact..B..Fa..B..Fa..B..Fa..B..Fa..B..Fa..B..Fa..B..Fa..B..Fa..B..Fa..B..Fa...
180	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2 39 1.5 2 -.043 3 -.0... 5 -.0...
181	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2 39 1.5 2 -.035 3 -.0... 6 -.0...
182	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2 39 1.5 2 -.025 3 -.0... 7 -.0...
183	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2 39 1.5 2 3 -.0... 8 -.0...
184	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2 39 1.5 2 .025 3 -.0... 9 -.0...
185	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2 39 1.5 2 .035 3 -.0... 10 -.0...
186	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2 39 1.5 2 .043 3 -.0... 11 -.0...
187	1.2DL + 1.5Lm + 1Wm 0...	Yes	Y		DL	1.2 40 1.5 2 .049 3 4 .049
188	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2 40 1.5 2 .043 3 .025 5 .049
189	1.2DL + 1.5Lm + 1Wm 4...	Yes	Y		DL	1.2 40 1.5 2 .035 3 .035 6 .049
190	1.2DL + 1.5Lm + 1Wm 6...	Yes	Y		DL	1.2 40 1.5 2 .025 3 .043 7 .049
191	1.2DL + 1.5Lm + 1Wm 9...	Yes	Y		DL	1.2 40 1.5 2 3 .049 8 .049
192	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2 40 1.5 2 -.025 3 .043 9 .049
193	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2 40 1.5 2 -.035 3 .035 10 .049
194	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2 40 1.5 2 -.043 3 .025 11 .049
195	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2 40 1.5 2 -.049 3 4 -.0...
196	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2 40 1.5 2 -.043 3 -.0... 5 -.0...
197	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2 40 1.5 2 -.035 3 -.0... 6 -.0...
198	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2 40 1.5 2 -.025 3 -.0... 7 -.0...
199	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2 40 1.5 2 3 -.0... 8 -.0...
200	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2 40 1.5 2 .025 3 -.0... 9 -.0...
201	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2 40 1.5 2 .035 3 -.0... 10 -.0...
202	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2 40 1.5 2 .043 3 -.0... 11 -.0...
203	1.2DL + 1.5Lm + 1Wm 0...	Yes	Y		DL	1.2 41 1.5 2 .049 3 4 .049
204	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2 41 1.5 2 .043 3 .025 5 .049
205	1.2DL + 1.5Lm + 1Wm 4...	Yes	Y		DL	1.2 41 1.5 2 .035 3 .035 6 .049
206	1.2DL + 1.5Lm + 1Wm 6...	Yes	Y		DL	1.2 41 1.5 2 .025 3 .043 7 .049
207	1.2DL + 1.5Lm + 1Wm 9...	Yes	Y		DL	1.2 41 1.5 2 3 .049 8 .049
208	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2 41 1.5 2 -.025 3 .043 9 .049
209	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2 41 1.5 2 -.035 3 .035 10 .049
210	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2 41 1.5 2 -.043 3 .025 11 .049
211	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2 41 1.5 2 -.049 3 4 -.0...
212	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2 41 1.5 2 -.043 3 -.0... 5 -.0...
213	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2 41 1.5 2 -.035 3 -.0... 6 -.0...
214	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2 41 1.5 2 -.025 3 -.0... 7 -.0...
215	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2 41 1.5 2 3 -.0... 8 -.0...
216	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2 41 1.5 2 .025 3 -.0... 9 -.0...
217	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2 41 1.5 2 .035 3 -.0... 10 -.0...
218	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2 41 1.5 2 .043 3 -.0... 11 -.0...
219	1.2DL + 1.5Lm + 1Wm 0...	Yes	Y		DL	1.2 42 1.5 2 .049 3 4 .049
220	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2 42 1.5 2 .043 3 .025 5 .049
221	1.2DL + 1.5Lm + 1Wm 4...	Yes	Y		DL	1.2 42 1.5 2 .035 3 .035 6 .049
222	1.2DL + 1.5Lm + 1Wm 6...	Yes	Y		DL	1.2 42 1.5 2 .025 3 .043 7 .049
223	1.2DL + 1.5Lm + 1Wm 9...	Yes	Y		DL	1.2 42 1.5 2 3 .049 8 .049
224	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2 42 1.5 2 -.025 3 .043 9 .049
225	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2 42 1.5 2 -.035 3 .035 10 .049
226	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2 42 1.5 2 -.043 3 .025 11 .049
227	1.2DL + 1.5Lm + 1Wm 1...	Yes	Y		DL	1.2 42 1.5 2 -.049 3 4 -.0...
228	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2 42 1.5 2 -.043 3 -.0... 5 -.0...
229	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2 42 1.5 2 -.035 3 -.0... 6 -.0...
230	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2 42 1.5 2 -.025 3 -.0... 7 -.0...
231	1.2DL + 1.5Lm + 1Wm 2...	Yes	Y		DL	1.2 42 1.5 2 3 -.0... 8 -.0...

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Fa...B...Fa...B...Fact...B...Fa...B...Fa...B...Fa...B...Fa...B...Fa...B...Fa...B...Fa...B...Fa...																		
232	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	42	1.5	2	.025	3	-.0...	9	-.0...										
233	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	42	1.5	2	.035	3	-.0...	10	-.0...										
234	1.2DL + 1.5Lm + 1Wm 3...	Yes	Y		DL	1.2	42	1.5	2	.043	3	-.0...	11	-.0...										

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N25	max	1417.898	20	2096.531	39	2140.612	3	457.664	33	2507.353	19	401.557	31
2		min	-1423.023	12	-18.775	31	-2134.288	27	-2014.384	130	-2510.589	11	-3764.116	38
3	N1	max	1179.134	8	1956.535	45	2075.215	17	475.339	19	2390.637	25	3434.087	45
4		min	-1171.047	32	-49.988	21	-2073.888	25	-2251.761	43	-2393.683	17	-357.286	21
5	N13	max	2108.51	22	1963.812	34	551.985	18	4096.584	34	2066.272	30	753.602	167
6		min	-2111.217	14	-75.952	26	-560.238	10	-510.809	26	-2069.45	6	-622.672	223
7	Totals:	max	4022.44	22	5703.633	42	4299.881	18						
8		min	-4022.44	30	1516.823	66	-4299.883	10						

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

	Member	Shape	Code Che...	Lo...	LC	She...	Lo...	...	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb...	phi*M.....	Eqn
1	M12	PIPE_3.5	.532	40	39	.223	40		3	75262.68	78750	7953.75	7953.....	H1-1b
2	M7	PIPE_3.5	.516	40	34	.196	40		14	75262.68	78750	7953.75	7953.....	H1-1b
3	M2	PIPE_3.5	.513	40	45	.210	40		9	75262.68	78750	7953.75	7953.....	H1-1b
4	M11	C3X5	.431	34....	6	.141	63...	y	35	11202.931	47628	981.263	4104 ...	H1-1b
5	MP4	PIPE_2.0	.417	47....	11	.057	47....		11	20616.322	32130	1871.625	1871.....	H1-1b
6	MP1	PIPE_2.0	.417	47....	16	.055	47....		17	20616.322	32130	1871.625	1871.....	H1-1b
7	M1	C3X5	.413	34....	11	.140	63...	y	40	11202.931	47628	981.263	4104 ...	H1-1b
8	MP3	PIPE_2.0	.411	47....	5	.038	47....		10	20616.322	32130	1871.625	1871.....	H1-1b
9	MP9	PIPE_2.0	.409	47....	10	.037	47....		3	20616.322	32130	1871.625	1871.....	H1-1b
10	MP7	PIPE_2.0	.399	47....	10	.046	47....		6	20616.322	32130	1871.625	1871.....	H1-1b
11	M6	C3X5	.396	34....	34	.140	63...	y	46	37027.882	47628	981.263	4020....1	H1-1b
12	MP8	PIPE_2.0	.395	47....	10	.048	47....		14	20616.322	32130	1871.625	1871.....	H1-1b
13	MP2	PIPE_2.0	.394	47....	5	.058	47....		9	20616.322	32130	1871.625	1871.....	H1-1b
14	MP6	PIPE_2.0	.377	47....	15	.040	47....		9	20616.322	32130	1871.625	1871.....	H1-1b
15	MP5	PIPE_2.0	.377	47....	16	.060	47....		3	20616.322	32130	1871.625	1871.....	H1-1b
16	M10	6.5"x0.3...	.311	21	2	.099	21	y	48	3513.807	75757.5	583.963	6338.....	H1-1b
17	M15	6.5"x0.3...	.306	21	7	.099	21	y	37	3513.807	75757.5	583.963	6321.....	H1-1b
18	M5	6.5"x0.3...	.294	21	13	.099	21	y	42	3513.807	75757.5	583.963	6364.....	H1-1b
19	M13	L2x2x3	.242	0	6	.029	0	z	43	18051.765	23392.8	557.717	1239.....	H2-1
20	M3	L2x2x3	.221	0	11	.029	0	z	49	18051.765	23392.8	557.717	1239.....	H2-1
21	M8	L2x2x3	.209	0	17	.029	0	z	38	18051.765	23392.8	557.717	1239.....	H2-1
22	M22	L6 5/8x...	.195	0	21	.038	42	z	4	15453.054	66065.641	1040.591	3031.....	H2-1
23	M4	L2x2x3	.192	0	13	.031	0	y	41	18051.765	23392.8	557.717	1239.....	H2-1
24	M23	L6 5/8x...	.187	0	26	.037	42	y	17	15453.054	66065.641	1040.591	3031.....	H2-1
25	M21	PIPE_2.0	.178	72	5	.154	72		13	14916.036	32130	1871.625	1871.....	H1-1b
26	M19	PIPE_2.0	.176	72	10	.158	72		2	14916.036	32130	1871.625	1871.....	H1-1b
27	M9	L2x2x3	.172	0	2	.031	0	y	46	18051.765	23392.8	557.717	1239.....	H2-1
28	M20	PIPE_2.0	.167	24	16	.153	72		8	14916.036	32130	1871.625	1871.....	H1-1b
29	M24	L6 5/8x...	.165	4.3...	33	.035	42	y	6	15453.054	66065.641	1040.591	3031.....	H2-1
30	M14	L2x2x3	.155	0	8	.031	0	y	36	18051.765	23392.8	557.717	1239.....	H2-1
31	H3	PIPE_3.5	.143	31	10	.116	24		16	60666.044	78750	7953.75	7953.....	H1-1b
32	H2	PIPE_3.5	.137	31	15	.109	24		5	60666.044	78750	7953.75	7953.....	H1-1b

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

	Member	Shape	Code Che...	Lo...	LC	She...	Lo...	...	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb...	phi*M.....	Eqn
33	H1	PIPE_3.5	.136	31	5	.115	24		10	60666.044	78750	7953.75	7953.....	H1-1b
34	RRU1	PIPE_2.0	.053	18	10	.013	18		10	28843.414	32130	1871.625	1871.....	H1-1b

APPENDIX D

ADDITIONAL CALCUATIONS

Trylon

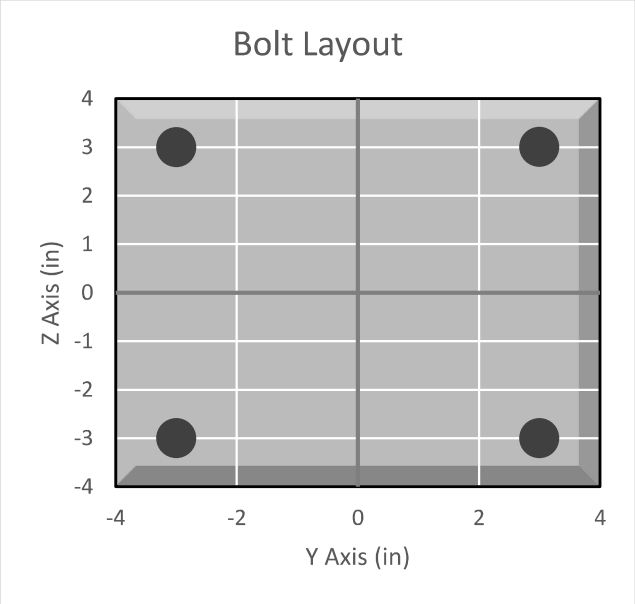
Analysis date: 7/23/2021

BOLT TOOL 1.5.2

Project Data	
Job Code:	188200
Carrier Site ID:	BOBDL00091A
Carrier Site Name:	BOBDL00091A

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

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



Connection Description
Mount Standoff to Collar

Bolt Check*		
Tensile Capacity (ϕT_n):	20340.1	lbs
Shear Capacity (ϕV_n):	13805.8	lbs
Tension Force (T_u):	4475.5	lbs
Shear Force (V_u):	1081.0	lbs
Tension Usage:	21.0%	--
Shear Usage:	7.5%	--
Interaction:	21.0%	Pass
Controlling Member:	M12	--
Controlling LC:	5	--

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

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

APPENDIX E

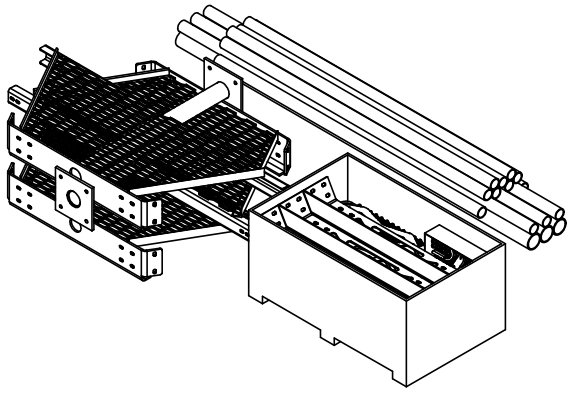
SUPPLEMENTAL DRAWINGS

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

C

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

FOR BOM ENTRY ONLY



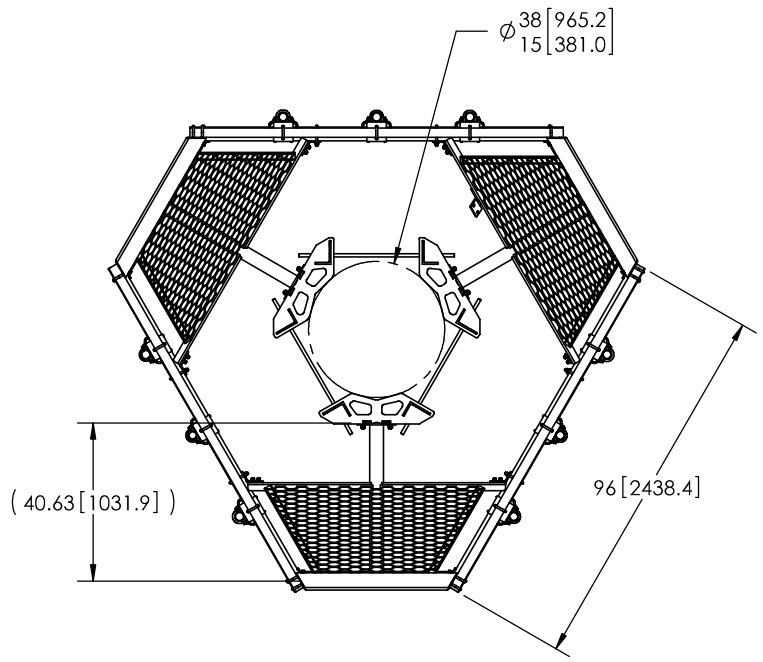
NOTES:
1. CUSTOMER ASSEMBLY SHEETS 2–3.

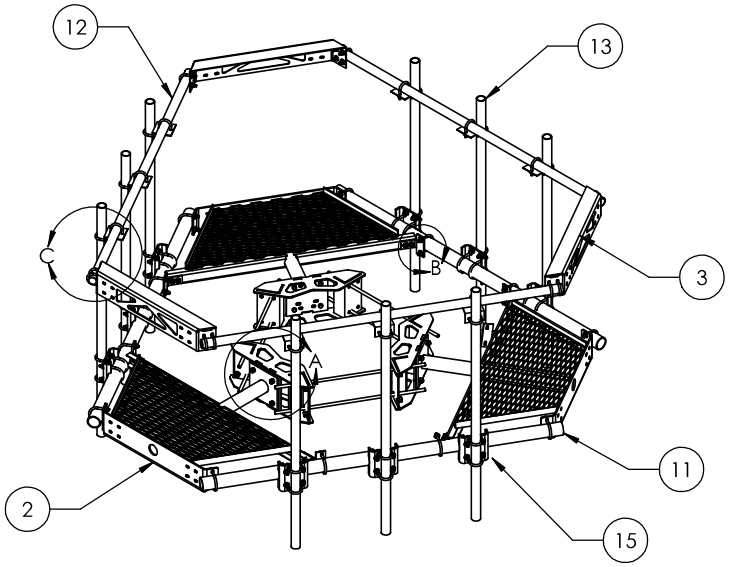
These drawings and specifications are the proprietary property of ANDREW CORPORATION and may be used only for the specific purpose authorized in writing by Andrew Corporation.

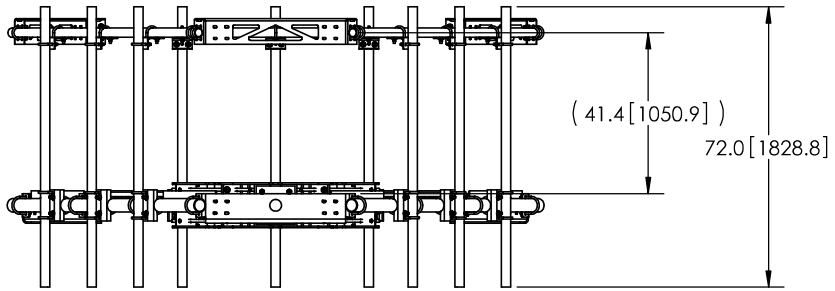
ALL DIMENSIONS ARE IN INCHES U.O.S.
TOLERANCES UNLESS OTHERWISE SPECIFIED:
.X = ± .12 ANGLES ±2°
.XX = ± .06 FRACTIONS ±1/32
.XXX= ± .03
REMOVE BURRS AND BREAK EDGES .005

DO NOT SCALE THIS PRINT

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







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

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

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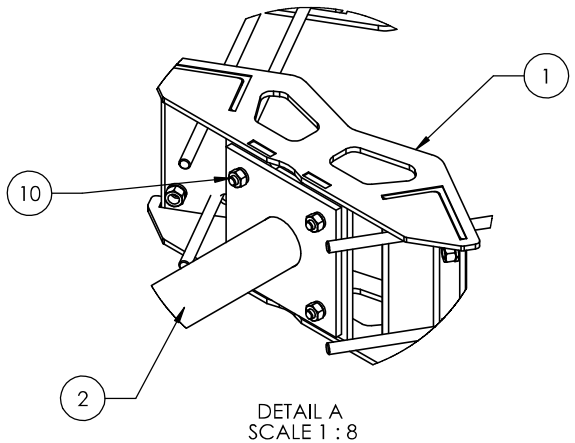
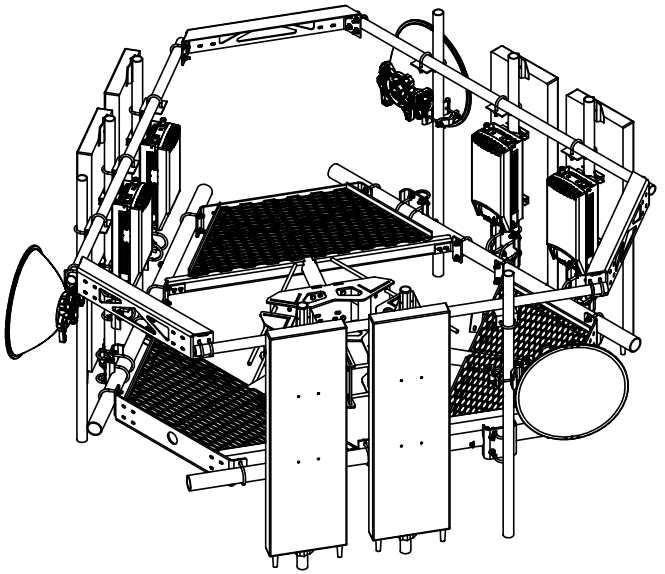
TOLERANCES UNLESS OTHERWISE SPECIFIED:
.X = ± .12 ANGLES ±2°
.XX = ± .06 FRACTIONS ±1/32
.XXX= ± .03
REMOVE BURRS AND BREAK EDGES .005

DO NOT SCALE THIS PRINT

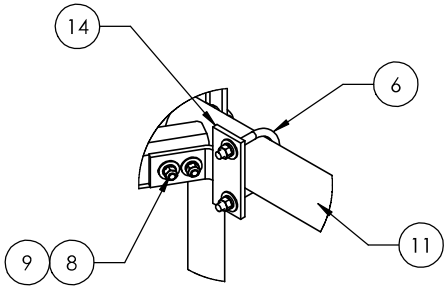
DRAWN BY: MSM	SHEET: 2 of 3	PART NUMBER: MC-PK8-C	
CHECKED BY: TP	SCALE: NTS	DESCRIPTION: 25" OD Snub Nose MT-196	
DATE: 10/18/11	MATERIAL: A36, A53	DRAWING TYPE: ASSEMBLY DRAWING	
REVISION: C	FINISH: GALV A123	WEIGHT: 1361.27 LBS	ANDREW® WESTCHESTER, IL. 60154 U.S.A.



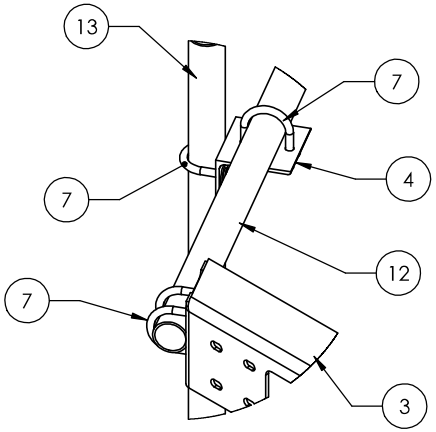
DETAIL A
SCALE 1 : 8



WITH ANTENNAS



DETAIL B
SCALE 1 : 8



DETAIL C
SCALE 1 : 8

NOTES:
1. ALL METRIC DIMENSIONS ARE IN BRACKETS.

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TOLERANCES UNLESS OTHERWISE SPECIFIED:
.X = ± .12 ANGLES ±2°
.XX = ± .06 FRACTIONS ±1/32
.XXX= ± .03
REMOVE BURRS AND BREAK EDGES .005

DO NOT SCALE THIS PRINT

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

Exhibit F

Power Density/RF Emissions Report

RF EMISSIONS COMPLIANCE REPORT

Crown Castle on behalf of Dish Wireless

Crown Castle Site Name: OLD SAYBROOK
Crown Castle Site BU Number: 876336
Dish Wireless Site Name: CT-CCI-T-876336
Dish Wireless Site ID: BOBDL00088A
Application ID: 553289
430 Middlesex Turnpike
Old Saybrook, CT
5/27/2021

Report Status:

Dish Wireless is Compliant

Michael Fischer, P.E.
Registered Professional Engineer (Electrical)
Connecticut License Number 33928
Expires January 31, 2022

Signed 27 May 2021

Prepared By:

Site Safe, LLC

8618 Westwood Center Drive
Suite 315
Vienna, VA 22182
Voice: 703-276-1100
Fax: 703-276-1169

Engineering Statement in Re:
Electromagnetic Energy Analysis
Crown Castle
Old Saybrook, CT

My signature on the cover of this document indicates:

That I am registered as a Professional Engineer in the jurisdiction indicated; and

That I have extensive professional experience in the wireless communications engineering industry; and

That I am an employee of Site Safe, LLC in Vienna, Virginia; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission ("the FCC" and "the FCC Rules") both in general and specifically as they apply to the FCC's Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields; and

That the technical information serving as the basis for this report was supplied by Crown Castle on behalf of Dish Wireless (see attached Site Summary and Carrier documents) and that Dish Wireless' installation involves communications equipment, antennas and associated technical equipment at a location referred to as "OLD SAYBROOK" ("the site"); and

That Dish Wireless proposes to operate at the site with transmit antennas listed in the carrier summary and with a maximum effective radiated power as specified by Dish Wireless and shown on the worksheet and that worst-case 100% duty cycle has been assumed; and

That in addition to the emitters specified in the worksheet, there are additional collocated point-to-point microwave facilities on this structure, and the antennas used are highly directional and oriented at angles at or just below the horizontal, and that the energy present at ground level is typically so low as to be considered insignificant and has not been included in this analysis (a list of microwave antennas is included); and

That this analysis has been performed with the assumption that the ground immediately surrounding the tower is primarily flat or falling; and

That at this time, the FCC requires that certain licensees address specific levels of radio frequency energy to which workers or members of the public might possibly be exposed (at §1.1307(b) of the FCC Rules); and

That such consideration of possible exposure of humans to radio frequency energy must utilize the standards set by the FCC, which is the federal agency having jurisdiction over communications facilities; and

That the FCC rules define two tiers of permissible exposure guidelines: 1) "uncontrolled environments," which defines situations in which persons may not be aware of (the "general public"), or may not be able to control their exposure to a transmission facility; and 2) "controlled environments," which defines situations in which persons are aware of their potential for exposure (industry personnel); and

That this statement specifically addresses the uncontrolled environment (which is more conservative than the controlled environment) and the limit set forth in the FCC rules for licensees of Dish Wireless' operating frequencies as shown on the attached antenna worksheet; and

That when applying the uncontrolled environment standards, the predicted Maximum Power Density at two meters above ground level from the proposed T-Mobile operation is no more than 0.825% of the maximum permissible exposure limits in any accessible area on the ground; and

That it is understood per FCC Guidelines and OET 65 Appendix A, that regardless of the existent radio frequency environment, only those licensees whose contributions exceed 5% of the exposure limit pertinent to their operation(s) bear any responsibility for bringing any non-compliant area(s) into compliance; and

That when applying the uncontrolled environment standards, the cumulative predicted energy density from the proposed operation is no more than 1.480% of the maximum in any accessible area up to two meters above the ground per OET 65; and

That the calculations provided in this report are based on data provided by the client and antenna pattern data supplied by the antenna manufacturer, in accordance with FCC guidelines listed in OET 65. Horizontal and vertical antenna patterns are combined for modeling purposes to accurately reflect the energy two meters above ground level where on-axis energy refers to maximum energy two meters above the ground along the azimuth of the antenna and where area energy refers to the maximum energy anywhere two meters above the ground regardless of the antenna azimuth, accounting for cumulative energy from multiple antennas for the carrier(s) and frequency range(s) indicated; and

That the Occupational Safety and Health Administration has policies in place which address worker safety in and around communications sites, thus individual companies will be responsible for their employees' training regarding radio frequency safety; and

In summary, it is stated here that the proposed operation at the site will not result in exposure of the public to excessive levels of radio frequency energy as defined in the FCC Rules and Regulations, specifically 47 CFR 1.1307(b), and that Dish Wireless' proposed operation is completely compliant.

Finally, it is stated that access to the tower should be restricted to communication industry professionals and approved contractor personnel trained in radio frequency safety and that this instant analysis addresses exposure levels at two meters above ground level and does not address exposure levels on the tower or in the immediate proximity of the antennas.

Crown Castle
OLD SAYBROOK
Site Summary

Carrier	Area Maximum Percentage MPE
Dish Wireless (Proposed)	0.222 %
Dish Wireless (Proposed)	0.222 %
Dish Wireless (Proposed)	0.381 %
Sprint (T-Mobile)	0.182 %
Sprint (T-Mobile)	0.146 %
Sprint (T-Mobile)	0.146 %
Sprint (T-Mobile)	0.114 %
Town of Old Saybrook	0.067 %
Composite Site MPE:	1.480 %

Dish Wireless (Proposed)
OLD SAYBROOK
Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	2.22424	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.22242	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
JMA Wireless	MX08FRO665-20	153	0	6904	1.212438	0.121244	2.187241	0.218724
JMA Wireless	MX08FRO665-20	153	120	6904	1.212438	0.121244	2.187241	0.218724
JMA Wireless	MX08FRO665-20	153	240	6904	1.212438	0.121244	2.187241	0.218724

Dish Wireless (Proposed)
OLD SAYBROOK
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	2.22424	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.22242	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
JMA Wireless	MX08FRO665-20	153	0	6904	1.212438	0.121244	2.187241	0.218724
JMA Wireless	MX08FRO665-20	153	120	6904	1.212438	0.121244	2.187241	0.218724
JMA Wireless	MX08FRO665-20	153	240	6904	1.212438	0.121244	2.187241	0.218724

Dish Wireless (Proposed)
OLD SAYBROOK
Carrier Summary

Frequency:	600	MHz
Maximum Permissible Exposure (MPE):	400	$\mu W/cm^2$
Maximum power density at ground level:	1.52281	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.38070	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
JMA Wireless	MX08FRO665-20	153	0	3229	0.893843	0.223461	1.452612	0.363153
JMA Wireless	MX08FRO665-20	153	120	3229	0.893843	0.223461	1.452612	0.363153
JMA Wireless	MX08FRO665-20	153	240	3229	0.893843	0.223461	1.452612	0.363153

Sprint (T-Mobile)
OLD SAYBROOK
Carrier Summary

Frequency:	2500	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	1.82474	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.18247	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
RFS	APXVTM14-C-I20	172	330	6168	0.735257	0.073526	1.413920	0.141392
RFS	APXVTM14-C-I20	172	90	6168	0.735257	0.073526	1.413920	0.141392
RFS	APXVTM14-C-I20	172	210	6168	0.735257	0.073526	1.413920	0.141392

Sprint (T-Mobile)
OLD SAYBROOK
Carrier Summary

Frequency:	1990	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	1.46149	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.14615	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
RFS	APXVSPP18-C-A20	172	350	3804	0.615435	0.061543	1.141838	0.114184
RFS	APXVSPP18-C-A20	172	90	3804	0.615435	0.061543	1.141838	0.114184
RFS	APXVSPP18-C-A20	172	190	3804	0.615435	0.061543	1.141838	0.114184

Sprint (T-Mobile)
OLD SAYBROOK
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	1.46149	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.14615	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
RFS	APXVSPP18-C-A20	172	350	3804	0.615435	0.061543	1.141838	0.114184
RFS	APXVSPP18-C-A20	172	90	3804	0.615435	0.061543	1.141838	0.114184
RFS	APXVSPP18-C-A20	172	190	3804	0.615435	0.061543	1.141838	0.114184

Sprint (T-Mobile)
OLD SAYBROOK
Carrier Summary

Frequency:	862	MHz
Maximum Permissible Exposure (MPE):	574.67	$\mu W/cm^2$
Maximum power density at ground level:	0.65781	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.11447	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
RFS	APXVSPP18-C-A20	172	350	2168	0.516850	0.089939	0.530805	0.092368
RFS	APXVSPP18-C-A20	172	90	2168	0.516850	0.089939	0.530805	0.092368
RFS	APXVSPP18-C-A20	172	190	2168	0.516850	0.089939	0.530805	0.092368

Town of Old Saybrook
OLD SAYBROOK
Carrier Summary

Frequency:	450	MHz
Maximum Permissible Exposure (MPE):	300	$\mu W/cm^2$
Maximum power density at ground level:	0.20062	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.06687	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
SINCLAIR	SC381-HL	165	300	100	0.068111	0.022704	0.068111	0.022704
RFS	ALG6	178	359	100	0.186126	0.062042	0.186126	0.062042

OLD SAYBROOK
Composite Microwave Antenna Summary

Carrier	Antenna Make/Model	Height (feet)
Town of Old Saybrook	Gabriel HE2-105	85

Exhibit G

Letter of Authorization

3 Corporate Dr, Suite 101
Clifton Park, NY 12065

Phone: (201) 236-9224
Fax: (724) 416-6112
www.crowncastle.com

Crown Castle Letter of Authorization

CT - CONNECTICUT SITING COUNCIL

Re: Tower Share Application
Crown Castle telecommunications site at: 430 Middlesex Turnpike, OLD SAYBROOK, CT 06475

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

Crown Site ID/Name: 876336/OLD SAYBROOK
Customer Site ID: BOBDL00088A/CT-CCI-T-876336
Site Address: 430 Middlesex Turnpike, OLD SAYBROOK, CT 06475

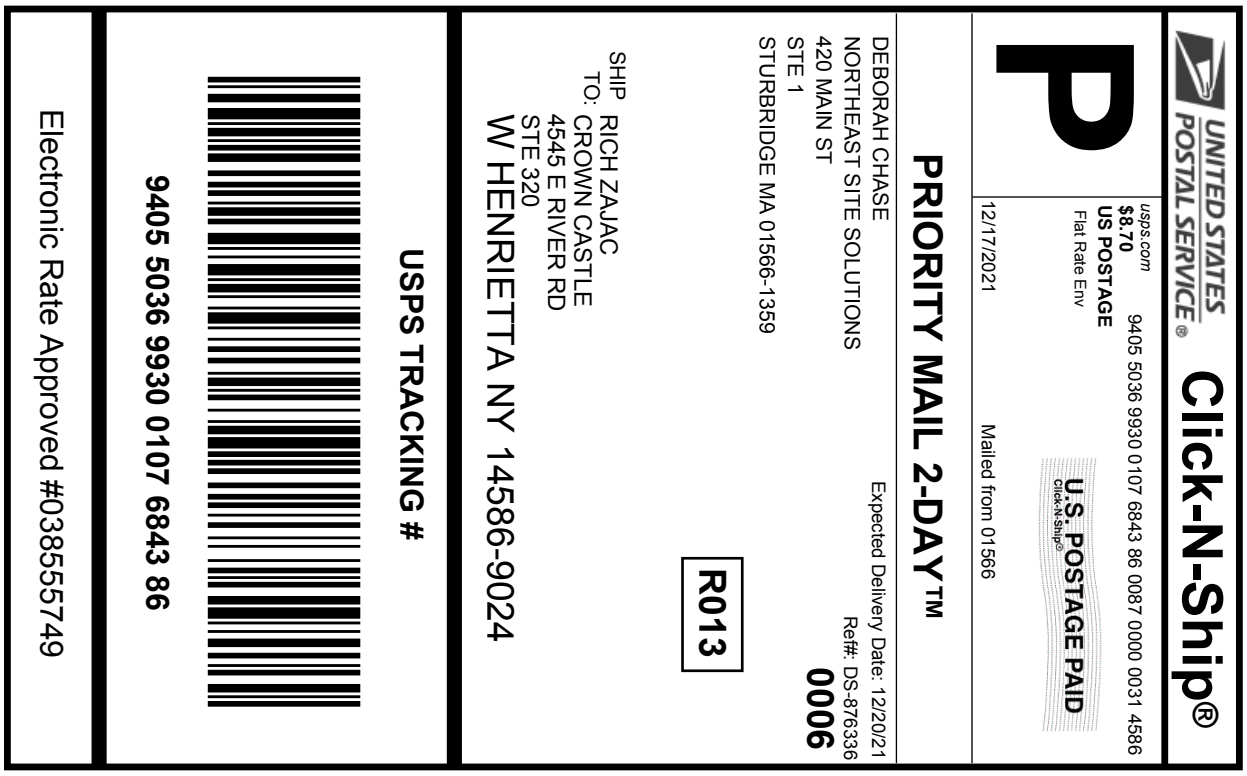
Crown Castle USA Inc.

By: _____ Date: 5/13/21

Anne Marie Zsamba
Project Manager – Site Acquisition

Exhibit H

Recipient Mailings



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0107 6843 86

Trans. #:	551725129
Print Date:	12/17/2021
Ship Date:	12/17/2021
Expected Delivery Date:	12/20/2021

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

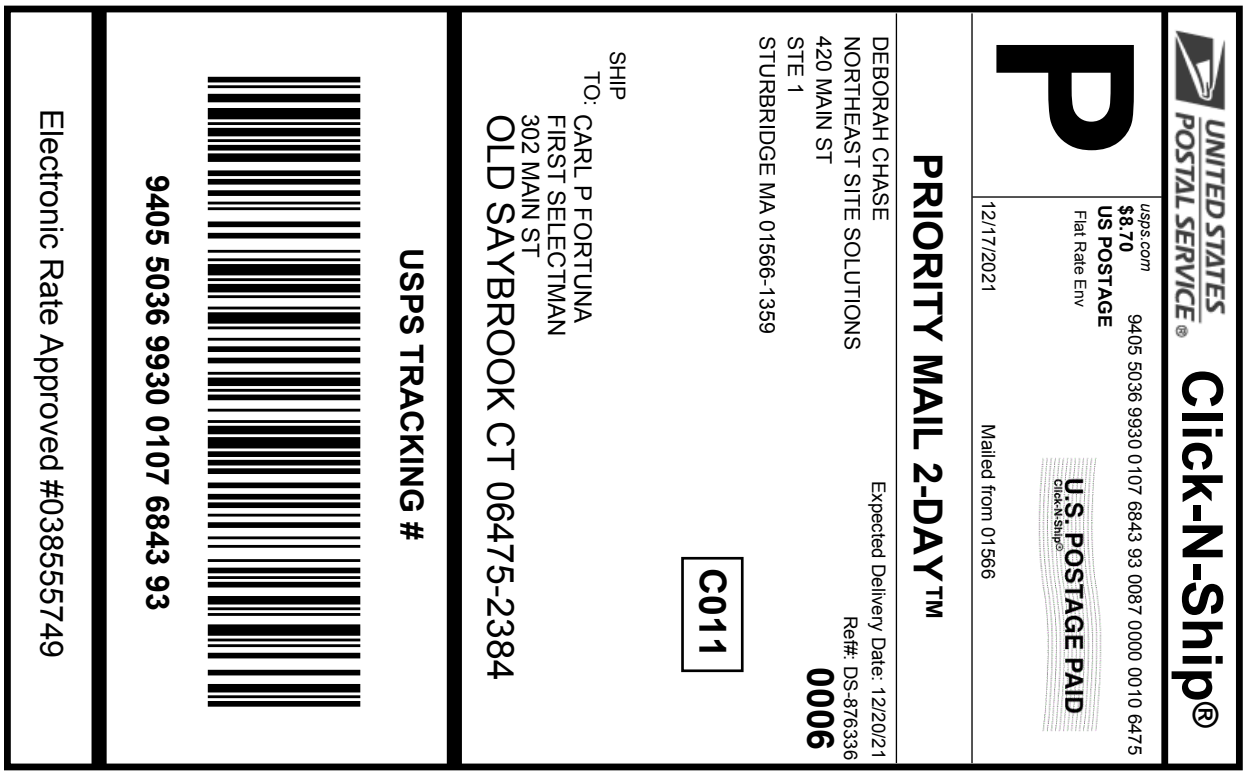
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-876336

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

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

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



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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0107 6843 93

Trans. #:	551725129
Print Date:	12/17/2021
Ship Date:	12/17/2021
Expected Delivery Date:	12/20/2021

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

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

Ref#: DS-876336

To: CARL P FORTUNA
FIRST SELECTMAN
302 MAIN ST
OLD SAYBROOK CT 06475-2384

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

Thank you for shipping with the United States Postal Service!
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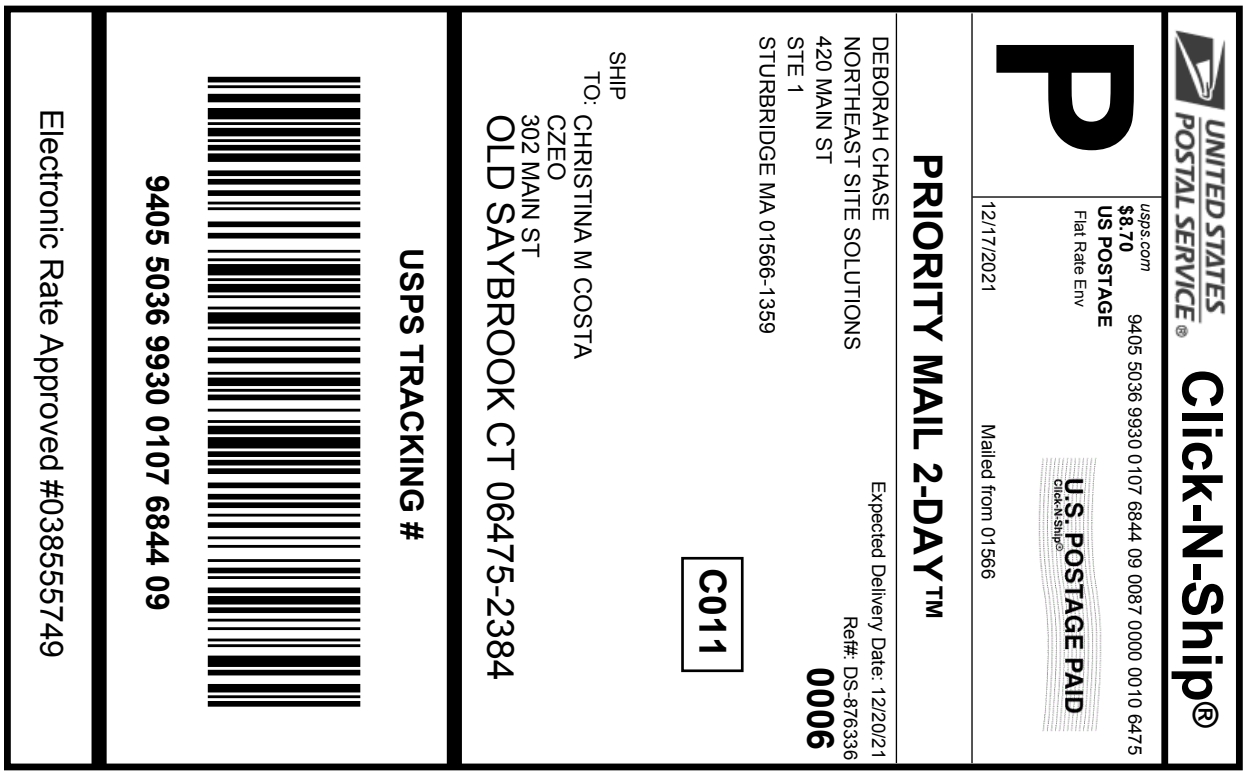

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5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0107 6844 09

Trans. #:	551725129
Print Date:	12/17/2021
Ship Date:	12/17/2021
Expected Delivery Date:	12/20/2021

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

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

Ref#: DS-876336

To: CHRISTINA M COSTA
CZEO
302 MAIN ST
OLD SAYBROOK CT 06475-2384

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

Thank you for shipping with the United States Postal Service!
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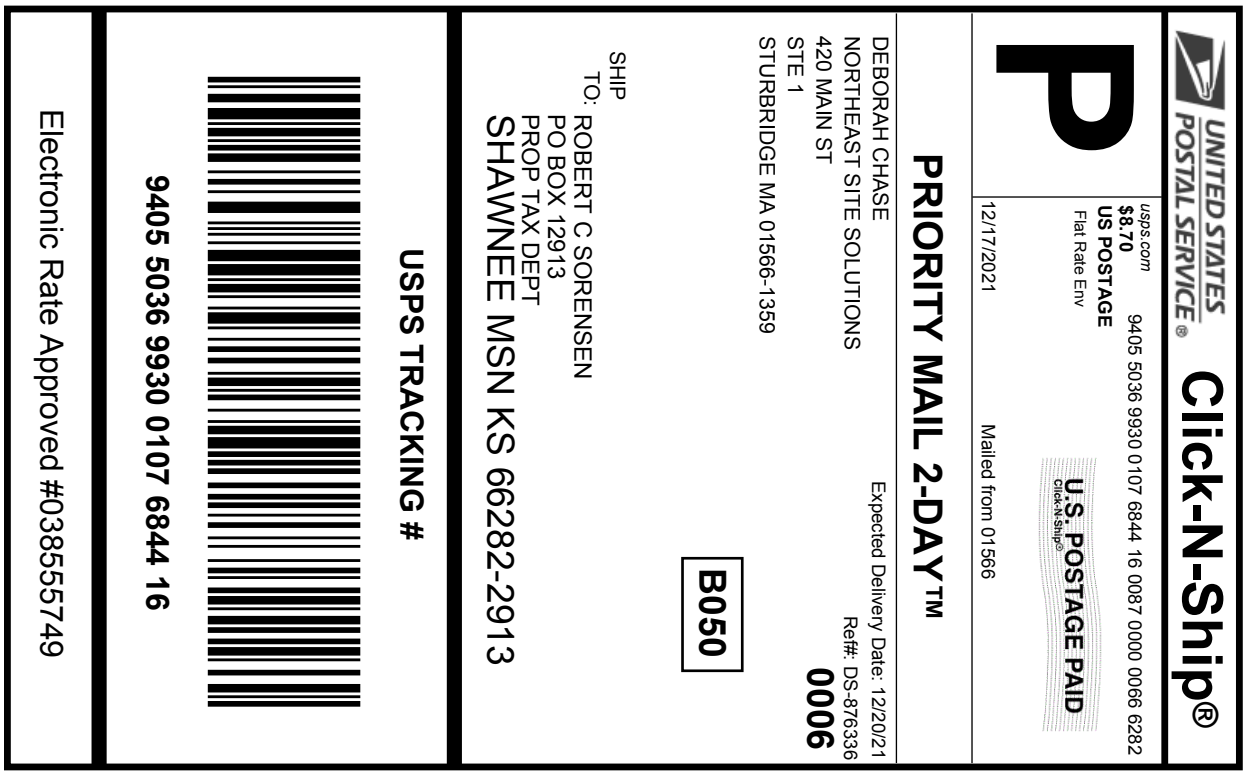

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0107 6844 16

Trans. #:	551725129
Print Date:	12/17/2021
Ship Date:	12/17/2021
Expected Delivery Date:	12/20/2021

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

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

Ref#: DS-876336

To: ROBERT C SORENSEN
PO BOX 12913
PROP TAX DEPT
SHAWNEE MSN KS 66282-2913

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

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

876336

UNITED STATES POSTAL SERVICE.

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

01/06/2022 08:43 AM

Product	Qty	Unit Price	Price
Prepaid Mail West Henrietta, NY 14586 Weight: 0 lb 2.00 oz Acceptance Date: Thu 01/06/2022 Tracking #: 9405 5036 9930 0107 6843 86	1		$0.00
Prepaid Mail Old Saybrook, CT 06475 Weight: 0 lb 7.00 oz Acceptance Date: Thu 01/06/2022 Tracking #: 9405 5036 9930 0107 6843 93	1		$0.00
Prepaid Mail Old Saybrook, CT 06475 Weight: 0 lb 7.00 oz Acceptance Date: Thu 01/06/2022 Tracking #: 9405 5036 9930 0107 6844 09	1		$0.00
Prepaid Mail Overland Park, KS 66282 Weight: 0 lb 7.00 oz Acceptance Date: Thu 01/06/2022 Tracking #: 9405 5036 9930 0107 6844 16	1		$0.00
Grand Total:			$0.00