NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

July 28, 2022

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

RE: Tower Share Application
107 Wilcox Road, Stonington, CT 06437
Latitude: 41.341097
Longitude: -71.940883
Site #: CT13074-A_ BOBOS00057A_SBA_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 107 Wilcox Road, Stonington, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 86-foot level of the existing 100-foot monopole tower, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within a 7' x 5' lease area within the fenced compound. Included are plans by B+T, dated June 27, 2022, Exhibit C. Also included is a structural analysis prepared by TES, dated April 25, 2022, confirming that the existing tower will be structurally capable of supporting the proposed equipment after completion of the proposed tower modifications. Attached as Exhibit D. The facility was originally approved as a tower replacement by the Connecticut Siting Council, Petition No. 765 on June 2, 2006. Please see attached Exhibit A. Please note this application includes proposed tower modification from 0 ft. to 21 ft. as shown in attached drawings.

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 Danielle Chesebrough, First Selectman and Keith Byrnes, Town Planner for the Town of Stonington, as well as the tower owner (SBA) and property owner (JBG Ventures 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 100-feet and the Dish Wireless LLC antennas will be located at a center line height of 86-feet.

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

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. The combined site operations will result in a total power density of 18.28% as evidenced by Exhibit F.

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

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

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this monopole tower in Stonington. 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 86-foot level of the existing 100-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 Stonington.

Sincerely,

Denise Sabo

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

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Attachments

Cc: Danielle Chesebrough, First Selectman
Town of Stonington
152 Elm Street
Stonington, CT 06378

Keith Byrnes, Town Planner
Town of Stonington
152 Elm Street
Stonington, CT 06378

JBG Ventures LLC, Property Owner
239 Bank Street
New London, CT 06320

SBA - Tower Owner

Exhibit A

Original Facility Approval

Petition No.765
Optasite
107 Wilcox Road, Stonington
June 2, 2006

On April 27, 2006, the Connecticut Siting Council (Council) received a Petition (Petition) from Optasite, Inc. for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed replacement of an existing tower at 107 Wilcox Road, Stonington, Connecticut. Specifically, Optasite seeks to relocate and replace an existing lattice tower with a total height of 105' with a new 100' monopole and construct a fenced and landscaped equipment area within an already improved area of the property.

The existing tower was formerly used for "in-house" communications purposes by CL&P and Yankee Gas. It is located adjacent to an administrative office building. The property is no longer owned by the utilities, and the building has been re-designed as commercial offices and space for non-profit organizations. The existing tower no longer serves its former use.

To improve the aesthetics of the property, and to permit sufficient ground space for multiple carriers, Optasite, in cooperation with the property owner, proposes to install a new 100' monopole and associated equipment compound at one corner of the property. The new monopole's location would be approximately 200' to the west of the existing tower. The monopole would have T-Mobile's antennas flush mounted at a centerline height of 97'. Thus, the total height with appurtenances would be 100'. Also, the tower setback radius would remain within the subject property. The existing tower would be removed.

The compound would be 38' x 70' and would include an 8' high chain link fence with privacy slats. The compound would include four equipment cabinets located in a 10' x 20' area. The location for the replacement tower and compound is already paved, so no additional wetland impacts are anticipated, nor is any tree clearing expected. A paved access drive (entrance) to the lot already exists. Optasite, would, however, relocate the gate.

The property is zoned RR-80 residential. Route 1 is located to the north of the proposed site, and Wilcox Road is located to the south. of the proposed site. Surrounding land uses are predominately low-density residential. To minimize the visual impact of the compound, existing landscaping would be supplemented along Wilcox Road with approximately 8' tall evergreens, spaced 10' on center.

Vanasse Hangen Brustlin Inc. (VHB) conducted a balloon float at the proposed facility in order to evaluate the potential viewshed within the study area. The balloon was secured at a height of 100'. VHB concluded that most of the total visibility of the proposed tower would fall on open water over Long Island Sound. In total, visibility from Long Island Sound accounts for approximately 1,712 acres of the 1,800 acres of visibility.

Approximately 17 residences would have year-round views of the tower. VHB also notes that there appears to be little if any difference in visibility between the existing lattice tower and the proposed relocated monopole.

This petition was field reviewed by Council member Dr. Barbara Currier Bell, Executive Director S. Derek Phelps, and Michael Perrone of the Council staff on May 10, 2006. Also at the field review were: Attorney Christopher Fisher, Keith Coppins of Optasite, and Michael Blair of JBC Ventures, LLC. At the field review, staff requested that the applicant issue a notice to abutters with a date to reply by.

The abutters' notice was issued on May 15, 2006. Pursuant to the notice, residents were asked to send any comments to Mr. Phelps by May 31, 2006. On May 22, 2006, Optasite met with the Town Planner to go over the project. In addition, the abutters' notice invited any interested neighbors to attend a meeting with Optasite and the property owners on May 25, 2006 to discuss project.

By letter dated May 30, 2006, the Town of Stonington, Director of Planning states that the Town Planning Department supports the proposal because: the tower replacement to a monopole is an improvement in aesthetics; the tower will enhance communications on Route 1; the applicant is proposing screening and security measures that should adequately satisfy any neighborhood concerns; and the tower will provide an opportunity for co-location. However, the Town Planning Department requests that the applicant provide an opportunity for the local government or fire department to install a whip antenna at the zenith of the monopole, at the discretion of those agencies.

On May 31, 2006, a letter was received at the Council office from a nearby resident. The resident's home is directly across from the proposed access driveway. The resident suggests that the access be curved on both ends to allow for more screening on the southeast side of the tower. (The existing access drive is currently straight.) The neighbor also asked if other possible sites on the property have been considered.

Exhibit B

Property Card

Town of Stonington, CT

Property Listing Report

Map Block Lot	156-3-1	Building #	1	PID	7431	Account	00902500

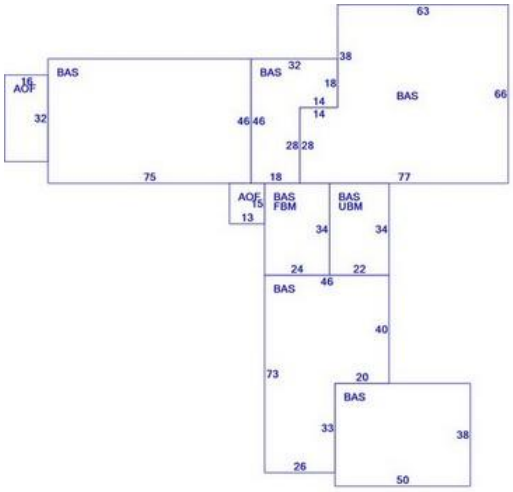
Property Information

Property Location	107 WILCOX RD
Owner	JBG VENTURES LLC
Co-Owner	
Mailing Address	239 BANK ST NEW LONDON CT 06320-6095
Land Use	3400 OFFICE BLD M-94
Land Class	C
Zoning Code	RR-80
Census Tract	7053

Neighborhood	4000
Acreage	6.95
Utilities	Public Sewer,Well
Lot Setting/Desc	Suburban Level
Book / Page	0755/0041
Additional Info	

Photo

Sketch



Primary Construction Details

Year Built	1965
Building Desc.	OFFICE BLD M-94
Building Style	Office Bldg
Building Grade	Average
Stories	1
Occupancy	15
Exterior Walls	Concr/Cinder
Exterior Walls 2	Brick/Masonry
Roof Style	Flat
Roof Cover	Tar & Gravel
Interior Walls	Drywall/Sheet
Interior Walls 2	NA
Interior Floors 1	Carpet
Interior Floors 2	

Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Central
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	
Total Rooms	0
Bath Style	NA
Kitchen Style	NA
Fin Bsmt Area	
Fin Bsmt Quality	
Bsmt Gar	
Fireplaces	

(*Industrial / Commercial Details)

Building Use	Commercial
Building Condition	G
Sprinkler %	
Heat / AC	HEAT/AC SPLIT
Frame Type	MASONRY
Baths / Plumbing	AVERAGE
Ceiling / Wall	SUS-CEIL & WL
Rooms / Prtns	AVERAGE
Wall Height	16
First Floor Use	3400
Foundation	

Report Created On 7/28/2022

Town of Stonington, CT

Property Listing Report

Map Block Lot	156-3-1	Building #	1	PID	7431	Account	00902500

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	833500	583500
Extras	108200	75800
Improvements		
Outbuildings	169300	118500
Land	337100	236000
Total	1448100	1013800

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Office, (Average)	707	707
First Floor	15242	15242
Basement, Finished	816	571
Basement, Unfinished	748	0
Total Area	17513	16520

Outbuilding and Extra Features

Type	Description
PAVING-ASPHALT	40000.00 S.F.
FENCE-6' CHAIN	218.00 L.F.
CELL TOWER	1.00 UNIT
LIGHTS-IN W/PL	5.00 UNITS
THEATRE 49 SEAT	1.00 UNIT
STEEL PLATFORM	288.00 UNIT
SOLAR	1.00 UNIT

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
JBG VENTURES LLC	0755/0041	8/18/2016	0
JBG VENTURES LLC	0567/0022	11/16/2004	898900
QUIAMBOG COVE PROFESSIONAL CENTER LLC	0558/0770	7/20/2004	0
QUIAMBOG COVE PROFESSIONAL CENTER LLC	0492/0625	7/9/2002	680000
YANKEE GAS SERVICE CO	0313/0169	6/30/1989	0
CT LIGHT & POWER CO	0140/0565	6/25/1963	0

Report Created On 7/28/2022

Town of Stonington, Connecticut - Assessment Parcel Map

Parcel: 156-3-1 Address: 107 WILCOX RD

Revised To Grand List: October 2021 Map Produced: February 2022

Exhibit C

Construction Drawings

DISH Wireless L.L.C. SITE ID:

BOBOS00057A

DISH Wireless L.L.C. SITE ADDRESS:

107 WILCOX ROAD
STONINGTON, CT 06378

CONNECTICUT CODE OF COMPLIANCE

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

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

SHEET INDEX

SCOPE OF WORK

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

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

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED 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 PHOTO

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

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

GENERAL NOTES

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

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

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

SITE INFORMATION

PROPERTY OWNER:	JBG VENTURES LLC
ADDRESS:	239 BANK ST NEW LONDON, CT 06320
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	CT13074-A
TOWER APP NUMBER:	168269
COUNTY:	NEW LONDON
LATITUDE (NAD 83):	41° 20' 28" N 41.341111
LONGITUDE (NAD 83):	71° 56' 27.3" W -71.940916
ZONING JURISDICTION:	TOWN OF STONINGTON
ZONING DISTRICT:	RR-80
PARCEL NUMBER:	156-3-1
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	AT&T

PROJECT DIRECTORY

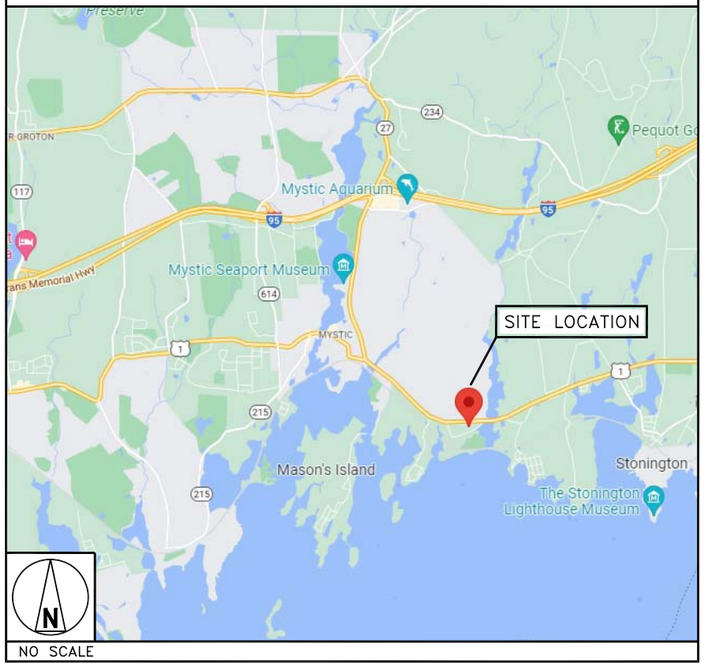
APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	SBA COMMUNICATAIONS CORP. 8051 CONGRESS AVENUE BOCA RATON, FL 33487 (800) 487-7483
SITE DESIGNER:	B+T GROUP 1717 S. BOULDER AVE, SUITE 300 TULSA, OK 74119 (918) 587-4630
SITE ACQUISITION:	DAVE EVANS devans@sbasite.com
CONST. MANAGER:	CHAD WILCOX chad.wilcox@dish.com
RF ENGINEER:	DIPESH PARIKH dipesh.parikh@dish.com

DIRECTIONS

DIRECTIONS FROM RHODE ISLAND T.F. GREEN INTERNATIONAL AIRPORT:

GET ON I-95 S FROM WARWICK INDUSTRIAL DR AND MAIN AVE, HEAD SOUTHWEST TOWARD WARWICK INDUSTRIAL DR, TURN RIGHT ONTO WARWICK INDUSTRIAL DR, TURN RIGHT ONTO MAIN AVE, CONTINUE ONTO EAST AVE, USE THE RIGHT LANE TO MERGE WITH I-95 S VIA THE RAMP TO NEWYORK, FOLLOW I-95 S TO TAUGWONK RD IN STONINGTON. TAKE EXIT 91 FROM I-95 S, MERGE WITH I-95 S, KEEP RIGHT AT THE Y JUNCTION TO STAY ON I-95 S, ENTERING CONNECTICUT, TAKE EXIT 91 TOWARD STONINGTON, TAKE N MAIN ST AND US-1 S TO WILCOX RD, TURN LEFT ONTO TAUGWONK RD, CONTINUE ONTO CT-234 W, TURN LEFT ONTO N MAIN ST, TURN RIGHT ONTO US-1 S, TURN LEFT ONTO WILCOX RD, SHARP RIGHT TO STAY ON WILCOX RD AND ARRIVE AT BOBOS00057A.

VICINITY MAP



NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA

8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
CHAD WILCOX
No. 23924
LICENSED
PROFESSIONAL ENGINEER

6/27/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	MRE	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	3/30/22	ISSUED FOR REVIEW
0	4/26/22	ISSUED FOR CONSTRUCTION
1	6/21/22	ISSUED FOR CONSTRUCTION
2	6/27/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149465.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00057A
107 WILCOX ROAD
STONINGTON, CT 06378

SHEET TITLE

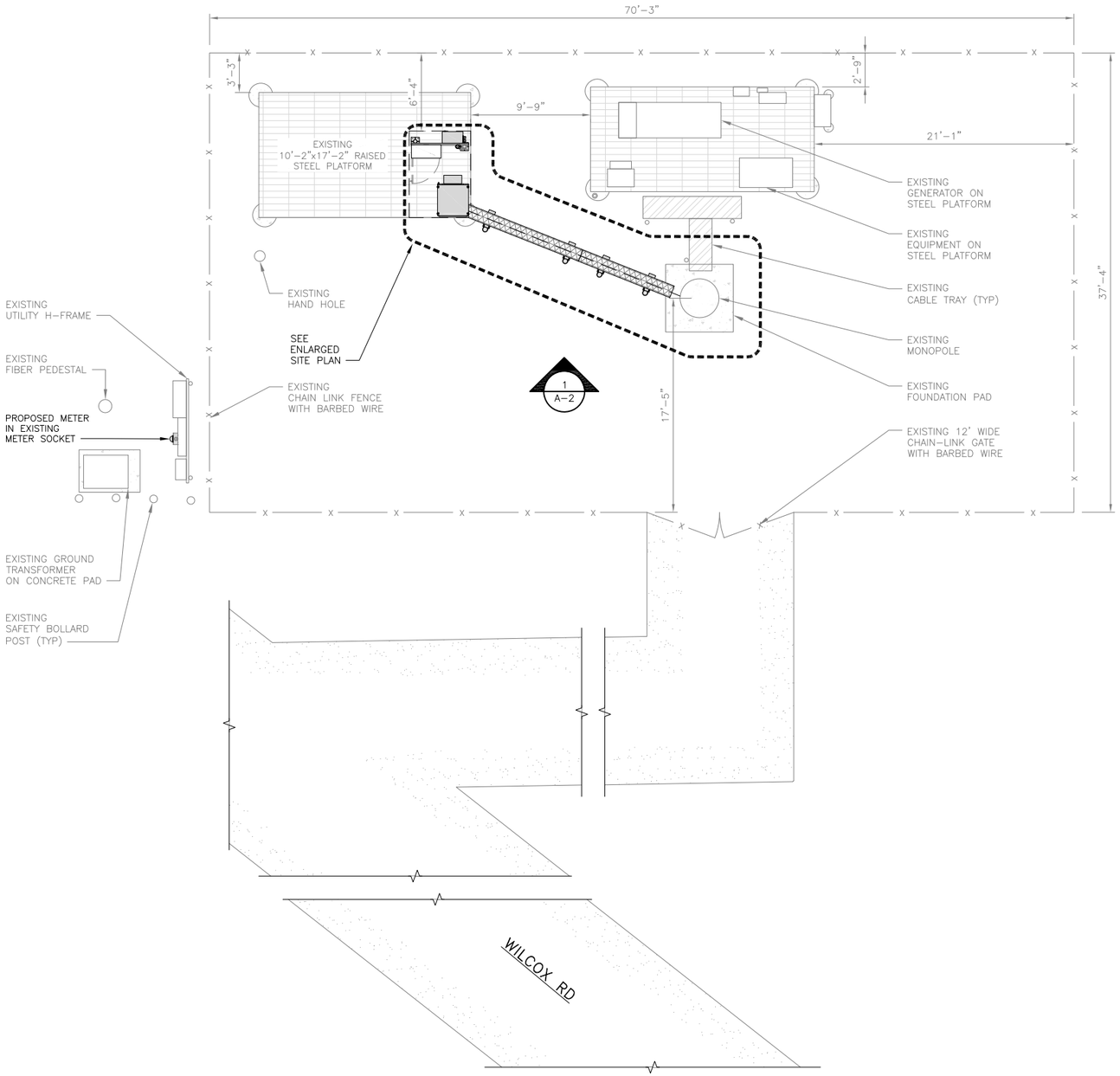
TITLE SHEET

SHEET NUMBER

T-1

NOTES

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



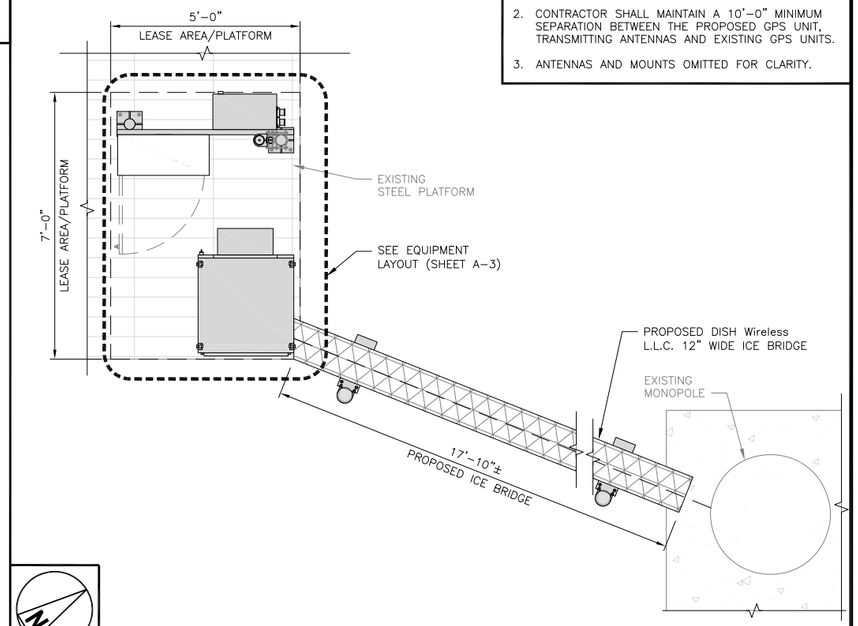
OVERALL SITE PLAN

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

1

NOTES

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



ENLARGED SITE PLAN

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

2

NOT USED

NO SCALE

3

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

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
6/27/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	MRE	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	3/30/22	ISSUED FOR REVIEW
0	4/26/22	ISSUED FOR CONSTRUCTION
1	6/21/22	ISSUED FOR CONSTRUCTION
2	6/27/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149465.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00057A
107 WILCOX ROAD
STONINGTON, CT 06378

SHEET TITLE

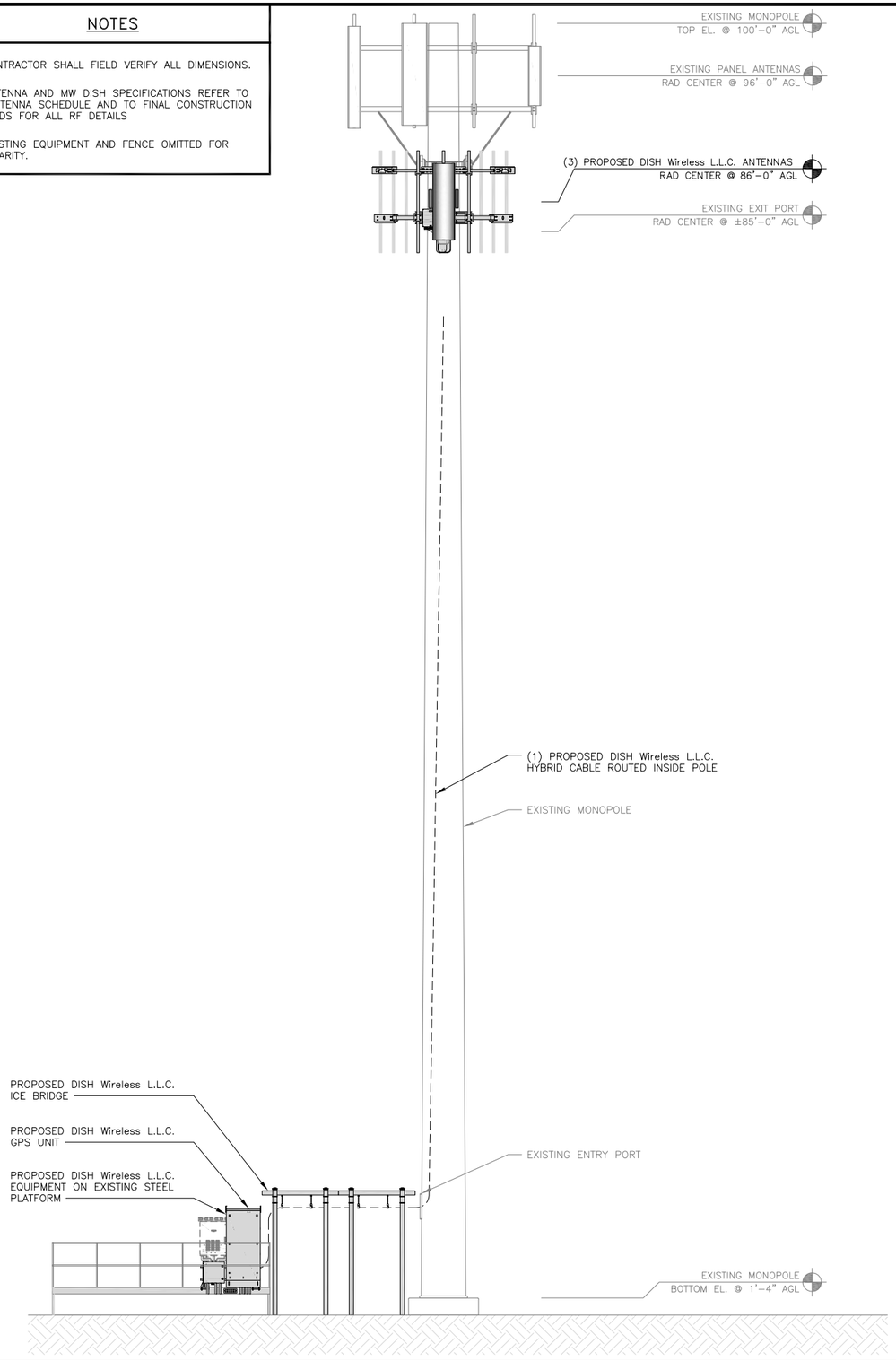
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

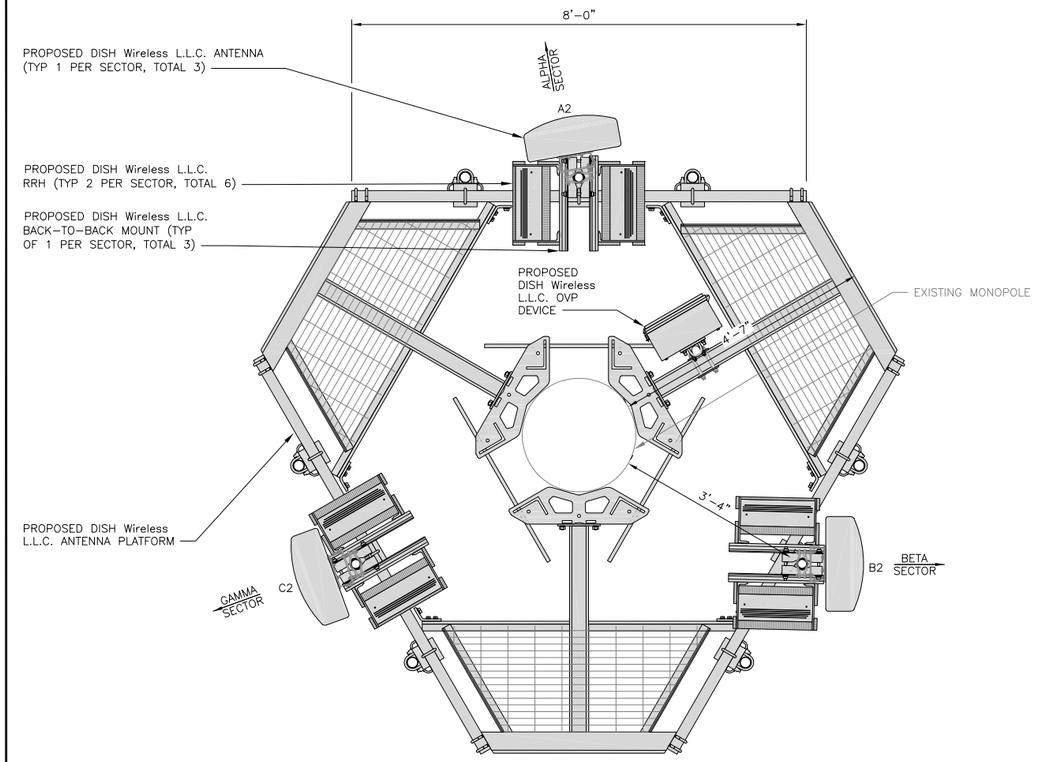
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED SOUTH EAST ELEVATION

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

1



N

ANTENNA LAYOUT

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

2

SECTOR POS.	ANTENNA					TRANSMISSION CABLE	RRH			OVP
	EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECH	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH	MANUFACTURER – MODEL NUMBER	TECH	POS.	MANUFACTURER MODEL
A1	--	--	--	--	--	(1) HIGH-CAPACITY HYBRID CABLE (130' LONG)	FUJITSU – TA08025-B605	5G	A2	RAYCAP RDIDC-9181 -PF-48
A2	PROPOSED	JMA – MX08FRO665-21	5G	350°	86'-0"		FUJITSU – TA08025-B604	5G	A2	
A3	--	--	--	--	--		--	--	--	
B1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU – TA08025-B605	5G	B2	SHARED W/ALPHA
B2	PROPOSED	JMA – MX08FRO665-21	5G	90°	86'-0"		FUJITSU – TA08025-B604	5G	B2	
B3	--	--	--	--	--		--	--	--	
C1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU – TA08025-B605	5G	C2	SHARED W/ALPHA
C2	PROPOSED	JMA – MX08FRO665-21	5G	250°	86'-0"		FUJITSU – TA08025-B604	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.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
CHAD E. LITTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
6/27/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	MRE	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	3/30/22	ISSUED FOR REVIEW
0	4/26/22	ISSUED FOR CONSTRUCTION
1	6/21/22	ISSUED FOR CONSTRUCTION
2	6/27/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149465.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

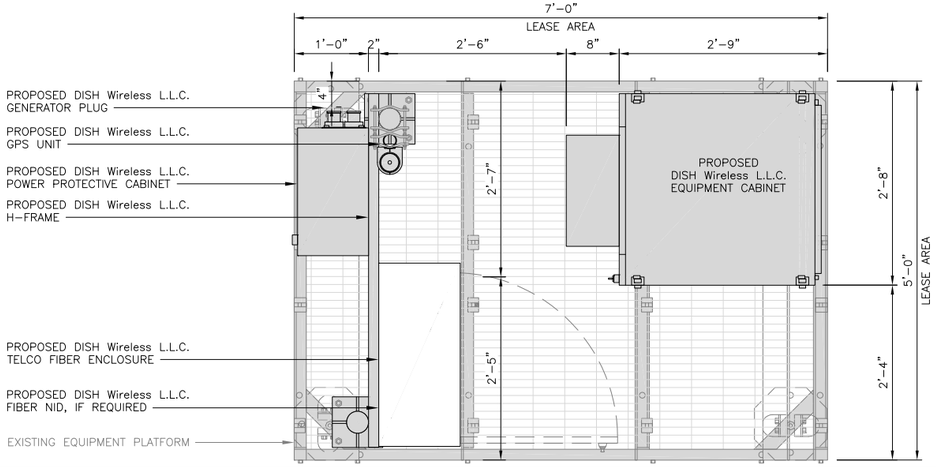
BOBOS00057A
107 WILCOX ROAD
STONINGTON, CT 06378

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



PLATFORM EQUIPMENT PLAN

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

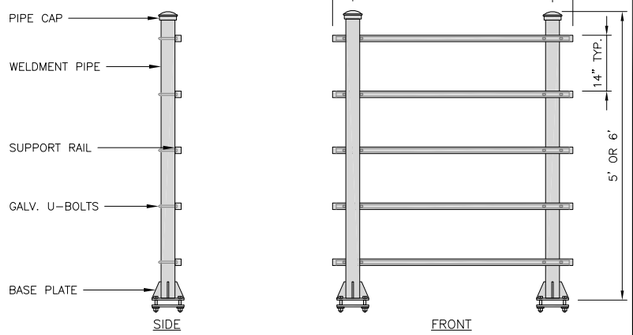
1

NOT USED

NO SCALE

2

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



H-FRAME DETAIL

NO SCALE

3

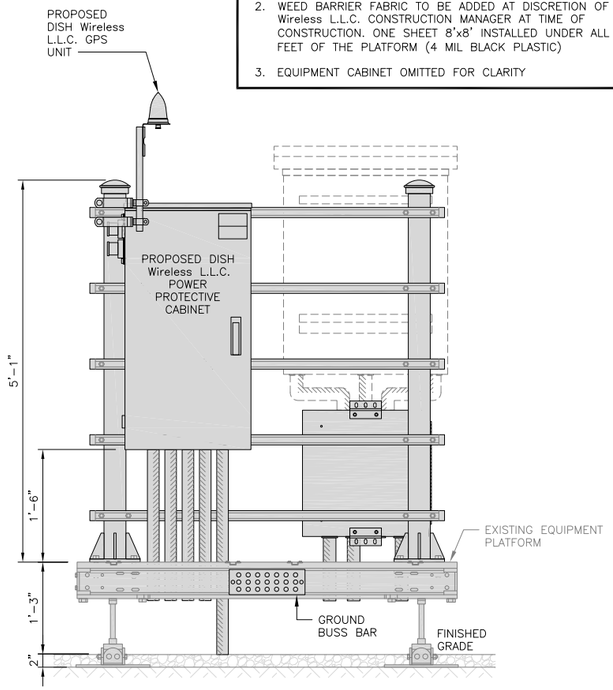
NOT USED

NO SCALE

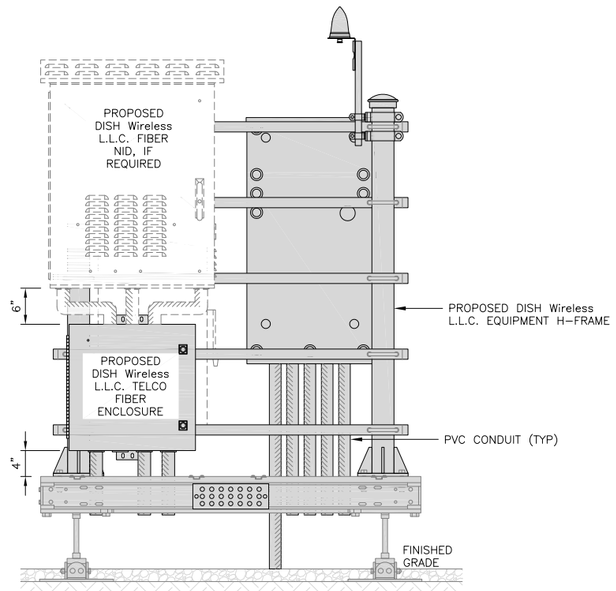
4

NOTES

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



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION

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

5

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

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
6/27/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	MRE	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	3/30/22	ISSUED FOR REVIEW
0	4/26/22	ISSUED FOR CONSTRUCTION
1	6/21/22	ISSUED FOR CONSTRUCTION
2	6/27/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149465.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00057A
107 WILCOX ROAD
STONINGTON, CT 06378

SHEET TITLE

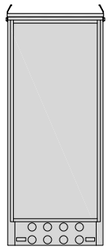
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER

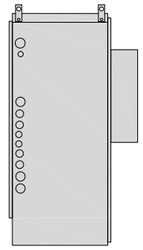
A-3

ENERSYS HVAC 2000005995	
DIMENSIONS (HxWxD)	73"x30"x32"
POWER SYSTEM	-48V ALPHA/600A
HVAC	600W
TOTAL WEIGHT (EMPTY)	371 lbs

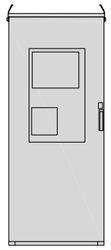
PLAN



BACK



SIDE

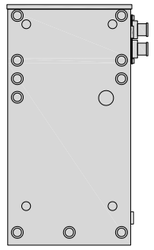


FRONT

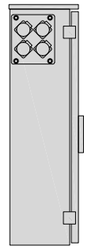
CABINET DETAIL | NO SCALE | 1

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

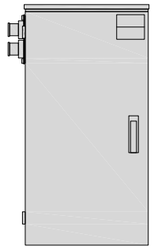
TOP



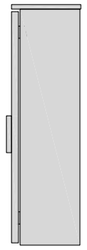
BACK



SIDE



FRONT

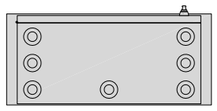


SIDE

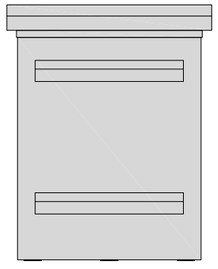
POWER PROTECTION CABINET (PPC) DETAIL | NO SCALE | 2

NOT USED | NO SCALE | 3

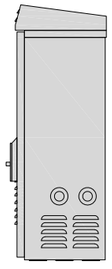
ZAYO 5RU (LEFT SWING DOOR) FIBER NID ENCLOSURE	
DIMENSIONS (HxWxD)	36.1"x29"x12.9"
WEIGHT	85 lbs



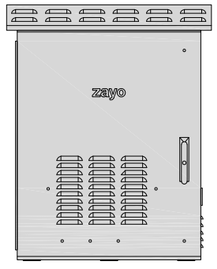
BOTTOM



BACK



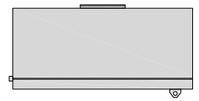
SIDE



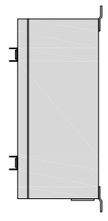
FRONT

FIBER NID ENCLOSURE DETAIL | NO SCALE | 4

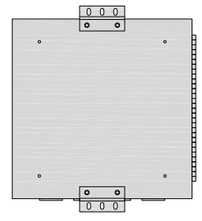
CHARLES CFIT-PF2020DSH1 FIBER TELCO ENCLOSURE	
ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



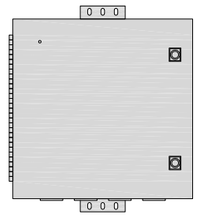
FRONT



SIDE



BACK

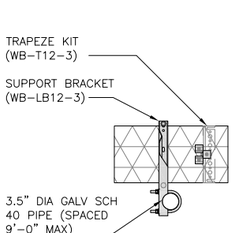


FRONT

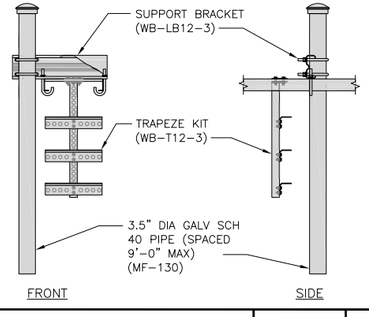
FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 5

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

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

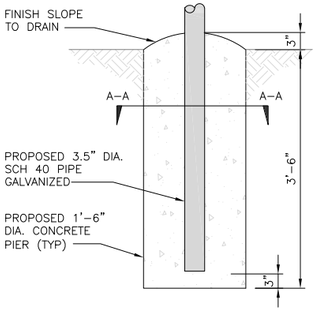


PLAN

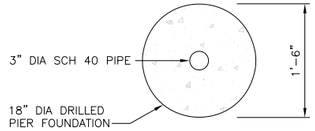


FRONT SIDE

ICE BRIDGE DETAIL | NO SCALE | 7

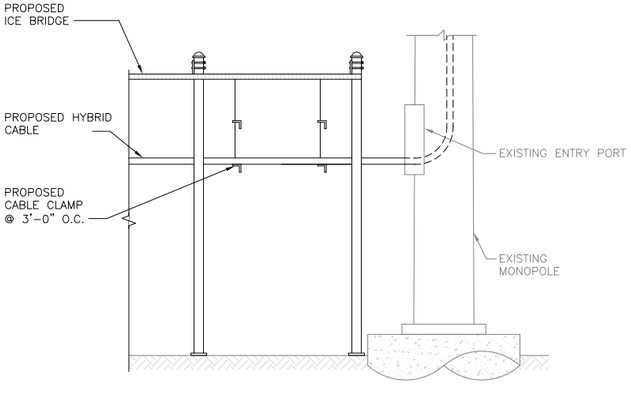


CONCRETE PIER



A-A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA

8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
CHAD M. LITTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
6/27/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	MRE	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	3/30/22	ISSUED FOR REVIEW
0	4/26/22	ISSUED FOR CONSTRUCTION
1	6/21/22	ISSUED FOR CONSTRUCTION
2	6/27/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149465.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00057A
107 WILCOX ROAD
STONINGTON, CT 06378

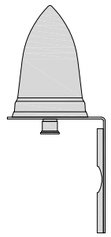
SHEET TITLE

EQUIPMENT DETAILS

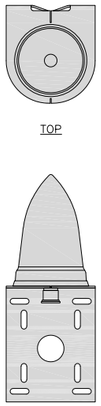
SHEET NUMBER

A-4

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



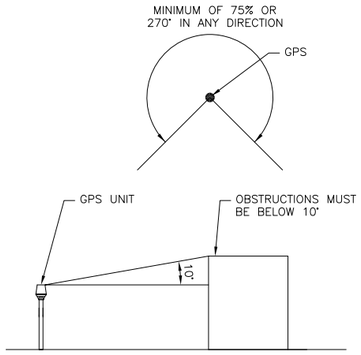
BACK



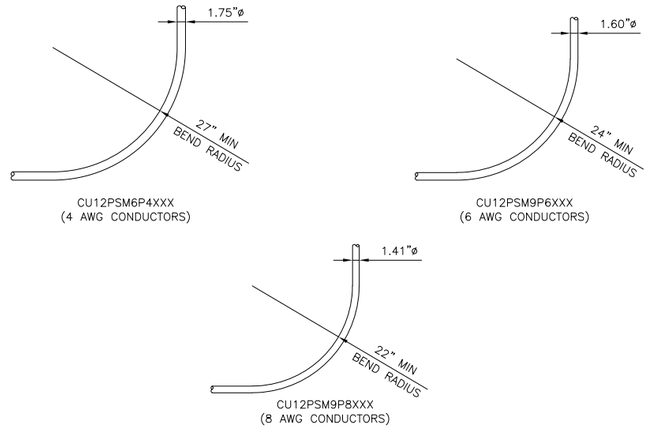
TOP

SIDE

GPS DETAIL | NO SCALE | 1



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 2



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

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
CHAD TYLER
No. 23924
LICENSED
PROFESSIONAL ENGINEER
6/27/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	MRE	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	3/30/22	ISSUED FOR REVIEW
0	4/26/22	ISSUED FOR CONSTRUCTION
1	6/21/22	ISSUED FOR CONSTRUCTION
2	6/27/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149465.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00057A
107 WILCOX ROAD
STONINGTON, CT 06378

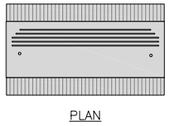
SHEET TITLE

EQUIPMENT DETAILS

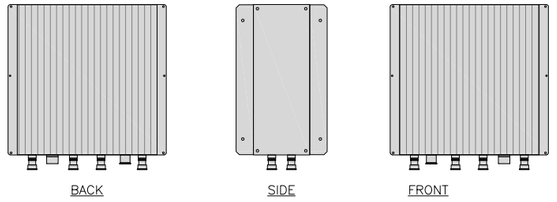
SHEET NUMBER

A-5

FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



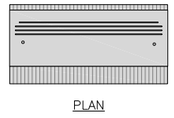
PLAN



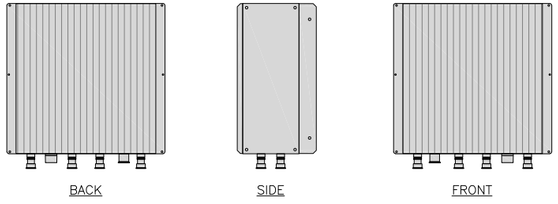
BACK SIDE FRONT

RRH DETAIL | NO SCALE | 1

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



PLAN

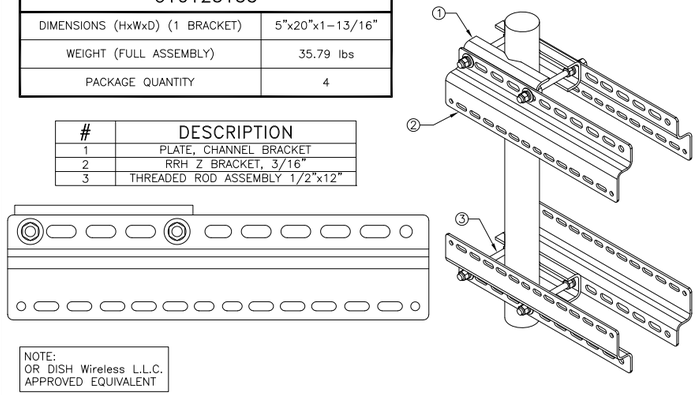


BACK SIDE FRONT

RRH DETAIL | NO SCALE | 2

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

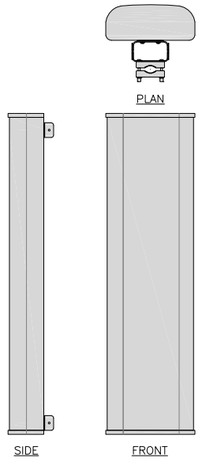
#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"



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

RRH MOUNT DETAIL | NO SCALE | 3

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



PLAN

SIDE FRONT

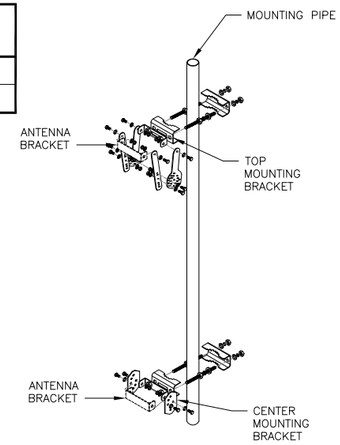
ANTENNA DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

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

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

ANTENNA BRACKET NOT PART OF KIT

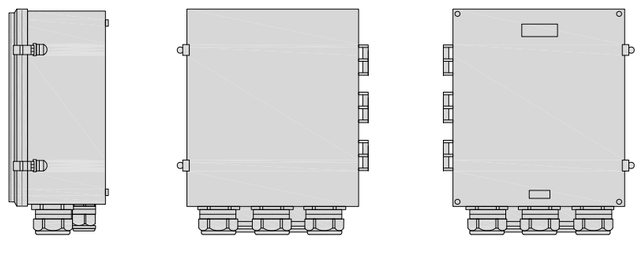


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

ANTENNA BRACKET DETAIL | NO SCALE | 6

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

PLAN

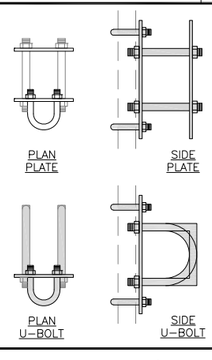


SIDE BACK FRONT

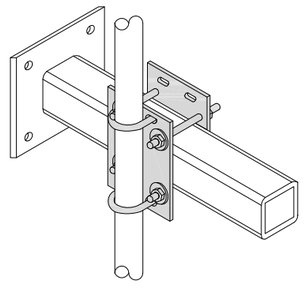
SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

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

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



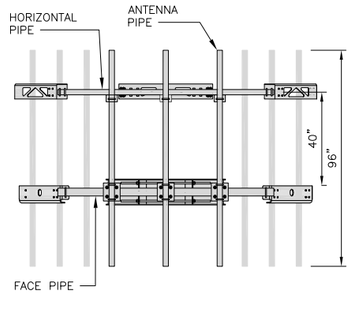
PLAN PLATE SIDE PLATE PLAN U-BOLT SIDE U-BOLT

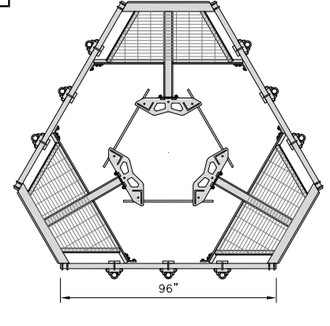


RRH/OVP MOUNT DETAIL | NO SCALE | 8

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

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





ANTENNA PLATFORM DETAIL | NO SCALE | 9

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

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT CRAIG A. BATTLE No. 23924 LICENSED PROFESSIONAL ENGINEER

6/27/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	MRE	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	3/30/22	ISSUED FOR REVIEW
0	4/26/22	ISSUED FOR CONSTRUCTION
1	6/21/22	ISSUED FOR CONSTRUCTION
2	6/27/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149465.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00057A
107 WILCOX ROAD
STONINGTON, CT 06378

SHEET TITLE

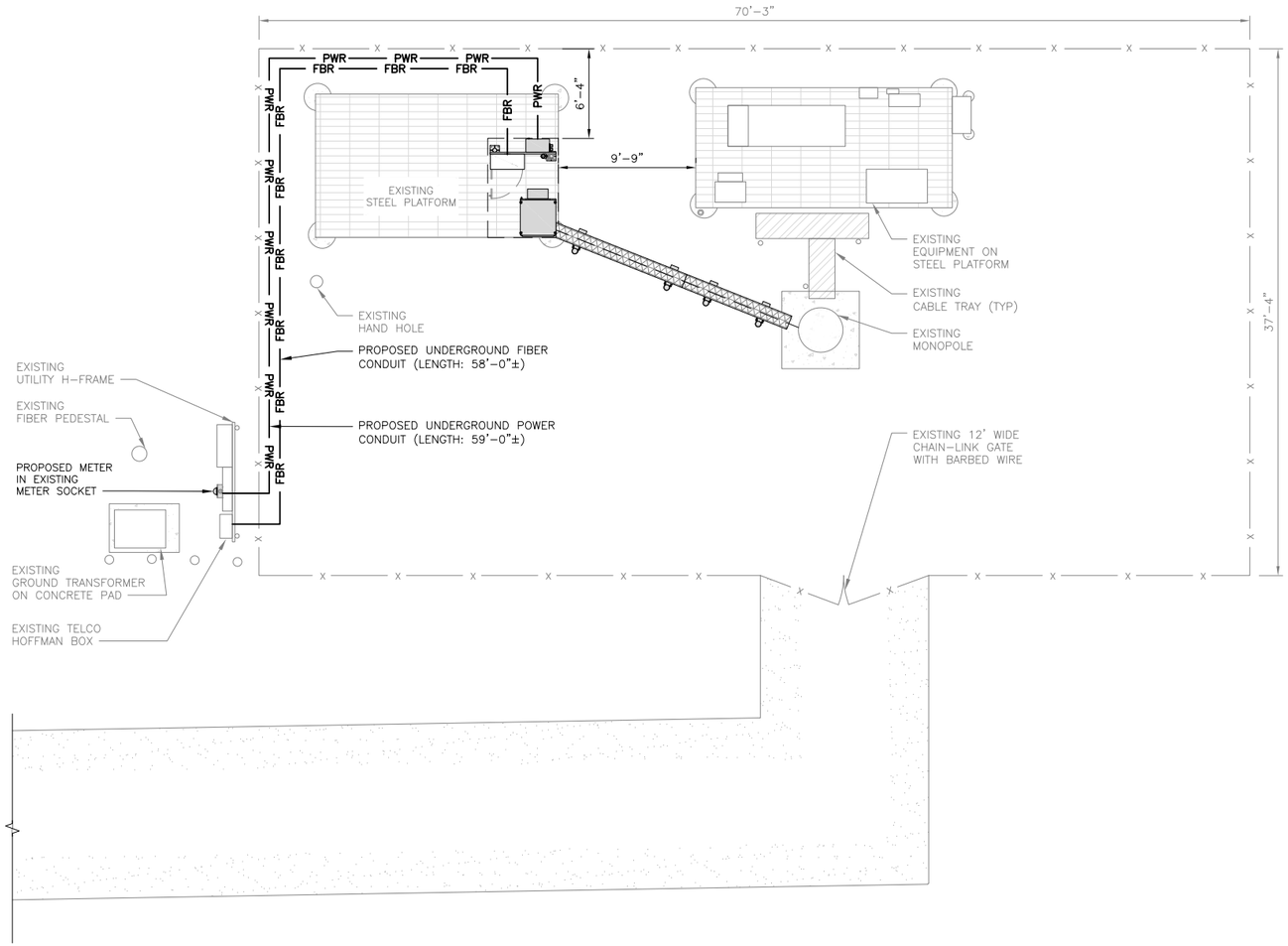
EQUIPMENT DETAILS

SHEET NUMBER

A-6

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. THE GROUND LEASE DOES NOT SPECIFY OUR UTILITY RIGHTS. "PWR" AND "FBR" PATH DEPICTED ON A–1 AND E–1 ARE BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO FIELD VERIFICATION, PRIOR PROJECT DOCUMENTATION AND OTHER REAL PROPERTY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLAEASE LOCATE AND FOLLOW EXSITING PATH. IF EXISTING PATH IS NOT AN OPTION PLEASE NOTIFY TOWER OWNER AS FURTHER COORINATION MAY BE NEEDED.



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

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

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

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
CHAD M. LITTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
6/27/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	MRE	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	3/30/22	ISSUED FOR REVIEW
0	4/26/22	ISSUED FOR CONSTRUCTION
1	6/21/22	ISSUED FOR CONSTRUCTION
2	6/27/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149465.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

B0BOS00057A
107 WILCOX ROAD
STONINGTON, CT 06378

SHEET TITLE

ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER

E-1

UTILITY ROUTE PLAN

6' 4' 2' 0 5' 10'
3/16"=1'–0"

1

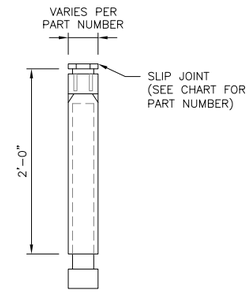
ELECTRICAL NOTES

NO SCALE

2

CARLON EXPANSION FITTINGS

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

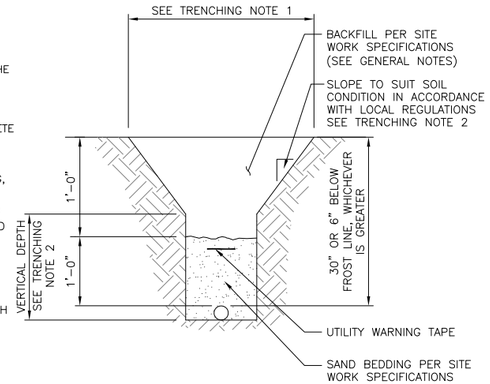


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

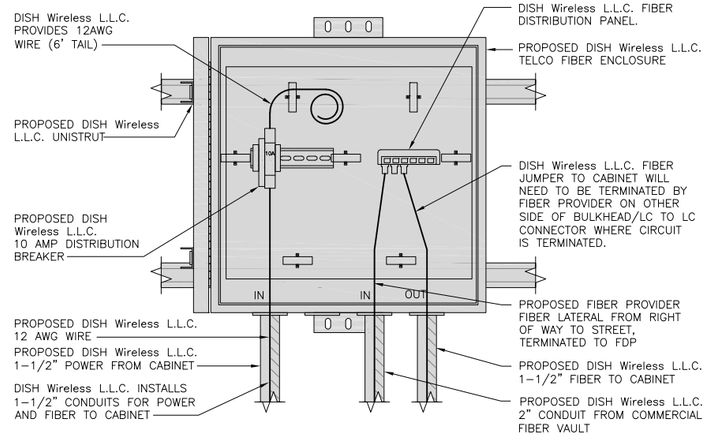
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

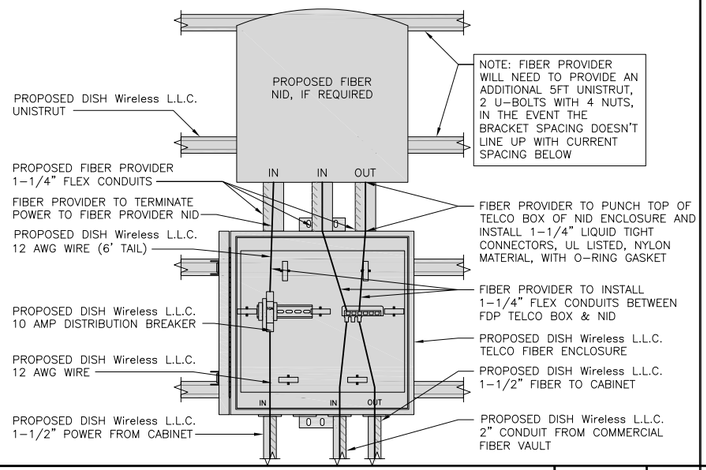
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT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



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2



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



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

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
6/27/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	MRE	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	3/30/22	ISSUED FOR REVIEW
0	4/26/22	ISSUED FOR CONSTRUCTION
1	6/21/22	ISSUED FOR CONSTRUCTION
2	6/27/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149465.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

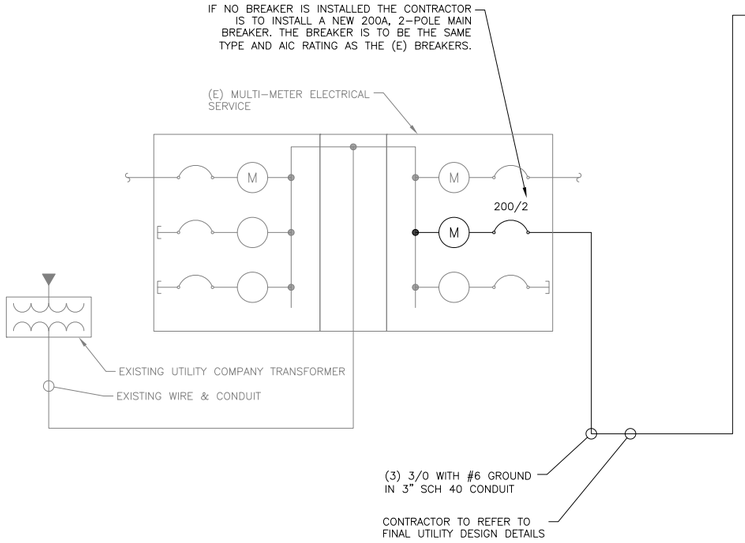
BOBOS00057A
107 WILCOX ROAD
STONINGTON, CT 06378

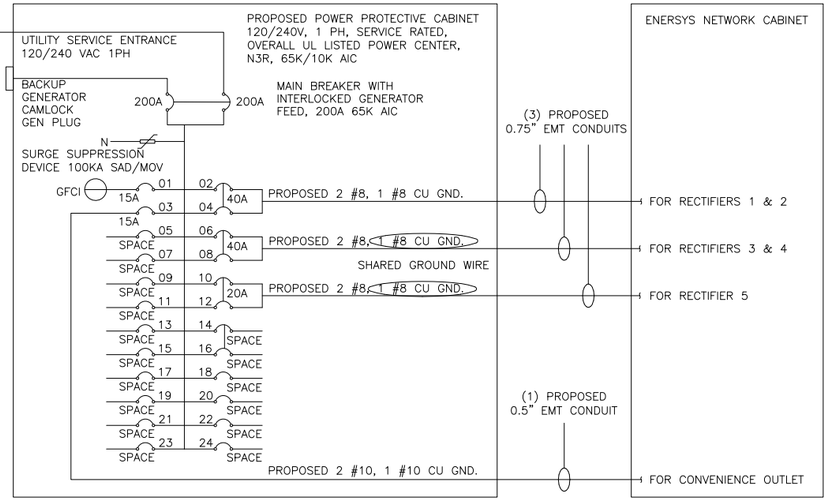
SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

E-2





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

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

NOTES

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

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

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

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

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

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

RECTIFIER CONDUCTORS (3 CONDUITS): USING UL1015, CU.

#8 – 0.0552 SQ. IN X 2 = 0.1103 SQ. IN
#8 – 0.0131 SQ. IN X 1 = 0.0131 SQ. IN <BARE GROUND
TOTAL = 0.1234 SQ. IN

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

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

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

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

PPC ONE-LINE DIAGRAM

NO SCALE | 1

PROPOSED ENERSYS PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	40A	3840		ENERSYS ALPHA CORDEX RECTIFIERS 1 & 2
ENERSYS GFCI OUTLET		180	15A	3	B	4			3840	
-SPACE-				5	A	6	40A	3840		ENERSYS ALPHA CORDEX RECTIFIER 3 & 4
-SPACE-				7	B	8			3840	
-SPACE-				9	A	10	20A	1920		ENERSYS ALPHA CORDEX RECTIFIER 5
-SPACE-				11	B	12			1920	
-SPACE-				13	A	14				-SPACE-
-SPACE-				15	B	16				-SPACE-
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
VOLTAGE AMPS	180	180						9500	9500	
200A MCB, 1φ, 24 SPACE, 120/240V			L1		L2					
MB RATING: 65,000 AIC			9680		9680		VOLTAGE AMPS			
			81		81		AMPS			
			81				MAX AMPS			
			102				MAX 125%			

PANEL SCHEDULE | NO SCALE | 2

NOT USED | NO SCALE | 3

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

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
CHAD E. BATTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
6/27/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	MRE	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

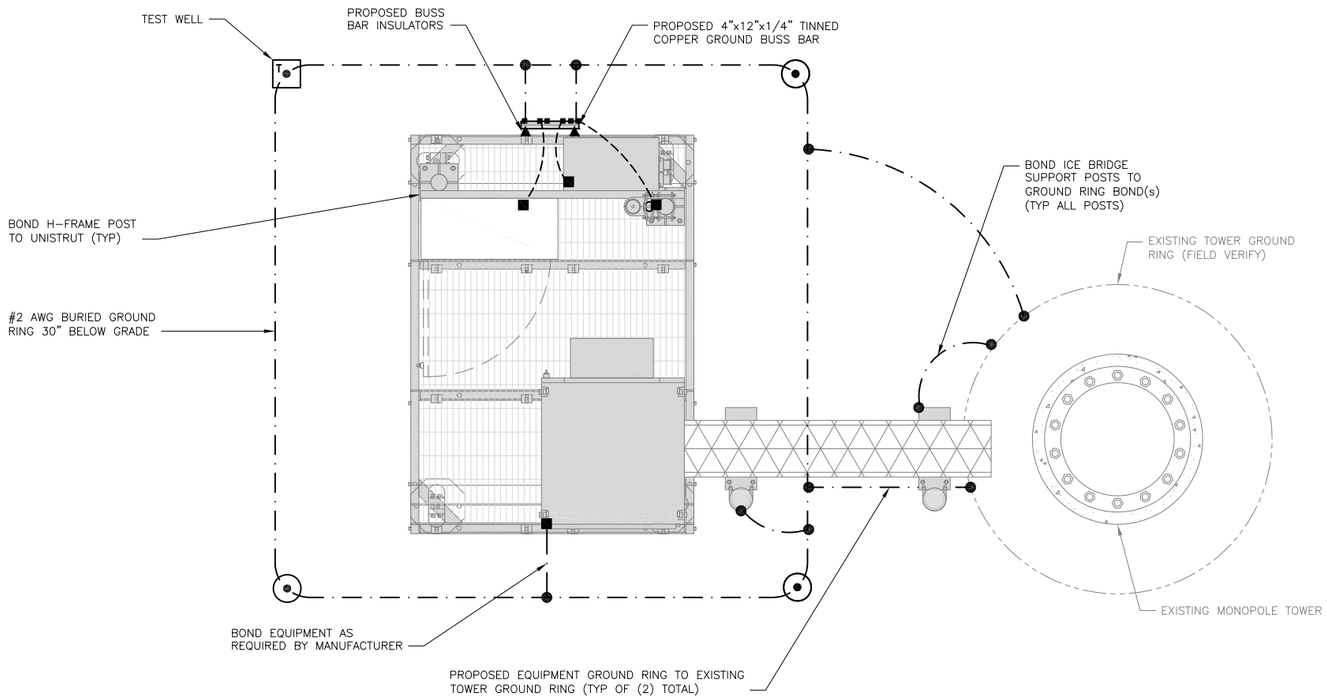
REV	DATE	DESCRIPTION
A	3/30/22	ISSUED FOR REVIEW
0	4/26/22	ISSUED FOR CONSTRUCTION
1	6/21/22	ISSUED FOR CONSTRUCTION
2	6/27/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
149465.001.01

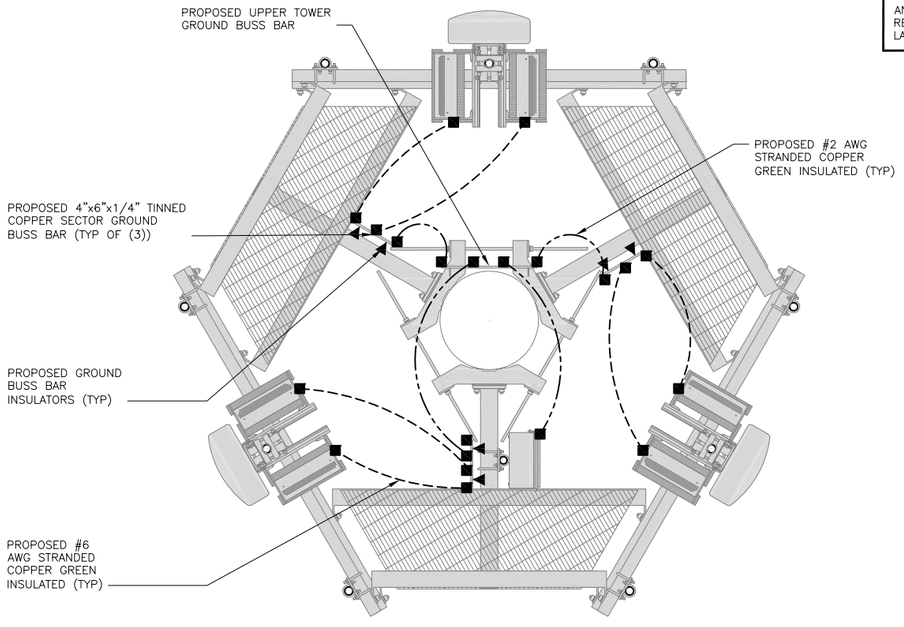
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00057A
107 WILCOX ROAD
STONINGTON, CT 06378

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

SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN | NO SCALE | 1



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2

NOTES

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

- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- GROUND BUS BAR
- GROUND ROD
- TEST GROUND ROD WITH INSPECTION SLEEVE
- #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 L.L.C. GROUNDING AND BONDING REQUIREMENTS AND MANUFACTURER'S SPECIFICATIONS.
3. ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.

GROUNDING KEY NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GROUNDING KEY NOTES | NO SCALE | 3

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

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
CHAD LITTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
6/27/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	MRE	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	3/30/22	ISSUED FOR REVIEW
0	4/26/22	ISSUED FOR CONSTRUCTION
1	6/21/22	ISSUED FOR CONSTRUCTION
2	6/27/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149465.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00057A
107 WILCOX ROAD
STONINGTON, CT 06378

SHEET TITLE

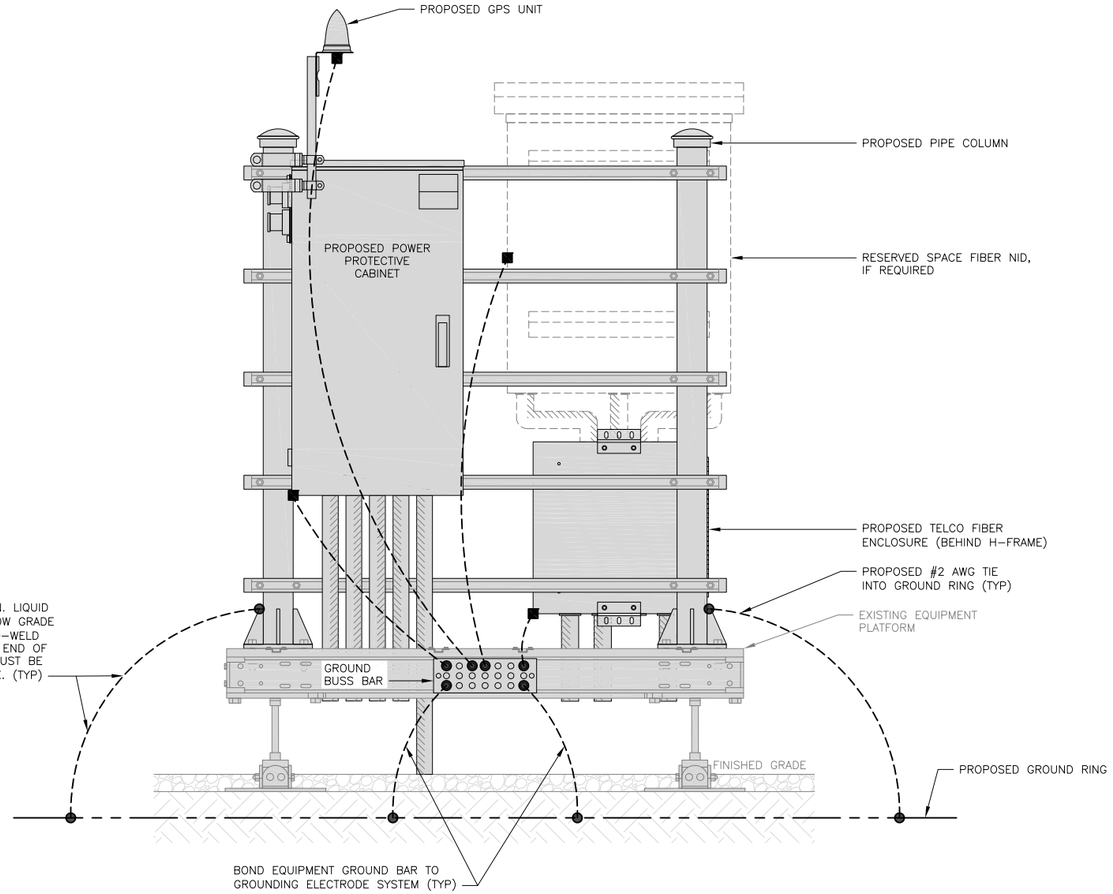
GROUNDING PLANS AND NOTES

SHEET NUMBER

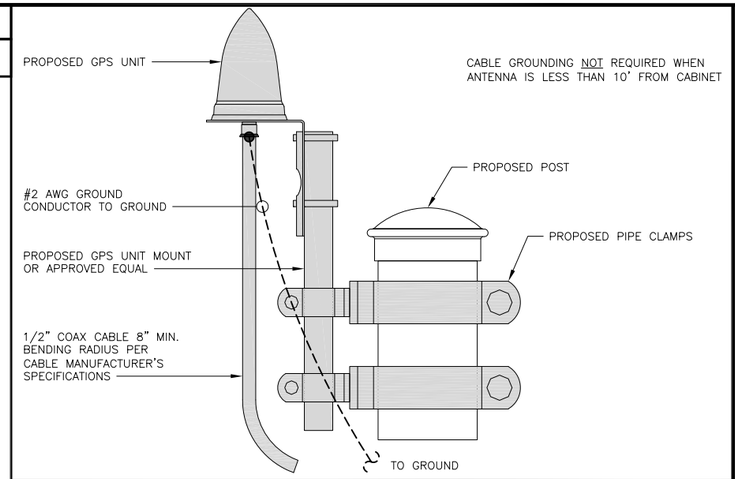
G-1

NOTES

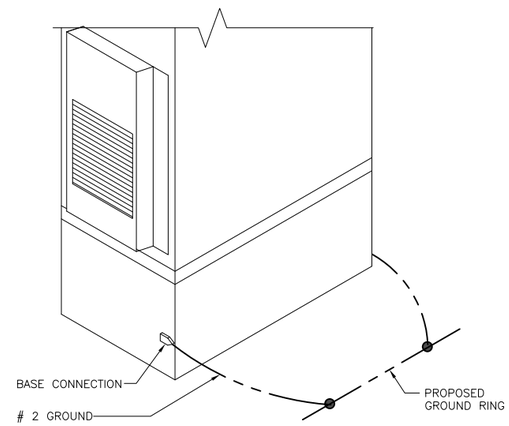
EQUIPMENT CABINET OMITTED FOR CLARITY



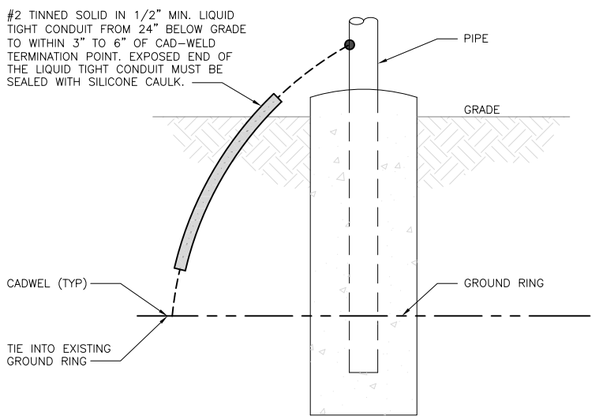
H-FRAME GROUNDING DETAIL | NO SCALE | 1



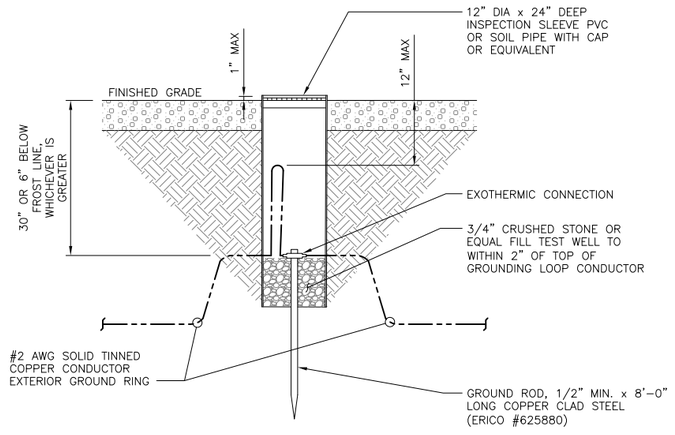
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



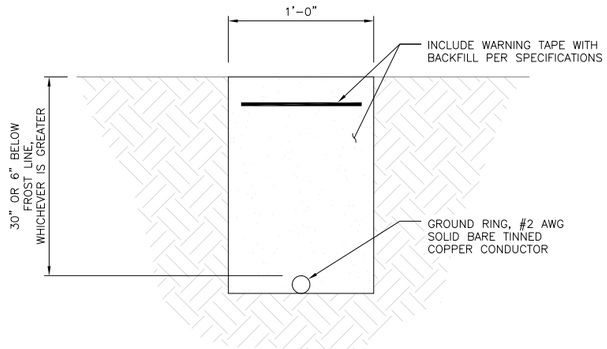
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



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



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT * CHAD E. LITTLE * No. 23924 LICENSED PROFESSIONAL ENGINEER *

6/27/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	MRE	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	3/30/22	ISSUED FOR REVIEW
0	4/26/22	ISSUED FOR CONSTRUCTION
1	6/21/22	ISSUED FOR CONSTRUCTION
2	6/27/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149465.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00057A
107 WILCOX ROAD
STONINGTON, CT 06378

SHEET TITLE

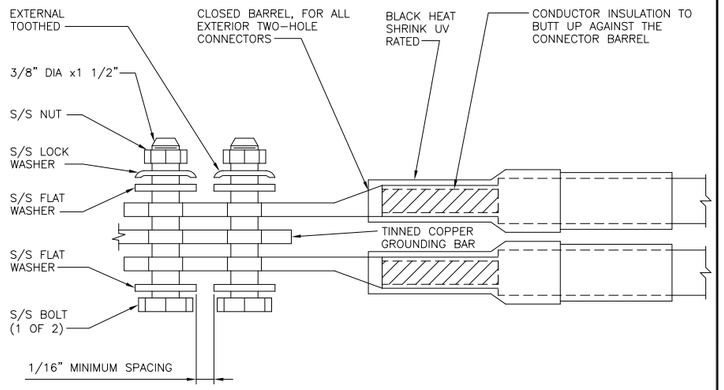
GROUNDING DETAILS

SHEET NUMBER

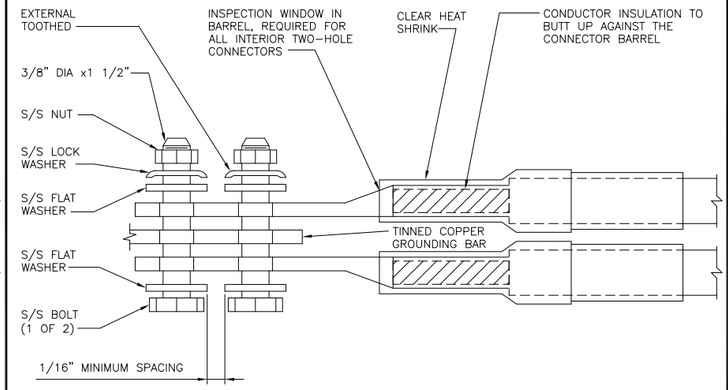
G-2

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

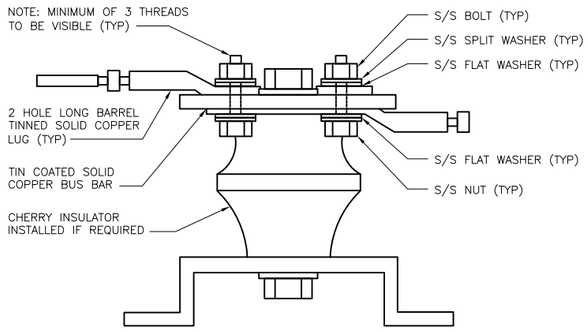
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED PROFESSIONAL ENGINEER
6/27/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	MRE	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	3/30/22	ISSUED FOR REVIEW
0	4/26/22	ISSUED FOR CONSTRUCTION
1	6/21/22	ISSUED FOR CONSTRUCTION
2	6/27/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149465.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00057A
107 WILCOX ROAD
STONINGTON, CT 06378

SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

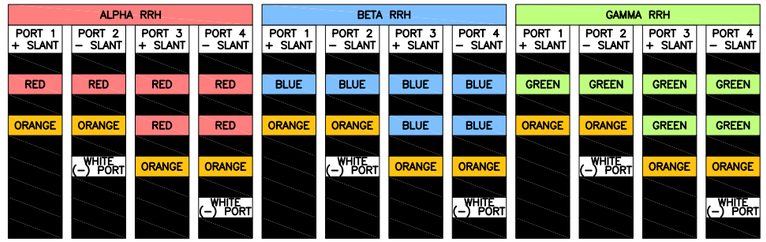
G-3

HYBRID/DISCREET CABLES

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

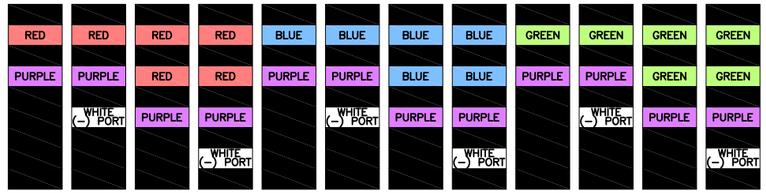
LOW-BAND RRH
(600 MHz N71 BASEBAND) +
(850 MHz N26 BAND) +
(700 MHz N29 BAND) – OPTIONAL PER MARKET

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



MID-BAND RRH
(AWS BANDS N66+N70)

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



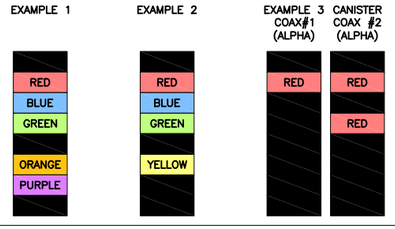
HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.

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

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

EXAMPLE 3 – MAIN COAX WITH GROUND MOUNTED RRHs.



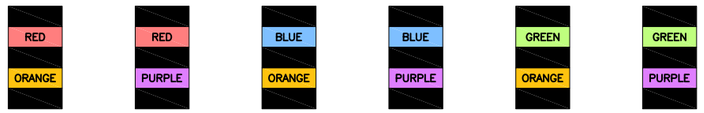
CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RD DETAILS. FINAL RFDS IS IN NEXSYSONE.

FIBER JUMPERS TO RRHs

LOW-BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.

POWER CABLES TO RRHs

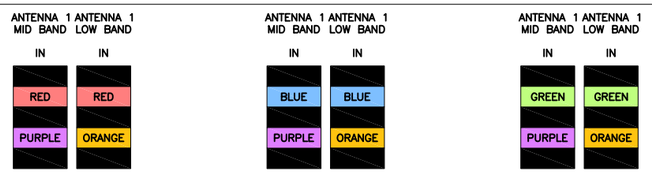
LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



RET MOTORS AT ANTENNAS

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

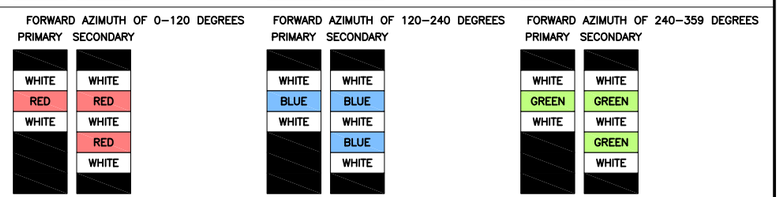
SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.



MICROWAVE RADIO LINKS

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

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



RF CABLE COLOR CODES | NO SCALE | 1

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

AWS (N66+N70+H-BLOCK): PURPLE

CBRS TECH (3 GHz): YELLOW

NEGATIVE SLANT PORT ON ANT/RRH: WHITE

ALPHA SECTOR: RED

BETA SECTOR: BLUE

GAMMA SECTOR: GREEN

COLOR IDENTIFIER | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

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

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
CHAD E. TUTTLE
No. 23924
LICENSED PROFESSIONAL ENGINEER
6/27/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	MRE	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	3/30/22	ISSUED FOR REVIEW
0	4/26/22	ISSUED FOR CONSTRUCTION
1	6/21/22	ISSUED FOR CONSTRUCTION
2	6/27/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149465.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00057A
107 WILCOX ROAD
STONINGTON, CT 06378

SHEET TITLE

RF
CABLE COLOR CODES

SHEET NUMBER

RF-1

LEGEND

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM — T

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE — T

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE — GFCI

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48–T8 — F

SMOKE DETECTION (DC) — SD

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE — X — X — X — X

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE — W — W — W — W — W

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

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

OVERHEAD POWER — OHP — OHP — OHP — OHP

OVERHEAD TELCO — OHT — OHT — OHT — OHT

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

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

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

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

WORKPOINT — W.P.

SECTION REFERENCE — XX / X–X

DETAIL REFERENCE — XX / X–X

ABBREVIATIONS

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

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA

8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
CHAD M. LITTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER

6/27/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	MRE	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	3/30/22	ISSUED FOR REVIEW
0	4/26/22	ISSUED FOR CONSTRUCTION
1	6/21/22	ISSUED FOR CONSTRUCTION
2	6/27/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149465.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00057A
107 WILCOX ROAD
STONINGTON, CT 06378

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SIGN TYPES		
TYPE	COLOR	COLOR CODE PURPOSE
INFORMATION	GREEN	**"INFORMATIONAL SIGN"** TO NOTIFY OTHERS OF SITE OWNERSHIP & CONTACT NUMBER AND POTENTIAL RF EXPOSURE.
NOTICE	BLUE	**"NOTICE BEYOND THIS POINT"** RF FIELDS BEYOND THIS POINT MAY EXCEED THE FCC GENERAL PUBLIC EXPOSURE LIMIT. OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)
CAUTION	YELLOW	**"CAUTION BEYOND THIS POINT"** RF FIELDS BEYOND THIS POINT MAY EXCEED THE FCC GENERAL PUBLIC EXPOSURE LIMIT. OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)
WARNING	ORANGE/RED	**"WARNING BEYOND THIS POINT"** RF FIELDS AT THIS SITE EXCEED FCC RULES FOR HUMAN EXPOSURE. FAILURE TO OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS COULD RESULT IN SERIOUS INJURY. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)

SIGN PLACEMENT:

- RF SIGNAGE PLACEMENT SHALL FOLLOW THE RECOMMENDATIONS OF AN EXISTING EME REPORT, CREATED BY A THIRD PARTY PREVIOUSLY AUTHORIZED BY DISH Wireless L.L.C.
- INFORMATION SIGN (GREEN) SHALL BE LOCATED ON EXISTING DISH Wireless L.L.C EQUIPMENT.
  A) IF THE INFORMATION SIGN IS A STICKER, IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C EQUIPMENT CABINET.
  B) IF THE INFORMATION SIGH IS A METAL SIGN IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C H-FRAME WITH A SECURE ATTACH METHOD.
- IF EME REPORT IS NOT AVAILABLE AT THE TIME OF CREATION OF CONSTRUCTION DOCUMENTS; PLEASE CONTACT DISH Wireless L.L.C. CONSTRUCTION MANAGER FOR FURTHER INSTRUCTION ON HOW TO PROCEED.

NOTES:

1. FOR DISH Wireless L.L.C. LOGO, SEE DISH Wireless L.L.C. DESIGN SPECIFICATIONS (PROVIDED BY DISH Wireless L.L.C.)
2. SITE ID SHALL BE APPLIED TO SIGNS USING "LASER ENGRAVING" OR ANY OTHER WEATHER RESISTANT METHOD (DISH Wireless L.L.C. APPROVAL REQUIRED)
3. TEXT FOR SIGNAGE SHALL INDICATE CORRECT SITE NAME AND NUMBER AS PER DISH Wireless L.L.C. CONSTRUCTION MANAGER RECOMMENDATIONS.
4. CABINET/SHELTER MOUNTING APPLICATION REQUIRES ANOTHER PLATE APPLIED TO THE FACE OF THE CABINET WITH WATER PROOF POLYURETHANE ADHESIVE
5. ALL SIGNS WILL BE SECURED WITH EITHER STAINLESS STEEL ZIP TIES OR STAINLESS STEEL TECH SCREWS
6. ALL SIGNS TO BE 8.5"x11" AND MADE WITH 0.04" OF ALUMINUM MATERIAL

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

NOTICE

Transmitting Antenna(s)

Radio frequency fields beyond this point MAY *EXCEED* the FCC Occupational exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

Call the DISH Wireless L.L.C. NOC at 1-866-624-6874 prior to working beyond this point.

Site ID: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

CAUTION

Transmitting Antenna(s)

Radio frequency fields beyond this point MAY *EXCEED* the FCC Occupational exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

Call the DISH Wireless L.L.C. NOC at 1-866-624-6874 prior to working beyond this point.

Site ID: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

WARNING

Transmitting Antenna(s)

Radio frequency fields beyond this point *EXCEED* the FCC Occupational exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

Call the DISH Wireless L.L.C. NOC at 1-866-624-6874 prior to working beyond this point.

Site ID: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

RF SIGNAGE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
CHAD W. TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
6/27/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	MRE	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	3/30/22	ISSUED FOR REVIEW
0	4/26/22	ISSUED FOR CONSTRUCTION
1	6/21/22	ISSUED FOR CONSTRUCTION
2	6/27/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149465.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00057A
107 WILCOX ROAD
STONINGTON, CT 06378

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.

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA

8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER

6/27/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	MRE	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	3/30/22	ISSUED FOR REVIEW
0	4/26/22	ISSUED FOR CONSTRUCTION
1	6/21/22	ISSUED FOR CONSTRUCTION
2	6/27/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149465.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00057A
107 WILCOX ROAD
STONINGTON, CT 06378

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

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

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

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

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

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

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

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

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

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

8. TIE WRAPS ARE NOT ALLOWED.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

dish wireless.

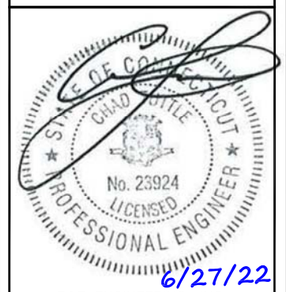
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA

8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com



6/27/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	MRE	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	3/30/22	ISSUED FOR REVIEW
0	4/26/22	ISSUED FOR CONSTRUCTION
1	6/21/22	ISSUED FOR CONSTRUCTION
2	6/27/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149465.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00057A
107 WILCOX ROAD
STONINGTON, CT 06378

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.

dish wireless.

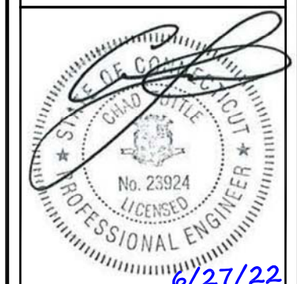
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA

8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com



6/27/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	MRE	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	3/30/22	ISSUED FOR REVIEW
0	4/26/22	ISSUED FOR CONSTRUCTION
1	6/21/22	ISSUED FOR CONSTRUCTION
2	6/27/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149465.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00057A
107 WILCOX ROAD
STONINGTON, CT 06378

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-5

PER THE INTERNATIONAL BUILDING CODE THIS STRUCTURE IS CLASSIFIED AS:

1. CONSTRUCTION TYPE II-B (TABLE 601)
2. GROUP U OCCUPANCY (SECTION 312.1 UNOCCUPIED TOWER SITE)

MODIFICATION AND DESIGN DRAWINGS FOR AN EXISTING 100' SABRE MONOPOLE TOWER

PROPOSED CARRIER: DISH WIRELESS

SITE: CT13074-A-SBA / STONINGTON

COORDINATES (LATITUDE: 41.341111°, LONGITUDE: -71.940916°)

CONSTRUCTION CLASS

THE RIGGING PLAN FOR THIS SITE WOULD BE A MINIMUM OF A CLASS III AND THE CONTRACTOR SHALL MAKE FINAL DETERMINATION

PLEASE NOTE THIS SET OF DRAWINGS IS FOR INSTALLATION AND ASSEMBLY ONLY. FABRICATION DETAIL DRAWINGS ARE NOT PROVIDED AND MUST BE COMPLETED BY THE STEEL FABRICATOR SELECTED. TES CAN PROVIDE THE FABRICATION DETAIL DRAWINGS FOR AN ADDITIONAL FEE.

SHEET	SHEET TITLE	REV
T-1	TITLE SHEET	0
BOM	BILL OF MATERIALS	0
GN-1	GENERAL NOTES	0
A-1	TOWER PROFILE	0
A-2	INSTALLATION OF NEW ANCHOR ROD DETAILS	0
A-3	REINFORCEMENT ASSEMBLY	0
FND-1	FOUNDATION MODIFICATION DETAILS	0
RBL-1	REBAR CHART	0
SPEC-1	NEXGEN2 BLIND BOLT ASSEMBLY INSTALLATION GUIDE	0
SPEC-2	NEXGEN2 BLIND BOLT ASSEMBLY INSTALLATION GUIDE	0

NOTE:

1. THE MODIFICATION DRAWINGS ARE BASED ON THE **TES** PROJECT NO. 116502, DATED 09/28/2021.

TES
Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
116855

CUSTOMER SITE NO:
CT13074-A-SBA

CUSTOMER SITE NAME:
STONINGTON
107 WILCOX ROAD
STONINGTON, CT 06378

STATE OF CONNECTICUT
JARRYD TIBBETTS
No. 34170
LICENSED
PROFESSIONAL ENGINEER
5/9/22

DRAWN BY: BS | CHECKED BY: MF/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	BS	05/09/22

SHEET TITLE:
TITLE SHEET

SHEET NUMBER: T-1

REV #: 0

BILL OF MATERIALS

QUANTITY COUNTED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTIONS	LENGTH	SHEET LIST (INSTALLATION)	SHEET LIST (FABRICATE)	PIECE WEIGHT (LBS)	WEIGHT (LB)	NOTES
			MATERIAL & HARDWARE						
3	3	R71-18	Williams 2 1/4" Dia. All-thread Rod (150 ksi) X 12.5 Ft. Long	12.50	A-2	---	176.3	528.8	Galvanized
6	6	R73-18	Williams 2 1/4" Dia. R73 Hex Nuts	---	A-2	---	---		Galvanized
6	6	PLW-1	PL 1 1/4" X 4 1/2" FLAT WASHER, A572 Grade 65	---	A-2	F-A	3.7	22.2	Galvanized
60	65	HB16-2	Lindapter 5/8" Type HB Hollo-Bolt (HCF, M16x100)	---	A-3	---	---	---	Galvanized
8	9	SBA58	Step Bolt 5/8" Dia x 8 1/4" Long	---	A-3	0	0.0	0.0	w/ (2) Nut-LKW ea. (Galvanized)
30	35	2NG2048	M20x95 NEXGEN2 BLIND Bolt Assembly	---	A-3	F-C	0.0	0.0	Galvanized
			Following Items are Non-standard Parts						
2	2	LP6X125-BR1.9375-20T	6" x 1.25" Flat Bar with Right Bolt Bracket, Base Section with 1.9375" Offset, 20 ft. Long. Termination on one end	20'-0"	A-3	F-1	645.2	1290.4	Galvanized
1	1	LP6X125-BL1.9375S-20T	6" x 1.25" Flat Bar with Left Bolt Bracket and Step Bolt Brackets, Base Section with 1.9375" Offset, 20 ft. Long. Termination on	20'-0"	A-3	F-2, F-3	650.3	650.3	Galvanized
3	3	---	GROUND ROD 5/8" X 10'-0" & #2 A.W.G. SOLID BARE TINNED COPPER CONDUCTOR-WIRE LENGTH 15 FT EA	---	A-1	---	---	---	
12	12	---	LANCO /HENRY 287 WHITE ACRYLIC ELASTOMERIC COATING AND SEALER OR EQUIV (GALLON)	---	A-1	---	---	---	PROVIDED BY CONTRACTOR
		---	SEE SHEET RBL-1 FOR ALL REBAR REQUIREMENTS	---	RBL-1	---	---	---	PROVIDED BY CONTRACTOR
			ALL APLXXXX, LPXXXX AND RLPXXXX ARE PATENTED PRODUCTS AND CANNOT BE FABRICATED BY THIRD PARTIES. THESE PARTS ARE AVAILABLE FROM: **METROSITE, LLC.** **180 IND PARK BLVD COMMERCE, GA 30529** **OFFICE: (706) 335-7045** **FAX: (706) 335-7056**						
			NOTE: ALL MATERIALS, WHICH WEREN'T LISTED IN THIS SHEET, ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.						
						TOTAL WEIGHT (LBS) =		**2491.7**	

TES

Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
116855

CUSTOMER SITE NO:
CT13074-A-SBA
CUSTOMER SITE NAME:
STONINGTON
107 WILCOX ROAD
STONINGTON, CT 06378

DRAWN BY: BS | CHECKED BY: MF/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	BS	05/09/22

SHEET TITLE:
BILL OF MATERIALS

SHEET NUMBER: BOM
REV #: 0

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE ANSI/TIA-222-G, ANSI/ASSP A10.48, 2018 CONNECTICUT STATE BUILDING CODE AND ANY OTHER GOVERNING BUILDING CODES AND OSHA SAFETY REGULATIONS.
2. ALL WORK INDICATED ON THE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TELECOMMUNICATIONS TOWER, POLE AND FOUNDATION CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND FABRICATION OF ALL MISCELLANEOUS PARTS (SUCH AS SHIMS), TEMPORARY SUPPORTS, AND GUYINGS, ETC., PER ANSI/ASSP A10.48, TO COMPLETE THE ASSEMBLY AS SHOWN IN THE DRAWINGS.
4. CONTRACTOR SHALL PROCEED WITH THE INSTALLATION WORK CAREFULLY SO THE WORK WILL NOT DAMAGE ANY EXISTING CABLE, EQUIPMENT OR THE STRUCTURE.
5. THE USE OF GAS TORCH OR WELDER, ARE NOT ALLOWED ON ANY TOWER STRUCTURE WITHOUT THE CONSENT OF THE TOWER OWNER.
6. GENERALLY THE CONTRACTOR IS RESPONSIBLE TO CONDUCT AN ONSITE VISIT SURVEY OF THE JOB SITE AFTER AWARD, AND REPORT ANY ISSUES WITH THE SITE TO **TES** BEFORE PROCEEDING CONSTRUCTION.

FABRICATION

1. ALL STEEL SHALL MEET OR EXCEED THE MINIMUM STRENGTH AS SPECIFIED IN THE DRAWINGS. IF YIELD STRENGTH WAS NOT NOTED IN THE DRAWINGS, CONTRACTORS SHALL CONTACT TES FOR DIRECTION.
2. ALL FIELD CUT EDGES SHALL BE GROUND SMOOTH. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINGA COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

WELDING

1. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNO. (E70XX UNLESS NOTED OTHERWISE).
2. PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING APPROX. 0.5" BEYOND THE PROPOSED FIELD WELD SURFACES.
3. ALL WELDS SHALL BE INSPECTED VISUALLY. A MINIMUM OF 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. 100% OF WELDS SHALL BE INSPECTED IF DEFECTS ARE FOUND.
4. WELD INSPECTIONS SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
5. AFTER INSPECTION, ALL FIELD WELDED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINGA COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

BOLTED ASSEMBLIES AND TIGHTENING OF CONNECTIONS

1. ALL HIGH STRENGTH BOLTS SHALL CONFORM TO THE PROVISIONS OF THE SPECIFICATIONS FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS AS APPROVED BY THE RCSC.
2. FLANGE BOLTS SHALL BE TIGHTENED BY THE AISC "TURN-OF-THE-NUT" METHOD. THE FOLLOWING TABLE SHOULD BE USED FOR THE "TURN-OF-THE-NUT" TIGHTENING.
3. SPLICE BOLTS AND ALL OTHER BOLTS IN BEARING TYPE CONNECTIONS SHALL BE TIGHTENED TO A SNUG-TIGHT CONDITION.
4. THE SNUG-TIGHT CONDITION IS DEFINED AS THE TIGHTNESS ATTAINED BY EITHER A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER WITH AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.
5. HB HOLLO-BOLT SHALL BE INSTALLED PER ICC ESR-3330 INSTRUCTIONS.

VERIFICATION AND INSPECTION

1. IF APPLICABLE, VERIFICATION INSPECTION TO BE PERFORMED SHALL BE IN ACCORDANCE TO IBC-2015 SECTION 1705 - FOR STEEL CONSTRUCTION & TABLE 1705.3 FOR CONCRETE CONSTRUCTION.

POST INSTALLED EPOXY INJECTED ANCHOR BOLTS:

1. CONCRETE MUST BE A MINIMUM OF 28 DAYS OLD.
2. FOLLOW MANUFACTURER'S REQUIREMENTS FOR CURE TIME VS. AMBIENT TEMPERATURE.
3. DRILL HOLE TO REQUIRED DIAMETER AND DEPTH. ALL WATER, DIRT, OIL, DEBRIS, GREASE OR DUST MUST BE REMOVED FROM EACH CORE HOLE. FOLLOW MANUFACTURER'S RECOMMENDATION FOR CORRECT TYPE OF CORE BIT. AVOID DAMAGING EXISTING REINFORCING STEEL OR OTHER EMBEDDED ITEMS. NOTIFY TES ENGINEERING IF VOIDS IN THE CONCRETE, REINFORCING STEEL OR OTHER EMBEDDED ITEMS ARE ENCOUNTERED. STOP CORING IMMEDIATELY IF THIS OCCURS.
4. A HOLE ROUGHENING DEVICE FROM EITHER HILTI OR ALLFASTENERS SHALL BE USED WITH ALL HOLES. FOLLOW ALL MANUFACTURER'S RECOMMENDED CORING AND INSTALLATION INSTRUCTIONS.
5. AFTER CORING AND ROUGHENING, FLUSH EACH HOLE WITH RUNNING WATER TO REMOVE ANY SLURRY OR DEBRIS. REMOVE ALL WATER FROM THE HOLE BY MECHANICAL PUMPING.
6. BRUSH EACH HOLE WITH AN APPROPRIATE SIZED NYLON BRUSH AND FLUSH WITH RUNNING WATER A SECOND TIME. REMOVE ALL WATER FROM THE HOLE.
7. AFTER THE SECOND WATER FLUSH BRUSH THE HOLE AGAIN WITH THE APPROPRIATE SIZED NYLON BRUSH.
8. BLOW EACH HOLE WITH COMPRESSED AIR TWO TIMES MINIMUM.
9. CONFIRM THAT EACH HOLE IS PROPERLY ROUGHED AND DRY.
10. NO EPOXY INJECTION SHALL TAKE PLACE IN RAINY CONDITIONS.
11. EPOXY SHOULD BE VISIBLE AT THE TOP OF THE CORE HOLE AFTER INSTALLATION.
12. CONTRACTOR TO SUPPLY ONE PHOTO OF EACH ROUGHED AND CLEANED HOLE IN CLOSEOUT PHOTO PACKAGE.

TABLE 8.2 NUT ROTATION FROM SNUG-TIGHT CONDITION FOR TURN-OF-NUT PRETENSIONING [a,b]

BOLT LENGTH [c]	DISPOSITION OF OUTER FACE OF BOLTED PARTS		
	BOTH FACES NORMAL TO BOLT AXIS	ONE FACE NORMAL TO BOLT AXIS, OTHER SLOPED NOT MORE THAN 1:20 [d]	BOTH FACES SLOPED NOT MORE THAN 1:20 FROM NORMAL TO BOLT AXIS [d]
NOT MORE THAN $4d_b$	1/3 TURN	1/2 TURN	2/3 TURN
MORE THAN $4d_b$ BUT NOT MORE THAN $8d_b$	1/2 TURN	2/3 TURN	5/6 TURN
MORE THAN $8d_b$ BUT NOT MORE THAN $12d_b$	2/3 TURN	5/6 TURN	1 TURN

[a] NUT ROTATION IS RELATIVE TO BOLT REGARDLESS OF THE ELEMENT (NUT OR BOLT) BEING TURNED. FOR REQUIRED NUT ROTATIONS OF 1/2 TURN AND LESS, THE TOLERANCE IS PLUS OR MINUS 30 DEGREES; FOR REQUIRED NUT ROTATIONS OF 2/3 TURN AND MORE, THE TOLERANCE IS PLUS OR MINUS 45 DEGREES.

[b] APPLICABLE ONLY TO JOINTS IN WHICH ALL MATERIAL WITHIN THE GRIP IS STEEL.

[c] WHEN THE BOLT LENGTH EXCEEDS $12d_b$, THE REQUIRED NUT ROTATION SHALL BE DETERMINED BY ACTUAL TESTING IN A SUITABLE TENSION CALIBRATOR THAT SIMULATES THE CONDITIONS OF SOLIDLY FITTING STEEL.

[d] BEVELED WASHER NOT USED.

SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, JUNE 30, 2004
RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

1. HB12 HOLLO BOLT: 59 FT-LBS
2. HB16 HOLLO BOLT: 140 FT-LBS
3. HB20 HOLLO BOLT: 221 FT-LBS
4. M20 AJAX BOLT: 280 FT-LBS.

FIELD HOT WORK PLAN NOTES:

FOLLOWING GUIDELINES SHALL BE COMPLIED WITH:

1. CONTRACTOR'S RESPONSIBILITY TO COMPLETE A HOT WORK PLAN IF AWARDED PER CUSTOMER SPECIFICATIONS GUIDELINES FOR WELDING, CUTTING & SPARK PRODUCING WORK.
2. HAVE A FIRE PLAN APPROVED BY THE CUSTOMER AND THEIR SAFETY MANAGEMENT DEPT.
3. CONTRACTOR MUST OBTAIN THE CONTACT INFO OF THE LOCAL FIRE DEPARTMENT AND THE 911 ADDRESS OF THE TOWER SITE BEFORE CONSTRUCTION.
4. CONTRACTOR SHALL MAKE SURE THAT CELL PHONE COVERAGE IS AVAILABLE IN THE TOWER SITE. IF CELL COVERAGE IS NOT AVAILABLE, AN IMMEDIATE AVAILABLE MEANS OF DIRECT COMMUNICATION WITH THE FIRE DEPARTMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION START.
5. ALL CONSTRUCTION SHALL BE PERFORMED UNDER WIND SPEED LESS THAN 10 MPH ON THE GROUND LEVEL. IF WIND SPEED INCREASE, CONTRACTOR MUST DETERMINE IF CONSTRUCTION SHALL BE DISCONTINUED.
6. FIRE SUPPRESSION EQUIPMENT MUST BE MADE AVAILABLE ON SITE AND READY TO USE.
7. CONTRACTOR SHALL ASSIGN A FIRE WATCHER TO PERFORM FIRE-FIGHTING DUTIES.
8. ALL WELDERS SHALL BE AWS OR STATE CERTIFIED. THEY MUST ALSO BE EXPERIENCED IN WELDING ON GALVANIZED MATERIALS.
9. IF IT IS POSSIBLE, ALL EXISTING COAX NEAR WELDING AREA SHALL BE TEMPORARILY MOVED AWAY FROM THE WELDING AREA BEFORE WELDING THE PLATES.
10. PLEASE REPORT ANY FIELD ISSUE TO TES @ 972-483-0607.

TES
Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0607

SBA

5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
116855

CUSTOMER SITE NO:
CT13074-A-SBA
CUSTOMER SITE NAME:
STONINGTON
107 WILCOX ROAD
STONINGTON, CT 06378

DRAWN BY: BS | CHECKED BY: MF/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	BS	05/09/22

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER: GN-1
REV #: 0

NOTES:

1. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE MONOPOLE AND ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.

2. TEMPORARY RELOCATION OF EXISTING EQUIPMENT AROUND THE FOUNDATION MAY BE REQUIRED DURING CONSTRUCTION.

SCOPE OF WORK

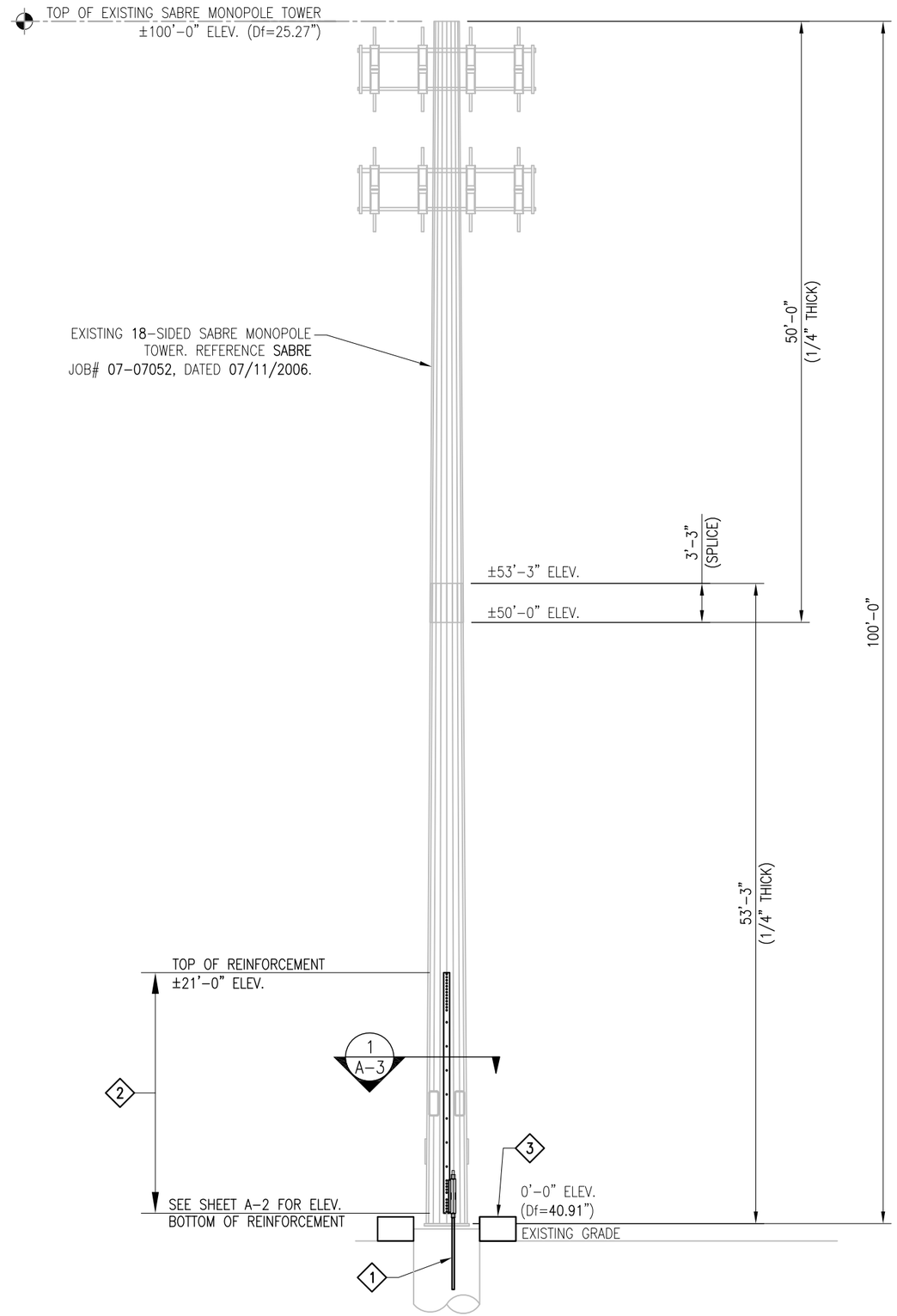
1. INSTALL NEW (3) ANCHOR ROD REINFORCEMENTS. SEE SHEET A-2 FOR DETAILS.
2. INSTALL NEW (2) LP6X125-BR1.9375-20T AND (1) LP6X125-BL1.9375S-20T FLAT BAR REINFORCEMENTS FROM ±1'-0" TO ±21'-0" ELEV. SEE SHEET A-3 FOR DETAILS.
3. INSTALL NEW FOUNDATION REINFORCEMENTS. SEE SHEET FND-1 FOR DETAILS.

   NOTES:
   A. CONTRACTOR TO REMOVE EXISTING GRAVEL AROUND THE NEW REINFORCEMENT AREAS. FIELD VERIFY THE HEIGHT OF EXISTING PIER ABOVE THE GRADE AND REMOVE THE EXISTING SOILS AROUND (6" MAX IN DEPTH) IF REQUIRED PRIOR TO POURING CONCRETE.
   B. ENCASEMENT OF EXISTING ICE BRIDGE POSTS AS REQUIRED.
   C. RELOCATION OF EXISTING GROUNDING MAY BE REQUIRED.
4. APPLY FOUNDATION COATING
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEAN-UP, REMOVAL AND DISPOSAL OF EXCESS MATERIALS USED AND REMOVED FROM THE STRUCTURE AT THE COMPLETION OF THE PROJECT.

PHOTO 1
FOUNDATION

FOUNDATION COATING NOTES:

1. THE COATING MATERIALS SHALL BE LANCO WHITE ACRYLIC ELASTOMERIC COATING AND SEALER, OR HYDRO ARMOR COATING.
2. THE COATING CAN BE PLACED AT LEAST (2) DAYS AFTER THE PLACEMENT OF THE CONCRETE FOR FOUNDATION REINFORCEMENT, AND MINIMUM (4) DAYS FOR NEW FOUNDATION CONSTRUCTION.
3. THE CONCRETE SURFACE SHALL BE CLEAN AND DRY PRIOR TO THE APPLICATION OF THE COATING.
4. THE COATING SHALL BE APPLIED TO ALL THE SURFACES OF THE CONCRETE ABOVE THE GROUND AND 6" BELOW THE GRADE SURFACE IF APPLICABLE.
5. MINIMUM 30 MILS COATING IS REQUIRED.
6. APPLY COLD GALVANIZE AT LEAST 2'-3' ABOVE FOUNDATION.



TES
Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
116855

CUSTOMER SITE NO:
CT13074-A-SBA
CUSTOMER SITE NAME:
STONINGTON
107 WILCOX ROAD
STONINGTON, CT 06378

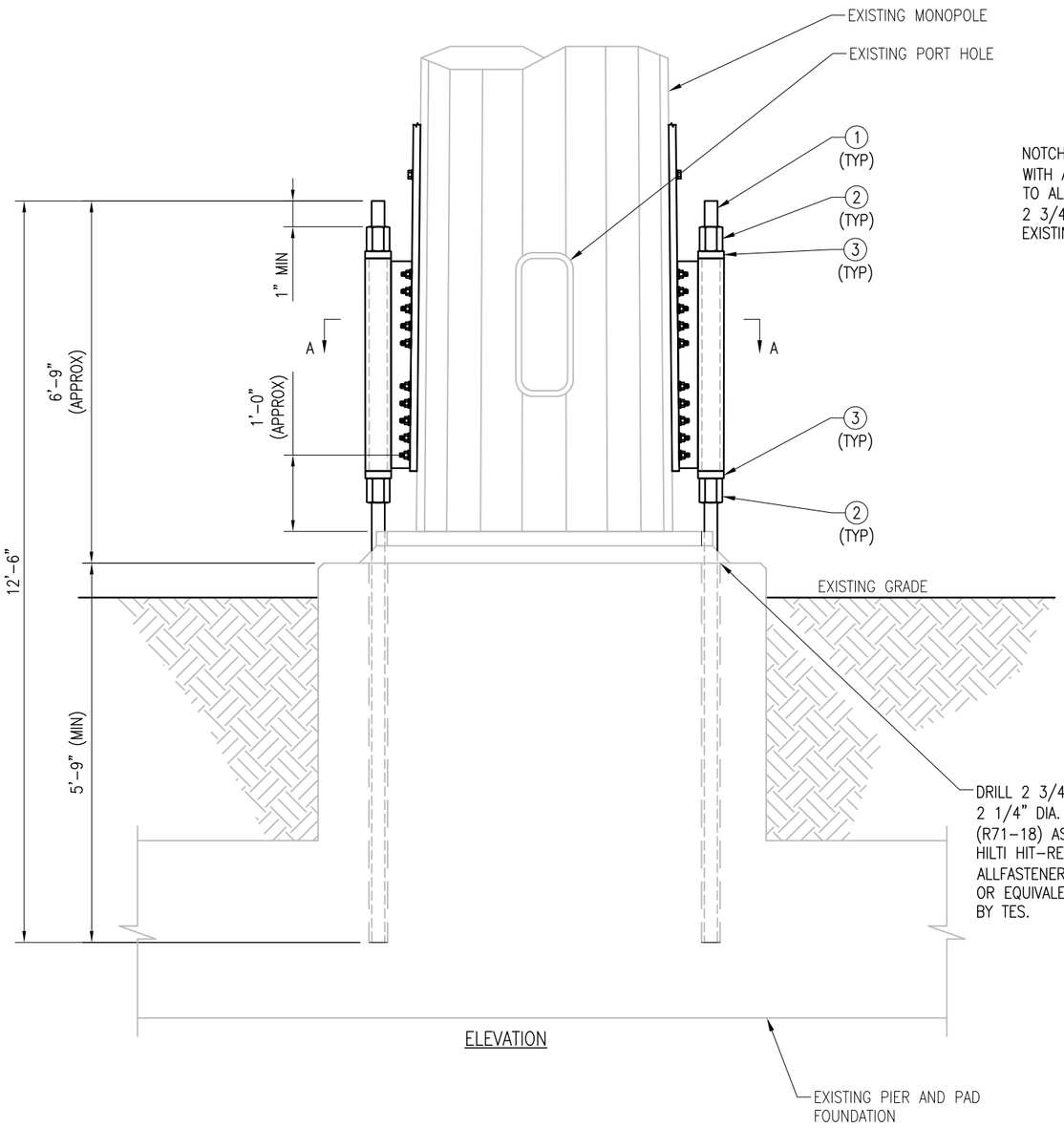
DRAWN BY: BS | CHECKED BY: MF/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	BS	05/09/22

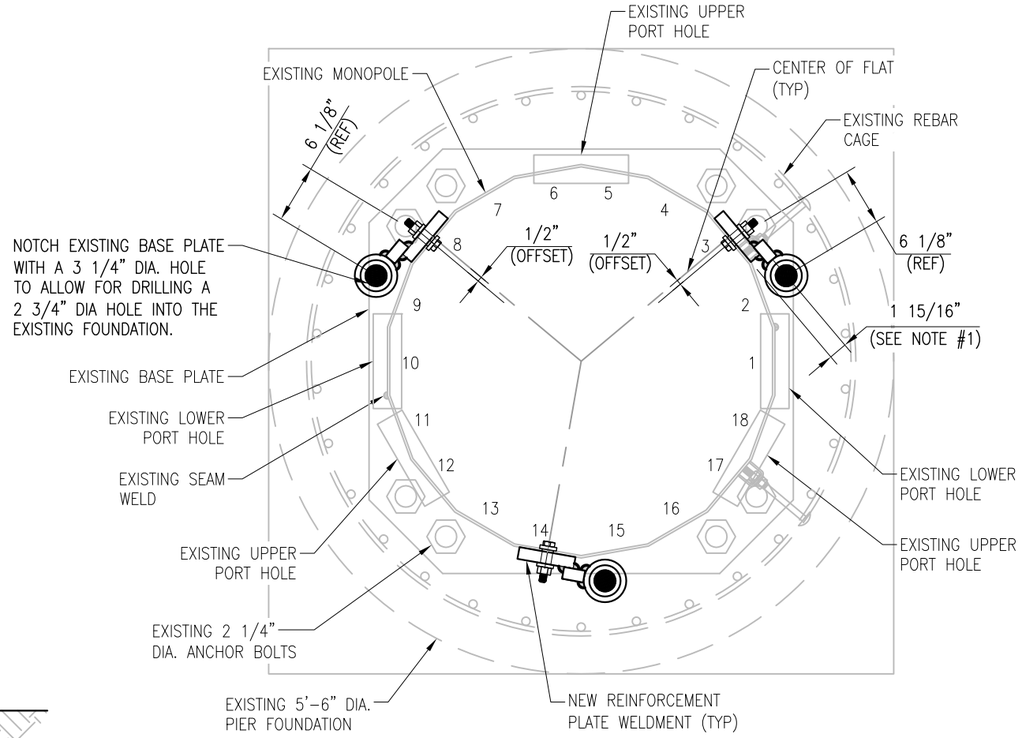
SHEET TITLE:
TOWER PROFILE

SHEET NUMBER: A-1
REV #: 0

US PATENT 9,714,520 B1



ELEVATION



SECTION "A-A"

INSTALLATION NOTES:

1. USE WELDED REINFORCEMENT BRACKET ASSEMBLY TO SET THE POSITION OF THE ALL-THREAD ROD.
2. DRILL NEW 2 3/4" DIA. HOLES INTO EXISTING FOUNDATION FOR ALL-THREAD ROD.
3. INSTALL REINFORCEMENT BRACKET AND CONFIRM FIT WITH MONOPOLE REINFORCEMENT PLATES.
4. TIGHTEN NUTS ON THE ALL-THREAD ROD LOCKING IT INTO POSITION.
5. APPLY (2) COATS OF ZINGA COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS TO ALL FIELD CUT AND EXPOSED AREAS.
6. DRILLING CONTRACTOR TO EXERCISE EXTREME CARE TO AVOID DAMAGING THE EXISTING REINFORCING TIES IN THE CONCRETE PIER. IF REBAR IS ENCOUNTERED IN THE CONCRETE WHILE DRILLING, CONTRACTOR TO STOP DRILLING AND INFORM **TES** FOR SOLUTION.
7. CONTRACTOR PLEASE NOTE-WHILE DRILLING PREPARE TO DRILL THROUGH ANCHOR BOLT TEMPLATE.
8. SEE SHEETS SPEC-1 & 2 FOR NEXGEN2 BLIND BOLT INSTALLATION. IT IS REQUIRED THAT THE CONTRACTOR TAKE PHOTOS OF THE INSTALLED BOLT FOR VERIFICATION OF PROPER INSTALLATION.

NOTE:
SEE NOTES ON SHEET GN-1 FOR POST-INSTALLED EPOXY INJECTED ANCHOR BOLTS

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	3	R71-18	12'-6" WILLIAMS 2 1/4" DIA. ALL-THREAD ROD (150 KSI)
2	6	R73-18	2 1/4" NUT (WILLIAMS R73-18) (TYP)
3	6	PLW-1	PL 1 1/4" X 4 1/2" FLAT WASHER, A572-65

TES
Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
116855

CUSTOMER SITE NO:
CT13074-A-SBA
CUSTOMER SITE NAME:
STONINGTON
107 WILCOX ROAD
STONINGTON, CT 06378

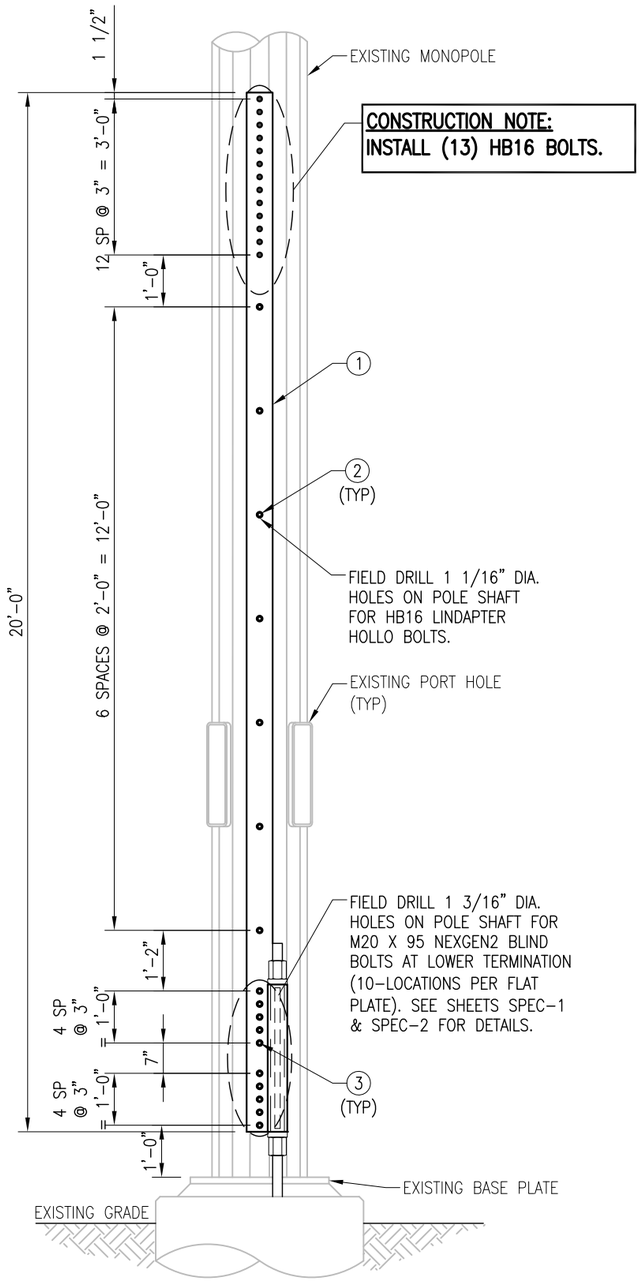
DRAWN BY: BS | CHECKED BY: MF/AD

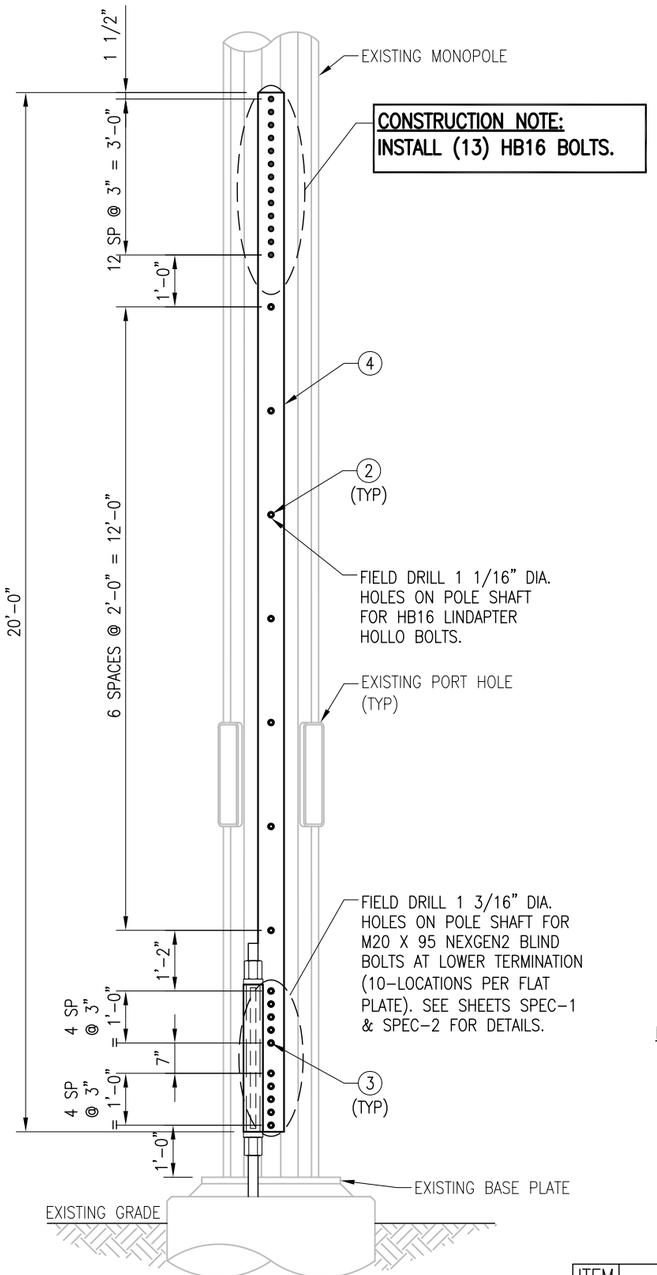
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	BS	05/09/22

SHEET TITLE:
INSTALLATION OF NEW ANCHOR ROD DETAILS

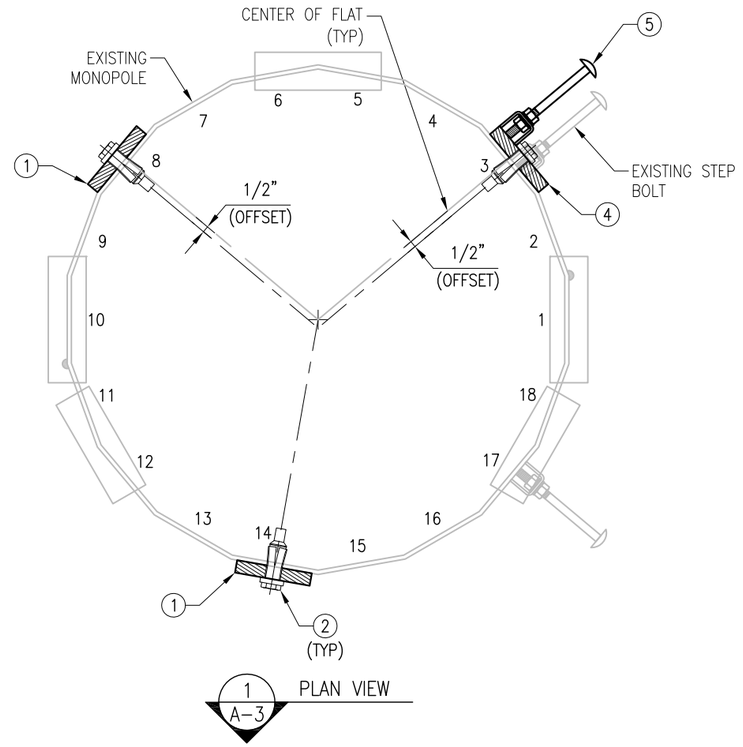
SHEET NUMBER: A-2
REV #: 0

US PATENT 9,714,520 B1





ELEVATION VIEW
REFER TO PLAN VIEW
(±1'-0" TO ±21'-0" ELEV.)



1 A-3 PLAN VIEW

NOTES:
1. REFER TO SHEET A-2 FOR FLAT BAR ORIENTATION.
2. INSTALLATION TORQUE FOR HOLLO/AJAX-BOLTS: SEE SHEET GN-1.
3. REMOVE EXISTING STEP BOLTS THAT INTERFERE WITH NEW REINFORCEMENT PLATES PRIOR TO INSTALLATION.
4. APPLY (2) COATS OF ZINGA COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS TO ALL FIELD DRILLED AND EXPOSED AREAS.

ITEM NO.	QTY.	PART NO.	DESCRIPTION (BASE SECTION)
1	2	LP6X125-BR1.9375-20T	PL 6" X 1 1/4" X 20'-0" A572-65 WELDMENT
2	60	HB16-2	LINDAPTER 5/8" TYPE HB HOLLO-BOLT (HCF)
3	30	2NG2048	M20 X 95 NEXGEN2 BLIND BOLT ASSEMBLY
4	1	LP6X125-BL1.9375S-20T	PL 6" X 1 1/4" X 20'-0" A572-65 WELDMENT WITH STEP BOLT
5	8	SBA58	STEP BOLT 5/8" X 8 1/4" W/ (2) NUT-LKW EA.

TES
Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
116855

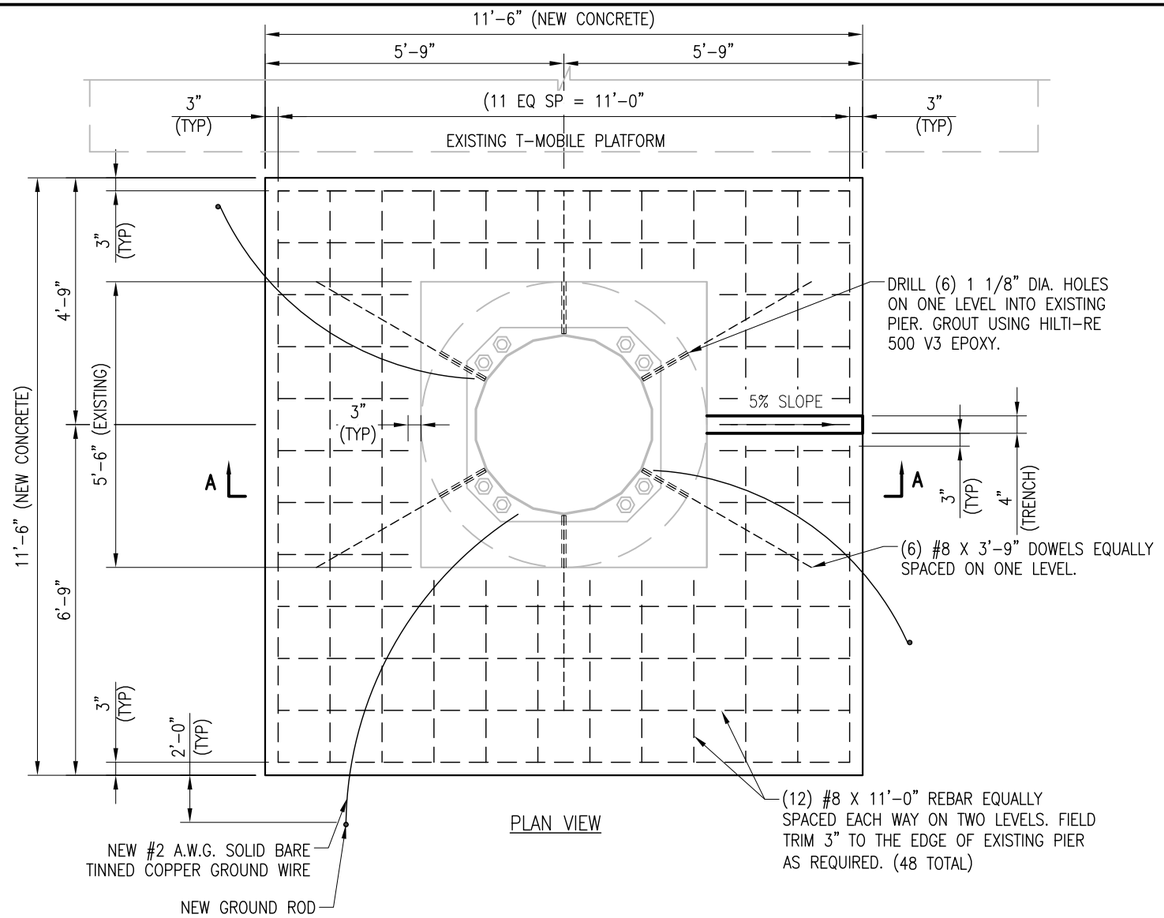
CUSTOMER SITE NO:
CT13074-A-SBA
CUSTOMER SITE NAME:
STONINGTON
107 WILCOX ROAD
STONINGTON, CT 06378

DRAWN BY: BS | CHECKED BY: MF/AD

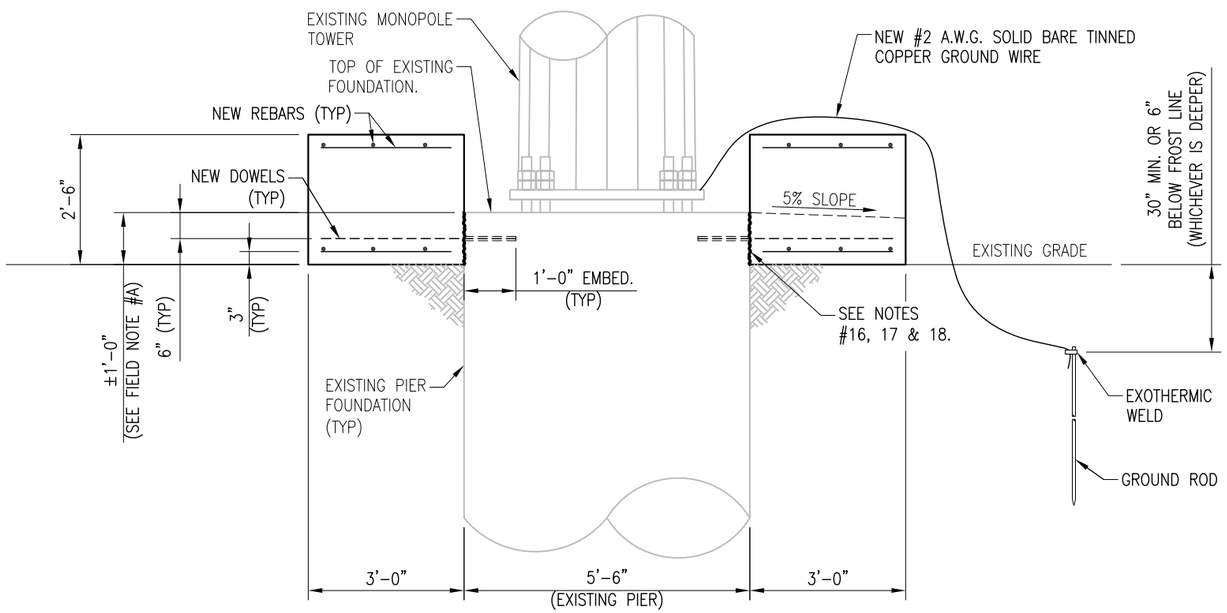
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	BS	05/09/22

SHEET TITLE:
REINFORCEMENT ASSEMBLY

SHEET NUMBER: A-3
REV #: 0



PLAN VIEW



SECTION "A-A"

COMPOUND PHOTO

NOTES:

1. THE FOUNDATION MODIFICATION DESIGN IS BASED ON THE JGI EASTERN, INC., PROJECT # 06437G, DATED 07/21/2006.
2. CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI AT 28 DAYS.
3. TEST CYLINDERS SHALL BE MOLDED AND LABORATORY CURED IN ACCORDANCE WITH ASTM C31. THREE PAIRS OF CONCRETE COMPRESSION TEST CYLINDERS SHALL BE MADE FROM EACH TRUCK LOAD OF CONCRETE. TWO CYLINDERS SHALL BE TESTED AT 7 DAYS AND TWO CYLINDERS SHALL BE TESTED AT 28 DAYS. (REMAINING PAIR OF CYLINDERS ARE FOR REDUNDANCY).
4. REINFORCED CONCRETE CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH ACI STANDARDS 318.
5. ALL REBAR SHALL BE SECURELY WIRE TIED TO PREVENT DISPLACEMENT DURING POURING OF CONCRETE.
6. VERTICAL EMBEDMENTS OUT OF PLUMB: 1.0 DEGREE.
7. DEPTH OF FOUNDATION: PLUS 1" OR MINUS 0".
8. CONCRETE DIMENSIONS: PLUS OR MINUS 1/2".
9. REINFORCING STEEL PLACEMENT: PLUS OR MINUS 1/2" INCLUDING CONCRETE COVER.
10. CONCRETE VOLUME: 9.44 CUBIC YARDS TOTAL.
11. MATERIALS FOR REINFORCING SHALL BE IN ACCORDANCE WITH ASTM SPECIFICATION A615-85.
12. ALL REBAR TO BE GRADE 60 (UNLESS NOTED OTHERWISE). REBAR MILL TEST REPORT IS REQUIRED AS PART OF THE PROJECT CLOSEOUT DOCUMENTATION.
13. CONCRETE SLUMP: 2"~4".
14. FOUNDATION BASE SHOULD REST ON FIRM AND LEVELED SURFACE.
15. FILL MATERIALS SHALL BE COMPACTED USING LAYERS OF NO MORE THAN 6". FINAL COMPACTION MUST BE A MINIMUM OF 95% DENSITY (THE MAXIMUM DRY UNIT OF WEIGHT). BACKFILL MATERIALS SHALL BE SANDY SILT (ML), SILT SAND (SM), CLAYED SAND (SC). NO ORGANIC MATERIALS, ROOTS, PLASTIC SILTS OR CLAYS, DELETERIOUS MATERIALS AND STONES SHALL BE USED. IF ROCK/SOIL MIXTURE IS USED AS BACKFILL, THE ROCK SIZE SHOULD BE LESS THAN 4" IN GREATEST DIMENSION AND NOT MORE THAN 15% BY WEIGHT SHALL BE LARGER THAN 2" IN GREATEST DIMENSION.
16. CLEAN AND ROUGHEN THE SURFACE. THE SURFACE MUST BE PREPARED MECHANICALLY GIVING A SURFACE PROFILE OF MINIMUM 1/8", EXPOSING THE COARSE AGGREGATE OF THE OLD CONCRETE.
17. APPLY WELD-CRETE OR CORR-BOND AGENT OVER THE SURFACE OF THE OLD CONCRETE PER THE MANUFACTURER'S SPECIFICATIONS.
18. NEW CONCRETE MUST BE PLACED OVER THE BONDING AGENT WITHIN THE MAXIMUM ALLOWABLE TIME PER THE MANUFACTURER'S SPECIFICATIONS.
19. THE FOUNDATION MODIFICATION MUST BE PERFORMED AT A WIND SPEED LESS THAN 15 MPH.
20. THE EXCAVATION, FORMING AND CONCRETE PLACEMENT MUST BE COMPLETED IN A TIMEFRAME NOT TO EXCEED 72 HOURS.

TES
Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
116855

CUSTOMER SITE NO:
CT13074-A-SBA

CUSTOMER SITE NAME:
STONINGTON

107 WILCOX ROAD
STONINGTON, CT 06378

DRAWN BY: BS | CHECKED BY: MF/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	BS	05/09/22

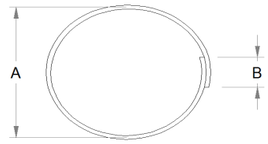
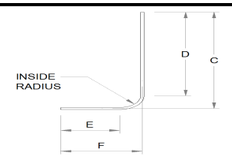
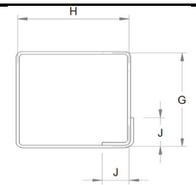
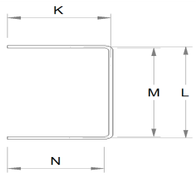
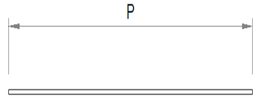
SHEET TITLE:

FOUNDATION MODIFICATION DETAILS

SHEET NUMBER: FND-1

REV #: 0

REBAR CHART

TYPE OF REBAR DIAGRAM	ITEMS	QTY. REQ'D	REBAR SIZE	LENGTH REQ'D (FT.)	TOTAL WEIGHT (LBS)	DETAILS OF BAR DIMENSIONS							REBAR DIAGRAM
ROUND TIE		-	-		-	A (FT.)	A	B	B (FT.)				
90° BEND VERTICAL BAR		-	-	-	-	C (FT.)	C	D (ft)	D	E	F	RADIUS	
SQUARE OR RETANGULAR TIE		-	-	-	-	G (FT.)	G	H (ft)	H	J	RADIUS		
U-SHAPE 90° BEND		-	-	-	-	K (FT.)	K	L (ft)	L	M	N	RADIUS	
STRAIGHT		-	-	-	-	P (FT.)	P	MINIMUM SPLICE LENGTHS REQUIRED					
	1	48	8	11'-0 "	1409.8	11.000	11'-0 "	BAR SIZE	LENGTH REQ'D				
	2	6	8	3'-9 "	60.1	3.750	3'-9 "	#6	3'-7/8"				
								#7	4'-4 1/2"				
								#8	5'-1 1/2"				
								#9	5'-9"				
								#10	6'-6"				
								#11	7'-1 1/2"				

BILL OF MATERIALS

TYPES OF REBAR CONFIGURATIONS	QTY. REQ'D	REBAR SIZE	LENGTH REQ'D (FT.)	TOTAL WEIGHT (LBS)
STRAIGHT	48	8	11'-0 "	1409.8
STRAIGHT	6	8	3'-9 "	60.1
TOTAL STEEL WEIGHT (LBS):	1469.8			

TES
Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
116855

CUSTOMER SITE NO:
CT13074-A-SBA

CUSTOMER SITE NAME:
STONINGTON

107 WILCOX ROAD
STONINGTON, CT 06378

DRAWN BY: BS | CHECKED BY: MF/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	BS	05/09/22

SHEET TITLE:
REBAR CHART

SHEET NUMBER: RBL-1

REV #: 0

NEXGEN2 BLIND BOLT ASSEMBLY

INSTALLATION GUIDE

PRE-INSTALL BOLT ON INSTALL TOOL:

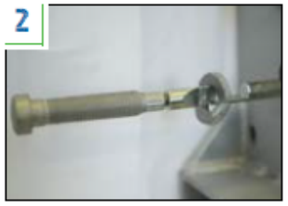
1 Thread the installation tool tip into the splined end of the bolt.

2 Remove the nut, the face washer and the spring shear sleeve and slide along the handle of the tool.

3 Move the collapsible washer to the correct location on the tool and fold in place.

INSTALLATION:

1 Install the bolt into the hole followed by the collapsible washer.



2 Rotate the tool 180°.

3 Pulling back, rock the tool side-to-side to engage the collapsible washer.

4 Engage the spring shear sleeve into the shear plane.

5 Slide the face washer forward and move the nut up to fasten to the bolt. Tighten the nut snug tight at this point.

6 Remove the tool by unscrewing it from bolt (counterclockwise).

7 Using the shear wrench engage the outer socket with the splined end of the bolt. Press the trigger until correct tension has been achieved (the bolt spline separates from the bolt).

8 Press the small trigger on the shear wrench to eject the bolt spline. The application is now complete.

THIS INSTALLATION GUIDE WAS CREATED BY ALLFASTENERS. IT WAS ATTACHED FOR REFERENCE ONLY.

TES
Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO: 116855

CUSTOMER SITE NO: CT13074-A-SBA

CUSTOMER SITE NAME: STONINGTON

107 WILCOX ROAD
STONINGTON, CT 06378

DRAWN BY: BS | CHECKED BY: MF/AD

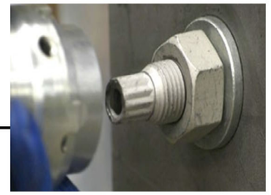
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	BS	05/09/22

SHEET TITLE: NEXGEN2 BLIND BOLT ASSEMBLY INSTALLATION GUIDE

SHEET NUMBER: SPEC-1

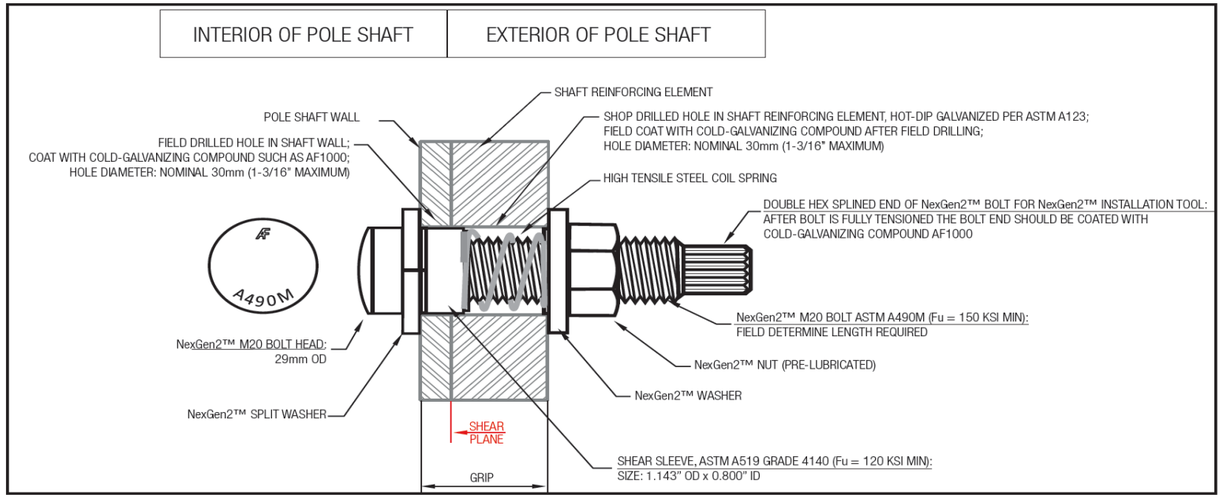
REV #: 0

Pre-Tension

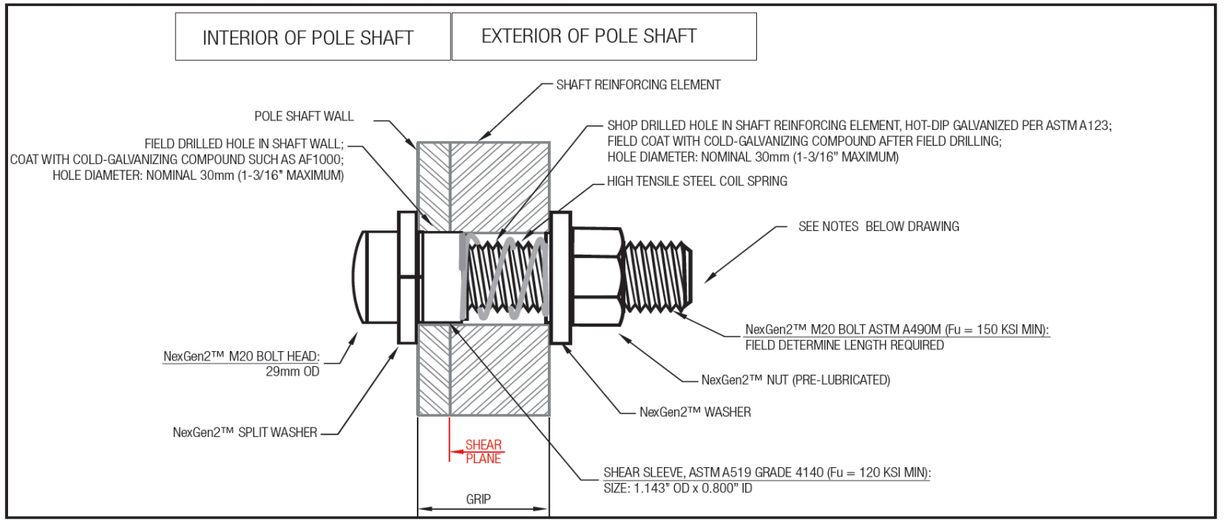


Post-Tension

TYPICAL NG2™ BOLT DETAIL: ***PRE-TENSION***



TYPICAL NG2™ BOLT DETAIL: ***POST-TENSION***



THIS INSTALLATION GUIDE WAS CREATED BY ALLFASTENERS.
IT WAS ATTACHED FOR REFERENCE ONLY.

TES
Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
116855

CUSTOMER SITE NO:
CT13074-A-SBA

CUSTOMER SITE NAME:
STONINGTON
107 WILCOX ROAD
STONINGTON, CT 06378

DRAWN BY: BS | CHECKED BY: MF/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	BS	05/09/22

SHEET TITLE:
NEXGEN2 BLIND BOLT ASSEMBLY INSTALLATION GUIDE

SHEET NUMBER: SPEC-2

REV #: 0

Exhibit D

Structural Analysis Report

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Post-Mod Structural Analysis Report

Existing 100 ft SABRE Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT13074-A

Customer Site Name: Stonington

Carrier Name: Dish Wireless (App#: 168269, V2)

Carrier Site ID / Name: BOBOS00057A / 0

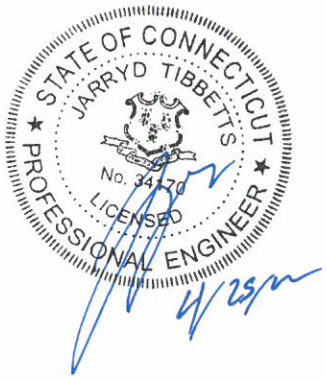
Site Location: 107 Wilcox Road

Stonington, Connecticut

New London County

Latitude: 41.341111

Longitude: -71.940916



Analysis Result:

Max Structural Usage: 93.8% [Pass]

Max Foundation Usage: 93% [Pass]

Report Prepared By : Mariana Franco

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Post-Mod Structural Analysis Report

Existing 100 ft SABRE Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT13074-A

Customer Site Name: Stonington

Carrier Name: Dish Wireless (App#: 168269, V2)

Carrier Site ID / Name: BOBOS00057A / 0

Site Location: 107 Wilcox Road

Stonington, Connecticut

New London County

Latitude: 41.341111

Longitude: -71.940916

Analysis Result:

Max Structural Usage: 93.8% [Pass]

Max Foundation Usage: 93% [Pass]

Report Prepared By : Mariana Franco

Introduction

The purpose of this report is to summarize the analysis results on the 100 ft SABRE Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any existing modification listed under Sources of Information was assumed completed and was included in this analysis.

The proposed modification by **TES** listed under Sources of Information was considered completed and was included in this analysis.

Sources of Information

Tower Drawings	Sabre, Job # 07-07052, Dated 7/11/2006 FDH, Project # 1422XR1400, Dated 2/21/2014
Foundation Drawing	Sabre, Job # 07-07052, Dated 7/11/2006
Geotechnical Report	JGI Eastern, Inc., Project # 06437G, Dated 7/21/2006
Mount Analysis	N/A
Existing Modification	N/A
Proposed Modification	TES Job # 116855

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-G**.** In accordance with this standard, the structure was analyzed using **TESPoles,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 140.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 108.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	D
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.158, S_1 = 0.057

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	96.0	3	Ericsson - Air 21 B2A/B4P - Panel	Sitepro RMPQ-4096-HK	(9) 1 5/8" (4) 1 5/8" Fiber	T-Mobile
2		3	Ericsson - Air 21 B4A/B12P - Panel			
3		3	RFS - APXVAARR24_43-U-NA20 - Panel			
4		3	Ericsson KRY 112 144/1 TMAs			
5		3	Ericsson Radio 4449 B71+B12			

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
6	86.0	3	JMA Wireless MX08FRO665-21 - Panel	(1) Commscope MC-PK8-DSH Platform w/HRK	(1) 1.6" Hybrid	Dish Wireless
7		3	Fujitsu TA08025-B605			
8		3	Fujitsu TA08025-B604			
9		1	Raycap RDIDC-9181-PF-48			

All transmission lines are considered running inside of the pole shafts.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**93.8%**	**62.5%**	**83.1%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	1848.4	24.5	32.4

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.8124 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the structure and its foundation will be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222-G-2 Standard after the following proposed modification is successfully completed.

- Proposed modification design drawing by **TES** Job # 116855

Pre-Mod Installation Determination

We have also checked this tower to determine if the proposed Dish Wireless equipment loading can be installed prior to the completion of the required modifications. We ran a reduced wind loading case as required by TIA-322 considering a construction period of no more than 6 months.

The tower and foundations passed, so the Carrier can proceed and install their proposed loading prior to the mods completion. Please be aware that this approval is being provided and is based on the method outlined in TIA-322. This approval is not a blanket approval and there is still a risk that the tower will experience a wind event that cannot be predicted by TIA-322 or our Engineers. In the event of an unforeseen wind event, Tower Engineering Solutions will not be liable nor responsible for damage to the tower or the Carriers equipment. Additionally, the tower cannot go beyond the 6 month construction period without the modifications being completed. If the modifications cannot be completed within 6 months from the completed installation of the Carrier's proposed equipment, TES must be notified immediately for further review.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

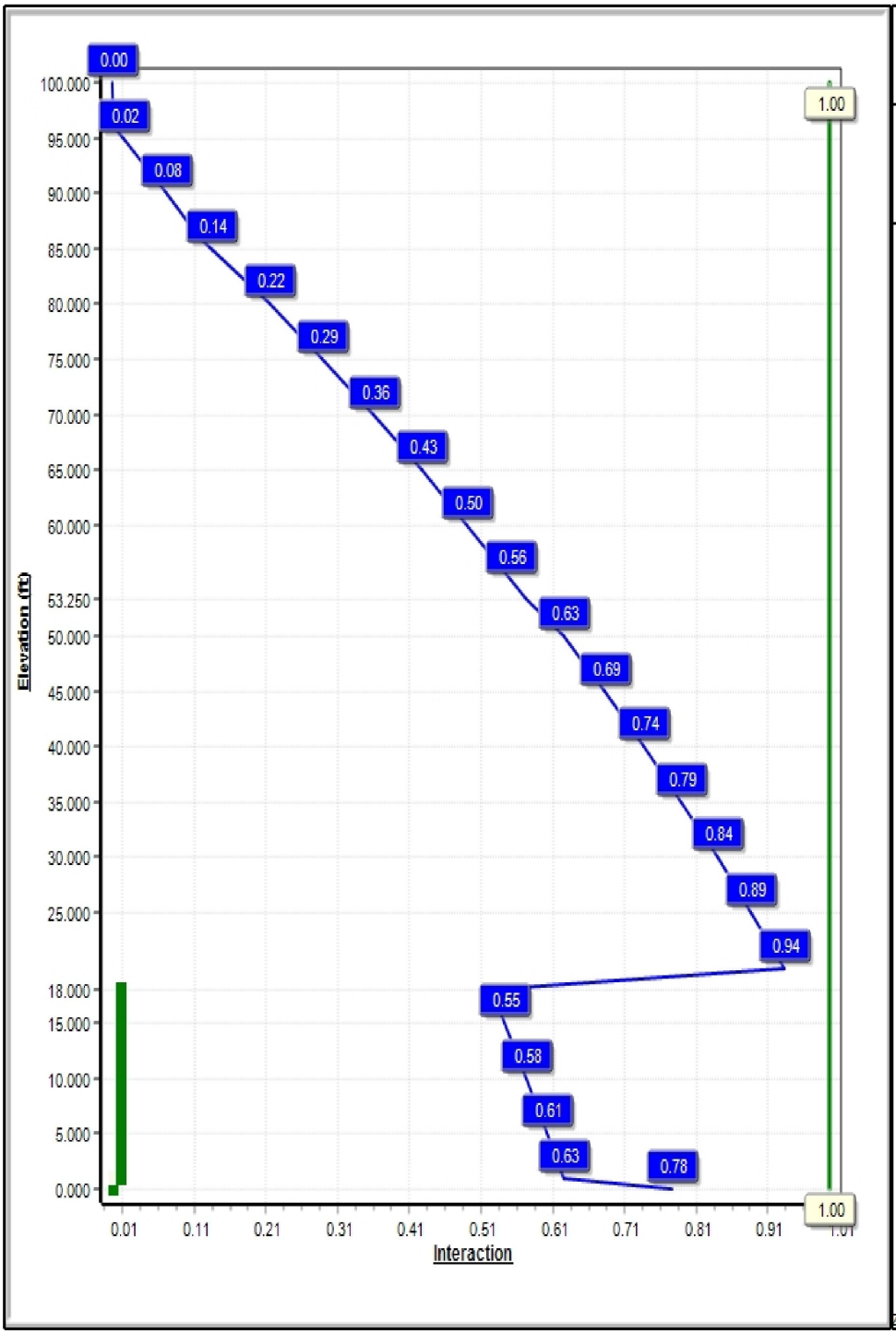
Usage Diagram - Max Ratio 93.77% at 20.0ft

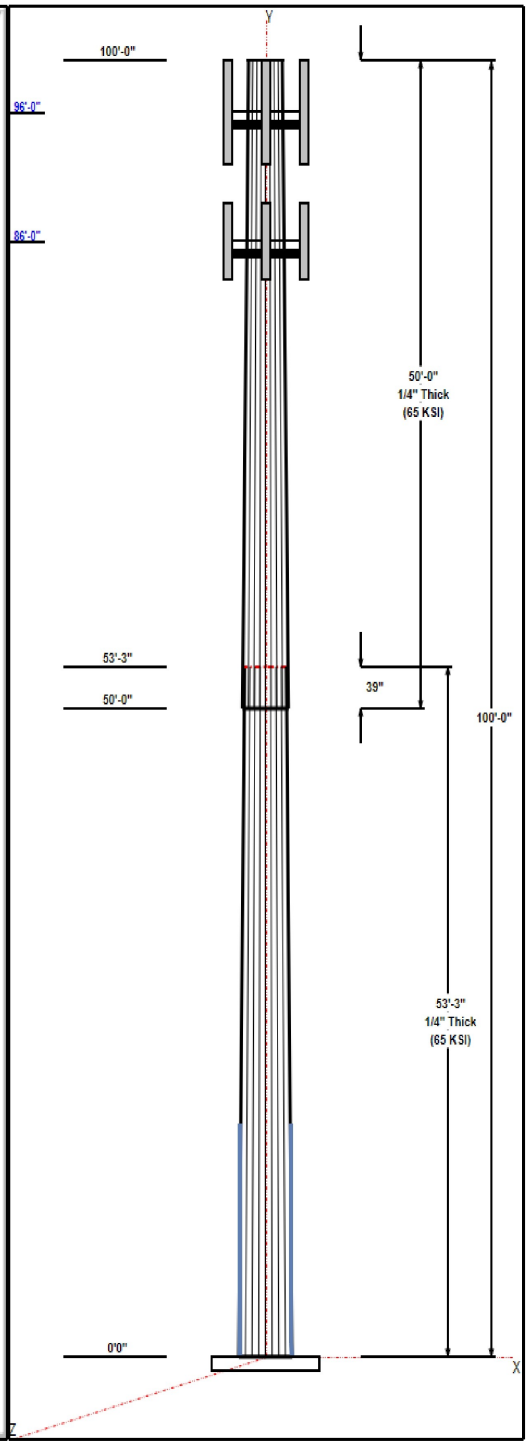
Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	4/25/2022
Site Name:	Stonington	**Exposure:**	D	
Height:	100.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

Tower Engineering Solutions

Dead Load Factor:	1.20	**Iterations:**	20
Wind Load Factor:	1.60		

Load Case : 1.2D + 1.6W 108 mph Wind





Structure: CT13074-A-SBA

Type: Tapered
Site Name: Stonington
Height: 100.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.16140

4/25/2022

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.25	32.32	40.91	0.250		0.16140	65
2	50.00	25.27	33.34	0.250	Slip	0.16140	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
96.00	96.00	3	Air 21 B2A/B4P	T-Mobile
96.00	96.00	3	Air 21 B4A/B12P	T-Mobile
96.00	96.00	3	APXVAARR24_43-U-NA20	T-Mobile
96.00	96.00	3	Ericsson KRY 112 144/1	T-Mobile
96.00	96.00	3	Ericsson Radio 4449	T-Mobile
96.00	96.00	1	RMPQ-4096-HK	T-Mobile
86.00	86.00	3	MX08FRO665-21	Dish Wireless
86.00	86.00	3	TA08025-B605	Dish Wireless
86.00	86.00	3	TA08025-B604	Dish Wireless
86.00	86.00	1	RDIDC-9181-OF-48	Dish Wireless
86.00	86.00	1	MC-PK8-DSH	Dish Wireless

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	96.00	Inside	1 5/8" Coax	T-Mobile
0.00	96.00	Inside	1 5/8" Fiber	T-Mobile
0.00	86.00	Inside	1.6" Hybrid	Dish Wireless

Anchor Bolts

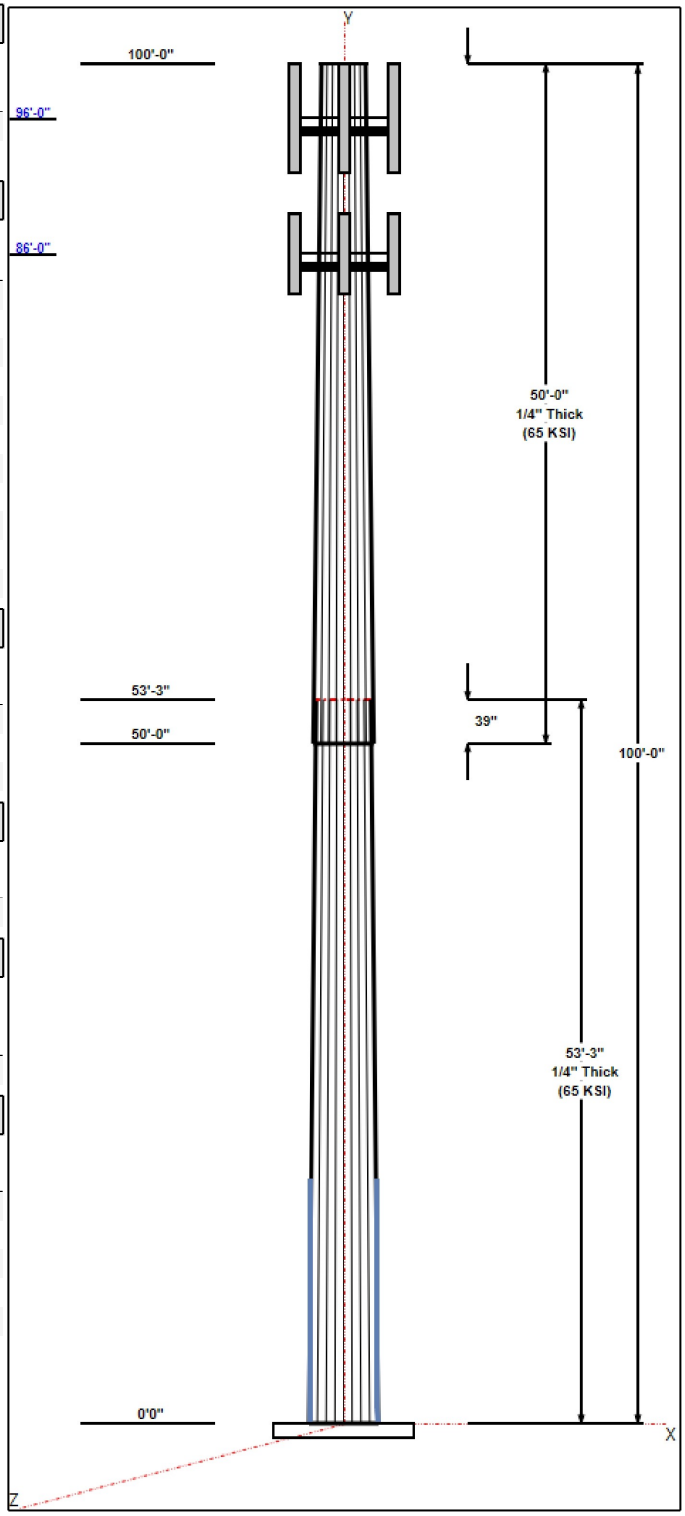
Qty	Specifications	Grade (ksi)	Arrangement
8	2.25" 18J	75.0	Cluster

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.2500	44.8	60.0	Clipped

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 108 mph Wind	1848.4	24.5	19.8
0.9D + 1.6W 108 mph Wind	1836.6	24.5	14.9
1.2D + 1.0Di + 1.0Wi 50 mph Wind	421.5	5.7	32.4
1.2D + 1.0E	90.7	1.0	19.9
0.9D + 1.0E	90.1	1.0	14.9
1.0D + 1.0W 60 mph Wind	355.4	4.7	16.5



Structure: CT13074-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Stonington
Height: 100.00 (ft)

4/25/2022

Tower Engineering Solutions

Shaft Properties

Structure:	CT13074-A-SBA		**Code:**	TIA-222-G	4/25/2022
Site Name:	Stonington		**Exposure:**	D	
Height:	100.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 4

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	53.250	0.2500	65		0.00	5,228
2	18	50.000	0.2500	65	Slip	39.00	3,922
					Total Shaft Weight:		**9,150**

	Bottom						Top						
Sec. No.	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Taper**
1	40.91	0.00	32.26	6738.86	27.44	163.64	32.32	53.25	25.44	3305.19	21.38	129.2	0.161400
2	33.34	50.00	26.26	3632.24	22.10	133.36	25.27	100.00	19.85	1570.17	16.41	101.0	0.161400

Additional Steel

							Intermediate Connectors		Termination Connectors			
Elev From (ft)	**Elev To (ft)**	**Qty**	**Description**	**Fy (ksi)**	**Fu (ksi)**	**Offset (in)**	**Description**	**Spacing (in)**	**Description**	**Spacing (in)**	**Lower Qty**	**Upper Qty**
0.00	1.00	3	SOL 2 1/4" William R71	128	150	0.00	5/8" Hollo Bolt	12.00	5/8" Hollo Bolt	3.00		
1.00	18.00	3	LNP LP6X125-B-20T	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00		10

Load Summary

Structure:	CT13074-A-SBA	**Code:**	TIA-222-G	4/25/2022	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 5	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	**Elev (ft)**	**Description**	**Qty**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Hor. Ecc. (ft)**	**Vert Ecc (ft)**
1	96.00	Air 21 B2A/B4P	3	91.50	6.09	0.86	251.65	7.136	0.86	0.00	0.00
2	96.00	Air 21 B4A/B12P	3	126.00	11.54	0.89	396.78	13.125	0.89	0.00	0.00
3	96.00	APXVAARR24_43-U-NA20	3	128.00	20.24	0.70	525.47	22.054	0.70	0.00	0.00
4	96.00	Ericsson KRY 112 144/1 TMAs	3	11.00	0.41	0.70	21.31	0.864	0.70	0.00	0.00
5	96.00	Ericsson Radio 4449 B71+B12	3	70.00	1.65	0.67	134.54	2.162	0.67	0.00	0.00
6	96.00	RMPQ-4096-HK	1	2280.00	51.70	1.00	4563.25	88.287	1.00	0.00	0.00
7	86.00	MX08FRO665-21	3	64.50	12.49	0.74	339.63	13.876	0.74	0.00	0.00
8	86.00	TA08025-B605	3	75.00	1.96	0.67	124.47	2.491	0.67	0.00	0.00
9	86.00	TA08025-B604	3	63.90	1.96	0.67	111.79	2.491	0.67	0.00	0.00
10	86.00	RDIDC-9181-OF-48	1	21.90	2.01	1.00	72.27	2.547	1.00	0.00	0.00
11	86.00	MC-PK8-DSH	1	1727.00	37.59	1.00	3323.50	82.268	1.00	0.00	0.00
		Totals:	**27**	**5,918.60**			**13,675.97**				

Linear Appurtenances

Bottom Elev. (ft)	**Top Elev. (ft)**	**Description**	**Exposed Width**	**Exposed**
0.00	96.00	(9) 1 5/8" Coax	0.00	Inside
0.00	96.00	(4) 1 5/8" Fiber	0.00	Inside
0.00	86.00	(1) 1.6" Hybrid	0.00	Inside

Shaft Section Properties

Structure:	CT13074-A-SBA	**Code:**	TIA-222-G	4/25/2022	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)	Additional Reinforcing Area (in^2)	Ixp (in^4)	Iyp (in^4)	Weight (lb)
0.00	RB1	0.2500	40.910	32.263	6738.9	27.44	163.64	65	69	0.0	12.24	2853.8	2853.8	
1.00	RT1 RB2	0.2500	40.749	32.134	6658.9	27.33	162.99	65	69	109.6	22.50	4996.1	4996.1	76.6
5.00		0.2500	40.103	31.622	6345.5	26.87	160.41	65	70	433.9	22.50	4844.8	4844.8	306.2
10.00		0.2500	39.296	30.982	5967.8	26.31	157.18	65	70	532.6	22.50	4658.9	4658.9	382.8
15.00		0.2500	38.489	30.342	5605.4	25.74	153.96	65	71	521.7	22.50	4476.7	4476.7	382.8
18.00	RT2	0.2500	38.005	29.957	5395.1	25.39	152.02	65	72	307.8	22.50	4369.1	4369.1	229.7
20.00		0.2500	37.682	29.701	5257.9	25.17	150.73	65	72	203.0				
25.00		0.2500	36.875	29.061	4925.1	24.60	147.50	65	72	499.9				
30.00		0.2500	36.068	28.421	4606.7	24.03	144.27	65	73	489.0				
35.00		0.2500	35.261	27.780	4302.3	23.46	141.04	65	74	478.1				
40.00		0.2500	34.454	27.140	4011.6	22.89	137.82	65	74	467.2				
45.00		0.2500	33.647	26.500	3734.3	22.32	134.59	65	75	456.3				
50.00	Bot - Section 2	0.2500	32.840	25.859	3470.1	21.75	131.36	65	76	445.4				
53.25	Top - Section 1	0.2500	32.815	25.840	3462.2	21.73	131.26	65	76	571.7				
55.00		0.2500	32.533	25.616	3372.9	21.54	130.13	65	76	153.2				
60.00		0.2500	31.726	24.975	3126.2	20.97	126.90	65	77	430.4				
65.00		0.2500	30.919	24.335	2891.9	20.40	123.68	65	77	419.5				
70.00		0.2500	30.112	23.695	2669.6	19.83	120.45	65	78	408.6				
75.00		0.2500	29.305	23.054	2458.9	19.26	117.22	65	79	397.7				
80.00		0.2500	28.498	22.414	2259.7	18.69	113.99	65	79	386.8				
85.00		0.2500	27.691	21.774	2071.5	18.12	110.76	65	80	375.9				
86.00		0.2500	27.530	21.646	2035.2	18.01	110.12	65	80	73.9				
90.00		0.2500	26.884	21.133	1894.1	17.55	107.54	65	81	291.1				
95.00		0.2500	26.077	20.493	1727.1	16.98	104.31	65	81	354.1				
96.00		0.2500	25.916	20.365	1694.9	16.87	103.66	65	82	69.5				
100.00		0.2500	25.270	19.853	1570.2	16.41	101.08	65	82	273.7				
									Total Weight	**9150.5**				**1378.1**

Wind Loading - Shaft

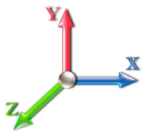
Structure:	CT13074-A-SBA	**Code:**	TIA-222-G	4/25/2022	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 108 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 20

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1	1.00	1.03	29.218	32.14	379.44	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
1.00	RT1 RB2	1.00	1.03	29.218	32.14	377.94	0.650	0.000	1.00	3.455	2.25	115.5	0.0	131.5
5.00		1.00	1.03	29.218	32.14	371.95	0.650	0.000	4.00	13.683	8.89	457.4	0.0	520.7
10.00		1.00	1.03	29.218	32.14	364.47	0.650	0.000	5.00	16.797	10.92	561.4	0.0	639.1
15.00		1.00	1.03	29.224	32.15	357.02	0.650	0.000	5.00	16.455	10.70	550.1	0.0	626.0
18.00	RT2	1.00	1.06	30.166	33.18	358.16	0.650	0.000	3.00	9.709	6.31	335.1	0.0	369.3
20.00		1.00	1.08	30.724	33.80	358.39	0.650	0.000	2.00	6.405	4.16	225.1	0.0	243.6
25.00		1.00	1.13	31.939	35.13	357.59	0.650	0.000	5.00	15.772	10.25	576.3	0.0	599.9
30.00		1.00	1.16	32.968	36.27	355.35	0.650	0.000	5.00	15.431	10.03	582.0	0.0	586.8
35.00		1.00	1.19	33.864	37.25	352.09	0.650	0.000	5.00	15.089	9.81	584.6	0.0	573.7
40.00		1.00	1.22	34.660	38.13	348.05	0.650	0.000	5.00	14.748	9.59	584.8	0.0	560.6
45.00		1.00	1.25	35.377	38.91	343.39	0.650	0.000	5.00	14.407	9.36	583.1	0.0	547.6
50.00	Bot - Section 2	1.00	1.27	36.031	39.63	338.24	0.650	0.000	5.00	14.065	9.14	579.8	0.0	534.5
53.25	Top - Section 1	1.00	1.28	36.428	40.07	334.67	0.650	0.000	3.25	9.097	5.91	379.1	0.0	686.1
55.00		1.00	1.29	36.634	40.30	337.87	0.650	0.000	1.75	4.838	3.15	202.8	0.0	183.8
60.00		1.00	1.31	37.192	40.91	331.99	0.650	0.000	5.00	13.594	8.84	578.4	0.0	516.4
65.00		1.00	1.33	37.713	41.48	325.81	0.650	0.000	5.00	13.252	8.61	571.8	0.0	503.4
70.00		1.00	1.35	38.203	42.02	319.35	0.650	0.000	5.00	12.911	8.39	564.3	0.0	490.3
75.00		1.00	1.36	38.664	42.53	312.67	0.650	0.000	5.00	12.570	8.17	556.0	0.0	477.2
80.00		1.00	1.38	39.100	43.01	305.77	0.650	0.000	5.00	12.228	7.95	547.0	0.0	464.2
85.00		1.00	1.39	39.515	43.47	298.68	0.650	0.000	5.00	11.887	7.73	537.3	0.0	451.1
86.00	Appurtenance(s)	1.00	1.40	39.595	43.55	297.24	0.650	0.000	1.00	2.336	1.52	105.8	0.0	88.6
90.00		1.00	1.41	39.909	43.90	291.42	0.650	0.000	4.00	9.209	5.99	420.4	0.0	349.4
95.00		1.00	1.42	40.286	44.32	284.00	0.650	0.000	5.00	11.204	7.28	516.4	0.0	424.9
96.00	Appurtenance(s)	1.00	1.42	40.360	44.40	282.50	0.650	0.000	1.00	2.200	1.43	101.6	0.0	83.4
100.00		1.00	1.43	40.647	44.71	276.44	0.650	0.000	4.00	8.663	5.63	402.8	0.0	328.4
								Totals:	**100.00**			**11,218.6**		**10,980.6**

Discrete Appurtenance Forces

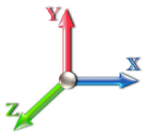
Structure:	CT13074-A-SBA	**Code:**	TIA-222-G	4/25/2022	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 108 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 20

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	96.00	Air 21 B2A/B4P	3	40.360	44.396	0.65	0.75	11.78	329.40	0.000	0.000	837.07	0.00	0.00
2	96.00	Ericsson Radio 4449	3	40.360	44.396	0.50	0.75	2.49	252.00	0.000	0.000	176.69	0.00	0.00
3	96.00	Ericsson KRY 112 144/1	3	40.360	44.396	0.52	0.75	0.65	39.60	0.000	0.000	45.87	0.00	0.00
4	96.00	APXVAARR24_43-U-NA2	3	40.360	44.396	0.52	0.75	31.88	460.80	0.000	0.000	2264.40	0.00	0.00
5	96.00	Air 21 B4A/B12P	3	40.360	44.396	0.67	0.75	23.11	453.60	0.000	0.000	1641.50	0.00	0.00
6	96.00	RMPQ-4096-HK	1	40.360	44.396	1.00	1.00	51.70	2736.00	0.000	0.000	3672.43	0.00	0.00
7	86.00	MC-PK8-DSH	1	39.595	43.555	1.00	1.00	37.59	2072.40	0.000	0.000	2619.55	0.00	0.00
8	86.00	RDIDC-9181-OF-48	1	39.595	43.555	1.00	1.00	2.01	26.28	0.000	0.000	140.07	0.00	0.00
9	86.00	TA08025-B604	3	39.595	43.555	0.50	0.75	2.95	230.04	0.000	0.000	205.91	0.00	0.00
10	86.00	TA08025-B605	3	39.595	43.555	0.50	0.75	2.95	270.00	0.000	0.000	205.91	0.00	0.00
11	86.00	MX08FRO665-21	3	39.595	43.555	0.55	0.75	20.80	232.20	0.000	0.000	1449.21	0.00	0.00
							Totals:		**7,102.32**			**13,258.61**		

Total Applied Force Summary

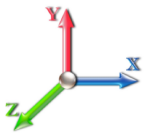
Structure:	CT13074-A-SBA		**Code:**	TIA-222-G	4/25/2022
Site Name:	Stonington		**Exposure:**	D	
Height:	100.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 9

IES
Tower Engineering Solutions

Load Case: 1.2D + 1.6W 108 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 20

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
1.00		115.48	150.17	0.00	0.00
5.00		457.36	595.46	0.00	0.00
10.00		561.43	732.56	0.00	0.00
15.00		550.14	719.49	0.00	0.00
18.00		335.06	425.42	0.00	0.00
20.00		225.11	281.00	0.00	0.00
25.00		576.30	693.34	0.00	0.00
30.00		581.99	680.27	0.00	0.00
35.00		584.58	667.20	0.00	0.00
40.00		584.77	654.12	0.00	0.00
45.00		583.05	641.05	0.00	0.00
50.00		579.76	627.98	0.00	0.00
53.25		379.10	746.85	0.00	0.00
55.00		202.78	216.56	0.00	0.00
60.00		578.39	609.93	0.00	0.00
65.00		571.76	596.86	0.00	0.00
70.00		564.26	583.78	0.00	0.00
75.00		555.97	570.71	0.00	0.00
80.00		546.97	557.64	0.00	0.00
85.00		537.33	544.56	0.00	0.00
86.00	(11) attachments	4726.47	2938.26	0.00	0.00
90.00		420.44	415.41	0.00	0.00
95.00		516.36	507.50	0.00	0.00
96.00	(16) attachments	8739.53	4371.33	0.00	0.00
100.00		402.81	328.44	0.00	0.00
	Totals:	**24,477.21**	**19,855.89**	**0.00**	**0.00**

Calculated Forces

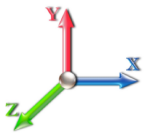
Structure:	CT13074-A-SBA	**Code:**	TIA-222-G	4/25/2022	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 108 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 20

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-19.84	-24.49	0.00	-1848.3	0.00	1848.36	2007.06	1003.53	3358.95	1681.97	0.00	0.000	0.000	0.780
1.00	-19.64	-24.41	0.00	-1823.8	0.00	1823.88	2002.96	1001.48	3338.71	1671.84	0.01	-0.054	0.000	0.630
5.00	-18.97	-24.02	0.00	-1726.2	0.00	1726.24	1986.27	993.14	3257.79	1631.31	0.13	-0.228	0.000	0.606
10.00	-18.15	-23.52	0.00	-1606.1	0.00	1606.16	1964.72	982.36	3156.78	1580.73	0.48	-0.440	0.000	0.577
15.00	-17.37	-23.01	0.00	-1488.5	0.00	1488.58	1942.39	971.20	3055.99	1530.27	1.05	-0.647	0.000	0.547
18.00	-16.91	-22.70	0.00	-1419.5	0.00	1419.55	1928.63	964.31	2995.66	1500.06	1.50	-0.770	0.000	0.528
18.00	-16.91	-22.70	0.00	-1419.5	0.00	1419.55	1928.63	964.31	2995.66	1500.06	1.50	-0.770	0.000	0.528
20.00	-16.55	-22.53	0.00	-1374.1	0.00	1374.15	1919.30	959.65	2955.51	1479.95	1.84	-0.851	0.000	0.938
25.00	-15.73	-22.04	0.00	-1261.4	0.00	1261.48	1895.43	947.71	2855.41	1429.83	2.92	-1.208	0.000	0.891
30.00	-14.93	-21.53	0.00	-1151.2	0.00	1151.27	1870.79	935.39	2755.77	1379.93	4.37	-1.556	0.000	0.843
35.00	-14.16	-21.01	0.00	-1043.6	0.00	1043.60	1845.37	922.69	2656.67	1330.31	6.19	-1.895	0.000	0.793
40.00	-13.42	-20.48	0.00	-938.53	0.00	938.53	1819.19	909.60	2558.18	1280.99	8.35	-2.223	0.000	0.741
45.00	-12.69	-19.94	0.00	-836.13	0.00	836.13	1792.24	896.12	2460.38	1232.02	10.85	-2.537	0.000	0.686
50.00	-12.01	-19.38	0.00	-736.43	0.00	736.43	1764.51	882.25	2363.35	1183.43	13.67	-2.837	0.000	0.630
53.25	-11.24	-18.99	0.00	-673.44	0.00	673.44	1763.65	881.83	2360.41	1181.96	15.66	-3.025	0.000	0.577
55.00	-10.97	-18.81	0.00	-640.20	0.00	640.20	1753.76	876.88	2326.65	1165.06	16.79	-3.124	0.000	0.556
60.00	-10.32	-18.24	0.00	-546.14	0.00	546.14	1724.97	862.48	2230.81	1117.06	20.20	-3.374	0.000	0.495
65.00	-9.69	-17.67	0.00	-454.92	0.00	454.92	1695.40	847.70	2135.92	1069.55	23.85	-3.602	0.000	0.431
70.00	-9.09	-17.10	0.00	-366.55	0.00	366.55	1665.07	832.53	2042.06	1022.55	27.74	-3.804	0.000	0.364
75.00	-8.52	-16.53	0.00	-281.03	0.00	281.03	1633.96	816.98	1949.30	976.10	31.81	-3.976	0.000	0.294
80.00	-7.97	-15.96	0.00	-198.37	0.00	198.37	1602.08	801.04	1857.73	930.25	36.05	-4.115	0.000	0.219
85.00	-7.45	-15.40	0.00	-118.55	0.00	118.55	1569.43	784.71	1767.43	885.03	40.42	-4.215	0.000	0.139
86.00	-4.86	-10.47	0.00	-103.15	0.00	103.15	1562.81	781.40	1749.52	876.06	41.30	-4.230	0.000	0.121
90.00	-4.47	-10.02	0.00	-61.28	0.00	61.28	1536.01	768.00	1678.46	840.48	44.86	-4.276	0.000	0.076
95.00	-4.00	-9.47	0.00	-11.17	0.00	11.17	1501.81	750.91	1590.91	796.64	49.36	-4.303	0.000	0.017
96.00	-0.30	-0.43	0.00	-1.71	0.00	1.71	1494.88	747.44	1573.57	787.96	50.26	-4.304	0.000	0.002
100.00	0.00	-0.40	0.00	0.00	0.00	0.00	1466.85	733.42	1504.85	753.54	53.86	-4.305	0.000	0.000

Wind Loading - Shaft

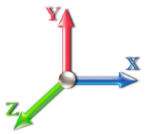
Structure:	CT13074-A-SBA	**Code:**	TIA-222-G	4/25/2022	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 108 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 20

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1	1.00	1.03	29.218	32.14	379.44	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
1.00	RT1 RB2	1.00	1.03	29.218	32.14	377.94	0.650	0.000	1.00	3.455	2.25	115.5	0.0	98.6
5.00		1.00	1.03	29.218	32.14	371.95	0.650	0.000	4.00	13.683	8.89	457.4	0.0	390.5
10.00		1.00	1.03	29.218	32.14	364.47	0.650	0.000	5.00	16.797	10.92	561.4	0.0	479.3
15.00		1.00	1.03	29.224	32.15	357.02	0.650	0.000	5.00	16.455	10.70	550.1	0.0	469.5
18.00	RT2	1.00	1.06	30.166	33.18	358.16	0.650	0.000	3.00	9.709	6.31	335.1	0.0	277.0
20.00		1.00	1.08	30.724	33.80	358.39	0.650	0.000	2.00	6.405	4.16	225.1	0.0	182.7
25.00		1.00	1.13	31.939	35.13	357.59	0.650	0.000	5.00	15.772	10.25	576.3	0.0	449.9
30.00		1.00	1.16	32.968	36.27	355.35	0.650	0.000	5.00	15.431	10.03	582.0	0.0	440.1
35.00		1.00	1.19	33.864	37.25	352.09	0.650	0.000	5.00	15.089	9.81	584.6	0.0	430.3
40.00		1.00	1.22	34.660	38.13	348.05	0.650	0.000	5.00	14.748	9.59	584.8	0.0	420.5
45.00		1.00	1.25	35.377	38.91	343.39	0.650	0.000	5.00	14.407	9.36	583.1	0.0	410.7
50.00	Bot - Section 2	1.00	1.27	36.031	39.63	338.24	0.650	0.000	5.00	14.065	9.14	579.8	0.0	400.9
53.25	Top - Section 1	1.00	1.28	36.428	40.07	334.67	0.650	0.000	3.25	9.097	5.91	379.1	0.0	514.6
55.00		1.00	1.29	36.634	40.30	337.87	0.650	0.000	1.75	4.838	3.15	202.8	0.0	137.9
60.00		1.00	1.31	37.192	40.91	331.99	0.650	0.000	5.00	13.594	8.84	578.4	0.0	387.3
65.00		1.00	1.33	37.713	41.48	325.81	0.650	0.000	5.00	13.252	8.61	571.8	0.0	377.5
70.00		1.00	1.35	38.203	42.02	319.35	0.650	0.000	5.00	12.911	8.39	564.3	0.0	367.7
75.00		1.00	1.36	38.664	42.53	312.67	0.650	0.000	5.00	12.570	8.17	556.0	0.0	357.9
80.00		1.00	1.38	39.100	43.01	305.77	0.650	0.000	5.00	12.228	7.95	547.0	0.0	348.1
85.00		1.00	1.39	39.515	43.47	298.68	0.650	0.000	5.00	11.887	7.73	537.3	0.0	338.3
86.00	Appurtenance(s)	1.00	1.40	39.595	43.55	297.24	0.650	0.000	1.00	2.336	1.52	105.8	0.0	66.5
90.00		1.00	1.41	39.909	43.90	291.42	0.650	0.000	4.00	9.209	5.99	420.4	0.0	262.0
95.00		1.00	1.42	40.286	44.32	284.00	0.650	0.000	5.00	11.204	7.28	516.4	0.0	318.7
96.00	Appurtenance(s)	1.00	1.42	40.360	44.40	282.50	0.650	0.000	1.00	2.200	1.43	101.6	0.0	62.6
100.00		1.00	1.43	40.647	44.71	276.44	0.650	0.000	4.00	8.663	5.63	402.8	0.0	246.3
								Totals:	**100.00**			**11,218.6**		**8,235.4**

Discrete Appurtenance Forces

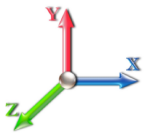
Structure:	CT13074-A-SBA	**Code:**	TIA-222-G	4/25/2022	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 108 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 20

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	96.00	Air 21 B2A/B4P	3	40.360	44.396	0.65	0.75	11.78	247.05	0.000	0.000	837.07	0.00	0.00
2	96.00	Ericsson Radio 4449	3	40.360	44.396	0.50	0.75	2.49	189.00	0.000	0.000	176.69	0.00	0.00
3	96.00	Ericsson KRY 112 144/1	3	40.360	44.396	0.52	0.75	0.65	29.70	0.000	0.000	45.87	0.00	0.00
4	96.00	APXVAARR24_43-U-NA2	3	40.360	44.396	0.52	0.75	31.88	345.60	0.000	0.000	2264.40	0.00	0.00
5	96.00	Air 21 B4A/B12P	3	40.360	44.396	0.67	0.75	23.11	340.20	0.000	0.000	1641.50	0.00	0.00
6	96.00	RMPQ-4096-HK	1	40.360	44.396	1.00	1.00	51.70	2052.00	0.000	0.000	3672.43	0.00	0.00
7	86.00	MC-PK8-DSH	1	39.595	43.555	1.00	1.00	37.59	1554.30	0.000	0.000	2619.55	0.00	0.00
8	86.00	RDIDC-9181-OF-48	1	39.595	43.555	1.00	1.00	2.01	19.71	0.000	0.000	140.07	0.00	0.00
9	86.00	TA08025-B604	3	39.595	43.555	0.50	0.75	2.95	172.53	0.000	0.000	205.91	0.00	0.00
10	86.00	TA08025-B605	3	39.595	43.555	0.50	0.75	2.95	202.50	0.000	0.000	205.91	0.00	0.00
11	86.00	MX08FRO665-21	3	39.595	43.555	0.55	0.75	20.80	174.15	0.000	0.000	1449.21	0.00	0.00
							Totals:		**5,326.74**			**13,258.61**		

Total Applied Force Summary

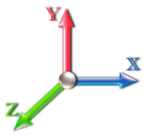
Structure:	CT13074-A-SBA		**Code:**	TIA-222-G	4/25/2022
Site Name:	Stonington		**Exposure:**	D	
Height:	100.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 13

IES Tower Engineering Solutions

Load Case: 0.9D + 1.6W 108 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 20

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
1.00		115.48	112.63	0.00	0.00
5.00		457.36	446.60	0.00	0.00
10.00		561.43	549.42	0.00	0.00
15.00		550.14	539.62	0.00	0.00
18.00		335.06	319.06	0.00	0.00
20.00		225.11	210.75	0.00	0.00
25.00		576.30	520.01	0.00	0.00
30.00		581.99	510.20	0.00	0.00
35.00		584.58	500.40	0.00	0.00
40.00		584.77	490.59	0.00	0.00
45.00		583.05	480.79	0.00	0.00
50.00		579.76	470.98	0.00	0.00
53.25		379.10	560.14	0.00	0.00
55.00		202.78	162.42	0.00	0.00
60.00		578.39	457.45	0.00	0.00
65.00		571.76	447.64	0.00	0.00
70.00		564.26	437.84	0.00	0.00
75.00		555.97	428.03	0.00	0.00
80.00		546.97	418.23	0.00	0.00
85.00		537.33	408.42	0.00	0.00
86.00	(11) attachments	4726.47	2203.70	0.00	0.00
90.00		420.44	311.56	0.00	0.00
95.00		516.36	380.62	0.00	0.00
96.00	(16) attachments	8739.53	3278.50	0.00	0.00
100.00		402.81	246.33	0.00	0.00
	Totals:	**24,477.21**	**14,891.92**	**0.00**	**0.00**

Calculated Forces

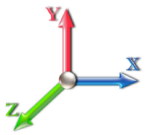
Structure:	CT13074-A-SBA	**Code:**	TIA-222-G	4/25/2022	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 108 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 20

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-14.88	-24.48	0.00	-1836.5	0.00	1836.59	2007.06	1003.53	3358.95	1681.97	0.00	0.000	0.000	0.773
1.00	-14.72	-24.40	0.00	-1812.1	0.00	1812.10	2002.96	1001.48	3338.71	1671.84	0.01	-0.054	0.000	0.624
5.00	-14.19	-23.99	0.00	-1714.5	0.00	1714.51	1986.27	993.14	3257.79	1631.31	0.13	-0.226	0.000	0.601
10.00	-13.56	-23.47	0.00	-1594.5	0.00	1594.58	1964.72	982.36	3156.78	1580.73	0.48	-0.437	0.000	0.571
15.00	-12.96	-22.95	0.00	-1477.2	0.00	1477.22	1942.39	971.20	3055.99	1530.27	1.04	-0.642	0.000	0.541
18.00	-12.61	-22.64	0.00	-1408.3	0.00	1408.36	1928.63	964.31	2995.66	1500.06	1.49	-0.764	0.000	0.523
18.00	-12.61	-22.64	0.00	-1408.3	0.00	1408.36	1928.63	964.31	2995.66	1500.06	1.49	-0.764	0.000	0.523
20.00	-12.31	-22.46	0.00	-1363.0	0.00	1363.09	1919.30	959.65	2955.51	1479.95	1.83	-0.845	0.000	0.928
25.00	-11.67	-21.94	0.00	-1250.8	0.00	1250.80	1895.43	947.71	2855.41	1429.83	2.90	-1.199	0.000	0.881
30.00	-11.05	-21.41	0.00	-1141.0	0.00	1141.09	1870.79	935.39	2755.77	1379.93	4.34	-1.544	0.000	0.833
35.00	-10.44	-20.88	0.00	-1034.0	0.00	1034.02	1845.37	922.69	2656.67	1330.31	6.14	-1.880	0.000	0.783
40.00	-9.86	-20.33	0.00	-929.64	0.00	929.64	1819.19	909.60	2558.18	1280.99	8.29	-2.205	0.000	0.732
45.00	-9.30	-19.78	0.00	-828.00	0.00	828.00	1792.24	896.12	2460.38	1232.02	10.76	-2.516	0.000	0.678
50.00	-8.78	-19.21	0.00	-729.12	0.00	729.12	1764.51	882.25	2363.35	1183.43	13.56	-2.813	0.000	0.622
53.25	-8.19	-18.83	0.00	-666.68	0.00	666.68	1763.65	881.83	2360.41	1181.96	15.54	-2.999	0.000	0.569
55.00	-7.98	-18.64	0.00	-633.74	0.00	633.74	1753.76	876.88	2326.65	1165.06	16.66	-3.097	0.000	0.549
60.00	-7.48	-18.07	0.00	-540.54	0.00	540.54	1724.97	862.48	2230.81	1117.06	20.03	-3.344	0.000	0.489
65.00	-7.01	-17.49	0.00	-450.21	0.00	450.21	1695.40	847.70	2135.92	1069.55	23.66	-3.570	0.000	0.425
70.00	-6.55	-16.93	0.00	-362.74	0.00	362.74	1665.07	832.53	2042.06	1022.55	27.50	-3.770	0.000	0.359
75.00	-6.12	-16.36	0.00	-278.11	0.00	278.11	1633.96	816.98	1949.30	976.10	31.55	-3.940	0.000	0.289
80.00	-5.71	-15.80	0.00	-196.32	0.00	196.32	1602.08	801.04	1857.73	930.25	35.75	-4.078	0.000	0.215
85.00	-5.32	-15.23	0.00	-117.35	0.00	117.35	1569.43	784.71	1767.43	885.03	40.07	-4.176	0.000	0.136
86.00	-3.46	-10.36	0.00	-102.11	0.00	102.11	1562.81	781.40	1749.52	876.06	40.95	-4.191	0.000	0.119
90.00	-3.18	-9.92	0.00	-60.67	0.00	60.67	1536.01	768.00	1678.46	840.48	44.48	-4.237	0.000	0.074
95.00	-2.83	-9.38	0.00	-11.06	0.00	11.06	1501.81	750.91	1590.91	796.64	48.93	-4.264	0.000	0.016
96.00	-0.22	-0.42	0.00	-1.68	0.00	1.68	1494.88	747.44	1573.57	787.96	49.82	-4.265	0.000	0.002
100.00	0.00	-0.40	0.00	0.00	0.00	0.00	1466.85	733.42	1504.85	753.54	53.39	-4.266	0.000	0.000

Wind Loading - Shaft

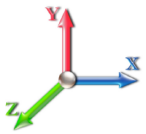
Structure:	CT13074-A-SBA	**Code:**	TIA-222-G	4/25/2022	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 19

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1	1.00	1.03	6.262	6.89	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
1.00	RT1 RB2	1.00	1.03	6.262	6.89	0.00	1.200	1.057	1.00	3.631	4.36	30.0	55.4	186.9
5.00		1.00	1.03	6.262	6.89	0.00	1.200	1.242	4.00	14.511	17.41	120.0	257.3	778.0
10.00		1.00	1.03	6.262	6.89	0.00	1.200	1.331	5.00	17.906	21.49	148.0	338.7	977.8
15.00		1.00	1.03	6.264	6.89	0.00	1.200	1.386	5.00	17.610	21.13	145.6	346.2	972.2
18.00	RT2	1.00	1.06	6.466	7.11	0.00	1.200	1.412	3.00	10.415	12.50	88.9	209.1	578.5
20.00		1.00	1.08	6.585	7.24	0.00	1.200	1.427	2.00	6.880	8.26	59.8	139.8	383.4
25.00		1.00	1.13	6.846	7.53	0.00	1.200	1.459	5.00	16.988	20.39	153.5	350.3	950.1
30.00		1.00	1.16	7.066	7.77	0.00	1.200	1.486	5.00	16.669	20.00	155.5	349.4	936.2
35.00		1.00	1.19	7.258	7.98	0.00	1.200	1.509	5.00	16.347	19.62	156.6	347.5	921.2
40.00		1.00	1.22	7.429	8.17	0.00	1.200	1.529	5.00	16.022	19.23	157.1	344.6	905.2
45.00		1.00	1.25	7.583	8.34	0.00	1.200	1.547	5.00	15.696	18.84	157.1	341.0	888.6
50.00	Bot - Section 2	1.00	1.27	7.723	8.50	0.00	1.200	1.564	5.00	15.368	18.44	156.7	336.9	871.4
53.25	Top - Section 1	1.00	1.28	7.808	8.59	0.00	1.200	1.574	3.25	9.949	11.94	102.5	220.3	906.3
55.00		1.00	1.29	7.852	8.64	0.00	1.200	1.579	1.75	5.299	6.36	54.9	118.0	301.9
60.00		1.00	1.31	7.972	8.77	0.00	1.200	1.592	5.00	14.921	17.90	157.0	332.2	848.7
65.00		1.00	1.33	8.083	8.89	0.00	1.200	1.605	5.00	14.590	17.51	155.7	326.9	830.3
70.00		1.00	1.35	8.188	9.01	0.00	1.200	1.617	5.00	14.259	17.11	154.1	321.3	811.6
75.00		1.00	1.36	8.287	9.12	0.00	1.200	1.628	5.00	13.926	16.71	152.3	315.4	792.6
80.00		1.00	1.38	8.381	9.22	0.00	1.200	1.639	5.00	13.594	16.31	150.4	309.3	773.4
85.00		1.00	1.39	8.469	9.32	0.00	1.200	1.649	5.00	13.261	15.91	148.2	302.9	754.0
86.00	Appurtenance(s)	1.00	1.40	8.487	9.34	0.00	1.200	1.651	1.00	2.611	3.13	29.3	60.3	149.0
90.00		1.00	1.41	8.554	9.41	0.00	1.200	1.658	4.00	10.314	12.38	116.5	237.1	586.4
95.00		1.00	1.42	8.635	9.50	0.00	1.200	1.667	5.00	12.593	15.11	143.5	289.6	714.6
96.00	Appurtenance(s)	1.00	1.42	8.651	9.52	0.00	1.200	1.669	1.00	2.478	2.97	28.3	57.7	141.1
100.00		1.00	1.43	8.712	9.58	0.00	1.200	1.676	4.00	9.780	11.74	112.5	226.2	554.6
								Totals:	**100.00**			**3,034.0**		**17,514.0**

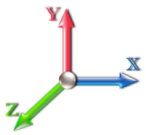
Discrete Appurtenance Forces

Structure:	CT13074-A-SBA	**Code:**	TIA-222-G	4/25/2022	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 19

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	96.00	Air 21 B2A/B4P	3	8.651	9.516	0.65	0.75	13.81	809.85	0.000	0.000	131.40	0.00	0.00
2	96.00	Ericsson Radio 4449	3	8.651	9.516	0.50	0.75	3.26	445.61	0.000	0.000	31.01	0.00	0.00
3	96.00	Ericsson KRY 112 144/1	3	8.651	9.516	0.52	0.75	1.36	61.23	0.000	0.000	12.95	0.00	0.00
4	96.00	APXVAARR24_43-U-NA2	3	8.651	9.516	0.52	0.75	34.74	1653.22	0.000	0.000	330.53	0.00	0.00
5	96.00	Air 21 B4A/B12P	3	8.651	9.516	0.67	0.75	26.28	1265.95	0.000	0.000	250.09	0.00	0.00
6	96.00	RMPQ-4096-HK	1	8.651	9.516	1.00	1.00	88.29	3899.25	0.000	0.000	840.10	0.00	0.00
7	86.00	MC-PK8-DSH	1	8.487	9.335	1.00	1.00	82.27	3295.90	0.000	0.000	768.00	0.00	0.00
8	86.00	RDIDC-9181-OF-48	1	8.487	9.335	1.00	1.00	2.55	63.95	0.000	0.000	23.78	0.00	0.00
9	86.00	TA08025-B604	3	8.487	9.335	0.50	0.75	3.75	337.41	0.000	0.000	35.05	0.00	0.00
10	86.00	TA08025-B605	3	8.487	9.335	0.50	0.75	3.75	380.62	0.000	0.000	35.05	0.00	0.00
11	86.00	MX08FRO665-21	3	8.487	9.335	0.55	0.75	23.10	856.00	0.000	0.000	215.67	0.00	0.00
							Totals:		**13,068.99**			**2,673.63**		

Total Applied Force Summary

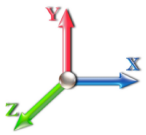
Structure:	CT13074-A-SBA		**Code:**	TIA-222-G	4/25/2022
Site Name:	Stonington		**Exposure:**	D	
Height:	100.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 17

IES Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 19

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
1.00		30.02	205.56	0.00	0.00
5.00		119.95	852.79	0.00	0.00
10.00		148.02	1071.31	0.00	0.00
15.00		145.61	1065.72	0.00	0.00
18.00		88.89	634.54	0.00	0.00
20.00		59.80	420.79	0.00	0.00
25.00		153.51	1043.61	0.00	0.00
30.00		155.48	1029.72	0.00	0.00
35.00		156.62	1014.65	0.00	0.00
40.00		157.12	998.71	0.00	0.00
45.00		157.10	982.07	0.00	0.00
50.00		156.66	964.86	0.00	0.00
53.25		102.54	967.11	0.00	0.00
55.00		54.92	334.59	0.00	0.00
60.00		157.00	942.17	0.00	0.00
65.00		155.68	923.78	0.00	0.00
70.00		154.11	905.08	0.00	0.00
75.00		152.34	886.11	0.00	0.00
80.00		150.38	866.90	0.00	0.00
85.00		148.25	847.47	0.00	0.00
86.00	(11) attachments	1106.80	5101.55	0.00	0.00
90.00		116.46	652.49	0.00	0.00
95.00		143.54	797.11	0.00	0.00
96.00	(16) attachments	1624.38	8292.69	0.00	0.00
100.00		112.47	554.62	0.00	0.00
	Totals:	**5,707.64**	**32,355.98**	**0.00**	**0.00**

Calculated Forces

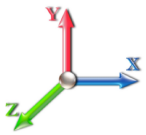
Structure:	CT13074-A-SBA	**Code:**	TIA-222-G	4/25/2022	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 19

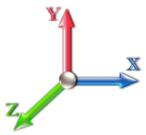
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-32.36	-5.71	0.00	-421.47	0.00	421.47	2007.06	1003.53	3358.95	1681.97	0.00	0.000	0.000	0.188
1.00	-32.15	-5.70	0.00	-415.76	0.00	415.76	2002.96	1001.48	3338.71	1671.84	0.00	-0.012	0.000	0.152
5.00	-31.29	-5.60	0.00	-392.98	0.00	392.98	1986.27	993.14	3257.79	1631.31	0.03	-0.052	0.000	0.146
10.00	-30.21	-5.47	0.00	-364.98	0.00	364.98	1964.72	982.36	3156.78	1580.73	0.11	-0.100	0.000	0.139
15.00	-29.15	-5.35	0.00	-337.61	0.00	337.61	1942.39	971.20	3055.99	1530.27	0.24	-0.147	0.000	0.131
18.00	-28.51	-5.27	0.00	-321.57	0.00	321.57	1928.63	964.31	2995.66	1500.06	0.34	-0.175	0.000	0.127
18.00	-28.51	-5.27	0.00	-321.57	0.00	321.57	1928.63	964.31	2995.66	1500.06	0.34	-0.175	0.000	0.127
20.00	-28.08	-5.23	0.00	-311.04	0.00	311.04	1919.30	959.65	2955.51	1479.95	0.42	-0.193	0.000	0.225
25.00	-27.03	-5.11	0.00	-284.89	0.00	284.89	1895.43	947.71	2855.41	1429.83	0.66	-0.274	0.000	0.214
30.00	-26.00	-4.98	0.00	-259.34	0.00	259.34	1870.79	935.39	2755.77	1379.93	0.99	-0.353	0.000	0.202
35.00	-24.98	-4.85	0.00	-234.42	0.00	234.42	1845.37	922.69	2656.67	1330.31	1.40	-0.429	0.000	0.190
40.00	-23.98	-4.72	0.00	-210.16	0.00	210.16	1819.19	909.60	2558.18	1280.99	1.89	-0.502	0.000	0.177
45.00	-22.99	-4.58	0.00	-186.57	0.00	186.57	1792.24	896.12	2460.38	1232.02	2.46	-0.573	0.000	0.164
50.00	-22.02	-4.43	0.00	-163.68	0.00	163.68	1764.51	882.25	2363.35	1183.43	3.09	-0.639	0.000	0.151
53.25	-21.05	-4.33	0.00	-149.27	0.00	149.27	1763.65	881.83	2360.41	1181.96	3.54	-0.681	0.000	0.138
55.00	-20.72	-4.29	0.00	-141.69	0.00	141.69	1753.76	876.88	2326.65	1165.06	3.80	-0.703	0.000	0.133
60.00	-19.77	-4.14	0.00	-120.26	0.00	120.26	1724.97	862.48	2230.81	1117.06	4.56	-0.758	0.000	0.119
65.00	-18.85	-3.98	0.00	-99.59	0.00	99.59	1695.40	847.70	2135.92	1069.55	5.39	-0.808	0.000	0.104
70.00	-17.94	-3.83	0.00	-79.68	0.00	79.68	1665.07	832.53	2042.06	1022.55	6.26	-0.852	0.000	0.089
75.00	-17.06	-3.67	0.00	-60.54	0.00	60.54	1633.96	816.98	1949.30	976.10	7.17	-0.890	0.000	0.072
80.00	-16.19	-3.52	0.00	-42.18	0.00	42.18	1602.08	801.04	1857.73	930.25	8.12	-0.919	0.000	0.055
85.00	-15.35	-3.36	0.00	-24.60	0.00	24.60	1569.43	784.71	1767.43	885.03	9.10	-0.940	0.000	0.038
86.00	-10.26	-2.17	0.00	-21.24	0.00	21.24	1562.81	781.40	1749.52	876.06	9.29	-0.944	0.000	0.031
90.00	-9.61	-2.04	0.00	-12.58	0.00	12.58	1536.01	768.00	1678.46	840.48	10.09	-0.953	0.000	0.021
95.00	-8.82	-1.88	0.00	-2.37	0.00	2.37	1501.81	750.91	1590.91	796.64	11.09	-0.959	0.000	0.009
96.00	-0.55	-0.12	0.00	-0.49	0.00	0.49	1494.88	747.44	1573.57	787.96	11.29	-0.959	0.000	0.001
100.00	0.00	-0.11	0.00	0.00	0.00	0.00	1466.85	733.42	1504.85	753.54	12.09	-0.959	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT13074-A-SBA	**Code:**	TIA-222-G	4/25/2022	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

IES Tower Engineering Solutions

Load Case: 1.2D + 1.0E



Gust Response Factor	1.10			**Sds**	0.17	**Iterations**	18
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.09	**Ss**	0.16
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.50	**SA**	0.05	**S1**	0.06
						Seismic Importance Factor	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00	RB1	0.00	0.00	0.00	0.00	0.00	
1.00	RT1 RB2	109.56	0.00	0.01	0.01	0.50	
5.00		433.90	0.00	0.04	0.02	6.85	
10.00		532.57	0.02	0.06	0.04	11.63	
15.00		521.68	0.04	0.07	0.04	12.70	
18.00	RT2	307.78	0.06	0.07	0.04	7.76	
20.00		203.00	0.08	0.07	0.04	5.22	
25.00		499.89	0.12	0.07	0.03	13.44	
30.00		488.99	0.17	0.07	0.03	13.60	
35.00		478.10	0.23	0.06	0.02	13.29	
40.00		467.20	0.30	0.04	0.01	12.02	
45.00		456.31	0.38	0.02	0.01	9.31	
50.00	Bot - Section 2	445.41	0.47	-0.01	0.01	5.06	
53.25	Top - Section 1	571.74	0.54	-0.03	0.01	2.28	
55.00		153.20	0.57	-0.04	0.01	-0.02	
60.00		430.37	0.68	-0.08	0.03	-4.67	
65.00		419.48	0.80	-0.11	0.05	-6.97	
70.00		408.59	0.93	-0.12	0.10	-5.84	
75.00		397.69	1.06	-0.09	0.17	-0.91	
80.00		386.80	1.21	0.01	0.26	7.74	
85.00		375.90	1.37	0.22	0.40	19.85	
86.00	Appurtenance(s)	2432.9	1.40	0.28	0.43	147.53	
90.00		291.13	1.53	0.58	0.58	28.03	
95.00		354.11	1.71	1.14	0.82	53.34	
96.00	Appurtenance(s)	3629.0	1.74	1.29	0.88	590.93	
100.00		273.70	1.89	1.98	1.14	59.16	
	Totals:	**15,069.1**				**1,001.8**	**Total Wind:** **24,477.2**

Calculated Forces

Structure:	CT13074-A-SBA	**Code:**	TIA-222-G	4/25/2022	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E							**Iterations**	18
Gust Response Factor	1.10			**Sds**	0.17			**Ss**	0.16
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.09			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.50	**SA**	0.05	**Seismic Importance Factor**			1.00

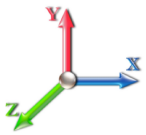
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-19.86	-1.02	0.00	-90.70	0.00	90.70	2007.06	1003.53	3358.95	1681.97		0.00	0.00	0.045
1.00	-19.71	-1.02	0.00	-89.68	0.00	89.68	2002.96	1001.48	3338.71	1671.84		0.00	0.00	0.036
5.00	-19.11	-1.02	0.00	-85.59	0.00	85.59	1986.27	993.14	3257.79	1631.31		0.01	-0.01	0.035
10.00	-18.38	-1.01	0.00	-80.50	0.00	80.50	1964.72	982.36	3156.78	1580.73		0.02	-0.02	0.034
15.00	-17.66	-1.00	0.00	-75.46	0.00	75.46	1942.39	971.20	3055.99	1530.27		0.05	-0.03	0.033
18.00	-17.23	-0.99	0.00	-72.46	0.00	72.46	1928.63	964.31	2995.66	1500.06		0.07	-0.04	0.032
18.00	-17.23	-0.99	0.00	-72.46	0.00	72.46	1928.63	964.31	2995.66	1500.06		0.07	-0.04	0.032
20.00	-16.95	-0.99	0.00	-70.47	0.00	70.47	1919.30	959.65	2955.51	1479.95		0.09	-0.04	0.056
25.00	-16.26	-0.98	0.00	-65.52	0.00	65.52	1895.43	947.71	2855.41	1429.83		0.15	-0.06	0.054
30.00	-15.58	-0.97	0.00	-60.61	0.00	60.61	1870.79	935.39	2755.77	1379.93		0.22	-0.08	0.052
35.00	-14.91	-0.96	0.00	-55.75	0.00	55.75	1845.37	922.69	2656.67	1330.31		0.31	-0.10	0.050
40.00	-14.25	-0.95	0.00	-50.94	0.00	50.94	1819.19	909.60	2558.18	1280.99		0.42	-0.11	0.048
45.00	-13.61	-0.95	0.00	-46.17	0.00	46.17	1792.24	896.12	2460.38	1232.02		0.55	-0.13	0.045
50.00	-12.99	-0.94	0.00	-41.44	0.00	41.44	1764.51	882.25	2363.35	1183.43		0.70	-0.15	0.042
53.25	-12.24	-0.94	0.00	-38.37	0.00	38.37	1763.65	881.83	2360.41	1181.96		0.81	-0.16	0.039
55.00	-12.02	-0.94	0.00	-36.73	0.00	36.73	1753.76	876.88	2326.65	1165.06		0.87	-0.17	0.038
60.00	-11.41	-0.94	0.00	-32.01	0.00	32.01	1724.97	862.48	2230.81	1117.06		1.05	-0.18	0.035
65.00	-10.81	-0.94	0.00	-27.30	0.00	27.30	1695.40	847.70	2135.92	1069.55		1.24	-0.19	0.032
70.00	-10.23	-0.94	0.00	-22.58	0.00	22.58	1665.07	832.53	2042.06	1022.55		1.45	-0.21	0.028
75.00	-9.66	-0.94	0.00	-17.86	0.00	17.86	1633.96	816.98	1949.30	976.10		1.67	-0.22	0.024
80.00	-9.10	-0.93	0.00	-13.14	0.00	13.14	1602.08	801.04	1857.73	930.25		1.90	-0.23	0.020
85.00	-8.56	-0.91	0.00	-8.47	0.00	8.47	1569.43	784.71	1767.43	885.03		2.14	-0.23	0.015
86.00	-5.62	-0.75	0.00	-7.55	0.00	7.55	1562.81	781.40	1749.52	876.06		2.19	-0.23	0.012
90.00	-5.20	-0.72	0.00	-4.54	0.00	4.54	1536.01	768.00	1678.46	840.48		2.39	-0.24	0.009
95.00	-4.70	-0.67	0.00	-0.91	0.00	0.91	1501.81	750.91	1590.91	796.64		2.64	-0.24	0.004
96.00	-0.33	-0.06	0.00	-0.24	0.00	0.24	1494.88	747.44	1573.57	787.96		2.69	-0.24	0.001
100.00	0.00	-0.06	0.00	0.00	0.00	0.00	1466.85	733.42	1504.85	753.54		2.89	-0.24	0.000

Seismic Segment Forces (Factored)

Structure:	CT13074-A-SBA	**Code:**	TIA-222-G	4/25/2022	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 21	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E



Gust Response Factor	1.10			**Sds**	0.17	**Iterations**	18
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.09	**Ss**	0.16
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.50	**SA**	0.05	**S1**	0.06
						Seismic Importance Factor	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00	RB1	0.00	0.00	0.00	0.00	0.00	
1.00	RT1 RB2	109.56	0.00	0.01	0.01	0.50	
5.00		433.90	0.00	0.04	0.02	6.85	
10.00		532.57	0.02	0.06	0.04	11.63	
15.00		521.68	0.04	0.07	0.04	12.70	
18.00	RT2	307.78	0.06	0.07	0.04	7.76	
20.00		203.00	0.08	0.07	0.04	5.22	
25.00		499.89	0.12	0.07	0.03	13.44	
30.00		488.99	0.17	0.07	0.03	13.60	
35.00		478.10	0.23	0.06	0.02	13.29	
40.00		467.20	0.30	0.04	0.01	12.02	
45.00		456.31	0.38	0.02	0.01	9.31	
50.00	Bot - Section 2	445.41	0.47	-0.01	0.01	5.06	
53.25	Top - Section 1	571.74	0.54	-0.03	0.01	2.28	
55.00		153.20	0.57	-0.04	0.01	-0.02	
60.00		430.37	0.68	-0.08	0.03	-4.67	
65.00		419.48	0.80	-0.11	0.05	-6.97	
70.00		408.59	0.93	-0.12	0.10	-5.84	
75.00		397.69	1.06	-0.09	0.17	-0.91	
80.00		386.80	1.21	0.01	0.26	7.74	
85.00		375.90	1.37	0.22	0.40	19.85	
86.00	Appurtenance(s)	2432.9	1.40	0.28	0.43	147.53	
90.00		291.13	1.53	0.58	0.58	28.03	
95.00		354.11	1.71	1.14	0.82	53.34	
96.00	Appurtenance(s)	3629.0	1.74	1.29	0.88	590.93	
100.00		273.70	1.89	1.98	1.14	59.16	
	Totals:	**15,069.1**				**1,001.8**	**Total Wind:** **24,477.2**

Calculated Forces

Structure:	CT13074-A-SBA	**Code:**	TIA-222-G	4/25/2022	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case:	0.9D + 1.0E							**Iterations**	18
Gust Response Factor	1.10			**Sds**	0.17			**Ss**	0.16
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.09			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.50	**SA**	0.05	**Seismic Importance Factor**			1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-14.89	-1.02	0.00	-90.08	0.00	90.08	2007.06	1003.53	3358.95	1681.97		0.00	0.00	0.043
1.00	-14.78	-1.02	0.00	-89.06	0.00	89.06	2002.96	1001.48	3338.71	1671.84		0.00	0.00	0.035
5.00	-14.33	-1.02	0.00	-84.97	0.00	84.97	1986.27	993.14	3257.79	1631.31		0.01	-0.01	0.034
10.00	-13.78	-1.01	0.00	-79.89	0.00	79.89	1964.72	982.36	3156.78	1580.73		0.02	-0.02	0.032
15.00	-13.24	-1.00	0.00	-74.85	0.00	74.85	1942.39	971.20	3055.99	1530.27		0.05	-0.03	0.031
18.00	-12.92	-0.99	0.00	-71.86	0.00	71.86	1928.63	964.31	2995.66	1500.06		0.07	-0.04	0.030
18.00	-12.92	-0.99	0.00	-71.86	0.00	71.86	1928.63	964.31	2995.66	1500.06		0.07	-0.04	0.030
20.00	-12.71	-0.99	0.00	-69.89	0.00	69.89	1919.30	959.65	2955.51	1479.95		0.09	-0.04	0.054
25.00	-12.19	-0.98	0.00	-64.95	0.00	64.95	1895.43	947.71	2855.41	1429.83		0.14	-0.06	0.052
30.00	-11.68	-0.97	0.00	-60.07	0.00	60.07	1870.79	935.39	2755.77	1379.93		0.22	-0.08	0.050
35.00	-11.18	-0.96	0.00	-55.24	0.00	55.24	1845.37	922.69	2656.67	1330.31		0.31	-0.10	0.048
40.00	-10.69	-0.95	0.00	-50.46	0.00	50.46	1819.19	909.60	2558.18	1280.99		0.42	-0.11	0.045
45.00	-10.21	-0.94	0.00	-45.73	0.00	45.73	1792.24	896.12	2460.38	1232.02		0.55	-0.13	0.043
50.00	-9.74	-0.93	0.00	-41.04	0.00	41.04	1764.51	882.25	2363.35	1183.43		0.69	-0.15	0.040
53.25	-9.18	-0.93	0.00	-38.01	0.00	38.01	1763.65	881.83	2360.41	1181.96		0.80	-0.16	0.037
55.00	-9.02	-0.93	0.00	-36.38	0.00	36.38	1753.76	876.88	2326.65	1165.06		0.86	-0.16	0.036
60.00	-8.56	-0.93	0.00	-31.71	0.00	31.71	1724.97	862.48	2230.81	1117.06		1.04	-0.18	0.033
65.00	-8.11	-0.93	0.00	-27.04	0.00	27.04	1695.40	847.70	2135.92	1069.55		1.23	-0.19	0.030
70.00	-7.67	-0.93	0.00	-22.37	0.00	22.37	1665.07	832.53	2042.06	1022.55		1.44	-0.20	0.026
75.00	-7.24	-0.93	0.00	-17.70	0.00	17.70	1633.96	816.98	1949.30	976.10		1.66	-0.21	0.023
80.00	-6.83	-0.93	0.00	-13.03	0.00	13.03	1602.08	801.04	1857.73	930.25		1.89	-0.22	0.018
85.00	-6.42	-0.90	0.00	-8.40	0.00	8.40	1569.43	784.71	1767.43	885.03		2.12	-0.23	0.014
86.00	-4.21	-0.75	0.00	-7.50	0.00	7.50	1562.81	781.40	1749.52	876.06		2.17	-0.23	0.011
90.00	-3.90	-0.72	0.00	-4.50	0.00	4.50	1536.01	768.00	1678.46	840.48		2.37	-0.23	0.008
95.00	-3.52	-0.66	0.00	-0.91	0.00	0.91	1501.81	750.91	1590.91	796.64		2.61	-0.24	0.003
96.00	-0.25	-0.06	0.00	-0.24	0.00	0.24	1494.88	747.44	1573.57	787.96		2.66	-0.24	0.000
100.00	0.00	-0.06	0.00	0.00	0.00	0.00	1466.85	733.42	1504.85	753.54		2.86	-0.24	0.000

Wind Loading - Shaft

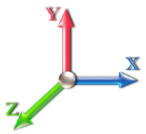
Structure:	CT13074-A-SBA	**Code:**	TIA-222-G	4/25/2022	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 19

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1	1.00	1.03	9.018	9.92	210.80	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
1.00	RT1 RB2	1.00	1.03	9.018	9.92	209.97	0.650	0.000	1.00	3.455	2.25	22.3	0.0	109.6
5.00		1.00	1.03	9.018	9.92	206.64	0.650	0.000	4.00	13.683	8.89	88.2	0.0	433.9
10.00		1.00	1.03	9.018	9.92	202.48	0.650	0.000	5.00	16.797	10.92	108.3	0.0	532.6
15.00		1.00	1.03	9.020	9.92	198.35	0.650	0.000	5.00	16.455	10.70	106.1	0.0	521.7
18.00	RT2	1.00	1.06	9.310	10.24	198.98	0.650	0.000	3.00	9.709	6.31	64.6	0.0	307.8
20.00		1.00	1.08	9.483	10.43	199.11	0.650	0.000	2.00	6.405	4.16	43.4	0.0	203.0
25.00		1.00	1.13	9.858	10.84	198.66	0.650	0.000	5.00	15.772	10.25	111.2	0.0	499.9
30.00		1.00	1.16	10.175	11.19	197.42	0.650	0.000	5.00	15.431	10.03	112.3	0.0	489.0
35.00		1.00	1.19	10.452	11.50	195.60	0.650	0.000	5.00	15.089	9.81	112.8	0.0	478.1
40.00		1.00	1.22	10.697	11.77	193.36	0.650	0.000	5.00	14.748	9.59	112.8	0.0	467.2
45.00		1.00	1.25	10.919	12.01	190.77	0.650	0.000	5.00	14.407	9.36	112.5	0.0	456.3
50.00	Bot - Section 2	1.00	1.27	11.121	12.23	187.91	0.650	0.000	5.00	14.065	9.14	111.8	0.0	445.4
53.25	Top - Section 1	1.00	1.28	11.243	12.37	185.93	0.650	0.000	3.25	9.097	5.91	73.1	0.0	571.7
55.00		1.00	1.29	11.307	12.44	187.71	0.650	0.000	1.75	4.838	3.15	39.1	0.0	153.2
60.00		1.00	1.31	11.479	12.63	184.44	0.650	0.000	5.00	13.594	8.84	111.6	0.0	430.4
65.00		1.00	1.33	11.640	12.80	181.00	0.650	0.000	5.00	13.252	8.61	110.3	0.0	419.5
70.00		1.00	1.35	11.791	12.97	177.42	0.650	0.000	5.00	12.911	8.39	108.8	0.0	408.6
75.00		1.00	1.36	11.933	13.13	173.70	0.650	0.000	5.00	12.570	8.17	107.2	0.0	397.7
80.00		1.00	1.38	12.068	13.27	169.87	0.650	0.000	5.00	12.228	7.95	105.5	0.0	386.8
85.00		1.00	1.39	12.196	13.42	165.93	0.650	0.000	5.00	11.887	7.73	103.7	0.0	375.9
86.00	Appurtenance(s)	1.00	1.40	12.221	13.44	165.13	0.650	0.000	1.00	2.336	1.52	20.4	0.0	73.9
90.00		1.00	1.41	12.318	13.55	161.90	0.650	0.000	4.00	9.209	5.99	81.1	0.0	291.1
95.00		1.00	1.42	12.434	13.68	157.78	0.650	0.000	5.00	11.204	7.28	99.6	0.0	354.1
96.00	Appurtenance(s)	1.00	1.42	12.457	13.70	156.95	0.650	0.000	1.00	2.200	1.43	19.6	0.0	69.5
100.00		1.00	1.43	12.546	13.80	153.58	0.650	0.000	4.00	8.663	5.63	77.7	0.0	273.7
								Totals:	**100.00**			**2,164.1**		**9,150.5**

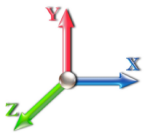
Discrete Appurtenance Forces

Structure:	CT13074-A-SBA	**Code:**	TIA-222-G	4/25/2022	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 19

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	96.00	Air 21 B2A/B4P	3	12.457	13.702	0.65	0.75	11.78	274.50	0.000	0.000	161.47	0.00	0.00
2	96.00	Ericsson Radio 4449	3	12.457	13.702	0.50	0.75	2.49	210.00	0.000	0.000	34.08	0.00	0.00
3	96.00	Ericsson KRY 112 144/1	3	12.457	13.702	0.52	0.75	0.65	33.00	0.000	0.000	8.85	0.00	0.00
4	96.00	APXVAARR24_43-U-NA2	3	12.457	13.702	0.52	0.75	31.88	384.00	0.000	0.000	436.81	0.00	0.00
5	96.00	Air 21 B4A/B12P	3	12.457	13.702	0.67	0.75	23.11	378.00	0.000	0.000	316.65	0.00	0.00
6	96.00	RMPQ-4096-HK	1	12.457	13.702	1.00	1.00	51.70	2280.00	0.000	0.000	708.42	0.00	0.00
7	86.00	MC-PK8-DSH	1	12.221	13.443	1.00	1.00	37.59	1727.00	0.000	0.000	505.31	0.00	0.00
8	86.00	RDIDC-9181-OF-48	1	12.221	13.443	1.00	1.00	2.01	21.90	0.000	0.000	27.02	0.00	0.00
9	86.00	TA08025-B604	3	12.221	13.443	0.50	0.75	2.95	191.70	0.000	0.000	39.72	0.00	0.00
10	86.00	TA08025-B605	3	12.221	13.443	0.50	0.75	2.95	225.00	0.000	0.000	39.72	0.00	0.00
11	86.00	MX08FRO665-21	3	12.221	13.443	0.55	0.75	20.80	193.50	0.000	0.000	279.55	0.00	0.00
							Totals:		**5,918.60**			**2,557.60**		

Total Applied Force Summary

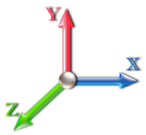
Structure:	CT13074-A-SBA		**Code:**	TIA-222-G	4/25/2022
Site Name:	Stonington		**Exposure:**	D	
Height:	100.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 25

IES Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 19

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
1.00		22.28	125.14	0.00	0.00
5.00		88.23	496.22	0.00	0.00
10.00		108.30	610.47	0.00	0.00
15.00		106.12	599.58	0.00	0.00
18.00		64.63	354.52	0.00	0.00
20.00		43.42	234.16	0.00	0.00
25.00		111.17	577.79	0.00	0.00
30.00		112.27	566.89	0.00	0.00
35.00		112.77	556.00	0.00	0.00
40.00		112.80	545.10	0.00	0.00
45.00		112.47	534.21	0.00	0.00
50.00		111.84	523.31	0.00	0.00
53.25		73.13	622.38	0.00	0.00
55.00		39.12	180.47	0.00	0.00
60.00		111.57	508.27	0.00	0.00
65.00		110.29	497.38	0.00	0.00
70.00		108.85	486.49	0.00	0.00
75.00		107.25	475.59	0.00	0.00
80.00		105.51	464.70	0.00	0.00
85.00		103.65	453.80	0.00	0.00
86.00	(11) attachments	911.74	2448.55	0.00	0.00
90.00		81.10	346.17	0.00	0.00
95.00		99.61	422.91	0.00	0.00
96.00	(16) attachments	1685.87	3642.78	0.00	0.00
100.00		77.70	273.70	0.00	0.00
	Totals:	**4,721.68**	**16,546.58**	**0.00**	**0.00**

Calculated Forces

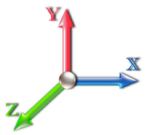
Structure:	CT13074-A-SBA	**Code:**	TIA-222-G	4/25/2022	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 26	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 19

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-16.55	-4.72	0.00	-355.37	0.00	355.37	2007.06	1003.53	3358.95	1681.97	0.00	0.000	0.000	0.154
1.00	-16.42	-4.71	0.00	-350.65	0.00	350.65	2002.96	1001.48	3338.71	1671.84	0.00	-0.010	0.000	0.125
5.00	-15.92	-4.63	0.00	-331.82	0.00	331.82	1986.27	993.14	3257.79	1631.31	0.02	-0.044	0.000	0.120
10.00	-15.31	-4.53	0.00	-308.68	0.00	308.68	1964.72	982.36	3156.78	1580.73	0.09	-0.084	0.000	0.114
15.00	-14.70	-4.43	0.00	-286.03	0.00	286.03	1942.39	971.20	3055.99	1530.27	0.20	-0.124	0.000	0.108
18.00	-14.35	-4.37	0.00	-272.73	0.00	272.73	1928.63	964.31	2995.66	1500.06	0.29	-0.148	0.000	0.105
18.00	-14.35	-4.37	0.00	-272.73	0.00	272.73	1928.63	964.31	2995.66	1500.06	0.29	-0.148	0.000	0.105
20.00	-14.11	-4.34	0.00	-263.99	0.00	263.99	1919.30	959.65	2955.51	1479.95	0.35	-0.164	0.000	0.186
25.00	-13.53	-4.24	0.00	-242.30	0.00	242.30	1895.43	947.71	2855.41	1429.83	0.56	-0.232	0.000	0.177
30.00	-12.96	-4.14	0.00	-221.10	0.00	221.10	1870.79	935.39	2755.77	1379.93	0.84	-0.299	0.000	0.167
35.00	-12.40	-4.04	0.00	-200.40	0.00	200.40	1845.37	922.69	2656.67	1330.31	1.19	-0.364	0.000	0.157
40.00	-11.85	-3.93	0.00	-180.21	0.00	180.21	1819.19	909.60	2558.18	1280.99	1.60	-0.427	0.000	0.147
45.00	-11.31	-3.83	0.00	-160.54	0.00	160.54	1792.24	896.12	2460.38	1232.02	2.08	-0.487	0.000	0.137
50.00	-10.79	-3.72	0.00	-141.40	0.00	141.40	1764.51	882.25	2363.35	1183.43	2.63	-0.545	0.000	0.126
53.25	-10.16	-3.65	0.00	-129.30	0.00	129.30	1763.65	881.83	2360.41	1181.96	3.01	-0.581	0.000	0.115
55.00	-9.98	-3.61	0.00	-122.92	0.00	122.92	1753.76	876.88	2326.65	1165.06	3.23	-0.600	0.000	0.111
60.00	-9.47	-3.50	0.00	-104.86	0.00	104.86	1724.97	862.48	2230.81	1117.06	3.88	-0.648	0.000	0.099
65.00	-8.97	-3.39	0.00	-87.35	0.00	87.35	1695.40	847.70	2135.92	1069.55	4.58	-0.692	0.000	0.087
70.00	-8.49	-3.28	0.00	-70.38	0.00	70.38	1665.07	832.53	2042.06	1022.55	5.33	-0.731	0.000	0.074
75.00	-8.01	-3.17	0.00	-53.97	0.00	53.97	1633.96	816.98	1949.30	976.10	6.11	-0.764	0.000	0.060
80.00	-7.55	-3.07	0.00	-38.10	0.00	38.10	1602.08	801.04	1857.73	930.25	6.93	-0.790	0.000	0.046
85.00	-7.09	-2.96	0.00	-22.77	0.00	22.77	1569.43	784.71	1767.43	885.03	7.77	-0.809	0.000	0.030
86.00	-4.66	-2.01	0.00	-19.82	0.00	19.82	1562.81	781.40	1749.52	876.06	7.94	-0.812	0.000	0.026
90.00	-4.31	-1.93	0.00	-11.77	0.00	11.77	1536.01	768.00	1678.46	840.48	8.62	-0.821	0.000	0.017
95.00	-3.89	-1.82	0.00	-2.15	0.00	2.15	1501.81	750.91	1590.91	796.64	9.49	-0.826	0.000	0.005
96.00	-0.27	-0.08	0.00	-0.33	0.00	0.33	1494.88	747.44	1573.57	787.96	9.66	-0.827	0.000	0.001
100.00	0.00	-0.08	0.00	0.00	0.00	0.00	1466.85	733.42	1504.85	753.54	10.35	-0.827	0.000	0.000

Final Analysis Summary

Structure:	CT13074-A-SBA	**Code:**	TIA-222-G	4/25/2022	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 108 mph Wind	24.5	0.00	19.84	0.00	0.00	1848.36
0.9D + 1.6W 108 mph Wind	24.5	0.00	14.88	0.00	0.00	1836.59
1.2D + 1.0Di + 1.0Wi 50 mph Wind	5.7	0.00	32.36	0.00	0.00	421.47
1.2D + 1.0E	1.0	0.00	19.86	0.00	0.00	90.70
0.9D + 1.0E	1.0	0.00	14.89	0.00	0.00	90.08
1.0D + 1.0W 60 mph Wind	4.7	0.00	16.55	0.00	0.00	355.37

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 108 mph Wind	-16.55	-22.53	0.00	-1374.1	0.00	-1374.1	1919.30	959.65	2955.51	1479.95	20.00	0.938
0.9D + 1.6W 108 mph Wind	-12.31	-22.46	0.00	-1363.0	0.00	-1363.0	1919.30	959.65	2955.51	1479.95	20.00	0.928
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-28.08	-5.23	0.00	-311.04	0.00	-311.04	1919.30	959.65	2955.51	1479.95	20.00	0.225
1.2D + 1.0E	-16.95	-0.99	0.00	-70.47	0.00	-70.47	1919.30	959.65	2955.51	1479.95	20.00	0.056
0.9D + 1.0E	-12.71	-0.99	0.00	-69.89	0.00	-69.89	1919.30	959.65	2955.51	1479.95	20.00	0.054
1.0D + 1.0W 60 mph Wind	-14.11	-4.34	0.00	-263.99	0.00	-263.99	1919.30	959.65	2955.51	1479.95	20.00	0.186

Additional Steel Summary

			Intermediate Connectors			Lower Termination				Upper Termination				Max Member			
Elev From (ft)	Elev To (ft)	Member	VQ/I (lb/in)	Vu (kips)	phi Vn (kips)	MQ/I (kips)	phi Vn (kips)	Num Reqd	Num Actual	MQ/I (kips)	phi Vn (kips)	Num Reqd	Num Actual	Pu (kips)	phi Pn (kips)	phi Tn (kips)	Ratio
0.0	1.0	(3) SOL-2 1/4" William R71	329.9	3.96	25.3	203.6	25.3	9	0	295.8	25.3			203.58	459.1	468.91	0.443
1.0	18.0	(3) LNP-LP6X125-B-20T	342.2	8.21	25.3	295.8	25.3			256.8	25.3	11	10	295.75	395.0	360.94	0.819

Base Plate Summary

Structure:	CT13074-A-SB	**Code:**	TIA-222-G	4/25/2022	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 28	

IES Tower Engineering Solutions

Reactions

Original Design

Moment (kip-ft):	1150.00
Axial (kip):	22.40
Shear (kip):	13.40

Analysis (1.2D + 1.6W)

Moment (kip-ft):	1848.36
Axial (kip):	19.84
Shear (kip):	24.49

Base Plate

Yield (ksi):	60.00
Width (in):	44.75
Style:	Clipped
Polygon Sides:	0.00
Clip Length (in):	7.00
Effective Len (in):	12.41
Moment (kip-in):	704.50
Allow Stress (ksi):	81.00
Applied Stress (ksi):	67.23
Stress Ratio:	0.83

Anchor Bolts

Bolt Circle:	46.75
Number Bolts:	8.00
Bolt Type:	2.25" 18J
Bolt Diameter (in):	2.25
Yield (ksi):	75.00
Ultimate (ksi):	100.00
Arrangement:	Clustered
Cluster Dist (in):	6.00
Start Angle (deg):	45.00

Compression

Force (kip):	156.28
Allowable (kip):	260.00
Ratio:	0.62

Tension

Force (kip):	148.19
Allowable (kip):	260.00
Ratio:	0.59

Monopole Mat Foundation Design

				Date
				4/25/2022
Customer Name:	Dish Wireless	**TIA Standard:**	TIA-222-G
Site Name:		**Structure Height (Ft.):**	100
Site Number:	CT13074-A-SBA	**Engineer Name:**	M. Franco
Engr. Number:	116855	**Engineer Login ID:**	

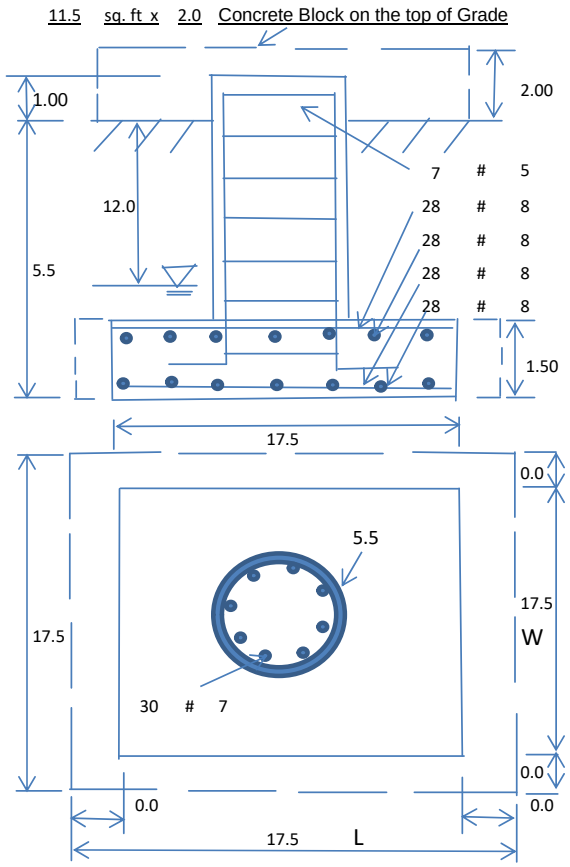
Foundation Info Obtained from:	Drawings/Calculations
Structure Type:	Monopole
Analysis or Design?	Analysis

Base Reactions (Factored):

Axial Load (Kips):	19.8	Shear Force (Kips):	24.5
Uplift Force (Kips):	0.0	Moment (Kips-ft):	1848.4
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	Yes
Diameter of Pier (ft.):	5.5	Depth of Base BG (ft.):	5.5
Pier Height A. G. (ft.):	1.00	Thickness of Pad (ft):	1.50
Length of Pad (ft.):	17.5	Width of Pad (ft.):	17.5
Add Concrete Width & Length (ft.)	11.5	Add Concrete Thick. (ft)	2
Final Length of pad (ft)	17.5	Final width of pad (ft):	17.5



Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	7	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	30	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	28	Qty. of Rebar in Pad (W):	28	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	28	Qty. of Rebar in Pad (W):	28	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	115.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	12.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	6000	Ultimate Skin Friction:	425	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	Yes		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:			1.00	

Foundation Analysis and Design: Uplift Strength Reduction Factor: 0.75 — Compression Strength Reduction Factor: 0.75

Total Dry Soil Volume (cu. Ft.):	1129.97	Total Dry Soil Weight (Kips):	129.95
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	129.95	Weight from the Concrete Block at Top (K):	36.11
Total Dry Concrete Volume (cu. Ft.):	818.91	Total Dry Concrete Weight (Kips):	122.84
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	122.84	Total Vertical Load on Base (Kips):	272.58

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	4168	<	Allowable Factored Soil Bearing (psf):	4500	0.93	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	2163.9	>	Design Factored Momont (kips-ft):	1953	0.90	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.11	OK!				

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75			
Strength reduction factor (Axial compresion):	0.65	Wind Load Factor on Concrete Design:	1.00			
				Load/ Capacity Ratio		
(1) Concrete Pier:						
Vertical Steel Rebar Area (sq. in./each):	0.60		Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	2410.8	>	Design Factored Moment (Mu, Kips-F	1970.9	0.82	OK!
Calculated Shear Capacity (Kips):	488.2	>	Design Factored Shear (Kips):	24.5	0.05	OK!
Calculated Tension Capacity (Tn, Kips):	972.0	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	6016.8	>	Design Factored Axial Load (Pu Kips):	19.8	0.00	OK!
Moment & Axial Strength Combination:	0.82	OK!	Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.005	Reinforcement Ratio is satisfied per ACI				
(2).Concrete Pad:						
One-Way Design Shear Capacity (L-Direction, Kips):	288.9	>	One-Way Factored Shear (L-D. Kips):	179.4	0.62	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	288.9	>	One-Way Factored Shear (W-D., Kips)	179.4	0.62	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	277.8	>	One-Way Factored Shear (C-C, Kips):	185.9	0.67	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0073	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0073		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	1350.8	>	Moment at Bottom (L-Dir. K-Ft):	575.8	0.43	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	1350.8	>	Moment at Bottom (W-Dir. K-Ft):	575.8	0.43	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	1873.0	>	Moment at Bottom (C-C Dir. K-Ft):	814.2	0.43	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0073	OK!	Upper Steel Reinf. Ratio (W-Dir.):	0.0073		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	1350.8	>	Moment at the top (L-Dir K-Ft):	233.7	0.17	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	1350.8	>	Moment at the top (W-Dir K-Ft):	233.7	0.17	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	1873.0	>	Moment at the top (C-C Dir. K-Ft):	220.5	0.12	OK!
(3).Check Punching Shear Capacity due to Moment in the Pier:						
Moment transferred by punching shear:	739.4	k-ft.	Max. factored shear stress v_{u_CD}:		6.6	Psi
Max. factored shear stress v_{u_AB}:	15.7	Psi	Factored shear Strength ϕv_n:		189.7	Psi
Max. factored shear stress v_u:	15.7	Psi	Check Usage of Punching Shear Capacity:		0.08	OK!

Exhibit E

Mount Analysis

September 27, 2021

Sherri Knapik
SBA Communications Corporation
134 Flanders Road, Suite 125
Westborough, MA 01581
(508) 251-0720 x 3805

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

Subject:	**Appurtenance Mount Analysis Report**	
Carrier Designation:	***Dish Wireless* Co-Locate**	
	Site Number:	BOBOS00057A
	Site Name:	N/A
SBA Network Services Designation:	**Site Number:**	CT13074-A
	Site Name:	Stonington
	Application Number:	168269, v2
Engineering Firm Designation:	**B+T Group Project Number:**	149465.003.01
Site Data:	**107 Wilcox Road, Stonington, CT, 06378, New London County** **Latitude *41.34111*°, Longitude *-71.94091*°** **Monopole** **8 ft. Platform Mount**	

Dear Ms. Knapik,

B+T Group is pleased to submit this **"Appurtenance Mount Analysis Report"** to determine the structural integrity of the antenna mount on the above-mentioned structure.

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 for the mount under the following load case to be:

Proposed Equipment Note: See Table 1 for the final loading configuration	**Sufficient Capacity** **(Passing at 77.9%)**

The analysis has been performed in accordance with the ANSI/TIA-222-G Standard. This analysis utilizes an ultimate 3-second gust wind speed of 128 mph (converted to an equivalent 99 mph nominal 3-second gust wind speed per Section 1609.3.1 for use with ANSI/TIA-222 G) as required by the 2015 International Building Code. Exposure Category D and Risk Category II were used in this analysis.

We at B+T Group appreciate the opportunity of providing our continuing professional services to you and *SBA Communications Corporation*. If you have any questions or need further assistance on this or any other projects, please give us a call.

Mount structural analysis prepared by: Anne Delice

Respectfully submitted by: B&T Engineering, Inc.
COA: PEC.0001564 Expires: 02/10/2022

Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

The appurtenance mount consists of Commscope platform mount (Part# MC-PK8-DSH) at 86 ft., attached to monopole at 107 Wilcox Road, Stonington, CT, 06378, New London County. The proposed antenna loading information was obtained from SBA Communications Corporation. All information provided to B+T Group was assumed accurate and complete.

2) ANALYSIS CRITERIA

The structural analysis was performed for this mount in accordance with the ANSI/TIA-222-G-2-2005 Structural Standard for Antenna Supporting Structures and Antennas – Addendum 2 using a 3-second gust wind speed of 99 mph with no ice and 50 mph with 1 inch escalated ice thickness. Exposure category D, risk category II & Topo category 1 were used in the analysis. In addition, the Platform mount has been analyzed for various live loading conditions consisting of a 250-lb man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 500-pound man live load applied individually at mount pipe locations using a 3-second gust of 30mph. The mount was analyzed under 30º increments in the wind direction. The analyzed loading is detailed in Table 1.

Table 1 – Proposed Equipment Information

Loading	RAD Center Elev. (ft.)	Position	Qty.	Description	Note
Proposed	86	1	3	JMA Wireless - MX08FRO665-21	1
			3	Fujitsu - TA08025-B605	2
			3	Fujitsu - TA08025-B604	
		-	1	Raycap - RDIDC-9181-PF-48	3

Note:
1) Proposed Antenna to be installed on the Proposed Mount Pipe.
2) Proposed Equipment to be installed directly behind the Antenna
3) Proposed Equipment to be installed on Mount.

Table 2 - Documents Provided

Documents	Remarks	Reference	Source
SBA Application	Proposed Loading	Date: 09/23/2021	SBA Communications Corporation
RFDS		Date: 07/22/2021	

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 mount and calculate member stresses and deflections for various loading cases. Selected output from the analysis is included in Appendix A.

Manufacturer's drawings were used to create the model.

3.2) Assumptions

1. The mount was built in accordance with the manufacturer's specifications.
2. The mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3. The configuration of antennas and other appurtenances are as specified in Table 1.
4. All mount components have been assumed to be in sufficient condition to carry their full design capacity for the analysis.
5. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.

6. 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.
7. All prior structural modifications, if any are assumed to be correctly installed and fully effective.
8. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
9. 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

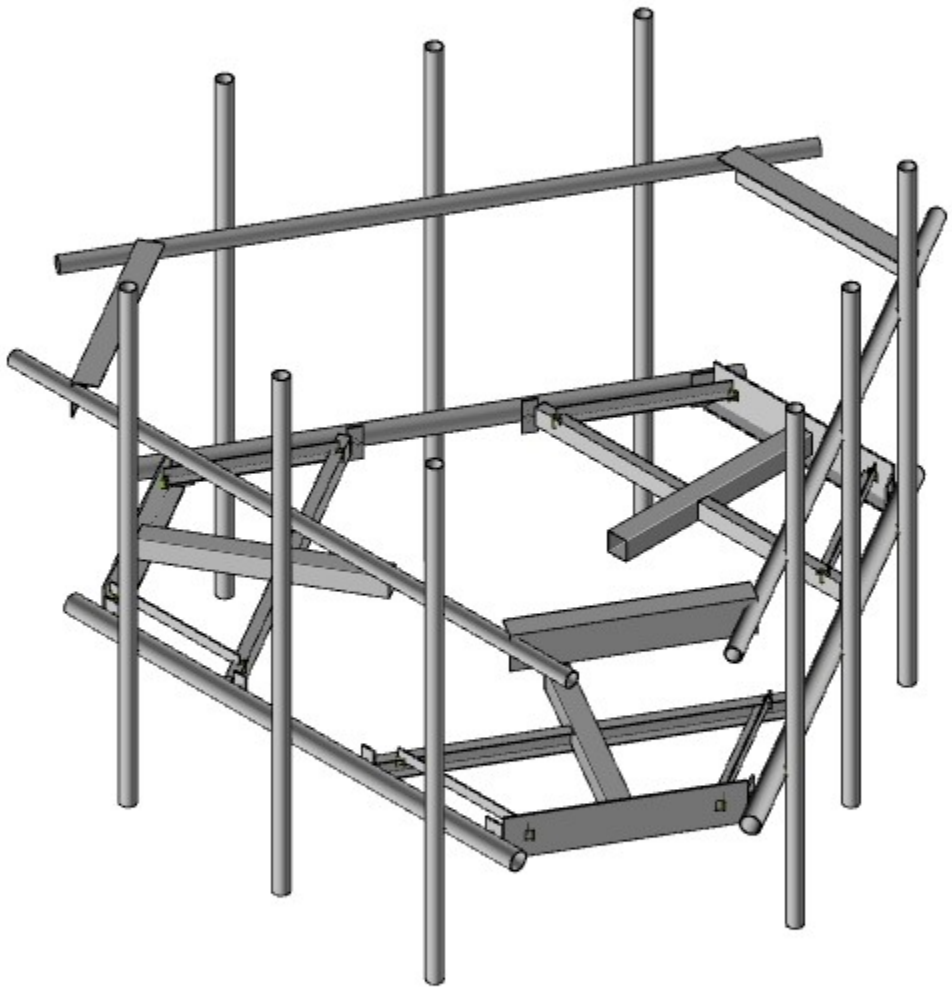
Notes	Component	Elevation (ft.)	% Capacity	Pass / Fail
-	Main Horizontals	86	11.9	Pass
-	Support Rails	86	20.7	Pass
-	Support Tubes	86	77.9	Pass
-	Support Channel	86	56.6	Pass
-	Support Angle	86	55.2	Pass
-	Mount Pipes	86	23.0	Pass
-	Connection Plates	86	29.5	Pass
-	Connection Angles	86	36.5	Pass
-	Connection Bolts	-	41.9	Pass

5) RECOMMENDATIONS

The Commscope platform mount, Part# MC-PK8-DSH has sufficient capacity to carry the proposed loads and is in compliance with the ANSI/TIA-222-G standard for the proposed loading. (Refer to the RISA output for the specific members).

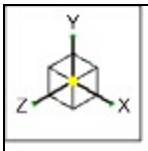
APPENDIX A

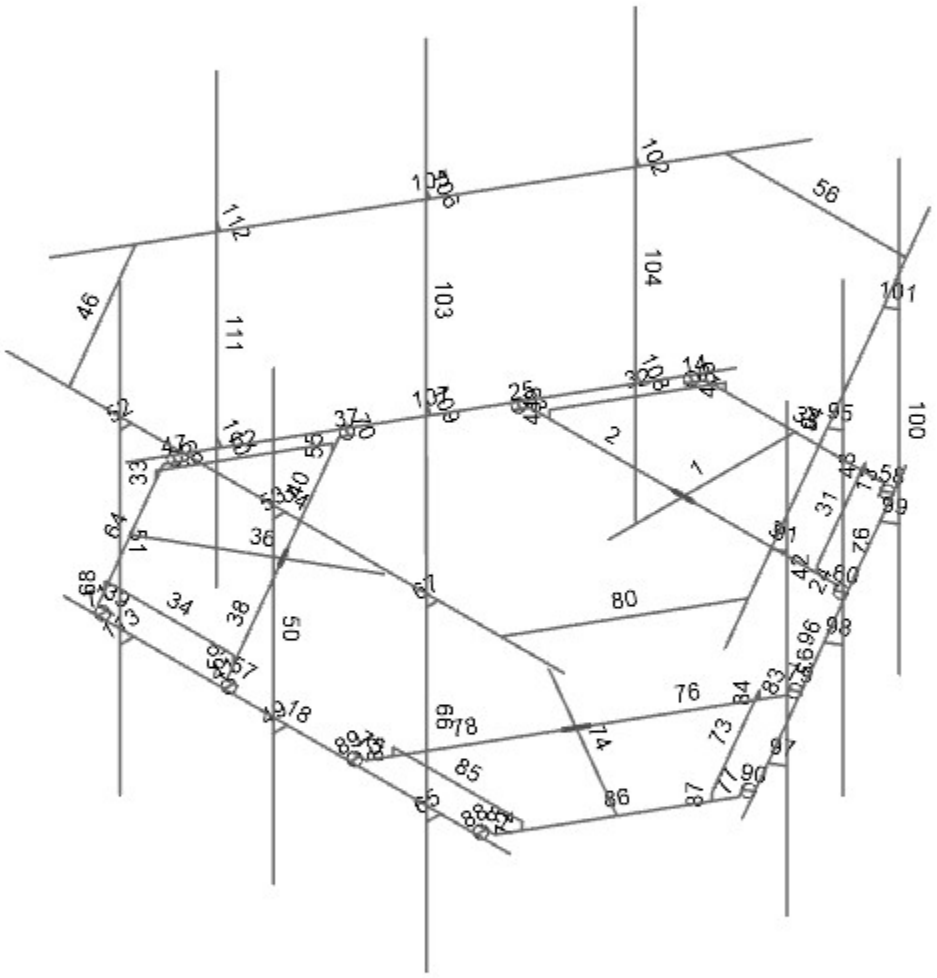
(RISA-3D Output)



Envelope Only Solution

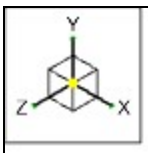
B+T Group	CT13074-A - Stonington	SK-2
SV		Sep 24, 2021
149465.003.01		149465_003_01_Norwich 2 CT_C…

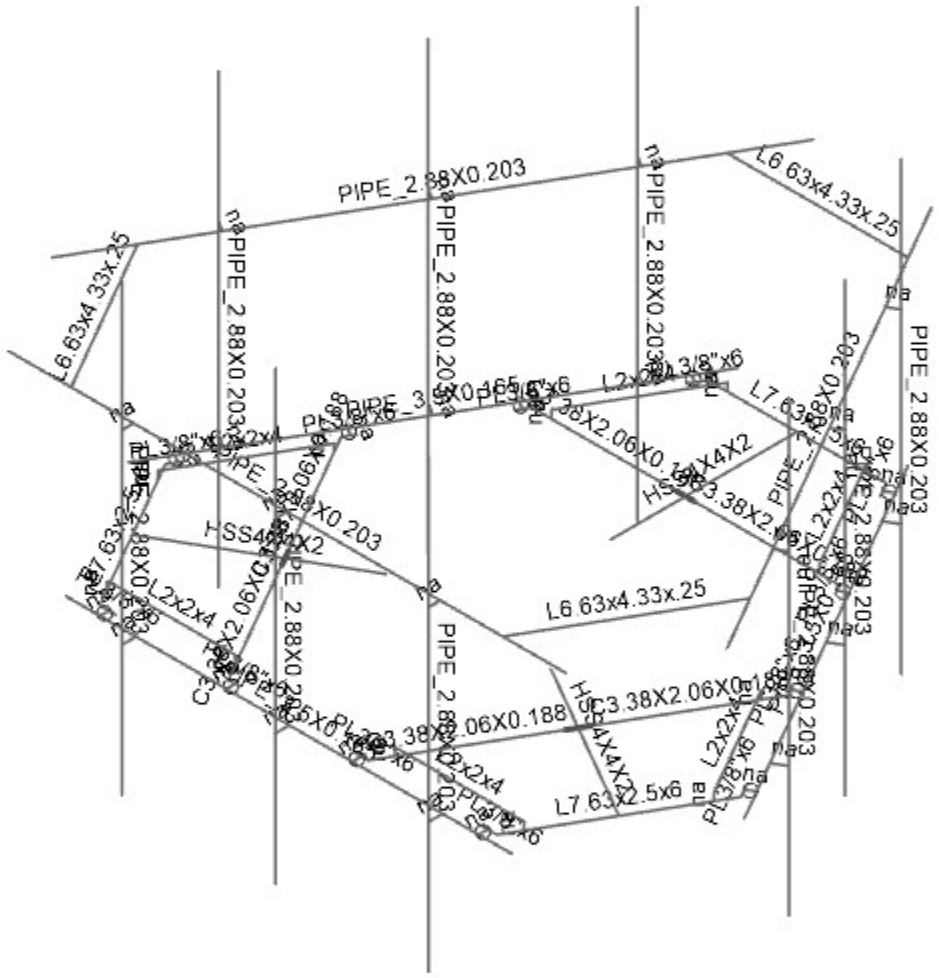




Envelope Only Solution

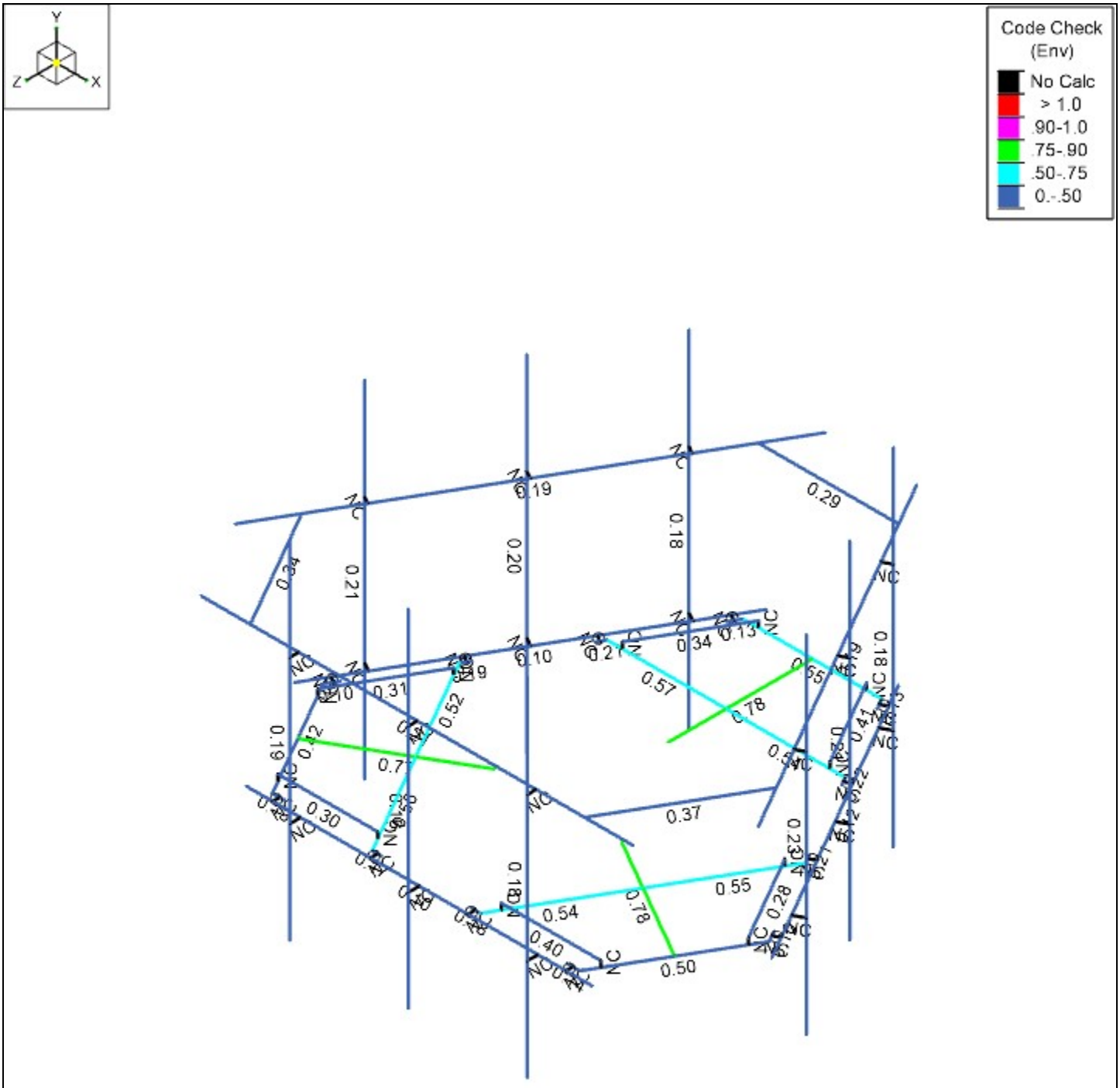
B+T Group	CT13074-A - Stonington	SK-3
SV		Sep 24, 2021
149465.003.01		149465_003_01_Norwich 2 CT_C…





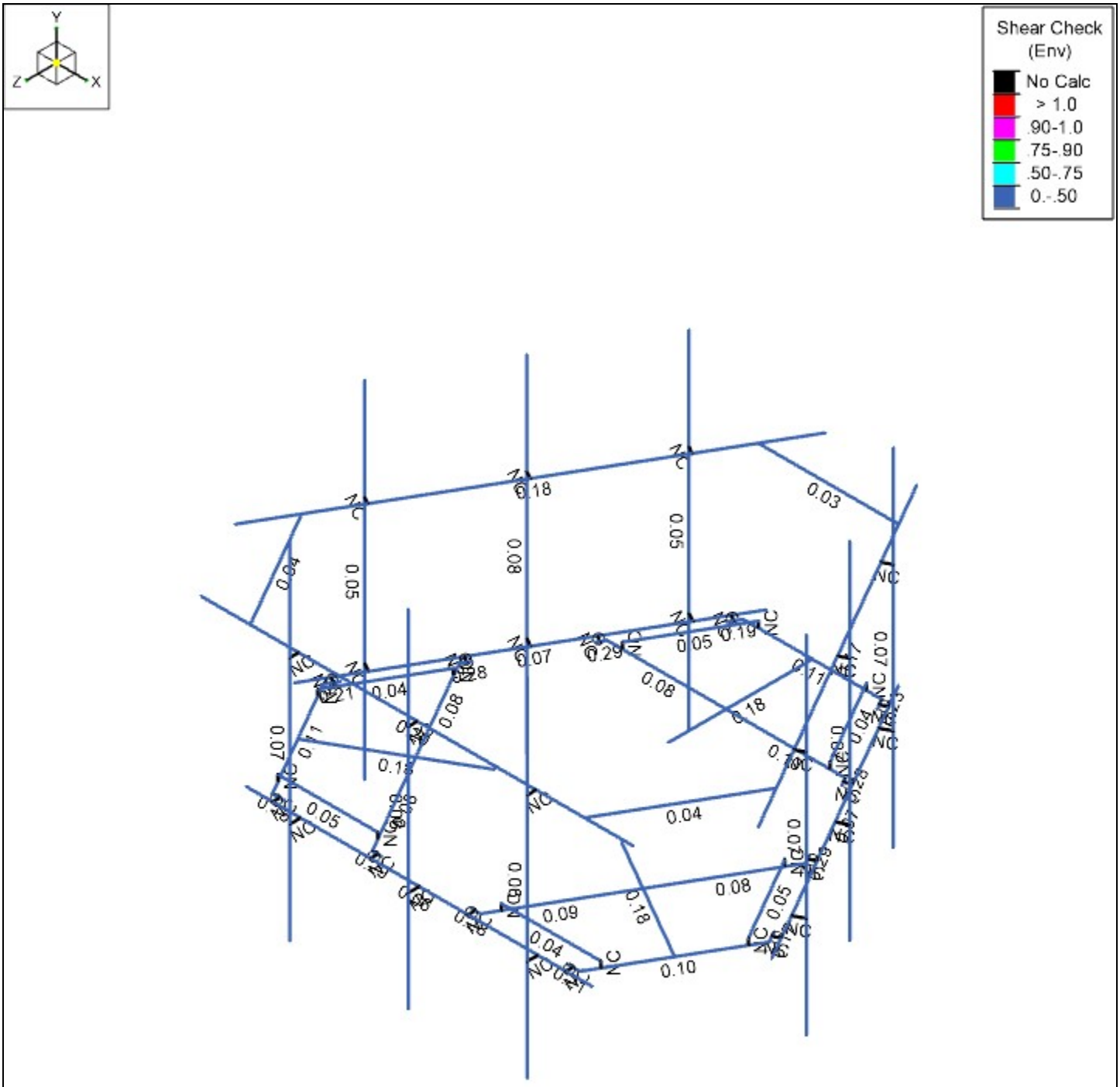
Envelope Only Solution

B+T Group	CT13074-A - Stonington	SK-4
SV		Sep 24, 2021
149465.003.01		149465_003_01_Norwich 2 CT_C…



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	CT13074-A - Stonington	SK-5
SV		Sep 24, 2021
149465.003.01		149465_003_01_Norwich 2 CT_C…



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	CT13074-A - Stonington	SK-6
SV		Sep 24, 2021
149465.003.01		149465_003_01_Norwich 2 CT_C…

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	2	0	0.333337	-1.70545	
2	4	0	0.333337	-5.038783	
3	5	0	0.333337	-3.038783	
4	6	2.758333	0.333337	-3.038783	
5	7	-2.758333	0.333337	-3.038783	
6	16	-1.603633	0.333337	-5.038783	
7	17	1.603633	0.333337	-5.038783	
8	25	1.749466	0.333337	-4.786193	
9	26	-1.749466	0.333337	-4.786193	
10	33	1.686966	0.333337	-4.894446	
11	35	1.826806	0.333337	-4.975182	
12	36	-1.686966	0.333337	-4.894446	
13	38	-1.826806	0.333337	-4.975182	
14	40	-3.999998	0.333337	4.069951	
15	41	3.999998	0.333337	4.069951	
16	49	2.8625	0.333337	-2.858361	
17	51	2.820833	0.333337	-2.930531	
18	53	2.960672	0.333337	-3.011267	
19	54	-2.8625	0.333337	-2.858361	
20	56	-2.820833	0.333337	-2.930531	
21	58	-2.960672	0.333337	-3.011267	
22	60	-1.25	0.47417	-5.038783	
23	64	-2.404701	0.47417	-3.038783	
24	65	2.404701	0.47417	-3.038783	
25	71	1.25	0.47417	-5.038783	
26	72	-1.25	0.333337	-5.038783	
27	76	-2.404701	0.333337	-3.038783	
28	77	2.404701	0.333337	-3.038783	
29	83	1.25	0.333337	-5.038783	
30	85	0.000002	0.333337	4.069951	
31	87	0.000002	0.333337	4.319951	
32	88	-2.749998	6	4.319951	
33	89	0.000002	6	4.319951	
34	90	-2.749998	-2	4.319951	
35	91	0.000002	-2	4.319951	
36	92	-2.749998	3.666667	4.319951	
37	93	0.000002	3.666667	4.319951	
38	94	-2.749998	3.666667	4.111618	
39	95	0.000002	3.666667	4.111618	
40	96	-5	3.666667	4.111618	
41	97	5.	3.666667	4.111618	
42	100	1.625018	3.666667	-5.408022	
43	101	-1.625018	3.666667	-5.408022	
44	102	2.749998	0.333337	4.069951	
45	103	2.749998	0.333337	4.319951	
46	104	2.749998	6	4.319951	
47	105	2.749998	-2	4.319951	
48	106	2.749998	3.666667	4.319951	
49	107	2.749998	3.666667	4.111618	
50	154	0	0.333337	0	
51	55	-3.834014	0.333337	-0.56314	
52	57	-4.988714	0.333337	1.43686	
53	59	-1.252497	0.333337	3.908178	
54	61	-3.906664	0.333337	-1.049817	
55	62	-1.476963	0.333337	0.852725	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	63	-2.631664	0.333337	1.519392	
57	66	-4.363714	0.333337	2.519392	
58	67	-4.01083	0.333337	-0.869395	
59	68	-5.019697	0.333337	0.878014	
60	69	-3.561898	0.333337	3.908178	
61	70	-5.165531	0.333337	1.130605	
62	73	-1.127498	0.333337	3.908178	
63	74	-3.270231	0.333337	3.908178	
64	75	-5.082197	0.333337	0.986267	
65	78	-5.222037	0.333337	0.905531	
66	79	-3.948331	0.333337	-0.977647	
67	80	-3.395231	0.333337	3.908178	
68	81	-3.395231	0.333337	4.069951	
69	82	-4.08817	0.333337	-1.058384	
70	98	-1.044164	0.333337	3.908178	
71	99	-1.127498	0.333337	4.069951	
72	108	-3.738714	0.47417	3.601923	
73	109	-1.429313	0.47417	3.601923	
74	110	-3.834014	0.47417	-0.56314	
75	111	-4.988714	0.47417	1.43686	
76	112	-3.738714	0.333337	3.601923	
77	113	-1.429313	0.333337	3.601923	
78	114	-5.495993	3.666667	1.296704	
79	115	-3.870802	3.666667	4.111618	
80	116	1.429339	0.333337	3.601938	
81	117	3.73874	0.333337	3.601938	
82	118	4.010856	0.333337	-0.86938	
83	119	1.04419	0.333337	3.908193	
84	120	1.476989	0.333337	0.85274	
85	121	2.63169	0.333337	1.519407	
86	122	4.36374	0.333337	2.519407	
87	123	1.252523	0.333337	3.908193	
88	124	3.270257	0.333337	3.908193	
89	125	5.165557	0.333337	1.13062	
90	126	3.561924	0.333337	3.908193	
91	127	3.948357	0.333337	-0.977632	
92	128	5.019723	0.333337	0.878029	
93	129	3.395257	0.333337	3.908193	
94	130	3.395257	0.333337	4.069951	
95	131	1.127524	0.333337	3.908193	
96	132	5.082223	0.333337	0.986282	
97	133	5.22205	0.333337	0.905554	
98	134	1.127524	0.333337	4.069951	
99	135	3.90669	0.333337	-1.049802	
100	136	4.088183	0.333337	-1.058361	
101	137	4.98874	0.47417	1.436875	
102	138	3.83404	0.47417	-0.563125	
103	139	1.429339	0.47417	3.601938	
104	140	3.73874	0.47417	3.601938	
105	141	4.98874	0.333337	1.436875	
106	142	3.83404	0.333337	-0.563125	
107	143	3.870836	3.666667	4.111618	
108	144	5.49601	3.666667	1.296734	
109	145	2.185507	3.666667	-4.437227	
110	146	2.149422	0.333337	-4.416394	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
111	147	4.89942	0.333337	0.346743	
112	148	3.52442	0.333337	-2.034827	
113	149	5.115927	0.333337	0.221743	
114	150	3.740927	0.333337	-2.159827	
115	151	5.115927	6	0.221743	
116	152	3.740927	6	-2.159827	
117	153	5.115927	-2	0.221743	
118	156	3.740927	-2	-2.159827	
119	157	5.115927	3.666667	0.221743	
120	158	3.740927	3.666667	-2.159827	
121	159	4.935505	3.666667	0.325909	
122	160	3.560505	3.666667	-2.055661	
123	161	2.365929	0.333337	-4.541394	
124	162	2.365929	6	-4.541394	
125	163	2.365929	-2	-4.541394	
126	164	2.365929	3.666667	-4.541394	
127	165	6.060506	3.666667	2.274468	
128	166	1.060506	3.666667	-6.385786	
129	167	5.52442	0.333337	1.429274	
130	168	1.524422	0.333337	-5.498925	
131	169	-4.935505	3.666667	0.325909	
132	170	-4.89942	0.333337	0.346743	
133	171	-2.149422	0.333337	-4.416394	
134	172	-3.524422	0.333337	-2.034824	
135	173	-2.365929	0.333337	-4.541394	
136	174	-3.740929	0.333337	-2.159824	
137	175	-2.365929	6	-4.541394	
138	176	-3.740929	6	-2.159824	
139	177	-2.365929	-2	-4.541394	
140	178	-3.740929	-2	-2.159824	
141	179	-2.365929	3.666667	-4.541394	
142	180	-3.740929	3.666667	-2.159824	
143	181	-2.185507	3.666667	-4.437227	
144	182	-3.560507	3.666667	-2.055657	
145	183	-5.115927	0.333337	0.221743	
146	184	-5.115927	6	0.221743	
147	185	-5.115927	-2	0.221743	
148	186	-5.115927	3.666667	0.221743	
149	187	-1.060506	3.666667	-6.385786	
150	188	-6.060506	3.666667	2.274468	
151	189	-1.524422	0.333337	-5.498925	
152	190	-5.52442	0.333337	1.429274	
153	155	-2.749998	0.333337	4.319951	
154	191	-2.749998	0.333337	4.069951	

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	2	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	4						
3	5						
4	6						
5	7						
6	49						
7	51						
8	54						

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]
9	56						
10	60						
11	71						
12	72						
13	83						
14	57						
15	59						
16	61						
17	62	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
18	63						
19	66						
20	67						
21	73						
22	79						
23	98						
24	108						
25	111						
26	112						
27	117						
28	118						
29	119						
30	120	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
31	121						
32	122						
33	123						
34	127						
35	131						
36	135						
37	137						
38	140						
39	141						

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e⁵°F⁻¹]	Density [k/ft³]	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 [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
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	1.704	1.53	1.53	3.059
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	1.704	1.53	1.53	3.059
8	MF-CP1	PL3/8"x6	Beam	RECT	A36 Gr.36	Typical	2.25	0.026	6.75	0.101

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
9	MF-H3	L6.63x4.33x.25	Beam	Single Angle	A36 Gr.36	Typical	2.678	4.383	12.502	0.054

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	2	4		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
2	2	7	5	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
3	3	5	6	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
4	13	17	25		MF-CP1	Beam	RECT	A36 Gr.36	Typical
5	14	16	26		MF-CP1	Beam	RECT	A36 Gr.36	Typical
6	18	40	41		MF-H1	Beam	Pipe	A500 Gr.C	Typical
7	24	49	6		MF-CP1	Beam	RECT	A36 Gr.36	Typical
8	25	7	54		MF-CP1	Beam	RECT	A36 Gr.36	Typical
9	31	71	65		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
10	32	64	60		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
11	35	16	17		SF-H4	Beam	Single Angle	A36 Gr.36	Typical
12	42	77	65		RIGID	None	None	RIGID	Typical
13	43	83	71		RIGID	None	None	RIGID	Typical
14	44	76	64		RIGID	None	None	RIGID	Typical
15	45	72	60		RIGID	None	None	RIGID	Typical
16	49	87	85		RIGID	None	None	RIGID	Typical
17	50	89	91		MF-P1	Column	Pipe	A500 Gr.C	Typical
18	51	88	90		MF-P1	Column	Pipe	A500 Gr.C	Typical
19	52	92	94		RIGID	None	None	RIGID	Typical
20	53	93	95		RIGID	None	None	RIGID	Typical
21	54	96	97		MF-H2	Beam	Pipe	A500 Gr.C	Typical
22	56	100	101	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
23	58	35	33		RIGID	None	None	RIGID	Typical
24	60	53	51		RIGID	None	None	RIGID	Typical
25	61	38	36		RIGID	None	None	RIGID	Typical
26	63	58	56		RIGID	None	None	RIGID	Typical
27	65	103	102		RIGID	None	None	RIGID	Typical
28	66	104	105		MF-P1	Column	Pipe	A500 Gr.C	Typical
29	67	106	107		RIGID	None	None	RIGID	Typical
30	33	57	111		RIGID	None	None	RIGID	Typical
31	34	109	108		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
32	36	62	66		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
33	37	61	67		MF-CP1	Beam	RECT	A36 Gr.36	Typical
34	38	59	63	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
35	39	69	74		MF-CP1	Beam	RECT	A36 Gr.36	Typical
36	40	63	67	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
37	41	99	73		RIGID	None	None	RIGID	Typical
38	46	114	115	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
39	47	70	68		MF-CP1	Beam	RECT	A36 Gr.36	Typical
40	55	55	110		RIGID	None	None	RIGID	Typical
41	57	59	98		MF-CP1	Beam	RECT	A36 Gr.36	Typical
42	59	113	109		RIGID	None	None	RIGID	Typical
43	62	111	110		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
44	64	69	70		SF-H4	Beam	Single Angle	A36 Gr.36	Typical
45	68	112	108		RIGID	None	None	RIGID	Typical
46	69	78	75		RIGID	None	None	RIGID	Typical
47	70	82	79		RIGID	None	None	RIGID	Typical
48	71	81	80		RIGID	None	None	RIGID	Typical
49	72	117	140		RIGID	None	None	RIGID	Typical
50	73	138	137		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
51	74	120	122		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
52	75	119	123		MF-CP1	Beam	RECT	A36 Gr.36	Typical
53	76	118	121	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
54	77	125	128		MF-CP1	Beam	RECT	A36 Gr.36	Typical
55	78	121	123	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
56	79	136	127		RIGID	None	None	RIGID	Typical
57	80	143	144	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
58	81	126	124		MF-CP1	Beam	RECT	A36 Gr.36	Typical
59	82	116	139		RIGID	None	None	RIGID	Typical
60	83	118	135		MF-CP1	Beam	RECT	A36 Gr.36	Typical
61	84	142	138		RIGID	None	None	RIGID	Typical
62	85	140	139		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
63	86	125	126		SF-H4	Beam	Single Angle	A36 Gr.36	Typical
64	87	141	137		RIGID	None	None	RIGID	Typical
65	88	130	129		RIGID	None	None	RIGID	Typical
66	89	134	131		RIGID	None	None	RIGID	Typical
67	90	133	132		RIGID	None	None	RIGID	Typical
68	91	157	159		RIGID	None	None	RIGID	Typical
69	92	152	156		MF-P1	Column	Pipe	A500 Gr.C	Typical
70	93	151	153		MF-P1	Column	Pipe	A500 Gr.C	Typical
71	94	165	166		MF-H2	Beam	Pipe	A500 Gr.C	Typical
72	95	158	160		RIGID	None	None	RIGID	Typical
73	96	167	168		MF-H1	Beam	Pipe	A500 Gr.C	Typical
74	97	149	147		RIGID	None	None	RIGID	Typical
75	98	150	148		RIGID	None	None	RIGID	Typical
76	99	161	146		RIGID	None	None	RIGID	Typical
77	100	162	163		MF-P1	Column	Pipe	A500 Gr.C	Typical
78	101	164	145		RIGID	None	None	RIGID	Typical
79	102	179	181		RIGID	None	None	RIGID	Typical
80	103	176	178		MF-P1	Column	Pipe	A500 Gr.C	Typical
81	104	175	177		MF-P1	Column	Pipe	A500 Gr.C	Typical
82	105	187	188		MF-H2	Beam	Pipe	A500 Gr.C	Typical
83	106	180	182		RIGID	None	None	RIGID	Typical
84	107	189	190		MF-H1	Beam	Pipe	A500 Gr.C	Typical
85	108	173	171		RIGID	None	None	RIGID	Typical
86	109	174	172		RIGID	None	None	RIGID	Typical
87	110	183	170		RIGID	None	None	RIGID	Typical
88	111	184	185		MF-P1	Column	Pipe	A500 Gr.C	Typical
89	112	186	169		RIGID	None	None	RIGID	Typical
90	113	155	191		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	13				Yes	Default	None
5	14				Yes	Default	None
6	18				Yes	N/A	None
7	24				Yes	Default	None
8	25				Yes	Default	None
9	31				Yes	N/A	None
10	32				Yes	N/A	None
11	35				Yes	N/A	None
12	42				Yes	** NA **	None
13	43				Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
14	44				Yes	** NA **	None
15	45				Yes	** NA **	None
16	49				Yes	** NA **	None
17	50				Yes	** NA **	None
18	51				Yes	** NA **	None
19	52				Yes	** NA **	None
20	53				Yes	** NA **	None
21	54				Yes	N/A	None
22	56				Yes	Default	None
23	58	OOOOOX			Yes	** NA **	None
24	60	OOOOOX			Yes	** NA **	None
25	61	OOOOOX			Yes	** NA **	None
26	63	OOOOOX			Yes	** NA **	None
27	65				Yes	** NA **	None
28	66				Yes	** NA **	None
29	67				Yes	** NA **	None
30	33				Yes	** NA **	None
31	34				Yes	N/A	None
32	36				Yes	Default	None
33	37				Yes	Default	None
34	38			2	Yes	N/A	None
35	39				Yes	Default	None
36	40		2		Yes	N/A	None
37	41	OOOOOX			Yes	** NA **	None
38	46				Yes	Default	None
39	47				Yes	Default	None
40	55				Yes	** NA **	None
41	57				Yes	Default	None
42	59				Yes	** NA **	None
43	62				Yes	N/A	None
44	64				Yes	N/A	None
45	68				Yes	** NA **	None
46	69	OOOOOX			Yes	** NA **	None
47	70	OOOOOX			Yes	** NA **	None
48	71	OOOOOX			Yes	** NA **	None
49	72				Yes	** NA **	None
50	73				Yes	N/A	None
51	74				Yes	N/A	None
52	75				Yes	Default	None
53	76			2	Yes	N/A	None
54	77				Yes	Default	None
55	78		2		Yes	N/A	None
56	79	OOOOOX			Yes	** NA **	None
57	80				Yes	Default	None
58	81				Yes	Default	None
59	82				Yes	** NA **	None
60	83				Yes	Default	None
61	84				Yes	** NA **	None
62	85				Yes	N/A	None
63	86				Yes	Default	None
64	87				Yes	** NA **	None
65	88	OOOOOX			Yes	** NA **	None
66	89	OOOOOX			Yes	** NA **	None
67	90	OOOOOX			Yes	** NA **	None
68	91				Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
69	92				Yes	** NA **	None
70	93				Yes	** NA **	None
71	94				Yes	N/A	None
72	95				Yes	** NA **	None
73	96				Yes	N/A	None
74	97				Yes	** NA **	None
75	98				Yes	** NA **	None
76	99				Yes	** NA **	None
77	100				Yes	** NA **	None
78	101				Yes	** NA **	None
79	102				Yes	** NA **	None
80	103				Yes	** NA **	None
81	104				Yes	** NA **	None
82	105				Yes	N/A	None
83	106				Yes	** NA **	None
84	107				Yes	N/A	None
85	108				Yes	** NA **	None
86	109				Yes	** NA **	None
87	110				Yes	** NA **	None
88	111				Yes	** NA **	None
89	112				Yes	** NA **	None
90	113				Yes	** NA **	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
1	1	SF-H1	3.333	Lbyy	Lateral
2	2	SF-H2	2.758	Lbyy	Lateral
3	3	SF-H2	2.758	Lbyy	Lateral
4	13	MF-CP1	0.292	Lbyy	Lateral
5	14	MF-CP1	0.292	Lbyy	Lateral
6	18	MF-H1	8	Lbyy	Lateral
7	24	MF-CP1	0.208	Lbyy	Lateral
8	25	MF-CP1	0.208	Lbyy	Lateral
9	31	SF-H3	2.309	Lbyy	Lateral
10	32	SF-H3	2.309	Lbyy	Lateral
11	35	SF-H4	3.207	Lbyy	Lateral
12	50	MF-P1	8	Lbyy	Lateral
13	51	MF-P1	8	Lbyy	Lateral
14	54	MF-H2	10	Lbyy	Lateral
15	56	MF-H3	3.25	Lbyy	Lateral
16	66	MF-P1	8	Lbyy	Lateral
17	34	SF-H3	2.309	Lbyy	Lateral
18	36	SF-H1	3.333	Lbyy	Lateral
19	37	MF-CP1	0.208	Lbyy	Lateral
20	38	SF-H2	2.758	Lbyy	Lateral
21	39	MF-CP1	0.292	Lbyy	Lateral
22	40	SF-H2	2.758	Lbyy	Lateral
23	46	MF-H3	3.25	Lbyy	Lateral
24	47	MF-CP1	0.292	Lbyy	Lateral
25	57	MF-CP1	0.208	Lbyy	Lateral
26	62	SF-H3	2.309	Lbyy	Lateral
27	64	SF-H4	3.207	Lbyy	Lateral
28	73	SF-H3	2.309	Lbyy	Lateral
29	74	SF-H1	3.333	Lbyy	Lateral
30	75	MF-CP1	0.208	Lbyy	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
31	76	SF-H2	2.758	Lbyy	Lateral
32	77	MF-CP1	0.292	Lbyy	Lateral
33	78	SF-H2	2.758	Lbyy	Lateral
34	80	MF-H3	3.25	Lbyy	Lateral
35	81	MF-CP1	0.292	Lbyy	Lateral
36	83	MF-CP1	0.208	Lbyy	Lateral
37	85	SF-H3	2.309	Lbyy	Lateral
38	86	SF-H4	3.207	Lbyy	Lateral
39	92	MF-P1	8	Lbyy	Lateral
40	93	MF-P1	8	Lbyy	Lateral
41	94	MF-H2	10	Lbyy	Lateral
42	96	MF-H1	8	Lbyy	Lateral
43	100	MF-P1	8	Lbyy	Lateral
44	103	MF-P1	8	Lbyy	Lateral
45	104	MF-P1	8	Lbyy	Lateral
46	105	MF-H2	10	Lbyy	Lateral
47	107	MF-H1	8	Lbyy	Lateral
48	111	MF-P1	8	Lbyy	Lateral

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	Y	-0.032	%15
2	66	Y	-0.032	%85
3	66	Y	-0.064	%20
4	66	Y	-0.075	%50
5	66	Y	0	0
6	36	Y	-0.022	%20
7	36	Y	0	0
8	36	Y	0	0
9	36	Y	0	0
10	36	Y	0	0
11	111	Y	-0.032	%15
12	111	Y	-0.032	%85
13	111	Y	-0.064	%20
14	111	Y	-0.075	%50
15	111	Y	0	0
16	100	Y	-0.032	%15
17	100	Y	-0.032	%85
18	100	Y	-0.064	%20
19	100	Y	-0.075	%50
20	100	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	Z	-0.208	%15
2	66	Z	-0.208	%85
3	66	Z	-0.065	%20
4	66	Z	-0.065	%50
5	66	Z	0	0
6	36	Z	-0.067	%20
7	36	Z	0	0
8	36	Z	0	0
9	36	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
10	36	Z	0	0
11	111	Z	-0.208	%15
12	111	Z	-0.208	%85
13	111	Z	-0.065	%20
14	111	Z	-0.065	%50
15	111	Z	0	0
16	100	Z	-0.208	%15
17	100	Z	-0.208	%85
18	100	Z	-0.065	%20
19	100	Z	-0.065	%50
20	100	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	X	-0.083	%15
2	66	X	-0.083	%85
3	66	X	-0.034	%20
4	66	X	-0.04	%50
5	66	X	0	0
6	36	X	-0.037	%20
7	36	X	0	0
8	36	X	0	0
9	36	X	0	0
10	36	X	0	0
11	111	X	-0.083	%15
12	111	X	-0.083	%85
13	111	X	-0.034	%20
14	111	X	-0.04	%50
15	111	X	0	0
16	100	X	-0.083	%15
17	100	X	-0.083	%85
18	100	X	-0.034	%20
19	100	X	-0.04	%50
20	100	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	Z	-0.068	%15
2	66	Z	-0.068	%85
3	66	Z	-0.028	%20
4	66	Z	-0.028	%50
5	66	Z	0	0
6	36	Z	-0.028	%20
7	36	Z	0	0
8	36	Z	0	0
9	36	Z	0	0
10	36	Z	0	0
11	111	Z	-0.068	%15
12	111	Z	-0.068	%85
13	111	Z	-0.028	%20
14	111	Z	-0.028	%50
15	111	Z	0	0
16	100	Z	-0.068	%15

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
17	100	Z	-0.068	%85
18	100	Z	-0.028	%20
19	100	Z	-0.028	%50
20	100	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	X	-0.035	%15
2	66	X	-0.035	%85
3	66	X	-0.018	%20
4	66	X	-0.019	%50
5	66	X	0	0
6	36	X	-0.019	%20
7	36	X	0	0
8	36	X	0	0
9	36	X	0	0
10	36	X	0	0
11	111	X	-0.035	%15
12	111	X	-0.035	%85
13	111	X	-0.018	%20
14	111	X	-0.019	%50
15	111	X	0	0
16	100	X	-0.035	%15
17	100	X	-0.035	%85
18	100	X	-0.018	%20
19	100	X	-0.019	%50
20	100	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	Z	-0.019	%15
2	66	Z	-0.019	%85
3	66	Z	-0.006	%20
4	66	Z	-0.006	%50
5	66	Z	0	0
6	36	Z	-0.006	%20
7	36	Z	0	0
8	36	Z	0	0
9	36	Z	0	0
10	36	Z	0	0
11	111	Z	-0.019	%15
12	111	Z	-0.019	%85
13	111	Z	-0.006	%20
14	111	Z	-0.006	%50
15	111	Z	0	0
16	100	Z	-0.019	%15
17	100	Z	-0.019	%85
18	100	Z	-0.006	%20
19	100	Z	-0.006	%50
20	100	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	X	-0.008	%15
2	66	X	-0.008	%85
3	66	X	-0.003	%20
4	66	X	-0.004	%50
5	66	X	0	0
6	36	X	-0.003	%20
7	36	X	0	0
8	36	X	0	0
9	36	X	0	0
10	36	X	0	0
11	111	X	-0.008	%15
12	111	X	-0.008	%85
13	111	X	-0.003	%20
14	111	X	-0.004	%50
15	111	X	0	0
16	100	X	-0.008	%15
17	100	X	-0.008	%85
18	100	X	-0.003	%20
19	100	X	-0.004	%50
20	100	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	66	Y	-0.192	%15
2	66	Y	-0.192	%85
3	66	Y	-0.067	%20
4	66	Y	-0.07	%50
5	66	Y	0	0
6	36	Y	-0.07	%20
7	36	Y	0	0
8	36	Y	0	0
9	36	Y	0	0
10	36	Y	0	0
11	111	Y	-0.192	%15
12	111	Y	-0.192	%85
13	111	Y	-0.067	%20
14	111	Y	-0.07	%50
15	111	Y	0	0
16	100	Y	-0.192	%15
17	100	Y	-0.192	%85
18	100	Y	-0.067	%20
19	100	Y	-0.07	%50
20	100	Y	0	0

Member Point Loads (BLC 13 : Maint LL 1)

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

Member Point Loads (BLC 14 : Maint LL 2)

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

Member Point Loads (BLC 15 : Maint LL 3)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Y	-0.25	%95

Member Point Loads (BLC 16 : Maint LL 4)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	54	Y	-0.25	%5

Member Point Loads (BLC 17 : Maint LL 5)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	107	Y	-0.25	%5

Member Point Loads (BLC 18 : Maint LL 6)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	105	Y	-0.25	%5

Member Point Loads (BLC 19 : Maint LL 7)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	96	Y	-0.25	%5

Member Point Loads (BLC 20 : Maint LL 8)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	94	Y	-0.25	%5

Member Point Loads (BLC 21 : Maint LL 9)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Y	-0.25	%5

Member Point Loads (BLC 22 : Maint LL 10)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	54	Y	-0.25	%95

Member Point Loads (BLC 23 : Maint LL 11)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	107	Y	-0.25	%95

Member Point Loads (BLC 24 : Maint LL 12)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	105	Y	-0.25	%95

Member Point Loads (BLC 25 : Maint LL 13)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	96	Y	-0.25	%95

Member Point Loads (BLC 26 : Maint LL 14)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	94	Y	-0.25	%95

Member Point Loads (BLC 27 : Maint LL 15)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	36	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	-0.014	-0.014	0	%100
3	3	Z	-0.014	-0.014	0	%100
4	13	Z	-0.02	-0.02	0	%100
5	14	Z	-0.02	-0.02	0	%100
6	18	Z	-0.012	-0.012	0	%100
7	24	Z	-0.02	-0.02	0	%100
8	25	Z	-0.02	-0.02	0	%100
9	31	Z	-0.009	-0.009	0	%100
10	32	Z	-0.009	-0.009	0	%100
11	35	Z	-0.027	-0.027	0	%100
12	50	Z	-0.01	-0.01	0	%100
13	51	Z	-0.01	-0.01	0	%100
14	54	Z	-0.01	-0.01	0	%100
15	56	Z	-0.024	-0.024	0	%100
16	66	Z	-0.01	-0.01	0	%100
17	34	Z	-0.009	-0.009	0	%100
18	36	Z	-0.016	-0.016	0	%100
19	37	Z	-0.02	-0.02	0	%100
20	38	Z	-0.014	-0.014	0	%100
21	39	Z	-0.02	-0.02	0	%100
22	40	Z	-0.014	-0.014	0	%100
23	46	Z	-0.024	-0.024	0	%100
24	47	Z	-0.02	-0.02	0	%100
25	57	Z	-0.02	-0.02	0	%100
26	62	Z	-0.009	-0.009	0	%100
27	64	Z	-0.027	-0.027	0	%100
28	73	Z	-0.009	-0.009	0	%100
29	74	Z	-0.016	-0.016	0	%100
30	75	Z	-0.02	-0.02	0	%100
31	76	Z	-0.014	-0.014	0	%100
32	77	Z	-0.02	-0.02	0	%100
33	78	Z	-0.014	-0.014	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	80	Z	-0.024	-0.024	0	%100
35	81	Z	-0.02	-0.02	0	%100
36	83	Z	-0.02	-0.02	0	%100
37	85	Z	-0.009	-0.009	0	%100
38	86	Z	-0.027	-0.027	0	%100
39	92	Z	-0.01	-0.01	0	%100
40	93	Z	-0.01	-0.01	0	%100
41	94	Z	-0.01	-0.01	0	%100
42	96	Z	-0.012	-0.012	0	%100
43	100	Z	-0.01	-0.01	0	%100
44	103	Z	-0.01	-0.01	0	%100
45	104	Z	-0.01	-0.01	0	%100
46	105	Z	-0.01	-0.01	0	%100
47	107	Z	-0.012	-0.012	0	%100
48	111	Z	-0.01	-0.01	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	-0.014	-0.014	0	%100
3	3	X	-0.014	-0.014	0	%100
4	13	X	-0.02	-0.02	0	%100
5	14	X	-0.02	-0.02	0	%100
6	18	X	-0.012	-0.012	0	%100
7	24	X	-0.02	-0.02	0	%100
8	25	X	-0.02	-0.02	0	%100
9	31	X	-0.009	-0.009	0	%100
10	32	X	-0.009	-0.009	0	%100
11	35	X	-0.027	-0.027	0	%100
12	50	X	-0.01	-0.01	0	%100
13	51	X	-0.01	-0.01	0	%100
14	54	X	-0.01	-0.01	0	%100
15	56	X	-0.024	-0.024	0	%100
16	66	X	-0.01	-0.01	0	%100
17	34	X	-0.009	-0.009	0	%100
18	36	X	-0.016	-0.016	0	%100
19	37	X	-0.02	-0.02	0	%100
20	38	X	-0.014	-0.014	0	%100
21	39	X	-0.02	-0.02	0	%100
22	40	X	-0.014	-0.014	0	%100
23	46	X	-0.024	-0.024	0	%100
24	47	X	-0.02	-0.02	0	%100
25	57	X	-0.02	-0.02	0	%100
26	62	X	-0.009	-0.009	0	%100
27	64	X	-0.027	-0.027	0	%100
28	73	X	-0.009	-0.009	0	%100
29	74	X	-0.016	-0.016	0	%100
30	75	X	-0.02	-0.02	0	%100
31	76	X	-0.014	-0.014	0	%100
32	77	X	-0.02	-0.02	0	%100
33	78	X	-0.014	-0.014	0	%100
34	80	X	-0.024	-0.024	0	%100
35	81	X	-0.02	-0.02	0	%100
36	83	X	-0.02	-0.02	0	%100
37	85	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, %)]
38	86	X	-0.027	-0.027	0	%100
39	92	X	-0.01	-0.01	0	%100
40	93	X	-0.01	-0.01	0	%100
41	94	X	-0.01	-0.01	0	%100
42	96	X	-0.012	-0.012	0	%100
43	100	X	-0.01	-0.01	0	%100
44	103	X	-0.01	-0.01	0	%100
45	104	X	-0.01	-0.01	0	%100
46	105	X	-0.01	-0.01	0	%100
47	107	X	-0.012	-0.012	0	%100
48	111	X	-0.01	-0.01	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	-0.01	-0.01	0	%100
2	2	Z	-0.009	-0.009	0	%100
3	3	Z	-0.009	-0.009	0	%100
4	13	Z	-0.02	-0.02	0	%100
5	14	Z	-0.02	-0.02	0	%100
6	18	Z	-0.007	-0.007	0	%100
7	24	Z	-0.024	-0.024	0	%100
8	25	Z	-0.024	-0.024	0	%100
9	31	Z	-0.008	-0.008	0	%100
10	32	Z	-0.008	-0.008	0	%100
11	35	Z	-0.012	-0.012	0	%100
12	50	Z	-0.007	-0.007	0	%100
13	51	Z	-0.007	-0.007	0	%100
14	54	Z	-0.006	-0.006	0	%100
15	56	Z	-0.012	-0.012	0	%100
16	66	Z	-0.007	-0.007	0	%100
17	34	Z	-0.008	-0.008	0	%100
18	36	Z	-0.01	-0.01	0	%100
19	37	Z	-0.024	-0.024	0	%100
20	38	Z	-0.009	-0.009	0	%100
21	39	Z	-0.02	-0.02	0	%100
22	40	Z	-0.009	-0.009	0	%100
23	46	Z	-0.012	-0.012	0	%100
24	47	Z	-0.02	-0.02	0	%100
25	57	Z	-0.024	-0.024	0	%100
26	62	Z	-0.008	-0.008	0	%100
27	64	Z	-0.012	-0.012	0	%100
28	73	Z	-0.008	-0.008	0	%100
29	74	Z	-0.01	-0.01	0	%100
30	75	Z	-0.024	-0.024	0	%100
31	76	Z	-0.009	-0.009	0	%100
32	77	Z	-0.02	-0.02	0	%100
33	78	Z	-0.009	-0.009	0	%100
34	80	Z	-0.012	-0.012	0	%100
35	81	Z	-0.02	-0.02	0	%100
36	83	Z	-0.024	-0.024	0	%100
37	85	Z	-0.008	-0.008	0	%100
38	86	Z	-0.012	-0.012	0	%100
39	92	Z	-0.007	-0.007	0	%100
40	93	Z	-0.007	-0.007	0	%100
41	94	Z	-0.006	-0.006	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, %)]
42	96	Z	-0.007	-0.007	0	%100
43	100	Z	-0.007	-0.007	0	%100
44	103	Z	-0.007	-0.007	0	%100
45	104	Z	-0.007	-0.007	0	%100
46	105	Z	-0.006	-0.006	0	%100
47	107	Z	-0.007	-0.007	0	%100
48	111	Z	-0.007	-0.007	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	-0.01	-0.01	0	%100
2	2	X	-0.009	-0.009	0	%100
3	3	X	-0.009	-0.009	0	%100
4	13	X	-0.02	-0.02	0	%100
5	14	X	-0.02	-0.02	0	%100
6	18	X	-0.007	-0.007	0	%100
7	24	X	-0.024	-0.024	0	%100
8	25	X	-0.024	-0.024	0	%100
9	31	X	-0.008	-0.008	0	%100
10	32	X	-0.008	-0.008	0	%100
11	35	X	-0.012	-0.012	0	%100
12	50	X	-0.007	-0.007	0	%100
13	51	X	-0.007	-0.007	0	%100
14	54	X	-0.006	-0.006	0	%100
15	56	X	-0.012	-0.012	0	%100
16	66	X	-0.007	-0.007	0	%100
17	34	X	-0.008	-0.008	0	%100
18	36	X	-0.01	-0.01	0	%100
19	37	X	-0.024	-0.024	0	%100
20	38	X	-0.009	-0.009	0	%100
21	39	X	-0.02	-0.02	0	%100
22	40	X	-0.009	-0.009	0	%100
23	46	X	-0.012	-0.012	0	%100
24	47	X	-0.02	-0.02	0	%100
25	57	X	-0.024	-0.024	0	%100
26	62	X	-0.008	-0.008	0	%100
27	64	X	-0.012	-0.012	0	%100
28	73	X	-0.008	-0.008	0	%100
29	74	X	-0.01	-0.01	0	%100
30	75	X	-0.024	-0.024	0	%100
31	76	X	-0.009	-0.009	0	%100
32	77	X	-0.02	-0.02	0	%100
33	78	X	-0.009	-0.009	0	%100
34	80	X	-0.012	-0.012	0	%100
35	81	X	-0.02	-0.02	0	%100
36	83	X	-0.024	-0.024	0	%100
37	85	X	-0.008	-0.008	0	%100
38	86	X	-0.012	-0.012	0	%100
39	92	X	-0.007	-0.007	0	%100
40	93	X	-0.007	-0.007	0	%100
41	94	X	-0.006	-0.006	0	%100
42	96	X	-0.007	-0.007	0	%100
43	100	X	-0.007	-0.007	0	%100
44	103	X	-0.007	-0.007	0	%100
45	104	X	-0.007	-0.007	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, %)]
46	105	X	-0.006	-0.006	0	%100
47	107	X	-0.007	-0.007	0	%100
48	111	X	-0.007	-0.007	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	-0.002	-0.002	0	%100
2	2	Z	-0.001	-0.001	0	%100
3	3	Z	-0.001	-0.001	0	%100
4	13	Z	-0.002	-0.002	0	%100
5	14	Z	-0.002	-0.002	0	%100
6	18	Z	-0.001	-0.001	0	%100
7	24	Z	-0.002	-0.002	0	%100
8	25	Z	-0.002	-0.002	0	%100
9	31	Z	-0.0008	-0.0008	0	%100
10	32	Z	-0.0008	-0.0008	0	%100
11	35	Z	-0.003	-0.003	0	%100
12	50	Z	-0.0009	-0.0009	0	%100
13	51	Z	-0.0009	-0.0009	0	%100
14	54	Z	-0.0009	-0.0009	0	%100
15	56	Z	-0.002	-0.002	0	%100
16	66	Z	-0.0009	-0.0009	0	%100
17	34	Z	-0.0008	-0.0008	0	%100
18	36	Z	-0.002	-0.002	0	%100
19	37	Z	-0.002	-0.002	0	%100
20	38	Z	-0.001	-0.001	0	%100
21	39	Z	-0.002	-0.002	0	%100
22	40	Z	-0.001	-0.001	0	%100
23	46	Z	-0.002	-0.002	0	%100
24	47	Z	-0.002	-0.002	0	%100
25	57	Z	-0.002	-0.002	0	%100
26	62	Z	-0.0008	-0.0008	0	%100
27	64	Z	-0.003	-0.003	0	%100
28	73	Z	-0.0008	-0.0008	0	%100
29	74	Z	-0.002	-0.002	0	%100
30	75	Z	-0.002	-0.002	0	%100
31	76	Z	-0.001	-0.001	0	%100
32	77	Z	-0.002	-0.002	0	%100
33	78	Z	-0.001	-0.001	0	%100
34	80	Z	-0.002	-0.002	0	%100
35	81	Z	-0.002	-0.002	0	%100
36	83	Z	-0.002	-0.002	0	%100
37	85	Z	-0.0008	-0.0008	0	%100
38	86	Z	-0.003	-0.003	0	%100
39	92	Z	-0.0009	-0.0009	0	%100
40	93	Z	-0.0009	-0.0009	0	%100
41	94	Z	-0.0009	-0.0009	0	%100
42	96	Z	-0.001	-0.001	0	%100
43	100	Z	-0.0009	-0.0009	0	%100
44	103	Z	-0.0009	-0.0009	0	%100
45	104	Z	-0.0009	-0.0009	0	%100
46	105	Z	-0.0009	-0.0009	0	%100
47	107	Z	-0.001	-0.001	0	%100
48	111	Z	-0.0009	-0.0009	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	-0.002	-0.002	0	%100
2	2	X	-0.001	-0.001	0	%100
3	3	X	-0.001	-0.001	0	%100
4	13	X	-0.002	-0.002	0	%100
5	14	X	-0.002	-0.002	0	%100
6	18	X	-0.001	-0.001	0	%100
7	24	X	-0.002	-0.002	0	%100
8	25	X	-0.002	-0.002	0	%100
9	31	X	-0.0008	-0.0008	0	%100
10	32	X	-0.0008	-0.0008	0	%100
11	35	X	-0.003	-0.003	0	%100
12	50	X	-0.0009	-0.0009	0	%100
13	51	X	-0.0009	-0.0009	0	%100
14	54	X	-0.0009	-0.0009	0	%100
15	56	X	-0.002	-0.002	0	%100
16	66	X	-0.0009	-0.0009	0	%100
17	34	X	-0.0008	-0.0008	0	%100
18	36	X	-0.002	-0.002	0	%100
19	37	X	-0.002	-0.002	0	%100
20	38	X	-0.001	-0.001	0	%100
21	39	X	-0.002	-0.002	0	%100
22	40	X	-0.001	-0.001	0	%100
23	46	X	-0.002	-0.002	0	%100
24	47	X	-0.002	-0.002	0	%100
25	57	X	-0.002	-0.002	0	%100
26	62	X	-0.0008	-0.0008	0	%100
27	64	X	-0.003	-0.003	0	%100
28	73	X	-0.0008	-0.0008	0	%100
29	74	X	-0.002	-0.002	0	%100
30	75	X	-0.002	-0.002	0	%100
31	76	X	-0.001	-0.001	0	%100
32	77	X	-0.002	-0.002	0	%100
33	78	X	-0.001	-0.001	0	%100
34	80	X	-0.002	-0.002	0	%100
35	81	X	-0.002	-0.002	0	%100
36	83	X	-0.002	-0.002	0	%100
37	85	X	-0.0008	-0.0008	0	%100
38	86	X	-0.003	-0.003	0	%100
39	92	X	-0.0009	-0.0009	0	%100
40	93	X	-0.0009	-0.0009	0	%100
41	94	X	-0.0009	-0.0009	0	%100
42	96	X	-0.001	-0.001	0	%100
43	100	X	-0.0009	-0.0009	0	%100
44	103	X	-0.0009	-0.0009	0	%100
45	104	X	-0.0009	-0.0009	0	%100
46	105	X	-0.0009	-0.0009	0	%100
47	107	X	-0.001	-0.001	0	%100
48	111	X	-0.0009	-0.0009	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	-0.021	-0.021	0	%100
2	2	Y	-0.017	-0.017	0	%100
3	3	Y	-0.017	-0.017	0	%100

Member Distributed Loads (BLC 8 : 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, %)]
4	13	Y	-0.022	-0.022	0	%100
5	14	Y	-0.022	-0.022	0	%100
6	18	Y	-0.015	-0.015	0	%100
7	24	Y	-0.022	-0.022	0	%100
8	25	Y	-0.022	-0.022	0	%100
9	31	Y	-0.014	-0.014	0	%100
10	32	Y	-0.014	-0.014	0	%100
11	35	Y	-0.028	-0.028	0	%100
12	50	Y	-0.014	-0.014	0	%100
13	51	Y	-0.014	-0.014	0	%100
14	54	Y	-0.014	-0.014	0	%100
15	56	Y	-0.027	-0.027	0	%100
16	66	Y	-0.014	-0.014	0	%100
17	34	Y	-0.014	-0.014	0	%100
18	36	Y	-0.021	-0.021	0	%100
19	37	Y	-0.022	-0.022	0	%100
20	38	Y	-0.017	-0.017	0	%100
21	39	Y	-0.022	-0.022	0	%100
22	40	Y	-0.017	-0.017	0	%100
23	46	Y	-0.027	-0.027	0	%100
24	47	Y	-0.022	-0.022	0	%100
25	57	Y	-0.022	-0.022	0	%100
26	62	Y	-0.014	-0.014	0	%100
27	64	Y	-0.028	-0.028	0	%100
28	73	Y	-0.014	-0.014	0	%100
29	74	Y	-0.021	-0.021	0	%100
30	75	Y	-0.022	-0.022	0	%100
31	76	Y	-0.017	-0.017	0	%100
32	77	Y	-0.022	-0.022	0	%100
33	78	Y	-0.017	-0.017	0	%100
34	80	Y	-0.027	-0.027	0	%100
35	81	Y	-0.022	-0.022	0	%100
36	83	Y	-0.022	-0.022	0	%100
37	85	Y	-0.014	-0.014	0	%100
38	86	Y	-0.028	-0.028	0	%100
39	92	Y	-0.014	-0.014	0	%100
40	93	Y	-0.014	-0.014	0	%100
41	94	Y	-0.014	-0.014	0	%100
42	96	Y	-0.015	-0.015	0	%100
43	100	Y	-0.014	-0.014	0	%100
44	103	Y	-0.014	-0.014	0	%100
45	104	Y	-0.014	-0.014	0	%100
46	105	Y	-0.014	-0.014	0	%100
47	107	Y	-0.015	-0.015	0	%100
48	111	Y	-0.014	-0.014	0	%100

Member Distributed Loads (BLC 28 : 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	62	Y	-0.016	0.0006163	1.155	2.309
2	73	Y	0.0006164	-0.016	0	1.155
3	73	Y	-0.016	-0.035	1.155	2.309
4	85	Y	-0.018	-0.016	0	2.078
5	31	Y	-0.035	-0.016	0	1.155
6	31	Y	-0.016	0.0006163	1.155	2.309
7	32	Y	-0.018	-0.016	0.231	2.309

Member Distributed Loads (BLC 28 : 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, %)]
8	34	Y	-0.018	-0.016	0.231	2.309
9	62	Y	-0.035	-0.016	0	1.155

Member Distributed Loads (BLC 29 : 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	31	Y	-0.036	-0.017	0	1.155
2	31	Y	-0.017	0.0006463	1.155	2.309
3	32	Y	-0.019	-0.017	0.231	2.309
4	34	Y	-0.017	-0.017	0.231	2.309
5	62	Y	-0.035	-0.016	0	1.155
6	62	Y	-0.016	0.0006163	1.155	2.309
7	73	Y	0.0006164	-0.016	0	1.155
8	73	Y	-0.016	-0.035	1.155	2.309
9	85	Y	-0.018	-0.016	0	2.078

Member Area Loads (BLC 1 : Dead)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	64	60	71	65	Y	Two Way	-0.01
2	111	110	109	108	Y	Two Way	-0.01
3	139	138	137	140	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	64	60	71	65	Y	Two Way	-0.01
2	111	110	109	108	Y	Two Way	-0.01
3	139	138	137	140	Y	Two Way	-0.01

Node Loads and Enforced Displacements (BLC 9 : Live Load a)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	102	L	Y	-0.5
2	170	L	Y	-0.5
3	147	L	Y	-0.5

Node Loads and Enforced Displacements (BLC 10 : Live Load b)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	85	L	Y	-0.5
2	172	L	Y	-0.5
3	148	L	Y	-0.5

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	171	L	Y	-0.5
2	146	L	Y	-0.5
3	191	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	48	
3	90 Wind - No Ice	WLX			20	48	
4	0 Wind - Ice	WLZ			20	48	
5	90 Wind - Ice	WLX			20	48	
6	0 Wind - Service	WLZ			20	48	
7	90 Wind - Service	WLX			20	48	
8	Ice	OL1			20	48	3
9	Live Load a	LL		3			
10	Live Load b	LL		3			
11	Live Load c	LL		3			
12	Live Load d	LL					
13	Maint LL 1	LL			1		
14	Maint LL 2	LL			1		
15	Maint LL 3	LL			1		
16	Maint LL 4	LL			1		
17	Maint LL 5	LL			1		
18	Maint LL 6	LL			1		
19	Maint LL 7	LL			1		
20	Maint LL 8	LL			1		
21	Maint LL 9	LL			1		
22	Maint LL 10	LL			1		
23	Maint LL 11	LL			1		
24	Maint LL 12	LL			1		
25	Maint LL 13	LL			1		
26	Maint LL 14	LL			1		
27	Maint LL 15	LL			1		
28	BLC 1 Transient Area Loads	None				9	
29	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	0.9 D + 1.6 - 0 W	Yes	Y	1	0.9	2	1.6				
3	0.9 D + 1.6 - 30 W	Yes	Y	1	0.9	2	1.386	3	0.8		
4	0.9 D + 1.6 - 60 W	Yes	Y	1	0.9	3	1.386	2	0.8		
5	0.9 D + 1.6 - 90 W	Yes	Y	1	0.9	3	1.6				
6	0.9 D + 1.6 - 120 W	Yes	Y	1	0.9	3	1.386	2	-0.8		
7	0.9 D + 1.6 - 150 W	Yes	Y	1	0.9	2	-1.386	3	0.8		
8	0.9 D + 1.6 - 180 W	Yes	Y	1	0.9	2	-1.6				
9	0.9 D + 1.6 - 210 W	Yes	Y	1	0.9	2	-1.386	3	-0.8		
10	0.9 D + 1.6 - 240 W	Yes	Y	1	0.9	3	-1.386	2	-0.8		
11	0.9 D + 1.6 - 270 W	Yes	Y	1	0.9	3	-1.6				
12	0.9 D + 1.6 - 300 W	Yes	Y	1	0.9	3	-1.386	2	0.8		
13	0.9 D + 1.6 - 330 W	Yes	Y	1	0.9	2	1.386	3	-0.8		
14	1.2 D + 1.6 - 0 W	Yes	Y	1	1.2	2	1.6				
15	1.2 D + 1.6 - 30 W	Yes	Y	1	1.2	2	1.386	3	0.8		
16	1.2 D + 1.6 - 60 W	Yes	Y	1	1.2	3	1.386	2	0.8		
17	1.2 D + 1.6 - 90 W	Yes	Y	1	1.2	3	1.6				
18	1.2 D + 1.6 - 120 W	Yes	Y	1	1.2	3	1.386	2	-0.8		
19	1.2 D + 1.6 - 150 W	Yes	Y	1	1.2	2	-1.386	3	0.8		
20	1.2 D + 1.6 - 180 W	Yes	Y	1	1.2	2	-1.6				
21	1.2 D + 1.6 - 210 W	Yes	Y	1	1.2	2	-1.386	3	-0.8		
22	1.2 D + 1.6 - 240 W	Yes	Y	1	1.2	3	-1.386	2	-0.8		

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
23	1.2 D + 1.6 - 270 W	Yes	Y	1	1.2	3	-1.6				
24	1.2 D + 1.6 - 300 W	Yes	Y	1	1.2	3	-1.386	2	0.8		
25	1.2 D + 1.6 - 330 W	Yes	Y	1	1.2	2	1.386	3	-0.8		
26	0.9 D + 1.6 - 0 W/Ice	Yes	Y	1	0.9	4	1.6			8	1
27	0.9 D + 1.6 - 30 W/Ice	Yes	Y	1	0.9	4	1.386	5	0.8	8	1
28	0.9 D + 1.6 - 60 W/Ice	Yes	Y	1	0.9	5	1.386	4	0.8	8	1
29	0.9 D + 1.6 - 90 W/Ice	Yes	Y	1	0.9	5	1.6			8	1
30	0.9 D + 1.6 - 120 W/Ice	Yes	Y	1	0.9	5	1.386	4	-0.8	8	1
31	0.9 D + 1.6 - 150 W/Ice	Yes	Y	1	0.9	4	-1.386	5	0.8	8	1
32	0.9 D + 1.6 - 180 W/Ice	Yes	Y	1	0.9	4	-1.6			8	1
33	0.9 D + 1.6 - 210 W/Ice	Yes	Y	1	0.9	4	-1.386	5	-0.8	8	1
34	0.9 D + 1.6 - 240 W/Ice	Yes	Y	1	0.9	5	-1.386	4	-0.8	8	1
35	0.9 D + 1.6 - 270 W/Ice	Yes	Y	1	0.9	5	-1.6			8	1
36	0.9 D + 1.6 - 300 W/Ice	Yes	Y	1	0.9	5	-1.386	4	0.8	8	1
37	0.9 D + 1.6 - 330 W/Ice	Yes	Y	1	0.9	4	1.386	5	-0.8	8	1
38	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
39	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
40	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
41	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
42	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
43	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
44	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
45	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
46	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
47	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
48	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
49	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
50	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			9	1.5
51	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	9	1.5
52	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	9	1.5
53	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			9	1.5
54	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	9	1.5
55	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	9	1.5
56	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			9	1.5
57	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	9	1.5
58	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	9	1.5
59	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			9	1.5
60	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	9	1.5
61	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	9	1.5
62	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			10	1.5
63	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	10	1.5
64	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	10	1.5
65	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			10	1.5
66	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	10	1.5
67	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	10	1.5
68	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			10	1.5
69	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	10	1.5
70	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	10	1.5
71	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			10	1.5
72	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	10	1.5
73	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	10	1.5
74	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
75	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
76	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
77	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
78	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
79	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
80	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
81	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
82	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
83	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
84	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
85	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
86	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
87	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
88	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
89	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
90	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
91	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
92	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
93	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
94	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
95	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
96	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
97	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
98	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					13	1.5
99	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					14	1.5
100	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					15	1.5
101	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					16	1.5
102	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					17	1.5
103	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					18	1.5
104	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					19	1.5
105	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					20	1.5
106	1.2 D + 1.5 LL Maint (9)	Yes	Y	1	1.2					21	1.5
107	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					22	1.5
108	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					23	1.5
109	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					24	1.5
110	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					25	1.5
111	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					26	1.5
112	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					27	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	2	max	1.672	5	2.886	26	1.979	2	6.066	26	1.686	11	0.432	24
2		min	-1.675	23	-0.807	8	-2.094	20	-2.458	8	-1.69	17	-0.31	5
3	62	max	1.677	5	2.887	30	2.14	14	0.995	13	2.109	3	1.401	12
4		min	-1.772	23	-0.485	12	-2.078	8	-2.798	31	-2.11	21	-5.21	30
5	120	max	1.584	17	2.798	34	2.332	14	1.066	3	2.126	7	4.947	34
6		min	-1.485	11	-0.509	4	-2.279	8	-3.172	33	-2.13	25	-1.44	4
7	Totals:	max	4.919	17	7.303	44	6.435	2						
8		min	-4.919	11	1.796	2	-6.435	20						

Envelope AISC 13TH (360-05): LRFD Member Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	1	HSS4X4X2	0.779	0	37	0.178	0	y	37	70.173	73.278	8.24	8.24	2.108	H1-1b
2	2	C3.38X2.06X0.188	0.566	2.592	27	0.084	0.351	y	40	38.433	43.394	1.694	4.483	1.623	H1-1b
3	3	C3.38X2.06X0.188	0.539	0	37	0.1	2.241	z	20	38.433	43.394	1.694	4.483	1.622	H1-1b
4	13	PL3/8"x6	0.125	0.164	19	0.23	0	y	14	68.856	72.9	0.57	9.113	2.808	H1-1b

Envelope AISC 13TH (360-05): LRFD Member Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
5	14	PL3/8"x6	0.128	0	15	0.189	0	y	14	68.856	72.9	0.57	9.113	2.082	H1-1b
6	18	PIPE_3.5X0.165	0.105	6.75	19	0.056	4		16	45.872	71.57	6.336	6.336	1.874	H1-1b
7	24	PL3/8"x6	0.217	0.208	14	0.28	0.208	y	49	70.733	72.9	0.57	9.113	2.35	H1-1b
8	25	PL3/8"x6	0.211	0	25	0.295	0	y	39	70.733	72.9	0.57	9.113	2.798	H1-1b
9	31	L2x2x4	0.407	0	20	0.037	2.309	z	32	23.349	30.586	0.691	1.577	1.5	H2-1
10	32	L2x2x4	0.343	2.309	20	0.05	0	y	40	23.349	30.586	0.691	1.577	1.5	H2-1
11	35	L7.63x2.5x6	0.552	1.604	8	0.109	1.57	z	27	73.845	118.523	1.798	13.661	1.229	H2-1
12	50	PIPE_2.88X0.203	0.161	5.667	17	0.058	5.667		18	35.361	70.548	5.01	5.01	3	H1-1b
13	51	PIPE_2.88X0.203	0.193	2.333	21	0.065	5.667		21	35.361	70.548	5.01	5.01	3	H1-1b
14	54	PIPE_2.88X0.203	0.207	7.812	25	0.202	8.854		14	23.996	70.548	5.01	5.01	2.5	H1-1b
15	56	L6.63x4.33x.25	0.291	3.25	18	0.032	3.25	z	24	49.975	86.751	2.311	6.976	1.5	H2-1
16	66	PIPE_2.88X0.203	0.177	2.333	19	0.064	2.333		20	35.361	70.548	5.01	5.01	3	H1-1b
17	34	L2x2x4	0.304	2.309	25	0.05	0	y	44	23.349	30.586	0.691	1.577	1.5	H2-1
18	36	HSS4X4X2	0.774	0	31	0.177	0	y	28	70.173	73.278	8.24	8.24	2.131	H1-1b
19	37	PL3/8"x6	0.186	0.208	19	0.276	0.208	y	41	70.733	72.9	0.57	9.113	2.64	H1-1b
20	38	C3.38X2.06X0.188	0.565	2.592	31	0.085	0.351	y	45	38.433	43.394	1.694	4.483	1.623	H1-1b
21	39	PL3/8"x6	0.129	0	19	0.154	0	y	18	68.856	72.9	0.57	9.113	1.994	H1-1b
22	40	C3.38X2.06X0.188	0.517	0	29	0.082	2.241	y	48	38.433	43.394	1.694	4.483	1.624	H1-1b
23	46	L6.63x4.33x.25	0.338	0	3	0.037	3.25	y	21	49.974	86.751	2.311	6.976	1.5	H2-1
24	47	PL3/8"x6	0.1	0.164	22	0.21	0	y	30	68.856	72.9	0.57	9.113	1.353	H1-1b
25	57	PL3/8"x6	0.168	0	17	0.295	0	y	43	70.733	72.9	0.57	9.113	2.877	H1-1b
26	62	L2x2x4	0.312	0	23	0.036	2.309	z	36	23.349	30.586	0.691	1.577	1.5	H2-1
27	64	L7.63x2.5x6	0.417	1.604	12	0.107	1.57	z	31	73.845	118.523	1.798	13.695	1.236	H2-1
28	73	L2x2x4	0.282	2.309	16	0.049	2.309	y	48	23.349	30.586	0.691	1.577	1.5	H2-1
29	74	HSS4X4X2	0.776	0	33	0.181	0	y	32	70.173	73.278	8.24	8.24	2.111	H1-1b
30	75	PL3/8"x6	0.181	0.085	14	0.278	0.208	y	45	70.733	72.9	0.57	9.113	1.35	H1-1b
31	76	C3.38X2.06X0.188	0.548	2.592	35	0.085	0.351	y	49	38.433	43.394	1.694	4.483	1.622	H1-1b
32	77	PL3/8"x6	0.102	0	23	0.168	0	y	58	68.856	72.9	0.57	9.113	1.98	H1-1b
33	78	C3.38X2.06X0.188	0.538	0	33	0.089	2.241	z	15	38.433	43.394	1.694	4.483	1.623	H1-1b
34	80	L6.63x4.33x.25	0.365	3.25	14	0.042	3.25	z	20	49.974	86.751	2.311	6.976	1.5	H2-1
35	81	PL3/8"x6	0.14	0.164	15	0.213	0	y	34	68.856	72.9	0.57	9.113	2.62	H1-1b
36	83	PL3/8"x6	0.214	0	21	0.292	0	y	47	70.733	72.9	0.57	9.113	2.802	H1-1b
37	85	L2x2x4	0.401	0	15	0.037	2.309	z	27	23.349	30.586	0.691	1.577	1.5	H2-1
38	86	L7.63x2.5x6	0.497	1.604	3	0.104	1.57	z	35	73.845	118.523	1.798	13.863	1.273	H2-1
39	92	PIPE_2.88X0.203	0.205	5.667	21	0.068	5.667		21	35.361	70.548	5.01	5.01	3	H1-1b
40	93	PIPE_2.88X0.203	0.23	2.333	14	0.067	5.667		25	35.361	70.548	5.01	5.01	3	H1-1b
41	94	PIPE_2.88X0.203	0.193	2.187	25	0.167	2.187		25	23.996	70.548	5.01	5.01	2.192	H1-1b
42	96	PIPE_3.5X0.165	0.119	1.25	14	0.074	4		20	45.872	71.57	6.336	6.336	1.711	H1-1b
43	100	PIPE_2.88X0.203	0.182	5.667	21	0.065	2.333		25	35.361	70.548	5.01	5.01	3	H1-1b
44	103	PIPE_2.88X0.203	0.204	5.667	25	0.076	5.667		25	35.361	70.548	5.01	5.01	3	H1-1b
45	104	PIPE_2.88X0.203	0.181	2.333	18	0.049	5.667		17	35.361	70.548	5.01	5.01	3	H1-1b
46	105	PIPE_2.88X0.203	0.192	7.812	21	0.183	8.854		21	23.996	70.548	5.01	5.01	2.427	H1-1b
47	107	PIPE_3.5X0.165	0.102	4	14	0.069	2.917		25	45.872	71.57	6.336	6.336	1.433	H1-1b
48	111	PIPE_2.88X0.203	0.212	5.667	14	0.047	5.667		15	35.361	70.548	5.01	5.01	3	H1-1b

APPENDIX B
(Additional Calculations)

PROJECT	**149465.003.01 - Stonington, CT**				**AD**
SUBJECT	**Platform Mount Analysis Beta**				
DATE	**09/27/21**	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	:	1.978	k
Vertical Shear	:	2.886	k
Horizontal Shear	:	1.672	k
Torsion	:	0.432	k.ft
Moment from Horizontal Forces	:	1.686	k.ft
Moment from Vertical Forces	:	6.066	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	:	3.34	k
Force from Horz. Moment	:	3.05	k
Force from Vert. Moment	:	10.99	k
Shear Load / Bolt	:	0.83	k
Tension Load / Bolt	:	0.49	k
Resultant from Moments / Bolt	:	5.70	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	:	**29.90%**		**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	:	**12.02%**		**OKAY**
Unity Check, Combined	:	**41.92%**		**OKAY**
Available Bearing Strength, ΦR_n	:	52.00	k/bolt	
Unity Check, Bolt Bearing	:	**1.60%**		**OKAY**

PROJECT	**149465.003.01 - Stonington, CT**				**AD**
SUBJECT	**Platform Mount Analysis**				
DATE	**09/27/21**	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	:	8.00	in	
Plate Width	:	8.00	in	
Plate Thickness	:	0.75	in	
Edge Distance	:	1.06	in	
Gross Tension Area, A_{gt}	:	6.00	in^2	
Gross Shear Area, A_{gv}	:	1.125	in^2	
Net Area for tension, A_{nv}	:	5.48	in^2	
Net Area for shear, A_{nt}	:	4.50	in^2	

Plate Check

Available Tensile Yield	:	194.40	k	[Eq. J4-1]
Available Tensile Rupture	:	238.57	k	[Eq. J4-2]
Unity Check, Plate Tension	:	**3.19%**		**OKAY**
Available Shear Yield	:	24.30	k	[Eq. J4-3]
Available Shear Rupture	:	156.60	k	[Eq. J4-4]
Unity Check, Plate Shear	:	**13.73%**		**OKAY**
Available Block Shear, ΦRn	:	116.10	k	[Eq. J4-5]
Unity Check, Block Shear	:	**2.87%**		**OKAY**

Exhibit F

Power Density/RF Emissions Report

Fox Hill Telecom

Radio Frequency Emissions Analysis Report

Site ID: BOBOS00057A

SBA - Wilcox Road
107 Wilcox Road
Stonington, CT 06378

May 4, 2022

Fox Hill Telecom Project Number: 220985

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**18.28 %**

Fox Hill Telecom

May 4, 2022

Dish Wireless
5701 South Santa Fe Drive
Littleton, CO 80120

Emissions Analysis for Site: **BOBOS00057A – SBA - Wilcox Road**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed radio installation for Dish Wireless, LLC (Dish) facility located at **107 Wilcox Road, Stonington, CT**, for the purpose of determining whether the emissions from the Proposed Dish radio and antenna installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz & 700 MHz bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS / AWS-4) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed radio system installation for **Dish** on the subject site located at **107 Wilcox Road, Stonington, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since **Dish** 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 manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

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. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
5G	n71 (600 MHz)	4	61.5
5G	n70 (AWS-4 / 1995-2020)	4	40
5G	n66 (AWS-4 / 2180-2200)	4	40

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz (n71) frequency band, and the 2100 MHz (AWS 4) frequency bands at 1995-2020 MHz (n70) and 2180-2200 MHz (n66). This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	JMA MX08FRO665-21	86
B	1	JMA MX08FRO665-21	86
C	1	JMA MX08FRO665-21	86

Table 2: Antenna Data

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

RESULTS

Per the calculations completed for the proposed **Dish** configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	12.68
						Sector A Composite MPE%	**12.68**
Antenna B1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	12.68
						Sector B Composite MPE%	**12.68**
Antenna C1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	12.68
						Sector C Composite MPE%	**12.68**

Table 3: Dish Emissions Levels

The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum **Dish** MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each **Dish** Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
Dish – Max Per Sector Value	**12.68 %**
T-Mobile	5.60 %
Site Total MPE %:	**18.28 %**

Table 4: All Carrier MPE Contributions

Dish Sector A Total:	12.68 %
Dish Sector B Total:	12.68 %
Dish Sector C Total:	12.68 %
Site Total:	18.28 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated **Dish** sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

Dish _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Dish n71 (600 MHz) 5G	4	858.77	86	19.30	n71 (600 MHz)	400	4.82%
Dish n70 (AWS-4 / 1995-2020) 5G	4	1,648.39	86	37.04	n70 (AWS-4 / 1995-2020)	1000	3.70%
Dish n66 (AWS-4 / 2180-2200) 5G	4	1,849.52	86	41.56	n66 (AWS-4 / 2180-2200)	1000	4.16%
						Total:	**12.68%**

Table 6: Dish Maximum Sector MPE Power Values

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 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 Sector	Power Density Value (%)
Sector A:	12.68 %
Sector B:	12.68 %
Sector C:	12.68 %
Dish Maximum Total (per sector):	12.68 %
Site Total:	18.28 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **18.28 %** 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.

Scott Heffernan
Principal RF Engineer
Fox Hill Telecom, Inc
Holden, MA 01520
(978)660-3998

Exhibit G

Letter of Authorization

SBA Letter of Authorization

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

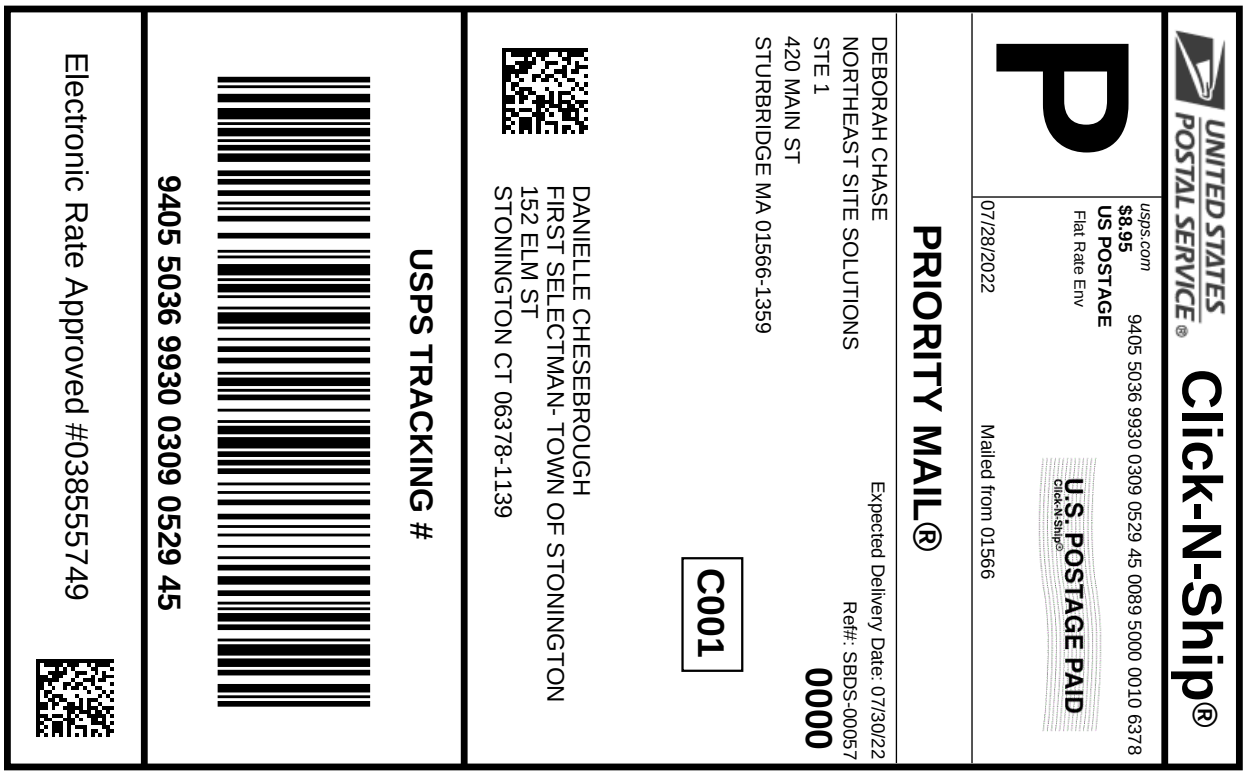
Re: Tower Share Application

SBA COMMUNICATIONS CORPORATION hereby authorizes DISH Wireless LLC, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CONNECTICUT SITING COUNCIL for existing wireless communications towers.

Kri Pelletier
Site Development Manager
SBA COMMUNICATIONS CORPORATION
134 Flanders Road, Suite 125
Westboro, MA 01581

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 0309 0529 45

Trans. #:	568627520
Print Date:	07/28/2022
Ship Date:	07/28/2022
Expected Delivery Date:	07/30/2022

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

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

Ref#: SBDS-00057

To: DANIELLE CHESEBROUGH
FIRST SELECTMAN- TOWN OF STONINGTON
152 ELM ST
STONINGTON CT 06378-1139

* 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

UNITED STATES POSTAL SERVICE®

Click-N-Ship®

9405 5036 9930 0309 0529 52 0089 5000 0010 6378

usps.com
$8.95
US POSTAGE
Flat Rate Env

07/28/2022 Mailed from 01566

U.S. POSTAGE PAID
Click-N-Ship®

PRIORITY MAIL®

Expected Delivery Date: 07/30/22
Ref#: SBDS-00057

0000

C001

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

KEITH BYRNES
TOWN PLANNER- STONINGTON
152 ELM ST
STONINGTON CT 06378-1139

USPS TRACKING #

9405 5036 9930 0309 0529 52

Electronic Rate Approved #038555749

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 0309 0529 52

Trans. #:	568627520
Print Date:	07/28/2022
Ship Date:	07/28/2022
Expected Delivery Date:	07/30/2022

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

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

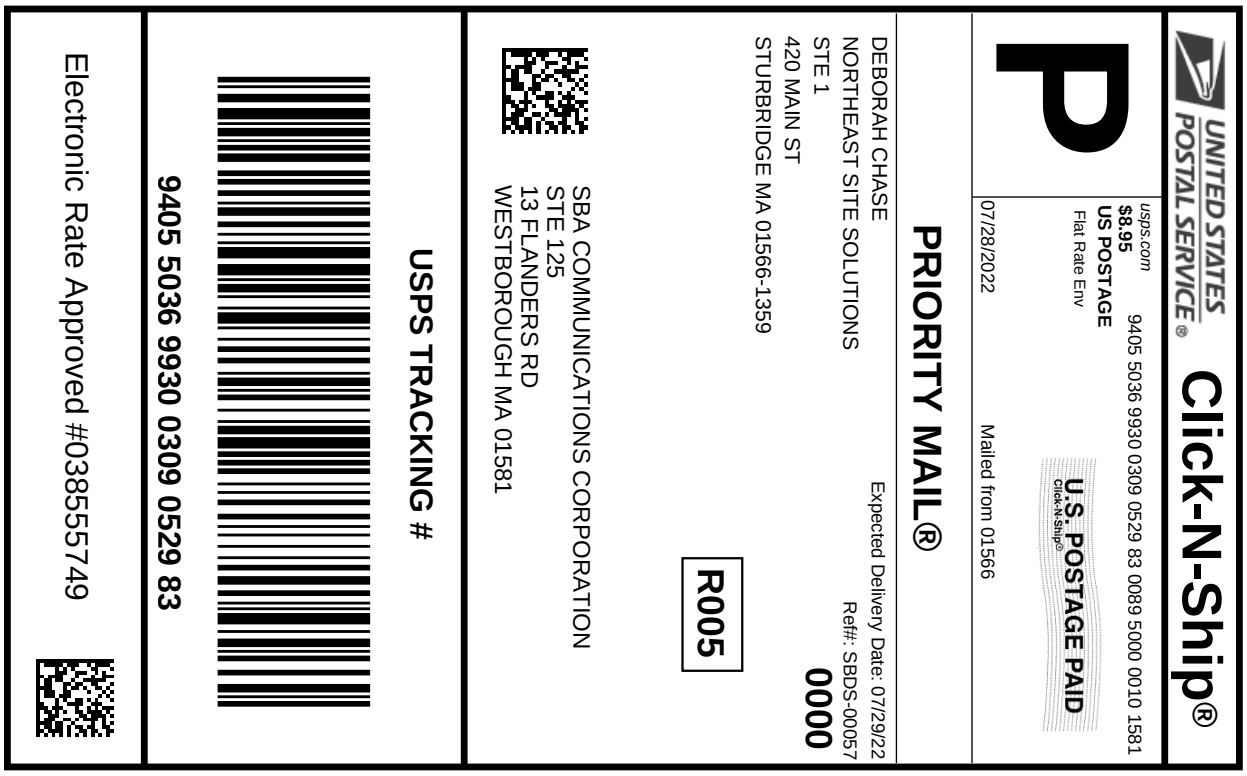
Ref#: SBDS-00057

To: KEITH BYRNES
TOWN PLANNER- STONINGTON
152 ELM ST
STONINGTON CT 06378-1139

* 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.

UNITED STATES POSTAL SERVICE®

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



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 0309 0529 83

Trans. #:	568627520
Print Date:	07/28/2022
Ship Date:	07/28/2022
Expected Delivery Date:	07/29/2022

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

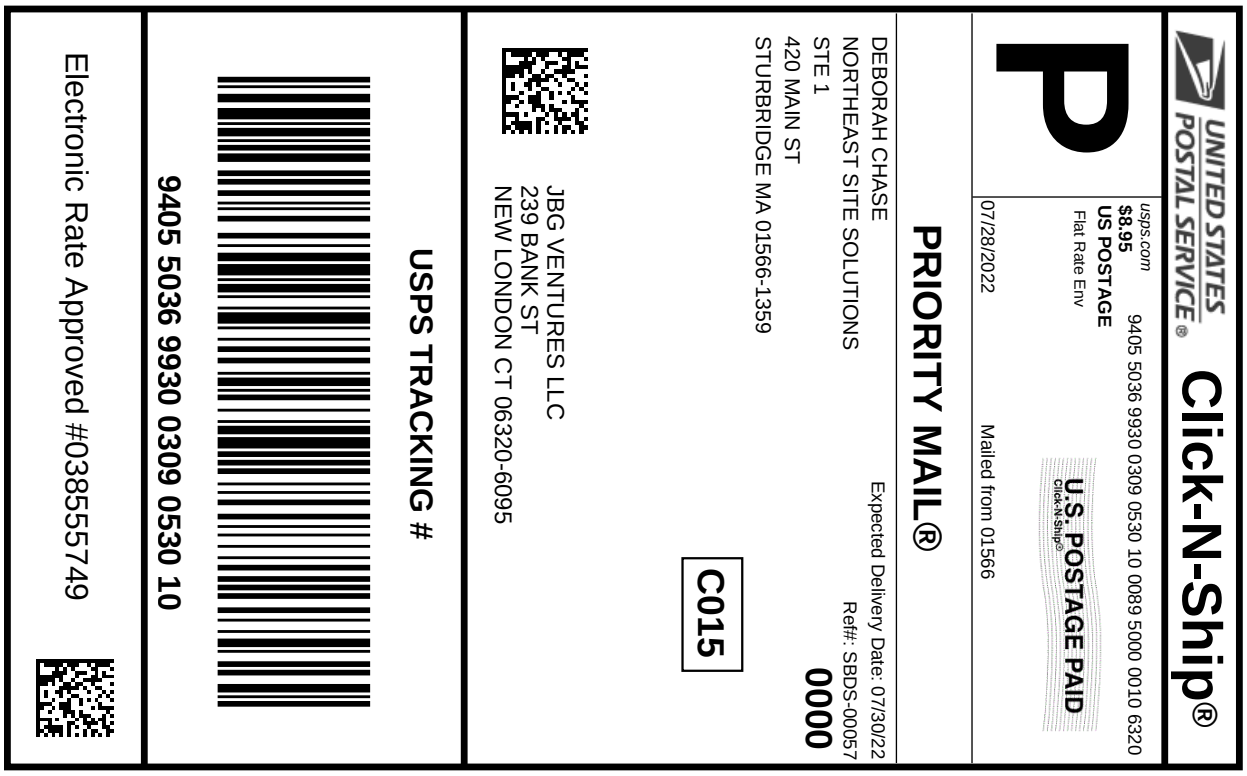
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: SBDS-00057

To: SBA COMMUNICATIONS CORPORATION
STE 125
13 FLANDERS RD
WESTBOROUGH MA 01581

* 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



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 0309 0530 10

Trans. #:	568627520
Print Date:	07/28/2022
Ship Date:	07/28/2022
Expected Delivery Date:	07/30/2022

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

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

Ref#: SBDS-00057

To: JBG VENTURES LLC
239 BANK ST
NEW LONDON CT 06320-6095

* 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

B0B0500057.A
3.B.4.1.D.2.SL

UNITED STATES POSTAL SERVICE.

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

07/29/2022 03:49 PM

Product	Qty	Unit Price	Price
Prepaid Mail Westborough, MA 01581 Weight: 0 lb 2.00 oz Acceptance Date: Fri 07/29/2022 Tracking #: 9405 5036 9930 0309 0529 83	1		$0.00
Prepaid Mail Stonington, CT 06378 Weight: 0 lb 8.10 oz Acceptance Date: Fri 07/29/2022 Tracking #: 9405 5036 9930 0309 0529 45	1		$0.00
Prepaid Mail Stonington, CT 06378 Weight: 0 lb 8.10 oz Acceptance Date: Fri 07/29/2022 Tracking #: 9405 5036 9930 0309 0529 52	1		$0.00
Prepaid Mail New London, CT 06320 Weight: 0 lb 8.20 oz Acceptance Date: Fri 07/29/2022 Tracking #: 9405 5036 9930 0309 0530 10	1		$0.00
Grand Total:			$0.00