



**NSS** **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 20, 2022

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

RE: Tower Share Application  
3 Edmond Road, Newtown, CT 06470  
Latitude: 41.420833  
Longitude: -73.298472  
Site #: CT13060-A\_NJJER01079D\_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 3 Edmond Road, Newtown, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 109-foot level of the existing 139-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 July 5, 2022, Exhibit C. Also included is a structural analysis prepared by TES, dated October 13, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. The facility was originally approved by the Connecticut Siting Council, Docket No. 241, on December 22, 2003 and a tower extension was approved in Petition No. 749 on December 14, 2005. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Daniel Rosenthal, First Selectman, and George Benson, Director of Planning for the Town of Newtown, as well as the tower owner (SBA) and property owner (5K Enterprises Inc.).

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 139-feet and the Dish Wireless LLC antennas will be located at a center line height of 109-feet.
2. The proposed modifications will not result in an increase of the site boundary as depicted on the attached site plan.



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

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. The combined site operations will result in a total power density of 3.96% as evidenced by Exhibit F.

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

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

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this monopole tower in Newtown. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit Dish Wireless LLC to obtain a building permit for the proposed installation. Further, a Letter of Authorization is included as Exhibit G, authorizing Dish Wireless LLC to file this application for shared use.

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 109-foot level of the existing 139-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

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

Sincerely,

*Denise Sabo*

Denise Sabo

Mobile: 203-435-3640

Fax: 413-521-0558

Office: 4 Angela's Way, Burlington CT 06013

Email: [denise@northeastsitesolutions.com](mailto:denise@northeastsitesolutions.com)



**NSS** **NORTHEAST**  
SITE SOLUTIONS  
*Turnkey Wireless Development*

Attachments

Cc: Daniel Rosenthal, First Selectman  
Town of Newtown  
3 Primrose Street  
Newtown, CT 06470

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

5K Enterprises Inc. – Property Owner  
99 Hanover Road  
Newtown, CT 06470

SBA - Tower Owner

# Exhibit A

## **Original Facility Approval**

<b>DOCKET NO. 241</b> - Omnipoint Facilities Network 2, LLC, } application for a Certificate of Environmental Compatibility and } Public Need for the construction, maintenance and operation of a } wireless telecommunications facility at 79 Church Hill Road or 3 } Edmond Road, Newtown, Connecticut. }	Connecticut  Siting  Council  December 22, 2003
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**Decision and Order**

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Omnipoint Facilities Network 2, LLC d/b/a T-Mobile USA Inc. for the construction, maintenance and operation of a wireless telecommunications facility at 3 Edmond Road, Newtown, Connecticut. The Council denies certification of the site at 79 Church Hill Road, Newtown, Connecticut.

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

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of T-Mobile USA Inc., AT&T wireless PCS LLC, and other entities, both public and private, but such tower shall not exceed a height of 130 feet above ground level.
2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include:
  - a) a detailed site development plan that depicts the location of the access road, compound, tower, utility line, erosion and sedimentation control features, extent of site clearing and grading, and landscaping. Erosion and sedimentation controls shall be consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended; and
  - b) specifications for the tower, tower foundation, antennas, equipment building, and security fence.
3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of electromagnetic radio frequency power density of all proposed entities’ antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of electromagnetic radio frequency power density is submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

4. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing. The Certificate Holder shall provide reasonable space on the tower for no compensation for any municipal antennas, provided tower space is available and such antennas are compatible with the structural integrity of the tower.
6. If the facility does not initially provide wireless services within one year of completion of construction or ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
7. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.
8. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Hartford Courant, The News-Times, and The Newtown Bee.

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

The parties and intervenors to this proceeding are:

**Applicant**

Omnipoint Facilities Network 2, L.L.C.,  
A Subsidiary of T-Mobile, USA, Inc.

**Its Representative**

Stephen J. Humes, Esq.  
LeBoeuf, Lamb, Greene & MacRae, L.L.P.  
Goodwin Square  
225 Asylum Street  
Hartford, CT 06103

**Intervenor**

AT&T Wireless PCS, LLC  
d/b/a AT&T Wireless

**Its Representative**

Christopher B. Fisher, Esq.  
Cuddy & Feder LLP  
90 Maple Avenue  
White Plains, New York 10601

**Intervenor**

The Honorable Julia Wasserman  
State Representative - 106<sup>th</sup> District  
P.O. Box 848, 113 Walnut Tree Hill Road  
Sandy Hook, CT 06482

**Intervenor**

Zoltan Csillag and Julia Nable  
10 Walnut Tree Hill Road  
Sandy Hook, CT 06482

**Party**

Town of Newtown

**Its Representative**

**Its Representative**

Steven R. Smart, Esq.  
Riefberg, Smart, Donohue & NeJame, P. C.  
17 Downs Street  
Danbury, CT 06810

**Its Representative**

Monte E. Frank, Esq.  
Cohen and Wolf, P.C.  
158 Deer Hill Avenue  
Danbury, CT 06810

# Connecticut Siting Council <sup>(/CSC)</sup>

[CT.gov Home](#) [\(/\)](#) [Connecticut Siting Council](#) [\(/CSC\)](#) PE 749 SR

Petition No. 749

Nextel Communications, Inc.

3 Edmond Road, Newtown

Staff Report

On December 1, 2005, Nextel Communications, Inc. (Nextel) submitted a petition to the Connecticut Siting Council (Council) for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the extension of an approved wireless telecommunications tower located at 3 Edmond Road in Newtown, Connecticut. On December 12, 2005, Council member Edward S. Wilensky and Council staff member Robert Mercier met with Nextel representatives Christopher B. Fisher, Marc Anderson, and Yvan Joseph at the site to review this petition.

Nextel proposes to place a 10-foot extension on a 130-foot monopole owned by Optasite. The facility was approved by the Council on December 22, 2003, and is currently under construction. The 130-foot tower has been erected. Nextel proposes to mount an antenna platform supporting 12 panel antennas at a centerline height 137 feet above ground level (agl). The overall height of the facility with antennas would be 140 feet agl.

During the docket proceeding, T-Mobile originally proposed to construct a 150-foot monopole at the site; however, the Council determined a tower height of 130 feet would be sufficient to meet the coverage needs of T-Mobile. During the docket decision process, visual impacts of a 150-foot tower were assessed and determined to be insignificant by the Council. A tower design that could support a tower extension to 150 feet was included in the Development and Management Plan approved by the Council.

Nextel would install a 12-foot by 20-foot equipment shelter within the 50-foot by 50-foot compound. No expansion of the compound is necessary.

The Federal Aviation Administration determined the 140-foot tower would not require obstruction marking or lighting.



# Exhibit B

## Property Card

### 3 EDMOND ROAD

**Location** 3 EDMOND ROAD

**M/B/L** 27/ 6/ 11/ /

**Acct#** 00927598

**Owner** 5K ENTERPRISES INC

**Assessment** \$1,363,810

**Appraisal** \$1,948,300

**PID** 6168

**Building Count** 2

#### Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$1,408,500	\$539,800	\$1,948,300

Assessment			
Valuation Year	Improvements	Land	Total
2017	\$985,950	\$377,860	\$1,363,810

#### Owner of Record

**Owner** 5K ENTERPRISES INC  
**Co-Owner**  
**Address** 99 HANOVER ROAD  
NEWTOWN, CT 06470

**Sale Price** \$875,000  
**Book & Page** 890/ 525  
**Sale Date** 10/20/2006  
**Instrument** 00

#### Ownership History

Ownership History				
Owner	Sale Price	Book & Page	Instrument	Sale Date
5K ENTERPRISES INC	\$875,000	890/ 525	00	10/20/2006

#### Building Information

##### Building 1 : Section 1

**Year Built:** 2007  
**Living Area:** 9,000

Building Attributes	
Field	Description
STYLE	Ind/Office
MODEL	Ind/Comm

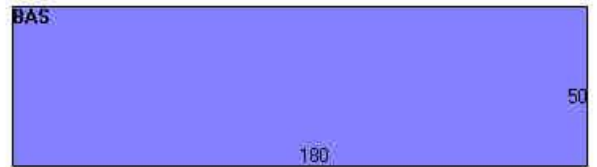
Grade	C+
Stories:	1
Occupancy	6
Exterior Wall 1	Pre-Fin Metal
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Enamel Metal
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	None
Bldg Use	IND WHSES
Total Rooms	
Total Bedrms	
Total Baths	
1st Floor Use:	
Heat/AC	HEAT/AC SPLIT
Frame Type	STEEL
Baths/Plumbing	AVERAGE
Ceiling/Wall	NONE
Rooms/Prtns	LIGHT
Wall Height	25
% Comn Wall	

### Building Photo



(<https://images.vgsi.com/photos/NewtownCTPhotos/\00\02\09\45.jpg>)

### Building Layout



([https://images.vgsi.com/photos/NewtownCTPhotos//Sketches/6168\\_6168](https://images.vgsi.com/photos/NewtownCTPhotos//Sketches/6168_6168)).

Building Sub-Areas (sq ft)			<u>Legend</u>
Code	Description	Gross Area	Living Area
BAS	First Floor	9,000	9,000
		9,000	9,000

### Building 2 : Section 1

**Year Built:** 2010  
**Living Area:** 13,524

Building Attributes : Bldg 2 of 2	
Field	Description
STYLE	Ind/Office
MODEL	Ind/Comm
Grade	C+
Stories:	1
Occupancy	3
Exterior Wall 1	Pre-Fin Metal

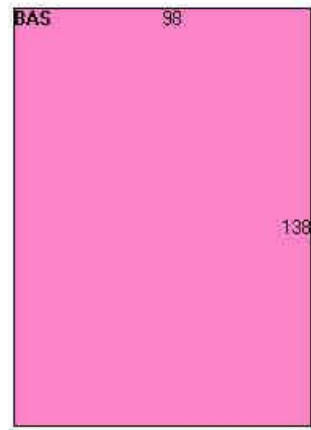
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Enamel Metal
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	None
Bldg Use	IND WHSES
Total Rooms	
Total Bedrms	
Total Baths	
1st Floor Use:	
Heat/AC	NONE
Frame Type	STEEL
Baths/Plumbing	AVERAGE
Ceiling/Wall	NONE
Rooms/Prtns	LIGHT
Wall Height	25
% Comn Wall	

### Building Photo



(<https://images.vgsi.com/photos/NewtownCTPhotos/0002\09\47.jpg>)

### Building Layout



([https://images.vgsi.com/photos/NewtownCTPhotos/Sketches/6168\\_2079](https://images.vgsi.com/photos/NewtownCTPhotos/Sketches/6168_2079))

Building Sub-Areas (sq ft)			<u>Legend</u>
Code	Description	Gross Area	Living Area
BAS	First Floor	13,524	13,524
		13,524	13,524

### Extra Features

Extra Features				<u>Legend</u>
Code	Description	Size	Value	Bldg #
A/C	Air Conditioning	600 UNITS	\$1,090	1

### Land

#### Land Use

Use Code	4010
Description	IND WHSES
Zone	M-5

#### Land Line Valuation

Size (Acres)	22.98
Frontage	
Depth	

Neighborhood C100  
Alt Land Appr No  
Category

Assessed Value \$377,860  
Appraised Value \$539,800

**Outbuildings**

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
LT1	Lights			3 UNITS	\$1,240	1

**Valuation History**

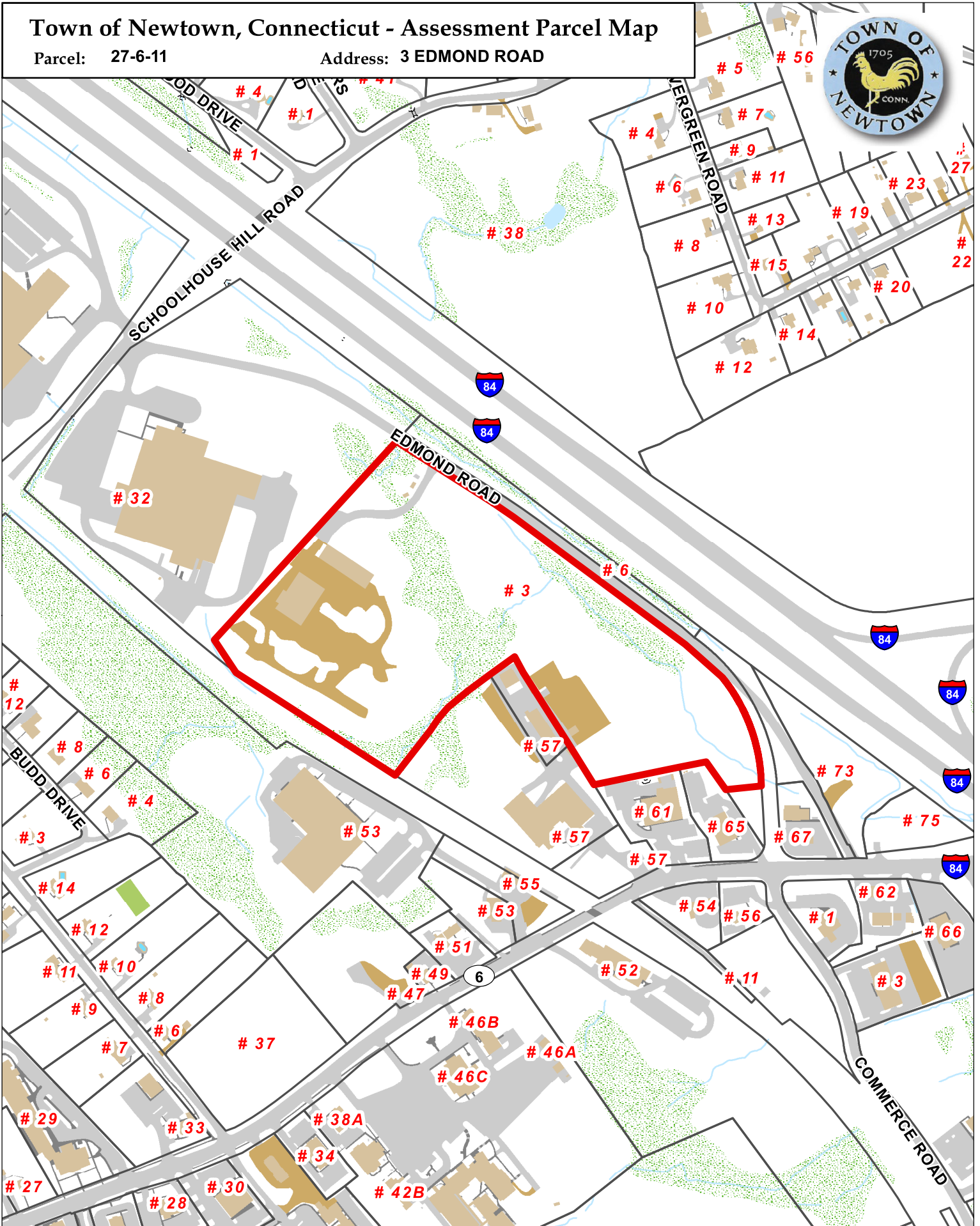
Appraisal			
Valuation Year	Improvements	Land	Total
2020	\$1,408,500	\$539,800	\$1,948,300
2019	\$1,408,500	\$539,800	\$1,948,300
2018	\$1,408,500	\$539,800	\$1,948,300

Assessment			
Valuation Year	Improvements	Land	Total
2020	\$985,950	\$377,860	\$1,363,810
2019	\$985,950	\$377,860	\$1,363,810
2018	\$985,950	\$377,860	\$1,363,810

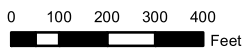
# Town of Newtown, Connecticut - Assessment Parcel Map

Parcel: 27-6-11

Address: 3 EDMOND ROAD



Approximate Scale:



Disclaimer: This map is for informational purposes only. All information is subject to verification by any user. The Town of Newtown and its mapping contractors assume no legal responsibility for the information contained herein.

Map Produced Nov 2020

# Exhibit C

## **Construction Drawings**



DISH Wireless L.L.C. SITE ID:

**NJJER01079D**

DISH Wireless L.L.C. SITE ADDRESS:

**3 EDMUND ROAD  
NEWTOWN, CT 06470**



**By Stephen Roth at 5:52:57 AM, 7/7/2022**

**SCOPE OF WORK**

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

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

- GROUND SCOPE OF WORK:**
- INSTALL (1) PROPOSED METAL PLATFORM
  - INSTALL (1) PROPOSED ICE BRIDGE
  - INSTALL (1) PROPOSED PPC CABINET
  - INSTALL (1) PROPOSED EQUIPMENT CABINET
  - INSTALL (1) PROPOSED POWER CONDUIT
  - INSTALL (1) PROPOSED TELCO CONDUIT
  - INSTALL (1) PROPOSED TELCO-FIBER BOX
  - INSTALL (1) PROPOSED GPS UNIT
  - INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)

**SITE INFORMATION**

PROPERTY OWNER: 5K ENTERPRISES INC  
ADDRESS: 99 HANOVER ROAD  
NEWTOWN, CT 06470

TOWER TYPE: MONOPOLE

TOWER CO SITE ID: CT13060-A

TOWER APP NUMBER: 169470

COUNTY: FAIRFIELD

LATITUDE (NAD 83): 41° 25' 14.9" N  
41.420812 N

LONGITUDE (NAD 83): 73° 17' 54.5" W  
73.298474 W

ZONING JURISDICTION: FAIRFIELD COUNTY

ZONING DISTRICT: X

PARCEL NUMBER: 27-6-11

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: II-B

POWER COMPANY: EVERSOURCE

TELEPHONE COMPANY: T.B.D.

**PROJECT DIRECTORY**

APPLICANT: DISH Wireless L.L.C.  
5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

TOWER OWNER: SBA COMMUNICATIIONS 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: WILLIAM SNIDER  
william.snider@dish.com

CONST. MANAGER: MICHAEL NARDUCCI  
michael.narducci@dish.com

RF ENGINEER: PAWAN MADAHAR  
pawan.madahar@dish.com



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



8051 CONGRESS AVENUE  
BOCA RATON, FL 33487



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



MTS ENGINEERING P.L.L.C.  
BER:2386985  
Expires 3/31/23

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

DRAWN BY: YN CHECKED BY: BLJ APPROVED BY: BLJ

RFDS REV #: 1.0

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	11/8/21	ISSUED FOR REVIEW
0	7/5/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
**158618.001.01**

DISH Wireless L.L.C.  
PROJECT INFORMATION  
**NJJER01079D  
3 EDMUND ROAD  
NEWTOWN, CT 06470**

SHEET TITLE  
**TITLE SHEET**

SHEET NUMBER  
**T-1**

**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

**SITE PHOTO**



**DIRECTIONS**

DIRECTIONS FROM 3 ADP BLVD, ROSELAND, NJ 07068:  
DEPART 3 ADP BLVD, ROSELAND, NJ 07068 ON BECKER FARM RD. TURN RIGHT ONTO CR-527. TAKE RAMP (RIGHT) ONTO I-280. AT EXIT 17B, STAY ON I-280. TAKE RAMP ONTO I-95 [NEW JERSEY TPKE]. STAY ON I-95 [NEW JERSEY TPKE]. AT EXIT 73, STAY ON I-95 [NEW JERSEY TPKE]. STAY ON I-95 [US-1]. AT EXIT 3, KEEP STRAIGHT ONTO RAMP [3]. TAKE RAMP (RIGHT) ONTO I-87 [MAJOR DEEGAN EXPY]. AT EXIT 4, TAKE RAMP (RIGHT) ONTO CENTRAL PARK AVE. KEEP RIGHT ONTO RAMP. TAKE RAMP (LEFT) ONTO CROSS COUNTY PKWY. MERGE ONTO HUTCHINSON RIVER PKWY N. KEEP LEFT ONTO I-684. AT EXIT 9E, TAKE RAMP (RIGHT) ONTO I-84. AT EXIT 10, TURN RIGHT ONTO RAMP. TURN LEFT ONTO US-6 [CHURCH HILL RD], THEN IMMEDIATELY BEAR RIGHT ONTO EDMUND RD. TURN LEFT ONTO ACCESS ROAD. ARRIVE AT NJJER0709D.

**VICINITY MAP**



**UNDERGROUND SERVICE ALERT CBYD 811**  
**UTILITY NOTIFICATION CENTER OF CONNECTICUT**  
(800) 922-4455  
[WWW.CBYD.COM](http://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**

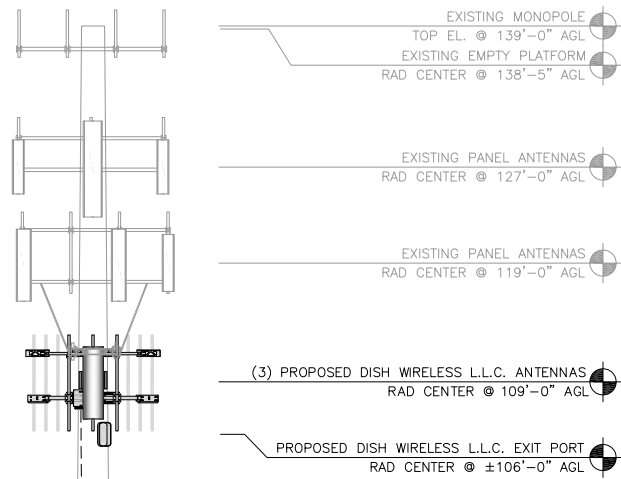
CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.





**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.



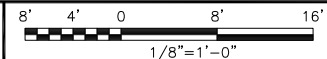
(1) PROPOSED DISH WIRELESS L.L.C. HYBRID CABLE ROUTED INSIDE POLE

PROPOSED DISH WIRELESS L.L.C. ICE BRIDGE  
PROPOSED DISH WIRELESS L.L.C. EQUIPMENT ON PROPOSED STEEL PLATFORM  
PROPOSED DISH WIRELESS L.L.C. GPS UNIT

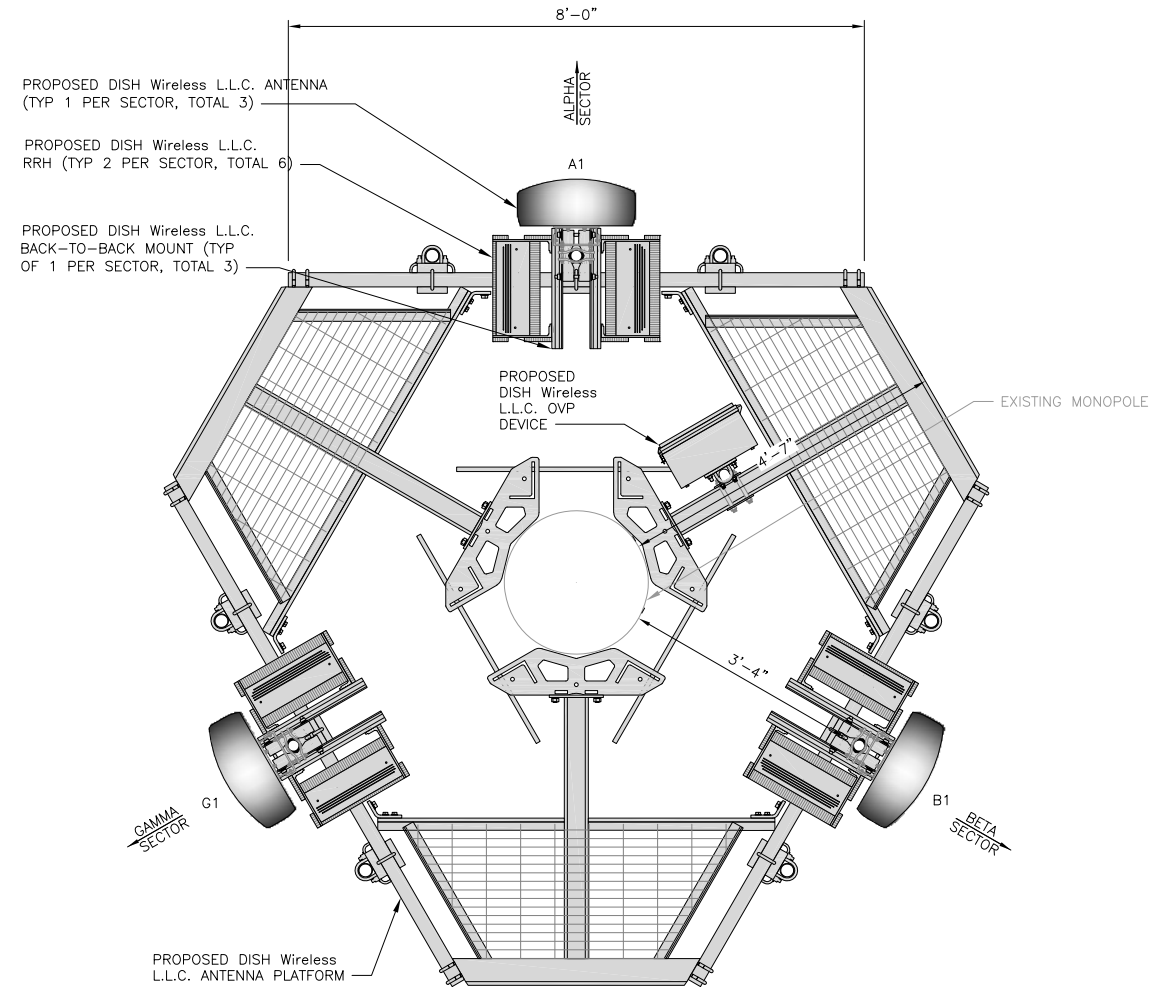
EXISTING MONOPOLE  
EXISTING ENTRY PORT

EXISTING MONOPOLE  
BOTTOM EL. @ 6" AGL

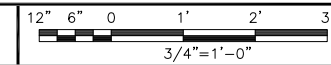
**PROPOSED NORTH ELEVATION**



**1**



**ANTENNA LAYOUT**



**2**

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE	
		EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH	
ALPHA	A1	PROPOSED	COMMSCOPE - FFV-65B-R2	5G	72.0" x 19.6"	0°	109'-0"	(1) HIGH-CAPACITY HYBRID CABLE (150' LONG)	
BETA	B1	PROPOSED	COMMSCOPE - FFV-65B-R2	5G	72.0" x 19.6"	120°	109'-0"		
GAMMA	G1	PROPOSED	COMMSCOPE - FFV-65B-R2	5G	72.0" x 19.6"	240°	109'-0"		

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

**ANTENNA SCHEDULE**

NO SCALE

**3**



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



8051 CONGRESS AVENUE  
BOCA RATON, FL 33487



MTS ENGINEERING P.L.L.C.  
BER:2386985  
Expires 3/31/23

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DRAWN BY:	CHECKED BY:	APPROVED BY:
YN	BLJ	BLJ

RFDS REV #: 1.0

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	11/8/21	ISSUED FOR REVIEW
0	7/5/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
**158618.001.01**

DISH Wireless L.L.C.  
PROJECT INFORMATION  
**NJJER01079D**  
3 EDMUND ROAD  
NEWTOWN, CT 06470

SHEET TITLE  
**ELEVATION, ANTENNA LAYOUT AND SCHEDULE**

SHEET NUMBER

**A-2**



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



8051 CONGRESS AVENUE  
BOCA RATON, FL 33487



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



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**3 EDMUND ROAD**  
**NEWTOWN, CT 06470**

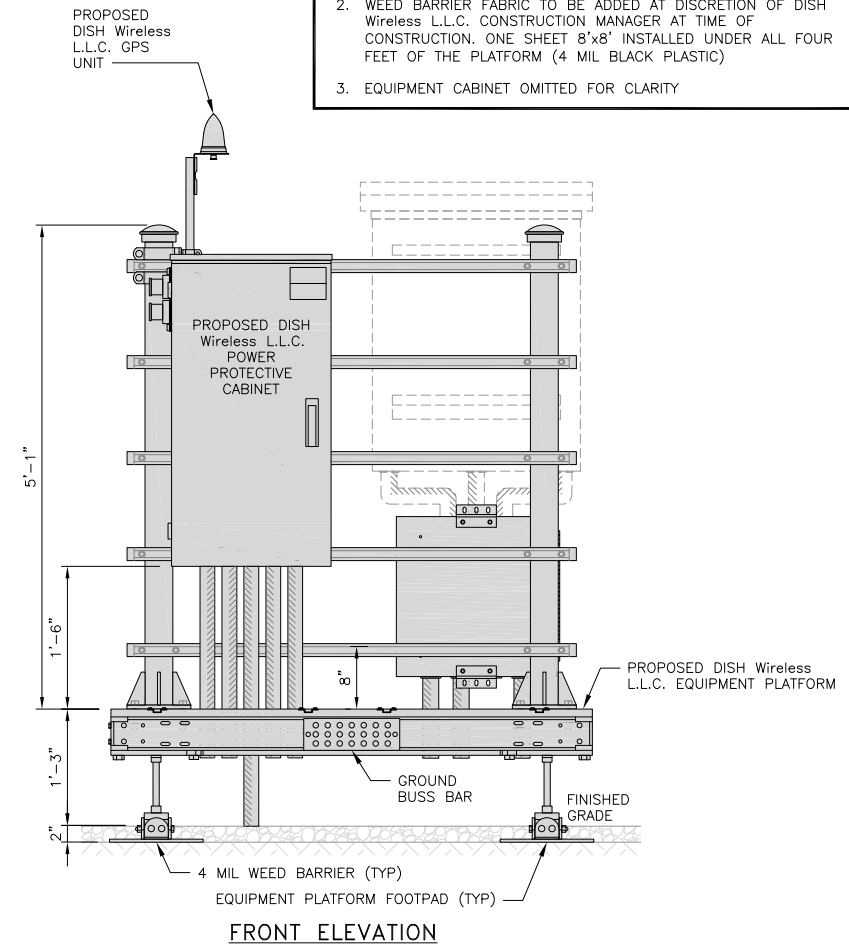
SHEET TITLE  
**EQUIPMENT PLATFORM AND H-FRAME DETAILS**

SHEET NUMBER

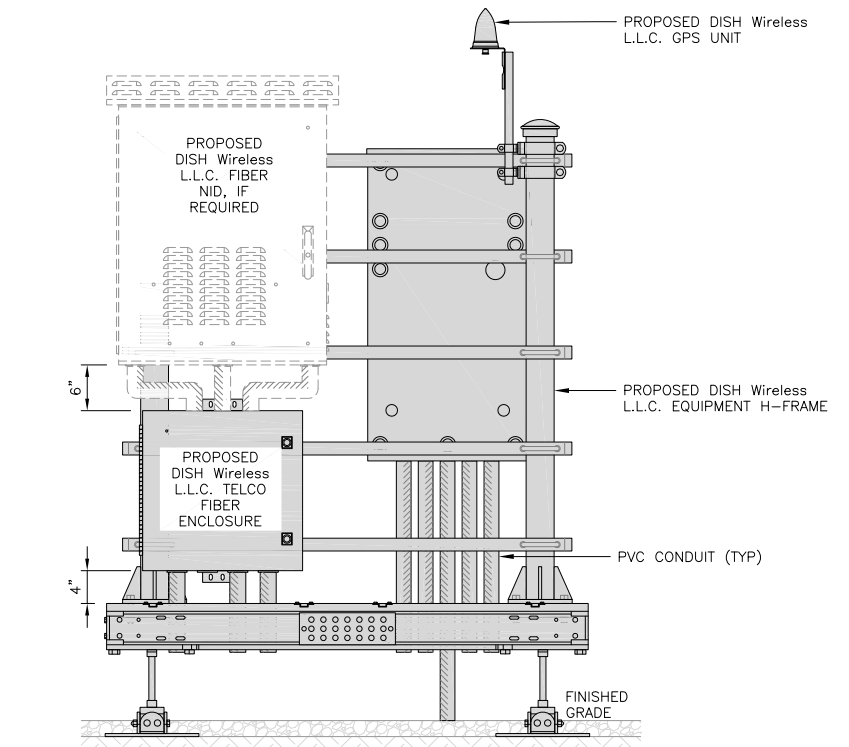
**A-3**

**NOTES**

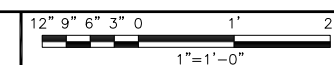
1. CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
2. WEED BARRIER FABRIC TO BE ADDED AT DISCRETION OF DISH Wireless L.L.C. CONSTRUCTION MANAGER AT TIME OF CONSTRUCTION. ONE SHEET 8'x8' INSTALLED UNDER ALL FOUR FEET OF THE PLATFORM (4 MIL BLACK PLASTIC)
3. EQUIPMENT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



**FRONT ELEVATION**

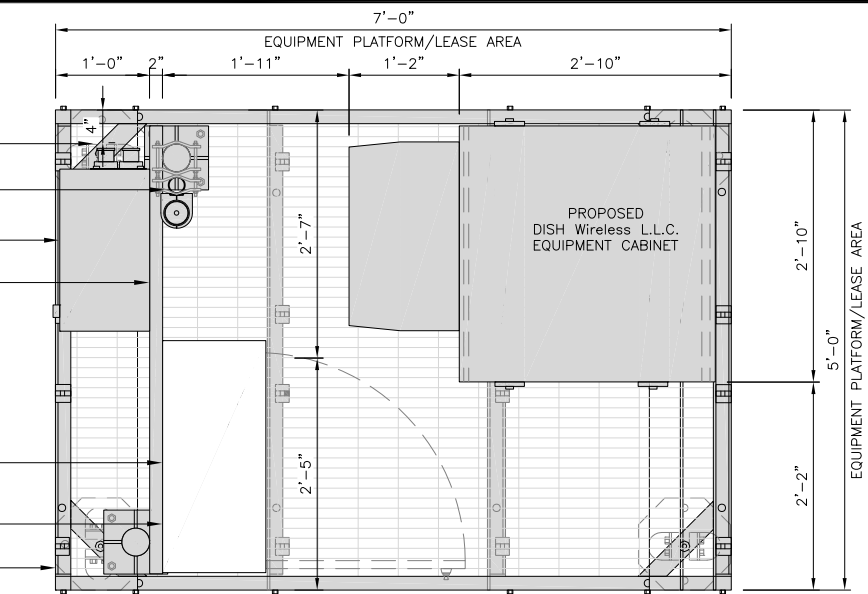


**BACK ELEVATION**

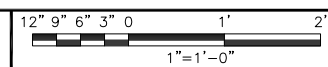


**5**

**H-FRAME EQUIPMENT ELEVATION**



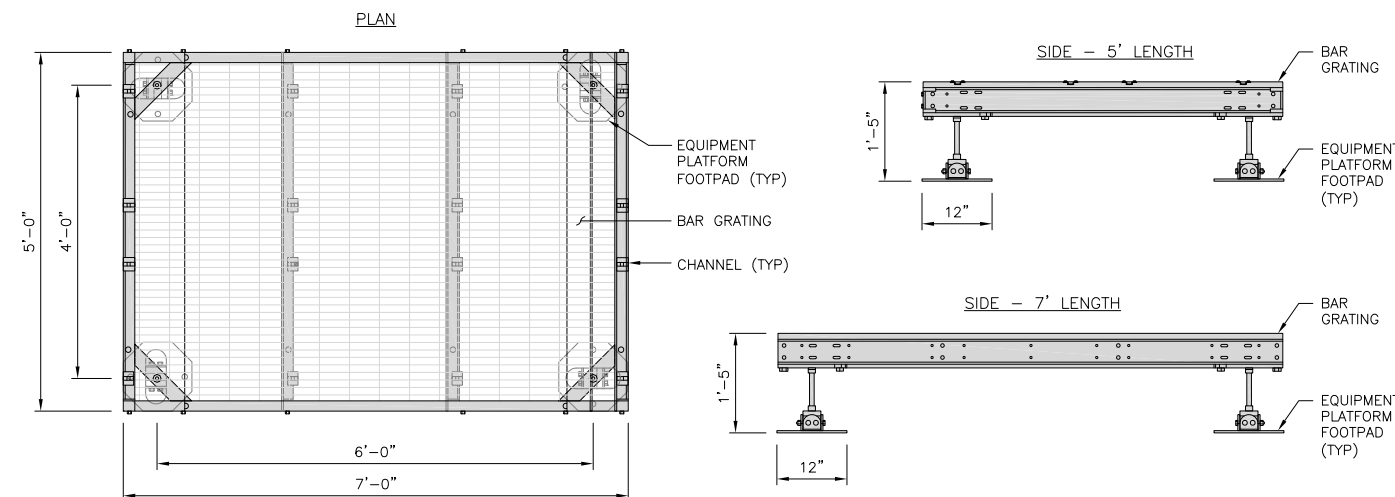
**PLATFORM EQUIPMENT PLAN**



**1**

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

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



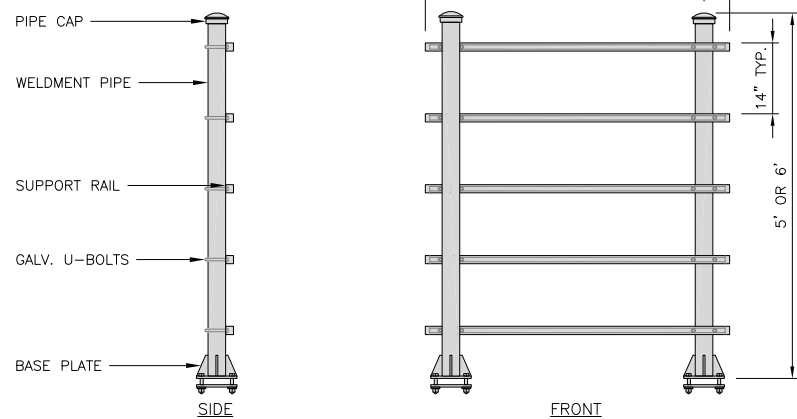
**PLATFORM DETAIL**

NO SCALE

**2**

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

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



**H-FRAME DETAIL**

NO SCALE

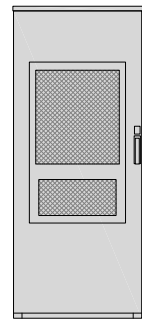
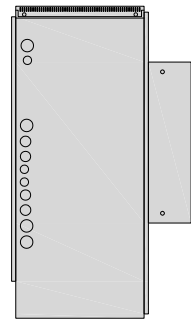
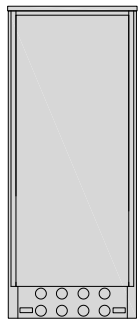
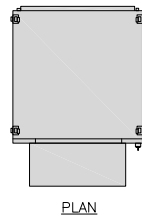
**3**

**NOT USED**

NO SCALE

**4**

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

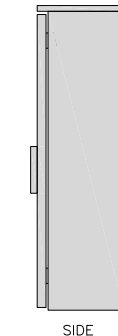
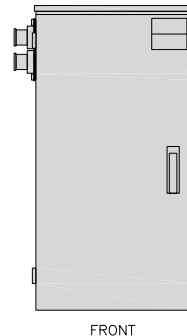
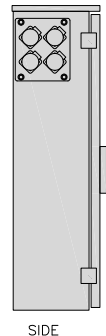
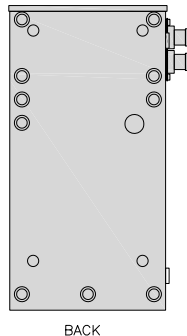
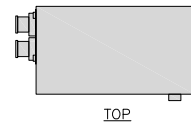


CABINET DETAIL

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



POWER PROTECTION CABINET (PPC) DETAIL

NO SCALE

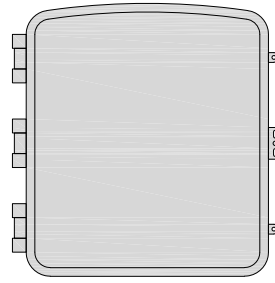
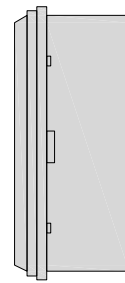
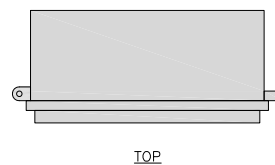
2

NOT USED

NO SCALE

3

CIENA 3931 FIBER NID ENCLOSURE	
DIMENSIONS (HxWxD)	17"x16.8"x7"
WEIGHT	28.6 lbs

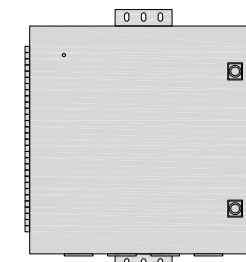
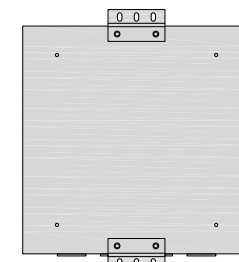
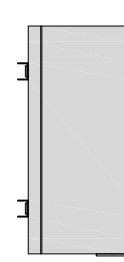
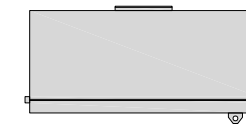


FIBER NID ENCLOSURE DETAIL

NO SCALE

5

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



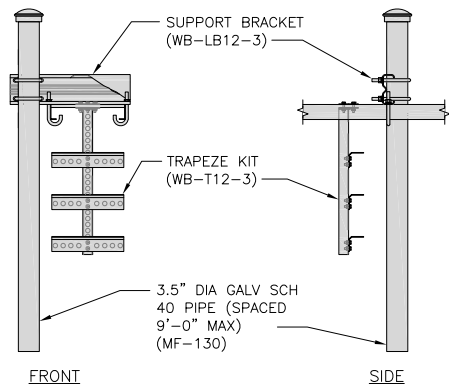
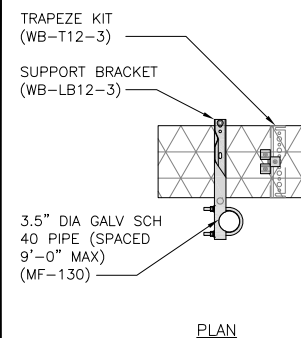
FIBER TELCO ENCLOSURE DETAIL

NO SCALE

6

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

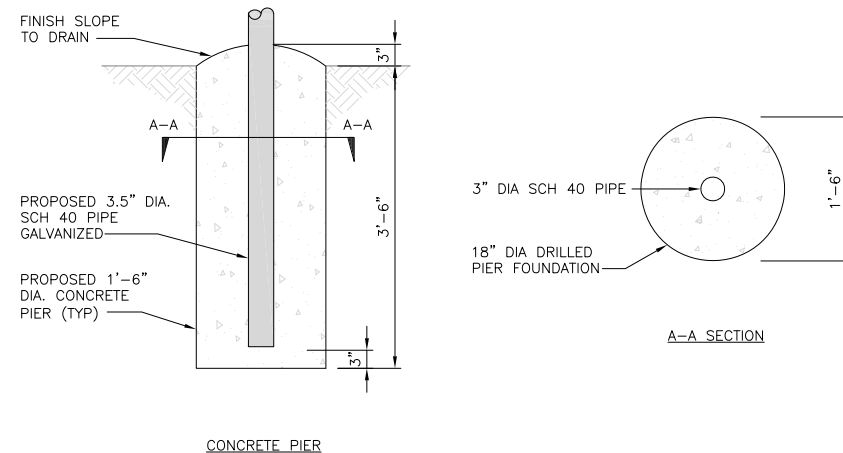
INCLUDED PRODUCTS:	WB-T12-3 TRAPEZE KIT, 3 RUNGS
	WB-LB12-3 SUPPORT BRACKET
	MF-130 DIRECT BURIAL PIPE COLUMN, 13'-4"



ICE BRIDGE DETAIL

NO SCALE

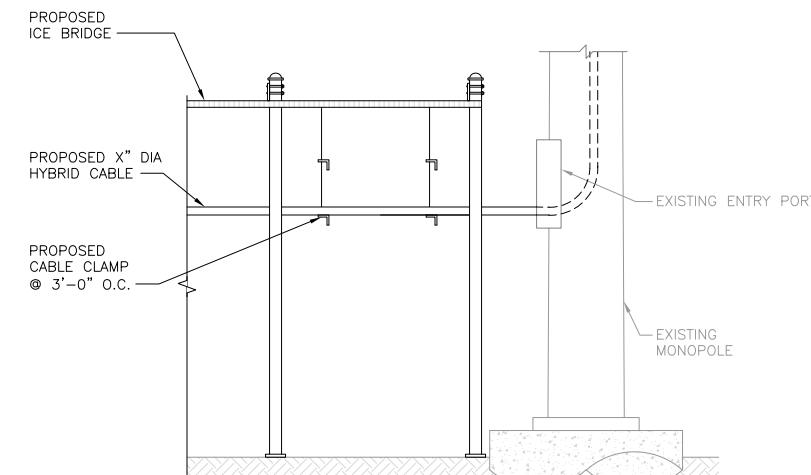
7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL

NO SCALE

8



HYBRID CABLE RUN

NO SCALE

9

**dish**  
wireless.

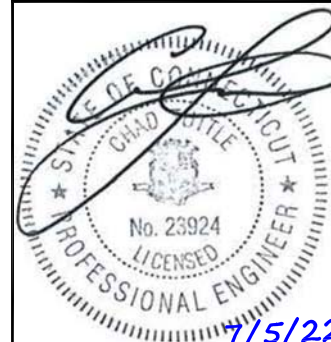
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RFDS REV #: 1.0

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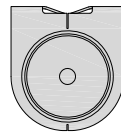
DISH Wireless L.L.C.  
PROJECT INFORMATION  
NJJER01079D  
3 EDMUND ROAD  
NEWTOWN, CT 06470

SHEET TITLE  
EQUIPMENT DETAILS

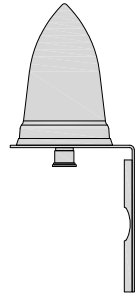
SHEET NUMBER

**A-4**

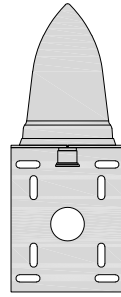
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



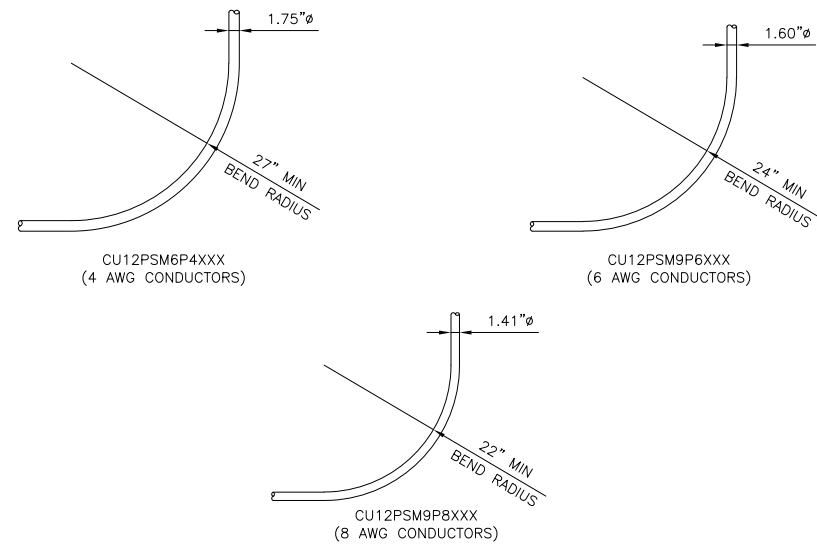
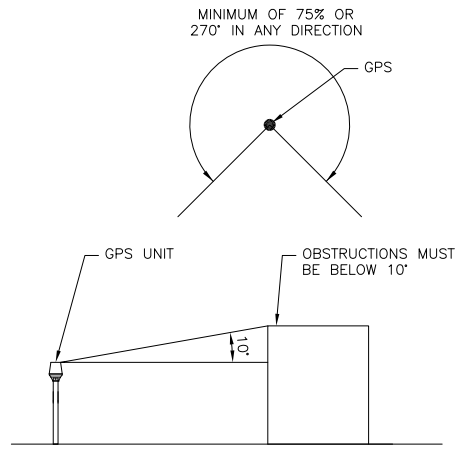
TOP



BACK



SIDE



GPS DETAIL

NO SCALE

1

GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

2

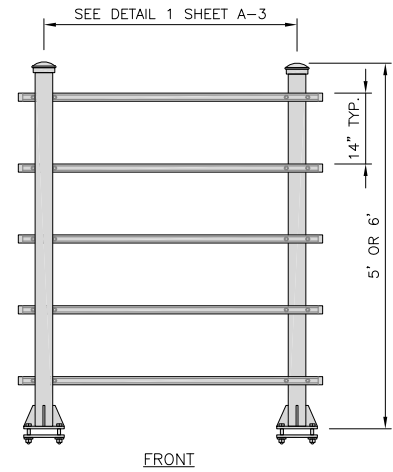
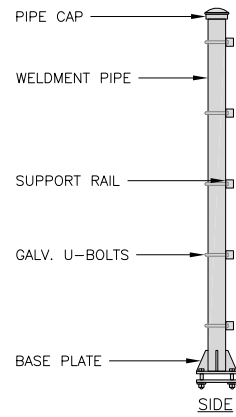
CABLES UNLIMITED HYBRID CABLE  
MINIMUM BEND RADIUSES

NO SCALE

3

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

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



H-FRAME DETAIL

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9



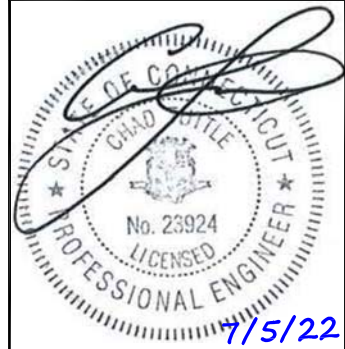
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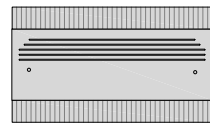
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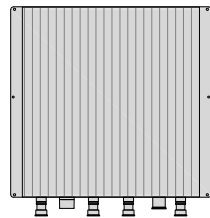
SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER  
**A-5**

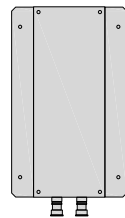
FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



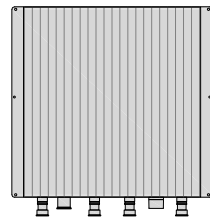
PLAN



BACK



SIDE



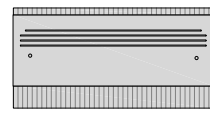
FRONT

RRH DETAIL

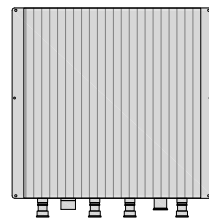
NO SCALE

1

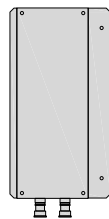
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



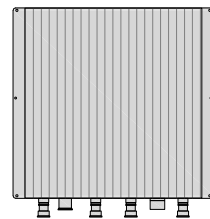
PLAN



BACK



SIDE



FRONT

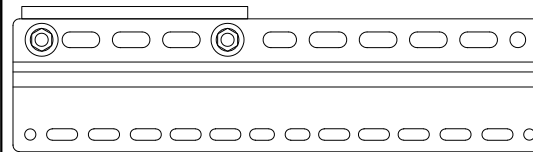
RRH DETAIL

NO SCALE

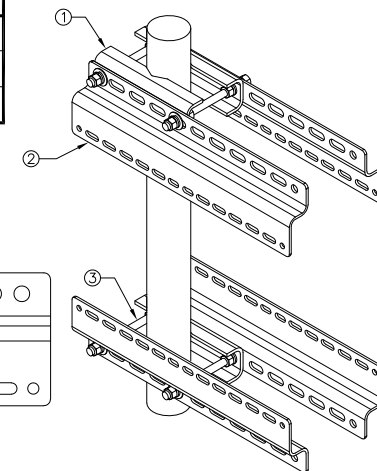
2

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

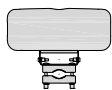


RRH MOUNT DETAIL

NO SCALE

3

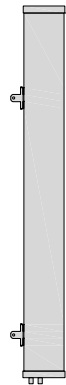
COMMSCOPE FFV-65B-R2	
DIMENSIONS (HxWxD)(MM/IN)	1826x498x197 72"x19.6"x7.8"
RF CONNECTOR INTERFACE	4.3-10 FEMALE
WEIGHT	70.8 lbs
WEIGHT WITH BRACKETS	98.1 lbs



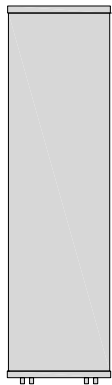
PLAN



BACK



SIDE



FRONT

ANTENNA DETAIL

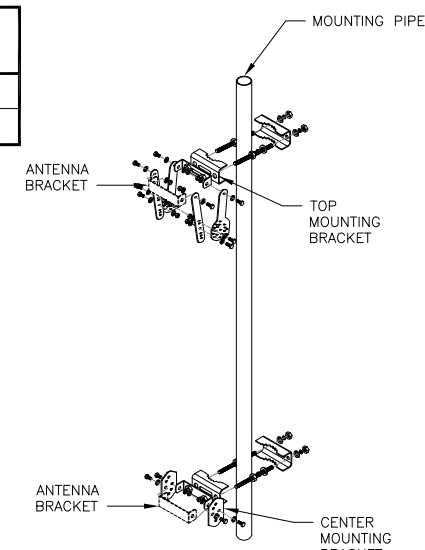
NO SCALE

4

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

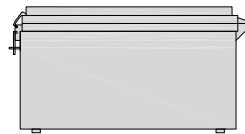


ANTENNA BRACKET DETAIL

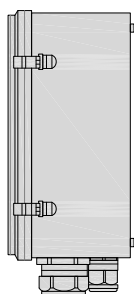
NO SCALE

6

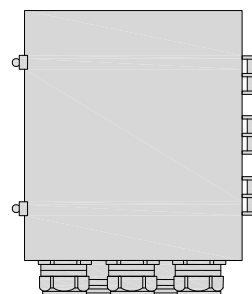
RAYCAP RDIC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



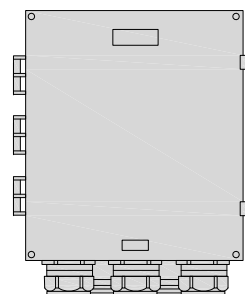
PLAN



SIDE



BACK



FRONT

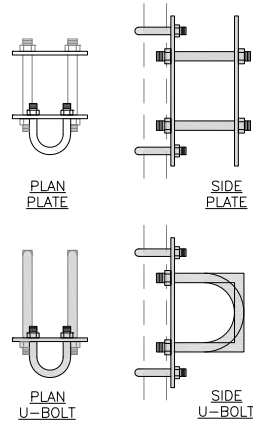
SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

7

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

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

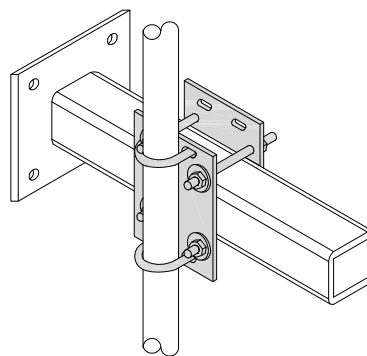


PLAN PLATE

SIDE PLATE

PLAN U-BOLT

SIDE U-BOLT



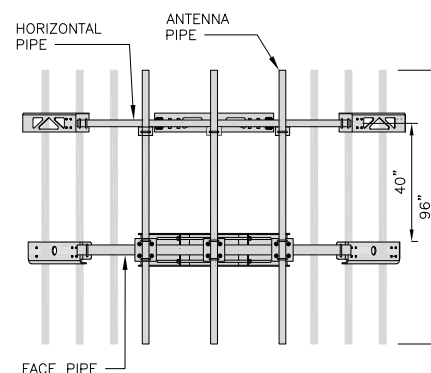
RRH/OVP MOUNT DETAIL

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



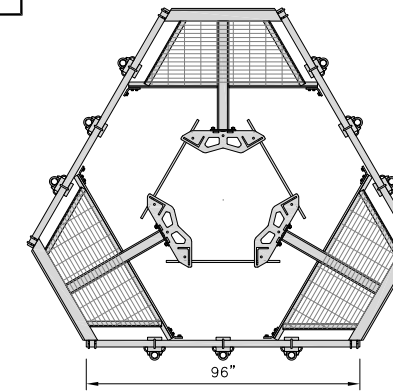
HORIZONTAL PIPE

ANTENNA PIPE

FACE PIPE

40"

96"



96"

ANTENNA PLATFORM DETAIL

NO SCALE

9



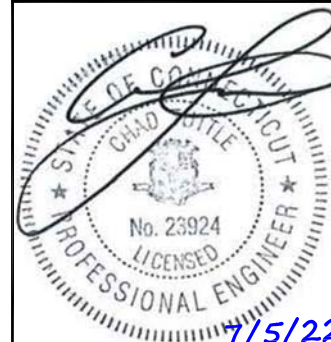
5701 SOUTH SANTA FE DRIVE  
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BOCA RATON, FL 33487



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



MTS ENGINEERING P.L.L.C.  
BER:2386985  
Expires 3/31/23

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TO ALTER THIS DOCUMENT.

DRAWN BY: CHECKED BY: APPROVED BY:  
YN BJJ BJJ

RFDS REV #: 1.0

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
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0	7/5/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
158618.001.01

DISH Wireless L.L.C.  
PROJECT INFORMATION

NJER01079D  
3 EDMUND ROAD  
NEWTOWN, CT 06470

SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER

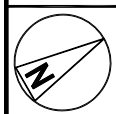
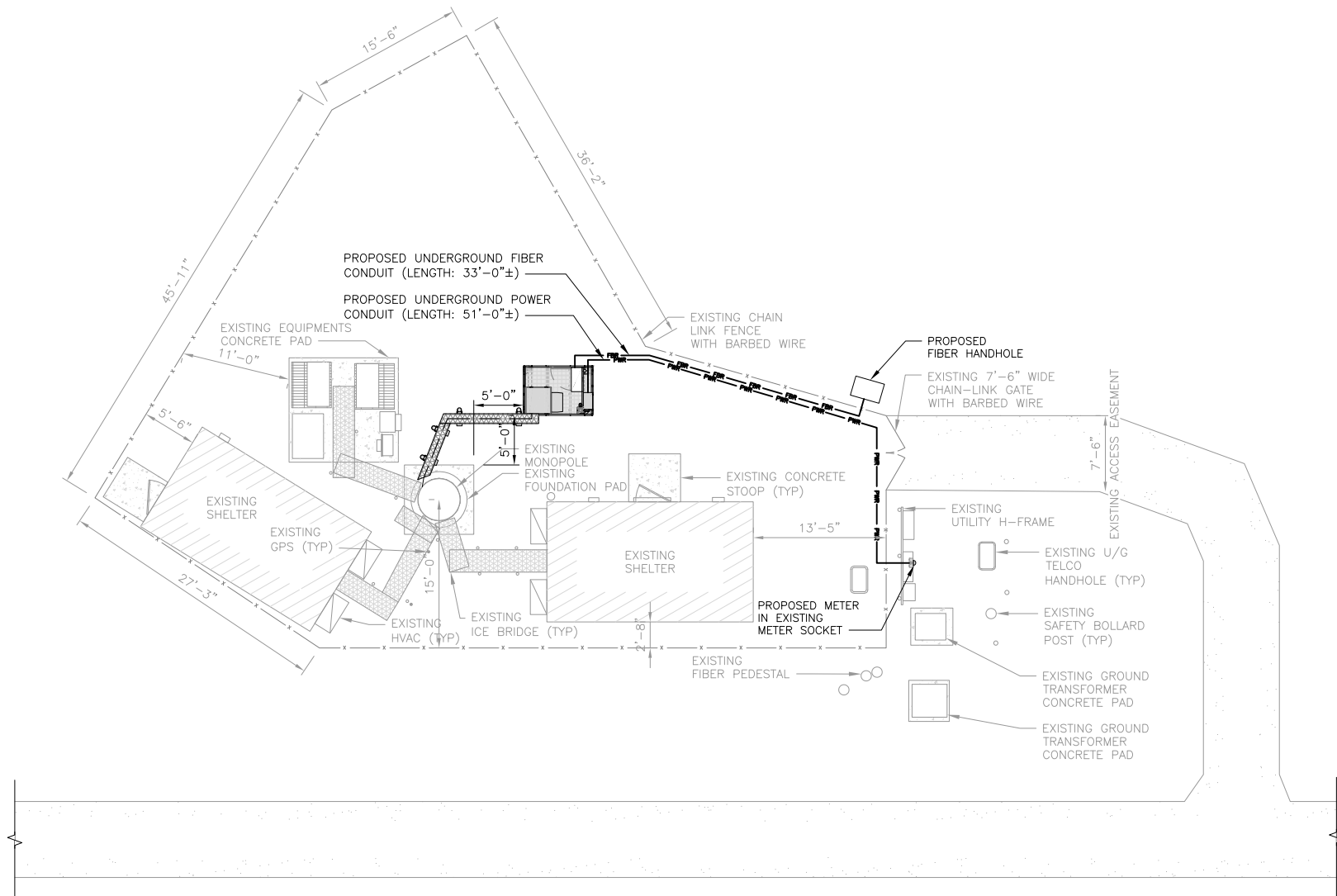
A-6

**NOTES**

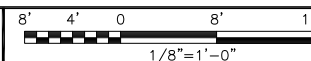
1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. THE GROUND LEASE PROVIDES BROAD/BLANKET UTILITY RIGHTS. "PWR" AND "FBR" PATH DEPICTED ON A-1 AND E-1 ARE BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO FIELD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

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



UTILITY ROUTE PLAN



1

ELECTRICAL NOTES

NO SCALE

2



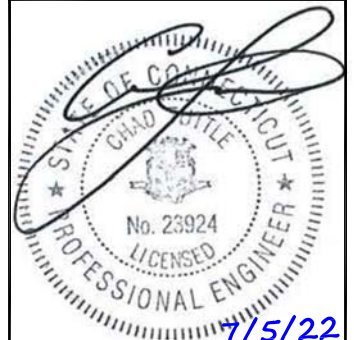
5701 SOUTH SANTA FE DRIVE  
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DISH Wireless L.L.C.  
PROJECT INFORMATION  
NJJER01079D  
3 EDMUND ROAD  
NEWTOWN, CT 06470

SHEET TITLE  
ELECTRICAL/FIBER ROUTE  
PLAN AND NOTES

SHEET NUMBER

**E-1**



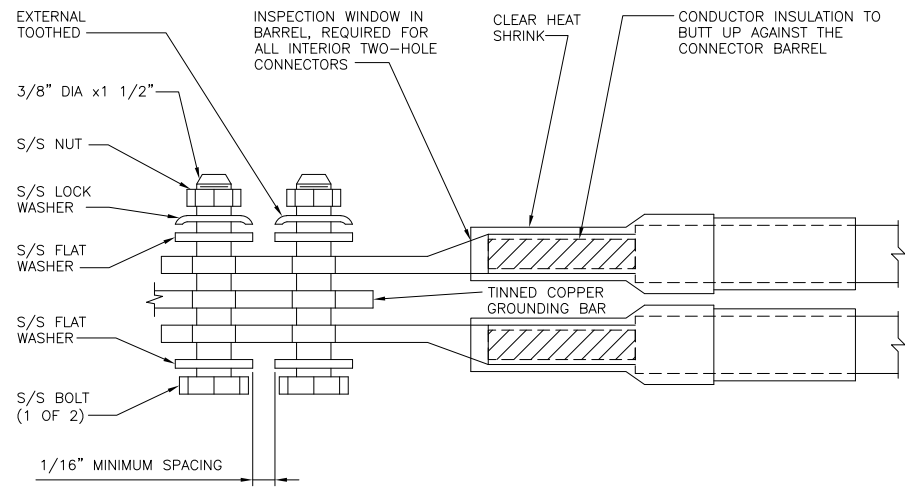
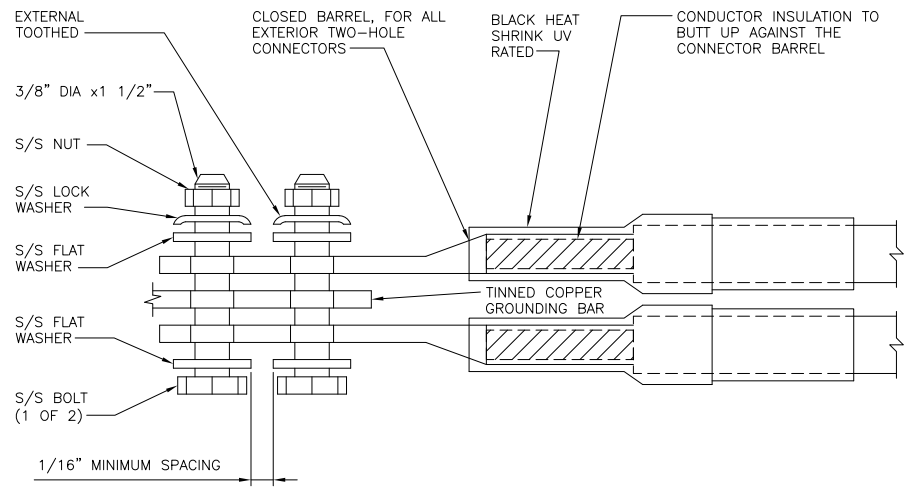








1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR. ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. ALL EXTERIOR GROUNDING HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, 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

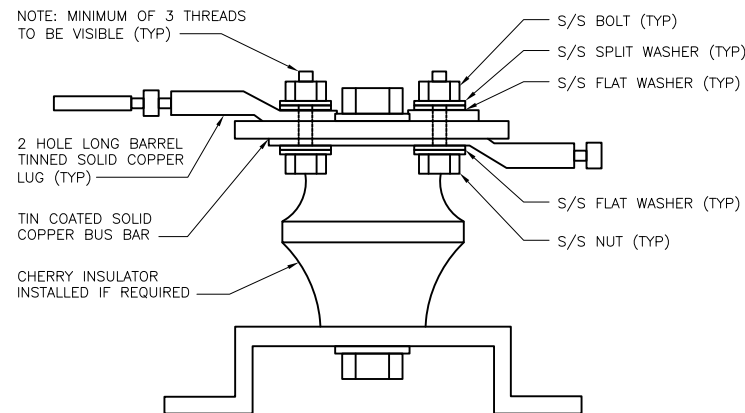
NO SCALE 1

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

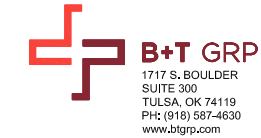
NO SCALE 9



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NJJER01079D  
3 EDMUND ROAD  
NEWTOWN, CT 06470

SHEET TITLE  
GROUNDING DETAILS

SHEET NUMBER  
**G-3**

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

RF CABLE COLOR CODES

NO SCALE

1

NOT USED

NO SCALE

4

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

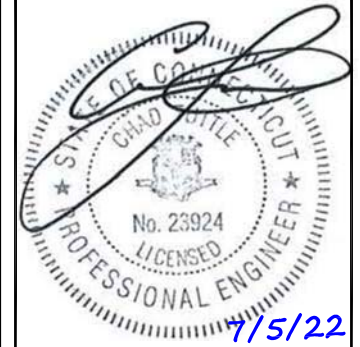
3

**dish**  
wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



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PROJECT INFORMATION

NJER01079D  
3 EDMUND ROAD  
NEWTOWN, CT 06470

SHEET TITLE  
RF  
CABLE COLOR CODES

SHEET NUMBER

RF-1



SITE ACTIVITY REQUIREMENTS:

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

GENERAL NOTES:

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



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RFDS REV #: 1.0

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
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0	7/5/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
**158618.001.01**

DISH Wireless L.L.C.  
PROJECT INFORMATION  
**NJJER01079D**  
**3 EDMUND ROAD**  
**NEWTOWN, CT 06470**

SHEET TITLE  
**GENERAL NOTES**

SHEET NUMBER  
**GN-2**

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

ELECTRICAL INSTALLATION NOTES:

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

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



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Expires 3/31/23

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A&E PROJECT NUMBER  
**158618.001.01**

DISH Wireless L.L.C.  
PROJECT INFORMATION  
**NJJER01079D**  
**3 EDMUND ROAD**  
**NEWTOWN, CT 06470**

SHEET TITLE  
**GENERAL NOTES**

SHEET NUMBER  
**GN-3**



**GROUNDING NOTES:**

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



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DISH Wireless L.L.C.  
PROJECT INFORMATION  
**NJJER01079D**  
**3 EDMUND ROAD**  
**NEWTOWN, CT 06470**

SHEET TITLE  
**GENERAL NOTES**

SHEET NUMBER  
**GN-4**

# Exhibit D

## **Structural Analysis Report**



**Tower Engineering Solutions**

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

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## Structural Analysis Report

**Existing 139 ft SABRE Monopole**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT13060-A**

**Customer Site Name: Newtown 2**

**Carrier Name: Dish Wireless (App#: 169470, V1)**

**Carrier Site ID / Name: NJJER01079D / 0**

**Site Location: 3 Edmund Road**

**Newtown, Connecticut**

**Fairfield County**

**Latitude: 41.420899**

**Longitude: -73.298102**



**Analysis Result:**

**Max Structural Usage: 67.8% [Pass]**

**Max Foundation Usage: 55.0% [Pass]**

**Additional Usage Caused by New Mount/Mount Modification: N/A**

**Report Prepared By: Sital Shrestha**



**Tower Engineering Solutions**

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

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## **Structural Analysis Report**

**Existing 139 ft SABRE Monopole**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT13060-A**

**Customer Site Name: Newtown 2**

**Carrier Name: Dish Wireless (App#: 169470, V1)**

**Carrier Site ID / Name: NJJER01079D / 0**

**Site Location: 3 Edmund Road**

**Newtown, Connecticut**

**Fairfield County**

**Latitude: 41.420899**

**Longitude: -73.298102**

### **Analysis Result:**

**Max Structural Usage: 67.8% [Pass]**

**Max Foundation Usage: 55.0% [Pass]**

**Additional Usage Caused by New Mount/Mount Modification: N/A**

**Report Prepared By: Sital Shrestha**

## Introduction

The purpose of this report is to summarize the analysis results on the 139 ft SABRE Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

## Sources of Information

<b>Tower Drawings</b>	Sabre Job #06-07285, dated 07/28/05
<b>Foundation Drawing</b>	Sabre Job #06-07285, dated 07/28/05
<b>Geotechnical Report</b>	Jaworski Geotech, Inc. Project #04125G, dated 01/30/04
<b>Modification Drawings</b>	N/A
<b>Mount Analysis</b>	N/A

## Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2. 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.

<b>Wind Speed Used in the Analysis:</b>	Ultimate Design Wind Speed $V_{ult} = 120.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 93.0$ mph (3-Sec. Gust)
<b>Wind Speed with Ice:</b>	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
<b>Operational Wind Speed:</b>	60 mph + 0" Radial ice
<b>Standard/Codes:</b>	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
<b>Exposure Category:</b>	B
<b>Structure Class:</b>	II
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Seismic Parameters:</b>	$S_5 = 0.208$ , $S_1 = 0.066$

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
-	138.5		-	Empty Low Profile Platform	-	-
2	127.0	3	Ericsson Air 21 B2A/B4P	Low Profile Platform w/ (1) Metrosite Support Rail Center Pipe Kit: MS-HRCP-35 (1) Metrosite Support Rail w/ End Connection: MS-HRECP-35 (3) Metrosite Mount Pipes: PST2375-8	(9) 1 5/8" (4) 1 5/8" Fiber	T-Mobile
3		3	Ericsson Air 32 KRD901146-1_B66A_B2A			
4		3	RFS APXVAARR24_43-U-NA20@ 125'			
5		3	Ericsson KRY 112 144/1			
6		3	Ericsson Radio 4449 B71+B12@ 125'			
7	119.0	6	Powerwave - 7770 - Panel	Low Profile Platform w/ Site Pro HRK12 Handrail Kit and PRK-1245L Mount Reinforcement Kit	(12) 1 5/8" (2) 1/2" Fiber (4) 3/4" DC (1) 2" Innerduct	AT&T
8		3	Quintel - QS66512-2 - Panel			
9		3	Cci - HPA-65R-BUU-H6 - Panel			
10		9	Powerwave - LGP21401 - TMA			
11		3	Powerwave - TT19-08BP-111-001 - TMA			
12		6	Kaelus - DBC0061F1V51-2 - Diplexer			
13		3	Ericsson - RRUS 32 B30 - RRU			
14		3	Ericsson - RRUS-11 - RRU			
15		3	Ericsson - RRUS-32 B2 - RRU			
16		2	Raycap - DC6-48-60-18-8F - SP			

## 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
16	109.0	3	Commscope FFVV-65B-R2- Panel	(1) Commscope MC-PK8-DSH	(1) 1.75" Hybrid	Dish Wireless
17		3	Fujitsu TA08025-B605-RRH			
18		3	Fujitsu TA08025-B604-RRH			
19		1	Raycap RDIDC-9181-PF-48- OVP			

See the attached coax layout for the line placement considered in the analysis.

## **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:	<b>67.8%</b>	<b>62.0%</b>	<b>48.6%</b>
Pass/Fail	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

## **Foundations**

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	2212.2	21.2	60.5

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 1.1068 degrees under the operational wind speed as specified in the Analysis Criteria.

## **Conclusions**

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

## 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 ANSI/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 67.81% at 0.0ft

**Structure:** CT13060-A-SBA  
**Site Name:** Newtown 2  
**Height:** 139.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-G  
**Exposure:** B  
**Gh:** 1.1

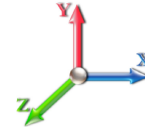
10/13/2021



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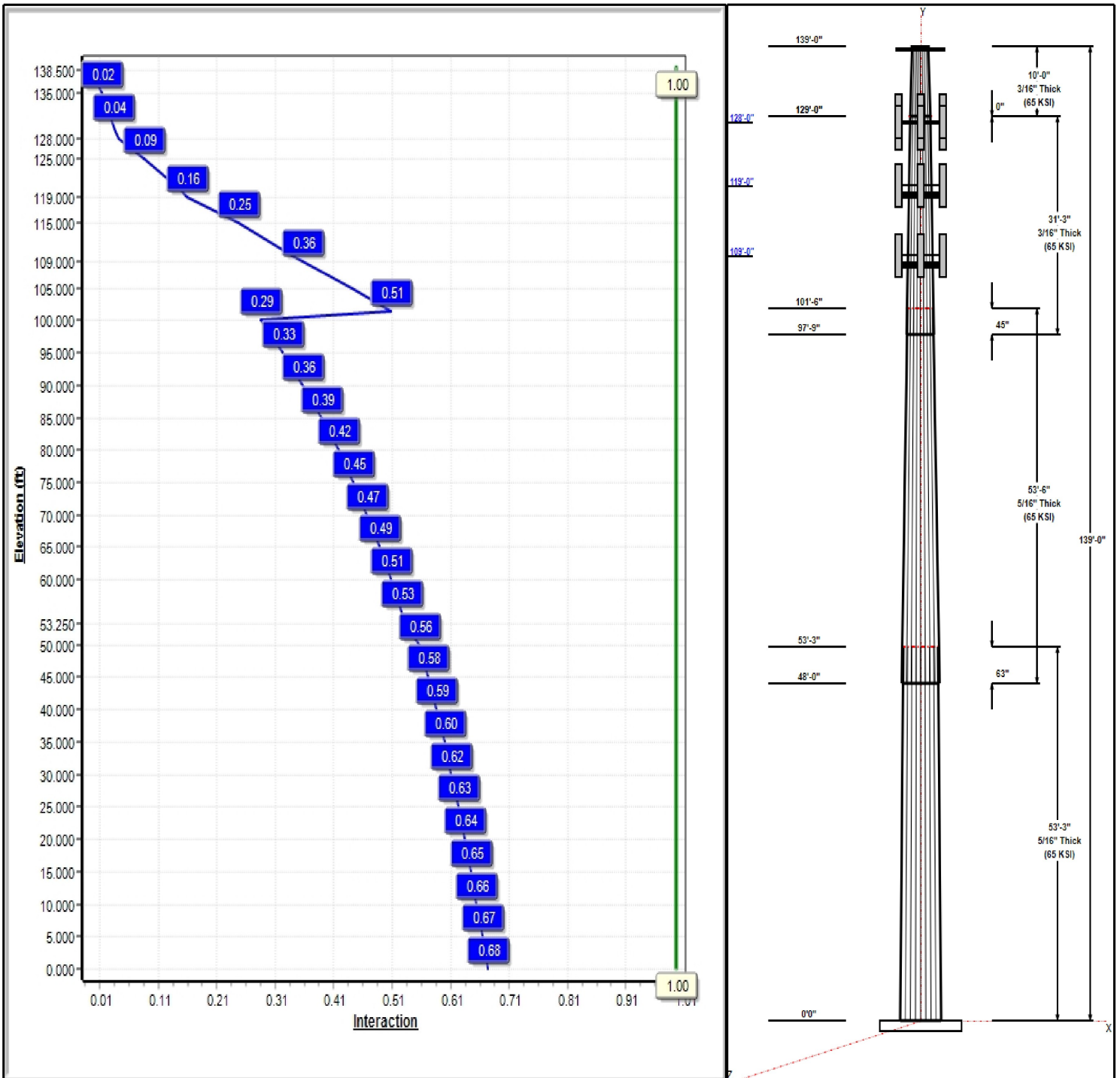
**Dead Load Factor:** 1.20  
**Wind Load Factor:** 1.60

**Load Case : 1.2D + 1.6W 93 mph Wind**



**Iterations:** 25

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## Structure: CT13060-A-SBA

**Type:** Tapered  
**Site Name:** Newtown 2  
**Height:** 139.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.23496

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### Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.25	39.00	51.51	0.313		0.23496	65
2	53.50	28.29	40.86	0.313	Slip	0.23496	65
3	31.25	22.20	29.54	0.188	Slip	0.23496	65
4	10.00	19.85	22.20	0.188	Butt	0.23496	65

### Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
138.50	138.50	1	Low Profile Platform	-
128.00	128.00	1	Low Profile Platform	T-Mobile
128.00	128.00	3	Ericsson - AIR21 B2A B4P	T-Mobile
128.00	128.00	3	KRD 9011461-B66A-B2A	T-Mobile
128.00	128.00	3	Ericsson - KRY 112 114-1	T-Mobile
128.00	128.00	3	APXVAARR24_43-U-NA20	T-Mobile
128.00	128.00	3	4449	T-Mobile
128.00	128.00	1	HRK12 (Handrail Kit)	T-Mobile
119.00	119.00	1	Site Pro PRK-1245L	AT&T
119.00	119.00	3	Ericsson - RRUS-11 - RRU	AT&T
119.00	119.00	3	Ericsson - RRUS-32 B2 -	AT&T
119.00	119.00	2	Raycap - DC6-48-60-18-8F	AT&T
119.00	119.00	1	Platform w/ Handrail	AT&T
119.00	119.00	6	Powerwave - 7770	AT&T
119.00	119.00	3	Quintel - QS66512-2	AT&T
119.00	119.00	3	Cci - HPA-65R-BUU-H6	AT&T
119.00	119.00	9	Powerwave - LGP21401 -	AT&T
119.00	119.00	3	Powerwave -	AT&T
119.00	119.00	6	Kaelus - DBC0061F1V51-2	AT&T
119.00	119.00	3	Ericsson - RRUS 32 B30 -	AT&T
109.00	109.00	3	Commscope	Dish Wireless
109.00	109.00	3	TA08025-B604	Dish Wireless
109.00	109.00	3	TA08025-B605	Dish Wireless
109.00	109.00	1	RDIDC-9181-OF-48	Dish Wireless
109.00	109.00	1	MC-PK8-DSH	Dish Wireless

### Linear Appurtenances

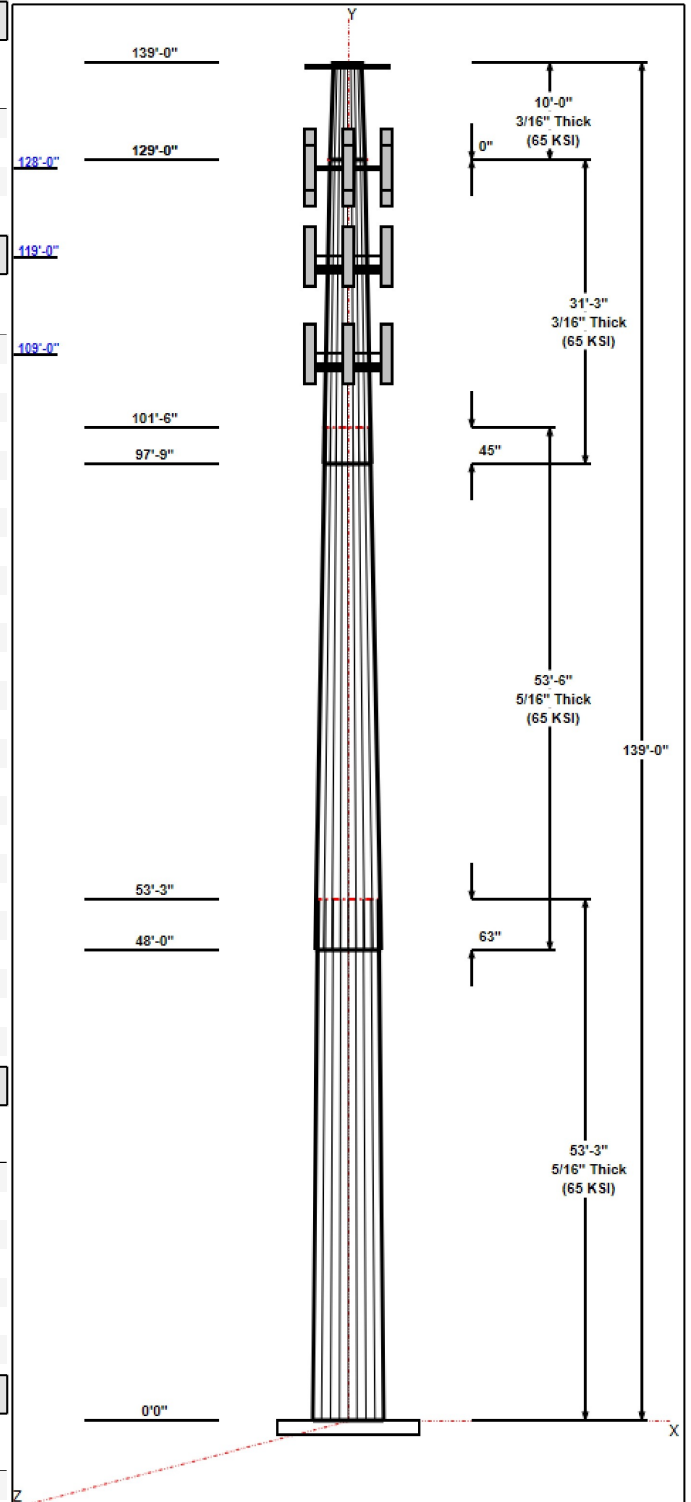
Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	138.00	Inside	Safety Cable	
0.00	128.00	Inside	1 5/8" Coax	T-Mobile
0.00	119.00	Inside	1 5/8" Coax	AT&T
0.00	119.00	Inside	1/2" Fiber	AT&T
0.00	119.00	Inside	2" Innerduct	AT&T
0.00	119.00	Inside	3/4" DC	AT&T
0.00	109.00	Inside	1.75" Hybrid	Dish Wireless

### Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
12	2.25" 18J	75.0	Cluster

### Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry



**Structure: CT13060-A-SBA**

**Type:** Tapered  
**Site Name:** Newtown 2  
**Height:** 139.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.23496

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2.7500      56.0      60.0      Clipped

**Reactions**

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 93 mph Wind	2212.2	21.2	37.5
0.9D + 1.6W 93 mph Wind	2183.7	21.2	28.1
1.2D + 1.0Di + 1.0Wi 50 mph Wind	707.2	6.7	60.5
1.2D + 1.0E	205.6	1.8	37.5
0.9D + 1.0E	202.8	1.8	28.1
1.0D + 1.0W 60 mph Wind	571.1	5.5	31.3

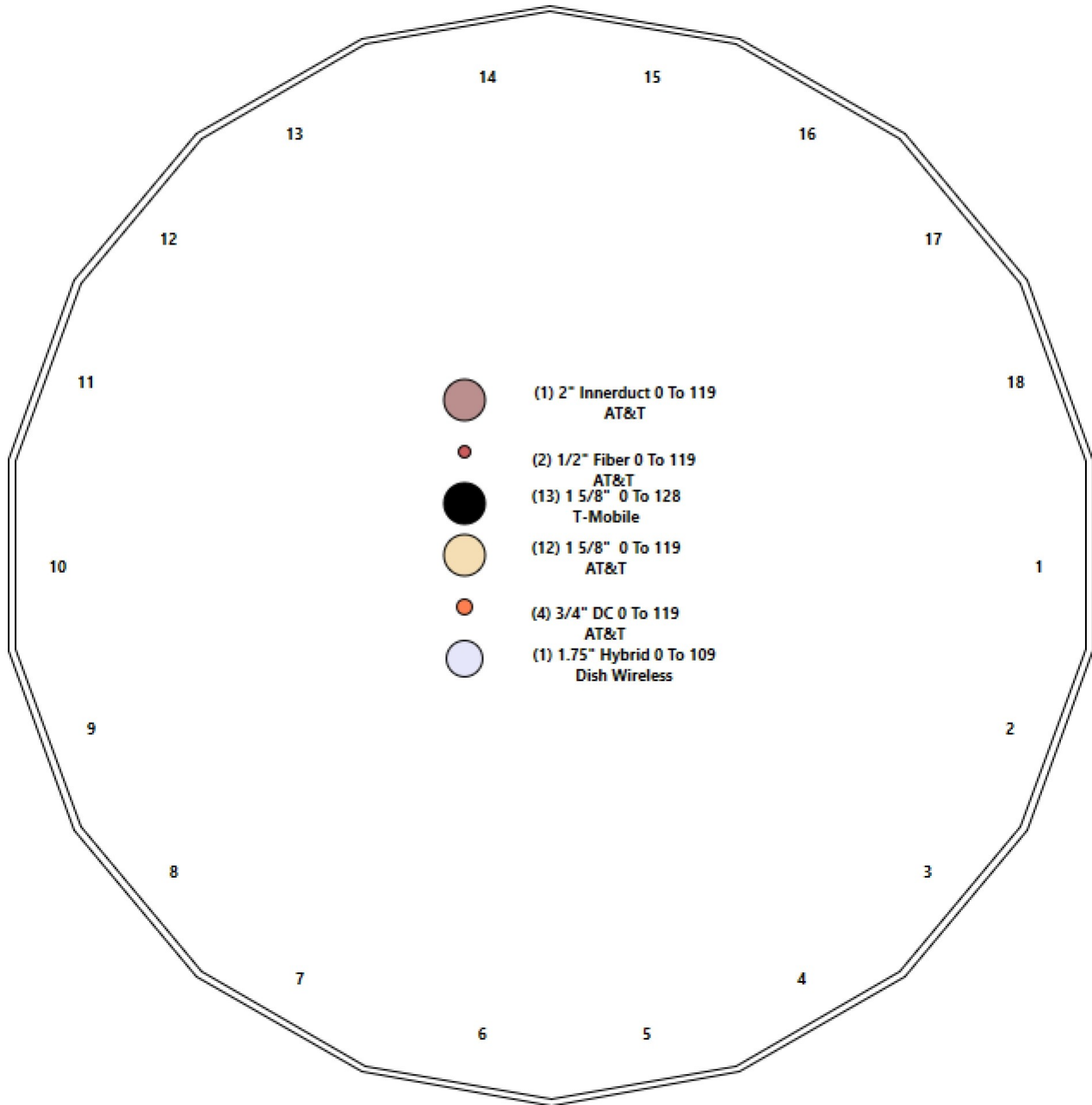
# Structure: CT13060-A-SBA - Coax Line Placement

Type: Monopole  
Site Name: Newtown 2  
Height: 139.00 (ft)

10/13/2021



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## Shaft Properties

<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	53.250	0.3125	65		0.00	8,077
2	18	53.500	0.3125	65	Slip	63.00	6,186
3	18	31.250	0.1875	65	Slip	45.00	1,625
4	18	10.000	0.1875	65	Flange	0.00	422
<b>Total Shaft Weight:</b>							<b>16,310</b>

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper
1	51.51	0.00	50.78	16816.70	27.65	164.83	39.00	53.25	38.37	7255.12	20.59	124.7	0.234964
2	40.86	48.00	40.21	8351.83	21.64	130.74	28.29	101.50	27.75	2743.10	14.55	90.52	0.234964
3	29.54	97.75	17.47	1901.87	26.37	157.56	22.20	129.00	13.10	801.92	19.47	118.4	0.234964
4	22.20	129.0	13.10	801.92	19.47	118.40	19.85	139.00	11.70	571.56	17.26	105.8	0.234964

## Load Summary

<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



### Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	138.50	Low Profile Platform	1	1800.00	30.00	1.00	3358.21	53.893	1.00	0.00	0.00
2	128.00	Low Profile Platform	1	1650.00	33.40	1.00	3067.15	59.792	1.00	0.00	0.00
3	128.00	Ericsson - AIR21 B2A B4P	3	91.50	6.09	0.85	249.87	7.165	0.87	0.00	0.00
4	128.00	KRD 9011461-B66A-B2A	3	132.20	6.51	0.87	312.04	7.613	0.87	0.00	0.00
5	128.00	Ericsson - KRY 112 114-1 Double	3	11.00	0.41	0.67	21.61	0.878	0.67	0.00	0.00
6	128.00	APXVAARR24_43-U-NA20	3	128.00	20.24	0.70	538.53	22.109	0.70	0.00	0.00
7	128.00	4449	3	70.00	1.65	0.67	136.90	2.178	0.67	0.00	0.00
8	128.00	HRK12 (Handrail Kit)	1	261.72	9.75	1.00	567.43	19.129	1.00	0.00	0.00
9	119.00	Site Pro PRK-1245L Platform	1	464.91	11.50	1.00	782.03	23.266	1.00	0.00	0.00
10	119.00	Ericsson - RRUUS-11 - RRU	3	51.00	2.52	0.67	121.62	3.139	0.67	0.00	0.00
11	119.00	Ericsson - RRUUS-32 B2 - RRU	3	53.00	2.74	0.67	125.30	3.675	0.67	0.00	0.00
12	119.00	Raycap - DC6-48-60-18-8F - SP	2	31.80	0.92	1.00	92.21	1.348	1.00	0.00	0.00
13	119.00	Platform w/ Handrail	1	1800.00	40.20	1.00	3334.75	73.105	1.00	0.00	0.00
14	119.00	Powerwave - 7770	6	35.00	5.50	0.77	163.94	6.517	0.79	0.00	0.00
15	119.00	Quintel - QS66512-2	3	111.00	8.13	0.92	320.88	9.378	0.93	0.00	0.00
16	119.00	Cci - HPA-65R-BUU-H6	3	51.00	9.66	0.83	285.26	10.984	0.85	0.00	0.00
17	119.00	Powerwave - LGP21401 - TMA	9	14.10	1.29	0.50	38.53	2.107	0.50	0.00	0.00
18	119.00	Powerwave - TT19-08BP-111-001 -	3	16.00	0.64	0.67	35.78	1.219	0.67	0.00	0.00
19	119.00	Kaelus - DBC0061F1V51-2 -	6	25.40	0.43	0.67	39.61	0.709	0.67	0.00	0.00
20	119.00	Ericsson - RRUUS 32 B30 - RRU	3	60.00	2.74	0.67	141.85	3.675	0.67	0.00	0.00
21	109.00	Commscope FFVV-65B-R2	3	70.80	12.05	0.75	341.76	13.699	0.75	0.00	0.00
22	109.00	TA08025-B604	3	63.90	1.96	0.67	112.94	2.503	0.67	0.00	0.00
23	109.00	TA08025-B605	3	75.00	1.96	0.67	125.66	2.503	0.67	0.00	0.00
24	109.00	RDIDC-9181-OF-48	1	21.90	2.01	1.00	73.48	2.560	1.00	0.00	0.00
25	109.00	MC-PK8-DSH	1	1727.00	37.59	1.00	3361.79	83.340	1.00	0.00	0.00
<b>Totals:</b>			<b>72</b>	<b>11,231.63</b>			<b>24,907.32</b>				

### Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	138.00	(1) Safety Cable	0.00	Inside
0.00	128.00	(13) 1 5/8" Coax	0.00	Inside
0.00	119.00	(12) 1 5/8" Coax	0.00	Inside
0.00	119.00	(2) 1/2" Fiber	0.00	Inside
0.00	119.00	(1) 2" Innerduct	0.00	Inside
0.00	119.00	(4) 3/4" DC	0.00	Inside
0.00	109.00	(1) 1.75" Hybrid	0.00	Inside

## Shaft Section Properties

<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Increment Length:** 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in <sup>3</sup> )	Weight (lb)
0.00		0.3125	51.510	50.780	16816.7	27.65	164.83	68.9	643.0	0.0
5.00		0.3125	50.335	49.614	15685.4	26.99	161.07	69.7	613.8	854.0
10.00		0.3125	49.160	48.449	14606.0	26.33	157.31	70.4	585.2	834.2
15.00		0.3125	47.986	47.284	13577.3	25.67	153.55	71.2	557.3	814.4
20.00		0.3125	46.811	46.119	12598.1	25.00	149.79	72.0	530.1	794.6
25.00		0.3125	45.636	44.954	11667.1	24.34	146.03	72.8	503.5	774.7
30.00		0.3125	44.461	43.788	10783.1	23.68	142.28	73.6	477.7	754.9
35.00		0.3125	43.286	42.623	9945.0	23.01	138.52	74.3	452.5	735.1
40.00		0.3125	42.111	41.458	9151.5	22.35	134.76	75.1	428.0	715.3
45.00		0.3125	40.937	40.293	8401.3	21.69	131.00	75.9	404.2	695.4
48.00	Bot - Section 2	0.3125	40.232	39.593	7971.5	21.29	128.74	76.4	390.3	407.8
50.00		0.3125	39.762	39.127	7693.3	21.02	127.24	76.7	381.1	540.0
53.25	Top - Section 1	0.3125	39.623	38.990	7612.5	20.95	126.79	0.0	0.0	863.9
55.00		0.3125	39.212	38.582	7376.1	20.71	125.48	77.0	370.5	231.0
60.00		0.3125	38.037	37.417	6727.8	20.05	121.72	77.8	348.4	646.5
65.00		0.3125	36.862	36.252	6118.6	19.39	117.96	78.6	326.9	626.7
70.00		0.3125	35.688	35.086	5547.3	18.73	114.20	79.4	306.2	606.9
75.00		0.3125	34.513	33.921	5012.8	18.06	110.44	80.2	286.1	587.0
80.00		0.3125	33.338	32.756	4513.8	17.40	106.68	80.9	266.7	567.2
85.00		0.3125	32.163	31.591	4049.0	16.74	102.92	81.7	248.0	547.4
90.00		0.3125	30.988	30.425	3617.3	16.07	99.16	82.5	229.9	527.6
95.00		0.3125	29.813	29.260	3217.4	15.41	95.40	82.5	212.6	507.7
97.75	Bot - Section 3	0.3125	29.167	28.619	3010.6	15.05	93.34	82.5	203.3	270.8
100.00		0.3125	28.639	28.095	2848.1	14.75	91.64	82.5	195.9	349.7
101.50	Top - Section 2	0.1875	28.661	16.945	1735.7	25.54	152.86	0.0	0.0	229.5
105.00		0.1875	27.839	16.455	1589.6	24.77	148.47	72.3	112.5	198.9
109.00		0.1875	26.899	15.896	1433.0	23.89	143.46	73.3	104.9	220.2
110.00		0.1875	26.664	15.756	1395.5	23.66	142.21	73.6	103.1	53.9
115.00		0.1875	25.489	15.057	1217.8	22.56	135.94	74.9	94.1	262.1
119.00		0.1875	24.549	14.498	1087.1	21.68	130.93	75.9	87.2	201.1
120.00		0.1875	24.314	14.358	1056.0	21.45	129.68	76.2	85.5	49.1
125.00		0.1875	23.139	13.659	909.1	20.35	123.41	77.5	77.4	238.3
128.00		0.1875	22.435	13.239	827.9	19.69	119.65	78.2	72.7	137.3
129.00	Top - Section 3	0.1875	22.200	13.100	801.9	19.47	118.40	78.5	71.1	44.8
129.00	Bot - Section 4	0.1875	22.200	13.100	801.9	19.47	118.40	78.5	71.1	
130.00		0.1875	21.965	12.960	776.5	19.25	117.14	78.8	69.6	44.3
135.00		0.1875	20.790	12.261	657.5	18.14	110.88	80.1	62.3	214.5
138.50		0.1875	19.967	11.771	581.9	17.37	106.49	81.0	57.4	143.1
139.00		0.1875	19.850	11.701	571.6	17.26	105.87	81.1	56.7	20.0

**16310.0**

## Wind Loading - Shaft

<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

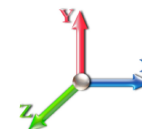


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**Load Case:** 1.2D + 1.6W 93 mph Wind

**Dead Load Factor** 1.20

**Wind Load Factor** 1.60



**Iterations** 25

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		1.00	0.70	14.724	16.20	339.15	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	14.724	16.20	331.41	0.650	0.000	5.00	21.545	14.00	362.9	0.0	1024.9
10.00		1.00	0.70	14.724	16.20	323.68	0.650	0.000	5.00	21.048	13.68	354.5	0.0	1001.1
15.00		1.00	0.70	14.724	16.20	315.94	0.650	0.000	5.00	20.551	13.36	346.2	0.0	977.3
20.00		1.00	0.70	14.724	16.20	308.21	0.650	0.000	5.00	20.054	13.04	337.8	0.0	953.5
25.00		1.00	0.70	14.724	16.20	300.47	0.650	0.000	5.00	19.557	12.71	329.4	0.0	929.7
30.00		1.00	0.70	14.736	16.21	292.86	0.650	0.000	5.00	19.060	12.39	321.3	0.0	905.9
35.00		1.00	0.73	15.400	16.94	291.47	0.650	0.000	5.00	18.563	12.07	327.0	0.0	882.1
40.00		1.00	0.76	15.999	17.60	289.02	0.650	0.000	5.00	18.066	11.74	330.7	0.0	858.3
45.00		1.00	0.79	16.546	18.20	285.73	0.650	0.000	5.00	17.569	11.42	332.6	0.0	834.5
48.00	Bot - Section 2	1.00	0.80	16.854	18.54	283.41	0.650	0.000	3.00	10.303	6.70	198.6	0.0	489.3
50.00		1.00	0.81	17.052	18.76	281.74	0.650	0.000	2.00	6.875	4.47	134.1	0.0	647.9
53.25	Top - Section 1	1.00	0.83	17.362	19.10	278.82	0.650	0.000	3.25	11.002	7.15	218.5	0.0	1036.7
55.00		1.00	0.83	17.523	19.28	281.65	0.650	0.000	1.75	5.837	3.79	117.0	0.0	277.2
60.00		1.00	0.85	17.964	19.76	276.63	0.650	0.000	5.00	16.342	10.62	335.8	0.0	775.8
65.00		1.00	0.87	18.380	20.22	271.17	0.650	0.000	5.00	15.845	10.30	333.2	0.0	752.0
70.00		1.00	0.89	18.773	20.65	265.32	0.650	0.000	5.00	15.348	9.98	329.6	0.0	728.2
75.00		1.00	0.91	19.147	21.06	259.13	0.650	0.000	5.00	14.851	9.65	325.3	0.0	704.5
80.00		1.00	0.93	19.503	21.45	252.62	0.650	0.000	5.00	14.354	9.33	320.2	0.0	680.7
85.00		1.00	0.94	19.844	21.83	245.84	0.650	0.000	5.00	13.857	9.01	314.6	0.0	656.9
90.00		1.00	0.96	20.170	22.19	238.80	0.650	0.000	5.00	13.359	8.68	308.3	0.0	633.1
95.00		1.00	0.97	20.484	22.53	231.53	0.650	0.000	5.00	12.862	8.36	301.4	0.0	609.3
97.75	Bot - Section 3	1.00	0.98	20.652	22.72	227.44	0.650	0.000	2.75	6.862	4.46	162.1	0.0	325.0
100.00		1.00	0.99	20.787	22.87	224.04	0.650	0.000	2.25	5.574	3.62	132.6	0.0	419.6
101.50	Top - Section 2	1.00	0.99	20.875	22.96	221.76	0.650	0.000	1.50	3.660	2.38	87.4	0.0	275.4
105.00		1.00	1.00	21.079	23.19	219.31	0.650	0.000	3.50	8.367	5.44	201.8	0.0	238.7
109.00	Appurtenance(s)	1.00	1.01	21.305	23.44	213.04	0.650	0.000	4.00	9.264	6.02	225.8	0.0	264.2
110.00		1.00	1.02	21.361	23.50	211.45	0.650	0.000	1.00	2.266	1.47	55.4	0.0	64.6
115.00		1.00	1.03	21.634	23.80	203.43	0.650	0.000	5.00	11.033	7.17	273.1	0.0	314.6
119.00	Appurtenance(s)	1.00	1.04	21.846	24.03	196.88	0.650	0.000	4.00	8.468	5.50	211.6	0.0	241.4
120.00		1.00	1.04	21.898	24.09	195.23	0.650	0.000	1.00	2.067	1.34	51.8	0.0	58.9
125.00		1.00	1.05	22.155	24.37	186.89	0.650	0.000	5.00	10.039	6.53	254.4	0.0	286.0
128.00	Appurtenance(s)	1.00	1.06	22.306	24.54	181.81	0.650	0.000	3.00	5.785	3.76	147.6	0.0	164.8
129.00	Top - Section 3	1.00	1.06	22.356	24.59	180.10	0.650	0.000	1.00	1.888	1.23	48.3	0.0	53.8
130.00		1.00	1.07	22.405	24.65	178.39	0.650	0.000	1.00	1.869	1.21	47.9	0.0	53.2
135.00		1.00	1.08	22.648	24.91	169.77	0.650	0.000	5.00	9.045	5.88	234.3	0.0	257.5
138.50	Appurtenance(s)	1.00	1.08	22.814	25.10	163.65	0.650	0.000	3.50	6.035	3.92	157.5	0.0	171.7
139.00		1.00	1.09	22.838	25.12	162.77	0.650	0.000	0.50	0.842	0.55	22.0	0.0	24.0
<b>Totals:</b>									<b>139.00</b>			<b>8,592.7</b>		<b>19,572.0</b>



## Discrete Appurtenance Forces

<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 93 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 25

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	138.50	Low Profile Platform	1	22.814	25.095	1.00	1.00	30.00	2160.00	0.000	0.000	1204.58	0.00	0.00
2	128.00	Ericsson - KRY 112 114-1	3	22.306	24.536	0.50	0.75	0.62	39.60	0.000	0.000	24.26	0.00	0.00
3	128.00	Low Profile Platform	1	22.306	24.536	1.00	1.00	33.40	1980.00	0.000	0.000	1311.23	0.00	0.00
4	128.00	Ericsson - AIR21 B2A B4P	3	22.306	24.536	0.64	0.75	11.70	329.40	0.000	0.000	459.40	0.00	0.00
5	128.00	KRD 9011461-B66A-B2A	3	22.306	24.536	0.65	0.75	12.74	475.92	0.000	0.000	500.28	0.00	0.00
6	128.00	APXVAARR24_43-U-NA2	3	22.306	24.536	0.52	0.75	31.88	460.80	0.000	0.000	1251.48	0.00	0.00
7	128.00	4449	3	22.306	24.536	0.50	0.75	2.49	252.00	0.000	0.000	97.65	0.00	0.00
8	128.00	HRK12 (Handrail Kit)	1	22.306	24.536	1.00	1.00	9.75	314.06	0.000	0.000	382.77	0.00	0.00
9	119.00	Ericsson - RRUS 32 B30 -	3	21.846	24.031	0.50	0.75	4.13	216.00	0.000	0.000	158.82	0.00	0.00
10	119.00	Kaelus -	6	21.846	24.031	0.50	0.75	1.30	182.88	0.000	0.000	49.85	0.00	0.00
11	119.00	Powerwave -	3	21.846	24.031	0.50	0.75	0.96	57.60	0.000	0.000	37.10	0.00	0.00
12	119.00	Powerwave - LGP21401 -	9	21.846	24.031	0.38	0.75	4.35	152.28	0.000	0.000	167.40	0.00	0.00
13	119.00	Cci - HPA-65R-BUU-H6	3	21.846	24.031	0.63	0.75	18.13	183.60	0.000	0.000	696.97	0.00	0.00
14	119.00	Raycap -	2	21.846	24.031	0.75	0.75	1.38	76.32	0.000	0.000	53.06	0.00	0.00
15	119.00	Ericsson - RRUS-11 -	3	21.846	24.031	0.50	0.75	3.80	183.60	0.000	0.000	146.06	0.00	0.00
16	119.00	Ericsson - RRUS-32 B2 -	3	21.846	24.031	0.50	0.75	4.13	190.80	0.000	0.000	158.82	0.00	0.00
17	119.00	Quintel - QS66512-2	3	21.846	24.031	0.69	0.75	16.79	399.60	0.000	0.000	645.66	0.00	0.00
18	119.00	Site Pro PRK-1245L	1	21.846	24.031	1.00	1.00	11.50	557.89	0.000	0.000	442.16	0.00	0.00
19	119.00	Platform w/ Handrail	1	21.846	24.031	1.00	1.00	40.20	2160.00	0.000	0.000	1545.65	0.00	0.00
20	119.00	Powerwave - 7770	6	21.846	24.031	0.57	0.75	18.96	252.00	0.000	0.000	728.94	0.00	0.00
21	109.00	MC-PK8-DSH	1	21.305	23.435	1.00	1.00	37.59	2072.40	0.000	0.000	1409.50	0.00	0.00
22	109.00	RDIDC-9181-OF-48	1	21.305	23.435	1.00	1.00	2.01	26.28	0.000	0.000	75.37	0.00	0.00
23	109.00	TA08025-B605	3	21.305	23.435	0.50	0.75	2.95	270.00	0.000	0.000	110.79	0.00	0.00
24	109.00	TA08025-B604	3	21.305	23.435	0.50	0.75	2.95	230.04	0.000	0.000	110.79	0.00	0.00
25	109.00	Commscope	3	21.305	23.435	0.56	0.75	20.33	254.88	0.000	0.000	762.47	0.00	0.00

**Totals:** 13,477.96

**12,531.05**

## Total Applied Force Summary

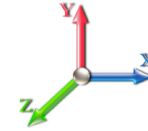
<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 93 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 25

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
5.00		362.91	1207.46	0.00	0.00
10.00		354.54	1183.67	0.00	0.00
15.00		346.17	1159.88	0.00	0.00
20.00		337.79	1136.09	0.00	0.00
25.00		329.42	1112.30	0.00	0.00
30.00		321.32	1088.51	0.00	0.00
35.00		327.03	1064.72	0.00	0.00
40.00		330.65	1040.93	0.00	0.00
45.00		332.56	1017.14	0.00	0.00
48.00		198.65	598.86	0.00	0.00
50.00		134.11	720.99	0.00	0.00
53.25		218.52	1155.37	0.00	0.00
55.00		117.01	341.07	0.00	0.00
60.00		335.84	958.43	0.00	0.00
65.00		333.16	934.64	0.00	0.00
70.00		329.61	910.85	0.00	0.00
75.00		325.28	887.05	0.00	0.00
80.00		320.25	863.26	0.00	0.00
85.00		314.56	839.47	0.00	0.00
90.00		308.27	815.68	0.00	0.00
95.00		301.42	791.89	0.00	0.00
97.75		162.13	425.40	0.00	0.00
100.00		132.56	501.76	0.00	0.00
101.50		87.41	330.22	0.00	0.00
105.00		201.75	366.49	0.00	0.00
109.00	(11) attachments	2694.71	3263.89	0.00	0.00
110.00		55.38	98.76	0.00	0.00
115.00		273.05	485.21	0.00	0.00
119.00	(43) attachments	5042.11	4990.46	0.00	0.00
120.00		51.79	75.47	0.00	0.00
125.00		254.44	368.76	0.00	0.00
128.00	(17) attachments	4174.68	4066.19	0.00	0.00
129.00		48.30	54.10	0.00	0.00
130.00		47.89	53.53	0.00	0.00
135.00		234.34	259.09	0.00	0.00
138.50	(1) attachments	1362.10	2332.71	0.00	0.00
139.00		22.01	23.96	0.00	0.00
	<b>Totals:</b>	<b>21,123.72</b>	<b>37,524.28</b>	<b>0.00</b>	<b>0.00</b>

## Calculated Forces

<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

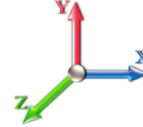


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**Load Case:** 1.2D + 1.6W 93 mph Wind

**Iterations** 25

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



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	-37.49	-21.18	0.00	-2212.1	0.00	2212.18	3147.71	1573.86	6633.45	3321.65	0.00	0.000	0.000	0.678
5.00	-36.22	-20.94	0.00	-2106.2	0.00	2106.26	3110.30	1555.15	6403.28	3206.40	0.10	-0.183	0.000	0.669
10.00	-34.97	-20.69	0.00	-2001.5	0.00	2001.58	3071.25	1535.62	6173.46	3091.32	0.39	-0.369	0.000	0.659
15.00	-33.74	-20.45	0.00	-1898.1	0.00	1898.13	3030.56	1515.28	5944.24	2976.54	0.88	-0.559	0.000	0.649
20.00	-32.54	-20.21	0.00	-1795.8	0.00	1795.89	2988.24	1494.12	5715.85	2862.17	1.57	-0.752	0.000	0.639
25.00	-31.36	-19.97	0.00	-1694.8	0.00	1694.85	2944.28	1472.14	5488.53	2748.34	2.46	-0.949	0.000	0.628
30.00	-30.21	-19.74	0.00	-1594.9	0.00	1594.99	2898.69	1449.34	5262.51	2635.17	3.56	-1.150	0.000	0.616
35.00	-29.08	-19.49	0.00	-1496.3	0.00	1496.31	2851.46	1425.73	5038.05	2522.77	4.88	-1.354	0.000	0.604
40.00	-27.98	-19.24	0.00	-1398.8	0.00	1398.86	2802.60	1401.30	4815.37	2411.26	6.41	-1.561	0.000	0.590
45.00	-26.92	-18.95	0.00	-1302.6	0.00	1302.68	2752.10	1376.05	4594.71	2300.77	8.15	-1.771	0.000	0.576
48.00	-26.29	-18.79	0.00	-1245.8	0.00	1245.82	2721.01	1360.51	4463.39	2235.01	9.31	-1.900	0.000	0.567
50.00	-25.54	-18.68	0.00	-1208.2	0.00	1208.24	2699.97	1349.98	4376.32	2191.41	10.12	-1.988	0.000	0.561
53.25	-24.36	-18.47	0.00	-1147.5	0.00	1147.54	2693.71	1346.85	4350.71	2178.59	11.53	-2.130	0.000	0.536
55.00	-23.97	-18.40	0.00	-1115.2	0.00	1115.23	2675.00	1337.50	4274.96	2140.66	12.32	-2.207	0.000	0.530
60.00	-22.96	-18.10	0.00	-1023.2	0.00	1023.25	2620.47	1310.24	4060.32	2033.18	14.74	-2.413	0.000	0.512
65.00	-21.98	-17.81	0.00	-932.74	0.00	932.74	2564.30	1282.15	3848.53	1927.13	17.38	-2.620	0.000	0.493
70.00	-21.02	-17.51	0.00	-843.69	0.00	843.69	2506.50	1253.25	3639.84	1822.63	20.24	-2.827	0.000	0.471
75.00	-20.09	-17.21	0.00	-756.13	0.00	756.13	2447.06	1223.53	3434.48	1719.79	23.31	-3.032	0.000	0.448
80.00	-19.19	-16.91	0.00	-670.06	0.00	670.06	2385.98	1192.99	3232.68	1618.74	26.59	-3.234	0.000	0.422
85.00	-18.31	-16.61	0.00	-585.49	0.00	585.49	2323.27	1161.64	3034.69	1519.60	30.08	-3.432	0.000	0.393
90.00	-17.47	-16.31	0.00	-502.42	0.00	502.42	2258.93	1129.46	2840.75	1422.49	33.78	-3.623	0.000	0.361
95.00	-16.66	-16.00	0.00	-420.86	0.00	420.86	2173.88	1086.94	2628.05	1315.98	37.67	-3.805	0.000	0.328
97.75	-16.22	-15.83	0.00	-376.86	0.00	376.86	2126.27	1063.14	2513.60	1258.67	39.89	-3.902	0.000	0.307
100.00	-15.71	-15.69	0.00	-341.23	0.00	341.23	2087.31	1043.66	2421.85	1212.73	41.75	-3.978	0.000	0.289
101.50	-15.37	-15.60	0.00	-317.71	0.00	317.71	1088.23	544.12	1274.83	638.36	43.00	-4.027	0.000	0.513
105.00	-14.98	-15.41	0.00	-263.12	0.00	263.12	1070.27	535.14	1217.34	609.58	45.99	-4.133	0.000	0.446
109.00	-11.90	-12.50	0.00	-201.50	0.00	201.50	1048.77	524.38	1152.06	576.89	49.53	-4.299	0.000	0.361
110.00	-11.78	-12.46	0.00	-189.01	0.00	189.01	1043.23	521.61	1135.83	568.76	50.43	-4.338	0.000	0.344
115.00	-11.29	-12.17	0.00	-126.72	0.00	126.72	1014.55	507.27	1055.24	528.40	55.06	-4.499	0.000	0.252
119.00	-6.71	-6.76	0.00	-78.03	0.00	78.03	990.42	495.21	991.60	496.54	58.87	-4.594	0.000	0.164
120.00	-6.64	-6.70	0.00	-71.28	0.00	71.28	984.23	492.11	975.83	488.64	59.84	-4.614	0.000	0.153
125.00	-6.28	-6.43	0.00	-37.76	0.00	37.76	952.28	476.14	897.82	449.58	64.71	-4.687	0.000	0.091
128.00	-2.57	-1.93	0.00	-18.48	0.00	18.48	932.32	466.16	851.79	426.53	67.66	-4.714	0.000	0.046
129.00	-2.52	-1.88	0.00	-16.55	0.00	16.55	925.54	462.77	836.59	418.92	68.65	-4.720	0.000	0.042
129.00	-2.52	-1.88	0.00	-16.55	0.00	16.55	925.54	462.77	836.59	418.92	68.65	-4.720	0.000	0.042
130.00	-2.47	-1.83	0.00	-14.67	0.00	14.67	918.69	459.34	821.46	411.34	69.64	-4.725	0.000	0.038
135.00	-2.23	-1.57	0.00	-5.52	0.00	5.52	883.47	441.73	746.98	374.05	74.59	-4.744	0.000	0.017
138.50	-0.02	-0.02	0.00	-0.01	0.00	0.01	857.84	428.92	696.10	348.57	78.07	-4.748	0.000	0.000
139.00	0.00	-0.02	0.00	0.00	0.00	0.00	854.11	427.06	688.92	344.97	78.56	-4.748	0.000	0.000

## Wind Loading - Shaft

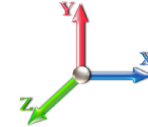
<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 93 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 25

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		1.00	0.70	14.724	16.20	339.15	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	14.724	16.20	331.41	0.650	0.000	5.00	21.545	14.00	362.9	0.0	768.6
10.00		1.00	0.70	14.724	16.20	323.68	0.650	0.000	5.00	21.048	13.68	354.5	0.0	750.8
15.00		1.00	0.70	14.724	16.20	315.94	0.650	0.000	5.00	20.551	13.36	346.2	0.0	733.0
20.00		1.00	0.70	14.724	16.20	308.21	0.650	0.000	5.00	20.054	13.04	337.8	0.0	715.1
25.00		1.00	0.70	14.724	16.20	300.47	0.650	0.000	5.00	19.557	12.71	329.4	0.0	697.3
30.00		1.00	0.70	14.736	16.21	292.86	0.650	0.000	5.00	19.060	12.39	321.3	0.0	679.4
35.00		1.00	0.73	15.400	16.94	291.47	0.650	0.000	5.00	18.563	12.07	327.0	0.0	661.6
40.00		1.00	0.76	15.999	17.60	289.02	0.650	0.000	5.00	18.066	11.74	330.7	0.0	643.7
45.00		1.00	0.79	16.546	18.20	285.73	0.650	0.000	5.00	17.569	11.42	332.6	0.0	625.9
48.00	Bot - Section 2	1.00	0.80	16.854	18.54	283.41	0.650	0.000	3.00	10.303	6.70	198.6	0.0	367.0
50.00		1.00	0.81	17.052	18.76	281.74	0.650	0.000	2.00	6.875	4.47	134.1	0.0	486.0
53.25	Top - Section 1	1.00	0.83	17.362	19.10	278.82	0.650	0.000	3.25	11.002	7.15	218.5	0.0	777.5
55.00		1.00	0.83	17.523	19.28	281.65	0.650	0.000	1.75	5.837	3.79	117.0	0.0	207.9
60.00		1.00	0.85	17.964	19.76	276.63	0.650	0.000	5.00	16.342	10.62	335.8	0.0	581.9
65.00		1.00	0.87	18.380	20.22	271.17	0.650	0.000	5.00	15.845	10.30	333.2	0.0	564.0
70.00		1.00	0.89	18.773	20.65	265.32	0.650	0.000	5.00	15.348	9.98	329.6	0.0	546.2
75.00		1.00	0.91	19.147	21.06	259.13	0.650	0.000	5.00	14.851	9.65	325.3	0.0	528.3
80.00		1.00	0.93	19.503	21.45	252.62	0.650	0.000	5.00	14.354	9.33	320.2	0.0	510.5
85.00		1.00	0.94	19.844	21.83	245.84	0.650	0.000	5.00	13.857	9.01	314.6	0.0	492.7
90.00		1.00	0.96	20.170	22.19	238.80	0.650	0.000	5.00	13.359	8.68	308.3	0.0	474.8
95.00		1.00	0.97	20.484	22.53	231.53	0.650	0.000	5.00	12.862	8.36	301.4	0.0	457.0
97.75	Bot - Section 3	1.00	0.98	20.652	22.72	227.44	0.650	0.000	2.75	6.862	4.46	162.1	0.0	243.7
100.00		1.00	0.99	20.787	22.87	224.04	0.650	0.000	2.25	5.574	3.62	132.6	0.0	314.7
101.50	Top - Section 2	1.00	0.99	20.875	22.96	221.76	0.650	0.000	1.50	3.660	2.38	87.4	0.0	206.6
105.00		1.00	1.00	21.079	23.19	219.31	0.650	0.000	3.50	8.367	5.44	201.8	0.0	179.0
109.00	Appurtenance(s)	1.00	1.01	21.305	23.44	213.04	0.650	0.000	4.00	9.264	6.02	225.8	0.0	198.2
110.00		1.00	1.02	21.361	23.50	211.45	0.650	0.000	1.00	2.266	1.47	55.4	0.0	48.5
115.00		1.00	1.03	21.634	23.80	203.43	0.650	0.000	5.00	11.033	7.17	273.1	0.0	235.9
119.00	Appurtenance(s)	1.00	1.04	21.846	24.03	196.88	0.650	0.000	4.00	8.468	5.50	211.6	0.0	181.0
120.00		1.00	1.04	21.898	24.09	195.23	0.650	0.000	1.00	2.067	1.34	51.8	0.0	44.2
125.00		1.00	1.05	22.155	24.37	186.89	0.650	0.000	5.00	10.039	6.53	254.4	0.0	214.5
128.00	Appurtenance(s)	1.00	1.06	22.306	24.54	181.81	0.650	0.000	3.00	5.785	3.76	147.6	0.0	123.6
129.00	Top - Section 3	1.00	1.06	22.356	24.59	180.10	0.650	0.000	1.00	1.888	1.23	48.3	0.0	40.3
130.00		1.00	1.07	22.405	24.65	178.39	0.650	0.000	1.00	1.869	1.21	47.9	0.0	39.9
135.00		1.00	1.08	22.648	24.91	169.77	0.650	0.000	5.00	9.045	5.88	234.3	0.0	193.1
138.50	Appurtenance(s)	1.00	1.08	22.814	25.10	163.65	0.650	0.000	3.50	6.035	3.92	157.5	0.0	128.8
139.00		1.00	1.09	22.838	25.12	162.77	0.650	0.000	0.50	0.842	0.55	22.0	0.0	18.0
<b>Totals:</b>									<b>139.00</b>			<b>8,592.7</b>		<b>14,679.0</b>

## Discrete Appurtenance Forces

<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 93 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 25

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	138.50	Low Profile Platform	1	22.814	25.095	1.00	1.00	30.00	1620.00	0.000	0.000	1204.58	0.00	0.00	
2	128.00	Ericsson - KRY 112 114-1	3	22.306	24.536	0.50	0.75	0.62	29.70	0.000	0.000	24.26	0.00	0.00	
3	128.00	Low Profile Platform	1	22.306	24.536	1.00	1.00	33.40	1485.00	0.000	0.000	1311.23	0.00	0.00	
4	128.00	Ericsson - AIR21 B2A B4P	3	22.306	24.536	0.64	0.75	11.70	247.05	0.000	0.000	459.40	0.00	0.00	
5	128.00	KRD 9011461-B66A-B2A	3	22.306	24.536	0.65	0.75	12.74	356.94	0.000	0.000	500.28	0.00	0.00	
6	128.00	APXVAARR24_43-U-NA2	3	22.306	24.536	0.52	0.75	31.88	345.60	0.000	0.000	1251.48	0.00	0.00	
7	128.00	4449	3	22.306	24.536	0.50	0.75	2.49	189.00	0.000	0.000	97.65	0.00	0.00	
8	128.00	HRK12 (Handrail Kit)	1	22.306	24.536	1.00	1.00	9.75	235.55	0.000	0.000	382.77	0.00	0.00	
9	119.00	Ericsson - RRUS 32 B30 -	3	21.846	24.031	0.50	0.75	4.13	162.00	0.000	0.000	158.82	0.00	0.00	
10	119.00	Kaelus -	6	21.846	24.031	0.50	0.75	1.30	137.16	0.000	0.000	49.85	0.00	0.00	
11	119.00	Powerwave -	3	21.846	24.031	0.50	0.75	0.96	43.20	0.000	0.000	37.10	0.00	0.00	
12	119.00	Powerwave - LGP21401 -	9	21.846	24.031	0.38	0.75	4.35	114.21	0.000	0.000	167.40	0.00	0.00	
13	119.00	Cci - HPA-65R-BUU-H6	3	21.846	24.031	0.63	0.75	18.13	137.70	0.000	0.000	696.97	0.00	0.00	
14	119.00	Raycap -	2	21.846	24.031	0.75	0.75	1.38	57.24	0.000	0.000	53.06	0.00	0.00	
15	119.00	Ericsson - RRUS-11 -	3	21.846	24.031	0.50	0.75	3.80	137.70	0.000	0.000	146.06	0.00	0.00	
16	119.00	Ericsson - RRUS-32 B2 -	3	21.846	24.031	0.50	0.75	4.13	143.10	0.000	0.000	158.82	0.00	0.00	
17	119.00	Quintel - QS66512-2	3	21.846	24.031	0.69	0.75	16.79	299.70	0.000	0.000	645.66	0.00	0.00	
18	119.00	Site Pro PRK-1245L	1	21.846	24.031	1.00	1.00	11.50	418.42	0.000	0.000	442.16	0.00	0.00	
19	119.00	Platform w/ Handrail	1	21.846	24.031	1.00	1.00	40.20	1620.00	0.000	0.000	1545.65	0.00	0.00	
20	119.00	Powerwave - 7770	6	21.846	24.031	0.57	0.75	18.96	189.00	0.000	0.000	728.94	0.00	0.00	
21	109.00	MC-PK8-DSH	1	21.305	23.435	1.00	1.00	37.59	1554.30	0.000	0.000	1409.50	0.00	0.00	
22	109.00	RDIDC-9181-OF-48	1	21.305	23.435	1.00	1.00	2.01	19.71	0.000	0.000	75.37	0.00	0.00	
23	109.00	TA08025-B605	3	21.305	23.435	0.50	0.75	2.95	202.50	0.000	0.000	110.79	0.00	0.00	
24	109.00	TA08025-B604	3	21.305	23.435	0.50	0.75	2.95	172.53	0.000	0.000	110.79	0.00	0.00	
25	109.00	Commscope	3	21.305	23.435	0.56	0.75	20.33	191.16	0.000	0.000	762.47	0.00	0.00	

**Totals:** 10,108.47

**12,531.05**

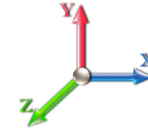
## Total Applied Force Summary

<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021	
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B		
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00		
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil		
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II	Page: 14



**Load Case:** 0.9D + 1.6W 93 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 25

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
5.00		362.91	905.60	0.00	0.00
10.00		354.54	887.75	0.00	0.00
15.00		346.17	869.91	0.00	0.00
20.00		337.79	852.07	0.00	0.00
25.00		329.42	834.23	0.00	0.00
30.00		321.32	816.38	0.00	0.00
35.00		327.03	798.54	0.00	0.00
40.00		330.65	780.70	0.00	0.00
45.00		332.56	762.85	0.00	0.00
48.00		198.65	449.15	0.00	0.00
50.00		134.11	540.74	0.00	0.00
53.25		218.52	866.53	0.00	0.00
55.00		117.01	255.80	0.00	0.00
60.00		335.84	718.82	0.00	0.00
65.00		333.16	700.98	0.00	0.00
70.00		329.61	683.13	0.00	0.00
75.00		325.28	665.29	0.00	0.00
80.00		320.25	647.45	0.00	0.00
85.00		314.56	629.61	0.00	0.00
90.00		308.27	611.76	0.00	0.00
95.00		301.42	593.92	0.00	0.00
97.75		162.13	319.05	0.00	0.00
100.00		132.56	376.32	0.00	0.00
101.50		87.41	247.67	0.00	0.00
105.00		201.75	274.87	0.00	0.00
109.00	(11) attachments	2694.71	2447.91	0.00	0.00
110.00		55.38	74.07	0.00	0.00
115.00		273.05	363.91	0.00	0.00
119.00	(43) attachments	5042.11	3742.85	0.00	0.00
120.00		51.79	56.60	0.00	0.00
125.00		254.44	276.57	0.00	0.00
128.00	(17) attachments	4174.68	3049.64	0.00	0.00
129.00		48.30	40.58	0.00	0.00
130.00		47.89	40.15	0.00	0.00
135.00		234.34	194.32	0.00	0.00
138.50	(1) attachments	1362.10	1749.53	0.00	0.00
139.00		22.01	17.97	0.00	0.00
	<b>Totals:</b>	<b>21,123.72</b>	<b>28,143.21</b>	<b>0.00</b>	<b>0.00</b>

## Calculated Forces

<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 93 mph Wind

**Iterations** 25

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



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	-28.11	-21.17	0.00	-2183.7	0.00	2183.71	3147.71	1573.86	6633.45	3321.65	0.00	0.000	0.000	0.667
5.00	-27.14	-20.89	0.00	-2077.8	0.00	2077.87	3110.30	1555.15	6403.28	3206.40	0.10	-0.180	0.000	0.657
10.00	-26.19	-20.62	0.00	-1973.4	0.00	1973.42	3071.25	1535.62	6173.46	3091.32	0.38	-0.364	0.000	0.647
15.00	-25.25	-20.35	0.00	-1870.3	0.00	1870.34	3030.56	1515.28	5944.24	2976.54	0.87	-0.551	0.000	0.637
20.00	-24.34	-20.08	0.00	-1768.6	0.00	1768.61	2988.24	1494.12	5715.85	2862.17	1.55	-0.742	0.000	0.626
25.00	-23.44	-19.82	0.00	-1668.2	0.00	1668.20	2944.28	1472.14	5488.53	2748.34	2.43	-0.936	0.000	0.615
30.00	-22.56	-19.56	0.00	-1569.1	0.00	1569.10	2898.69	1449.34	5262.51	2635.17	3.51	-1.133	0.000	0.603
35.00	-21.70	-19.29	0.00	-1471.2	0.00	1471.29	2851.46	1425.73	5038.05	2522.77	4.81	-1.334	0.000	0.591
40.00	-20.86	-19.02	0.00	-1374.8	0.00	1374.82	2802.60	1401.30	4815.37	2411.26	6.31	-1.537	0.000	0.578
45.00	-20.05	-18.72	0.00	-1279.7	0.00	1279.73	2752.10	1376.05	4594.71	2300.77	8.03	-1.744	0.000	0.564
48.00	-19.58	-18.55	0.00	-1223.5	0.00	1223.56	2721.01	1360.51	4463.39	2235.01	9.17	-1.871	0.000	0.555
50.00	-19.00	-18.43	0.00	-1186.4	0.00	1186.46	2699.97	1349.98	4376.32	2191.41	9.97	-1.957	0.000	0.549
53.25	-18.11	-18.22	0.00	-1126.5	0.00	1126.56	2693.71	1346.85	4350.71	2178.59	11.35	-2.096	0.000	0.524
55.00	-17.82	-18.13	0.00	-1094.6	0.00	1094.68	2675.00	1337.50	4274.96	2140.66	12.14	-2.172	0.000	0.518
60.00	-17.05	-17.83	0.00	-1004.0	0.00	1004.01	2620.47	1310.24	4060.32	2033.18	14.52	-2.374	0.000	0.501
65.00	-16.30	-17.53	0.00	-914.86	0.00	914.86	2564.30	1282.15	3848.53	1927.13	17.12	-2.577	0.000	0.481
70.00	-15.57	-17.22	0.00	-827.23	0.00	827.23	2506.50	1253.25	3639.84	1822.63	19.92	-2.780	0.000	0.460
75.00	-14.87	-16.91	0.00	-741.14	0.00	741.14	2447.06	1223.53	3434.48	1719.79	22.94	-2.981	0.000	0.437
80.00	-14.18	-16.61	0.00	-656.57	0.00	656.57	2385.98	1192.99	3232.68	1618.74	26.17	-3.179	0.000	0.412
85.00	-13.52	-16.30	0.00	-573.54	0.00	573.54	2323.27	1161.64	3034.69	1519.60	29.60	-3.373	0.000	0.383
90.00	-12.87	-16.00	0.00	-492.03	0.00	492.03	2258.93	1129.46	2840.75	1422.49	33.23	-3.560	0.000	0.352
95.00	-12.26	-15.69	0.00	-412.04	0.00	412.04	2173.88	1086.94	2628.05	1315.98	37.06	-3.738	0.000	0.319
97.75	-11.93	-15.52	0.00	-368.90	0.00	368.90	2126.27	1063.14	2513.60	1258.67	39.24	-3.833	0.000	0.299
100.00	-11.55	-15.38	0.00	-333.97	0.00	333.97	2087.31	1043.66	2421.85	1212.73	41.06	-3.908	0.000	0.281
101.50	-11.29	-15.29	0.00	-310.90	0.00	310.90	1088.23	544.12	1274.83	638.36	42.30	-3.956	0.000	0.498
105.00	-10.99	-15.09	0.00	-257.39	0.00	257.39	1070.27	535.14	1217.34	609.58	45.24	-4.059	0.000	0.433
109.00	-8.72	-12.24	0.00	-197.01	0.00	197.01	1048.77	524.38	1152.06	576.89	48.71	-4.222	0.000	0.350
110.00	-8.63	-12.20	0.00	-184.77	0.00	184.77	1043.23	521.61	1135.83	568.76	49.59	-4.260	0.000	0.334
115.00	-8.26	-11.92	0.00	-123.77	0.00	123.77	1014.55	507.27	1055.24	528.40	54.14	-4.417	0.000	0.243
119.00	-4.92	-6.60	0.00	-76.10	0.00	76.10	990.42	495.21	991.60	496.54	57.88	-4.510	0.000	0.158
120.00	-4.86	-6.55	0.00	-69.50	0.00	69.50	984.23	492.11	975.83	488.64	58.83	-4.529	0.000	0.147
125.00	-4.60	-6.28	0.00	-36.74	0.00	36.74	952.28	476.14	897.82	449.58	63.61	-4.601	0.000	0.087
128.00	-1.90	-1.87	0.00	-17.90	0.00	17.90	932.32	466.16	851.79	426.53	66.51	-4.626	0.000	0.044
129.00	-1.86	-1.82	0.00	-16.02	0.00	16.02	925.54	462.77	836.59	418.92	67.48	-4.632	0.000	0.040
129.00	-1.86	-1.82	0.00	-16.02	0.00	16.02	925.54	462.77	836.59	418.92	67.48	-4.632	0.000	0.040
130.00	-1.82	-1.77	0.00	-14.20	0.00	14.20	918.69	459.34	821.46	411.34	68.45	-4.638	0.000	0.037
135.00	-1.65	-1.52	0.00	-5.34	0.00	5.34	883.47	441.73	746.98	374.05	73.31	-4.656	0.000	0.016
138.50	-0.02	-0.02	0.00	-0.01	0.00	0.01	857.84	428.92	696.10	348.57	76.72	-4.660	0.000	0.000
139.00	0.00	-0.02	0.00	0.00	0.00	0.00	854.11	427.06	688.92	344.97	77.21	-4.660	0.000	0.000

## Wind Loading - Shaft

<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00



**Iterations** 24

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		1.00	0.70	4.256	4.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	4.256	4.68	0.00	1.200	1.242	5.00	22.580	27.10	126.9	401.3	1426.2
10.00		1.00	0.70	4.256	4.68	0.00	1.200	1.331	5.00	22.157	26.59	124.5	421.0	1422.1
15.00		1.00	0.70	4.256	4.68	0.00	1.200	1.386	5.00	21.706	26.05	121.9	428.7	1406.0
20.00		1.00	0.70	4.256	4.68	0.00	1.200	1.427	5.00	21.243	25.49	119.3	431.1	1384.6
25.00		1.00	0.70	4.256	4.68	0.00	1.200	1.459	5.00	20.773	24.93	116.7	430.4	1360.1
30.00		1.00	0.70	4.260	4.69	0.00	1.200	1.486	5.00	20.298	24.36	114.1	427.6	1333.5
35.00		1.00	0.73	4.451	4.90	0.00	1.200	1.509	5.00	19.820	23.78	116.5	423.3	1305.5
40.00		1.00	0.76	4.625	5.09	0.00	1.200	1.529	5.00	19.340	23.21	118.1	418.0	1276.3
45.00		1.00	0.79	4.783	5.26	0.00	1.200	1.547	5.00	18.858	22.63	119.1	411.7	1246.2
48.00	Bot - Section 2	1.00	0.80	4.872	5.36	0.00	1.200	1.557	3.00	11.081	13.30	71.3	244.5	733.9
50.00		1.00	0.81	4.929	5.42	0.00	1.200	1.564	2.00	7.396	8.88	48.1	164.3	812.3
53.25	Top - Section 1	1.00	0.83	5.018	5.52	0.00	1.200	1.574	3.25	11.854	14.22	78.5	263.9	1300.6
55.00		1.00	0.83	5.065	5.57	0.00	1.200	1.579	1.75	6.298	7.56	42.1	141.2	418.3
60.00		1.00	0.85	5.193	5.71	0.00	1.200	1.592	5.00	17.669	21.20	121.1	395.2	1171.0
65.00		1.00	0.87	5.313	5.84	0.00	1.200	1.605	5.00	17.182	20.62	120.5	386.7	1138.7
70.00		1.00	0.89	5.426	5.97	0.00	1.200	1.617	5.00	16.695	20.03	119.6	377.8	1106.0
75.00		1.00	0.91	5.534	6.09	0.00	1.200	1.628	5.00	16.208	19.45	118.4	368.5	1073.0
80.00		1.00	0.93	5.637	6.20	0.00	1.200	1.639	5.00	15.719	18.86	117.0	359.0	1039.6
85.00		1.00	0.94	5.736	6.31	0.00	1.200	1.649	5.00	15.231	18.28	115.3	349.1	1006.0
90.00		1.00	0.96	5.830	6.41	0.00	1.200	1.658	5.00	14.741	17.69	113.4	339.0	972.1
95.00		1.00	0.97	5.921	6.51	0.00	1.200	1.667	5.00	14.252	17.10	111.4	328.7	937.9
97.75	Bot - Section 3	1.00	0.98	5.970	6.57	0.00	1.200	1.672	2.75	7.629	9.15	60.1	177.6	502.6
100.00		1.00	0.99	6.008	6.61	0.00	1.200	1.676	2.25	6.203	7.44	49.2	144.9	564.5
101.50	Top - Section 2	1.00	0.99	6.034	6.64	0.00	1.200	1.678	1.50	4.080	4.90	32.5	95.7	371.1
105.00		1.00	1.00	6.093	6.70	0.00	1.200	1.684	3.50	9.349	11.22	75.2	217.9	456.6
109.00	Appurtenance(s)	1.00	1.01	6.158	6.77	0.00	1.200	1.690	4.00	10.391	12.47	84.5	242.1	506.3
110.00		1.00	1.02	6.174	6.79	0.00	1.200	1.692	1.00	2.548	3.06	20.8	60.1	124.7
115.00		1.00	1.03	6.253	6.88	0.00	1.200	1.699	5.00	12.449	14.94	102.8	289.3	603.8
119.00	Appurtenance(s)	1.00	1.04	6.315	6.95	0.00	1.200	1.705	4.00	9.605	11.53	80.1	224.2	465.6
120.00		1.00	1.04	6.330	6.96	0.00	1.200	1.707	1.00	2.352	2.82	19.7	55.6	114.5
125.00		1.00	1.05	6.404	7.04	0.00	1.200	1.714	5.00	11.467	13.76	96.9	266.6	552.6
128.00	Appurtenance(s)	1.00	1.06	6.448	7.09	0.00	1.200	1.718	3.00	6.644	7.97	56.5	155.8	320.6
129.00	Top - Section 3	1.00	1.06	6.462	7.11	0.00	1.200	1.719	1.00	2.175	2.61	18.6	51.5	105.3
130.00		1.00	1.07	6.476	7.12	0.00	1.200	1.720	1.00	2.155	2.59	18.4	51.0	104.2
135.00		1.00	1.08	6.546	7.20	0.00	1.200	1.727	5.00	10.484	12.58	90.6	243.4	500.8
138.50	Appurtenance(s)	1.00	1.08	6.594	7.25	0.00	1.200	1.731	3.50	7.045	8.45	61.3	164.6	336.3
139.00		1.00	1.09	6.601	7.26	0.00	1.200	1.732	0.50	0.987	1.18	8.6	23.4	47.4
<b>Totals:</b>									<b>139.00</b>			<b>3,129.4</b>		<b>29,546.7</b>



## Discrete Appurtenance Forces

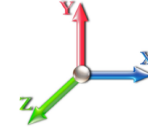
<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 24

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	138.50	Low Profile Platform	1	6.594	7.254	1.00	1.00	53.89	3718.21	0.000	0.000	390.93	0.00	0.00	
2	128.00	Ericsson - KRY 112 114-1	3	6.448	7.092	0.50	0.75	1.32	62.13	0.000	0.000	9.38	0.00	0.00	
3	128.00	Low Profile Platform	1	6.448	7.092	1.00	1.00	59.79	3247.15	0.000	0.000	424.06	0.00	0.00	
4	128.00	Ericsson - AIR21 B2A B4P	3	6.448	7.092	0.65	0.75	14.01	691.41	0.000	0.000	99.36	0.00	0.00	
5	128.00	KRD 9011461-B66A-B2A	3	6.448	7.092	0.65	0.75	14.90	1015.43	0.000	0.000	105.69	0.00	0.00	
6	128.00	APXVAARR24_43-U-NA2	3	6.448	7.092	0.52	0.75	34.82	1692.40	0.000	0.000	246.97	0.00	0.00	
7	128.00	4449	3	6.448	7.092	0.50	0.75	3.28	452.70	0.000	0.000	23.29	0.00	0.00	
8	128.00	HRK12 (Handrail Kit)	1	6.448	7.092	1.00	1.00	19.13	881.49	0.000	0.000	135.67	0.00	0.00	
9	119.00	Ericsson - RRUS 32 B30 -	3	6.315	6.946	0.50	0.75	5.54	408.76	0.000	0.000	38.48	0.00	0.00	
10	119.00	Kaelus -	6	6.315	6.946	0.50	0.75	2.14	247.12	0.000	0.000	14.84	0.00	0.00	
11	119.00	Powerwave -	3	6.315	6.946	0.50	0.75	1.84	99.53	0.000	0.000	12.77	0.00	0.00	
12	119.00	Powerwave - LGP21401 -	9	6.315	6.946	0.38	0.75	7.11	308.24	0.000	0.000	49.38	0.00	0.00	
13	119.00	Cci - HPA-65R-BUU-H6	3	6.315	6.946	0.64	0.75	20.93	714.18	0.000	0.000	145.41	0.00	0.00	
14	119.00	Raycap -	2	6.315	6.946	0.75	0.75	2.02	161.74	0.000	0.000	14.04	0.00	0.00	
15	119.00	Ericsson - RRUS-11 -	3	6.315	6.946	0.50	0.75	4.73	347.46	0.000	0.000	32.87	0.00	0.00	
16	119.00	Ericsson - RRUS-32 B2 -	3	6.315	6.946	0.50	0.75	5.54	355.21	0.000	0.000	38.48	0.00	0.00	
17	119.00	Quintel - QS66512-2	3	6.315	6.946	0.69	0.75	19.52	872.34	0.000	0.000	135.57	0.00	0.00	
18	119.00	Site Pro PRK-1245L	1	6.315	6.946	1.00	1.00	23.27	779.92	0.000	0.000	161.61	0.00	0.00	
19	119.00	Platform w/ Handrail	1	6.315	6.946	1.00	1.00	73.10	3994.75	0.000	0.000	507.79	0.00	0.00	
20	119.00	Powerwave - 7770	6	6.315	6.946	0.59	0.75	23.20	1235.66	0.000	0.000	161.12	0.00	0.00	
21	109.00	MC-PK8-DSH	1	6.158	6.774	1.00	1.00	83.34	3334.19	0.000	0.000	564.55	0.00	0.00	
22	109.00	RDIDC-9181-OF-48	1	6.158	6.774	1.00	1.00	2.56	65.16	0.000	0.000	17.34	0.00	0.00	
23	109.00	TA08025-B605	3	6.158	6.774	0.50	0.75	3.77	384.18	0.000	0.000	25.56	0.00	0.00	
24	109.00	TA08025-B604	3	6.158	6.774	0.50	0.75	3.77	340.86	0.000	0.000	25.56	0.00	0.00	
25	109.00	Commscope	3	6.158	6.774	0.56	0.75	23.12	1067.77	0.000	0.000	156.60	0.00	0.00	
<b>Totals:</b>									<b>26,477.98</b>						<b>3,537.33</b>

## Total Applied Force Summary

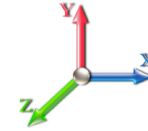
<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 24

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
5.00		126.85	1608.76	0.00	0.00
10.00		124.48	1604.71	0.00	0.00
15.00		121.94	1588.60	0.00	0.00
20.00		119.34	1567.18	0.00	0.00
25.00		116.70	1542.67	0.00	0.00
30.00		114.13	1516.10	0.00	0.00
35.00		116.46	1488.06	0.00	0.00
40.00		118.06	1458.90	0.00	0.00
45.00		119.06	1428.84	0.00	0.00
48.00		71.26	843.41	0.00	0.00
50.00		48.12	885.32	0.00	0.00
53.25		78.53	1419.27	0.00	0.00
55.00		42.10	482.22	0.00	0.00
60.00		121.10	1353.65	0.00	0.00
65.00		120.49	1321.35	0.00	0.00
70.00		119.58	1288.65	0.00	0.00
75.00		118.40	1255.59	0.00	0.00
80.00		116.97	1222.23	0.00	0.00
85.00		115.32	1188.59	0.00	0.00
90.00		113.45	1154.69	0.00	0.00
95.00		111.39	1120.55	0.00	0.00
97.75		60.11	602.98	0.00	0.00
100.00		49.19	646.67	0.00	0.00
101.50		32.50	425.87	0.00	0.00
105.00		75.19	584.40	0.00	0.00
109.00	(11) attachments	874.08	5844.50	0.00	0.00
110.00		20.77	158.83	0.00	0.00
115.00		102.76	774.49	0.00	0.00
119.00	(43) attachments	1392.42	10127.03	0.00	0.00
120.00		19.65	131.07	0.00	0.00
125.00		96.93	635.38	0.00	0.00
128.00	(17) attachments	1100.96	8412.94	0.00	0.00
129.00		18.55	105.58	0.00	0.00
130.00		18.42	104.55	0.00	0.00
135.00		90.59	502.49	0.00	0.00
138.50	(1) attachments	452.26	4055.52	0.00	0.00
139.00		8.60	47.36	0.00	0.00
	<b>Totals:</b>	<b>6,666.73</b>	<b>60,498.99</b>	<b>0.00</b>	<b>0.00</b>

## Calculated Forces

<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

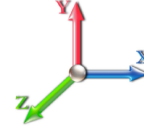


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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 24

**Dead Load Factor** 1.20  
**Wind Load 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	-60.50	-6.70	0.00	-707.16	0.00	707.16	3147.71	1573.86	6633.45	3321.65	0.00	0.000	0.000	0.232
5.00	-58.88	-6.63	0.00	-673.68	0.00	673.68	3110.30	1555.15	6403.28	3206.40	0.03	-0.058	0.000	0.229
10.00	-57.27	-6.56	0.00	-640.52	0.00	640.52	3071.25	1535.62	6173.46	3091.32	0.12	-0.118	0.000	0.226
15.00	-55.67	-6.50	0.00	-607.71	0.00	607.71	3030.56	1515.28	5944.24	2976.54	0.28	-0.179	0.000	0.223
20.00	-54.10	-6.43	0.00	-575.22	0.00	575.22	2988.24	1494.12	5715.85	2862.17	0.50	-0.241	0.000	0.219
25.00	-52.55	-6.37	0.00	-543.07	0.00	543.07	2944.28	1472.14	5488.53	2748.34	0.79	-0.304	0.000	0.215
30.00	-51.03	-6.30	0.00	-511.24	0.00	511.24	2898.69	1449.34	5262.51	2635.17	1.14	-0.368	0.000	0.212
35.00	-49.53	-6.23	0.00	-479.74	0.00	479.74	2851.46	1425.73	5038.05	2522.77	1.56	-0.434	0.000	0.208
40.00	-48.07	-6.16	0.00	-448.59	0.00	448.59	2802.60	1401.30	4815.37	2411.26	2.05	-0.500	0.000	0.203
45.00	-46.64	-6.07	0.00	-417.81	0.00	417.81	2752.10	1376.05	4594.71	2300.77	2.61	-0.567	0.000	0.199
48.00	-45.79	-6.02	0.00	-399.61	0.00	399.61	2721.01	1360.51	4463.39	2235.01	2.98	-0.609	0.000	0.196
50.00	-44.90	-5.99	0.00	-387.58	0.00	387.58	2699.97	1349.98	4376.32	2191.41	3.24	-0.637	0.000	0.194
53.25	-43.48	-5.92	0.00	-368.12	0.00	368.12	2693.71	1346.85	4350.71	2178.59	3.69	-0.682	0.000	0.185
55.00	-42.99	-5.91	0.00	-357.76	0.00	357.76	2675.00	1337.50	4274.96	2140.66	3.95	-0.707	0.000	0.183
60.00	-41.63	-5.82	0.00	-328.23	0.00	328.23	2620.47	1310.24	4060.32	2033.18	4.72	-0.773	0.000	0.177
65.00	-40.31	-5.72	0.00	-299.16	0.00	299.16	2564.30	1282.15	3848.53	1927.13	5.57	-0.840	0.000	0.171
70.00	-39.01	-5.63	0.00	-270.55	0.00	270.55	2506.50	1253.25	3639.84	1822.63	6.48	-0.906	0.000	0.164
75.00	-37.75	-5.53	0.00	-242.41	0.00	242.41	2447.06	1223.53	3434.48	1719.79	7.47	-0.972	0.000	0.156
80.00	-36.53	-5.44	0.00	-214.74	0.00	214.74	2385.98	1192.99	3232.68	1618.74	8.52	-1.037	0.000	0.148
85.00	-35.34	-5.34	0.00	-187.57	0.00	187.57	2323.27	1161.64	3034.69	1519.60	9.64	-1.100	0.000	0.139
90.00	-34.18	-5.24	0.00	-160.89	0.00	160.89	2258.93	1129.46	2840.75	1422.49	10.83	-1.161	0.000	0.128
95.00	-33.06	-5.13	0.00	-134.71	0.00	134.71	2173.88	1086.94	2628.05	1315.98	12.07	-1.219	0.000	0.118
97.75	-32.45	-5.07	0.00	-120.62	0.00	120.62	2126.27	1063.14	2513.60	1258.67	12.78	-1.250	0.000	0.111
100.00	-31.81	-5.02	0.00	-109.21	0.00	109.21	2087.31	1043.66	2421.85	1212.73	13.38	-1.275	0.000	0.105
101.50	-31.38	-4.99	0.00	-101.69	0.00	101.69	1088.23	544.12	1274.83	638.36	13.78	-1.291	0.000	0.188
105.00	-30.79	-4.92	0.00	-84.23	0.00	84.23	1070.27	535.14	1217.34	609.58	14.74	-1.324	0.000	0.167
109.00	-24.97	-3.93	0.00	-64.53	0.00	64.53	1048.77	524.38	1152.06	576.89	15.88	-1.378	0.000	0.136
110.00	-24.81	-3.92	0.00	-60.61	0.00	60.61	1043.23	521.61	1135.83	568.76	16.17	-1.390	0.000	0.130
115.00	-24.03	-3.81	0.00	-41.03	0.00	41.03	1014.55	507.27	1055.24	528.40	17.65	-1.442	0.000	0.101
119.00	-13.94	-2.17	0.00	-25.78	0.00	25.78	990.42	495.21	991.60	496.54	18.87	-1.473	0.000	0.066
120.00	-13.81	-2.15	0.00	-23.62	0.00	23.62	984.23	492.11	975.83	488.64	19.18	-1.479	0.000	0.062
125.00	-13.18	-2.04	0.00	-12.89	0.00	12.89	952.28	476.14	897.82	449.58	20.75	-1.504	0.000	0.043
128.00	-4.80	-0.72	0.00	-6.78	0.00	6.78	932.32	466.16	851.79	426.53	21.69	-1.513	0.000	0.021
129.00	-4.69	-0.69	0.00	-6.06	0.00	6.06	925.54	462.77	836.59	418.92	22.01	-1.515	0.000	0.020
129.00	-4.69	-0.69	0.00	-6.06	0.00	6.06	925.54	462.77	836.59	418.92	22.01	-1.515	0.000	0.020
130.00	-4.59	-0.67	0.00	-5.37	0.00	5.37	918.69	459.34	821.46	411.34	22.33	-1.517	0.000	0.018
135.00	-4.09	-0.57	0.00	-2.00	0.00	2.00	883.47	441.73	746.98	374.05	23.92	-1.524	0.000	0.010
138.50	-0.05	-0.01	0.00	0.00	0.00	0.00	857.84	428.92	696.10	348.57	25.04	-1.526	0.000	0.000
139.00	0.00	-0.01	0.00	0.00	0.00	0.00	854.11	427.06	688.92	344.97	25.20	-1.526	0.000	0.000

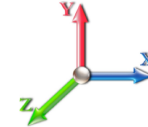
## Seismic Segment Forces (Factored)

<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 1.2D + 1.0E				<b>Iterations</b> 23
<b>Gust Response Factor</b>	1.10	<b>Sds</b>	0.22	<b>Ss</b> 0.21
<b>Dead Load Factor</b>	1.20	<b>Seismic Load Factor</b>	1.00	<b>S1</b> 0.07
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.32	<b>SA</b> 0.03
				<b>Seismic Importance Factor</b> 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		854.05	0.00	0.03	0.02	21.09	
10.00		834.22	0.01	0.05	0.03	28.73	
15.00		814.40	0.02	0.07	0.04	31.66	
20.00		794.57	0.04	0.07	0.04	32.62	
25.00		774.75	0.06	0.07	0.04	32.82	
30.00		754.92	0.09	0.07	0.04	32.82	
35.00		735.10	0.12	0.07	0.03	32.81	
40.00		715.27	0.16	0.07	0.03	32.66	
45.00		695.45	0.20	0.06	0.02	32.05	
48.00	Bot - Section 2	407.75	0.23	0.06	0.02	18.64	
50.00		539.96	0.24	0.06	0.02	24.32	
53.25	Top - Section 1	863.90	0.28	0.05	0.01	37.14	
55.00		230.96	0.30	0.05	0.01	9.53	
60.00		646.52	0.35	0.03	0.01	21.58	
65.00		626.69	0.41	0.01	0.01	12.68	
70.00		606.87	0.48	-0.01	0.01	1.41	
75.00		587.04	0.55	-0.03	0.01	-10.18	
80.00		567.22	0.63	-0.06	0.02	-19.50	
85.00		547.39	0.71	-0.09	0.03	-24.89	
90.00		527.57	0.79	-0.11	0.05	-26.02	
95.00		507.74	0.88	-0.12	0.08	-23.30	
97.75	Bot - Section 3	270.81	0.93	-0.12	0.10	-11.11	
100.00		349.65	0.98	-0.11	0.12	-12.42	
101.50	Top - Section 2	229.53	1.01	-0.11	0.14	-7.14	
105.00		198.89	1.08	-0.08	0.17	-3.68	
109.00	Appurtenance(s)	2598.1	1.16	-0.03	0.23	-0.23	
110.00		53.85	1.18	-0.01	0.24	0.28	
115.00		262.13	1.29	0.11	0.33	9.29	
119.00	Appurtenance(s)	4044.9	1.39	0.26	0.42	260.96	
120.00		49.09	1.41	0.30	0.44	3.56	
125.00		238.34	1.53	0.57	0.58	27.74	
128.00	Appurtenance(s)	3347.1	1.60	0.79	0.67	489.06	
129.00	Top - Section 3	44.81	1.63	0.87	0.71	7.02	
130.00		44.34	1.65	0.95	0.74	7.42	
135.00		214.55	1.78	1.46	0.95	48.41	
138.50	Appurtenance(s)	1943.1	1.88	1.91	1.11	526.35	
139.00		19.97	1.89	1.98	1.14	5.54	
<b>Totals:</b>		<b>27,541.6</b>				<b>1,649.7</b>	<b>Total Wind: 21,123.7</b>

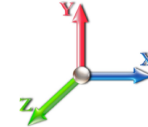
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

## Calculated Forces

<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



<b>Load Case:</b> 1.2D + 1.0E						<b>Iterations</b> 23
<b>Gust Response Factor</b>	1.10			<b>Sds</b>	0.22	<b>Ss</b> 0.21
<b>Dead Load Factor</b>	1.20	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.11	<b>S1</b> 0.07
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.32	<b>SA</b>	0.03	<b>Seismic Importance Factor</b> 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	-37.52	-1.79	0.00	-205.61	0.00	205.61	3147.71	1573.86	6633.45	3321.65	0.00	0.00	0.00	0.074
5.00	-36.32	-1.78	0.00	-196.65	0.00	196.65	3110.30	1555.15	6403.28	3206.40	0.01	-0.02	0.073	
10.00	-35.13	-1.76	0.00	-187.73	0.00	187.73	3071.25	1535.62	6173.46	3091.32	0.04	-0.03	0.072	
15.00	-33.97	-1.74	0.00	-178.91	0.00	178.91	3030.56	1515.28	5944.24	2976.54	0.08	-0.05	0.071	
20.00	-32.83	-1.72	0.00	-170.20	0.00	170.20	2988.24	1494.12	5715.85	2862.17	0.15	-0.07	0.070	
25.00	-31.72	-1.70	0.00	-161.60	0.00	161.60	2944.28	1472.14	5488.53	2748.34	0.23	-0.09	0.070	
30.00	-30.63	-1.67	0.00	-153.13	0.00	153.13	2898.69	1449.34	5262.51	2635.17	0.33	-0.11	0.069	
35.00	-29.57	-1.65	0.00	-144.77	0.00	144.77	2851.46	1425.73	5038.05	2522.77	0.46	-0.13	0.068	
40.00	-28.53	-1.62	0.00	-136.54	0.00	136.54	2802.60	1401.30	4815.37	2411.26	0.60	-0.15	0.067	
45.00	-27.51	-1.59	0.00	-128.43	0.00	128.43	2752.10	1376.05	4594.71	2300.77	0.77	-0.17	0.066	
48.00	-26.91	-1.58	0.00	-123.65	0.00	123.65	2721.01	1360.51	4463.39	2235.01	0.88	-0.18	0.065	
50.00	-26.19	-1.56	0.00	-120.49	0.00	120.49	2699.97	1349.98	4376.32	2191.41	0.96	-0.19	0.065	
53.25	-25.03	-1.52	0.00	-115.43	0.00	115.43	2693.71	1346.85	4350.71	2178.59	1.09	-0.20	0.062	
55.00	-24.69	-1.52	0.00	-112.77	0.00	112.77	2675.00	1337.50	4274.96	2140.66	1.17	-0.21	0.062	
60.00	-23.73	-1.50	0.00	-105.18	0.00	105.18	2620.47	1310.24	4060.32	2033.18	1.40	-0.23	0.061	
65.00	-22.80	-1.49	0.00	-97.68	0.00	97.68	2564.30	1282.15	3848.53	1927.13	1.66	-0.25	0.060	
70.00	-21.89	-1.50	0.00	-90.22	0.00	90.22	2506.50	1253.25	3639.84	1822.63	1.94	-0.28	0.058	
75.00	-21.00	-1.50	0.00	-82.74	0.00	82.74	2447.06	1223.53	3434.48	1719.79	2.24	-0.30	0.057	
80.00	-20.13	-1.50	0.00	-75.25	0.00	75.25	2385.98	1192.99	3232.68	1618.74	2.56	-0.32	0.055	
85.00	-19.29	-1.50	0.00	-67.74	0.00	67.74	2323.27	1161.64	3034.69	1519.60	2.91	-0.34	0.053	
90.00	-18.48	-1.51	0.00	-60.22	0.00	60.22	2258.93	1129.46	2840.75	1422.49	3.29	-0.37	0.051	
95.00	-17.69	-1.51	0.00	-52.68	0.00	52.68	2173.88	1086.94	2628.05	1315.98	3.68	-0.39	0.048	
97.75	-17.26	-1.51	0.00	-48.54	0.00	48.54	2126.27	1063.14	2513.60	1258.67	3.91	-0.40	0.047	
100.00	-16.76	-1.51	0.00	-45.15	0.00	45.15	2087.31	1043.66	2421.85	1212.73	4.10	-0.41	0.045	
101.50	-16.43	-1.51	0.00	-42.89	0.00	42.89	1088.23	544.12	1274.83	638.36	4.23	-0.42	0.082	
105.00	-16.06	-1.51	0.00	-37.61	0.00	37.61	1070.27	535.14	1217.34	609.58	4.54	-0.43	0.077	
109.00	-12.80	-1.49	0.00	-31.57	0.00	31.57	1048.77	524.38	1152.06	576.89	4.91	-0.46	0.067	
110.00	-12.70	-1.49	0.00	-30.08	0.00	30.08	1043.23	521.61	1135.83	568.76	5.01	-0.46	0.065	
115.00	-12.21	-1.48	0.00	-22.63	0.00	22.63	1014.55	507.27	1055.24	528.40	5.51	-0.49	0.055	
119.00	-7.22	-1.18	0.00	-16.70	0.00	16.70	990.42	495.21	991.60	496.54	5.93	-0.51	0.041	
120.00	-7.15	-1.18	0.00	-15.52	0.00	15.52	984.23	492.11	975.83	488.64	6.04	-0.51	0.039	
125.00	-6.78	-1.15	0.00	-9.64	0.00	9.64	952.28	476.14	897.82	449.58	6.58	-0.53	0.029	
128.00	-2.72	-0.62	0.00	-6.20	0.00	6.20	932.32	466.16	851.79	426.53	6.92	-0.54	0.017	
129.00	-2.66	-0.61	0.00	-5.58	0.00	5.58	925.54	462.77	836.59	418.92	7.03	-0.54	0.016	
129.00	-2.66	-0.61	0.00	-5.58	0.00	5.58	925.54	462.77	836.59	418.92	7.03	-0.54	0.016	
130.00	-2.61	-0.60	0.00	-4.97	0.00	4.97	918.69	459.34	821.46	411.34	7.14	-0.54	0.015	
135.00	-2.35	-0.55	0.00	-1.94	0.00	1.94	883.47	441.73	746.98	374.05	7.71	-0.55	0.008	
138.50	-0.02	-0.01	0.00	0.00	0.00	0.00	857.84	428.92	696.10	348.57	8.12	-0.55	0.000	
139.00	0.00	-0.01	0.00	0.00	0.00	0.00	854.11	427.06	688.92	344.97	8.17	-0.55	0.000	

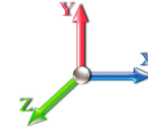
## Seismic Segment Forces (Factored)

<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 0.9D + 1.0E				<b>Iterations</b> 23
<b>Gust Response Factor</b>	1.10	<b>Sds</b>	0.22	<b>Ss</b> 0.21
<b>Dead Load Factor</b>	0.90	<b>Seismic Load Factor</b>	1.00	<b>S1</b> 0.07
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.32	<b>SA</b> 0.03
				<b>Seismic Importance Factor</b> 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		854.05	0.00	0.03	0.02	21.09	
10.00		834.22	0.01	0.05	0.03	28.73	
15.00		814.40	0.02	0.07	0.04	31.66	
20.00		794.57	0.04	0.07	0.04	32.62	
25.00		774.75	0.06	0.07	0.04	32.82	
30.00		754.92	0.09	0.07	0.04	32.82	
35.00		735.10	0.12	0.07	0.03	32.81	
40.00		715.27	0.16	0.07	0.03	32.66	
45.00		695.45	0.20	0.06	0.02	32.05	
48.00	Bot - Section 2	407.75	0.23	0.06	0.02	18.64	
50.00		539.96	0.24	0.06	0.02	24.32	
53.25	Top - Section 1	863.90	0.28	0.05	0.01	37.14	
55.00		230.96	0.30	0.05	0.01	9.53	
60.00		646.52	0.35	0.03	0.01	21.58	
65.00		626.69	0.41	0.01	0.01	12.68	
70.00		606.87	0.48	-0.01	0.01	1.41	
75.00		587.04	0.55	-0.03	0.01	-10.18	
80.00		567.22	0.63	-0.06	0.02	-19.50	
85.00		547.39	0.71	-0.09	0.03	-24.89	
90.00		527.57	0.79	-0.11	0.05	-26.02	
95.00		507.74	0.88	-0.12	0.08	-23.30	
97.75	Bot - Section 3	270.81	0.93	-0.12	0.10	-11.11	
100.00		349.65	0.98	-0.11	0.12	-12.42	
101.50	Top - Section 2	229.53	1.01	-0.11	0.14	-7.14	
105.00		198.89	1.08	-0.08	0.17	-3.68	
109.00	Appurtenance(s)	2598.1	1.16	-0.03	0.23	-0.23	
110.00		53.85	1.18	-0.01	0.24	0.28	
115.00		262.13	1.29	0.11	0.33	9.29	
119.00	Appurtenance(s)	4044.9	1.39	0.26	0.42	260.96	
120.00		49.09	1.41	0.30	0.44	3.56	
125.00		238.34	1.53	0.57	0.58	27.74	
128.00	Appurtenance(s)	3347.1	1.60	0.79	0.67	489.06	
129.00	Top - Section 3	44.81	1.63	0.87	0.71	7.02	
130.00		44.34	1.65	0.95	0.74	7.42	
135.00		214.55	1.78	1.46	0.95	48.41	
138.50	Appurtenance(s)	1943.1	1.88	1.91	1.11	526.35	
139.00		19.97	1.89	1.98	1.14	5.54	
<b>Totals:</b>		<b>27,541.6</b>				<b>1,649.7</b>	<b>Total Wind: 21,123.7</b>

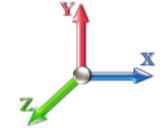
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

## Calculated Forces

<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 0.9D + 1.0E							<b>Iterations</b> 23
<b>Gust Response Factor</b>	1.10			<b>Sds</b>	0.22	<b>Ss</b>	0.21
<b>Dead Load Factor</b>	0.90	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.11	<b>S1</b>	0.07
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.32	<b>SA</b>	0.03	<b>Seismic Importance Factor</b>	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	-28.14	-1.79	0.00	-202.75	0.00	202.75	3147.71	1573.86	6633.45	3321.65	0.00	0.00	0.00	0.070
5.00	-27.24	-1.78	0.00	-193.79	0.00	193.79	3110.30	1555.15	6403.28	3206.40	0.01	-0.02	0.069	
10.00	-26.35	-1.76	0.00	-184.90	0.00	184.90	3071.25	1535.62	6173.46	3091.32	0.04	-0.03	0.068	
15.00	-25.48	-1.73	0.00	-176.11	0.00	176.11	3030.56	1515.28	5944.24	2976.54	0.08	-0.05	0.068	
20.00	-24.63	-1.71	0.00	-167.45	0.00	167.45	2988.24	1494.12	5715.85	2862.17	0.14	-0.07	0.067	
25.00	-23.79	-1.68	0.00	-158.91	0.00	158.91	2944.28	1472.14	5488.53	2748.34	0.23	-0.09	0.066	
30.00	-22.97	-1.65	0.00	-150.51	0.00	150.51	2898.69	1449.34	5262.51	2635.17	0.33	-0.11	0.065	
35.00	-22.17	-1.63	0.00	-142.23	0.00	142.23	2851.46	1425.73	5038.05	2522.77	0.45	-0.13	0.064	
40.00	-21.39	-1.60	0.00	-134.09	0.00	134.09	2802.60	1401.30	4815.37	2411.26	0.59	-0.15	0.063	
45.00	-20.63	-1.57	0.00	-126.09	0.00	126.09	2752.10	1376.05	4594.71	2300.77	0.76	-0.17	0.062	
48.00	-20.18	-1.56	0.00	-121.37	0.00	121.37	2721.01	1360.51	4463.39	2235.01	0.87	-0.18	0.062	
50.00	-19.64	-1.53	0.00	-118.26	0.00	118.26	2699.97	1349.98	4376.32	2191.41	0.94	-0.19	0.061	
53.25	-18.77	-1.50	0.00	-113.28	0.00	113.28	2693.71	1346.85	4350.71	2178.59	1.08	-0.20	0.059	
55.00	-18.52	-1.49	0.00	-110.66	0.00	110.66	2675.00	1337.50	4274.96	2140.66	1.15	-0.21	0.059	
60.00	-17.80	-1.47	0.00	-103.20	0.00	103.20	2620.47	1310.24	4060.32	2033.18	1.38	-0.23	0.058	
65.00	-17.10	-1.46	0.00	-95.83	0.00	95.83	2564.30	1282.15	3848.53	1927.13	1.63	-0.25	0.056	
70.00	-16.41	-1.47	0.00	-88.51	0.00	88.51	2506.50	1253.25	3639.84	1822.63	1.91	-0.27	0.055	
75.00	-15.75	-1.47	0.00	-81.18	0.00	81.18	2447.06	1223.53	3434.48	1719.79	2.20	-0.29	0.054	
80.00	-15.10	-1.47	0.00	-73.83	0.00	73.83	2385.98	1192.99	3232.68	1618.74	2.52	-0.32	0.052	
85.00	-14.47	-1.47	0.00	-66.47	0.00	66.47	2323.27	1161.64	3034.69	1519.60	2.86	-0.34	0.050	
90.00	-13.86	-1.47	0.00	-59.11	0.00	59.11	2258.93	1129.46	2840.75	1422.49	3.23	-0.36	0.048	
95.00	-13.26	-1.47	0.00	-51.73	0.00	51.73	2173.88	1086.94	2628.05	1315.98	3.62	-0.38	0.045	
97.75	-12.94	-1.48	0.00	-47.68	0.00	47.68	2126.27	1063.14	2513.60	1258.67	3.84	-0.39	0.044	
100.00	-12.57	-1.47	0.00	-44.36	0.00	44.36	2087.31	1043.66	2421.85	1212.73	4.03	-0.40	0.043	
101.50	-12.32	-1.48	0.00	-42.15	0.00	42.15	1088.23	544.12	1274.83	638.36	4.16	-0.41	0.077	
105.00	-12.04	-1.48	0.00	-36.98	0.00	36.98	1070.27	535.14	1217.34	609.58	4.46	-0.42	0.072	
109.00	-9.59	-1.46	0.00	-31.08	0.00	31.08	1048.77	524.38	1152.06	576.89	4.83	-0.45	0.063	
110.00	-9.52	-1.46	0.00	-29.61	0.00	29.61	1043.23	521.61	1135.83	568.76	4.92	-0.45	0.061	
115.00	-9.16	-1.45	0.00	-22.30	0.00	22.30	1014.55	507.27	1055.24	528.40	5.42	-0.48	0.051	
119.00	-5.42	-1.16	0.00	-16.48	0.00	16.48	990.42	495.21	991.60	496.54	5.83	-0.50	0.039	
120.00	-5.36	-1.16	0.00	-15.32	0.00	15.32	984.23	492.11	975.83	488.64	5.93	-0.50	0.037	
125.00	-5.08	-1.13	0.00	-9.52	0.00	9.52	952.28	476.14	897.82	449.58	6.47	-0.52	0.027	
128.00	-2.04	-0.61	0.00	-6.13	0.00	6.13	932.32	466.16	851.79	426.53	6.80	-0.53	0.017	
129.00	-2.00	-0.61	0.00	-5.52	0.00	5.52	925.54	462.77	836.59	418.92	6.91	-0.53	0.015	
129.00	-2.00	-0.61	0.00	-5.52	0.00	5.52	925.54	462.77	836.59	418.92	6.91	-0.53	0.015	
130.00	-1.96	-0.60	0.00	-4.91	0.00	4.91	918.69	459.34	821.46	411.34	7.02	-0.53	0.014	
135.00	-1.76	-0.55	0.00	-1.92	0.00	1.92	883.47	441.73	746.98	374.05	7.58	-0.54	0.007	
138.50	-0.02	-0.01	0.00	0.00	0.00	0.00	857.84	428.92	696.10	348.57	7.98	-0.54	0.000	
139.00	0.00	-0.01	0.00	0.00	0.00	0.00	854.11	427.06	688.92	344.97	8.03	-0.54	0.000	

## Wind Loading - Shaft

<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



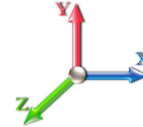
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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 24

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00



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		1.00	0.70	6.129	6.74	218.81	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	6.129	6.74	213.82	0.650	0.000	5.00	21.545	14.00	94.4	0.0	854.0
10.00		1.00	0.70	6.129	6.74	208.83	0.650	0.000	5.00	21.048	13.68	92.2	0.0	834.2
15.00		1.00	0.70	6.129	6.74	203.83	0.650	0.000	5.00	20.551	13.36	90.1	0.0	814.4
20.00		1.00	0.70	6.129	6.74	198.84	0.650	0.000	5.00	20.054	13.04	87.9	0.0	794.6
25.00		1.00	0.70	6.129	6.74	193.85	0.650	0.000	5.00	19.557	12.71	85.7	0.0	774.7
30.00		1.00	0.70	6.134	6.75	188.94	0.650	0.000	5.00	19.060	12.39	83.6	0.0	754.9
35.00		1.00	0.73	6.410	7.05	188.05	0.650	0.000	5.00	18.563	12.07	85.1	0.0	735.1
40.00		1.00	0.76	6.659	7.33	186.47	0.650	0.000	5.00	18.066	11.74	86.0	0.0	715.3
45.00		1.00	0.79	6.887	7.58	184.34	0.650	0.000	5.00	17.569	11.42	86.5	0.0	695.4
48.00	Bot - Section 2	1.00	0.80	7.015	7.72	182.84	0.650	0.000	3.00	10.303	6.70	51.7	0.0	407.8
50.00		1.00	0.81	7.098	7.81	181.76	0.650	0.000	2.00	6.875	4.47	34.9	0.0	540.0
53.25	Top - Section 1	1.00	0.83	7.227	7.95	179.88	0.650	0.000	3.25	11.002	7.15	56.8	0.0	863.9
55.00		1.00	0.83	7.294	8.02	181.71	0.650	0.000	1.75	5.837	3.79	30.4	0.0	231.0
60.00		1.00	0.85	7.477	8.22	178.47	0.650	0.000	5.00	16.342	10.62	87.4	0.0	646.5
65.00		1.00	0.87	7.650	8.42	174.95	0.650	0.000	5.00	15.845	10.30	86.7	0.0	626.7
70.00		1.00	0.89	7.814	8.60	171.17	0.650	0.000	5.00	15.348	9.98	85.7	0.0	606.9
75.00		1.00	0.91	7.969	8.77	167.18	0.650	0.000	5.00	14.851	9.65	84.6	0.0	587.0
80.00		1.00	0.93	8.118	8.93	162.98	0.650	0.000	5.00	14.354	9.33	83.3	0.0	567.2
85.00		1.00	0.94	8.260	9.09	158.61	0.650	0.000	5.00	13.857	9.01	81.8	0.0	547.4
90.00		1.00	0.96	8.396	9.24	154.07	0.650	0.000	5.00	13.359	8.68	80.2	0.0	527.6
95.00		1.00	0.97	8.526	9.38	149.37	0.650	0.000	5.00	12.862	8.36	78.4	0.0	507.7
97.75	Bot - Section 3	1.00	0.98	8.596	9.46	146.73	0.650	0.000	2.75	6.862	4.46	42.2	0.0	270.8
100.00		1.00	0.99	8.652	9.52	144.54	0.650	0.000	2.25	5.574	3.62	34.5	0.0	349.7
101.50	Top - Section 2	1.00	0.99	8.689	9.56	143.07	0.650	0.000	1.50	3.660	2.38	22.7	0.0	229.5
105.00		1.00	1.00	8.774	9.65	141.49	0.650	0.000	3.50	8.367	5.44	52.5	0.0	198.9
109.00	Appurtenance(s)	1.00	1.01	8.868	9.75	137.45	0.650	0.000	4.00	9.264	6.02	58.7	0.0	220.2
110.00		1.00	1.02	8.891	9.78	136.42	0.650	0.000	1.00	2.266	1.47	14.4	0.0	53.9
115.00		1.00	1.03	9.005	9.91	131.24	0.650	0.000	5.00	11.033	7.17	71.0	0.0	262.1
119.00	Appurtenance(s)	1.00	1.04	9.093	10.00	127.02	0.650	0.000	4.00	8.468	5.50	55.1	0.0	201.1
120.00		1.00	1.04	9.115	10.03	125.96	0.650	0.000	1.00	2.067	1.34	13.5	0.0	49.1
125.00		1.00	1.05	9.222	10.14	120.57	0.650	0.000	5.00	10.039	6.53	66.2	0.0	238.3
128.00	Appurtenance(s)	1.00	1.06	9.284	10.21	117.30	0.650	0.000	3.00	5.785	3.76	38.4	0.0	137.3
129.00	Top - Section 3	1.00	1.06	9.305	10.24	116.20	0.650	0.000	1.00	1.888	1.23	12.6	0.0	44.8
130.00		1.00	1.07	9.326	10.26	115.09	0.650	0.000	1.00	1.869	1.21	12.5	0.0	44.3
135.00		1.00	1.08	9.427	10.37	109.53	0.650	0.000	5.00	9.045	5.88	61.0	0.0	214.5
138.50	Appurtenance(s)	1.00	1.08	9.496	10.45	105.58	0.650	0.000	3.50	6.035	3.92	41.0	0.0	143.1
139.00		1.00	1.09	9.506	10.46	105.01	0.650	0.000	0.50	0.842	0.55	5.7	0.0	20.0
<b>Totals:</b>									<b>139.00</b>			<b>2,235.3</b>		<b>16,310.0</b>



## Discrete Appurtenance Forces

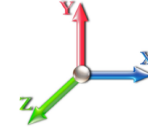
<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 24

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	138.50	Low Profile Platform	1	9.496	10.446	1.00	1.00	30.00	1800.00	0.000	0.000	313.37	0.00	0.00	
2	128.00	Ericsson - KRY 112 114-1	3	9.284	10.213	0.50	0.75	0.62	33.00	0.000	0.000	6.31	0.00	0.00	
3	128.00	Low Profile Platform	1	9.284	10.213	1.00	1.00	33.40	1650.00	0.000	0.000	341.11	0.00	0.00	
4	128.00	Ericsson - AIR21 B2A B4P	3	9.284	10.213	0.64	0.75	11.70	274.50	0.000	0.000	119.51	0.00	0.00	
5	128.00	KRD 9011461-B66A-B2A	3	9.284	10.213	0.65	0.75	12.74	396.60	0.000	0.000	130.15	0.00	0.00	
6	128.00	APXVAARR24_43-U-NA2	3	9.284	10.213	0.52	0.75	31.88	384.00	0.000	0.000	325.57	0.00	0.00	
7	128.00	4449	3	9.284	10.213	0.50	0.75	2.49	210.00	0.000	0.000	25.40	0.00	0.00	
8	128.00	HRK12 (Handrail Kit)	1	9.284	10.213	1.00	1.00	9.75	261.72	0.000	0.000	99.58	0.00	0.00	
9	119.00	Ericsson - RRUS 32 B30 -	3	9.093	10.002	0.50	0.75	4.13	180.00	0.000	0.000	41.32	0.00	0.00	
10	119.00	Kaelus -	6	9.093	10.002	0.50	0.75	1.30	152.40	0.000	0.000	12.97	0.00	0.00	
11	119.00	Powerwave -	3	9.093	10.002	0.50	0.75	0.96	48.00	0.000	0.000	9.65	0.00	0.00	
12	119.00	Powerwave - LGP21401 -	9	9.093	10.002	0.38	0.75	4.35	126.90	0.000	0.000	43.55	0.00	0.00	
13	119.00	Cci - HPA-65R-BUU-H6	3	9.093	10.002	0.63	0.75	18.13	153.00	0.000	0.000	181.31	0.00	0.00	
14	119.00	Raycap -	2	9.093	10.002	0.75	0.75	1.38	63.60	0.000	0.000	13.80	0.00	0.00	
15	119.00	Ericsson - RRUS-11 -	3	9.093	10.002	0.50	0.75	3.80	153.00	0.000	0.000	38.00	0.00	0.00	
16	119.00	Ericsson - RRUS-32 B2 -	3	9.093	10.002	0.50	0.75	4.13	159.00	0.000	0.000	41.32	0.00	0.00	
17	119.00	Quintel - QS66512-2	3	9.093	10.002	0.69	0.75	16.79	333.00	0.000	0.000	167.96	0.00	0.00	
18	119.00	Site Pro PRK-1245L	1	9.093	10.002	1.00	1.00	11.50	464.91	0.000	0.000	115.03	0.00	0.00	
19	119.00	Platform w/ Handrail	1	9.093	10.002	1.00	1.00	40.20	1800.00	0.000	0.000	402.09	0.00	0.00	
20	119.00	Powerwave - 7770	6	9.093	10.002	0.57	0.75	18.96	210.00	0.000	0.000	189.63	0.00	0.00	
21	109.00	MC-PK8-DSH	1	8.868	9.755	1.00	1.00	37.59	1727.00	0.000	0.000	366.68	0.00	0.00	
22	109.00	RDIDC-9181-OF-48	1	8.868	9.755	1.00	1.00	2.01	21.90	0.000	0.000	19.61	0.00	0.00	
23	109.00	TA08025-B605	3	8.868	9.755	0.50	0.75	2.95	225.00	0.000	0.000	28.82	0.00	0.00	
24	109.00	TA08025-B604	3	8.868	9.755	0.50	0.75	2.95	191.70	0.000	0.000	28.82	0.00	0.00	
25	109.00	Commscope	3	8.868	9.755	0.56	0.75	20.33	212.40	0.000	0.000	198.35	0.00	0.00	
<b>Totals:</b>									<b>11,231.63</b>						<b>3,259.90</b>

## Total Applied Force Summary

<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 24

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
5.00		94.41	1006.22	0.00	0.00
10.00		92.23	986.39	0.00	0.00
15.00		90.05	966.57	0.00	0.00
20.00		87.88	946.74	0.00	0.00
25.00		85.70	926.92	0.00	0.00
30.00		83.59	907.09	0.00	0.00
35.00		85.08	887.27	0.00	0.00
40.00		86.02	867.44	0.00	0.00
45.00		86.51	847.62	0.00	0.00
48.00		51.68	499.05	0.00	0.00
50.00		34.89	600.83	0.00	0.00
53.25		56.85	962.81	0.00	0.00
55.00		30.44	284.22	0.00	0.00
60.00		87.37	798.69	0.00	0.00
65.00		86.67	778.86	0.00	0.00
70.00		85.75	759.04	0.00	0.00
75.00		84.62	739.21	0.00	0.00
80.00		83.31	719.39	0.00	0.00
85.00		81.83	699.56	0.00	0.00
90.00		80.19	679.74	0.00	0.00
95.00		78.41	659.91	0.00	0.00
97.75		42.18	354.50	0.00	0.00
100.00		34.48	418.13	0.00	0.00
101.50		22.74	275.18	0.00	0.00
105.00		52.49	305.41	0.00	0.00
109.00	(11) attachments	701.02	2719.91	0.00	0.00
110.00		14.41	82.30	0.00	0.00
115.00		71.03	404.34	0.00	0.00
119.00	(43) attachments	1311.68	4158.72	0.00	0.00
120.00		13.47	62.89	0.00	0.00
125.00		66.19	307.30	0.00	0.00
128.00	(17) attachments	1086.03	3388.49	0.00	0.00
129.00		12.56	45.09	0.00	0.00
130.00		12.46	44.61	0.00	0.00
135.00		60.96	215.91	0.00	0.00
138.50	(1) attachments	354.35	1943.92	0.00	0.00
139.00		5.72	19.97	0.00	0.00
	<b>Totals:</b>	<b>5,495.25</b>	<b>31,270.24</b>	<b>0.00</b>	<b>0.00</b>

## Calculated Forces

<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

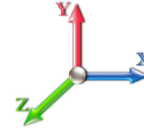


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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 24

**Dead Load Factor** 1.00  
**Wind Load 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	-31.27	-5.51	0.00	-571.06	0.00	571.06	3147.71	1573.86	6633.45	3321.65	0.00	0.000	0.000	0.182
5.00	-30.26	-5.44	0.00	-543.52	0.00	543.52	3110.30	1555.15	6403.28	3206.40	0.03	-0.047	0.000	0.179
10.00	-29.27	-5.37	0.00	-516.33	0.00	516.33	3071.25	1535.62	6173.46	3091.32	0.10	-0.095	0.000	0.177
15.00	-28.30	-5.30	0.00	-489.48	0.00	489.48	3030.56	1515.28	5944.24	2976.54	0.23	-0.144	0.000	0.174
20.00	-27.34	-5.24	0.00	-462.97	0.00	462.97	2988.24	1494.12	5715.85	2862.17	0.40	-0.194	0.000	0.171
25.00	-26.41	-5.17	0.00	-436.80	0.00	436.80	2944.28	1472.14	5488.53	2748.34	0.63	-0.245	0.000	0.168
30.00	-25.50	-5.10	0.00	-410.95	0.00	410.95	2898.69	1449.34	5262.51	2635.17	0.92	-0.297	0.000	0.165
35.00	-24.61	-5.04	0.00	-385.43	0.00	385.43	2851.46	1425.73	5038.05	2522.77	1.26	-0.349	0.000	0.161
40.00	-23.74	-4.97	0.00	-360.24	0.00	360.24	2802.60	1401.30	4815.37	2411.26	1.65	-0.402	0.000	0.158
45.00	-22.89	-4.89	0.00	-335.40	0.00	335.40	2752.10	1376.05	4594.71	2300.77	2.10	-0.456	0.000	0.154
48.00	-22.39	-4.85	0.00	-320.72	0.00	320.72	2721.01	1360.51	4463.39	2235.01	2.40	-0.490	0.000	0.152
50.00	-21.78	-4.82	0.00	-311.02	0.00	311.02	2699.97	1349.98	4376.32	2191.41	2.61	-0.512	0.000	0.150
53.25	-20.82	-4.76	0.00	-295.36	0.00	295.36	2693.71	1346.85	4350.71	2178.59	2.97	-0.549	0.000	0.143
55.00	-20.53	-4.74	0.00	-287.03	0.00	287.03	2675.00	1337.50	4274.96	2140.66	3.18	-0.569	0.000	0.142
60.00	-19.73	-4.67	0.00	-263.31	0.00	263.31	2620.47	1310.24	4060.32	2033.18	3.80	-0.622	0.000	0.137
65.00	-18.95	-4.59	0.00	-239.98	0.00	239.98	2564.30	1282.15	3848.53	1927.13	4.48	-0.675	0.000	0.132
70.00	-18.19	-4.51	0.00	-217.04	0.00	217.04	2506.50	1253.25	3639.84	1822.63	5.22	-0.728	0.000	0.126
75.00	-17.44	-4.43	0.00	-194.49	0.00	194.49	2447.06	1223.53	3434.48	1719.79	6.01	-0.781	0.000	0.120
80.00	-16.72	-4.35	0.00	-172.34	0.00	172.34	2385.98	1192.99	3232.68	1618.74	6.85	-0.833	0.000	0.113
85.00	-16.02	-4.27	0.00	-150.57	0.00	150.57	2323.27	1161.64	3034.69	1519.60	7.75	-0.884	0.000	0.106
90.00	-15.34	-4.20	0.00	-129.20	0.00	129.20	2258.93	1129.46	2840.75	1422.49	8.71	-0.933	0.000	0.098
95.00	-14.68	-4.12	0.00	-108.21	0.00	108.21	2173.88	1086.94	2628.05	1315.98	9.71	-0.980	0.000	0.089
97.75	-14.32	-4.07	0.00	-96.90	0.00	96.90	2126.27	1063.14	2513.60	1258.67	10.28	-1.005	0.000	0.084
100.00	-13.90	-4.04	0.00	-87.73	0.00	87.73	2087.31	1043.66	2421.85	1212.73	10.76	-1.024	0.000	0.079
101.50	-13.63	-4.01	0.00	-81.68	0.00	81.68	1088.23	544.12	1274.83	638.36	11.08	-1.037	0.000	0.141
105.00	-13.32	-3.96	0.00	-67.63	0.00	67.63	1070.27	535.14	1217.34	609.58	11.85	-1.064	0.000	0.123
109.00	-10.61	-3.22	0.00	-51.78	0.00	51.78	1048.77	524.38	1152.06	576.89	12.77	-1.107	0.000	0.100
110.00	-10.53	-3.20	0.00	-48.57	0.00	48.57	1043.23	521.61	1135.83	568.76	13.00	-1.117	0.000	0.096
115.00	-10.12	-3.13	0.00	-32.54	0.00	32.54	1014.55	507.27	1055.24	528.40	14.19	-1.158	0.000	0.072
119.00	-5.99	-1.74	0.00	-20.02	0.00	20.02	990.42	495.21	991.60	496.54	15.17	-1.183	0.000	0.046
120.00	-5.93	-1.72	0.00	-18.29	0.00	18.29	984.23	492.11	975.83	488.64	15.42	-1.188	0.000	0.043
125.00	-5.62	-1.65	0.00	-9.67	0.00	9.67	952.28	476.14	897.82	449.58	16.68	-1.207	0.000	0.027
128.00	-2.26	-0.49	0.00	-4.72	0.00	4.72	932.32	466.16	851.79	426.53	17.44	-1.213	0.000	0.013
129.00	-2.21	-0.48	0.00	-4.23	0.00	4.23	925.54	462.77	836.59	418.92	17.69	-1.215	0.000	0.012
129.00	-2.21	-0.48	0.00	-4.23	0.00	4.23	925.54	462.77	836.59	418.92	17.69	-1.215	0.000	0.012
130.00	-2.17	-0.47	0.00	-3.75	0.00	3.75	918.69	459.34	821.46	411.34	17.95	-1.216	0.000	0.011
135.00	-1.96	-0.40	0.00	-1.41	0.00	1.41	883.47	441.73	746.98	374.05	19.22	-1.221	0.000	0.006
138.50	-0.02	-0.01	0.00	0.00	0.00	0.00	857.84	428.92	696.10	348.57	20.12	-1.222	0.000	0.000
139.00	0.00	-0.01	0.00	0.00	0.00	0.00	854.11	427.06	688.92	344.97	20.25	-1.222	0.000	0.000

## Final Analysis Summary

<b>Structure:</b> CT13060-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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### 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 93 mph Wind	21.2	0.00	37.49	0.00	0.00	2212.18
0.9D + 1.6W 93 mph Wind	21.2	0.00	28.11	0.00	0.00	2183.71
1.2D + 1.0Di + 1.0Wi 50 mph Wind	6.7	0.00	60.50	0.00	0.00	707.16
1.2D + 1.0E	1.8	0.00	37.52	0.00	0.00	205.61
0.9D + 1.0E	1.8	0.00	28.14	0.00	0.00	202.75
1.0D + 1.0W 60 mph Wind	5.5	0.00	31.27	0.00	0.00	571.06

### 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 93 mph Wind	-37.49	-21.18	0.00	-2212.1	0.00	-2212.1	3147.71	1573.8	6633.45	3321.65	0.00	0.678
0.9D + 1.6W 93 mph Wind	-28.11	-21.17	0.00	-2183.7	0.00	-2183.7	3147.71	1573.8	6633.45	3321.65	0.00	0.667
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-60.50	-6.70	0.00	-707.16	0.00	-707.16	3147.71	1573.8	6633.45	3321.65	0.00	0.232
1.2D + 1.0E	-16.43	-1.51	0.00	-42.89	0.00	-42.89	1088.23	544.12	1274.83	638.36	101.50	0.082
0.9D + 1.0E	-12.32	-1.48	0.00	-42.15	0.00	-42.15	1088.23	544.12	1274.83	638.36	101.50	0.077
1.0D + 1.0W 60 mph Wind	-31.27	-5.51	0.00	-571.06	0.00	-571.06	3147.71	1573.8	6633.45	3321.65	0.00	0.182

## Base Plate Summary

<b>Structure:</b> CT13060-A-SB	<b>Code:</b> EIA/TIA-222-G	10/13/2021
<b>Site Name:</b> Newtown 2	<b>Exposure:</b> B	
<b>Height:</b> 139.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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Reactions	Base Plate	Anchor Bolts
Original Design	<b>Yield (ksi):</b> 60.00	<b>Bolt Circle:</b> 58.00
<b>Moment (kip-ft):</b> 1882.00	<b>Width (in):</b> 56.00	<b>Number Bolts:</b> 12.00
<b>Axial (kip):</b> 32.90	<b>Style:</b> Clipped	<b>Bolt Type:</b> 2.25" 18J
<b>Shear (kip):</b> 17.20	<b>Polygon Sides:</b> 4.00	<b>Bolt Diameter (in):</b> 2.25
Analysis (1.2D + 1.6W)	<b>Clip Length (in):</b> 10.00	<b>Yield (ksi):</b> 75.00
<b>Moment (kip-ft):</b> 2212.18	<b>Effective Len (in):</b> 10.31	<b>Ultimate (ksi):</b> 100.00
<b>Axial (kip):</b> 37.49	<b>Moment (kip-in):</b> 511.43	<b>Arrangement:</b> Clustered
<b>Shear (kip):</b> 21.18	<b>Allow Stress (ksi):</b> 81.00	<b>Cluster Dist (in):</b> 6.00
	<b>Applied Stress (ksi):</b> 39.69	<b>Start Angle (deg):</b> 45.00
	<b>Stress Ratio:</b> 0.49	<b>Compression</b>
		<b>Force (kip):</b> 157.61
		<b>Allowable (kip):</b> 260.00
		<b>Ratio:</b> 0.62
		<b>Tension</b>
		<b>Force (kip):</b> 147.52
		<b>Allowable (kip):</b> 260.00
		<b>Ratio:</b> 0.58



# Monopole Mat Foundation Design

Date  
10/13/2021

<b>Customer Name:</b>	Dish Wireless	<b>EIA/TIA Standard:</b>	EIA-222-G
<b>Site Name:</b>		<b>Structure Height (Ft.):</b>	139
<b>Site Number:</b>	CT13060-A-SBA	<b>Engineer Name:</b>	J. Tibbetts
<b>Engr. Number:</b>	117323	<b>Engineer Login ID:</b>	

**Foundation Info Obtained from:**

Drawings/Calculations
Monopole
Analysis

**Structure Type:**

**Analysis or Design?**

**Base Reactions (Factored):**

Axial Load (Kips):	37.5	Shear Force (Kips):	21.2
Uplift Force (Kips):	0.0	Moment (Kips-ft):	2212.2

Allowable overstress %: 5.0%

**Foundation Geometries:**

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	7.0	Depth of Base BG (ft.):	5.5
Pier Height A. G. (ft.):	1.00	Thickness of Pad (ft.):	2.00
Length of Pad (ft.):	23	Width of Pad (ft.):	23

Final Length of pad (ft)	23.0	Final width of pad (ft):	23.0
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**Material Properties and Rebar Info:**

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	8	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	36	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):	36	Qty. of Rebar in Pad (W):	36
Rebar at the top of the concrete pad:			
Qty. of Rebar in Pad (L):	36	Qty. of Rebar in Pad (W):	36

Apply 1.35 factor for e/w Per G: 1.35

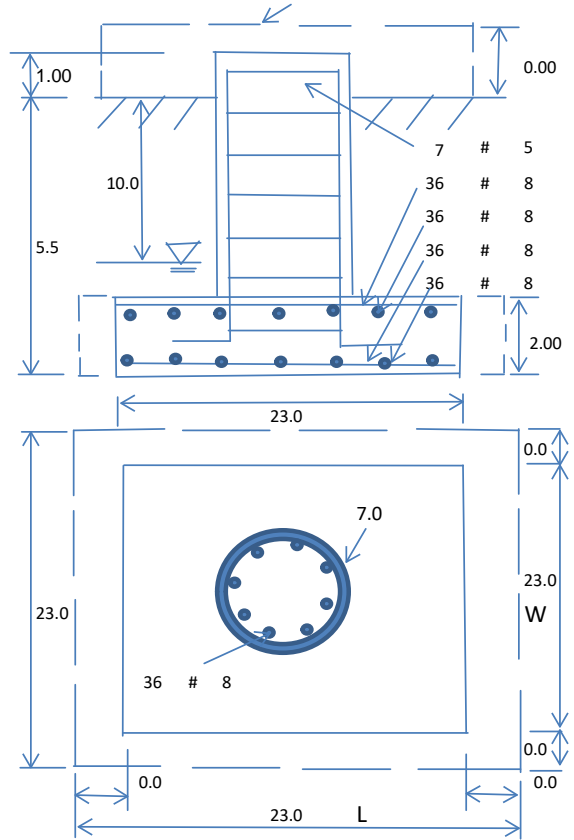
**Soil Design Parameters:**

Soil Unit Weight (pcf):	110.0	Soil Buoyant Weight:	50.0	Pcf	
Water Table B.G.S. (ft):	10.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:
Ultimate Bearing Pressure (psf):	12000	Ultimate Skin Friction:		Psf	30
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	Yes		Angle from Bottm of Pad:
Consider soil hor. resist. for OTM.:	No	Reduction factor on the maximum soil bearing pressure:	1.00		25

<b>Foundation Analysis and Design:</b>	Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):		1716.80	Total Dry Soil Weight (Kips):	188.85
Total Buoyant Soil Volume (cu. Ft.):		0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):		188.85	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):		1231.18	Total Dry Concrete Weight (Kips):	184.68
Total Buoyant Concrete Volume (cu. Ft.):		0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):		184.68	Total Vertical Load on Base (Kips):	411.03

**Check Soil Capacities:**

Calculated Maxium Net Soil Pressure under the base (psf):	2154	<	Allowable Factored Soil Bearing (psf):	9000	0.24	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	4297.2	>	Design Factored Momont (kips-ft):	2350	0.55	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.83					OK!



**Check the capacities of Reinforcing Concrete:**

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.00		
				Load/ Capacity Ratio	
<b>(1) Concrete Pier:</b>					
Vertical Steel Rebar Area (sq. in./each):	0.79	Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	4845.7	> Design Factored Moment (Mu, Kips-F	2307.6	0.48	OK!
Calculated Shear Capacity (Kips):	734.1	> Design Factored Shear (Kips):	21.2	0.03	OK!
Calculated Tension Capacity (Tn, Kips):	1535.8	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	9747.6	> Design Factored Axial Load (Pu Kips):	37.5	0.00	OK!
Moment & Axial Strength Combination:	0.48	OK! Check Tie Spacing (Design/Required):	1		OK!
Pier Reinforcement Ratio:	0.005	Reinforcement Ratio is satisfied per ACI			
<b>(2).Concrete Pad:</b>					
One-Way Design Shear Capacity (L-Direction, Kips):	536.8	> One-Way Factored Shear (L-D. Kips):	168.0	0.31	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	536.8	> One-Way Factored Shear (W-D., Kips)	168.0	0.31	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	516.0	> One-Way Factored Shear (C-C, Kips):	167.2	0.32	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct. ):	0.0050	OK! Lower Steel Pad Reinf. Ratio (W-Direc	0.0050		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	2507.2	> Moment at Bottom ( L-Dir. K-Ft):	770.5	0.31	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	2507.2	> Moment at Bottom ( W-Dir. K-Ft):	770.5	0.31	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	3500.6	> Moment at Bottom ( C-C Dir. K-Ft):	1089.6	0.31	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct. ):	0.0050	OK! Upper Steel Reinf. Ratio (W-Dir. ):	0.0050		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	2507.2	> Moment at the top (L-Dir K-Ft):	330.8	0.13	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	2507.2	> Moment at the top (W-Dir K-Ft):	330.8	0.13	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	3500.6	> Moment at the top (C-C Dir. K-Ft):	311.6	0.09	OK!
<b>(3).Check Punching Shear Capacity due to Moment in the Pier:</b>					
Moment transferred by punching shear:	884.9	k-ft. Max. factored shear stress $v_{u\_CD}$ :	1.4	Psi	
Max. factored shear stress $v_{u\_AB}$ :	10.7	Psi Factored shear Strength $\phi v_n$ :	189.7	Psi	
Max. factored shear stress $v_u$ :	10.7	Psi Check Usage of Punching Shear Capacity:	0.06		OK!

# Exhibit E

## **Mount Analysis**





November 4, 2021

Sherri Knapik  
SBA Network Services, LLC  
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  
towersupport@btgrp.com

**Subject:** **Appurtenance Mount Analysis Report**

**Carrier Designation:** **Dish Wireless Co-Locate**

**Site Number:** NJJER01079D  
**Site Name:** N/A

**SBA Network Services Designation:** **Site Number:** CT13060-A  
**Site Name:** Newtown 2  
**Application Number:** 169470, v1

**Engineering Firm Designation:** **B+T Group Project Number:** 158618.003.01

**Site Data:** **3 Edmund Road, Newtown, CT, 06470, Fairfield County**  
**Latitude 41.42089°, Longitude -73.29810°**  
**Monopole**  
**8' Platform Mount**

Dear Sherri 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:

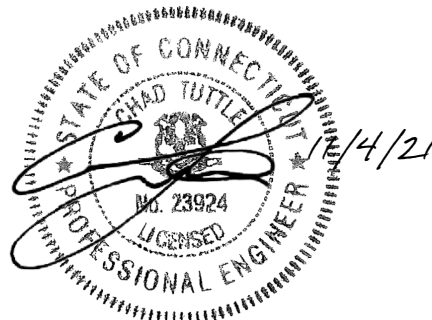
Proposed Equipment	<b>Sufficient Capacity</b>
Note: See Table 1 for the final loading configuration	<b>(Passing at 48.4%)</b>

This analysis utilizes an ultimate 3-second gust wind speed of 116 mph as required by the 2018 Connecticut State Building Code (2018IBC). Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

We at B+T Group appreciate the opportunity of providing our continuing professional services to you and SBA Network Services, LLC. 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: Joseph Variamparampil

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



Chad E. Tuttle, P.E.

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## 1) INTRODUCTION

The appurtenance mount consists of Commscope Platform mounts (Part# MC-PK8-DSH) at 109 ft., attached to monopole at 3 Edmund Road, Newtown, CT, 06470, Fairfield County. The proposed antenna loading information was obtained from SBA Network Services, LLC. 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-H-2017 Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures using a 3-second gust wind speed of 116 mph with no ice and 50 mph with 1 inch escalated ice thickness. Exposure Category B, Topographic Category 1 and Risk Category II were used in this 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 30 mph. The mount was analyzed under 30° 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	109	1	3	Commscope FFVV-65B-R2	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 the Mount.

**Table 2 - Documents Provided**

Documents	Remarks	Reference	Source
Collo App	Proposed Loading	Date: 09/24/2021	SBA Network Services, LLC.
RFDS		Date: 09/08/2021	

## 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 drawing 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	109	7.3	Pass
-	Support Rails	109	12.6	Pass
-	Support Tubes	109	48.4	Pass
-	Support Channels	109	32.3	Pass
-	Support Angles	109	30.1	Pass
-	Mount Pipes	109	14.1	Pass
-	Connection Plates	109	19.8	Pass
-	Connection Angles	109	21.1	Pass
-	Connection Bolts	109	24.57	Pass

#### 5) RECOMMENDATIONS

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

# APPENDIX A

(RISA-3D Output)

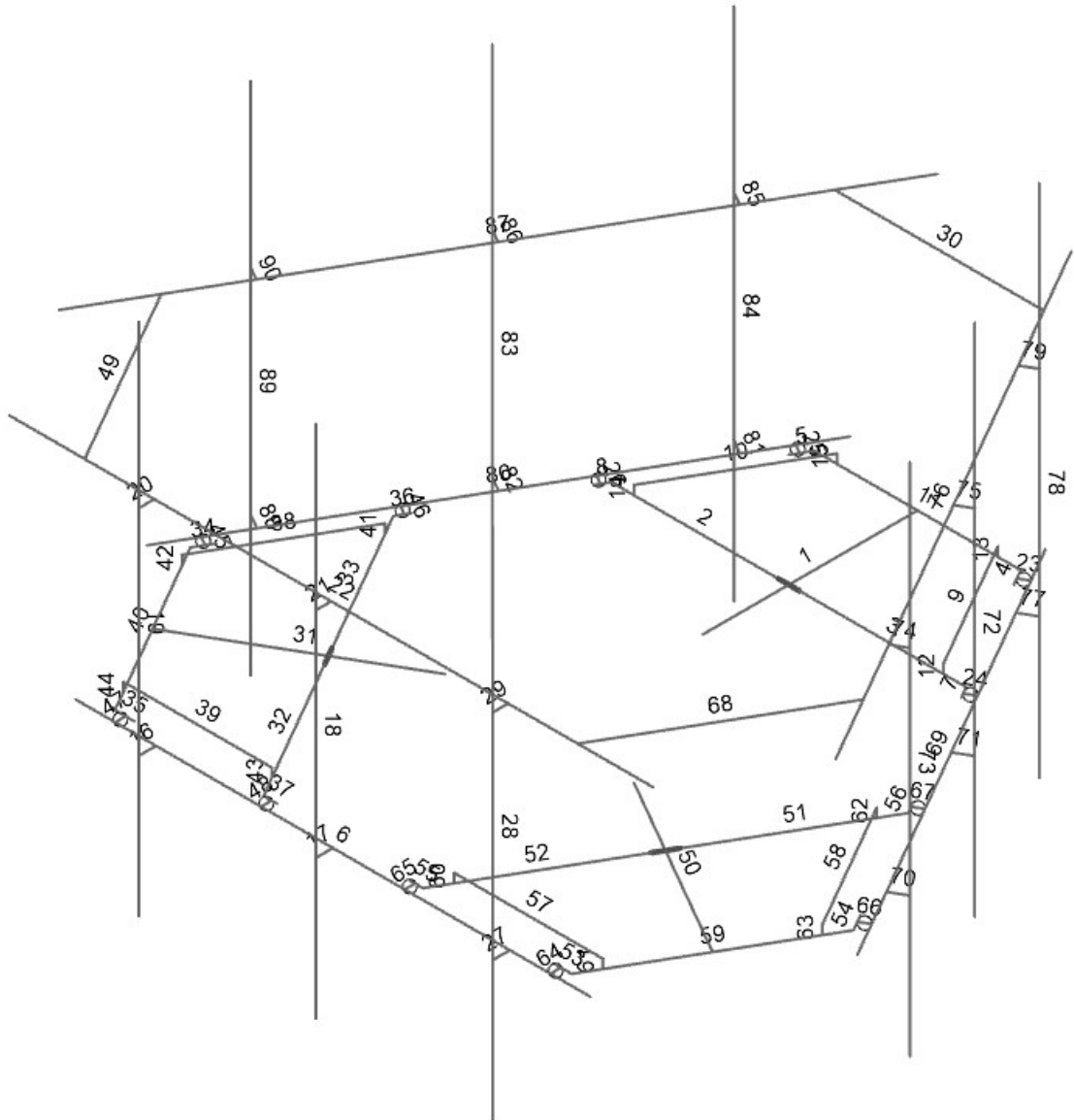
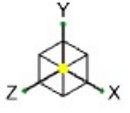


Envelope Only Solution

B+T Group  
VP  
158618.003.01

CT13060-A - Newtown 2

VP1  
Nov 04, 2021  
158618\_003\_01\_Newtown 2\_CT...

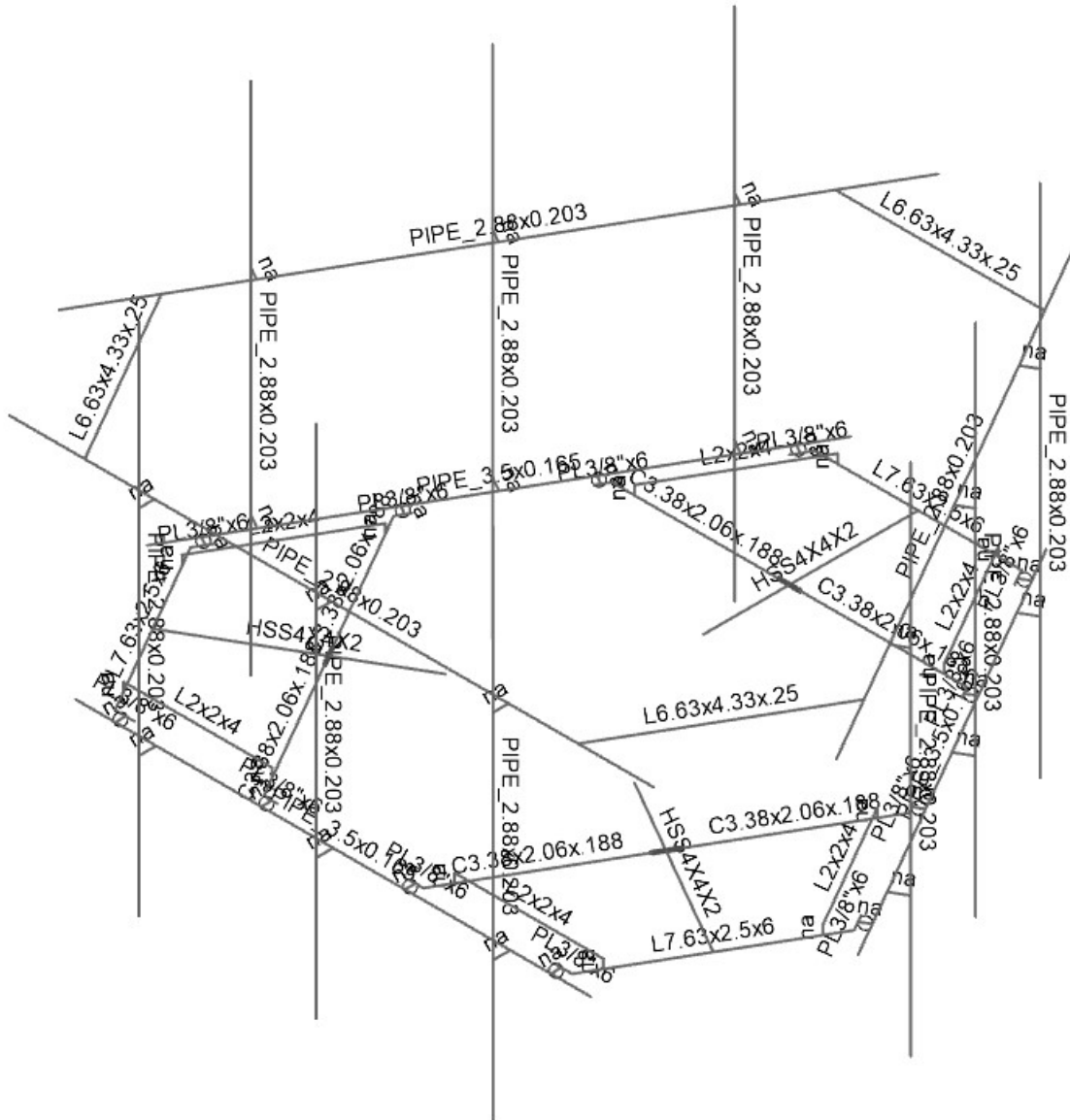


Envelope Only Solution

B+T Group  
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CT13060-A - Newtown 2

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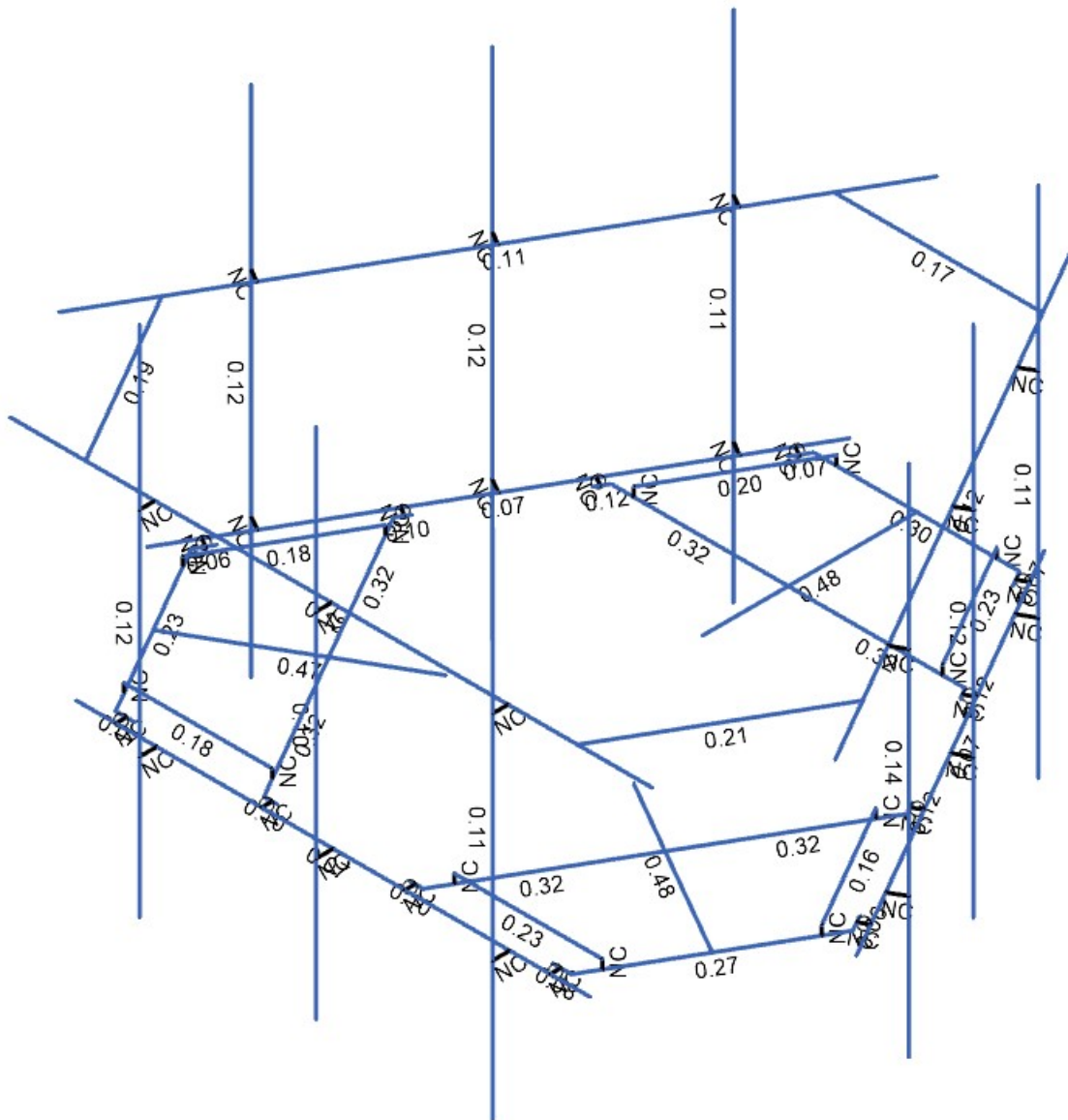
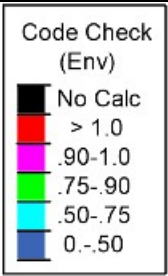
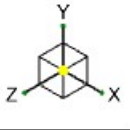
Envelope Only Solution

B+T Group  
 VP  
 158618.003.01

CT13060-A - Newtown 2

VP3  
 Nov 04, 2021  
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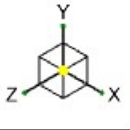


Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

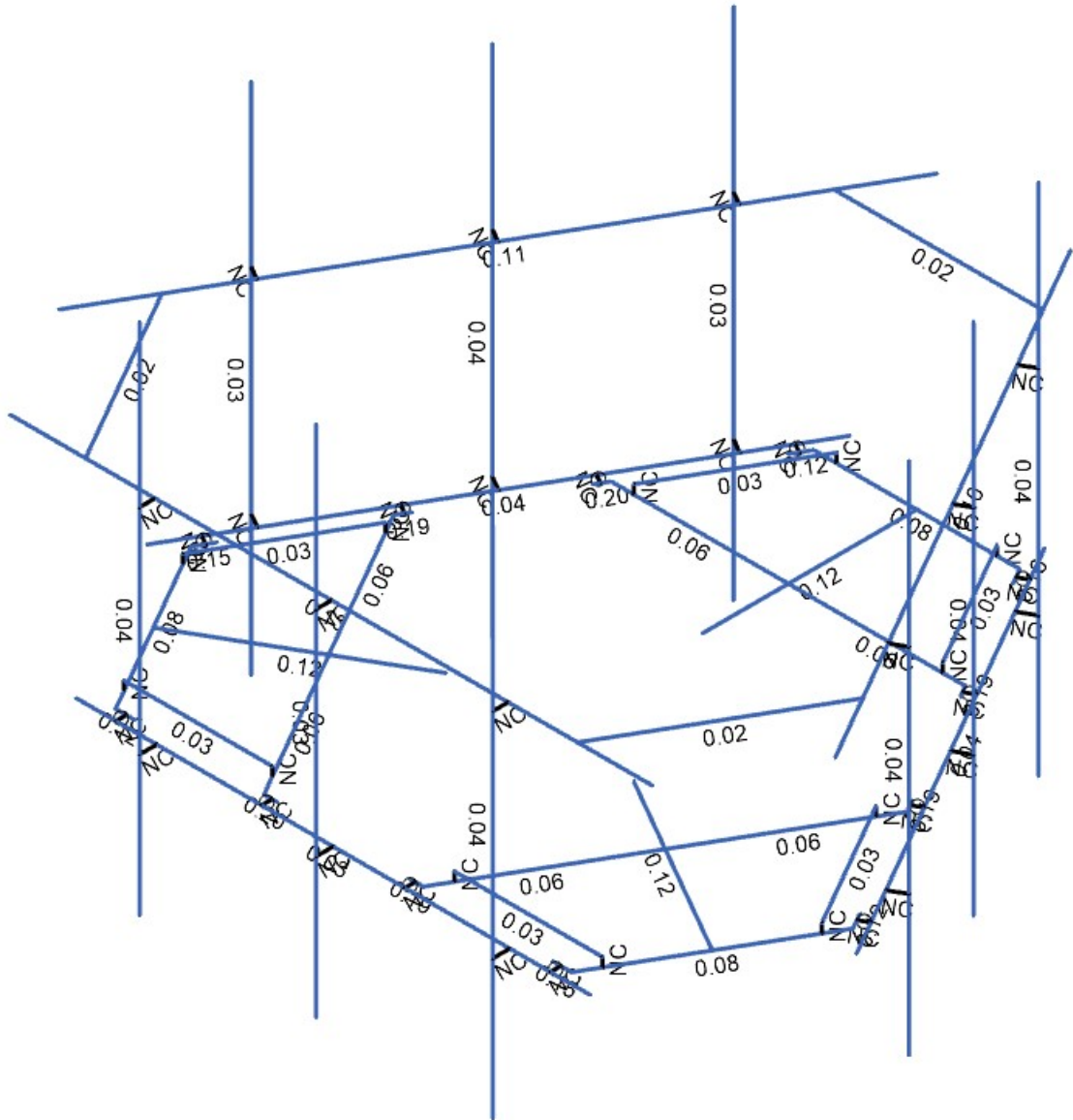
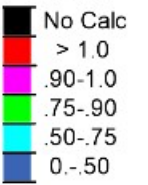
B+T Group
VP
158618.003.01

CT13060-A - Newtown 2
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VP4
Nov 04, 2021
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Shear Check (Env)



Member Shear Checks Displayed (Enveloped)  
Envelope Only Solution

B+T Group
VP
158618.003.01

CT13060-A - Newtown 2
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VP5
Nov 04, 2021
158618_003_01_Newtown_2_CT...

**Node Coordinates**

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	0	0	-1.691605	
2	2	0	0	-5.024938	
3	3	0	0	-3.024938	
4	4	2.758333	0	-3.024938	
5	5	-2.758333	0	-3.024938	
6	6	-1.603633	0	-5.024938	
7	7	1.603633	0	-5.024938	
8	8	1.749466	0	-4.772347	
9	9	-1.749466	0	-4.772347	
10	10	1.686966	0	-4.8806	
11	11	1.826817	0	-4.961343	
12	12	-1.686966	0	-4.8806	
13	13	-1.826817	0	-4.961343	
14	14	-3.999998	0	4.062742	
15	15	3.999998	0	4.062742	
16	16	2.8625	0	-2.844516	
17	17	2.820833	0	-2.916686	
18	18	2.960684	0	-2.997429	
19	19	-2.8625	0	-2.844516	
20	20	-2.820833	0	-2.916686	
21	21	-2.960684	0	-2.997429	
22	22	-1.25	0.140833	-5.024938	
23	23	-2.404701	0.140833	-3.024938	
24	24	2.404701	0.140833	-3.024938	
25	25	1.25	0.140833	-5.024938	
26	26	-1.25	0	-5.024938	
27	27	-2.404701	0	-3.024938	
28	28	2.404701	0	-3.024938	
29	29	1.25	0	-5.024938	
30	30	-2.749998	0	4.062742	
31	31	0.000002	0	4.062742	
32	32	-2.749998	0	4.328367	
33	33	0.000002	0	4.328367	
34	34	-2.749998	-2.166667	4.328367	
35	35	0.000002	-2.166667	4.328367	
36	36	-2.749998	5.833335	4.328367	
37	37	0.000002	5.833335	4.328367	
38	38	-2.749998	3.333337	4.328367	
39	39	0.000002	3.333337	4.328367	
40	40	-2.749998	3.333337	4.088783	
41	41	0.000002	3.333337	4.088783	
42	42	-5	3.333337	4.088783	
43	43	5	3.333337	4.088783	
44	44	2.749998	0	4.062742	
45	45	2.749998	0	4.328367	
46	46	2.749998	-2.166667	4.328367	
47	47	2.749998	5.833335	4.328367	
48	48	2.749998	3.333337	4.328367	
49	49	2.749998	3.333337	4.088783	
50	50	0	0	0	
51	51	1.625033	3.333337	-5.362927	
52	52	-1.625033	3.333337	-5.362927	
53	53	-1.464973	0	0.845802	
54	54	-4.351724	0	2.512469	
55	55	-2.619673	0	1.512469	
56	56	-3.99884	0	-0.876318	
57	57	-1.240506	0	3.901256	
58	58	-3.549907	0	3.901256	
59	59	-5.15354	0	1.123682	
60	60	-5.007707	0	0.871091	



**Node Coordinates (Continued)**

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
61	61	-3.258241	0	3.901256	
62	62	-5.070207	0	0.979345	
63	63	-5.210058	0	0.898602	
64	64	-3.383241	0	3.901256	
65	65	-3.383241	0	4.062742	
66	66	-3.894673	0	-1.05674	
67	67	-3.93634	0	-0.98457	
68	68	-4.076191	0	-1.065313	
69	69	-1.032173	0	3.901256	
70	70	-1.115507	0	3.901256	
71	71	-1.115507	0	4.062742	
72	72	-3.726724	0.140833	3.595001	
73	73	-1.417323	0.140833	3.595001	
74	74	-3.822023	0.140833	-0.570063	
75	75	-4.976724	0.140833	1.429937	
76	76	-3.726724	0	3.595001	
77	77	-1.417323	0	3.595001	
78	78	-3.822023	0	-0.570063	
79	79	-4.976724	0	1.429937	
80	80	-5.456948	3.333337	1.274144	
81	81	-3.831915	3.333337	4.088783	
82	82	1.464973	0	0.845802	
83	83	4.351724	0	2.512469	
84	84	2.619673	0	1.512469	
85	85	1.240506	0	3.901256	
86	86	3.99884	0	-0.876318	
87	87	5.15354	0	1.123682	
88	88	3.549907	0	3.901256	
89	89	3.258241	0	3.901256	
90	90	5.007707	0	0.871091	
91	91	3.383241	0	3.901256	
92	92	3.383241	0	4.062742	
93	93	5.070207	0	0.979345	
94	94	5.210058	0	0.898602	
95	95	1.032173	0	3.901256	
96	96	1.115507	0	3.901256	
97	97	1.115507	0	4.062742	
98	98	3.894673	0	-1.05674	
99	99	3.93634	0	-0.98457	
100	100	4.076191	0	-1.065313	
101	101	4.976724	0.140833	1.429937	
102	102	3.822023	0.140833	-0.570063	
103	103	1.417323	0.140833	3.595001	
104	104	3.726724	0.140833	3.595001	
105	105	4.976724	0	1.429937	
106	106	3.822023	0	-0.570063	
107	107	1.417323	0	3.595001	
108	108	3.726724	0	3.595001	
109	109	3.831915	3.333337	4.088783	
110	110	5.456948	3.333337	1.274144	
111	111	5.518437	0	1.432729	
112	112	1.518439	0	-5.495471	
113	113	4.893437	0	0.350197	
114	114	3.518437	0	-2.031373	
115	115	5.123475	0	0.217385	
116	116	3.748475	0	-2.164185	
117	117	5.123475	-2.166667	0.217385	
118	118	3.748475	-2.166667	-2.164185	
119	119	5.123475	5.833335	0.217385	
120	120	3.748475	5.833335	-2.164185	

**Node Coordinates (Continued)**

Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
121	121	5.123475	3.333337	0.217385
122	122	3.748475	3.333337	-2.164185
123	123	4.915989	3.333337	0.337176
124	124	3.540989	3.333337	-2.044393
125	125	6.04099	3.333337	2.285735
126	126	1.04099	3.333337	-6.374519
127	127	2.143439	0	-4.412939
128	128	2.373477	0	-4.545752
129	129	2.373477	-2.166667	-4.545752
130	130	2.373477	5.833335	-4.545752
131	131	2.373477	3.333337	-4.545752
132	132	2.165991	3.333337	-4.42596
133	133	-1.518439	0	-5.495471
134	134	-5.518437	0	1.432729
135	135	-2.143439	0	-4.412939
136	136	-3.518439	0	-2.031369
137	137	-2.373477	0	-4.545752
138	138	-3.748477	0	-2.164182
139	139	-2.373477	-2.166667	-4.545752
140	140	-3.748477	-2.166667	-2.164182
141	141	-2.373477	5.833335	-4.545752
142	142	-3.748477	5.833335	-2.164182
143	143	-2.373477	3.333337	-4.545752
144	144	-3.748477	3.333337	-2.164182
145	145	-2.165991	3.333337	-4.42596
146	146	-3.540991	3.333337	-2.04439
147	147	-1.04099	3.333337	-6.374519
148	148	-6.04099	3.333337	2.285735
149	149	-4.893437	0	0.350197
150	150	-5.123475	0	0.217385
151	151	-5.123475	-2.166667	0.217385
152	152	-5.123475	5.833335	0.217385
153	153	-5.123475	3.333337	0.217385
154	154	-4.915989	3.333337	0.337176

**Node Boundary Conditions**

Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	1	Reaction	Reaction	Reaction	Reaction	Reaction
2	2					
3	3					
4	4					
5	5					
6	16					
7	17					
8	19					
9	20					
10	22					
11	25					
12	26					
13	29					
14	53	Reaction	Reaction	Reaction	Reaction	Reaction
15	54					
16	55					
17	56					
18	57					
19	66					
20	67					
21	69					
22	70					

**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]
23	72					
24	75					
25	76					
26	79					
27	82	Reaction	Reaction	Reaction	Reaction	Reaction
28	83					
29	84					
30	85					
31	86					
32	95					
33	96					
34	98					
35	99					
36	101					
37	104					
38	105					
39	108					

**Hot Rolled Steel Properties**

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

**Hot Rolled Steel Section Sets**

Label	Shape	Type	Design List	Material	Design Rule	Area [in <sup>2</sup> ]	Iyy [in <sup>4</sup> ]	Izz [in <sup>4</sup> ]	J [in <sup>4</sup> ]
1	PIPE 3.5x0.165	Beam	Pipe	A500 Gr.C	Typical	1.729	2.409	2.409	4.819
2	PIPE 2.88x0.203	Beam	Pipe	A500 Gr.C	Typical	1.707	1.538	1.538	3.076
3	HSS4X4X2	Beam	Tube	A500 Gr.B Rect	Typical	1.77	4.4	4.4	6.91
4	C3.38x2.06x.188	Beam	Channel	A36 Gr.36	Typical	1.339	0.562	2.4	0.015
5	L2x2x4	Beam	Single Angle	A36 Gr.36	Typical	0.944	0.346	0.346	0.021
6	L7.63x2.5x6	Beam	Single Angle	A36 Gr.36	Typical	3.658	1.307	22.092	0.163
7	PIPE 2.88x0.203	Column	Pipe	A500 Gr.C	Typical	1.707	1.538	1.538	3.076
8	PL3/8"x6	Beam	RECT	A36 Gr.36	Typical	2.25	0.026	6.75	0.101
9	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	1	2	SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
2	2	5	3	SF-H2	Beam	Channel	A36 Gr.36	Typical
3	3	3	4	SF-H2	Beam	Channel	A36 Gr.36	Typical
4	4	7	8	MF-CP1	Beam	RECT	A36 Gr.36	Typical
5	5	6	9	MF-CP1	Beam	RECT	A36 Gr.36	Typical
6	6	14	15	MF-H1	Beam	Pipe	A500 Gr.C	Typical
7	7	16	4	MF-CP1	Beam	RECT	A36 Gr.36	Typical
8	8	5	19	MF-CP1	Beam	RECT	A36 Gr.36	Typical
9	9	25	24	SF-H3	Beam	Single Angle	A36 Gr.36	Typical
10	10	23	22	SF-H3	Beam	Single Angle	A36 Gr.36	Typical
11	11	6	7	SF-H4	Beam	Single Angle	A36 Gr.36	Typical
12	12	28	24	RIGID	None	None	RIGID	Typical
13	13	29	25	RIGID	None	None	RIGID	Typical

**Member Primary Data (Continued)**

Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
14	14	27	23	RIGID	None	None	RIGID	Typical
15	15	26	22	RIGID	None	None	RIGID	Typical
16	16	32	30	RIGID	None	None	RIGID	Typical
17	17	33	31	RIGID	None	None	RIGID	Typical
18	18	37	35	MF-P1	Column	Pipe	A500 Gr.C	Typical
19	19	36	34	MF-P1	Column	Pipe	A500 Gr.C	Typical
20	20	38	40	RIGID	None	None	RIGID	Typical
21	21	39	41	RIGID	None	None	RIGID	Typical
22	22	42	43	MF-H2	Beam	Pipe	A500 Gr.C	Typical
23	23	11	10	RIGID	None	None	RIGID	Typical
24	24	18	17	RIGID	None	None	RIGID	Typical
25	25	13	12	RIGID	None	None	RIGID	Typical
26	26	21	20	RIGID	None	None	RIGID	Typical
27	27	45	44	RIGID	None	None	RIGID	Typical
28	28	47	46	MF-P1	Column	Pipe	A500 Gr.C	Typical
29	29	48	49	RIGID	None	None	RIGID	Typical
30	30	51	52	180	MF-H3	Beam	Single Angle	A36 Gr.36
31	31	53	54	180	SF-H1	Beam	Tube	A500 Gr.B Rect
32	32	57	55	180	SF-H2	Beam	Channel	A36 Gr.36
33	33	55	56	180	SF-H2	Beam	Channel	A36 Gr.36
34	34	59	60		MF-CP1	Beam	RECT	A36 Gr.36
35	35	58	61		MF-CP1	Beam	RECT	A36 Gr.36
36	36	66	56		MF-CP1	Beam	RECT	A36 Gr.36
37	37	57	69		MF-CP1	Beam	RECT	A36 Gr.36
38	38	75	74		SF-H3	Beam	Single Angle	A36 Gr.36
39	39	73	72		SF-H3	Beam	Single Angle	A36 Gr.36
40	40	58	59		SF-H4	Beam	Single Angle	A36 Gr.36
41	41	78	74		RIGID	None	None	RIGID
42	42	79	75		RIGID	None	None	RIGID
43	43	77	73		RIGID	None	None	RIGID
44	44	76	72		RIGID	None	None	RIGID
45	45	63	62		RIGID	None	None	RIGID
46	46	68	67		RIGID	None	None	RIGID
47	47	65	64		RIGID	None	None	RIGID
48	48	71	70		RIGID	None	None	RIGID
49	49	80	81	180	MF-H3	Beam	Single Angle	A36 Gr.36
50	50	82	83		SF-H1	Beam	Tube	A500 Gr.B Rect
51	51	86	84	180	SF-H2	Beam	Channel	A36 Gr.36
52	52	84	85	180	SF-H2	Beam	Channel	A36 Gr.36
53	53	88	89		MF-CP1	Beam	RECT	A36 Gr.36
54	54	87	90		MF-CP1	Beam	RECT	A36 Gr.36
55	55	95	85		MF-CP1	Beam	RECT	A36 Gr.36
56	56	86	98		MF-CP1	Beam	RECT	A36 Gr.36
57	57	104	103		SF-H3	Beam	Single Angle	A36 Gr.36
58	58	102	101		SF-H3	Beam	Single Angle	A36 Gr.36
59	59	87	88		SF-H4	Beam	Single Angle	A36 Gr.36
60	60	107	103		RIGID	None	None	RIGID
61	61	108	104		RIGID	None	None	RIGID
62	62	106	102		RIGID	None	None	RIGID
63	63	105	101		RIGID	None	None	RIGID
64	64	92	91		RIGID	None	None	RIGID
65	65	97	96		RIGID	None	None	RIGID
66	66	94	93		RIGID	None	None	RIGID
67	67	100	99		RIGID	None	None	RIGID
68	68	109	110	180	MF-H3	Beam	Single Angle	A36 Gr.36
69	69	111	112		MF-H1	Beam	Pipe	A500 Gr.C
70	70	115	113		RIGID	None	None	RIGID
71	71	116	114		RIGID	None	None	RIGID
72	72	120	118		MF-P1	Column	Pipe	A500 Gr.C
73	73	119	117		MF-P1	Column	Pipe	A500 Gr.C

**Member Primary Data (Continued)**

Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
74	74	121	123		RIGID	None	RIGID	Typical
75	75	122	124		RIGID	None	RIGID	Typical
76	76	125	126		MF-H2	Beam	A500 Gr.C	Typical
77	77	128	127		RIGID	None	RIGID	Typical
78	78	130	129		MF-P1	Column	A500 Gr.C	Typical
79	79	131	132		RIGID	None	RIGID	Typical
80	80	133	134		MF-H1	Beam	A500 Gr.C	Typical
81	81	137	135		RIGID	None	RIGID	Typical
82	82	138	136		RIGID	None	RIGID	Typical
83	83	142	140		MF-P1	Column	A500 Gr.C	Typical
84	84	141	139		MF-P1	Column	A500 Gr.C	Typical
85	85	143	145		RIGID	None	RIGID	Typical
86	86	144	146		RIGID	None	RIGID	Typical
87	87	147	148		MF-H2	Beam	A500 Gr.C	Typical
88	88	150	149		RIGID	None	RIGID	Typical
89	89	152	151		MF-P1	Column	A500 Gr.C	Typical
90	90	153	154		RIGID	None	RIGID	Typical

**Member Advanced Data**

Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
1	1			Yes	N/A	None
2	2		2	Yes	N/A	None
3	3	2		Yes	N/A	None
4	4			Yes	N/A	None
5	5			Yes	N/A	None
6	6			Yes	Default	None
7	7			Yes	N/A	None
8	8			Yes	N/A	None
9	9			Yes	N/A	None
10	10			Yes	N/A	None
11	11			Yes	N/A	None
12	12			Yes	** NA **	None
13	13			Yes	** NA **	None
14	14			Yes	** NA **	None
15	15			Yes	** NA **	None
16	16			Yes	** NA **	None
17	17			Yes	** NA **	None
18	18			Yes	** NA **	None
19	19			Yes	** NA **	None
20	20			Yes	** NA **	None
21	21			Yes	** NA **	None
22	22			Yes	N/A	None
23	23	OOOOOX		Yes	** NA **	None
24	24	OOOOOX		Yes	** NA **	None
25	25	OOOOOX		Yes	** NA **	None
26	26	OOOOOX		Yes	** NA **	None
27	27			Yes	** NA **	None
28	28			Yes	** NA **	None
29	29			Yes	** NA **	None
30	30			Yes	N/A	None
31	31			Yes	N/A	None
32	32		2	Yes	N/A	None
33	33	2		Yes	N/A	None
34	34			Yes	N/A	None
35	35			Yes	N/A	None
36	36			Yes	N/A	None
37	37			Yes	N/A	None
38	38			Yes	N/A	None
39	39			Yes	N/A	None



**Member Advanced Data (Continued)**

	Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
40	40				Yes	N/A	None
41	41				Yes	** NA **	None
42	42				Yes	** NA **	None
43	43				Yes	** NA **	None
44	44				Yes	** NA **	None
45	45	OOOOOX			Yes	** NA **	None
46	46	OOOOOX			Yes	** NA **	None
47	47	OOOOOX			Yes	** NA **	None
48	48	OOOOOX			Yes	** NA **	None
49	49				Yes	N/A	None
50	50				Yes	N/A	None
51	51			2	Yes	N/A	None
52	52		2		Yes	N/A	None
53	53				Yes	N/A	None
54	54				Yes	N/A	None
55	55				Yes	N/A	None
56	56				Yes	N/A	None
57	57				Yes	N/A	None
58	58				Yes	N/A	None
59	59				Yes	N/A	None
60	60				Yes	** NA **	None
61	61				Yes	** NA **	None
62	62				Yes	** NA **	None
63	63				Yes	** NA **	None
64	64	OOOOOX			Yes	** NA **	None
65	65	OOOOOX			Yes	** NA **	None
66	66	OOOOOX			Yes	** NA **	None
67	67	OOOOOX			Yes	** NA **	None
68	68				Yes	N/A	None
69	69				Yes	Default	None
70	70				Yes	** NA **	None
71	71				Yes	** NA **	None
72	72				Yes	** NA **	None
73	73				Yes	** NA **	None
74	74				Yes	** NA **	None
75	75				Yes	** NA **	None
76	76				Yes	N/A	None
77	77				Yes	** NA **	None
78	78				Yes	** NA **	None
79	79				Yes	** NA **	None
80	80				Yes	Default	None
81	81				Yes	** NA **	None
82	82				Yes	** NA **	None
83	83				Yes	** NA **	None
84	84				Yes	** NA **	None
85	85				Yes	** NA **	None
86	86				Yes	** NA **	None
87	87				Yes	N/A	None
88	88				Yes	** NA **	None
89	89				Yes	** NA **	None
90	90				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	4	MF-CP1	0.292	Lbyy	Lateral
5	5	MF-CP1	0.292	Lbyy	Lateral

**Hot Rolled Steel Design Parameters (Continued)**

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
6	6	MF-H1	8	Lbyy	Lateral
7	7	MF-CP1	0.208	Lbyy	Lateral
8	8	MF-CP1	0.208	Lbyy	Lateral
9	9	SF-H3	2.309	Lbyy	Lateral
10	10	SF-H3	2.309	Lbyy	Lateral
11	11	SF-H4	3.207	Lbyy	Lateral
12	18	MF-P1	8	Lbyy	Lateral
13	19	MF-P1	8	Lbyy	Lateral
14	22	MF-H2	10	Lbyy	Lateral
15	28	MF-P1	8	Lbyy	Lateral
16	30	MF-H3	3.25	Lbyy	Lateral
17	31	SF-H1	3.333	Lbyy	Lateral
18	32	SF-H2	2.758	Lbyy	Lateral
19	33	SF-H2	2.758	Lbyy	Lateral
20	34	MF-CP1	0.292	Lbyy	Lateral
21	35	MF-CP1	0.292	Lbyy	Lateral
22	36	MF-CP1	0.208	Lbyy	Lateral
23	37	MF-CP1	0.208	Lbyy	Lateral
24	38	SF-H3	2.309	Lbyy	Lateral
25	39	SF-H3	2.309	Lbyy	Lateral
26	40	SF-H4	3.207	Lbyy	Lateral
27	49	MF-H3	3.25	Lbyy	Lateral
28	50	SF-H1	3.333	Lbyy	Lateral
29	51	SF-H2	2.758	Lbyy	Lateral
30	52	SF-H2	2.758	Lbyy	Lateral
31	53	MF-CP1	0.292	Lbyy	Lateral
32	54	MF-CP1	0.292	Lbyy	Lateral
33	55	MF-CP1	0.208	Lbyy	Lateral
34	56	MF-CP1	0.208	Lbyy	Lateral
35	57	SF-H3	2.309	Lbyy	Lateral
36	58	SF-H3	2.309	Lbyy	Lateral
37	59	SF-H4	3.207	Lbyy	Lateral
38	68	MF-H3	3.25	Lbyy	Lateral
39	69	MF-H1	8	Lbyy	Lateral
40	72	MF-P1	8	Lbyy	Lateral
41	73	MF-P1	8	Lbyy	Lateral
42	76	MF-H2	10	Lbyy	Lateral
43	78	MF-P1	8	Lbyy	Lateral
44	80	MF-H1	8	Lbyy	Lateral
45	83	MF-P1	8	Lbyy	Lateral
46	84	MF-P1	8	Lbyy	Lateral
47	87	MF-H2	10	Lbyy	Lateral
48	89	MF-P1	8	Lbyy	Lateral

**Member Point Loads (BLC 1 : Dead)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	28	Y	-0.035	%15
2	28	Y	-0.035	%85
3	28	Y	-0.064	%20
4	28	Y	-0.075	%50
5	28	Y	0	0
6	89	Y	-0.035	%15
7	89	Y	-0.035	%85
8	89	Y	-0.064	%20
9	89	Y	-0.075	%50
10	89	Y	0	0
11	78	Y	-0.035	%15
12	78	Y	-0.035	%85
13	78	Y	-0.064	%20

**Member Point Loads (BLC 1 : Dead) (Continued)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
14	78	Y	-0.075	%50
15	78	Y	0	0
16	31	Y	-0.022	%20
17	31	Y	0	0
18	31	Y	0	0
19	31	Y	0	0
20	31	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	28	Z	-0.181	%15
2	28	Z	-0.181	%85
3	28	Z	-0.058	%20
4	28	Z	-0.058	%50
5	28	Z	0	0
6	89	Z	-0.181	%15
7	89	Z	-0.181	%85
8	89	Z	-0.058	%20
9	89	Z	-0.058	%50
10	89	Z	0	0
11	78	Z	-0.181	%15
12	78	Z	-0.181	%85
13	78	Z	-0.058	%20
14	78	Z	-0.058	%50
15	78	Z	0	0
16	31	Z	-0.059	%20
17	31	Z	0	0
18	31	Z	0	0
19	31	Z	0	0
20	31	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	28	X	-0.072	%15
2	28	X	-0.072	%85
3	28	X	-0.03	%20
4	28	X	-0.035	%50
5	28	X	0	0
6	89	X	-0.072	%15
7	89	X	-0.072	%85
8	89	X	-0.03	%20
9	89	X	-0.035	%50
10	89	X	0	0
11	78	X	-0.072	%15
12	78	X	-0.072	%85
13	78	X	-0.03	%20
14	78	X	-0.035	%50
15	78	X	0	0
16	31	X	-0.034	%20
17	31	X	0	0
18	31	X	0	0
19	31	X	0	0
20	31	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	28	Z	-0.034	%15
2	28	Z	-0.034	%85
3	28	Z	-0.011	%20
4	28	Z	-0.011	%50
5	28	Z	0	0
6	89	Z	-0.034	%15
7	89	Z	-0.034	%85
8	89	Z	-0.011	%20
9	89	Z	-0.011	%50
10	89	Z	0	0
11	78	Z	-0.034	%15
12	78	Z	-0.034	%85
13	78	Z	-0.011	%20
14	78	Z	-0.011	%50
15	78	Z	0	0
16	31	Z	-0.011	%20
17	31	Z	0	0
18	31	Z	0	0
19	31	Z	0	0
20	31	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	28	X	-0.013	%15
2	28	X	-0.013	%85
3	28	X	-0.006	%20
4	28	X	-0.007	%50
5	28	X	0	0
6	89	X	-0.013	%15
7	89	X	-0.013	%85
8	89	X	-0.006	%20
9	89	X	-0.007	%50
10	89	X	0	0
11	78	X	-0.013	%15
12	78	X	-0.013	%85
13	78	X	-0.006	%20
14	78	X	-0.007	%50
15	78	X	0	0
16	31	X	-0.006	%20
17	31	X	0	0
18	31	X	0	0
19	31	X	0	0
20	31	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	28	Z	-0.012	%15
2	28	Z	-0.012	%85
3	28	Z	-0.004	%20
4	28	Z	-0.004	%50
5	28	Z	0	0
6	89	Z	-0.012	%15
7	89	Z	-0.012	%85
8	89	Z	-0.004	%20
9	89	Z	-0.004	%50
10	89	Z	0	0
11	78	Z	-0.012	%15

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
12	78	Z	-0.012	%85
13	78	Z	-0.004	%20
14	78	Z	-0.004	%50
15	78	Z	0	0
16	31	Z	-0.004	%20
17	31	Z	0	0
18	31	Z	0	0
19	31	Z	0	0
20	31	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	28	X	-0.005	%15
2	28	X	-0.005	%85
3	28	X	-0.002	%20
4	28	X	-0.002	%50
5	28	X	0	0
6	89	X	-0.005	%15
7	89	X	-0.005	%85
8	89	X	-0.002	%20
9	89	X	-0.002	%50
10	89	X	0	0
11	78	X	-0.005	%15
12	78	X	-0.005	%85
13	78	X	-0.002	%20
14	78	X	-0.002	%50
15	78	X	0	0
16	31	X	-0.002	%20
17	31	X	0	0
18	31	X	0	0
19	31	X	0	0
20	31	X	0	0

**Member Point Loads (BLC 8 : Ice)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	28	Y	-0.092	%15
2	28	Y	-0.092	%85
3	28	Y	-0.033	%20
4	28	Y	-0.034	%50
5	28	Y	0	0
6	89	Y	-0.092	%15
7	89	Y	-0.092	%85
8	89	Y	-0.033	%20
9	89	Y	-0.034	%50
10	89	Y	0	0
11	78	Y	-0.092	%15
12	78	Y	-0.092	%85
13	78	Y	-0.033	%20
14	78	Y	-0.034	%50
15	78	Y	0	0
16	31	Y	-0.034	%20
17	31	Y	0	0
18	31	Y	0	0
19	31	Y	0	0
20	31	Y	0	0

**Member Point Loads (BLC 9 : 0 Seismic)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	28	Z	-0.017	%15
2	28	Z	-0.017	%85
3	28	Z	-0.015	%20
4	28	Z	-0.018	%50
5	28	Z	0	0
6	89	Z	-0.017	%15
7	89	Z	-0.017	%85
8	89	Z	-0.015	%20
9	89	Z	-0.018	%50
10	89	Z	0	0
11	78	Z	-0.017	%15
12	78	Z	-0.017	%85
13	78	Z	-0.015	%20
14	78	Z	-0.018	%50
15	78	Z	0	0
16	31	Z	-0.005	%20
17	31	Z	0	0
18	31	Z	0	0
19	31	Z	0	0
20	31	Z	0	0

**Member Point Loads (BLC 10 : 90 Seismic)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	28	X	-0.017	%15
2	28	X	-0.017	%85
3	28	X	-0.015	%20
4	28	X	-0.018	%50
5	28	X	0	0
6	89	X	-0.017	%15
7	89	X	-0.017	%85
8	89	X	-0.015	%20
9	89	X	-0.018	%50
10	89	X	0	0
11	78	X	-0.017	%15
12	78	X	-0.017	%85
13	78	X	-0.015	%20
14	78	X	-0.018	%50
15	78	X	0	0
16	31	X	-0.005	%20
17	31	X	0	0
18	31	X	0	0
19	31	X	0	0
20	31	X	0	0

**Member Point Loads (BLC 15 : Maint LL 1)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	22	Y	-0.25	%5

**Member Point Loads (BLC 16 : Maint LL 2)**

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



**Member Point Loads (BLC 17 : Maint LL 3)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	22	Y	-0.25	%95

**Member Point Loads (BLC 18 : Maint LL 4)**

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

**Member Point Loads (BLC 19 : Maint LL 5)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	87	Y	-0.25	%5

**Member Point Loads (BLC 20 : Maint LL 6)**

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

**Member Point Loads (BLC 21 : Maint LL 7)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	87	Y	-0.25	%95

**Member Point Loads (BLC 22 : Maint LL 8)**

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

**Member Point Loads (BLC 23 : Maint LL 9)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	76	Y	-0.25	%5

**Member Point Loads (BLC 24 : Maint LL 10)**

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

**Member Point Loads (BLC 25 : Maint LL 11)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	76	Y	-0.25	%95

**Member Point Loads (BLC 26 : Maint LL 12)**

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

**Member Point Loads (BLC 27 : Maint LL 13)**

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



**Member Point Loads (BLC 28 : Maint LL 14)**

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

**Member Point Loads (BLC 29 : Maint LL 15)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	50	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	-0.014	-0.014	0	%100
2	2	Z	-0.012	-0.012	0	%100
3	3	Z	-0.012	-0.012	0	%100
4	4	Z	-0.018	-0.018	0	%100
5	5	Z	-0.018	-0.018	0	%100
6	6	Z	-0.01	-0.01	0	%100
7	7	Z	-0.018	-0.018	0	%100
8	8	Z	-0.018	-0.018	0	%100
9	9	Z	-0.008	-0.008	0	%100
10	10	Z	-0.008	-0.008	0	%100
11	11	Z	-0.024	-0.024	0	%100
12	18	Z	-0.009	-0.009	0	%100
13	19	Z	-0.009	-0.009	0	%100
14	22	Z	-0.009	-0.009	0	%100
15	28	Z	-0.009	-0.009	0	%100
16	30	Z	-0.022	-0.022	0	%100
17	31	Z	-0.014	-0.014	0	%100
18	32	Z	-0.012	-0.012	0	%100
19	33	Z	-0.012	-0.012	0	%100
20	34	Z	-0.018	-0.018	0	%100
21	35	Z	-0.018	-0.018	0	%100
22	36	Z	-0.018	-0.018	0	%100
23	37	Z	-0.018	-0.018	0	%100
24	38	Z	-0.008	-0.008	0	%100
25	39	Z	-0.008	-0.008	0	%100
26	40	Z	-0.024	-0.024	0	%100
27	49	Z	-0.022	-0.022	0	%100
28	50	Z	-0.014	-0.014	0	%100
29	51	Z	-0.012	-0.012	0	%100
30	52	Z	-0.012	-0.012	0	%100
31	53	Z	-0.018	-0.018	0	%100
32	54	Z	-0.018	-0.018	0	%100
33	55	Z	-0.018	-0.018	0	%100
34	56	Z	-0.018	-0.018	0	%100
35	57	Z	-0.008	-0.008	0	%100
36	58	Z	-0.008	-0.008	0	%100
37	59	Z	-0.024	-0.024	0	%100
38	68	Z	-0.022	-0.022	0	%100
39	69	Z	-0.01	-0.01	0	%100
40	72	Z	-0.009	-0.009	0	%100
41	73	Z	-0.009	-0.009	0	%100
42	76	Z	-0.009	-0.009	0	%100
43	78	Z	-0.009	-0.009	0	%100
44	80	Z	-0.01	-0.01	0	%100
45	83	Z	-0.009	-0.009	0	%100
46	84	Z	-0.009	-0.009	0	%100
47	87	Z	-0.009	-0.009	0	%100
48	89	Z	-0.009	-0.009	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	-0.014	-0.014	0 %100
2	2	X	-0.012	-0.012	0 %100
3	3	X	-0.012	-0.012	0 %100
4	4	X	-0.018	-0.018	0 %100
5	5	X	-0.018	-0.018	0 %100
6	6	X	-0.01	-0.01	0 %100
7	7	X	-0.018	-0.018	0 %100
8	8	X	-0.018	-0.018	0 %100
9	9	X	-0.008	-0.008	0 %100
10	10	X	-0.008	-0.008	0 %100
11	11	X	-0.024	-0.024	0 %100
12	18	X	-0.009	-0.009	0 %100
13	19	X	-0.009	-0.009	0 %100
14	22	X	-0.009	-0.009	0 %100
15	28	X	-0.009	-0.009	0 %100
16	30	X	-0.022	-0.022	0 %100
17	31	X	-0.014	-0.014	0 %100
18	32	X	-0.012	-0.012	0 %100
19	33	X	-0.012	-0.012	0 %100
20	34	X	-0.018	-0.018	0 %100
21	35	X	-0.018	-0.018	0 %100
22	36	X	-0.018	-0.018	0 %100
23	37	X	-0.018	-0.018	0 %100
24	38	X	-0.008	-0.008	0 %100
25	39	X	-0.008	-0.008	0 %100
26	40	X	-0.024	-0.024	0 %100
27	49	X	-0.022	-0.022	0 %100
28	50	X	-0.014	-0.014	0 %100
29	51	X	-0.012	-0.012	0 %100
30	52	X	-0.012	-0.012	0 %100
31	53	X	-0.018	-0.018	0 %100
32	54	X	-0.018	-0.018	0 %100
33	55	X	-0.018	-0.018	0 %100
34	56	X	-0.018	-0.018	0 %100
35	57	X	-0.008	-0.008	0 %100
36	58	X	-0.008	-0.008	0 %100
37	59	X	-0.024	-0.024	0 %100
38	68	X	-0.022	-0.022	0 %100
39	69	X	-0.01	-0.01	0 %100
40	72	X	-0.009	-0.009	0 %100
41	73	X	-0.009	-0.009	0 %100
42	76	X	-0.009	-0.009	0 %100
43	78	X	-0.009	-0.009	0 %100
44	80	X	-0.01	-0.01	0 %100
45	83	X	-0.009	-0.009	0 %100
46	84	X	-0.009	-0.009	0 %100
47	87	X	-0.009	-0.009	0 %100
48	89	X	-0.009	-0.009	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	-0.004	-0.004	0 %100
2	2	Z	-0.004	-0.004	0 %100
3	3	Z	-0.004	-0.004	0 %100
4	4	Z	-0.007	-0.007	0 %100
5	5	Z	-0.007	-0.007	0 %100
6	6	Z	-0.002	-0.002	0 %100
7	7	Z	-0.009	-0.009	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, %)]
8	8	Z	-0.009	-0.009	0 %100
9	9	Z	-0.003	-0.003	0 %100
10	10	Z	-0.003	-0.003	0 %100
11	11	Z	-0.006	-0.006	0 %100
12	18	Z	-0.001	-0.001	0 %100
13	19	Z	-0.001	-0.001	0 %100
14	22	Z	-0.001	-0.001	0 %100
15	28	Z	-0.001	-0.001	0 %100
16	30	Z	-0.006	-0.006	0 %100
17	31	Z	-0.004	-0.004	0 %100
18	32	Z	-0.004	-0.004	0 %100
19	33	Z	-0.004	-0.004	0 %100
20	34	Z	-0.007	-0.007	0 %100
21	35	Z	-0.007	-0.007	0 %100
22	36	Z	-0.009	-0.009	0 %100
23	37	Z	-0.009	-0.009	0 %100
24	38	Z	-0.003	-0.003	0 %100
25	39	Z	-0.003	-0.003	0 %100
26	40	Z	-0.006	-0.006	0 %100
27	49	Z	-0.006	-0.006	0 %100
28	50	Z	-0.004	-0.004	0 %100
29	51	Z	-0.004	-0.004	0 %100
30	52	Z	-0.004	-0.004	0 %100
31	53	Z	-0.007	-0.007	0 %100
32	54	Z	-0.007	-0.007	0 %100
33	55	Z	-0.009	-0.009	0 %100
34	56	Z	-0.009	-0.009	0 %100
35	57	Z	-0.003	-0.003	0 %100
36	58	Z	-0.003	-0.003	0 %100
37	59	Z	-0.006	-0.006	0 %100
38	68	Z	-0.006	-0.006	0 %100
39	69	Z	-0.002	-0.002	0 %100
40	72	Z	-0.001	-0.001	0 %100
41	73	Z	-0.001	-0.001	0 %100
42	76	Z	-0.001	-0.001	0 %100
43	78	Z	-0.001	-0.001	0 %100
44	80	Z	-0.002	-0.002	0 %100
45	83	Z	-0.001	-0.001	0 %100
46	84	Z	-0.001	-0.001	0 %100
47	87	Z	-0.001	-0.001	0 %100
48	89	Z	-0.001	-0.001	0 %100

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

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.004	-0.004	0 %100
2	2	X	-0.004	-0.004	0 %100
3	3	X	-0.004	-0.004	0 %100
4	4	X	-0.007	-0.007	0 %100
5	5	X	-0.007	-0.007	0 %100
6	6	X	-0.002	-0.002	0 %100
7	7	X	-0.009	-0.009	0 %100
8	8	X	-0.009	-0.009	0 %100
9	9	X	-0.003	-0.003	0 %100
10	10	X	-0.003	-0.003	0 %100
11	11	X	-0.006	-0.006	0 %100
12	18	X	-0.001	-0.001	0 %100
13	19	X	-0.001	-0.001	0 %100
14	22	X	-0.001	-0.001	0 %100
15	28	X	-0.001	-0.001	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, %)]
16	30	X	-0.006	-0.006	0 %100
17	31	X	-0.004	-0.004	0 %100
18	32	X	-0.004	-0.004	0 %100
19	33	X	-0.004	-0.004	0 %100
20	34	X	-0.007	-0.007	0 %100
21	35	X	-0.007	-0.007	0 %100
22	36	X	-0.009	-0.009	0 %100
23	37	X	-0.009	-0.009	0 %100
24	38	X	-0.003	-0.003	0 %100
25	39	X	-0.003	-0.003	0 %100
26	40	X	-0.006	-0.006	0 %100
27	49	X	-0.006	-0.006	0 %100
28	50	X	-0.004	-0.004	0 %100
29	51	X	-0.004	-0.004	0 %100
30	52	X	-0.004	-0.004	0 %100
31	53	X	-0.007	-0.007	0 %100
32	54	X	-0.007	-0.007	0 %100
33	55	X	-0.009	-0.009	0 %100
34	56	X	-0.009	-0.009	0 %100
35	57	X	-0.003	-0.003	0 %100
36	58	X	-0.003	-0.003	0 %100
37	59	X	-0.006	-0.006	0 %100
38	68	X	-0.006	-0.006	0 %100
39	69	X	-0.002	-0.002	0 %100
40	72	X	-0.001	-0.001	0 %100
41	73	X	-0.001	-0.001	0 %100
42	76	X	-0.001	-0.001	0 %100
43	78	X	-0.001	-0.001	0 %100
44	80	X	-0.002	-0.002	0 %100
45	83	X	-0.001	-0.001	0 %100
46	84	X	-0.001	-0.001	0 %100
47	87	X	-0.001	-0.001	0 %100
48	89	X	-0.001	-0.001	0 %100

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

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.001	-0.001	0 %100
2	2	Z	-0.0008	-0.0008	0 %100
3	3	Z	-0.0008	-0.0008	0 %100
4	4	Z	-0.001	-0.001	0 %100
5	5	Z	-0.001	-0.001	0 %100
6	6	Z	-0.0003	-0.0003	0 %100
7	7	Z	-0.001	-0.001	0 %100
8	8	Z	-0.001	-0.001	0 %100
9	9	Z	-0.0005	-0.0005	0 %100
10	10	Z	-0.0005	-0.0005	0 %100
11	11	Z	-0.002	-0.002	0 %100
12	18	Z	-0.0003	-0.0003	0 %100
13	19	Z	-0.0003	-0.0003	0 %100
14	22	Z	-0.0003	-0.0003	0 %100
15	28	Z	-0.0003	-0.0003	0 %100
16	30	Z	-0.001	-0.001	0 %100
17	31	Z	-0.001	-0.001	0 %100
18	32	Z	-0.0008	-0.0008	0 %100
19	33	Z	-0.0008	-0.0008	0 %100
20	34	Z	-0.001	-0.001	0 %100
21	35	Z	-0.001	-0.001	0 %100
22	36	Z	-0.001	-0.001	0 %100
23	37	Z	-0.001	-0.001	0 %100

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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
24	38	Z	-0.0005	-0.0005	0	%100
25	39	Z	-0.0005	-0.0005	0	%100
26	40	Z	-0.002	-0.002	0	%100
27	49	Z	-0.001	-0.001	0	%100
28	50	Z	-0.001	-0.001	0	%100
29	51	Z	-0.0008	-0.0008	0	%100
30	52	Z	-0.0008	-0.0008	0	%100
31	53	Z	-0.001	-0.001	0	%100
32	54	Z	-0.001	-0.001	0	%100
33	55	Z	-0.001	-0.001	0	%100
34	56	Z	-0.001	-0.001	0	%100
35	57	Z	-0.0005	-0.0005	0	%100
36	58	Z	-0.0005	-0.0005	0	%100
37	59	Z	-0.002	-0.002	0	%100
38	68	Z	-0.001	-0.001	0	%100
39	69	Z	-0.0003	-0.0003	0	%100
40	72	Z	-0.0003	-0.0003	0	%100
41	73	Z	-0.0003	-0.0003	0	%100
42	76	Z	-0.0003	-0.0003	0	%100
43	78	Z	-0.0003	-0.0003	0	%100
44	80	Z	-0.0003	-0.0003	0	%100
45	83	Z	-0.0003	-0.0003	0	%100
46	84	Z	-0.0003	-0.0003	0	%100
47	87	Z	-0.0003	-0.0003	0	%100
48	89	Z	-0.0003	-0.0003	0	%100

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

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.001	-0.001	0	%100
2	2	X	-0.0008	-0.0008	0	%100
3	3	X	-0.0008	-0.0008	0	%100
4	4	X	-0.001	-0.001	0	%100
5	5	X	-0.001	-0.001	0	%100
6	6	X	-0.0003	-0.0003	0	%100
7	7	X	-0.001	-0.001	0	%100
8	8	X	-0.001	-0.001	0	%100
9	9	X	-0.0005	-0.0005	0	%100
10	10	X	-0.0005	-0.0005	0	%100
11	11	X	-0.002	-0.002	0	%100
12	18	X	-0.0003	-0.0003	0	%100
13	19	X	-0.0003	-0.0003	0	%100
14	22	X	-0.0003	-0.0003	0	%100
15	28	X	-0.0003	-0.0003	0	%100
16	30	X	-0.001	-0.001	0	%100
17	31	X	-0.001	-0.001	0	%100
18	32	X	-0.0008	-0.0008	0	%100
19	33	X	-0.0008	-0.0008	0	%100
20	34	X	-0.001	-0.001	0	%100
21	35	X	-0.001	-0.001	0	%100
22	36	X	-0.001	-0.001	0	%100
23	37	X	-0.001	-0.001	0	%100
24	38	X	-0.0005	-0.0005	0	%100
25	39	X	-0.0005	-0.0005	0	%100
26	40	X	-0.002	-0.002	0	%100
27	49	X	-0.001	-0.001	0	%100
28	50	X	-0.001	-0.001	0	%100
29	51	X	-0.0008	-0.0008	0	%100
30	52	X	-0.0008	-0.0008	0	%100
31	53	X	-0.001	-0.001	0	%100



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

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
32	54	X	-0.001	-0.001	0 %100
33	55	X	-0.001	-0.001	0 %100
34	56	X	-0.001	-0.001	0 %100
35	57	X	-0.0005	-0.0005	0 %100
36	58	X	-0.0005	-0.0005	0 %100
37	59	X	-0.002	-0.002	0 %100
38	68	X	-0.001	-0.001	0 %100
39	69	X	-0.0003	-0.0003	0 %100
40	72	X	-0.0003	-0.0003	0 %100
41	73	X	-0.0003	-0.0003	0 %100
42	76	X	-0.0003	-0.0003	0 %100
43	78	X	-0.0003	-0.0003	0 %100
44	80	X	-0.0003	-0.0003	0 %100
45	83	X	-0.0003	-0.0003	0 %100
46	84	X	-0.0003	-0.0003	0 %100
47	87	X	-0.0003	-0.0003	0 %100
48	89	X	-0.0003	-0.0003	0 %100

**Member Distributed Loads (BLC 8 : Ice)**

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.009	-0.009	0 %100
2	2	Y	-0.007	-0.007	0 %100
3	3	Y	-0.007	-0.007	0 %100
4	4	Y	-0.01	-0.01	0 %100
5	5	Y	-0.01	-0.01	0 %100
6	6	Y	-0.006	-0.006	0 %100
7	7	Y	-0.01	-0.01	0 %100
8	8	Y	-0.01	-0.01	0 %100
9	9	Y	-0.005	-0.005	0 %100
10	10	Y	-0.005	-0.005	0 %100
11	11	Y	-0.013	-0.013	0 %100
12	18	Y	-0.006	-0.006	0 %100
13	19	Y	-0.006	-0.006	0 %100
14	22	Y	-0.006	-0.006	0 %100
15	28	Y	-0.006	-0.006	0 %100
16	30	Y	-0.012	-0.012	0 %100
17	31	Y	-0.009	-0.009	0 %100
18	32	Y	-0.007	-0.007	0 %100
19	33	Y	-0.007	-0.007	0 %100
20	34	Y	-0.01	-0.01	0 %100
21	35	Y	-0.01	-0.01	0 %100
22	36	Y	-0.01	-0.01	0 %100
23	37	Y	-0.01	-0.01	0 %100
24	38	Y	-0.005	-0.005	0 %100
25	39	Y	-0.005	-0.005	0 %100
26	40	Y	-0.013	-0.013	0 %100
27	49	Y	-0.012	-0.012	0 %100
28	50	Y	-0.009	-0.009	0 %100
29	51	Y	-0.007	-0.007	0 %100
30	52	Y	-0.007	-0.007	0 %100
31	53	Y	-0.01	-0.01	0 %100
32	54	Y	-0.01	-0.01	0 %100
33	55	Y	-0.01	-0.01	0 %100
34	56	Y	-0.01	-0.01	0 %100
35	57	Y	-0.005	-0.005	0 %100
36	58	Y	-0.005	-0.005	0 %100
37	59	Y	-0.013	-0.013	0 %100
38	68	Y	-0.012	-0.012	0 %100
39	69	Y	-0.006	-0.006	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, %)]
40	72	Y	-0.006	-0.006	0	%100
41	73	Y	-0.006	-0.006	0	%100
42	76	Y	-0.006	-0.006	0	%100
43	78	Y	-0.006	-0.006	0	%100
44	80	Y	-0.006	-0.006	0	%100
45	83	Y	-0.006	-0.006	0	%100
46	84	Y	-0.006	-0.006	0	%100
47	87	Y	-0.006	-0.006	0	%100
48	89	Y	-0.006	-0.006	0	%100

**Member Distributed Loads (BLC 9 : 0 Seismic)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.002	-0.002	0	%100
2	2	Z	-0.001	-0.001	0	%100
3	3	Z	-0.001	-0.001	0	%100
4	4	Z	-0.002	-0.002	0	%100
5	5	Z	-0.002	-0.002	0	%100
6	6	Z	-0.001	-0.001	0	%100
7	7	Z	-0.002	-0.002	0	%100
8	8	Z	-0.002	-0.002	0	%100
9	9	Z	-0.0008	-0.0008	0	%100
10	10	Z	-0.0008	-0.0008	0	%100
11	11	Z	-0.003	-0.003	0	%100
12	18	Z	-0.001	-0.001	0	%100
13	19	Z	-0.001	-0.001	0	%100
14	22	Z	-0.001	-0.001	0	%100
15	28	Z	-0.001	-0.001	0	%100
16	30	Z	-0.002	-0.002	0	%100
17	31	Z	-0.002	-0.002	0	%100
18	32	Z	-0.001	-0.001	0	%100
19	33	Z	-0.001	-0.001	0	%100
20	34	Z	-0.002	-0.002	0	%100
21	35	Z	-0.002	-0.002	0	%100
22	36	Z	-0.002	-0.002	0	%100
23	37	Z	-0.002	-0.002	0	%100
24	38	Z	-0.0008	-0.0008	0	%100
25	39	Z	-0.0008	-0.0008	0	%100
26	40	Z	-0.003	-0.003	0	%100
27	49	Z	-0.002	-0.002	0	%100
28	50	Z	-0.002	-0.002	0	%100
29	51	Z	-0.001	-0.001	0	%100
30	52	Z	-0.001	-0.001	0	%100
31	53	Z	-0.002	-0.002	0	%100
32	54	Z	-0.002	-0.002	0	%100
33	55	Z	-0.002	-0.002	0	%100
34	56	Z	-0.002	-0.002	0	%100
35	57	Z	-0.0008	-0.0008	0	%100
36	58	Z	-0.0008	-0.0008	0	%100
37	59	Z	-0.003	-0.003	0	%100
38	68	Z	-0.002	-0.002	0	%100
39	69	Z	-0.001	-0.001	0	%100
40	72	Z	-0.001	-0.001	0	%100
41	73	Z	-0.001	-0.001	0	%100
42	76	Z	-0.001	-0.001	0	%100
43	78	Z	-0.001	-0.001	0	%100
44	80	Z	-0.001	-0.001	0	%100
45	83	Z	-0.001	-0.001	0	%100
46	84	Z	-0.001	-0.001	0	%100
47	87	Z	-0.001	-0.001	0	%100



**Member Distributed Loads (BLC 9 : 0 Seismic) (Continued)**

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
48	89	Z	-0.001	-0.001	0 %100

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

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.002	-0.002	0 %100
2	2	X	-0.001	-0.001	0 %100
3	3	X	-0.001	-0.001	0 %100
4	4	X	-0.002	-0.002	0 %100
5	5	X	-0.002	-0.002	0 %100
6	6	X	-0.001	-0.001	0 %100
7	7	X	-0.002	-0.002	0 %100
8	8	X	-0.002	-0.002	0 %100
9	9	X	-0.0008	-0.0008	0 %100
10	10	X	-0.0008	-0.0008	0 %100
11	11	X	-0.003	-0.003	0 %100
12	18	X	-0.001	-0.001	0 %100
13	19	X	-0.001	-0.001	0 %100
14	22	X	-0.001	-0.001	0 %100
15	28	X	-0.001	-0.001	0 %100
16	30	X	-0.002	-0.002	0 %100
17	31	X	-0.002	-0.002	0 %100
18	32	X	-0.001	-0.001	0 %100
19	33	X	-0.001	-0.001	0 %100
20	34	X	-0.002	-0.002	0 %100
21	35	X	-0.002	-0.002	0 %100
22	36	X	-0.002	-0.002	0 %100
23	37	X	-0.002	-0.002	0 %100
24	38	X	-0.0008	-0.0008	0 %100
25	39	X	-0.0008	-0.0008	0 %100
26	40	X	-0.003	-0.003	0 %100
27	49	X	-0.002	-0.002	0 %100
28	50	X	-0.002	-0.002	0 %100
29	51	X	-0.001	-0.001	0 %100
30	52	X	-0.001	-0.001	0 %100
31	53	X	-0.002	-0.002	0 %100
32	54	X	-0.002	-0.002	0 %100
33	55	X	-0.002	-0.002	0 %100
34	56	X	-0.002	-0.002	0 %100
35	57	X	-0.0008	-0.0008	0 %100
36	58	X	-0.0008	-0.0008	0 %100
37	59	X	-0.003	-0.003	0 %100
38	68	X	-0.002	-0.002	0 %100
39	69	X	-0.001	-0.001	0 %100
40	72	X	-0.001	-0.001	0 %100
41	73	X	-0.001	-0.001	0 %100
42	76	X	-0.001	-0.001	0 %100
43	78	X	-0.001	-0.001	0 %100
44	80	X	-0.001	-0.001	0 %100
45	83	X	-0.001	-0.001	0 %100
46	84	X	-0.001	-0.001	0 %100
47	87	X	-0.001	-0.001	0 %100
48	89	X	-0.001	-0.001	0 %100

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

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	10	Y	-0.02	-0.026	1.27 2.309
2	38	Y	-0.014	-0.02	0 2.078
3	39	Y	0.0006164	-0.016	0 1.155

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

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
4	39	Y	-0.016	-0.035	1.155 2.309
5	57	Y	-0.035	-0.016	0 1.155
6	57	Y	-0.016	0.0006163	1.155 2.309
7	58	Y	-0.018	-0.016	0.231 2.309
8	9	Y	-0.015	-0.015	0 2.078
9	10	Y	-0.014	-0.02	0.231 1.27

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

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	9	Y	-0.008	-0.008	0 2.078
2	10	Y	-0.008	-0.011	0.231 1.27
3	10	Y	-0.011	-0.014	1.27 2.309
4	38	Y	-0.007	-0.011	0 2.078
5	39	Y	0.000332	-0.009	0 1.155
6	39	Y	-0.009	-0.019	1.155 2.309
7	57	Y	-0.019	-0.009	0 1.155
8	57	Y	-0.009	0.000332	1.155 2.309
9	58	Y	-0.01	-0.009	0.231 2.309

**Member Area Loads (BLC 1 : Dead)**

Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]	
1	23	22	25	24	Y	Two Way	-0.01
2	73	72	75	74	Y	Two Way	-0.01
3	102	101	104	103	Y	Two Way	-0.01

**Member Area Loads (BLC 8 : Ice)**

Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]	
1	23	22	25	24	Y	Two Way	-0.005
2	73	72	75	74	Y	Two Way	-0.005
3	102	101	104	103	Y	Two Way	-0.005

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

Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s <sup>2</sup> /ft, k*s <sup>2</sup> *ft)]	
1	30	L	Y	-0.5
2	113	L	Y	-0.5
3	135	L	Y	-0.5

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

Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s <sup>2</sup> /ft, k*s <sup>2</sup> *ft)]	
1	31	L	Y	-0.5
2	114	L	Y	-0.5
3	136	L	Y	-0.5

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

Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s <sup>2</sup> /ft, k*s <sup>2</sup> *ft)]	
1	44	L	Y	-0.5
2	127	L	Y	-0.5
3	149	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	0 Seismic	ELZ			20	48	
10	90 Seismic	ELX			20	48	
11	Live Load a	LL		3			
12	Live Load b	LL		3			
13	Live Load c	LL		3			
14	Live Load d	LL					
15	Maint LL 1	LL			1		
16	Maint LL 2	LL			1		
17	Maint LL 3	LL			1		
18	Maint LL 4	LL			1		
19	Maint LL 5	LL			1		
20	Maint LL 6	LL			1		
21	Maint LL 7	LL			1		
22	Maint LL 8	LL			1		
23	Maint LL 9	LL			1		
24	Maint LL 10	LL			1		
25	Maint LL 11	LL			1		
26	Maint LL 12	LL			1		
27	Maint LL 13	LL			1		
28	Maint LL 14	LL			1		
29	Maint LL 15	LL			1		
30	BLC 1 Transient Area Loads	None				9	
31	BLC 8 Transient Area Loads	None				9	

**Load Combinations**

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	1.2 D + 1.0 - 0 W	Yes	Y	1	1.2	2	1				
3	1.2 D + 1.0 - 30 W	Yes	Y	1	1.2	2	0.866	3	0.5		
4	1.2 D + 1.0 - 60 W	Yes	Y	1	1.2	3	0.866	2	0.5		
5	1.2 D + 1.0 - 90 W	Yes	Y	1	1.2	3	1				
6	1.2 D + 1.0 - 120 W	Yes	Y	1	1.2	3	0.866	2	-0.5		
7	1.2 D + 1.0 - 150 W	Yes	Y	1	1.2	2	-0.866	3	0.5		
8	1.2 D + 1.0 - 180 W	Yes	Y	1	1.2	2	-1				
9	1.2 D + 1.0 - 210 W	Yes	Y	1	1.2	2	-0.866	3	-0.5		
10	1.2 D + 1.0 - 240 W	Yes	Y	1	1.2	3	-0.866	2	-0.5		
11	1.2 D + 1.0 - 270 W	Yes	Y	1	1.2	3	-1				
12	1.2 D + 1.0 - 300 W	Yes	Y	1	1.2	3	-0.866	2	0.5		
13	1.2 D + 1.0 - 330 W	Yes	Y	1	1.2	2	0.866	3	-0.5		
14	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
15	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
16	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
17	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
18	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
19	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
20	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
21	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
22	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
23	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
24	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1

**Load Combinations (Continued)**

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
25	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
26	1.2 D + 1.0 E - 0	Yes	Y	1	1.2	9	1				
27	1.2 D + 1.0 E - 30	Yes	Y	1	1.2	9	0.866	10	0.5		
28	1.2 D + 1.0 E - 60	Yes	Y	1	1.2	10	0.866	9	0.5		
29	1.2 D + 1.0 E - 90	Yes	Y	1	1.2	10	1				
30	1.2 D + 1.0 E - 120	Yes	Y	1	1.2	10	0.866	9	-0.5		
31	1.2 D + 1.0 E - 150	Yes	Y	1	1.2	9	-0.866	10	0.5		
32	1.2 D + 1.0 E - 180	Yes	Y	1	1.2	9	-1				
33	1.2 D + 1.0 E - 210	Yes	Y	1	1.2	9	-0.866	10	-0.5		
34	1.2 D + 1.0 E - 240	Yes	Y	1	1.2	10	-0.866	9	-0.5		
35	1.2 D + 1.0 E - 270	Yes	Y	1	1.2	10	-1				
36	1.2 D + 1.0 E - 300	Yes	Y	1	1.2	10	-0.866	9	0.5		
37	1.2 D + 1.0 E - 330	Yes	Y	1	1.2	9	0.866	10	-0.5		
38	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
39	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
40	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
41	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
42	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
43	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
44	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
45	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
46	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
47	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
48	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
49	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
50	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
51	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
52	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
53	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
54	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
55	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5

**Load Combinations (Continued)**

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

**Envelope Node Reactions**

Node Label	X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC		
1	1	max	0.922	5	1.674	14	1.053	2	3.68	2	0.931	11	0.318	97
2		min	-0.926	11	-0.022	8	-1.178	8	-0.548	8	-0.935	5	-0.192	91
3	53	max	0.893	5	1.703	18	1.196	2	0.169	13	1.163	3	0.01	12
4		min	-0.999	11	0.187	12	-1.131	8	-1.739	43	-1.168	9	-2.962	18
5	82	max	0.899	5	1.638	22	1.294	2	0.144	3	1.171	7	2.833	46
6		min	-0.789	11	0.154	4	-1.234	8	-1.858	69	-1.175	13	-0.088	4
7	Totals:	max	2.713	5	4.669	55	3.543	2						
8		min	-2.713	11	2.419	13	-3.543	8						

**Envelope AISC 15TH (360-16): 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	0.484	0	13	0.115	0	y	73	70.173	73.278	8.24	8.24	2.002	H1-1b
2	2	C3.38x2.06x.188	0.323	2.592	61	0.06	0.351	y	63	35.676	43.394	1.703	4.483	1.619	H1-1b
3	3	C3.38x2.06x.188	0.32	0	13	0.063	2.241	y	44	35.676	43.394	1.694	4.483	1.601	H1-1b
4	4	PL3/8"x6	0.07	0.164	7	0.156	0	y	2	68.997	72.9	0.57	9.113	1.892	H1-1b
5	5	PL3/8"x6	0.074	0	3	0.125	0	y	38	68.997	72.9	0.57	9.113	1.935	H1-1b
6	6	PIPE_3.5x0.165	0.068	6.75	7	0.033	2.917	y	5	45.872	71.57	6.336	6.336	1.954	H1-1b
7	7	PL3/8"x6	0.121	0.208	8	0.191	0.208	y	50	70.882	72.9	0.57	9.113	1.6	H1-1b
8	8	PL3/8"x6	0.123	0	13	0.196	0	y	51	70.882	72.9	0.57	9.113	3	H1-1b
9	9	L2x2x4	0.234	0	8	0.03	2.309	y	48	23.349	30.586	0.691	1.577	1.5	H2-1
10	10	L2x2x4	0.2	2.309	8	0.035	0	y	63	23.349	30.586	0.691	1.577	1.5	H2-1
11	11	L7.63x2.5x6	0.301	1.604	8	0.077	0	z	62	75.414	118.523	1.798	13.8	1.254	H2-1
12	18	PIPE_2.88x0.203	0.098	5.833	5	0.034	5.833	y	6	35.519	70.68	5.029	5.029	3	H1-1b
13	19	PIPE_2.88x0.203	0.12	2.5	9	0.039	5.833	y	9	35.519	70.68	5.029	5.029	3	H1-1b
14	22	PIPE_2.88x0.203	0.121	7.812	13	0.126	8.75	y	2	24.131	70.68	5.029	5.029	2.432	H1-1b
15	28	PIPE_2.88x0.203	0.107	2.5	7	0.038	2.5	y	8	35.519	70.68	5.029	5.029	3	H1-1b
16	30	L6.63x4.33x.25	0.167	3.25	6	0.019	3.25	z	12	51.794	86.751	2.311	6.976	1.5	H2-1
17	31	HSS4X4X2	0.465	0	7	0.117	0	y	64	70.173	73.278	8.24	8.24	2.032	H1-1b
18	32	C3.38x2.06x.188	0.322	2.592	54	0.06	0.351	y	68	35.676	43.394	1.703	4.483	1.617	H1-1b
19	33	C3.38x2.06x.188	0.32	0	56	0.063	2.241	y	48	35.676	43.394	1.703	4.483	1.621	H1-1b
20	34	PL3/8"x6	0.058	0	6	0.151	0	y	66	68.997	72.9	0.57	9.113	2.375	H1-1b
21	35	PL3/8"x6	0.075	0	7	0.123	0	y	42	68.997	72.9	0.57	9.113	1.855	H1-1b
22	36	PL3/8"x6	0.105	0.208	13	0.19	0.208	y	54	70.882	72.9	0.57	9.113	2.085	H1-1b
23	37	PL3/8"x6	0.099	0	5	0.198	0	y	55	70.882	72.9	0.57	9.113	3	H1-1b
24	38	L2x2x4	0.183	0	11	0.031	2.309	y	40	23.349	30.586	0.691	1.577	1.5	H2-1
25	39	L2x2x4	0.177	2.309	13	0.034	0	y	68	23.349	30.586	0.691	1.577	1.5	H2-1
26	40	L7.63x2.5x6	0.227	1.604	12	0.077	0	z	67	75.414	118.523	1.798	13.947	1.287	H2-1
27	49	L6.63x4.33x.25	0.186	0	3	0.021	3.25	y	9	51.794	86.751	2.311	6.976	1.5	H2-1
28	50	HSS4X4X2	0.478	0	9	0.117	0	y	68	70.173	73.278	8.24	8.24	2.008	H1-1b



Company : B+T Group  
 Designer : VP  
 Job Number : 158618.003.01  
 Model Name : CT13060-A - Newtown 2

11/4/2021  
 1:33:12 PM  
 Checked By : \_\_\_\_\_

**Envelope AISC 15TH (360-16): 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	
29	51	C3.38x2.06x.188	0.321	2.592	57	0.059	0.351	y	73	35.676	43.394	1.703	4.483	1.619	H1-1b
30	52	C3.38x2.06x.188	0.318	0	60	0.063	2.241	y	39	35.676	43.394	1.703	4.483	1.619	H1-1b
31	53	PL3/8"x6	0.078	0.164	3	0.149	0	y	70	68.997	72.9	0.57	9.113	1.774	H1-1b
32	54	PL3/8"x6	0.059	0	11	0.125	0	y	45	68.997	72.9	0.57	9.113	1.839	H1-1b
33	55	PL3/8"x6	0.098	0.085	2	0.192	0.208	y	57	70.882	72.9	0.57	9.113	1.809	H1-1b
34	56	PL3/8"x6	0.125	0	9	0.195	0	y	59	70.882	72.9	0.57	9.113	3	H1-1b
35	57	L2x2x4	0.232	0	3	0.03	2.309	y	44	23.349	30.586	0.691	1.577	1.5	H2-1
36	58	L2x2x4	0.165	2.309	4	0.035	0	y	72	23.349	30.586	0.691	1.577	1.5	H2-1
37	59	L7.63x2.5x6	0.27	1.604	3	0.078	0	z	70	75.414	118.523	1.798	14.229	1.354	H2-1
38	68	L6.63x4.33x.25	0.211	3.25	2	0.024	3.25	z	8	51.794	86.751	2.311	6.976	1.5	H2-1
39	69	PIPE_3.5x0.165	0.073	1.25	2	0.043	4		9	45.872	71.57	6.336	6.336	1.799	H1-1b
40	72	PIPE_2.88x0.203	0.123	5.833	9	0.039	5.833		9	35.519	70.68	5.029	5.029	3	H1-1b
41	73	PIPE_2.88x0.203	0.141	2.5	2	0.04	5.833		13	35.519	70.68	5.029	5.029	3	H1-1b
42	76	PIPE_2.88x0.203	0.118	2.188	13	0.103	2.188		13	24.131	70.68	5.029	5.029	2.263	H1-1b
43	78	PIPE_2.88x0.203	0.106	5.833	9	0.039	2.5		13	35.519	70.68	5.029	5.029	3	H1-1b
44	80	PIPE_3.5x0.165	0.066	6.75	2	0.042	2.917		13	45.872	71.57	6.336	6.336	1.54	H1-1b
45	83	PIPE_2.88x0.203	0.123	5.833	13	0.044	5.833		2	35.519	70.68	5.029	5.029	3	H1-1b
46	84	PIPE_2.88x0.203	0.112	2.5	6	0.029	5.833		5	35.519	70.68	5.029	5.029	3	H1-1b
47	87	PIPE_2.88x0.203	0.113	7.813	9	0.115	8.75		9	24.131	70.68	5.029	5.029	2.515	H1-1b
48	89	PIPE_2.88x0.203	0.122	5.833	2	0.028	5.833		3	35.519	70.68	5.029	5.029	3	H1-1b

## APPENDIX B

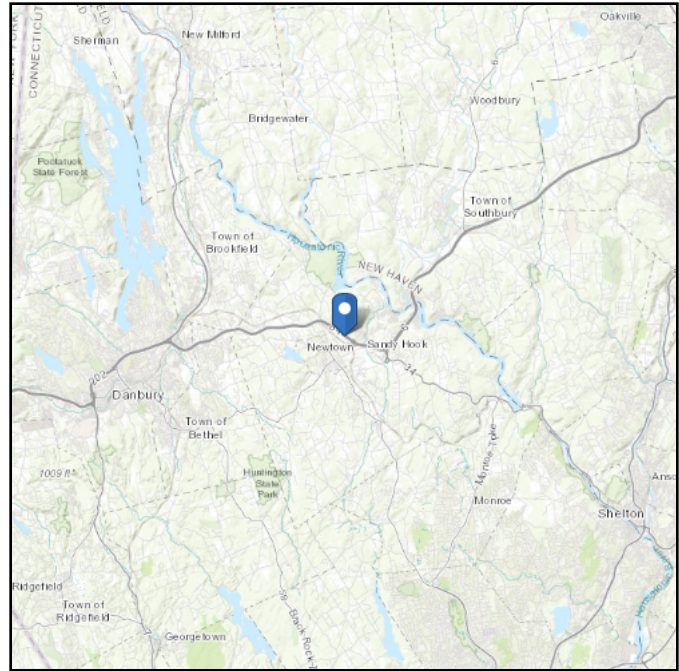
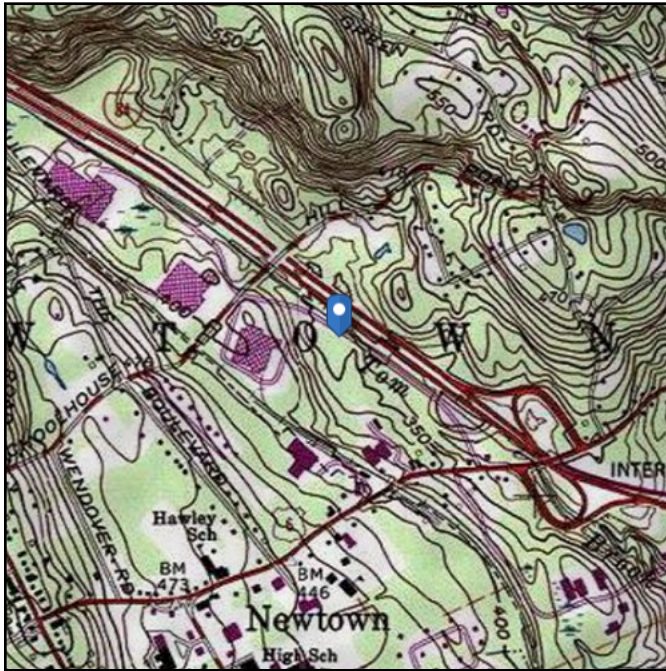
(Additional Calculations)

# ASCE 7 Hazards Report

**Address:**  
No Address at This  
Location

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

**Elevation:** 342.79 ft (NAVD 88)  
**Latitude:** 41.420899  
**Longitude:** -73.298102



## Wind

### Results:

Wind Speed:	116 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph

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

Date Accessed: Wed Nov 03 2021

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

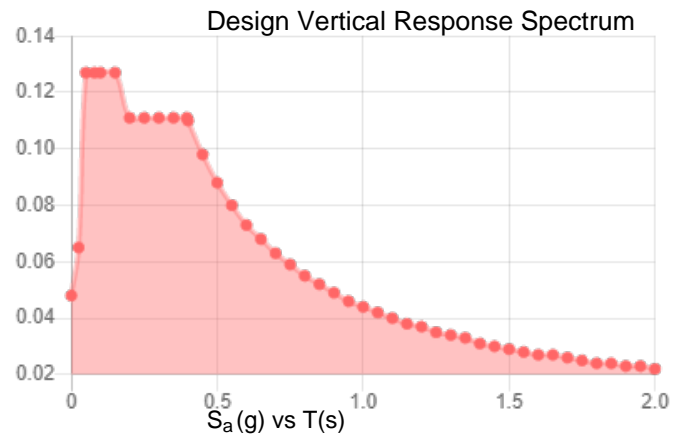
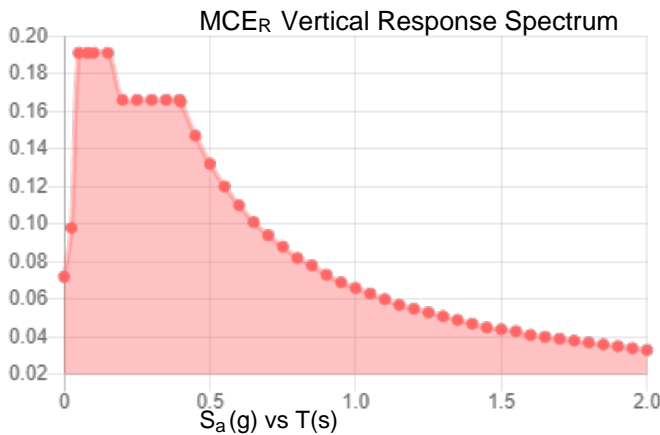
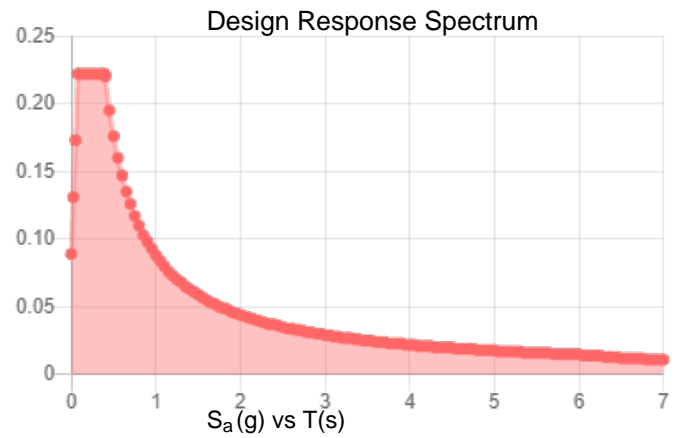
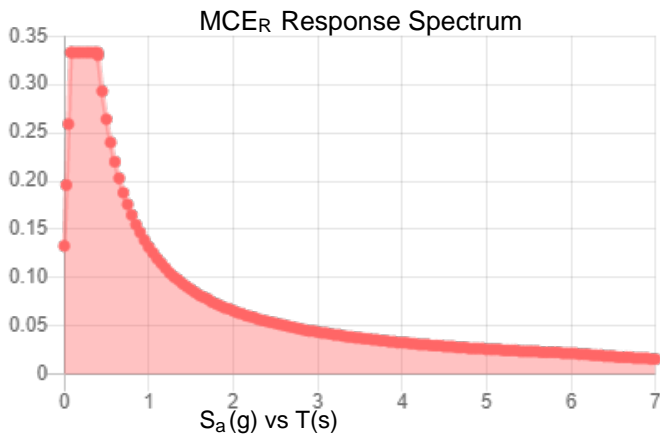
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

**Results:**

$S_s$ :	0.208	$S_{D1}$ :	0.088
$S_1$ :	0.055	$T_L$ :	6
$F_a$ :	1.6	PGA :	0.118
$F_v$ :	2.4	PGA <sub>M</sub> :	0.184
$S_{MS}$ :	0.333	$F_{PGA}$ :	1.565
$S_{M1}$ :	0.132	$I_e$ :	1
$S_{DS}$ :	0.222	$C_v$ :	0.716

**Seismic Design Category** B



**Data Accessed:**

Wed Nov 03 2021

**Date Source:**

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

## Ice

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### Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

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

**Date Accessed:** Wed Nov 03 2021

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

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

---

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

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PROJECT	<b>158618.003.01 - Newtown 2, CT</b>			<b>KSC</b>
SUBJECT	<b>Platform Mount Analysis</b>			
DATE	<b>11/04/21</b>	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	:	1.053	k
Vertical Shear	:	1.674	k
Horizontal Shear	:	0.922	k
Torsion	:	0.318	k.ft
Moment from Horizontal Forces	:	0.931	k.ft
Moment from Vertical Forces	:	3.68	k.ft

**Bolt Parameters**

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

**Summary of Forces**

Shear Resultant Force	:	1.91	k
Force from Horz. Moment	:	1.69	k
Force from Vert. Moment	:	6.67	k
Shear Load / Bolt	:	0.48	k
Tension Load / Bolt	:	0.26	k
Resultant from Moments / Bolt	:	3.44	k

**Bolt Checks**

Nominal Tensile Stress, $F_{nt}$	:	90.00	ksi	[AISC Table J3.2]
Available Tensile Stress, $\Phi R_{nt}$	:	20.72	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	<b>17.86%</b>		<b>OKAY</b>
Nominal Shear Stress, $F_{nv}$	:	48.00	ksi	[AISC Table J3.2]
Available Shear Stress, $\Phi R_{nv}$	:	11.05	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	<b>6.70%</b>		<b>OKAY</b>
Unity Check, Combined	:	<b>24.57%</b>		<b>OKAY</b>
Available Bearing Strength, $\Phi R_n$	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	<b>1.38%</b>		<b>OKAY</b>

PROJECT	<b>158618.003.01 - Newtown 2,</b>		<b>KSC</b>
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Tower Type	:	Monopole	
Ground Elevation	$Z_s$ :	343	ft [ASCE7 Hazard Tool]
Tower Height	:	139.00	ft
Mount Elevation	:	109.00	ft
Antenna Elevation	:	109.00	ft
Crest Height	:	0	ft
Risk Category	:	II	[Table 2-1 ]
Exposure Category	:	B	[Sec. 2.6.5.1.2]
Topography Category	:	1.00	[Sec. 2.6.6.2]
Wind Velocity	$V$ :	116	mph [ASCE7 Hazard Tool]
Ice wind Velocity	$V_i$ :	50	mph [ASCE7 Hazard Tool]
Service Velocity	$V_s$ :	30	mph [ASCE7 Hazard Tool]
Base Ice thickness	$t_i$ :	1.00	in [ASCE7 Hazard Tool]
Seismic Design Cat.	:	B	[ASCE7 Hazard Tool]
	$S_S$ :	0.21	
	$S_1$ :	0.06	
	$S_{DS}$ :	0.22	
	$S_{D1}$ :	0.09	
Gust Factor	$G_h$ :	1.00	[Sec. 16.6]
Pressure Coefficient	$K_z$ :	1.01	[Sec. 2.6.5.2]
Topography Factor	$K_{zt}$ :	1.00	[Sec. 2.6.6]
Elevation Factor	$K_e$ :	0.99	[Sec. 2.6.8]
Directionality Factor	$K_d$ :	0.95	[Sec. 16.6]
Shielding Factor	$K_a$ :	0.90	[Sec. 16.6]
Design Ice Thickness	$t_{iz}$ :	1.13	in [Sec. 2.6.10]
Importance Factor	$I_e$ :	1	[Table 2-3 ]
Response Coefficient	$C_s$ :	0.111	[Sec. 2.7.7.1]
Amplification	$A_s$ :	2.136691	[Sec. 16.7]
	$q_z$ :	32.74	psf

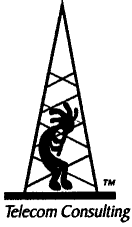
PROJECT	<b>158618.003.01 - Newtown 2,</b>	<b>KSC</b>
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Manufacturer	Model	Qty	Aspect Ratio	C <sub>a</sub> flat/round	EPA <sub>N</sub> (ft <sup>2</sup> )	EPA <sub>T</sub> (ft <sup>2</sup> )	EPA <sub>N-ice</sub> (ft <sup>2</sup> )	EPA <sub>T-ice</sub> (ft <sup>2</sup> )	F <sub>A</sub> No Ice (N)	F <sub>A</sub> No Ice (T)	F <sub>A</sub> Ice (N)	F <sub>A</sub> Ice (T)
COMMSCOPE	FFVV-65B-R2	0.5	3.67	1.25	4.90	1.95	5.63	2.59	0.18	0.07	0.03	0.01
COMMSCOPE	FFVV-65B-R2	0.5	3.67	1.25	4.90	1.95	5.63	2.59	0.18	0.07	0.03	0.01
FUJITSU	TA08025-B604	1	1.05	1.20	1.64	0.86	2.15	1.27	0.06	0.03	0.01	0.01
FUJITSU	TA08025-B605	1	1.05	1.20	1.64	0.99	2.15	1.41	0.06	0.03	0.01	0.01
COMMSCOPE	FFVV-65B-R2	0.5	3.67	1.25	4.90	1.95	5.63	2.59	0.18	0.07	0.03	0.01
COMMSCOPE	FFVV-65B-R2	0.5	3.67	1.25	4.90	1.95	5.63	2.59	0.18	0.07	0.03	0.01
FUJITSU	TA08025-B604	1	1.05	1.20	1.64	0.86	2.15	1.27	0.06	0.03	0.01	0.01
FUJITSU	TA08025-B605	1	1.05	1.20	1.64	0.99	2.15	1.41	0.06	0.03	0.01	0.01
COMMSCOPE	FFVV-65B-R2	0.5	3.67	1.25	4.90	1.95	5.63	2.59	0.18	0.07	0.03	0.01
COMMSCOPE	FFVV-65B-R2	0.5	3.67	1.25	4.90	1.95	5.63	2.59	0.18	0.07	0.03	0.01
FUJITSU	TA08025-B604	1	1.05	1.20	1.64	0.86	2.15	1.27	0.06	0.03	0.01	0.01
FUJITSU	TA08025-B605	1	1.05	1.20	1.64	0.99	2.15	1.41	0.06	0.03	0.01	0.01
RAYCAP	RDIDC-9181-PF-48	1	1.14	1.20	1.68	0.97	2.20	1.40	0.06	0.03	0.01	0.01

# Exhibit F

## **Power Density/RF Emissions Report**



# PINNACLE TELECOM GROUP

Professional and Technical Services

## ANTENNA SITE FCC RF COMPLIANCE ASSESSMENT AND REPORT FOR MUNICIPAL SUBMISSION



***PREPARED FOR:***

DISH Wireless, LLC

***SITE ID:***

NJER01079D

***SITE ADDRESS:***

3 EDMUND ROAD  
NEWTOWN, CT

***LATITUDE:***

N 41.420812

***LONGITUDE:***

W 73.298474

***STRUCTURE TYPE:***

Monopole

***REPORT DATE:***

July 11, 2022

***COMPLIANCE CONCLUSION:***

DISH Wireless, LLC will be in compliance with the rules and regulations as described in OET Bulletin 65, following the implementation of the proposed mitigation as detailed in the report.

14 RIDGEDALE AVENUE - SUITE 260 • CEDAR KNOLLS, NJ 07927 • 973-451-1630

# CONTENTS

<b>INTRODUCTION AND SUMMARY</b>	<b>3</b>
<b>ANTENNA AND TRANSMISSION DATA</b>	<b>5</b>
<b>COMPLIANCE ANALYSIS</b>	<b>11</b>
<b>COMPLIANCE CONCLUSION</b>	<b>19</b>

## **CERTIFICATION**

**APPENDIX A. DOCUMENTS USED TO PREPARE THE ANALYSIS**

**APPENDIX B. BACKGROUND ON THE FCC MPE LIMIT**

**APPENDIX C. PROPOSED SIGNAGE**

**APPENDIX D. SUMMARY OF EXPERT QUALIFICATIONS**

## **INTRODUCTION AND SUMMARY**

At the request of DISH Wireless, LLC (“DISH”), Pinnacle Telecom Group has performed an independent expert assessment of radiofrequency (RF) levels and related FCC compliance for proposed wireless base station antenna operations on an existing monopole located at 3 Edmund Road in Newtown CT. DISH refers to the antenna site by the code “NJJER01079D”, and its proposed operation involves directional panel antennas and transmission in the 600 MHz, 2000 MHz and 2100 MHz frequency bands licensed to it by the FCC.

The FCC requires all wireless antenna operators to perform an assessment of potential human exposure to radiofrequency (RF) fields emanating from all the transmitting antennas at a site whenever antenna operations are added or modified, and to ensure compliance with the Maximum Permissible Exposure (MPE) limit in the FCC’s regulations. In this case, the compliance assessment needs to take into account the RF effects of other existing antenna operations at the site by AT&T and T-Mobile. Note that FCC regulations require any future antenna collocators to assess and assure continuing compliance based on the cumulative effects of all then-proposed and then-existing antennas at the site.

This report describes a mathematical analysis of RF levels resulting around the site in areas of unrestricted public access, that is, at street level around the site. The compliance analysis employs a standard FCC formula for calculating the effects of the antennas in a very conservative manner, in order to overstate the RF levels and to ensure “safe-side” conclusions regarding compliance with the FCC limit for safe continuous exposure of the general public.

The results of a compliance assessment can be described in layman’s terms by expressing the calculated RF levels as simple percentages of the FCC MPE limit. If the normalized reference for that limit is 100 percent, then calculated RF levels higher than 100 percent indicate the MPE limit is exceeded and there is a need to mitigate the potential exposure. On the other hand, calculated RF levels consistently below 100 percent serve as a clear and sufficient demonstration of compliance with the MPE limit. We can (and will) also describe the overall worst-case result via the “plain-English” equivalent “times-below-the-limit” factor.

The result of the RF compliance assessment in this case is as follows:

- At street level, the conservatively calculated maximum RF level from the combination of proposed and existing antenna operations at the site is 3.9619 percent of the FCC general population MPE limit – well below the 100-percent reference for compliance. In other words, the worst-case calculated RF level – intentionally and significantly overstated by the calculations – is still more than 25 times below the FCC limit for safe, continuous exposure of the general public.
- A supplemental analysis of the RF levels at the same height as the DISH antennas indicate that the FCC MPE limit is potentially exceeded. Therefore, it is recommended that two Caution signs and NOC Information signs be installed at the base of the monopole.
- The results of the calculations, along with the proposed mitigation, combine to satisfy the FCC requirements and associated guidelines on RF compliance at street level around the site and on the subject roof. Moreover, because of the significant conservatism incorporated in the analysis, RF levels actually caused by the antennas will be lower than these calculations indicate.

The remainder of this report provides the following:

- relevant technical data on the proposed DISH antenna operations at the site, as well as on the other existing antenna operations;
- a description of the applicable FCC mathematical model for calculating RF levels, and application of the relevant technical data to that model;
- analysis of the results of the calculations against the FCC MPE limit, and the compliance conclusion for the site.

In addition, four Appendices are included. Appendix A provides information on the documents used to prepare the analysis. Appendix B provides background on the FCC MPE limit. Appendix C details the proposed mitigation to satisfy the FCC requirements and associated guidelines on RF compliance. Appendix D provides

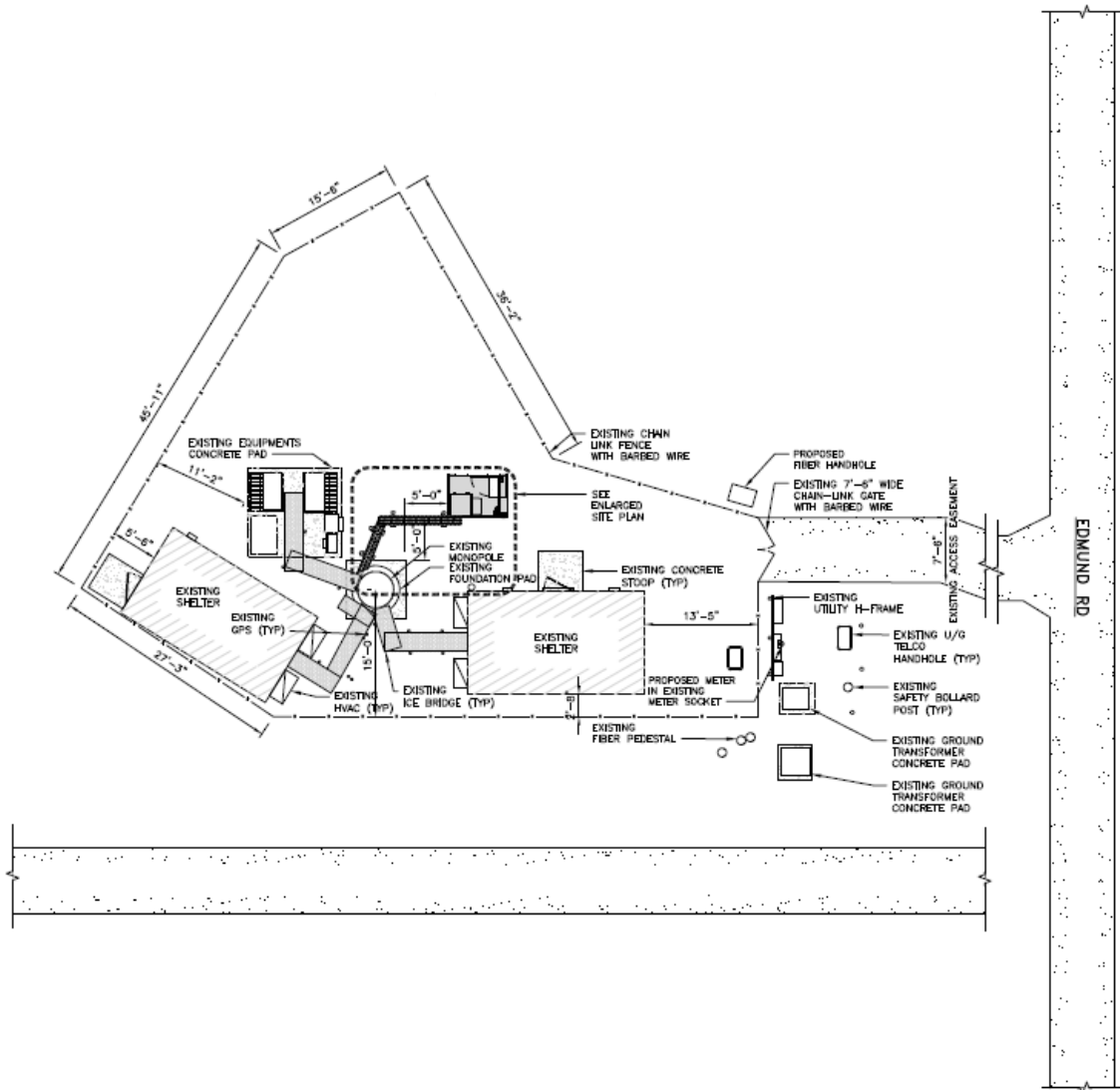


a summary of the qualifications of the expert certifying FCC compliance for this site.

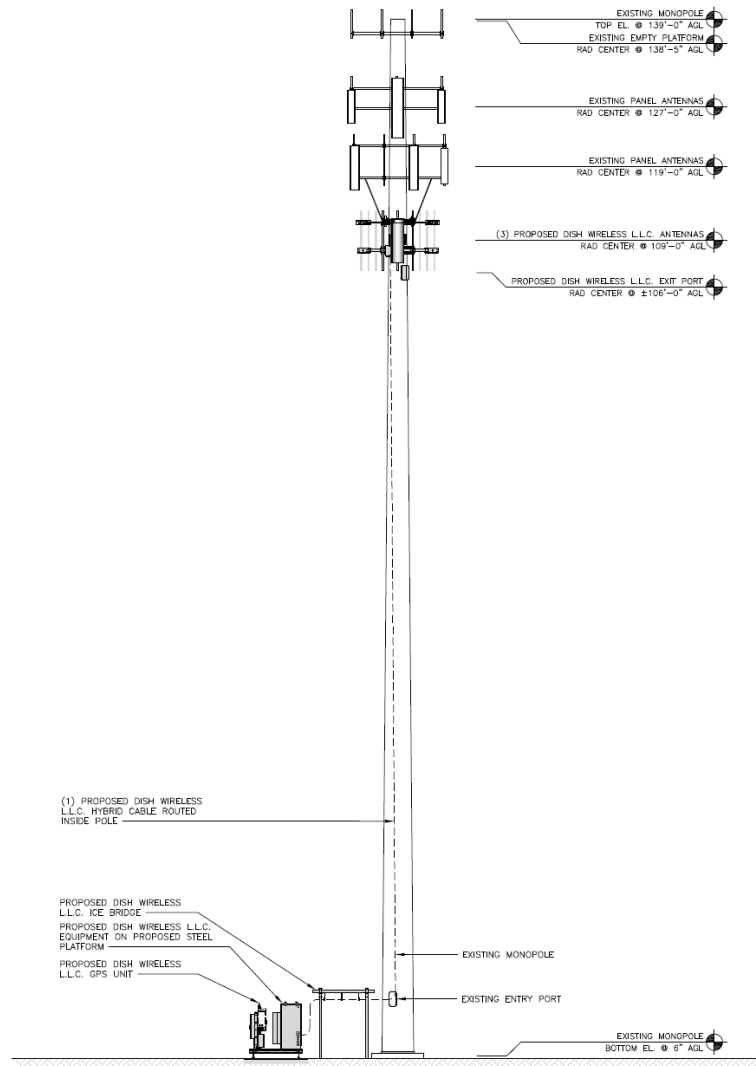
## ANTENNA AND TRANSMISSION DATA

The plan and elevation views that follow, extracted from the site drawings, illustrate the mounting positions of the DISH antennas at the site.

### Plan View:



Elevation View:



The table that follows summarizes the relevant data for the proposed DISH antenna operations. Note that the "Z" height references the centerline of the antenna.

<b>Ant. ID</b>	<b>Carrier</b>	<b>Antenna Manufacturer</b>	<b>Antenna Model</b>	<b>Type</b>	<b>Freq (MHz)</b>	<b>Ant. Dim. (ft.)</b>	<b>Total Input Power (watts)</b>	<b>Total ERP (watts)</b>	<b>Z AGL (ft)</b>	<b>Ant. Gain (dBd)</b>	<b>B/W</b>	<b>Azimuth</b>	<b>EDT</b>	<b>MDT</b>
①	DISH	Commscope	FFVV-65B-R2	Panel	600	6	120	2110	109.0	12.46	64	0	2	0
①	DISH	Commscope	FFVV-65B-R2	Panel	2000	6	160	7396	109.0	16.66	67	0	2	0
①	DISH	Commscope	FFVV-65B-R2	Panel	2100	6	160	7396	109.0	16.66	67	0	2	0
②	DISH	Commscope	FFVV-65B-R2	Panel	600	6	120	2110	109.0	12.46	64	120	2	0
②	DISH	Commscope	FFVV-65B-R2	Panel	2000	6	160	7396	109.0	16.66	67	120	2	0
②	DISH	Commscope	FFVV-65B-R2	Panel	2100	6	160	7396	109.0	16.66	67	120	2	0
③	DISH	Commscope	FFVV-65B-R2	Panel	600	6	120	2110	109.0	12.46	64	240	2	0
③	DISH	Commscope	FFVV-65B-R2	Panel	2000	6	160	7396	109.0	16.66	67	240	2	0
③	DISH	Commscope	FFVV-65B-R2	Panel	2100	6	160	7396	109.0	16.66	67	240	2	0

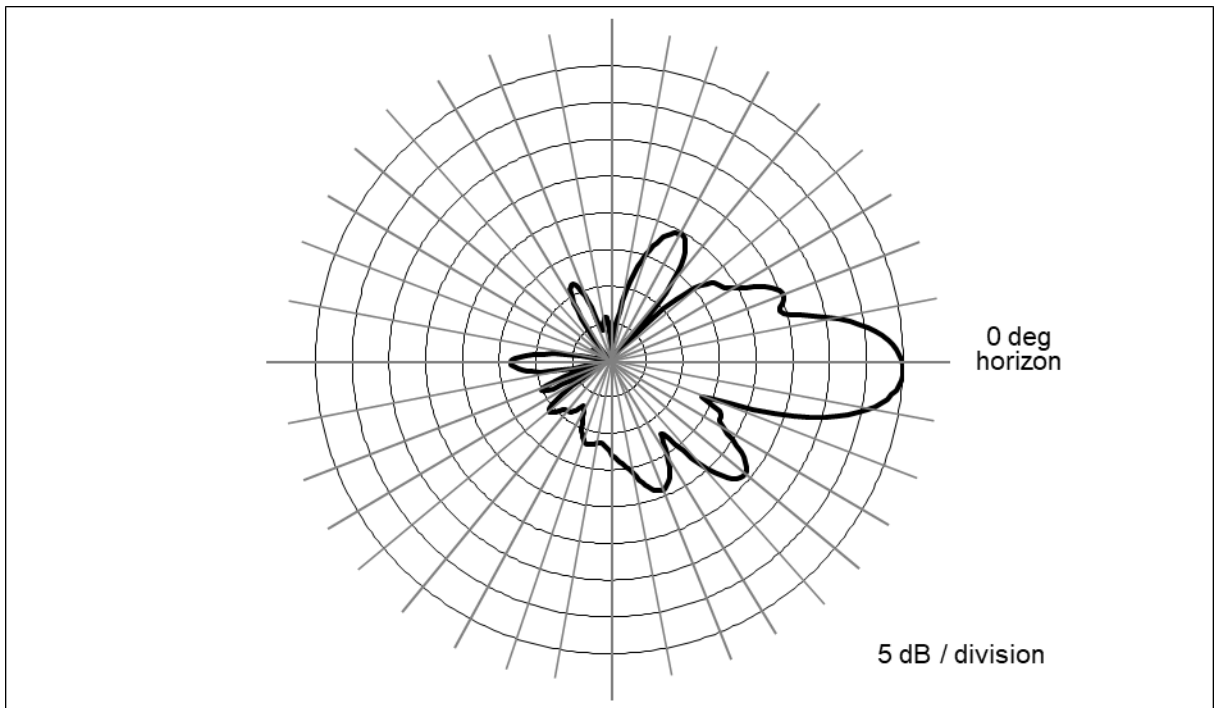
The area below the antennas, at street level, is of interest in terms of potential “uncontrolled” exposure of the general public, so the antenna’s vertical-plane emission characteristic is used in the calculations, as it is a key determinant of the relative amount of RF emissions in the “downward” direction.

By way of illustration, Figure 1 that follows shows the vertical-plane radiation pattern of the proposed antenna model in the 600 MHz frequency band. In this type of antenna radiation pattern diagram, the antenna is effectively pointed at the three o’clock position (the horizon) and the relative strength of the pattern at different angles is described using decibel units.

Note that the use of a decibel scale to describe the relative pattern at different angles actually serves to significantly understate the actual focusing effects of the antenna. Where the antenna pattern reads 20 dB the relative RF energy emitted at the corresponding downward angle is 1/100<sup>th</sup> of the maximum that occurs in the main beam (at 0 degrees); at 30 dB, the energy is only 1/1000<sup>th</sup> of the maximum.

Finally, note that the automatic pattern-scaling feature of our internal software may skew side-by-side visual comparisons of different antenna models, or even different parties’ depictions of the same antenna model.

**Figure 1. Commscope FFVV-65B-R2 – 600 MHz Vertical-plane Pattern**



As noted at the outset, there are other existing wireless antenna operations to include in the compliance assessment. For each of the wireless operators, we will conservatively assume operation with maximum channel capacity and at maximum transmitter power per channel to be used by each wireless operator in each of their respective FCC-licensed frequency bands.

The table that follows summarizes the relevant data for the collocated antenna operations.

<i>Carrier</i>	<i>Antenna Manufacturer</i>	<i>Antenna Model</i>	<i>Type</i>	<i>Freq (MHz)</i>	<i>Total ERP (watts)</i>	<i>Ant. Gain (dBd)</i>	<i>Azimuth</i>
AT&T	Generic	Generic	Panel	700	4945	11.26	N/A
AT&T	Generic	Generic	Panel	850	2400	11.76	N/A
AT&T	Generic	Generic	Panel	1900	5756	15.56	N/A
AT&T	Generic	Generic	Panel	2100	5890	15.66	N/A
AT&T	Generic	Generic	Panel	2300	4131	16.16	N/A
T-Mobile	Generic	Generic	Panel	600	3163	12.96	N/A
T-Mobile	Generic	Generic	Panel	700	867	13.36	N/A
T-Mobile	Generic	Generic	Panel	1900	4123	15.36	N/A
T-Mobile	Generic	Generic	Panel	1900	1452	15.60	N/A
T-Mobile	Generic	Generic	Panel	2100	4626	15.86	N/A
T-Mobile	Generic	Generic	Panel	1900	1419	15.50	N/A
T-Mobile	Generic	Generic	Panel	2500	12804	22.35	N/A

## Compliance Analysis

FCC Office of Engineering and Technology Bulletin 65 (“OET Bulletin 65”) provides guidelines for mathematical models to calculate the RF levels at various points around transmitting antennas. Different models apply in different areas around antennas, with one model applying to street level around a site, and another applying to the rooftop near the antennas. We will address each area of interest in turn in the subsections that follow.

### ***Street Level Analysis***

At street-level around an antenna site (in what is called the “far field” of the antennas), the RF levels are directly proportional to the total antenna input power and the relative antenna gain in the downward direction of interest – and the levels are otherwise inversely proportional to the square of the straight-line distance to the antenna.

Conservative calculations also assume the potential RF exposure is enhanced by reflection of the RF energy from the intervening ground. Our calculations will assume a 100% “perfect”, mirror-like reflection, which is the absolute worst-case scenario.

The formula for street-level compliance assessment for any given wireless antenna operation is as follows:

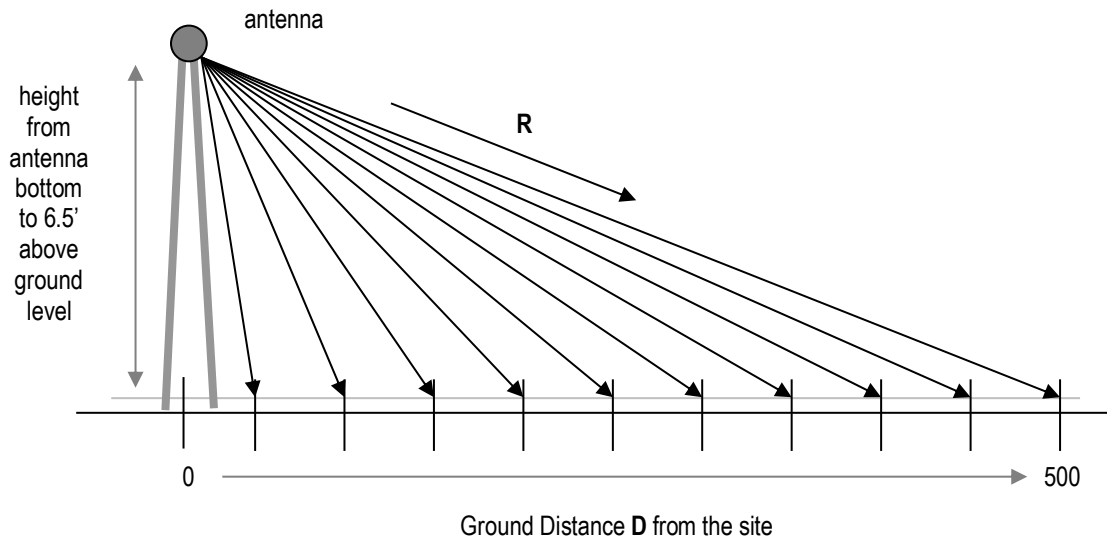
$$\text{MPE\%} = (100 * \text{Chans} * \text{TxPower} * 10^{(\text{Gmax}-\text{Vdisc}/10)} * 4) / (\text{MPE} * 4\pi * \text{R}^2)$$

where

MPE%	=	RF level, expressed as a percentage of the MPE limit applicable to continuous exposure of the general public
100	=	factor to convert the raw result to a percentage
Chans	=	maximum number of RF channels per sector
TxPower	=	maximum transmitter power per channel, in milliwatts

- 10<sup>(G<sub>max</sub>-V<sub>disc</sub>/10)</sup> = numeric equivalent of the relative antenna gain in the downward direction of interest; data on the antenna vertical-plane pattern is taken from manufacturer specifications
- 4 = factor to account for a 100-percent-efficient energy reflection from the ground, and the squared relationship between RF field strength and power density (2<sup>2</sup> = 4)
- MPE = FCC general population MPE limit
- R = straight-line distance from the RF source to the point of interest, centimeters

The MPE% calculations are performed out to a distance of 500 feet from the facility to points 6.5 feet (approximately two meters, the FCC-recommended standing height) off the ground, as illustrated in Figure 2, below.



**Figure 2. Street-level MPE% Calculation Geometry**

It is popularly understood that the farther away one is from an antenna, the lower the RF level – which is generally but not universally correct. The results of MPE% calculations fairly close to the site will reflect the variations in the vertical-plane antenna pattern as well as the variation in straight-line distance to the antenna.



Therefore, RF levels may actually increase slightly with increasing distance within the range of zero to 500 feet from the site. As the distance approaches 500 feet and beyond, though, the antenna pattern factor becomes less significant, the RF levels become primarily distance-controlled and, as a result, the RF levels generally decrease with increasing distance. In any case, the RF levels more than 500 feet from a wireless antenna site are well understood to be sufficiently low to be comfortably in compliance.

According to the FCC, when directional antennas (such as panels) are used, compliance assessments are based on the RF effect of a single (facing) antenna sector, as the effects of directional antennas pointed away from the point(s) of interest are considered insignificant. If the different parameters apply in the different sectors, compliance is based on the worst-case parameters.

Street level FCC compliance for a collocated antenna site is assessed in the following manner. At each distance point along the ground, an MPE% calculation is made for each antenna operation (including each frequency band), and the sum of the individual MPE% contributions at each point is compared to 100 percent, the normalized reference for compliance with the MPE limit. We refer to the sum of the individual MPE% contributions as “total MPE%”, and any calculated total MPE% result exceeding 100 percent is, by definition, higher than the FCC limit and represents non-compliance and a need to mitigate the potential exposure. If all results are consistently below 100 percent, on the other hand, that set of results serves as a clear and sufficient demonstration of compliance with the MPE limit.

Note that the following conservative methodology and assumptions are incorporated into the MPE% calculations on a general basis:

1. The antennas are assumed to be operating continuously at maximum power and maximum channel capacity.
2. The power-attenuation effects of shadowing or other obstructions to the line-of-sight path from the antenna to the point of interest are ignored.
3. The calculations intentionally minimize the distance factor (R) by assuming a 6'6" human and performing the calculations from the bottom (rather than

- the centerline) of each operator's lowest-mounted antenna, as applicable.
4. The calculations also conservatively take into account, when applicable, the different technical characteristics and related RF effects of the use of multiple antennas for transmission in the same frequency band.
  5. The RF exposure at ground level is assumed to be 100-percent enhanced (increased) via a "perfect" field reflection from the intervening ground.

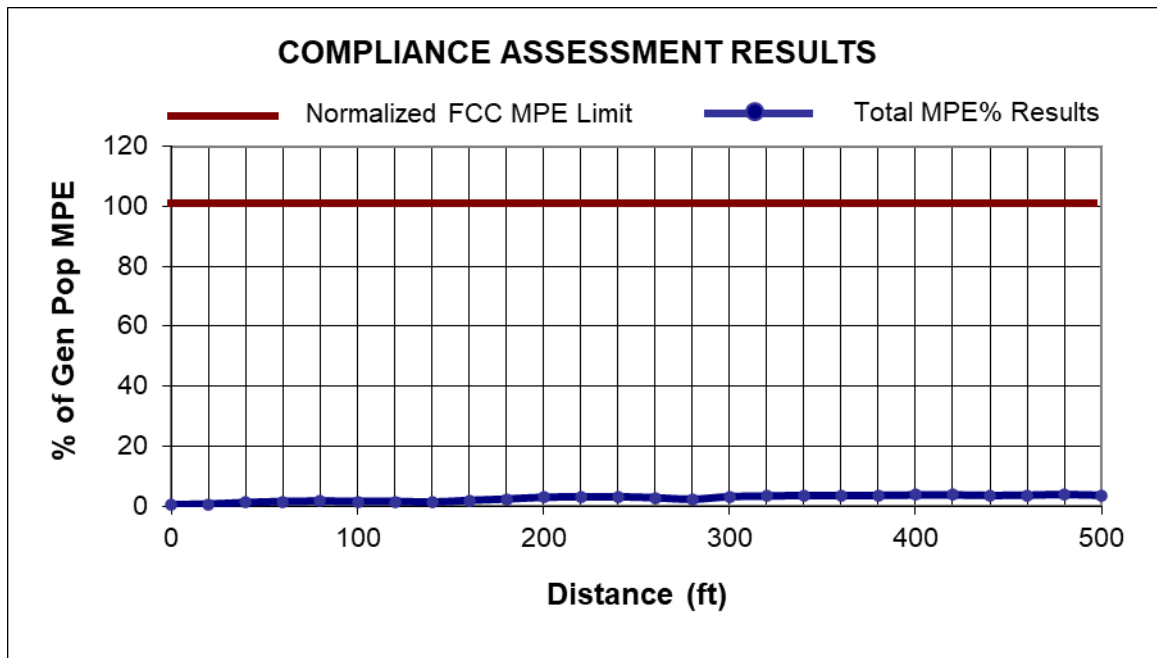
The net result of these assumptions is to intentionally and significantly overstate the calculated RF levels relative to the levels that will actually result from the antenna operations – and the purpose of this conservatism is to allow very "safe-side" conclusions about compliance.

The table that follows provides the results of the MPE% calculations for each antenna operation, with the overall worst-case calculated result highlighted in bold in the last column. Note that the transmission parameters for each DISH antenna sector are identical, and the calculations reflect the worst-case result for any/all sectors.

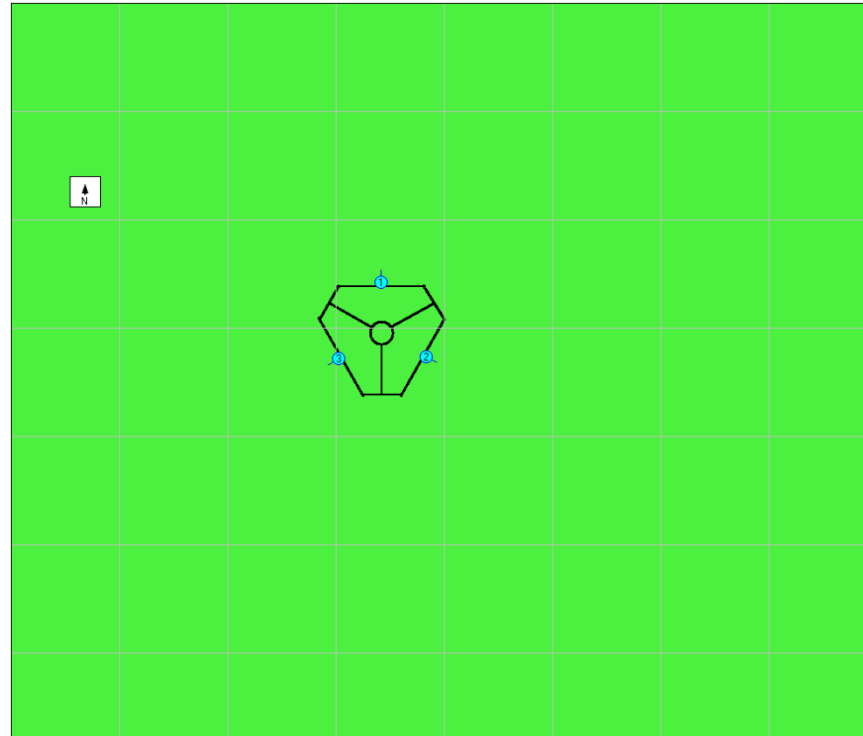
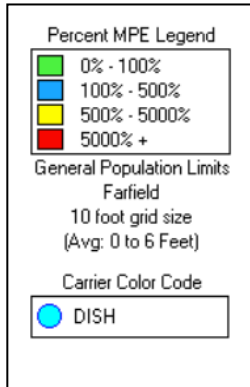
Ground Distance (ft)	DISH 600 MHz MPE%	DISH 2000 MHz MPE%	DISH 2100 MHz MPE%	AT&T MPE%	T-Mobile MPE%	Total MPE%
0	0.0492	0.0023	0.0004	0.0917	0.2889	0.4325
20	0.1051	0.0058	0.0085	0.1181	0.4216	0.6591
40	0.1989	0.0220	0.0355	0.2275	0.7705	1.2544
60	0.0564	0.0025	0.1414	0.4065	0.9452	1.5520
80	0.0675	0.2695	0.1246	0.5283	0.7244	1.7143
100	0.2948	0.2065	0.3613	0.3330	0.3847	1.5803
120	0.2889	0.2601	0.3541	0.2321	0.4570	1.5922
140	0.1441	0.0183	0.1052	0.4835	0.6170	1.3681
160	0.0500	0.0263	0.0636	0.8600	0.9270	1.9269
180	0.0337	0.0394	0.0212	0.9732	1.3291	2.3966
200	0.0276	0.1068	0.0895	0.8526	1.9436	3.0201
220	0.0178	0.0343	0.1328	0.7032	2.2742	3.1623
240	0.0095	0.0381	0.0262	0.5793	2.5524	3.2055
260	0.0198	0.1269	0.0765	0.4049	2.2486	2.8767
280	0.0369	0.1064	0.1207	0.2670	1.7857	2.3167
300	0.0644	0.0582	0.1192	0.1604	2.8269	3.2291
320	0.1030	0.0183	0.0784	0.1187	3.1038	3.4222
340	0.1523	0.0049	0.0344	0.3102	3.1280	3.6298
360	0.2122	0.0046	0.0107	0.2795	3.0353	3.5423
380	0.2806	0.0036	0.0035	0.4405	2.9200	3.6482
400	0.3550	0.0073	0.0022	0.6154	2.8041	3.7840
420	0.3237	0.0066	0.0020	0.7785	2.7130	3.8238
440	0.3961	0.0257	0.0099	0.7134	2.4866	3.6317
460	0.3639	0.0236	0.0091	0.8593	2.4401	3.6960
<b>480</b>	<b>0.4322</b>	<b>0.0548</b>	<b>0.0321</b>	<b>1.0268</b>	<b>2.4160</b>	<b>3.9619</b>
500	0.3996	0.0507	0.0297	0.9500	2.2367	3.6667

As indicated, the maximum calculated overall RF level is 3.9619 percent of the FCC MPE limit – well below the 100-percent reference for compliance.

A graph of the overall calculation results, shown below, perhaps provides a clearer *visual* illustration of the relative compliance of the calculated RF levels. The line representing the overall calculation results shows an obviously clear, consistent margin to the FCC MPE limit.



The graphic output for the areas at street level surrounding the site is reproduced on the next page.

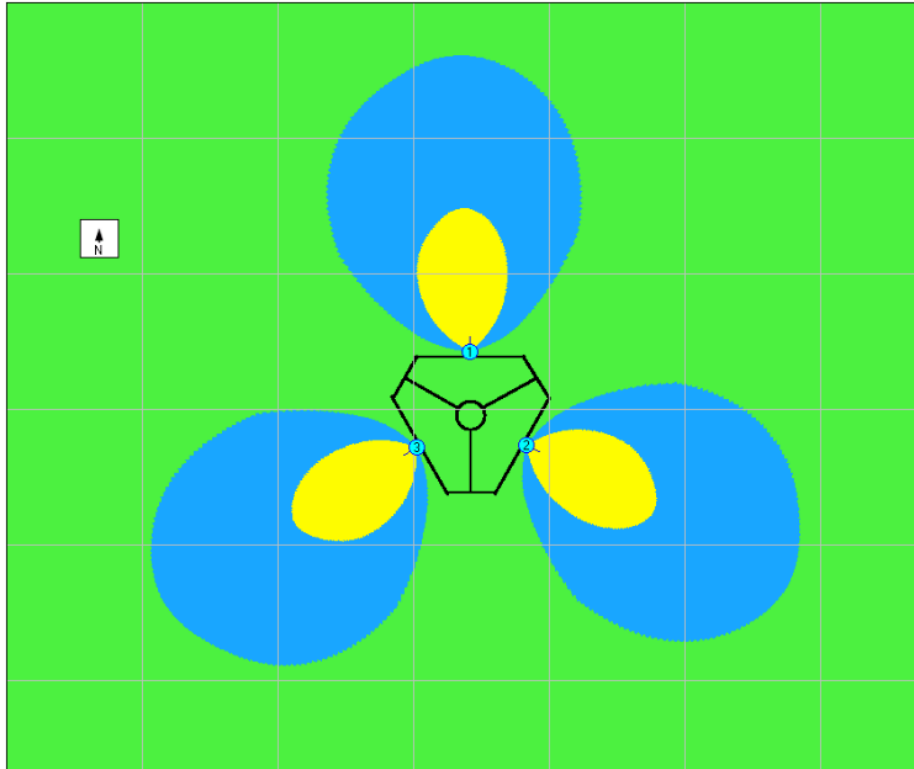
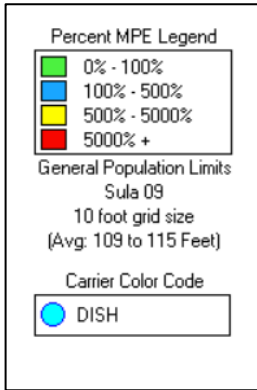


### ***Near-field Analysis***

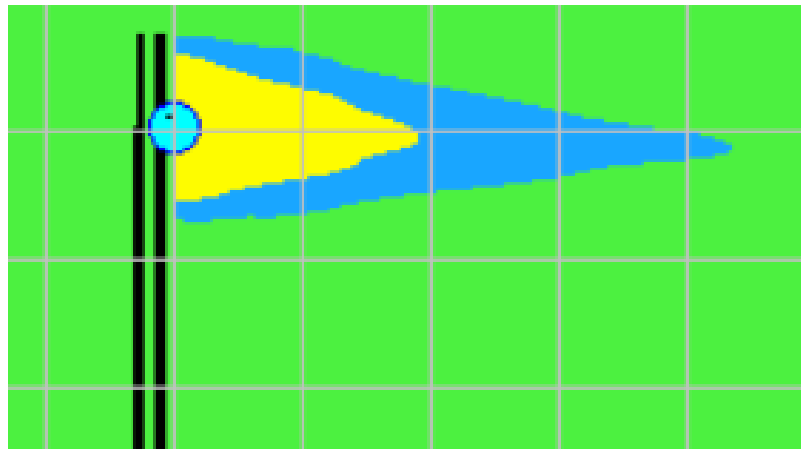
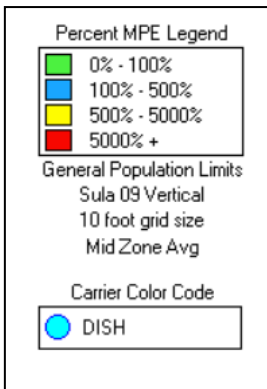
The compliance analysis for the same height as the antennas is performed using the RoofMaster program by Waterford Consultants.

RF levels in the near field of an antenna depend on the power input to the antenna, the antenna's length and horizontal beamwidth, the mounting height of the antenna above nearby roof, and one's position and distance from the antenna. RF levels in front of a directional antenna are higher than they are to the sides or rear, and in any given horizontal direction are inversely proportional to the straight-line distance to the antenna.

The RoofMaster graphic outputs for the same height as the DISH antennas are reproduced on the next page.



**RoofMaster – Same Height as the Antennas –  
Alpha / Beta / Gamma sectors**



**RoofMaster – Same Height as the Antennas –  
Alpha / Beta / Gamma sectors**

## **Compliance Conclusion**

According to the FCC, the MPE limit has been constructed in such a manner that continuous human exposure to RF fields up to and including 100 percent of the MPE limit is acceptable and safe.

The conservative analysis in this case shows that the maximum calculated RF level from the combination of proposed and existing antenna operations at street level around the site is 3.9619 percent of the FCC general population MPE limit. At the same height as the antennas, the analysis shows that the calculated RF levels potentially exceed the FCC MPE limit. Per DISH guidelines, and consistent with FCC guidance on compliance, it is recommended that two Caution signs and NOC Information signs be installed at the base of the monopole.

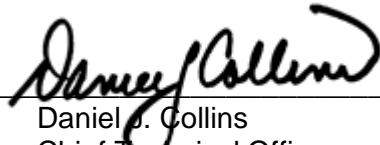
The results of the calculations, along with the described RF mitigation, combine to satisfy the FCC's RF compliance requirements and associated guidelines on compliance.

Moreover, because of the extremely conservative calculation methodology and operational assumptions we applied in the analysis, RF levels actually caused by the antennas will be significantly lower than the calculation results here indicate.

## CERTIFICATION

It is the policy of Pinnacle Telecom Group that all FCC RF compliance assessments are reviewed, approved, and signed by the firm's Chief Technical Officer who certifies as follows:

1. I have read and fully understand the FCC regulations concerning RF safety and the control of human exposure to RF fields (47 CFR 1.1301 *et seq*).
2. To the best of my knowledge, the statements and information disclosed in this report are true, complete and accurate.
3. The analysis of site RF compliance provided herein is consistent with the applicable FCC regulations, additional guidelines issued by the FCC, and industry practice.
4. The results of the analysis indicate that the subject antenna operations will be in compliance with the FCC regulations concerning the control of potential human exposure to the RF emissions from antennas.



---

Daniel J. Collins  
Chief Technical Officer  
Pinnacle Telecom Group, LLC

7/11/22

---

Date



## **Appendix A. DOCUMENTS Used to PREPARE THE ANALYSIS**

**RFDS:** RFDS-NJJER01079D-Preliminary-20220224-v.1\_20220224075725

**CD:** PCDS 1079

## Appendix B. Background on the FCC MPE Limit

As directed by the Telecommunications Act of 1996, the FCC has established limits for maximum continuous human exposure to RF fields.

The FCC maximum permissible exposure (MPE) limits represent the consensus of federal agencies and independent experts responsible for RF safety matters. Those agencies include the National Council on Radiation Protection and Measurements (NCRP), the Occupational Safety and Health Administration (OSHA), the National Institute for Occupational Safety and Health (NIOSH), the American National Standards Institute (ANSI), the Environmental Protection Agency (EPA), and the Food and Drug Administration (FDA). In formulating its guidelines, the FCC also considered input from the public and technical community – notably the Institute of Electrical and Electronics Engineers (IEEE).

The FCC's RF exposure guidelines are incorporated in Section 1.301 *et seq* of its Rules and Regulations (47 CFR 1.1301-1.1310). Those guidelines specify MPE limits for both occupational and general population exposure.

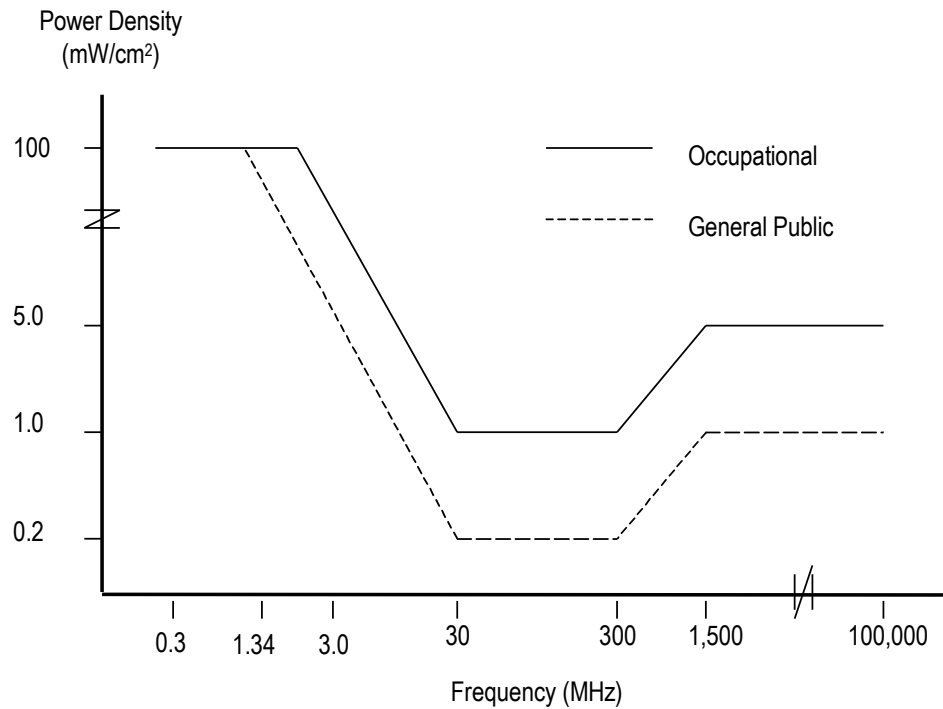
The specified continuous exposure MPE limits are based on known variation of human body susceptibility in different frequency ranges, and a Specific Absorption Rate (SAR) of 4 watts per kilogram, which is universally considered to accurately represent human capacity to dissipate incident RF energy (in the form of heat). The occupational MPE guidelines incorporate a safety factor of 10 or greater with respect to RF levels known to represent a health hazard, and an additional safety factor of five is applied to the MPE limits for general population exposure. Thus, the general population MPE limit has a built-in safety factor of more than 50. The limits were constructed to appropriately protect humans of both sexes and all ages and sizes and under all conditions – and continuous exposure at levels equal to or below the applicable MPE limits is considered to result in no adverse health effects or even health risk.

The reason for *two* tiers of MPE limits is based on an understanding and assumption that members of the general public are unlikely to have had appropriate RF safety training and may not be aware of the exposures they receive; occupational exposure in controlled environments, on the other hand, is assumed to involve individuals who have had such training, are aware of the exposures, and know how to maintain a safe personal work environment.

The FCC's RF exposure limits are expressed in two equivalent forms, using alternative units of field strength (expressed in volts per meter, or V/m), and power density (expressed in milliwatts per square centimeter, or mW/cm<sup>2</sup>). The table on the next page lists the FCC limits for both occupational and general population exposures, using the mW/cm<sup>2</sup> reference, for the different radio frequency ranges.

Frequency Range (F) (MHz)	Occupational Exposure (mW/cm <sup>2</sup> )	General Public Exposure (mW/cm <sup>2</sup> )
0.3 - 1.34	100	100
1.34 - 3.0	100	180 / F <sup>2</sup>
3.0 - 30	900 / F <sup>2</sup>	180 / F <sup>2</sup>
30 - 300	1.0	0.2
300 - 1,500	F / 300	F / 1500
1,500 - 100,000	5.0	1.0

The diagram below provides a graphical illustration of both the FCC's occupational and general population MPE limits.



Because the FCC's RF exposure limits are frequency-shaped, the exact MPE limits applicable to the instant situation depend on the frequency range used by the systems of interest.

The most appropriate method of determining RF compliance is to calculate the RF power density attributable to a particular system and compare that to the MPE limit applicable to the operating frequency in question. The result is usually expressed as a percentage of the MPE limit.

For potential exposure from multiple systems, the respective percentages of the MPE limits are added, and the total percentage compared to 100 (percent of the limit). If the result is less than 100, the total exposure is in compliance; if it is more than 100, exposure mitigation measures are necessary to achieve compliance.

Note that the FCC “categorically excludes” all “non-building-mounted” wireless antenna operations whose mounting heights are more than 10 meters (32.8 feet) from the routine requirement to demonstrate compliance with the MPE limit, because such operations “are deemed, individually and cumulatively, to have no significant effect on the human environment”. The categorical exclusion also applies to *all* point-to-point antenna operations, regardless of the type of structure they’re mounted on. Note that the FCC considers any facility qualifying for the categorical exclusion to be automatically in compliance.

In addition, FCC Rules and Regulations Section 1.1307(b)(3) describes a provision known in the industry as “the 5% rule”. It describes that when a specific location – like a spot on a rooftop – is subject to an overall exposure level exceeding the applicable MPE limit, operators with antennas whose MPE% contributions at the point of interest are less than 5% are exempted from the obligation otherwise shared by all operators to bring the site into compliance, and those antennas are automatically deemed by the FCC to satisfy the rooftop compliance requirement.

### ***FCC References on RF Compliance***

47 CFR, FCC Rules and Regulations, Part 1 (Practice and Procedure), Section 1.1310 (Radiofrequency radiation exposure limits).

FCC Second Memorandum Opinion and Order and Notice of Proposed Rulemaking (FCC 97-303), *In the Matter of Procedures for Reviewing Requests for Relief From State and Local Regulations Pursuant to Section 332(c)(7)(B)(v) of the Communications Act of 1934 (WT Docket 97-192), Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation (ET Docket 93-62), and Petition for Rulemaking of the Cellular Telecommunications Industry Association Concerning Amendment of the Commission's Rules to Preempt State and Local Regulation of Commercial Mobile Radio Service Transmitting Facilities*, released August 25, 1997.

FCC First Memorandum Opinion and Order, ET Docket 93-62, *In the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation*, released December 24, 1996.

FCC Report and Order, ET Docket 93-62, *In the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation*, released August 1, 1996.

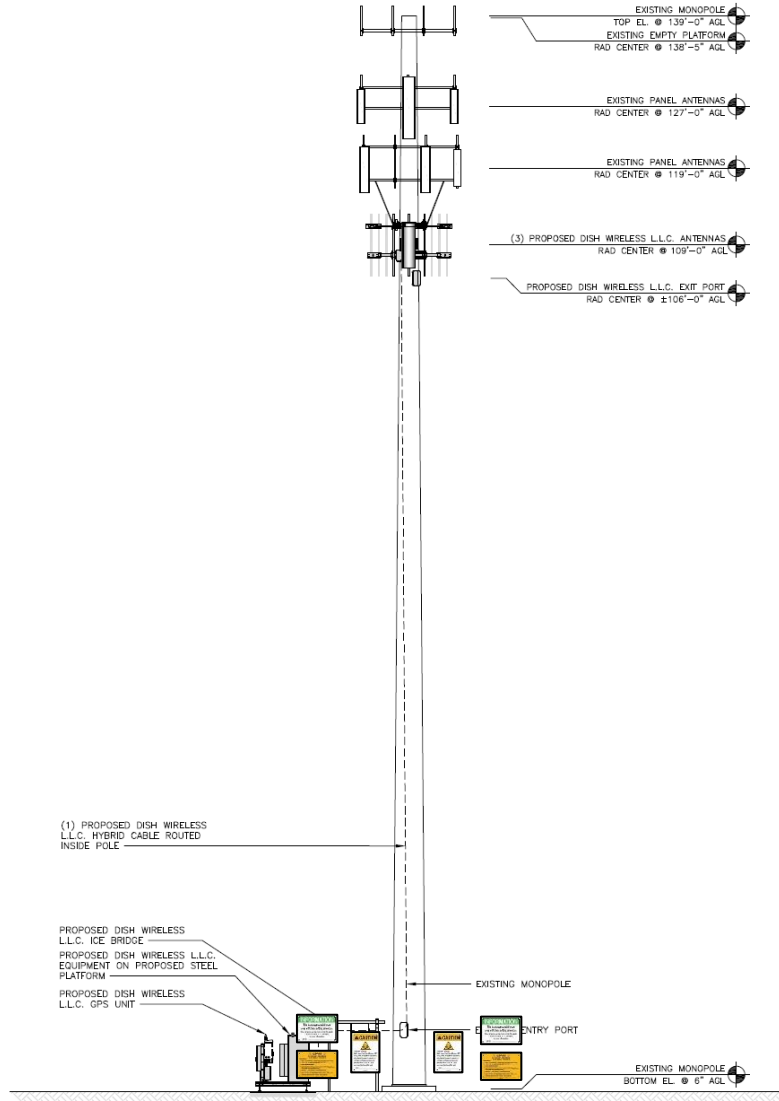
FCC Report and Order, Notice of Proposed Rulemaking, Memorandum Opinion and Order (FCC 19-126), *Proposed Changes in the Commission's Rules Regarding Human Exposure to Radiofrequency Electromagnetic Fields; Reassessment of Federal Communications Commission Radiofrequency Exposure Limits and Policies*, released December 4, 2019.

FCC Office of Engineering and Technology (OET) Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields", Edition 97-01, August 1997.

FCC Office of Engineering and Technology (OET) Bulletin 56, "Questions and Answers About Biological Effects and Potential Hazards of RF Radiation", edition 4, August 1999.

# Appendix C. Proposed Signage

Final Compliance Configuration	NOTICE		CAUTION		WARNING		INFORMATION	
	GUIDELINES	NOTICE	CAUTION	WARNING	NOC INFO	BARRIER/MARKER		
Access Point(s)	2	0	2	0	2	0	0	dimensions
Alpha	0	0	0	0	0	0	0	dimensions
Beta	0	0	0	0	0	0	0	dimensions
Gamma	0	0	0	0	0	0	0	dimensions



## Appendix D. SUMMARY of EXPERT QUALIFICATIONS

**Daniel J. Collins, Chief Technical Officer, Pinnacle Telecom Group, LLC**

<p><b>Synopsis:</b></p>	<ul style="list-style-type: none"> <li>• 40+ years of experience in all aspects of wireless system engineering, related regulation, and RF exposure</li> <li>• Has performed or led RF exposure compliance assessments on more than 20,000 antenna sites since the latest FCC regulations went into effect in 1997</li> <li>• Has provided testimony as an RF compliance expert more than 1,500 times since 1997</li> <li>• Have been accepted as an FCC compliance expert in New York, New Jersey, Connecticut, Pennsylvania and more than 40 other states, as well as by the FCC</li> </ul>
<p><b>Education:</b></p>	<ul style="list-style-type: none"> <li>• B.E.E., City College of New York (Sch. Of Eng.), 1971</li> <li>• M.B.A., 1982, Fairleigh Dickinson University, 1982</li> <li>• Bronx High School of Science, 1966</li> </ul>
<p><b>Current Responsibilities:</b></p>	<ul style="list-style-type: none"> <li>• Leads all PTG staff work involving RF safety and FCC compliance, microwave and satellite system engineering, and consulting on wireless technology and regulation</li> </ul>
<p><b>Prior Experience:</b></p>	<ul style="list-style-type: none"> <li>• Edwards &amp; Kelcey, VP – RF Engineering and Chief Information Technology Officer, 1996-99</li> <li>• Bellcore (a Bell Labs offshoot after AT&amp;T's 1984 divestiture), Executive Director – Regulation and Public Policy, 1983-96</li> <li>• AT&amp;T (Corp. HQ), Division Manager – RF Engineering, and Director – Radio Spectrum Management, 1977-83</li> <li>• AT&amp;T Long Lines, Group Supervisor – Microwave Radio System Design, 1972-77</li> </ul>
<p><b>Specific RF Safety / Compliance Experience:</b></p>	<ul style="list-style-type: none"> <li>• Involved in RF exposure matters since 1972</li> <li>• Have had lead corporate responsibility for RF safety and compliance at AT&amp;T, Bellcore, Edwards &amp; Kelcey, and PTG</li> <li>• While at AT&amp;T, helped develop the mathematical models for calculating RF exposure levels</li> <li>• Have been relied on for compliance by all major wireless carriers, as well as by the federal government, several state and local governments, equipment manufacturers, system integrators, and other consulting / engineering firms</li> </ul>
<p><b>Other Background:</b></p>	<ul style="list-style-type: none"> <li>• Author, <i>Microwave System Engineering</i> (AT&amp;T, 1974)</li> <li>• Co-author and executive editor, <i>A Guide to New Technologies and Services</i> (Bellcore, 1993)</li> <li>• National Spectrum Management Association (NSMA) – former three-term President and Chairman of the Board of Directors; was founding member, twice-elected Vice President, long-time member of the Board, and was named an NSMA Fellow in 1991</li> <li>• Have published more than 35 articles in industry magazines</li> </ul>

# 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

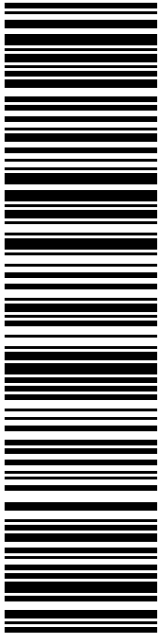
# Exhibit H

## Recipient Mailings



SBA COMMUNICATIONS CORPORATION  
STE 125  
13 FLANDERS RD  
WESTBOROUGH MA 01581

**USPS TRACKING #**



**9405 5036 9930 0300 6356 28**

**P**

USPS.com 9405 5036 9930 0300 6356 28 0089 5000 0010 1581  
**US POSTAGE**  
 Flat Rate Env  
**U.S. POSTAGE PAID**  
 Click-N-Ship®

07/20/2022 Mailed from 01566


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

**PRIORITY MAIL®**

Expected Delivery Date: 07/21/22  
Ref#: SBDS-01079  
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**R005**

Electronic Rate Approved #038555749





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## Instructions

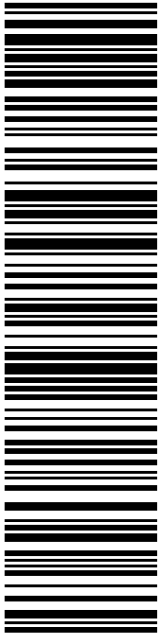
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- Place your label so it does not wrap around the edge of the package.
- Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.
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Ship Date: 07/20/2022	
Expected Delivery Date: 07/21/2022	
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STE 1	
420 MAIN ST	
STURBRIDGE MA 01566-1359	
<b>To:</b> SBA COMMUNICATIONS CORPORATION	
STE 125	
13 FLANDERS RD	
WESTBOROUGH MA 01581	
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**US POSTAGE**  
Flat Rate Env  
07/20/2022 Mailed from 01566

**PRIORITY MAIL®**

Expected Delivery Date: 07/22/22  
Ref#: SBDS-01079  
**0000**


**R006**



DANIEL C ROSENTHAL  
FIRST SELECTMAN  
3 PRIMROSE ST  
NEWTOWN CT 06470-5307

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

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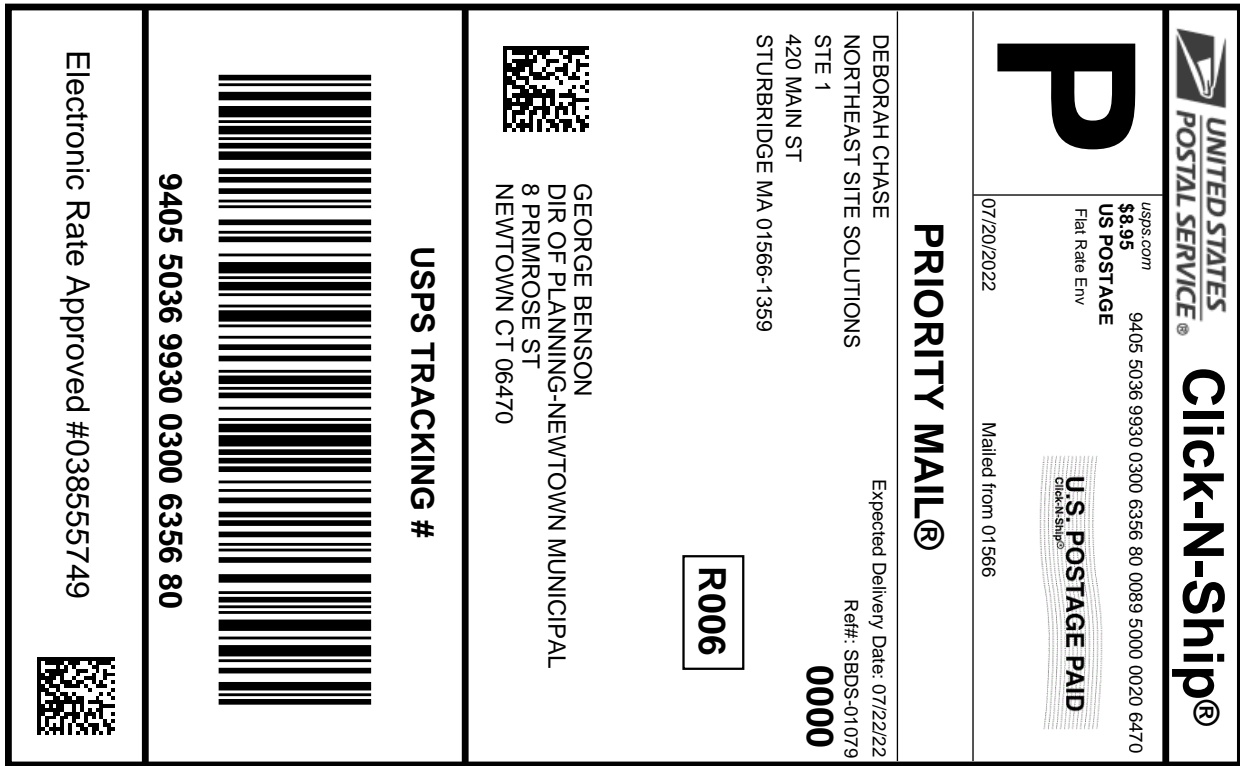
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NORTHEAST SITE SOLUTIONS  
STE 1  
420 MAIN ST  
STURBRIDGE MA 01566-1359

**To:** DANIEL C ROSENTHAL  
FIRST SELECTMAN  
3 PRIMROSE ST  
NEWTOWN CT 06470-5307

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**From:** DEBORAH CHASE Ref#: SBDS-01079  
 NORTHEAST SITE SOLUTIONS  
 STE 1  
 420 MAIN ST  
 STURBRIDGE MA 01566-1359


**To:** GEORGE BENSON  
 DIR OF PLANNING-NEWTOWN MUNICIPAL BLDG  
 8 PRIMROSE ST  
 NEWTOWN CT 06470

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NEWTOWN CT 06470-1135

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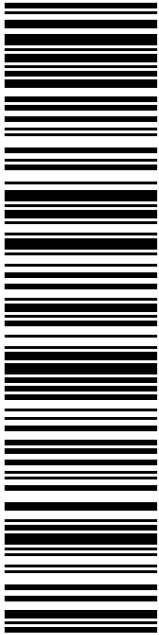
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**R005**

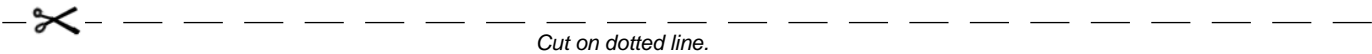
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Expected Delivery Date: 07/22/2022	

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

Ref#: SBDS-01079

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NEWTOWN CT 06470-1135

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NJTER 1679 - SBA DISH



LINCOLN MALL  
560 LINCOLN ST STE 8  
WORCESTER, MA 01605-1925  
(800)275-8777

07/21/2022

09:25 AM

Product	Qty	Unit Price	Price
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Westborough, MA 01581			
Weight: 0 lb 2.00 oz			
Acceptance Date:			
Thu 07/21/2022			
Tracking #:			
9405 5036 9930 0300 6356 28			
Prepaid Mail	1		\$0.00
Newtown, CT 06470			
Weight: 1 lb 2.10 oz			
Acceptance Date:			
Thu 07/21/2022			
Tracking #:			
9405 5036 9930 0300 6356 59			
Prepaid Mail	1		\$0.00
Newtown, CT 06470			
Weight: 1 lb 2.20 oz			
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Newtown, CT 06470			
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