



July 7, 2022

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

Re: Exempt Modification Application – AT&T Site 13748405
AT&T Mobility Telecommunications Facility @ 204 Burwell Street, West Haven, CT 06516

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 twelve (12) antennas, six (6) RRHs, six (6) TTAs, six (6) coax cables, one (1) conduit, and one (1) fiber trunk cable;
- Modify the antenna mount per the attached mount modification drawings, and install twelve (12) antennas, three (3) RRHs and one (1) fiber cable.

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). Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of AT&T's intent to modify a telecommunications facility pursuant to R.C.S.A. 16-50j-88. 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 Owner and Property Owner; the Honorable Nancy R. Rossi as Mayor of West Haven, and Christopher Soto, Director, West Haven Department of Planning and Development.

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 204 Burwell Street, West Haven, CT 06516. 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
American Tower Corporation – Property Owner
The Honorable Nancy R. Rossi - Mayor of West Haven
Christopher Soto - Director, West Haven Department of Planning and Development



AMERICAN TOWER®
CORPORATION
LETTER OF AUTHORIZATION

CENTERLINE COMMUNICATIONS LLC/ AT&T MOBILITY

I, Margaret Robinson, Vice President, US Tower Legal Division on behalf of American Tower*, owner/operator of the tower facility located at the address identified below (the "Tower Facilities"), do hereby authorize AT&T MOBILITY, CENTERLINE COMMUNICATIONS LLC, its 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 on the Tower Facility located at the above address. This installation shall not affect adjoining lands and will occur only within the area leased by American Tower.

American Tower understands that the application 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 installation. Any such conditions of approval or modifications will not be effective unless approved in writing by American Tower.

The above authorization does not permit AT&T MOBILITY, CENTERLINE COMMUNICATIONS LLC 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 installation of telecommunications equipment without the prior written approval of American Tower.

*American Tower includes all affiliates and subsidiaries of American Tower Corporation.


ATC Asset #	Site Name	Project Number	Site Address
283420	STONEBROOK RD CT	13682835	23 Stonybrook Road, Stratford, Connecticut
243036	WEST HAVEN & RT 162 CT	13682841	668 Jones Hill Road, West Haven, Connecticut
302479	Rkhl - Rocky Hill	13683394	699 West Street, Rocky Hill, Connecticut
302537	Middletown CT 3	13747862	47 Inwood Road, Rocky Hill, Connecticut
302535	Milford CT 2	13748383	185 Research Drive, Milford, Connecticut
302473	E H F R - Prestige Park	13748397	310 Prestige Park Road, East Hartford, Connecticut
302505	Wshn - West Haven	13748405	204 Burwell Street, West Haven, Connecticut
302489	Enfd - Enfield	13753208	77 Town Farm Road, Enfield, Connecticut
302524	Beacon Falls	13753210	664 Rimmon Hill Road, Seymour, Connecticut
310968	WSPT-WESTPORT REBUILD CT	13753216	180A Bayberry Lane, Westport, Connecticut
302526	Naugatuck (telephone Pole)	13753218	585 South Main St. (soc. Club), Naugatuck, Connecticut
310972	WATERFORD REBUILD CT	13753547	15 Miner Lane, Waterford, Connecticut
302538	Parsonage Hill Aka Wallin	13753549	922 Northrop Road, Wallingford, Connecticut
370624	Mankes Silo	13754283	1338 Highland Ave, Cheshire, Connecticut



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88017	SHELTON-TRUMBULL	13755484	14 OXFORD DRIVE/BOOTH HILL RD, Shelton, Connecticut
414240	Byram Park CT	13755490	48 RITCH AVENUE WEST, Greenwich, Connecticut
283423	NAUGATUCK CT	13755758	880 Andrew Mountain Road, Naugatuck, Connecticut
302480	Woodbridge CT 1	13756843	77 Pease Road, Woodbridge, Connecticut
411183	WATERFORD CT	13756866	53 Dayton Rd. Waterford, Connecticut
302540	Madison CT 6	13757740	8 Old 79, Madison, Connecticut
411259	CT Collinsville CAC 802816 CT	13757764	650 Albany Turnpike, Collinsville, Connecticut
411256	CANTON CT	13757774	14 CANTON SPRINGS ROAD, Canton, Connecticut
302493	Nrwc - Norwich	13757776	225 Rogers Road, Norwich, Connecticut
302476	Wtbr - Waterbury	13757794	352 Garden Circle, Waterbury, Connecticut
302475	Sttn - Southington	13757796	80 Shuttle Meadow Road, Southington, Connecticut
302494	Hddm - Haddam	13757798	139 Morris Hubbard Rd, Higganum, Connecticut
283419	PINE ORCHARD BRANFORD CT	13757800	123 Pine Orchard Road, Branford, Connecticut
302482	North Havent CT 1	13757802	15 Dewight Street, North Haven, Connecticut
302485	Mdfd - Middlefield	13757806	134 Kikapoo Road, Middlefield, Connecticut
302500	Brst - Bristol	13757810	790 Willis Street, Bristol, Connecticut
302467	Bilkays Express	13757812	90 North Plains Industrial Rd. Wallingford, Connecticut
302536	Cherry Hill-branford	13759895	4 Beaver Road, Brandford, Connecticut
302482	North Havent CT 1	14050356	15 Dewight Street, North Haven, Connecticut
311305	GLFD-GUILFORD REBUILD CT	14050358	10 Tanner Marsh Road, Guilford, Connecticut
411261	CROMWELLSW CT	14089799	99 Christian Hill Road, Cromwell, Connecticut
302481	Hrfr - South	14090117	289 Mountain Street, Hartford, Connecticut

Signature: _____


Margaret Robinson, Vice President
US Tower Legal Division

See attached Notary Block



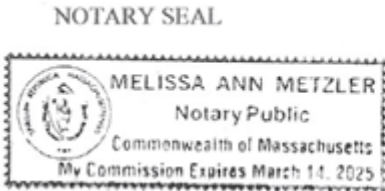
**LETTER OF AUTHORIZATION
CENTERLINE COMMUNICATIONS LLC/ AT&T MOBILITY**

NOTARY BLOCK

COMMONWEALTH OF MASSACHUSETTS
County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Vice President, UST Legal of American Tower (Tower Facility owner), 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 30th day of June, 2022.



Notary Public 
My Commission Expires: March 14, 2025



City of West Haven, CT

Property Listing Report

Map Block Lot

064-0314-0-CELL-A

Building # 1

Section # 1

Account

00022806

Property Information

Property Location	204 BURWELL RD
Owner	AMERICAN TOWERS INC.
Co-Owner	ATTN TAX DEPT
Mailing Address	PO BOX 723597 ATLANTA GA 31139
Land Use	431V TEL REL TW MDL-00
Land Class	I
Zoning Code	
Census Tract	

Street Index	
Acreage	0
Utilities	
Lot Setting/Desc	
Additional Info	

Photo



Sketch



Primary Construction Details

Year Built	0
Stories	
Building Style	UNKNOWN
Building Use	Vacant
Building Condition	
Occupancy	
Extra Fixtures	0
Bath Style	NA
Kitchen Style	NA
AC Type	
Heating Type	
Heating Fuel	

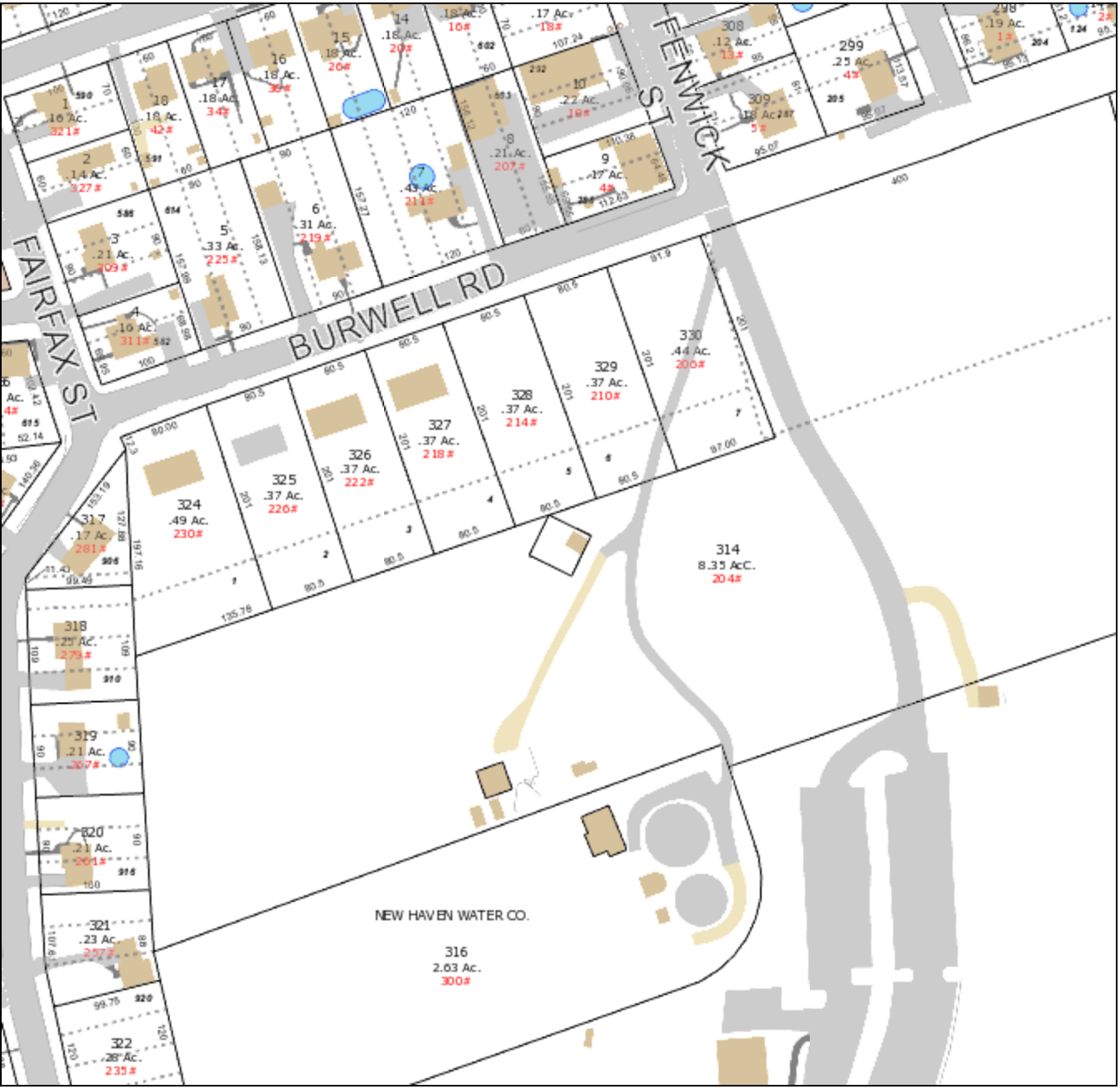
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Total Rooms	0
Roof Style	
Roof Cover	
Interior Floors 1	
Interior Floors 2	
Exterior Walls	
Exterior Walls 2	NA
Interior Walls	
Interior Walls 2	NA

(*Industrial / Commercial Details)

Building Desc.	TEL REL TW
Building Grade	NA
Heat / AC	NA
Frame Type	NA
Baths / Plumbing	NA
Ceiling / Wall	NA
Rooms / Prtns	NA
Wall Height	NA
First Floor Use	NA



Date Printed: 7/7/2022



MAP DISCLAIMER - NOTICE OF LIABILITY
This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The City of West Haven and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 150 feet





Radio Frequency Exposure Analysis Report

June 17, 2022

American Tower on behalf of AT&T

AT&T Site Name: Wshn - West Haven

Site Number: CT2064

FA#: 10035024

USID: 5803

Site Address: 204 BURWELL STREET, WEST HAVEN,
CT 06516

Site Compliance Summary

AT&T Compliance Status:	Compliant
Cumulative Calculated Power Density (Ground Level):	12.44184 $\mu\text{W}/\text{cm}^2$
Cumulative General Population % MPE (Ground Level):	1.2443%



June 17, 2022

Centerline
Attn: John Luca, Associate Project Manager
750 W Center St, Suite 301
West Bridgewater, MA 02379

RF Exposure Analysis for Site: **Wshn - West Haven**

Centerline Communications, LLC ("Centerline") was contracted to analyze the proposed AT&T facility at 204 BURWELL STREET **WEST HAVEN, CT 06516** 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 339' northeast 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	QUINTEL QD6616-7 V1	700	11.51	154.00	4.00	40.00	2266.42	0.00027	466.67	0.00006
AT&T A 1	QUINTEL QD6616-7 V1	1900	15.07	154.00	4.00	40.00	5144.23	0.00016	1000.00	0.00002
AT&T A 1	QUINTEL QD6616-7 V1	2100	15.50	154.00	4.00	40.00	5677.28	0.00016	1000.00	0.00002
AT&T A 1	QUINTEL QD6616-7 V1	700	11.97	154.00	2.00	40.00	1259.51	0.00006	466.67	0.00001
AT&T A 2	Ericsson AIR6449	3700	23.45	156.00	1.00	108.40	23989.95	0.00078	1000.00	0.00008
AT&T A 3	Ericsson AIR6419	3450	23.45	152.00	1.00	108.40	23989.95	0.00068	1000.00	0.00007
AT&T A 4	CCI DMP65R-BU6D	700	11.25	154.00	4.00	40.00	2133.63	0.00028	466.67	0.00006
AT&T A 4	CCI DMP65R-BU6D	850	11.35	154.00	4.00	40.00	2183.33	0.00026	566.67	0.00005
AT&T A 4	CCI DMP65R-BU6D	2300	14.95	154.00	4.00	25.00	3126.08	0.00008	1000.00	0.00001
AT&T B 5	QUINTEL QD6616-7 V1	700	11.75	154.00	4.00	40.00	2395.41	0.00000	466.67	0.00000
AT&T B 5	QUINTEL QD6616-7 V1	1900	15.07	154.00	4.00	40.00	5144.23	0.00000	1000.00	0.00000
AT&T B 5	QUINTEL QD6616-7 V1	2100	15.50	154.00	4.00	40.00	5677.28	0.00000	1000.00	0.00000
AT&T B 5	QUINTEL QD6616-7 V1	700	11.97	154.00	2.00	40.00	1259.51	0.00000	466.67	0.00000
AT&T B 6	Ericsson AIR6449	3700	23.45	156.00	1.00	108.40	23989.95	0.00001	1000.00	0.00000
AT&T B 7	Ericsson AIR6419	3450	23.45	152.00	1.00	108.40	23989.95	0.00001	1000.00	0.00000
AT&T B 8	CCI DMP65R-BU6D	700	11.35	154.00	4.00	40.00	2183.33	0.00000	466.67	0.00000
AT&T B 8	CCI DMP65R-BU6D	850	11.35	154.00	4.00	40.00	2183.33	0.00000	566.67	0.00000
AT&T B 8	CCI DMP65R-BU6D	2300	14.95	154.00	4.00	25.00	3126.08	0.00000	1000.00	0.00000
AT&T C 9	QUINTEL QD6616-7 V1	700	11.97	154.00	4.00	40.00	2519.01	0.00000	466.67	0.00000
AT&T C 9	QUINTEL QD6616-7 V1	1900	15.07	154.00	4.00	40.00	5144.23	0.00000	1000.00	0.00000
AT&T C 9	QUINTEL QD6616-7 V1	2100	15.50	154.00	4.00	40.00	5677.28	0.00000	1000.00	0.00000
AT&T C 9	QUINTEL QD6616-7 V1	700	11.97	154.00	2.00	40.00	1259.51	0.00000	466.67	0.00000
AT&T C 10	Ericsson AIR6449	3700	23.45	156.00	1.00	108.40	23989.95	0.00001	1000.00	0.00000
AT&T C 11	Ericsson AIR6419	3450	23.45	152.00	1.00	108.40	23989.95	0.00001	1000.00	0.00000
AT&T C 12	CCI DMP65R-BU6D	700	11.75	154.00	4.00	40.00	2393.98	0.00000	466.67	0.00000
AT&T C 12	CCI DMP65R-BU6D	850	11.45	154.00	4.00	40.00	2234.19	0.00000	566.67	0.00000
AT&T C 12	CCI DMP65R-BU6D	2300	14.95	154.00	4.00	25.00	3126.08	0.00000	1000.00	0.00000
Unknown A 13	GENERIC PANEL 6FT	850	12.62	144.70	4.00	40.00	2924.96	0.00014	566.67	0.00002
Unknown A 14	GENERIC PANEL 6FT	1900	15.84	144.70	4.00	40.00	6139.32	0.00014	1000.00	0.00001
Unknown A 15	GENERIC PANEL 6FT	2100	16.39	144.70	4.00	40.00	6968.19	0.00015	1000.00	0.00002
Unknown A 16	GENERIC PANEL 6FT	700	12.33	144.70	4.00	40.00	2736.02	0.00014	466.67	0.00003
Unknown B 17	GENERIC PANEL 6FT	850	12.62	144.70	4.00	40.00	2924.96	0.00000	566.67	0.00000
Unknown B 18	GENERIC PANEL 6FT	1900	15.84	144.70	4.00	40.00	6139.32	0.00000	1000.00	0.00000
Unknown B 19	GENERIC PANEL 6FT	2100	16.39	144.70	4.00	40.00	6968.19	0.00000	1000.00	0.00000
Unknown B 20	GENERIC PANEL 6FT	700	12.33	144.70	4.00	40.00	2736.02	0.00000	466.67	0.00000



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 21	GENERIC PANEL 6FT	850	12.62	144.70	4.00	40.00	2924.96	0.00000	566.67	0.00000
Unknown C 22	GENERIC PANEL 6FT	1900	15.84	144.70	4.00	40.00	6139.32	0.00000	1000.00	0.00000
Unknown C 23	GENERIC PANEL 6FT	2100	16.39	144.70	4.00	40.00	6968.19	0.00000	1000.00	0.00000
Unknown C 24	GENERIC PANEL 6FT	700	12.33	144.70	4.00	40.00	2736.02	0.00000	466.67	0.00000
Other 25	GENERIC OMNI 6FT	850	5.96	115.50	1.00	25.00	98.61	0.00001	566.67	0.00000
Other 26	GENERIC MICROWAVE 4FT	5600	20.85	120.80	1.00	0.10	12.16	0.00000	1000.00	0.00000
Other 27	GENERIC OMNI 6FT	850	5.96	88.80	1.00	25.00	98.61	0.00001	566.67	0.00000
							Cumulative Power Density:	12.44184 $\mu\text{W}/\text{cm}^2$	Cumulative % MPE:	1.24430%



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.

Katrina Styx
RF EME Technical Writer
Centerline Communications, LLC

A handwritten signature in black ink, appearing to read "Katrina Styx", is positioned below the typed name and title.



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 155 ft Self Support Tower
ATC Site Name : Wshn - West Haven,CT
ATC Site Number : 302505
Engineering Number : 13748405_C3_03
Proposed Carrier : AT&T MOBILITY
Carrier Site Name : MRCTB050919
Carrier Site Number : CTCN002064
Site Location : 204 Burwell Street
West Haven, CT 06516-1105
41.2954, -72.9733
County : New Haven
Date : January 31, 2022
Max Usage : 75%
Result : Pass

Prepared By:

Tomas Sosa
ETS

Tomas Sosa

Reviewed By:

Frederic G. Bost, PE
ETS Job # 22101956.STR.8820





Table of Contents

Introduction.....	3
Supporting Documents	3
Analysis	3
Conclusion	3
Existing and Reserved Equipment.....	4
Equipment to be Removed	4
Proposed Equipment	4
Structure Usages.....	5
Foundations	5
Deflection, Twist and Sway*	5
Standard Conditions	6
Calculations	Attached

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 155 ft Self Support tower to reflect the change in loading by AT&T MOBILITY.

Supporting Documents

Tower Drawings	Stainless Report #2940-3, dated August 14, 1981
Foundation Drawing	Mapping by TEP Project #03290, dated July 28, 2003
Geotechnical Report	GEOservices Project #21-07254, dated November 28, 2007
Modifications	SpectraSite Dwg #CT-0041-E1, dated August 08, 2003 ATC Project #53874032, dated July 23, 2013

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:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	3
Crest Height (H):	81 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
159.9	2	Raycap DC6-48-60-18-8F ("Squid")	Sector Frame	(6) 1 5/8" Coax (1) 2" conduit	AT&T MOBILITY
154.0	1	Commscope WCS-IMFQ-AMT			
	3	Ericsson Radio 8843 - B2 + B66A			
	3	Ericsson RRUS 4478 B14			
144.8	8	Decibel DB844H90E-XY	Sector Frame	-	SPRINT NEXTEL
144.7	4	Andrew 844G45VTZASX			
131.0	-	-	Empty Sector Frame	-	-
125.4	2	Generic 6' Ice Shield	Leg	-	CITY OF WEST HAVEN, DEPT OF POLICE
120.8	4	Generic Radio/ODU	Leg	(4) 0.41" (10.3mm) CNT-400	
120.0	2	Andrew Microwaves VHLP2-26-1GR			
115.5	1	Lone Star Electronics LS-230	Side Arm	(2) 7/8" Coax	
	1	Lone Star Electronics LS-230			
105.1	1	RFI Antennas BA80-67	Side Arm	(1) 7/8" Coax	
96.2	1	Andrew DB224	Side Arm	(1) 7/8" Coax	SOUTHERN CONNECTICUT GAS COMPANY
88.8	1	Generic 8' Omni	Side Arm	(1) 7/8" Coax	
74.3	1	Andrew ASPR766P	Side Arm	(1) 7/8" Coax	

Equipment to be Removed

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
161.5	3	Powerwave Allgon 7770.00	-	(2) 0.39" (10mm) Fiber Trunk (8) 0.78" (19.7mm) 8 AWG 6 (6) 1 5/8" Coax (2) 3" conduit	AT&T MOBILITY
161.1	3	CCI OPA-65R-LCUU-H6			
160.4	3	KMW AM-X-CD-16-65-00T-RET			
	3	KMW EPBQ-654L8H6-L2			
160.1	6	Powerwave Allgon LGP21401			
160.0	3	Ericsson RRUS-11			
159.9	1	Raycap DC6-48-60-18-8F ("Squid")			
158.9	6	CCI TPX-070821			
154.0	6	Kaelus DBCT108F1V92-1			
	3	Ericsson RRUS 4478 B5 (56.1 lbs)			
	3	Ericsson RRUS-32 (77 lbs)			

Proposed Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
156.0	3	Ericsson Air 6449 B77D	Sector Frame	(2) 0.40" (10.3mm) Fiber (6) 0.92" (23.4mm) Cable	AT&T MOBILITY
154.0	6	Andrew APTDC-BDFDM-DBW			
	1	Raycap DC6-48-60-0-8F			
	3	Ericsson RRUS 4449 B5, B12			
	3	Ericsson RRUS 32 B30			
	3	Ericsson RRUS E2 B29			
	3	CCI DMP65R-BU6DA			
	3	Quintel QD6616-7			
152.0	3	Ericsson AIR 6419 B77G			

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

Install proposed lines alongside existing AT&T MOBILITY lines.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	71%	Pass
Diagonals	63%	Pass
Horizontals	35%	Pass
Anchor Bolts	19%	Pass
Leg Bolts	47%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Download (kips)	43.0	41%
Moment (Kips-Ft)	2941.2	75%
Total Shear (Kips)	31.8	34%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Twist (°)	Sway (Rotation) (°)
156.0	Ericsson Air 6449 B77D	AT&T MOBILITY	0.251	0.282	0.470
154.0	Andrew APTDC-BDFDM-DBW		0.251	0.282	0.470
	CCI DMP65R-BU6DA				
	Ericsson RRUS 32 B30				
	Ericsson RRUS 4449 B5, B12				
	Ericsson RRUS E2 B29				
Quintel QD6616-7					
Raycap DC6-48-60-0-8F					
152.0	Ericsson AIR 6419 B77G	0.221	0.281	0.310	
120.0	Andrew Microwaves VHLP2-26-1GR	CITY OF WEST HAVEN, DEPT OF POLICE	0.129	0.185	0.146

*Deflection, Twist and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H

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.

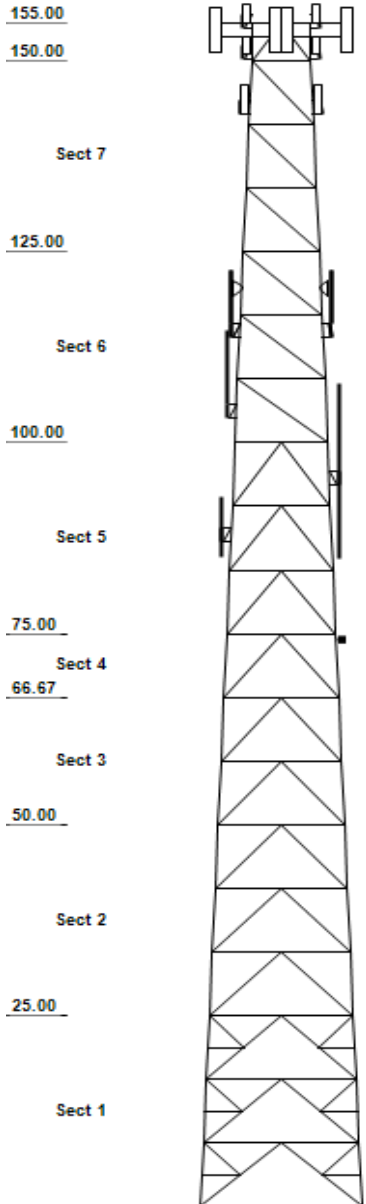
Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

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.

Asset: 302505, Wshn - West Haven
 Client: AT&T MOBILITY
 Code: ANSI/TIA-222-H

Height : 155 ft
 Base Width : 19 ft
 Shape : Triangle

Quadrant 1



SITE PARAMETERS

Nominal Wind : 120 mph wind with no ice Exposure : B Site Class : D
 Ice Wind: 50 mph wind with 1" radial Topo Method: Method 1 Risk Cat : II
 Service Wind : 60 mph Serviceability Topo Feature : S_g : 0.200 S₁ : 0.054

SECTION PROPERTIES

Section	Leg Members	Diagonal Members	Horizontal Members
1 - 2	PSP 50 ksi 5" OD x .5	PSP 50 ksi 3" x 0.25"	DAL 36 ksi 3X2.5X0.25
	3 PSP 50 ksi 5" OD x .5	PSP 50 ksi STLSS 2.75" OD	SAE 36 ksi 3X3X0.25
4	PSP 50 ksi 5" OD x .5	PSP 50 ksi STLSS 2.75" OD	DAL 36 ksi 3X2.5X0.25
	5	PSP 50 ksi 5" OD x .3	PSP 50 ksi STLSS 2.75" OD
6		PSP 50 ksi STLSS 5" O	PSP 50 ksi 3" x 0.25"
	7	PSP 50 ksi STLSS 5" O	PSP 50 ksi STLSS 2.75" OD
8		PSP 50 ksi STLSS 5" O	DAL 36 ksi 2.5X2X0.1875

REDUNDANT SECONDARY BRACING

Section	Sub Diag 1	Sub Horiz 1	Sub Diag 2	Sub Horiz 2	Sub Diag 3	Sub Horiz 3
1	P2.5" OD x 0.120"	P2.5" OD x 0.1	-	-	-	-
2 - 8	-	-	-	-	-	-

DISCRETE APPURTENANCE

Elev (ft)	Type	Qty	Description
159.90	BOB/SSB	2	Raycap DC6-48-60-18-8F ("Squid)
156.00	PANEL	3	Ericsson Air 6449 B77D
154.00	BOB/SSB	1	Raycap DC6-48-60-0-8F
154.00	BOB/SSB	6	Andrew APTDC-BDFDM-DBW
154.00	Filter	1	Commscope WCS-IMFQ-AMT
154.00	PANEL	3	CCI DMP65R-BU6DA
154.00	PANEL	3	Quintel QD6616-7
154.00	RRU/RRH	3	Ericsson RRUS E2 B29
154.00	RRU/RRH	3	Ericsson RRUS 32 B30
154.00	RRU/RRH	3	Ericsson RRUS 4449 B5, B12
154.00	RRU/RRH	3	Ericsson Radio 8843 - B2 + B66
154.00	RRU/RRH	3	Ericsson RRUS 4478 B14
154.00	Sector Frame	3	Flat Light Sector Frame
152.00	PANEL	3	Ericsson AIR 6419 B77G
149.00	Sector Frame	3	Flat Light Sector Frame
144.80	PANEL	8	Decibel DB844H90E-XY
144.70	PANEL	4	Andrew 844G45VTZASX
131.00	Sector Frame	3	Empty Round Sector Frame
125.40	ICE SHIELD	2	Generic 6' Ice Shield
120.80	Radio/ODU	4	Generic Radio/ODU
120.00	DISH-HP	2	Andrew Microwaves VHLP2-26-1GR
115.50	OMNI	1	Lone Star Electronics LS-230
115.50	OMNI	1	Lone Star Electronics LS-230
110.00	T-Arm	1	Stand-Off
105.10	DIPOLE	1	RFI Antennas BA80-67
103.00	T-Arm	1	Round Side Arm
100.00	T-Arm	1	Round Side Arm

Asset: 302505, Wshn - West Haven
 Client: AT&T MOBILITY
 Code: ANSI/TIA-222-H

Height : 155 ft
 Base Width : 19 ft
 Shape : Triangle

DISCRETE APPURTENANCE

Elev (ft)	Type	Qty	Description
96.20	DIPOLE	1	Andrew DB224
89.00	T-Arm	1	Flat Side Arm
88.80	OMNI	1	Generic 8' Omni
78.00	T-Arm	2	Stand-Off
74.30	YAGI	1	Andrew ASPR766P

LINEAR APPURTENANCE

Elev (ft)		Qty	Description
From	To		
5.00	160.00	6	1 5/8" Coax
0.00	155.00	1	Climbing Ladder
5.00	154.00	1	Waveguide
0.00	154.00	1	2" conduit
0.00	154.00	6	0.92" (23.4mm) Cable
0.00	154.00	2	0.40" (10.3mm) Fiber
5.00	149.00	1	Waveguide
0.00	120.00	4	0.41" (10.3mm) CNT-400
0.00	115.00	2	7/8" Coax
0.00	105.00	1	7/8" Coax
0.00	96.00	1	7/8" Coax
0.00	88.00	1	7/8" Coax
0.00	70.00	1	7/8" Coax

GLOBAL BASE FOUNDATION DESIGN LOADS

Load Case	Moment (k-ft)	Vertical (kip)	Horizontal (kip)
DL+WL	2941.16	43.01	31.8
DL+WL+IL	885.83	82.51	10.04

INDIVIDUAL BASE FOUNDATION DESIGN LOADS

Vertical (kip)	Uplift (kip)	Horizontal (kip)
193.08	163.54	18.80

JOB INFORMATION

Asset: 302505, Wshn - West Haven
Client: AT&T MOBILITY
Code: ANSI/TIA-222-H

Height : 155 ft
Base Width : 19 ft
Shape : Triangle

ANALYSIS PARAMETERS

Location:	New Haven County, CT	Height:	155 ft
Type and Shape:	Self Support, Triangle	Base Elevation:	0.00 ft
Manufacturer:	Undetermined	Bottom Face Width:	19.00 ft
Kd	0.85	Top Face Width:	7.00 ft
Ke:	0.99	Anchor Bolt Detail Type:	c

ICE & WIND PARAMETERS

Exposure Category:	B	Design Wind Speed Without Ice:	120 mph
Risk Category:	II	Design Wind Speed with Ice:	50 mph
Topographic Factor Procedure:	Method 1	Operational Windspeed:	60 mph
Topographic Category:	Hill	Design Ice Thickness:	1.00 in
Crest Height:	81 ft	HMSL:	282 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil	Period Based on Rayleigh Method (sec):	0.86
T_L (sec):	6	P:	1.3
S_s:	0.200	S₁:	0.054
F_a:	1.600	F_v:	2.400
S_{ds}:	0.213	S_{d1}:	0.086
		C_s:	0.034
		C_{s, Max}:	0.034
		C_{s, Min}:	0.030

LOAD CASES

1.2D + 1.0W Normal	120 mph wind with no ice
1.2D + 1.0W 60°	120 mph wind with no ice
1.2D + 1.0W 90°	120 mph wind with no ice
0.9D + 1.0W Normal	120 mph wind with no ice
0.9D + 1.0W 60°	120 mph wind with no ice
0.9D + 1.0W 90°	120 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Normal	50 mph wind with 1" radial ice
1.2D + 1.0Di + 1.0Wi 60°	50 mph wind with 1" radial ice
1.2D + 1.0Di + 1.0Wi 90°	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh Normal	Seismic
1.2D + 1.0Ev + 1.0Eh 60°	Seismic
1.2D + 1.0Ev + 1.0Eh 90°	Seismic
0.9D - 1.0Ev + 1.0Eh Normal	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 60°	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 90°	Seismic (Reduced DL)
1.0D + 1.0W Service Normal	60 mph Wind with No Ice
1.0D + 1.0W Service 60°	60 mph Wind with No Ice
1.0D + 1.0W Service 90°	60 mph Wind with No Ice

TOWER LOADING

Discrete Appurtenance Properties 1.2D + 1.0W

Elev (ft)	Description	Qty	Wt. (lb)	EPA Length (sf)	Width (in)	Depth (in)	K _a	Orient Factor	Vert Ecc (ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)	
159.9	Raycap DC6-48-60-18-8F ("Squid	2	32	1.5	2.0	11.0	11.0	0.80	1.00	0.0	0.00	35.70	71	76
156.0	Ericsson Air 6449 B77D	3	82	4.0	2.5	15.9	8.1	0.80	0.65	0.0	0.00	35.51	190	294
154.0	Andrew APTDC-BDFDM-DBW	6	1	0.1	0.3	1.7	3.5	0.80	0.50	0.0	0.00	35.42	7	9
154.0	Commscope WCS-IMFQ-AMT	1	30	1.0	0.9	10.6	6.9	0.80	0.50	0.0	0.00	35.42	12	35
154.0	Raycap DC6-48-60-0-8F	1	33	1.4	1.9	11.0	11.0	0.80	1.00	0.0	0.00	35.42	33	39
154.0	Ericsson Radio 8843 - B2 + B66	3	72	1.6	1.3	13.2	10.9	0.80	0.50	0.0	0.00	35.42	60	259
154.0	Ericsson RRUS 4478 B14	3	60	1.8	1.4	13.4	7.7	0.80	0.50	0.0	0.00	35.42	67	216
154.0	Ericsson RRUS 4449 B5, B12	3	71	2.0	1.5	13.2	9.4	0.80	0.50	0.0	0.00	35.42	71	256
154.0	Ericsson RRUS 32 B30	3	60	2.7	2.3	12.1	7.0	0.80	0.67	0.0	0.00	35.42	133	216
154.0	Ericsson RRUS E2 B29	3	60	3.1	1.7	18.5	7.5	0.80	0.62	0.0	0.00	35.42	141	216
154.0	CCI DMP65R-BU6DA	3	79	12.7	5.9	20.7	7.7	0.80	0.63	0.0	0.00	35.42	578	286
154.0	Flat Light Sector Frame	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.00	35.42	909	1440
154.0	Quintel QD6616-7	3	130	51.4	6.0	22.0	9.6	0.80	0.64	0.0	0.00	35.42	2377	468
152.0	Ericsson AIR 6419 B77G	3	66	3.8	2.4	16.1	7.9	0.80	0.65	0.0	0.00	35.32	178	238
149.0	Flat Light Sector Frame	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.00	35.18	903	1440
144.8	Decibel DB844H90E-XY	8	14	3.6	4.0	6.5	8.0	0.80	0.74	0.0	0.00	34.99	509	134
144.7	Andrew 844G45VTZASX	4	15	6.2	4.0	15.0	8.5	0.80	0.68	0.0	0.00	34.98	398	72
131.0	Empty Round Sector Frame	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.00	34.36	710	1080
125.4	Generic 6' Ice Shield	2	450	3.9	1.2	100.0	48.0	1.00	0.73	0.0	0.00	34.12	165	1080
120.8	Generic Radio/ODU	4	30	1.6	1.3	12.0	8.0	1.00	0.50	0.0	0.00	33.93	92	144
120.0	Andrew Microwaves VHLP2-26-1GR	2	31	4.7	2.2	26.1	13.2	1.00	1.00	0.0	0.00	33.90	270	74
115.5	Lone Star Electronics LS-230	1	11	1.6	7.0	2.3	2.3	1.00	1.00	2.0	92.51	33.80	46	13
115.5	Lone Star Electronics LS-230	1	11	1.6	7.0	2.3	2.3	1.00	1.00	2.0	92.51	33.80	46	13
110.0	Stand-Off	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.00	33.52	71	90
105.1	RFI Antennas BA80-67	1	18	3.3	9.8	2.0	2.0	1.00	1.00	3.0	279.84	33.45	93	21
103.0	Round Side Arm	1	150	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.00	33.27	147	180
100.0	Round Side Arm	1	150	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.00	33.18	147	180
96.2	Andrew DB224	1	38	6.0	23.0	0.0	0.0	1.00	1.00	0.0	0.00	33.06	170	46
89.0	Flat Side Arm	1	150	6.3	0.0	0.0	0.0	1.00	1.00	0.0	0.00	32.87	176	180
88.8	Generic 8' Omni	1	25	2.4	8.0	3.0	3.0	1.00	1.00	0.0	0.00	32.87	67	30
78.0	Stand-Off	2	100	3.0	0.0	0.0	0.0	0.90	0.90	0.0	0.00	32.66	135	240
74.3	Andrew ASPR766P	1	2	0.9	1.0	30.0	0.0	1.00	1.00	0.0	0.00	32.61	26	2
Totals		78	7,557	524.5								8,998	9,068	

TOWER LOADING

Discrete Appurtenance Properties 0.9D + 1.0W

Elev (ft)	Description	Qty	Wt. (lb)	EPA Length (sf)	Width (in)	Depth (in)	K _a	Orient Factor	Vert Ecc (ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)	
159.9	Raycap DC6-48-60-18-8F ("Squid	2	32	1.5	2.0	11.0	11.0	0.80	1.00	0.0	0.00	35.70	71	57
156.0	Ericsson Air 6449 B77D	3	82	4.0	2.5	15.9	8.1	0.80	0.65	0.0	0.00	35.51	190	220
154.0	Andrew APTDC-BDFDM-DBW	6	1	0.1	0.3	1.7	3.5	0.80	0.50	0.0	0.00	35.42	7	7
154.0	Commscope WCS-IMFQ-AMT	1	30	1.0	0.9	10.6	6.9	0.80	0.50	0.0	0.00	35.42	12	27
154.0	Raycap DC6-48-60-0-8F	1	33	1.4	1.9	11.0	11.0	0.80	1.00	0.0	0.00	35.42	33	30
154.0	Ericsson Radio 8843 - B2 + B66	3	72	1.6	1.3	13.2	10.9	0.80	0.50	0.0	0.00	35.42	60	194
154.0	Ericsson RRUS 4478 B14	3	60	1.8	1.4	13.4	7.7	0.80	0.50	0.0	0.00	35.42	67	162
154.0	Ericsson RRUS 4449 B5, B12	3	71	2.0	1.5	13.2	9.4	0.80	0.50	0.0	0.00	35.42	71	192
154.0	Ericsson RRUS 32 B30	3	60	2.7	2.3	12.1	7.0	0.80	0.67	0.0	0.00	35.42	133	162
154.0	Ericsson RRUS E2 B29	3	60	3.1	1.7	18.5	7.5	0.80	0.62	0.0	0.00	35.42	141	162
154.0	CCI DMP65R-BU6DA	3	79	12.7	5.9	20.7	7.7	0.80	0.63	0.0	0.00	35.42	578	214
154.0	Flat Light Sector Frame	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.00	35.42	909	1080
154.0	Quintel QD6616-7	3	130	51.4	6.0	22.0	9.6	0.80	0.64	0.0	0.00	35.42	2377	351
152.0	Ericsson AIR 6419 B77G	3	66	3.8	2.4	16.1	7.9	0.80	0.65	0.0	0.00	35.32	178	178
149.0	Flat Light Sector Frame	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.00	35.18	903	1080
144.8	Decibel DB844H90E-XY	8	14	3.6	4.0	6.5	8.0	0.80	0.74	0.0	0.00	34.99	509	101
144.7	Andrew 844G45VTZASX	4	15	6.2	4.0	15.0	8.5	0.80	0.68	0.0	0.00	34.98	398	54
131.0	Empty Round Sector Frame	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.00	34.36	710	810
125.4	Generic 6' Ice Shield	2	450	3.9	1.2	100.0	48.0	1.00	0.73	0.0	0.00	34.12	165	810
120.8	Generic Radio/ODU	4	30	1.6	1.3	12.0	8.0	1.00	0.50	0.0	0.00	33.93	92	108
120.0	Andrew Microwaves VHLP2-26-1GR	2	31	4.7	2.2	26.1	13.2	1.00	1.00	0.0	0.00	33.90	270	56
115.5	Lone Star Electronics LS-230	1	11	1.6	7.0	2.3	2.3	1.00	1.00	2.0	92.51	33.80	46	10
115.5	Lone Star Electronics LS-230	1	11	1.6	7.0	2.3	2.3	1.00	1.00	2.0	92.51	33.80	46	10
110.0	Stand-Off	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.00	33.52	71	68

Elev (ft)	Description	Qty	Wt. (lb)	EPA Length (sf)	Width (in)	Depth (in)	K _a	Orient Factor	Vert Ecc (ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
105.1	RFI Antennas BA80-67	1	18	3.3	9.8	2.0	1.00	1.00	3.0	279.84	33.45	93	16
103.0	Round Side Arm	1	150	5.2	0.0	0.0	1.00	1.00	0.0	0.00	33.27	147	135
100.0	Round Side Arm	1	150	5.2	0.0	0.0	1.00	1.00	0.0	0.00	33.18	147	135
96.2	Andrew DB224	1	38	6.0	23.0	0.0	1.00	1.00	0.0	0.00	33.06	170	34
89.0	Flat Side Arm	1	150	6.3	0.0	0.0	1.00	1.00	0.0	0.00	32.87	176	135
88.8	Generic 8' Omni	1	25	2.4	8.0	3.0	1.00	1.00	0.0	0.00	32.87	67	22
78.0	Stand-Off	2	100	3.0	0.0	0.0	0.90	0.90	0.0	0.00	32.66	135	180
74.3	Andrew ASPR766P	1	2	0.9	1.0	30.0	1.00	1.00	0.0	0.00	32.61	26	2
Totals		78	7,557	524.5								8,998	6,801

TOWER LOADING

Discrete Appurtenance Properties 1.2D + 1.0Di + 1.0Wi

Elev (ft)	Description	Qty	Ice Wt (lb)	Ice EPA Length (sf)	Width (in)	Depth (in)	K _a	Orient Factor	Vert Ecc (ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
159.9	Raycap DC6-48-60-18-8F ("Squid	2	74	1.9	2.0	11.0	0.80	1.00	0.0	0.00	6.20	16	160
156.0	Ericsson Air 6449 B77D	3	151	5.0	2.5	15.9	0.80	0.65	0.0	0.00	6.17	41	503
154.0	Andrew APTDC-BDFDM-DBW	6	4	0.3	0.3	1.7	0.80	0.50	0.0	0.00	6.15	3	24
154.0	Commscope WCS-IMFQ-AMT	1	52	1.4	0.9	10.6	0.80	0.50	0.0	0.00	6.15	3	58
154.0	Raycap DC6-48-60-0-8F	1	72	1.8	1.9	11.0	0.80	1.00	0.0	0.00	6.15	8	79
154.0	Ericsson Radio 8843 - B2 + B66	3	114	2.2	1.3	13.2	0.80	0.50	0.0	0.00	6.15	14	384
154.0	Ericsson RRUS 4478 B14	3	97	2.4	1.4	13.4	0.80	0.50	0.0	0.00	6.15	15	328
154.0	Ericsson RRUS 4449 B5, B12	3	115	2.6	1.5	13.2	0.80	0.50	0.0	0.00	6.15	16	386
154.0	Ericsson RRUS 32 B30	3	110	3.5	2.3	12.1	0.80	0.67	0.0	0.00	6.15	30	365
154.0	Ericsson RRUS E2 B29	3	115	3.9	1.7	18.5	0.80	0.62	0.0	0.00	6.15	31	380
154.0	CCI DMP65R-BU6DA	3	254	14.6	5.9	20.7	0.80	0.63	0.0	0.00	6.15	115	809
154.0	Flat Light Sector Frame	3	604	28.1	0.0	0.0	0.75	0.75	0.0	0.00	6.15	248	2051
154.0	Quintel QD6616-7	3	328	58.7	6.0	22.0	0.80	0.64	0.0	0.00	6.15	471	1062
152.0	Ericsson AIR 6419 B77G	3	132	4.7	2.4	16.1	0.80	0.65	0.0	0.00	6.13	38	435
149.0	Flat Light Sector Frame	3	603	28.1	0.0	0.0	0.75	0.75	0.0	0.00	6.11	246	2050
144.8	Decibel DB844H90E-XY	8	83	3.6	4.0	6.5	0.80	0.74	0.0	0.00	6.07	89	684
144.7	Andrew 844G45VTZASX	4	124	6.8	4.0	15.0	0.80	0.68	0.0	0.00	6.07	77	508
131.0	Empty Round Sector Frame	3	549	25.6	0.0	0.0	0.75	0.75	0.0	0.00	5.97	219	1826
125.4	Generic 6' Ice Shield	2	872	6.3	1.2	100.0	1.00	0.73	0.0	0.00	5.92	46	1924
120.8	Generic Radio/ODU	4	64	2.2	1.3	12.0	1.00	0.50	0.0	0.00	5.89	22	282
120.0	Andrew Microwaves VHL2-26-1GR	2	97	5.5	2.2	26.1	1.00	1.00	0.0	0.00	5.89	55	206
115.5	Lone Star Electronics LS-230	1	40	3.3	7.0	2.3	1.00	1.00	2.0	33.09	5.87	17	42
115.5	Lone Star Electronics LS-230	1	40	3.3	7.0	2.3	1.00	1.00	2.0	33.09	5.87	17	42
110.0	Stand-Off	1	100	3.4	0.0	0.0	1.00	1.00	0.0	0.00	5.82	17	115
105.1	RFI Antennas BA80-67	1	90	9.2	9.8	2.0	1.00	1.00	3.0	135.75	5.81	45	93
103.0	Round Side Arm	1	199	7.0	0.0	0.0	1.00	1.00	0.0	0.00	5.78	34	229
100.0	Round Side Arm	1	199	7.0	0.0	0.0	1.00	1.00	0.0	0.00	5.76	34	229
96.2	Andrew DB224	1	162	18.3	23.0	0.0	1.00	1.00	0.0	0.00	5.74	89	170
89.0	Flat Side Arm	1	199	7.9	0.0	0.0	1.00	1.00	0.0	0.00	5.71	39	229
88.8	Generic 8' Omni	1	66	4.2	8.0	3.0	1.00	1.00	0.0	0.00	5.71	21	71
78.0	Stand-Off	2	133	4.0	0.0	0.0	0.90	0.90	0.0	0.00	5.67	32	305
74.3	Andrew ASPR766P	1	28	2.1	1.0	30.0	1.00	1.00	0.0	0.00	5.66	10	29
Totals		78	14,546	709.6								2157	16,057

TOWER LOADING

Discrete Appurtenance Properties 1.0D + 1.0W Service

Elev (ft)	Description	Qty	Wt. (lb)	EPA Length (sf)	Width (in)	Depth (in)	K _a	Orient Factor	Vert Ecc (ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
159.9	Raycap DC6-48-60-18-8F ("Squid	2	32	1.5	2.0	11.0	0.80	1.00	0.0	0.00	8.92	18	64
156.0	Ericsson Air 6449 B77D	3	82	4.0	2.5	15.9	0.80	0.65	0.0	0.00	8.88	47	245
154.0	Andrew APTDC-BDFDM-DBW	6	1	0.1	0.3	1.7	0.80	0.50	0.0	0.00	8.85	2	8
154.0	Commscope WCS-IMFQ-AMT	1	30	1.0	0.9	10.6	0.80	0.50	0.0	0.00	8.85	3	30
154.0	Raycap DC6-48-60-0-8F	1	33	1.4	1.9	11.0	0.80	1.00	0.0	0.00	8.85	8	33
154.0	Ericsson Radio 8843 - B2 + B66	3	72	1.6	1.3	13.2	0.80	0.50	0.0	0.00	8.85	15	216
154.0	Ericsson RRUS 4478 B14	3	60	1.8	1.4	13.4	0.80	0.50	0.0	0.00	8.85	17	180
154.0	Ericsson RRUS 4449 B5, B12	3	71	2.0	1.5	13.2	0.80	0.50	0.0	0.00	8.85	18	213
154.0	Ericsson RRUS 32 B30	3	60	2.7	2.3	12.1	0.80	0.67	0.0	0.00	8.85	33	180

Elev (ft)	Description	Qty	Wt. (lb)	EPA Length (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient Factor	Vert Ecc (ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
154.0	Ericsson RRU5 E2 B29	3	60	3.1	1.7	18.5	7.5	0.80	0.62	0.0	0.00	8.85	35	180
154.0	CCI DMP65R-BU6DA	3	79	12.7	5.9	20.7	7.7	0.80	0.63	0.0	0.00	8.85	145	238
154.0	Flat Light Sector Frame	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.00	8.85	227	1200
154.0	Quintel QD6616-7	3	130	51.4	6.0	22.0	9.6	0.80	0.64	0.0	0.00	8.85	594	390
152.0	Ericsson AIR 6419 B77G	3	66	3.8	2.4	16.1	7.9	0.80	0.65	0.0	0.00	8.83	44	198
149.0	Flat Light Sector Frame	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.00	8.80	226	1200
144.8	Decibel DB844H90E-XY	8	14	3.6	4.0	6.5	8.0	0.80	0.74	0.0	0.00	8.75	127	112
144.7	Andrew 844G45VTZASX	4	15	6.2	4.0	15.0	8.5	0.80	0.68	0.0	0.00	8.75	100	60
131.0	Empty Round Sector Frame	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.00	8.59	177	900
125.4	Generic 6' Ice Shield	2	450	3.9	1.2	100.0	48.0	1.00	0.73	0.0	0.00	8.53	41	900
120.8	Generic Radio/ODU	4	30	1.6	1.3	12.0	8.0	1.00	0.50	0.0	0.00	8.48	23	120
120.0	Andrew Microwaves VHLP2-26-1GR	2	31	4.7	2.2	26.1	13.2	1.00	1.00	0.0	0.00	8.48	67	62
115.5	Lone Star Electronics LS-230	1	11	1.6	7.0	2.3	2.3	1.00	1.00	2.0	23.13	8.45	12	11
115.5	Lone Star Electronics LS-230	1	11	1.6	7.0	2.3	2.3	1.00	1.00	2.0	23.13	8.45	12	11
110.0	Stand-Off	1	75	2.5	0.0	0.0	0.0	1.00	1.00	0.0	0.00	8.38	18	75
105.1	RFI Antennas BA80-67	1	18	3.3	9.8	2.0	2.0	1.00	1.00	3.0	69.96	8.36	23	18
103.0	Round Side Arm	1	150	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.00	8.32	37	150
100.0	Round Side Arm	1	150	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.00	8.29	37	150
96.2	Andrew DB224	1	38	6.0	23.0	0.0	0.0	1.00	1.00	0.0	0.00	8.27	43	38
89.0	Flat Side Arm	1	150	6.3	0.0	0.0	0.0	1.00	1.00	0.0	0.00	8.22	44	150
88.8	Generic 8' Omni	1	25	2.4	8.0	3.0	3.0	1.00	1.00	0.0	0.00	8.22	17	25
78.0	Stand-Off	2	100	3.0	0.0	0.0	0.0	0.90	0.90	0.0	0.00	8.16	34	200
74.3	Andrew ASPR766P	1	2	0.9	1.0	30.0	0.0	1.00	1.00	0.0	0.00	8.15	6	2
Totals		78	7,557	524.5									2,250	7,557

TOWER LOADING

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	% In Wind	Spread On Faces	Bundling	Cluster Dia (in)	Out of Zone	Spacing (in)	Orient Factor	K _a Override
5.0	160.0	1 5/8" Coax	6	1.98	0.82	100	3	Individual	0.00	N	1.00	1.00	0.00
5.0	154.0	Waveguide	1	2.00	6.00	100	3	Individual	0.00	N	1.00	1.00	0.00
5.0	149.0	Waveguide	1	2.00	6.00	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	155.0	Climbing Ladder	1	2.00	6.90	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	154.0	0.92" (23.4mm) Cable	6	0.92	0.89	100	3	Individual	0.00	N	1.00	1.00	0.01
0.0	154.0	0.40" (10.3mm) Fiber	2	0.40	0.09	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	154.0	2" conduit	1	2.38	3.65	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	120.0	0.41" (10.3mm) CNT-400	2	0.41	0.07	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	120.0	0.41" (10.3mm) CNT-400	2	0.41	0.07	100	3	Individual	0.00	N	1.00	1.00	0.01
0.0	115.0	7/8" Coax	1	1.09	0.33	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	115.0	7/8" Coax	1	1.09	0.33	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	105.0	7/8" Coax	1	1.09	0.33	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	96.0	7/8" Coax	1	1.09	0.33	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	88.0	7/8" Coax	1	1.09	0.33	100	3	Individual	0.00	N	1.00	1.00	0.00
0.0	70.0	7/8" Coax	1	1.09	0.33	100	3	Individual	0.00	N	1.00	1.00	0.00

SECTION FORCES

1.2D + 1.0W Normal Gust Response Factor (Gh): 0.85
 120 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)
8	152	35.35	4.538	4.167	0.00	0.235	2.48	1.00	1.00	0.0	6.79	16.87	0.00	675	0	507	185	692
7	138	34.65	5.438	28.517	0.00	0.161	2.73	1.00	1.00	0.0	20.81	56.83	0.00	2782	0	1674	1105	2779
6	112	33.61	6.938	30.310	0.00	0.143	2.80	1.00	1.00	0.0	23.29	65.14	0.00	3753	0	1861	1172	3033
5	88	32.84	8.266	34.672	0.00	0.138	2.81	1.00	1.00	0.0	27.15	76.43	0.00	5237	0	2133	1287	3420
4	71	32.58	3.088	11.740	0.00	0.130	2.85	1.00	1.00	0.0	9.47	26.98	0.00	2092	0	747	441	1188
3	58	32.55	6.677	23.789	0.00	0.124	2.87	1.00	1.00	0.0	19.59	56.22	0.00	3690	0	1556	900	2456
2	38	32.74	11.250	37.862	0.00	0.120	2.89	1.00	1.00	0.0	31.42	90.69	0.00	7361	0	2524	1358	3882
1	12	39.59	12.750	51.905	0.00	0.140	2.81	1.00	1.00	0.0	41.26	115.83	0.00	8349	0	3898	1455	5352
														33,940	0			22,801

1.2D + 1.0W 60° Gust Response Factor (Gh): 0.85
 120 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)
8	152	35.35	4.538	4.167	0.00	0.235	2.48	0.80	1.00	0.0	5.88	14.61	0.00	675	0	439	185	624
7	138	34.65	5.438	28.517	0.00	0.161	2.73	0.80	1.00	0.0	19.73	53.86	0.00	2782	0	1586	1105	2692
6	112	33.61	6.938	30.310	0.00	0.143	2.80	0.80	1.00	0.0	21.90	61.26	0.00	3753	0	1750	1172	2922
5	88	32.84	8.266	34.672	0.00	0.138	2.81	0.80	1.00	0.0	25.50	71.78	0.00	5237	0	2003	1287	3290
4	71	32.58	3.088	11.740	0.00	0.130	2.85	0.80	1.00	0.0	8.85	25.22	0.00	2092	0	698	441	1139
3	58	32.55	6.677	23.789	0.00	0.124	2.87	0.80	1.00	0.0	18.26	52.39	0.00	3690	0	1449	900	2350
2	38	32.74	11.250	37.862	0.00	0.120	2.89	0.80	1.00	0.0	29.17	84.20	0.00	7361	0	2343	1358	3701
1	12	39.59	12.750	51.905	0.00	0.140	2.81	0.80	1.00	0.0	38.89	109.17	0.00	8349	0	3674	1455	5128
														33,940	0			21,846

1.2D + 1.0W 90° Gust Response Factor (Gh): 0.85
 120 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)
8	152	35.35	4.538	4.167	0.00	0.235	2.48	0.85	1.00	0.0	6.11	15.18	0.00	675	0	456	185	641
7	138	34.65	5.438	28.517	0.00	0.161	2.73	0.85	1.00	0.0	20.00	54.60	0.00	2782	0	1608	1105	2714
6	112	33.61	6.938	30.310	0.00	0.143	2.80	0.85	1.00	0.0	22.25	62.23	0.00	3753	0	1778	1172	2949
5	88	32.84	8.266	34.672	0.00	0.138	2.81	0.85	1.00	0.0	25.91	72.94	0.00	5237	0	2036	1287	3323
4	71	32.58	3.088	11.740	0.00	0.130	2.85	0.85	1.00	0.0	9.01	25.66	0.00	2092	0	711	441	1152
3	58	32.55	6.677	23.789	0.00	0.124	2.87	0.85	1.00	0.0	18.59	53.35	0.00	3690	0	1476	900	2376
2	38	32.74	11.250	37.862	0.00	0.120	2.89	0.85	1.00	0.0	29.74	85.82	0.00	7361	0	2388	1358	3746
1	12	39.59	12.750	51.905	0.00	0.140	2.81	0.85	1.00	0.0	39.53	110.96	0.00	8349	0	3734	1455	5188
														33,940	0			22,089

0.9D + 1.0W Normal Gust Response Factor (Gh): 0.85
 120 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)
8	152	35.35	4.538	4.167	0.00	0.235	2.48	1.00	1.00	0.0	6.79	16.87	0.00	506	0	507	185	692
7	138	34.65	5.438	28.517	0.00	0.161	2.73	1.00	1.00	0.0	20.81	56.83	0.00	2086	0	1674	1105	2779
6	112	33.61	6.938	30.310	0.00	0.143	2.80	1.00	1.00	0.0	23.29	65.14	0.00	2815	0	1861	1172	3033
5	88	32.84	8.266	34.672	0.00	0.138	2.81	1.00	1.00	0.0	27.15	76.43	0.00	3928	0	2133	1287	3420
4	71	32.58	3.088	11.740	0.00	0.130	2.85	1.00	1.00	0.0	9.47	26.98	0.00	1569	0	747	441	1188
3	58	32.55	6.677	23.789	0.00	0.124	2.87	1.00	1.00	0.0	19.59	56.22	0.00	2768	0	1556	900	2456
2	38	32.74	11.250	37.862	0.00	0.120	2.89	1.00	1.00	0.0	31.42	90.69	0.00	5521	0	2524	1358	3882
1	12	39.59	12.750	51.905	0.00	0.140	2.81	1.00	1.00	0.0	41.44	116.33	0.00	6262	0	3915	1455	5369

SECTION FORCES

Sect #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _f	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
															25,455	0			22,818

0.9D + 1.0W 60° Gust Response Factor (Gh): 0.85
 120 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _f	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
8	152	35.35	4.538	4.167	0.00	0.235	2.48	0.80	1.00	0.0	5.88	14.61	0.00	506	0	439	185	624	
7	138	34.65	5.438	28.517	0.00	0.161	2.73	0.80	1.00	0.0	19.73	53.86	0.00	2086	0	1586	1105	2692	
6	112	33.61	6.938	30.310	0.00	0.143	2.80	0.80	1.00	0.0	21.90	61.26	0.00	2815	0	1750	1172	2922	
5	88	32.84	8.266	34.672	0.00	0.138	2.81	0.80	1.00	0.0	25.50	71.78	0.00	3928	0	2003	1287	3290	
4	71	32.58	3.088	11.740	0.00	0.130	2.85	0.80	1.00	0.0	8.85	25.22	0.00	1569	0	698	441	1139	
3	58	32.55	6.677	23.789	0.00	0.124	2.87	0.80	1.00	0.0	18.26	52.39	0.00	2768	0	1449	900	2350	
2	38	32.74	11.250	37.862	0.00	0.120	2.89	0.80	1.00	0.0	29.17	84.20	0.00	5521	0	2343	1358	3701	
1	12	39.59	12.750	51.905	0.00	0.140	2.81	0.80	1.00	0.0	38.89	109.17	0.00	6262	0	3674	1455	5128	
															25,455	0			21,846

0.9D + 1.0W 90° Gust Response Factor (Gh): 0.85
 120 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _f	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
8	152	35.35	4.538	4.167	0.00	0.235	2.48	0.85	1.00	0.0	6.11	15.18	0.00	506	0	456	185	641	
7	138	34.65	5.438	28.517	0.00	0.161	2.73	0.85	1.00	0.0	20.00	54.60	0.00	2086	0	1608	1105	2714	
6	112	33.61	6.938	30.310	0.00	0.143	2.80	0.85	1.00	0.0	22.25	62.23	0.00	2815	0	1778	1172	2949	
5	88	32.84	8.266	34.672	0.00	0.138	2.81	0.85	1.00	0.0	25.91	72.94	0.00	3928	0	2036	1287	3323	
4	71	32.58	3.088	11.740	0.00	0.130	2.85	0.85	1.00	0.0	9.01	25.66	0.00	1569	0	711	441	1152	
3	58	32.55	6.677	23.789	0.00	0.124	2.87	0.85	1.00	0.0	18.59	53.35	0.00	2768	0	1476	900	2376	
2	38	32.74	11.250	37.862	0.00	0.120	2.89	0.85	1.00	0.0	29.74	85.82	0.00	5521	0	2388	1358	3746	
1	12	39.59	12.750	51.905	0.00	0.140	2.81	0.85	1.00	0.0	39.53	110.96	0.00	6262	0	3734	1455	5188	
															25,455	0			22,089

1.2D + 1.0Di + 1.0Wi Normal Gust Response Factor (Gh): 0.85 Ice Importance Factor: 1.00
 50 mph wind with 1" radial ice Wind Importance Factor (Iw): 1.00 Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _f	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
8	152	6.14	4.538	9.903	5.74	0.379	2.11	1.00	1.00	1.2	10.75	22.65	5.74	1549	874	118	76	194	
7	138	6.02	5.438	49.655	21.14	0.256	2.42	1.00	1.00	1.2	34.73	84.04	21.14	6203	3421	430	512	942	
6	112	5.83	6.938	53.416	23.11	0.228	2.51	1.00	1.00	1.2	38.09	95.49	23.11	7986	4233	474	600	1073	
5	88	5.70	8.266	63.285	28.61	0.227	2.51	1.00	1.00	1.2	45.21	113.41	28.61	10752	5515	550	689	1239	
4	71	5.66	3.088	21.673	9.93	0.213	2.55	1.00	1.00	1.2	15.68	40.02	9.93	4025	1933	192	242	434	
3	58	5.65	6.677	44.859	21.07	0.207	2.57	1.00	1.00	1.2	32.67	84.08	21.07	7413	3723	404	508	912	
2	38	5.68	11.250	72.666	34.80	0.202	2.59	1.00	1.00	1.2	53.31	138.05	34.80	14366	7004	667	792	1459	
1	12	6.87	12.750	80.151	28.25	0.200	2.60	1.00	1.00	1.0	59.08	153.37	28.25	14156	5807	896	739	1635	
															66,450	32,510			7,888

1.2D + 1.0Di + 1.0Wi 60° Gust Response Factor (Gh): 0.85 Ice Importance Factor: 1.00
 50 mph wind with 1" radial ice Wind Importance Factor (Iw): 1.00 Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _f	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)
8	152	6.14	4.538	9.903	5.74	0.379	2.11	0.80	1.00	1.2	9.84	20.74	5.74	1549	874	108	76	184
7	138	6.02	5.438	49.655	21.14	0.256	2.42	0.80	1.00	1.2	33.64	81.41	21.14	6203	3421	416	512	928
6	112	5.83	6.938	53.416	23.11	0.228	2.51	0.80	1.00	1.2	36.70	92.01	23.11	7986	4233	456	600	1056
5	88	5.70	8.266	63.285	28.61	0.227	2.51	0.80	1.00	1.2	43.56	109.26	28.61	10752	5515	529	689	1218
4	71	5.66	3.088	21.673	9.93	0.213	2.55	0.80	1.00	1.2	15.06	38.44	9.93	4025	1933	185	242	427
3	58	5.65	6.677	44.859	21.07	0.207	2.57	0.80	1.00	1.2	31.34	80.65	21.07	7413	3723	387	508	895
2	38	5.68	11.250	72.666	34.80	0.202	2.59	0.80	1.00	1.2	51.06	132.22	34.80	14366	7004	639	792	1431

SECTION FORCES

Sect #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _r	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
1	12	6.87	12.750	80.151	28.25	0.200	2.60	0.80	1.00	1.0	56.53	146.75	28.25	14156	5807	857	739	1596	
															66,450	32,510			7,736

1.2D + 1.0Di + 1.0Wi 90° Gust Response Factor (Gh): 0.85 Ice Importance Factor: 1.00
 50 mph wind with 1" radial ice Wind Importance Factor (Iw): 1.00 Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _r	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
8	152	6.14	4.538	9.903	5.74	0.379	2.11	0.85	1.00	1.2	10.07	21.21	5.74	1549	874	111	76	187	
7	138	6.02	5.438	49.655	21.14	0.256	2.42	0.85	1.00	1.2	33.91	82.06	21.14	6203	3421	420	512	932	
6	112	5.83	6.938	53.416	23.11	0.228	2.51	0.85	1.00	1.2	37.05	92.88	23.11	7986	4233	461	600	1060	
5	88	5.70	8.266	63.285	28.61	0.227	2.51	0.85	1.00	1.2	43.97	110.30	28.61	10752	5515	534	689	1224	
4	71	5.66	3.088	21.673	9.93	0.213	2.55	0.85	1.00	1.2	15.21	38.83	9.93	4025	1933	187	242	428	
3	58	5.65	6.677	44.859	21.07	0.207	2.57	0.85	1.00	1.2	31.67	81.50	21.07	7413	3723	391	508	899	
2	38	5.68	11.250	72.666	34.80	0.202	2.59	0.85	1.00	1.2	51.62	133.68	34.80	14366	7004	646	792	1438	
1	12	6.87	12.750	80.151	28.25	0.200	2.60	0.85	1.00	1.0	57.17	148.41	28.25	14156	5807	867	739	1606	
															66,450	32,510			7,774

1.0D + 1.0W Service Normal Gust Response Factor (Gh): 0.85
 60 mph Wind with No Ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _r	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
8	152	8.84	4.538	4.167	0.00	0.235	2.48	1.00	1.00	0.0	6.96	17.29	0.00	563	0	130	46	176	
7	138	8.66	5.438	28.517	0.00	0.161	2.73	1.00	1.00	0.0	21.82	59.57	0.00	2318	0	439	276	715	
6	112	8.40	6.938	30.310	0.00	0.143	2.80	1.00	1.00	0.0	24.30	67.97	0.00	3128	0	485	293	778	
5	88	8.21	8.266	34.672	0.00	0.138	2.81	1.00	1.00	0.0	28.16	79.26	0.00	4364	0	553	322	875	
4	71	8.14	3.088	11.740	0.00	0.130	2.85	1.00	1.00	0.0	9.81	27.96	0.00	1743	0	194	110	304	
3	58	8.14	6.677	23.789	0.00	0.124	2.87	1.00	1.00	0.0	20.29	58.24	0.00	3075	0	403	225	628	
2	38	8.19	11.250	37.862	0.00	0.120	2.89	1.00	1.00	0.0	32.93	95.05	0.00	6134	0	661	339	1001	
1	12	9.90	12.750	51.905	0.00	0.140	2.81	1.00	1.00	0.0	42.44	119.14	0.00	6957	0	1002	364	1366	
															28,283	0			5,843

1.0D + 1.0W Service 60° Gust Response Factor (Gh): 0.85
 60 mph Wind with No Ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _r	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
8	152	8.84	4.538	4.167	0.00	0.235	2.48	0.80	1.00	0.0	6.05	15.04	0.00	563	0	113	46	159	
7	138	8.66	5.438	28.517	0.00	0.161	2.73	0.80	1.00	0.0	20.73	56.60	0.00	2318	0	417	276	693	
6	112	8.40	6.938	30.310	0.00	0.143	2.80	0.80	1.00	0.0	22.91	64.08	0.00	3128	0	458	293	751	
5	88	8.21	8.266	34.672	0.00	0.138	2.81	0.80	1.00	0.0	26.50	74.61	0.00	4364	0	521	322	842	
4	71	8.14	3.088	11.740	0.00	0.130	2.85	0.80	1.00	0.0	9.20	26.20	0.00	1743	0	181	110	292	
3	58	8.14	6.677	23.789	0.00	0.124	2.87	0.80	1.00	0.0	18.96	54.41	0.00	3075	0	376	225	601	
2	38	8.19	11.250	37.862	0.00	0.120	2.89	0.80	1.00	0.0	30.68	88.55	0.00	6134	0	616	339	956	
1	12	9.90	12.750	51.905	0.00	0.140	2.81	0.80	1.00	0.0	39.89	111.99	0.00	6957	0	942	364	1306	
															28,283	0			5,599

1.0D + 1.0W Service 90° Gust Response Factor (Gh): 0.85
 60 mph Wind with No Ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _r	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)
8	152	8.84	4.538	4.167	0.00	0.235	2.48	0.85	1.00	0.0	6.28	15.60	0.00	563	0	117	46	163
7	138	8.66	5.438	28.517	0.00	0.161	2.73	0.85	1.00	0.0	21.00	57.35	0.00	2318	0	422	276	699
6	112	8.40	6.938	30.310	0.00	0.143	2.80	0.85	1.00	0.0	23.26	65.05	0.00	3128	0	465	293	758
5	88	8.21	8.266	34.672	0.00	0.138	2.81	0.85	1.00	0.0	26.92	75.77	0.00	4364	0	529	322	850
4	71	8.14	3.088	11.740	0.00	0.130	2.85	0.85	1.00	0.0	9.35	26.64	0.00	1743	0	184	110	295
3	58	8.14	6.677	23.789	0.00	0.124	2.87	0.85	1.00	0.0	19.29	55.37	0.00	3075	0	383	225	608

ASSET: # 302505, Wshn - West Haven

STANDARD ANSI/TIA-222-H

CUSTOMER AT&T MOBILITY

ENG NO.: 13748405_C3_03

SECTION FORCES

Sect #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _f	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)
2	38	8.19	11.250	37.862	0.00	0.120	2.89	0.85	1.00	0.0	31.24	90.18	0.00	6134	0	627	339	967
1	12	9.90	12.750	51.905	0.00	0.140	2.81	0.85	1.00	0.0	40.53	113.77	0.00	6957	0	957	364	1321
														28,283	0			5,660

EQUIVALENT LATERAL FORCE METHOD

Spectral Response Acceleration for Short Period (S_S):	0.20
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.05
Long-Period Transition Period (T_L - Seconds):	6
Importance Factor (I_e):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	3.00
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.21
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.09
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s :	0.03
Lower Limit C_s :	0.03
Period based on Rayleigh Method (sec):	0.86
Redundancy Factor (ρ):	1.30
Seismic Force Distribution Exponent (k):	1.18
Total Unfactored Dead Load:	35.84 k
Seismic Base Shear (E):	1.57 k

SEISMIC

Load Case: 0.9D - 1.0Ev + 1.0Eh

Seismic

Section	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
8	152.50	563	209,840	0.033	52	482
7	137.50	2,318	765,267	0.120	188	1,988
6	112.50	3,128	815,083	0.128	200	2,681
5	87.50	4,364	845,984	0.132	208	3,742
4	70.84	1,743	263,488	0.041	65	1,495
3	58.34	3,075	369,768	0.058	91	2,637
2	37.50	6,134	438,314	0.069	108	5,259
1	12.50	6,957	136,292	0.021	33	5,965
Raycap DC6-48-60-18-8F ("Squid")	155.00	64	24,177	0.004	6	55
Ericsson Air 6449 B77D	155.00	245	93,057	0.015	23	210
Andrew APTDC-BDFDM-DBW	154.00	8	2,943	0.000	1	7
Commscope WCS-IMFQ-AMT	154.00	30	11,129	0.002	3	25
Raycap DC6-48-60-0-8F	154.00	33	12,374	0.002	3	28
Ericsson Radio 8843 - B2 + B66A	154.00	216	81,372	0.013	20	185
Ericsson RRUS 4478 B14	154.00	180	67,792	0.011	17	154
Ericsson RRUS 4449 B5, B12	154.00	213	80,354	0.013	20	183
Ericsson RRUS 32 B30	154.00	180	67,905	0.011	17	154
Ericsson RRUS E2 B29	154.00	180	67,905	0.011	17	154
CCI DMP65R-BU6DA	154.00	238	89,861	0.014	22	204
Flat Light Sector Frame	154.00	1,200	452,698	0.071	111	1,029
Quintel QD6616-7	154.00	390	147,127	0.023	36	334
Ericsson AIR 6419 B77G	152.00	198	73,665	0.012	18	170
Flat Light Sector Frame	149.00	1,200	435,436	0.068	107	1,029
Decibel DB844H90E-XY	144.80	112	39,295	0.006	10	96
Andrew 844G45VTZASX	144.70	60	21,034	0.003	5	51
Empty Round Sector Frame	131.00	900	280,624	0.044	69	772
Generic 6' Ice Shield	125.40	900	266,548	0.042	65	772
Generic Radio/ODU	120.80	120	34,009	0.005	8	103
Andrew Microwaves VHLP2-26-1GR	120.00	62	17,434	0.003	4	53
Lone Star Electronics LS-230	115.50	11	2,957	0.000	1	9
Lone Star Electronics LS-230	115.50	11	2,957	0.000	1	9

Stand-Off	110.00	75	19,036	0.003	5	64	
RFI Antennas BA80-67	105.10	18	4,234	0.001	1	15	
Round Side Arm	103.00	150	35,234	0.006	9	129	
Round Side Arm	100.00	150	34,028	0.005	8	129	
Andrew DB224	96.20	38	8,236	0.001	2	33	
Flat Side Arm	89.00	150	29,664	0.005	7	129	
Generic 8' Omni	88.80	25	4,931	0.001	1	21	
Stand-Off	78.00	200	33,860	0.005	8	171	
Andrew ASPR766P	74.30	2	288	0.000	0	2	
Totals			35,840	6,386,198	1.000	1,568	30,727

SEISMIC

Load Case: 1.2D + 1.0Ev + 1.0Eh

Seismic

Section	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vz}	Horizontal Force (lb)	Vertical Force (lb)	
8	152.50	563	209,840	0.033	52	699	
7	137.50	2,318	765,267	0.120	188	2,881	
6	112.50	3,128	815,083	0.128	200	3,886	
5	87.50	4,364	845,984	0.132	208	5,423	
4	70.84	1,743	263,488	0.041	65	2,166	
3	58.34	3,075	369,768	0.058	91	3,822	
2	37.50	6,134	438,314	0.069	108	7,623	
1	12.50	6,957	136,292	0.021	33	8,646	
Raycap DC6-48-60-18-8F ("Squid")	155.00	64	24,177	0.004	6	79	
Ericsson Air 6449 B77D	155.00	245	93,057	0.015	23	304	
Andrew APTDC-BDFDM-DBW	154.00	8	2,943	0.000	1	10	
Commscope WCS-IMFQ-AMT	154.00	30	11,129	0.002	3	37	
Raycap DC6-48-60-0-8F	154.00	33	12,374	0.002	3	41	
Ericsson Radio 8843 - B2 + B66A	154.00	216	81,372	0.013	20	268	
Ericsson RRUS 4478 B14	154.00	180	67,792	0.011	17	223	
Ericsson RRUS 4449 B5, B12	154.00	213	80,354	0.013	20	265	
Ericsson RRUS 32 B30	154.00	180	67,905	0.011	17	224	
Ericsson RRUS E2 B29	154.00	180	67,905	0.011	17	224	
CCI DMP65R-BU6DA	154.00	238	89,861	0.014	22	296	
Flat Light Sector Frame	154.00	1,200	452,698	0.071	111	1,491	
Quintel QD6616-7	154.00	390	147,127	0.023	36	485	
Ericsson AIR 6419 B77G	152.00	198	73,665	0.012	18	246	
Flat Light Sector Frame	149.00	1,200	435,436	0.068	107	1,491	
Decibel DB844H90E-XY	144.80	112	39,295	0.006	10	139	
Andrew 844G45VTZASX	144.70	60	21,034	0.003	5	75	
Empty Round Sector Frame	131.00	900	280,624	0.044	69	1,118	
Generic 6' Ice Shield	125.40	900	266,548	0.042	65	1,118	
Generic Radio/ODU	120.80	120	34,009	0.005	8	149	
Andrew Microwaves VHLP2-26-1GR	120.00	62	17,434	0.003	4	77	
Lone Star Electronics LS-230	115.50	11	2,957	0.000	1	14	
Lone Star Electronics LS-230	115.50	11	2,957	0.000	1	14	
Stand-Off	110.00	75	19,036	0.003	5	93	
RFI Antennas BA80-67	105.10	18	4,234	0.001	1	22	
Round Side Arm	103.00	150	35,234	0.006	9	186	
Round Side Arm	100.00	150	34,028	0.005	8	186	
Andrew DB224	96.20	38	8,236	0.001	2	47	
Flat Side Arm	89.00	150	29,664	0.005	7	186	
Generic 8' Omni	88.80	25	4,931	0.001	1	31	
Stand-Off	78.00	200	33,860	0.005	8	249	
Andrew ASPR766P	74.30	2	288	0.000	0	2	
Totals			35,840	6,386,198	1.000	1,568	44,537

FORCE/STRESS SUMMARY

Section 1 – Base 0.0 (ft) and Height 25.00 (ft)

Max Compression	Pu (kip) Load Case		Len (ft)	Bracing %			KL/R	F _y (ksi)	Φ _c P _n (kip)	Shear	Bear	# Bolt	# Hole	Use %	Controls
	Φ _{R_{nv}}	Φ _{R_n}													
L PSP - 5" OD x .500"	-182.69	1.2D + 1.0W N	8.342	50	50	50	31.26	50.0	296.21	0.00	0.00	0	0	61	Member X
H DAL - 3X2.5X0.25	-5.97	0.9D + 1.0W 90°	9.167	100	67	50	122.90	36.0	49.71	55.22	69.60	4	2	12	Member Y
D PSP - 3" x 0.25"	-8.66	1.2D + 1.0W 90°	12.639	50	50	50	88.25	50.0	54.99	0.00	0.00	0	0	15	Member X

Max Tension Member	Pu (kip) Load Case		F _y (ksi)	F _u (ksi)	Φ _c P _n (kip)	Shear	Bear	Blk Shear	# Bolt	# Hole	Use %	Controls
	Φ _{R_{nv}} (kip)	Φ _{R_n} (kip)				Φ _t P _n (kip)						
L PSP - 5" OD x .500"	154.84	0.9D + 1.0W 60°	50.0	65	318.15	0.00	0.00		0	0	48	Member
H DAL - 3X2.5X0.25	6.15	1.2D + 1.0W 90°	36.0	58	74.59	55.22	55.68	41.05	4	2	14	Blk Shear
D PSP - 3" x 0.25"	8.05	1.2D + 1.0W 90°	50.0	65	97.19	0.00	0.00	0.00	0	0	8	Member

Max Splice Forces	Pu (kip) Load Case		Φ _{R_{nt}} (kip)	Use %	Num Bolts	Bolt Type
	Top Tension	136.95				
Bot Tension	164.42	0.9D + 1.0W 60°	1025.7	3	6	1 3/4 A325
Bot Compression	193.33	1.2D + 1.0W N	1048.5	19	0	

Section 2 – Base 25.0 (ft) and Height 25.00 (ft)

Max Compression	Pu (kip) Load Case		Len (ft)	Bracing %			KL/R	F _y (ksi)	Φ _c P _n (kip)	Shear	Bear	# Bolt	# Hole	Use %	Controls
	Φ _{R_{nv}}	Φ _{R_n}													
L PSP - 5" OD x .500"	-151.39	1.2D + 1.0W N	8.342	100	100	100	62.53	50.0	239.05	0.00	0.00	0	0	63	Member X
H DAL - 3X2.5X0.25	-5.15	1.2D + 1.0W 90°	8.167	100	67	50	110.72	36.0	58.18	55.22	69.60	4	2	9	Bolt Shear
D PSP - 3" x 0.25"	-7.96	1.2D + 1.0W 90°	11.905	100	100	100	146.33	50.0	22.79	0.00	0.00	0	0	34	Member X

Max Tension Member	Pu (kip) Load Case		F _y (ksi)	F _u (ksi)	Φ _c P _n (kip)	Shear	Bear	Blk Shear	# Bolt	# Hole	Use %	Controls
	Φ _{R_{nv}} (kip)	Φ _{R_n} (kip)				Φ _t P _n (kip)						
L PSP - 5" OD x .500"	128.70	0.9D + 1.0W 60°	50.0	65	318.15	0.00	0.00		0	0	40	Member
H DAL - 3X2.5X0.25	5.38	1.2D + 1.0W 90°	36.0	58	74.59	55.22	55.68	41.05	4	2	13	Blk Shear
D PSP - 3" x 0.25"	7.37	1.2D + 1.0W 90°	50.0	65	97.19	0.00	0.00	0.00	0	0	7	Member

Max Splice Forces	Pu (kip) Load Case		Φ _{R_{nt}} (kip)	Use %	Num Bolts	Bolt Type
	Top Tension	111.03				
Bot Tension	136.95	0.9D + 1.0W 60°	436.14	31	8	1 A325

Section 3 – Base 50.0 (ft) and Height 16.67 (ft)

Max Compression	Pu (kip) Load Case		Len (ft)	Bracing %			KL/R	F _y (ksi)	Φ _c P _n (kip)	Shear	Bear	# Bolt	# Hole	Use %	Controls
	Φ _{R_{nv}}	Φ _{R_n}													
L PSP - 5" OD x .500"	-120.31	1.2D + 1.0W N	8.344	100	100	100	62.54	50.0	239.02	0.00	0.00	0	0	50	Member X
H SAE - 3X3X0.25	-4.60	1.2D + 1.0W 90°	7.167	100	67	67	108.67	36.0	32.59	27.61	34.80	2	1	16	Bolt Shear
D PSP - STLSS 2.75" OD 0.18	-7.48	1.2D + 1.0W 90°	11.214	100	100	100	147.88	50.0	14.98	0.00	22.46	1	0	49	Member X

Max Tension Member	Pu (kip) Load Case		F _y (ksi)	F _u (ksi)	Φ _c P _n (kip)	Shear	Bear	Blk Shear	# Bolt	# Hole	Use %	Controls
	Φ _{R_{nv}} (kip)	Φ _{R_n} (kip)				Φ _t P _n (kip)						
L PSP - 5" OD x .500"	102.59	0.9D + 1.0W 60°	50.0	65	318.15	0.00	0.00		0	0	32	Member
H SAE - 3X3X0.25	4.74	1.2D + 1.0W 90°	36.0	58	41.37	27.61	27.84	20.53	2	1	23	Blk Shear
D PSP - STLSS 2.75" OD 0.18	7.07	1.2D + 1.0W 90°	50.0	65	65.25	0.00	13.69	0.00	1	0	51	Bolt Bear

FORCE/STRESS SUMMARY

	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Max Splice Forces						
Top Tension	93.32	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	111.03	0.9D + 1.0W 60°	240.81	46	8	0.75" A325

Section 4 – Base 66.7 (ft) and Height 8.33 (ft)

	Pu (kip)	Load Case	Len (ft)	Bracing % X Y Z	KL/R	F _y (ksi)	$\Phi_c P_n$ (kip)	ΦR_{nv} (kip)	ΦR_n (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
Max Compression															
L PSP - 5" OD x .500"	-99.60	1.2D + 1.0W N	8.339	100 100 100	62.50	50.0	239.10	0.00	0.00	0.00	0.00	0	0	41	Member X
H DAL - 3X2.5X0.25	-4.27	1.2D + 1.0W 90°	6.5	100 67 50	87.15	36.0	72.07	55.22	69.60	55.22	69.60	4	2	7	Bolt Shear
D PSP - STLSS 2.75" OD 0.18	-7.36	1.2D + 1.0W 90°	10.776	100 100 100	142.10	50.0	16.22	0.00	22.46	0.00	22.46	1	0	45	Member X

	Pu (kip)	Load Case	F _y (ksi)	F _u (ksi)	$\Phi_c P_n$ (kip)	ΦR_{nv} (kip)	ΦR_n (kip)	Blk Shear $\Phi_t P_n$ (kip)	# Bolt	# Hole	Use %	Controls
Max Tension Member												
L PSP - 5" OD x .500"	82.93	1.2D + 1.0W 60°	50.0	65	318.15	0.00	0.00		0	0	26	Member
H DAL - 3X2.5X0.25	4.39	1.2D + 1.0W 90°	36.0	58	74.59	55.22	55.68	41.05	4	2	10	Blk Shear
D PSP - STLSS 2.75" OD 0.18	6.91	1.2D + 1.0W 90°	50.0	65	65.25	0.00	13.69	0.00	1	0	50	Bolt Bear

	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Max Splice Forces						
Top Tension	84.34	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	93.32	0.9D + 1.0W 60°	0.00	0	0	

Section 5 – Base 75.0 (ft) and Height 25.00 (ft)

	Pu (kip)	Load Case	Len (ft)	Bracing % X Y Z	KL/R	F _y (ksi)	$\Phi_c P_n$ (kip)	ΦR_{nv} (kip)	ΦR_n (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
Max Compression															
L PSP - 5" OD x .300"	-89.08	1.2D + 1.0W N	8.342	100 100 100	60.12	50.0	153.05	0.00	0.00	0.00	0.00	0	0	58	Member X
H DAL - 3X2.5X0.25	-6.48	1.2D + 1.0W N	5.5	100 67 50	73.74	36.0	78.49	55.22	69.60	55.22	69.60	4	2	11	Bolt Shear
D PSP - STLSS 2.75" OD 0.18	-7.23	1.2D + 1.0W 90°	10.57	100 100 100	139.39	50.0	16.86	0.00	22.46	0.00	22.46	1	0	42	Member X

	Pu (kip)	Load Case	F _y (ksi)	F _u (ksi)	$\Phi_c P_n$ (kip)	ΦR_{nv} (kip)	ΦR_n (kip)	Blk Shear $\Phi_t P_n$ (kip)	# Bolt	# Hole	Use %	Controls
Max Tension Member												
L PSP - 5" OD x .300"	74.08	1.2D + 1.0W 60°	50.0	65	199.35	0.00	0.00		0	0	37	Member
H DAL - 3X2.5X0.25	7.10	1.2D + 1.0W 90°	36.0	58	74.59	55.22	55.68	41.05	4	2	17	Blk Shear
D PSP - STLSS 2.75" OD 0.18	6.86	1.2D + 1.0W 90°	50.0	65	65.25	0.00	13.69	0.00	1	0	50	Bolt Bear

	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Max Splice Forces						
Top Tension	56.81	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	84.34	0.9D + 1.0W 60°	240.81	35	8	0.75" A325

Section 6 – Base 100.0 (ft) and Height 25.00 (ft)

	Pu (kip)	Load Case	Len (ft)	Bracing % X Y Z	KL/R	F _y (ksi)	$\Phi_c P_n$ (kip)	ΦR_{nv} (kip)	ΦR_n (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
Max Compression															
L PSP - STLSS 5" OD x0.165	-62.66	1.2D + 1.0W N	8.342	100 100 100	58.58	50.0	87.89	0.00	0.00	0.00	0.00	0	0	71	Member X
H DAL - 3X2.5X0.25	-6.23	1.2D + 1.0W N	10.333	100 100 50	160.72	36.0	29.14	55.22	69.60	55.22	69.60	4	2	21	Member Y
D PSP - 3" x 0.25"	-8.93	1.2D + 1.0W 90°	13.537	100 100 100	166.39	50.0	17.62	0.00	0.00	0.00	0.00	0	0	50	Member X

	Pu (kip)	Load Case	F _y (ksi)	F _u (ksi)	$\Phi_c P_n$ (kip)	ΦR_{nv} (kip)	ΦR_n (kip)	Blk Shear $\Phi_t P_n$ (kip)	# Bolt	# Hole	Use %	Controls
Max Tension Member												
L PSP - STLSS 5" OD x0.165	52.63	0.9D + 1.0W 60°	50.0	65	112.95	0.00	0.00		0	0	46	Member
H DAL - 3X2.5X0.25	6.83	1.2D + 1.0W 90°	36.0	58	74.59	55.22	55.68	41.05	4	2	16	Blk Shear
D PSP - 3" x 0.25"	7.85	1.2D + 1.0W N	50.0	65	97.19	0.00	0.00	0.00	0	0	8	Member

FORCE/STRESS SUMMARY

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Top Tension	29.13	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	56.81	0.9D + 1.0W 60°	120.41	47	4	0.75" A325

Section 7 – Base 125.0 (ft) and Height 25.00 (ft)

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X Y Z	KL/R	F' _y (ksi)	$\Phi_c P_n$ (kip)	ΦR_{nv} (kip)	Shear ΦR_n (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
L PSP - STLSS 5" OD x0.165	-31.36	1.2D + 1.0W N	8.342	100 100 100	58.58	50.0	87.89	0.00	0.00	0.00	0	0	35	Member X
H SAE - 3X3X0.25	-5.19	1.2D + 1.0W N	8.333	100 100 100	168.92	36.0	14.44	27.61	34.80	34.80	2	1	35	Member Z
D PSP - STLSS 2.75" OD 0.18	-8.22	1.2D + 1.0W 90°	12.025	100 100 100	158.57	50.0	13.03	0.00	22.46	22.46	1	0	63	Member X

Max Tension Member	Pu (kip)	Load Case	F _y (ksi)	F _u (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	Blk Shear $\Phi_t P_n$ (kip)	# Bolt	# Hole	Use %	Controls
L PSP - STLSS 5" OD x0.165	25.00	0.9D + 1.0W 60°	50.0	65	112.95	0.00	0.00		0	0	22	Member
H SAE - 3X3X0.25	5.48	1.2D + 1.0W 90°	36.0	58	41.37	27.61	27.84	20.53	2	1	26	Blk Shear
D PSP - STLSS 2.75" OD 0.18	7.20	1.2D + 1.0W N	50.0	65	65.25	0.00	13.69	0.00	1	0	52	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Top Tension	1.94	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	29.13	0.9D + 1.0W 60°	120.41	24	4	0.75" A325

Section 8 – Base 150.0 (ft) and Height 5.00 (ft)

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X Y Z	KL/R	F' _y (ksi)	$\Phi_c P_n$ (kip)	ΦR_{nv} (kip)	Shear ΦR_n (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
L PSP - STLSS 5" OD x0.165	-2.46	1.2D + 1.0Di + 1.0Wi N	5	100 100 100	35.11	50.0	103.22	0.00	0.00	0.00	0	0	2	Member X
H CHN - C4 x 5.4	-1.44	1.2D + 1.0W N	3.5	100 100 100	100.16	36.0	39.18	27.61	44.36	44.36	2	2	5	Bolt Shear
D DAL - 2.5X2X0.1875	-2.78	1.2D + 1.0W 90°	6.103	100 100 50	116.84	36.0	33.29	27.61	26.10	26.10	2	2	10	Bolt Bear

Max Tension Member	Pu (kip)	Load Case	F _y (ksi)	F _u (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	Blk Shear $\Phi_t P_n$ (kip)	# Bolt	# Hole	Use %	Controls
H CHN - C4 x 5.4	1.78	1.2D + 1.0W 60°	36.0	58	37.58	27.61	35.49	0.00	2	2	6	Bolt Shear
D DAL - 2.5X2X0.1875	2.67	0.9D + 1.0W 90°	36.0	58	44.44	27.61	15.66	17.74	2	2	17	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Bot Tension	1.94	0.9D + 1.0W 60°	120.41	2	4	0.75" A325

DETAILED REACTIONS

Load Case	Radius (ft)	Elevation (ft)	Azimuth (deg)	Node	*(-) Uplift and (+) Down		
					*Fx (kip)	*Fy (kip)	*Fz (kip)
1.2D + 1.0W Normal	10.97	0.00	0	1	0.00	193.08	-18.80
	10.97	0.00	120	1a	5.37	-75.04	-6.50
	10.97	0.00	240	1b	-5.37	-75.04	-6.50
1.2D + 1.0W 60°	10.97	0.00	0	1	-2.79	101.61	-9.67
	10.97	0.00	120	1a	-9.77	101.57	2.41
	10.97	0.00	240	1b	-14.15	-160.17	-8.17
1.2D + 1.0W 90°	10.97	0.00	0	1	-3.28	14.34	-1.03
	10.97	0.00	120	1a	-14.74	166.36	6.64
	10.97	0.00	240	1b	-13.06	-137.69	-5.62
0.9D + 1.0W Normal	10.97	0.00	0	1	0.00	189.29	-18.55
	10.97	0.00	120	1a	5.59	-78.52	-6.63
	10.97	0.00	240	1b	-5.59	-78.52	-6.63
0.9D + 1.0W 60°	10.97	0.00	0	1	-2.80	97.92	-9.41
	10.97	0.00	120	1a	-9.55	97.88	2.28
	10.97	0.00	240	1b	-14.37	-163.54	-8.29
0.9D + 1.0W 90°	10.97	0.00	0	1	-3.29	10.75	-0.77
	10.97	0.00	120	1a	-14.52	162.59	6.51
	10.97	0.00	240	1b	-13.28	-141.09	-5.74
1.2D + 1.0Di + 1.0Wi Normal	10.97	0.00	0	1	0.00	81.34	-7.40
	10.97	0.00	120	1a	0.40	0.59	-1.32
	10.97	0.00	240	1b	-0.40	0.58	-1.32
1.2D + 1.0Di + 1.0Wi 60°	10.97	0.00	0	1	-0.93	54.10	-4.56
	10.97	0.00	120	1a	-4.41	54.08	1.48
	10.97	0.00	240	1b	-3.23	-25.67	-1.86
1.2D + 1.0Di + 1.0Wi 90°	10.97	0.00	0	1	-1.08	27.50	-1.80
	10.97	0.00	120	1a	-5.98	73.68	2.83
	10.97	0.00	240	1b	-2.87	-18.67	-1.03
1.2D + 1.0Ev + 1.0Eh Normal	10.97	0.00	0	1	0.00	25.67	-1.97
	10.97	0.00	120	1a	-0.58	8.82	0.20
	10.97	0.00	240	1b	0.58	8.82	0.20
1.2D + 1.0Ev + 1.0Eh 60°	10.97	0.00	0	1	-0.11	20.05	-1.52
	10.97	0.00	120	1a	-1.37	20.05	0.66
	10.97	0.00	240	1b	0.13	3.19	0.07
1.2D + 1.0Ev + 1.0Eh 90°	10.97	0.00	0	1	-0.13	14.41	-1.06
	10.97	0.00	120	1a	-1.63	24.17	0.87
	10.97	0.00	240	1b	0.20	4.72	0.19
0.9D - 1.0Ev + 1.0Eh Normal	10.97	0.00	0	1	0.00	21.15	-1.64
	10.97	0.00	120	1a	-0.29	4.36	0.04
	10.97	0.00	240	1b	0.30	4.36	0.04
0.9D - 1.0Ev + 1.0Eh 60°	10.97	0.00	0	1	-0.11	15.56	-1.19
	10.97	0.00	120	1a	-1.08	15.56	0.50
	10.97	0.00	240	1b	-0.16	-1.24	-0.09
0.9D - 1.0Ev + 1.0Eh 90°	10.97	0.00	0	1	-0.13	9.94	-0.73
	10.97	0.00	120	1a	-1.35	19.66	0.70
	10.97	0.00	240	1b	-0.08	0.27	0.03
1.0D + 1.0W Service Normal	10.97	0.00	0	1	0.00	57.24	-5.38
	10.97	0.00	120	1a	0.85	-10.70	-1.35
	10.97	0.00	240	1b	-0.85	-10.70	-1.35
1.0D + 1.0W Service 60°	10.97	0.00	0	1	-0.72	34.07	-3.05
	10.97	0.00	120	1a	-3.00	34.06	0.91
	10.97	0.00	240	1b	-3.08	-32.29	-1.78
1.0D + 1.0W Service 90°	10.97	0.00	0	1	-0.84	11.95	-0.85
	10.97	0.00	120	1a	-4.27	50.48	1.98
	10.97	0.00	240	1b	-2.80	-26.59	-1.13

Max Uplift: 163.54 (kip) Moment Ice: 885.83 (kip-ft) Moment: 2941.16 (kip-ft)
 Max Down: 193.08 (kip) Total Down Ice: 82.51 (kip) Total Down: 43.01 (kip)
 Max Shear: 18.8 (kip) Total Shear Ice: 10.04 (kip) Total Shear: 31.8(kip)

1.2D + 1.0W Normal

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.2D + 1.0W Normal 120 mph wind with no ice	75.00	0.2074	-0.1716	0.3050	0.35
1.2D + 1.0W Normal 120 mph wind with no ice	91.67	0.3051	-0.2289	0.3848	0.4473
1.2D + 1.0W Normal 120 mph wind with no ice	100.00	0.3629	-0.2573	0.4335	0.5034
1.2D + 1.0W Normal 120 mph wind with no ice	108.33	0.4309	-0.3046	0.5151	0.5979
1.2D + 1.0W Normal 120 mph wind with no ice	116.67	0.5069	-0.3520	0.5615	0.6617
1.2D + 1.0W Normal 120 mph wind with no ice	125.00	0.5896	-0.3986	0.6056	0.7236
1.2D + 1.0W Normal 120 mph wind with no ice	133.33	0.6794	-0.4444	0.6718	0.8038
1.2D + 1.0W Normal 120 mph wind with no ice	141.67	0.7727	-0.4953	0.7297	0.7711
1.2D + 1.0W Normal 120 mph wind with no ice	150.00	0.8682	-0.5304	0.9805	1.1147
1.2D + 1.0W Normal 120 mph wind with no ice	155.00	0.971	-0.5309	1.2915	1.3964
1.2D + 1.0W 60° 120 mph wind with no ice	75.00	0.2028	-0.1989	0.2998	0.3597
1.2D + 1.0W 60° 120 mph wind with no ice	91.67	0.2985	-0.2649	0.3794	0.4627
1.2D + 1.0W 60° 120 mph wind with no ice	100.00	0.3549	-0.2979	0.4235	0.5177
1.2D + 1.0W 60° 120 mph wind with no ice	108.33	0.4207	-0.3533	0.5009	0.6043
1.2D + 1.0W 60° 120 mph wind with no ice	116.67	0.4953	-0.4094	0.5510	0.6785
1.2D + 1.0W 60° 120 mph wind with no ice	125.00	0.5766	-0.4658	0.5987	0.7542
1.2D + 1.0W 60° 120 mph wind with no ice	133.33	0.6644	-0.5217	0.6486	0.8305
1.2D + 1.0W 60° 120 mph wind with no ice	141.67	0.7562	-0.5822	0.6423	0.8595
1.2D + 1.0W 60° 120 mph wind with no ice	150.00	0.8505	-0.6288	0.8744	1.0771
1.2D + 1.0W 60° 120 mph wind with no ice	155.00	0.9275	-0.6331	1.1787	1.3379
1.2D + 1.0W 90° 120 mph wind with no ice	75.00	0.2039	0.1955	0.3026	0.3603
1.2D + 1.0W 90° 120 mph wind with no ice	91.67	0.3001	0.2607	0.3809	0.4616
1.2D + 1.0W 90° 120 mph wind with no ice	100.00	0.3567	0.2928	0.4304	0.5206
1.2D + 1.0W 90° 120 mph wind with no ice	108.33	0.4235	0.3470	0.5054	0.6131
1.2D + 1.0W 90° 120 mph wind with no ice	116.67	0.4985	0.4040	0.5564	0.6876
1.2D + 1.0W 90° 120 mph wind with no ice	125.00	0.5802	0.4624	0.6037	0.7604
1.2D + 1.0W 90° 120 mph wind with no ice	133.33	0.6687	0.5203	0.6684	0.847
1.2D + 1.0W 90° 120 mph wind with no ice	141.67	0.7608	0.5835	0.6908	0.8366
1.2D + 1.0W 90° 120 mph wind with no ice	150.00	0.8554	0.6301	0.9927	1.1758
1.2D + 1.0W 90° 120 mph wind with no ice	155.00	0.9581	0.6330	1.3442	1.4858
0.9D + 1.0W Normal 120 mph wind with no ice	75.00	0.2071	-0.1647	0.3042	0.3459
0.9D + 1.0W Normal 120 mph wind with no ice	91.67	0.3047	-0.2197	0.3839	0.442
0.9D + 1.0W Normal 120 mph wind with no ice	100.00	0.3623	-0.2469	0.4317	0.497
0.9D + 1.0W Normal 120 mph wind with no ice	108.33	0.43	-0.2923	0.5122	0.5895
0.9D + 1.0W Normal 120 mph wind with no ice	116.67	0.5056	-0.3377	0.5587	0.6524
0.9D + 1.0W Normal 120 mph wind with no ice	125.00	0.588	-0.3824	0.6029	0.7131
0.9D + 1.0W Normal 120 mph wind with no ice	133.33	0.6775	-0.4264	0.6683	0.7917
0.9D + 1.0W Normal 120 mph wind with no ice	141.67	0.7705	-0.4753	0.7256	0.7593
0.9D + 1.0W Normal 120 mph wind with no ice	150.00	0.8658	-0.5089	0.9669	1.0927
0.9D + 1.0W Normal 120 mph wind with no ice	155.00	0.9667	-0.5094	1.2660	1.3647
0.9D + 1.0W 60° 120 mph wind with no ice	75.00	0.2025	-0.1935	0.2991	0.3562
0.9D + 1.0W 60° 120 mph wind with no ice	91.67	0.2981	-0.2578	0.3783	0.4578
0.9D + 1.0W 60° 120 mph wind with no ice	100.00	0.3544	-0.2899	0.4229	0.5127
0.9D + 1.0W 60° 120 mph wind with no ice	108.33	0.4199	-0.3439	0.4980	0.5989
0.9D + 1.0W 60° 120 mph wind with no ice	116.67	0.4941	-0.3985	0.5484	0.6716
0.9D + 1.0W 60° 120 mph wind with no ice	125.00	0.575	-0.4535	0.5961	0.7461
0.9D + 1.0W 60° 120 mph wind with no ice	133.33	0.6625	-0.5080	0.6459	0.8209
0.9D + 1.0W 60° 120 mph wind with no ice	141.67	0.7541	-0.5670	0.6399	0.8483
0.9D + 1.0W 60° 120 mph wind with no ice	150.00	0.8481	-0.6124	0.8667	1.0612
0.9D + 1.0W 60° 120 mph wind with no ice	155.00	0.9246	-0.6165	1.1613	1.3148
0.9D + 1.0W 90° 120 mph wind with no ice	75.00	0.2036	0.1891	0.3018	0.3561
0.9D + 1.0W 90° 120 mph wind with no ice	91.67	0.2997	0.2521	0.3800	0.456
0.9D + 1.0W 90° 120 mph wind with no ice	100.00	0.3562	0.2832	0.4285	0.5137
0.9D + 1.0W 90° 120 mph wind with no ice	108.33	0.4226	0.3357	0.5022	0.6041
0.9D + 1.0W 90° 120 mph wind with no ice	116.67	0.4973	0.3909	0.5534	0.6775
0.9D + 1.0W 90° 120 mph wind with no ice	125.00	0.5786	0.4475	0.6008	0.7491
0.9D + 1.0W 90° 120 mph wind with no ice	133.33	0.6667	0.5036	0.6649	0.8341
0.9D + 1.0W 90° 120 mph wind with no ice	141.67	0.7586	0.5649	0.6876	0.823
0.9D + 1.0W 90° 120 mph wind with no ice	150.00	0.8528	0.6101	0.9802	1.1545
0.9D + 1.0W 90° 120 mph wind with no ice	155.00	0.9541	0.6129	1.3204	1.4557
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	75.00	0.0625	-0.0415	0.0890	0.0982
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	91.67	0.0908	-0.0554	0.1112	0.1242
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	100.00	0.1073	-0.0625	0.1267	0.1395
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	108.33	0.1278	-0.0744	0.1557	0.1703

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	116.67	0.1503	-0.0854	0.1639	0.1823
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	125.00	0.1743	-0.0962	0.1732	0.1951
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	133.33	0.1999	-0.1068	0.1912	0.2158
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	141.67	0.226	-0.1186	0.2288	0.2289
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	150.00	0.2525	-0.1269	0.3211	0.3453
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	155.00	0.2863	-0.1272	0.4759	0.4926
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	75.00	0.0624	-0.0941	0.0898	0.1301
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	91.67	0.0903	-0.1252	0.1129	0.1686
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	100.00	0.1066	-0.1410	0.1273	0.1856
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	108.33	0.1253	-0.1675	0.1547	0.2175
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	116.67	0.1474	-0.1936	0.1655	0.2438
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	125.00	0.1713	-0.2200	0.1774	0.2739
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	133.33	0.1966	-0.2459	0.1878	0.3038
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	141.67	0.2226	-0.2742	0.1952	0.3313
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	150.00	0.249	-0.2942	0.3140	0.4303
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	155.00	0.2775	-0.2950	0.5217	0.5993
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	75.00	0.0624	-0.0684	0.0893	0.111
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	91.67	0.0904	-0.0909	0.1099	0.1424
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	100.00	0.1066	-0.1025	0.1284	0.1612
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	108.33	0.1262	-0.1219	0.1550	0.1931
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	116.67	0.1488	-0.1411	0.1660	0.2136
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	125.00	0.1728	-0.1607	0.1768	0.2346
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	133.33	0.1984	-0.1799	0.1930	0.2598
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	141.67	0.2244	-0.2010	0.2082	0.2894
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	150.00	0.2509	-0.2158	0.3291	0.3907
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	155.00	0.283	-0.2164	0.5068	0.5491
1.2D + 1.0Ev + 1.0Eh Normal Seismic	75.00	0.0135	-0.0087	0.0206	0.0224
1.2D + 1.0Ev + 1.0Eh Normal Seismic	91.67	0.0202	-0.0116	0.0267	0.0291
1.2D + 1.0Ev + 1.0Eh Normal Seismic	100.00	0.0241	-0.0131	0.0319	0.0335
1.2D + 1.0Ev + 1.0Eh Normal Seismic	108.33	0.0296	-0.0158	0.0413	0.043
1.2D + 1.0Ev + 1.0Eh Normal Seismic	116.67	0.0357	-0.0183	0.0440	0.0462
1.2D + 1.0Ev + 1.0Eh Normal Seismic	125.00	0.0421	-0.0208	0.0481	0.0482
1.2D + 1.0Ev + 1.0Eh Normal Seismic	133.33	0.0491	-0.0234	0.0632	0.0658
1.2D + 1.0Ev + 1.0Eh Normal Seismic	141.67	0.056	-0.0261	0.1357	0.1358
1.2D + 1.0Ev + 1.0Eh Normal Seismic	150.00	0.0631	-0.0283	0.3556	0.3567
1.2D + 1.0Ev + 1.0Eh Normal Seismic	155.00	0.1006	-0.0285	0.6917	0.6923
1.2D + 1.0Ev + 1.0Eh 60° Seismic	75.00	0.0135	-0.0632	0.0227	0.0671
1.2D + 1.0Ev + 1.0Eh 60° Seismic	91.67	0.0202	-0.0839	0.0297	0.089
1.2D + 1.0Ev + 1.0Eh 60° Seismic	100.00	0.0241	-0.0944	0.0348	0.0992
1.2D + 1.0Ev + 1.0Eh 60° Seismic	108.33	0.0296	-0.1120	0.0456	0.1167
1.2D + 1.0Ev + 1.0Eh 60° Seismic	116.67	0.0356	-0.1292	0.0476	0.1347
1.2D + 1.0Ev + 1.0Eh 60° Seismic	125.00	0.0421	-0.1467	0.0539	0.1536
1.2D + 1.0Ev + 1.0Eh 60° Seismic	133.33	0.049	-0.1637	0.0677	0.1708
1.2D + 1.0Ev + 1.0Eh 60° Seismic	141.67	0.056	-0.1823	0.1234	0.2185
1.2D + 1.0Ev + 1.0Eh 60° Seismic	150.00	0.0632	-0.1952	0.3731	0.4126
1.2D + 1.0Ev + 1.0Eh 60° Seismic	155.00	0.1121	-0.1955	0.7432	0.7685
1.2D + 1.0Ev + 1.0Eh 90° Seismic	75.00	0.0135	-0.0488	0.0219	0.0532
1.2D + 1.0Ev + 1.0Eh 90° Seismic	91.67	0.0202	-0.0646	0.0276	0.0703
1.2D + 1.0Ev + 1.0Eh 90° Seismic	100.00	0.0241	-0.0727	0.0341	0.0784
1.2D + 1.0Ev + 1.0Eh 90° Seismic	108.33	0.0297	-0.0862	0.0447	0.0924
1.2D + 1.0Ev + 1.0Eh 90° Seismic	116.67	0.0358	-0.0993	0.0470	0.1057
1.2D + 1.0Ev + 1.0Eh 90° Seismic	125.00	0.0423	-0.1125	0.0503	0.1217
1.2D + 1.0Ev + 1.0Eh 90° Seismic	133.33	0.0493	-0.1254	0.0610	0.1296
1.2D + 1.0Ev + 1.0Eh 90° Seismic	141.67	0.0563	-0.1394	0.1253	0.1874
1.2D + 1.0Ev + 1.0Eh 90° Seismic	150.00	0.0635	-0.1490	0.3445	0.3636
1.2D + 1.0Ev + 1.0Eh 90° Seismic	155.00	0.1014	-0.1493	0.6860	0.6958
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	75.00	0.0135	-0.0026	0.0202	0.0204
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	91.67	0.0201	-0.0036	0.0261	0.0263
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	100.00	0.024	-0.0041	0.0307	0.0307
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	108.33	0.0292	-0.0050	0.0386	0.0387
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	116.67	0.035	-0.0058	0.0417	0.0418
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	125.00	0.0412	-0.0067	0.0465	0.0465
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	133.33	0.0479	-0.0076	0.0583	0.0585
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	141.67	0.0547	-0.0086	0.1185	0.1185
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	150.00	0.0616	-0.0096	0.2982	0.2983
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	155.00	0.0921	-0.0097	0.5757	0.5758
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	75.00	0.0135	-0.0558	0.0223	0.0601
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	91.67	0.0201	-0.0741	0.0290	0.0796

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	100.00	0.024	-0.0834	0.0335	0.0889
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	108.33	0.0292	-0.0988	0.0428	0.1045
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	116.67	0.0349	-0.1141	0.0453	0.1205
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	125.00	0.0412	-0.1295	0.0511	0.1372
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	133.33	0.0478	-0.1445	0.0626	0.1522
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	141.67	0.0546	-0.1609	0.1058	0.1912
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	150.00	0.0616	-0.1723	0.3072	0.3436
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	155.00	0.1019	-0.1726	0.6067	0.6308
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	75.00	0.0135	-0.0496	0.0215	0.0539
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	91.67	0.0201	-0.0658	0.0274	0.0713
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	100.00	0.024	-0.0740	0.0328	0.0797
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	108.33	0.0293	-0.0878	0.0418	0.0941
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	116.67	0.0351	-0.1013	0.0446	0.1079
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	125.00	0.0413	-0.1149	0.0479	0.1237
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	133.33	0.0481	-0.1282	0.0568	0.1333
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	141.67	0.0549	-0.1427	0.1077	0.1788
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	150.00	0.0619	-0.1527	0.2881	0.305
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	155.00	0.0924	-0.1529	0.5708	0.5795
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	75.00	0.0525	-0.0400	0.0771	0.0868
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	91.67	0.0772	-0.0533	0.0973	0.1109
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	100.00	0.0918	-0.0600	0.1105	0.1248
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	108.33	0.1094	-0.0711	0.1332	0.1498
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	116.67	0.129	-0.0820	0.1441	0.1644
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	125.00	0.1503	-0.0928	0.1543	0.1784
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	133.33	0.1732	-0.1034	0.1722	0.199
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	141.67	0.1969	-0.1151	0.2033	0.2033
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	150.00	0.2212	-0.1233	0.2776	0.3038
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	155.00	0.2506	-0.1235	0.3950	0.4139
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	75.00	0.0513	-0.0902	0.0774	0.1189
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	91.67	0.0756	-0.1200	0.0983	0.1551
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	100.00	0.0899	-0.1350	0.1104	0.173
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	108.33	0.1069	-0.1601	0.1328	0.202
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	116.67	0.1262	-0.1851	0.1449	0.2305
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	125.00	0.1471	-0.2103	0.1569	0.2589
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	133.33	0.1695	-0.2350	0.1702	0.2882
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	141.67	0.1929	-0.2621	0.1703	0.3097
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	150.00	0.2169	-0.2811	0.2856	0.4007
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	155.00	0.2392	-0.2816	0.4557	0.5357
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	75.00	0.0516	0.0764	0.0778	0.1091
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	91.67	0.076	0.1018	0.0976	0.141
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	100.00	0.0903	0.1142	0.1120	0.16
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	108.33	0.1077	0.1352	0.1339	0.1903
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	116.67	0.1271	0.1571	0.1461	0.2145
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	125.00	0.1481	0.1793	0.1573	0.2385
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	133.33	0.1708	0.2012	0.1763	0.2675
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	141.67	0.1943	0.2252	0.1853	0.2876
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	150.00	0.2184	0.2419	0.3104	0.3935
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	155.00	0.2506	0.2423	0.4698	0.5286

Triangular Mat & Pier Foundation Capacity Calculations

Last Updated: 7/26/2011

For Self Supported Towers

Site #:	302505
Site Name:	Wshn - West Haven, CT
Eng. #:	13748405_C3_03
Date:	1/31/2022
Engineer:	T.Sosa
Code:	TIA-222-G

In absence of geotechnical recommended submerged soil unit weight, use the following values:	
Dry unit weight (pcf)	Submerged Unit Weight (pcf)
100	50
110	55
120	65
130	70

Total Down (Tower + Appurt. Wt.):	43.0 k
Total Shear:	31.8 k
Moment (Overturning):	2941.2 k-ft
Pier Diameter:	3.50 ft
Depth to Base of Foundation:	6.50 ft
Number of Tower Legs/Piers:	3
Pier Height Above Ground (Average):	1.25 ft
Edge of Tower Face to Edge of Pad:	4.75 ft
Pad Thickness:	4.00 ft
Tower Face Width:	19.00 ft
Mat Edge Type:	Flat
Width of Formed Flat:	6.33 ft
Depth to Groundwater:	99.00 ft
Concrete Density:	150 pcf
Soil Density Above Water Line:	100 pcf
Soil Density Below Water Line:	50 pcf
Water Density:	62.4 pcf
Ultimate Bearing Capacity:	9000 psf
Sliding Resistance Factor:	0.30
Allowable Stress Increase:	1.00
Φ Soil and Concrete Weight:	0.9
Φ Bearing & Sliding:	0.75

Code Check: 1

Calculations (Do Not Adjust These Values):

Soil Weight (Above Water Line):	115.8 k
Soil Weight (Below Water Line):	0.0 k
Concrete Weight (Above Water Line):	311.6 k
Concrete Weight (Below Water Line):	0.0 k
Dry Conc Volume:	2077.0 ft ³
Buoyant Conc Volume:	0.0 ft ³
Dry Soil Volume:	1158.3 ft ³
Buoyant Soil Volume:	0.0 ft ³
Pad Area:	492.1999 ft ²

Maximum Iteration Distance: 20.46966 ft

Total Force P: 416.9083 k

Bearing in Aggressive/Ulimate Case:

"Corner" Area Resisting Overturning:	13.9 ft ²
Centroid of "Corner" Area:	14.3 ft
Area Required to Resist P:	61.8 ft ²
Area Resisting Moment:	371.6 ft ²

Bearing Usage:

Moment Arm E:	7.1 ft
Net Bearing Pressure:	2798 psf
Nominal Bearing Pressure:	6750 psf
Bearing Usage:	0.41 Result: OK

Overturning:

OTM Capacity:	4267.0 k-ft
OTM Design:	3187.6 k-ft
OTM Usage:	0.75 Result: OK

Sliding:

Acting Sliding Force:	31.8 k
Nominal Sliding Resistance:	93.8 k
Sliding Factor of Safety:	0.34 Result: OK

Overturning Resistance:

OTM Capacity:	4267.0 k-ft
OTM Design Load:	3187.6 k-ft
OTM Usage:	0.75 Result: OK

Bearing Pressure Usage:

Bearing Stress (Due to OTM):	2798 psf
Nominal Bearing Pressure:	6750 psf
Bearing Usage:	0.41 Result: OK

Sliding Resistance:

Acting Sliding Force:	31.8 k
Nominal Sliding Resistance:	93.8 k
Sliding Factor of Safety:	0.34 Result: OK



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This report was prepared for American Tower Corporation by




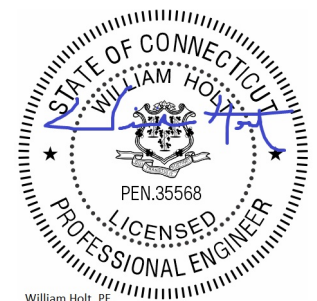
Antenna Mount Analysis Report

ATC Site Name : Wshn - West Haven
ATC Asset Number : 302505
Engineering Number : 13748405_C8_01
Mount Elevation : 153 ft
Carrier : AT&T Mobility
Carrier Site Name : MRCTB050919
Carrier Site Number : CTCN002064
Site Location : 204 Burwell Street
West Haven, CT 06516-1105
41.29532222, -72.97331388
County : New Haven
Date : January 31, 2022
Max Usage : 164%
Result : Fail

Prepared By:
Gunjan Donode
Telamon Tower Engineering, PLLC

Reviewed By:
William Holt, P.E.
Telamon Tower Engineering, PLLC


Digitally signed by
William Holt
Date: 2022.02.02
08:49:48 -05'00'



William Holt, PE
Director of Engineering
License No. 35568 Expires: 01/31/2023

Table of Contents

Introduction 2

Supporting Documents 2

Analysis 2

Conclusion 2

Antenna Loading 3

Structure Usages 3

Equipment Layout Plan View 4

Equipment Layout Front Elevation View 5

Standard Conditions 6

Calculations Attached

Introduction

The proposed equipment is to be mounted to the existing Sector Frames. 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 January 30, 2020 Mount Mapping by Infinigy, Job #1009-Z0003-H, dated January 25, 2022
Previous Analyses	Tower SA by ATC, Engineering #OAA741768_C3_01, dated November 8, 2018
Loading Data	ATC Application, Project #13748405, dated January 24, 2022 AT&T RFDS ID:4705797, Ver. 1.00, dated August 25, 2021

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	B
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 does not meet the requirements per the applicable codes listed above. The mount can support equipment as described in this report after the modifications listed below are completed:

- Reinforce unistruts
- Reinforce face horizontals

The rough cost estimate, pre-MOD design, is estimated to be <\$10k. Please note, a more refined cost estimate will be provided as part of the Modification document package.

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.

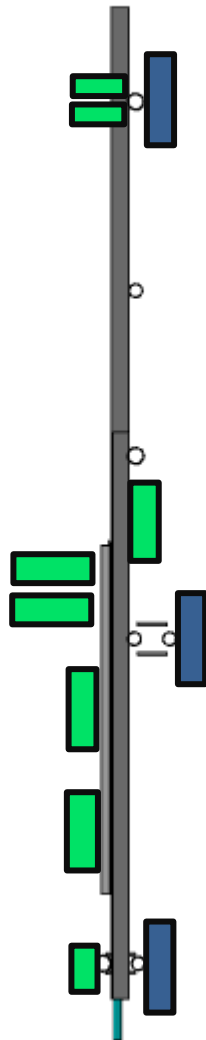
Antenna Loading

Elevation (ft)		Antennas	
Mount	Rad.	#	Name
153.0	156.0	3	Ericsson AIR 6449 B77D
	154.0	3	Quintel Technology QD6616-7
		3	CCI DMP65R-BU6D
		3	Ericsson RRUS 32 B30
		3	Ericsson RRUS E2 B29
		3	Ericsson RRUS 4449 B5/B12
		3	Ericsson RRUS 4478 B14
		3	Ericsson RADIO 8843 B2/B66A
		1	Commscope WCS-IMFQ-AMT
		6	Andrew APTDC-BDFDM-DBW
		2	Raycap DC6-48-60-18-8F
	1	Raycap DC6-48-60-0-8F	
	152.0	3	Ericsson AIR 6419 B77G

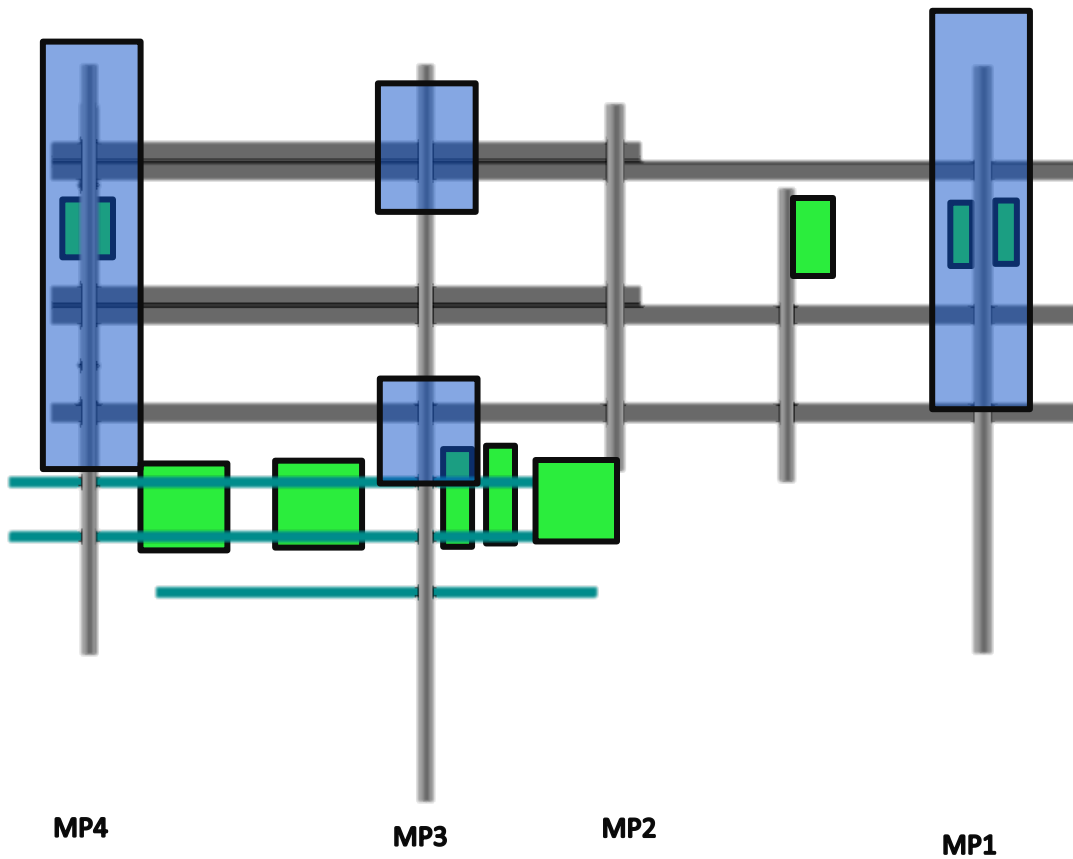
Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Unistruts	164%	Fail
Face Horizontals	144%	Fail
Threaded Rods	85%	Pass
Bracing Members	43%	Pass
Mount Pipes	28%	Pass

Equipment Layout Plan View



Equipment Layout Front Elevation View



Total #	Equipment	Mount Pipe Position
3	Ericsson AIR 6449 B77D	P3
3	Quintel Technology QD6616-7	P1
3	Cci Antennas DMP65R-BU6D	P4
2	Raycap DC6-48-60-18-8F	Face Horizontal
1	Raycap DC6-48-60-0-8F	Face Horizontal
6	Andrew APTDC-BDFDM-DBW	P1
3	Ericsson RRUS 32 B30	Unistrut
3	Ericsson RRUS E2 B29	Unistrut
3	Ericsson RRUS 4449 B5/B12	Unistrut
3	Ericsson RADIO 8843 B2/B66A	Unistrut
3	Ericsson RRUS 4478 B14	Unistrut
1	Commscope WCS-IMFQ-AMT	P4 (Gamma)
3	Ericsson AIR 6419 B77G	P3

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, Telamon Tower 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 Telamon Tower Engineering, PLLC.

All services were performed, results obtained and recommendations made in accordance with generally accepted engineering principles and practices. Telamon Tower 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 Telamon Tower Engineering, PLLC verifies the adequacy of the primary members of the structure. Telamon Tower Engineering, PLLC provides a limited scope of service in that we cannot verify the adequacy of every weld, bolt, gusset, etc.

Wind & Ice Loading			
Nominal Mount Elevation (AGL), z_{mount}	153 ft	K_a	0.90
Nominal Rad Elevation (AGL), z_{rad}	154 ft	K_d	0.95
Elevation AMSL (ft)	288 ft	K_e	0.99
TIA Standard	H	K_z	1.12
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}	1.17 in
Exposure Category	B	G_h	1.00
Risk Category	II	q_z (bare)	38.7 psf
Seismic Response Coeff., C_s	0.11	q_z (ice)	6.7 psf

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

Section Set Label	Shape Label	F_A (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Front Horizontal	L3X3X5	17.40	1.64	6.99
Unistrut	1.5CU1.25X071	8.70	1.52	5.00
Face Horizontal Bracing	L1.5x1.5x3/16	8.70	1.52	4.27
MOUNT_PIPE_2.5	PIPE_2.5	10.01	3.15	5.76
MOUNT_PIPE_2.0	PIPE_2.0	8.27	2.84	5.04
Threaded Rods	SR0.5	1.74	1.71	2.37

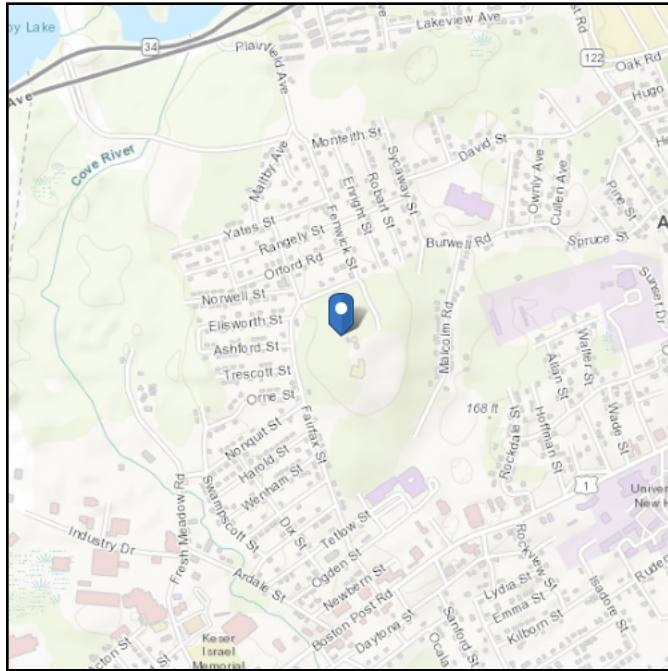
Appurtenances																									
Appurtenance Model	Status	Azimuth Offset ($^{\circ}$, \cup)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty.	Total Qty. Override	0° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	EPA_A (Bare) (ft 2)		EPA_A (Ice) (ft 2)		F_A (Bare) (lb)		F_A (Ice) (lb)		
					Front	Side			0°	1							2	N	T	N	T	N	T	N	T
AIR 6449 B77D			156	<input type="checkbox"/>			1	3	1_A3T	1_A3B	30.4	15.9	10.6	81.6	Flat	78.13	4.03	2.72	4.97	3.53	140.98	95.27	30.23	21.47	
QD6616-7				<input type="checkbox"/>			1	3	1_A2T	1_A2B	72	18.1	9.6	112	Flat	181.93	11.45	6.80	13.19	8.41	399.44	237.13	79.86	50.93	
DMP65R-BU6D				<input type="checkbox"/>			1	3	1_A4T	1_A4B	71.2	20.7	7.7	89.3	Generic	172.56	11.93	4.48	13.68	5.97	416.03	156.23	82.82	36.16	
DC6-48-60-18-8F				<input type="checkbox"/>			1	2	1_M		24	11	11	18.9	Round	41.33	1.28	1.28	1.71	1.71	44.75	44.75	10.33	10.33	
DC6-48-60-0-8F				<input type="checkbox"/>			1	1	1_M		24	11	11	18.9	Round	41.33	1.28	1.28	1.71	1.71	44.75	44.75	10.33	10.33	
APTDC-BDFDM-DBW				<input type="checkbox"/>			2	6	1_T2BN		3.46	1.65	3.46	1.32	Flat	3.69	0.05	0.10	0.19	0.28	1.66	3.48	1.16	1.69	
RRUS 32 B30				<input type="checkbox"/>			1	3	R2		26.7	12.1	6.7	60	Flat	47.60	2.69	1.57	3.49	2.24	93.88	54.85	21.14	13.58	
RRUS E2 B29				<input type="checkbox"/>			1	3	R3		20.4	18.5	7.5	60	Flat	54.18	3.15	1.29	3.95	1.86	109.67	44.82	23.89	11.28	
RRUS 4449 B5/B12				<input checked="" type="checkbox"/>			1	3	R1		17.9	13.19	9.44	71	Flat	43.18	1.41	1.97	1.99	2.62	49.10	68.61	12.02	15.85	
RADIO 8843 B2/B66A				<input type="checkbox"/>			1	3	R4		14.96	13.19	11.1	75	Flat	41.59	1.64	1.38	2.24	1.94	57.34	48.26	13.54	11.72	
RRUS 4478 B14				<input checked="" type="checkbox"/>			1	3	R1		16.5	13.4	7.7	59.9	Flat	37.04	1.06	1.84	1.57	2.47	36.92	64.25	9.53	14.95	
WCS-IMFQ-AMT				<input type="checkbox"/>			1	1	1_T4BN		11.2	10.6	6.9	29.5	Flat	22.60	0.99	0.64	1.46	1.04	34.50	22.46	8.83	6.30	
AIR 6419 B77G			152	<input type="checkbox"/>			1	3	1_A3T1	1_A3B1	28.3	16.1	7.9	66.1	Flat	64.92	3.80	1.94	4.70	2.66	131.91	67.32	28.37	16.04	

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: 287.81 ft (NAVD 88)
Latitude: 41.295322
Longitude: -72.973314



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: Mon Jan 31 2022

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).

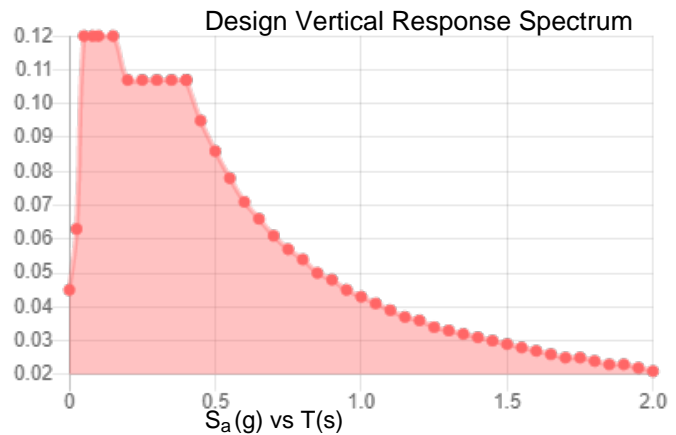
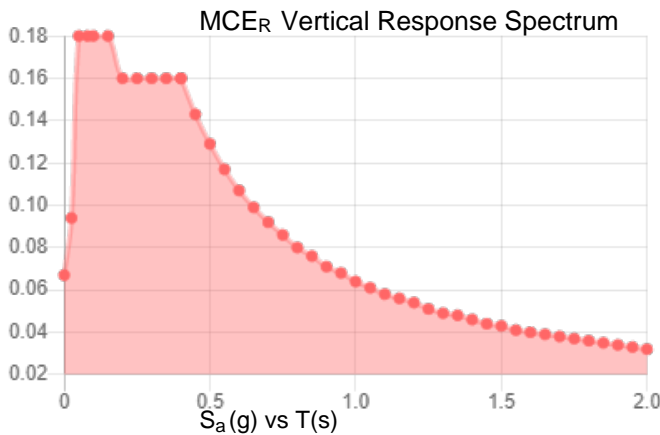
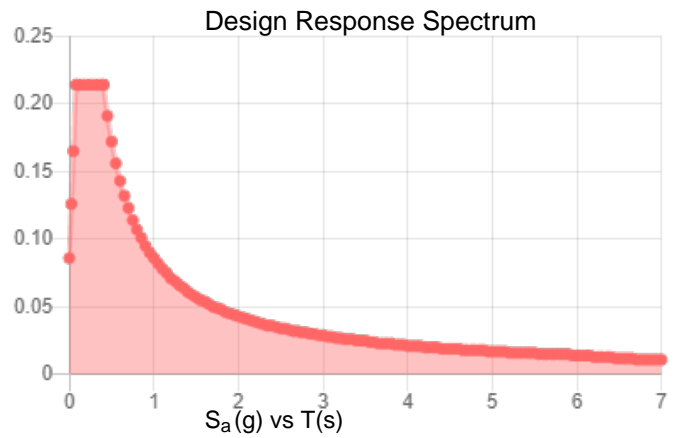
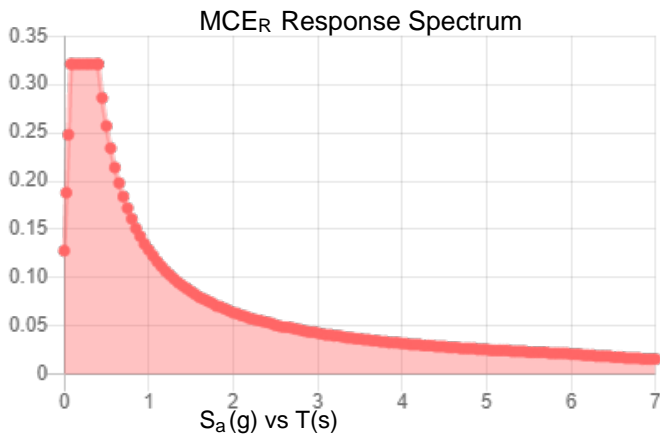
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

Results:

S_s :	0.2	S_{D1} :	0.086
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.112
F_v :	2.4	PGA _M :	0.177
S_{MS} :	0.321	F_{PGA} :	1.575
S_{M1} :	0.129	I_e :	1
S_{DS} :	0.214	C_v :	0.701

Seismic Design Category B



Data Accessed: Mon Jan 31 2022

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: Mon Jan 31 2022

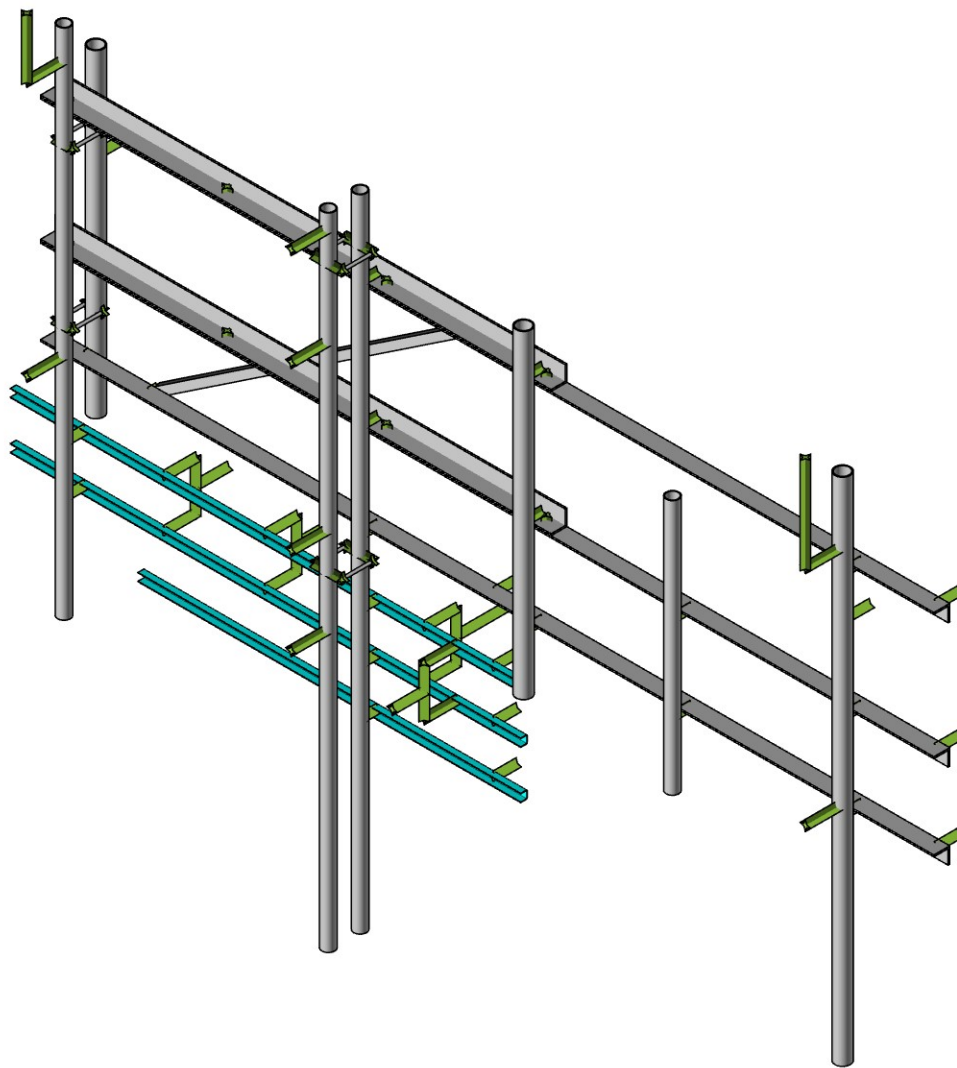
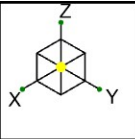
Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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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GD

41124-13748405_C8_01-01-MA

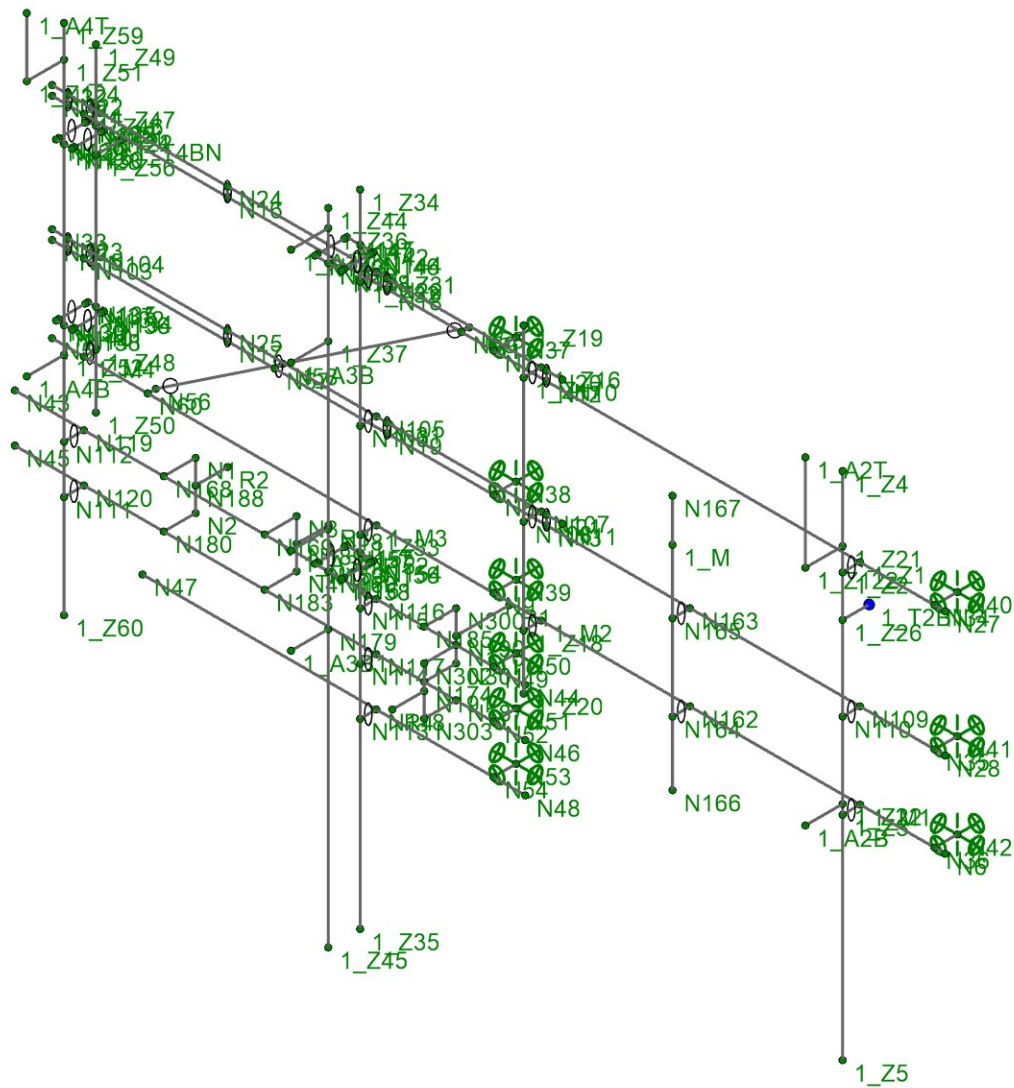
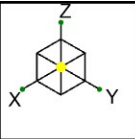
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Rendered

SK-1

Jan 31, 2022

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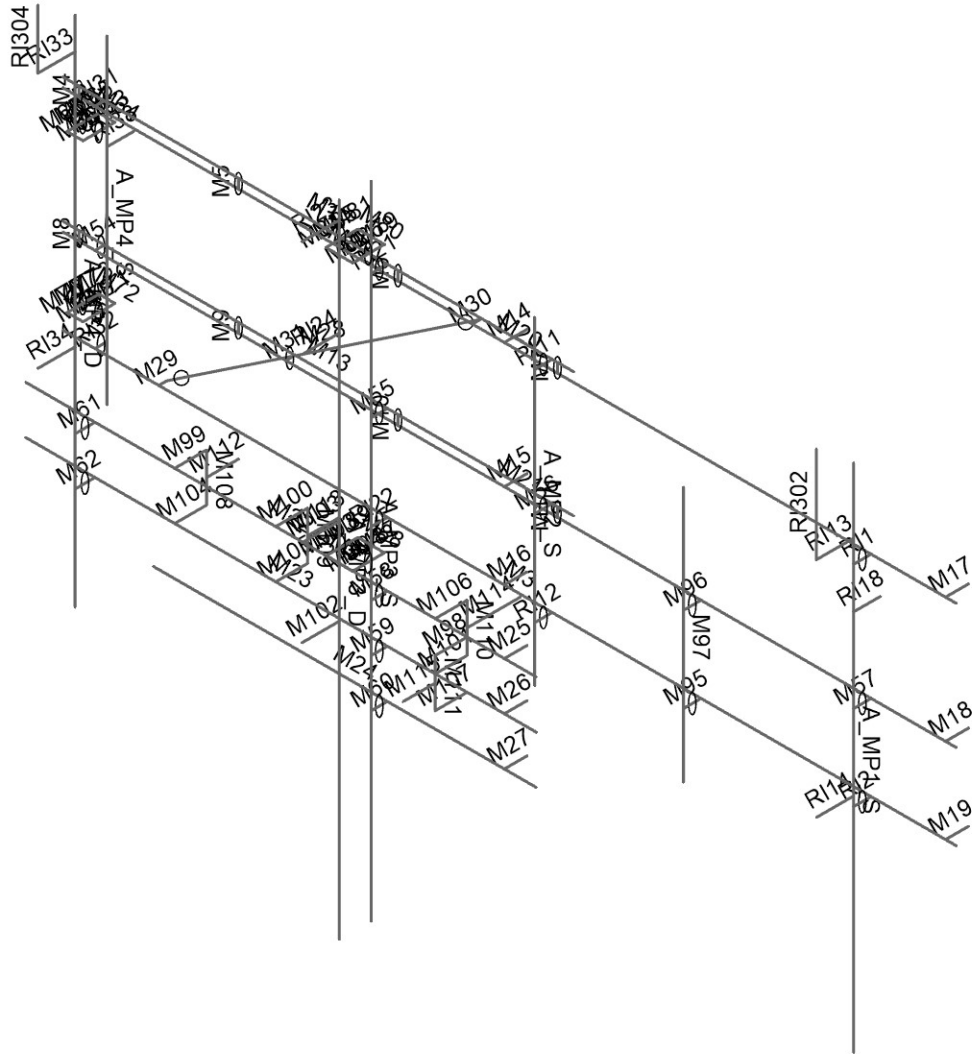
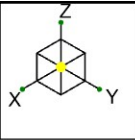


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41124-13748405_C8_01-Wshn - West Haven
 Joint Labels

SK-2
 Jan 31, 2022
 41124-13748405_C8_01-01-MA.r3d



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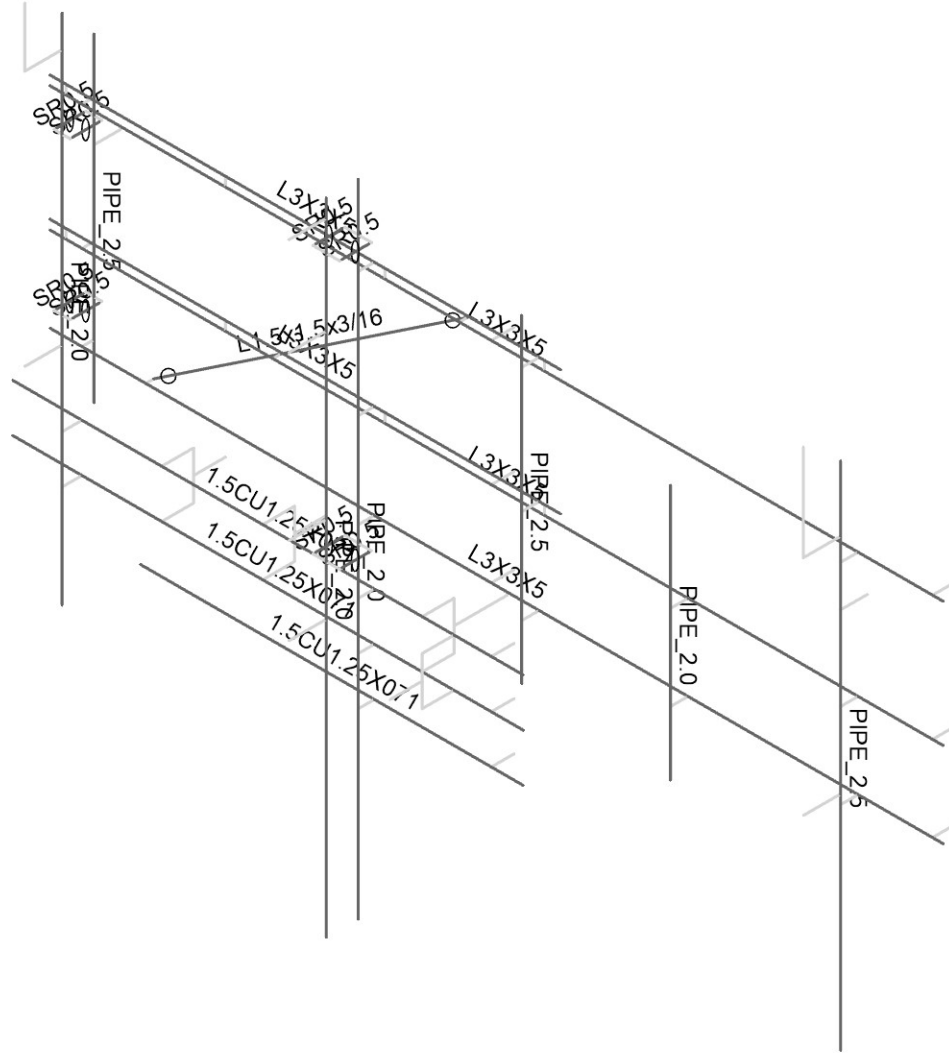
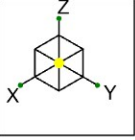
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Member Labels

SK-3

Jan 31, 2022

41124-13748405_C8_01-01-MA.r3d



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Telamon CLS

GD

41124-13748405_C8_01-01-MA

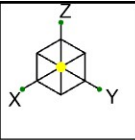
41124-13748405_C8_01-Wshn - West Haven

Member Shapes

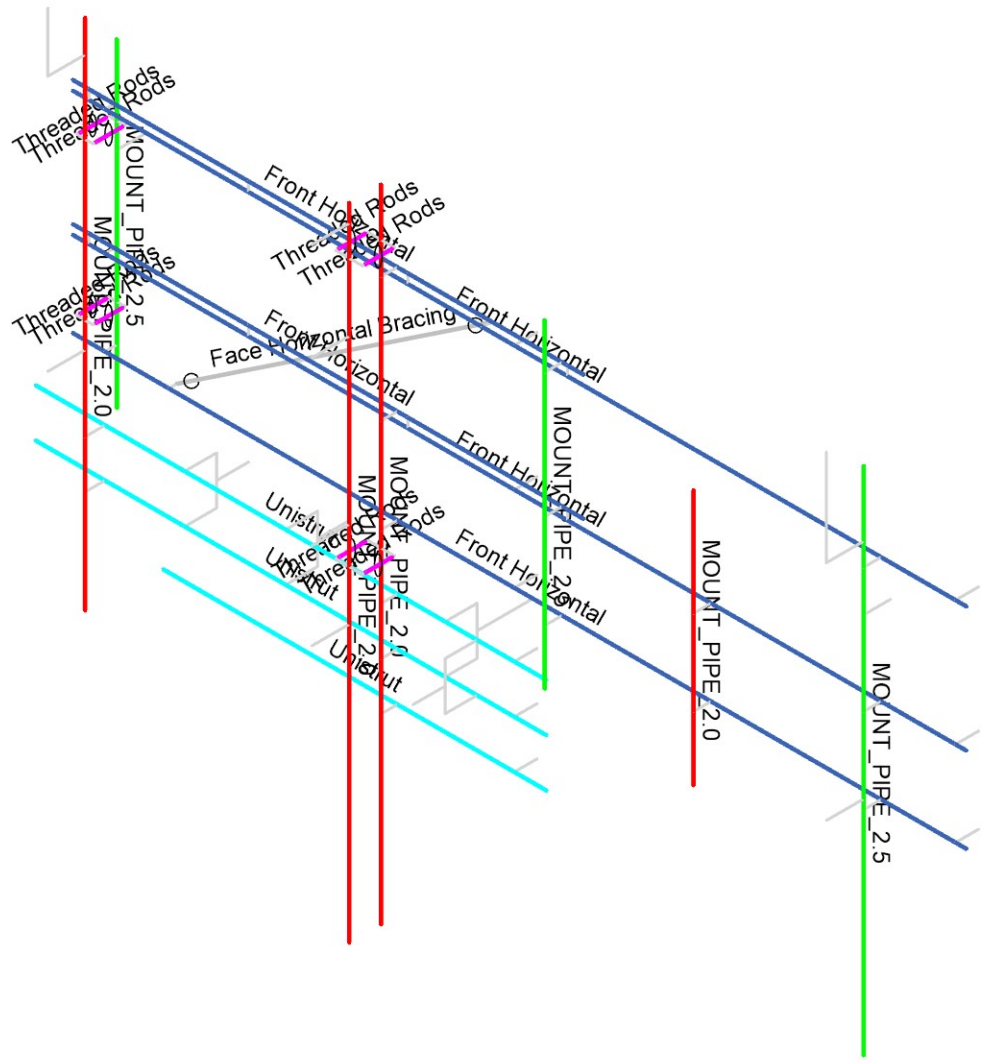
SK-3.1

Jan 31, 2022

41124-13748405_C8_01-01-MA.r3d

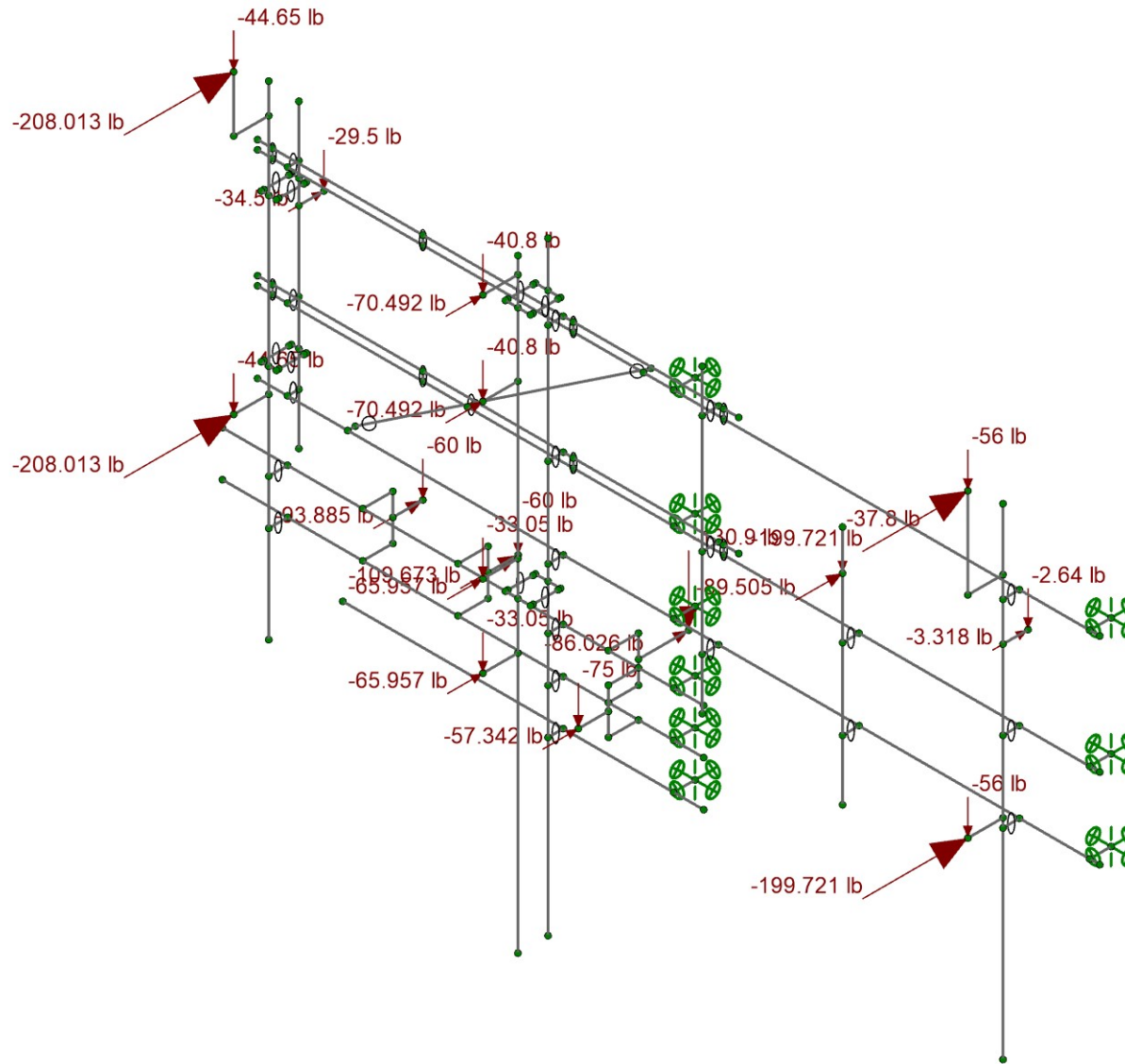
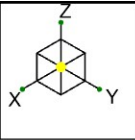


Section Sets	
█	Front Horizontal
█	MOUNT_PIPE_2.5
█	MOUNT_PIPE_2.0
█	Face Horizontal Bracing
█	Threaded Rods
█	Unistrut
█	RIGID



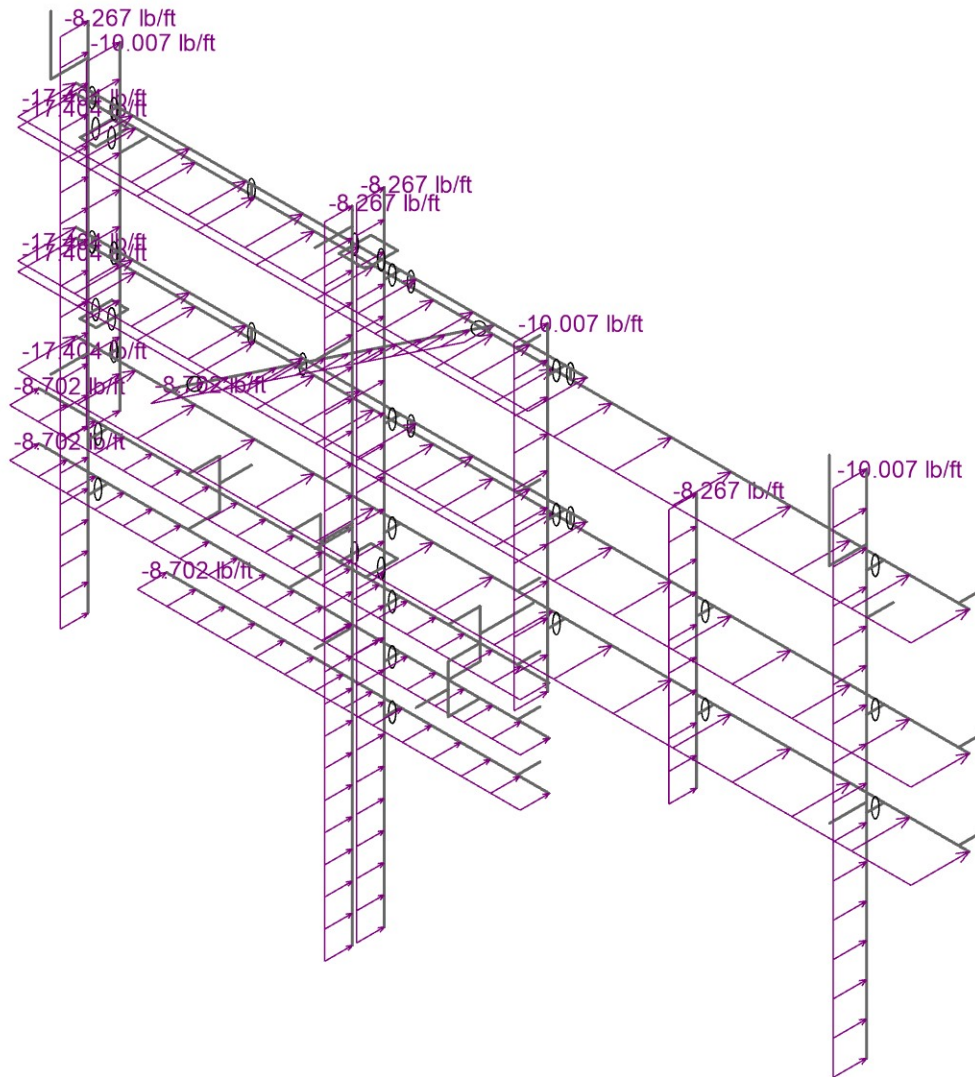
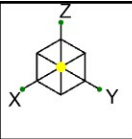
Envelope Only Solution

Telamon CLS	41124-13748405_C8_01-Wshn - West Haven	SK-4
GD		Jan 31, 2022
41124-13748405_C8_01-01-MA	Section Sets	41124-13748405_C8_01-01-MA.r3d



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

Telamon CLS	41124-13748405_C8_01-Wshn - West Haven	SK-5
GD		Jan 31, 2022
41124-13748405_C8_01-01-MA	Joint Loads - Dead and Normal Wind	41124-13748405_C8_01-01-MA.r3d



Loads: BLC 5, Structure Wind 0
Envelope Only Solution

Telamon CLS

GD

41124-13748405_C8_01-01-MA

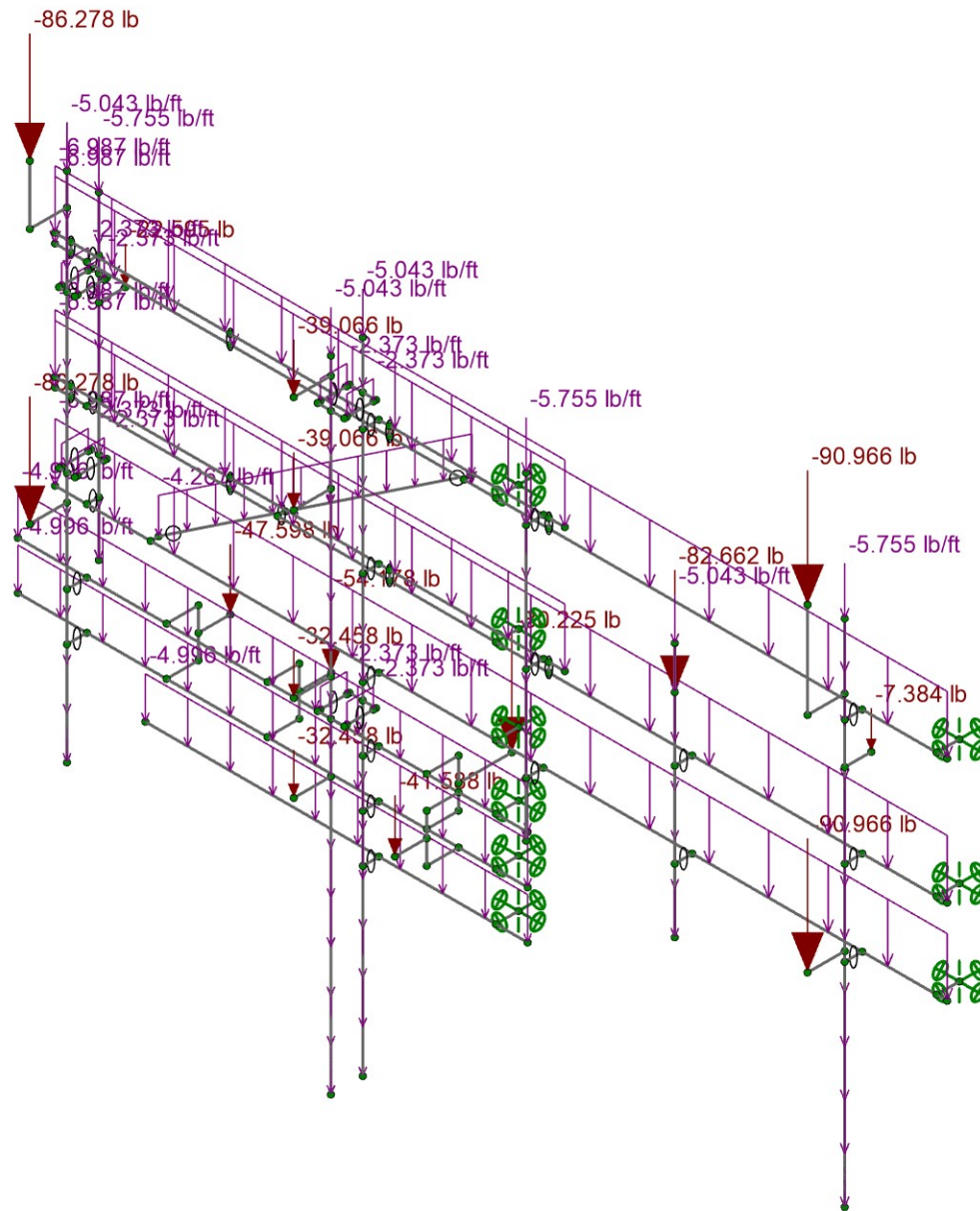
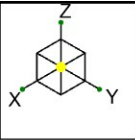
41124-13748405_C8_01-Wshn - West Haven

Distributed Load - Normal Wind

SK-6

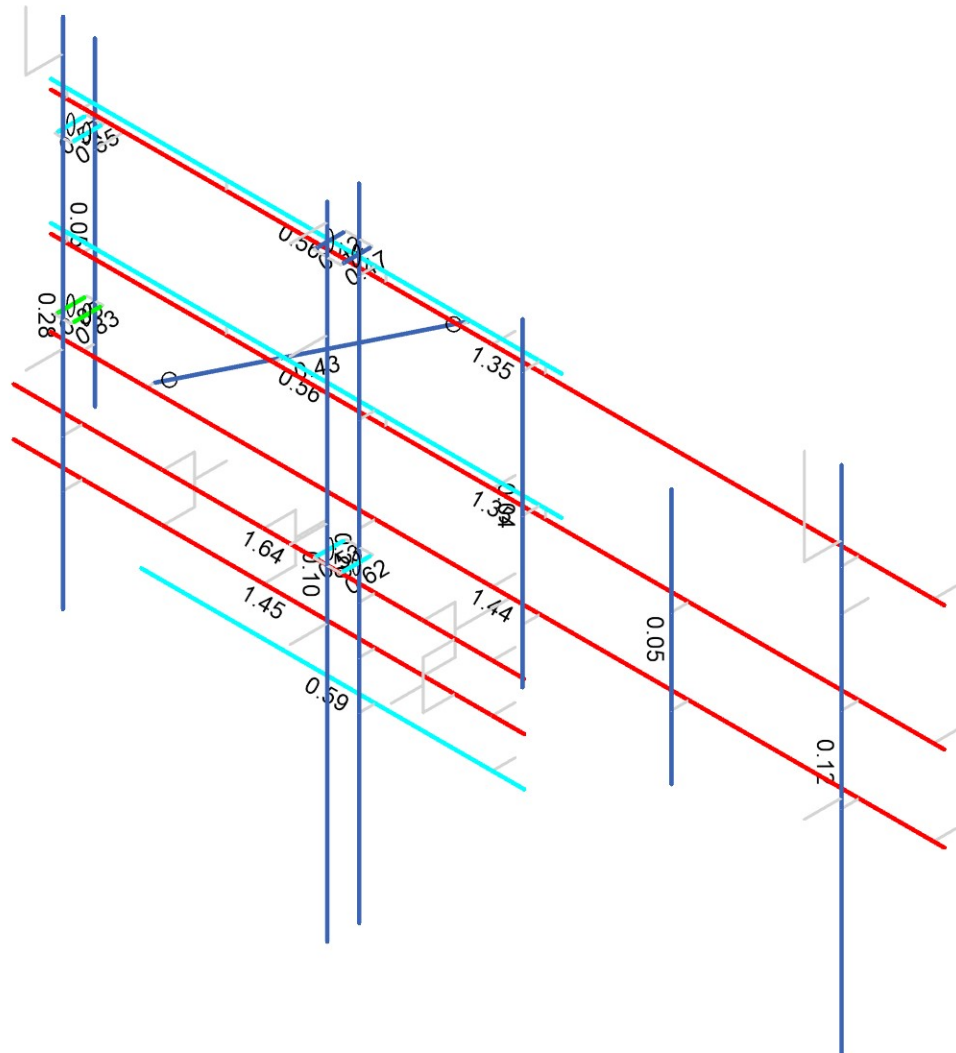
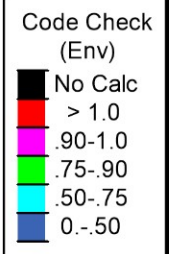
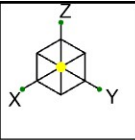
Jan 31, 2022

41124-13748405_C8_01-01-MA.r3d



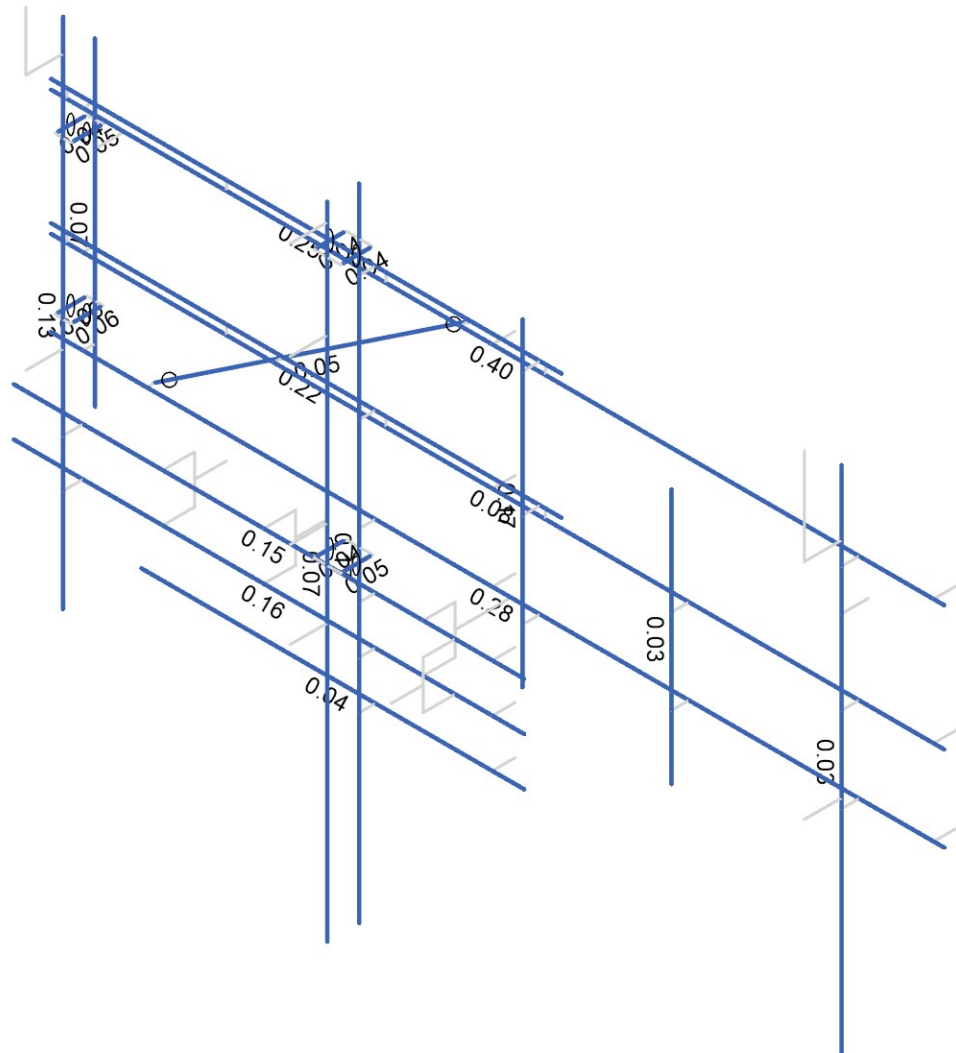
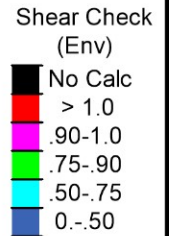
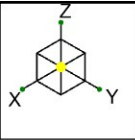
Loads: BLC 2, Ice Dead
Envelope Only Solution

Telamon CLS	41124-13748405_C8_01-Wshn - West Haven	SK-7
GD		Jan 31, 2022
41124-13748405_C8_01-01-MA	Ice Dead Loads	41124-13748405_C8_01-01-MA.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Telamon CLS	41124-13748405_C8_01-Wshn - West Haven	SK-8
GD		Jan 31, 2022
41124-13748405_C8_01-01-MA	Envelope Member Unity Check Results - Bending	41124-13748405_C8_01-01-MA.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Telamon CLS	41124-13748405_C8_01-Wshn - West Haven	SK-9
GD		Jan 31, 2022
41124-13748405_C8_01-01-MA	Envelope Member Unity Check Results - Shear	41124-13748405_C8_01-01-MA.r3d

Basic Load Cases

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

Basic Load Cases (Continued)

	BLC Description	Category	Z Gravity	Nodal	Distributed
58	Antenna Wind w/ Ice 120°	None		34	
59	Antenna Wind w/ Ice 135°	None		34	
60	Antenna Wind w/ Ice 150°	None		34	
61	Antenna Wind w/ Ice 180°	None		17	
62	Antenna Wind w/ Ice 210°	None		34	
63	Antenna Wind w/ Ice 225°	None		34	
64	Antenna Wind w/ Ice 240°	None		34	
65	Antenna Wind w/ Ice 270°	None		17	
66	Antenna Wind w/ Ice 300°	None		34	
67	Antenna Wind w/ Ice 315°	None		34	
68	Antenna Wind w/ Ice 330°	None		34	
69	Seismic X	ELX		17	24
70	Seismic Y	ELY		17	24
71	Seismic Z	ELZ		17	24
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
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

Load Combinations (Continued)

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

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
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 ⁵ 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	Q235	29000	11154	0.3	0.65	0.49	35	1.5	58	1.2

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [$1e^{-6}F^{-1}$]	Density [k/ft ³]	Yield [ksi]	Fu [ksi]
1	A570 Gr.33	29500	11346	0.3	0.65	0.49	33	52
2	A607 C1 Gr.55	29500	11346	0.3	0.65	0.49	55	70

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	Front Horizontal	L3X3X5	None	None	A36 Gr.36	Typical	1.78	1.5	1.5
2	MOUNT_PIPE_2.5	PIPE_2.5	None	None	A53 Gr.B	Typical	1.61	1.45	1.45
3	MOUNT_PIPE_2.0	PIPE_2.0	None	None	A53 Gr.B	Typical	1.02	0.627	0.627
4	Face Horizontal Bracing	L1.5x1.5x3/16	None	None	A53 Gr.B	Typical	0.529	0.11	0.11
5	Threaded Rods	SR0.5	None	None	A36 Gr.36	Typical	0.196	0.003	0.003

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule Area [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
1	Unistrut	1.5CU1.25X071	Beam	None	A570 Gr.33	Typical	0.26	0.042	0.098

Hot Rolled Steel Design Parameters

	Label	Shape	Length [in]	Lb z-z [in]	Function
1	M20	Front Horizontal	168		Lateral
2	M21	Front Horizontal	168		Lateral
3	M3	Front Horizontal	168	55	Lateral
4	M12	Front Horizontal	96	55	Lateral
5	M13	Front Horizontal	96	55	Lateral
6	M28	Face Horizontal Bracing	71.002		Lateral
7	A MP1 S	MOUNT_PIPE_2.5	96		Lateral
8	A MP2 S	MOUNT_PIPE_2.5	60		Lateral
9	A MP3 S	MOUNT_PIPE_2.0	120.5		Lateral
10	A MP3 D	MOUNT_PIPE_2.0	120.5		Lateral
11	A MP4 S	MOUNT_PIPE_2.5	60		Lateral
12	A MP4 D	MOUNT_PIPE_2.0	96.5		Lateral
13	M69	Threaded Rods	5		Lateral
14	M70	Threaded Rods	5		Lateral
15	M77	Threaded Rods	5		Lateral
16	M78	Threaded Rods	5		Lateral
17	M85	Threaded Rods	5		Lateral
18	M86	Threaded Rods	5		Lateral
19	M93	Threaded Rods	5		Lateral
20	M94	Threaded Rods	5		Lateral
21	M97	MOUNT_PIPE_2.0	48		Lateral

Cold Formed Steel Design Parameters

	Label	Shape	Length [in]	Lb z-z [in]	Function
1	M22	Unistrut	96	55	Lateral
2	M23	Unistrut	96	55	Lateral
3	M24	Unistrut	72		Lateral

Member Advanced Data

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
1	M20			Yes	** NA **	None
2	M21			Yes	** NA **	None
3	M3			Yes	** NA **	None
4	M4		OOOXOO	Yes	** NA **	None
5	M5		OOOXOO	Yes	** NA **	None
6	M6		OOOXOO	Yes	** NA **	None
7	M7		OOOXOO	Yes	** NA **	None
8	M8		OOOXOO	Yes	** NA **	None
9	M9		OOOXOO	Yes	** NA **	None
10	M10		OOOXOO	Yes	** NA **	None
11	M11		OOOXOO	Yes	** NA **	None
12	M12			Yes	** NA **	None
13	M13			Yes	** NA **	None
14	M14			Yes	** NA **	None
15	M15			Yes	** NA **	None
16	M16			Yes	** NA **	None
17	M17			Yes	** NA **	None
18	M18			Yes	** NA **	None
19	M19			Yes	** NA **	None
20	M22			Yes	Default	None
21	M23			Yes	Default	None
22	M24			Yes	Default	None
23	M25			Yes	** NA **	None
24	M26			Yes	** NA **	None
25	M27			Yes	** NA **	None
26	M28	BenPIN	BenPIN	Yes	** NA **	None
27	M29			Yes	** NA **	None
28	M30			Yes	** NA **	None
29	M31		OOOXOO	Yes	** NA **	None
30	RI2		OOOXOO	Yes	** NA **	None
31	RI1		OOOXOO	Yes	** NA **	None
32	A MP1 S			Yes	** NA **	None
33	RI12		OOOXOO	Yes	** NA **	None
34	RI11		OOOXOO	Yes	** NA **	None
35	A MP2 S			Yes	** NA **	None
36	RI13			Yes	** NA **	None
37	RI14			Yes	** NA **	None
38	RI18			Yes	** NA **	None
39	RI22		OOOXOO	Yes	** NA **	None
40	RI21		OOOXOO	Yes	** NA **	None
41	A MP3 S			Yes	** NA **	None
42	RI23			Yes	** NA **	None
43	RI24			Yes	** NA **	None
44	A MP3 D			Yes	** NA **	None
45	RI32		OOOXOO	Yes	** NA **	None
46	RI31		OOOXOO	Yes	** NA **	None
47	A MP4 S			Yes	** NA **	None
48	RI33			Yes	** NA **	None
49	RI34			Yes	** NA **	None
50	RI38			Yes	** NA **	None
51	A MP4 D			Yes	** NA **	None
52	RI302			Yes	** NA **	None
53	RI304			Yes	** NA **	None
54	M54		OOOXOO	Yes	** NA **	None
55	M55		OOOXOO	Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
56	M56		OOOXOO	Yes	** NA **	None
57	M57		OOOXOO	Yes	** NA **	None
58	M58	OOOXOO		Yes	** NA **	None
59	M59	OOOXOO		Yes	** NA **	None
60	M60	OOOXOO		Yes	** NA **	None
61	M61	OOOXOO		Yes	** NA **	None
62	M62	OOOXOO		Yes	** NA **	None
63	M63			Yes	** NA **	None
64	M64			Yes	** NA **	None
65	M65			Yes	** NA **	None
66	M66			Yes	** NA **	None
67	M67			Yes	** NA **	None
68	M68			Yes	** NA **	None
69	M69		OOOXOO	Yes	** NA **	None
70	M70		OOOXOO	Yes	** NA **	None
71	M71			Yes	** NA **	None
72	M72			Yes	** NA **	None
73	M73			Yes	** NA **	None
74	M74			Yes	** NA **	None
75	M75			Yes	** NA **	None
76	M76			Yes	** NA **	None
77	M77		OOOXOO	Yes	** NA **	None
78	M78		OOOXOO	Yes	** NA **	None
79	M79			Yes	** NA **	None
80	M80			Yes	** NA **	None
81	M81			Yes	** NA **	None
82	M82			Yes	** NA **	None
83	M83			Yes	** NA **	None
84	M84			Yes	** NA **	None
85	M85		OOOXOO	Yes	** NA **	None
86	M86		OOOXOO	Yes	** NA **	None
87	M87			Yes	** NA **	None
88	M88			Yes	** NA **	None
89	M89			Yes	** NA **	None
90	M90			Yes	** NA **	None
91	M91			Yes	** NA **	None
92	M92			Yes	** NA **	None
93	M93		OOOXOO	Yes	** NA **	None
94	M94		OOOXOO	Yes	** NA **	None
95	M95		OOOXOO	Yes	** NA **	None
96	M96		OOOXOO	Yes	** NA **	None
97	M97			Yes	** NA **	None
98	M98			Yes	** NA **	None
99	M99			Yes	** NA **	None
100	M100			Yes	** NA **	None
101	M101			Yes	** NA **	None
102	M102			Yes	** NA **	None
103	M103			Yes	** NA **	None
104	M104			Yes	** NA **	None
105	M105			Yes	** NA **	None
106	M106			Yes	** NA **	None
107	M107			Yes	** NA **	None
108	M108			Yes	** NA **	None
109	M109			Yes	** NA **	None
110	M110			Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
111	M111			Yes	** NA **	None
112	M112			Yes	** NA **	None
113	M113			Yes	** NA **	None
114	M114			Yes	** NA **	None
115	M115			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]
1	N27					
2	N28					
3	N29					
4	N30					
5	N5					
6	N6					
7	N7					
8	N8					
9	N9					
10	N10					
11	N11					
12	N12					
13	N13					
14	N14					
15	N15					
16	N16					
17	N17					
18	N18					
19	N19					
20	N20					
21	N21					
22	N22					
23	N23					
24	N24					
25	N25					
26	N26					
27	N31					
28	N32					
29	N33					
30	N34					
31	N35					
32	N36					
33	N37	Reaction	Reaction	Reaction	Reaction	Reaction
34	N38	Reaction	Reaction	Reaction	Reaction	Reaction
35	N39	Reaction	Reaction	Reaction	Reaction	Reaction
36	N40	Reaction	Reaction	Reaction	Reaction	Reaction
37	N41	Reaction	Reaction	Reaction	Reaction	Reaction
38	N42	Reaction	Reaction	Reaction	Reaction	Reaction
39	N43					
40	N44					
41	N45					
42	N46					
43	N47					
44	N48					
45	N49					
46	N50	Reaction	Reaction	Reaction	Reaction	Reaction
47	N51	Reaction	Reaction	Reaction	Reaction	Reaction

Node Boundary Conditions (Continued)

Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]
48 N52					
49 N53	Reaction	Reaction	Reaction	Reaction	Reaction
50 N54					
51 N55					
52 N56					
53 N59					
54 N60					
55 N58					
56 N162					
57 N163					

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 N37	max 1066.441	3	4132.28	11	1437.658	26	-131.896	13	-137.017	65	0	130
2	min -1255.08	11	-2872.635	3	473.67	51	-528.754	117	-403.533	25	0	1
3 N38	max 945.935	3	2530.883	11	654.722	19	-108.681	97	10.001	11	0	130
4	min -884.656	11	-2979.411	3	-39.099	11	-487.963	24	-237.028	19	0	1
5 N39	max 1655.639	3	2389.203	11	831.419	3	-55.531	96	160.114	11	0	130
6	min -1516.506	11	-3111.593	3	-432.864	11	-664.754	120	-302.228	3	0	1
7 N40	max 84.926	5	2599.339	3	250.684	69	469.15	3	-18.803	66	0	130
8	min -186.054	13	-2236.601	11	52.089	65	-569.591	11	-90.605	70	0	1
9 N41	max 379.263	11	3330.025	3	464.066	11	727.676	3	96.018	3	0	130
10	min -372.09	3	-3364.952	11	-271.531	3	-920.824	11	-164.566	11	0	1
11 N42	max 277.883	10	3477.693	3	391.47	75	800.542	3	73.409	3	0	130
12	min -185.648	18	-3728.89	11	-211.694	3	-998.124	11	-138.184	75	0	1
13 N50	max 187.87	26	46.485	12	160.365	11	19.581	3	-6.328	3	0	130
14	min 22.899	3	-190.938	4	17.588	3	-119.444	11	-57.003	11	0	1
15 N51	max 98.424	3	235.589	11	160.706	11	19.581	3	-6.329	3	0	130
16	min -311.139	11	-174.327	3	17.588	3	-119.444	11	-57.125	11	0	1
17 N53	max 36.59	5	74.855	14	34.282	11	19.565	3	4.531	3	0	130
18	min -34.661	13	-160.48	5	-12.933	3	-67.05	11	-12.081	11	0	1
19 Totals:	max 3262.717	3	1656.01	17	3254.123	19						
20	min -3262.731	11	-1656.01	9	1147.652	60						

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

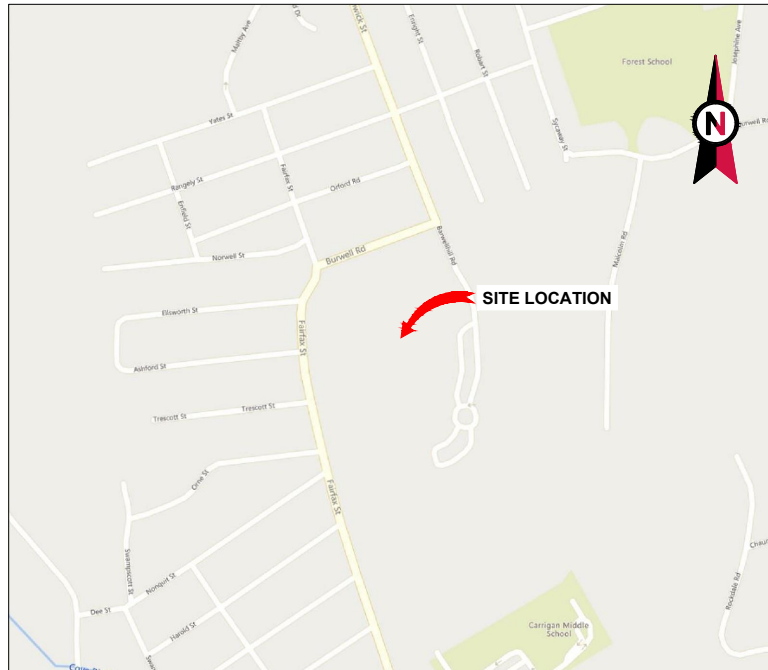
Member	Shape	Code Check	Loc[in]	LC	Shear	Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
1 M3	L3X3X5	1.44	92.842	11	0.28	17.684	z	123	4842.598	57672	2014.646	3515.22	1.5	H2-1	
2 M20	L3X3X5	1.351	82.232	11	0.402	82.232	z	123	4842.598	57672	2014.646	3515.22	1.5	H2-1	
3 M21	L3X3X5	1.349	82.232	3	0.079	41.558	z	11	4842.598	57672	2014.646	3515.22	1.5	H2-1	
4 M77	SR0.5	0.848	5	11	0.064	0		11	5847.836	6361.74	53.015	53.015	2.213	H1-1b	
5 M78	SR0.5	0.828	5	11	0.059	0		11	5847.836	6361.74	53.015	53.015	2.209	H1-1b	
6 M70	SR0.5	0.646	5	4	0.05	0		4	5847.836	6361.74	53.015	53.015	2.218	H1-1b	
7 M94	SR0.5	0.621	0	11	0.049	0		27	5847.836	6361.74	53.015	53.015	2.223	H1-1b	
8 M69	SR0.5	0.571	5	18	0.043	0		17	5847.836	6361.74	53.015	53.015	2.212	H1-1b	
9 M13	L3X3X5	0.562	62.653	3	0.216	62.653	y	11	14830.456	57672	2014.646	4085.755	1.5	H2-1	
10 M12	L3X3X5	0.556	62.653	11	0.248	62.653	z	3	14830.456	57672	2014.646	4085.755	1.5	H2-1	
11 M93	SR0.5	0.531	0	26	0.043	0		25	5847.836	6361.74	53.015	53.015	2.24	H1-1b	
12 M86	SR0.5	0.469	0	18	0.038	0		19	5847.836	6361.74	53.015	53.015	2.254	H1-1b	
13 M28	L1.5x1.5x3/16	0.426	28.401	11	0.046	28.774	z	11	2038.449	16652.664	285.293	559.802	1.5	H2-1	
14 M85	SR0.5	0.415	0	34	0.035	0		19	5847.836	6361.74	53.015	53.015	2.266	H1-1b	
15A_MP4_D	PIPE 2.0	0.284	49.266	11	0.131	68.566		27	14797.035	32130	1871.625	1871.625	1.788	H1-1b	
16A_MP3_S	PIPE 2.0	0.265	56.445	11	0.174	76.739		3	9755.135	32130	1871.625	1871.625	2.377	H1-1b	
17A_MP1_S	PIPE 2.5	0.116	16.168	11	0.032	16.168		16	30038.461	50715	3596.25	3596.25	2.299	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
18	A_MP3_D	PIPE 2.0	0.101	58.982	3			9755.135	32130	1871.625	1871.625	2.45	H1-1b
19	M97	PIPE 2.0	0.055	19.958	11			26521.424	32130	1871.625	1871.625	1	H1-1b
20	A_MP4_S	PIPE 2.5	0.047	42.632	11			41331.898	50715	3596.25	3596.25	1.78	H1-1b
21	A_MP2_S	PIPE 2.5	0.04	32.211	11			41331.898	50715	3596.25	3596.25	1.598	H1-1b

Envelope AISI S100-16: LRFD Member Cold Formed Steel Code Checks

Member	Shape	Code Check	Loc[in]	LC Shear Check	Loc[in]	Dir	LC	phi*Pn [lb]	phi*Tn [lb]	phi*Mnyy [lb-ft]	phi*Mnzz [lb-ft]	phi*Vny [lb]	phi*Vnz [lb]	Cb	Eqn
1	M22	1.5CU1.25X071	1.645	27.789	21			996.181	7722	112.211	250.052	1312.806	2648.316	1.463	H1.2-1
2	M23	1.5CU1.25X071	1.453	47.495	19			996.181	7722	129.191	251.272	1312.806	2648.316	1.48	H1.2-1
3	M24	1.5CU1.25X071	0.586	65.937	6			1770.988	7722	129.191	296.048	1312.806	2648.316	2.109	H1.2-1



VICINITY MAP



AMERICAN TOWER®

ATC SITE NAME: WSHN - WEST HAVEN
 ATC SITE NUMBER: 302505
 AT&T PACE NUMBERS: MRCTB052224, MRCTB051259,
 MRCTB050919, MRCTB050945
 AT&T SITE ID: CTCN002064
 AT&T FA CODE: 10035024
 AT&T SITE NAME: MRCTB050919
 SITE ADDRESS: 204 BURWELL STREET



LOCATION MAP

**AT&T
 AMENDMENT PLAN**

COMPLIANCE CODE	PROJECT SUMMARY	PROJECT DESCRIPTION	SHEET INDEX				
<p>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.</p> <p>1. CT STATE BUILDING CODE, INCORPORATING THE 2018 INTERNATIONAL BUILDING CODE 2. 2017 NATIONAL ELECTRIC CODE (NEC) 3. LOCAL BUILDING CODE 4. CITY/COUNTY ORDINANCES</p>	<p><u>SITE ADDRESS:</u> 204 BURWELL STREET WEST HAVEN, CT 06516 COUNTY: NEW HAVEN</p> <p><u>GEOGRAPHIC COORDINATES:</u> LATITUDE: 41.29535639 LONGITUDE: -72.97332708 GROUND ELEVATION: 282' AMSL</p>	<p>THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW: <u>TOWER WORK:</u> REMOVE (12) ANTENNA(S), (6) RRH(S), (6) TTA(S), (6) COAX CABLE(S), (1) CONDUIT(S) AND (1) FIBER TRUNK CABLE(S) INSTALL (12) ANTENNA(S), (3) RRH(S) AND (1) FIBER CABLE(S) EXISTING (12) RRHS [(9) TOWER TOP & (3) AT GRADE], (3) SQUID(S), (1) FILTER(S), (6) DC TRUNKS, (1) FIBER CABLE(S) AND (6) COAX CABLE(S) TO REMAIN</p>	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
	<p><u>PROJECT TEAM</u></p> <p><u>TOWER OWNER:</u> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801</p> <p><u>APPLICANT:</u> AT&T MOBILITY</p> <p><u>ENGINEER:</u> COLLIERS ENGINEERING & DESIGN CT, P.C. 135 NEW ROAD MADISON, CT 06443</p> <p>PROJECT #: 22904223A</p> <p><u>PROPERTY OWNER:</u> BURWELL HILL AGENCY ACCOUNT 204 BURWELL STREET WEST HAVEN, CT 06516</p>	<p><u>PROJECT NOTES</u></p> <p>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).</p>	<p><u>PROJECT LOCATION DIRECTIONS</u></p> <p>FROM HARTFORD TRAVEL SOUTH ON I91 TO EXIT 47 RT 1 WEST - FOLLOW TO RT 129 TAKE RIGHT AND THEN LEFT ON BURWELL. FOLLOW BURWELL TO SITE. ACCESS ROAD ON RIGHT OF CHURCH ATC SITE ON RIGHT</p>	G-001	TITLE SHEET	1	05/25/22
<p><u>UTILITY COMPANIES</u></p> <p>POWER COMPANY: UNKNOWN PHONE: N/A</p> <p>TELEPHONE COMPANY: UNKNOWN PHONE: N/A</p>			G-002	GENERAL NOTES	1	05/25/22	JLK
			C-101	DETAILED SITE PLAN	1	05/25/22	JLK
			C-201	TOWER ELEVATION	1	05/25/22	JLK
			C-401	RF SCHEDULE AND ANTENNA INSTALLATION	1	05/25/22	JLK
			C-501	CONSTRUCTION DETAILS	1	05/25/22	JLK
			E-501	GROUNDING DETAILS	1	05/25/22	JLK
			R-601	SUPPLEMENTAL			
			R-602	SUPPLEMENTAL			
			R-603	SUPPLEMENTAL			
			R-604	SUPPLEMENTAL			



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REV.	DESCRIPTION	BY	DATE
A	PRELIM	JLK	03/23/22
0	FOR CONSTRUCTION	AMN	05/13/22
1	FOR CONSTRUCTION	AMN	05/25/22
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ATC SITE NUMBER:
 302505

ATC SITE NAME:
 WSHN - WEST HAVEN

AT&T SITE NAME:
 MRCTB050919

SITE ADDRESS:
 204 BURWELL STREET
 WEST HAVEN, CT 06516

SEAL:

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DATE DRAWN: 03/23/22
 ATC JOB NO: 13748405_D1
 CUSTOMER ID: CTCN002064
 CUSTOMER #: 10035024

TITLE SHEET

SHEET NUMBER: **G-001** REVISION: **1**

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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 ANSII/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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REV.	DESCRIPTION	BY	DATE
A	PRELIM	JLK	03/23/22
0	FOR CONSTRUCTION	AMN	05/13/22
1	FOR CONSTRUCTION	AMN	05/25/22

ATC SITE NUMBER:
302505

ATC SITE NAME:
WSHN - WEST HAVEN

AT&T SITE NAME:
MRCTB050919

SITE ADDRESS:
204 BURWELL STREET
WEST HAVEN, CT 06516

SEAL:

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Date: 2022.05.25 13:04:52-04'00'

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DATE DRAWN:	03/23/22
ATC JOB NO:	13748405_D1
CUSTOMER ID:	CTCN002064
CUSTOMER #:	10035024

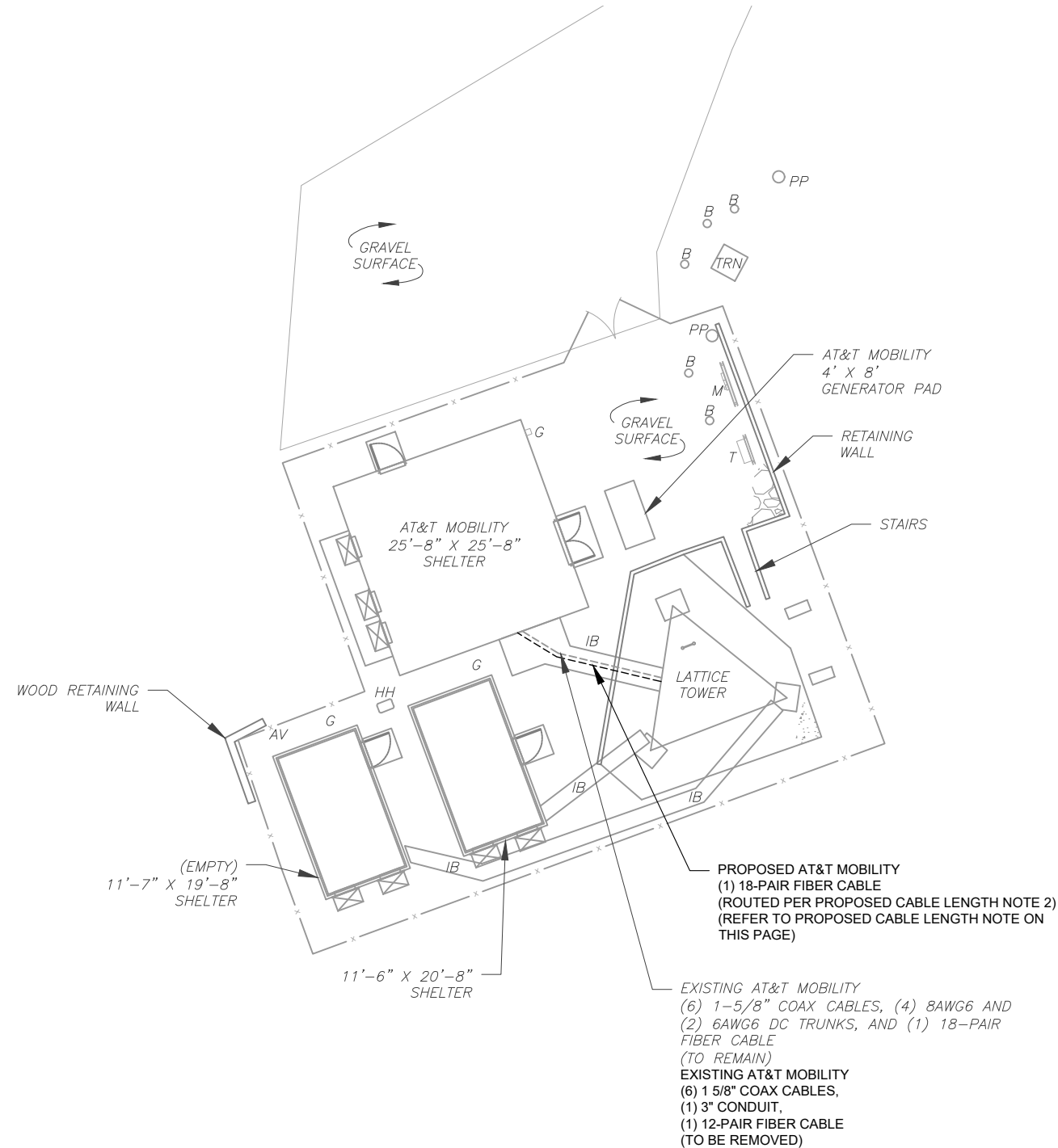
GENERAL NOTES	
SHEET NUMBER: G-002	REVISION: 1

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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.

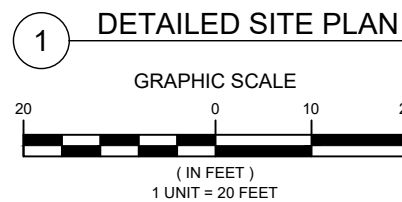
LEGEND	
⊗	GROUNDING TEST WELL
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACLE
HH, V	HAND HOLE, VAULT
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
M	METER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
x	CHAINLINK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



PROPOSED AT&T MOBILITY
 (1) 18-PAIR FIBER CABLE
 (ROUTED PER PROPOSED CABLE LENGTH NOTE 2)
 (REFER TO PROPOSED CABLE LENGTH NOTE ON THIS PAGE)

EXISTING AT&T MOBILITY
 (6) 1-5/8" COAX CABLES, (4) 8AWG6 AND
 (2) 6AWG6 DC TRUNKS, AND (1) 18-PAIR
 FIBER CABLE
 (TO REMAIN)

EXISTING AT&T MOBILITY
 (6) 1 5/8" COAX CABLES,
 (1) 3" CONDUIT,
 (1) 12-PAIR FIBER CABLE
 (TO BE REMOVED)



- PROPOSED CABLE LENGTH:**
1. ESTIMATED LENGTH OF PROPOSED CABLE IS **200'**. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES). CDS DEFER TO GREATEST CABLE LENGTH.
 2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. WHERE POSSIBLE UTILIZE EXISTING CABLE SUPPORT STRUCTURES AS PROVIDED FOR CARRIER TO ADEQUATELY SECURE CABLES, USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER. OTHERWISE, ATTACH CABLES TO HORIZONTAL OR DIAGONAL TOWER MEMBERS USING PROPOSED STAINLESS STEEL ADAPTERS (DO NOT ATTACH TO TOWER LEG).



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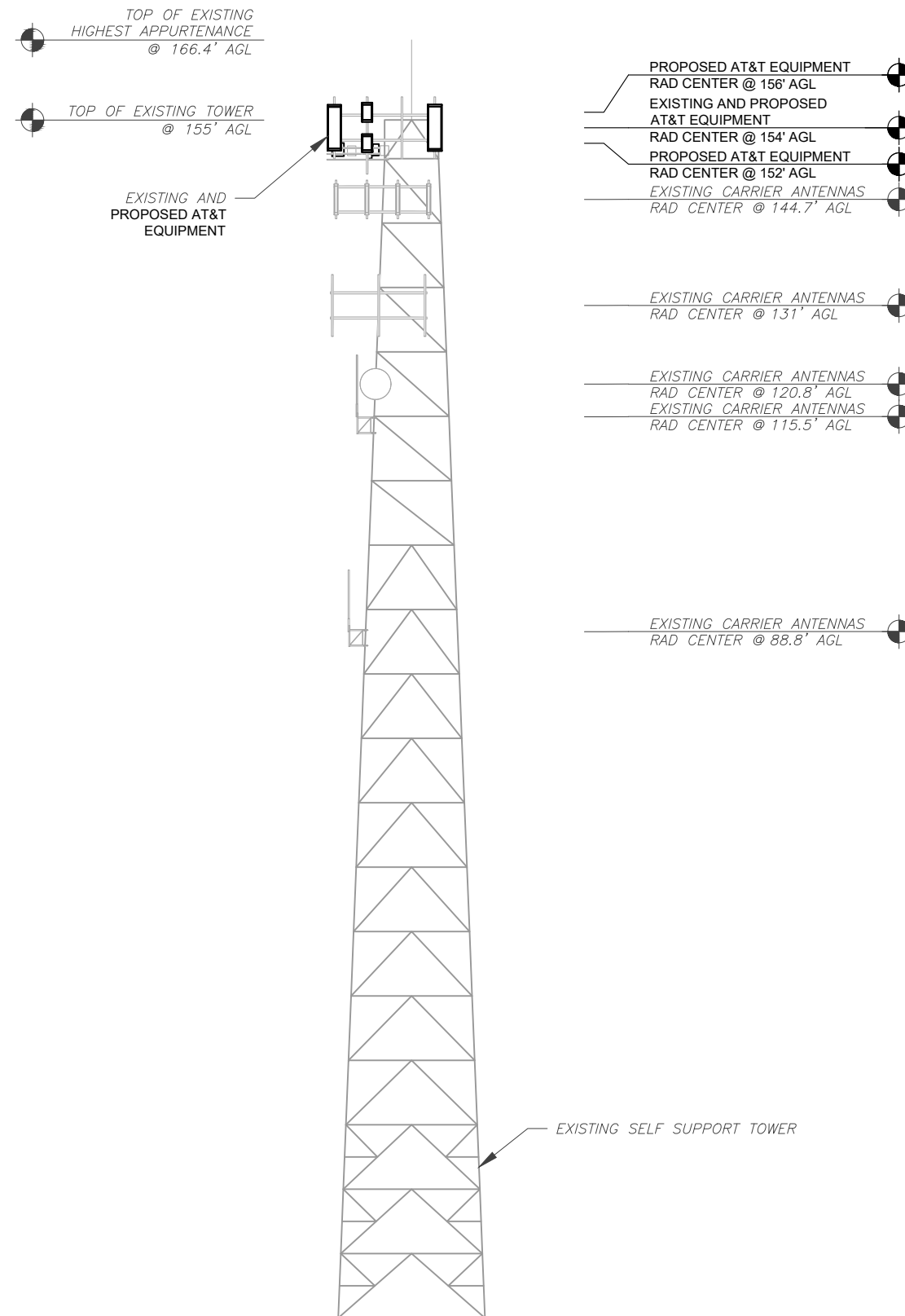
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CUSTOMER ID:	CTCN002064
CUSTOMER #:	10035024

DETAILED SITE PLAN	
SHEET NUMBER: C-101	REVISION: 1



1 TOWER ELEVATION
SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY TELEMONTOWER ENGINEERING, DATED 03/16/22, 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.

- 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. WHERE POSSIBLE UTILIZE EXISTING CABLE SUPPORT STRUCTURES AS PROVIDED FOR CARRIER TO ADEQUATELY SECURE CABLES, USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER. OTHERWISE, ATTACH CABLES TO HORIZONTAL OR DIAGONAL TOWER MEMBERS USING PROPOSED STAINLESS STEEL ADAPTERS (DO NOT ATTACH TO TOWER LEG).
 - 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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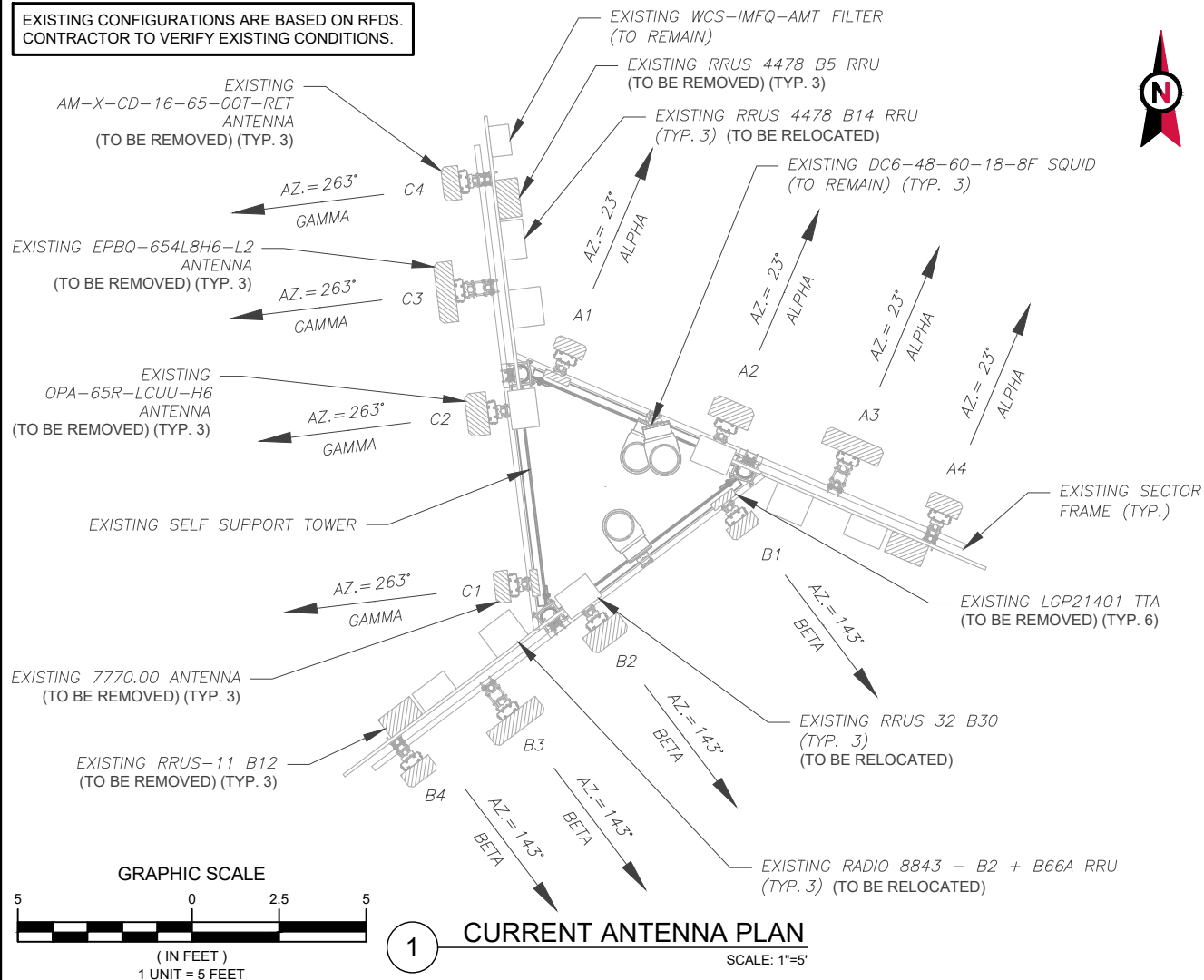
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CUSTOMER #:	10035024

TOWER ELEVATION

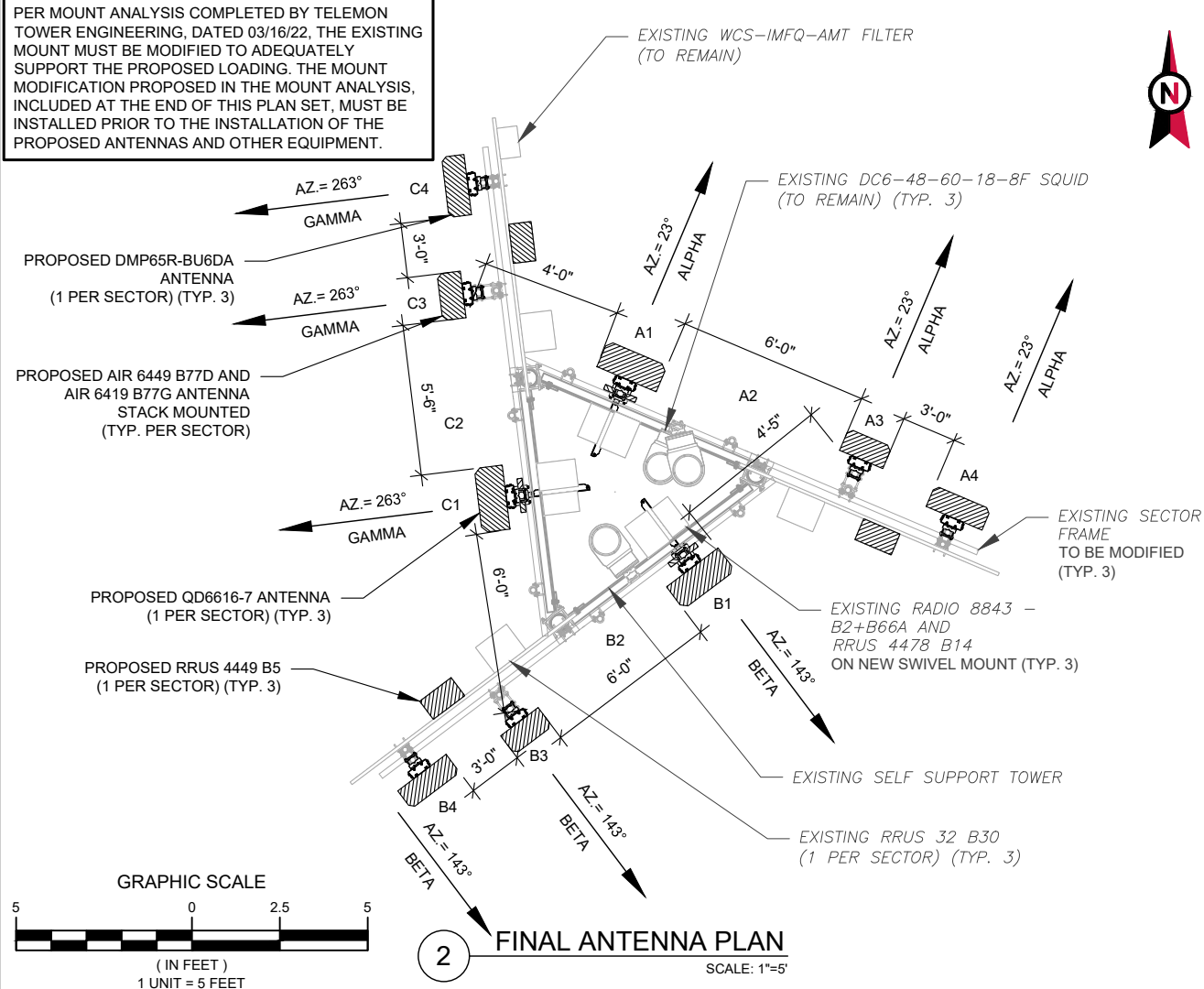
SHEET NUMBER: C-201	REVISION: 1
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EXISTING CONFIGURATIONS ARE BASED ON RFDS. CONTRACTOR TO VERIFY EXISTING CONDITIONS.



PER MOUNT ANALYSIS COMPLETED BY TELEMON TOWER ENGINEERING, DATED 03/16/22, 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.



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Madison, CT 06443
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REV.	DESCRIPTION	BY	DATE
A	PRELIM	JLK	03/23/22
0	FOR CONSTRUCTION	AMN	05/13/22
1	FOR CONSTRUCTION	AMN	05/25/22

ATC SITE NUMBER:
302505

ATC SITE NAME:
WSHN - WEST HAVEN

AT&T SITE NAME:
MRCTB050919

SITE ADDRESS:
204 BURWELL STREET
WEST HAVEN, CT 06516

EXISTING ANTENNA SCHEDULE								
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	154'	23°	A1	7770.00	UMTS 850	RMV	(2) LGP21401	RMV
			A2	OPA-65R-LCUU-H6	LTE 700/WCS	RMV	RRUS 32 B30 RRUS-E2 B29 (GROUND)	REL RMN
			A3	EPBQ-654L8H6-L2	LTE 700/850/1900 AWS/5G 850	RMV	RADIO 8843 - B2+B66A RRUS 4478 B14 RRUS 4478 B5	REL REL RMV
			A4	AM-X-CD-16-65-00T-RET	LTE 700	RMV	RRUS 11-B12	RMV
BETA	154'	143°	B1	7770.00	UMTS 850	RMV	(2) LGP21401	RMV
			B2	OPA-65R-LCUU-H6	LTE 700/WCS	RMV	RRUS 32 B30 RRUS-E2 B29 (GROUND)	REL RMN
			B3	EPBQ-654L8H6-L2	LTE 700/850/1900 AWS/5G 850	RMV	RADIO 8843 - B2+B66A RRUS 4478 B14 RRUS 4478 B5	REL REL RMV
			B4	AM-X-CD-16-65-00T-RET	LTE 700	RMV	RRUS 11-B12	RMV
GAMMA	154'	263°	C1	7770.00	UMTS 850	RMV	(2) LGP21401	RMV
			C2	OPA-65R-LCUU-H6	LTE 700/WCS	RMV	RRUS 32 B30 RRUS-E2 B29 (GROUND)	REL RMN
			C3	EPBQ-654L8H6-L2	LTE 700/850/1900 AWS/5G 850	RMV	RADIO 8843 - B2+B66A RRUS 4478 B14 RRUS 4478 B5	REL REL RMV
			C4	AM-X-CD-16-65-00T-RET	LTE 700	RMV	RRUS 11-B12	RMV

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	154'	23°	A1	QD6616-7	LTE 700/1900/AWS 5G AWS/1900	ADD	RADIO 8843 - B2+B66A RRUS 4478 B14	REL REL
			A2	-	-	-	RRUS-E2 B29 (GROUND)	RMN
			A3	AIR 6449 B77D AIR 6419 B77G	5G CBAND	ADD	-	-
			A4	DMP65R-BU6DA	LTE 700/850/WCS	ADD	RRUS 32 B30 RRUS 4449 B5, B12	REL ADD
BETA	154'	143°	B1	QD6616-7	LTE 700/1900/AWS 5G AWS/1900	ADD	RADIO 8843 - B2+B66A RRUS 4478 B14	REL REL
			B2	-	-	-	RRUS-E2 B29 (GROUND)	RMN
			B3	AIR 6449 B77D AIR 6419 B77G	5G CBAND	ADD	-	-
			B4	DMP65R-BU6DA	LTE 700/850/WCS	ADD	RRUS 32 B30 RRUS 4449 B5, B12	REL ADD
GAMMA	154'	263°	C1	QD6616-7	LTE 700/1900/AWS 5G AWS/1900	ADD	RADIO 8843 - B2+B66A RRUS 4478 B14	REL REL
			C2	-	-	-	RRUS-E2 B29 (GROUND)	RMN
			C3	AIR 6449 B77D AIR 6419 B77G	5G CBAND	ADD	-	-
			C4	DMP65R-BU6DA	LTE 700/850/WCS	ADD	RRUS 32 B30 RRUS 4449 B5, B12	REL ADD

EXISTING FIBER DISTRIBUTION/SQUID						EXISTING CABLING SUMMARY					
MODEL NUMBER	STATUS	COAX	DC	FIBER	STATUS	MODEL NUMBER	STATUS	COAX	DC	FIBER	STATUS
(3) DC6-48-60-18-8F ("SQUID")	RMN	(6) 1-5/8"	(4) 8AWG6 (2) 6AWG	(1) 18-PAIR	RMN	-	-	(6) 1-5/8"	-	(1) 12-PAIR	RMV

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

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

3 EQUIPMENT SCHEDULES

FINAL FIBER DISTRIBUTION/SQUID						FINAL CABLING SUMMARY					
MODEL NUMBER	STATUS	COAX	DC	FIBER	STATUS	MODEL NUMBER	STATUS	COAX	DC	FIBER	STATUS
(3) DC6-48-60-18-8F ("SQUID")	RMN	(6) 1-5/8"	(4) 8AWG6 (2) 6AWG	(1) 18-PAIR	RMN	-	-	(6) 1-5/8"	-	(1) 18-PAIR	ADD

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SEAL:

Digitally signed by Justin Peter Linette
Date: 2022.05.25 13:04:53-04'00'

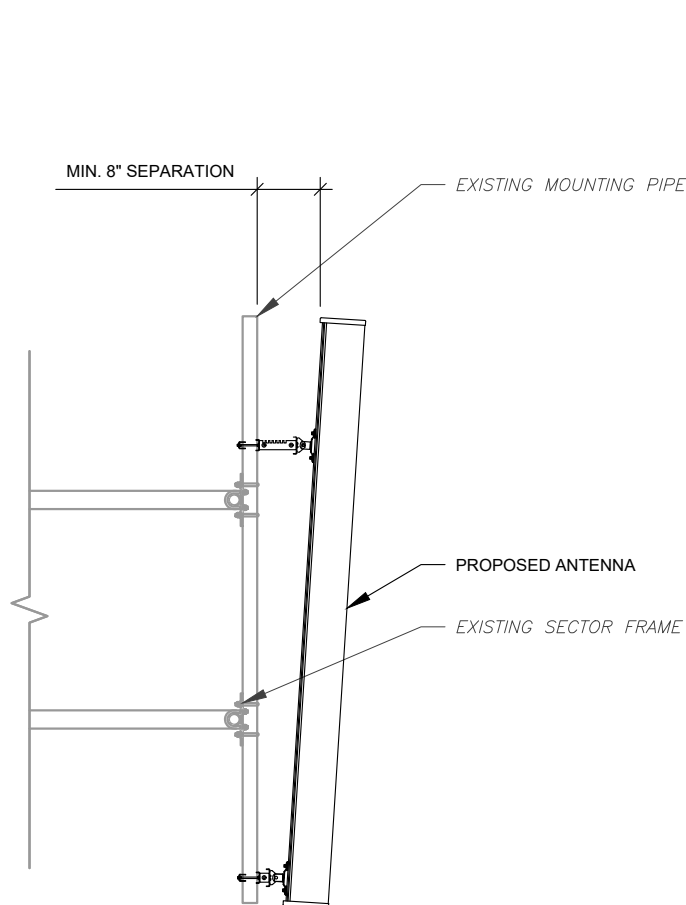
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ATC JOB NO: 13748405_D1
CUSTOMER ID: CTCN002064
CUSTOMER #: 10035024

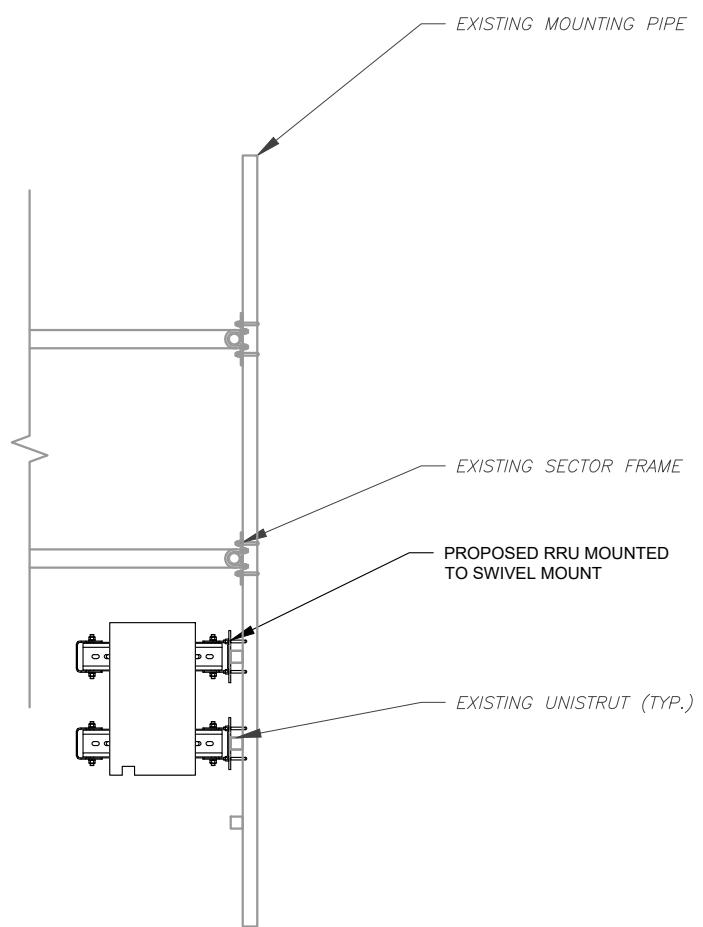
RF SCHEDULE AND ANTENNA INSTALLATION

SHEET NUMBER: **C-401** REVISION: **1**

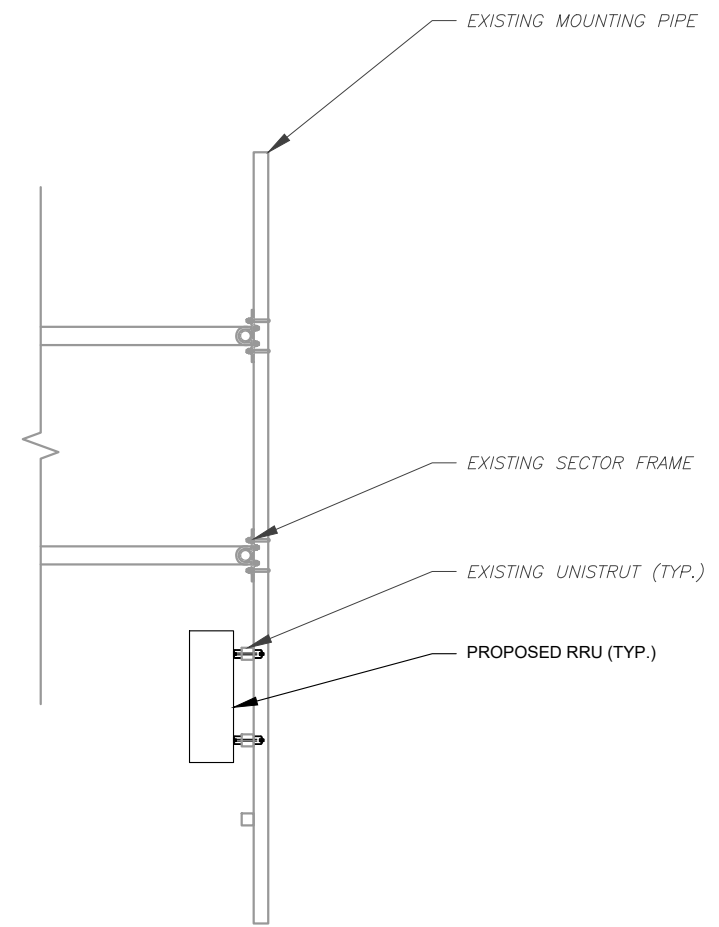
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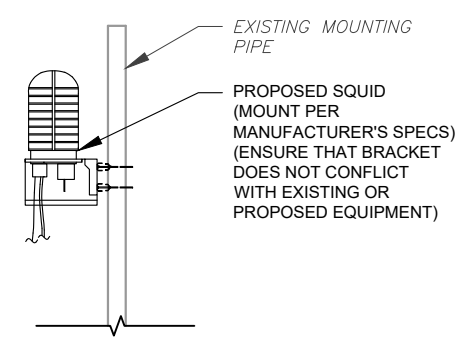
1 ANTENNA DETAIL
SCALE: N.T.S.



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



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



4 PROPOSED SQUID MOUNTING
SCALE: N.T.S.



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REV.	DESCRIPTION	BY	DATE
A	PRELIM	JLK	03/23/22
0	FOR CONSTRUCTION	AMN	05/13/22
1	FOR CONSTRUCTION	AMN	05/25/22

ATC SITE NUMBER:
302505

ATC SITE NAME:
WSHN - WEST HAVEN

AT&T SITE NAME:
MRCTB050919

SITE ADDRESS:
204 BURWELL STREET
WEST HAVEN, CT 06516

SEAL:

Digitally signed by Justin Peter Linette
Date: 2022.05.25 13:04:54-04'00'

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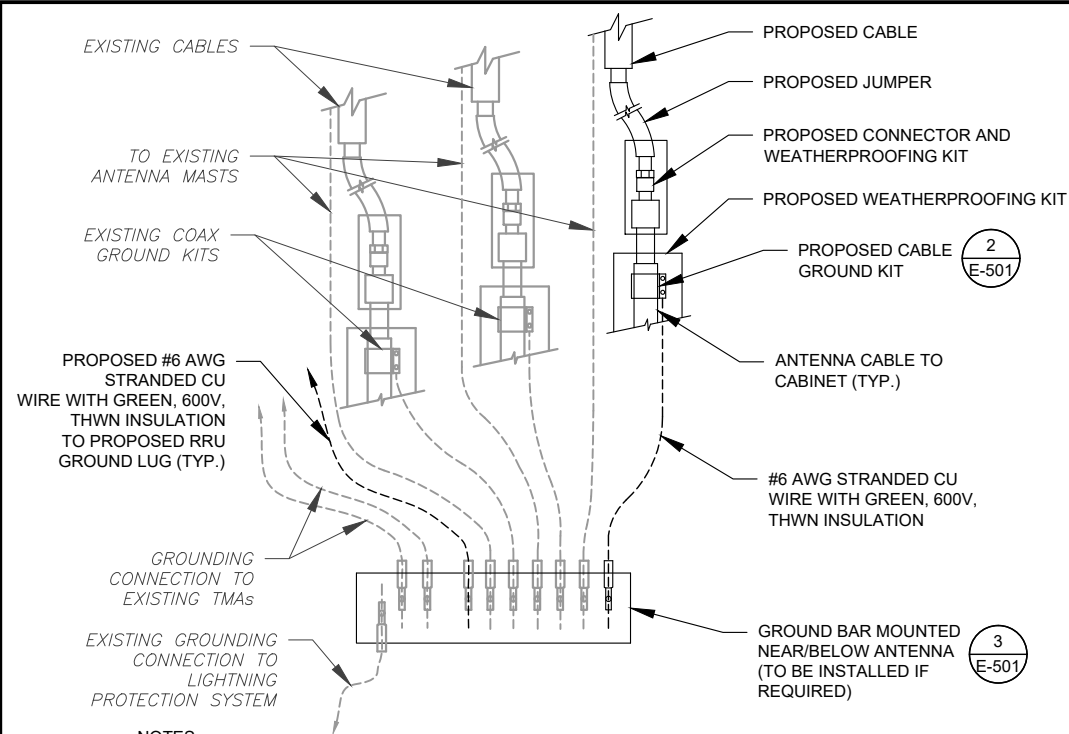


DATE DRAWN:	03/23/22
ATC JOB NO:	13748405_D1
CUSTOMER ID:	CTCN002064
CUSTOMER #:	10035024

CONSTRUCTION DETAILS

SHEET NUMBER: C-501	REVISION: 1
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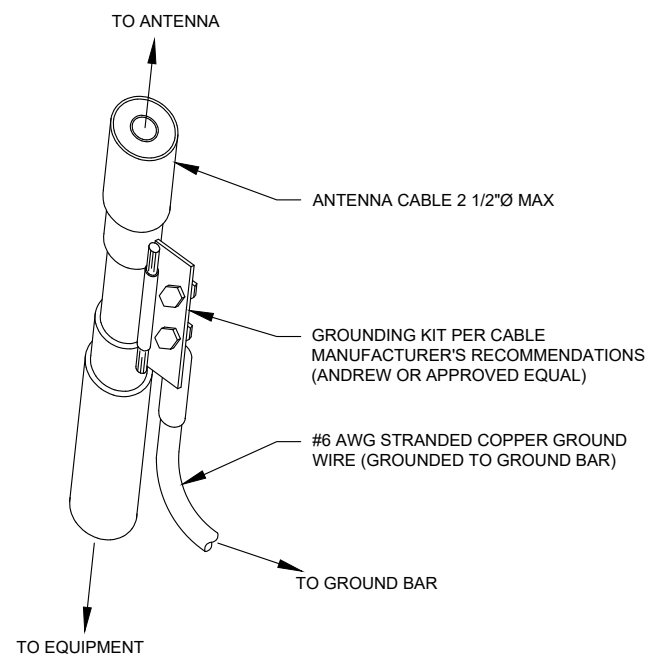
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NOTES:

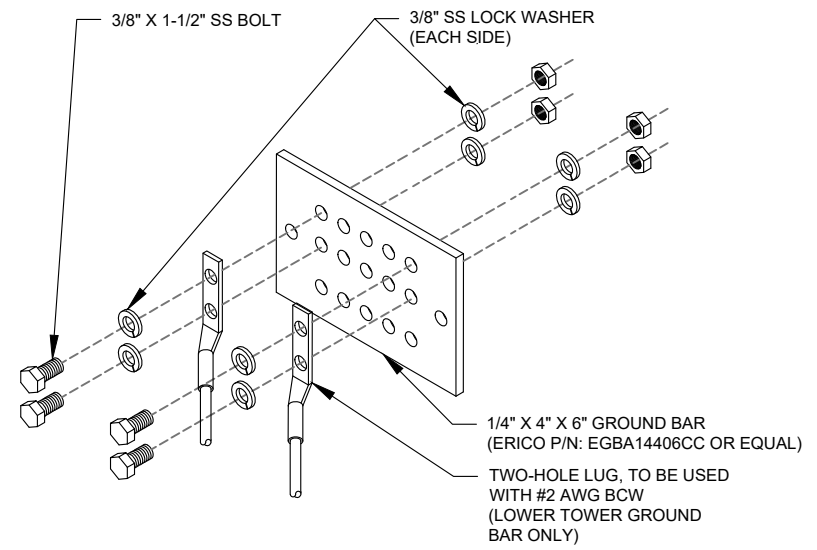
1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH AT&T GROUNDING STANDARDS, 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.



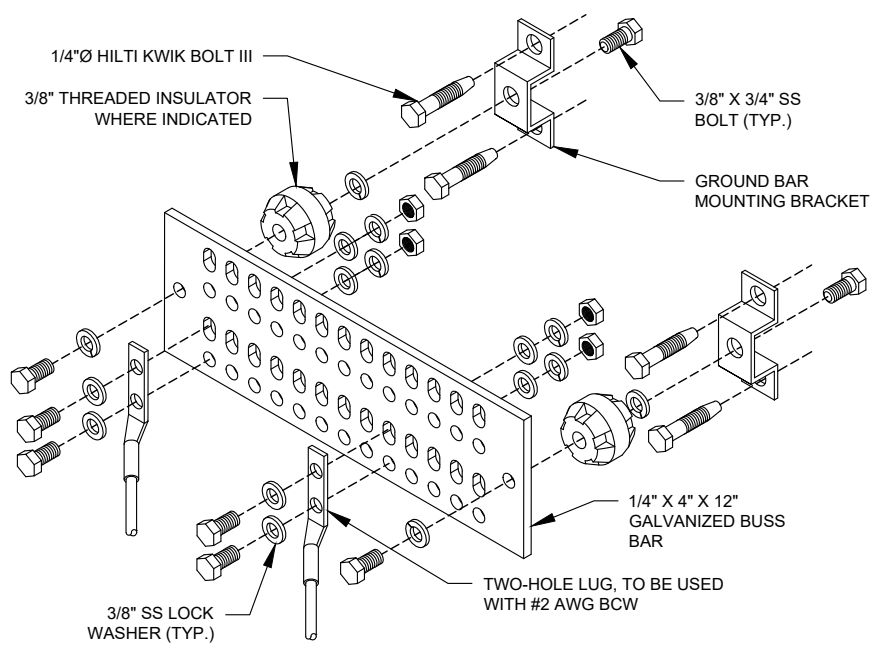
- GROUND KIT NOTES:**
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
 2. CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

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



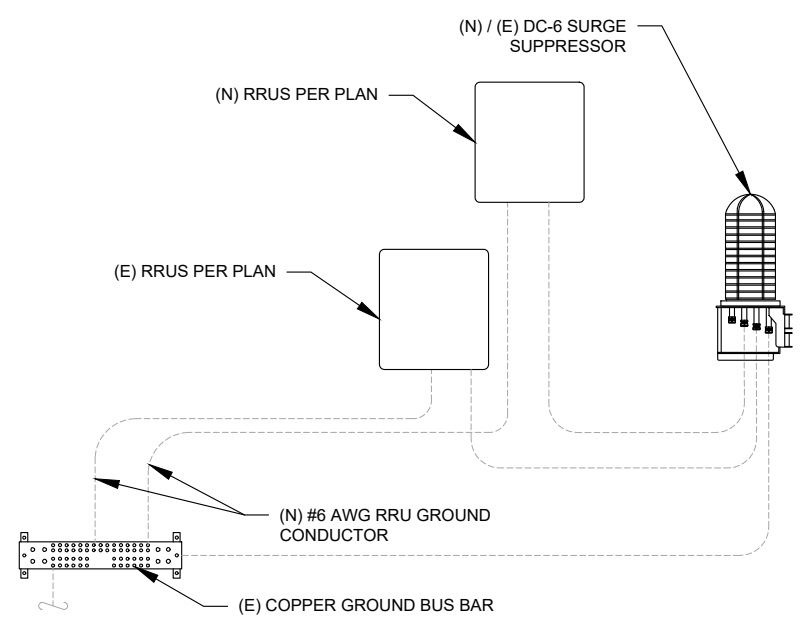
- GROUND BAR NOTES:**
1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
 2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

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

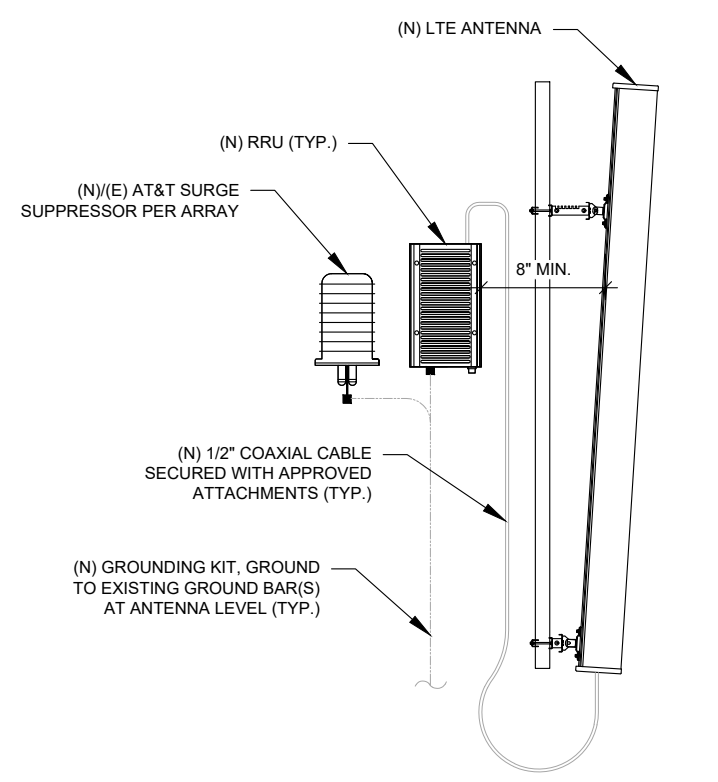


- GROUND BAR NOTES**
1. GROUND KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
 2. GROUND BAR SHALL BE BOLTED TO STRUCTURAL MEMBER OR ANCHORED TO CONCRETE SLAB W/ HILTI KWIK BOLT III.

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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REV.	DESCRIPTION	BY	DATE
A	PRELIM	JLK	03/23/22
0	FOR CONSTRUCTION	AMN	05/13/22
1	FOR CONSTRUCTION	AMN	05/25/22

ATC SITE NUMBER:
302505

ATC SITE NAME:
WSHN - WEST HAVEN

AT&T SITE NAME:
MRCTB050919

SITE ADDRESS:
204 BURWELL STREET
WEST HAVEN, CT 06516

SEAL:

Digitally signed by Justin Peter Linette
Date: 2022.05.25 13:04:54-04'00'

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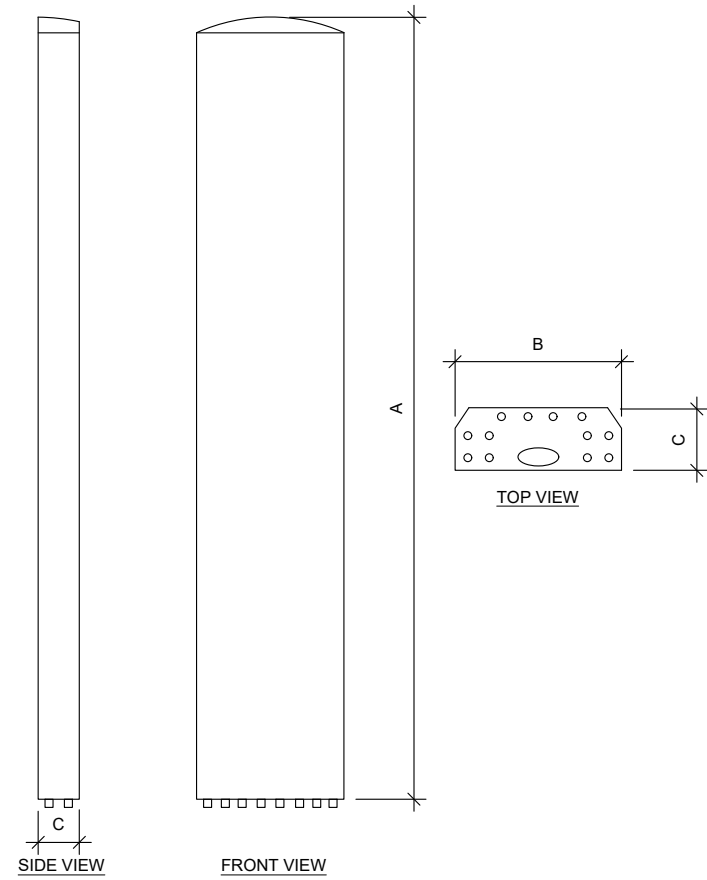


DATE DRAWN:	03/23/22
ATC JOB NO:	13748405_D1
CUSTOMER ID:	CTCN002064
CUSTOMER #:	10035024

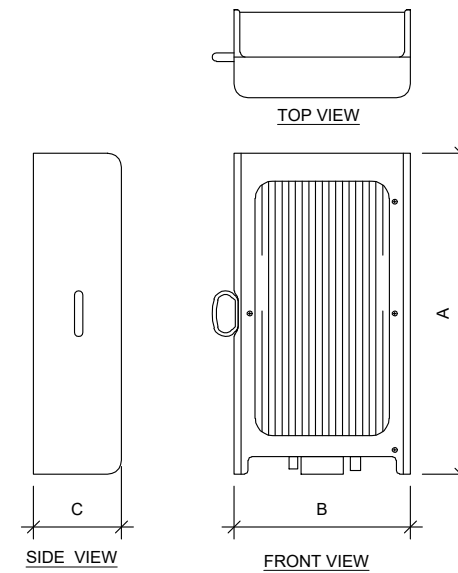
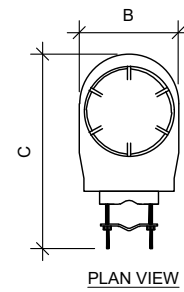
GROUNDING DETAILS

SHEET NUMBER: E-501	REVISION: 1
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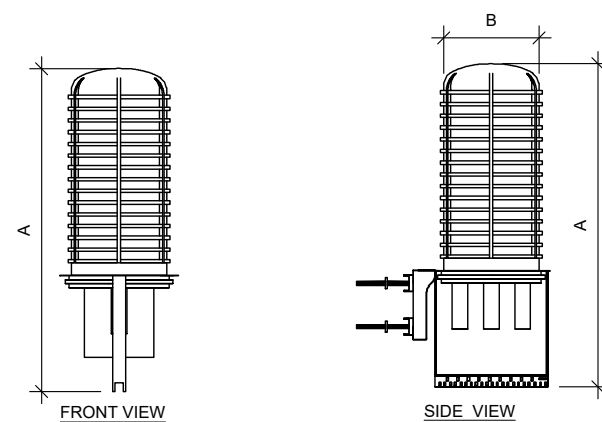
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ANTENNA SPECIFICATIONS				
ANTENNA MODEL	A	B	C	WEIGHT (LBS)
AIR 6419 B77G	28.3"	16.1"	7.9"	-
Air 6449 B77D	30.4"	15.9"	8.1"	81.6
DMP65R-BU6DA	71.2"	20.7"	7.7"	79.4
QD6616-7	72.0"	22.0"	9.6"	130.0



RRU SPECIFICATIONS				
RRU MODEL	A	B	C	WEIGHT (LBS)
4449 B5, B12	17.9"	13.2"	9.4"	71.0
RRUS E2 B29	20.4"	18.5"	7.5"	60.0
RRUS 32 B30	27.2"	12.1"	7.0"	60.0



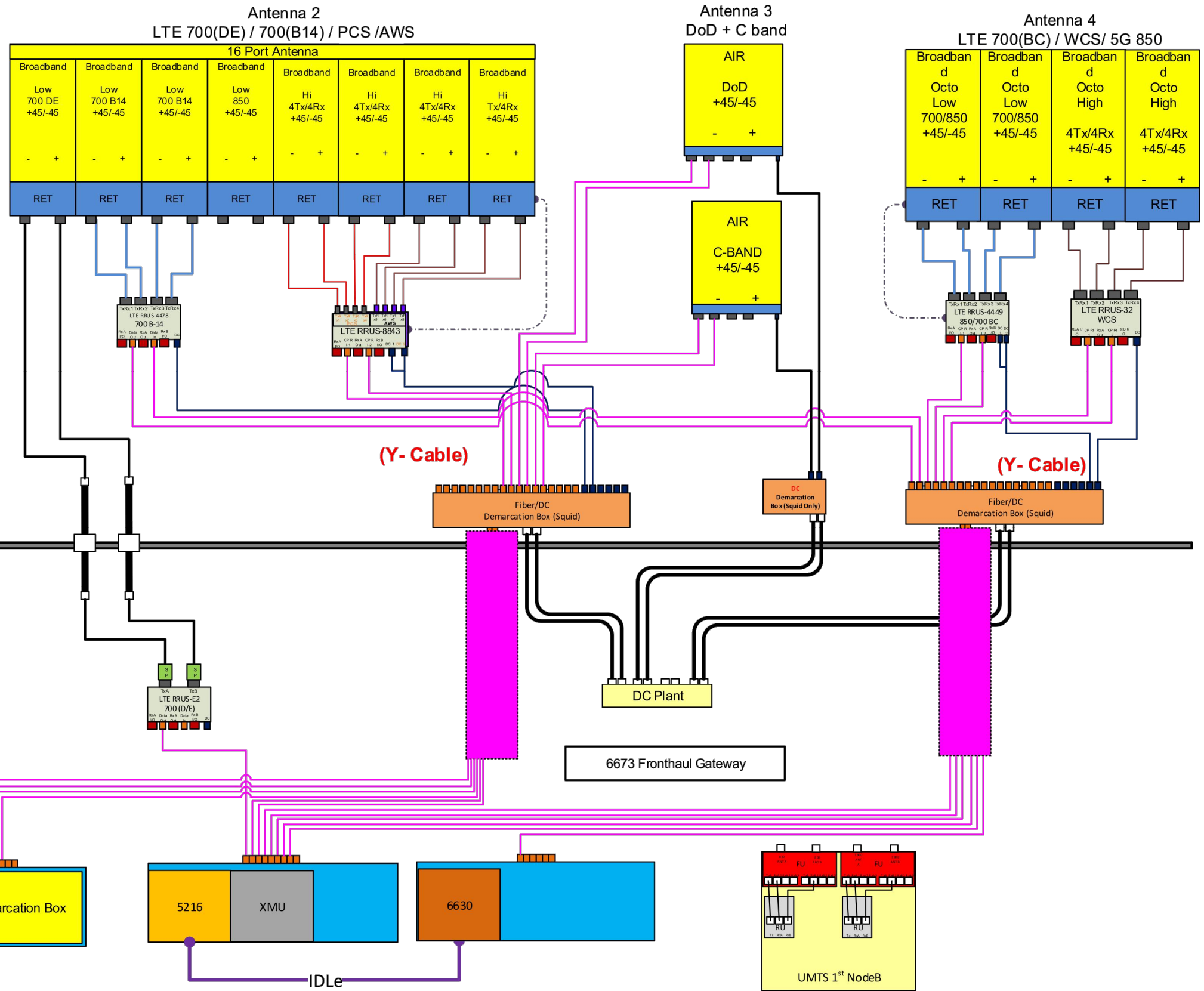
RAYCAP SPECIFICATIONS				
RAYCAP MODEL	A	B	C	WEIGHT (LBS)
APTDC-BDFDM-DBW	3.5"	1.7"	3.5"	1.3
DC6-48-60-0-8C	20.1"	18.2"	6.4"	16.0

1 EQUIPMENT SPECIFICATIONS
SCALE: N.T.S.

SUPPLEMENTAL

SHEET NUMBER: R-601
REVISION: -

Antenna 1
Empty



- 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

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. GENERAL CONTRACTOR IS TO CHECK WITH THE AT&T CM TO ENSURE THIS IS THE MOST RECENT VERSION OF THE RFDS.

SUPPLEMENTAL	
SHEET NUMBER: R-602	REVISION: -

C:\USERS\BADM\WORK\PROJECTS\TELAMON\TEL\LP_SHARE\FOLDER\PROJECTS\41124\302505-13748405\02 - MOD\DWG\41124-302505-13748405.DWG - CLS PROJECT ID: 41124-ATC MA-302505-13748405



This report was prepared for American Tower Corporation by
telamon
 Tower Engineering, PLLC

Antenna Mount Analysis Report

ATC Site Name : Wshn - West Haven
 ATC Asset Number : 302505
 Engineering Number : 13748405_C9_04
 Mount Elevation : 153 ft
 Carrier : AT&T Mobility
 Carrier Site Name : MRCTB050919
 Carrier Site Number : CTCN002064
 Site Location : 204 Burwell Street
 West Haven, CT 06516-1105
 41.29532222, -72.97331388
 County : New Haven
 Date : March 16, 2022
 Max Usage : 81%
 Result : Pass (Pending Mods)

Prepared By: Ganjan Donode, Telamon Tower Engineering, PLLC
 Reviewed By: David Chikering, P.E., Telamon Tower Engineering, PLLC

Mount Analysis for American Tower
 302505 - Wshn - West Haven
 Telamon Tower Engineering, PLLC Project #41124-13748405_C9_04-02-MOD
 March 16, 2022

Table of Contents

Introduction: 2
 Supporting Documents: 2
 Analysis: 2
 Conclusion: 2
 Antenna Loading: 3
 Structure Usages: 3
 Equipment Layout Plan View: 4
 Equipment Layout Front Elevation View: 5
 Standard Conditions: 6
 Calculations: Attached

Mount Analysis for American Tower
 302505 - Wshn - West Haven
 Telamon Tower Engineering, PLLC Project #41124-13748405_C9_04-02-MOD
 March 16, 2022

Introduction

The proposed equipment is to be mounted to the existing Sector Frames. 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 January 30, 2020 Mount Mapping by Infnigy, Job #1009-Z0003-H, dated January 25, 2021
Previous Analyses	Mount Analysis by Telamon CLS for ATC, Engineering #13748405_C8_01, dated January 31, 2022 Tower SA by ATC, Engineering #0AA741756_C3_01, dated November 8, 2018 ATC Application, Project #13748405, dated January 24, 2022
Loading Data	AT&T RFD5 ID-4705797, Ver. 1.00, dated August 25, 2021

Analysis

Codes	TIA-222-H
Basic Wind Speed	120 mph, V _w (3-Second Gust)
Basic Wind Speed w/ Ice	30 mph (3-Second Gust) w/ 1" Radial Ice (Escalating)
Exposure Category	B
Topographic Factor Procedure	Method 2
Roof Type	Flat
Crest Height (H)	0 ft
Crest Length (L)	0 ft
Risk Category	II
Maintenance Live Load	1.2/500 lb
Spectral Response	S _z : 0.20; S _y : 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 referenced modifications are installed.

This analysis incorporates modifications per Telamon Tower Engineering, PLLC, dated March 16, 2022.

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

Mount Analysis for American Tower
 302505 - Wshn - West Haven
 Telamon Tower Engineering, PLLC Project #41124-13748405_C9_04-02-MOD
 March 16, 2022

Antenna Loading

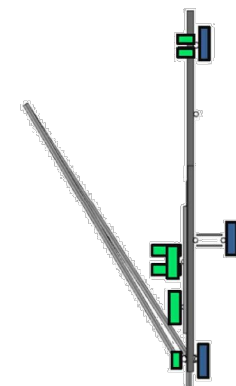
Elevation (ft)	Mount	Rad.	#	Antenna Name
153.0	154.0		13	Ericsson AIR 6449 B77D
			13	Quantel Technology QD6616-7
			3	CCI Antennas DMP65R-BU6D
			3	Ericsson RRUS 32 830
			3	Ericsson RRUS E2 829
			3	Ericsson RRUS 4449 B5/B12
			3	Ericsson RRUS 4478 B14
			3	Ericsson RADIO 8843 B2/B66A
			1	Commscope WCS-IMFO-AMT
			2	Raycap DC6-48-60-18-8F
			1	Raycap DC6-48-60-0-8F
			152.0	3

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Face Horizontals	81%	Pass
Threaded Rods	50%	Pass
Mount Pipes	36%	Pass
Bracing Members	31%	Pass
Reinforcement Members	26%	Pass

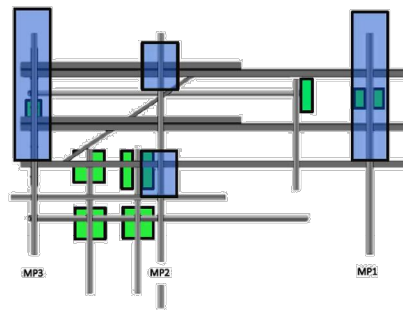
Mount Analysis for American Tower
 302505 - Wshn - West Haven
 Telamon Tower Engineering, PLLC Project #41124-13748405_C9_04-02-MOD
 March 16, 2022

Equipment Layout Plan View



Mount Analysis for American Tower
 302505 - Wshn - West Haven
 Telamon Tower Engineering, PLLC Project #41124-13748405_C9_04-02-MOD
 March 16, 2022

Equipment Layout Front Elevation View



Total #	Equipment	Mount Pipe Position
3	Ericsson AIR 6449 B77D	P2
3	Quantel Technology QD6616-7	P1
3	CCI Antennas DMP65R-BU6D	P3
2	Raycap DC6-48-60-18-8F	Face Horizontal
1	Raycap DC6-48-60-0-8F	Face Horizontal
6	Andrew APTDC-80FDMA-DBW	P1
3	Ericsson RRUS 32 830	RRH Mount Pipe
3	Ericsson RRUS E2 829	RRH Mount Pipe
3	Ericsson RRUS 4449 B5/B12	RRH Mount Pipe
3	Ericsson RADIO 8843 B2/B66A	RRH Mount Pipe
3	Ericsson RRUS 4478 B14	RRH Mount Pipe
1	Commscope WCS-IMFO-AMT	P4 (Gamma)
3	Ericsson AIR 6419 B77G	P2



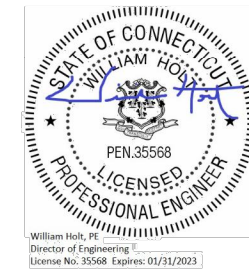
319 CHAPANOKE RD, SUITE 118
 RALEIGH, NC 27603
 PH: (405)348-5460 FAX: (405)341-4625
 PROJECT ID: 41124-ATC MA-302505-13748405

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REV.	DESCRIPTION	DRAWN BY	DATE
A	PRELIMINARY	RM	03/16/2022
B	FOR CONSTRUCTION	RM	03/16/2022

ATC SITE NUMBER:
 302505
 ATC SITE NAME:
 WSHN - WEST HAVEN
 CONNECTICUT
 SITE ADDRESS:
 204 BURWELL STREET
 WEST HAVEN, CT 06516-1105

03/16/2022



DRAWN BY:	RM
APPROVED BY:	DC
DATE DRAWN:	03/16/2022
ATC JOB NO:	13748405_C9_04

SHEET TITLE
SUPPLEMENTAL

SHEET NUMBER R-902	REVISION 0
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SUPPLEMENTAL

SHEET NUMBER:
R-603
 REVISION:
 -

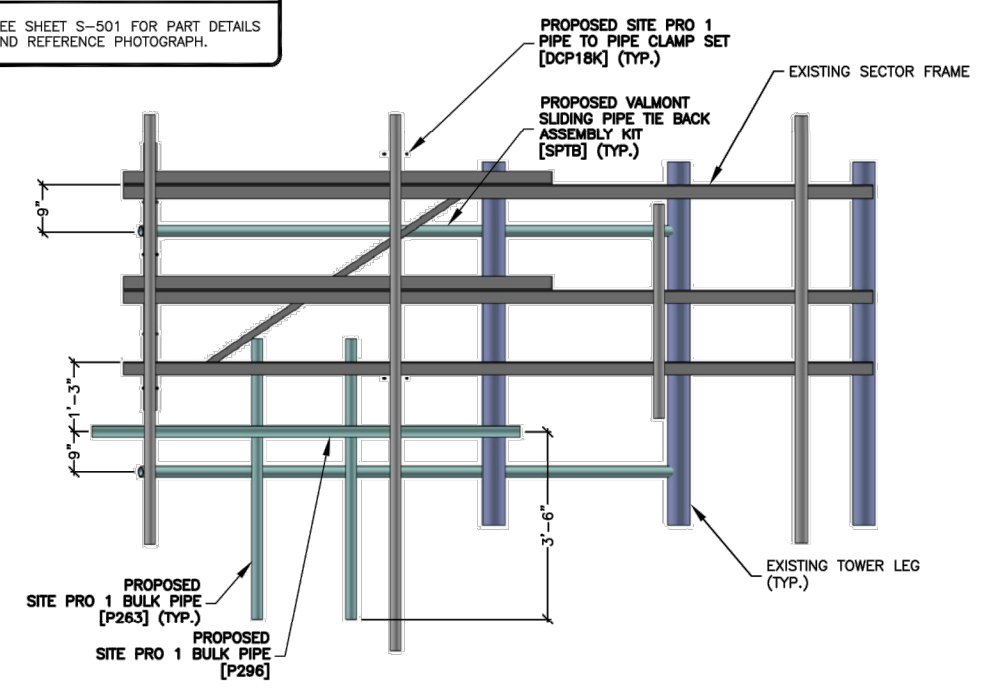
1 MOUNT ANALYSIS

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONSTRUCTION.

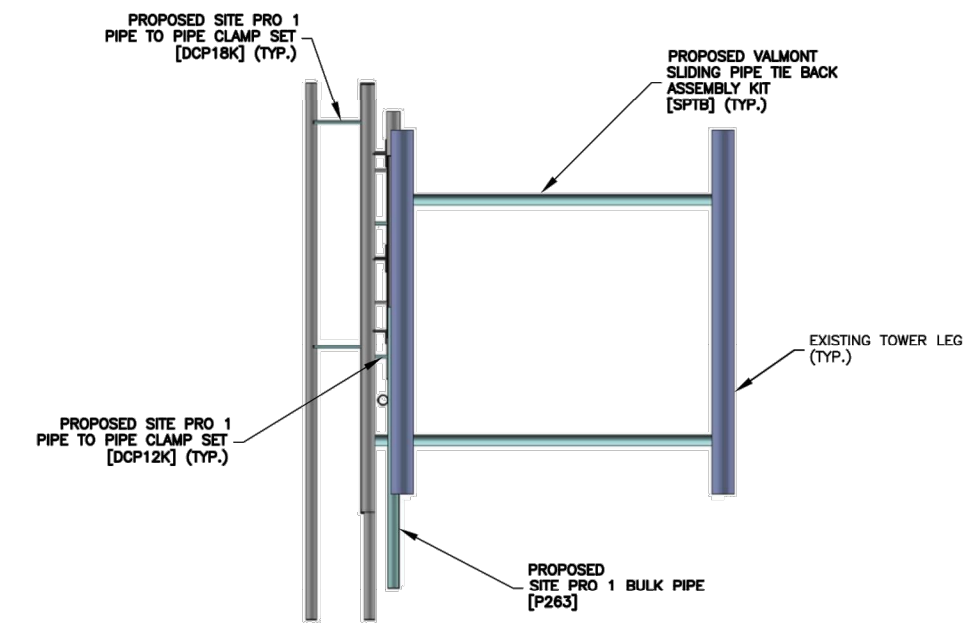
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C:\USERS\WJH\WORKING\DRAWING\TELAMON\1124\302505-13748405\02 - MOD\CAD\1124-302505-13748405.DWG - CLS PROJECT ID: 41124-ATC MA-302505-13748405

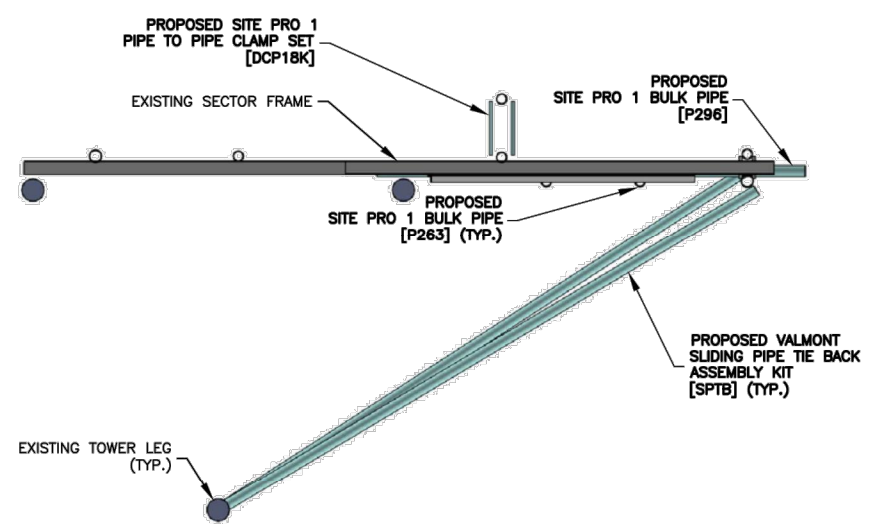
REFERENCE NOTE
SEE SHEET S-501 FOR PART DETAILS AND REFERENCE PHOTOGRAPH.



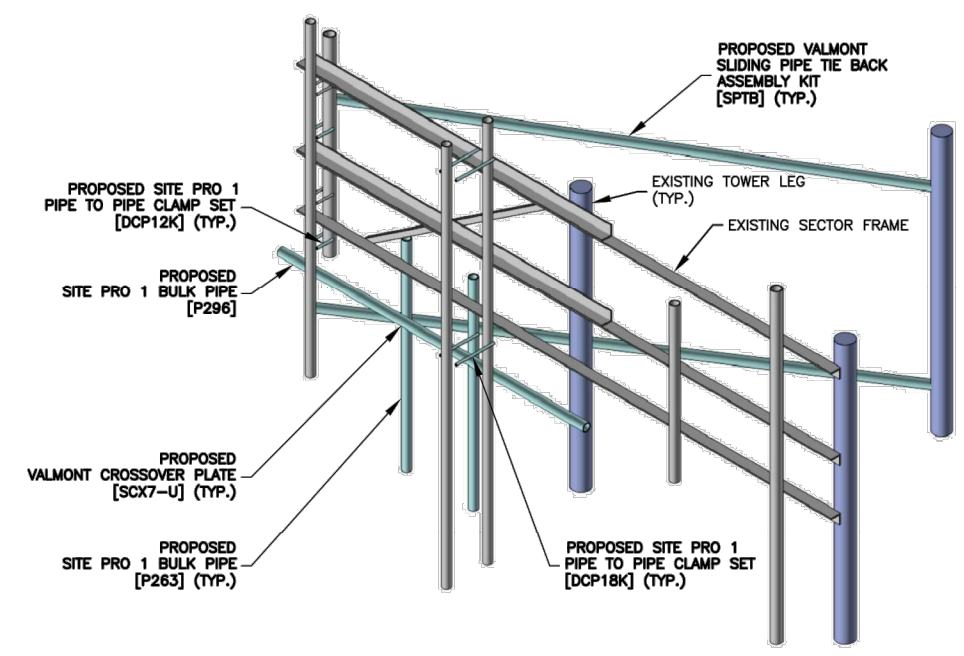
1 TYPICAL MOUNT MODIFICATION - FRONT VIEW
SCALE: N.T.S.



2 TYPICAL MOUNT MODIFICATION - SIDE VIEW
SCALE: N.T.S.



3 TYPICAL MOUNT MODIFICATION - TOP VIEW
SCALE: N.T.S.



4 TYPICAL MOUNT MODIFICATION - ISOMETRIC VIEW
SCALE: N.T.S.

telamon
Tower Engineering PLLC

319 CHAPANOKE RD, SUITE 118
RALEIGH, NC 27603
PH: (405)346-5460 FAX: (405)341-4625
PROJECT ID: 41124-ATC MA-302505-13748405

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	DRAWN BY	DATE
A	PRELIMINARY	RM	03/15/2022
0	FOR CONSTRUCTION	RM	03/16/2022

ATC SITE NUMBER:
302505

ATC SITE NAME:
WSHN - WEST HAVEN

CONNECTICUT

SITE ADDRESS:
204 BURWELL STREET
WEST HAVEN, CT 06516-1105

03/16/2022

William Holt, PE
Director of Engineering
License No. 35568 Expires: 01/31/2023

DRAWN BY:	RM
APPROVED BY:	DC
DATE DRAWN:	03/16/2022
ATC JOB NO:	13748405_C9_04

SHEET TITLE
MODIFICATION PROFILE

SHEET NUMBER S-101	REVISION 0
------------------------------	----------------------

1 MOUNT MODIFICATION

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL	
SHEET NUMBER: R-604	REVISION: -

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July 7, 2022

The Honorable Nancy R. Rossi
West Haven City Hall
355 Main Street
West Haven, CT 06516

Re: Exempt Modification Application – AT&T Site 13748405
AT&T Mobility Telecommunications Facility @ 204 Burwell Street, West Haven, CT 06516

Dear Mayor Rossi:

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 twelve (12) antennas, six (6) RRHs, six (6) TTAs, six (6) coax cables, one (1) conduit, and one (1) fiber trunk cable;
- Modify the antenna mount per the attached mount modification drawings, and install twelve (12) antennas, three (3) RRHs and one (1) fiber cable.

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 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, Executive Director of the CSC at 860-972-2935.

Respectfully Submitted,

A handwritten signature in blue ink, appearing to read 'Jack Andrews', is written over a circular blue stamp or seal.

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

Enclosures



July 7, 2022

Christopher Soto, Director DPZ
West Haven City Hall
355 Main Street
West Haven, CT 06516

Re: Exempt Modification Application – AT&T Site 13748405
AT&T Mobility Telecommunications Facility @ 204 Burwell Street, West Haven, CT 06516

Dear Mr. Soto:

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 twelve (12) antennas, six (6) RRHs, six (6) TTAs, six (6) coax cables, one (1) conduit, and one (1) fiber trunk cable;
- Modify the antenna mount per the attached mount modification drawings, and install twelve (12) antennas, three (3) RRHs and one (1) fiber cable.

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, Executive Director of the CSC at 860-972-2935.

Respectfully Submitted,

A handwritten signature in blue ink, appearing to read "Jack Andrews", is written over a circular blue stamp or watermark.

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

Enclosures



July 7, 2022

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

Re: Exempt Modification Application – AT&T Site 13748405
AT&T Mobility Telecommunications Facility @ 204 Burwell Street, West Haven, CT 06516

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 twelve (12) antennas, six (6) RRHs, six (6) TTAs, six (6) coax cables, one (1) conduit, and one (1) fiber trunk cable;
- Modify the antenna mount per the attached mount modification drawings, and install twelve (12) antennas, three (3) RRHs and one (1) fiber cable.

This letter is intended to serve as the required notice to both the tower owner and 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, Executive Director of the CSC at 860-972-2935.

Respectfully Submitted,

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

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

Enclosures

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July 11, 2022 at 12:00 pm
WOBURN, MA 01801

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