



10 INDUSTRIAL AVE,  
SUITE 3  
MAHWAH NJ 07430

PHONE: 201.684.0055  
FAX: 201.684.0066

February 20, 2019

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

Notice of Exempt Modification  
219 Nells Rock Road, Shelton, CT 06484  
Latitude- 41.30416500  
Longitude- -73.11827700

Dear Ms. Bachman,

T-Mobile currently maintains (6) existing antennas at the 135' level of the existing 162' lattice tower at 219 Nells Rock Road in Shelton, CT. The tower and property are owned by New Cingular Wireless PCS LLC (AT&T). T-Mobile now intends to replace (6) existing antennas with (6) new 600/700/1900/2100 MHz antennas. These antennas would be installed at the same 135' level of the tower. T-Mobile also intends to remove (6) existing remote radio heads and add (3) new remote radio heads, as well as install (3) new hybrid cables

This facility was approved by the Council in Docket No. 45 on September 14, 1984. This approval included conditions, none of which have been violated or could be feasibly violated by this modification. This modification complies with the original approval.

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 Mark Lauretti, Mayor of the City of Shelton, Rick Schultz, Planning and Zoning Administrator for the City of Shelton, as well as the owner.

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 modification will not result in an increase in the height of the existing structure
2. The proposed modifications 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 with certain modifications.

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

Sincerely,

*Kyle Richers*

Kyle Richers  
Transcend Wireless  
10 Industrial Ave., Suite 3  
Mahwah, New Jersey 07430  
908-447-4716  
[krichers@transcendwireless.com](mailto:krichers@transcendwireless.com)

Attachments:

cc: Mark Lauretti- as elected official  
Rick Schultz- as zoning official  
AT&T- as owner

## Kyle Richers

---

**From:** UPS Quantum View <pkginfo@ups.com>  
**Sent:** Wednesday, February 20, 2019 9:40 AM  
**To:** krichers@transcendwireless.com  
**Subject:** UPS Ship Notification, Reference Number 1: CT11199A CSC Owner



### You have a package coming.

**Scheduled Delivery Date:** Friday, 02/22/2019

This message was sent to you at the request of TRANSCEND WIRELESS to notify you that the shipment information below has been transmitted to UPS. The physical package may or may not have actually been tendered to UPS for shipment. To verify the actual transit status of your shipment, click on the tracking link below.

## Shipment Details

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**From:** TRANSCEND WIRELESS  
**Tracking Number:** [1ZV257424292185914](#)  
**Ship To:** AT&T Mobility  
2180 Lake Blvd.  
5th Floor 5B13  
BROOKHAVEN, GA 303196004  
US  
**UPS Service:** UPS GROUND  
**Number of Packages:** 1  
**Scheduled Delivery:** 02/22/2019  
**Signature Required:** A signature is required for package delivery  
**Weight:** 1.0 LBS  
**Reference Number 1:** CT11199A CSC Owner



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## Kyle Richers

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**From:** UPS Quantum View <pkginfo@ups.com>  
**Sent:** Wednesday, February 20, 2019 9:42 AM  
**To:** krichers@transcendwireless.com  
**Subject:** UPS Ship Notification, Reference Number 1: CT11199A CSC ZO



### You have a package coming.

**Scheduled Delivery Date:** Thursday, 02/21/2019

This message was sent to you at the request of TRANSCEND WIRELESS to notify you that the shipment information below has been transmitted to UPS. The physical package may or may not have actually been tendered to UPS for shipment. To verify the actual transit status of your shipment, click on the tracking link below.

## Shipment Details

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**From:** TRANSCEND WIRELESS

**Tracking Number:** [1ZV257424291555927](#)

**Ship To:** Rick Schultz  
City of Shelton  
54 Hill Street  
Third Floor  
SHELTON, CT 064843207  
US

**UPS Service:** UPS GROUND

**Number of Packages:** 1

**Scheduled Delivery:** 02/21/2019

**Signature Required:** A signature is required for package delivery

**Weight:** 1.0 LBS

**Reference Number 1:** CT11199A CSC ZO



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## Kyle Richers

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**From:** UPS Quantum View <pkginfo@ups.com>  
**Sent:** Wednesday, February 20, 2019 9:51 AM  
**To:** krichers@transcendwireless.com  
**Subject:** UPS Ship Notification, Reference Number 1: CT11199A UPS EO



### You have a package coming.

**Scheduled Delivery Date:** Thursday, 02/21/2019

This message was sent to you at the request of TRANSCEND WIRELESS to notify you that the shipment information below has been transmitted to UPS. The physical package may or may not have actually been tendered to UPS for shipment. To verify the actual transit status of your shipment, click on the tracking link below.

## Shipment Details

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**From:** TRANSCEND WIRELESS

**Tracking Number:** [1ZV257424293929930](#)

**Ship To:** Mark Lauretti  
City of Shelton  
54 Hill Street  
SHELTON, CT 064843207  
US

**UPS Service:** UPS GROUND

**Number of Packages:** 1

**Scheduled Delivery:** 02/21/2019

**Signature Required:** A signature is required for package delivery

**Weight:** 1.0 LBS

**Reference Number 1:** CT11199A UPS EO



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**Property Information**

Owner	
Address	
Mailing Address	
Land Use	
Land Class	

Census Tract	
Neighborhood	
Zoning	
Acreage	
Utilities	
Lot Setting/ Desc	/

**Photo**



**PARCEL VALUATIONS** (Assessed value = 70% of Appraised Value)

	Appraised	Assessed
Buildings		
Outbuildings		
Improvements		
Extras		
Land		
Total		
Previous		

**Construction Details**

Year Built	
Stories	
Building Style	
Building Use	
Building Condition	
Total Rooms	
Bedrooms	
Full Bathrooms	
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	
Roof Cover	

**EXTERIOR WALLS:**

Primary	
Secondary	

**INTERIOR WALLS:**

Primary	
Secondary	

**FLOORS:**

Primary	
Secondary	

**HEATING/AC:**

Heating Type	
Heating Fuel	
AC Type	

**BUILDING AREA:**

Effective Building Area	
Gross Building Area	
Total Living Area	

**SALES HISTORY:**

Sale Date	
Sale Price	
Book/ Page	

# City of Shelton

Geographic Information System (GIS)

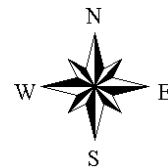


Date Printed: 9/7/2016



### **MAP DISCLAIMER - NOTICE OF LIABILITY**

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The City of Shelton and its mapping contractors assume no legal responsibility for the information contained herein.





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

T-Mobile Existing Facility

Site ID: CT11199A

Shelton/ Buddington Rd\_1  
219 Nells Rock Road (S.N.E.T.)  
Shelton, CT 06484

**January 14, 2019**

**EBI Project Number: 6219000048**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>15.34 %</b>





January 14, 2019

T-Mobile USA  
Attn: Jason Overbey, RF Manager  
35 Griffin Road South  
Bloomfield, CT 06002

## Emissions Analysis for Site: **CT11199A – Shelton/ Buddington Rd\_1**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **219 Nells Rock Road (S.N.E.T.), Shelton, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The number of  $\mu\text{W}/\text{cm}^2$  calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

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



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

Additional details can be found in FCC OET 65.

## CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **219 Nells Rock Road (S.N.E.T.), Shelton, 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.

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

- 1) 1 UMTS channel (AWS Band – 2100 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 2) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 3) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 4) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 5) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.



- 6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antennas used in this modeling are the **Ericsson AIR32 B66A/B2A** for 1900 MHz (PCS) and 2100 MHz (AWS) channels, the **RFS APXVAARR24\_43-U-NA20** for 2100 MHz (AWS), 600 MHz and 700 MHz channels. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna 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.
- 9) The antenna mounting height centerline of the proposed antennas is **135 feet** above ground level (AGL).
- 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 11) All calculations were done with respect to uncontrolled / general population threshold limits.



### T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	<b>1</b>	Antenna #:	<b>1</b>	Antenna #:	<b>1</b>
Make / Model:	Ericsson AIR32 B66A/B2A	Make / Model:	Ericsson AIR32 B66A/B2A	Make / Model:	Ericsson AIR32 B66A/B2A
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	135 feet	Height (AGL):	135 feet	Height (AGL):	135 feet
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	200	Total TX Power(W):	200	Total TX Power(W):	200
ERP (W):	7,780.90	ERP (W):	7,780.90	ERP (W):	7,780.90
Antenna A1 MPE%	<b>1.68</b>	Antenna B1 MPE%	<b>1.68</b>	Antenna C1 MPE%	<b>1.68</b>
Antenna #:	<b>2</b>	Antenna #:	<b>2</b>	Antenna #:	<b>2</b>
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Gain:	16.35 / 12.95 / 13.35 dBd	Gain:	16.35 / 12.95 / 13.35 dBd	Gain:	16.35 / 12.95 / 13.35 dBd
Height (AGL):	135 feet	Height (AGL):	135 feet	Height (AGL):	135 feet
Frequency Bands	2100 MHz (AWS) / 600 MHz / 700 MHz	Frequency Bands	2100 MHz (AWS) / 600 MHz / 700 MHz	Frequency Bands	2100 MHz (AWS) / 600 MHz / 700 MHz
Channel Count	5	Channel Count	5	Channel Count	5
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	5,899.28	ERP (W):	5,899.28	ERP (W):	5,899.28
Antenna A2 MPE%	<b>2.43</b>	Antenna B2 MPE%	<b>2.43</b>	Antenna C2 MPE%	<b>2.43</b>

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	<b>4.11 %</b>
AT&T	<b>3.37 %</b>
Verizon Wireless	<b>4.74 %</b>
Sprint	<b>2.81 %</b>
PageNet	<b>0.27 %</b>
Arrow Bus	<b>0.04 %</b>
Metricom	<b>0.00 %</b>
<b>Site Total MPE %:</b>	<b>15.34 %</b>

T-Mobile Sector A Total:	4.11 %
T-Mobile Sector B Total:	4.11 %
T-Mobile Sector C Total:	4.11 %
<b>Site Total:</b>	
	15.34 %



## T-Mobile Maximum MPE Power Values (Per Sector)

T-Mobile_Frequency Band / Technology (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
T-Mobile PCS - 1900 MHz LTE	2	1,556.18	135	6.72	PCS - 1900 MHz	1000.00	0.67%
T-Mobile AWS - 2100 MHz LTE	2	2,334.27	135	10.09	AWS - 2100 MHz	1000.00	1.01%
T-Mobile AWS - 2100 MHz UMTS	1	1,726.08	135	3.73	AWS - 2100 MHz	1000.00	0.38%
T-Mobile 600 MHz LTE	2	788.97	135	3.41	600 MHz	400.00	0.85%
T-Mobile 700 MHz LTE	2	1,297.63	135	5.61	700 MHz	467.00	1.20%
						<b>Total:</b>	<b>4.11%</b>

## 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:	4.11 %
Sector B:	4.11 %
Sector C:	4.11 %
T-Mobile Maximum MPE % (Per Sector):	4.11 %
Site Total:	15.34 %
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **15.34%** 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.



AT&T Towers  
 5600 Glenridge Drive  
 Atlanta, GA 30342  
 (404) 532-5855



**GPD GROUP®**  
 ENGINEERING AND ARCHITECTURE  
 PROFESSIONAL CORPORATION  
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 Akron, OH 44311  
 (216) 927-8687  
 bdaugherty@gpdgroup.com

**GPD# 2019723.01.SNET025.12**  
 February 1, 2019

**RIGOROUS STRUCTURAL ANALYSIS REPORT**

**AT&T DESIGNATION:**

**Site USID:** 27016  
**Alternate USID:** SNET025  
**Site FA:** 10034975  
**Site Name:** SHELTON EAST CENTRAL  
**AT&T Project:** TMO Amend# Modification 6-5-18

**ANALYSIS CRITERIA:**

**Codes:** TIA-222-G, 2016 Connecticut State Building Code & 2012 IBC  
 125-mph Ultimate (3-second gust) with 0" ice  
 97-mph Nominal (3-second gust) with 0" ice  
 50-mph Nominal (3-second gust) with 3/4" ice

**SITE DATA:**

219 Nells Rock Road, Shelton, CT 06484, Fairfield County  
 Latitude 41° 18' 15.070" N, Longitude 73° 7' 5.898" W  
 Market: NEW ENGLAND  
 162.5' Modified Self Support Tower

Ms. Deborah Krenc,

GPD is pleased to submit this Revised Rigorous Structural Analysis Report to determine the structural integrity of the aforementioned tower. The purpose of the analysis is to determine the suitability of the tower with the existing and proposed loading configuration detailed in the analysis report.

**Analysis Results**

Tower Stress Level with Proposed Equipment:	93.9%	Pass
Foundation Ratio with Proposed Equipment:	47.6%	Pass

We at GPD appreciate the opportunity of providing our continuing professional services to you and AT&T Towers. If you have any questions or need further assistance on this or any other projects, please do not hesitate to call.

Respectfully submitted,

Christopher J. Scheks, P.E.  
 Connecticut #: 0030026



## SUMMARY & RESULTS

The purpose of this analysis was to verify whether the existing modified structure is capable of carrying the proposed loading configuration as specified by T-Mobile to AT&T Towers. This report was commissioned by Ms. Deborah Krenc of AT&T Towers.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B and Risk Category II were used in this analysis.

**All modifications designed by GPD (Project #: 2013723.SNET025.01, dated 3/1/2013 & Project #: 2014701.02, dated 2/10/2014) were considered in the analysis.**

**The proposed coax shall be installed in a single row on Face D with the existing T-Mobile coax in order for the analysis to be valid. See Appendix C for the proposed coax layout.**

### TOWER SUMMARY AND RESULTS

Member	Capacity	Results
Legs	52.3%	Pass
Leg Bolts	55.2%	Pass
Diagonals	93.9%	Pass
Horizontals	73.3%	Pass
Redundant Members	88.3%	Pass
Inner Bracing	42.6%	Pass
Member Bolts	74.6%	Pass
Anchor Rods	47.5%	Pass
Foundations	47.6%	Pass

## ANALYSIS METHOD

RISA-3D (Version 17.0.0) and tnxTower (Version 8.0.4.0), commercially available software programs, were used to create a three-dimensional model of the tower and calculate primary member stresses for various dead, wind, and ice load cases. Selected output from the analysis is included in Appendix B. The following table details the information provided to complete this structural analysis. This analysis is solely based on this information and is being completed without the benefit of a recent detailed site visit.

### DOCUMENTS PROVIDED

Document	Remarks	Source
Site Lease Application	T-Mobile Colocation Application, dated 6/1/2018	AT&T
Mount Analysis	Centek Project #: 18058.75 Rev. 1, dated 10/22/2018	AT&T
Tower Design	Not Provided	N/A
Foundation Design	Not Provided	N/A
Foundation Mapping	GPD Project #: 2016713.69, dated 9/28/2016	AT&T
Geotechnical Report	GPD Project #: 2016713.69, dated 9/28/2016	AT&T
Previous Structural Analysis	GPD Project #: 2018723.01.SNET025.10, dated 6/8/2018	AT&T
Tower Mapping	GPD Project #: 2016713.69, dated 10/14/2016	AT&T
Modification Drawings	GPD Project #: 2013723.01.SNET025.01, dated 3/1/2013	AT&T
Modification Drawings	GPD Project #: 2014701.02, dated 2/10/2014	AT&T
Post Modification Inspection	GPD Project #: 2013723.01.SNET025.03, dated 9/26/2013	AT&T
Post Modification Inspection	GPD Project #: 2014723.01.SNET025.07, dated 6/4/2014	AT&T
Tower Sketch	AT&T Tower Sketch Issue 6, dated 6/6/2010	AT&T



## ASSUMPTIONS

This rigorous structural analysis is based on the theoretical capacity of the members and is not a condition assessment of the tower. This analysis is from information supplied, and therefore, its results are based on and are as accurate as that supplied data. GPD has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural analysis.

1. The tower member sizes and shapes are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated in the materials section.
2. The antenna configuration is as supplied and/or as modeled in the analysis. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements.
3. Some assumptions are made regarding antennas and mount sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type and industry practice.
4. All mounts, if applicable, are considered adequate to support the loading. No actual analysis of the mount(s) is performed. This analysis is limited to analyzing the tower only.
5. The soil parameters are as per data supplied or as assumed and stated in the calculations.
6. Foundations are properly designed and constructed to resist the original design loads indicated in the documents provided.
7. The tower and structures have been properly maintained in accordance with TIA Standards and/or with manufacturer's specifications.
8. All welds and connections are assumed to develop at least the member capacity unless determined otherwise and explicitly stated in this report.
9. All prior structural modifications are assumed to be as per data supplied/available and to have been properly installed.
10. Foundation steel was not able to be determined through testing. Therefore, it was assumed that the foundation steel in place is equal to or in excess of the code required minimums.
11. Loading interpreted from photos is accurate to  $\pm 5'$  AGL, antenna size accurate to  $\pm 3.3$  sf, and coax equal to the number of existing antennas without reserve.
12. All existing loading was obtained from the previous analysis by GPD (Project #: 2018723.01.SNET025.10, dated 6/8/2018), the provided Site Lease Application and site photos and is assumed to be accurate.
13. The proposed coax shall be installed in a single row on Face D with the existing T-Mobile coax in order for the analysis to be valid. See Appendix C for the proposed coax layout.
14. Face A is assumed to be at an azimuth of  $57^\circ$  based on the AT&T Tower Sketch Issue 6, dated 6/6/2010.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and GPD should be allowed to review any new information to determine its effect on the structural integrity of the tower.

## DISCLAIMER OF WARRANTIES

GPD has not performed a recent site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD in connection with this Rigorous Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

This analysis is limited to the designated maximum wind and seismic conditions per the governing tower standards and code. Wind forces resulting in tower vibrations near the structure's resonant frequencies were not considered in this analysis and are outside the scope of this analysis. Lateral loading from any dynamic response was not evaluated under a time-domain based fatigue analysis.

GPD does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the capability of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation in excess of the code specified amount, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

Towers are designed to carry gravity, wind, and ice loads. All members, legs, diagonals, struts, and redundant members provide structural stability to the tower with little redundancy. Absence or removal of a member can trigger catastrophic failure unless a substitute is provided before any removal. Legs carry axial loads and derive their strength from shorter unbraced lengths by the presence of redundant members and their connection to the diagonals with bolts or welds. If the bolts or welds are removed without providing any substitute to the frame, the leg is subjected to a higher unbraced length that immediately reduces its load carrying capacity. If a diagonal is also removed in addition to the connection, the unbraced length of the leg is greatly increased, jeopardizing its load carrying capacity. Failure of one leg can result in a tower collapse because there is no redundancy. Redundant members and diagonals are critical to the stability of the tower.

GPD makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of GPD pursuant to this report will be limited to the total fee received for preparation of this report.

## **APPENDIX A**

### Tower Analysis Summary Form



## **APPENDIX B**

### Software Output Files and Calculations

<b>tnxTower</b>  <b>GPD</b> 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (555) 555-1234 FAX: (555) 555-1235	<b>Job</b>	27016 SHELTON EAST CENTRAL	<b>Page</b>	1 of 9
	<b>Project</b>	2019723.01.SNET025.12	<b>Date</b>	13:40:23 01/28/19
	<b>Client</b>	AT&T Towers	<b>Designed by</b>	jstokes

## Tower Input Data

The main tower is a 4x free standing tower with an overall height of 162.50 ft above the ground line.

The base of the tower is set at an elevation of 0.00 ft above the ground line.

The face width of the tower is 12.25 ft at the top and 36.25 ft at the base.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in Fairfield County, Connecticut.

Basic wind speed of 97 mph.

Structure Class II.

Exposure Category B.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 0.7500 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

Pressures are calculated at each section.

Stress ratio used in tower member design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

## Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
Climbing Ladder (Af)	B	No	No	Af (CaAa)	162.50 - 10.00	-36.000	0.4	1	1	3.8400	3.8400		4.81
Safety Line (3/8")	B	No	No	Ar (CaAa)	162.50 - 10.00	-36.000	0.4	1	1	0.3750	0.3750		0.22
LDF4P-50A (1/2 FOAM)	C	No	No	Ar (CaAa)	162.50 - 65.00	0.0000	-0.45	1	1	0.6300	0.6300		0.15
LDF4P-50A (1/2 FOAM)	C	No	No	Ar (CaAa)	65.00 - 10.00	0.0000	-0.45	2	2	0.6300	0.6300		0.15
1-1/2" Rigid Conduit	C	No	No	Ar (CaAa)	162.50 - 10.00	0.0000	-0.44	1	1	1.5000	1.5000		1.00
LDF5-50A (7/8 FOAM)	C	No	No	Ar (CaAa)	162.50 - 10.00	0.0000	0.01	2	2	1.0000	1.0900		0.33
3/4" Lighting Cable	C	No	No	Ar (CaAa)	162.50 - 10.00	0.0000	0.02	1	1	0.7500	0.7500		0.35
LDF5-50A (7/8 FOAM) Feedline	D	No	No	Ar (CaAa)	162.50 - 10.00	0.0000	0.48	1	1	1.0000	1.0900		0.33
Ladder (Af)	C	No	No	Af (CaAa)	162.50 - 10.00	-1.0000	0.2	1	1	3.0000	3.0000		8.40
LDF7-50A (1-5/8 FOAM)	C	No	No	Ar (CaAa)	162.50 - 10.00	-6.0000	0.2	12	4	1.0000	1.9800		0.82
7/8" DC Power Cable	C	No	No	Ar (CaAa)	162.50 - 10.00	-5.0000	0.18	6	3	0.8750	0.8750		0.60
1/2" Fiber Cable	C	No	No	Ar (CaAa)	162.50 - 10.00	-5.0000	0.18	3	2	0.6300	0.6300		0.15
Feedline Ladder (Af)	A	No	No	Af (CaAa)	149.00 - 10.00	0.0000	0	1	1	3.0000	3.0000		8.40

<b>tnxTower</b>  <b>GPD</b> 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (555) 555-1234 FAX: (555) 555-1235	<b>Job</b>	27016 SHELTON EAST CENTRAL	<b>Page</b>	2 of 9
	<b>Project</b>	2019723.01.SNET025.12	<b>Date</b>	13:40:23 01/28/19
	<b>Client</b>	AT&T Towers	<b>Designed by</b>	jstokes

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1-1/4" Hybrid Cable	A	No	No	Ar (CaAa)	149.00 - 10.00	0.0000	0.04	3	3	1.0000	1.2500		1.00
1/2" Hybrid Cable	A	No	No	Ar (CaAa)	149.00 - 10.00	0.0000	0.03	3	2	0.5000	0.5000		30.00
3/8" RET Cable	A	No	No	Ar (CaAa)	149.00 - 10.00	0.0000	0.02	3	2	0.3750	0.3750		0.10
Feedline Ladder (Af)	C	No	No	Af (CaAa)	135.00 - 10.00	0.0000	0	1	1	3.0000	3.0000		8.40
LDF7-50A (1-5/8 FOAM)	C	No	No	Ar (CaAa)	135.00 - 10.00	0.0000	0.03	6	6	1.9800	1.9800		0.82
1-5/8" Hybrid Cable	C	No	No	Ar (CaAa)	135.00 - 10.00	0.0000	0.01	3	3	1.9800	1.9800		0.82
Feedline Ladder (Af)	D	No	No	Af (CaAa)	124.00 - 10.00	0.0000	0.45	1	1	3.0000	3.0000		8.40
LDF7-50A (1-5/8 FOAM)	D	No	No	Ar (CaAa)	124.00 - 10.00	0.0000	0.45	17	9	1.0000	1.9800		0.82
1-5/8" Hybrid Cable	D	No	No	Ar (CaAa)	124.00 - 10.00	0.0000	0.49	2	1	1.0000	1.9800		0.82

## Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight lb
28' Square Platform w/ Rails	C	None		0.0000	162.50	No Ice	100.20	11871.000
						1/2" Ice	111.30	15623.000
						1" Ice	122.40	19375.000
Flash Beacon Lighting	C	From Leg	0.00 0.00 12.50	0.0000	162.50	No Ice	2.70	50.000
						1/2" Ice	3.10	70.000
						1" Ice	3.50	90.000
W5 x 13' Mount	C	From Leg	0.00 0.00 6.25	0.0000	162.50	No Ice	5.42	210.000
						1/2" Ice	7.00	280.000
						1" Ice	8.58	350.000
15' Dipole	B	From Face	7.00 -3.00 -6.50	0.0000	162.50	No Ice	3.00	40.000
						1/2" Ice	4.53	63.137
						1" Ice	6.07	95.792
10' Dipole	D	From Face	7.00 5.00 7.50	0.0000	162.50	No Ice	2.00	20.000
						1/2" Ice	3.02	35.501
						1" Ice	4.07	57.466
Pipe Mount 14'x2.875"	B	From Face	7.00 -5.00 5.50	0.0000	162.50	No Ice	4.03	90.000
						1/2" Ice	5.46	119.246
						1" Ice	6.91	157.489
2' Standoff	B	From Face	6.50 -5.00 9.50	0.0000	162.50	No Ice	1.14	37.400
						1/2" Ice	1.79	55.340
						1" Ice	2.44	73.280
2' Standoff	B	From Face	7.50 -5.00 9.50	0.0000	162.50	No Ice	1.14	37.400
						1/2" Ice	1.79	55.340
						1" Ice	2.44	73.280
15' Dipole	B	From Face	7.00 5.00 21.50	0.0000	162.50	No Ice	3.00	40.000
						1/2" Ice	4.53	63.137
						1" Ice	6.07	95.792
Pipe Mount 14'x2.875"	D	From Face	7.00 -5.00 5.50	0.0000	162.50	No Ice	4.03	90.000
						1/2" Ice	5.46	119.246
						1" Ice	6.91	157.489

<b>tnxTower</b>  <b>GPD</b> 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (555) 555-1234 FAX: (555) 555-1235	<b>Job</b>	27016 SHELTON EAST CENTRAL	<b>Page</b>	3 of 9
	<b>Project</b>	2019723.01.SNET025.12	<b>Date</b>	13:40:23 01/28/19
	<b>Client</b>	AT&T Towers	<b>Designed by</b>	jstokes

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight lb
2' Standoff	D	From Face	6.50 -5.00 9.50	0.0000	162.50	No Ice 1.14 1/2" Ice 1.79 1" Ice 2.44	1.62 2.41 3.20	37.400 55.340 73.280
2' Standoff	D	From Face	7.50 -5.00 9.50	0.0000	162.50	No Ice 1.14 1/2" Ice 1.79 1" Ice 2.44	1.62 2.41 3.20	37.400 55.340 73.280
10' Omni	D	From Face	8.00 -5.00 20.50	0.0000	162.50	No Ice 2.00 1/2" Ice 3.02 1" Ice 4.07	2.00 3.02 4.07	25.000 40.501 62.466
***								
W8 x 19' Beams	A	From Leg	5.00 0.00 1.00	13.0000	162.50	No Ice 17.00 1/2" Ice 19.00 1" Ice 21.00	1.00 1.50 2.00	290.000 340.000 330.000
W8 x 19' Beams	D	From Leg	5.00 0.00 1.00	-17.0000	162.50	No Ice 17.00 1/2" Ice 19.00 1" Ice 21.00	1.00 1.50 2.00	290.000 340.000 330.000
RA21.7770.00 w/Mount Pipe	A	From Leg	5.00 0.00 0.50	13.0000	162.50	No Ice 6.88 1/2" Ice 7.47 1" Ice 7.98	5.13 6.25 7.08	65.550 121.085 183.814
RA21.7770.00 w/Mount Pipe	D	From Leg	5.00 0.00 0.50	-17.0000	162.50	No Ice 6.88 1/2" Ice 7.47 1" Ice 7.98	5.13 6.25 7.08	65.550 121.085 183.814
RA21.7770.00 w/Mount Pipe	C	From Face	7.00 0.00 0.50	-4.0000	162.50	No Ice 6.88 1/2" Ice 7.47 1" Ice 7.98	5.13 6.25 7.08	65.550 121.085 183.814
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	5.00 0.00 0.50	13.0000	162.50	No Ice 9.90 1/2" Ice 10.47 1" Ice 11.01	8.11 9.30 10.21	76.550 158.030 247.793
HPA-65R-BUU-H6 w/ Mount Pipe	D	From Leg	5.00 0.00 0.50	-17.0000	162.50	No Ice 9.90 1/2" Ice 10.47 1" Ice 11.01	8.11 9.30 10.21	76.550 158.030 247.793
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Face	7.00 0.00 0.50	-4.0000	162.50	No Ice 9.90 1/2" Ice 10.47 1" Ice 11.01	8.11 9.30 10.21	76.550 158.030 247.793
QS66512-2 w/ Mount Pipe	A	From Leg	5.00 0.00 0.50	13.0000	162.50	No Ice 8.37 1/2" Ice 8.93 1" Ice 9.46	8.46 9.66 10.55	136.550 212.242 296.075
QS66512-2 w/ Mount Pipe	D	From Leg	5.00 0.00 0.50	-17.0000	162.50	No Ice 8.37 1/2" Ice 8.93 1" Ice 9.46	8.46 9.66 10.55	136.550 212.242 296.075
QS66512-2 w/ Mount Pipe	C	From Face	7.00 0.00 0.50	-4.0000	162.50	No Ice 8.37 1/2" Ice 8.93 1" Ice 9.46	8.46 9.66 10.55	136.550 212.242 296.075
80010965 w/ Mount Pipe	A	From Leg	5.00 0.00 0.50	13.0000	162.50	No Ice 14.05 1/2" Ice 14.69 1" Ice 15.30	7.63 8.90 9.96	125.188 221.670 327.183
80010965 w/ Mount Pipe	D	From Leg	5.00 0.00 0.50	-17.0000	162.50	No Ice 14.05 1/2" Ice 14.69 1" Ice 15.30	7.63 8.90 9.96	125.188 221.670 327.183
80010965 w/ Mount Pipe	C	From Face	7.00 0.00 0.50	-4.0000	162.50	No Ice 14.05 1/2" Ice 14.69 1" Ice 15.30	7.63 8.90 9.96	125.188 221.670 327.183
(2) 7020.00 RET	A	From Leg	5.00 0.00 0.50	13.0000	162.50	No Ice 0.10 1/2" Ice 0.15 1" Ice 0.20	0.17 0.24 0.31	2.200 5.156 9.330
(2) 7020.00 RET	D	From Leg	5.00 0.00 0.50	-17.0000	162.50	No Ice 0.10 1/2" Ice 0.15 1" Ice 0.20	0.17 0.24 0.31	2.200 5.156 9.330



<b>tnxTower</b>  <b>GPD</b> 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (555) 555-1234 FAX: (555) 555-1235	<b>Job</b>	27016 SHELTON EAST CENTRAL	<b>Page</b>	4 of 9
	<b>Project</b>	2019723.01.SNET025.12	<b>Date</b>	13:40:23 01/28/19
	<b>Client</b>	AT&T Towers	<b>Designed by</b>	jstokes

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight	
			Horz	Lateral						
			Vert		°	ft	ft <sup>2</sup>	ft <sup>2</sup>	lb	
			ft	ft						
(2) 7020.00 RET	C	From Face	0.50				1" Ice	0.20	0.31	9.330
			7.00		-4.0000	162.50	No Ice	0.10	0.17	2.200
			0.00				1/2" Ice	0.15	0.24	5.156
(2) LGP21401	A	From Leg	0.50				1" Ice	0.20	0.31	9.330
			5.00		13.0000	162.50	No Ice	1.10	0.21	14.100
			0.00				1/2" Ice	1.24	0.27	21.263
(2) LGP21401	D	From Leg	0.50				1" Ice	1.38	0.35	30.319
			5.00		-17.0000	162.50	No Ice	1.10	0.21	14.100
			0.00				1/2" Ice	1.24	0.27	21.263
(2) LGP21401	C	From Face	0.50				1" Ice	1.38	0.35	30.319
			7.00		-4.0000	162.50	No Ice	1.10	0.21	14.100
			0.00				1/2" Ice	1.24	0.27	21.263
(2) TPX-070821	A	From Leg	0.50				1" Ice	1.38	0.35	30.319
			5.00		13.0000	162.50	No Ice	0.47	0.10	7.500
			0.00				1/2" Ice	0.56	0.15	10.952
(2) TPX-070821	D	From Leg	0.50				1" Ice	0.66	0.20	15.735
			5.00		-17.0000	162.50	No Ice	0.47	0.10	7.500
			0.00				1/2" Ice	0.56	0.15	10.952
(2) TPX-070821	C	From Face	0.50				1" Ice	0.66	0.20	15.735
			7.00		-4.0000	162.50	No Ice	0.47	0.10	7.500
			0.00				1/2" Ice	0.56	0.15	10.952
Smart Bias-T	A	From Leg	0.50				1" Ice	0.66	0.20	15.735
			5.00		-17.0000	162.50	No Ice	0.14	0.08	3.300
			0.00				1/2" Ice	0.19	0.12	4.693
Smart Bias-T	D	From Leg	0.50				1" Ice	0.25	0.17	6.947
			5.00		-4.0000	162.50	No Ice	0.14	0.08	3.300
			0.00				1/2" Ice	0.19	0.12	4.693
Smart Bias-T	C	From Face	0.50				1" Ice	0.25	0.17	6.947
			7.00		13.0000	162.50	No Ice	0.14	0.08	3.300
			0.00				1/2" Ice	0.19	0.12	4.693
WCS-IMFT-AMT	A	From Leg	0.50				1" Ice	0.25	0.17	6.947
			5.00		-17.0000	162.50	No Ice	0.64	0.47	18.700
			0.00				1/2" Ice	0.75	0.56	24.918
WCS-IMFT-AMT	C	From Face	0.50				1" Ice	0.86	0.66	32.828
			7.00		13.0000	162.50	No Ice	0.64	0.47	18.700
			0.00				1/2" Ice	0.75	0.56	24.918
(3) RRUS 11	C	None	0.50				1" Ice	0.86	0.66	32.828
					0.0000	165.00	No Ice	2.78	1.19	50.700
							1/2" Ice	2.99	1.33	71.500
(3) RRUS 32	C	None					1" Ice	3.21	1.49	95.335
					0.0000	165.00	No Ice	3.31	2.42	77.000
							1/2" Ice	3.56	2.64	104.928
(3) RRUS 32 B2	C	None					1" Ice	3.81	2.86	136.466
					0.0000	165.00	No Ice	2.73	1.67	52.900
							1/2" Ice	2.95	1.86	73.957
(3) RRUS 12	C	None					1" Ice	3.18	2.05	98.206
					0.0000	165.00	No Ice	3.15	1.29	58.000
							1/2" Ice	3.36	1.44	81.222
(3) RRUS B14 4478	C	None					1" Ice	3.59	1.60	107.645
					0.0000	165.00	No Ice	1.65	0.81	60.000
							1/2" Ice	1.81	0.93	74.366
(3) RRUS 32 B66	C	None					1" Ice	1.98	1.06	91.233
					0.0000	165.00	No Ice	2.74	1.67	53.000
							1/2" Ice	2.96	1.86	74.114
(3) DC6-48-60-18-8F Surge Suppression Unit	C	None					1" Ice	3.19	2.05	98.424
					0.0000	167.00	No Ice	0.92	0.92	18.900
							1/2" Ice	1.46	1.46	36.615

<b>tnxTower</b>  <b>GPD</b> 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (555) 555-1234 FAX: (555) 555-1235	<b>Job</b>	27016 SHELTON EAST CENTRAL	<b>Page</b>	5 of 9
	<b>Project</b>	2019723.01.SNET025.12	<b>Date</b>	13:40:23 01/28/19
	<b>Client</b>	AT&T Towers	<b>Designed by</b>	jstokes

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight	
			Horz	Lateral						°
***							1" Ice	1.64	1.64	56.825
14' Sector Frame	A	From Leg	2.00	-2.0000	148.00	No Ice	25.00	25.00	380.000	
			0.00			1/2" Ice	33.12	33.12	556.690	
			0.00			1" Ice	41.24	41.24	733.380	
14' Sector Frame	B	From Leg	1.90	18.0000	148.00	No Ice	25.00	25.00	380.000	
			0.62			1/2" Ice	33.12	33.12	556.690	
			0.00			1" Ice	41.24	41.24	733.380	
14' Sector Frame	C	From Leg	1.41	45.0000	148.00	No Ice	25.00	25.00	380.000	
			1.41			1/2" Ice	33.12	33.12	556.690	
			0.00			1" Ice	41.24	41.24	733.380	
Pipe Mount 6'x2.375"	A	From Leg	4.00	-2.0000	148.00	No Ice	1.43	1.43	26.100	
			0.00			1/2" Ice	1.92	1.92	36.927	
			1.00			1" Ice	2.29	2.29	51.814	
Pipe Mount 6'x2.375"	B	From Leg	3.80	18.0000	148.00	No Ice	1.43	1.43	26.100	
			1.24			1/2" Ice	1.92	1.92	36.927	
			1.00			1" Ice	2.29	2.29	51.814	
Pipe Mount 6'x2.375"	C	From Leg	2.82	45.0000	148.00	No Ice	1.43	1.43	26.100	
			2.82			1/2" Ice	1.92	1.92	36.927	
			1.00			1" Ice	2.29	2.29	51.814	
APXVSP18 w/ Mount Pipe	A	From Leg	4.00	-2.0000	148.00	No Ice	8.02	6.71	78.900	
			0.00			1/2" Ice	8.48	7.66	144.306	
			1.00			1" Ice	8.94	8.49	217.469	
APXVSP18 w/ Mount Pipe	B	From Leg	3.80	18.0000	148.00	No Ice	8.02	6.71	78.900	
			1.24			1/2" Ice	8.48	7.66	144.306	
			1.00			1" Ice	8.94	8.49	217.469	
APXVSP18 w/ Mount Pipe	C	From Leg	2.82	58.0000	148.00	No Ice	8.02	6.71	78.900	
			2.82			1/2" Ice	8.48	7.66	144.306	
			1.00			1" Ice	8.94	8.49	217.469	
AAHC w/ Mount Pipe	A	From Leg	1.00	0.0000	153.00	No Ice	4.89	3.26	121.870	
			0.00			1/2" Ice	5.32	3.76	167.528	
			0.00			1" Ice	5.77	4.28	218.421	
AAHC w/ Mount Pipe	B	From Leg	1.00	0.0000	153.00	No Ice	4.89	3.26	121.870	
			0.00			1/2" Ice	5.32	3.76	167.528	
			0.00			1" Ice	5.77	4.28	218.421	
AAHC w/ Mount Pipe	C	From Leg	1.00	0.0000	153.00	No Ice	4.89	3.26	121.870	
			0.00			1/2" Ice	5.32	3.76	167.528	
			0.00			1" Ice	5.77	4.28	218.421	
RRH2X50-800	A	From Leg	1.00	0.0000	153.00	No Ice	1.70	1.28	52.900	
			0.00			1/2" Ice	1.86	1.43	69.909	
			0.00			1" Ice	2.03	1.58	89.609	
RRH2X50-800	B	From Leg	1.00	0.0000	153.00	No Ice	1.70	1.28	52.900	
			0.00			1/2" Ice	1.86	1.43	69.909	
			0.00			1" Ice	2.03	1.58	89.609	
RRH2X50-800	C	From Leg	1.00	0.0000	153.00	No Ice	1.70	1.28	52.900	
			0.00			1/2" Ice	1.86	1.43	69.909	
			0.00			1" Ice	2.03	1.58	89.609	
1900MHz 4X40W RRH	A	From Leg	1.00	0.0000	153.00	No Ice	2.32	2.24	59.500	
			0.00			1/2" Ice	2.53	2.44	82.622	
			0.00			1" Ice	2.74	2.65	108.978	
1900MHz 4X40W RRH	B	From Leg	1.00	0.0000	153.00	No Ice	2.32	2.24	59.500	
			0.00			1/2" Ice	2.53	2.44	82.622	
			0.00			1" Ice	2.74	2.65	108.978	
1900MHz 4X40W RRH	C	From Leg	1.00	0.0000	153.00	No Ice	2.32	2.24	59.500	
			0.00			1/2" Ice	2.53	2.44	82.622	
			0.00			1" Ice	2.74	2.65	108.978	
TD-RRH8x20-25	A	From Leg	1.00	0.0000	153.00	No Ice	3.70	1.29	66.000	

<b>tnxTower</b>  <b>GPD</b> 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (555) 555-1234 FAX: (555) 555-1235	<b>Job</b>	27016 SHELTON EAST CENTRAL	<b>Page</b>	6 of 9
	<b>Project</b>	2019723.01.SNET025.12	<b>Date</b>	13:40:23 01/28/19
	<b>Client</b>	AT&T Towers	<b>Designed by</b>	jstokes

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight lb
			Horz ft	Lateral ft					
			0.00						
			0.00			1/2" Ice	3.95	1.46	89.937
			0.00			1" Ice	4.20	1.64	117.219
TD-RRH8x20-25	B	From Leg	1.00	0.0000	153.00	No Ice	3.70	1.29	66.000
			0.00			1/2" Ice	3.95	1.46	89.937
			0.00			1" Ice	4.20	1.64	117.219
TD-RRH8x20-25	C	From Leg	1.00	0.0000	153.00	No Ice	3.70	1.29	66.000
			0.00			1/2" Ice	3.95	1.46	89.937
			0.00			1" Ice	4.20	1.64	117.219
RRH 2x50 800 MHz	A	From Leg	1.00	0.0000	153.00	No Ice	1.73	1.33	53.000
			0.00			1/2" Ice	1.90	1.48	70.435
			0.00			1" Ice	2.07	1.64	90.593
RRH 2x50 800 MHz	B	From Leg	1.00	0.0000	153.00	No Ice	1.73	1.33	53.000
			0.00			1/2" Ice	1.90	1.48	70.435
			0.00			1" Ice	2.07	1.64	90.593
RRH 2x50 800 MHz	C	From Leg	1.00	0.0000	153.00	No Ice	1.73	1.33	53.000
			0.00			1/2" Ice	1.90	1.48	70.435
			0.00			1" Ice	2.07	1.64	90.593
(2) 2.5" x 3.5' Mount Pipe	A	From Leg	0.50	0.0000	153.00	No Ice	0.74	0.74	20.000
			0.00			1/2" Ice	0.96	0.96	26.726
			0.00			1" Ice	1.18	1.18	35.997
(2) 2.5" x 3.5' Mount Pipe	B	From Leg	0.50	0.0000	153.00	No Ice	0.74	0.74	20.000
			0.00			1/2" Ice	0.96	0.96	26.726
			0.00			1" Ice	1.18	1.18	35.997
(2) 2.5" x 3.5' Mount Pipe	C	From Leg	0.50	0.0000	153.00	No Ice	0.74	0.74	20.000
			0.00			1/2" Ice	0.96	0.96	26.726
			0.00			1" Ice	1.18	1.18	35.997
***									
30' x 30' Cross Catwalk w/ Handrails	C	None		0.0000	144.00	No Ice	78.00	78.00	5664.000
						1/2" Ice	84.00	84.00	7807.000
						1" Ice	90.00	90.00	9950.000
***									
CWT-02 T-Arm	A	From Leg	1.00	0.0000	135.00	No Ice	2.78	2.23	113.000
			0.00			1/2" Ice	3.39	2.43	143.000
			0.00			1" Ice	4.00	2.63	173.000
CWT-02 T-Arm	B	From Leg	1.00	0.0000	135.00	No Ice	2.78	2.23	113.000
			0.00			1/2" Ice	3.39	2.43	143.000
			0.00			1" Ice	4.00	2.63	173.000
CWT-02 T-Arm	D	From Leg	1.00	0.0000	135.00	No Ice	2.78	2.23	113.000
			0.00			1/2" Ice	3.39	2.43	143.000
			0.00			1" Ice	4.00	2.63	173.000
SFS-H Stabilizer Kit (1)	A	From Leg	1.00	0.0000	135.00	No Ice	3.16	1.92	65.660
			0.00			1/2" Ice	3.57	2.13	85.358
			0.00			1" Ice	3.98	2.35	105.056
SFS-H Stabilizer Kit (1)	B	From Leg	1.00	0.0000	135.00	No Ice	3.16	1.92	65.660
			0.00			1/2" Ice	3.57	2.13	85.358
			0.00			1" Ice	3.98	2.35	105.056
SFS-H Stabilizer Kit (1)	D	From Leg	1.00	0.0000	135.00	No Ice	3.16	1.92	65.660
			0.00			1/2" Ice	3.57	2.13	85.358
			0.00			1" Ice	3.98	2.35	105.056
AIR 32 KRD901146-1 B66A/B2A w/ Mount Pipe	A	From Leg	2.00	48.0000	135.00	No Ice	6.58	5.90	150.450
			1.00			1/2" Ice	6.97	6.56	209.555
			0.00			1" Ice	7.37	7.24	275.399
AIR 32 KRD901146-1 B66A/B2A w/ Mount Pipe	B	From Leg	2.00	78.0000	135.00	No Ice	6.58	5.90	150.450
			1.00			1/2" Ice	6.97	6.56	209.555
			0.00			1" Ice	7.37	7.24	275.399
AIR 32 KRD901146-1 B66A/B2A w/ Mount Pipe	D	From Leg	2.00	18.0000	135.00	No Ice	6.58	5.90	150.450
			1.00			1/2" Ice	6.97	6.56	209.555

<b>Job</b>	27016 SHELTON EAST CENTRAL	<b>Page</b>	7 of 9
<b>Project</b>	2019723.01.SNET025.12	<b>Date</b>	13:40:23 01/28/19
<b>Client</b>	AT&T Towers	<b>Designed by</b>	jstokes

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub>		Weight	
			Horz	Lateral			Front	Side		
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	lb	
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	0.00				1" Ice	7.37	7.24	275.399
			2.00		-72.0000	135.00	No Ice	20.24	10.79	157.200
			-1.00				1/2" Ice	20.89	12.21	290.893
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	0.00				1" Ice	21.55	13.49	435.197
			2.00		-42.0000	135.00	No Ice	20.24	10.79	157.200
			-1.00				1/2" Ice	20.89	12.21	290.893
APXVAARR24_43-U-NA20 w/ Mount Pipe	D	From Leg	0.00				1" Ice	21.55	13.49	435.197
			2.00		18.0000	135.00	No Ice	20.24	10.79	157.200
			-1.00				1/2" Ice	20.89	12.21	290.893
RRU4449 B71+B12	A	From Leg	0.00				1" Ice	21.55	13.49	435.197
			2.00		0.0000	135.00	No Ice	1.65	1.16	70.000
			0.00				1/2" Ice	1.81	1.30	86.164
RRU4449 B71+B12	B	From Leg	0.00				1" Ice	1.98	1.45	104.952
			2.00		0.0000	135.00	No Ice	1.65	1.16	70.000
			0.00				1/2" Ice	1.81	1.30	86.164
RRU4449 B71+B12	D	From Leg	0.00				1" Ice	1.98	1.45	104.952
			2.00		0.0000	135.00	No Ice	1.65	1.16	70.000
			0.00				1/2" Ice	1.81	1.30	86.164
RRUS 11 B12	A	From Leg	0.00				1" Ice	1.98	1.45	104.952
			2.00		0.0000	135.00	No Ice	2.83	1.18	50.700
			0.00				1/2" Ice	3.04	1.33	71.570
RRUS 11 B12	B	From Leg	0.00				1" Ice	3.26	1.48	95.487
			2.00		0.0000	135.00	No Ice	2.83	1.18	50.700
			0.00				1/2" Ice	3.04	1.33	71.570
RRUS 11 B12	D	From Leg	0.00				1" Ice	3.26	1.48	95.487
			2.00		0.0000	135.00	No Ice	2.83	1.18	50.700
			0.00				1/2" Ice	3.04	1.33	71.570
KRY 112 144/1	A	From Leg	0.00				1" Ice	3.26	1.48	95.487
			2.00		0.0000	135.00	No Ice	0.35	0.17	11.000
			0.00				1/2" Ice	0.43	0.23	14.176
KRY 112 144/1	B	From Leg	0.00				1" Ice	0.51	0.30	18.583
			2.00		0.0000	135.00	No Ice	0.35	0.17	11.000
			0.00				1/2" Ice	0.43	0.23	14.176
KRY 112 144/1	D	From Leg	0.00				1" Ice	0.51	0.30	18.583
			2.00		0.0000	135.00	No Ice	0.35	0.17	11.000
			0.00				1/2" Ice	0.43	0.23	14.176
***						1" Ice	0.51	0.30	18.583	
12' Sector Frame	A	From Leg	0.50		8.0000	124.00	No Ice	18.81	10.62	513.500
			0.00				1/2" Ice	24.75	15.16	719.590
			0.00				1" Ice	30.69	19.70	925.680
12' Sector Frame	C	From Leg	0.50		-2.0000	124.00	No Ice	18.81	10.62	513.500
			0.00				1/2" Ice	24.75	15.16	719.590
			0.00				1" Ice	30.69	19.70	925.680
12' Sector Frame	D	From Leg	0.50		-12.0000	124.00	No Ice	18.81	10.62	513.500
			0.00				1/2" Ice	24.75	15.16	719.590
			0.00				1" Ice	30.69	19.70	925.680
(2) DB846F65ZAXY w/Mount Pipe	A	From Leg	1.00		8.0000	124.00	No Ice	7.27	7.82	46.550
			0.00				1/2" Ice	7.88	9.01	113.929
			1.00				1" Ice	8.48	9.91	189.249
(2) DB846F65ZAXY w/Mount Pipe	C	From Leg	1.00		-2.0000	124.00	No Ice	7.27	7.82	46.550
			0.00				1/2" Ice	7.88	9.01	113.929
			1.00				1" Ice	8.48	9.91	189.249
(2) DB846F65ZAXY w/Mount Pipe	D	From Leg	1.00		-12.0000	124.00	No Ice	7.27	7.82	46.550
			0.00				1/2" Ice	7.88	9.01	113.929
			1.00				1" Ice	8.48	9.91	189.249
BXA-185085/12CF w/ Mount	A	From Leg	1.00		8.0000	124.00	No Ice	4.77	5.36	47.740

<b>tnxTower</b>  <b>GPD</b> 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (555) 555-1234 FAX: (555) 555-1235	<b>Job</b>		27016 SHELTON EAST CENTRAL		<b>Page</b>		8 of 9	
	<b>Project</b>		2019723.01.SNET025.12		<b>Date</b>		13:40:23 01/28/19	
	<b>Client</b>		AT&T Towers		<b>Designed by</b>		jstokes	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight
			Horz	Lateral					
Pipe			0.00						
			1.00			1/2" Ice	5.22	6.17	93.913
			1.00			1" Ice	5.68	6.98	148.113
BXA-185063/12CF w/ mount pipe	C	From Leg	1.00	-2.0000	124.00	No Ice	5.00	5.30	40.550
			0.00			1/2" Ice	5.55	6.47	86.486
			1.00			1" Ice	6.07	7.35	139.852
BXA-185063/12CF w/ mount pipe	D	From Leg	1.00	-12.0000	124.00	No Ice	5.00	5.30	40.550
			0.00			1/2" Ice	5.55	6.47	86.486
			1.00			1" Ice	6.07	7.35	139.852
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	1.00	8.0000	124.00	No Ice	8.16	6.16	59.300
			0.00			1/2" Ice	8.62	6.82	120.285
			1.00			1" Ice	9.09	7.51	189.029
(2) SBNHH-1D45B w/ Mount Pipe	C	From Leg	1.00	-2.0000	124.00	No Ice	11.40	6.71	83.600
			0.00			1/2" Ice	11.89	7.66	165.080
			1.00			1" Ice	12.38	8.49	254.719
(2) SBNHH-1D65B w/ Mount Pipe	D	From Leg	1.00	-12.0000	124.00	No Ice	8.16	6.16	59.300
			0.00			1/2" Ice	8.62	6.82	120.285
			1.00			1" Ice	9.09	7.51	189.029
B13 RRH 4X30	A	From Leg	1.00	8.0000	124.00	No Ice	2.06	1.32	55.600
			0.00			1/2" Ice	2.24	1.48	72.875
			1.00			1" Ice	2.43	1.64	92.951
B13 RRH 4X30	C	From Leg	1.00	-2.0000	124.00	No Ice	2.06	1.32	55.600
			0.00			1/2" Ice	2.24	1.48	72.875
			1.00			1" Ice	2.43	1.64	92.951
B13 RRH 4X30	D	From Leg	1.00	-12.0000	124.00	No Ice	2.06	1.32	55.600
			0.00			1/2" Ice	2.24	1.48	72.875
			1.00			1" Ice	2.43	1.64	92.951
B25 RRH4X30	A	From Leg	1.00	8.0000	124.00	No Ice	2.20	1.74	55.000
			0.00			1/2" Ice	2.39	1.92	75.465
			1.00			1" Ice	2.59	2.11	98.944
B25 RRH4X30	C	From Leg	1.00	-2.0000	124.00	No Ice	2.20	1.74	55.000
			0.00			1/2" Ice	2.39	1.92	75.465
			1.00			1" Ice	2.59	2.11	98.944
B25 RRH4X30	D	From Leg	1.00	-12.0000	124.00	No Ice	2.20	1.74	55.000
			0.00			1/2" Ice	2.39	1.92	75.465
			1.00			1" Ice	2.59	2.11	98.944
B66A RRH4X45	A	From Leg	1.00	8.0000	124.00	No Ice	2.54	1.61	56.800
			0.00			1/2" Ice	2.75	1.79	76.924
			1.00			1" Ice	2.97	1.98	100.146
B66A RRH4X45	C	From Leg	1.00	-2.0000	124.00	No Ice	2.54	1.61	56.800
			0.00			1/2" Ice	2.75	1.79	76.924
			1.00			1" Ice	2.97	1.98	100.146
B66A RRH4X45	D	From Leg	1.00	-12.0000	124.00	No Ice	2.54	1.61	56.800
			0.00			1/2" Ice	2.75	1.79	76.924
			1.00			1" Ice	2.97	1.98	100.146
DB-T1-6Z-8AB-0Z	A	From Leg	1.00	8.0000	124.00	No Ice	4.80	2.00	44.000
			0.00			1/2" Ice	5.07	2.19	80.134
			1.00			1" Ice	5.35	2.39	120.222
DB-T1-6Z-8AB-0Z	C	From Leg	1.00	-2.0000	124.00	No Ice	4.80	2.00	44.000
			0.00			1/2" Ice	5.07	2.19	80.134
			1.00			1" Ice	5.35	2.39	120.222
***									
4.25' x 7' Catwalk	B	From Face	0.00	0.0000	112.50	No Ice	11.50	8.90	750.000
			0.00			1/2" Ice	13.40	10.50	1000.000
			0.00			1" Ice	15.30	12.10	1250.000
23' x 3' Catwalk	A	From Face	0.00	0.0000	87.50	No Ice	31.40	12.80	1784.000
			0.00			1/2" Ice	36.80	15.70	2514.000
			0.00			1" Ice	42.20	18.60	3244.000

<b>tnxTower</b>  <b>GPD</b> 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (555) 555-1234 FAX: (555) 555-1235	<b>Job</b>	27016 SHELTON EAST CENTRAL	<b>Page</b>	9 of 9
	<b>Project</b>	2019723.01.SNET025.12	<b>Date</b>	13:40:23 01/28/19
	<b>Client</b>	AT&T Towers	<b>Designed by</b>	jstokes

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert</i>	<i>Azimuth Adjustment</i>	<i>Placement</i>	<i>C<sub>AA</sub> Front</i>	<i>C<sub>AA</sub> Side</i>	<i>Weight</i>	
			<i>ft</i> <i>ft</i> <i>ft</i>	<i>°</i>	<i>ft</i>	<i>ft<sup>2</sup></i>	<i>ft<sup>2</sup></i>	<i>lb</i>	
23' x 3' Catwalk	B	From Face	0.00 0.00 0.00	0.0000	87.50	No Ice 1/2" Ice 1" Ice	31.40 36.80 42.20	12.80 15.70 18.60	1784.000 2514.000 3244.000
GPS-TMG-HR-26N	B	From Leg	0.50 0.00 0.00	0.0000	65.00	No Ice 1/2" Ice 1" Ice	0.13 0.18 0.24	0.13 0.18 0.24	0.600 2.371 5.075
13' x 4.25' Catwalk	B	From Face	0.00 0.00 0.00	0.0000	62.50	No Ice 1/2" Ice 1" Ice	18.85 26.00 33.15	7.00 8.00 9.00	1250.000 1750.000 2250.000
13' x 4.25' Catwalk	B	From Face	0.00 0.00 0.00	0.0000	25.00	No Ice 1/2" Ice 1" Ice	18.85 26.00 33.15	7.00 8.00 9.00	1250.000 1750.000 2250.000
Side Light	A	From Leg	1.00 0.00 0.00	0.0000	92.00	No Ice 1/2" Ice 1" Ice	0.33 0.47 0.60	0.33 0.47 0.60	7.000 7.050 7.100
Side Light	D	From Leg	1.00 0.00 0.00	0.0000	92.00	No Ice 1/2" Ice 1" Ice	0.33 0.47 0.60	0.33 0.47 0.60	7.000 7.050 7.100



Company : GPD  
 Designer : J. Stokes  
 Job Number : 2019723.01.SNET025.12  
 Model Name : 27016 SHELTON EAST CENTRAL

Jan 28, 2019  
 12:05 PM  
 Checked By: \_\_\_\_\_

### Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (1E5 F)	Density[k/...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36	29000	11200	.295	.65	.49	36	1.5	58	1.2

### Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	TWR_LEG_T1	L6x6x1/2	Column	Single Angle	A36	Typical	5.75	19.908	19.908	.479
2	TWR_TOP_GIRT_T1	MC18x58 HRA	Beam	Channel	A36	Typical	17.1	17.8	676	2.81
3	TWR_DIAG_T1	L 3-1/2x3-1/2x1/4	Column	Single Angle	A36	Typical	1.688	2.01	2.01	.035
4	TWR_STEP_T1	L3x2-1/2x1/4	Beam	Single Angle	A36	Typical	1.313	.743	1.173	.027
5	TWR_RED_VERT_...	L2.5x2.5x3	Beam	Single Angle	A36	Typical	.901	.535	.535	.011
6	TWR_LEG_T2	L6x6x1/2	Column	Single Angle	A36	Typical	5.75	19.908	19.908	.479
7	TWR_TOP_GIRT_T2	2L3-1/2x3x5/16x3/8	Beam	None	A36	Typical	3.87	6.995	4.66	.126
8	TWR_DIAG_T2	L3-1/2x3x1/4	Column	Single Angle	A36	Typical	1.563	1.304	1.913	.033
9	TWR_STEP_T2	C6X8.2	Beam	Channel	A36	Typical	2.39	.687	13.1	.074
10	TWR_RED_VERT_...	L2.5x2.5x3	Beam	Channel	A36	Typical	.901	.535	.535	.011
11	TWR_LEG_T3	L6x6x5/8	Column	Single Angle	A36	Typical	7.109	24.158	24.158	.926
12	TWR_TOP_GIRT_T3	2L3x2-1/2x1/4x3/8	Beam	None	A36	Typical	2.63	3.373	2.35	.055
13	TWR_INNER_SUP...	2L2-1/2x2x3/16x3/8	Beam	None	A36	Typical	1.617	1.379	1.017	.019
14	TWR_DIAG_T3	L4x3x1/4	Column	Single Angle	A36	Typical	1.688	1.355	2.769	.035
15	TWR_STEP_T3	L3x2-1/2x1/4	Beam	Single Angle	A36	Typical	1.313	.743	1.173	.027
16	TWR_RED_VERT_...	L2.5x2.5x3	Beam	Single Angle	A36	Typical	.901	.535	.535	.011
17	TWR_INNER_SQ_...	L3X2.5X4	Beam	Single Angle	A36	Typical	1.32	.734	1.16	.03
18	TWR_INNER_COR...	L2.5x2.5x3	Beam	Single Angle	A36	Typical	.901	.535	.535	.011
19	TWR_INNER_TRI...	L2X2.5X3	Beam	Single Angle	A36	Typical	.809	.509	.291	.009
20	TWR_INNER_LAD...	L2X2.5X3	Beam	Single Angle	A36	Typical	.809	.509	.291	.009
21	TWR_LEG_T4	L6x6x5/8	Column	Single Angle	A36	Typical	7.109	24.158	24.158	.926
22	TWR_DIAG_T4mods	L4x3x1/4	Column	Single Angle	A36	Typical	1.688	1.355	2.769	.035
23	TWR_TOP_GIRT_T4	2L3x2-1/2x1/4x3/8	Beam	None	A36	Typical	2.63	3.373	2.35	.055
24	TWR_RED_VERT_...	L2.5x2.5x3	Beam	None	A36	Typical	.901	.535	.535	.011
25	TWR_STEP_T4	L3x2-1/2x1/4	Beam	Single Angle	A36	Typical	1.313	.743	1.173	.027
26	TWR_LEG_T5	L6x6x3/4	Column	Single Angle	A36	Typical	8.438	28.155	28.155	1.582
27	TWR_HORZ_T5	2L3x2-1/2x1/4x3/8	Beam	None	A36	Typical	2.63	3.373	2.35	.055
28	TWR_DIAG_T5	2L2-1/2x2-1/2x1/4x3/8	Column	None	A36	Typical	2.38	3.347	1.41	.049
29	TWR_RED_HORZ_...	L2-1/2x2x3/16	Beam	Single Angle	A36	Typical	.809	.291	.509	.009
30	TWR_RED_DIAG_...	L2-1/2x2-1/2x3/16	Column	Single Angle	A36	Typical	.902	.547	.547	.011
31	TWR_INNER_SUP...	2L2-1/2x2-1/2x3/16x3/8	Beam	None	A36	Typical	1.8	2.499	1.09	.021
32	TWR_INNER_SQ_...	LL2.5x2x3x3	Beam	None	A36	Typical	1.64	1.38	1.02	.021
33	TWR_INNER_COR...	L2X2.5X3	Beam	None	A36	Typical	.809	.509	.291	.009
34	TWR_INNER_TRI...	L2X2.5X3	Beam	None	A36	Typical	.809	.509	.291	.009
35	TWR_INNER_LAD...	L2X2.5X3	Beam	None	A36	Typical	.809	.509	.291	.009
36	TWR_LEG_T6	L6x6x3/4	Column	Single Angle	A36	Typical	8.438	28.155	28.155	1.582
37	TWR_HORZ_T6	2L2-1/2x2-1/2x1/4x3/8	Beam	None	A36	Typical	2.38	3.347	1.41	.049
38	TWR_DIAG_T6	2L2-1/2x2-1/2x1/4x3/8	Column	None	A36	Typical	2.38	3.347	1.41	.049
39	TWR_RED_HORZ_...	L2-1/2x2x3/16	Beam	Single Angle	A36	Typical	.809	.291	.509	.009
40	TWR_RED_DIAG_...	L2-1/2x2-1/2x3/16	Column	Single Angle	A36	Typical	.902	.547	.547	.011
41	TWR_INNER_SUP...	2L2-1/2x2-1/2x3/16x3/8	Beam	None	A36	Typical	1.8	2.499	1.09	.021
42	TWR_INNER_SQ_...	LL2.5x2x3x3	Beam	None	A36	Typical	1.64	1.38	1.02	.021
43	TWR_INNER_COR...	L2X2.5X3	Beam	None	A36	Typical	.809	.509	.291	.009
44	TWR_INNER_TRI...	L2X2.5X3	Beam	None	A36	Typical	.809	.509	.291	.009
45	TWR_INNER_LAD...	L2X2.5X3	Beam	None	A36	Typical	.809	.509	.291	.009
46	TWR_LEG_T7	L6x6x7/8	Column	Single Angle	A36	Typical	9.734	31.917	31.917	2.484
47	TWR_HORZ_T7	2L2-1/2x2-1/2x1/4x3/8	Beam	None	A36	Typical	2.38	3.347	1.41	.049
48	TWR_DIAG_T7	2L2-1/2x2-1/2x1/4x3/8	Column	None	A36	Typical	2.38	3.347	1.41	.049
49	TWR_RED_HORZ_...	L2-1/2x2x3/16	Beam	Single Angle	A36	Typical	.809	.291	.509	.009
50	TWR_RED_DIAG_...	L2-1/2x2-1/2x3/16	Column	Single Angle	A36	Typical	.902	.547	.547	.011



**Hot Rolled Steel Section Sets (Continued)**

	Label	Shape	Type	Design List	Material	Design R...	A [in <sup>2</sup> ]	I <sub>yy</sub> [in <sup>4</sup> ]	I <sub>zz</sub> [in <sup>4</sup> ]	J [in <sup>4</sup> ]
51	TWR_INNER_SUP...	2L2-1/2x2-1/2x3/16x3/8	Beam	None	A36	Typical	1.8	2.499	1.09	.021
52	TWR_INNER_SQ ...	LL2.5x2x3x3	Beam	None	A36	Typical	1.64	1.38	1.02	.021
53	TWR_INNER_COR...	L2X2.5X3	Beam	None	A36	Typical	.809	.509	.291	.009
54	TWR_INNER_BRA...	L2.5x2.5x4	Beam	None	A36	Typical	1.19	.692	.692	.026
55	TWR_INNER_GIRT...	L2X2.5X3	Beam	None	A36	Typical	.809	.509	.291	.009
56	TWR_INNER_TRI...	L2X2.5X3	Beam	None	A36	Typical	.809	.509	.291	.009
57	TWR_INNER_LAD...	L2X2.5X3	Beam	None	A36	Typical	.809	.509	.291	.009
58	TWR_LEG T8	L6x6x7/8	Column	Single Angle	A36	Typical	9.734	31.917	31.917	2.484
59	TWR_HORZ T8	2L2-1/2x2-1/2x1/4x3/8	Beam	None	A36	Typical	2.38	3.347	1.41	.049
60	TWR_DIAG T8	2L2-1/2x2-1/2x1/4x3/8	Column	None	A36	Typical	2.38	3.347	1.41	.049
61	TWR_RED_HORZ ...	L2-1/2x2x3/16	Beam	Single Angle	A36	Typical	.809	.291	.509	.009
62	TWR_RED_DIAG ...	L2-1/2x2-1/2x3/16	Column	Single Angle	A36	Typical	.902	.547	.547	.011
63	TWR_INNER_SUP...	2L2-1/2x2-1/2x3/16x3/8	Beam	None	A36	Typical	1.8	2.499	1.09	.021
64	TWR_INNER_SQ ...	LL2.5x2x3x3	Beam	None	A36	Typical	1.64	1.38	1.02	.021
65	TWR_INNER_COR...	L2X2.5X3	Beam	None	A36	Typical	.809	.509	.291	.009
66	TWR_INNER_TRI...	L2X2.5X3	Beam	None	A36	Typical	.809	.509	.291	.009
67	TWR_INNER_LAD...	L2X2.5X3	Beam	None	A36	Typical	.809	.509	.291	.009
68	TWR_LEG T9	L8x8x3/4	Column	Single Angle	A36	Typical	11.438	69.738	69.738	2.145
69	TWR_HORZ T9	2L3x2-1/2x1/4x3/8	Beam	None	A36	Typical	2.63	3.373	2.35	.055
70	TWR_DIAG T9	2L2-1/2x2-1/2x1/4x3/8	Column	None	A36	Typical	2.38	3.347	1.41	.049
71	TWR_RED_HORZ ...	L2-1/2x2-1/2x1/4	Beam	Single Angle	A36	Typical	1.188	.703	.703	.025
72	TWR_RED_DIAG ...	L2-1/2x2-1/2x3/16	Column	Single Angle	A36	Typical	.902	.547	.547	.011
73	TWR_INNER_SUP...	2L2-1/2x2-1/2x3/16x3/8	Beam	None	A36	Typical	1.8	2.499	1.09	.021
74	TWR_INNER_SQ ...	LL2.5x2x3x3	Beam	None	A36	Typical	1.64	1.38	1.02	.021
75	TWR_INNER_COR...	L3X3X4	Beam	None	A36	Typical	1.44	1.23	1.23	.031
76	TWR_INNER_BRA...	L2.5x2.5x4	Beam	None	A36	Typical	1.19	.692	.692	.026
77	TWR_INNER_TRI ...	L2.5x2.5x4	Beam	None	A36	Typical	1.19	.692	.692	.026
78	TWR_INNER_LAD...	2L2-1/2x2-1/2x3/16x3/8	Beam	None	A36	Typical	1.8	2.499	1.09	.021
79	TWR_LEG T10	L8x8x7/8	Column	Single Angle	A36	Typical	13.234	79.581	79.581	3.378
80	TWR_HORZ_T10	2L3x2-1/2x1/4x3/8	Beam	None	A36	Typical	2.63	3.373	2.35	.055
81	TWR_DIAG T10	2L3x3x3/8x3/8	Column	None	A36	Typical	4.22	8.394	3.52	.198
82	TWR_RED_HORZ ...	L2-1/2x2x3/16	Beam	None	A36	Typical	.809	.291	.509	.009
83	TWR_RED_HORZ ...	2L2-1/2x2-1/2x1/4x3/8	Beam	None	A36	Typical	2.38	3.347	1.41	.049
84	TWR_RED_DIAG ...	L2-1/2x2-1/2x3/16	Column	Single Angle	A36	Typical	.902	.547	.547	.011
85	TWR_RED_DIAG ...	L3x3-1/2x1/4	Column	Single Angle	A36	Typical	1.563	1.913	1.304	.033
86	TWR_RED_HIP 2 ...	L4x4x3/8	Beam	Single Angle	A36	Typical	2.859	4.359	4.359	.134
87	TWR_RED_HIPDIA...	2L2-1/2x2-1/2x1/4x3/8	Column	None	A36	Typical	2.38	3.347	1.41	.049
88	TWR_INNER_SUP...	L3x3x1/4	Beam	Single Angle	A36	Typical	1.438	1.244	1.244	.03
89	TWR_INNER_SQ ...	2L3x2-1/2x1/4x3/8	Beam	Single Angle	A36	Typical	2.63	3.373	2.35	.055
90	TWR_INNER_COR...	L3x3x1/4	Beam	Single Angle	A36	Typical	1.438	1.244	1.244	.03
91	TWR_INNER_BRA...	L2.5x2.5x3	Beam	Single Angle	A36	Typical	.901	.535	.535	.011
92	TWR_INNER_TRI ...	L2.5x2.5x3	Beam	Single Angle	A36	Typical	.901	.535	.535	.011
93	TWR_INNER_LAD...	L4X4X6	Beam	Single Angle	A36	Typical	2.86	4.32	4.32	.141
94	TWR_LEG T11	L8X8X1 HRA	Column	Single Angle	A36	Typical	15	88.983	88.983	5
95	TWR_HORZ_T11	2L3x3x3/8x3/8	Beam	None	A36	Typical	4.22	8.394	3.52	.198
96	TWR_DIAG T11	2L3x3-1/2x3/8x3/8	Column	None	A36	Typical	4.59	12.838	3.69	.215
97	TWR_RED_HORZ ...	L2-1/2x2-1/2x3/16	Beam	None	A36	Typical	.902	.547	.547	.011
98	TWR_RED_HORZ ...	2L2-1/2x2-1/2x1/4x3/8	Beam	None	A36	Typical	2.38	3.347	1.41	.049
99	TWR_RED_DIAG ...	L2-1/2x2-1/2x3/16	Column	None	A36	Typical	.902	.547	.547	.011
100	TWR_RED_DIAG ...	2L2-1/2x2x1/4x3/8	Column	None	A36	Typical	2.13	1.858	1.31	.044
101	TWR_RED_SUBH...	2L2-1/2x3-1/2x1/4x3/8	Beam	None	A36	Typical	2.88	8.466	1.55	.06
102	TWR_RED_BRAC...	L2.5x2.5x4	Beam	None	A36	Typical	1.19	.692	.692	.026
103	TWR_RED_VERT ...	L3x3x1/4	Beam	None	A36	Typical	1.438	1.244	1.244	.03
104	TWR_RED_HIP 2 ...	L4x4x3/8	Beam	Single Angle	A36	Typical	2.859	4.359	4.359	.134
105	TWR_RED_HIPDIA...	2L2-1/2x2-1/2x1/4x3/8	Column	None	A36	Typical	2.38	3.347	1.41	.049
106	TWR_RED_HIPBR...	L2x2x3	Column	None	A36	Typical	.722	.271	.271	.009
107	TWR_INNER_SUP...	2L3x2-1/2x1/4x3/8	Beam	None	A36	Typical	2.63	3.373	2.35	.055





### Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design R...	A [in <sup>2</sup> ]	Ivy [in <sup>4</sup> ]	Izz [in <sup>4</sup> ]	J [in <sup>4</sup> ]
108	TWR_INNER_SQ...	LL2.5x2.5x4x3	Beam	None	A36	Typical	2.38	3.31	1.38	.052
109	TWR_INNER_COR...	L3.5X3.5X5	Beam	None	A36	Typical	2.1	2.44	2.44	.073
110	TWR_INNER_BRA...	L2.5x2.5x3	Beam	None	A36	Typical	.901	.535	.535	.011
111	TWR_INNER_TRI...	L2.5x2.5x4	Beam	None	A36	Typical	1.19	.692	.692	.026
112	TWR_INNER_LAD...	L2.5x2.5x4	Beam	None	A36	Typical	1.19	.692	.692	.026

### Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Dead	None		-1		60	510	44		
2	No Ice Wind 0 deg	None				60	1230	132		
3	No Ice Wind 45 deg	None				120	1192	176		
4	No Ice Wind 90 deg	None				60	1222	132		
5	No Ice Wind 135 deg	None				120	1196	176		
6	No Ice Wind 180 deg	None				60	1230	132		
7	No Ice Wind 225 deg	None				120	1192	176		
8	No Ice Wind 270 deg	None				60	1222	132		
9	No Ice Wind 315 deg	None				120	1196	176		
10	Ice	None				60	506	440		
11	Temperature Drop	None						396		
12	Ice Wind 0 deg	None				60	1206	124		
13	Ice Wind 45 deg	None				120	1144	176		
14	Ice Wind 90 deg	None				60	1206	132		
15	Ice Wind 135 deg	None				120	1146	136		
16	Ice Wind 180 deg	None				60	1206	124		
17	Ice Wind 225 deg	None				120	1144	176		
18	Ice Wind 270 deg	None				60	1206	132		
19	Ice Wind 315 deg	None				120	1146	136		
20	Service Wind 0 deg	None				60	1182	132		
21	Service Wind 45 deg	None				120	1140	176		
22	Service Wind 90 deg	None				60	1190	132		
23	Service Wind 135 deg	None				120	1146	176		
24	Service Wind 180 deg	None				60	1182	132		
25	Service Wind 225 deg	None				120	1140	176		
26	Service Wind 270 deg	None				60	1190	132		
27	Service Wind 315 deg	None				120	1146	176		

### Load Combinations

	Description	So..P...	S...	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..
1	Dead Only	Yes		1	1	28	1	29	1	0	0	0	0	0	0	0	0
2	1.2 Dead+1.6 Wind 0 de...	Yes		1	1.2	2	1.6	28	1.2	29	1	0	0	0	0	0	0
3	0.9 Dead+1.6 Wind 0 de...	Yes		1	.9	2	1.6	28	.9	29	1	0	0	0	0	0	0
4	1.2 Dead+1.6 Wind 45 d...	Yes		1	1.2	3	1.6	28	1.2	29	1	0	0	0	0	0	0
5	0.9 Dead+1.6 Wind 45 d...	Yes		1	.9	3	1.6	28	.9	29	1	0	0	0	0	0	0
6	1.2 Dead+1.6 Wind 90 d...	Yes		1	1.2	4	1.6	28	1.2	29	1	0	0	0	0	0	0
7	0.9 Dead+1.6 Wind 90 d...	Yes		1	.9	4	1.6	28	.9	29	1	0	0	0	0	0	0
8	1.2 Dead+1.6 Wind 135 ...	Yes		1	1.2	5	1.6	28	1.2	29	1	0	0	0	0	0	0
9	0.9 Dead+1.6 Wind 135 ...	Yes		1	.9	5	1.6	28	.9	29	1	0	0	0	0	0	0
10	1.2 Dead+1.6 Wind 180 ...	Yes		1	1.2	6	1.6	28	1.2	29	1	0	0	0	0	0	0
11	0.9 Dead+1.6 Wind 180 ...	Yes		1	.9	6	1.6	28	.9	29	1	0	0	0	0	0	0
12	1.2 Dead+1.6 Wind 225 ...	Yes		1	1.2	7	1.6	28	1.2	29	1	0	0	0	0	0	0
13	0.9 Dead+1.6 Wind 225 ...	Yes		1	.9	7	1.6	28	.9	29	1	0	0	0	0	0	0
14	1.2 Dead+1.6 Wind 270 ...	Yes		1	1.2	8	1.6	28	1.2	29	1	0	0	0	0	0	0
15	0.9 Dead+1.6 Wind 270 ...	Yes		1	.9	8	1.6	28	.9	29	1	0	0	0	0	0	0
16	1.2 Dead+1.6 Wind 315 ...	Yes		1	1.2	9	1.6	28	1.2	29	1	0	0	0	0	0	0



**Load Combinations (Continued)**

Description	So...	P...	S...	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..
17	0.9 Dead+1.6 Wind 315 ...	Yes		1	.9	9	1.6	28	.9	29	1	0	0	0	0	0
18	1.2 Dead+1.0 Ice+1.0 T...	Yes		1	1.2	10	1	11	1	28	1.2	29	1	0	0	0
19	1.2 Dead+1.0 Wind 0 de...	Yes		1	1.2	12	1	10	1	11	1	28	1.2	29	1	0
20	1.2 Dead+1.0 Wind 45 d...	Yes		1	1.2	13	1	10	1	11	1	28	1.2	29	1	0
21	1.2 Dead+1.0 Wind 90 d...	Yes		1	1.2	14	1	10	1	11	1	28	1.2	29	1	0
22	1.2 Dead+1.0 Wind 135 ...	Yes		1	1.2	15	1	10	1	11	1	28	1.2	29	1	0
23	1.2 Dead+1.0 Wind 180 ...	Yes		1	1.2	16	1	10	1	11	1	28	1.2	29	1	0
24	1.2 Dead+1.0 Wind 225 ...	Yes		1	1.2	17	1	10	1	11	1	28	1.2	29	1	0
25	1.2 Dead+1.0 Wind 270 ...	Yes		1	1.2	18	1	10	1	11	1	28	1.2	29	1	0
26	1.2 Dead+1.0 Wind 315 ...	Yes		1	1.2	19	1	10	1	11	1	28	1.2	29	1	0
27	Dead+Wind 0 deg - Serv...	Yes		1	1	20	1	28	1	29	1	0	0	0	0	0
28	Dead+Wind 45 deg - Se...	Yes		1	1	21	1	28	1	29	1	0	0	0	0	0
29	Dead+Wind 90 deg - Se...	Yes		1	1	22	1	28	1	29	1	0	0	0	0	0
30	Dead+Wind 135 deg - S...	Yes		1	1	23	1	28	1	29	1	0	0	0	0	0
31	Dead+Wind 180 deg - S...	Yes		1	1	24	1	28	1	29	1	0	0	0	0	0
32	Dead+Wind 225 deg - S...	Yes		1	1	25	1	28	1	29	1	0	0	0	0	0
33	Dead+Wind 270 deg - S...	Yes		1	1	26	1	28	1	29	1	0	0	0	0	0
34	Dead+Wind 315 deg - S...	Yes		1	1	27	1	28	1	29	1	0	0	0	0	0

**Envelope Joint Reactions**

Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC	
1	N189	max	24.959	12	204.807	12	18.011	5	0	34	.071	16	0	34
2		min	-18.889	5	-133.06	5	-24.509	12	0	1	-.162	22	0	1
3	N190	max	18.641	17	199.835	8	18.65	17	0	34	.073	13	0	34
4		min	-24.719	8	-137.569	17	-24.471	8	0	1	-.182	20	0	1
5	N191	max	17.986	13	200.342	4	24.917	4	0	34	.068	8	0	34
6		min	-24.229	4	-136.146	13	-19.105	13	0	1	-.161	26	0	1
7	N192	max	24.595	16	206.42	16	25.083	16	0	34	.059	5	0	34
8		min	-18.344	9	-132.628	9	-18.579	9	0	1	-.182	24	0	1
9	Totals:	max	78.308	15	332.712	26	79.124	3						
10		min	-78.308	6	116.464	3	-79.124	10						

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

Member	Shape	Code Check	Lo...	LC	She...	Lo....	LC	phi*Pnc...	phi*Pnt [k]	phi*M...	phi*M....	Eqn			
1	M9	L 3-1/2x3-1/...	.268	7.0...	14	.005	9.66	z	24	17.938	54.675	.918	3.864	1	H2-1
2	M10	L 3-1/2x3-1/...	.270	7.5...	6	.006	9.66	z	23	17.938	54.675	.918	3.864	1	H2-1
3	M11	L 3-1/2x3-1/...	.262	7.0...	10	.005	9.66	z	22	17.938	54.675	.918	3.864	1	H2-1
4	M12	L 3-1/2x3-1/...	.263	7.5...	2	.006	9.66	z	21	17.938	54.675	.918	3.864	1	H2-1
5	M13	L 3-1/2x3-1/...	.266	6.8...	6	.005	9.66	z	20	17.938	54.675	.918	3.864	1	H2-1
6	M14	L 3-1/2x3-1/...	.264	7.5...	14	.006	9.66	z	19	17.938	54.675	.918	3.864	1	H2-1
7	M15	L 3-1/2x3-1/...	.284	6.8...	2	.005	9.66	z	25	17.938	54.675	.918	3.864	1	H2-1
8	M16	L 3-1/2x3-1/...	.284	7.5...	10	.006	9.66	z	25	17.938	54.675	.918	3.864	1	H2-1
9	M29	L3-1/2x3x1/4	.644	10...	14	.006	10...	z	23	12.408	50.625	1.022	3.011	1	H2-1
10	M30	L3-1/2x3x1/4	.644	10...	6	.006	10...	z	22	12.408	50.625	1.022	3.341	1	H2-1
11	M31	L3-1/2x3x1/4	.670	10...	10	.006	10...	z	22	12.408	50.625	1.022	3.011	1	H2-1
12	M32	L3-1/2x3x1/4	.665	10...	2	.006	10...	z	20	12.408	50.625	1.022	3.341	1	H2-1
13	M33	L3-1/2x3x1/4	.666	10...	6	.006	10...	z	20	12.408	50.625	1.022	3.011	1	H2-1
14	M34	L3-1/2x3x1/4	.665	10...	14	.006	10...	z	26	12.408	50.625	1.022	3.341	1	H2-1
15	M35	L3-1/2x3x1/4	.647	10...	2	.006	10...	z	25	12.408	50.625	1.022	3.011	1	H2-1
16	M36	L3-1/2x3x1/4	.649	10...	10	.006	10...	z	25	12.408	50.625	1.022	3.341	1	H2-1
17	M54	L4x3x1/4	.690	10...	14	.006	10...	z	19	12.882	54.675	1.049	3.492	1	H2-1
18	M55	L4x3x1/4	.697	10...	6	.006	10...	z	23	12.882	54.675	1.049	3.874	1	H2-1
19	M56	L4x3x1/4	.716	10...	10	.006	10...	z	22	12.882	54.675	1.049	3.492	1	H2-1
20	M57	L4x3x1/4	.709	10...	2	.006	10...	z	20	12.882	54.675	1.049	3.874	1	H2-1



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

Member	Shape	Code Check	Lo...	LC	She...	Lo....	LC	phi*Pnc...	phi*Pnt [k]	phi*M...	phi*M....	Eqn	
21	M58	L4x3x1/4	.735	10...	6	.006	10...z	20	12.882	54.675	1.049	3.492	H2-1
22	M59	L4x3x1/4	.728	10...	14	.006	10...z	26	12.882	54.675	1.049	3.874	H2-1
23	M60	L4x3x1/4	.698	10...	2	.006	10...z	25	12.882	54.675	1.049	3.492	H2-1
24	M61	L4x3x1/4	.704	10...	10	.006	10...z	21	12.882	54.675	1.049	3.874	H2-1
25	M91	2L2-1/2x2-1/...	.695	8.2...	14	.003	8.2..y	26	20.24	77.112	5.381	2.133	H1-1a
26	M94	2L2-1/2x2-1/...	.710	8.2...	6	.003	8.2..y	20	20.24	77.112	5.381	2.133	H1-1a
27	M98	2L2-1/2x2-1/...	.685	8.2...	10	.004	8.2..y	24	20.24	77.112	5.381	2.133	H1-1a
28	M101	2L2-1/2x2-1/...	.682	8.2...	2	.004	8.2..y	26	20.24	77.112	5.381	2.133	H1-1a
29	M105	2L2-1/2x2-1/...	.700	8.2...	6	.004	8.2..y	22	20.24	77.112	5.381	2.133	H1-1a
30	M108	2L2-1/2x2-1/...	.687	8.2...	14	.004	8.2..y	24	20.24	77.112	5.381	2.133	H1-1a
31	M112	2L2-1/2x2-1/...	.706	8.2...	2	.003	8.2..y	20	20.24	77.112	5.381	2.133	H1-1a
32	M115	2L2-1/2x2-1/...	.708	8.2...	10	.003	8.2..y	22	20.24	77.112	5.381	2.133	H1-1a
33	M128	2L2-1/2x2-1/...	.711	8.5...	14	.004	8.5..y	19	18.729	77.112	5.381	2.133	H1-1a
34	M131	2L2-1/2x2-1/...	.727	8.5...	6	.004	8.5..y	20	18.729	77.112	5.381	2.133	H1-1a
35	M135	2L2-1/2x2-1/...	.702	8.5...	10	.004	8.5..y	26	18.729	77.112	5.381	2.133	H1-1a
36	M138	2L2-1/2x2-1/...	.700	8.5...	2	.004	8.5..y	26	18.729	77.112	5.381	2.133	H1-1a
37	M142	2L2-1/2x2-1/...	.711	8.5...	6	.004	8.5..y	22	18.729	77.112	5.381	2.133	H1-1a
38	M145	2L2-1/2x2-1/...	.694	8.5...	14	.004	8.5..y	23	18.729	77.112	5.381	2.133	H1-1a
39	M149	2L2-1/2x2-1/...	.719	8.5...	2	.004	8.5..y	20	18.729	77.112	5.381	2.133	H1-1a
40	M152	2L2-1/2x2-1/...	.718	8.5...	10	.004	8.5..y	22	18.729	77.112	5.381	2.133	H1-1a
41	M165	2L2-1/2x2-1/...	.806	8.8...	14	.004	8.8..y	26	17.34	77.112	5.381	2.133	H1-1a
42	M168	2L2-1/2x2-1/...	.828	8.8...	6	.004	8.8..y	20	17.34	77.112	5.381	2.133	H1-1a
43	M172	2L2-1/2x2-1/...	.800	8.8...	10	.004	8.8..y	24	17.34	77.112	5.381	2.133	H1-1a
44	M175	2L2-1/2x2-1/...	.789	8.8...	2	.004	8.8..y	26	17.34	77.112	5.381	2.133	H1-1a
45	M179	2L2-1/2x2-1/...	.816	8.8...	6	.004	8.8..y	23	17.34	77.112	5.381	2.133	H1-1a
46	M182	2L2-1/2x2-1/...	.786	8.8...	14	.004	8.8..y	24	17.34	77.112	5.381	2.133	H1-1a
47	M186	2L2-1/2x2-1/...	.825	8.8...	2	.004	8.8..y	20	17.34	77.112	5.381	2.133	H1-1a
48	M189	2L2-1/2x2-1/...	.825	8.8...	10	.004	8.8..y	22	17.34	77.112	5.381	2.133	H1-1a
49	M202	2L2-1/2x2-1/...	.881	9.2...	14	.004	9.2..y	26	16.045	77.112	5.381	2.133	H1-1a
50	M205	2L2-1/2x2-1/...	.907	9.2...	6	.004	9.2..y	20	16.045	77.112	5.381	2.133	H1-1a
51	M209	2L2-1/2x2-1/...	.872	9.2...	10	.004	9.2..y	24	16.045	77.112	5.381	2.133	H1-1a
52	M212	2L2-1/2x2-1/...	.864	9.2...	2	.004	9.2..y	26	16.045	77.112	5.381	2.133	H1-1a
53	M216	2L2-1/2x2-1/...	.886	9.2...	6	.004	9.2..y	22	16.045	77.112	5.381	2.133	H1-1a
54	M219	2L2-1/2x2-1/...	.854	9.2...	14	.004	9.2..y	23	16.045	77.112	5.381	2.133	H1-1a
55	M223	2L2-1/2x2-1/...	.900	9.2...	2	.004	9.2..y	20	16.045	77.112	5.381	2.133	H1-1a
56	M226	2L2-1/2x2-1/...	.899	9.2...	10	.004	9.2..y	22	16.045	77.112	5.381	2.133	H1-1a
57	M239	2L2-1/2x2-1/...	.905	9.5...	14	.004	9.5..y	26	15.651	77.112	5.381	2.133	H1-1a
58	M242	2L2-1/2x2-1/...	.939	9.5...	6	.004	9.5..y	21	15.651	77.112	5.381	2.133	H1-1a
59	M246	2L2-1/2x2-1/...	.909	9.5...	10	.004	9.5..y	25	15.651	77.112	5.381	2.133	H1-1a
60	M249	2L2-1/2x2-1/...	.901	9.5...	2	.004	9.5..y	26	15.651	77.112	5.381	2.133	H1-1a
61	M253	2L2-1/2x2-1/...	.913	9.5...	6	.004	9.5..y	22	15.651	77.112	5.381	2.133	H1-1a
62	M256	2L2-1/2x2-1/...	.885	9.5...	14	.004	9.5..y	24	15.651	77.112	5.381	2.133	H1-1a
63	M260	2L2-1/2x2-1/...	.930	9.5...	2	.004	9.5..y	21	15.651	77.112	5.381	2.133	H1-1a
64	M263	2L2-1/2x2-1/...	.939	9.5...	10	.004	9.5..y	23	15.651	77.112	5.381	2.133	H1-1a
65	M276	2L3x3x3/8x3/8	.593	19...	14	.002	19...y	25	35.431	136.728	11.376	4.498	H1-1a
66	M281	2L3x3x3/8x3/8	.614	19...	6	.003	19...y	21	35.431	136.728	11.376	4.498	H1-1a
67	M287	2L3x3x3/8x3/8	.591	19...	10	.003	19...y	24	35.431	136.728	11.376	4.498	H1-1a
68	M292	2L3x3x3/8x3/8	.587	19...	2	.003	19...y	19	35.431	136.728	11.376	4.498	H1-1a
69	M300	2L3x3x3/8x3/8	.593	19...	6	.003	19...y	21	35.431	136.728	11.376	4.498	H1-1a
70	M305	2L3x3x3/8x3/8	.573	19...	14	.003	19...y	25	35.431	136.728	11.376	4.498	H1-1a
71	M313	2L3x3x3/8x3/8	.608	19...	2	.002	19...y	26	35.431	136.728	11.376	4.498	H1-1a
72	M318	2L3x3x3/8x3/8	.611	19...	10	.003	19...y	24	35.431	136.728	11.376	4.498	H1-1a
73	M337	2L3x3-1/2x3/...	.480	0	14	.005	15...y	10	48.209	148.716	15.04	4.593	H1-1a
74	M342	2L3x3-1/2x3/...	.495	0	6	.005	15...y	10	48.209	148.716	15.04	4.593	H1-1a
75	M349	2L3x3-1/2x3/...	.482	0	10	.005	15...y	6	48.209	148.716	15.04	4.593	H1-1a
76	M354	2L3x3-1/2x3/...	.479	0	2	.005	15...y	6	48.209	148.716	15.04	4.593	H1-1a
77	M363	2L3x3-1/2x3/...	.480	0	6	.005	15...y	2	48.209	148.716	15.04	4.593	H1-1a



Company : GPD  
 Designer : J. Stokes  
 Job Number : 2019723.01.SNET025.12  
 Model Name : 27016 SHELTON EAST CENTRAL

Jan 28, 2019  
 12:05 PM  
 Checked By: \_\_\_\_\_

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

Member	Shape	Code Check	Lo...	LC	She...	Lo.....	LC	phi*Pnc...	phi*Pnt [k]	phi*M...	phi*M.....	Egn		
78	M368	2L3x3-1/2x3/...	.465	0	14	.005	15...y	2	48.209	148.716	15.04	4.593	1	H1-1a
79	M377	2L3x3-1/2x3/...	.496	0	2	.006	15...y	14	48.209	148.716	15.04	4.593	1	H1-1a
80	M382	2L3x3-1/2x3/...	.499	0	10	.005	15...y	14	48.209	148.716	15.04	4.593	1	H1-1a
81	M90	2L3x2-1/2x1/...	.198	0	6	.006	9.8...y	24	40.651	85.212	5.423	4.855	1	H1-...
82	M97	2L3x2-1/2x1/...	.191	0	3	.007	9.8...y	23	40.651	85.212	5.423	4.855	1	H1-...
83	M104	2L3x2-1/2x1/...	.196	9.8...	6	.006	9.8...y	25	40.651	85.212	5.423	3.034	1	H1-...
84	M111	2L3x2-1/2x1/...	.197	9.8...	3	.006	9.8...y	24	40.651	85.212	5.423	3.034	1	H1-...
85	M127	2L2-1/2x2-1/...	.439	10...	6	.007	10...y	24	21.014	77.112	5.381	2.133	1	H1-1a
86	M134	2L2-1/2x2-1/...	.433	10...	2	.007	10...y	19	21.014	77.112	5.381	2.133	1	H1-1a
87	M141	2L2-1/2x2-1/...	.439	10...	6	.007	10...y	25	21.014	77.112	5.381	2.133	1	H1-1a
88	M148	2L2-1/2x2-1/...	.434	10...	2	.007	10...y	26	21.014	77.112	5.381	2.133	1	H1-1a
89	M164	2L2-1/2x2-1/...	.603	11...	6	.007	11...y	26	17.698	77.112	5.381	2.133	1	H1-1a
90	M171	2L2-1/2x2-1/...	.586	11...	2	.008	11...y	25	17.698	77.112	5.381	2.133	1	H1-1a
91	M178	2L2-1/2x2-1/...	.612	11...	6	.008	11...y	23	17.698	77.112	5.381	2.133	1	H1-1a
92	M185	2L2-1/2x2-1/...	.616	11...	10	.008	11...y	21	17.698	77.112	5.381	2.133	1	H1-1a
93	M201	2L2-1/2x2-1/...	.733	12...	6	.008	12...y	23	15.084	77.112	5.381	2.133	1	H1-1a
94	M208	2L2-1/2x2-1/...	.710	12...	2	.008	12...y	25	15.084	77.112	5.381	2.133	1	H1-1a
95	M215	2L2-1/2x2-1/...	.723	12...	6	.008	12...y	22	15.084	77.112	5.381	2.133	1	H1-1a
96	M222	2L2-1/2x2-1/...	.729	12...	10	.008	12...y	25	15.084	77.112	5.381	2.133	1	H1-1a
97	M238	2L3x2-1/2x1/...	.544	13...	6	.008	13...y	24	21.715	85.212	5.423	3.034	1	H1-1a
98	M245	2L3x2-1/2x1/...	.537	13...	2	.008	13...y	23	21.715	85.212	5.423	3.034	1	H1-1a
99	M252	2L3x2-1/2x1/...	.546	13...	6	.008	13...y	21	21.715	85.212	5.423	3.034	1	H1-1a
100	M259	2L3x2-1/2x1/...	.546	13...	10	.008	13...y	26	21.715	85.212	5.423	3.034	1	H1-1a
101	M275	2L3x2-1/2x1/...	.659	14...	6	.008	14...y	23	19.415	85.212	5.423	3.034	1	H1-1a
102	M286	2L3x2-1/2x1/...	.650	14...	2	.009	14...y	22	19.415	85.212	5.423	3.034	1	H1-1a
103	M299	2L3x2-1/2x1/...	.659	14...	6	.009	14...y	19	19.415	85.212	5.423	3.034	1	H1-1a
104	M312	2L3x2-1/2x1/...	.658	14...	10	.008	14...y	25	19.415	85.212	5.423	3.034	1	H1-1a
105	M336	2L3x3x3/8x3/8	.272	16...	6	.005	8.1...y	24	51.173	136.728	11.376	4.498	...	H1-1a
106	M348	2L3x3x3/8x3/8	.259	16...	2	.005	24...y	20	51.173	136.728	11.376	4.498	...	H1-1a
107	M362	2L3x3x3/8x3/8	.263	16...	6	.005	8.1...y	20	51.173	136.728	11.376	4.498	...	H1-1a
108	M376	2L3x3x3/8x3/8	.274	16...	10	.005	24...y	24	51.173	136.728	11.376	4.498	...	H1-1a
109	M490	L2.5x2.5x4	.022	2.9...	19	.002	0 y	6	12.752	38.556	1.114	2.159	1	H2-1
110	M491	L2.5x2.5x4	.022	2.9...	25	.002	0 y	10	12.752	38.556	1.114	2.159	1	H2-1
111	M466	L2.5x2.5x4	.029	3.3...	26	.002	0 y	14	9.505	38.556	1.114	2.076	1	H2-1
112	M467	L2.5x2.5x4	.029	3.3...	22	.002	0 y	10	9.505	38.556	1.114	2.076	1	H2-1
113	M468	L2.5x2.5x4	.029	3.3...	23	.002	0 y	2	9.505	38.556	1.114	2.076	1	H2-1
114	M469	L2.5x2.5x4	.029	3.3...	26	.002	0 y	6	9.505	38.556	1.114	2.076	1	H2-1
115	M452	L2.5x2.5x3	.037	3.6...	25	.002	7.2...y	6	6.307	29.192	.873	1.42	1	H2-1
116	M453	L2.5x2.5x3	.037	3.6...	22	.003	7.2...y	2	6.307	29.192	.873	1.42	1	H2-1
117	M454	L2.5x2.5x3	.037	3.6...	26	.003	7.2...y	6	6.307	29.192	.873	1.42	1	H2-1
118	M455	L2.5x2.5x3	.037	3.6...	24	.002	7.2...y	2	6.307	29.192	.873	1.42	1	H2-1
119	M420	L2.5x2.5x3	.044	4.07	26	.002	8.1...y	22	4.957	29.192	.873	1.352	1	H2-1
120	M421	L2.5x2.5x3	.044	4.07	22	.002	8.1...y	23	4.957	29.192	.873	1.352	1	H2-1
121	M422	L2.5x2.5x3	.044	4.07	26	.002	8.1...y	25	4.957	29.192	.873	1.352	1	H2-1
122	M423	L2.5x2.5x3	.044	4.07	22	.002	8.1...y	26	4.957	29.192	.873	1.352	1	H2-1
123	M530	L2.5x2.5x3	.013	0	8	.001	5.6...y	12	10.337	29.192	.873	1.609	...	H2-1*
124	M531	L2.5x2.5x3	.016	0	12	.001	0 y	8	10.337	29.192	.873	1.609	...	H2-1*
125	M532	L2.5x2.5x3	.013	0	16	.001	5.6...y	12	10.337	29.192	.873	1.609	...	H2-1*
126	M512	L2X2.5X3	.043	0	8	.002	0 y	4	4.806	26.198	1.609	.704	...	H2-1*
127	M513	L2X2.5X3	.049	0	12	.002	0 y	8	4.806	26.198	1.609	.704	...	H2-1*
128	M514	L2X2.5X3	.042	0	17	.002	0 y	4	4.806	26.198	1.609	.704	...	H2-1*
129	M502	L2X2.5X3	.066	0	8	.002	0 y	4	4.016	26.198	1.609	.704	...	H2-1*
130	M503	L2X2.5X3	.074	0	12	.002	0 y	8	4.016	26.198	1.609	.704	...	H2-1*
131	M504	L2X2.5X3	.065	0	16	.002	0 y	4	4.016	26.198	1.609	.704	...	H2-1*
132	M487	L2X2.5X3	.057	0	8	.003	0 y	12	3.405	26.198	1.609	.704	...	H2-1*
133	M488	L2X2.5X3	.062	0	13	.003	0 y	16	3.405	26.198	1.609	.704	...	H2-1*
134	M489	L2X2.5X3	.055	0	17	.003	8.2...y	4	3.405	26.198	1.609	.704	...	H2-1*



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

Member	Shape	Code Check	Lo...	LC	She...	Lo....	LC	phi*Pnc...	phi*Pnt [k]	phi*M...	phi*M....	Eqn			
135	M477	L2X2.5X3	.061	0	8	.003	0	y	4	2.924	26.198	1.609	.704	...	H2-1*
136	M478	L2X2.5X3	.067	0	12	.003	0	y	8	2.924	26.198	1.609	.704	...	H2-1*
137	M479	L2X2.5X3	.059	0	16	.003	0	y	4	2.924	26.198	1.609	.704	...	H2-1*
138	M463	L3X3X4	.045	0	12	.002	0	y	8	8.472	46.656	1.688	2.845	...	H2-1*
139	M464	L3X3X4	.043	0	8	.002	0	y	4	8.472	46.656	1.688	2.845	...	H2-1*
140	M465	L3X3X4	.042	0	17	.002	0	y	12	8.472	46.656	1.688	2.845	...	H2-1*
141	M449	L3x3x1/4	.050	0	8	.003	0	y	4	7.598	46.575	.67	2.794	...	H2-1*
142	M450	L3x3x1/4	.051	0	13	.003	0	y	8	7.598	46.575	.67	2.794	...	H2-1*
143	M451	L3x3x1/4	.049	0	17	.003	0	y	4	7.598	46.575	.67	2.794	...	H2-1*
144	M417	L3.5X3.5X5	.030	0	8	.003	11...	y	4	11.667	68.04	2.882	4.898	...	H2-1*
145	M418	L3.5X3.5X5	.032	0	13	.003	11...	y	8	11.667	68.04	2.882	4.898	...	H2-1*
146	M419	L3.5X3.5X5	.030	0	17	.003	11...	y	4	11.667	68.04	2.882	4.898	...	H2-1*
147	M492	L2X2.5X3	.035	2.9...	21	.002	5.8...	y	24	6.81	26.198	1.609	.644	1	H2-1
148	M493	L2X2.5X3	.045	2.9...	22	.002	0	y	26	6.81	26.198	1.609	.644	1	H2-1
149	M494	L2X2.5X3	.045	2.9...	23	.002	5.8...	y	26	6.81	26.198	1.609	.644	1	H2-1
150	M535	L2X2.5X3	.115	4	20	.002	8	y	16	3.619	26.198	1.609	.627	1	H2-1
151	M517	L2X2.5X3	.232	4	6	.002	0	y	8	3.619	26.198	1.609	.627	1	H2-1
152	M507	L2X2.5X3	.336	4	6	.002	8	y	8	3.619	26.198	1.609	.627	1	H2-1
153	M497	L2X2.5X3	.297	4	6	.002	0	y	16	3.619	26.198	1.609	.627	1	H2-1
154	M482	L2X2.5X3	.313	4	6	.002	0	y	8	3.619	26.198	1.609	.627	1	H2-1
155	M472	2L2-1/2x2-1/...	.049	0	6	.002	0	y	16	26.081	58.32	4.017	2.611	1	H1-...
156	M458	L4X4X6	.057	4	6	.002	0	y	16	41.657	92.664	4.398	8.566	1	H2-1
157	M426	L2.5x2.5x4	.209	4	6	.002	0	y	16	6.777	38.556	1.114	1.972	1	H2-1
158	M526	L3X2.5X4	.045	3.9...	16	.002	7.9...	y	12	8.813	42.768	1.251	2.172	1	H2-1
159	M527	L3X2.5X4	.045	3.9...	8	.002	7.9...	y	12	8.813	42.768	1.251	2.172	1	H2-1
160	M528	L3X2.5X4	.045	3.9...	14	.001	7.9...	y	6	8.813	42.768	1.251	2.172	1	H2-1
161	M529	L3X2.5X4	.045	3.9...	10	.001	7.9...	y	19	8.813	42.768	1.251	2.172	1	H2-1
162	M508	LL2.5x2x3x3	.043	4.9...	14	.002	0	z	2	16.604	53.136	2.725	2.524	1	H1-1b
163	M509	LL2.5x2x3x3	.043	4.9...	10	.002	0	z	6	16.604	53.136	2.725	2.524	1	H1-1b
164	M510	LL2.5x2x3x3	.041	4.9...	14	.002	0	z	10	16.604	53.136	2.725	2.524	1	H1-1b
165	M511	LL2.5x2x3x3	.041	4.9...	10	.002	0	z	14	16.604	53.136	2.725	2.524	1	H1-1b
166	M498	LL2.5x2x3x3	.059	5.37	14	.003	0	z	2	13.873	53.136	2.725	2.524	1	H1-1b
167	M499	LL2.5x2x3x3	.059	5.37	10	.003	0	z	6	13.873	53.136	2.725	2.524	1	H1-1b
168	M500	LL2.5x2x3x3	.052	5.37	14	.003	0	z	10	13.873	53.136	2.725	2.524	1	H1-1b
169	M501	LL2.5x2x3x3	.052	5.37	10	.003	0	z	14	13.873	53.136	2.725	2.524	1	H1-1b
170	M483	LL2.5x2x3x3	.095	5.8...	24	.003	0	z	6	11.764	53.136	2.725	2.524	1	H1-1b
171	M484	LL2.5x2x3x3	.091	5.8...	21	.003	11...	z	2	11.764	53.136	2.725	2.524	1	H1-1b
172	M485	LL2.5x2x3x3	.056	5.8...	2	.003	0	z	14	11.764	53.136	2.725	2.524	1	H1-1b
173	M486	LL2.5x2x3x3	.068	5.8...	12	.003	0	z	2	11.764	53.136	2.725	2.524	1	H1-1b
174	M473	LL2.5x2x3x3	.085	6.2...	12	.003	12...	z	2	10.1	53.136	2.725	2.524	1	H1-1b
175	M474	LL2.5x2x3x3	.087	6.2...	12	.003	12...	z	6	10.1	53.136	2.725	2.524	1	H1-1b
176	M475	LL2.5x2x3x3	.069	6.2...	6	.003	12...	z	10	10.1	53.136	2.725	2.524	1	H1-1b
177	M476	LL2.5x2x3x3	.068	6.2...	2	.003	12...	z	14	10.1	53.136	2.725	2.524	1	H1-1b
178	M459	LL2.5x2x3x3	.122	6.7...	12	.004	13...	z	2	10.465	53.136	2.725	1.577	1	H1-1b
179	M460	LL2.5x2x3x3	.126	6.7...	12	.004	0	z	6	10.465	53.136	2.725	1.577	1	H1-1b
180	M461	LL2.5x2x3x3	.102	6.7...	6	.004	13...	z	10	10.465	53.136	2.725	1.577	1	H1-1b
181	M462	LL2.5x2x3x3	.101	6.7...	2	.004	0	z	14	10.465	53.136	2.725	1.577	1	H1-1b
182	M441	2L3x2-1/2x1/...	.107	7.2...	22	.004	14...	z	14	22.832	85.212	5.423	3.034	1	H1-1b
183	M442	2L3x2-1/2x1/...	.107	7.2...	26	.004	0	z	10	22.832	85.212	5.423	3.034	1	H1-1b
184	M443	2L3x2-1/2x1/...	.108	7.2...	24	.004	14...	z	6	22.832	85.212	5.423	3.034	1	H1-1b
185	M444	2L3x2-1/2x1/...	.108	7.2...	24	.004	0	z	2	22.832	85.212	5.423	3.034	1	H1-1b
186	M409	LL2.5x2.5x4x3	.112	8.1...	22	.004	16...	z	14	18.589	77.112	5.321	2.083	1	H1-1b
187	M410	LL2.5x2.5x4x3	.112	8.1...	26	.004	16...	z	2	18.589	77.112	5.321	2.083	1	H1-1b
188	M411	LL2.5x2.5x4x3	.113	8.1...	24	.004	16...	z	6	18.589	77.112	5.321	2.083	1	H1-1b
189	M412	LL2.5x2.5x4x3	.113	8.1...	24	.004	0	z	2	18.589	77.112	5.321	2.083	1	H1-1b
190	M49	2L2-1/2x2x3/...	.218	5.6...	25	.010	11...	z	24	14.219	52.397	2.723	1.582	1	H1-1b
191	M50	2L2-1/2x2x3/...	.196	5.6...	20	.010	0	z	26	14.219	52.397	2.723	1.582	1	H1-1b



Company : GPD  
 Designer : J. Stokes  
 Job Number : 2019723.01.SNET025.12  
 Model Name : 27016 SHELTON EAST CENTRAL

Jan 28, 2019  
 12:05 PM  
 Checked By: \_\_\_\_\_

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

Member	Shape	Code Check	Lo...	LC	She...	Lo....	LC	phi*Pnc...	phi*Pnt [k]	phi*M...	phi*M....	Egn			
192	M51	2L2-1/2x2x3/...	.218	5.6...	25	.010	0	z	24	14.219	52.397	2.723	1.582	1	H1-1b
193	M52	2L2-1/2x2x3/...	.191	5.6...	21	.010	0	z	26	14.219	52.397	2.723	1.582	1	H1-1b
194	M118	2L2-1/2x2-1/...	.239	6.9...	24	.011	13...	z	24	18.665	58.32	4.017	1.632	1	H1-1b
195	M119	2L2-1/2x2-1/...	.208	6.9...	20	.011	13...	z	22	18.665	58.32	4.017	1.632	1	H1-1b
196	M120	2L2-1/2x2-1/...	.239	6.9...	24	.011	0	z	24	18.665	58.32	4.017	1.632	1	H1-1b
197	M121	2L2-1/2x2-1/...	.206	6.9...	20	.011	13...	z	22	18.665	58.32	4.017	1.632	1	H1-1b
198	M155	2L2-1/2x2-1/...	.268	7.5...	24	.011	15...	z	24	15.733	58.32	4.017	1.632	1	H1-1b
199	M156	2L2-1/2x2-1/...	.242	7.5...	20	.012	15...	z	22	15.733	58.32	4.017	1.632	1	H1-1b
200	M157	2L2-1/2x2-1/...	.268	7.5...	24	.011	0	z	23	15.733	58.32	4.017	1.632	1	H1-1b
201	M158	2L2-1/2x2-1/...	.239	7.5...	20	.011	15...	z	22	15.733	58.32	4.017	1.632	1	H1-1b
202	M192	2L2-1/2x2-1/...	.310	8.2...	24	.012	16...	z	24	13.428	58.32	4.017	1.632	1	H1-1b
203	M193	2L2-1/2x2-1/...	.293	8.2...	20	.013	16...	z	22	13.428	58.32	4.017	1.632	1	H1-1b
204	M194	2L2-1/2x2-1/...	.342	8.2...	24	.013	0	z	23	13.428	58.32	4.017	1.632	1	H1-1b
205	M195	2L2-1/2x2-1/...	.295	8.2...	20	.013	0	z	21	13.428	58.32	4.017	1.632	1	H1-1b
206	M229	2L2-1/2x2-1/...	.355	8.9	24	.013	17.8	z	25	11.811	58.32	4.017	1.632	1	H1-1b
207	M230	2L2-1/2x2-1/...	.331	8.9	24	.013	0	z	22	11.811	58.32	4.017	2.611	1	H1-1b
208	M231	2L2-1/2x2-1/...	.355	8.9	24	.013	0	z	24	11.811	58.32	4.017	1.632	1	H1-1b
209	M232	2L2-1/2x2-1/...	.325	8.9	24	.013	17.8	z	23	11.811	58.32	4.017	2.611	1	H1-1b
210	M266	2L2-1/2x2-1/...	.426	9.5...	24	.015	19...	z	25	10.292	58.32	4.017	1.632	1	H1-1b
211	M267	2L2-1/2x2-1/...	.403	9.5...	24	.015	0	z	22	10.292	58.32	4.017	2.611	1	H1-1b
212	M268	2L2-1/2x2-1/...	.426	9.5...	24	.015	0	z	24	10.292	58.32	4.017	1.632	1	H1-1b
213	M269	2L2-1/2x2-1/...	.397	9.5...	24	.014	19...	z	23	10.292	58.32	4.017	2.611	1	H1-1b
214	M327	L3x3x1/4	.144	0	14	.008	10...	z	24	7.598	46.575	.67	2.658	1	H2-1
215	M328	L3x3x1/4	.149	0	10	.008	10...	z	20	7.598	46.575	.67	2.658	1	H2-1
216	M329	L3x3x1/4	.148	20...	10	.008	10...	z	24	7.598	46.575	.67	2.658	1	H2-1
217	M330	L3x3x1/4	.116	20...	6	.008	10...	z	21	7.598	46.575	.67	2.658	1	H2-1
218	M392	2L3x2-1/2x1/...	.121	11...	23	.007	11...	z	21	27.824	85.212	5.423	3.034	1	H1-1b
219	M393	2L3x2-1/2x1/...	.076	11...	20	.007	11...	z	19	27.824	85.212	5.423	4.855	1	H1-1b
220	M394	2L3x2-1/2x1/...	.122	11...	25	.007	11...	z	25	27.824	85.212	5.423	3.034	1	H1-1b
221	M395	2L3x2-1/2x1/...	.078	11...	24	.007	11...	z	23	27.824	85.212	5.423	4.855	1	H1-1b
222	M533	L2X2.5X3	.013	2.1...	4	.001	0	y	10	12.015	26.198	1.609	.655	1	H2-1
223	M534	L2X2.5X3	.013	2.1...	4	.001	0	y	14	12.015	26.198	1.609	.655	1	H2-1
224	M515	L2X2.5X3	.054	2.4...	12	.002	4.9...	y	22	9.396	26.198	1.609	.651	1	H2-1
225	M516	L2X2.5X3	.055	2.4...	12	.002	0	y	26	9.396	26.198	1.609	.651	1	H2-1
226	M505	L2X2.5X3	.078	2.6...	12	.002	0	y	20	8.008	26.198	1.609	.648	1	H2-1
227	M506	L2X2.5X3	.078	2.6...	12	.002	5.3...	y	20	8.008	26.198	1.609	.648	1	H2-1
228	M495	L2X2.5X3	.110	2.9...	12	.002	0	y	20	6.805	26.198	1.609	.644	1	H2-1
229	M496	L2X2.5X3	.110	2.9...	12	.002	5.8...	y	20	6.805	26.198	1.609	.644	1	H2-1
230	M480	L2X2.5X3	.138	3.1...	12	.002	6.3...	y	20	5.79	26.198	1.609	.641	1	H2-1
231	M481	L2X2.5X3	.138	3.1...	12	.002	6.3...	y	20	5.79	26.198	1.609	.641	1	H2-1
232	M470	L2.5x2.5x4	.119	3.4...	12	.002	6.8...	y	12	9.262	38.556	1.114	2.068	1	H2-1
233	M471	L2.5x2.5x4	.119	3.4...	12	.002	0	y	12	9.262	38.556	1.114	2.068	1	H2-1
234	M456	L2.5x2.5x3	.195	3.6...	12	.002	7.3...	y	12	6.025	29.192	.873	1.407	1	H2-1
235	M457	L2.5x2.5x3	.195	3.6...	12	.002	7.3...	y	12	6.025	29.192	.873	1.407	1	H2-1
236	M424	L2.5x2.5x4	.185	4.2...	12	.003	0	y	20	5.989	38.556	1.114	1.932	1	H2-1
237	M425	L2.5x2.5x4	.185	4.2...	12	.003	0	y	20	5.989	38.556	1.114	1.932	1	H2-1
238	M1	L6x6x1/2	.086	1.7...	24	.053	12...	z	2	145.933	186.3	5.356	28.731	1	H2-1
239	M2	L6x6x1/2	.089	1.1...	22	.047	12...	z	14	145.933	186.3	5.356	28.731	1	H2-1
240	M3	L6x6x1/2	.089	1.5...	20	.047	12...	y	14	145.933	186.3	5.356	28.731	1	H2-1
241	M4	L6x6x1/2	.089	2.4...	26	.053	12...	y	10	145.933	186.3	5.356	28.731	1	H2-1
242	M21	L6x6x1/2	.149	3.1...	24	.008	12...	y	6	146.506	186.3	5.356	28.772	1	H2-1
243	M22	L6x6x1/2	.156	2.7...	22	.011	12...	y	2	146.506	186.3	5.356	28.772	1	H2-1
244	M23	L6x6x1/2	.163	3.5...	20	.011	12...	z	10	146.506	186.3	5.356	28.772	1	H2-1
245	M24	L6x6x1/2	.154	3.7...	26	.011	12...	z	6	146.506	186.3	5.356	28.772	1	H2-1
246	M41	L6x6x5/8	.203	7.8...	12	.007	12...	z	2	181.223	230.344	6.62	36.329	1	H2-1
247	M42	L6x6x5/8	.195	7.8...	8	.005	12...	y	2	181.223	230.344	6.62	36.329	1	H2-1
248	M43	L6x6x5/8	.197	7.8...	4	.007	12...	y	14	181.223	230.344	6.62	36.329	1	H2-1



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

Member	Shape	Code Check	Lo...	LC	She...	Lo...	LC	phi*Pnc...	phi*Pnt [k]	phi*M...	phi*M...	Eqn
249	M44	L6x6x5/8	.203	7.8...	16	.007	12...z	6	181.223	230.344	6.62	36.329 1 H2-1
250	M66	L6x6x5/8	.286	2.88	12	.017	12...z	2	181.667	230.344	6.62	36.356 1 H2-1
251	M67	L6x6x5/8	.274	2.88	8	.016	12...z	14	181.667	230.344	6.62	36.356 1 H2-1
252	M68	L6x6x5/8	.274	3.0...	4	.012	12...z	10	181.667	230.344	6.62	36.356 1 H2-1
253	M69	L6x6x5/8	.284	2.7...	16	.016	12...y	10	181.667	230.344	6.62	36.356 1 H2-1
254	M86	L6x6x3/4	.276	3.7...	12	.005	0 y	8	219.956	273.375	7.874	42.663 1 H2-1
255	M87	L6x6x3/4	.266	9.95	8	.005	0 y	4	219.956	273.375	7.874	42.663 1 H2-1
256	M88	L6x6x3/4	.266	9.95	4	.004	0 y	16	219.956	273.375	7.874	42.663 1 H2-1
257	M89	L6x6x3/4	.278	3.7...	16	.004	0 y	12	219.956	273.375	7.874	42.663 1 H2-1
258	M123	L6x6x3/4	.366	3.4...	12	.005	12...y	8	219.956	273.375	7.874	42.663 1 H2-1
259	M124	L6x6x3/4	.351	3.5...	8	.005	12...y	4	219.956	273.375	7.874	42.663 1 H2-1
260	M125	L6x6x3/4	.353	3.5...	4	.005	12...y	16	219.956	273.375	7.874	42.663 1 H2-1
261	M126	L6x6x3/4	.365	3.4...	16	.005	12...y	12	219.956	273.375	7.874	42.663 1 H2-1
262	M160	L6x6x7/8	.445	6.2...	12	.008	12...y	8	253.44	315.394	12.909	48.933 1 H2-1
263	M161	L6x6x7/8	.426	6.2...	8	.006	12...y	4	253.44	315.394	12.909	48.933 1 H2-1
264	M162	L6x6x7/8	.431	6.2...	4	.007	12...y	16	253.44	315.394	12.909	48.933 1 H2-1
265	M163	L6x6x7/8	.452	6.2...	16	.009	12...y	12	253.44	315.394	12.909	48.933 1 H2-1
266	M197	L6x6x7/8	.517	6.2...	12	.006	0 y	8	253.44	315.394	12.909	48.933 1 H2-1
267	M198	L6x6x7/8	.496	6.2...	8	.006	0 y	4	253.44	315.394	12.909	48.933 1 H2-1
268	M199	L6x6x7/8	.500	6.2...	4	.006	0 y	16	253.44	315.394	12.909	48.933 1 H2-1
269	M200	L6x6x7/8	.523	6.2...	16	.006	12...y	12	253.44	315.394	12.909	48.933 1 H2-1
270	M234	L8x8x3/4	.394	9.4...	12	.009	0 y	8	328.455	370.575	14.199	79.541 1 H2-1
271	M235	L8x8x3/4	.380	2.7...	8	.009	0 y	4	328.455	370.575	14.199	79.541 1 H2-1
272	M236	L8x8x3/4	.381	2.7...	4	.008	0 y	16	328.455	370.575	14.199	79.541 1 H2-1
273	M237	L8x8x3/4	.399	9.4...	16	.008	0 y	12	328.455	370.575	14.199	79.541 1 H2-1
274	M271	L8x8x7/8	.419	17...	12	.006	0 y	8	345.459	428.794	16.437	90.618 1 H2-1
275	M272	L8x8x7/8	.404	17...	8	.006	0 z	12	345.459	428.794	16.437	90.618 1 H2-1
276	M273	L8x8x7/8	.405	17...	4	.006	0 y	16	345.459	428.794	16.437	90.618 1 H2-1
277	M274	L8x8x7/8	.422	17...	16	.006	0 z	4	345.459	428.794	16.437	90.618 1 H2-1
278	M332	L8X8X1_HRA	.436	16...	12	.007	16...y	24	391.033	486	18.665	101.1... 1 H2-1
279	M333	L8X8X1_HRA	.419	16...	8	.007	16...z	22	391.033	486	18.665	101.1... 1 H2-1
280	M334	L8X8X1_HRA	.424	16...	4	.006	12...y	4	391.033	486	18.665	101.1... 1 H2-1
281	M335	L8X8X1_HRA	.441	16...	16	.006	16...z	26	391.033	486	18.665	101.1... 1 H2-1
282	M401	L2.5x2.5x4	.123	2.47	22	.001	5.1...y	8	16.194	38.556	1.114	2.224 1 H2-1
283	M402	L2.5x2.5x4	.052	1.3...	22	.001	2.7...y	16	30.324	38.556	1.114	2.505 1 H2-1
284	M403	L2.5x2.5x4	.123	2.47	24	.001	0 y	24	16.194	38.556	1.114	2.224 1 H2-1
285	M404	L2.5x2.5x4	.053	1.3...	24	.001	0 y	20	30.324	38.556	1.114	2.505 1 H2-1
286	M405	L2.5x2.5x4	.121	2.47	20	.002	5.1...y	20	16.194	38.556	1.114	2.224 1 H2-1
287	M406	L2.5x2.5x4	.052	1.3...	20	.001	0 y	24	30.324	38.556	1.114	2.505 1 H2-1
288	M407	L2.5x2.5x4	.124	2.47	26	.001	5.1...y	16	16.194	38.556	1.114	2.224 1 H2-1
289	M408	L2.5x2.5x4	.053	1.3...	26	.001	2.7...y	8	30.324	38.556	1.114	2.505 1 H2-1
290	M280	L3x3-1/2x1/4	.038	0	11	.006	12...z	19	6.974	50.625	1.301	3.568 1 H2-1
291	M285	L3x3-1/2x1/4	.040	1.1...	11	.005	12...z	19	6.974	50.625	1.301	2.891 1 H2-1
292	M291	L3x3-1/2x1/4	.037	0	7	.006	0 z	25	6.974	50.625	1.301	3.568 1 H2-1
293	M296	L3x3-1/2x1/4	.045	1.1...	7	.005	12...z	25	6.974	50.625	1.301	2.891 1 H2-1
294	M304	L3x3-1/2x1/4	.042	0	3	.006	12...z	24	6.974	50.625	1.301	3.568 1 H2-1
295	M309	L3x3-1/2x1/4	.042	1.1...	5	.005	0 z	23	6.974	50.625	1.301	2.891 1 H2-1
296	M317	L3x3-1/2x1/4	.043	0	15	.006	0 z	21	6.974	50.625	1.301	3.568 1 H2-1
297	M322	L3x3-1/2x1/4	.035	1.1...	15	.005	12...z	21	6.974	50.625	1.301	2.891 1 H2-1
298	M341	2L2-1/2x2x1/...	.118	6.6...	26	.005	0 y	25	12.583	69.012	3.669	3.3 1 H1-1b
299	M346	2L2-1/2x2x1/...	.119	6.6...	20	.004	13...y	21	12.583	69.012	3.669	3.3 1 H1-1b
300	M353	2L2-1/2x2x1/...	.117	6.6...	25	.005	0 y	23	12.583	69.012	3.669	3.3 1 H1-1b
301	M358	2L2-1/2x2x1/...	.118	6.6...	25	.004	13...y	19	12.583	69.012	3.669	3.3 1 H1-1b
302	M367	2L2-1/2x2x1/...	.118	6.6...	22	.005	13...y	21	12.583	69.012	3.669	3.3 1 H1-1b
303	M372	2L2-1/2x2x1/...	.119	6.6...	24	.004	13...y	25	12.583	69.012	3.669	3.3 1 H1-1b
304	M381	2L2-1/2x2x1/...	.117	6.6...	21	.005	13...y	19	12.583	69.012	3.669	3.3 1 H1-1b
305	M386	2L2-1/2x2x1/...	.118	6.6...	21	.004	13...y	23	12.583	69.012	3.669	3.3 1 H1-1b



Company : GPD  
 Designer : J. Stokes  
 Job Number : 2019723.01.SNET025.12  
 Model Name : 27016 SHELTON EAST CENTRAL

Jan 28, 2019  
 12:05 PM  
 Checked By: \_\_\_\_\_

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

Member	Shape	Code Check	Lo...	LC	She...	Lo.....	LC	phi*Pnc...	phi*Pnt [k]	phi*M...	phi*M.....	Egn			
306	M93	L2-1/2x2-1/2...	.041	0	9	.004	0	z	25	6.596	29.236	.351	1.426	1	H2-1
307	M96	L2-1/2x2-1/2...	.040	0	11	.004	7.6..	z	21	6.596	29.236	.351	1.426	1	H2-1
308	M100	L2-1/2x2-1/2...	.039	0	5	.004	7.6..	z	23	6.596	29.236	.351	1.426	1	H2-1
309	M103	L2-1/2x2-1/2...	.044	0	7	.004	0	z	19	6.596	29.236	.351	1.426	1	H2-1
310	M107	L2-1/2x2-1/2...	.043	0	17	.004	0	z	21	6.596	29.236	.351	1.426	1	H2-1
311	M110	L2-1/2x2-1/2...	.044	0	5	.004	7.6..	z	25	6.596	29.236	.351	1.426	1	H2-1
312	M114	L2-1/2x2-1/2...	.044	0	13	.004	0	z	19	6.596	29.236	.351	1.426	1	H2-1
313	M117	L2-1/2x2-1/2...	.040	0	17	.004	7.6..	z	23	6.596	29.236	.351	1.426	1	H2-1
314	M130	L2-1/2x2-1/2...	.065	0	10	.004	0	z	24	6.066	29.236	.351	1.402	1	H2-1
315	M133	L2-1/2x2-1/2...	.055	0	11	.004	7.9..	z	22	6.066	29.236	.351	1.402	1	H2-1
316	M137	L2-1/2x2-1/2...	.064	0	6	.004	0	z	22	6.066	29.236	.351	1.402	1	H2-1
317	M140	L2-1/2x2-1/2...	.057	0	7	.004	0	z	20	6.066	29.236	.351	1.402	1	H2-1
318	M144	L2-1/2x2-1/2...	.066	0	2	.004	7.9..	z	20	6.066	29.236	.351	1.402	1	H2-1
319	M147	L2-1/2x2-1/2...	.056	0	5	.004	0	z	26	6.066	29.236	.351	1.402	1	H2-1
320	M151	L2-1/2x2-1/2...	.067	0	12	.004	7.9..	z	26	6.066	29.236	.351	1.402	1	H2-1
321	M154	L2-1/2x2-1/2...	.053	0	15	.004	0	z	24	6.066	29.236	.351	1.402	1	H2-1
322	M167	L2-1/2x2-1/2...	.109	0	10	.004	0	z	19	5.598	29.236	.351	1.379	1	H2-1
323	M170	L2-1/2x2-1/2...	.038	0	11	.004	8.2..	z	22	5.598	29.236	.351	1.379	1	H2-1
324	M174	L2-1/2x2-1/2...	.102	0	6	.004	0	z	25	5.598	29.236	.351	1.379	1	H2-1
325	M177	L2-1/2x2-1/2...	.040	0	7	.004	8.2..	z	20	5.598	29.236	.351	1.379	1	H2-1
326	M181	L2-1/2x2-1/2...	.104	0	2	.004	8.2..	z	19	5.598	29.236	.351	1.379	1	H2-1
327	M184	L2-1/2x2-1/2...	.038	0	3	.004	8.2..	z	26	5.598	29.236	.351	1.379	1	H2-1
328	M188	L2-1/2x2-1/2...	.111	0	14	.004	8.2..	z	25	5.598	29.236	.351	1.379	1	H2-1
329	M191	L2-1/2x2-1/2...	.036	0	15	.004	8.2..	z	24	5.598	29.236	.351	1.379	1	H2-1
330	M204	L2-1/2x2-1/2...	.133	0	10	.004	0	z	19	5.169	29.236	.351	1.355	1	H2-1
331	M207	L2-1/2x2-1/2...	.043	0	11	.004	8.5..	z	22	5.169	29.236	.351	1.355	1	H2-1
332	M211	L2-1/2x2-1/2...	.124	0	6	.004	0	z	26	5.169	29.236	.351	1.355	1	H2-1
333	M214	L2-1/2x2-1/2...	.046	0	7	.004	0	z	24	5.169	29.236	.351	1.355	1	H2-1
334	M218	L2-1/2x2-1/2...	.125	0	2	.004	0	z	20	5.169	29.236	.351	1.355	1	H2-1
335	M221	L2-1/2x2-1/2...	.044	0	3	.004	0	z	26	5.169	29.236	.351	1.355	1	H2-1
336	M225	L2-1/2x2-1/2...	.134	0	14	.004	8.5..	z	22	5.169	29.236	.351	1.355	1	H2-1
337	M228	L2-1/2x2-1/2...	.042	0	15	.004	8.5..	z	24	5.169	29.236	.351	1.355	1	H2-1
338	M241	L2-1/2x2-1/2...	.175	0	8	.005	0	z	21	4.765	29.236	.351	1.33	1	H2-1
339	M244	L2-1/2x2-1/2...	.145	0	13	.005	8.8..	z	23	4.765	29.236	.351	1.33	1	H2-1
340	M248	L2-1/2x2-1/2...	.170	0	4	.005	0	z	19	4.765	29.236	.351	1.33	1	H2-1
341	M251	L2-1/2x2-1/2...	.147	0	8	.005	0	z	24	4.765	29.236	.351	1.33	1	H2-1
342	M255	L2-1/2x2-1/2...	.170	0	16	.005	0	z	21	4.765	29.236	.351	1.33	1	H2-1
343	M258	L2-1/2x2-1/2...	.149	0	4	.005	8.8..	z	19	4.765	29.236	.351	1.33	1	H2-1
344	M262	L2-1/2x2-1/2...	.173	0	12	.005	0	z	23	4.765	29.236	.351	1.33	1	H2-1
345	M265	L2-1/2x2-1/2...	.147	0	17	.005	8.8..	z	25	4.765	29.236	.351	1.33	1	H2-1
346	M279	L2-1/2x2-1/2...	.142	0	11	.003	9.35	z	25	4.666	29.236	.351	1.324	1	H2-1
347	M284	L2-1/2x2-1/2...	.138	0	11	.003	0	z	21	4.666	29.236	.351	1.324	1	H2-1
348	M290	L2-1/2x2-1/2...	.140	0	7	.003	0	z	23	4.666	29.236	.351	1.324	1	H2-1
349	M295	L2-1/2x2-1/2...	.146	0	7	.003	0	z	19	4.666	29.236	.351	1.324	1	H2-1
350	M303	L2-1/2x2-1/2...	.140	0	3	.003	9.35	z	21	4.666	29.236	.351	1.324	1	H2-1
351	M308	L2-1/2x2-1/2...	.144	0	3	.003	0	z	25	4.666	29.236	.351	1.324	1	H2-1
352	M316	L2-1/2x2-1/2...	.146	0	15	.003	9.35	z	19	4.666	29.236	.351	1.324	1	H2-1
353	M321	L2-1/2x2-1/2...	.140	0	15	.003	0	z	23	4.666	29.236	.351	1.324	1	H2-1
354	M340	L2-1/2x2-1/2...	.441	9.6..	12	.003	4.8..	y	24	4.299	29.236	.351	1.298	1	H2-1
355	M345	L2-1/2x2-1/2...	.433	9.4..	8	.004	4.8..	y	22	4.299	29.236	.351	1.298	1	H2-1
356	M352	L2-1/2x2-1/2...	.105	0	9	.004	9.6..	y	22	4.299	29.236	.351	1.298	1	H2-1
357	M357	L2-1/2x2-1/2...	.111	0	5	.004	9.6..	y	20	4.299	29.236	.351	1.298	1	H2-1
358	M366	L2-1/2x2-1/2...	.426	9.6..	4	.003	4.8..	y	20	4.299	29.236	.351	1.298	1	H2-1
359	M371	L2-1/2x2-1/2...	.439	9.5..	16	.004	4.8..	y	26	4.299	29.236	.351	1.298	1	H2-1
360	M380	L2-1/2x2-1/2...	.109	0	17	.004	9.6..	y	26	4.299	29.236	.351	1.298	1	H2-1
361	M385	L2-1/2x2-1/2...	.102	0	13	.004	9.6..	y	24	4.299	29.236	.351	1.298	1	H2-1
362	M427	L2x2x3	.100	3.8..	26	.002	0	y	10	2.911	23.393	.558	.877	1	H2-1





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

Member	Shape	Code Check	Lo...	LC	She...	Lo.....	LC	phi*Pnc...	phi*Pnt [k]	phi*M...	phi*M.....	Eqn			
363	M428	L2x2x3	.050	3.8...	24	.002	0	y	23	2.911	23.393	.558	.877	1	H2-1
364	M429	L2x2x3	.100	3.8...	22	.002	0	y	2	2.911	23.393	.558	.877	1	H2-1
365	M430	L2x2x3	.040	2.7...	26	.002	5.4...	y	4	5.811	23.393	.558	.99	1	H2-1
366	M431	L2x2x3	.040	2.7...	22	.002	5.4...	y	4	5.811	23.393	.558	.99	1	H2-1
367	M432	L2x2x3	.054	4	24	.002	8	y	8	2.678	23.393	.558	.862	1	H2-1
368	M298	2L2-1/2x2-1/...	.090	5.6...	21	.004	0	y	22	16.51	77.112	5.381	3.414	1	H1-1b
369	M311	2L2-1/2x2-1/...	.090	5.6...	19	.004	11...	y	20	16.51	77.112	5.381	3.414	1	H1-1b
370	M324	2L2-1/2x2-1/...	.090	5.6...	24	.004	0	y	26	16.51	77.112	5.381	3.414	1	H1-1b
371	M326	2L2-1/2x2-1/...	.090	5.6...	22	.004	0	y	24	16.51	77.112	5.381	3.414	1	H1-1b
372	M445	2L2-1/2x2-1/...	.034	5.6...	19	.002	0	z	16	16.51	77.112	5.381	3.414	1	H1-1b
373	M446	2L2-1/2x2-1/...	.034	5.6...	21	.002	0	z	12	16.51	77.112	5.381	3.414	1	H1-1b
374	M447	2L2-1/2x2-1/...	.034	5.6...	26	.002	0	z	12	16.51	77.112	5.381	3.414	1	H1-1b
375	M448	2L2-1/2x2-1/...	.034	5.6...	24	.002	11...	z	8	16.51	77.112	5.381	3.414	1	H1-1b
376	M361	2L2-1/2x2-1/...	.100	6.0...	19	.004	12...	y	24	14.698	77.112	5.381	3.414	1	H1-1b
377	M375	2L2-1/2x2-1/...	.099	6.0...	26	.004	12...	y	22	14.698	77.112	5.381	3.414	1	H1-1b
378	M389	2L2-1/2x2-1/...	.100	6.0...	24	.004	12...	y	20	14.698	77.112	5.381	3.414	1	H1-1b
379	M391	2L2-1/2x2-1/...	.100	6.0...	22	.004	12...	y	26	14.698	77.112	5.381	3.414	1	H1-1b
380	M413	2L2-1/2x2-1/...	.060	6.2...	22	.002	12...	y	8	14.698	77.112	5.381	3.414	1	H1-1b
381	M414	2L2-1/2x2-1/...	.061	6.0...	20	.002	0	y	4	14.698	77.112	5.381	3.414	1	H1-1b
382	M415	2L2-1/2x2-1/...	.060	6.0...	26	.002	0	y	16	14.698	77.112	5.381	3.414	1	H1-1b
383	M416	2L2-1/2x2-1/...	.060	6.0...	23	.002	0	y	12	14.698	77.112	5.381	3.414	1	H1-1b
384	M297	L4x4x3/8	.003	0	22	.006	0	z	20	15.028	92.644	1.775	7.349	1	H2-1
385	M310	L4x4x3/8	.003	0	20	.006	0	z	26	15.028	92.644	1.775	7.349	1	H2-1
386	M323	L4x4x3/8	.003	0	26	.006	0	z	24	15.028	92.644	1.775	7.349	1	H2-1
387	M325	L4x4x3/8	.003	0	24	.006	0	z	22	15.028	92.644	1.775	7.349	1	H2-1
388	M360	L4x4x3/8	.003	15...	22	.007	15...	z	24	11.812	92.644	1.775	7.015	1	H2-1
389	M374	L4x4x3/8	.004	0	20	.007	0	z	22	11.812	92.644	1.775	7.015	1	H2-1
390	M388	L4x4x3/8	.003	0	26	.007	15...	z	20	11.812	92.644	1.775	7.015	1	H2-1
391	M390	L4x4x3/8	.005	0	24	.007	15...	z	26	11.812	92.644	1.775	7.015	1	H2-1
392	M278	2L2-1/2x2-1/...	.086	4.8...	26	.005	9.6...	y	24	25.631	77.112	5.381	3.414	1	H1-1b
393	M283	2L2-1/2x2-1/...	.086	4.8...	20	.005	9.6...	y	22	25.631	77.112	5.381	3.414	1	H1-1b
394	M289	2L2-1/2x2-1/...	.085	4.8...	24	.005	9.6...	y	22	25.631	77.112	5.381	3.414	1	H1-1b
395	M294	2L2-1/2x2-1/...	.084	4.8...	26	.005	9.6...	y	20	25.631	77.112	5.381	3.414	1	H1-1b
396	M302	2L2-1/2x2-1/...	.085	4.8...	22	.005	9.6...	y	24	25.631	77.112	5.381	3.414	1	H1-1b
397	M307	2L2-1/2x2-1/...	.085	4.8...	24	.005	9.6...	y	26	25.631	77.112	5.381	3.414	1	H1-1b
398	M315	2L2-1/2x2-1/...	.085	4.8...	20	.005	9.6...	y	26	25.631	77.112	5.381	3.414	1	H1-1b
399	M320	2L2-1/2x2-1/...	.086	4.8...	22	.005	9.6...	y	24	25.631	77.112	5.381	3.414	1	H1-1b
400	M339	2L2-1/2x2-1/...	.106	5.4...	26	.005	0	y	24	19.988	77.112	5.381	3.414	1	H1-1b
401	M344	2L2-1/2x2-1/...	.102	5.4...	20	.005	0	y	22	19.988	77.112	5.381	3.414	1	H1-1b
402	M351	2L2-1/2x2-1/...	.098	5.4...	25	.005	0	y	22	19.988	77.112	5.381	3.414	1	H1-1b
403	M356	2L2-1/2x2-1/...	.123	5.2...	25	.005	0	y	20	19.988	77.112	5.381	3.414	1	H1-1b
404	M365	2L2-1/2x2-1/...	.127	5.6...	22	.005	10...	y	20	19.988	77.112	5.381	3.414	1	H1-1b
405	M370	2L2-1/2x2-1/...	.101	5.4...	24	.005	0	y	26	19.988	77.112	5.381	3.414	1	H1-1b
406	M379	2L2-1/2x2-1/...	.097	5.4...	21	.005	0	y	26	19.988	77.112	5.381	3.414	1	H1-1b
407	M384	2L2-1/2x2-1/...	.103	5.4...	21	.005	0	y	24	19.988	77.112	5.381	3.414	1	H1-1b
408	M92	L2-1/2x2x3/16	.032	0	17	.004	0	z	26	10.615	26.198	.264	1.286	1	H2-1
409	M95	L2-1/2x2x3/16	.031	0	3	.004	0	z	20	10.615	26.198	.264	1.286	1	H2-1
410	M99	L2-1/2x2x3/16	.029	0	15	.004	0	z	24	10.615	26.198	.264	1.286	1	H2-1
411	M102	L2-1/2x2x3/16	.032	0	15	.004	0	z	26	10.615	26.198	.264	1.286	1	H2-1
412	M106	L2-1/2x2x3/16	.032	0	9	.004	0	z	22	10.615	26.198	.264	1.286	1	H2-1
413	M109	L2-1/2x2x3/16	.034	0	13	.004	0	z	24	10.615	26.198	.264	1.286	1	H2-1
414	M113	L2-1/2x2x3/16	.034	0	5	.004	0	z	20	10.615	26.198	.264	1.286	1	H2-1
415	M116	L2-1/2x2x3/16	.032	0	9	.004	0	z	22	10.615	26.198	.264	1.286	1	H2-1
416	M129	L2-1/2x2x3/16	.050	0	3	.004	5.37	z	22	8.835	26.198	.264	1.249	1	H2-1
417	M132	L2-1/2x2x3/16	.045	0	3	.004	5.37	z	20	8.835	26.198	.264	1.249	1	H2-1
418	M136	L2-1/2x2x3/16	.050	0	15	.004	5.37	z	23	8.835	26.198	.264	1.249	1	H2-1
419	M139	L2-1/2x2x3/16	.045	0	15	.004	5.37	z	26	8.835	26.198	.264	1.249	1	H2-1



Company : GPD  
 Designer : J. Stokes  
 Job Number : 2019723.01.SNET025.12  
 Model Name : 27016 SHELTON EAST CENTRAL

Jan 28, 2019  
 12:05 PM  
 Checked By: \_\_\_\_\_

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

Member	Shape	Code Check	Lo...	LC	She...	Lo....	LC	phi*Pnc...	phi*Pnt [k]	phi*M...	phi*M....	Egn			
420	M143	L2-1/2x2x3/16	.050	0	11	.004	5.37	z	25	8.835	26.198	.264	1.249	1	H2-1
421	M146	L2-1/2x2x3/16	.046	0	13	.004	5.37	z	20	8.835	26.198	.264	1.249	1	H2-1
422	M150	L2-1/2x2x3/16	.051	0	5	.004	5.37	z	24	8.835	26.198	.264	1.249	1	H2-1
423	M153	L2-1/2x2x3/16	.045	0	7	.004	5.37	z	22	8.835	26.198	.264	1.249	1	H2-1
424	M166	L2-1/2x2x3/16	.069	0	3	.004	5.8..	z	20	7.439	26.198	.264	1.213	1	H2-1
425	M169	L2-1/2x2x3/16	.035	0	3	.004	5.8..	z	20	7.439	26.198	.264	1.213	1	H2-1
426	M173	L2-1/2x2x3/16	.072	0	15	.004	5.8..	z	26	7.439	26.198	.264	1.213	1	H2-1
427	M176	L2-1/2x2x3/16	.035	0	15	.004	5.8..	z	26	7.439	26.198	.264	1.213	1	H2-1
428	M180	L2-1/2x2x3/16	.071	0	11	.004	5.8..	z	20	7.439	26.198	.264	1.213	1	H2-1
429	M183	L2-1/2x2x3/16	.032	0	11	.004	5.8..	z	24	7.439	26.198	.264	1.213	1	H2-1
430	M187	L2-1/2x2x3/16	.068	0	7	.004	5.8..	z	23	7.439	26.198	.264	1.213	1	H2-1
431	M190	L2-1/2x2x3/16	.032	0	7	.004	5.8..	z	25	7.439	26.198	.264	1.213	1	H2-1
432	M203	L2-1/2x2x3/16	.094	0	3	.004	6.2..	z	26	6.349	26.198	.264	1.179	1	H2-1
433	M206	L2-1/2x2x3/16	.044	0	3	.004	6.2..	z	23	6.349	26.198	.264	1.179	1	H2-1
434	M210	L2-1/2x2x3/16	.098	0	15	.004	6.2..	z	24	6.349	26.198	.264	1.179	1	H2-1
435	M213	L2-1/2x2x3/16	.045	0	15	.004	6.2..	z	25	6.349	26.198	.264	1.179	1	H2-1
436	M217	L2-1/2x2x3/16	.096	0	11	.004	6.2..	z	22	6.349	26.198	.264	1.179	1	H2-1
437	M220	L2-1/2x2x3/16	.042	0	11	.004	6.2..	z	19	6.349	26.198	.264	1.179	1	H2-1
438	M224	L2-1/2x2x3/16	.092	0	7	.004	6.2..	z	20	6.349	26.198	.264	1.179	1	H2-1
439	M227	L2-1/2x2x3/16	.042	0	7	.004	6.2..	z	25	6.349	26.198	.264	1.179	1	H2-1
440	M240	L2-1/2x2-1/2...	.096	0	17	.004	0	z	26	10.917	38.475	.461	2.121	1	H2-1
441	M243	L2-1/2x2-1/2...	.088	0	5	.004	0	z	23	10.917	38.475	.461	2.121	1	H2-1
442	M247	L2-1/2x2-1/2...	.097	0	13	.004	0	z	24	10.917	38.475	.461	2.121	1	H2-1
443	M250	L2-1/2x2-1/2...	.086	0	17	.004	0	z	25	10.917	38.475	.461	2.121	1	H2-1
444	M254	L2-1/2x2-1/2...	.097	0	9	.004	0	z	22	10.917	38.475	.461	2.121	1	H2-1
445	M257	L2-1/2x2-1/2...	.084	0	13	.004	0	z	19	10.917	38.475	.461	2.121	1	H2-1
446	M261	L2-1/2x2-1/2...	.093	0	5	.004	0	z	21	10.917	38.475	.461	2.121	1	H2-1
447	M264	L2-1/2x2-1/2...	.087	0	9	.004	0	z	25	10.917	38.475	.461	2.121	1	H2-1
448	M277	L2-1/2x2x3/16	.053	0	3	.005	0	y	26	11.352	26.198	.264	1.301	1	H2-1
449	M282	L2-1/2x2x3/16	.053	0	3	.006	0	y	20	11.352	26.198	.264	1.301	1	H2-1
450	M288	L2-1/2x2x3/16	.052	0	15	.005	0	y	20	11.352	26.198	.264	1.301	1	H2-1
451	M293	L2-1/2x2x3/16	.053	0	15	.006	0	y	26	11.352	26.198	.264	1.301	1	H2-1
452	M301	L2-1/2x2x3/16	.052	0	11	.005	0	y	26	11.352	26.198	.264	1.301	1	H2-1
453	M306	L2-1/2x2x3/16	.052	0	11	.006	0	y	24	11.352	26.198	.264	1.301	1	H2-1
454	M314	L2-1/2x2x3/16	.053	0	7	.005	0	y	24	11.352	26.198	.264	1.301	1	H2-1
455	M319	L2-1/2x2x3/16	.053	0	7	.006	0	y	22	11.352	26.198	.264	1.301	1	H2-1
456	M338	L2-1/2x2-1/2...	.020	0	4	.005	5.4..	y	20	13.065	29.236	.351	1.609	1	H2-1
457	M343	L2-1/2x2-1/2...	.018	0	16	.005	5.4..	y	21	13.065	29.236	.351	1.609	1	H2-1
458	M350	L2-1/2x2-1/2...	.029	0	16	.005	5.4..	y	26	13.065	29.236	.351	1.609	1	H2-1
459	M355	L2-1/2x2-1/2...	.030	0	12	.005	5.4..	y	20	13.065	29.236	.351	1.609	1	H2-1
460	M364	L2-1/2x2-1/2...	.017	0	12	.005	5.4..	y	25	13.065	29.236	.351	1.609	1	H2-1
461	M369	L2-1/2x2-1/2...	.018	0	8	.005	5.4..	y	26	13.065	29.236	.351	1.609	1	H2-1
462	M378	L2-1/2x2-1/2...	.030	0	8	.005	5.4..	y	22	13.065	29.236	.351	1.609	1	H2-1
463	M383	L2-1/2x2-1/2...	.029	0	4	.005	5.4..	y	24	13.065	29.236	.351	1.609	1	H2-1
464	M347	2L2-1/2x3-1/...	.107	9.0...	23	.005	9.0..	y	25	7.402	93.312	9.918	2.218	1	H1-1b
465	M359	2L2-1/2x3-1/...	.107	9.0...	21	.005	9.0..	y	23	7.402	93.312	9.918	2.218	1	H1-1b
466	M373	2L2-1/2x3-1/...	.107	9.0...	19	.005	9.0..	y	21	7.402	93.312	9.918	2.218	1	H1-1b
467	M387	2L2-1/2x3-1/...	.108	9.0...	25	.005	9.0..	y	19	7.402	93.312	9.918	2.218	1	H1-1b
468	M540	L2.5x2.5x3	.012	3.7...	19	.000	6.7..	y	12	7.302	29.192	.873	1.46	1	H2-1
469	M541	L2.5x2.5x3	.012	3.7...	25	.000	0	y	8	7.302	29.192	.873	1.46	1	H2-1
470	M542	L2.5x2.5x3	.012	3.7...	23	.000	6.7..	y	21	7.302	29.192	.873	1.46	1	H2-1
471	M543	L2.5x2.5x3	.012	3.7...	21	.000	6.7..	y	26	7.302	29.192	.873	1.46	1	H2-1
472	M536	L2.5x2.5x3	.021	3.6...	19	.000	6.6..	y	4	7.422	29.192	.873	1.464	1	H2-1
473	M537	L2.5x2.5x3	.022	3.6...	25	.001	6.6..	y	20	7.422	29.192	.873	1.464	1	H2-1
474	M538	L2.5x2.5x3	.022	3.6...	23	.001	6.6..	y	21	7.422	29.192	.873	1.464	1	H2-1
475	M539	L2.5x2.5x3	.021	3.6...	21	.000	0	y	4	7.422	29.192	.873	1.464	1	H2-1
476	M522	L2.5x2.5x3	.012	3.6...	19	.000	0	y	12	7.516	29.192	.873	1.468	1	H2-1



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

Member	Shape	Code Check	Lo...	LC	She...	Lo.....	LC	phi*Pnc...	phi*Pnt [k]	phi*M...	phi*M.....	Eqn			
477	M523	L2.5x2.5x3	.012	3.6...	25	.000	6.61	y	16	7.516	29.192	.873	1.468	1	H2-1
478	M524	L2.5x2.5x3	.012	3.6...	23	.000	0	y	14	7.516	29.192	.873	1.468	1	H2-1
479	M525	L2.5x2.5x3	.012	3.6...	21	.000	6.61	y	4	7.516	29.192	.873	1.468	1	H2-1
480	M518	L2.5x2.5x3	.879	1.9...	23	.000	6.5...	y	14	7.594	29.192	.873	1.47	1	H2-1
481	M519	L2.5x2.5x3	.862	1.9...	21	.001	0	y	26	7.594	29.192	.873	1.47	1	H2-1
482	M520	L2.5x2.5x3	.865	1.9...	19	.001	0	y	22	7.594	29.192	.873	1.47	1	H2-1
483	M521	L2.5x2.5x3	.883	1.9...	25	.000	6.5...	y	10	7.594	29.192	.873	1.47	1	H2-1
484	M397	L3x3x1/4	.007	12...	23	.000	0	y	14	5.037	46.575	.67	2.421	1	H2-1
485	M398	L3x3x1/4	.007	12...	21	.000	12...	y	19	5.037	46.575	.67	2.421	1	H2-1
486	M399	L3x3x1/4	.007	12...	25	.000	12...	y	2	5.037	46.575	.67	2.421	1	H2-1
487	M400	L3x3x1/4	.007	12...	19	.000	0	y	21	5.037	46.575	.67	2.421	1	H2-1
488	M433	L3x3x1/4	.039	0	22	.001	8.6...	y	6	10.663	46.575	.67	2.836	1	H2-1
489	M434	L3x3x1/4	.039	0	22	.001	0	y	23	10.663	46.575	.67	2.836	1	H2-1
490	M435	L3x3x1/4	.039	0	24	.001	0	y	25	10.663	46.575	.67	2.836	1	H2-1
491	M436	L3x3x1/4	.039	0	24	.001	0	y	10	10.663	46.575	.67	2.836	1	H2-1
492	M437	L3x3x1/4	.039	0	26	.001	0	y	19	10.663	46.575	.67	2.836	1	H2-1
493	M438	L3x3x1/4	.039	0	26	.001	0	y	14	10.663	46.575	.67	2.836	1	H2-1
494	M439	L3x3x1/4	.043	0	20	.001	8.6...	y	21	10.663	46.575	.67	2.836	1	H2-1
495	M440	L3x3x1/4	.043	0	20	.001	0	y	2	10.663	46.575	.67	2.836	1	H2-1
496	M17	L3x2-1/2x1/4	.019	8.4...	25	.005	6.5...	z	24	20.579	42.525	.536	2.498	1	H2-1
497	M18	L3x2-1/2x1/4	.022	8.6...	10	.005	6.5...	z	22	20.579	42.525	.536	2.498	1	H2-1
498	M19	L3x2-1/2x1/4	.018	8.6...	6	.005	6.5...	z	26	20.579	42.525	.536	2.498	1	H2-1
499	M20	L3x2-1/2x1/4	.016	8.4...	19	.005	6.5...	z	24	20.579	42.525	.536	2.498	1	H2-1
500	M37	C6X8.2	.048	0	6	.006	7.4...	y	26	20.619	77.436	2.108	10.347	1	H1-...
501	M38	C6X8.2	.051	7.4...	10	.006	7.4...	y	24	20.619	77.436	2.108	10.347	1	H1-...
502	M39	C6X8.2	.049	7.4...	6	.006	7.4...	y	24	20.619	77.436	2.108	10.347	1	H1-...
503	M40	C6X8.2	.045	0	10	.006	7.4...	y	22	20.619	77.436	2.108	10.347	1	H1-...
504	M62	L3x2-1/2x1/4	.023	0	4	.006	8.4...	z	20	14.249	42.525	.536	2.326	1	H2-1
505	M63	L3x2-1/2x1/4	.025	16...	10	.006	8.4...	z	24	14.249	42.525	.536	2.326	1	H2-1
506	M64	L3x2-1/2x1/4	.030	10...	7	.006	8.4...	z	23	14.249	42.525	.536	2.295	1	H2-1
507	M65	L3x2-1/2x1/4	.025	0	10	.006	8.4...	z	22	14.249	42.525	.536	2.326	1	H2-1
508	M82	L3x2-1/2x1/4	.031	12...	17	.007	9.3...	z	20	12.021	42.525	.536	2.202	1	H2-1
509	M83	L3x2-1/2x1/4	.028	12...	13	.007	9.3...	z	26	12.021	42.525	.536	2.202	1	H2-1
510	M84	L3x2-1/2x1/4	.022	12...	9	.007	9.3...	z	22	12.021	42.525	.536	2.202	1	H2-1
511	M85	L3x2-1/2x1/4	.033	6.6...	9	.007	9.3...	z	20	12.021	42.525	.536	2.202	1	H2-1
512	M5	MC18x58_H...	.019	6.1...	19	.003	0	y	26	202.265	554.04	23.037	198.3...	1	H1-1b
513	M6	MC18x58_H...	.019	6.1...	25	.003	0	y	23	202.265	554.04	23.037	198.3...	1	H1-1b
514	M7	MC18x58_H...	.019	6.1...	23	.003	12...	y	24	202.265	554.04	23.037	198.3...	1	H1-1b
515	M8	MC18x58_H...	.019	6.1...	21	.003	0	y	20	202.265	554.04	23.037	198.3...	1	H1-1b
516	M25	2L3-1/2x3x5/...	.036	10...	23	.003	7.0...	y	21	54.189	125.388	9.481	8.24	1	H1-1b
517	M26	2L3-1/2x3x5/...	.036	10...	21	.003	7.0...	y	23	54.189	125.388	9.481	8.24	1	H1-1b
518	M27	2L3-1/2x3x5/...	.036	10...	19	.003	7.0...	y	21	54.189	125.388	9.481	8.24	1	H1-1b
519	M28	2L3-1/2x3x5/...	.036	10...	25	.003	7.0...	y	23	54.189	125.388	9.481	8.24	1	H1-1b
520	M45	2L3x2-1/2x1/...	.059	7.9...	23	.004	7.9...	y	20	51.046	85.212	5.423	3.034	1	H1-1b
521	M46	2L3x2-1/2x1/...	.100	7.9...	21	.008	10...	z	22	51.046	85.212	5.423	3.034	1	H1-1b
522	M47	2L3x2-1/2x1/...	.100	7.9...	19	.008	5.8...	z	19	51.046	85.212	5.423	3.034	1	H1-1b
523	M48	2L3x2-1/2x1/...	.059	7.9...	25	.004	7.9...	y	23	51.046	85.212	5.423	3.034	1	H1-1b
524	M70	2L3x2-1/2x1/...	.111	8.8...	23	.005	8.8...	y	20	17.249	85.212	5.423	3.034	1	H1-1b
525	M71	2L3x2-1/2x1/...	.112	8.8...	21	.005	8.8...	y	26	17.249	85.212	5.423	3.034	1	H1-1b
526	M72	2L3x2-1/2x1/...	.112	8.8...	19	.005	8.8...	y	22	17.249	85.212	5.423	3.034	1	H1-1b
527	M73	2L3x2-1/2x1/...	.112	8.8...	25	.005	8.8...	y	20	17.249	85.212	5.423	3.034	1	H1-1b

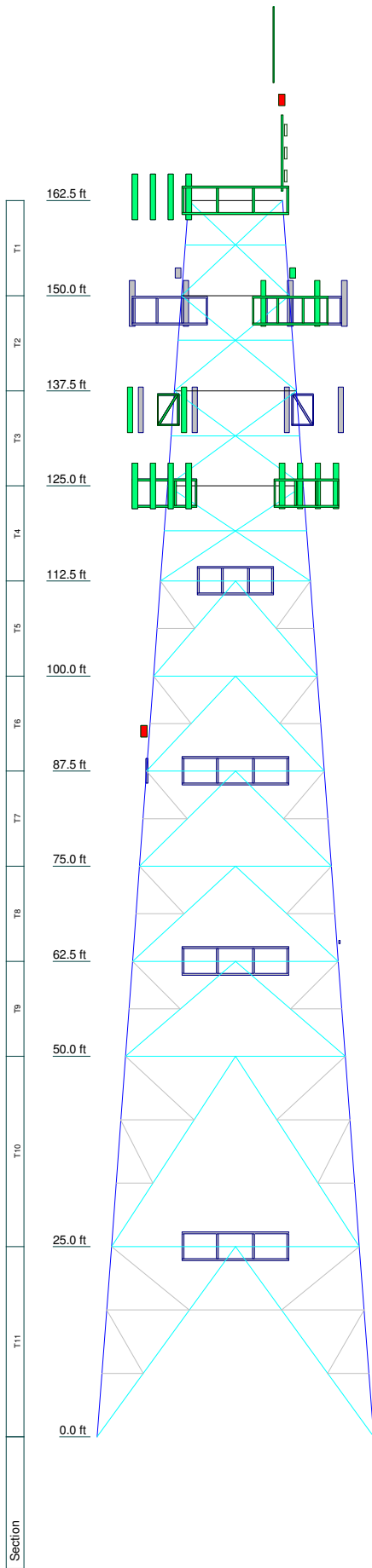
**Bolt Checks**

Section #	Elevation	Component Type	Bolt Grade	Bolt Size (in)	# of Bolts	Maximum Load (k)	Maximum Load per Bolt (k)	Allowable Load per Bolt (k)	Ratio	Allowable Ratio	% Capacity	Criteria
T1	162.5	Diagonal	A307	0.75	5	5.154	1.031	8.946	0.115	1.000	11.5%	Bolt Shear
		Secondary Horizontal	A307	0.75	2	0.279	0.14	8.946	0.016	1.000	1.6%	Bolt Shear
T2	150	Leg	A307	0.75	16	23.99	2.999	17.892	0.168	1.000	16.8%	Bolt DS
		Diagonal	A307	0.75	4	7.498	1.874	8.946	0.210	1.000	21.0%	Bolt Shear
		Secondary Horizontal	A307	0.75	3	1.057	0.352	8.946	0.039	1.000	3.9%	Bolt Shear
T3	137.5	Diagonal	A307	0.75	5	8.35	1.67	8.946	0.187	1.000	18.7%	Bolt Shear
		Secondary Horizontal	A307	0.75	2	0.387	0.194	8.946	0.022	1.000	2.2%	Bolt Shear
T4	125	Leg	A307	0.75	16	51.761	6.47	17.892	0.362	1.000	36.2%	Bolt DS
		Top Girt	A307	0.75	2	4.589	2.294	17.892	0.128	1.000	12.8%	Bolt Shear
		Redundant Vertical	A307	0.75	1	6.678	6.678	8.946	0.746	1.000	74.6%	Bolt Shear
		Secondary Horizontal	A307	0.75	2	0.347	0.174	8.946	0.019	1.000	1.9%	Bolt Shear
		Diagonal	A307	0.75	4	10.22	2.555	8.946	0.286	1.000	28.6%	Bolt Shear
T5	112.5	Horizontal	A307	0.75	2	8.09	4.045	17.892	0.226	1.000	22.6%	Bolt Shear
		Diagonal	A307	0.75	2	13.861	6.93	17.892	0.387	1.000	38.7%	Bolt Shear
T6	100	Leg	A307	0.75	20	80.626	8.063	17.892	0.451	1.000	45.1%	Bolt DS
		Horizontal	A307	0.75	2	9.028	4.514	17.892	0.252	1.000	25.2%	Bolt Shear
		Diagonal	A307	0.75	2	12.93	6.465	17.892	0.361	1.000	36.1%	Bolt Shear
		Inner Corner	A307	0.75	2	1.907	0.954	8.057	0.118	1.000	11.8%	Member Block Shear
T7	87.5	Horizontal	A307	0.75	2	9.457	4.728	17.892	0.264	1.000	26.4%	Bolt Shear
		Diagonal	A307	0.75	2	13.614	6.807	17.892	0.380	1.000	38.0%	Bolt Shear
T8	75	Leg	A307	0.75	28	114.287	8.163	17.892	0.456	1.000	45.6%	Bolt DS
		Horizontal	A307	0.75	2	9.687	4.844	17.892	0.271	1.000	27.1%	Bolt Shear
		Diagonal	A307	0.75	2	13.696	6.848	17.892	0.383	1.000	38.3%	Bolt Shear
		Inner Corner	A307	0.75	2	1.732	0.866	8.057	0.107	1.000	10.7%	Member Block Shear
T9	62.5	Leg	A307	0.75	28	130.545	9.325	17.892	0.521	1.000	52.1%	Bolt DS
		Horizontal	A307	0.75	2	10.171	5.086	17.892	0.284	1.000	28.4%	Bolt Shear
		Diagonal	A307	0.75	3	14.003	4.668	17.892	0.261	1.000	26.1%	Bolt Shear
		Inner Corner	A307	0.75	2	2.081	1.04	8.946	0.116	1.000	11.6%	Bolt Shear
T10	50	Leg	A307	0.75	32	146.651	9.166	17.892	0.512	1.000	51.2%	Bolt DS
		Horizontal	A307	0.75	3	11.031	3.677	17.892	0.206	1.000	20.6%	Bolt Shear
		Diagonal	A325N	0.75	3	21.052	7.017	31.266	0.224	1.000	22.4%	Member Block Shear
		Inner Corner	A307	0.75	2	2.369	1.184	8.946	0.132	1.000	13.2%	Bolt Shear
T11	25	Leg	A307	0.75	36	177.774	9.876	17.892	0.552	1.000	55.2%	Bolt DS
		Horizontal	A307	0.75	3	12.051	4.017	17.892	0.225	1.000	22.5%	Bolt Shear
		Diagonal	A307	0.75	5	21.875	4.375	17.892	0.245	1.000	24.5%	Bolt Shear
		Redundant Diagonal	A307	0.75	2	1.882	0.941	8.057	0.117	1.000	11.7%	Member Block Shear
		Redundant Brace	A307	0.75	2	1.87	0.935	8.946	0.105	1.000	10.5%	Bolt Shear
		Inner Corner	A307	0.75	2	2.183	1.092	8.946	0.122	1.000	12.2%	Bolt Shear

Maximum Capacity	74.6%
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## APPENDIX C

### Tower Elevation Drawing



**MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A36	36 ksi	58 ksi			

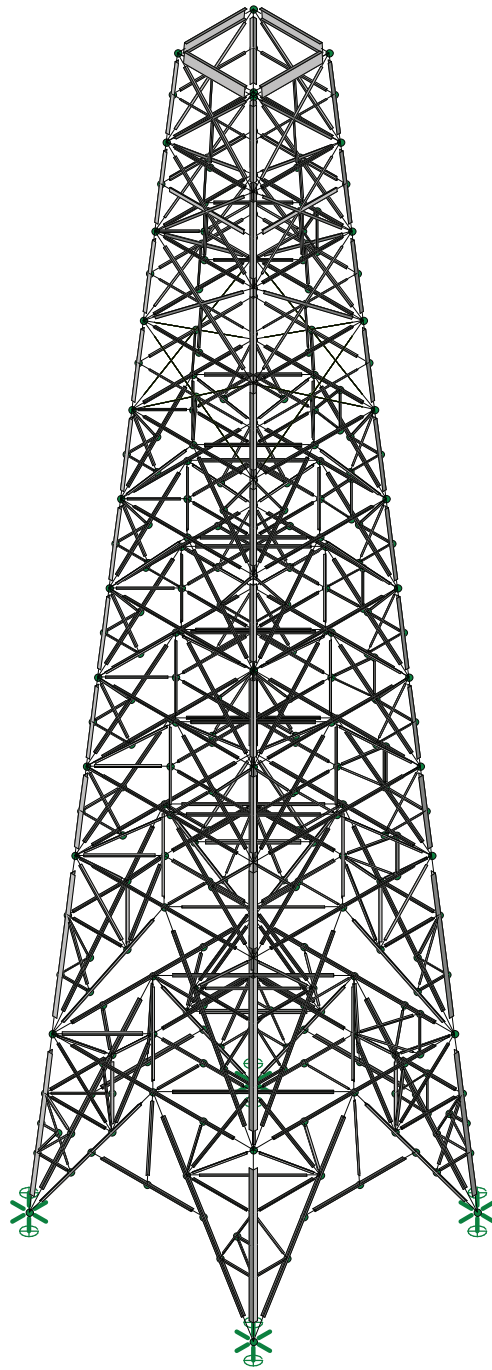
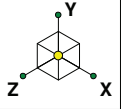
**TOWER DESIGN NOTES**

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft

**GPD**  
 520 South Main Street Suite 2531  
 Akron, Ohio 44311  
 Phone: (555) 555-1234  
 FAX: (555) 555-1235

Job: <b>27016 SHELTON EAST CENTRAL</b>		
Project: <b>2019723.01.SNET025.12</b>		
Client: AT&T Towers	Drawn by: jstokes	App'd:
Code: TIA-222-G	Date: 02/01/19	Scale: NTS
Path:	Dwg No. E-1	

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J. Stokes

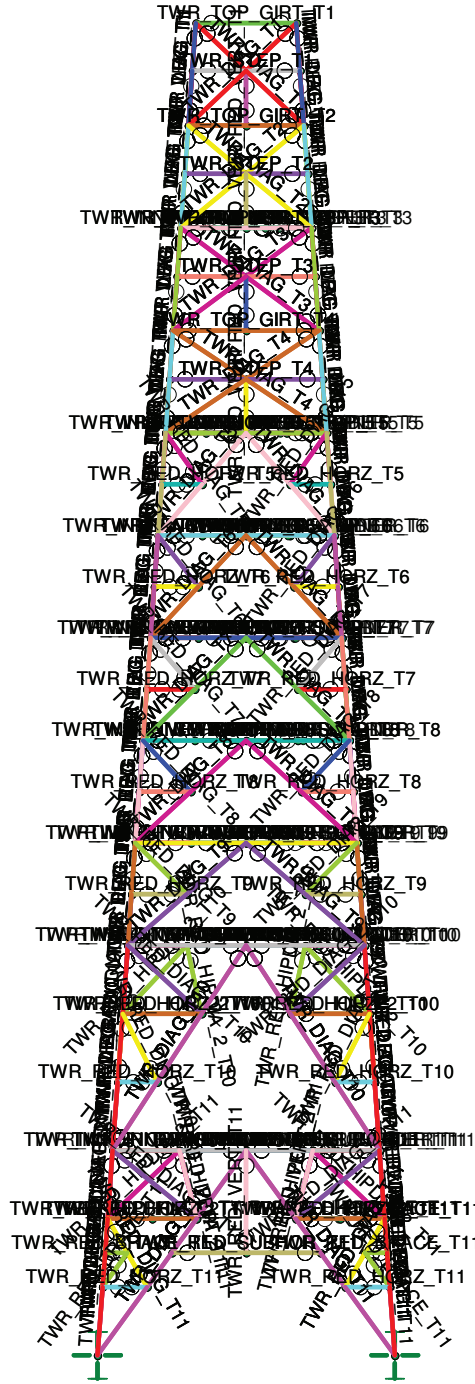
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27016 SHELTON EAST CENTRAL

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Section Sets

- TWR\_LEG\_T1
- TWR\_TOP\_GIRT\_T1
- TWR\_DIAG\_T1
- TWR\_STEP\_T1
- TWR\_RED\_VERT\_T1
- TWR\_LEG\_T2
- TWR\_TOP\_GIRT\_T2
- TWR\_DIAG\_T2
- TWR\_STEP\_T2
- TWR\_RED\_VERT\_T2
- TWR\_LEG\_T3
- TWR\_TOP\_GIRT\_T3
- TWR\_INNER\_SUPP\_T3
- TWR\_DIAG\_T3
- TWR\_STEP\_T3
- TWR\_RED\_VERT\_T3
- TWR\_INNER\_SQ\_T3
- TWR\_INNER\_CORNER\_T3
- TWR\_INNER\_TRI\_T3
- TWR\_INNER\_LADDER\_T3
- TWR\_LEG\_T4
- TWR\_TOP\_GIRT\_T4
- TWR\_RED\_VERT\_T4
- TWR\_STEP\_T4
- TWR\_LEG\_T5
- TWR\_HORZ\_T5
- TWR\_DIAG\_T5
- TWR\_RED\_HORZ\_T5
- TWR\_RED\_DIAG\_T5
- TWR\_INNER\_SUPP\_T5
- TWR\_INNER\_SQ\_T5
- TWR\_INNER\_CORNER\_T5
- TWR\_INNER\_TRI\_T5
- TWR\_INNER\_LADDER\_T5
- TWR\_LEG\_T6
- TWR\_HORZ\_T6
- TWR\_DIAG\_T6
- TWR\_RED\_HORZ\_T6
- TWR\_RED\_DIAG\_T6
- TWR\_INNER\_SUPP\_T6
- TWR\_INNER\_SQ\_T6
- TWR\_INNER\_CORNER\_T6
- TWR\_INNER\_TRI\_T6
- TWR\_INNER\_LADDER\_T6
- TWR\_LEG\_T7
- TWR\_HORZ\_T7
- TWR\_DIAG\_T7
- TWR\_RED\_HORZ\_T7
- TWR\_RED\_DIAG\_T7
- TWR\_INNER\_SUPP\_T7
- TWR\_INNER\_SQ\_T7
- TWR\_INNER\_CORNER\_T7
- TWR\_INNER\_BRACE\_T7
- TWR\_INNER\_GIRT\_T7
- TWR\_INNER\_TRI\_T7
- TWR\_INNER\_LADDER\_T7
- TWR\_LEG\_T8
- TWR\_HORZ\_T8
- TWR\_DIAG\_T8
- TWR\_RED\_HORZ\_T8
- TWR\_RED\_DIAG\_T8
- TWR\_INNER\_SUPP\_T8
- TWR\_INNER\_SQ\_T8
- TWR\_INNER\_CORNER\_T8
- TWR\_INNER\_TRI\_T8
- TWR\_INNER\_LADDER\_T8
- TWR\_LEG\_T9
- TWR\_HORZ\_T9
- TWR\_DIAG\_T9
- TWR\_RED\_HORZ\_T9
- TWR\_RED\_DIAG\_T9
- TWR\_INNER\_SUPP\_T9
- TWR\_INNER\_SQ\_T9
- TWR\_INNER\_CORNER\_T9
- TWR\_INNER\_BRACE\_T9
- TWR\_INNER\_TRI\_T9
- TWR\_INNER\_LADDER\_T9
- TWR\_LEG\_T10
- TWR\_HORZ\_T10
- TWR\_DIAG\_T10
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- TWR\_RED\_DIAG\_T10
- TWR\_RED\_DIAG\_2\_T10
- TWR\_RED\_HIP\_2\_T10
- TWR\_INNER\_SUPP\_T10
- TWR\_INNER\_SQ\_T10

More...

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27016 SHELTON EAST CENTRAL

SK - 2

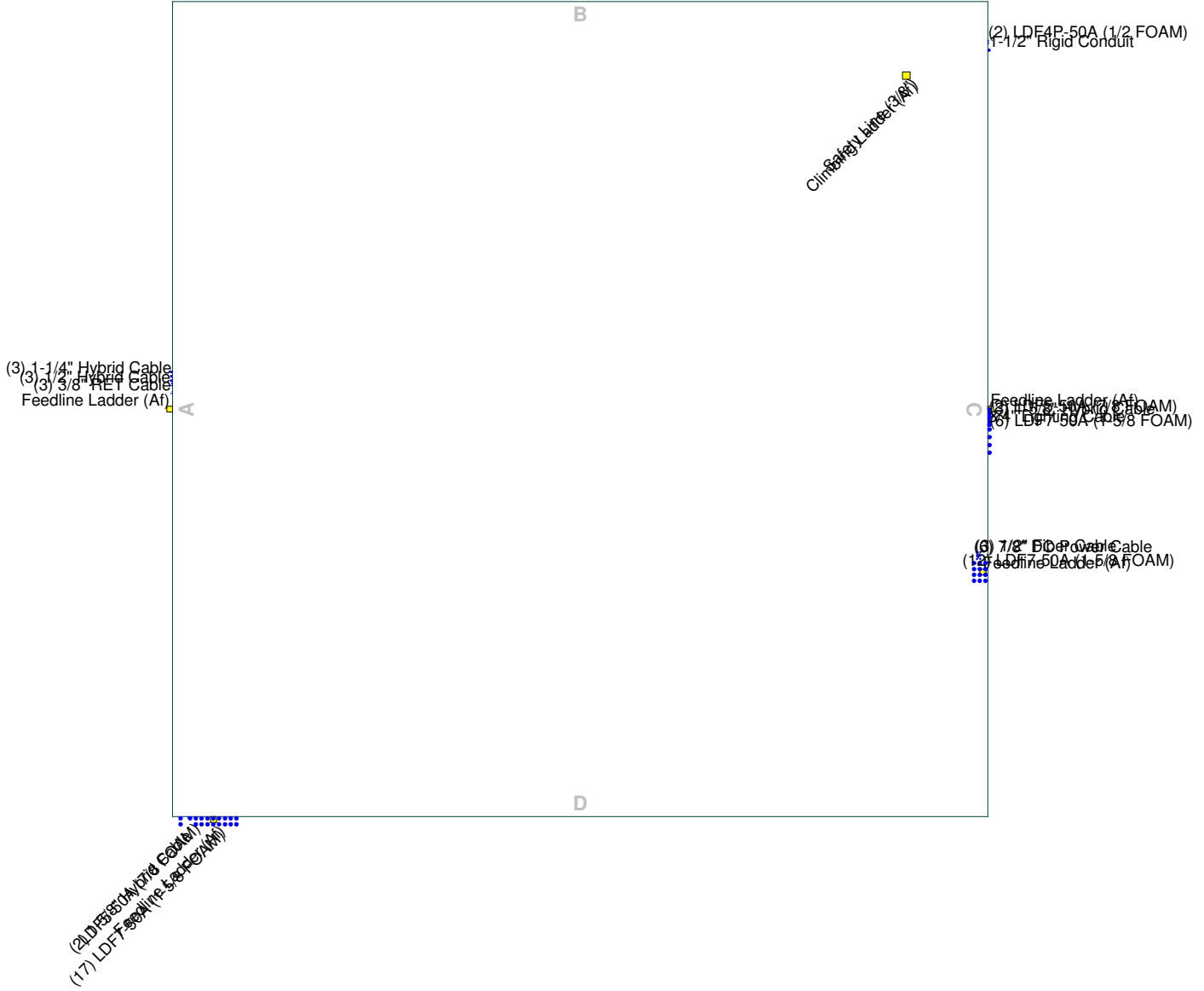
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# Feed Line Plan

— Round   
 — Flat   
 — App In Face   
 — App Out Face



 <b>GPD</b> 520 South Main Street Suite 2531 Akron, Ohio 44311 Phone: (555) 555-1234 FAX: (555) 555-1235	<b>Job: 27016 SHELTON EAST CENTRAL</b>		
	Project: <b>2019723.01.SNET025.12</b>		
	Client: AT&T Towers	Drawn by: jstokes	App'd:
	Code: TIA-222-G	Date: 02/01/19	Scale: NTS
	Path: T:\ATandT\SNET025\20 2019723 01 SNET025 12 AT&T TMO SA Re-Run Software Models\TNX\SNET025.er		Dwg No. E-7

## **APPENDIX D**

### Anchor Rod Analysis



**Self-Support Anchor Rod Analysis**  
**27016 SHELTON EAST CENTRAL**  
**2019723.01.SNET025.12**

General Info	
Code	TIA-222-G
Modified Anchor Rods	No
Clear Distance > d <sub>b</sub>	No
Leg Eccentricity	No
Max Capacity	1.05

Anchor Rod Results		
(P <sub>u</sub> + V <sub>u</sub> /η)	69.2	kips
φ*R <sub>nt</sub> = φ*F <sub>ub</sub> *A <sub>n</sub>	145.6	kips
Anchor Rod Stress Ratio =	47.5%	<b>OK</b>

Tower Reactions	
Detail Type =	d
Eta Factor, η =	0.50
Down Load, P <sub>u</sub> =	206.42 kips
Down Load Shear, V <sub>u</sub> =	35.13 kips
Uplift, P <sub>u</sub> =	137.57 kips
Uplift Shear, V <sub>u</sub> =	26.37 kips

Anchor Rods	
Number of Anchor Rods, N =	4
Anchor Rod Grade =	C-1015
Anchor Rod Diameter, d <sub>d</sub> =	2.25 in
Tensile, F <sub>ub</sub> =	56 ksi

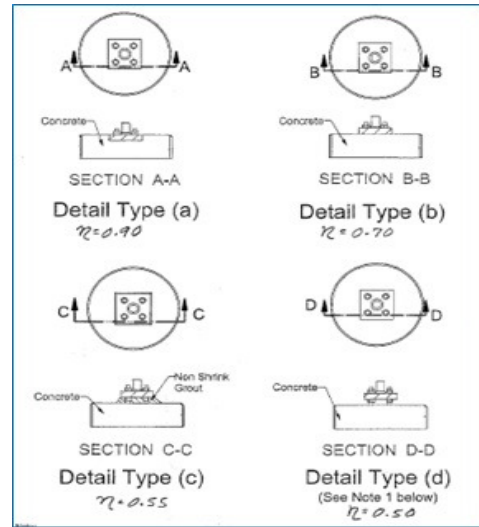


Figure 4-4 of TIA-222-G

## **APPENDIX E**

### Foundation Analysis



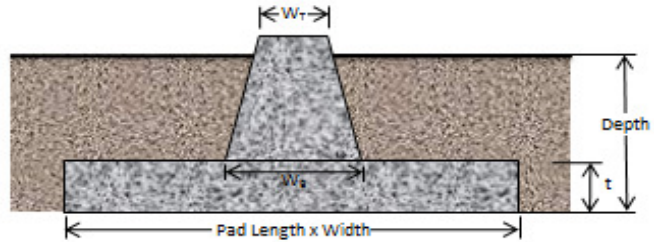
**Individual Pad and Frustum Uplift Check**  
**27016 SHELTON EAST CENTRAL**  
**2019723.01.SNET025.12**

Tower Reactions	
Uplift	137.6 k

Uplift Summary		
Capacity	47.6%	OK

General Info	
Code	TIA-222-G
Max Capacity	1.05

Pad & Pier Geometry		
Pier Top Width $W_T$	3.5	ft
Pier Bottom Width $W_B$	7.5	ft
Pad Length, L	15	ft
Pad Width, W	15	ft
Pad Thickness, t	2	ft
Depth, D	8	ft
Height Above Grade, HG	1	ft



Soil Capacity Calculations		
$W_s$	220.76	k
$W_c$	100.66	k
Uplift Resistance	289.28	k

Soil Properties					
Ignored Depth	3.5	ft	Water Table	8	ft
Layer	C, psf	$\phi$ , degrees	$\gamma_{soil}$ pcf	$\gamma_{concrete}$ pcf	d, ft
1	0	0	125	150	3.5
2	0	38	125	150	4.5
3	0	42	145	150	1
4	12000	0	155	150	5



**Mat Foundation Analysis**  
**27016 SHELTON EAST CENTRAL**  
**2019723.01.SNET025.12**

General Info	
Foundation Criteria	GPD
TIA Code	TIA-222-G
Soil Code	AASHTO 2012
Concrete Code	ACI 318-11
Seismic Design Category	B
Tower Height	162.5 ft
Bearing On	Soil
Foundation Type	SS Individual Pad
Pier Type	Square
Reinforcing Known	No
Max Bearing Capacity	105%
Max Overturning Capacity	105%

Tower Reactions	
Moment, M	
Axial, P	206.42 k
Shear, V	35.129 k

Pad & Pier Geometry	
Pier Width, $\phi$	5.62 ft
Pad Length, L [y]	15 ft
Pad Width, W [x]	15 ft
Pad Thickness, t	2 ft
Depth, D	8 ft
Height Above Grade, HG	1 ft
Tower Centroid, X	7.5 ft
Tower Centroid, Y	7.5 ft
Tower Eccentricity	0.0000 ft

Pad & Pier Reinforcing	
Rebar Fy	60 ksi
Concrete F'c	3 ksi
Pier Reinforcing Clear Cover	3 in
Shear Rebar Type	Tie
Shear Rebar Size	# 4
Pad Reinforcing Clear Cover	3 in
Reinforced Top & Bottom?	Yes
Pad Reinforcing Size	# 8
Pad Quantity Per Layer	15
Pier Rebar Size	# 10
Pier Quantity of Rebar	7

Soil Properties	
Soil Type	Granular
Soil Unit Weight	125 pcf
Angle of Friction, $\phi$	38
Base Friction Coeff. Provided in Geo?	Yes
Base Friction Coefficient, $\mu$	0.5
Bearing Type	Net
Ultimate Bearing	18 ksf
Water Table Depth	99 ft
Frost Depth	3.5 ft

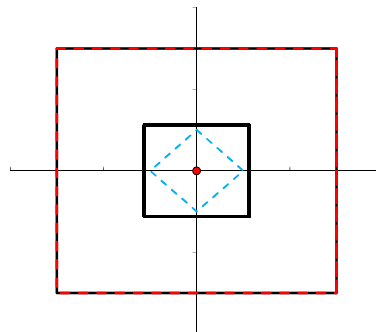
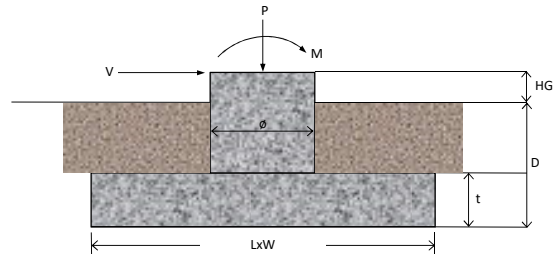
Bearing Summary					
Case	Demand/Limits	Capacity/Availability	Check	Eccentricity	Load Case
Qxmax	2.63 ksf	14.25 ksf	OK, <= 105%	L/150000.0	1.2D+1.6W
Qymax	2.63 ksf	14.25 ksf	OK, <= 105%	W/150000.0	1.2D+1.6W
Qmax @ 45°	2.23 ksf	14.25 ksf	OK, <= 105%	W/25000.0	1.2D+1.6W
<b>Controlling Capacity</b>		<b>18.4%</b>	<b>Pass</b>		

Overturning Summary					
Case	Demand/Limits	Capacity/Availability	Check	Load Case	
Ovtx	0.1 k-ft	2819.8 k-ft	0.0% OK	0.9D+1.6W	
Ovty	0.1 k-ft	2819.8 k-ft	0.0% OK	0.9D+1.6W	
Ovtxy	0.3 k-ft	3759.7 k-ft	0.0% OK	0.9D+1.6W	
<b>Controlling Capacity</b>		<b>0.0%</b>	<b>Pass</b>		

Sliding Summary					
Case	Demand/Limits	Capacity/Availability	Check	Load Case	
Slidingx	35.1 k	250.1 k	14.0% OK	0.9D+1.6W	
Slidingy	35.1 k	250.1 k	14.0% OK	0.9D+1.6W	
<b>Controlling Capacity</b>		<b>14.0%</b>	<b>Pass</b>		

Reinforcement Summary					
Component	Demand/Limits	Capacity/Availability	Check	Load Case	
Pad Flexural Bending	14.1 k-ft	66.6 k-ft	21.2% OK	1.2D+1.6W	
One-Way Shear in Pad	59.1 k	288.4 k	20.5% OK	1.2D+1.6W	
Two-Way Shear in Pad	217.6 k	1114.3 k	19.5% OK	0.9D+1.6W	
Compression on Pier	246.2 k	13917.4 k	1.8% OK	1.2D+1.6W	
Moment on Pier	215.9 k-ft	1366.8 k-ft	15.8% OK	1.2D+1.6W	
As Min Pad Met?	1.58 sq. in.	0.21 sq. in.	Yes		
As Min Pier Met?	8.89 sq. in.	22.74 sq. in.	No		
<b>Controlling Capacity</b>		<b>21.2%</b>	<b>Pass</b>		

*<- Minimum reinforcement assumed*



T
Mobile  
**WIRELESS COMMUNICATIONS FACILITY**  
**SHELTON/BUDDINGTON RD\_1**  
**SITE ID: CT1199A**  
**219 NELLS ROCK ROAD**  
**SHELTON, CT 06484**

**GENERAL NOTES**

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2018 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "G" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2016 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
3. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
4. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
5. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
6. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN "AS-BUILT" SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
7. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
9. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
10. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
11. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
12. ANY AND ALL ERRORS, DISCREPANCIES, AND "MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE T-MOBILE CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO "EXTRA" WILL BE ALLOWED FOR MISSED ITEMS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
14. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
15. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
16. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
17. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
18. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
19. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

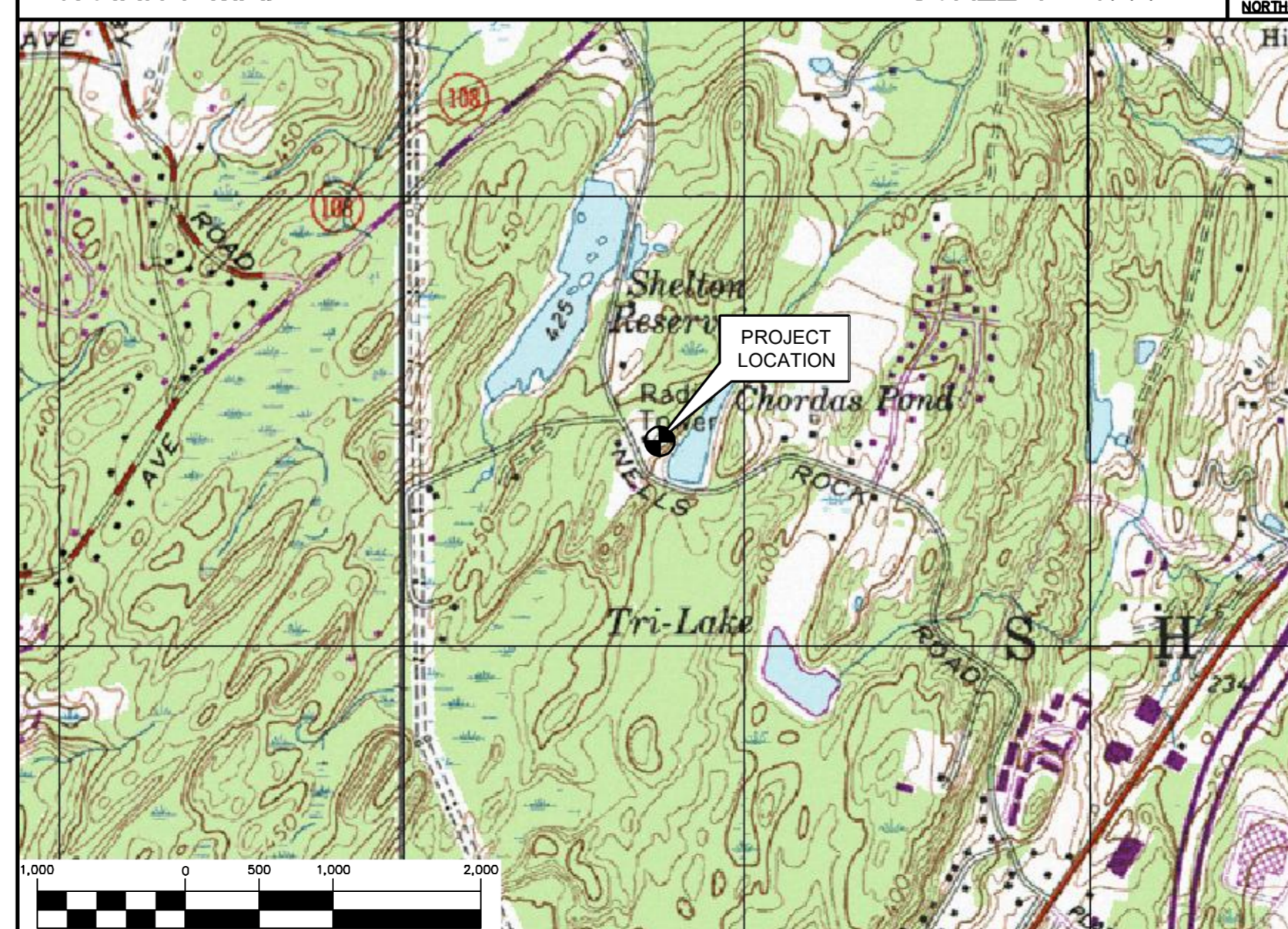
**SITE DIRECTIONS**

<b>FROM:</b> 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002	<b>TO:</b> 219 NELLS ROCK RD SHELTON, CT 06484
--	---

1. HEAD SOUTHEAST ON W NEWBERRY RD TOWARD GRIFFIN RD S. 0.10 MI.
2. TURN LEFT ONTO GRIFFIN RD S. 0.60 MI.
3. TURN RIGHT ONTO DAY HILL RD. 3.60 MI.
4. USE THE RIGHT LANE TO MERGE ONTO I-91 S VIA THE RAMP TO HARTFORD. 0.40 MI.
5. MERGE ONTO I-91 S. 26.00 MI.
6. TAKE EXIT 17 TO MERGE ONTO CT-15 S/WILBUR CROSS PKWY. 21.80 MI.
7. TAKE EXIT 58 TO MERGE ONTO CT-34 W/DERBY AVE/DERBY TURNPIKE TOWARD DERBY. 0.20 MI.
8. MERGE ONTO CT-34 W/DERBY AVE/DERBY TURNPIKE. 3.00 MI.
9. USE THE LEFT 2 LANES TO TURN LEFT ONTO MAIN ST. 0.20 MI.
10. USE THE LEFT 2 LANES TO TURN LEFT ON MERGE ONTO CT-8 S TOWARD BRIDGEPORT. 0.20 MI.
11. MERGE ONTO CT-8 S. 1.20 MI.
12. TAKE EXIT 13 FOR BRIDGEPORT AVE. 0.20 MI.
13. TURN LEFT ONTO BRIDGEPORT AVE. 0.60 MI.
14. TURN RIGHT ONTO NELLS ROCK RD. 1.20 MI.

**VICINITY MAP**

**SCALE: 1" = 1000'**



**T-MOBILE RF CONFIGURATION**

**67D91DB\_1xAIR+1OP**

**PROJECT SUMMARY**

1. THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:
  - A. REMOVE (6) EXISTING PANEL ANTENNAS.
  - B. INSTALL (6) PROPOSED PANEL ANTENNAS.
  - C. REMOVE (6) EXISTING REMOTE RADIO HEADS.
  - D. INSTALL (3) PROPOSED REMOTE RADIO HEADS.
  - E. RELOCATE (3) EXISTING TMA'S TO NEW MOUNTS.
  - F. REPLACE EXISTING PIPE MOUNTS WITH (3) NEW MOUNTS.
  - G. INSTALL (3) 6X12 HYBRID CABLES / (1) PER SECTOR.
  - H. UPGRADE MAIN ELECTRICAL PANEL TO 150A AND INDOOR CABINET TO 100A.

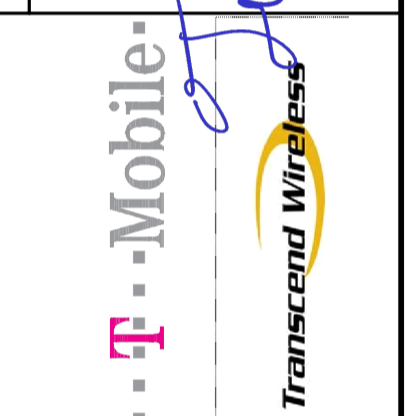
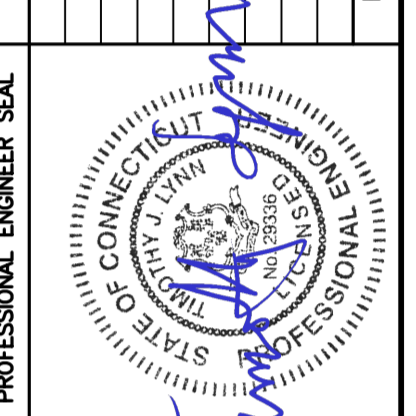
**PROJECT INFORMATION**

SITE NAME:	SHELTON/BUDDINGTON RD_1
SITE ID:	CT11199A
SITE ADDRESS:	219 NELLS ROCK RD SHELTON, CT 06484
APPLICANT:	T-MOBILE NORTHEAST, LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002
CONTACT PERSON:	DAN REID (PROJECT MANAGER) TRANSCEND WIRELESS, LLC (203) 592-8291
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT 06405
PROJECT COORDINATES:	LATITUDE: 41°-18'-14.99" N LONGITUDE: 73°-07'-05.80" W GROUND ELEVATION: 460± AMSL
	SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

**SHEET INDEX**

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
N-1	DESIGN BASIS AND SITE NOTES	0
C-1	SITE LOCATION PLAN	0
C-2	COMPOUND PLAN AND ELEVATION	0
C-3	ANTENNA MOUNTING CONFIG.	0
E-1	TYPICAL ELECTRICAL DETAILS	0

REV.	DATE	BY	CHK'D BY	ISSUED FOR CONSTRUCTION	DESCRIPTION
0	02/13/19	TJJ			



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**T-MOBILE NORTHEAST LLC**  
**WIRELESS COMMUNICATIONS FACILITY**  
**SHELTON/BUDDINGTON RD\_1**  
**SITE ID: CT1199A**  
**219 NELLS ROCK RD**  
**SHELTON, CT 06484**

DATE: 9/11/18  
 SCALE: AS NOTED  
 JOB NO. 18058.75

**TITLE SHEET**

T-1

Sheet No. 1 of 6

**DESIGN BASIS:**

GOVERNING CODE: 2015 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2018 CT STATE BUILDING CODE AND AMENDMENTS.

- DESIGN CRITERIA:
  - WIND LOAD: PER TIA 222 G (ANTENNA MOUNTS): 90-110 MPH (3 SECOND GUST)
  - RISK CATEGORY: II (BASED ON IBC TABLE 1604.5)
  - NOMINAL DESIGN SPEED (OTHER STRUCTURE): 97 MPH (Vasd) (EXPOSURE C/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-10) PER 2015 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2018 CONNECTICUT STATE BUILDING CODE.
  - SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

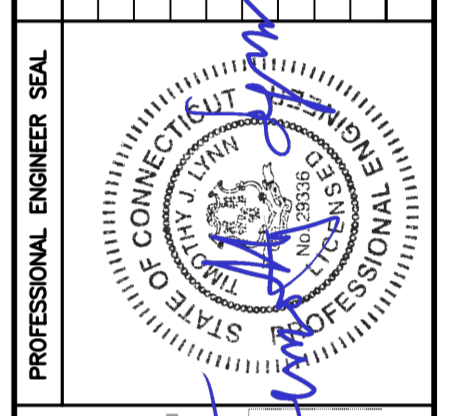
**GENERAL NOTES:**

- ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING CODE.
- DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
- BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
- DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST EXISTING FIELD CONDITIONS.
- THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
- ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS, ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
- AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE SHORING, BRACING, AND BARRICADES AS MAY BE REQUIRED FOR THE PROTECTION OF EXISTING PROPERTY, CONSTRUCTION WORKERS, AND FOR PUBLIC SAFETY.
- THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING SITE OPERATIONS, COORDINATE WORK WITH NORTHEAST UTILITIES
- THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER FOUNDATION REMEDIATION WORK IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING, GUYS OR TIEDOWNS, WHICH MIGHT BE NECESSARY.
- ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
- SHOP DRAWINGS, CONCRETE MIX DESIGNS, TEST REPORTS, AND OTHER SUBMITTALS PERTAINING TO STRUCTURAL WORK SHALL BE FORWARDED TO THE OWNER FOR REVIEW BEFORE FABRICATION AND/OR INSTALLATION IS MADE. SHOP DRAWINGS SHALL INCLUDE ERECTION DRAWINGS AND COMPLETE DETAILS OF CONNECTIONS AS WELL AS MANUFACTURER'S SPECIFICATION DATA WHERE APPROPRIATE. SHOP DRAWINGS SHALL BE CHECKED BY THE CONTRACTOR AND BEAR THE CHECKER'S INITIALS BEFORE BEING SUBMITTED FOR REVIEW.
- NO DRILLING WELDING OR TAPING ON EVERSOURCE OWNED EQUIPMENT.
- REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

**STRUCTURAL STEEL**

- ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)
  - STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
  - STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI)
  - STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
  - STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
  - PIPE---ASTM A53 (FY = 35 KSI)
  - CONNECTION BOLTS---ASTM A325-N
  - U-BOLTS---ASTM A36
  - ANCHOR RODS---ASTM F 1554
  - WELDING ELECTRODE---ASTM E 70XX
- CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
- STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
- PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
- FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
- INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
- AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
- ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
- THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
- CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
- STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
- LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
- SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
- MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
- FABRICATE BEAMS WITH MILL CAMBER UP.
- LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
- COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
- INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
- FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

REV.	DATE	TITLE	BY	CHK'D BY	CAG	ISSUED FOR CONSTRUCTION
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 WIRELESS COMMUNICATIONS FACILITY  
**SHELTON/BUDDINGTON RD\_1**  
**SITE ID: CT1199A**  
 219 NELLENS ROCK RD  
 SHELTON, CT 06484

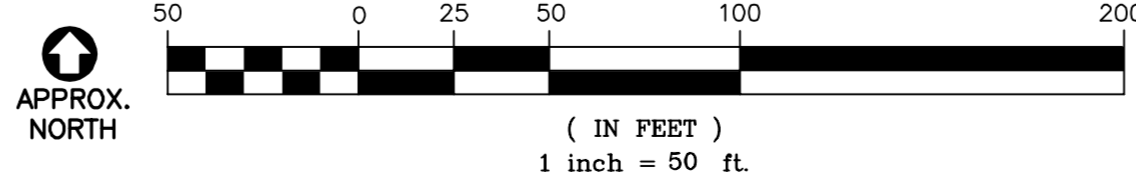
DATE: 9/11/18  
 SCALE: AS NOTED  
 JOB NO. 18058.75

DESIGN BASIS  
 AND SITE NOTES

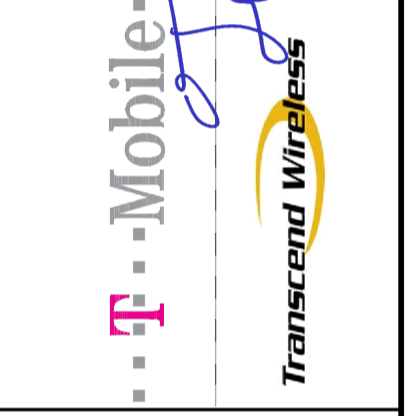
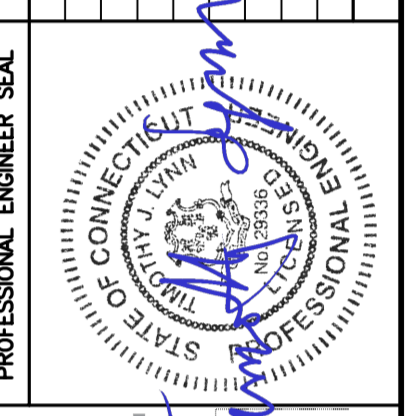




**1 SITE LOCATION PLAN**  
 C-1 SCALE: 1" = 50'



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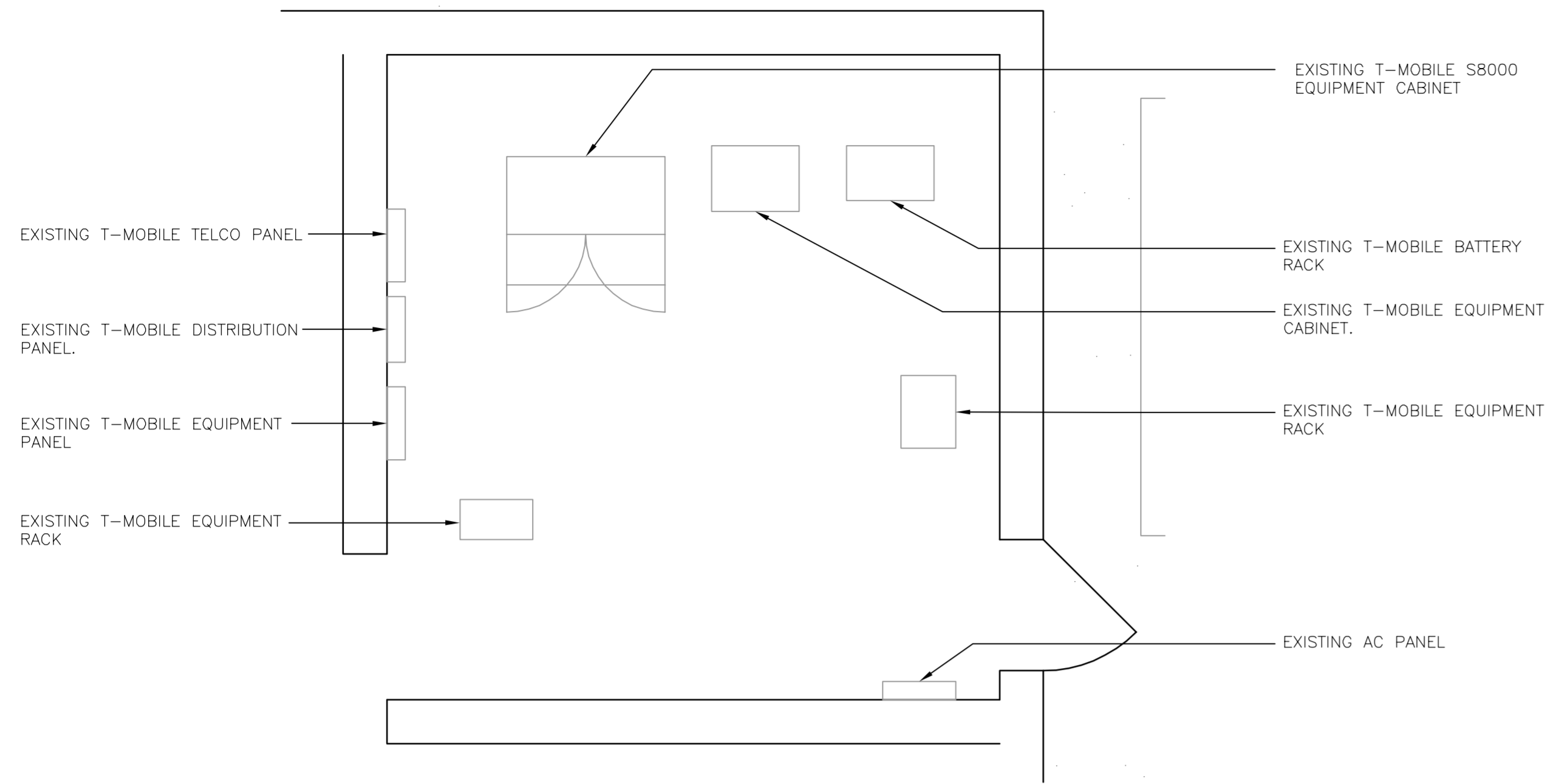


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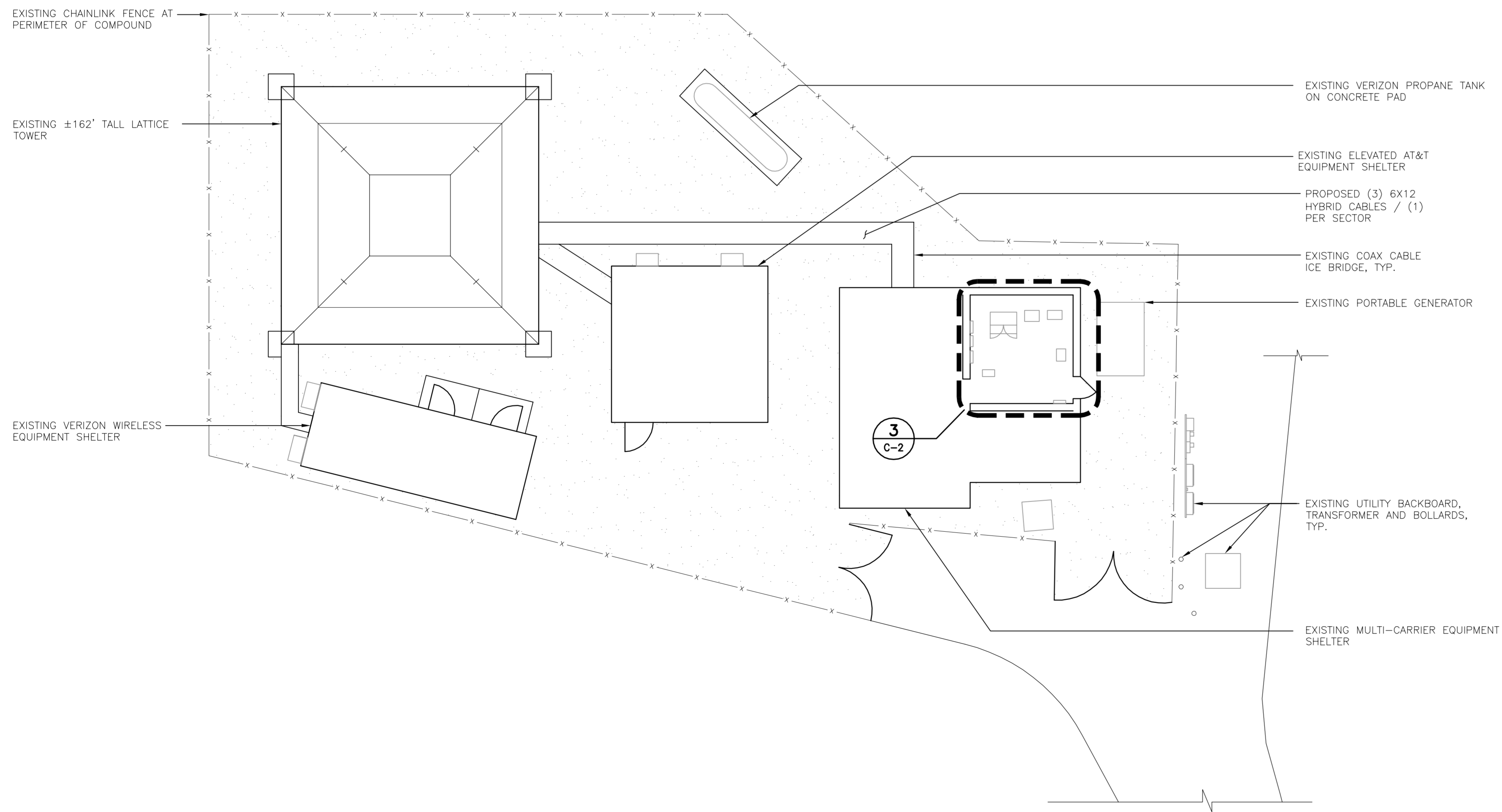
**T-MOBILE NORTHEAST LLC**  
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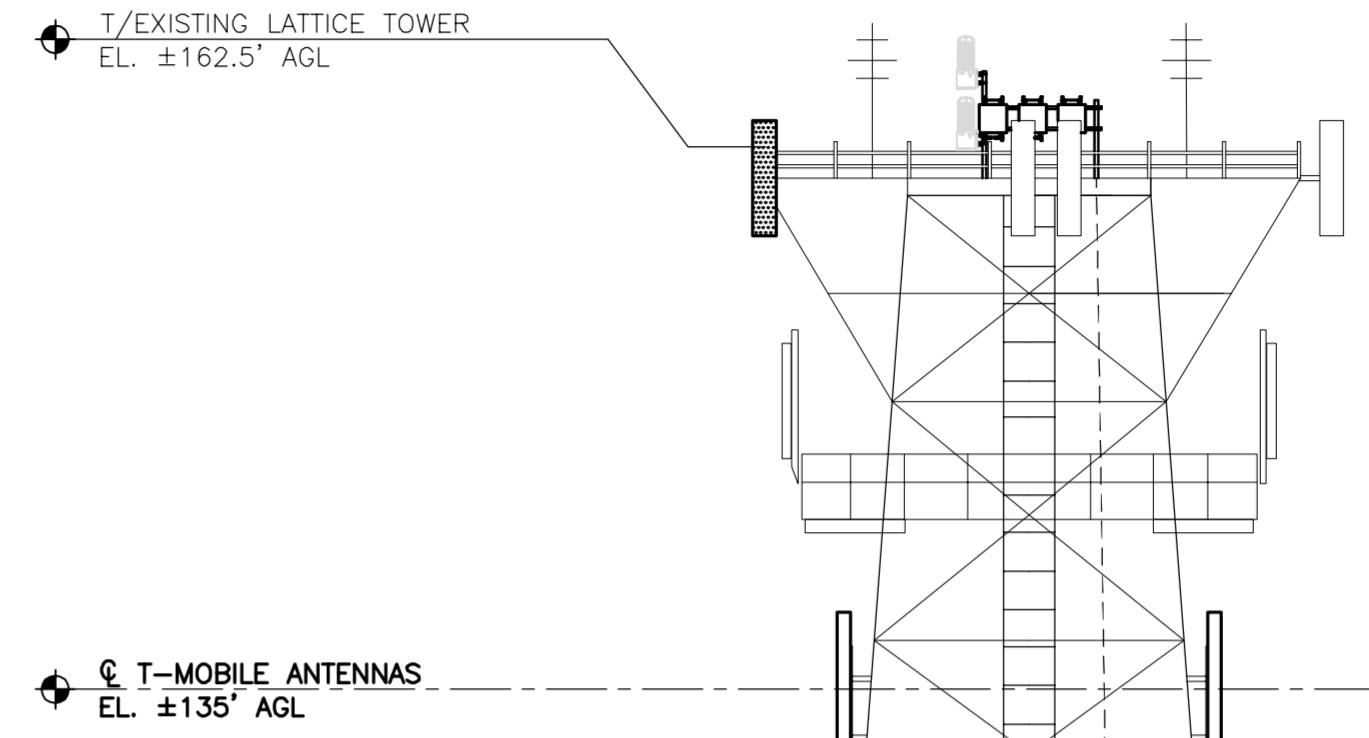
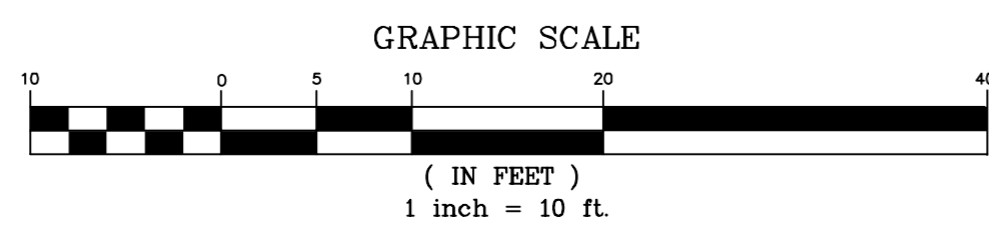
SITE LOCATION PLAN



**3 EQUIPMENT ROOM PLAN**  
 C-2 SCALE: 3/8" = 1'  
 TRUE NORTH



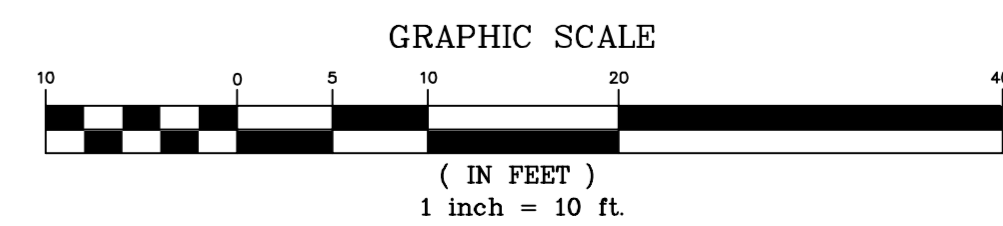
**1 COMPOUND PLAN**  
 C-2 SCALE: 1" = 10'  
 TRUE NORTH



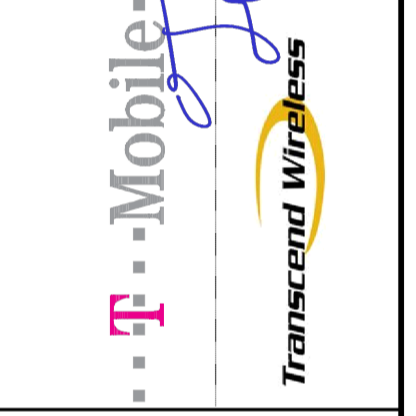
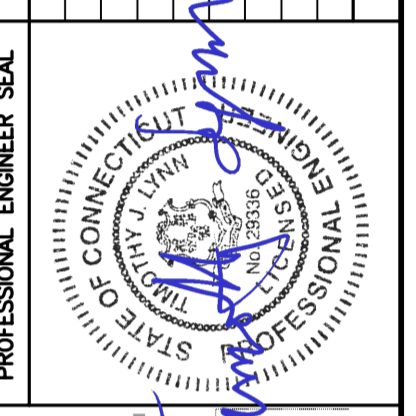
**STRUCTURAL NOTES:**

- REFER TO ANTENNA MOUNT ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING, INC., PROJ. NO. 18058.75, DATED OCTOBER 22, 2018 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- REFER TO STRUCTURAL ANALYSIS REPORT PREPARED BY GPD GROUP PROJ. NO. 2019723.01.SNET025.12, DATED FEBRUARY 1, 2019 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED MALOUF ENGINEERING AND FINAL T-MOBILE RF DATA SHEET.

**2 TOWER ELEVATION**  
 C-2 SCALE: 1" = 10'



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0	02/13/19	DATE			

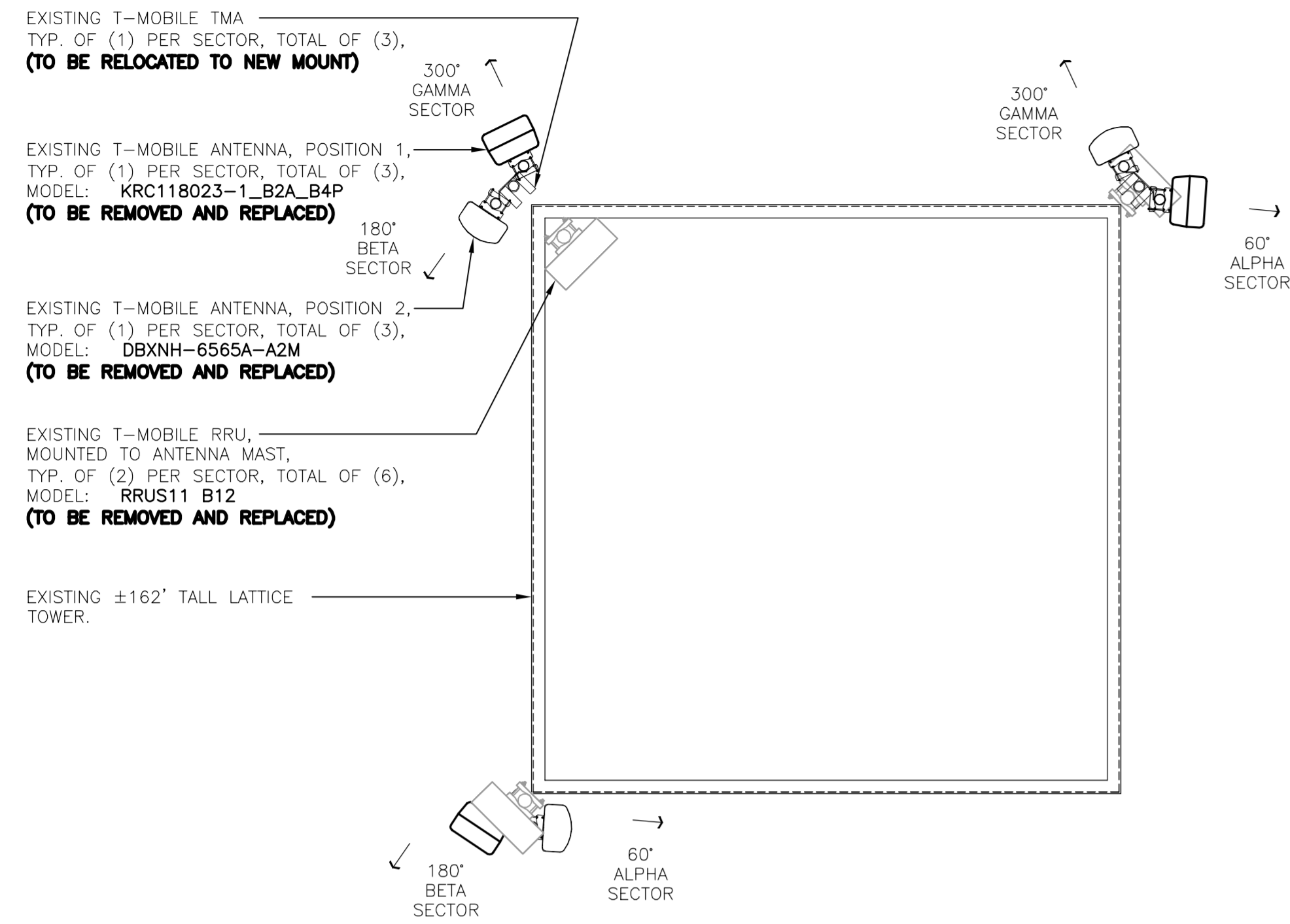


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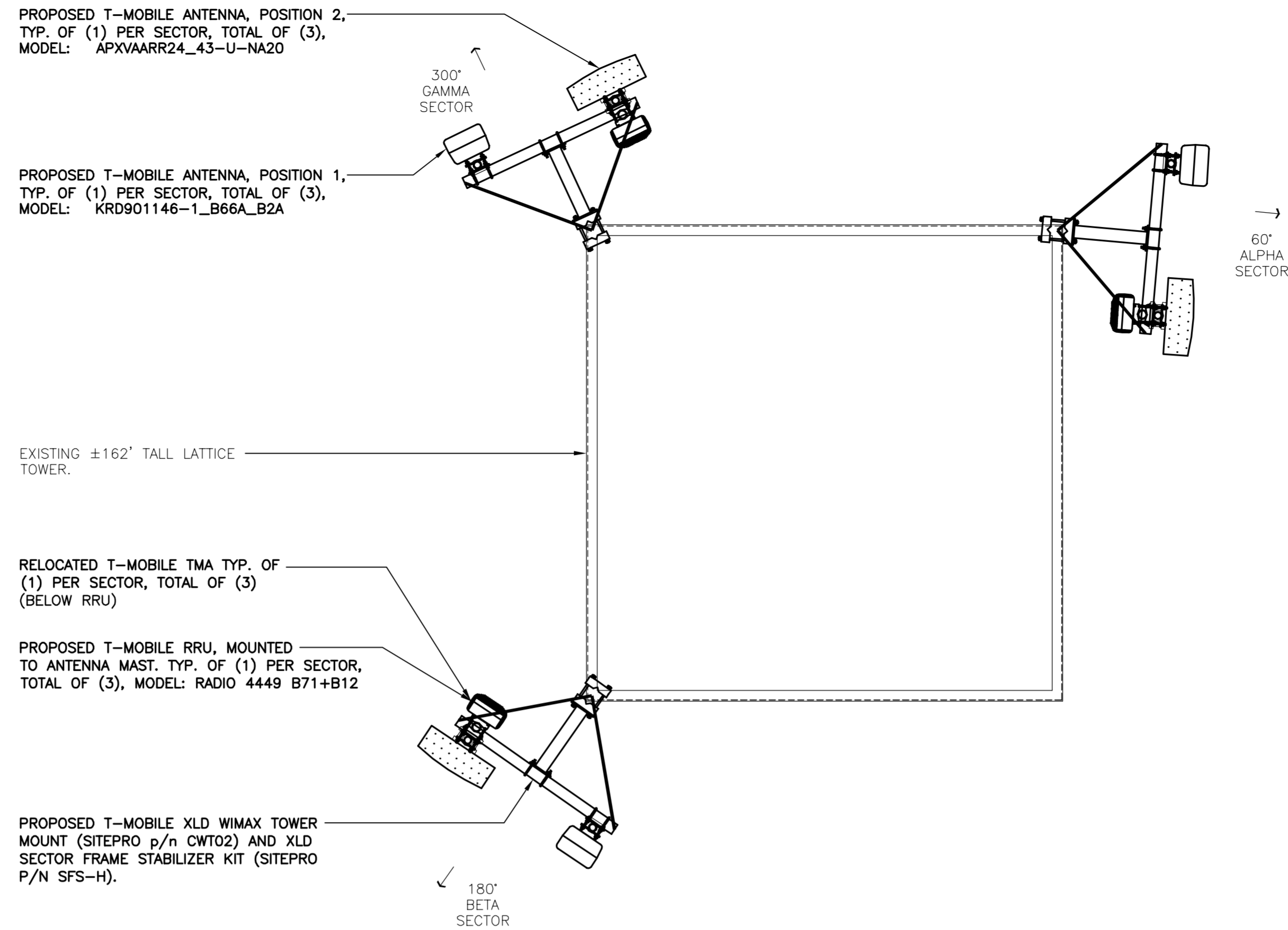
**T-MOBILE NORTHEAST LLC**  
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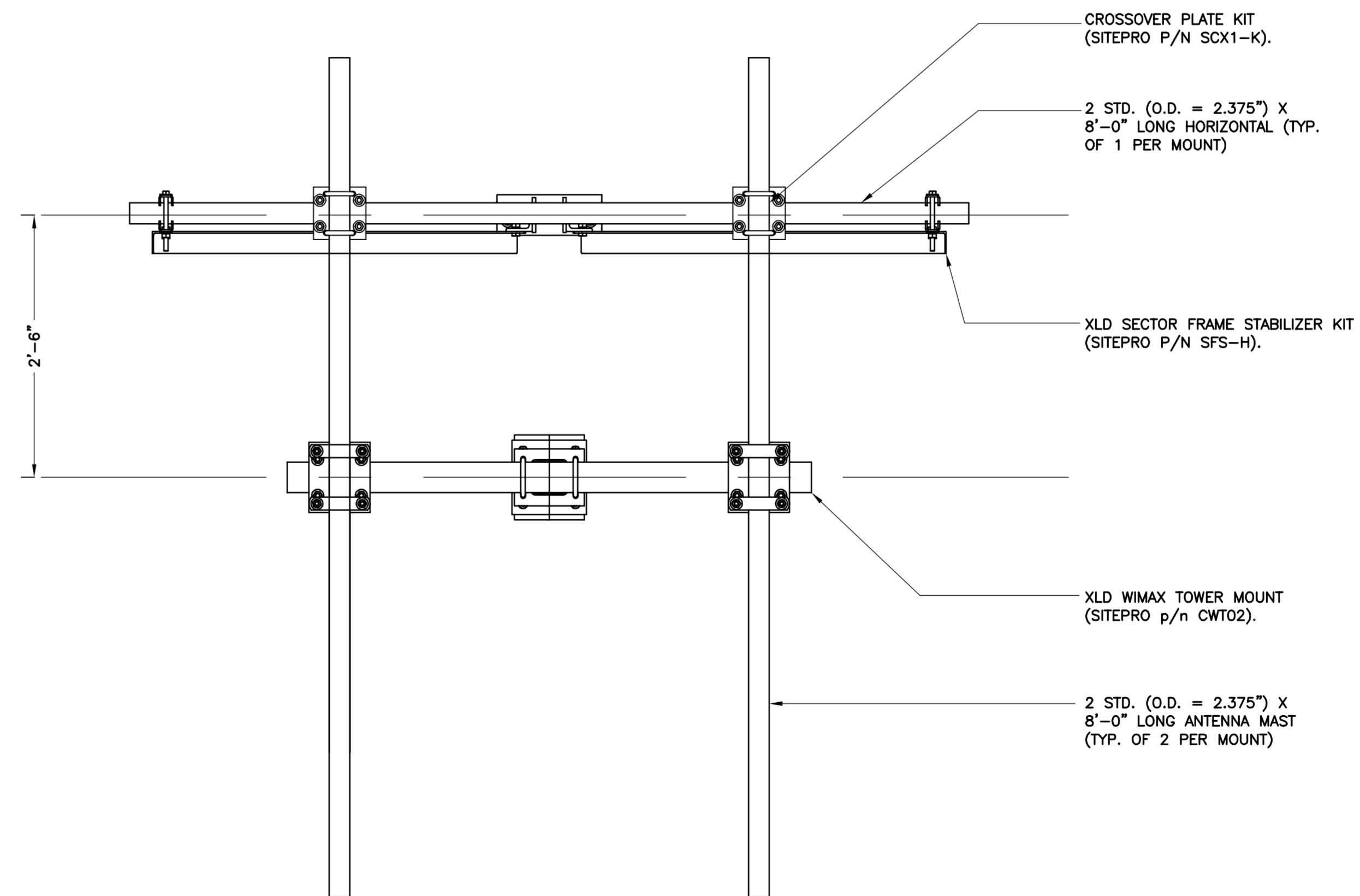
COMPOUND PLAN AND ELEVATION



**1** EXISTING ANTENNA MOUNTING CONFIGURATION  
 C-3 SCALE: 3/8" = 1' 135' ELEVATION TRUE NORTH

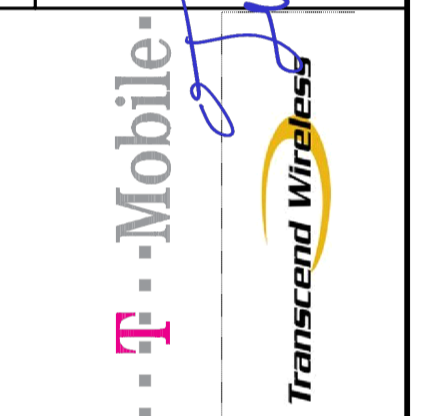
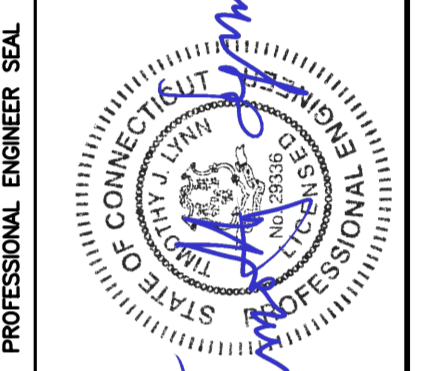


**2** PROPOSED ANTENNA MOUNTING CONFIGURATION  
 C-3 SCALE: 3/8" = 1' 135' ELEVATION TRUE NORTH



**3** PROPOSED TOWER MOUNT DETAIL  
 C-3 SCALE: 1" = 1'

REV.	DATE	BY	CHK'D BY	DESCRIPTION
0	02/13/19	T.J.L.	CAG	ISSUED FOR CONSTRUCTION

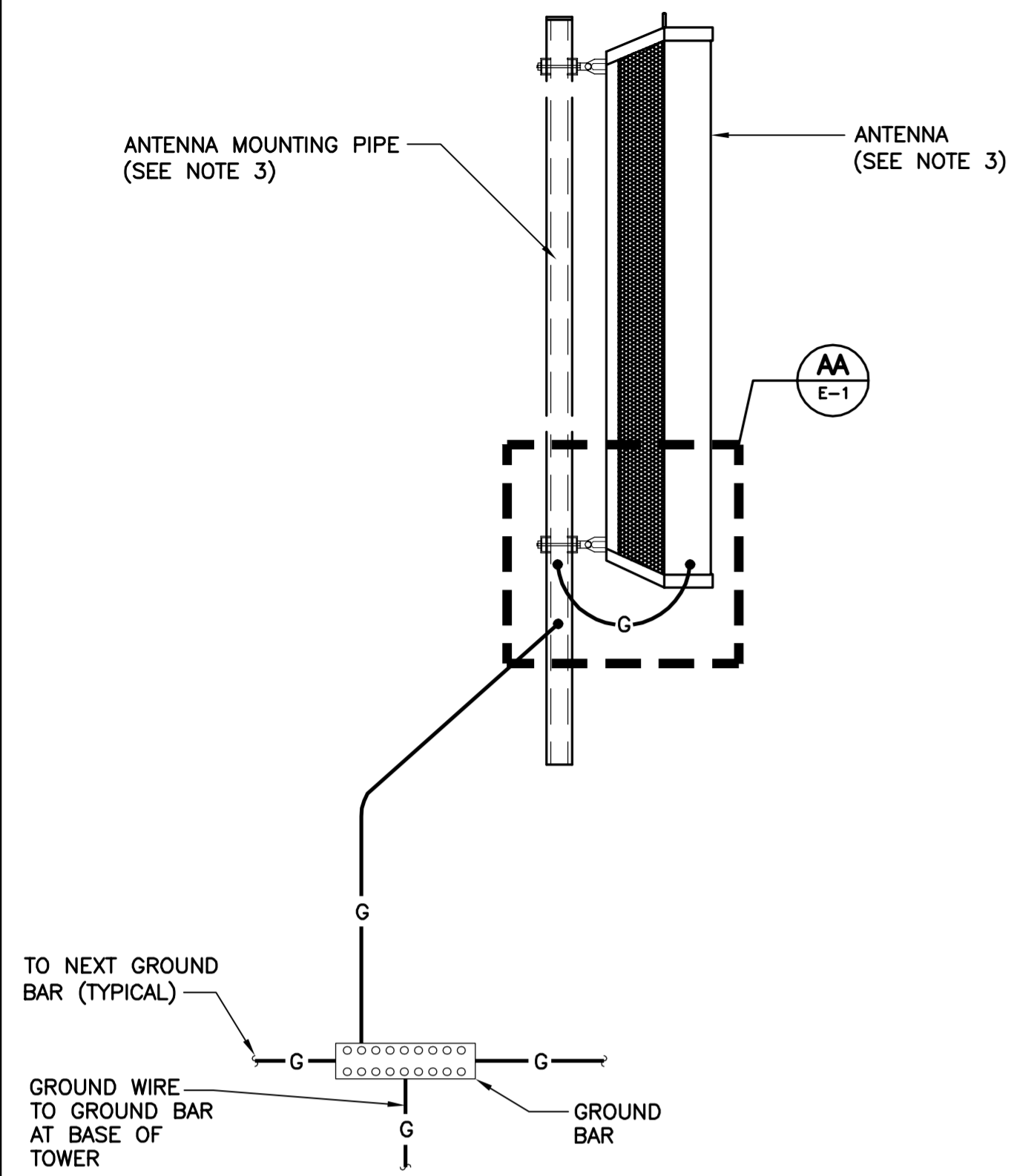


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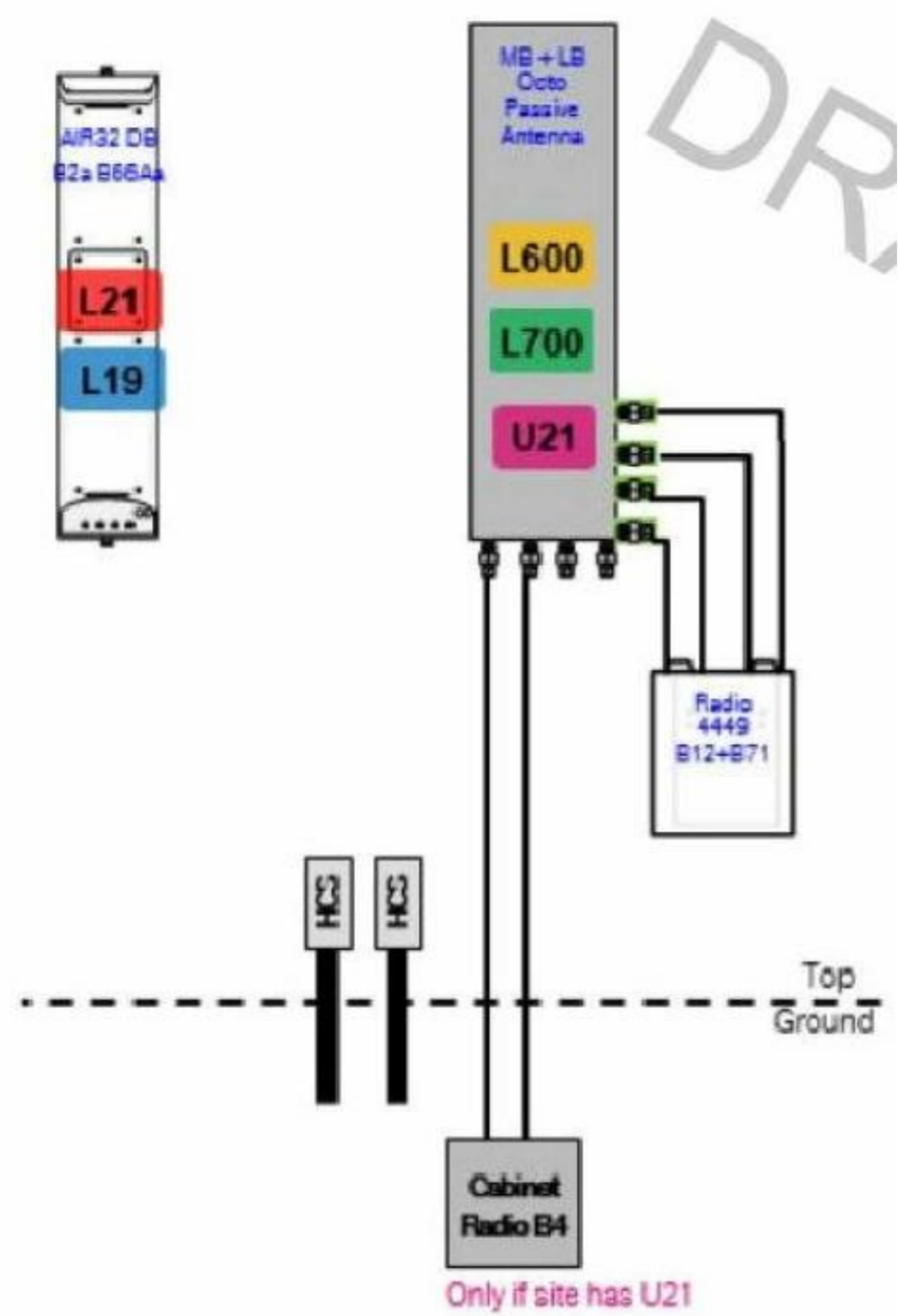
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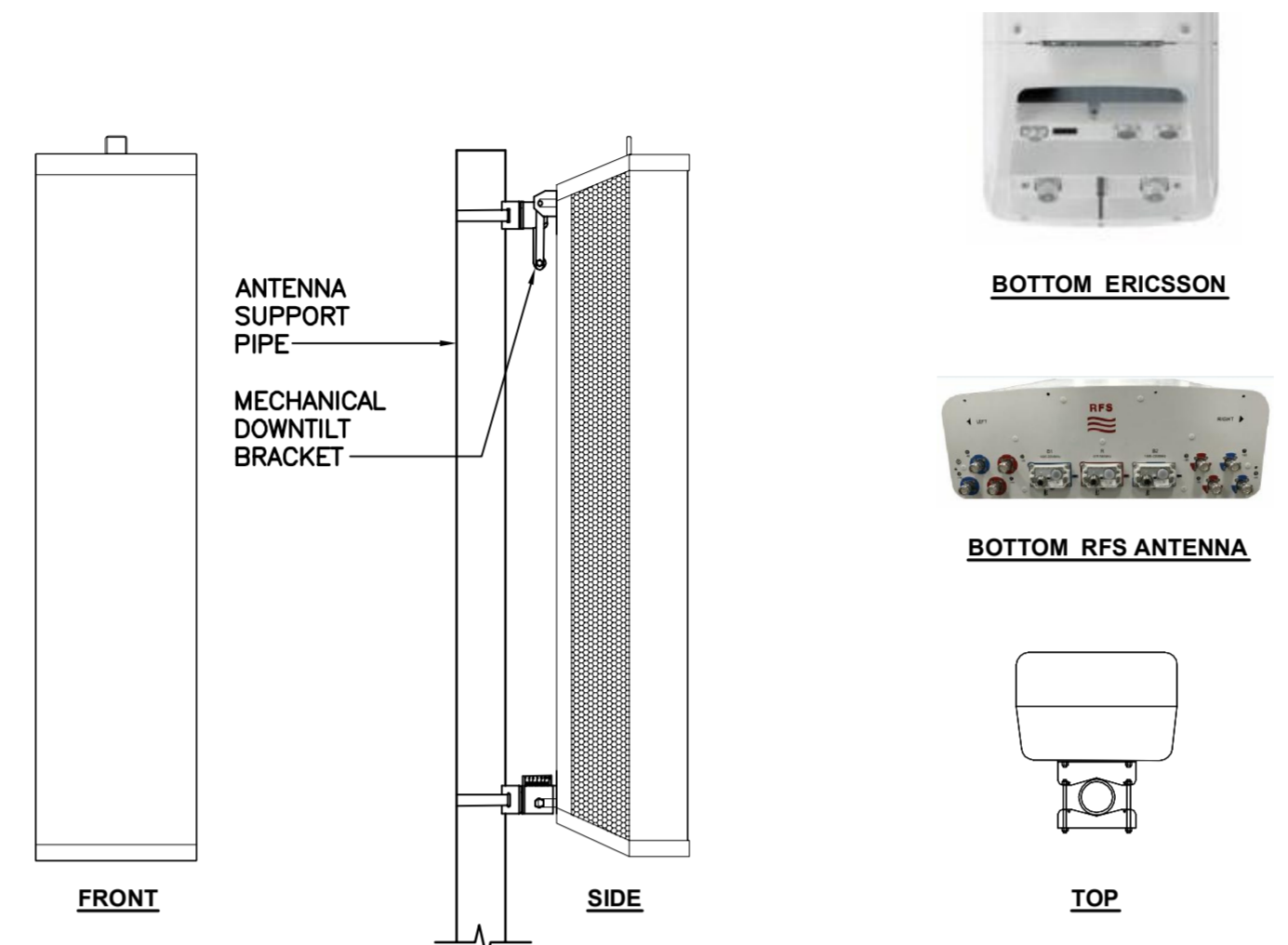
ANTENNA MOUNTING CONFIG.



**1** TYPICAL ANTENNA GROUNDING DETAIL  
E-1 SCALE: NONE

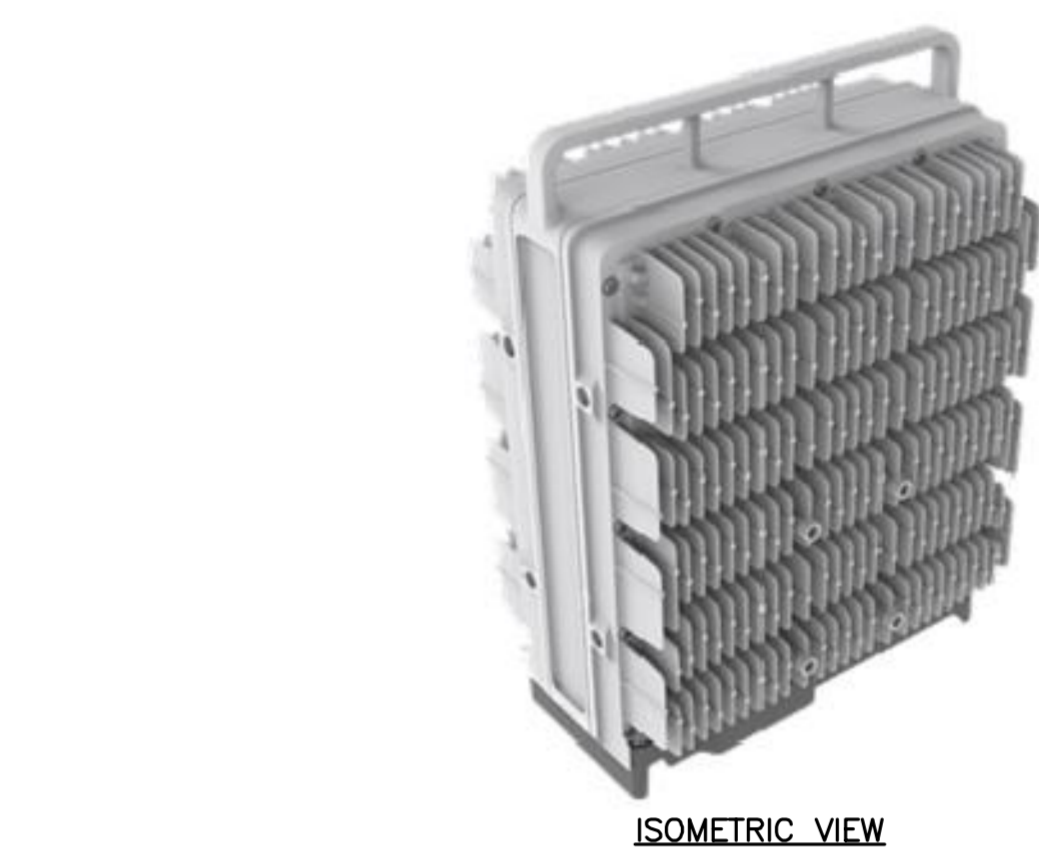


**2** PROPOSED PLUMBING DIAGRAM  
E-1 SCALE: NONE



ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: KR901146-1_B66A_B2A	56.65"L x 12.87"W x 8.66"D	132.2 LBS.
MAKE: RFS MODEL: APXVAARR24_43-U-NA20	95.9"L x 24"W x 8.7"D	128 LBS.

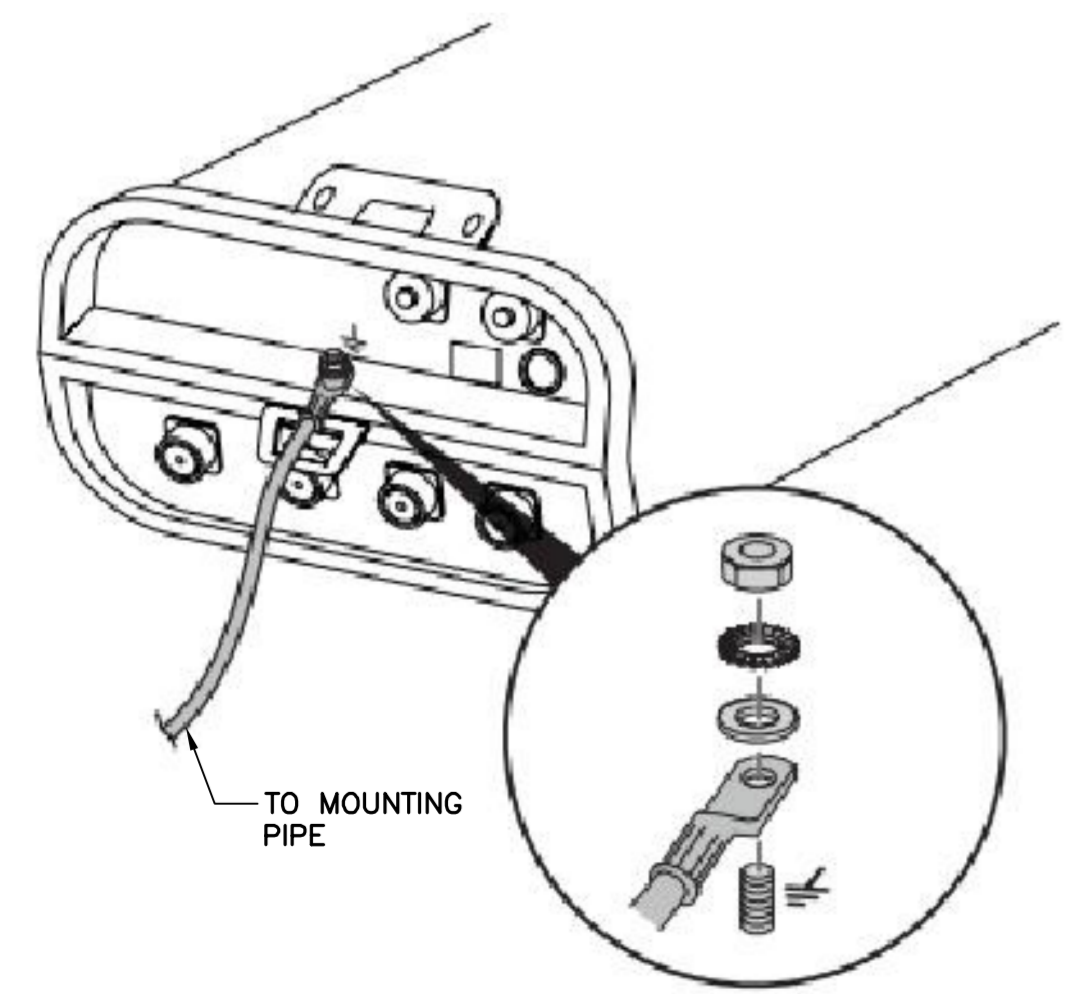
**3** PROPOSED ANTENNA DETAIL  
E-1 SCALE: NONE



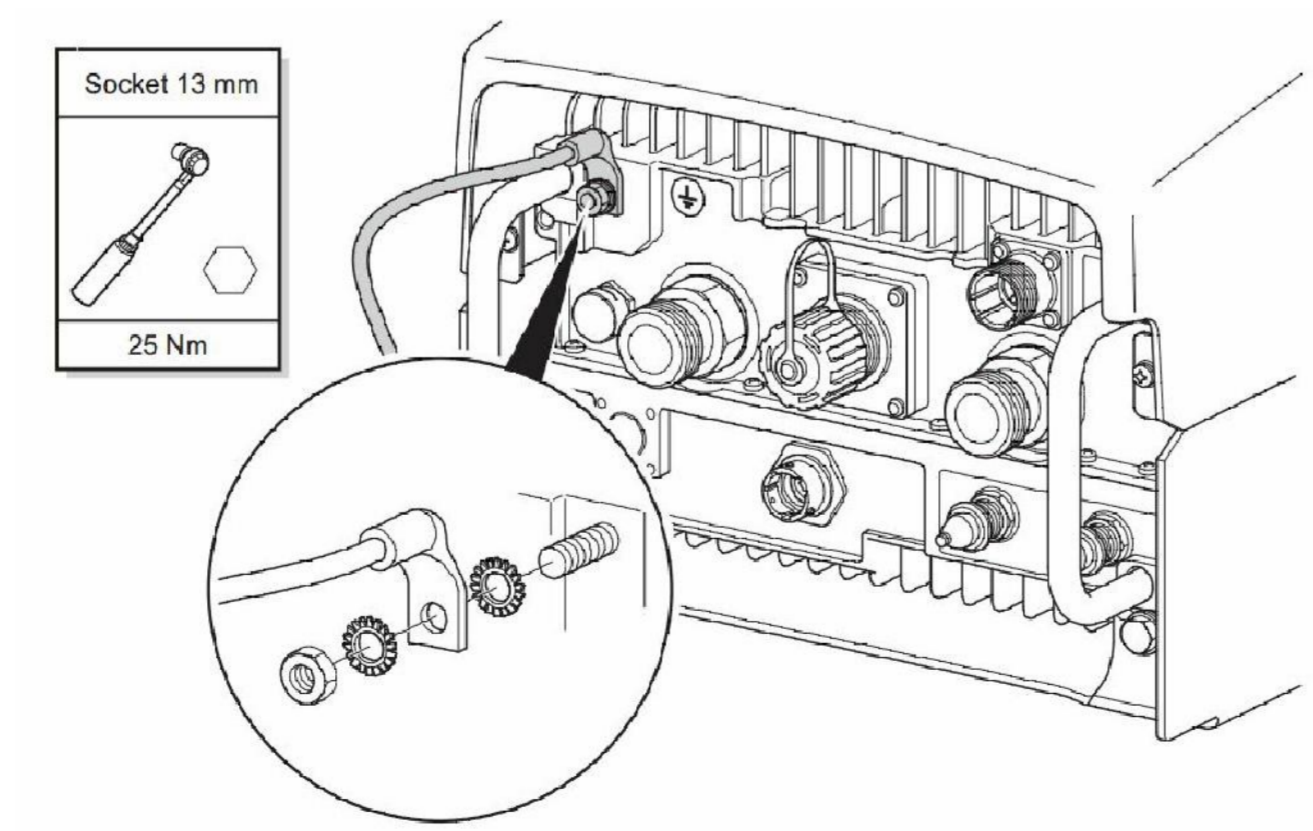
RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RADIO 4449 B71B12	14.9"L x 13.2"W x 10.4"D	74 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

NOTES:  
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T-MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.

**4** PROPOSED RRU DETAIL  
E-1 SCALE: NONE

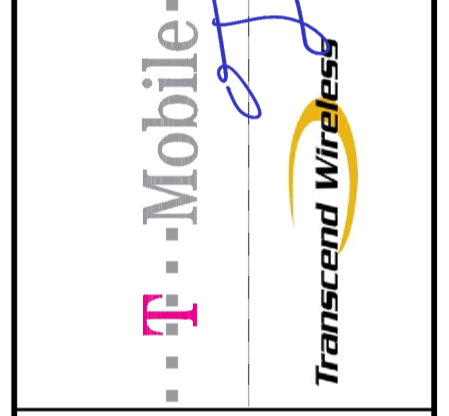
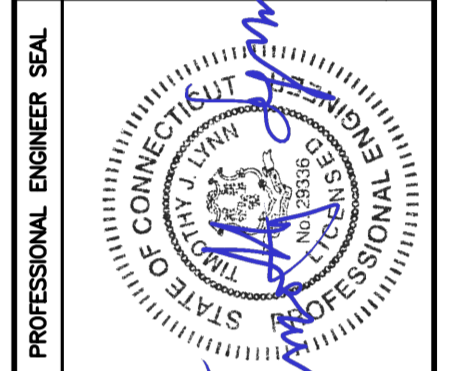


**AA** TYPICAL ANTENNA GROUNDING DETAIL  
E-1 SCALE: NONE



**4** TYPICAL RRU GROUNDING DETAIL  
E-1 NOT TO SCALE

REV.	DATE	TITLE	BY	CHK'D BY	DESCRIPTION
0	02/13/19				ISSUED FOR CONSTRUCTION



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**T-MOBILE NORTHEAST LLC**  
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**SHELTON/BUDDINGTON RD\_1**  
SITE ID: CT1199A  
219 NELLIS ROCK RD  
SHELTON, CT 06484

DATE: 9/11/18  
SCALE: AS NOTED  
JOB NO. 18058.75

TYPICAL ELECTRICAL DETAILS