

# MOUNT MODIFICATION REPORT

Prepared For:



AT&T Mobility 16221 NE 72nd Way Redmond, WA 98052

Project Name:

Good Samaritan WA6659

Project Address:

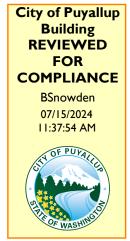
407 14th Avenue Southeast Puyallup, WA 98371

Site Coordinates:

47.1795 -122.2906



Prepared By: Ryan McDaniel, P.E. May 30, 2024 PRCTI20241032





Calculations required to be provided by the Permittee on site for all Inspections

#### **PROJECT SCOPE:**

AT&T Mobility proposes the following: Remove (12) radioheads, (11) distribution units. Add (6) active radio antennas, (12) radioheads, (3) distribution units and (3) antenna mounts.

### **ANALYSIS:**

The purpose of this analysis is to determine if the existing installation is adequately supported under the proposed loadings and provide any recommendations for modification in order to bring the support structure into compliance if needed. The installation has been analyzed in accordance with ASCE 7-16. The following parameters were used for lateral analysis:

Basic Wind Speed: 98 Risk Category: IV
Wind Exposure: B Seismic Design Category: D
Topographic Factor, kzt: 1.00 Mapped Parameter, Ss: 1.267
Mapped Parameter, S1: 0.436

This Mount Analysis Report for the existing AT&T equipment is limited to the equipment mounting and support frames. This analysis is based on the specific assumptions and conditions as stated within the following report.

#### **RESULTS:**

Based on our review of the existing structure loadings, we have determined the following:

Design Element	Capacity	Status
Antenna Mount	16.9%	PASS

Equipment Support Rating: 16.9% PASS (with modifications)

Please refer to Appendix A for structural calculations supporting the above results and conclusions sections below for additional comments.

## **CONTENTS:**

- 1-5 Report
- A Appendix A (Calculations)
- B Appendix B (Referenced Documents)

# 1 Antenna Sector Equipment Inventory

**Existing Equipment Configuration** 

Elev. (ft)	Equipment Model	Sector	Mount	Qty.	Carrier
79.00	EPBQ-654L8H8-L2	Α	Antenna Mount	1	AT&T
79.00	EPBQ-654L8H8-L2	Α	Antenna Mount	1	AT&T
79.00	RRH 4T4R B5 160W AHCA	Α	Antenna Mount	1	AT&T
79.00	RRH4x25-WCS-4R	Α	Antenna Mount	1	AT&T
79.00	RRH 4T4R B12/14 320W AHLBA	Α	Antenna Mount	1	AT&T
79.00	RRH 4T4R B25/66 320W AHFIB	Α	Antenna Mount	1	AT&T
79.00	DC2-48-60-0-9E	Α	Antenna Mount	1	AT&T
79.00	DC2-48-60-0-9E	Α	Antenna Mount	1	AT&T
79.00	DC2-48-60-0-9E	Α	Antenna Mount	1	AT&T
79.00	FC12-PC6-10E	Α	Antenna Mount	1	AT&T
79.00	FC12-PC6-10E	Α	Antenna Mount	1	AT&T

**Final Equipment Configuration** 

	<u> </u>				
88.75	AIR6419 B77D	Α	Antenna Mount	1	AT&T
88.75	AIR6419 B77G	А	Antenna Mount	1	AT&T
80.00	EPBQ-654L8H8-L2	Α	Antenna Mount	1	AT&T
80.00	EPBQ-654L8H8-L2	А	Antenna Mount	1	AT&T
80.00	4490 B5/B12A	Α	Antenna Mount	1	AT&T
80.00	4415 B30	А	Antenna Mount	1	AT&T
80.00	4478 B14	Α	Antenna Mount	1	AT&T
80.00	4890 B25/B66	А	Antenna Mount	1	AT&T
80.00	DC9-48-60-24-PC16-EV	Α	Antenna Mount	1	AT&T
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See the Architectural and Structural Drawings for configuration, location, and elevations. See the structural calculations for a detailed account of the equipment and the capacity of the support structure.

# 1 Antenna Sector Equipment Inventory

**Existing Equipment Configuration** 

Elev. (ft)	Equipment Model	Sector	Mount	Qty.	Carrier
80.00	EPBQ-654L8H8-L2	В	Antenna Mount	1	AT&T
80.00	EPBQ-654L8H8-L2	В	Antenna Mount	1	AT&T
80.00	RRH 4T4R B5 160W AHCA	В	Antenna Mount	1	AT&T
80.00	RRH4x25-WCS-4R	В	Antenna Mount	1	AT&T
80.00	RRH 4T4R B12/14 320W AHLBA	В	Antenna Mount	1	AT&T
80.00	RRH 4T4R B25/66 320W AHFIB	В	Antenna Mount	1	AT&T
80.00	DC2-48-60-0-9E	В	Antenna Mount	1	AT&T
80.00	DC2-48-60-0-9E	В	Antenna Mount	1	AT&T
80.00	DC2-48-60-0-9E	В	Antenna Mount	1	AT&T

**Final Equipment Configuration** 

	<u> </u>				
88.75	AIR6419 B77D	В	Antenna Mount	1	AT&T
88.75	AIR6419 B77G	В	Antenna Mount	1	AT&T
80.00	EPBQ-654L8H8-L2	В	Antenna Mount	1	AT&T
80.00	EPBQ-654L8H8-L2	В	Antenna Mount	1	AT&T
80.00	4490 B5/B12A	В	Antenna Mount	1	AT&T
80.00	4415 B30	В	Antenna Mount	1	AT&T
80.00	4478 B14	В	Antenna Mount	1	AT&T
80.00	4890 B25/B66	В	Antenna Mount	1	AT&T
80.00	DC9-48-60-24-PC16-EV	В	Antenna Mount	1	AT&T
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See the Architectural and Structural Drawings for configuration, location, and elevations. See the structural calculations for a detailed account of the equipment and the capacity of the support structure.

# 1 Antenna Sector Equipment Inventory

**Existing Equipment Configuration** 

Elev. (ft)	Equipment Model	Sector	Mount	Qty.	Carrier
79.00	EPBQ-654L8H8-L2	С	Antenna Mount	1	AT&T
79.00	EPBQ-654L8H8-L2	С	Antenna Mount	1	AT&T
79.00	RRH 4T4R B5 160W AHCA	С	Antenna Mount	1	AT&T
79.00	RRH4x25-WCS-4R	С	Antenna Mount	1	AT&T
79.00	RRH 4T4R B12/14 320W AHLBA	С	Antenna Mount	1	AT&T
79.00	RRH 4T4R B25/66 320W AHFIB	С	Antenna Mount	1	AT&T
79.00	DC2-48-60-0-9E	С	Antenna Mount	1	AT&T
79.00	DC2-48-60-0-9E	С	Antenna Mount	1	AT&T
79.00	DC2-48-60-0-9E	С	Antenna Mount	1	AT&T

**Final Equipment Configuration** 

	<u> </u>				
88.75	AIR6419 B77D	С	Antenna Mount	1	AT&T
88.75	AIR6419 B77G	С	Antenna Mount	1	AT&T
80.00	EPBQ-654L8H8-L2	С	Antenna Mount	1	AT&T
80.00	EPBQ-654L8H8-L2	С	Antenna Mount	1	AT&T
80.00	4490 B5/B12A	С	Antenna Mount	1	AT&T
80.00	4415 B30	С	Antenna Mount	1	AT&T
80.00	4478 B14	С	Antenna Mount	1	AT&T
80.00	4890 B25/B66	С	Antenna Mount	1	AT&T
80.00	DC9-48-60-24-PC16-EV	С	Antenna Mount	1	AT&T
	hite strengt and Charletonal Duranita as four andianas				

See the Architectural and Structural Drawings for configuration, location, and elevations. See the structural calculations for a detailed account of the equipment and the capacity of the support structure.

### **2** Reference Documents

The following data was used to model and analyze the structure.

Date	Document	Author
	2018 IBC	International Code Council
	ASCE 7-16	ASCE
2/21/2024	RFDS	AT&T
09-12-11	Construction Drawings	Cornerstone Engineering
May 12, 2015	Structural Calculations	Cornerstone Engineering

## **3 Design Comments**

Telecommunication equipment is being reconfigured on an existing building. New active antennas will be mounted on existing modified mounts at existing mount locations. Existing antennas will be relocated. Some cabinets will be reconfigured at the equipment platform.

Load combinations are applied per ASCE 7-16 Sections 2.4.1. Combinations involving reduced dead loads, live loads, and seismic loads are eliminated because they do not apply, or by inspection. The following load combinations remain:

- 1. D
- 2. D + L
- 3. D + S
- 5. D + 0.6W

The new antenna mount is checked for the new antenna loads.

The new mounts and building support are analyzed for the scope of this report. The telecommunications equipment does not add an additional %5 weight or 10% lateral load to the existing building and does not require retrofit. Local elements are checked.

## 1 Conclusion / Recommendations

To the best of our knowledge and belief, the modified Antenna Mount will be in compliance with the requirements of the specifications codes and agencies having jurisdiction over the work.

## 2 Scope and Liability

- 1. This report is prepared with the information furnished to Ryka by our client. If the conditions of the site change, or if new information becomes available, the results of this report are not valid. Ryka should be notified so that the report can be updated and resubmitted.
- 2. This report is meant to show the level of conformance for the site with the referenced codes. No other assessment is implied.
- Ryka has not performed invasive testing or inspection which might reveal corrosion, damage, or work not installed per plan. The contractor should report any of these occurrences upon discovery.
- 4. The contractor hired for construction of items included in this report are responsible for verifying that work described in previous plan sheets has been installed per plan.
- 5. Ryka has not engineered, tested, or inspected the manufacture of third party vendor items such as mounts, poles, and other support structures. We select equipment from vendors which provide their own engineering and quality control. Ryka cannot be responsible for defective hardware or supports which do not meet the published support capacity.
- 6. Ryka is not responsible for the conclusions, opinions and recommendations made by others based on the information contained herein.
- 7. It is assumed that the existing mounting structure is in good condition with no damage that could cause a reduced capacity.

# A Appendix - Structural Calculations

SITE PARAMETERS:					 
Risk Category =	IV	(Table 1-1)	Latitude =	47.1795	
Site Soil Classification =	D	(Table 20.3-1)	Longitude =	-122.2906	(USGS)
MAPPED ACCELERATION PARAMETE	RS:				
					L
Mapped Parameter, Ss =	1.267	(USGS)			
Mapped Parameter, $S_1 =$	0.436	(USGS)			
MAPPED SPECTRAL RESPONSE ACCE	LERATION	PARAMETERS:			
WALLED STECTION TO STORY ACCE	LLIVATION	TANAIVIETERS.			
Site Coefficient, F <sub>a</sub> =	1.20g	(Table 11.4-1)			
Site Coefficient, F <sub>v</sub> =	1.864g	(Table 11.4-2)			
$S_{MS} = F_a S_S =$	1.52g	(Eq 11.4-4)			
$S_{M1} = F_v S_1 =$	0.813g	(Eq 11.4-1)			
DESIGN SPECTRAL RESPONSE PARAN	VELEDC.				
DESIGN OF ECHAL RESPONSE PARAL	VILILNJ.				
S <sub>DS</sub> = ¾ S <sub>MS</sub> =	1.014g	(Eq 11.4-3)			
$S_{D1} = \frac{2}{3} S_{M1} =$	0.542g	(Eq 11.4-4)			
SESIMIC DESIGN CATEGORY					i 
Seismic Design Category =	D	(Tables 11.6-1 and 11.6-2)			
Seisiffic Design Category =	U	(Tables 11.0-1 allu 11.0-2)			
SEISMIC DESIGN FORCE FOR NONST	RUCTURA	L COMPONENTS:			 
Average Structure Height, h =	64.67	ft			
Height of Component, z =	88.75	ft			 
ge or estripolicity 2					L
Importance Factor, I <sub>e</sub> =	1.50	(Sec 13.1-3)			   
Response Mod. Factor, R <sub>p</sub> =	2.5	(Table 13.5-1 or 13.6-1)			
Amplification Factor, $a_p =$	1.0	(Table 13.6-1)			
F <sub>p max</sub> =	2.433	(Eqn 13.3-2)			
F <sub>p min</sub> =	0.456	(Eqn 13.3-3)			
Seismic Design Force, F <sub>p</sub> =	0.730	(Eqn 13.3-1)			
Seismic Design Force, Fp =	0.730	(Eq 12.8-1)			
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Seismic Design Force, Fp =	0.511	(ASD)			
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DESCRIPTIO	<u>N:</u>	ASCE 7-16 \	Vind Factor	'S	<u>i</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	ļ
- <del> </del>	Dicl	k Category =	IV	<del></del>	(Table 1.5-1)	<u> </u>	<u> </u>	ļ	<del> </del>	
		d Speed, V =	98	mph	(Figure 26.5-		! !	<del> </del>		
Dir		Factor, K <sub>d</sub> =		IIIPII	(Table 26.6-1			ļ	-	
		e Category =		<del> </del>	(Section 26.7		ļ	<del> </del>	-	
Te		Factor, K <sub>zt</sub> =		<u> </u>		7) 8 & Figure 26.	Q_1\			+
		Factor, K <sub>e</sub> =		<del> </del>		9 and Table 2		<del> </del>	·	·†
Groun		t Factor, G =	0.997		(Section 26.3		0.5-1)			
Λνα Η		uipment, z =		ft	(Section 20.				-	· <del> </del>
		e Coeff., K <sub>h</sub> =	0.96	11	(Table 27.3-	1)	<u> </u>	<del> </del>	-	+
Veloci	ity F1C33u1C	- COEII., K <sub>h</sub> –	0.96	!	(14016 27.5	±)			-	+
	velocity n	ressure, q <sub>h</sub> =	0 00256 K.	K K K V <sup>2</sup>	<del> </del>	(Eq 26.10-1)	ļ	<del> </del>	-	· <del>†</del> -
	velocity pi	essure, q <sub>h</sub> –	0.00230 Kh	Nzt Nd Ne V		(Lq 20.10-1)	 	<del> </del>	-	
+	velocity n	ressure, q <sub>h</sub> =	21.1	psf	(Section 27	4.7 indicates 1	i 16 nsf min in	essure)	-	·
	Telecity pi		<u> </u>	P31	(30000011 27.5	i. / maicates .				+
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DESIGN WIN	ND LOADS:	i OTHER STRU	CTURES	<u> </u>	<u> </u>	<del> </del>	<u> </u>	<u> </u>	<b>†</b>	+
DESIGN WIN	ID LOADS.		CTORES							+
Design Late	ral Wind Pi	ressure, P <sub>h</sub> =	17.9	psf	(From Eq. 29	9.4-2, where F	= P Cf A <sub>4</sub> )	ļ		+
Design Late		coodic, i n	17.5	P3i	(		. 0.747			
Design Late	ral Wind Pi	ressure, P <sub>h</sub> =	10.8	psf	(ASD)	İ	<u> </u>	İ	-	+
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	Velocity Pressure, qz =	21.1	psf				
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	Flat /	Dish /					Cf(n)		Cf(t)		
Item	Round	Panel	Height in	Width in	Depth in	1	7	25	1	7	25
EPBQ-654L8H8-L2	F	Р	96.00	21.00	6.30	1.3	1.4	2	1.3	1.4	2
RRH 4T4R B5 160W AHCA	F	Р	13.37	11.61	6.50	1.3	1.4	2	1.3	1.4	2
RRH4x25-WCS-4R	F	Р	31.50	12.00	8.70	1.3	1.4	2	1.3	1.4	2
RRH 4T4R B12/14 320W AHLBA	F	Р	15.70	11.80	4.70	1.3	1.4	2	1.3	1.4	2
RRH 4T4R B25/66 320W AHFIB	F	Р	28.70	15.40	9.40	1.3	1.4	2	1.3	1.4	2
DC2-48-60-0-9E	F	Р	10.25	10.40	6.30	1.3	1.4	2	1.3	1.4	2
FC12-PC6-10E	F	Р	14.75	16.10	6.59	1.3	1.4	2	1.3	1.4	2
AIR6419 B77D	F	Р	28.20	16.10	7.20	1.3	1.4	2	1.3	1.4	2
AIR6419 B77G	F	Р	28.20	16.10	7.20	1.3	1.4	2	1.3	1.4	2
4490 B5/B12A	F	Р	20.60	15.60	7.00	1.3	1.4	2	1.3	1.4	2
4415 B30	F	Р	16.50	13.40	5.90	1.3	1.4	2	1.3	1.4	2
4478 B14	F	Р	18.10	13.40	8.26	1.3	1.4	2	1.3	1.4	2
4890 B25/B66	F	Р	17.50	15.20	7.00	1.3	1.4	2	1.3	1.4	2
DC9-48-60-24-PC16-EV	F	Р	16.57	14.58	9.64	1.3	1.4	2	1.3	1.4	2
2"x 120" S40 Stl Pipe	R	Р	120.00	2.38	2.38	0.7	0.8	1.2	0.7	0.8	1.2
2"x 42" S40 Stl Pipe	R	Р	42.00	2.38	2.38	0.7	0.8	1.2	0.7	0.8	1.2
2"x 30" S40 Stl Pipe	R	Р	30.00	2.38	2.38	0.7	0.8	1.2	0.7	0.8	1.2
FLX42 Purcell Cabinet	F	Р	78.00	30.00	31.02	1.3	1.4	2	1.3	1.4	2
Emerson 5100	F	Р	72.00	32.00	39.00	1.3	1.4	2	1.3	1.4	2
Emerson Netsure Battery Cabinet	F	Р	72.06	36.02	36.79	1.3	1.4	2	1.3	1.4	2

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Item	Height in	Width in	Depth in	Aspect	Aspect	Cf	Cf	Af	Af
115				(norm)	(tan)	(norm)	(tan)	(norm)	(tan)
EPBQ-654L8H8-L2	96.00	21.00	6.30	4.57	15.24	1.36	1.67	14.00	4.20
RRH 4T4R B5 160W AHCA	13.37	11.61	6.50	1.15	2.06	1.30	1.32	1.08	0.60
RRH4x25-WCS-4R	31.50	12.00	8.70	2.63	3.62	1.33	1.34	2.63	1.90
RRH 4T4R B12/14 320W AHLBA	15.70	11.80	4.70	1.33	3.34	1.31	1.34	1.29	0.51
RRH 4T4R B25/66 320W AHFIB	28.70	15.40	9.40	1.86	3.05	1.31	1.33	3.07	1.87
DC2-48-60-0-9E	10.25	10.40	6.30	0.99	1.63	1.30	1.31	0.74	0.45
FC12-PC6-10E	14.75	16.10	6.59	0.92	2.24	1.30	1.32	1.65	0.68
AIR6419 B77D	28.20	16.10	7.20	1.75	3.92	1.31	1.35	3.15	1.41
AIR6419 B77G	28.20	16.10	7.20	1.75	3.92	1.31	1.35	3.15	1.41
4490 B5/B12A	20.60	15.60	7.00	1.32	2.94	1.31	1.33	2.23	1.00
4415 B30	16.50	13.40	5.90	1.23	2.80	1.30	1.33	1.54	0.68
4478 B14	18.10	13.40	8.26	1.35	2.19	1.31	1.32	1.68	1.04
4890 B25/B66	17.50	15.20	7.00	1.15	2.50	1.30	1.33	1.85	0.85
DC9-48-60-24-PC16-EV	16.57	14.58	9.64	1.14	1.72	1.30	1.31	1.68	1.11
2"x 120" S40 Stl Pipe	120.00	2.38	2.38	50.42	50.42	1.20	1.20	1.98	1.98
2"x 42" S40 Stl Pipe	42.00	2.38	2.38	17.65	17.65	1.04	1.04	0.69	0.69
2"x 30" S40 Stl Pipe	30.00	2.38	2.38	12.61	12.61	0.92	0.92	0.50	0.50
FLX42 Purcell Cabinet	78.00	30.00	31.02	2.60	2.51	1.33	1.33	16.25	16.80
Emerson 5100	72.00	32.00	39.00	2.25	1.85	1.32	1.31	16.00	19.50
Emerson Netsure Battery Cabinet	72.06	36.02	36.79	2.00	1.96	1.32	1.32	18.03	18.41

			<u> </u>	 					
	Fp =	0.511	W	Design Late	eral Wind Pr	essure, P <sub>h</sub> =	10.8	psf	!
	S <sub>DS</sub> =	1.014	g						

			Applied F	orces (lbs)			
Item	Weight	Eh	Ev	F <sub>no</sub>	F <sub>to</sub>		
EPBQ-654L8H8-L2	86.0	43.9	17.4	204.7	75.7		
RRH 4T4R B5 160W AHCA	36.8	18.8	7.5	15.1	8.6		
RRH4x25-WCS-4R	70.0	35.8	14.2	37.5	27.5		
RRH 4T4R B12/14 320W AHLBA	32.6	16.7	6.6	18.1	7.4		
RRH 4T4R B25/66 320W AHFIB	88.2	45.1	17.9	43.4	26.9		
DC2-48-60-0-9E	16.0	8.2	3.2	10.4	6.3		
FC12-PC6-10E	35.0	17.9	7.1	23.1	9.6		
AIR6419 B77D	66.0	33.7	13.4	44.5	20.5		
AIR6419 B77G	66.0	33.7	13.4	44.5	20.5		
4490 B5/B12A	65.0	33.2	13.2	31.3	14.4		
4415 B30	46.3	23.7	9.4	21.5	9.7		
4478 B14	59.4	30.3	12.0	23.7	14.7		
4890 B25/B66	69.5	35.5	14.1	25.9	12.1		
DC9-48-60-24-PC16-EV	34.9	17.8	7.1	23.5	15.7		
2"x 120" S40 Stl Pipe	36.5	18.6	7.4	25.6	25.6		
2"x 42" S40 Stl Pipe	12.8	6.5	2.6	7.7	7.7		
2"x 30" S40 Stl Pipe	9.1	4.7	1.8	4.9	4.9		
FLX42 Purcell Cabinet	440.0	224.8	89.2	231.9	239.5		
Emerson 5100	2,300.0	1175.0	466.3	227.3	275.6		
Emerson Netsure Battery Cabinet	4,010.0	2048.5	812.9	255.3	260.6		

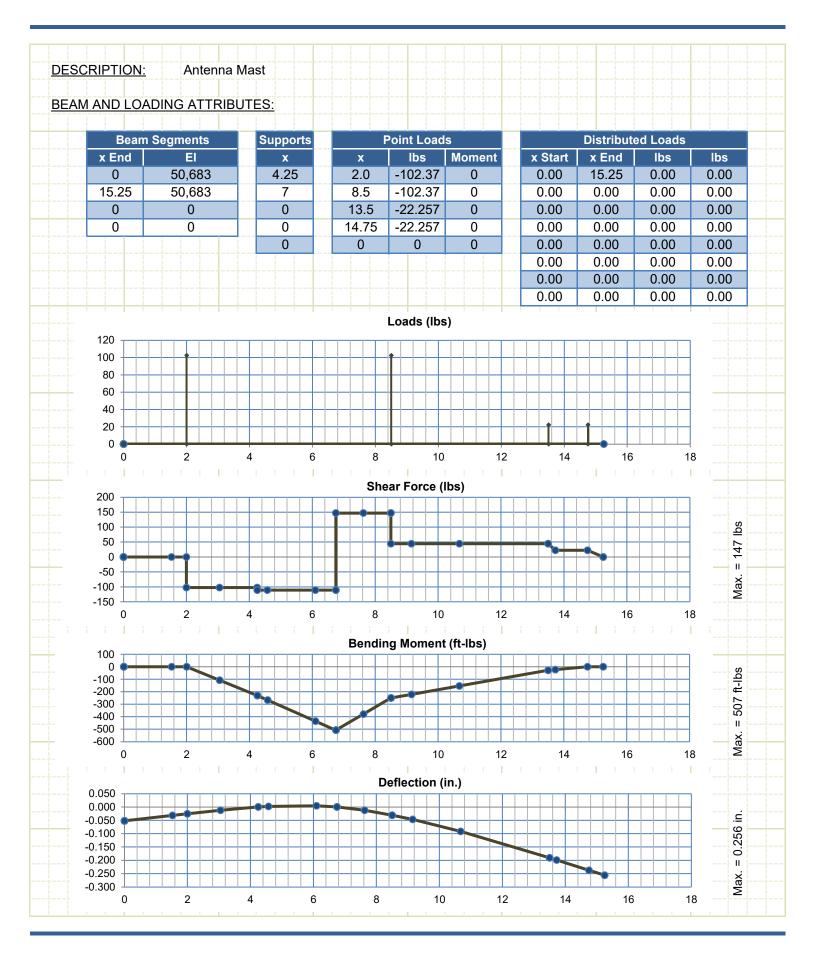
Comparison Of Loads By Sector

Existing Sector A	A Equipment	(lbs)		Existing Sector I	3 Equipment	(lbs)	
Item	Weight	F <sub>no</sub>	F <sub>to</sub>	ltem	Weight	F <sub>no</sub>	F <sub>to</sub>
icem	Weight	• no	• to	item	Weight	• no	• to
EPBQ-654L8H8-L2	00.0	2047	75.7	EDDO (E410110 13	00.0	2047	75.7
	86.0	204.7	75.7	EPBQ-654L8H8-L2	86.0	204.7	75.7
EPBQ-654L8H8-L2	86.0	204.7	75.7	EPBQ-654L8H8-L2	86.0	204.7	75.7
RRH 4T4R B5 160W AHCA	36.8	15.1	8.6	RRH 4T4R B5 160W AHCA	36.8	15.1	8.6
RRH4x25-WCS-4R	ember 23, 2	37.5	27.5	RRH4x25-WCS-4R	70.0	37.5	27.5
RRH 4T4R B12/14 320W AHLBA	04-21-11	18.1	rmit Drawir	RRH 4T4R B12/14 320W AHLBA	PTS	18.1	7.4
RRH 4T4R B25/66 320W AHFIB	nuary 12, 20	43.4	tural Calcula	RRH 4T4R B25/66 320W AHFIB	stone Engin	43.4	26.9
DC2-48-60-0-9E	01-28-11	10.4	mment Dra	DC2-48-60-0-9E	stone Engir	10.4	6.3
DC2-48-60-0-9E	16.0	10.4	6.3	DC2-48-60-0-9E	16.0	10.4	6.3
DC2-48-60-0-9E	16.0	10.4	6.3	DC2-48-60-0-9E	16.0	10.4	6.3
FC12-PC6-10E	35.0	23.1	9.6				
FC12-PC6-10E	35.0	23.1	9.6				
Sector Total	311			Sector Total	311		
Proposed Sector	A Equipmen	t (lbs)		Proposed Sector			
ltem	Weight	F <sub>no</sub>	F <sub>to</sub>	Item	Weight	F <sub>no</sub>	F <sub>to</sub>
AIR6419 B77D	66.0	44.5	20.5	AIR6419 B77D	66.0	44.5	20.5
AIR6419 B77G	66.0	44.5	20.5	AIR6419 B77G	66.0	44.5	20.5
EPBQ-654L8H8-L2	86.0	204.7	75.7	EPBQ-654L8H8-L2			75.7
EPBQ-654L8H8-L2			70.7	E1 BQ 05 120110 22	86.0	204.7	75.7
LI DQ UJALUI 10-LZ	86.0	204.7	75.7	EPBQ-654L8H8-L2	86.0 86.0	204.7	75.7
4490 B5/B12A	86.0 65.0	204.7 31.3					
	65.0	31.3	75.7 14.4	EPBQ-654L8H8-L2	86.0 65.0	204.7 31.3	75.7 14.4
4490 B5/B12A	65.0 46.3	31.3 21.5	75.7 14.4 9.7	EPBQ-654L8H8-L2 4490 B5/B12A	86.0 65.0 46.3	204.7 31.3 21.5	75.7 14.4 9.7
4490 B5/B12A 4415 B30 4478 B14	65.0 46.3 59.4	31.3 21.5 23.7	75.7 14.4 9.7 14.7	EPBQ-654L8H8-L2 4490 B5/B12A 4415 B30 4478 B14	86.0 65.0 46.3 59.4	204.7 31.3 21.5 23.7	75.7 14.4 9.7 14.7
4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1	EPBQ-654L8H8-L2 4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	86.0 65.0 46.3 59.4 69.5	204.7 31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1
4490 B5/B12A 4415 B30 4478 B14	65.0 46.3 59.4	31.3 21.5 23.7	75.7 14.4 9.7 14.7	EPBQ-654L8H8-L2 4490 B5/B12A 4415 B30 4478 B14	86.0 65.0 46.3 59.4	204.7 31.3 21.5 23.7	75.7 14.4 9.7 14.7
4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1	EPBQ-654L8H8-L2 4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	86.0 65.0 46.3 59.4 69.5	204.7 31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1
4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1	EPBQ-654L8H8-L2 4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	86.0 65.0 46.3 59.4 69.5	204.7 31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1
4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1	EPBQ-654L8H8-L2 4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	86.0 65.0 46.3 59.4 69.5	204.7 31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1
4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1	EPBQ-654L8H8-L2 4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	86.0 65.0 46.3 59.4 69.5	204.7 31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1
4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1	EPBQ-654L8H8-L2 4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	86.0 65.0 46.3 59.4 69.5	204.7 31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1
4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1	EPBQ-654L8H8-L2 4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	86.0 65.0 46.3 59.4 69.5	204.7 31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1
4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1	EPBQ-654L8H8-L2 4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	86.0 65.0 46.3 59.4 69.5	204.7 31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1
4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1	EPBQ-654L8H8-L2 4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	86.0 65.0 46.3 59.4 69.5	204.7 31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1
4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1	EPBQ-654L8H8-L2 4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	86.0 65.0 46.3 59.4 69.5	204.7 31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1
4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1	EPBQ-654L8H8-L2 4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	86.0 65.0 46.3 59.4 69.5	204.7 31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1
4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1	EPBQ-654L8H8-L2 4490 B5/B12A 4415 B30 4478 B14 4890 B25/B66	86.0 65.0 46.3 59.4 69.5	204.7 31.3 21.5 23.7 25.9	75.7 14.4 9.7 14.7 12.1

Existing Sector C	C Equipment	(lbs)		Existing Sector	D Equipment	t (lbs)	
Item	Weight	F <sub>no</sub>	F <sub>to</sub>	Item	Weight	F <sub>no</sub>	F <sub>to</sub>
EPBQ-654L8H8-L2	86.0	204.7	75.7				
EPBQ-654L8H8-L2	86.0	204.7	75.7				
RRH 4T4R B5 160W AHCA	36.8	15.1	8.6				
RRH4x25-WCS-4R	70.0	37.5	27.5				
RRH 4T4R B12/14 320W AHLBA	32.6	18.1	7.4				
RRH 4T4R B25/66 320W AHFIB	88.2	43.4	26.9				
DC2-48-60-0-9E	16.0	10.4	6.3				
DC2-48-60-0-9E	16.0	10.4	6.3				
DC2-48-60-0-9E	16.0	10.4	6.3				
Sector Total	448						
Sector rotar	770			i			
Proposed Sector	C Equipmen	t (lbs)		Proposed Sector	D Equipmer	nt (lbs)	
Item	Weight	F <sub>no</sub>	F <sub>to</sub>	Item	Weight	F <sub>no</sub>	F <sub>to</sub>
AIR6419 B77D	66.0	44.5	20.5		ar e.g	110	
AIR6419 B77G	66.0	44.5	20.5				
EPBQ-654L8H8-L2	86.0	204.7	75.7				
EPBQ-654L8H8-L2	86.0	204.7	75.7				
7/10N RE/R13A							
4490 B5/B12A	65.0	31.3	14.4				
4415 B30	65.0 46.3	31.3 21.5	14.4 9.7				
4415 B30 4478 B14	65.0 46.3 59.4	31.3 21.5 23.7	14.4 9.7 14.7				
4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	14.4 9.7 14.7 12.1				
4415 B30 4478 B14	65.0 46.3 59.4	31.3 21.5 23.7	14.4 9.7 14.7				
4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	14.4 9.7 14.7 12.1				
4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	14.4 9.7 14.7 12.1				
4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	14.4 9.7 14.7 12.1				
4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	14.4 9.7 14.7 12.1				
4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	14.4 9.7 14.7 12.1				
4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	14.4 9.7 14.7 12.1				
4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	14.4 9.7 14.7 12.1				
4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	14.4 9.7 14.7 12.1				
4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	14.4 9.7 14.7 12.1				
4415 B30 4478 B14 4890 B25/B66	65.0 46.3 59.4 69.5	31.3 21.5 23.7 25.9	14.4 9.7 14.7 12.1	Sector Total			

Total   6,750   3,448   1,368   715   776   (least of all previous configs)   1,368						Applied Fo	orces (lbs)					
New Cabinets  Emerson 5100  Emerson Netsure Battery Cabinet  FLM32 Purcell Cabinet  440  225  88  232  240		Item		Weight	Eh			F <sub>to</sub>				
Emerson 5100 2,300 1,175 466 227 276   Emerson Netsure Battery Cabinet 4,010 2,049 813 255 261   FLX42 Purcell Cabinet 440 225 89 232 240   Output  Description:							110	· ·				
Emerson 5100 2,300 1,175 466 227 276   Emerson Netsure Battery Cabinet 4,010 2,049 813 255 261   FLX42 Purcell Cabinet 440 225 89 232 240   Output  Description:												
Emerson 5100 2,300 1,175 466 227 276   Emerson Netsure Battery Cabinet 4,010 2,049 813 255 261   FLX42 Purcell Cabinet 440 225 89 232 240   Output  Description:												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100 2,300 1,175 466 227 276   Emerson Netsure Battery Cabinet 4,010 2,049 813 255 261   FLX42 Purcell Cabinet 440 225 89 232 240   Output  Description:												
Emerson 5100 2,300 1,175 466 227 276   Emerson Netsure Battery Cabinet 4,010 2,049 813 255 261   FLX42 Purcell Cabinet 440 225 89 232 240   Output  Description:												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100       2,300       1,175       466       227       276       1         Emerson Netsure Battery Cabinet       4,010       2,049       813       255       261       261         FLX42 Purcell Cabinet       440       225       89       232       240       240												
Emerson 5100 2,300 1,175 466 227 276   Emerson Netsure Battery Cabinet 4,010 2,049 813 255 261   FLX42 Purcell Cabinet 440 225 89 232 240   Output  Description:												
Emerson 5100 2,300 1,175 466 227 276   Emerson Netsure Battery Cabinet 4,010 2,049 813 255 261   FLX42 Purcell Cabinet 440 225 89 232 240   Output  Description:												
Emerson 5100 2,300 1,175 466 227 276   Emerson Netsure Battery Cabinet 4,010 2,049 813 255 261   FLX42 Purcell Cabinet 440 225 89 232 240   Output  Description:												
Emerson 5100 2,300 1,175 466 227 276   Emerson Netsure Battery Cabinet 4,010 2,049 813 255 261   FLX42 Purcell Cabinet 440 225 89 232 240   Output  Description:												
Emerson 5100 2,300 1,175 466 227 276   Emerson Netsure Battery Cabinet 4,010 2,049 813 255 261   FLX42 Purcell Cabinet 440 225 89 232 240   Output  Description:												
Emerson 5100 2,300 1,175 466 227 276   Emerson Netsure Battery Cabinet 4,010 2,049 813 255 261   FLX42 Purcell Cabinet 440 225 89 232 240   Output  Description:												
Emerson 5100 2,300 1,175 466 227 276   Emerson Netsure Battery Cabinet 4,010 2,049 813 255 261   FLX42 Purcell Cabinet 440 225 89 232 240   Output  Description:												
Emerson 5100 2,300 1,175 466 227 276   Emerson Netsure Battery Cabinet 4,010 2,049 813 255 261   FLX42 Purcell Cabinet 440 225 89 232 240   Output  Description:												
Emerson 5100 2,300 1,175 466 227 276   Emerson Netsure Battery Cabinet 4,010 2,049 813 255 261   FLX42 Purcell Cabinet 440 225 89 232 240   Output  Description:												
Emerson 5100 2,300 1,175 466 227 276   Emerson Netsure Battery Cabinet 4,010 2,049 813 255 261   FLX42 Purcell Cabinet 440 225 89 232 240   Output  Description:	N	lew Cabinet	ts									
Emerson Netsure Battery Cabinet         4,010         2,049         813         255         261           FLX42 Purcell Cabinet         440         225         89         232         240												
Emerson Netsure Battery Cabinet         4,010         2,049         813         255         261           FLX42 Purcell Cabinet         440         225         89         232         240	F	merson 510	00	2.300	1.175	466	227	276				
FLX42 Purcell Cabinet         440         225         89         232         240												
Total         6,750         3,448         1,368         715         776         (least of all previous configs)	I LA4	_ 1 GICCII Ca	~ct	<del>-1-1</del> 0	223	0.5	232	240				
10tal 0,730 3,446 1,300 713 770 (least of all previous coffligs)		Total		6.750	2 // / 0	1 260	715	776	(least of all	previous co	nfigs)	
		iUldi		0,750	3,4 <del>4</del> 8	1,308	/13	//0	(IEast OI all	previous co	ıııgə)	
								<u> </u>				

Beam Loading Good Samaritan



Steel Member Stress Check Good Samaritan

DESCRIPTION:	Anten	na Mast										
										<del></del>		
DEAM DEODEDTI	-c.	Doom shops =	D 2" Cak	. 40								H
BEAM PROPERTI	<u>=8:</u>	Beam shape =	P3 SCI	1 40								
	2 220	. 2			Cv =	1 720	. 3					
	2.230					1.720						
Weight =		plf				1.720						
O.D. =	3.500	in			IX =	3.020	in'					-
MATERIAL DROPE	DTICO.					3.020						
MATERIAL PROPI	ERTIES:				rx =	1.160						
	00.000				ry =	1.160	in.					
	29,000											
Гу -	35,000	psi									$\vdash$	<u>⊢</u>
BEAM LOADING:										ļļ		
				ļl						4-4		
	Unsuppo	rted Length, L =	183	in.						1		
												_
		Moment, M =		<del></del>						1		
		=	6,089	in-lbs						1		
										4-4-		
		Shear, V =	0.147	kips								
											<u> </u>	
		Deflection, $\Delta$ =		in.								
S	pan Leng	th / Deflection =	715									
										1		
											<u> </u>	_
BEAM STRESS:										1		
										<u> </u>		
		ling stress, f <sub>bx</sub> =								1		
Allowabl	e Bending	$_{\rm J}$ , $F_{\rm bx}$ = 0.6 $F_{\rm y}$ =	21,000	psı						44		
												_
		Required $S_x =$	0.3	in <sup>3</sup>	O.K.							
										1		
		hear Stress fv =	66	psi								
Allowable	e Shear S	tress = 0.4 Fy =	14,000	psi	O.K.							
	Red	quired Area, A =	0.002	in <sup>2</sup>								
										1		
							4-1-1-1			1		
											<u> </u>	L
		ed shear at the p					the mast a	nchorag	e. The lo	ad is sr	nall	
coı	mpared to	the capacity of	a 1/2" dia	meter	A307 b	olt.						
					أسابسا					4		
		Utilization =	16.869	6	of capa	acity						

# **B Appendix – Referenced Documents**



#### Address:

407 14th Ave SE Puyallup, Washington

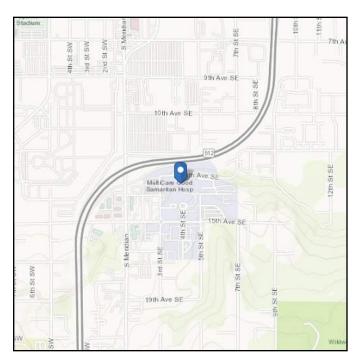
98372

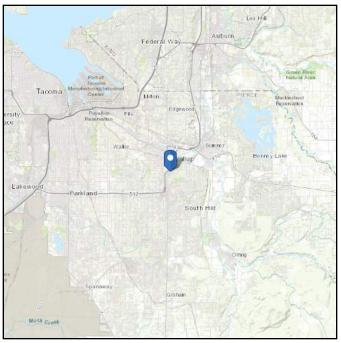
# **ASCE 7 Hazards Report**

Standard: ASCE/SEI 7-16 Latitude: 47.179251
Risk Category: II Longitude: -122.289637

**Soil Class:** D - Default (see **Elevation:** 122.28247765975831 ft

Section 11.4.3) (NAVD 88)





# Wind

## Results:

Wind Speed 98 Vmph 10-year MRI 67 Vmph 25-year MRI 73 Vmph 50-year MRI 78 Vmph 100-year MRI 83 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: Sun Apr 02 2023

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 not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.



# **Seismic**

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

Results:

 $S_{\mbox{\scriptsize S}}$  :  $S_{\text{D1}}$  : 1.267 N/A  $T_L$ : S<sub>1</sub> : 0.436 6  $F_a$ : 1.2 PGA: 0.5  $F_v$ : N/A PGA<sub>M</sub>: 0.6  $S_{MS}$  :  $F_{PGA}$  : 1.52 1.2  $S_{M1}$ : N/A  $I_e$ : 1  $C_v$ :  $S_{\text{DS}}$  : 1.013 1.353

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

Data Accessed: Sun Apr 02 2023

Date Source: USGS Seismic Design Maps



## **Ice**

#### Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 25 F

Gust Speed 30 mph

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

Date Accessed: Sun Apr 02 2023

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.

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