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

June 2, 2020

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

RE: Notice of Exempt Modification
133 Clearview Ave, Harwinton, CT
Latitude: 41 46 31.88
Longitude: -73 5 53.53
T-Mobile Site #: CT11712A_L600

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 192-foot level of the existing 195-foot Monopole Tower at 133 Clearview Ave., Harwinton, CT. The 195-foot tower is owned by SBA Properties, LLC. The property is owned by Clearview Storage Park. T-Mobile now intends to replace six (6) antennas with six (6) new L600/L700/1900MHz antennas. The new antennas would be installed at the 192-foot level of the tower.

> **Please note:** Per the Connecticut Siting Council Website: CSC COVID 19 Guidelines.
> *In order to prevent the spread of Coronavirus and protect the health and safety of our members and staff, as of March 18, 2020, the Connecticut Siting Council shall convert to full remote operations until March 30, 2020. Please be advised that during this time period, all hard copy filing requirements will be waived in lieu of an electronic filing. Please also be advised that the March 26, 2020 regular meeting shall be held via teleconference. The Council's website is not equipped with an on-line filing fee receipt service. Therefore, filing fees and/or direct cost charges associated with matters received electronically during the above-mentioned time period will be directly invoiced at a later date.*

Planned Modifications:

TOWER

Remove:

- (1) 1-5/8" Coax

Remove and Replace:

- (3) LNX-6515DS-A1M antenna (Remove) – RFS-APXVAARR24_43-U-NA20 antenna (Replace)
- (3) CCI-DTMA-1819-DD-12 TMA (Remove) – Ericsson KRY 112 489/2 TMA (Replace)

Install New:

- (3) Ericsson Radio 4449 B71+B12 RRU
- (1) 1-5/8" Fiber

Existing Equipment to Remain (including Entitlements):

- (3) RFS-APXV18-206516S-C-A20 antenna
- (3) Kathrein 782 11056 Bias T's
- (11) 1-5/8" Coax

GROUND

Install New:

- Equipment inside existing 6102 cabinet

This facility was approved by the Town of Harwinton's Zoning Commission on March 13, 2000. Special Permit was given for a 195' monopole designed to accommodate five (5) licensed carriers at 10' intervals starting at the top. A tower manager was to be designated and removal bond placed. An 8' fence was to secure the site. A security alarm would protect the tower. Each carrier was to certify that the EMF output was within FCC standards and the Tower Manager would provide annual certification during the service life of the tower. There were to be no lights. The Town and Town Volunteer Fire Departments were to be allowed to place their antennas on the tower at no cost provided there was no proven signal interference and subject to reasonable terms and conditions. Any further structural additions or modifications, including accessory structures, were to be submitted (prior to Council's jurisdiction) to the Zoning Commission. There were no further post construction stipulations set. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to the Town of Harwinton's First Selectman, Michael Criss, and Land Use Coordinator, Polly Redmond, as well as to the property owner. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. §16.50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modification will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modification will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above-referenced telecommunication facility constitute an exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

G. 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: Michael Criss, First Selectman / with attachments
The Town of Harwinton, 100 Bentley Drive, PO Box 66, Harwinton CT, 06791
Polly Redmond, Land Use Coordinator / with attachments
The Town of Harwinton, 100 Bentley Drive, PO Box 66, Harwinton CT, 06791
Clearview Storage Park c/o Daniel Gervais / with attachments
133 Clearview Avenue Harwinton CT 06791-1636 (FedEx address)
PO Box 155, Harwinton, CT 06791 (additionally sent to this address as noted on Town Property Records)

EXHIBIT LIST

Exhibit 1	Check Copy	
Exhibit 2	Notification Receipts	x
Exhibit 3	Property Card	x
Exhibit 4	Property Map	x
Exhibit 5	Original Zoning Approval	Town of Harwinton Zoning Commission 3/13/00
Exhibit 6	Construction Drawings	Chappell Engineering 6/2/20
Exhibit 7	Modification Drawings	TES 8/7/19
Exhibit 8	Structural Analysis	TES 7/23/19
Exhibit 9	Post-Mod Mount Analysis	TES 8/6/19
Exhibit 10	EME Report	Transcom Engineering 6/19/19

EXHIBIT 1

Normally, Exhibit 1 would contain a copy of the check for the filing fee.

EXHIBIT 2

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FedEx Express Package US Airbill

FedEx Tracking Number 8142 4463 7187

Form ID No. 0200

Sender's Copy

1 From *Please print and press hard.*

Date 6-3-20 Sender's FedEx Account Number 1058-4330-4

Sender's Name GLENN S. SHEPHERD Phone 508.251-0720

Company SBA COMMUNICATIONS

Address 134 FLANDERS RD, SUITE 125

Dept/Floor/Suite/Room

City WESTBOROUGH State MA ZIP 01581

2 Your Internal Billing Reference First 24 characters will appear on invoice. OPTIONAL

3 To

Recipient's Name DANIEL GERVAIS Phone ( )

Company CLEARVIEW STORAGE PARK

Address 133 CLEARVIEW AVE

We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept/Floor/Suite/Room

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City HARWINTON State CT ZIP 06791-1636

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☐ Hold Saturday FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

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Packages up to 150 lbs. For packages over 150 lbs., use the FedEx Express Freight US Airbill.

Next Business Day

☐ FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.

☑ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless Saturday Delivery is selected.

☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

☐ FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.

☐ FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.

☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

☑ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☐ Other

6 Special Handling and Delivery Signature Options Fees may apply. See the FedEx Service Guide.

☐ Saturday Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☑ No Signature Required — Package may be left without obtaining a signature for delivery.

☐ Direct Signature — Someone at recipient's address may sign for delivery.

☐ Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only.

Does this shipment contain dangerous goods? One box must be checked.

☑ No ☐ Yes As per attached Shipper's Declaration. ☐ Yes Shipper's Declaration not required. ☐ Dry Ice Dry ice, 9, UN 1845 ____ x ____ kg

Restrictions apply for dangerous goods — see the current FedEx Service Guide. ☐ Cargo Aircraft Only

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

☑ Sender Acct. No. in Section 1 will be billed. ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

FedEx Acct. No. / Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value†
1	1 lbs.	$ 0 .00

†Our liability is limited to US$100 unless you declare a higher value. See back for details. By using this airbill you agree to the service conditions on the back of this airbill and in the current FedEx Service Guide, including terms that limit our liability.

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FedEx Tracking Number **8142 4463 7198**

Form ID No. 0200

Sender's Copy

1 From *Please print and press hard.*

Date 6-3-20 Sender's FedEx Account Number 1058-4330-4

Sender's Name GLENN S. SHEPHERD Phone (508) 251-0720

Company SBA COMMUNICATIONS

Address 134 FLANDERS RD, SUITE 125 Dept./Floor/Suite/Room

City WESTBOROUGH State MA ZIP 01581

2 Your Internal Billing Reference First 24 characters will appear on invoice. OPTIONAL

3 To

Recipient's Name POLLY REDMOND Phone ( )

Company LAND USE COORDINATOR

Address TOWN OF HARWINTON Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address 100 BENTLEY DR, PO BOX 66

Use this line for the HOLD location address or for continuation of your shipping address.

City HARWINTON State CT ZIP 06791

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Next Business Day

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☑ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless Saturday Delivery is selected.

☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

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☐ FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.

☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

☑ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☐ Other

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☑ Sender Acct. No. in Section 1 will be billed. ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

FedEx Acct. No. / Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value†
1	1 lbs.	$ 0 .00

†Our liability is limited to US$100 unless you declare a higher value. See back for details. By using this airbill you agree to the service conditions on the back of this airbill and in the current FedEx Service Guide, including terms that limit our liability.

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FedEx Express **Package US Airbill**

FedEx Tracking Number **8142 4463 7202**

Form ID No. 0200

Sender's Copy

1 From *Please print and press hard.*

Date 6-3-20 Sender's FedEx Account Number 1058-4330-4

Sender's Name GLENN S. SHEPHERD Phone (508) 251-0720

Company SBA COMMUNICATIONS

Address 134 FLANDERS RD, SUITE 125

Dept/Floor/Suite/Room

City WESTBOROUGH State MA ZIP 01581

2 Your Internal Billing Reference OPTIONAL

First 24 characters will appear on invoice.

3 To

Recipient's Name MICHAEL CRISS Phone ( )

Company FIRST SELECTMAN

Address TOWN OF HARWINTON

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Dept/Floor/Suite/Room

Address 100 BENTLEY DR. P.O BOX 660

Use this line for the HOLD location address or for continuation of your shipping address.

City HARWINTON State CT ZIP 06791

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- ☑ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
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- ☐ FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.
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Does this shipment contain dangerous goods? One box must be checked.

- ☑ No
- ☐ Yes — As per attached Shipper's Declaration.
- ☐ Yes — Shipper's Declaration not required.
- ☐ Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

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7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

- ☑ Sender — Acct. No. in Section 1 will be billed.
- ☐ Recipient
- ☐ Third Party
- ☐ Credit Card
- ☐ Cash/Check

FedEx Acct. No. / Credit Card No. ____ Exp. Date ____

Total Packages	Total Weight	Total Declared Value†
1	1 lbs.	$ 0 .00

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FedEx Express **Package US Airbill**

FedEx Tracking Number **8142 4463 7213**

Form ID No. **0200**

Sender's Copy

1 From *Please print and press hard.*

Date 6-3-20 Sender's FedEx Account Number 1058-4330-4

Sender's Name GLENN S. SHEPHERD Phone (508) 251-0720

Company SBA COMMUNICATIONS

Address 134 FLANDERS RD, SUITE 125

Dept./Floor/Suite/Room

City WESTBOROUGH State MA ZIP 01581

2 Your Internal Billing Reference OPTIONAL

First 24 characters will appear on invoice.

3 To

Recipient's Name MELANIE BACHMAN Phone ( )

Company EXECUTIVE DIRECTOR

Address CONNECTICUT SITING COUNCIL

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Address TEN FRANKLIN SQUARE

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City NEW BRITAIN State CT ZIP 06051

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FedEx Acct. No. / Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value†
1	1 lbs.	$ 0 .00

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EXHIBIT 3

qPublic.net™ Town of Harwinton, CT

Summary

ParcelId	589
Account Number	1060
Location Address	133 CLEARVIEW AVE
Map-Block-Lot	B7 /01 /0017
Use Class/Description	2-1 COMM LAND
Assessing Neighborhood	0001A
Census Tract	07
Acreage	14.13
Utilities	

Owner

CLEARVIEW STORAGE PARK LLC
P O BOX 155
HARWINTON, CT 06791

Current Appraised Value

		2017	2016	2015
+	Building Value	$1,028,960	$1,028,960	$1,028,960
+	XF Value	$0	$0	$0
+	OB Value	$22,370	$22,370	$22,370
+	Land Value	$202,950	$202,950	$202,950
+	Special Land Value			
+	Total Appraised Value	$1,254,280	$1,254,280	$1,254,280
+	Net Appraised Value	$1,254,280	$1,254,280	$1,254,280
+	Current Assessment	$878,010	$878,010	$878,010

Assessment History

An error has occurred while trying to display this part of the page.
We apologize for any inconvenience.

Land

Use	Class	Zoning	Area	Value
2-1 COMM LAND	C		0.01 SF	$0
2-1 COMM LAND	C		0.01 SF	$0
2-1 COMM LAND	C		0.01 SF	$0
2-1 COMM LAND	C		0.01 SF	$0
2-1 COMM LAND	C		0.01 SF	$0
2-1 COMM LAND	C	LI2	4.73 AC	$351,630
5-2 EX COMM	C		9.4 AC	$67,680
3-1 IND LAND	I		1 BL	$180,000

Commercial Building

Building #	1
Style	Warehouse
Actual Year Built	1987
Effective Year Built	1986
Gross Area	6000
Stories	1
Grade	Average +10
Exterior Wall	Pre-finsh Metl
Interior Wall	Minim/Masonry
Wall Height	16
Units	1
Roof Cover	Metal/Tin
Roof Structure	Gable/Hip
Floor Type	Average
Heat Type	Oil
Heat Fuel	Hot Water

AC Type	HEAT/AC SPLIT
Sprinkler	01
Construction	STEEL
Plumbing	AVERAGE
Comm Walls	0

Building Sub Areas

Code	Description	Living Area	Gross Area	Effective Area
BAS	First Floor	6000	6000	6000
	Totals	6000	6000	6000

Building #	2
Style	Mini Warehouse
Actual Year Built	1992
Effective Year Built	1991
Gross Area	2880
Stories	1
Grade	Average +10
Exterior Wall	Pre-finsh Metl
Interior Wall	Drywall/Sheet
Wall Height	10
Units	1
Roof Cover	Metal/Tin
Roof Structure	Gable/Hip
Floor Type	Concr-Finished
Heat Type	Coal or Wood
Heat Fuel	None
AC Type	NONE
Sprinkler	01
Construction	STEEL
Plumbing	NONE
Comm Walls	0

Building Sub Areas

Code	Description	Living Area	Gross Area	Effective Area
BAS	First Floor	2880	2880	2880
	Totals	2880	2880	2880

Building #	3
Style	Mini Warehouse
Actual Year Built	1991
Effective Year Built	1991
Gross Area	2880
Stories	1
Grade	Average +10
Exterior Wall	Pre-finsh Metl
Interior Wall	Minim/Masonry
Wall Height	10
Units	1
Roof Cover	Metal/Tin
Roof Structure	Gable/Hip
Floor Type	Average
Heat Type	Coal or Wood
Heat Fuel	None
AC Type	HEAT/AC SPLIT
Sprinkler	01
Construction	STEEL
Plumbing	NONE
Comm Walls	0

Building Sub Areas

Code	Description	Living Area	Gross Area	Effective Area
BAS	First Floor	2880	2880	2880
	Totals	2880	2880	2880

Building #	4
Style	Warehouse
Actual Year Built	2003
Effective Year Built	2001
Gross Area	4200
Stories	1
Grade	Average +10
Exterior Wall	Pre-finsh Metl
Interior Wall	Minim/Masonry
Wall Height	15
Units	1
Roof Cover	Metal/Tin
Roof Structure	Gable/Hip
Floor Type	Average

Heat Type	Oil
Heat Fuel	Hot Air-no Duc
AC Type	NONE
Sprinkler	01
Construction	STEEL
Plumbing	AVERAGE
Comm Walls	0

Building Sub Areas

Code	Description	Living Area	Gross Area	Effective Area
BAS	First Floor	4200	4200	4200
	Totals	4200	4200	4200

Building #	5
Style	Mini Warehouse
Actual Year Built	2005
Effective Year Built	2003
Gross Area	2000
Stories	1
Grade	Average +10
Exterior Wall	Pre-finsh Metl
Interior Wall	Minim/Masonry
Wall Height	10
Units	1
Roof Cover	Metal/Tin
Roof Structure	Gable/Hip
Floor Type	Average
Heat Type	Coal or Wood
Heat Fuel	None
AC Type	NONE
Sprinkler	01
Construction	STEEL
Plumbing	NONE
Comm Walls	0

Building Sub Areas

Code	Description	Living Area	Gross Area	Effective Area
BAS	First Floor	2000	2000	2000
	Totals	2000	2000	2000

Building #	6
Style	Mini Warehouse
Actual Year Built	2005
Effective Year Built	2003
Gross Area	2625
Stories	1
Grade	Average +10
Exterior Wall	Pre-finsh Metl
Interior Wall	Minim/Masonry
Wall Height	10
Units	1
Roof Cover	Metal/Tin
Roof Structure	Gable/Hip
Floor Type	Average
Heat Type	Coal or Wood
Heat Fuel	None
AC Type	NONE
Sprinkler	01
Construction	STEEL
Plumbing	NONE
Comm Walls	0

Building Sub Areas

Code	Description	Living Area	Gross Area	Effective Area
BAS	First Floor	2625	2625	2625
	Totals	2625	2625	2625

Out Buildings\Extra Features

Description	Sub Description	Area	Year Built	Value
SHED FRAME AVE		490S.F.	2004	$14,090
SHED FRAME AVE		288S.F.	2004	$8,280

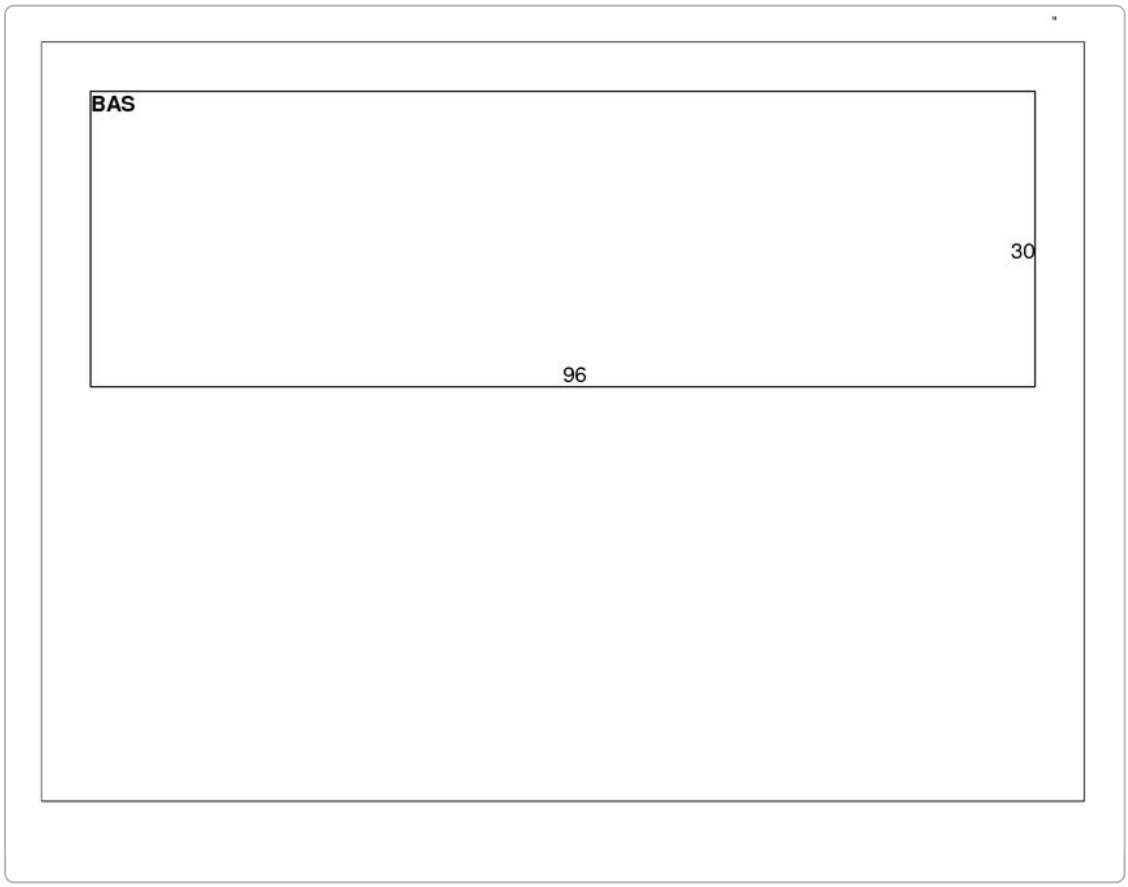
Sales History

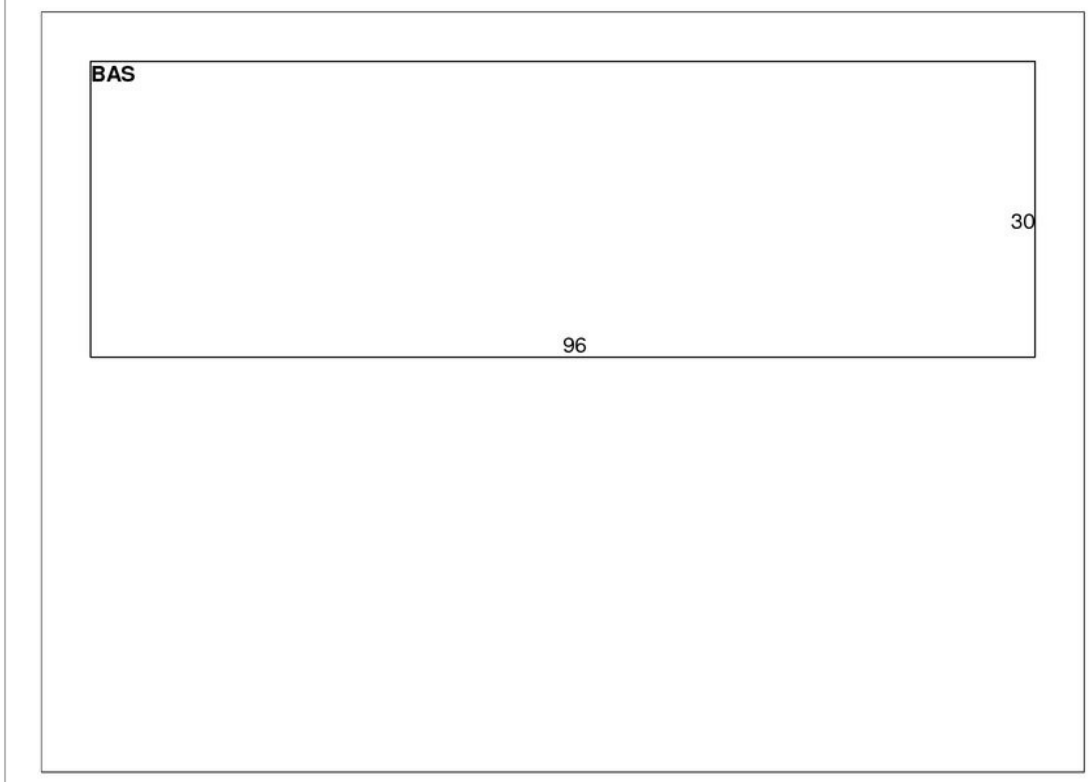
Sales Date	Type of Document	Grantee	Vacant/Improved	Book/Page	Amount
12-29-1998	Q	CLEARVIEW STORAGE PARK LLC	Improved	0178/0416	$0
03-03-1998		CLEARVIEW INDUSTRIAL PARK LLC	Improved	0149/0796	$0
04-07-1986		GERVAIS DANIEL R + PAMELA	Improved	0103/0733	$0

Permit Information

Permit ID	Issue Date	Type	Description	Amount	Inspection Date	% Complete	Date Complete	Comments
1710	04-04-2017		INSTALL LP TANKS	$2,400		100		
	03-23-2017		CO ISSUED	$0		0		UPGRADES TO T MOBILE
16181B	09-26-2016		UPGRADES TO ANTENNAS	$15,000		0		
8594	09-19-2012	HE	HEATING	$7,000		0		
8559	08-16-2012	EL	Electric	$5,000		0		
1001	05-16-2012		30x138 bldg	$80,000		0		
8284	11-22-2011		PROPANE TANK	$600		0		
7918	10-20-2010	WD	WOODSTOVE	$900		0		PELLET
7336	10-29-2008			$399		0		WOOD BURNING STOVE
59	02-23-2004	CO	CO ISSUED	$0		0		

Sketch

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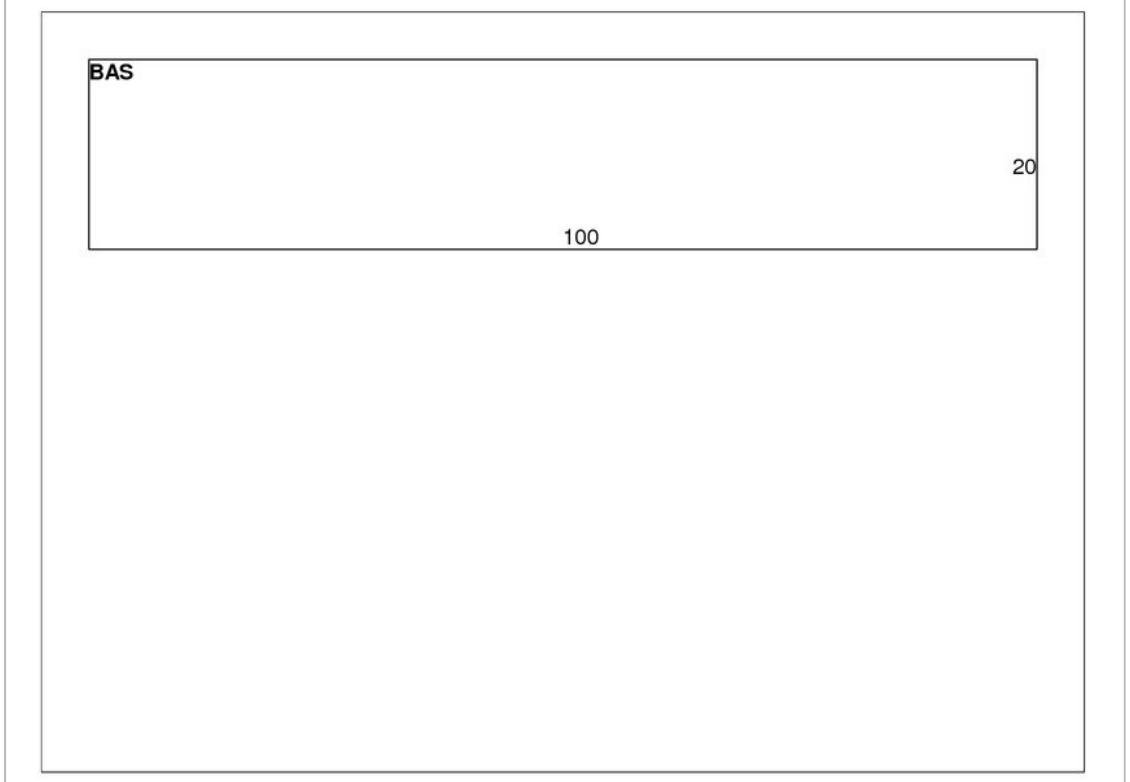
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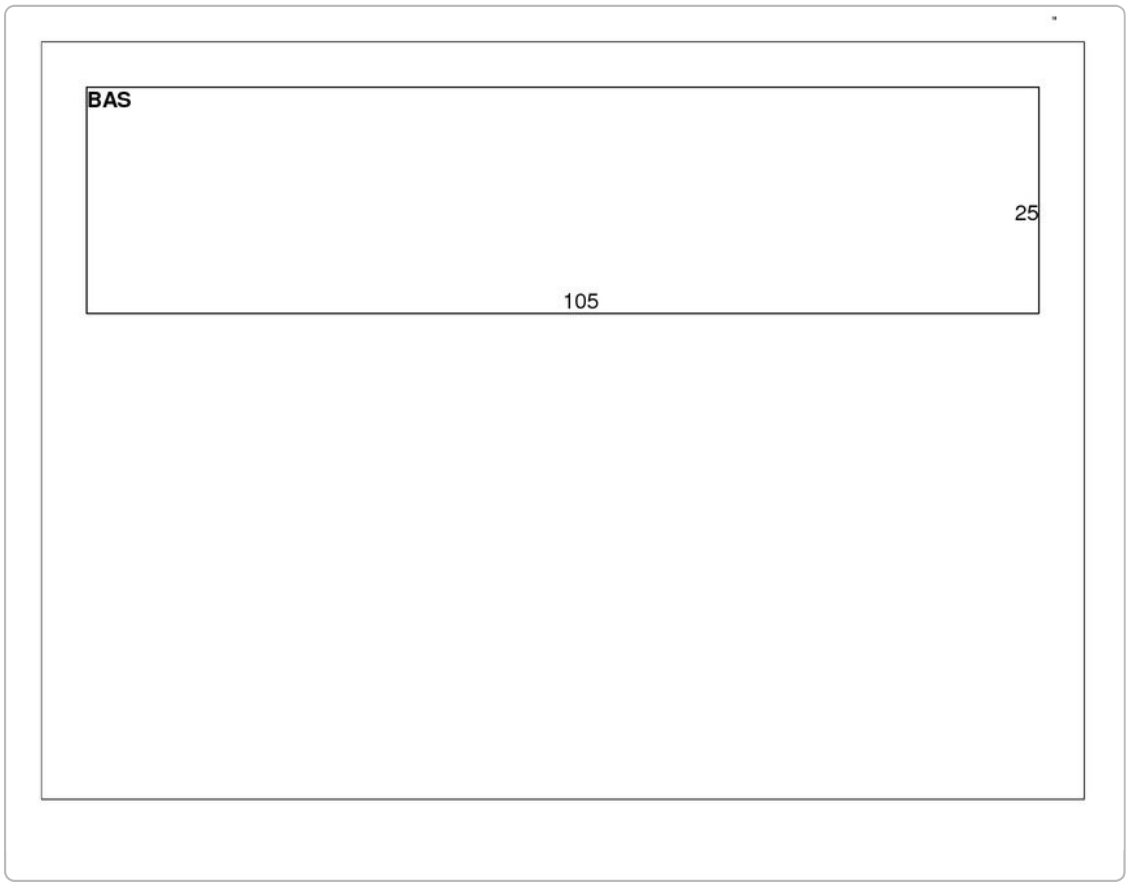
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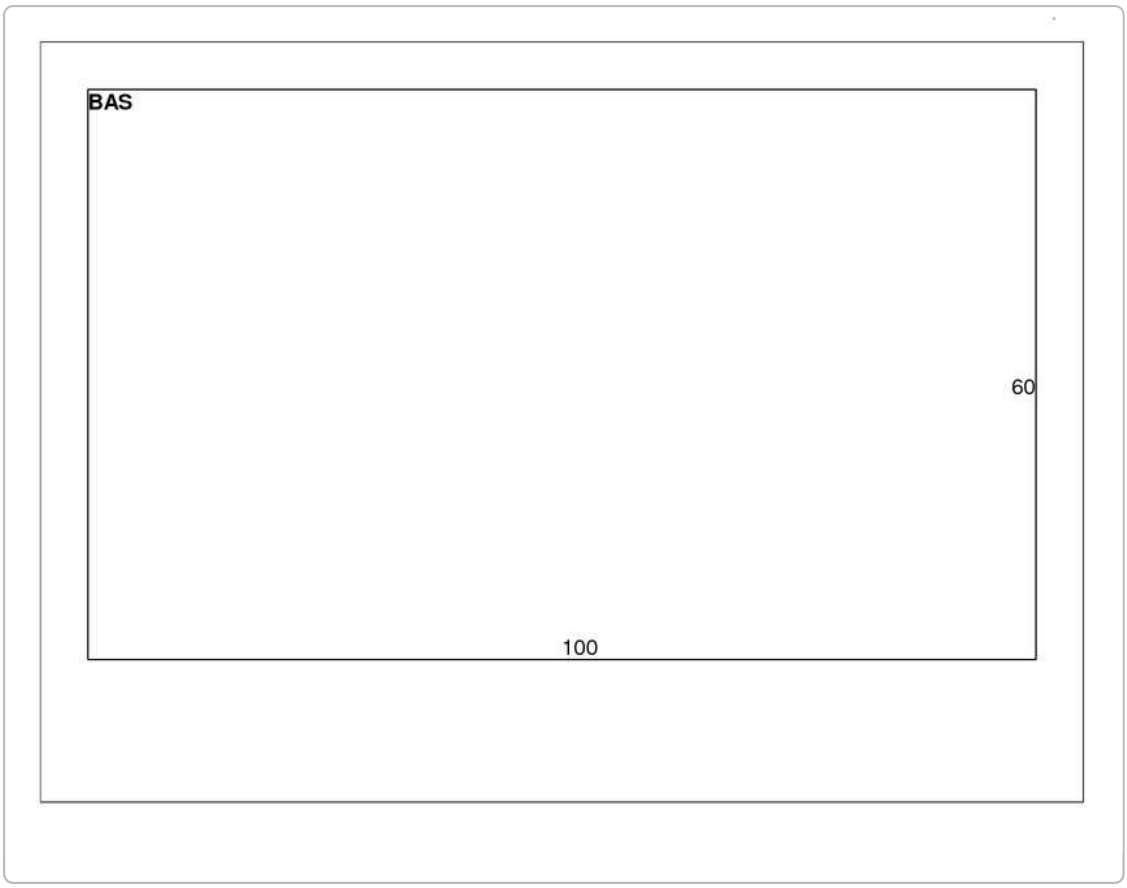


Photos

No data available for the following modules: Building Data.

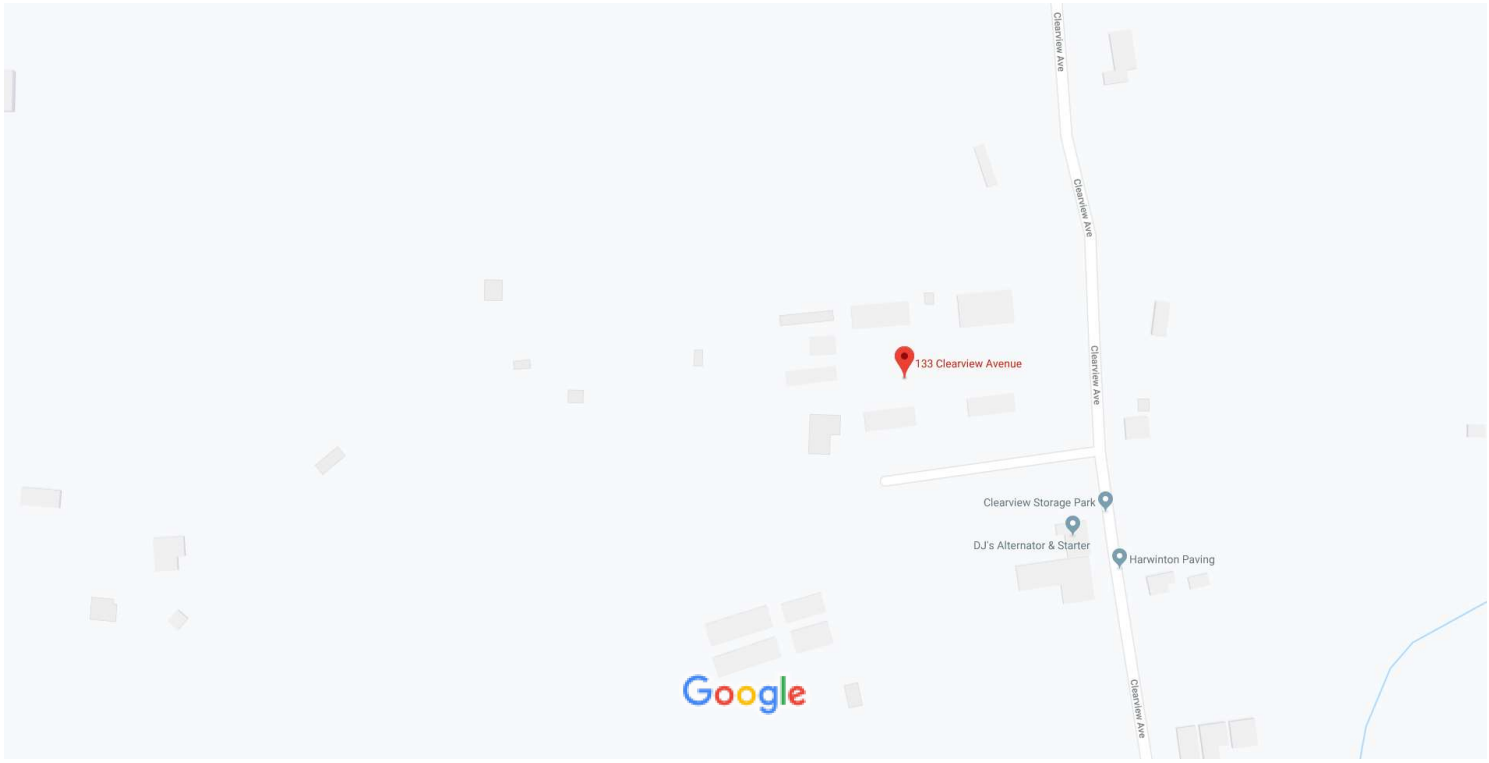
Developed by Schneider GEOSPATIAL

Last Data Upload: 6/17/2019, 8:35:35 PM

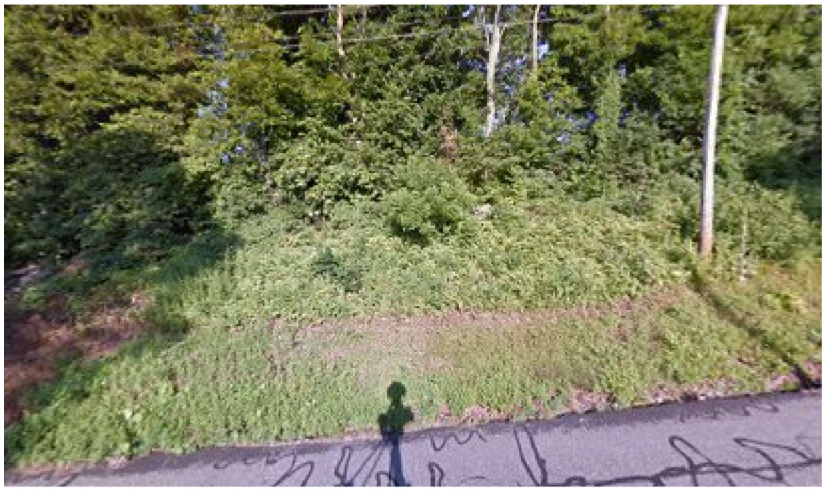
Version 2.2.25

EXHIBIT 4

Google Maps 133 Clearview Ave



Map data ©2019 100 ft



133 Clearview Ave

Harwinton, CT 06791

Directions Save Nearby Send to your phone Share

QWG3+7J Harwinton, Litchfield, CT

Photos

At this location

Byrnes Electrical Services Llc
Electrician · 133 Clearview Ave # 4

Clearview Storage Park LLC
5.0 ★★★★★ (4)
Storage facility · 133 Clearview Ave # A
Open until 4:00 PM

Gervais & Sons Inc
5.0 ★★★★★ (2)
Tree service · 133 Clearview Ave
Opens at 12:00 AM

Northwest Lawn
5.0 ★★★★★ (1)
Landscaper · 133 Clearview Ave

Quality Lawn Inc
5.0 ★★★★★ (1)
Landscaper · 133 Clearview Ave

EXHIBIT 5

4275-040

HARWINTON ZONING COMMISSION

Notice of Decision re:
Special Permit and Site Plan Approval

March 13, 2000

SITE # 4275-040

FILE TYPE Zoning

SECTION

Application No.: 3764

Applicant: SBA Communications, Inc.
49 Leavenworth Street, Suite 200
Waterbury, CT 06701
Attn: Thomas F. Flynn, III

Owner: Clearview Industrial Park, LLC
115 Orchard Hill Road
Harwinton, CT 06791

Property: 133 Clearview Avenue

Assessor's Map: B7-01-0017

APPLICATION HISTORY

The above applicant filed an application for a special permit and site plan approval for a 195' tall monopole telecommunications tower with the Zoning Commission on October 10, 1999. The application was formally received at the Zoning Commission's meeting on October 12, and a public hearing was set for November 8, 7:30 p.m. Legal notices were published in the Republican American on October 29, and November 5. The applicant sent certified mail notices to property owners within 200' of the boundaries of the subject property on October 22.

The public hearing convened on November 8, and was continued to December 13. At the request of the applicant and subject to the applicant's written extension, the public hearing was continued to January 10, 2000, at which time it was adjourned.

OTHER AGENCY APPROVALS

The Inland Wetlands & Watercourses Commission issued a declaratory ruling of no wetlands impact on October 4, 1999.

APPLICATION SUMMARY

The property is located in the Light Industrial ("LI") zone for a depth of 1,000' from Clearview Avenue. The total area of the property is 12.59 acres and is currently used for a contractor's garage (30' x 96') and two (2) sheet metal storage buildings (30' x 96' and 60' x 100'). The property is basically a ledge plateau which rises from 950' elevation at Clearview Avenue to 990' in the rear.

The applicant proposes to lease a plot of 100' by 100' from the owner for a term of twenty (20) years, and to construct a 195' tall monopole telecommunications tower at the rear of the property.

The leased site will be fenced for security. The site plan dated 8/26/99, revised to 9/28/99, does not propose any other structures in connection with the tower on the property.

The tower site is located at the western end of the property, within the LI zone. The tower site is to be accessed by a proposed 195' extension of the existing 840' driveway, 20' in width. The base of the tower is located at least 200' from existing property lines.

The proposed elevation of the base of the tower is 990' NAVD 88. The tower location coordinates are NAD 27 Lat. North 41° 46' 32.25" Long. West 73° 05' 56.45"; NAD 83 Lat. North 41° 46' 32.60" Long. West 73° 05' 54.84".

The tower is designed to accommodate five (5) licensed carriers' antennae, at 10' intervals starting at the top.

STATUTORY AUTHORITY

This application is governed by C.G.S. §8-3c re special permits and §8-3(g) re

site plans.

The applicant conceded that it is not a licensed telecommunications carrier within the meaning of the Telecommunications Act of 1934, as amended by the Telecommunications Act of 1996, 47 U.S.C.A. §332(c)(7), and does not have a co-applicant which is a licensed carrier. The applicant intends to seek tenant carriers for the tower only if it obtains approval.

ZONING REGULATIONS

This application is governed by Zoning Regulations §8.10 et seq, as follows:

8.10 TRANSMISSION TOWERS. A special permit may be granted for the erection and operation of radio relay and similar towers is any zone. In approving applications the Commission must find the following:

8.10.1 That the tower is located a distance from any property line which exceeds the height of the tower.

8.10.2 That the tower is required for the public interest, convenience or necessity.

8.10.3 That the proposed location is necessary and that alternate locations where similar special permit uses are located are not available.

8.10.4 That the visual inconvenience of the location is clearly less than the public necessity which requires the tower.

In addition, all special permit applications are governed by Zoning Regulations, §8.1 (Procedures), and §8.1.1. (General Standards).

Furthermore, a site plan is required under Zoning Regulations, §§7.1 - 7.5, and an erosion and sediment control plan is required under §7.6.

FINDINGS OF FACT

§8.10.1 - Fall zone: The proposed site of the 195' tower shown on the site plan is 208'± from an interior northeasterly boundary corner, 292.5'± from the northerly boundary and 208'± from the westerly boundary of the property, and clearly more than 195' from the southerly boundary. It is 1041'± from the street line and 651.7'± from the closest of the three (3) buildings on the property. It therefore satisfies the fall zone requirement of §8.10.1.

§8.10.2 - Public interest, convenience or necessity: The applicant admitted that it is not a provider of "personal wireless services," meaning a provider of "commercial mobile services, unlicenced wireless services, and common carrier wireless exchange access services" within the meaning of the Telecommunications Act, 47 U.S.C. §332(c)(7)(C), and had no specific providers as lessees or co-applicants. It was therefore able to present only one Sprint and one Nextel propagation study for the tower service area. As far as the two existing SNET towers in the service area, i.e. an existing lattice cellular tower at 125 Wildcat Hill Road and a 180' high monopole cellular tower on Weingart Road, the applicant simply stated that the SNET tower (presumably on Weingart Road) "would not work for PCS coverage" and "was structurally not capable." An overlap with existing towers in Torrington and Plymouth is required to serve the Route 8 corridor, and the west side of Harwinton and East Litchfield areas. The applicant presented no evidence as to the level of service or signal quality required to do so. Finally the applicant did not specifically demonstrate why a 195' high tower was required, as opposed to a lesser height.

The applicant's evidence was quite weak in regard to public necessity; however, the Commission feels that the merits of the proposed location of the tower outweigh the applicant's failure to clearly demonstrate its necessity and proposed height.

§8.10.3 - Alternate locations: Based on information and belief, it appears that the SNET lattice tower at 125 Wildcat Hill Road is not in service at this time, and the SNET monopole tower on Weingart Road may accommodate one additional carrier, although an engineering assessment of the structural capability of that tower may be

required.

There are currently pending before the Commission five (5) tower applications. Two of them - SBA at 205 County Line Road and Sprint Spectrum LP at 529 Burlington Road - are clearly intended to serve the east side of Harwinton and a portion of Burlington. Two others - SBA at 601 Hill Road and Sprint Spectrum LP at 123 Campville Hill Road - are intended to serve the Route 8 corridor and the southwestern part of Harwinton; however, both of those proposed towers are in the Country Residential ("CR") zone and appear to be more visible sites in residential neighborhoods.

Therefore the Commission believes that this site is the most appropriately zoned tower site for this service area.

§8.10.4 - Visual inconvenience vs. public necessity: Assuming that a 195' high tower is necessary somewhere in western Harwinton, this site appears to be the least obtrusive and most appropriately zoned of the three (3) sites proposed to serve the Route 8 corridor.

§8.1.1. - General standards; Subject to appropriate conditions of approval, the application will satisfy the general standards applicable to special permits.

§§7.1 - 7.6 - Site plans and erosion control plan: Subject to appropriate modifications, the site plan and erosion control plan can be made to satisfy these requirements.

THEREFORE, based on the foregoing regulations, findings of fact and reasons for decision, Application No. 3764 for a special permit to construct a 195' monopole telecommunications tower at 133 Clearview Avenue, as shown on 5 sheets constituting the site plan and erosion control plan, dated 8/26/99, revised 9/28/99, are hereby APPROVED, subject to the following conditions and modifications:

1. Tower Manager: That a Tower Manager be designated by name, address, contact person and telephone number as the person and firm responsible for the construction and operation of the tower, and be kept current and on file with the Commission at all times.

2. Tower Removal Bond: That the applicant file, prior to construction, a tower removal bond, in sufficient amount, and with sufficient surety, to guarantee the cost of removal of the tower, fence, and accessory structures, when the tower is no longer in service (other than for routine maintenance and testing), or its lease (and renewal options) expire, whichever occurs first. The bond shall protect both the Town of Harwinton and the landowner, and their heirs, successors and assigns, as per C.G.S. §8-3(g) and Zoning Regulation §7.4.

3. Landscaping and Fencing: That the tower site be fenced with a secure chain link fence with green webbing, and such fence be maintained in a safe condition at all times.

4. Security Alarm: That the tower be protected by a security alarm which shall be regularly tested and operational at all times.

5. EMF Certification: That each carrier shall certify that the EMF output of any antenna, combined with that of any previously installed antenna(s), is within FCC standards for public health and safety, and that the Tower Manager provide annual certification during the service life of the tower.

6. Tower Construction: That the monopole tower satisfy all structural requirements of the State Building Code, as certified by a Connecticut licensed structural engineer; that the applicant comply with the threshold structural notification requirements of C.G.S. §29-276b and the Connecticut Supplement to the State Building Code; and that the monopole be of a matte gray finish with no lights or striping.

7. Fall Zone: That the property lines be maintained at all times while the tower is standing at a distance from the base of the tower not less than its total height.

8. Municipal, VFD and EMS Use: As offered by the applicant at the public hearing, that the Town of Harwinton, the Westside Volunteer Fire Department, the Harwinton Volunteer Fire Department and the Harwinton Ambulance Association be allowed to place their antenna(s) on the tower at no cost, provided that there is no proven signal interference and subject to such reasonable terms and conditions as the applicant or Tower Manager may impose.

9. Future structures and modifications: That any future structural additions or modifications, including accessory structures, be submitted to the Zoning

Commission in accordance with the Zoning Regulations of the Commission then in effect, i.e., Regulations §A.8.10.1 - A.8.10.12, as amended, and any other land use regulations and ordinances as may then be in effect.

10. Recording and filing: That this special permit and the mylar site plans, be recorded in the Harwinton Land Records within fifteen (15) days, and shall run with the land described in the Harwinton Land Records in Volume 149 at Pages 796-97 and Volume 154 at Pages 105-06.

Dated at Harwinton, Connecticut this 13th day of March, 2000.

HARWINTON ZONING COMMISSION

By: John Byrnes
John Byrnes, Its Chairman

A:\MDR.harwinton.2\HPC. notice of decison - 133 Clearview Ave

Harwinton / CT01944-S
Zoning

TOWN OF HARWINTON

HARWINTON, CONNECTICUT 06791
Tele: (860) 485-9051 • Fax: (860) 485-0051

March 17, 2005

Sent via facsimile: 860-659-9140
and regular mail

Mr. Randy Freschlin
SBA, Inc.
80 Eastern Avenue
Glastonbury, CT 06033

Dear Mr. Freschlin:

In regards to our telephone conversation this morning, I am writing to inform you that a review of the tower removal bond for the telecommunications tower located at 133 Clearview Avenue, Harwinton, CT is due by the Harwinton Zoning Commission. As part of the commission's approval on March 13, 2000 for the tower the Commission asked that a $50,000 bond be presented. In an addendum to the motion, on May 22, 2000 the Zoning Commission conditioned that the applicant shall submit a revised estimate for the cost of removal of the tower, fence and accessory structures on March 13, 2005 and by March 13 of every fifth year thereafter reflecting the estimated cost of said removal for the ensuing five year period. The bond on file in the Land Use office has an effective date of April 28, 2001.

This item will be placed on the Zoning Commission's next meeting agenda scheduled for March 28, 2005. No representation by SBA is required, it is only asked that the revised bond be submitted to this office by that time. In the event that it cannot be submitted by March 28 the existing bond shall remain in effect until the new bond is reviewed and approved.

If you have any questions, please call me at 485-2784.

Sincerely,

Polly Redmond
Land Use Coordinator

Enclosures: Page 6 of the decision pertaining to tower removal bond
Copy of minutes showing motions made on 5-13-05 and 5-22-05
Copy of bonds on file in the Land Use office

2. Tower Removal Bond: That the applicant file, prior to construction, a tower removal bond, in sufficient amount, and with sufficient surety, to guarantee the cost of removal of the tower, fence, and accessory structures, when the tower is no longer in service (other than for routine maintenance and testing), or its lease (and renewal options) expire, whichever occurs first. The bond shall protect both the Town of Harwinton and the landowner, and their heirs, successors and assigns, as per C.G.S. §8-3(g) and Zoning Regulation §7.4.

3. Landscaping and Fencing: That the tower site be fenced with a secure chain link fence with green webbing, and such fence be maintained in a safe condition at all times.

4. Security Alarm: That the tower be protected by a security alarm which shall be regularly tested and operational at all times.

5. EMF Certification: That each carrier shall certify that the EMF output of any antenna, combined with that of any previously installed antenna(s), is within FCC standards for public health and safety, and that the Tower Manager provide annual certification during the service life of the tower.

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9. Future structures and modifications: That any future structural additions or modifications, including accessory structures, be submitted to the Zoning

EXHIBIT 6

SBA HARWINTON

133 CLEARVIEW AVE
HARWINTON, CT 06791
LITCHFIELD COUNTY

SITE NO.: CT11712A

SITE TYPE: 195'± MONOPOLE

RF DESIGN GUIDELINE: 67D04G

APPROVALS

PROJECT MANAGER:	DATE:	ZONING/SITE ACQ.:	DATE:
CONSTRUCTION:	DATE:	OPERATIONS:	DATE:
RF ENGINEERING:	DATE:	TOWER OWNER:	DATE:

T-MOBILE TECHNICIAN SITE SAFETY NOTES

LOCATION	SPECIAL RESTRICTIONS
SECTOR A:	ACCESS BY CERTIFIED CLIMBER
SECTOR B:	ACCESS BY CERTIFIED CLIMBER
SECTOR C:	ACCESS BY CERTIFIED CLIMBER
SECTOR D:	ACCESS BY CERTIFIED CLIMBER
GPS/LMU:	UNRESTRICTED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE

SITE NOTES

1. THIS IS AN UNMANNED AND RESTRICTED ACCESS TELECOMMUNICATION FACILITY, AND IS NOT FOR HUMAN HABITATION. IT WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC CELLULAR SERVICE.
   - ADA COMPLIANCE NOT REQUIRED.
   - POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
   - NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
2. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3. NEW CONSTRUCTION WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
   - BUILDING CODE: 2018 CONNECTICUT STATE BUILDING CODE
   - ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
   - STRUCTURAL CODE: TIA/EIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

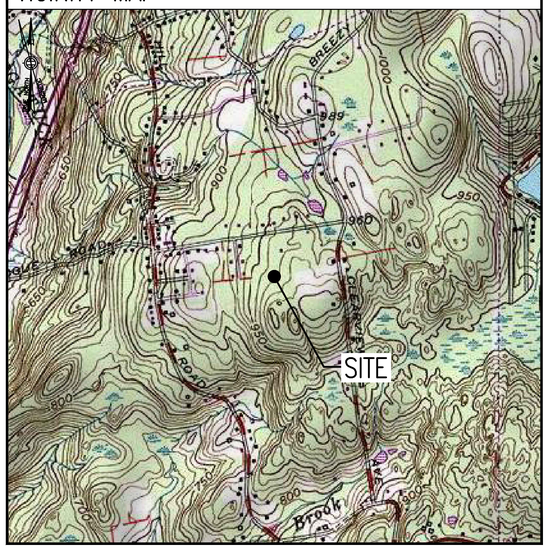
GENERAL NOTES

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE OMNIPOINT REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
10. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS, ESTABLISHING AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS AS SHOWN HEREIN.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
12. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
13. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
14. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
15. THE CONTRACTOR SHALL NOTIFY THE PROJECT OWNER'S REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE LESSEE/LICENSEE REPRESENTATIVE.
16. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
17. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK.

AT LEAST 72 HOURS PRIOR TO DIGGING, THE CONTRACTOR IS REQUIRED TO CALL DIG SAFE AT 811

VICINITY MAP

SCALE: 1" = 1000'-0"



DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SHEET INDEX

SHEET NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & EQUIPMENT PLAN	1
A-2	TOWER ELEVATIONS & ANTENNA PLAN	1
A-3	SITE DETAILS	1
E-1	ELECTRIC & GROUNDING DETAILS	1
-	MOUNT MODIFICATION AND DESIGN DRAWINGS (BY OTHERS)	0

SPECIAL ZONING NOTE:
BASED ON INFORMATION PROVIDED BY T-MOBILE REGULATORY COMPLIANCE PROFESSIONALS AND LEGAL COUNSEL, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AN ELIGIBLE FACILITY UNDER THE MIDDLE CLASS TAX RELIEF AND JOB CREATION ACT OF 2012, 47 USC 1455(A), SECTION 6409(A), AND IS SUBJECT TO AN ELIGIBLE FACILITY REQUEST, EXPEDITED REVIEW, AND LIMITED/PARTIAL ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW, OR ADMINISTRATIVE REVIEW).

PROJECT SUMMARY

SITE NUMBER:	CT11712A
SBA SITE NUMBER:	CT01944-S
SBA SITE NAME:	HARWINTON
SITE ADDRESS:	133 CLEARVIEW AVENUE HARWINTON, CT 06791
PROPERTY OWNER:	CLEARVIEW STORAGE PARK LLC PO BOX 155 HARWINTON, CT 06791
TOWER OWNER:	SBA 2012 TC ASSETS, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	LITCHFIELD
ZONING DISTRICT:	LI-A (LIGHT INDUSTRIAL ZONE A)
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	195'±
APPLICANT:	T-MOBILE NORTHEAST LLC 15 COMMERCE WAY, SUITE B NORTON, MA 02766
SBA RSM:	STEPHEN ROTH PHONE: 860-539-4920 EMAIL: SRoth@sbasite.com
ARCHITECT:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
STRUCTURAL ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
SITE CONTROL POINT:	LATITUDE: N.41.775731° (41° 46' 32.6316") LONGITUDE W.73.098572° (73° 05' 54.8592")

T-MOBILE NORTHEAST LLC
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
(508) 286-2700

SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
(508) 251-0720

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil ·Structural ·Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST, SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25197
LICENSED
PROFESSIONAL CIVIL ENGINEER

6/2/20

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	06/02/20	ISSUED FOR CONSTRUCTION	JRV
0	06/05/19	ISSUED FOR REVIEW	MAM

SITE NUMBER:
CT11712A

SITE ADDRESS:
133 CLEARVIEW AVE
HARWINTON, CT 06791

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

1815.094

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR – T–MOBILE
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – T–MOBILE
   OEM – ORIGINAL EQUIPMENT MANUFACTURER

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR 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 CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR 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.

4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL, STATE AND FEDERAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

5. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

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

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

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER, T1 CABLES AND GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR AND/OR LANDLORD PRIOR TO CONSTRUCTION.

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

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION AND RETURN DISTURBED AREAS TO ORIGINAL CONDITIONS.

13. THE SUBCONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE SUBCONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

14. SUBCONTRACTOR SHALL NOTIFY CHAPPELL ENGINEERING ASSOCIATES, LLC 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS AND POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEERING REVIEW.

15. CONSTRUCTION SHALL COMPLY WITH ALL T–MOBILE STANDARDS AND SPECIFICATIONS.

16. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

17. THE EXISTING CELL SITES ARE IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

18. IF THE EXISTING CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.

2. 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 ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR 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.

3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.

4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

5. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.

6. 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.

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

8. 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 ENGINEERING, OWNER AND/OR LOCAL UTILITIES.

9. 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 IN THE PROJECT SPECIFICATIONS.

10. SUBCONTRACTOR 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.

11. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE T–MOBILE SPECIFICATION FOR SITE SIGNAGE.

CONCRETE AND REINFORCING STEEL NOTES:

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. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4000PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 381 CODE REQUIREMENTS

3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.

4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST EARTH.....3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER .....2 IN.
   #5 AND SMALLER & WWF .....1½ IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER
   OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL .....¾ IN.
   BEAMS AND COLUMNS .....1½ IN.

5. A CHAMFER ¾" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHORS SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO THE MANUFACTURERS RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY SIMPSON OR APPROVED EQUAL.

7. CONCRETE CYLINDER TIES ARE NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;
   (A) RESULTS OF CONCRETE CYLINDER TEST PERFORMED AT THE SUPPLIERS PLANT.
   (B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.
FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.

8. AS AN ALTERNATIVE TO ITEM 7. TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.

9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND T–MOBILE SPECIFICATIONS UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM–A–36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".

2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. PAINTED SURFACES SHALL BE TOUCHED UP.

3. BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (¾"ø) AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE GALVANIZED OR STAINLESS STEEL.

4. NON–STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE ⅝" DIA. ASTM A 307 BOLTS (GALV) UNLESS NOTED OTHERWISE.

5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL

6. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

1. EXCAVATE AS REQUIRED TO REMOVE VEGETATION AND TOPSOIL TO EXPOSE NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.

2. COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.

3. AS AN ALTERNATE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.

4. COMPACTED SUBBASE SHALL BE UNIFORM AND LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING #1 SIEVE.

5. AS AN ALTERNATE TO ITEMS 2 AND 3, THE SUBGRADE SOILS WITH 5 PASSES OR A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND–OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E). AND SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL–GRADED GRANULAR FILL AND COMPACTED AS STATED ABOVE.

COMPACTION EQUIPMENT:

1. HAND OPERATED DOUBLE DRUN, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

CONSTRUCTION NOTES:

1. FIELD VERIFICATION:
SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, T–MOBILE ANTENNA PLATFORM LOCATION AND UTILITY TRENCHWORK.

2. COORDINATION OF WORK:
SUBCONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH CONTRACTOR.

3. CABLE LADDER RACK:
SUBCONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY AND/OR ICE BRIDGE, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

ELECTRICAL INSTALLATION NOTES:

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

2. SUBCONTRACTOR SHALL MODIFY OR INSTALL CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLING TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR FOR APPROVAL.

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

4. CABLES SHALL NOT BE ROUTED THROUGH LADDER–STYLE CABLE TRAY RUNGS.

5. EACH END OF EVERY POWER, GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA, AND MATCH INSTALLATION REQUIREMENTS.

6. POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, ½ INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC AND OSHA.

7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).

8. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.

9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.

10. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

12. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.

13. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.

14. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY HARGER (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).

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

16. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.

17. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

18. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

19. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.

20. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.

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

22. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.

23. CABINETS, BOXES AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

24. CABINETS, BOXES AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.

25. WIREWAYS SHALL BE EPOXY–COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.

26. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.

27. 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 RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

28. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

29. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

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

31. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.

32. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

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PROFESSIONAL CIVIL ENGINEER

6/2/20

CHECKED BY:	JMT
APPROVED BY:	JMT

SUBMITTALS

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GENERAL NOTES

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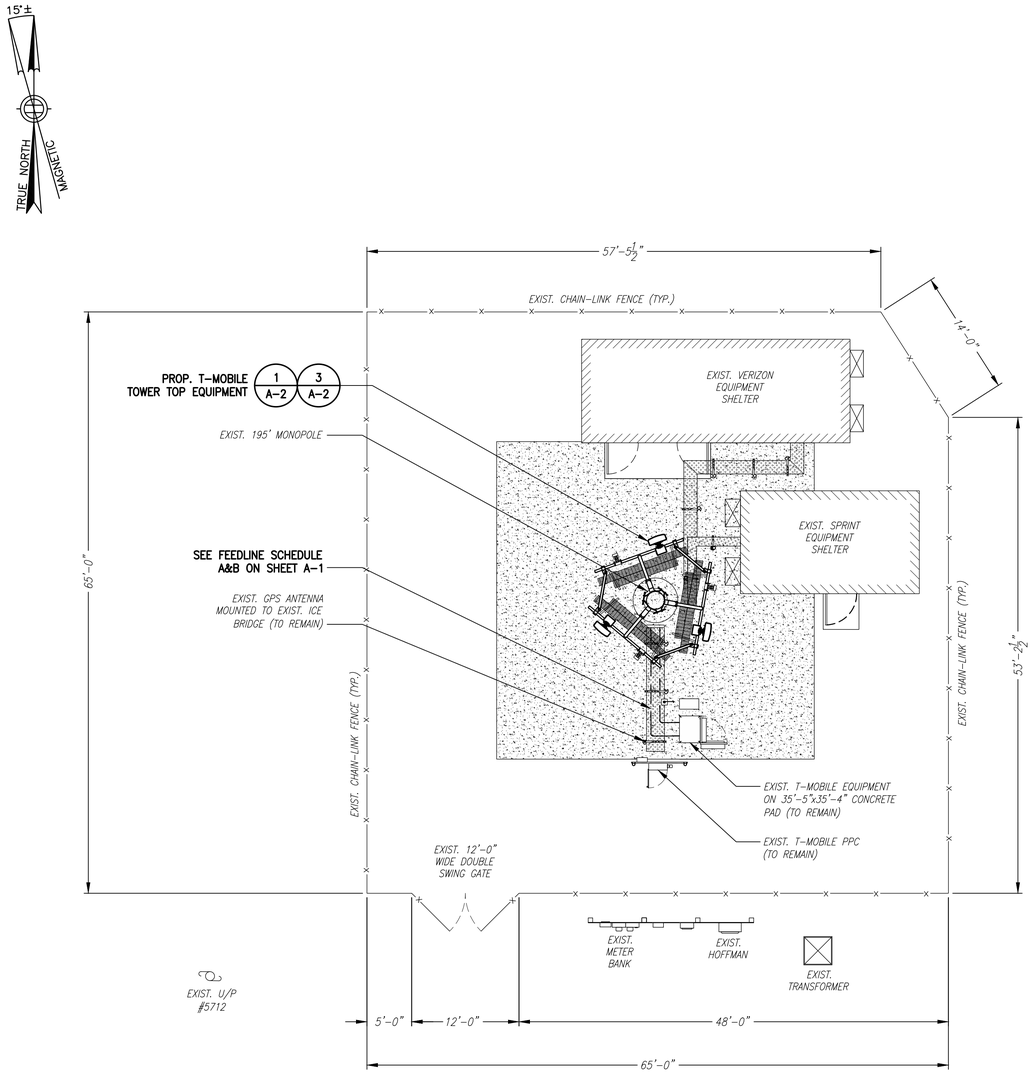
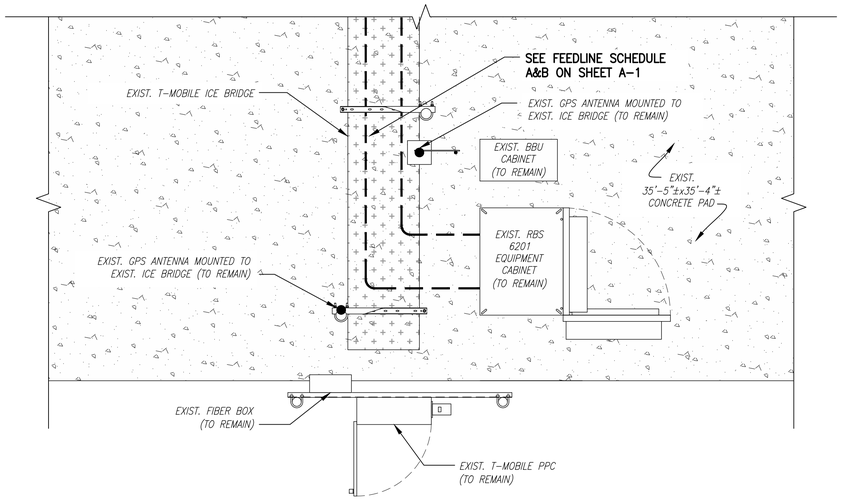
SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

FEEDLINE SCHEDULE	FEEDLINES	LOCATION
A	*EXISTING TO REMAIN:* (6) 1⅝" COAX CABLES *EXISTING TO BE CAPPED:* (1) 1⅝" COAX CABLES (4) 1¼" COAX CABLES *EXISTING TO BE REMOVED:* (1) 1⅝" COAX CABLES	ROUTED PER STRUCTURAL ANALYSIS
B	PROPOSED: (1) 1-⅝" HCS FIBER CABLE	

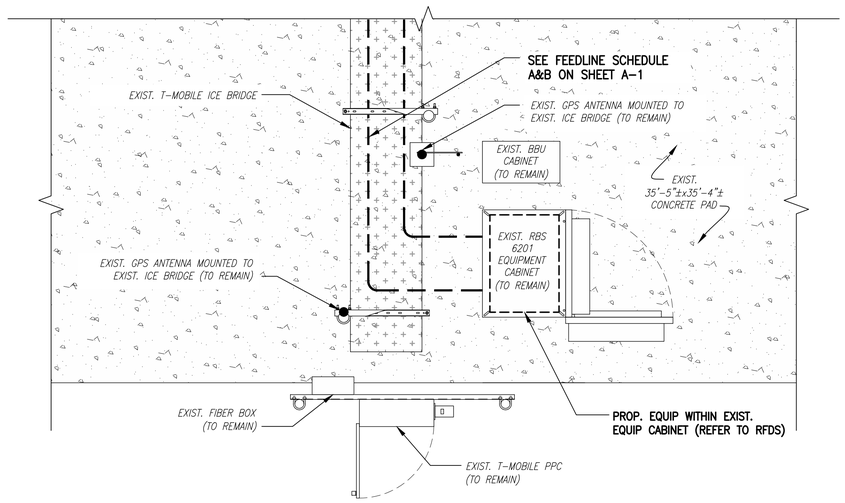
NOTE:
EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.



COMPOUND PLAN 1 A-1
SCALE: 1/8" = 1'-0"
0 4' 8' 16' 24'



EXISTING EQUIPMENT PLAN 2 A-1
SCALE: 1/2" = 1'-0"
0 2'-0" 4'-0" 6'-0"



PROPOSED EQUIPMENT PLAN 3 A-1
SCALE: 1/2" = 1'-0"
0 2'-0" 4'-0" 6'-0"

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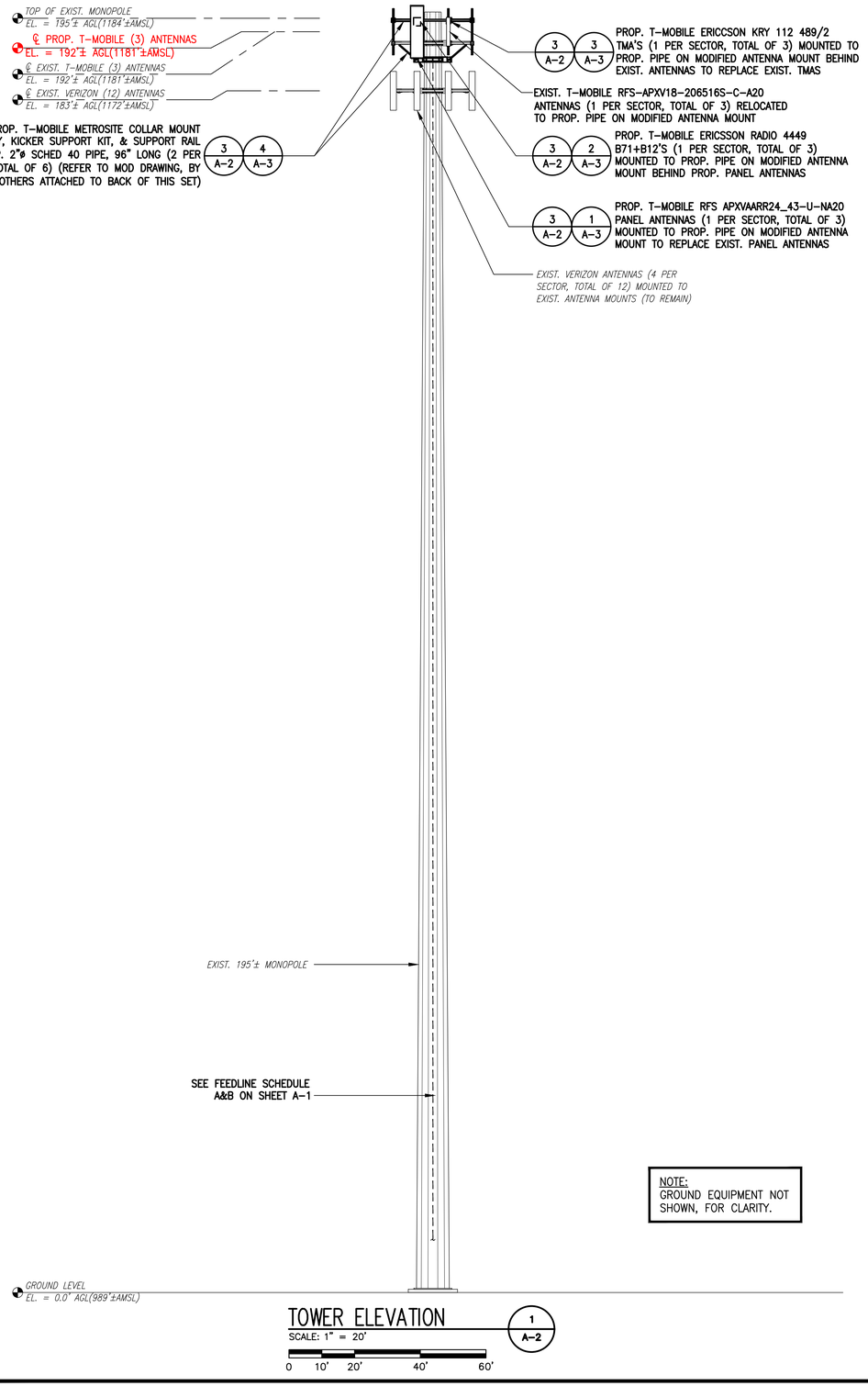
SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

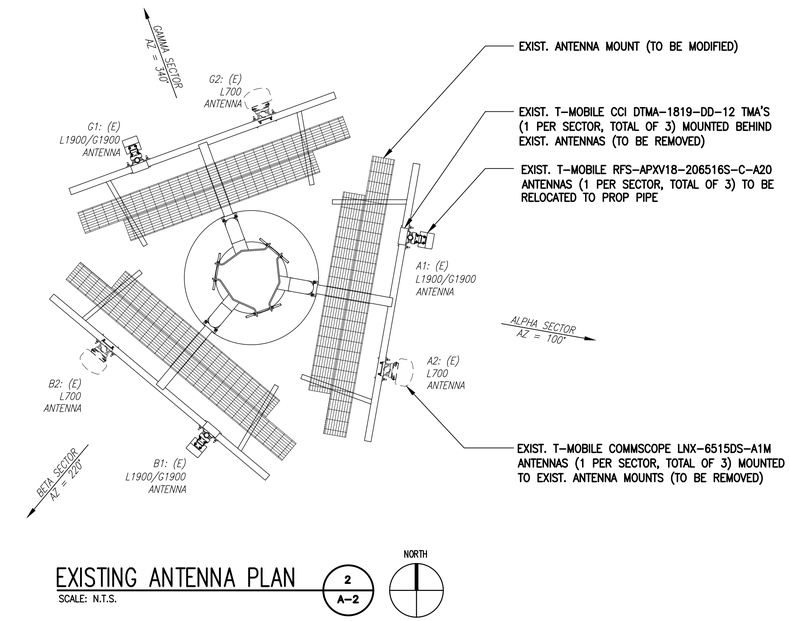


NOTE:
GROUND EQUIPMENT NOT SHOWN, FOR CLARITY.

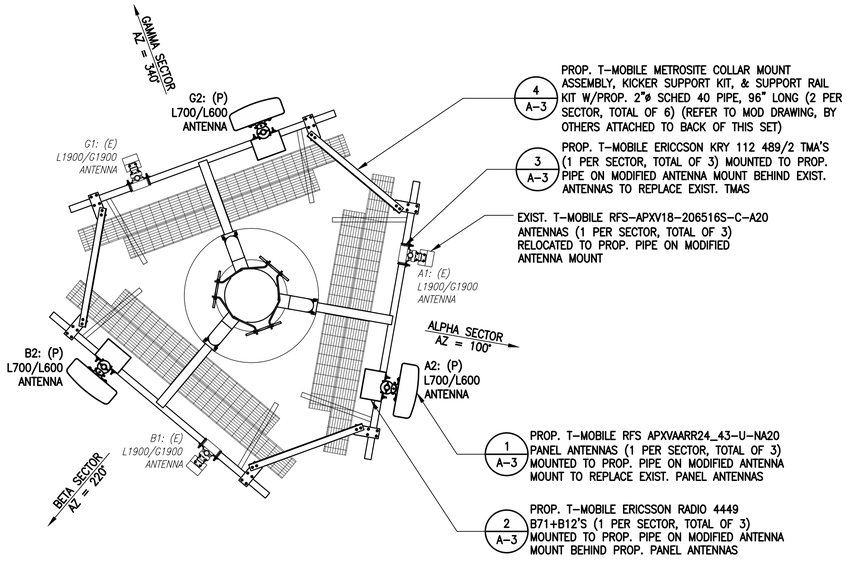
TOWER ELEVATION
SCALE: 1" = 20'
1 A-2
0 10' 20' 40' 60'

SPECIAL TOWER TOP EQUIPMENT INSTALLATION WORK NOTE (SAFETY-CLIMB ALIGNMENT REQUIREMENTS):
GENERAL CONTRACTOR SHALL ORIENT PROPOSED PLATFORM REINFORCEMENT KIT RING-MOUNTS SO THAT EXISTING SAFETY CLIMB CABLE IS NOT OBSTRUCTED/RE-ROUTED FROM VERTICAL ALIGNMENT AND IS NOT IN PHYSICAL CONTACT WITH EXISTING OR PROPOOSED RING-MOUNT HARDWARE. GENERAL CONTRACTOR SHALL INSTALL NEW OR ADDITIONAL SAFETY-CLIMB CABLE GUIDES IF ADDITIONAL CLEARANCE IS REQUIRED. ADDITIONAL CABLE GUIDES SHALL BE ATTACHED SECURELY TO THE POLE USING MECHANICAL FASTENERS OR FIELD WELDED BY A CERTIFIED WELDING TECHNICIAN.

RAD CENTER NOTE:
T-MOBILE RAD CENTER SHOWN IN RED TEXT BASED ON SBA-PROVIDED CO-LOCATION APPLICATION, EQUIPMENT DATABASE, AND STRUCTURAL ANALYSIS. THE SBA-PROVIDED ANTENNA RAD CENTER SHALL SUPERSEDE ANY CONFLICTING INFORMATION DERIVED FROM THE T-MOBILE RFDS.



EXISTING ANTENNA PLAN
SCALE: N.T.S.
2 A-2
NORTH



PROPOSED ANTENNA PLAN
SCALE: N.T.S.
3 A-2
NORTH

T-MOBILE NORTHEAST LLC
15 COMMERCE WAY, SUITE B
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SBA COMMUNICATIONS CORP.
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(508) 481-7400
www.chappellengineering.com

STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25987
LICENSED PROFESSIONAL CIVIL ENGINEER
6/2/20

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	06/02/20	ISSUED FOR CONSTRUCTION	JRV
0	06/05/19	ISSUED FOR REVIEW	MAM

SITE NUMBER:
CT11712A

SITE ADDRESS:
133 CLEARVIEW AVE
HARWINTON, CT 06791

SHEET TITLE
TOWER ELEVATIONS & ANTENNA PLAN

SHEET NUMBER
A-2

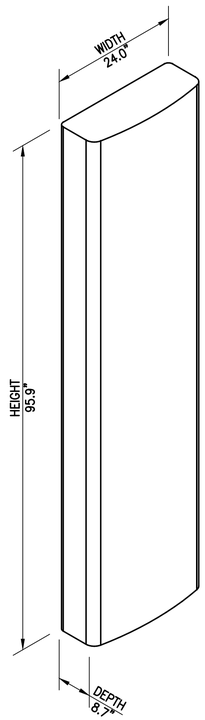
1815.094

FINAL ANTENNA CONFIGURATION

SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	CABLES
ALPHA	*RFS APXV18-206516S-C-A20*	*192'± AGL*	*100°*	*0°*	*2°*	*L1900/G1900*	*TWIN STYLE 1A PCS TMA*	*(2) 5/8" COAX CABLES*
	RFS APXVAARR24_43-U-NA20	**192'± AGL**	**100°**	**0°**	**2°**	**L600/L700**	**RADIO 4449 B71+B12**	**(1) 6x12 (1-5/8") HCS CABLE (SHARED)**
BETA	*RFS APXV18-206516S-C-A20*	*192'± AGL*	*220°*	*0°*	*2°*	*L1900/G1900*	*TWIN STYLE 1A PCS TMA*	*(2) 5/8" COAX CABLES*
	RFS APXVAARR24_43-U-NA20	**192'± AGL**	**220°**	**0°**	**2°**	**L600/L700**	**RADIO 4449 B71+B12**	**(1) 6x12 (1-5/8") HCS CABLE (SHARED)**
GAMMA	*RFS APXV18-206516S-C-A20*	*192'± AGL*	*340°*	*0°*	*2°*	*L1900/G1900*	*TWIN STYLE 1A PCS TMA*	*(2) 5/8" COAX CABLES*
	RFS APXVAARR24_43-U-NA20	**192'± AGL**	**340°**	**0°**	**2°**	**L600/L700**	**RADIO 4449 B71+B12**	**(1) 6x12 (1-5/8") HCS CABLE (SHARED)**

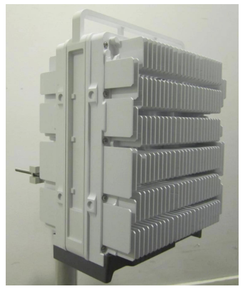
CABLE NOTE: (1) 1 5/8" COAX CABLE TO BE REMOVED, (1) 1 5/8" COAX CABLE & (4) 1 1/4" COAX CABLES TO REMAIN DISCONNECTED (SEE FEEDLINE SCHEDULE A&B ON SHEET A-1)

NOTE: RFDS REV2.1 - 05/14/19



RFS APXVAARR24_43-U-NA20 PANEL ANTENNA
DIMENSIONS: 95.9"H x 24.0"W x 8.7"D
WEIGHT: 128.0 LBS
1 PER SECTOR, TOTAL OF 3

ANTENNA DETAILS (1 / A-3)
SCALE: N.T.S.

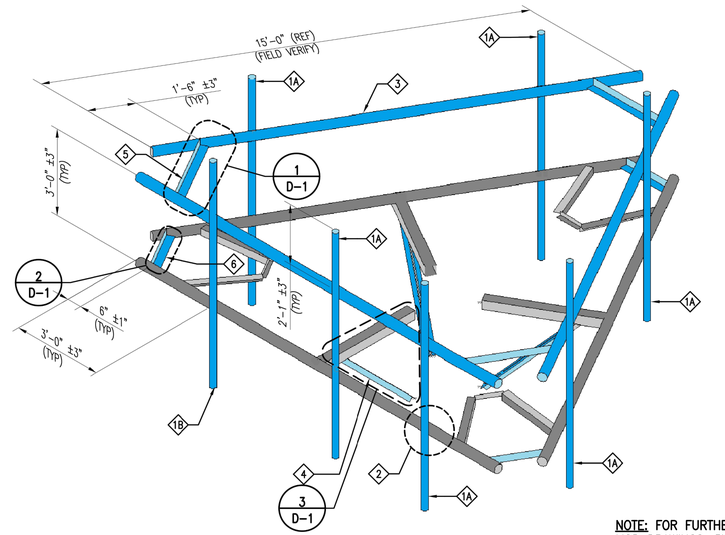


ERICSSON RADIO 4449 B12+B71
DIMENSIONS: 14.9"H x 13.2"W x 9.3"D
WEIGHT: 74.0 LBS
1 PER SECTOR, TOTAL OF 3

RRU DETAIL (2 / A-3)
SCALE: N.T.S.

ERICSSON KRY 112 489/2
DIMENSIONS: 11.0"H x 6.1"W x 3.94"D
WEIGHT: 15.4 LBS
1 PER SECTOR, TOTAL OF 3

TMA DETAIL (3 / A-3)
SCALE: N.T.S.



ISOMETRIC VIEW
EXISTING ANTENNA MOUNT @ 196' ELEV.

NOTE: FOR FURTHER DETAILS REFER TO MOD DRAWINGS, BY OTHER (ATTACHED TO BACK BACK OF THIS SET)

MOUNT MODIFICATION DETAIL (4 / A-3)
SCALE: N.T.S.

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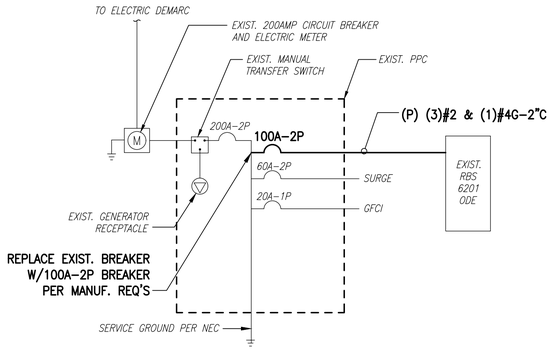
HARWINTON, CT 06791

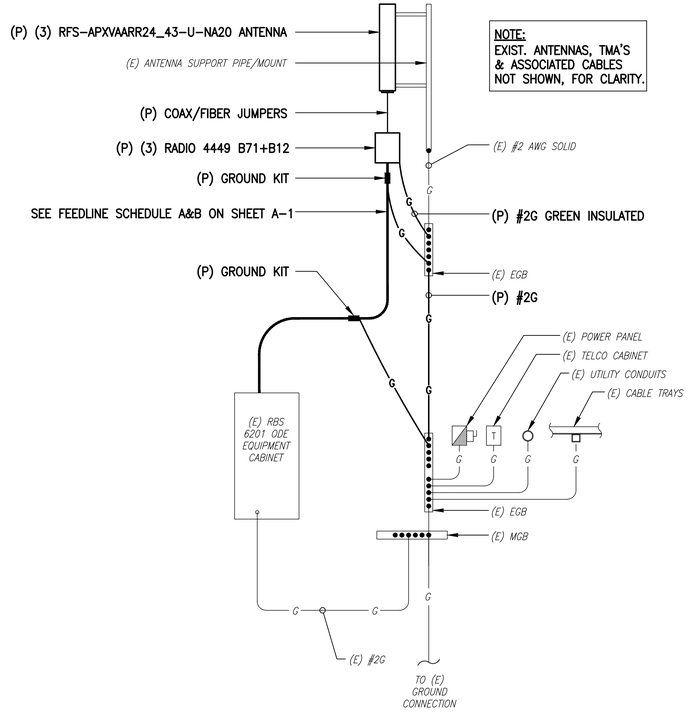
SHEET TITLE
SITE DETAILS

SHEET NUMBER
A-3

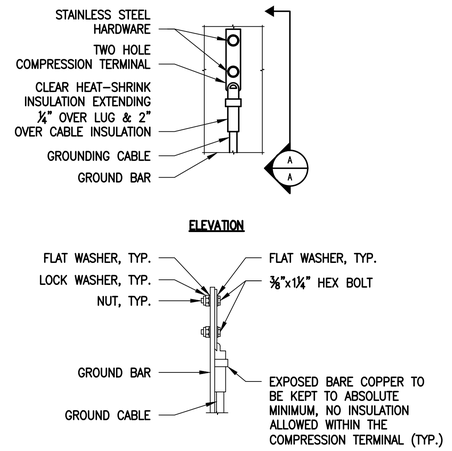
1815.094



ONE LINE DIAGRAM (1 / E-1)
SCALE: NOT TO SCALE

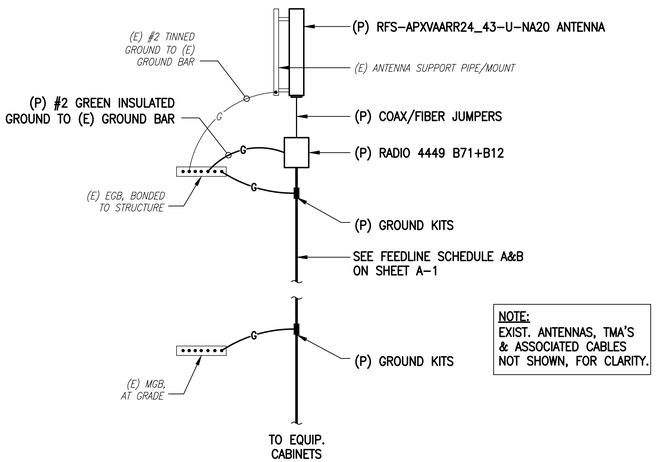


GROUNDING RISER DIAGRAM (2 / E-1)
SCALE: NOT TO SCALE

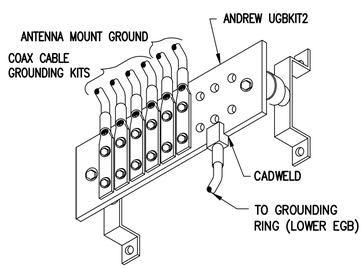


NOTES:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELL DOWNLEADS FROM UPPER EGB, LOWER EGB AND MGB.

TYPICAL GROUND BAR CONNECTIONS DETAIL (3 / E-1)
SCALE: NOT TO SCALE



COAX CABLE CONNECTION AND GROUNDING DETAIL (4 / E-1)
SCALE: NOT TO SCALE



GROUND BAR (EGB) (5 / E-1)
SCALE: NOT TO SCALE

ELECTRICAL AND GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THHNINSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
11. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
12. PPC SUPPLIED BY PROJECT OWNER.
13. GROUNDING SHALL COMPLY WITH NEC ART. 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE DONE IN ACCORDANCE WITH "T-MOBILE BTS SITE GROUNDING STANDARDS".
14. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
15. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
16. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
17. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
18. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
19. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
20. CONTRACTOR SHALL PROVIDE AND INSTALL OMNI DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALLS OVER EACH GROUND ROD AND BONDING POINT BETWEEN EXIST. TOWER/ MONOPOLE GROUNDING RING AND EQUIPMENT GROUNDING RING.
21. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMNS MINIMUM RESISTANCE REQUIRED.
22. CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.

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STATE OF CONNECTICUT
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LICENSED PROFESSIONAL CIVIL ENGINEER
6/2/20

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	06/02/20	ISSUED FOR CONSTRUCTION	JRV
0	06/05/19	ISSUED FOR REVIEW	MAM

SITE NUMBER:
CT11712A

SITE ADDRESS:
133 CLEARVIEW AVE
HARWINTON, CT 06791

SHEET TITLE
ELECTRIC & GROUNDING DETAILS

SHEET NUMBER
E-1

1815.094

EXHIBIT 7

MODIFICATION AND DESIGN DRAWINGS FOR EXISTING ANTENNA MOUNTS EXISTING MONOPOLE TOWER

PROPOSED CARRIER: T-MOBILE

TOWER OWNER: SBA / TOWER OWNER SITE #: CT01944-S

CARRIER SITE #/NAME: CT11712A / HARWINTON

COORDINATES (LATITUDE: 41.775522°, LONGITUDE: -73.098202°)

PLEASE NOTE THIS SET OF DRAWINGS ARE 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	ANTENNA MOUNT MODIFICATION DETAILS	0
A-2	ANTENNA MOUNT PHOTOS	0
D-1	STANDARD DETAILS	0
MS-HR35-18	METROSITE SUPPORT RAIL KIT	
MS-HRCP-35	METROSITE SUPPORT RAIL CENTER PIPE KIT	
MS-KI22-5	METROSITE KICKER KIT	
MS-1436	METROSITE LIGHT COLLAR MOUNT PLATE	
MPW-1	METROSITE LIGHT COLLAR MOUNT PLATE WELDMENT	

NOTE:

1. THE MODIFICATION DRAWINGS ARE BASED ON THE **TES** PROJECT NO. **78336**, DATED **06/25/2019**.

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

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

TES JOB NO:
81812

CUSTOMER SITE NO:
CT01944-S-SBA

CUSTOMER SITE NAME:
HARWINTON
133 CLEARVIEW AVE
HARWINTON, CT 06791

STATE OF CONNECTICUT
HANMING YOU
28931
LICENSED PROFESSIONAL ENGINEER
8/7/19

DRAWN BY: SP | CHECKED BY: DC/HMA

REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	SP	08/07/19

SHEET TITLE:
TITLE SHEET

SHEET NUMBER: T-1

REV #: 0

BILL OF MATERIALS

QUANTITY COUNTED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTIONS	SHEET LIST	PIECE WEIGHT (LBS)	WEIGHT (LB)	NOTES
			MATERIAL & HARDWARE				
2	2	MS-HRCP-35	METROSITE SUPPORT RAIL CENTER PIPE KIT	A-1, MS-HRCP-35	23.0	46.0	Galvanized
1	1	MS-HR35-18	METROSITE SUPPORT RAIL KIT	A-1, MS-HR35-18	523.0	523.0	Galvanized
1	1	MS-1436	METROSITE LIGHT COLLAR MOUNT ASSEMBLY	A-1, MS-1436	87.0	87.0	Galvanized
1	1	MS-KI22-5	METROSITE KICKER SUPPORT KIT	A-1, MS-KI22-5	146.0	146.0	Galvanized
			FOLLOWING ITEMS ARE "CUSTOM" PARTS				
7	7	PX2375-8	2" PX (2.375" O.D. X 0.218" THICKNESS) X 8'-0" A53 GR-B 35KSI	A-1	41.10	287.7	GALVANIZED
6	6	L3325-6	L 3" X 3" X 1/4" X 6'-0" A36	D-1	30.01	180.1	GALVANIZED (FINAL CUT LENGTH TO BE DETERMINED IN FIELD)
12	12	PL375-11	PL 3/8" X 4 1/4" X 11" A36	D-1	5.04	60.5	GALVANIZED
24	26	MS02-625-3625-600	RU-BOLT 5/8" X 3 5/8" I.W. X 6" I.L. A36 (OR EQUIV.)	D-1	1.45	39.6	(2) HHN & LKW-EA GALVANIZED
24	26	--	BOLT 5/8" X 2" A325	D-1	0.00	0.0	(1) HHN & LKW-EA GALVANIZED
						TOTAL WEIGHT (LBS) =	**1369.8**

ALL METROSITE 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.

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

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

TES JOB NO:
81812

CUSTOMER SITE NO:
CT01944-S-SBA
CUSTOMER SITE NAME:
HARWINTON
133 CLEARVIEW AVE
HARWINTON, CT 06791

DRAWN BY: SP | CHECKED BY: DC/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	SP	08/07/19

SHEET TITLE:
BILL OF MATERIALS

SHEET NUMBER: BOM
REV #: 0

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE ANSI/TIA-222-G, 2018 CONNECTICUT STATE BUILDING CODE ANSI/ASSP A10.48, 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.
7. IT IS THE RESPONSIBILITY OF THE GC TO VERIFY THAT THERE IS NO INTERFERENCES (WITH SAFETY CLIMB BRACKETS, TRANSMISSION LINES, ETC.) PRIOR TO MOBILIZATION AND INSTALLATION OF THESE MODIFICATIONS.
8. PLEASE NOTIFY TES IMMEDIATELY IF ANY INSTALLATION ISSUES OCCUR RELATED TO THIS DRAWING @ 972-483-0607 OR EMAIL-TESCONSTRUCTION@TESTOWER.US

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 ZRC GALVILITE 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 ZRC GALVILITE 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 AND TABLE 1705.3 FOR CONCRETE CONSTRUCTION.

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

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

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

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

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

[d] BEVELED WASHER NOT USED.

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

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

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

FIELD HOT WORK PLAN NOTES:

FOLLOWING GUIDELINES SHALL BE COMPLIED WITH:

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

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

SBA

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

TES JOB NO:
81812

CUSTOMER SITE NO:
CT01944-S-SBA
CUSTOMER SITE NAME:
HARWINTON
133 CLEARVIEW AVE
HARWINTON, CT 06791

DRAWN BY: SP | CHECKED BY: DC/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	SP	08/07/19

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER: GN-1
REV #: 0

SCOPE OF WORK

1. A. REPLACE ALL EXISTING ANTENNA MOUNT PIPES WITH NEW 2" EXTRA STRONG PIPES (8'-0" LONG) THEN RELOCATE EXISTING ANTENNAS TO THE NEW MOUNT PIPES (TYP). (2) PER SECTOR. EXISTING ANTENNA RAD CENTER TO BE MAINTAINED.

   B. INSTALL (1) NEW ANTENNA MOUNT PIPE 2" EXTRA STRONG (8'-0" LONG) ON ONE SECTOR AS SHOWN. USE (1) CROSSOVER PLATE FROM NEW SUPPORT RAIL TO ATTACH THIS ANTENNA MOUNT PIPE TO THE EXISTING 3.50" O.D. HORIZONTAL.

2. INSTALL NEW CENTER PIPE KITS TO ATTACH NEW ANTENNA MOUNT PIPES TO THE EXISTING 3.5" O.D. HORIZONTALS. (2) PER SECTOR. SEE SHEET MS-HRCP-35 FOR DETAILS.

3. INSTALL NEW SUPPORT RAIL KIT. SEE SHEET MS-HR35-18 FOR DETAILS.

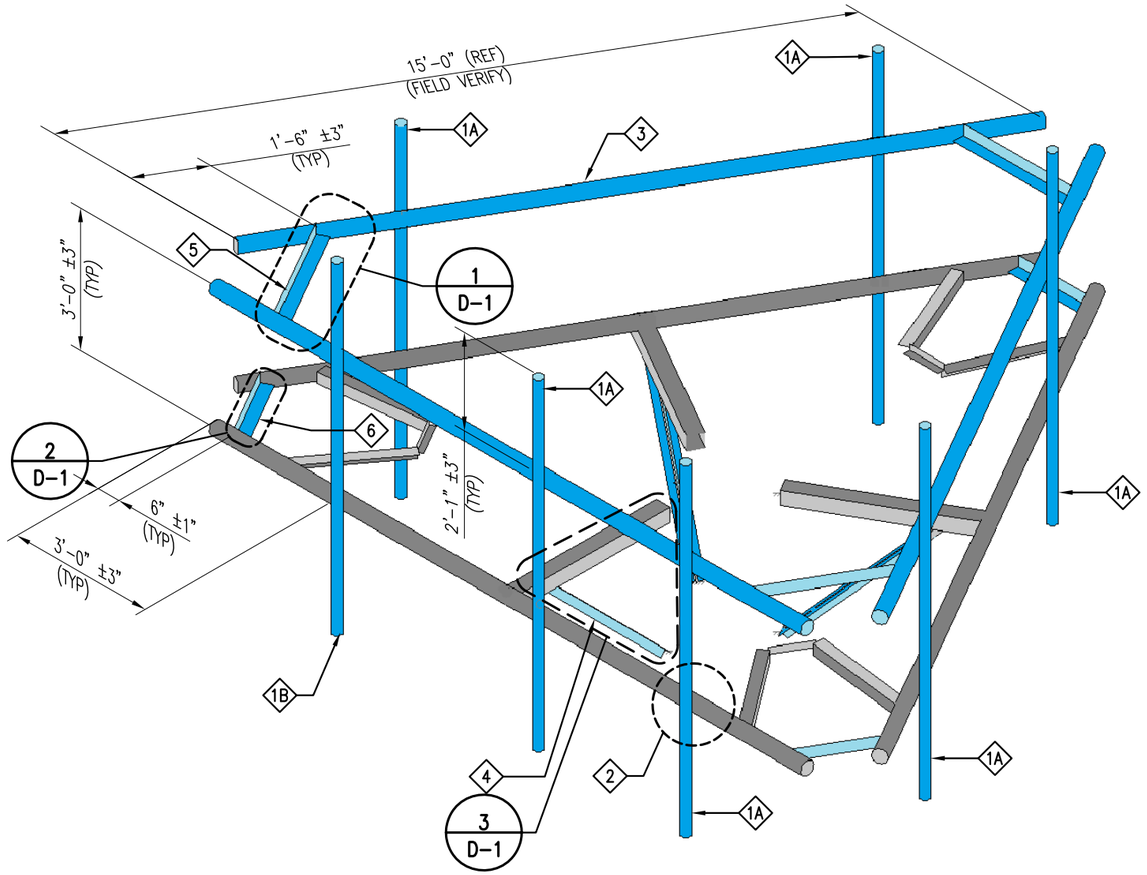
4. INSTALL NEW LIGHT COLLAR MOUNT (NOT SHOWN FOR CLARITY) & KICKER SUPPORT KIT. SEE SHEETS D-1, MS-1436 & MS-KI22-5 FOR DETAILS.

5. INSTALL NEW END CONNECTION TO THE NEW SUPPORT RAIL. SEE SHEET D-1 FOR DETAILS.

6. INSTALL NEW END CONNECTION TO THE EXISTING HORIZONTAL. SEE SHEET D-1 FOR DETAILS.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEAN-UP, REMOVAL AND DISPOSAL OF EXCESS MATERIALS USED AND REMOVED FROM THE STRUCTURE AT THE COMPLETION OF THE PROJECT.

PHOTO 1



ISOMETRIC VIEW
EXISTING ANTENNA MOUNT @ 196' ELEV.

GC NOTE:
1. **IT IS THE RESPONSIBILITY OF THE GC TO VERIFY THAT THERE IS NO INTERFERENCES WITH (PORT HOLES, SAFETY CLIMB BRACKETS, TRANSMISSION LINES, ETC.) PRIOR TO MOBILIZATION AND INSTALLATION OF THESE MODIFICATIONS.**
2. **PLEASE NOTIFY TES IMMEDIATELY IF ANY INSTALLATION ISSUES OCCUR RELATED TO THIS DRAWING @ 972-483-0607 OR EMAIL-TESCONSTRUCTION@TESTOWER.US**

NOTES:
1. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE LEGS AND/OR ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.
2. WHEN FIELD CUTTING AND DRILLING ANGLES, USE SAME GAGE LINES AND EDGE DISTANCES AS INDICATED ON SHOP CUT AND DRILLED ENDS.
3. APPLY (2) COATS OF ZINC RICH GALVANIZING COMPOUND AS PER THE MANUFACTURER'S SPECIFICATIONS TO ALL FIELD CUT AND DRILLED AREAS.
4. **MEMBERS IN BLUE COLOR ARE NEW REINFORCEMENTS.**

ITEM NO.	QTY.	PART NO.	DESCRIPTIONS
1	7	PX2375-8	2" PX (2.375" O.D. X 0.218" THICKNESS) X 8'-0" A53 GR-B
2	2	MS-HRCP-35	METROSITE SUPPORT RAIL CENTER PIPE KIT
3	1	MS-HR35-18	METROSITE SUPPORT RAIL KIT
4	1	MS-1436	METROSITE LIGHT COLLAR MOUNT ASSEMBLY
5	1	MS-KI22-5	METROSITE KICKER SUPPORT KIT

TES
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1320 GREENWAY DRIVE, SUITE 600
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5900 BROKEN SOUND PARKWAY, NW
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(800)-487-SITE

TES JOB NO:
81812

CUSTOMER SITE NO:
CT01944-S-SBA
CUSTOMER SITE NAME:
HARWINTON
133 CLEARVIEW AVE
HARWINTON, CT 06791

DRAWN BY: SP | CHECKED BY: DC/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	SP	08/07/19

SHEET TITLE:
ANTENNA MOUNT MODIFICATION DETAILS

SHEET NUMBER: A-1
REV #: 0

REPLACE ALL EXISTING ANTENNA MOUNT PIPES WITH NEW 2" EXTRA STRONG PIPES THEN RELOCATE EXISTING ANTENNAS TO NEW MOUNT PIPES (TYP). (2) PER SECTOR. EXISTING ANTENNA RAD CENTER TO BE MAINTAINED.

PHOTO 1

PHOTO 2

PHOTO 3

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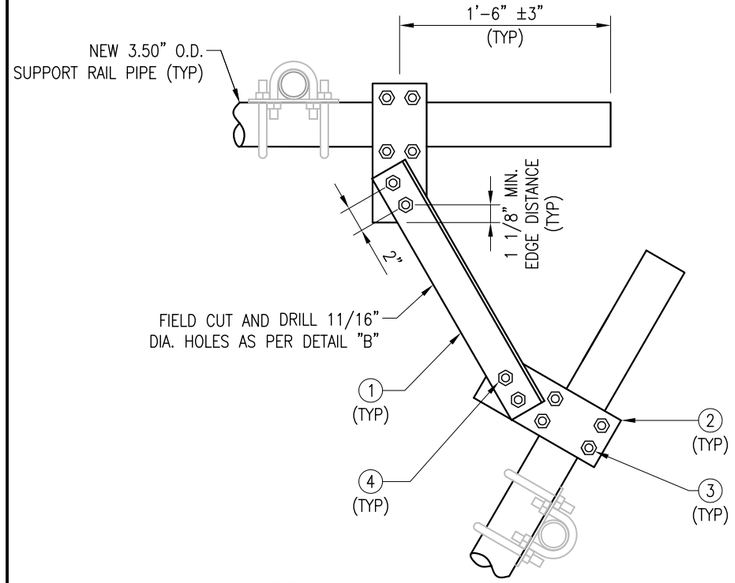
133 CLEARVIEW AVE
HARWINTON, CT 06791

DRAWN BY: SP | CHECKED BY: DC/HMA

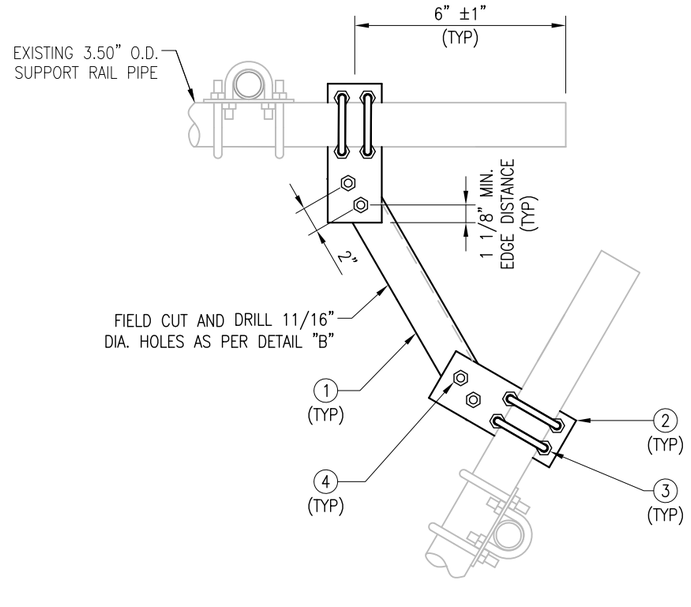
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	SP	08/07/19

SHEET TITLE:
ANTENNA MOUNT PHOTOS

SHEET NUMBER: A-2
REV #: 0



1 / D-1 DETAIL



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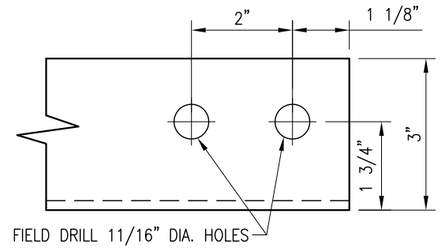
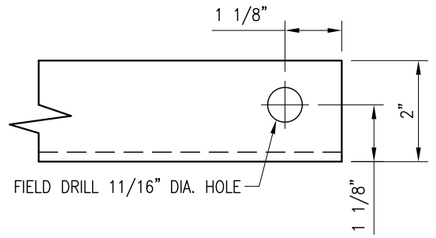
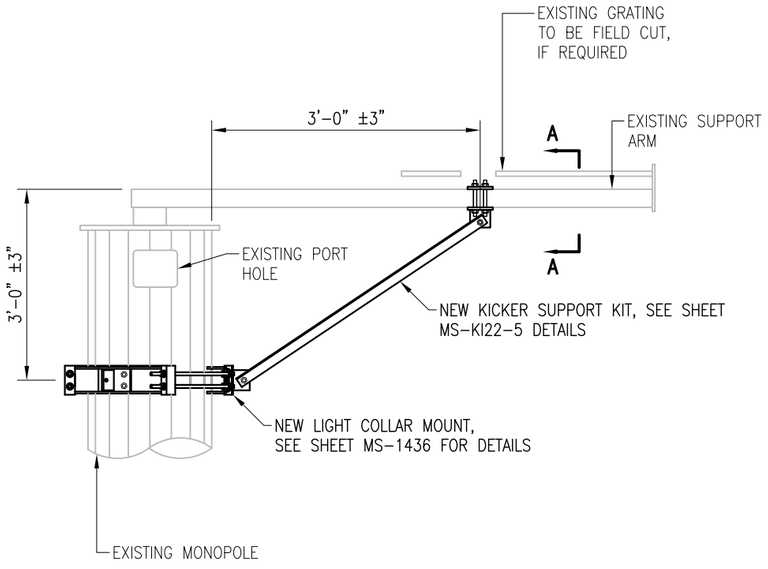


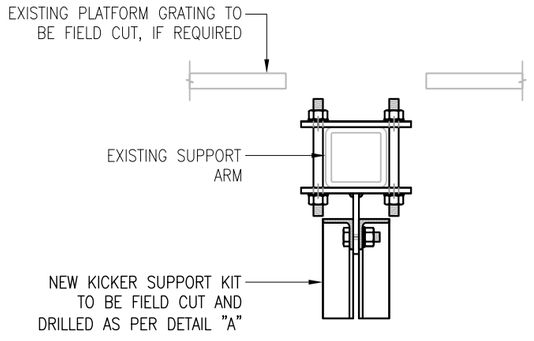
DETAIL "B"



DETAIL "A"



3 / D-1 DETAIL



SECTION A-A

NOTES:
1. HOT-DIPPED GALVANIZED PER ASTM A123.
2. ALL HOLES ARE 11/16" DIA. U.N.O

ITEM NO.	QTY.	PART NO.	DESCRIPTIONS
1	6	L3325-6	L 3" X 3" X 1/4" X 6'-0" A36
2	12	PL375-11	PL 3/8" X 4 1/4" X 11" A36
3	24	MS02-625-3625-600	RU-BOLT 5/8" X 3 5/8" I.W. X 6" I.L. A36 (OR EQUIV.)
4	24	--	BOLT 5/8" X 2" A325

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HARWINTON, CT 06791

DRAWN BY: SP | CHECKED BY: DC/HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	SP	08/07/19

SHEET TITLE:

STANDARD DETAILS

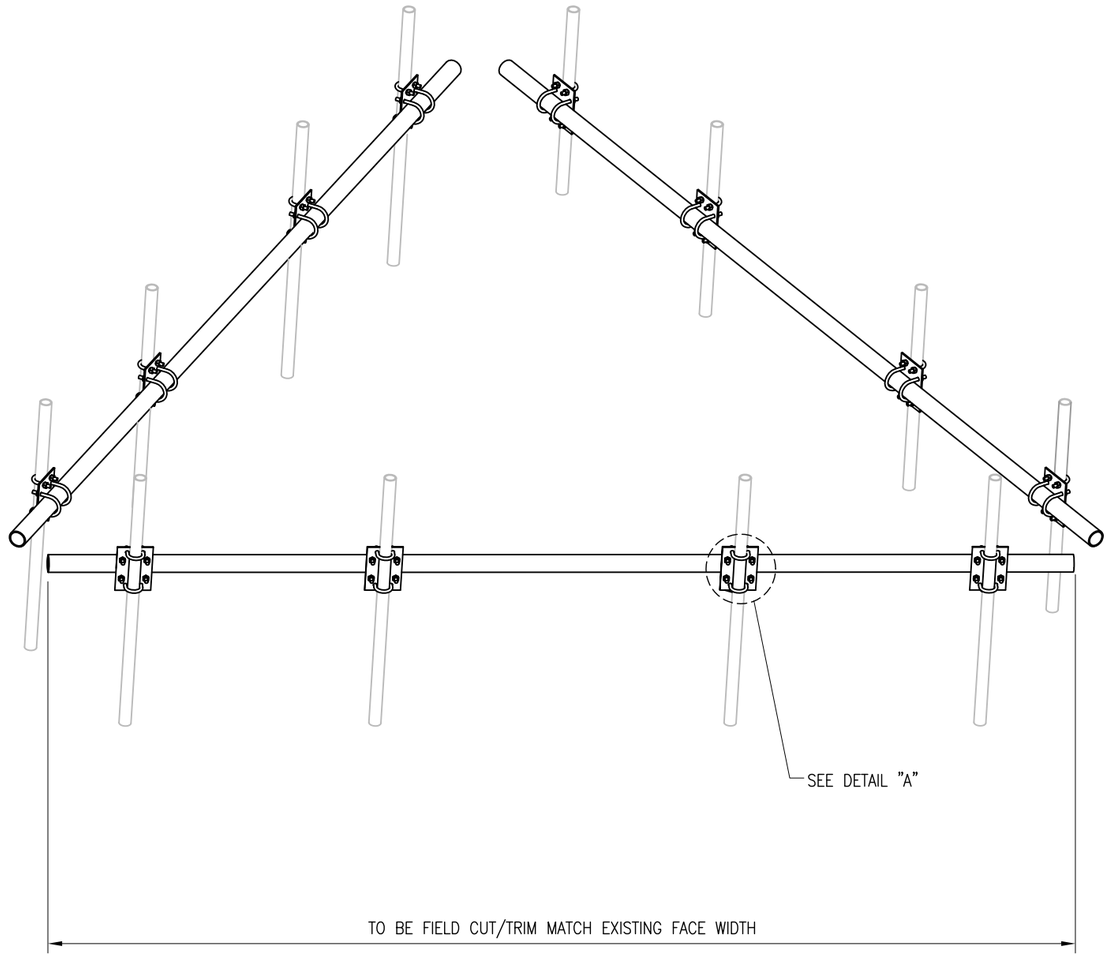
SHEET NUMBER: D-1

REV #: 0

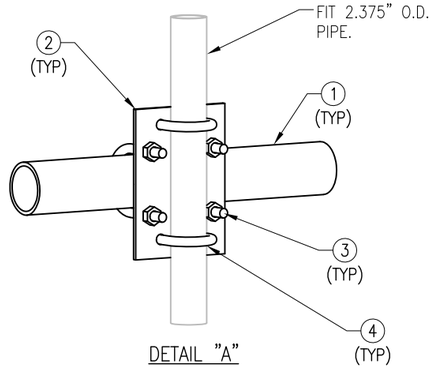
THE FOLLOWING DRAWINGS ARE INCLUDED FOR REFERENCE ONLY
PLEASE REFER TO THE INSTALLATION DRAWINGS FOR ACTUAL INSTALLATION DETAILS

MS-HR35-18

ITEM NO.	QTY.	PART NO.	DESCRIPTION	GRADE	SHEET #	WT
1	3	3PST-216	3" PST (3.50" O.D X .216" THICK) X 18'-0"	A53 GR-B	HR35-18	430.2
2	12	PL375-10	PL 3/8" X 7 1/8" X 10"	A36	TAF-1	92.4
3	24	MS02-625-3625-600	RU-BOLT 5/8" X 3 5/8" I.W. X 6" I.L. A36 (OR EQUIV.)	A36	RBC-1	--
4	24	MS02-625-250-400	RU-BOLT 5/8" X 2 1/2" I.W. X 4" I.L. A36 (OR EQUIV.)	A36	RBC-1	--
					GALVANIZED WT	523



ELEVATION VIEW



DETAIL "A"

NOTES:
1. ALL HOLES ARE 11/16" DIA. U.N.O
2. HOT-DIPPED GALVANIZED PER ASTM A123.

THIRD ANGLE PROJECTION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE FINISH

STANDARD SHEET TOLERANCES

DECIMALS	ANGLES
.X ± 0.1	± 1°
.XX ± 0.02	FRACTIONS
.XXX ± 0.005	± 1/32

APPROVAL / SIGNATURES		DATE
DRAWN BY	XXX	05/12/17
REVIEWED	XXX	-
APPROVED	XXX	-

METROSITE FABRICATORS LLC
180 INDUSTRIAL PARK BLVD.
COMMERCE GA 30529

TITLE
MS-HR35-18
SUPPORT RAIL KIT

SIZE	DWG NO	REV
B	MS-HR35-18	0

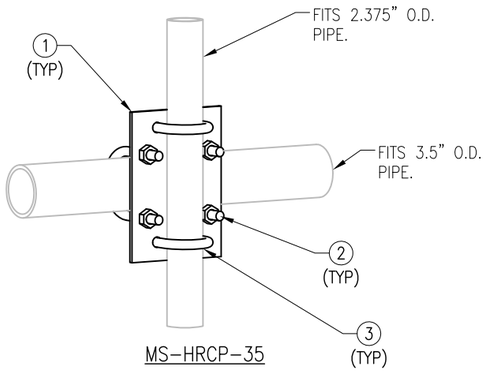
SCALE -

SHEET 1 OF 1

NOTES:
1. 1. ALL HOLES ARE 11/16" DIA. U.N.O
2. HOT-DIPPED GALVANIZED PER ASTM A123.

MS-HRCP-35

ITEM NO.	QTY.	PART NO.	DESCRIPTION	GRADE	SHEET #	WT
1	3	PL375-10	PL 3/8" X 7 1/8" X 10"	A36	TAF-1	23.1
2	6	MS02-625-3625-600	RU-BOLT 5/8" X 3 5/8" I.W. X 6" I.L. A36 (OR EQUIV.)	A36	RBC-1	--
3	6	MS02-625-250-400	RU-BOLT 5/8" X 2 1/2" I.W. X 4" I.L. A36 (OR EQUIV.)	A36	RBC-1	--
					GALVANIZED WT	23



THIRD ANGLE PROJECTION

METROSITE FABRICATORS LLC
180 INDUSTRIAL PARK BLVD.
COMMERCE GA 30529

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE FINISH

STANDARD SHEET TOLERANCES

DECIMALS	ANGLES
.X ± 0.1	± 1°
.XX ± 0.02	FRACTIONS
.XXX ± 0.005	± 1/32

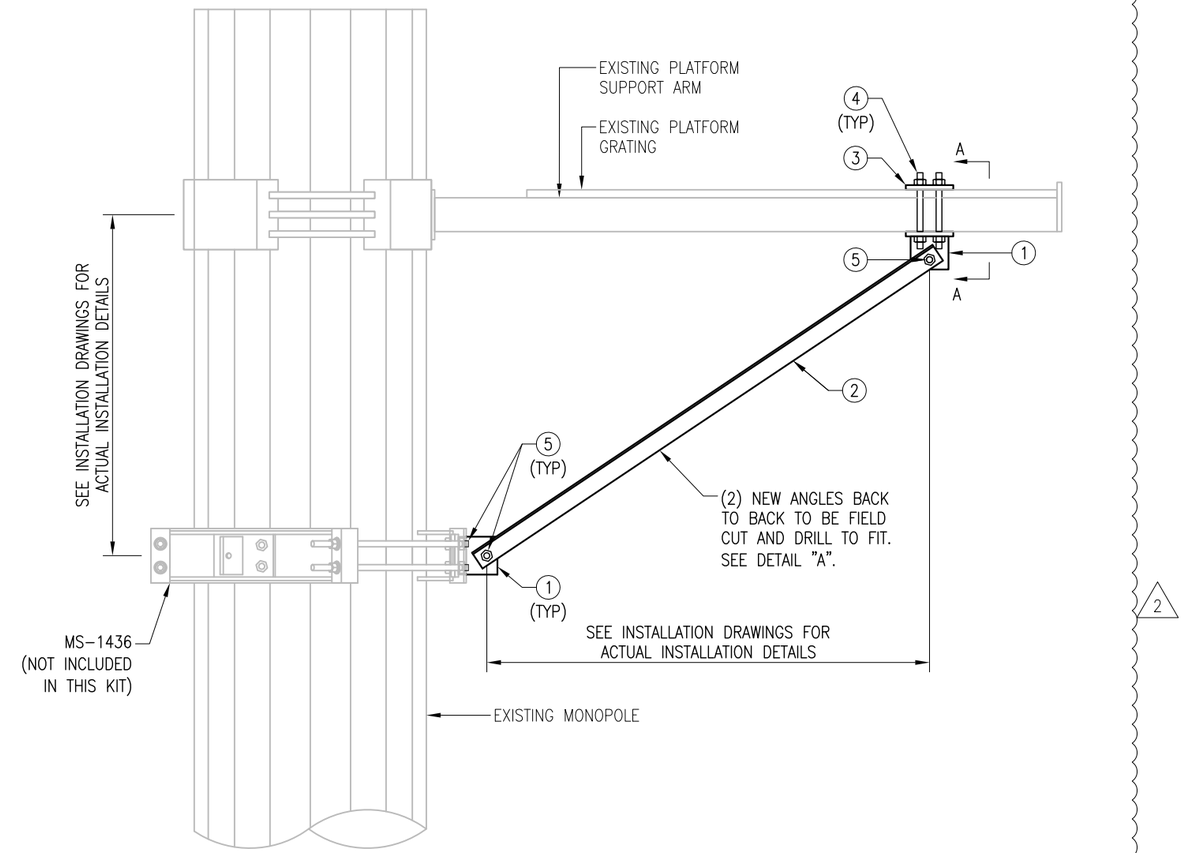
APPROVAL / SIGNATURES		DATE
DRAWN BY	XXX	05/12/17
REVIEWED	XXX	-
APPROVED	XXX	-

TITLE
MS-HRCP-35
SUPPORT RAIL CENTER PIPE KIT

SIZE	DWG NO	REV
B	MS-HRCP-35	0

SCALE -
SHEET 1 OF 1

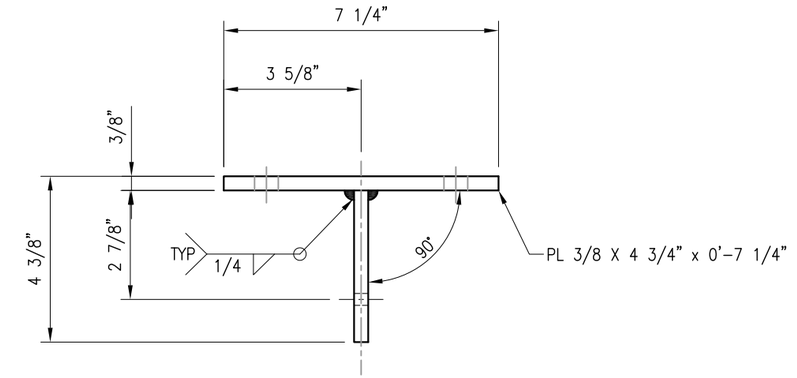
NOTE:
THE LOCATION OF KICKER AND EXISTING ANTENNA MOUNT SHOWN ON THE DRAWING IS FOR REPRESENTATION PURPOSE ONLY. SEE INSTALLATION DRAWINGS FOR ACTUAL INSTALLATION OF DETAILS.



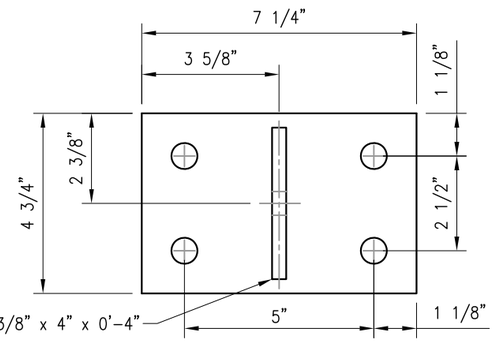
ELEVATION

MS-KI22-5

ITEM NO.	QTY.	PART NO.	DESCRIPTION	GRADE	SHEET #	WT
1	6	BRKMW-1S	BRACKET WELDMENT	---	BRKMW-1S	34.8
2	6	D2225-5	L 2" X 2" X 1/4" X 5'-0"	A36	KF-1	100.5
3	3	PL1S-375	PL 3/8" X 4 3/4" X 7 1/4"	A36	KF-1	11.1
4	12	---	ALL THREAD ROD 5/8" DIA. X 10" HDG W/ (2) HHN & LKW EA.	A36	---	--
5	18	---	BOLT 5/8" X 2" W/ HHN & LKW	A325	--	--
				GALVANIZED WT		146

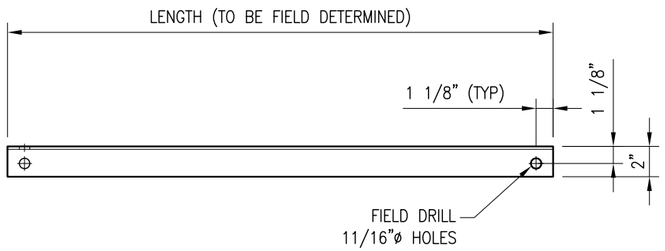


TOP VIEW

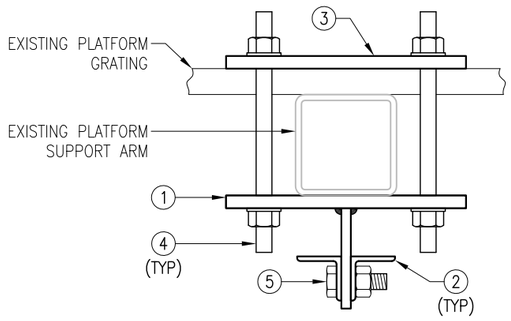


FRONT VIEW

BRKMW-1S WELDMENT



DETAIL "A"



SECTION "A-A"

NOTES:
1. ALL HOLES ARE 11/16" DIA. U.N.O
2. HOT-DIPPED GALVANIZED PER ASTM A123.

THIRD ANGLE PROJECTION

METROSITE FABRICATORS LLC
180 INDUSTRIAL PARK BLVD.
COMMERCE GA 30529

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE FINISH
STANDARD SHEET TOLERANCES
DECIMALS: .X ± 0.1, .XX ± 0.02, .XXX ± 0.005
ANGLES: ± 1°
FRACTIONS: ± 1/32

APPROVAL / SIGNATURES		DATE
DRAWN BY	XXX	06/21/18
REVIEWED	XXX	-
APPROVED	XXX	-

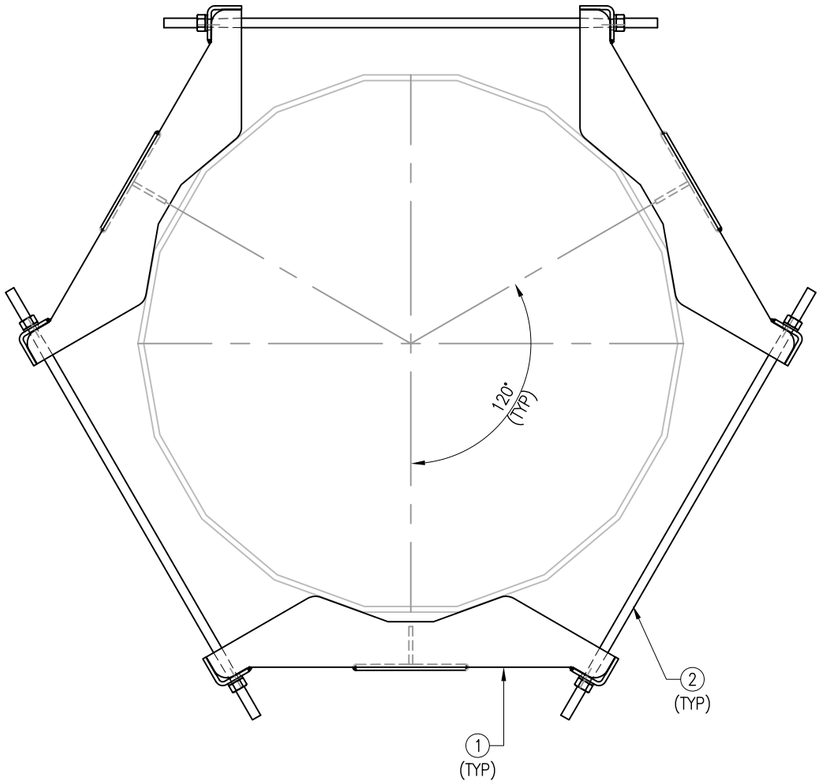
TITLE: KICKER SUPPORT KIT

SIZE B | DWG NO MS-KI22-5 | REV 2
SCALE -
SHEET 1 OF 1

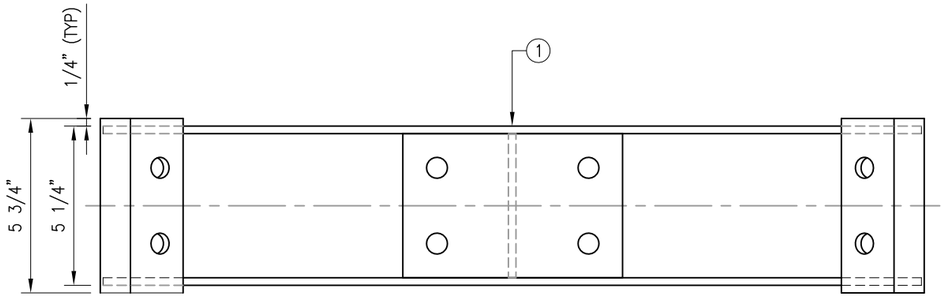
NOTE:
1) FITS 12" DIA TO 32" DIA.

ITEM NO.	QTY.	PART NO.	DESCRIPTION
2	6	---	THREADED ROD 5/8" X 2'-4 3/4" W/ 2 HHN & LK EA A36
1	3	MPW-1	MOUNT PLATE WELDMENT A36

GALVANIZED WEIGHT: 65.6 LBS



TOP VIEW



FRONT VIEW

THIRD ANGLE PROJECTION

METROSITE FABRICATORS LLC
180 INDUSTRIAL PARK BLVD.
COMMERCE GA 30529

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE FINISH
STANDARD SHEET TOLERANCES
DECIMALS: .X ± 0.1, .XX ± 0.02, .XXX ± 0.005
ANGLES ± 1°
FRACTIONS ± 1/32

APPROVAL / SIGNATURES		DATE
DRAWN BY	XXX	05/12/17
REVIEWED	XXX	-
APPROVED	XXX	-

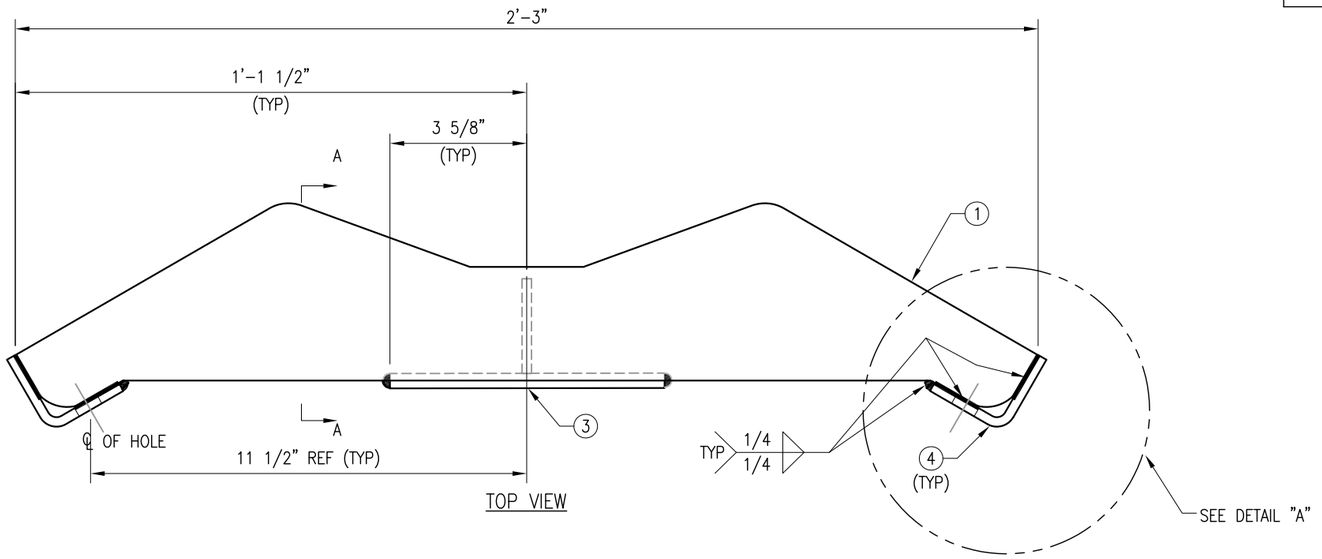
TITLE
LIGHT COLLAR MOUNT PLATE
ASSEMBLY DETAIL MS-1436

SIZE	DWG NO	REV
B	MS-1436	1

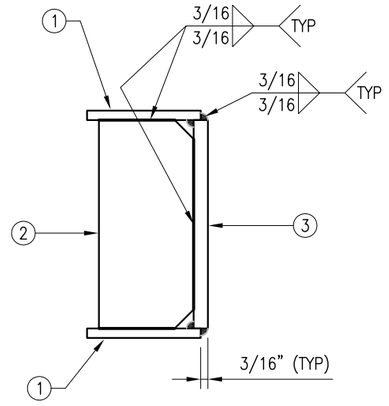
SCALE -
SHEET 1 OF 1

NOTES:
1. HOT-DIPPED GALVANIZED PER ASTM A123.
2. WELD TYPE: E70XX.

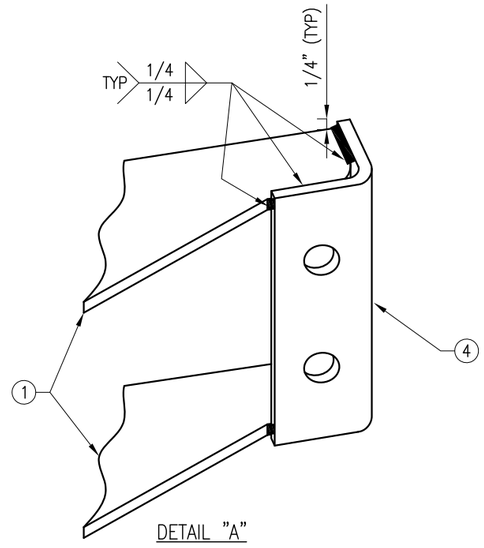
MPW-1 WELDMENT						
ITEM NO.	QTY.	PART NO.	DESCRIPTION	GRADE	SHEET #	WT
1	2	PL-1	PL 1/4" X 5 3/8" X 2'-3"	A36	F-2	12.6
2	1	PL-2	PL 1/4" X 2 1/2" X 0'-4 3/4"	A36	F-2	.83
3	1	PL-3	PL 3/8" X 4 3/4" X 0'-7 1/4"	A36	F-2	3.7
4	2	PL-8	PL 1/4" x 4 1/8" x 5 3/4"	A36	F-2	3.2
					BLACK WT	20.3
					GALVANIZED WT	21



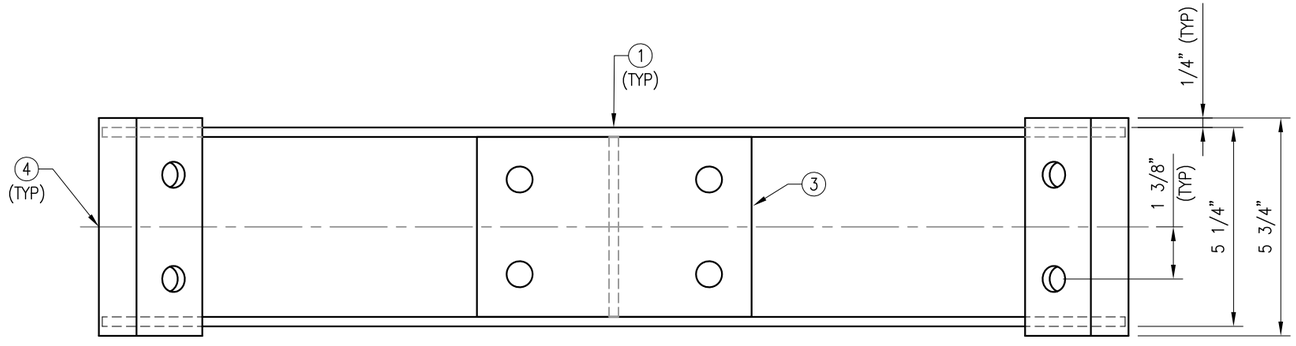
TOP VIEW



SECTION "A-A"



DETAIL "A"



FRONT VIEW

MPW-1 WELDMENT

THIRD ANGLE PROJECTION

METROSITE FABRICATORS LLC
180 INDUSTRIAL PARK BLVD.
COMMERCE GA 30529

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE FINISH

STANDARD SHEET TOLERANCES

DECIMALS	ANGLES
.X ± 0.1	± 1°
.XX ± 0.02	FRACTIONS
.XXX ± 0.005	± 1/32

APPROVAL / SIGNATURES		DATE
DRAWN BY	XXX	05/12/17
REVIEWED	XXX	-
APPROVED	XXX	-

TITLE
LIGHT COLLAR MOUNT
PLATE WELDMENT DETAIL

SIZE	DWG NO	REV
B	MPW-1	0

SCALE - SHEET 1 OF 1

EXHIBIT 8

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

Structural Analysis Report

Existing 195 ft Nudd Corporation Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT01944-S

Customer Site Name: Harwinton

Carrier Name: T-Mobile (App#: 117027, v1)

Carrier Site ID / Name: CT11712A / Harwinton

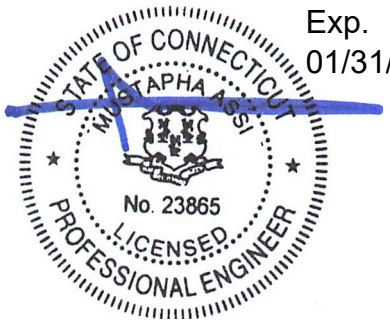
Site Location: 133 Clearview Ave

Harwinton, Connecticut

Litchfield County

Latitude: 41.775522

Longitude: -73.098202



Exp. 01/31/2020

07/23/2019

Analysis Result:

Max Structural Usage: 84.7% [Pass]

Max Foundation Usage: 20.0% [Pass]

Additional Usage Caused by Mount Modification: +2.5%

Report Prepared By: Vishnu Paidimarri

Introduction

The purpose of this report is to summarize the analysis results on the 195 ft Nudd Corporation Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Fred A. Nudd Corporation, Project # 7218-1 Dated 12/30/1999
Foundation Drawing	Fred A. Nudd Corporation, Project # 7218-1 Dated 12/30/1999
Geotechnical Report	Jaworski Geotech, Project # 99503G Dated 11/29/1999
Modification Drawings	Vertical Structures, TA2003007014-T1 Dated 09/09/2003

Analysis Criteria

The comprehensive analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-H**.** 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:	115.0 mph (3-Sec. Gust) (Ultimate wind speed)
Wind Speed with Ice:	40 mph (3-Sec. Gust) with 1" radial ice concurrent
Service Load Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Category:	2
Crest Height:	427 ft
Seismic Parameters:	S_S = 0.176, S_1 = 0.054

This structural analysis is based upon the tower being classified as a Risk Category 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
-	192.0	3	RFS - APXV18-206516S-C-A20 - Panel	Low Profile Platform	(12) 1 5/8"	T-Mobile
-		3	Commscope - LNX-6515DS-A1M - Panel			
-		3	CCI - DTMA-1819-DD-12 - TMA			
-		3	Kathrein - 782 11056 - Bias T's			
6	183.0	3	Antel - BXA-70063-6CF - Panel	Low Profile Platform	(18) 1 5/8"	Verizon
7		6	Antel - LPA-80063-4CF - Panel			
8		2	Antel - LPA-171063-8CF - Panel			
9		4	Antel - LPA-171080-8CF - Panel			

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
1	192.0	3	RFS - APXV18-206516S-C-A20 - Panel	Low Profile Platform MS-HRECP-35 (SUPPORT RAIL PIPE W/ END CONNECTION KIT) MS-KI22-5 (KICKER SUPPORT) + (Replace all mount pipes & add additional plan bracing)	(11) 1 5/8" (1) 1 5/8" Fiber	T-Mobile
2		3	RFS APXVAARR24_43-U-NA20 Panels			
3		3	Ericsson KRY 112 489/2 TMAs			
4		3	Ericsson Radio 4449 B71+B12 RRU			
5		3	Kathrein 782 11056 BIAS-T			

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	Flange
Max. Usage:	**47.2%**	**54.7%**	**73.5%**	**84.7%**
Pass/Fail	**Pass**	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	2820.6	22.5	67.5

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

Service Load Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-H for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.2111 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

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

Standard Conditions

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

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

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

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

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

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

Usage Diagram - Max Ratio 47.25% at 0.0ft

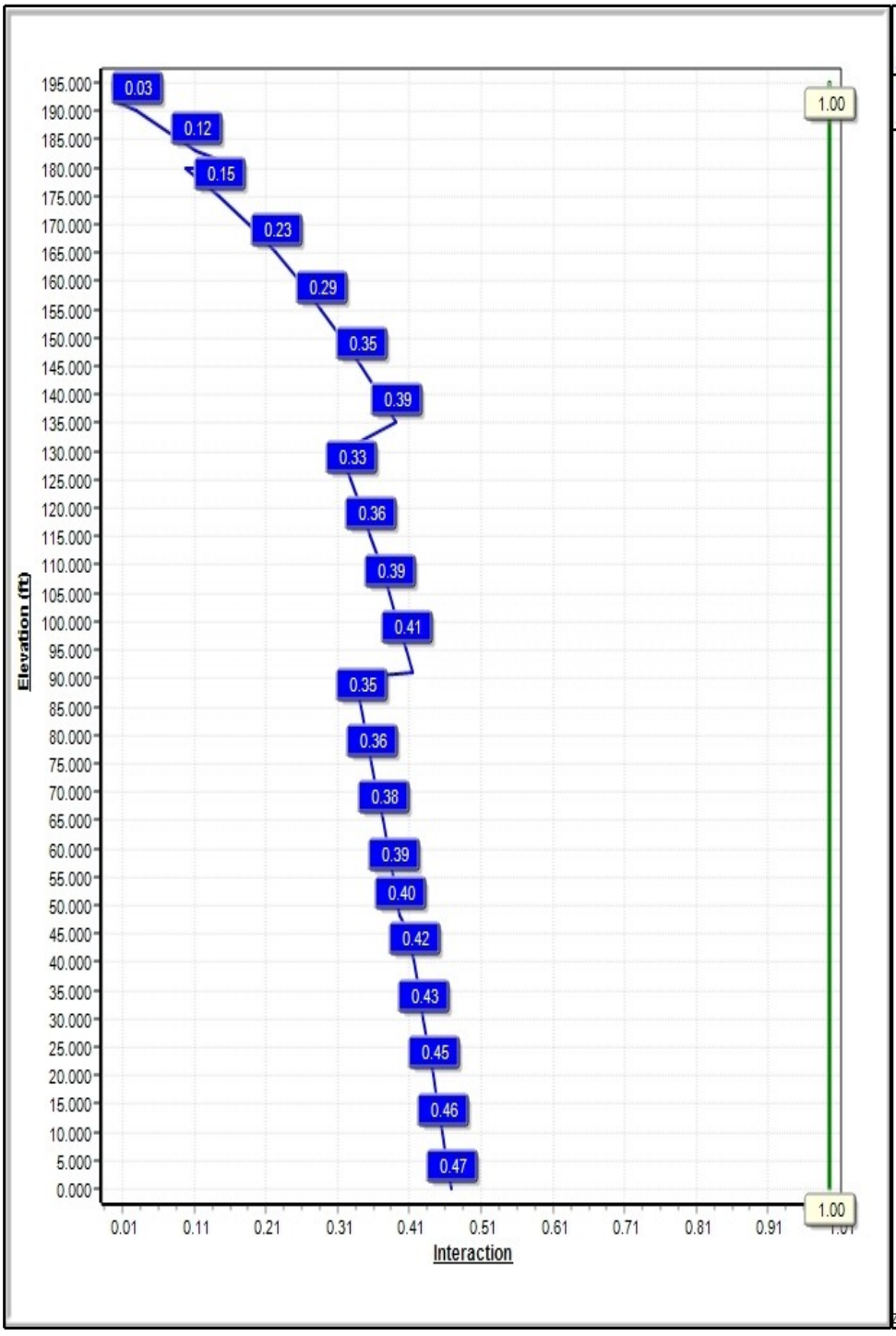
Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019
Site Name:	Harwinton	**Exposure:**	B	
Height:	195.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

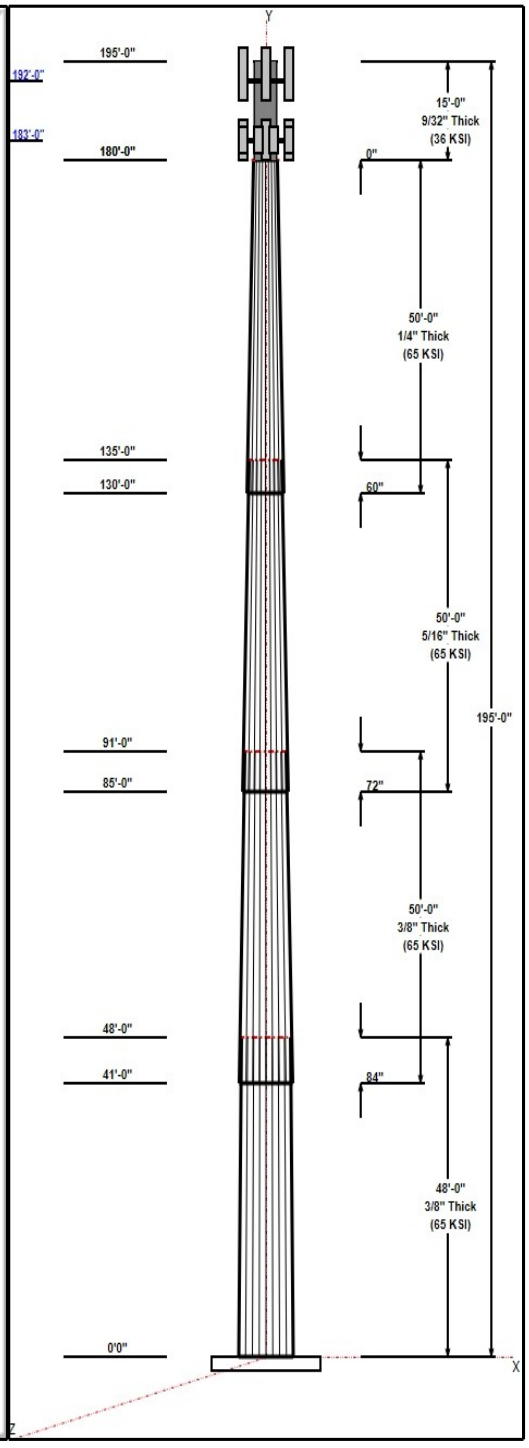
Tower Engineering Solutions

Dead Load Factor:	1.20
Wind Load Factor:	1.00

Load Case : 1.2D + 1.0W 115 mph Wind

Iterations: 26





Structure: CT01944-S-SBA

Type: Custom
Site Name: Harwinton
Height: 195.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.00000

7/23/2019

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	48.00	53.20	64.50	0.375		0.23542	65
2	50.00	43.83	55.60	0.375	Slip	0.23542	65
3	50.00	34.09	45.86	0.313	Slip	0.23542	65
4	50.00	24.00	35.77	0.250	Slip	0.23542	65
5	15.00	24.00	24.00	0.281	Butt	0.00000	36

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
195.00	195.00	1	6' Lightning rod	T-Mobile
192.00	193.00	3	RFS	T-Mobile
192.00	193.00	3	KRY 112 489/2	T-Mobile
192.00	193.00	3	Radio 4449 B71+B12	T-Mobile
192.00	193.00	3	APXV18-206516S-C-A20	T-Mobile
192.00	192.00	3	782 11056	T-Mobile
192.00	192.00	1	Low Profile Platform	T-Mobile
192.00	192.00	1	MS-KI22-5 (Kickers w/o	T-Mobile
192.00	192.00	1	MS-HRECP	T-Mobile
183.00	183.00	3	BXA-70063-6CF	Verizon
183.00	183.00	6	LPA-80063-4CF	Verizon
183.00	183.00	2	LPA-171063-8CF	Verizon
183.00	183.00	4	LPA-171080-8CF	Verizon
183.00	183.00	1	Low Profile Platform	Verizon

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	192.00	Inside	1 5/8" Fiber	T-Mobile
0.00	192.00	Inside	1 5/8" Coax	T-Mobile
0.00	183.00	Inside	1 5/8" Coax	Verizon

Anchor Bolts

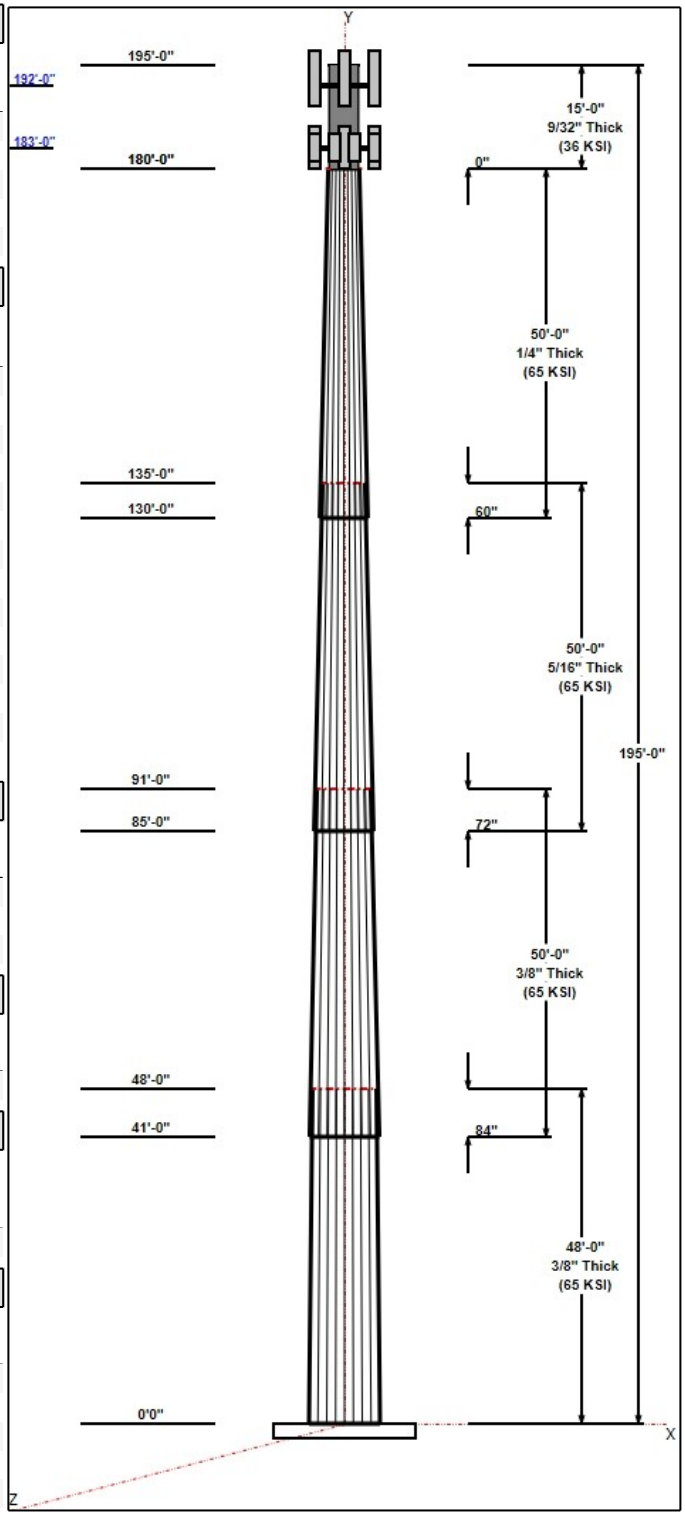
Qty	Specifications	Grade (ksi)	Arrangement
24	2.00" A687	105.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.5000	64.5	45.0	Polygon

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.0W 115 mph Wind	2820.6	22.5	52.2
0.9D + 1.0W 115 mph Wind	2789.0	22.5	39.2
1.2D + 1.0Di + 1.0Wi 40 mph Wind	552.5	4.4	67.5
1.2D + 1.0Ev + 1.0Eh	378.2	3.1	52.2
0.9D + 1.0Ev + 1.0Eh	373.8	3.1	39.2
1.0D + 1.0W 60 mph Wind	762.5	6.1	43.5

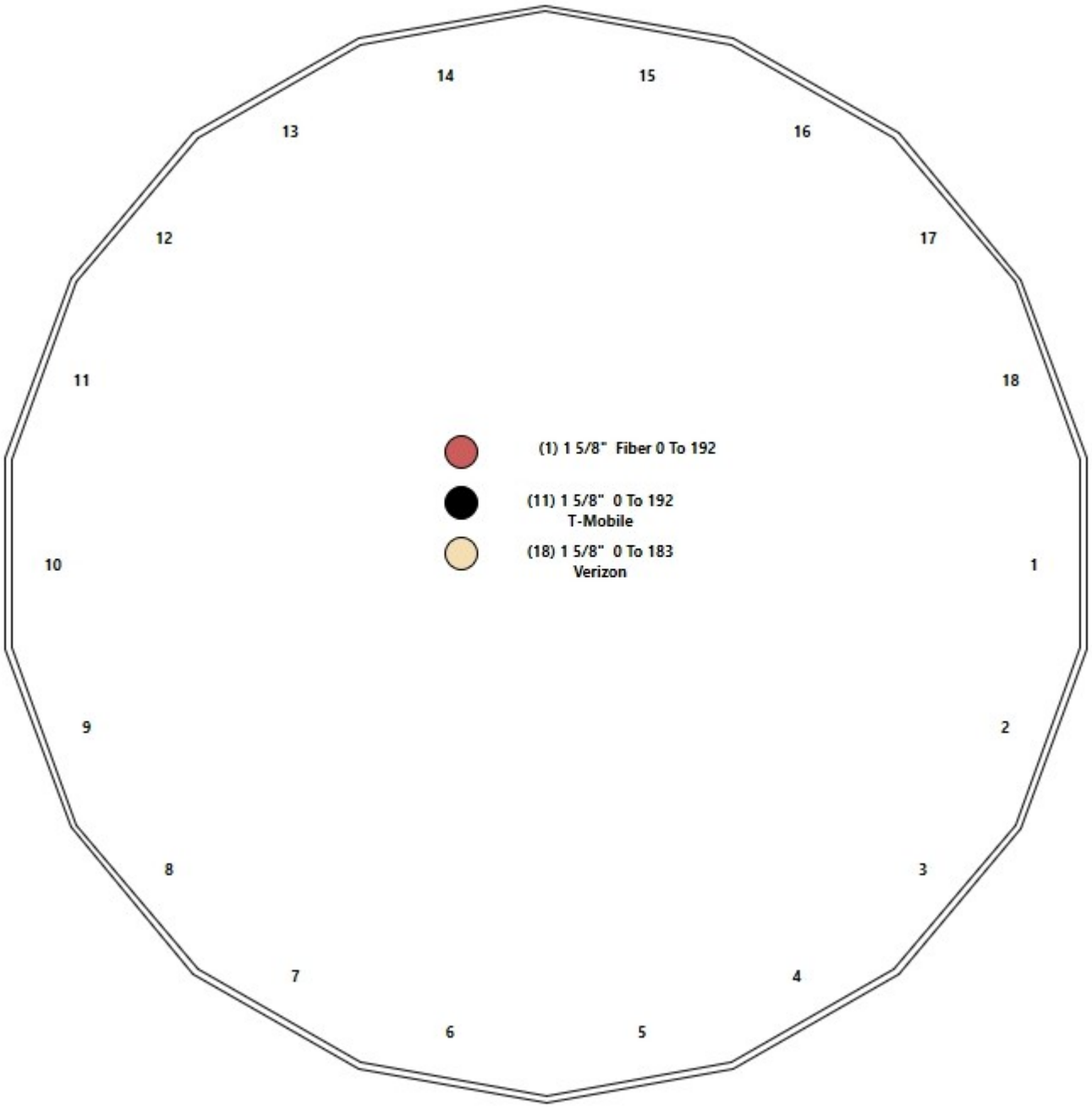


Structure: CT01944-S-SBA - Coax Line Placement

Type: Monopole
Site Name: Harwinton
Height: 195.00 (ft)

7/23/2019

TES Tower Engineering Solutions



Shaft Properties

Structure:	CT01944-S-SBA		**Code:**	EIA/TIA-222-H	7/23/2019
Site Name:	Harwinton		**Exposure:**	B	
Height:	195.00 (ft)		**Crest Height:**	427.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 2	**Struct Class:**	II	Page: 4

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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	48.000	0.3750	65		0.00	11,368
2	18	50.000	0.3750	65	Slip	84.00	9,991
3	18	50.000	0.3125	65	Slip	72.00	6,694
4	18	50.000	0.2500	65	Slip	60.00	4,001
5	R	15.000	0.2810	36	Flange	0.00	1,069
					Total Shaft Weight:		**33,122**

	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	64.50	0.00	76.32	39651.33	28.92	172.00	53.20	48.00	62.87	22166.3	23.60	141.8	0.235417
2	55.60	41.00	65.73	25324.08	24.73	148.26	43.83	91.00	51.72	12336.9	19.20	116.8	0.235417
3	45.86	85.00	45.18	11844.57	24.47	146.77	34.09	135.00	33.51	4830.83	17.83	109.1	0.235417
4	35.77	130.0	28.18	4492.97	23.82	143.08	24.00	180.00	18.84	1343.00	15.52	96.00	0.235417
5	24.00	180.0	20.94	1473.63	0.00	85.41	24.00	195.00	20.94	1473.63	0.00	85.41	0.000000

Load Summary

Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 5	

Tower Engineering Solutions

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)
1	195.00	6' Lightning rod	1	6.50	0.38	1.00	31.34	1.124	1.00	0.00	0.00
2	192.00	RFS APXVAARR24_43-U-NA20	3	128.00	20.24	0.70	402.17	21.523	0.70	0.00	1.00
3	192.00	KRY 112 489/2	3	13.20	0.68	1.00	25.74	1.122	1.00	0.00	1.00
4	192.00	Radio 4449 B71+B12	3	70.00	1.65	0.67	112.93	2.005	0.67	0.00	1.00
5	192.00	APXV18-206516S-C-A20	3	18.70	3.61	0.90	66.58	4.879	0.83	0.00	1.00
6	192.00	782 11056	3	1.80	0.28	0.80	3.99	0.554	0.70	0.00	0.00
7	192.00	Low Profile Platform	1	1500.00	22.00	1.00	2394.42	34.069	1.00	0.00	0.00
8	192.00	MS-KI22-5 (Kickers w/o Collar)	1	146.00	5.33	1.00	285.29	9.144	1.00	0.00	0.00
9	192.00	MS-HRECP	1	514.00	12.25	1.00	930.82	20.431	1.00	0.00	0.00
10	183.00	BXA-70063-6CF	3	17.00	7.57	0.80	117.85	9.450	0.84	0.00	0.00
11	183.00	LPA-80063-4CF	6	20.00	6.15	0.80	144.41	7.438	0.81	0.00	0.00
12	183.00	LPA-171063-8CF	2	11.50	3.56	0.80	79.85	4.816	0.81	0.00	0.00
13	183.00	LPA-171080-8CF	4	8.50	2.26	0.80	57.56	3.156	0.81	0.00	0.00
14	183.00	Low Profile Platform	1	1500.00	22.00	1.00	2390.13	34.011	1.00	0.00	0.00
		Totals:	**35**	**4,589.60**			**9,476.20**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	192.00	(1) 1 5/8" Fiber	0.00	Inside
0.00	192.00	(11) 1 5/8" Coax	0.00	Inside
0.00	183.00	(18) 1 5/8" Coax	0.00	Inside

Shaft Section Properties

Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 6	

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3750	64.500	76.322	39651.3	28.92	172.00	67.4	1210.	0.0
5.00		0.3750	63.323	74.921	37507.6	28.36	168.86	68.0	1166.	1286.6
10.00		0.3750	62.146	73.520	35442.6	27.81	165.72	68.7	1123.	1262.8
15.00		0.3750	60.969	72.119	33454.9	27.26	162.58	69.3	1080.	1238.9
20.00		0.3750	59.792	70.718	31542.8	26.70	159.44	70.0	1039.	1215.1
25.00		0.3750	58.615	69.317	29705.1	26.15	156.31	70.6	998.2	1191.3
30.00		0.3750	57.437	67.916	27940.1	25.60	153.17	71.3	958.1	1167.4
35.00		0.3750	56.260	66.515	26246.5	25.04	150.03	71.9	918.9	1143.6
40.00		0.3750	55.083	65.114	24622.7	24.49	146.89	72.6	880.4	1119.8
41.00	Bot - Section 2	0.3750	54.848	64.834	24306.2	24.38	146.26	72.7	872.8	221.1
45.00		0.3750	53.906	63.713	23067.4	23.94	143.75	73.2	842.8	1761.8
48.00	Top - Section 1	0.3750	53.950	63.765	23124.0	23.96	143.87	0.0	0.0	1301.3
50.00		0.3750	53.479	63.205	22519.6	23.74	142.61	73.5	829.4	432.1
55.00		0.3750	52.302	61.804	21055.1	23.18	139.47	74.1	792.9	1063.4
60.00		0.3750	51.125	60.403	19655.5	22.63	136.33	74.8	757.2	1039.6
65.00		0.3750	49.948	59.002	18319.3	22.08	133.19	75.4	722.4	1015.8
70.00		0.3750	48.771	57.601	17045.1	21.52	130.06	76.1	688.4	991.9
75.00		0.3750	47.594	56.200	15831.4	20.97	126.92	76.7	655.2	968.1
80.00		0.3750	46.417	54.799	14676.7	20.41	123.78	77.4	622.8	944.3
85.00	Bot - Section 3	0.3750	45.240	53.398	13579.6	19.86	120.64	78.0	591.2	920.4
90.00		0.3750	44.062	51.997	12538.5	19.31	117.50	78.7	560.5	1655.4
91.00	Top - Section 2	0.3125	44.452	43.779	10776.5	23.67	142.25	0.0	0.0	325.8
95.00		0.3125	43.510	42.845	10101.4	23.14	139.23	74.2	457.3	589.5
100.00		0.3125	42.333	41.678	9298.0	22.48	135.47	75.0	432.6	719.0
105.00		0.3125	41.156	40.510	8538.3	21.81	131.70	75.7	408.6	699.2
110.00		0.3125	39.979	39.343	7821.2	21.15	127.93	76.5	385.3	679.3
115.00		0.3125	38.802	38.175	7145.4	20.48	124.17	77.3	362.7	659.4
120.00		0.3125	37.625	37.008	6509.6	19.82	120.40	78.1	340.8	639.6
125.00		0.3125	36.448	35.841	5912.8	19.15	116.63	78.9	319.5	619.7
130.00	Bot - Section 4	0.3125	35.271	34.673	5353.6	18.49	112.87	79.7	299.0	599.9
135.00	Top - Section 3	0.2500	34.594	27.251	4060.9	22.99	138.37	0.0	0.0	1051.6
140.00		0.2500	33.417	26.317	3657.5	22.16	133.67	75.3	215.6	455.7
145.00		0.2500	32.240	25.383	3281.8	21.33	128.96	76.3	200.5	439.8
150.00		0.2500	31.062	24.449	2932.7	20.50	124.25	77.3	186.0	423.9
155.00		0.2500	29.885	23.515	2609.3	19.67	119.54	78.3	172.0	408.0
160.00		0.2500	28.708	22.581	2310.5	18.84	114.83	79.2	158.5	392.1
165.00		0.2500	27.531	21.647	2035.5	18.01	110.12	80.2	145.6	376.2
170.00		0.2500	26.354	20.713	1783.3	17.18	105.42	81.2	133.3	360.4
175.00		0.2500	25.177	19.779	1552.7	16.35	100.71	82.2	121.5	344.5
180.00	Top - Section 4	0.2500	24.000	18.845	1343.0	15.52	96.00	82.5	110.2	328.6
180.00	Bot - Section 5	0.2810	24.000	20.939	1473.6	13.80	85.41	36.0	122.8	
183.00		0.2810	24.000	20.939	1473.6	0.00	85.41	36.0	122.8	213.8
185.00		0.2810	24.000	20.939	1473.6	0.00	85.41	36.0	122.8	142.5
190.00		0.2810	24.000	20.939	1473.6	0.00	85.41	36.0	122.8	356.3
192.00		0.2810	24.000	20.939	1473.6	0.00	85.41	36.0	122.8	142.5
195.00		0.2810	24.000	20.939	1473.6	0.00	85.41	36.0	122.8	213.8
										33121.7

Wind Loading - Shaft

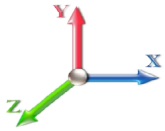
Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 7	

Tower Engineering Solutions

Load Case: 1.2D + 1.0W 115 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



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		1.00	0.70	21.727	23.90	515.87	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	21.727	23.90	506.46	0.730	0.000	5.00	27.041	19.74	471.8	0.0	1543.9
10.00		1.00	0.70	21.727	23.90	497.04	0.730	0.000	5.00	26.543	19.38	463.1	0.0	1515.3
15.00		1.00	0.70	21.727	23.90	487.63	0.730	0.000	5.00	26.045	19.01	454.4	0.0	1486.7
20.00		1.00	0.70	21.727	23.90	478.22	0.730	0.000	5.00	25.547	18.65	445.7	0.0	1458.1
25.00		1.00	0.70	21.727	23.90	468.80	0.730	0.000	5.00	25.049	18.29	437.0	0.0	1429.5
30.00		1.00	0.70	21.745	23.92	459.58	0.730	0.000	5.00	24.550	17.92	428.7	0.0	1400.9
35.00		1.00	0.73	22.724	25.00	460.19	0.730	0.000	5.00	24.052	17.56	438.9	0.0	1372.3
40.00		1.00	0.76	23.608	25.97	459.24	0.730	0.000	5.00	23.554	17.19	446.5	0.0	1343.7
41.00	Bot - Section 2	1.00	0.77	23.775	26.15	458.89	0.730	0.000	1.00	4.651	3.40	88.8	0.0	265.3
45.00		1.00	0.79	24.416	26.86	457.05	0.730	0.000	4.00	18.659	13.62	365.8	0.0	2114.2
48.00	Top - Section 1	1.00	0.80	24.870	27.36	455.24	0.730	0.000	3.00	13.785	10.06	275.3	0.0	1561.6
50.00		1.00	0.81	25.162	27.68	460.30	0.730	0.000	2.00	9.091	6.64	183.7	0.0	518.5
55.00		1.00	0.83	25.857	28.44	456.34	0.730	0.000	5.00	22.378	16.34	464.6	0.0	1276.1
60.00		1.00	0.85	26.508	29.16	451.65	0.730	0.000	5.00	21.880	15.97	465.7	0.0	1247.5
65.00		1.00	0.87	27.121	29.83	446.33	0.730	0.000	5.00	21.382	15.61	465.7	0.0	1218.9
70.00		1.00	0.89	27.701	30.47	440.45	0.730	0.000	5.00	20.884	15.25	464.5	0.0	1190.3
75.00		1.00	0.91	28.253	31.08	434.08	0.730	0.000	5.00	20.386	14.88	462.5	0.0	1161.7
80.00		1.00	0.93	28.778	31.66	427.26	0.730	0.000	5.00	19.888	14.52	459.6	0.0	1133.1
85.00	Bot - Section 3	1.00	0.94	29.281	32.21	420.05	0.730	0.000	5.00	19.390	14.15	455.9	0.0	1104.5
90.00		1.00	0.96	29.763	32.74	412.47	0.730	0.000	5.00	19.156	13.98	457.8	0.0	1986.4
91.00	Top - Section 2	1.00	0.96	29.858	32.84	410.92	0.730	0.000	1.00	3.771	2.75	90.4	0.0	391.0
95.00		1.00	0.97	30.227	33.25	410.46	0.730	0.000	4.00	14.887	10.87	361.3	0.0	707.4
100.00		1.00	0.99	30.673	33.74	402.30	0.730	0.000	5.00	18.160	13.26	447.3	0.0	862.8
105.00		1.00	1.00	31.104	34.21	393.85	0.730	0.000	5.00	17.662	12.89	441.1	0.0	839.0
110.00		1.00	1.02	31.520	34.67	385.13	0.730	0.000	5.00	17.164	12.53	434.4	0.0	815.2
115.00		1.00	1.03	31.923	35.11	376.17	0.730	0.000	5.00	16.666	12.17	427.2	0.0	791.3
120.00		1.00	1.04	32.313	35.54	366.99	0.730	0.000	5.00	16.168	11.80	419.5	0.0	767.5
125.00		1.00	1.05	32.692	35.96	357.59	0.730	0.000	5.00	15.670	11.44	411.4	0.0	743.7
130.00	Bot - Section 4	1.00	1.07	33.061	36.37	347.98	0.730	0.000	5.00	15.172	11.08	402.8	0.0	719.8
135.00	Top - Section 3	1.00	1.08	33.419	36.76	338.19	0.730	0.000	5.00	14.885	10.87	399.5	0.0	1261.9
140.00		1.00	1.09	33.768	37.14	333.20	0.730	0.000	5.00	14.387	10.50	390.1	0.0	546.8
145.00		1.00	1.10	34.108	37.52	323.08	0.730	0.000	5.00	13.889	10.14	380.4	0.0	527.8
150.00		1.00	1.11	34.440	37.88	312.79	0.730	0.000	5.00	13.391	9.78	370.3	0.0	508.7
155.00		1.00	1.12	34.765	38.24	302.35	0.730	0.000	5.00	12.893	9.41	359.9	0.0	489.6
160.00		1.00	1.13	35.081	38.59	291.76	0.730	0.000	5.00	12.395	9.05	349.2	0.0	470.6
165.00		1.00	1.14	35.391	38.93	281.03	0.730	0.000	5.00	11.897	8.69	338.1	0.0	451.5
170.00		1.00	1.15	35.694	39.26	270.17	0.730	0.000	5.00	11.399	8.32	326.7	0.0	432.4
175.00		1.00	1.16	35.991	39.59	259.17	0.730	0.000	5.00	10.901	7.96	315.1	0.0	413.4
180.00	Top - Section 4	1.00	1.17	36.282	39.91	248.05	0.730	0.000	5.00	10.403	7.59	303.1	0.0	394.3
183.00	Appurtenance(s)	1.00	1.17	36.454	40.10	244.86	0.600	0.000	3.00	6.000	3.60	144.4	0.0	256.5
185.00		1.00	1.18	36.567	40.22	245.24	0.600	0.000	2.00	4.000	2.40	96.5	0.0	171.0
190.00		1.00	1.19	36.847	40.53	246.18	0.600	0.000	5.00	10.000	6.00	243.2	0.0	427.5
192.00	Appurtenance(s)	1.00	1.19	36.957	40.65	246.55	0.600	0.000	2.00	4.000	2.40	97.6	0.0	171.0
195.00	Appurtenance(s)	1.00	1.20	37.121	40.83	247.09	0.600	0.000	3.00	6.000	3.60	147.0	0.0	256.5
								Totals:	**195.00**			**15,892.6**		**39,746.1**

Discrete Appurtenance Forces

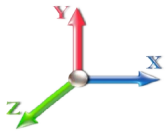
Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.0W 115 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



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	195.00	6' Lightning rod	1	37.121	40.833	1.00	1.00	0.38	7.80	0.000	0.000	15.52	0.00	0.00
2	192.00	Radio 4449 B71+B12	3	37.012	40.713	0.60	0.90	2.98	252.00	0.000	1.000	121.52	0.00	121.52
3	192.00	MS-HRECP	1	36.957	40.653	1.00	1.00	12.25	616.80	0.000	0.000	498.00	0.00	0.00
4	192.00	MS-KI22-5 (Kickers w/o	1	36.957	40.653	0.90	0.90	4.80	175.20	0.000	0.000	195.01	0.00	0.00
5	192.00	Low Profile Platform	1	36.957	40.653	1.00	1.00	22.00	1800.00	0.000	0.000	894.36	0.00	0.00
6	192.00	782 11056	3	36.957	40.653	0.72	0.90	0.60	6.48	0.000	0.000	24.59	0.00	0.00
7	192.00	APXV18-206516S-C-A20	3	37.012	40.713	0.81	0.90	8.77	67.32	0.000	1.000	357.15	0.00	357.15
8	192.00	KRY 112 489/2	3	37.012	40.713	0.90	0.90	1.84	47.52	0.000	1.000	74.75	0.00	74.75
9	192.00	RFS	3	37.012	40.713	0.63	0.90	38.25	460.80	0.000	1.000	1557.43	0.00	1557.43
10	183.00	Low Profile Platform	1	36.454	40.099	1.00	1.00	22.00	1800.00	0.000	0.000	882.18	0.00	0.00
11	183.00	LPA-171080-8CF	4	36.454	40.099	0.64	0.80	5.79	40.80	0.000	0.000	232.00	0.00	0.00
12	183.00	LPA-171063-8CF	2	36.454	40.099	0.64	0.80	4.56	27.60	0.000	0.000	182.72	0.00	0.00
13	183.00	LPA-80063-4CF	6	36.454	40.099	0.64	0.80	23.62	144.00	0.000	0.000	946.98	0.00	0.00
14	183.00	BXA-70063-6CF	3	36.454	40.099	0.64	0.80	14.53	61.20	0.000	0.000	582.82	0.00	0.00
							Totals:		**5,507.52**			**6,565.03**		

Total Applied Force Summary

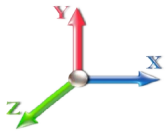
Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.0W 115 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



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
5.00		471.77	1731.14	0.00	0.00
10.00		463.08	1702.54	0.00	0.00
15.00		454.39	1673.93	0.00	0.00
20.00		445.70	1645.33	0.00	0.00
25.00		437.01	1616.73	0.00	0.00
30.00		428.68	1588.12	0.00	0.00
35.00		438.90	1559.52	0.00	0.00
40.00		446.53	1530.92	0.00	0.00
41.00		88.80	302.75	0.00	0.00
45.00		365.83	2263.95	0.00	0.00
48.00		275.30	1673.93	0.00	0.00
50.00		183.68	593.34	0.00	0.00
55.00		464.63	1463.33	0.00	0.00
60.00		465.72	1434.73	0.00	0.00
65.00		465.65	1406.13	0.00	0.00
70.00		464.54	1377.52	0.00	0.00
75.00		462.49	1348.92	0.00	0.00
80.00		459.59	1320.32	0.00	0.00
85.00		455.91	1291.71	0.00	0.00
90.00		457.83	2173.62	0.00	0.00
91.00		90.42	428.43	0.00	0.00
95.00		361.33	857.20	0.00	0.00
100.00		447.29	1050.04	0.00	0.00
105.00		441.13	1026.21	0.00	0.00
110.00		434.43	1002.37	0.00	0.00
115.00		427.21	978.53	0.00	0.00
120.00		419.52	954.70	0.00	0.00
125.00		411.36	930.86	0.00	0.00
130.00		402.78	907.03	0.00	0.00
135.00		399.46	1449.09	0.00	0.00
140.00		390.13	734.04	0.00	0.00
145.00		380.42	714.97	0.00	0.00
150.00		370.35	695.90	0.00	0.00
155.00		359.93	676.83	0.00	0.00
160.00		349.18	657.76	0.00	0.00
165.00		338.11	638.69	0.00	0.00
170.00		326.73	619.62	0.00	0.00
175.00		315.06	600.55	0.00	0.00
180.00		303.09	581.49	0.00	0.00
183.00	(16) attachments	2971.05	2442.42	0.00	0.00
185.00		96.54	200.95	0.00	0.00
190.00		243.19	502.38	0.00	0.00
192.00	(18) attachments	3820.38	3627.07	0.00	2110.85
195.00	(1) attachments	162.52	264.30	0.00	0.00
	Totals:	**22,457.61**	**52,239.92**	**0.00**	**2,110.85**

Calculated Forces

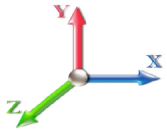
Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 1.2D + 1.0W 115 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



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	-52.22	-22.50	0.00	-2820.5	0.00	2820.58	4628.91	1339.45	7126.38	6119.66	0.00	0.000	0.000	0.472
5.00	-50.45	-22.12	0.00	-2708.0	0.00	2708.07	4587.84	1314.86	6867.16	5953.37	0.05	-0.099	0.000	0.466
10.00	-48.71	-21.74	0.00	-2597.4	0.00	2597.48	4545.12	1290.28	6612.74	5787.00	0.21	-0.200	0.000	0.460
15.00	-47.00	-21.36	0.00	-2488.8	0.00	2488.80	4500.76	1265.69	6363.12	5620.67	0.48	-0.302	0.000	0.454
20.00	-45.32	-20.99	0.00	-2382.0	0.00	2382.01	4454.76	1241.10	6118.30	5454.49	0.85	-0.405	0.000	0.447
25.00	-43.67	-20.62	0.00	-2277.0	0.00	2277.08	4407.12	1216.52	5878.29	5288.58	1.33	-0.510	0.000	0.441
30.00	-42.05	-20.25	0.00	-2174.0	0.00	2174.00	4357.84	1191.93	5643.07	5123.07	1.92	-0.617	0.000	0.434
35.00	-40.46	-19.87	0.00	-2072.7	0.00	2072.75	4306.92	1167.34	5412.67	4958.08	2.63	-0.725	0.000	0.428
40.00	-38.91	-19.45	0.00	-1973.4	0.00	1973.40	4254.35	1142.76	5187.06	4793.73	3.44	-0.835	0.000	0.421
41.00	-38.59	-19.39	0.00	-1953.9	0.00	1953.95	4243.64	1137.84	5142.51	4760.94	3.62	-0.857	0.000	0.420
45.00	-36.30	-19.04	0.00	-1876.3	0.00	1876.38	4200.14	1118.17	4966.25	4630.13	4.38	-0.947	0.000	0.414
48.00	-34.62	-18.77	0.00	-1819.2	0.00	1819.26	4202.19	1119.08	4974.38	4636.19	5.00	-1.016	0.000	0.401
50.00	-34.00	-18.62	0.00	-1781.7	0.00	1781.72	4180.07	1109.25	4887.33	4570.98	5.43	-1.062	0.000	0.398
55.00	-32.51	-18.19	0.00	-1688.6	0.00	1688.60	4123.62	1084.66	4673.07	4408.60	6.60	-1.171	0.000	0.391
60.00	-31.05	-17.76	0.00	-1597.6	0.00	1597.63	4065.54	1060.07	4463.61	4247.27	7.89	-1.282	0.000	0.384
65.00	-29.62	-17.32	0.00	-1508.8	0.00	1508.84	4005.81	1035.49	4258.96	4087.10	9.29	-1.395	0.000	0.377
70.00	-28.22	-16.88	0.00	-1422.2	0.00	1422.26	3944.44	1010.90	4059.10	3928.21	10.81	-1.509	0.000	0.369
75.00	-26.86	-16.43	0.00	-1337.8	0.00	1337.88	3881.43	986.31	3864.05	3770.72	12.46	-1.624	0.000	0.362
80.00	-25.52	-15.98	0.00	-1255.7	0.00	1255.73	3816.78	961.72	3673.81	3614.75	14.22	-1.740	0.000	0.354
85.00	-24.21	-15.54	0.00	-1175.8	0.00	1175.81	3750.48	937.14	3488.36	3460.42	16.10	-1.858	0.000	0.347
90.00	-22.03	-15.04	0.00	-1098.1	0.00	1098.12	3682.55	912.55	3307.72	3307.86	18.11	-1.977	0.000	0.338
91.00	-21.59	-14.95	0.00	-1083.0	0.00	1083.09	2898.33	768.33	2813.78	2634.30	18.53	-2.002	0.000	0.419
95.00	-20.72	-14.60	0.00	-1023.2	0.00	1023.28	2860.60	751.94	2695.00	2544.15	20.25	-2.099	0.000	0.410
100.00	-19.65	-14.17	0.00	-950.26	0.00	950.26	2811.95	731.45	2550.13	2432.25	22.52	-2.238	0.000	0.398
105.00	-18.61	-13.73	0.00	-879.43	0.00	879.43	2761.66	710.96	2409.26	2321.34	24.94	-2.378	0.000	0.386
110.00	-17.59	-13.30	0.00	-810.79	0.00	810.79	2709.73	690.47	2272.40	2211.55	27.51	-2.519	0.000	0.373
115.00	-16.60	-12.87	0.00	-744.31	0.00	744.31	2656.16	669.98	2139.54	2103.00	30.22	-2.660	0.000	0.361
120.00	-15.64	-12.44	0.00	-679.99	0.00	679.99	2600.95	649.49	2010.67	1995.80	33.08	-2.802	0.000	0.347
125.00	-14.70	-12.02	0.00	-617.79	0.00	617.79	2544.10	629.00	1885.82	1890.08	36.09	-2.944	0.000	0.333
130.00	-13.79	-11.60	0.00	-557.70	0.00	557.70	2485.60	608.51	1764.96	1785.96	39.25	-3.085	0.000	0.318
135.00	-12.34	-11.15	0.00	-499.69	0.00	499.69	1823.78	478.25	1362.76	1289.51	42.55	-3.226	0.000	0.395
140.00	-11.60	-10.75	0.00	-443.92	0.00	443.92	1784.40	461.86	1270.94	1218.11	46.01	-3.365	0.000	0.371
145.00	-10.88	-10.36	0.00	-390.15	0.00	390.15	1743.38	445.47	1182.33	1147.55	49.62	-3.527	0.000	0.347
150.00	-10.18	-9.97	0.00	-338.35	0.00	338.35	1700.71	429.08	1096.92	1077.96	53.39	-3.685	0.000	0.320
155.00	-9.50	-9.60	0.00	-288.47	0.00	288.47	1656.41	412.69	1014.72	1009.45	57.33	-3.837	0.000	0.292
160.00	-8.85	-9.22	0.00	-240.50	0.00	240.50	1610.46	396.29	935.71	942.14	61.43	-3.981	0.000	0.261
165.00	-8.21	-8.86	0.00	-194.37	0.00	194.37	1562.88	379.90	859.91	876.15	65.67	-4.115	0.000	0.228
170.00	-7.60	-8.50	0.00	-150.07	0.00	150.07	1513.65	363.51	787.30	811.61	70.04	-4.235	0.000	0.190
175.00	-7.02	-8.16	0.00	-107.55	0.00	107.55	1462.77	347.12	717.90	748.63	74.53	-4.338	0.000	0.149
180.00	-6.45	-7.82	0.00	-66.77	0.00	66.77	1400.09	330.73	651.70	682.38	79.11	-4.418	0.000	0.103
180.00	-6.45	-7.82	0.00	-66.77	0.00	66.77	678.42	203.53	25205.7	396.30	79.11	-4.418	0.000	0.179
183.00	-4.24	-4.67	0.00	-43.32	0.00	43.32	678.42	203.53	25205.7	396.30	81.90	-4.453	0.000	0.116
185.00	-4.05	-4.56	0.00	-33.99	0.00	33.99	678.42	203.53	25205.7	396.30	83.76	-4.468	0.000	0.092
190.00	-3.57	-4.28	0.00	-11.21	0.00	11.21	678.42	203.53	25205.7	396.30	88.45	-4.489	0.000	0.034
192.00	-0.25	-0.18	0.00	-0.55	0.00	0.55	678.42	203.53	25205.7	396.30	90.33	-4.492	0.000	0.002
195.00	0.00	-0.16	0.00	0.00	0.00	0.00	678.42	203.53	25205.7	396.30	93.15	-4.492	0.000	0.000

Wind Loading - Shaft

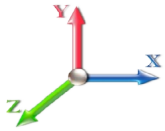
Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 0.9D + 1.0W 115 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



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		1.00	0.70	21.727	23.90	515.87	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	21.727	23.90	506.46	0.730	0.000	5.00	27.041	19.74	471.8	0.0	1158.0
10.00		1.00	0.70	21.727	23.90	497.04	0.730	0.000	5.00	26.543	19.38	463.1	0.0	1136.5
15.00		1.00	0.70	21.727	23.90	487.63	0.730	0.000	5.00	26.045	19.01	454.4	0.0	1115.1
20.00		1.00	0.70	21.727	23.90	478.22	0.730	0.000	5.00	25.547	18.65	445.7	0.0	1093.6
25.00		1.00	0.70	21.727	23.90	468.80	0.730	0.000	5.00	25.049	18.29	437.0	0.0	1072.1
30.00		1.00	0.70	21.745	23.92	459.58	0.730	0.000	5.00	24.550	17.92	428.7	0.0	1050.7
35.00		1.00	0.73	22.724	25.00	460.19	0.730	0.000	5.00	24.052	17.56	438.9	0.0	1029.2
40.00		1.00	0.76	23.608	25.97	459.24	0.730	0.000	5.00	23.554	17.19	446.5	0.0	1007.8
41.00	Bot - Section 2	1.00	0.77	23.775	26.15	458.89	0.730	0.000	1.00	4.651	3.40	88.8	0.0	199.0
45.00		1.00	0.79	24.416	26.86	457.05	0.730	0.000	4.00	18.659	13.62	365.8	0.0	1585.6
48.00	Top - Section 1	1.00	0.80	24.870	27.36	455.24	0.730	0.000	3.00	13.785	10.06	275.3	0.0	1171.2
50.00		1.00	0.81	25.162	27.68	460.30	0.730	0.000	2.00	9.091	6.64	183.7	0.0	388.8
55.00		1.00	0.83	25.857	28.44	456.34	0.730	0.000	5.00	22.378	16.34	464.6	0.0	957.1
60.00		1.00	0.85	26.508	29.16	451.65	0.730	0.000	5.00	21.880	15.97	465.7	0.0	935.6
65.00		1.00	0.87	27.121	29.83	446.33	0.730	0.000	5.00	21.382	15.61	465.7	0.0	914.2
70.00		1.00	0.89	27.701	30.47	440.45	0.730	0.000	5.00	20.884	15.25	464.5	0.0	892.7
75.00		1.00	0.91	28.253	31.08	434.08	0.730	0.000	5.00	20.386	14.88	462.5	0.0	871.3
80.00		1.00	0.93	28.778	31.66	427.26	0.730	0.000	5.00	19.888	14.52	459.6	0.0	849.8
85.00	Bot - Section 3	1.00	0.94	29.281	32.21	420.05	0.730	0.000	5.00	19.390	14.15	455.9	0.0	828.4
90.00		1.00	0.96	29.763	32.74	412.47	0.730	0.000	5.00	19.156	13.98	457.8	0.0	1489.8
91.00	Top - Section 2	1.00	0.96	29.858	32.84	410.92	0.730	0.000	1.00	3.771	2.75	90.4	0.0	293.2
95.00		1.00	0.97	30.227	33.25	410.46	0.730	0.000	4.00	14.887	10.87	361.3	0.0	530.6
100.00		1.00	0.99	30.673	33.74	402.30	0.730	0.000	5.00	18.160	13.26	447.3	0.0	647.1
105.00		1.00	1.00	31.104	34.21	393.85	0.730	0.000	5.00	17.662	12.89	441.1	0.0	629.3
110.00		1.00	1.02	31.520	34.67	385.13	0.730	0.000	5.00	17.164	12.53	434.4	0.0	611.4
115.00		1.00	1.03	31.923	35.11	376.17	0.730	0.000	5.00	16.666	12.17	427.2	0.0	593.5
120.00		1.00	1.04	32.313	35.54	366.99	0.730	0.000	5.00	16.168	11.80	419.5	0.0	575.6
125.00		1.00	1.05	32.692	35.96	357.59	0.730	0.000	5.00	15.670	11.44	411.4	0.0	557.7
130.00	Bot - Section 4	1.00	1.07	33.061	36.37	347.98	0.730	0.000	5.00	15.172	11.08	402.8	0.0	539.9
135.00	Top - Section 3	1.00	1.08	33.419	36.76	338.19	0.730	0.000	5.00	14.885	10.87	399.5	0.0	946.4
140.00		1.00	1.09	33.768	37.14	333.20	0.730	0.000	5.00	14.387	10.50	390.1	0.0	410.1
145.00		1.00	1.10	34.108	37.52	323.08	0.730	0.000	5.00	13.889	10.14	380.4	0.0	395.8
150.00		1.00	1.11	34.440	37.88	312.79	0.730	0.000	5.00	13.391	9.78	370.3	0.0	381.5
155.00		1.00	1.12	34.765	38.24	302.35	0.730	0.000	5.00	12.893	9.41	359.9	0.0	367.2
160.00		1.00	1.13	35.081	38.59	291.76	0.730	0.000	5.00	12.395	9.05	349.2	0.0	352.9
165.00		1.00	1.14	35.391	38.93	281.03	0.730	0.000	5.00	11.897	8.69	338.1	0.0	338.6
170.00		1.00	1.15	35.694	39.26	270.17	0.730	0.000	5.00	11.399	8.32	326.7	0.0	324.3
175.00		1.00	1.16	35.991	39.59	259.17	0.730	0.000	5.00	10.901	7.96	315.1	0.0	310.0
180.00	Top - Section 4	1.00	1.17	36.282	39.91	248.05	0.730	0.000	5.00	10.403	7.59	303.1	0.0	295.7
183.00	Appurtenance(s)	1.00	1.17	36.454	40.10	244.86	0.600	0.000	3.00	6.000	3.60	144.4	0.0	192.4
185.00		1.00	1.18	36.567	40.22	245.24	0.600	0.000	2.00	4.000	2.40	96.5	0.0	128.3
190.00		1.00	1.19	36.847	40.53	246.18	0.600	0.000	5.00	10.000	6.00	243.2	0.0	320.6
192.00	Appurtenance(s)	1.00	1.19	36.957	40.65	246.55	0.600	0.000	2.00	4.000	2.40	97.6	0.0	128.3
195.00	Appurtenance(s)	1.00	1.20	37.121	40.83	247.09	0.600	0.000	3.00	6.000	3.60	147.0	0.0	192.4
								Totals:	**195.00**			**15,892.6**		**29,809.6**

Discrete Appurtenance Forces

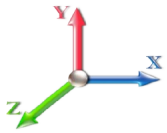
Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 0.9D + 1.0W 115 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



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	195.00	6' Lightning rod	1	37.121	40.833	1.00	1.00	0.38	5.85	0.000	0.000	15.52	0.00	0.00
2	192.00	Radio 4449 B71+B12	3	37.012	40.713	0.60	0.90	2.98	189.00	0.000	1.000	121.52	0.00	121.52
3	192.00	MS-HRECP	1	36.957	40.653	1.00	1.00	12.25	462.60	0.000	0.000	498.00	0.00	0.00
4	192.00	MS-KI22-5 (Kickers w/o	1	36.957	40.653	0.90	0.90	4.80	131.40	0.000	0.000	195.01	0.00	0.00
5	192.00	Low Profile Platform	1	36.957	40.653	1.00	1.00	22.00	1350.00	0.000	0.000	894.36	0.00	0.00
6	192.00	782 11056	3	36.957	40.653	0.72	0.90	0.60	4.86	0.000	0.000	24.59	0.00	0.00
7	192.00	APXV18-206516S-C-A20	3	37.012	40.713	0.81	0.90	8.77	50.49	0.000	1.000	357.15	0.00	357.15
8	192.00	KRY 112 489/2	3	37.012	40.713	0.90	0.90	1.84	35.64	0.000	1.000	74.75	0.00	74.75
9	192.00	RFS	3	37.012	40.713	0.63	0.90	38.25	345.60	0.000	1.000	1557.43	0.00	1557.43
10	183.00	Low Profile Platform	1	36.454	40.099	1.00	1.00	22.00	1350.00	0.000	0.000	882.18	0.00	0.00
11	183.00	LPA-171080-8CF	4	36.454	40.099	0.64	0.80	5.79	30.60	0.000	0.000	232.00	0.00	0.00
12	183.00	LPA-171063-8CF	2	36.454	40.099	0.64	0.80	4.56	20.70	0.000	0.000	182.72	0.00	0.00
13	183.00	LPA-80063-4CF	6	36.454	40.099	0.64	0.80	23.62	108.00	0.000	0.000	946.98	0.00	0.00
14	183.00	BXA-70063-6CF	3	36.454	40.099	0.64	0.80	14.53	45.90	0.000	0.000	582.82	0.00	0.00
							Totals:		**4,130.64**			**6,565.03**		

Total Applied Force Summary

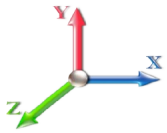
Structure:	CT01944-S-SBA		**Code:**	EIA/TIA-222-H	7/23/2019
Site Name:	Harwinton		**Exposure:**	B	
Height:	195.00 (ft)		**Crest Height:**	427.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 2	**Struct Class:**	II	Page: 13

Tower Engineering Solutions

Load Case: 0.9D + 1.0W 115 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



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
5.00		471.77	1298.35	0.00	0.00
10.00		463.08	1276.90	0.00	0.00
15.00		454.39	1255.45	0.00	0.00
20.00		445.70	1234.00	0.00	0.00
25.00		437.01	1212.55	0.00	0.00
30.00		428.68	1191.09	0.00	0.00
35.00		438.90	1169.64	0.00	0.00
40.00		446.53	1148.19	0.00	0.00
41.00		88.80	227.06	0.00	0.00
45.00		365.83	1697.96	0.00	0.00
48.00		275.30	1255.45	0.00	0.00
50.00		183.68	445.01	0.00	0.00
55.00		464.63	1097.50	0.00	0.00
60.00		465.72	1076.05	0.00	0.00
65.00		465.65	1054.59	0.00	0.00
70.00		464.54	1033.14	0.00	0.00
75.00		462.49	1011.69	0.00	0.00
80.00		459.59	990.24	0.00	0.00
85.00		455.91	968.79	0.00	0.00
90.00		457.83	1630.22	0.00	0.00
91.00		90.42	321.32	0.00	0.00
95.00		361.33	642.90	0.00	0.00
100.00		447.29	787.53	0.00	0.00
105.00		441.13	769.65	0.00	0.00
110.00		434.43	751.78	0.00	0.00
115.00		427.21	733.90	0.00	0.00
120.00		419.52	716.02	0.00	0.00
125.00		411.36	698.15	0.00	0.00
130.00		402.78	680.27	0.00	0.00
135.00		399.46	1086.82	0.00	0.00
140.00		390.13	550.53	0.00	0.00
145.00		380.42	536.23	0.00	0.00
150.00		370.35	521.92	0.00	0.00
155.00		359.93	507.62	0.00	0.00
160.00		349.18	493.32	0.00	0.00
165.00		338.11	479.02	0.00	0.00
170.00		326.73	464.72	0.00	0.00
175.00		315.06	450.42	0.00	0.00
180.00		303.09	436.11	0.00	0.00
183.00	(16) attachments	2971.05	1831.82	0.00	0.00
185.00		96.54	150.71	0.00	0.00
190.00		243.19	376.79	0.00	0.00
192.00	(18) attachments	3820.38	2720.30	0.00	2110.85
195.00	(1) attachments	162.52	198.23	0.00	0.00
	Totals:	**22,457.61**	**39,179.94**	**0.00**	**2,110.85**

Calculated Forces

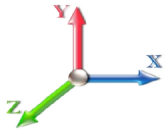
Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 0.9D + 1.0W 115 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



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	-39.16	-22.49	0.00	-2789.0	0.00	2789.04	4628.91	1339.45	7126.38	6119.66	0.00	0.000	0.000	0.464
5.00	-37.82	-22.08	0.00	-2676.5	0.00	2676.58	4587.84	1314.86	6867.16	5953.37	0.05	-0.098	0.000	0.458
10.00	-36.51	-21.68	0.00	-2566.1	0.00	2566.17	4545.12	1290.28	6612.74	5787.00	0.21	-0.197	0.000	0.452
15.00	-35.22	-21.28	0.00	-2457.7	0.00	2457.77	4500.76	1265.69	6363.12	5620.67	0.47	-0.298	0.000	0.445
20.00	-33.95	-20.89	0.00	-2351.3	0.00	2351.35	4454.76	1241.10	6118.30	5454.49	0.84	-0.401	0.000	0.439
25.00	-32.70	-20.50	0.00	-2246.8	0.00	2246.89	4407.12	1216.52	5878.29	5288.58	1.31	-0.504	0.000	0.433
30.00	-31.48	-20.12	0.00	-2144.3	0.00	2144.37	4357.84	1191.93	5643.07	5123.07	1.90	-0.609	0.000	0.426
35.00	-30.28	-19.73	0.00	-2043.7	0.00	2043.76	4306.92	1167.34	5412.67	4958.08	2.59	-0.716	0.000	0.420
40.00	-29.12	-19.30	0.00	-1945.1	0.00	1945.13	4254.35	1142.76	5187.06	4793.73	3.40	-0.824	0.000	0.413
41.00	-28.87	-19.23	0.00	-1925.8	0.00	1925.83	4243.64	1137.84	5142.51	4760.94	3.58	-0.846	0.000	0.412
45.00	-27.15	-18.88	0.00	-1848.9	0.00	1848.90	4200.14	1118.17	4966.25	4630.13	4.32	-0.935	0.000	0.406
48.00	-25.88	-18.61	0.00	-1792.2	0.00	1792.27	4202.19	1119.08	4974.38	4636.19	4.93	-1.002	0.000	0.393
50.00	-25.42	-18.45	0.00	-1755.0	0.00	1755.05	4180.07	1109.25	4887.33	4570.98	5.36	-1.048	0.000	0.390
55.00	-24.30	-18.01	0.00	-1662.8	0.00	1662.80	4123.62	1084.66	4673.07	4408.60	6.52	-1.156	0.000	0.383
60.00	-23.20	-17.57	0.00	-1572.7	0.00	1572.75	4065.54	1060.07	4463.61	4247.27	7.79	-1.265	0.000	0.376
65.00	-22.12	-17.12	0.00	-1484.9	0.00	1484.92	4005.81	1035.49	4258.96	4087.10	9.17	-1.376	0.000	0.369
70.00	-21.06	-16.67	0.00	-1399.3	0.00	1399.33	3944.44	1010.90	4059.10	3928.21	10.67	-1.488	0.000	0.362
75.00	-20.03	-16.22	0.00	-1315.9	0.00	1315.97	3881.43	986.31	3864.05	3770.72	12.29	-1.601	0.000	0.354
80.00	-19.03	-15.77	0.00	-1234.8	0.00	1234.87	3816.78	961.72	3673.81	3614.75	14.03	-1.715	0.000	0.347
85.00	-18.04	-15.32	0.00	-1156.0	0.00	1156.01	3750.48	937.14	3488.36	3460.42	15.89	-1.831	0.000	0.339
90.00	-16.41	-14.83	0.00	-1079.4	0.00	1079.40	3682.55	912.55	3307.72	3307.86	17.87	-1.948	0.000	0.331
91.00	-16.07	-14.75	0.00	-1064.5	0.00	1064.57	2898.33	768.33	2813.78	2634.30	18.28	-1.973	0.000	0.410
95.00	-15.42	-14.39	0.00	-1005.5	0.00	1005.58	2860.60	751.94	2695.00	2544.15	19.97	-2.068	0.000	0.401
100.00	-14.61	-13.95	0.00	-933.61	0.00	933.61	2811.95	731.45	2550.13	2432.25	22.21	-2.205	0.000	0.389
105.00	-13.83	-13.51	0.00	-863.85	0.00	863.85	2761.66	710.96	2409.26	2321.34	24.59	-2.342	0.000	0.378
110.00	-13.06	-13.08	0.00	-796.27	0.00	796.27	2709.73	690.47	2272.40	2211.55	27.12	-2.481	0.000	0.365
115.00	-12.32	-12.65	0.00	-730.87	0.00	730.87	2656.16	669.98	2139.54	2103.00	29.79	-2.619	0.000	0.353
120.00	-11.59	-12.23	0.00	-667.61	0.00	667.61	2600.95	649.49	2010.67	1995.80	32.61	-2.759	0.000	0.339
125.00	-10.89	-11.81	0.00	-606.48	0.00	606.48	2544.10	629.00	1885.82	1890.08	35.57	-2.898	0.000	0.326
130.00	-10.20	-11.40	0.00	-547.44	0.00	547.44	2485.60	608.51	1764.96	1785.96	38.68	-3.037	0.000	0.311
135.00	-9.11	-10.96	0.00	-490.46	0.00	490.46	1823.78	478.25	1362.76	1289.51	41.93	-3.175	0.000	0.386
140.00	-8.56	-10.56	0.00	-435.67	0.00	435.67	1784.40	461.86	1270.94	1218.11	45.33	-3.311	0.000	0.363
145.00	-8.02	-10.17	0.00	-382.86	0.00	382.86	1743.38	445.47	1182.33	1147.55	48.88	-3.470	0.000	0.339
150.00	-7.49	-9.79	0.00	-332.00	0.00	332.00	1700.71	429.08	1096.92	1077.96	52.60	-3.625	0.000	0.313
155.00	-6.99	-9.42	0.00	-283.06	0.00	283.06	1656.41	412.69	1014.72	1009.45	56.47	-3.774	0.000	0.285
160.00	-6.49	-9.05	0.00	-235.98	0.00	235.98	1610.46	396.29	935.71	942.14	60.50	-3.916	0.000	0.255
165.00	-6.02	-8.69	0.00	-190.73	0.00	190.73	1562.88	379.90	859.91	876.15	64.67	-4.047	0.000	0.222
170.00	-5.57	-8.34	0.00	-147.27	0.00	147.27	1513.65	363.51	787.30	811.61	68.97	-4.165	0.000	0.186
175.00	-5.13	-8.00	0.00	-105.56	0.00	105.56	1462.77	347.12	717.90	748.63	73.39	-4.266	0.000	0.145
180.00	-4.71	-7.67	0.00	-65.53	0.00	65.53	1400.09	330.73	651.70	682.38	77.90	-4.344	0.000	0.100
180.00	-4.71	-7.67	0.00	-65.53	0.00	65.53	678.42	203.53	25205.7	396.30	77.90	-4.344	0.000	0.174
183.00	-3.11	-4.57	0.00	-42.51	0.00	42.51	678.42	203.53	25205.7	396.30	80.64	-4.379	0.000	0.112
185.00	-2.96	-4.47	0.00	-33.37	0.00	33.37	678.42	203.53	25205.7	396.30	82.47	-4.393	0.000	0.089
190.00	-2.60	-4.20	0.00	-11.03	0.00	11.03	678.42	203.53	25205.7	396.30	87.08	-4.415	0.000	0.032
192.00	-0.19	-0.18	0.00	-0.53	0.00	0.53	678.42	203.53	25205.7	396.30	88.93	-4.417	0.000	0.002
195.00	0.00	-0.16	0.00	0.00	0.00	0.00	678.42	203.53	25205.7	396.30	91.70	-4.418	0.000	0.000

Wind Loading - Shaft

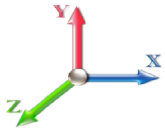
Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	2.629	2.89	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	2.629	2.89	0.00	1.200	0.828	5.00	27.731	33.28	96.2	329.4	1873.4
10.00		1.00	0.70	2.629	2.89	0.00	1.200	0.887	5.00	27.282	32.74	94.7	346.9	1862.2
15.00		1.00	0.70	2.629	2.89	0.00	1.200	0.924	5.00	26.815	32.18	93.0	354.7	1841.5
20.00		1.00	0.70	2.629	2.89	0.00	1.200	0.951	5.00	26.339	31.61	91.4	358.3	1816.4
25.00		1.00	0.70	2.629	2.89	0.00	1.200	0.973	5.00	25.859	31.03	89.7	359.4	1788.9
30.00		1.00	0.70	2.631	2.89	0.00	1.200	0.991	5.00	25.376	30.45	88.1	358.9	1759.8
35.00		1.00	0.73	2.749	3.02	0.00	1.200	1.006	5.00	24.891	29.87	90.3	357.2	1729.5
40.00		1.00	0.76	2.856	3.14	0.00	1.200	1.019	5.00	24.404	29.28	92.0	354.7	1698.4
41.00	Bot - Section 2	1.00	0.77	2.876	3.16	0.00	1.200	1.022	1.00	4.821	5.79	18.3	70.8	336.1
45.00		1.00	0.79	2.954	3.25	0.00	1.200	1.032	4.00	19.347	23.22	75.4	285.0	2399.2
48.00	Top - Section 1	1.00	0.80	3.009	3.31	0.00	1.200	1.038	3.00	14.304	17.17	56.8	212.4	1774.0
50.00		1.00	0.81	3.044	3.35	0.00	1.200	1.042	2.00	9.438	11.33	37.9	141.0	659.4
55.00		1.00	0.83	3.128	3.44	0.00	1.200	1.052	5.00	23.255	27.91	96.0	348.2	1624.3
60.00		1.00	0.85	3.207	3.53	0.00	1.200	1.062	5.00	22.764	27.32	96.4	343.5	1591.1
65.00		1.00	0.87	3.281	3.61	0.00	1.200	1.070	5.00	22.273	26.73	96.5	338.5	1557.5
70.00		1.00	0.89	3.351	3.69	0.00	1.200	1.078	5.00	21.782	26.14	96.4	333.2	1523.6
75.00		1.00	0.91	3.418	3.76	0.00	1.200	1.086	5.00	21.290	25.55	96.1	327.7	1489.4
80.00		1.00	0.93	3.482	3.83	0.00	1.200	1.093	5.00	20.798	24.96	95.6	321.9	1455.0
85.00	Bot - Section 3	1.00	0.94	3.543	3.90	0.00	1.200	1.099	5.00	20.306	24.37	95.0	315.8	1420.4
90.00		1.00	0.96	3.601	3.96	0.00	1.200	1.106	5.00	20.077	24.09	95.4	313.9	2300.3
91.00	Top - Section 2	1.00	0.96	3.612	3.97	0.00	1.200	1.107	1.00	3.956	4.75	18.9	62.5	453.5
95.00		1.00	0.97	3.657	4.02	0.00	1.200	1.112	4.00	15.628	18.75	75.4	246.0	953.5
100.00		1.00	0.99	3.711	4.08	0.00	1.200	1.117	5.00	19.091	22.91	93.5	301.0	1163.8
105.00		1.00	1.00	3.763	4.14	0.00	1.200	1.123	5.00	18.598	22.32	92.4	294.3	1133.3
110.00		1.00	1.02	3.813	4.19	0.00	1.200	1.128	5.00	18.104	21.72	91.1	287.5	1102.7
115.00		1.00	1.03	3.862	4.25	0.00	1.200	1.133	5.00	17.610	21.13	89.8	280.5	1071.9
120.00		1.00	1.04	3.909	4.30	0.00	1.200	1.138	5.00	17.116	20.54	88.3	273.5	1041.0
125.00		1.00	1.05	3.955	4.35	0.00	1.200	1.142	5.00	16.622	19.95	86.8	266.3	1009.9
130.00	Bot - Section 4	1.00	1.07	4.000	4.40	0.00	1.200	1.147	5.00	16.128	19.35	85.1	259.0	978.8
135.00	Top - Section 3	1.00	1.08	4.043	4.45	0.00	1.200	1.151	5.00	15.845	19.01	84.6	255.1	1517.0
140.00		1.00	1.09	4.085	4.49	0.00	1.200	1.155	5.00	15.350	18.42	82.8	247.7	794.5
145.00		1.00	1.10	4.127	4.54	0.00	1.200	1.160	5.00	14.856	17.83	80.9	240.1	767.9
150.00		1.00	1.11	4.167	4.58	0.00	1.200	1.163	5.00	14.361	17.23	79.0	232.4	741.1
155.00		1.00	1.12	4.206	4.63	0.00	1.200	1.167	5.00	13.866	16.64	77.0	224.7	714.3
160.00		1.00	1.13	4.244	4.67	0.00	1.200	1.171	5.00	13.371	16.05	74.9	216.9	687.5
165.00		1.00	1.14	4.282	4.71	0.00	1.200	1.175	5.00	12.876	15.45	72.8	209.0	660.5
170.00		1.00	1.15	4.318	4.75	0.00	1.200	1.178	5.00	12.381	14.86	70.6	201.1	633.5
175.00		1.00	1.16	4.354	4.79	0.00	1.200	1.182	5.00	11.886	14.26	68.3	193.1	606.4
180.00	Top - Section 4	1.00	1.17	4.390	4.83	0.00	1.200	1.185	5.00	11.391	13.67	66.0	185.0	579.3
183.00	Appurtenance(s)	1.00	1.17	4.410	4.85	0.00	1.200	1.187	3.00	6.593	7.91	38.4	109.6	366.1
185.00		1.00	1.18	4.424	4.87	0.00	1.200	1.188	2.00	4.396	5.28	25.7	73.1	244.1
190.00		1.00	1.19	4.458	4.90	0.00	1.200	1.191	5.00	10.993	13.19	64.7	183.3	610.8
192.00	Appurtenance(s)	1.00	1.19	4.471	4.92	0.00	1.200	1.193	2.00	4.398	5.28	26.0	73.4	244.4
195.00	Appurtenance(s)	1.00	1.20	4.491	4.94	0.00	1.200	1.194	3.00	6.597	7.92	39.1	110.3	366.8
								Totals:	**195.00**			**3,363.2**		**50,943.0**

Discrete Appurtenance Forces

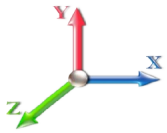
Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	195.00	6' Lightning rod	1	4.491	4.940	1.00	1.00	1.12	27.34	0.000	0.000	5.55	0.00	0.00
2	192.00	Radio 4449 B71+B12	3	4.478	4.926	0.60	0.90	3.63	380.79	0.000	1.000	17.86	0.00	17.86
3	192.00	MS-HRECP	1	4.471	4.918	1.00	1.00	20.43	1547.62	0.000	0.000	100.49	0.00	0.00
4	192.00	MS-KI22-5 (Kickers w/o	1	4.471	4.918	0.90	0.90	8.23	250.49	0.000	0.000	40.47	0.00	0.00
5	192.00	Low Profile Platform	1	4.471	4.918	1.00	1.00	34.07	2394.42	0.000	0.000	167.56	0.00	0.00
6	192.00	782 11056	3	4.471	4.918	0.63	0.90	1.05	-5.54	0.000	0.000	5.15	0.00	0.00
7	192.00	APXV18-206516S-C-A20	3	4.478	4.926	0.75	0.90	10.93	150.97	0.000	1.000	53.86	0.00	53.86
8	192.00	KRY 112 489/2	3	4.478	4.926	0.90	0.90	3.03	70.13	0.000	1.000	14.93	0.00	14.93
9	192.00	RFS	3	4.478	4.926	0.63	0.90	40.68	1283.32	0.000	1.000	200.37	0.00	200.37
10	183.00	Low Profile Platform	1	4.410	4.851	1.00	1.00	34.01	2390.13	0.000	0.000	165.00	0.00	0.00
11	183.00	LPA-171080-8CF	4	4.410	4.851	0.65	0.80	8.18	154.64	0.000	0.000	39.68	0.00	0.00
12	183.00	LPA-171063-8CF	2	4.410	4.851	0.65	0.80	6.24	106.89	0.000	0.000	30.28	0.00	0.00
13	183.00	LPA-80063-4CF	6	4.410	4.851	0.65	0.80	28.92	576.06	0.000	0.000	140.29	0.00	0.00
14	183.00	BXA-70063-6CF	3	4.410	4.851	0.67	0.80	19.05	236.25	0.000	0.000	92.42	0.00	0.00
							Totals:		**9,563.52**			**1,073.91**		

Total Applied Force Summary

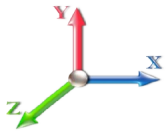
Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		96.22	2060.57	0.00	0.00
10.00		94.66	2049.45	0.00	0.00
15.00		93.04	2028.66	0.00	0.00
20.00		91.39	2003.62	0.00	0.00
25.00		89.72	1976.13	0.00	0.00
30.00		88.12	1947.02	0.00	0.00
35.00		90.33	1916.74	0.00	0.00
40.00		92.01	1885.58	0.00	0.00
41.00		18.31	373.56	0.00	0.00
45.00		75.44	2548.91	0.00	0.00
48.00		56.81	1886.34	0.00	0.00
50.00		37.93	734.32	0.00	0.00
55.00		96.02	1811.53	0.00	0.00
60.00		96.37	1778.27	0.00	0.00
65.00		96.47	1744.67	0.00	0.00
70.00		96.36	1710.77	0.00	0.00
75.00		96.06	1676.60	0.00	0.00
80.00		95.59	1642.19	0.00	0.00
85.00		94.95	1607.56	0.00	0.00
90.00		95.43	2487.54	0.00	0.00
91.00		18.86	490.96	0.00	0.00
95.00		75.44	1103.23	0.00	0.00
100.00		93.52	1351.04	0.00	0.00
105.00		92.38	1320.52	0.00	0.00
110.00		91.13	1289.86	0.00	0.00
115.00		89.78	1259.06	0.00	0.00
120.00		88.32	1228.15	0.00	0.00
125.00		86.78	1197.12	0.00	0.00
130.00		85.15	1165.99	0.00	0.00
135.00		84.56	1704.23	0.00	0.00
140.00		82.78	981.70	0.00	0.00
145.00		80.92	955.06	0.00	0.00
150.00		78.99	928.34	0.00	0.00
155.00		76.98	901.54	0.00	0.00
160.00		74.91	874.66	0.00	0.00
165.00		72.77	847.71	0.00	0.00
170.00		70.58	820.69	0.00	0.00
175.00		68.32	793.61	0.00	0.00
180.00		66.00	766.45	0.00	0.00
183.00	(16) attachments	506.05	3942.36	0.00	0.00
185.00		25.67	274.08	0.00	0.00
190.00		64.69	685.71	0.00	0.00
192.00	(18) attachments	626.64	6346.56	0.00	287.02
195.00	(1) attachments	44.66	394.14	0.00	0.00
	Totals:	**4,437.08**	**67,492.80**	**0.00**	**287.02**

Calculated Forces

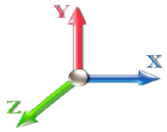
Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 25

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	-67.49	-4.45	0.00	-552.50	0.00	552.50	4628.91	1339.45	7126.38	6119.66	0.00	0.000	0.000	0.105
5.00	-65.43	-4.37	0.00	-530.26	0.00	530.26	4587.84	1314.86	6867.16	5953.37	0.01	-0.019	0.000	0.103
10.00	-63.38	-4.30	0.00	-508.39	0.00	508.39	4545.12	1290.28	6612.74	5787.00	0.04	-0.039	0.000	0.102
15.00	-61.35	-4.23	0.00	-486.89	0.00	486.89	4500.76	1265.69	6363.12	5620.67	0.09	-0.059	0.000	0.100
20.00	-59.34	-4.15	0.00	-465.76	0.00	465.76	4454.76	1241.10	6118.30	5454.49	0.17	-0.079	0.000	0.099
25.00	-57.37	-4.08	0.00	-444.99	0.00	444.99	4407.12	1216.52	5878.29	5288.58	0.26	-0.100	0.000	0.097
30.00	-55.42	-4.01	0.00	-424.58	0.00	424.58	4357.84	1191.93	5643.07	5123.07	0.38	-0.121	0.000	0.096
35.00	-53.50	-3.94	0.00	-404.53	0.00	404.53	4306.92	1167.34	5412.67	4958.08	0.51	-0.142	0.000	0.094
40.00	-51.61	-3.85	0.00	-384.85	0.00	384.85	4254.35	1142.76	5187.06	4793.73	0.67	-0.163	0.000	0.092
41.00	-51.24	-3.84	0.00	-381.00	0.00	381.00	4243.64	1137.84	5142.51	4760.94	0.71	-0.168	0.000	0.092
45.00	-48.69	-3.77	0.00	-365.64	0.00	365.64	4200.14	1118.17	4966.25	4630.13	0.86	-0.185	0.000	0.091
48.00	-46.80	-3.72	0.00	-354.33	0.00	354.33	4202.19	1119.08	4974.38	4636.19	0.98	-0.198	0.000	0.088
50.00	-46.07	-3.69	0.00	-346.89	0.00	346.89	4180.07	1109.25	4887.33	4570.98	1.06	-0.207	0.000	0.087
55.00	-44.26	-3.60	0.00	-328.45	0.00	328.45	4123.62	1084.66	4673.07	4408.60	1.29	-0.229	0.000	0.085
60.00	-42.48	-3.51	0.00	-310.45	0.00	310.45	4065.54	1060.07	4463.61	4247.27	1.54	-0.250	0.000	0.084
65.00	-40.73	-3.43	0.00	-292.88	0.00	292.88	4005.81	1035.49	4258.96	4087.10	1.82	-0.272	0.000	0.082
70.00	-39.02	-3.34	0.00	-275.75	0.00	275.75	3944.44	1010.90	4059.10	3928.21	2.11	-0.294	0.000	0.080
75.00	-37.34	-3.25	0.00	-259.07	0.00	259.07	3881.43	986.31	3864.05	3770.72	2.43	-0.317	0.000	0.078
80.00	-35.70	-3.15	0.00	-242.85	0.00	242.85	3816.78	961.72	3673.81	3614.75	2.78	-0.339	0.000	0.077
85.00	-34.09	-3.06	0.00	-227.08	0.00	227.08	3750.48	937.14	3488.36	3460.42	3.14	-0.362	0.000	0.075
90.00	-31.60	-2.96	0.00	-211.76	0.00	211.76	3682.55	912.55	3307.72	3307.86	3.54	-0.385	0.000	0.073
91.00	-31.11	-2.94	0.00	-208.80	0.00	208.80	2898.33	768.33	2813.78	2634.30	3.62	-0.390	0.000	0.090
95.00	-30.01	-2.87	0.00	-197.03	0.00	197.03	2860.60	751.94	2695.00	2544.15	3.95	-0.408	0.000	0.088
100.00	-28.66	-2.78	0.00	-182.67	0.00	182.67	2811.95	731.45	2550.13	2432.25	4.39	-0.435	0.000	0.085
105.00	-27.34	-2.69	0.00	-168.76	0.00	168.76	2761.66	710.96	2409.26	2321.34	4.86	-0.462	0.000	0.083
110.00	-26.05	-2.60	0.00	-155.30	0.00	155.30	2709.73	690.47	2272.40	2211.55	5.36	-0.489	0.000	0.080
115.00	-24.79	-2.51	0.00	-142.29	0.00	142.29	2656.16	669.98	2139.54	2103.00	5.89	-0.516	0.000	0.077
120.00	-23.56	-2.43	0.00	-129.72	0.00	129.72	2600.95	649.49	2010.67	1995.80	6.44	-0.543	0.000	0.074
125.00	-22.36	-2.34	0.00	-117.59	0.00	117.59	2544.10	629.00	1885.82	1890.08	7.03	-0.570	0.000	0.071
130.00	-21.19	-2.25	0.00	-105.91	0.00	105.91	2485.60	608.51	1764.96	1785.96	7.64	-0.597	0.000	0.068
135.00	-19.49	-2.16	0.00	-94.66	0.00	94.66	1823.78	478.25	1362.76	1289.51	8.28	-0.624	0.000	0.084
140.00	-18.51	-2.07	0.00	-83.88	0.00	83.88	1784.40	461.86	1270.94	1218.11	8.95	-0.650	0.000	0.079
145.00	-17.55	-1.99	0.00	-73.52	0.00	73.52	1743.38	445.47	1182.33	1147.55	9.64	-0.681	0.000	0.074
150.00	-16.62	-1.91	0.00	-63.57	0.00	63.57	1700.71	429.08	1096.92	1077.96	10.37	-0.710	0.000	0.069
155.00	-15.72	-1.83	0.00	-54.04	0.00	54.04	1656.41	412.69	1014.72	1009.45	11.13	-0.739	0.000	0.063
160.00	-14.85	-1.75	0.00	-44.90	0.00	44.90	1610.46	396.29	935.71	942.14	11.92	-0.766	0.000	0.057
165.00	-14.00	-1.67	0.00	-36.17	0.00	36.17	1562.88	379.90	859.91	876.15	12.74	-0.791	0.000	0.050
170.00	-13.18	-1.59	0.00	-27.82	0.00	27.82	1513.65	363.51	787.30	811.61	13.58	-0.813	0.000	0.043
175.00	-12.39	-1.52	0.00	-19.87	0.00	19.87	1462.77	347.12	717.90	748.63	14.44	-0.832	0.000	0.035
180.00	-11.62	-1.44	0.00	-12.29	0.00	12.29	1400.09	330.73	651.70	682.38	15.32	-0.847	0.000	0.026
180.00	-11.62	-1.44	0.00	-12.29	0.00	12.29	678.42	203.53	25205.7	396.30	15.32	-0.847	0.000	0.048
183.00	-7.69	-0.88	0.00	-7.97	0.00	7.97	678.42	203.53	25205.7	396.30	15.85	-0.853	0.000	0.031
185.00	-7.41	-0.85	0.00	-6.22	0.00	6.22	678.42	203.53	25205.7	396.30	16.21	-0.856	0.000	0.027
190.00	-6.73	-0.77	0.00	-1.98	0.00	1.98	678.42	203.53	25205.7	396.30	17.11	-0.860	0.000	0.015
192.00	-0.39	-0.05	0.00	-0.15	0.00	0.15	678.42	203.53	25205.7	396.30	17.47	-0.860	0.000	0.001
195.00	0.00	-0.04	0.00	0.00	0.00	0.00	678.42	203.53	25205.7	396.30	18.01	-0.860	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Ev + 1.0Eh

Gust Response Factor	1.10			**Sds**	0.19	**Iterations**	24
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.09	**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.33	**SA**	0.03	**S1**	0.05
						Seismic Importance Factor	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1286.6	0.00	0.03	0.01	70.23	
10.00		1262.7	0.00	0.04	0.03	79.49	
15.00		1238.9	0.01	0.06	0.03	83.70	
20.00		1215.1	0.02	0.06	0.04	85.31	
25.00		1191.2	0.03	0.07	0.04	85.51	
30.00		1167.4	0.04	0.07	0.04	84.97	
35.00		1143.6	0.06	0.07	0.04	84.09	
40.00		1119.7	0.08	0.07	0.04	83.10	
41.00	Bot - Section 2	221.09	0.08	0.07	0.04	16.44	
45.00		1761.8	0.10	0.07	0.04	131.96	
48.00	Top - Section 1	1301.3	0.11	0.07	0.04	98.02	
50.00		432.05	0.12	0.07	0.03	32.66	
55.00		1063.4	0.15	0.07	0.03	81.08	
60.00		1039.6	0.18	0.07	0.03	79.71	
65.00		1015.7	0.21	0.06	0.02	77.87	
70.00		991.94	0.24	0.06	0.02	75.28	
75.00		968.10	0.28	0.05	0.01	71.60	
80.00		944.26	0.32	0.04	0.01	66.50	
85.00	Bot - Section 3	920.43	0.36	0.03	0.01	59.67	
90.00		1655.3	0.40	0.02	0.01	94.17	
91.00	Top - Section 2	325.83	0.41	0.01	0.01	17.93	
95.00		589.53	0.45	0.00	0.01	27.54	
100.00		719.04	0.50	-0.02	0.01	25.16	
105.00		699.17	0.55	-0.03	0.01	16.08	
110.00		679.31	0.60	-0.05	0.01	8.25	
115.00		659.45	0.66	-0.07	0.02	2.36	
120.00		639.58	0.72	-0.09	0.03	-1.30	
125.00		619.72	0.78	-0.11	0.05	-2.77	
130.00	Bot - Section 4	599.86	0.84	-0.12	0.07	-2.25	
135.00	Top - Section 3	1051.5	0.91	-0.12	0.09	0.02	
140.00		455.70	0.97	-0.12	0.12	3.07	
145.00		439.81	1.05	-0.10	0.15	7.18	
150.00		423.92	1.12	-0.06	0.20	12.19	
155.00		408.02	1.19	0.00	0.25	17.95	
160.00		392.13	1.27	0.08	0.31	24.35	
165.00		376.24	1.35	0.20	0.39	31.26	
170.00		360.35	1.44	0.36	0.47	38.55	
175.00		344.46	1.52	0.56	0.57	46.11	
180.00	Top - Section 4	328.57	1.61	0.81	0.68	53.82	
183.00	Appurtenance(s)	1941.7	1.66	0.99	0.76	355.79	
185.00		142.50	1.70	1.13	0.82	28.05	
190.00		356.25	1.79	1.51	0.97	83.01	
192.00	Appurtenance(s)	2997.6	1.83	1.69	1.03	744.51	
195.00	Appurtenance(s)	220.25	1.89	1.98	1.14	60.00	
	Totals:	**37,711.3**				**3,138.2**	**Total Wind:** **22,457.6**

Seismic Segment Forces (Factored)

Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

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

Calculated Forces

Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 21	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Ev + 1.0Eh

Gust Response Factor	1.10			**Sds**	0.19			**Iterations**	24
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.09			**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.33	**SA**	0.03			**S1**	0.05
								Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-52.24	-3.15	0.00	-378.22	0.00	378.22	4628.91	1339.45	7126.38	6119.66	0.00	0.00	0.073	
5.00	-50.51	-3.09	0.00	-362.47	0.00	362.47	4587.84	1314.86	6867.16	5953.37	0.01	-0.01	0.072	
10.00	-48.80	-3.02	0.00	-347.02	0.00	347.02	4545.12	1290.28	6612.74	5787.00	0.03	-0.03	0.071	
15.00	-47.13	-2.95	0.00	-331.91	0.00	331.91	4500.76	1265.69	6363.12	5620.67	0.06	-0.04	0.070	
20.00	-45.48	-2.87	0.00	-317.17	0.00	317.17	4454.76	1241.10	6118.30	5454.49	0.11	-0.05	0.068	
25.00	-43.87	-2.80	0.00	-302.80	0.00	302.80	4407.12	1216.52	5878.29	5288.58	0.18	-0.07	0.067	
30.00	-42.28	-2.72	0.00	-288.82	0.00	288.82	4357.84	1191.93	5643.07	5123.07	0.26	-0.08	0.066	
35.00	-40.72	-2.64	0.00	-275.21	0.00	275.21	4306.92	1167.34	5412.67	4958.08	0.35	-0.10	0.065	
40.00	-39.19	-2.56	0.00	-262.00	0.00	262.00	4254.35	1142.76	5187.06	4793.73	0.46	-0.11	0.064	
41.00	-38.88	-2.55	0.00	-259.43	0.00	259.43	4243.64	1137.84	5142.51	4760.94	0.48	-0.11	0.064	
45.00	-36.62	-2.42	0.00	-249.22	0.00	249.22	4200.14	1118.17	4966.25	4630.13	0.58	-0.13	0.063	
48.00	-34.95	-2.32	0.00	-241.96	0.00	241.96	4202.19	1119.08	4974.38	4636.19	0.67	-0.14	0.061	
50.00	-34.35	-2.30	0.00	-237.31	0.00	237.31	4180.07	1109.25	4887.33	4570.98	0.72	-0.14	0.060	
55.00	-32.89	-2.22	0.00	-225.82	0.00	225.82	4123.62	1084.66	4673.07	4408.60	0.88	-0.16	0.059	
60.00	-31.45	-2.15	0.00	-214.72	0.00	214.72	4065.54	1060.07	4463.61	4247.27	1.05	-0.17	0.058	
65.00	-30.05	-2.07	0.00	-203.99	0.00	203.99	4005.81	1035.49	4258.96	4087.10	1.24	-0.19	0.057	
70.00	-28.67	-2.00	0.00	-193.64	0.00	193.64	3944.44	1010.90	4059.10	3928.21	1.44	-0.20	0.057	
75.00	-27.32	-1.93	0.00	-183.65	0.00	183.65	3881.43	986.31	3864.05	3770.72	1.66	-0.22	0.056	
80.00	-26.00	-1.87	0.00	-174.00	0.00	174.00	3816.78	961.72	3673.81	3614.75	1.90	-0.23	0.055	
85.00	-24.71	-1.81	0.00	-164.67	0.00	164.67	3750.48	937.14	3488.36	3460.42	2.15	-0.25	0.054	
90.00	-22.53	-1.71	0.00	-155.63	0.00	155.63	3682.55	912.55	3307.72	3307.86	2.42	-0.27	0.053	
91.00	-22.11	-1.69	0.00	-153.92	0.00	153.92	2898.33	768.33	2813.78	2634.30	2.48	-0.27	0.066	
95.00	-21.25	-1.67	0.00	-147.16	0.00	147.16	2860.60	751.94	2695.00	2544.15	2.71	-0.28	0.065	
100.00	-20.20	-1.64	0.00	-138.83	0.00	138.83	2811.95	731.45	2550.13	2432.25	3.02	-0.30	0.064	
105.00	-19.17	-1.63	0.00	-130.62	0.00	130.62	2761.66	710.96	2409.26	2321.34	3.35	-0.32	0.063	
110.00	-18.17	-1.62	0.00	-122.48	0.00	122.48	2709.73	690.47	2272.40	2211.55	3.70	-0.35	0.062	
115.00	-17.19	-1.62	0.00	-114.38	0.00	114.38	2656.16	669.98	2139.54	2103.00	4.07	-0.37	0.061	
120.00	-16.23	-1.62	0.00	-106.29	0.00	106.29	2600.95	649.49	2010.67	1995.80	4.47	-0.39	0.060	
125.00	-15.30	-1.62	0.00	-98.20	0.00	98.20	2544.10	629.00	1885.82	1890.08	4.89	-0.41	0.058	
130.00	-14.39	-1.62	0.00	-90.11	0.00	90.11	2485.60	608.51	1764.96	1785.96	5.33	-0.43	0.056	
135.00	-12.94	-1.61	0.00	-82.02	0.00	82.02	1823.78	478.25	1362.76	1289.51	5.80	-0.46	0.071	
140.00	-12.21	-1.61	0.00	-73.97	0.00	73.97	1784.40	461.86	1270.94	1218.11	6.29	-0.48	0.068	
145.00	-11.49	-1.60	0.00	-65.93	0.00	65.93	1743.38	445.47	1182.33	1147.55	6.81	-0.51	0.064	
150.00	-10.80	-1.59	0.00	-57.93	0.00	57.93	1700.71	429.08	1096.92	1077.96	7.35	-0.53	0.060	
155.00	-10.12	-1.57	0.00	-50.01	0.00	50.01	1656.41	412.69	1014.72	1009.45	7.93	-0.56	0.056	
160.00	-9.46	-1.54	0.00	-42.17	0.00	42.17	1610.46	396.29	935.71	942.14	8.53	-0.59	0.051	
165.00	-8.82	-1.50	0.00	-34.48	0.00	34.48	1562.88	379.90	859.91	876.15	9.15	-0.61	0.045	
170.00	-8.20	-1.46	0.00	-26.95	0.00	26.95	1513.65	363.51	787.30	811.61	9.80	-0.63	0.039	
175.00	-7.60	-1.41	0.00	-19.64	0.00	19.64	1462.77	347.12	717.90	748.63	10.47	-0.65	0.031	
180.00	-7.02	-1.35	0.00	-12.58	0.00	12.58	1400.09	330.73	651.70	682.38	11.16	-0.66	0.023	
180.00	-7.02	-1.35	0.00	-12.58	0.00	12.58	678.42	203.53	25205.7	396.30	11.16	-0.66	0.042	
183.00	-4.58	-0.97	0.00	-8.52	0.00	8.52	678.42	203.53	25205.7	396.30	11.58	-0.67	0.028	
185.00	-4.38	-0.94	0.00	-6.58	0.00	6.58	678.42	203.53	25205.7	396.30	11.86	-0.67	0.023	
190.00	-3.88	-0.85	0.00	-1.89	0.00	1.89	678.42	203.53	25205.7	396.30	12.57	-0.68	0.011	
192.00	-0.26	-0.06	0.00	-0.19	0.00	0.19	678.42	203.53	25205.7	396.30	12.85	-0.68	0.001	
195.00	0.00	-0.06	0.00	0.00	0.00	0.00	678.42	203.53	25205.7	396.30	13.28	-0.68	0.000	

Calculated Forces

Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 22	

Seismic Segment Forces (Factored)

Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case: 0.9D + 1.0Ev + 1.0Eh

Gust Response Factor	1.10			**Sds**	0.19	**Iterations**	24
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.09	**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.33	**SA**	0.03	**S1**	0.05
						Seismic Importance Factor	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1286.6	0.00	0.03	0.01	70.23	
10.00		1262.7	0.00	0.04	0.03	79.49	
15.00		1238.9	0.01	0.06	0.03	83.70	
20.00		1215.1	0.02	0.06	0.04	85.31	
25.00		1191.2	0.03	0.07	0.04	85.51	
30.00		1167.4	0.04	0.07	0.04	84.97	
35.00		1143.6	0.06	0.07	0.04	84.09	
40.00		1119.7	0.08	0.07	0.04	83.10	
41.00	Bot - Section 2	221.09	0.08	0.07	0.04	16.44	
45.00		1761.8	0.10	0.07	0.04	131.96	
48.00	Top - Section 1	1301.3	0.11	0.07	0.04	98.02	
50.00		432.05	0.12	0.07	0.03	32.66	
55.00		1063.4	0.15	0.07	0.03	81.08	
60.00		1039.6	0.18	0.07	0.03	79.71	
65.00		1015.7	0.21	0.06	0.02	77.87	
70.00		991.94	0.24	0.06	0.02	75.28	
75.00		968.10	0.28	0.05	0.01	71.60	
80.00		944.26	0.32	0.04	0.01	66.50	
85.00	Bot - Section 3	920.43	0.36	0.03	0.01	59.67	
90.00		1655.3	0.40	0.02	0.01	94.17	
91.00	Top - Section 2	325.83	0.41	0.01	0.01	17.93	
95.00		589.53	0.45	0.00	0.01	27.54	
100.00		719.04	0.50	-0.02	0.01	25.16	
105.00		699.17	0.55	-0.03	0.01	16.08	
110.00		679.31	0.60	-0.05	0.01	8.25	
115.00		659.45	0.66	-0.07	0.02	2.36	
120.00		639.58	0.72	-0.09	0.03	-1.30	
125.00		619.72	0.78	-0.11	0.05	-2.77	
130.00	Bot - Section 4	599.86	0.84	-0.12	0.07	-2.25	
135.00	Top - Section 3	1051.5	0.91	-0.12	0.09	0.02	
140.00		455.70	0.97	-0.12	0.12	3.07	
145.00		439.81	1.05	-0.10	0.15	7.18	
150.00		423.92	1.12	-0.06	0.20	12.19	
155.00		408.02	1.19	0.00	0.25	17.95	
160.00		392.13	1.27	0.08	0.31	24.35	
165.00		376.24	1.35	0.20	0.39	31.26	
170.00		360.35	1.44	0.36	0.47	38.55	
175.00		344.46	1.52	0.56	0.57	46.11	
180.00	Top - Section 4	328.57	1.61	0.81	0.68	53.82	
183.00	Appurtenance(s)	1941.7	1.66	0.99	0.76	355.79	
185.00		142.50	1.70	1.13	0.82	28.05	
190.00		356.25	1.79	1.51	0.97	83.01	
192.00	Appurtenance(s)	2997.6	1.83	1.69	1.03	744.51	
195.00	Appurtenance(s)	220.25	1.89	1.98	1.14	60.00	
	Totals:	**37,711.3**				**3,138.2**	**Total Wind:** **22,457.6**

Seismic Segment Forces (Factored)

Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

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

Calculated Forces

Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 25	

Tower Engineering Solutions

Load Case: 0.9D + 1.0Ev + 1.0Eh

Gust Response Factor	1.10			**Sds**	0.19			**Iterations**	24
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.09			**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.33	**SA**	0.03			**S1**	0.05
								Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-39.18	-3.15	0.00	-373.85	0.00	373.85	4628.91	1339.45	7126.38	6119.66		0.00	0.00	0.070
5.00	-37.88	-3.09	0.00	-358.11	0.00	358.11	4587.84	1314.86	6867.16	5953.37		0.01	-0.01	0.068
10.00	-36.60	-3.01	0.00	-342.68	0.00	342.68	4545.12	1290.28	6612.74	5787.00		0.03	-0.03	0.067
15.00	-35.35	-2.94	0.00	-327.60	0.00	327.60	4500.76	1265.69	6363.12	5620.67		0.06	-0.04	0.066
20.00	-34.11	-2.86	0.00	-312.91	0.00	312.91	4454.76	1241.10	6118.30	5454.49		0.11	-0.05	0.065
25.00	-32.90	-2.78	0.00	-298.60	0.00	298.60	4407.12	1216.52	5878.29	5288.58		0.18	-0.07	0.064
30.00	-31.71	-2.70	0.00	-284.69	0.00	284.69	4357.84	1191.93	5643.07	5123.07		0.25	-0.08	0.063
35.00	-30.54	-2.62	0.00	-271.18	0.00	271.18	4306.92	1167.34	5412.67	4958.08		0.35	-0.10	0.062
40.00	-29.39	-2.54	0.00	-258.05	0.00	258.05	4254.35	1142.76	5187.06	4793.73		0.45	-0.11	0.061
41.00	-29.16	-2.53	0.00	-255.51	0.00	255.51	4243.64	1137.84	5142.51	4760.94		0.48	-0.11	0.061
45.00	-27.46	-2.40	0.00	-245.39	0.00	245.39	4200.14	1118.17	4966.25	4630.13		0.58	-0.12	0.060
48.00	-26.21	-2.30	0.00	-238.19	0.00	238.19	4202.19	1119.08	4974.38	4636.19		0.66	-0.13	0.058
50.00	-25.76	-2.27	0.00	-233.58	0.00	233.58	4180.07	1109.25	4887.33	4570.98		0.71	-0.14	0.057
55.00	-24.66	-2.20	0.00	-222.21	0.00	222.21	4123.62	1084.66	4673.07	4408.60		0.87	-0.15	0.056
60.00	-23.59	-2.12	0.00	-211.23	0.00	211.23	4065.54	1060.07	4463.61	4247.27		1.04	-0.17	0.056
65.00	-22.53	-2.04	0.00	-200.63	0.00	200.63	4005.81	1035.49	4258.96	4087.10		1.22	-0.18	0.055
70.00	-21.50	-1.97	0.00	-190.41	0.00	190.41	3944.44	1010.90	4059.10	3928.21		1.42	-0.20	0.054
75.00	-20.49	-1.90	0.00	-180.55	0.00	180.55	3881.43	986.31	3864.05	3770.72		1.64	-0.21	0.053
80.00	-19.50	-1.84	0.00	-171.04	0.00	171.04	3816.78	961.72	3673.81	3614.75		1.87	-0.23	0.052
85.00	-18.53	-1.78	0.00	-161.86	0.00	161.86	3750.48	937.14	3488.36	3460.42		2.12	-0.25	0.052
90.00	-16.90	-1.68	0.00	-152.97	0.00	152.97	3682.55	912.55	3307.72	3307.86		2.39	-0.26	0.051
91.00	-16.58	-1.66	0.00	-151.28	0.00	151.28	2898.33	768.33	2813.78	2634.30		2.44	-0.27	0.063
95.00	-15.93	-1.64	0.00	-144.63	0.00	144.63	2860.60	751.94	2695.00	2544.15		2.67	-0.28	0.062
100.00	-15.15	-1.61	0.00	-136.45	0.00	136.45	2811.95	731.45	2550.13	2432.25		2.97	-0.30	0.061
105.00	-14.38	-1.60	0.00	-128.38	0.00	128.38	2761.66	710.96	2409.26	2321.34		3.30	-0.32	0.061
110.00	-13.62	-1.59	0.00	-120.39	0.00	120.39	2709.73	690.47	2272.40	2211.55		3.64	-0.34	0.059
115.00	-12.89	-1.59	0.00	-112.43	0.00	112.43	2656.16	669.98	2139.54	2103.00		4.01	-0.36	0.058
120.00	-12.17	-1.59	0.00	-104.49	0.00	104.49	2600.95	649.49	2010.67	1995.80		4.40	-0.38	0.057
125.00	-11.47	-1.59	0.00	-96.55	0.00	96.55	2544.10	629.00	1885.82	1890.08		4.82	-0.41	0.056
130.00	-10.79	-1.59	0.00	-88.60	0.00	88.60	2485.60	608.51	1764.96	1785.96		5.25	-0.43	0.054
135.00	-9.71	-1.58	0.00	-80.67	0.00	80.67	1823.78	478.25	1362.76	1289.51		5.71	-0.45	0.068
140.00	-9.15	-1.58	0.00	-72.75	0.00	72.75	1784.40	461.86	1270.94	1218.11		6.19	-0.47	0.065
145.00	-8.62	-1.57	0.00	-64.85	0.00	64.85	1743.38	445.47	1182.33	1147.55		6.70	-0.50	0.061
150.00	-8.09	-1.56	0.00	-56.99	0.00	56.99	1700.71	429.08	1096.92	1077.96		7.24	-0.53	0.058
155.00	-7.59	-1.54	0.00	-49.20	0.00	49.20	1656.41	412.69	1014.72	1009.45		7.81	-0.55	0.053
160.00	-7.09	-1.51	0.00	-41.50	0.00	41.50	1610.46	396.29	935.71	942.14		8.40	-0.58	0.048
165.00	-6.61	-1.48	0.00	-33.93	0.00	33.93	1562.88	379.90	859.91	876.15		9.01	-0.60	0.043
170.00	-6.15	-1.44	0.00	-26.53	0.00	26.53	1513.65	363.51	787.30	811.61		9.65	-0.62	0.037
175.00	-5.70	-1.39	0.00	-19.34	0.00	19.34	1462.77	347.12	717.90	748.63		10.31	-0.64	0.030
180.00	-5.26	-1.33	0.00	-12.39	0.00	12.39	1400.09	330.73	651.70	682.38		10.99	-0.65	0.022
180.00	-5.26	-1.33	0.00	-12.39	0.00	12.39	678.42	203.53	25205.7	396.30		10.99	-0.65	0.039
183.00	-3.44	-0.96	0.00	-8.40	0.00	8.40	678.42	203.53	25205.7	396.30		11.40	-0.66	0.026
185.00	-3.28	-0.93	0.00	-6.49	0.00	6.49	678.42	203.53	25205.7	396.30		11.68	-0.66	0.021
190.00	-2.91	-0.84	0.00	-1.86	0.00	1.86	678.42	203.53	25205.7	396.30		12.38	-0.67	0.009
192.00	-0.20	-0.06	0.00	-0.19	0.00	0.19	678.42	203.53	25205.7	396.30		12.65	-0.67	0.001
195.00	0.00	-0.06	0.00	0.00	0.00	0.00	678.42	203.53	25205.7	396.30		13.07	-0.67	0.000

Calculated Forces

Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 26	

Wind Loading - Shaft

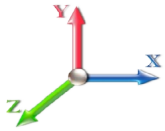
Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 27	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	5.914	6.51	269.15	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	5.914	6.51	264.24	0.730	0.000	5.00	27.041	19.74	128.4	0.0	1286.6
10.00		1.00	0.70	5.914	6.51	259.33	0.730	0.000	5.00	26.543	19.38	126.1	0.0	1262.8
15.00		1.00	0.70	5.914	6.51	254.42	0.730	0.000	5.00	26.045	19.01	123.7	0.0	1238.9
20.00		1.00	0.70	5.914	6.51	249.50	0.730	0.000	5.00	25.547	18.65	121.3	0.0	1215.1
25.00		1.00	0.70	5.914	6.51	244.59	0.730	0.000	5.00	25.049	18.29	119.0	0.0	1191.3
30.00		1.00	0.70	5.919	6.51	239.78	0.730	0.000	5.00	24.550	17.92	116.7	0.0	1167.4
35.00		1.00	0.73	6.186	6.80	240.10	0.730	0.000	5.00	24.052	17.56	119.5	0.0	1143.6
40.00		1.00	0.76	6.426	7.07	239.60	0.730	0.000	5.00	23.554	17.19	121.5	0.0	1119.8
41.00	Bot - Section 2	1.00	0.77	6.472	7.12	239.42	0.730	0.000	1.00	4.651	3.40	24.2	0.0	221.1
45.00		1.00	0.79	6.646	7.31	238.46	0.730	0.000	4.00	18.659	13.62	99.6	0.0	1761.8
48.00	Top - Section 1	1.00	0.80	6.770	7.45	237.52	0.730	0.000	3.00	13.785	10.06	74.9	0.0	1301.3
50.00		1.00	0.81	6.849	7.53	240.16	0.730	0.000	2.00	9.091	6.64	50.0	0.0	432.1
55.00		1.00	0.83	7.039	7.74	238.09	0.730	0.000	5.00	22.378	16.34	126.5	0.0	1063.4
60.00		1.00	0.85	7.216	7.94	235.64	0.730	0.000	5.00	21.880	15.97	126.8	0.0	1039.6
65.00		1.00	0.87	7.383	8.12	232.87	0.730	0.000	5.00	21.382	15.61	126.8	0.0	1015.8
70.00		1.00	0.89	7.541	8.29	229.80	0.730	0.000	5.00	20.884	15.25	126.5	0.0	991.9
75.00		1.00	0.91	7.691	8.46	226.47	0.730	0.000	5.00	20.386	14.88	125.9	0.0	968.1
80.00		1.00	0.93	7.834	8.62	222.92	0.730	0.000	5.00	19.888	14.52	125.1	0.0	944.3
85.00	Bot - Section 3	1.00	0.94	7.971	8.77	219.16	0.730	0.000	5.00	19.390	14.15	124.1	0.0	920.4
90.00		1.00	0.96	8.102	8.91	215.20	0.730	0.000	5.00	19.156	13.98	124.6	0.0	1655.4
91.00	Top - Section 2	1.00	0.96	8.128	8.94	214.39	0.730	0.000	1.00	3.771	2.75	24.6	0.0	325.8
95.00		1.00	0.97	8.228	9.05	214.15	0.730	0.000	4.00	14.887	10.87	98.4	0.0	589.5
100.00		1.00	0.99	8.350	9.18	209.89	0.730	0.000	5.00	18.160	13.26	121.8	0.0	719.0
105.00		1.00	1.00	8.467	9.31	205.48	0.730	0.000	5.00	17.662	12.89	120.1	0.0	699.2
110.00		1.00	1.02	8.580	9.44	200.94	0.730	0.000	5.00	17.164	12.53	118.3	0.0	679.3
115.00		1.00	1.03	8.690	9.56	196.27	0.730	0.000	5.00	16.666	12.17	116.3	0.0	659.4
120.00		1.00	1.04	8.796	9.68	191.47	0.730	0.000	5.00	16.168	11.80	114.2	0.0	639.6
125.00		1.00	1.05	8.899	9.79	186.57	0.730	0.000	5.00	15.670	11.44	112.0	0.0	619.7
130.00	Bot - Section 4	1.00	1.07	8.999	9.90	181.56	0.730	0.000	5.00	15.172	11.08	109.6	0.0	599.9
135.00	Top - Section 3	1.00	1.08	9.097	10.01	176.45	0.730	0.000	5.00	14.885	10.87	108.7	0.0	1051.6
140.00		1.00	1.09	9.192	10.11	173.84	0.730	0.000	5.00	14.387	10.50	106.2	0.0	455.7
145.00		1.00	1.10	9.285	10.21	168.56	0.730	0.000	5.00	13.889	10.14	103.6	0.0	439.8
150.00		1.00	1.11	9.375	10.31	163.20	0.730	0.000	5.00	13.391	9.78	100.8	0.0	423.9
155.00		1.00	1.12	9.463	10.41	157.75	0.730	0.000	5.00	12.893	9.41	98.0	0.0	408.0
160.00		1.00	1.13	9.550	10.50	152.22	0.730	0.000	5.00	12.395	9.05	95.1	0.0	392.1
165.00		1.00	1.14	9.634	10.60	146.63	0.730	0.000	5.00	11.897	8.69	92.0	0.0	376.2
170.00		1.00	1.15	9.716	10.69	140.96	0.730	0.000	5.00	11.399	8.32	88.9	0.0	360.4
175.00		1.00	1.16	9.797	10.78	135.22	0.730	0.000	5.00	10.901	7.96	85.8	0.0	344.5
180.00	Top - Section 4	1.00	1.17	9.876	10.86	129.42	0.730	0.000	5.00	10.403	7.59	82.5	0.0	328.6
183.00	Appurtenance(s)	1.00	1.17	9.923	10.92	127.75	0.600	0.000	3.00	6.000	3.60	39.3	0.0	213.8
185.00		1.00	1.18	9.954	10.95	127.95	0.600	0.000	2.00	4.000	2.40	26.3	0.0	142.5
190.00		1.00	1.19	10.030	11.03	128.44	0.600	0.000	5.00	10.000	6.00	66.2	0.0	356.3
192.00	Appurtenance(s)	1.00	1.19	10.060	11.07	128.63	0.600	0.000	2.00	4.000	2.40	26.6	0.0	142.5
195.00	Appurtenance(s)	1.00	1.20	10.105	11.12	128.92	0.600	0.000	3.00	6.000	3.60	40.0	0.0	213.8
								Totals:	**195.00**			**4,326.1**		**33,121.7**

Discrete Appurtenance Forces

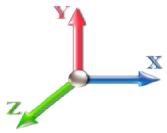
Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 28	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	195.00	6' Lightning rod	1	10.105	11.115	1.00	1.00	0.38	6.50	0.000	0.000	4.22	0.00	0.00
2	192.00	Radio 4449 B71+B12	3	10.075	11.083	0.60	0.90	2.98	210.00	0.000	1.000	33.08	0.00	33.08
3	192.00	MS-HRECP	1	10.060	11.066	1.00	1.00	12.25	514.00	0.000	0.000	135.56	0.00	0.00
4	192.00	MS-KI22-5 (Kickers w/o	1	10.060	11.066	0.90	0.90	4.80	146.00	0.000	0.000	53.08	0.00	0.00
5	192.00	Low Profile Platform	1	10.060	11.066	1.00	1.00	22.00	1500.00	0.000	0.000	243.46	0.00	0.00
6	192.00	782 11056	3	10.060	11.066	0.72	0.90	0.60	5.40	0.000	0.000	6.69	0.00	0.00
7	192.00	APXV18-206516S-C-A20	3	10.075	11.083	0.81	0.90	8.77	56.10	0.000	1.000	97.22	0.00	97.22
8	192.00	KRY 112 489/2	3	10.075	11.083	0.90	0.90	1.84	39.60	0.000	1.000	20.35	0.00	20.35
9	192.00	RFS	3	10.075	11.083	0.63	0.90	38.25	384.00	0.000	1.000	423.95	0.00	423.95
10	183.00	Low Profile Platform	1	9.923	10.915	1.00	1.00	22.00	1500.00	0.000	0.000	240.14	0.00	0.00
11	183.00	LPA-171080-8CF	4	9.923	10.915	0.64	0.80	5.79	34.00	0.000	0.000	63.15	0.00	0.00
12	183.00	LPA-171063-8CF	2	9.923	10.915	0.64	0.80	4.56	23.00	0.000	0.000	49.74	0.00	0.00
13	183.00	LPA-80063-4CF	6	9.923	10.915	0.64	0.80	23.62	120.00	0.000	0.000	257.78	0.00	0.00
14	183.00	BXA-70063-6CF	3	9.923	10.915	0.64	0.80	14.53	51.00	0.000	0.000	158.65	0.00	0.00
							Totals:		**4,589.60**			**1,787.08**		

Total Applied Force Summary

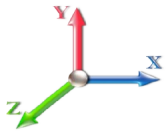
Structure:	CT01944-S-SBA		**Code:**	EIA/TIA-222-H	7/23/2019
Site Name:	Harwinton		**Exposure:**	B	
Height:	195.00 (ft)		**Crest Height:**	427.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 2	**Struct Class:**	II	Page: 29

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		128.42	1442.62	0.00	0.00
10.00		126.06	1418.78	0.00	0.00
15.00		123.69	1394.94	0.00	0.00
20.00		121.32	1371.11	0.00	0.00
25.00		118.96	1347.27	0.00	0.00
30.00		116.69	1323.44	0.00	0.00
35.00		119.47	1299.60	0.00	0.00
40.00		121.55	1275.76	0.00	0.00
41.00		24.17	252.29	0.00	0.00
45.00		99.58	1886.62	0.00	0.00
48.00		74.94	1394.94	0.00	0.00
50.00		50.00	494.45	0.00	0.00
55.00		126.48	1219.44	0.00	0.00
60.00		126.78	1195.61	0.00	0.00
65.00		126.76	1171.77	0.00	0.00
70.00		126.45	1147.94	0.00	0.00
75.00		125.89	1124.10	0.00	0.00
80.00		125.10	1100.26	0.00	0.00
85.00		124.10	1076.43	0.00	0.00
90.00		124.63	1811.35	0.00	0.00
91.00		24.61	357.03	0.00	0.00
95.00		98.36	714.33	0.00	0.00
100.00		121.76	875.04	0.00	0.00
105.00		120.08	855.17	0.00	0.00
110.00		118.26	835.31	0.00	0.00
115.00		116.29	815.45	0.00	0.00
120.00		114.20	795.58	0.00	0.00
125.00		111.98	775.72	0.00	0.00
130.00		109.64	755.86	0.00	0.00
135.00		108.74	1207.58	0.00	0.00
140.00		106.20	611.70	0.00	0.00
145.00		103.55	595.81	0.00	0.00
150.00		100.81	579.92	0.00	0.00
155.00		97.98	564.02	0.00	0.00
160.00		95.05	548.13	0.00	0.00
165.00		92.04	532.24	0.00	0.00
170.00		88.94	516.35	0.00	0.00
175.00		85.76	500.46	0.00	0.00
180.00		82.51	484.57	0.00	0.00
183.00	(16) attachments	808.76	2035.35	0.00	0.00
185.00		26.28	167.46	0.00	0.00
190.00		66.20	418.65	0.00	0.00
192.00	(18) attachments	1039.95	3022.56	0.00	574.60
195.00	(1) attachments	44.24	220.25	0.00	0.00
	Totals:	**6,113.22**	**43,533.27**	**0.00**	**574.60**

Calculated Forces

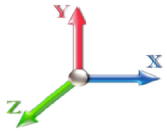
Structure:	CT01944-S-SBA	**Code:**	EIA/TIA-222-H	7/23/2019	
Site Name:	Harwinton	**Exposure:**	B		
Height:	195.00 (ft)	**Crest Height:**	427.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 2	**Struct Class:**	II	Page: 30	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 25

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	-43.53	-6.12	0.00	-762.48	0.00	762.48	4628.91	1339.45	7126.38	6119.66	0.00	0.000	0.000	0.134
5.00	-42.09	-6.01	0.00	-731.87	0.00	731.87	4587.84	1314.86	6867.16	5953.37	0.01	-0.027	0.000	0.132
10.00	-40.66	-5.91	0.00	-701.80	0.00	701.80	4545.12	1290.28	6612.74	5787.00	0.06	-0.054	0.000	0.130
15.00	-39.27	-5.80	0.00	-672.27	0.00	672.27	4500.76	1265.69	6363.12	5620.67	0.13	-0.082	0.000	0.128
20.00	-37.89	-5.70	0.00	-643.27	0.00	643.27	4454.76	1241.10	6118.30	5454.49	0.23	-0.110	0.000	0.126
25.00	-36.54	-5.59	0.00	-614.79	0.00	614.79	4407.12	1216.52	5878.29	5288.58	0.36	-0.138	0.000	0.125
30.00	-35.22	-5.49	0.00	-586.84	0.00	586.84	4357.84	1191.93	5643.07	5123.07	0.52	-0.167	0.000	0.123
35.00	-33.92	-5.38	0.00	-559.39	0.00	559.39	4306.92	1167.34	5412.67	4958.08	0.71	-0.196	0.000	0.121
40.00	-32.64	-5.27	0.00	-532.48	0.00	532.48	4254.35	1142.76	5187.06	4793.73	0.93	-0.225	0.000	0.119
41.00	-32.39	-5.25	0.00	-527.21	0.00	527.21	4243.64	1137.84	5142.51	4760.94	0.98	-0.232	0.000	0.118
45.00	-30.50	-5.15	0.00	-506.21	0.00	506.21	4200.14	1118.17	4966.25	4630.13	1.18	-0.256	0.000	0.117
48.00	-29.10	-5.08	0.00	-490.75	0.00	490.75	4202.19	1119.08	4974.38	4636.19	1.35	-0.274	0.000	0.113
50.00	-28.61	-5.04	0.00	-480.59	0.00	480.59	4180.07	1109.25	4887.33	4570.98	1.47	-0.287	0.000	0.112
55.00	-27.38	-4.92	0.00	-455.40	0.00	455.40	4123.62	1084.66	4673.07	4408.60	1.78	-0.316	0.000	0.110
60.00	-26.19	-4.80	0.00	-430.80	0.00	430.80	4065.54	1060.07	4463.61	4247.27	2.13	-0.346	0.000	0.108
65.00	-25.01	-4.68	0.00	-406.80	0.00	406.80	4005.81	1035.49	4258.96	4087.10	2.51	-0.376	0.000	0.106
70.00	-23.86	-4.56	0.00	-383.41	0.00	383.41	3944.44	1010.90	4059.10	3928.21	2.92	-0.407	0.000	0.104
75.00	-22.74	-4.44	0.00	-360.62	0.00	360.62	3881.43	986.31	3864.05	3770.72	3.36	-0.438	0.000	0.102
80.00	-21.64	-4.31	0.00	-338.44	0.00	338.44	3816.78	961.72	3673.81	3614.75	3.84	-0.470	0.000	0.099
85.00	-20.56	-4.19	0.00	-316.87	0.00	316.87	3750.48	937.14	3488.36	3460.42	4.35	-0.501	0.000	0.097
90.00	-18.75	-4.06	0.00	-295.91	0.00	295.91	3682.55	912.55	3307.72	3307.86	4.89	-0.533	0.000	0.095
91.00	-18.39	-4.03	0.00	-291.85	0.00	291.85	2898.33	768.33	2813.78	2634.30	5.00	-0.540	0.000	0.117
95.00	-17.67	-3.94	0.00	-275.72	0.00	275.72	2860.60	751.94	2695.00	2544.15	5.47	-0.566	0.000	0.115
100.00	-16.80	-3.82	0.00	-256.02	0.00	256.02	2811.95	731.45	2550.13	2432.25	6.08	-0.604	0.000	0.111
105.00	-15.94	-3.70	0.00	-236.92	0.00	236.92	2761.66	710.96	2409.26	2321.34	6.73	-0.641	0.000	0.108
110.00	-15.11	-3.58	0.00	-218.42	0.00	218.42	2709.73	690.47	2272.40	2211.55	7.42	-0.679	0.000	0.104
115.00	-14.29	-3.47	0.00	-200.50	0.00	200.50	2656.16	669.98	2139.54	2103.00	8.16	-0.717	0.000	0.101
120.00	-13.49	-3.35	0.00	-183.17	0.00	183.17	2600.95	649.49	2010.67	1995.80	8.93	-0.756	0.000	0.097
125.00	-12.72	-3.24	0.00	-166.42	0.00	166.42	2544.10	629.00	1885.82	1890.08	9.74	-0.794	0.000	0.093
130.00	-11.96	-3.12	0.00	-150.23	0.00	150.23	2485.60	608.51	1764.96	1785.96	10.59	-0.832	0.000	0.089
135.00	-10.75	-3.00	0.00	-134.61	0.00	134.61	1823.78	478.25	1362.76	1289.51	11.48	-0.870	0.000	0.110
140.00	-10.14	-2.90	0.00	-119.59	0.00	119.59	1784.40	461.86	1270.94	1218.11	12.42	-0.907	0.000	0.104
145.00	-9.54	-2.79	0.00	-105.10	0.00	105.10	1743.38	445.47	1182.33	1147.55	13.39	-0.951	0.000	0.097
150.00	-8.96	-2.69	0.00	-91.15	0.00	91.15	1700.71	429.08	1096.92	1077.96	14.41	-0.993	0.000	0.090
155.00	-8.40	-2.58	0.00	-77.72	0.00	77.72	1656.41	412.69	1014.72	1009.45	15.47	-1.034	0.000	0.082
160.00	-7.85	-2.48	0.00	-64.80	0.00	64.80	1610.46	396.29	935.71	942.14	16.58	-1.073	0.000	0.074
165.00	-7.32	-2.39	0.00	-52.38	0.00	52.38	1562.88	379.90	859.91	876.15	17.72	-1.109	0.000	0.065
170.00	-6.80	-2.29	0.00	-40.44	0.00	40.44	1513.65	363.51	787.30	811.61	18.90	-1.142	0.000	0.054
175.00	-6.30	-2.20	0.00	-28.99	0.00	28.99	1462.77	347.12	717.90	748.63	20.11	-1.169	0.000	0.043
180.00	-5.82	-2.11	0.00	-18.00	0.00	18.00	1400.09	330.73	651.70	682.38	21.35	-1.191	0.000	0.031
180.00	-5.82	-2.11	0.00	-18.00	0.00	18.00	678.42	203.53	25205.7	396.30	21.35	-1.191	0.000	0.054
183.00	-3.80	-1.26	0.00	-11.67	0.00	11.67	678.42	203.53	25205.7	396.30	22.10	-1.200	0.000	0.035
185.00	-3.64	-1.23	0.00	-9.16	0.00	9.16	678.42	203.53	25205.7	396.30	22.60	-1.204	0.000	0.029
190.00	-3.22	-1.15	0.00	-3.03	0.00	3.03	678.42	203.53	25205.7	396.30	23.87	-1.210	0.000	0.012
192.00	-0.22	-0.05	0.00	-0.15	0.00	0.15	678.42	203.53	25205.7	396.30	24.38	-1.211	0.000	0.001
195.00	0.00	-0.04	0.00	0.00	0.00	0.00	678.42	203.53	25205.7	396.30	25.14	-1.211	0.000	0.000

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 + 1.0W 115 mph Wind	22.5	0.00	52.22	0.00	0.00	2820.58
0.9D + 1.0W 115 mph Wind	22.5	0.00	39.16	0.00	0.00	2789.04
1.2D + 1.0Di + 1.0Wi 40 mph Wind	4.4	0.00	67.49	0.00	0.00	552.50
1.2D + 1.0Ev + 1.0Eh	3.1	0.00	52.24	0.00	0.00	378.22
0.9D + 1.0Ev + 1.0Eh	3.1	0.00	39.18	0.00	0.00	373.85
1.0D + 1.0W 60 mph Wind	6.1	0.00	43.53	0.00	0.00	762.48

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 + 1.0W 115 mph Wind	-52.22	-22.50	0.00	-2820.5	0.00	-2820.5	4628.91	1339.4	7126.38	6119.66	0.00	0.472
0.9D + 1.0W 115 mph Wind	-39.16	-22.49	0.00	-2789.0	0.00	-2789.0	4628.91	1339.4	7126.38	6119.66	0.00	0.464
1.2D + 1.0Di + 1.0Wi 40 mph Wind	-67.49	-4.45	0.00	-552.50	0.00	-552.50	4628.91	1339.4	7126.38	6119.66	0.00	0.105
1.2D + 1.0Ev + 1.0Eh	-52.24	-3.15	0.00	-378.22	0.00	-378.22	4628.91	1339.4	7126.38	6119.66	0.00	0.073
0.9D + 1.0Ev + 1.0Eh	-39.18	-3.15	0.00	-373.85	0.00	-373.85	4628.91	1339.4	7126.38	6119.66	0.00	0.070
1.0D + 1.0W 60 mph Wind	-43.53	-6.12	0.00	-762.48	0.00	-762.48	4628.91	1339.4	7126.38	6119.66	0.00	0.134

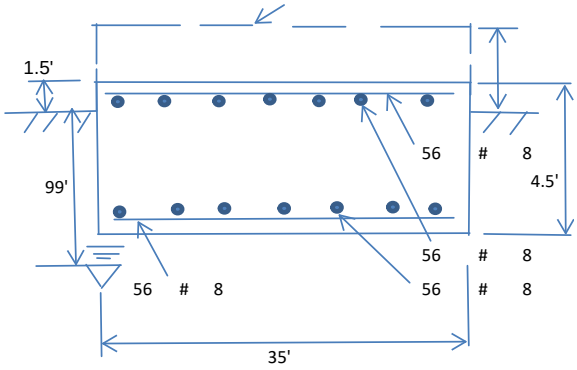
Monopole Mat Foundation Design

				Date
				10/31/2017
Customer Name:	SBA Communcations Corp	**EIA/TIA Standard:**	EIA-222-G
Site Name:		**Structure Height (Ft.):**	53
Site Number:		**Engineer Name:**	J. Chen
Engr. Number:		**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

Analysis or Design? Analysis

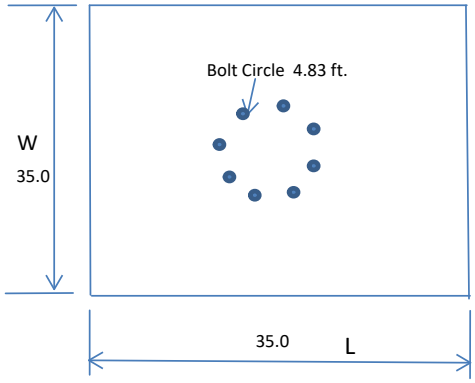


Base Reactions (Factored):

Axial Load (Kips):	67.5	Shear Force (Kips):	22.5
Uplift Force (Kips):	0.0	Moment (Kips-ft):	2820.6
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Anchor Bolt Circle (ft.):	4.83	Depth of Base BG (ft.):	3.00
Thickness of Pad (ft):	4.50		
Length of Pad (ft.):	35	Width of Pad (ft.):	35
Final Length of pad (ft)	35.0	Final width of pad (ft):	35.0



Material Properties and Reabr Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Pad Rebar Yield (Ksi):	60	Tie Spacing (in):	6.0	
Pad Steel Rebar Size (#):	8			
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	56	Qty. of Rebar in Pad (W):	56	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	56	Qty. of Rebar in Pad (W):	56	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

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):	15000	Ultimate Skin Friction:	300	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	No	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.):	0.00	Total Dry Soil Weight (Kips):	0.00
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	0.00	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	5512.50	Total Dry Concrete Weight (Kips):	826.88
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	826.88	Total Vertical Load on Base (Kips):	894.38

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	1293	<	Allowable Factored Soil Bearing (psf):	11250	0.11	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	14204.5	>	Design Factored Momont (kips-ft):	2923	0.21	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	4.86	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

Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	1742.6	>	One-Way Factored Shear (L-D. Kips):	348.5	0.20	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1742.6	>	One-Way Factored Shear (W-D., Kips)	348.5	0.20	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	2199.0	>	One-Way Factored Shear (C-C, Kips):	480.6	0.22	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0021	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0021		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	9806.8	>	Moment at Bottom (L-Direct. K-Ft):	1851.6	0.19	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	9806.8	>	Moment at Bottom (W-Direct. K-Ft):	1851.6	0.19	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	13826.9	>	Moment at Bottom (C-C Dir. K-Ft):	2618.6	0.19	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0021	OK!	Upper Steel Reinf. Ratio (W-Direct.):	0.0021		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	9806.8	>	Moment at the top (L-Dir Kips-Ft):	298.8	0.03	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	9806.8	>	Moment at the top (W-Dir Kips-Ft):	298.8	0.03	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	13826.9	>	Moment at the top (C-C Direc. K-Ft):	498.8	0.04	OK!

EXHIBIT 9

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

Post-Mod Antenna Mount Analysis Report

Existing 196-Ft Monopole Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT01944-S-SBA / Harwinton

Customer Site Name: Harwinton

Carrier Name: T-Mobile (App#: 117027, V1)

Carrier Site ID / Name: CT11712A / Harwinton

Site Location: 133 Clearview Ave

Harwinton, Connecticut

Litchfield County

Latitude: 41.775522

Longitude: -73.098202

Analysis Result:

Max Structural Usage: 76.7% [Pass]

Report Prepared By: Dayne Colahan

Introduction

The purpose of this report is to summarize the analysis results on the (1) platform with handrail at 196.00' elevation including the proposed modifications to support the proposed antenna configuration. 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

Mount Drawings	Mapping by Full Metal Tower Services, Dated 4/27/2019
Antenna Loading	Provided by SBA, Application #: 117027, v1
Existing Modification	N/A
Proposed Modification	TES Project No. 81812

Analysis Criteria

Basic Wind Speed Used in the Analysis: V_{ULT} = 120 mph (3-Sec. Gust) / Equivalent to
V_{ASD} = 93 mph (3-Sec. Gust)
Basic Wind Speed with Ice: 40 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed: 60 mph +0" Radial ice
Standard/Codes: ANSI/TIA/EIA 222-G / 2015 IBC / 2018 CSBC
Exposure Category: C
Structure Class: II
Topographic Category: 3
Crest Height (Ft): 171

The site is a Risk Category II structure per IBC Table 1604.5. This site does not support emergency communication equipment for first responders such as fire departments, police, hospitals, ambulance services or any of the facilities listed for Risk Categories III and IV. The scope of work detailed in this structural analysis does not include items that are a part of emergency service as the 911 or essential facility service of an emergency response system.

Mount Information

(1) Platform with handrail at 196.00' elevation

Mount Modifications

(1) [MS-1436] Metrosite Light Collar Mount Assembly
(2) [MS-HRCP-35] Metrosite Support Rail Center Pipe Kit
(1) [MS-HR35-18] Metrosite Support Rail Kit
(7) [PX2375-8] 2" PX, A53 GR-B 35 KSI
(6) L3"x3"x1/4 Custom Bracing

Final Antenna Configuration

3	RFS APXV18-206516S-C-A20
3	RFS APXVAARR24_43-U-NA20
3	Ericsson KRY 112 489/2
3	Ericsson Radio 4449 B71+B12
3	Kathrein 782 11056

Any proposed antennas not currently installed should be mounted such that the centers of the antennas do not exceed 0.5 ft vertically from the center of the (1) Platform with handrail.

Analysis Results

Our calculations have determined that under design wind load the existing mounts will be structurally adequate to support the proposed antenna configuration after the proposed modification is successfully completed. The maximum structural usage is 76.7%, which occurs in the mount pipes. The proposed equipment must be installed as stipulated in the Final Antenna Configuration section of this report. The analysis results are void if the proposed equipment is not installed in accordance with this report.

Attachments

1. Mount Photos Before Modification
2. Antenna Placement Diagram
3. Mount Mapping Information
4. Analysis Calculations

Standard Conditions

1. The loading configuration as analyzed in this report is as provided from the customer. Any deviation from this design shall be communicated to TES to verify deviation will not adversely impact the analysis.

2. The analysis is based on the presumption that the antenna mount members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.

3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion. The mount analysis is not a condition assessment of the mount.

4. The mount analysis was performed in accordance with the loading provided, and if applicable the modification required to support the additional loading.

5. If the mount is modified, installation must adhere to the configuration communicated in the modification drawings.

6. The modification drawings are not intended to convey means or methods. These are the responsibility of the installing contractor.

7. Rigging plan review is available if the contractor requires for a construction class IV or other if required. Review fee would apply.

8. The mount modification package was created based upon information provided for the mount loading. The underlying tower is assumed to provide support and sufficient rigidity to support the mount loads as a tower analysis was not part of the mount analysis.

9. TES is not responsible for modifications to climbing facilities unless communicated to TES in writing.


04.27.2019 12:08


04.27.2019 12:10

Structure: CT01944-S-SBA - Harwinton

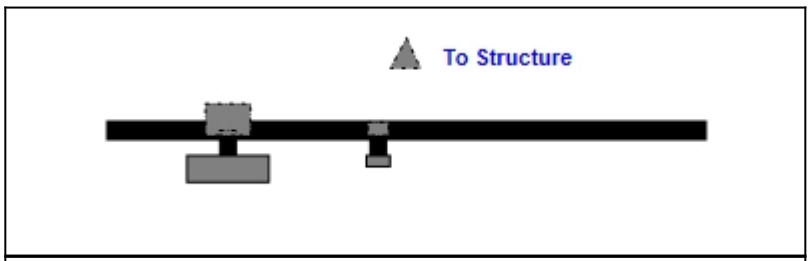
Sector: **A**

Structure Type: Monopole

Mount Elev: 196.00

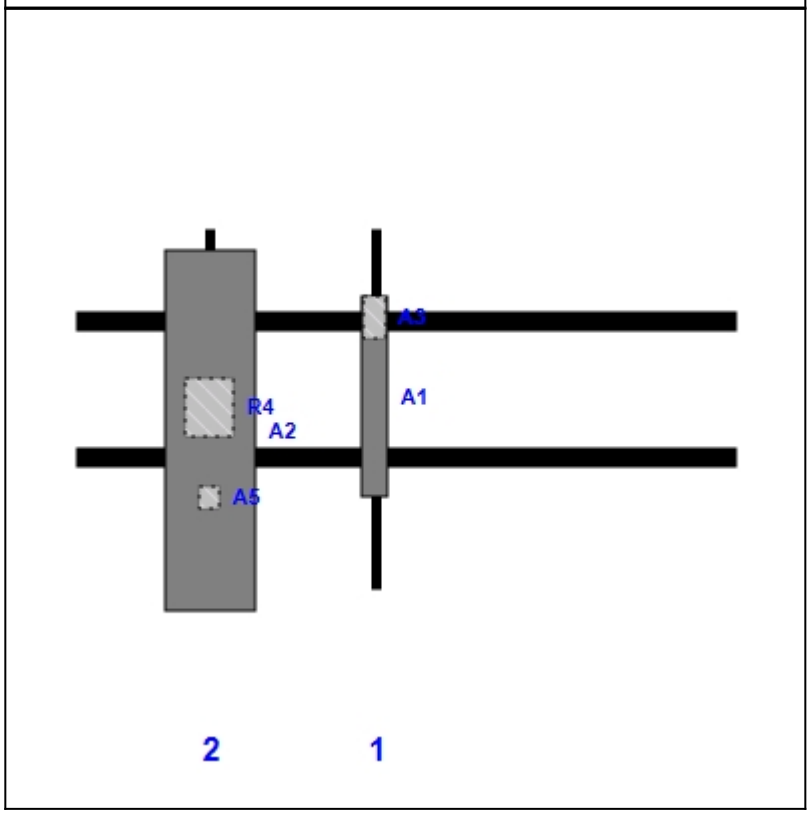
7/31/2019

Plan View



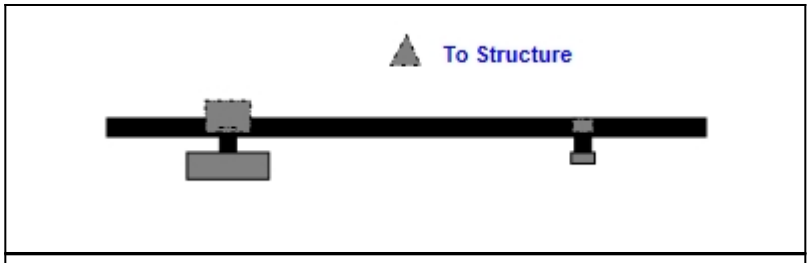
Front View

Looking Toward Structure



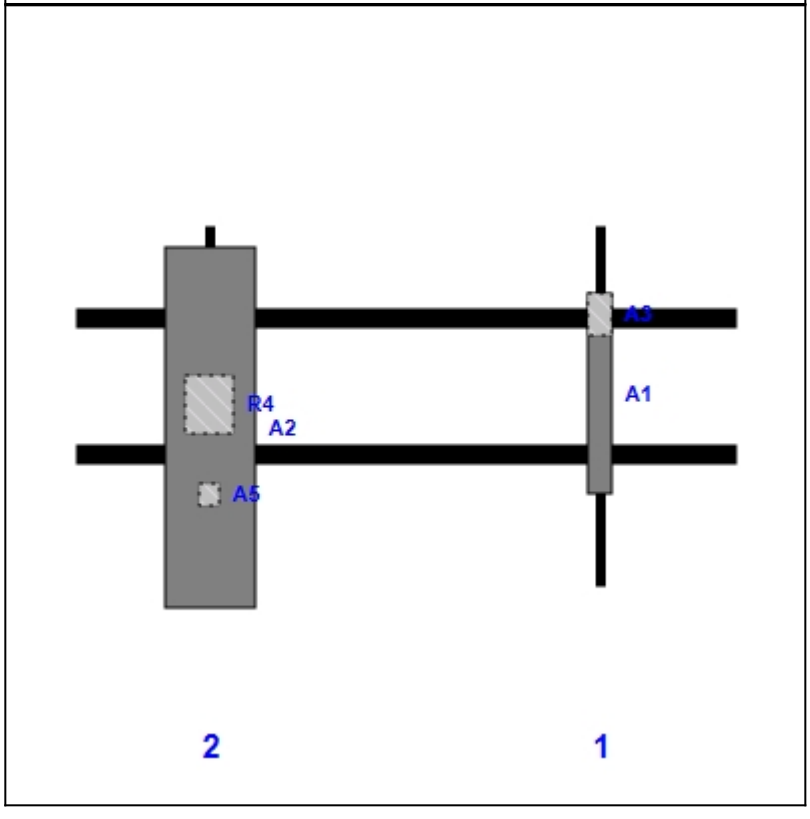
Ref	Model	Height (in)	Width (in)	H Dist From Left	Pipe	Pipe Pos V	Antenna Pos	Center Ant From Top	Antenna H Offset
A1	APXV18-206516S-C-A20	53.10	6.90	80.00	1	a	Front	45.00	0.00
A3	KRY 112 489/2	11.00	6.10	80.00	1	a	Behind	24.00	0.00
A2	APXVAARR24_43-U-NA20	95.90	24.00	36.00	2	a	Front	54.00	0.00
R4	Radio 4449 B71+B12	15.00	13.20	36.00	2	a	Behind	48.00	0.00
A5	782 11056	5.70	5.00	36.00	2	a	Behind	72.00	0.00

Plan View



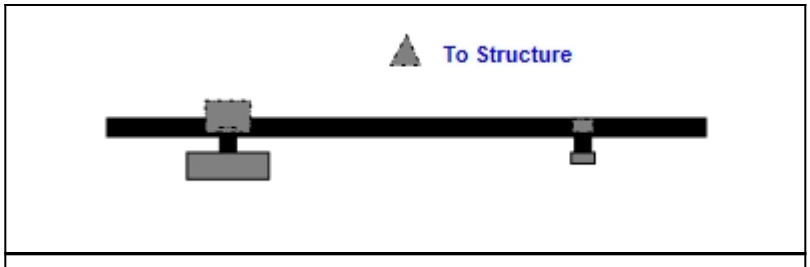
Front View

Looking Toward Structure



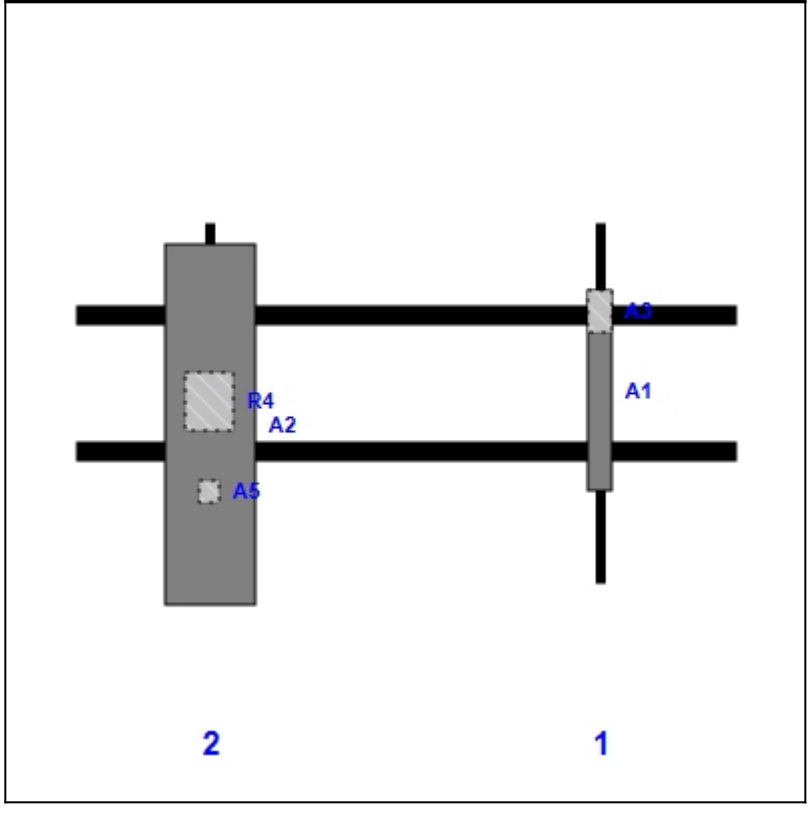
Ref	Model	Height (in)	Width (in)	H Dist From Left	Pipe	Pipe Pos V	Antenna Pos	Center Ant From Top	Antenna H Offset
A1	APXV18-206516S-C-A20	53.10	6.90	140.00	1	a	Front	45.00	0.00
A3	KRY 112 489/2	11.00	6.10	140.00	1	a	Behind	24.00	0.00
A2	APXVAARR24_43-U-NA20	95.90	24.00	36.00	2	a	Front	54.00	0.00
R4	Radio 4449 B71+B12	15.00	13.20	36.00	2	a	Behind	48.00	0.00
A5	782 11056	5.70	5.00	36.00	2	a	Behind	72.00	0.00

Plan View



Front View

Looking Toward Structure



Ref	Model	Height (in)	Width (in)	H Dist From Left	Pipe	Pipe Pos V	Antenna Pos	Center Ant From Top	Antenna H Offset
A1	APXV18-206516S-C-A20	53.10	6.90	140.00	1	a	Front	45.00	0.00
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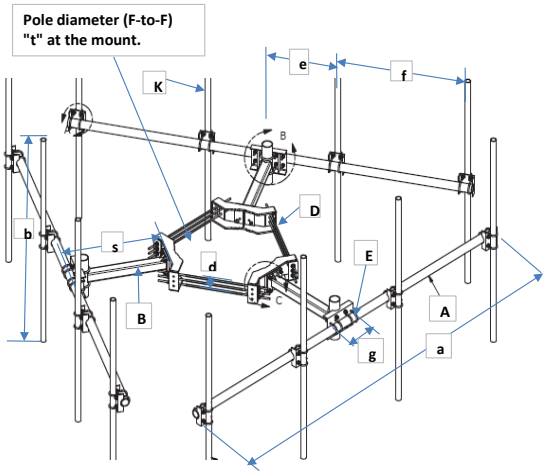
A2	APXVAARR24_43-U-NA20	95.90	24.00	36.00	2	a	Front	54.00	0.00
R4	Radio 4449 B71+B12	15.00	13.20	36.00	2	a	Behind	48.00	0.00
A5	782 11056	5.70	5.00	36.00	2	a	Behind	72.00	0.00

Antenna Mount Type "MT-Z" Mapping Form (PATENT PENDING)

FCC # 1228076

Tower Owner:	SBA Communications	**Mapping Date:**	4/27/19
Site Name:	Harwinton	**Structure Type:**	Monopole
Site Number or ID:	CT01944-S-SBA	**Structure Height (Ft.):**	196
Mapping Contractor:	Full Metal Tower Services	**Mount Height (Ft.):**	196

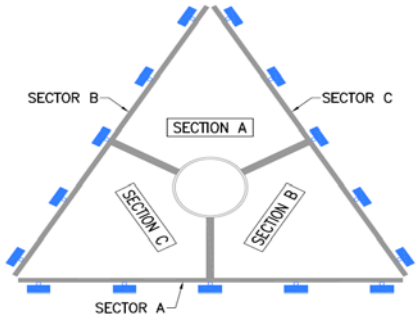


Geometries (Unit: inches)									
a	176	**e**		**j**		**o**		**s**	60
b	96	**f**		**k**		**p**		**t**	20.5
c		**g**		**m**		**q**		**u ***	61
d		**h**		**n**		**r**		**v ***	96

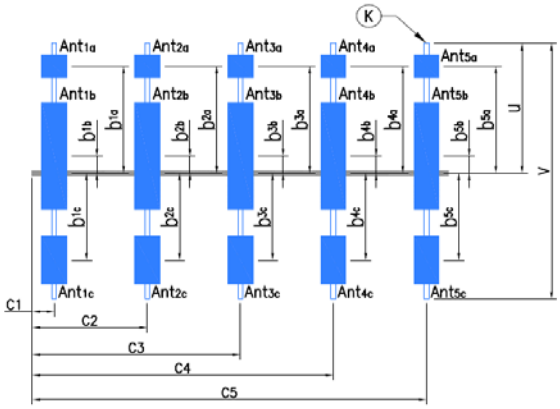
Members/Bolts (Unit: inches) — *** - See Ant. Layout for "u", "v" and member "K" (pipe)**

Items	Member	Lx (O.D.)	Ly (I.D.)	T	Items	Member	Lx (O.D.)	Ly (I.D.)	T
A	3.5 OD x 0.216 Pipe	3.5	3.068	0.216	**F**				
B	Tubing 4x4x1/4	4	4	0.25	**G**				
C					**H**				
D	5/8" Bolt				**J**				
E	5/8" Bolt	U-Bolt			**K* (pipe)**	2.375 OD x 0.154 Pipe	2.375	2.067	0.154
Distance from top of main platform member to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.)									N/A
Distance from top of main platform member to highest tip of ant./eqpt. of Carrier below. (N/A if > 10 ft.)									7.5'

Please enter the infomation below if members can't be found from the drop down lists



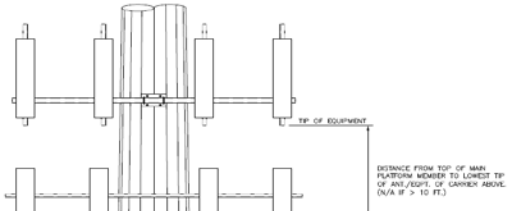
Climbing ladder is Located at Section A, at 60° Degree Azimuth



Antenna Layout

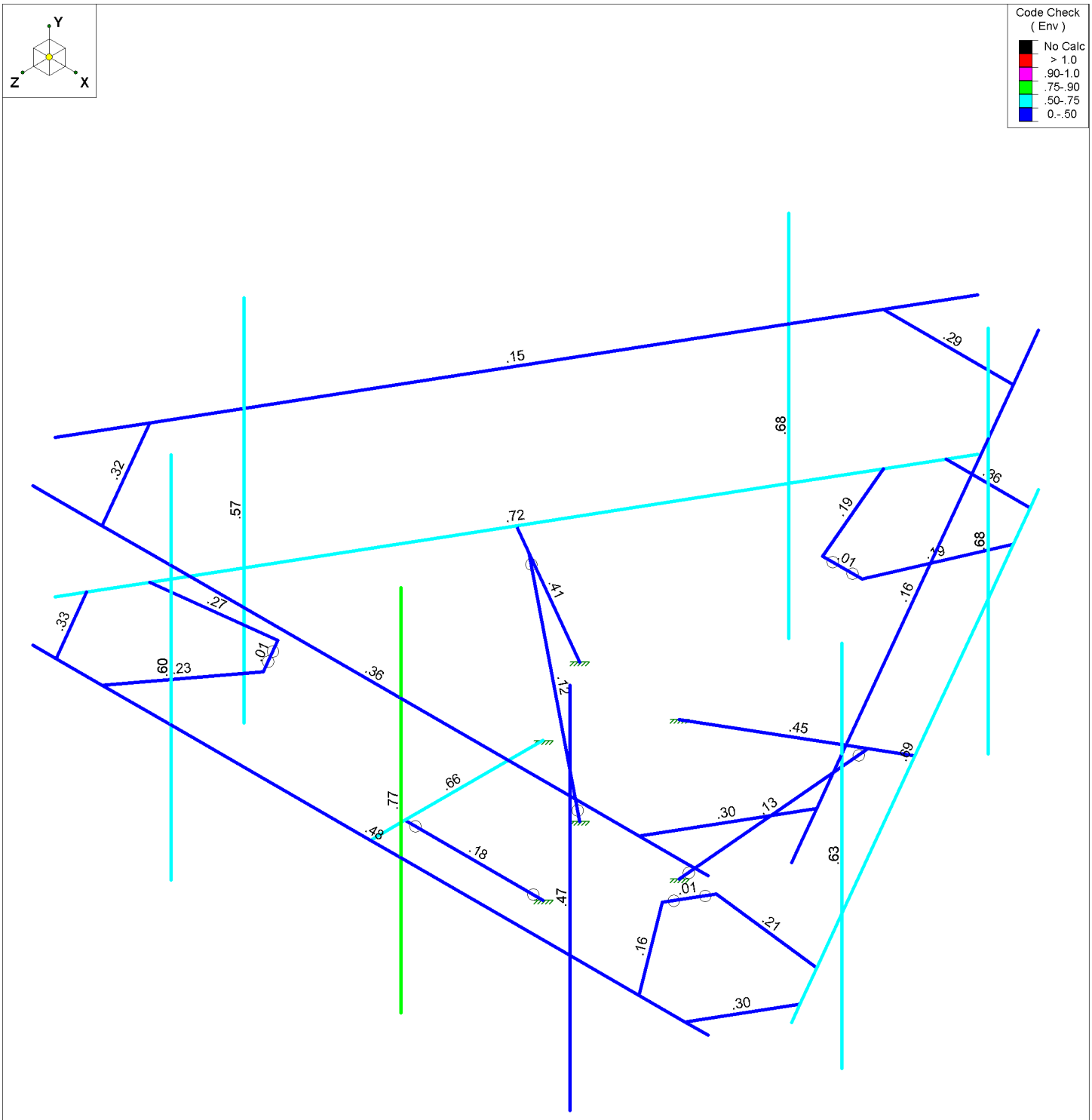
Azimuth (Degree) of Each Sector and Climbing Information

Sector A:	0°		Deg	
Sector B:	120°		Deg	
Sector C:	240°		Deg	
Climbing	60°		Deg	Located at Section A
Climbing Facility	Corrosion Type:			Minor corrosion observed
	Access:			Climbing path was unobstructed.
	Condition:			N/A



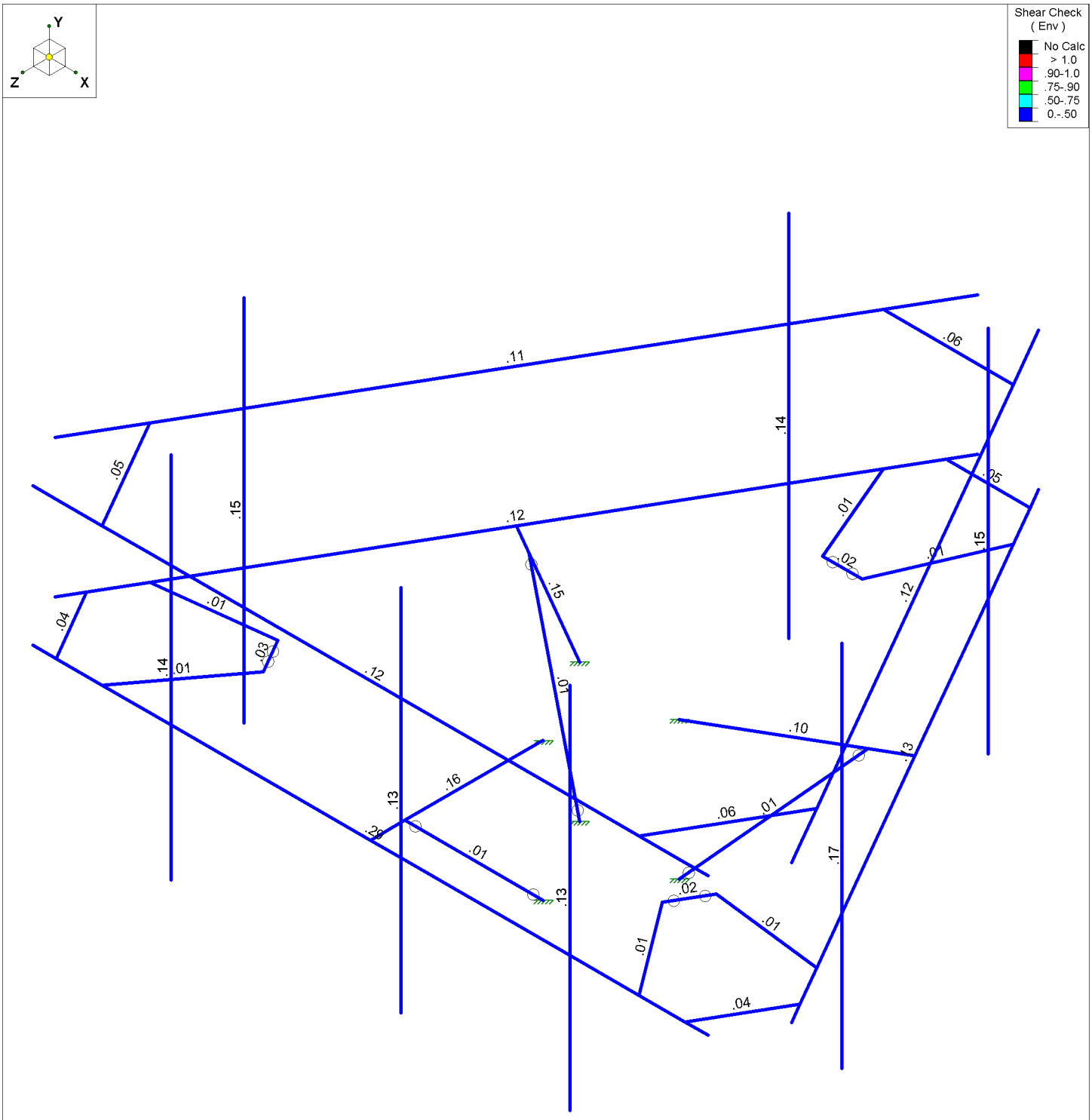
Ants. Items	Enter antenna model. If not labled, enter "Unknown". If no antenna at specified location, enter "N/A". If antennas and the locations are the same on all three sectors, only enter one sector.	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Mounting Locations (Unit: inches) Vertical Distances"b_{1a}, b_{2a}, b_{3a}, b_{1b}...." (In.)	Horiz. offset (Use "-" if Ant. is inside)	Horiz. offset "C_1, C_2, C_3, C_4, C_5" (in.)	Photos of antennas Photo Numbers
Sector A									
Ant_{1a}									
Ant_{1b}	Antenna A	7	3.5	53	1/2" (2)	14	6	36	
Ant_{1c}	TMA A	6	3.5	12	1/2" (2)	12	N/A	36	
Ant_{2a}									
Ant_{2b}	Antenna B	12	7.5	96.5	1/2" (2)	20	7	80	
Ant_{2c}									
Ant_{3a}									
Ant_{3b}									
Ant_{3c}									
Ant_{4a}									
Ant_{4b}									
Ant_{4c}									
Ant_{5a}									
Ant_{5b}									
Ant_{5c}									
Are Ant same as sector A?		No	**Sector B**						
Ant_{1a}									
Ant_{1b}	Antenna A	7	3.5	53	1/2" (2)			36	
Ant_{1c}	TMA A				1/2" (2)		N/A	36	
Ant_{2a}									
Ant_{2b}	Antenna B	12	7.5	96.5	1/2" (2)			140	
Ant_{2c}									
Ant_{3a}									
Ant_{3b}									
Ant_{3c}									
Ant_{4a}									
Ant_{4b}									
Ant_{4c}									
Ant_{5a}									
Ant_{5b}									
Ant_{5c}									
Are Ant same as sector A/B?		Same As B	**Antennas on Sector C are the same as Sector B**						

Tower Engineering Solutio...	CT01944-S-SBA_MT_LO_Loads Only_G	SK - 1
		Aug 6, 2019 at 4:19 PM
TES Project No. 81812		CT01944-S-SBA_81812_G_RISA_L...



Member Code Checks Displayed (Enveloped)
Results for LC 1, 1.2D+1.6W (Front)

Tower Engineering Solutio...	CT01944-S-SBA_MT_LO_Loads Only_G	SK - 2
		Aug 6, 2019 at 4:19 PM
TES Project No. 81812		CT01944-S-SBA_81812_G_RISA_L...



Member Shear Checks Displayed (Enveloped)
Results for LC 1, 1.2D+1.6W (Front)

Tower Engineering Solutio...	CT01944-S-SBA_MT_LO_Loads Only_G	SK - 3
		Aug 6, 2019 at 4:20 PM
TES Project No. 81812		CT01944-S-SBA_81812_G_RISA_L...

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Antenna D	None					25			
2	Antenna Di	None					25			
3	Antenna W Front	None					25			
4	Antenna Wi Front	None					25			
5	Antenna W Side	None					25			
6	Antenna Wi Side	None					25			
7	Service Lm1	None					1			
8	Service Lm2	None					1			
9	Structure D	None		-1						
10	Structure Di	None						34		
11	Structure W Front	None						34		
12	Structure Wi Front	None						34		
13	Structure W Side	None						34		
14	Structure Wi Side	None						34		

Load Combinations

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
1	1.2D+1.6W (Front)	Yes	Y		1	1.2	9	1.2	3	1.6	11	1.6												
2	1.2D+1.6W (Back)	Yes	Y		1	1.2	9	1.2	3	-1.6	11	-1.6												
3	1.2D+1.6W (Left)	Yes	Y		1	1.2	9	1.2	5	1.6	13	1.6												
4	1.2D+1.6W (Right)	Yes	Y		1	1.2	9	1.2	5	-1.6	13	-1.6												
5	1.2D+1.0Di+1.0Wi (Front)	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	1	12	1								
6	1.2D+1.0Di+1.0Wi (Back)	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	-1	12	-1								
7	1.2D+1.0Di+1.0Wi (Left)	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	1	14	1								
8	1.2D+1.0Di+1.0Wi (Right)	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	-1	14	-1								
9	1.2D+1.5L1+.16W (Main..	Yes	Y		1	1.2	9	1.2	7	1.5	3	.16	11	.16										
10	1.2D+1.5L2+.16W (Main..	Yes	Y		1	1.2	9	1.2	8	1.5	3	.16	11	.16										
11	1.4D	Yes	Y		1	1.4	9	1.4																

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0	1.25	0	
2	N2	1.082532	0	-.625	0	
3	N3	-1.082532	0	-.625	0	
4	N4	0	0	5	0	
5	N5	7.33333	0	5	0	
6	N6	-7.33333	0	5	0	
7	N7	4.330127	0	-2.5	0	
8	N8	0.663462	0	-8.85085	0	
9	N9	7.996792	0	3.85085	0	
10	N10	-4.330127	0	-2.5	0	
11	N11	-7.996792	0	3.85085	0	
12	N12	-0.663462	0	-8.85085	0	
13	N13	-5.83333	0	5	0	
14	N14	5.83333	0	5	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
15	N15	-4.33333	0	3	0	
16	N16	4.33333	0	3	0	
17	N17	4.764741	0	2.252774	0	
18	N18	0.431411	0	-5.252774	0	
19	N19	-0.431411	0	-5.252774	0	
20	N20	-4.764741	0	2.252774	0	
21	N21	7.246792	0	2.551812	0	
22	N22	1.413462	0	-7.551812	0	
23	N23	-1.413462	0	-7.551812	0	
24	N24	-7.246792	0	2.551812	0	
25	N27	4.33333	0	5	0	
26	N28	0.666663	0	5	0	
27	N27A	-2.163462	0	-6.252774	0	
28	N28A	6.496792	0	1.252774	0	
29	N29	-6.496812	0	1.252809	0	
30	N30	2.163442	0	-6.252809	0	
31	N31	4.33333	5.083333	5	0	
32	N32	0.666663	5.083333	5	0	
33	N33	-2.163462	5.083333	-6.252774	0	
34	N34	6.496792	5.083333	1.252774	0	
35	N35	-6.496812	5.083333	1.252809	0	
36	N36	2.163442	5.083333	-6.252809	0	
37	N37	4.33333	-2.916667	5	0	
38	N38	0.666663	-2.916667	5	0	
39	N39	-2.163462	-2.916667	-6.252774	0	
40	N40	6.496792	-2.916667	1.252774	0	
41	N41	-6.496812	-2.916667	1.252809	0	
42	N42	2.163442	-2.916667	-6.252809	0	
43	N43	0	-3	1.25	0	
44	N44	1.082532	-3	-.625	0	
45	N45	-1.082532	-3	-.625	0	
46	N46	0	0	4.25	0	
47	N47	-3.680608	0	-2.125	0	
48	N48	3.680608	0	-2.125	0	
49	N67	-6.83333	0	5	0	
50	N68	6.83333	0	5	0	
51	N69	7.746792	0	3.417837	0	
52	N70	0.913462	0	-8.417837	0	
53	N71	-0.913462	0	-8.417837	0	
54	N72	-7.746792	0	3.417837	0	
55	N55	7.33333	3	5	0	
56	N56	-7.33333	3	5	0	
57	N57	0.663462	3	-8.85085	0	
58	N58	7.996792	3	3.85085	0	
59	N59	-7.996792	3	3.85085	0	
60	N60	-0.663462	3	-8.85085	0	
61	N61	4.33333	3	5	0	
62	N62	0.666663	3	5	0	
63	N63	-2.163462	3	-6.252774	0	
64	N64	6.496792	3	1.252774	0	
65	N65	-6.496812	3	1.252809	0	
66	N66	2.163442	3	-6.252809	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
67	N67A	-6.83333	3	5	0	
68	N68A	6.83333	3	5	0	
69	N69A	7.746792	3	3.417837	0	
70	N70A	0.913462	3	-8.417837	0	
71	N71A	-0.913462	3	-8.417837	0	
72	N72A	-7.746792	3	3.417837	0	
73	N73	-5.83333	3	5	0	
74	N74	5.83333	3	5	0	
75	N75	7.246792	3	2.551812	0	
76	N76	1.413462	3	-7.551812	0	
77	N77	-1.413462	3	-7.551812	0	
78	N78	-7.246792	3	2.551812	0	
79	N79	-4.33333	0	5.	0	
80	N80	-4.33333	5.083333	5.	0	
81	N81	-4.33333	-2.916667	5.	0	
82	N82	-4.33333	3	5.	0	

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Kickers	LL2x2x4x0	Beam	Double An...	A36 Gr.36	Typical	1.89	1.34	.692	.042

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Standoff Arm	5CU4X025	Beam	CU	A570 Gr.33	Typical	2.991	4.954	12.343	.062

Aluminum Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	AL1A	AACS14X13.9	Beam	AA Channel	3003-H14	Typical	11.8	44.7	401	1.19

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E..	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E5 F)	Density[k/ft^3]	Yield[ksi]	Fu[ksi]
1	A570 Gr.33	29500	11346	.3	.65	.49	33	52
2	A607 C1 Gr.55	29500	11346	.3	.65	.49	55	70

Aluminum Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (...	Density[...	Table B.4	kt	Ftu[ksi]	Fty[ksi]	Fcy[ksi]	Fsu[ksi]	Ct
1	3003-H14	10100	3787.5	.33	1.3	.173	Table B...	1	19	16	13	12	141
2	6061-T6	10100	3787.5	.33	1.3	.173	Table B...	1	38	35	35	24	141
3	6063-T5	10100	3787.5	.33	1.3	.173	Table B...	1	22	16	16	13	141
4	6063-T6	10100	3787.5	.33	1.3	.173	Table B...	1	30	25	25	19	141
5	5052-H34	10200	3787.5	.33	1.3	.173	Table B...	1	34	26	24	20	141
6	6061-T6 W	10100	3787.5	.33	1.3	.173	Table B...	1	24	15	15	15	141

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N6	N5			PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical
2	M2	N9	N8			PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical
3	M3	N12	N11			PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical
4	M4	N1	N4			HSS4x4x4	Beam	SquareTube	A36 Gr.36	Typical
5	M5	N2	N7			HSS4x4x4	Beam	SquareTube	A36 Gr.36	Typical
6	M6	N3	N10			HSS4x4x4	Beam	SquareTube	A36 Gr.36	Typical
7	M7	N13	N15		90	L3x3x4	Beam	Single Angle	A36 Gr.36	Typical
8	M8	N14	N16		180	L3x3x4	Beam	Single Angle	A36 Gr.36	Typical
9	M9	N21	N17		90	L3x3x4	Beam	Single Angle	A36 Gr.36	Typical
10	M10	N22	N18		180	L3x3x4	Beam	Single Angle	A36 Gr.36	Typical
11	M11	N23	N19		90	L3x3x4	Beam	Single Angle	A36 Gr.36	Typical
12	M12	N24	N20		180	L3x3x4	Beam	Single Angle	A36 Gr.36	Typical
13	M13	N15	N20			L1.75x1.75x3	Beam	Single Angle	A36 Gr.36	Typical
14	M14	N19	N18			L1.75x1.75x3	Beam	Single Angle	A36 Gr.36	Typical
15	M15	N17	N16			L1.75x1.75x3	Beam	Single Angle	A36 Gr.36	Typical
16	MP1A	N31	N37			PIPE_2.0X	Beam	Pipe	A53 Gr.B	Typical
17	MP2A	N32	N38			PIPE_2.0X	Beam	Pipe	A53 Gr.B	Typical
18	MP2B	N33	N39			PIPE_2.0X	Beam	Pipe	A53 Gr.B	Typical
19	MP1B	N35	N41			PIPE_2.0X	Beam	Pipe	A53 Gr.B	Typical
20	MP1C	N36	N42			PIPE_2.0X	Beam	Pipe	A53 Gr.B	Typical
21	MP2C	N34	N40			PIPE_2.0X	Beam	Pipe	A53 Gr.B	Typical
22	M22	N43	N46			LL2x2x4x0	Beam	Double Angle (...	A36 Gr.36	Typical
23	M23	N45	N47			LL2x2x4x0	Beam	Double Angle (...	A36 Gr.36	Typical
24	M24	N44	N48			LL2x2x4x0	Beam	Double Angle (...	A36 Gr.36	Typical
25	M31	N67	N72			L3x3x4	Beam	Single Angle	A36 Gr.36	Typical
26	M32	N71	N70			L3x3x4	Beam	Single Angle	A36 Gr.36	Typical
27	M33	N69	N68			L3x3x4	Beam	Single Angle	A36 Gr.36	Typical
28	M28	N56	N55			PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical
29	M29	N58	N57			PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical
30	M30	N60	N59			PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical
31	M31A	N73	N78			L3x3x4	Beam	Single Angle	A36 Gr.36	Typical
32	M32A	N77	N76			L3x3x4	Beam	Single Angle	A36 Gr.36	Typical
33	M33A	N75	N74			L3x3x4	Beam	Single Angle	A36 Gr.36	Typical
34	M34	N80	N81			PIPE_2.0X	Beam	Pipe	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
1	M1						Yes			None
2	M2						Yes			None
3	M3						Yes			None
4	M4						Yes			None
5	M5						Yes			None
6	M6						Yes			None
7	M7						Yes			None
8	M8						Yes			None
9	M9						Yes			None
10	M10						Yes			None
11	M11						Yes			None
12	M12						Yes			None
13	M13	BenPIN	BenPIN				Yes			None
14	M14	BenPIN	BenPIN				Yes			None
15	M15	BenPIN	BenPIN				Yes			None
16	MP1A						Yes			None
17	MP2A						Yes			None
18	MP2B						Yes			None
19	MP1B						Yes			None
20	MP1C						Yes			None
21	MP2C						Yes			None
22	M22	BenPIN	BenPIN				Yes			None
23	M23	BenPIN	BenPIN				Yes			None
24	M24	BenPIN	BenPIN				Yes			None
25	M31						Yes			None
26	M32						Yes			None
27	M33						Yes			None
28	M28						Yes			None
29	M29						Yes			None
30	M30						Yes			None
31	M31A						Yes			None
32	M32A						Yes			None
33	M33A						Yes			None
34	M34						Yes			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	PIPE_3.0	14.667			Lbyy						Lateral
2	M2	PIPE_3.0	14.667			Lbyy						Lateral
3	M3	PIPE_3.0	14.667			Lbyy						Lateral
4	M4	HSS4x4x4	3.75			Lbyy						Lateral
5	M5	HSS4x4x4	3.75			Lbyy						Lateral
6	M6	HSS4x4x4	3.75			Lbyy						Lateral
7	M7	L3x3x4	2.5			Lbyy						Lateral
8	M8	L3x3x4	2.5			Lbyy						Lateral
9	M9	L3x3x4	2.5			Lbyy						Lateral
10	M10	L3x3x4	2.5			Lbyy						Lateral
11	M11	L3x3x4	2.5			Lbyy						Lateral
12	M12	L3x3x4	2.5			Lbyy						Lateral
13	M13	L1.75x1.75x3	.863			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
14	M14	L1.75x1.75x3	.863			Lbyy						Lateral
15	M15	L1.75x1.75x3	.863			Lbyy						Lateral
16	MP1A	PIPE_2.0X	8			Lbyy						Lateral
17	MP2A	PIPE_2.0X	8			Lbyy						Lateral
18	MP2B	PIPE_2.0X	8			Lbyy						Lateral
19	MP1B	PIPE_2.0X	8			Lbyy						Lateral
20	MP1C	PIPE_2.0X	8			Lbyy						Lateral
21	MP2C	PIPE_2.0X	8			Lbyy						Lateral
22	M22	LL2x2x4x0	4.243			Lbyy						Lateral
23	M23	LL2x2x4x0	4.243			Lbyy						Lateral
24	M24	LL2x2x4x0	4.243			Lbyy						Lateral
25	M31	L3x3x4	1.827			Lbyy						Lateral
26	M32	L3x3x4	1.827			Lbyy						Lateral
27	M33	L3x3x4	1.827			Lbyy						Lateral
28	M28	PIPE_3.0	14.667			Lbyy						Lateral
29	M29	PIPE_3.0	14.667			Lbyy						Lateral
30	M30	PIPE_3.0	14.667			Lbyy						Lateral
31	M31A	L3x3x4	2.827			Lbyy						Lateral
32	M32A	L3x3x4	2.827			Lbyy						Lateral
33	M33A	L3x3x4	2.827			Lbyy						Lateral
34	M34	PIPE_2.0X	8			Lbyy						Lateral

Cold Formed Steel Design Parameters

Label	Shape	Lengt...	Lbyy[ft]	Lbzz[ft]	Lcomp t...	Lcomp ...	L-torque...	Kyy	Kzz	Cm-...	Cm-...	Cb	R	a[ft]	y sw...	z sw...
No Data to Print ...																

Aluminum Design Parameters

Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
No Data to Print ...											

Joint Loads and Enforced Displacements

Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
No Data to Print ...			

Member Point Loads (BLC 1 : Antenna D)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP1A	Y	-9.35	1.5
2	MP1A	Y	-9.35	6
3	MP1B	Y	-9.35	1.5
4	MP1B	Y	-9.35	6
5	MP1C	Y	-9.35	1.5
6	MP1C	Y	-9.35	6
7	MP2A	Y	-64	2
8	MP2A	Y	-64	7
9	MP2B	Y	-64	2
10	MP2B	Y	-64	7

Member Point Loads (BLC 1 : Antenna D) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
11	MP2C	Y	-64	2
12	MP2C	Y	-64	7
13	MP1A	Y	-15.4	2
14	MP1B	Y	-15.4	2
15	MP1C	Y	-15.4	2
16	MP2A	Y	-70	4
17	MP2B	Y	-70	4
18	MP2C	Y	-70	4
19	MP2A	Y	-2.6	6
20	MP2B	Y	-2.6	6
21	MP2C	Y	-2.6	6
22	M34	Y	-64	2
23	M34	Y	-64	7
24	M34	Y	-70	4
25	M34	Y	-2.6	6

Member Point Loads (BLC 2 : Antenna Di)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP1A	Y	-72.005	1.5
2	MP1A	Y	-72.005	6
3	MP1B	Y	-72.005	1.5
4	MP1B	Y	-72.005	6
5	MP1C	Y	-72.005	1.5
6	MP1C	Y	-72.005	6
7	MP2A	Y	-312.869	2
8	MP2A	Y	-312.869	7
9	MP2B	Y	-312.869	2
10	MP2B	Y	-312.869	7
11	MP2C	Y	-312.869	2
12	MP2C	Y	-312.869	7
13	MP1A	Y	-42.174	2
14	MP1B	Y	-42.174	2
15	MP1C	Y	-42.174	2
16	MP2A	Y	-107.772	4
17	MP2B	Y	-107.772	4
18	MP2C	Y	-107.772	4
19	MP2A	Y	-20.826	6
20	MP2B	Y	-20.826	6
21	MP2C	Y	-20.826	6
22	M34	Y	-312.869	2
23	M34	Y	-312.869	7
24	M34	Y	-107.772	4
25	M34	Y	-20.826	6

Member Point Loads (BLC 3 : Antenna W Front)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP1A	Z	-67.6	1.5
2	MP1A	Z	-67.6	6
3	MP1B	Z	-45.401	1.5
4	MP1B	Z	-45.401	6
5	MP1C	Z	-45.401	1.5

Member Point Loads (BLC 3 : Antenna W Front) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
6	MP1C	Z	-45.401	6
7	MP2A	Z	-379.008	2
8	MP2A	Z	-379.008	7
9	MP2B	Z	-209.764	2
10	MP2B	Z	-209.764	7
11	MP2C	Z	-209.764	2
12	MP2C	Z	-209.764	7
13	MP1A	Z	-12.172	2
14	MP1B	Z	-8.123	2
15	MP1C	Z	-8.123	2
16	MP2A	Z	-30.897	4
17	MP2B	Z	-24.051	4
18	MP2C	Z	-24.051	4
19	MP2A	Z	-5.243	6
20	MP2B	Z	-2.36	6
21	MP2C	Z	-2.36	6
22	M34	Z	-209.764	2
23	M34	Z	-209.764	7
24	M34	Z	-24.051	4
25	M34	Z	-2.36	6

Member Point Loads (BLC 4 : Antenna Wi Front)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP1A	Z	-17.351	1.5
2	MP1A	Z	-17.351	6
3	MP1B	Z	-13.04	1.5
4	MP1B	Z	-13.04	6
5	MP1C	Z	-13.04	1.5
6	MP1C	Z	-13.04	6
7	MP2A	Z	-79.61	2
8	MP2A	Z	-79.61	7
9	MP2B	Z	-47.175	2
10	MP2B	Z	-47.175	7
11	MP2C	Z	-47.175	2
12	MP2C	Z	-47.175	7
13	MP1A	Z	-3.779	2
14	MP1B	Z	-3.117	2
15	MP1C	Z	-3.117	2
16	MP2A	Z	-8.484	4
17	MP2B	Z	-6.973	4
18	MP2C	Z	-6.973	4
19	MP2A	Z	-2.13	6
20	MP2B	Z	-1.479	6
21	MP2C	Z	-1.479	6
22	M34	Z	-47.175	2
23	M34	Z	-47.175	7
24	M34	Z	-6.973	4
25	M34	Z	-1.479	6

Member Point Loads (BLC 5 : Antenna W Side)

Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]

Member Point Loads (BLC 5 : Antenna W Side) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP1A	X	38.001	1.5
2	MP1A	X	38.001	6
3	MP1B	X	60.2	1.5
4	MP1B	X	60.2	6
5	MP1C	X	60.2	1.5
6	MP1C	X	60.2	6
7	MP2A	X	153.349	2
8	MP2A	X	153.349	7
9	MP2B	X	322.593	2
10	MP2B	X	322.593	7
11	MP2C	X	322.593	2
12	MP2C	X	322.593	7
13	MP1A	X	13.548	2
14	MP1B	X	21.644	2
15	MP1C	X	21.644	2
16	MP2A	X	43.537	4
17	MP2B	X	57.23	4
18	MP2C	X	57.23	4
19	MP2A	X	2.797	6
20	MP2B	X	8.564	6
21	MP2C	X	8.564	6
22	M34	X	322.593	2
23	M34	X	322.593	7
24	M34	X	57.23	4
25	M34	X	8.564	6

Member Point Loads (BLC 6 : Antenna Wi Side)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP1A	X	11.602	1.5
2	MP1A	X	11.602	6
3	MP1B	X	15.914	1.5
4	MP1B	X	15.914	6
5	MP1C	X	15.914	1.5
6	MP1C	X	15.914	6
7	MP2A	X	36.364	2
8	MP2A	X	36.364	7
9	MP2B	X	68.798	2
10	MP2B	X	68.798	7
11	MP2C	X	68.798	2
12	MP2C	X	68.798	7
13	MP1A	X	5.793	2
14	MP1B	X	7.116	2
15	MP1C	X	7.116	2
16	MP2A	X	12.939	4
17	MP2B	X	15.961	4
18	MP2C	X	15.961	4
19	MP2A	X	2.524	6
20	MP2B	X	3.826	6
21	MP2C	X	3.826	6
22	M34	X	68.798	2
23	M34	X	68.798	7

Member Point Loads (BLC 6 : Antenna Wi Side) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
24	M34	X	15.961	4
25	M34	X	3.826	6

Member Point Loads (BLC 7 : Service Lm1)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M1	Y	-500	0

Member Point Loads (BLC 8 : Service Lm2)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M1	Y	-500	%50

Member Distributed Loads (BLC 10 : Structure Di)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-18.108	-18.108	0	%100
2	M2	Y	-18.108	-18.108	0	%100
3	M3	Y	-18.108	-18.108	0	%100
4	M4	Y	-24.983	-24.983	0	%100
5	M5	Y	-24.983	-24.983	0	%100
6	M6	Y	-24.983	-24.983	0	%100
7	M7	Y	-16.348	-16.348	0	%100
8	M8	Y	-16.348	-16.348	0	%100
9	M9	Y	-16.348	-16.348	0	%100
10	M10	Y	-16.348	-16.348	0	%100
11	M11	Y	-16.348	-16.348	0	%100
12	M12	Y	-16.348	-16.348	0	%100
13	M13	Y	-11.528	-11.528	0	%100
14	M14	Y	-11.528	-11.528	0	%100
15	M15	Y	-11.528	-11.528	0	%100
16	MP1A	Y	-14.701	-14.701	0	%100
17	MP2A	Y	-14.701	-14.701	0	%100
18	MP2B	Y	-14.701	-14.701	0	%100
19	MP1B	Y	-14.701	-14.701	0	%100
20	MP1C	Y	-14.701	-14.701	0	%100
21	MP2C	Y	-14.701	-14.701	0	%100
22	M22	Y	-21.127	-21.127	0	%100
23	M23	Y	-21.127	-21.127	0	%100
24	M24	Y	-21.127	-21.127	0	%100
25	M31	Y	-16.348	-16.348	0	%100
26	M32	Y	-16.348	-16.348	0	%100
27	M33	Y	-16.348	-16.348	0	%100
28	M28	Y	-18.108	-18.108	0	%100
29	M29	Y	-18.108	-18.108	0	%100
30	M30	Y	-18.108	-18.108	0	%100
31	M31A	Y	-16.348	-16.348	0	%100
32	M32A	Y	-16.348	-16.348	0	%100
33	M33A	Y	-16.348	-16.348	0	%100
34	M34	Y	-14.701	-14.701	0	%100

Member Distributed Loads (BLC 11 : Structure W Front)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	PZ	-13.108	-13.108	0	%100
2	M2	PZ	-13.108	-13.108	0	%100
3	M3	PZ	-13.108	-13.108	0	%100
4	M4	PZ	-24.968	-24.968	0	%100
5	M5	PZ	-24.968	-24.968	0	%100
6	M6	PZ	-24.968	-24.968	0	%100
7	M7	PZ	-18.726	-18.726	0	%100
8	M8	PZ	-18.726	-18.726	0	%100
9	M9	PZ	-18.726	-18.726	0	%100
10	M10	PZ	-18.726	-18.726	0	%100
11	M11	PZ	-18.726	-18.726	0	%100
12	M12	PZ	-18.726	-18.726	0	%100
13	M13	PZ	-10.923	-10.923	0	%100
14	M14	PZ	-10.923	-10.923	0	%100
15	M15	PZ	-10.923	-10.923	0	%100
16	MP1A	PZ	-8.895	-8.895	0	%100
17	MP2A	PZ	-8.895	-8.895	0	%100
18	MP2B	PZ	-8.895	-8.895	0	%100
19	MP1B	PZ	-8.895	-8.895	0	%100
20	MP1C	PZ	-8.895	-8.895	0	%100
21	MP2C	PZ	-8.895	-8.895	0	%100
22	M22	PZ	-12.484	-12.484	0	%100
23	M23	PZ	-12.484	-12.484	0	%100
24	M24	PZ	-12.484	-12.484	0	%100
25	M31	PZ	-18.726	-18.726	0	%100
26	M32	PZ	-18.726	-18.726	0	%100
27	M33	PZ	-18.726	-18.726	0	%100
28	M28	PZ	-13.108	-13.108	0	%100
29	M29	PZ	-13.108	-13.108	0	%100
30	M30	PZ	-13.108	-13.108	0	%100
31	M31A	PZ	-18.726	-18.726	0	%100
32	M32A	PZ	-18.726	-18.726	0	%100
33	M33A	PZ	-18.726	-18.726	0	%100
34	M34	PZ	-8.895	-8.895	0	%100

Member Distributed Loads (BLC 12 : Structure Wi Front)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	PZ	-5.86	-5.86	0	%100
2	M2	PZ	-5.86	-5.86	0	%100
3	M3	PZ	-5.86	-5.86	0	%100
4	M4	PZ	-8.054	-8.054	0	%100
5	M5	PZ	-8.054	-8.054	0	%100
6	M6	PZ	-8.054	-8.054	0	%100
7	M7	PZ	-6.899	-6.899	0	%100
8	M8	PZ	-6.899	-6.899	0	%100
9	M9	PZ	-6.899	-6.899	0	%100
10	M10	PZ	-6.899	-6.899	0	%100
11	M11	PZ	-6.899	-6.899	0	%100
12	M12	PZ	-6.899	-6.899	0	%100
13	M13	PZ	-5.456	-5.456	0	%100
14	M14	PZ	-5.456	-5.456	0	%100

Member Distributed Loads (BLC 12 : Structure Wi Front) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
15	M15	PZ	-5.456	-5.456	0	%100
16	MP1A	PZ	-5.08	-5.08	0	%100
17	MP2A	PZ	-5.08	-5.08	0	%100
18	MP2B	PZ	-5.08	-5.08	0	%100
19	MP1B	PZ	-5.08	-5.08	0	%100
20	MP1C	PZ	-5.08	-5.08	0	%100
21	MP2C	PZ	-5.08	-5.08	0	%100
22	M22	PZ	-5.744	-5.744	0	%100
23	M23	PZ	-5.744	-5.744	0	%100
24	M24	PZ	-5.744	-5.744	0	%100
25	M31	PZ	-6.899	-6.899	0	%100
26	M32	PZ	-6.899	-6.899	0	%100
27	M33	PZ	-6.899	-6.899	0	%100
28	M28	PZ	-5.86	-5.86	0	%100
29	M29	PZ	-5.86	-5.86	0	%100
30	M30	PZ	-5.86	-5.86	0	%100
31	M31A	PZ	-6.899	-6.899	0	%100
32	M32A	PZ	-6.899	-6.899	0	%100
33	M33A	PZ	-6.899	-6.899	0	%100
34	M34	PZ	-5.08	-5.08	0	%100

Member Distributed Loads (BLC 13 : Structure W Side)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	PX	13.108	13.108	0	%100
2	M2	PX	13.108	13.108	0	%100
3	M3	PX	13.108	13.108	0	%100
4	M4	PX	24.968	24.968	0	%100
5	M5	PX	24.968	24.968	0	%100
6	M6	PX	24.968	24.968	0	%100
7	M7	PX	18.726	18.726	0	%100
8	M8	PX	18.726	18.726	0	%100
9	M9	PX	18.726	18.726	0	%100
10	M10	PX	18.726	18.726	0	%100
11	M11	PX	18.726	18.726	0	%100
12	M12	PX	18.726	18.726	0	%100
13	M13	PX	10.923	10.923	0	%100
14	M14	PX	10.923	10.923	0	%100
15	M15	PX	10.923	10.923	0	%100
16	MP1A	PX	8.895	8.895	0	%100
17	MP2A	PX	8.895	8.895	0	%100
18	MP2B	PX	8.895	8.895	0	%100
19	MP1B	PX	8.895	8.895	0	%100
20	MP1C	PX	8.895	8.895	0	%100
21	MP2C	PX	8.895	8.895	0	%100
22	M22	PX	12.484	12.484	0	%100
23	M23	PX	12.484	12.484	0	%100
24	M24	PX	12.484	12.484	0	%100
25	M31	PX	18.726	18.726	0	%100
26	M32	PX	18.726	18.726	0	%100
27	M33	PX	18.726	18.726	0	%100
28	M28	PX	13.108	13.108	0	%100

Member Distributed Loads (BLC 13 : Structure W Side) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
29	M29	PX	13.108	13.108	0	%100
30	M30	PX	13.108	13.108	0	%100
31	M31A	PX	18.726	18.726	0	%100
32	M32A	PX	18.726	18.726	0	%100
33	M33A	PX	18.726	18.726	0	%100
34	M34	PX	8.895	8.895	0	%100

Member Distributed Loads (BLC 14 : Structure Wi Side)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	PX	5.86	5.86	0	%100
2	M2	PX	5.86	5.86	0	%100
3	M3	PX	5.86	5.86	0	%100
4	M4	PX	8.054	8.054	0	%100
5	M5	PX	8.054	8.054	0	%100
6	M6	PX	8.054	8.054	0	%100
7	M7	PX	6.899	6.899	0	%100
8	M8	PX	6.899	6.899	0	%100
9	M9	PX	6.899	6.899	0	%100
10	M10	PX	6.899	6.899	0	%100
11	M11	PX	6.899	6.899	0	%100
12	M12	PX	6.899	6.899	0	%100
13	M13	PX	5.456	5.456	0	%100
14	M14	PX	5.456	5.456	0	%100
15	M15	PX	5.456	5.456	0	%100
16	MP1A	PX	5.08	5.08	0	%100
17	MP2A	PX	5.08	5.08	0	%100
18	MP2B	PX	5.08	5.08	0	%100
19	MP1B	PX	5.08	5.08	0	%100
20	MP1C	PX	5.08	5.08	0	%100
21	MP2C	PX	5.08	5.08	0	%100
22	M22	PX	5.744	5.744	0	%100
23	M23	PX	5.744	5.744	0	%100
24	M24	PX	5.744	5.744	0	%100
25	M31	PX	6.899	6.899	0	%100
26	M32	PX	6.899	6.899	0	%100
27	M33	PX	6.899	6.899	0	%100
28	M28	PX	5.86	5.86	0	%100
29	M29	PX	5.86	5.86	0	%100
30	M30	PX	5.86	5.86	0	%100
31	M31A	PX	6.899	6.899	0	%100
32	M32A	PX	6.899	6.899	0	%100
33	M33A	PX	6.899	6.899	0	%100
34	M34	PX	5.08	5.08	0	%100

Member Area Loads

Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
No Data to Print ...						

Joint Boundary Conditions

	Joint 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	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N2	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N3	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N4						
5	N5						
6	N6						
7	N7						
8	N8						
9	N9						
10	N10						
11	N11						
12	N12						
13	N13						
14	N14						
15	N15						
16	N16						
17	N17						
18	N18						
19	N19						
20	N20						
21	N21						
22	N22						
23	N23						
24	N24						
25	N43	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
26	N44	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
27	N45	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
28	N67						
29	N68						
30	N69						
31	N70						
32	N71						
33	N72						
34	N55						
35	N56						
36	N57						
37	N58						
38	N59						
39	N60						
40	N67A						
41	N68A						
42	N69A						
43	N70A						
44	N71A						
45	N72A						
46	N73						
47	N74						
48	N75						
49	N76						
50	N77						
51	N78						

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	3162.605	4	395.884	1	2841.185	1	.719	6	8.172	4	.573	3
2		min	-3159.551	3	-1088.933	6	-5691.588	6	-.342	1	-8.161	3	-.787	9
3	N2	max	2272.503	4	185.511	4	2764.01	1	.327	4	5.3	2	.121	2
4		min	-3860.302	3	-863.627	7	-1864.385	2	-.432	3	-5.23	1	-.552	5
5	N3	max	3579.879	4	222.177	3	2740.612	1	.335	7	4.725	1	.809	5
6		min	-2043.352	3	-832.182	8	-1879.713	2	-.584	9	-4.797	2	-.062	2
7	N43	max	34.18	4	5354.095	6	5286.868	6	0	1	.003	4	.003	4
8		min	-34.333	3	95.851	1	109.435	1	0	1	-.003	3	-.003	3
9	N44	max	3200.496	7	3765.233	7	7.981	4	.002	2	.002	2	0	1
10		min	19.762	4	.485	4	-1850.502	7	-.002	1	-.002	1	0	2
11	N45	max	-7.448	3	3653.362	8	15.137	3	.001	2	.001	1	0	2
12		min	-3103.465	8	-13.758	3	-1794.669	8	-.001	1	-.002	2	0	1
13	Totals:	max	7499.398	4	9625.363	5	7075.288	1						
14		min	-7499.398	3	2579.488	2	-7075.288	2						

Envelope Member Section Forces

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
1	M1	1	max	0	1	0	1	0	1	0	1	0	1	0	1
2			min	0	1	-750	9	0	1	0	1	0	1	0	1
3		2	max	1479.696	3	70.455	1	664.283	2	.312	9	.639	1	.309	9
4			min	-1048.61	4	-786.262	6	-697.139	1	-.169	5	-.594	2	-.573	6
5		3	max	1913.627	4	3121.264	6	2113.822	1	.943	1	2.127	2	2.627	6
6			min	-530.915	1	446.843	1	-2064.387	2	-.749	2	-2.195	1	-.088	1
7		4	max	1018.426	4	280.275	2	437.064	1	.279	5	.498	1	.296	3
8			min	-644.142	3	-190.457	1	-421.572	2	-.139	2	-.477	2	-.244	4
9		5	max	0	1	0	1	0	1	0	1	0	1	0	1
10			min	0	1	0	1	0	1	0	1	0	1	0	1
11	M2	1	max	0	1	.011	3	0	8	0	1	0	1	0	1
12			min	0	1	-.002	5	-.003	2	0	1	0	1	0	1
13		2	max	1464.526	1	-55.023	4	988.465	3	.134	3	.742	4	.013	2
14			min	-1154.185	2	-1328.743	7	-1014.617	4	-.096	4	-.693	3	-1.343	5
15		3	max	1497.824	1	385.993	1	1046.14	3	.33	4	3.037	3	3.787	7
16			min	-1187.483	2	-1426.13	7	-1072.292	4	-.329	3	-3.084	4	.355	4
17		4	max	1461.8	3	1124.167	7	501.752	4	.33	4	.72	4	.367	4
18			min	-1135.955	4	-18.894	4	-489.08	3	-.329	3	-.709	3	-.581	3
19		5	max	0	1	.008	7	.003	1	0	1	0	1	0	1
20			min	0	1	-.016	1	0	7	0	1	0	1	0	1
21	M3	1	max	0	1	.015	1	0	6	0	1	0	1	0	1
22			min	0	1	-.007	4	-.004	3	0	1	0	1	0	1
23		2	max	1512.26	4	-26.358	3	615.731	4	.175	8	1.067	3	.078	3
24			min	-1199.679	3	-1319.569	8	-643.533	3	-.095	3	-1.027	4	-1.029	8
25		3	max	1545.559	4	620.832	9	793.728	3	.422	3	2.516	4	3.987	8
26			min	-1232.978	3	-1416.957	8	-614.496	2	-.382	4	-2.55	3	.232	3
27		4	max	1207.93	1	1052.942	8	736.053	3	.422	3	.492	2	.302	2
28			min	-923.795	2	33.788	3	-719.844	4	-.382	4	-.471	1	-.756	5
29		5	max	0	1	.003	5	.004	4	0	1	0	1	0	1
30			min	0	1	-.012	4	0	7	0	1	0	1	0	1
31	M4	1	max	2841.185	1	395.795	1	3152.661	3	.573	3	8.172	4	.342	1
32			min	-5691.588	6	-1091.291	6	-3153.798	4	-.787	9	-8.161	3	-.719	6

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
33		2	max	2841.185	1	382.895	1	3115.21	3	.573	3	5.233	4	.321	6
34			min	-5691.588	6	-1127.614	6	-3116.346	4	-.787	9	-5.223	3	-.023	1
35		3	max	2841.185	1	369.994	1	3077.759	3	.573	3	2.329	4	1.395	6
36			min	-5691.588	6	-1163.937	6	-3078.895	4	-.787	9	-2.32	3	-.376	1
37		4	max	2841.185	1	357.093	1	3040.307	3	.573	3	.548	3	2.503	6
38			min	-5691.588	6	-1200.26	6	-3041.444	4	-.787	9	-.54	4	-.717	1
39		5	max	2890.698	1	3996.303	6	2960.812	3	.571	3	3.347	3	.83	2
40			min	-2800.243	2	405.094	1	-2961.445	4	-.788	9	-3.34	4	-1.092	1
41	M5	1	max	1745.884	4	185.471	4	1956.035	1	.292	4	5.3	2	.148	4
42			min	-3970.669	7	-864.776	7	-1981.011	2	-.252	3	-5.23	1	-.608	7
43		2	max	1729.667	4	172.571	4	1927.946	1	.292	4	3.456	2	.22	7
44			min	-3967.4	7	-901.099	7	-1952.922	2	-.252	3	-3.409	1	-.02	4
45		3	max	1713.451	4	159.67	4	1899.858	1	.292	4	1.638	2	1.082	7
46			min	-3964.131	7	-937.421	7	-1924.833	2	-.252	3	-1.615	1	-.175	4
47		4	max	1697.234	4	146.769	4	1871.769	1	.292	4	.471	4	1.978	7
48			min	-3960.861	7	-973.744	7	-1896.745	2	-.252	3	-.459	3	-.319	4
49		5	max	1636.121	4	2633.352	7	1808.761	1	.291	4	1.866	1	.462	3
50			min	-1585.489	3	101.047	4	-1834.998	2	-.251	3	-1.891	2	-.426	4
51	M6	1	max	1625.754	3	222.142	3	1922.696	2	.51	9	4.725	1	.184	3
52			min	-3823.629	8	-833.253	8	-1887.689	1	-.67	5	-4.797	2	-.585	8
53		2	max	1609.537	3	209.241	3	1894.608	2	.51	9	2.969	1	.213	8
54			min	-3820.36	8	-869.576	8	-1859.601	1	-.67	5	-3.007	2	-.019	3
55		3	max	1593.32	3	196.34	3	1866.519	2	.51	9	1.239	1	1.045	8
56			min	-3817.09	8	-905.899	8	-1831.512	1	-.67	5	-1.244	2	-.209	3
57		4	max	1577.103	3	183.439	3	1838.431	2	.51	9	.492	2	1.912	8
58			min	-3813.821	8	-942.221	8	-1803.424	1	-.67	5	-.465	1	-.387	3
59		5	max	1501.748	3	2553.027	8	1776.433	2	.511	9	2.176	2	.545	4
60			min	-1441.638	4	123.416	3	-1740.628	1	-.671	5	-2.115	1	-.517	3
61	M7	1	max	114.718	4	116.025	3	-15.358	2	0	4	.276	4	.266	3
62			min	-112.294	3	-122.599	4	-61.772	7	0	9	-.229	3	-.243	4
63		2	max	105.73	4	128.01	3	-11.683	2	0	4	.212	4	.205	3
64			min	-103.306	3	-134.584	4	-47.88	7	0	9	-.182	3	-.193	4
65		3	max	96.742	4	139.994	3	-8.008	2	0	4	.145	4	.141	3
66			min	-94.318	3	-146.568	4	-33.988	7	0	9	-.128	3	-.136	4
67		4	max	87.753	4	151.979	3	-4.333	2	0	4	.074	4	.073	3
68			min	-85.329	3	-158.552	4	-20.095	7	0	9	-.067	3	-.072	4
69		5	max	78.765	4	163.963	3	-.658	2	0	4	.001	9	.001	9
70			min	-76.341	3	-170.537	4	-6.203	7	0	9	-.001	4	-.001	4
71	M8	1	max	95.566	3	-14.763	2	106.194	1	0	2	.195	3	.168	3
72			min	-94.335	4	-61.878	8	-111.4	2	0	1	-.156	4	-.187	4
73		2	max	86.577	3	-11.088	2	99.452	1	0	2	.152	3	.136	3
74			min	-85.346	4	-47.985	8	-104.659	2	0	1	-.128	4	-.146	4
75		3	max	77.589	3	-7.413	2	97.113	4	0	2	.105	3	.098	3
76			min	-76.358	4	-34.093	8	-102.597	3	0	1	-.092	4	-.101	4
77		4	max	68.601	3	-3.738	2	109.097	4	0	2	.054	3	.052	3
78			min	-67.37	4	-20.2	8	-114.582	3	0	1	-.049	4	-.052	4
79		5	max	59.612	3	-.063	2	121.081	4	0	2	0	2	0	1
80			min	-58.381	4	-6.308	8	-126.566	3	0	1	0	1	0	2
81	M9	1	max	72.075	3	128.483	4	-15.409	4	0	2	.25	3	.24	4
82			min	-68.982	4	-133.248	3	-61.886	6	0	1	-.212	4	-.22	3
83		2	max	69.851	3	128.215	4	-11.734	4	0	2	.185	3	.178	4
84			min	-66.759	4	-132.98	3	-47.993	6	0	1	-.161	4	-.167	3

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
85		3	max	67.627	3	127.947	4	-8.059	4	0	2	.121	3	.117	4
86			min	-64.535	4	-132.712	3	-34.101	6	0	1	-.109	4	-.113	3
87		4	max	65.403	3	127.679	4	-4.384	4	0	2	.06	3	.057	4
88			min	-62.311	4	-132.444	3	-20.209	6	0	1	-.055	4	-.057	3
89		5	max	63.179	3	127.411	4	-.709	4	0	2	0	1	0	1
90			min	-60.087	4	-132.176	3	-6.316	6	0	1	0	2	0	2
91	M10	1	max	88.23	1	-14.679	1	109.682	2	0	3	.223	1	.196	1
92			min	-87.194	2	-61.874	6	-112.815	1	0	4	-.19	2	-.218	2
93		2	max	81.466	1	-11.004	1	112.571	2	0	3	.167	1	.151	1
94			min	-80.429	2	-47.982	6	-115.705	1	0	4	-.147	2	-.163	2
95		3	max	74.701	1	-7.329	1	115.461	2	0	3	.111	1	.104	1
96			min	-73.665	2	-34.089	6	-118.594	1	0	4	-.101	2	-.108	2
97		4	max	67.937	1	-3.654	1	118.35	2	0	3	.056	1	.053	1
98			min	-66.9	2	-20.197	6	-121.484	1	0	4	-.052	2	-.054	2
99		5	max	61.172	1	.021	1	121.24	2	0	3	0	3	0	4
100			min	-60.135	2	-6.304	6	-124.373	1	0	4	0	4	0	3
101	M11	1	max	88.467	1	109.762	2	-15.758	9	0	3	.225	1	.22	2
102			min	-86.96	2	-112.727	1	-61.703	7	0	4	-.188	2	-.194	1
103		2	max	81.703	1	112.652	2	-12.083	9	0	3	.168	1	.165	2
104			min	-80.195	2	-115.617	1	-47.81	7	0	4	-.146	2	-.15	1
105		3	max	74.938	1	115.541	2	-8.408	9	0	3	.111	1	.109	2
106			min	-73.431	2	-118.506	1	-33.918	7	0	4	-.1	2	-.103	1
107		4	max	68.174	1	118.431	2	-4.733	9	0	3	.055	1	.055	2
108			min	-66.666	2	-121.396	1	-20.026	7	0	4	-.051	2	-.053	1
109		5	max	61.409	1	121.32	2	-1.058	9	0	3	0	4	0	4
110			min	-59.902	2	-124.285	1	-6.133	7	0	4	0	3	0	3
111	M12	1	max	90.534	4	-13.777	4	171.203	3	0	4	.325	4	.3	4
112			min	-87.613	3	-61.657	6	-177.392	4	0	9	-.291	3	-.313	3
113		2	max	88.31	4	-10.102	4	170.935	3	0	4	.241	4	.227	4
114			min	-85.389	3	-47.764	6	-177.124	4	0	9	-.221	3	-.232	3
115		3	max	86.086	4	-6.427	4	170.667	3	0	4	.16	4	.153	4
116			min	-83.165	3	-33.872	6	-176.856	4	0	9	-.149	3	-.152	3
117		4	max	83.863	4	-2.752	4	170.399	3	0	4	.079	4	.077	4
118			min	-80.941	3	-19.98	6	-176.588	4	0	9	-.076	3	-.075	3
119		5	max	81.639	4	.923	4	170.131	3	0	4	.001	4	.001	9
120			min	-78.718	3	-6.087	6	-176.32	4	0	9	-.001	9	-.001	4
121	M13	1	max	187.666	4	6.067	6	5.655	4	.002	4	0	1	0	1
122			min	-180.863	3	1.094	4	-5.655	3	-.002	9	0	1	0	1
123		2	max	189.299	4	3.034	6	2.827	4	.002	4	0	8	0	4
124			min	-182.495	3	.547	4	-2.827	3	-.002	9	0	3	0	7
125		3	max	190.931	4	0	1	0	1	.002	4	.001	8	0	4
126			min	-184.127	3	0	1	0	1	-.002	9	0	3	-.001	7
127		4	max	192.564	4	-.547	9	2.827	3	.002	4	0	8	0	4
128			min	-185.76	3	-3.034	5	-2.827	4	-.002	9	0	3	0	7
129		5	max	194.196	4	-1.094	9	5.655	3	.002	4	0	1	0	1
130			min	-187.392	3	-6.067	5	-5.655	4	-.002	9	0	1	0	1
131	M14	1	max	138.376	1	6.067	7	7.54	1	.001	3	0	1	0	1
132			min	-135.138	2	1.094	4	-7.54	2	-.001	4	0	1	0	1
133		2	max	138.376	1	3.034	7	3.77	1	.001	3	0	1	0	1
134			min	-135.138	2	.547	4	-3.77	2	-.001	4	0	2	0	2
135		3	max	138.376	1	0	1	0	1	.001	3	.001	1	0	1
136			min	-135.138	2	0	1	0	1	-.001	4	0	2	-.001	2

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
137		4	max	138.376	1	-.547	3	3.77	2	.001	3	0	1	0	1
138			min	-135.138	2	-3.034	8	-3.77	1	-.001	4	0	2	0	2
139		5	max	138.376	1	-1.094	3	7.54	2	.001	3	0	1	0	1
140			min	-135.138	2	-6.067	8	-7.54	1	-.001	4	0	1	0	1
141	M15	1	max	146.321	3	6.067	5	5.655	3	.001	2	0	1	0	1
142			min	-140.819	4	1.094	2	-5.655	4	-.001	1	0	1	0	1
143		2	max	144.689	3	3.034	5	2.827	3	.001	2	0	7	0	3
144			min	-139.186	4	.547	2	-2.827	4	-.001	1	0	4	0	8
145		3	max	143.057	3	0	1	0	1	.001	2	.001	7	0	3
146			min	-137.554	4	0	1	0	1	-.001	1	0	4	-.001	8
147		4	max	141.424	3	-.547	1	2.827	4	.001	2	0	7	0	3
148			min	-135.921	4	-3.034	6	-2.827	3	-.001	1	0	4	0	8
149		5	max	139.792	3	-1.094	1	5.655	4	.001	2	0	1	0	1
150			min	-134.289	4	-6.067	6	-5.655	3	-.001	1	0	1	0	1
151	MP1A	1	max	0	1	.058	4	.225	1	0	1	0	1	0	1
152			min	0	1	-.495	7	-.26	6	0	1	0	1	0	1
153		2	max	133.765	6	92.791	4	139.964	1	0	1	.083	1	.059	3
154			min	25.61	4	-92.839	3	-139.971	2	0	1	-.083	2	-.059	4
155		3	max	111.267	2	761.227	8	153.326	1	.158	1	.317	1	.032	3
156			min	-523.193	5	-164.899	3	-114.718	2	-.194	2	-.314	2	-.349	8
157		4	max	-20.73	4	78.912	3	118.138	2	0	1	.029	1	.029	3
158			min	-109.793	6	-78.873	4	-118.138	1	0	1	-.029	2	-.029	4
159		5	max	0	1	.431	7	.062	6	0	1	0	1	0	1
160			min	0	1	-.032	4	-.063	5	0	1	0	1	0	1
161	MP2A	1	max	0	1	.215	9	.655	1	0	1	0	1	0	1
162			min	0	1	-.251	7	-.831	6	0	1	0	1	0	1
163		2	max	103.182	7	67.875	4	126.145	1	0	1	.032	1	.03	3
164			min	23.721	2	-67.882	3	-126.167	2	0	1	-.032	2	-.029	4
165		3	max	2173.35	6	544.855	4	900.525	1	.15	3	.889	1	.183	3
166			min	447.802	1	-486.164	3	-872.435	2	-.16	4	-.851	2	-.262	4
167		4	max	-90.818	3	277.543	3	641.666	2	0	1	.634	1	.274	3
168			min	-450.344	5	-277.476	4	-641.614	1	0	1	-.635	2	-.274	4
169		5	max	0	1	.666	6	.531	5	0	1	0	1	0	1
170			min	0	1	-.121	9	-.16	2	0	1	0	1	0	1
171	MP2B	1	max	0	1	.552	8	.268	1	0	1	0	1	0	1
172			min	0	1	-.299	3	-.313	6	0	1	0	1	0	1
173		2	max	103.182	8	111.372	4	82.431	1	0	1	.03	1	.031	3
174			min	23.721	1	-111.347	3	-82.435	2	0	1	-.03	2	-.031	4
175		3	max	618.215	8	750.755	4	234.074	1	.16	4	.041	1	.405	3
176			min	-147.19	3	-610.328	3	-639.628	6	-.167	3	-.803	6	-.557	4
177		4	max	-90.818	1	555.792	3	367.047	2	0	1	.364	1	.544	3
178			min	-450.344	5	-555.719	4	-367.346	1	0	1	-.364	2	-.544	4
179		5	max	0	1	.744	8	-.052	3	0	1	0	1	0	1
180			min	0	1	-.173	3	-2.87	8	0	1	0	1	0	1
181	MP1B	1	max	0	1	.17	4	.314	5	0	1	0	1	0	1
182			min	0	1	-.555	7	-.065	2	0	1	0	1	0	1
183		2	max	133.765	5	130.494	4	103.277	1	0	1	.065	1	.077	3
184			min	25.61	3	-130.536	3	-103.249	2	0	1	-.065	2	-.077	4
185		3	max	784.91	8	186.934	4	629.977	1	.242	3	.541	5	.533	7
186			min	-50.541	3	-364.004	7	-420.885	2	-.26	4	-.105	2	-.096	4
187		4	max	-20.73	4	108.333	3	88.705	2	0	1	.029	1	.029	3
188			min	-109.793	5	-108.365	4	-88.67	1	0	1	-.029	2	-.029	4

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
189		5	max	0	1	.062	3	.375	6	0	1	0	1	0	1
190			min	0	1	-.378	8	-.018	1	0	1	0	1	0	1
191	MP1C	1	max	0	1	.193	8	.113	1	0	1	0	1	0	1
192			min	0	1	-.147	3	-.226	6	0	1	0	1	0	1
193		2	max	133.765	6	130.476	4	103.297	1	0	1	.065	1	.077	3
194			min	25.61	9	-130.471	3	-103.309	2	0	1	-.065	2	-.077	4
195		3	max	653.926	7	469.451	4	200.519	4	.196	4	-.065	1	.411	3
196			min	-126.953	4	-631.557	3	-614.267	7	-.194	3	-.805	6	-.261	4
197		4	max	-20.73	2	108.309	3	88.673	2	0	1	.029	1	.029	3
198			min	-109.793	7	-108.339	4	-88.756	1	0	1	-.029	2	-.029	4
199		5	max	0	1	.038	3	.022	2	0	1	0	1	0	1
200			min	0	1	-.342	8	-.874	5	0	1	0	1	0	1
201	MP2C	1	max	0	1	.931	8	.805	5	0	1	0	1	0	1
202			min	0	1	-.43	3	-.128	2	0	1	0	1	0	1
203		2	max	103.182	8	111.528	4	82.359	1	0	1	.03	1	.031	3
204			min	23.721	1	-111.477	3	-82.291	2	0	1	-.03	2	-.031	4
205		3	max	828.914	7	538.655	4	752.004	1	.275	3	.565	5	.3	3
206			min	-46.442	4	-352.554	3	-515.318	2	-.275	4	-.195	2	-.568	8
207		4	max	-90.818	3	555.931	3	367.155	2	0	1	.364	1	.545	3
208			min	-450.344	5	-555.786	4	-367.05	1	0	1	-.364	2	-.544	4
209		5	max	0	1	1.371	5	1.06	7	0	1	0	1	0	1
210			min	0	1	-.059	9	-.058	2	0	1	0	1	0	1
211	M22	1	max	7524.298	6	49.36	6	42.371	3	.004	4	0	1	0	1
212			min	145.159	1	-9.609	1	-42.371	4	-.004	3	0	1	0	1
213		2	max	7505.71	6	24.68	6	21.186	3	.004	4	.034	3	.008	1
214			min	128.778	1	-4.805	1	-21.186	4	-.004	3	-.034	4	-.039	6
215		3	max	7487.123	6	0	1	0	1	.004	4	.045	3	.01	1
216			min	112.397	1	0	1	0	1	-.004	3	-.045	4	-.052	6
217		4	max	7468.536	6	4.805	1	21.186	4	.004	4	.034	3	.008	1
218			min	96.016	1	-24.68	6	-21.186	3	-.004	3	-.034	4	-.039	6
219		5	max	7449.948	6	9.609	1	42.371	4	.004	4	0	1	0	1
220			min	79.635	1	-49.36	6	-42.371	3	-.004	3	0	1	0	1
221	M23	1	max	5118.305	8	49.167	8	34.325	2	.002	1	0	1	0	1
222			min	-10.519	3	-8.937	3	-34.325	1	-.002	2	0	1	0	1
223		2	max	5099.621	8	24.583	8	17.162	2	.002	1	.027	2	.007	3
224			min	-26.564	3	-4.468	3	-17.162	1	-.002	2	-.027	1	-.039	8
225		3	max	5080.937	8	0	1	0	1	.002	1	.036	2	.009	3
226			min	-42.609	3	0	1	0	1	-.002	2	-.036	1	-.052	8
227		4	max	5062.253	8	4.468	3	17.162	1	.002	1	.027	2	.007	3
228			min	-58.653	3	-24.583	8	-17.162	2	-.002	2	-.027	1	-.039	8
229		5	max	5043.569	8	8.937	3	34.325	1	.002	1	0	1	0	1
230			min	-74.698	3	-49.167	8	-34.325	2	-.002	2	0	1	0	1
231	M24	1	max	5276.568	7	49.167	7	34.325	1	.003	2	0	1	0	1
232			min	9.623	4	-8.937	4	-34.325	2	-.003	1	0	1	0	1
233		2	max	5257.884	7	24.583	7	17.162	1	.003	2	.027	1	.007	4
234			min	-6.422	4	-4.468	4	-17.162	2	-.003	1	-.027	2	-.039	7
235		3	max	5239.2	7	0	1	0	1	.003	2	.036	1	.009	4
236			min	-22.466	4	0	1	0	1	-.003	1	-.036	2	-.052	7
237		4	max	5220.516	7	4.468	4	17.162	2	.003	2	.027	1	.007	4
238			min	-38.511	4	-24.583	7	-17.162	1	-.003	1	-.027	2	-.039	7
239		5	max	5201.832	7	8.937	4	34.325	2	.003	2	0	1	0	1
240			min	-54.556	4	-49.167	7	-34.325	1	-.003	1	0	1	0	1

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
241	M31	1	max	94.479	4	103.888	6	348.324	1	.004	4	.286	9	.219	2
242			min	-71.375	3	-265.099	9	-338.2	2	-.006	9	-.262	1	-.612	9
243		2	max	100.404	4	93.736	6	351.745	1	.004	4	.223	9	.243	4
244			min	-77.301	3	-267.784	9	-341.621	2	-.006	9	-.147	1	-.503	9
245		3	max	106.329	4	83.584	6	355.166	1	.004	4	.159	9	.282	4
246			min	-83.226	3	-270.47	9	-345.042	2	-.006	9	-.075	3	-.393	9
247		4	max	112.255	4	73.431	6	358.587	1	.004	4	.191	4	.319	4
248			min	-89.152	3	-273.155	9	-348.463	2	-.006	9	-.122	3	-.421	3
249		5	max	118.18	4	63.279	6	362.008	1	.004	4	.25	4	.353	4
250			min	-95.077	3	-275.841	9	-351.884	2	-.006	9	-.167	3	-.463	3
251	M32	1	max	184.398	3	13.379	9	538.168	3	.004	3	.402	4	.14	1
252			min	-203.513	4	-97.627	6	-528.705	4	-.004	4	-.295	3	-.477	6
253		2	max	184.398	3	10.693	9	538.168	3	.004	3	.225	4	.123	1
254			min	-203.513	4	-107.779	6	-528.705	4	-.004	4	-.131	3	-.436	6
255		3	max	184.398	3	8.008	9	538.168	3	.004	3	.169	5	.122	3
256			min	-203.513	4	-117.931	6	-528.705	4	-.004	4	-.048	2	-.391	6
257		4	max	184.398	3	5.322	9	538.168	3	.004	3	.194	3	.308	3
258			min	-203.513	4	-128.084	6	-528.705	4	-.004	4	-.132	4	-.471	4
259		5	max	184.398	3	2.637	9	538.168	3	.004	3	.355	3	.494	3
260			min	-203.513	4	-138.236	6	-528.705	4	-.004	4	-.312	4	-.632	4
261	M33	1	max	96.323	4	-51.827	3	330.161	2	.004	2	.382	3	.253	3
262			min	-77.069	3	-295.564	8	-332.167	1	-.004	1	-.228	4	-.445	4
263		2	max	102.248	4	-54.512	3	333.026	4	.004	2	.259	3	.164	3
264			min	-82.994	3	-305.716	8	-333.576	3	-.004	1	-.156	4	-.318	8
265		3	max	108.173	4	-57.198	3	343.289	4	.004	2	.132	3	.156	2
266			min	-88.919	3	-315.868	8	-343.839	3	-.004	1	-.082	4	-.245	1
267		4	max	114.099	4	-59.883	3	353.553	4	.004	2	.13	2	.287	2
268			min	-94.845	3	-326.02	8	-354.102	3	-.004	1	-.134	1	-.322	1
269		5	max	120.024	4	-62.569	3	363.816	4	.004	2	.205	2	.417	2
270			min	-100.77	3	-336.173	8	-364.365	3	-.004	1	-.265	1	-.397	1
271	M28	1	max	0	1	0	1	0	1	0	1	0	1	0	1
272			min	0	1	0	1	0	1	0	1	0	1	0	1
273		2	max	33.185	1	46.498	4	40.778	9	.375	1	.169	1	.113	4
274			min	-889.573	6	-657.059	7	-46.767	4	-.34	2	-.24	2	-1.023	7
275		3	max	33.185	1	15.506	4	98.808	2	.375	1	.006	9	1.565	6
276			min	-889.573	6	-754.446	7	-107.16	1	-.34	2	-.221	5	-.001	4
277		4	max	1.462	1	817.191	8	55.392	5	.506	2	.229	3	.121	2
278			min	-760.782	6	62.852	3	-16.628	4	-.487	1	-.276	4	-.485	5
279		5	max	0	1	0	1	0	1	0	1	0	1	0	1
280			min	0	1	0	1	0	1	0	1	0	1	0	1
281	M29	1	max	0	1	.015	4	.006	4	0	1	0	1	0	1
282			min	0	1	-.002	6	-.002	2	0	1	0	1	0	1
283		2	max	94.104	9	128.071	2	36.98	4	.083	3	.183	2	.417	3
284			min	-694.244	7	-80.074	1	-37.778	3	-.068	4	-.173	1	-.526	4
285		3	max	97.434	9	97.078	2	45.949	1	.083	3	.199	4	.112	3
286			min	-703.548	7	-111.066	1	-46.827	2	-.068	4	-.195	3	-.35	8
287		4	max	100.764	9	66.086	2	77.572	3	.083	3	.164	1	.46	1
288			min	-712.852	7	-146.913	5	-78.37	4	-.068	4	-.16	2	-.471	2
289		5	max	0	1	.002	3	.004	4	0	1	0	1	0	1
290			min	0	1	-.009	1	-.001	2	0	1	0	1	0	1
291	M30	1	max	0	1	.01	2	.001	2	0	1	0	1	0	1
292			min	0	1	-.004	3	-.004	3	0	1	0	1	0	1

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
293		2	max	36.811	3	106.884	1	40.141	2	.17	5	.206	3	.341	1
294			min	-654.783	8	-90.043	2	-28.31	1	-.038	9	-.263	4	-.581	2
295		3	max	3.513	3	75.892	1	54.745	4	.17	5	.154	3	.081	4
296			min	-645.479	8	-121.035	2	-43.22	3	-.038	9	-.168	4	-.372	7
297		4	max	1.155	2	44.899	1	112.42	4	.17	5	.139	4	.473	4
298			min	-640.686	5	-205.864	6	-100.895	3	-.038	9	-.11	3	-.379	3
299		5	max	0	1	.002	6	.003	1	0	1	0	1	0	1
300			min	0	1	-.012	3	-.003	4	0	1	0	1	0	1
301	M31A	1	max	57.98	1	240.114	2	140.825	1	.006	1	.251	1	.514	2
302			min	-144.7	6	-324.34	1	-167.338	2	-.009	2	-.152	2	-.645	1
303		2	max	67.149	1	235.958	2	146.119	1	.006	1	.16	1	.31	2
304			min	-146.811	6	-328.496	1	-172.632	2	-.009	2	-.118	2	-.41	1
305		3	max	76.318	1	231.802	2	151.412	1	.006	1	.086	3	.156	4
306			min	-149.363	2	-332.652	1	-177.926	2	-.009	2	-.106	4	-.221	3
307		4	max	85.487	1	227.647	2	156.706	1	.006	1	.114	3	.296	4
308			min	-158.531	2	-336.807	1	-183.219	2	-.009	2	-.2	4	-.319	3
309		5	max	94.655	1	223.491	2	162	1	.006	1	.148	3	.43	4
310			min	-167.7	2	-340.963	1	-188.513	2	-.009	2	-.336	8	-.407	3
311	M32A	1	max	89.715	3	339.307	4	151.877	3	.007	3	.238	3	.49	4
312			min	-105.549	4	-382.041	3	-165.596	4	-.007	4	-.25	9	-.522	3
313		2	max	89.715	3	335.152	4	151.877	3	.007	3	.122	3	.239	4
314			min	-105.549	4	-386.196	3	-165.596	4	-.007	4	-.137	9	-.255	3
315		3	max	89.715	3	330.996	4	151.877	3	.007	3	.083	2	.189	1
316			min	-105.549	4	-390.352	3	-165.596	4	-.007	4	-.078	1	-.182	2
317		4	max	89.715	3	326.84	4	151.877	3	.007	3	.091	2	.287	3
318			min	-105.549	4	-394.507	3	-165.596	4	-.007	4	-.125	1	-.257	4
319		5	max	89.715	3	322.685	4	151.877	3	.007	3	.181	9	.561	3
320			min	-105.549	4	-398.663	3	-165.596	4	-.007	4	-.238	3	-.502	4
321	M33A	1	max	37.328	4	317.763	1	193.365	2	.009	2	.13	9	.476	3
322			min	-129.148	6	-279.565	2	-174.676	1	-.006	1	-.134	3	-.531	4
323		2	max	46.497	4	313.607	1	188.071	2	.009	2	.079	4	.306	3
324			min	-130.395	7	-283.72	2	-169.382	1	-.006	1	-.11	3	-.37	4
325		3	max	55.666	4	309.452	1	187.979	4	.009	2	.089	4	.129	3
326			min	-132.506	7	-287.876	2	-171.22	3	-.006	1	-.097	3	-.2	4
327		4	max	64.835	4	305.296	1	203.86	4	.009	2	.148	1	.347	2
328			min	-134.618	7	-292.031	2	-187.101	3	-.006	1	-.139	2	-.416	1
329		5	max	74.003	4	301.141	1	219.741	4	.009	2	.221	1	.581	2
330			min	-138.06	3	-296.187	2	-202.982	3	-.006	1	-.229	9	-.646	1
331	M34	1	max	0	1	.666	8	.466	1	0	1	0	1	0	1
332			min	0	1	-.124	3	-.827	6	0	1	0	1	0	1
333		2	max	103.182	5	111.227	4	82.629	1	0	1	.03	1	.03	3
334			min	23.721	9	-111.172	3	-82.668	2	0	1	-.03	2	-.03	4
335		3	max	193.26	2	321.487	4	329.185	1	.207	2	.464	1	.505	7
336			min	-379.321	9	-908.775	7	-265.157	2	-.18	1	-.446	2	-.097	4
337		4	max	-90.818	10	555.73	3	367.179	2	0	1	.364	1	.544	3
338			min	-450.344	6	-555.866	4	-367.145	1	0	1	-.364	2	-.544	4
339		5	max	0	1	.099	4	.331	6	0	1	0	1	0	1
340			min	0	1	-1.336	6	-.034	2	0	1	0	1	0	1

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*...	phi*...	phi*...	phi*...	...	Eqn
1	MP2A	PIPE_...	.767	5.083	1	.127	5.083		2	1984..	44100	2.531	2.531	...	H1-...
2	M3	PIPE_...	.720	7.333	8	.123	7.333		3	2078..	65205	5.749	5.749	...	H1-...
3	M2	PIPE_...	.687	7.333	7	.127	7.333		3	2078..	65205	5.749	5.749	...	H1-...
4	MP2B	PIPE_...	.682	5.083	8	.145	5.083		4	1984..	44100	2.531	2.531	...	H1-...
5	MP1C	PIPE_...	.678	5.083	7	.149	5.083		3	1984..	44100	2.531	2.531	...	H1-...
6	M4	HSS4x...	.664	0	3	.159	0	z	3	1042..	1091..	12.6...	12.6...	...	H1-...
7	MP2C	PIPE_...	.627	5.083	5	.172	5.083		4	1984..	44100	2.531	2.531	...	H1-...
8	M34	PIPE_...	.605	5.083	7	.142	5.083		2	1984..	44100	2.531	2.531	...	H1-...
9	MP1B	PIPE_...	.574	5.083	5	.146	5.083		4	1984..	44100	2.531	2.531	...	H1-...
10	M1	PIPE_...	.484	7.333	6	.295	7.333		1	2078..	65205	5.749	5.749	...	H1-...
11	MP1A	PIPE_...	.472	5.083	8	.127	5.083		2	1984..	44100	2.531	2.531	...	H1-...
12	M5	HSS4x...	.449	0	1	.096	3.008	y	5	1042..	1091..	12.6...	12.6...	...	H1-...
13	M6	HSS4x...	.406	0	1	.147	3.008	y	5	1042..	1091..	12.6...	12.6...	...	H1-...
14	M28	PIPE_...	.365	8.097	6	.124	1.528		1	2078..	65205	5.749	5.749	...	H1-...
15	M32	L3x3x4	.358	1.827	4	.055	0	z	3	4333..	46656	1.688	3.756	...	H2-1
16	M31	L3x3x4	.333	0	9	.044	1.827	y	9	4333..	46656	1.688	3.756	...	H2-1
17	M31A	L3x3x4	.322	0	1	.054	0	y	2	3908..	46656	1.688	3.756	...	H2-1
18	M33A	L3x3x4	.303	2.827	1	.057	2.827	y	2	3908..	46656	1.688	3.756	...	H2-1
19	M33	L3x3x4	.295	0	3	.041	0	z	2	4333..	46656	1.688	3.756	...	H2-1
20	M32A	L3x3x4	.293	2.827	3	.057	2.827	y	3	3908..	46656	1.688	3.756	...	H2-1
21	M12	L3x3x4	.275	0	4	.015	0	z	4	4062..	46656	1.688	3.756	...	H2-1
22	M7	L3x3x4	.231	0	4	.014	2.5	y	4	4062..	46656	1.688	3.756	...	H2-1
23	M9	L3x3x4	.208	0	3	.009	0	y	3	4062..	46656	1.688	3.756	...	H2-1
24	M11	L3x3x4	.187	0	1	.010	2.5	y	1	4062..	46656	1.688	3.756	...	H2-1
25	M10	L3x3x4	.187	0	1	.010	2.5	z	1	4062..	46656	1.688	3.756	...	H2-1
26	M22	LL2x2x...	.178	0	6	.014	0	z	4	4218..	61236	2.894	2.114	1	H1-...
27	M8	L3x3x4	.163	0	3	.010	0	z	2	4062..	46656	1.688	3.756	...	H2-1
28	M29	PIPE_...	.159	11.764	3	.118	11.764		3	2078..	65205	5.749	5.749	...	H1-...
29	M30	PIPE_...	.149	2.903	4	.112	1.528		3	2078..	65205	5.749	5.749	...	H1-...
30	M24	LL2x2x...	.125	0	7	.010	0	z	2	4218..	61236	2.894	2.114	...	H1-...
31	M23	LL2x2x...	.121	0	8	.009	4.243	z	2	4218..	61236	2.894	2.114	...	H1-...
32	M13	L1.75x...	.013	.44	4	.027	0	y	9	1917..	2012...	.413	.933	...	H2-1
33	M14	L1.75x...	.011	.431	1	.019	0	y	3	1917..	2012...	.413	.933	...	H2-1
34	M15	L1.75x...	.011	.422	3	.020	.863	z	2	1917..	2012...	.413	.933	...	H2-1

Envelope AISI S100-10: LRFD Cold Formed Steel Code Checks

Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc.....	L..	phi*P...	phi*T...	phi*M...	phi*M...	Cb	Cmyy	Cmzz	Eqn
No Data to Print ...															

Envelope AA ADM1-10: ASD - Building Aluminum Code Checks

Member	Shape	Code C...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	Pnc/O...	Pnt/Om...	Mny/O...	Mnz/O...	Vny/O...	Vnz/O...	Cb	Eqn
No Data to Print ...																

EXHIBIT 10

Transcom Engineering, Inc.

Wireless Network Design and Deployment

Radio Frequency Emissions Analysis Report

T-MOBILE Existing Facility

Site ID: CT11712A

SBA Harwinton
133 Clearview Avenue
Harwinton, CT 06791

June 19, 2019

Transcom Engineering Project Number: 737001-0178

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**2.31 %**

June 19, 2019

T-MOBILE
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 6009

Emissions Analysis for Site: **CT11712A – SBA Harwinton**

Transcom Engineering, Inc ("Transcom") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **133 Clearview Avenue, Harwinton, CT**, for the purpose of determining whether the emissions from the Proposed T-MOBILE Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed upgrades to the T-MOBILE antenna facility located at **133 Clearview Avenue, Harwinton, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-MOBILE is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

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

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

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
LTE	1900 MHz (PCS)	4	40
GSM	1900 MHz (PCS)	1	15
LTE / 5G NR	600 MHz	2	40
LTE	700 MHz	2	20

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz, 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	RFS APXV18-206516S-C-A20	192
A	2	RFS APXVAARR24_43-U-NA20	192
B	1	RFS APXV18-206516S-C-A20	192
B	2	RFS APXVAARR24_43-U-NA20	192
C	1	RFS APXV18-206516S-C-A20	192
C	2	RFS APXVAARR24_43-U-NA20	192

Table 2: Antenna Data

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

Cable losses were factored in the calculations for this site. Since all **1900 MHz (PCS)** radios are ground mounted the following cable loss values were used. For each ground mounted **1900 MHz (PCS)** radio there was **1.65 dB** of cable loss calculated into the system gains / losses for this site. These values were calculated based upon the manufacturers specifications for **160 feet** of **1-5/8"** coax.

RESULTS

Per the calculations completed for the proposed T-MOBILE configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	RFS APXV18-206516S-C-A20	1900 MHz (PCS)	16.3	5	175	5,105.50	0.52
Antenna A2	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	0.60
						Sector A Composite MPE%	**1.12**
Antenna B1	RFS APXV18-206516S-C-A20	1900 MHz (PCS)	16.3	5	175	5,105.50	0.52
Antenna B2	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	0.60
						Sector B Composite MPE%	**1.12**
Antenna C1	RFS APXV18-206516S-C-A20	1900 MHz (PCS)	16.3	5	175	5,105.50	0.52
Antenna C2	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	0.60
						Sector C Composite MPE%	**1.12**

Table 3: T-MOBILE Emissions Levels

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

Site Composite MPE%	
Carrier	**MPE%**
T-MOBILE – Max Per Sector Value	**1.12 %**
Verizon Wireless	0.99 %
Nextel	0.20 %
Site Total MPE %:	**2.31 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	1.12 %
T-MOBILE Sector B Total:	1.12 %
T-MOBILE Sector C Total:	1.12 %
Site Total:	2.31 %

Table 5: Site MPE Summary

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

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 1900 MHz (PCS) LTE	4	1,166.97	192	4.80	1900 MHz (PCS)	1000	0.48%
T-Mobile 1900 MHz (PCS) GSM	1	437.61	192	0.45	1900 MHz (PCS)	1000	0.04%
T-Mobile 600 MHz LTE / 5G NR	2	788.97	192	1.62	600 MHz	400	0.41%
T-Mobile 700 MHz LTE	2	432.54	192	0.89	700 MHz	467	0.19%
						Total:	**1.12%**

Table 6: T-MOBILE Maximum Sector MPE Power Values

Summary

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

The anticipated maximum composite contributions from the T-MOBILE 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:

T-MOBILE Sector	Power Density Value (%)
Sector A:	1.12 %
Sector B:	1.12 %
Sector C:	1.12 %
T-MOBILE Maximum Total (per sector):	1.12 %
Site Total:	2.31 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **2.31 %** 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.

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