Filed by:
G. Scott Shepherd, Sr. Property Specialist - SBA Communications
134 Flanders Rd., Suite 125, Westborough, MA 01581
508.251.0720 x 3807 - GShepherd@sbasite.com

March 8, 2022

Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Tower Share Application
67 Fairchild Rd., Middletown, CT
Latitude: 41.5450
Longitude: -72.6208
Site# Dish BOBDL00217A

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 67 Fairchild Rd., Middletown, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900/2100 MHz antennas and six (6) RRUs, at the 120-foot level of the existing 130-foot monopole tower, one (1) Fiber cables will also be installed. Dish Wireless LLC equipment cabinets will be placed within 7'x 5' lease area. Included are plans by B+T Group, dated March 7, 2022 Exhibit 10. Also included is a structural analysis prepared by TES, dated February 11, 2022, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit 8. This facility was approved by the Connecticut Siting Council under Docket No. 316 Nov. 14, 2006 and City of Middletown January 23, 2007. Please see attached Exhibit 6.

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 City of Middletown's Mayor , Benjamin Florsheim and Building Official, Dean Lisitano, as well as to the property owner. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the tower is 150-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 120-feet.

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

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

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total power density of 26.90% as evidenced by Exhibit 7.

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

A. Technical Feasibility. The existing monopole has been deemed structurally capable of supporting Dish Wireless LLC proposed loading. The structural analysis is included as Exhibit 8.

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 support tower in Middletown. 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 2, 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 120-foot level of the existing 130-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 7, 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 guyed 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 Westbrook.

Sincerely,

Scott Shepherd
Site Development Specialist II
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581
508.251.0720 x3807 + T
508.366.2610 + F
508.868.6000 + C
GShepherd@sbasite.com

Attachments:

cc: Benjamin Florsheim, Mayor / with attachments
City of Middletown, 245 Dekoven Dr., Middletown, CT 06457
Dean Lisitano, Building Official / with attachments
City of Middletown, 245 Dekoven Dr., Middletown, CT 06457
Stephen G. & Barbara L. Borrelli / with attachments
67 Fairchild Rd., Middletown, CT 06457

EXHIBIT LIST

Exhibit 1	Copy of Check	X
Exhibit 2	Letter of Intent to Allow Shared Use of the Existing SBA Telecommunications Site	X
Exhibit 3	Notification Receipts	x
Exhibit 4	Property Card	x
Exhibit 5	Property Map	x
Exhibit 6	Original Zoning Approval	CSC Docket No. 316 (11/14/06), City of Middletown (1/23/07)
Exhibit 7	EME Report	EBI Consulting 2/1/22
Exhibit 8	Post-Mod Structural Analysis	TES 2/11/22
Exhibit 9	Mod Drawings	TES 2/14/22
Exhibit 10	Mount Analysis	B+T Group 12/19/21
Exhibit 11	Constructions Drawings	B+T Group 3/7/22

EXHIBIT 1

Copy of check

EXHIBIT 2
Letter of Intent

March 8, 2022

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

RE: **Notice of Intent to Allow Shared Use of the Existing SBA Telecommunications Site**
Location: 67 Fairchild Rd., Middletown, CT
Dish Wireless Site No: BOBDL00217A
SBA Site No: CT13064-A

Dear Ms. Bachman:

Please let the following serve as Evidence of Intent to allow Dish's shared use of the existing SBA telecommunications site at 67 Fairchild Rd., Middletown, CT.

SBA Infrastructure, LLC ("Owner") and Dish Wireless ("Tenant") are entering into a Site Lease Agreement. Tenant will be provided ground space within the existing site compound for its base station equipment and space at the height of 120' for antennas and associated equipment.

Thank you,

Rick Woods
Site Development Manager
SBA COMMUNICATIONS CORPORATION
134 Flanders Road, Suite 125
Westboro, MA 01581

508.251.0720 x3800 + T
508.366.2610 + F
508.614.0389 + C
rwoods@sbasite.com

EXHIBIT 3

Fedex Labels

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

FedEx

FedEx® Tracking Track Another Shipment Help

776237473209

ADD NICKNAME

ON TIME

Scheduled delivery:
Wednesday, March 9, 2022 before 10:30 am

PICKED UP
WESTBOROUGH, MA

GET STATUS UPDATES

FROM
SBA COMMUNICATIONS CORPORATION
Sherri Knapik
134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
Melanie A. Bachman Exec. Dir
Connecticut Siting Council
Ten Franklin Square
NEW BRITAIN, CT US 06051
508-251-0720

MANAGE DELIVERY

Travel History | Shipment Facts

Travel History

TIME ZONE
Local Scan Time

Tuesday, March 8, 2022		
3:10 PM	WESTBOROUGH, MA	Picked up Tendered at FedEx Office
11:32 AM		Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER 776237473209	**SERVICE** FedEx Priority Overnight	**WEIGHT** 2 lbs / 0.91 kgs
TOTAL PIECES 1	**TOTAL SHIPMENT WEIGHT** 2 lbs / 0.91 kgs	**TERMS** Shipper
SHIPPER REFERENCE 10-56-92009-6089	**PACKAGING** FedEx Pak	**SPECIAL HANDLING SECTION** Deliver Weekday
ACTUAL PICK UP 3/8/22	**SHIPMENT-FACTS.COD-DETAIL** $0.00	**STANDARD TRANSIT** 3/9/22 before 10:30 am

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

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776237507770

ADD NICKNAME

ON TIME

Scheduled delivery:
Wednesday, March 9, 2022 before 10:30 am

PICKED UP
WESTBOROUGH, MA

GET STATUS UPDATES

FROM
SBA COMMUNICATIONS CORPORATION
Sherri Knapik
134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
Benjamin Florsheim
City of Middletown
Mayor
245 Dekoven Dr
MIDDLETOWN, CT US 06457
508-251-0720

MANAGE DELIVERY

Travel History | Shipment Facts

Travel History

TIME ZONE
Local Scan Time

Tuesday, March 8, 2022		
3:10 PM	WESTBOROUGH, MA	Picked up Tendered at FedEx Office
11:34 AM		Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER 776237507770	**SERVICE** FedEx Priority Overnight	**WEIGHT** 0.5 lbs / 0.23 kgs
TOTAL PIECES 1	**TOTAL SHIPMENT WEIGHT** 0.5 lbs / 0.23 kgs	**TERMS** Shipper
SHIPPER REFERENCE 10-56-92009-6089	**PACKAGING** FedEx Envelope	**SPECIAL HANDLING SECTION** Deliver Weekday
ACTUAL PICK UP 3/8/22	**SHIPMENT-FACTS.COD-DETAIL** $0.00	**STANDARD TRANSIT** 3/9/22 before 10:30 am

After printing this label:
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776237523251

ADD NICKNAME

ON TIME

Scheduled delivery:
Wednesday, March 9, 2022 before 10:30 am

PICKED UP
WESTBOROUGH, MA

GET STATUS UPDATES

FROM
SBA COMMUNICATIONS CORPORATION
Sherri Knapik
134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
Dean Lisitano
City of Middletown
Building Official
245 Dekoven Dr
MIDDLETOWN, CT US 06457
508-251-0720

MANAGE DELIVERY

Travel History | Shipment Facts

Travel History

TIME ZONE
Local Scan Time

Tuesday, March 8, 2022		
3:10 PM	WESTBOROUGH, MA	Picked up Tendered at FedEx Office
11:35 AM		Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER 776237523251	**SERVICE** FedEx Priority Overnight	**WEIGHT** 0.5 lbs / 0.23 kgs
TOTAL PIECES 1	**TOTAL SHIPMENT WEIGHT** 0.5 lbs / 0.23 kgs	**TERMS** Shipper
SHIPPER REFERENCE 10-56-92009-6089	**PACKAGING** FedEx Envelope	**SPECIAL HANDLING SECTION** Deliver Weekday
ACTUAL PICK UP 3/8/22	**SHIPMENT-FACTS.COD-DETAIL** $0.00	**STANDARD TRANSIT** 3/9/22 before 10:30 am

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FedEx® Tracking Track Another Shipment Help

776237556210

ADD NICKNAME

ON TIME

Scheduled delivery:
Wednesday, March 9, 2022 before 12:00 pm

PICKED UP
WESTBOROUGH, MA

GET STATUS UPDATES

FROM
SBA COMMUNICATIONS CORPORATION
Sherri Knapik
134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
Stephen G & Barbara Borrelli
67 Fairchild Rd
MIDDLETOWN, CT US 06457
508-251-0720

MANAGE DELIVERY

Travel History | Shipment Facts

Travel History

TIME ZONE
Local Scan Time

Tuesday, March 8, 2022		
3:10 PM	WESTBOROUGH, MA	Picked up Tendered at FedEx Office
11:37 AM		Shipment information sent to FedEx

Shipment Facts

TRACKING NUMBER 776237556210	**SERVICE** FedEx Priority Overnight	**WEIGHT** 0.5 lbs / 0.23 kgs
TOTAL PIECES 1	**TOTAL SHIPMENT WEIGHT** 0.5 lbs / 0.23 kgs	**TERMS** Shipper
SHIPPER REFERENCE 10-56-92009-6089	**PACKAGING** FedEx Envelope	**SPECIAL HANDLING SECTION** Deliver Weekday
ACTUAL PICK UP 3/8/22	**SHIPMENT-FACTS.COD-DETAIL** $0.00	**STANDARD TRANSIT** 3/9/22 before 12:00 pm

EXHIBIT 4

Property Card

67 FAIRCHILD RD

Location	67 FAIRCHILD RD	**Map-Lot**	42/ / 0118/ /
Acct#	R15245	**Owner**	BORRELLI STEPHEN G & BARBARA L
Municipality		**Assessment**	$495,450
Appraisal	$707,780	**PID**	15236
Building Count	2	**Assessing District**	

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$394,130	$313,650	$707,780
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$275,890	$219,560	$495,450

Parcel Addreses

Additional Addresses
No Additional Addresses available for this parcel

Owner of Record

Owner	BORRELLI STEPHEN G & BARBARA L	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	67 FAIRCHILD RD MIDDLETOWN, CT 06457	**Book & Page**	1091/0136
		Sale Date	02/28/1996
		Instrument	29

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
BORRELLI STEPHEN G & BARBARA L	$0		1091/0136	29	02/28/1996

Building Information

Building 1 : Section 1

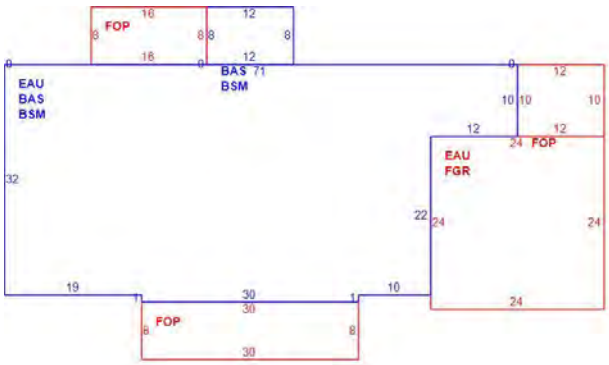
Year Built: 2012
Living Area: 2,134
Replacement Cost: $292,538
Building Percent Good: 95
Replacement Cost Less Depreciation: $277,910

Building Attributes	
Field	**Description**
Style	Cape Cod
Model	Residential
Grade	B-
Stories	1.25
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Asphalt Shingl
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Hardwood
Interior Floor 2	
Heat Fuel	Propane
Heat Type	Forced Air
Ac Type	
Bedrooms	3
Full Baths	2
Half Baths	0
Extra Fixtures	2
Total Rooms	5
Bath Remodel	Not Updated
Kitchen Remodel	Not Updated
Extra Kitchens	
Fireplaces	0
Extra Openings	
Gas Fireplace	1
Int vs Ext	Same
A/C Type	Central
A/C %	100
Fireplaces 1	2137
Fin Bsmt Area	

Building Photo

(http://images.vgsi.com/photos/MiddletownCTPhotos//\00\02\11\39.jpg)

Building Layout



(ParcelSketch.ashx?pid=15236&bid=15236)

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	2,134	2,134
BSM	Basement	2,134	0
EAU	Expansion Attic Unfinished	2,614	0
FGR	Garage	576	0
FOP	Framed Open Porch	488	0
		7,946	2,134

FBM grade	
Bsmt Garage	
Fndtn Cndtn	
In Law	

Building 2 : Section 1

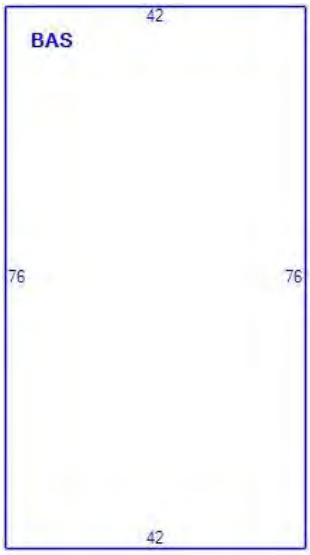
Year Built: 2000
Living Area: 3,192
Replacement Cost: $67,875
Building Percent Good: 86
Replacement Cost Less Depreciation: $58,370

Building Attributes : Bldg 2 of 2	
Field	**Description**
Style	Equip Garage
Model	Commercial
Grade	D
Stories	1
Occupancy	1.00
Exterior Wall 1	Pre-finsh Metl
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Metal/Tin
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Concrete
Interior Floor 2	
Heating Fuel	None
Heating Type	None
AC Type	None
Struct Class	
Bldg Use	Res / Comm MDL 94
Cov Parking	
Uncov Parking	
Percent Fin	
1st Floor Use	
Heat/AC	None
Frame Type	Steel
Baths/Plumbing	Average
Ceiling/Walls	None
Rooms/Prtns	None
Wall Height	14.00

Building Photo

(http://images.vgsi.com/photos/MiddletownCTPhotos//\00\03\06\29.jpg)

Building Layout



(ParcelSketch.ashx?pid=15236&bid=20634)

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	3,192	3,192

		3,192	3,192

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	101
Description	Single Family
Zone	R-30
Neighborhood	13
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	18.89
Assessed Value	$219,560
Appraised Value	$313,650

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
CSHD	Cell Shed			240.00 UNITS	$15,000	2
CSHD	Cell Shed			240.00 UNITS	$15,000	2
SHD1	Shed	MS	Masonry	143.00 UNITS	$1,430	1
CSHD	Cell Shed			360.00 UNITS	$22,500	2
FN4	Fence-8' Chain			280.00 UNITS	$3,920	2

Valuation History

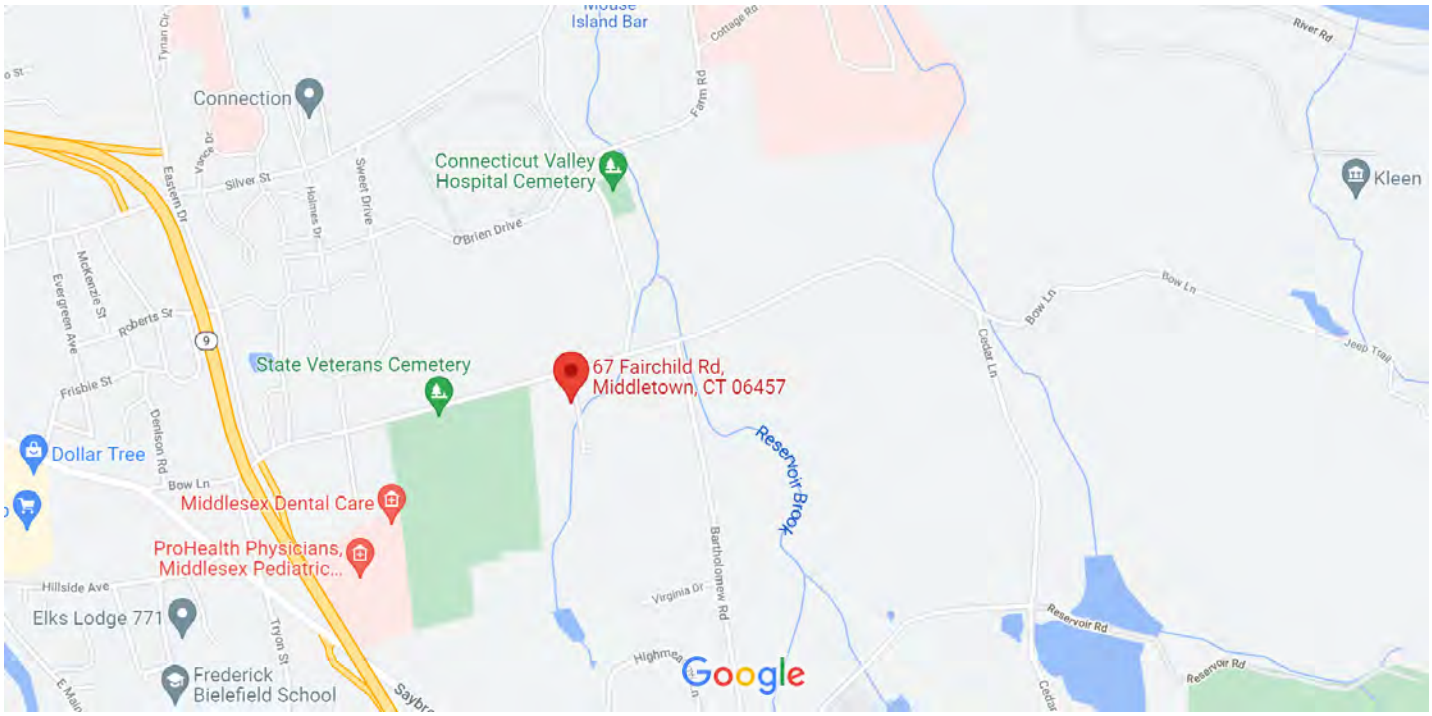
Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$394,130	$313,650	$707,780
2019	$394,130	$313,650	$707,780
2018	$394,130	$313,650	$707,780

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$275,890	$219,560	$495,450
2019	$275,890	$219,560	$495,450
2018	$275,890	$219,560	$495,450

EXHIBIT 5

Property Map

Google Maps 67 Fairchild Rd



Map data ©2021 1000 ft

EXHIBIT 6

Zoning Approval

SITE NAME: MIDDLETOWN SITE ID: CT13064-A

Transaction: Optasite

ZONING/PERMITTING COMPLETION FORM

Address: 50 Fairchild Rd., Middletown, CT 6457

Jurisdiction: Middletown and Town Council Zoning District: Residential

Zoning Approval Type: Cert. of Env. Compatibility & Public Need Case #: 316

Approval Date: 11/14/2006 Approved Height: 120' Tower Build Date:

If tower is destroyed or drop/swap required, tower can likely be rebuilt? ☐ YES ☐ NO

Conditions of Approval:	Yes	No	N/A
Removal Bond	☐	☑	☐
Site Plan Submittal	☐	☑	☐
Fall Zone	☐	☑	☐
Periodic Inspections	☐	☑	☐
Periodic Reporting	☐	☑	☐
Approval Renewal	☐	☑	☐
Additional Conditions	☐	☑	☐

JURISDICTION POC/DEPT.

Planning/Zoning: Bruce Druska

Phone: 860-344-3425 Fax:

Bldg./Code Enforcement:

Phone: Fax:

Submitted by: Date:
Zoning Compliance

TO BE COMPLETED BY CORPORATE

	Yes	No	N/A	
Zoning Approval Attached (required)	☑	☐	☐	
Ordinance Attached (required)	☐	☑	☐	
Building Permit Attached (required) 1114	☑	☐	☐	Date Recd 1/23/2007
Certificate of Occupancy or Compliance (CO) attached (required)	☑	☐	☐	2/22/08

Zoning Manager Approval: D E Borchardt Date 8/4/2008
Diane E. Borchardt, AICP

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Internet: ct.gov/csc

Daniel F. Caruso
Chairman

November 15, 2006

Lucia Chiocchio, Esq.
Cuddy & Feder, LLP
445 Hamilton Avenue, 14th Floor
White Plains, NY 10601

RE: **DOCKET NO. 316** - Optasite, Inc. application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility at 50 Fairchild Road in Middletown, Connecticut.

Dear Attorney Chiocchio:

By its Decision and Order dated November 14, 2006, the Connecticut Siting Council (Council) granted a Certificate of Environmental Compatibility and Public Need (Certificate) to Optasite, Inc. for the construction, maintenance and operation of a telecommunications facility at 50 Fairchild Road in Middletown, Connecticut.

Enclosed are the Council's Certificate, Findings of Fact, Opinion, and Decision and Order.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/DM/laf

Enclosures (4)

c: Jennifer Young Gaudet

Daniel F. Caruso
Chairman

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Internet: ct.gov/csc

CERTIFICATE

OF

ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED

DOCKET NO. 316

Pursuant to General Statutes § 16-50k, as amended, the Connecticut Siting Council hereby issues a Certificate of Environmental Compatibility and Public Need to Optasite, Inc. for the construction, maintenance and operation of a telecommunications facility at 50 Fairchild Road in Middletown, Connecticut. This Certificate is issued in accordance with and subject to the terms and conditions set forth in the Decision and Order of the Council on November 14, 2006.

By order of the Council,

Daniel F. Caruso, Chairman

November 14, 2006

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Internet: ct.gov/csc

Daniel F. Caruso
Chairman

May 7, 2008

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

RE: **EM-VER-083-080404** – Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 50 Fairchild Road, Middletown, Connecticut.

Dear Attorney Baldwin:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated April 4, 2008, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/MP

c: Honorable Sebastian N. Giuliano, Mayor, City of Middletown
William Warner, AICP Director, City of Middletown
Optasite Towers LLC

Building Permit
Middletown Building Department
Phone: (860) 344-3416 Fax: (860) 344-3590

Permit Number
1114
City Project? ☐

Building Permit	Electric Permit	Plumbing Permit	HVAC Permit	Demolition Permit	Application Date
☑	☐	☐	☐	☐	01/11/2007

Location of Proposed Work	Date of Approval	Building Official Approval
50 Fairchild Road	01/23/2007	John Parker

Permit Description

Installation of 120' telecommunication tower with foundaton. Including Sprint/Nextel's antennas, equipment cabinets, shelter & associated hardware.
Ck #2166

Permit Expiration	Contractor's License Number	Number of Dwelling Units	Sanitation Taxes OK?
	900617	0	☐

Water Taxes OK?	Motor Vehicle Taxes OK?	Personal Property Taxes OK?	Real Estate Taxes OK?
☐	☐	☐	☐

Other Taxes OK?	Sewer Taxes OK?		Estimated Costs
☐	☐		$125,000.00

Chargeable Amount	Permit Fee	Total Fee	State Fee	City Fee	Payment Date
$125.00	$1,771.00	$20.00	$19.40	$0.60	01/11/2007

Applicant Name	Applicant's Address	Applicant's City	State	Zip
Optasite/Charles S. Regulbuto	One Research Drive, Suite 200 C	Westborough	MA	01581-

Applicant's Phone	Applicant's Fax	Applicant's Email
(860) 394-7021	(508) 471-1399	cregulbuto@optasite.com

Owner Name	Owner's Address	City	State	Zip
Stephen & Barbara Borrelli	58 Edgewood Drive	Middletown	CT	06457-

Department Approval Signatures:

Health Department: _____ **Water & Sewer:** _____

Fire Marshal: _____ **Chief Building Official:** _____

Planning & Zoning: _____

City of Middletown

PUBLIC WORKS DEPARTMENT/BUILDING DIVISION
245 DeKoven Drive, P.O. Box 1300, Middletown, CT 06457-1300
TEL: (860) 344-3416 FAX: (860) 344-3590
TDD: (860) 344-3521

February 22, 2008

Optasite
Attn: Charles S. Regulbuto
One Research Drive, Suite 200C
Westborough, MA 01581

Re: Certificate of Approval
Building Permit #1114
50 Fairchild Road

Dear Mr. Regulbuto:

Please be advised that the Middletown Building Department has inspected the above referenced property for the new cell tower and it has been determined that it meets all the requirements of the Connecticut Building Code.

If you have any questions, please feel free to contact this office.

Sincerely,

John C. Parker, Jr.
Chief Building Official

Dean Lisitano
Assistant Building Official

JCP/ajh

EXHIBIT 7

EME Report

EBI Consulting

environmental | engineering | due diligence

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

Dish Wireless Existing Facility

Site ID: BOBDL00217A

67 Fairchild Road
Middletown, Connecticut 06457

February 1, 2022

EBI Project Number: 6222000574

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**26.90%**

21 B Street, Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

February 1, 2022

Dish Wireless

Emissions Analysis for Site: BOBDL00217A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **67 Fairchild Road** in **Middletown, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at 67 Fairchild Road in Middletown, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 4 n71 channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 4 n70 channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

3) 4 n66 channels (AWS Band - 2190 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

5) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative

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

6) The antennas used in this modeling are the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antenna mounting height centerline of the proposed antennas is 120 feet above ground level (AGL).

8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21
Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz
Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd
Height (AGL):	120 feet	Height (AGL):	120 feet	Height (AGL):	120 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	5,236.31	ERP (W):	5,236.31	ERP (W):	5,236.31
Antenna A1 MPE %:	**1.82%**	Antenna B1 MPE %:	**1.82%**	Antenna C1 MPE %:	**1.82%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	1.82%
Sprint	8.96%
AT&T	7.07%
Clearwire	0.26%
T-Mobile	4.55%
Verizon	4.24%
Site Total MPE % :	26.90%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	1.82%
Dish Wireless Sector B Total:	1.82%
Dish Wireless Sector C Total:	1.82%
Site Total MPE % :	26.90%

Dish Wireless Maximum MPE Power Values (Sector A)

Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	120.0	2.48	600 MHz n71	400	0.62%
Dish Wireless 1900 MHz n70	4	542.70	120.0	6.01	1900 MHz n70	1000	0.60%
Dish Wireless 2190 MHz n66	4	542.70	120.0	6.01	2190 MHz n66	1000	0.60%
						Total:	**1.82%**

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

Summary

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

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

Dish Wireless Sector	Power Density Value (%)
Sector A:	1.82%
Sector B:	1.82%
Sector C:	1.82%
Dish Wireless Maximum MPE % (Sector A):	1.82%
Site Total:	26.90%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **26.90%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

EXHIBIT 8

Structural Analysis

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

Post-Mod Structural Analysis Report

Existing 130 ft Rohn Monopole
Customer Name: SBA Communications Corp
Customer Site Number: CT13064-A
Customer Site Name: Middletown 2, CT
Carrier Name: Dish Wireless (App#: 182004-1)
Carrier Site ID / Name: BOBDL00217A / 0
Site Location: 67 Fairchild Road
Middletown, Connecticut
Middlesex County
Latitude: 41.545011
Longitude: -72.620766

Analysis Result:

Max Structural Usage: 98.5% [Pass]

Max Foundation Usage: 94.4% [Pass]

Report Prepared By : Changzhi Zang

2/11/22

Introduction

The purpose of this report is to summarize the analysis results on the 130 ft Rohn Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any existing modification listed under Sources of Information was assumed completed and was included in this analysis.

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

Sources of Information

Tower Drawings	Rohn Parent File # 57886EH, Eng. File # 060-3494, Dwg. # A060995, dated 12/15/2006
Foundation Drawing	Rohn Parent File # 57886EH, Eng. File # 060-3494, Dwg. # A060998, dated 12/15/2006
Geotechnical Report	Gemini Geotechnical Associates Project # 06161CT, dated 11/30/2006
Mount Analysis	AT&T MA by Hudson Design Group, dated 01/27/2020
Existing Modification	FDH Project # 11-01248E S1, dated 09/21/2001; FDH Project # 12-08192E S2, dated 11/14/2012; FDH Project # 15BVXK1400, dated 08/06/2015; TES Job # 13064, dated 11/05/2015; TES Job # 56931, dated 08/24/2018
Proposed Modification	TES Job # 121134

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.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 130.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 101.0 mph (3-Sec. Gust)
Basic Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	SS = 0.179, S1 = 0.062

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

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft.)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	129.0	3	Cci - OPA-65R-LCUU-H6 - Panel	Platform w/ Hand Rail (Commscope MTC3607R) + Platform Reinforcement Kit (SitePro1 PRK-FMA), (6) P2.5" X-STR Pipe Masts, and (6) Channel Reinforcement Angles L2x2x1/4	(2) 1/2" Fiber* (8) 3/4" DC* (1) 1/2"	AT&T
2		3	Quintel - QS66512-2 - Panel			
3		6	Cci - DMP65R-BU6DA - Panel			
4		6	Ericsson - RRUS 32 - RRU			
5		3	Ericsson - RRUS 4478 B14 - RRU			
6		3	Ericsson - RRUS 8843 B2 B66A - RRU			
7		3	Ericsson - 4449 B5/B12 - RRU			
8		3	Ericsson - RRUS E2 B29 - RRU			
9		2	Raycap - DC6-48-60-18-8F - OVP			
10		2	Raycap - DC6-48-60-0-8C-EV - OVP			
15	111.0	3	Andrew - CBC721-DF - Panel	(3) T-Arms	(12) 1 5/8" (2) 1 5/8" Hybrid	Verizon
16	110.0	6	Andrew - SBNHH-1D65B - Panel			
17		3	Alcatel - RRH2X60-1900A-4R			
18		3	Alcatel - B13 RRH4X30-4R			
19		3	Alcatel - B4 RRH2X60-4R			
20		2	RFS - DB-T1-6Z-8AB-0Z			
22	109.0	3	Andrew - CBC721-DF - Panel			
23	100.0	3	Ericsson - AIR 21 B2A/B4P - Panel	(3) T-Arms (Site Pro P/N RMV12-3xx)	(6) 1 5/8" (1) 1 5/8" Hybrid	T-Mobile
24		3	Ericsson - AIR 21 B4A/B2P - Panel			
25		3	Commscope - LNX-6515DS-A1M - Panel			
26		3	Kathrein - 782 11056 - TMA			
27	90.0	3	Nokia - AAHC - MIMO - Panel	Platform w/ Handrails (Site Pro F3P-10W w/HRK10)	(3) 1-1/4" Fiber (1) 1.689" Fiber (2) 1/2" Fiber	Sprint Nextel
28		3	Commscope - NNVV-65B-R4 - Panel			
29		3	ALU - 1900 Mhz - RRU			
30		6	ALU - 800 Mhz - RRU			
31		2	Andrew - VHLP2-11 - Dish			

*Inside (5) 2" Conduits

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
11	120.0	3	JMA Wireless MX08FRO665-21 - Panel	Platform w/ Handrails Commscope MC-PK8-DSH	(1) 1.6" Hybrid	Dish Wireless
12		3	Fujitsu TA08025-B605 - RRU			
13		3	Fujitsu TA08025-B604 - RRU			
14		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	Reinforcing Plate	Flange Connections
Max. Usage:	**98.5%**	**71.2%**	**52.9%**	**98.5%**	**69.1%**
Pass/Fail	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	3625.4	35.8	37.5

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):

The maximum twist and sway of the microwave dishes under the operational wind speed as specified in the Analysis Criteria are listed in the table below:

Elevation (ft)	Antenna / Dish	Carrier	Twist (deg)	Sway (deg)
120.0	Varies	Dish Wireless	0.000	1.689
90.0	Andrew - VHLP2-11 - Dish	Sprint Nextel	0.000	1.277

It is recommended that the carriers review the twist and sway values of the microwave dishes.

Conclusions

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

- Proposed modification design drawing by **TES** Job # 121134

Pre-Mod Installation Determination

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

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

Standard Conditions

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

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

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

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

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

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

Usage Diagram - Max Ratio 98.52% at 91.3ft

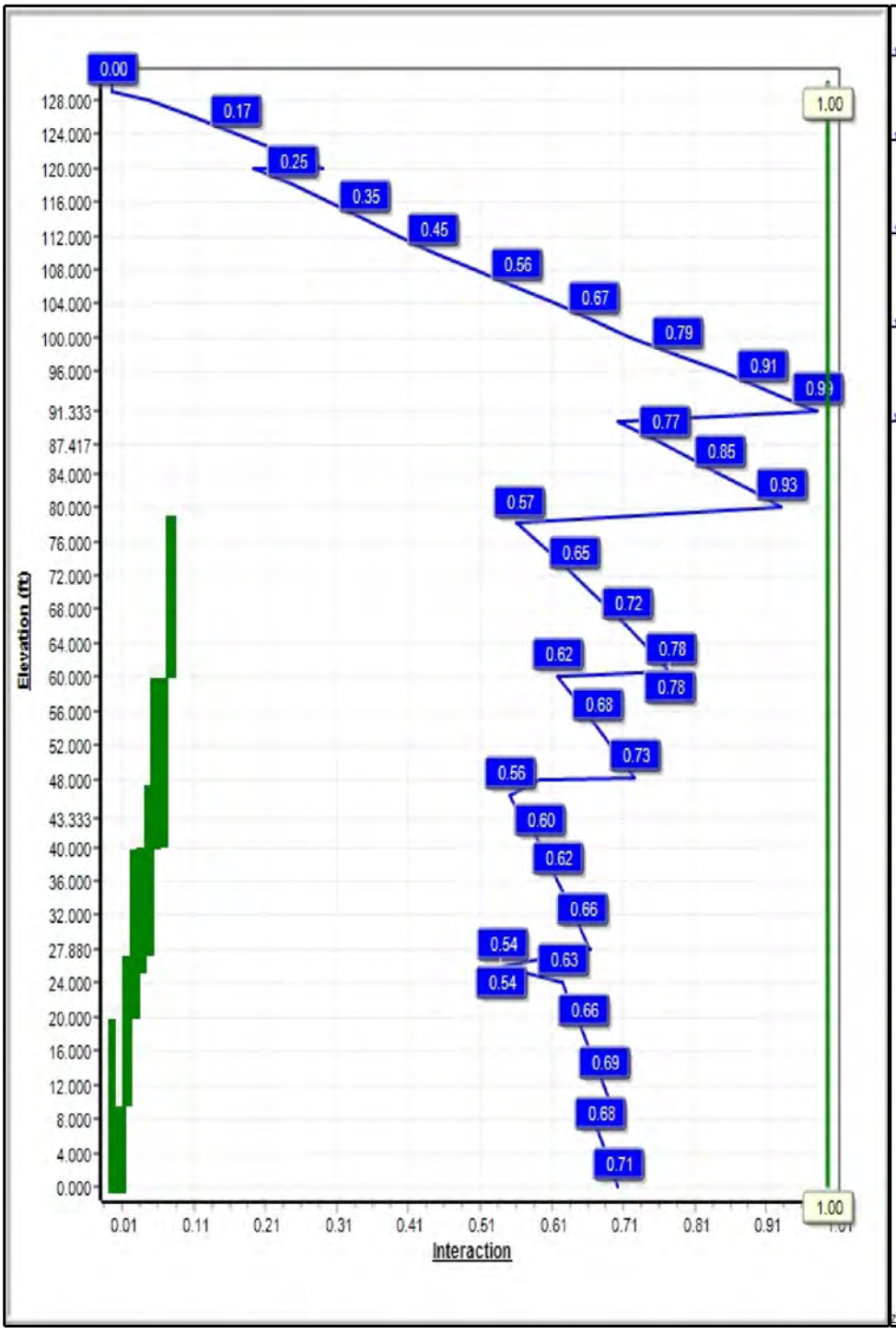
Structure:	CT13064-A-SBA	**Code:**	EIA/TIA-222-G	2/11/2022
Site Name:	Middletown 2, CT	**Exposure:**	C	
Height:	130.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

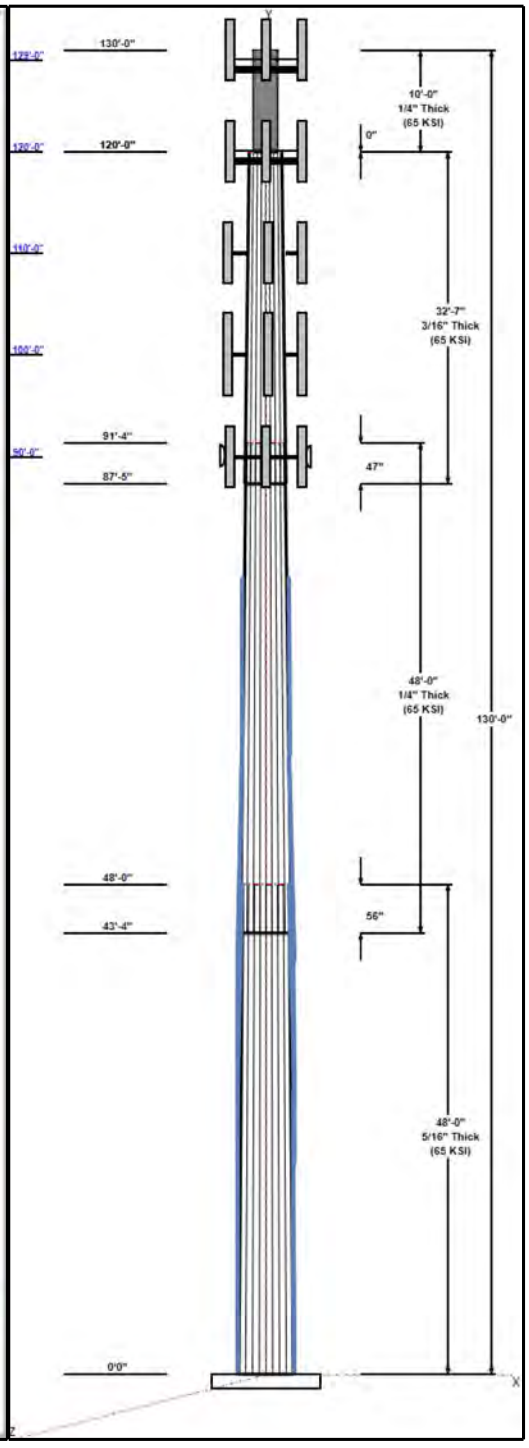
Tower Engineering Solutions

Dead Load Factor:	1.20
Wind Load Factor:	1.60

Load Case : 1.2D + 1.6W 101 mph Wind

Iterations: 26





Structure: CT13064-A-SBA

Type: Custom
Site Name: Middletown 2, CT
Height: 130.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.15529

2/11/2022

Tower Engineering Solutions

Shaft Properties

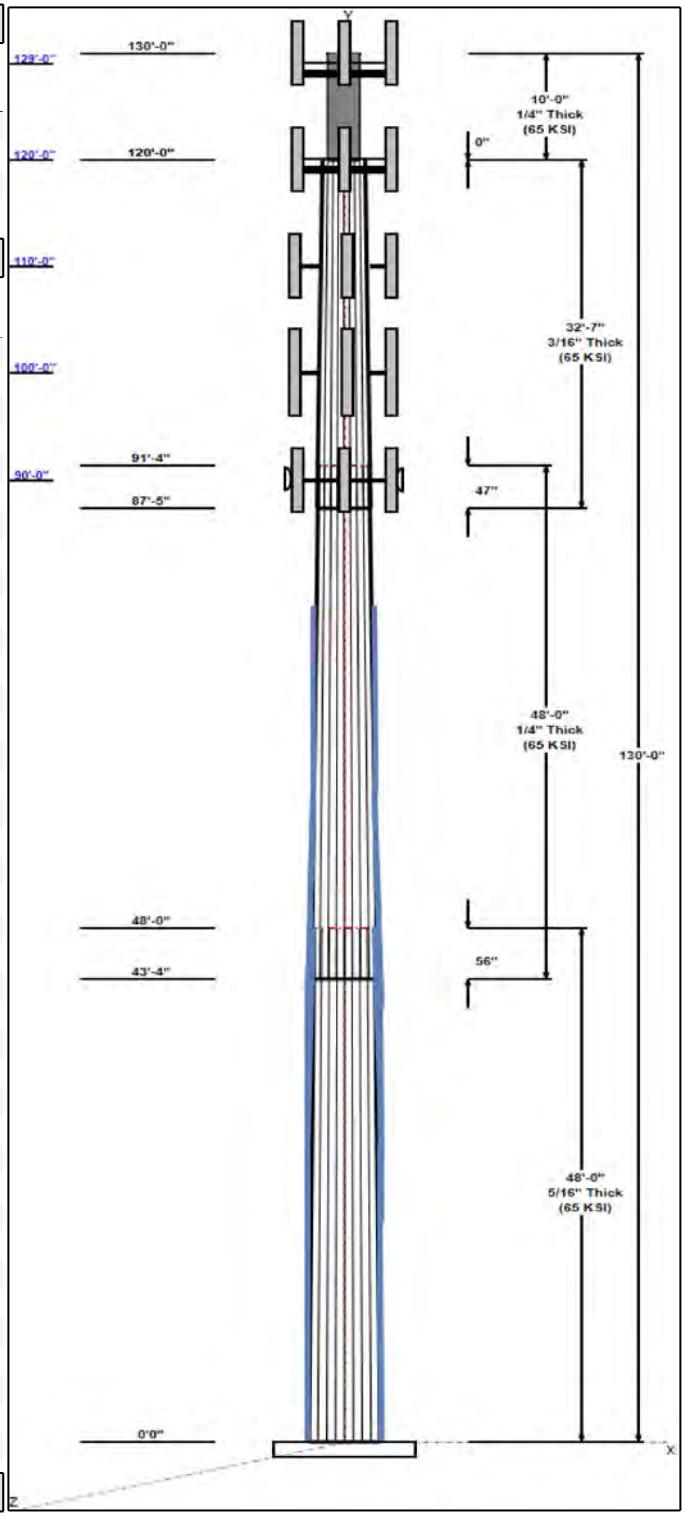
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	48.00	35.05	42.50	0.313		0.15529	65
2	48.00	28.82	36.27	0.250	Slip	0.15529	65
3	32.58	24.74	29.80	0.188	Slip	0.15529	65
4	10.00	18.00	18.00	0.250	Butt	0.00000	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
130.00	130.00	1	6' Lightning rod	T-Mobile
129.00	130.00	3	RRUS E2 B29	AT&T
129.00	130.00	2	DC6-48-60-18-8F	AT&T
129.00	130.00	2	DC6-48-60-0-8C	AT&T
129.00	129.00	1	MTC3607 Platform + HR	AT&T
129.00	129.00	1	PRK-1245 (kicker kit)	AT&T
129.00	129.00	1	Angle Reinforcement	AT&T
129.00	130.00	3	OPA-65R-LCUU-H6	AT&T
129.00	130.00	3	QS66512-2	AT&T
129.00	130.00	6	OPA65R-KE6D	AT&T
129.00	130.00	6	RRUS 32	AT&T
129.00	130.00	3	RRUS 4478 B14	AT&T
129.00	130.00	3	B2 B66A 8843	AT&T
129.00	130.00	3	4449 B5/B12	AT&T
120.00	120.00	3	MX08FRO665-21	Dish Wireless
120.00	120.00	3	TA08025-B605	Dish Wireless
120.00	120.00	3	TA08025-B604	Dish Wireless
120.00	120.00	1	RDIDC-9181-OF-48	Dish Wireless
120.00	120.00	1	MC-PK8-DSH	Dish Wireless
110.00	111.00	3	CBC721-DF	Verizon
110.00	109.00	3	CBC721-DF	Verizon
110.00	110.00	6	SBNHH-1D65B	Verizon
110.00	110.00	3	RRH2X60-1900A-4R	Verizon
110.00	110.00	3	B13 RRH4X30-4R	Verizon
110.00	110.00	3	B4 RRH2X60-4R	Verizon
110.00	110.00	2	DB-T1-6Z-8AB-0Z	Verizon
110.00	110.00	3	T-Arm (Round)	Verizon
100.00	100.00	3	AIR 21, 1.3M, B2A B4P	T-Mobile
100.00	100.00	3	AIR 21, 1.3M, B4A B2P	T-Mobile
100.00	100.00	3	LNX-6515DS-A1M	T-Mobile
100.00	100.00	3	782 11056	T-Mobile
100.00	100.00	3	T-Arm (Round)	T-Mobile
94.00	94.00	1	1'4"x6.5"x6" Surge	Clearwire
90.00	90.00	2	Andrew - VHLP2-11	Sprint Nextel
90.00	90.00	3	ALU - 1900MHz - RRU	Sprint Nextel
90.00	90.00	6	ALU - 800 MHz - RRU	Sprint Nextel
90.00	90.00	3	AAHC	Sprint Nextel
90.00	90.00	3	NNVV-65B-R4	Sprint Nextel
90.00	90.00	1	F3P-10W	Sprint Nextel

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	129.00	Inside	1/2" Coax	AT&T
0.00	129.00	Inside	1/2" Fiber	AT&T
0.00	129.00	Outside	2" Conduit	AT&T



0.00	129.00	Inside	2" Conduit	AT&T
0.00	129.00	Inside	3/4" DC	AT&T
0.00	120.00	Inside	1.6" Hybrid	Dish Wireless
0.00	110.00	Inside	1 5/8" Coax	Verizon
0.00	110.00	Inside	1 5/8" Hybrid	Verizon
0.00	100.00	Inside	1 5/8" Coax	T-Mobile
0.00	100.00	Inside	1 5/8" Hybrid	T-Mobile
0.00	90.00	Inside	1-1/4" Fiber	Sprint Nextel
0.00	90.00	Inside	1.689" Hybrid	Sprint Nextel
0.00	90.00	Inside	1/2" Fiber	Sprint Nextel
0.00	81.00	Outside	1" Reinforcing plate	
23.33	63.33	Outside	1" Reinforcing plate	
30.50	50.50	Outside	1" Reinforcing plate	
0.00	30.50	Outside	1" Reinforcing plate	

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
14	1.5" F1554 105	105.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.5000	51.8	50.0	Round

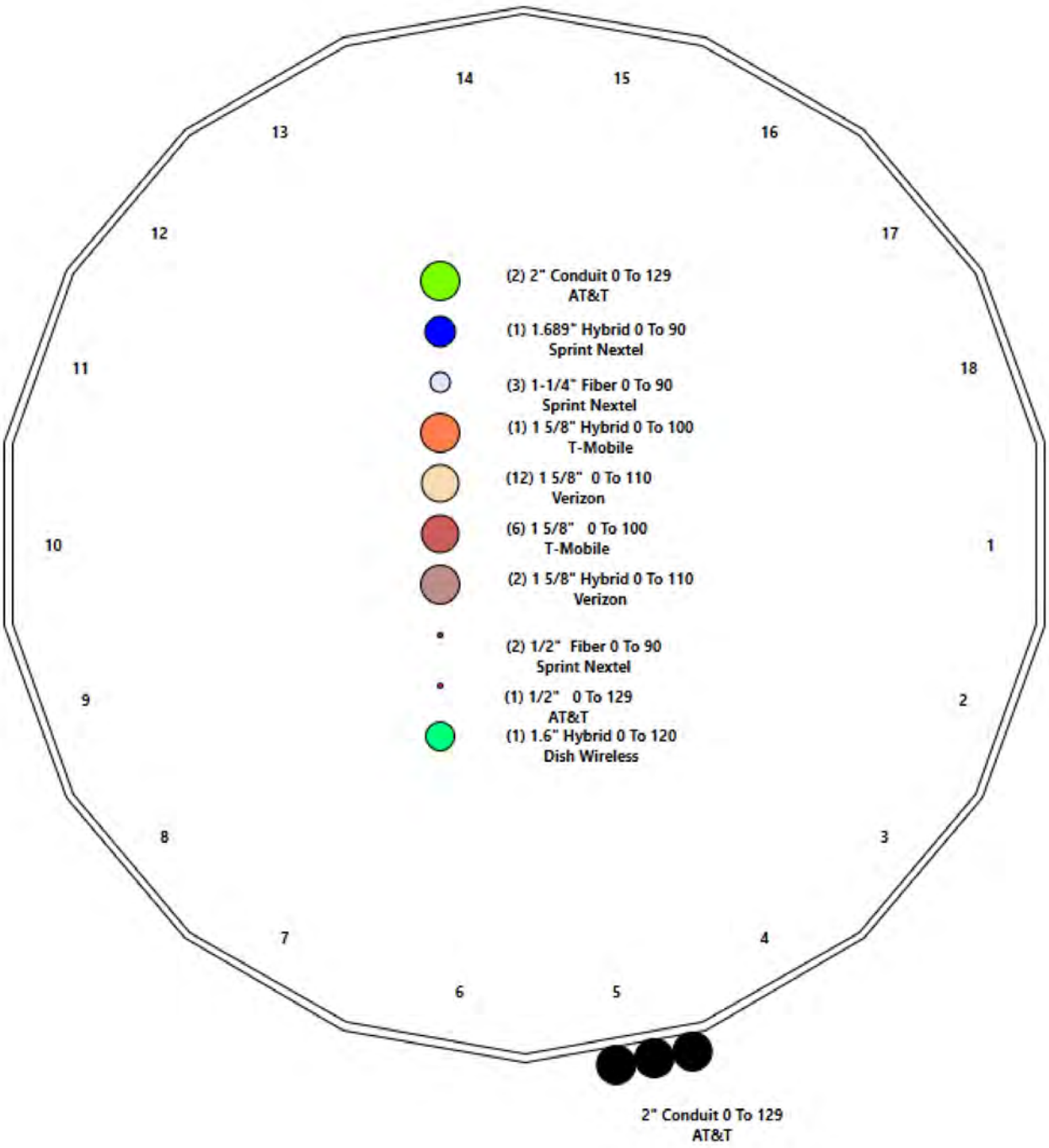
Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 101 mph Wind	3625.4	35.8	37.5
0.9D + 1.6W 101 mph Wind	3586.1	35.8	28.1
1.2D + 1.0Di + 1.0Wi 50 mph Wind	946.6	9.3	63.6
1.2D + 1.0E	228.8	1.9	37.5
0.9D + 1.0E	226.0	1.9	28.2
1.0D + 1.0W 60 mph Wind	795.4	7.9	31.3

Structure: CT13064-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Middletown 2, CT
Height: 130.00 (ft)

2/11/2022



Shaft Properties

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 5	

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	48.000	0.3125	65		0.00	6,231
2	18	48.000	0.2500	65	Slip	56.00	4,185
3	18	32.583	0.1875	65	Slip	47.00	1,787
4	R	10.000	0.2500	65	Flange	0.00	474
					Total Shaft Weight:		**12,677**

	Bottom						Top						
Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	42.50	0.00	41.84	9409.05	22.57	136.00	35.05	48.00	34.45	5250.98	18.36	112.1	0.155292
2	36.27	43.33	28.58	4685.33	24.17	145.08	28.82	91.33	22.67	2337.03	18.91	115.2	0.155292
3	29.80	87.42	17.62	1952.39	26.61	158.93	24.74	120.00	14.61	1112.84	21.86	131.9	0.155292
4	18.00	120.0	13.94	549.45	0.00	72.00	18.00	130.00	13.94	549.45	0.00	72.00	0.000000

Additional Steel

							Intermediate Connectors		Termination Connectors			
Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Fu (ksi)	Offset (in)	Description	Spacing (in)	Description	Spacing (in)	Lower Qty	Upper Qty
0.00	20.50	4	PLT 6"x1" (1.25" Hole)	65	80	0.00	AJM20&sleeve	16.00	AJM20&sleeve	3.00	8	8
0.00	10.25	4	PLT 5.5"x1 1/4"(1.25"hol	65	80	0.00	AJM20&sleeve	18.00	AJM20&sleeve	3.00	9	9
10.25	27.88	4	LNP LP6X100-G-20CT	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00		8
20.50	40.50	4	PLT 6"x1" (1.25" Hole)	65	80	0.00	AJM20&sleeve	16.00	AJM20&sleeve	3.00	8	8
25.96	40.71	2	LNP LP6X100-G-20CT	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00		8
27.88	48.12	2	LNP LP6X100-G-20TT	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00	8	8
40.50	60.75	4	PLT 6"x1" (1.25" Hole)	65	80	0.00	AJM20&sleeve	16.00	AJM20&sleeve	3.00	8	8
40.71	60.71	2	LNP LP6X100-G-20TT	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00	10	10
60.75	78.25	4	PLT 6"x1" (1.25" Hole)	65	80	0.00	AJM20&sleeve	16.00	AJM20&sleeve	3.00	8	10

Load Summary

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	130.00	6' Lightning rod	1	6.50	0.38	1.00	42.28	1.452	1.00	0.00	0.00
2	129.00	RRUS E2 B29	3	59.40	3.15	0.50	123.12	3.843	0.50	0.00	1.00
3	129.00	DC6-48-60-18-8F	2	31.80	0.92	0.50	92.70	1.351	0.50	0.00	1.00
4	129.00	DC6-48-60-0-8C	2	16.00	4.78	0.50	137.88	5.651	0.50	0.00	1.00
5	129.00	MTC3607 Platform + HR	1	2000.00	45.40	1.00	4062.91	78.492	1.00	0.00	0.00
6	129.00	PRK-1245 (kicker kit)	1	464.91	9.50	1.00	784.60	19.299	1.00	0.00	0.00
7	129.00	Angle Reinforcement	1	250.00	5.80	1.00	542.25	11.384	1.00	0.00	0.00
8	129.00	OPA-65R-LCUU-H6	3	80.00	9.66	0.79	310.22	11.008	0.81	0.00	1.00
9	129.00	QS66512-2	3	111.00	8.13	0.92	328.30	9.405	0.93	0.00	1.00
10	129.00	OPA65R-KE6D	6	63.30	12.71	0.72	359.98	14.178	0.74	0.00	1.00
11	129.00	RRUS 32	6	77.00	1.65	0.50	182.90	2.217	0.50	0.00	1.00
12	129.00	RRUS 4478 B14	3	59.40	1.65	0.50	100.25	2.161	0.50	0.00	1.00
13	129.00	B2 B66A 8843	3	70.00	1.64	0.50	115.29	2.149	0.50	0.00	1.00
14	129.00	4449 B5/B12	3	71.00	1.97	0.50	123.58	2.509	0.50	0.00	1.00
15	120.00	MX08FRO665-21	3	64.50	12.49	0.74	348.95	13.922	0.74	0.00	0.00
16	120.00	TA08025-B605	3	75.00	1.96	0.50	126.15	2.509	0.50	0.00	0.00
17	120.00	TA08025-B604	3	63.90	1.96	0.50	113.41	2.509	0.50	0.00	0.00
18	120.00	RDIDC-9181-OF-48	1	21.90	2.01	0.50	73.97	2.566	0.50	0.00	0.00
19	120.00	MC-PK8-DSH	1	1727.00	37.59	1.00	3377.59	83.782	1.00	0.00	0.00
20	110.00	CBC721-DF	3	4.40	0.45	0.50	13.66	0.934	0.50	0.00	1.00
21	110.00	CBC721-DF	3	4.40	0.45	0.50	13.66	0.934	0.50	0.00	-1.00
22	110.00	SBNHH-1D65B	6	40.00	8.16	0.79	235.78	9.418	0.82	0.00	0.00
23	110.00	RRH2X60-1900A-4R	3	46.00	1.88	0.50	112.46	2.446	0.50	0.00	0.00
24	110.00	B13 RRH4X30-4R	3	57.20	2.16	0.50	117.59	2.752	0.50	0.00	0.00
25	110.00	B4 RRH2X60-4R	3	55.00	3.36	0.50	138.75	4.115	0.50	0.00	0.00
26	110.00	DB-T1-6Z-8AB-0Z	2	18.90	4.80	0.50	157.48	5.645	0.50	0.00	0.00
27	110.00	T-Arm (Round)	3	350.00	8.00	0.75	586.87	14.768	0.75	0.00	0.00
28	100.00	AIR 21, 1.3M, B2A B4P	3	91.50	6.09	0.80	252.43	7.141	0.83	0.00	0.00
29	100.00	AIR 21, 1.3M, B4A B2P	3	90.40	6.09	0.80	251.33	7.141	0.83	0.00	0.00
30	100.00	LNX-6515DS-A1M	3	50.30	11.47	0.80	272.94	14.607	0.84	0.00	0.00
31	100.00	782 11056	3	1.80	0.13	0.50	4.18	0.410	0.50	0.00	0.00
32	100.00	T-Arm (Round)	3	350.00	8.00	0.75	584.62	14.704	0.75	0.00	0.00
33	94.00	1'4"x6.5"x6" Surge Protector	1	53.00	2.14	1.00	146.00	3.112	1.00	0.00	0.00
34	90.00	Andrew - VHLP2-11	2	27.00	4.68	1.00	119.99	5.891	1.00	0.00	0.00
35	90.00	ALU - 1900MHz - RRU	3	44.00	3.80	0.50	147.73	5.121	0.50	0.00	0.00
36	90.00	ALU - 800 MHz - RRU	6	53.00	2.49	0.50	123.28	3.577	0.50	0.00	0.00
37	90.00	AAHC	3	104.00	4.20	0.75	225.70	4.987	0.75	0.00	0.00
38	90.00	NNVV-65B-R4	3	77.40	12.27	0.74	348.74	13.654	0.74	0.00	0.00
39	90.00	F3P-10W	1	2122.00	51.77	1.00	4092.60	13.582	1.00	0.00	0.00
		Totals:	**109**	**14,174.31**			**33,829.71**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	129.00	(1) 1/2" Coax	0.00	Inside
0.00	129.00	(2) 1/2" Fiber	0.00	Inside

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	No Ice CaAa Factor	Ice Weight (lb)	Ice CaAa (sf)	Ice CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
0.00	129.00	(3) 2" Conduit			2.00	Outside					
0.00	129.00	(2) 2" Conduit			0.00	Inside					
0.00	129.00	(8) 3/4" DC			0.00	Inside					
0.00	120.00	(1) 1.6" Hybrid			0.00	Inside					
0.00	110.00	(12) 1 5/8" Coax			0.00	Inside					
0.00	110.00	(2) 1 5/8" Hybrid			0.00	Inside					
0.00	100.00	(6) 1 5/8" Coax			0.00	Inside					
0.00	100.00	(1) 1 5/8" Hybrid			0.00	Inside					
0.00	90.00	(3) 1-1/4" Fiber			0.00	Inside					
0.00	90.00	(1) 1.689" Hybrid			0.00	Inside					
0.00	90.00	(2) 1/2" Fiber			0.00	Inside					
0.00	81.00	(4) 1" Reinforcing plate			2.00	Outside					
23.33	63.33	(2) 1" Reinforcing plate			0.00	Outside					
30.50	50.50	(2) 1" Reinforcing plate			0.00	Outside					
0.00	30.50	(4) 1" Reinforcing plate			0.00	Outside					

Shaft Section Properties

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Increment Length: **2 (ft)**

											Additional Reinforcing			
Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)	Area (in^2)	Ixp (in^4)	Iyp (in^4)	Weight (lb)
0.00	RB1 RB2	0.3125	42.500	41.843	9409.0	22.57	136.00	65	75	0.0	51.50	14174.7	10484.2	
2.00		0.3125	42.189	41.535	9202.8	22.39	135.01	65	75	283.7	51.50	13974.5	10336.6	350.5
4.00		0.3125	41.879	41.227	8999.5	22.22	134.01	65	75	281.6	51.50	13775.8	10190.1	350.5
6.00		0.3125	41.568	40.919	8799.3	22.04	133.02	65	75	279.5	51.50	13578.5	10044.7	350.5
8.00		0.3125	41.258	40.611	8602.1	21.87	132.02	65	76	277.4	51.50	13382.6	9900.3	350.5
10.00		0.3125	40.947	40.303	8407.8	21.69	131.03	65	76	275.3	51.50	13188.2	9756.9	350.5
10.25	RT2 RB3	0.3125	40.908	40.264	8383.7	21.67	130.91	65	76	34.3	48.00	12328.5	8895.1	40.8
12.00		0.3125	40.636	39.995	8216.5	21.52	130.04	65	76	239.0	48.00	12170.0	8781.1	285.8
14.00		0.3125	40.326	39.687	8028.1	21.34	129.04	65	76	271.1	48.00	11990.2	8651.8	326.7
16.00		0.3125	40.015	39.379	7842.6	21.17	128.05	65	77	269.0	48.00	11811.7	8523.4	326.7
18.00		0.3125	39.705	39.071	7660.0	20.99	127.06	65	77	266.9	48.00	11634.6	8395.9	326.7
20.00		0.3125	39.394	38.763	7480.2	20.82	126.06	65	77	264.9	48.00	11458.8	8269.5	326.7
20.50	RT1 RB4	0.3125	39.317	38.686	7435.7	20.77	125.81	65	77	65.9	48.00	11415.1	8238.0	81.7
22.00		0.3125	39.084	38.455	7303.3	20.64	125.07	65	77	196.9	48.00	11284.4	8144.0	245.0
24.00		0.3125	38.773	38.147	7129.2	20.47	124.07	65	77	260.7	48.00	11111.3	8019.4	326.7
25.96	RB5	0.3125	38.469	37.845	6961.3	20.30	123.10	65	78	253.4	60.00	13155.0	9930.1	400.2
26.00		0.3125	38.462	37.839	6957.9	20.29	123.08	65	78	5.2	60.00	13150.9	9927.0	8.2
27.88	RT3 RB6	0.3125	38.170	37.549	6799.3	20.13	122.15	65	78	241.1	48.00	11731.2	6487.7	307.1
28.00		0.3125	38.152	37.531	6789.3	20.12	122.09	65	78	15.3	48.00	11720.1	6481.6	19.6
30.00		0.3125	37.841	37.222	6623.5	19.94	121.09	65	78	254.4	48.00	11535.0	6380.7	326.7
32.00		0.3125	37.531	36.914	6460.4	19.77	120.10	65	78	252.3	48.00	11351.4	6280.6	326.7
34.00		0.3125	37.220	36.606	6300.0	19.59	119.10	65	78	250.2	48.00	11169.2	6181.3	326.7
36.00		0.3125	36.909	36.298	6142.3	19.42	118.11	65	79	248.1	48.00	10988.6	6082.7	326.7
38.00		0.3125	36.599	35.990	5987.2	19.24	117.12	65	79	246.0	48.00	10809.5	5985.0	326.7
40.00		0.3125	36.288	35.682	5834.8	19.06	116.12	65	79	243.9	48.00	10631.8	5888.1	326.7
40.50	RT4 RB7	0.3125	36.211	35.605	5797.1	19.02	115.87	65	79	60.6	48.00	10587.6	5864.0	81.7
40.71	RT5 RB8	0.3125	36.178	35.573	5781.3	19.00	115.77	65	79	25.4	48.00	10569.1	5853.9	34.3
42.00		0.3125	35.978	35.374	5685.0	18.89	115.13	65	79	155.7	48.00	10455.6	5792.0	210.7
43.33	Bot - Section 2	0.3125	35.771	35.169	5586.6	18.77	114.47	65	79	160.0	48.00	10339.0	5728.4	217.8
44.00		0.3125	35.667	35.066	5537.8	18.71	114.13	65	79	144.4	48.00	10561.8	5850.5	108.9
46.00		0.3125	35.357	34.758	5393.1	18.54	113.14	65	80	430.7	48.00	10386.2	5754.7	326.7
48.00	Top - Section 1	0.2500	35.546	28.006	4408.2	23.66	142.18	65	74	426.9	48.00	10212.2	5659.7	326.7
48.12	RT6	0.2500	35.527	27.992	4401.2	23.65	142.11	65	74	11.4	36.00	7227.7	4495.6	14.7
50.00		0.2500	35.235	27.760	4292.8	23.44	140.94	65	74	178.3	36.00	7112.8	4424.8	230.3
52.00		0.2500	34.925	27.513	4179.5	23.22	139.70	65	74	188.1	36.00	6991.5	4350.1	245.0
54.00		0.2500	34.614	27.267	4068.2	23.00	138.46	65	74	186.4	36.00	6871.3	4276.1	245.0
56.00		0.2500	34.304	27.021	3958.9	22.78	137.21	65	75	184.7	36.00	6752.1	4202.8	245.0
58.00		0.2500	33.993	26.774	3851.6	22.56	135.97	65	75	183.1	36.00	6634.0	4130.0	245.0
60.00		0.2500	33.682	26.528	3746.2	22.35	134.73	65	75	181.4	36.00	6517.0	4058.0	245.0
60.71	RT8	0.2500	33.572	26.440	3709.3	22.27	134.29	65	75	64.0	24.00	4800.1	2406.1	58.0
60.75	RT7 RB9	0.2500	33.566	26.435	3707.2	22.26	134.26	65	75	3.6	24.00	4798.4	2405.3	3.3
62.00		0.2500	33.372	26.281	3642.8	22.13	133.49	65	75	112.1	24.00	4745.0	2378.7	102.1
64.00		0.2500	33.061	26.035	3541.2	21.91	132.25	65	76	178.0	24.00	4660.2	2336.5	163.3
66.00		0.2500	32.751	25.788	3441.6	21.69	131.00	65	76	176.3	24.00	4576.2	2294.7	163.3
68.00		0.2500	32.440	25.542	3343.9	21.47	129.76	65	76	174.7	24.00	4493.0	2253.3	163.3
70.00		0.2500	32.130	25.296	3248.0	21.25	128.52	65	76	173.0	24.00	4410.5	2212.3	163.3
72.00		0.2500	31.819	25.049	3154.0	21.03	127.28	65	77	171.3	24.00	4328.8	2171.7	163.3
74.00		0.2500	31.508	24.803	3061.9	20.81	126.03	65	77	169.6	24.00	4247.9	2131.4	163.3
76.00		0.2500	31.198	24.556	2971.5	20.59	124.79	65	77	168.0	24.00	4167.7	2091.6	163.3
78.00		0.2500	30.887	24.310	2882.9	20.37	123.55	65	77	166.3	24.00	4088.4	2052.1	163.3

Increment Length: **2 (ft)**

Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)	Additional Reinforcing Area (in^2)	Ixp (in^4)	Iyp (in^4)	Weight (lb)
78.25	RT9	0.2500	30.848	24.279	2872.0	20.35	123.39	65	77	20.7	24.00	4078.5	2047.2	20.4
80.00		0.2500	30.577	24.063	2796.1	20.16	122.31	65	78	143.9				
82.00		0.2500	30.266	23.817	2711.1	19.94	121.06	65	78	162.9				
84.00		0.2500	29.955	23.570	2627.8	19.72	119.82	65	78	161.2				
86.00		0.2500	29.645	23.324	2546.3	19.50	118.58	65	78	159.6				
87.42	Bot - Section 3	0.2500	29.425	23.149	2489.5	19.34	117.70	65	79	112.0				
88.00		0.2500	29.334	23.078	2466.4	19.28	117.34	65	79	80.8				
90.00		0.2500	29.024	22.831	2388.2	19.06	116.09	65	79	275.2				
91.33	Top - Section 2	0.1875	29.192	17.260	1834.5	26.04	155.69	65	71	181.8				
92.00		0.1875	29.088	17.199	1815.0	25.94	155.14	65	71	39.1				
94.00		0.1875	28.778	17.014	1757.1	25.65	153.48	65	71	116.4				
96.00		0.1875	28.467	16.829	1700.4	25.36	151.82	65	72	115.2				
98.00		0.1875	28.156	16.644	1645.0	25.07	150.17	65	72	113.9				
100.00		0.1875	27.846	16.460	1590.8	24.78	148.51	65	72	112.6				
102.00		0.1875	27.535	16.275	1537.8	24.48	146.85	65	73	111.4				
104.00		0.1875	27.225	16.090	1486.0	24.19	145.20	65	73	110.1				
106.00		0.1875	26.914	15.905	1435.4	23.90	143.54	65	73	108.9				
108.00		0.1875	26.603	15.720	1385.9	23.61	141.89	65	74	107.6				
110.00		0.1875	26.293	15.535	1337.6	23.32	140.23	65	74	106.4				
112.00		0.1875	25.982	15.351	1290.5	23.02	138.57	65	74	105.1				
114.00		0.1875	25.672	15.166	1244.4	22.73	136.92	65	75	103.8				
116.00		0.1875	25.361	14.981	1199.5	22.44	135.26	65	75	102.6				
118.00		0.1875	25.051	14.796	1155.6	22.15	133.60	65	75	101.3				
120.00	Top - Section 3	0.1875	24.740	14.611	1112.8	21.86	131.95	65	76	100.1				
120.00	Bot - Section 4	0.2500	18.000	13.941	549.4	16.39	98.96	65	59					
122.00		0.2500	18.000	13.941	549.4	0.00	72.00	65	59	94.9				
124.00		0.2500	18.000	13.941	549.4	0.00	72.00	65	59	94.9				
126.00		0.2500	18.000	13.941	549.4	0.00	72.00	65	59	94.9				
128.00		0.2500	18.000	13.941	549.4	0.00	72.00	65	59	94.9				
129.00		0.2500	18.000	13.941	549.4	0.00	72.00	65	59	47.4				
130.00		0.2500	18.000	13.941	549.4	0.00	72.00	65	59	47.4				
									Total Weight	**12677.2**				**11001.2**

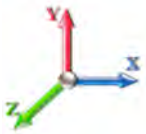
Wind Loading - Shaft

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1 RB2	1.00	0.85	21.088	23.20	334.88	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
2.00		1.00	0.85	21.088	23.20	332.43	0.650	0.000	2.00	7.166	4.66	172.9	0.0	340.5
4.00		1.00	0.85	21.088	23.20	329.98	0.650	0.000	2.00	7.114	4.62	171.6	0.0	337.9
6.00		1.00	0.85	21.088	23.20	327.54	0.650	0.000	2.00	7.061	4.59	170.3	0.0	335.4
8.00		1.00	0.85	21.088	23.20	325.09	0.650	0.000	2.00	7.009	4.56	169.1	0.0	332.9
10.00		1.00	0.85	21.088	23.20	322.64	0.650	0.000	2.00	6.956	4.52	167.8	0.0	330.4
10.25	RT2 RB3	1.00	0.85	21.088	23.20	322.34	0.650	0.000	0.25	0.866	0.56	20.9	0.0	41.1
12.00		1.00	0.85	21.088	23.20	320.19	0.650	0.000	1.75	6.038	3.92	145.7	0.0	286.8
14.00		1.00	0.85	21.088	23.20	317.75	0.650	0.000	2.00	6.851	4.45	165.3	0.0	325.4
16.00		1.00	0.86	21.348	23.48	317.24	0.650	0.000	2.00	6.798	4.42	166.0	0.0	322.9
18.00		1.00	0.88	21.884	24.07	318.71	0.650	0.000	2.00	6.746	4.38	168.9	0.0	320.3
20.00		1.00	0.90	22.375	24.61	319.74	0.650	0.000	2.00	6.693	4.35	171.3	0.0	317.8
20.50	RT1 RB4	1.00	0.91	22.491	24.74	319.94	0.650	0.000	0.50	1.665	1.08	42.8	0.0	79.1
22.00		1.00	0.92	22.828	25.11	320.42	0.651 *	0.000	1.50	4.976	3.24	130.1	0.0	236.2
24.00		1.00	0.94	23.250	25.58	320.80	0.652 *	0.000	2.00	6.588	4.30	175.9	0.0	312.8
25.96	RB5	1.00	0.95	23.638	26.00	320.92	0.654 *	0.000	1.96	6.405	4.19	174.2	0.0	304.1
26.00		1.00	0.95	23.645	26.01	320.92	0.655 *	0.000	0.04	0.130	0.09	3.5	0.0	6.2
27.88	RT3 RB6	1.00	0.97	23.995	26.39	320.83	0.655 *	0.000	1.88	6.096	4.00	168.7	0.0	289.4
28.00		1.00	0.97	24.017	26.42	320.82	0.656 *	0.000	0.12	0.387	0.25	10.7	0.0	18.4
30.00		1.00	0.98	24.369	26.81	320.53	0.657 *	0.000	2.00	6.430	4.23	181.2	0.0	305.2
32.00		1.00	1.00	24.702	27.17	320.06	0.659 *	0.000	2.00	6.378	4.20	182.7	0.0	302.7
34.00		1.00	1.01	25.019	27.52	319.45	0.661 *	0.000	2.00	6.325	4.18	184.0	0.0	300.2
36.00		1.00	1.02	25.322	27.85	318.69	0.662 *	0.000	2.00	6.273	4.15	185.1	0.0	297.7
38.00		1.00	1.03	25.612	28.17	317.82	0.664 *	0.000	2.00	6.220	4.13	186.2	0.0	295.2
40.00		1.00	1.04	25.890	28.48	316.82	0.666 *	0.000	2.00	6.168	4.11	187.1	0.0	292.7
40.50	RT4 RB7	1.00	1.05	25.958	28.55	316.56	0.667 *	0.000	0.50	1.534	1.02	46.7	0.0	72.8
40.71	RT5 RB8	1.00	1.05	25.986	28.58	316.45	0.667 *	0.000	0.21	0.643	0.43	19.6	0.0	30.5
42.00		1.00	1.05	26.157	28.77	315.73	0.668 *	0.000	1.29	3.938	2.63	121.1	0.0	186.9
43.33	Bot - Section 2	1.00	1.06	26.330	28.96	314.95	0.669 *	0.000	1.33	4.048	2.71	125.5	0.0	192.0
44.00		1.00	1.06	26.415	29.06	314.54	0.670 *	0.000	0.67	2.043	1.37	63.6	0.0	173.3
46.00		1.00	1.07	26.663	29.33	313.26	0.671 *	0.000	2.00	6.095	4.09	192.0	0.0	516.9
48.00	Top - Section 1	1.00	1.08	26.903	29.59	311.91	0.673 *	0.000	2.00	6.042	4.07	192.6	0.0	512.3
48.12	RT6	1.00	1.08	26.917	29.61	316.27	0.671 *	0.000	0.12	0.361	0.24	11.5	0.0	13.7
50.00		1.00	1.09	27.135	29.85	314.94	0.672 *	0.000	1.88	5.629	3.78	180.7	0.0	214.0
52.00		1.00	1.10	27.360	30.10	313.46	0.674 *	0.000	2.00	5.937	4.00	192.7	0.0	225.7
54.00		1.00	1.11	27.579	30.34	311.91	0.676 *	0.000	2.00	5.884	3.98	193.1	0.0	223.7
56.00		1.00	1.12	27.790	30.57	310.29	0.678 *	0.000	2.00	5.832	3.95	193.4	0.0	221.7
58.00		1.00	1.13	27.997	30.80	308.62	0.680 *	0.000	2.00	5.779	3.93	193.6	0.0	219.7
60.00		1.00	1.14	28.197	31.02	306.90	0.682 *	0.000	2.00	5.727	3.91	193.8	0.0	217.6
60.71	RT8	1.00	1.14	28.267	31.09	306.27	0.683 *	0.000	0.71	2.020	1.38	68.7	0.0	76.8
60.75	RT7 RB9	1.00	1.14	28.271	31.10	306.24	0.684 *	0.000	0.04	0.114	0.08	3.9	0.0	4.3
62.00		1.00	1.14	28.392	31.23	305.12	0.685 *	0.000	1.25	3.540	2.42	121.1	0.0	134.5
64.00		1.00	1.15	28.583	31.44	303.29	0.686 *	0.000	2.00	5.622	3.86	194.1	0.0	213.6
66.00		1.00	1.16	28.769	31.65	301.42	0.688 *	0.000	2.00	5.569	3.83	194.1	0.0	211.6
68.00		1.00	1.17	28.950	31.84	299.50	0.691 *	0.000	2.00	5.516	3.81	194.1	0.0	209.6
70.00		1.00	1.17	29.127	32.04	297.54	0.693 *	0.000	2.00	5.464	3.79	194.1	0.0	207.6
72.00		1.00	1.18	29.300	32.23	295.54	0.695 *	0.000	2.00	5.411	3.76	194.0	0.0	205.6

Wind Loading - Shaft

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

74.00	1.00	1.19	29.470	32.42	293.50	0.698 *	0.000	2.00	5.359	3.74	193.9	0.0	203.6
76.00	1.00	1.19	29.636	32.60	291.42	0.700 *	0.000	2.00	5.306	3.71	193.7	0.0	201.5
78.00	1.00	1.20	29.798	32.78	289.31	0.702 *	0.000	2.00	5.254	3.69	193.5	0.0	199.5
78.25 RT9	1.00	1.20	29.818	32.80	289.04	0.704 *	0.000	0.25	0.653	0.46	24.1	0.0	24.8
80.00	1.00	1.21	29.958	32.95	287.16	0.705 *	0.000	1.75	4.548	3.21	169.1	0.0	172.7
82.00	1.00	1.21	30.114	33.13	284.99	0.650	0.000	2.00	5.148	3.35	177.4	0.0	195.5
84.00	1.00	1.22	30.267	33.29	282.78	0.650	0.000	2.00	5.096	3.31	176.4	0.0	193.5
86.00	1.00	1.23	30.417	33.46	280.54	0.650	0.000	2.00	5.043	3.28	175.5	0.0	191.5
87.42 Bot - Section 3	1.00	1.23	30.522	33.57	278.94	0.650	0.000	1.42	3.541	2.30	123.6	0.0	134.4
88.00	1.00	1.23	30.565	33.62	278.27	0.650	0.000	0.58	1.469	0.95	51.4	0.0	97.0
90.00 Appurtenance(s)	1.00	1.24	30.710	33.78	275.98	0.650	0.000	2.00	5.002	3.25	175.7	0.0	330.2
91.33 Top - Section 2	1.00	1.24	30.805	33.89	274.44	0.650	0.000	1.33	3.305	2.15	116.5	0.0	218.2
92.00	1.00	1.24	30.852	33.94	277.23	0.650	0.000	0.67	1.644	1.07	58.0	0.0	46.9
94.00 Appurtenance(s)	1.00	1.25	30.992	34.09	274.89	0.650	0.000	2.00	4.897	3.18	173.6	0.0	139.7
96.00	1.00	1.25	31.130	34.24	272.53	0.650	0.000	2.00	4.844	3.15	172.5	0.0	138.2
98.00	1.00	1.26	31.265	34.39	270.14	0.650	0.000	2.00	4.791	3.11	171.4	0.0	136.7
100.00 Appurtenance(s)	1.00	1.27	31.399	34.54	267.73	0.650	0.000	2.00	4.739	3.08	170.2	0.0	135.2
102.00	1.00	1.27	31.530	34.68	265.30	0.650	0.000	2.00	4.686	3.05	169.0	0.0	133.7
104.00	1.00	1.28	31.659	34.82	262.84	0.650	0.000	2.00	4.634	3.01	167.8	0.0	132.2
106.00	1.00	1.28	31.786	34.96	260.37	0.650	0.000	2.00	4.581	2.98	166.6	0.0	130.6
108.00	1.00	1.29	31.911	35.10	257.87	0.650	0.000	2.00	4.529	2.94	165.3	0.0	129.1
110.00 Appurtenance(s)	1.00	1.29	32.035	35.24	255.35	0.650	0.000	2.00	4.476	2.91	164.0	0.0	127.6
112.00	1.00	1.30	32.157	35.37	252.81	0.650	0.000	2.00	4.423	2.88	162.7	0.0	126.1
114.00	1.00	1.30	32.277	35.50	250.26	0.650	0.000	2.00	4.371	2.84	161.4	0.0	124.6
116.00	1.00	1.31	32.395	35.63	247.68	0.650	0.000	2.00	4.318	2.81	160.0	0.0	123.1
118.00	1.00	1.31	32.512	35.76	245.09	0.650	0.000	2.00	4.266	2.77	158.7	0.0	121.6
120.00 Top - Section 3	1.00	1.32	32.627	35.89	242.48	0.650	0.000	2.00	4.213	2.74	157.3	0.0	120.1
122.00	1.00	1.32	32.741	36.01	174.04	0.620 *	0.000	2.00	3.000	1.86	107.2	0.0	113.9
124.00	1.00	1.32	32.853	36.14	174.34	0.620 *	0.000	2.00	3.000	1.86	107.5	0.0	113.9
126.00	1.00	1.33	32.964	36.26	174.63	0.620 *	0.000	2.00	3.000	1.86	107.9	0.0	113.9
128.00	1.00	1.33	33.073	36.38	174.92	0.620 *	0.000	2.00	3.000	1.86	108.3	0.0	113.9
129.00 Appurtenance(s)	1.00	1.34	33.128	36.44	175.07	0.620 *	0.000	1.00	1.500	0.93	54.2	0.0	56.9
130.00 Appurtenance(s)	1.00	1.34	33.182	36.50	175.21	0.600	0.000	1.00	1.500	0.90	52.6	0.0	56.9
							Totals:	**130.00**			**11,273.3**		**15,212.6**

* Cf Adjusted by Linear Load Ra Effect

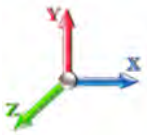
Discrete Appurtenance Forces

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

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	130.00	6' Lightning rod	1	33.182	36.500	1.00	1.00	0.38	7.80	0.000	0.000	22.19	0.00	0.00
2	129.00	OPA-65R-LCUU-H6	3	33.182	36.500	0.59	0.75	17.08	288.00	0.000	1.000	997.68	0.00	997.68
3	129.00	RRUS E2 B29	3	33.182	36.500	0.38	0.75	3.54	213.84	0.000	1.000	206.95	0.00	206.95
4	129.00	DC6-48-60-18-8F	2	33.182	36.500	0.38	0.75	0.69	76.32	0.000	1.000	40.30	0.00	40.30
5	129.00	DC6-48-60-0-8C	2	33.182	36.500	0.38	0.75	3.58	38.40	0.000	1.000	209.36	0.00	209.36
6	129.00	MTC3607 Platform + HR	1	33.128	36.440	1.00	1.00	45.40	2400.00	0.000	0.000	2647.04	0.00	0.00
7	129.00	Angle Reinforcement	1	33.128	36.440	1.00	1.00	5.80	300.00	0.000	0.000	338.17	0.00	0.00
8	129.00	PRK-1245 (kicker kit)	1	33.128	36.440	1.00	1.00	9.50	557.89	0.000	0.000	553.90	0.00	0.00
9	129.00	RRUS 4478 B14	3	33.182	36.500	0.38	0.75	1.86	213.84	0.000	1.000	108.40	0.00	108.40
10	129.00	4449 B5/B12	3	33.182	36.500	0.38	0.75	2.22	255.60	0.000	1.000	129.43	0.00	129.43
11	129.00	B2 B66A 8843	3	33.182	36.500	0.38	0.75	1.84	252.00	0.000	1.000	107.75	0.00	107.75
12	129.00	QS66512-2	3	33.182	36.500	0.69	0.75	16.79	399.60	0.000	1.000	980.68	0.00	980.68
13	129.00	RRUS 32	6	33.182	36.500	0.38	0.75	3.71	554.40	0.000	1.000	216.81	0.00	216.81
14	129.00	OPA65R-KE6D	6	33.182	36.500	0.54	0.75	41.24	455.76	0.000	1.000	2408.26	0.00	2408.26
15	120.00	MC-PK8-DSH	1	32.627	35.890	1.00	1.00	37.59	2072.40	0.000	0.000	2158.56	0.00	0.00
16	120.00	RDIDC-9181-OF-48	1	32.627	35.890	0.38	0.75	0.75	26.28	0.000	0.000	43.28	0.00	0.00
17	120.00	TA08025-B604	3	32.627	35.890	0.38	0.75	2.21	230.04	0.000	0.000	126.62	0.00	0.00
18	120.00	TA08025-B605	3	32.627	35.890	0.38	0.75	2.21	270.00	0.000	0.000	126.62	0.00	0.00
19	120.00	MX08FRO665-21	3	32.627	35.890	0.55	0.75	20.80	232.20	0.000	0.000	1194.18	0.00	0.00
20	110.00	T-Arm (Round)	3	32.035	35.238	0.56	0.75	13.50	1260.00	0.000	0.000	761.15	0.00	0.00
21	110.00	DB-T1-6Z-8AB-0Z	2	32.035	35.238	0.40	0.80	3.84	45.36	0.000	0.000	216.50	0.00	0.00
22	110.00	B4 RRH2X60-4R	3	32.035	35.238	0.40	0.80	4.03	198.00	0.000	0.000	227.33	0.00	0.00
23	110.00	B13 RRH4X30-4R	3	32.035	35.238	0.40	0.80	2.59	205.92	0.000	0.000	146.14	0.00	0.00
24	110.00	RRH2X60-1900A-4R	3	32.035	35.238	0.40	0.80	2.26	165.60	0.000	0.000	127.20	0.00	0.00
25	110.00	SBNHH-1D65B	6	32.035	35.238	0.63	0.80	30.94	288.00	0.000	0.000	1744.59	0.00	0.00
26	110.00	CBC721-DF	3	31.973	35.171	0.40	0.80	0.54	15.84	0.000	-1.000	30.39	0.00	-30.39
27	110.00	CBC721-DF	3	32.096	35.306	0.40	0.80	0.54	15.84	0.000	1.000	30.50	0.00	30.50
28	100.00	AIR 21, 1.3M, B2A B4P	3	31.399	34.538	0.64	0.80	11.69	329.40	0.000	0.000	646.16	0.00	0.00
29	100.00	AIR 21, 1.3M, B4A B2P	3	31.399	34.538	0.64	0.80	11.69	325.44	0.000	0.000	646.16	0.00	0.00
30	100.00	LNX-6515DS-A1M	3	31.399	34.538	0.64	0.80	22.02	181.08	0.000	0.000	1216.99	0.00	0.00
31	100.00	782 11056	3	31.399	34.538	0.40	0.80	0.16	6.48	0.000	0.000	8.62	0.00	0.00
32	100.00	T-Arm (Round)	3	31.399	34.538	0.56	0.75	13.50	1260.00	0.000	0.000	746.03	0.00	0.00
33	94.00	1'4"x6.5"x6" Surge	1	30.992	34.091	0.80	0.80	1.71	63.60	0.000	0.000	93.38	0.00	0.00
34	90.00	F3P-10W	1	30.710	33.781	1.00	1.00	51.77	2546.40	0.000	0.000	2798.12	0.00	0.00
35	90.00	NNVV-65B-R4	3	30.710	33.781	0.55	0.75	20.43	278.64	0.000	0.000	1104.20	0.00	0.00
36	90.00	AAHC	3	30.710	33.781	0.56	0.75	7.09	374.40	0.000	0.000	383.07	0.00	0.00
37	90.00	ALU - 800 MHz - RRU	6	30.710	33.781	0.38	0.75	5.60	381.60	0.000	0.000	302.81	0.00	0.00
38	90.00	ALU - 1900MHz - RRU	3	30.710	33.781	0.38	0.75	4.27	158.40	0.000	0.000	231.06	0.00	0.00
39	90.00	Andrew - VHLP2-11	2	30.710	33.781	0.75	0.75	7.02	64.80	0.000	0.000	379.42	0.00	0.00
							Totals:		**17,009.17**			**24,456.01**		

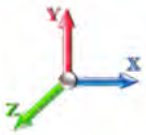
Total Applied Force Summary

Structure:	CT13064-A-SBA		**Code:**	TIA-222-G	2/11/2022
Site Name:	Middletown 2, CT		**Exposure:**	C	
Height:	130.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 13

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

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
2.00		172.88	435.48	0.00	0.00
4.00		171.61	432.97	0.00	0.00
6.00		170.35	430.45	0.00	0.00
8.00		169.08	427.94	0.00	0.00
10.00		167.81	425.42	0.00	0.00
10.25		20.89	53.00	0.00	0.00
12.00		145.65	369.90	0.00	0.00
14.00		165.27	420.39	0.00	0.00
16.00		166.03	417.87	0.00	0.00
18.00		168.88	415.36	0.00	0.00
20.00		171.33	412.84	0.00	0.00
20.50		42.84	102.82	0.00	0.00
22.00		130.13	307.51	0.00	0.00
24.00		175.86	407.81	0.00	0.00
25.96		174.25	397.21	0.00	0.00
26.00		3.55	8.08	0.00	0.00
27.88		168.74	378.68	0.00	0.00
28.00		10.75	24.10	0.00	0.00
30.00		181.24	400.26	0.00	0.00
32.00		182.68	397.75	0.00	0.00
34.00		183.97	395.23	0.00	0.00
36.00		185.14	392.72	0.00	0.00
38.00		186.18	390.20	0.00	0.00
40.00		187.11	387.68	0.00	0.00
40.50		46.73	96.53	0.00	0.00
40.71		19.63	40.49	0.00	0.00
42.00		121.09	248.15	0.00	0.00
43.33		125.50	255.38	0.00	0.00
44.00		63.65	204.96	0.00	0.00
46.00		191.99	611.87	0.00	0.00
48.00		192.60	607.35	0.00	0.00
48.12		11.47	19.42	0.00	0.00
50.00		180.67	303.31	0.00	0.00
52.00		192.68	320.72	0.00	0.00
54.00		193.05	318.71	0.00	0.00
56.00		193.37	316.70	0.00	0.00
58.00		193.62	314.68	0.00	0.00
60.00		193.82	312.67	0.00	0.00
60.71		68.69	110.51	0.00	0.00
60.75		3.87	6.22	0.00	0.00
62.00		121.09	193.93	0.00	0.00
64.00		194.07	308.65	0.00	0.00
66.00		194.12	306.63	0.00	0.00
68.00		194.12	304.62	0.00	0.00
70.00		194.09	302.61	0.00	0.00
72.00		194.01	300.59	0.00	0.00

Total Applied Force Summary

Structure:	CT13064-A-SBA		**Code:**	TIA-222-G	2/11/2022
Site Name:	Middletown 2, CT		**Exposure:**	C	
Height:	130.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 14

74.00		193.89	298.58	0.00	0.00
76.00		193.73	296.57	0.00	0.00
78.00		193.54	294.56	0.00	0.00
78.25		24.12	36.68	0.00	0.00
80.00		169.08	255.87	0.00	0.00
82.00		177.36	290.53	0.00	0.00
84.00		176.45	288.52	0.00	0.00
86.00		175.49	286.51	0.00	0.00
87.42		123.63	201.72	0.00	0.00
88.00		51.36	124.68	0.00	0.00
90.00	(18) attachments	5374.41	4229.44	0.00	0.00
91.33		116.48	274.82	0.00	0.00
92.00		58.02	75.23	0.00	0.00
94.00	(1) attachments	266.99	288.29	0.00	0.00
96.00		172.51	223.18	0.00	0.00
98.00		171.38	221.67	0.00	0.00
100.00	(15) attachments	3434.18	2322.56	0.00	0.00
102.00		169.03	201.03	0.00	0.00
104.00		167.82	199.52	0.00	0.00
106.00		166.59	198.01	0.00	0.00
108.00		165.32	196.50	0.00	0.00
110.00	(26) attachments	3447.85	2389.56	0.00	0.12
112.00		162.73	158.25	0.00	0.00
114.00		161.39	156.74	0.00	0.00
116.00		160.04	155.24	0.00	0.00
118.00		158.66	153.73	0.00	0.00
120.00	(11) attachments	3806.52	2983.14	0.00	0.00
122.00		107.18	141.62	0.00	0.00
124.00		107.55	141.62	0.00	0.00
126.00		107.91	141.62	0.00	0.00
128.00		108.27	141.62	0.00	0.00
129.00	(37) attachments	8998.94	6076.46	0.00	5405.62
130.00	(1) attachments	74.75	64.73	0.00	0.00
	Totals:	**35,729.32**	**37,545.15**	**0.00**	**5,405.73**

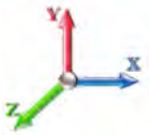
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
2.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.093	0.000	21.088	0.00	11.59
2.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.093	0.000	21.088	0.00	0.00
2.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.093	0.000	21.088	0.00	0.00
4.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.094	0.000	21.088	0.00	11.59
4.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.094	0.000	21.088	0.00	0.00
4.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.094	0.000	21.088	0.00	0.00
6.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.094	0.000	21.088	0.00	11.59
6.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.094	0.000	21.088	0.00	0.00
6.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.094	0.000	21.088	0.00	0.00
8.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.095	0.000	21.088	0.00	11.59
8.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.095	0.000	21.088	0.00	0.00
8.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.095	0.000	21.088	0.00	0.00
10.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.096	0.000	21.088	0.00	11.59
10.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.096	0.000	21.088	0.00	0.00
10.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.096	0.000	21.088	0.00	0.00
10.25	2" Conduit	Yes	0.25	0.000	2.00	0.04	0.00	0.096	0.000	21.088	0.00	1.45
10.25	1" Reinforcing plate	Yes	0.25	0.000	2.00	0.04	0.00	0.096	0.000	21.088	0.00	0.00
10.25	1" Reinforcing plate	Yes	0.25	0.000	0.00	0.00	0.00	0.096	0.000	21.088	0.00	0.00
12.00	2" Conduit	Yes	1.75	0.000	2.00	0.29	0.00	0.097	0.000	21.088	0.00	10.14
12.00	1" Reinforcing plate	Yes	1.75	0.000	2.00	0.29	0.00	0.097	0.000	21.088	0.00	0.00
12.00	1" Reinforcing plate	Yes	1.75	0.000	0.00	0.00	0.00	0.097	0.000	21.088	0.00	0.00
14.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.097	0.000	21.088	0.00	11.59
14.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.097	0.000	21.088	0.00	0.00
14.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.097	0.000	21.088	0.00	0.00
16.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.098	0.000	21.348	0.00	11.59
16.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.098	0.000	21.348	0.00	0.00
16.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.098	0.000	21.348	0.00	0.00
18.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.099	0.000	21.884	0.00	11.59
18.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.099	0.000	21.884	0.00	0.00
18.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.099	0.000	21.884	0.00	0.00
20.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.100	0.000	22.375	0.00	11.59
20.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.100	0.000	22.375	0.00	0.00
20.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.100	0.000	22.375	0.00	0.00
20.50	2" Conduit	Yes	0.50	0.000	2.00	0.08	0.00	0.100	0.000	22.491	0.00	2.90
20.50	1" Reinforcing plate	Yes	0.50	0.000	2.00	0.08	0.00	0.100	0.000	22.491	0.00	0.00
20.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.100	0.000	22.491	0.00	0.00
22.00	2" Conduit	Yes	1.50	0.000	2.00	0.25	0.00	0.100	1.001	22.828	0.00	8.69
22.00	1" Reinforcing plate	Yes	1.50	0.000	2.00	0.25	0.00	0.100	1.001	22.828	0.00	0.00
22.00	1" Reinforcing plate	Yes	1.50	0.000	0.00	0.00	0.00	0.100	1.001	22.828	0.00	0.00
24.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.101	1.004	23.250	0.00	11.59
24.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.101	1.004	23.250	0.00	0.00
24.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.101	1.004	23.250	0.00	0.00
24.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.101	1.004	23.250	0.00	0.00
25.96	2" Conduit	Yes	1.96	0.000	2.00	0.33	0.00	0.102	1.006	23.638	0.00	11.36
25.96	1" Reinforcing plate	Yes	1.96	0.000	2.00	0.33	0.00	0.102	1.006	23.638	0.00	0.00
25.96	1" Reinforcing plate	Yes	1.96	0.000	0.00	0.00	0.00	0.102	1.006	23.638	0.00	0.00
25.96	1" Reinforcing plate	Yes	1.96	0.000	0.00	0.00	0.00	0.102	1.006	23.638	0.00	0.00

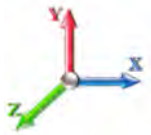
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
26.00	2" Conduit	Yes	0.04	0.000	2.00	0.01	0.00	0.102	1.007	23.645	0.00	0.23
26.00	1" Reinforcing plate	Yes	0.04	0.000	2.00	0.01	0.00	0.102	1.007	23.645	0.00	0.00
26.00	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.102	1.007	23.645	0.00	0.00
26.00	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.102	1.007	23.645	0.00	0.00
27.88	2" Conduit	Yes	1.88	0.000	2.00	0.31	0.00	0.103	1.008	23.995	0.00	10.90
27.88	1" Reinforcing plate	Yes	1.88	0.000	2.00	0.31	0.00	0.103	1.008	23.995	0.00	0.00
27.88	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.103	1.008	23.995	0.00	0.00
27.88	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.103	1.008	23.995	0.00	0.00
28.00	2" Conduit	Yes	0.12	0.000	2.00	0.02	0.00	0.103	1.010	24.017	0.00	0.70
28.00	1" Reinforcing plate	Yes	0.12	0.000	2.00	0.02	0.00	0.103	1.010	24.017	0.00	0.00
28.00	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.103	1.010	24.017	0.00	0.00
28.00	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.103	1.010	24.017	0.00	0.00
30.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.104	1.011	24.369	0.00	11.59
30.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.104	1.011	24.369	0.00	0.00
30.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.104	1.011	24.369	0.00	0.00
30.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.104	1.011	24.369	0.00	0.00
32.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.105	1.014	24.702	0.00	11.59
32.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.105	1.014	24.702	0.00	0.00
32.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.105	1.014	24.702	0.00	0.00
32.00	1" Reinforcing plate	Yes	1.50	0.000	0.00	0.00	0.00	0.105	1.014	24.702	0.00	0.00
32.00	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.105	1.014	24.702	0.00	0.00
34.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.105	1.016	25.019	0.00	11.59
34.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.105	1.016	25.019	0.00	0.00
34.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.105	1.016	25.019	0.00	0.00
34.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.105	1.016	25.019	0.00	0.00
36.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.106	1.019	25.322	0.00	11.59
36.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.106	1.019	25.322	0.00	0.00
36.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.106	1.019	25.322	0.00	0.00
36.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.106	1.019	25.322	0.00	0.00
38.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.107	1.022	25.612	0.00	11.59
38.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.107	1.022	25.612	0.00	0.00
38.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.107	1.022	25.612	0.00	0.00
38.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.107	1.022	25.612	0.00	0.00
40.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.108	1.024	25.890	0.00	11.59
40.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.108	1.024	25.890	0.00	0.00
40.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.108	1.024	25.890	0.00	0.00
40.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.108	1.024	25.890	0.00	0.00
40.50	2" Conduit	Yes	0.50	0.000	2.00	0.08	0.00	0.109	1.026	25.958	0.00	2.90
40.50	1" Reinforcing plate	Yes	0.50	0.000	2.00	0.08	0.00	0.109	1.026	25.958	0.00	0.00
40.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.109	1.026	25.958	0.00	0.00
40.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.109	1.026	25.958	0.00	0.00
40.71	2" Conduit	Yes	0.21	0.000	2.00	0.04	0.00	0.109	1.027	25.986	0.00	1.22
40.71	1" Reinforcing plate	Yes	0.21	0.000	2.00	0.04	0.00	0.109	1.027	25.986	0.00	0.00
40.71	1" Reinforcing plate	Yes	0.21	0.000	0.00	0.00	0.00	0.109	1.027	25.986	0.00	0.00
40.71	1" Reinforcing plate	Yes	0.21	0.000	0.00	0.00	0.00	0.109	1.027	25.986	0.00	0.00
42.00	2" Conduit	Yes	1.29	0.000	2.00	0.21	0.00	0.109	1.028	26.157	0.00	7.48
42.00	1" Reinforcing plate	Yes	1.29	0.000	2.00	0.21	0.00	0.109	1.028	26.157	0.00	0.00

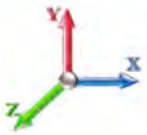
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
42.00	1" Reinforcing plate	Yes	1.29	0.000	0.00	0.00	0.00	0.109	1.028	26.157	0.00	0.00
42.00	1" Reinforcing plate	Yes	1.29	0.000	0.00	0.00	0.00	0.109	1.028	26.157	0.00	0.00
43.33	2" Conduit	Yes	1.33	0.000	2.00	0.22	0.00	0.110	1.029	26.330	0.00	7.73
43.33	1" Reinforcing plate	Yes	1.33	0.000	2.00	0.22	0.00	0.110	1.029	26.330	0.00	0.00
43.33	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.110	1.029	26.330	0.00	0.00
43.33	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.110	1.029	26.330	0.00	0.00
44.00	2" Conduit	Yes	0.67	0.000	2.00	0.11	0.00	0.110	1.031	26.415	0.00	3.86
44.00	1" Reinforcing plate	Yes	0.67	0.000	2.00	0.11	0.00	0.110	1.031	26.415	0.00	0.00
44.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.110	1.031	26.415	0.00	0.00
44.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.110	1.031	26.415	0.00	0.00
46.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	26.663	0.00	11.59
46.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	26.663	0.00	0.00
46.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.111	1.033	26.663	0.00	0.00
46.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.111	1.033	26.663	0.00	0.00
48.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.112	1.036	26.903	0.00	11.59
48.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.112	1.036	26.903	0.00	0.00
48.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.112	1.036	26.903	0.00	0.00
48.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.112	1.036	26.903	0.00	0.00
48.12	2" Conduit	Yes	0.12	0.000	2.00	0.02	0.00	0.111	1.033	26.917	0.00	0.70
48.12	1" Reinforcing plate	Yes	0.12	0.000	2.00	0.02	0.00	0.111	1.033	26.917	0.00	0.00
48.12	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.111	1.033	26.917	0.00	0.00
48.12	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.111	1.033	26.917	0.00	0.00
50.00	2" Conduit	Yes	1.88	0.000	2.00	0.31	0.00	0.111	1.034	27.135	0.00	10.90
50.00	1" Reinforcing plate	Yes	1.88	0.000	2.00	0.31	0.00	0.111	1.034	27.135	0.00	0.00
50.00	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.111	1.034	27.135	0.00	0.00
50.00	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.111	1.034	27.135	0.00	0.00
52.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.112	1.037	27.360	0.00	11.59
52.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.112	1.037	27.360	0.00	0.00
52.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.112	1.037	27.360	0.00	0.00
52.00	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.112	1.037	27.360	0.00	0.00
54.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.113	1.040	27.579	0.00	11.59
54.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.113	1.040	27.579	0.00	0.00
54.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.113	1.040	27.579	0.00	0.00
56.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.114	1.043	27.790	0.00	11.59
56.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.114	1.043	27.790	0.00	0.00
56.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.114	1.043	27.790	0.00	0.00
58.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.115	1.046	27.997	0.00	11.59
58.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.115	1.046	27.997	0.00	0.00
58.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.115	1.046	27.997	0.00	0.00
60.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.116	1.049	28.197	0.00	11.59
60.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.116	1.049	28.197	0.00	0.00
60.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.116	1.049	28.197	0.00	0.00
60.71	2" Conduit	Yes	0.71	0.000	2.00	0.12	0.00	0.117	1.051	28.267	0.00	4.12
60.71	1" Reinforcing plate	Yes	0.71	0.000	2.00	0.12	0.00	0.117	1.051	28.267	0.00	0.00
60.71	1" Reinforcing plate	Yes	0.71	0.000	0.00	0.00	0.00	0.117	1.051	28.267	0.00	0.00
60.75	2" Conduit	Yes	0.04	0.000	2.00	0.01	0.00	0.117	1.052	28.271	0.00	0.23
60.75	1" Reinforcing plate	Yes	0.04	0.000	2.00	0.01	0.00	0.117	1.052	28.271	0.00	0.00

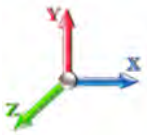
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
60.75	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.117	1.052	28.271	0.00	0.00
62.00	2" Conduit	Yes	1.25	0.000	2.00	0.21	0.00	0.118	1.053	28.392	0.00	7.25
62.00	1" Reinforcing plate	Yes	1.25	0.000	2.00	0.21	0.00	0.118	1.053	28.392	0.00	0.00
62.00	1" Reinforcing plate	Yes	1.25	0.000	0.00	0.00	0.00	0.118	1.053	28.392	0.00	0.00
64.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.119	1.056	28.583	0.00	11.59
64.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.119	1.056	28.583	0.00	0.00
64.00	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.119	1.056	28.583	0.00	0.00
66.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.120	1.059	28.769	0.00	11.59
66.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.120	1.059	28.769	0.00	0.00
68.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.121	1.063	28.950	0.00	11.59
68.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.121	1.063	28.950	0.00	0.00
70.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.122	1.066	29.127	0.00	11.59
70.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.122	1.066	29.127	0.00	0.00
72.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.123	1.070	29.300	0.00	11.59
72.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.123	1.070	29.300	0.00	0.00
74.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.124	1.073	29.470	0.00	11.59
74.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.124	1.073	29.470	0.00	0.00
76.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.126	1.077	29.636	0.00	11.59
76.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.126	1.077	29.636	0.00	0.00
78.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.127	1.081	29.798	0.00	11.59
78.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.127	1.081	29.798	0.00	0.00
78.25	2" Conduit	Yes	0.25	0.000	2.00	0.04	0.00	0.128	1.083	29.818	0.00	1.45
78.25	1" Reinforcing plate	Yes	0.25	0.000	2.00	0.04	0.00	0.128	1.083	29.818	0.00	0.00
80.00	2" Conduit	Yes	1.75	0.000	2.00	0.29	0.00	0.128	1.085	29.958	0.00	10.14
80.00	1" Reinforcing plate	Yes	1.75	0.000	2.00	0.29	0.00	0.128	1.085	29.958	0.00	0.00
82.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.097	0.000	30.114	0.00	11.59
82.00	1" Reinforcing plate	Yes	1.00	0.000	2.00	0.17	0.00	0.097	0.000	30.114	0.00	0.00
84.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.065	0.000	30.267	0.00	11.59
86.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.066	0.000	30.417	0.00	11.59
87.42	2" Conduit	Yes	1.42	0.000	2.00	0.24	0.00	0.067	0.000	30.522	0.00	8.21
88.00	2" Conduit	Yes	0.58	0.000	2.00	0.10	0.00	0.067	0.000	30.565	0.00	3.38
90.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.068	0.000	30.710	0.00	11.59
91.33	2" Conduit	Yes	1.33	0.000	2.00	0.22	0.00	0.068	0.000	30.805	0.00	7.73
92.00	2" Conduit	Yes	0.67	0.000	2.00	0.11	0.00	0.068	0.000	30.852	0.00	3.86
94.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.068	0.000	30.992	0.00	11.59
96.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.069	0.000	31.130	0.00	11.59
98.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.070	0.000	31.265	0.00	11.59
100.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.070	0.000	31.399	0.00	11.59
102.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.071	0.000	31.530	0.00	11.59
104.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.072	0.000	31.659	0.00	11.59
106.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.073	0.000	31.786	0.00	11.59
108.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.074	0.000	31.911	0.00	11.59
110.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.074	0.000	32.035	0.00	11.59
112.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.075	0.000	32.157	0.00	11.59
114.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.076	0.000	32.277	0.00	11.59
116.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.077	0.000	32.395	0.00	11.59
118.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.078	0.000	32.512	0.00	11.59

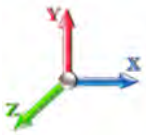
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
120.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.079	0.000	32.627	0.00	11.59
122.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	32.741	0.00	11.59
124.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	32.853	0.00	11.59
126.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	32.964	0.00	11.59
128.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	33.073	0.00	11.59
129.00	2" Conduit	Yes	1.00	0.000	2.00	0.17	0.00	0.111	1.033	33.128	0.00	5.80
										Totals:	**0.0**	**747.7**

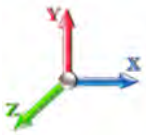
Calculated Forces

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 26

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	-37.51	-35.76	0.00	-3625.3	0.00	3625.39	2818.94	1409.47	4888.80	2448.04	0.00	0.000	0.000	0.707
2.00	-37.01	-35.66	0.00	-3553.8	0.00	3553.87	2805.89	1402.95	4830.09	2418.63	0.02	-0.103	0.000	0.699
4.00	-36.52	-35.55	0.00	-3482.5	0.00	3482.55	2792.73	1396.36	4771.51	2389.30	0.09	-0.205	0.000	0.690
6.00	-36.02	-35.44	0.00	-3411.4	0.00	3411.46	2779.45	1389.73	4713.08	2360.04	0.20	-0.307	0.000	0.681
8.00	-35.53	-35.33	0.00	-3340.5	0.00	3340.57	2766.06	1383.03	4654.80	2330.86	0.35	-0.409	0.000	0.673
10.00	-35.08	-35.20	0.00	-3269.9	0.00	3269.91	2752.56	1376.28	4596.67	2301.75	0.54	-0.511	0.000	0.664
10.25	-34.99	-35.21	0.00	-3261.1	0.00	3261.11	2750.86	1375.43	4589.41	2298.12	0.57	-0.524	0.000	0.695
12.00	-34.56	-35.12	0.00	-3199.5	0.00	3199.50	2738.94	1369.47	4538.70	2272.72	0.78	-0.617	0.000	0.687
14.00	-34.08	-35.01	0.00	-3129.2	0.00	3129.27	2725.20	1362.60	4480.89	2243.77	1.06	-0.723	0.000	0.678
16.00	-33.60	-34.90	0.00	-3059.2	0.00	3059.24	2711.35	1355.68	4423.25	2214.91	1.38	-0.828	0.000	0.668
18.00	-33.12	-34.79	0.00	-2989.4	0.00	2989.44	2697.39	1348.70	4365.78	2186.13	1.75	-0.933	0.000	0.659
20.00	-32.67	-34.65	0.00	-2919.8	0.00	2919.87	2683.32	1341.66	4308.48	2157.44	2.17	-1.038	0.000	0.649
20.50	-32.54	-34.63	0.00	-2902.5	0.00	2902.55	2679.78	1339.89	4294.19	2150.28	2.28	-1.064	0.000	0.646
22.00	-32.18	-34.55	0.00	-2850.6	0.00	2850.60	2669.12	1334.56	4251.37	2128.84	2.62	-1.143	0.000	0.639
24.00	-31.71	-34.42	0.00	-2781.5	0.00	2781.51	2654.82	1327.41	4194.44	2100.34	3.13	-1.246	0.000	0.629
25.96	-31.29	-34.26	0.00	-2714.0	0.00	2714.06	2640.69	1320.34	4138.83	2072.49	3.66	-1.348	0.000	0.544
26.00	-31.26	-34.28	0.00	-2712.6	0.00	2712.69	2640.40	1320.20	4137.70	2071.92	3.67	-1.349	0.000	0.544
27.88	-30.85	-34.13	0.00	-2648.2	0.00	2648.23	2626.74	1313.37	4084.54	2045.30	4.22	-1.434	0.000	0.668
28.00	-30.79	-34.15	0.00	-2644.1	0.00	2644.14	2625.87	1312.93	4081.15	2043.61	4.25	-1.441	0.000	0.668
30.00	-30.33	-34.02	0.00	-2575.8	0.00	2575.84	2611.22	1305.61	4024.80	2015.39	4.88	-1.553	0.000	0.657
32.00	-29.88	-33.88	0.00	-2507.8	0.00	2507.81	2596.46	1298.23	3968.65	1987.27	5.56	-1.664	0.000	0.645
34.00	-29.42	-33.74	0.00	-2440.0	0.00	2440.04	2581.58	1290.79	3912.71	1959.26	6.28	-1.775	0.000	0.634
36.00	-28.97	-33.60	0.00	-2372.5	0.00	2372.56	2566.59	1283.29	3856.98	1931.36	7.04	-1.884	0.000	0.623
38.00	-28.52	-33.45	0.00	-2305.3	0.00	2305.36	2551.48	1275.74	3801.46	1903.56	7.86	-1.993	0.000	0.611
40.00	-28.10	-33.29	0.00	-2238.4	0.00	2238.45	2536.26	1268.13	3746.17	1875.87	8.72	-2.101	0.000	0.599
40.50	-28.00	-33.25	0.00	-2221.8	0.00	2221.81	2532.44	1266.22	3732.38	1868.96	8.94	-2.128	0.000	0.596
40.71	-27.93	-33.24	0.00	-2214.8	0.00	2214.83	2530.83	1265.42	3726.59	1866.07	9.03	-2.140	0.000	0.595
42.00	-27.65	-33.15	0.00	-2171.9	0.00	2171.94	2520.93	1260.46	3691.10	1848.29	9.62	-2.209	0.000	0.587
43.33	-27.37	-33.04	0.00	-2127.7	0.00	2127.74	2510.64	1255.32	3654.51	1829.97	10.25	-2.280	0.000	0.579
44.00	-27.13	-33.00	0.00	-2105.7	0.00	2105.72	2505.48	1252.74	3636.25	1820.83	10.57	-2.315	0.000	0.568
46.00	-26.46	-32.83	0.00	-2039.7	0.00	2039.72	2489.92	1244.96	3581.64	1793.48	11.56	-2.419	0.000	0.555
48.00	-25.84	-32.64	0.00	-1974.0	0.00	1974.06	1854.44	927.22	2691.60	1347.80	12.59	-2.521	0.000	0.598
48.12	-25.78	-32.65	0.00	-1970.1	0.00	1970.14	1853.85	926.92	2689.31	1346.66	12.66	-2.527	0.000	0.730
50.00	-25.42	-32.51	0.00	-1908.7	0.00	1908.76	1844.56	922.28	2653.53	1328.74	13.68	-2.644	0.000	0.713
52.00	-25.04	-32.36	0.00	-1843.7	0.00	1843.74	1834.56	917.28	2615.56	1309.72	14.81	-2.766	0.000	0.696
54.00	-24.66	-32.20	0.00	-1779.0	0.00	1779.03	1824.45	912.23	2577.68	1290.76	15.99	-2.887	0.000	0.678
56.00	-24.29	-32.04	0.00	-1714.6	0.00	1714.63	1814.23	907.11	2539.90	1271.84	17.23	-3.005	0.000	0.660
58.00	-23.92	-31.88	0.00	-1650.5	0.00	1650.56	1803.89	901.94	2502.23	1252.97	18.51	-3.122	0.000	0.641
60.00	-23.58	-31.70	0.00	-1586.8	0.00	1586.80	1793.44	896.72	2464.66	1234.16	19.84	-3.238	0.000	0.623
60.71	-23.46	-31.63	0.00	-1564.3	0.00	1564.30	1789.70	894.85	2451.36	1227.50	20.33	-3.278	0.000	0.780
60.75	-23.43	-31.65	0.00	-1563.0	0.00	1563.03	1789.49	894.74	2450.61	1227.12	20.36	-3.281	0.000	0.780
62.00	-23.18	-31.56	0.00	-1523.4	0.00	1523.47	1782.87	891.44	2427.21	1215.41	21.23	-3.371	0.000	0.765
64.00	-22.80	-31.41	0.00	-1460.3	0.00	1460.35	1772.19	886.09	2389.88	1196.72	22.67	-3.512	0.000	0.742
66.00	-22.44	-31.25	0.00	-1397.5	0.00	1397.54	1761.39	880.70	2352.67	1178.08	24.17	-3.650	0.000	0.719
68.00	-22.07	-31.08	0.00	-1335.0	0.00	1335.04	1750.48	875.24	2315.58	1159.51	25.73	-3.785	0.000	0.695
70.00	-21.71	-30.92	0.00	-1272.8	0.00	1272.87	1739.46	869.73	2278.63	1141.01	27.34	-3.918	0.000	0.670
72.00	-21.36	-30.75	0.00	-1211.0	0.00	1211.03	1728.32	864.16	2241.81	1122.57	29.01	-4.047	0.000	0.646
74.00	-21.01	-30.58	0.00	-1149.5	0.00	1149.53	1717.07	858.54	2205.13	1104.20	30.73	-4.173	0.000	0.620

Calculated Forces

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 21

76.00	-20.66	-30.41	0.00	-1088.3	0.00	1088.36	1705.70	852.85	2168.59	1085.91	32.50	-4.295	0.000	0.595
78.00	-20.35	-30.22	0.00	-1027.5	0.00	1027.53	1694.22	847.11	2132.20	1067.69	34.33	-4.414	0.000	0.569
78.25	-20.28	-30.21	0.00	-1019.9	0.00	1019.98	1692.78	846.39	2127.67	1065.41	34.56	-4.429	0.000	0.565
78.25	-20.28	-30.21	0.00	-1019.9	0.00	1019.98	1692.78	846.39	2127.67	1065.41	34.56	-4.429	0.000	0.565
80.00	-19.96	-30.08	0.00	-967.10	0.00	967.10	1682.63	841.31	2095.97	1049.54	36.20	-4.529	0.000	0.935
82.00	-19.59	-29.94	0.00	-906.95	0.00	906.95	1670.92	835.46	2059.89	1031.48	38.13	-4.720	0.000	0.892
84.00	-19.22	-29.80	0.00	-847.07	0.00	847.07	1659.09	829.55	2023.98	1013.49	40.15	-4.904	0.000	0.849
86.00	-18.88	-29.65	0.00	-787.46	0.00	787.46	1647.16	823.58	1988.23	995.59	42.24	-5.081	0.000	0.804
87.42	-18.64	-29.54	0.00	-745.46	0.00	745.46	1638.63	819.32	1963.01	982.97	43.77	-5.202	0.000	0.771
88.00	-18.47	-29.51	0.00	-728.23	0.00	728.23	1635.10	817.55	1952.65	977.78	44.40	-5.251	0.000	0.757
90.00	-14.70	-23.80	0.00	-669.21	0.00	669.21	1622.94	811.47	1917.25	960.05	46.64	-5.412	0.000	0.707
91.33	-14.41	-23.68	0.00	-637.48	0.00	637.48	1099.39	549.70	1312.06	657.00	48.16	-5.516	0.000	0.985
92.00	-14.29	-23.64	0.00	-621.69	0.00	621.69	1097.24	548.62	1304.79	653.36	48.94	-5.567	0.000	0.966
94.00	-13.96	-23.39	0.00	-574.41	0.00	574.41	1090.71	545.35	1282.99	642.45	51.31	-5.755	0.000	0.909
96.00	-13.68	-23.24	0.00	-527.62	0.00	527.62	1084.06	542.03	1261.23	631.55	53.75	-5.933	0.000	0.850
98.00	-13.41	-23.08	0.00	-481.15	0.00	481.15	1077.30	538.65	1239.51	620.68	56.27	-6.102	0.000	0.789
100.00	-11.42	-19.45	0.00	-434.98	0.00	434.98	1070.43	535.22	1217.83	609.82	58.86	-6.260	0.000	0.725
102.00	-11.19	-19.29	0.00	-396.08	0.00	396.08	1063.44	531.72	1196.21	598.99	61.51	-6.409	0.000	0.673
104.00	-10.97	-19.13	0.00	-357.50	0.00	357.50	1056.34	528.17	1174.63	588.19	64.22	-6.548	0.000	0.619
106.00	-10.75	-18.96	0.00	-319.25	0.00	319.25	1049.12	524.56	1153.11	577.41	66.98	-6.678	0.000	0.564
108.00	-10.54	-18.79	0.00	-281.33	0.00	281.33	1041.79	520.90	1131.65	566.67	69.80	-6.797	0.000	0.508
110.00	-8.55	-15.10	0.00	-243.75	0.00	243.75	1034.34	517.17	1110.26	555.96	72.67	-6.905	0.000	0.448
112.00	-8.39	-14.93	0.00	-213.55	0.00	213.55	1026.79	513.39	1088.94	545.28	75.57	-7.002	0.000	0.401
114.00	-8.23	-14.77	0.00	-183.68	0.00	183.68	1019.11	509.56	1067.70	534.64	78.52	-7.090	0.000	0.352
116.00	-8.08	-14.60	0.00	-154.15	0.00	154.15	1011.32	505.66	1046.53	524.04	81.50	-7.167	0.000	0.303
118.00	-7.93	-14.43	0.00	-124.95	0.00	124.95	1003.42	501.71	1025.45	513.49	84.51	-7.233	0.000	0.252
120.00	-5.44	-10.28	0.00	-96.09	0.00	96.09	995.40	497.70	1004.45	502.97	87.55	-7.287	0.000	0.197
120.00	-5.44	-10.28	0.00	-96.09	0.00	96.09	735.22	367.61	535.89	335.79	87.55	-7.287	0.000	0.294
122.00	-5.31	-10.16	0.00	-75.53	0.00	75.53	735.22	367.61	535.89	335.79	90.60	-7.331	0.000	0.233
124.00	-5.17	-10.04	0.00	-55.21	0.00	55.21	735.22	367.61	535.89	335.79	93.68	-7.399	0.000	0.172
126.00	-5.04	-9.92	0.00	-35.12	0.00	35.12	735.22	367.61	535.89	335.79	96.78	-7.446	0.000	0.112
128.00	-4.91	-9.80	0.00	-15.28	0.00	15.28	735.22	367.61	535.89	335.79	99.90	-7.472	0.000	0.053
129.00	-0.05	-0.08	0.00	-0.08	0.00	0.08	735.22	367.61	535.89	335.79	101.46	-7.477	0.000	0.000
130.00	0.00	-0.07	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	103.02	-7.477	0.000	0.000

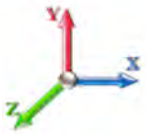
Wind Loading - Shaft

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00	RB1 RB2	1.00	0.85	21.088	23.20	334.88	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
2.00		1.00	0.85	21.088	23.20	332.43	0.650	0.000	2.00	7.166	4.66	172.9	0.0	255.3
4.00		1.00	0.85	21.088	23.20	329.98	0.650	0.000	2.00	7.114	4.62	171.6	0.0	253.5
6.00		1.00	0.85	21.088	23.20	327.54	0.650	0.000	2.00	7.061	4.59	170.3	0.0	251.6
8.00		1.00	0.85	21.088	23.20	325.09	0.650	0.000	2.00	7.009	4.56	169.1	0.0	249.7
10.00		1.00	0.85	21.088	23.20	322.64	0.650	0.000	2.00	6.956	4.52	167.8	0.0	247.8
10.25	RT2 RB3	1.00	0.85	21.088	23.20	322.34	0.650	0.000	0.25	0.866	0.56	20.9	0.0	30.8
12.00		1.00	0.85	21.088	23.20	320.19	0.650	0.000	1.75	6.038	3.92	145.7	0.0	215.1
14.00		1.00	0.85	21.088	23.20	317.75	0.650	0.000	2.00	6.851	4.45	165.3	0.0	244.0
16.00		1.00	0.86	21.348	23.48	317.24	0.650	0.000	2.00	6.798	4.42	166.0	0.0	242.1
18.00		1.00	0.88	21.884	24.07	318.71	0.650	0.000	2.00	6.746	4.38	168.9	0.0	240.3
20.00		1.00	0.90	22.375	24.61	319.74	0.650	0.000	2.00	6.693	4.35	171.3	0.0	238.4
20.50	RT1 RB4	1.00	0.91	22.491	24.74	319.94	0.650	0.000	0.50	1.665	1.08	42.8	0.0	59.3
22.00		1.00	0.92	22.828	25.11	320.42	0.651 *	0.000	1.50	4.976	3.24	130.1	0.0	177.2
24.00		1.00	0.94	23.250	25.58	320.80	0.652 *	0.000	2.00	6.588	4.30	175.9	0.0	234.6
25.96	RB5	1.00	0.95	23.638	26.00	320.92	0.654 *	0.000	1.96	6.405	4.19	174.2	0.0	228.1
26.00		1.00	0.95	23.645	26.01	320.92	0.655 *	0.000	0.04	0.130	0.09	3.5	0.0	4.6
27.88	RT3 RB6	1.00	0.97	23.995	26.39	320.83	0.655 *	0.000	1.88	6.096	4.00	168.7	0.0	217.0
28.00		1.00	0.97	24.017	26.42	320.82	0.656 *	0.000	0.12	0.387	0.25	10.7	0.0	13.8
30.00		1.00	0.98	24.369	26.81	320.53	0.657 *	0.000	2.00	6.430	4.23	181.2	0.0	228.9
32.00		1.00	1.00	24.702	27.17	320.06	0.659 *	0.000	2.00	6.378	4.20	182.7	0.0	227.0
34.00		1.00	1.01	25.019	27.52	319.45	0.661 *	0.000	2.00	6.325	4.18	184.0	0.0	225.2
36.00		1.00	1.02	25.322	27.85	318.69	0.662 *	0.000	2.00	6.273	4.15	185.1	0.0	223.3
38.00		1.00	1.03	25.612	28.17	317.82	0.664 *	0.000	2.00	6.220	4.13	186.2	0.0	221.4
40.00		1.00	1.04	25.890	28.48	316.82	0.666 *	0.000	2.00	6.168	4.11	187.1	0.0	219.5
40.50	RT4 RB7	1.00	1.05	25.958	28.55	316.56	0.667 *	0.000	0.50	1.534	1.02	46.7	0.0	54.6
40.71	RT5 RB8	1.00	1.05	25.986	28.58	316.45	0.667 *	0.000	0.21	0.643	0.43	19.6	0.0	22.9
42.00		1.00	1.05	26.157	28.77	315.73	0.668 *	0.000	1.29	3.938	2.63	121.1	0.0	140.1
43.33	Bot - Section 2	1.00	1.06	26.330	28.96	314.95	0.669 *	0.000	1.33	4.048	2.71	125.5	0.0	144.0
44.00		1.00	1.06	26.415	29.06	314.54	0.670 *	0.000	0.67	2.043	1.37	63.6	0.0	130.0
46.00		1.00	1.07	26.663	29.33	313.26	0.671 *	0.000	2.00	6.095	4.09	192.0	0.0	387.6
48.00	Top - Section 1	1.00	1.08	26.903	29.59	311.91	0.673 *	0.000	2.00	6.042	4.07	192.6	0.0	384.2
48.12	RT6	1.00	1.08	26.917	29.61	316.27	0.671 *	0.000	0.12	0.361	0.24	11.5	0.0	10.3
50.00		1.00	1.09	27.135	29.85	314.94	0.672 *	0.000	1.88	5.629	3.78	180.7	0.0	160.5
52.00		1.00	1.10	27.360	30.10	313.46	0.674 *	0.000	2.00	5.937	4.00	192.7	0.0	169.3
54.00		1.00	1.11	27.579	30.34	311.91	0.676 *	0.000	2.00	5.884	3.98	193.1	0.0	167.8
56.00		1.00	1.12	27.790	30.57	310.29	0.678 *	0.000	2.00	5.832	3.95	193.4	0.0	166.3
58.00		1.00	1.13	27.997	30.80	308.62	0.680 *	0.000	2.00	5.779	3.93	193.6	0.0	164.7
60.00		1.00	1.14	28.197	31.02	306.90	0.682 *	0.000	2.00	5.727	3.91	193.8	0.0	163.2
60.71	RT8	1.00	1.14	28.267	31.09	306.27	0.683 *	0.000	0.71	2.020	1.38	68.7	0.0	57.6
60.75	RT7 RB9	1.00	1.14	28.271	31.10	306.24	0.684 *	0.000	0.04	0.114	0.08	3.9	0.0	3.2
62.00		1.00	1.14	28.392	31.23	305.12	0.685 *	0.000	1.25	3.540	2.42	121.1	0.0	100.9
64.00		1.00	1.15	28.583	31.44	303.29	0.686 *	0.000	2.00	5.622	3.86	194.1	0.0	160.2
66.00		1.00	1.16	28.769	31.65	301.42	0.688 *	0.000	2.00	5.569	3.83	194.1	0.0	158.7
68.00		1.00	1.17	28.950	31.84	299.50	0.691 *	0.000	2.00	5.516	3.81	194.1	0.0	157.2
70.00		1.00	1.17	29.127	32.04	297.54	0.693 *	0.000	2.00	5.464	3.79	194.1	0.0	155.7
72.00		1.00	1.18	29.300	32.23	295.54	0.695 *	0.000	2.00	5.411	3.76	194.0	0.0	154.2

Wind Loading - Shaft

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

74.00	1.00	1.19	29.470	32.42	293.50	0.698 *	0.000	2.00	5.359	3.74	193.9	0.0	152.7
76.00	1.00	1.19	29.636	32.60	291.42	0.700 *	0.000	2.00	5.306	3.71	193.7	0.0	151.2
78.00	1.00	1.20	29.798	32.78	289.31	0.702 *	0.000	2.00	5.254	3.69	193.5	0.0	149.7
78.25 RT9	1.00	1.20	29.818	32.80	289.04	0.704 *	0.000	0.25	0.653	0.46	24.1	0.0	18.6
80.00	1.00	1.21	29.958	32.95	287.16	0.705 *	0.000	1.75	4.548	3.21	169.1	0.0	129.5
82.00	1.00	1.21	30.114	33.13	284.99	0.650	0.000	2.00	5.148	3.35	177.4	0.0	146.6
84.00	1.00	1.22	30.267	33.29	282.78	0.650	0.000	2.00	5.096	3.31	176.4	0.0	145.1
86.00	1.00	1.23	30.417	33.46	280.54	0.650	0.000	2.00	5.043	3.28	175.5	0.0	143.6
87.42 Bot - Section 3	1.00	1.23	30.522	33.57	278.94	0.650	0.000	1.42	3.541	2.30	123.6	0.0	100.8
88.00	1.00	1.23	30.565	33.62	278.27	0.650	0.000	0.58	1.469	0.95	51.4	0.0	72.7
90.00 Appurtenance(s)	1.00	1.24	30.710	33.78	275.98	0.650	0.000	2.00	5.002	3.25	175.7	0.0	247.6
91.33 Top - Section 2	1.00	1.24	30.805	33.89	274.44	0.650	0.000	1.33	3.305	2.15	116.5	0.0	163.6
92.00	1.00	1.24	30.852	33.94	277.23	0.650	0.000	0.67	1.644	1.07	58.0	0.0	35.2
94.00 Appurtenance(s)	1.00	1.25	30.992	34.09	274.89	0.650	0.000	2.00	4.897	3.18	173.6	0.0	104.8
96.00	1.00	1.25	31.130	34.24	272.53	0.650	0.000	2.00	4.844	3.15	172.5	0.0	103.6
98.00	1.00	1.26	31.265	34.39	270.14	0.650	0.000	2.00	4.791	3.11	171.4	0.0	102.5
100.00 Appurtenance(s)	1.00	1.27	31.399	34.54	267.73	0.650	0.000	2.00	4.739	3.08	170.2	0.0	101.4
102.00	1.00	1.27	31.530	34.68	265.30	0.650	0.000	2.00	4.686	3.05	169.0	0.0	100.2
104.00	1.00	1.28	31.659	34.82	262.84	0.650	0.000	2.00	4.634	3.01	167.8	0.0	99.1
106.00	1.00	1.28	31.786	34.96	260.37	0.650	0.000	2.00	4.581	2.98	166.6	0.0	98.0
108.00	1.00	1.29	31.911	35.10	257.87	0.650	0.000	2.00	4.529	2.94	165.3	0.0	96.9
110.00 Appurtenance(s)	1.00	1.29	32.035	35.24	255.35	0.650	0.000	2.00	4.476	2.91	164.0	0.0	95.7
112.00	1.00	1.30	32.157	35.37	252.81	0.650	0.000	2.00	4.423	2.88	162.7	0.0	94.6
114.00	1.00	1.30	32.277	35.50	250.26	0.650	0.000	2.00	4.371	2.84	161.4	0.0	93.5
116.00	1.00	1.31	32.395	35.63	247.68	0.650	0.000	2.00	4.318	2.81	160.0	0.0	92.3
118.00	1.00	1.31	32.512	35.76	245.09	0.650	0.000	2.00	4.266	2.77	158.7	0.0	91.2
120.00 Top - Section 3	1.00	1.32	32.627	35.89	242.48	0.650	0.000	2.00	4.213	2.74	157.3	0.0	90.1
122.00	1.00	1.32	32.741	36.01	174.04	0.620 *	0.000	2.00	3.000	1.86	107.2	0.0	85.4
124.00	1.00	1.32	32.853	36.14	174.34	0.620 *	0.000	2.00	3.000	1.86	107.5	0.0	85.4
126.00	1.00	1.33	32.964	36.26	174.63	0.620 *	0.000	2.00	3.000	1.86	107.9	0.0	85.4
128.00	1.00	1.33	33.073	36.38	174.92	0.620 *	0.000	2.00	3.000	1.86	108.3	0.0	85.4
129.00 Appurtenance(s)	1.00	1.34	33.128	36.44	175.07	0.620 *	0.000	1.00	1.500	0.93	54.2	0.0	42.7
130.00 Appurtenance(s)	1.00	1.34	33.182	36.50	175.21	0.600	0.000	1.00	1.500	0.90	52.6	0.0	42.7
							Totals:	**130.00**			**11,273.3**		**11,409.5**

* Cf Adjusted by Linear Load Ra Effect

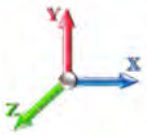
Discrete Appurtenance Forces

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

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	130.00	6' Lightning rod	1	33.182	36.500	1.00	1.00	0.38	5.85	0.000	0.000	22.19	0.00	0.00
2	129.00	OPA-65R-LCUU-H6	3	33.182	36.500	0.59	0.75	17.08	216.00	0.000	1.000	997.68	0.00	997.68
3	129.00	RRUS E2 B29	3	33.182	36.500	0.38	0.75	3.54	160.38	0.000	1.000	206.95	0.00	206.95
4	129.00	DC6-48-60-18-8F	2	33.182	36.500	0.38	0.75	0.69	57.24	0.000	1.000	40.30	0.00	40.30
5	129.00	DC6-48-60-0-8C	2	33.182	36.500	0.38	0.75	3.58	28.80	0.000	1.000	209.36	0.00	209.36
6	129.00	MTC3607 Platform + HR	1	33.128	36.440	1.00	1.00	45.40	1800.00	0.000	0.000	2647.04	0.00	0.00
7	129.00	Angle Reinforcement	1	33.128	36.440	1.00	1.00	5.80	225.00	0.000	0.000	338.17	0.00	0.00
8	129.00	PRK-1245 (kicker kit)	1	33.128	36.440	1.00	1.00	9.50	418.42	0.000	0.000	553.90	0.00	0.00
9	129.00	RRUS 4478 B14	3	33.182	36.500	0.38	0.75	1.86	160.38	0.000	1.000	108.40	0.00	108.40
10	129.00	4449 B5/B12	3	33.182	36.500	0.38	0.75	2.22	191.70	0.000	1.000	129.43	0.00	129.43
11	129.00	B2 B66A 8843	3	33.182	36.500	0.38	0.75	1.84	189.00	0.000	1.000	107.75	0.00	107.75
12	129.00	QS66512-2	3	33.182	36.500	0.69	0.75	16.79	299.70	0.000	1.000	980.68	0.00	980.68
13	129.00	RRUS 32	6	33.182	36.500	0.38	0.75	3.71	415.80	0.000	1.000	216.81	0.00	216.81
14	129.00	OPA65R-KE6D	6	33.182	36.500	0.54	0.75	41.24	341.82	0.000	1.000	2408.26	0.00	2408.26
15	120.00	MC-PK8-DSH	1	32.627	35.890	1.00	1.00	37.59	1554.30	0.000	0.000	2158.56	0.00	0.00
16	120.00	RDIDC-9181-OF-48	1	32.627	35.890	0.38	0.75	0.75	19.71	0.000	0.000	43.28	0.00	0.00
17	120.00	TA08025-B604	3	32.627	35.890	0.38	0.75	2.21	172.53	0.000	0.000	126.62	0.00	0.00
18	120.00	TA08025-B605	3	32.627	35.890	0.38	0.75	2.21	202.50	0.000	0.000	126.62	0.00	0.00
19	120.00	MX08FRO665-21	3	32.627	35.890	0.55	0.75	20.80	174.15	0.000	0.000	1194.18	0.00	0.00
20	110.00	T-Arm (Round)	3	32.035	35.238	0.56	0.75	13.50	945.00	0.000	0.000	761.15	0.00	0.00
21	110.00	DB-T1-6Z-8AB-0Z	2	32.035	35.238	0.40	0.80	3.84	34.02	0.000	0.000	216.50	0.00	0.00
22	110.00	B4 RRH2X60-4R	3	32.035	35.238	0.40	0.80	4.03	148.50	0.000	0.000	227.33	0.00	0.00
23	110.00	B13 RRH4X30-4R	3	32.035	35.238	0.40	0.80	2.59	154.44	0.000	0.000	146.14	0.00	0.00
24	110.00	RRH2X60-1900A-4R	3	32.035	35.238	0.40	0.80	2.26	124.20	0.000	0.000	127.20	0.00	0.00
25	110.00	SBNHH-1D65B	6	32.035	35.238	0.63	0.80	30.94	216.00	0.000	0.000	1744.59	0.00	0.00
26	110.00	CBC721-DF	3	31.973	35.171	0.40	0.80	0.54	11.88	0.000	-1.000	30.39	0.00	-30.39
27	110.00	CBC721-DF	3	32.096	35.306	0.40	0.80	0.54	11.88	0.000	1.000	30.50	0.00	30.50
28	100.00	AIR 21, 1.3M, B2A B4P	3	31.399	34.538	0.64	0.80	11.69	247.05	0.000	0.000	646.16	0.00	0.00
29	100.00	AIR 21, 1.3M, B4A B2P	3	31.399	34.538	0.64	0.80	11.69	244.08	0.000	0.000	646.16	0.00	0.00
30	100.00	LNX-6515DS-A1M	3	31.399	34.538	0.64	0.80	22.02	135.81	0.000	0.000	1216.99	0.00	0.00
31	100.00	782 11056	3	31.399	34.538	0.40	0.80	0.16	4.86	0.000	0.000	8.62	0.00	0.00
32	100.00	T-Arm (Round)	3	31.399	34.538	0.56	0.75	13.50	945.00	0.000	0.000	746.03	0.00	0.00
33	94.00	1'4"x6.5"x6" Surge	1	30.992	34.091	0.80	0.80	1.71	47.70	0.000	0.000	93.38	0.00	0.00
34	90.00	F3P-10W	1	30.710	33.781	1.00	1.00	51.77	1909.80	0.000	0.000	2798.12	0.00	0.00
35	90.00	NNVV-65B-R4	3	30.710	33.781	0.55	0.75	20.43	208.98	0.000	0.000	1104.20	0.00	0.00
36	90.00	AAHC	3	30.710	33.781	0.56	0.75	7.09	280.80	0.000	0.000	383.07	0.00	0.00
37	90.00	ALU - 800 MHz - RRU	6	30.710	33.781	0.38	0.75	5.60	286.20	0.000	0.000	302.81	0.00	0.00
38	90.00	ALU - 1900MHz - RRU	3	30.710	33.781	0.38	0.75	4.27	118.80	0.000	0.000	231.06	0.00	0.00
39	90.00	Andrew - VHLP2-11	2	30.710	33.781	0.75	0.75	7.02	48.60	0.000	0.000	379.42	0.00	0.00
							Totals:		**12,756.88**			**24,456.01**		

Total Applied Force Summary

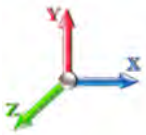
Structure:	CT13064-A-SBA		**Code:**	TIA-222-G	2/11/2022
Site Name:	Middletown 2, CT		**Exposure:**	C	
Height:	130.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 25

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

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
2.00		172.88	326.61	0.00	0.00
4.00		171.61	324.73	0.00	0.00
6.00		170.35	322.84	0.00	0.00
8.00		169.08	320.95	0.00	0.00
10.00		167.81	319.06	0.00	0.00
10.25		20.89	39.75	0.00	0.00
12.00		145.65	277.43	0.00	0.00
14.00		165.27	315.29	0.00	0.00
16.00		166.03	313.40	0.00	0.00
18.00		168.88	311.52	0.00	0.00
20.00		171.33	309.63	0.00	0.00
20.50		42.84	77.11	0.00	0.00
22.00		130.13	230.63	0.00	0.00
24.00		175.86	305.86	0.00	0.00
25.96		174.25	297.91	0.00	0.00
26.00		3.55	6.06	0.00	0.00
27.88		168.74	284.01	0.00	0.00
28.00		10.75	18.07	0.00	0.00
30.00		181.24	300.20	0.00	0.00
32.00		182.68	298.31	0.00	0.00
34.00		183.97	296.42	0.00	0.00
36.00		185.14	294.54	0.00	0.00
38.00		186.18	292.65	0.00	0.00
40.00		187.11	290.76	0.00	0.00
40.50		46.73	72.40	0.00	0.00
40.71		19.63	30.37	0.00	0.00
42.00		121.09	186.11	0.00	0.00
43.33		125.50	191.54	0.00	0.00
44.00		63.65	153.72	0.00	0.00
46.00		191.99	458.91	0.00	0.00
48.00		192.60	455.51	0.00	0.00
48.12		11.47	14.57	0.00	0.00
50.00		180.67	227.48	0.00	0.00
52.00		192.68	240.54	0.00	0.00
54.00		193.05	239.03	0.00	0.00
56.00		193.37	237.52	0.00	0.00
58.00		193.62	236.01	0.00	0.00
60.00		193.82	234.50	0.00	0.00
60.71		68.69	82.89	0.00	0.00
60.75		3.87	4.66	0.00	0.00
62.00		121.09	145.44	0.00	0.00
64.00		194.07	231.48	0.00	0.00
66.00		194.12	229.97	0.00	0.00
68.00		194.12	228.46	0.00	0.00
70.00		194.09	226.96	0.00	0.00
72.00		194.01	225.45	0.00	0.00

Total Applied Force Summary

Structure:	CT13064-A-SBA		**Code:**	TIA-222-G	2/11/2022
Site Name:	Middletown 2, CT		**Exposure:**	C	
Height:	130.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 26

74.00		193.89	223.94	0.00	0.00
76.00		193.73	222.43	0.00	0.00
78.00		193.54	220.92	0.00	0.00
78.25		24.12	27.51	0.00	0.00
80.00		169.08	191.90	0.00	0.00
82.00		177.36	217.90	0.00	0.00
84.00		176.45	216.39	0.00	0.00
86.00		175.49	214.88	0.00	0.00
87.42		123.63	151.29	0.00	0.00
88.00		51.36	93.51	0.00	0.00
90.00	(18) attachments	5374.41	3172.08	0.00	0.00
91.33		116.48	206.12	0.00	0.00
92.00		58.02	56.42	0.00	0.00
94.00	(1) attachments	266.99	216.22	0.00	0.00
96.00		172.51	167.38	0.00	0.00
98.00		171.38	166.25	0.00	0.00
100.00	(15) attachments	3434.18	1741.92	0.00	0.00
102.00		169.03	150.77	0.00	0.00
104.00		167.82	149.64	0.00	0.00
106.00		166.59	148.51	0.00	0.00
108.00		165.32	147.38	0.00	0.00
110.00	(26) attachments	3447.85	1792.17	0.00	0.12
112.00		162.73	118.69	0.00	0.00
114.00		161.39	117.56	0.00	0.00
116.00		160.04	116.43	0.00	0.00
118.00		158.66	115.29	0.00	0.00
120.00	(11) attachments	3806.52	2237.35	0.00	0.00
122.00		107.18	106.21	0.00	0.00
124.00		107.55	106.21	0.00	0.00
126.00		107.91	106.21	0.00	0.00
128.00		108.27	106.21	0.00	0.00
129.00	(37) attachments	8998.94	4557.35	0.00	5405.62
130.00	(1) attachments	74.75	48.54	0.00	0.00
	Totals:	**35,729.32**	**28,158.86**	**0.00**	**5,405.73**

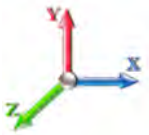
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
2.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.093	0.000	21.088	0.00	8.69
2.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.093	0.000	21.088	0.00	0.00
2.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.093	0.000	21.088	0.00	0.00
4.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.094	0.000	21.088	0.00	8.69
4.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.094	0.000	21.088	0.00	0.00
4.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.094	0.000	21.088	0.00	0.00
6.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.094	0.000	21.088	0.00	8.69
6.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.094	0.000	21.088	0.00	0.00
6.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.094	0.000	21.088	0.00	0.00
8.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.095	0.000	21.088	0.00	8.69
8.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.095	0.000	21.088	0.00	0.00
8.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.095	0.000	21.088	0.00	0.00
10.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.096	0.000	21.088	0.00	8.69
10.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.096	0.000	21.088	0.00	0.00
10.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.096	0.000	21.088	0.00	0.00
10.25	2" Conduit	Yes	0.25	0.000	2.00	0.04	0.00	0.096	0.000	21.088	0.00	1.09
10.25	1" Reinforcing plate	Yes	0.25	0.000	2.00	0.04	0.00	0.096	0.000	21.088	0.00	0.00
10.25	1" Reinforcing plate	Yes	0.25	0.000	0.00	0.00	0.00	0.096	0.000	21.088	0.00	0.00
12.00	2" Conduit	Yes	1.75	0.000	2.00	0.29	0.00	0.097	0.000	21.088	0.00	7.61
12.00	1" Reinforcing plate	Yes	1.75	0.000	2.00	0.29	0.00	0.097	0.000	21.088	0.00	0.00
12.00	1" Reinforcing plate	Yes	1.75	0.000	0.00	0.00	0.00	0.097	0.000	21.088	0.00	0.00
14.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.097	0.000	21.088	0.00	8.69
14.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.097	0.000	21.088	0.00	0.00
14.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.097	0.000	21.088	0.00	0.00
16.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.098	0.000	21.348	0.00	8.69
16.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.098	0.000	21.348	0.00	0.00
16.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.098	0.000	21.348	0.00	0.00
18.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.099	0.000	21.884	0.00	8.69
18.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.099	0.000	21.884	0.00	0.00
18.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.099	0.000	21.884	0.00	0.00
20.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.100	0.000	22.375	0.00	8.69
20.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.100	0.000	22.375	0.00	0.00
20.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.100	0.000	22.375	0.00	0.00
20.50	2" Conduit	Yes	0.50	0.000	2.00	0.08	0.00	0.100	0.000	22.491	0.00	2.17
20.50	1" Reinforcing plate	Yes	0.50	0.000	2.00	0.08	0.00	0.100	0.000	22.491	0.00	0.00
20.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.100	0.000	22.491	0.00	0.00
22.00	2" Conduit	Yes	1.50	0.000	2.00	0.25	0.00	0.100	1.001	22.828	0.00	6.52
22.00	1" Reinforcing plate	Yes	1.50	0.000	2.00	0.25	0.00	0.100	1.001	22.828	0.00	0.00
22.00	1" Reinforcing plate	Yes	1.50	0.000	0.00	0.00	0.00	0.100	1.001	22.828	0.00	0.00
24.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.101	1.004	23.250	0.00	8.69
24.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.101	1.004	23.250	0.00	0.00
24.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.101	1.004	23.250	0.00	0.00
24.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.101	1.004	23.250	0.00	0.00
25.96	2" Conduit	Yes	1.96	0.000	2.00	0.33	0.00	0.102	1.006	23.638	0.00	8.52
25.96	1" Reinforcing plate	Yes	1.96	0.000	2.00	0.33	0.00	0.102	1.006	23.638	0.00	0.00
25.96	1" Reinforcing plate	Yes	1.96	0.000	0.00	0.00	0.00	0.102	1.006	23.638	0.00	0.00
25.96	1" Reinforcing plate	Yes	1.96	0.000	0.00	0.00	0.00	0.102	1.006	23.638	0.00	0.00

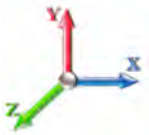
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 28	

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
26.00	2" Conduit	Yes	0.04	0.000	2.00	0.01	0.00	0.102	1.007	23.645	0.00	0.17
26.00	1" Reinforcing plate	Yes	0.04	0.000	2.00	0.01	0.00	0.102	1.007	23.645	0.00	0.00
26.00	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.102	1.007	23.645	0.00	0.00
26.00	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.102	1.007	23.645	0.00	0.00
27.88	2" Conduit	Yes	1.88	0.000	2.00	0.31	0.00	0.103	1.008	23.995	0.00	8.17
27.88	1" Reinforcing plate	Yes	1.88	0.000	2.00	0.31	0.00	0.103	1.008	23.995	0.00	0.00
27.88	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.103	1.008	23.995	0.00	0.00
27.88	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.103	1.008	23.995	0.00	0.00
28.00	2" Conduit	Yes	0.12	0.000	2.00	0.02	0.00	0.103	1.010	24.017	0.00	0.52
28.00	1" Reinforcing plate	Yes	0.12	0.000	2.00	0.02	0.00	0.103	1.010	24.017	0.00	0.00
28.00	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.103	1.010	24.017	0.00	0.00
28.00	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.103	1.010	24.017	0.00	0.00
30.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.104	1.011	24.369	0.00	8.69
30.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.104	1.011	24.369	0.00	0.00
30.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.104	1.011	24.369	0.00	0.00
30.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.104	1.011	24.369	0.00	0.00
32.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.105	1.014	24.702	0.00	8.69
32.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.105	1.014	24.702	0.00	0.00
32.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.105	1.014	24.702	0.00	0.00
32.00	1" Reinforcing plate	Yes	1.50	0.000	0.00	0.00	0.00	0.105	1.014	24.702	0.00	0.00
32.00	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.105	1.014	24.702	0.00	0.00
34.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.105	1.016	25.019	0.00	8.69
34.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.105	1.016	25.019	0.00	0.00
34.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.105	1.016	25.019	0.00	0.00
34.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.105	1.016	25.019	0.00	0.00
36.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.106	1.019	25.322	0.00	8.69
36.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.106	1.019	25.322	0.00	0.00
36.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.106	1.019	25.322	0.00	0.00
36.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.106	1.019	25.322	0.00	0.00
38.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.107	1.022	25.612	0.00	8.69
38.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.107	1.022	25.612	0.00	0.00
38.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.107	1.022	25.612	0.00	0.00
38.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.107	1.022	25.612	0.00	0.00
40.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.108	1.024	25.890	0.00	8.69
40.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.108	1.024	25.890	0.00	0.00
40.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.108	1.024	25.890	0.00	0.00
40.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.108	1.024	25.890	0.00	0.00
40.50	2" Conduit	Yes	0.50	0.000	2.00	0.08	0.00	0.109	1.026	25.958	0.00	2.17
40.50	1" Reinforcing plate	Yes	0.50	0.000	2.00	0.08	0.00	0.109	1.026	25.958	0.00	0.00
40.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.109	1.026	25.958	0.00	0.00
40.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.109	1.026	25.958	0.00	0.00
40.71	2" Conduit	Yes	0.21	0.000	2.00	0.04	0.00	0.109	1.027	25.986	0.00	0.91
40.71	1" Reinforcing plate	Yes	0.21	0.000	2.00	0.04	0.00	0.109	1.027	25.986	0.00	0.00
40.71	1" Reinforcing plate	Yes	0.21	0.000	0.00	0.00	0.00	0.109	1.027	25.986	0.00	0.00
40.71	1" Reinforcing plate	Yes	0.21	0.000	0.00	0.00	0.00	0.109	1.027	25.986	0.00	0.00
42.00	2" Conduit	Yes	1.29	0.000	2.00	0.21	0.00	0.109	1.028	26.157	0.00	5.61
42.00	1" Reinforcing plate	Yes	1.29	0.000	2.00	0.21	0.00	0.109	1.028	26.157	0.00	0.00

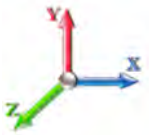
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 29	

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
42.00	1" Reinforcing plate	Yes	1.29	0.000	0.00	0.00	0.00	0.109	1.028	26.157	0.00	0.00
42.00	1" Reinforcing plate	Yes	1.29	0.000	0.00	0.00	0.00	0.109	1.028	26.157	0.00	0.00
43.33	2" Conduit	Yes	1.33	0.000	2.00	0.22	0.00	0.110	1.029	26.330	0.00	5.80
43.33	1" Reinforcing plate	Yes	1.33	0.000	2.00	0.22	0.00	0.110	1.029	26.330	0.00	0.00
43.33	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.110	1.029	26.330	0.00	0.00
43.33	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.110	1.029	26.330	0.00	0.00
44.00	2" Conduit	Yes	0.67	0.000	2.00	0.11	0.00	0.110	1.031	26.415	0.00	2.90
44.00	1" Reinforcing plate	Yes	0.67	0.000	2.00	0.11	0.00	0.110	1.031	26.415	0.00	0.00
44.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.110	1.031	26.415	0.00	0.00
44.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.110	1.031	26.415	0.00	0.00
46.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	26.663	0.00	8.69
46.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	26.663	0.00	0.00
46.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.111	1.033	26.663	0.00	0.00
46.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.111	1.033	26.663	0.00	0.00
48.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.112	1.036	26.903	0.00	8.69
48.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.112	1.036	26.903	0.00	0.00
48.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.112	1.036	26.903	0.00	0.00
48.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.112	1.036	26.903	0.00	0.00
48.12	2" Conduit	Yes	0.12	0.000	2.00	0.02	0.00	0.111	1.033	26.917	0.00	0.52
48.12	1" Reinforcing plate	Yes	0.12	0.000	2.00	0.02	0.00	0.111	1.033	26.917	0.00	0.00
48.12	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.111	1.033	26.917	0.00	0.00
48.12	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.111	1.033	26.917	0.00	0.00
50.00	2" Conduit	Yes	1.88	0.000	2.00	0.31	0.00	0.111	1.034	27.135	0.00	8.17
50.00	1" Reinforcing plate	Yes	1.88	0.000	2.00	0.31	0.00	0.111	1.034	27.135	0.00	0.00
50.00	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.111	1.034	27.135	0.00	0.00
50.00	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.111	1.034	27.135	0.00	0.00
52.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.112	1.037	27.360	0.00	8.69
52.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.112	1.037	27.360	0.00	0.00
52.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.112	1.037	27.360	0.00	0.00
52.00	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.112	1.037	27.360	0.00	0.00
54.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.113	1.040	27.579	0.00	8.69
54.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.113	1.040	27.579	0.00	0.00
54.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.113	1.040	27.579	0.00	0.00
56.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.114	1.043	27.790	0.00	8.69
56.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.114	1.043	27.790	0.00	0.00
56.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.114	1.043	27.790	0.00	0.00
58.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.115	1.046	27.997	0.00	8.69
58.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.115	1.046	27.997	0.00	0.00
58.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.115	1.046	27.997	0.00	0.00
60.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.116	1.049	28.197	0.00	8.69
60.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.116	1.049	28.197	0.00	0.00
60.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.116	1.049	28.197	0.00	0.00
60.71	2" Conduit	Yes	0.71	0.000	2.00	0.12	0.00	0.117	1.051	28.267	0.00	3.09
60.71	1" Reinforcing plate	Yes	0.71	0.000	2.00	0.12	0.00	0.117	1.051	28.267	0.00	0.00
60.71	1" Reinforcing plate	Yes	0.71	0.000	0.00	0.00	0.00	0.117	1.051	28.267	0.00	0.00
60.75	2" Conduit	Yes	0.04	0.000	2.00	0.01	0.00	0.117	1.052	28.271	0.00	0.17
60.75	1" Reinforcing plate	Yes	0.04	0.000	2.00	0.01	0.00	0.117	1.052	28.271	0.00	0.00

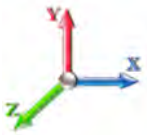
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 30	

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
60.75	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.117	1.052	28.271	0.00	0.00
62.00	2" Conduit	Yes	1.25	0.000	2.00	0.21	0.00	0.118	1.053	28.392	0.00	5.43
62.00	1" Reinforcing plate	Yes	1.25	0.000	2.00	0.21	0.00	0.118	1.053	28.392	0.00	0.00
62.00	1" Reinforcing plate	Yes	1.25	0.000	0.00	0.00	0.00	0.118	1.053	28.392	0.00	0.00
64.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.119	1.056	28.583	0.00	8.69
64.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.119	1.056	28.583	0.00	0.00
64.00	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.119	1.056	28.583	0.00	0.00
66.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.120	1.059	28.769	0.00	8.69
66.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.120	1.059	28.769	0.00	0.00
68.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.121	1.063	28.950	0.00	8.69
68.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.121	1.063	28.950	0.00	0.00
70.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.122	1.066	29.127	0.00	8.69
70.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.122	1.066	29.127	0.00	0.00
72.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.123	1.070	29.300	0.00	8.69
72.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.123	1.070	29.300	0.00	0.00
74.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.124	1.073	29.470	0.00	8.69
74.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.124	1.073	29.470	0.00	0.00
76.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.126	1.077	29.636	0.00	8.69
76.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.126	1.077	29.636	0.00	0.00
78.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.127	1.081	29.798	0.00	8.69
78.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.127	1.081	29.798	0.00	0.00
78.25	2" Conduit	Yes	0.25	0.000	2.00	0.04	0.00	0.128	1.083	29.818	0.00	1.09
78.25	1" Reinforcing plate	Yes	0.25	0.000	2.00	0.04	0.00	0.128	1.083	29.818	0.00	0.00
80.00	2" Conduit	Yes	1.75	0.000	2.00	0.29	0.00	0.128	1.085	29.958	0.00	7.61
80.00	1" Reinforcing plate	Yes	1.75	0.000	2.00	0.29	0.00	0.128	1.085	29.958	0.00	0.00
82.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.097	0.000	30.114	0.00	8.69
82.00	1" Reinforcing plate	Yes	1.00	0.000	2.00	0.17	0.00	0.097	0.000	30.114	0.00	0.00
84.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.065	0.000	30.267	0.00	8.69
86.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.066	0.000	30.417	0.00	8.69
87.42	2" Conduit	Yes	1.42	0.000	2.00	0.24	0.00	0.067	0.000	30.522	0.00	6.16
88.00	2" Conduit	Yes	0.58	0.000	2.00	0.10	0.00	0.067	0.000	30.565	0.00	2.54
90.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.068	0.000	30.710	0.00	8.69
91.33	2" Conduit	Yes	1.33	0.000	2.00	0.22	0.00	0.068	0.000	30.805	0.00	5.80
92.00	2" Conduit	Yes	0.67	0.000	2.00	0.11	0.00	0.068	0.000	30.852	0.00	2.90
94.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.068	0.000	30.992	0.00	8.69
96.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.069	0.000	31.130	0.00	8.69
98.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.070	0.000	31.265	0.00	8.69
100.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.070	0.000	31.399	0.00	8.69
102.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.071	0.000	31.530	0.00	8.69
104.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.072	0.000	31.659	0.00	8.69
106.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.073	0.000	31.786	0.00	8.69
108.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.074	0.000	31.911	0.00	8.69
110.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.074	0.000	32.035	0.00	8.69
112.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.075	0.000	32.157	0.00	8.69
114.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.076	0.000	32.277	0.00	8.69
116.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.077	0.000	32.395	0.00	8.69
118.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.078	0.000	32.512	0.00	8.69

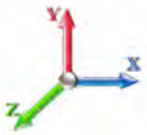
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 31	

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
120.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.079	0.000	32.627	0.00	8.69
122.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	32.741	0.00	8.69
124.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	32.853	0.00	8.69
126.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	32.964	0.00	8.69
128.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	33.073	0.00	8.69
129.00	2" Conduit	Yes	1.00	0.000	2.00	0.17	0.00	0.111	1.033	33.128	0.00	4.35
										Totals:	**0.0**	**560.8**

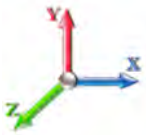
Calculated Forces

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 32	

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 26

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	-28.13	-35.75	0.00	-3586.0	0.00	3586.09	2818.94	1409.47	4888.80	2448.04	0.00	0.000	0.000	0.698
2.00	-27.74	-35.63	0.00	-3514.5	0.00	3514.58	2805.89	1402.95	4830.09	2418.63	0.02	-0.102	0.000	0.689
4.00	-27.35	-35.51	0.00	-3443.3	0.00	3443.32	2792.73	1396.36	4771.51	2389.30	0.09	-0.203	0.000	0.681
6.00	-26.97	-35.38	0.00	-3372.3	0.00	3372.31	2779.45	1389.73	4713.08	2360.04	0.19	-0.304	0.000	0.672
8.00	-26.58	-35.26	0.00	-3301.5	0.00	3301.54	2766.06	1383.03	4654.80	2330.86	0.34	-0.405	0.000	0.663
10.00	-26.23	-35.11	0.00	-3231.0	0.00	3231.03	2752.56	1376.28	4596.67	2301.75	0.53	-0.505	0.000	0.655
10.25	-26.16	-35.12	0.00	-3222.2	0.00	3222.25	2750.86	1375.43	4589.41	2298.12	0.56	-0.518	0.000	0.685
12.00	-25.82	-35.01	0.00	-3160.8	0.00	3160.80	2738.94	1369.47	4538.70	2272.72	0.77	-0.610	0.000	0.677
14.00	-25.45	-34.89	0.00	-3090.7	0.00	3090.77	2725.20	1362.60	4480.89	2243.77	1.05	-0.714	0.000	0.668
16.00	-25.07	-34.77	0.00	-3020.9	0.00	3020.99	2711.35	1355.68	4423.25	2214.91	1.37	-0.819	0.000	0.658
18.00	-24.70	-34.64	0.00	-2951.4	0.00	2951.47	2697.39	1348.70	4365.78	2186.13	1.73	-0.922	0.000	0.649
20.00	-24.36	-34.49	0.00	-2882.1	0.00	2882.19	2683.32	1341.66	4308.48	2157.44	2.14	-1.026	0.000	0.639
20.50	-24.25	-34.46	0.00	-2864.9	0.00	2864.95	2679.78	1339.89	4294.19	2150.28	2.25	-1.052	0.000	0.637
22.00	-23.97	-34.37	0.00	-2813.2	0.00	2813.25	2669.12	1334.56	4251.37	2128.84	2.59	-1.129	0.000	0.629
24.00	-23.60	-34.23	0.00	-2744.5	0.00	2744.52	2654.82	1327.41	4194.44	2100.34	3.09	-1.231	0.000	0.620
25.96	-23.28	-34.07	0.00	-2677.4	0.00	2677.43	2640.69	1320.34	4138.83	2072.49	3.62	-1.331	0.000	0.536
26.00	-23.25	-34.08	0.00	-2676.0	0.00	2676.07	2640.40	1320.20	4137.70	2071.92	3.63	-1.333	0.000	0.535
27.88	-22.94	-33.92	0.00	-2612.0	0.00	2612.00	2626.74	1313.37	4084.54	2045.30	4.17	-1.417	0.000	0.658
28.00	-22.89	-33.94	0.00	-2607.9	0.00	2607.93	2625.87	1312.93	4081.15	2043.61	4.20	-1.423	0.000	0.657
30.00	-22.53	-33.79	0.00	-2540.0	0.00	2540.06	2611.22	1305.61	4024.80	2015.39	4.82	-1.534	0.000	0.646
32.00	-22.17	-33.64	0.00	-2472.4	0.00	2472.48	2596.46	1298.23	3968.65	1987.27	5.49	-1.643	0.000	0.635
34.00	-21.82	-33.49	0.00	-2405.2	0.00	2405.20	2581.58	1290.79	3912.71	1959.26	6.20	-1.752	0.000	0.624
36.00	-21.47	-33.34	0.00	-2338.2	0.00	2338.22	2566.59	1283.29	3856.98	1931.36	6.96	-1.860	0.000	0.612
38.00	-21.12	-33.18	0.00	-2271.5	0.00	2271.55	2551.48	1275.74	3801.46	1903.56	7.76	-1.968	0.000	0.601
40.00	-20.80	-33.01	0.00	-2205.1	0.00	2205.19	2536.26	1268.13	3746.17	1875.87	8.61	-2.074	0.000	0.589
40.50	-20.71	-32.96	0.00	-2188.6	0.00	2188.68	2532.44	1266.22	3732.38	1868.96	8.83	-2.101	0.000	0.586
40.71	-20.66	-32.96	0.00	-2181.7	0.00	2181.76	2530.83	1265.42	3726.59	1866.07	8.92	-2.112	0.000	0.585
42.00	-20.44	-32.85	0.00	-2139.2	0.00	2139.25	2520.93	1260.46	3691.10	1848.29	9.50	-2.180	0.000	0.577
43.33	-20.22	-32.74	0.00	-2095.4	0.00	2095.44	2510.64	1255.32	3654.51	1829.97	10.12	-2.250	0.000	0.569
44.00	-20.03	-32.69	0.00	-2073.6	0.00	2073.61	2505.48	1252.74	3636.25	1820.83	10.44	-2.285	0.000	0.558
46.00	-19.53	-32.52	0.00	-2008.2	0.00	2008.23	2489.92	1244.96	3581.64	1793.48	11.41	-2.387	0.000	0.546
48.00	-19.05	-32.32	0.00	-1943.1	0.00	1943.19	1854.44	927.22	2691.60	1347.80	12.44	-2.488	0.000	0.587
48.12	-19.00	-32.33	0.00	-1939.3	0.00	1939.31	1853.85	926.92	2689.31	1346.66	12.50	-2.494	0.000	0.717
50.00	-18.72	-32.18	0.00	-1878.5	0.00	1878.53	1844.56	922.28	2653.53	1328.74	13.50	-2.608	0.000	0.700
52.00	-18.42	-32.02	0.00	-1814.1	0.00	1814.16	1834.56	917.28	2615.56	1309.72	14.62	-2.729	0.000	0.683
54.00	-18.12	-31.85	0.00	-1750.1	0.00	1750.14	1824.45	912.23	2577.68	1290.76	15.79	-2.847	0.000	0.665
56.00	-17.83	-31.68	0.00	-1686.4	0.00	1686.44	1814.23	907.11	2539.90	1271.84	17.01	-2.964	0.000	0.647
58.00	-17.54	-31.51	0.00	-1623.0	0.00	1623.08	1803.89	901.94	2502.23	1252.97	18.27	-3.079	0.000	0.629
60.00	-17.28	-31.32	0.00	-1560.0	0.00	1560.07	1793.44	896.72	2464.66	1234.16	19.59	-3.192	0.000	0.611
60.71	-17.19	-31.26	0.00	-1537.8	0.00	1537.83	1789.70	894.85	2451.36	1227.50	20.07	-3.232	0.000	0.765
60.75	-17.16	-31.27	0.00	-1536.5	0.00	1536.58	1789.49	894.74	2450.61	1227.12	20.09	-3.235	0.000	0.765
62.00	-16.96	-31.17	0.00	-1497.4	0.00	1497.49	1782.87	891.44	2427.21	1215.41	20.95	-3.323	0.000	0.751
64.00	-16.66	-31.00	0.00	-1435.1	0.00	1435.15	1772.19	886.09	2389.88	1196.72	22.37	-3.462	0.000	0.728
66.00	-16.37	-30.84	0.00	-1373.1	0.00	1373.14	1761.39	880.70	2352.67	1178.08	23.85	-3.598	0.000	0.704
68.00	-16.09	-30.66	0.00	-1311.4	0.00	1311.47	1750.48	875.24	2315.58	1159.51	25.39	-3.731	0.000	0.681
70.00	-15.81	-30.49	0.00	-1250.1	0.00	1250.14	1739.46	869.73	2278.63	1141.01	26.98	-3.861	0.000	0.657
72.00	-15.53	-30.32	0.00	-1189.1	0.00	1189.16	1728.32	864.16	2241.81	1122.57	28.62	-3.987	0.000	0.632
74.00	-15.25	-30.14	0.00	-1128.5	0.00	1128.53	1717.07	858.54	2205.13	1104.20	30.32	-4.111	0.000	0.607

Calculated Forces

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 33	

76.00	-14.98	-29.96	0.00	-1068.2	0.00	1068.25	1705.70	852.85	2168.59	1085.91	32.06	-4.231	0.000	0.582
78.00	-14.75	-29.77	0.00	-1008.3	0.00	1008.33	1694.22	847.11	2132.20	1067.69	33.86	-4.348	0.000	0.556
78.25	-14.69	-29.76	0.00	-1000.8	0.00	1000.89	1692.78	846.39	2127.67	1065.41	34.09	-4.362	0.000	0.553
78.25	-14.69	-29.76	0.00	-1000.8	0.00	1000.89	1692.78	846.39	2127.67	1065.41	34.09	-4.362	0.000	0.553
80.00	-14.44	-29.61	0.00	-948.81	0.00	948.81	1682.63	841.31	2095.97	1049.54	35.70	-4.461	0.000	0.914
82.00	-14.14	-29.46	0.00	-889.60	0.00	889.60	1670.92	835.46	2059.89	1031.48	37.61	-4.648	0.000	0.872
84.00	-13.85	-29.31	0.00	-830.67	0.00	830.67	1659.09	829.55	2023.98	1013.49	39.60	-4.828	0.000	0.829
86.00	-13.57	-29.15	0.00	-772.05	0.00	772.05	1647.16	823.58	1988.23	995.59	41.66	-5.002	0.000	0.785
87.42	-13.39	-29.03	0.00	-730.76	0.00	730.76	1638.63	819.32	1963.01	982.97	43.16	-5.121	0.000	0.753
88.00	-13.25	-29.00	0.00	-713.82	0.00	713.82	1635.10	817.55	1952.65	977.78	43.79	-5.169	0.000	0.739
90.00	-10.53	-23.38	0.00	-655.82	0.00	655.82	1622.94	811.47	1917.25	960.05	45.98	-5.327	0.000	0.690
91.33	-10.31	-23.26	0.00	-624.65	0.00	624.65	1099.39	549.70	1312.06	657.00	47.48	-5.429	0.000	0.962
92.00	-10.21	-23.22	0.00	-609.14	0.00	609.14	1097.24	548.62	1304.79	653.36	48.24	-5.479	0.000	0.943
94.00	-9.95	-22.96	0.00	-562.71	0.00	562.71	1090.71	545.35	1282.99	642.45	50.58	-5.662	0.000	0.887
96.00	-9.73	-22.80	0.00	-516.79	0.00	516.79	1084.06	542.03	1261.23	631.55	52.98	-5.837	0.000	0.829
98.00	-9.52	-22.64	0.00	-471.18	0.00	471.18	1077.30	538.65	1239.51	620.68	55.46	-6.002	0.000	0.770
100.00	-8.10	-19.06	0.00	-425.90	0.00	425.90	1070.43	535.22	1217.83	609.82	58.01	-6.158	0.000	0.707
102.00	-7.92	-18.90	0.00	-387.77	0.00	387.77	1063.44	531.72	1196.21	598.99	60.61	-6.303	0.000	0.656
104.00	-7.75	-18.73	0.00	-349.98	0.00	349.98	1056.34	528.17	1174.63	588.19	63.28	-6.440	0.000	0.604
106.00	-7.58	-18.57	0.00	-312.51	0.00	312.51	1049.12	524.56	1153.11	577.41	66.00	-6.566	0.000	0.550
108.00	-7.42	-18.40	0.00	-275.38	0.00	275.38	1041.79	520.90	1131.65	566.67	68.77	-6.683	0.000	0.494
110.00	-6.02	-14.78	0.00	-238.58	0.00	238.58	1034.34	517.17	1110.26	555.96	71.59	-6.788	0.000	0.436
112.00	-5.90	-14.61	0.00	-209.03	0.00	209.03	1026.79	513.39	1088.94	545.28	74.45	-6.884	0.000	0.390
114.00	-5.78	-14.44	0.00	-179.81	0.00	179.81	1019.11	509.56	1067.70	534.64	77.34	-6.969	0.000	0.343
116.00	-5.67	-14.28	0.00	-150.93	0.00	150.93	1011.32	505.66	1046.53	524.04	80.27	-7.045	0.000	0.294
118.00	-5.56	-14.11	0.00	-122.37	0.00	122.37	1003.42	501.71	1025.45	513.49	83.23	-7.110	0.000	0.245
120.00	-3.80	-10.06	0.00	-94.15	0.00	94.15	995.40	497.70	1004.45	502.97	86.22	-7.163	0.000	0.191
120.00	-3.80	-10.06	0.00	-94.15	0.00	94.15	735.22	367.61	535.89	335.79	86.22	-7.163	0.000	0.286
122.00	-3.70	-9.94	0.00	-74.03	0.00	74.03	735.22	367.61	535.89	335.79	89.22	-7.206	0.000	0.226
124.00	-3.60	-9.83	0.00	-54.14	0.00	54.14	735.22	367.61	535.89	335.79	92.25	-7.273	0.000	0.167
126.00	-3.50	-9.71	0.00	-34.49	0.00	34.49	735.22	367.61	535.89	335.79	95.29	-7.318	0.000	0.108
128.00	-3.41	-9.59	0.00	-15.07	0.00	15.07	735.22	367.61	535.89	335.79	98.36	-7.344	0.000	0.050
129.00	-0.04	-0.08	0.00	-0.08	0.00	0.08	735.22	367.61	535.89	335.79	99.89	-7.349	0.000	0.000
130.00	0.00	-0.07	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	101.43	-7.349	0.000	0.000

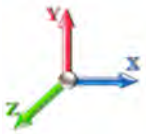
Wind Loading - Shaft

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 34	

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	RB1 RB2	1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
2.00		1.00	0.85	5.168	5.68	0.00	1.200	1.133	2.00	7.544	9.05	51.5	121.8	462.2
4.00		1.00	0.85	5.168	5.68	0.00	1.200	1.215	2.00	7.519	9.02	51.3	129.8	467.8
6.00		1.00	0.85	5.168	5.68	0.00	1.200	1.265	2.00	7.483	8.98	51.0	134.4	469.8
8.00		1.00	0.85	5.168	5.68	0.00	1.200	1.302	2.00	7.443	8.93	50.8	137.4	470.3
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	2.00	7.400	8.88	50.5	139.6	470.0
10.25	RT2 RB3	1.00	0.85	5.168	5.68	0.00	1.200	1.334	0.25	0.921	1.11	6.3	17.5	58.6
12.00		1.00	0.85	5.168	5.68	0.00	1.200	1.356	1.75	6.433	7.72	43.9	123.5	410.3
14.00		1.00	0.85	5.168	5.68	0.00	1.200	1.377	2.00	7.310	8.77	49.9	142.4	467.7
16.00		1.00	0.86	5.232	5.76	0.00	1.200	1.395	2.00	7.263	8.72	50.2	143.3	466.1
18.00		1.00	0.88	5.363	5.90	0.00	1.200	1.412	2.00	7.216	8.66	51.1	143.9	464.3
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	2.00	7.169	8.60	51.9	144.4	462.2
20.50	RT1 RB4	1.00	0.91	5.512	6.06	0.00	1.200	1.430	0.50	1.784	2.14	13.0	36.1	115.2
22.00		1.00	0.92	5.595	6.15	0.00	1.202 *	1.440	1.50	5.336	6.41	39.5	108.6	344.8
24.00		1.00	0.94	5.698	6.27	0.00	1.204 *	1.453	2.00	7.072	8.52	53.4	144.9	457.7
25.96	RB5	1.00	0.95	5.793	6.37	0.00	1.207 *	1.464	1.96	6.884	8.31	53.0	142.1	446.2
26.00		1.00	0.95	5.795	6.37	0.00	1.209 *	1.465	0.04	0.140	0.17	1.1	2.9	9.1
27.88	RT3 RB6	1.00	0.97	5.881	6.47	0.00	1.210 *	1.475	1.88	6.558	7.94	51.3	136.3	425.7
28.00		1.00	0.97	5.886	6.47	0.00	1.212 *	1.476	0.12	0.417	0.51	3.3	8.7	27.1
30.00		1.00	0.98	5.972	6.57	0.00	1.213 *	1.486	2.00	6.926	8.40	55.2	144.9	450.1
32.00		1.00	1.00	6.054	6.66	0.00	1.216 *	1.495	2.00	6.876	8.36	55.7	144.7	447.4
34.00		1.00	1.01	6.132	6.74	0.00	1.219 *	1.504	2.00	6.827	8.32	56.1	144.5	444.7
36.00		1.00	1.02	6.206	6.83	0.00	1.223 *	1.513	2.00	6.777	8.29	56.6	144.2	441.9
38.00		1.00	1.03	6.277	6.90	0.00	1.226 *	1.521	2.00	6.727	8.25	56.9	143.8	439.0
40.00		1.00	1.04	6.345	6.98	0.00	1.229 *	1.529	2.00	6.677	8.21	57.3	143.4	436.1
40.50	RT4 RB7	1.00	1.05	6.362	7.00	0.00	1.231 *	1.531	0.50	1.661	2.05	14.3	35.8	108.6
40.71	RT5 RB8	1.00	1.05	6.369	7.01	0.00	1.232 *	1.532	0.21	0.697	0.86	6.0	15.0	45.6
42.00		1.00	1.05	6.410	7.05	0.00	1.233 *	1.537	1.29	4.269	5.26	37.1	92.2	279.1
43.33	Bot - Section 2	1.00	1.06	6.453	7.10	0.00	1.235 *	1.541	1.33	4.390	5.42	38.5	95.1	287.1
44.00		1.00	1.06	6.474	7.12	0.00	1.237 *	1.544	0.67	2.215	2.74	19.5	48.1	221.4
46.00		1.00	1.07	6.534	7.19	0.00	1.239 *	1.551	2.00	6.611	8.19	58.9	143.8	660.7
48.00	Top - Section 1	1.00	1.08	6.593	7.25	0.00	1.243 *	1.557	2.00	6.561	8.15	59.1	143.3	655.6
48.12	RT6	1.00	1.08	6.597	7.26	0.00	1.239 *	1.558	0.12	0.392	0.49	3.5	8.6	22.3
50.00		1.00	1.09	6.650	7.32	0.00	1.241 *	1.564	1.88	6.119	7.59	55.5	134.1	348.1
52.00		1.00	1.10	6.705	7.38	0.00	1.244 *	1.570	2.00	6.460	8.04	59.3	142.0	367.7
54.00		1.00	1.11	6.759	7.43	0.00	1.248 *	1.576	2.00	6.410	8.00	59.5	141.4	365.1
56.00		1.00	1.12	6.811	7.49	0.00	1.252 *	1.581	2.00	6.359	7.96	59.6	140.7	362.4
58.00		1.00	1.13	6.861	7.55	0.00	1.255 *	1.587	2.00	6.308	7.92	59.8	140.0	359.7
60.00		1.00	1.14	6.910	7.60	0.00	1.259 *	1.592	2.00	6.257	7.88	59.9	139.3	356.9
60.71	RT8	1.00	1.14	6.928	7.62	0.00	1.262 *	1.594	0.71	2.209	2.79	21.2	49.3	126.1
60.75	RT7 RB9	1.00	1.14	6.928	7.62	0.00	1.262 *	1.594	0.04	0.124	0.16	1.2	2.8	7.1
62.00		1.00	1.14	6.958	7.65	0.00	1.264 *	1.598	1.25	3.873	4.89	37.5	86.6	221.1
64.00		1.00	1.15	7.005	7.71	0.00	1.267 *	1.603	2.00	6.156	7.80	60.1	137.7	351.4
66.00		1.00	1.16	7.050	7.76	0.00	1.271 *	1.608	2.00	6.105	7.76	60.2	137.0	348.6
68.00		1.00	1.17	7.095	7.80	0.00	1.275 *	1.612	2.00	6.054	7.72	60.2	136.1	345.7
70.00		1.00	1.17	7.138	7.85	0.00	1.279 *	1.617	2.00	6.003	7.68	60.3	135.3	342.9
72.00		1.00	1.18	7.181	7.90	0.00	1.284 *	1.622	2.00	5.952	7.64	60.3	134.5	340.0

Wind Loading - Shaft

Structure: CT13064-A-SBA | **Code:** TIA-222-G | 2/11/2022

Site Name: Middletown 2, CT | **Exposure:** C

Height: 130.00 (ft) | **Crest Height:** 0.00

Base Elev: 0.000 (ft) | **Site Class:** D - Stiff Soil

Gh: 1.1 | **Topography:** 1 | **Struct Class:** II | Page: 35

74.00	1.00	1.19	7.222	7.94	0.00	1.288 *	1.626	2.00	5.901	7.60	60.4	133.6	337.2
76.00	1.00	1.19	7.263	7.99	0.00	1.292 *	1.631	2.00	5.850	7.56	60.4	132.7	334.3
78.00	1.00	1.20	7.303	8.03	0.00	1.297 *	1.635	2.00	5.798	7.52	60.4	131.8	331.3
78.25 RT9	1.00	1.20	7.308	8.04	0.00	1.299 *	1.635	0.25	0.721	0.94	7.5	16.5	41.3
80.00	1.00	1.21	7.342	8.08	0.00	1.302 *	1.639	1.75	5.026	6.54	52.8	114.5	287.3
82.00	1.00	1.21	7.380	8.12	0.00	1.200	1.643	2.00	5.696	6.84	55.5	130.0	325.5
84.00	1.00	1.22	7.418	8.16	0.00	1.200	1.647	2.00	5.645	6.77	55.3	129.0	322.5
86.00	1.00	1.23	7.454	8.20	0.00	1.200	1.651	2.00	5.594	6.71	55.0	128.1	319.6
87.42 Bot - Section 3	1.00	1.23	7.480	8.23	0.00	1.200	1.653	1.42	3.931	4.72	38.8	90.2	224.7
88.00	1.00	1.23	7.491	8.24	0.00	1.200	1.655	0.58	1.630	1.96	16.1	37.5	134.5
90.00 Appurtenance(s)	1.00	1.24	7.526	8.28	0.00	1.200	1.658	2.00	5.554	6.67	55.2	127.7	457.9
91.33 Top - Section 2	1.00	1.24	7.549	8.30	0.00	1.200	1.661	1.33	3.674	4.41	36.6	84.7	302.8
92.00	1.00	1.24	7.561	8.32	0.00	1.200	1.662	0.67	1.829	2.19	18.2	42.2	89.1
94.00 Appurtenance(s)	1.00	1.25	7.595	8.35	0.00	1.200	1.666	2.00	5.452	6.54	54.7	125.7	265.4
96.00	1.00	1.25	7.629	8.39	0.00	1.200	1.669	2.00	5.400	6.48	54.4	124.7	262.9
98.00	1.00	1.26	7.662	8.43	0.00	1.200	1.672	2.00	5.349	6.42	54.1	123.7	260.4
100.00 Appurtenance(s)	1.00	1.27	7.695	8.46	0.00	1.200	1.676	2.00	5.297	6.36	53.8	122.6	257.8
102.00	1.00	1.27	7.727	8.50	0.00	1.200	1.679	2.00	5.246	6.30	53.5	121.6	255.3
104.00	1.00	1.28	7.759	8.53	0.00	1.200	1.682	2.00	5.195	6.23	53.2	120.6	252.7
106.00	1.00	1.28	7.790	8.57	0.00	1.200	1.686	2.00	5.143	6.17	52.9	119.5	250.2
108.00	1.00	1.29	7.821	8.60	0.00	1.200	1.689	2.00	5.092	6.11	52.6	118.4	247.6
110.00 Appurtenance(s)	1.00	1.29	7.851	8.64	0.00	1.200	1.692	2.00	5.040	6.05	52.2	117.4	245.0
112.00	1.00	1.30	7.881	8.67	0.00	1.200	1.695	2.00	4.988	5.99	51.9	116.3	242.4
114.00	1.00	1.30	7.910	8.70	0.00	1.200	1.698	2.00	4.937	5.92	51.5	115.2	239.8
116.00	1.00	1.31	7.939	8.73	0.00	1.200	1.701	2.00	4.885	5.86	51.2	114.1	237.2
118.00	1.00	1.31	7.968	8.76	0.00	1.200	1.704	2.00	4.834	5.80	50.8	113.0	234.6
120.00 Top - Section 3	1.00	1.32	7.996	8.80	0.00	1.200	1.707	2.00	4.782	5.74	50.5	111.9	232.0
122.00	1.00	1.32	8.024	8.83	0.00	1.240 *	1.710	2.00	3.570	4.43	39.1	82.3	196.2
124.00	1.00	1.32	8.051	8.86	0.00	1.240 *	1.712	2.00	3.571	4.43	39.2	82.5	196.3
126.00	1.00	1.33	8.079	8.89	0.00	1.240 *	1.715	2.00	3.572	4.43	39.4	82.6	196.5
128.00	1.00	1.33	8.105	8.92	0.00	1.240 *	1.718	2.00	3.573	4.43	39.5	82.8	196.6
129.00 Appurtenance(s)	1.00	1.34	8.119	8.93	0.00	1.240 *	1.719	1.00	1.787	2.22	19.8	41.4	98.3
130.00 Appurtenance(s)	1.00	1.34	8.132	8.95	0.00	1.200	1.720	1.00	1.787	2.14	19.2	41.5	98.4
							Totals:	**130.00**			**3,517.8**		**23,650.8**

* Cf Adjusted by Linear Load Ra Effect

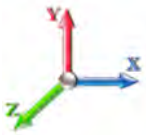
Discrete Appurtenance Forces

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 36	

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	130.00	6' Lightning rod	1	8.132	8.945	1.00	1.00	1.45	38.28	0.000	0.000	12.99	0.00	0.00
2	129.00	OPA-65R-LCUU-H6	3	8.132	8.945	0.61	0.75	19.99	816.66	0.000	1.000	178.80	0.00	178.80
3	129.00	RRUS E2 B29	3	8.132	8.945	0.38	0.75	4.32	351.90	0.000	1.000	38.67	0.00	38.67
4	129.00	DC6-48-60-18-8F	2	8.132	8.945	0.38	0.75	1.01	162.72	0.000	1.000	9.07	0.00	9.07
5	129.00	DC6-48-60-0-8C	2	8.132	8.945	0.38	0.75	4.24	222.56	0.000	1.000	37.91	0.00	37.91
6	129.00	MTC3607 Platform + HR	1	8.119	8.931	1.00	1.00	78.49	3212.91	0.000	0.000	700.98	0.00	0.00
7	129.00	Angle Reinforcement	1	8.119	8.931	1.00	1.00	11.38	842.25	0.000	0.000	101.66	0.00	0.00
8	129.00	PRK-1245 (kicker kit)	1	8.119	8.931	1.00	1.00	19.30	782.49	0.000	0.000	172.35	0.00	0.00
9	129.00	RRUS 4478 B14	3	8.132	8.945	0.38	0.75	2.43	308.18	0.000	1.000	21.74	0.00	21.74
10	129.00	4449 B5/B12	3	8.132	8.945	0.38	0.75	2.82	372.54	0.000	1.000	25.25	0.00	25.25
11	129.00	B2 B66A 8843	3	8.132	8.945	0.38	0.75	2.42	353.98	0.000	1.000	21.62	0.00	21.62
12	129.00	QS66512-2	3	8.132	8.945	0.70	0.75	19.62	894.61	0.000	1.000	175.47	0.00	175.47
13	129.00	RRUS 32	6	8.132	8.945	0.38	0.75	4.99	1134.58	0.000	1.000	44.63	0.00	44.63
14	129.00	OPA65R-KE6D	6	8.132	8.945	0.56	0.75	47.28	1832.06	0.000	1.000	422.90	0.00	422.90
15	120.00	MC-PK8-DSH	1	7.996	8.796	1.00	1.00	83.78	3349.99	0.000	0.000	736.92	0.00	0.00
16	120.00	RDIDC-9181-OF-48	1	7.996	8.796	0.38	0.75	0.96	65.65	0.000	0.000	8.46	0.00	0.00
17	120.00	TA08025-B604	3	7.996	8.796	0.38	0.75	2.82	342.28	0.000	0.000	24.82	0.00	0.00
18	120.00	TA08025-B605	3	7.996	8.796	0.38	0.75	2.82	385.65	0.000	0.000	24.82	0.00	0.00
19	120.00	MX08FRO665-21	3	7.996	8.796	0.55	0.75	23.18	883.96	0.000	0.000	203.89	0.00	0.00
20	110.00	T-Arm (Round)	3	7.851	8.636	0.56	0.75	24.92	1760.61	0.000	0.000	215.21	0.00	0.00
21	110.00	DB-T1-6Z-8AB-0Z	2	7.851	8.636	0.40	0.80	4.52	322.52	0.000	0.000	39.00	0.00	0.00
22	110.00	B4 RRH2X60-4R	3	7.851	8.636	0.40	0.80	4.94	388.05	0.000	0.000	42.64	0.00	0.00
23	110.00	B13 RRH4X30-4R	3	7.851	8.636	0.40	0.80	3.30	341.19	0.000	0.000	28.52	0.00	0.00
24	110.00	RRH2X60-1900A-4R	3	7.851	8.636	0.40	0.80	2.94	364.99	0.000	0.000	25.35	0.00	0.00
25	110.00	SBNHH-1D65B	6	7.851	8.636	0.66	0.80	37.07	1462.67	0.000	0.000	320.12	0.00	0.00
26	110.00	CBC721-DF	3	7.836	8.619	0.40	0.80	1.12	35.51	0.000	-1.000	9.67	0.00	-9.67
27	110.00	CBC721-DF	3	7.866	8.652	0.40	0.80	1.12	35.51	0.000	1.000	9.70	0.00	9.70
28	100.00	AIR 21, 1.3M, B2A B4P	3	7.695	8.464	0.66	0.80	14.22	812.18	0.000	0.000	120.40	0.00	0.00
29	100.00	AIR 21, 1.3M, B4A B2P	3	7.695	8.464	0.66	0.80	14.22	808.22	0.000	0.000	120.40	0.00	0.00
30	100.00	LNX-6515DS-A1M	3	7.695	8.464	0.67	0.80	29.45	653.11	0.000	0.000	249.26	0.00	0.00
31	100.00	782 11056	3	7.695	8.464	0.40	0.80	0.49	7.02	0.000	0.000	4.17	0.00	0.00
32	100.00	T-Arm (Round)	3	7.695	8.464	0.56	0.75	24.81	1753.86	0.000	0.000	210.02	0.00	0.00
33	94.00	1'4"x6.5"x6" Surge	1	7.595	8.355	0.80	0.80	2.49	143.60	0.000	0.000	20.80	0.00	0.00
34	90.00	F3P-10W	1	7.526	8.279	1.00	1.00	113.58	3917.00	0.000	0.000	940.32	0.00	0.00
35	90.00	NNVV-65B-R4	3	7.526	8.279	0.55	0.75	22.73	895.25	0.000	0.000	188.20	0.00	0.00
36	90.00	AAHC	3	7.526	8.279	0.56	0.75	8.41	739.50	0.000	0.000	69.66	0.00	0.00
37	90.00	ALU - 800 MHz - RRU	6	7.526	8.279	0.38	0.75	8.05	676.66	0.000	0.000	66.63	0.00	0.00
38	90.00	ALU - 1900MHz - RRU	3	7.526	8.279	0.38	0.75	5.76	375.98	0.000	0.000	47.69	0.00	0.00
39	90.00	Andrew - VHLP2-11	2	7.526	8.279	0.75	0.75	8.84	194.77	0.000	0.000	73.15	0.00	0.00
							Totals:		**32,041.48**			**5,763.90**		

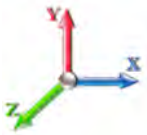
Total Applied Force Summary

Structure:	CT13064-A-SBA		**Code:**	TIA-222-G	2/11/2022
Site Name:	Middletown 2, CT		**Exposure:**	C	
Height:	130.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 37

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
2.00		51.46	594.69	0.00	0.00
4.00		51.29	603.39	0.00	0.00
6.00		51.05	607.43	0.00	0.00
8.00		50.77	609.45	0.00	0.00
10.00		50.48	610.31	0.00	0.00
10.25		6.29	76.16	0.00	0.00
12.00		43.89	533.98	0.00	0.00
14.00		49.87	609.98	0.00	0.00
16.00		50.16	609.15	0.00	0.00
18.00		51.09	608.00	0.00	0.00
20.00		51.89	606.60	0.00	0.00
20.50		12.98	151.32	0.00	0.00
22.00		39.46	453.51	0.00	0.00
24.00		53.39	606.56	0.00	0.00
25.96		52.95	599.19	0.00	0.00
26.00		1.08	12.20	0.00	0.00
27.88		51.33	572.93	0.00	0.00
28.00		3.27	36.50	0.00	0.00
30.00		55.20	607.38	0.00	0.00
32.00		55.70	601.47	0.00	0.00
34.00		56.15	597.92	0.00	0.00
36.00		56.56	595.54	0.00	0.00
38.00		56.94	593.09	0.00	0.00
40.00		57.28	590.57	0.00	0.00
40.50		14.31	147.25	0.00	0.00
40.71		6.01	61.80	0.00	0.00
42.00		37.12	378.96	0.00	0.00
43.33		38.49	390.54	0.00	0.00
44.00		19.51	273.17	0.00	0.00
46.00		58.90	816.31	0.00	0.00
48.00		59.14	811.57	0.00	0.00
48.12		3.52	31.67	0.00	0.00
50.00		55.54	495.04	0.00	0.00
52.00		59.29	515.95	0.00	0.00
54.00		59.46	510.72	0.00	0.00
56.00		59.62	508.27	0.00	0.00
58.00		59.76	505.78	0.00	0.00
60.00		59.89	503.26	0.00	0.00
60.71		21.24	178.11	0.00	0.00
60.75		1.20	10.03	0.00	0.00
62.00		37.46	312.71	0.00	0.00
64.00		60.09	494.26	0.00	0.00
66.00		60.17	483.90	0.00	0.00
68.00		60.24	481.22	0.00	0.00
70.00		60.30	478.52	0.00	0.00
72.00		60.34	475.80	0.00	0.00

Total Applied Force Summary

Structure:	CT13064-A-SBA		**Code:**	TIA-222-G	2/11/2022
Site Name:	Middletown 2, CT		**Exposure:**	C	
Height:	130.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 38

74.00		60.37	473.06	0.00	0.00
76.00		60.40	470.30	0.00	0.00
78.00		60.41	467.53	0.00	0.00
78.25		7.53	58.29	0.00	0.00
80.00		52.84	406.53	0.00	0.00
82.00		55.49	453.18	0.00	0.00
84.00		55.27	441.55	0.00	0.00
86.00		55.04	438.66	0.00	0.00
87.42		38.81	309.05	0.00	0.00
88.00		16.11	169.24	0.00	0.00
90.00	(18) attachments	1440.84	7376.25	0.00	0.00
91.33		36.62	375.67	0.00	0.00
92.00		18.25	125.55	0.00	0.00
94.00	(1) attachments	75.46	518.32	0.00	0.00
96.00		54.38	372.26	0.00	0.00
98.00		54.10	369.79	0.00	0.00
100.00	(15) attachments	758.06	4401.72	0.00	0.00
102.00		53.51	347.21	0.00	0.00
104.00		53.20	344.71	0.00	0.00
106.00		52.88	342.20	0.00	0.00
108.00		52.56	339.68	0.00	0.00
110.00	(26) attachments	742.45	5048.21	0.00	0.04
112.00		51.89	299.38	0.00	0.00
114.00		51.55	296.84	0.00	0.00
116.00		51.20	294.28	0.00	0.00
118.00		50.84	291.72	0.00	0.00
120.00	(11) attachments	1049.39	5316.67	0.00	0.00
122.00		39.07	249.05	0.00	0.00
124.00		39.21	249.24	0.00	0.00
126.00		39.36	249.43	0.00	0.00
128.00		39.50	249.62	0.00	0.00
129.00	(37) attachments	1970.84	11412.30	0.00	976.06
130.00	(1) attachments	32.17	136.66	0.00	0.00
	Totals:	**9,281.74**	**63,646.30**	**0.00**	**976.10**

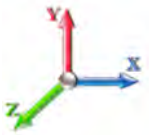
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 39	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
2.00	2" Conduit	Yes	2.00	0.000	2.00	0.71	0.00	0.093	0.000	5.168	0.00	27.31
2.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.71	0.00	0.093	0.000	5.168	0.00	10.86
2.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.093	0.000	5.168	0.00	10.86
4.00	2" Conduit	Yes	2.00	0.000	2.00	0.74	0.00	0.094	0.000	5.168	0.00	28.54
4.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.74	0.00	0.094	0.000	5.168	0.00	11.83
4.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.094	0.000	5.168	0.00	11.83
6.00	2" Conduit	Yes	2.00	0.000	2.00	0.75	0.00	0.094	0.000	5.168	0.00	29.31
6.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.75	0.00	0.094	0.000	5.168	0.00	12.45
6.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.094	0.000	5.168	0.00	12.45
8.00	2" Conduit	Yes	2.00	0.000	2.00	0.77	0.00	0.095	0.000	5.168	0.00	29.89
8.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.77	0.00	0.095	0.000	5.168	0.00	12.91
8.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.095	0.000	5.168	0.00	12.91
10.00	2" Conduit	Yes	2.00	0.000	2.00	0.78	0.00	0.096	0.000	5.168	0.00	30.35
10.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.78	0.00	0.096	0.000	5.168	0.00	13.28
10.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.096	0.000	5.168	0.00	13.28
10.25	2" Conduit	Yes	0.25	0.000	2.00	0.10	0.00	0.096	0.000	5.168	0.00	3.80
10.25	1" Reinforcing plate	Yes	0.25	0.000	2.00	0.10	0.00	0.096	0.000	5.168	0.00	1.67
10.25	1" Reinforcing plate	Yes	0.25	0.000	0.00	0.00	0.00	0.096	0.000	5.168	0.00	1.67
12.00	2" Conduit	Yes	1.75	0.000	2.00	0.69	0.00	0.097	0.000	5.168	0.00	26.90
12.00	1" Reinforcing plate	Yes	1.75	0.000	2.00	0.69	0.00	0.097	0.000	5.168	0.00	11.89
12.00	1" Reinforcing plate	Yes	1.75	0.000	0.00	0.00	0.00	0.097	0.000	5.168	0.00	11.89
14.00	2" Conduit	Yes	2.00	0.000	2.00	0.79	0.00	0.097	0.000	5.168	0.00	31.08
14.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.79	0.00	0.097	0.000	5.168	0.00	13.87
14.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.097	0.000	5.168	0.00	13.87
16.00	2" Conduit	Yes	2.00	0.000	2.00	0.80	0.00	0.098	0.000	5.232	0.00	31.37
16.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.80	0.00	0.098	0.000	5.232	0.00	14.11
16.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.098	0.000	5.232	0.00	14.11
18.00	2" Conduit	Yes	2.00	0.000	2.00	0.80	0.00	0.099	0.000	5.363	0.00	31.64
18.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.80	0.00	0.099	0.000	5.363	0.00	14.32
18.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.099	0.000	5.363	0.00	14.32
20.00	2" Conduit	Yes	2.00	0.000	2.00	0.81	0.00	0.100	0.000	5.483	0.00	31.88
20.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.81	0.00	0.100	0.000	5.483	0.00	14.52
20.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.100	0.000	5.483	0.00	14.52
20.50	2" Conduit	Yes	0.50	0.000	2.00	0.20	0.00	0.100	0.000	5.512	0.00	7.99
20.50	1" Reinforcing plate	Yes	0.50	0.000	2.00	0.20	0.00	0.100	0.000	5.512	0.00	3.64
20.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.100	0.000	5.512	0.00	3.64
22.00	2" Conduit	Yes	1.50	0.000	2.00	0.61	0.00	0.100	1.001	5.595	0.00	24.08
22.00	1" Reinforcing plate	Yes	1.50	0.000	2.00	0.61	0.00	0.100	1.001	5.595	0.00	11.02
22.00	1" Reinforcing plate	Yes	1.50	0.000	0.00	0.00	0.00	0.100	1.001	5.595	0.00	11.02
24.00	2" Conduit	Yes	2.00	0.000	2.00	0.82	0.00	0.101	1.004	5.698	0.00	32.31
24.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.82	0.00	0.101	1.004	5.698	0.00	14.87
24.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.101	1.004	5.698	0.00	3.35
24.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.101	1.004	5.698	0.00	14.87
25.96	2" Conduit	Yes	1.96	0.000	2.00	0.81	0.00	0.102	1.006	5.793	0.00	31.85
25.96	1" Reinforcing plate	Yes	1.96	0.000	2.00	0.81	0.00	0.102	1.006	5.793	0.00	14.72
25.96	1" Reinforcing plate	Yes	1.96	0.000	0.00	0.00	0.00	0.102	1.006	5.793	0.00	9.93
25.96	1" Reinforcing plate	Yes	1.96	0.000	0.00	0.00	0.00	0.102	1.006	5.793	0.00	14.72

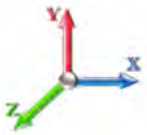
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 40	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
26.00	2" Conduit	Yes	0.04	0.000	2.00	0.02	0.00	0.102	1.007	5.795	0.00	0.65
26.00	1" Reinforcing plate	Yes	0.04	0.000	2.00	0.02	0.00	0.102	1.007	5.795	0.00	0.30
26.00	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.102	1.007	5.795	0.00	0.20
26.00	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.102	1.007	5.795	0.00	0.30
27.88	2" Conduit	Yes	1.88	0.000	2.00	0.78	0.00	0.103	1.008	5.881	0.00	30.72
27.88	1" Reinforcing plate	Yes	1.88	0.000	2.00	0.78	0.00	0.103	1.008	5.881	0.00	14.25
27.88	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.103	1.008	5.881	0.00	9.62
27.88	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.103	1.008	5.881	0.00	14.25
28.00	2" Conduit	Yes	0.12	0.000	2.00	0.05	0.00	0.103	1.010	5.886	0.00	1.96
28.00	1" Reinforcing plate	Yes	0.12	0.000	2.00	0.05	0.00	0.103	1.010	5.886	0.00	0.91
28.00	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.103	1.010	5.886	0.00	0.61
28.00	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.103	1.010	5.886	0.00	0.91
30.00	2" Conduit	Yes	2.00	0.000	2.00	0.83	0.00	0.104	1.011	5.972	0.00	32.86
30.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.83	0.00	0.104	1.011	5.972	0.00	15.31
30.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.104	1.011	5.972	0.00	10.35
30.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.104	1.011	5.972	0.00	15.31
32.00	2" Conduit	Yes	2.00	0.000	2.00	0.83	0.00	0.105	1.014	6.054	0.00	33.02
32.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.83	0.00	0.105	1.014	6.054	0.00	15.44
32.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.105	1.014	6.054	0.00	10.45
32.00	1" Reinforcing plate	Yes	1.50	0.000	0.00	0.00	0.00	0.105	1.014	6.054	0.00	7.84
32.00	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.105	1.014	6.054	0.00	3.86
34.00	2" Conduit	Yes	2.00	0.000	2.00	0.83	0.00	0.105	1.016	6.132	0.00	33.17
34.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.83	0.00	0.105	1.016	6.132	0.00	15.56
34.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.105	1.016	6.132	0.00	10.55
34.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.105	1.016	6.132	0.00	10.55
36.00	2" Conduit	Yes	2.00	0.000	2.00	0.84	0.00	0.106	1.019	6.206	0.00	33.31
36.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.84	0.00	0.106	1.019	6.206	0.00	15.68
36.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.106	1.019	6.206	0.00	10.64
36.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.106	1.019	6.206	0.00	10.64
38.00	2" Conduit	Yes	2.00	0.000	2.00	0.84	0.00	0.107	1.022	6.277	0.00	33.45
38.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.84	0.00	0.107	1.022	6.277	0.00	15.79
38.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.107	1.022	6.277	0.00	10.72
38.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.107	1.022	6.277	0.00	10.72
40.00	2" Conduit	Yes	2.00	0.000	2.00	0.84	0.00	0.108	1.024	6.345	0.00	33.58
40.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.84	0.00	0.108	1.024	6.345	0.00	15.90
40.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.108	1.024	6.345	0.00	10.80
40.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.108	1.024	6.345	0.00	10.80
40.50	2" Conduit	Yes	0.50	0.000	2.00	0.21	0.00	0.109	1.026	6.362	0.00	8.40
40.50	1" Reinforcing plate	Yes	0.50	0.000	2.00	0.21	0.00	0.109	1.026	6.362	0.00	3.98
40.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.109	1.026	6.362	0.00	2.71
40.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.109	1.026	6.362	0.00	2.71
40.71	2" Conduit	Yes	0.21	0.000	2.00	0.09	0.00	0.109	1.027	6.369	0.00	3.53
40.71	1" Reinforcing plate	Yes	0.21	0.000	2.00	0.09	0.00	0.109	1.027	6.369	0.00	1.67
40.71	1" Reinforcing plate	Yes	0.21	0.000	0.00	0.00	0.00	0.109	1.027	6.369	0.00	1.14
40.71	1" Reinforcing plate	Yes	0.21	0.000	0.00	0.00	0.00	0.109	1.027	6.369	0.00	1.14
42.00	2" Conduit	Yes	1.29	0.000	2.00	0.55	0.00	0.109	1.028	6.410	0.00	21.74
42.00	1" Reinforcing plate	Yes	1.29	0.000	2.00	0.55	0.00	0.109	1.028	6.410	0.00	10.32

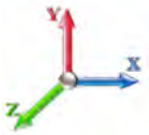
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 41	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
42.00	1" Reinforcing plate	Yes	1.29	0.000	0.00	0.00	0.00	0.109	1.028	6.410	0.00	7.02
42.00	1" Reinforcing plate	Yes	1.29	0.000	0.00	0.00	0.00	0.109	1.028	6.410	0.00	7.02
43.33	2" Conduit	Yes	1.33	0.000	2.00	0.56	0.00	0.110	1.029	6.453	0.00	22.52
43.33	1" Reinforcing plate	Yes	1.33	0.000	2.00	0.56	0.00	0.110	1.029	6.453	0.00	10.71
43.33	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.110	1.029	6.453	0.00	7.29
43.33	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.110	1.029	6.453	0.00	7.29
44.00	2" Conduit	Yes	0.67	0.000	2.00	0.28	0.00	0.110	1.031	6.474	0.00	11.28
44.00	1" Reinforcing plate	Yes	0.67	0.000	2.00	0.28	0.00	0.110	1.031	6.474	0.00	5.37
44.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.110	1.031	6.474	0.00	3.65
44.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.110	1.031	6.474	0.00	3.65
46.00	2" Conduit	Yes	2.00	0.000	2.00	0.85	0.00	0.111	1.033	6.534	0.00	33.94
46.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.85	0.00	0.111	1.033	6.534	0.00	16.19
46.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.111	1.033	6.534	0.00	11.03
46.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.111	1.033	6.534	0.00	11.03
48.00	2" Conduit	Yes	2.00	0.000	2.00	0.85	0.00	0.112	1.036	6.593	0.00	34.06
48.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.85	0.00	0.112	1.036	6.593	0.00	16.28
48.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.112	1.036	6.593	0.00	11.10
48.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.112	1.036	6.593	0.00	11.10
48.12	2" Conduit	Yes	0.12	0.000	2.00	0.05	0.00	0.111	1.033	6.597	0.00	2.04
48.12	1" Reinforcing plate	Yes	0.12	0.000	2.00	0.05	0.00	0.111	1.033	6.597	0.00	0.98
48.12	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.111	1.033	6.597	0.00	0.67
48.12	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.111	1.033	6.597	0.00	0.67
50.00	2" Conduit	Yes	1.88	0.000	2.00	0.80	0.00	0.111	1.034	6.650	0.00	32.11
50.00	1" Reinforcing plate	Yes	1.88	0.000	2.00	0.80	0.00	0.111	1.034	6.650	0.00	15.39
50.00	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.111	1.034	6.650	0.00	10.50
50.00	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.111	1.034	6.650	0.00	10.50
52.00	2" Conduit	Yes	2.00	0.000	2.00	0.86	0.00	0.112	1.037	6.705	0.00	34.27
52.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.86	0.00	0.112	1.037	6.705	0.00	16.46
52.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.112	1.037	6.705	0.00	11.24
52.00	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.112	1.037	6.705	0.00	2.81
54.00	2" Conduit	Yes	2.00	0.000	2.00	0.86	0.00	0.113	1.040	6.759	0.00	34.37
54.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.86	0.00	0.113	1.040	6.759	0.00	16.54
54.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.113	1.040	6.759	0.00	11.30
56.00	2" Conduit	Yes	2.00	0.000	2.00	0.86	0.00	0.114	1.043	6.811	0.00	34.47
56.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.86	0.00	0.114	1.043	6.811	0.00	16.62
56.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.114	1.043	6.811	0.00	11.37
58.00	2" Conduit	Yes	2.00	0.000	2.00	0.86	0.00	0.115	1.046	6.861	0.00	34.56
58.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.86	0.00	0.115	1.046	6.861	0.00	16.70
58.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.115	1.046	6.861	0.00	11.43
60.00	2" Conduit	Yes	2.00	0.000	2.00	0.86	0.00	0.116	1.049	6.910	0.00	34.65
60.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.86	0.00	0.116	1.049	6.910	0.00	16.77
60.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.116	1.049	6.910	0.00	11.48
60.71	2" Conduit	Yes	0.71	0.000	2.00	0.31	0.00	0.117	1.051	6.928	0.00	12.31
60.71	1" Reinforcing plate	Yes	0.71	0.000	2.00	0.31	0.00	0.117	1.051	6.928	0.00	5.96
60.71	1" Reinforcing plate	Yes	0.71	0.000	0.00	0.00	0.00	0.117	1.051	6.928	0.00	4.08
60.75	2" Conduit	Yes	0.04	0.000	2.00	0.02	0.00	0.117	1.052	6.928	0.00	0.69
60.75	1" Reinforcing plate	Yes	0.04	0.000	2.00	0.02	0.00	0.117	1.052	6.928	0.00	0.34

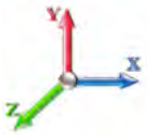
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 42	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
60.75	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.117	1.052	6.928	0.00	0.23
62.00	2" Conduit	Yes	1.25	0.000	2.00	0.54	0.00	0.118	1.053	6.958	0.00	21.71
62.00	1" Reinforcing plate	Yes	1.25	0.000	2.00	0.54	0.00	0.118	1.053	6.958	0.00	10.53
62.00	1" Reinforcing plate	Yes	1.25	0.000	0.00	0.00	0.00	0.118	1.053	6.958	0.00	7.21
64.00	2" Conduit	Yes	2.00	0.000	2.00	0.87	0.00	0.119	1.056	7.005	0.00	34.83
64.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.87	0.00	0.119	1.056	7.005	0.00	16.92
64.00	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.119	1.056	7.005	0.00	7.71
66.00	2" Conduit	Yes	2.00	0.000	2.00	0.87	0.00	0.120	1.059	7.050	0.00	34.92
66.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.87	0.00	0.120	1.059	7.050	0.00	16.99
68.00	2" Conduit	Yes	2.00	0.000	2.00	0.87	0.00	0.121	1.063	7.095	0.00	35.00
68.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.87	0.00	0.121	1.063	7.095	0.00	17.05
70.00	2" Conduit	Yes	2.00	0.000	2.00	0.87	0.00	0.122	1.066	7.138	0.00	35.08
70.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.87	0.00	0.122	1.066	7.138	0.00	17.12
72.00	2" Conduit	Yes	2.00	0.000	2.00	0.87	0.00	0.123	1.070	7.181	0.00	35.16
72.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.87	0.00	0.123	1.070	7.181	0.00	17.18
74.00	2" Conduit	Yes	2.00	0.000	2.00	0.88	0.00	0.124	1.073	7.222	0.00	35.23
74.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.88	0.00	0.124	1.073	7.222	0.00	17.25
76.00	2" Conduit	Yes	2.00	0.000	2.00	0.88	0.00	0.126	1.077	7.263	0.00	35.31
76.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.88	0.00	0.126	1.077	7.263	0.00	17.31
78.00	2" Conduit	Yes	2.00	0.000	2.00	0.88	0.00	0.127	1.081	7.303	0.00	35.38
78.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.88	0.00	0.127	1.081	7.303	0.00	17.37
78.25	2" Conduit	Yes	0.25	0.000	2.00	0.11	0.00	0.128	1.083	7.308	0.00	4.42
78.25	1" Reinforcing plate	Yes	0.25	0.000	2.00	0.11	0.00	0.128	1.083	7.308	0.00	2.17
80.00	2" Conduit	Yes	1.75	0.000	2.00	0.77	0.00	0.128	1.085	7.342	0.00	31.02
80.00	1" Reinforcing plate	Yes	1.75	0.000	2.00	0.77	0.00	0.128	1.085	7.342	0.00	15.25
82.00	2" Conduit	Yes	2.00	0.000	2.00	0.88	0.00	0.097	0.000	7.380	0.00	35.52
82.00	1" Reinforcing plate	Yes	1.00	0.000	2.00	0.44	0.00	0.097	0.000	7.380	0.00	8.74
84.00	2" Conduit	Yes	2.00	0.000	2.00	0.88	0.00	0.065	0.000	7.418	0.00	35.59
86.00	2" Conduit	Yes	2.00	0.000	2.00	0.88	0.00	0.066	0.000	7.454	0.00	35.66
87.42	2" Conduit	Yes	1.42	0.000	2.00	0.63	0.00	0.067	0.000	7.480	0.00	25.29
88.00	2" Conduit	Yes	0.58	0.000	2.00	0.26	0.00	0.067	0.000	7.491	0.00	10.42
90.00	2" Conduit	Yes	2.00	0.000	2.00	0.89	0.00	0.068	0.000	7.526	0.00	35.79
91.33	2" Conduit	Yes	1.33	0.000	2.00	0.59	0.00	0.068	0.000	7.549	0.00	23.89
92.00	2" Conduit	Yes	0.67	0.000	2.00	0.30	0.00	0.068	0.000	7.561	0.00	11.95
94.00	2" Conduit	Yes	2.00	0.000	2.00	0.89	0.00	0.068	0.000	7.595	0.00	35.92
96.00	2" Conduit	Yes	2.00	0.000	2.00	0.89	0.00	0.069	0.000	7.629	0.00	35.98
98.00	2" Conduit	Yes	2.00	0.000	2.00	0.89	0.00	0.070	0.000	7.662	0.00	36.04
100.00	2" Conduit	Yes	2.00	0.000	2.00	0.89	0.00	0.070	0.000	7.695	0.00	36.10
102.00	2" Conduit	Yes	2.00	0.000	2.00	0.89	0.00	0.071	0.000	7.727	0.00	36.16
104.00	2" Conduit	Yes	2.00	0.000	2.00	0.89	0.00	0.072	0.000	7.759	0.00	36.21
106.00	2" Conduit	Yes	2.00	0.000	2.00	0.90	0.00	0.073	0.000	7.790	0.00	36.27
108.00	2" Conduit	Yes	2.00	0.000	2.00	0.90	0.00	0.074	0.000	7.821	0.00	36.33
110.00	2" Conduit	Yes	2.00	0.000	2.00	0.90	0.00	0.074	0.000	7.851	0.00	36.38
112.00	2" Conduit	Yes	2.00	0.000	2.00	0.90	0.00	0.075	0.000	7.881	0.00	36.43
114.00	2" Conduit	Yes	2.00	0.000	2.00	0.90	0.00	0.076	0.000	7.910	0.00	36.49
116.00	2" Conduit	Yes	2.00	0.000	2.00	0.90	0.00	0.077	0.000	7.939	0.00	36.54
118.00	2" Conduit	Yes	2.00	0.000	2.00	0.90	0.00	0.078	0.000	7.968	0.00	36.59

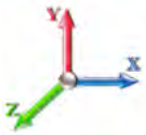
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 43	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
120.00	2" Conduit	Yes	2.00	0.000	2.00	0.90	0.00	0.079	0.000	7.996	0.00	36.64
122.00	2" Conduit	Yes	2.00	0.000	2.00	0.90	0.00	0.111	1.033	8.024	0.00	36.69
124.00	2" Conduit	Yes	2.00	0.000	2.00	0.90	0.00	0.111	1.033	8.051	0.00	36.74
126.00	2" Conduit	Yes	2.00	0.000	2.00	0.91	0.00	0.111	1.033	8.079	0.00	36.79
128.00	2" Conduit	Yes	2.00	0.000	2.00	0.91	0.00	0.111	1.033	8.105	0.00	36.84
129.00	2" Conduit	Yes	1.00	0.000	2.00	0.45	0.00	0.111	1.033	8.119	0.00	18.43
										Totals:	**0.0**	**3,378.4**

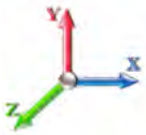
Calculated Forces

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 44	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

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	-63.64	-9.30	0.00	-946.63	0.00	946.63	2818.94	1409.47	4888.80	2448.04	0.00	0.000	0.000	0.193
2.00	-63.05	-9.27	0.00	-928.04	0.00	928.04	2805.89	1402.95	4830.09	2418.63	0.01	-0.027	0.000	0.191
4.00	-62.44	-9.25	0.00	-909.49	0.00	909.49	2792.73	1396.36	4771.51	2389.30	0.02	-0.054	0.000	0.189
6.00	-61.83	-9.23	0.00	-890.99	0.00	890.99	2779.45	1389.73	4713.08	2360.04	0.05	-0.080	0.000	0.186
8.00	-61.21	-9.20	0.00	-872.54	0.00	872.54	2766.06	1383.03	4654.80	2330.86	0.09	-0.107	0.000	0.184
10.00	-60.60	-9.17	0.00	-854.13	0.00	854.13	2752.56	1376.28	4596.67	2301.75	0.14	-0.133	0.000	0.181
10.25	-60.52	-9.18	0.00	-851.84	0.00	851.84	2750.86	1375.43	4589.41	2298.12	0.15	-0.137	0.000	0.190
12.00	-59.98	-9.16	0.00	-835.78	0.00	835.78	2738.94	1369.47	4538.70	2272.72	0.20	-0.161	0.000	0.188
14.00	-59.37	-9.14	0.00	-817.46	0.00	817.46	2725.20	1362.60	4480.89	2243.77	0.28	-0.189	0.000	0.185
16.00	-58.76	-9.11	0.00	-799.19	0.00	799.19	2711.35	1355.68	4423.25	2214.91	0.36	-0.216	0.000	0.183
18.00	-58.14	-9.09	0.00	-780.97	0.00	780.97	2697.39	1348.70	4365.78	2186.13	0.46	-0.244	0.000	0.180
20.00	-57.53	-9.05	0.00	-762.80	0.00	762.80	2683.32	1341.66	4308.48	2157.44	0.57	-0.271	0.000	0.178
20.50	-57.38	-9.05	0.00	-758.28	0.00	758.28	2679.78	1339.89	4294.19	2150.28	0.59	-0.278	0.000	0.177
22.00	-56.92	-9.03	0.00	-744.71	0.00	744.71	2669.12	1334.56	4251.37	2128.84	0.69	-0.298	0.000	0.175
24.00	-56.31	-9.00	0.00	-726.65	0.00	726.65	2654.82	1327.41	4194.44	2100.34	0.82	-0.326	0.000	0.172
25.96	-55.71	-8.96	0.00	-709.01	0.00	709.01	2640.69	1320.34	4138.83	2072.49	0.96	-0.352	0.000	0.149
26.00	-55.70	-8.97	0.00	-708.65	0.00	708.65	2640.40	1320.20	4137.70	2071.92	0.96	-0.352	0.000	0.149
27.88	-55.12	-8.92	0.00	-691.80	0.00	691.80	2626.74	1313.37	4084.54	2045.30	1.10	-0.375	0.000	0.182
28.00	-55.09	-8.93	0.00	-690.72	0.00	690.72	2625.87	1312.93	4081.15	2043.61	1.11	-0.376	0.000	0.182
30.00	-54.47	-8.90	0.00	-672.86	0.00	672.86	2611.22	1305.61	4024.80	2015.39	1.28	-0.406	0.000	0.179
32.00	-53.87	-8.87	0.00	-655.05	0.00	655.05	2596.46	1298.23	3968.65	1987.27	1.45	-0.435	0.000	0.176
34.00	-53.27	-8.84	0.00	-637.32	0.00	637.32	2581.58	1290.79	3912.71	1959.26	1.64	-0.464	0.000	0.173
36.00	-52.67	-8.80	0.00	-619.65	0.00	619.65	2566.59	1283.29	3856.98	1931.36	1.84	-0.492	0.000	0.170
38.00	-52.07	-8.76	0.00	-602.05	0.00	602.05	2551.48	1275.74	3801.46	1903.56	2.05	-0.521	0.000	0.167
40.00	-51.48	-8.72	0.00	-584.52	0.00	584.52	2536.26	1268.13	3746.17	1875.87	2.28	-0.549	0.000	0.164
40.50	-51.33	-8.71	0.00	-580.16	0.00	580.16	2532.44	1266.22	3732.38	1868.96	2.33	-0.556	0.000	0.163
40.71	-51.27	-8.71	0.00	-578.33	0.00	578.33	2530.83	1265.42	3726.59	1866.07	2.36	-0.559	0.000	0.163
42.00	-50.88	-8.68	0.00	-567.10	0.00	567.10	2520.93	1260.46	3691.10	1848.29	2.51	-0.577	0.000	0.161
43.33	-50.49	-8.65	0.00	-555.52	0.00	555.52	2510.64	1255.32	3654.51	1829.97	2.68	-0.595	0.000	0.158
44.00	-50.22	-8.65	0.00	-549.76	0.00	549.76	2505.48	1252.74	3636.25	1820.83	2.76	-0.605	0.000	0.155
46.00	-49.40	-8.60	0.00	-532.46	0.00	532.46	2489.92	1244.96	3581.64	1793.48	3.02	-0.632	0.000	0.152
48.00	-48.58	-8.55	0.00	-515.26	0.00	515.26	1854.44	927.22	2691.60	1347.80	3.29	-0.658	0.000	0.163
48.12	-48.55	-8.56	0.00	-514.23	0.00	514.23	1853.85	926.92	2689.31	1346.66	3.31	-0.660	0.000	0.200
50.00	-48.05	-8.52	0.00	-498.15	0.00	498.15	1844.56	922.28	2653.53	1328.74	3.57	-0.690	0.000	0.196
52.00	-47.53	-8.48	0.00	-481.11	0.00	481.11	1834.56	917.28	2615.56	1309.72	3.87	-0.722	0.000	0.191
54.00	-47.02	-8.44	0.00	-464.15	0.00	464.15	1824.45	912.23	2577.68	1290.76	4.18	-0.754	0.000	0.186
56.00	-46.50	-8.40	0.00	-447.27	0.00	447.27	1814.23	907.11	2539.90	1271.84	4.50	-0.785	0.000	0.181
58.00	-46.00	-8.36	0.00	-430.47	0.00	430.47	1803.89	901.94	2502.23	1252.97	4.84	-0.815	0.000	0.176
60.00	-45.49	-8.31	0.00	-413.75	0.00	413.75	1793.44	896.72	2464.66	1234.16	5.18	-0.845	0.000	0.171
60.71	-45.31	-8.29	0.00	-407.86	0.00	407.86	1789.70	894.85	2451.36	1227.50	5.31	-0.856	0.000	0.215
60.75	-45.30	-8.29	0.00	-407.53	0.00	407.53	1789.49	894.74	2450.61	1227.12	5.32	-0.857	0.000	0.214
62.00	-44.98	-8.28	0.00	-397.16	0.00	397.16	1782.87	891.44	2427.21	1215.41	5.55	-0.880	0.000	0.211
64.00	-44.49	-8.24	0.00	-380.61	0.00	380.61	1772.19	886.09	2389.88	1196.72	5.92	-0.917	0.000	0.204
66.00	-44.00	-8.20	0.00	-364.13	0.00	364.13	1761.39	880.70	2352.67	1178.08	6.31	-0.953	0.000	0.198
68.00	-43.51	-8.15	0.00	-347.74	0.00	347.74	1750.48	875.24	2315.58	1159.51	6.72	-0.988	0.000	0.192
70.00	-43.03	-8.11	0.00	-331.44	0.00	331.44	1739.46	869.73	2278.63	1141.01	7.14	-1.023	0.000	0.185
72.00	-42.55	-8.07	0.00	-315.22	0.00	315.22	1728.32	864.16	2241.81	1122.57	7.58	-1.056	0.000	0.179
74.00	-42.07	-8.02	0.00	-299.08	0.00	299.08	1717.07	858.54	2205.13	1104.20	8.03	-1.089	0.000	0.172

Calculated Forces

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 45

76.00	-41.60	-7.97	0.00	-283.04	0.00	283.04	1705.70	852.85	2168.59	1085.91	8.49	-1.121	0.000	0.165
78.00	-41.13	-7.92	0.00	-267.09	0.00	267.09	1694.22	847.11	2132.20	1067.69	8.97	-1.152	0.000	0.158
78.25	-41.07	-7.92	0.00	-265.11	0.00	265.11	1692.78	846.39	2127.67	1065.41	9.03	-1.156	0.000	0.157
78.25	-41.07	-7.92	0.00	-265.11	0.00	265.11	1692.78	846.39	2127.67	1065.41	9.03	-1.156	0.000	0.157
80.00	-40.66	-7.89	0.00	-251.26	0.00	251.26	1682.63	841.31	2095.97	1049.54	9.46	-1.182	0.000	0.264
82.00	-40.20	-7.85	0.00	-235.49	0.00	235.49	1670.92	835.46	2059.89	1031.48	9.96	-1.231	0.000	0.252
84.00	-39.76	-7.82	0.00	-219.78	0.00	219.78	1659.09	829.55	2023.98	1013.49	10.49	-1.279	0.000	0.241
86.00	-39.31	-7.78	0.00	-204.13	0.00	204.13	1647.16	823.58	1988.23	995.59	11.03	-1.325	0.000	0.229
87.42	-39.00	-7.75	0.00	-193.11	0.00	193.11	1638.63	819.32	1963.01	982.97	11.43	-1.356	0.000	0.220
88.00	-38.83	-7.75	0.00	-188.59	0.00	188.59	1635.10	817.55	1952.65	977.78	11.60	-1.369	0.000	0.217
90.00	-31.49	-6.15	0.00	-173.08	0.00	173.08	1622.94	811.47	1917.25	960.05	12.18	-1.411	0.000	0.200
91.33	-31.11	-6.12	0.00	-164.88	0.00	164.88	1099.39	549.70	1312.06	657.00	12.58	-1.438	0.000	0.279
92.00	-30.98	-6.11	0.00	-160.81	0.00	160.81	1097.24	548.62	1304.79	653.36	12.78	-1.451	0.000	0.274
94.00	-30.46	-6.05	0.00	-148.59	0.00	148.59	1090.71	545.35	1282.99	642.45	13.40	-1.499	0.000	0.259
96.00	-30.09	-6.01	0.00	-136.49	0.00	136.49	1084.06	542.03	1261.23	631.55	14.04	-1.545	0.000	0.244
98.00	-29.71	-5.96	0.00	-124.48	0.00	124.48	1077.30	538.65	1239.51	620.68	14.69	-1.589	0.000	0.228
100.00	-25.33	-5.10	0.00	-112.55	0.00	112.55	1070.43	535.22	1217.83	609.82	15.37	-1.630	0.000	0.208
102.00	-24.98	-5.05	0.00	-102.35	0.00	102.35	1063.44	531.72	1196.21	598.99	16.06	-1.668	0.000	0.194
104.00	-24.64	-5.01	0.00	-92.25	0.00	92.25	1056.34	528.17	1174.63	588.19	16.77	-1.704	0.000	0.180
106.00	-24.29	-4.96	0.00	-82.24	0.00	82.24	1049.12	524.56	1153.11	577.41	17.49	-1.738	0.000	0.166
108.00	-23.95	-4.90	0.00	-72.33	0.00	72.33	1041.79	520.90	1131.65	566.67	18.22	-1.769	0.000	0.151
110.00	-18.93	-4.01	0.00	-62.52	0.00	62.52	1034.34	517.17	1110.26	555.96	18.97	-1.796	0.000	0.131
112.00	-18.63	-3.96	0.00	-54.49	0.00	54.49	1026.79	513.39	1088.94	545.28	19.73	-1.821	0.000	0.118
114.00	-18.33	-3.91	0.00	-46.57	0.00	46.57	1019.11	509.56	1067.70	534.64	20.50	-1.843	0.000	0.105
116.00	-18.04	-3.85	0.00	-38.76	0.00	38.76	1011.32	505.66	1046.53	524.04	21.27	-1.863	0.000	0.092
118.00	-17.75	-3.80	0.00	-31.05	0.00	31.05	1003.42	501.71	1025.45	513.49	22.06	-1.879	0.000	0.078
120.00	-12.47	-2.57	0.00	-23.46	0.00	23.46	995.40	497.70	1004.45	502.97	22.85	-1.893	0.000	0.059
120.00	-12.47	-2.57	0.00	-23.46	0.00	23.46	735.22	367.61	535.89	335.79	22.85	-1.893	0.000	0.087
122.00	-12.22	-2.53	0.00	-18.31	0.00	18.31	735.22	367.61	535.89	335.79	23.64	-1.904	0.000	0.071
124.00	-11.97	-2.49	0.00	-13.25	0.00	13.25	735.22	367.61	535.89	335.79	24.44	-1.920	0.000	0.056
126.00	-11.72	-2.44	0.00	-8.28	0.00	8.28	735.22	367.61	535.89	335.79	25.25	-1.931	0.000	0.041
128.00	-11.47	-2.39	0.00	-3.41	0.00	3.41	735.22	367.61	535.89	335.79	26.06	-1.937	0.000	0.026
129.00	-0.14	-0.04	0.00	-0.04	0.00	0.04	735.22	367.61	535.89	335.79	26.47	-1.938	0.000	0.000
130.00	0.00	-0.03	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	26.87	-1.938	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 46	

Load Case:	1.2D + 1.0E							**Iterations**	23
Gust Response Factor	1.10				**Sds**	0.19		**Ss**	0.18
Dead Load Factor	1.20	**Seismic Load Factor**	1.00		**Sd1**	0.10		**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.25		**SA**	0.03	**Seismic Importance Factor**		1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00	RB1 RB2	0.00	0.00	0.00	0.00	0.00	
2.00		283.72	0.00	0.02	0.01	3.76	
4.00		281.62	0.00	0.03	0.02	5.93	
6.00		279.53	0.00	0.04	0.02	7.32	
8.00		277.43	0.01	0.05	0.03	8.24	
10.00		275.33	0.01	0.06	0.03	8.86	
10.25	RT2 RB3	34.27	0.01	0.06	0.03	1.11	
12.00		238.97	0.02	0.06	0.04	8.11	
14.00		271.14	0.02	0.07	0.04	9.55	
16.00		269.04	0.03	0.07	0.04	9.72	
18.00		266.95	0.04	0.07	0.04	9.83	
20.00		264.85	0.04	0.07	0.04	9.90	
20.50	RT1 RB4	65.88	0.05	0.07	0.04	2.47	
22.00		196.87	0.05	0.07	0.04	7.46	
24.00		260.66	0.06	0.07	0.04	9.98	
25.96	RB5	253.41	0.08	0.07	0.04	9.81	
26.00		5.15	0.08	0.07	0.04	0.20	
27.88	RT3 RB6	241.14	0.09	0.07	0.04	9.44	
28.00		15.33	0.09	0.07	0.04	0.60	
30.00		254.37	0.10	0.07	0.04	10.08	
32.00		252.27	0.11	0.07	0.04	10.11	
34.00		250.18	0.13	0.07	0.03	10.15	
36.00		248.08	0.14	0.07	0.03	10.18	
38.00		245.98	0.16	0.07	0.03	10.19	
40.00		243.89	0.18	0.07	0.03	10.17	
40.50	RT4 RB7	60.64	0.18	0.06	0.03	2.53	
40.71	RT5 RB8	25.43	0.19	0.06	0.03	1.06	
42.00		155.71	0.20	0.06	0.02	6.52	
43.33	Bot - Section 2	160.03	0.21	0.06	0.02	6.69	
44.00		144.41	0.22	0.06	0.02	6.03	
46.00		430.71	0.24	0.06	0.02	17.80	
48.00	Top - Section 1	426.94	0.26	0.05	0.02	17.28	
48.12	RT6	11.43	0.26	0.05	0.02	0.46	
50.00		178.33	0.28	0.05	0.01	6.98	
52.00		188.08	0.30	0.04	0.01	6.97	
54.00		186.41	0.33	0.04	0.01	6.39	
56.00		184.73	0.35	0.03	0.01	5.64	
58.00		183.05	0.38	0.03	0.01	4.72	
60.00		181.37	0.40	0.02	0.01	3.63	
60.71	RT8	63.98	0.41	0.01	0.01	1.13	
60.75	RT7 RB9	3.60	0.41	0.01	0.01	0.06	
62.00		112.11	0.43	0.01	0.01	1.48	
64.00		178.02	0.46	0.00	0.01	1.01	
66.00		176.34	0.49	-0.01	0.01	-0.43	
68.00		174.67	0.52	-0.02	0.01	-1.87	
70.00		172.99	0.55	-0.03	0.01	-3.24	

Seismic Segment Forces (Factored)

Structure:	CT13064-A-SBA		**Code:**	TIA-222-G	2/11/2022
Site Name:	Middletown 2, CT		**Exposure:**	C	
Height:	130.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 47

72.00			171.31	0.58	-0.05	0.01	-4.47	
74.00			169.63	0.61	-0.06	0.02	-5.52	
76.00			167.96	0.65	-0.07	0.02	-6.36	
78.00			166.28	0.68	-0.08	0.03	-6.98	
78.25	RT9		20.67	0.68	-0.08	0.03	-0.88	
80.00			143.94	0.72	-0.09	0.03	-6.45	
82.00			162.93	0.75	-0.10	0.04	-7.56	
84.00			161.25	0.79	-0.11	0.05	-7.55	
86.00			159.57	0.83	-0.12	0.06	-7.35	
87.42	Bot - Section 3		112.02	0.85	-0.12	0.07	-5.02	
88.00			80.81	0.87	-0.12	0.07	-3.57	
90.00	Appurtenance(s)		3445.3	0.91	-0.12	0.09	-141.93	
91.33	Top - Section 2		181.80	0.93	-0.12	0.10	-7.02	
92.00			39.09	0.95	-0.12	0.11	-1.45	
94.00	Appurtenance(s)		169.42	0.99	-0.11	0.13	-5.44	
96.00			115.16	1.03	-0.10	0.15	-3.00	
98.00			113.90	1.07	-0.08	0.17	-2.16	
100.00	Appurtenance(s)		1864.6	1.12	-0.06	0.20	-20.18	
102.00			111.39	1.16	-0.03	0.23	-0.19	
104.00			110.13	1.21	0.01	0.26	0.93	
106.00			108.87	1.26	0.06	0.30	2.14	
108.00			107.61	1.30	0.13	0.34	3.42	
110.00	Appurtenance(s)		1935.1	1.35	0.20	0.39	87.23	
112.00			105.10	1.40	0.29	0.43	6.24	
114.00			103.84	1.45	0.39	0.49	7.77	
116.00			102.58	1.50	0.51	0.55	9.36	
118.00			101.32	1.56	0.65	0.61	11.03	
120.00	Top - Section 3		2459.1	1.61	0.81	0.68	313.59	
122.00			94.88	1.66	0.99	0.76	13.98	
124.00			94.88	1.72	1.20	0.84	15.97	
126.00			94.88	1.78	1.43	0.94	18.07	
128.00			94.88	1.83	1.69	1.03	20.27	
129.00	Appurtenance(s)		5052.1	1.86	1.83	1.09	1140.68	
130.00	Appurtenance(s)		53.94	1.89	1.98	1.14	12.85	
		Totals:	**26,851.5**				**1,694.5**	**Total Wind:** **35,729.3**

Calculated Forces

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 48	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E							**Iterations**	23
Gust Response Factor	1.10			**Sds**	0.19			**Ss**	0.18
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.25	**SA**	0.03	**Seismic Importance Factor**			1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-37.55	-1.94	0.00	-228.84	0.00	228.84	2818.94	1409.47	4888.80	2448.04		0.00	0.00	0.050
2.00	-37.11	-1.94	0.00	-224.95	0.00	224.95	2805.89	1402.95	4830.09	2418.63		0.00	-0.01	0.050
4.00	-36.68	-1.94	0.00	-221.06	0.00	221.06	2792.73	1396.36	4771.51	2389.30		0.01	-0.01	0.049
6.00	-36.25	-1.94	0.00	-217.18	0.00	217.18	2779.45	1389.73	4713.08	2360.04		0.01	-0.02	0.049
8.00	-35.82	-1.93	0.00	-213.30	0.00	213.30	2766.06	1383.03	4654.80	2330.86		0.02	-0.03	0.048
10.00	-35.39	-1.93	0.00	-209.43	0.00	209.43	2752.56	1376.28	4596.67	2301.75		0.03	-0.03	0.048
10.25	-35.34	-1.93	0.00	-208.95	0.00	208.95	2750.86	1375.43	4589.41	2298.12		0.04	-0.03	0.050
12.00	-34.97	-1.92	0.00	-205.57	0.00	205.57	2738.94	1369.47	4538.70	2272.72		0.05	-0.04	0.050
14.00	-34.55	-1.92	0.00	-201.72	0.00	201.72	2725.20	1362.60	4480.89	2243.77		0.07	-0.05	0.049
16.00	-34.13	-1.91	0.00	-197.88	0.00	197.88	2711.35	1355.68	4423.25	2214.91		0.09	-0.05	0.048
18.00	-33.71	-1.91	0.00	-194.06	0.00	194.06	2697.39	1348.70	4365.78	2186.13		0.11	-0.06	0.048
20.00	-33.30	-1.90	0.00	-190.24	0.00	190.24	2683.32	1341.66	4308.48	2157.44		0.14	-0.07	0.047
20.50	-33.20	-1.90	0.00	-189.30	0.00	189.30	2679.78	1339.89	4294.19	2150.28		0.15	-0.07	0.047
22.00	-32.89	-1.89	0.00	-186.45	0.00	186.45	2669.12	1334.56	4251.37	2128.84		0.17	-0.07	0.047
24.00	-32.48	-1.89	0.00	-182.66	0.00	182.66	2654.82	1327.41	4194.44	2100.34		0.20	-0.08	0.046
25.96	-32.09	-1.88	0.00	-178.96	0.00	178.96	2640.69	1320.34	4138.83	2072.49		0.23	-0.09	0.040
26.00	-32.08	-1.88	0.00	-178.89	0.00	178.89	2640.40	1320.20	4137.70	2071.92		0.23	-0.09	0.040
27.88	-31.70	-1.87	0.00	-175.35	0.00	175.35	2626.74	1313.37	4084.54	2045.30		0.27	-0.09	0.049
28.00	-31.67	-1.87	0.00	-175.13	0.00	175.13	2625.87	1312.93	4081.15	2043.61		0.27	-0.09	0.049
30.00	-31.27	-1.87	0.00	-171.38	0.00	171.38	2611.22	1305.61	4024.80	2015.39		0.31	-0.10	0.049
32.00	-30.88	-1.86	0.00	-167.65	0.00	167.65	2596.46	1298.23	3968.65	1987.27		0.36	-0.11	0.048
34.00	-30.48	-1.85	0.00	-163.93	0.00	163.93	2581.58	1290.79	3912.71	1959.26		0.40	-0.12	0.047
36.00	-30.09	-1.85	0.00	-160.23	0.00	160.23	2566.59	1283.29	3856.98	1931.36		0.45	-0.12	0.047
38.00	-29.70	-1.84	0.00	-156.54	0.00	156.54	2551.48	1275.74	3801.46	1903.56		0.51	-0.13	0.046
40.00	-29.31	-1.83	0.00	-152.86	0.00	152.86	2536.26	1268.13	3746.17	1875.87		0.56	-0.14	0.045
40.50	-29.21	-1.83	0.00	-151.94	0.00	151.94	2532.44	1266.22	3732.38	1868.96		0.58	-0.14	0.045
40.71	-29.17	-1.83	0.00	-151.56	0.00	151.56	2530.83	1265.42	3726.59	1866.07		0.58	-0.14	0.045
42.00	-28.92	-1.82	0.00	-149.20	0.00	149.20	2520.93	1260.46	3691.10	1848.29		0.62	-0.14	0.045
43.33	-28.67	-1.82	0.00	-146.77	0.00	146.77	2510.64	1255.32	3654.51	1829.97		0.66	-0.15	0.044
44.00	-28.46	-1.81	0.00	-145.56	0.00	145.56	2505.48	1252.74	3636.25	1820.83		0.68	-0.15	0.044
46.00	-27.85	-1.80	0.00	-141.93	0.00	141.93	2489.92	1244.96	3581.64	1793.48		0.75	-0.16	0.043
48.00	-27.24	-1.78	0.00	-138.34	0.00	138.34	1854.44	927.22	2691.60	1347.80		0.82	-0.17	0.046
48.12	-27.22	-1.78	0.00	-138.13	0.00	138.13	1853.85	926.92	2689.31	1346.66		0.82	-0.17	0.057
50.00	-26.92	-1.78	0.00	-134.78	0.00	134.78	1844.56	922.28	2653.53	1328.74		0.89	-0.18	0.056
52.00	-26.60	-1.77	0.00	-131.22	0.00	131.22	1834.56	917.28	2615.56	1309.72		0.96	-0.18	0.055
54.00	-26.28	-1.77	0.00	-127.67	0.00	127.67	1824.45	912.23	2577.68	1290.76		1.04	-0.19	0.054
56.00	-25.96	-1.77	0.00	-124.13	0.00	124.13	1814.23	907.11	2539.90	1271.84		1.12	-0.20	0.053
58.00	-25.65	-1.77	0.00	-120.60	0.00	120.60	1803.89	901.94	2502.23	1252.97		1.21	-0.21	0.052
60.00	-25.34	-1.76	0.00	-117.07	0.00	117.07	1793.44	896.72	2464.66	1234.16		1.30	-0.22	0.051
60.71	-25.23	-1.76	0.00	-115.82	0.00	115.82	1789.70	894.85	2451.36	1227.50		1.33	-0.22	0.065
60.75	-25.22	-1.76	0.00	-115.75	0.00	115.75	1789.49	894.74	2450.61	1227.12		1.33	-0.22	0.065
62.00	-25.02	-1.77	0.00	-113.54	0.00	113.54	1782.87	891.44	2427.21	1215.41		1.39	-0.23	0.064
64.00	-24.72	-1.77	0.00	-110.01	0.00	110.01	1772.19	886.09	2389.88	1196.72		1.49	-0.24	0.063
66.00	-24.41	-1.77	0.00	-106.48	0.00	106.48	1761.39	880.70	2352.67	1178.08		1.59	-0.25	0.061
68.00	-24.10	-1.77	0.00	-102.93	0.00	102.93	1750.48	875.24	2315.58	1159.51		1.70	-0.26	0.060
70.00	-23.80	-1.78	0.00	-99.39	0.00	99.39	1739.46	869.73	2278.63	1141.01		1.81	-0.27	0.059
72.00	-23.50	-1.78	0.00	-95.83	0.00	95.83	1728.32	864.16	2241.81	1122.57		1.93	-0.28	0.057

Calculated Forces

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 49

74.00	-23.20	-1.78	0.00	-92.28	0.00	92.28	1717.07	858.54	2205.13	1104.20	2.04	-0.29	0.056
76.00	-22.90	-1.78	0.00	-88.71	0.00	88.71	1705.70	852.85	2168.59	1085.91	2.17	-0.30	0.055
78.00	-22.61	-1.78	0.00	-85.14	0.00	85.14	1694.22	847.11	2132.20	1067.69	2.30	-0.31	0.053
78.25	-22.57	-1.79	0.00	-84.70	0.00	84.70	1692.78	846.39	2127.67	1065.41	2.31	-0.31	0.053
78.25	-22.57	-1.79	0.00	-84.70	0.00	84.70	1692.78	846.39	2127.67	1065.41	2.31	-0.31	0.053
80.00	-22.32	-1.79	0.00	-81.57	0.00	81.57	1682.63	841.31	2095.97	1049.54	2.43	-0.32	0.091
82.00	-22.03	-1.79	0.00	-77.99	0.00	77.99	1670.92	835.46	2059.89	1031.48	2.56	-0.34	0.089
84.00	-21.74	-1.80	0.00	-74.40	0.00	74.40	1659.09	829.55	2023.98	1013.49	2.71	-0.35	0.087
86.00	-21.45	-1.80	0.00	-70.80	0.00	70.80	1647.16	823.58	1988.23	995.59	2.86	-0.37	0.084
87.42	-21.25	-1.80	0.00	-68.25	0.00	68.25	1638.63	819.32	1963.01	982.97	2.97	-0.38	0.082
88.00	-21.12	-1.81	0.00	-67.20	0.00	67.20	1635.10	817.55	1952.65	977.78	3.02	-0.38	0.082
90.00	-16.89	-1.78	0.00	-63.58	0.00	63.58	1622.94	811.47	1917.25	960.05	3.18	-0.40	0.077
91.33	-16.62	-1.78	0.00	-61.21	0.00	61.21	1099.39	549.70	1312.06	657.00	3.29	-0.41	0.108
92.00	-16.54	-1.78	0.00	-60.02	0.00	60.02	1097.24	548.62	1304.79	653.36	3.35	-0.41	0.107
94.00	-16.25	-1.79	0.00	-56.45	0.00	56.45	1090.71	545.35	1282.99	642.45	3.53	-0.43	0.103
96.00	-16.03	-1.79	0.00	-52.88	0.00	52.88	1084.06	542.03	1261.23	631.55	3.71	-0.45	0.099
98.00	-15.81	-1.79	0.00	-49.30	0.00	49.30	1077.30	538.65	1239.51	620.68	3.90	-0.47	0.094
100.00	-13.48	-1.78	0.00	-45.71	0.00	45.71	1070.43	535.22	1217.83	609.82	4.10	-0.48	0.088
102.00	-13.28	-1.78	0.00	-42.15	0.00	42.15	1063.44	531.72	1196.21	598.99	4.31	-0.50	0.083
104.00	-13.08	-1.78	0.00	-38.59	0.00	38.59	1056.34	528.17	1174.63	588.19	4.52	-0.51	0.078
106.00	-12.88	-1.78	0.00	-35.03	0.00	35.03	1049.12	524.56	1153.11	577.41	4.73	-0.53	0.073
108.00	-12.69	-1.78	0.00	-31.47	0.00	31.47	1041.79	520.90	1131.65	566.67	4.96	-0.54	0.068
110.00	-10.30	-1.67	0.00	-27.92	0.00	27.92	1034.34	517.17	1110.26	555.96	5.19	-0.55	0.060
112.00	-10.14	-1.66	0.00	-24.58	0.00	24.58	1026.79	513.39	1088.94	545.28	5.42	-0.56	0.055
114.00	-9.98	-1.66	0.00	-21.25	0.00	21.25	1019.11	509.56	1067.70	534.64	5.66	-0.57	0.050
116.00	-9.83	-1.65	0.00	-17.94	0.00	17.94	1011.32	505.66	1046.53	524.04	5.90	-0.58	0.044
118.00	-9.67	-1.64	0.00	-14.64	0.00	14.64	1003.42	501.71	1025.45	513.49	6.15	-0.59	0.038
120.00	-6.69	-1.29	0.00	-11.37	0.00	11.37	995.40	497.70	1004.45	502.97	6.40	-0.60	0.029
120.00	-6.69	-1.29	0.00	-11.37	0.00	11.37	735.22	367.61	535.89	335.79	6.40	-0.60	0.043
122.00	-6.55	-1.28	0.00	-8.79	0.00	8.79	735.22	367.61	535.89	335.79	6.65	-0.60	0.035
124.00	-6.41	-1.26	0.00	-6.24	0.00	6.24	735.22	367.61	535.89	335.79	6.90	-0.61	0.027
126.00	-6.27	-1.24	0.00	-3.72	0.00	3.72	735.22	367.61	535.89	335.79	7.16	-0.61	0.020
128.00	-6.13	-1.22	0.00	-1.23	0.00	1.23	735.22	367.61	535.89	335.79	7.41	-0.62	0.012
129.00	-0.06	-0.01	0.00	-0.01	0.00	0.01	735.22	367.61	535.89	335.79	7.54	-0.62	0.000
130.00	0.00	-0.01	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	7.67	-0.62	0.000

Seismic Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 50	

Load Case:	0.9D + 1.0E							**Iterations**	23
Gust Response Factor	1.10				**Sds**	0.19		**Ss**	0.18
Dead Load Factor	0.90	**Seismic Load Factor**	1.00		**Sd1**	0.10		**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.25		**SA**	0.03	**Seismic Importance Factor**		1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00	RB1 RB2	0.00	0.00	0.00	0.00	0.00	
2.00		283.72	0.00	0.02	0.01	3.76	
4.00		281.62	0.00	0.03	0.02	5.93	
6.00		279.53	0.00	0.04	0.02	7.32	
8.00		277.43	0.01	0.05	0.03	8.24	
10.00		275.33	0.01	0.06	0.03	8.86	
10.25	RT2 RB3	34.27	0.01	0.06	0.03	1.11	
12.00		238.97	0.02	0.06	0.04	8.11	
14.00		271.14	0.02	0.07	0.04	9.55	
16.00		269.04	0.03	0.07	0.04	9.72	
18.00		266.95	0.04	0.07	0.04	9.83	
20.00		264.85	0.04	0.07	0.04	9.90	
20.50	RT1 RB4	65.88	0.05	0.07	0.04	2.47	
22.00		196.87	0.05	0.07	0.04	7.46	
24.00		260.66	0.06	0.07	0.04	9.98	
25.96	RB5	253.41	0.08	0.07	0.04	9.81	
26.00		5.15	0.08	0.07	0.04	0.20	
27.88	RT3 RB6	241.14	0.09	0.07	0.04	9.44	
28.00		15.33	0.09	0.07	0.04	0.60	
30.00		254.37	0.10	0.07	0.04	10.08	
32.00		252.27	0.11	0.07	0.04	10.11	
34.00		250.18	0.13	0.07	0.03	10.15	
36.00		248.08	0.14	0.07	0.03	10.18	
38.00		245.98	0.16	0.07	0.03	10.19	
40.00		243.89	0.18	0.07	0.03	10.17	
40.50	RT4 RB7	60.64	0.18	0.06	0.03	2.53	
40.71	RT5 RB8	25.43	0.19	0.06	0.03	1.06	
42.00		155.71	0.20	0.06	0.02	6.52	
43.33	Bot - Section 2	160.03	0.21	0.06	0.02	6.69	
44.00		144.41	0.22	0.06	0.02	6.03	
46.00		430.71	0.24	0.06	0.02	17.80	
48.00	Top - Section 1	426.94	0.26	0.05	0.02	17.28	
48.12	RT6	11.43	0.26	0.05	0.02	0.46	
50.00		178.33	0.28	0.05	0.01	6.98	
52.00		188.08	0.30	0.04	0.01	6.97	
54.00		186.41	0.33	0.04	0.01	6.39	
56.00		184.73	0.35	0.03	0.01	5.64	
58.00		183.05	0.38	0.03	0.01	4.72	
60.00		181.37	0.40	0.02	0.01	3.63	
60.71	RT8	63.98	0.41	0.01	0.01	1.13	
60.75	RT7 RB9	3.60	0.41	0.01	0.01	0.06	
62.00		112.11	0.43	0.01	0.01	1.48	
64.00		178.02	0.46	0.00	0.01	1.01	
66.00		176.34	0.49	-0.01	0.01	-0.43	
68.00		174.67	0.52	-0.02	0.01	-1.87	
70.00		172.99	0.55	-0.03	0.01	-3.24	

Seismic Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 51	

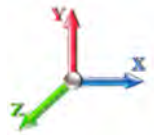
72.00			171.31	0.58	-0.05	0.01	-4.47	
74.00			169.63	0.61	-0.06	0.02	-5.52	
76.00			167.96	0.65	-0.07	0.02	-6.36	
78.00			166.28	0.68	-0.08	0.03	-6.98	
78.25	RT9		20.67	0.68	-0.08	0.03	-0.88	
80.00			143.94	0.72	-0.09	0.03	-6.45	
82.00			162.93	0.75	-0.10	0.04	-7.56	
84.00			161.25	0.79	-0.11	0.05	-7.55	
86.00			159.57	0.83	-0.12	0.06	-7.35	
87.42	Bot - Section 3		112.02	0.85	-0.12	0.07	-5.02	
88.00			80.81	0.87	-0.12	0.07	-3.57	
90.00	Appurtenance(s)		3445.3	0.91	-0.12	0.09	-141.93	
91.33	Top - Section 2		181.80	0.93	-0.12	0.10	-7.02	
92.00			39.09	0.95	-0.12	0.11	-1.45	
94.00	Appurtenance(s)		169.42	0.99	-0.11	0.13	-5.44	
96.00			115.16	1.03	-0.10	0.15	-3.00	
98.00			113.90	1.07	-0.08	0.17	-2.16	
100.00	Appurtenance(s)		1864.6	1.12	-0.06	0.20	-20.18	
102.00			111.39	1.16	-0.03	0.23	-0.19	
104.00			110.13	1.21	0.01	0.26	0.93	
106.00			108.87	1.26	0.06	0.30	2.14	
108.00			107.61	1.30	0.13	0.34	3.42	
110.00	Appurtenance(s)		1935.1	1.35	0.20	0.39	87.23	
112.00			105.10	1.40	0.29	0.43	6.24	
114.00			103.84	1.45	0.39	0.49	7.77	
116.00			102.58	1.50	0.51	0.55	9.36	
118.00			101.32	1.56	0.65	0.61	11.03	
120.00	Top - Section 3		2459.1	1.61	0.81	0.68	313.59	
122.00			94.88	1.66	0.99	0.76	13.98	
124.00			94.88	1.72	1.20	0.84	15.97	
126.00			94.88	1.78	1.43	0.94	18.07	
128.00			94.88	1.83	1.69	1.03	20.27	
129.00	Appurtenance(s)		5052.1	1.86	1.83	1.09	1140.68	
130.00	Appurtenance(s)		53.94	1.89	1.98	1.14	12.85	
		Totals:	**26,851.5**				**1,694.5**	**Total Wind:** **35,729.3**

Calculated Forces

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 52	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E



Gust Response Factor	1.10			**Sds**	0.19			**Iterations**	23
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10			**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.25	**SA**	0.03			**S1**	0.06
								Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-28.16	-1.94	0.00	-226.01	0.00	226.01	2818.94	1409.47	4888.80	2448.04		0.00	0.00	0.048
2.00	-27.83	-1.94	0.00	-222.13	0.00	222.13	2805.89	1402.95	4830.09	2418.63		0.00	-0.01	0.048
4.00	-27.51	-1.94	0.00	-218.24	0.00	218.24	2792.73	1396.36	4771.51	2389.30		0.01	-0.01	0.047
6.00	-27.18	-1.94	0.00	-214.36	0.00	214.36	2779.45	1389.73	4713.08	2360.04		0.01	-0.02	0.047
8.00	-26.86	-1.93	0.00	-210.49	0.00	210.49	2766.06	1383.03	4654.80	2330.86		0.02	-0.03	0.046
10.00	-26.54	-1.92	0.00	-206.63	0.00	206.63	2752.56	1376.28	4596.67	2301.75		0.03	-0.03	0.046
10.25	-26.50	-1.92	0.00	-206.15	0.00	206.15	2750.86	1375.43	4589.41	2298.12		0.04	-0.03	0.048
12.00	-26.23	-1.92	0.00	-202.78	0.00	202.78	2738.94	1369.47	4538.70	2272.72		0.05	-0.04	0.047
14.00	-25.91	-1.91	0.00	-198.95	0.00	198.95	2725.20	1362.60	4480.89	2243.77		0.07	-0.05	0.047
16.00	-25.60	-1.90	0.00	-195.13	0.00	195.13	2711.35	1355.68	4423.25	2214.91		0.09	-0.05	0.046
18.00	-25.29	-1.90	0.00	-191.32	0.00	191.32	2697.39	1348.70	4365.78	2186.13		0.11	-0.06	0.046
20.00	-24.98	-1.89	0.00	-187.52	0.00	187.52	2683.32	1341.66	4308.48	2157.44		0.14	-0.07	0.045
20.50	-24.90	-1.89	0.00	-186.58	0.00	186.58	2679.78	1339.89	4294.19	2150.28		0.14	-0.07	0.045
22.00	-24.67	-1.88	0.00	-183.75	0.00	183.75	2669.12	1334.56	4251.37	2128.84		0.17	-0.07	0.045
24.00	-24.36	-1.87	0.00	-179.98	0.00	179.98	2654.82	1327.41	4194.44	2100.34		0.20	-0.08	0.044
25.96	-24.06	-1.87	0.00	-176.31	0.00	176.31	2640.69	1320.34	4138.83	2072.49		0.23	-0.09	0.039
26.00	-24.06	-1.87	0.00	-176.23	0.00	176.23	2640.40	1320.20	4137.70	2071.92		0.23	-0.09	0.039
27.88	-23.77	-1.86	0.00	-172.72	0.00	172.72	2626.74	1313.37	4084.54	2045.30		0.27	-0.09	0.047
28.00	-23.75	-1.86	0.00	-172.50	0.00	172.50	2625.87	1312.93	4081.15	2043.61		0.27	-0.09	0.047
30.00	-23.45	-1.85	0.00	-168.78	0.00	168.78	2611.22	1305.61	4024.80	2015.39		0.31	-0.10	0.047
32.00	-23.16	-1.84	0.00	-165.08	0.00	165.08	2596.46	1298.23	3968.65	1987.27		0.35	-0.11	0.046
34.00	-22.86	-1.84	0.00	-161.39	0.00	161.39	2581.58	1290.79	3912.71	1959.26		0.40	-0.11	0.045
36.00	-22.56	-1.83	0.00	-157.72	0.00	157.72	2566.59	1283.29	3856.98	1931.36		0.45	-0.12	0.045
38.00	-22.27	-1.82	0.00	-154.06	0.00	154.06	2551.48	1275.74	3801.46	1903.56		0.50	-0.13	0.044
40.00	-21.98	-1.81	0.00	-150.42	0.00	150.42	2536.26	1268.13	3746.17	1875.87		0.55	-0.14	0.044
40.50	-21.91	-1.81	0.00	-149.52	0.00	149.52	2532.44	1266.22	3732.38	1868.96		0.57	-0.14	0.043
40.71	-21.88	-1.81	0.00	-149.14	0.00	149.14	2530.83	1265.42	3726.59	1866.07		0.57	-0.14	0.043
42.00	-21.69	-1.80	0.00	-146.80	0.00	146.80	2520.93	1260.46	3691.10	1848.29		0.61	-0.14	0.043
43.33	-21.50	-1.80	0.00	-144.40	0.00	144.40	2510.64	1255.32	3654.51	1829.97		0.65	-0.15	0.043
44.00	-21.35	-1.79	0.00	-143.20	0.00	143.20	2505.48	1252.74	3636.25	1820.83		0.67	-0.15	0.042
46.00	-20.89	-1.78	0.00	-139.61	0.00	139.61	2489.92	1244.96	3581.64	1793.48		0.74	-0.16	0.041
48.00	-20.43	-1.76	0.00	-136.06	0.00	136.06	1854.44	927.22	2691.60	1347.80		0.81	-0.16	0.045
48.12	-20.42	-1.76	0.00	-135.85	0.00	135.85	1853.85	926.92	2689.31	1346.66		0.81	-0.16	0.055
50.00	-20.19	-1.76	0.00	-132.54	0.00	132.54	1844.56	922.28	2653.53	1328.74		0.88	-0.17	0.054
52.00	-19.95	-1.75	0.00	-129.03	0.00	129.03	1834.56	917.28	2615.56	1309.72		0.95	-0.18	0.053
54.00	-19.71	-1.75	0.00	-125.53	0.00	125.53	1824.45	912.23	2577.68	1290.76		1.03	-0.19	0.052
56.00	-19.47	-1.74	0.00	-122.03	0.00	122.03	1814.23	907.11	2539.90	1271.84		1.11	-0.20	0.051
58.00	-19.24	-1.74	0.00	-118.55	0.00	118.55	1803.89	901.94	2502.23	1252.97		1.19	-0.21	0.050
60.00	-19.00	-1.74	0.00	-115.07	0.00	115.07	1793.44	896.72	2464.66	1234.16		1.28	-0.21	0.049
60.71	-18.92	-1.74	0.00	-113.83	0.00	113.83	1789.70	894.85	2451.36	1227.50		1.31	-0.22	0.062
60.75	-18.91	-1.74	0.00	-113.76	0.00	113.76	1789.49	894.74	2450.61	1227.12		1.32	-0.22	0.062
62.00	-18.77	-1.74	0.00	-111.59	0.00	111.59	1782.87	891.44	2427.21	1215.41		1.37	-0.22	0.061
64.00	-18.54	-1.74	0.00	-108.11	0.00	108.11	1772.19	886.09	2389.88	1196.72		1.47	-0.23	0.060
66.00	-18.31	-1.74	0.00	-104.63	0.00	104.63	1761.39	880.70	2352.67	1178.08		1.57	-0.24	0.059
68.00	-18.08	-1.74	0.00	-101.15	0.00	101.15	1750.48	875.24	2315.58	1159.51		1.67	-0.26	0.057
70.00	-17.85	-1.75	0.00	-97.66	0.00	97.66	1739.46	869.73	2278.63	1141.01		1.78	-0.27	0.056
72.00	-17.62	-1.75	0.00	-94.16	0.00	94.16	1728.32	864.16	2241.81	1122.57		1.90	-0.28	0.055

Calculated Forces

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 53

74.00	-17.40	-1.75	0.00	-90.67	0.00	90.67	1717.07	858.54	2205.13	1104.20	2.01	-0.29	0.053
76.00	-17.18	-1.75	0.00	-87.17	0.00	87.17	1705.70	852.85	2168.59	1085.91	2.14	-0.29	0.052
78.00	-16.96	-1.75	0.00	-83.66	0.00	83.66	1694.22	847.11	2132.20	1067.69	2.26	-0.30	0.051
78.25	-16.93	-1.75	0.00	-83.22	0.00	83.22	1692.78	846.39	2127.67	1065.41	2.28	-0.31	0.051
78.25	-16.93	-1.75	0.00	-83.22	0.00	83.22	1692.78	846.39	2127.67	1065.41	2.28	-0.31	0.051
80.00	-16.74	-1.76	0.00	-80.15	0.00	80.15	1682.63	841.31	2095.97	1049.54	2.39	-0.31	0.086
82.00	-16.52	-1.76	0.00	-76.64	0.00	76.64	1670.92	835.46	2059.89	1031.48	2.53	-0.33	0.084
84.00	-16.30	-1.76	0.00	-73.12	0.00	73.12	1659.09	829.55	2023.98	1013.49	2.67	-0.35	0.082
86.00	-16.08	-1.77	0.00	-69.59	0.00	69.59	1647.16	823.58	1988.23	995.59	2.82	-0.36	0.080
87.42	-15.93	-1.77	0.00	-67.09	0.00	67.09	1638.63	819.32	1963.01	982.97	2.92	-0.37	0.078
88.00	-15.84	-1.77	0.00	-66.06	0.00	66.06	1635.10	817.55	1952.65	977.78	2.97	-0.38	0.077
90.00	-12.67	-1.75	0.00	-62.52	0.00	62.52	1622.94	811.47	1917.25	960.05	3.13	-0.39	0.073
91.33	-12.46	-1.75	0.00	-60.19	0.00	60.19	1099.39	549.70	1312.06	657.00	3.24	-0.40	0.103
92.00	-12.40	-1.75	0.00	-59.02	0.00	59.02	1097.24	548.62	1304.79	653.36	3.30	-0.41	0.102
94.00	-12.19	-1.75	0.00	-55.52	0.00	55.52	1090.71	545.35	1282.99	642.45	3.47	-0.42	0.098
96.00	-12.02	-1.76	0.00	-52.01	0.00	52.01	1084.06	542.03	1261.23	631.55	3.65	-0.44	0.093
98.00	-11.85	-1.76	0.00	-48.49	0.00	48.49	1077.30	538.65	1239.51	620.68	3.84	-0.46	0.089
100.00	-10.11	-1.75	0.00	-44.97	0.00	44.97	1070.43	535.22	1217.83	609.82	4.04	-0.47	0.083
102.00	-9.96	-1.75	0.00	-41.48	0.00	41.48	1063.44	531.72	1196.21	598.99	4.24	-0.49	0.079
104.00	-9.81	-1.75	0.00	-37.98	0.00	37.98	1056.34	528.17	1174.63	588.19	4.45	-0.50	0.074
106.00	-9.66	-1.75	0.00	-34.48	0.00	34.48	1049.12	524.56	1153.11	577.41	4.66	-0.52	0.069
108.00	-9.51	-1.75	0.00	-30.98	0.00	30.98	1041.79	520.90	1131.65	566.67	4.88	-0.53	0.064
110.00	-7.72	-1.64	0.00	-27.49	0.00	27.49	1034.34	517.17	1110.26	555.96	5.11	-0.54	0.057
112.00	-7.60	-1.64	0.00	-24.20	0.00	24.20	1026.79	513.39	1088.94	545.28	5.34	-0.55	0.052
114.00	-7.48	-1.63	0.00	-20.93	0.00	20.93	1019.11	509.56	1067.70	534.64	5.57	-0.56	0.047
116.00	-7.37	-1.62	0.00	-17.67	0.00	17.67	1011.32	505.66	1046.53	524.04	5.81	-0.57	0.041
118.00	-7.25	-1.61	0.00	-14.43	0.00	14.43	1003.42	501.71	1025.45	513.49	6.05	-0.58	0.035
120.00	-5.02	-1.27	0.00	-11.21	0.00	11.21	995.40	497.70	1004.45	502.97	6.30	-0.59	0.027
120.00	-5.02	-1.27	0.00	-11.21	0.00	11.21	735.22	367.61	535.89	335.79	6.30	-0.59	0.040
122.00	-4.91	-1.26	0.00	-8.66	0.00	8.66	735.22	367.61	535.89	335.79	6.54	-0.59	0.032
124.00	-4.81	-1.24	0.00	-6.15	0.00	6.15	735.22	367.61	535.89	335.79	6.79	-0.60	0.025
126.00	-4.70	-1.22	0.00	-3.66	0.00	3.66	735.22	367.61	535.89	335.79	7.04	-0.60	0.017
128.00	-4.59	-1.20	0.00	-1.22	0.00	1.22	735.22	367.61	535.89	335.79	7.30	-0.61	0.010
129.00	-0.05	-0.01	0.00	-0.01	0.00	0.01	735.22	367.61	535.89	335.79	7.43	-0.61	0.000
130.00	0.00	-0.01	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	7.55	-0.61	0.000

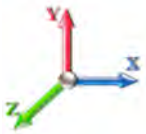
Wind Loading - Shaft

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 54	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

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	RB1 RB2	1.00	0.85	7.442	8.19	198.94	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
2.00		1.00	0.85	7.442	8.19	197.48	0.650	0.000	2.00	7.166	4.66	38.1	0.0	283.7
4.00		1.00	0.85	7.442	8.19	196.03	0.650	0.000	2.00	7.114	4.62	37.9	0.0	281.6
6.00		1.00	0.85	7.442	8.19	194.58	0.650	0.000	2.00	7.061	4.59	37.6	0.0	279.5
8.00		1.00	0.85	7.442	8.19	193.12	0.650	0.000	2.00	7.009	4.56	37.3	0.0	277.4
10.00		1.00	0.85	7.442	8.19	191.67	0.650	0.000	2.00	6.956	4.52	37.0	0.0	275.3
10.25	RT2 RB3	1.00	0.85	7.442	8.19	191.49	0.650	0.000	0.25	0.866	0.56	4.6	0.0	34.3
12.00		1.00	0.85	7.442	8.19	190.21	0.650	0.000	1.75	6.038	3.92	32.1	0.0	239.0
14.00		1.00	0.85	7.442	8.19	188.76	0.650	0.000	2.00	6.851	4.45	36.5	0.0	271.1
16.00		1.00	0.86	7.534	8.29	188.46	0.650	0.000	2.00	6.798	4.42	36.6	0.0	269.0
18.00		1.00	0.88	7.723	8.50	189.33	0.650	0.000	2.00	6.746	4.38	37.2	0.0	266.9
20.00		1.00	0.90	7.896	8.69	189.94	0.650	0.000	2.00	6.693	4.35	37.8	0.0	264.9
20.50	RT1 RB4	1.00	0.91	7.937	8.73	190.06	0.650	0.000	0.50	1.665	1.08	9.4	0.0	65.9
22.00		1.00	0.92	8.056	8.86	190.35	0.651 *	0.000	1.50	4.976	3.24	28.7	0.0	196.9
24.00		1.00	0.94	8.205	9.03	190.57	0.652 *	0.000	2.00	6.588	4.30	38.8	0.0	260.7
25.96	RB5	1.00	0.95	8.342	9.18	190.64	0.654 *	0.000	1.96	6.405	4.19	38.4	0.0	253.4
26.00		1.00	0.95	8.345	9.18	190.64	0.655 *	0.000	0.04	0.130	0.09	0.8	0.0	5.2
27.88	RT3 RB6	1.00	0.97	8.468	9.31	190.59	0.655 *	0.000	1.88	6.096	4.00	37.2	0.0	241.1
28.00		1.00	0.97	8.476	9.32	190.59	0.656 *	0.000	0.12	0.387	0.25	2.4	0.0	15.3
30.00		1.00	0.98	8.600	9.46	190.41	0.657 *	0.000	2.00	6.430	4.23	40.0	0.0	254.4
32.00		1.00	1.00	8.717	9.59	190.14	0.659 *	0.000	2.00	6.378	4.20	40.3	0.0	252.3
34.00		1.00	1.01	8.829	9.71	189.77	0.661 *	0.000	2.00	6.325	4.18	40.6	0.0	250.2
36.00		1.00	1.02	8.936	9.83	189.32	0.662 *	0.000	2.00	6.273	4.15	40.8	0.0	248.1
38.00		1.00	1.03	9.039	9.94	188.80	0.664 *	0.000	2.00	6.220	4.13	41.1	0.0	246.0
40.00		1.00	1.04	9.137	10.05	188.21	0.666 *	0.000	2.00	6.168	4.11	41.3	0.0	243.9
40.50	RT4 RB7	1.00	1.05	9.161	10.08	188.06	0.667 *	0.000	0.50	1.534	1.02	10.3	0.0	60.6
40.71	RT5 RB8	1.00	1.05	9.171	10.09	187.99	0.667 *	0.000	0.21	0.643	0.43	4.3	0.0	25.4
42.00		1.00	1.05	9.231	10.15	187.56	0.668 *	0.000	1.29	3.938	2.63	26.7	0.0	155.7
43.33	Bot - Section 2	1.00	1.06	9.292	10.22	187.10	0.669 *	0.000	1.33	4.048	2.71	27.7	0.0	160.0
44.00		1.00	1.06	9.322	10.25	186.86	0.670 *	0.000	0.67	2.043	1.37	14.0	0.0	144.4
46.00		1.00	1.07	9.410	10.35	186.10	0.671 *	0.000	2.00	6.095	4.09	42.3	0.0	430.7
48.00	Top - Section 1	1.00	1.08	9.494	10.44	185.29	0.673 *	0.000	2.00	6.042	4.07	42.5	0.0	426.9
48.12	RT6	1.00	1.08	9.499	10.45	187.89	0.671 *	0.000	0.12	0.361	0.24	2.5	0.0	11.4
50.00		1.00	1.09	9.576	10.53	187.09	0.672 *	0.000	1.88	5.629	3.78	39.8	0.0	178.3
52.00		1.00	1.10	9.656	10.62	186.21	0.674 *	0.000	2.00	5.937	4.00	42.5	0.0	188.1
54.00		1.00	1.11	9.733	10.71	185.29	0.676 *	0.000	2.00	5.884	3.98	42.6	0.0	186.4
56.00		1.00	1.12	9.807	10.79	184.33	0.678 *	0.000	2.00	5.832	3.95	42.7	0.0	184.7
58.00		1.00	1.13	9.880	10.87	183.34	0.680 *	0.000	2.00	5.779	3.93	42.7	0.0	183.1
60.00		1.00	1.14	9.951	10.95	182.31	0.682 *	0.000	2.00	5.727	3.91	42.8	0.0	181.4
60.71	RT8	1.00	1.14	9.976	10.97	181.94	0.683 *	0.000	0.71	2.020	1.38	15.2	0.0	64.0
60.75	RT7 RB9	1.00	1.14	9.977	10.97	181.92	0.684 *	0.000	0.04	0.114	0.08	0.9	0.0	3.6
62.00		1.00	1.14	10.020	11.02	181.26	0.685 *	0.000	1.25	3.540	2.42	26.7	0.0	112.1
64.00		1.00	1.15	10.087	11.10	180.17	0.686 *	0.000	2.00	5.622	3.86	42.8	0.0	178.0
66.00		1.00	1.16	10.153	11.17	179.06	0.688 *	0.000	2.00	5.569	3.83	42.8	0.0	176.3
68.00		1.00	1.17	10.217	11.24	177.92	0.691 *	0.000	2.00	5.516	3.81	42.8	0.0	174.7
70.00		1.00	1.17	10.279	11.31	176.75	0.693 *	0.000	2.00	5.464	3.79	42.8	0.0	173.0
72.00		1.00	1.18	10.340	11.37	175.57	0.695 *	0.000	2.00	5.411	3.76	42.8	0.0	171.3

Wind Loading - Shaft

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 55	

74.00	1.00	1.19	10.400	11.44	174.35	0.698 *	0.000	2.00	5.359	3.74	42.8	0.0	169.6
76.00	1.00	1.19	10.459	11.50	173.12	0.700 *	0.000	2.00	5.306	3.71	42.7	0.0	168.0
78.00	1.00	1.20	10.516	11.57	171.87	0.702 *	0.000	2.00	5.254	3.69	42.7	0.0	166.3
78.25 RT9	1.00	1.20	10.523	11.58	171.71	0.704 *	0.000	0.25	0.653	0.46	5.3	0.0	20.7
80.00	1.00	1.21	10.572	11.63	170.59	0.705 *	0.000	1.75	4.548	3.21	37.3	0.0	143.9
82.00	1.00	1.21	10.627	11.69	169.30	0.650	0.000	2.00	5.148	3.35	39.1	0.0	162.9
84.00	1.00	1.22	10.681	11.75	167.99	0.650	0.000	2.00	5.096	3.31	38.9	0.0	161.2
86.00	1.00	1.23	10.734	11.81	166.66	0.650	0.000	2.00	5.043	3.28	38.7	0.0	159.6
87.42 Bot - Section 3	1.00	1.23	10.771	11.85	165.71	0.650	0.000	1.42	3.541	2.30	27.3	0.0	112.0
88.00	1.00	1.23	10.787	11.87	165.31	0.650	0.000	0.58	1.469	0.95	11.3	0.0	80.8
90.00 Appurtenance(s)	1.00	1.24	10.838	11.92	163.95	0.650	0.000	2.00	5.002	3.25	38.8	0.0	275.2
91.33 Top - Section 2	1.00	1.24	10.871	11.96	163.03	0.650	0.000	1.33	3.305	2.15	25.7	0.0	181.8
92.00	1.00	1.24	10.888	11.98	164.69	0.650	0.000	0.67	1.644	1.07	12.8	0.0	39.1
94.00 Appurtenance(s)	1.00	1.25	10.937	12.03	163.30	0.650	0.000	2.00	4.897	3.18	38.3	0.0	116.4
96.00	1.00	1.25	10.986	12.08	161.90	0.650	0.000	2.00	4.844	3.15	38.0	0.0	115.2
98.00	1.00	1.26	11.034	12.14	160.48	0.650	0.000	2.00	4.791	3.11	37.8	0.0	113.9
100.00 Appurtenance(s)	1.00	1.27	11.081	12.19	159.05	0.650	0.000	2.00	4.739	3.08	37.5	0.0	112.6
102.00	1.00	1.27	11.127	12.24	157.60	0.650	0.000	2.00	4.686	3.05	37.3	0.0	111.4
104.00	1.00	1.28	11.173	12.29	156.14	0.650	0.000	2.00	4.634	3.01	37.0	0.0	110.1
106.00	1.00	1.28	11.218	12.34	154.67	0.650	0.000	2.00	4.581	2.98	36.7	0.0	108.9
108.00	1.00	1.29	11.262	12.39	153.19	0.650	0.000	2.00	4.529	2.94	36.5	0.0	107.6
110.00 Appurtenance(s)	1.00	1.29	11.305	12.44	151.69	0.650	0.000	2.00	4.476	2.91	36.2	0.0	106.4
112.00	1.00	1.30	11.348	12.48	150.19	0.650	0.000	2.00	4.423	2.88	35.9	0.0	105.1
114.00	1.00	1.30	11.391	12.53	148.67	0.650	0.000	2.00	4.371	2.84	35.6	0.0	103.8
116.00	1.00	1.31	11.432	12.58	147.14	0.650	0.000	2.00	4.318	2.81	35.3	0.0	102.6
118.00	1.00	1.31	11.474	12.62	145.60	0.650	0.000	2.00	4.266	2.77	35.0	0.0	101.3
120.00 Top - Section 3	1.00	1.32	11.514	12.67	144.05	0.650	0.000	2.00	4.213	2.74	34.7	0.0	100.1
122.00	1.00	1.32	11.554	12.71	103.39	0.620 *	0.000	2.00	3.000	1.86	23.6	0.0	94.9
124.00	1.00	1.32	11.594	12.75	103.57	0.620 *	0.000	2.00	3.000	1.86	23.7	0.0	94.9
126.00	1.00	1.33	11.633	12.80	103.74	0.620 *	0.000	2.00	3.000	1.86	23.8	0.0	94.9
128.00	1.00	1.33	11.672	12.84	103.92	0.620 *	0.000	2.00	3.000	1.86	23.9	0.0	94.9
129.00 Appurtenance(s)	1.00	1.34	11.691	12.86	104.00	0.620 *	0.000	1.00	1.500	0.93	12.0	0.0	47.4
130.00 Appurtenance(s)	1.00	1.34	11.710	12.88	104.08	0.600	0.000	1.00	1.500	0.90	11.6	0.0	47.4
							Totals:	**130.00**			**2,486.5**		**12,677.2**

* Cf Adjusted by Linear Load Ra Effect

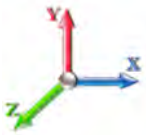
Discrete Appurtenance Forces

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 56	

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	130.00	6' Lightning rod	1	11.710	12.881	1.00	1.00	0.38	6.50	0.000	0.000	4.89	0.00	0.00
2	129.00	OPA-65R-LCUU-H6	3	11.710	12.881	0.59	0.75	17.08	240.00	0.000	1.000	220.06	0.00	220.06
3	129.00	RRUS E2 B29	3	11.710	12.881	0.38	0.75	3.54	178.20	0.000	1.000	45.65	0.00	45.65
4	129.00	DC6-48-60-18-8F	2	11.710	12.881	0.38	0.75	0.69	63.60	0.000	1.000	8.89	0.00	8.89
5	129.00	DC6-48-60-0-8C	2	11.710	12.881	0.38	0.75	3.58	32.00	0.000	1.000	46.18	0.00	46.18
6	129.00	MTC3607 Platform + HR	1	11.691	12.860	1.00	1.00	45.40	2000.00	0.000	0.000	583.85	0.00	0.00
7	129.00	Angle Reinforcement	1	11.691	12.860	1.00	1.00	5.80	250.00	0.000	0.000	74.59	0.00	0.00
8	129.00	PRK-1245 (kicker kit)	1	11.691	12.860	1.00	1.00	9.50	464.91	0.000	0.000	122.17	0.00	0.00
9	129.00	RRUS 4478 B14	3	11.710	12.881	0.38	0.75	1.86	178.20	0.000	1.000	23.91	0.00	23.91
10	129.00	4449 B5/B12	3	11.710	12.881	0.38	0.75	2.22	213.00	0.000	1.000	28.55	0.00	28.55
11	129.00	B2 B66A 8843	3	11.710	12.881	0.38	0.75	1.84	210.00	0.000	1.000	23.77	0.00	23.77
12	129.00	QS66512-2	3	11.710	12.881	0.69	0.75	16.79	333.00	0.000	1.000	216.30	0.00	216.30
13	129.00	RRUS 32	6	11.710	12.881	0.38	0.75	3.71	462.00	0.000	1.000	47.82	0.00	47.82
14	129.00	OPA65R-KE6D	6	11.710	12.881	0.54	0.75	41.24	379.80	0.000	1.000	531.18	0.00	531.18
15	120.00	MC-PK8-DSH	1	11.514	12.666	1.00	1.00	37.59	1727.00	0.000	0.000	476.11	0.00	0.00
16	120.00	RDIDC-9181-OF-48	1	11.514	12.666	0.38	0.75	0.75	21.90	0.000	0.000	9.55	0.00	0.00
17	120.00	TA08025-B604	3	11.514	12.666	0.38	0.75	2.21	191.70	0.000	0.000	27.93	0.00	0.00
18	120.00	TA08025-B605	3	11.514	12.666	0.38	0.75	2.21	225.00	0.000	0.000	27.93	0.00	0.00
19	120.00	MX08FRO665-21	3	11.514	12.666	0.55	0.75	20.80	193.50	0.000	0.000	263.40	0.00	0.00
20	110.00	T-Arm (Round)	3	11.305	12.436	0.56	0.75	13.50	1050.00	0.000	0.000	167.88	0.00	0.00
21	110.00	DB-T1-6Z-8AB-0Z	2	11.305	12.436	0.40	0.80	3.84	37.80	0.000	0.000	47.75	0.00	0.00
22	110.00	B4 RRH2X60-4R	3	11.305	12.436	0.40	0.80	4.03	165.00	0.000	0.000	50.14	0.00	0.00
23	110.00	B13 RRH4X30-4R	3	11.305	12.436	0.40	0.80	2.59	171.60	0.000	0.000	32.23	0.00	0.00
24	110.00	RRH2X60-1900A-4R	3	11.305	12.436	0.40	0.80	2.26	138.00	0.000	0.000	28.06	0.00	0.00
25	110.00	SBNHH-1D65B	6	11.305	12.436	0.63	0.80	30.94	240.00	0.000	0.000	384.80	0.00	0.00
26	110.00	CBC721-DF	3	11.284	12.412	0.40	0.80	0.54	13.20	0.000	-1.000	6.70	0.00	-6.70
27	110.00	CBC721-DF	3	11.327	12.460	0.40	0.80	0.54	13.20	0.000	1.000	6.73	0.00	6.73
28	100.00	AIR 21, 1.3M, B2A B4P	3	11.081	12.189	0.64	0.80	11.69	274.50	0.000	0.000	142.52	0.00	0.00
29	100.00	AIR 21, 1.3M, B4A B2P	3	11.081	12.189	0.64	0.80	11.69	271.20	0.000	0.000	142.52	0.00	0.00
30	100.00	LNX-6515DS-A1M	3	11.081	12.189	0.64	0.80	22.02	150.90	0.000	0.000	268.43	0.00	0.00
31	100.00	782 11056	3	11.081	12.189	0.40	0.80	0.16	5.40	0.000	0.000	1.90	0.00	0.00
32	100.00	T-Arm (Round)	3	11.081	12.189	0.56	0.75	13.50	1050.00	0.000	0.000	164.55	0.00	0.00
33	94.00	1'4"x6.5"x6" Surge	1	10.937	12.031	0.80	0.80	1.71	53.00	0.000	0.000	20.60	0.00	0.00
34	90.00	F3P-10W	1	10.838	11.921	1.00	1.00	51.77	2122.00	0.000	0.000	617.17	0.00	0.00
35	90.00	NNVV-65B-R4	3	10.838	11.921	0.55	0.75	20.43	232.20	0.000	0.000	243.55	0.00	0.00
36	90.00	AAHC	3	10.838	11.921	0.56	0.75	7.09	312.00	0.000	0.000	84.49	0.00	0.00
37	90.00	ALU - 800 MHz - RRU	6	10.838	11.921	0.38	0.75	5.60	318.00	0.000	0.000	66.79	0.00	0.00
38	90.00	ALU - 1900MHz - RRU	3	10.838	11.921	0.38	0.75	4.27	132.00	0.000	0.000	50.96	0.00	0.00
39	90.00	Andrew - VHLP2-11	2	10.838	11.921	0.75	0.75	7.02	54.00	0.000	0.000	83.69	0.00	0.00
							Totals:		**14,174.31**			**5,394.18**		

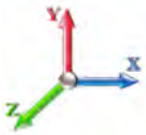
Total Applied Force Summary

Structure:	CT13064-A-SBA		**Code:**	TIA-222-G	2/11/2022
Site Name:	Middletown 2, CT		**Exposure:**	C	
Height:	130.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 57

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
2.00		38.13	362.90	0.00	0.00
4.00		37.85	360.81	0.00	0.00
6.00		37.57	358.71	0.00	0.00
8.00		37.29	356.61	0.00	0.00
10.00		37.01	354.52	0.00	0.00
10.25		4.61	44.17	0.00	0.00
12.00		32.13	308.25	0.00	0.00
14.00		36.45	350.32	0.00	0.00
16.00		36.62	348.23	0.00	0.00
18.00		37.25	346.13	0.00	0.00
20.00		37.79	344.03	0.00	0.00
20.50		9.45	85.68	0.00	0.00
22.00		28.70	256.26	0.00	0.00
24.00		38.79	339.84	0.00	0.00
25.96		38.43	331.01	0.00	0.00
26.00		0.78	6.73	0.00	0.00
27.88		37.22	315.57	0.00	0.00
28.00		2.37	20.08	0.00	0.00
30.00		39.98	333.55	0.00	0.00
32.00		40.29	331.46	0.00	0.00
34.00		40.58	329.36	0.00	0.00
36.00		40.83	327.26	0.00	0.00
38.00		41.06	325.17	0.00	0.00
40.00		41.27	323.07	0.00	0.00
40.50		10.31	80.44	0.00	0.00
40.71		4.33	33.75	0.00	0.00
42.00		26.71	206.79	0.00	0.00
43.33		27.68	212.82	0.00	0.00
44.00		14.04	170.80	0.00	0.00
46.00		42.35	509.90	0.00	0.00
48.00		42.48	506.12	0.00	0.00
48.12		2.53	16.18	0.00	0.00
50.00		39.85	252.76	0.00	0.00
52.00		42.50	267.27	0.00	0.00
54.00		42.58	265.59	0.00	0.00
56.00		42.65	263.91	0.00	0.00
58.00		42.71	262.24	0.00	0.00
60.00		42.75	260.56	0.00	0.00
60.71		15.15	92.09	0.00	0.00
60.75		0.85	5.18	0.00	0.00
62.00		26.71	161.60	0.00	0.00
64.00		42.81	257.20	0.00	0.00
66.00		42.82	255.53	0.00	0.00
68.00		42.82	253.85	0.00	0.00
70.00		42.81	252.17	0.00	0.00
72.00		42.79	250.50	0.00	0.00

Total Applied Force Summary

Structure:	CT13064-A-SBA		**Code:**	TIA-222-G	2/11/2022
Site Name:	Middletown 2, CT		**Exposure:**	C	
Height:	130.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 58

74.00		42.77	248.82	0.00	0.00
76.00		42.73	247.14	0.00	0.00
78.00		42.69	245.46	0.00	0.00
78.25		5.32	30.57	0.00	0.00
80.00		37.29	213.22	0.00	0.00
82.00		39.12	242.11	0.00	0.00
84.00		38.92	240.43	0.00	0.00
86.00		38.71	238.76	0.00	0.00
87.42		27.27	168.10	0.00	0.00
88.00		11.33	103.90	0.00	0.00
90.00	(18) attachments	1185.42	3524.54	0.00	0.00
91.33		25.69	229.02	0.00	0.00
92.00		12.80	62.69	0.00	0.00
94.00	(1) attachments	58.89	240.24	0.00	0.00
96.00		38.05	185.98	0.00	0.00
98.00		37.80	184.72	0.00	0.00
100.00	(15) attachments	757.47	1935.47	0.00	0.00
102.00		37.28	167.53	0.00	0.00
104.00		37.02	166.27	0.00	0.00
106.00		36.74	165.01	0.00	0.00
108.00		36.46	163.75	0.00	0.00
110.00	(26) attachments	760.48	1991.30	0.00	0.03
112.00		35.89	131.88	0.00	0.00
114.00		35.60	130.62	0.00	0.00
116.00		35.30	129.36	0.00	0.00
118.00		35.00	128.10	0.00	0.00
120.00	(11) attachments	839.59	2485.95	0.00	0.00
122.00		23.64	118.02	0.00	0.00
124.00		23.72	118.02	0.00	0.00
126.00		23.80	118.02	0.00	0.00
128.00		23.88	118.02	0.00	0.00
129.00	(37) attachments	1984.87	5063.72	0.00	1192.30
130.00	(1) attachments	16.49	53.94	0.00	0.00
	Totals:	**7,880.69**	**31,287.62**	**0.00**	**1,192.32**

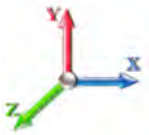
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 59	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
2.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.093	0.000	7.442	0.00	9.66
2.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.093	0.000	7.442	0.00	0.00
2.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.093	0.000	7.442	0.00	0.00
4.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.094	0.000	7.442	0.00	9.66
4.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.094	0.000	7.442	0.00	0.00
4.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.094	0.000	7.442	0.00	0.00
6.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.094	0.000	7.442	0.00	9.66
6.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.094	0.000	7.442	0.00	0.00
6.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.094	0.000	7.442	0.00	0.00
8.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.095	0.000	7.442	0.00	9.66
8.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.095	0.000	7.442	0.00	0.00
8.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.095	0.000	7.442	0.00	0.00
10.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.096	0.000	7.442	0.00	9.66
10.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.096	0.000	7.442	0.00	0.00
10.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.096	0.000	7.442	0.00	0.00
10.25	2" Conduit	Yes	0.25	0.000	2.00	0.04	0.00	0.096	0.000	7.442	0.00	1.21
10.25	1" Reinforcing plate	Yes	0.25	0.000	2.00	0.04	0.00	0.096	0.000	7.442	0.00	0.00
10.25	1" Reinforcing plate	Yes	0.25	0.000	0.00	0.00	0.00	0.096	0.000	7.442	0.00	0.00
12.00	2" Conduit	Yes	1.75	0.000	2.00	0.29	0.00	0.097	0.000	7.442	0.00	8.45
12.00	1" Reinforcing plate	Yes	1.75	0.000	2.00	0.29	0.00	0.097	0.000	7.442	0.00	0.00
12.00	1" Reinforcing plate	Yes	1.75	0.000	0.00	0.00	0.00	0.097	0.000	7.442	0.00	0.00
14.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.097	0.000	7.442	0.00	9.66
14.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.097	0.000	7.442	0.00	0.00
14.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.097	0.000	7.442	0.00	0.00
16.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.098	0.000	7.534	0.00	9.66
16.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.098	0.000	7.534	0.00	0.00
16.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.098	0.000	7.534	0.00	0.00
18.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.099	0.000	7.723	0.00	9.66
18.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.099	0.000	7.723	0.00	0.00
18.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.099	0.000	7.723	0.00	0.00
20.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.100	0.000	7.896	0.00	9.66
20.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.100	0.000	7.896	0.00	0.00
20.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.100	0.000	7.896	0.00	0.00
20.50	2" Conduit	Yes	0.50	0.000	2.00	0.08	0.00	0.100	0.000	7.937	0.00	2.42
20.50	1" Reinforcing plate	Yes	0.50	0.000	2.00	0.08	0.00	0.100	0.000	7.937	0.00	0.00
20.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.100	0.000	7.937	0.00	0.00
22.00	2" Conduit	Yes	1.50	0.000	2.00	0.25	0.00	0.100	1.001	8.056	0.00	7.25
22.00	1" Reinforcing plate	Yes	1.50	0.000	2.00	0.25	0.00	0.100	1.001	8.056	0.00	0.00
22.00	1" Reinforcing plate	Yes	1.50	0.000	0.00	0.00	0.00	0.100	1.001	8.056	0.00	0.00
24.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.101	1.004	8.205	0.00	9.66
24.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.101	1.004	8.205	0.00	0.00
24.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.101	1.004	8.205	0.00	0.00
24.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.101	1.004	8.205	0.00	0.00
25.96	2" Conduit	Yes	1.96	0.000	2.00	0.33	0.00	0.102	1.006	8.342	0.00	9.47
25.96	1" Reinforcing plate	Yes	1.96	0.000	2.00	0.33	0.00	0.102	1.006	8.342	0.00	0.00
25.96	1" Reinforcing plate	Yes	1.96	0.000	0.00	0.00	0.00	0.102	1.006	8.342	0.00	0.00
25.96	1" Reinforcing plate	Yes	1.96	0.000	0.00	0.00	0.00	0.102	1.006	8.342	0.00	0.00

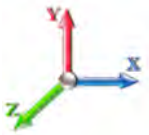
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 60	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
26.00	2" Conduit	Yes	0.04	0.000	2.00	0.01	0.00	0.102	1.007	8.345	0.00	0.19
26.00	1" Reinforcing plate	Yes	0.04	0.000	2.00	0.01	0.00	0.102	1.007	8.345	0.00	0.00
26.00	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.102	1.007	8.345	0.00	0.00
26.00	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.102	1.007	8.345	0.00	0.00
27.88	2" Conduit	Yes	1.88	0.000	2.00	0.31	0.00	0.103	1.008	8.468	0.00	9.08
27.88	1" Reinforcing plate	Yes	1.88	0.000	2.00	0.31	0.00	0.103	1.008	8.468	0.00	0.00
27.88	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.103	1.008	8.468	0.00	0.00
27.88	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.103	1.008	8.468	0.00	0.00
28.00	2" Conduit	Yes	0.12	0.000	2.00	0.02	0.00	0.103	1.010	8.476	0.00	0.58
28.00	1" Reinforcing plate	Yes	0.12	0.000	2.00	0.02	0.00	0.103	1.010	8.476	0.00	0.00
28.00	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.103	1.010	8.476	0.00	0.00
28.00	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.103	1.010	8.476	0.00	0.00
30.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.104	1.011	8.600	0.00	9.66
30.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.104	1.011	8.600	0.00	0.00
30.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.104	1.011	8.600	0.00	0.00
30.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.104	1.011	8.600	0.00	0.00
32.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.105	1.014	8.717	0.00	9.66
32.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.105	1.014	8.717	0.00	0.00
32.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.105	1.014	8.717	0.00	0.00
32.00	1" Reinforcing plate	Yes	1.50	0.000	0.00	0.00	0.00	0.105	1.014	8.717	0.00	0.00
32.00	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.105	1.014	8.717	0.00	0.00
34.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.105	1.016	8.829	0.00	9.66
34.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.105	1.016	8.829	0.00	0.00
34.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.105	1.016	8.829	0.00	0.00
34.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.105	1.016	8.829	0.00	0.00
36.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.106	1.019	8.936	0.00	9.66
36.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.106	1.019	8.936	0.00	0.00
36.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.106	1.019	8.936	0.00	0.00
36.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.106	1.019	8.936	0.00	0.00
38.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.107	1.022	9.039	0.00	9.66
38.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.107	1.022	9.039	0.00	0.00
38.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.107	1.022	9.039	0.00	0.00
38.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.107	1.022	9.039	0.00	0.00
40.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.108	1.024	9.137	0.00	9.66
40.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.108	1.024	9.137	0.00	0.00
40.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.108	1.024	9.137	0.00	0.00
40.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.108	1.024	9.137	0.00	0.00
40.50	2" Conduit	Yes	0.50	0.000	2.00	0.08	0.00	0.109	1.026	9.161	0.00	2.42
40.50	1" Reinforcing plate	Yes	0.50	0.000	2.00	0.08	0.00	0.109	1.026	9.161	0.00	0.00
40.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.109	1.026	9.161	0.00	0.00
40.50	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.109	1.026	9.161	0.00	0.00
40.71	2" Conduit	Yes	0.21	0.000	2.00	0.04	0.00	0.109	1.027	9.171	0.00	1.01
40.71	1" Reinforcing plate	Yes	0.21	0.000	2.00	0.04	0.00	0.109	1.027	9.171	0.00	0.00
40.71	1" Reinforcing plate	Yes	0.21	0.000	0.00	0.00	0.00	0.109	1.027	9.171	0.00	0.00
40.71	1" Reinforcing plate	Yes	0.21	0.000	0.00	0.00	0.00	0.109	1.027	9.171	0.00	0.00
42.00	2" Conduit	Yes	1.29	0.000	2.00	0.21	0.00	0.109	1.028	9.231	0.00	6.23
42.00	1" Reinforcing plate	Yes	1.29	0.000	2.00	0.21	0.00	0.109	1.028	9.231	0.00	0.00

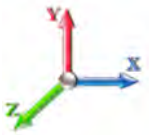
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 61	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
42.00	1" Reinforcing plate	Yes	1.29	0.000	0.00	0.00	0.00	0.109	1.028	9.231	0.00	0.00
42.00	1" Reinforcing plate	Yes	1.29	0.000	0.00	0.00	0.00	0.109	1.028	9.231	0.00	0.00
43.33	2" Conduit	Yes	1.33	0.000	2.00	0.22	0.00	0.110	1.029	9.292	0.00	6.44
43.33	1" Reinforcing plate	Yes	1.33	0.000	2.00	0.22	0.00	0.110	1.029	9.292	0.00	0.00
43.33	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.110	1.029	9.292	0.00	0.00
43.33	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.110	1.029	9.292	0.00	0.00
44.00	2" Conduit	Yes	0.67	0.000	2.00	0.11	0.00	0.110	1.031	9.322	0.00	3.22
44.00	1" Reinforcing plate	Yes	0.67	0.000	2.00	0.11	0.00	0.110	1.031	9.322	0.00	0.00
44.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.110	1.031	9.322	0.00	0.00
44.00	1" Reinforcing plate	Yes	0.67	0.000	0.00	0.00	0.00	0.110	1.031	9.322	0.00	0.00
46.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	9.410	0.00	9.66
46.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	9.410	0.00	0.00
46.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.111	1.033	9.410	0.00	0.00
46.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.111	1.033	9.410	0.00	0.00
48.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.112	1.036	9.494	0.00	9.66
48.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.112	1.036	9.494	0.00	0.00
48.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.112	1.036	9.494	0.00	0.00
48.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.112	1.036	9.494	0.00	0.00
48.12	2" Conduit	Yes	0.12	0.000	2.00	0.02	0.00	0.111	1.033	9.499	0.00	0.58
48.12	1" Reinforcing plate	Yes	0.12	0.000	2.00	0.02	0.00	0.111	1.033	9.499	0.00	0.00
48.12	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.111	1.033	9.499	0.00	0.00
48.12	1" Reinforcing plate	Yes	0.12	0.000	0.00	0.00	0.00	0.111	1.033	9.499	0.00	0.00
50.00	2" Conduit	Yes	1.88	0.000	2.00	0.31	0.00	0.111	1.034	9.576	0.00	9.08
50.00	1" Reinforcing plate	Yes	1.88	0.000	2.00	0.31	0.00	0.111	1.034	9.576	0.00	0.00
50.00	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.111	1.034	9.576	0.00	0.00
50.00	1" Reinforcing plate	Yes	1.88	0.000	0.00	0.00	0.00	0.111	1.034	9.576	0.00	0.00
52.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.112	1.037	9.656	0.00	9.66
52.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.112	1.037	9.656	0.00	0.00
52.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.112	1.037	9.656	0.00	0.00
52.00	1" Reinforcing plate	Yes	0.50	0.000	0.00	0.00	0.00	0.112	1.037	9.656	0.00	0.00
54.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.113	1.040	9.733	0.00	9.66
54.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.113	1.040	9.733	0.00	0.00
54.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.113	1.040	9.733	0.00	0.00
56.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.114	1.043	9.807	0.00	9.66
56.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.114	1.043	9.807	0.00	0.00
56.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.114	1.043	9.807	0.00	0.00
58.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.115	1.046	9.880	0.00	9.66
58.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.115	1.046	9.880	0.00	0.00
58.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.115	1.046	9.880	0.00	0.00
60.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.116	1.049	9.951	0.00	9.66
60.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.116	1.049	9.951	0.00	0.00
60.00	1" Reinforcing plate	Yes	2.00	0.000	0.00	0.00	0.00	0.116	1.049	9.951	0.00	0.00
60.71	2" Conduit	Yes	0.71	0.000	2.00	0.12	0.00	0.117	1.051	9.976	0.00	3.43
60.71	1" Reinforcing plate	Yes	0.71	0.000	2.00	0.12	0.00	0.117	1.051	9.976	0.00	0.00
60.71	1" Reinforcing plate	Yes	0.71	0.000	0.00	0.00	0.00	0.117	1.051	9.976	0.00	0.00
60.75	2" Conduit	Yes	0.04	0.000	2.00	0.01	0.00	0.117	1.052	9.977	0.00	0.19
60.75	1" Reinforcing plate	Yes	0.04	0.000	2.00	0.01	0.00	0.117	1.052	9.977	0.00	0.00

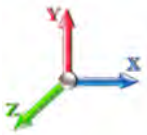
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 62	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
60.75	1" Reinforcing plate	Yes	0.04	0.000	0.00	0.00	0.00	0.117	1.052	9.977	0.00	0.00
62.00	2" Conduit	Yes	1.25	0.000	2.00	0.21	0.00	0.118	1.053	10.020	0.00	6.04
62.00	1" Reinforcing plate	Yes	1.25	0.000	2.00	0.21	0.00	0.118	1.053	10.020	0.00	0.00
62.00	1" Reinforcing plate	Yes	1.25	0.000	0.00	0.00	0.00	0.118	1.053	10.020	0.00	0.00
64.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.119	1.056	10.087	0.00	9.66
64.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.119	1.056	10.087	0.00	0.00
64.00	1" Reinforcing plate	Yes	1.33	0.000	0.00	0.00	0.00	0.119	1.056	10.087	0.00	0.00
66.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.120	1.059	10.153	0.00	9.66
66.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.120	1.059	10.153	0.00	0.00
68.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.121	1.063	10.217	0.00	9.66
68.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.121	1.063	10.217	0.00	0.00
70.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.122	1.066	10.279	0.00	9.66
70.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.122	1.066	10.279	0.00	0.00
72.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.123	1.070	10.340	0.00	9.66
72.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.123	1.070	10.340	0.00	0.00
74.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.124	1.073	10.400	0.00	9.66
74.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.124	1.073	10.400	0.00	0.00
76.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.126	1.077	10.459	0.00	9.66
76.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.126	1.077	10.459	0.00	0.00
78.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.127	1.081	10.516	0.00	9.66
78.00	1" Reinforcing plate	Yes	2.00	0.000	2.00	0.33	0.00	0.127	1.081	10.516	0.00	0.00
78.25	2" Conduit	Yes	0.25	0.000	2.00	0.04	0.00	0.128	1.083	10.523	0.00	1.21
78.25	1" Reinforcing plate	Yes	0.25	0.000	2.00	0.04	0.00	0.128	1.083	10.523	0.00	0.00
80.00	2" Conduit	Yes	1.75	0.000	2.00	0.29	0.00	0.128	1.085	10.572	0.00	8.45
80.00	1" Reinforcing plate	Yes	1.75	0.000	2.00	0.29	0.00	0.128	1.085	10.572	0.00	0.00
82.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.097	0.000	10.627	0.00	9.66
82.00	1" Reinforcing plate	Yes	1.00	0.000	2.00	0.17	0.00	0.097	0.000	10.627	0.00	0.00
84.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.065	0.000	10.681	0.00	9.66
86.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.066	0.000	10.734	0.00	9.66
87.42	2" Conduit	Yes	1.42	0.000	2.00	0.24	0.00	0.067	0.000	10.771	0.00	6.84
88.00	2" Conduit	Yes	0.58	0.000	2.00	0.10	0.00	0.067	0.000	10.787	0.00	2.82
90.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.068	0.000	10.838	0.00	9.66
91.33	2" Conduit	Yes	1.33	0.000	2.00	0.22	0.00	0.068	0.000	10.871	0.00	6.44
92.00	2" Conduit	Yes	0.67	0.000	2.00	0.11	0.00	0.068	0.000	10.888	0.00	3.22
94.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.068	0.000	10.937	0.00	9.66
96.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.069	0.000	10.986	0.00	9.66
98.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.070	0.000	11.034	0.00	9.66
100.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.070	0.000	11.081	0.00	9.66
102.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.071	0.000	11.127	0.00	9.66
104.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.072	0.000	11.173	0.00	9.66
106.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.073	0.000	11.218	0.00	9.66
108.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.074	0.000	11.262	0.00	9.66
110.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.074	0.000	11.305	0.00	9.66
112.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.075	0.000	11.348	0.00	9.66
114.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.076	0.000	11.391	0.00	9.66
116.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.077	0.000	11.432	0.00	9.66
118.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.078	0.000	11.474	0.00	9.66

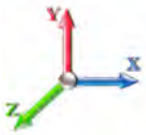
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 63	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
120.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.079	0.000	11.514	0.00	9.66
122.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	11.554	0.00	9.66
124.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	11.594	0.00	9.66
126.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	11.633	0.00	9.66
128.00	2" Conduit	Yes	2.00	0.000	2.00	0.33	0.00	0.111	1.033	11.672	0.00	9.66
129.00	2" Conduit	Yes	1.00	0.000	2.00	0.17	0.00	0.111	1.033	11.691	0.00	4.83
										Totals:	**0.0**	**623.1**

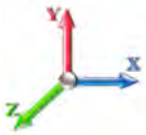
Calculated Forces

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 64	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 24

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	-31.29	-7.89	0.00	-795.39	0.00	795.39	2818.94	1409.47	4888.80	2448.04	0.00	0.000	0.000	0.159
2.00	-30.92	-7.86	0.00	-779.61	0.00	779.61	2805.89	1402.95	4830.09	2418.63	0.00	-0.023	0.000	0.157
4.00	-30.56	-7.83	0.00	-763.89	0.00	763.89	2792.73	1396.36	4771.51	2389.30	0.02	-0.045	0.000	0.155
6.00	-30.19	-7.81	0.00	-748.23	0.00	748.23	2779.45	1389.73	4713.08	2360.04	0.04	-0.067	0.000	0.153
8.00	-29.83	-7.78	0.00	-732.61	0.00	732.61	2766.06	1383.03	4654.80	2330.86	0.08	-0.090	0.000	0.151
10.00	-29.48	-7.75	0.00	-717.05	0.00	717.05	2752.56	1376.28	4596.67	2301.75	0.12	-0.112	0.000	0.149
10.25	-29.43	-7.75	0.00	-715.11	0.00	715.11	2750.86	1375.43	4589.41	2298.12	0.12	-0.115	0.000	0.156
12.00	-29.12	-7.73	0.00	-701.55	0.00	701.55	2738.94	1369.47	4538.70	2272.72	0.17	-0.135	0.000	0.154
14.00	-28.77	-7.70	0.00	-686.09	0.00	686.09	2725.20	1362.60	4480.89	2243.77	0.23	-0.159	0.000	0.152
16.00	-28.42	-7.68	0.00	-670.68	0.00	670.68	2711.35	1355.68	4423.25	2214.91	0.30	-0.182	0.000	0.150
18.00	-28.07	-7.65	0.00	-655.32	0.00	655.32	2697.39	1348.70	4365.78	2186.13	0.38	-0.205	0.000	0.148
20.00	-27.72	-7.62	0.00	-640.02	0.00	640.02	2683.32	1341.66	4308.48	2157.44	0.48	-0.228	0.000	0.146
20.50	-27.64	-7.61	0.00	-636.21	0.00	636.21	2679.78	1339.89	4294.19	2150.28	0.50	-0.233	0.000	0.145
22.00	-27.38	-7.59	0.00	-624.79	0.00	624.79	2669.12	1334.56	4251.37	2128.84	0.58	-0.251	0.000	0.143
24.00	-27.03	-7.56	0.00	-609.60	0.00	609.60	2654.82	1327.41	4194.44	2100.34	0.69	-0.273	0.000	0.141
25.96	-26.70	-7.53	0.00	-594.78	0.00	594.78	2640.69	1320.34	4138.83	2072.49	0.80	-0.295	0.000	0.122
26.00	-26.69	-7.53	0.00	-594.48	0.00	594.48	2640.40	1320.20	4137.70	2071.92	0.80	-0.296	0.000	0.122
27.88	-26.38	-7.50	0.00	-580.31	0.00	580.31	2626.74	1313.37	4084.54	2045.30	0.93	-0.314	0.000	0.150
28.00	-26.36	-7.50	0.00	-579.42	0.00	579.42	2625.87	1312.93	4081.15	2043.61	0.93	-0.316	0.000	0.149
30.00	-26.02	-7.47	0.00	-564.41	0.00	564.41	2611.22	1305.61	4024.80	2015.39	1.07	-0.340	0.000	0.147
32.00	-25.68	-7.44	0.00	-549.47	0.00	549.47	2596.46	1298.23	3968.65	1987.27	1.22	-0.365	0.000	0.145
34.00	-25.35	-7.41	0.00	-534.59	0.00	534.59	2581.58	1290.79	3912.71	1959.26	1.38	-0.389	0.000	0.142
36.00	-25.02	-7.38	0.00	-519.77	0.00	519.77	2566.59	1283.29	3856.98	1931.36	1.54	-0.413	0.000	0.139
38.00	-24.69	-7.34	0.00	-505.02	0.00	505.02	2551.48	1275.74	3801.46	1903.56	1.72	-0.437	0.000	0.137
40.00	-24.37	-7.30	0.00	-490.34	0.00	490.34	2536.26	1268.13	3746.17	1875.87	1.91	-0.461	0.000	0.134
40.50	-24.29	-7.30	0.00	-486.68	0.00	486.68	2532.44	1266.22	3732.38	1868.96	1.96	-0.466	0.000	0.134
40.71	-24.25	-7.29	0.00	-485.15	0.00	485.15	2530.83	1265.42	3726.59	1866.07	1.98	-0.469	0.000	0.133
42.00	-24.05	-7.27	0.00	-475.74	0.00	475.74	2520.93	1260.46	3691.10	1848.29	2.11	-0.484	0.000	0.132
43.33	-23.83	-7.25	0.00	-466.05	0.00	466.05	2510.64	1255.32	3654.51	1829.97	2.25	-0.500	0.000	0.130
44.00	-23.66	-7.24	0.00	-461.21	0.00	461.21	2505.48	1252.74	3636.25	1820.83	2.32	-0.507	0.000	0.127
46.00	-23.15	-7.20	0.00	-446.74	0.00	446.74	2489.92	1244.96	3581.64	1793.48	2.53	-0.530	0.000	0.124
48.00	-22.64	-7.16	0.00	-432.33	0.00	432.33	1854.44	927.22	2691.60	1347.80	2.76	-0.553	0.000	0.134
48.12	-22.62	-7.16	0.00	-431.48	0.00	431.48	1853.85	926.92	2689.31	1346.66	2.78	-0.554	0.000	0.164
50.00	-22.37	-7.13	0.00	-418.01	0.00	418.01	1844.56	922.28	2653.53	1328.74	3.00	-0.579	0.000	0.160
52.00	-22.10	-7.09	0.00	-403.76	0.00	403.76	1834.56	917.28	2615.56	1309.72	3.25	-0.606	0.000	0.156
54.00	-21.83	-7.06	0.00	-389.57	0.00	389.57	1824.45	912.23	2577.68	1290.76	3.51	-0.633	0.000	0.152
56.00	-21.56	-7.02	0.00	-375.45	0.00	375.45	1814.23	907.11	2539.90	1271.84	3.78	-0.659	0.000	0.148
58.00	-21.30	-6.99	0.00	-361.41	0.00	361.41	1803.89	901.94	2502.23	1252.97	4.06	-0.684	0.000	0.144
60.00	-21.03	-6.95	0.00	-347.43	0.00	347.43	1793.44	896.72	2464.66	1234.16	4.35	-0.709	0.000	0.140
60.71	-20.94	-6.93	0.00	-342.50	0.00	342.50	1789.70	894.85	2451.36	1227.50	4.46	-0.718	0.000	0.175
60.75	-20.93	-6.93	0.00	-342.23	0.00	342.23	1789.49	894.74	2450.61	1227.12	4.46	-0.719	0.000	0.175
62.00	-20.77	-6.92	0.00	-333.56	0.00	333.56	1782.87	891.44	2427.21	1215.41	4.65	-0.739	0.000	0.172
64.00	-20.51	-6.88	0.00	-319.73	0.00	319.73	1772.19	886.09	2389.88	1196.72	4.97	-0.769	0.000	0.167
66.00	-20.25	-6.84	0.00	-305.97	0.00	305.97	1761.39	880.70	2352.67	1178.08	5.30	-0.800	0.000	0.162
68.00	-20.00	-6.81	0.00	-292.28	0.00	292.28	1750.48	875.24	2315.58	1159.51	5.64	-0.829	0.000	0.156
70.00	-19.74	-6.77	0.00	-278.66	0.00	278.66	1739.46	869.73	2278.63	1141.01	5.99	-0.858	0.000	0.151
72.00	-19.49	-6.73	0.00	-265.12	0.00	265.12	1728.32	864.16	2241.81	1122.57	6.36	-0.887	0.000	0.145
74.00	-19.24	-6.70	0.00	-251.65	0.00	251.65	1717.07	858.54	2205.13	1104.20	6.74	-0.914	0.000	0.140

Calculated Forces

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 65

76.00	-18.99	-6.66	0.00	-238.26	0.00	238.26	1705.70	852.85	2168.59	1085.91	7.13	-0.941	0.000	0.134
78.00	-18.74	-6.62	0.00	-224.94	0.00	224.94	1694.22	847.11	2132.20	1067.69	7.53	-0.967	0.000	0.129
78.25	-18.71	-6.62	0.00	-223.29	0.00	223.29	1692.78	846.39	2127.67	1065.41	7.58	-0.970	0.000	0.128
78.25	-18.71	-6.62	0.00	-223.29	0.00	223.29	1692.78	846.39	2127.67	1065.41	7.58	-0.970	0.000	0.128
80.00	-18.49	-6.58	0.00	-211.71	0.00	211.71	1682.63	841.31	2095.97	1049.54	7.94	-0.992	0.000	0.213
82.00	-18.25	-6.55	0.00	-198.54	0.00	198.54	1670.92	835.46	2059.89	1031.48	8.36	-1.034	0.000	0.203
84.00	-18.00	-6.52	0.00	-185.43	0.00	185.43	1659.09	829.55	2023.98	1013.49	8.80	-1.074	0.000	0.194
86.00	-17.76	-6.49	0.00	-172.39	0.00	172.39	1647.16	823.58	1988.23	995.59	9.26	-1.113	0.000	0.184
87.42	-17.59	-6.47	0.00	-163.19	0.00	163.19	1638.63	819.32	1963.01	982.97	9.60	-1.140	0.000	0.177
88.00	-17.48	-6.46	0.00	-159.42	0.00	159.42	1635.10	817.55	1952.65	977.78	9.74	-1.150	0.000	0.174
90.00	-13.98	-5.21	0.00	-146.50	0.00	146.50	1622.94	811.47	1917.25	960.05	10.23	-1.186	0.000	0.161
91.33	-13.75	-5.18	0.00	-139.56	0.00	139.56	1099.39	549.70	1312.06	657.00	10.56	-1.208	0.000	0.225
92.00	-13.69	-5.18	0.00	-136.10	0.00	136.10	1097.24	548.62	1304.79	653.36	10.73	-1.219	0.000	0.221
94.00	-13.44	-5.12	0.00	-125.75	0.00	125.75	1090.71	545.35	1282.99	642.45	11.25	-1.260	0.000	0.208
96.00	-13.26	-5.09	0.00	-115.51	0.00	115.51	1084.06	542.03	1261.23	631.55	11.79	-1.300	0.000	0.195
98.00	-13.07	-5.05	0.00	-105.34	0.00	105.34	1077.30	538.65	1239.51	620.68	12.34	-1.337	0.000	0.182
100.00	-11.15	-4.26	0.00	-95.23	0.00	95.23	1070.43	535.22	1217.83	609.82	12.91	-1.371	0.000	0.167
102.00	-10.98	-4.22	0.00	-86.72	0.00	86.72	1063.44	531.72	1196.21	598.99	13.49	-1.404	0.000	0.155
104.00	-10.81	-4.19	0.00	-78.28	0.00	78.28	1056.34	528.17	1174.63	588.19	14.08	-1.434	0.000	0.143
106.00	-10.65	-4.15	0.00	-69.90	0.00	69.90	1049.12	524.56	1153.11	577.41	14.69	-1.463	0.000	0.131
108.00	-10.48	-4.11	0.00	-61.60	0.00	61.60	1041.79	520.90	1131.65	566.67	15.31	-1.489	0.000	0.119
110.00	-8.51	-3.30	0.00	-53.38	0.00	53.38	1034.34	517.17	1110.26	555.96	15.94	-1.512	0.000	0.104
112.00	-8.38	-3.27	0.00	-46.77	0.00	46.77	1026.79	513.39	1088.94	545.28	16.58	-1.534	0.000	0.094
114.00	-8.25	-3.23	0.00	-40.23	0.00	40.23	1019.11	509.56	1067.70	534.64	17.22	-1.553	0.000	0.083
116.00	-8.12	-3.20	0.00	-33.77	0.00	33.77	1011.32	505.66	1046.53	524.04	17.88	-1.570	0.000	0.073
118.00	-7.99	-3.16	0.00	-27.38	0.00	27.38	1003.42	501.71	1025.45	513.49	18.54	-1.584	0.000	0.061
120.00	-5.53	-2.25	0.00	-21.06	0.00	21.06	995.40	497.70	1004.45	502.97	19.21	-1.596	0.000	0.047
120.00	-5.53	-2.25	0.00	-21.06	0.00	21.06	735.22	367.61	535.89	335.79	19.21	-1.596	0.000	0.070
122.00	-5.41	-2.23	0.00	-16.56	0.00	16.56	735.22	367.61	535.89	335.79	19.88	-1.606	0.000	0.057
124.00	-5.29	-2.20	0.00	-12.10	0.00	12.10	735.22	367.61	535.89	335.79	20.55	-1.621	0.000	0.043
126.00	-5.18	-2.17	0.00	-7.70	0.00	7.70	735.22	367.61	535.89	335.79	21.23	-1.631	0.000	0.030
128.00	-5.06	-2.15	0.00	-3.36	0.00	3.36	735.22	367.61	535.89	335.79	21.92	-1.637	0.000	0.017
129.00	-0.05	-0.02	0.00	-0.02	0.00	0.02	735.22	367.61	535.89	335.79	22.26	-1.638	0.000	0.000
130.00	0.00	-0.02	0.00	0.00	0.00	0.00	735.22	367.61	535.89	335.79	22.60	-1.638	0.000	0.000

Final Analysis Summary

Structure:	CT13064-A-SBA	**Code:**	TIA-222-G	2/11/2022	
Site Name:	Middletown 2, CT	**Exposure:**	C		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 66	

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 101 mph Wind	35.8	0.00	37.51	0.00	0.00	3625.39
0.9D + 1.6W 101 mph Wind	35.8	0.00	28.13	0.00	0.00	3586.09
1.2D + 1.0Di + 1.0Wi 50 mph Wind	9.3	0.00	63.64	0.00	0.00	946.63
1.2D + 1.0E	1.9	0.00	37.55	0.00	0.00	228.84
0.9D + 1.0E	1.9	0.00	28.16	0.00	0.00	226.01
1.0D + 1.0W 60 mph Wind	7.9	0.00	31.29	0.00	0.00	795.39

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 101 mph Wind	-14.41	-23.68	0.00	-637.48	0.00	-637.48	1099.39	549.70	1312.06	657.00	91.33	0.985
0.9D + 1.6W 101 mph Wind	-10.31	-23.26	0.00	-624.65	0.00	-624.65	1099.39	549.70	1312.06	657.00	91.33	0.962
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-31.11	-6.12	0.00	-164.88	0.00	-164.88	1099.39	549.70	1312.06	657.00	91.33	0.279
1.2D + 1.0E	-16.62	-1.78	0.00	-61.21	0.00	-61.21	1099.39	549.70	1312.06	657.00	91.33	0.108
0.9D + 1.0E	-12.46	-1.75	0.00	-60.19	0.00	-60.19	1099.39	549.70	1312.06	657.00	91.33	0.103
1.0D + 1.0W 60 mph Wind	-13.75	-5.18	0.00	-139.56	0.00	-139.56	1099.39	549.70	1312.06	657.00	91.33	0.225

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors VQ/I (lb/in)	Intermediate Connectors Vu (kips)	Intermediate Connectors phi Vn (kips)	Lower Termination MQ/I (kips)	Lower Termination phi Vn (kips)	Lower Termination Num Reqd	Lower Termination Num Actual	Upper Termination MQ/I (kips)	Upper Termination phi Vn (kips)	Upper Termination Num Reqd	Upper Termination Num Actual	Max Member Pu (kips)	Max Member phi Pn (kips)	Max Member phi Tn (kips)	Ratio
0.0	20.5	(4) PLT-6"x1" (1.25" Hole)	256.8	4.11	37.1	268.4	37.1	8	8	258.3	37.1		8	273.76	326.3	281.25	0.973
0.0	10.3	(4) PLT-5.5"x1 1/4"(1.25"hol	264.6	4.76	37.1	309.4	37.1	9	9	294.1	25.3		9	309.41	379.1	314.06	0.985
10.3	27.9	(4) LNP-LP6X100-G-20CT	264.6	6.35	25.3	273.8	25.3			225.6	25.3	9	8	273.76	297.8	288.75	0.948
20.5	40.5	(4) PLT-6"x1" (1.25" Hole)	-311.6	-4.98	37.1	258.3	37.1		8	249.9	37.1		8	275.22	326.3	281.25	0.979
26.0	40.7	(2) LNP-LP6X100-G-20CT	-256.1	-6.15	25.3	208.3	25.3	9	0	204.8	25.3		8	226.74	297.8	288.75	0.785
27.9	48.1	(2) LNP-LP6X100-G-20TT	277.0	6.65	25.3	224.5	25.3	9	8	200.5	25.3	8	8	224.48	297.8	288.75	0.777
40.5	60.8	(4) PLT-6"x1" (1.25" Hole)	-463.2	-7.41	37.1	249.9	37.1		8	274.5	37.1		8	274.68	326.3	281.25	0.977
40.7	60.7	(2) LNP-LP6X100-G-20TT	-383.5	-9.20	25.3	204.8	25.3		10	227.6	25.3	10	10	263.98	297.8	288.75	0.914
60.8	78.3	(4) PLT-6"x1" (1.25" Hole)	-503.1	-8.05	37.1	274.5	37.1		8	203.8	37.1	6	10	274.54	326.3	281.25	0.976

Monopole Mat Foundation Design

				Date
				12/22/2021
	Customer Name:	Dish Wireless	**EIA/TIA Standard:**	EIA-222-G
	Site Name:		**Structure Height (Ft.):**	130
	Site Number:	CT13064-A-SBA	**Engineer Name:**	J. Tibbetts
	Engr. Number:	121134	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

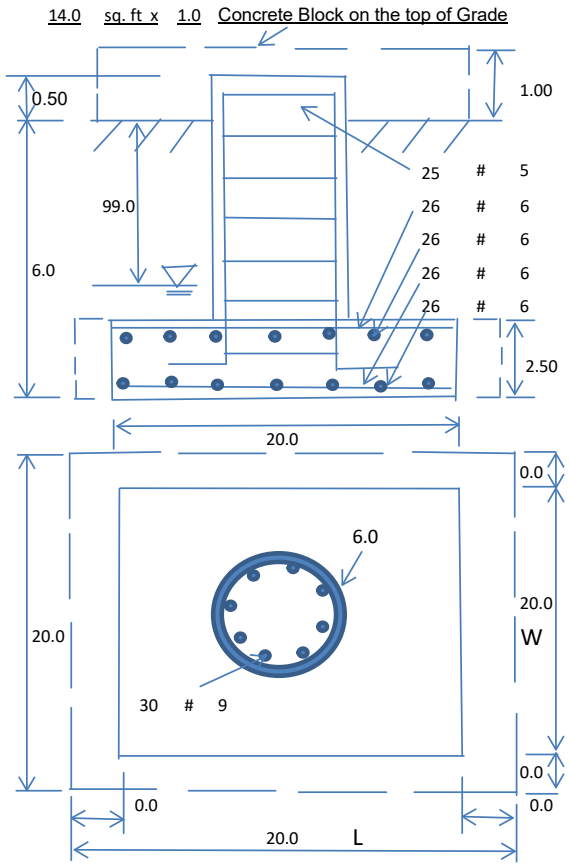
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	37.5	Shear Force (Kips):	35.8
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3625.4
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	Yes
Diameter of Pier (ft.):	6.0	Depth of Base BG (ft.):	6.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	2.50
Length of Pad (ft.):	20	Width of Pad (ft.):	20
Add Concrete Width & Length (ft.)	14	Add Concrete Thick. (ft)	1
Final Length of pad (ft)	20.0	Final width of pad (ft):	20.0



Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	30	Tie Spacing (in):	3.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	6	
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):	26	Qty. of Rebar in Pad (W):	26

Rebar at the top of the concrete pad:

Qty. of Rebar in Pad (L):	26	Qty. of Rebar in Pad (W):	26
Apply 1.35 factor for e/w Per G:	1.35		

Soil Design Parameters:

Soil Unit Weight (pcf):	130.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	16000	Ultimate Skin Friction:	425	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	Yes	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:			1.00	

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

Total Dry Soil Volume (cu. Ft.):	1301.04	Total Dry Soil Weight (Kips):	169.14
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	169.14	Weight from the Concrete Block at Top (K):	27.28
Total Dry Concrete Volume (cu. Ft.):	1294.96	Total Dry Concrete Weight (Kips):	194.24
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	194.24	Total Vertical Load on Base (Kips):	400.88

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	6715	<	Allowable Factored Soil Bearing (psf):	12000	0.56	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	3964.2	>	Design Factored Momont (kips-ft):	3742	0.94	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.06	OK!				

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90		Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compresion):	0.65		Wind Load Factor on Concrete Design:	1.00		
					Load/ Capacity Ratio	
(1) Concrete Pier:						
Vertical Steel Rebar Area (sq. in./each):	1.00		Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	4245.7	>	Design Factored Moment (Mu, Kips-F	3768.3	0.89	OK!
Calculated Shear Capacity (Kips):	1100.5	>	Design Factored Shear (Kips):	35.8	0.03	OK!
Calculated Tension Capacity (Tn, Kips):	1620.0	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	7145.4	>	Design Factored Axial Load (Pu Kips):	37.5	0.01	OK!
Moment & Axial Strength Combination:	0.89	OK!	Check Tie Spacing (Design/Required):		0.25	OK!
Pier Reinforcement Ratio:	0.007		Reinforcement Ratio is satisfied per ACI			
(2).Concrete Pad:						
One-Way Design Shear Capacity (L-Direction, Kips):	606.2	>	One-Way Factored Shear (L-D. Kips):	266.0	0.44	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	606.2	>	One-Way Factored Shear (W-D., Kips)	266.0	0.44	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	540.9	>	One-Way Factored Shear (C-C, Kips):	270.2	0.50	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0018	NG!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0018		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	1349.0	>	Moment at Bottom (L-Dir. K-Ft):	1139.1	0.84	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	1349.0	>	Moment at Bottom (W-Dir. K-Ft):	1139.1	0.84	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	1899.5	>	Moment at Bottom (C-C Dir. K-Ft):	1610.9	0.85	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0018	OK!	Upper Steel Reinf. Ratio (W-Dir.):	0.0018		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	1349.0	>	Moment at the top (L-Dir K-Ft):	423.6	0.31	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	1349.0	>	Moment at the top (W-Dir K-Ft):	423.6	0.31	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	1899.5	>	Moment at the top (C-C Dir. K-Ft):	433.5	0.23	OK!
(3).Check Punching Shear Capacity due to Moment in the Pier:						
Moment transferred by punching shear:	1450.0	k-ft.	Max. factored shear stress v_{u_CD}:		7.9	Psi
Max. factored shear stress v_{u_AB}:	15.1	Psi	Factored shear Strength ϕv_n:		189.7	Psi
Max. factored shear stress v_u:	15.1	Psi	Check Usage of Punching Shear Capacity:		0.08	OK!

EXHIBIT 9

Modification Drawings

PER THE INTERNATIONAL BUILDING CODE THIS STRUCTURE IS CLASSIFIED AS:

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

MODIFICATION AND DESIGN DRAWINGS FOR AN EXISTING 130' ROHN MONOPOLE TOWER

PROPOSED CARRIER: DISH WIRELESS

SITE: CT13064-A-SBA / MIDDLETOWN 2, CT

COORDINATES (LATITUDE: 41.545011°, LONGITUDE: -72.620766°)

CONSTRUCTION CLASS

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

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

SHEET	SHEET TITLE	REV
T-1	TITLE SHEET	0
BOM	BILL OF MATERIALS	0
GN-1	GENERAL NOTES	0
A-1	TOWER PROFILE	0
A-2	REINFORCEMENT ASSEMBLY	0
A-3	REINFORCEMENT ASSEMBLY	0
A-4	REINFORCEMENT ASSEMBLY	0
A-5	REINFORCEMENT ASSEMBLY	0
A-6	KEY PLATE SPLICE CONNECTION INSTALLATION DETAILS	0
A-7	KEY PLATE SPLICE CONNECTION INSTALLATION DETAILS	0
SPEC-1	NEXGEN2 BLIND BOLT ASSEMBLY INSTALLATION GUIDE	0
SPEC-2	NEXGEN2 BLIND BOLT ASSEMBLY INSTALLATION GUIDE	0

NOTE:

1. THE MODIFICATION DRAWINGS ARE BASED ON THE **TES** PROJECT NO. **120742**, DATED **12/22/21**.

TES
Tower Engineering Solutions
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IRVING, TX 75038
PHONE: (972) 483-0607

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BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
121134

CUSTOMER SITE NO:
CT13064-A-SBA
CUSTOMER SITE NAME:
MIDDLETOWN 2, CT
67 FAIRCHILD ROAD
MIDDLETOWN, CT 06457

STATE OF CONNECTICUT
HANMING YOU
28931
LICENSED
PROFESSIONAL ENGINEER
2/14/22

DRAWN BY: JRL | CHECKED BY: CZ/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	JRL	02/14/22

SHEET TITLE:
TITLE SHEET

SHEET NUMBER: T-1
REV #: 0

BILL OF MATERIALS

QUANTITY COUNTED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTIONS	LENGTH	SHEET LIST (INSTALLATION)	SHEET LIST (FABRICATE)	PIECE WEIGHT (LBS)	WEIGHT (LB)	NOTES
			MATERIAL & HARDWARE						
3	3	LP6X100-G-20TC	6" x 1.00" Flat Bar, 20 ft. Long, Standard, Connection Type C with Termination at the bottom	20'-0"	A-2, A-4	LP6X100-G-20TC	412.0	1236.0	Galvanized
1	1	LP6X100-S-20TC	6" x 1.00" Flat Bar, 20 ft. Long with Step Bolt Brackets, Connection Type C with Termination at the bottom	20'-0"	A-2	LP6X100-S-20TC	421.0	421.0	Galvanized
4	4	CPL-C	Link Plate Cover, PL 3/8" x 3 1/4 "x 1'- 6 13/16", A572, Grade 50	---	A-3, A-5	F-C	6.6	26.4	Galvanized
18	19	STEP BOLT	Step Bolt 5/8" Dia x 8 1/4" Long	---	A-2, A-3	F-A	0.75	14.3	Galvanized
68	73	HB16-2	Lindapter 5/8" Type HB Hollo-Bolt (HCF, M16x100)	---	A-2, A-4	---	---	---	Galvanized
8	10	HB20-3	Lindapter 3/4" Type HB Hollo-Bolt (HCF, M20x150)	---	A-3, A-5	---	---	---	Galvanized
14	16	SHIM-M16-1	1/4" Thick Shim For HB16-2 Hollo-Bolt	---	A-2	F-C	0.3	3.9	Galvanized
2	2	SH2500-11	1/4" (11) Holes Shim For Termination Bolts	---	A-2	SH1	10.0	20.0	Galvanized
4	6	SHIM-M20-1	1/4" Thick Shim For HB20-3 Hollo-Bolt	---	A-3	F-C	0.6	3.8	Galvanized
3	3	SPCPL-CC-NG	6"x1.00" Link Plate Connected to Existing Plate with Nexgen/Ajax Bolts	4'-4 3/16"	A-3, A-5	SPCPL-1	103.8	311.3	Galvanized
1	1	SPCPL-CC-NG-S	6"x1.00" Link Plate Connected to Existing Plate with Nexgen/Ajax Bolts - Step brackets Included	4'-4 3/16"	A-3	SPCPL-CC-NG_S	110.8	110.8	Galvanized
36	39	2NG2096	M20x135 NEXGEN2 BLIND Bolt Assembly	---	A-3, A-5	F-C	---	---	Galvanized
		2.8125	**Following Items are Non-standard Parts**						
4	4	SH2500-11-NG	1/4" (11) Holes Shim For Nexgen2 Termination Bolts	---	A-3	F-1	9.6	38.4	Galvanized

ALL APLXXXX, LPXXXX AND RLPXXXX ARE PATENTED PRODUCTS AND CANNOT BE FABRICATED BY THIRD PARTIES. THESE PARTS ARE AVAILABLE FROM:

METROSITE, LLC.
180 IND PARK BLVD COMMERCE, GA 30529
OFFICE: (706) 335-7045
FAX: (706) 335-7056

NOTE: ALL MATERIALS, WHICH WEREN'T LISTED IN THIS SHEET, ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.

TOTAL WEIGHT (LBS) = **2185.9**

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SBA
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TES JOB NO:
121134

CUSTOMER SITE NO:
CT13064-A-SBA
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MIDDLETOWN, CT 06457

DRAWN BY: JRL | CHECKED BY: CZ/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	JRL	02/14/22

SHEET TITLE:
BILL OF MATERIALS

SHEET NUMBER: BOM
REV #: 0

GENERAL NOTES

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

FABRICATION

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

WELDING

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

BOLTED ASSEMBLIES AND TIGHTENING OF CONNECTIONS

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

VERIFICATION AND INSPECTION

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

POST INSTALLED EPOXY INJECTED ANCHOR BOLTS:

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

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

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

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

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

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

[d] BEVELED WASHER NOT USED.

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

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

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

FIELD HOT WORK PLAN NOTES:

FOLLOWING GUIDELINES SHALL BE COMPLIED WITH:

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

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

SBA

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BOCA RATON, FL 33487
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TES JOB NO:
121134

CUSTOMER SITE NO:
CT13064-A-SBA
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DRAWN BY: JRL | CHECKED BY: CZ/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	JRL	02/14/22

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER: GN-1
REV #: 0

NOTES:

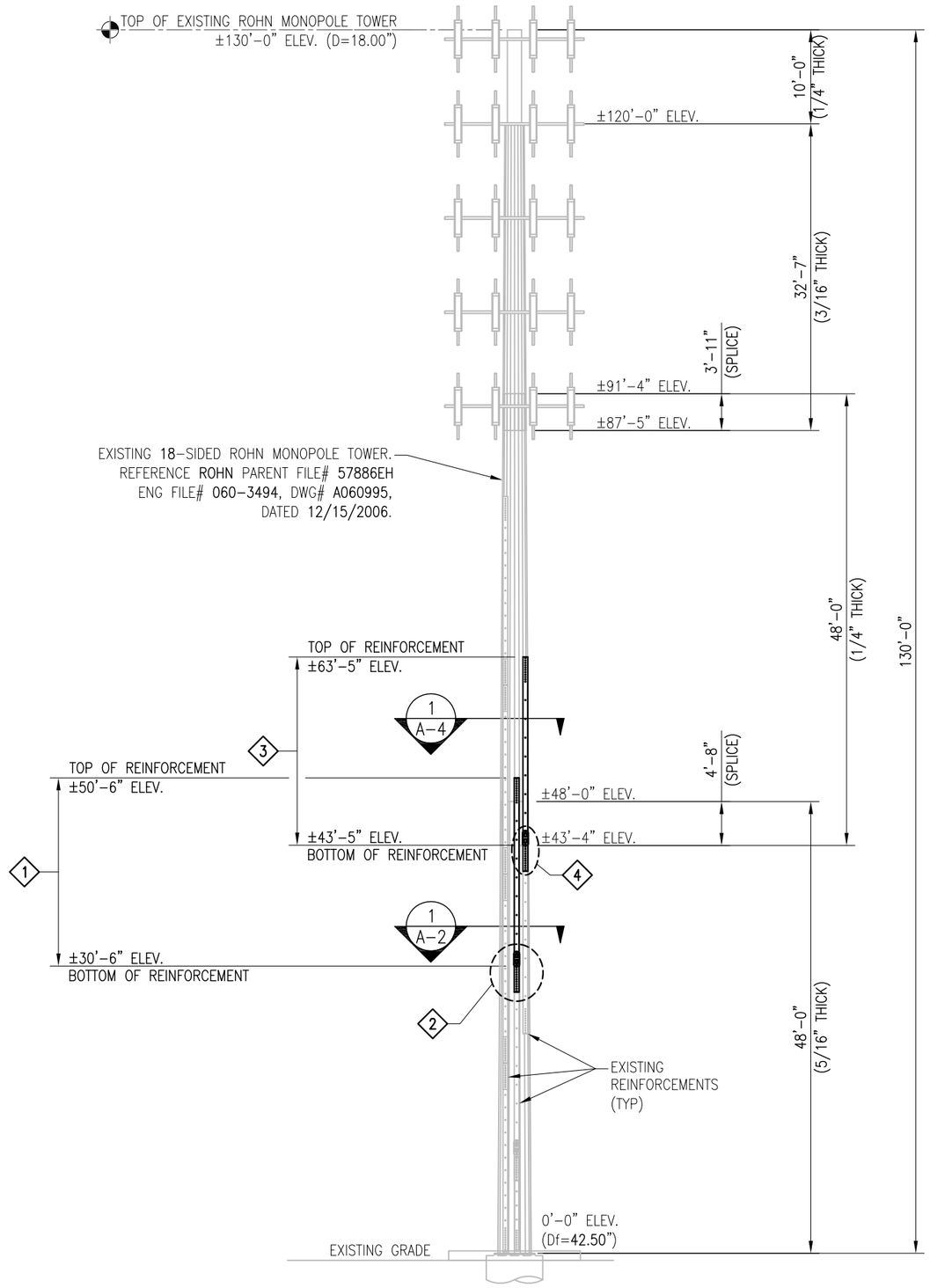
1. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE MONOPOLE AND ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.

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

SCOPE OF WORK

1. INSTALL NEW (1) LP6X100-G-20TC & (1) LP6X100-S-20TC FLAT BAR REINFORCEMENTS FROM ±30'-6" TO ±50'-6" ELEV. SEE SHEET A-2 FOR DETAILS.
2. INSTALL NEW (1) SPCPL-CC-NG & (1) SPCPL-CC-S-NG KEY SPLICES AT ±30'-6" ELEV. SEE SHEET A-3 FOR DETAILS.
3. INSTALL NEW (2) LP6X100-G-20TC FLAT BAR REINFORCEMENTS FROM ±43'-5" TO ±63'-5" ELEV. SEE SHEET A-4 FOR DETAILS.
4. INSTALL NEW (2) SPCPL-CC-NG KEY SPLICES AT ±43'-4" ELEV. SEE SHEET A-5 FOR DETAILS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEAN-UP, REMOVAL AND DISPOSAL OF EXCESS MATERIALS USED AND REMOVED FROM THE STRUCTURE AT THE COMPLETION OF THE PROJECT.

FOUNDATION PHOTO



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DRAWN BY: JRL | CHECKED BY: CZ/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	JRL	02/14/22

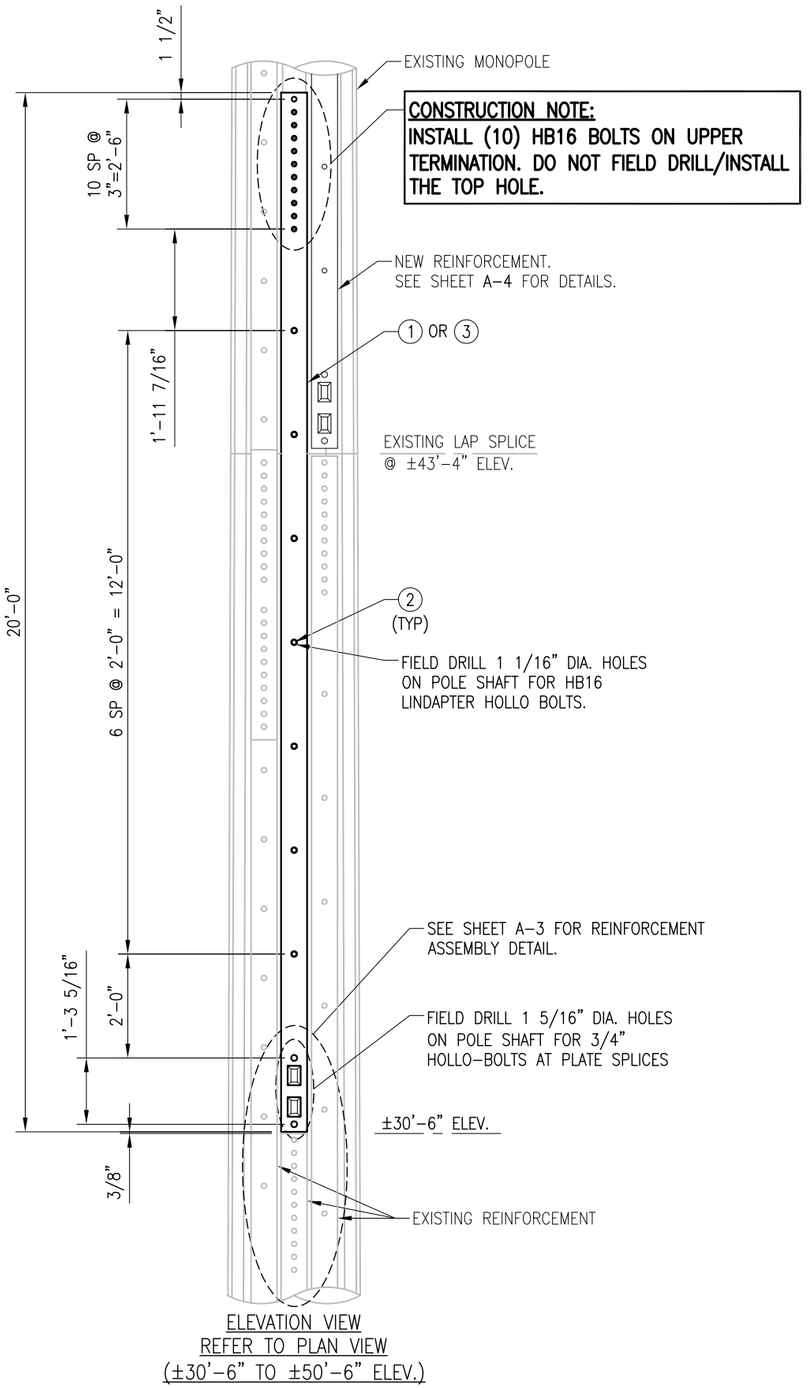
SHEET TITLE:

TOWER PROFILE

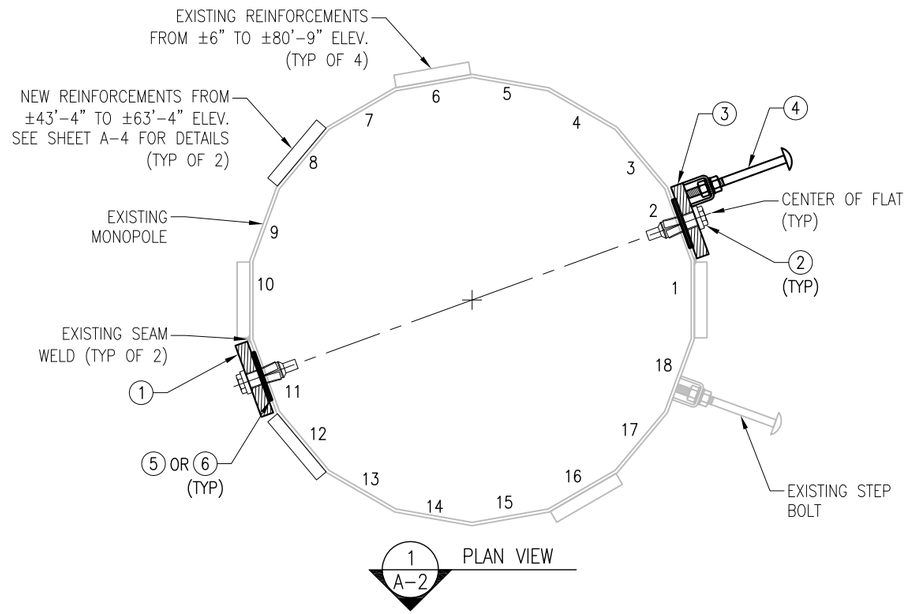
SHEET NUMBER: A-1

REV #: 0

US PATENT 9,546,497 B2



ELEVATION VIEW
REFER TO PLAN VIEW
(±30'-6" TO ±50'-6" ELEV.)



1 A-2 PLAN VIEW

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

ITEM NO.	QTY.	PART NO.	DESCRIPTION (PER SECTION)
1	1	LP6X100-G-20TC	PL 1" X 6" X 20'-0" A572-65 WELDMENT
2	34	HB16-2	LINDAPTER TYPE HB HOLLO-BOLT (HDG)
3	1	LP6X100-S-20TC	PL 1" X 6" X 20'-0" A572-65 WELDMENT WITH STEP BOLT
4	15	STEP BOLTS	STEP BOLT 5/8" X 8 1/4" W/ (2) NUT-LKW EA.
5	2	SH2500-11	1/4" (11) HOLES SHIM FOR TERMINATION BOLTS
6	14	SHIM-M16-1	1/4" THICK SHIM FOR HB16-2 HOLLO-BOLT

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(800)-487-SITE

TES JOB NO: 121134

CUSTOMER SITE NO: CT13064-A-SBA

CUSTOMER SITE NAME: MIDDLETOWN 2, CT

67 FAIRCHILD ROAD
MIDDLETOWN, CT 06457

DRAWN BY: JRL | CHECKED BY: CZ/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	JRL	02/14/22

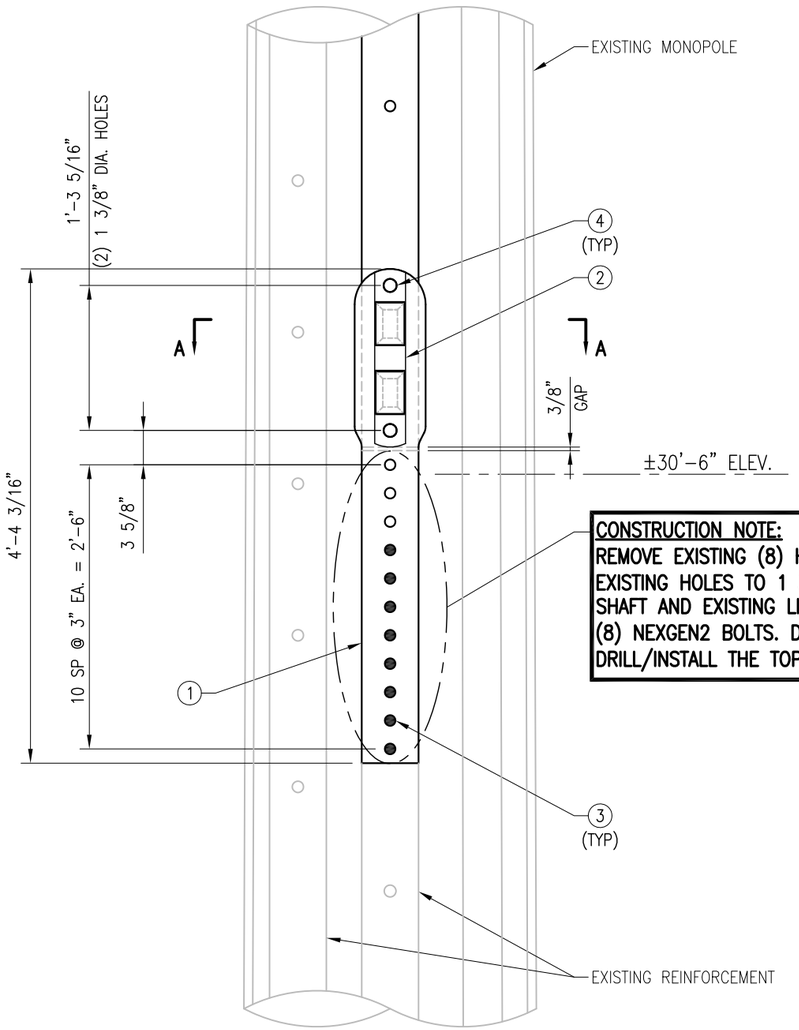
SHEET TITLE:

REINFORCEMENT ASSEMBLY

SHEET NUMBER: A-2

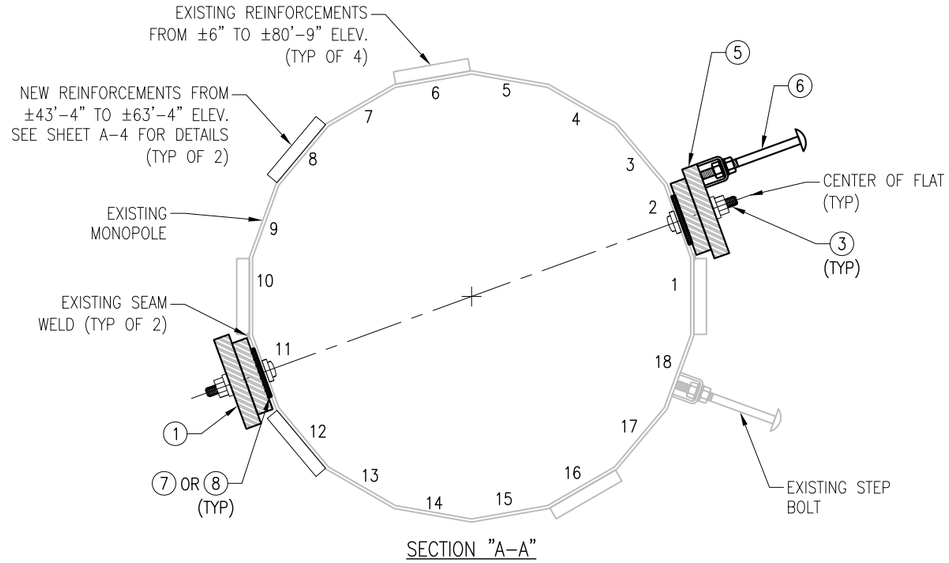
REV #: 0

US PATENT 9,546,497 B2



CONSTRUCTION NOTE:
REMOVE EXISTING (8) HOLLO BOLTS. REAM EXISTING HOLES TO 1 3/16" DIA. ON POLE SHAFT AND EXISTING LINK PLATE FOR NEW (8) NEXGEN2 BOLTS. DO NOT FIELD DRILL/INSTALL THE TOP (3) HOLES.

ELEVATION VIEW
REFER TO PLAN VIEW
(±30'-6" ELEV.)



SECTION "A-A"

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

ITEM NO.	QTY.	PART NO.	DESCRIPTION (PER SECTION)
1	1	SPCPL-CC-NG	PL 1 1/4" X 7 1/2" X 4'-4 3/16" A572 GRADE 65 WELDMENT
2	2	CPL-C	SPLICE CONNECTION COVER PLATE
3	16	2NG2096	M20X135 NEXGEN BLIND BOLT ASSEMBLY
4	4	HB20-3	LINDAPTER 3/4" TYPE HB HOLLO-BOLT (HCF)
5	1	SPCPL-CC-NG-S	PL 1 1/4" X 7 1/2" X 4'-4 3/16" A572 GRADE 65 WELDMENT W/STEP BOLTS
6	3	STEP BOLTS	STEP BOLT 5/8" X 8 1/4" W/ (2) NUT-LKW EA.
7	2	SH2500-11-NG	1/4" (11) HOLES SHIM FOR NEXGEN2 TERMINATION BOLTS
8	4	SHIM-M20-1	1/4" THICK SHIM FOR HB20-3 HOLLO-BOLT

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(800)-487-SITE

TES JOB NO: 121134
CUSTOMER SITE NO: CT13064-A-SBA
CUSTOMER SITE NAME: MIDDLETOWN 2, CT
67 FAIRCHILD ROAD
MIDDLETOWN, CT 06457

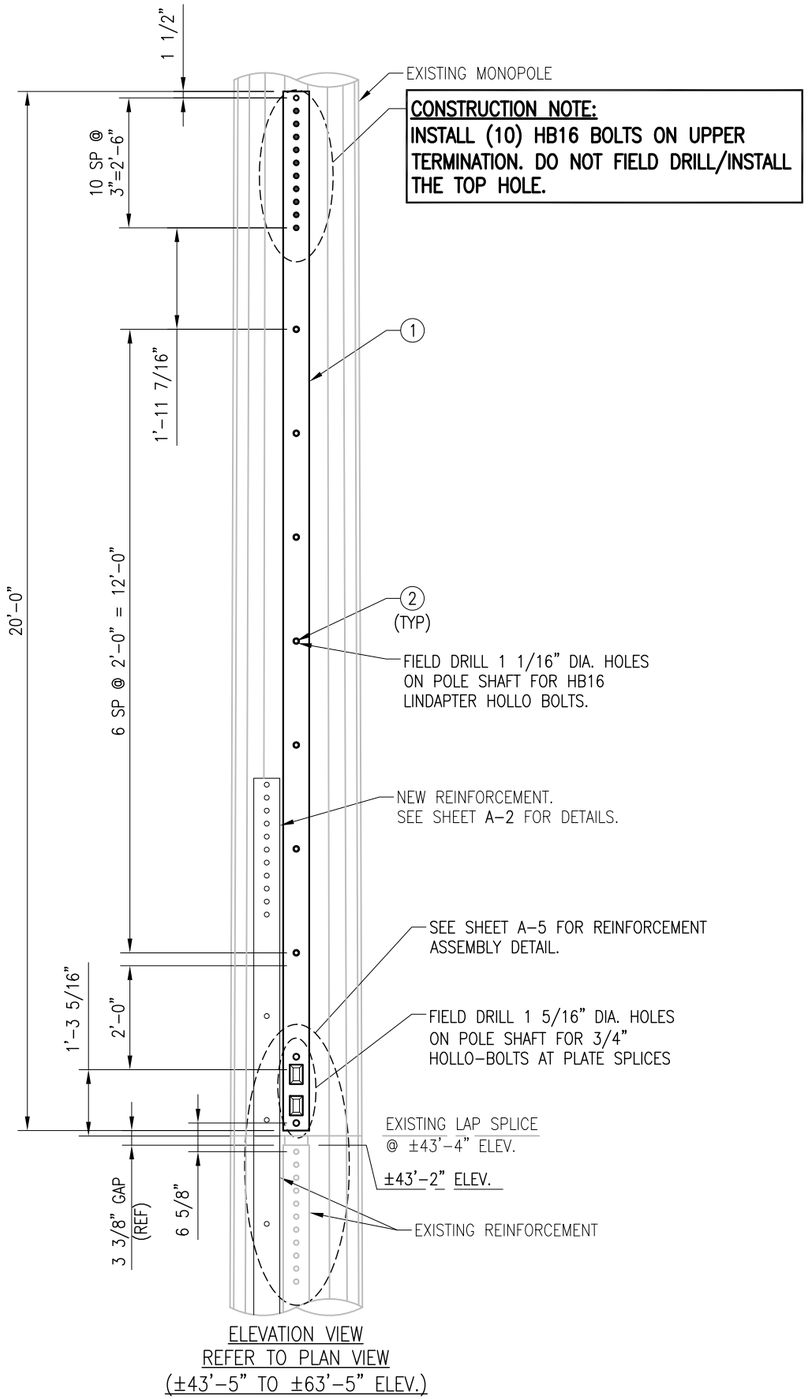
DRAWN BY: JRL | CHECKED BY: CZ/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	JRL	02/14/22

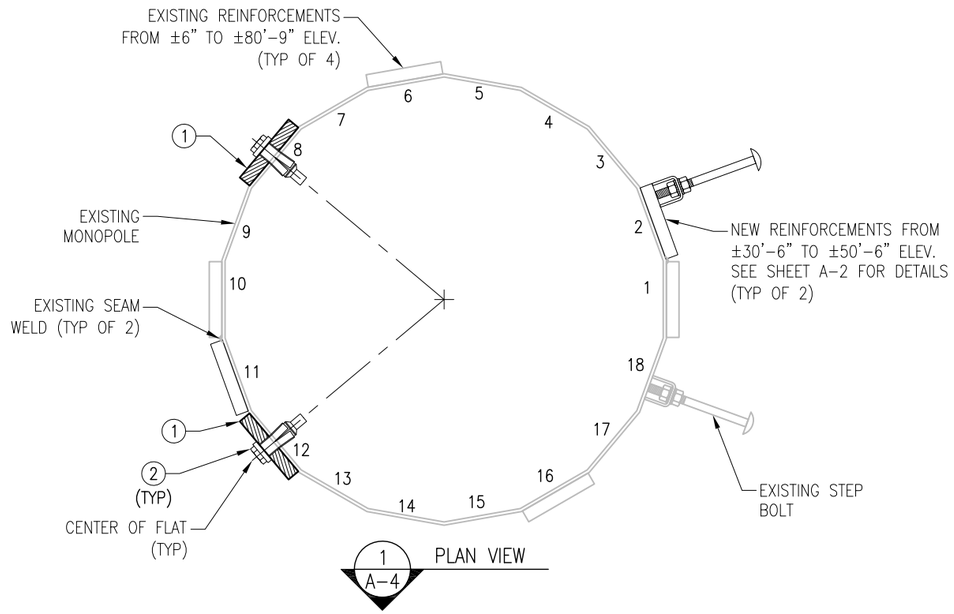
SHEET TITLE:
REINFORCEMENT ASSEMBLY

SHEET NUMBER: A-3
REV #: 0

US PATENT 9,546,497 B2



ELEVATION VIEW
REFER TO PLAN VIEW
(±43'-5" TO ±63'-5" ELEV.)



NOTES:
1. REFER TO SHEET A-1 FOR FLAT BAR ELEVATION.
2. INSTALLATION TORQUE FOR HOLLO/AJAX-BOLTS: SEE SHEET GN-1.
3. APPLY (2) COATS OF ZINGA COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS TO ALL FIELD DRILLED AND EXPOSED AREAS.

ITEM NO.	QTY.	PART NO.	DESCRIPTION (PER SECTION)
1	2	LP6X100-G-20TC	PL 1" X 6" X 20'-0" A572-65 WELDMENT
2	34	HB16-2	LINDAPTER TYPE HB HOLLO-BOLT (HDG)

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TES JOB NO: 121134

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CUSTOMER SITE NAME: MIDDLETOWN 2, CT

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MIDDLETOWN, CT 06457

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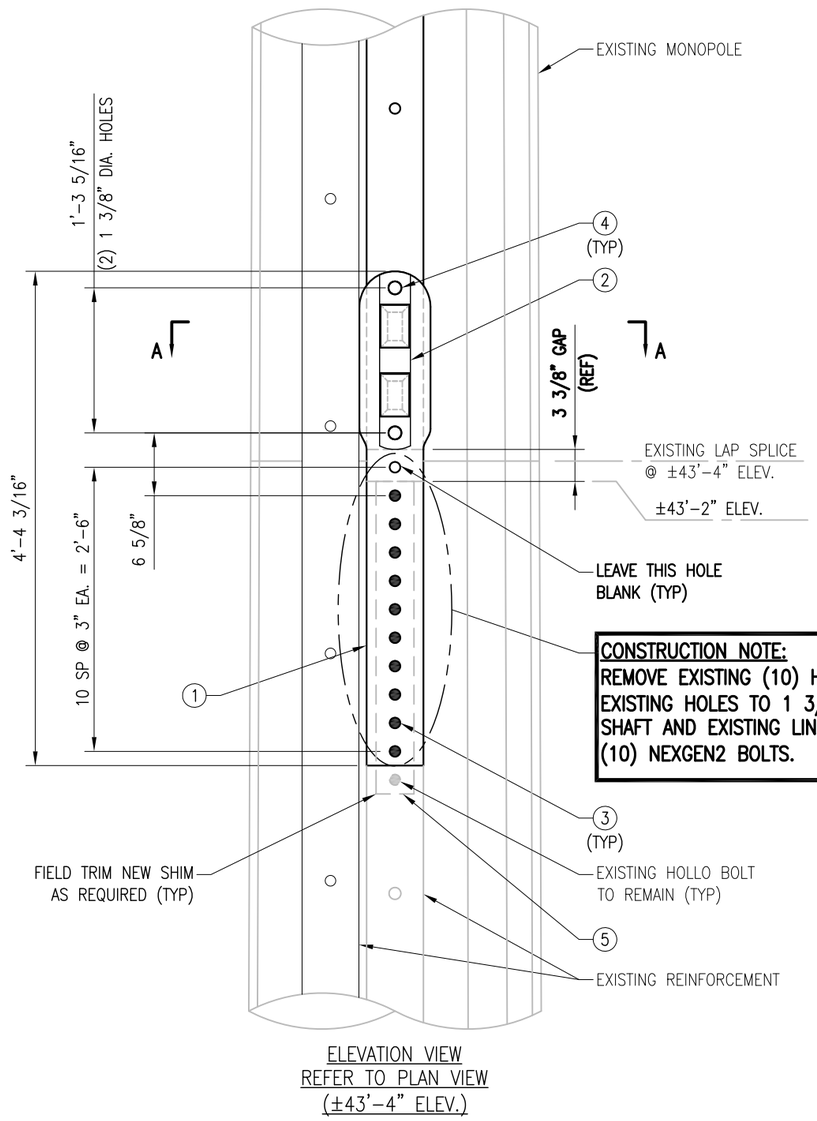
0	FIRST ISSUE	JRL	02/14/22

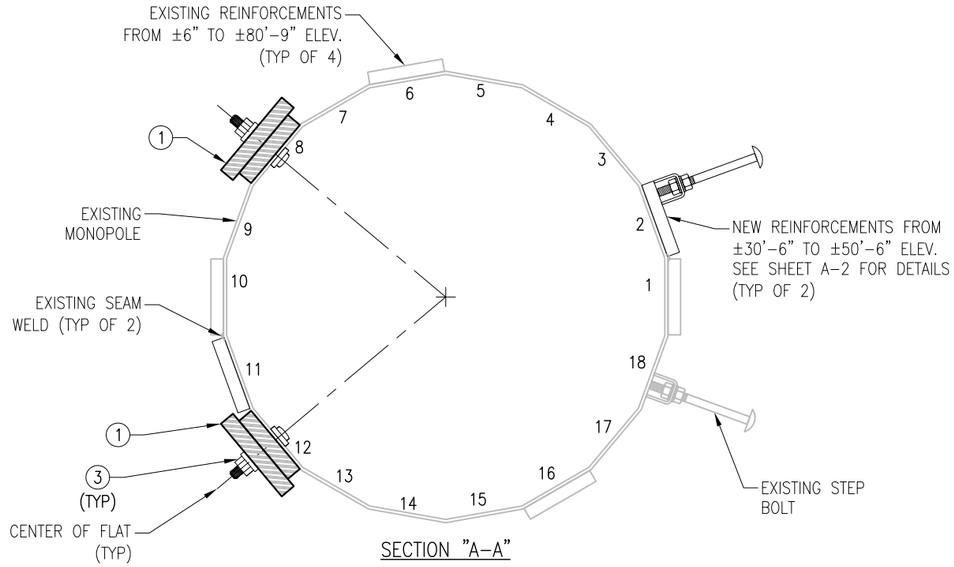
SHEET TITLE: REINFORCEMENT ASSEMBLY

SHEET NUMBER: A-4 | REV #: 0

US PATENT 9,546,497 B2



ELEVATION VIEW
REFER TO PLAN VIEW
(±43'-4" ELEV.)



SECTION "A-A"

NOTES:
1. REFER TO SHEET A-1 FOR FLAT BAR ELEVATION.
2. INSTALLATION TORQUE FOR HOLLO/AJAX-BOLTS: SEE SHEET GN-1.
3. APPLY (2) COATS OF ZINGA COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS TO ALL FIELD DRILLED AND EXPOSED AREAS.

ITEM NO.	QTY.	PART NO.	DESCRIPTION (PER SECTION)
1	2	SPCPL-CC-NG	PL 1 1/4" X 7 1/2" X 4'-4 3/16" A572 GRADE 65 WELDMENT
2	2	CPL-C	SPLICE CONNECTION COVER PLATE
3	20	2NG2096	M20X135 NEXGEN BLIND BOLT ASSEMBLY
4	4	HB20-3	LINDAPTER 3/4" TYPE HB HOLLO-BOLT (HCF)
5	2	SH2500-11-NG	1/4" (11) HOLES SHIM FOR NEXGEN2 TERMINATION BOLTS

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(800)-487-SITE

TES JOB NO:
121134

CUSTOMER SITE NO:
CT13064-A-SBA

CUSTOMER SITE NAME:
MIDDLETOWN 2, CT

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MIDDLETOWN, CT 06457

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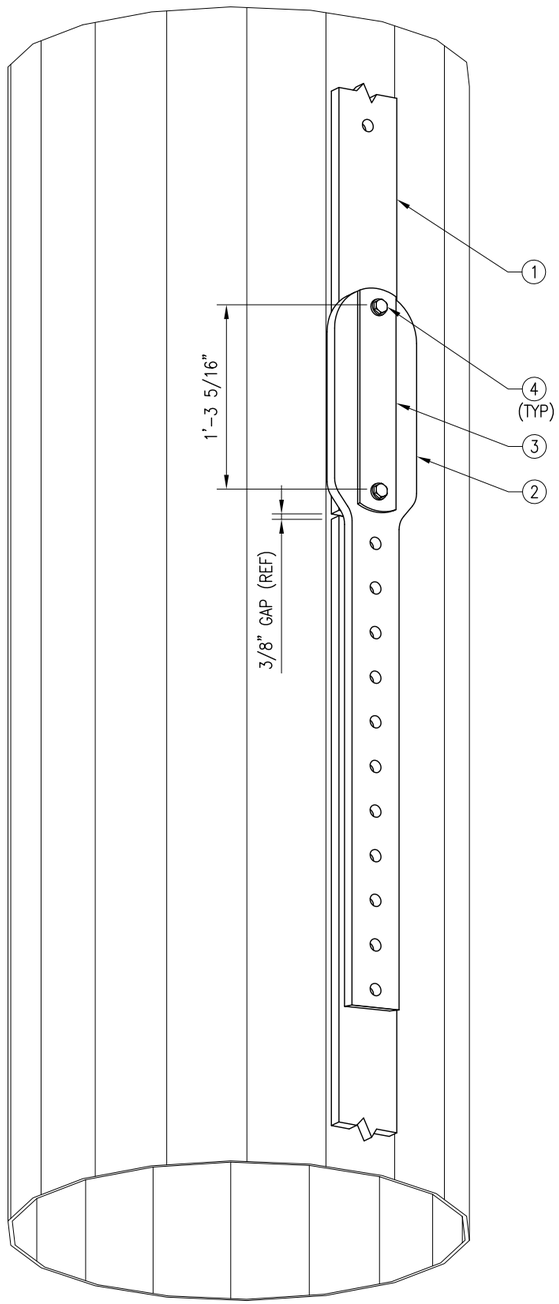
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	JRL	02/14/22

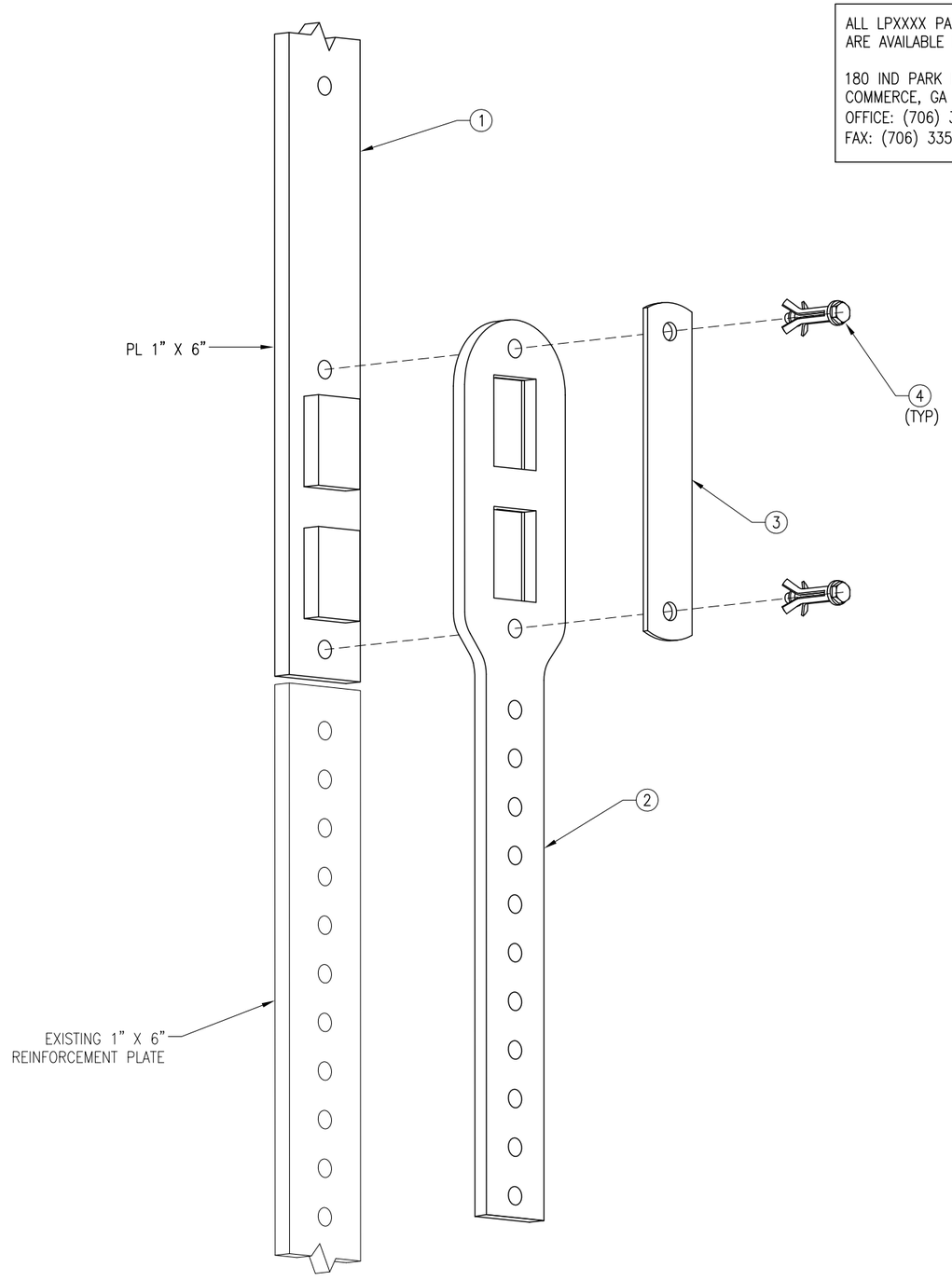
SHEET TITLE:
REINFORCEMENT ASSEMBLY

SHEET NUMBER: A-5

REV #: 0

US PATENT 9,546,497 B2





ALL LPXXXX PARTS ARE PATENTED AND ARE AVAILABLE FROM METROSITE, LLC

180 IND PARK BLVD
COMMERCE, GA 30529
OFFICE: (706) 335-7045
FAX: (706) 335-7056

FIELD NOTE:
INSTALLATION TORQUE FOR THE (2) HB20-3 BOLTS AT SPLICE: 221 FT-LBS.

ITEM NO.	QTY.	MATERIAL PART NO.	DESCRIPTION
1	1	LP6X100-X-XXX	PL 1" X 6" PLATE WELDMENT
2	1	SPCPL-CC-NG	PL 1 1/4" X 7 1/2" X 4'-4 3/16" A572-65
3	1	CPL-C	KEY PLATE COVER PLATE
4	2	HB20-3	LINDAPTER TYPE HB HOLLO-BOLT (HDG)

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BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
121134

CUSTOMER SITE NO:
CT13064-A-SBA
CUSTOMER SITE NAME:
MIDDLETOWN 2, CT
67 FAIRCHILD ROAD
MIDDLETOWN, CT 06457

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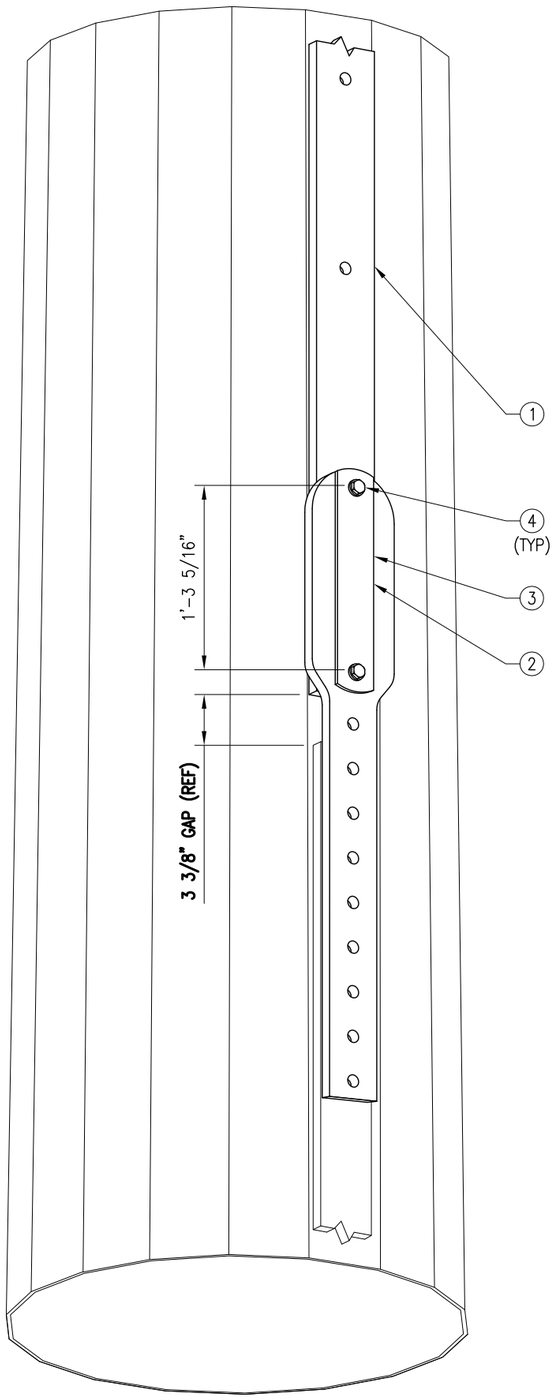
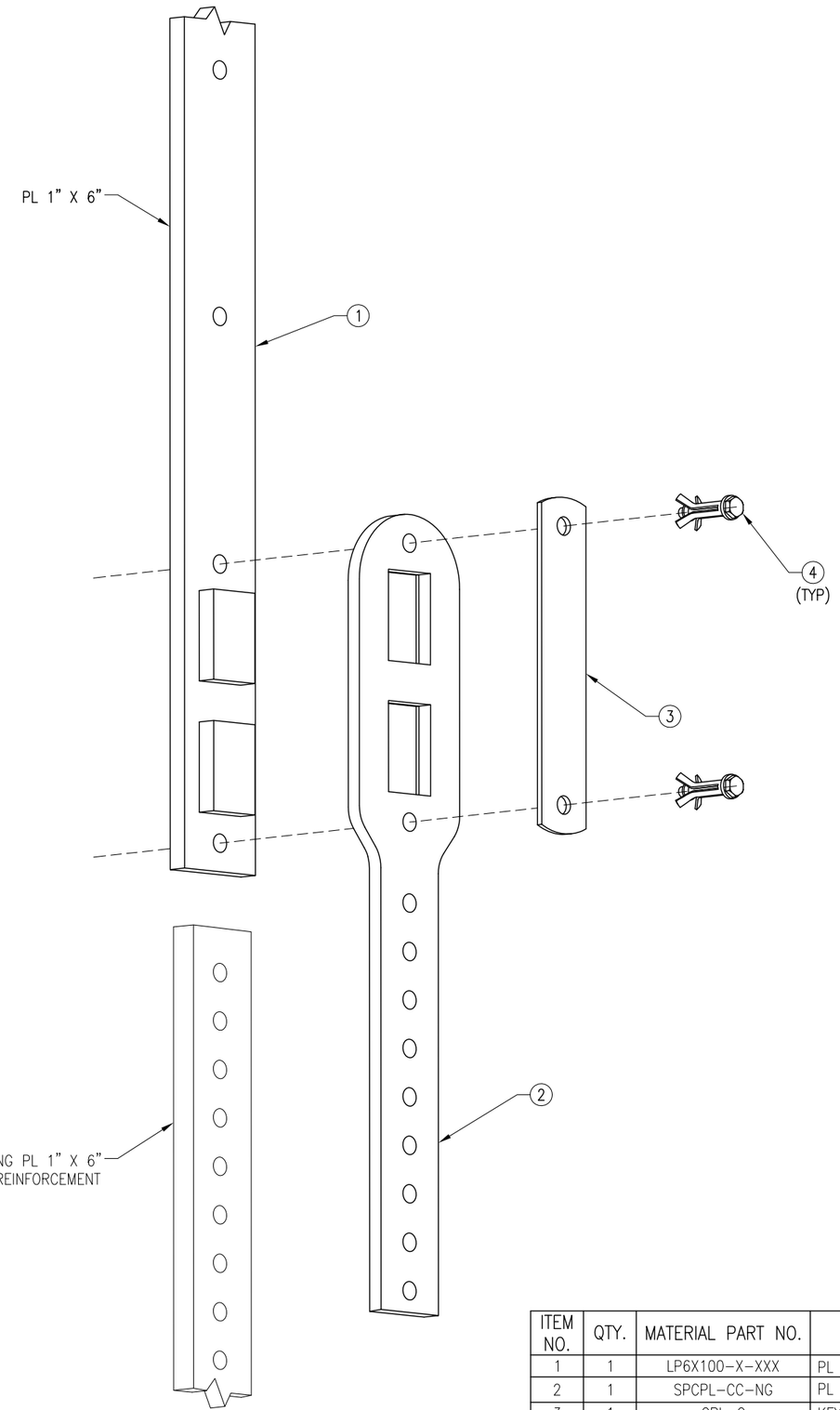
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	JRL	02/14/22

SHEET TITLE:
KEY PLATE SPLICE CONNECTION INSTALLATION DETAILS

SHEET NUMBER: A-6
REV #: 0

US PATENT 9,546,497 B2





ALL LPXXXX PARTS ARE PATENT PENDING AND ARE AVAILABLE FROM METROSITE, LLC

180 IND PARK BLVD
COMMERCE, GA 30529
OFFICE: (706) 335-7045
FAX: (706) 335-7056

ITEM NO.	QTY.	MATERIAL PART NO.	DESCRIPTION
1	1	LP6X100-X-XXX	PL 1" X 6" PLATE WELDMENT
2	1	SPCPL-CC-NG	PL 1 1/4" X 7 1/2" X 4'-4 3/16" A572-65
3	1	CPL-C	KEY PLATE COVER PLATE
4	2	HB20-3	LINDAPTER TYPE HB HOLLO-BOLT (HDG)

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BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
121134

CUSTOMER SITE NO:
CT13064-A-SBA

CUSTOMER SITE NAME:
MIDDLETOWN 2, CT

67 FAIRCHILD ROAD
MIDDLETOWN, CT 06457

DRAWN BY: JRL | CHECKED BY: CZ/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	JRL	02/14/22

SHEET TITLE:
KEY PLATE SPLICE CONNECTION INSTALLATION DETAILS

SHEET NUMBER: A-7

REV #: 0

NEXGEN2 BLIND BOLT ASSEMBLY

INSTALLATION GUIDE

PRE-INSTALL BOLT ON INSTALL TOOL:

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

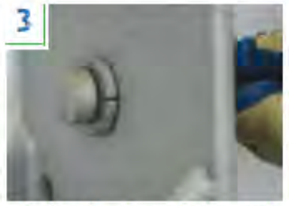
2 Remove the nut, the face washer and the spring shear sleeve and slide along the handle of the tool.

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

INSTALLATION:

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

2 Rotate the tool 180°.



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

4 Engage the spring shear sleeve into the shear plane.

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

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

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

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

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

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TES JOB NO: 121134

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CUSTOMER SITE NAME: MIDDLETOWN 2, CT

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DRAWN BY: JRL | CHECKED BY: CZ/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	JRL	02/14/22

SHEET TITLE: NEXGEN2 BLIND BOLT ASSEMBLY INSTALLATION GUIDE

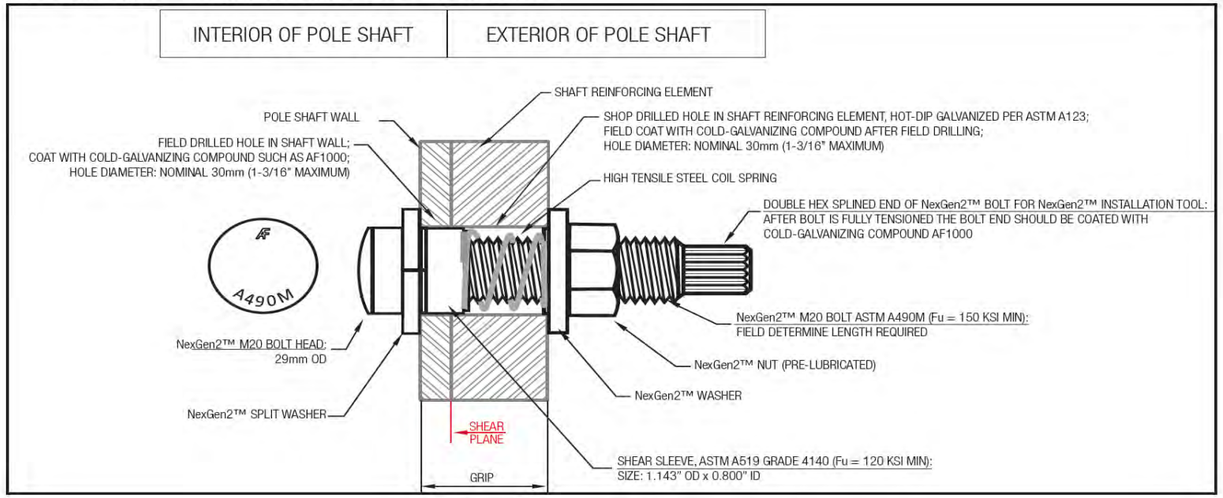
SHEET NUMBER: SPEC-1

REV #: 0

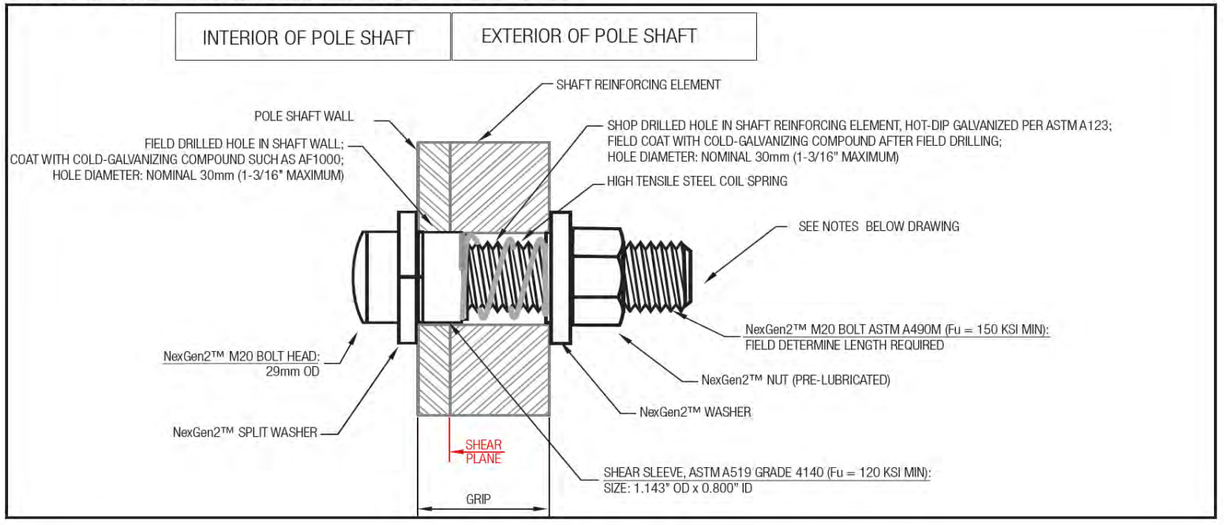
Pre-Tension

Post-Tension

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



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



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DRAWN BY: JRL | CHECKED BY: CZ/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	JRL	02/14/22

SHEET TITLE:
NEXGEN2 BLIND BOLT ASSEMBLY INSTALLATION GUIDE

SHEET NUMBER: SPEC-2

REV #: 0

EXHIBIT 10

Antenna Mount Analysis

December 19, 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:	BOBDL00217A
	Site Name:	N/A
***SBA Network Services Designation*:**	**Site Number:**	CT13064-A
	Site Name:	Middletown 2, CT
	Application Number:	182004, v1
Engineering Firm Designation:	**Project Number:**	101034.008.01
Site Data:	**67 Fairchild Road, Middletown, CT, 06457, Middlesex County**	
	Latitude *41.545011*°, Longitude *-72.620766*°	
	Monopole	
	8' Platform Mount	

Dear Ms. Knapik,

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

The purpose of the analysis is to determine acceptability of the mount's stress level. Based on our analysis we have determined the stress level for the mount under the following load case to be:

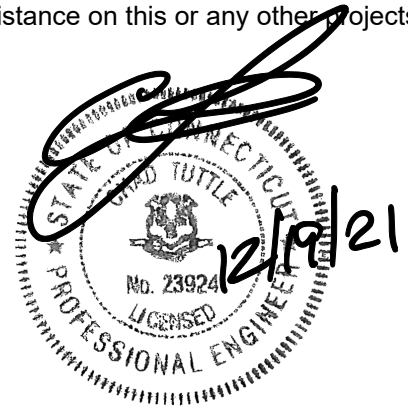
Proposed Equipment Note: See Table 1 for the final loading configuration	**Sufficient Capacity** **(Passing at 52.4%)**

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

We 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: Harrison Holmlund

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



Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA
Table 1 - Proposed Equipment Information
Table 2 - Documents Provided

3) ANALYSIS PROCEDURE
3.1) Analysis Method
3.2) Assumptions

4) ANALYSIS RESULTS
Table 3 – Mount Component Stresses vs. Capacity

5) RECOMMENDATIONS

6) APPENDIX A
RISA-3D Output

7) APPENDIX B
Additional Calculations

1) INTRODUCTION

The mount consists of Commscope platform mount (Part #MC-PK8-DSH) at 120 ft., attached to monopole at 67 Fairchild Road, Middletown, CT, 06457, Middlesex 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 120 mph with no ice and 50 mph with 1 inch escalated ice thickness. Exposure Category C, 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 30º increments in the wind direction. The analyzed loading is detailed in Table 1.

Table 1 – Proposed Equipment Information

Loading	RAD Center Elev. (ft.)	Position	Qty.	Description	Note
Proposed	120	1	3	JMA Wireless MX08FRO665-21	1
			3	Fujitsu TA08025-B605	2
			3	Fujitsu TA08025-B604	
		--	1	Raycap RDIDC-9181-PF-48	3

Note:
(1) Proposed Antenna to be installed on the 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: 12/02/2021	SBA Network Services, LLC

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.

Manufacturers 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	120	7.6	Pass
-	Support Rails	120	12.7	Pass
-	Support Tubes	120	52.4	Pass
-	Support Channels	120	35.2	Pass
-	Support Angles	120	37.0	Pass
-	Mount Pipes	120	14.3	Pass
-	Connection Plates	120	19.5	Pass
-	Connection Angles	120	21.5	Pass
-	Connection Bolts	120	33.4	Pass

5) RECOMMENDATIONS

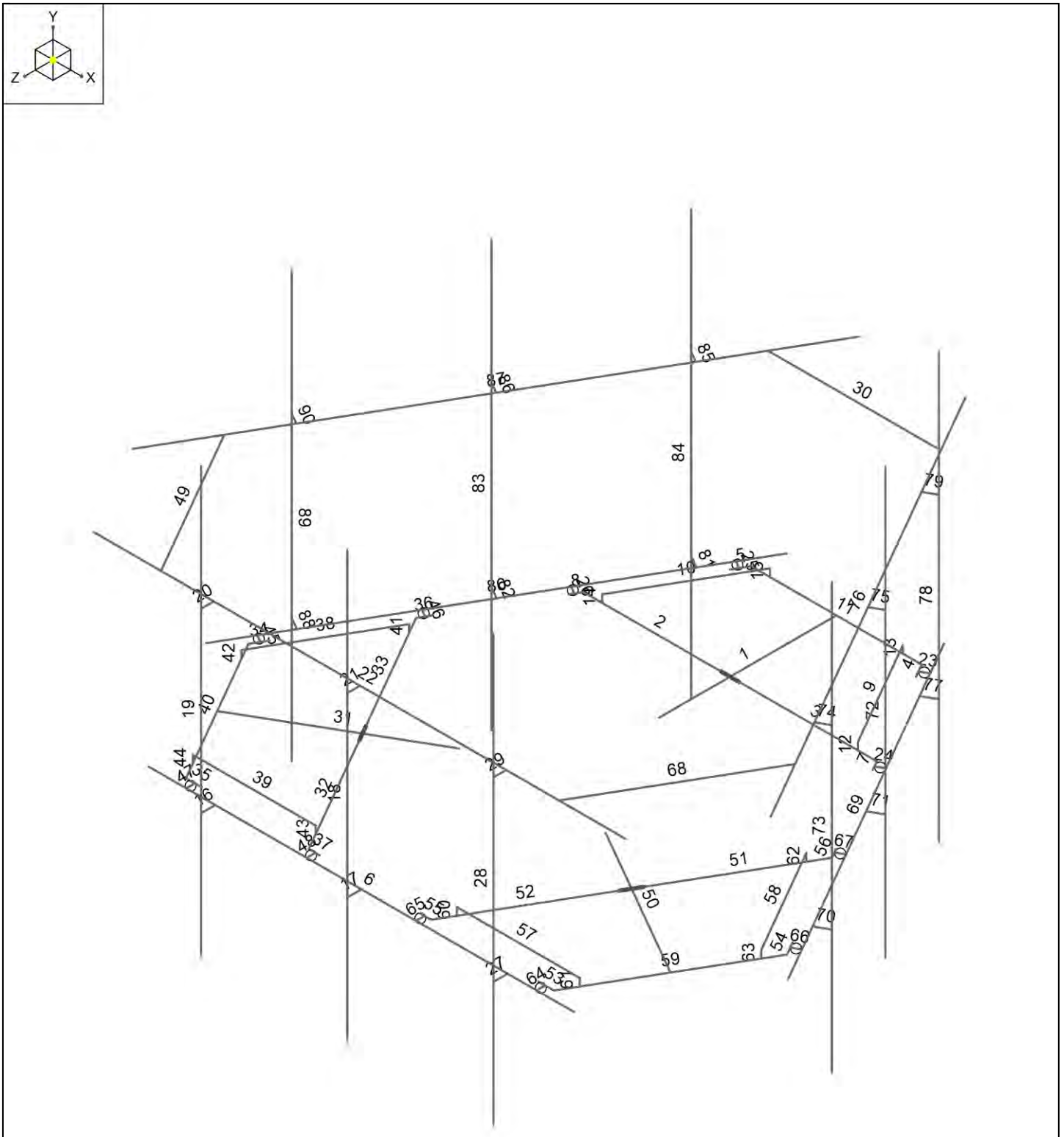
The Commscope platform mount, Part #MC-PK8-DSH has sufficient capacity to carry the proposed loads and is in compliance with the ANSI/TIA-222-H standard for the proposed loading. (Refer to the RISA output for the specific members).

APPENDIX A

(RISA-3D Output)

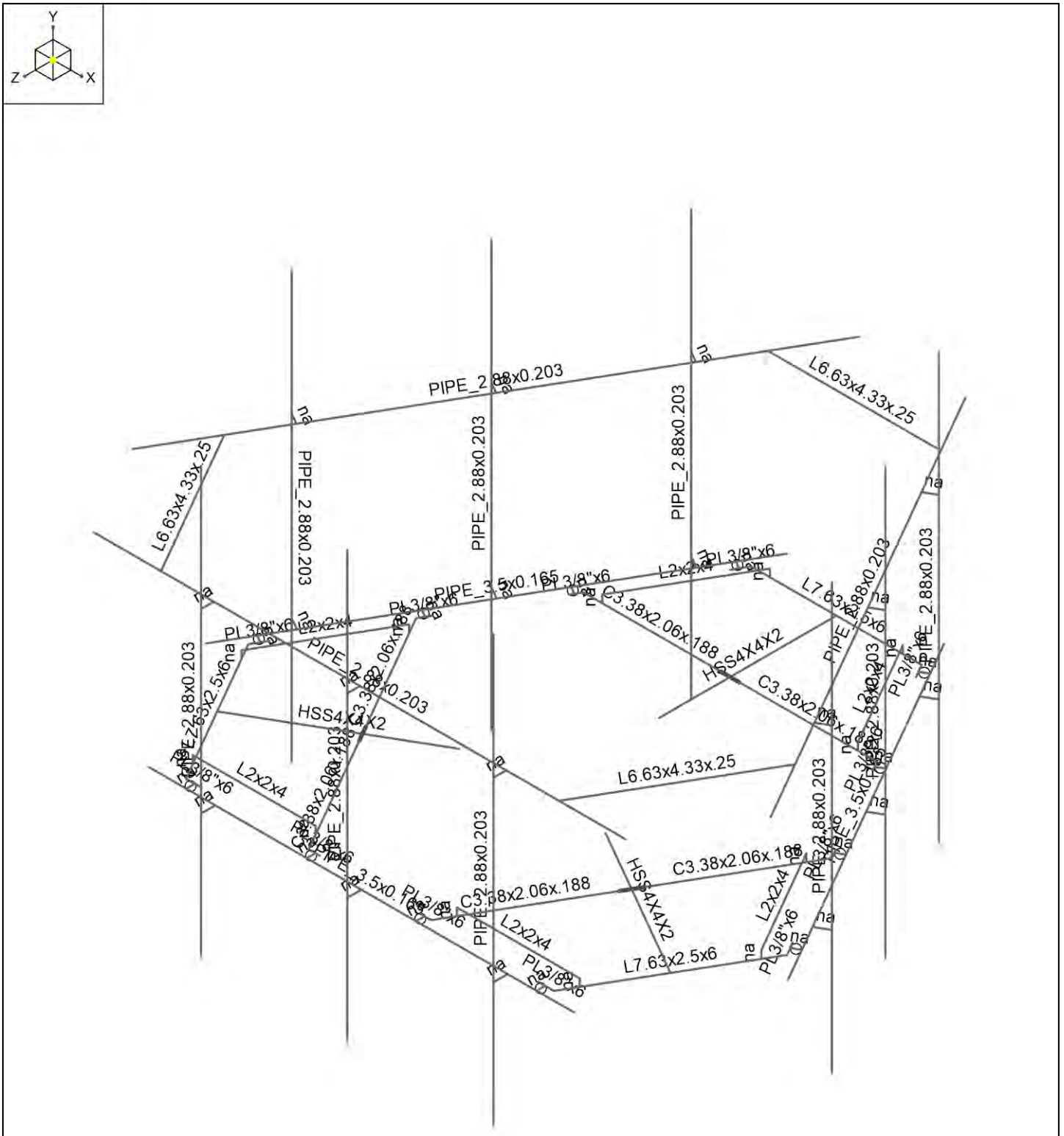
Envelope Only Solution

B+T Group	CT13064-A - Middletown 2	GRG-1
GRG		Dec 18, 2021
101034.008.01		101034_008_01_Middletown_CT.…



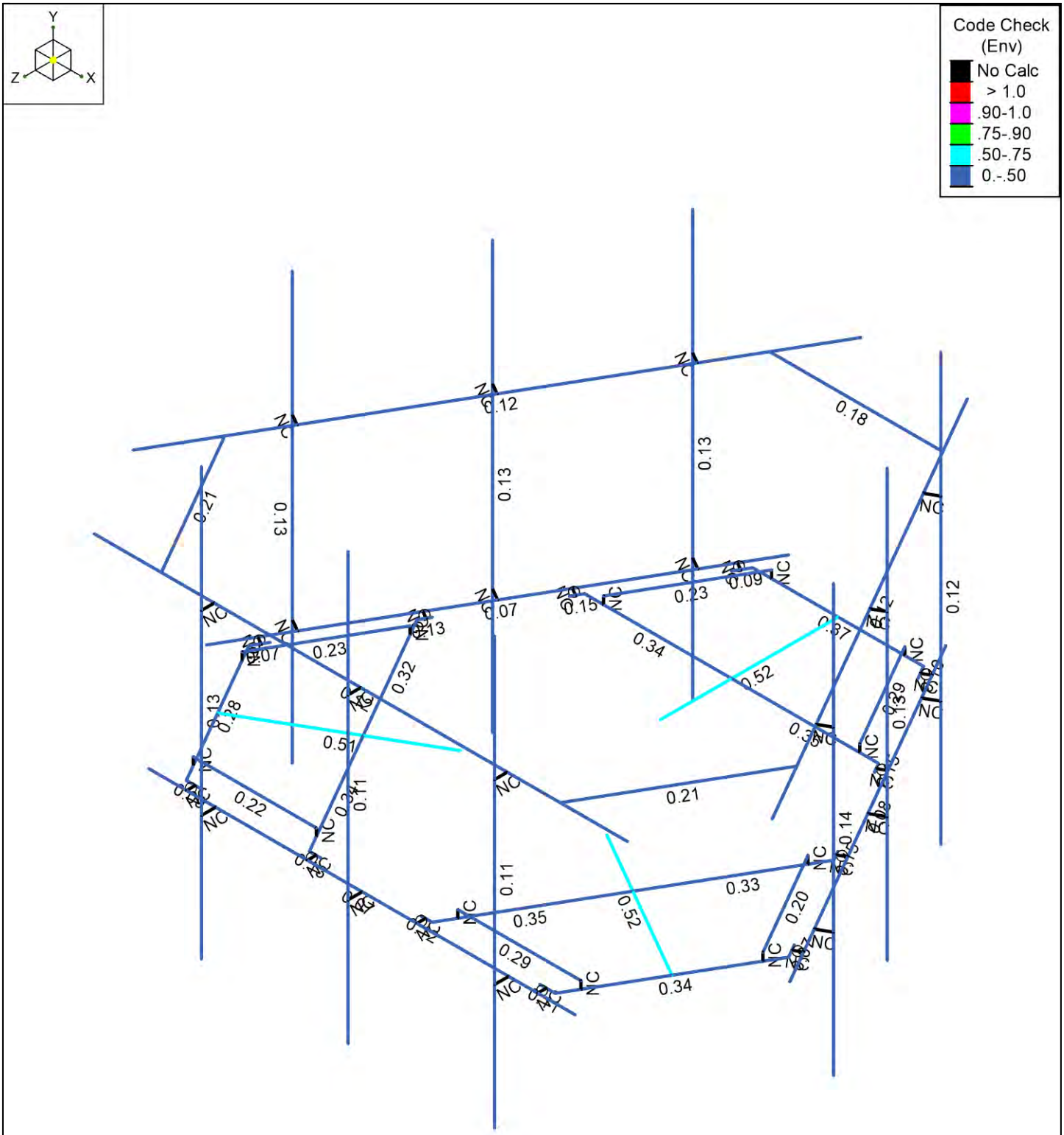
Envelope Only Solution

B+T Group	CT13064-A - Middletown 2	GRG-2
GRG		Dec 18, 2021
101034.008.01		101034_008_01_Middletown_CT.…



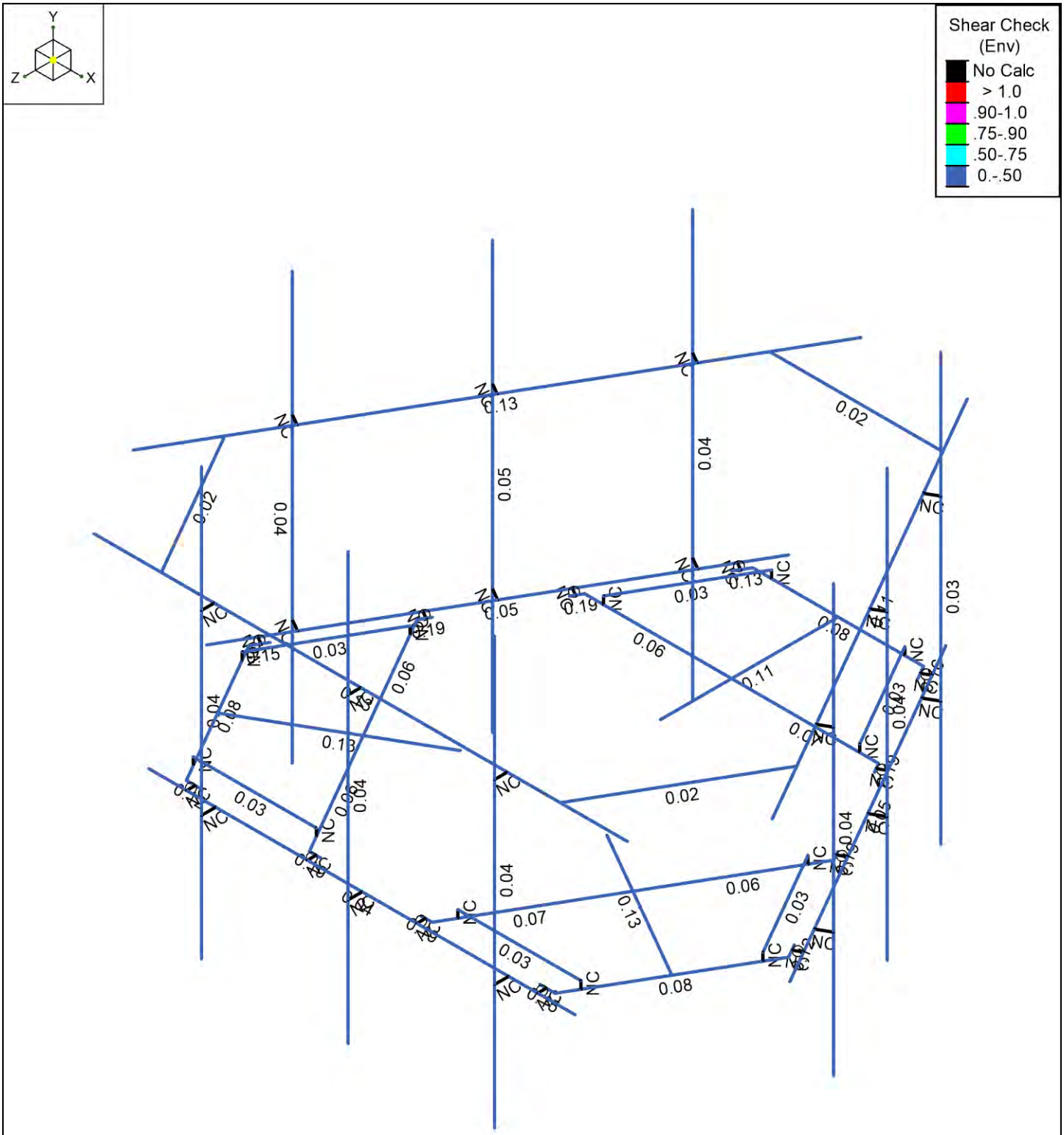
Envelope Only Solution

B+T Group	CT13064-A - Middletown 2	GRG-3
GRG		Dec 18, 2021
101034.008.01		101034_008_01_Middletown_CT.…



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	CT13064-A - Middletown 2	GRG-4
GRG		Dec 18, 2021
101034.008.01		101034_008_01_Middletown_CT.…



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	CT13064-A - Middletown 2	GRG-5
GRG		Dec 18, 2021
101034.008.01		101034_008_01_Middletown_CT.…

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	0	0	-1.589174	
2	2	0	0	-4.922507	
3	3	0	0	-2.922507	
4	4	2.758333	0	-2.922507	
5	5	-2.758333	0	-2.922507	
6	6	-1.603633	0	-4.922507	
7	7	1.603633	0	-4.922507	
8	8	1.749466	0	-4.669917	
9	9	-1.749466	0	-4.669917	
10	10	1.686966	0	-4.77817	
11	11	1.82682	0	-4.858914	
12	12	-1.686966	0	-4.77817	
13	13	-1.82682	0	-4.858914	
14	14	-3.999998	0	4.01153	
15	15	3.999998	0	4.01153	
16	16	2.8625	0	-2.742085	
17	17	2.820833	0	-2.814255	
18	18	2.960687	0	-2.895	
19	19	-2.8625	0	-2.742085	
20	20	-2.820833	0	-2.814255	
21	21	-2.960687	0	-2.895	
22	22	-1.25	0.140833	-4.922507	
23	23	-2.404701	0.140833	-2.922507	
24	24	2.404701	0.140833	-2.922507	
25	25	1.25	0.140833	-4.922507	
26	26	-1.25	0	-4.922507	
27	27	-2.404701	0	-2.922507	
28	28	2.404701	0	-2.922507	
29	29	1.25	0	-4.922507	
30	30	-2.749998	0	4.01153	
31	31	0.000002	0	4.01153	
32	32	-2.749998	0	4.277155	
33	33	0.000002	0	4.277155	
34	34	-2.749998	-2.333667	4.277155	
35	35	0.000002	-2.333667	4.277155	
36	36	-2.749998	5.666335	4.277155	
37	37	0.000002	5.666335	4.277155	
38	38	-2.749998	3.333337	4.277155	
39	39	0.000002	3.333337	4.277155	
40	40	-2.749998	3.333337	4.037571	
41	41	0.000002	3.333337	4.037571	
42	42	-5	3.333337	4.037571	
43	43	5	3.333337	4.037571	
44	44	2.749998	0	4.01153	
45	45	2.749998	0	4.277155	
46	46	2.749998	-2.333667	4.277155	
47	47	2.749998	5.666335	4.277155	
48	48	2.749998	3.333337	4.277155	
49	49	2.749998	3.333337	4.037571	
50	50	1.625037	3.333337	-5.260497	
51	51	-1.625037	3.333337	-5.260497	
52	52	-1.376265	0	0.794587	
53	53	-4.263016	0	2.461254	
54	54	-2.530966	0	1.461254	
55	55	-3.910132	0	-0.927533	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	56	-1.151799	0	3.85004	
57	57	-3.4612	0	3.85004	
58	58	-5.064833	0	1.072467	
59	59	-4.919	0	0.819876	
60	60	-3.169533	0	3.85004	
61	61	-4.9815	0	0.928129	
62	62	-5.121353	0	0.847385	
63	63	-3.294533	0	3.85004	
64	64	-3.294533	0	4.01153	
65	65	-3.805966	0	-1.107955	
66	66	-3.847633	0	-1.035785	
67	67	-3.987487	0	-1.11653	
68	68	-0.943466	0	3.85004	
69	69	-1.0268	0	3.85004	
70	70	-1.0268	0	4.01153	
71	71	-3.638016	0.140833	3.543785	
72	72	-1.328615	0.140833	3.543785	
73	73	-3.733316	0.140833	-0.621278	
74	74	-4.888016	0.140833	1.378722	
75	75	-3.638016	0	3.543785	
76	76	-1.328615	0	3.543785	
77	77	-3.733316	0	-0.621278	
78	78	-4.888016	0	1.378722	
79	79	-5.368242	3.333337	1.222925	
80	80	-3.743205	3.333337	4.037571	
81	81	1.376265	0	0.794587	
82	82	4.263016	0	2.461254	
83	83	2.530966	0	1.461254	
84	84	1.151799	0	3.85004	
85	85	3.910132	0	-0.927533	
86	86	5.064833	0	1.072467	
87	87	3.4612	0	3.85004	
88	88	3.169533	0	3.85004	
89	89	4.919	0	0.819876	
90	90	3.294533	0	3.85004	
91	91	3.294533	0	4.01153	
92	92	4.9815	0	0.928129	
93	93	5.121353	0	0.847385	
94	94	0.943466	0	3.85004	
95	95	1.0268	0	3.85004	
96	96	1.0268	0	4.01153	
97	97	3.805966	0	-1.107955	
98	98	3.847633	0	-1.035785	
99	99	3.987487	0	-1.11653	
100	100	4.888016	0.140833	1.378722	
101	101	3.733316	0.140833	-0.621278	
102	102	1.328615	0.140833	3.543785	
103	103	3.638016	0.140833	3.543785	
104	104	4.888016	0	1.378722	
105	105	3.733316	0	-0.621278	
106	106	1.328615	0	3.543785	
107	107	3.638016	0	3.543785	
108	108	3.743205	3.333337	4.037571	
109	109	5.368242	3.333337	1.222925	
110	110	5.474086	0	1.458335	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
111	111	1.474088	0	-5.469865	
112	112	4.849086	0	0.375803	
113	113	3.474086	0	-2.005767	
114	114	5.079124	0	0.242991	
115	115	3.704124	0	-2.138579	
116	116	5.079124	-2.333667	0.242991	
117	117	3.704124	-2.333667	-2.138579	
118	118	5.079124	5.666335	0.242991	
119	119	3.704124	5.666335	-2.138579	
120	120	5.079124	3.333337	0.242991	
121	121	3.704124	3.333337	-2.138579	
122	122	4.871638	3.333337	0.362782	
123	123	3.496638	3.333337	-2.018787	
124	124	5.996639	3.333337	2.311341	
125	125	0.996639	3.333337	-6.348913	
126	126	2.099088	0	-4.387333	
127	127	2.329126	0	-4.520146	
128	128	2.329126	-2.333667	-4.520146	
129	129	2.329126	5.666335	-4.520146	
130	130	2.329126	3.333337	-4.520146	
131	131	2.12164	3.333337	-4.400354	
132	132	-1.474088	0	-5.469865	
133	133	-5.474086	0	1.458335	
134	134	-2.099088	0	-4.387333	
135	135	-3.474088	0	-2.005763	
136	136	-2.329126	0	-4.520146	
137	137	-3.704126	0	-2.138576	
138	138	-2.329126	-2.333667	-4.520146	
139	139	-3.704126	-2.333667	-2.138576	
140	140	-2.329126	5.666335	-4.520146	
141	141	-3.704126	5.666335	-2.138576	
142	142	-2.329126	3.333337	-4.520146	
143	143	-3.704126	3.333337	-2.138576	
144	144	-2.12164	3.333337	-4.400354	
145	145	-3.49664	3.333337	-2.018784	
146	146	-0.996639	3.333337	-6.348913	
147	147	-5.996639	3.333337	2.311341	
148	148	-4.849086	0	0.375803	
149	149	-5.079124	0	0.242991	
150	150	-5.079124	-2.333667	0.242991	
151	151	-5.079124	5.666335	0.242991	
152	152	-5.079124	3.333337	0.242991	
153	153	-4.871638	3.333337	0.362782	
154	154	0	0	0	

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	Reaction
2	2						
3	3						
4	4						
5	5						
6	16						
7	17						
8	19						

Node Boundary Conditions (Continued)

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
9	20						
10	22						
11	25						
12	26						
13	29						
14	52	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
15	53						
16	54						
17	55						
18	56						
19	65						
20	66						
21	68						
22	69						
23	71						
24	74						
25	75						
26	78						
27	81	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
28	82						
29	83						
30	84						
31	85						
32	94						
33	95						
34	97						
35	98						
36	100						
37	103						
38	104						
39	107						

Hot Rolled Steel Properties

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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in^{2}]	Iyy [in^{4}]	Izz [in^{4}]	J [in^{4}]
1	MF-H1	PIPE_3.5x0.165	Beam	Pipe	A500 Gr.C	Typical	1.729	2.409	2.409	4.819
2	MF-H2	PIPE_2.88x0.203	Beam	Pipe	A500 Gr.C	Typical	1.707	1.538	1.538	3.076
3	SF-H1	HSS4X4X2	Beam	Tube	A500 Gr.B Rect	Typical	1.77	4.4	4.4	6.91
4	SF-H2	C3.38x2.06x.188	Beam	Channel	A36 Gr.36	Typical	1.339	0.562	2.4	0.015
5	SF-H3	L2x2x4	Beam	Single Angle	A36 Gr.36	Typical	0.944	0.346	0.346	0.021
6	SF-H4	L7.63x2.5x6	Beam	Single Angle	A36 Gr.36	Typical	3.658	1.307	22.092	0.163
7	MF-P1	PIPE_2.88x0.203	Column	Pipe	A500 Gr.C	Typical	1.707	1.538	1.538	3.076
8	MF-CP1	PL3/8"x6	Beam	RECT	A36 Gr.36	Typical	2.25	0.026	6.75	0.101

Hot Rolled Steel Section Sets (Continued)

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

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	1	2		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
2	2	5	3	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
3	3	3	4	180	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
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	35	37		MF-P1	Column	Pipe	A500 Gr.C	Typical
19	19	34	36		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	46	47		MF-P1	Column	Pipe	A500 Gr.C	Typical
29	29	48	49		RIGID	None	None	RIGID	Typical
30	30	50	51	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
31	31	52	53		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
32	32	56	54	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
33	33	54	55	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
34	34	58	59		MF-CP1	Beam	RECT	A36 Gr.36	Typical
35	35	57	60		MF-CP1	Beam	RECT	A36 Gr.36	Typical
36	36	65	55		MF-CP1	Beam	RECT	A36 Gr.36	Typical
37	37	56	68		MF-CP1	Beam	RECT	A36 Gr.36	Typical
38	38	74	73		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
39	39	72	71		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
40	40	57	58		SF-H4	Beam	Single Angle	A36 Gr.36	Typical
41	41	77	73		RIGID	None	None	RIGID	Typical
42	42	78	74		RIGID	None	None	RIGID	Typical
43	43	76	72		RIGID	None	None	RIGID	Typical
44	44	75	71		RIGID	None	None	RIGID	Typical
45	45	62	61		RIGID	None	None	RIGID	Typical
46	46	67	66		RIGID	None	None	RIGID	Typical
47	47	64	63		RIGID	None	None	RIGID	Typical
48	48	70	69		RIGID	None	None	RIGID	Typical
49	49	79	80	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
50	50	81	82		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
51	51	85	83	180	SF-H2	Beam	Channel	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
52	52	83	84	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
53	53	87	88		MF-CP1	Beam	RECT	A36 Gr.36	Typical
54	54	86	89		MF-CP1	Beam	RECT	A36 Gr.36	Typical
55	55	94	84		MF-CP1	Beam	RECT	A36 Gr.36	Typical
56	56	85	97		MF-CP1	Beam	RECT	A36 Gr.36	Typical
57	57	103	102		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
58	58	101	100		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
59	59	86	87		SF-H4	Beam	Single Angle	A36 Gr.36	Typical
60	60	106	102		RIGID	None	None	RIGID	Typical
61	61	107	103		RIGID	None	None	RIGID	Typical
62	62	105	101		RIGID	None	None	RIGID	Typical
63	63	104	100		RIGID	None	None	RIGID	Typical
64	64	91	90		RIGID	None	None	RIGID	Typical
65	65	96	95		RIGID	None	None	RIGID	Typical
66	66	93	92		RIGID	None	None	RIGID	Typical
67	67	99	98		RIGID	None	None	RIGID	Typical
68	68	108	109	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
69	69	110	111		MF-H1	Beam	Pipe	A500 Gr.C	Typical
70	70	114	112		RIGID	None	None	RIGID	Typical
71	71	115	113		RIGID	None	None	RIGID	Typical
72	72	117	119		MF-P1	Column	Pipe	A500 Gr.C	Typical
73	73	116	118		MF-P1	Column	Pipe	A500 Gr.C	Typical
74	74	120	122		RIGID	None	None	RIGID	Typical
75	75	121	123		RIGID	None	None	RIGID	Typical
76	76	124	125		MF-H2	Beam	Pipe	A500 Gr.C	Typical
77	77	127	126		RIGID	None	None	RIGID	Typical
78	78	128	129		MF-P1	Column	Pipe	A500 Gr.C	Typical
79	79	130	131		RIGID	None	None	RIGID	Typical
80	80	132	133		MF-H1	Beam	Pipe	A500 Gr.C	Typical
81	81	136	134		RIGID	None	None	RIGID	Typical
82	82	137	135		RIGID	None	None	RIGID	Typical
83	83	139	141		MF-P1	Column	Pipe	A500 Gr.C	Typical
84	84	138	140		MF-P1	Column	Pipe	A500 Gr.C	Typical
85	85	142	144		RIGID	None	None	RIGID	Typical
86	86	143	145		RIGID	None	None	RIGID	Typical
87	87	146	147		MF-H2	Beam	Pipe	A500 Gr.C	Typical
88	88	149	148		RIGID	None	None	RIGID	Typical
89	89	151	150		MF-P1	Column	Pipe	A500 Gr.C	Typical
90	90	152	153		RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
1	1				Yes	N/A	None
2	2			2	Yes	N/A	None
3	3		2		Yes	N/A	None
4	4				Yes	N/A	None
5	5				Yes	N/A	None
6	6				Yes	N/A	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

Member Advanced Data (Continued)

	Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
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
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

Member Advanced Data (Continued)

	Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
69	69				Yes	N/A	None
70	70				Yes	** NA **	None
71	71				Yes	** NA **	None
72	72				Yes	** NA **	None
73	73				Yes	** NA **	None
74	74				Yes	** 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	N/A	None
81	81				Yes	** NA **	None
82	82				Yes	** NA **	None
83	83				Yes	** NA **	None
84	84				Yes	** NA **	None
85	85				Yes	** 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
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

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
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	-0.032	%15
2	28	Y	-0.032	%85
3	28	Y	-0.075	%20
4	28	Y	-0.064	%50
5	28	Y	0	0
6	89	Y	-0.032	%15
7	89	Y	-0.032	%85
8	89	Y	-0.075	%20
9	89	Y	-0.064	%50
10	89	Y	0	0
11	78	Y	-0.032	%15
12	78	Y	-0.032	%85
13	78	Y	-0.075	%20
14	78	Y	-0.064	%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	-0.183	%15
2	28	Z	-0.183	%85
3	28	Z	-0.081	%20
4	28	Z	-0.081	%50
5	28	Z	0	0
6	89	Z	-0.183	%15
7	89	Z	-0.183	%85
8	89	Z	-0.081	%20
9	89	Z	-0.081	%50

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
10	89	Z	0	0
11	78	Z	-0.183	%15
12	78	Z	-0.183	%85
13	78	Z	-0.081	%20
14	78	Z	-0.081	%50
15	78	Z	0	0
16	31	Z	-0.083	%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	-0.073	%15
2	28	X	-0.073	%85
3	28	X	-0.049	%20
4	28	X	-0.043	%50
5	28	X	0	0
6	89	X	-0.073	%15
7	89	X	-0.073	%85
8	89	X	-0.049	%20
9	89	X	-0.043	%50
10	89	X	0	0
11	78	X	-0.073	%15
12	78	X	-0.073	%85
13	78	X	-0.049	%20
14	78	X	-0.043	%50
15	78	X	0	0
16	31	X	-0.048	%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	-0.036	%15
2	28	Z	-0.036	%85
3	28	Z	-0.014	%20
4	28	Z	-0.014	%50
5	28	Z	0	0
6	89	Z	-0.036	%15
7	89	Z	-0.036	%85
8	89	Z	-0.014	%20
9	89	Z	-0.014	%50
10	89	Z	0	0
11	78	Z	-0.036	%15
12	78	Z	-0.036	%85
13	78	Z	-0.014	%20
14	78	Z	-0.014	%50
15	78	Z	0	0
16	31	Z	-0.014	%20

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
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	-0.016	%15
2	28	X	-0.016	%85
3	28	X	-0.009	%20
4	28	X	-0.007	%50
5	28	X	0	0
6	89	X	-0.016	%15
7	89	X	-0.016	%85
8	89	X	-0.009	%20
9	89	X	-0.007	%50
10	89	X	0	0
11	78	X	-0.016	%15
12	78	X	-0.016	%85
13	78	X	-0.009	%20
14	78	X	-0.007	%50
15	78	X	0	0
16	31	X	-0.008	%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	-0.011	%15
2	28	Z	-0.011	%85
3	28	Z	-0.005	%20
4	28	Z	-0.005	%50
5	28	Z	0	0
6	89	Z	-0.011	%15
7	89	Z	-0.011	%85
8	89	Z	-0.005	%20
9	89	Z	-0.005	%50
10	89	Z	0	0
11	78	Z	-0.011	%15
12	78	Z	-0.011	%85
13	78	Z	-0.005	%20
14	78	Z	-0.005	%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 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	-0.003	%20
4	28	X	-0.003	%50
5	28	X	0	0
6	89	X	-0.005	%15
7	89	X	-0.005	%85
8	89	X	-0.003	%20
9	89	X	-0.003	%50
10	89	X	0	0
11	78	X	-0.005	%15
12	78	X	-0.005	%85
13	78	X	-0.003	%20
14	78	X	-0.003	%50
15	78	X	0	0
16	31	X	-0.003	%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	-0.118	%15
2	28	Y	-0.118	%85
3	28	Y	-0.034	%20
4	28	Y	-0.033	%50
5	28	Y	0	0
6	89	Y	-0.118	%15
7	89	Y	-0.118	%85
8	89	Y	-0.034	%20
9	89	Y	-0.033	%50
10	89	Y	0	0
11	78	Y	-0.118	%15
12	78	Y	-0.118	%85
13	78	Y	-0.034	%20
14	78	Y	-0.033	%50
15	78	Y	0	0
16	31	Y	-0.035	%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	-0.02	%15
2	28	Z	-0.02	%85
3	28	Z	-0.023	%20
4	28	Z	-0.019	%50
5	28	Z	0	0
6	89	Z	-0.02	%15

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
7	89	Z	-0.02	%85
8	89	Z	-0.023	%20
9	89	Z	-0.019	%50
10	89	Z	0	0
11	78	Z	-0.02	%15
12	78	Z	-0.02	%85
13	78	Z	-0.023	%20
14	78	Z	-0.019	%50
15	78	Z	0	0
16	31	Z	-0.007	%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	-0.02	%15
2	28	X	-0.02	%85
3	28	X	-0.023	%20
4	28	X	-0.019	%50
5	28	X	0	0
6	89	X	-0.02	%15
7	89	X	-0.02	%85
8	89	X	-0.023	%20
9	89	X	-0.019	%50
10	89	X	0	0
11	78	X	-0.02	%15
12	78	X	-0.02	%85
13	78	X	-0.023	%20
14	78	X	-0.019	%50
15	78	X	0	0
16	31	X	-0.007	%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	87	Y	-0.25	%5

Member Point Loads (BLC 18 : Maint LL 4)

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

Member Point Loads (BLC 19 : Maint LL 5)

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

Member Point Loads (BLC 20 : Maint LL 6)

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

Member Point Loads (BLC 21 : Maint LL 7)

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

Member Point Loads (BLC 22 : Maint LL 8)

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

Member Point Loads (BLC 23 : Maint LL 9)

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

Member Point Loads (BLC 24 : Maint LL 10)

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

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	-0.02	-0.02	0	%100
2	2	Z	-0.017	-0.017	0	%100
3	3	Z	-0.017	-0.017	0	%100
4	4	Z	-0.025	-0.025	0	%100
5	5	Z	-0.025	-0.025	0	%100
6	6	Z	-0.014	-0.014	0	%100
7	7	Z	-0.025	-0.025	0	%100
8	8	Z	-0.025	-0.025	0	%100
9	9	Z	-0.011	-0.011	0	%100
10	10	Z	-0.011	-0.011	0	%100
11	11	Z	-0.034	-0.034	0	%100
12	18	Z	-0.012	-0.012	0	%100
13	19	Z	-0.012	-0.012	0	%100
14	22	Z	-0.012	-0.012	0	%100
15	28	Z	-0.012	-0.012	0	%100
16	30	Z	-0.03	-0.03	0	%100
17	31	Z	-0.02	-0.02	0	%100
18	32	Z	-0.017	-0.017	0	%100
19	33	Z	-0.017	-0.017	0	%100
20	34	Z	-0.025	-0.025	0	%100
21	35	Z	-0.025	-0.025	0	%100
22	36	Z	-0.025	-0.025	0	%100
23	37	Z	-0.025	-0.025	0	%100
24	38	Z	-0.011	-0.011	0	%100
25	39	Z	-0.011	-0.011	0	%100
26	40	Z	-0.034	-0.034	0	%100
27	49	Z	-0.03	-0.03	0	%100
28	50	Z	-0.02	-0.02	0	%100
29	51	Z	-0.017	-0.017	0	%100
30	52	Z	-0.017	-0.017	0	%100
31	53	Z	-0.025	-0.025	0	%100
32	54	Z	-0.025	-0.025	0	%100
33	55	Z	-0.025	-0.025	0	%100
34	56	Z	-0.025	-0.025	0	%100
35	57	Z	-0.011	-0.011	0	%100
36	58	Z	-0.011	-0.011	0	%100
37	59	Z	-0.034	-0.034	0	%100
38	68	Z	-0.03	-0.03	0	%100
39	69	Z	-0.014	-0.014	0	%100
40	72	Z	-0.012	-0.012	0	%100
41	73	Z	-0.012	-0.012	0	%100
42	76	Z	-0.012	-0.012	0	%100
43	78	Z	-0.012	-0.012	0	%100
44	80	Z	-0.014	-0.014	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
45	83	Z	-0.012	-0.012	0	%100
46	84	Z	-0.012	-0.012	0	%100
47	87	Z	-0.012	-0.012	0	%100
48	89	Z	-0.012	-0.012	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	-0.02	-0.02	0	%100
2	2	X	-0.017	-0.017	0	%100
3	3	X	-0.017	-0.017	0	%100
4	4	X	-0.025	-0.025	0	%100
5	5	X	-0.025	-0.025	0	%100
6	6	X	-0.014	-0.014	0	%100
7	7	X	-0.025	-0.025	0	%100
8	8	X	-0.025	-0.025	0	%100
9	9	X	-0.011	-0.011	0	%100
10	10	X	-0.011	-0.011	0	%100
11	11	X	-0.034	-0.034	0	%100
12	18	X	-0.012	-0.012	0	%100
13	19	X	-0.012	-0.012	0	%100
14	22	X	-0.012	-0.012	0	%100
15	28	X	-0.012	-0.012	0	%100
16	30	X	-0.03	-0.03	0	%100
17	31	X	-0.02	-0.02	0	%100
18	32	X	-0.017	-0.017	0	%100
19	33	X	-0.017	-0.017	0	%100
20	34	X	-0.025	-0.025	0	%100
21	35	X	-0.025	-0.025	0	%100
22	36	X	-0.025	-0.025	0	%100
23	37	X	-0.025	-0.025	0	%100
24	38	X	-0.011	-0.011	0	%100
25	39	X	-0.011	-0.011	0	%100
26	40	X	-0.034	-0.034	0	%100
27	49	X	-0.03	-0.03	0	%100
28	50	X	-0.02	-0.02	0	%100
29	51	X	-0.017	-0.017	0	%100
30	52	X	-0.017	-0.017	0	%100
31	53	X	-0.025	-0.025	0	%100
32	54	X	-0.025	-0.025	0	%100
33	55	X	-0.025	-0.025	0	%100
34	56	X	-0.025	-0.025	0	%100
35	57	X	-0.011	-0.011	0	%100
36	58	X	-0.011	-0.011	0	%100
37	59	X	-0.034	-0.034	0	%100
38	68	X	-0.03	-0.03	0	%100
39	69	X	-0.014	-0.014	0	%100
40	72	X	-0.012	-0.012	0	%100
41	73	X	-0.012	-0.012	0	%100
42	76	X	-0.012	-0.012	0	%100
43	78	X	-0.012	-0.012	0	%100
44	80	X	-0.014	-0.014	0	%100
45	83	X	-0.012	-0.012	0	%100
46	84	X	-0.012	-0.012	0	%100
47	87	X	-0.012	-0.012	0	%100
48	89	X	-0.012	-0.012	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	-0.006	-0.006	0	%100
2	2	Z	-0.005	-0.005	0	%100
3	3	Z	-0.005	-0.005	0	%100
4	4	Z	-0.01	-0.01	0	%100
5	5	Z	-0.01	-0.01	0	%100
6	6	Z	-0.002	-0.002	0	%100
7	7	Z	-0.011	-0.011	0	%100
8	8	Z	-0.011	-0.011	0	%100
9	9	Z	-0.004	-0.004	0	%100
10	10	Z	-0.004	-0.004	0	%100
11	11	Z	-0.008	-0.008	0	%100
12	18	Z	-0.002	-0.002	0	%100
13	19	Z	-0.002	-0.002	0	%100
14	22	Z	-0.002	-0.002	0	%100
15	28	Z	-0.002	-0.002	0	%100
16	30	Z	-0.007	-0.007	0	%100
17	31	Z	-0.006	-0.006	0	%100
18	32	Z	-0.005	-0.005	0	%100
19	33	Z	-0.005	-0.005	0	%100
20	34	Z	-0.01	-0.01	0	%100
21	35	Z	-0.01	-0.01	0	%100
22	36	Z	-0.011	-0.011	0	%100
23	37	Z	-0.011	-0.011	0	%100
24	38	Z	-0.004	-0.004	0	%100
25	39	Z	-0.004	-0.004	0	%100
26	40	Z	-0.008	-0.008	0	%100
27	49	Z	-0.007	-0.007	0	%100
28	50	Z	-0.006	-0.006	0	%100
29	51	Z	-0.005	-0.005	0	%100
30	52	Z	-0.005	-0.005	0	%100
31	53	Z	-0.01	-0.01	0	%100
32	54	Z	-0.01	-0.01	0	%100
33	55	Z	-0.011	-0.011	0	%100
34	56	Z	-0.011	-0.011	0	%100
35	57	Z	-0.004	-0.004	0	%100
36	58	Z	-0.004	-0.004	0	%100
37	59	Z	-0.008	-0.008	0	%100
38	68	Z	-0.007	-0.007	0	%100
39	69	Z	-0.002	-0.002	0	%100
40	72	Z	-0.002	-0.002	0	%100
41	73	Z	-0.002	-0.002	0	%100
42	76	Z	-0.002	-0.002	0	%100
43	78	Z	-0.002	-0.002	0	%100
44	80	Z	-0.002	-0.002	0	%100
45	83	Z	-0.002	-0.002	0	%100
46	84	Z	-0.002	-0.002	0	%100
47	87	Z	-0.002	-0.002	0	%100
48	89	Z	-0.002	-0.002	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	-0.006	-0.006	0	%100
2	2	X	-0.005	-0.005	0	%100
3	3	X	-0.005	-0.005	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, %)]
4	4	X	-0.01	-0.01	0	%100
5	5	X	-0.01	-0.01	0	%100
6	6	X	-0.002	-0.002	0	%100
7	7	X	-0.011	-0.011	0	%100
8	8	X	-0.011	-0.011	0	%100
9	9	X	-0.004	-0.004	0	%100
10	10	X	-0.004	-0.004	0	%100
11	11	X	-0.008	-0.008	0	%100
12	18	X	-0.002	-0.002	0	%100
13	19	X	-0.002	-0.002	0	%100
14	22	X	-0.002	-0.002	0	%100
15	28	X	-0.002	-0.002	0	%100
16	30	X	-0.007	-0.007	0	%100
17	31	X	-0.006	-0.006	0	%100
18	32	X	-0.005	-0.005	0	%100
19	33	X	-0.005	-0.005	0	%100
20	34	X	-0.01	-0.01	0	%100
21	35	X	-0.01	-0.01	0	%100
22	36	X	-0.011	-0.011	0	%100
23	37	X	-0.011	-0.011	0	%100
24	38	X	-0.004	-0.004	0	%100
25	39	X	-0.004	-0.004	0	%100
26	40	X	-0.008	-0.008	0	%100
27	49	X	-0.007	-0.007	0	%100
28	50	X	-0.006	-0.006	0	%100
29	51	X	-0.005	-0.005	0	%100
30	52	X	-0.005	-0.005	0	%100
31	53	X	-0.01	-0.01	0	%100
32	54	X	-0.01	-0.01	0	%100
33	55	X	-0.011	-0.011	0	%100
34	56	X	-0.011	-0.011	0	%100
35	57	X	-0.004	-0.004	0	%100
36	58	X	-0.004	-0.004	0	%100
37	59	X	-0.008	-0.008	0	%100
38	68	X	-0.007	-0.007	0	%100
39	69	X	-0.002	-0.002	0	%100
40	72	X	-0.002	-0.002	0	%100
41	73	X	-0.002	-0.002	0	%100
42	76	X	-0.002	-0.002	0	%100
43	78	X	-0.002	-0.002	0	%100
44	80	X	-0.002	-0.002	0	%100
45	83	X	-0.002	-0.002	0	%100
46	84	X	-0.002	-0.002	0	%100
47	87	X	-0.002	-0.002	0	%100
48	89	X	-0.002	-0.002	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	-0.001	-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	-0.0005	-0.0005	0	%100
7	7	Z	-0.002	-0.002	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, %)]
8	8	Z	-0.002	-0.002	0	%100
9	9	Z	-0.0007	-0.0007	0	%100
10	10	Z	-0.0007	-0.0007	0	%100
11	11	Z	-0.002	-0.002	0	%100
12	18	Z	-0.0004	-0.0004	0	%100
13	19	Z	-0.0004	-0.0004	0	%100
14	22	Z	-0.0004	-0.0004	0	%100
15	28	Z	-0.0004	-0.0004	0	%100
16	30	Z	-0.002	-0.002	0	%100
17	31	Z	-0.001	-0.001	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	-0.0007	-0.0007	0	%100
25	39	Z	-0.0007	-0.0007	0	%100
26	40	Z	-0.002	-0.002	0	%100
27	49	Z	-0.002	-0.002	0	%100
28	50	Z	-0.001	-0.001	0	%100
29	51	Z	-0.001	-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	-0.0007	-0.0007	0	%100
36	58	Z	-0.0007	-0.0007	0	%100
37	59	Z	-0.002	-0.002	0	%100
38	68	Z	-0.002	-0.002	0	%100
39	69	Z	-0.0005	-0.0005	0	%100
40	72	Z	-0.0004	-0.0004	0	%100
41	73	Z	-0.0004	-0.0004	0	%100
42	76	Z	-0.0004	-0.0004	0	%100
43	78	Z	-0.0004	-0.0004	0	%100
44	80	Z	-0.0005	-0.0005	0	%100
45	83	Z	-0.0004	-0.0004	0	%100
46	84	Z	-0.0004	-0.0004	0	%100
47	87	Z	-0.0004	-0.0004	0	%100
48	89	Z	-0.0004	-0.0004	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	-0.001	-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	-0.0005	-0.0005	0	%100
7	7	X	-0.002	-0.002	0	%100
8	8	X	-0.002	-0.002	0	%100
9	9	X	-0.0007	-0.0007	0	%100
10	10	X	-0.0007	-0.0007	0	%100
11	11	X	-0.002	-0.002	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, %)]
12	18	X	-0.0004	-0.0004	0	%100
13	19	X	-0.0004	-0.0004	0	%100
14	22	X	-0.0004	-0.0004	0	%100
15	28	X	-0.0004	-0.0004	0	%100
16	30	X	-0.002	-0.002	0	%100
17	31	X	-0.001	-0.001	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	-0.0007	-0.0007	0	%100
25	39	X	-0.0007	-0.0007	0	%100
26	40	X	-0.002	-0.002	0	%100
27	49	X	-0.002	-0.002	0	%100
28	50	X	-0.001	-0.001	0	%100
29	51	X	-0.001	-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	-0.0007	-0.0007	0	%100
36	58	X	-0.0007	-0.0007	0	%100
37	59	X	-0.002	-0.002	0	%100
38	68	X	-0.002	-0.002	0	%100
39	69	X	-0.0005	-0.0005	0	%100
40	72	X	-0.0004	-0.0004	0	%100
41	73	X	-0.0004	-0.0004	0	%100
42	76	X	-0.0004	-0.0004	0	%100
43	78	X	-0.0004	-0.0004	0	%100
44	80	X	-0.0005	-0.0005	0	%100
45	83	X	-0.0004	-0.0004	0	%100
46	84	X	-0.0004	-0.0004	0	%100
47	87	X	-0.0004	-0.0004	0	%100
48	89	X	-0.0004	-0.0004	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	-0.006	-0.006	0	%100
10	10	Y	-0.006	-0.006	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

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, %)]
16	30	Y	-0.013	-0.013	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	-0.006	-0.006	0	%100
25	39	Y	-0.006	-0.006	0	%100
26	40	Y	-0.013	-0.013	0	%100
27	49	Y	-0.013	-0.013	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	-0.006	-0.006	0	%100
36	58	Y	-0.006	-0.006	0	%100
37	59	Y	-0.013	-0.013	0	%100
38	68	Y	-0.013	-0.013	0	%100
39	69	Y	-0.006	-0.006	0	%100
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	-0.002	-0.002	0	%100
7	7	Z	-0.002	-0.002	0	%100
8	8	Z	-0.002	-0.002	0	%100
9	9	Z	-0.001	-0.001	0	%100
10	10	Z	-0.001	-0.001	0	%100
11	11	Z	-0.004	-0.004	0	%100
12	18	Z	-0.002	-0.002	0	%100
13	19	Z	-0.002	-0.002	0	%100
14	22	Z	-0.002	-0.002	0	%100
15	28	Z	-0.002	-0.002	0	%100
16	30	Z	-0.003	-0.003	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

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, %)]
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	-0.001	-0.001	0	%100
25	39	Z	-0.001	-0.001	0	%100
26	40	Z	-0.004	-0.004	0	%100
27	49	Z	-0.003	-0.003	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	-0.001	-0.001	0	%100
36	58	Z	-0.001	-0.001	0	%100
37	59	Z	-0.004	-0.004	0	%100
38	68	Z	-0.003	-0.003	0	%100
39	69	Z	-0.002	-0.002	0	%100
40	72	Z	-0.002	-0.002	0	%100
41	73	Z	-0.002	-0.002	0	%100
42	76	Z	-0.002	-0.002	0	%100
43	78	Z	-0.002	-0.002	0	%100
44	80	Z	-0.002	-0.002	0	%100
45	83	Z	-0.002	-0.002	0	%100
46	84	Z	-0.002	-0.002	0	%100
47	87	Z	-0.002	-0.002	0	%100
48	89	Z	-0.002	-0.002	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	-0.002	-0.002	0	%100
7	7	X	-0.002	-0.002	0	%100
8	8	X	-0.002	-0.002	0	%100
9	9	X	-0.001	-0.001	0	%100
10	10	X	-0.001	-0.001	0	%100
11	11	X	-0.004	-0.004	0	%100
12	18	X	-0.002	-0.002	0	%100
13	19	X	-0.002	-0.002	0	%100
14	22	X	-0.002	-0.002	0	%100
15	28	X	-0.002	-0.002	0	%100
16	30	X	-0.003	-0.003	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

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
24	38	X	-0.001	-0.001	0	%100
25	39	X	-0.001	-0.001	0	%100
26	40	X	-0.004	-0.004	0	%100
27	49	X	-0.003	-0.003	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	-0.001	-0.001	0	%100
36	58	X	-0.001	-0.001	0	%100
37	59	X	-0.004	-0.004	0	%100
38	68	X	-0.003	-0.003	0	%100
39	69	X	-0.002	-0.002	0	%100
40	72	X	-0.002	-0.002	0	%100
41	73	X	-0.002	-0.002	0	%100
42	76	X	-0.002	-0.002	0	%100
43	78	X	-0.002	-0.002	0	%100
44	80	X	-0.002	-0.002	0	%100
45	83	X	-0.002	-0.002	0	%100
46	84	X	-0.002	-0.002	0	%100
47	87	X	-0.002	-0.002	0	%100
48	89	X	-0.002	-0.002	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	-0.035	-0.016	0	1.155
3	38	Y	-0.016	0.0006163	1.155	2.309
4	39	Y	-0.018	-0.016	0.231	2.309
5	57	Y	-0.018	-0.016	0	2.078
6	58	Y	0.0006164	-0.016	0	1.155
7	58	Y	-0.016	-0.035	1.155	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	-0.019	-0.009	0	1.155
5	38	Y	-0.009	0.0003361	1.155	2.309
6	39	Y	-0.01	-0.009	0.231	2.309
7	57	Y	-0.01	-0.009	0	2.078
8	58	Y	0.0003361	-0.009	0	1.155
9	58	Y	-0.009	-0.019	1.155	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	72	71	74	73	Y	Two Way	-0.01
3	101	100	103	102	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	72	71	74	73	Y	Two Way	-0.005
3	101	100	103	102	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*s²/ft, k*s²*ft)]
1	44	L	Y	-0.5
2	148	L	Y	-0.5
3	126	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*s²/ft, k*s²*ft)]
1	31	L	Y	-0.5
2	135	L	Y	-0.5
3	113	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*s²/ft, k*s²*ft)]
1	30	L	Y	-0.5
2	134	L	Y	-0.5
3	112	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		

Basic Load Cases (Continued)

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
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
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

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
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
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

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
95	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					24	1.5
96	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					25	1.5
97	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					26	1.5
98	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					27	1.5
99	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					28	1.5
100	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					29	1.5

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	1	max	1.254	5	1.736	14	1.321	2	3.817	2	1.265	11	0.323	11
2		min	-1.26	11	-0.085	8	-1.446	8	-0.719	8	-1.271	5	-0.209	5
3	52	max	1.185	5	1.775	18	1.539	2	0.284	13	1.521	3	0.238	12
4		min	-1.29	11	0.093	12	-1.473	8	-1.747	7	-1.527	9	-3.112	18
5	81	max	1.171	5	1.709	22	1.654	2	0.252	3	1.542	7	2.918	22
6		min	-1.06	11	0.064	4	-1.596	8	-1.921	9	-1.548	13	-0.289	4
7	Totals:	max	3.61	5	4.781	19	4.514	2						
8		min	-3.61	11	2.396	13	-4.514	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	0.524	0	13	0.112	0	y	49	70.173	73.278	8.24	8.24	1.99	H1-1b
2	2	C3.38x2.06x.188	0.341	2.592	3	0.059	0.351	y	40	35.676	43.394	1.694	4.483	1.6	H1-1b
3	3	C3.38x2.06x.188	0.352	0	13	0.072	2.241	z	8	35.676	43.394	1.694	4.483	1.595	H1-1b
4	4	PL3/8"x6	0.099	0.164	7	0.158	0	y	2	68.997	72.9	0.57	9.113	2.105	H1-1b
5	5	PL3/8"x6	0.085	0	3	0.131	0	y	2	68.997	72.9	0.57	9.113	2.046	H1-1b
6	6	PIPE_3.5x0.165	0.071	6.75	7	0.043	4		4	45.872	71.57	6.336	6.336	1.896	H1-1b
7	7	PL3/8"x6	0.153	0.208	8	0.189	0.208	y	61	70.882	72.9	0.57	9.113	1.499	H1-1b
8	8	PL3/8"x6	0.145	0	13	0.194	0	y	51	70.882	72.9	0.57	9.113	2.935	H1-1b
9	9	L2x2x4	0.292	0	7	0.03	2.309	y	72	23.349	30.586	0.691	1.577	1.5	H2-1
10	10	L2x2x4	0.232	2.309	9	0.034	0	y	40	23.349	30.586	0.691	1.577	1.5	H2-1
11	11	L7.63x2.5x6	0.37	1.604	8	0.076	0	z	49	75.414	118.523	1.798	13.927	1.282	H2-1
12	18	PIPE_2.88x0.203	0.107	2.417	5	0.039	2.417		5	35.519	70.68	5.029	5.029	3	H1-1b
13	19	PIPE_2.88x0.203	0.135	5.667	9	0.039	2.417		9	35.519	70.68	5.029	5.029	3	H1-1b
14	22	PIPE_2.88x0.203	0.123	2.188	9	0.127	8.646		13	24.131	70.68	5.029	5.029	2.446	H1-1b
15	28	PIPE_2.88x0.203	0.107	5.667	7	0.037	5.667		8	35.519	70.68	5.029	5.029	3	H1-1b
16	30	L6.63x4.33x.25	0.177	3.25	6	0.019	3.25	y	5	51.794	86.751	2.311	6.976	1.5	H2-1
17	31	HSS4X4X2	0.512	0	7	0.128	0	z	3	70.173	73.278	8.24	8.24	2.01	H1-1b
18	32	C3.38x2.06x.188	0.343	2.592	7	0.059	0.351	y	45	35.676	43.394	1.694	4.483	1.601	H1-1b
19	33	C3.38x2.06x.188	0.317	0	57	0.064	2.241	y	72	35.676	43.394	1.703	4.483	1.62	H1-1b
20	34	PL3/8"x6	0.074	0.164	10	0.149	0	y	42	68.997	72.9	0.57	9.113	1.518	H1-1b
21	35	PL3/8"x6	0.086	0	7	0.125	0	y	66	68.997	72.9	0.57	9.113	1.939	H1-1b
22	36	PL3/8"x6	0.129	0.208	13	0.19	0.208	y	53	70.882	72.9	0.57	9.113	1.998	H1-1b
23	37	PL3/8"x6	0.126	0	5	0.195	0	y	55	70.882	72.9	0.57	9.113	2.995	H1-1b
24	38	L2x2x4	0.228	0	11	0.03	2.309	y	63	23.349	30.586	0.691	1.577	1.5	H2-1
25	39	L2x2x4	0.219	2.309	13	0.034	0	y	44	23.349	30.586	0.691	1.577	1.5	H2-1
26	40	L7.63x2.5x6	0.282	1.604	12	0.077	0.334	y	43	75.414	118.523	1.798	13.835	1.261	H2-1
27	49	L6.63x4.33x.25	0.208	0	3	0.023	3.25	y	9	51.794	86.751	2.311	6.976	1.5	H2-1
28	50	HSS4X4X2	0.524	0	9	0.129	0	z	7	70.173	73.278	8.24	8.24	1.994	H1-1b
29	51	C3.38x2.06x.188	0.329	2.592	23	0.059	0.351	y	49	35.676	43.394	1.694	4.483	1.628	H1-1b
30	52	C3.38x2.06x.188	0.351	0	9	0.066	2.241	z	3	35.676	43.394	1.694	4.483	1.595	H1-1b
31	53	PL3/8"x6	0.108	0.164	2	0.15	0	y	46	68.997	72.9	0.57	9.113	1.423	H1-1b
32	54	PL3/8"x6	0.072	0	11	0.123	0	y	70	68.997	72.9	0.57	9.113	1.926	H1-1b
33	55	PL3/8"x6	0.124	0.208	4	0.189	0.208	y	57	70.882	72.9	0.57	9.113	1.638	H1-1b

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
34	56	PL3/8"x6	0.151	0	9	0.195	0	y	59	70.882	72.9	0.57	9.113	2.947	H1-1b
35	57	L2x2x4	0.292	0	3	0.03	2.309	y	67	23.349	30.586	0.691	1.577	1.5	H2-1
36	58	L2x2x4	0.198	2.309	4	0.034	2.309	y	48	23.349	30.586	0.691	1.577	1.5	H2-1
37	59	L7.63x2.5x6	0.342	1.604	3	0.076	0	z	44	75.414	118.523	1.798	14.119	1.327	H2-1
38	68	L6.63x4.33x.25	0.215	3.25	2	0.023	3.25	y	13	51.794	86.751	2.311	6.976	1.5	H2-1
39	69	PIPE_3.5x0.165	0.076	3	2	0.048	4		8	45.872	71.57	6.336	6.336	1.799	H1-1b
40	72	PIPE_2.88x0.203	0.125	2.417	9	0.043	2.417		9	35.519	70.68	5.029	5.029	3	H1-1b
41	73	PIPE_2.88x0.203	0.143	5.667	2	0.041	2.417		13	35.519	70.68	5.029	5.029	3	H1-1b
42	76	PIPE_2.88x0.203	0.117	2.188	13	0.109	2.188		13	24.131	70.68	5.029	5.029	2.266	H1-1b
43	78	PIPE_2.88x0.203	0.118	2.417	9	0.032	5.667		13	35.519	70.68	5.029	5.029	3	H1-1b
44	80	PIPE_3.5x0.165	0.072	6.75	2	0.045	3		13	45.872	71.57	6.336	6.336	1.516	H1-1b
45	83	PIPE_2.88x0.203	0.13	2.417	13	0.045	2.417		13	35.519	70.68	5.029	5.029	3	H1-1b
46	84	PIPE_2.88x0.203	0.126	5.667	6	0.035	2.417		5	35.519	70.68	5.029	5.029	3	H1-1b
47	87	PIPE_2.88x0.203	0.123	7.813	9	0.132	8.646		9	24.131	70.68	5.029	5.029	2.478	H1-1b
48	89	PIPE_2.88x0.203	0.131	5.583	2	0.036	5.583		3	35.519	70.68	5.029	5.029	3	H1-1b

APPENDIX B

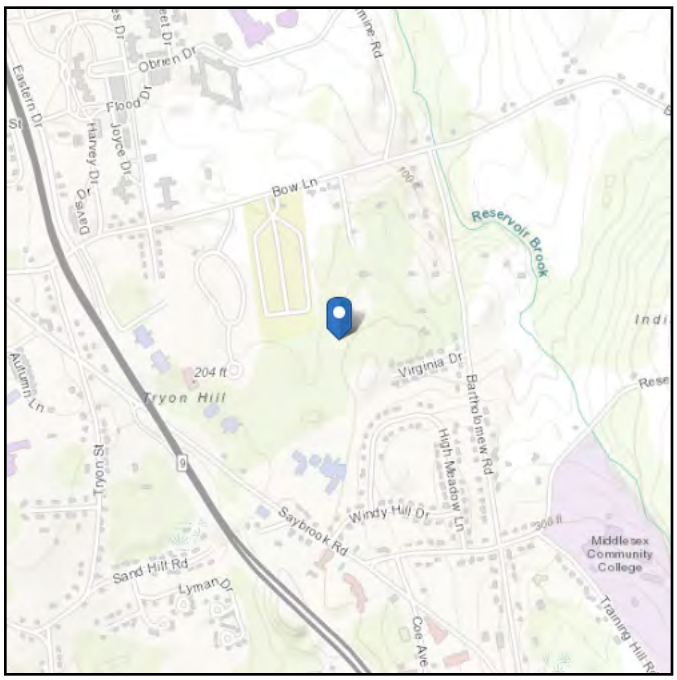
(Additional Calculations)

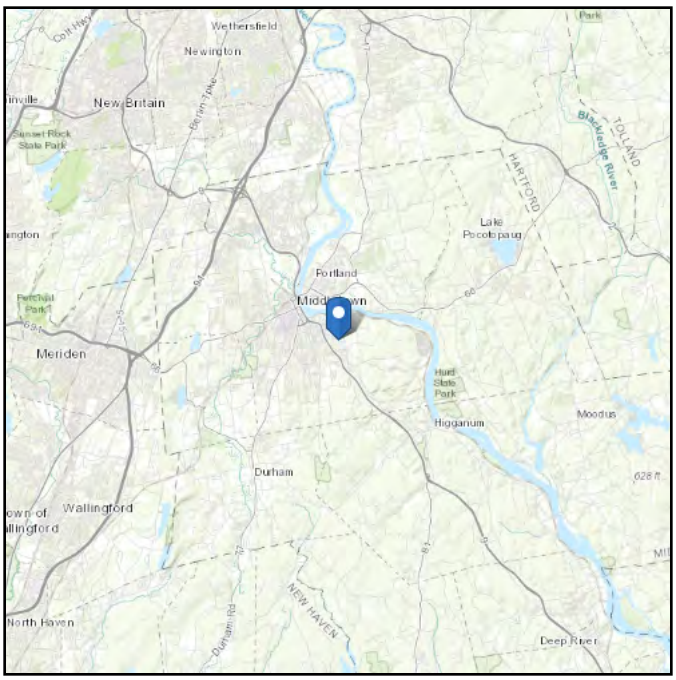
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 0 ft (NAVD 88)
Latitude: 41.545011
Longitude: -72.620767





Wind

Results:

Wind Speed	120 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	91 Vmph
100-year MRI	99 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: Thu Dec 16 2021

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

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

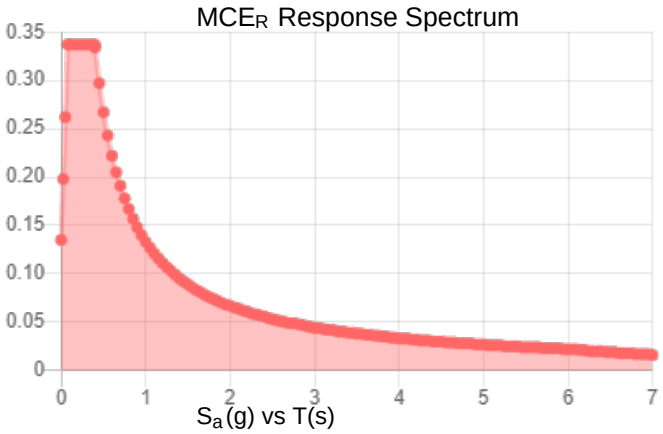
Seismic

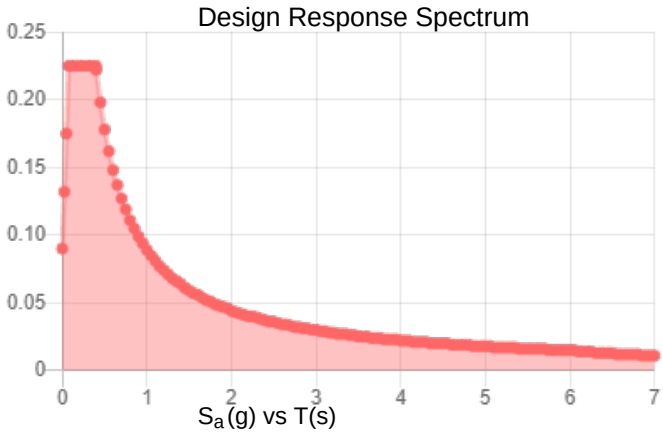
Site Soil Class: D - Default (see Section 11.4.3)

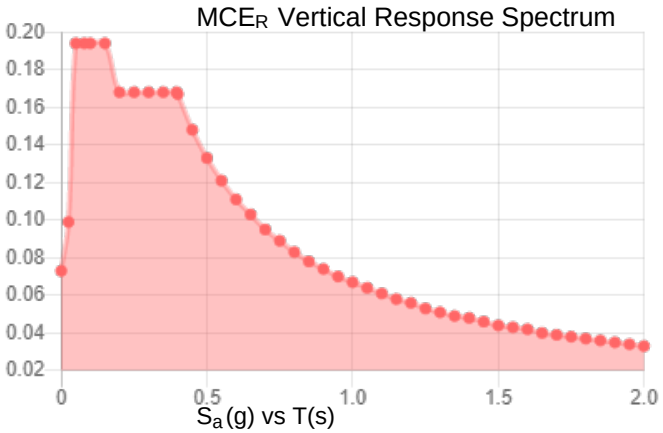
Results:

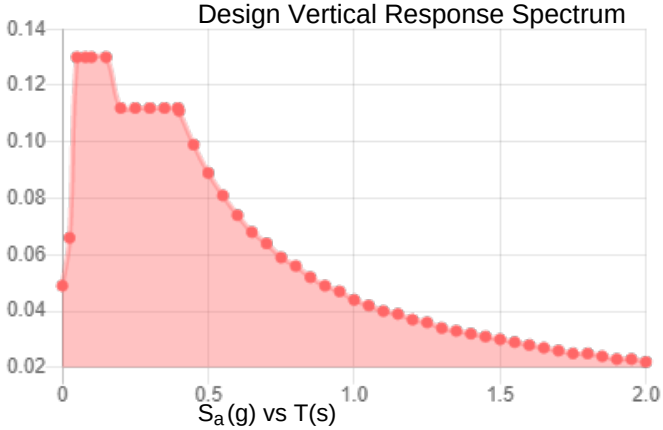
S_S :	0.211	S_{D1} :	0.089
S_1 :	0.056	T_L :	6
F_a :	1.6	PGA :	0.117
F_v :	2.4	PGA_M :	0.184
S_{MS} :	0.337	F_{PGA} :	1.565
S_{M1} :	0.133	I_e :	1
S_{DS} :	0.225	C_v :	0.721

Seismic Design Category B









Data Accessed: **Thu Dec 16 2021**

Date Source:

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

Ice

Results:

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

PROJECT	**101034.008.01 - Middletown 2 CT, CT KSC**				
SUBJECT	**Platform Mount Analysis**				
DATE	**12/19/21**	PAGE	1	OF	1

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

[REF: AISC 360-05]

Reactions at Bolted Connection

Tension	:	1.517	k
Vertical Shear	:	1.802	k
Horizontal Shear	:	1.302	k
Torsion	:	0.208	k.ft
Moment from Horizontal Forces	:	1.283	k.ft
Moment from Vertical Forces	:	0.709	k.ft

Bolt Parameters

Bolt Grade	:	A307	
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in^2
Bolt spacing, Horizontal	:	6	in
Bolt spacing, Vertical	:	6	in
Bolt edge distance, plate height	:	1.5	in
Bolt edge distance, plate width	:	1.5	in
Total Number of Bolts	:	4	bolts

Summary of Forces

Shear Resultant Force	:	2.22	k
Force from Horz. Moment	:	2.32	k
Force from Vert. Moment	:	1.28	k
Shear Load / Bolt	:	0.56	k
Tension Load / Bolt	:	0.38	k
Resultant from Moments / Bolt	:	1.33	k

Bolt Checks

Nominal Tensile Stress, F_{nt}	:	45.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	10.36	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	**16.47%**		**OKAY**
Nominal Shear Stress, F_{nv}	:	24.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	5.53	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	**16.92%**		**OKAY**
Unity Check, Combined	:	**33.39%**		**OKAY**
Available Bearing Strength, ΦR_n	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	**1.60%**		**OKAY**

PROJECT	**101034.008.01 - Middletown 2 CT, CT KSC**				
SUBJECT	**Platform Mount Analysis**				
DATE	**12/19/21**	PAGE	1	OF	1

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

[REF: AISC 360-05]

Connecting Member Parameters

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

Plate Check

Available Tensile Yield	:	145.80	k	[Eq. J4-1]
Available Tensile Rupture	:	180.80	k	[Eq. J4-2]
Unity Check, Plate Tension	:	**1.17%**		**OKAY**
Available Shear Yield	:	16.20	k	[Eq. J4-3]
Available Shear Rupture	:	104.40	k	[Eq. J4-4]
Unity Check, Plate Shear	:	**13.72%**		**OKAY**
Available Block Shear, ΦRn	:	77.40	k	[Eq. J4-5]
Unity Check, Block Shear	:	**2.87%**		**OKAY**

EXHIBIT 11

Construction Drawings

DISH Wireless L.L.C. SITE ID:

BOBDL00217A

DISH Wireless L.L.C. SITE ADDRESS:

67 FAIRCHILD ROAD
MIDDLETOWN, CT 06457

CONNECTICUT CODE OF COMPLIANCE

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

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

SHEET INDEX

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

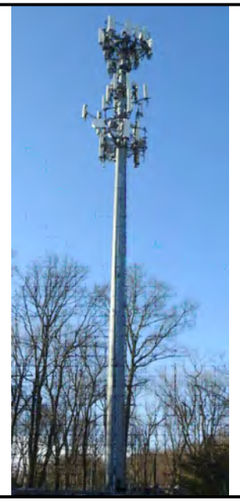
SCOPE OF WORK

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 TOWER MODIFICATIONS PER MOD DESIGN DRAWINGS BY TES DATED 2/14/22
- 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 PHOTO



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

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

GENERAL NOTES

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

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

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

SITE INFORMATION

PROPERTY OWNER:	BORRELLI STEPHEN G & BARBARA L
ADDRESS:	67 FAIRCHILD RD MIDDLETOWN, CT 06457
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	CT13064-A
TOWER APP NUMBER:	182004
COUNTY:	MIDDLESEX
LATITUDE (NAD 83):	41° 32' 42.0" N 41.545011
LONGITUDE (NAD 83):	72° 37' 14.8" W -72.620767
ZONING JURISDICTION:	CONNECTICUT SITTING COUNCIL
ZONING DISTRICT:	RESIDENTIAL
PARCEL NUMBER:	42-0118
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	CL&P
TELEPHONE COMPANY:	T.B.D.

PROJECT DIRECTORY

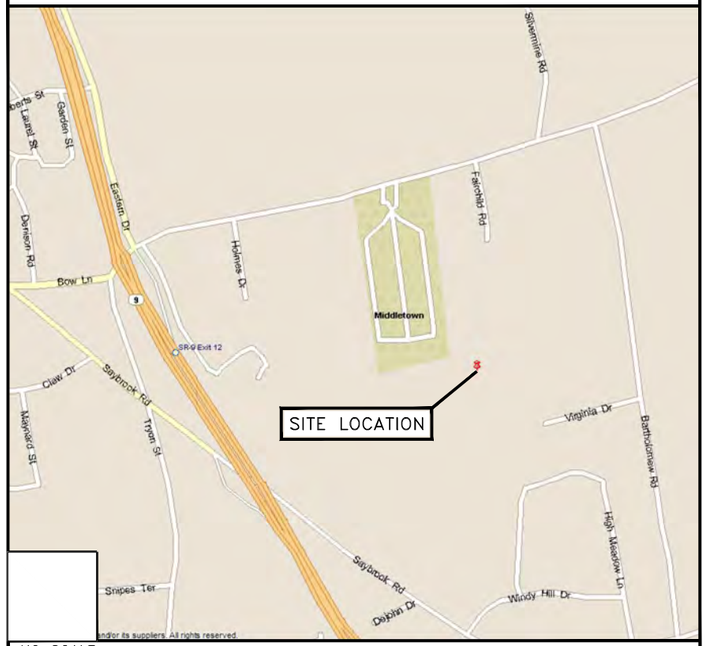
APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	SBA COMMUNICATAIONS CORP. 8051 CONGRESS AVENUE BOCA RATON, FL 33487 (800) 487-7483
SITE DESIGNER:	B+T GROUP 1717 S. BOULDER AVE, SUITE 300 TULSA, OK 74119 (918) 587-4630
SITE ACQUISITION:	T.B.D.
CONST. MANAGER:	T.B.D.
RF ENGINEER:	T.B.D.

DIRECTIONS

DIRECTIONS FROM ROBERTSON AIRPORT:

GET ON CT-72 E FROM JOHNSON AVE AND CT-177 S, HEAD NORTH, TURN LEFT ONTO JOHNSON AVE. TURN LEFT ONTO CT-177 S, TURN LEFT TO MERGE WITH CT-72 E TOWARD I-84/NEW BRITAIN. CONTINUE ON CT-72 E. TAKE CT-9 S TO SILVER ST IN MIDDLETOWN. TAKE EXIT 12 FROM CT-9 S, MERGE WITH CT-72 E, TAKE THE EXIT ON THE LEFT ONTO CT-72 E/I-84 E TOWARD NEW BRITAIN/HARTFORD. TAKE EXIT 35 ON THE LEFT FOR CT-72 E TOWARD CT-9/NEW BRITAIN. CONTINUE ONTO CT-72 E, TAKE THE EXIT ONTO CT-9 S TOWARD MIDDLETOWN. KEEP LEFT TO STAY ON CT-9 S, TAKE EXIT 12 FOR SILVER STREET. TAKE EASTERN DR, BOW LN AND BARTHOLOMEW RD TO VIRGINIA DR, TURN LEFT ONTO SILVER ST. TURN RIGHT AT THE 1ST CROSS STREET ONTO EASTERN DR, TURN LEFT AT THE 2ND CROSS STREET ONTO BOW LN. TURN RIGHT ONTO BARTHOLOMEW RD. TURN RIGHT ONTO VIRGINIA DR, ARRIVE AT BOBDL00217A.

VICINITY MAP



NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

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

STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
3/7/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
SM	MRE	MRE

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	12/17/21	ISSUED FOR REVIEW
0	1/20/22	ISSUED FOR CONSTRUCTION
1	3/7/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

SITE_ID

DISH Wireless L.L.C.
PROJECT INFORMATION

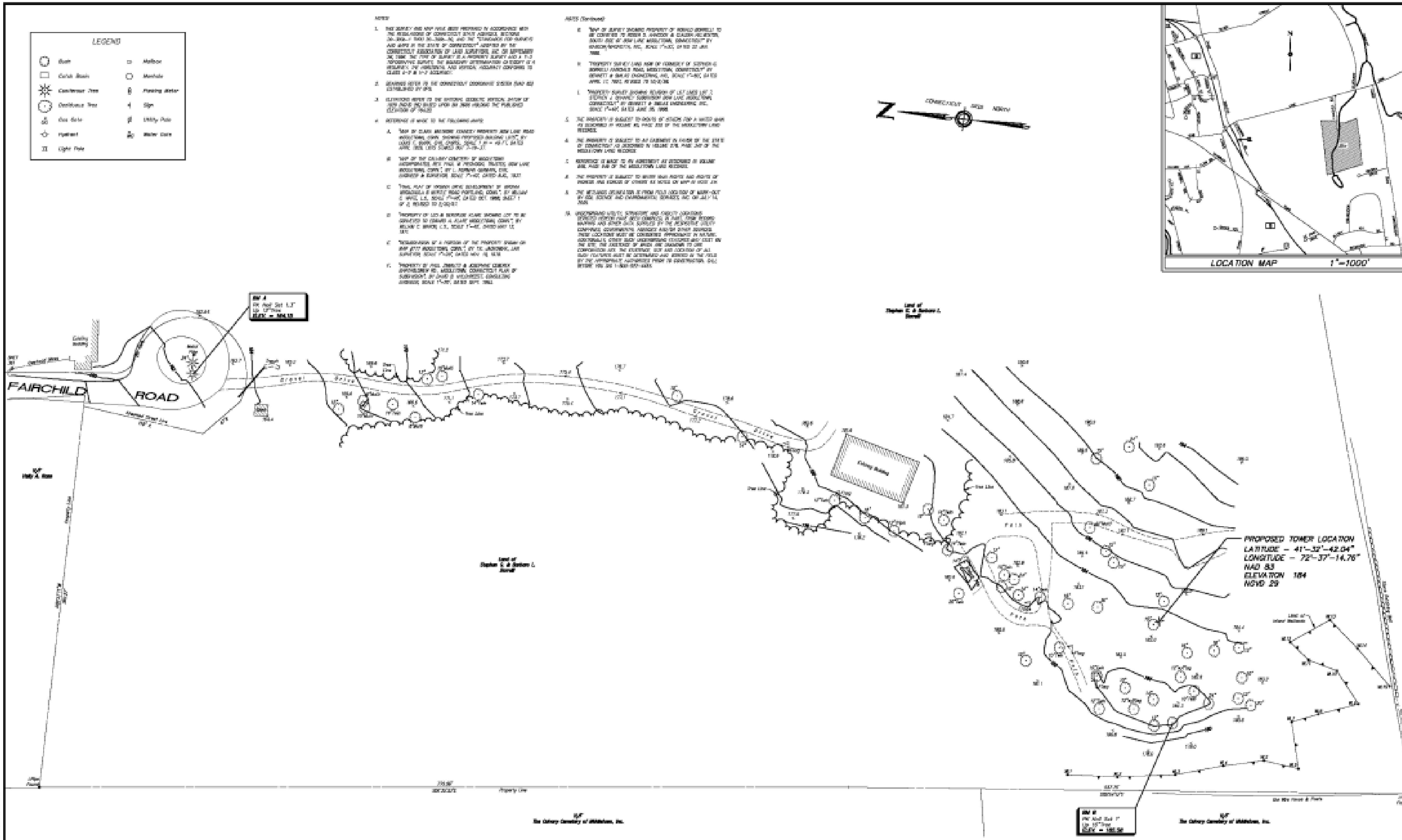
BOBDL00217A
67 FAIRCHILD ROAD
MIDDLETOWN, CT 06457

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1



IMPROVEMENT LOCATION & TOPOGRAPHIC SURVEY
LAND OF
STEPHEN G. & BARBARA L. BORRELLI
FAIRCHILD ROAD
MIDDLETOWN, CONNECTICUT
PREPARED FOR
OPTASITE

GRAPHIC SCALE 1" = 40'

TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON

MICHAEL G. WILKES, L.S. LICENSE NO. 11206

TRUE AND VALID COPIES OF THIS MAP OR PLAN MUST BEAR THE ORIGINAL SIGNATURE AND EMBOSSED SEAL OF THE ABOVE NAMED LAND SURVEYOR. UNAUTHORIZED REPRODUCTION OR ALTERATION IS FORBIDDEN.

Embossed seal

URS

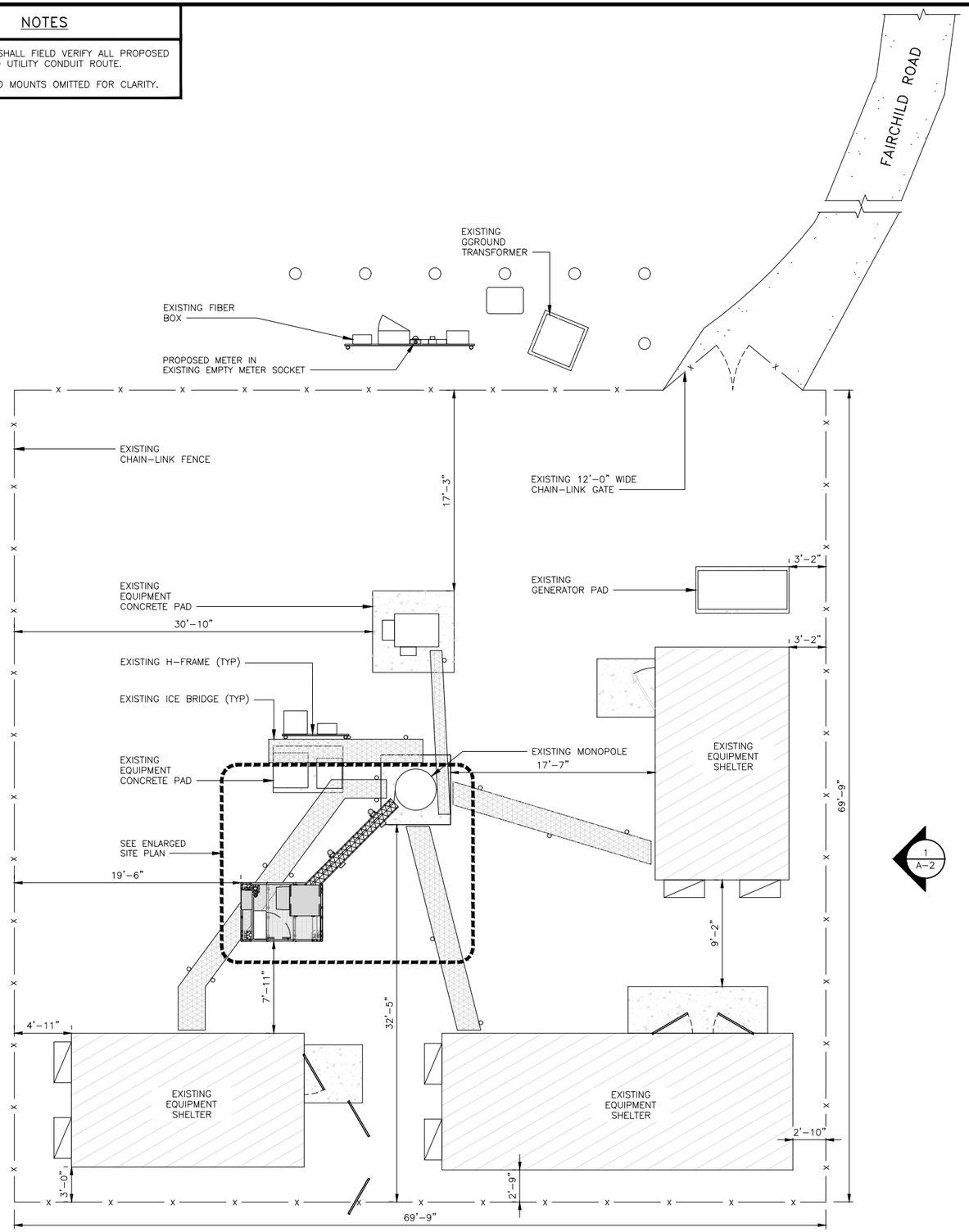
Scale: 1" = 40'
Date: AUGUST 2005

Surveying and Mapping by:
URS Corporation AES
500 Enterprise Drive, Suite 3B
Rocky Hill, Connecticut 06067-4000
Tel. (860) 529-8882

Field book #	Crew Chief	Project #	
1623-18	J.H.	36915384	
Search #	Drawn by	Checked by	Map File #
4107	K.C.		T153-17

NOTES

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



1 A-2

N

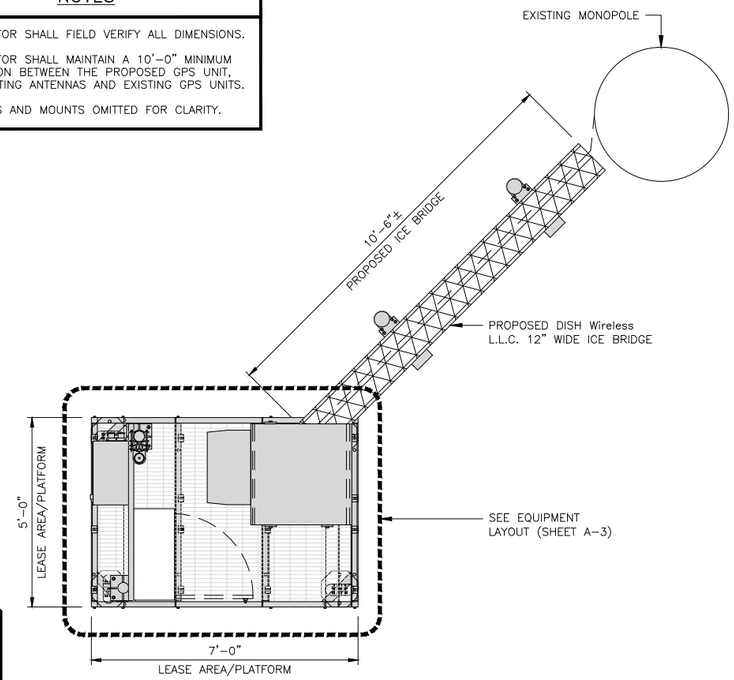
OVERALL SITE PLAN

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

1

NOTES

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



N

ENLARGED SITE PLAN

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

2

NOT USED

NO SCALE

3

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No. 23924
LICENSED
PROFESSIONAL ENGINEER
3/7/22

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PEC.0001564
Expires 2/1/23

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SM	MRE	MRE

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	12/17/21	ISSUED FOR REVIEW
0	1/20/22	ISSUED FOR CONSTRUCTION
1	3/7/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

SITE_ID

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00217A
67 FAIRCHILD ROAD
MIDDLETOWN, CT 06457

SHEET TITLE

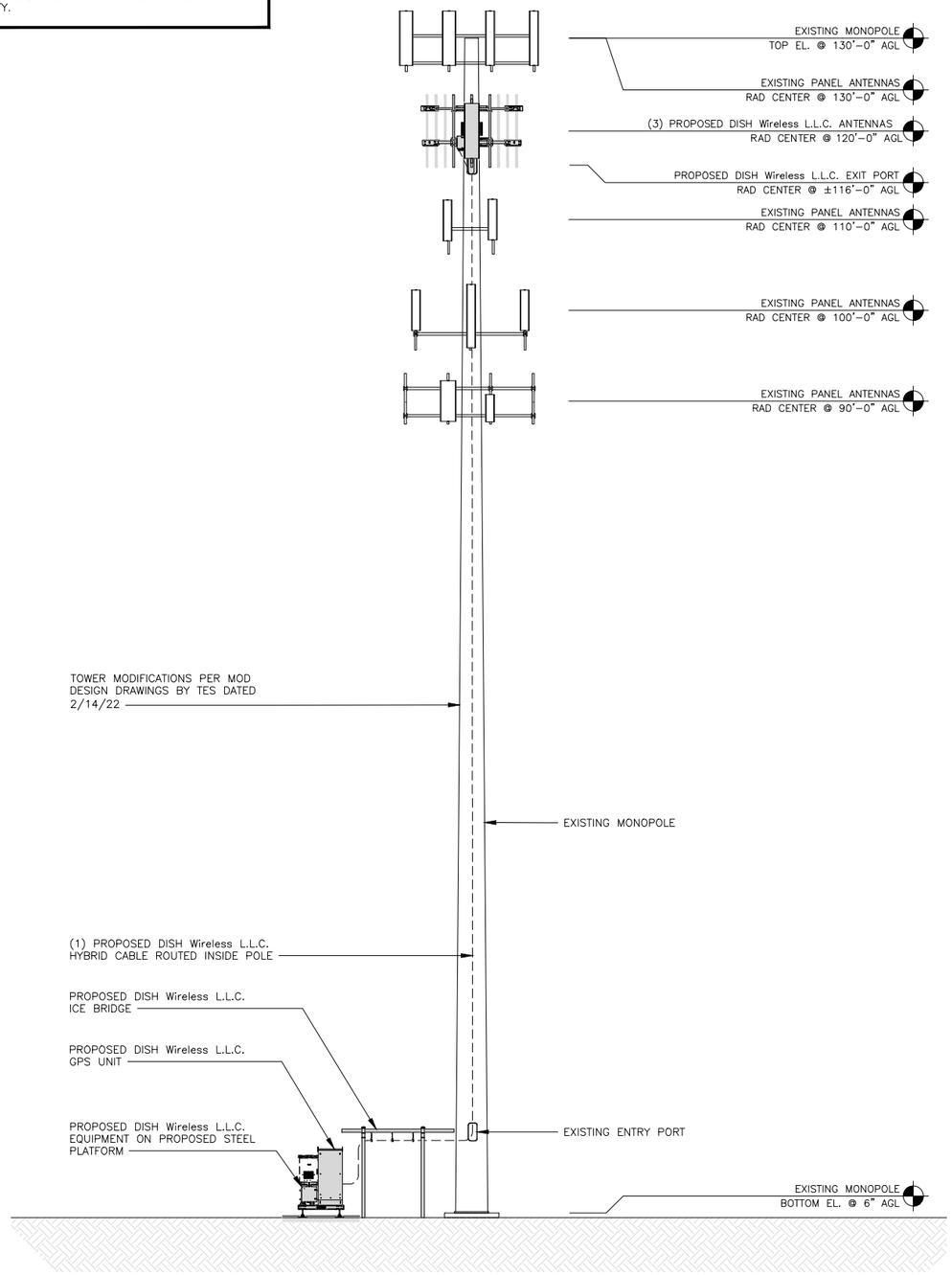
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

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



PROPOSED EAST ELEVATION

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

1

N

ANTENNA LAYOUT

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

2

SECTOR POS.	ANTENNA					TRANSMISSION CABLE	RRH			OVP
	EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECH	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH	MANUFACTURER – MODEL NUMBER	TECH	POS.	MANUFACTURER MODEL
A1	--	--	--	--	--	(1) HIGH-CAPACITY HYBRID CABLE (155' LONG)	FUJITSU – TA08025-B605	5G	A2	RAYCAP RDIDC-9181-PF-48
A2	PROPOSED	JMA WIRELESS-MX08FRO665-21	5G	10°	120-0"		FUJITSU – TA08025-B605	5G	A2	
A3	--	--	--	--	--		--	--	--	
B1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU – TA08025-B605	5G	B2	SHARED W/ALPHA
B2	PROPOSED	JMA WIRELESS-MX08FRO665-21	5G	150°	120-0"		FUJITSU – TA08025-B605	5G	B2	
B3	--	--	--	--	--		--	--	--	
G1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU – TA08025-B605	5G	C2	SHARED W/ALPHA
G2	PROPOSED	JMA WIRELESS-MX08FRO665-21	5G	270°	120-0"		FUJITSU – TA08025-B605	5G	C2	
G3	--	--	--	--	--		--	--	--	

NOTES

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

ANTENNA SCHEDULE

NO SCALE

3

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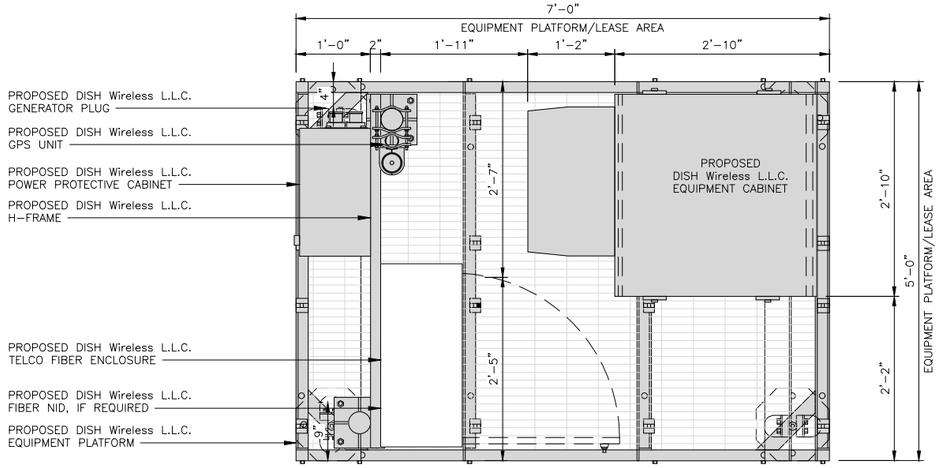
MIDDLETOWN, CT 06457

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



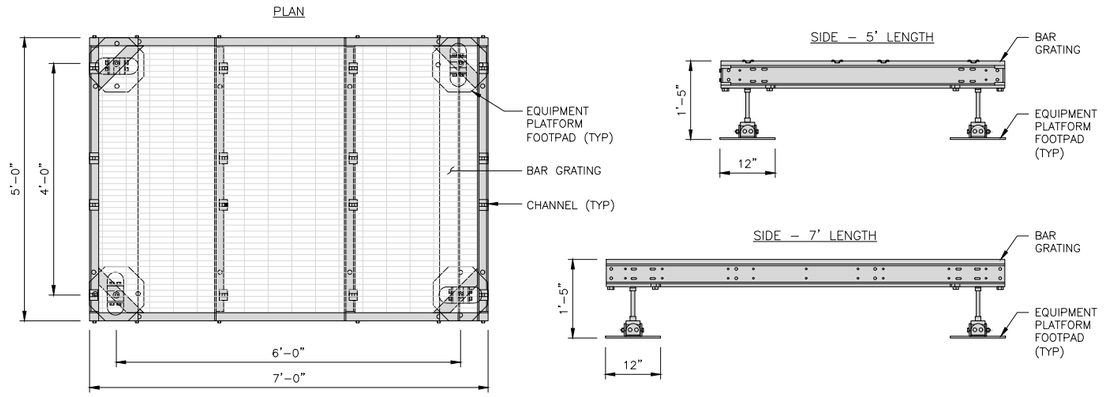
PLATFORM EQUIPMENT PLAN

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

1

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

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

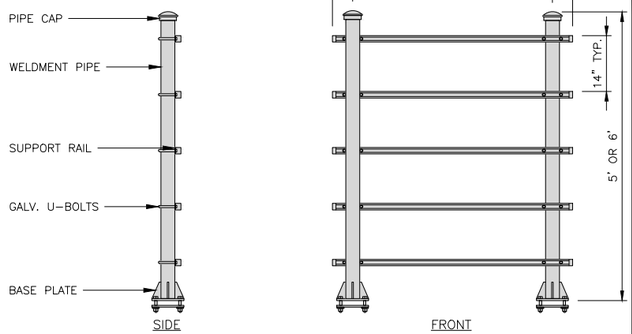


PLATFORM DETAIL

NO SCALE

2

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



H-FRAME DETAIL

NO SCALE

3

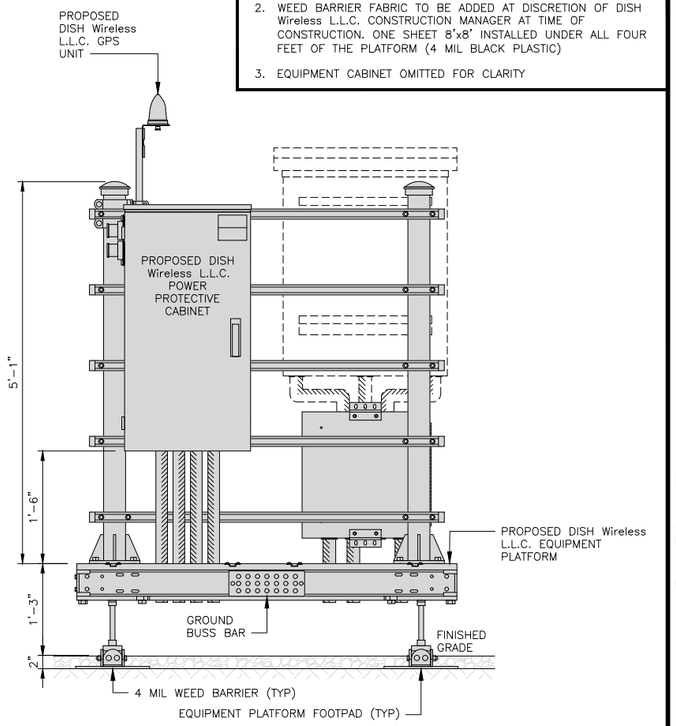
NOT USED

NO SCALE

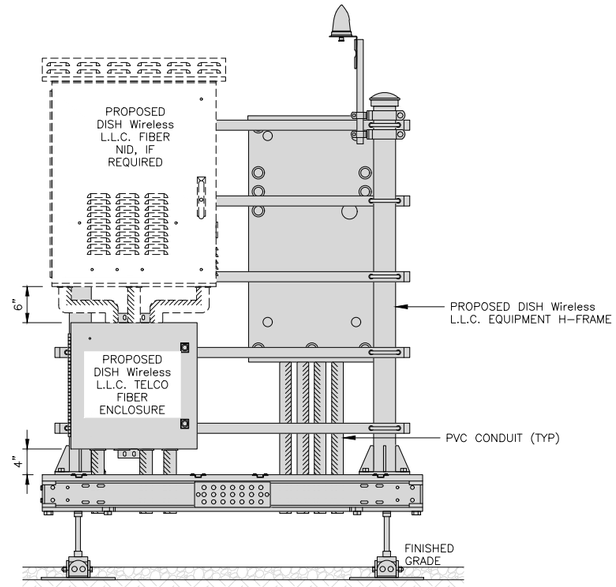
4

NOTES

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



FRONT ELEVATION



BACK ELEVATION

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

5

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67 FAIRCHILD ROAD
MIDDLETOWN, CT 06457

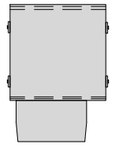
SHEET TITLE

EQUIPMENT PLATFORM AND H-FRAME DETAILS

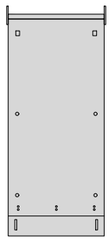
SHEET NUMBER

A-3

CHARLES INDUSTRY HEX CUBE–PM639155N4	
DIMENSIONS (HxWxD)	74"x32"x32"
POWER PLANT	–48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	408 lbs



PLAN



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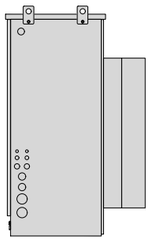
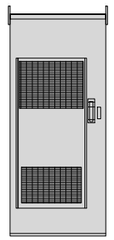


SIDE

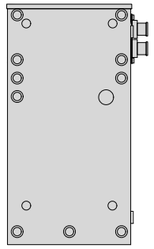


FRONT

CABINET DETAIL | NO SCALE | 1

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

TOP



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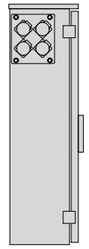
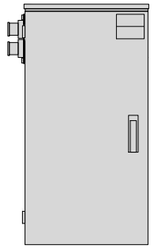


SIDE



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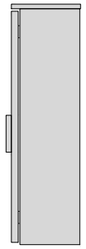


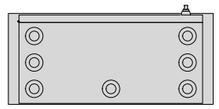
SIDE

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

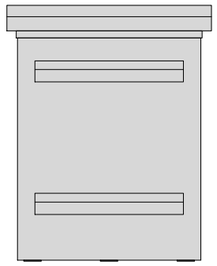
NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

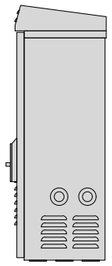
ZAYO 5RU (LEFT SWING DOOR) FIBER NID ENCLOSURE	
DIMENSIONS (HxWxD)	36.1"x29"x12.9"
WEIGHT	85 lbs



BOTTOM



BACK



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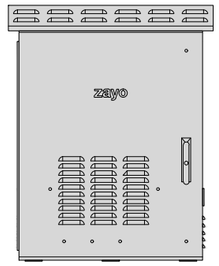
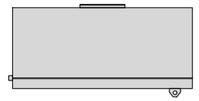


FRONT

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



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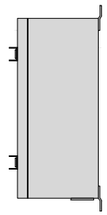

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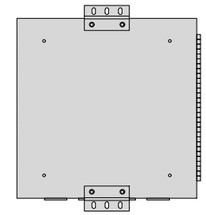

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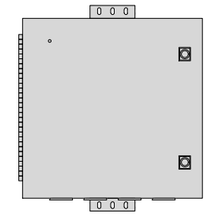
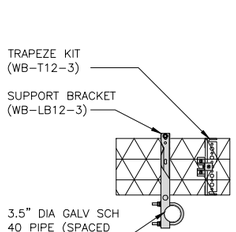


FRONT

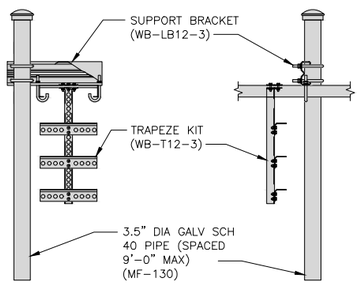
FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

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

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

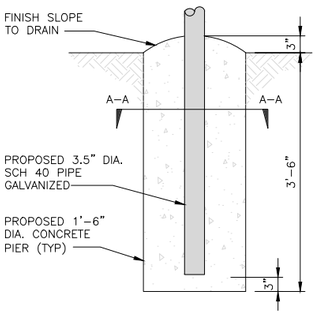


PLAN

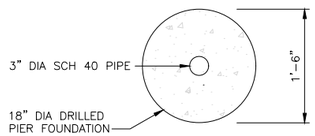


FRONT SIDE

ICE BRIDGE DETAIL | NO SCALE | 7

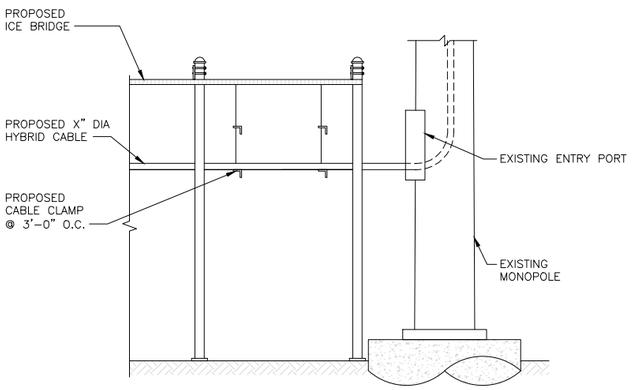


CONCRETE PIER



A–A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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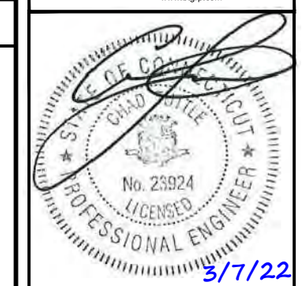

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MIDDLETOWN, CT 06457

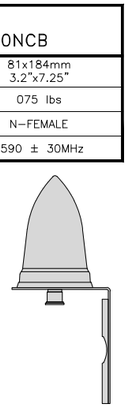
SHEET TITLE

EQUIPMENT DETAILS

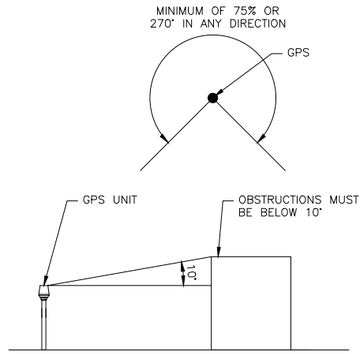
SHEET NUMBER

A-4

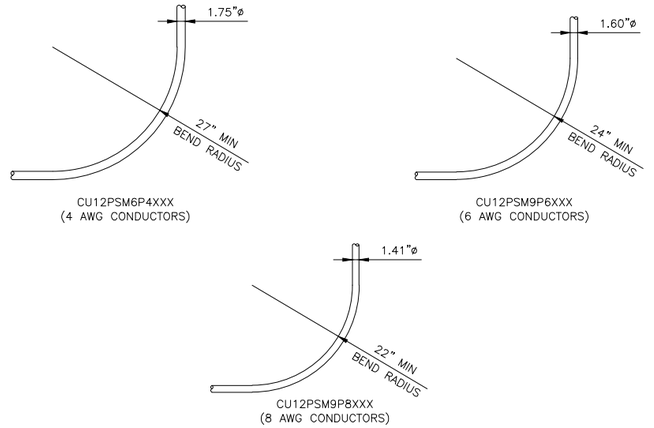
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



GPS DETAIL | NO SCALE | 1



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 2



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

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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REV	DATE	DESCRIPTION
A	12/17/21	ISSUED FOR REVIEW
0	1/20/22	ISSUED FOR CONSTRUCTION
1	3/7/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

SITE_ID

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00217A
67 FAIRCHILD ROAD
MIDDLETOWN, CT 06457

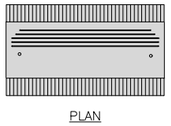
SHEET TITLE

EQUIPMENT DETAILS

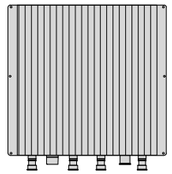
SHEET NUMBER

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



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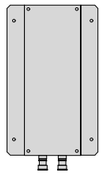

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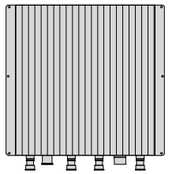
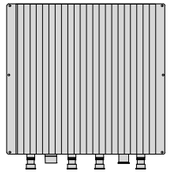


FRONT

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



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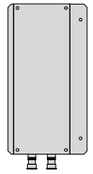

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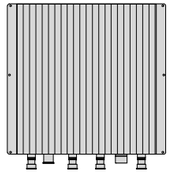
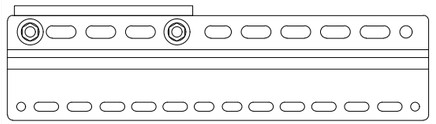


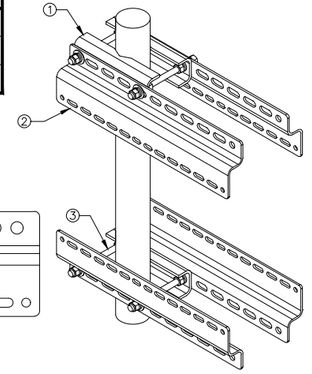
FRONT

RRH DETAIL | NO SCALE | 2

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

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

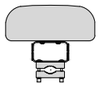




NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

RRH MOUNT DETAIL | NO SCALE | 3

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



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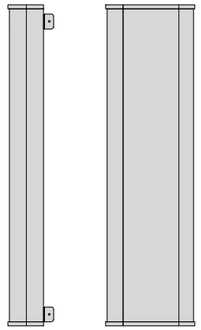


SIDE

FRONT

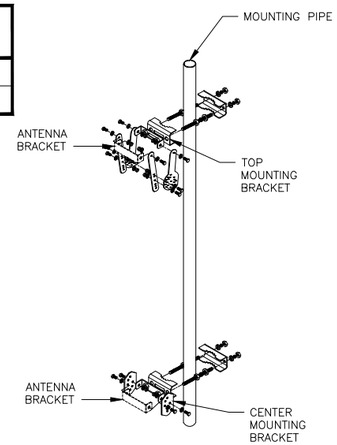
ANTENNA DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

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

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

ANTENNA BRACKET NOT PART OF KIT

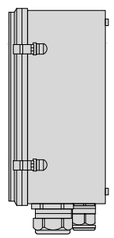


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

ANTENNA BRACKET DETAIL | NO SCALE | 6

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

PLAN



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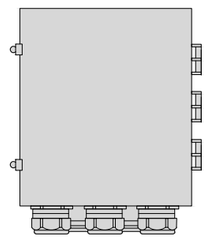

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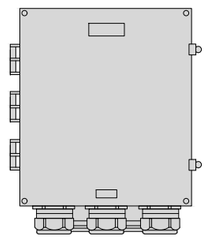
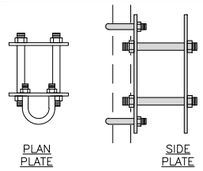


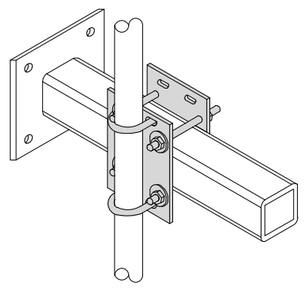
FRONT

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

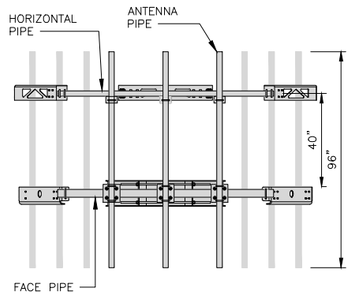


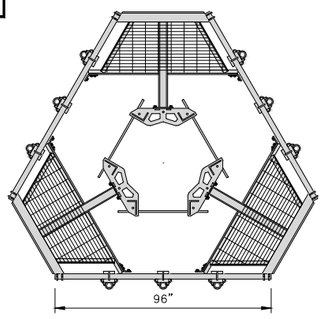


RRH/OVP MOUNT DETAIL | NO SCALE | 8

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

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





ANTENNA PLATFORM DETAIL | NO SCALE | 9

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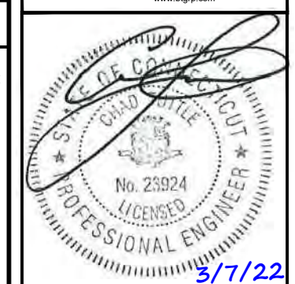

3/7/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
SM	MRE	MRE

RFDS REV #: N/A

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00217A
67 FAIRCHILD ROAD
MIDDLETOWN, CT 06457

SHEET TITLE

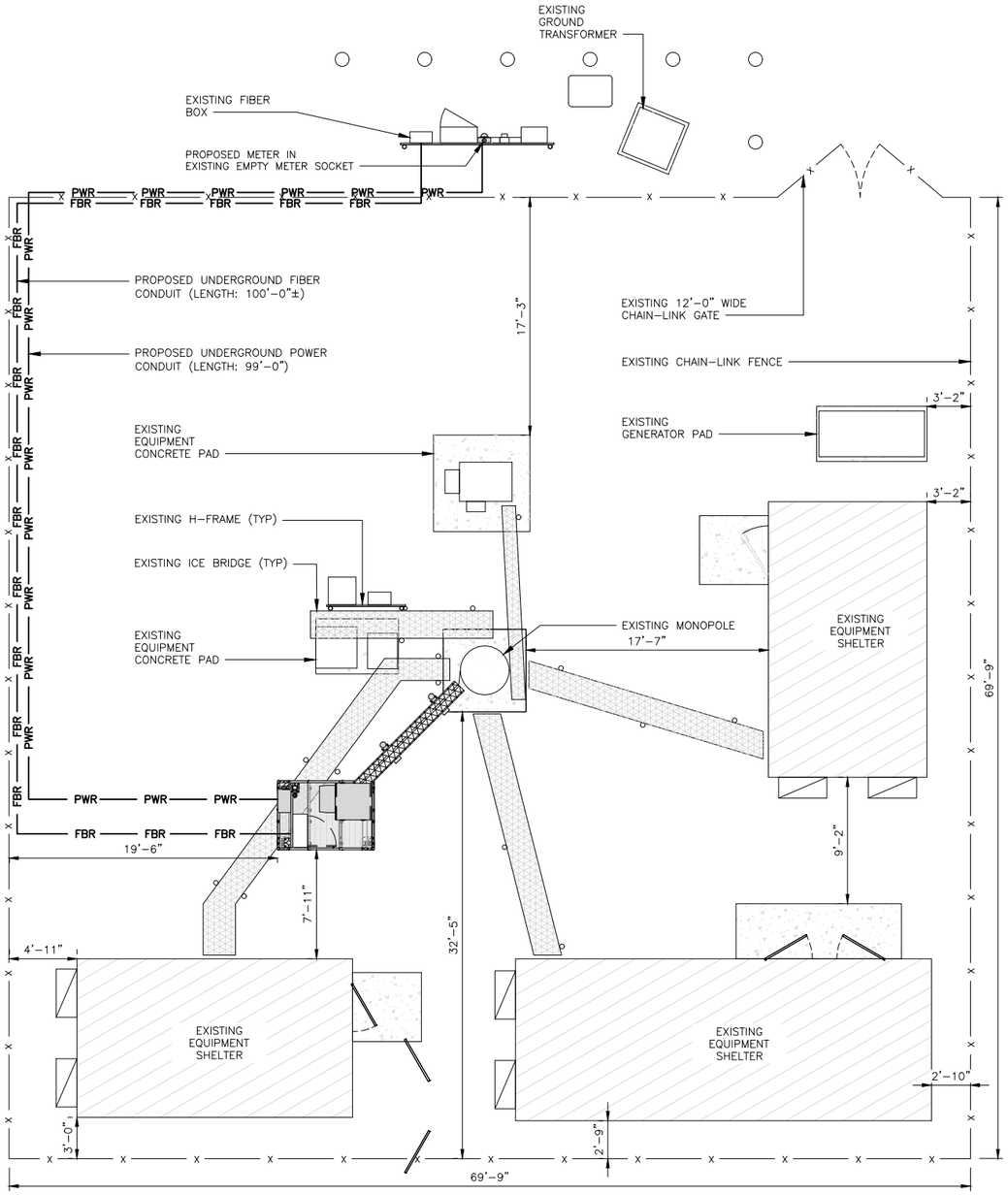
EQUIPMENT DETAILS

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

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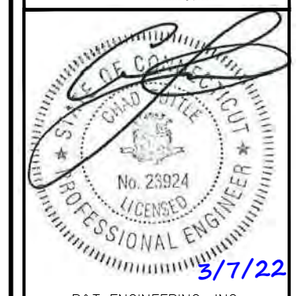

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SHEET TITLE

ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER

E-1

UTILITY ROUTE PLAN

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

1

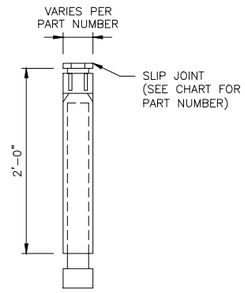
ELECTRICAL NOTES

NO SCALE

2

CARLON EXPANSION FITTINGS

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

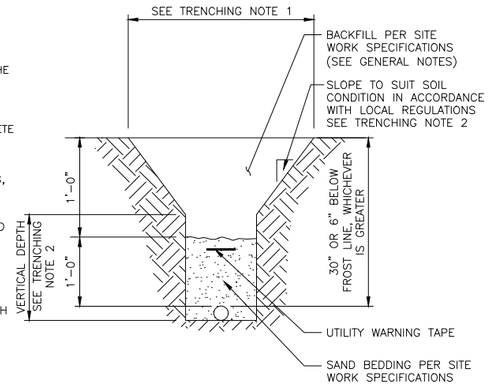


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

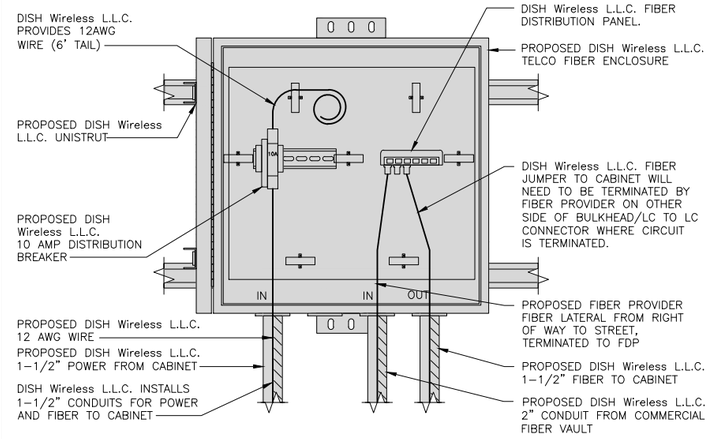
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

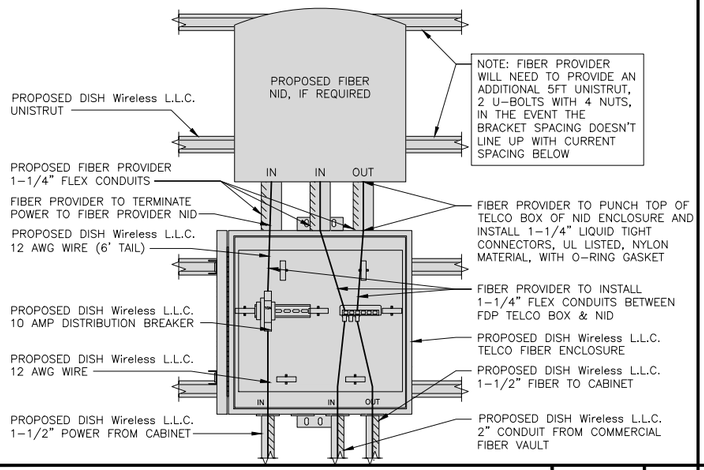
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT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



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2



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



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

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

DISH Wireless L.L.C. TEMPLATE VERSION 45 – 10/08/2021

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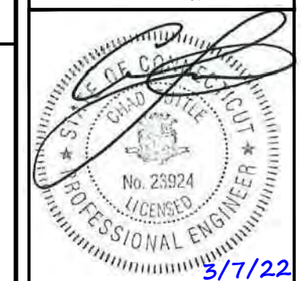

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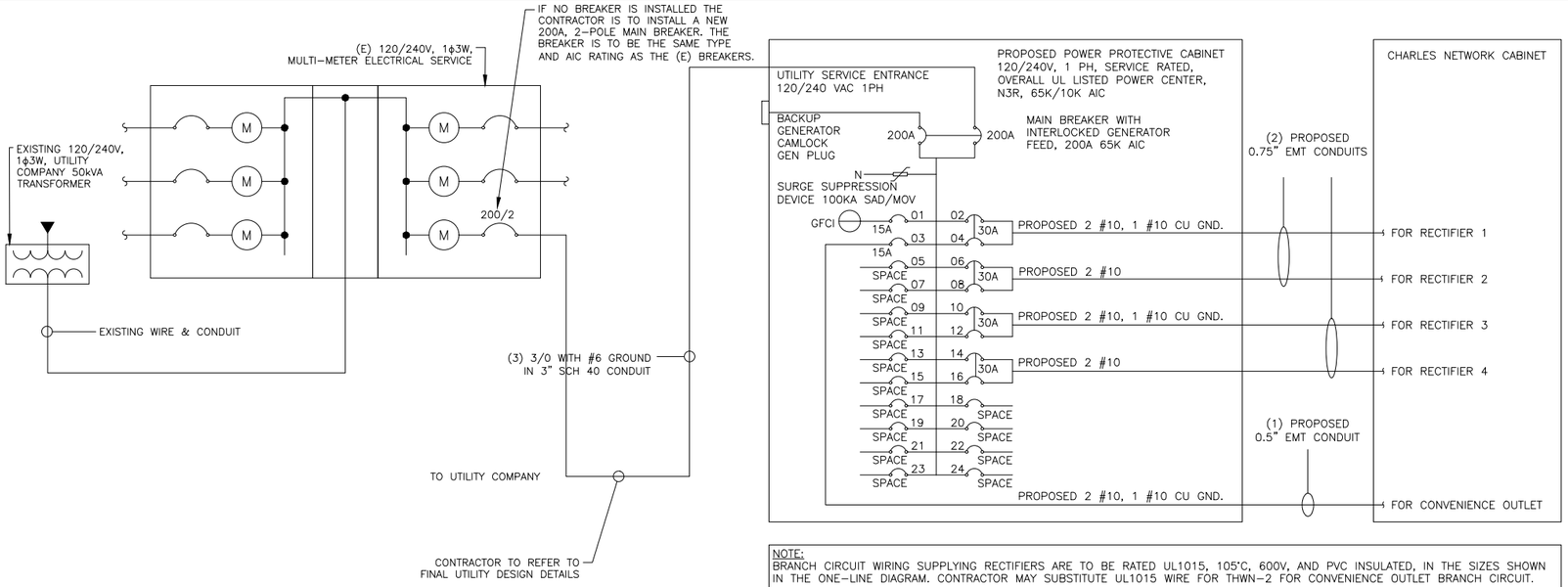
SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

E-2



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

BREAKERS REQUIRED:
(4) 30A, 2P BREAKER - SQUARE D P/N:QO230
(1) 15A, 1P BREAKER - SQUARE D P/N:QO115

NOTES

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

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

THE (2) CONDUITS WITH (4) CURRENT CARRYING CONDUCTORS EACH, SHALL APPLY THE ADJUSTMENT FACTOR OF 80% PER 2014/17 NEC TABLE 310.15(B)(3)(a) OR 2020 NEC TABLE 310.15(C)(1) FOR UL1015 WIRE.

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

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

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

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

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

RECTIFIER CONDUCTORS (2 CONDUITS): USING UL1015, CU.

#10 - 0.0266 SQ. IN X 4 = 0.1064 SQ. IN
#10 - 0.0082 SQ. IN X 1 = 0.0082 SQ. IN <BARE GROUND
TOTAL = 0.1146 SQ. IN

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

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

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

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

PPC ONE-LINE DIAGRAM

NO SCALE | 1

PROPOSED CHARLES PANEL SCHEDULE

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

PANEL SCHEDULE

NO SCALE | 2

NOT USED

NO SCALE | 3

DISH Wireless L.L.C. TEMPLATE VERSION 45 - 10/08/2021

101034.006.01_Middletown 2 CT.dwg - Sheet:E-3 - User: mitch.elmore - Mar 07, 2022 - 1:27pm

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3/7/22

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Expires 2/1/23

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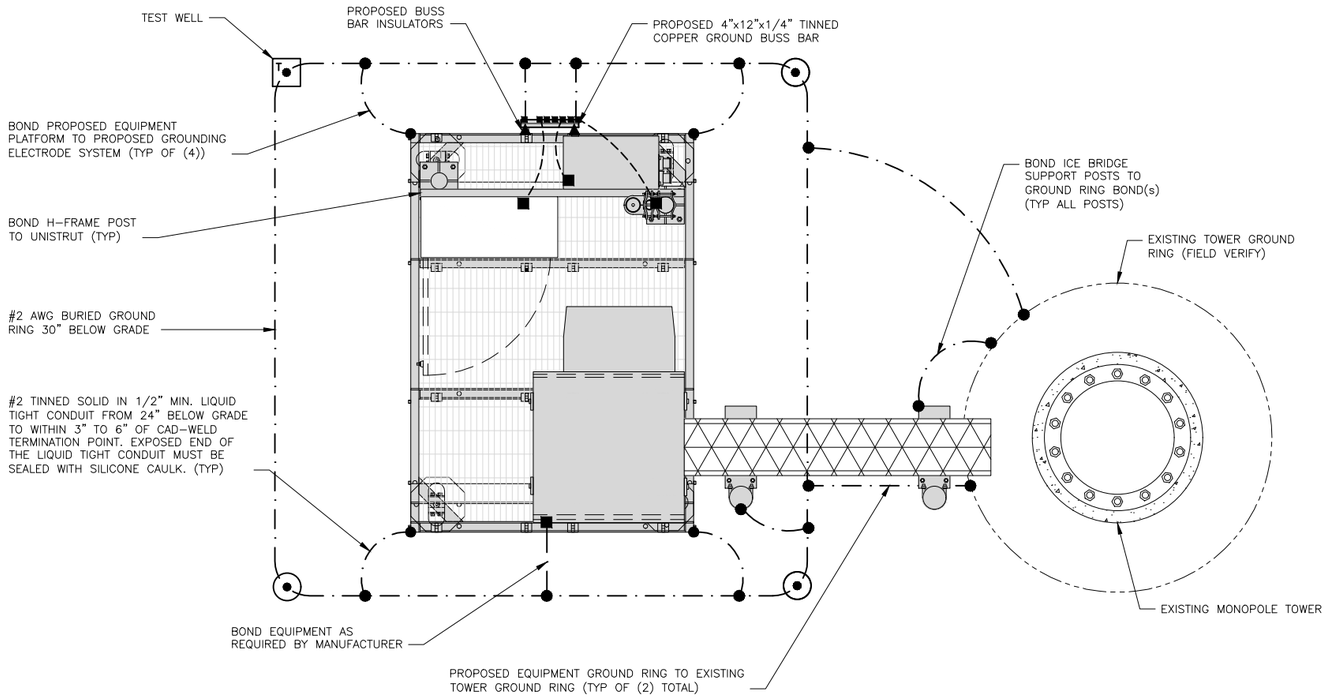
A&E PROJECT NUMBER
SITE_ID

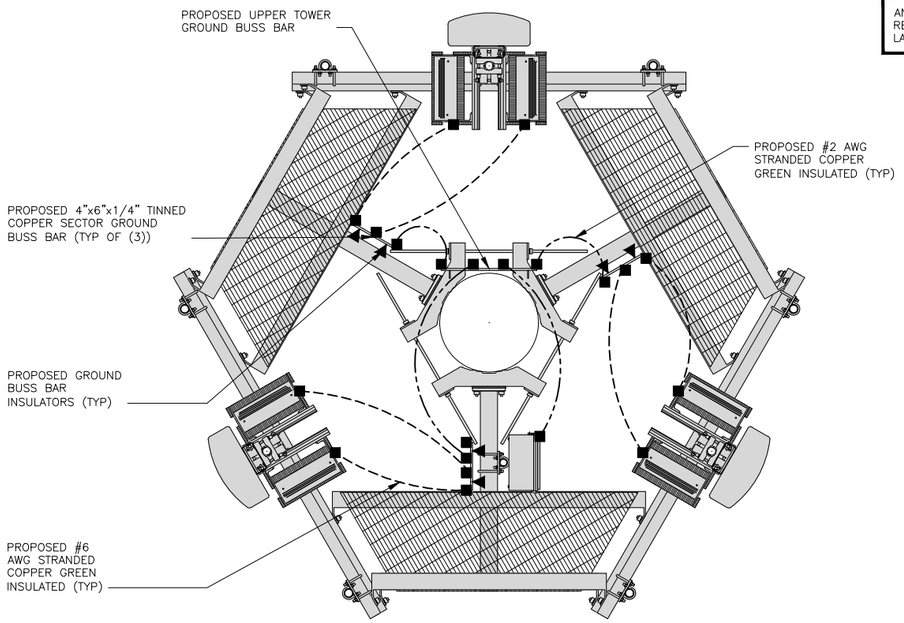
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00217A
67 FAIRCHILD ROAD
MIDDLETOWN, CT 06457

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

SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN | NO SCALE | 1



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2

NOTES

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

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GROUNDING KEY NOTES | NO SCALE | 3

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00217A
67 FAIRCHILD ROAD
MIDDLETOWN, CT 06457

SHEET TITLE

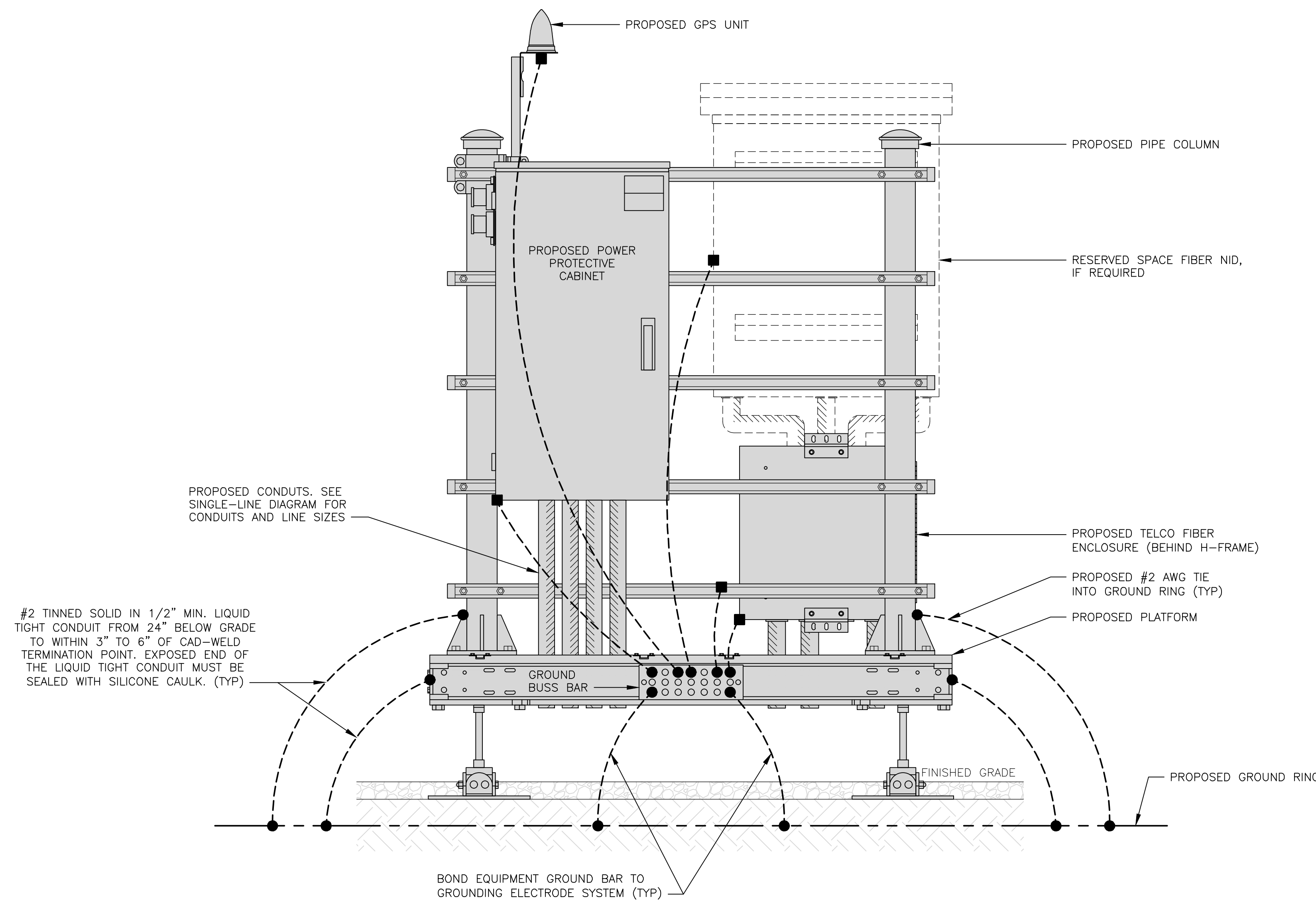
GROUNDING PLANS AND NOTES

SHEET NUMBER

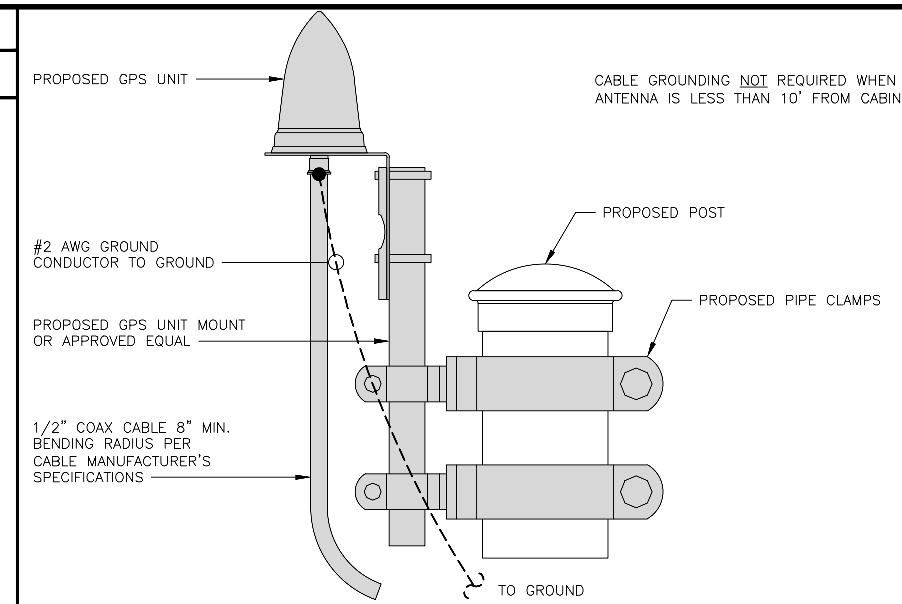
G-1

NOTES

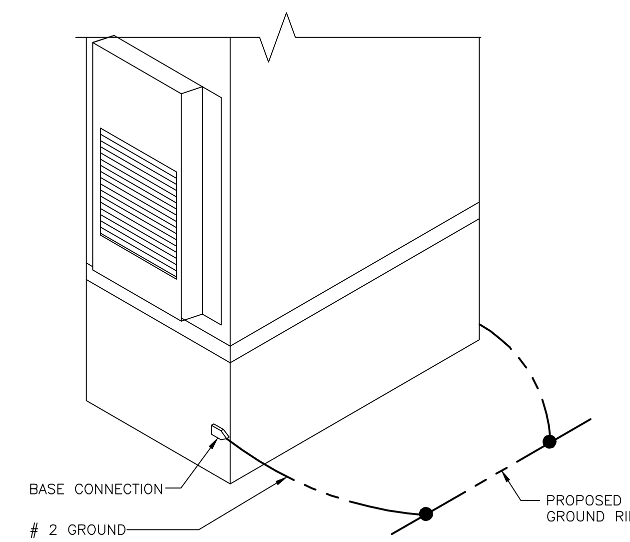
EQUIPMENT CABINET OMITTED FOR CLARITY



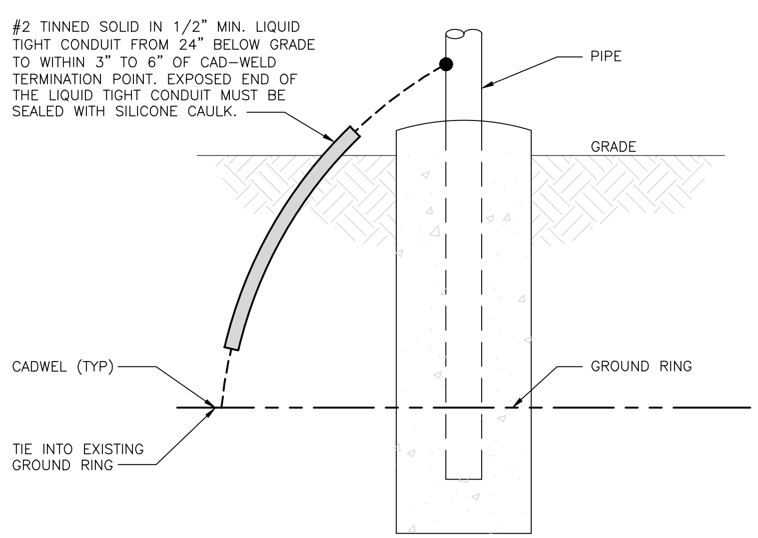
H-FRAME GROUNDING DETAIL — NO SCALE — 1



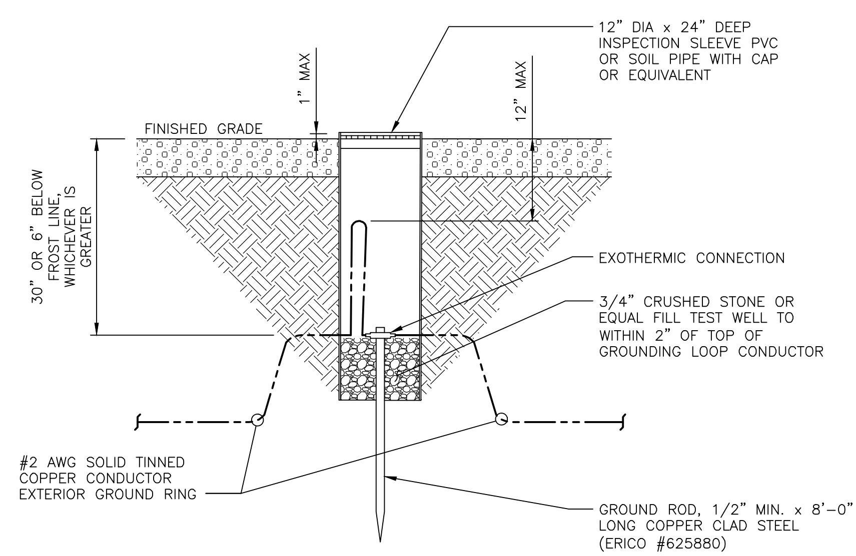
TYPICAL GPS UNIT GROUNDING — NO SCALE — 2



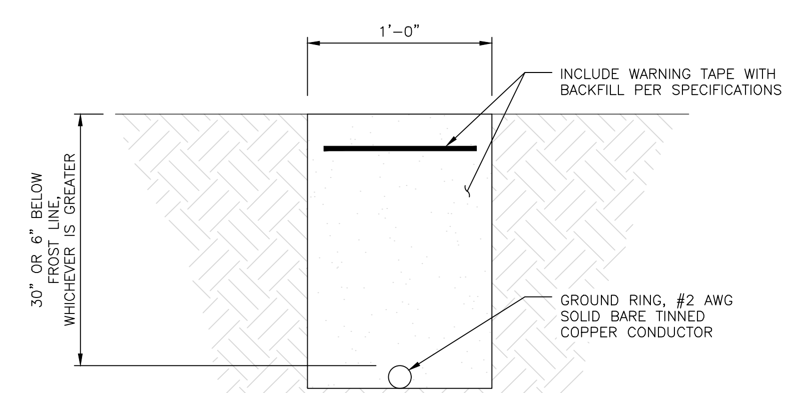
OUTDOOR CABINET GROUNDING — NO SCALE — 3



TRANSITIONING GROUND DETAIL — NO SCALE — 4



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



TYPICAL GROUND RING TRENCH — NO SCALE — 6

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67 FAIRCHILD ROAD
MIDDLETOWN, CT 06457

SHEET TITLE

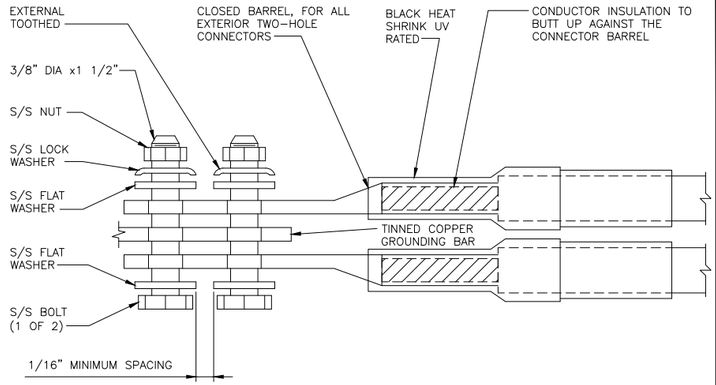
GROUNDING DETAILS

SHEET NUMBER

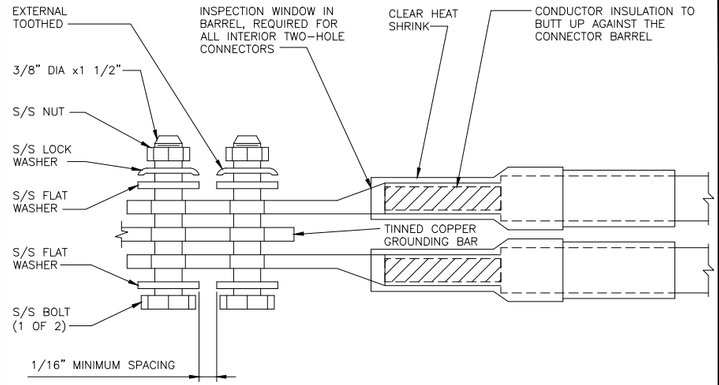
G-2

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

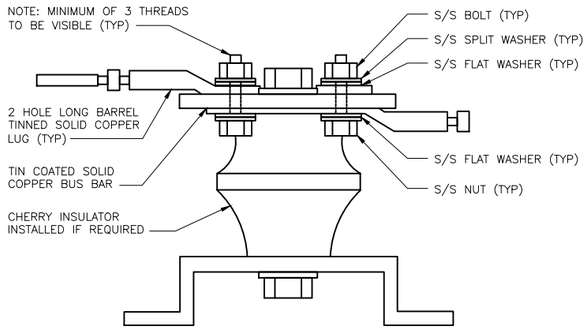
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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67 FAIRCHILD ROAD
MIDDLETOWN, CT 06457

SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

G-3

HYBRID/DISCREET CABLES — 3/4" TAPE WIDTHS WITH 3/4" SPACING

	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
LOW–BAND RRH (600 MHz N71 BASEBAND) + (850 MHz N26 BAND) + (700 MHz N29 BAND) – OPTIONAL PER MARKET. ADD FREQUENCY COLOR TO SECTOR BAND (CBRS WILL USE YELLOW BAND)	RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN
	ORANGE	ORANGE	RED	RED	ORANGE	ORANGE	BLUE	BLUE	ORANGE	ORANGE	GREEN	GREEN
		WHITE (–) PORT	ORANGE	ORANGE		WHITE (–) PORT	ORANGE	ORANGE		WHITE (–) PORT	ORANGE	ORANGE
				WHITE (–) PORT				WHITE (–) PORT				WHITE (–) PORT
MID–BAND RRH (AWS BANDS N66+N70). ADD FREQUENCY COLOR TO SECTOR BAND (CBRS WILL USE YELLOW BANDS)	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

HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.

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

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

EXAMPLE 3 – MAIN COAX WITH GROUND MOUNTED RRHs.

EXAMPLE 1	EXAMPLE 2	EXAMPLE 3 COAX#1 (ALPHA)	CANISTER COAX #2 (ALPHA)
RED	RED	RED	RED
BLUE	BLUE		RED
GREEN	GREEN		
ORANGE	YELLOW		
PURPLE			

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

FIBER JUMPERS TO RRHs

LOW–BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.

LOW BAND RRH	MID BAND RRH	LOW BAND RRH	MID BAND RRH	LOW BAND RRH	MID BAND RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
ORANGE	PURPLE	ORANGE	PURPLE	ORANGE	PURPLE

POWER CABLES TO RRHs

LOW–BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY

LOW BAND RRH	MID BAND RRH	LOW BAND RRH	MID BAND RRH	LOW BAND RRH	MID BAND RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
ORANGE	PURPLE	ORANGE	PURPLE	ORANGE	PURPLE

RET MOTORS AT ANTENNAS

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

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

ANTENNA 1 MID BAND IN	ANTENNA 1 LOW BAND IN	ANTENNA 1 MID BAND IN	ANTENNA 1 LOW BAND IN	ANTENNA 1 MID BAND IN	ANTENNA 1 LOW BAND IN
RED	RED	BLUE	BLUE	GREEN	GREEN
PURPLE	ORANGE	PURPLE	ORANGE	PURPLE	ORANGE

MICROWAVE RADIO LINKS

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

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

FORWARD AZIMUTH OF 0–120 DEGREES PRIMARY	SECONDARY	FORWARD AZIMUTH OF 120–240 DEGREES PRIMARY	SECONDARY	FORWARD AZIMUTH OF 240–359 DEGREES PRIMARY	SECONDARY
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
RED	RED	BLUE	BLUE	GREEN	GREEN
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
	RED		BLUE		GREEN
	WHITE		WHITE		WHITE

RF CABLE COLOR CODES — NO SCALE — 1

COLOR IDENTIFIER

LOW BANDS (N71+N26) OPTIONAL – (N29)	AWS (N66+N70+H–BLOCK)
ORANGE	PURPLE
CBRS TECH (3 GHz)	**NEGATIVE SLANT PORT ON ANT/RRH**
YELLOW	WHITE

ALPHA SECTOR	BETA SECTOR	GAMMA SECTOR
RED	BLUE	GREEN

COLOR IDENTIFIER — NO SCALE — 2

NOT USED — NO SCALE — 3

NOT USED — NO SCALE — 4

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STATE OF CONNECTICUT — CHAD TILLE — No. 23924 — LICENSED PROFESSIONAL ENGINEER — 3/7/22

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67 FAIRCHILD ROAD
MIDDLETOWN, CT 06457

SHEET TITLE
RF CABLE COLOR CODES

SHEET NUMBER
RF-1

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48–T8

SMOKE DETECTION (DC)

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE

UNDERGROUND POWER

UNDERGROUND TELCO

OVERHEAD POWER

OVERHEAD TELCO

UNDERGROUND TELCO/POWER

ABOVE GROUND POWER

ABOVE GROUND TELCO

ABOVE GROUND TELCO/POWER

WORKPOINT

W.P.

SECTION REFERENCE

XX
X–X

DETAIL REFERENCE

XX
X–X

LEGEND

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

ABBREVIATIONS

dish wireless.
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PEC.0001564
Expires 2/1/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
SM	MRE	MRE

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

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1	3/7/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

SITE_ID

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00217A
67 FAIRCHILD ROAD
MIDDLETOWN, CT 06457

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GENERAL NOTES:

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

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER

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

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

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

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

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

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

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

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

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

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

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

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

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

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SITE_ID

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00217A
67 FAIRCHILD ROAD
MIDDLETOWN, CT 06457

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.

dish wireless

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STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
3/7/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23

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:	CHECKED BY:	APPROVED BY:
SM	MRE	MRE

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	12/17/21	ISSUED FOR REVIEW
0	1/20/22	ISSUED FOR CONSTRUCTION
1	3/7/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

SITE_ID

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00217A
67 FAIRCHILD ROAD
MIDDLETOWN, CT 06457

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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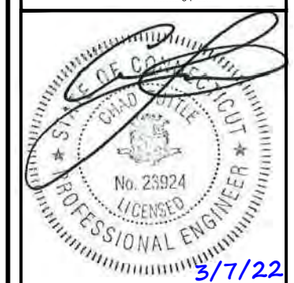

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