STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

October 7, 2020

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103

RE: **TS-VER-025-200827 -** Cellco Partnership d/b/a Verizon Wireless request for an order to approve tower sharing at an existing telecommunications facility located at 1325 Cheshire Street, Cheshire, Connecticut.

Dear Attorney Baldwin:

The Connecticut Siting Council (Council) is in receipt of your correspondence of October 7, 2020 submitted in response to the Council's September 17, 2020 notification of an incomplete request for tower sharing with regard to the above-referenced matter.

The submission renders the request for tower sharing complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

s/ Melanie A. Bachman

Melanie A. Bachman
Executive Director

MAB/IN/emr

From: Mayo, Rachel <rmayo@RC.com>
Sent: Wednesday, October 7, 2020 10:37 AM
To: Bachman, Melanie <Melanie.Bachman@ct.gov>; CSC-DL Siting Council <Siting.Council@ct.gov>
Cc: Baldwin, Kenneth <KBALDWIN@RC.com>; Mayo, Rachel <rmayo@RC.com>
Subject: RESPONSE- Council Incomplete Letter for TS-VER-025-200827 (1325 Cheshire Street, Cheshire)

Good morning, please see the attached updated Mount Analysis in response to your Letter dated September 17, 2020.

Please let us know if you need additional information.

Thank you, Rachel

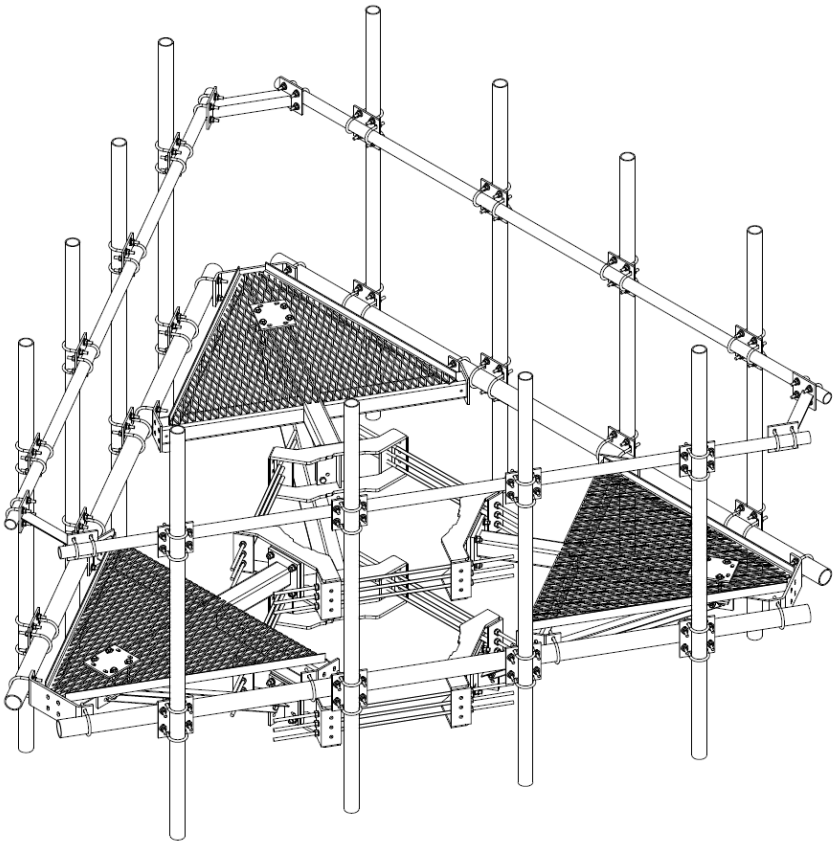
Rachel A. Mayo
Land Use Analyst

Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103
Direct 860.275.8213 | Fax 860.275.8299
rmayo@rc.com | www.rc.com
Bio | Contact Card

verizon

20 Alexander Drive
Wallingford, CT 06492

MOUNT ANALYSIS
CHESHIRE NORTHEAST 2 CT



Address:
1325 CHESHIRE STREET
CHESHIRE, CT 06410
LOCATION CODE: 470040

STATE OF CONNECTICUT
CLEMENT J. SALEK
NO. 26876
LICENSED
PROFESSIONAL ENGINEER

Date:
SEPTEMBER 23, 2020 (REVISION 1)

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil • Structural • Land Surveying

R.K. Executive Centre ■ 201 Boston Post Road West ■ Suite 101 ■ Marlborough, MA 01752
t. 508.481.7400 ■ www.chappellengineering.com ■ f. 508.481.7406

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil • Structural • Land Surveying

September 23, 2020

verizon

20 Alexander Drive
Wallingford, CT 06492

RE:

Applicant Site Name:	Cheshire Northeast 2 CT
Applicant Location Code:	470040
Site Address:	1325 Cheshire Street, Cheshire, CT 06410

To whom it may concern:

Chappell Engineering Associates, LLC has performed a structural analysis of the proposed Verizon braced low-profile antenna mounting platform being proposed at the existing 170'+/- monopole located at the above-referenced address at approximately 145ft AGL to analyze the effect of the proposed Verizon antenna installation on the subject platform.

The proposed antenna support structure will consist of one (1) low-profile antenna frame supporting twelve (12) individual antenna pipe mounts. Our analysis has considered the following total major equipment loads indicated on the antenna design summary (included in this report) to be installed on the proposed low-profile antenna frame:

Appurtenance	Size (in)	Weight	Location	Status
(6) JMA MX10FIT665 Panel	71Hx12.2Wx7.5D	53.4lbs	Face of Mount	Proposed
(3) LTE/CDMA 700/850 RRH	15Hx15Wx8.1D	70lbs	Face of Mount	Proposed
(3) PCS/AWS 1900/2100 RRH	15Hx15Wx10.1D	85lbs	Face of Mount	Proposed
(3) CBRS Band 48 RRH	12.1Hx8.5Wx4.1D	19lbs	Face of Mount	Proposed
(1) RFS Fiber Junction Box	19.2Hx15.7Wx10.3D	30lbs	Face of Mount	Proposed

The proposed antennas and ancillary hardware are shown on the enclosed drawings

We have modeled the entire low-profile antenna frame under both wind and wind/ice loads. Our analysis and results are included in this report.

Based upon our analysis of the antenna mounts being proposed, **we consider the proposed RMQP-4096-HK low-profile mounting frame assembly has adequate capacity** to support the proposed antenna configuration as shown on the construction drawings. **The maximum percentage stress capacity as determined by our analysis are the top pipe handrails with a capacity of 55%.** Our analysis assumes the mount will be installed and maintained according to the manufacturers' recommendations.

If you have any questions regarding this matter, please do not hesitate to call.

Very truly yours,
CHAPPELL ENGINEERING ASSOCIATES, LLC

STATE OF CONNECTICUT
CLEMENT J. SALEK
No. 26376
LICENSED PROFESSIONAL ENGINEER

Clement J Salek, P.E.
CJS/cjs

Appendix A – RF Antenna Data Sheets

verizon fuze | RFDS

NORTH EAST > North East > New England > New England West > CHESHIRE_NE_2_CT - B

Cheiban, Ziad - ziad.cheiban@verizonwireless.com - 7/1/2020 12:51:15

Project Details

Carrier Aggregation:	false
MPT Id:	
eCIP-0:	false
Project Name:	New Build - CHESHIRE_NE_2_CT - A
FUZE Project ID:	16205305
Designed Sector Carrier 4G:	15
Designed Sector Carrier 5G:	N/A
Additional Sector Carrier 4G:	N/A
Additional Sector Carrier 5G:	N/A
SiteTraker Project Id:	a2R0H000001EgmPUAS
RFDS Project Scope:	New Build Rev0_2020-06-10: Preliminary Rev1_2020-07-01: Removed MMU antennas
Suffix:	Rev1_2020-07-01

Location Information

Site ID:	616512863
E-NodeB ID:	064361
PSLC:	470040
Switch Name:	Wallingford 1
Tower Owner:	
Tower Type:	Monopole
Site Type:	MACRO
Street Address:	1325 Cheshire Street
City:	Cheshire
State:	CT
Zip Code:	06410
County:	New Haven
Latitude:	41.532589 / 41° 31' 57.3204" N
Longitude:	-72.870472 / 72° 52' 13.6992" W

Antenna Summary

Added

700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	N77	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity
LTE	LTE	LTE	LTE					LTE			JMA	MX10FIT665	145	148	0(D1) 0(D19) 120(D2) 120(D20) 240(D21) 240(D3)	true	true	PHYSICAL	6

Removed

700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	N77	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity

No data available.

Retained

700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	N77	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity

No data available.

Added: 6 **Removed:** 0 **Retained:** 0

Equipment Summary

Added

Equipment Type	Location	700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	N77	Make	Model	Cable Length	Cable Size	Install Type	Quantity
Hybrid Cable	Tower													LI 6x12			PHYSICAL	2
Mount	Tower												JMA	91900314-02			PHYSICAL	3
OVP Box	Tower													12-OVP			PHYSICAL	1
RRU	Tower	LTE	LTE										Samsung	B5/B13 RRH-BR04C (RFV01U-D2A)			PHYSICAL	3
RRU	Tower									LTE			Samsung	CBRS RRH - RT4401-48A			PHYSICAL	3
RRU	Tower			LTE	LTE								Samsung	B2/B66A RRH-BR049 (RFV01U-D1A)			PHYSICAL	3

Removed

Equipment Type	Location	700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	N77	Make	Model	Cable Length	Cable Size	Install Type	Quantity

No data available.

Retained

Equipment Type	Location	700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	N77	Make	Model	Cable Length	Cable Size	Install Type	Quantity

No data available.

Service Info

1900 MHZ LTE

	0002		
Sector	**D1**	**D2**	**D3**
Azimuth	0	120	240
Cell / ENode B ID	064361	064361	064361
Antenna Model	MX10FIT665	MX10FIT665	MX10FIT665
Antenna Make	JMA	JMA	JMA
Antenna Centerline(Ft)	145	145	145
Mechanical Down-Tilt(Deg.)	0	0	0
Electrical Down-Tilt	2	2	2
Tip Height	148	148	148
Regulatory Power	234.83	234.83	234.83
TMA Make			
TMA Model			
RRU Make	Samsung	Samsung	Samsung
RRU Model	B2/B66A RRH-BR049 (RFV01U-D1A)	B2/B66A RRH-BR049 (RFV01U-D1A)	B2/B66A RRH-BR049 (RFV01U-D1A)
Number of Tx, Rx Lines	4,4	4,4	4,4
Position			
Transmitter Id	7112942	7112943	7112944
Source	ATOLL_API	ATOLL_API	ATOLL_API

2100 MHZ LTE

	0002		
Sector	**D1**	**D2**	**D3**
Azimuth	0	120	240
Cell / ENode B ID	064361	064361	064361
Antenna Model	MX10FIT665	MX10FIT665	MX10FIT665
Antenna Make	JMA	JMA	JMA
Antenna Centerline(Ft)	145	145	145
Mechanical Down-Tilt(Deg.)	0	0	0
Electrical Down-Tilt	2	2	2
Tip Height	148	148	148
Regulatory Power	128.74	128.74	128.74
TMA Make			
TMA Model			
RRU Make	Samsung	Samsung	Samsung
RRU Model	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)
Number of Tx, Rx Lines	4,4	4,4	4,4
Position			
Transmitter Id	7112945	7112946	7112947
Source	ATOLL_API	ATOLL_API	ATOLL_API

850 MHZ LTE

	0002		
Sector	**D1**	**D2**	**D3**
Azimuth	0	120	240
Cell / ENode B ID	064361	064361	064361
Antenna Model	MX10FIT665	MX10FIT665	MX10FIT665
Antenna Make	JMA	JMA	JMA
Antenna Centerline(Ft)	145	145	145
Mechanical Down-Tilt(Deg.)	0	0	0
Electrical Down-Tilt	8	8	8
Tip Height	148	148	148
Regulatory Power	246.64	246.64	246.64
TMA Make			
TMA Model			
RRU Make	Samsung	Samsung	Samsung
RRU Model	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)
Number of Tx, Rx Lines	4,4	4,4	4,4
Position			
Transmitter Id	7112948	7112949	7112950
Source	ATOLL_API	ATOLL_API	ATOLL_API

700 MHZ LTE

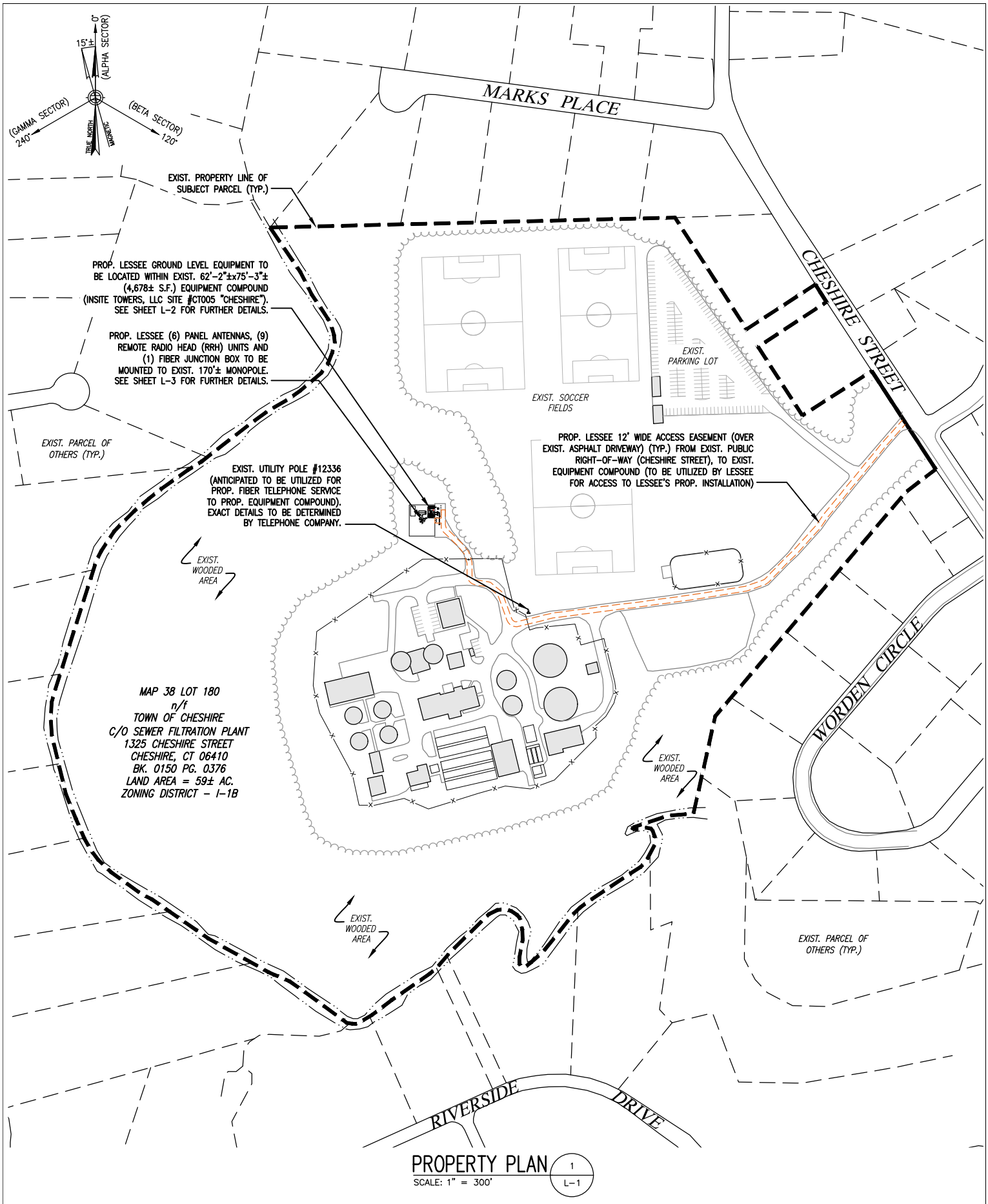
	0002		
Sector	**D1**	**D2**	**D3**
Azimuth	0	120	240
Cell / ENode B ID	064361	064361	064361
Antenna Model	MX10FIT665	MX10FIT665	MX10FIT665
Antenna Make	JMA	JMA	JMA
Antenna Centerline(Ft)	145	145	145
Mechanical Down-Tilt(Deg.)	0	0	0
Electrical Down-Tilt	8	8	8
Tip Height	148	148	148
Regulatory Power	59.67	59.67	59.67
TMA Make			
TMA Model			
RRU Make	Samsung	Samsung	Samsung
RRU Model	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)	B5/B13 RRH-BR04C (RFV01U-D2A)
Number of Tx, Rx Lines	4,4	4,4	4,4
Position			
Transmitter Id	7112939	7112940	7112941
Source	ATOLL_API	ATOLL_API	ATOLL_API

3_5 GHz

	0002		
Sector	**D19**	**D20**	**D21**
Azimuth	0	120	240
Cell / ENode B ID	064361	064361	064361
Antenna Model	MX10FIT665	MX10FIT665	MX10FIT665
Antenna Make	JMA	JMA	JMA
Antenna Centerline(Ft)	145	145	145
Mechanical Down-Tilt(Deg.)	0	0	0
Electrical Down-Tilt	2	2	2
Tip Height	148	148	148
Regulatory Power	9.89	9.89	9.89
TMA Make			
TMA Model			
RRU Make	Samsung	Samsung	Samsung
RRU Model	CBRS RRH - RT4401-48A	CBRS RRH - RT4401-48A	CBRS RRH - RT4401-48A
Number of Tx, Rx Lines	4,4	4,4	4,4
Position			
Transmitter Id	7112951	7112952	7112953
Source	ATOLL_API	ATOLL_API	ATOLL_API

Service Comments

Appendix B –Drawings



PROPERTY PLAN (1 / L-1)
SCALE: 1" = 300'

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying

NO.	DATE	REVISIONS	BY	CHK	APP'D
4	9/22/20	REVISED TASK ALLOCATION	NWC	GRS	GRS
3	9/2/20	REVISED GENERATOR DESIGN	NWC	GRS	GRS
2	7/6/20	REVISED PER (7/1/20) RFDS	NWC	GRS	GRS
1	6/29/20	REVISED GROUND EQUIPMENT	NWC	GRS	GRS
0	6/19/20	DRAFT LEASE EXHIBIT	NWC	GRS	GRS

SCALE: AS NOTED | DESIGNED BY: GRS | DRAWN BY: NWC

CHESHIRE NORTHEAST 2 CT

1325 CHESHIRE STREET
CHESHIRE, CT 06410

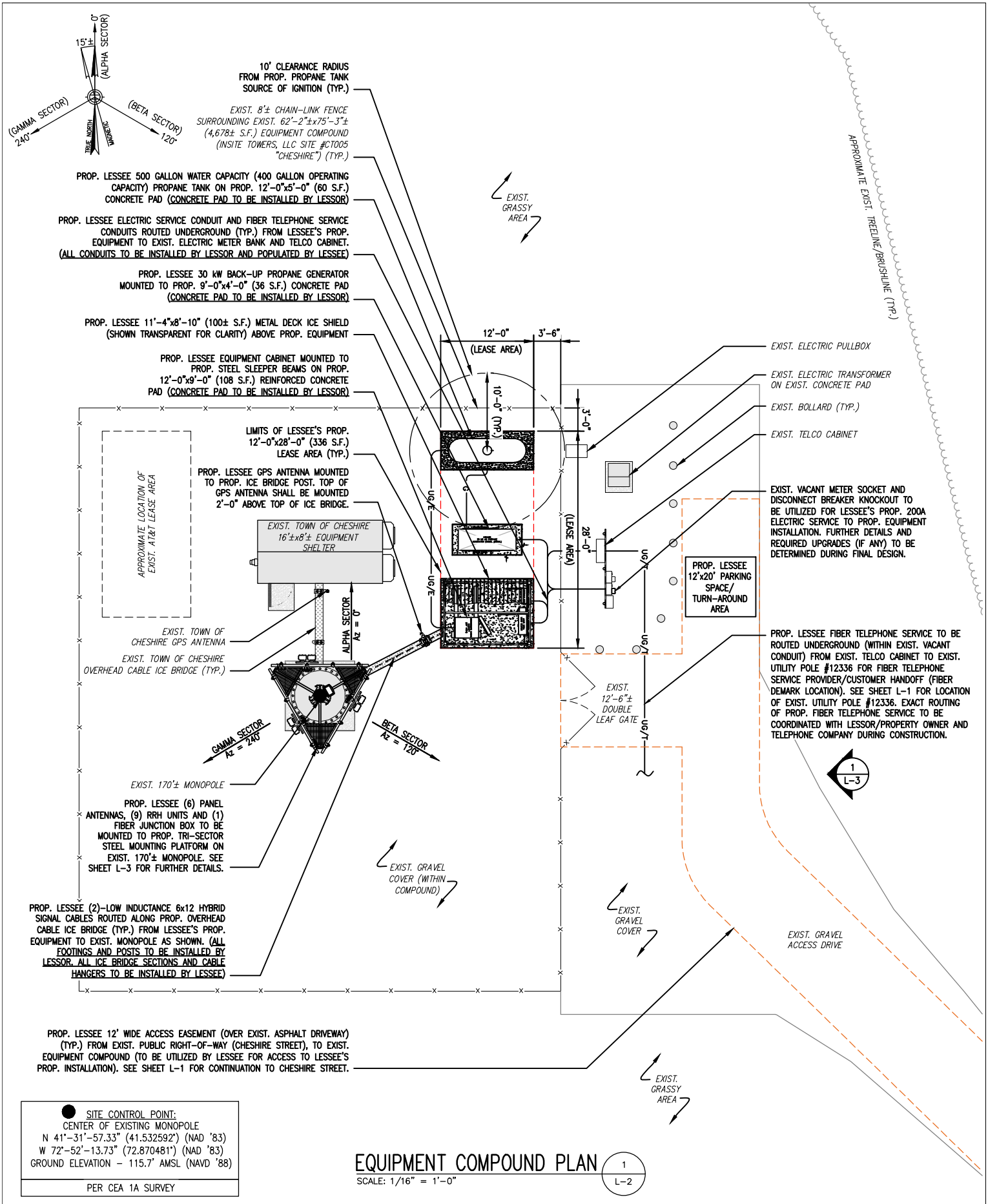
LEASE EXHIBIT
NOT FOR CONSTRUCTION

LEASE AREA

EQUIPMENT LEASE AREA: 12'-0"x28'-0" (336 S.F.)

TOTAL = 336 S.F.

PROJECT NO.	DRAWING NAME	DATE	LOC. CODE	REV
96210.397	L-1	9/22/20	470040	3



SITE CONTROL POINT:
CENTER OF EXISTING MONOPOLE
N 41°-31'-57.33" (41.532592°) (NAD '83)
W 72°-52'-13.73" (72.870481°) (NAD '83)
GROUND ELEVATION = 115.7' AMSL (NAVD '88)

PER CEA 1A SURVEY

EQUIPMENT COMPOUND PLAN

SCALE: 1/16" = 1'-0"

1 L-2

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying

NO.	DATE	REVISIONS	BY	CHK	APP'D
4	9/22/20	REVISED TASK ALLOCATION	NWC	GRS	GRS
3	9/2/20	REVISED GENERATOR DESIGN	NWC	GRS	GRS
2	7/6/20	REVISED PER (7/1/20) RFDS	NWC	GRS	GRS
1	6/29/20	REVISED GROUND EQUIPMENT	NWC	GRS	GRS
0	6/19/20	DRAFT LEASE EXHIBIT	NWC	GRS	GRS

SCALE: AS NOTED | DESIGNED BY: GRS | DRAWN BY: NWC

CHESHIRE NORTHEAST 2 CT

1325 CHESHIRE STREET
CHESHIRE, CT 06410

LEASE EXHIBIT
NOT FOR CONSTRUCTION

LEASE AREA

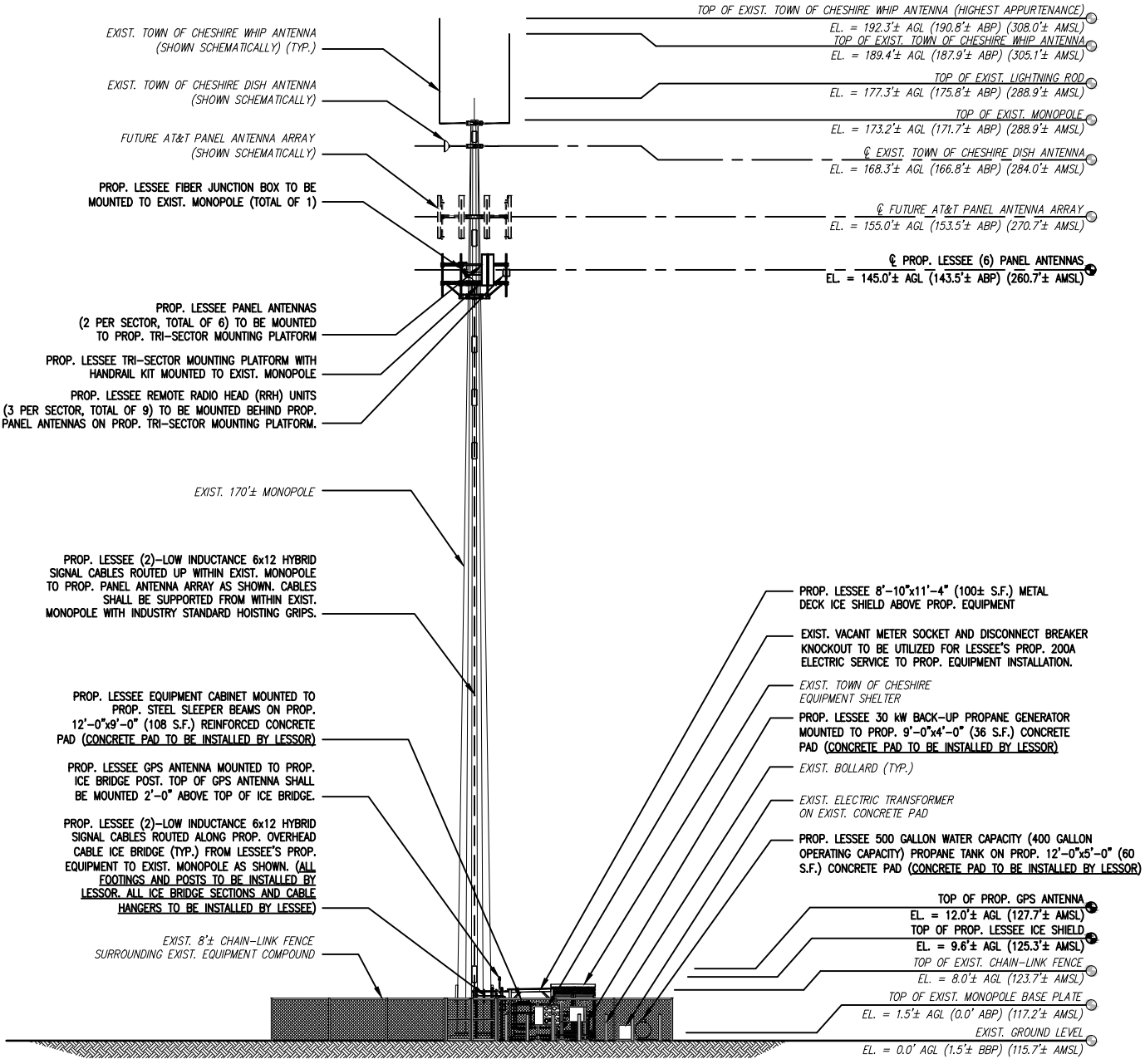
EQUIPMENT LEASE AREA: 12'-0"x28'-0" (336 S.F.)

TOTAL = 336 S.F.

PROJECT NO.	DRAWING NAME	DATE	LOC. CODE	REV
96210.397	L-2	9/22/20	470040	3

LEGEND	
AGL	ABOVE GROUND LEVEL
ABP	ABOVE MONOPOLE BASE PLATE
BBP	BELOW MONOPOLE BASE PLATE
AMSL	ABOVE MEAN SEA LEVEL

NOTE:
EXIST. MONOPOLE AND APPURTENANCES SHOWN SCHEMATICALLY OR NOT SHOWN FOR CLARITY.



EAST EQUIPMENT COMPOUND ELEVATION

SCALE: 1" = 30'

1
L-3

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying

NO.	DATE	REVISIONS	BY	CHK	APP'D
4	9/22/20	REVISED TASK ALLOCATION	NWC	GRS	GRS
3	9/2/20	REVISED GENERATOR DESIGN	NWC	GRS	GRS
2	7/6/20	REVISED PER (7/1/20) RFDS	NWC	GRS	GRS
1	6/29/20	REVISED GROUND EQUIPMENT	NWC	GRS	GRS
0	6/19/20	DRAFT LEASE EXHIBIT	NWC	GRS	GRS

SCALE: AS NOTED | DESIGNED BY: GRS | DRAWN BY: NWC

CHESHIRE
NORTHEAST 2 CT

1325 CHESHIRE STREET
CHESHIRE, CT 06410

LEASE EXHIBIT
NOT FOR CONSTRUCTION

LEASE AREA

EQUIPMENT LEASE AREA: 12'-0"x28'-0" (336 S.F.)

TOTAL = 336 S.F.

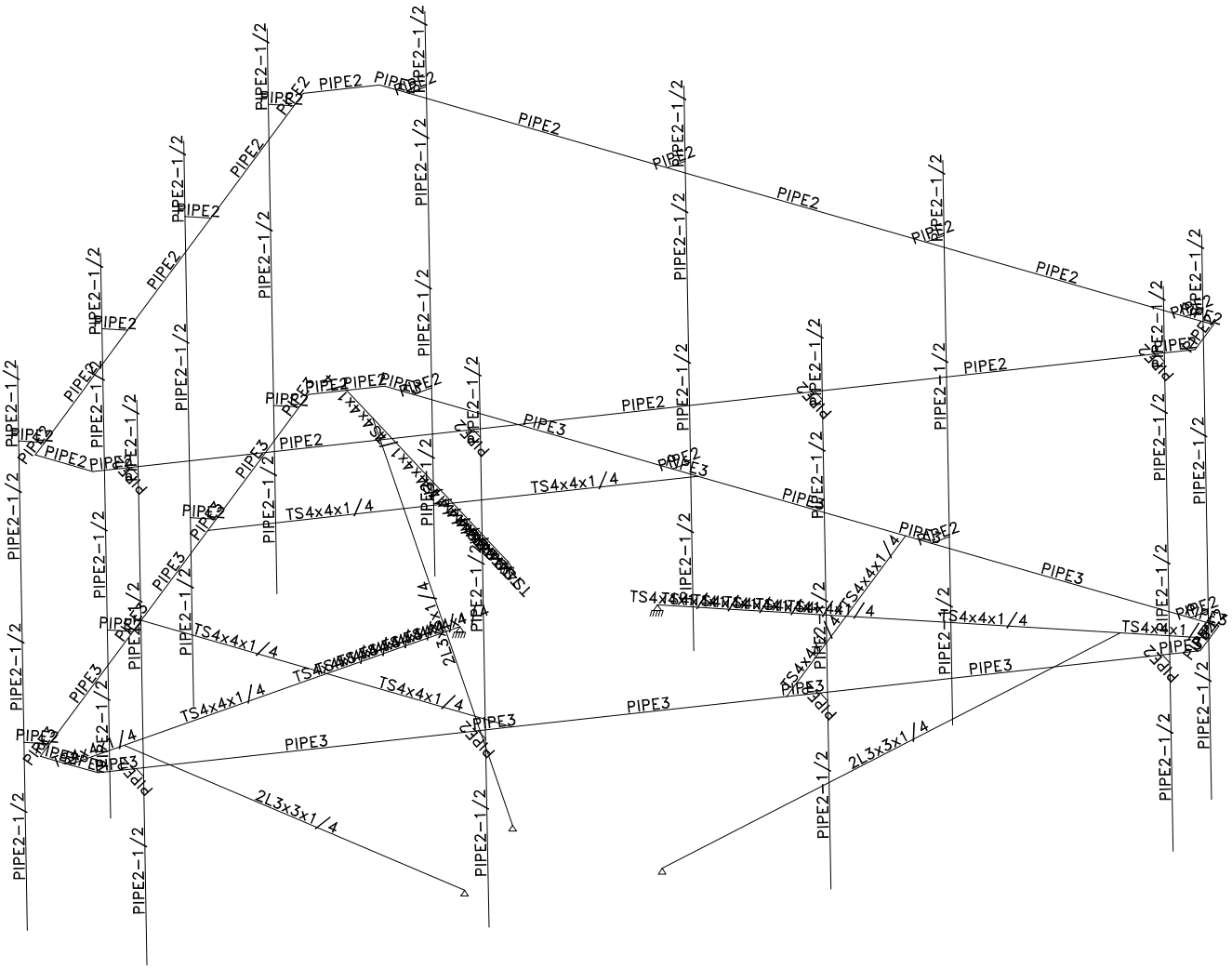
PROJECT NO.	DRAWING NAME	DATE	LOC. CODE	REV
96210.397	L-3	9/22/20	470040	3

Appendix C– Mount Analysis

Cheshire Northeast 2 CT Mount Analysis

SCALE = 1:27

DATE: 7/ 9/20



Cheshire Northeast 2 CT Mount Analysis

Prepared by:

Load no. 1: Front No Ice (units - kips ft.)

/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS

/ BEAM LOADS
/ JOINT LOADS
/ JOINT LOADS
/ JOINT LOADS
FX2 -0.464 FX3 -0.06 N 28 30

FX2 -0.4 FX3 -0.06 N 64 66 48 50
FX2 -0.12 FX3 -0.07 N 126 130 125 129 127 128
/ END

F O R C E S U M M A T I O N

FX1=0. kip
FX2=-3.248 kip
FX3=-0.78 kip

Load no. 2: Side No Ice (units - kips ft.)

/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS

/ BEAM LOADS
/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ JOINT LOADS

FX1 -0.402 FX3 -0.06 N 64 66 28 30 48 50
FX1 -0.12 FX3 -0.07 N 126 130 125 129 127 128
/ END

F O R C E S U M M A T I O N

FX1=-3.132 kip
FX2=0. kip
FX3=-0.78 kip

Load no. 3: Front Ice (units - kips ft.)

/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS

/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ JOINT LOADS
FX2 -0.09 FX3 -0.2 N 28 30

FX2 -0.08 FX3 -0.2 N 64 66 48 50

Load no. 3: Front Ice (units - kips ft.)

FX2 -0.03 FX3 -0.12 N 126 130 125 129 127 128
/ END

F O R C E S U M M A T I O N

FX1=0. kip
FX2=-0.68 kip
FX3=-1.92 kip

Load no. 4: Side Ice (units - kips ft.)

/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ BEAM LOADS
/ JOINT LOADS
/ JOINT LOADS
FX1 -0.08 FX3 -0.2 N 64 66 28 30 48 50
FX1 -0.03 FX3 -0.12 N 126 130 125 129 127 128
/ END

F O R C E S U M M A T I O N

FX1=-0.66 kip
FX2=0. kip
FX3=-1.92 kip

Load no. 5: Selfweight (units - kips ft.)

/ BEAM LOADS
SELF X3 -1. B 1 TO 138 142 TO 144
/ GLOBAL LOADS
/ GLOBAL LOADS
/ GLOBAL LOADS
DIST FX3 -0.003 PLANE -7.25 4.763 0. -1.805 4.763 0. -5.028 -0.818
0. PT -0.5 0.866 BEAMS
DIST FX3 -0.003 PLANE 1.805 4.763 0. 7.25 4.763 0. 7.75 3.897 0. PT
3.223 5.581 BEAMS
DIST FX3 -0.003 PLANE -3.222 -3.945 0. 3.222 -3.945 0. 0.5 -8.66
0. PT 2.722 4.715 BEAMS
/ END

F O R C E S U M M A T I O N

FX1=0. kip
FX2=0. kip
FX3=-1.7182 kip

Load no. 6: Front Frame Ice (units - kips ft.)

```
/ BEAM LOADS
/ BEAM LOADS
DIST GL FX2 -0.003 B 1 4 5 13 15 TO 35 BY 2 49 TO 51 55 56 63 64 66 71
  72 TO 74 76 TO 81 83 TO 88 90 TO 115 117 133 134 135 142 TO 144
/ END
```

F O R C E S U M M A T I O N

FX1=0. kip
FX2=-0.523 kip
FX3=0. kip

Load no. 7: Side Frame Ice (units - kips ft.)

```
/ BEAM LOADS
/ BEAM LOADS
/ BEAM LOADS
DIST GL FX1 -0.003 B 4 5 13 TO 35 BY 2 50 51 63 64 66 71 72 TO 78 BY 2
  79 TO 81 83 TO 88 90 91 93 94 96 TO 100 BY 2 101 TO 115 117 133 134 135
  142 TO 144
/ END
```

F O R C E S U M M A T I O N

FX1=-0.4387 kip
FX2=0. kip
FX3=0. kip

Load no. 8: Front Frame No Ice (units - kips ft.)

```
/ BEAM LOADS
/ BEAM LOADS
/ BEAM LOADS
DIST GL FX2 -0.006 B 1 4 5 13 15 TO 35 BY 2 49 TO 51 55 56 63 64 66 71
  72 TO 74 76 TO 81 83 TO 88 90 TO 115 117 133 134 135 142 TO 144
/ END
```

F O R C E S U M M A T I O N

FX1=0. kip
FX2=-1.046 kip
FX3=0. kip

Load no. 9: Side Frame No Ice (units - kips ft.)

```
/ BEAM LOADS
/ BEAM LOADS
/ BEAM LOADS
/ BEAM LOADS
DIST GL FX1 -0.006 B 4 5 13 TO 35 BY 2 50 51 63 64 66 71 72 TO 78 BY 2
 79 TO 81 83 TO 88 90 91 93 94 96 TO 100 BY 2 101 TO 115 117 133 134 135
 142 TO 144
/ END STATIC
```

F O R C E S U M M A T I O N

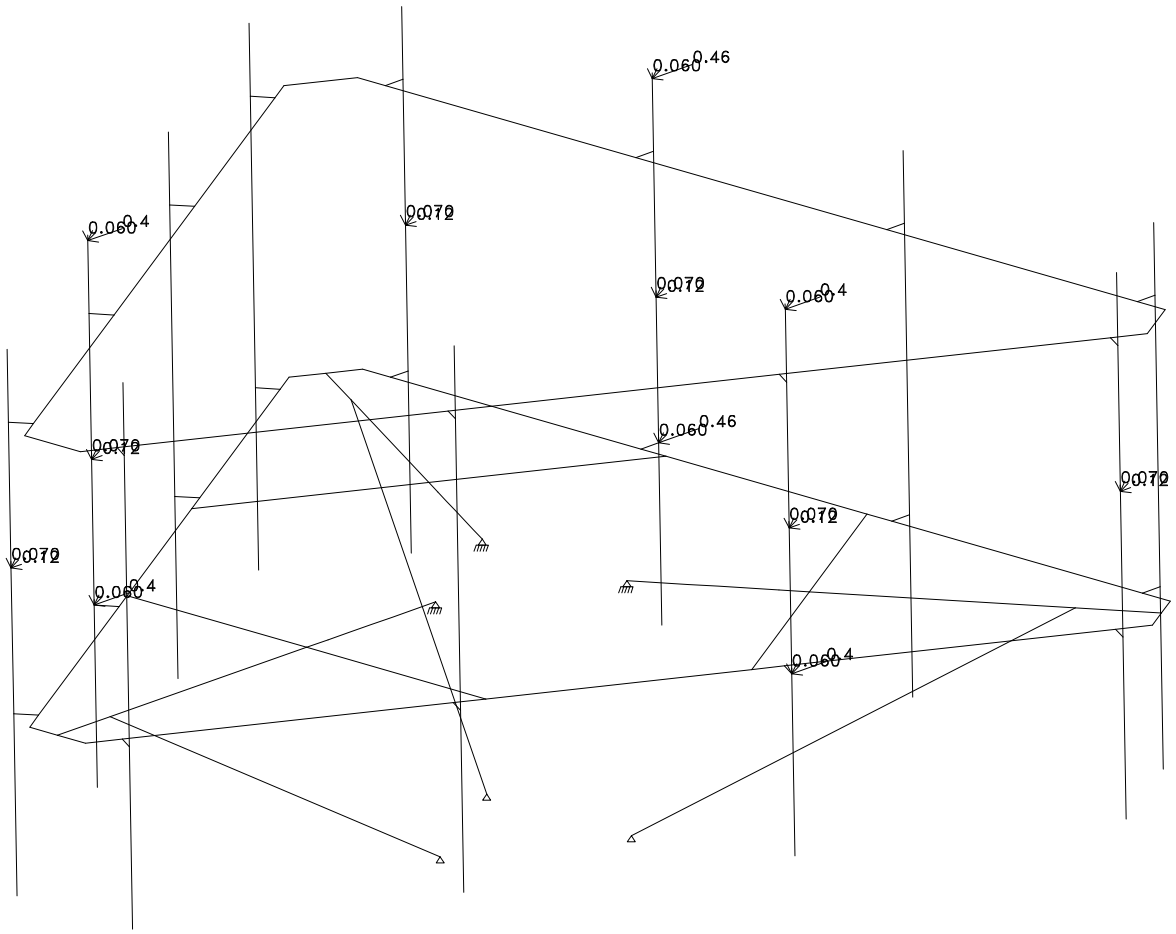
FX1=-0.8773 kip
FX2=0. kip
FX3=0. kip

Cheshire Northeast 2 CT Mount Analysis

Load 1: Front No Ice

X3
X2
X1

SCALE = 1:30	UNITS: kip ft	DATE: 7/ 9/20

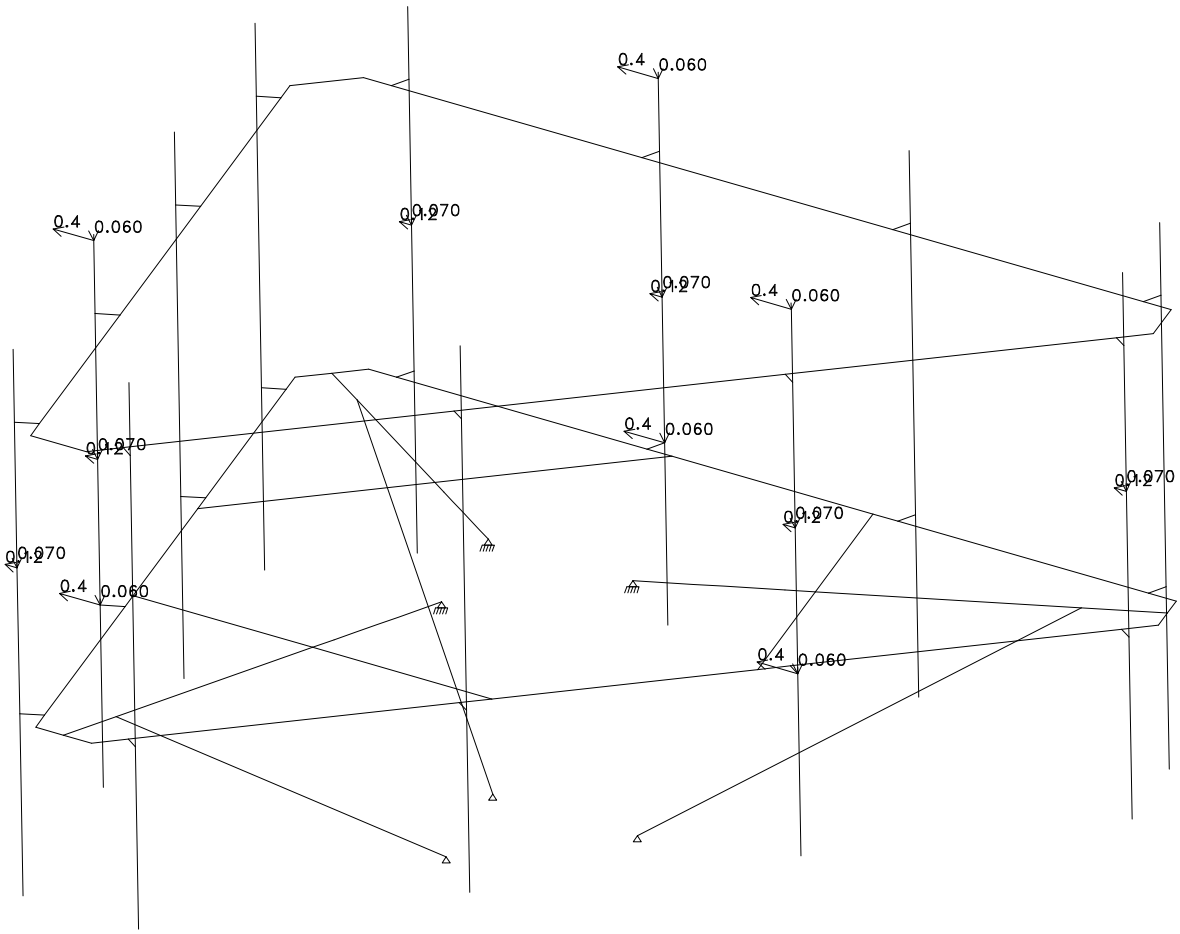


Cheshire Northeast 2 CT Mount Analysis

Load 2: Side No Ice

X3
X2
X1

SCALE = 1:30	UNITS: kip ft	DATE: 7/ 9/20

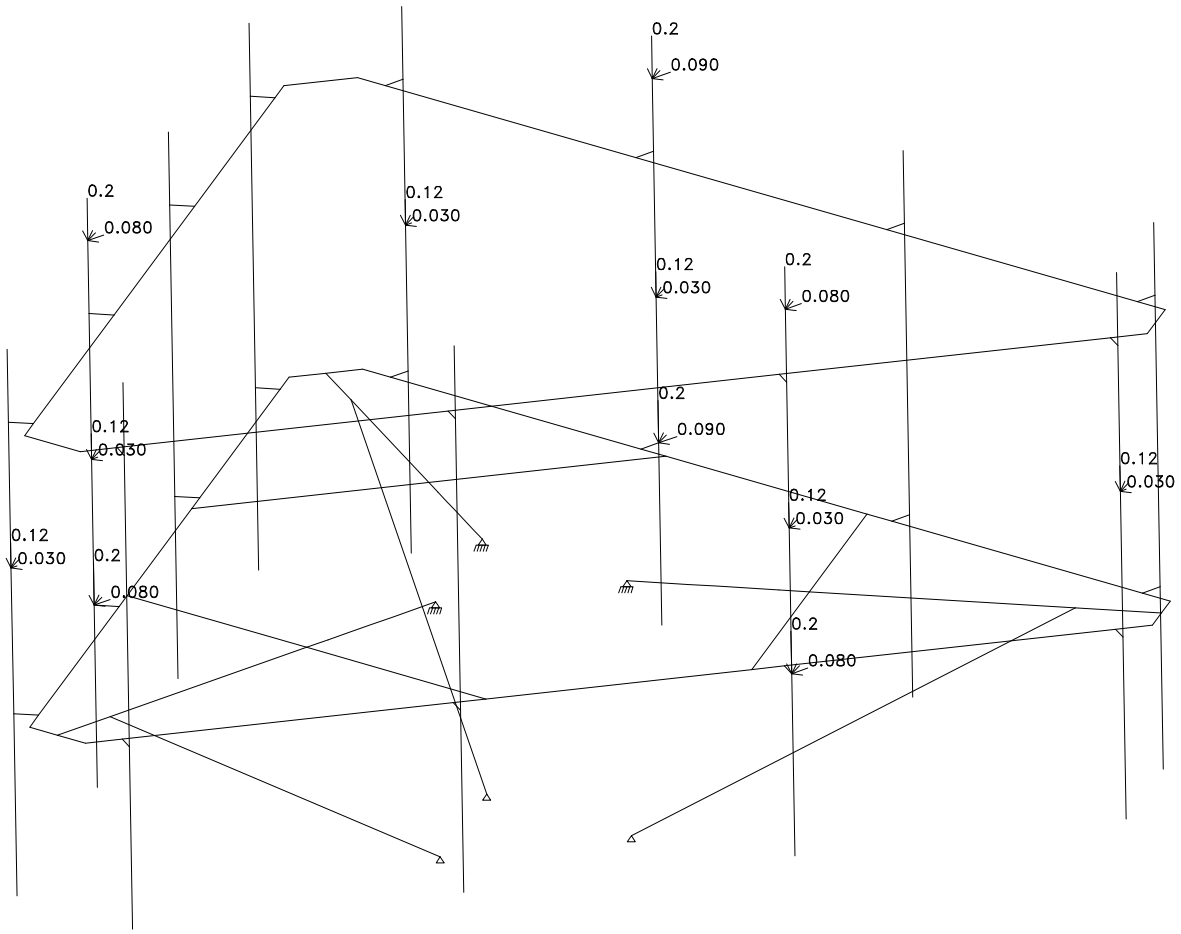


Cheshire Northeast 2 CT Mount Analysis

Load 3: Front Ice

X3
X2
X1

SCALE = 1:30	UNITS: kip ft	DATE: 7/ 9/20

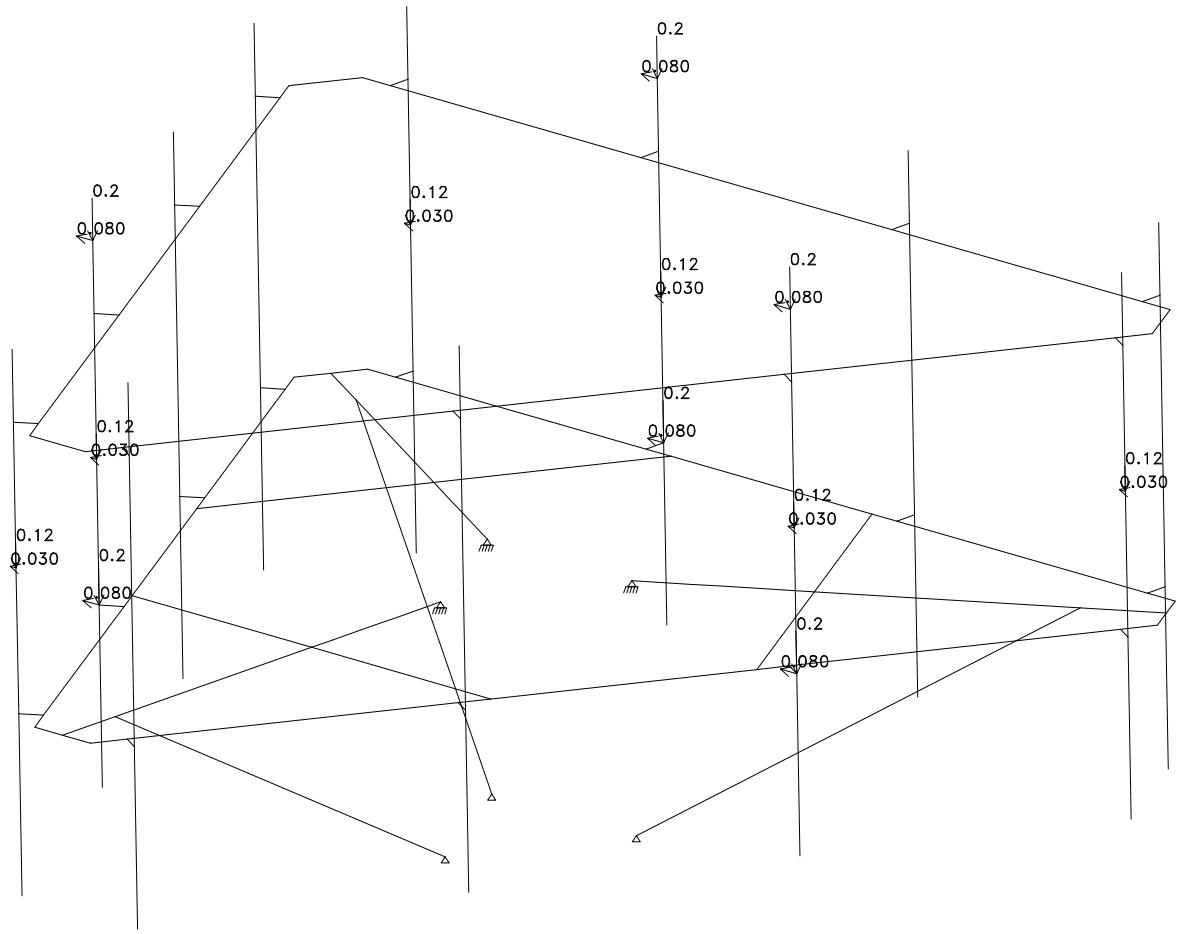


Cheshire Northeast 2 CT Mount Analysis

Load 4: Side Ice

X3
X2
X1

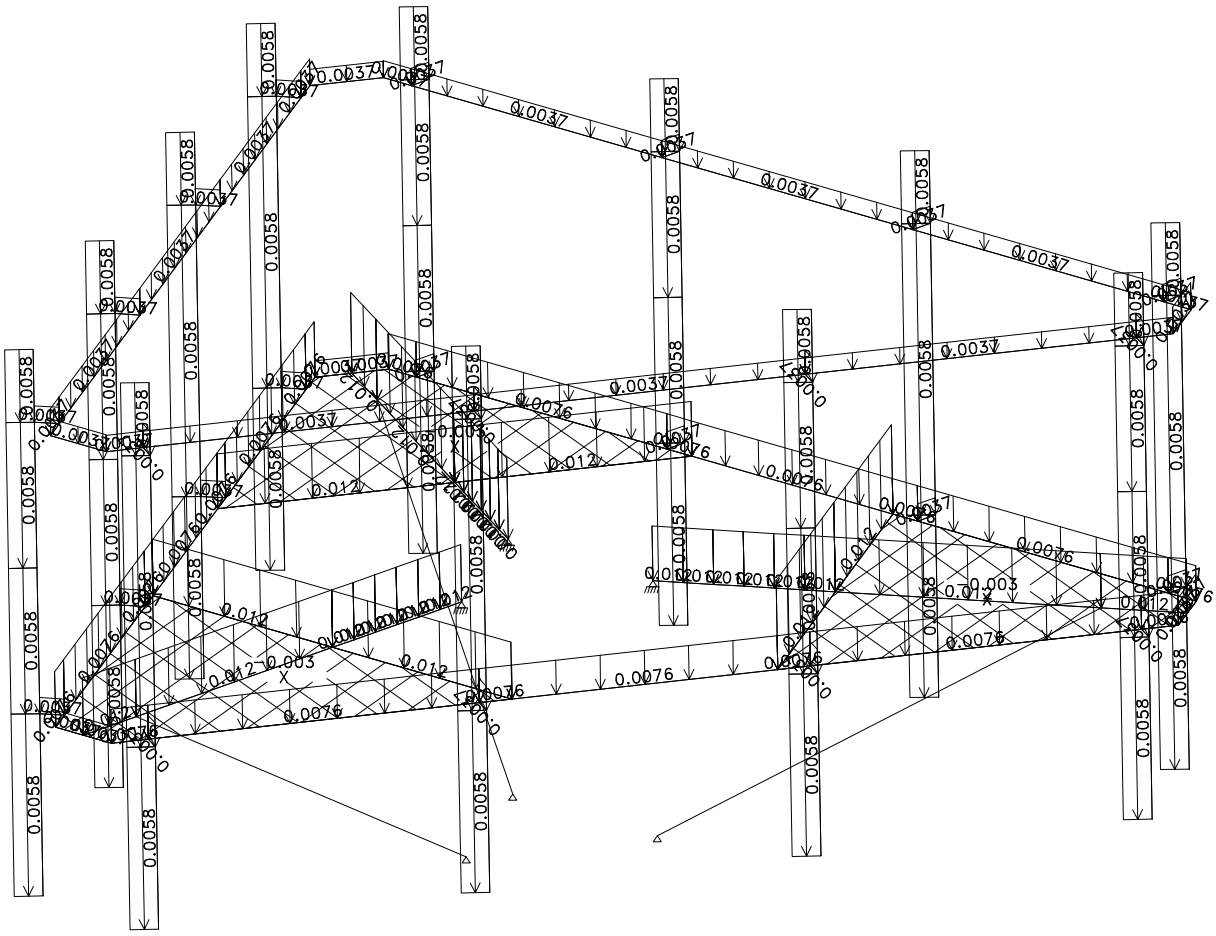
SCALE = 1:30	UNITS: kip ft	DATE: 7/ 9/20



Cheshire Northeast 2 CT Mount Analysis

Load 5: Selfweight

SCALE = 1:30	UNITS: kip ft	DATE: 7/ 9/20

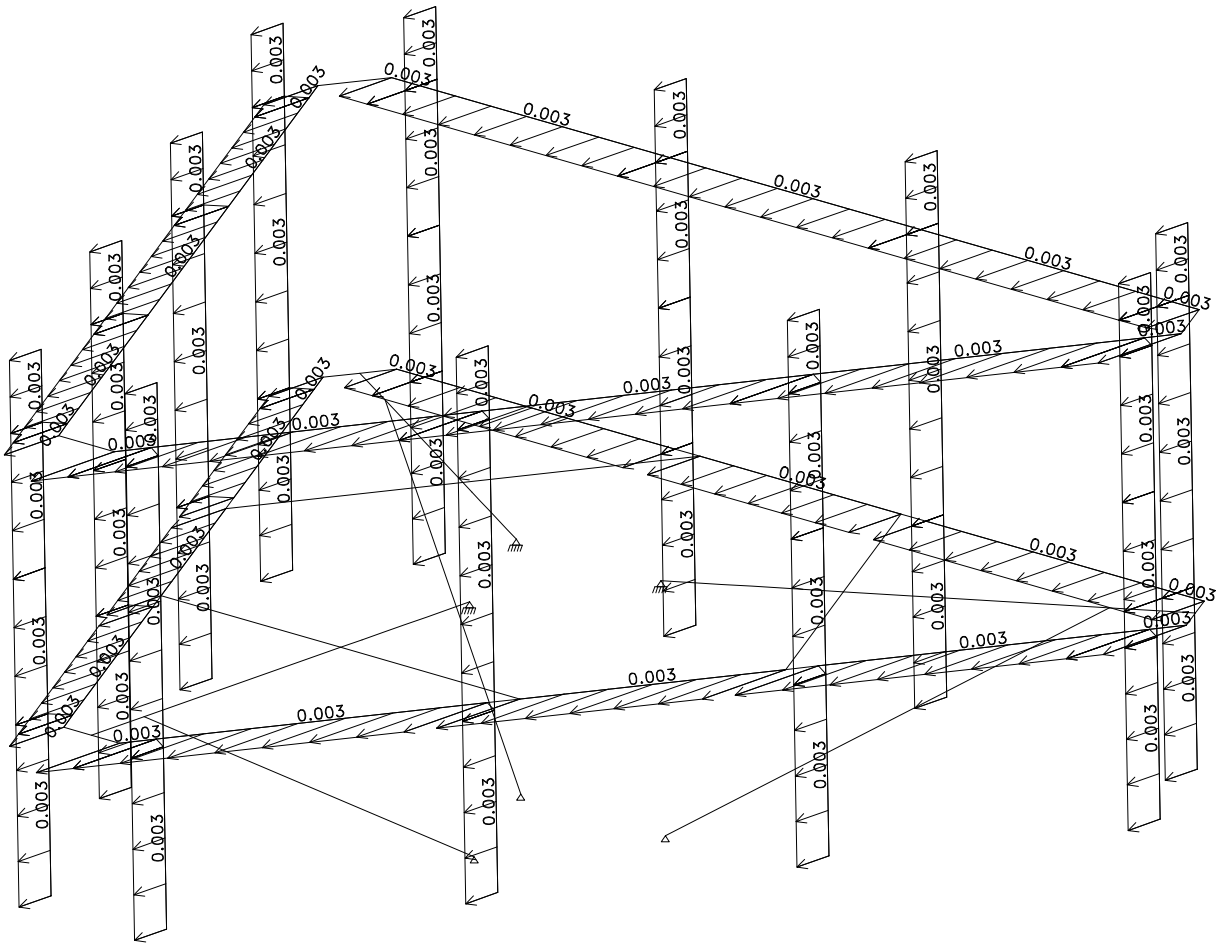


Cheshire Northeast 2 CT Mount Analysis

Load 6: Front Frame Ice

X3
X2
X1

SCALE = 1:30	UNITS: kip ft	DATE: 7/ 9/20

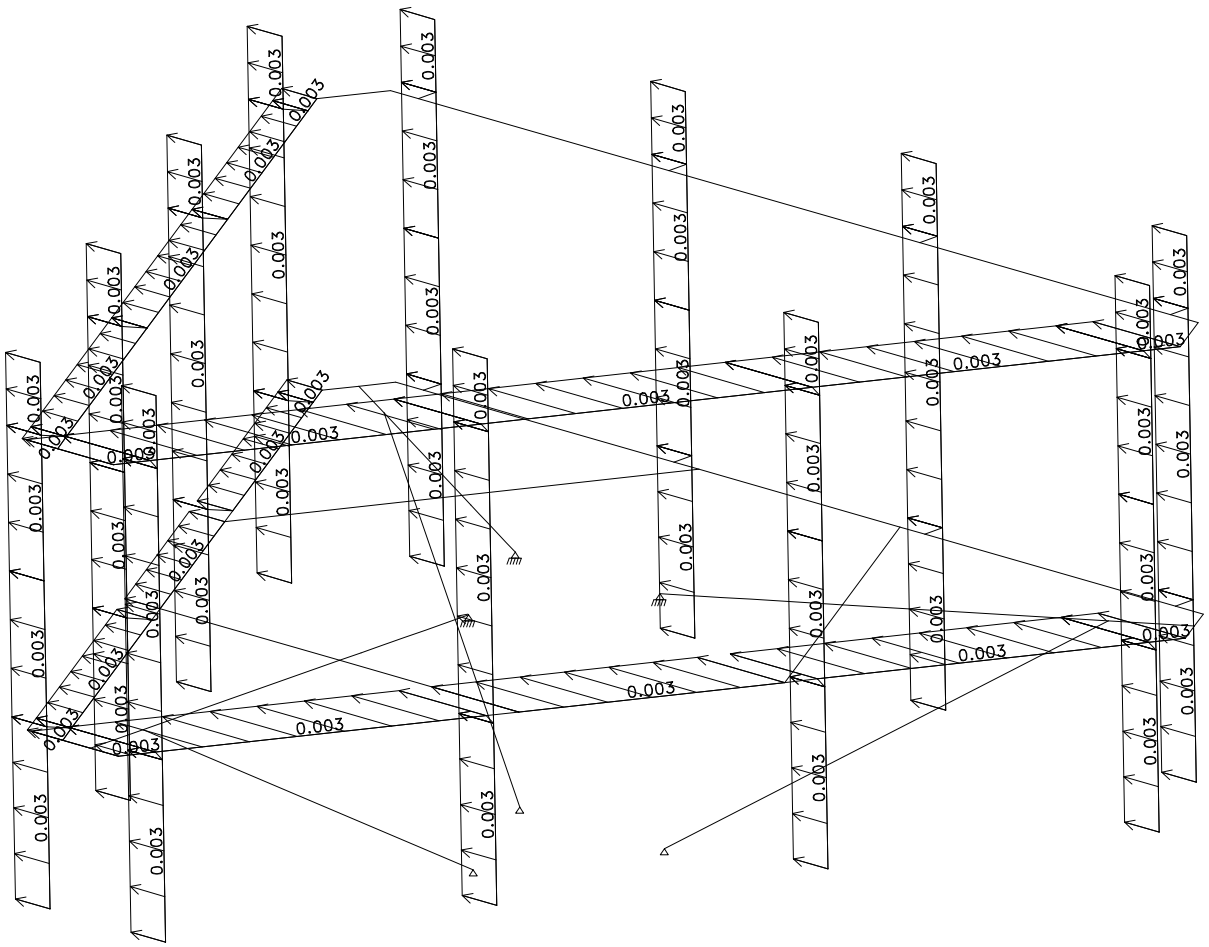


Cheshire Northeast 2 CT Mount Analysis

Load 7: Side Frame Ice

X3
X2
X1

SCALE = 1:30	UNITS: kip ft	DATE: 7/ 9/20

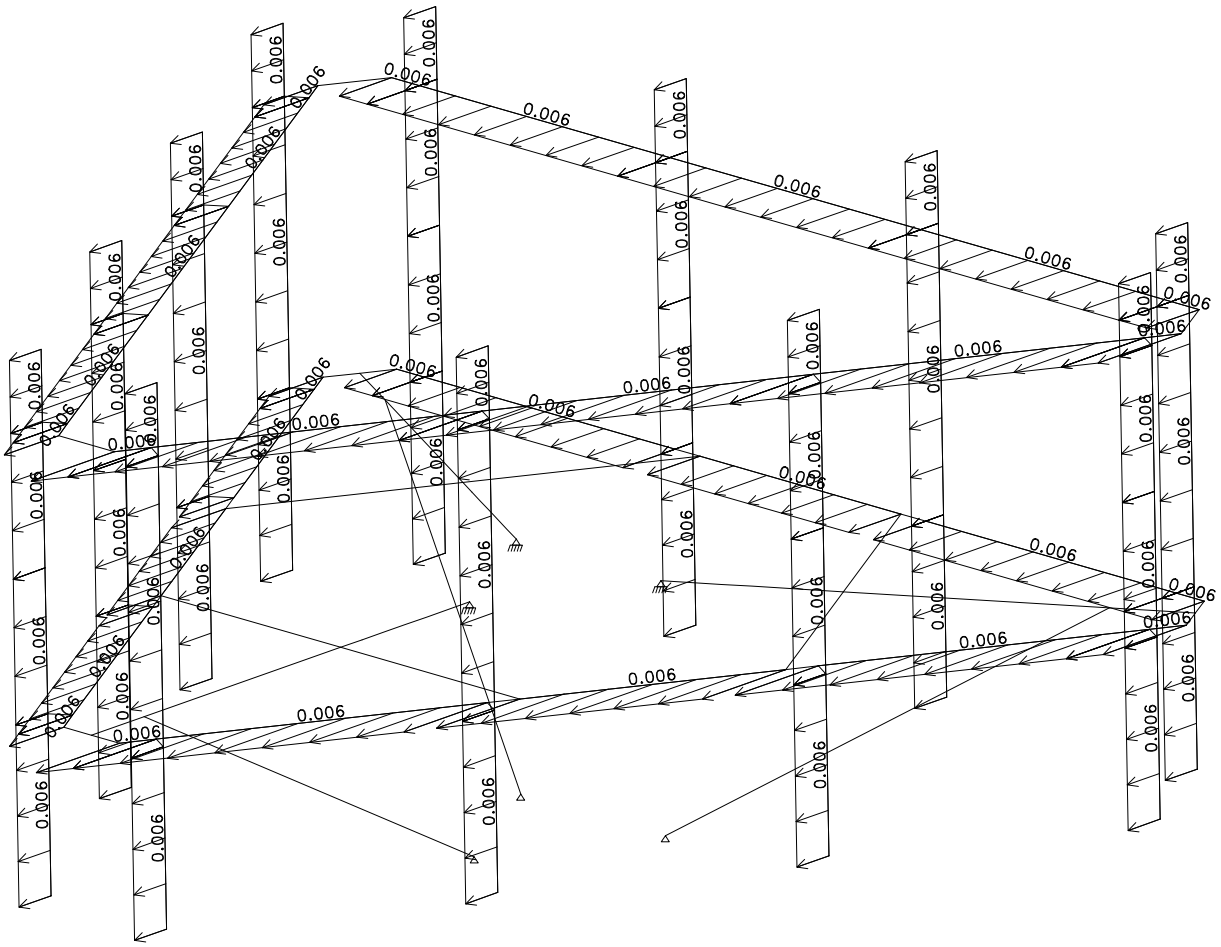


Cheshire Northeast 2 CT Mount Analysis

Load 8: Front Frame No Ice

X3
X2
X1

SCALE = 1:30	UNITS: kip ft	DATE: 7/ 9/20

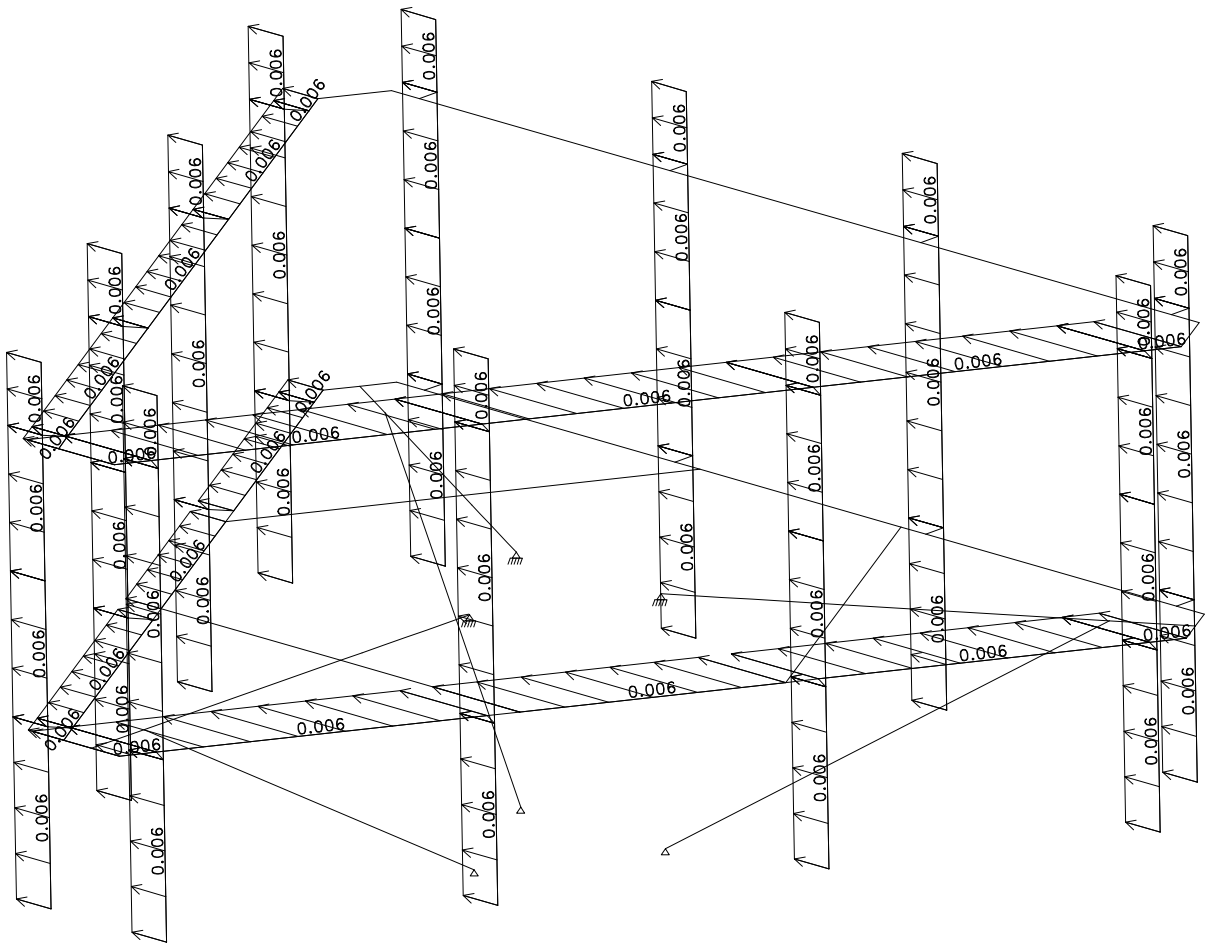


Cheshire Northeast 2 CT Mount Analysis

Load 9: Side Frame No Ice

X3
X2
X1

SCALE = 1:30	UNITS: kip ft	DATE: 7/ 9/20



Cheshire Northeast 2 CT Mount Analysis

Prepared by: ***Date:*** 7/ 9/20

COMBINATIONS TABLE

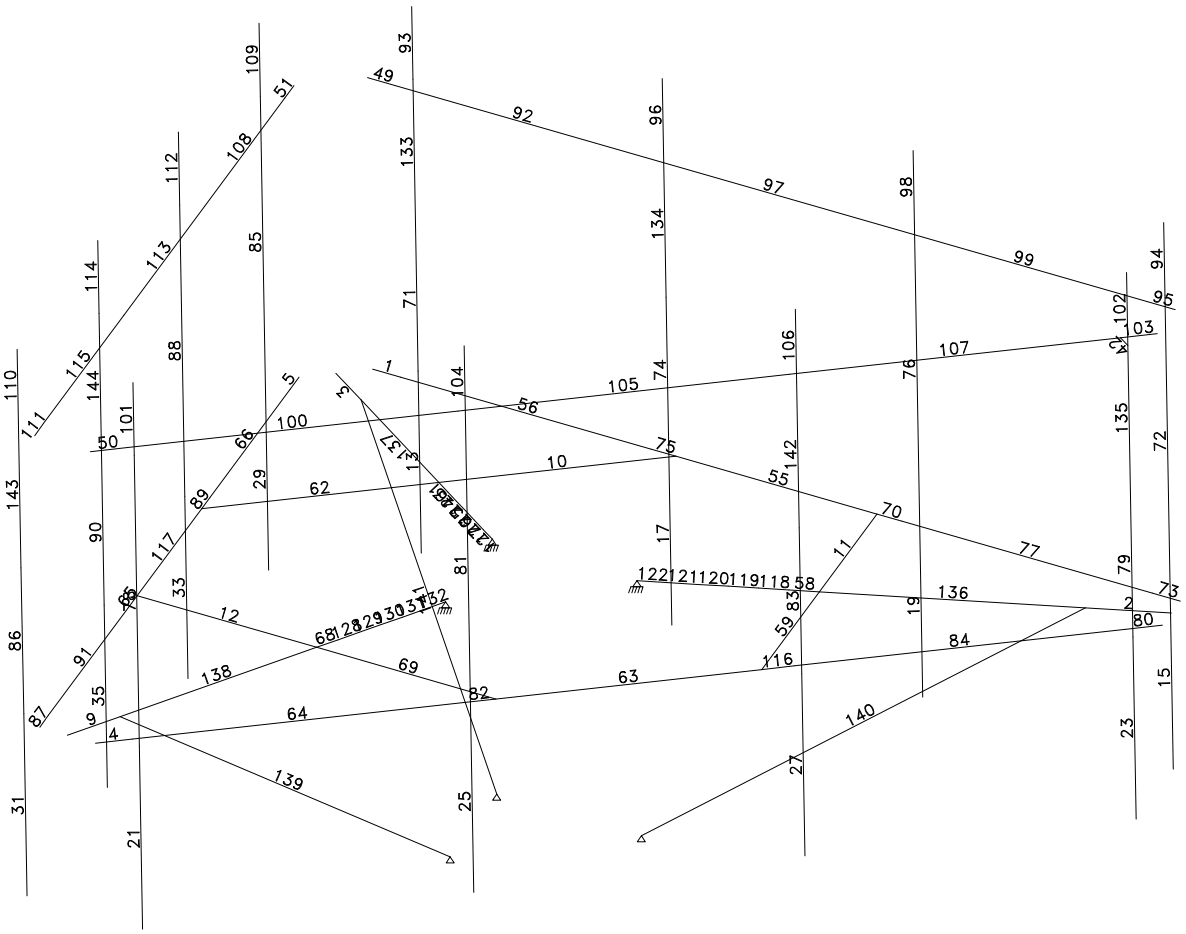
Comb.				
1	Front No Ice 1 * 1.00	+ 5 * 1.05	+ 8 * 1.00	
2	Side No Ice 2 * 1.00	+ 5 * 1.05	+ 9 * 1.00	
3	Front Iced 3 * 1.00	+ 5 * 1.25	+ 6 * 1.00	
4	Side Iced 4 * 1.00	+ 5 * 1.25	+ 7 * 1.00	

Cheshire Northeast 2 CT Mount Analysis

View: Steel Beam Design

X3
X2
X1

SCALE = 1:30	UNITS: kip ft	DATE: 9/23/20



Cheshire Northeast 2 CT Mount Analysis **Code:** AISC-ASD

Prepared by: **Date:** 9/23/20

Results Summary Table

Beam	Section	Com	Defl L/	Slen	CAPACITY Axial	Dir	Shear	Mom	LTB	Combined Axial+Mom	
1	PIPE 3	1	666	150	-0.01	MJ	0.04	0.20	0.20	0.34	
						MI	0.05	0.15	0.00		
2	TS 4x4x1/4	2	2890	46	-0.02	MJ	0.04	0.11	0.11	0.33	
						MI	0.04	0.28	0.00		
3	TS 4x4x1/4	1	2214	57	0.03	MJ	0.05	0.13	0.13	0.46	
						MI	0.06	0.41	0.00		
9	TS 4x4x1/4	2	2694	57	0.04	MJ	0.05	0.11	0.11	0.45	
						MI	0.06	0.38	0.00		
10	TS 4x4x1/4	1	9999	26	-0.01	MI	0.00	0.00	0.00	0.01	
11	TS 4x4x1/4	1	9999	26	0.00	MI	0.00	0.00	0.00	0.00	
12	TS 4x4x1/4	2	9999	26	0.01	MI	0.00	0.00	0.00	0.01	
49	PIPE 2	1	662	206	-0.09	MJ	0.04	0.27	0.27	0.43	***
						MI	0.02	0.28	0.00		
59	TS 4x4x1/4	2	9999	26	-0.01	MI	0.00	0.00	0.00	0.01	
62	TS 4x4x1/4	3	9999	26	0.00	MI	0.00	0.00	0.00	0.00	
69	TS 4x4x1/4	2	9999	26	0.00	MI	0.00	0.00	0.00	0.00	
80	PIPE 3	2	668	150	-0.01	MJ	0.04	0.19	0.19	0.32	
						MI	0.04	0.14	0.00		
87	PIPE 3	2	664	150	-0.01	MJ	0.04	0.20	0.20	0.34	
						MI	0.04	0.15	0.00		
93	PIPE 2-1/2	1	229	95	-0.01	MJ	0.03	0.26	0.26	0.36	***
						MI	0.01	0.10	0.00		
94	PIPE 2-1/2	3	2547	95	-0.01	MJ	0.01	0.15	0.15	0.19	
						MI	0.01	0.08	0.00		
96	PIPE 2-1/2	1	140	67	-0.01	MJ	0.03	0.20	0.20	0.39	***
						MI	0.03	0.34	0.00		
98	PIPE 2-1/2	1	1200	95	0.00	MJ	0.01	0.09	0.09	0.23	
						MI	0.01	0.21	0.00		
101	PIPE 2-1/2	1	1539	95	-0.01	MJ	0.02	0.21	0.21	0.36	
						MI	0.02	0.15	0.00		
102	PIPE 2-1/2	2	320	95	-0.02	MJ	0.01	0.10	0.10	0.24	
						MI	0.02	0.16	0.00		
103	PIPE 2	1	804	200	-0.10	MJ	0.04	0.27	0.27	0.50	
						MI	0.02	0.20	0.00		
104	PIPE 2-1/2	1	1247	95	0.00	MJ	0.02	0.21	0.21	0.31	
						MI	0.02	0.22	0.00		
106	PIPE 2-1/2	2	182	66	-0.01	MJ	0.03	0.29	0.29	0.33	***
						MI	0.03	0.13	0.00		
109	PIPE 2-1/2	4	1848	85	-0.02	MJ	0.01	0.08	0.08	0.26	
						MI	0.02	0.19	0.00		
110	PIPE 2-1/2	2	258	82	-0.02	MJ	0.02	0.19	0.19	0.41	
						MI	0.03	0.21	0.00		
111	PIPE 2	2	679	203	-0.10	MJ	0.04	0.31	0.31	0.55	***
						MI	0.02	0.24	0.00		
112	PIPE 2-1/2	2	1556	95	0.00	MJ	0.02	0.20	0.20	0.31	
						MI	0.01	0.12	0.00		
114	PIPE 2-1/2	2	175	56	-0.01	MJ	0.03	0.19	0.19	0.35	***
						MI	0.03	0.27	0.00		
139	2L 3x3x1/4	3	9999	91	-0.08	MI	0.00	0.00	0.00	0.08	
140	2L 3x3x1/4	3	9999	90	-0.07	MI	0.00	0.00	0.00	0.07	
141	2L 3x3x1/4	4	9999	90	-0.08	MI	0.00	0.00	0.00	0.08	

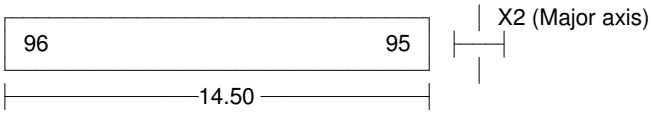
Cheshire Northeast 2 CT Mount Analysis **Code:** AISC-ASD

Prepared by: **Date:** 9/23/20

Detailed Results Table for Beam 111 - 51

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 111, 115, 113, 108, 51



CONSTRAINTS

- Sections : Check
- Steel Grade: A500C

DESIGN DATA

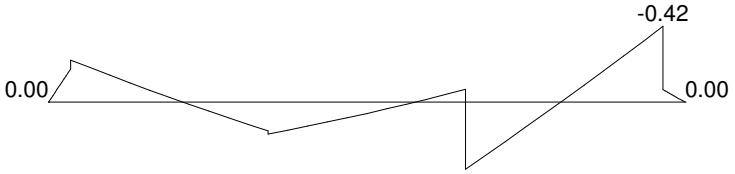
- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: PIPE 2

Ix = 0.67 Iy = 0.67in4 Zx = 0.76 Zy = 0.76in3 Area = 1.07
D = 2.37 t = 0.15in
J = 1.33 Cw = 0.00in6

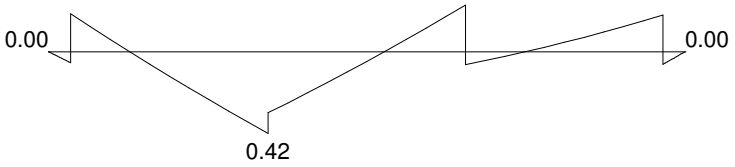
DESIGN COMBINATION = 2

M2 Moment Diagram



Max. AXIAL Force = 0.08 (tens.), -0.40 (compr.) Max. SHEAR Force = 0.36

M3 Moment Diagram



Max. AXIAL Force = 0.08 (tens.), -0.40 (compr.) Max. SHEAR Force = 0.15

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios:		Compact	Non-Compact	Slender	-axial
d/t= 15.46	<	44.1	195.4	69.3	(Fy= 46.0 R = 0.008)

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V2 Shear G2.1.b-i	Vu/0.6Vn<1.00 Vn=0.6*Fy*Aw	Aw = 0.54	Vu = 0.15 Vn = 14.87	0.02
M3 Moment (F8-1) without LTB	$\frac{M}{0.6Mn} < 1.00$	Z = 0.76	M = 0.42 Mn = 2.92	0.24
V3 Shear G2.1.b-i	Vu/0.6Vn<1.00 Vn=0.6*Fy*Aw	Aw = 0.54	Vu = 0.36 Vn = 14.87	0.04

Cheshire Northeast 2 CT Mount Analysis **Code:** AISC-ASD

Prepared by: **Date:** 9/23/20

Detailed Results Table for Beam 111 - 51

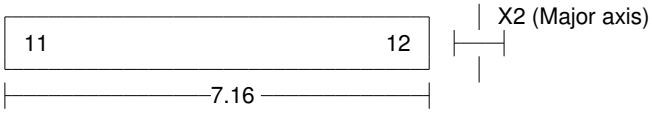
*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN	EQUATION	FACTORS	VALUES	RESULT
M2 Moment (F8-1) without LTB	$\frac{M}{0.6Mn} < 1.00$	Z = 0.76	M = 0.42 Mn = 2.92	0.24
Deflection	$\frac{defl.}{L / 240} < 1.00$		defl = 0.25626	0.35
Axial Force (E3-1)	$\frac{Pu}{0.6AgFcr} < 1.00$ Slender. reduct.	(kL/r)x =184 (kL/r)y =184 x = 0.83	Pu = 0.40 Ag = 1.07 Fcr = 7.44 y = 0.83	0.08
Combined Forces (compress.) (H1-1b)	$\frac{Pr}{2\phi Pn} + \frac{Mrx}{\phi Mnx} + \frac{Mry}{\phi Mny} < 1.00$	Cmx = 1.00 Cmy = 1.00 Pex = 9.12 Pey = 9.12	Mrx = 0.45 Mry = 0.45 B1x = 1.07 B1y = 1.07	0.55

Detailed Results Table for Beam 9 - 132

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 9, 138, 68, 128, 129, 130, 131, 132



CONSTRAINTS

- Sections : Check
- Steel Grade: A500B

DESIGN DATA

- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

INTERMEDIATE SUPPORTS

L =	1.00	4.71	5.08	5.46	5.88	6.25	6.67
Lat.-Tors.							
Compress.	X	X	X	X	X	X	X

Section: TS 4x4x1/4

Ix = 8.22 Iy = 8.22in4 Zx = 4.97 Zy = 4.97in3 Area = 3.59
h = 4.00 b = 4.00in t = 0.25in
J = 13.50 Cw = 0.00in6

Cheshire Northeast 2 CT Mount Analysis **Code:** AISC-ASD

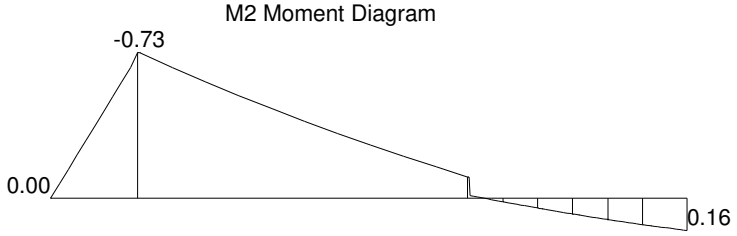
Prepared by: **Date:** 9/23/20

Detailed Results Table for Beam 9 - 132

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN COMBINATION = 2

M2 Moment Diagram

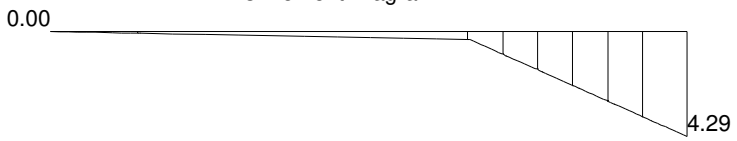


Moments at Intermediate Supports:

-0.73 -0.11 0.05 0.11 0.02 0.08 0.13

Max. AXIAL Force = 1.95 (tens.) Max. SHEAR Force = 0.74

M3 Moment Diagram



Moments at Intermediate Supports:

0.07 0.33 1.53 2.82 0.92 2.21 3.49

Max. AXIAL Force = 1.95 (tens.) Max. SHEAR Force = 1.62

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios:		Compact	Non-Compact	Slender -axial	
d/t= 13.13	<	60.8	143.1	35.2	(Fy= 46.0 R = -0.012)
b/t= 13.13	<	28.1	35.2	35.2	

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V2 Shear G2.1.b-i	Vu/0.6Vn<1.00 Vn=0.6*Fy*Aw	Aw = 1.62	Vu = 1.62 Vn = 44.72	0.06
M3 Moment (F7-1) without LTB	$\frac{M}{0.6Mn} < 1.00$	Z = 4.97	M = 4.29 Mn = 19.07	0.38
V3 Shear G2.1.b-i	Vu/0.6Vn<1.00 Vn=0.6*Fy*Aw	Aw = 1.62	Vu = 0.74 Vn = 44.72	0.03
M2 Moment (F7-1) without LTB	$\frac{M}{0.6Mn} < 1.00$	Z = 4.97	M = 0.73 Mn = 19.07	0.06
Deflection	$\frac{defl.}{L / 240} < 1.00$		defl = 0.03189	0.09
Axial Force (D2-1)	$\frac{Pu}{0.6AgFy} < 1.00$	(kL/r)x =29 (kL/r)y =57	Pu = 1.95 Ag = 3.59 Fy = 46.00	0.02

Cheshire Northeast 2 CT Mount Analysis **Code:** AISC-ASD

Prepared by: **Date:** 9/23/20

Detailed Results Table for Beam 9 - 132

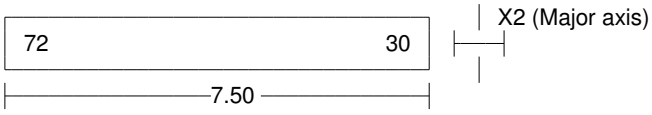
*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN	EQUATION	FACTORS	VALUES	RESULT
Lateral Torsional Buckling	$\frac{M}{0.6Mn} < 1.00$ Critical Segment from 0.00 to 7.16 on -z flange Segment End Moments: 0.00 and 0.16	Lb = 7.16 Lp = 14.40	M = 0.73 Mn = 19.07	0.06
Combined Forces (tension) (H1-1b)	$\frac{Pr}{2\phi Pn} + \frac{Mrx}{\phi Mnx} + \frac{Mry}{\phi Mny} < 1.00$		Mrx = 0.73 Mry = 4.29	0.45

Detailed Results Table for Beam 96 - 17

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 96, 74, 134, 17



CONSTRAINTS

- Sections : Check
- Steel Grade: A500C

DESIGN DATA

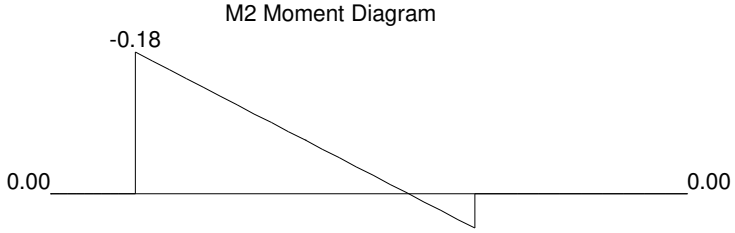
- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: PIPE 2-1/2

Ix = 1.53 Iy = 1.53in4 Zx = 1.45 Zy = 1.45in3 Area = 1.70
D = 2.87 t = 0.20in
J = 3.06 Cw = 0.00in6

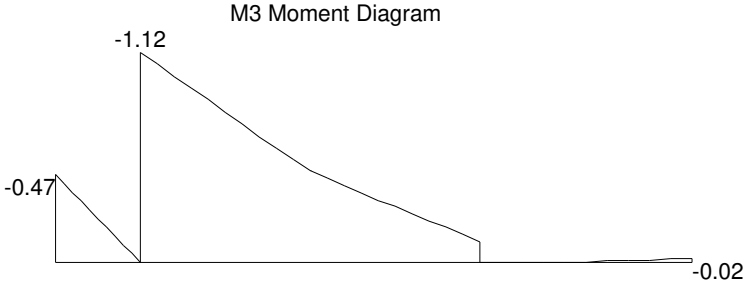
DESIGN COMBINATION = 1

M2 Moment Diagram



Max. AXIAL Force = 0.02 (tens.), -0.12 (compr.) Max. SHEAR Force = 0.06

M3 Moment Diagram



Max. AXIAL Force = 0.02 (tens.), -0.12 (compr.) Max. SHEAR Force = 0.47

Cheshire Northeast 2 CT Mount Analysis **Code:** AISC-ASD

Prepared by: **Date:** 9/23/20

Detailed Results Table for Beam 96 - 17

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

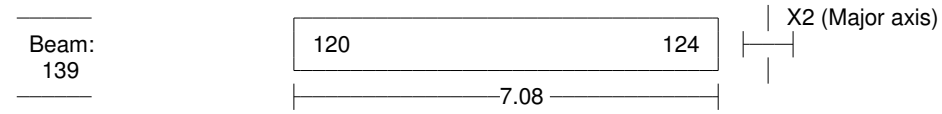
SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios: Compact Non-Compact Slender -axial
d/t= 14.04 < 44.1 195.4 69.3 (Fy= 46.0 R = 0.002)

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V2 Shear G2.1.b-i	Vu/0.6Vn<1.00 Vn=0.6*Fy*Aw	Aw = 0.85	Vu = 0.47 Vn = 23.58	0.03
M3 Moment (F8-1) without LTB	$\frac{M}{0.6Mn} < 1.00$	Z = 1.45	M = 1.12 Mn = 5.57	0.34
M2 Moment (F8-1) without LTB	$\frac{M}{0.6Mn} < 1.00$	Z = 1.45	M = 0.18 Mn = 5.57	0.06
Deflection	$\frac{defl.}{L / 240} < 1.00$		defl = 0.64077	1.71
Axial Force (E3-1)	$\frac{Pu}{0.6AgFcr} < 1.00$ Slender. reduct.	(kL/r)x =67 (kL/r)y =67 x = 0.70	Pu = 0.12 Ag = 1.70 Fcr = 34.04 y = 0.70	0.00
Combined Forces (compress.) (H1-1b)	$\frac{Pr}{2\phi Pn} + \frac{Mrx}{\phi Mnx} + \frac{Mry}{\phi Mny} < 1.00$	Cmx = 1.00 Cmy = 1.00 Pex = 109.10 Pey = 109.10	Mrx = 0.18 Mry = 1.13 B1x = 1.00 B1y = 1.00	0.39

Detailed Results Table for Beam 139

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*



CONSTRAINTS

- Sections : Check
- Steel Grade: A36

DESIGN DATA

- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Connectors spacing = default

Section: 2L 3x3x1/4

Ix = 2.49 Iy = 5.56in4 Sx = 1.15 Sy = 1.75in3 Area = 2.88
h = 3.00 b = 6.37in t = 0.25 ey = 2.16in
J = 0.06 Cw = 0.00in6

DESIGN COMBINATION = 3

Max. AXIAL Force = -3.38 (compr.) Max. SHEAR Force = 0.00

Cheshire Northeast 2 CT Mount Analysis **Code:** AISC-ASD

Prepared by: **Date:** 9/23/20

Detailed Results Table for Beam 139

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios:		Compact	Non-Compact	Slender -axial	
d/t= 12.10	<	15.3	25.8	12.8	(Fy= 36.0 R = 0.033)
b/t= 12.10	<	15.3	25.8	12.8	

DESIGN	EQUATION	FACTORS	VALUES	RESULT
Axial Force (E3-1)	$\frac{Pu}{0.6AgFcr} < 1.00$	(kL/r)x =91 (kL/r)y =67	Pu = 3.38 Ag = 2.88 Fcr = 23.31	0.08