



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

June 2, 2022

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

RE: Tower Share Application
66 Sugar Hollow Road, Danbury, CT 06810
Latitude: 41.336111
Longitude: -73.470000
Site #: 842857_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 66 Sugar Hollow Road, Danbury, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 59-foot level of the existing 106-foot tower, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within a 7' x 5' lease area within the existing fenced compound. Included are plans by KMB Design Group, dated April 26, 2022, Exhibit C. Also included is a structural analysis prepared by Crown Castle, dated March 11, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. The facility was originally approved by the City of Danbury, however the original decision was not available.

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 Mayor Dean Esposito and Sharon Calitro, Director of Planning & Zoning for the City of Danbury, as well as the tower owner (Crown Castle) and property owner (Sugar Hollow Holding LLC).

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the existing tower is 106-feet and the Dish Wireless LLC antennas will be located at a centerline height of 59-feet.
2. The proposed modifications will not result in an increase of the site boundary as depicted on the attached site plan.



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

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. The combined site operations will result in a total power density of 6.96% as evidenced by Exhibit F.

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

A. Technical Feasibility. The existing tower 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 Danbury. 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 59-foot level of the existing 106-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

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

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



Turnkey Wireless Development

Attachments

Cc: Mayor Dean Esposito
Danbury City Hall
155 Deer Hill Ave.
Danbury, CT 06810

Sharon Calitro, Director of Planning & Zoning
Danbury City Hall
155 Deer Hill Ave.
Danbury, CT 06810

Sugar Hollow Holding LLC - Property Owner
202-3 Mamanasco Road
Ridgefield, CT 06877

Crown Castle – Tower Owner

Exhibit A

Original Facility Approval

Exhibit B

Property Card

SUGAR HOLLOW RD

Location SUGAR HOLLOW RD

Mblu G25/ / 10/ /

Acct#

Owner SUGAR HOLLOW HOLDING LLC

Assessment \$661,100

Appraisal \$944,400

PID 20965

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2020	\$521,700	\$422,700	\$944,400
Assessment			
Valuation Year	Improvements	Land	Total
2020	\$365,200	\$295,900	\$661,100

Owner of Record

Owner SUGAR HOLLOW HOLDING LLC

Sale Price \$0

Co-Owner PEATT LUCILLE

Book & Page 2083/1116

Address 202-3 MAMANASCO RD
RIDGEFIELD, CT 06877

Sale Date 04/08/2010

Instrument 03

Ownership History

Ownership History				
Owner	Sale Price	Book & Page	Instrument	Sale Date
SUGAR HOLLOW HOLDING LLC	\$0	2083/1116	03	04/08/2010
SUGAR HOLLOW PARK INC	\$0	1134/0385		12/08/1995

Building Information

Building 1 : Section 1

Year Built: 1948

Living Area: 4,714

Replacement Cost: \$366,201

Building Percent Good: 60

Replacement Cost

Less Depreciation:

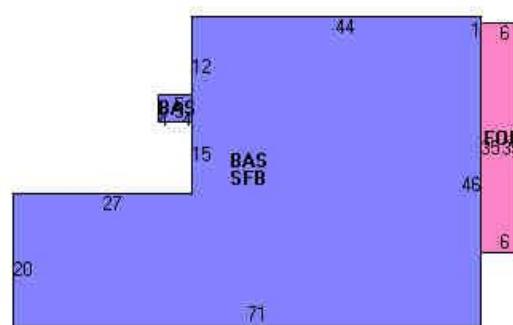
\$219,700

Building Photo



(<https://images.vgsi.com/photos2/DanburyCTPhotos//00\03\14\52.jpg>)

Building Layout



(https://images.vgsi.com/photos2/DanburyCTPhotos//Sketches/20965_209)

Building Sub-Areas (sq ft)		Legend	
Code	Description	Gross Area	Living Area
BAS	First Floor	2,628	2,628
SFB	Base, Semi-Finished	2,608	2,086
FOP	Open Porch	210	0
		5,446	4,714

Building 1 : Section 1

Year Built: 1948

Living Area: 0

Replacement Cost: \$366,201

Building Percent Good: 60

Replacement Cost

Less Depreciation: \$219,700

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:	
Fireplaces	
Whirlpool	
Addn'l Kitchen	
Bsm Gar	
Fin Bsm Area	
Fin Bsm Qual	
Nhbd	
MH Park	

Building Photo



<https://images.vgsi.com/photos2/DanburyCTPhotos//default.jpg>

Building Layout

Building Layout

https://images.vgsi.com/photos2/DanburyCTPhotos//Sketches/20965_104

Building Sub-Areas (sq ft)	<u>Legend</u>
No Data for Building Sub-Areas	

Extra Features

Extra Features	<u>Legend</u>
No Data for Extra Features	

Land

Land Use

Use Code 200
Description Commercial MDL-94
Zone LCI4
Neighborhood 6000
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 1.45
Frontage 0
Depth 0
Assessed Value \$295,900
Appraised Value \$422,700
lblIndfront

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
CEL	Cell Tower			1 UNITS	\$300,000	1
SHD1	Shed-Avg			240 S.F.	\$2,000	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2019	\$521,700	\$517,140	\$1,038,840
2018	\$521,700	\$517,140	\$1,038,840
2017	\$521,700	\$422,700	\$944,400

Assessment			
Valuation Year	Improvements	Land	Total
2019	\$365,200	\$362,010	\$727,210
2018	\$365,200	\$362,010	\$727,210
2017	\$365,200	\$295,900	\$661,100



66 SUGAR HOLLOW ROAD

Danbury, CT

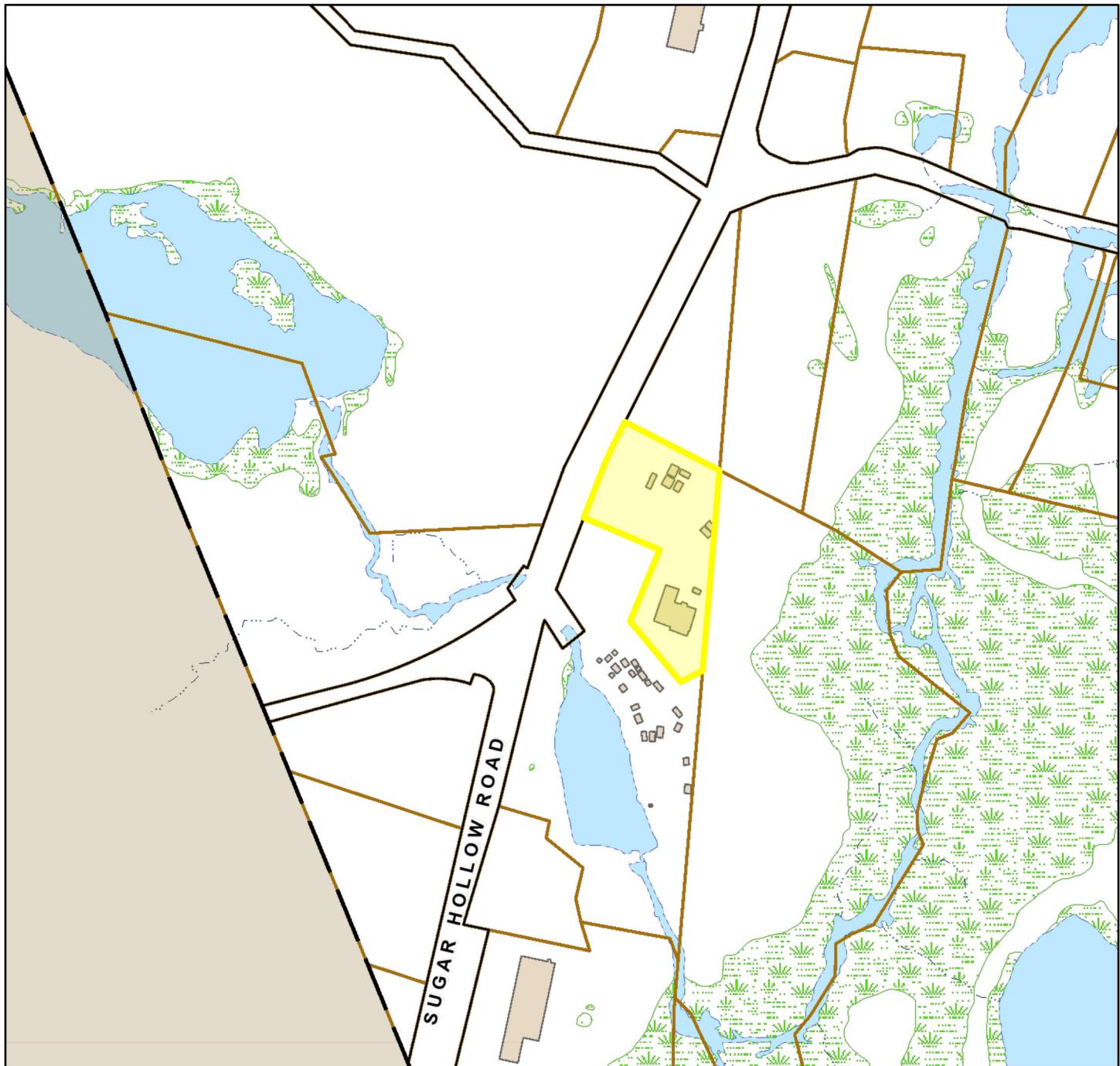
1 inch = 282 Feet

June 2, 2022

CAI Technologies
Precision Mapping. Geospatial Solutions.

www.cai-tech.com

0 282 565 848



	Swamp		Parcel
	Lake, Pond or River		Public Right of Way
-----	Stream	-----	TownLine
	Building		

Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

Exhibit C

Construction Drawings



DISH Wireless L.L.C. SITE ID:

NJJER02037A

DISH Wireless L.L.C. SITE ADDRESS:

**66 SUGAR HOLLOW ROAD
DANBURY, CT 06810**

CONNECTICUT CODE OF COMPLIANCE

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

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

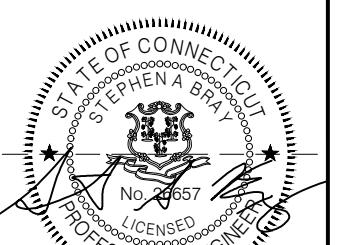
SHEET INDEX

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

SCOPE OF WORK	
THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:	
TOWER SCOPE OF WORK:	
<ul style="list-style-type: none"> • INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR) • INSTALL (1) PROPOSED ANTENNA PLATFORM MOUNT • INSTALL PROPOSED JUMPERS • INSTALL (6) PROPOSED RRUs (2 PER SECTOR) • INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP) • INSTALL (1) PROPOSED HYBRID CABLE 	
GROUND SCOPE OF WORK:	
<ul style="list-style-type: none"> • 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 FIBER NID (IF REQUIRED) 	

SITE INFORMATION		PROJECT DIRECTORY	
PROPERTY OWNER:	SUGAR HOLLOW HOLDING LLC, A CONNECTICUT LIMITED LIABILITY COMPANY 66 SUGA HOLLOW RD DANBURY, CT 06810	APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER TYPE:	MONPOLE	TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317 (877) 486 - 9377
TOWER CO SITE ID:	842857	TOWER APP NUMBER:	578962
COUNTY:	FAIRFIELD	SITE DESIGNER:	KMB DESIGN GROUP 1800 ROUTE 34, SUITE 209 WALL, NJ 07719 (732) 280-5623
LATITUDE (NAD 83):	41° 20' 10.00" N 41.33611	LONGITUDE (NAD 83):	73° 28' 14.40" W -73.47067
ZONING JURISDICTION:	FAIRFIELD COUNTY	SITE ACQUISITION:	JACQUELINE JONES jacqueline.jones.contractor@crowncastle.com
ZONING DISTRICT:	IL-4 LIGHT INDUSTRIAL	CONSTRUCTION MANAGER:	MICHAEL NARDUCCI michael.narducci@dish.com
PARCEL NUMBER:	G25//10(20965)	RF ENGINEER:	MURUGABIRAN JAYAPAL murugabiran.jayapal@dish.com
OCCUPANCY GROUP:	U	CONSTRUCTION TYPE:	II-B
POWER COMPANY:	NORTHEAST UTILITIES (EVERSOURCE)	TELEPHONE COMPANY:	LIGHTOWER

dish wireless.
5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
KMB DESIGN GROUP kmbdg.com
1800 ROUTE 34, SUITE 209 WALL, NJ 07719 (732) 280-5623
C.T. CERTIFICATE OF REGISTRATION: PEC.0001173



Stephen A. Bray

PROFESSIONAL ENGINEER

CT LICENSE: 26657 4/26/2022

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DRAWN BY: CHECKED BY: APPROVED BY:
AAB --- JRB

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	02/04/2022	ISSUED FOR PERMIT FILING
1	04/26/2022	REVISED PER CLIENT COMMENTS

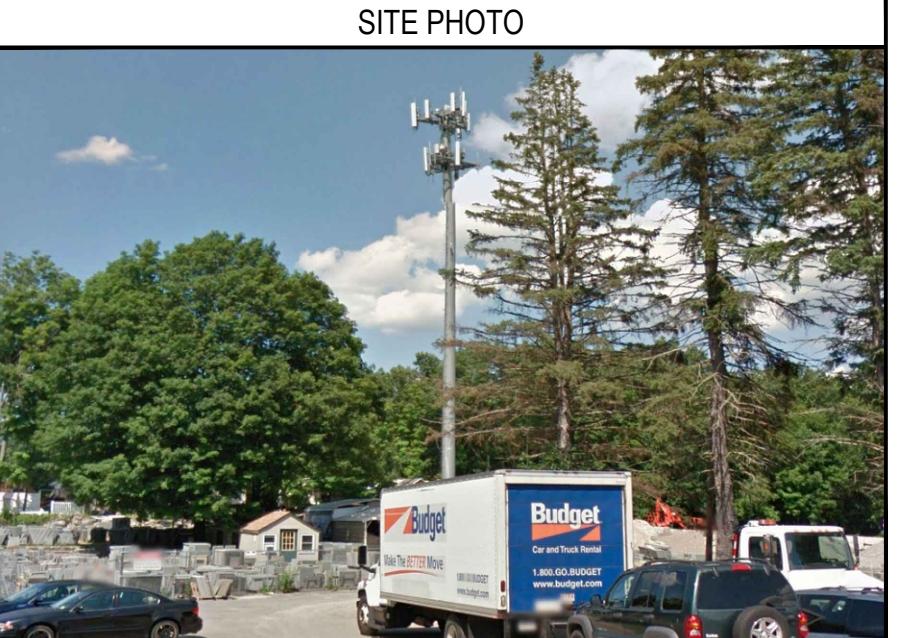
A&E PROJECT NUMBER
336.4121.A10

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER02037A
66 SUGAR HOLLOW ROAD
DANBURY, CT 06810

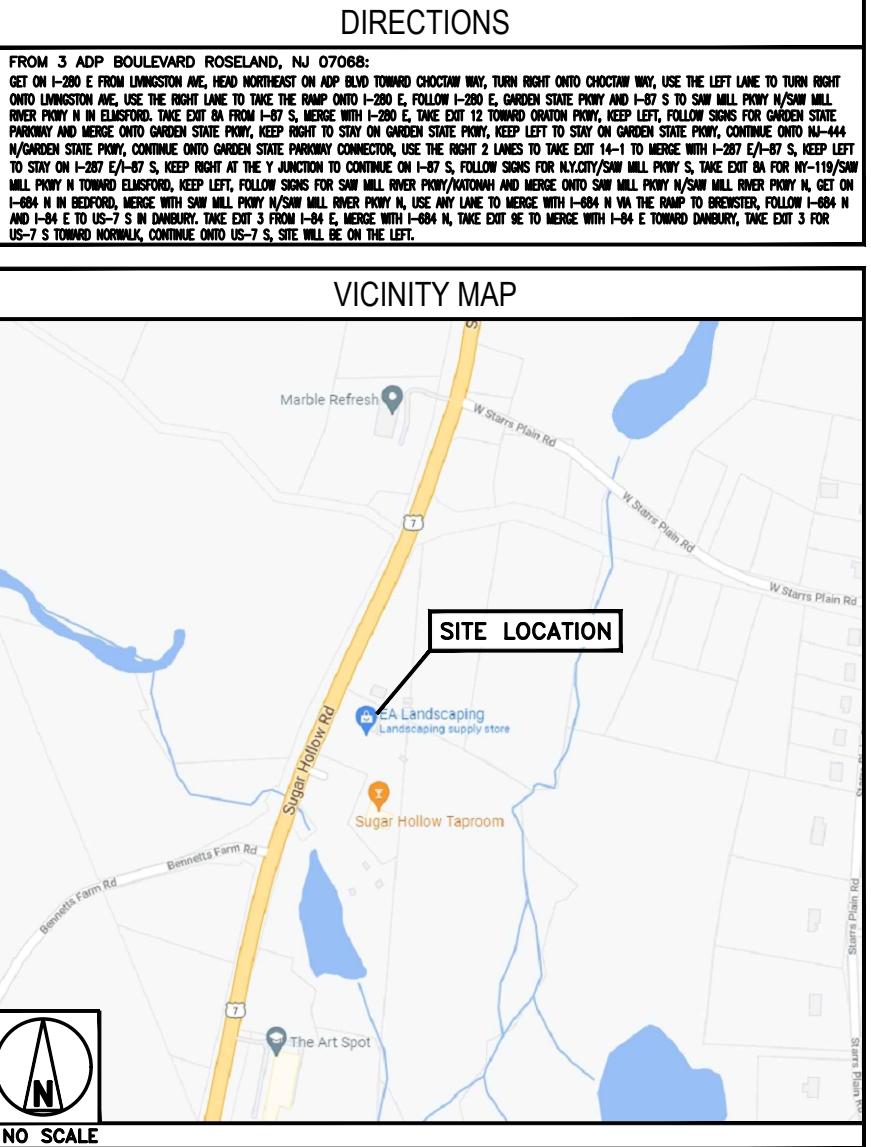
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TITLE SHEET

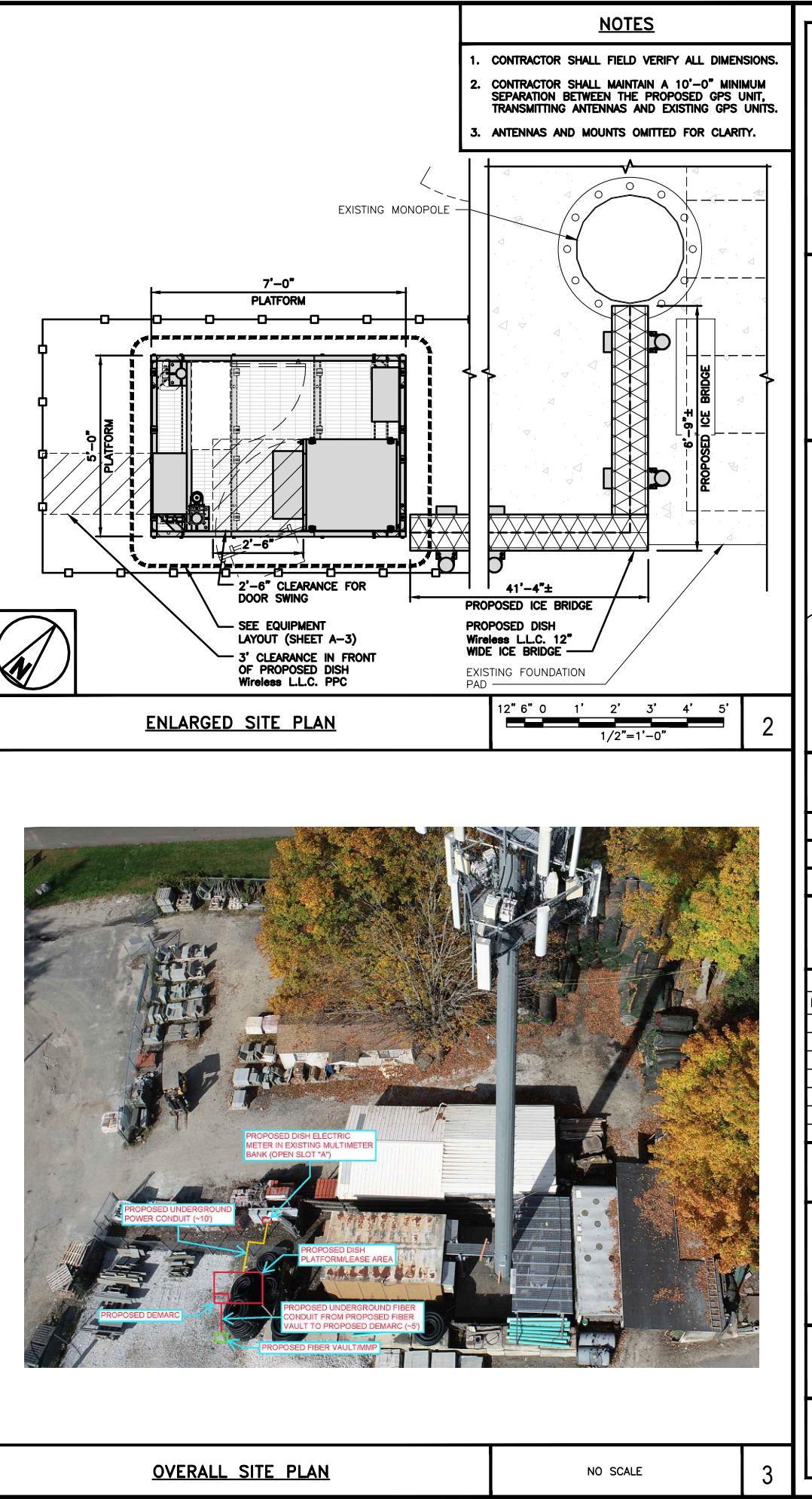
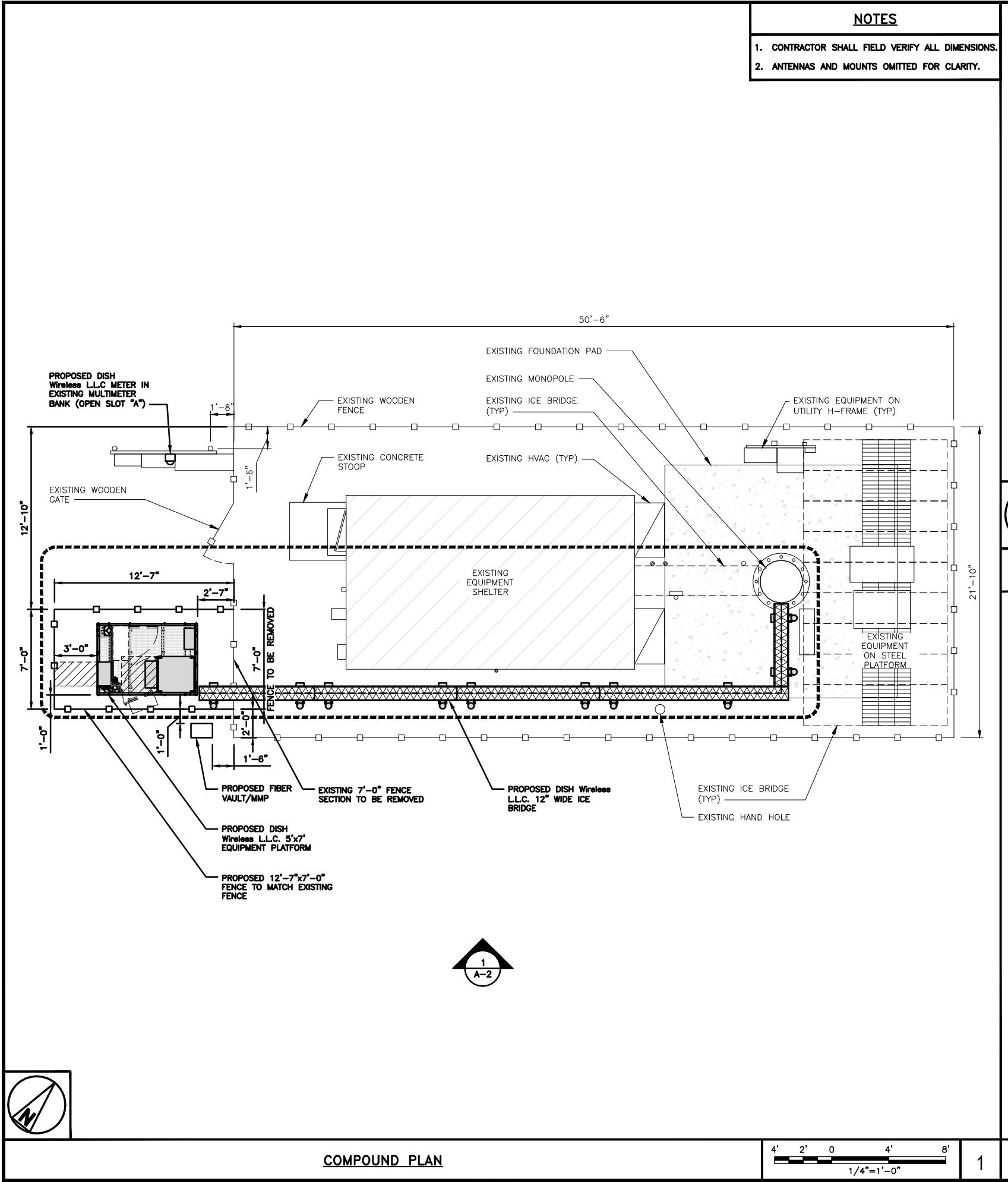
SHEET NUMBER
T-1



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" x 17" 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.





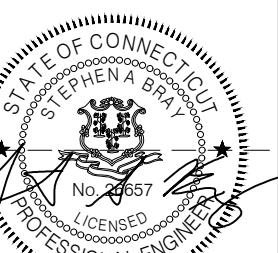
dish
wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB
DESIGN GROUP
kmbdg.com

1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173



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PROFESSIONAL ENGINEER

CT LICENSE: 26657 4/26/22

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DRAWN BY: AAB

CHECKED BY: ---

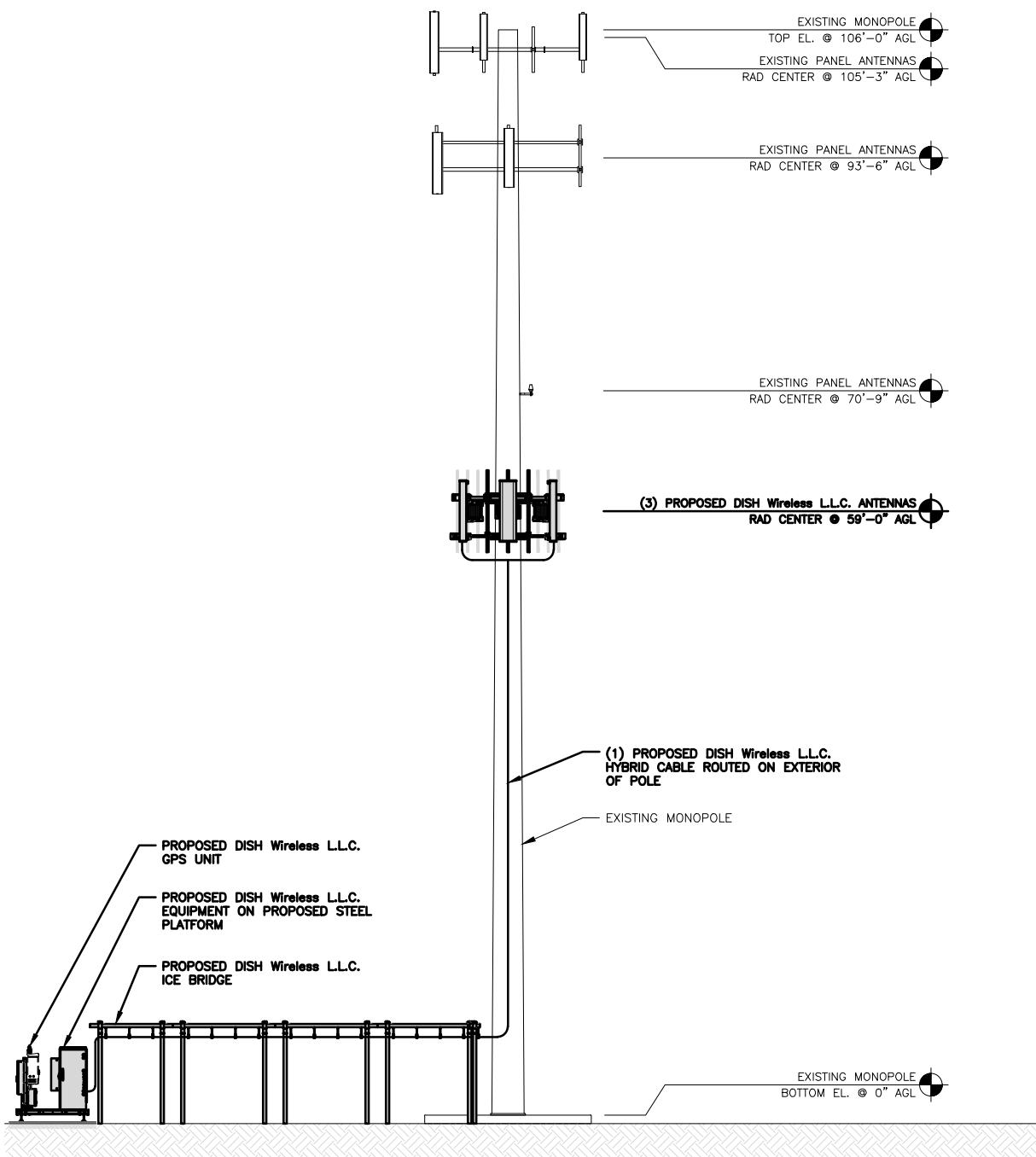
APPROVED BY: JRB

RFDS REV #:



NOTES

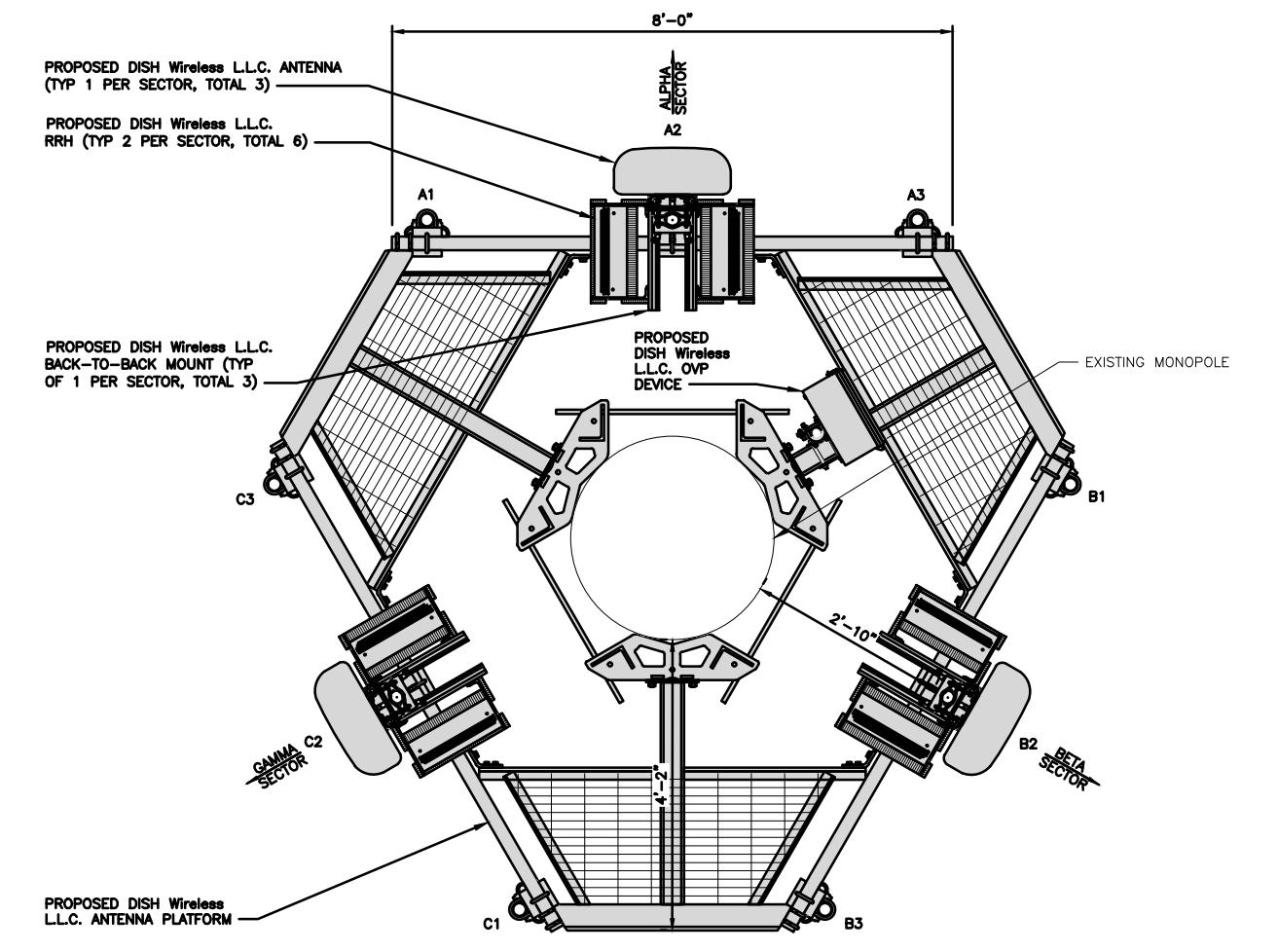
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED SOUTHEAST ELEVATION

8' 4' 0 8' 16'
1/8"=1'-0"

1



ANTENNA LAYOUT

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

2

SECTOR POS.	ANTENNA					TRANSMISSION CABLE	RRH			OVP
	EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECH	AZIMUTH	RAD CENTER		MANUFACTURER - MODEL NUMBER	TECH	POS.	
A1	--	--	--	--	--	(1) HIGH-CAPACITY HYBRID CABLE (125' LONG) (CU12PSM9P8XXX)	FUJITSU - TA08025-B604	5G	A2	RAYCAP RDIDC-9181PF48
A2	PROPOSED	JMA - MX08FR0665-21	5G	0°	59'-0"		FUJITSU - TA08025-B605	5G	A2	
A3	--	--	--	--	--		--	--	--	
B1	--	--	--	--	--		FUJITSU - TA08025-B604	5G	B2	
B2	PROPOSED	JMA - MX08FR0665-21	5G	120°	59'-0"	SHARED W/ALPHA	FUJITSU - TA08025-B605	5G	B2	
B3	--	--	--	--	--		--	--	--	
C1	--	--	--	--	--		FUJITSU - TA08025-B604	5G	C2	SHARED W/ALPHA
C2	PROPOSED	JMA - MX08FR0665-21	5G	240°	59'-0"	SHARED W/ALPHA	FUJITSU - TA08025-B605	5G	C2	
C3	--	--	--	--	--		--	--	--	

NOTES

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

ANTENNA SCHEDULE

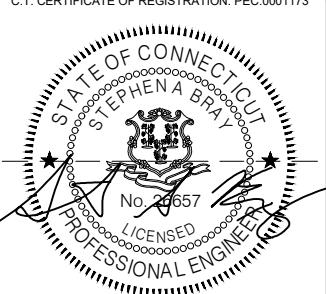
NO SCALE 3

dish
wireless.

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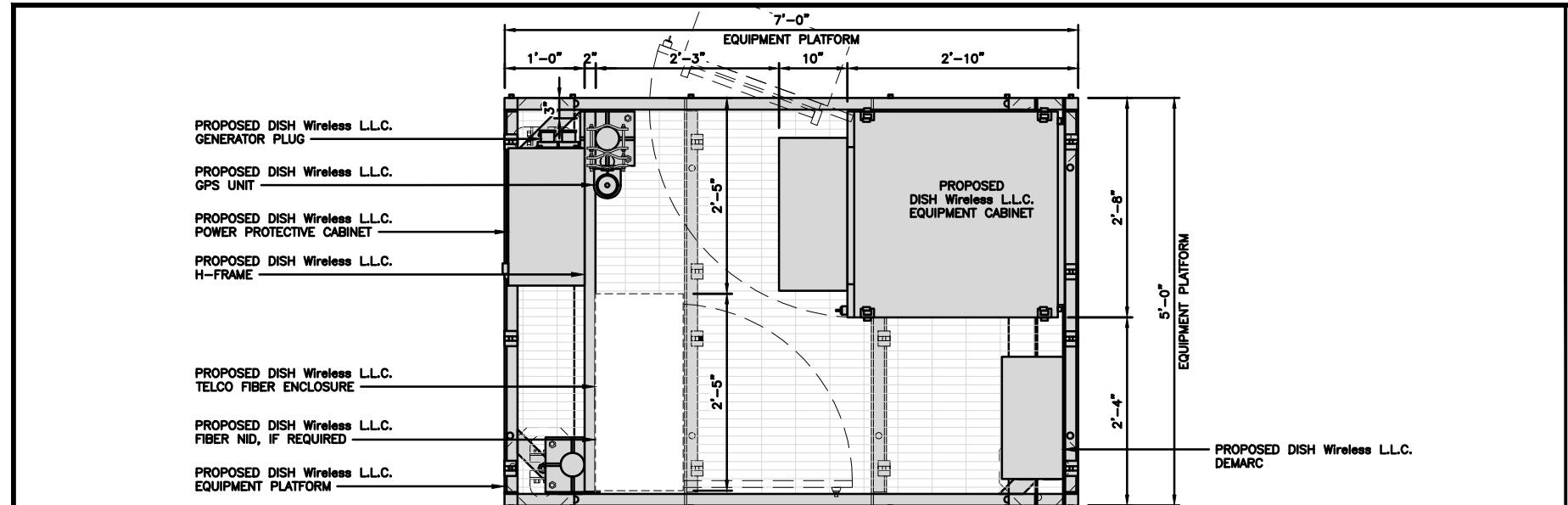
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SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

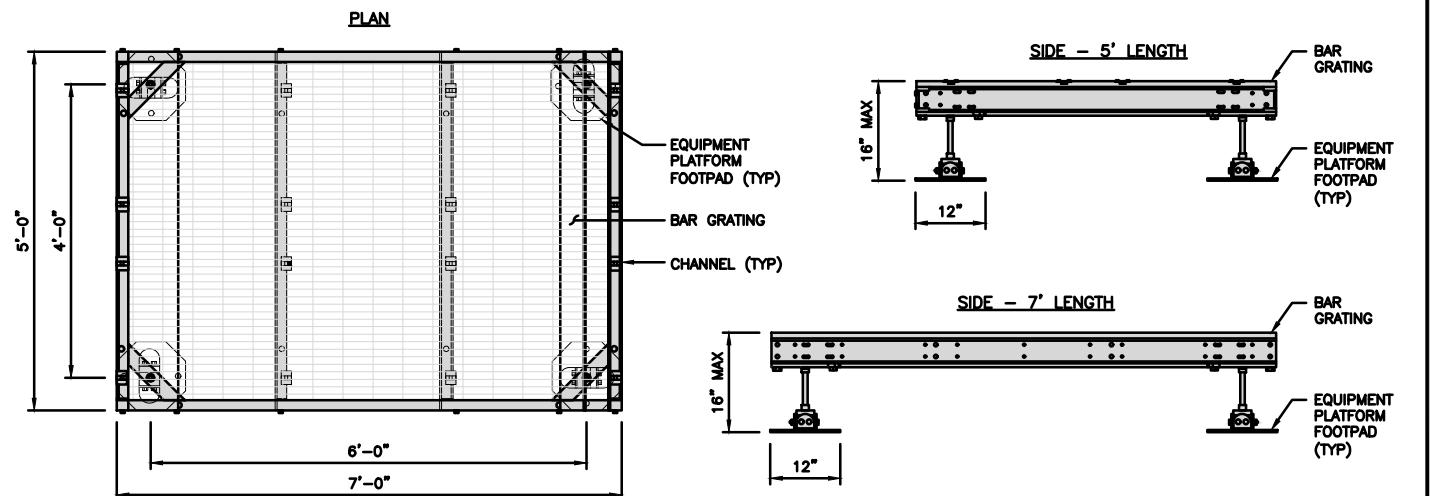
A-2



PLATFORM EQUIPMENT PLAN

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

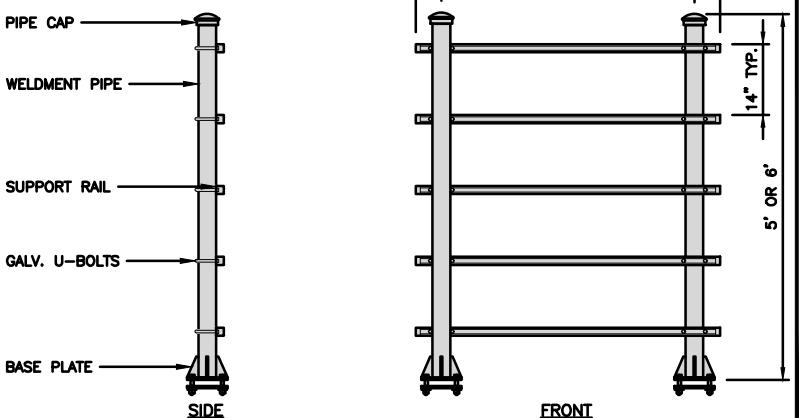
NOTE: GC TO PROVIDE EXTENDED THREAD FOR PLATFORM IF REQUIRED HEIGHT EXCEEDS 17"



PLATFORM DETAIL

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

NOTE: OR DISH Wireless LLC. APPROVED EQUIVALENT



H-FRAME DETAIL

NO SCALE

3

NOT USED

NO SCALE

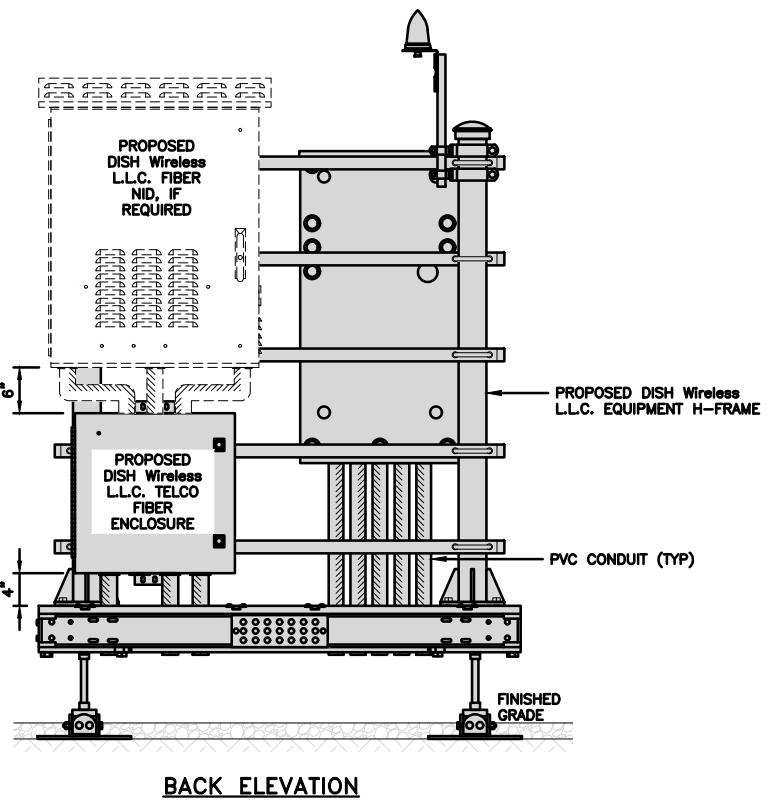
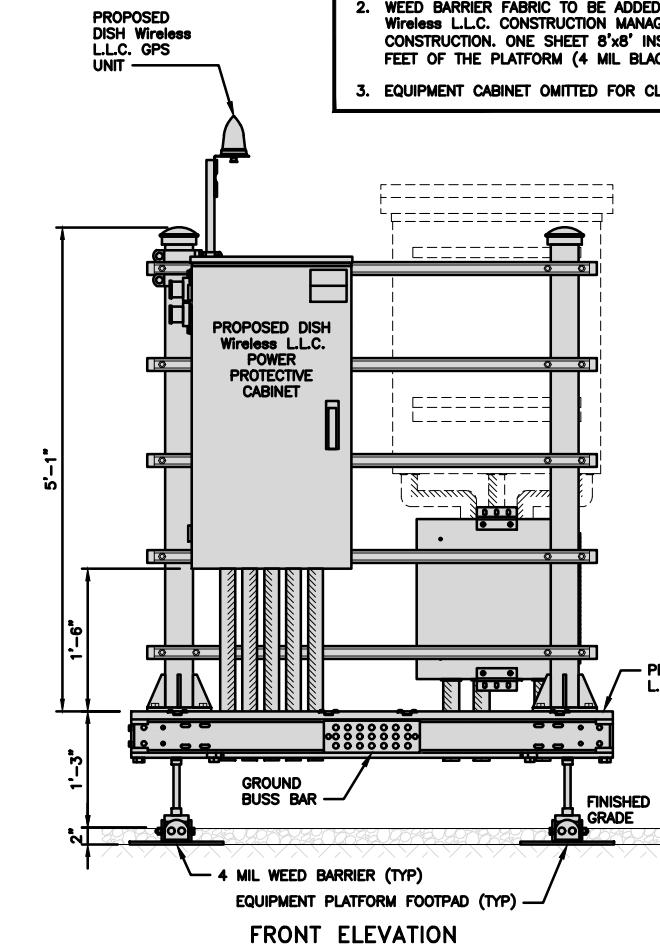
4

H-FRAME EQUIPMENT ELEVATION

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

5

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



BACK ELEVATION

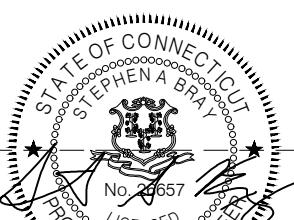


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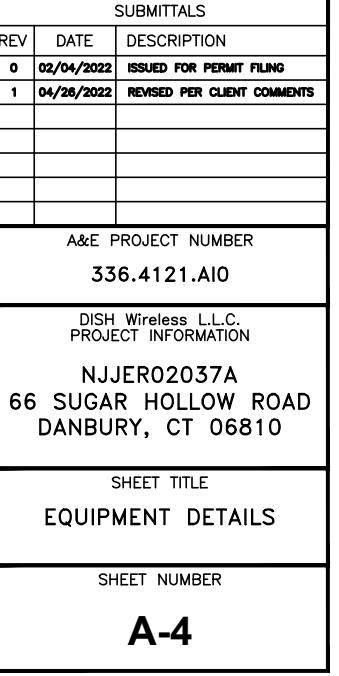
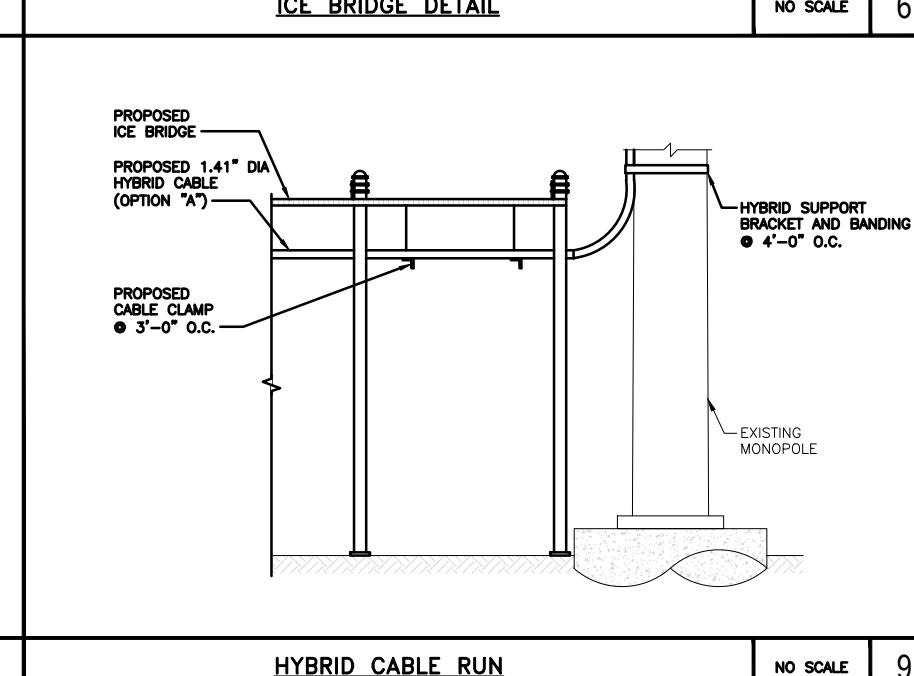
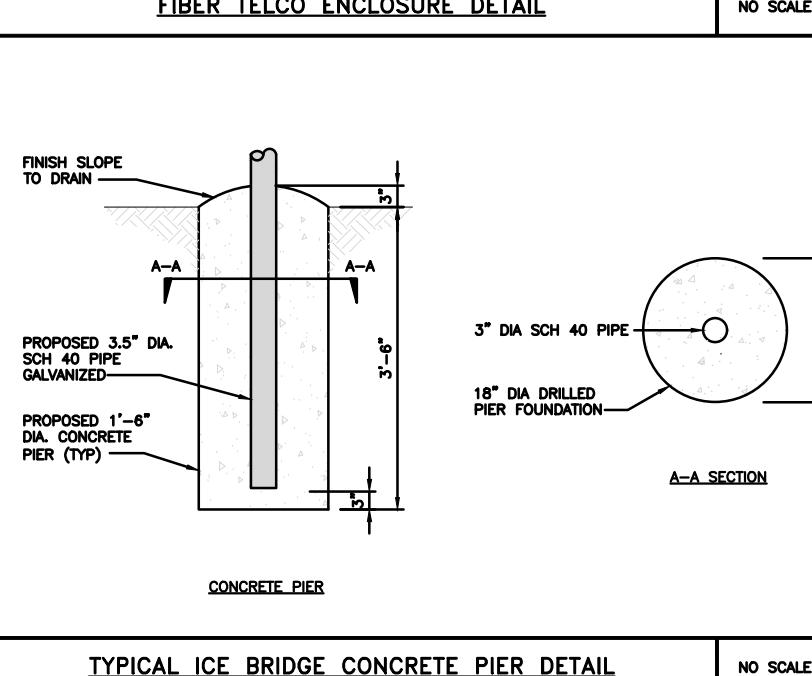
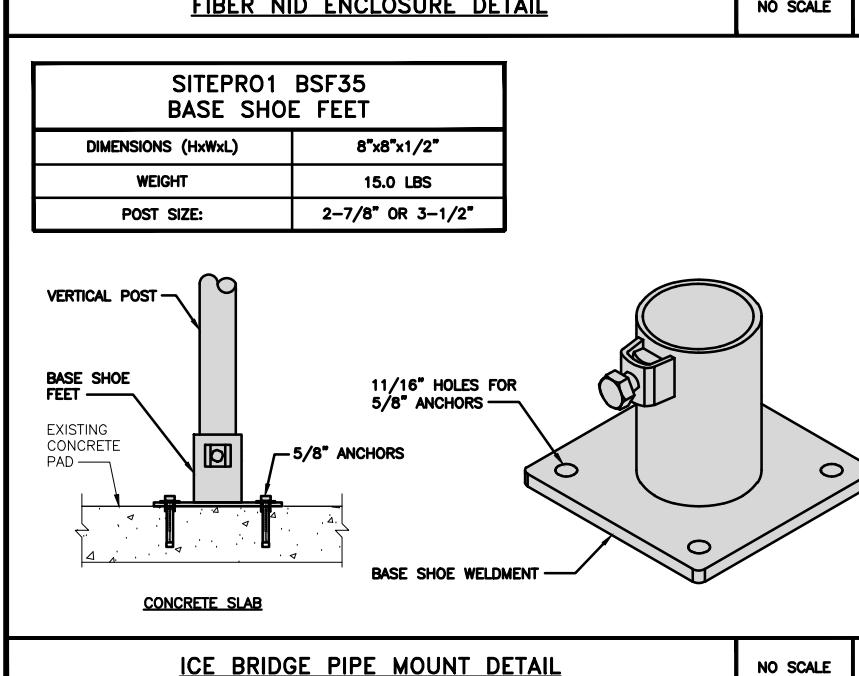
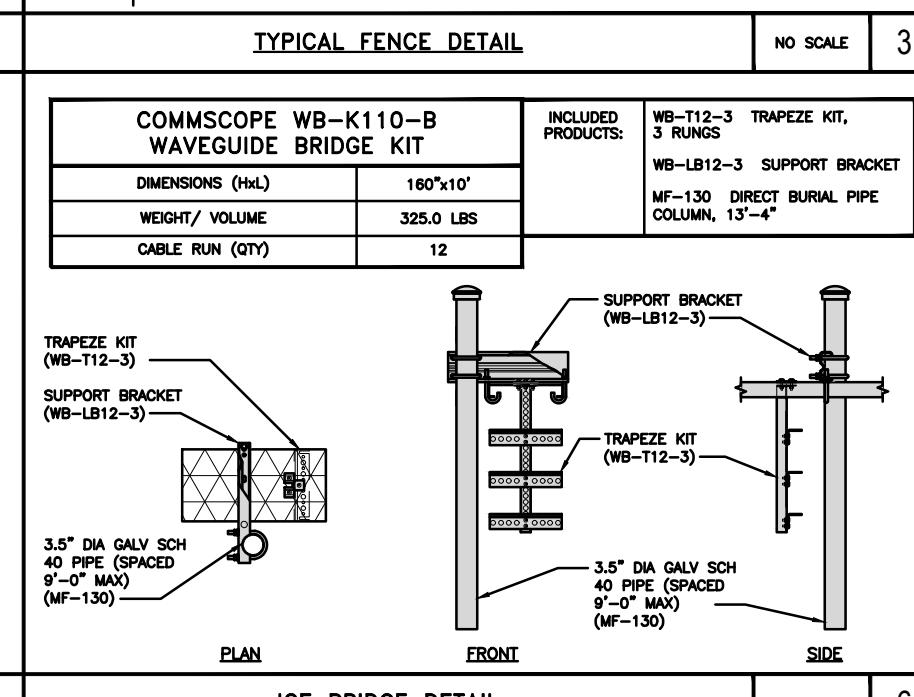
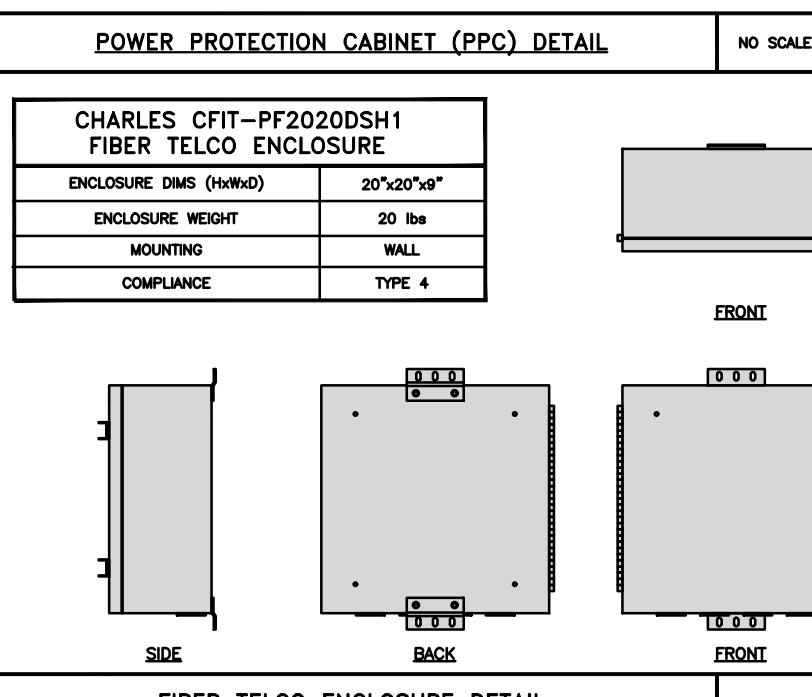
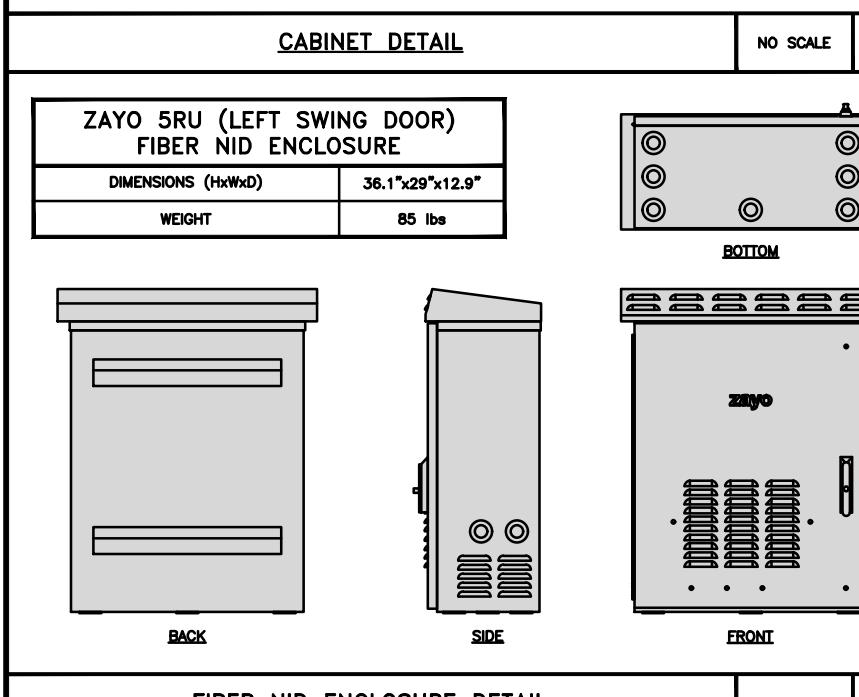
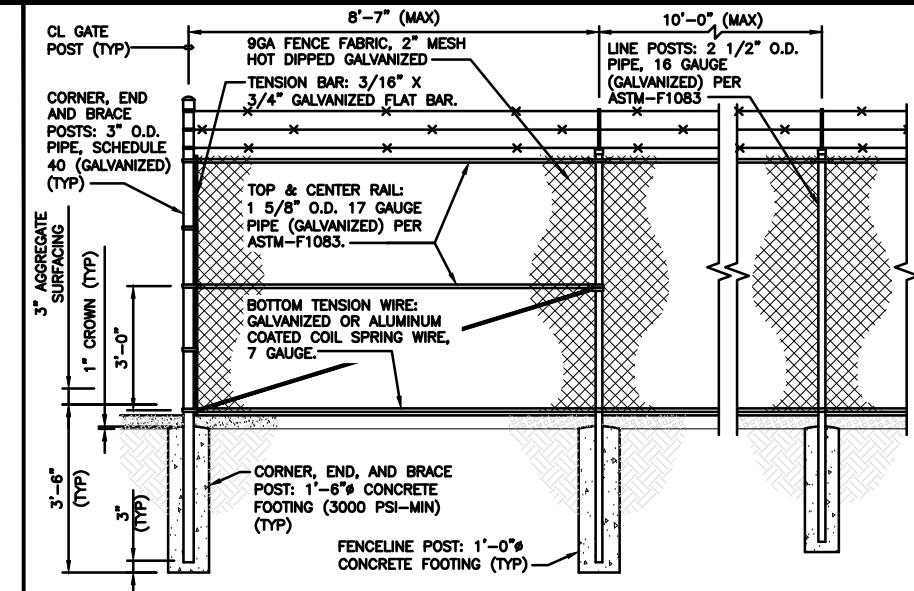
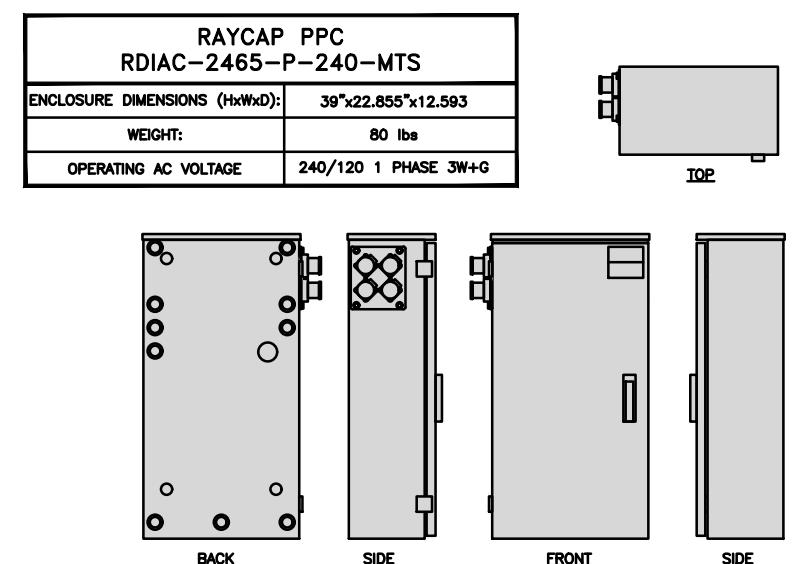
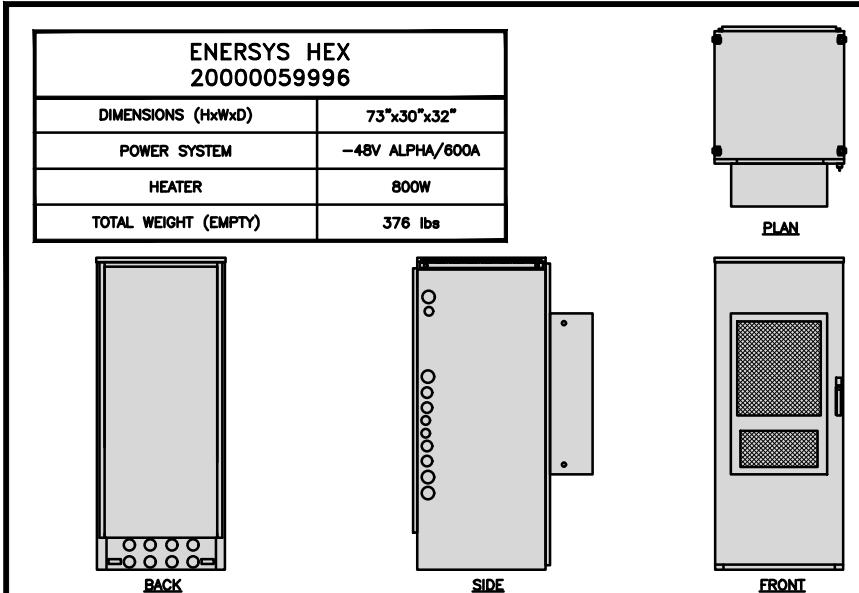
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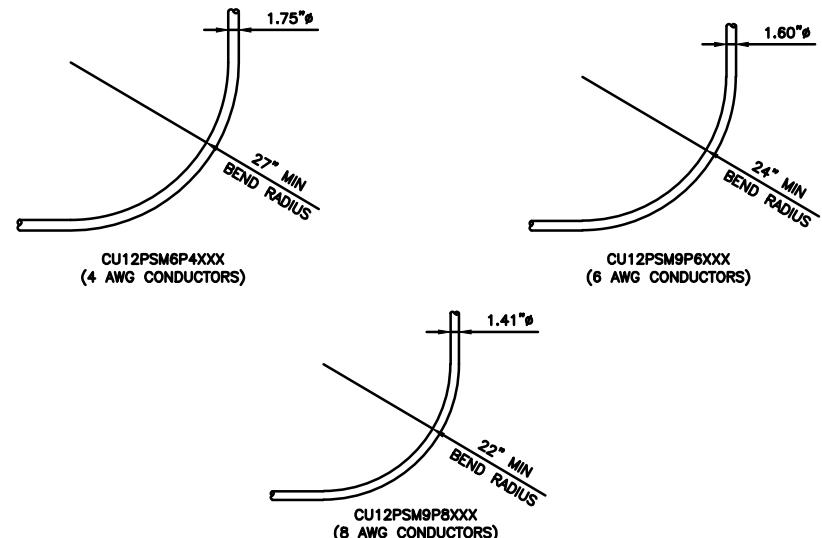
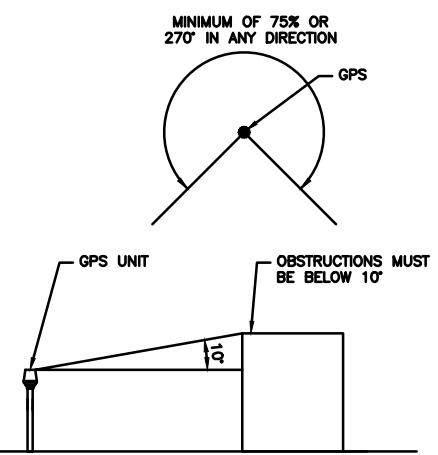
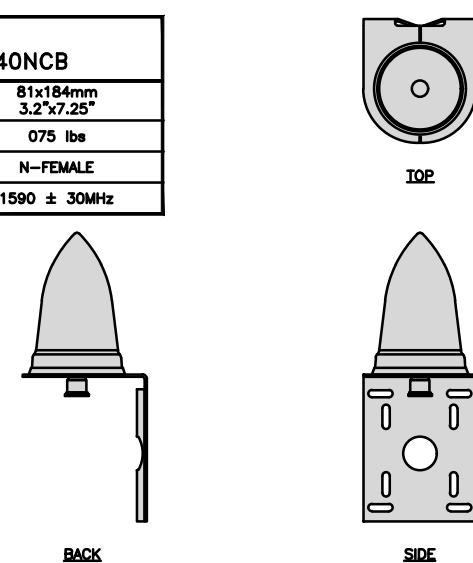
DISH Wireless LLC.
PROJECT INFORMATION
NJJER02037A
66 SUGAR HOLLOW ROAD
DANBURY, CT 06810

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS
SHEET NUMBER

A-3



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



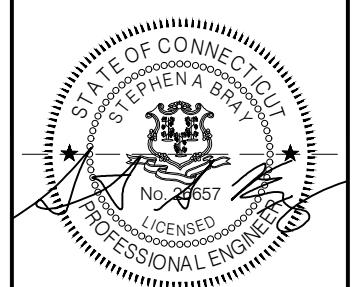
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wireless.

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C.T. CERTIFICATE OF REGISTRATION: PEC.0001173



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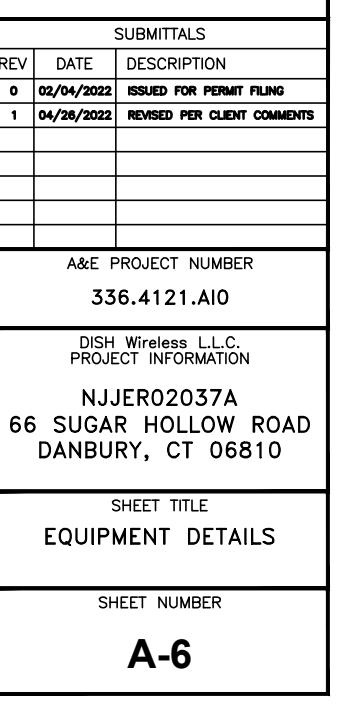
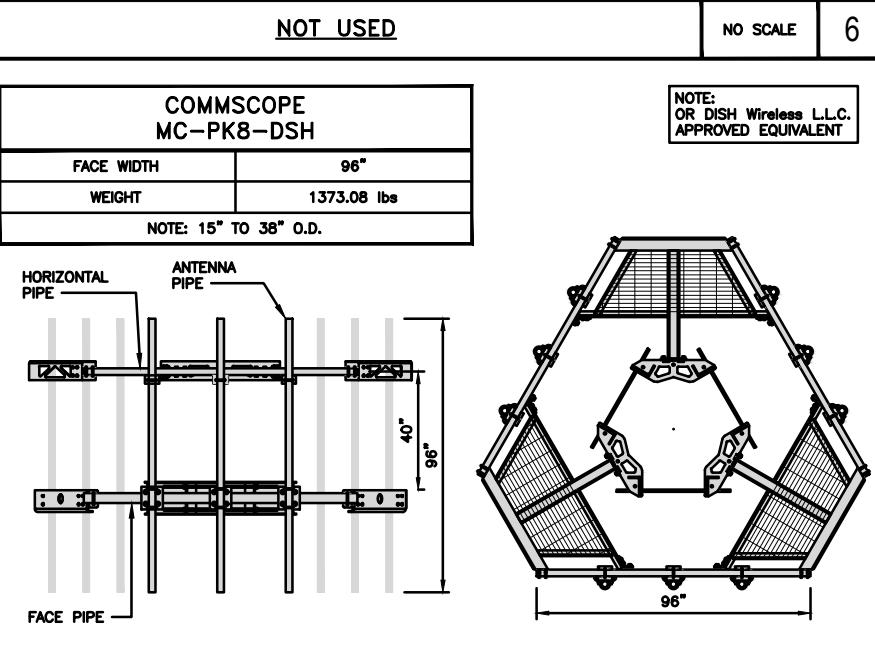
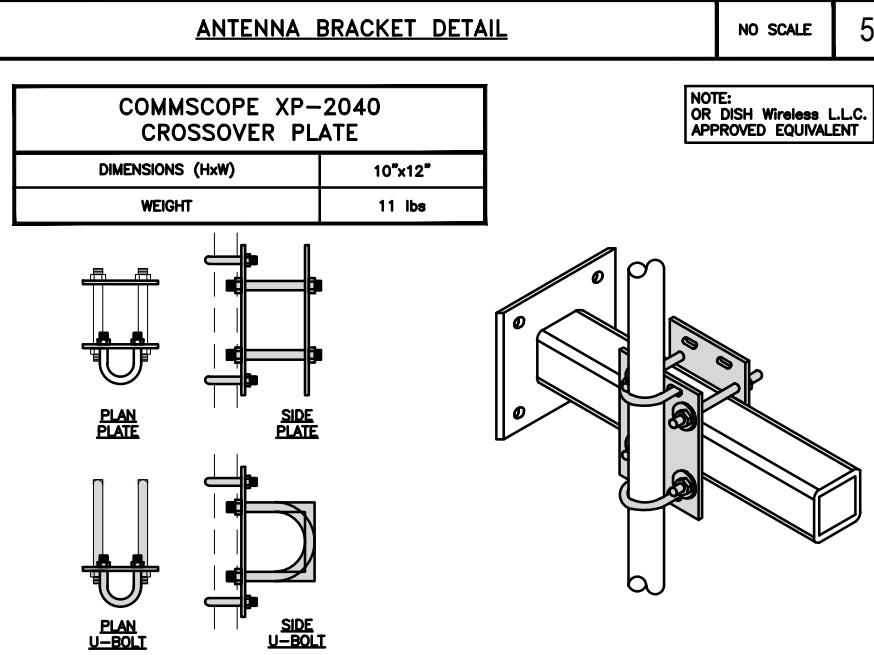
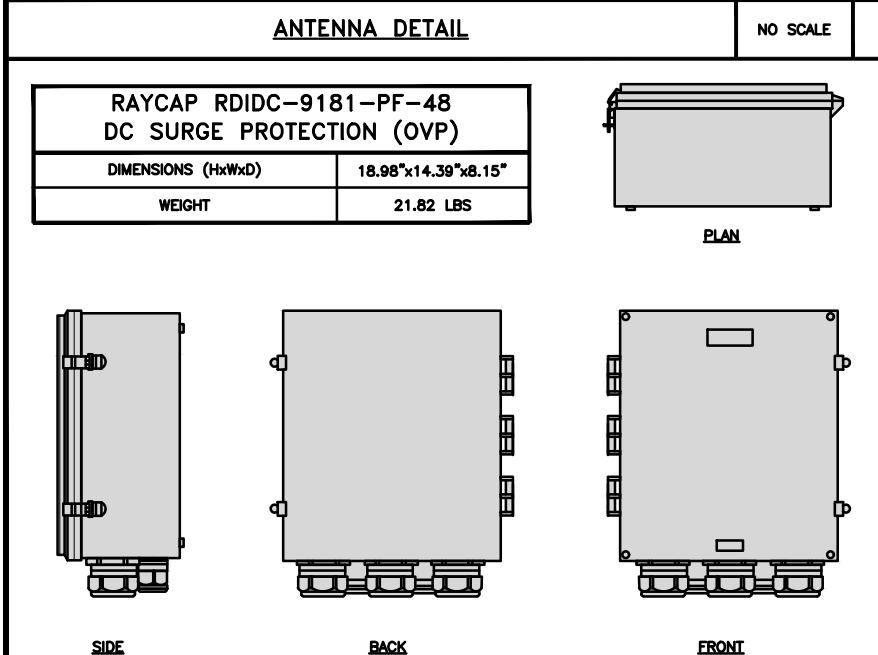
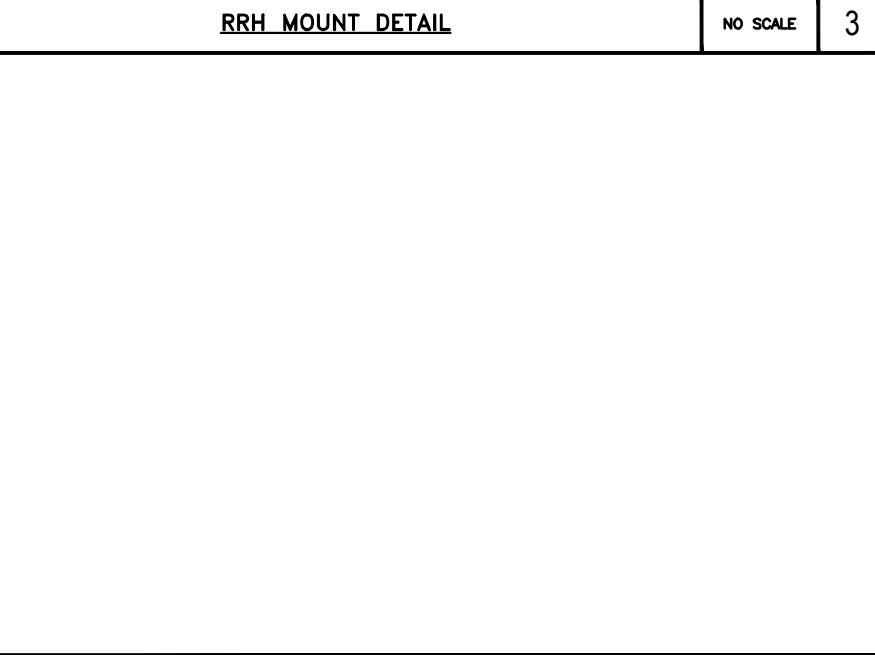
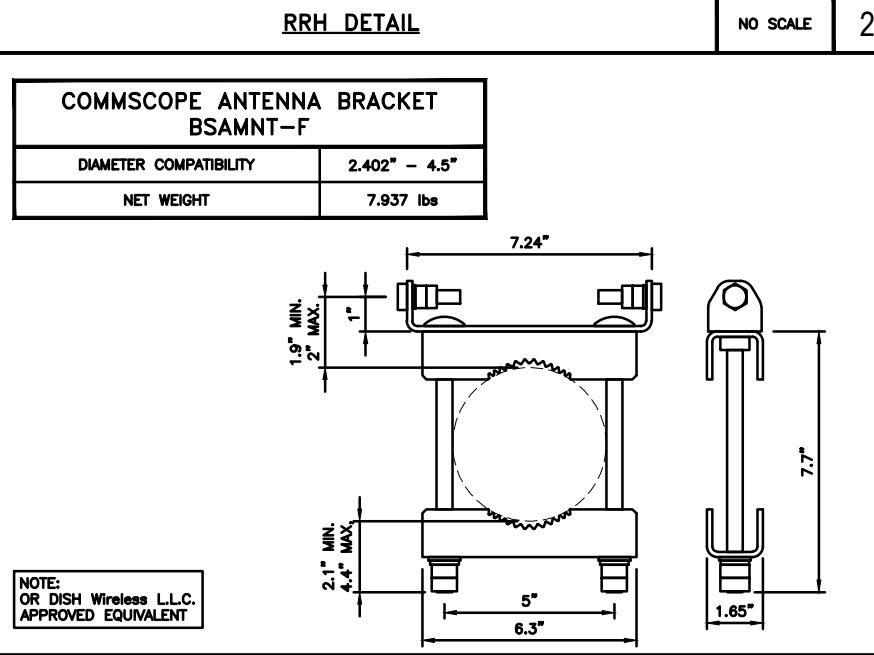
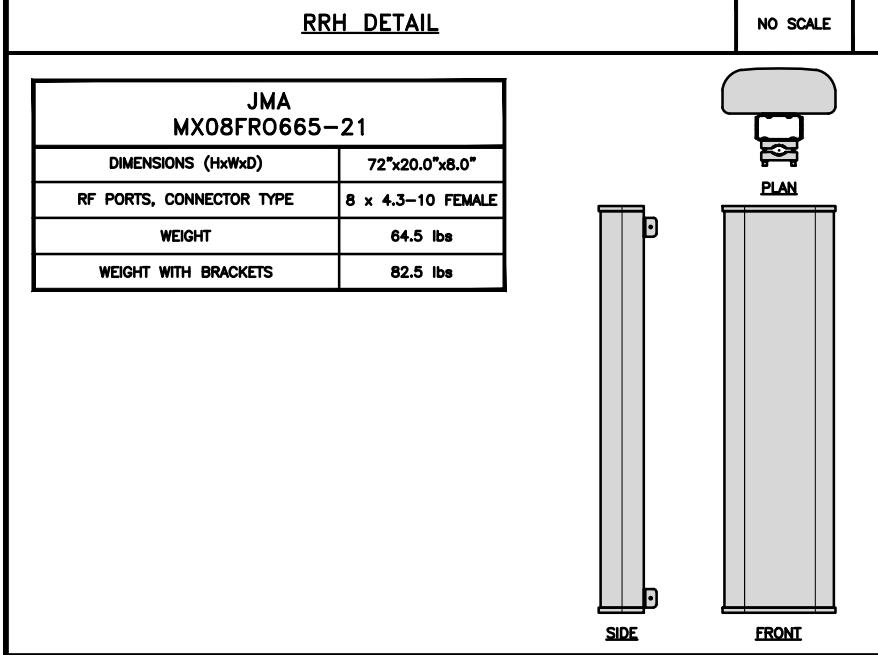
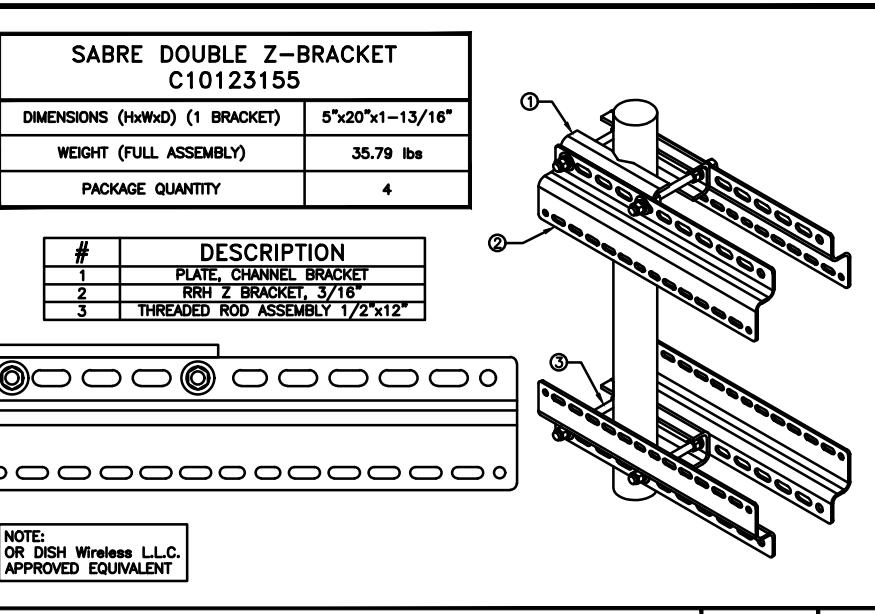
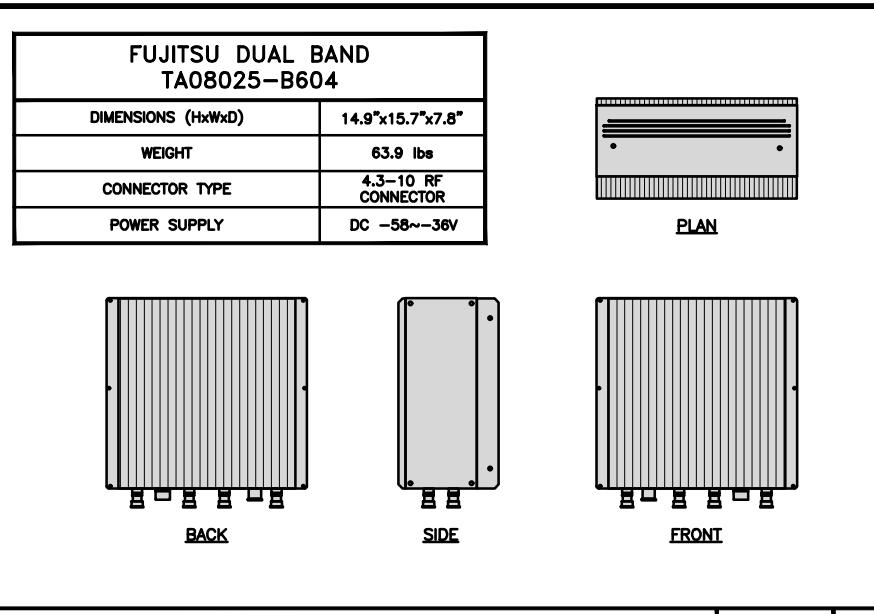
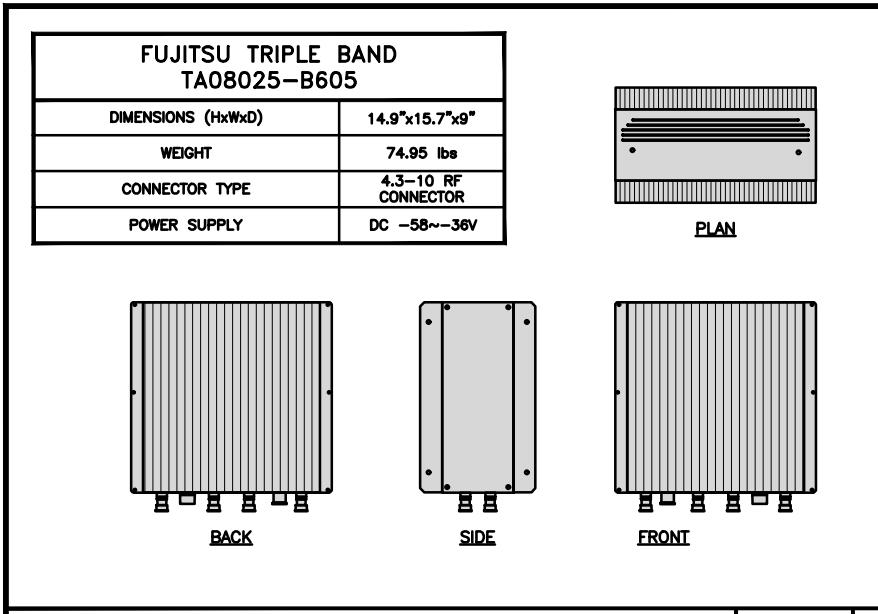
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PROJECT INFORMATION
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DANBURY, CT 06810

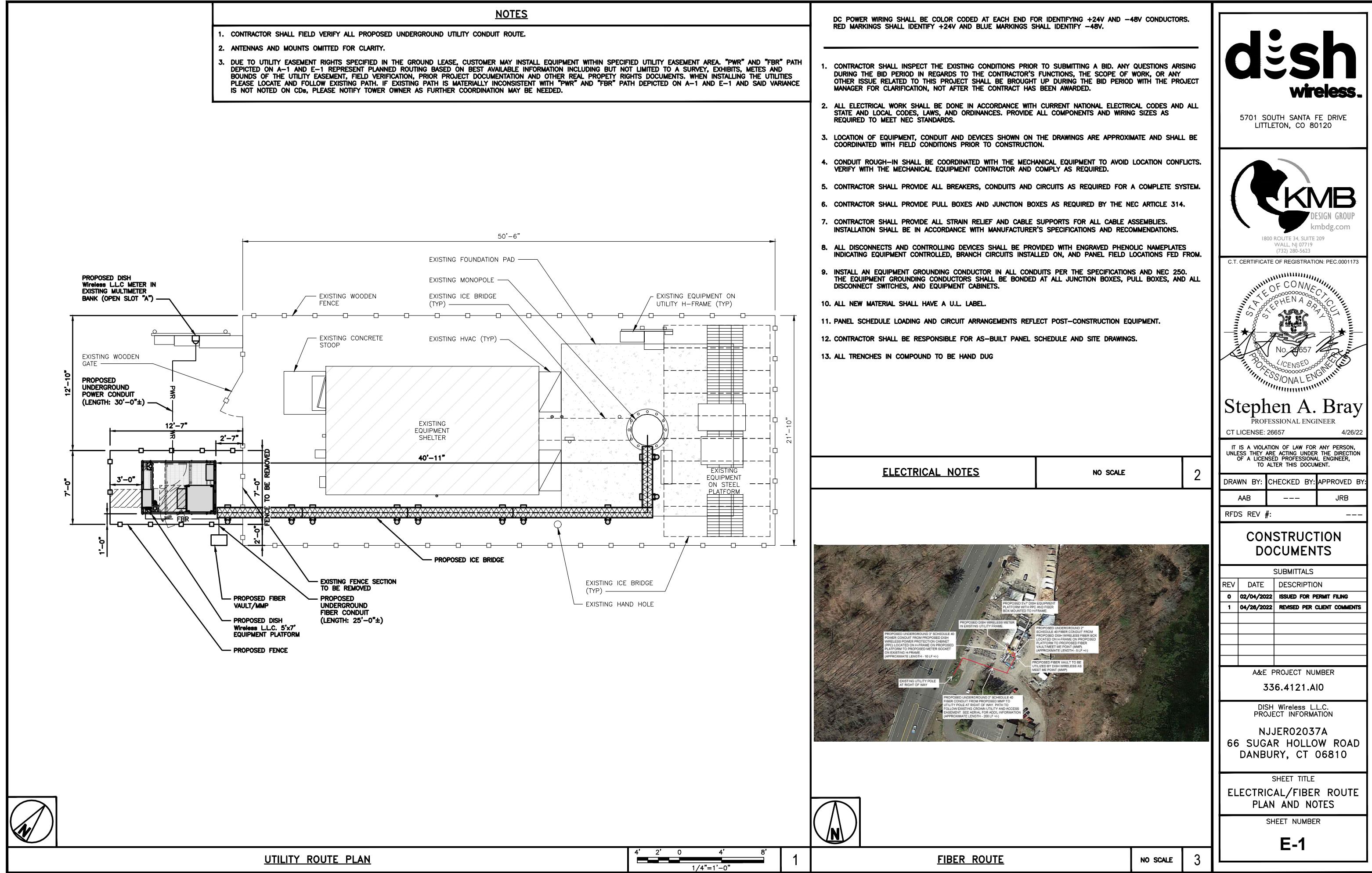
SHEET TITLE
EQUIPMENT DETAILS

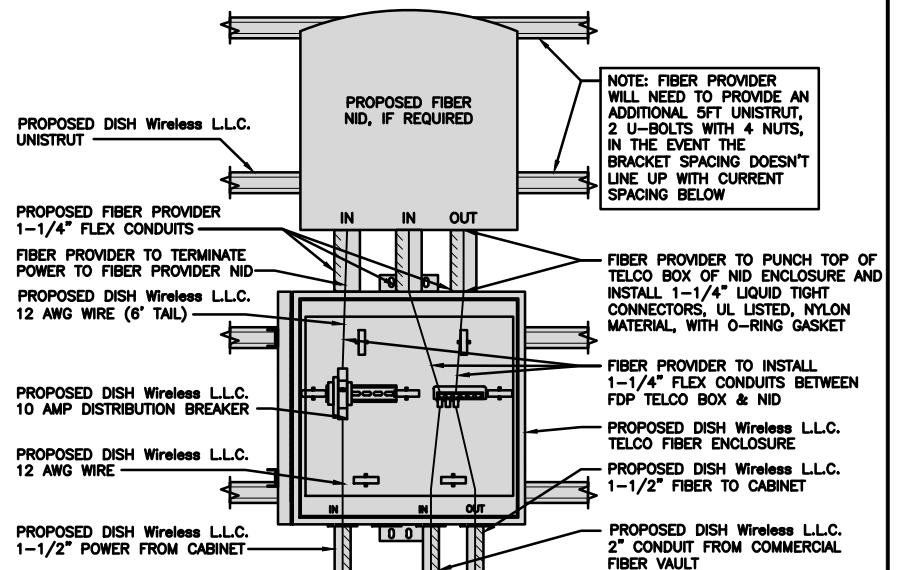
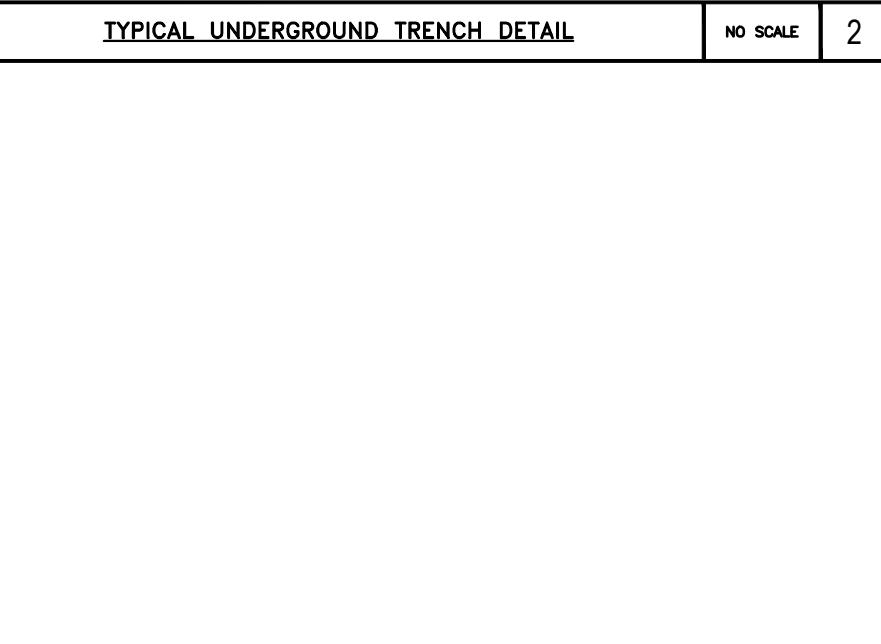
SHEET NUMBER

A-5

<u>GPS DETAIL</u>	NO SCALE	1	<u>GPS MINIMUM SKY VIEW REQUIREMENTS</u>	NO SCALE	2	<u>CABLES UNLIMITED HYBRID CABLE MINIMUM BEND RADIUSES</u>	NO SCALE	3
<u>NOT USED</u>	NO SCALE	4	<u>NOT USED</u>	NO SCALE	5	<u>NOT USED</u>	NO SCALE	6
<u>NOT USED</u>	NO SCALE	7	<u>NOT USED</u>	NO SCALE	8	<u>NOT USED</u>	NO SCALE	9

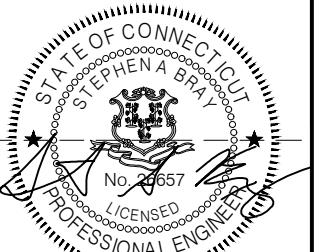




CARLON EXPANSION FITTINGS <table border="1"> <thead> <tr> <th>COUPLING END PART#</th><th>MALE TERMINAL ADAPTER END PART#</th><th>SIZE</th><th>STD CTN QTY.</th><th>TRAVEL LENGTH</th></tr> </thead> <tbody> <tr><td>E945D</td><td>E945DX</td><td>1/2"</td><td>20</td><td>4"</td></tr> <tr><td>E945E</td><td>E945EX</td><td>3/4"</td><td>15</td><td>4"</td></tr> <tr><td>E945F</td><td>E945FX</td><td>1"</td><td>10</td><td>4"</td></tr> <tr><td>E945G</td><td>E945GX</td><td>1 1/4"</td><td>5</td><td>4"</td></tr> <tr><td>E945H</td><td>E945HX</td><td>1 1/2"</td><td>5</td><td>4"</td></tr> <tr><td>E945J</td><td>E945JX</td><td>2"</td><td>15</td><td>8"</td></tr> <tr><td>E945K</td><td>E945KX</td><td>2 1/2"</td><td>10</td><td>8"</td></tr> <tr><td>E945L</td><td>E945LX</td><td>3"</td><td>10</td><td>8"</td></tr> <tr><td>E945M</td><td>E945MX</td><td>3 1/2"</td><td>5</td><td>8"</td></tr> <tr><td>E945N</td><td>E945NX</td><td>4"</td><td>5</td><td>8"</td></tr> <tr><td>E945P</td><td>E945PX</td><td>5"</td><td>1</td><td>8"</td></tr> <tr><td>E945R</td><td>E945RX</td><td>6"</td><td>1</td><td>8"</td></tr> </tbody> </table> <p>NOTE: CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.</p>					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"
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EXPANSION JOINT DETAIL	NO SCALE	1	TYPICAL UNDERGROUND TRENCH DETAIL	NO SCALE	2																																																																
																																																																					
LIT TELCO BOX - INTERIOR WIRING LAYOUT (OPTIONAL)	NO SCALE	4	NOT USED	NO SCALE	5																																																																
NOT USED	NO SCALE	7	NOT USED	NO SCALE	8																																																																
NOT USED	NO SCALE	9	NOT USED	NO SCALE																																																																	



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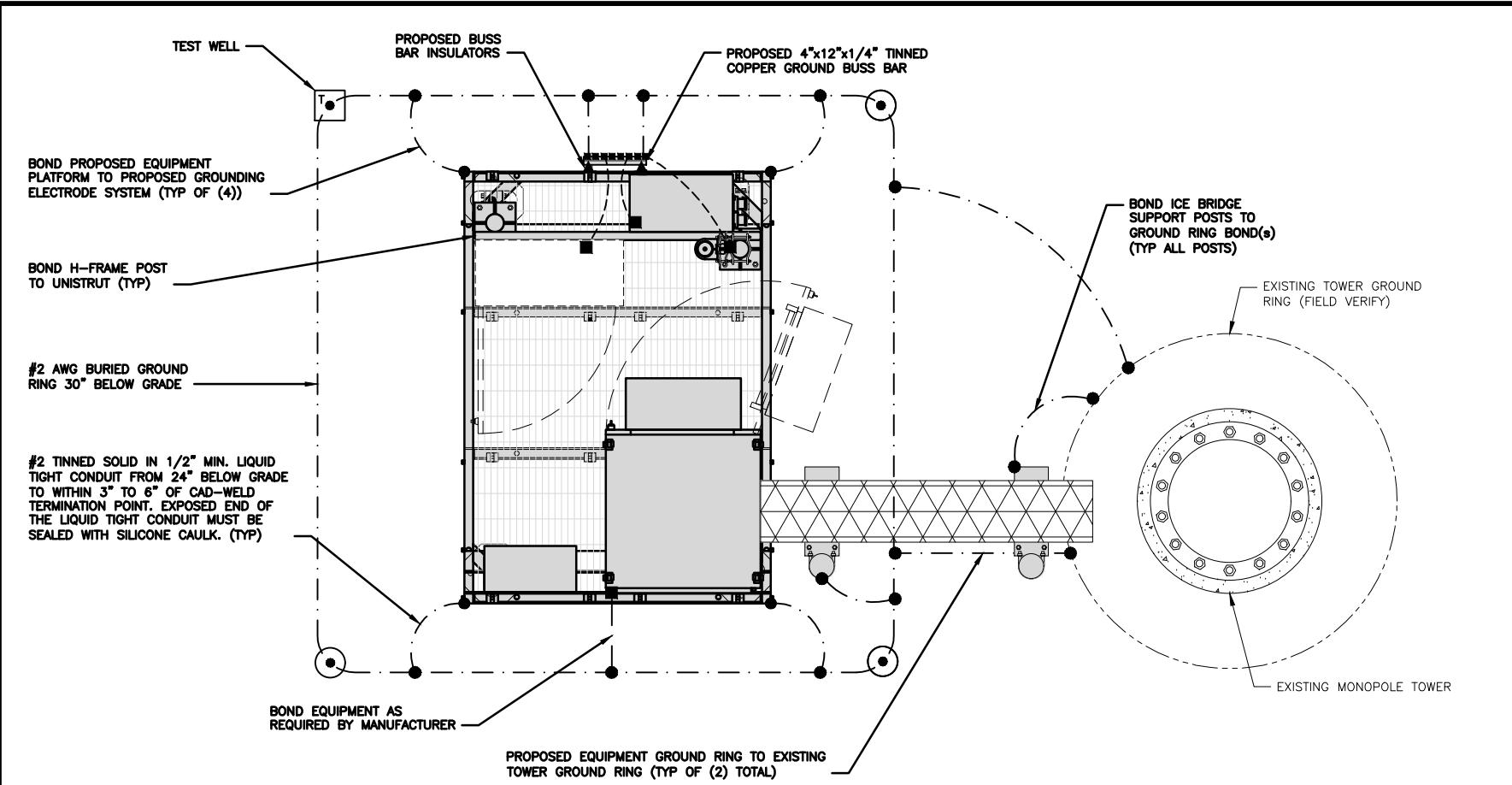
DISH Wireless LLC.
PROJECT INFORMATION

NJJER02037A
66 SUGAR HOLLOW ROAD
DANBURY, CT 06810

SHEET TITLE
ELECTRICAL
DETAILS

SHEET NUMBER

E-2

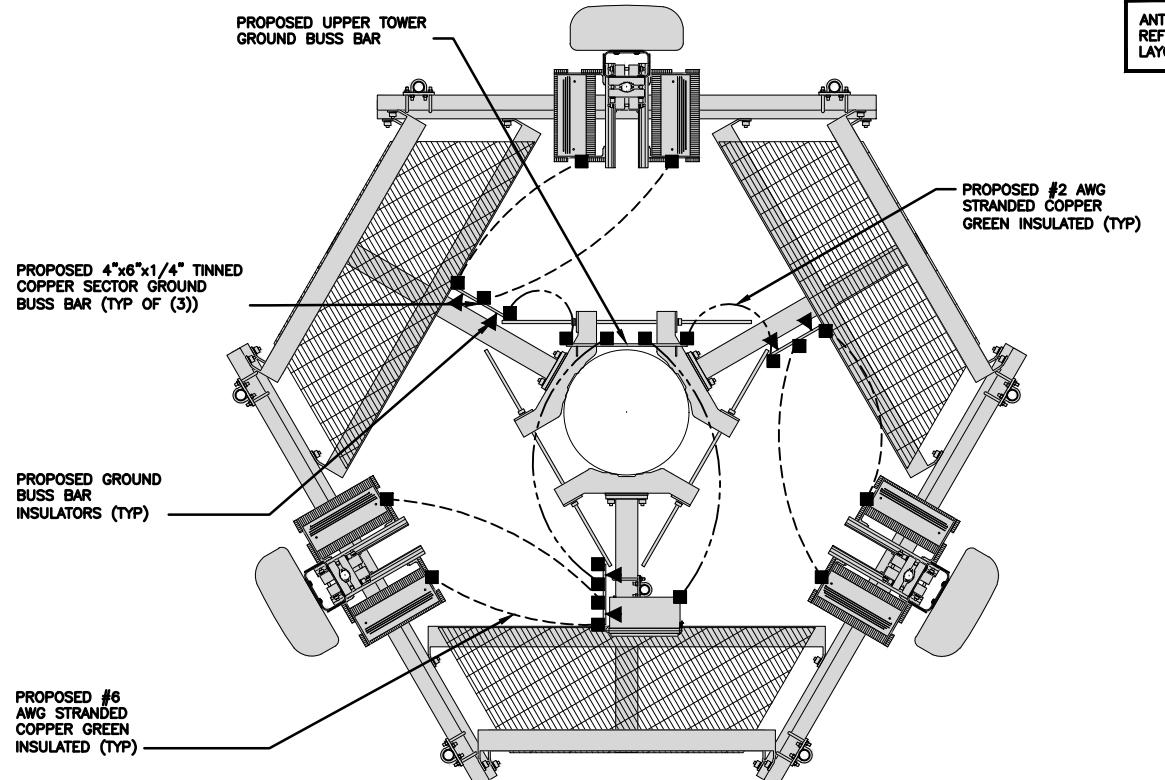


TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1

NOTES

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2

GROUNDING KEY NOTES

NO SCALE 3

- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- GROUND BUS BAR
- GROUND ROD

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

- (A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.
- (B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER GROUND RING SYSTEM AND THE BUILDING GROUND RING SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.
- (C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.
- (D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.
- (E) GROUND ROD: UL LISTED COPPER CLAD STEEL MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.
- (F) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.
- (G) HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.
- (H) EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.
- (I) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.
- (J) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENT'S METAL FRAMEWORK.
- (K) INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITHIN THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.
- (L) FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.
- (M) EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE.
- (N) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.
- (O) DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR.
- (P) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR. REFER TO DISH Wireless LLC. GROUNDING NOTES.

dish
wireless.

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LITTLETON, CO 80120

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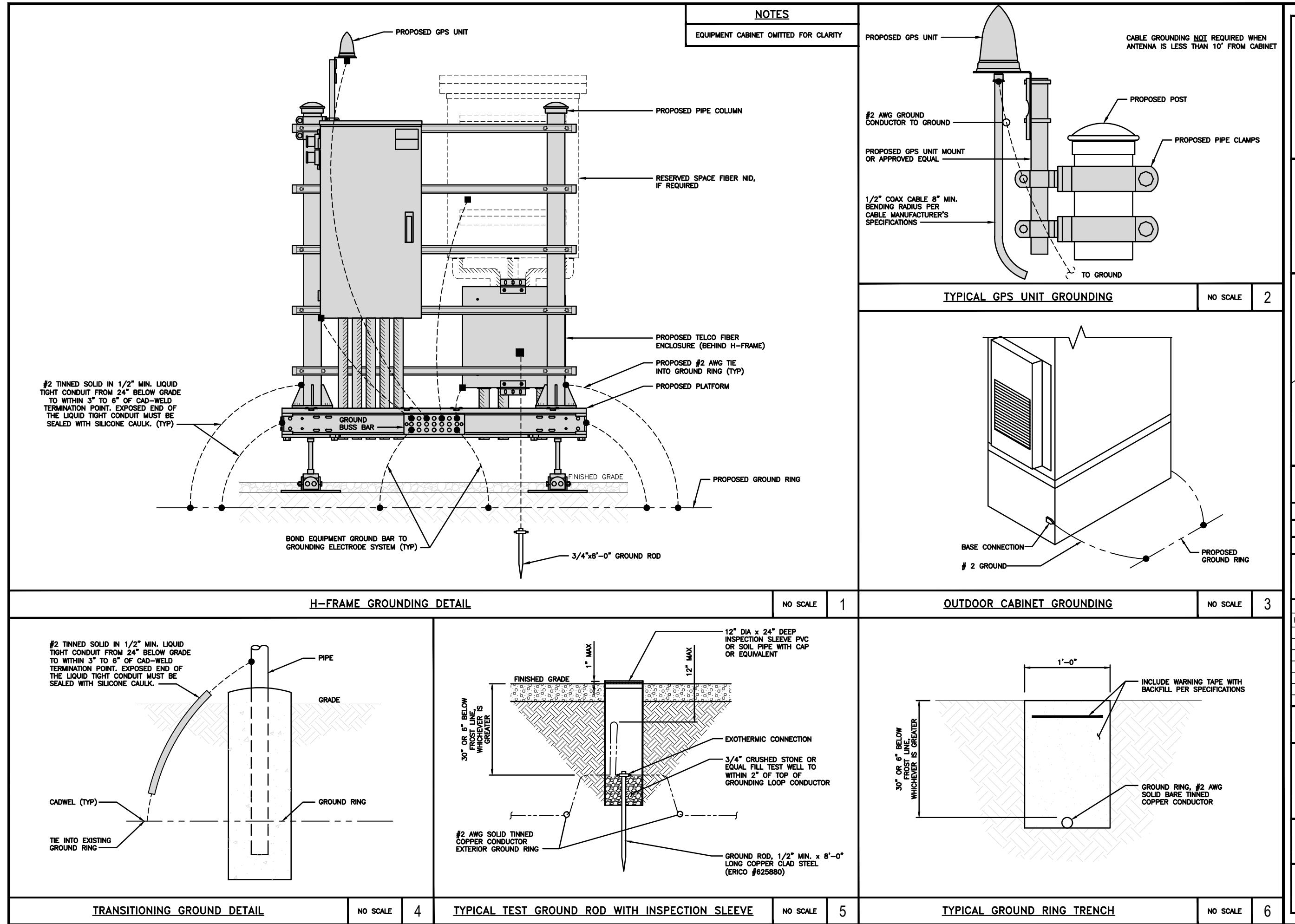
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DISH Wireless LLC.
PROJECT INFORMATION
NJJER02037A
66 SUGAR HOLLOW ROAD
DANBURY, CT 06810

SHEET TITLE
GROUNDING PLANS
AND NOTES

SHEET NUMBER

G-1



dish
wireless.

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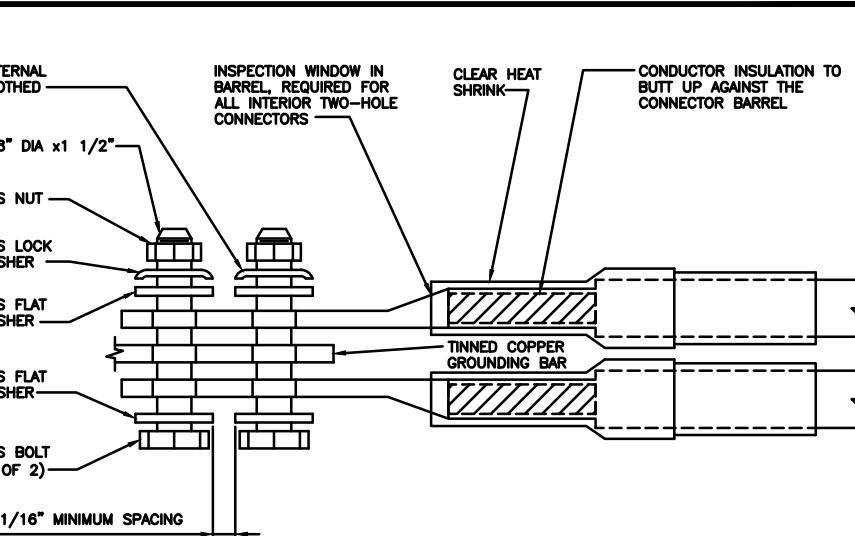
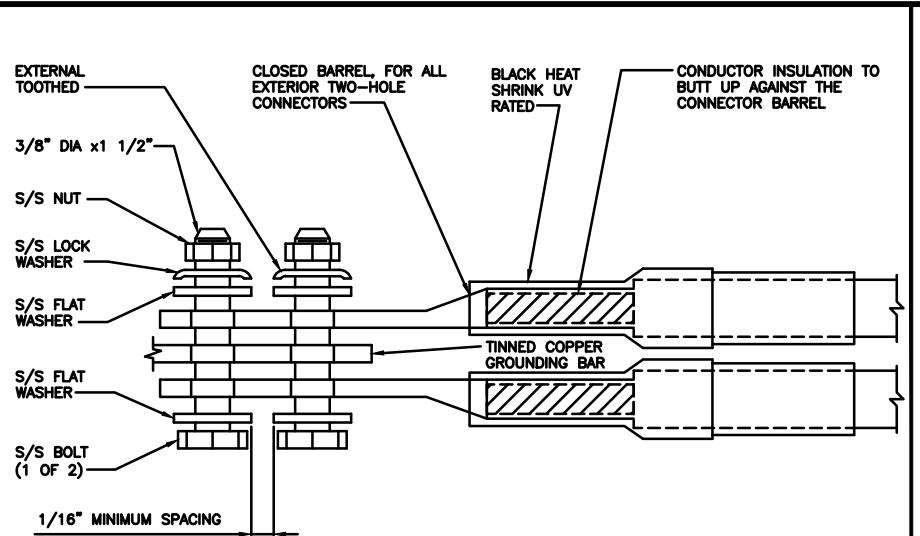
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SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER

G-2

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



TYPICAL GROUNDING NOTES

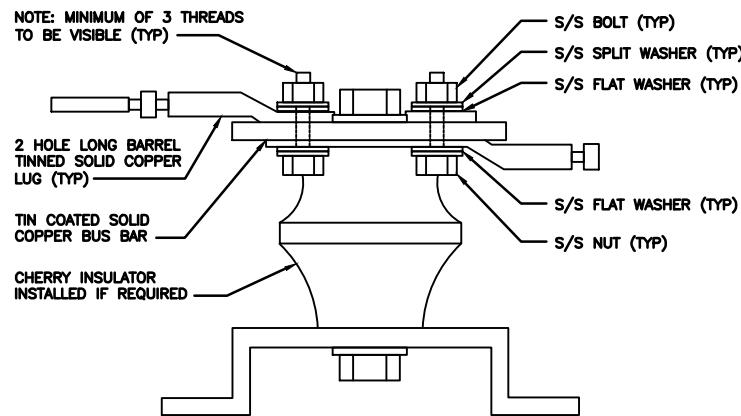
NO SCALE 1

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

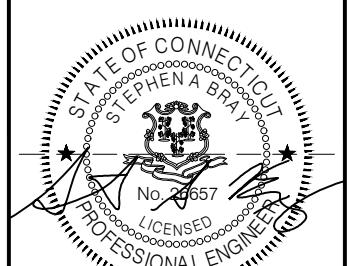
NO SCALE 6

dish
wireless.

5701 SOUTH SANTA FE DRIVE
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KMB
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Stephen A. Bray
PROFESSIONAL ENGINEER

CT LICENSE: 26657 4/26/22

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CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	02/04/2022	ISSUED FOR PERMIT FILING
1	04/26/2022	REVISED PER CLIENT COMMENTS

A&E PROJECT NUMBER
336.4121.A10

DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02037A
66 SUGAR HOLLOW ROAD
DANBURY, CT 06810

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER

G-3

NOT USED

NO SCALE 7

NOT USED

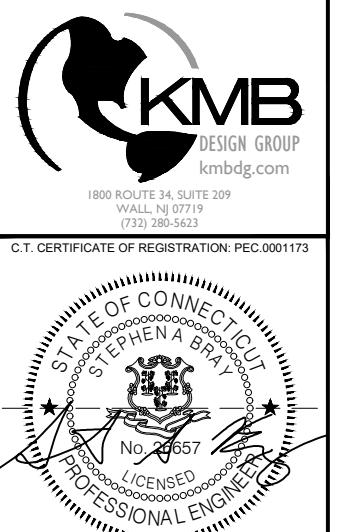
NO SCALE 8

NOT USED

NO SCALE 9

3/4" TAPE WIDTHS WITH 3/4" SPACING											
HYBRID/DISCREET CABLES											
LOW-BAND RRH (600 MHz N71 BASEBAND) + (850 MHz N26 BAND) + (700 MHz N29 BAND) - OPTIONAL PER MARKET ADD FREQUENCY COLOR TO SECTOR BAND (CBRS WILL USE YELLOW BAND)											
ALPHA RRH PORT 1 + SLANT PORT 2 - SLANT PORT 3 + SLANT PORT 4 - SLANT RED ORANGE (-) PORT ORANGE (-) PORT											
BETA RRH PORT 1 + SLANT PORT 2 - SLANT PORT 3 + SLANT PORT 4 - SLANT BLUE ORANGE (-) PORT ORANGE (-) PORT											
GAMMA RRH PORT 1 + SLANT PORT 2 - SLANT PORT 3 + SLANT PORT 4 - SLANT GREEN ORANGE (-) PORT ORANGE (-) PORT											
MID-BAND RRH (AWS BANDS N66+N70) ADD FREQUENCY COLOR TO SECTOR BAND (CBRS WILL USE YELLOW BANDS)											
HYBRID/DISCREET CABLES INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS. EXAMPLE 1 - HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS. EXAMPLE 2 - HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS. EXAMPLE 3 - MAIN COAX WITH GROUND MOUNTED RRHs.											
FIBER JUMPERS TO RRHs LOW-BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.											
POWER CABLES TO RRHs LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY											
RET MOTORS AT ANTENNAS RET CONTROL IS HANDLED BY THE MID-BAND RRH WHEN ONE SET OF RET PORTS EXIST ON ANTENNA. SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.											
MICROWAVE RADIO LINKS LINKS WILL HAVE A 1.5-2 INCH WHITE WRAP WITH THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE. ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH ADDITIONAL MW RADIO. MICROWAVE CABLES WILL REQUIRE P-TOUCH LABELS INSIDE THE CABINET TO IDENTIFY THE LOCAL AND REMOTE SITE ID's.											
FORWARD AZIMUTH OF 0-120 DEGREES PRIMARY SECONDARY WHITE RED WHITE											
FORWARD AZIMUTH OF 120-240 DEGREES PRIMARY SECONDARY WHITE BLUE WHITE BLUE WHITE											
FORWARD AZIMUTH OF 240-359 DEGREES PRIMARY SECONDARY WHITE GREEN WHITE GREEN WHITE											

LOW BANDS (N71+N26) OPTIONAL - (N29)	ORANGE	AWS (N66+N70+H-BLOCK)	PURPLE
CBRS TECH (3 GHz)	YELLOW	NEGATIVE SLANT PORT ON ANT/RRH	WHITE
ALPHA SECTOR	RED	BETA SECTOR	BLUE
GAMMA SECTOR	GREEN		
COLOR IDENTIFIER	NO SCALE	2	



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66 SUGAR HOLLOW ROAD
DANBURY, CT 06810

SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1

RF CABLE COLOR CODES

NO SCALE

1

NOT USED

NO SCALE

4

EXOTHERMIC CONNECTION	●
MECHANICAL CONNECTION	■
BUSS BAR INSULATOR	▲
CHEMICAL ELECTROLYTIC GROUNDING SYSTEM	○
TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM	○ T
EXOTHERMIC WITH INSPECTION SLEEVE	□
GROUNDING BAR	
GROUND ROD	
TEST GROUND ROD WITH INSPECTION SLEEVE	
SINGLE POLE SWITCH	§
DUPLEX RECEPTACLE	○
DUPLEX GFCI RECEPTACLE	○ GFC
FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48-T8	
SMOKE DETECTION (DC)	
EMERGENCY LIGHTING (DC)	
SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW LED-1-25A400/51K-SR4-120-PE-DDBTXD	
CHAIN LINK FENCE	— X — X — X — X —
WOOD/WROUGHT IRON FENCE	— □ — □ — □ — □ —
WALL STRUCTURE	— —
LEASE AREA	— - - - -
PROPERTY LINE (PL)	— - - - -
SETBACKS	— - - - -
ICE BRIDGE	
CABLE TRAY	
WATER LINE	— W — W — W — W — W —
UNDERGROUND POWER	— UGP — UGP — UGP — UGP — UGP —
UNDERGROUND TELCO	— UGT — UGT — UGT — UGT — UGT —
OVERHEAD POWER	— OHP — OHP — OHP — OHP —
OVERHEAD TELCO	— OHT — OHT — OHT — OHT —
UNDERGROUND TELCO/POWER	— UGT/P — UGT/P — UGT/P — UGT/P —
ABOVE GROUND POWER	— AGP — AGP — AGP — AGP — AGP —
ABOVE GROUND TELCO	— AGT — AGT — AGT — AGT — AGT —
ABOVE GROUND TELCO/POWER	— AGT/P — AGT/P — AGT/P — AGT/P —
WORKPOINT	W.P.
SECTION REFERENCE	
DETAIL REFERENCE	

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

LEGEND

ABBREVIATIONS

GN-1

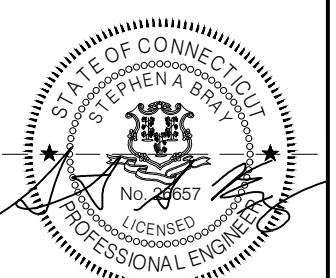
dish
wireless

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CERTIFICATE OF REGISTRATION: PEC.0001173



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CONSTRUCTION DOCUMENTS

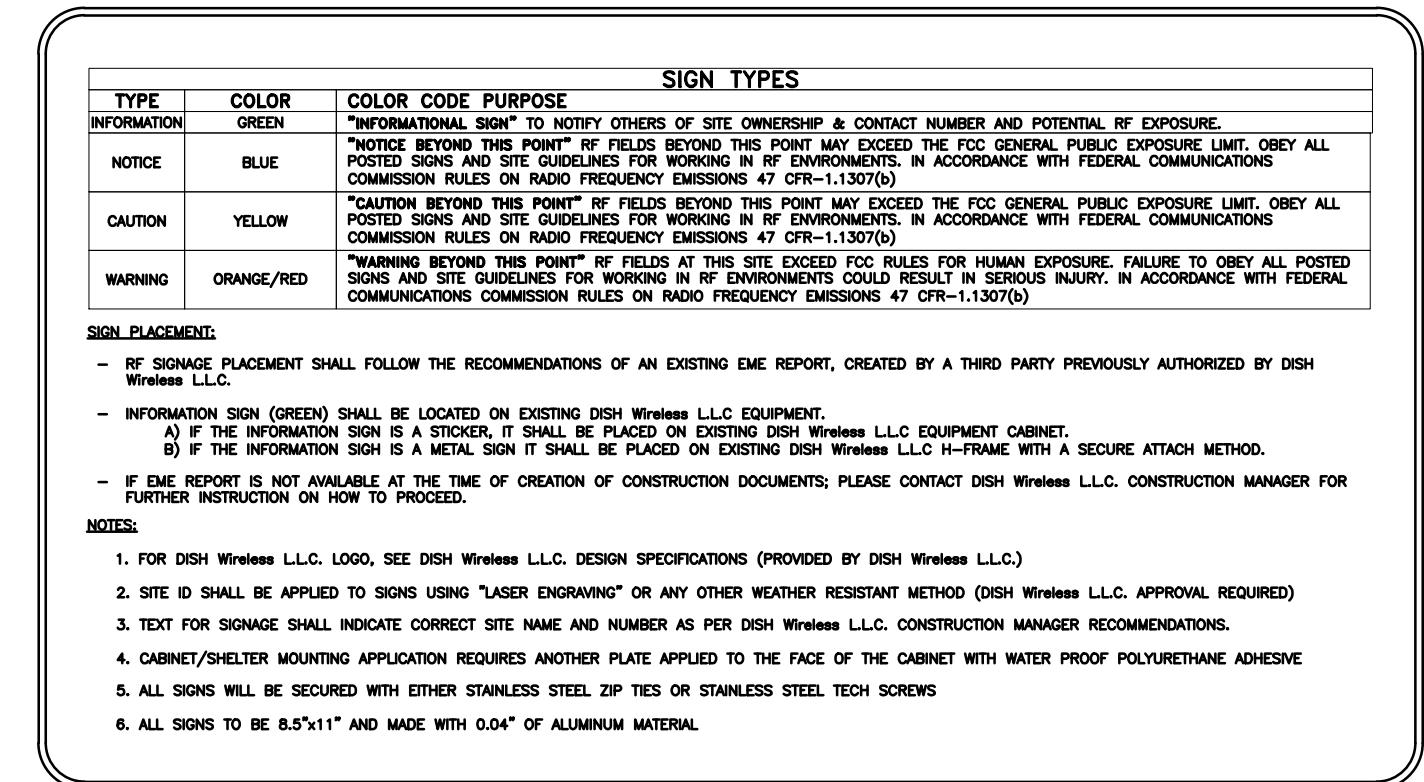
A&E PROJECT NUMBER
336.4121.A10

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJERO2037A
66 SUGAR HOLLOW ROAD
DANBURY, CT 06810

SHEET TITLE

SHEET NUMBER



INFORMATION

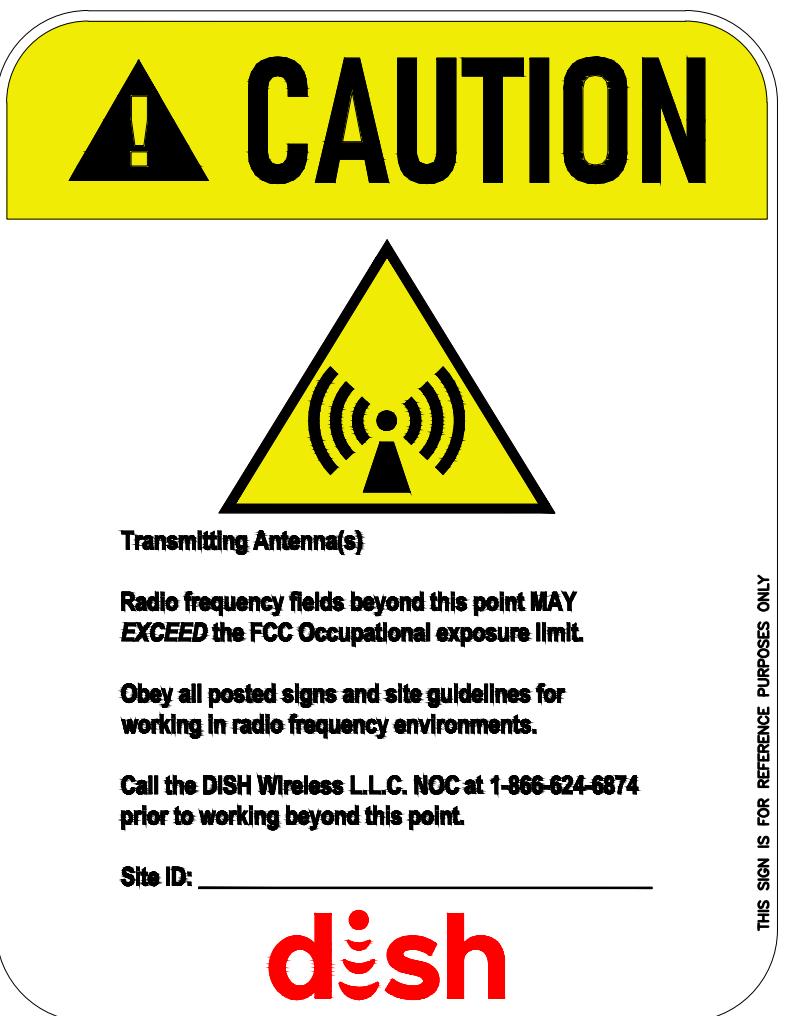
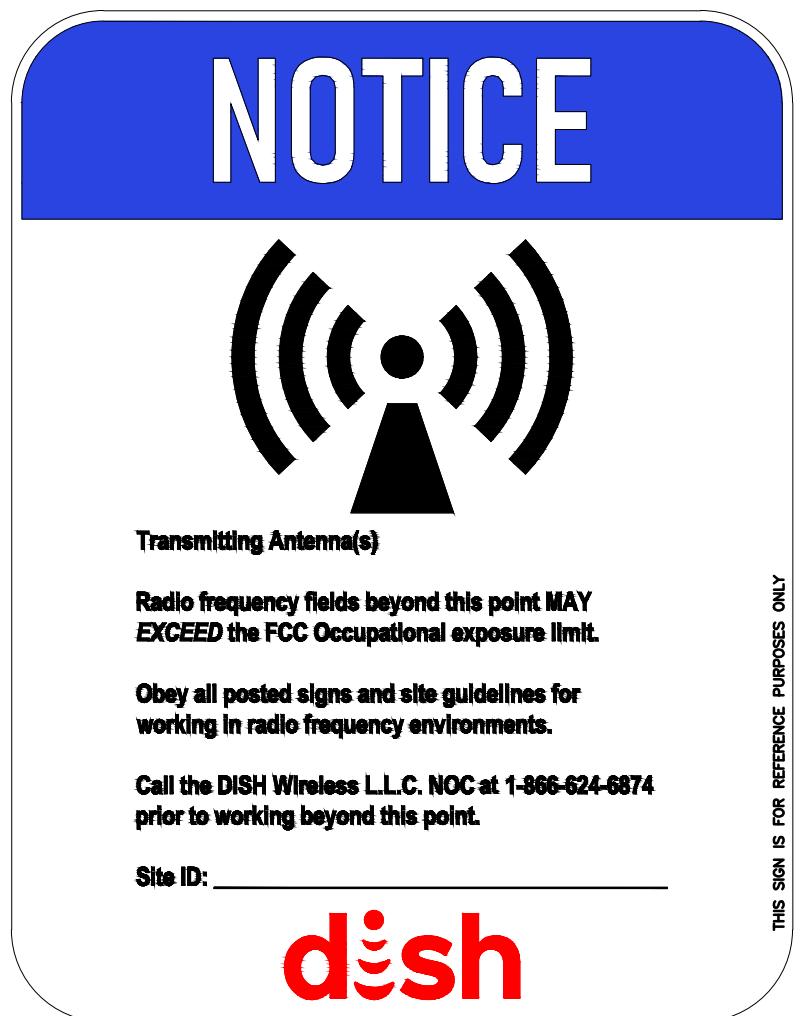
This is an access point to an area with transmitting antennas.

Obey all signs and barriers beyond this point.
Call the DISH Wireless L.L.C. NOC at 1-866-624-6874

Site ID: _____



THIS SIGN IS FOR REFERENCE PURPOSES ONLY



dish
wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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PROFESSIONAL ENGINEER

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DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02037A
66 SUGAR HOLLOW ROAD
DANBURY, CT 06810

SHEET TITLE
RF
SIGNAGE

SHEET NUMBER
GN-2

SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH Wireless L.L.C. AND TOWER OWNER NOC & THE DISH Wireless L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.
2. "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:
THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH Wireless L.L.C. AND TOWER OWNER, AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS AND RADIOS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
CARRIER:DISH Wireless L.L.C.
TOWER OWNER:TOWER OWNER
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH Wireless L.L.C. AND TOWER OWNER
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.



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PROJECT INFORMATION

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66 SUGAR HOLLOW ROAD
DANBURY, CT 06810

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-3

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

ELECTRICAL INSTALLATION NOTES:

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

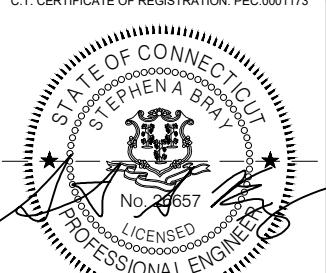
- ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED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

dish
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336.4121.A10

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER02037A
66 SUGAR HOLLOW ROAD
DANBURY, CT 06810

SHEET TITLE
GENERAL NOTES

SHEET NUMBER

GN-4

GROUNDING NOTES:

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

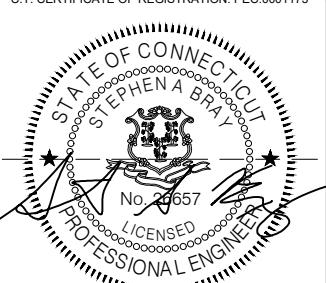
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SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-5

Exhibit D

Structural Analysis Report

Date: March 11, 2022



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

Subject:	Structural Analysis Report	
Carrier Designation:	DISH Network Co-Locate	
	Site Number:	NJJER02037A
	Site Name:	-
Crown Castle Designation:	BU Number:	842857
	Site Name:	BENNETT POND
	JDE Job Number:	678164
	Work Order Number:	2090687
	Order Number:	578962 Rev. 6
Engineering Firm Designation:	Crown Castle Project Number: 2090687	
Site Data:	66 SUGAR HOLLOW ROAD, DANBURY, FAIRFIELD County, CT Latitude 41° 20' 10", Longitude -73° 28' 14.4" 106 Foot - Monopole Tower	

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

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

LC5: Proposed Equipment Configuration

Sufficient Capacity – 80.4%

This analysis utilizes an ultimate 3-second gust wind speed of 115 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Fabiaye Arinyedokiar

Respectfully submitted by:

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



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Additional Calculations

1) INTRODUCTION

This tower is a 106 ft Monopole tower designed by Paul J. Ford and Company.

2) ANALYSIS CRITERIA

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

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
59.0	59.0	3	jma wireless	MX08FRO665-21 w/ Mount Pipe	1	1-3/8
		3	fujitsu	TA08025-B604		
		3	fujitsu	TA08025-B605		
		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)
106.0	106.0	6	ericsson	RRUS-11	1 1 2 12	2 1/2 3/4 1-1/4
		6	powerwave technologies	7770.00 w/ Mount Pipe		
		12	powerwave technologies	LGP21401		
		3	powerwave technologies	P65-16-XLH-RR w/ Mount Pipe		
		1	raycap	DC6-48-60-18-8F		
		1	tower mounts	Platform Mount [LP 1201-1]		
		1	tower mounts	Side Arm Mount [SO 102-3]		
88.0	90.0	3	alcatel lucent	1900MHz RRH	1 3	7/8 1-1/4
		3	alcatel lucent	800MHz RRH		
		3	alcatel lucent	RRH2X50-800		
		3	alcatel lucent	TD-RRH8X20-25		
		3	commscope	DT465B-2XR w/ Mount Pipe		
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe		
88.0	88.0	1	tower mounts	Platform Mount [LP 602-1]		
		1	tower mounts	Side Arm Mount [SO 102-3]		
75.0	75.0	1	gps	GPS_A	1	1/2
		1	tower mounts	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	5110642	CCISITES
4-TOWER MANUFACTURER DRAWINGS	5110641	CCISITES
4-GEOTECHNICAL REPORTS	5300808	CCISITES

3.1) Analysis Method

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

3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- 3) 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	106 - 72.25	Pole	TP27.529x22.3x0.1875	1	-8.94	979.66	32.5	Pass
L2	72.25 - 35.75	Pole	TP32.809x26.6117x0.2188	2	-16.18	1362.14	63.6	Pass
L3	35.75 - 0	Pole	TP37.91x31.7129x0.25	3	-22.44	1835.58	80.4	Pass
						Summary		
						Pole (L3)	80.4	Pass
						RATING =	80.4	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	64.4	Pass
1	Base Plate	0	56.7	Pass
1	Base Foundation (Structure)	0	12.0	Pass
1	Base Foundation (Soil Interaction)	0	71.2	Pass

Structure Rating (max from all components) =

80.4%

Notes:

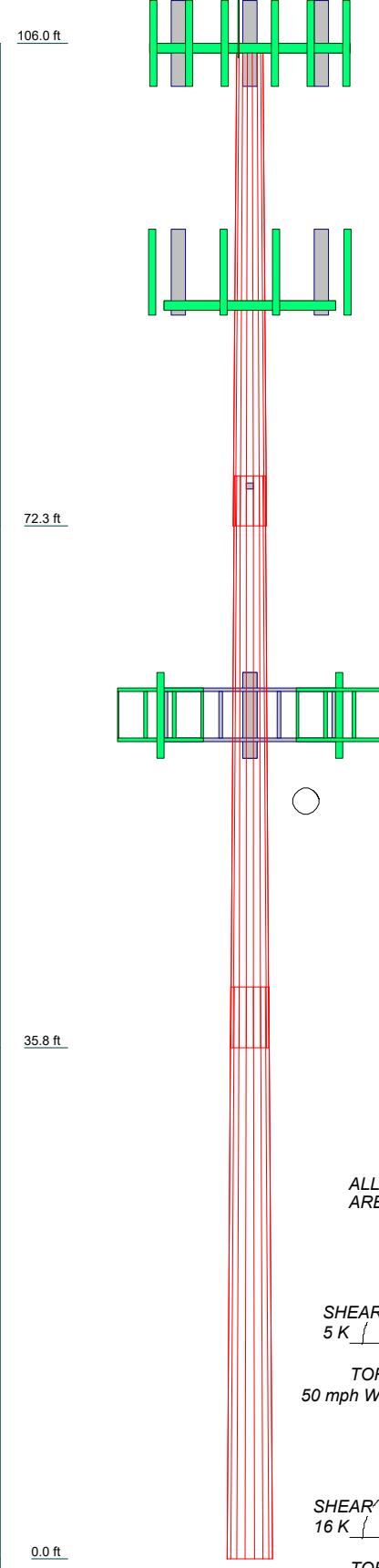
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

Section	3	2	1
Length (ft)	40.00	40.00	33.75
Number of Sides	18	18	18
Thickness (in)	0.2500	0.2188	0.1875
Socket Length (ft)		4.25	3.50
Top Dia (in)	31.7129	26.6117	22.3000
Bot Dia (in)	37.9100	32.8090	27.5290
Grade		A572-65	
Weight (K)	8.2	3.7	2.8
			1.7

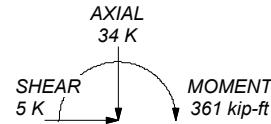


GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

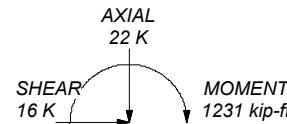
TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 115 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 80.4%

ALL REACTIONS ARE FACTORED



*TORQUE 0 kip-ft
50 mph WIND - 1.0000 in ICE*



*TORQUE 1 kip-ft
REACTIONS - 115 mph WIND*

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

Job:	842857		
Project:			
Client:	Crown Castle	Drawn by:	TStyran
Code:	TIA-222-H	Date:	03/11/22
Path:	C:\Users\tsstyran\Documents\WIP\842857\WO 2090687 - SA\QA\842857.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:

- 1) Tower is located in Fairfield County, Connecticut.
- 2) Tower base elevation above sea level: 528.00 ft.
- 3) Basic wind speed of 115 mph.
- 4) Risk Category II.
- 5) Exposure Category C.
- 6) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- 7) Topographic Category: 1.
- 8) Crest Height: 0.00 ft.
- 9) Nominal ice thickness of 1.0000 in.
- 10) Ice thickness is considered to increase with height.
- 11) Ice density of 56 pcf.
- 12) A wind speed of 50 mph is used in combination with ice.
- 13) Temperature drop of 50 °F.
- 14) Deflections calculated using a wind speed of 60 mph.
- 15) A non-linear (P-delta) analysis was used.
- 16) Pressures are calculated at each section.
- 17) Stress ratio used in pole design is 1.
- 18) Tower analysis based on target reliabilities in accordance with Annex S.
- 19) Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- 20) Maximum demand-capacity ratio is: 1.05.
- 21) 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	Retention 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.
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Use TIA-222-H Tension Splice
Secondary Horizontal Braces Leg	✓ Sort Capacity Reports By Component	Exemption
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Poles
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Include Shear-Torsion Interaction
SR Members Are Concentric	Ignore KL/ry For 60 Deg. Angle Legs	Always Use Sub-Critical Flow
		Use Top Mounted Sockets
		Pole Without Linear Attachments
		Pole With Shroud Or No
		Appurtenances
		Outside and Inside Corner Radii Are Known

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	106.00-72.25	33.75	3.50	18	22.3000	27.5290	0.1875	0.7500	A572-65 (65 ksi)
L2	72.25-35.75	40.00	4.25	18	26.6117	32.8090	0.2188	0.8752	A572-65 (65 ksi)
L3	35.75-0.00	40.00		18	31.7129	37.9100	0.2500	1.0000	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	I _t /Q in ²	w in	w/t
L1	22.6151	13.1597	812.9413	7.8499	11.3284	71.7614	1626.9523	6.5811	3.5948	19.172
	27.9248	16.2716	1536.7834	9.7062	13.9847	109.8901	3075.5889	8.1374	4.5151	24.081
L2	27.5391	18.3291	1613.0754	9.3695	13.5188	119.3213	3228.2734	9.1663	4.2986	19.646
	33.2814	22.6330	3037.0558	11.5695	16.6670	182.2200	6078.1078	11.3186	5.3893	24.631
L3	32.8322	24.9658	3122.3552	11.1693	16.1102	193.8126	6248.8188	12.4853	5.1415	20.566
	38.4563	29.8832	5354.5790	13.3693	19.2583	278.0404	10716.203	14.9444	6.2322	24.929
6										

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 106.00- 72.25				1	1	1			
L2 72.25- 35.75				1	1	1			
L3 35.75-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Componen t Type	Placement ft	Total Number	Number Per Row	Start/En d Position	Width or Diamete r in	Perimete r in	Weight plf
** Safety Line **										
CU12PSM9P8XXX(1- 3/8)	B	No	Surface Ar (CaAa)	59.00 - 0.00	1	1	-0.490 -0.460	1.4110		1.66

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Componen t Type	Placement ft	Total Number	C _{AA}	Weight
							ft ² /ft	plf
** 106 **								
LDF6-50A(1-1/4)	C	No	No	Inside Pole	106.00 - 0.00	12	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00
9776(3/4")	C	No	No	Inside Pole	106.00 - 0.00	2	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00
LDF4-50A(1/2)	C	No	No	Inside Pole	106.00 - 0.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C_{AA}	Weight
							ft ² /ft	plf
2" Rigid Conduit	A	No	No	Inside Pole	106.00 - 0.00	1	No Ice 0.00 1/2" Ice 0.00 1" Ice 0.00	2.80
** 88 **								
HB114-1-08U4-M5F(1/4)	B	No	No	Inside Pole	88.00 - 0.00	3	No Ice 0.00 1/2" Ice 0.00 1" Ice 0.00	1.30
HB114-08U3M12-XXXF(7/8)	B	No	No	Inside Pole	88.00 - 0.00	1	No Ice 0.00 1/2" Ice 0.00 1" Ice 0.00	0.68
** 75 **								
LDF4-50A(1/2)	B	No	No	Inside Pole	75.00 - 0.00	1	No Ice 0.00 1/2" Ice 0.00 1" Ice 0.00	0.15

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight
L1	106.00-72.25	A	0.000	0.000	0.000	0.000	0.09
		B	0.000	0.000	0.000	0.000	0.07
		C	0.000	0.000	0.000	0.000	0.27
L2	72.25-35.75	A	0.000	0.000	0.000	0.000	0.10
		B	0.000	0.000	3.281	0.000	0.21
		C	0.000	0.000	0.000	0.000	0.29
L3	35.75-0.00	A	0.000	0.000	0.000	0.000	0.10
		B	0.000	0.000	5.044	0.000	0.23
		C	0.000	0.000	0.000	0.000	0.28

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} In Face ft ²	C_{AA} Out Face ft ²	Weight
L1	106.00-72.25	A	0.938	0.000	0.000	0.000	0.000	0.09
		B		0.000	0.000	0.000	0.000	0.07
		C		0.000	0.000	0.000	0.000	0.27
L2	72.25-35.75	A	0.892	0.000	0.000	0.000	0.000	0.10
		B		0.000	0.000	7.644	0.000	0.27
		C		0.000	0.000	0.000	0.000	0.29
L3	35.75-0.00	A	0.800	0.000	0.000	0.000	0.000	0.10
		B		0.000	0.000	11.426	0.000	0.32
		C		0.000	0.000	0.000	0.000	0.28

Feed Line Center of Pressure

Section	Elevation ft	CP_x in	CP_z in	CP_x Ice in	CP_z Ice in
L1	106.00-72.25	0.0000	0.0000	0.0000	0.0000
L2	72.25-35.75	0.0393	-0.7500	0.0518	-0.9886
L3	35.75-0.00	0.0584	-1.1151	0.0756	-1.4424

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L2	15	CU12PSM9P8XXX(1-3/8)	35.75 - 59.00	1.0000	1.0000
L3	15	CU12PSM9P8XXX(1-3/8)	0.00 - 35.75	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} Front ft ²	C _{AA} Side ft ²	Weight K
** Lightning Rod ** Lighting Rod 5/8" x 4'	C	From Leg	0.00 0.00 0.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	0.25 0.66 0.97 0.97	0.25 0.66 0.03 0.04
** 106 ** (2) 7770.00 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	106.00	No Ice 1/2" Ice 1" Ice	3.39 3.75 4.12 2.32	2.32 2.66 3.02 0.06
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	106.00	No Ice 1/2" Ice 1" Ice	3.39 3.75 4.12 2.32	0.06 0.10 0.15
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	106.00	No Ice 1/2" Ice 1" Ice	3.39 3.75 4.12 2.32	0.06 0.10 0.15
P65-16-XLH-RR w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	106.00	No Ice 1/2" Ice 1" Ice	5.66 6.21 6.76 4.01	4.01 4.53 5.06 0.08
P65-16-XLH-RR w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	106.00	No Ice 1/2" Ice 1" Ice	5.66 6.21 6.76 4.01	4.01 4.53 5.06 0.08
P65-16-XLH-RR w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	106.00	No Ice 1/2" Ice 1" Ice	5.66 6.21 6.76 4.01	4.01 4.53 5.06 0.08
(4) LGP21401	A	From Leg	4.00 0.00 0.00	0.0000	106.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38 0.21	0.21 0.27 0.35 0.01
(4) LGP21401	B	From Leg	4.00 0.00 0.00	0.0000	106.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38 0.21	0.21 0.27 0.35 0.01
(4) LGP21401	C	From Leg	4.00 0.00	0.0000	106.00	No Ice 1.24	1.10 0.27	0.21 0.02

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft	C _{AA} Front	C _{AA} Side	Weight K	
			0.00			1/2" Ice 1" Ice	1.38	0.35	0.03
(2) RRUS-11	A	From Leg	4.00 0.00 0.00	0.0000	106.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.09
(2) RRUS-11	B	From Leg	4.00 0.00 0.00	0.0000	106.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.09
(2) RRUS-11	C	From Leg	4.00 0.00 0.00	0.0000	106.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.09
DC6-48-60-18-8F	A	From Leg	4.00 0.00 0.00	0.0000	106.00	No Ice 1/2" Ice 1" Ice	1.21 1.89 2.11	1.21 1.89 2.11	0.02 0.04 0.07
6' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	106.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
6' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	106.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
6' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	106.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
6' x 2" Mount Pipe	A	From Leg	2.00 0.00 0.00	0.0000	106.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
6' x 2" Mount Pipe	B	From Leg	2.00 0.00 0.00	0.0000	106.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
6' x 2" Mount Pipe	C	From Leg	2.00 0.00 0.00	0.0000	106.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
Top Hat 14" Diameter x 2' 3" Tall	C	None		0.0000	106.00	No Ice 1/2" Ice 1" Ice	3.67 3.95 4.22	3.67 3.95 4.22	0.10 0.13 0.17
Side Arm Mount [SO 102- 3]	C	None		0.0000	106.00	No Ice 1/2" Ice 1" Ice	3.60 4.18 4.75	3.60 4.18 4.75	0.07 0.11 0.14
Platform Mount [LP 1201- 1]	C	None		0.0000	106.00	No Ice 1/2" Ice 1" Ice	18.38 22.11 25.87	18.38 22.11 25.87	2.10 2.65 3.26
** 88 **									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	4.60 5.05 5.50	4.01 4.45 4.89	0.10 0.16 0.23
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	4.60 5.05 5.50	4.01 4.45 4.89	0.10 0.16 0.23

Description	Face or Leg	Offset Type	Offsets: Horz Vert ft ft ft	Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
						ft	ft ²	
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	4.60 5.05 5.50 4.89	4.01 4.45 4.89 0.16 0.23
DT465B-2XR w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	5.50 5.97 6.45 4.38 0.16 0.25	4.38 4.84 5.30 0.09
DT465B-2XR w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	5.50 5.97 6.45 4.38 0.16 0.25	4.38 4.84 5.30 0.09
DT465B-2XR w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	5.50 5.97 6.45 4.38 0.16 0.25	4.38 4.84 5.30 0.09
1900MHz RRH	A	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	2.49 2.70 2.91 3.26 0.08 0.11	2.49 3.48 3.72 0.04
1900MHz RRH	B	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	2.49 2.70 2.91 3.26 0.08 0.11	2.49 3.48 3.72 0.04
1900MHz RRH	C	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	2.49 2.70 2.91 3.26 0.08 0.11	2.49 3.48 3.72 0.04
800MHZ RRH	A	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51 1.77 0.05 0.10	2.13 1.95 2.13 1.77 0.05
800MHZ RRH	B	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51 1.77 0.05 0.10	2.13 1.95 2.13 1.77 0.05
800MHZ RRH	C	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51 1.77 0.05 0.10	2.13 1.95 2.13 1.77 0.05
TD-RRH8X20-25	A	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	4.05 4.30 4.56 1.53 0.07 0.13	4.05 4.30 4.56 1.53 0.07
TD-RRH8X20-25	B	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	4.05 4.30 4.56 1.53 0.07 0.13	4.05 4.30 4.56 1.53 0.07
TD-RRH8X20-25	C	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	4.05 4.30 4.56 1.53 0.07 0.13	4.05 4.30 4.56 1.53 0.07
RRH2X50-800	A	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	1.70 1.86 2.03 1.28 0.05 0.09	1.70 1.86 2.03 1.28 0.05
RRH2X50-800	B	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	1.70 1.86 2.03 1.28 0.05 0.09	1.70 1.86 2.03 1.28 0.05
RRH2X50-800	C	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	1.70 1.86 2.03 1.28 0.05 0.09	1.70 1.86 2.03 1.28 0.05
6' x 2" Mount Pipe	A	From Leg	4.00	0.0000	88.00	No Ice 1" Ice	1.43 1.43	0.02

Description	Face or Leg	Offset Type	Offsets: Horz Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAA Front	CAA Side	Weight K	
			0.00		1/2"	1.92	1.92	0.03	
			0.00		Ice	2.29	2.29	0.05	
					1" Ice				
6' x 2" Mount Pipe	B	From Leg	4.00	0.0000	88.00	No Ice	1.43	1.43	0.02
			0.00		1/2"	1.92	1.92	0.03	
			0.00		Ice	2.29	2.29	0.05	
					1" Ice				
6' x 2" Mount Pipe	C	From Leg	4.00	0.0000	88.00	No Ice	1.43	1.43	0.02
			0.00		1/2"	1.92	1.92	0.03	
			0.00		Ice	2.29	2.29	0.05	
					1" Ice				
Side Arm Mount [SO 102-3]	C	None		0.0000	88.00	No Ice	3.60	3.60	0.07
					1/2"	4.18	4.18	0.11	
					Ice	4.75	4.75	0.14	
					1" Ice				
Platform Mount [LP 602-1]	C	None		0.0000	88.00	No Ice	31.07	31.07	1.34
					1/2"	34.82	34.82	1.97	
					Ice	38.48	38.48	2.67	
					1" Ice				
** 75 **									
GPS_A	A	From Leg	4.00	0.0000	75.00	No Ice	0.26	0.26	0.00
			0.00		1/2"	0.32	0.32	0.00	
			0.00		Ice	0.39	0.39	0.01	
					1" Ice				
Side Arm Mount [SO 701-1]	A	From Leg	2.00	0.0000	75.00	No Ice	0.85	1.67	0.07
			0.00		1/2"	1.14	2.34	0.08	
			0.00		Ice	1.43	3.01	0.09	
					1" Ice				

MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00	0.0000	59.00	No Ice	8.01	4.23	0.11
			0.00		1/2"	8.52	4.69	0.19	
			0.00		Ice	9.04	5.16	0.29	
					1" Ice				
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00	0.0000	59.00	No Ice	8.01	4.23	0.11
			0.00		1/2"	8.52	4.69	0.19	
			0.00		Ice	9.04	5.16	0.29	
					1" Ice				
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00	0.0000	59.00	No Ice	8.01	4.23	0.11
			0.00		1/2"	8.52	4.69	0.19	
			0.00		Ice	9.04	5.16	0.29	
					1" Ice				
TA08025-B604	A	From Leg	4.00	0.0000	59.00	No Ice	1.96	0.98	0.06
			0.00		1/2"	2.14	1.11	0.08	
			0.00		Ice	2.32	1.25	0.10	
					1" Ice				
TA08025-B604	B	From Leg	4.00	0.0000	59.00	No Ice	1.96	0.98	0.06
			0.00		1/2"	2.14	1.11	0.08	
			0.00		Ice	2.32	1.25	0.10	
					1" Ice				
TA08025-B604	C	From Leg	4.00	0.0000	59.00	No Ice	1.96	0.98	0.06
			0.00		1/2"	2.14	1.11	0.08	
			0.00		Ice	2.32	1.25	0.10	
					1" Ice				
TA08025-B605	A	From Leg	4.00	0.0000	59.00	No Ice	1.96	1.13	0.08
			0.00		1/2"	2.14	1.27	0.09	
			0.00		Ice	2.32	1.41	0.11	
					1" Ice				
TA08025-B605	B	From Leg	4.00	0.0000	59.00	No Ice	1.96	1.13	0.08
			0.00		1/2"	2.14	1.27	0.09	
			0.00		Ice	2.32	1.41	0.11	
					1" Ice				
TA08025-B605	C	From Leg	4.00	0.0000	59.00	No Ice	1.96	1.13	0.08
			0.00		1/2"	2.14	1.27	0.09	
			0.00		Ice	2.32	1.41	0.11	
					1" Ice				

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front	C _{AA} Side	Weight K
RDIDC-9181-PF-48	A	From Leg	4.00 0.00 0.00	0.0000	59.00	No Ice 1/2" Ice 1" Ice	2.31 2.50 2.70	1.29 1.45 1.61
(2) 8' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	59.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	0.03 0.04 0.06
(2) 8' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	59.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	0.03 0.04 0.06
(2) 8' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	59.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	0.03 0.04 0.06
Commscope MC-PK8-DSH	C	None		0.0000	59.00	No Ice 1/2" Ice 1" Ice	34.24 62.95 91.66	34.24 62.95 91.66
								1.75 2.10 2.45

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

Comb. No.	Description
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	106 - 72.25	Pole	Max Tension	39	0.00	-0.00	-0.00
			Max. Compression	26	-16.12	0.03	0.35
			Max. Mx	20	-8.94	190.27	0.12
			Max. My	2	-8.94	0.03	190.34
			Max. Vy	8	9.30	-190.21	0.12
			Max. Vx	2	-9.30	0.03	190.34
			Max. Torque	8			0.25
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-26.26	-0.08	1.12
			Max. Mx	8	-16.18	-617.52	0.53
L2	72.25 - 35.75	Pole	Max. My	2	-16.18	-0.02	617.45
			Max. Vy	8	14.29	-617.52	0.53
			Max. Vx	2	-14.29	-0.02	617.45
			Max. Torque	8			0.68
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.61	-0.30	1.22
			Max. Mx	8	-22.44	-1230.37	0.60
			Max. My	2	-22.44	-0.12	1230.19
			Max. Vy	8	16.22	-1230.37	0.60
			Max. Vx	2	-16.22	-0.12	1230.19
L3	35.75 - 0	Pole	Max. Torque	8			0.68
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.61	-0.30	1.22
			Max. Mx	8	-22.44	-1230.37	0.60
			Max. My	2	-22.44	-0.12	1230.19
			Max. Vy	8	16.22	-1230.37	0.60
			Max. Vx	2	-16.22	-0.12	1230.19
			Max. Torque	8			0.68
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.61	-0.30	1.22

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	33.61	0.00	-0.00
	Max. H _x	21	16.84	16.19	0.00
	Max. H _z	3	16.84	0.00	16.19
	Max. M _x	2	1230.19	0.00	16.19
	Max. M _z	8	1230.37	-16.19	0.00
	Max. Torsion	8	0.68	-16.19	0.00
	Min. Vert	9	16.84	-16.19	0.00
	Min. H _x	9	16.84	-16.19	0.00
	Min. H _z	15	16.84	0.00	-16.19
	Min. M _x	14	-1228.99	0.00	-16.19
Min. M _z	Min. M _z	20	-1230.13	16.19	0.00
	Min. Torsion	20	-0.68	16.19	0.00

Tower Mast Reaction Summary

Load Combination	Vertical	Shear _x	Shear _z	Oversharing Moment, M _x	Oversharing Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead Only	18.71	0.00	-0.00	-0.47	-0.10	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	22.46	-0.00	-16.19	-1230.19	-0.12	-0.01
0.9 Dead+1.0 Wind 0 deg - No Ice	16.84	-0.00	-16.19	-1214.80	-0.09	-0.01
1.2 Dead+1.0 Wind 30 deg - No Ice	22.46	8.10	-14.02	-1065.58	-615.32	-0.35
0.9 Dead+1.0 Wind 30 deg - No Ice	16.84	8.10	-14.02	-1052.19	-607.64	-0.35
1.2 Dead+1.0 Wind 60 deg - No Ice	22.46	14.03	-8.10	-615.46	-1065.68	-0.59
0.9 Dead+1.0 Wind 60 deg - No Ice	16.84	14.03	-8.10	-607.67	-1052.40	-0.59
1.2 Dead+1.0 Wind 90 deg - No Ice	22.46	16.19	-0.00	-0.60	-1230.37	-0.68
0.9 Dead+1.0 Wind 90 deg - No Ice	16.84	16.19	-0.00	-0.44	-1215.10	-0.67
1.2 Dead+1.0 Wind 120 deg - No Ice	22.46	14.03	8.10	614.27	-1065.67	-0.58
0.9 Dead+1.0 Wind 120 deg - No Ice	16.84	14.03	8.10	606.78	-1052.40	-0.58
1.2 Dead+1.0 Wind 150 deg - No Ice	22.46	8.10	14.02	1064.38	-615.32	-0.33
0.9 Dead+1.0 Wind 150 deg - No Ice	16.84	8.10	14.02	1051.30	-607.64	-0.33
1.2 Dead+1.0 Wind 180 deg - No Ice	22.46	-0.00	16.19	1228.99	-0.12	0.01
0.9 Dead+1.0 Wind 180 deg - No Ice	16.84	-0.00	16.19	1213.92	-0.09	0.01
1.2 Dead+1.0 Wind 210 deg - No Ice	22.46	-8.10	14.02	1064.38	615.07	0.35
0.9 Dead+1.0 Wind 210 deg - No Ice	16.84	-8.10	14.02	1051.30	607.46	0.35
1.2 Dead+1.0 Wind 240 deg - No Ice	22.46	-14.03	8.10	614.27	1065.43	0.59
0.9 Dead+1.0 Wind 240 deg - No Ice	16.84	-14.03	8.10	606.78	1052.22	0.59
1.2 Dead+1.0 Wind 270 deg - No Ice	22.46	-16.19	-0.00	-0.60	1230.13	0.68
0.9 Dead+1.0 Wind 270 deg - No Ice	16.84	-16.19	-0.00	-0.44	1214.92	0.67
1.2 Dead+1.0 Wind 300 deg - No Ice	22.46	-14.03	-8.10	-615.46	1065.43	0.58
0.9 Dead+1.0 Wind 300 deg - No Ice	16.84	-14.03	-8.10	-607.67	1052.22	0.58
1.2 Dead+1.0 Wind 330 deg - No Ice	22.46	-8.10	-14.02	-1065.58	615.08	0.33
0.9 Dead+1.0 Wind 330 deg - No Ice	16.84	-8.10	-14.02	-1052.19	607.46	0.33
1.2 Dead+1.0 Ice+1.0 Temp	33.61	-0.00	0.00	-1.22	-0.30	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	33.61	-0.00	-4.80	-360.98	-0.32	-0.01
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	33.61	2.40	-4.16	-312.80	-180.39	-0.11
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	33.61	4.16	-2.40	-181.17	-312.21	-0.18
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	33.61	4.81	0.00	-1.37	-360.46	-0.20
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	33.61	4.16	2.40	178.44	-312.21	-0.17
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	33.61	2.40	4.16	310.06	-180.39	-0.10
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	33.61	-0.00	4.80	358.24	-0.32	0.01

Load Combination	Vertical	Shear _x	Shear _z	Overshooting Moment, M _x	Overshooting Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	33.61	-2.40	4.16	310.06	179.75	0.11
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	33.61	-4.16	2.40	178.44	311.57	0.18
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	33.61	-4.81	0.00	-1.37	359.82	0.20
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	33.61	-4.16	-2.40	-181.17	311.57	0.17
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	33.61	-2.40	-4.16	-312.80	179.75	0.10
Dead+Wind 0 deg - Service	18.71	-0.00	-4.15	-313.57	-0.10	-0.00
Dead+Wind 30 deg - Service	18.71	2.08	-3.60	-271.63	-156.72	-0.09
Dead+Wind 60 deg - Service	18.71	3.60	-2.08	-157.04	-271.38	-0.16
Dead+Wind 90 deg - Service	18.71	4.15	0.00	-0.50	-313.35	-0.18
Dead+Wind 120 deg - Service	18.71	3.60	2.08	156.04	-271.38	-0.16
Dead+Wind 150 deg - Service	18.71	2.08	3.60	270.64	-156.72	-0.09
Dead+Wind 180 deg - Service	18.71	-0.00	4.15	312.58	-0.10	0.00
Dead+Wind 210 deg - Service	18.71	-2.08	3.60	270.64	156.52	0.09
Dead+Wind 240 deg - Service	18.71	-3.60	2.08	156.04	271.18	0.16
Dead+Wind 270 deg - Service	18.71	-4.15	0.00	-0.50	313.14	0.18
Dead+Wind 300 deg - Service	18.71	-3.60	-2.08	-157.04	271.18	0.16
Dead+Wind 330 deg - Service	18.71	-2.08	-3.60	-271.63	156.52	0.09

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-18.71	0.00	0.00	18.71	0.00	0.000%
2	0.00	-22.46	-16.19	0.00	22.46	16.19	0.006%
3	0.00	-16.84	-16.19	0.00	16.84	16.19	0.005%
4	8.10	-22.46	-14.02	-8.10	22.46	14.02	0.000%
5	8.10	-16.84	-14.02	-8.10	16.84	14.02	0.000%
6	14.03	-22.46	-8.10	-14.03	22.46	8.10	0.000%
7	14.03	-16.84	-8.10	-14.03	16.84	8.10	0.000%
8	16.20	-22.46	0.00	-16.19	22.46	0.00	0.006%
9	16.20	-16.84	0.00	-16.19	16.84	0.00	0.005%
10	14.03	-22.46	8.10	-14.03	22.46	-8.10	0.000%
11	14.03	-16.84	8.10	-14.03	16.84	-8.10	0.000%
12	8.10	-22.46	14.02	-8.10	22.46	-14.02	0.000%
13	8.10	-16.84	14.02	-8.10	16.84	-14.02	0.000%
14	0.00	-22.46	16.19	0.00	22.46	-16.19	0.006%
15	0.00	-16.84	16.19	0.00	16.84	-16.19	0.005%
16	-8.10	-22.46	14.02	8.10	22.46	-14.02	0.000%
17	-8.10	-16.84	14.02	8.10	16.84	-14.02	0.000%
18	-14.03	-22.46	8.10	14.03	22.46	-8.10	0.000%
19	-14.03	-16.84	8.10	14.03	16.84	-8.10	0.000%
20	-16.20	-22.46	0.00	16.19	22.46	0.00	0.006%
21	-16.20	-16.84	0.00	16.19	16.84	0.00	0.005%
22	-14.03	-22.46	-8.10	14.03	22.46	8.10	0.000%
23	-14.03	-16.84	-8.10	14.03	16.84	8.10	0.000%
24	-8.10	-22.46	-14.02	8.10	22.46	14.02	0.000%
25	-8.10	-16.84	-14.02	8.10	16.84	14.02	0.000%
26	0.00	-33.61	0.00	0.00	33.61	-0.00	0.002%
27	0.00	-33.61	-4.80	0.00	33.61	4.80	0.001%
28	2.40	-33.61	-4.16	-2.40	33.61	4.16	0.001%
29	4.17	-33.61	-2.40	-4.16	33.61	2.40	0.001%
30	4.81	-33.61	0.00	-4.81	33.61	-0.00	0.001%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
31	4.17	-33.61	2.40	-4.16	33.61	-2.40	0.001%
32	2.40	-33.61	4.16	-2.40	33.61	-4.16	0.001%
33	0.00	-33.61	4.80	0.00	33.61	-4.80	0.001%
34	-2.40	-33.61	4.16	2.40	33.61	-4.16	0.001%
35	-4.17	-33.61	2.40	4.16	33.61	-2.40	0.001%
36	-4.81	-33.61	0.00	4.81	33.61	-0.00	0.001%
37	-4.17	-33.61	-2.40	4.16	33.61	2.40	0.001%
38	-2.40	-33.61	-4.16	2.40	33.61	4.16	0.001%
39	0.00	-18.71	-4.15	0.00	18.71	4.15	0.004%
40	2.08	-18.71	-3.60	-2.08	18.71	3.60	0.004%
41	3.60	-18.71	-2.08	-3.60	18.71	2.08	0.004%
42	4.15	-18.71	0.00	-4.15	18.71	-0.00	0.004%
43	3.60	-18.71	2.08	-3.60	18.71	-2.08	0.004%
44	2.08	-18.71	3.60	-2.08	18.71	-3.60	0.004%
45	0.00	-18.71	4.15	0.00	18.71	-4.15	0.004%
46	-2.08	-18.71	3.60	2.08	18.71	-3.60	0.004%
47	-3.60	-18.71	2.08	3.60	18.71	-2.08	0.004%
48	-4.15	-18.71	0.00	4.15	18.71	-0.00	0.004%
49	-3.60	-18.71	-2.08	3.60	18.71	2.08	0.004%
50	-2.08	-18.71	-3.60	2.08	18.71	3.60	0.004%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	14	0.00007580	0.00009357
3	Yes	14	0.00004978	0.00007669
4	Yes	17	0.00000001	0.00013628
5	Yes	17	0.00000001	0.00009820
6	Yes	17	0.00000001	0.00014117
7	Yes	17	0.00000001	0.00010185
8	Yes	14	0.00007580	0.00012691
9	Yes	14	0.00004977	0.00010253
10	Yes	17	0.00000001	0.00013473
11	Yes	17	0.00000001	0.00009714
12	Yes	17	0.00000001	0.00013922
13	Yes	17	0.00000001	0.00010050
14	Yes	14	0.00007581	0.00009343
15	Yes	14	0.00004978	0.00007661
16	Yes	17	0.00000001	0.00013932
17	Yes	17	0.00000001	0.00010057
18	Yes	17	0.00000001	0.00013466
19	Yes	17	0.00000001	0.00009709
20	Yes	14	0.00007580	0.00012690
21	Yes	14	0.00004978	0.00010252
22	Yes	17	0.00000001	0.00014108
23	Yes	17	0.00000001	0.00010180
24	Yes	17	0.00000001	0.00013636
25	Yes	17	0.00000001	0.00009826
26	Yes	6	0.00000001	0.00001988
27	Yes	15	0.00000001	0.00005600
28	Yes	15	0.00000001	0.00008403
29	Yes	15	0.00000001	0.00008576
30	Yes	15	0.00000001	0.00005610
31	Yes	15	0.00000001	0.00008245
32	Yes	15	0.00000001	0.00008384
33	Yes	15	0.00000001	0.00005532
34	Yes	15	0.00000001	0.00008380
35	Yes	15	0.00000001	0.00008232
36	Yes	15	0.00000001	0.00005604
37	Yes	15	0.00000001	0.00008560
38	Yes	15	0.00000001	0.00008396
39	Yes	13	0.00000001	0.00006883
40	Yes	13	0.00000001	0.00006878
41	Yes	13	0.00000001	0.00008011
42	Yes	13	0.00000001	0.00007038
43	Yes	13	0.00000001	0.00006611
44	Yes	13	0.00000001	0.00007584
45	Yes	13	0.00000001	0.00006849
46	Yes	13	0.00000001	0.00007609
47	Yes	13	0.00000001	0.00006599
48	Yes	13	0.00000001	0.00007036
49	Yes	13	0.00000001	0.00007991
50	Yes	13	0.00000001	0.00006897

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	106 - 72.25	16.156	39	1.1695	0.0022
L2	75.75 - 35.75	9.035	39	1.0314	0.0015
L3	40 - 0	2.704	40	0.6038	0.0006

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
107.00	Lighting Rod 5/8" x 4'	39	16.156	1.1695	0.0022	46050
106.00	(2) 7770.00 w/ Mount Pipe	39	16.156	1.1695	0.0022	46050
88.00	APXVSPP18-C-A20 w/ Mount Pipe	39	11.826	1.1062	0.0018	12791
75.00	GPS_A	39	8.871	1.0254	0.0015	7343
59.00	MX08FRO665-21 w/ Mount Pipe	40	5.632	0.8610	0.0011	4453

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	106 - 72.25	63.419	8	4.5946	0.0079
L2	75.75 - 35.75	35.472	8	4.0524	0.0055
L3	40 - 0	10.617	6	2.3721	0.0023

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
107.00	Lighting Rod 5/8" x 4'	8	63.419	4.5946	0.0079	11854
106.00	(2) 7770.00 w/ Mount Pipe	8	63.419	4.5946	0.0079	11854
88.00	APXVSPP18-C-A20 w/ Mount Pipe	8	46.427	4.3465	0.0066	3291
75.00	GPS_A	8	34.827	4.0290	0.0055	1887
59.00	MX08FRO665-21 w/ Mount Pipe	8	22.112	3.3830	0.0040	1141

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	ϕP _n K	Ratio P _u ϕP _n
L1	106 - 72.25 (1)	TP27.529x22.3x0.1875	33.75	0.00	0.0	15.948 9	-8.94	933.01	0.010
L2	72.25 - 35.75 (2)	TP32.809x26.6117x0.218	40.00	0.00	0.0	22.175 7	-16.18	1297.28	0.012
L3	35.75 - 0 (3)	TP37.91x31.7129x0.25	40.00	0.00	0.0	29.883 2	-22.44	1748.17	0.013

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	ϕM _{nx} kip-ft	Ratio M _{ux} ϕM _{nx}	M _{uy} kip-ft	ϕM _{ny} kip-ft	Ratio M _{uy} ϕM _{ny}
L1	106 - 72.25 (1)	TP27.529x22.3x0.1875	190.37	575.10	0.331	0.00	575.10	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L2	72.25 - 35.75 (2)	TP32.809x26.6117x0.218 8	617.71	944.73	0.654	0.00	944.73	0.000
L3	35.75 - 0 (3)	TP37.91x31.7129x0.25	1230.63	1481.51	0.831	0.00	1481.51	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	106 - 72.25 (1)	TP27.529x22.3x0.1875	9.30	279.90	0.033	0.11	656.92	0.000
L2	72.25 - 35.75 (2)	TP32.809x26.6117x0.218 8	14.29	389.18	0.037	0.59	1088.32	0.001
L3	35.75 - 0 (3)	TP37.91x31.7129x0.25	16.22	524.45	0.031	0.59	1729.68	0.000

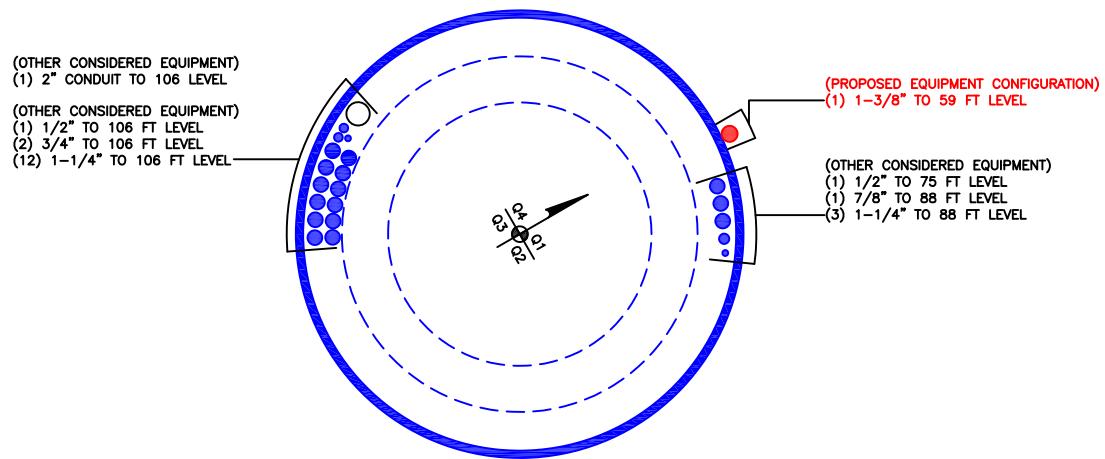
Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	106 - 72.25 (1)	0.010	0.331	0.000	0.033	0.000	0.342	1.050	4.8.2
L2	72.25 - 35.75 (2)	0.012	0.654	0.000	0.037	0.001	0.668	1.050	4.8.2
L3	35.75 - 0 (3)	0.013	0.831	0.000	0.031	0.000	0.844	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	106 - 72.25	Pole	TP27.529x22.3x0.1875	1	-8.94	979.66	32.5	Pass
L2	72.25 - 35.75	Pole	TP32.809x26.6117x0.2188	2	-16.18	1362.14	63.6	Pass
L3	35.75 - 0	Pole	TP37.91x31.7129x0.25	3	-22.44	1835.58	80.4	Pass
						Summary		
						Pole (L3)	80.4	Pass
						RATING =	80.4	Pass

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C
ADDITIONAL CALCULATIONS

Monopole Base Plate Connection

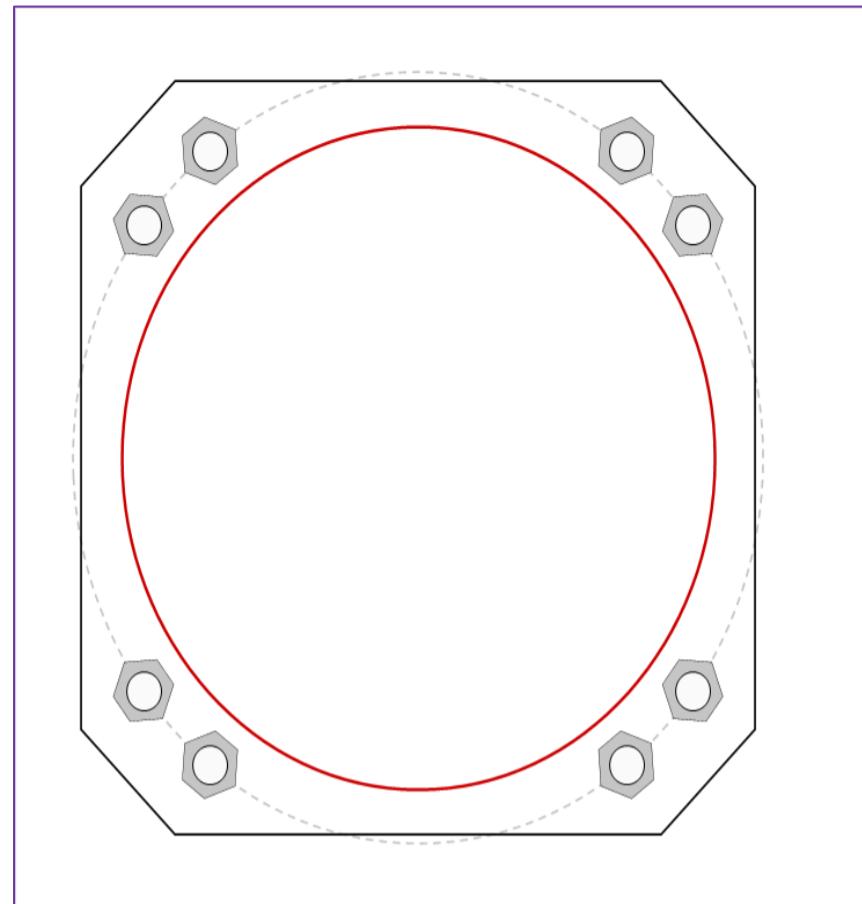


Site Info	
BU #	842857
Site Name	Bennet Pond
Order #	578962 REV 6

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0.75

Applied Loads	
Moment (kip-ft)	1230.63
Axial Force (kips)	22.44
Shear Force (kips)	16.22

*TIA-222-H Section 15.5 Applied



Connection Properties

Analysis Results

Anchor Rod Data

(8) 2-1/4" \varnothing bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 44" BC

Anchor Spacing: 6 in

Base Plate Data

43" W x 2.5" Plate (A572-50; $F_y=50$ ksi, $F_u=65$ ksi); Clip: 6 in

Stiffener Data

N/A

Pole Data

37.91" x 0.25" 18-sided pole (A572-65; $F_y=65$ ksi, $F_u=80$ ksi)

Anchor Rod Summary

(units of kips, kip-in)		
$P_{u_t} = 164.83$	$\phi P_{n_t} = 243.75$	Stress Rating
$V_u = 2.03$	$\phi V_n = 149.1$	64.4%
$M_u = n/a$	$\phi M_n = n/a$	Pass

Base Plate Summary

Max Stress (ksi):	26.8	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	56.7%	Pass

Pier and Pad Foundation



BU # :	842857
Site Name:	Bennet Pond
App. Number:	578962 REV 6

TIA-222 Revision:	H
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	<input type="checkbox"/>
Block Foundation?:	<input checked="" type="checkbox"/>
Rectangular Pad?:	<input type="checkbox"/>

Superstructure Analysis Reactions		
Compression, P_{comp} :	22.46	kips
Base Shear, V_u_{comp} :	16.2	kips
Moment, M_u :	1230.64	ft-kips
Tower Height, H :	106	ft
BP Dist. Above Fdn, bp_{dist} :	3	in
Bolt Circle / Bearing Plate Width, BC :	44	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	157.86	16.20	9.8%	Pass
<i>Bearing Pressure (ksf)</i>	23.04	4.77	20.7%	Pass
<i>Overturning (kip*ft)</i>	1871.56	1331.89	71.2%	Pass
<i>Pad Flexure (kip*ft)</i>	4965.62	625.83	12.0%	Pass
<i>Pad Shear - 1-way (kips)</i>	1098.05	34.52	3.0%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.164	0.001	0.4%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	9931.24	0.00	0.0%	Pass

*Rating per TIA-222-H Section 15.5

Structural Rating*:	12.0%
Soil Rating*:	71.2%

Pad Properties		
Depth, D :	5.5	ft
Pad Width, W_1 :	16.5	ft
Pad Thickness, T :	6	ft
Pad Rebar Size (Bottom dir. 2), Sp_2 :	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	21	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	3	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	130	pcf
Ultimate Net Bearing, Q_{net} :	30.000	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, φ :	42	degrees
SPT Blow Count, N_{blows} :	50	
Base Friction, μ :	0.45	
Neglected Depth, N :	3.33	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, gw :	N/A	ft

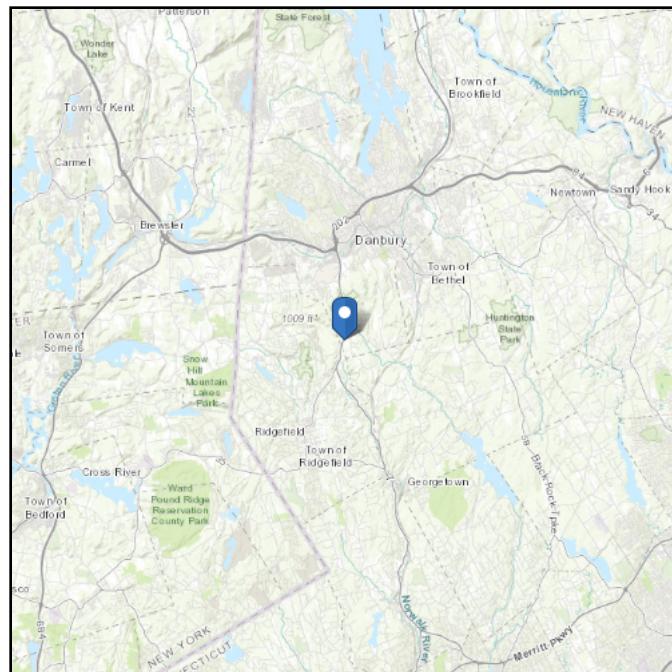
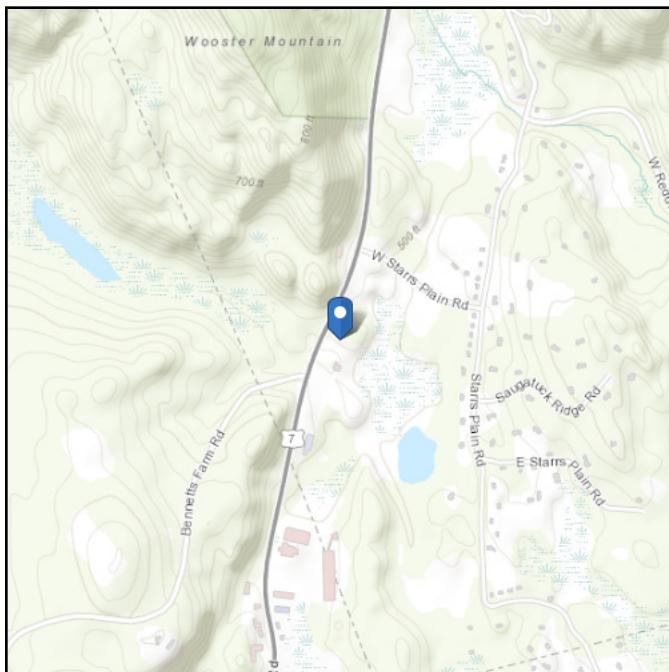
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ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 527.6 ft (NAVD 88)
Latitude: 41.336111
Longitude: -73.470667



Wind

Results:

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

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1-CC.2-4, and Section 26.5.2

Date Accessed: Tue Feb 15 2022

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

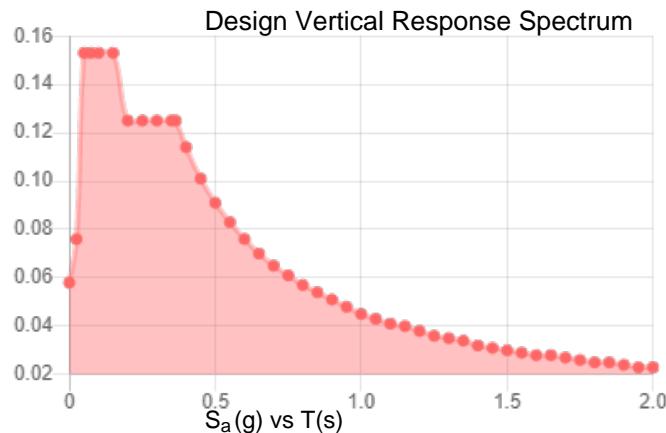
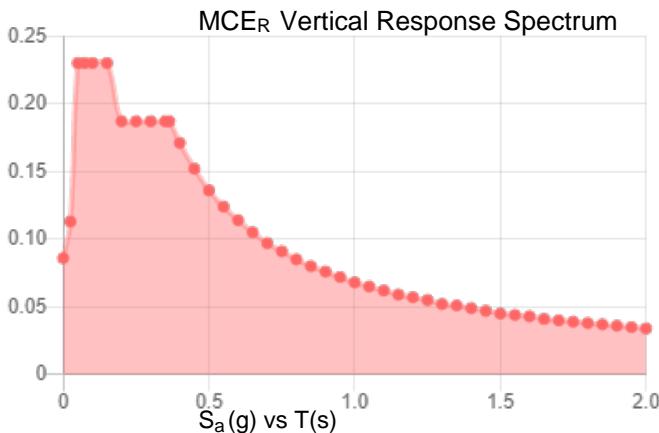
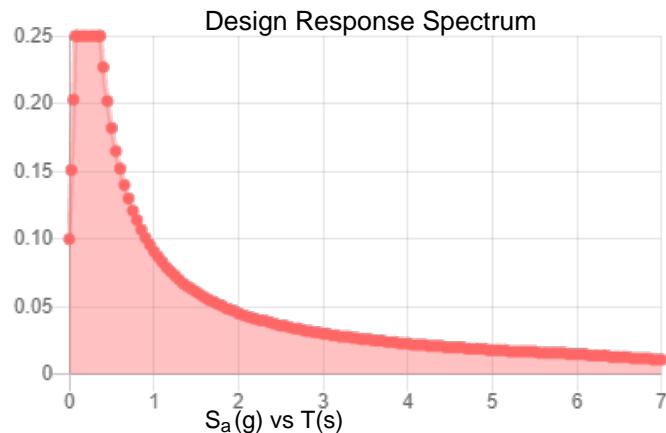
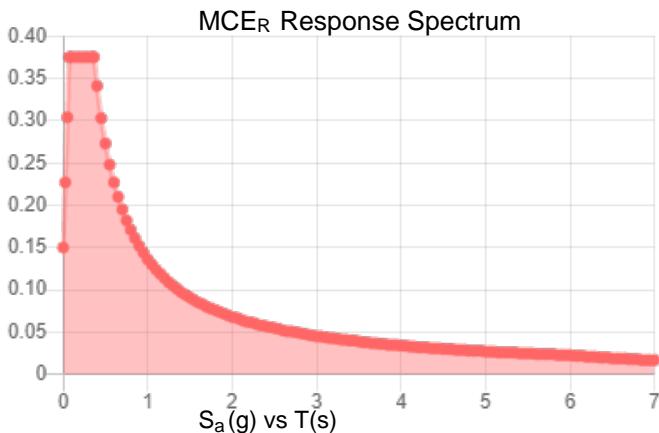
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.234	S_{D1} :	0.091
S_1 :	0.057	T_L :	6
F_a :	1.6	PGA :	0.137
F_v :	2.4	PGA_M :	0.209
S_{MS} :	0.375	F_{PGA} :	1.527
S_{M1} :	0.136	I_e :	1
S_{DS} :	0.25	C_v :	0.768

Seismic Design Category B



Data Accessed: Tue Feb 15 2022

Date Source:

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

Ice

Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 15 F

Gust Speed 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Tue Feb 15 2022

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

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

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

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

Exhibit E

Mount Analysis



Date: March 7, 2022

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
towersupport@btgrp.com

Subject:	Mount Analysis - Conditional Passing Report	
Carrier Designation:	Dish Network Co-Locate	
	Carrier Site Number:	NJJER02037A
	Carrier Site Name:	N/A
Crown Castle Designation:	BU Number:	842857
	Site Name:	Bennett Pond
	JDE Job Number:	678164
	Order Number:	578962, Rev. 4
Engineering Firm Designation:	Report Designation:	158154.002.01
Site Data:	66 Sugar Hollow Road, Danbury, CT, Fairfield County, 06810 Latitude 41° 20' 10.00" Longitude -73° 28' 14.40"	
Structure Information:	Tower Height & Type:	106 ft. Monopole
	Mount Elevation:	59 ft.
	Mount Type:	8ft Platform Mount

B+T Group is pleased to submit this **“Mount Analysis - Conditional Passing Report”** to determine the structural integrity of DISH Network’s antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

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

Platform Mount

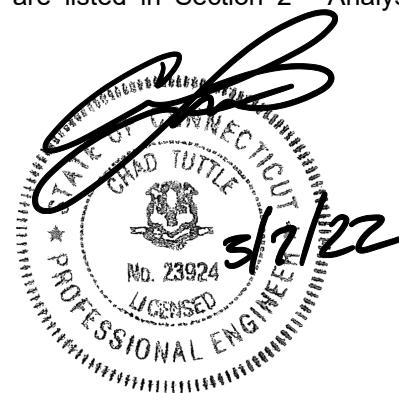
Sufficient

*Sufficient upon completion of the recommendations listed in the Section 4.1 of this report.

"This analysis utilizes an ultimate 3-second gust wind speed of 115 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria."

Mount structural analysis prepared by: Erika Ruiz

Respectfully submitted by: B&T Engineering, Inc.
COA: PEC.0001564 Expires: 02/01/2023



Chad E. Tuttle, P.E.

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8) APPENDIX D

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Supplemental Drawings

1) INTRODUCTION

This is a proposed 8' Platform mount, designed by Commscope Platform Mounts, (Part #MC-PK8-DSH)

2) ANALYSIS CRITERIA

Building Code:	2015 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	115 mph
Exposure Category:	C
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Seismic S _s :	0.234
Seismic S ₁ :	0.057
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	Manufacturer	Model / Type	Mount / Modification Details
59	59	3	Commscope	FFVV-65B-R2	8ft Platform Mount
		3	Fujitsu	TA08025-B604	
		3	Fujitsu	TA08025-B605	
		1	Raycap	RDIDC-9181-PF-48	

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Order	Proposed Loading	Date: 12/13/2021	Crown Castle
CD's	KMB Design Group	Date: 08/31/2021	
Manufacturer Drawing	Commscope (Part #MC-PK8-DSH)	Date: 02/17/2020	Commscope

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 19.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

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

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Mount Analysis* (Revision E). In addition, this analysis is in accordance with OTHER SOW.

Manufacturer's drawings were used to create models.

3.2) Assumptions

1. The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design, TIA Standards, and/or manufacturer's specifications.
2. The configuration of antennas, mounts, and other appurtenances are as specified in Table-1.
3. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected members unless otherwise specified in this report.
4. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.

The following assumptions have been included in the analysis of the mount

Component	Section	Length	Note
Proposed Equipment Mount Pipe	2" Std. Pipe	4'-0"	Attached to Support Tube, Per CD's

5. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
6. Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
7. 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.
8. The following material grades were assumed (Unless Noted Otherwise):
 - (a) Connection Bolts : ASTM A325
 - (b) Steel Pipe : ASTM A53 (GR. 35)
 - (c) HSS (Round) : ASTM 500 (GR. B-42)
 - (d) HSS (Rectangular) : ASTM 500 (GR. B-46)
 - (e) Channel : ASTM A36 (GR. 36)
 - (f) Steel Solid Rod : ASTM A36 (GR. 36)
 - (g) Steel Plate : ASTM A36 (GR. 36)
 - (h) Steel Angle : ASTM A36 (GR. 36)
 - (i) UNISTRUT : ASTM A570 (GR. 33)

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group 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 Mount)

Notes	Component	Centerline (ft.)	Critical Member	% Capacity	Pass / Fail
1	Main Horizontals	59	80	7.1	Pass
	Support Rails		85	10.1	Pass
	Support Tubes		1	47.5	Pass
	Support Channels		3	32.9	Pass
	Support Angles		58	21.2	Pass
	Connection Angles		59	27.4	Pass
	Mount Pipes		72	11.9	Pass
	Connection Plates		7	19.4	Pass
2	Mount to Tower Connection		-	23.6	Pass

Structure Rating (max from all components) =	47.5%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
- 2) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity reported.

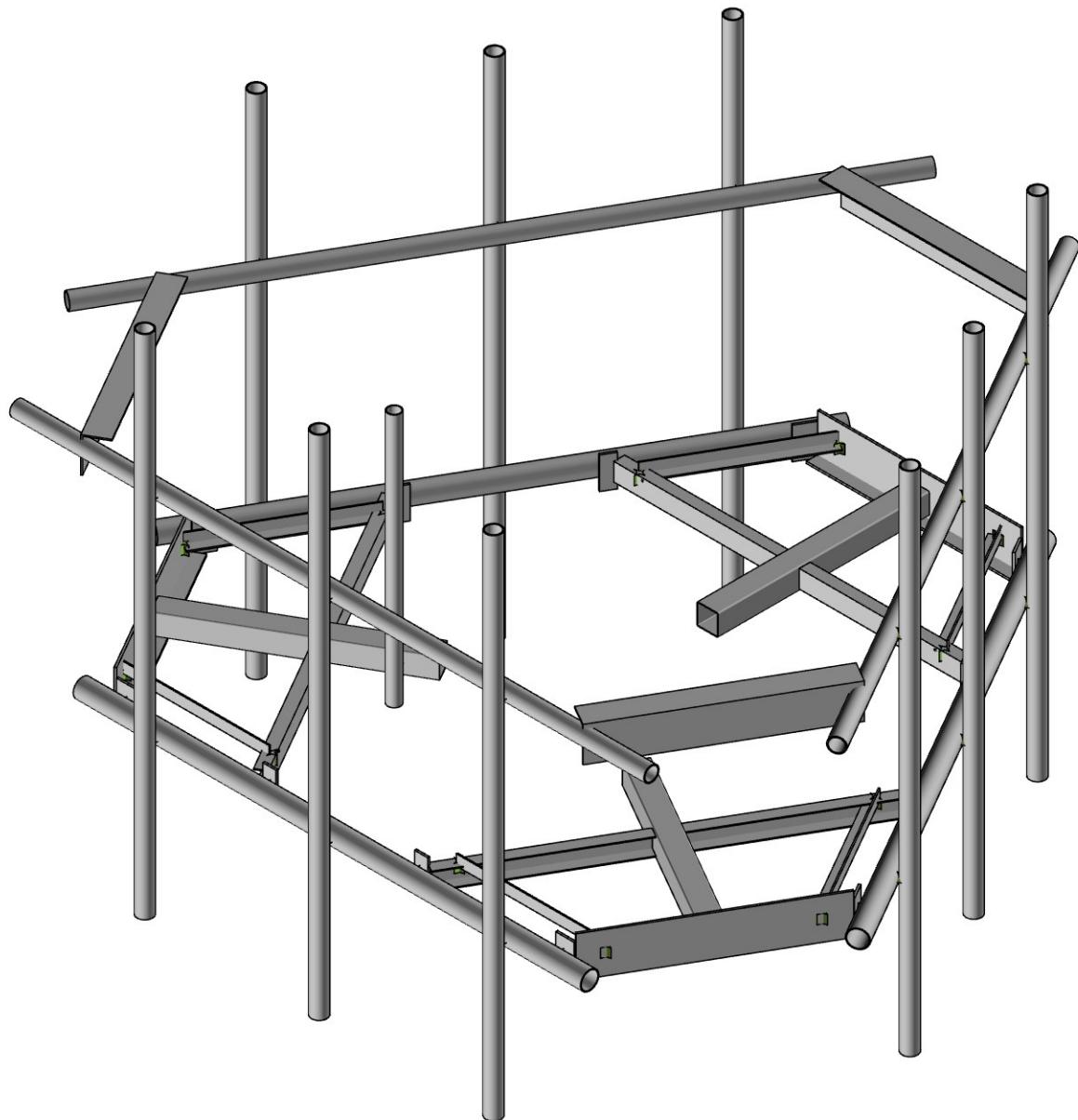
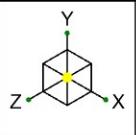
4.1) Recommendations

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

1. Commscope Part #MC-PK8-DSH.

No structural modifications are required at this time.

APPENDIX A
WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

B+T Group

APK

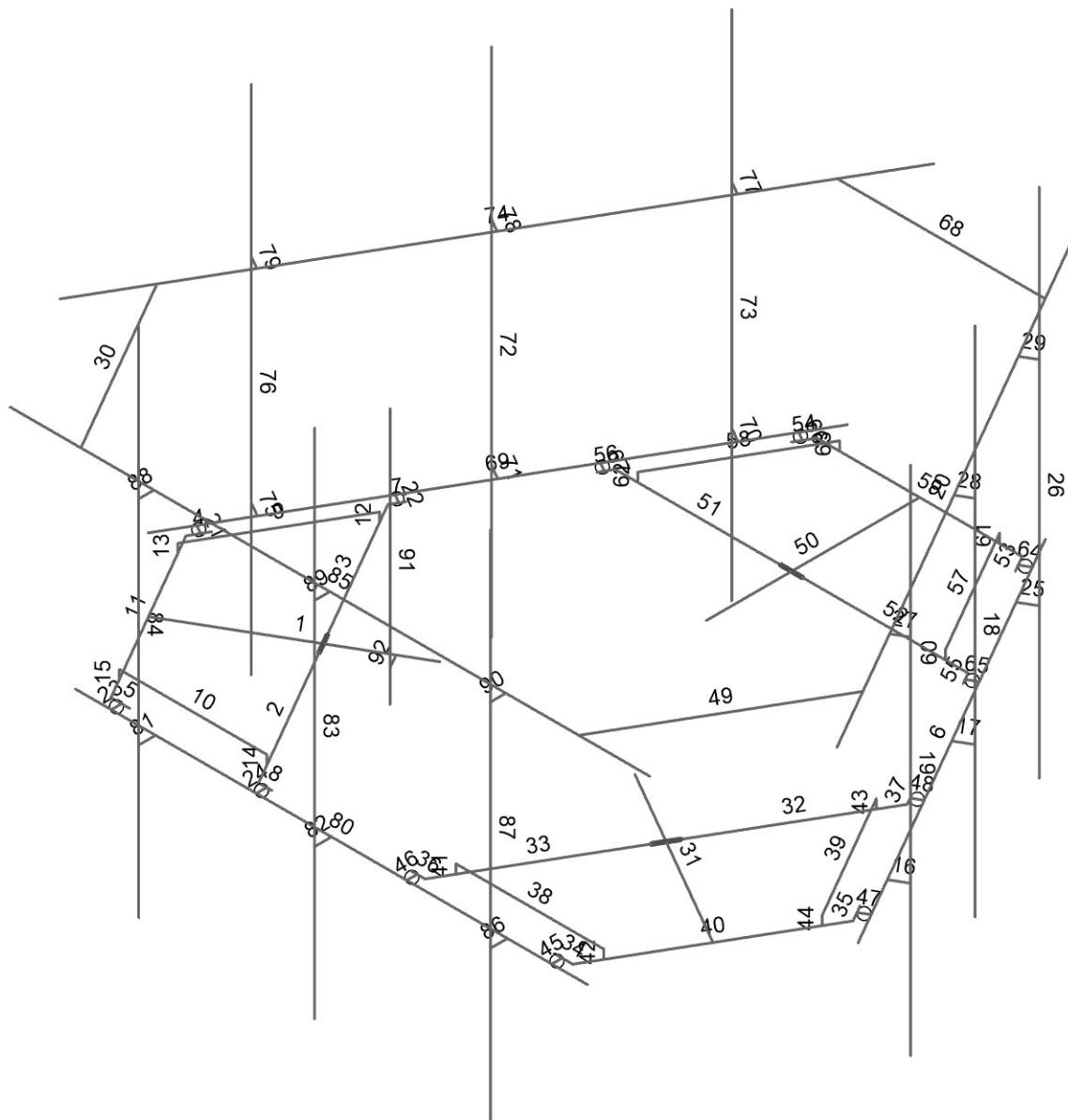
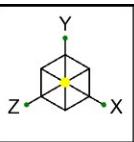
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842857 - Bennett Pond

SK-1

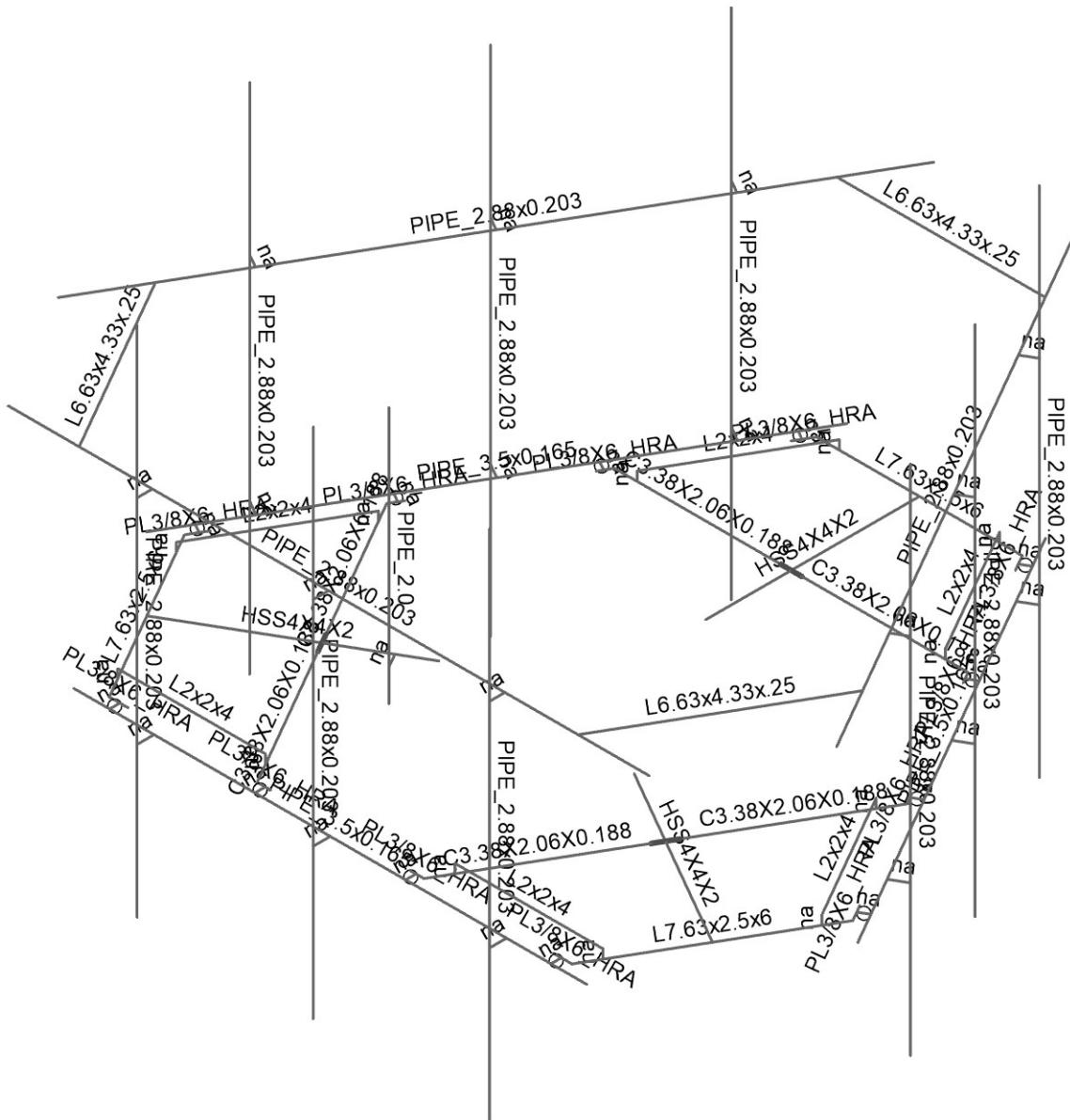
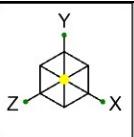
Mar 05, 2022

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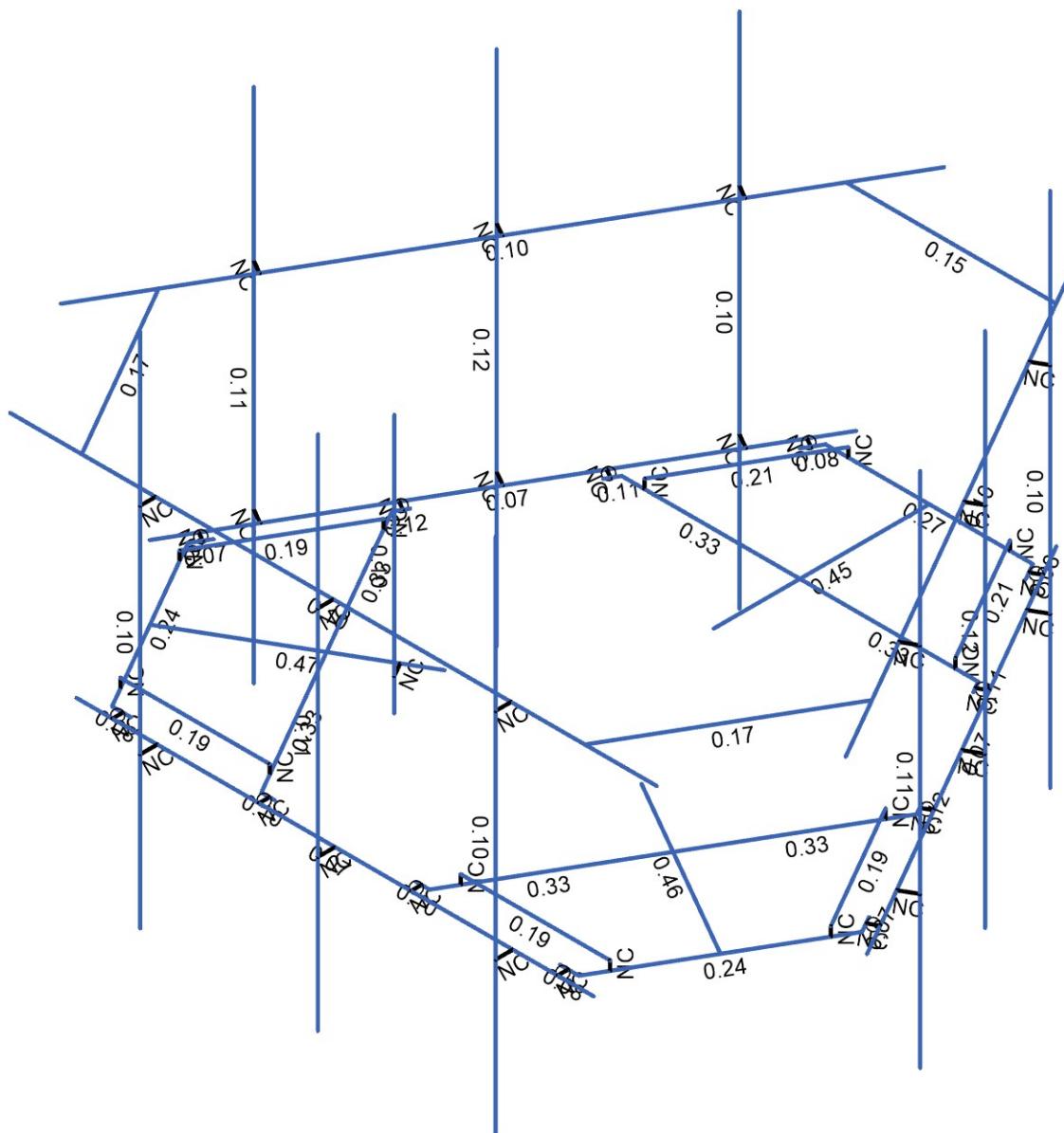
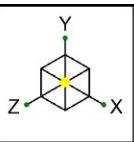
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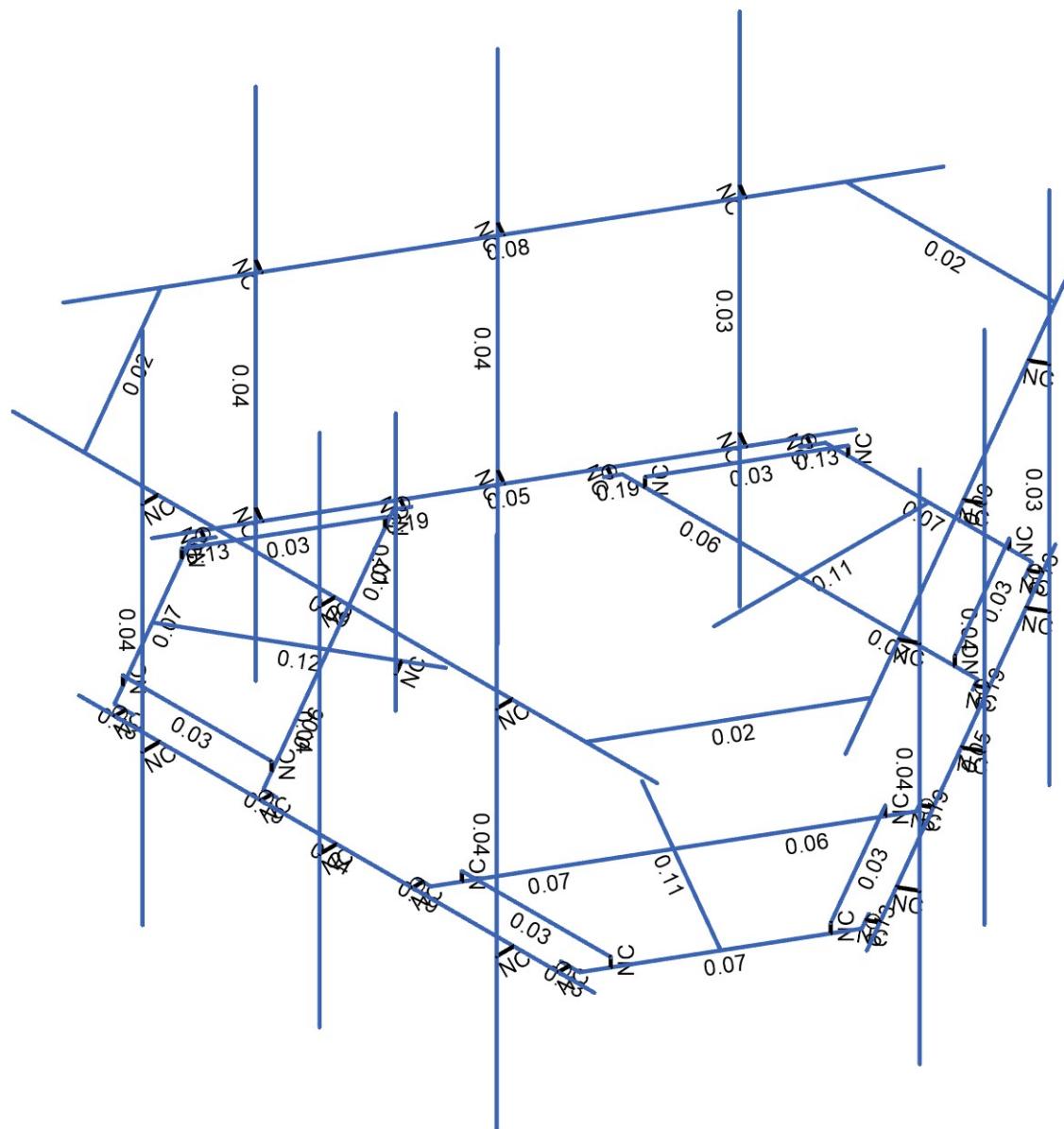
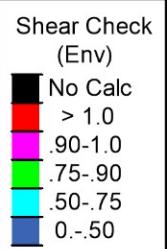
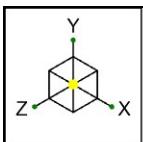
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APK		Mar 05, 2022
158154.002.01		158154_002_01_Bennett Pond_C...



Member Code Checks Displayed (Enveloped) Envelope Only Solution

B+T Group	842857 - Bennett Pond	SK-4
APK		Mar 05, 2022
158154.002.01		158154_002_01_Bennett Pond_C...



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group

APK

158154.002.01

842857 - Bennett Pond

SK-5

Mar 05, 2022

158154_002_01_Bennett Pond_C...

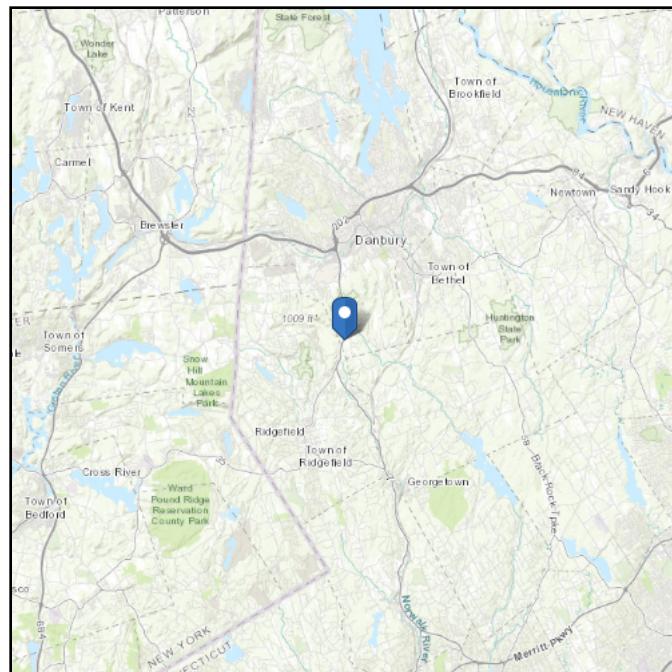
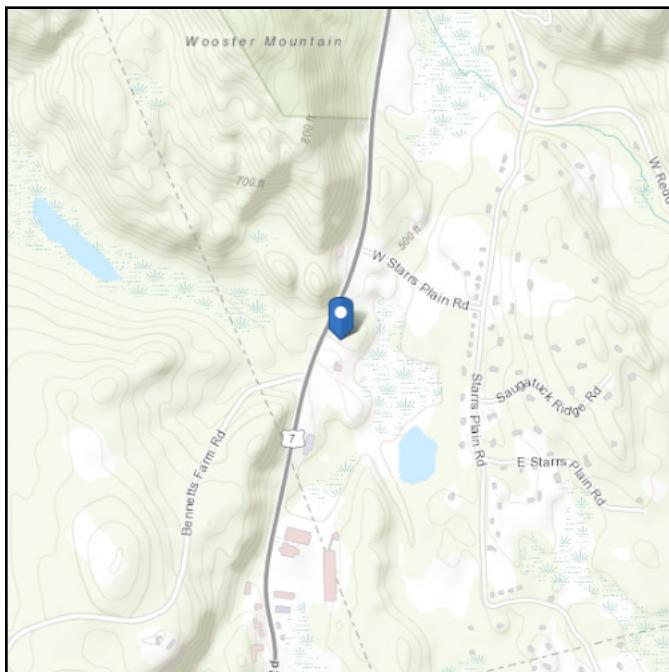
APPENDIX B
SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 527.6 ft (NAVD 88)
Latitude: 41.336111
Longitude: -73.470667



Wind

Results:

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

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed: Fri Mar 04 2022

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

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

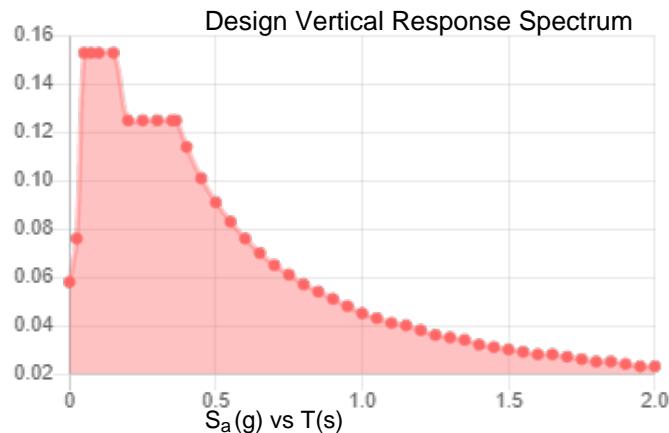
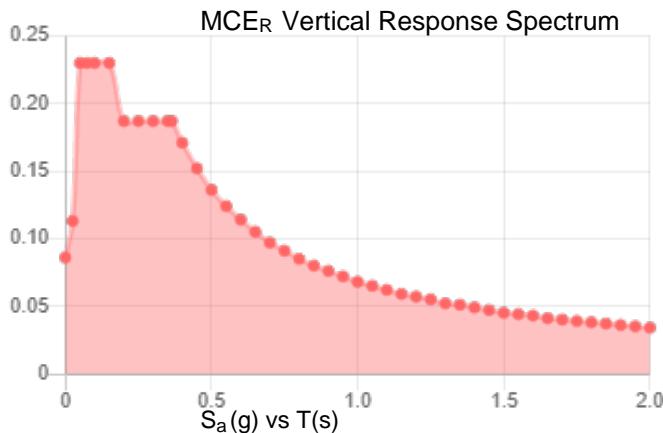
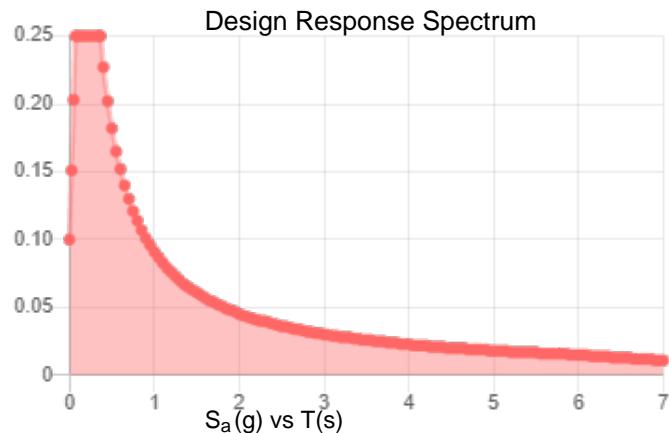
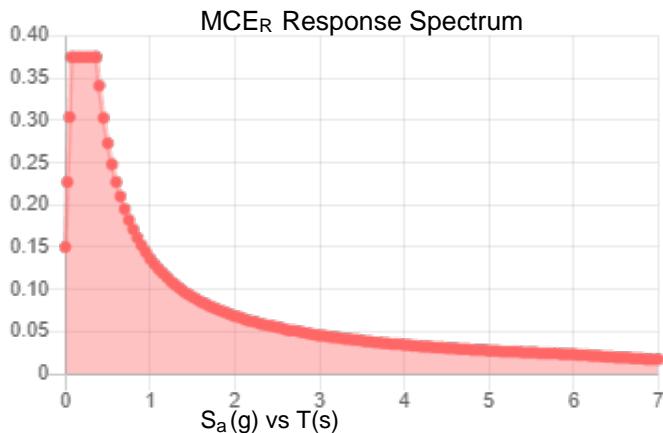
Seismic

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

Results:

S_s :	0.234	S_{D1} :	0.091
S_1 :	0.057	T_L :	6
F_a :	1.6	PGA :	0.137
F_v :	2.4	PGA_M :	0.209
S_{MS} :	0.375	F_{PGA} :	1.527
S_{M1} :	0.136	I_e :	1
S_{DS} :	0.25	C_v :	0.768

Seismic Design Category B



Data Accessed: Fri Mar 04 2022

Date Source:

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

Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 15 F

Gust Speed 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Fri Mar 04 2022

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

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

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

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PROJECT	158154.002.01 - Bennett Pon		KSC
SUBJECT	Platform Mount Analysis		
DATE	03-05-22	PAGE	OF



Tower Type : Monopole
 Ground Elevation z_s : 528 ft [ASCE7 Hazard Tool]
 Tower Height : 106.00 ft
 Mount Elevation : 59.00 ft
 Antenna Elevation : 59.00 ft
 Crest Height : 0 ft
 Risk Category : II [Table 2-1]
 Exposure Category : C [Sec. 2.6.5.1.2]
 Topography Category : 1.00 [Sec. 2.6.6.2]
 Wind Velocity V : 115 mph [ASCE7 Hazard Tool]
 Ice wind Velocity V_i : 50 mph [ASCE7 Hazard Tool]
 Service Velocity V_s : 30 mph [ASCE7 Hazard Tool]
 Base Ice thickness t_i : 1.00 in [ASCE7 Hazard Tool]
 Seismic Design Cat. : B [ASCE7 Hazard Tool]
 S_s : 0.23
 S_1 : 0.06
 S_{DS} : 0.25
 S_{D1} : 0.09

Gust Factor G_h : 1.00 [Sec. 16.6]
 Pressure Coefficient K_z : 1.13 [Sec. 2.6.5.2]
 Topography Factor K_{zt} : 1.00 [Sec. 2.6.6]
 Elevation Factor K_e : 0.98 [Sec. 2.6.8]
 Directionality Factor K_d : 0.95 [Sec. 16.6]
 Shielding Factor K_a : 0.90 [Sec. 16.6]
 Design Ice Thickness t_{iz} : 1.06 in [Sec. 2.6.10]

Importance Factor I_e : 1 [Table 2-3]
 Response Coefficient C_s : 0.125 [Sec. 2.7.7.1]
 Amplification A_s : 1.226415 [Sec. 16.7]

q_z : 35.74 psf

APPENDIX C
SOFTWARE ANALYSIS OUTPUT

Node Coordinates

Label		X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	-1.525286	0	0.880624	
2	2	-4.412038	0	2.547291	
3	3	-2.679987	0	1.547291	
4	4	-4.059153	0	-0.841496	
5	5	-1.30082	0	3.936078	
6	6	-3.610221	0	3.936078	
7	7	-5.213854	0	1.158504	
8	8	-5.068021	0	0.905914	
9	9	-3.318555	0	3.936078	
10	10	-5.130521	0	1.014167	
11	11	-5.270344	0	0.93344	
12	12	-3.443555	0	3.936078	
13	13	-3.443555	0	4.097532	
14	14	5.548566	0	1.415334	
15	15	1.548568	0	-5.512866	
16	16	-3.954987	0	-1.021918	
17	17	-3.996654	0	-0.949748	
18	18	-4.136477	0	-1.030475	
19	19	-1.092487	0	3.936078	
20	20	-1.175821	0	3.936078	
21	21	-1.175821	0	4.097532	
22	22	-3.787038	0.140833	3.629823	
23	23	-1.477636	0.140833	3.629823	
24	24	-3.882337	0.140833	-0.535241	
25	25	-5.037038	0.140833	1.464759	
26	26	-3.787038	0	3.629823	
27	27	-1.477636	0	3.629823	
28	28	-3.882337	0	-0.535241	
29	29	-5.037038	0	1.464759	
30	30	4.923566	0	0.332802	
31	31	3.548566	0	-2.048768	
32	32	5.153784	0	0.199886	
33	33	3.778784	0	-2.181684	
34	34	5.153784	5.666663	0.199886	
35	35	3.778784	5.666663	-2.181684	
36	36	5.153784	-2.333337	0.199886	
37	37	3.778784	-2.333337	-2.181684	
38	38	6.070939	3.33333	2.268445	
39	39	1.070939	3.33333	-6.39181	
40	40	2.173568	0	-4.430334	
41	41	2.403786	0	-4.563251	
42	42	2.403786	5.666663	-4.563251	
43	43	2.403786	-2.333337	-4.563251	
44	44	0	0	0	
45	45	5.153784	3.3333	0.199886	
46	46	3.778784	3.3333	-2.181684	
47	47	2.403786	3.3333	-4.563251	
48	48	4.945938	3.33333	0.319886	
49	49	3.570938	3.33333	-2.061684	
50	50	2.19594	3.33333	-4.443251	
51	51	-3.891879	3.33333	4.123365	
52	52	-5.516878	3.33333	1.308783	
53	105	5.172391	-2.333337	0.232115	
54	62	1.525286	0	0.880624	
55	63	4.412038	0	2.547291	

Node Coordinates (Continued)

Label		X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	64	2.679987	0	1.547291	
57	65	1.30082	0	3.936078	
58	66	4.059153	0	-0.841496	
59	67	5.213854	0	1.158504	
60	68	3.610221	0	3.936078	
61	69	3.318555	0	3.936078	
62	70	5.068021	0	0.905914	
63	71	3.443555	0	3.936078	
64	72	3.443555	0	4.097532	
65	73	5.130521	0	1.014167	
66	74	5.270344	0	0.93344	
67	75	1.092487	0	3.936078	
68	76	1.175821	0	3.936078	
69	77	1.175821	0	4.097532	
70	78	3.954987	0	-1.021918	
71	79	3.996654	0	-0.949748	
72	80A	4.136477	0	-1.030475	
73	81	5.037038	0.140833	1.464759	
74	82	3.882337	0.140833	-0.535241	
75	83	1.477636	0.140833	3.629823	
76	84	3.787038	0.140833	3.629823	
77	85	5.037038	0	1.464759	
78	86	3.882337	0	-0.535241	
79	87	1.477636	0	3.629823	
80	88	3.787038	0	3.629823	
81	89	5.516878	3.33333	1.308783	
82	90	3.891879	3.33333	4.123365	
83	91	0	0	-1.761249	
84	92	0	0	-5.094582	
85	93	0	0	-3.094582	
86	94A	2.758333	0	-3.094582	
87	95	-2.758333	0	-3.094582	
88	96	-1.603633	0	-5.094582	
89	97	1.603633	0	-5.094582	
90	98	1.749466	0	-4.841991	
91	99	-1.749466	0	-4.841991	
92	100	1.686966	0	-4.950245	
93	101	1.826789	0	-5.030972	
94	102	-1.686966	0	-4.950245	
95	103A	-1.826789	0	-5.030972	
96	104	2.8625	0	-2.91416	
97	105A	2.820833	0	-2.98633	
98	106	2.960656	0	-3.067057	
99	107	-2.8625	0	-2.91416	
100	108	-2.820833	0	-2.98633	
101	109	-2.960656	0	-3.067057	
102	110A	-1.25	0.140833	-5.094582	
103	111	-2.404701	0.140833	-3.094582	
104	112	2.404701	0.140833	-3.094582	
105	113	1.25	0.140833	-5.094582	
106	114	-1.25	0	-5.094582	
107	115	-2.404701	0	-3.094582	
108	116	2.404701	0	-3.094582	
109	117	1.25	0	-5.094582	
110	118	-1.625	3.33333	-5.432148	

Node Coordinates (Continued)

Label		X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
111	119	1.625	3.33333	-5.432148	
112	112A	-1.548568	0	-5.512866	
113	113A	-5.548566	0	1.415334	
114	114A	-2.173568	0	-4.430334	
115	115A	-3.548568	0	-2.048764	
116	116A	-2.403786	0	-4.563251	
117	117A	-3.778786	0	-2.181681	
118	118A	-2.403786	5.666663	-4.563251	
119	119A	-3.778786	5.666663	-2.181681	
120	120	-2.403786	-2.333337	-4.563251	
121	121	-3.778786	-2.333337	-2.181681	
122	122	-1.070939	3.33333	-6.39181	
123	123	-6.070939	3.33333	2.268445	
124	124	-4.923566	0	0.332802	
125	125	-5.153784	0	0.199886	
126	126	-5.153784	5.666663	0.199886	
127	127	-5.153784	-2.333337	0.199886	
128	128	-2.403786	3.3333	-4.563251	
129	129	-3.778786	3.3333	-2.181681	
130	130	-5.153784	3.3333	0.199886	
131	131	-2.19594	3.33333	-4.443251	
132	132	-3.57094	3.33333	-2.061681	
133	133	-4.945938	3.33333	0.319886	
134	134	-2.385178	-2.333337	-4.595479	
135	135	-3.999998	0	4.097532	
136	136	3.999998	0	4.097532	
137	137	-2.749998	0	4.097532	
138	138	0.000002	0	4.097532	
139	139	-2.749998	0	4.363365	
140	140	0.000002	0	4.363365	
141	141	-2.749998	5.666663	4.363365	
142	142	0.000002	5.666663	4.363365	
143	143	-2.749998	-2.333337	4.363365	
144	144	0.000002	-2.333337	4.363365	
145	145	-5	3.33333	4.123365	
146	146	5	3.33333	4.123365	
147	147	2.749998	0	4.097532	
148	148	2.749998	0	4.363365	
149	149	2.749998	5.666663	4.363365	
150	150	2.749998	-2.333337	4.363365	
151	151	-2.749998	3.3333	4.363365	
152	152	0.000002	3.3333	4.363365	
153	153	2.749998	3.3333	4.363365	
154	154	-2.749998	3.33333	4.123365	
155	155	0.000002	3.33333	4.123365	
156	156	2.749998	3.33333	4.123365	
157	158	-1.958299	0	1.130624	
158	158A	-1.833299	0	1.347131	
159	159	-1.833299	3.5	1.347131	
160	160	-1.833299	-0.5	1.347131	

Node Boundary Conditions

Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	1	Reaction	Reaction	Reaction	Reaction	Reaction
2	2					

Node Boundary Conditions (Continued)

Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
3	3					
4	4					
5	5					
6	16					
7	17					
8	19					
9	20					
10	22					
11	25					
12	26					
13	29					
14	62	Reaction	Reaction	Reaction	Reaction	Reaction
15	63					
16	64					
17	65					
18	66					
19	75					
20	76					
21	78					
22	79					
23	81					
24	84					
25	85					
26	88					
27	91	Reaction	Reaction	Reaction	Reaction	Reaction
28	92					
29	93					
30	94A					
31	95					
32	104					
33	105A					
34	107					
35	108					
36	110A					
37	113					
38	114					
39	117					

Hot Rolled Steel Properties

Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e ⁵ °F ⁻¹]	Density [k/ft ³]	Yield [ksi]	Ry	Fu [ksi]	Rt
1 A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2 A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3 A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4 A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5 A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6 A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7 A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3
8 A500 Gr.C	29000	11154	0.3	0.65	0.49	46	1.4	62	1.3

Hot Rolled Steel Section Sets

Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
1 MF-H1	PIPE_3.5x0.165	Beam	Pipe	A500 Gr.C	Typical	1.729	2.409	2.409	4.819
2 MF-H2	PIPE_2.88x0.203	Beam	Pipe	A500 Gr.C	Typical	1.707	1.538	1.538	3.076

Hot Rolled Steel Section Sets (Continued)

Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]	
3	SF-H1	HSS4X4X2	Beam	Tube	A500 Gr.B Rect	Typical	1.77	4.4	4.4	6.91
4	SF-H2	C3.38X2.06X0.188	Beam	Channel	A36 Gr.36	Typical	1.339	0.562	2.4	0.015
5	SF-H3	L2x2x4	Beam	Single Angle	A36 Gr.36	Typical	0.944	0.346	0.346	0.021
6	SF-H4	L7.63x2.5x6	Beam	Single Angle	A36 Gr.36	Typical	3.658	1.307	22.092	0.163
7	MF-P1	PIPE_2.88x0.203	Column	Pipe	A500 Gr.C	Typical	1.707	1.538	1.538	3.076
8	MF-CP1	PL3/8X6_HRA	Beam	RECT	A36 Gr.36	Typical	2.28	0.027	6.84	0.105
9	MF-H3	L6.63x4.33x.25	Beam	Single Angle	A36 Gr.36	Typical	2.678	4.383	12.502	0.054
10	MF-P2	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25

Member Primary Data

Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	1	2	SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
2	2	5	3	180	SF-H2	Beam	Channel	A36 Gr.36
3	3	3	4	180	SF-H2	Beam	Channel	A36 Gr.36
4	4	7	8		MF-CP1	Beam	RECT	A36 Gr.36
5	5	6	9		MF-CP1	Beam	RECT	A36 Gr.36
6	6	14	15		MF-H1	Beam	Pipe	A500 Gr.C
7	7	16	4		MF-CP1	Beam	RECT	A36 Gr.36
8	8	5	19		MF-CP1	Beam	RECT	A36 Gr.36
9	9	25	24		SF-H3	Beam	Single Angle	A36 Gr.36
10	10	23	22		SF-H3	Beam	Single Angle	A36 Gr.36
11	11	6	7		SF-H4	Beam	Single Angle	A36 Gr.36
12	12	28	24		RIGID	None	RIGID	Typical
13	13	29	25		RIGID	None	RIGID	Typical
14	14	27	23		RIGID	None	RIGID	Typical
15	15	26	22		RIGID	None	RIGID	Typical
16	16	32	30		RIGID	None	RIGID	Typical
17	17	33	31		RIGID	None	RIGID	Typical
18	18	35	37		MF-P1	Column	Pipe	A500 Gr.C
19	19	34	36		MF-P1	Column	Pipe	A500 Gr.C
20	20	38	39		MF-H2	Beam	Pipe	A500 Gr.C
21	21	11	10		RIGID	None	RIGID	Typical
22	22	18	17		RIGID	None	RIGID	Typical
23	23	13	12		RIGID	None	RIGID	Typical
24	24	21	20		RIGID	None	RIGID	Typical
25	25	41	40		RIGID	None	RIGID	Typical
26	26	42	43		MF-P1	Column	Pipe	A500 Gr.C
27	27	45	48		RIGID	None	RIGID	Typical
28	28	46	49		RIGID	None	RIGID	Typical
29	29	47	50		RIGID	None	RIGID	Typical
30	30	52	51	180	MF-H3	Beam	Single Angle	A36 Gr.36
31	31	62	63		SF-H1	Beam	Tube	A500 Gr.B Rect
32	32	66	64	180	SF-H2	Beam	Channel	A36 Gr.36
33	33	64	65	180	SF-H2	Beam	Channel	A36 Gr.36
34	34	68	69		MF-CP1	Beam	RECT	A36 Gr.36
35	35	67	70		MF-CP1	Beam	RECT	A36 Gr.36
36	36	75	65		MF-CP1	Beam	RECT	A36 Gr.36
37	37	66	78		MF-CP1	Beam	RECT	A36 Gr.36
38	38	84	83		SF-H3	Beam	Single Angle	A36 Gr.36
39	39	82	81		SF-H3	Beam	Single Angle	A36 Gr.36
40	40	67	68		SF-H4	Beam	Single Angle	A36 Gr.36
41	41	87	83		RIGID	None	RIGID	Typical
42	42	88	84		RIGID	None	RIGID	Typical
43	43	86	82		RIGID	None	RIGID	Typical
44	44	85	81		RIGID	None	RIGID	Typical

Member Primary Data (Continued)

Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
45	45	72	71	RIGID	None	None	RIGID	Typical
46	46	77	76	RIGID	None	None	RIGID	Typical
47	47	74	73	RIGID	None	None	RIGID	Typical
48	48	80A	79	RIGID	None	None	RIGID	Typical
49	49	90	89	180	MF-H3	Beam	Single Angle	A36 Gr.36
50	50	91	92	SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
51	51	95	93	180	SF-H2	Beam	Channel	A36 Gr.36
52	52	93	94A	180	SF-H2	Beam	Channel	A36 Gr.36
53	53	97	98	MF-CP1	Beam	RECT	A36 Gr.36	Typical
54	54	96	99	MF-CP1	Beam	RECT	A36 Gr.36	Typical
55	55	104	94A	MF-CP1	Beam	RECT	A36 Gr.36	Typical
56	56	95	107	MF-CP1	Beam	RECT	A36 Gr.36	Typical
57	57	113	112	SF-H3	Beam	Single Angle	A36 Gr.36	Typical
58	58	111	110A	SF-H3	Beam	Single Angle	A36 Gr.36	Typical
59	59	96	97	SF-H4	Beam	Single Angle	A36 Gr.36	Typical
60	60	116	112	RIGID	None	None	RIGID	Typical
61	61	117	113	RIGID	None	None	RIGID	Typical
62	62	115	111	RIGID	None	None	RIGID	Typical
63	63	114	110A	RIGID	None	None	RIGID	Typical
64	64	101	100	RIGID	None	None	RIGID	Typical
65	65	106	105A	RIGID	None	None	RIGID	Typical
66	66	103A	102	RIGID	None	None	RIGID	Typical
67	67	109	108	RIGID	None	None	RIGID	Typical
68	68	119	118	180	MF-H3	Beam	Single Angle	A36 Gr.36
69	69	112A	113A	MF-H1	Beam	Pipe	A500 Gr.C	Typical
70	70	116A	114A	RIGID	None	None	RIGID	Typical
71	71	117A	115A	RIGID	None	None	RIGID	Typical
72	72	119A	121	MF-P1	Column	Pipe	A500 Gr.C	Typical
73	73	118A	120	MF-P1	Column	Pipe	A500 Gr.C	Typical
74	74	122	123	MF-H2	Beam	Pipe	A500 Gr.C	Typical
75	75	125	124	RIGID	None	None	RIGID	Typical
76	76	126	127	MF-P1	Column	Pipe	A500 Gr.C	Typical
77	77	128	131	RIGID	None	None	RIGID	Typical
78	78	129	132	RIGID	None	None	RIGID	Typical
79	79	130	133	RIGID	None	None	RIGID	Typical
80	80	135	136	MF-H1	Beam	Pipe	A500 Gr.C	Typical
81	81	139	137	RIGID	None	None	RIGID	Typical
82	82	140	138	RIGID	None	None	RIGID	Typical
83	83	142	144	MF-P1	Column	Pipe	A500 Gr.C	Typical
84	84	141	143	MF-P1	Column	Pipe	A500 Gr.C	Typical
85	85	145	146	MF-H2	Beam	Pipe	A500 Gr.C	Typical
86	86	148	147	RIGID	None	None	RIGID	Typical
87	87	149	150	MF-P1	Column	Pipe	A500 Gr.C	Typical
88	88	151	154	RIGID	None	None	RIGID	Typical
89	89	152	155	RIGID	None	None	RIGID	Typical
90	90	153	156	RIGID	None	None	RIGID	Typical
91	91	159	160	MF-P2	Column	Pipe	A53 Gr.B	Typical
92	92	158A	158	RIGID	None	None	RIGID	Typical

Member Advanced Data

Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
1	1			Yes	N/A	None
2	2		2	Yes	N/A	None
3	3		2	Yes	N/A	None
4	4			Yes	Default	None

Member Advanced Data (Continued)

Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
5	5			Yes	Default	None
6	6			Yes	N/A	None
7	7			Yes	Default	None
8	8			Yes	Default	None
9	9			Yes	N/A	None
10	10			Yes	N/A	None
11	11			Yes	N/A	None
12	12			Yes	** NA **	None
13	13			Yes	** NA **	None
14	14			Yes	** NA **	None
15	15			Yes	** NA **	None
16	16			Yes	** NA **	None
17	17			Yes	** NA **	None
18	18			Yes	** NA **	None
19	19			Yes	** NA **	None
20	20			Yes	N/A	None
21	21	OOOOOX		Yes	** NA **	None
22	22	OOOOOX		Yes	** NA **	None
23	23	OOOOOX		Yes	** NA **	None
24	24	OOOOOX		Yes	** NA **	None
25	25			Yes	** NA **	None
26	26			Yes	** NA **	None
27	27			Yes	** NA **	None
28	28			Yes	** NA **	None
29	29			Yes	** NA **	None
30	30			Yes	Default	None
31	31			Yes	N/A	None
32	32		2	Yes	N/A	None
33	33		2	Yes	N/A	None
34	34			Yes	Default	None
35	35			Yes	Default	None
36	36			Yes	Default	None
37	37			Yes	Default	None
38	38			Yes	N/A	None
39	39			Yes	N/A	None
40	40			Yes	N/A	None
41	41			Yes	** NA **	None
42	42			Yes	** NA **	None
43	43			Yes	** NA **	None
44	44			Yes	** NA **	None
45	45	OOOOOX		Yes	** NA **	None
46	46	OOOOOX		Yes	** NA **	None
47	47	OOOOOX		Yes	** NA **	None
48	48	OOOOOX		Yes	** NA **	None
49	49			Yes	Default	None
50	50			Yes	N/A	None
51	51		2	Yes	N/A	None
52	52		2	Yes	N/A	None
53	53			Yes	Default	None
54	54			Yes	Default	None
55	55			Yes	Default	None
56	56			Yes	Default	None
57	57			Yes	N/A	None
58	58			Yes	N/A	None
59	59			Yes	N/A	None

Member Advanced Data (Continued)

Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
60	60			Yes	** NA **	None
61	61			Yes	** NA **	None
62	62			Yes	** NA **	None
63	63			Yes	** NA **	None
64	64	OOOOOX		Yes	** NA **	None
65	65	OOOOOX		Yes	** NA **	None
66	66	OOOOOX		Yes	** NA **	None
67	67	OOOOOX		Yes	** NA **	None
68	68			Yes	Default	None
69	69			Yes	N/A	None
70	70			Yes	** NA **	None
71	71			Yes	** NA **	None
72	72			Yes	** NA **	None
73	73			Yes	** NA **	None
74	74			Yes	N/A	None
75	75			Yes	** NA **	None
76	76			Yes	** NA **	None
77	77			Yes	** NA **	None
78	78			Yes	** NA **	None
79	79			Yes	** NA **	None
80	80			Yes	N/A	None
81	81			Yes	** NA **	None
82	82			Yes	** NA **	None
83	83			Yes	** NA **	None
84	84			Yes	** NA **	None
85	85			Yes	N/A	None
86	86			Yes	** NA **	None
87	87			Yes	** NA **	None
88	88			Yes	** NA **	None
89	89			Yes	** NA **	None
90	90			Yes	** NA **	None
91	91			Yes	** NA **	None
92	92			Yes	** NA **	None

Hot Rolled Steel Design Parameters

Label	Shape	Length [ft]	Lcomp top [ft]	Function
1	1	SF-H1	3.333	Lbyy
2	2	SF-H2	2.758	Lbyy
3	3	SF-H2	2.758	Lbyy
4	4	MF-CP1	0.292	Lbyy
5	5	MF-CP1	0.292	Lbyy
6	6	MF-H1	8	Lbyy
7	7	MF-CP1	0.208	Lbyy
8	8	MF-CP1	0.208	Lbyy
9	9	SF-H3	2.309	Lbyy
10	10	SF-H3	2.309	Lbyy
11	11	SF-H4	3.207	Lbyy
12	18	MF-P1	8	Lbyy
13	19	MF-P1	8	Lbyy
14	20	MF-H2	10	Lbyy
15	26	MF-P1	8	Lbyy
16	30	MF-H3	3.25	Lbyy
17	31	SF-H1	3.333	Lbyy
18	32	SF-H2	2.758	Lbyy
19	33	SF-H2	2.758	Lbyy

Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length [ft]	Lcomp top [ft]	Function
20	34	MF-CP1	0.292	Lb _{yy}
21	35	MF-CP1	0.292	Lb _{yy}
22	36	MF-CP1	0.208	Lb _{yy}
23	37	MF-CP1	0.208	Lb _{yy}
24	38	SF-H3	2.309	Lb _{yy}
25	39	SF-H3	2.309	Lb _{yy}
26	40	SF-H4	3.207	Lb _{yy}
27	49	MF-H3	3.25	Lb _{yy}
28	50	SF-H1	3.333	Lb _{yy}
29	51	SF-H2	2.758	Lb _{yy}
30	52	SF-H2	2.758	Lb _{yy}
31	53	MF-CP1	0.292	Lb _{yy}
32	54	MF-CP1	0.292	Lb _{yy}
33	55	MF-CP1	0.208	Lb _{yy}
34	56	MF-CP1	0.208	Lb _{yy}
35	57	SF-H3	2.309	Lb _{yy}
36	58	SF-H3	2.309	Lb _{yy}
37	59	SF-H4	3.207	Lb _{yy}
38	68	MF-H3	3.25	Lb _{yy}
39	69	MF-H1	8	Lb _{yy}
40	72	MF-P1	8	Lb _{yy}
41	73	MF-P1	8	Lb _{yy}
42	74	MF-H2	10	Lb _{yy}
43	76	MF-P1	8	Lb _{yy}
44	80	MF-H1	8	Lb _{yy}
45	83	MF-P1	8	Lb _{yy}
46	84	MF-P1	8	Lb _{yy}
47	85	MF-H2	10	Lb _{yy}
48	87	MF-P1	8	Lb _{yy}
49	91	MF-P2	4	Lb _{yy}

Member Point Loads (BLC 1 : Dead)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	83	Y	-0.035 %15
2	83	Y	-0.035 %85
3	83	Y	-0.075 %50
4	83	Y	-0.064 %50
5	83	Y	0 0
6	91	Y	-0.022 %30
7	91	Y	0 0
8	91	Y	0 0
9	91	Y	0 0
10	91	Y	0 0
11	72	Y	-0.035 %15
12	72	Y	-0.035 %85
13	72	Y	-0.075 %50
14	72	Y	-0.064 %50
15	72	Y	0 0
16	18	Y	-0.035 %15
17	18	Y	-0.035 %85
18	18	Y	-0.075 %50
19	18	Y	-0.064 %50
20	18	Y	0 0

Member Point Loads (BLC 2 : 0 Wind - No Ice)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 83	Z	-0.197	%15
2 83	Z	-0.197	%85
3 83	Z	-0.036	%50
4 83	Z	-0.032	%50
5 83	Z	0	0
6 91	Z	-0.065	%30
7 91	Z	0	0
8 91	Z	0	0
9 91	Z	0	0
10 91	Z	0	0
11 72	Z	-0.197	%15
12 72	Z	-0.197	%85
13 72	Z	-0.036	%50
14 72	Z	-0.032	%50
15 72	Z	0	0
16 18	Z	-0.197	%15
17 18	Z	-0.197	%85
18 18	Z	-0.036	%50
19 18	Z	-0.032	%50
20 18	Z	0	0

Member Point Loads (BLC 3 : 90 Wind - No Ice)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 83	X	-0.079	%15
2 83	X	-0.079	%85
3 83	X	-0.063	%50
4 83	X	-0.063	%50
5 83	X	0	0
6 91	X	-0.038	%30
7 91	X	0	0
8 91	X	0	0
9 91	X	0	0
10 91	X	0	0
11 72	X	-0.079	%15
12 72	X	-0.079	%85
13 72	X	-0.063	%50
14 72	X	-0.063	%50
15 72	X	0	0
16 18	X	-0.079	%15
17 18	X	-0.079	%85
18 18	X	-0.063	%50
19 18	X	-0.063	%50
20 18	X	0	0

Member Point Loads (BLC 4 : 0 Wind - Ice)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 83	Z	-0.037	%15
2 83	Z	-0.037	%85
3 83	Z	-0.007	%50
4 83	Z	-0.006	%50
5 83	Z	0	0
6 91	Z	-0.012	%30

Member Point Loads (BLC 4 : 0 Wind - Ice) (Continued)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
7 91	Z	0	0
8 91	Z	0	0
9 91	Z	0	0
10 91	Z	0	0
11 72	Z	-0.037	%15
12 72	Z	-0.037	%85
13 72	Z	-0.007	%50
14 72	Z	-0.006	%50
15 72	Z	0	0
16 18	Z	-0.037	%15
17 18	Z	-0.037	%85
18 18	Z	-0.007	%50
19 18	Z	-0.006	%50
20 18	Z	0	0

Member Point Loads (BLC 5 : 90 Wind - Ice)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 83	X	-0.015	%15
2 83	X	-0.015	%85
3 83	X	-0.012	%50
4 83	X	-0.012	%50
5 83	X	0	0
6 91	X	-0.007	%30
7 91	X	0	0
8 91	X	0	0
9 91	X	0	0
10 91	X	0	0
11 72	X	-0.015	%15
12 72	X	-0.015	%85
13 72	X	-0.012	%50
14 72	X	-0.012	%50
15 72	X	0	0
16 18	X	-0.015	%15
17 18	X	-0.015	%85
18 18	X	-0.012	%50
19 18	X	-0.012	%50
20 18	X	0	0

Member Point Loads (BLC 6 : 0 Wind - Service)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 83	Z	-0.013	%15
2 83	Z	-0.013	%85
3 83	Z	-0.003	%50
4 83	Z	-0.002	%50
5 83	Z	0	0
6 91	Z	-0.004	%30
7 91	Z	0	0
8 91	Z	0	0
9 91	Z	0	0
10 91	Z	0	0
11 72	Z	-0.013	%15
12 72	Z	-0.013	%85
13 72	Z	-0.003	%50

Member Point Loads (BLC 6 : 0 Wind - Service) (Continued)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
14 72	Z	-0.002	%50
15 72	Z	0	0
16 18	Z	-0.013	%15
17 18	Z	-0.013	%85
18 18	Z	-0.003	%50
19 18	Z	-0.002	%50
20 18	Z	0	0

Member Point Loads (BLC 7 : 90 Wind - Service)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 83	X	-0.005	%15
2 83	X	-0.005	%85
3 83	X	-0.004	%50
4 83	X	-0.004	%50
5 83	X	0	0
6 91	X	-0.003	%30
7 91	X	0	0
8 91	X	0	0
9 91	X	0	0
10 91	X	0	0
11 72	X	-0.005	%15
12 72	X	-0.005	%85
13 72	X	-0.004	%50
14 72	X	-0.004	%50
15 72	X	0	0
16 18	X	-0.005	%15
17 18	X	-0.005	%85
18 18	X	-0.004	%50
19 18	X	-0.004	%50
20 18	X	0	0

Member Point Loads (BLC 8 : Ice)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 83	Y	-0.086	%15
2 83	Y	-0.086	%85
3 83	Y	-0.031	%50
4 83	Y	-0.03	%50
5 83	Y	0	0
6 91	Y	-0.032	%30
7 91	Y	0	0
8 91	Y	0	0
9 91	Y	0	0
10 91	Y	0	0
11 72	Y	-0.086	%15
12 72	Y	-0.086	%85
13 72	Y	-0.031	%50
14 72	Y	-0.03	%50
15 72	Y	0	0
16 18	Y	-0.086	%15
17 18	Y	-0.086	%85
18 18	Y	-0.031	%50
19 18	Y	-0.03	%50
20 18	Y	0	0

Member Point Loads (BLC 9 : 0 Seismic)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 83	Z	-0.011	%15
2 83	Z	-0.011	%85
3 83	Z	-0.012	%50
4 83	Z	-0.01	%50
5 83	Z	0	0
6 91	Z	-0.003	%30
7 91	Z	0	0
8 91	Z	0	0
9 91	Z	0	0
10 91	Z	0	0
11 72	Z	-0.011	%15
12 72	Z	-0.011	%85
13 72	Z	-0.012	%50
14 72	Z	-0.01	%50
15 72	Z	0	0
16 18	Z	-0.011	%15
17 18	Z	-0.011	%85
18 18	Z	-0.012	%50
19 18	Z	-0.01	%50
20 18	Z	0	0

Member Point Loads (BLC 10 : 90 Seismic)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 83	X	-0.011	%15
2 83	X	-0.011	%85
3 83	X	-0.012	%50
4 83	X	-0.01	%50
5 83	X	0	0
6 91	X	-0.003	%30
7 91	X	0	0
8 91	X	0	0
9 91	X	0	0
10 91	X	0	0
11 72	X	-0.011	%15
12 72	X	-0.011	%85
13 72	X	-0.012	%50
14 72	X	-0.01	%50
15 72	X	0	0
16 18	X	-0.011	%15
17 18	X	-0.011	%85
18 18	X	-0.012	%50
19 18	X	-0.01	%50
20 18	X	0	0

Member Point Loads (BLC 15 : Maint LL 1)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 85	Y	-0.25	%5

Member Point Loads (BLC 16 : Maint LL 2)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 80	Y	-0.25	%5

Member Point Loads (BLC 17 : Maint LL 3)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 74	Y	-0.25	%5

Member Point Loads (BLC 18 : Maint LL 4)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 69	Y	-0.25	%5

Member Point Loads (BLC 19 : Maint LL 5)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 20	Y	-0.25	%5

Member Point Loads (BLC 20 : Maint LL 6)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 6	Y	-0.25	%5

Member Point Loads (BLC 21 : Maint LL 7)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 85	Y	-0.25	%95

Member Point Loads (BLC 22 : Maint LL 8)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 80	Y	-0.25	%95

Member Point Loads (BLC 23 : Maint LL 9)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 74	Y	-0.25	%95

Member Point Loads (BLC 24 : Maint LL 10)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 69	Y	-0.25	%95

Member Point Loads (BLC 25 : Maint LL 11)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 20	Y	-0.25	%95

Member Point Loads (BLC 26 : Maint LL 12)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 6	Y	-0.25	%95

Member Point Loads (BLC 27 : Maint LL 13)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 1	Y	-0.25	%95

Member Point Loads (BLC 28 : Maint LL 14)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 50	Y	-0.25	%95

Member Point Loads (BLC 29 : Maint LL 15)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1 31	Y	-0.25	%95

Member Distributed Loads (BLC 2 : 0 Wind - No Ice)

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1 1	Z	-0.016	-0.016	0	%100
2 2	Z	-0.013	-0.013	0	%100
3 3	Z	-0.013	-0.013	0	%100
4 4	Z	-0.019	-0.019	0	%100
5 5	Z	-0.019	-0.019	0	%100
6 6	Z	-0.011	-0.011	0	%100
7 7	Z	-0.019	-0.019	0	%100
8 8	Z	-0.019	-0.019	0	%100
9 9	Z	-0.009	-0.009	0	%100
10 10	Z	-0.009	-0.009	0	%100
11 11	Z	-0.026	-0.026	0	%100
12 18	Z	-0.009	-0.009	0	%100
13 19	Z	-0.009	-0.009	0	%100
14 20	Z	-0.009	-0.009	0	%100
15 26	Z	-0.009	-0.009	0	%100
16 30	Z	-0.024	-0.024	0	%100
17 31	Z	-0.016	-0.016	0	%100
18 32	Z	-0.013	-0.013	0	%100
19 33	Z	-0.013	-0.013	0	%100
20 34	Z	-0.019	-0.019	0	%100
21 35	Z	-0.019	-0.019	0	%100
22 36	Z	-0.019	-0.019	0	%100
23 37	Z	-0.019	-0.019	0	%100
24 38	Z	-0.009	-0.009	0	%100
25 39	Z	-0.009	-0.009	0	%100
26 40	Z	-0.026	-0.026	0	%100
27 49	Z	-0.024	-0.024	0	%100
28 50	Z	-0.016	-0.016	0	%100
29 51	Z	-0.013	-0.013	0	%100
30 52	Z	-0.013	-0.013	0	%100
31 53	Z	-0.019	-0.019	0	%100
32 54	Z	-0.019	-0.019	0	%100
33 55	Z	-0.019	-0.019	0	%100

Member Distributed Loads (BLC 2 : 0 Wind - No Ice) (Continued)

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
34	56	Z	-0.019	-0.019	0 %100
35	57	Z	-0.009	-0.009	0 %100
36	58	Z	-0.009	-0.009	0 %100
37	59	Z	-0.026	-0.026	0 %100
38	68	Z	-0.024	-0.024	0 %100
39	69	Z	-0.011	-0.011	0 %100
40	72	Z	-0.009	-0.009	0 %100
41	73	Z	-0.009	-0.009	0 %100
42	74	Z	-0.009	-0.009	0 %100
43	76	Z	-0.009	-0.009	0 %100
44	80	Z	-0.011	-0.011	0 %100
45	83	Z	-0.009	-0.009	0 %100
46	84	Z	-0.009	-0.009	0 %100
47	85	Z	-0.009	-0.009	0 %100
48	87	Z	-0.009	-0.009	0 %100
49	91	Z	-0.007	-0.007	0 %100

Member Distributed Loads (BLC 3 : 90 Wind - No Ice)

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.016	-0.016	0 %100
2	2	X	-0.013	-0.013	0 %100
3	3	X	-0.013	-0.013	0 %100
4	4	X	-0.019	-0.019	0 %100
5	5	X	-0.019	-0.019	0 %100
6	6	X	-0.011	-0.011	0 %100
7	7	X	-0.019	-0.019	0 %100
8	8	X	-0.019	-0.019	0 %100
9	9	X	-0.009	-0.009	0 %100
10	10	X	-0.009	-0.009	0 %100
11	11	X	-0.026	-0.026	0 %100
12	18	X	-0.009	-0.009	0 %100
13	19	X	-0.009	-0.009	0 %100
14	20	X	-0.009	-0.009	0 %100
15	26	X	-0.009	-0.009	0 %100
16	30	X	-0.024	-0.024	0 %100
17	31	X	-0.016	-0.016	0 %100
18	32	X	-0.013	-0.013	0 %100
19	33	X	-0.013	-0.013	0 %100
20	34	X	-0.019	-0.019	0 %100
21	35	X	-0.019	-0.019	0 %100
22	36	X	-0.019	-0.019	0 %100
23	37	X	-0.019	-0.019	0 %100
24	38	X	-0.009	-0.009	0 %100
25	39	X	-0.009	-0.009	0 %100
26	40	X	-0.026	-0.026	0 %100
27	49	X	-0.024	-0.024	0 %100
28	50	X	-0.016	-0.016	0 %100
29	51	X	-0.013	-0.013	0 %100
30	52	X	-0.013	-0.013	0 %100
31	53	X	-0.019	-0.019	0 %100
32	54	X	-0.019	-0.019	0 %100
33	55	X	-0.019	-0.019	0 %100
34	56	X	-0.019	-0.019	0 %100
35	57	X	-0.009	-0.009	0 %100
36	58	X	-0.009	-0.009	0 %100

Member Distributed Loads (BLC 3 : 90 Wind - No Ice) (Continued)

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
37	59	X	-0.026	-0.026	0 %100
38	68	X	-0.024	-0.024	0 %100
39	69	X	-0.011	-0.011	0 %100
40	72	X	-0.009	-0.009	0 %100
41	73	X	-0.009	-0.009	0 %100
42	74	X	-0.009	-0.009	0 %100
43	76	X	-0.009	-0.009	0 %100
44	80	X	-0.011	-0.011	0 %100
45	83	X	-0.009	-0.009	0 %100
46	84	X	-0.009	-0.009	0 %100
47	85	X	-0.009	-0.009	0 %100
48	87	X	-0.009	-0.009	0 %100
49	91	X	-0.007	-0.007	0 %100

Member Distributed Loads (BLC 4 : 0 Wind - Ice)

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.005	-0.005	0 %100
2	2	Z	-0.004	-0.004	0 %100
3	3	Z	-0.004	-0.004	0 %100
4	4	Z	-0.008	-0.008	0 %100
5	5	Z	-0.008	-0.008	0 %100
6	6	Z	-0.002	-0.002	0 %100
7	7	Z	-0.009	-0.009	0 %100
8	8	Z	-0.009	-0.009	0 %100
9	9	Z	-0.004	-0.004	0 %100
10	10	Z	-0.004	-0.004	0 %100
11	11	Z	-0.007	-0.007	0 %100
12	18	Z	-0.002	-0.002	0 %100
13	19	Z	-0.002	-0.002	0 %100
14	20	Z	-0.002	-0.002	0 %100
15	26	Z	-0.002	-0.002	0 %100
16	30	Z	-0.006	-0.006	0 %100
17	31	Z	-0.005	-0.005	0 %100
18	32	Z	-0.004	-0.004	0 %100
19	33	Z	-0.004	-0.004	0 %100
20	34	Z	-0.008	-0.008	0 %100
21	35	Z	-0.008	-0.008	0 %100
22	36	Z	-0.009	-0.009	0 %100
23	37	Z	-0.009	-0.009	0 %100
24	38	Z	-0.004	-0.004	0 %100
25	39	Z	-0.004	-0.004	0 %100
26	40	Z	-0.007	-0.007	0 %100
27	49	Z	-0.006	-0.006	0 %100
28	50	Z	-0.005	-0.005	0 %100
29	51	Z	-0.004	-0.004	0 %100
30	52	Z	-0.004	-0.004	0 %100
31	53	Z	-0.008	-0.008	0 %100
32	54	Z	-0.008	-0.008	0 %100
33	55	Z	-0.009	-0.009	0 %100
34	56	Z	-0.009	-0.009	0 %100
35	57	Z	-0.004	-0.004	0 %100
36	58	Z	-0.004	-0.004	0 %100
37	59	Z	-0.007	-0.007	0 %100
38	68	Z	-0.006	-0.006	0 %100
39	69	Z	-0.002	-0.002	0 %100

Member Distributed Loads (BLC 4 : 0 Wind - Ice) (Continued)

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
40	72	Z	-0.002	-0.002	0 %100
41	73	Z	-0.002	-0.002	0 %100
42	74	Z	-0.002	-0.002	0 %100
43	76	Z	-0.002	-0.002	0 %100
44	80	Z	-0.002	-0.002	0 %100
45	83	Z	-0.002	-0.002	0 %100
46	84	Z	-0.002	-0.002	0 %100
47	85	Z	-0.002	-0.002	0 %100
48	87	Z	-0.002	-0.002	0 %100
49	91	Z	-0.001	-0.001	0 %100

Member Distributed Loads (BLC 5 : 90 Wind - Ice)

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.005	-0.005	0 %100
2	2	X	-0.004	-0.004	0 %100
3	3	X	-0.004	-0.004	0 %100
4	4	X	-0.008	-0.008	0 %100
5	5	X	-0.008	-0.008	0 %100
6	6	X	-0.002	-0.002	0 %100
7	7	X	-0.009	-0.009	0 %100
8	8	X	-0.009	-0.009	0 %100
9	9	X	-0.004	-0.004	0 %100
10	10	X	-0.004	-0.004	0 %100
11	11	X	-0.007	-0.007	0 %100
12	18	X	-0.002	-0.002	0 %100
13	19	X	-0.002	-0.002	0 %100
14	20	X	-0.002	-0.002	0 %100
15	26	X	-0.002	-0.002	0 %100
16	30	X	-0.006	-0.006	0 %100
17	31	X	-0.005	-0.005	0 %100
18	32	X	-0.004	-0.004	0 %100
19	33	X	-0.004	-0.004	0 %100
20	34	X	-0.008	-0.008	0 %100
21	35	X	-0.008	-0.008	0 %100
22	36	X	-0.009	-0.009	0 %100
23	37	X	-0.009	-0.009	0 %100
24	38	X	-0.004	-0.004	0 %100
25	39	X	-0.004	-0.004	0 %100
26	40	X	-0.007	-0.007	0 %100
27	49	X	-0.006	-0.006	0 %100
28	50	X	-0.005	-0.005	0 %100
29	51	X	-0.004	-0.004	0 %100
30	52	X	-0.004	-0.004	0 %100
31	53	X	-0.008	-0.008	0 %100
32	54	X	-0.008	-0.008	0 %100
33	55	X	-0.009	-0.009	0 %100
34	56	X	-0.009	-0.009	0 %100
35	57	X	-0.004	-0.004	0 %100
36	58	X	-0.004	-0.004	0 %100
37	59	X	-0.007	-0.007	0 %100
38	68	X	-0.006	-0.006	0 %100
39	69	X	-0.002	-0.002	0 %100
40	72	X	-0.002	-0.002	0 %100
41	73	X	-0.002	-0.002	0 %100
42	74	X	-0.002	-0.002	0 %100

Member Distributed Loads (BLC 5 : 90 Wind - Ice) (Continued)

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
43	76	X	-0.002	-0.002	0 %100
44	80	X	-0.002	-0.002	0 %100
45	83	X	-0.002	-0.002	0 %100
46	84	X	-0.002	-0.002	0 %100
47	85	X	-0.002	-0.002	0 %100
48	87	X	-0.002	-0.002	0 %100
49	91	X	-0.001	-0.001	0 %100

Member Distributed Loads (BLC 6 : 0 Wind - Service)

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.001	-0.001	0 %100
2	2	Z	-0.0009	-0.0009	0 %100
3	3	Z	-0.0009	-0.0009	0 %100
4	4	Z	-0.001	-0.001	0 %100
5	5	Z	-0.001	-0.001	0 %100
6	6	Z	-0.0004	-0.0004	0 %100
7	7	Z	-0.001	-0.001	0 %100
8	8	Z	-0.001	-0.001	0 %100
9	9	Z	-0.0006	-0.0006	0 %100
10	10	Z	-0.0006	-0.0006	0 %100
11	11	Z	-0.002	-0.002	0 %100
12	18	Z	-0.0003	-0.0003	0 %100
13	19	Z	-0.0003	-0.0003	0 %100
14	20	Z	-0.0003	-0.0003	0 %100
15	26	Z	-0.0003	-0.0003	0 %100
16	30	Z	-0.002	-0.002	0 %100
17	31	Z	-0.001	-0.001	0 %100
18	32	Z	-0.0009	-0.0009	0 %100
19	33	Z	-0.0009	-0.0009	0 %100
20	34	Z	-0.001	-0.001	0 %100
21	35	Z	-0.001	-0.001	0 %100
22	36	Z	-0.001	-0.001	0 %100
23	37	Z	-0.001	-0.001	0 %100
24	38	Z	-0.0006	-0.0006	0 %100
25	39	Z	-0.0006	-0.0006	0 %100
26	40	Z	-0.002	-0.002	0 %100
27	49	Z	-0.002	-0.002	0 %100
28	50	Z	-0.001	-0.001	0 %100
29	51	Z	-0.0009	-0.0009	0 %100
30	52	Z	-0.0009	-0.0009	0 %100
31	53	Z	-0.001	-0.001	0 %100
32	54	Z	-0.001	-0.001	0 %100
33	55	Z	-0.001	-0.001	0 %100
34	56	Z	-0.001	-0.001	0 %100
35	57	Z	-0.0006	-0.0006	0 %100
36	58	Z	-0.0006	-0.0006	0 %100
37	59	Z	-0.002	-0.002	0 %100
38	68	Z	-0.002	-0.002	0 %100
39	69	Z	-0.0004	-0.0004	0 %100
40	72	Z	-0.0003	-0.0003	0 %100
41	73	Z	-0.0003	-0.0003	0 %100
42	74	Z	-0.0003	-0.0003	0 %100
43	76	Z	-0.0003	-0.0003	0 %100
44	80	Z	-0.0004	-0.0004	0 %100
45	83	Z	-0.0003	-0.0003	0 %100

Member Distributed Loads (BLC 6 : 0 Wind - Service) (Continued)

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
46	84	Z	-0.0003	-0.0003	0 %100
47	85	Z	-0.0003	-0.0003	0 %100
48	87	Z	-0.0003	-0.0003	0 %100
49	91	Z	-0.0003	-0.0003	0 %100

Member Distributed Loads (BLC 7 : 90 Wind - Service)

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.001	-0.001	0 %100
2	2	X	-0.0009	-0.0009	0 %100
3	3	X	-0.0009	-0.0009	0 %100
4	4	X	-0.001	-0.001	0 %100
5	5	X	-0.001	-0.001	0 %100
6	6	X	-0.0004	-0.0004	0 %100
7	7	X	-0.001	-0.001	0 %100
8	8	X	-0.001	-0.001	0 %100
9	9	X	-0.0006	-0.0006	0 %100
10	10	X	-0.0006	-0.0006	0 %100
11	11	X	-0.002	-0.002	0 %100
12	18	X	-0.0003	-0.0003	0 %100
13	19	X	-0.0003	-0.0003	0 %100
14	20	X	-0.0003	-0.0003	0 %100
15	26	X	-0.0003	-0.0003	0 %100
16	30	X	-0.002	-0.002	0 %100
17	31	X	-0.001	-0.001	0 %100
18	32	X	-0.0009	-0.0009	0 %100
19	33	X	-0.0009	-0.0009	0 %100
20	34	X	-0.001	-0.001	0 %100
21	35	X	-0.001	-0.001	0 %100
22	36	X	-0.001	-0.001	0 %100
23	37	X	-0.001	-0.001	0 %100
24	38	X	-0.0006	-0.0006	0 %100
25	39	X	-0.0006	-0.0006	0 %100
26	40	X	-0.002	-0.002	0 %100
27	49	X	-0.002	-0.002	0 %100
28	50	X	-0.001	-0.001	0 %100
29	51	X	-0.0009	-0.0009	0 %100
30	52	X	-0.0009	-0.0009	0 %100
31	53	X	-0.001	-0.001	0 %100
32	54	X	-0.001	-0.001	0 %100
33	55	X	-0.001	-0.001	0 %100
34	56	X	-0.001	-0.001	0 %100
35	57	X	-0.0006	-0.0006	0 %100
36	58	X	-0.0006	-0.0006	0 %100
37	59	X	-0.002	-0.002	0 %100
38	68	X	-0.002	-0.002	0 %100
39	69	X	-0.0004	-0.0004	0 %100
40	72	X	-0.0003	-0.0003	0 %100
41	73	X	-0.0003	-0.0003	0 %100
42	74	X	-0.0003	-0.0003	0 %100
43	76	X	-0.0003	-0.0003	0 %100
44	80	X	-0.0004	-0.0004	0 %100
45	83	X	-0.0003	-0.0003	0 %100
46	84	X	-0.0003	-0.0003	0 %100
47	85	X	-0.0003	-0.0003	0 %100
48	87	X	-0.0003	-0.0003	0 %100

Member Distributed Loads (BLC 7 : 90 Wind - Service) (Continued)

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
49	91	X	-0.0003	-0.0003	0 %100

Member Distributed Loads (BLC 8 : Ice)

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.009	-0.009	0 %100
2	2	Y	-0.006	-0.006	0 %100
3	3	Y	-0.006	-0.006	0 %100
4	4	Y	-0.009	-0.009	0 %100
5	5	Y	-0.009	-0.009	0 %100
6	6	Y	-0.006	-0.006	0 %100
7	7	Y	-0.009	-0.009	0 %100
8	8	Y	-0.009	-0.009	0 %100
9	9	Y	-0.005	-0.005	0 %100
10	10	Y	-0.005	-0.005	0 %100
11	11	Y	-0.012	-0.012	0 %100
12	18	Y	-0.005	-0.005	0 %100
13	19	Y	-0.005	-0.005	0 %100
14	20	Y	-0.005	-0.005	0 %100
15	26	Y	-0.005	-0.005	0 %100
16	30	Y	-0.012	-0.012	0 %100
17	31	Y	-0.009	-0.009	0 %100
18	32	Y	-0.006	-0.006	0 %100
19	33	Y	-0.006	-0.006	0 %100
20	34	Y	-0.009	-0.009	0 %100
21	35	Y	-0.009	-0.009	0 %100
22	36	Y	-0.009	-0.009	0 %100
23	37	Y	-0.009	-0.009	0 %100
24	38	Y	-0.005	-0.005	0 %100
25	39	Y	-0.005	-0.005	0 %100
26	40	Y	-0.012	-0.012	0 %100
27	49	Y	-0.012	-0.012	0 %100
28	50	Y	-0.009	-0.009	0 %100
29	51	Y	-0.006	-0.006	0 %100
30	52	Y	-0.006	-0.006	0 %100
31	53	Y	-0.009	-0.009	0 %100
32	54	Y	-0.009	-0.009	0 %100
33	55	Y	-0.009	-0.009	0 %100
34	56	Y	-0.009	-0.009	0 %100
35	57	Y	-0.005	-0.005	0 %100
36	58	Y	-0.005	-0.005	0 %100
37	59	Y	-0.012	-0.012	0 %100
38	68	Y	-0.012	-0.012	0 %100
39	69	Y	-0.006	-0.006	0 %100
40	72	Y	-0.005	-0.005	0 %100
41	73	Y	-0.005	-0.005	0 %100
42	74	Y	-0.005	-0.005	0 %100
43	76	Y	-0.005	-0.005	0 %100
44	80	Y	-0.006	-0.006	0 %100
45	83	Y	-0.005	-0.005	0 %100
46	84	Y	-0.005	-0.005	0 %100
47	85	Y	-0.005	-0.005	0 %100
48	87	Y	-0.005	-0.005	0 %100
49	91	Y	-0.004	-0.004	0 %100

Member Distributed Loads (BLC 9 : 0 Seismic)

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.001	-0.001	0 %100
2	2	Z	-0.0007	-0.0007	0 %100
3	3	Z	-0.0007	-0.0007	0 %100
4	4	Z	-0.001	-0.001	0 %100
5	5	Z	-0.001	-0.001	0 %100
6	6	Z	-0.0009	-0.0009	0 %100
7	7	Z	-0.001	-0.001	0 %100
8	8	Z	-0.001	-0.001	0 %100
9	9	Z	-0.0005	-0.0005	0 %100
10	10	Z	-0.0005	-0.0005	0 %100
11	11	Z	-0.002	-0.002	0 %100
12	18	Z	-0.0009	-0.0009	0 %100
13	19	Z	-0.0009	-0.0009	0 %100
14	20	Z	-0.0009	-0.0009	0 %100
15	26	Z	-0.0009	-0.0009	0 %100
16	30	Z	-0.001	-0.001	0 %100
17	31	Z	-0.001	-0.001	0 %100
18	32	Z	-0.0007	-0.0007	0 %100
19	33	Z	-0.0007	-0.0007	0 %100
20	34	Z	-0.001	-0.001	0 %100
21	35	Z	-0.001	-0.001	0 %100
22	36	Z	-0.001	-0.001	0 %100
23	37	Z	-0.001	-0.001	0 %100
24	38	Z	-0.0005	-0.0005	0 %100
25	39	Z	-0.0005	-0.0005	0 %100
26	40	Z	-0.002	-0.002	0 %100
27	49	Z	-0.001	-0.001	0 %100
28	50	Z	-0.001	-0.001	0 %100
29	51	Z	-0.0007	-0.0007	0 %100
30	52	Z	-0.0007	-0.0007	0 %100
31	53	Z	-0.001	-0.001	0 %100
32	54	Z	-0.001	-0.001	0 %100
33	55	Z	-0.001	-0.001	0 %100
34	56	Z	-0.001	-0.001	0 %100
35	57	Z	-0.0005	-0.0005	0 %100
36	58	Z	-0.0005	-0.0005	0 %100
37	59	Z	-0.002	-0.002	0 %100
38	68	Z	-0.001	-0.001	0 %100
39	69	Z	-0.0009	-0.0009	0 %100
40	72	Z	-0.0009	-0.0009	0 %100
41	73	Z	-0.0009	-0.0009	0 %100
42	74	Z	-0.0009	-0.0009	0 %100
43	76	Z	-0.0009	-0.0009	0 %100
44	80	Z	-0.0009	-0.0009	0 %100
45	83	Z	-0.0009	-0.0009	0 %100
46	84	Z	-0.0009	-0.0009	0 %100
47	85	Z	-0.0009	-0.0009	0 %100
48	87	Z	-0.0009	-0.0009	0 %100
49	91	Z	-0.0006	-0.0006	0 %100

Member Distributed Loads (BLC 10 : 90 Seismic)

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.001	-0.001	0 %100
2	2	X	-0.0007	-0.0007	0 %100

Member Distributed Loads (BLC 10 : 90 Seismic) (Continued)

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
3	3	X	-0.0007	-0.0007	0 %100
4	4	X	-0.001	-0.001	0 %100
5	5	X	-0.001	-0.001	0 %100
6	6	X	-0.0009	-0.0009	0 %100
7	7	X	-0.001	-0.001	0 %100
8	8	X	-0.001	-0.001	0 %100
9	9	X	-0.0005	-0.0005	0 %100
10	10	X	-0.0005	-0.0005	0 %100
11	11	X	-0.002	-0.002	0 %100
12	18	X	-0.0009	-0.0009	0 %100
13	19	X	-0.0009	-0.0009	0 %100
14	20	X	-0.0009	-0.0009	0 %100
15	26	X	-0.0009	-0.0009	0 %100
16	30	X	-0.001	-0.001	0 %100
17	31	X	-0.001	-0.001	0 %100
18	32	X	-0.0007	-0.0007	0 %100
19	33	X	-0.0007	-0.0007	0 %100
20	34	X	-0.001	-0.001	0 %100
21	35	X	-0.001	-0.001	0 %100
22	36	X	-0.001	-0.001	0 %100
23	37	X	-0.001	-0.001	0 %100
24	38	X	-0.0005	-0.0005	0 %100
25	39	X	-0.0005	-0.0005	0 %100
26	40	X	-0.002	-0.002	0 %100
27	49	X	-0.001	-0.001	0 %100
28	50	X	-0.001	-0.001	0 %100
29	51	X	-0.0007	-0.0007	0 %100
30	52	X	-0.0007	-0.0007	0 %100
31	53	X	-0.001	-0.001	0 %100
32	54	X	-0.001	-0.001	0 %100
33	55	X	-0.001	-0.001	0 %100
34	56	X	-0.001	-0.001	0 %100
35	57	X	-0.0005	-0.0005	0 %100
36	58	X	-0.0005	-0.0005	0 %100
37	59	X	-0.002	-0.002	0 %100
38	68	X	-0.001	-0.001	0 %100
39	69	X	-0.0009	-0.0009	0 %100
40	72	X	-0.0009	-0.0009	0 %100
41	73	X	-0.0009	-0.0009	0 %100
42	74	X	-0.0009	-0.0009	0 %100
43	76	X	-0.0009	-0.0009	0 %100
44	80	X	-0.0009	-0.0009	0 %100
45	83	X	-0.0009	-0.0009	0 %100
46	84	X	-0.0009	-0.0009	0 %100
47	85	X	-0.0009	-0.0009	0 %100
48	87	X	-0.0009	-0.0009	0 %100
49	91	X	-0.0006	-0.0006	0 %100

Member Distributed Loads (BLC 30 : BLC 1 Transient Area Loads)

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	9	Y	-0.035	-0.016	0 1.155
2	9	Y	-0.016	0.0006163	1.155 2.309
3	10	Y	-0.018	-0.016	0.231 2.309
4	38	Y	-0.018	-0.016	0 2.078
5	39	Y	0.0006164	-0.016	0 1.155

Member Distributed Loads (BLC 30 : BLC 1 Transient Area Loads) (Continued)

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
6 39	Y	-0.016	-0.035	1.155	2.309
7 57	Y	-0.014	-0.016	0	2.078
8 58	Y	-0.014	-0.02	0.231	1.27
9 58	Y	-0.02	-0.026	1.27	2.309

Member Distributed Loads (BLC 31 : BLC 8 Transient Area Loads)

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1 9	Y	-0.018	-0.008	0	1.155
2 9	Y	-0.008	0.0003114	1.155	2.309
3 10	Y	-0.009	-0.008	0.231	2.309
4 38	Y	-0.009	-0.008	0	2.078
5 39	Y	0.0003082	-0.008	0	1.155
6 39	Y	-0.008	-0.017	1.155	2.309
7 57	Y	-0.007	-0.008	0	2.078
8 58	Y	-0.007	-0.01	0.231	1.27
9 58	Y	-0.01	-0.013	1.27	2.309

Member Area Loads (BLC 1 : Dead)

Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1 23	22	25	24	Y	Two Way	-0.01
2 82	81	84	83	Y	Two Way	-0.01
3 111	110A	113	112	Y	Two Way	-0.01

Member Area Loads (BLC 8 : Ice)

Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1 23	22	25	24	Y	Two Way	-0.005
2 82	81	84	83	Y	Two Way	-0.005
3 111	110A	113	112	Y	Two Way	-0.005

Node Loads and Enforced Displacements (BLC 11 : Live Load a)

Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s^2/ft, k*s^2*ft)]
1 30	L	Y	-0.5
2 114A	L	Y	-0.5
3 137	L	Y	-0.5

Node Loads and Enforced Displacements (BLC 12 : Live Load b)

Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s^2/ft, k*s^2*ft)]
1 31	L	Y	-0.5
2 115A	L	Y	-0.5
3 138	L	Y	-0.5

Node Loads and Enforced Displacements (BLC 13 : Live Load c)

Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s^2/ft, k*s^2*ft)]
1 40	L	Y	-0.5
2 124	L	Y	-0.5
3 147	L	Y	-0.5

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
1	Dead	DL	-1		20		3
2	0 Wind - No Ice	WLZ			20	49	
3	90 Wind - No Ice	WLX			20	49	
4	0 Wind - Ice	WLZ			20	49	
5	90 Wind - Ice	WLX			20	49	
6	0 Wind - Service	WLZ			20	49	
7	90 Wind - Service	WLX			20	49	
8	Ice	OL1			20	49	3
9	0 Seismic	ELZ			20	49	
10	90 Seismic	ELX			20	49	
11	Live Load a	LL	3				
12	Live Load b	LL	3				
13	Live Load c	LL	3				
14	Live Load d	LL					
15	Maint LL 1	LL			1		
16	Maint LL 2	LL			1		
17	Maint LL 3	LL			1		
18	Maint LL 4	LL			1		
19	Maint LL 5	LL			1		
20	Maint LL 6	LL			1		
21	Maint LL 7	LL			1		
22	Maint LL 8	LL			1		
23	Maint LL 9	LL			1		
24	Maint LL 10	LL			1		
25	Maint LL 11	LL			1		
26	Maint LL 12	LL			1		
27	Maint LL 13	LL			1		
28	Maint LL 14	LL			1		
29	Maint LL 15	LL			1		
30	BLC 1 Transient Area Loads	None				9	
31	BLC 8 Transient Area Loads	None				9	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	1.2 D + 1.0 - 0 W	Yes	Y	1	1.2	2	1				
3	1.2 D + 1.0 - 30 W	Yes	Y	1	1.2	2	0.866	3	0.5		
4	1.2 D + 1.0 - 60 W	Yes	Y	1	1.2	3	0.866	2	0.5		
5	1.2 D + 1.0 - 90 W	Yes	Y	1	1.2	3	1				
6	1.2 D + 1.0 - 120 W	Yes	Y	1	1.2	3	0.866	2	-0.5		
7	1.2 D + 1.0 - 150 W	Yes	Y	1	1.2	2	-0.866	3	0.5		
8	1.2 D + 1.0 - 180 W	Yes	Y	1	1.2	2	-1				
9	1.2 D + 1.0 - 210 W	Yes	Y	1	1.2	2	-0.866	3	-0.5		
10	1.2 D + 1.0 - 240 W	Yes	Y	1	1.2	3	-0.866	2	-0.5		
11	1.2 D + 1.0 - 270 W	Yes	Y	1	1.2	3	-1				
12	1.2 D + 1.0 - 300 W	Yes	Y	1	1.2	3	-0.866	2	0.5		
13	1.2 D + 1.0 - 330 W	Yes	Y	1	1.2	2	0.866	3	-0.5		
14	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
15	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
16	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
17	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
18	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
19	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
20	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
21	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
22	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
23	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
24	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
25	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
26	1.2 D + 1.0 E - 0	Yes	Y	1	1.2	9	1				
27	1.2 D + 1.0 E - 30	Yes	Y	1	1.2	9	0.866	10	0.5		
28	1.2 D + 1.0 E - 60	Yes	Y	1	1.2	10	0.866	9	0.5		
29	1.2 D + 1.0 E - 90	Yes	Y	1	1.2	10	1				
30	1.2 D + 1.0 E - 120	Yes	Y	1	1.2	10	0.866	9	-0.5		
31	1.2 D + 1.0 E - 150	Yes	Y	1	1.2	9	-0.866	10	0.5		
32	1.2 D + 1.0 E - 180	Yes	Y	1	1.2	9	-1				
33	1.2 D + 1.0 E - 210	Yes	Y	1	1.2	9	-0.866	10	-0.5		
34	1.2 D + 1.0 E - 240	Yes	Y	1	1.2	10	-0.866	9	-0.5		
35	1.2 D + 1.0 E - 270	Yes	Y	1	1.2	10	-1				
36	1.2 D + 1.0 E - 300	Yes	Y	1	1.2	10	-0.866	9	0.5		
37	1.2 D + 1.0 E - 330	Yes	Y	1	1.2	9	0.866	10	-0.5		
38	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
39	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
40	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
41	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
42	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
43	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
44	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
45	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
46	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
47	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
48	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
49	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
50	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
51	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
52	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
53	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
54	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
55	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5
92	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					21	1.5
93	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					22	1.5
94	1.2 D + 1.5 LL Maint (9)	Yes	Y	1	1.2					23	1.5
95	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					24	1.5
96	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					25	1.5
97	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					26	1.5
98	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					27	1.5
99	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					28	1.5
100	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					29	1.5

Envelope Node Reactions

	Node Label	X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	1	max	1.009	5	1.672	18	1.385	2	0.24	13	1.264	3	0.171
2		min	-1.113	11	0.213	12	-1.325	8	-1.799	7	-1.264	9	-2.856
3	62	max	1.05	5	1.58	70	1.293	2	0.125	3	1.23	7	2.831
4		min	-0.945	11	0.163	4	-1.232	8	-1.773	69	-1.23	13	-0.093
5	91	max	1.099	5	1.593	14	1.044	2	3.402	2	1.077	11	0.255
6		min	-1.1	11	0.07	8	-1.165	8	-0.371	8	-1.077	5	-0.269
7	Totals:	max	3.158	5	4.686	61	3.722	2					
8		min	-3.158	11	2.436	7	-3.722	8					

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

Member	Shape	Code	CheckLoc[ft]	LC	Shear	CheckLoc[ft]	Dir	Lcphi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	1	HSS4X4X2	0.475	0	7	0.12	0	z 9	70.173	73.278	8.24	8.24	2.105 H1-1b
2	2	C3.38X2.06X0.188	0.328	2.592	52	0.059	0.351	y 68	35.676	43.394	1.703	4.483	1.62 H1-1b
3	3	C3.38X2.06X0.188	0.329	0	56	0.068	2.241	y 49	35.676	43.394	1.703	4.483	1.618 H1-1b
4	4	PL3/8X6_HRA	0.068	0	5	0.128	0	y 66	70.017	73.872	0.585	9.234	2.006 H1-1b
5	5	PL3/8X6_HRA	0.076	0	7	0.13	0	y 42	70.017	73.872	0.585	9.234	2.021 H1-1b
6	6	PIPE_3.5x0.165	0.07	4	52	0.047	2.833	9	45.872	71.57	6.336	6.336	1.715 H1-1b
7	7	PL3/8X6_HRA	0.116	0.208	7	0.194	0.208	y 53	71.879	73.872	0.585	9.234	2.977 H1-1b
8	8	PL3/8X6_HRA	0.1	0	5	0.193	0	y 55	71.879	73.872	0.585	9.234	2.993 H1-1b
9	9	L2x2x4	0.189	0	12	0.033	2.309	y 39	23.349	30.586	0.691	1.577	1.5 H2-1
10	10	L2x2x4	0.192	2.309	13	0.033	0	y 68	23.349	30.586	0.691	1.577	1.5 H2-1
11	11	L7.63x2.5x6	0.241	1.604	12	0.073	0	z 65	75.414	118.523	1.798	13.197	1.131 H2-1
12	18	PIPE_2.88x0.203	0.119	5.667	9	0.043	5.667	3	35.519	70.68	5.029	5.029	2.684 H1-1b
13	19	PIPE_2.88x0.203	0.114	2.333	2	0.036	5.667	13	35.519	70.68	5.029	5.029	3 H1-1b
14	20	PIPE_2.88x0.203	0.099	2.187	13	0.086	1.146	7	24.131	70.68	5.029	5.029	2.048 H1-1b

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

Member	Shape	Code Check	Loc[ft]	LcShear Check	Loc[ft]	DirLc	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
15 26	PIPE 2.88x0.203	0.098	2.333	10	0.033	5.667	12	35.519	70.68	5.029	5.029	3 H1-1b
16 30	L6.63x4.33x.25	0.172	0	2	0.023	3.25	y 9	51.794	86.751	2.311	6.976	1.5 H2-1
17 31	HSS4X4X2	0.456	0	9	0.108	0	y 68	70.173	73.278	8.24	8.24	2.038 H1-1b
18 32	C3.38X2.06X0.188	0.327	2.592	56	0.059	0.351	y 73	35.676	43.394	1.703	4.483	1.618 H1-1b
19 33	C3.38X2.06X0.188	0.327	0	60	0.068	2.241	y 42	35.676	43.394	1.703	4.483	1.62 H1-1b
20 34	PL3/8X6 HRA	0.076	0	9	0.13	0	y 70	70.017	73.872	0.585	9.234	2.027 H1-1b
21 35	PL3/8X6 HRA	0.068	0	11	0.128	0	y 46	70.017	73.872	0.585	9.234	2.014 H1-1b
22 36	PL3/8X6 HRA	0.1	0.208	11	0.193	0.208	y 57	71.879	73.872	0.585	9.234	2.983 H1-1b
23 37	PL3/8X6 HRA	0.115	0	9	0.194	0	y 59	71.879	73.872	0.585	9.234	2.969 H1-1b
24 38	L2x2x4	0.193	0	3	0.033	2.309	y 44	23.349	30.586	0.691	1.577	1.5 H2-1
25 39	L2x2x4	0.19	2.309	4	0.033	0	y 73	23.349	30.586	0.691	1.577	1.5 H2-1
26 40	L7.63x2.5x6	0.242	1.604	4	0.073	3.207	z 46	75.414	118.523	1.798	13.232	1.137 H2-1
27 49	L6.63x4.33x.25	0.174	3.25	2	0.023	0	y 7	51.794	86.751	2.311	6.976	1.5 H2-1
28 50	HSS4X4X2	0.454	0	13	0.108	0	y 39	70.173	73.278	8.24	8.24	2.029 H1-1b
29 51	C3.38X2.06X0.188	0.328	2.592	60	0.059	0.351	y 64	35.676	43.394	1.703	4.483	1.62 H1-1b
30 52	C3.38X2.06X0.188	0.327	0	52	0.068	2.241	y 45	35.676	43.394	1.703	4.483	1.619 H1-1b
31 53	PL3/8X6 HRA	0.079	0	13	0.131	0	y 62	70.017	73.872	0.585	9.234	2.08 H1-1b
32 54	PL3/8X6 HRA	0.079	0	3	0.129	0	y 38	70.017	73.872	0.585	9.234	2.099 H1-1b
33 55	PL3/8X6 HRA	0.112	0.208	3	0.193	0.208	y 61	71.879	73.872	0.585	9.234	2.95 H1-1b
34 56	PL3/8X6 HRA	0.112	0	13	0.193	0	y 51	71.879	73.872	0.585	9.234	2.953 H1-1b
35 57	L2x2x4	0.21	0	8	0.033	2.309	y 48	23.349	30.586	0.691	1.577	1.5 H2-1
36 58	L2x2x4	0.212	2.309	8	0.033	0	y 64	23.349	30.586	0.691	1.577	1.5 H2-1
37 59	L7.63x2.5x6	0.274	1.604	8	0.074	2.873	y 38	75.414	118.523	1.798	13.415	1.173 H2-1
38 68	L6.63x4.33x.25	0.149	0	10	0.019	0	y 11	51.794	86.751	2.311	6.976	1.5 H2-1
39 69	PIPE_3.5x0.165	0.071	4	56	0.047	5.667	7	45.872	71.57	6.336	6.336	1.712 H1-1b
40 72	PIPE_2.88x0.203	0.119	5.667	7	0.043	5.667	7	35.519	70.68	5.029	5.029	2.688 H1-1b
41 73	PIPE_2.88x0.203	0.098	2.333	6	0.033	5.667	4	35.519	70.68	5.029	5.029	3 H1-1b
42 74	PIPE_2.88x0.203	0.099	7.812	3	0.085	8.854	9	24.131	70.68	5.029	5.029	2.044 H1-1b
43 76	PIPE_2.88x0.203	0.113	2.333	2	0.036	5.667	3	35.519	70.68	5.029	5.029	3 H1-1b
44 80	PIPE_3.5x0.165	0.071	4	52	0.041	2.833	4	45.872	71.57	6.336	6.336	1.716 H1-1b
45 83	PIPE_2.88x0.203	0.105	5.667	5	0.038	5.667	5	35.519	70.68	5.029	5.029	3 H1-1b
46 84	PIPE_2.88x0.203	0.099	2.333	10	0.04	5.667	8	35.519	70.68	5.029	5.029	3 H1-1b
47 85	PIPE_2.88x0.203	0.101	7.812	7	0.09	8.854	13	24.131	70.68	5.029	5.029	2.267 H1-1b
48 87	PIPE_2.88x0.203	0.1	2.333	6	0.04	5.667	8	35.519	70.68	5.029	5.029	3 H1-1b
49 91	PIPE_2.0	0.103	3.5	8	0.009	3.5	8	26.521	32.13	1.872	1.872	1.522 H1-1b

APPENDIX D
ADDITIONAL CALCULATIONS

PROJECT	158154.002.01 - Bennett Pond, CT			KSC
SUBJECT	Platform Mount Analysis			
DATE	03/07/22	PAGE	1	OF 1



B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

[REF: AISC 360-05]

Reactions at Bolted Connection

Tension	:	1.044	k
Vertical Shear	:	1.593	k
Horizontal Shear	:	1.099	k
Torsion	:	0.255	k.ft
Moment from Horizontal Forces	:	1.077	k.ft
Moment from Vertical Forces	:	3.402	k.ft

Bolt Parameters

Bolt Grade	:	A325	
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in ²
Bolt spacing, Horizontal	:	6	in
Bolt spacing, Vertical	:	6	in
Bolt edge distance, plate height	:	1.5	in
Bolt edge distance, plate width	:	1.5	in
Total Number of Bolts	:	4	bolts

Summary of Forces

Shear Resultant Force	:	1.94	k
Force from Horz. Moment	:	1.95	k
Force from Vert. Moment	:	6.16	k
Shear Load / Bolt	:	0.48	k
Tension Load / Bolt	:	0.26	k
Resultant from Moments / Bolt	:	3.23	k

Bolt Checks

Nominal Tensile Stress, F_{nt}	:	90.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	20.72	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	16.85%		OKAY
Nominal Shear Stress, F_{nv}	:	48.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	11.05	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	6.74%		OKAY
Unity Check, Combined	:	23.59%		OKAY
Available Bearing Strength, ΦR_n	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	1.40%		OKAY

PROJECT	158154.002.01 - Bennett Pond, CT			KSC
SUBJECT	Platform Mount Analysis			
DATE	03/07/22	PAGE	1	OF 1



B+T Group
 1717 S. Boulder, Suite 300
 Tulsa, OK 74119
 (918) 587-4630

[REF: AISC 360-05]

Connecting Member Parameters

Plate Yield Strength, F_y	:	36.00	ksi	[AISC Table 2-5]
Plate Tensile Strength, F_u	:	58.00	ksi	[AISC Table 2-5]
Plate Height	:	9.00	in	
Plate Width	:	9.00	in	
Plate Thickness	:	0.50	in	
Edge Distance	:	1.06	in	
Gross Tension Area, A_{gt}	:	4.50	in ²	
Gross Shear Area, A_{gv}	:	0.75	in ²	
Net Area for tension, A_{nt}	:	4.16	in ²	
Net Area for shear, A_{ns}	:	3.00	in ²	

Plate Check

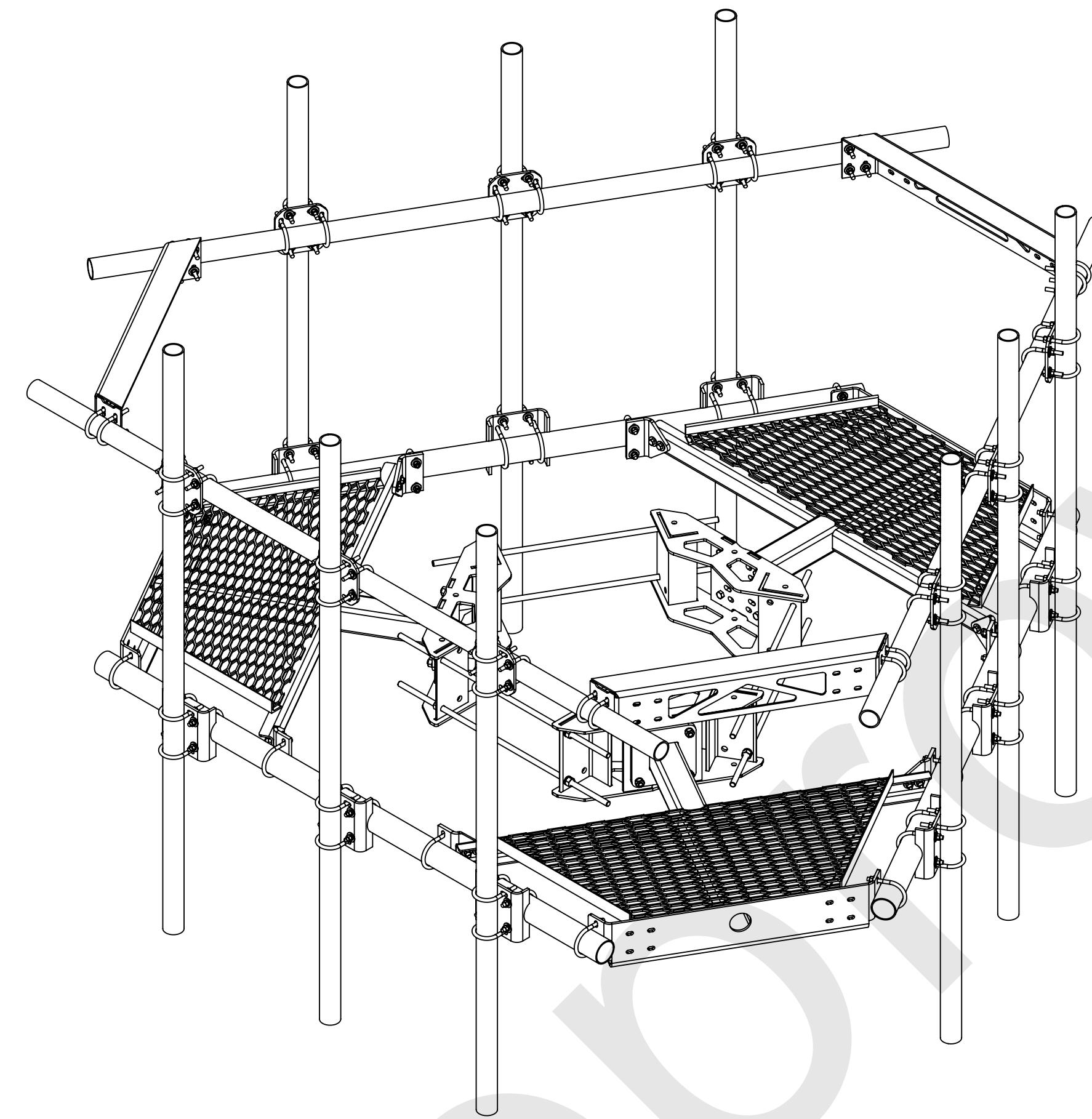
Available Tensile Yield	:	145.80	k	[Eq. J4-1]
Available Tensile Rupture	:	180.80	k	[Eq. J4-2]
Unity Check, Plate Tension	:	2.40%		OKAY
Available Shear Yield	:	16.20	k	[Eq. J4-3]
Available Shear Rupture	:	104.40	k	[Eq. J4-4]
Unity Check, Plate Shear	:	11.95%		OKAY
Available Block Shear, ΦR_n	:	77.40	k	[Eq. J4-5]
Unity Check, Block Shear	:	2.50%		OKAY

APPENDIX E
SUPPLEMENTAL DRAWINGS

NOTES:

1.0 GENERAL
 1.1 ALL METRIC DIMENSIONS ARE IN BRACKETS
 1.2 FOR PATENTS, SEE WWW.CS-PAT.COM
 2.0 DESIGN NOTES
 2.1 TORQUE U-BOLTS TO 44 FT-LBS
 3.0 MANUFACTURING/SPECIAL REQUIREMENTS
 4.0 TEST
 5.0 PACKAGING

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



PATENT PENDING

COMMSCOPE, INC. OF NORTH CAROLINA

TOLERANCES
 1 PLACE $.X \pm .25$ 3 PLACE $XXX \pm 0.06$
 2 PLACE $XX \pm 0.12$ ANGLES $\pm 2^\circ$

SAP MATERIAL MASTER

MC-PK8-DSH

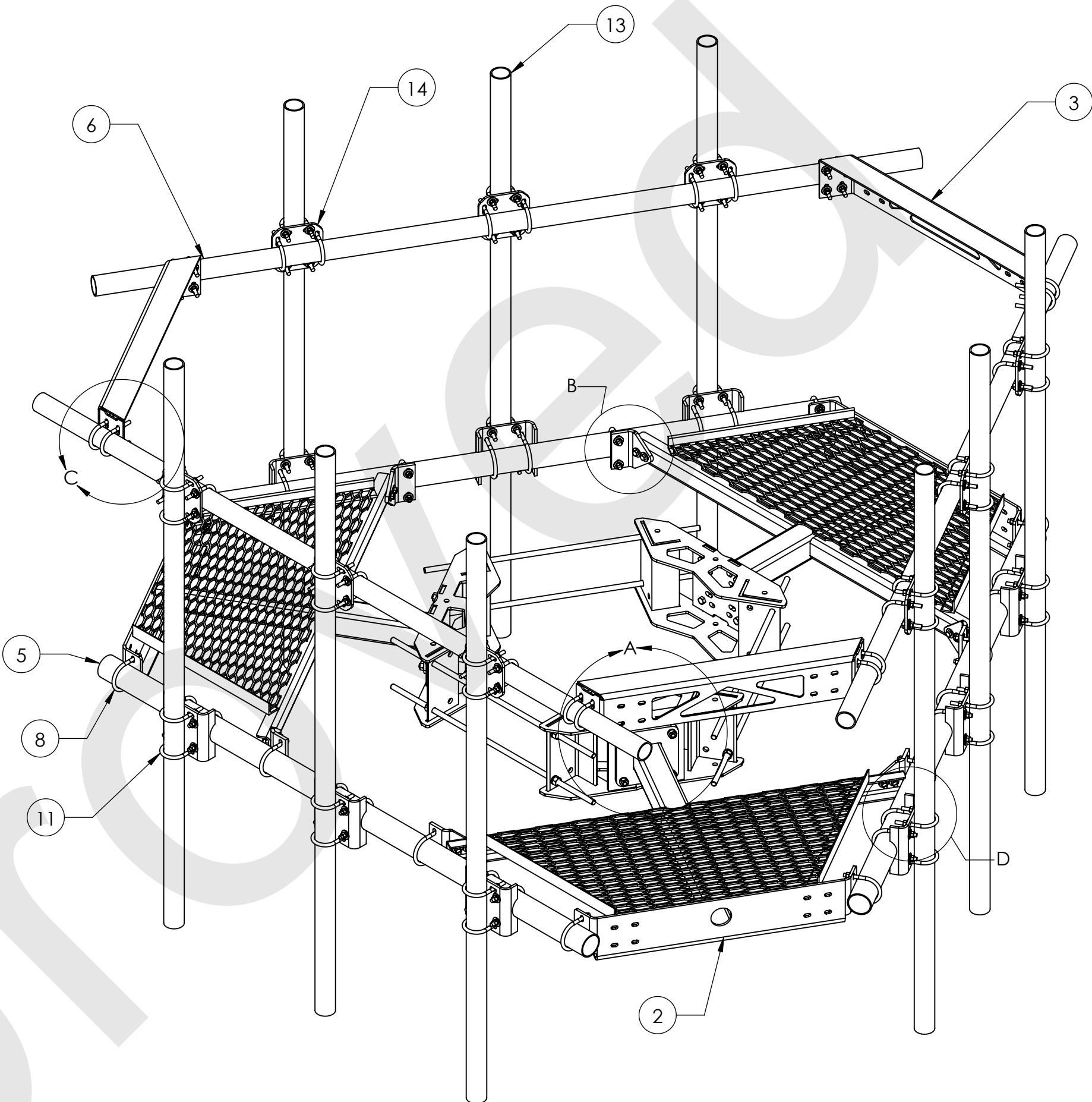
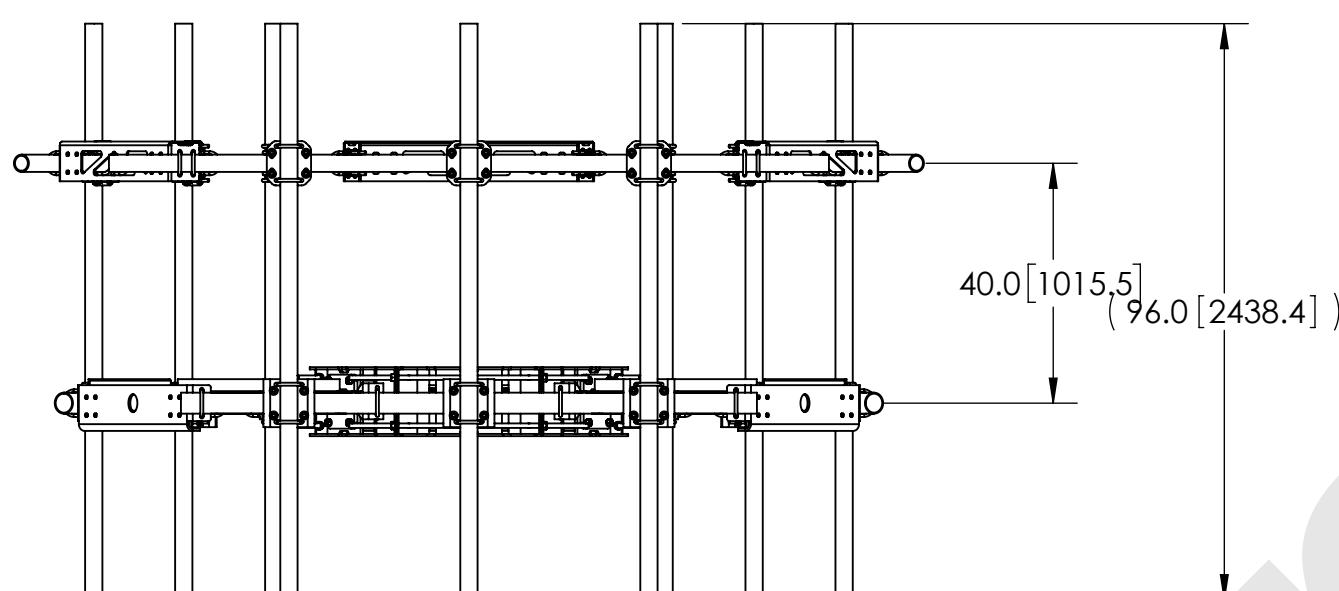
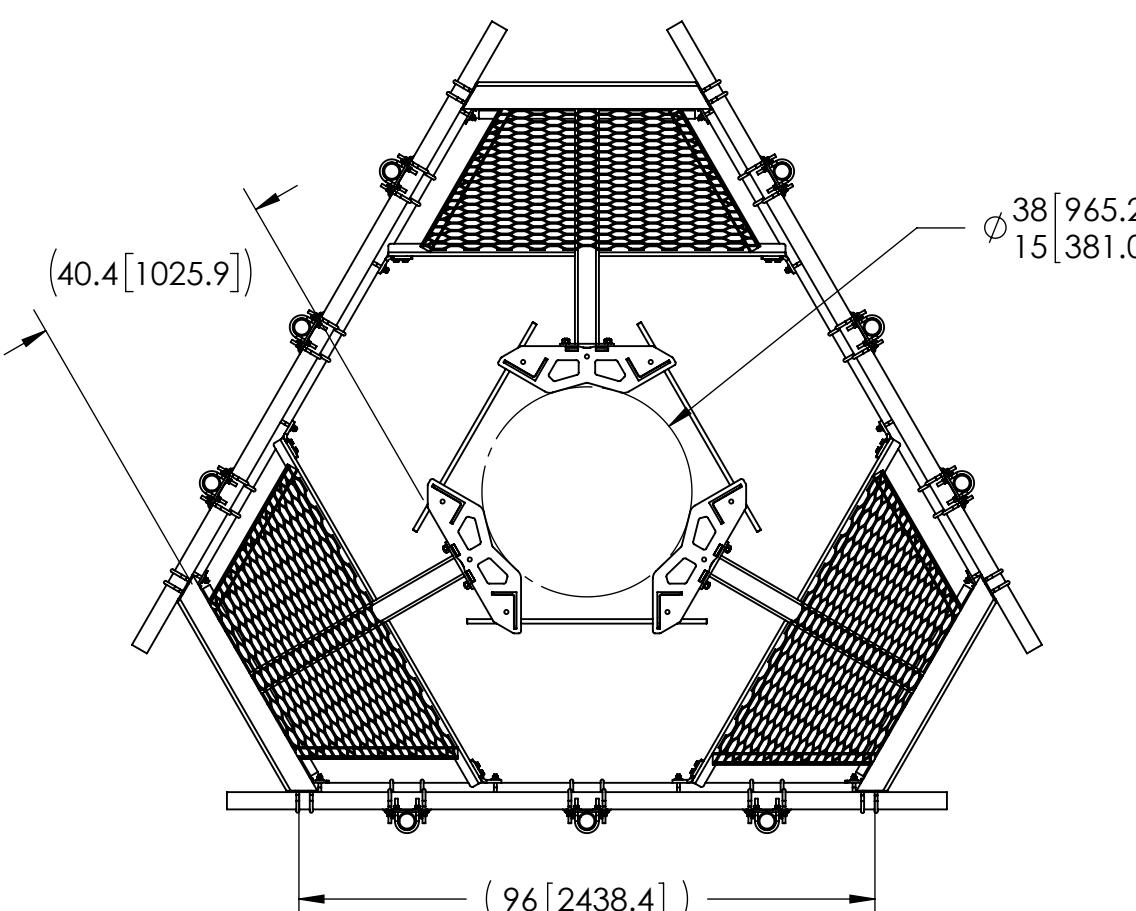
FINISH GALV A123	MATERIAL A500, A1011/A1018
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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES INTERPRET PER ANSI Y14.5M-1994	NAME	DATE	TITLE			SCALE
			CE	MRC	02/17/20	
	RW	ROGHANSON	03/16/2021			
	AD	BCROSS	03/17/2021			
	RE	FA1024	02/27/2020			
	ECN	10272PC				
	SIZE	Auth Group	INSL	MODEL		DRAWING
	C			VERSION	STATUS	REVISION
				01	AD	A
				00	AD	A

MC-PK8-DSH

SHEET 1 OF 3	SCALE	DOCUMENT NO.	MC-PK8-DSH		
	1:32		VERSION	STATUS	REVISION
			01	AD	A
			00	AD	A

NOTES:



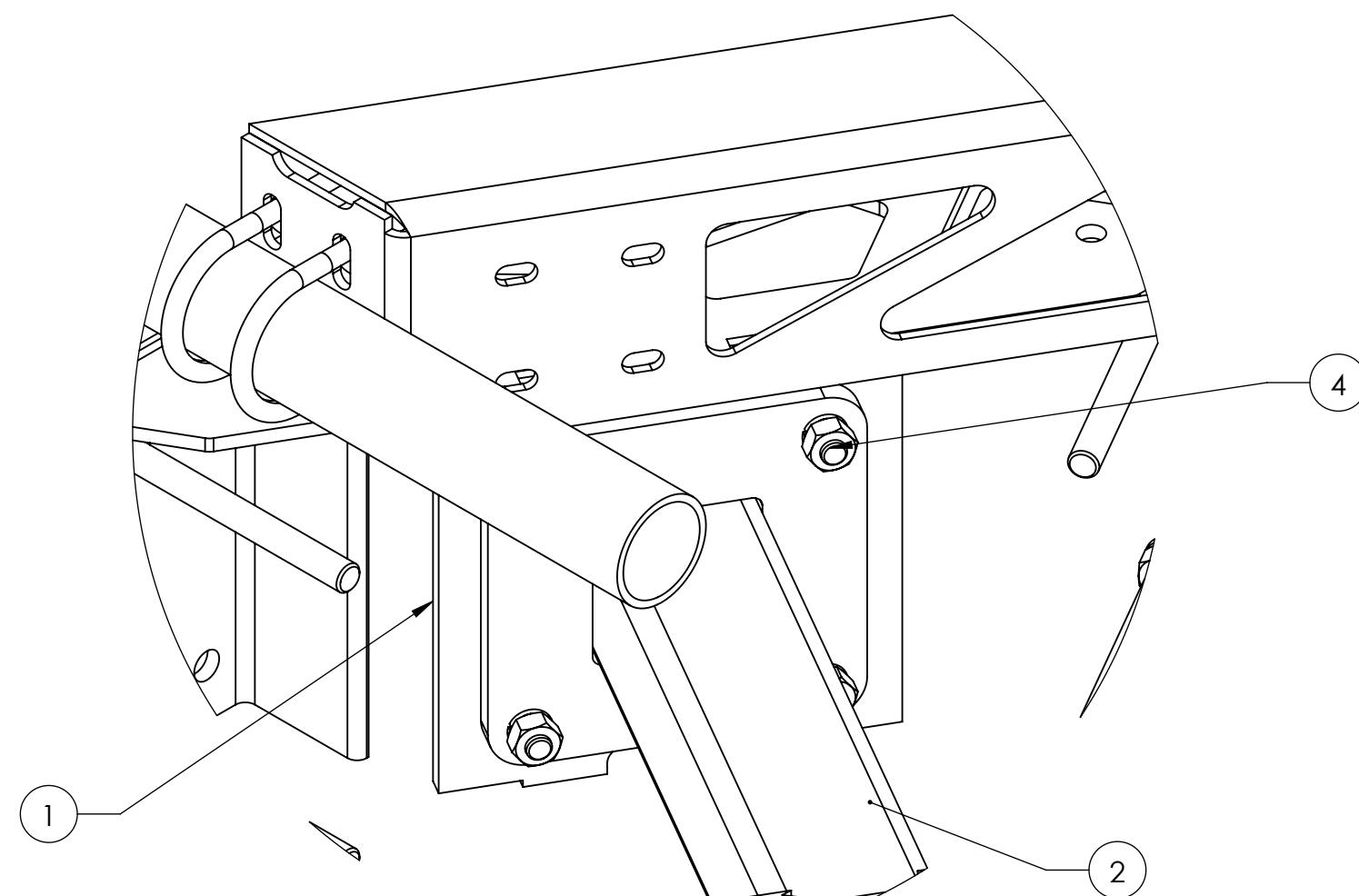
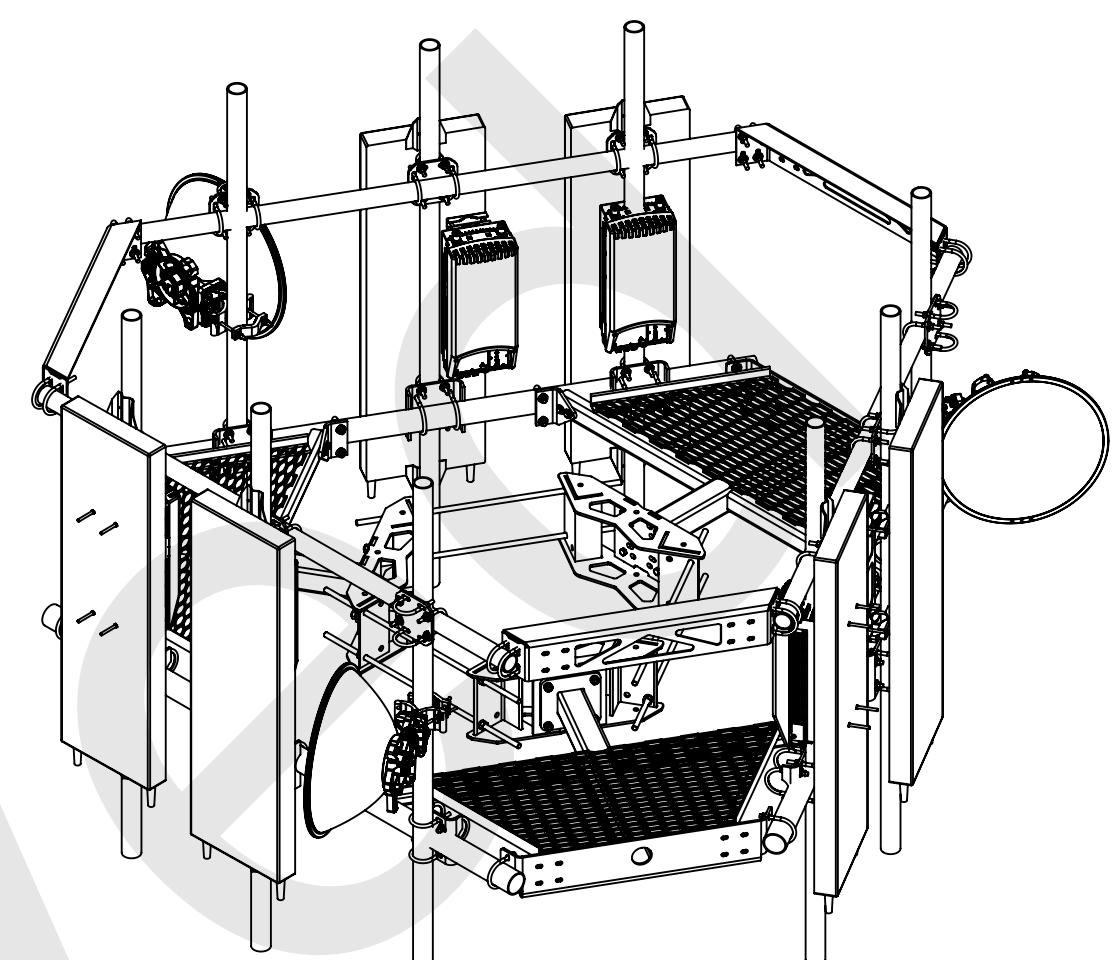
ITEM	PART NO.	DESCRIPTION	QTY.
1	MC-RM1550-3	12" - 50" OD RINGMOUNT	1
2	MTC300602	SECTOR WELDMENT FOR SNUB NOSE PLATFORM	3
3	MT195801	Corner Weldment Snub Nose Handrail	3
4	GB-0520A	5/8" X 2" GALV BOLT KIT (A325)	12
5	MT54796	3.50" OD X 96" GALV PIPE	3
6	MT546120	2.875" O.D. X 120" PIPE	3
7	GWF-04	1/2"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

COMMSCOPE, INC. OF NORTH CAROLINA

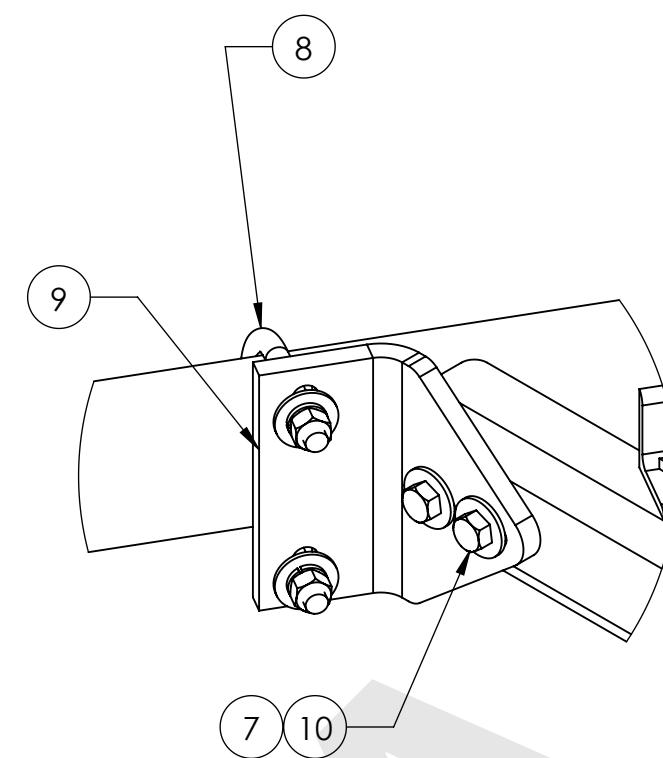
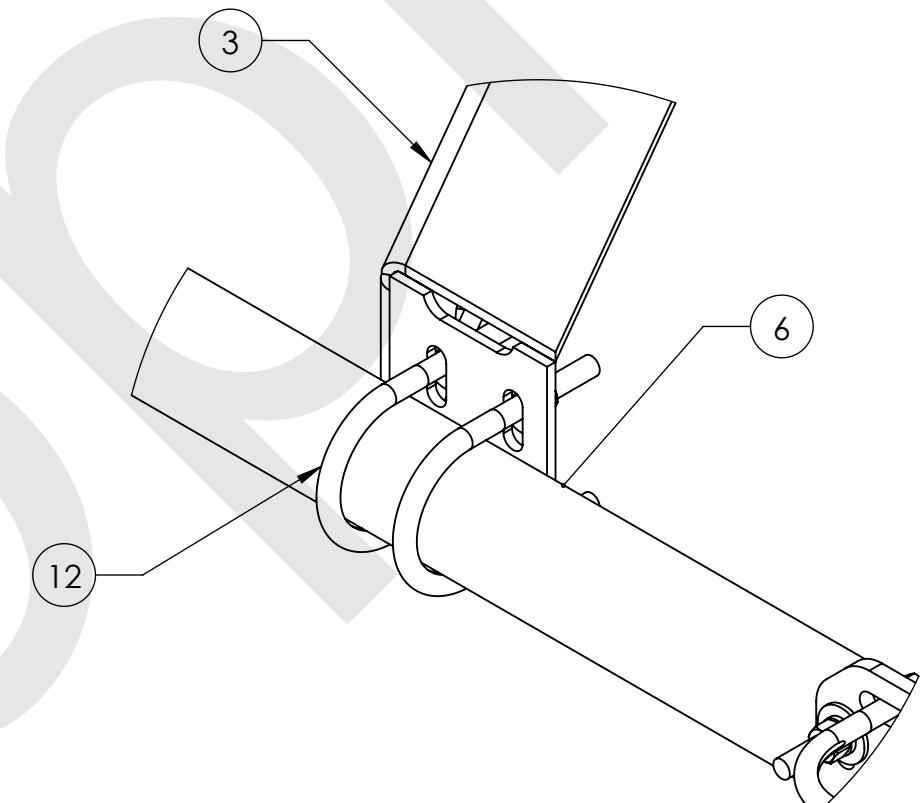
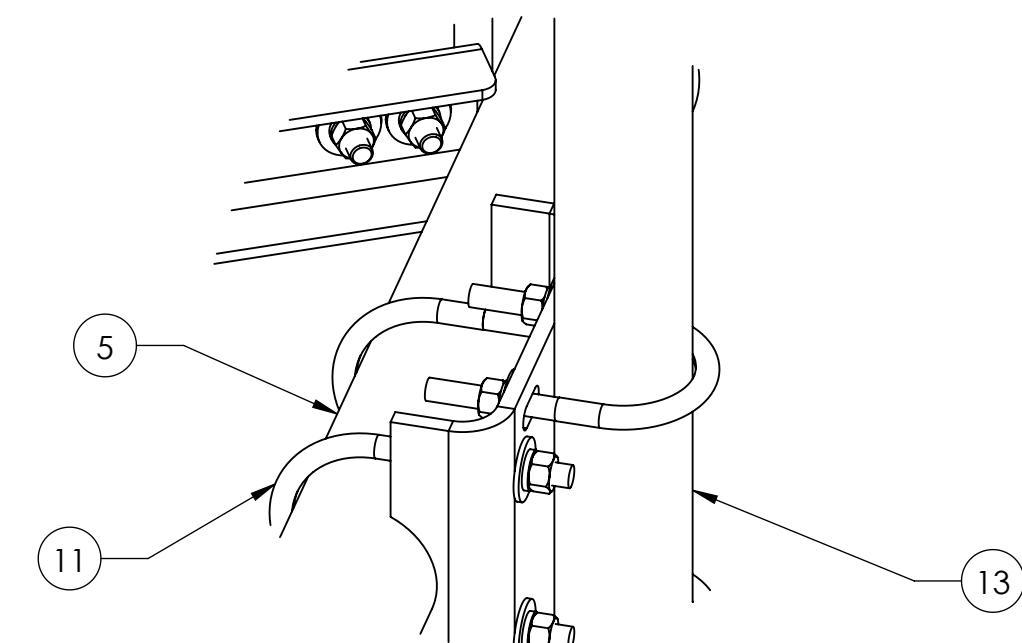
TITLE
LOW PROFILE PLATFORM FACESIZE C SCALE 1:32 DOCUMENT NO. MC-PK8-DSH
DRAWING
VERSION 00 STATUS AD REVISION A
SHEET

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NOTES:

DETAIL A
SCALE 1 : 4

WITH ANTENNAS

DETAIL B
SCALE 1 : 4DETAIL C
SCALE 1 : 4DETAIL D
SCALE 1 : 4

COMMSCOPE, INC. OF NORTH CAROLINA

TITLE

LOW PROFILE PLATFORM FACE

SIZE C SCALE 1:24 DOCUMENT NO. MC-PK8-DSH

DRAWING	VERSION			STATUS	REVISION	SHEET
	00	AD	A			
© 2021 CommScope, Inc.						3 OF 3

Exhibit F

Power Density/RF Emissions Report



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

Dish Wireless Existing Facility

Site ID: 842857

NJJER02037A
66 Sugar Hollow Road
Danbury, Connecticut 06810

May 30, 2022

EBI Project Number: 6222003442

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	6.96%



May 30, 2022

Attn: Dish Wireless

Emissions Analysis for Site: 842857 - NJJER02037A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **66 Sugar Hollow Road in Danbury, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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



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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at 66 Sugar Hollow Road in Danbury, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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



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

- 6) The antennas used in this modeling are the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 7) The antenna mounting height centerline of the proposed antennas is 59 feet above ground level (AGL).
- 8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 9) All calculations were done with respect to uncontrolled / general population threshold limits.



Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	I	Antenna #:	I	Antenna #:	I
Make / Model:	JMA MX08FRO665-2I	Make / Model:	JMA MX08FRO665-2I	Make / Model:	JMA MX08FRO665-2I
Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz
Gain:	11.35 dBd / 15.75 dBd / 16.75 dBd	Gain:	11.35 dBd / 15.75 dBd / 16.75 dBd	Gain:	11.35 dBd / 15.75 dBd / 16.75 dBd
Height (AGL):	59 feet	Height (AGL):	59 feet	Height (AGL):	59 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440.00 Watts	Total TX Power (W):	440.00 Watts	Total TX Power (W):	440.00 Watts
ERP (W):	2,524.75	ERP (W):	2,524.75	ERP (W):	2,524.75
Antenna A1 MPE %:	4.08%	Antenna B1 MPE %:	4.08%	Antenna C1 MPE %:	4.08%



Site Composite MPE %	
Carrier	MPE %
Dish Wireless (Max at Sector A):	4.08%
AT&T	1.7%
Sprint	1.18%
Site Total MPE % :	6.96%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	4.08%
Dish Wireless Sector B Total:	4.08%
Dish Wireless Sector C Total:	4.08%
Site Total MPE % :	6.96%

Dish Wireless Maximum MPE Power Values (Sector A)							
Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
Dish Wireless 600 MHz n71	4	110.82	59.0	5.67	600 MHz n71	400	1.42%
Dish Wireless 1900 MHz n70	4	245.22	59.0	12.55	1900 MHz n70	1000	1.26%
Dish Wireless 2190 MHz n66	4	275.14	59.0	14.09	2190 MHz n66	1000	1.41%
						Total:	4.08%

- NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.



Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the Dish Wireless facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

Dish Wireless Sector	Power Density Value (%)
Sector A:	4.08%
Sector B:	4.08%
Sector C:	4.08%
Dish Wireless Maximum MPE % (Sector A):	4.08%
Site Total:	6.96%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **6.96%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Exhibit G

Letter of Authorization



1200 MacArthur Boulevard, Suite
200
Mahwah, NJ 07430

Phone: (862) 226-6914
www.crowncastle.com

Crown Castle Letter of Authorization

CT - CONNECTICUT SITING COUNCIL

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

Re: Tower Share Application

**Crown Castle telecommunications site at:
66 SUGAR HOLLOW ROAD, DANBURY, CT 06810**

NCWPCS MPL 28 - YEAR SITES TOWER HOLDINGS LLC ("Crown Castle") hereby authorizes DISH NETWORK, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CT - CONNECTICUT SITING COUNCIL for the existing wireless communications site described below:

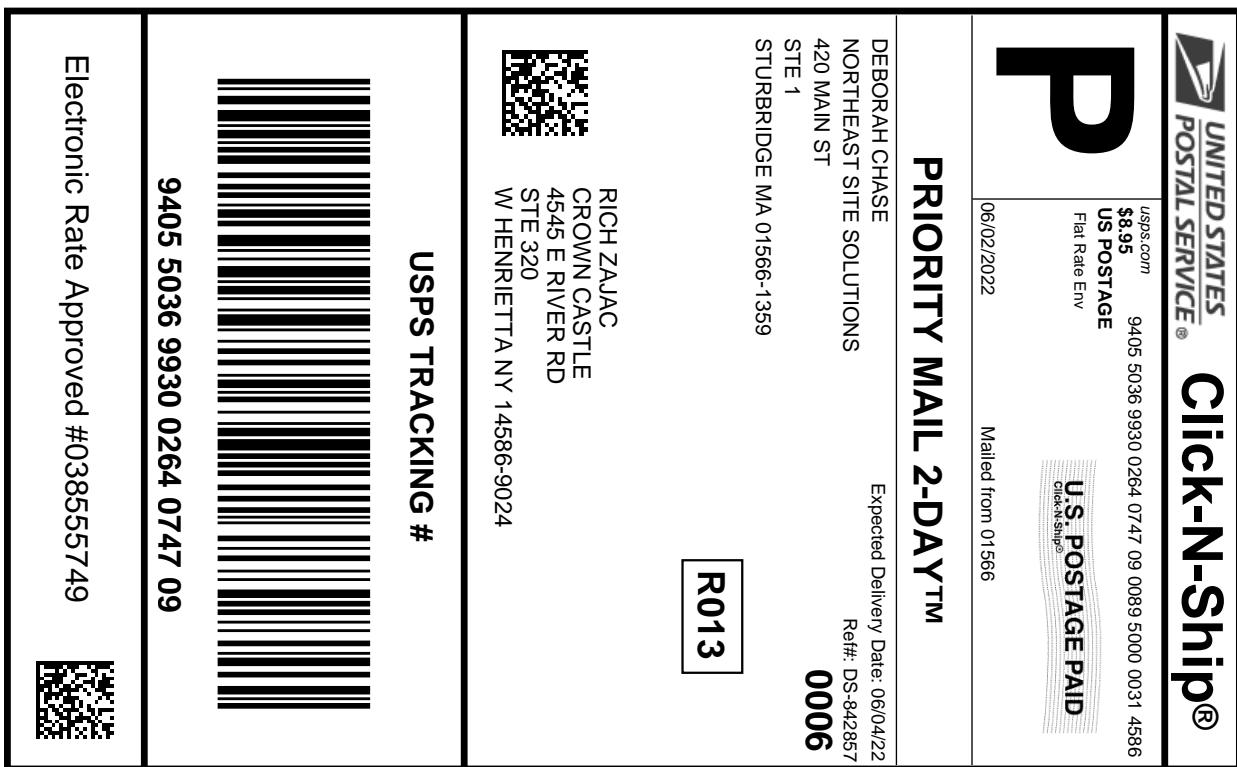
Crown Site ID/Name: **842857/BENNETT POND**
Customer Site ID: **NJJER02037A/**
Site Address: **66 SUGAR HOLLOW ROAD, DANBURY, CT 06810**

Crown Castle

By:  Date: 04/22/2022
Robin Cannizzaro
Real Estate Specialist

Exhibit H

Recipient Mailings



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING #:
9405 5036 9930 0264 0747 09

Trans. #: 564802538
Print Date: 06/02/2022
Ship Date: 06/02/2022
Expected Delivery Date: 06/04/2022

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

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

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

Ref#: DS-842857

* 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.

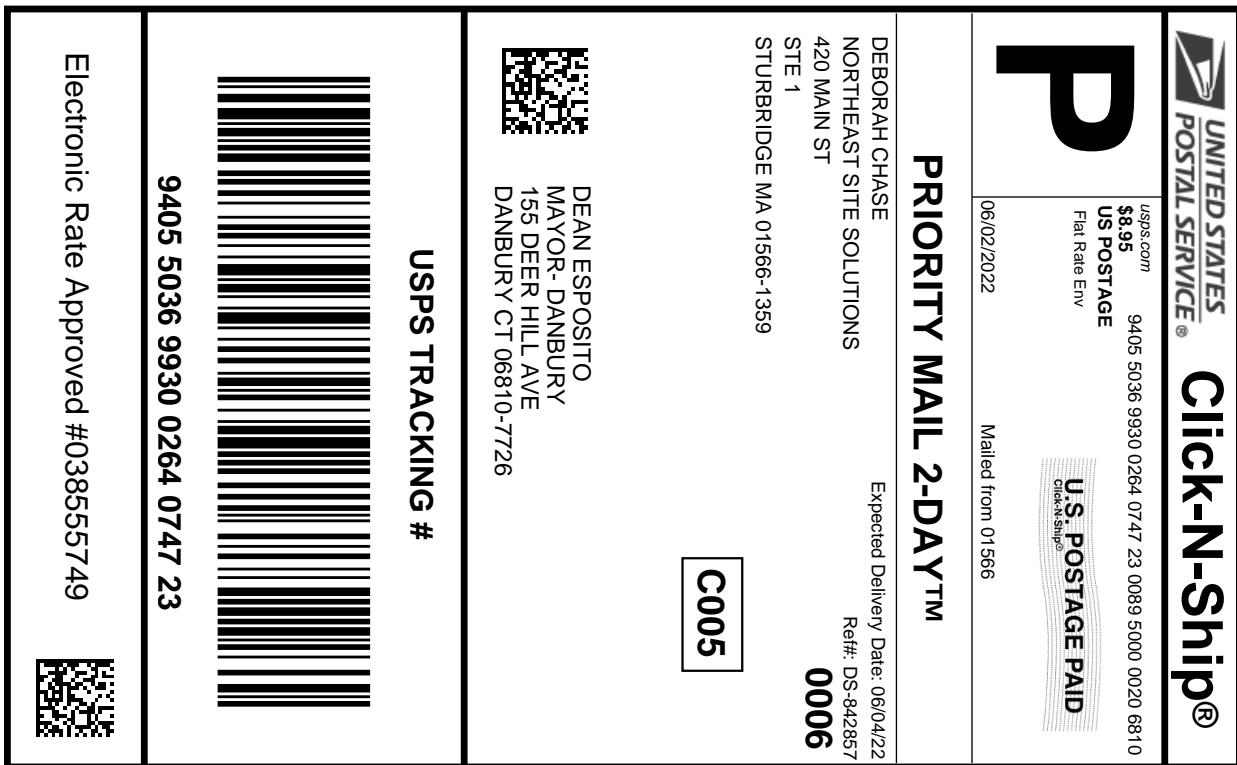


Thank you for shipping with the United States Postal Service!

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

Electronic Rate Approved #038555749

9405 5036 9930 0264 0747 09



Cut on dotted line.

Instructions

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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 0264 0747 23

Trans. #:	564802538	Priority Mail® Postage:	\$8.95
Print Date:	06/02/2022	Total:	\$8.95
Ship Date:	06/02/2022		
Expected			
Delivery Date:	06/04/2022		

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

To: DEAN ESPOSITO
MAYOR- DANBURY
155 DEER HILL AVE
DANBURY CT 06810-7726

Ref#: DS-842857

* 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.

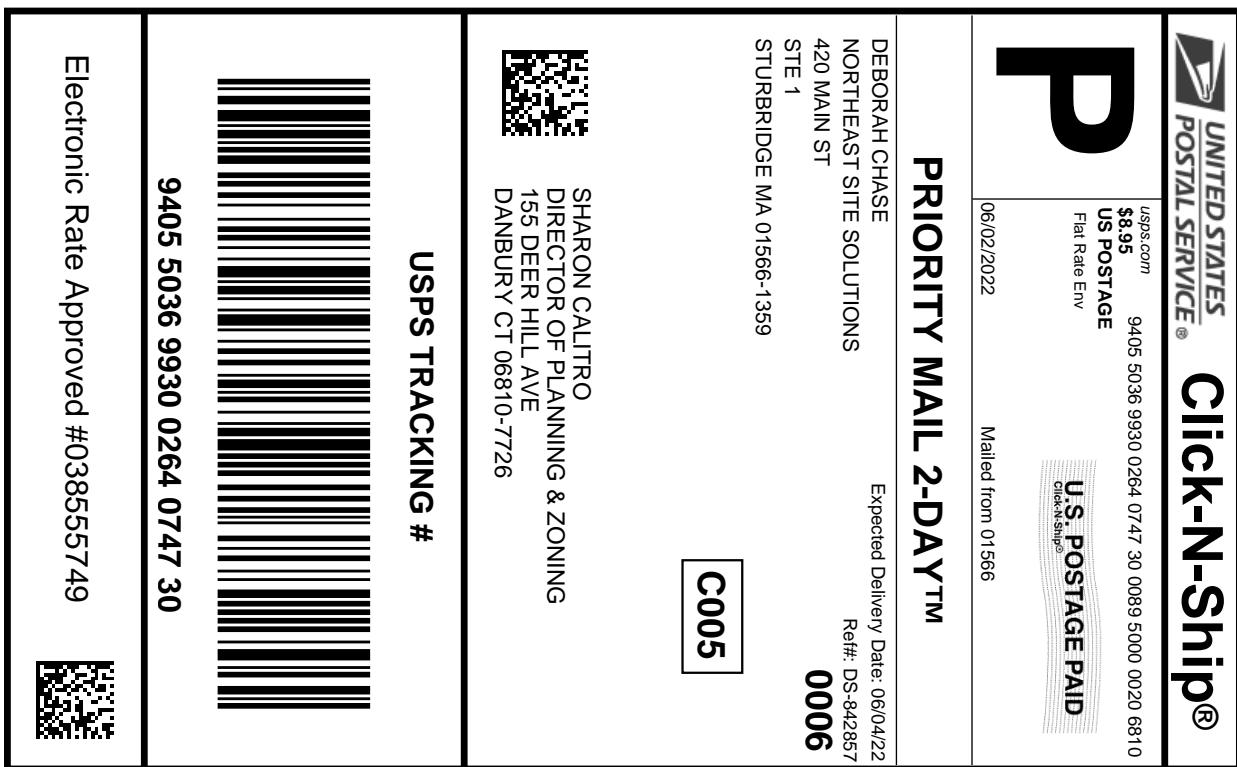


Thank you for shipping with the United States Postal Service!

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

Electronic Rate Approved #038555749

9405 5036 9930 0264 0747 23



—X— *Cut on dotted line.*

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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 0264 0747 30

Trans. #:	564802538	Priority Mail® Postage:	\$8.95
Print Date:	06/02/2022	Total:	\$8.95
Ship Date:	06/02/2022		
Expected			
Delivery Date:	06/04/2022		

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

To: SHARON CALITRO
DIRECTOR OF PLANNING & ZONING
155 DEER HILL AVE
DANBURY CT 06810-7726

* 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.

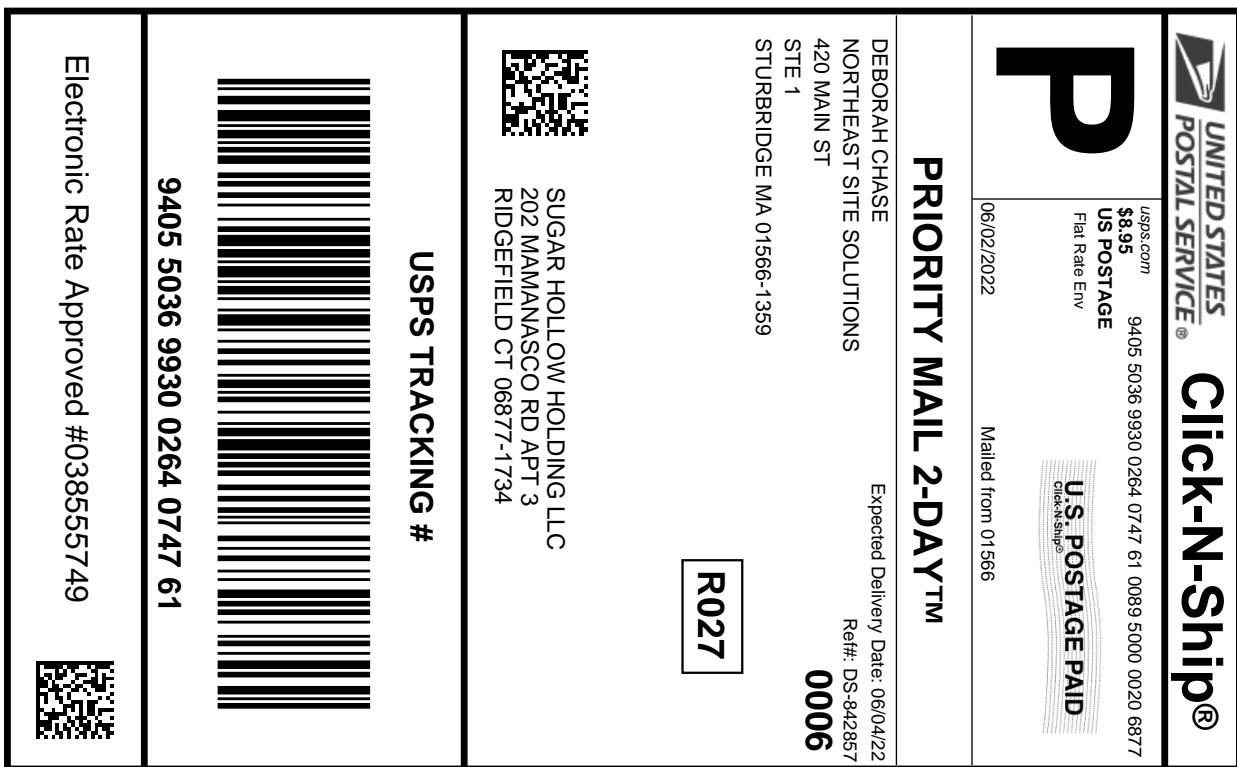


Thank you for shipping with the United States Postal Service!

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

Electronic Rate Approved #038555749

9405 5036 9930 0264 0747 30



—X— *Cut on dotted line.*

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Click-N-Ship® Label Record

USPS TRACKING #:
9405 5036 9930 0264 0747 61

Trans. #:	564802538	Priority Mail® Postage:	\$8.95
Print Date:	06/02/2022	Total:	\$8.95
Ship Date:	06/02/2022		
Expected			
Delivery Date:	06/04/2022		

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

To: SUGAR HOLLOW HOLDING LLC
202 MAMANASCO RD APT 3
RIDGEFIELD CT 06877-1734

* 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

Electronic Rate Approved #038555749

9405 5036 9930 0264 0747 61



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

06/03/2022

04:25 PM

Product	Qty	Unit	Price
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Prepaid Mail	1		\$0.00
		Ridgefield, CT 06877	
		Weight: 0 lb 9.80 oz	
		Acceptance Date:	
		Fri 06/03/2022	
		Tracking #:	
		9405 5036 9930 0264 0747 61	

Prepaid Mail	1		\$0.00
		West Henrietta, NY 14586	
		Weight: 0 lb 2.00 oz	
		Acceptance Date:	
		Fri 06/03/2022	
		Tracking #:	
		9405 5036 9930 0264 0747 09	

Prepaid Mail	1		\$0.00
		Danbury, CT 06810	
		Weight: 0 lb 9.80 oz	
		Acceptance Date:	
		Fri 06/03/2022	
		Tracking #:	
		9405 5036 9930 0264 0747 23	

Prepaid Mail	1		\$0.00
		Danbury, CT 06810	
		Weight: 0 lb 9.80 oz	
		Acceptance Date:	
		Fri 06/03/2022	
		Tracking #:	
		9405 5036 9930 0264 0747 30	

Grand Total: \$0.00

Every household in the U.S. is now
eligible to receive a third set
of 8 free test kits.
Go to www.covidtests.gov

Preview your Mail
Track your Packages
Sign up for FREE @
<https://informeddelivery.usps.com>

All sales final on stamps and postage.
Refunds for guaranteed services only.
Thank you for your business.

Tell us about your experience.
Go to: <https://postalexperience.com/Pos>
or scan this code with your mobile device,



or call 1 800-410-7420.