



May 7, 2022

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

Re: Exempt Modification Application – AT&T Site 13683386
AT&T Mobility Telecommunications Facility @ 50 Devine Street, North Haven, CT

Dear Ms. Bachman,

New Cingular Wireless, PCS, LLC (dba AT&T) currently maintains antennas on a wireless telecommunications facility on an existing American Tower Corporation (ATC) telecommunications tower at the above referenced address. AT&T desires to modify its existing equipment as described in the attached Construction Drawings:

- Remove three (3) antennas and one (1) RRU;
- Install nine (9) antennas and six (6) “Y” cables;
- Relocate six (6) antennas;
- Ground work includes the installation of one (1) XMU 03, one (1) Fronthall Gateway, and one (1) IDLe.

Please accept this letter as notification pursuant to R.C.S.A §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A §16-50j-72(b)(2). In accordance with R.C.S.A §16-50j-73, a copy of this letter is being sent to the following individuals: American Tower Corporation as Tower Operator/Owner; 424 Chapel Street LLC as the Property Owner; the Honorable Michael J. Freda, the First Selectman of North Haven, and municipal Zoning Enforcement Officer, Laura Magaraci.

The applicant’s proposal falls squarely within those activities explicitly provided for in R.C.S.A. §16-50j-89. Specifically:

1. The proposed modifications will NOT result in an increase in the height of the existing structure.
2. The proposed modifications will NOT require an 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 modified facility will NOT increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. Please see the RF emissions calculation for AT&T’s modified facility enclosed herewith.
5. The proposed modifications will NOT cause an ineligible change or alteration in the physical or environmental characteristics of the site.



6. The existing structure and its foundation can support the proposed loading. Please see the structural analysis enclosed herewith.

For the foregoing reasons, AT&T respectfully requests that the Council approve this Exempt Modification request for this tower located at 50 Devine Street, North Haven, CT. If you have any questions, please feel free to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Jack Andrews', is written over the printed name.

Jack Andrews
Zoning Manager, Centerline Communications
443-677-0144

Enclosures: Exhibit 1 – Letter of Authorization from tower owner
Exhibit 2 – Property Card and GIS
Exhibit 3 – Construction Drawings
Exhibit 4 – Structural Analysis Report
Exhibit 5 – Antenna Mount Analysis Report
Exhibit 6 – EME Study Report
Exhibit 7 – Four (4) Notice Confirmations

cc: American Tower Corporation - Tower Operator/Owner
424 Chapel Street LLC - Property Owner
The Honorable Michael J. Freda - First Selectman of North Haven
Laura Magaraci - Zoning Enforcement Officer



LETTER OF AUTHORIZATION

SITE NO: See Site List Below

SITE NAME: See Site List Below

ADDRESS: See Site List Below

I, Margaret Robinson, Senior Counsel, US Tower Division on behalf of American Tower*, owner and/or operator of the tower facilities located at the addresses identified below (the "Tower Facilities"), do hereby authorize Centerline Communications, LLC ("Centerline"), its agents, successors and assigns, to act as American Tower's non-exclusive agent for the purpose of filing and securing any zoning, land-use, building permit and/or electrical permit application(s) and approvals of the applicable jurisdiction for and to conduct the construction of the installation of antennas and related telecommunications equipment owned and operated by AT&T on the Tower Facilities located at the addresses identified below. This installation shall not affect adjoining lands and will occur only within the areas leased or owned by American Tower.

American Tower understands that the applications may be denied, modified or approved with conditions. The above authorization is limited to the acceptance by American Tower of conditions related to American Tower's installations. Any such conditions of approval or modifications will not be effective unless approved in writing by American Tower.

The above authorization does not permit Centerline to modify or alter any existing permit(s) and/or zoning or land-use conditions or impose any additional conditions unrelated to American Tower's installations of telecommunications equipment without the prior written approval of American Tower.

Site Authorized:

ATC Project #	ATC Asset #	Address
13682691	302483	286 Beckley Road, Berlin, CT 06037
13682687	302469	1069 Connecticut Ave. Bridgeport, CT 06607
13682699	383598	1000 Truumball Ave. Bridgeport, CT 06606
13682693	302468	99 Meadow St. Harftford, CT 06114
13682696	370627	605 Willard Ave. Newington, CT 06111
13682689	370629	125 Washington Ave. North Haven, CT 06473
13683386	283418	50 Devine St. North Haven, CT 06473
13683396	88018	168 Catoona Lane, Stamford, CT 06902
13682841	243036	668 Jones Hill Rd. West Haven, CT 06516
13958523	283422	171 Short Beach Rd. Brandford, CT 06405
13958547	302516	438 Bridgeport Ave. Milford, CT 06460
13683394	302479	699 West St. Rocky Hill, CT 06067
13958510	302511	20 Post Office Lane. Westport, CT 06880



AMERICAN TOWER®
CORPORATION

Signature: _____

Margaret Robinson, Senior Counsel
US Tower Division

NOTARY BLOCK

COMMONWEALTH OF MASSACHUSETTS
County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Senior Counsel of American Tower (owner and/or operator of the above referenced Tower Facilities), personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same.

WITNESS my hand and official seal, this 22nd day of April, 2022.

NOTARY SEAL



GERARD T. HEFFRON
Notary Public
Commonwealth of Massachusetts
My Commission Expires
August 9, 2024

Notary Public
My Commission Expires: August 9th, 2024

* American Tower as used herein is defined as American Tower Corporation and any of its affiliates or subsidiaries.

50 Devine St., North Haven CT



**MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT**

Town of North Haven, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 3/24/2021
Data updated daily

Print map scale is approximate.
Critical layout or measurement activities should not be done using this resource.

Map Theme Legends

Aerial Photo, 2019

- TOWN BOUNDARY
- PARCELS

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2019.



Town of North Haven

CONNECTICUT

Information on the Property Records for the Municipality of North Haven was last updated on 5/6/2022.

Property Summary Information

Parcel Data And Values

Building ▾

Outbuildings

Sales

Permits

Parcel Information

Location:	50 DEVINE ST	Property Use:	Industrial	Primary Use:	Light Industrial
Unique ID:	256482	Map Block Lot:	051 021	Acres:	5.97
490 Acres:	0.00	Zone:	IG80	Volume / Page:	0832/0052
Developers Map / Lot:		Census:	0		

Value Information

	Appraised Value	Assessed Value
Land	547,119	382,980
Buildings	1,217,608	852,330
Detached Outbuildings	360,000	252,000

	Appraised Value	Assessed Value
Total	2,124,727	1,487,310

Owner's Information

Owner's Data

424 CHAPEL STREET LLC
50 DEVINE ST
NORTH HAVEN, CT 06473

[Back To Search \(JavaScript:window.history.back\(1\);\)](#)

[Print View \(PrintPage.aspx?towncode=101&uniqueid=256482\)](#)

Information Published With Permission From The Assessor



Radio Frequency Exposure Analysis Report

April 20, 2022

American Tower on behalf of AT&T
Centerline Communications Project Number: 950007-208

AT&T Site Name: North Haven Devine Street
Site Number: CT3506
FA#: 10578263
USID: 156757

Site Address: 50 Devine Street, North Haven, CT 06473

Site Compliance Summary

AT&T Compliance Status:	Compliant
Cumulative Calculated Power Density (Ground Level):	3.67642 $\mu\text{W}/\text{cm}^2$
Cumulative General Population % MPE (Ground Level):	0.42346%



April 20, 2022

American Tower

Attn: Dayna Priest, Site Development, East Region-American Tower

RF Exposure Analysis for Site: **North Haven Devine Street**

Centerline Communications, LLC (“Centerline”) was contracted to analyze the proposed AT&T facility at **50 Devine Street, North Haven, CT 06473** for the purpose of determining whether the predictive exposure from the proposed facility is within specified federal limits.

All information used in this report was analyzed as a percentage of the Maximum Permissible Exposure (% MPE) limits as detailed in 47 CFR § 1.1310 as well as Federal Communications Commission (FCC) OET Bulletin 65 Edition 97-01. The FCC MPE limits are typically expressed in units of milliwatts per square centimeter (mW/cm^2) or microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The exposure limits vary depending upon the frequencies being utilized. The General Population/Uncontrolled MPE limit (in mW/cm^2) for frequencies between 300 and 1500 is defined as frequency (in MHz) divided by 1500 ($f_{\text{MHz}}/1500$). Frequencies between 1500 and 100,000 MHz have a General Population/Uncontrolled MPE limit of $1 \text{ mW}/\text{cm}^2$ ($1000 \mu\text{W}/\text{cm}^2$). The calculated power density at each sample point divided by the limit at each calculated frequency provides a result in % MPE. Summing the calculated % MPE from all contributors provides a cumulative % MPE at a particular sample point. Wireless carriers use different frequency bands with varying MPE limits; therefore, it is useful to report results in terms of % MPE as opposed to power density.

All results were compared to the FCC radio frequency exposure rules as detailed in 47 CFR § 1.1307(b) to determine compliance with the 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.

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, 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.



Calculation Methodology

Centerline Communications, LLC has performed theoretical modeling of the site using a software tool, RoofMaster®, which incorporates calculation methodologies detailed in FCC OET 65. RoofMaster® uses a cylindrical model for conservative power density predictions within the near field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations, the power decreases inversely with the square of the distance. The modeling is based on worst-case assumptions in terms of transmitter power and duty cycle. No losses were included in the power calculations unless they were specifically provided for the project.

In OET 65, a far field model is presented to calculate the spatial peak power density. The RoofMaster® implementation of this model incorporates antenna manufacturer's horizontal and vertical pattern data to determine the power density in all directions. This model yields the power density at a single point in space. In order to determine the spatial power density for comparison to the FCC limits, the average of several points calculated within the human profile (0-6') must be conducted. RoofMaster® calculates seven power density values between 0-6' above the specified study plane and performs a linear spatial average.



Data & Results

The following table details the antennas and operating parameters for the AT&T antenna system as well as any other antenna systems at the site. This is based on antenna information provided by the client and data compiled from other sources where necessary. The data below was input into Roofmaster® to perform the theoretical exposure calculations at the Ground.

The theoretical calculations performed in Roofmaster® determine the cumulative exposure at all sample points at ground level (0-6' spatial average). The results from highest cumulative sample point at ground level surrounding the site are displayed in the table below. The contribution from directional antennas to the maximum cumulative totals varies greatly depending on location; therefore, the contribution from one antenna sector at the highest calculated exposure point may be greater or less than other sectors since sectorized directional antennas are pointed in different directions and there is not much overlapping exposure.

The contribution to the cumulative power density and % MPE for each antenna/frequency band is listed in the table. The cumulative power density and cumulative % MPE are displayed at the bottom of the table.



Maximum Calculated Cumulative Power Density (Location: approximately of site)

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/Channel (watts)	ERP (watts)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	General Population MPE Limit ($\mu\text{W}/\text{cm}^2$)	General Population % MPE
AT&T A 1	KATHREIN 80010966	700	13.15	107.00	4.00	40.00	3304.61	0.00014	466.67	0.00003
AT&T A 1	KATHREIN 80010966	2100	16.65	107.00	4.00	40.00	7398.10	0.00006	1000.00	0.00001
AT&T A 1	KATHREIN 80010966	2100	16.65	107.00	4.00	40.00	7398.10	0.00006	1000.00	0.00001
AT&T A 2	NOKIA AEQK	3840	22.65	107.00	1.00	67.78	12476.75	0.00021	1000.00	0.00002
AT&T A 3	NOKIA AEQU	3450	22.65	107.00	1.00	67.78	12476.75	0.00027	1000.00	0.00003
AT&T A 4	CCI DMP65R-BU8D	700	12.25	107.00	2.00	40.00	1343.04	0.00005	466.67	0.00001
AT&T A 4	CCI DMP65R-BU8D	850	12.55	107.00	2.00	40.00	1439.10	0.00001	566.67	0.00000
AT&T A 4	CCI DMP65R-BU8D	1900	15.05	107.00	4.00	40.00	5118.23	0.00001	1000.00	0.00000
AT&T A 4	CCI DMP65R-BU8D	2300	14.65	107.00	4.00	25.00	2917.43	0.00001	1000.00	0.00000
AT&T A 5	CCI HPA-65R-BUU-H8	850	14.35	98.00	0.00	0.00	SPARE	0.00000	566.67	0.00000
AT&T A 6	CCI HPA-65R-BUU-H8	850	14.35	98.00	0.00	0.00	SPARE	0.00000	566.67	0.00000
AT&T B 7	KATHREIN 80010966	700	13.15	107.00	4.00	40.00	3304.61	0.03633	466.67	0.00779
AT&T B 7	KATHREIN 80010966	2100	16.65	107.00	4.00	40.00	7398.10	0.04310	1000.00	0.00431
AT&T B 7	KATHREIN 80010966	2100	16.65	107.00	4.00	40.00	7398.10	0.04310	1000.00	0.00431
AT&T B 8	NOKIA AEQK	3840	22.65	107.00	1.00	67.78	12476.75	0.66010	1000.00	0.06601
AT&T B 9	NOKIA AEQU	3450	22.65	107.00	1.00	67.78	12476.75	0.57896	1000.00	0.05790
AT&T B 10	CCI DMP65R-BU8D	700	12.25	107.00	2.00	40.00	1343.04	0.03155	466.67	0.00676
AT&T B 10	CCI DMP65R-BU8D	850	12.55	107.00	2.00	40.00	1439.10	0.02679	566.67	0.00473
AT&T B 10	CCI DMP65R-BU8D	1900	14.55	107.00	4.00	40.00	4561.63	0.05809	1000.00	0.00581
AT&T B 10	CCI DMP65R-BU8D	2300	14.65	107.00	4.00	25.00	2917.43	0.03444	1000.00	0.00344
AT&T B 11	CCI HPA-65R-BUU-H8	850	14.35	98.00	0.00	0.00	SPARE	0.00000	566.67	0.00000
AT&T B 12	CCI HPA-65R-BUU-H8	850	14.35	98.00	0.00	0.00	SPARE	0.00000	566.67	0.00000
AT&T C 13	KATHREIN 80010966	700	13.15	107.00	4.00	40.00	3304.61	0.00008	466.67	0.00002
AT&T C 13	KATHREIN 80010966	2100	16.65	107.00	4.00	40.00	7398.10	0.00007	1000.00	0.00001
AT&T C 13	KATHREIN 80010966	2100	16.65	107.00	4.00	40.00	7398.10	0.00007	1000.00	0.00001
AT&T C 14	NOKIA AEQK	3840	22.65	107.00	1.00	67.78	12476.75	0.00027	1000.00	0.00003
AT&T C 15	NOKIA AEQU	3450	22.65	107.00	1.00	67.78	12476.75	0.00033	1000.00	0.00003
AT&T C 16	CCI DMP65R-BU8D	700	12.25	107.00	2.00	40.00	1343.04	0.00001	466.67	0.00000
AT&T C 16	CCI DMP65R-BU8D	850	12.55	107.00	2.00	40.00	1439.10	0.00000	566.67	0.00000
AT&T C 16	CCI DMP65R-BU8D	1900	15.05	107.00	4.00	40.00	5118.23	0.00007	1000.00	0.00001
AT&T C 16	CCI DMP65R-BU8D	2300	14.65	107.00	4.00	25.00	2917.43	0.00008	1000.00	0.00001
AT&T C 17	CCI HPA-65R-BUU-H8	850	14.35	98.00	0.00	0.00	SPARE	0.00000	566.67	0.00000
AT&T C 18	CCI HPA-65R-BUU-H8	850	14.35	98.00	0.00	0.00	SPARE	0.00000	566.67	0.00000
Unknown A 19	GENERIC PANEL 6FT	700	12.33	131.30	4.00	40.00	2736.02	0.00029	466.67	0.00006



Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	General Population MPE Limit ($\mu\text{W}/\text{cm}^2$)	General Population % MPE
Unknown A 20	GENERIC PANEL 6FT	850	12.62	131.30	4.00	40.00	2924.96	0.00033	566.67	0.00006
Unknown A 21	GENERIC PANEL 6FT	1900	15.84	131.30	4.00	30.00	4604.49	0.00014	1000.00	0.00001
Unknown A 22	GENERIC PANEL 6FT	2100	16.39	131.30	4.00	40.00	6968.19	0.00012	1000.00	0.00001
Unknown B 23	GENERIC PANEL 6FT	700	12.33	131.30	4.00	40.00	2736.02	0.10390	466.67	0.02226
Unknown B 24	GENERIC PANEL 6FT	850	12.62	131.30	4.00	40.00	2924.96	0.10729	566.67	0.01893
Unknown B 25	GENERIC PANEL 6FT	1900	15.84	131.30	4.00	30.00	4604.49	0.08063	1000.00	0.00806
Unknown B 26	GENERIC PANEL 6FT	2100	16.39	131.30	4.00	40.00	6968.19	0.11289	1000.00	0.01129
Unknown C 27	GENERIC PANEL 6FT	700	12.33	131.30	4.00	40.00	2736.02	0.00041	466.67	0.00009
Unknown C 28	GENERIC PANEL 6FT	850	12.62	131.30	4.00	40.00	2924.96	0.00001	566.67	0.00000
Unknown C 29	GENERIC PANEL 6FT	1900	15.84	131.30	4.00	30.00	4604.49	0.00002	1000.00	0.00000
Unknown C 30	GENERIC PANEL 6FT	2100	16.39	131.30	4.00	40.00	6968.19	0.00004	1000.00	0.00000
Unknown A 31	GENERIC PANEL 6FT	850	12.62	117.00	4.00	40.00	2924.96	0.00042	566.67	0.00008
Unknown A 31	GENERIC PANEL 6FT	1900	15.84	117.00	4.00	40.00	6139.32	0.00023	1000.00	0.00002
Unknown A 32	GENERIC PANEL 6FT	2100	16.39	117.00	4.00	40.00	6968.19	0.00015	1000.00	0.00002
Unknown A 32	GENERIC PANEL 6FT	700	12.33	117.00	4.00	40.00	2736.02	0.00037	466.67	0.00008
Unknown A 33	GENERIC PANEL	3700	23.34	117.00	4.00	50.00	43154.89	0.02659	1000.00	0.00266
Unknown A 34	GENERIC PANEL	3550	8.30	117.00	4.00	5.00	135.22	0.00005	1000.00	0.00001
Unknown B 35	GENERIC PANEL 6FT	850	12.62	117.00	4.00	40.00	2924.96	0.13714	566.67	0.02420
Unknown B 35	GENERIC PANEL 6FT	1900	15.84	117.00	4.00	40.00	6139.32	0.13740	1000.00	0.01374
Unknown B 36	GENERIC PANEL 6FT	2100	16.39	117.00	4.00	40.00	6968.19	0.14429	1000.00	0.01443
Unknown B 36	GENERIC PANEL 6FT	700	12.33	117.00	4.00	40.00	2736.02	0.13280	466.67	0.02846
Unknown B 37	GENERIC PANEL	3700	23.34	117.00	4.00	50.00	43154.89	1.13406	1000.00	0.11341
Unknown B 38	GENERIC PANEL	3550	8.30	117.00	4.00	5.00	135.22	0.01952	1000.00	0.00195
Unknown C 39	GENERIC PANEL 6FT	850	12.62	117.00	4.00	40.00	2924.96	0.00002	566.67	0.00000
Unknown C 39	GENERIC PANEL 6FT	1900	15.84	117.00	4.00	40.00	6139.32	0.00003	1000.00	0.00000
Unknown C 40	GENERIC PANEL 6FT	2100	16.39	117.00	4.00	40.00	6968.19	0.00005	1000.00	0.00001
Unknown C 40	GENERIC PANEL 6FT	700	12.33	117.00	4.00	40.00	2736.02	0.00052	466.67	0.00011
Unknown C 41	GENERIC PANEL	3700	23.34	117.00	4.00	50.00	43154.89	0.02247	1000.00	0.00225



Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	General Population MPE Limit ($\mu\text{W}/\text{cm}^2$)	General Population % MPE
Unknown C 42	GENERIC PANEL	3550	8.30	117.00	4.00	5.00	135.22	0.00004	1000.00	0.00000
							Cumulative Power Density:	3.67642 $\mu\text{W}/\text{cm}^2$	Cumulative % MPE:	0.42346%



Summary

The theoretical calculations performed for this analysis yielded cumulative power density totals in all areas at Ground that are within the allowable federal limits for public exposure to RF energy. Therefore, the site is **Compliant** with FCC rules and regulations.

Michelle Stone

Michelle Stone
RF EME Technical Writer II
Centerline Communications, LLC



AMERICAN TOWER®
CORPORATION

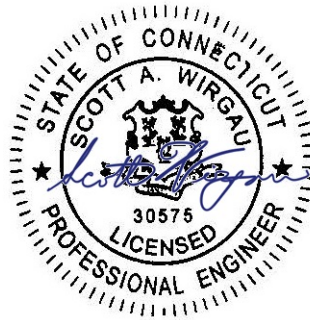
Structural Analysis Report

Structure : 129 ft Monopole
ATC Site Name : NORTH HAVEN CT,CT
ATC Site Number : 283418
Engineering Number : 13683386_C3_03
Proposed Carrier : AT&T MOBILITY
Carrier Site Name : MRCTB051593
Carrier Site Number : CT3506
Site Location : 50 Devine Street
North Haven, CT 06473-2204
41.3778, -72.8762
County : New Haven
Date : November 29, 2021
Max Usage : 65%
Result : Pass

Prepared By:

Steven Nedrud
Structural Engineer I

Reviewed By:



COA : PEC.0001553



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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 129 ft Monopole to reflect the change in loading by AT&T MOBILITY.

Supporting Documents

Tower Drawings	Sabre, FTP Job #11-05062, dated May 12, 2010
Foundation Drawing	Sabre, FTP Job #11-05062, dated May 12, 2010
Geotechnical Report	Terracon Project #J2105136, dated April 20, 2010

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	120 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.00" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	$S_s = 0.20, S_i = 0.05$
Site Class:	D - Stiff Soil - Default

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
130.0	3	Alcatel-Lucent PCS B25 RRH2x60/4x30	Triangular Low Profile Platform	(6) 1 5/8" Hybriflex (12) 1 5/8" Coax	VERIZON WIRELESS
	3	Alcatel-Lucent B66A RRH 4x45			
	3	Generic 70" x 10" Panel			
	1	Generic 70" x 8" Panel			
	6	Commscope JAHH-65B-R3B			
	3	Amphenol Antel BX A-80080-6CF-EDIN-X			
	3	Samsung MT6407-77A			
	1	Talley RHSDC-6627-PF-48			
	3	Samsung B2/B66A RRH-BR049			
	3	Commscope CBC78T-DS-43-2X			
	3	Samsung B5/B13 RRH-BR04C			
119.0	3	RFS APXVAARR24_43-U-NA20	Sector Frame	(3) 1 1/4" (1.25"-31.8mm) Fiber (1) 1 5/8" Hybriflex	T-MOBILE
	3	Ericsson AIR-32 B2A/B66Aa			
	3	Ericsson AIR 21, 1.3 M, B2A B4P			
	3	Ericsson RRUS 4415 B25			
	3	Ericsson Radio 4449 B71 B85A			
	3	Ericsson Air6449 B41			
107.0	3	Raycap DC6-48-60-18-8F	Triangular Platform w/ Handrails and SitePro1 PRK-SFS Stabilizer Kit	(6) 2" conduit (3) 3/8" (0.38"-9.5mm) RET Control Cable	AT&T MOBILITY
	3	Ericsson RRUS 8843 B2, B66A			
	3	Ericsson RRUS 4478 B14			
	3	Ericsson RRUS 4449 B5, B12			
	1	Raycap DC6-48-60-0-8C-EV			
	3	Kathrein Scala 80010966			
96.0	3	Fujitsu TA08025-B604	Triangular Platform with Handrails	(1) 1.60" (40.6mm) Hybrid	DISH WIRELESS L.L.C.
	3	Fujitsu TA08025-B605			
	3	JMA Wireless MX08FRO665-21			
	1	Commscope RDIDC-9181-PF-48			

Equipment to be Removed

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
107.0	6	Ericsson RRUS A2 B2	-	(3) 0.39" (10mm) Fiber Trunk (8) 0.78" (19.7mm) 8 AWG 6	AT&T MOBILITY
	3	Ericsson RRUS-11 (50 lbs.)			
	9	CCI CCI-HPA-65R-BUU-H8			
	6	Ericsson RRUS 32 B2			
	3	Ericsson RRUS 32 (50.8 lbs)			



Proposed Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
109.0	3	Ericsson AIR 6419 B77G	Triangular Platform w/ Handrails and SitePro1 PRK-SFS Stabilizer Kit	(3) 0.40" (10.3mm) Fiber (8) 0.82" (20.8mm) 8 AWG 6 (1) 2" conduit	AT&T MOBILITY
107.0	3	Ericsson RRUS 32 B30			
	3	CCI DMP65R-BU6DA			
	6	CCI HPA-65R-BUU-H8			
105.0	3	Ericsson Air 6449 B77D			

¹ Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines inside the pole shaft.

Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively “American Tower”) are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

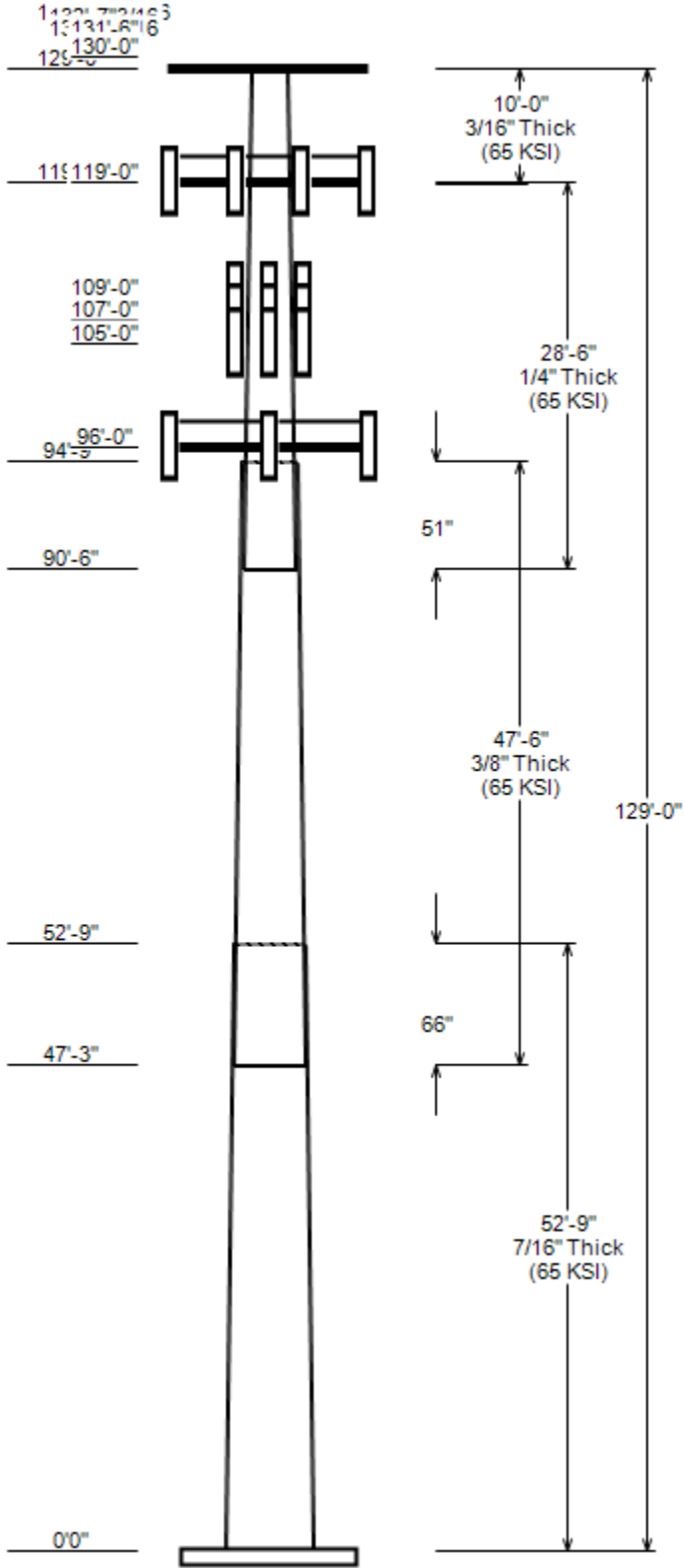
Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

JOB INFORMATION

Asset : 283418, NORTH HAVEN CT
 Client : AT&T MOBILITY
 Code : ANSI/TIA-222-H

Height : 129 ft
 Base Width : 48.8
 Shape : 18 Sides



SITE PARAMETERS

Base Elev (ft): 0.00 Structure Class: II
 Taper : 0.22600 (In/ft) Exposure : C
 Topographic Category : 1 Topographic Feature:
 Topo Method : Method 1

SECTION PROPERTIES

Shaft Section	Length (ft)	Diameter (in)		Thick (in)	Overlap Length (in)	Steel Grade (ksi)
		Across Flats Top	Across Flats Bottom			
1	52.750	36.88	48.80	0.438	0.000	65
2	47.500	28.14	38.87	0.375	66.000	65
3	28.500	23.16	29.60	0.250	51.000	65
4	10.000	20.90	23.16	0.188	0.000	65

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
132.9	132.9	3	Alcatel-Lucent PCS B25 RRH2x60
132.6	132.6	3	Alcatel-Lucent B66A RRH 4x45
131.6	131.6	3	Generic 70" x 10" Panel
131.5	131.5	1	Generic 70" x 8" Panel
130.0	130.0	3	Commscope CBC78T-DS-43-2X
130.0	130.0	3	Samsung B5/B13 RRH-BR04C
130.0	130.0	3	Samsung B2/B66A RRH-BR049
130.0	130.0	1	Talley RHSDC-6627-PF-48
130.0	130.0	3	Samsung MT6407-77A
130.0	132.0	3	Amphenol Antel BXA-80080-6CF-E
130.0	132.0	6	Commscope JAHH-65B-R3B
129.0	129.0	1	Generic Round Low Profile Plat
119.0	119.0	3	Ericsson Radio 4449 B71 B85A
119.0	119.0	3	Ericsson RRUS 4415 B25
119.0	119.0	3	Ericsson Air6449 B41
119.0	119.0	3	Ericsson AIR 21, 1.3 M, B2A B4
119.0	119.0	3	Ericsson AIR-32 B2A/B66Aa
119.0	119.0	3	Generic Round Sector Frame
119.0	119.0	3	RFS APXVAARR24_43-U-NA20
109.0	109.0	3	Ericsson AIR 6419 B77G
107.0	107.0	1	Raycap DC6-48-60-0-8C-EV
107.0	107.0	3	Raycap DC6-48-60-18-8F
107.0	107.0	3	Ericsson RRUS 8843 B2, B66A
107.0	107.0	3	Ericsson RRUS 4478 B14
107.0	107.0	3	Ericsson RRUS 4449 B5, B12
107.0	107.0	3	Ericsson RRUS 32 B30
107.0	107.0	3	CCI DMP65R-BU6DA
107.0	107.0	6	CCI HPA-65R-BUU-H8
107.0	107.0	3	Kathrein Scala 80010966
107.0	107.0	1	Round Platform w/ Handrails an
105.0	105.0	3	Ericsson Air 6449 B77D
96.0	96.0	1	Commscope RDIDC-9181-PF-48
96.0	96.0	3	Fujitsu TA08025-B605
96.0	96.0	3	Fujitsu TA08025-B604
96.0	96.0	3	JMA Wireless MX08FRO665-21
96.0	96.0	1	Generic Flat Platform with Han

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	132.0	1 5/8" Hybriflex	No
0.0	130.0	1 5/8" Hybriflex	No
0.0	130.0	1 5/8" Coax	No

JOB INFORMATION

Asset : 283418, NORTH HAVEN CT
 Client : AT&T MOBILITY
 Code : ANSI/TIA-222-H

Height : 129 ft
 Base Width : 48.8
 Shape : 18 Sides

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	119.0	1 5/8" Hybriflex	No
0.0	119.0	1 1/4" (1.25" - 31.8mm) Fiber	No
0.0	107.0	3/8" (0.38" - 9.5mm) RET Control Cable	No
0.0	107.0	2" conduit	No
0.0	107.0	2" conduit	No
0.0	107.0	0.82" (20.8mm) 8 AWG 6	No
0.0	107.0	0.40" (10.3mm) Fiber	No
0.0	96.0	1.60" (40.6mm) Hybrid	No

LOAD CASES

1.2D + 1.0W	120 mph wind with no ice
0.9D + 1.0W	120 mph wind with no ice
1.2D + 1.0Di + 1.0Wi	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

REACTIONS

Load Case	Moment (kip-ft)	Shear (Kip)	Axial (Kip)
1.2D + 1.0W	3080.29	31.02	47.28
0.9D + 1.0W	3044.62	30.99	35.44
1.2D + 1.0Di + 1.0Wi	769.72	7.87	61.90
1.2D + 1.0Ev + 1.0Eh	127.10	1.19	47.29
0.9D - 1.0Ev + 1.0Eh	125.27	1.19	32.59
1.0D + 1.0W	684.50	6.93	39.45

DISH DEFLECTIONS

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
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ASSET: 283418, NORTH HAVEN CT
CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H
ENG NO: 13683386_C3_03

ANALYSIS PARAMETERS

Location:	New Haven County,CT	Height:	129 ft
Type and Shape:	Taper, 18 Sides	Base Diameter:	48.80 in
Manufacturer:	Undetermined	Top Diameter:	20.90 in
K_d (non-service):	0.95	Taper:	0.2260 in/ft
K_e:	1.00	Rotation:	0.000°

ICE & WIND PARAMETERS

Exposure Category:	C	Design Wind Speed w/o Ice:	120 mph
Risk Category:	II	Design Wind Speed w/Ice:	50 mph
Topo Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.00 in
Crest Height:	0 ft	HMSL:	8.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil	Period Based on Rayleigh Method (sec):	2.18
T_L (sec):	6	P:	1
S_s:	0.203	S₁:	0.054
F_a:	1.600	F_v:	2.400
S_{ds}:	0.217	S_{dt}:	0.086
		C_s:	0.030
		C_s Max:	0.030
		C_s Min:	0.030

LOAD CASES

1.2D + 1.0W	120 mph wind with no ice
0.9D + 1.0W	120 mph wind with no ice
1.2D + 1.0Di + 1.0Wi	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

SHAFT SECTION PROPERTIES

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint len (in)	Weight (lb)	Bottom						Top							
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)	
1-18	52.75	0.4375	65		0.00	10,569	48.80	0.000	67.15	19,844.9	17.90	111.54	36.88	52.75	50.60	8,490.9	13.10	84.30	0.2260	
2-18	47.50	0.3750	65	Slip	66.00	6,374	38.87	47.250	45.82	8,580.0	16.52	103.66	28.14	94.75	33.05	3,218.4	11.47	75.04	0.2260	
3-18	28.50	0.2500	65	Slip	51.00	2,011	29.60	90.500	23.29	2,534.5	19.11	118.40	23.16	119.00	18.18	1,205.4	14.57	92.64	0.2260	
								119.00								668.1				
4-18	10.00	0.1875	65	Butt	0.00	442	23.16	0	13.67	911.5	20.02	123.52	20.90	129.00	12.33		17.89	111.47	0.2260	
Shaft Weight						19,396														

DISCRETE APPURTENANCE PROPERTIES

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice			Ice		
					Weight (lb)	EPAA (sf)	Orientation Factor	Weight (lb)	EPAA (sf)	Orientation Factor
132.90	Alcatel-Lucent PCS B25 RRH2x60	3	0.80	0.000	55.00	2.200	0.67	101.82	2.868	0.67
132.60	Alcatel-Lucent B66A RRH 4x45	3	0.80	0.000	67.00	2.580	0.67	113.74	3.322	0.67
131.60	Generic 70" x 10" Panel	3	0.80	0.000	40.00	6.800	0.67	127.95	8.602	0.67
131.50	Generic 70" x 8" Panel	1	0.80	0.000	40.00	5.670	1.00	110.83	7.209	1.00
130.00	Commscope JAHH-65B-R3B	6	0.80	2.000	60.60	9.113	0.69	193.52	10.936	0.69
130.00	Samsung MT6407-77A	3	0.80	0.000	81.60	4.709	0.61	148.57	5.707	0.61
130.00	Amphenol Antel BXA-80080-6CF-E	3	0.80	2.000	18.00	5.760	0.73	101.06	7.315	0.73
130.00	Talley RHSDC-6627-PF-48	1	0.80	0.000	32.00	4.056	1.00	115.50	4.953	1.00
130.00	Samsung B2/B66A RRH-BR049	3	0.80	0.000	84.40	1.875	0.50	126.31	2.468	0.50
130.00	Samsung B5/B13 RRH-BR04C	3	0.80	0.000	70.30	1.875	0.50	107.88	2.468	0.50
130.00	Commscope CBC78T-DS-43-2X	3	0.80	0.000	20.70	0.552	0.50	35.22	0.886	0.50
129.00	Generic Round Low Profile Plat	1	1.00	0.000	1875.00	21.700	1.00	2407.09	34.314	1.00
119.00	RFS APXVAARR24_43-U-NA20	3	0.80	0.000	127.90	20.243	0.63	383.72	22.660	0.63
119.00	Ericsson AIR-32 B2A/B66Aa	3	0.80	0.000	132.20	6.510	0.71	236.21	7.937	0.71
119.00	Generic Round Sector Frame	3	0.75	0.000	300.00	14.400	0.75	539.70	25.186	0.75
119.00	Ericsson AIR 21, 1.3 M, B2A B4	3	0.80	0.000	83.00	6.049	0.71	178.10	7.458	0.71
119.00	Ericsson Air6449 B41	3	0.80	0.000	104.00	5.682	0.63	192.81	6.716	0.63
119.00	Ericsson RRUS 4415 B25	3	0.80	0.000	46.00	1.842	0.50	77.95	2.427	0.50
119.00	Ericsson Radio 4449 B71 B85A	3	0.80	0.000	75.00	1.650	0.50	114.19	2.204	0.50
109.00	Ericsson AIR 6419 B77G	3	0.75	0.000	66.10	3.797	0.65	128.82	4.649	0.65
107.00	Round Platform w/ Handrails an	1	1.00	0.000	2000.00	28.000	1.00	2836.09	44.236	1.00
107.00	Kathrein Scala 80010966	3	0.75	0.000	114.60	17.363	0.63	321.79	19.743	0.63
107.00	CCI HPA-65R-BUU-H8	6	0.75	0.000	68.00	12.976	0.67	233.79	15.286	0.67
107.00	Ericsson RRUS 4449 B5, B12	3	0.75	0.000	71.00	1.969	0.50	112.59	2.571	0.50
107.00	Ericsson RRUS 32 B30	3	0.75	0.000	60.00	2.743	0.67	107.47	3.498	0.67
107.00	CCI DMP65R-BU6DA	3	0.75	0.000	79.40	12.709	0.63	245.61	14.509	0.63
107.00	Ericsson RRUS 4478 B14	3	0.75	0.000	59.90	1.842	0.50	95.58	2.421	0.50
107.00	Ericsson RRUS 8843 B2, B66A	3	0.75	0.000	72.00	1.639	0.50	111.55	2.184	0.50
107.00	Raycap DC6-48-60-18-8F	3	0.75	0.000	20.00	1.260	1.00	53.97	1.685	1.00
107.00	Raycap DC6-48-60-0-8C-EV	1	0.75	0.000	16.00	1.020	1.00	45.22	1.385	1.00
105.00	Ericsson Air 6449 B77D	3	0.75	0.000	81.60	4.028	0.65	147.73	4.912	0.65
96.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3634.36	55.792	1.00
96.00	JMA Wireless MX08FRO665-21	3	0.75	0.000	64.50	12.489	0.64	228.62	14.283	0.64
96.00	Fujitsu TA08025-B605	3	0.75	0.000	75.00	1.962	0.50	115.00	2.549	0.50
96.00	Fujitsu TA08025-B604	3	0.75	0.000	63.90	1.962	0.50	101.14	2.549	0.50
96.00	Commscope RDIDC-9181-PF-48	1	0.75	0.000	21.90	1.867	1.00	58.24	2.442	1.00
Totals	Num Loadings: 36				100	13,655.80		24,836.49		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : _

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax/ Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	132.00	4	1 5/8" Hybriflex	1.98	1.3	N	0	0	0	0	0	N	VERIZON WIREL
0.00	130.00	12	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	VERIZON WIREL
0.00	130.00	2	1 5/8" Hybriflex	1.98	1.3	N	0	0	0	0	0	N	VERIZON WIREL
0.00	119.00	3	1 1/4" (1.25"- 31.8mm)	1.25	1.05	N	0	0	0	0	0	N	T-MOBILE
0.00	119.00	1	1 5/8" Hybriflex	1.98	1.3	N	0	0	0	0	0	N	T-MOBILE
0.00	107.00	8	0.82" (20.8mm) 8 AWG	0.82	0.62	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	107.00	6	2" conduit	2.38	3.65	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	107.00	3	3/8" (0.38"- 9.5mm) R	0.38	0.23	N	0	0	0	0	0	N	AT&T MOBILITY

ASSET: 283418, NORTH HAVEN CT
CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H
ENG NO: 13683386_C3_03

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax/Row	Dist Between Rows(in)	Dist Between Cols(in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	107.00	3	0.40" (10.3mm) Fiber	0.4	0.09	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	107.00	1	2" conduit	2.38	3.65	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	96.00	1	1.60" (40.6mm) Hybrid	1.6	2.34	N	0	0	0	0	0	N	DISH WIRELESS

SEGMENT PROPERTIES

(Max Len: 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in ³)	Z (in ³)	Weight (lb)
0.00		0.4375	48.800	67.155	19,844.90	17.90	111.54	80.3	801.0	0.0	0.0
5.00		0.4375	47.670	65.586	18,486.30	17.45	108.96	80.9	763.8	0.0	1,129.2
10.00		0.4375	46.540	64.017	17,191.10	16.99	106.38	81.4	727.5	0.0	1,102.5
15.00		0.4375	45.410	62.448	15,957.90	16.54	103.80	81.9	692.2	0.0	1,075.8
20.00		0.4375	44.281	60.879	14,785.20	16.08	101.21	82.5	657.6	0.0	1,049.1
25.00		0.4375	43.151	59.311	13,671.30	15.63	98.63	82.6	624.0	0.0	1,022.5
30.00		0.4375	42.021	57.742	12,614.90	15.17	96.05	82.6	591.3	0.0	995.8
35.00		0.4375	40.891	56.173	11,614.30	14.72	93.47	82.6	559.4	0.0	969.1
40.00		0.4375	39.761	54.604	10,668.10	14.26	90.88	82.6	528.5	0.0	942.4
45.00		0.4375	38.631	53.035	9,774.70	13.81	88.30	82.6	498.4	0.0	915.7
47.25	Bot - Section 2	0.4375	38.123	52.329	9,389.50	13.60	87.14	82.6	485.1	0.0	403.3
50.00		0.4375	37.502	51.466	8,932.70	13.35	85.72	82.6	469.2	0.0	911.0
52.75	Top - Section 1	0.3750	37.630	44.341	7,775.60	15.93	100.35	82.6	407.0	0.0	896.0
55.00		0.3750	37.122	43.736	7,461.60	15.69	98.99	82.6	395.9	0.0	337.2
60.00		0.3750	35.992	42.391	6,794.30	15.16	95.98	82.6	371.8	0.0	732.7
65.00		0.3750	34.862	41.047	6,168.00	14.63	92.97	82.6	348.5	0.0	709.8
70.00		0.3750	33.732	39.702	5,581.40	14.10	89.95	82.6	325.9	0.0	686.9
75.00		0.3750	32.602	38.357	5,033.20	13.57	86.94	82.6	304.1	0.0	664.0
80.00		0.3750	31.472	37.012	4,522.20	13.04	83.93	82.6	283.0	0.0	641.2
85.00		0.3750	30.343	35.668	4,047.00	12.50	80.91	82.6	262.7	0.0	618.3
90.00		0.3750	29.213	34.323	3,606.30	11.97	77.90	82.6	243.1	0.0	595.4
90.50	Bot - Section 3	0.3750	29.100	34.188	3,564.10	11.92	77.60	82.6	241.2	0.0	58.3
94.75	Top - Section 2	0.2500	28.639	22.526	2,293.80	18.44	114.56	79.7	157.8	0.0	817.4
95.00		0.2500	28.583	22.481	2,280.10	18.40	114.33	79.8	157.1	0.0	19.1
96.00		0.2500	28.357	22.302	2,226.00	18.24	113.43	80	154.6	0.0	76.2
100.00		0.2500	27.453	21.585	2,018.10	17.60	109.81	80.7	144.8	0.0	298.7
105.00		0.2500	26.323	20.688	1,776.90	16.80	105.29	81.6	133.0	0.0	359.6
107.00		0.2500	25.871	20.330	1,686.10	16.48	103.49	82	128.4	0.0	139.6
109.00		0.2500	25.419	19.971	1,598.50	16.17	101.68	82.4	123.9	0.0	137.1
110.00		0.2500	25.193	19.792	1,555.80	16.01	100.77	82.6	121.6	0.0	67.7
115.00		0.2500	24.064	18.895	1,353.80	15.21	96.25	82.6	110.8	0.0	329.1
119.00	Top - Section 3	0.2500	23.160	18.178	1,205.40	14.57	92.64	82.6	102.5	0.0	252.3
119.00	Bot - Section 4	0.1875	23.160	13.671	911.50	20.02	123.52	77.9	77.5	0.0	
120.00		0.1875	22.934	13.536	884.90	19.80	122.31	78.1	76.0	0.0	46.3
125.00		0.1875	21.804	12.864	759.40	18.74	116.29	79.4	68.6	0.0	224.6
129.00		0.1875	20.900	12.326	668.10	17.89	111.47	80.4	63.0	0.0	171.4

Totals: 19,395.3

Load Case: 1.2D + 1.0W	120 mph wind with no ice	22 Iterations
Gust Response Factor:	1.10	
Dead load Factor:	1.20	
Wind Load Factor:	1.00	

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-47.28	-31.02	0.00	-3,080.3	0.00	3,080.29	4,855.79	1,178.57	5,148.44	4,826.26	0	0	0.649
5.00	-45.47	-30.71	0.00	-2,925.2	0.00	2,925.20	4,773.96	1,151.04	4,910.73	4,633.09	0.12	-0.22	0.642
10.00	-43.70	-30.39	0.00	-2,771.7	0.00	2,771.68	4,690.62	1,123.50	4,678.64	4,442.31	0.46	-0.43	0.634
15.00	-41.96	-30.08	0.00	-2,619.7	0.00	2,619.71	4,605.77	1,095.97	4,452.16	4,254.05	1.03	-0.66	0.626
20.00	-40.25	-29.74	0.00	-2,469.3	0.00	2,469.33	4,519.41	1,068.43	4,231.30	4,068.40	1.84	-0.88	0.617
25.00	-38.58	-29.39	0.00	-2,320.6	0.00	2,320.62	4,406.48	1,040.90	4,016.06	3,863.51	2.89	-1.11	0.610
30.00	-36.94	-29.02	0.00	-2,173.7	0.00	2,173.69	4,289.92	1,013.37	3,806.44	3,660.81	4.19	-1.35	0.603
35.00	-35.34	-28.63	0.00	-2,028.6	0.00	2,028.61	4,173.36	985.83	3,602.43	3,463.58	5.73	-1.59	0.595
40.00	-33.77	-28.24	0.00	-1,885.5	0.00	1,885.46	4,056.80	958.30	3,404.05	3,271.80	7.52	-1.83	0.585
45.00	-32.26	-27.93	0.00	-1,744.3	0.00	1,744.28	3,940.24	930.77	3,211.28	3,085.49	9.56	-2.07	0.574
47.25	-31.58	-27.73	0.00	-1,681.4	0.00	1,681.43	3,887.79	918.38	3,126.37	3,003.43	10.56	-2.18	0.569
50.00	-30.25	-27.48	0.00	-1,605.2	0.00	1,605.18	3,823.68	903.23	3,024.13	2,904.64	11.85	-2.32	0.561
52.75	-28.94	-27.24	0.00	-1,529.6	0.00	1,529.62	3,294.34	778.19	2,618.77	2,519.75	13.23	-2.45	0.617
55.00	-28.31	-26.96	0.00	-1,468.3	0.00	1,468.33	3,249.38	767.57	2,547.79	2,451.11	14.41	-2.57	0.609
60.00	-27.00	-26.54	0.00	-1,333.6	0.00	1,333.55	3,149.47	743.97	2,393.55	2,301.96	17.24	-2.83	0.589
65.00	-25.71	-26.12	0.00	-1,200.9	0.00	1,200.86	3,049.56	720.37	2,244.13	2,157.50	20.35	-3.1	0.566
70.00	-24.47	-25.69	0.00	-1,070.3	0.00	1,070.28	2,949.66	696.77	2,099.52	2,017.71	23.74	-3.36	0.540
75.00	-23.25	-25.27	0.00	-941.8	0.00	941.82	2,849.75	673.17	1,959.72	1,882.61	27.4	-3.62	0.510
80.00	-22.08	-24.84	0.00	-815.5	0.00	815.50	2,749.84	649.57	1,824.74	1,752.19	31.32	-3.87	0.475
85.00	-20.93	-24.40	0.00	-691.3	0.00	691.32	2,649.93	625.97	1,694.58	1,626.45	35.49	-4.1	0.434
90.00	-19.85	-24.13	0.00	-569.3	0.00	569.30	2,550.02	602.37	1,569.24	1,505.39	39.91	-4.32	0.388
90.50	-19.73	-23.95	0.00	-557.2	0.00	557.23	2,540.03	600.01	1,556.97	1,493.54	40.36	-4.35	0.382
94.75	-18.44	-23.69	0.00	-455.4	0.00	455.44	1,616.13	395.33	1,013.75	943.15	44.31	-4.52	0.498
95.00	-18.39	-23.64	0.00	-449.5	0.00	449.51	1,613.86	394.55	1,009.72	939.93	44.54	-4.53	0.493
96.00	-14.71	-19.97	0.00	-425.9	0.00	425.87	1,604.76	391.40	993.68	927.11	45.5	-4.58	0.471
100.00	-14.06	-19.60	0.00	-346.0	0.00	346.00	1,567.72	378.81	930.81	876.33	49.42	-4.78	0.406
105.00	-13.02	-18.97	0.00	-248.0	0.00	248.01	1,520.05	363.08	855.10	814.07	54.54	-4.99	0.316
107.00	-8.65	-12.30	0.00	-210.1	0.00	210.07	1,500.57	356.79	825.72	789.57	56.64	-5.06	0.273
109.00	-8.22	-11.88	0.00	-185.5	0.00	185.46	1,480.84	350.49	796.85	765.31	58.78	-5.13	0.249
110.00	-8.12	-11.65	0.00	-173.6	0.00	173.59	1,470.44	347.35	782.61	753.05	59.85	-5.16	0.237
115.00	-7.61	-11.28	0.00	-115.3	0.00	115.32	1,403.83	331.61	713.33	686.05	65.33	-5.29	0.175
119.00	-4.52	-6.29	0.00	-70.2	0.00	70.19	1,350.55	319.03	660.21	634.70	69.79	-5.37	0.114
119.00	-4.52	-6.29	0.00	-70.2	0.00	70.19	957.94	239.92	497.82	452.65	69.79	-5.37	0.160
120.00	-4.46	-6.08	0.00	-63.9	0.00	63.90	951.57	237.56	488.08	445.18	70.92	-5.39	0.149
125.00	-4.11	-5.74	0.00	-33.5	0.00	33.51	918.77	225.76	440.80	408.31	76.6	-5.47	0.087
129.00	0.00	-5.32	0.00	-10.6	0.00	10.57	891.44	216.32	404.71	379.46	81.19	-5.5	0.028

Load Case: 0.9D + 1.0W	120 mph wind with no ice	22 Iterations
Gust Response Factor:	1.10	
Dead load Factor:	0.90	
Wind Load Factor:	1.00	

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-35.44	-30.99	0.00	-3,044.6	0.00	3,044.62	4,855.79	1,178.57	5,148.44	4,826.26	0	0	0.639
5.00	-34.06	-30.64	0.00	-2,889.6	0.00	2,889.65	4,773.96	1,151.04	4,910.73	4,633.09	0.11	-0.21	0.632
10.00	-32.71	-30.28	0.00	-2,736.5	0.00	2,736.47	4,690.62	1,123.50	4,678.64	4,442.31	0.45	-0.43	0.624
15.00	-31.38	-29.93	0.00	-2,585.0	0.00	2,585.04	4,605.77	1,095.97	4,452.16	4,254.05	1.02	-0.65	0.615
20.00	-30.07	-29.56	0.00	-2,435.4	0.00	2,435.40	4,519.41	1,068.43	4,231.30	4,068.40	1.82	-0.87	0.606
25.00	-28.79	-29.17	0.00	-2,287.6	0.00	2,287.62	4,406.48	1,040.90	4,016.06	3,863.51	2.86	-1.1	0.599
30.00	-27.54	-28.76	0.00	-2,141.8	0.00	2,141.78	4,289.92	1,013.37	3,806.44	3,660.81	4.13	-1.33	0.592
35.00	-26.31	-28.35	0.00	-1,998.0	0.00	1,997.96	4,173.36	985.83	3,602.43	3,463.58	5.65	-1.56	0.584
40.00	-25.11	-27.93	0.00	-1,856.2	0.00	1,856.20	4,056.80	958.30	3,404.05	3,271.80	7.42	-1.8	0.574
45.00	-23.96	-27.61	0.00	-1,716.6	0.00	1,716.56	3,940.24	930.77	3,211.28	3,085.49	9.43	-2.04	0.563
47.25	-23.44	-27.40	0.00	-1,654.4	0.00	1,654.43	3,887.79	918.38	3,126.37	3,003.43	10.42	-2.15	0.558
50.00	-22.43	-27.14	0.00	-1,579.1	0.00	1,579.10	3,823.68	903.23	3,024.13	2,904.64	11.7	-2.28	0.550
52.75	-21.44	-26.90	0.00	-1,504.5	0.00	1,504.47	3,294.34	778.19	2,618.77	2,519.75	13.05	-2.42	0.605
55.00	-20.95	-26.59	0.00	-1,444.0	0.00	1,443.95	3,249.38	767.57	2,547.79	2,451.11	14.22	-2.53	0.597
60.00	-19.94	-26.16	0.00	-1,311.0	0.00	1,310.99	3,149.47	743.97	2,393.55	2,301.96	17.01	-2.79	0.577
65.00	-18.96	-25.72	0.00	-1,180.2	0.00	1,180.21	3,049.56	720.37	2,244.13	2,157.50	20.07	-3.05	0.555
70.00	-18.01	-25.28	0.00	-1,051.6	0.00	1,051.62	2,949.66	696.77	2,099.52	2,017.71	23.41	-3.31	0.529
75.00	-17.08	-24.84	0.00	-925.2	0.00	925.22	2,849.75	673.17	1,959.72	1,882.61	27.01	-3.56	0.499
80.00	-16.18	-24.41	0.00	-801.0	0.00	801.01	2,749.84	649.57	1,824.74	1,752.19	30.87	-3.81	0.464
85.00	-15.31	-23.97	0.00	-679.0	0.00	678.99	2,649.93	625.97	1,694.58	1,626.45	34.98	-4.04	0.425
90.00	-14.49	-23.70	0.00	-559.1	0.00	559.14	2,550.02	602.37	1,569.24	1,505.39	39.33	-4.26	0.379
90.50	-14.39	-23.52	0.00	-547.3	0.00	547.29	2,540.03	600.01	1,556.97	1,493.54	39.77	-4.28	0.374
94.75	-13.42	-23.27	0.00	-447.3	0.00	447.33	1,616.13	395.33	1,013.75	943.15	43.66	-4.45	0.486
95.00	-13.38	-23.23	0.00	-441.5	0.00	441.51	1,613.86	394.55	1,009.72	939.93	43.89	-4.46	0.481
96.00	-10.68	-19.62	0.00	-418.3	0.00	418.29	1,604.76	391.40	993.68	927.11	44.83	-4.51	0.460
100.00	-10.18	-19.25	0.00	-339.8	0.00	339.80	1,567.72	378.81	930.81	876.33	48.69	-4.7	0.397
105.00	-9.40	-18.64	0.00	-243.6	0.00	243.55	1,520.05	363.08	855.10	814.07	53.73	-4.91	0.308
107.00	-6.25	-12.08	0.00	-206.3	0.00	206.28	1,500.57	356.79	825.72	789.57	55.8	-4.98	0.267
109.00	-5.94	-11.66	0.00	-182.1	0.00	182.12	1,480.84	350.49	796.85	765.31	57.9	-5.05	0.243
110.00	-5.86	-11.44	0.00	-170.5	0.00	170.46	1,470.44	347.35	782.61	753.05	58.96	-5.08	0.231
115.00	-5.48	-11.07	0.00	-113.3	0.00	113.28	1,403.83	331.61	713.33	686.05	64.35	-5.21	0.170
119.00	-3.26	-6.17	0.00	-69.0	0.00	68.99	1,350.55	319.03	660.21	634.70	68.74	-5.29	0.111
119.00	-3.26	-6.17	0.00	-69.0	0.00	68.99	957.94	239.92	497.82	452.65	68.74	-5.29	0.156
120.00	-3.22	-5.95	0.00	-62.8	0.00	62.82	951.57	237.56	488.08	445.18	69.85	-5.3	0.145
125.00	-2.96	-5.62	0.00	-33.0	0.00	33.05	918.77	225.76	440.80	408.31	75.44	-5.38	0.085
129.00	0.00	-5.32	0.00	-10.6	0.00	10.57	891.44	216.32	404.71	379.46	79.95	-5.41	0.028

ASSET: 283418, NORTH HAVEN CT
 CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H
 ENG NO: 13683386_C3_03

Load Case: 1.2D + 1.0Di + 1.0Wi	50 mph wind with 1" radial ice		22 Iterations
Gust Response Factor: 1.10	Ice Dead Load Factor	1.00	
Dead load Factor: 1.20			Ice Importance Factor 1.00
Wind Load Factor: 1.00			

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-61.90	-7.87	0.00	-769.7	0.00	769.72	4,855.79	1,178.57	5,148.44	4,826.26	0	0	0.172
5.00	-59.96	-7.79	0.00	-730.4	0.00	730.36	4,773.96	1,151.04	4,910.73	4,633.09	0.03	-0.05	0.170
10.00	-58.04	-7.70	0.00	-691.4	0.00	691.43	4,690.62	1,123.50	4,678.64	4,442.31	0.11	-0.11	0.168
15.00	-56.15	-7.61	0.00	-652.9	0.00	652.93	4,605.77	1,095.97	4,452.16	4,254.05	0.26	-0.16	0.166
20.00	-54.28	-7.52	0.00	-614.9	0.00	614.87	4,519.41	1,068.43	4,231.30	4,068.40	0.46	-0.22	0.163
25.00	-52.44	-7.42	0.00	-577.3	0.00	577.27	4,406.48	1,040.90	4,016.06	3,863.51	0.72	-0.28	0.161
30.00	-50.64	-7.32	0.00	-540.2	0.00	540.18	4,289.92	1,013.37	3,806.44	3,660.81	1.04	-0.34	0.159
35.00	-48.87	-7.21	0.00	-503.6	0.00	503.60	4,173.36	985.83	3,602.43	3,463.58	1.43	-0.39	0.157
40.00	-47.14	-7.10	0.00	-467.6	0.00	467.57	4,056.80	958.30	3,404.05	3,271.80	1.87	-0.45	0.155
45.00	-45.45	-7.01	0.00	-432.1	0.00	432.10	3,940.24	930.77	3,211.28	3,085.49	2.38	-0.51	0.152
47.25	-44.70	-6.95	0.00	-416.3	0.00	416.33	3,887.79	918.38	3,126.37	3,003.43	2.63	-0.54	0.150
50.00	-43.28	-6.88	0.00	-397.2	0.00	397.21	3,823.68	903.23	3,024.13	2,904.64	2.95	-0.58	0.148
52.75	-41.88	-6.81	0.00	-378.3	0.00	378.29	3,294.34	778.19	2,618.77	2,519.75	3.3	-0.61	0.163
55.00	-41.20	-6.73	0.00	-363.0	0.00	362.96	3,249.38	767.57	2,547.79	2,451.11	3.59	-0.64	0.161
60.00	-39.74	-6.62	0.00	-329.3	0.00	329.29	3,149.47	743.97	2,393.55	2,301.96	4.29	-0.7	0.156
65.00	-38.30	-6.50	0.00	-296.2	0.00	296.22	3,049.56	720.37	2,244.13	2,157.50	5.07	-0.77	0.150
70.00	-36.91	-6.37	0.00	-263.7	0.00	263.74	2,949.66	696.77	2,099.52	2,017.71	5.91	-0.83	0.143
75.00	-35.54	-6.25	0.00	-231.9	0.00	231.87	2,849.75	673.17	1,959.72	1,882.61	6.81	-0.9	0.136
80.00	-34.21	-6.13	0.00	-200.6	0.00	200.61	2,749.84	649.57	1,824.74	1,752.19	7.79	-0.96	0.127
85.00	-32.91	-6.00	0.00	-170.0	0.00	169.97	2,649.93	625.97	1,694.58	1,626.45	8.82	-1.02	0.117
90.00	-31.65	-5.92	0.00	-140.0	0.00	139.96	2,550.02	602.37	1,569.24	1,505.39	9.92	-1.07	0.105
90.50	-31.53	-5.87	0.00	-137.0	0.00	137.00	2,540.03	600.01	1,556.97	1,493.54	10.03	-1.08	0.104
94.75	-30.08	-5.80	0.00	-112.0	0.00	112.04	1,616.13	395.33	1,013.75	943.15	11.01	-1.12	0.138
95.00	-30.03	-5.78	0.00	-110.6	0.00	110.59	1,613.86	394.55	1,009.72	939.93	11.07	-1.12	0.136
96.00	-24.62	-4.92	0.00	-104.8	0.00	104.81	1,604.76	391.40	993.68	927.11	11.3	-1.13	0.129
100.00	-23.84	-4.81	0.00	-85.1	0.00	85.13	1,567.72	378.81	930.81	876.33	12.28	-1.18	0.113
105.00	-22.45	-4.65	0.00	-61.1	0.00	61.07	1,520.05	363.08	855.10	814.07	13.54	-1.23	0.090
107.00	-14.70	-3.09	0.00	-51.8	0.00	51.77	1,500.57	356.79	825.72	789.57	14.07	-1.25	0.075
109.00	-14.03	-2.98	0.00	-45.6	0.00	45.60	1,480.84	350.49	796.85	765.31	14.59	-1.27	0.069
110.00	-13.88	-2.91	0.00	-42.6	0.00	42.62	1,470.44	347.35	782.61	753.05	14.86	-1.28	0.066
115.00	-13.18	-2.79	0.00	-28.1	0.00	28.08	1,403.83	331.61	713.33	686.05	16.22	-1.31	0.050
119.00	-7.54	-1.57	0.00	-16.9	0.00	16.90	1,350.55	319.03	660.21	634.70	17.32	-1.33	0.032
119.00	-7.54	-1.57	0.00	-16.9	0.00	16.90	957.94	239.92	497.82	452.65	17.32	-1.33	0.045
120.00	-7.43	-1.50	0.00	-15.3	0.00	15.33	951.57	237.56	488.08	445.18	17.6	-1.33	0.042
125.00	-6.89	-1.39	0.00	-7.8	0.00	7.84	918.77	225.76	440.80	408.31	19.01	-1.35	0.027
129.00	0.00	-1.23	0.00	-2.3	0.00	2.28	891.44	216.32	404.71	379.46	20.14	-1.36	0.006

Load Case: 1.0D + 1.0W	60 mph Wind with No Ice	21 Iterations
Gust Response Factor: 1.10		
Dead load Factor: 1.00		
Wind Load Factor: 1.00		

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-39.45	-6.93	0.00	-684.5	0.00	684.50	4,855.79	1,178.57	5,148.44	4,826.26	0	0	0.150
5.00	-38.03	-6.86	0.00	-649.8	0.00	649.83	4,773.96	1,151.04	4,910.73	4,633.09	0.03	-0.05	0.148
10.00	-36.64	-6.78	0.00	-615.5	0.00	615.54	4,690.62	1,123.50	4,678.64	4,442.31	0.1	-0.1	0.146
15.00	-35.28	-6.71	0.00	-581.6	0.00	581.63	4,605.77	1,095.97	4,452.16	4,254.05	0.23	-0.15	0.144
20.00	-33.95	-6.63	0.00	-548.1	0.00	548.10	4,519.41	1,068.43	4,231.30	4,068.40	0.41	-0.2	0.142
25.00	-32.64	-6.54	0.00	-515.0	0.00	514.97	4,406.48	1,040.90	4,016.06	3,863.51	0.64	-0.25	0.141
30.00	-31.36	-6.45	0.00	-482.3	0.00	482.27	4,289.92	1,013.37	3,806.44	3,660.81	0.93	-0.3	0.139
35.00	-30.11	-6.36	0.00	-450.0	0.00	449.99	4,173.36	985.83	3,602.43	3,463.58	1.27	-0.35	0.137
40.00	-28.88	-6.27	0.00	-418.2	0.00	418.17	4,056.80	958.30	3,404.05	3,271.80	1.67	-0.41	0.135
45.00	-27.68	-6.20	0.00	-386.8	0.00	386.81	3,940.24	930.77	3,211.28	3,085.49	2.12	-0.46	0.132
47.25	-27.15	-6.16	0.00	-372.8	0.00	372.85	3,887.79	918.38	3,126.37	3,003.43	2.34	-0.48	0.131
50.00	-26.08	-6.10	0.00	-355.9	0.00	355.92	3,823.68	903.23	3,024.13	2,904.64	2.63	-0.51	0.129
52.75	-25.03	-6.05	0.00	-339.1	0.00	339.14	3,294.34	778.19	2,618.77	2,519.75	2.94	-0.54	0.142
55.00	-24.56	-5.98	0.00	-325.5	0.00	325.54	3,249.38	767.57	2,547.79	2,451.11	3.2	-0.57	0.140
60.00	-23.55	-5.89	0.00	-295.6	0.00	295.63	3,149.47	743.97	2,393.55	2,301.96	3.83	-0.63	0.136
65.00	-22.55	-5.79	0.00	-266.2	0.00	266.20	3,049.56	720.37	2,244.13	2,157.50	4.52	-0.69	0.131
70.00	-21.58	-5.69	0.00	-237.2	0.00	237.25	2,949.66	696.77	2,099.52	2,017.71	5.27	-0.75	0.125
75.00	-20.63	-5.60	0.00	-208.8	0.00	208.78	2,849.75	673.17	1,959.72	1,882.61	6.08	-0.8	0.118
80.00	-19.71	-5.50	0.00	-180.8	0.00	180.78	2,749.84	649.57	1,824.74	1,752.19	6.95	-0.86	0.110
85.00	-18.81	-5.41	0.00	-153.3	0.00	153.27	2,649.93	625.97	1,694.58	1,626.45	7.88	-0.91	0.101
90.00	-17.93	-5.35	0.00	-126.2	0.00	126.23	2,550.02	602.37	1,569.24	1,505.39	8.86	-0.96	0.091
90.50	-17.84	-5.31	0.00	-123.6	0.00	123.56	2,540.03	600.01	1,556.97	1,493.54	8.96	-0.96	0.090
94.75	-16.79	-5.25	0.00	-101.0	0.00	101.00	1,616.13	395.33	1,013.75	943.15	9.84	-1	0.118
95.00	-16.76	-5.24	0.00	-99.7	0.00	99.69	1,613.86	394.55	1,009.72	939.93	9.89	-1	0.117
96.00	-13.50	-4.43	0.00	-94.4	0.00	94.45	1,604.76	391.40	993.68	927.11	10.1	-1.02	0.110
100.00	-12.99	-4.35	0.00	-76.7	0.00	76.74	1,567.72	378.81	930.81	876.33	10.97	-1.06	0.096
105.00	-12.12	-4.21	0.00	-55.0	0.00	55.01	1,520.05	363.08	855.10	814.07	12.11	-1.11	0.076
107.00	-8.04	-2.73	0.00	-46.6	0.00	46.59	1,500.57	356.79	825.72	789.57	12.58	-1.12	0.064
109.00	-7.66	-2.63	0.00	-41.1	0.00	41.14	1,480.84	350.49	796.85	765.31	13.05	-1.14	0.059
110.00	-7.57	-2.58	0.00	-38.5	0.00	38.50	1,470.44	347.35	782.61	753.05	13.29	-1.14	0.056
115.00	-7.14	-2.50	0.00	-25.6	0.00	25.58	1,403.83	331.61	713.33	686.05	14.5	-1.17	0.042
119.00	-4.21	-1.39	0.00	-15.6	0.00	15.57	1,350.55	319.03	660.21	634.70	15.5	-1.19	0.028
119.00	-4.21	-1.39	0.00	-15.6	0.00	15.57	957.94	239.92	497.82	452.65	15.5	-1.19	0.039
120.00	-4.15	-1.35	0.00	-14.2	0.00	14.18	951.57	237.56	488.08	445.18	15.75	-1.19	0.036
125.00	-3.84	-1.27	0.00	-7.4	0.00	7.45	918.77	225.76	440.80	408.31	17.01	-1.21	0.022
129.00	0.00	-1.19	0.00	-2.4	0.00	2.36	891.44	216.32	404.71	379.46	18.03	-1.22	0.006

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

(Based on ASCE7-16 Chapters 11, 12 and 15)

Spectral Response Acceleration for Short Period (S_S):	0.203
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.054
Long-Period Transition Period (T_L – Seconds):	6
Importance Factor (I_a):	1.000
Site Coefficient F_a :	1.600
Site Coefficient F_v :	2.400
Response Modification Coefficient (R):	1.500
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.217
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.086
Seismic Response Coefficient (C_s):	0.030
Upper Limit C_s :	0.030
Lower Limit C_s :	0.030
Period based on Rayleigh Method (sec):	2.180
Redundancy Factor (ρ):	1.000
Seismic Force Distribution Exponent (k):	1.840
Total Unfactored Dead Load:	39.450 k
Seismic Base Shear (E):	1.180 k

1.2D + 1.0Ev + 1.0Eh Seismic

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
34	127	242	1,799	0.014	16	301
33	122.5	313	2,176	0.017	20	389
32	119.5	64	425	0.003	4	79
31	117	341	2,178	0.017	20	424
30	112.5	440	2,615	0.020	24	547
29	109.5	90	508	0.004	5	112
28	108	181	1,001	0.008	9	225
27	106	247	1,315	0.010	12	307
26	102.5	627	3,145	0.024	28	780
25	98	513	2,367	0.018	21	638
24	95.5	132	581	0.004	5	164
23	94.875	33	144	0.001	1	41
22	92.625	1,055	4,389	0.034	40	1,312
21	90.25	86	342	0.003	3	107
20	87.5	875	3,278	0.025	30	1,088
19	82.5	898	3,018	0.023	27	1,116
18	77.5	921	2,759	0.021	25	1,145
17	72.5	944	2,501	0.019	23	1,173
16	67.5	966	2,246	0.017	20	1,202
15	62.5	989	1,995	0.015	18	1,230
14	57.5	1,012	1,751	0.013	16	1,258
13	53.875	463	711	0.005	6	576
12	51.375	1,050	1,476	0.011	13	1,305
11	48.625	1,065	1,353	0.010	12	1,324
10	46.125	529	610	0.005	6	658
9	42.5	1,195	1,186	0.009	11	1,486
8	37.5	1,222	963	0.007	9	1,519
7	32.5	1,249	756	0.006	7	1,552
6	27.5	1,275	568	0.004	5	1,586
5	22.5	1,302	401	0.003	4	1,619
4	17.5	1,329	258	0.002	2	1,652
3	12.5	1,355	141	0.001	1	1,685
2	7.5	1,382	56	0.000	1	1,718
1	2.5	1,409	8	0.000	0	1,751

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
Alcatel-Lucent PCS B25 RRH2x60/4x30	129	165	1,263	0.010	11	205
Alcatel-Lucent B66A RRH 4x45	129	201	1,538	0.012	14	250
Generic 70" x 10" Panel	129	120	918	0.007	8	149
Generic 70" x 8" Panel	129	40	306	0.002	3	50
Commscope CBC78T-DS-43-2X	129	62	475	0.004	4	77
Samsung B5/B13 RRH-BR04C	129	211	1,614	0.012	15	262
Samsung B2/B66A RRH-BR049	129	253	1,938	0.015	17	315
Talley RHSDC-6627-PF-48	129	32	245	0.002	2	40
Samsung MT6407-77A	129	245	1,873	0.014	17	304
Amphenol Antel BXA-80080-6CF-EDIN-X	129	54	413	0.003	4	67
Commscope JAHH-65B-R3B	129	364	2,783	0.021	25	452
Generic Round Low Profile Platform	129	1,875	14,349	0.109	129	2,331
Ericsson Radio 4449 B71 B85A	119	225	1,484	0.011	13	280
Ericsson RRUS 4415 B25	119	138	910	0.007	8	172
Ericsson Air6449 B41	119	312	2,058	0.016	19	388
Ericsson AIR 21, 1.3 M, B2A B4P	119	249	1,643	0.012	15	310
Ericsson AIR-32 B2A/B66Aa	119	397	2,616	0.020	24	493
Generic Round Sector Frame	119	900	5,937	0.045	54	1,119
RFS APXVAARR24_43-U-NA20	119	384	2,531	0.019	23	477
Ericsson AIR 6419 B77G	109	198	1,113	0.008	10	247
Raycap DC6-48-60-0-8C-EV	107	16	87	0.001	1	20
Raycap DC6-48-60-18-8F	107	60	325	0.002	3	75
Ericsson RRUS 8843 B2, B66A	107	216	1,172	0.009	11	269
Ericsson RRUS 4478 B14	107	180	975	0.007	9	223
Ericsson RRUS 4449 B5, B12	107	213	1,156	0.009	10	265
Ericsson RRUS 32 B30	107	180	976	0.007	9	224
CCI DMP65R-BU6DA	107	238	1,292	0.010	12	296
CCI HPA-65R-BUU-H8	107	408	2,213	0.017	20	507
Kathrein Scala 80010966	107	344	1,865	0.014	17	427
Round Platform w/ Handrails and SitePro1 PRK-SFS Stabilizer Kit	107	2,000	10,850	0.083	98	2,487
Ericsson Air 6449 B77D	105	245	1,283	0.010	12	304
Commscope RDIDC-9181-PF-48	96	22	97	0.001	1	27
Fujitsu TA08025-B604	96	192	852	0.006	8	238
Fujitsu TA08025-B605	96	225	1,000	0.008	9	280
JMA Wireless MX08FRO665-21	96	194	860	0.007	8	241
Generic Flat Platform with Handrails	96	2,500	11,108	0.085	100	3,108
		39,448	131,140	1.000	1,183	49,046

0.9D - 1.0Ev + 1.0Eh Seismic (Reduced DL)

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
34	127	242	1,799	0.014	16	207
33	122.5	313	2,176	0.017	20	268
32	119.5	64	425	0.003	4	55
31	117	341	2,178	0.017	20	292
30	112.5	440	2,615	0.020	24	377
29	109.5	90	508	0.004	5	77
28	108	181	1,001	0.008	9	155
27	106	247	1,315	0.010	12	211
26	102.5	627	3,145	0.024	28	538
25	98	513	2,367	0.018	21	439
24	95.5	132	581	0.004	5	113
23	94.875	33	144	0.001	1	28
22	92.625	1,055	4,389	0.034	40	904
21	90.25	86	342	0.003	3	74
20	87.5	875	3,278	0.025	30	750
19	82.5	898	3,018	0.023	27	769
18	77.5	921	2,759	0.021	25	789
17	72.5	944	2,501	0.019	23	808
16	67.5	966	2,246	0.017	20	828
15	62.5	989	1,995	0.015	18	848

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
14	57.5	1,012	1,751	0.013	16	867
13	53.875	463	711	0.005	6	397
12	51.375	1,050	1,476	0.011	13	899
11	48.625	1,065	1,353	0.010	12	912
10	46.125	529	610	0.005	6	453
9	42.5	1,195	1,186	0.009	11	1,024
8	37.5	1,222	963	0.007	9	1,047
7	32.5	1,249	756	0.006	7	1,070
6	27.5	1,275	568	0.004	5	1,093
5	22.5	1,302	401	0.003	4	1,115
4	17.5	1,329	258	0.002	2	1,138
3	12.5	1,355	141	0.001	1	1,161
2	7.5	1,382	56	0.000	1	1,184
1	2.5	1,409	8	0.000	0	1,207
Alcatel-Lucent PCS B25 RRH2x60/4x30	129	165	1,263	0.010	11	141
Alcatel-Lucent B66A RRH 4x45	129	201	1,538	0.012	14	172
Generic 70" x 10" Panel	129	120	918	0.007	8	103
Generic 70" x 8" Panel	129	40	306	0.002	3	34
Commscope CBC78T-DS-43-2X	129	62	475	0.004	4	53
Samsung B5/B13 RRH-BR04C	129	211	1,614	0.012	15	181
Samsung B2/B66A RRH-BR049	129	253	1,938	0.015	17	217
Talley RHSDC-6627-PF-48	129	32	245	0.002	2	27
Samsung MT6407-77A	129	245	1,873	0.014	17	210
Amphenol Antel BXA-80080-6CF-EDIN-X	129	54	413	0.003	4	46
Commscope JAHH-65B-R3B	129	364	2,783	0.021	25	311
Generic Round Low Profile Platform	129	1,875	14,349	0.109	129	1,606
Ericsson Radio 4449 B71 B85A	119	225	1,484	0.011	13	193
Ericsson RRUS 4415 B25	119	138	910	0.007	8	118
Ericsson Air6449 B41	119	312	2,058	0.016	19	267
Ericsson AIR 21, 1.3 M, B2A B4P	119	249	1,643	0.012	15	213
Ericsson AIR-32 B2A/B66Aa	119	397	2,616	0.020	24	340
Generic Round Sector Frame	119	900	5,937	0.045	54	771
RFS APXVAARR24_43-U-NA20	119	384	2,531	0.019	23	329
Ericsson AIR 6419 B77G	109	198	1,113	0.008	10	170
Raycap DC6-48-60-0-8C-EV	107	16	87	0.001	1	14
Raycap DC6-48-60-18-8F	107	60	325	0.002	3	51
Ericsson RRUS 8843 B2, B66A	107	216	1,172	0.009	11	185
Ericsson RRUS 4478 B14	107	180	975	0.007	9	154
Ericsson RRUS 4449 B5, B12	107	213	1,156	0.009	10	182
Ericsson RRUS 32 B30	107	180	976	0.007	9	154
CCI DMP65R-BU6DA	107	238	1,292	0.010	12	204
CCI HPA-65R-BUU-H8	107	408	2,213	0.017	20	350
Kathrein Scala 80010966	107	344	1,865	0.014	17	295
Round Platform w/ Handrails and SitePro1 PRK-SFS Stabilizer Kit	107	2,000	10,850	0.083	98	1,713
Ericsson Air 6449 B77D	105	245	1,283	0.010	12	210
Commscope RDIDC-9181-PF-48	96	22	97	0.001	1	19
Fujitsu TA08025-B604	96	192	852	0.006	8	164
Fujitsu TA08025-B605	96	225	1,000	0.008	9	193
JMA Wireless MX08FRO665-21	96	194	860	0.007	8	166
Generic Flat Platform with Handrails	96	2,500	11,108	0.085	100	2,142
		39,448	131,140	1.000	1,183	33,795

1.2D + 1.0Ev + 1.0Eh Seismic

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-47.29	-1.19	0.00	-127.10	0.00	127.10	4,855.79	1,178.57	5,148	4,826.26	0.00	0.00	0.04
5.00	-45.58	-1.19	0.00	-121.17	0.00	121.17	4,773.96	1,151.04	4,911	4,633.09	0.00	-0.01	0.04
10.00	-43.89	-1.20	0.00	-115.20	0.00	115.20	4,690.62	1,123.50	4,679	4,442.31	0.02	-0.02	0.04
15.00	-42.24	-1.20	0.00	-109.21	0.00	109.21	4,605.77	1,095.97	4,452	4,254.05	0.04	-0.03	0.04
20.00	-40.62	-1.20	0.00	-103.20	0.00	103.20	4,519.41	1,068.43	4,231	4,068.40	0.08	-0.04	0.03
25.00	-39.03	-1.21	0.00	-97.18	0.00	97.18	4,406.48	1,040.90	4,016	3,863.51	0.12	-0.05	0.03

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
30.00	-37.48	-1.20	0.00	-91.15	0.00	91.15	4,289.92	1,013.37	3,806	3,660.81	0.17	-0.06	0.03
35.00	-35.96	-1.20	0.00	-85.14	0.00	85.14	4,173.36	985.83	3,602	3,463.58	0.24	-0.07	0.03
40.00	-34.48	-1.19	0.00	-79.14	0.00	79.14	4,056.80	958.30	3,404	3,271.80	0.31	-0.08	0.03
45.00	-33.82	-1.19	0.00	-73.18	0.00	73.18	3,940.24	930.77	3,211	3,085.49	0.40	-0.09	0.03
47.25	-32.49	-1.18	0.00	-70.50	0.00	70.50	3,887.79	918.38	3,126	3,003.43	0.44	-0.09	0.03
50.00	-31.19	-1.17	0.00	-67.25	0.00	67.25	3,823.68	903.23	3,024	2,904.64	0.49	-0.10	0.03
52.75	-30.61	-1.16	0.00	-64.04	0.00	64.04	3,294.34	778.19	2,619	2,519.75	0.55	-0.10	0.04
55.00	-29.35	-1.15	0.00	-61.43	0.00	61.43	3,249.38	767.57	2,548	2,451.11	0.60	-0.11	0.03
60.00	-28.12	-1.13	0.00	-55.69	0.00	55.69	3,149.47	743.97	2,394	2,301.96	0.72	-0.12	0.03
65.00	-26.92	-1.12	0.00	-50.02	0.00	50.02	3,049.56	720.37	2,244	2,157.50	0.85	-0.13	0.03
70.00	-25.75	-1.10	0.00	-44.44	0.00	44.44	2,949.66	696.77	2,100	2,017.71	0.99	-0.14	0.03
75.00	-24.60	-1.07	0.00	-38.96	0.00	38.96	2,849.75	673.17	1,960	1,882.61	1.14	-0.15	0.03
80.00	-23.49	-1.05	0.00	-33.60	0.00	33.60	2,749.84	649.57	1,825	1,752.19	1.31	-0.16	0.03
85.00	-22.40	-1.02	0.00	-28.38	0.00	28.38	2,649.93	625.97	1,695	1,626.45	1.48	-0.17	0.03
90.00	-22.29	-1.02	0.00	-23.29	0.00	23.29	2,550.02	602.37	1,569	1,505.39	1.67	-0.18	0.02
90.50	-20.98	-0.97	0.00	-22.78	0.00	22.78	2,540.03	600.01	1,557	1,493.54	1.68	-0.18	0.02
94.75	-20.94	-0.97	0.00	-18.65	0.00	18.65	1,616.13	395.33	1,014	943.15	1.85	-0.19	0.03
95.00	-20.78	-0.97	0.00	-18.40	0.00	18.40	1,613.86	394.55	1,010	939.93	1.86	-0.19	0.03
96.00	-16.24	-0.81	0.00	-17.44	0.00	17.44	1,604.76	391.40	994	927.11	1.90	-0.19	0.03
100.00	-15.46	-0.78	0.00	-14.21	0.00	14.21	1,567.72	378.81	931	876.33	2.06	-0.20	0.03
105.00	-14.85	-0.75	0.00	-10.32	0.00	10.32	1,520.05	363.08	855	814.07	2.28	-0.21	0.02
107.00	-9.84	-0.54	0.00	-8.81	0.00	8.81	1,500.57	356.79	826	789.57	2.36	-0.21	0.02
109.00	-9.48	-0.52	0.00	-7.73	0.00	7.73	1,480.84	350.49	797	765.31	2.45	-0.21	0.02
110.00	-8.93	-0.50	0.00	-7.21	0.00	7.21	1,470.44	347.35	783	753.05	2.50	-0.21	0.02
115.00	-8.51	-0.48	0.00	-4.71	0.00	4.71	1,403.83	331.61	713	686.05	2.72	-0.22	0.01
119.00	-5.19	-0.31	0.00	-2.80	0.00	2.80	1,350.55	319.03	660	634.70	2.91	-0.22	0.01
119.00	-5.19	-0.31	0.00	-2.80	0.00	2.80	957.94	239.92	498	452.65	2.91	-0.22	0.01
120.00	-4.80	-0.29	0.00	-2.50	0.00	2.50	951.57	237.56	488	445.18	2.96	-0.22	0.01
125.00	-4.50	-0.27	0.00	-1.07	0.00	1.07	918.77	225.76	441	408.31	3.19	-0.23	0.01
129.00	0.00	-0.25	0.00	0.00	0.00	0.00	891.44	216.32	405	379.46	3.38	-0.23	0.00

0.9D - 1.0Ev + 1.0Eh Seismic (Reduced DL)

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-32.59	-1.19	0.00	-125.27	0.00	125.27	4,855.79	1,178.57	5,148	4,826.26	0.00	0.00	0.03
5.00	-31.40	-1.19	0.00	-119.34	0.00	119.34	4,773.96	1,151.04	4,911	4,633.09	0.00	-0.01	0.03
10.00	-30.24	-1.19	0.00	-113.40	0.00	113.40	4,690.62	1,123.50	4,679	4,442.31	0.02	-0.02	0.03
15.00	-29.10	-1.19	0.00	-107.43	0.00	107.43	4,605.77	1,095.97	4,452	4,254.05	0.04	-0.03	0.03
20.00	-27.99	-1.20	0.00	-101.46	0.00	101.46	4,519.41	1,068.43	4,231	4,068.40	0.08	-0.04	0.03
25.00	-26.90	-1.19	0.00	-95.48	0.00	95.48	4,406.48	1,040.90	4,016	3,863.51	0.12	-0.05	0.03
30.00	-25.83	-1.19	0.00	-89.51	0.00	89.51	4,289.92	1,013.37	3,806	3,660.81	0.17	-0.06	0.03
35.00	-24.78	-1.18	0.00	-83.56	0.00	83.56	4,173.36	985.83	3,602	3,463.58	0.23	-0.07	0.03
40.00	-23.75	-1.18	0.00	-77.64	0.00	77.64	4,056.80	958.30	3,404	3,271.80	0.31	-0.07	0.03
45.00	-23.30	-1.17	0.00	-71.75	0.00	71.75	3,940.24	930.77	3,211	3,085.49	0.39	-0.08	0.03
47.25	-22.39	-1.16	0.00	-69.11	0.00	69.11	3,887.79	918.38	3,126	3,003.43	0.43	-0.09	0.03
50.00	-21.49	-1.15	0.00	-65.91	0.00	65.91	3,823.68	903.23	3,024	2,904.64	0.49	-0.10	0.03
52.75	-21.09	-1.14	0.00	-62.75	0.00	62.75	3,294.34	778.19	2,619	2,519.75	0.54	-0.10	0.03
55.00	-20.23	-1.13	0.00	-60.18	0.00	60.18	3,249.38	767.57	2,548	2,451.11	0.59	-0.11	0.03
60.00	-19.38	-1.11	0.00	-54.53	0.00	54.53	3,149.47	743.97	2,394	2,301.96	0.71	-0.12	0.03
65.00	-18.55	-1.10	0.00	-48.96	0.00	48.96	3,049.56	720.37	2,244	2,157.50	0.83	-0.13	0.03
70.00	-17.74	-1.07	0.00	-43.48	0.00	43.48	2,949.66	696.77	2,100	2,017.71	0.97	-0.14	0.03
75.00	-16.95	-1.05	0.00	-38.11	0.00	38.11	2,849.75	673.17	1,960	1,882.61	1.12	-0.15	0.03
80.00	-16.18	-1.02	0.00	-32.86	0.00	32.86	2,749.84	649.57	1,825	1,752.19	1.28	-0.16	0.03
85.00	-15.43	-0.99	0.00	-27.74	0.00	27.74	2,649.93	625.97	1,695	1,626.45	1.46	-0.17	0.02
90.00	-15.36	-0.99	0.00	-22.77	0.00	22.77	2,550.02	602.37	1,569	1,505.39	1.64	-0.18	0.02
90.50	-14.46	-0.95	0.00	-22.27	0.00	22.27	2,540.03	600.01	1,557	1,493.54	1.65	-0.18	0.02
94.75	-14.43	-0.95	0.00	-18.23	0.00	18.23	1,616.13	395.33	1,014	943.15	1.82	-0.18	0.03
95.00	-14.31	-0.95	0.00	-17.99	0.00	17.99	1,613.86	394.55	1,010	939.93	1.83	-0.18	0.03
96.00	-11.19	-0.79	0.00	-17.05	0.00	17.05	1,604.76	391.40	994	927.11	1.86	-0.19	0.03
100.00	-10.66	-0.76	0.00	-13.89	0.00	13.89	1,567.72	378.81	931	876.33	2.02	-0.19	0.02
105.00	-10.23	-0.74	0.00	-10.09	0.00	10.09	1,520.05	363.08	855	814.07	2.23	-0.20	0.02
107.00	-6.78	-0.53	0.00	-8.61	0.00	8.61	1,500.57	356.79	826	789.57	2.32	-0.21	0.02
109.00	-6.53	-0.51	0.00	-7.56	0.00	7.56	1,480.84	350.49	797	765.31	2.41	-0.21	0.01
110.00	-6.15	-0.49	0.00	-7.05	0.00	7.05	1,470.44	347.35	783	753.05	2.45	-0.21	0.01
115.00	-5.86	-0.47	0.00	-4.61	0.00	4.61	1,403.83	331.61	713	686.05	2.67	-0.22	0.01
119.00	-3.58	-0.30	0.00	-2.74	0.00	2.74	1,350.55	319.03	660	634.70	2.86	-0.22	0.01

ASSET: 283418, NORTH HAVEN CT
CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H
ENG NO: 13683386_C3_03

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
119.00	-3.58	-0.30	0.00	-2.74	0.00	2.74	957.94	239.92	498	452.65	2.86	-0.22	0.01
120.00	-3.31	-0.28	0.00	-2.44	0.00	2.44	951.57	237.56	488	445.18	2.90	-0.22	0.01
125.00	-3.10	-0.26	0.00	-1.05	0.00	1.05	918.77	225.76	441	408.31	3.13	-0.22	0.01
129.00	0.00	-0.25	0.00	0.00	0.00	0.00	891.44	216.32	405	379.46	3.32	-0.22	0.00

ANALYSIS SUMMARY

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W	31.02	0.00	47.28	0.00	0.00	3080.29	0.00	0.65
0.9D + 1.0W	30.99	0.00	35.44	0.00	0.00	3044.62	0.00	0.64
1.2D + 1.0Di + 1.0Wi	7.87	0.00	61.90	0.00	0.00	769.72	0.00	0.17
1.2D + 1.0Ev + 1.0Eh	1.21	0.00	47.29	0.00	0.00	127.10	0.00	0.04
0.9D - 1.0Ev + 1.0Eh	1.20	0.00	32.59	0.00	0.00	125.27	0.00	0.03
1.0D + 1.0W	6.93	0.00	39.45	0.00	0.00	684.50	0.00	0.15



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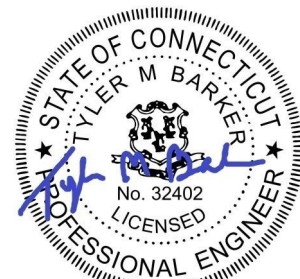
CLSENGINEERING
PLLC

Antenna Mount Analysis Report

ATC Site Name : North Haven CT
ATC Asset Number : 283418
Engineering Number : 13683386_C8_01
Mount Elevation : 105 ft
Carrier : AT&T Mobility
Carrier Site Name : MRCTB051593
Carrier Site Number : CT3506
Site Location : 50 Devine Street
North Haven, CT 06473-2204
41.377778, -72.8761583
County : New Haven
Date : November 23, 2021
Max Usage : 66%
Result : Contingent Pass*
*See conclusion for requirements

Prepared By:
Kowsalya V
CLS Engineering, PLLC

Reviewed By:
Tyler M. Barker, P.E.
CLS Engineering, PLLC



Tyler M. Barker
CLS Engineering PLLC
PE # 32402 Exp. 1/31/2022
COA # PEC.001833 Exp. 8/14/2022
1/24/2021

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Introduction

The proposed equipment is to be mounted to the existing Platform w/ Support Rails. This proposed mounting configuration was analyzed using RISA-3D, a commercially available finite element analysis software package. A selection of input and output from our analysis is attached to the end of this report.

Supporting Documents

Structural Data	Site Photos dated May 05, 2020 Spec Sheet by Commscope, Part #MTC3607
Previous Analyses	Tower SA by ATC, Engineering #13693659_C3_03, dated June 24, 2021
Loading Data	ATC Application, Project #13683386, dated November 21, 2021 AT&T RFDS ID:4391590, Ver. 2.00, dated October 25, 2021
Modifications	Mount Modification by Hudson Design Group LLC for ATC, Site #283418, Rev. 1, dated April 08, 2019

Analysis

Codes	TIA-222-H
Basic Wind Speed	120 mph, V_{ult} (3-Second Gust)
Basic Wind Speed w/ Ice	50 mph (3-Second Gust) w/ 1" Radial Ice (Escalating)
Exposure Category	C
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Risk Category	II
Maintenance Live Load	L_M : 500 lb
Spectral Response	S_S : 0.20; S_1 : 0.05; Site Class: D

Conclusion

Based on the analysis, the antenna mount meets the requirements per the applicable codes listed above. The mounting configuration considered in this analysis will be capable of supporting the referenced loading pursuant to referenced standards once the following scope is executed:

- **Replace existing with (1) proposed RRH pipe 2 STD X 6'-0" Long mount pipe at each sector (3 total) as shown. Connect to stand-off horizontal pipes with (1) Site Pro 1 SP219 cross plate kits at each sector (3 total).**
- **Install (1) proposed Site Pro 1 UWS6-NP ring mount to monopole and install (2) proposed pipe 2 STD X 8'-0" Long mount pipe at each sector for spare panel configuration (6 total) as shown.**

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

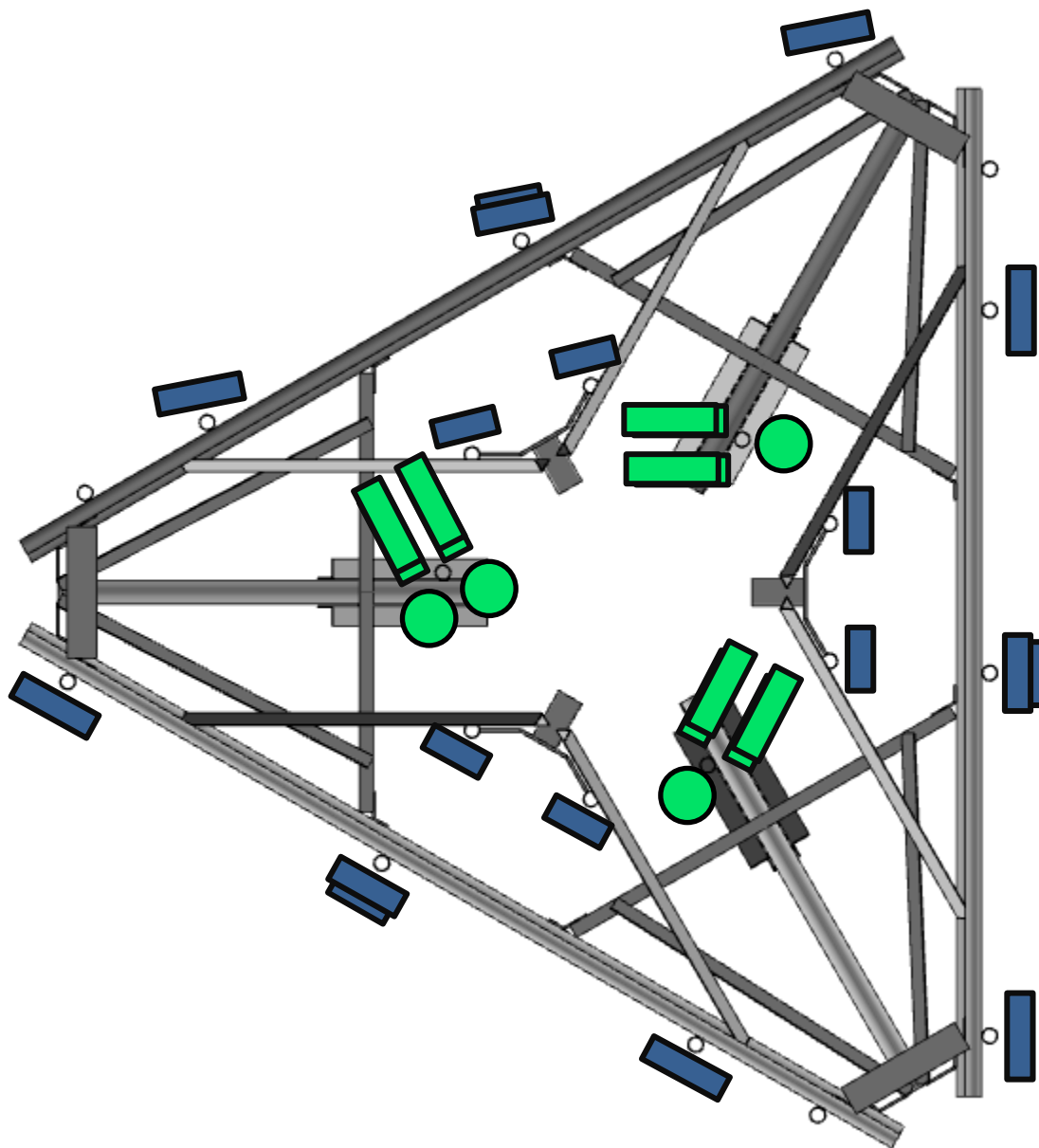
Antenna Loading

Elevation (ft)		Antennas	
Mount	Rad.	#	Name
105.0	109.0	3	Ericsson AIR 6419 B77G
	107.0	3	Kathrein 80010966
		6	CCI HPA-65R-BUU-H8
		3	CCI DMP65R-BU6DA
		3	Ericsson RRUS 32 B30
		3	Ericsson RRUS 4449 B5, B12
		3	Ericsson RRUS 4478 B14
		3	Ericsson RRUS 8843 B2, B66A
		3	Raycap DC6-48-60-18-8F
		1	Raycap DC6-48-60-0-8C-EV
	105.0	3	Ericsson Air 6449 B77D

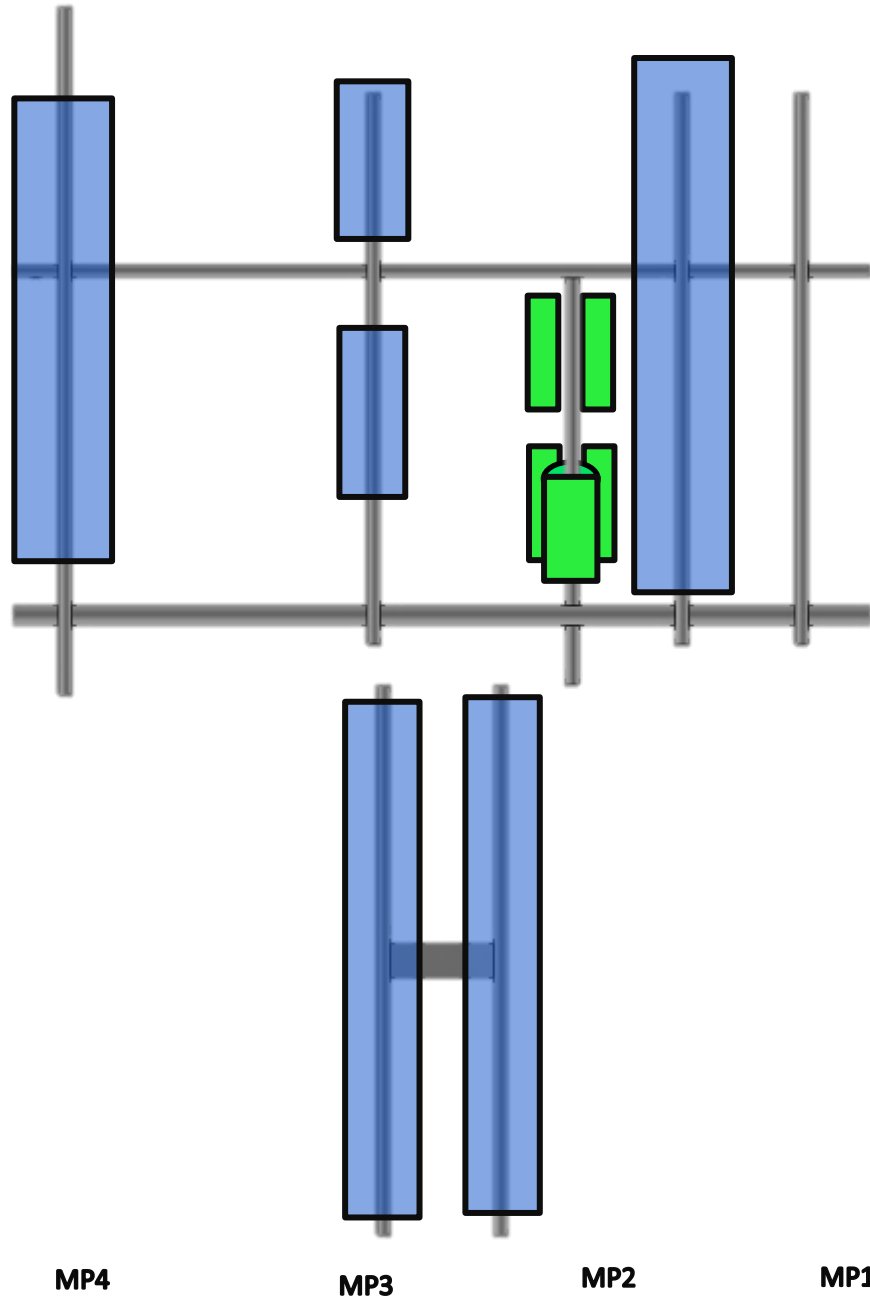
Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Support Rail	66%	Pass
Corner Plates	61%	Pass
Mount Pipes	51%	Pass
Stand-Off Horizontals	26%	Pass
Platform Base	18%	Pass
Tower Mount Bolt Connection	17%	Pass

Equipment Layout Plan View



Equipment Layout Front Elevation View



Standard Conditions

This analysis is inclusive of the antenna supporting frames/mounts and all recorded connections that will support the equipment listed in this report. It considers only the theoretical capacity of structural components and it is not a condition assessment. The validity of the analysis may be dependent on the accuracy of structural information supplied by others. The client is responsible for verifying this information. If any provided information is revised after completion of this analysis, CLS Engineering, PLLC should be notified immediately to revise results.

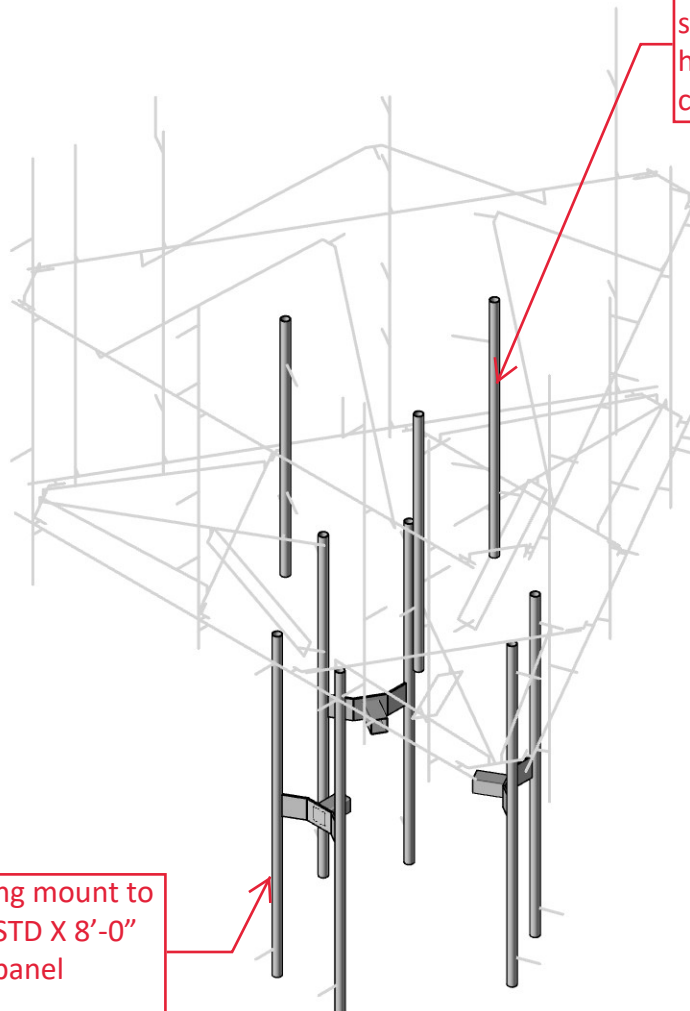
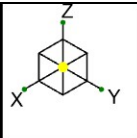
This analysis assumes the following:

1. The tower or other superstructure and mounts (if existing) were properly constructed as per the original design and have been properly maintained in accordance with applicable code standards.
2. Member sizes and strengths are accurate as supplied or are assumed as stated in the calculations.
3. In the absence of sufficient design information, all welds and connections are assumed to develop at least the capacity of the connected member, unless otherwise stated in this analysis.
4. All prior structural modifications, if any, are assumed to be correctly installed and fully effective.
5. The loading configuration is complete and accurate as supplied and/or as modeled in the previous analysis. All appurtenances are assumed to be properly installed and supported as per manufacturer requirements.
6. Some conservative assumptions may be used regarding appurtenances and their projected areas based on careful interpretation of data supplied, previous experience and standard industry practice.
7. Installation of all equipment and steel should be confirmed not to cause tower conflicts nor impede the tower climbing pegs.

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of the report. All opinions and conclusions contained herein are subject to revision based upon receipt of new or updated information. All services are provided exercising a level of care and diligence equivalent to the standard of our profession. No warranty or guarantee, either expressed or implied, is offered. All services are confidential in nature and this report will not be released to any other party without the client's consent. The use of this analysis is limited to the expressed purpose for which it was commissioned and it may not be reused, copied or disseminated for any other purpose without consent from CLS Engineering, PLLC.

All services were performed, results obtained and recommendations made in accordance with generally accepted engineering principles and practices. CLS Engineering, PLLC is not responsible for the conclusions, opinions or recommendations made by others based on the information supplied in this analysis.

It is not possible to have the fully detailed information necessary to perform a complete and thorough analysis of every structural sub-component of an existing structure. The structural analysis by CLS Engineering, PLLC verifies the adequacy of the primary members of the structure. CLS Engineering, PLLC provides a limited scope of service in that we cannot verify the adequacy of every weld, bolt, gusset, etc.

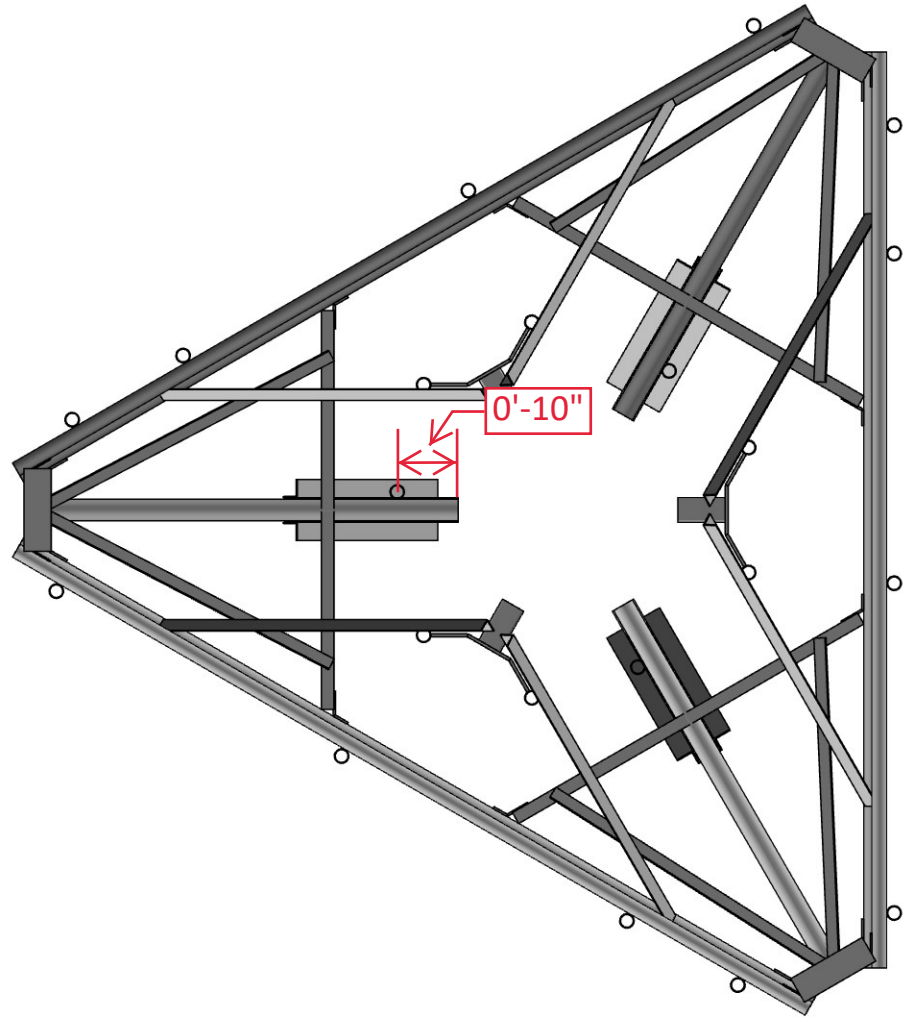


Replace existing with (1) proposed RRH pipe 2 STD X 6'-0" Long mount pipe at each sector (3 total). Connect to stand-off horizontal pipes with (1) Site Pro 1 SP219 cross plate kits at each sector (3 total).

Install (1) proposed Site Pro 1 UWS6-NP ring mount to monopole and install (2) proposed pipe 2 STD X 8'-0" Long mount pipe at each sector for spare panel configuration (6 total)

L/y Deflection Ratio (Enveloped)
Envelope Only Solution

Telamon CLS	41124-13683386_C8_01-North Haven CT	IN-1
KV	Proposed Modifications - Rendered	Nov 23, 2021
41124-13683386_C8_01-01-MA		41124-13683386_C8_01-01-MA.r3d



L/y Deflection Ratio (Enveloped)
Envelope Only Solution

Telamon CLS

KV

41124-13683386_C8_01-01-MA

41124-13683386_C8_01-North Haven CT

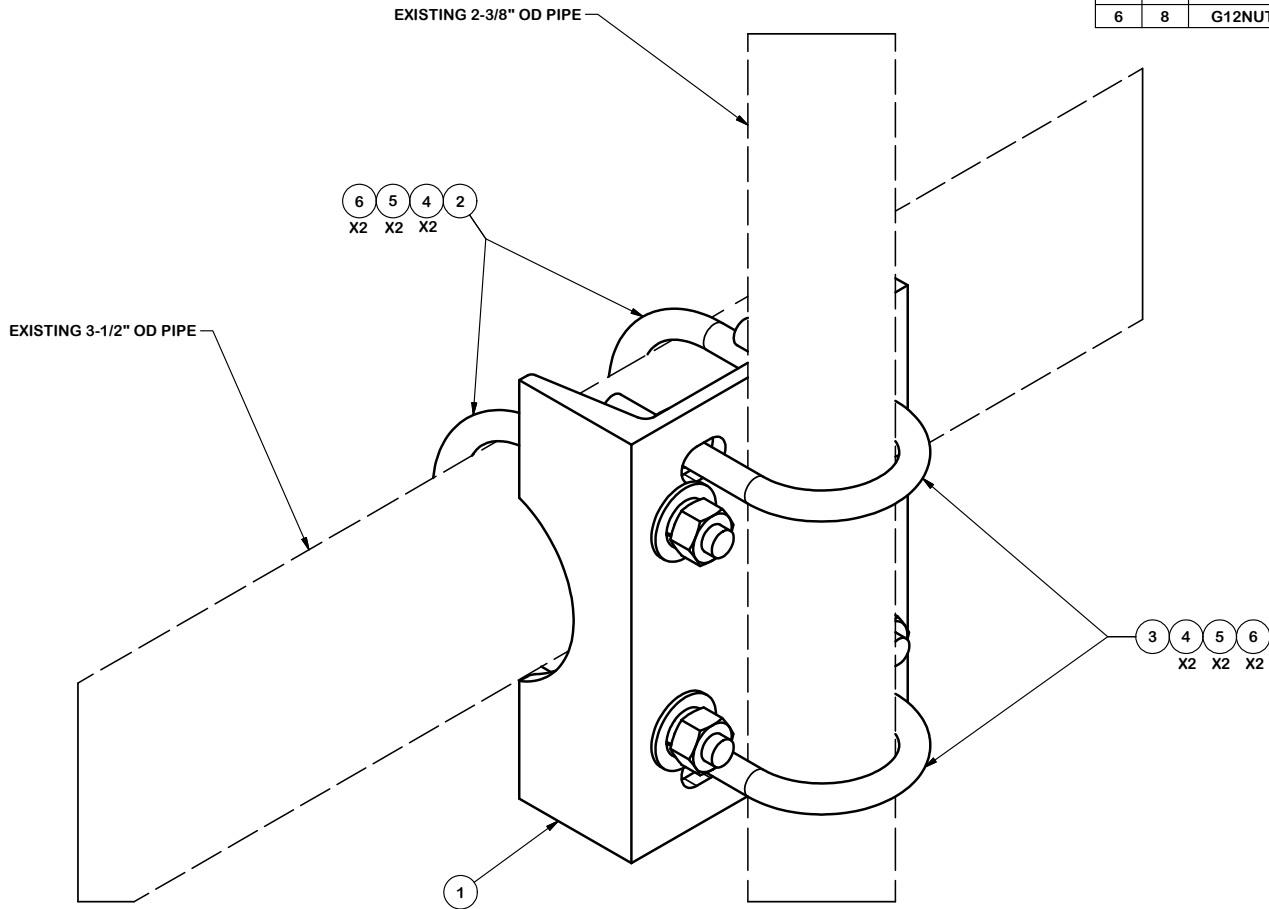
Proposed Modifications - Plan View

IN-2

Nov 23, 2021

41124-13683386_C8_01-01-MA.r3d

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	X-SP219	SMALL SUPPORT CROSS PLATE	8 1/4 in	8.61	8.61
2	2	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.83	1.66
3	2	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.63	1.25
4	8	G12FW	1/2" HDG USS FLATWASHER		0.03	0.27
5	8	G12LW	1/2" HDG LOCKWASHER		0.01	0.11
6	8	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	0.57
					TOTAL WT. #	12.47



TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
 DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.060"$)

PROPRIETARY NOTE:
 THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION
PIPE MOUNT KIT

CPD NO. 4518	DRAWN BY KC8 6/26/2012	ENG. APPROVAL
CLASS SUB 81 01	DRAWING USAGE CUSTOMER	CHECKED BY CEK 1/23/2013

SITE PRO 1
 A valmont COMPANY

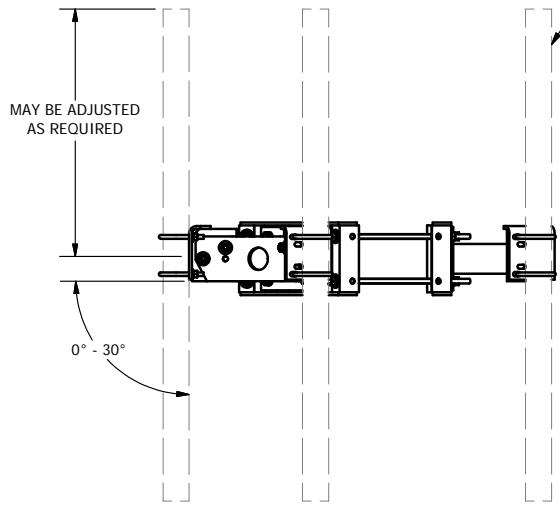
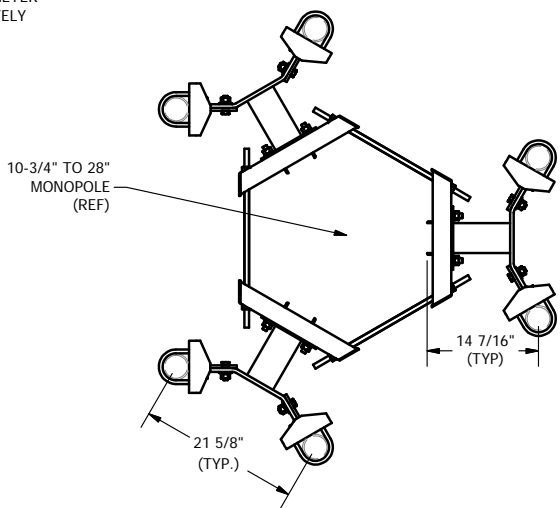
Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX

Engineering Support Team:
 1-888-753-7446

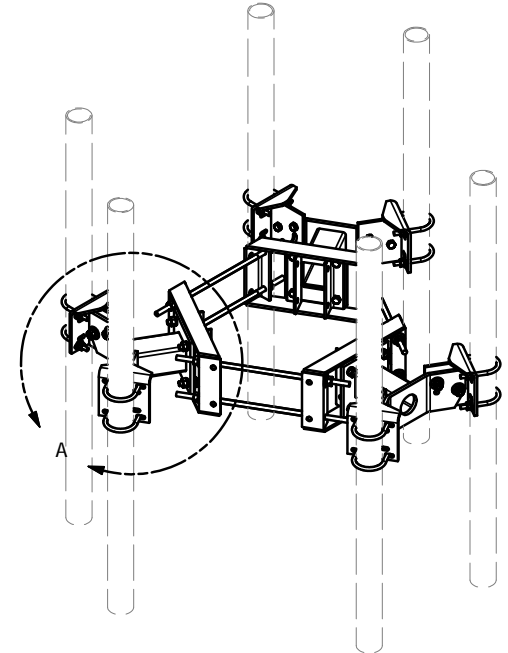
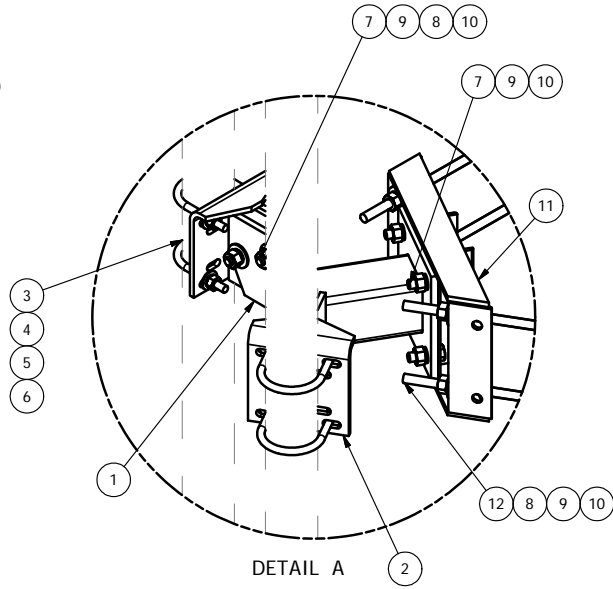
PART NO. SP219	PAGE 1 OF 1
DWG. NO. SP219	

NOTE:
FOR POLE SIZES
28" TO 42" DIAMETER
ORDER SEPARATELY
PART # "LP-42"

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-210717	STANDOFF BRACKET WELDMENT		28.58	85.74
2	6	X-ATB	PIPE ATTACHMENT BRACKET		10.68	64.10
3	12	X-UB1358	1/2" X 3-5/8" X 5-1/2" X 3" U-BOLT (HDG.)		0.77	9.27
3	12	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.70	8.40
3	12	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.63	7.56
4	24	G12FW	1/2" HDG USS FLATWASHER		0.03	0.82
5	24	G12LW	1/2" HDG LOCKWASHER		0.01	0.33
6	24	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.72
7	24	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	6.52
8	23	G58FW	5/8" HDG USS FLATWASHER		0.07	1.62
9	35	G58LW	5/8" HDG LOCKWASHER		0.03	0.91
10	35	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	4.55
11	3	X-UGLM	MINI RING MOUNT WELDMENT		21.67	65.00
12	6	G58R-24	5/8" x 24" THREADED ROD (HDG.)		2.09	12.54
12	6	G58R-14	5/8" x 14" THREADED ROD (HDG.)		1.22	7.32
					TOTAL WT. #	276.40



2-3/8" TO 3-1/2"
O.D. PIPE
(ORDER SEPARATELY)



REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	REPLACED X-210746 WITH X-ATB	4779	CEK	1/5/2012
REVISION HISTORY				

TOLERANCE NOTE
TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES
BENDS ARE $\pm 1/2$ DEGREE - ALL OTHER MACHINING ($\pm 0.030"$)
ALL OTHER ASSEMBLY ($\pm 0.060"$)

PROPRIETARY NOTE
THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION ANTENNA MOUNT - MONOPOLE (14-1/2" STANDOFF)			
DRAWN BY CEK	1/4/2012	CPD NO. 4779	DRAWING USAGE CUSTOMER
ENG. APPROVAL		CHECKED BY BMC	
		1/6/2012	

 A valmont COMPANY	Engineering Support Team: 1-888-753-7446	Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX
	PART NO. UWS6-NP DWG. NO. UWS6-NP	

Wind & Ice Loading			
Nominal Mount Elevation (AGL), z_{mount}	105 ft	K_a	0.90
Nominal Rad Elevation (AGL), z_{rad}	107 ft	K_d	0.95
Elevation AMSL (ft)	10 ft	K_e	1.00
TIA Standard	H	K_z	1.28
Basic Wind Speed, V_{ult} (bare)	120 mph	K_{zt}	1.00
Basic Wind Speed, V (ice)	50 mph	K_s	1.00
Design Ice Thickness, t_i	1 in	t_{iz}	1.12 in
Exposure Category	C	G_h	1.00
Risk Category	II	q_z (bare)	44.8 psf
Seismic Response Coeff., C_s	0.11	q_z (ice)	7.8 psf

Live Loading	
At Mount Pipes, L_M	500 lb
Joint Labels Considered	1_M1
	1_M2
	1_M3
	1_M4

Member Distributed Loading				
Section Set Label	Shape Label	F_A (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Offset Pipe	PIPE_3_0X	14.10	4.02	6.34
Side Channel	C3x2x.188	22.70	1.87	7.71
Channel Conn. Plate 2	PL2.38X0.375	15.98	3.26	3.95
Angle Grating Supports	L2x2x3	13.43	1.75	4.93
Offset End Plate	PL 6"x0.375"	40.29	5.78	7.11
Channel Conn. Plate 1	PL 6"x0.375"	40.29	5.78	7.11
Face Horizontal Pipe	PIPE_3_0	14.10	4.02	6.34
Mount Pipe	PIPE_2_0	9.57	3.23	4.80
Kicker Tube	HSS4X4X4	26.86	1.92	8.53
Kicker Angle	L3X3X4	20.14	1.83	6.67
Support Rail	PIPE_2_0	9.57	3.23	4.80
SR Conn Plate	PL6x1/4	40.29	5.77	7.00
SR Conn Angle	Custom 6.63x4.46	44.52	2.15	11.12
PRK-SFS	L2.5x2.5x3	16.79	1.79	5.80
MOD RRH Pipe	PIPE_2_0	9.57	3.23	4.80
MOD Standoff	HSS4X4X3	26.86	1.92	8.53
MOD Plate	PL 6x1/2"	40.29	5.78	7.22
MOD Mount Pipe	PIPE_2_0	9.57	3.23	4.80

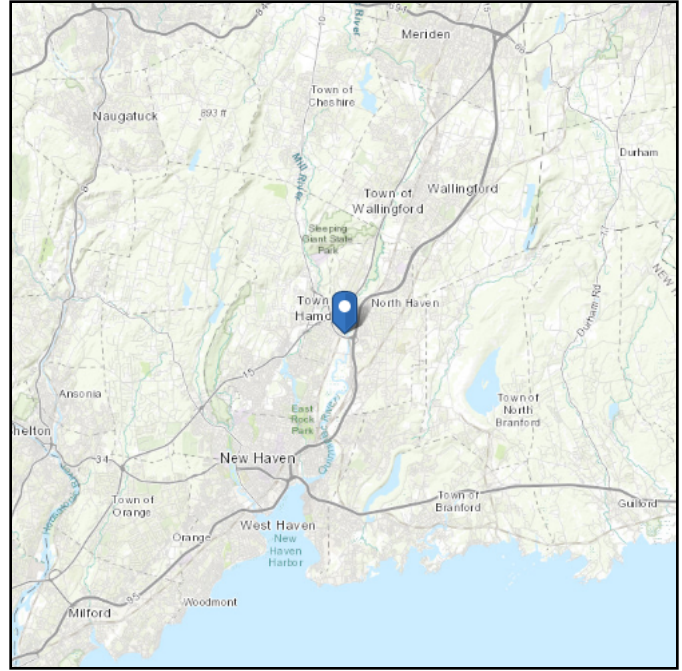
Appurtenances																														
Appurtenance Model	Status	Azimuth Offset (*, U)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty. per Azimuth			Total Qty. Override	0° Joints		120° Joints		250° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	EPA _A (Bare) (ft²)		EPA _A (Ice) (ft²)		F _A (Bare) (lb)		F _A (Ice) (lb)	
					Front	Side	0°	120°	250°		1	2	1	2	1	2							N	T	N	T	N	T	N	T
					80010966				<input type="checkbox"/>				1	1	1	3							1_A2T	1_A2B	2_A2T	2_A2B	3_A2T	3_A2B	96	20
AIR 6419 B77G			109	<input type="checkbox"/>			1	1	1	3	1_A3T	1_A3B	2_A3T	2_A3B	3_A3T	3_A3B	28.3	16.1	7.9	66.1	Flat	67.88	3.80	1.94	4.67	2.63	154.18	78.69	32.94	18.57
AIR 6449 B77D			105	<input type="checkbox"/>			1	1	1	3	1_A3TB	1_A3BB	2_A3TB	2_A3BB	3_A3TB	3_A3BB	30.4	15.9	10.6	81.6	Flat	75.10	4.03	2.72	4.94	3.50	162.28	109.66	34.53	24.48
DMP65R-BU6D				<input type="checkbox"/>			1	1	1	3	1_A4T	1_A4B	2_A4T	2_A4B	3_A4T	3_A4B	71.2	20.7	7.7	89.3	Generic	166.38	11.93	4.48	13.62	5.92	482.56	181.21	95.63	41.57
HPA-65R-BUU-H8				<input type="checkbox"/>			1	1	1	3	1_A5T	1_A5B	2_A5T	2_A5B	3_A5T	3_A5B	92.4	14.8	7.4	73	Generic	165.96	12.26	6.30	14.44	8.32	495.90	254.83	101.42	58.46
HPA-65R-BUU-H8				<input type="checkbox"/>			1	1	1	3	1_A6T	1_A6B	2_A6T	2_A6B	3_A6T	3_A6B	92.4	14.8	7.4	73	Generic	165.96	12.26	6.30	14.44	8.32	495.90	254.83	101.42	58.46
DC6-48-60-18-8F				<input type="checkbox"/>			1			1	1_M						24	11	11	18.9	Round	39.85	1.28	1.28	1.69	1.69	51.91	51.91	11.87	11.87
DC6-48-60-18-8F				<input type="checkbox"/>			1			1	2_M						24	11	11	18.9	Round	39.85	1.28	1.28	1.69	1.69	51.91	51.91	11.87	11.87
DC6-48-60-18-8F				<input type="checkbox"/>			1			1	3_M						24	11	11	18.9	Round	39.85	1.28	1.28	1.69	1.69	51.91	51.91	11.87	11.87
DC6-48-60-0-8C-EV				<input type="checkbox"/>					1	1				4_M			31.4	10.24	18.28	26.2	Flat	83.38	2.74	4.78	3.53	5.76	110.66	193.48	24.77	40.43
RRUS 4478 B14				<input checked="" type="checkbox"/>	0.5	1	1	1	3	3	1_R7BT		2_R7BT		3_R7BT		16.5	13.4	7.7	59.9	Flat	35.72	1.06	0.92	1.55	1.22	42.83	37.26	10.92	8.59
RRUS 8843 B2/B66A				<input checked="" type="checkbox"/>	0.5	1	1	1	3	3	1_R7BT		2_R7BT		3_R7BT		14.9	13.2	10.9	72	Flat	39.59	1.35	0.82	1.88	1.10	54.74	33.15	13.20	7.75
RRUS 4449 B5/B12				<input checked="" type="checkbox"/>	0.5	1	1	1	3	3	1_R7BTB		2_R7BTB		3_R7BTB		17.9	13.19	9.44	71	Flat	41.64	1.41	0.98	1.96	1.30	56.96	39.79	13.78	9.10
RRUS 32 B30				<input checked="" type="checkbox"/>	0.5	1	1	1	3	3	1_R7BTB		2_R7BTB		3_R7BTB		26.7	12.1	6.7	60	Flat	45.90	1.57	1.35	2.22	1.73	63.62	54.45	15.57	12.16

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 9.56 ft (NAVD 88)
Latitude: 41.377778
Longitude: -72.876158



Wind

Results:

Wind Speed:	120 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	91 Vmph
100-year MRI	98 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Tue Nov 23 2021

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

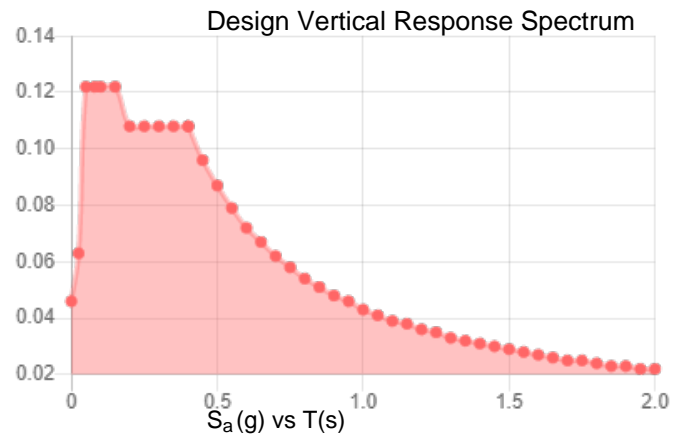
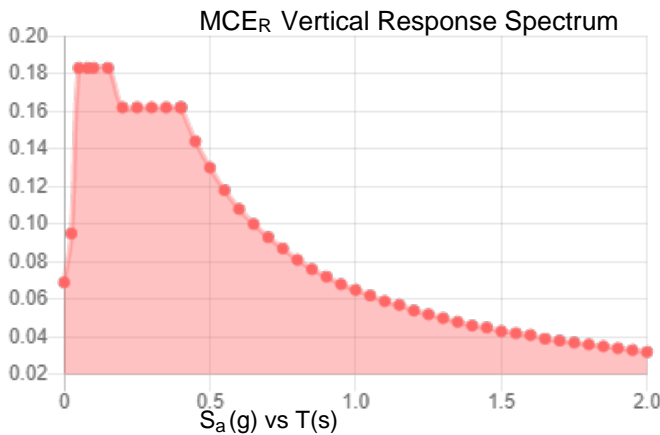
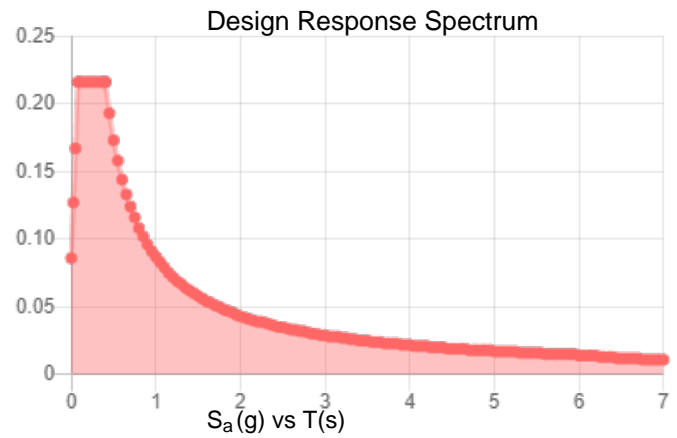
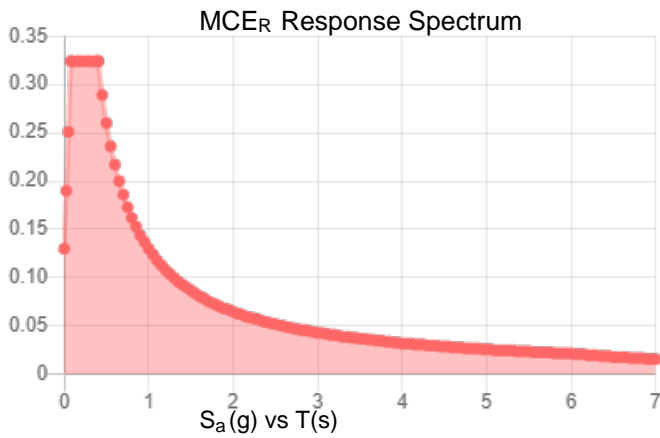
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

Results:

S_s :	0.203	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.113
F_v :	2.4	PGA _M :	0.178
S_{MS} :	0.324	F_{PGA} :	1.574
S_{M1} :	0.13	I_e :	1
S_{DS} :	0.216	C_v :	0.705

Seismic Design Category B



Data Accessed:

Tue Nov 23 2021

Date Source:

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

Ice

Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

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

Date Accessed: Tue Nov 23 2021

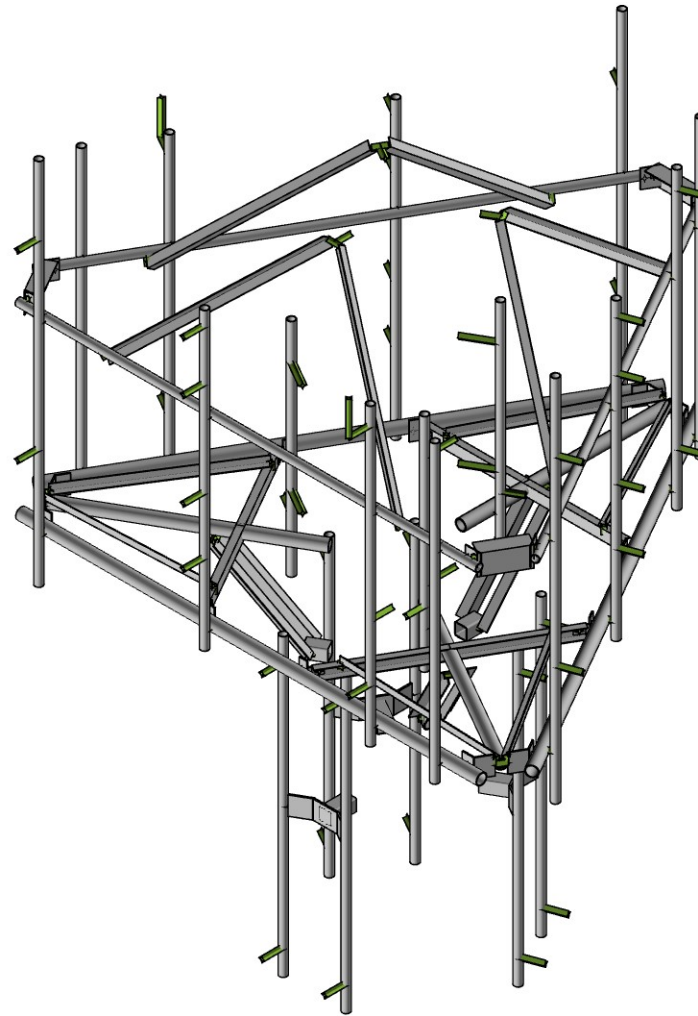
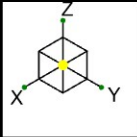
Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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

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

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In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Telamon CLS

KV

41124-13683386_C8_01-01-MA

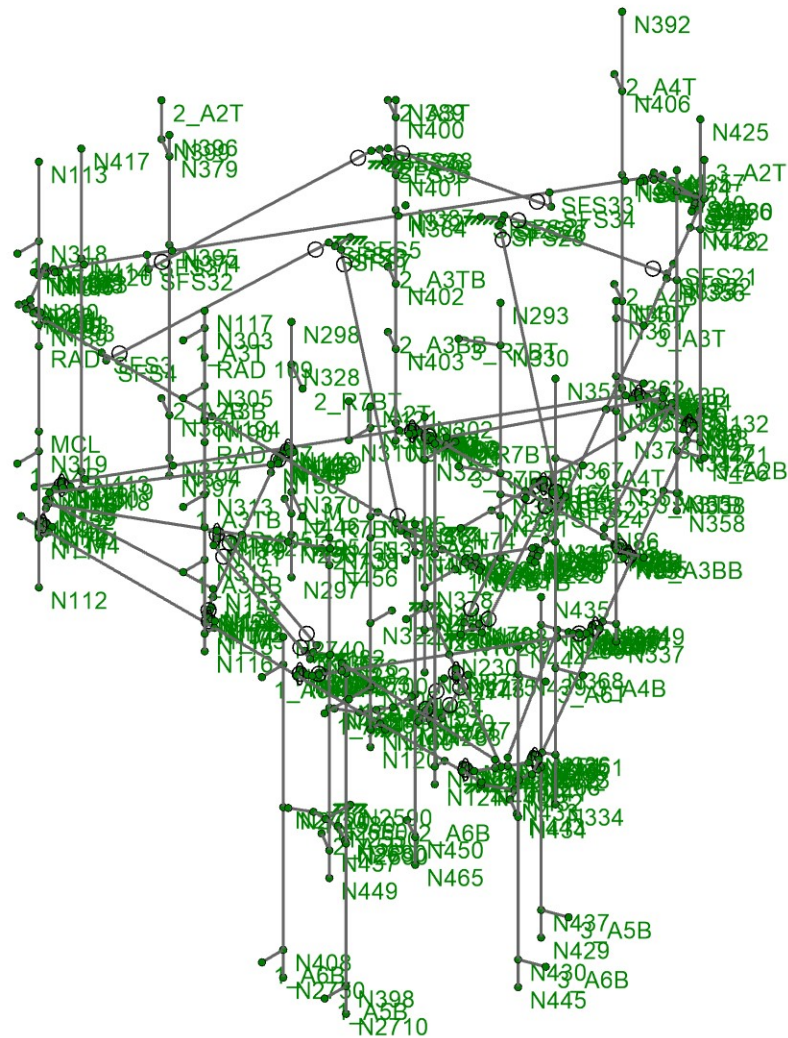
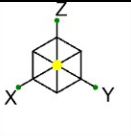
41124-13683386_C8_01-North Haven CT

Rendered

SK-1

Nov 23, 2021

41124-13683386_C8_01-01-MA.r3d

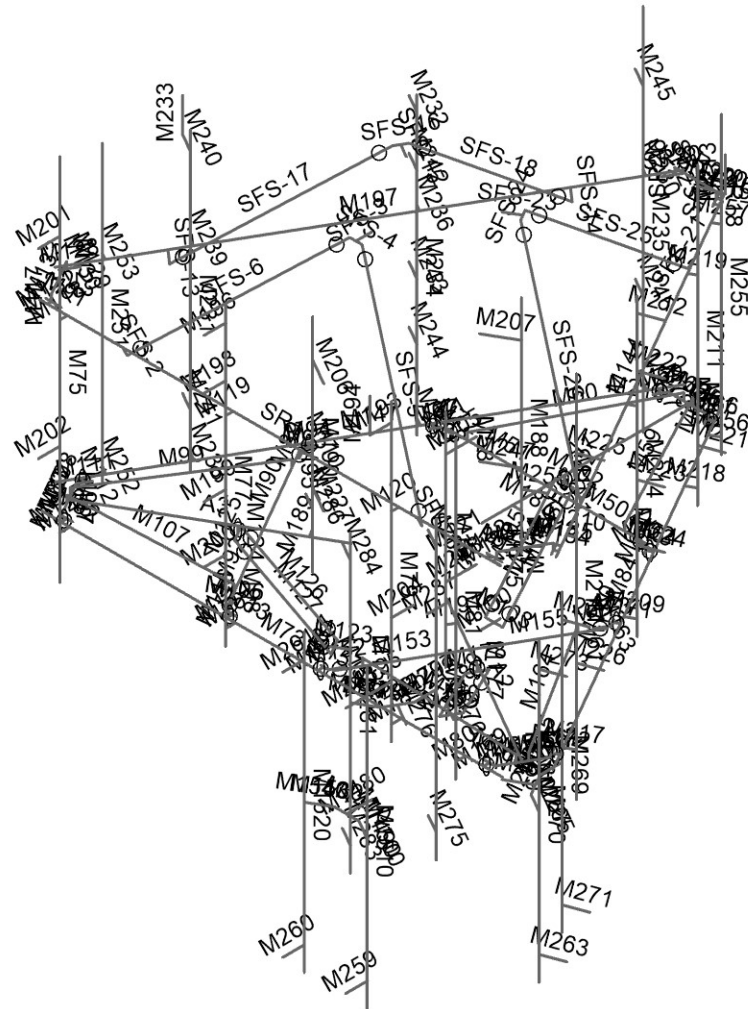
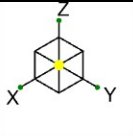


Envelope Only Solution

Telamon CLS
KV
41124-13683386_C8_01-01-MA

41124-13683386_C8_01-North Haven CT
Joint Labels

SK-2
Nov 23, 2021
41124-13683386_C8_01-01-MA.r3d

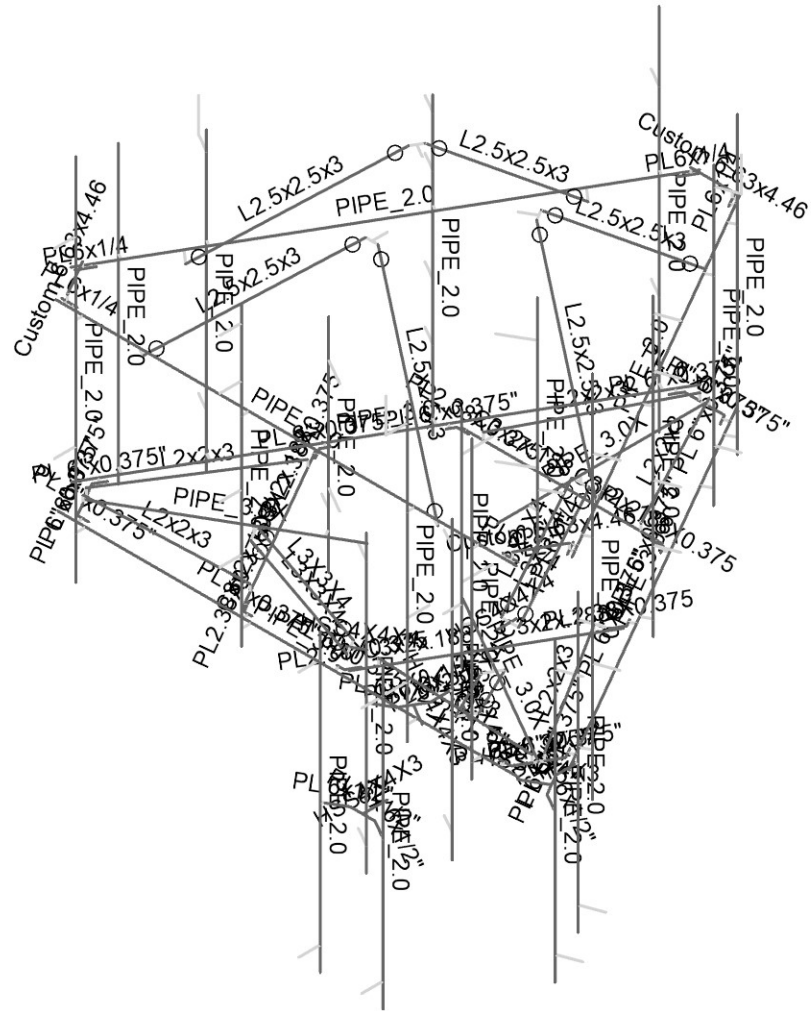
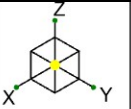


Envelope Only Solution

Telamon CLS
KV
41124-13683386_C8_01-01-MA

41124-13683386_C8_01-North Haven CT
Member Labels

SK-3
Nov 23, 2021
41124-13683386_C8_01-01-MA.r3d



Envelope Only Solution

Telamon CLS

KV

41124-13683386_C8_01-01-MA

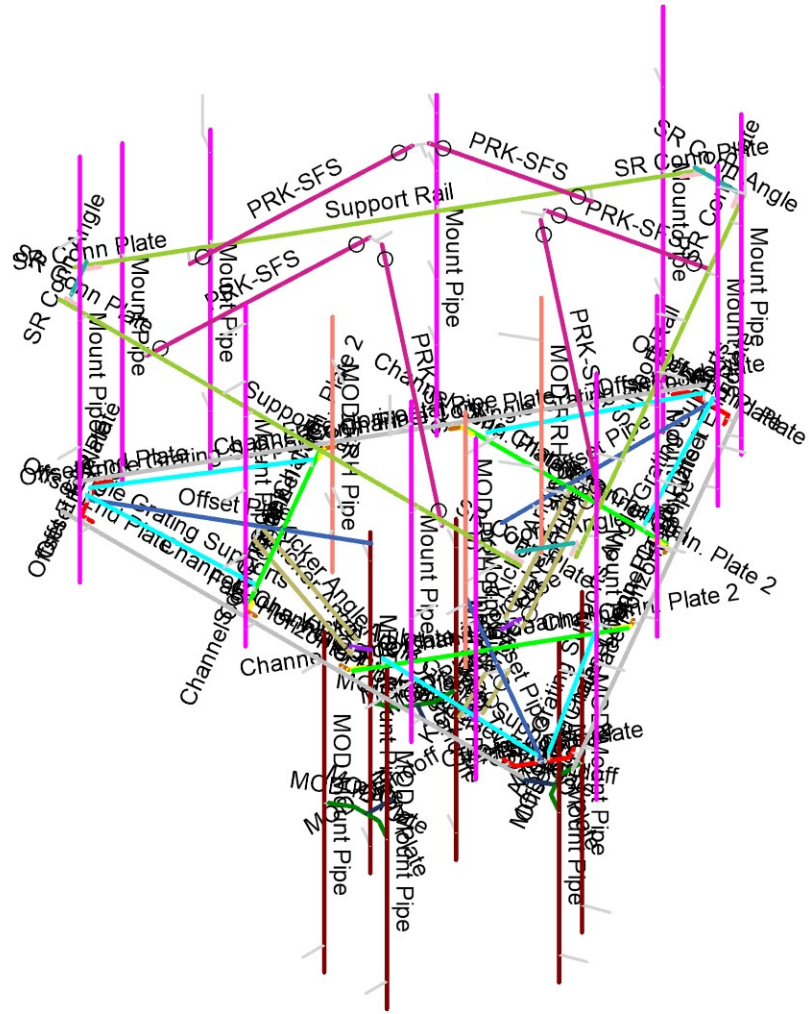
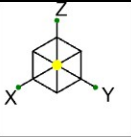
41124-13683386_C8_01-North Haven CT

Member Shapes

SK-3.1

Nov 23, 2021

41124-13683386_C8_01-01-MA.r3d



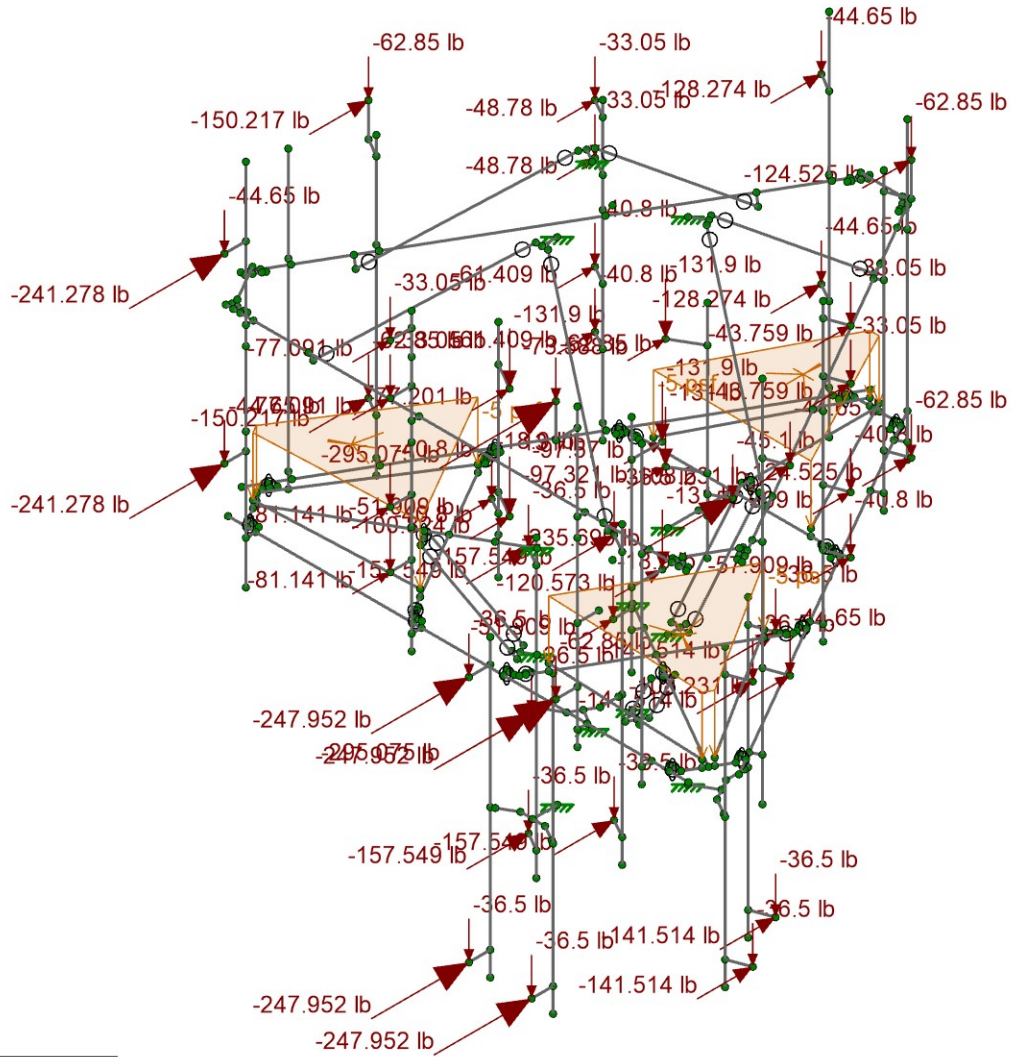
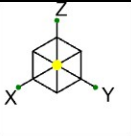
- Section Sets
- Offset Pipe
 - Side Channel
 - Offset End Plate
 - Face Horizontal Pipe
 - Mount Pipe
 - Angle Grating Supports
 - Channel Conn. Plate 1
 - Channel Conn. Plate 2
 - Kicker Tube
 - Kicker Angle
 - Support Rail
 - SR Conn Plate
 - SR Conn Angle
 - PRK-SFS
 - MOD RRH Pipe
 - MOD Standoff
 - MOD Plate
 - MOD Mount Pipe
 - RIGID

Envelope Only Solution

Telamon CLS
KV
41124-13683386_C8_01-01-MA

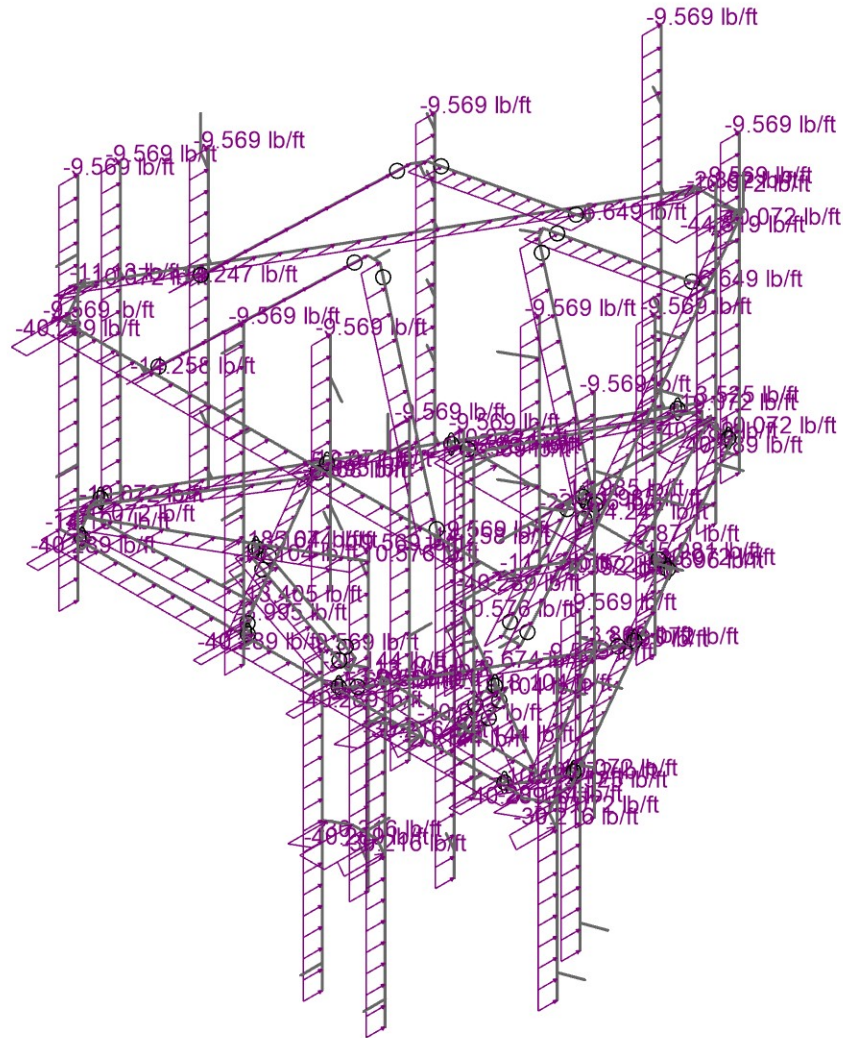
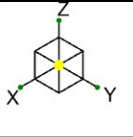
41124-13683386_C8_01-North Haven CT
Section Sets

SK-4
Nov 23, 2021
41124-13683386_C8_01-01-MA.r3d



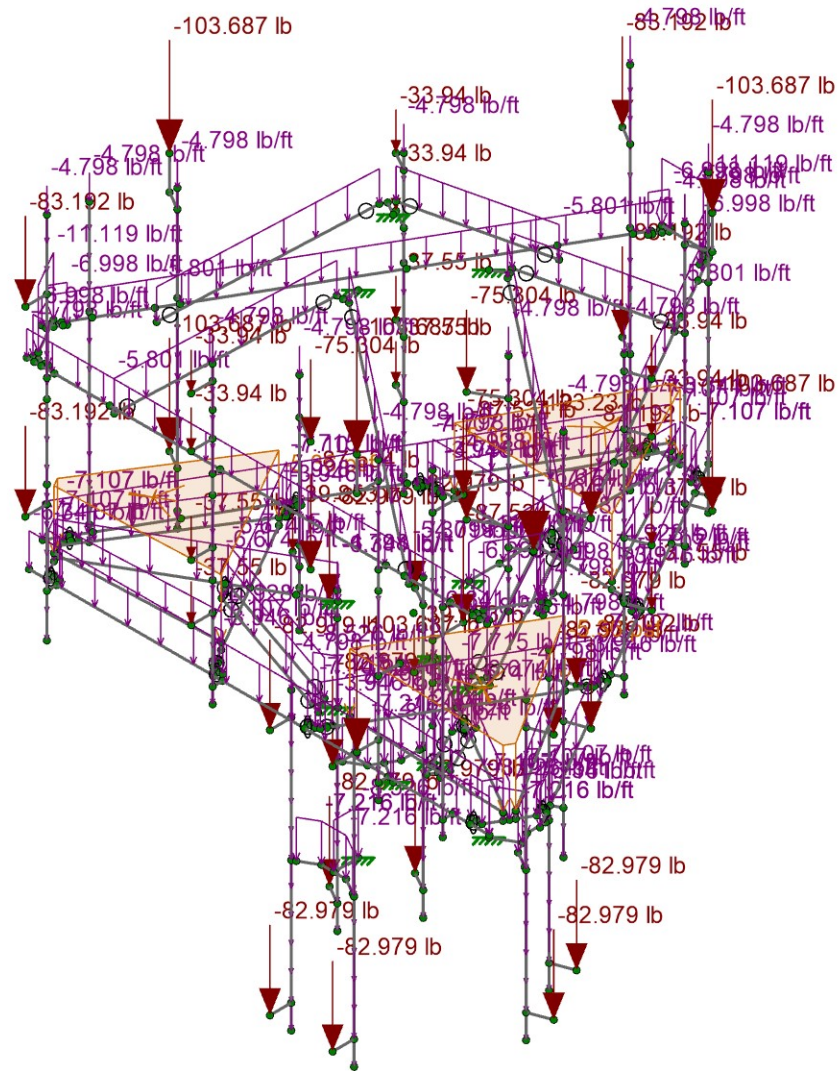
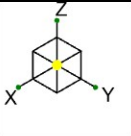
Loads: LC 1, DISPLAY (1.0D + 1.0W_0)
Envelope Only Solution

Telamon CLS	41124-13683386_C8_01-North Haven CT	SK-5
KV		Nov 23, 2021
41124-13683386_C8_01-01-MA	Joint Loads – Dead and Normal Wind	41124-13683386_C8_01-01-MA.r3d



Loads: BLC 5, Structure Wind 0
Envelope Only Solution

Telamon CLS	41124-13683386_C8_01-North Haven CT	SK-6
KV		Nov 23, 2021
41124-13683386_C8_01-01-MA	Joint Loads – Dead and Normal Wind	41124-13683386_C8_01-01-MA.r3d



Loads: BLC 2, Ice Dead
Envelope Only Solution

Telamon CLS

41124-13683386_C8_01-North Haven CT

SK-7

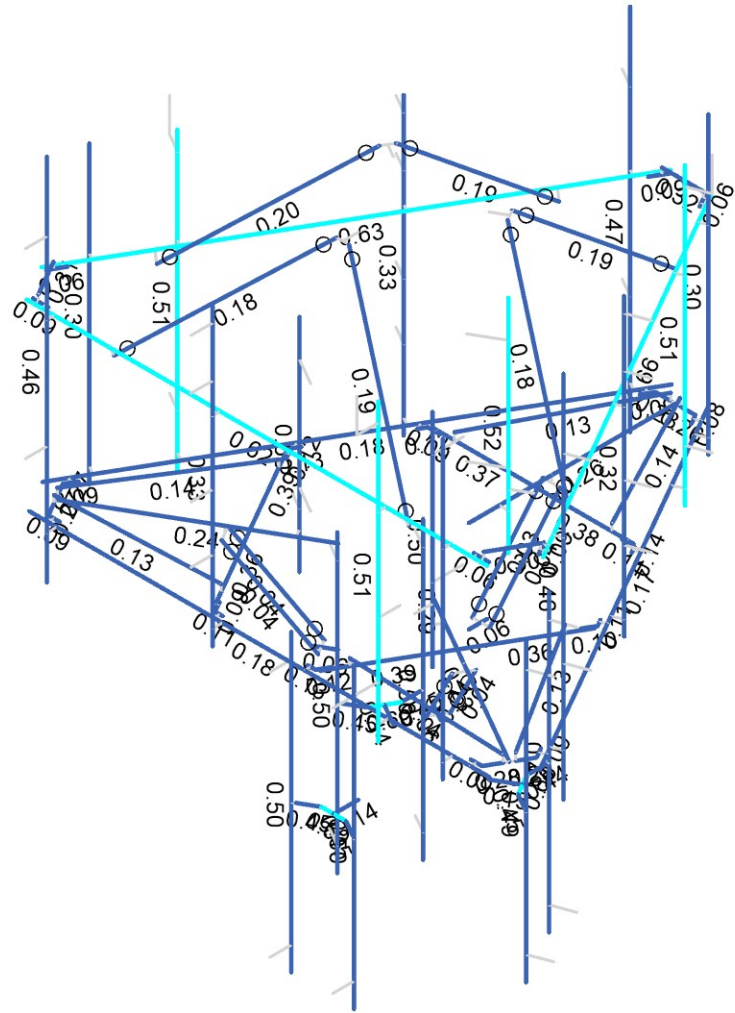
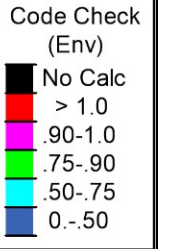
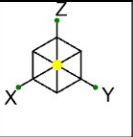
KV

Nov 23, 2021

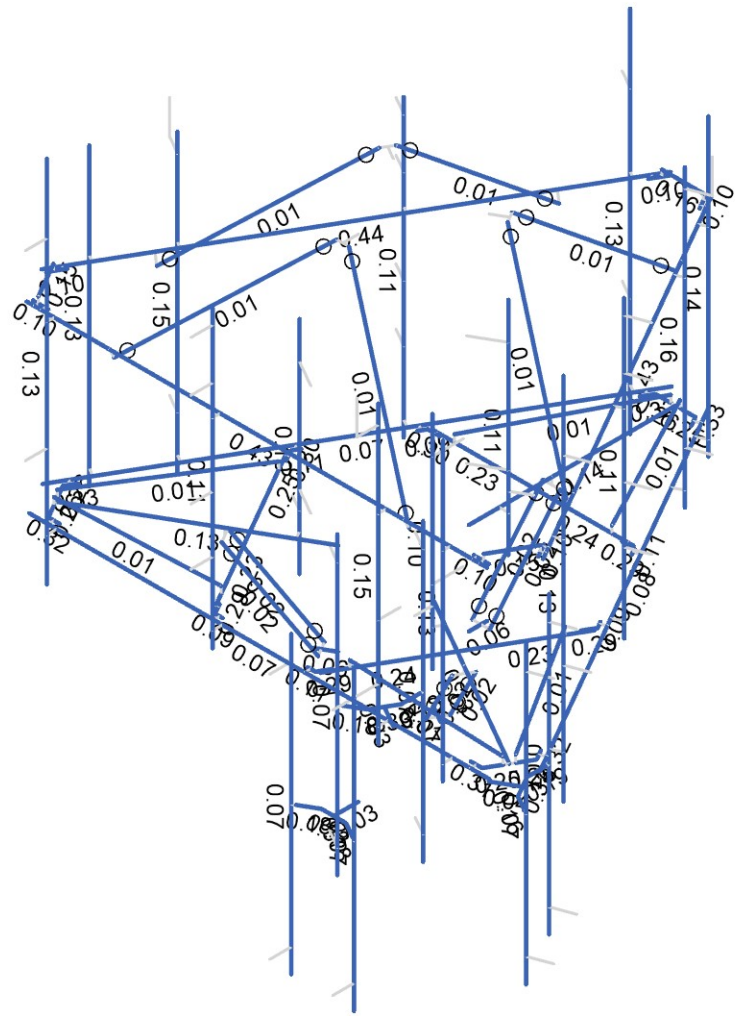
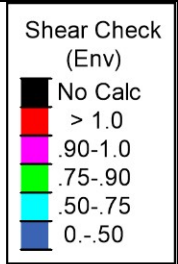
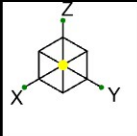
41124-13683386_C8_01-01-MA

Ice Dead Loads

41124-13683386_C8_01-01-MA.r3d



Member Code Checks Displayed (Enveloped) Envelope Only Solution		
Telamon CLS	41124-13683386_C8_01-North Haven CT	SK-8
KV		Nov 23, 2021
41124-13683386_C8_01-01-MA	Envelope Member Unity Check Results – Bending	41124-13683386_C8_01-01-MA.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Telamon CLS
KV
41124-13683386_C8_01-01-MA

41124-13683386_C8_01-North Haven CT
Envelope Member Check Results – Shear

SK-9
Nov 23, 2021
41124-13683386_C8_01-01-MA.r3d

Basic Load Cases

	BLC Description	Category	Z Gravity	Nodal	Distributed	Area(Member)
1	Dead	DL	-1	52		3
2	Ice Dead	RL		52	102	3
3	BLC 1 Transient Area Loads	None			30	
4	BLC 2 Transient Area Loads	None			30	
5	Structure Wind 0°	None			97	
6	Structure Wind 30°	None			172	
7	Structure Wind 45°	None			204	
8	Structure Wind 60°	None			194	
9	Structure Wind 90°	None			86	
10	Structure Wind 120°	None			194	
11	Structure Wind 135°	None			204	
12	Structure Wind 150°	None			172	
13	Structure Wind 180°	None			97	
14	Structure Wind 210°	None			172	
15	Structure Wind 225°	None			204	
16	Structure Wind 240°	None			194	
17	Structure Wind 270°	None			86	
18	Structure Wind 300°	None			194	
19	Structure Wind 315°	None			204	
20	Structure Wind 330°	None			172	
21	Structure Wind w/ Ice 0°	None			97	
22	Structure Wind w/ Ice 30°	None			172	
23	Structure Wind w/ Ice 45°	None			204	
24	Structure Wind w/ Ice 60°	None			194	
25	Structure Wind w/ Ice 90°	None			86	
26	Structure Wind w/ Ice 120°	None			194	
27	Structure Wind w/ Ice 135°	None			204	
28	Structure Wind w/ Ice 150°	None			172	
29	Structure Wind w/ Ice 180°	None			97	
30	Structure Wind w/ Ice 210°	None			172	
31	Structure Wind w/ Ice 225°	None			204	
32	Structure Wind w/ Ice 240°	None			194	
33	Structure Wind w/ Ice 270°	None			86	
34	Structure Wind w/ Ice 300°	None			194	
35	Structure Wind w/ Ice 315°	None			204	
36	Structure Wind w/ Ice 330°	None			172	
37	Antenna Wind 0°	None		52		
38	Antenna Wind 30°	None		104		
39	Antenna Wind 45°	None		104		
40	Antenna Wind 60°	None		104		
41	Antenna Wind 90°	None		52		
42	Antenna Wind 120°	None		104		
43	Antenna Wind 135°	None		104		
44	Antenna Wind 150°	None		104		
45	Antenna Wind 180°	None		52		
46	Antenna Wind 210°	None		104		
47	Antenna Wind 225°	None		104		
48	Antenna Wind 240°	None		104		
49	Antenna Wind 270°	None		52		
50	Antenna Wind 300°	None		104		
51	Antenna Wind 315°	None		104		
52	Antenna Wind 330°	None		104		
53	Antenna Wind w/ Ice 0°	None		52		
54	Antenna Wind w/ Ice 30°	None		104		
55	Antenna Wind w/ Ice 45°	None		104		

Basic Load Cases (Continued)

	BLC Description	Category	Z Gravity	Nodal	Distributed	Area(Member)
56	Antenna Wind w/ Ice 60°	None		104		
57	Antenna Wind w/ Ice 90°	None		52		
58	Antenna Wind w/ Ice 120°	None		104		
59	Antenna Wind w/ Ice 135°	None		104		
60	Antenna Wind w/ Ice 150°	None		104		
61	Antenna Wind w/ Ice 180°	None		52		
62	Antenna Wind w/ Ice 210°	None		104		
63	Antenna Wind w/ Ice 225°	None		104		
64	Antenna Wind w/ Ice 240°	None		104		
65	Antenna Wind w/ Ice 270°	None		52		
66	Antenna Wind w/ Ice 300°	None		104		
67	Antenna Wind w/ Ice 315°	None		104		
68	Antenna Wind w/ Ice 330°	None		104		
69	Seismic X	ELX		52	102	
70	Seismic Y	ELY		52	102	
71	Seismic Z	ELZ		52	102	
72	Maintenance Live 500 (1)	OL1		1		
73	Maintenance Live 500 (2)	OL2		1		
74	Maintenance Live 500 (3)	OL3		1		
75	Maintenance Live 500 (4)	OL4		1		

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	DISPLAY (1.0D + 1.0W_0°)	Yes	Y	DL	1	37	1				
2	1.4D	Yes	Y	DL	1.4						
3	1.2D + 1.0W_0°	Yes	Y	DL	1.2	5	1	37	1		
4	1.2D + 1.0W_30°	Yes	Y	DL	1.2	6	1	38	1		
5	1.2D + 1.0W_45°	Yes	Y	DL	1.2	7	1	39	1		
6	1.2D + 1.0W_60°	Yes	Y	DL	1.2	8	1	40	1		
7	1.2D + 1.0W_90°	Yes	Y	DL	1.2	9	1	41	1		
8	1.2D + 1.0W_120°	Yes	Y	DL	1.2	10	1	42	1		
9	1.2D + 1.0W_135°	Yes	Y	DL	1.2	11	1	43	1		
10	1.2D + 1.0W_150°	Yes	Y	DL	1.2	12	1	44	1		
11	1.2D + 1.0W_180°	Yes	Y	DL	1.2	13	-1	45	-1		
12	1.2D + 1.0W_210°	Yes	Y	DL	1.2	14	-1	46	-1		
13	1.2D + 1.0W_225°	Yes	Y	DL	1.2	15	-1	47	-1		
14	1.2D + 1.0W_240°	Yes	Y	DL	1.2	16	-1	48	-1		
15	1.2D + 1.0W_270°	Yes	Y	DL	1.2	17	-1	49	-1		
16	1.2D + 1.0W_300°	Yes	Y	DL	1.2	18	-1	50	-1		
17	1.2D + 1.0W_315°	Yes	Y	DL	1.2	19	-1	51	-1		
18	1.2D + 1.0W_330°	Yes	Y	DL	1.2	20	-1	52	-1		
19	1.2D + 1.0Di + 1.0Wi_0°	Yes	Y	DL	1.2	21	1	53	1	RL	1
20	1.2D + 1.0Di + 1.0Wi_30°	Yes	Y	DL	1.2	22	1	54	1	RL	1
21	1.2D + 1.0Di + 1.0Wi_45°	Yes	Y	DL	1.2	23	1	55	1	RL	1
22	1.2D + 1.0Di + 1.0Wi_60°	Yes	Y	DL	1.2	24	1	56	1	RL	1
23	1.2D + 1.0Di + 1.0Wi_90°	Yes	Y	DL	1.2	25	1	57	1	RL	1
24	1.2D + 1.0Di + 1.0Wi_120°	Yes	Y	DL	1.2	26	1	58	1	RL	1
25	1.2D + 1.0Di + 1.0Wi_135°	Yes	Y	DL	1.2	27	1	59	1	RL	1
26	1.2D + 1.0Di + 1.0Wi_150°	Yes	Y	DL	1.2	28	1	60	1	RL	1
27	1.2D + 1.0Di + 1.0Wi_180°	Yes	Y	DL	1.2	29	-1	61	-1	RL	1
28	1.2D + 1.0Di + 1.0Wi_210°	Yes	Y	DL	1.2	30	-1	62	-1	RL	1
29	1.2D + 1.0Di + 1.0Wi_225°	Yes	Y	DL	1.2	31	-1	63	-1	RL	1
30	1.2D + 1.0Di + 1.0Wi_240°	Yes	Y	DL	1.2	32	-1	64	-1	RL	1
31	1.2D + 1.0Di + 1.0Wi_270°	Yes	Y	DL	1.2	33	-1	65	-1	RL	1
32	1.2D + 1.0Di + 1.0Wi_300°	Yes	Y	DL	1.2	34	-1	66	-1	RL	1

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
33	1.2D + 1.0Di + 1.0Wi 315°	Yes	Y	DL	1.2	35	-1	67	-1	RL	1
34	1.2D + 1.0Di + 1.0Wi 330°	Yes	Y	DL	1.2	36	-1	68	-1	RL	1
35	1.2D + 1.0Ev + 1.0Eh 0°	Yes	Y	DL	1.243	ELX	-1	ELY			
36	1.2D + 1.0Ev + 1.0Eh 30°	Yes	Y	DL	1.243	ELX	-0.866	ELY	0.5		
37	1.2D + 1.0Ev + 1.0Eh 45°	Yes	Y	DL	1.243	ELX	-0.707	ELY	0.707		
38	1.2D + 1.0Ev + 1.0Eh 60°	Yes	Y	DL	1.243	ELX	-0.5	ELY	0.866		
39	1.2D + 1.0Ev + 1.0Eh 90°	Yes	Y	DL	1.243	ELX		ELY	1		
40	1.2D + 1.0Ev + 1.0Eh 120°	Yes	Y	DL	1.243	ELX	0.5	ELY	0.866		
41	1.2D + 1.0Ev + 1.0Eh 135°	Yes	Y	DL	1.243	ELX	0.707	ELY	0.707		
42	1.2D + 1.0Ev + 1.0Eh 150°	Yes	Y	DL	1.243	ELX	0.866	ELY	0.5		
43	1.2D + 1.0Ev + 1.0Eh 180°	Yes	Y	DL	1.243	ELX	1	ELY			
44	1.2D + 1.0Ev + 1.0Eh 210°	Yes	Y	DL	1.243	ELX	0.866	ELY	-0.5		
45	1.2D + 1.0Ev + 1.0Eh 225°	Yes	Y	DL	1.243	ELX	0.707	ELY	-0.707		
46	1.2D + 1.0Ev + 1.0Eh 240°	Yes	Y	DL	1.243	ELX	0.5	ELY	-0.866		
47	1.2D + 1.0Ev + 1.0Eh 270°	Yes	Y	DL	1.243	ELX		ELY	-1		
48	1.2D + 1.0Ev + 1.0Eh 300°	Yes	Y	DL	1.243	ELX	-0.5	ELY	-0.866		
49	1.2D + 1.0Ev + 1.0Eh 315°	Yes	Y	DL	1.243	ELX	-0.707	ELY	-0.707		
50	1.2D + 1.0Ev + 1.0Eh 330°	Yes	Y	DL	1.243	ELX	-0.866	ELY	-0.5		
51	0.9D - 1.0Ev + 1.0Eh 0°	Yes	Y	DL	0.857	ELX	-1	ELY			
52	0.9D - 1.0Ev + 1.0Eh 30°	Yes	Y	DL	0.857	ELX	-0.866	ELY	0.5		
53	0.9D - 1.0Ev + 1.0Eh 45°	Yes	Y	DL	0.857	ELX	-0.707	ELY	0.707		
54	0.9D - 1.0Ev + 1.0Eh 60°	Yes	Y	DL	0.857	ELX	-0.5	ELY	0.866		
55	0.9D - 1.0Ev + 1.0Eh 90°	Yes	Y	DL	0.857	ELX		ELY	1		
56	0.9D - 1.0Ev + 1.0Eh 120°	Yes	Y	DL	0.857	ELX	0.5	ELY	0.866		
57	0.9D - 1.0Ev + 1.0Eh 135°	Yes	Y	DL	0.857	ELX	0.707	ELY	0.707		
58	0.9D - 1.0Ev + 1.0Eh 150°	Yes	Y	DL	0.857	ELX	0.866	ELY	0.5		
59	0.9D - 1.0Ev + 1.0Eh 180°	Yes	Y	DL	0.857	ELX	1	ELY			
60	0.9D - 1.0Ev + 1.0Eh 210°	Yes	Y	DL	0.857	ELX	0.866	ELY	-0.5		
61	0.9D - 1.0Ev + 1.0Eh 225°	Yes	Y	DL	0.857	ELX	0.707	ELY	-0.707		
62	0.9D - 1.0Ev + 1.0Eh 240°	Yes	Y	DL	0.857	ELX	0.5	ELY	-0.866		
63	0.9D - 1.0Ev + 1.0Eh 270°	Yes	Y	DL	0.857	ELX		ELY	-1		
64	0.9D - 1.0Ev + 1.0Eh 300°	Yes	Y	DL	0.857	ELX	-0.5	ELY	-0.866		
65	0.9D - 1.0Ev + 1.0Eh 315°	Yes	Y	DL	0.857	ELX	-0.707	ELY	-0.707		
66	0.9D - 1.0Ev + 1.0Eh 330°	Yes	Y	DL	0.857	ELX	-0.866	ELY	-0.5		
67	1.2D + 1.5Lm 1 + 1.0Wm 0°	Yes	Y	DL	1.2	5	0.066	37	0.066	OL1	1.5
68	1.2D + 1.5Lm 1 + 1.0Wm 30°	Yes	Y	DL	1.2	6	0.066	38	0.066	OL1	1.5
69	1.2D + 1.5Lm 1 + 1.0Wm 45°	Yes	Y	DL	1.2	7	0.066	39	0.066	OL1	1.5
70	1.2D + 1.5Lm 1 + 1.0Wm 60°	Yes	Y	DL	1.2	8	0.066	40	0.066	OL1	1.5
71	1.2D + 1.5Lm 1 + 1.0Wm 90°	Yes	Y	DL	1.2	9	0.066	41	0.066	OL1	1.5
72	1.2D + 1.5Lm 1 + 1.0Wm 120°	Yes	Y	DL	1.2	10	0.066	42	0.066	OL1	1.5
73	1.2D + 1.5Lm 1 + 1.0Wm 135°	Yes	Y	DL	1.2	11	0.066	43	0.066	OL1	1.5
74	1.2D + 1.5Lm 1 + 1.0Wm 150°	Yes	Y	DL	1.2	12	0.066	44	0.066	OL1	1.5
75	1.2D + 1.5Lm 1 + 1.0Wm 180°	Yes	Y	DL	1.2	13	-0.066	45	-0.066	OL1	1.5
76	1.2D + 1.5Lm 1 + 1.0Wm 210°	Yes	Y	DL	1.2	14	-0.066	46	-0.066	OL1	1.5
77	1.2D + 1.5Lm 1 + 1.0Wm 225°	Yes	Y	DL	1.2	15	-0.066	47	-0.066	OL1	1.5
78	1.2D + 1.5Lm 1 + 1.0Wm 240°	Yes	Y	DL	1.2	16	-0.066	48	-0.066	OL1	1.5
79	1.2D + 1.5Lm 1 + 1.0Wm 270°	Yes	Y	DL	1.2	17	-0.066	49	-0.066	OL1	1.5
80	1.2D + 1.5Lm 1 + 1.0Wm 300°	Yes	Y	DL	1.2	18	-0.066	50	-0.066	OL1	1.5
81	1.2D + 1.5Lm 1 + 1.0Wm 315°	Yes	Y	DL	1.2	19	-0.066	51	-0.066	OL1	1.5
82	1.2D + 1.5Lm 1 + 1.0Wm 330°	Yes	Y	DL	1.2	20	-0.066	52	-0.066	OL1	1.5
83	1.2D + 1.5Lm 2 + 1.0Wm 0°	Yes	Y	DL	1.2	5	0.066	37	0.066	OL2	1.5
84	1.2D + 1.5Lm 2 + 1.0Wm 30°	Yes	Y	DL	1.2	6	0.066	38	0.066	OL2	1.5
85	1.2D + 1.5Lm 2 + 1.0Wm 45°	Yes	Y	DL	1.2	7	0.066	39	0.066	OL2	1.5
86	1.2D + 1.5Lm 2 + 1.0Wm 60°	Yes	Y	DL	1.2	8	0.066	40	0.066	OL2	1.5
87	1.2D + 1.5Lm 2 + 1.0Wm 90°	Yes	Y	DL	1.2	9	0.066	41	0.066	OL2	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
88	1.2D + 1.5Lm 2 + 1.0Wm 120°	Yes	Y	DL	1.2	10	0.066	42	0.066	OL2	1.5
89	1.2D + 1.5Lm 2 + 1.0Wm 135°	Yes	Y	DL	1.2	11	0.066	43	0.066	OL2	1.5
90	1.2D + 1.5Lm 2 + 1.0Wm 150°	Yes	Y	DL	1.2	12	0.066	44	0.066	OL2	1.5
91	1.2D + 1.5Lm 2 + 1.0Wm 180°	Yes	Y	DL	1.2	13	-0.066	45	-0.066	OL2	1.5
92	1.2D + 1.5Lm 2 + 1.0Wm 210°	Yes	Y	DL	1.2	14	-0.066	46	-0.066	OL2	1.5
93	1.2D + 1.5Lm 2 + 1.0Wm 225°	Yes	Y	DL	1.2	15	-0.066	47	-0.066	OL2	1.5
94	1.2D + 1.5Lm 2 + 1.0Wm 240°	Yes	Y	DL	1.2	16	-0.066	48	-0.066	OL2	1.5
95	1.2D + 1.5Lm 2 + 1.0Wm 270°	Yes	Y	DL	1.2	17	-0.066	49	-0.066	OL2	1.5
96	1.2D + 1.5Lm 2 + 1.0Wm 300°	Yes	Y	DL	1.2	18	-0.066	50	-0.066	OL2	1.5
97	1.2D + 1.5Lm 2 + 1.0Wm 315°	Yes	Y	DL	1.2	19	-0.066	51	-0.066	OL2	1.5
98	1.2D + 1.5Lm 2 + 1.0Wm 330°	Yes	Y	DL	1.2	20	-0.066	52	-0.066	OL2	1.5
99	1.2D + 1.5Lm 3 + 1.0Wm 0°	Yes	Y	DL	1.2	5	0.066	37	0.066	OL3	1.5
100	1.2D + 1.5Lm 3 + 1.0Wm 30°	Yes	Y	DL	1.2	6	0.066	38	0.066	OL3	1.5
101	1.2D + 1.5Lm 3 + 1.0Wm 45°	Yes	Y	DL	1.2	7	0.066	39	0.066	OL3	1.5
102	1.2D + 1.5Lm 3 + 1.0Wm 60°	Yes	Y	DL	1.2	8	0.066	40	0.066	OL3	1.5
103	1.2D + 1.5Lm 3 + 1.0Wm 90°	Yes	Y	DL	1.2	9	0.066	41	0.066	OL3	1.5
104	1.2D + 1.5Lm 3 + 1.0Wm 120°	Yes	Y	DL	1.2	10	0.066	42	0.066	OL3	1.5
105	1.2D + 1.5Lm 3 + 1.0Wm 135°	Yes	Y	DL	1.2	11	0.066	43	0.066	OL3	1.5
106	1.2D + 1.5Lm 3 + 1.0Wm 150°	Yes	Y	DL	1.2	12	0.066	44	0.066	OL3	1.5
107	1.2D + 1.5Lm 3 + 1.0Wm 180°	Yes	Y	DL	1.2	13	-0.066	45	-0.066	OL3	1.5
108	1.2D + 1.5Lm 3 + 1.0Wm 210°	Yes	Y	DL	1.2	14	-0.066	46	-0.066	OL3	1.5
109	1.2D + 1.5Lm 3 + 1.0Wm 225°	Yes	Y	DL	1.2	15	-0.066	47	-0.066	OL3	1.5
110	1.2D + 1.5Lm 3 + 1.0Wm 240°	Yes	Y	DL	1.2	16	-0.066	48	-0.066	OL3	1.5
111	1.2D + 1.5Lm 3 + 1.0Wm 270°	Yes	Y	DL	1.2	17	-0.066	49	-0.066	OL3	1.5
112	1.2D + 1.5Lm 3 + 1.0Wm 300°	Yes	Y	DL	1.2	18	-0.066	50	-0.066	OL3	1.5
113	1.2D + 1.5Lm 3 + 1.0Wm 315°	Yes	Y	DL	1.2	19	-0.066	51	-0.066	OL3	1.5
114	1.2D + 1.5Lm 3 + 1.0Wm 330°	Yes	Y	DL	1.2	20	-0.066	52	-0.066	OL3	1.5
115	1.2D + 1.5Lm 4 + 1.0Wm 0°	Yes	Y	DL	1.2	5	0.066	37	0.066	OL4	1.5
116	1.2D + 1.5Lm 4 + 1.0Wm 30°	Yes	Y	DL	1.2	6	0.066	38	0.066	OL4	1.5
117	1.2D + 1.5Lm 4 + 1.0Wm 45°	Yes	Y	DL	1.2	7	0.066	39	0.066	OL4	1.5
118	1.2D + 1.5Lm 4 + 1.0Wm 60°	Yes	Y	DL	1.2	8	0.066	40	0.066	OL4	1.5
119	1.2D + 1.5Lm 4 + 1.0Wm 90°	Yes	Y	DL	1.2	9	0.066	41	0.066	OL4	1.5
120	1.2D + 1.5Lm 4 + 1.0Wm 120°	Yes	Y	DL	1.2	10	0.066	42	0.066	OL4	1.5
121	1.2D + 1.5Lm 4 + 1.0Wm 135°	Yes	Y	DL	1.2	11	0.066	43	0.066	OL4	1.5
122	1.2D + 1.5Lm 4 + 1.0Wm 150°	Yes	Y	DL	1.2	12	0.066	44	0.066	OL4	1.5
123	1.2D + 1.5Lm 4 + 1.0Wm 180°	Yes	Y	DL	1.2	13	-0.066	45	-0.066	OL4	1.5
124	1.2D + 1.5Lm 4 + 1.0Wm 210°	Yes	Y	DL	1.2	14	-0.066	46	-0.066	OL4	1.5
125	1.2D + 1.5Lm 4 + 1.0Wm 225°	Yes	Y	DL	1.2	15	-0.066	47	-0.066	OL4	1.5
126	1.2D + 1.5Lm 4 + 1.0Wm 240°	Yes	Y	DL	1.2	16	-0.066	48	-0.066	OL4	1.5
127	1.2D + 1.5Lm 4 + 1.0Wm 270°	Yes	Y	DL	1.2	17	-0.066	49	-0.066	OL4	1.5
128	1.2D + 1.5Lm 4 + 1.0Wm 300°	Yes	Y	DL	1.2	18	-0.066	50	-0.066	OL4	1.5
129	1.2D + 1.5Lm 4 + 1.0Wm 315°	Yes	Y	DL	1.2	19	-0.066	51	-0.066	OL4	1.5
130	1.2D + 1.5Lm 4 + 1.0Wm 330°	Yes	Y	DL	1.2	20	-0.066	52	-0.066	OL4	1.5

Hot Rolled Steel Properties

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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
1	Offset Pipe	PIPE 3.0X	Beam	None	A500 Gr. C RND	Typical	2.83	3.7	3.7	7.4
2	Side Channel	C3x2x.188	Beam	None	A36 Gr.36	Typical	1.339	0.562	2.4	0.015
3	Offset End Plate	PL 6"x0.375"	Beam	None	A36 Gr.36	Typical	2.25	0.026	6.75	0.101
4	Face Horizontal Pipe	PIPE 3.0	Beam	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
5	Mount Pipe	PIPE 2.0	Beam	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
6	Angle Grating Supports	L2x2x3	Beam	None	A36 Gr.36	Typical	0.722	0.271	0.271	0.009
7	Channel Conn. Plate 1	PL 6"x0.375"	Beam	None	A36 Gr.36	Typical	2.25	0.026	6.75	0.101
8	Channel Conn. Plate 2	PL2.38X0.375	Beam	None	A36 Gr.36	Typical	0.893	0.01	0.421	0.038
9	Kicker Tube	HSS4X4X4	Beam	None	A36 Gr.36	Typical	3.37	7.8	7.8	12.8
10	Kicker Angle	L3X3X4	Beam	None	A36 Gr.36	Typical	1.44	1.23	1.23	0.031
11	Support Rail	PIPE 2.0	Beam	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
12	SR Conn Plate	PL6x1/4	Beam	None	A36 Gr.36	Typical	1.5	0.008	4.5	0.03
13	SR Conn Angle	Custom 6.63x4.46	Beam	None	A36 Gr.36	Typical	1.705	3.561	7.467	0.034
14	PRK-SFS	L2.5x2.5x3	Column	None	A36 Gr.36	Typical	0.901	0.535	0.535	0.011
15	MOD RRH Pipe	PIPE 2.0	Beam	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
16	MOD Standoff	HSS4X4X3	Beam	None	A36 Gr.36	Typical	2.58	6.21	6.21	10
17	MOD Plate	PL 6x1/2"	Beam	None	A36 Gr.36	Typical	3	0.063	9	0.237
18	MOD Mount Pipe	PIPE 2.0	Beam	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25

Hot Rolled Steel Design Parameters

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Function
1	A1	Offset Pipe	67.35			Lateral
2	M50	Side Channel	32.67			Lateral
3	M51	Side Channel	32.67			Lateral
4	M53	Channel Conn. Plate 2	4			Lateral
5	M59	Angle Grating Supports	52.273			Lateral
6	M60	Angle Grating Supports	52.273			Lateral
7	M61	Offset End Plate	5.013			Lateral
8	M62	Offset End Plate	5.013			Lateral
9	M63	Channel Conn. Plate 1	2.53			Lateral
10	M65	Offset End Plate	3.7			Lateral
11	M67	Channel Conn. Plate 1	2.53			Lateral
12	M69	Offset End Plate	3.7			Lateral
13	M72	Channel Conn. Plate 2	4			Lateral
14	M73	Face Horizontal Pipe	150	53.994	54	Lateral
15	M75	Mount Pipe	120			Lateral
16	M77	Mount Pipe	96			Lateral
17	M79	Mount Pipe	96			Lateral
18	M81	Mount Pipe	96			Lateral
19	M100	Kicker Tube	6			Lateral
20	M104	Kicker Angle	36.139			Lateral
21	M105	Kicker Angle	36.139			Lateral
22	SR1	Support Rail	150	96	54	Lateral
23	SR12	SR Conn Plate	5			Lateral
24	SR20	SR Conn Plate	5			Lateral
25	SR30	SR Conn Angle	13.509			Lateral
26	M82	Offset End Plate	3.7			Lateral
27	M84	Face Horizontal Pipe	150	53.994	54	Lateral
28	A3	Offset Pipe	67.35			Lateral
29	M89	Channel Conn. Plate 2	4			Lateral
30	M90	Side Channel	32.67			Lateral
31	M91	SR Conn Plate	5			Lateral
32	M92	Side Channel	32.67			Lateral
33	M94	Channel Conn. Plate 1	2.53			Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Function
34	M99	Angle Grating Supports	52.273			Lateral
35	M107	Angle Grating Supports	52.273			Lateral
36	M108	Offset End Plate	5.013			Lateral
37	M109	Offset End Plate	5.013			Lateral
38	M111	Offset End Plate	3.7			Lateral
39	M113	Channel Conn. Plate 1	2.53			Lateral
40	M116	Channel Conn. Plate 2	4			Lateral
41	M123	Kicker Tube	6			Lateral
42	M126	Kicker Angle	36.139			Lateral
43	M127	Kicker Angle	36.139			Lateral
44	M128	SR Conn Plate	5			Lateral
45	M133	SR Conn Angle	13.509			Lateral
46	M144	Support Rail	150	96	54	Lateral
47	M145	Offset End Plate	3.7			Lateral
48	M147	Face Horizontal Pipe	150	53.994	54	Lateral
49	A2	Offset Pipe	67.35			Lateral
50	M152	Channel Conn. Plate 2	4			Lateral
51	M153	Side Channel	32.67			Lateral
52	M154	SR Conn Plate	5			Lateral
53	M155	Side Channel	32.67			Lateral
54	M157	Channel Conn. Plate 1	2.53			Lateral
55	M162	Angle Grating Supports	52.273			Lateral
56	M164	Angle Grating Supports	52.273			Lateral
57	M165	Offset End Plate	5.013			Lateral
58	M166	Offset End Plate	5.013			Lateral
59	M168	Offset End Plate	3.7			Lateral
60	M170	Channel Conn. Plate 1	2.53			Lateral
61	M173	Channel Conn. Plate 2	4			Lateral
62	M176	Kicker Tube	6			Lateral
63	M179	Kicker Angle	36.139			Lateral
64	M180	Kicker Angle	36.139			Lateral
65	M181	SR Conn Plate	5			Lateral
66	M186	SR Conn Angle	13.509			Lateral
67	M197	Support Rail	150	96	54	Lateral
68	SFS-5	PRK-SFS	68.325			Lateral
69	SFS-6	PRK-SFS	68.325			Lateral
70	SFS-25	PRK-SFS	68.325			Lateral
71	SFS-26	PRK-SFS	68.325			Lateral
72	SFS-17	PRK-SFS	68.325			Lateral
73	SFS-18	PRK-SFS	68.325			Lateral
74	M188	MOD RRH Pipe	72			Lateral
75	M190	MOD RRH Pipe	72			Lateral
76	M192	MOD RRH Pipe	72			Lateral
77	M211	Mount Pipe	96			Lateral
78	M214	Mount Pipe	96			Lateral
79	M215	Mount Pipe	120			Lateral
80	M231	Mount Pipe	96			Lateral
81	M234	Mount Pipe	96			Lateral
82	M235	Mount Pipe	120			Lateral
83	M251	Mount Pipe	96			Lateral
84	M255	Mount Pipe	96			Lateral
85	M1480	MOD Standoff	8			Lateral
86	M1470	MOD Plate	8			Lateral
87	M1490	MOD Plate	6			Lateral
88	M1510	MOD Mount Pipe	96			Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Function
89	M1520	MOD Mount Pipe	96			Lateral
90	M1530	MOD Plate	6			Lateral
91	M264	MOD Standoff	8			Lateral
92	M266	MOD Plate	6			Lateral
93	M267	MOD Plate	6			Lateral
94	M268	MOD Plate	8			Lateral
95	M269	MOD Mount Pipe	96			Lateral
96	M270	MOD Mount Pipe	96			Lateral
97	M276	MOD Standoff	8			Lateral
98	M278	MOD Plate	6			Lateral
99	M279	MOD Plate	6			Lateral
100	M280	MOD Plate	8			Lateral
101	M281	MOD Mount Pipe	96			Lateral
102	M282	MOD Mount Pipe	96			Lateral

Member Advanced Data

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
1	A1			Yes	Default	None
2	M50			Yes	Default	None
3	M51			Yes	Default	None
4	M52	O O O O X O		Yes	** NA **	None
5	M53			Yes	Default	None
6	M54			Yes	** NA **	None
7	M55			Yes	** NA **	None
8	M56			Yes	** NA **	None
9	M57			Yes	** NA **	None
10	M58			Yes	** NA **	None
11	M59			Yes	Default	None
12	M60			Yes	Default	None
13	M61			Yes	Default	None
14	M62			Yes	Default	None
15	M63			Yes	Default	None
16	M64		O O O X X O	Yes	** NA **	None
17	M65			Yes	Default	None
18	M66		O O O X X O	Yes	** NA **	None
19	M67			Yes	Default	None
20	M68		O O O X X O	Yes	** NA **	None
21	M69			Yes	Default	None
22	M70		O O O X X O	Yes	** NA **	None
23	M71	O O O O X O		Yes	** NA **	None
24	M72			Yes	Default	None
25	M73			Yes	Default	None
26	M74			Yes	** NA **	None
27	M75			Yes	Default	None
28	M76			Yes	** NA **	None
29	M77			Yes	Default	None
30	M78			Yes	** NA **	None
31	M79			Yes	Default	None
32	M80			Yes	** NA **	None
33	M81			Yes	Default	None
34	M100			Yes	Default	None
35	M101	O O O X X O		Yes	** NA **	None
36	M102			Yes	** NA **	None
37	M103			Yes	** NA **	None
38	M104	BenPIN	BenPIN	Yes	Default	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
39	M105	BenPIN	BenPIN	Yes	Default	None
40	M118			Yes	** NA **	None
41	M119			Yes	** NA **	None
42	M120			Yes	** NA **	None
43	M121			Yes	** NA **	None
44	SR1			Yes	Default	None
45	SR12			Yes	Default	None
46	SR15			Yes	** NA **	None
47	SR16			Yes	** NA **	None
48	SR18			Yes	** NA **	None
49	SR20			Yes	Default	None
50	SR22			Yes	** NA **	None
51	SR23			Yes	** NA **	None
52	SR26			Yes	** NA **	None
53	SR30			Yes	Default	None
54	M82			Yes	Default	None
55	M83			Yes	** NA **	None
56	M84			Yes	Default	None
57	M87			Yes	** NA **	None
58	A3			Yes	Default	None
59	M89			Yes	Default	None
60	M90			Yes	Default	None
61	M91			Yes	Default	None
62	M92			Yes	Default	None
63	M93	OOOXXO		Yes	** NA **	None
64	M94			Yes	Default	None
65	M95			Yes	** NA **	None
66	M96			Yes	** NA **	None
67	M97			Yes	** NA **	None
68	M98			Yes	** NA **	None
69	M99			Yes	Default	None
70	M106	OOOXXO		Yes	** NA **	None
71	M107			Yes	Default	None
72	M108			Yes	Default	None
73	M109			Yes	Default	None
74	M110		OOOXXO	Yes	** NA **	None
75	M111			Yes	Default	None
76	M112		OOOXXO	Yes	** NA **	None
77	M113			Yes	Default	None
78	M114		OOOXXO	Yes	** NA **	None
79	M115		OOOXXO	Yes	** NA **	None
80	M116			Yes	Default	None
81	M117			Yes	** NA **	None
82	M122			Yes	** NA **	None
83	M123			Yes	Default	None
84	M124	OOOXXO		Yes	** NA **	None
85	M125			Yes	** NA **	None
86	M126	BenPIN	BenPIN	Yes	Default	None
87	M127	BenPIN	BenPIN	Yes	Default	None
88	M128			Yes	Default	None
89	M129			Yes	** NA **	None
90	M130			Yes	** NA **	None
91	M131			Yes	** NA **	None
92	M132			Yes	** NA **	None
93	M133			Yes	Default	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
94	M144			Yes	Default	None
95	M145			Yes	Default	None
96	M146			Yes	** NA **	None
97	M147			Yes	Default	None
98	M150			Yes	** NA **	None
99	A2			Yes	Default	None
100	M152			Yes	Default	None
101	M153			Yes	Default	None
102	M154			Yes	Default	None
103	M155			Yes	Default	None
104	M156	OOOOXO		Yes	** NA **	None
105	M157			Yes	Default	None
106	M158			Yes	** NA **	None
107	M159			Yes	** NA **	None
108	M160			Yes	** NA **	None
109	M161			Yes	** NA **	None
110	M162			Yes	Default	None
111	M163	OOOOXO		Yes	** NA **	None
112	M164			Yes	Default	None
113	M165			Yes	Default	None
114	M166			Yes	Default	None
115	M167		OOOXXO	Yes	** NA **	None
116	M168			Yes	Default	None
117	M169		OOOXXO	Yes	** NA **	None
118	M170			Yes	Default	None
119	M171		OOOXXO	Yes	** NA **	None
120	M172		OOOXXO	Yes	** NA **	None
121	M173			Yes	Default	None
122	M174			Yes	** NA **	None
123	M175			Yes	** NA **	None
124	M176			Yes	Default	None
125	M177	OOOXXO		Yes	** NA **	None
126	M178			Yes	** NA **	None
127	M179	BenPIN	BenPIN	Yes	Default	None
128	M180	BenPIN	BenPIN	Yes	Default	None
129	M181			Yes	Default	None
130	M182			Yes	** NA **	None
131	M183			Yes	** NA **	None
132	M184			Yes	** NA **	None
133	M185			Yes	** NA **	None
134	M186			Yes	Default	None
135	M197			Yes	Default	None
136	SFS-1			Yes	** NA **	None
137	SFS-2			Yes	** NA **	None
138	SFS-3			Yes	** NA **	None
139	SFS-4			Yes	** NA **	None
140	SFS-5	BenPIN	BenPIN	Yes	** NA **	None
141	SFS-6	BenPIN	BenPIN	Yes	** NA **	None
142	SFS-21			Yes	** NA **	None
143	SFS-22			Yes	** NA **	None
144	SFS-23			Yes	** NA **	None
145	SFS-24			Yes	** NA **	None
146	SFS-25	BenPIN	BenPIN	Yes	** NA **	None
147	SFS-26	BenPIN	BenPIN	Yes	** NA **	None
148	SFS-13			Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
149	SFS-14			Yes	** NA **	None
150	SFS-15			Yes	** NA **	None
151	SFS-16			Yes	** NA **	None
152	SFS-17	BenPIN	BenPIN	Yes	** NA **	None
153	SFS-18	BenPIN	BenPIN	Yes	** NA **	None
154	M187			Yes	** NA **	None
155	M188			Yes	Default	None
156	M189			Yes	** NA **	None
157	M190			Yes	Default	None
158	M191			Yes	** NA **	None
159	M192			Yes	Default	None
160	M193			Yes	** NA **	None
161	M194			Yes	** NA **	None
162	M195			Yes	** NA **	None
163	M196			Yes	** NA **	None
164	M198			Yes	** NA **	None
165	M199			Yes	** NA **	None
166	M200			Yes	** NA **	None
167	M201			Yes	** NA **	None
168	M202			Yes	** NA **	None
169	M204			Yes	** NA **	None
170	M205			Yes	** NA **	None
171	M206			Yes	** NA **	None
172	M207			Yes	** NA **	None
173	M209			Yes	** NA **	None
174	M210			Yes	** NA **	None
175	M211			Yes	Default	None
176	M212			Yes	** NA **	None
177	M213			Yes	** NA **	None
178	M214			Yes	Default	None
179	M215			Yes	Default	None
180	M216			Yes	** NA **	None
181	M217			Yes	** NA **	None
182	M218			Yes	** NA **	None
183	M219			Yes	** NA **	None
184	M220			Yes	** NA **	None
185	M221			Yes	** NA **	None
186	M222			Yes	** NA **	None
187	M223			Yes	** NA **	None
188	M224			Yes	** NA **	None
189	M225			Yes	** NA **	None
190	M226			Yes	** NA **	None
191	M229			Yes	** NA **	None
192	M230			Yes	** NA **	None
193	M231			Yes	Default	None
194	M232			Yes	** NA **	None
195	M233			Yes	** NA **	None
196	M234			Yes	Default	None
197	M235			Yes	Default	None
198	M236			Yes	** NA **	None
199	M237			Yes	** NA **	None
200	M238			Yes	** NA **	None
201	M239			Yes	** NA **	None
202	M240			Yes	** NA **	None
203	M241			Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
204	M242			Yes	** NA **	None
205	M243			Yes	** NA **	None
206	M244			Yes	** NA **	None
207	M245			Yes	** NA **	None
208	M246			Yes	** NA **	None
209	M251			Yes	Default	None
210	M252			Yes	** NA **	None
211	M253			Yes	** NA **	None
212	M255			Yes	Default	None
213	M256			Yes	** NA **	None
214	M257			Yes	** NA **	None
215	M227			Yes	** NA **	None
216	M228			Yes	** NA **	None
217	M258			Yes	** NA **	None
218	M247			Yes	** NA **	None
219	M1480			Yes	Default	None
220	M1470			Yes	Default	None
221	M1490			Yes	Default	None
222	M1500			Yes	** NA **	None
223	M1510			Yes	Default	None
224	M1520			Yes	Default	None
225	M1530			Yes	Default	None
226	M1540			Yes	** NA **	None
227	M248			Yes	** NA **	None
228	M259			Yes	** NA **	None
229	M260			Yes	** NA **	None
230	M261			Yes	** NA **	None
231	M262			Yes	** NA **	None
232	M263			Yes	** NA **	None
233	M264			Yes	Default	None
234	M265			Yes	** NA **	None
235	M266			Yes	Default	None
236	M267			Yes	Default	None
237	M268			Yes	Default	None
238	M269			Yes	Default	None
239	M270			Yes	Default	None
240	M271			Yes	** NA **	None
241	M272			Yes	** NA **	None
242	M273			Yes	** NA **	None
243	M274			Yes	** NA **	None
244	M275			Yes	** NA **	None
245	M276			Yes	Default	None
246	M277			Yes	** NA **	None
247	M278			Yes	Default	None
248	M279			Yes	Default	None
249	M280			Yes	Default	None
250	M281			Yes	Default	None
251	M282			Yes	Default	None
252	M283			Yes	** NA **	None
253	M284			Yes	** NA **	None
254	M285			Yes	** NA **	None
255	M287			Yes	** NA **	None
256	M286			Yes	** NA **	None

Node Boundary Conditions

Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	N74	Reaction	Reaction	Reaction	Reaction	Reaction
2	N162	Reaction	Reaction	Reaction	Reaction	Reaction
3	N138	Reaction	Reaction	Reaction	Reaction	Reaction
4	N176	Reaction	Reaction	Reaction	Reaction	Reaction
5	N241	Reaction	Reaction	Reaction	Reaction	Reaction
6	N270	Reaction	Reaction	Reaction	Reaction	Reaction
7	SFS5	Reaction	Reaction	Reaction	Reaction	Reaction
8	SFS35	Reaction	Reaction	Reaction	Reaction	Reaction
9	SFS25	Reaction	Reaction	Reaction	Reaction	Reaction
10	N2590	Reaction	Reaction	Reaction	Reaction	Reaction
11	N440	Reaction	Reaction	Reaction	Reaction	Reaction
12	N460	Reaction	Reaction	Reaction	Reaction	Reaction

Envelope Node Reactions

Node Label	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC		
1	N74	max	1075.2464	31	1935.1634	15	521.9067	4	126.8175	13	517.6927	3	2543.8659	7
2		min	301.5528	59	-1985.588	7	42.1854	12	-305.2804	4	-322.5759	11	-2448.881	15
3	N162	max	596.9564	3	72.2835	15	1848.8305	11	11.4521	15	615.7849	11	23.24	7
4		min	-1541.1388	11	-73.0756	7	-655.0762	3	-11.1217	7	-218.9209	3	-22.9766	15
5	N138	max	1398.2445	18	1217.9351	18	542.3177	15	325.7926	117	308.902	7	2374.7179	18
6		min	-1839.9895	10	-341.671	10	-164.4713	119	-323.9526	13	-573.6006	15	-2273.3228	10
7	N176	max	789.5304	6	568.5033	15	1901.3925	7	208.4649	14	120.38	14	23.251	18
8		min	-325.37	14	-1386.3682	7	-720.498	14	-550.5452	7	-315.5117	6	-23.0276	10
9	N241	max	1184.3616	4	602.9223	12	547.6998	8	612.6533	10	289.3474	15	2330.393	12
10		min	-1714.9864	12	-1422.4806	4	-126.5757	81	-364.8951	18	-189.2656	103	-2236.153	4
11	N270	max	817.9192	17	1398.3205	16	1941.5356	17	559.088	17	128.6821	9	23.266	12
12		min	-351.951	9	-595.061	8	-764.4573	8	-221.1778	8	-325.0211	17	-23.0286	4
13	SFS5	max	926.9956	3	599.7621	17	2404.1226	11	99.8828	9	575.5823	3	199.5656	17
14		min	-1578.41	11	-699.6623	9	-1380.4467	3	-87.0589	17	-1002.5647	11	-232.6868	9
15	SFS35	max	1020.6364	18	1578.5591	15	2457.8553	16	526.0036	8	502.4391	17	187.9957	6
16		min	-781.9774	10	-963.3744	7	-1441.8562	8	-900.698	16	-304.0023	9	-220.7492	14
17	SFS25	max	1203.835	4	900.2493	15	2403.8629	6	855.6277	6	539.4009	5	201.166	8
18		min	-799.296	12	-1419.1414	7	-1383.637	14	-494.1648	14	-313.4229	13	-230.753	16
19	N2590	max	1201.9833	3	708.8856	14	695.6666	34	4.2194	6	-252.2811	51	999.005	16
20		min	-1201.9834	11	-708.8855	6	192.2417	58	-3.4288	16	-955.8795	27	-1000.3828	6
21	N440	max	862.1234	4	1138.285	15	695.6657	33	849.5176	23	433.4807	20	1056.8782	8
22		min	-862.1237	12	-1138.2852	7	192.2415	59	223.7283	63	114.8178	59	-1066.7205	16
23	N460	max	930.2359	18	1074.1708	15	695.6659	32	-218.608	55	478.1929	34	998.9973	6
24		min	-930.2333	10	-1074.1701	7	192.2415	57	-828.7533	31	125.8479	59	-1000.3596	11
25	Totals:	max	9554.0215	3	9850.2033	15	10466.7406	24						
26		min	-9554.0131	11	-9850.2144	7	3580.8704	66						

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks

Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn	
1	M144	PIPE 2.0	0.6587	27.6316	7	0.4299	123.1579	6	14916.0955	32130	1871.625	1871.625	2.5992	H1-1b	
2	M197	PIPE 2.0	0.6346	27.6316	18	0.4382	123.1579	16	14916.0955	32130	1871.625	1871.625	2.603	H1-1b	
3	SR1	PIPE 2.0	0.6244	27.6316	12	0.4327	123.1579	11	14916.0955	32130	1871.625	1871.625	2.6007	H1-1b	
4	M268	PL 6x1/2"	0.6126	4	13	0.3297	4	y	22	82685.7278	97200	1012.5	12150	1.1478	H1-1b
5	M1470	PL 6x1/2"	0.6045	4	4	0.3323	4	y	27	82685.7278	97200	1012.5	12150	1.115	H1-1b
6	M280	PL 6x1/2"	0.6045	4	10	0.3323	4	y	32	82685.7278	97200	1012.5	12150	1.115	H1-1b
7	M188	PIPE 2.0	0.5151	59.8737	14	0.107	53.8105	17	20866.7334	32130	1871.625	1871.625	1.7662	H1-1b	
8	M79	PIPE 2.0	0.5145	30.8211	11	0.1499	90.9474	18	14916.0955	32130	1871.625	1871.625	2.9675	H1-1b	

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
9	M231	PIPE 2.0	0.5145	30.8211	16	0.1506	90.9474	7	14916.0955	32130	1871.625	1871.625	2.982	H1-1b
10	M211	PIPE 2.0	0.505	30.8211	6	0.158	90.9474	13	14916.0955	32130	1871.625	1871.625	2.8727	H1-1b
11	M281	PIPE 2.0	0.5005	48	8	0.069	48	11	14916.0955	32130	1871.625	1871.625	1.4002	H1-1b
12	M1520	PIPE 2.0	0.5005	48	3	0.0713	48	17	14916.0955	32130	1871.625	1871.625	1.1616	H1-1b
13	M282	PIPE 2.0	0.5005	48	8	0.0688	48	11	14916.0955	32130	1871.625	1871.625	1.1527	H1-1b
14	M1510	PIPE 2.0	0.5002	48	11	0.0716	48	5	14916.0955	32130	1871.625	1871.625	1.4002	H1-1b
15	M192	PIPE 2.0	0.4952	59.8737	3	0.1042	53.8105	7	20866.7334	32130	1871.625	1871.625	1.7178	H1-1b
16	M190	PIPE 2.0	0.4952	59.8737	8	0.1042	53.8105	12	20866.7334	32130	1871.625	1871.625	1.7178	H1-1b
17	M270	PIPE 2.0	0.4938	48	14	0.0709	48	16	14916.0955	32130	1871.625	1871.625	1.0425	H1-1b
18	M269	PIPE 2.0	0.4936	48	6	0.0713	48	16	14916.0955	32130	1871.625	1871.625	1.0463	H1-1b
19	M235	PIPE 2.0	0.4686	46.1053	17	0.1305	46.1053	7	9836.5974	32130	1871.625	1871.625	2.3297	H1-1b
20	M215	PIPE 2.0	0.4562	46.1053	7	0.1311	46.1053	13	9836.5974	32130	1871.625	1871.625	2.1913	H1-1b
21	M75	PIPE 2.0	0.4554	46.1053	11	0.1283	46.1053	18	9836.5974	32130	1871.625	1871.625	2.3231	H1-1b
22	M1490	PL 6x1/2"	0.45	0	4	0.1776	0	y	288748.0219	97200	1012.5	12150	1.3328	H1-1b
23	M278	PL 6x1/2"	0.45	0	10	0.1776	0	y	348748.0219	97200	1012.5	12150	1.3328	H1-1b
24	M1530	PL 6x1/2"	0.4483	0	18	0.1784	0	y	268748.0219	97200	1012.5	12150	1.3344	H1-1b
25	M279	PL 6x1/2"	0.4483	0	7	0.1784	0	y	318748.0219	97200	1012.5	12150	1.3345	H1-1b
26	M267	PL 6x1/2"	0.4457	0	12	0.1593	0	y	218748.0219	97200	1012.5	12150	1.3045	H1-1b
27	M266	PL 6x1/2"	0.4358	0	15	0.1917	0	y	238748.0219	97200	1012.5	12150	1.3734	H1-1b
28	M90	C3x2x.188	0.3914	1.7195	7	0.2456	6.8779	y	735214.074	43393.7088	1693.8878	4482.8829	1.6428	H1-1b
29	M153	C3x2x.188	0.3859	1.7195	18	0.2427	6.8779	y	1835214.074	43393.7088	1693.8878	4482.8829	1.6433	H1-1b
30	M50	C3x2x.188	0.3801	1.7195	13	0.2394	6.8779	y	1335214.074	43393.7088	1703.2617	4482.8829	1.6551	H1-1b
31	M51	C3x2x.188	0.3685	30.9505	8	0.2314	25.7921	z	935214.074	43393.7088	1703.2617	4482.8829	1.6747	H1-1b
32	M155	C3x2x.188	0.3608	30.9505	15	0.2266	25.7921	z	1535214.074	43393.7088	1693.8878	4482.8829	1.6549	H1-1b
33	M92	C3x2x.188	0.3605	30.9505	3	0.2257	25.7921	z	335214.074	43393.7088	1703.2617	4482.8829	1.6775	H1-1b
34	M234	PIPE 2.0	0.3325	90.9474	7	0.1102	90.9474	10	14916.0955	32130	1871.625	1871.625	2.4562	H1-1b
35	M77	PIPE 2.0	0.3268	90.9474	18	0.1096	90.9474	5	14916.0955	32130	1871.625	1871.625	2.4507	H1-1b
36	SR30	Custom 6.63x4.46	0.3226	13.509	15	0.1552	13.509	z	1520644.8085	55242	1867.7766	3812.7912	1.5	H2-1
37	M214	PIPE 2.0	0.3167	31.3263	7	0.1109	90.9474	15	14916.0955	32130	1871.625	1871.625	2.083	H1-1b
38	M133	Custom 6.63x4.46	0.3109	13.509	10	0.1497	13.509	z	1020644.8085	55242	1867.7766	3812.7912	1.5	H2-1
39	M251	PIPE 2.0	0.3013	31.3263	17	0.1342	90.9474	9	14916.0955	32130	1871.625	1871.625	2.415	H1-1b
40	M255	PIPE 2.0	0.2999	31.3263	7	0.14	90.9474	15	14916.0955	32130	1871.625	1871.625	2.3851	H1-1b
41	M186	Custom 6.63x4.46	0.2965	13.509	5	0.1482	0	z	520644.8085	55242	1867.7766	3812.7912	1.5	H2-1
42	M81	PIPE 2.0	0.2861	31.3263	11	0.1316	90.9474	4	14916.0955	32130	1871.625	1871.625	2.4504	H1-1b
43	M166	PL 6"x0.375"	0.2816	0	15	0.2533	0	y	1465014.257	72900	569.7	9112.5	2.1936	H1-1b
44	M62	PL 6"x0.375"	0.2787	0	10	0.2581	0	y	865014.257	72900	569.7	9112.5	2.185	H1-1b
45	M165	PL 6"x0.375"	0.2781	5.0129	9	0.255	5.0129	y	365014.257	72900	569.7	9112.5	1.8961	H1-1b
46	M108	PL 6"x0.375"	0.2723	5.0129	15	0.2596	5.0129	y	865014.257	72900	569.7	9112.5	2.118	H1-1b
47	M109	PL 6"x0.375"	0.2684	0	4	0.256	0	y	11565014.257	72900	569.7	9112.5	2.1943	H1-1b
48	M61	PL 6"x0.375"	0.2598	5.0129	4	0.2547	5.0129	y	1465014.257	72900	569.7	9112.5	2.0934	H1-1b
49	A1	PIPE 3.0X	0.2556	0	7	0.1368	10.2797	15	92774.8328	117162	10039.5	10039.5	2.0653	H1-1b
50	A3	PIPE 3.0X	0.2387	0	18	0.133	10.2797	9	92774.8328	117162	10039.5	10039.5	2.0114	H1-1b
51	A2	PIPE 3.0X	0.2342	0	12	0.1285	10.2797	4	92774.8328	117162	10039.5	10039.5	2.0168	H1-1b
52	SFS-17	L2.5x2.5x3	0.1956	34.5223	8	0.0115	0	y	1810129.6666	29192.4	872.5738	1556.5304	1.1364	H2-1
53	SFS-25	L2.5x2.5x3	0.1912	34.5223	14	0.0118	0	y	710129.6666	29192.4	872.5738	1556.5304	1.1364	H2-1
54	SFS-5	L2.5x2.5x3	0.1907	34.5223	3	0.0113	0	y	1210129.6666	29192.4	872.5738	1556.5304	1.1364	H2-1
55	SFS-18	L2.5x2.5x3	0.1855	34.5223	8	0.009	68.3253	z	1510129.6666	29192.4	872.5738	1556.5304	1.1364	H2-1
56	M147	PIPE 3.0	0.1838	116.8421	7	0.074	60.7895	10	58506.3749	65205	5748.75	5748.75	2.4678	H1-1b
57	SFS-6	L2.5x2.5x3	0.1809	34.5223	3	0.0088	68.3253	z	1010129.6666	29192.4	872.5738	1556.5304	1.1364	H2-1
58	SFS-26	L2.5x2.5x3	0.1809	34.5223	14	0.0087	68.3253	z	410129.6666	29192.4	872.5738	1556.5304	1.1364	H2-1
59	M73	PIPE 3.0	0.18	116.8421	18	0.0724	60.7895	4	58506.3749	65205	5748.75	5748.75	2.4693	H1-1b
60	M84	PIPE 3.0	0.171	116.8421	12	0.0768	60.7895	15	58506.3749	65205	5748.75	5748.75	2.4721	H1-1b
61	M264	HSS4X4X3	0.1457	0	16	0.036	0	y	2583475.012	83592	9909	9909	1.2544	H1-1b
62	M59	L2x2x3	0.1411	52.2735	26	0.011	52.2735	z	269032.6226	23392.8	557.7166	1129.9653	1.5	H2-1
63	M99	L2x2x3	0.1409	52.2735	21	0.011	52.2735	z	219032.6226	23392.8	557.7166	1129.9653	1.5	H2-1

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn	
64	M162	L2x2x3	0.1406	52.2735	31	0.011	52.2735	z	31	9032.6226	23392.8	557.7166	1129.9653	1.5	H2-1
65	M1480	HSS4X4X3	0.1389	0	6	0.0306	0	z	6	83475.0712	83592	9909	9909	1.2531	H1-1b
66	M276	HSS4X4X3	0.1389	0	11	0.0306	0	z	11	83475.0712	83592	9909	9909	1.2531	H1-1b
67	M63	PL 6"x0.375"	0.1362	1.518	15	0.1107	0	y	10	70804.8585	72900	569.7	9112.5	2.5158	H1-1b
68	M60	L2x2x3	0.1349	0	8	0.0095	52.2735	y	28	9032.6226	23392.8	557.7166	1129.9653	1.5	H2-1
69	M164	L2x2x3	0.1312	0	13	0.0095	52.2735	y	34	9032.6226	23392.8	557.7166	1129.9653	1.5	H2-1
70	M107	L2x2x3	0.1307	0	3	0.0095	52.2735	y	23	9032.6226	23392.8	557.7166	1129.9653	1.5	H2-1
71	M94	PL 6"x0.375"	0.1304	1.518	10	0.1104	0	y	5	70804.8585	72900	569.7	9112.5	2.5158	H1-1b
72	M157	PL 6"x0.375"	0.1281	1.518	4	0.1144	0	y	15	70804.8585	72900	569.7	9112.5	2.5158	H1-1b
73	M152	PL2.38X0.375	0.1212	1.4105	17	0.2932	1.4105	y	3	26911.4693	28917	225.9144	1433.7999	1.6046	H1-1b
74	M89	PL2.38X0.375	0.1187	1.4105	7	0.2979	1.4105	y	8	26911.4693	28917	225.9144	1433.7999	1.6194	H1-1b
75	M67	PL 6"x0.375"	0.1158	1.518	7	0.0889	0	y	12	70804.8585	72900	569.7	9112.5	2.5159	H1-1b
76	M53	PL2.38X0.375	0.1134	1.4105	12	0.2932	1.4105	y	13	26911.4693	28917	225.9144	1433.7999	1.6183	H1-1b
77	M113	PL 6"x0.375"	0.1131	1.518	18	0.0949	0	y	7	70804.8585	72900	569.7	9112.5	2.5159	H1-1b
78	M170	PL 6"x0.375"	0.1096	1.518	12	0.0933	0	y	18	70804.8585	72900	569.7	9112.5	2.5158	H1-1b
79	M173	PL2.38X0.375	0.097	1.4105	16	0.2911	1.4105	y	14	26911.4693	28917	225.9144	1433.7999	1.6085	H1-1b
80	M116	PL2.38X0.375	0.095	1.4105	6	0.2912	1.4105	y	3	26911.4693	28917	225.9144	1433.7999	1.6065	H1-1b
81	M145	PL 6"x0.375"	0.0949	0	15	0.3185	0	y	13	68492.2205	72900	569.7	9112.5	3	H1-1b
82	M72	PL2.38X0.375	0.0944	1.4105	11	0.2955	1.4105	y	8	26911.4693	28917	225.9144	1433.7999	1.6074	H1-1b
83	M69	PL 6"x0.375"	0.0943	0	9	0.3222	0	y	8	68492.2205	72900	569.7	9112.5	3	H1-1b
84	M82	PL 6"x0.375"	0.0903	0	4	0.3201	0	y	3	68492.2205	72900	569.7	9112.5	3	H1-1b
85	SR20	PL6x1/4	0.0885	4	15	0.1027	4	y	16	37748.5256	48600	253.125	6075	1.999	H1-1b
86	M91	PL6x1/4	0.0869	4	9	0.1018	4	y	11	37748.5256	48600	253.125	6075	2.0712	H1-1b*
87	M168	PL 6"x0.375"	0.0864	0	9	0.3097	0	y	3	68492.2205	72900	569.7	9112.5	3	H1-1b
88	M154	PL6x1/4	0.0856	4	3	0.1002	4	y	6	37748.5256	48600	253.125	6075	2.3287	H1-1b*
89	M111	PL 6"x0.375"	0.0854	0	15	0.331	0	y	9	68492.2205	72900	569.7	9112.5	3	H1-1b
90	M65	PL 6"x0.375"	0.0813	0	4	0.3257	0	y	15	68492.2205	72900	569.7	9112.5	3	H1-1b
91	M181	PL6x1/4	0.062	1	3	0.0999	1	y	11	37748.5256	48600	253.125	6075	1.8626	H1-1b
92	M128	PL6x1/4	0.0615	1	3	0.101	1	y	16	37748.5256	48600	253.125	6075	2.0589	H1-1b*
93	SR12	PL6x1/4	0.0595	1	14	0.0992	1	y	6	37748.5256	48600	253.125	6075	1.8685	H1-1b
94	M176	HSS4X4X4	0.0587	6	17	0.0651	6	y	17	109098.6309	109188	12663	12663	2.3307	H1-1b
95	M123	HSS4X4X4	0.0579	6	7	0.064	6	y	7	109098.6309	109188	12663	12663	2.3307	H1-1b
96	M100	HSS4X4X4	0.0557	6	11	0.0618	6	y	11	109098.6309	109188	12663	12663	2.3307	H1-1b
97	M126	L3X3X4	0.0384	18.8302	7	0.0172	36.1388	z	10	38164.1768	46656	1688.1381	3655.8022	1.1364	H2-1
98	M179	L3X3X4	0.0379	18.8302	18	0.0172	36.1388	z	4	38164.1768	46656	1688.1381	3655.8022	1.1364	H2-1
99	M104	L3X3X4	0.0376	18.4498	13	0.0172	36.1388	z	15	38164.1768	46656	1688.1381	3655.8022	1.1364	H2-1
100	M180	L3X3X4	0.0363	19.2106	16	0.0172	36.1388	y	4	38164.1768	46656	1688.1381	3655.8022	1.1364	H2-1
101	M127	L3X3X4	0.0356	19.2106	6	0.0172	36.1388	y	10	38164.1768	46656	1688.1381	3655.8022	1.1364	H2-1
102	M105	L3X3X4	0.0348	19.2106	11	0.0172	36.1388	y	15	38164.1768	46656	1688.1381	3655.8022	1.1364	H2-1

TOWER-MOUNT CONNECTION ANALYSIS

v.1.0.0

SITE INFORMATION	
Site ID	283418
Site Name	North Haven CT
Project ID	41124-13683386_C8_01-01-MA

ANALYSIS PARAMETERS	
TIA Revision	H

APPLIED FORCES FROM R3D		
Member Label		A1
Member End Label		I
Force-X	Fx, lbs	-1075.2
Force-Y	Fy, lbs	521.8
Force-Z	Fz, lbs	-1985.1
Moment X-X	Mx, lbs-ft	305.3
Moment Y-Y	My, lbs-ft	2543.9
Moment Z-Z	Mz, lbs-ft	517.7

STANDOFF MEMBER PROPERTIES	
Standoff Member Type	Pipe
Standoff Member Shape	Pipe3XS
Standoff Member Grade	A500-46 Gr.C Round
Member to Plate Weld Size, in	3/16

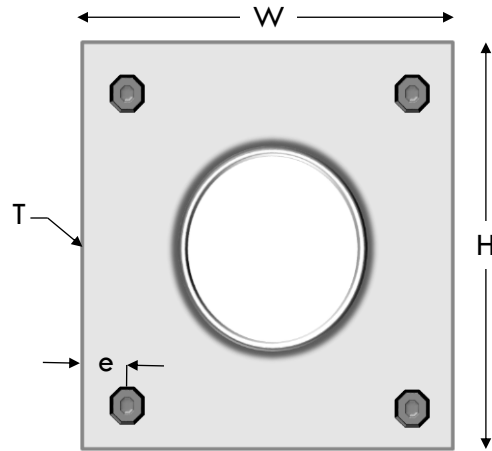
BOLT & PLATE PROPERTIES	
Bolt Quantity	4
Bolt Edge Distance (e), in	1.50
Nominal Bolt Diameter (\varnothing Db), in	0.625
Bolt Grade	A325
Plate Height (H), in	10.00
Plate Width (W), in	10.00
Plate Thickness (T), in	0.50
Plate Grade	A36

BOLT ANALYSIS	
Shear Demand (Vu), k	0.56
Shear Capacity (Φ Rnv), k	13.81
Tension Demand (Tu), k	3.42
Tension Capacity (Φ Rnt), k	20.34
Shear Utilization	4.1%
Tension Utilization	16.8%
Interaction Utilization	3.0%

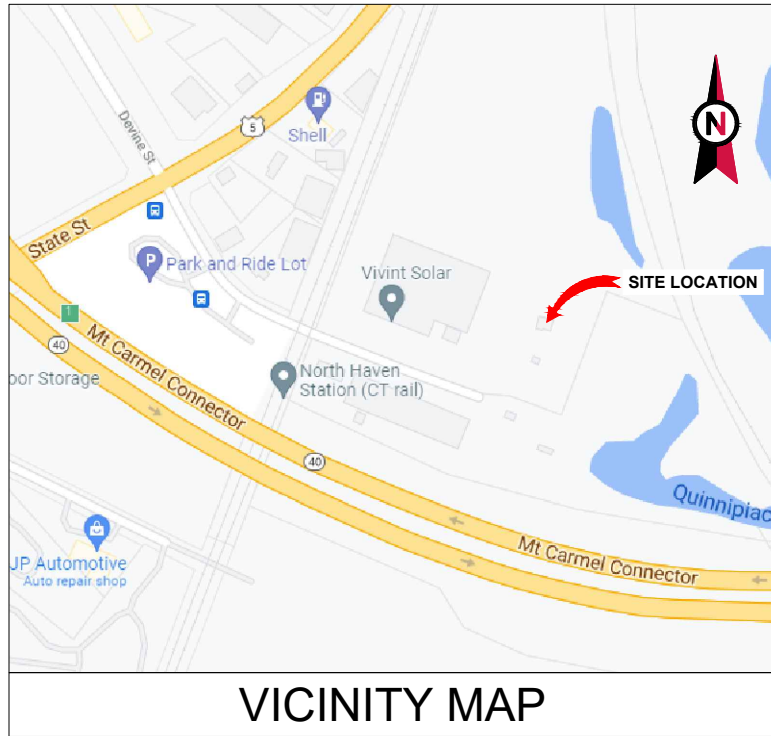
PASS



319 Chapanoke Road, Suite 118
 Raleigh, NC 27603
 Office: (405) 348-5460
 Fax: (405) 341-6334



MATERIAL PROPERTIES	
Standoff Member - Yield Strength (Fy), ksi	46
Standoff Member - Ultimate Strength (Fu), ksi	62
Bolt - Yield Strength (Fy), ksi	92
Bolt - Tensile Strength (Fu), ksi	120
Plate - Yield Strength (Fy), ksi	36
Plate - Ultimate Strength (Fu), ksi	58

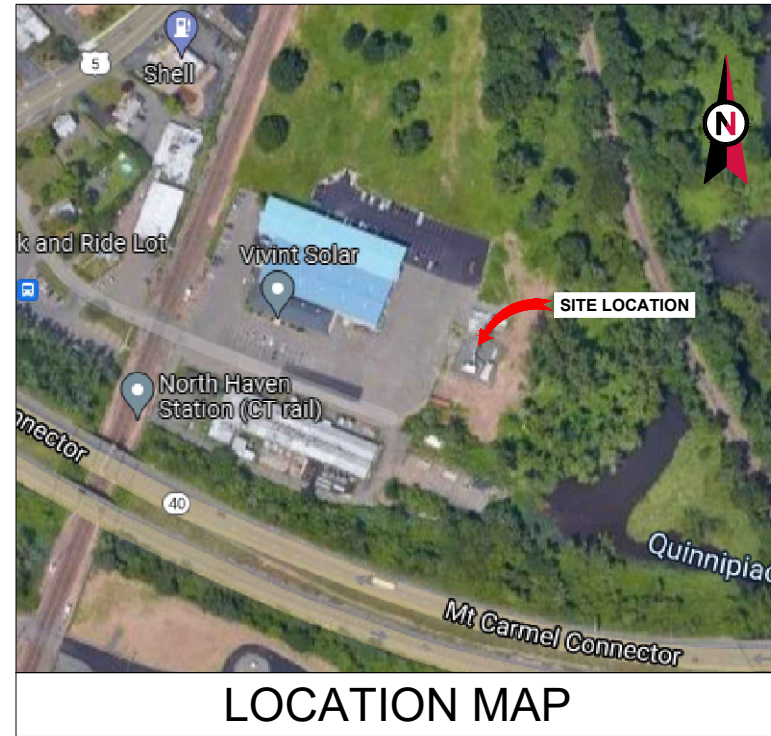


VICINITY MAP



AMERICAN TOWER®

ATC SITE NAME: NORTH HAVEN CT
 ATC SITE NUMBER: 283418
 AT&T PACE NUMBERS: MRCTB052886, MRCTB052144,
 MRCTB051694, MRCTB051593
 AT&T SITE ID: CT3506
 AT&T FA CODE: 10578263
 AT&T SITE NAME: NORTH HAVEN DEVINE STREET
 SITE ADDRESS: 50 DEVINE STREET
 NORTH HAVEN, CT 06473-2204



LOCATION MAP

AT&T AMENDMENT PLAN

COMPLIANCE CODE	PROJECT SUMMARY	PROJECT DESCRIPTION	SHEET INDEX				
ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES. 1. 2018 CONNECTICUT STATE BUILDING CODE-AMENDMENTS TO IBC 2015 2. INTERNATIONAL BUILDING CODE 2015, INTERNATIONAL CODE COUNCIL 3. TIA-222-G-4, STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS 4. ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, AMERICAN SOCIETY OF CIVIL ENGINEERS 5. STEEL CONSTRUCTION MANUAL 14TH EDITION, AMERICAN INSTITUTE OF STEEL CONSTRUCTION 6. CITY/COUNTY ORDINANCES	<u>SITE ADDRESS:</u> 50 DEVINE STREET NORTH HAVEN, CT 06473-2204 COUNTY: NEW HAVEN <u>GEOGRAPHIC COORDINATES:</u> LATITUDE: 41.3777125 LONGITUDE: -72.87619085 GROUND ELEVATION: 8' AMSL	THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW: <u>TOWER WORK:</u> REMOVE (3) ANTENNA(S) AND (1) RRU(S) INSTALL (9) ANTENNA(S) AND (6) Y-CABLES(S) EXISTING (6) ANTENNA(S) TO BE RELOCATED, (3) ANTENNA(S), (12) RRU(S), (4) SQUIDS, (8) DC AND (3) FIBER TRUNKS TO REMAIN <u>GROUND WORK:</u> INSTALL (1) XMU03, (1) IDLE, (1) FRONTHAUL GATEWAY	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
	<u>PROJECT TEAM</u> <u>TOWER OWNER:</u> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801 <u>ENGINEER:</u> DEWBERRY ENGINEERS, INC 99 SUMMER STREET SUITE 700 BOSTON, MA 02110 <u>PROPERTY OWNER:</u> LD ACQUISITION COMPANY 16 LLC 50 DEVINE STREET NORTH HAVEN, CT 06473-2204	<u>PROJECT NOTES</u> 1. THE FACILITY IS UNMANNED. 2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE. 3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE. 4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED. 5. HANDICAP ACCESS IS NOT REQUIRED. 6. THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLED TO EXPEDITED REVIEW UNDER 47 U.S.C. § 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION, REMOVAL, AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT A SUBSTANTIAL CHANGE UNDER CFR § 1.61000 (B)(7).	G-001 TITLE SHEET G-002 GENERAL NOTES C-101 DETAILED SITE PLAN C-201 TOWER ELEVATION C-401 RF SCHEDULE AND ANTENNA INSTALLATION C-501 CONSTRUCTION DETAILS E-501 GROUNDING DETAILS R-601 SUPPLEMENTAL R-602 SUPPLEMENTAL R-603 SUPPLEMENTAL R-604 SUPPLEMENTAL				
<u>UTILITY COMPANIES</u> POWER COMPANY: ---- PHONE: ---- TELEPHONE COMPANY: ---- PHONE: ----	<u>PROJECT LOCATION DIRECTIONS</u> FROM NEW HAVEN CT START GOING NORTHEAST ON CHURCH ST WHICH TURNS INTO WHITNEY AVE. TURN RIGHT ON TRUMBULL ST. MERGE ONTO I-91 NORTH TOWARD HARTFORD. TAKE EXIT 10 TO CT-40 HAMDEN / CHESHIRE TAKE EXIT 1 TOWARD US-5 STATE ST. TURN RIGHT ON DEVINE ST. GO STRAIGHT OVER RAILROAD TRACKS TO END.						

AMERICAN TOWER®

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 BOSTON, MA 02110
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 FAX: 617.695.3310

REV.	DESCRIPTION	BY	DATE
A	PRELIM	MA	12/07/21

ATC SITE NUMBER:
283418

ATC SITE NAME:
NORTH HAVEN CT

AT&T SITE NAME:
NORTH HAVEN DEVINE STREET

SITE ADDRESS:
50 DEVINE STREET
NORTH HAVEN, CT 06473-2204

SEAL:

PRELIMINARY:
 NOT FOR
 CONSTRUCTION

DATE DRAWN: 12/03/21
 ATC JOB NO: 13683386_D1
 CUSTOMER ID: CT3506
 CUSTOMER #: 10578263

TITLE SHEET

SHEET NUMBER: **G-001** REVISION: **A**



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GENERAL CONSTRUCTION NOTES:

1. OWNER FURNISHED MATERIALS, AT&T "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL
 - A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
 - B. AC/TELCO INTERFACE BOX (PPC)
 - C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
 - D. TOWERS, MONOPOLES
 - E. TOWER LIGHTING
 - F. GENERATORS & LIQUID PROPANE TANK
 - G. ANTENNA STANDARD BRACKETS, FRAMES AND PIPES FOR MOUNTING
 - H. ANTENNAS (INSTALLED BY OTHERS)
 - I. TRANSMISSION LINE
 - J. TRANSMISSION LINE JUMPERS
 - K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
 - L. TRANSMISSION LINE GROUND KITS
 - M. HANGERS
 - N. HOISTING GRIPS
 - O. BTS EQUIPMENT
2. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUND STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. IT IS THE POSITION OF AT&T TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.
3. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
4. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
6. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
7. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
8. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
9. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
11. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
12. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE AT&T REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE AT&T REP PRIOR TO PROCEEDING.
13. EACH CONTRACTOR SHALL COOPERATE WITH THE AT&T REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
14. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE AT&T CONSTRUCTION MANAGER.
15. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
16. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE AT&T REP AND ENGINEER OF RECORD IMMEDIATELY.
17. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
18. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
19. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH AMERICAN TOWER CORPORATION (ATC) AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
20. CONTRACTOR SHALL FURNISH AT&T AND AMERICAN TOWER CORPORATION (ATC) WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
21. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH AT&T REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.
22. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH AT&T REP TO

- DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY AT&T MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH AT&T SPECIFICATIONS AND REQUIREMENTS.
 24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO AT&T FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
 25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO AT&T SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
 26. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
 27. CONTRACTOR SHALL NOTIFY AT&T REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
 28. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
 29. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
 30. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE AT&T REP. ANY WORK FOUND BY THE AT&T REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
 31. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.
 32. AT&T FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE AT&T WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED INSURED, STORED, UNCRATE, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL APPURTENANCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING IT UP.
 33. AT&T OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OWN OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO AT&T OR THEIR ARCHITECT/ENGINEER.

SPECIAL CONSTRUCTION

ANTENNA INSTALLATION NOTES:

1. WORK INCLUDED:
 - A. ANTENNA AND COAXIAL CABLES ARE FURNISHED BY AT&T UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL.
 - B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND AT&T SPECIFICATIONS.
 - C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.
 - D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE.
 - E. CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TESTS USING ANRITZU-PACKARD 8713B RF SCALAR NETWORK ANALYZER. SUBMIT FREQUENCY DOMAIN REFLECTOMETER(FDR) TESTS RESULTS TO THE PROJECT MANAGER. SWEEP TESTS SHALL BE AS PER ATTACHED RFS "MINIMUM FIELD TESTING RECOMMENDED FOR ANTENNA AND HELIAX COAXIAL CABLE SYSTEMS" DATED 10/5/93. TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.
 - F. INSTALL COAXIAL CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTIONS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
 - G. ANTENNA AND COAXIAL CABLE GROUNDING:
 2. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.
 3. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS)

ALL DISCREPANCIES FROM WHAT IS SHOWN ON THESE CONSTRUCTION DRAWINGS SHALL BE COMMUNICATED TO ATC ENGINEERING IMMEDIATELY FOR CORRECTION OR RE-DESIGN. FAILURE TO COMMUNICATE DIRECTLY WITH ATC ENGINEERING OR ANY CHANGES FROM THE DESIGN CONDUCTED WITHOUT PRIOR APPROVAL FROM ATC ENGINEERING SHALL BE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR.



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 PHONE: 617.695.3400
 FAX: 617.695.3310

REV.	DESCRIPTION	BY	DATE
A	PRELIM	MA	12/07/21

ATC SITE NUMBER:
283418

ATC SITE NAME:
NORTH HAVEN CT

AT&T SITE NAME:
NORTH HAVEN DEVINE STREET

SITE ADDRESS:
 50 DEVINE STREET
 NORTH HAVEN,CT 06473-2204

SEAL:

PRELIMINARY:
 NOT FOR
 CONSTRUCTION



DATE DRAWN:	12/03/21
ATC JOB NO:	13683386_D1
CUSTOMER ID:	CT3506
CUSTOMER #:	10578263

GENERAL NOTES

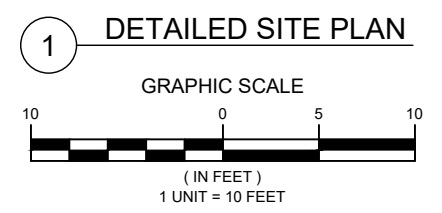
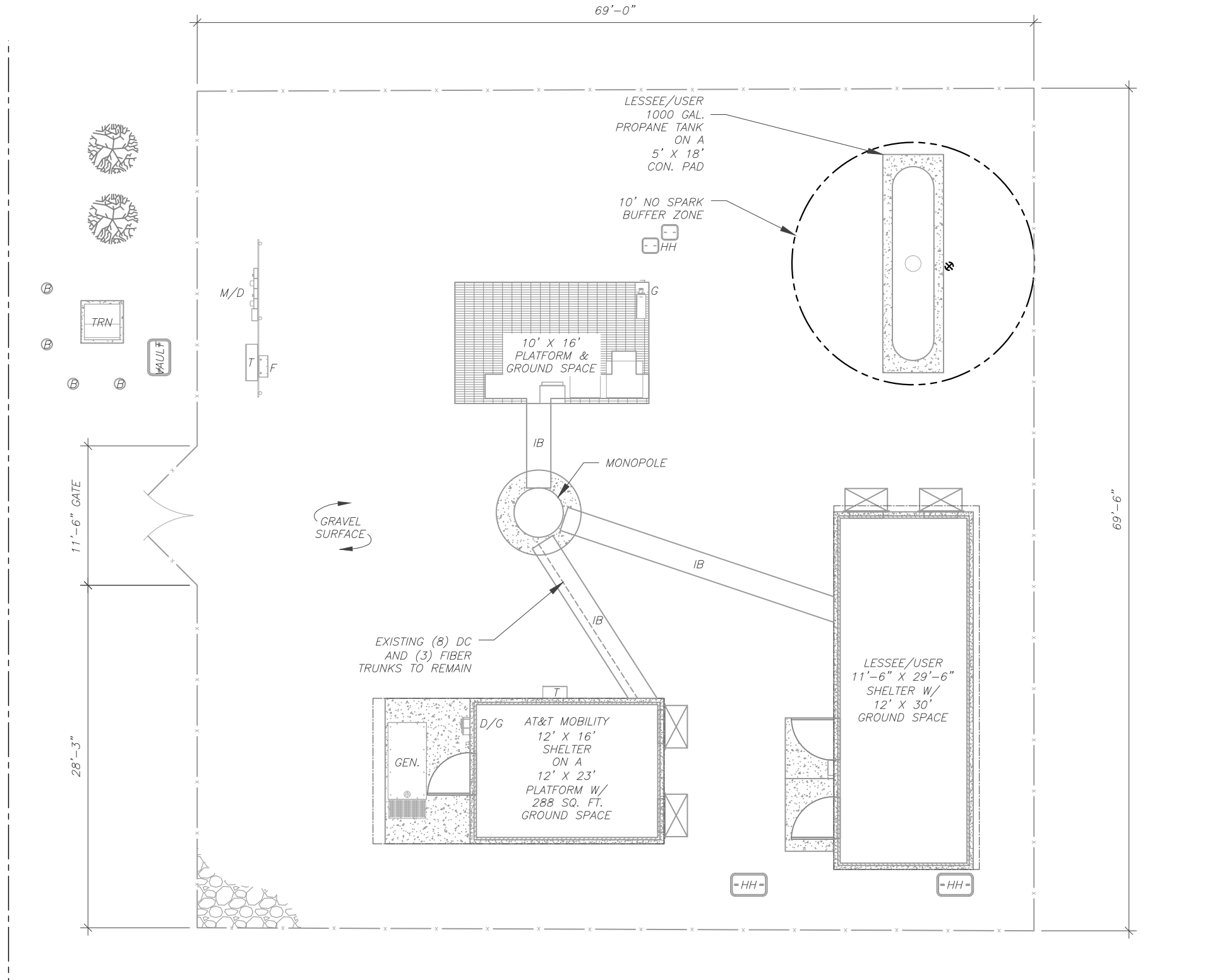
SHEET NUMBER: G-002	REVISION: A
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SITE PLAN NOTES:

1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.
3. THIS PROJECT INCLUDES NO INSTALL OR MODIFICATION AT GRADE.

LEGEND	
⊗	GROUNDING TEST WELL
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACAL
HH, V	HAND HOLE, VAULT
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
M	METER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
x	CHAINLINK FENCE



ATC LEASE AREA BOUNDARY LINE (TYP.)



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SITE ADDRESS:
50 DEVINE STREET
NORTH HAVEN, CT 06473-2204

SEAL:

PRELIMINARY:
NOT FOR
CONSTRUCTION

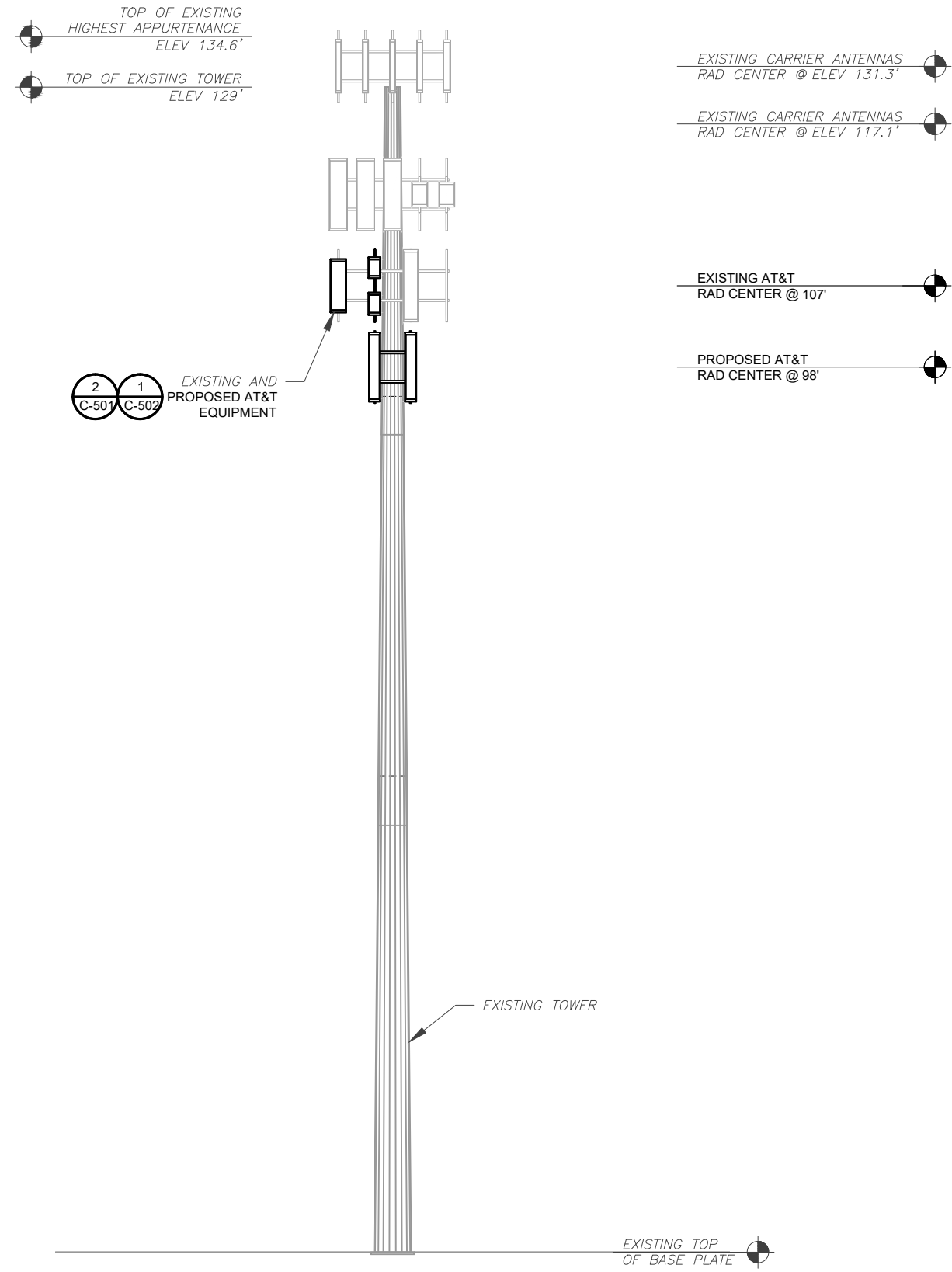


DATE DRAWN:	12/03/21
ATC JOB NO:	13683386_D1
CUSTOMER ID:	CT3506
CUSTOMER #:	10578263

DETAILED SITE PLAN

SHEET NUMBER: C-101	REVISION: A
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PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING PLLC, DATED NOVEMBER 23, 2021, THE EXISTING MOUNT MUST BE MODIFIED TO ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT MODIFICATION PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT.

1 TOWER ELEVATION
SCALE: N.T.S.

- TOWER NOTE:**
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE PROJECT MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
 - WHERE APPLICABLE, ALL NEW ANTENNAS, EQUIPMENT, MOUNTS, CABLING, ETC. SHALL BE PAINTED/SOCKED TO MATCH EXISTING EQUIPMENT IN ACCORDANCE WITH FAA, JURISDICTION, AND/OR OTHER LOCAL REQUIREMENTS.
 - ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.
 - TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)
 - TOWER ELEVATION DEPICTION MAY NOT REFLECT ALL EQUIPMENT INCLUDED IN STRUCTURAL ANALYSIS. REFER TO STRUCTURAL ANALYSIS FOR FULL TOWER LOADING.



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SITE ADDRESS:
50 DEVINE STREET
NORTH HAVEN, CT 06473-2204

SEAL:

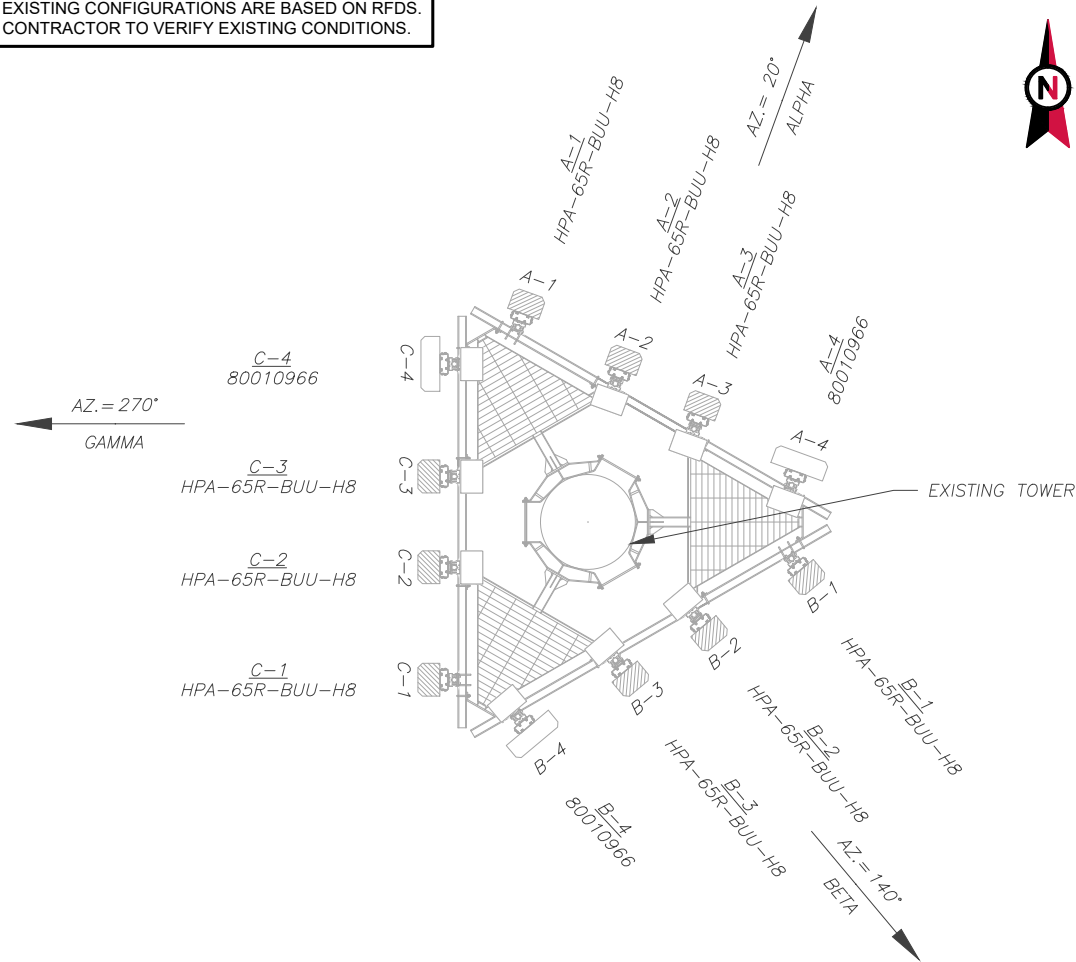
PRELIMINARY:
NOT FOR
CONSTRUCTION

DATE DRAWN:	12/03/21
ATC JOB NO:	13683386_D1
CUSTOMER ID:	CT3506
CUSTOMER #:	10578263

TOWER ELEVATION	
SHEET NUMBER: C-201	REVISION: A

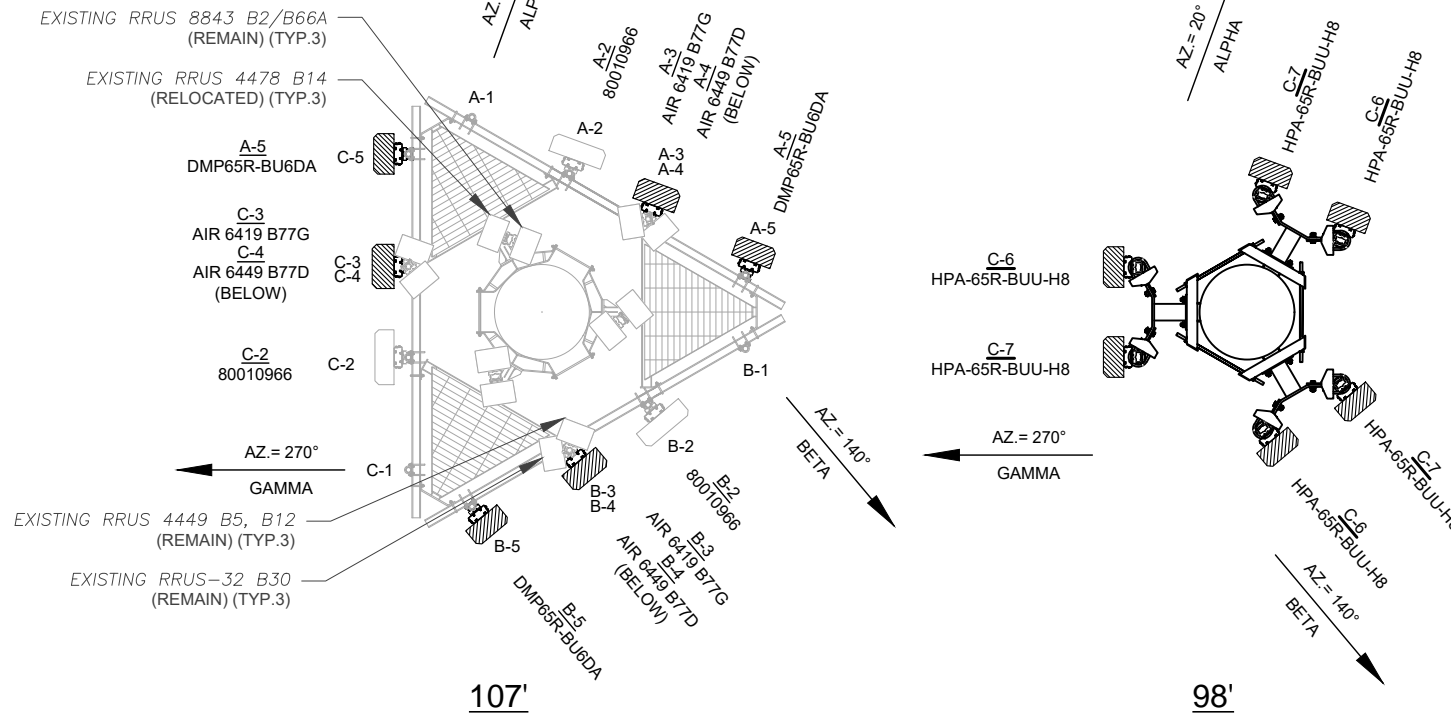
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EXISTING CONFIGURATIONS ARE BASED ON RFDS. CONTRACTOR TO VERIFY EXISTING CONDITIONS.



1 CURRENT ANTENNA PLAN
SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING PLLC, DATED NOVEMBER 23, 2021, THE EXISTING MOUNT MUST BE MODIFIED TO ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT MODIFICATION PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT.



2 FINAL ANTENNA PLAN
SCALE: N.T.S.

CABLE LENGTHS FOR JUMPERS
JUNCTION BOX TO RRU: 15'
RRU TO ANTENNA: 10'

PROPOSED RRUS MUST BE INSTALLED A MINIMUM OF 12" AWAY FROM ALL ANTENNAS

EXISTING ANTENNA SCHEDULE								
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	107'	20°	A1	CC-HPA-65R-BUU-H8	UMTS 850	RMV	RRUS-11 B5	RMV
			A2	CC-HPA-65R-BUU-H8	LTE WCS	RMN	RRUS-32 B30	REL
			A3	CC-HPA-65R-BUU-H8	LTE 700/1900	REL	RRUS 4478 B14	REL
			A4	80010966	LTE 700/850/AWS/5G 850	REL	RRUS 4449 B5, B12 RRUS 8843 B2/B66A	RMN REL
BETA	107'	140°	B1	CC-HPA-65R-BUU-H8	UMTS 850	RMV	RRUS-11 B5	RMV
			B2	CC-HPA-65R-BUU-H8	LTE WCS	RMN	RRUS-32 B30	REL
			B3	CC-HPA-65R-BUU-H8	LTE 700/1900	REL	RRUS 4478 B14	REL
			B4	80010966	LTE 700/850/AWS/5G 850	REL	RRUS 4449 B5, B12 RRUS 8843 B2/B66A	RMN REL
GAMMA	107'	270°	C1	CC-HPA-65R-BUU-H8	UMTS 850	RMV	RRUS-11 B5	RMV
			C2	CC-HPA-65R-BUU-H8	LTE WCS	RMN	RRUS-32 B30	REL
			C3	CC-HPA-65R-BUU-H8	LTE 700/1900	REL	RRUS 4478 B14	REL
			C4	80010966	LTE 700/850/AWS/5G 850	REL	RRUS 4449 B5, B12 RRUS 8843 B2/B66A	RMN REL

- NOTES
- CONFIRM WITH AT&T REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
 - CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.
 - THE ANTENNA ORIENTATION PLAN IS A SCHEMATIC. ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA AZIMUTHS, MOUNT CONFIGURATIONS AND TOWER ORIENTATION. SCALES SHOWN ARE FOR REFERENCE ONLY AND EXISTING DIMENSIONS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO INSTALLATION AND NOTIFY ATC OF ANY DISCREPANCIES.
 - CONTRACTOR TO ENSURE PROPER SEPARATION IN ACCORDANCE WITH AT&T'S FIRSTNET REQUIREMENTS (SEE SHEET R-602)

FINAL ANTENNA SCHEDULE								
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	107'	20°	A1	-	-	-	-	-
			A2	80010966	LTE 700/AWS/5GAWS	RMN	RRUS 4478 B14	REL
			A3	AIR 6419 B77G	5G DOD	ADD	RRUS 8843 B2/B66A	RMN
			A4	AIR 6449 B77D	5G C-BAND	ADD	RRUS 4449 B5, B12	RMN
			A5	DMP65R-BU6DA	LTE 700/850/AWS/5G 850/1900	ADD	RRUS-32 B30	RMN
			A6	HPA-65R-BUU-H8	SPARE	REL	-	-
			A7	HPA-65R-BUU-H8	SPARE	REL	-	-
BETA	107'	140°	B1	-	-	-	-	-
			B2	80010966	LTE 700/AWS/5GAWS	RMN	RRUS 4478 B14	REL
			B3	AIR 6419 B77G	5G DOD	ADD	RRUS 8843 B2/B66A	RMN
			B4	AIR 6449 B77D	5G C-BAND	ADD	RRUS 4449 B5, B12	RMN
			B5	DMP65R-BU6DA	LTE 700/850/AWS/5G 850/1900	ADD	RRUS-32 B30	RMN
			B6	HPA-65R-BUU-H8	SPARE	REL	-	-
			B7	HPA-65R-BUU-H8	SPARE	REL	-	-
GAMMA	107'	270°	C1	-	-	-	-	-
			C2	80010966	LTE 700/AWS/5GAWS	RMN	RRUS 4478 B14	REL
			C3	AIR 6419 B77G	5G DOD	ADD	RRUS 8843 B2/B66A	RMN
			C4	AIR 6449 B77D	5G C-BAND	ADD	RRUS 4449 B5, B12	RMN
			C5	DMP65R-BU6DA	LTE 700/850/AWS/5G 850/1900	ADD	RRUS-32 B30	RMN
			C6	HPA-65R-BUU-H8	SPARE	REL	-	-
			C7	HPA-65R-BUU-H8	SPARE	REL	-	-

EXISTING FIBER DISTRIBUTION/SQUID						EXISTING CABLING SUMMARY					
MODEL NUMBER	STATUS	COAX	DC	FIBER	STATUS	MODEL NUMBER	STATUS	COAX	DC	FIBER	STATUS
(3) FIBER/DC	RMN	-	(8) DC	(3) FIBER	RMN	(3) FIBER/DC	RMN	-	(8) DC	(3) FIBER	RMN
(1) DC	RMN	-	-	-	-	(1) DC	RMN	-	-	-	-

STATUS ABBREVIATIONS
RMV: TO BE REMOVED
RMN: TO REMAIN
REL: TO BE RELOCATED
ADD: TO BE ADDED

3 EQUIPMENT SCHEDULES



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REV.	DESCRIPTION	BY	DATE
A	PRELIM	MA	12/07/21

ATC SITE NUMBER:
283418

ATC SITE NAME:
NORTH HAVEN CT

AT&T SITE NAME:
NORTH HAVEN DEVINE STREET

SITE ADDRESS:
50 DEVINE STREET
NORTH HAVEN, CT 06473-2204

SEAL:

**PRELIMINARY:
NOT FOR
CONSTRUCTION**



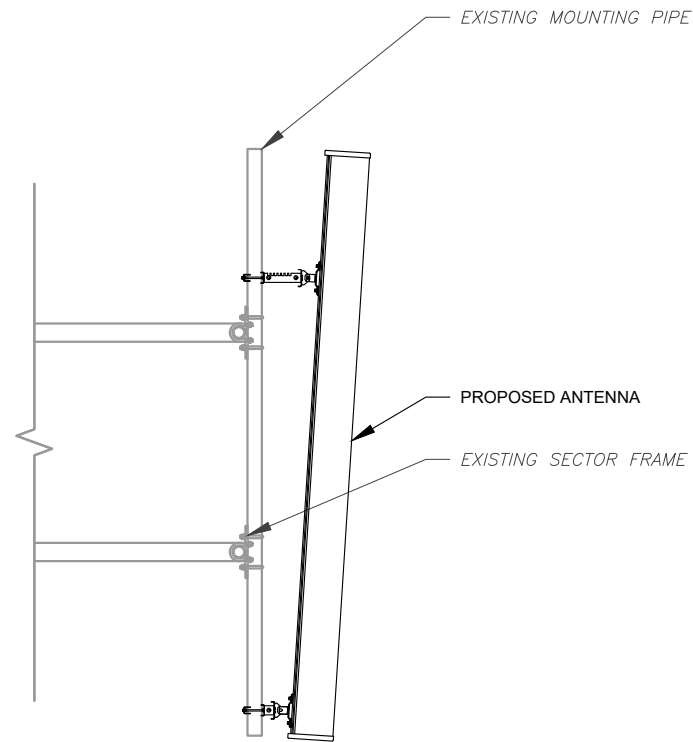
DATE DRAWN:	12/03/21
ATC JOB NO:	13683386_D1
CUSTOMER ID:	CT3506
CUSTOMER #:	10578263

RF SCHEDULE AND ANTENNA INSTALLATION

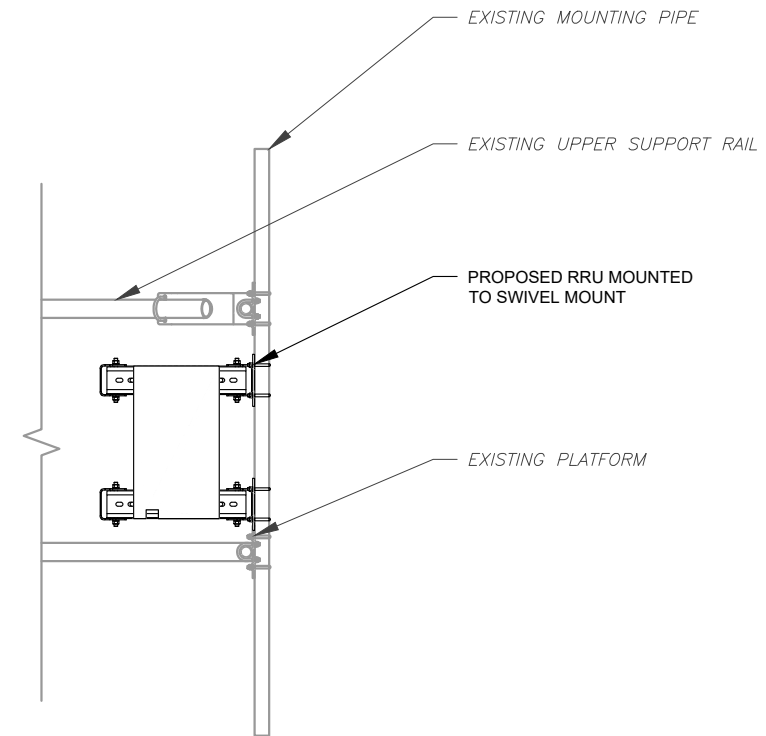
SHEET NUMBER:
C-401

REVISION:
A

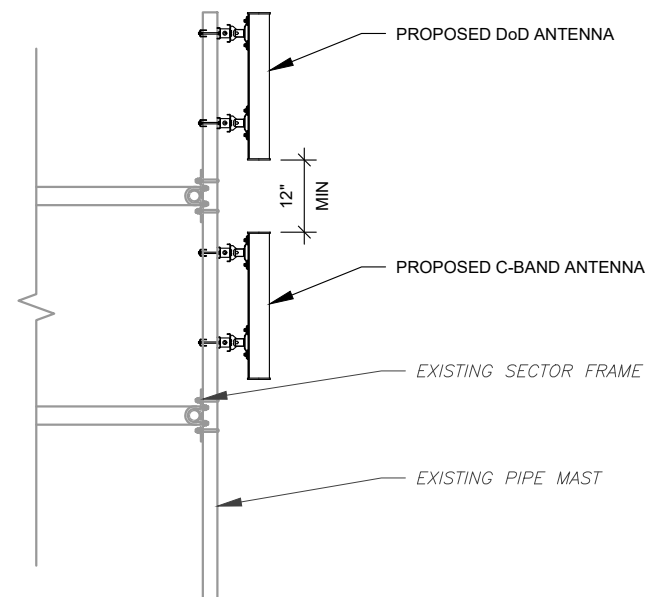
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1 ANTENNA DETAIL
SCALE: N.T.S.



2 PROPOSED RRU MOUNTING DETAIL - TYPICAL
SCALE: N.T.S.



3 PROPOSED 5G ANTENNA MOUNTING DETAIL - TYPICAL
SCALE: N.T.S.



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SEAL:

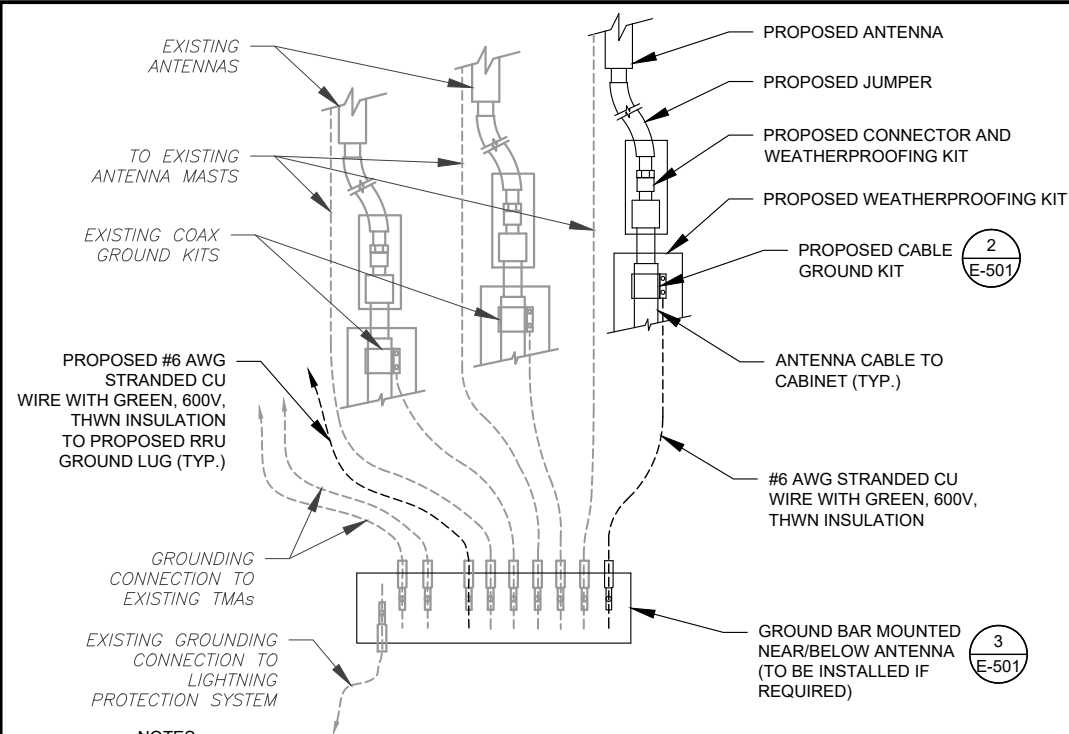
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CONSTRUCTION
DETAILS

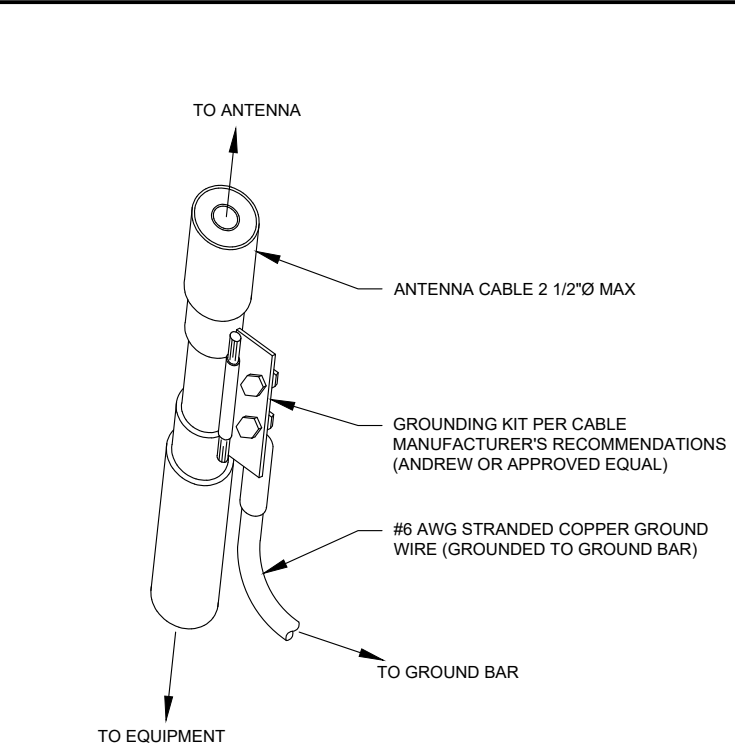
SHEET NUMBER: C-501	REVISION: A
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NOTES:

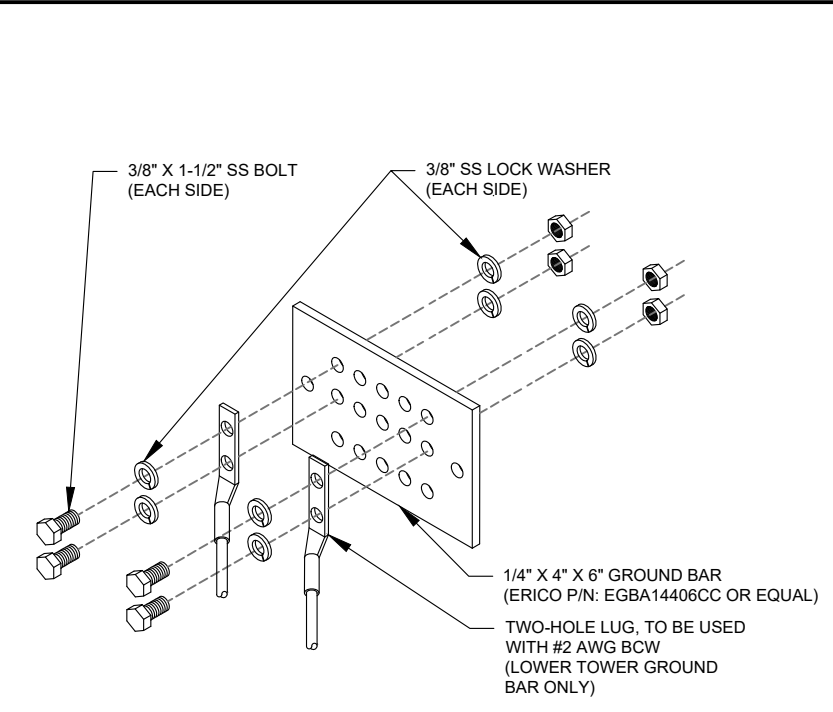
1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH AT&T GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH AT&T GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

1 TYPICAL ANTENNA GROUNDING DIAGRAM
SCALE: N.T.S.



- GROUND KIT NOTES:**
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
 2. CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

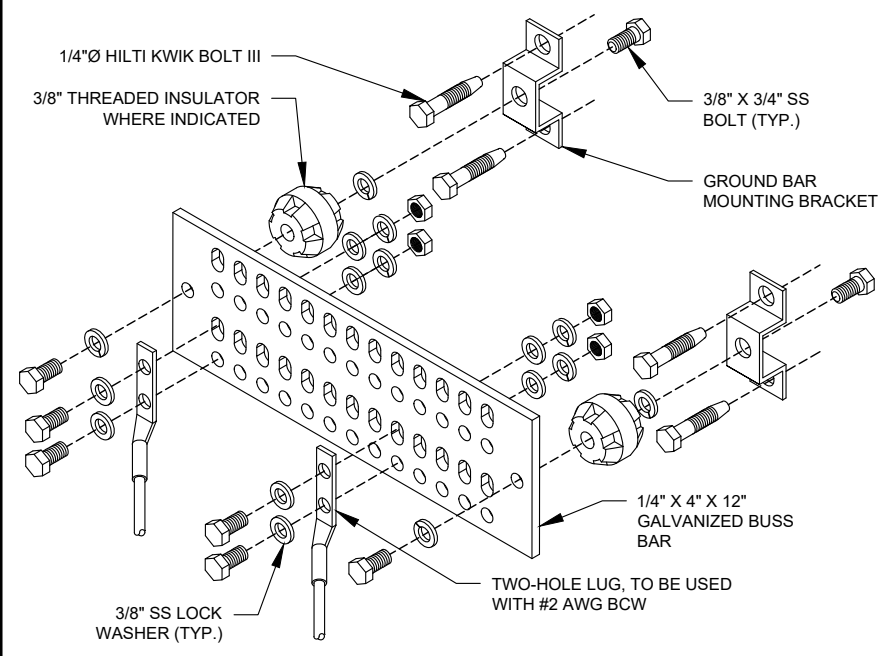
2 CABLE GROUND KIT CONNECTION DETAIL
SCALE: N.T.S.



GROUND BAR NOTES:

1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

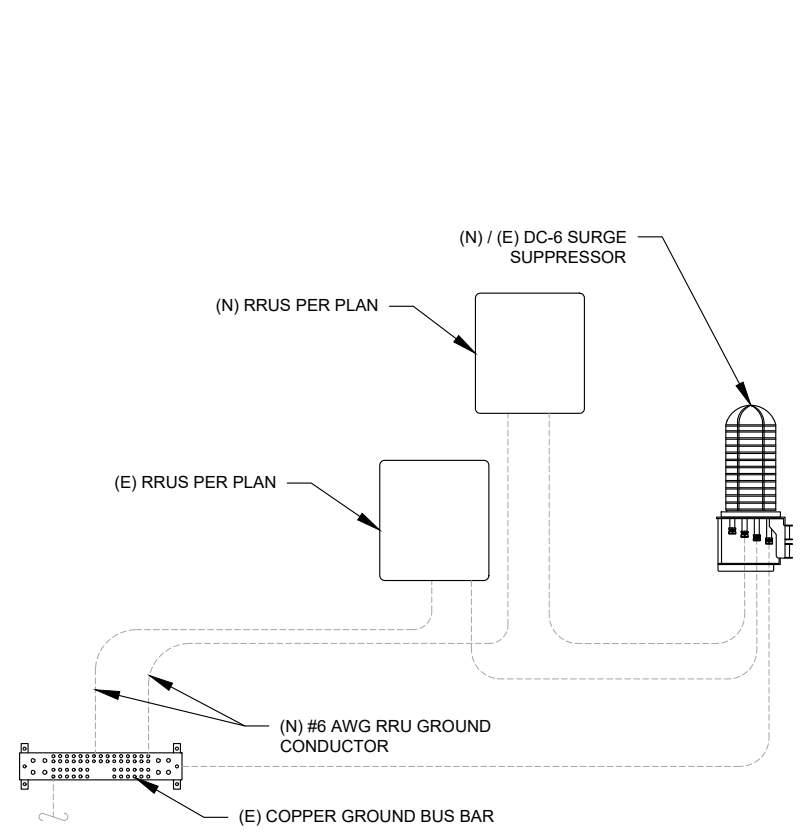
3 TOWER GROUND BAR DETAIL
SCALE: N.T.S.



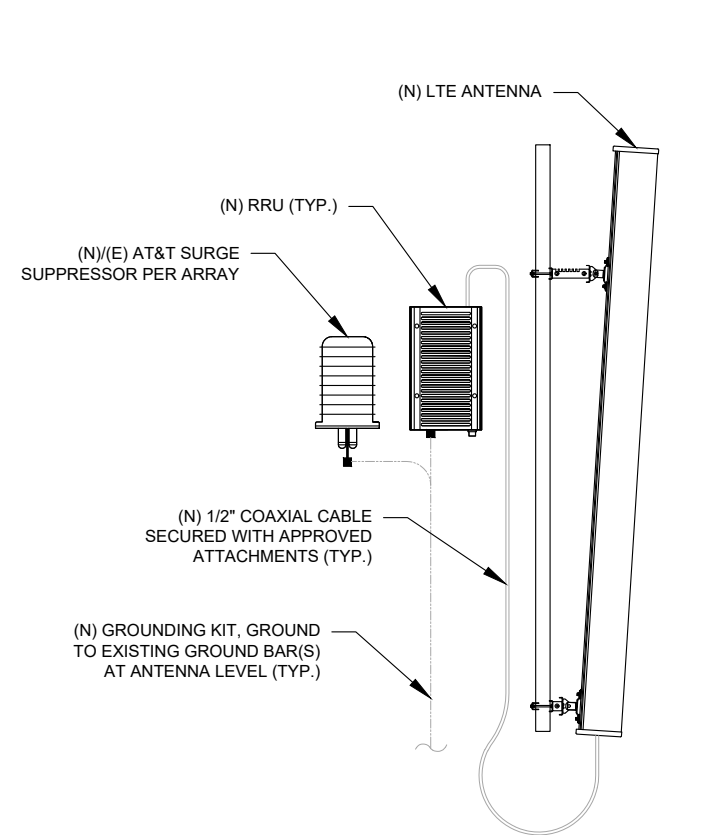
GROUND BAR NOTES

1. GROUND KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR SHALL BE BOLTED TO STRUCTURAL MEMBER OR ANCHORED TO CONCRETE SLAB W/ HILTI KWIK BOLT III.

4 MAIN GROUND BAR DETAIL
SCALE: N.T.S.



5 RRU GROUNDING
SCALE: N.T.S.



6 ANTENNA/RRU GROUNDING
SCALE: N.T.S.



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NORTH HAVEN CT

AT&T SITE NAME:
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CUSTOMER ID:	CT3506
CUSTOMER #:	10578263

GROUNDING DETAILS

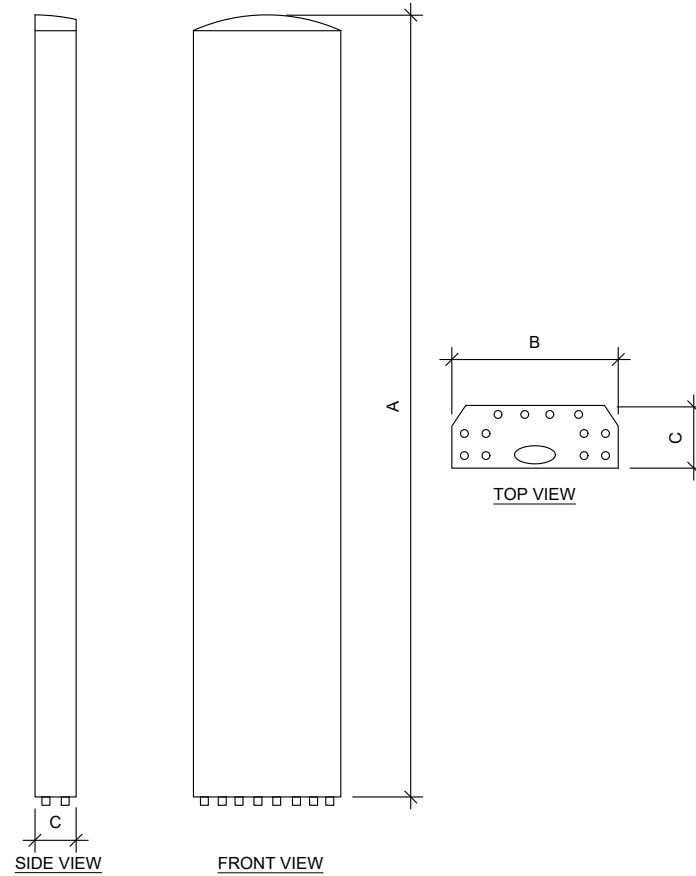
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ANTENNA SPECIFICATIONS				
ANTENNA MODEL	A	B	C	WEIGHT (LBS)
AIR 6419 B77G	28.3	16.1	7.9	66.1
AIR 6449 B77D	30.4	15.9	8.1	-
DMP65R-BU6DA	71.2	20.7	7.7	79.4



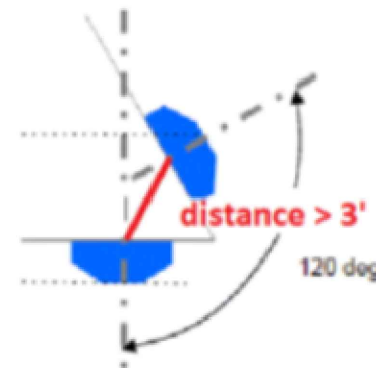
DATE DRAWN:	12/03/21
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CUSTOMER ID:	CT3506
CUSTOMER #:	10578263

SUPPLEMENTAL

SHEET NUMBER:
R-601

RF REQUIREMENTS FOR 700 B14 FIRSTNET, 700 B12, 700D B29 ANTENNA SEPARATION

- Horizontal separation (side to side of antenna): $\geq 3'$
- Vertical separation (between the tips of the antennas): $> 3'$
- Inter-sector separation: $> 3'$ between the center of the antenna backplanes.



- Please note additional horizontal separation may be required if B14 antennas azimuth are different from others or antennas are severely angled with respect to the mount.
- Typical 3' horizontal separation can tolerate skew angle up to 6° .



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CUSTOMER #:	10578263

SUPPLEMENTAL

SHEET NUMBER:
R-602

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This report was prepared for American Tower Corporation by



Antenna Mount Analysis Report

ATC Site Name : North Haven CT
ATC Asset Number : 283418
Engineering Number : 13683386_C8_01
Mount Elevation : 105 ft
Carrier : AT&T Mobility
Carrier Site Name : MRCTB051593
Carrier Site Number : CT3506
Site Location : 50 Devine Street
 North Haven, CT 06473-2204
 41.377778, -72.8761583
County : New Haven
Date : November 23, 2021
Max Usage : 66%
Result : Contingent Pass*
 *See conclusion for requirements

Prepared By:
 Kowsalya V
 CLS Engineering, PLLC

Reviewed By:
 Tyler M. Barker, P.E.
 CLS Engineering, PLLC



Digitally signed by Tyler M. Barker Date: 2021. 11.24 07:22:15 -0500

Mount Analysis for American Tower
 283418 - North Haven CT

November 23, 2021
 CLS Engineering, PLLC Project #41124-13683386_C8_01-01-MA

Introduction

The proposed equipment is to be mounted to the existing Platform w/ Support Rails. This proposed mounting configuration was analyzed using RISA-3D, a commercially available finite element analysis software package. A selection of input and output from our analysis is attached to the end of this report.

Supporting Documents

Structural Data	Site Photos dated May 05, 2020 Spec Sheet by Commscope, Part #MTC3607
Previous Analyses	Tower SA by ATC, Engineering #13693659_C3_03, dated June 24, 2021
Loading Data	ATC Application, Project #13683386, dated November 21, 2021 AT&T RFD\$ ID:4391590, Ver. 2.00, dated October 25, 2021
Modifications	Mount Modification by Hudson Design Group LLC for ATC, Site #283418, Rev. 1, dated April 08, 2019

Analysis

Codes	TIA-222-H
Basic Wind Speed	120 mph, V _w (3-Second Gust)
Basic Wind Speed w/ Ice	50 mph (3-Second Gust) w/ 1" Radial Ice (Escalating)
Exposure Category	C
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Risk Category	II
Maintenance Live Load	L _m : 500 lb
Spectral Response	S ₁ : 0.20; S ₂ : 0.05; Site Class: D

Conclusion

Based on the analysis, the antenna mount meets the requirements per the applicable codes listed above. The mounting configuration considered in this analysis will be capable of supporting the referenced loading pursuant to referenced standards once the following scope is executed:

- Replace existing with (1) proposed RRR pipe 2 STD X 6'-0" Long mount pipe at each sector (3 total) as shown. Connect to stand-off horizontal pipes with (1) Site Pro 1 SP219 cross plate kits at each sector (3 total).
- Install (1) proposed Site Pro 1 UWS6-NP ring mount to monopole and install (2) proposed pipe 2 STD X 8'-0" Long mount pipe at each sector for spare panel configuration (6 total) as shown.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



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ATC SITE NUMBER:
 283418

ATC SITE NAME:
 NORTH HAVEN CT

AT&T SITE NAME:
 NORTH HAVEN DEVINE STREET

SITE ADDRESS:
 50 DEVINE STREET
 NORTH HAVEN, CT 06473-2204



DATE DRAWN:	12/03/21
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CUSTOMER ID:	CT3506
CUSTOMER #:	10578263

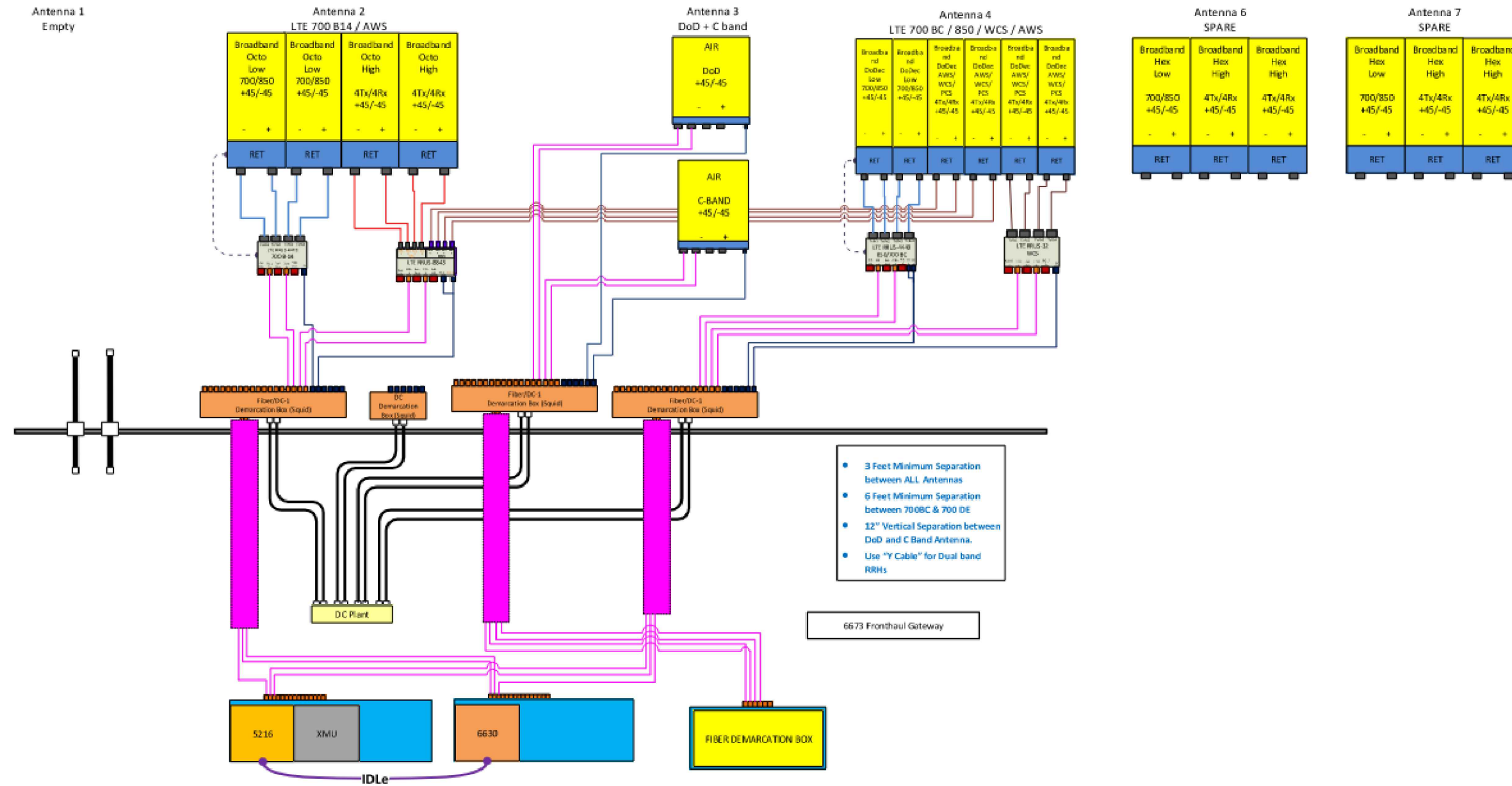
SUPPLEMENTAL

SHEET NUMBER:
R-603



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- 3 Feet Minimum Separation between ALL Antennas
- 6 Feet Minimum Separation between 700BC & 700 DE
- 12" Vertical Separation between DoD and C Band Antenna.
- Use "Y Cable" for Dual band RRHs

6673 Fronthaul Gateway

ATC SITE NUMBER:
283418

ATC SITE NAME:
NORTH HAVEN CT

AT&T SITE NAME:
NORTH HAVEN DEVINE STREET

SITE ADDRESS:
50 DEVINE STREET
NORTH HAVEN, CT 06473-2204



DATE DRAWN:	12/03/21
ATC JOB NO:	13683386_D1
CUSTOMER ID:	CT3506
CUSTOMER #:	10578263

SUPPLEMENTAL

SHEET NUMBER:
R-604

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Delivered

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North Haven, CT



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Tracking number 9505510391962129626720

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May 11, 10:27AM
Woburn, MA

The Honorable Michael J. Freda - First Selectman of North Haven

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May 7, 2022

424 CHAPEL STREET LLC
50 Devine Street
North Haven, CT 06473

Re: Exempt Modification Application – AT&T Site 13683386
AT&T Mobility Telecommunications Facility @ 50 Devine Street, North Haven, CT

Dear Property Owner:

New Cingular Wireless, PCS, LLC (dba AT&T) currently maintains antennas on a wireless telecommunications facility on an existing American Tower Corporation (ATC) telecommunications tower at the above referenced address. AT&T desires to modify its existing equipment as described in the attached Construction Drawings:

- Remove three (3) antennas and one (1) RRU;
- Install nine (9) antennas and six (6) “Y” cables;
- Relocate six (6) antennas;
- Ground work includes the installation of one (1) XMU 03, one (1) Fronthall Gateway, and one (1) IDLe.

This letter is intended to serve as the required notice to the property owner. As required by Regulations of Connecticut State Agencies (“RCSA”) 16-50j-73 the Connecticut Siting Council (“CSC”) has been notified of this proposal and will review this application. Please accept this letter as notification pursuant to RSCA 16-50j-73.

The enclosed letter and attachments to the CSC fully describe AT&T’s proposal for the site. However, if you have any questions or require any additional information concerning our plans or the CSC procedures, please contact me at 443-677-0144 or contact Melanie Bachmann, Acting Executive Director of the CSC at 860-972-2935.

Respectfully Submitted,

Jack Andrews
Zoning Manager, Centerline Communications
10130 Donleigh Drive
Columbia, MD 21046
443-677-0144

Enclosures



May 7, 2022

The Honorable Michael J. Freda
Town of North Haven
18 Church Street
North Haven, CT 06473

Re: Exempt Modification Application – AT&T Site 13683386
AT&T Mobility Telecommunications Facility @ 50 Devine Street, North Haven, CT

Dear First Selectman Freda:

New Cingular Wireless, PCS, LLC (dba AT&T) currently maintains antennas on a wireless telecommunications facility on an existing American Tower Corporation (ATC) telecommunications tower at the above referenced address. AT&T desires to modify its existing equipment as described in the attached Construction Drawings:

- Remove three (3) antennas and one (1) RRU;
- Install nine (9) antennas and six (6) “Y” cables;
- Relocate six (6) antennas;
- Ground work includes the installation of one (1) XMU 03, one (1) Fronthall Gateway, and one (1) IDLe.

This letter is intended to serve as the required notice to the chief elected official of the municipality. As required by Regulations of Connecticut State Agencies (“RCSA”) 16-50j-73 the Connecticut Siting Council (“CSC”) has been notified of this proposal and will review this application. Please accept this letter as notification pursuant to RCSA 16-50j-73.

The enclosed letter and attachments to the CSC fully describe AT&T’s proposal for the site. However, if you have any questions or require any additional information concerning our plans or the CSC procedures, please contact me at 443-677-0144 or contact Melanie Bachmann, Acting Executive Director of the CSC at 860-972-2935.

Respectfully Submitted,

Jack Andrews
Zoning Manager, Centerline Communications
10130 Donleigh Drive
Columbia, MD 21046
443-677-0144

Enclosures



May 7, 2022

Laura Magaraci ZEO
Town of North Haven
18 Church Street
North Haven, CT 06473

Re: Exempt Modification Application – AT&T Site 13683386
AT&T Mobility Telecommunications Facility @ 50 Devine Street, North Haven, CT

Dear Ms. Magaraci:

New Cingular Wireless, PCS, LLC (dba AT&T) currently maintains antennas on a wireless telecommunications facility on an existing American Tower Corporation (ATC) telecommunications tower at the above referenced address. AT&T desires to modify its existing equipment as described in the attached Construction Drawings:

- Remove three (3) antennas and one (1) RRU;
- Install nine (9) antennas and six (6) “Y” cables;
- Relocate six (6) antennas;
- Ground work includes the installation of one (1) XMU 03, one (1) Fronthall Gateway, and one (1) IDLe.

This letter is intended to serve as the required notice to the municipal planning agency. As required by Regulations of Connecticut State Agencies (“RCSA”) 16-50j-73 the Connecticut Siting Council (“CSC”) has been notified of this proposal and will review this application. Please accept this letter as notification pursuant to RSCA 16-50j-73.

The enclosed letter and attachments to the CSC fully describe AT&T’s proposal for the site. However, if you have any questions or require any additional information concerning our plans or the CSC procedures, please contact me at 443-677-0144 or contact Melanie Bachmann, Acting Executive Director of the CSC at 860-972-2935.

Respectfully Submitted,

Jack Andrews
Zoning Manager, Centerline Communications
443-677-0144

Enclosures



May 7, 2022

Jacqueline Hall
Project Manager, Site Development
American Tower Corporation
10 Presidential Way
Woburn, MA 01801

Re: Exempt Modification Application – AT&T Site 13683386
AT&T Mobility Telecommunications Facility @ 50 Devine Street, North Haven, CT

Dear Ms. Hall:

New Cingular Wireless, PCS, LLC (dba AT&T) currently maintains antennas on a wireless telecommunications facility on an existing American Tower Corporation (ATC) telecommunications tower at the above referenced address. AT&T desires to modify its existing equipment as described in the attached Construction Drawings:

- Remove three (3) antennas and one (1) RRU;
- Install nine (9) antennas and six (6) “Y” cables;
- Relocate six (6) antennas;
- Ground work includes the installation of one (1) XMU 03, one (1) Fronthall Gateway, and one (1) IDLe.

This letter is intended to serve as the required notice to the tower owner. As required by Regulations of Connecticut State Agencies (“RCSA”) 16-50j-73 the Connecticut Siting Council (“CSC”) has been notified of this proposal and will review this application. Please accept this letter as notification pursuant to RCSA 16-50j-73.

The enclosed letter and attachments to the CSC fully describe AT&T’s proposal for the site. However, if you have any questions or require any additional information concerning our plans or the CSC procedures, please contact me at 443-677-0144 or contact Melanie Bachmann, Acting Executive Director of the CSC at 860-972-2935.

Respectfully Submitted,

Jack Andrews
Zoning Manager, Centerline Communications
10130 Donleigh Drive
Columbia, MD 21046
443-677-0144

Enclosures