June 16, 2022
April 3, 2024 (Rev.1)
June 17, 2024 (Rev.2)

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:		
	AT&T Site Number:	CT1432 (NSB)
	FA Number:	15253680
	PACE Number:	MRCTB049197
	PT Number:	2051A0WTE5
	TEP Project Number:	317763.962594
	AT&T Site Name:	WOLCOTT CHESTNUT HILL ROAD
	Site Address:	Chestnut Hill Road Wolcott, CT 06716

To Whom It May Concern:

TEP Northeast (TEP NE) has been authorized by SAI Communications to perform a mount analysis on the proposed AT&T antenna/RRH mounts to determine their capability of supporting the following loading:

- **(3) OPA65R-BU8DA-K Antennas (96.0"x20.7"x7.7" – Wt. = 79 lbs. /each)**
- **(3) TPA65R-BU8DA-K Antennas (96.0"x20.7"x7.7" – Wt. = 87 lbs. /each)**
- **(3) 4490 B5/B12 RRH's (17.5"x15.1"x6.8" – Wt. = 68 lbs. /each) (Standoff)**
- **(3) 4415 B30 RRH's (16.5"x13.4"x5.9" – Wt. = 46 lbs. /each) (Standoff)**
- **(3) 4494 B14/B29 RRH's (17.5"x15.1"x5.6" – Wt. = 58 lbs. /each) (Standoff)**
- **(3) 4890 B25/B66 RRH's (17.5"x15.2"x6.9" – Wt. = 68 lbs. /each) (Standoff)**
- **(2) DC9-48-60-24-8C-EV Surge Arrestors (31.4"x10.2"Ø – Wt. = 29 lbs. /each) (Standoff)**

*Proposed equipment shown in bold.

Mount fabrication drawings prepared by Sitero1 P/N VFA12-HD-NPNH, dated May 26, 2022, were used to perform this analysis. Fabrication drawings prepared by Sabre Industries, P/N C10899302, dated April 4, 2023, were used to perform this analysis.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2021 with 2022 Connecticut State Building Code, and AT&T Mount Technical Directive – R22.
- TEP NE considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix P of the Connecticut State Building Code, the max basic wind speed for this site is equal to 120 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.12 in was used for this analysis.
- TEP NE considers this site to be exposure category C; tower is located near large, flat, open, terrain/grasslands.
- TEP NE considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- TEP NE considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.191 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.054.
- The mounts have been analyzed with load combinations consisting of 250 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna positions 1 & 3.
- The mounts have been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The proposed mounts are secured to the existing monopole with ring mounts and threaded rods. TEP NE considers the threaded rods to be the governing connection member.

Based on our evaluation, we have determined that the (3) Proposed SitePro1 VFA12-HD-NPNH mounts and (1) Proposed Sabre Industries, P/N C10899302 standoff mount **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Proposed Mount Rating	468	LC3	43%	**PASS**

Reference Documents:

- Fabrication drawings prepared by SitePro1 P/N VFA12-HD-NPNH, dated May 26, 2022.
- Fabrication drawings prepared by Sabre Industries, P/N C10899302, dated April 4, 2023.

This determination was based on the following limitations and assumptions:

1. TEP NE is not responsible for any modifications completed prior to and hereafter which TEP NE was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The proposed mounts will be adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. TEP NE performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,
TEP Northeast

Michael Cabral
Director

Daniel P. Hamm, PE
Vice President

Wind & Ice
Calculations

Date: 6/17/2024
Project Name: WOLCOTT CHESTNUT HILL ROAD
Project No.: CT1432
Designed By: KM **Checked By:** MSC

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01\ (z/z_g)^{2/\alpha}$

z=	105 (ft)
z_g=	900 (ft)
α=	9.5

K_z= 1.279

Kzmin ≤ Kz ≤ 2.01

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_c\ K_t/K_h)]^2$

$K_h = e^{(f*z/H)}$

K_{zt}= 1

(If Category 1 then K_{zt}=1.0)

Category= 1

K_h=	1
K_c=	1.0 (from Table 2-4)
K_t=	0 (from Table 2-5)
f=	0 (from Table 2-5)
z=	105
z_s=	845 (Mean elevation of base of structure above sea level)
H=	0 (Ht. of the crest above surrounding terrain)
K_{zt}=	1.00 (from 2.6.6.2.1)
K_e=	0.97 (from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness =
Importance Factor =

t_i =	1.00 in
I=	1.00 (from Table 2-3)
K_{iz} =	1.12 (from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$

t_{iz} = 1.12 in

Date: 6/17/2024
Project Name: WOLCOTT CHESTNUT HILL ROAD
Project No.: CT1432
Designed By: KM Checked By: MSC

2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

G_h = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	120	G_h=	0.85
2.6.9.2 Guyed Masts		G_h=	0.85
2.6.9.3 Pole Structures		G_h=	1.1
2.6.9 Appurtenances		G_h=	1.0

2.6.9.4 Structures Supported on Other Structures

(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

G_h=	1.35	**Gh=**	**1.00**

2.6.11.2 Design Wind Force on Appurtenances

F= q_z*G_h*$(EPA)_A$

q_z= 0.00256*K_z*K_{zt}*K_s*K_e*K_d*V_{max}^2

q_z=	**43.49**	K_z=	1.279	(from 2.6.5.2)
$q_{z\ (ice)}$=	**7.54**	K_{zt}=	1.0	(from 2.6.6.2.1)
$q_{z\ (30)}$=	**2.71**	K_s=	1.0	(from 2.6.7)
		K_e=	0.97	(from 2.6.8)
		K_d=	0.95	(from Table 2-2)
		V_{max}=	120	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

Date: 6/17/2024
Project Name: WOLCOTT CHESTNUT HILL ROAD
Project No.: CT1432
Designed By: KM Checked By: MSC

Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		1.2 - 2.8(r_s) ≥ 0.85	1.4 - 4.0(r_s) ≥ 0.90	2.0 - 6.0(r_s) ≥ 1.25
Round	C < 39 (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance,

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = 1.12 in **Angle =** 0 (deg) **Equivalent Angle =** 180 (deg)

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
OPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	4.64	1.30	776	153	49
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	4.64	1.30	776	153	49
4490 B5/B12 RRH	17.5	15.1	6.8	1.84	1.16	1.20	96	22	6
4490 B5/B12 RRH (Side)	17.5	6.8	15.1	0.83	2.57	1.20	43	11	3
4415 B30 RRH	16.5	13.4	5.9	1.54	1.23	1.20	80	18	5
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	2.80	1.21	36	10	2
4494 B14/B29 RRH	17.5	15.1	5.6	1.84	1.16	1.20	96	22	6
4494 B14/B29 RRH (Side)	17.5	5.6	15.1	0.68	3.13	1.23	36	10	2
4890 B25/B66 RRH	17.5	15.2	6.9	1.85	1.15	1.20	96	22	6
4890 B25/B66 RRH (Side)	17.5	6.9	15.2	0.84	2.54	1.20	44	11	3
DC9 Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	68	15	4
PL 11-1/4x5/8	0.6	12.0	-	0.05	0.05	2.00	5		
PL 3-1/2x5/8	0.6	12.0	-	0.05	0.05	2.00	5		
HSS 4x4	4.0	12.0	-	0.33	0.33	1.25	18		
4" Pipe	4.5	12.0	-	0.38	0.38	1.20	20		
2-1/2" Pipe	2.9	12.0	-	0.24	0.24	1.20	13		
2" Pipe	2.4	12.0	-	0.20	0.20	1.20	10		
3/4" Round Bar	0.8	12.0	-	0.06	0.06	1.20	3		
5/8" Round Bar	0.6	12.0	-	0.05	0.05	1.20	3		

Date: 6/17/2024
Project Name: WOLCOTT CHESTNUT HILL ROAD
Project No.: CT1432
Designed By: KM Checked By: MSC

TEP NORTHEAST

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.12	in.	Equivalent Angle =	210	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
OPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	776	353	670
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	776	353	670
4490 B5/B12 RRH	17.5	15.1	6.8	1.84	0.83	1.16	2.57	1.20	1.20	96	43	83
4490 B5/B12 RRH (Side)	17.5	7.6	15.1	0.92	1.84	2.32	1.16	1.20	1.20	48	96	60
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	80	36	69
4415 B30 RRH (Side)	16.5	6.7	13.4	0.77	1.54	2.46	1.23	1.20	1.20	40	80	50
4494 B14/B29 RRH	17.5	15.1	5.6	1.84	0.68	1.16	3.13	1.20	1.23	96	36	81
4494 B14/B29 RRH (Side)	17.5	7.6	15.1	0.92	1.84	2.32	1.16	1.20	1.20	48	96	60
4890 B25/B66 RRH	17.5	15.2	6.9	1.85	0.84	1.15	2.54	1.20	1.20	96	44	83
4890 B25/B66 RRH (Side)	17.5	7.6	15.2	0.92	1.85	2.30	1.15	1.20	1.20	48	96	60

WIND LOADS WITH ICE:

OPA65R-BU8DA-K Antenna	98.2	22.9	9.9	15.65	6.79	4.28	9.88	1.28	1.50	151	77	132
TPA65R-BU8DA-K Antenna	98.2	22.9	9.9	15.65	6.79	4.28	9.88	1.28	1.50	151	77	132
4490 B5/B12 RRH	19.7	17.3	9.0	2.38	1.24	1.14	2.18	1.20	1.20	22	11	19
4490 B5/B12 RRH (Side)	19.7	8.7	17.3	1.19	2.38	2.28	1.14	1.20	1.20	11	22	13
4415 B30 RRH	18.7	15.6	8.1	2.04	1.06	1.20	2.30	1.20	1.20	18	10	16
4415 B30 RRH (Side)	18.7	7.8	15.6	1.02	2.04	2.40	1.20	1.20	1.20	9	18	12
4494 B14/B29 RRH	19.7	17.3	7.8	2.38	1.08	1.14	2.52	1.20	1.20	22	10	19
4494 B14/B29 RRH (Side)	19.7	8.7	17.3	1.19	2.38	2.28	1.14	1.20	1.20	11	22	13
4890 B25/B66 RRH	19.7	17.4	9.1	2.39	1.25	1.13	2.16	1.20	1.20	22	11	19
4890 B25/B66 RRH (Side)	19.7	8.7	17.4	1.20	2.39	2.26	1.13	1.20	1.20	11	22	14

WIND LOADS AT 30 MPH:

OPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	49	22	42
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	49	22	42
4490 B5/B12 RRH	17.5	15.1	6.8	1.84	0.83	1.16	2.57	1.20	1.20	6	3	5
4490 B5/B12 RRH (Side)	17.5	7.6	15.1	0.92	1.84	2.32	1.16	1.20	1.20	3	6	4
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	5	2	4
4415 B30 RRH (Side)	16.5	6.7	13.4	0.77	1.54	2.46	1.23	1.20	1.20	3	5	3
4494 B14/B29 RRH	17.5	15.1	5.6	1.84	0.68	1.16	3.13	1.20	1.23	6	2	5
4494 B14/B29 RRH (Side)	17.5	7.6	15.1	0.92	1.84	2.32	1.16	1.20	1.20	3	6	4
4890 B25/B66 RRH	17.5	15.2	6.9	1.85	0.84	1.15	2.54	1.20	1.20	6	3	5
4890 B25/B66 RRH (Side)	17.5	7.6	15.2	0.92	1.85	2.30	1.15	1.20	1.20	3	6	4

Date: 6/17/2024
Project Name: WOLCOTT CHESTNUT HILL ROAD
Project No.: CT1432
Designed By: KM Checked By: MSC

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	1.12	in.	Equivalent Angle =	240	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
OPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	776	353	459
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	776	353	459
4490 B5/B12 RRH	17.5	15.1	6.8	1.84	0.83	1.16	2.57	1.20	1.20	96	43	56
4490 B5/B12 RRH (Side)	17.5	11.3	15.1	1.38	1.84	1.55	1.16	1.20	1.20	72	96	90
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	80	36	47
4415 B30 RRH (Side)	16.5	10.1	13.4	1.15	1.54	1.64	1.23	1.20	1.20	60	80	75
4494 B14/B29 RRH	17.5	15.1	5.6	1.84	0.68	1.16	3.13	1.20	1.23	96	36	51
4494 B14/B29 RRH (Side)	17.5	11.3	15.1	1.38	1.84	1.55	1.16	1.20	1.20	72	96	90
4890 B25/B66 RRH	17.5	15.2	6.9	1.85	0.84	1.15	2.54	1.20	1.20	96	44	57
4890 B25/B66 RRH (Side)	17.5	11.4	15.2	1.39	1.85	1.54	1.15	1.20	1.20	72	96	90

WIND LOADS WITH ICE:

OPA65R-BU8DA-K Antenna	98.2	22.9	9.9	15.65	6.79	4.28	9.88	1.28	1.50	151	77	95
TPA65R-BU8DA-K Antenna	98.2	22.9	9.9	15.65	6.79	4.28	9.88	1.28	1.50	151	77	95
4490 B5/B12 RRH	19.7	17.3	9.0	2.38	1.24	1.14	2.18	1.20	1.20	22	11	14
4490 B5/B12 RRH (Side)	19.7	13.0	17.3	1.78	2.38	1.52	1.14	1.20	1.20	16	22	20
4415 B30 RRH	18.7	15.6	8.1	2.04	1.06	1.20	2.30	1.20	1.20	18	10	12
4415 B30 RRH (Side)	18.7	11.7	15.6	1.53	2.04	1.60	1.20	1.20	1.20	14	18	17
4494 B14/B29 RRH	19.7	17.3	7.8	2.38	1.08	1.14	2.52	1.20	1.20	22	10	13
4494 B14/B29 RRH (Side)	19.7	13.0	17.3	1.78	2.38	1.52	1.14	1.20	1.20	16	22	20
4890 B25/B66 RRH	19.7	17.4	9.1	2.39	1.25	1.13	2.16	1.20	1.20	22	11	14
4890 B25/B66 RRH (Side)	19.7	13.1	17.4	1.79	2.39	1.51	1.13	1.20	1.20	16	22	20

WIND LOADS AT 30 MPH:

OPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	49	22	29
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	49	22	29
4490 B5/B12 RRH	17.5	15.1	6.8	1.84	0.83	1.16	2.57	1.20	1.20	6	3	4
4490 B5/B12 RRH (Side)	17.5	11.3	15.1	1.38	1.84	1.55	1.16	1.20	1.20	4	6	6
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	5	2	3
4415 B30 RRH (Side)	16.5	10.1	13.4	1.15	1.54	1.64	1.23	1.20	1.20	4	5	5
4494 B14/B29 RRH	17.5	15.1	5.6	1.84	0.68	1.16	3.13	1.20	1.23	6	2	3
4494 B14/B29 RRH (Side)	17.5	11.3	15.1	1.38	1.84	1.55	1.16	1.20	1.20	4	6	6
4890 B25/B66 RRH	17.5	15.2	6.9	1.85	0.84	1.15	2.54	1.20	1.20	6	3	4
4890 B25/B66 RRH (Side)	17.5	11.4	15.2	1.39	1.85	1.54	1.15	1.20	1.20	5	6	6

Date: 6/17/2024
Project Name: WOLCOTT CHESTNUT HILL ROAD
Project No.: CT1432
Designed By: KM Checked By: MSC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.12	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
OPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	776	353	353
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	776	353	353
4490 B5/B12 RRH	17.5	15.1	6.8	1.84	0.83	1.16	2.57	1.20	1.20	96	43	43
4490 B5/B12 RRH (Side)	17.5	6.8	15.1	0.83	1.84	2.57	1.16	1.20	1.20	43	96	96
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	80	36	36
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	36	80	80
4494 B14/B29 RRH	17.5	15.1	5.6	1.84	0.68	1.16	3.13	1.20	1.23	96	36	36
4494 B14/B29 RRH (Side)	17.5	5.6	15.1	0.68	1.84	3.13	1.16	1.23	1.20	36	96	96
4890 B25/B66 RRH	17.5	15.2	6.9	1.85	0.84	1.15	2.54	1.20	1.20	96	44	44
4890 B25/B66 RRH (Side)	17.5	6.9	15.2	0.84	1.85	2.54	1.15	1.20	1.20	44	96	96

WIND LOADS WITH ICE:

OPA65R-BU8DA-K Antenna	98.2	22.9	9.9	15.65	6.79	4.28	9.88	1.28	1.50	151	77	77
TPA65R-BU8DA-K Antenna	98.2	22.9	9.9	15.65	6.79	4.28	9.88	1.28	1.50	151	77	77
4490 B5/B12 RRH	19.7	17.3	9.0	2.38	1.24	1.14	2.18	1.20	1.20	22	11	11
4490 B5/B12 RRH (Side)	19.7	9.0	17.3	1.24	2.38	2.18	1.14	1.20	1.20	11	22	22
4415 B30 RRH	18.7	15.6	8.1	2.04	1.06	1.20	2.30	1.20	1.20	18	10	10
4415 B30 RRH (Side)	18.7	8.1	15.6	1.06	2.04	2.30	1.20	1.20	1.20	10	18	18
4494 B14/B29 RRH	19.7	17.3	7.8	2.38	1.08	1.14	2.52	1.20	1.20	22	10	10
4494 B14/B29 RRH (Side)	19.7	7.8	17.3	1.08	2.38	2.52	1.14	1.20	1.20	10	22	22
4890 B25/B66 RRH	19.7	17.4	9.1	2.39	1.25	1.13	2.16	1.20	1.20	22	11	11
4890 B25/B66 RRH (Side)	19.7	9.1	17.4	1.25	2.39	2.16	1.13	1.20	1.20	11	22	22

WIND LOADS AT 30 MPH:

OPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	49	22	22
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	49	22	22
4490 B5/B12 RRH	17.5	15.1	6.8	1.84	0.83	1.16	2.57	1.20	1.20	6	3	3
4490 B5/B12 RRH (Side)	17.5	6.8	15.1	0.83	1.84	2.57	1.16	1.20	1.20	3	6	6
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	5	2	2
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	2	5	5
4494 B14/B29 RRH	17.5	15.1	5.6	1.84	0.68	1.16	3.13	1.20	1.23	6	2	2
4494 B14/B29 RRH (Side)	17.5	5.6	15.1	0.68	1.84	3.13	1.16	1.23	1.20	2	6	6
4890 B25/B66 RRH	17.5	15.2	6.9	1.85	0.84	1.15	2.54	1.20	1.20	6	3	3
4890 B25/B66 RRH (Side)	17.5	6.9	15.2	0.84	1.85	2.54	1.15	1.20	1.20	3	6	6

Date: 6/17/2024
Project Name: WOLCOTT CHESTNUT HILL ROAD
Project No.: CT1432
Designed By: KM Checked By: MSC

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.12	in.	Equivalent Angle =	300	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
OPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	776	353	459
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	776	353	459
4490 B5/B12 RRH	17.5	15.1	6.8	1.84	0.83	1.16	2.57	1.20	1.20	96	43	56
4490 B5/B12 RRH (Side)	17.5	11.3	15.1	1.38	1.84	1.55	1.16	1.20	1.20	72	96	90
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	80	36	47
4415 B30 RRH (Side)	16.5	10.1	13.4	1.15	1.54	1.64	1.23	1.20	1.20	60	80	75
4494 B14/B29 RRH	17.5	15.1	5.6	1.84	0.68	1.16	3.13	1.20	1.23	96	36	51
4494 B14/B29 RRH (Side)	17.5	11.3	15.1	1.38	1.84	1.55	1.16	1.20	1.20	72	96	90
4890 B25/B66 RRH	17.5	15.2	6.9	1.85	0.84	1.15	2.54	1.20	1.20	96	44	57
4890 B25/B66 RRH (Side)	17.5	11.4	15.2	1.39	1.85	1.54	1.15	1.20	1.20	72	96	90

WIND LOADS WITH ICE:

OPA65R-BU8DA-K Antenna	98.2	22.9	9.9	15.65	6.79	4.28	9.88	1.28	1.50	151	77	95
TPA65R-BU8DA-K Antenna	98.2	22.9	9.9	15.65	6.79	4.28	9.88	1.28	1.50	151	77	95
4490 B5/B12 RRH	19.7	17.3	9.0	2.38	1.24	1.14	2.18	1.20	1.20	22	11	14
4490 B5/B12 RRH (Side)	19.7	13.0	17.3	1.78	2.38	1.52	1.14	1.20	1.20	16	22	20
4415 B30 RRH	18.7	15.6	8.1	2.04	1.06	1.20	2.30	1.20	1.20	18	10	12
4415 B30 RRH (Side)	18.7	11.7	15.6	1.53	2.04	1.60	1.20	1.20	1.20	14	18	17
4494 B14/B29 RRH	19.7	17.3	7.8	2.38	1.08	1.14	2.52	1.20	1.20	22	10	13
4494 B14/B29 RRH (Side)	19.7	13.0	17.3	1.78	2.38	1.52	1.14	1.20	1.20	16	22	20
4890 B25/B66 RRH	19.7	17.4	9.1	2.39	1.25	1.13	2.16	1.20	1.20	22	11	14
4890 B25/B66 RRH (Side)	19.7	13.1	17.4	1.79	2.39	1.51	1.13	1.20	1.20	16	22	20

WIND LOADS AT 30 MPH:

OPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	49	22	29
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	49	22	29
4490 B5/B12 RRH	17.5	15.1	6.8	1.84	0.83	1.16	2.57	1.20	1.20	6	3	4
4490 B5/B12 RRH (Side)	17.5	11.3	15.1	1.38	1.84	1.55	1.16	1.20	1.20	4	6	6
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	5	2	3
4415 B30 RRH (Side)	16.5	10.1	13.4	1.15	1.54	1.64	1.23	1.20	1.20	4	5	5
4494 B14/B29 RRH	17.5	15.1	5.6	1.84	0.68	1.16	3.13	1.20	1.23	6	2	3
4494 B14/B29 RRH (Side)	17.5	11.3	15.1	1.38	1.84	1.55	1.16	1.20	1.20	4	6	6
4890 B25/B66 RRH	17.5	15.2	6.9	1.85	0.84	1.15	2.54	1.20	1.20	6	3	4
4890 B25/B66 RRH (Side)	17.5	11.4	15.2	1.39	1.85	1.54	1.15	1.20	1.20	5	6	6

Date: 6/17/2024
Project Name: WOLCOTT CHESTNUT HILL ROAD
Project No.: CT1432
Designed By: KM Checked By: MSC

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.12	in.	Equivalent Angle =	330	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
OPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	776	353	670
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	776	353	670
4490 B5/B12 RRH	17.5	15.1	6.8	1.84	0.83	1.16	2.57	1.20	1.20	96	43	83
4490 B5/B12 RRH (Side)	17.5	7.6	15.1	0.92	1.84	2.32	1.16	1.20	1.20	48	96	60
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	80	36	69
4415 B30 RRH (Side)	16.5	6.7	13.4	0.77	1.54	2.46	1.23	1.20	1.20	40	80	50
4494 B14/B29 RRH	17.5	15.1	5.6	1.84	0.68	1.16	3.13	1.20	1.23	96	36	81
4494 B14/B29 RRH (Side)	17.5	7.6	15.1	0.92	1.84	2.32	1.16	1.20	1.20	48	96	60
4890 B25/B66 RRH	17.5	15.2	6.9	1.85	0.84	1.15	2.54	1.20	1.20	96	44	83
4890 B25/B66 RRH (Side)	17.5	7.6	15.2	0.92	1.85	2.30	1.15	1.20	1.20	48	96	60

WIND LOADS WITH ICE:

OPA65R-BU8DA-K Antenna	98.2	22.9	9.9	15.65	6.79	4.28	9.88	1.28	1.50	151	77	132
TPA65R-BU8DA-K Antenna	98.2	22.9	9.9	15.65	6.79	4.28	9.88	1.28	1.50	151	77	132
4490 B5/B12 RRH	19.7	17.3	9.0	2.38	1.24	1.14	2.18	1.20	1.20	22	11	19
4490 B5/B12 RRH (Side)	19.7	8.7	17.3	1.19	2.38	2.28	1.14	1.20	1.20	11	22	13
4415 B30 RRH	18.7	15.6	8.1	2.04	1.06	1.20	2.30	1.20	1.20	18	10	16
4415 B30 RRH (Side)	18.7	7.8	15.6	1.02	2.04	2.40	1.20	1.20	1.20	9	18	12
4494 B14/B29 RRH	19.7	17.3	7.8	2.38	1.08	1.14	2.52	1.20	1.20	22	10	19
4494 B14/B29 RRH (Side)	19.7	8.7	17.3	1.19	2.38	2.28	1.14	1.20	1.20	11	22	13
4890 B25/B66 RRH	19.7	17.4	9.1	2.39	1.25	1.13	2.16	1.20	1.20	22	11	19
4890 B25/B66 RRH (Side)	19.7	8.7	17.4	1.20	2.39	2.26	1.13	1.20	1.20	11	22	14

WIND LOADS AT 30 MPH:

OPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	49	22	42
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	49	22	42
4490 B5/B12 RRH	17.5	15.1	6.8	1.84	0.83	1.16	2.57	1.20	1.20	6	3	5
4490 B5/B12 RRH (Side)	17.5	7.6	15.1	0.92	1.84	2.32	1.16	1.20	1.20	3	6	4
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	5	2	4
4415 B30 RRH (Side)	16.5	6.7	13.4	0.77	1.54	2.46	1.23	1.20	1.20	3	5	3
4494 B14/B29 RRH	17.5	15.1	5.6	1.84	0.68	1.16	3.13	1.20	1.23	6	2	5
4494 B14/B29 RRH (Side)	17.5	7.6	15.1	0.92	1.84	2.32	1.16	1.20	1.20	3	6	4
4890 B25/B66 RRH	17.5	15.2	6.9	1.85	0.84	1.15	2.54	1.20	1.20	6	3	5
4890 B25/B66 RRH (Side)	17.5	7.6	15.2	0.92	1.85	2.30	1.15	1.20	1.20	3	6	4

Date: 6/17/2024
Project Name: WOLCOTT CHESTNUT HILL ROAD
Project No.: CT1432
Designed By: KM **Checked By:** MSC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.12 in.
Density of ice: 56 pcf

OPA65R-BU8DA-K Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:		254 lbs
Weight of object:	79.0 lbs	
Combined weight of ice and object:		333 lbs

TPA65R-BU8DA-K Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:		254 lbs
Weight of object:	87.0 lbs	
Combined weight of ice and object:		341 lbs

4490 B5/B12 RRH

Weight of ice based on total radial SF area:

Height (in):	17.5	
Width (in):	15.1	
Depth (in):	6.8	
Total weight of ice on object:		35 lbs
Weight of object:	68.0 lbs	
Combined weight of ice and object:		103 lbs

4415 B30 RRH

Weight of ice based on total radial SF area:

Height (in):	16.5	
Width (in):	13.4	
Depth (in):	5.9	
Total weight of ice on object:		30 lbs
Weight of object:	46.0 lbs	
Combined weight of ice and object:		76 lbs

4494 B14/B29 RRH

Weight of ice based on total radial SF area:

Height (in):	17.5	
Width (in):	15.1	
Depth (in):	5.6	
Total weight of ice on object:		34 lbs
Weight of object:	58.0 lbs	
Combined weight of ice and object:		92 lbs

4890 B25/B66 RRH

Weight of ice based on total radial SF area:

Height (in):	17.5	
Width (in):	15.2	
Depth (in):	6.9	
Total weight of ice on object:		36 lbs
Weight of object:	68.0 lbs	
Combined weight of ice and object:		104 lbs

DC9 Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	31.4	
Diameter(in):	10.2	
Total weight of ice on object:		41 lbs
Weight of object:	29 lbs	
Combined weight of ice and object:		70 lbs

PL 11-1/4x5/8

Weight of ice based on total radial SF area:

Height (in):	11.25	
Width (in):	0.625	
Per foot weight of ice on object:		17 plf

PL 3-1/2x5/8

Weight of ice based on total radial SF area:

Height (in):	3.5	
Width (in):	0.625	
Per foot weight of ice on object:		6 plf

HSS 4x4

Weight of ice based on total radial SF area:

Height (in):	4	
Width (in):	4	
Per foot weight of ice on object:		9 plf

4" Pipe

Per foot weight of ice:

diameter (in):	4.5	
Per foot weight of ice on object:		8 plf

2-1/2" Pipe

Per foot weight of ice:

diameter (in):	2.88	
Per foot weight of ice on object:		5 plf

2" Pipe

Per foot weight of ice:

diameter (in):	2.38	
Per foot weight of ice on object:		5 plf

3/4" Round Bar

Per foot weight of ice:

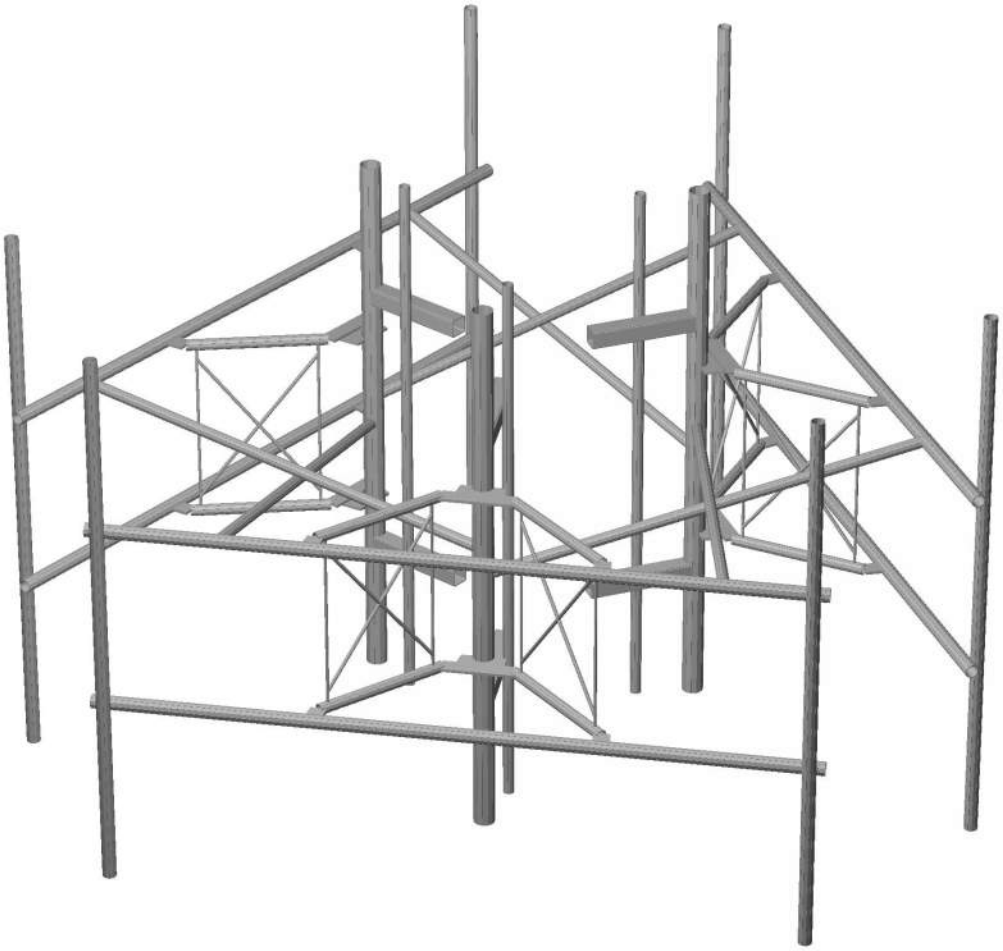
diameter (in):	0.75	
Per foot weight of ice on object:		3 plf

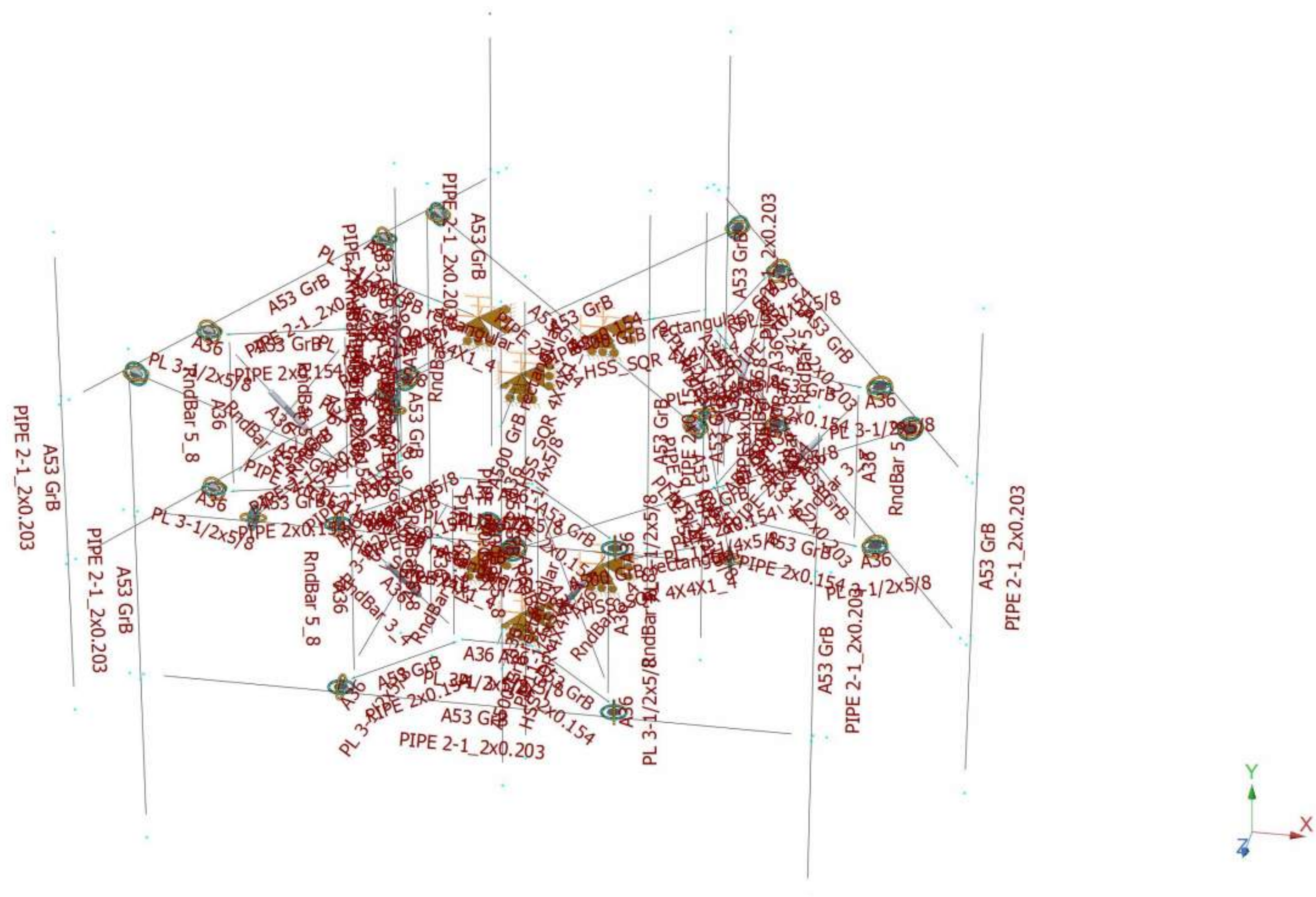
5/8" Round Bar

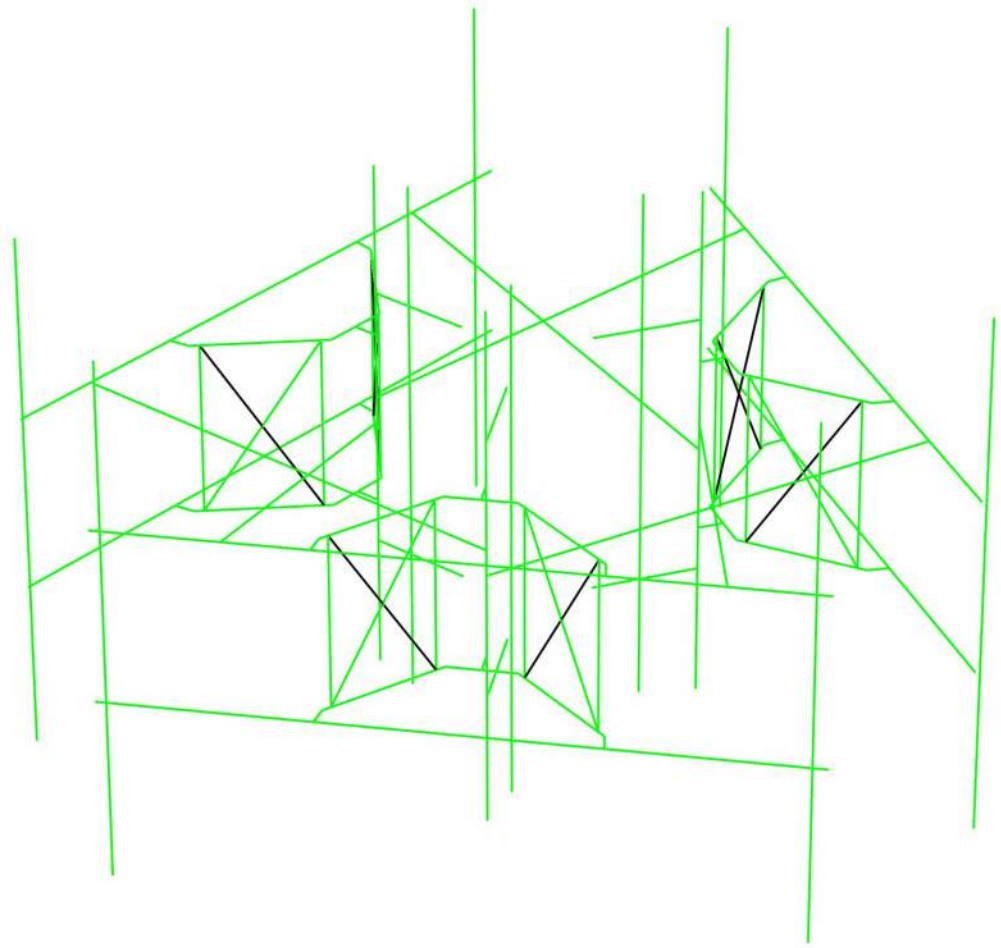
Per foot weight of ice:

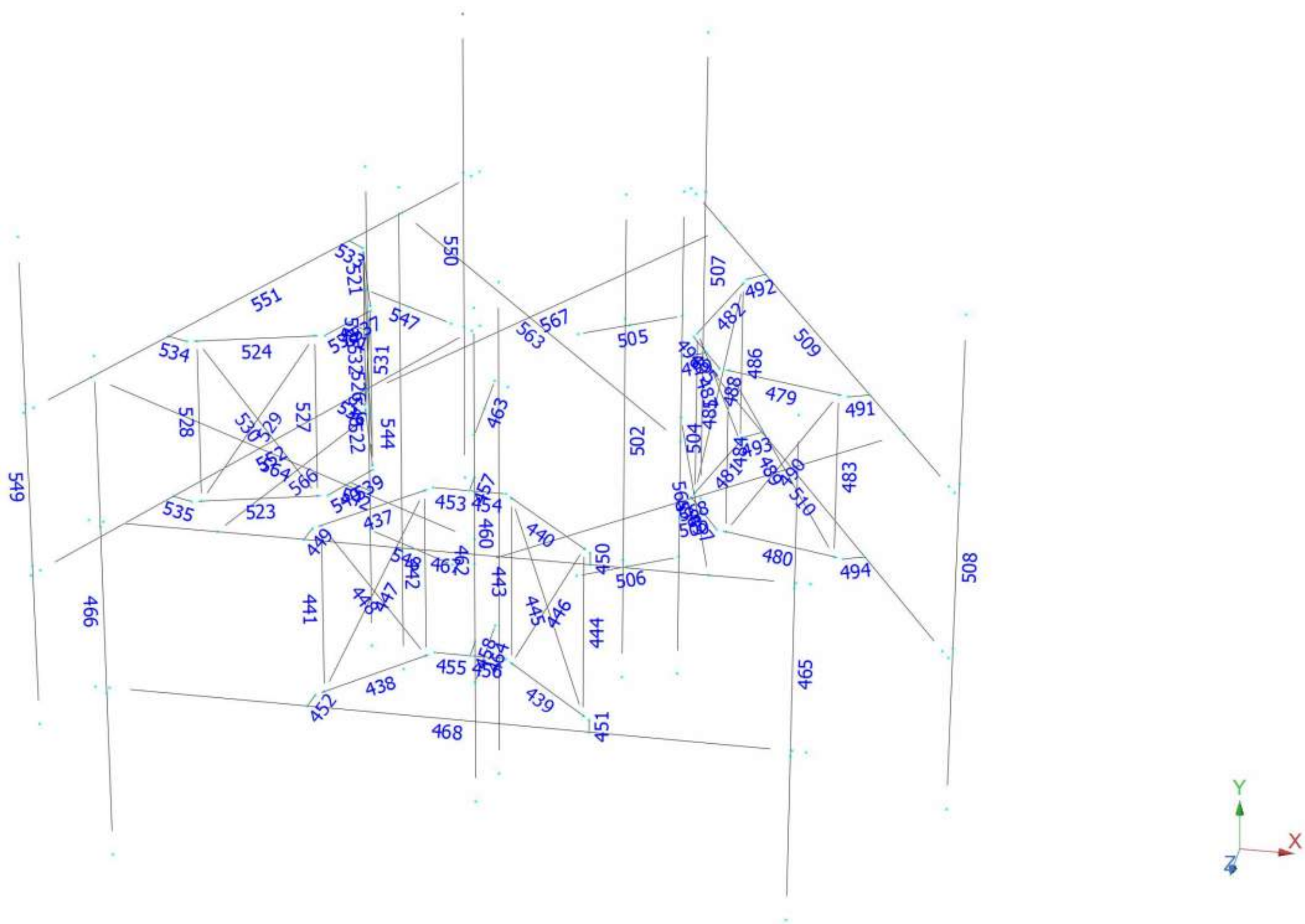
diameter (in):	0.625	
Per foot weight of ice on object:		2 plf

Mount Calculations
(NSB Conditions)


Y
X
Z


A53 GrB
PIPE 2-1_2x0.203
PL 3-1/2x5/8
RndBar 5_8
A36
PIPE 2x0.154
Y
X
Z


Design status
Not designed
Error on design
Design O.K.
With warnings
Y
X
Z


551
533
521
550
547
534
524
537
531
563
567
505
507
492
482
509
486
479
491
463
544
528
530
529
527
522
502
504
493
483
549
535
523
566
539
453
454
457
437
440
460
449
450
506
480
494
508
510
462
443
441
447
445
446
444
466
455
458
456
438
439
452
451
468
465
Y
X

Current Date: 6/17/2024 2:00 PM
Units system: English

Load data

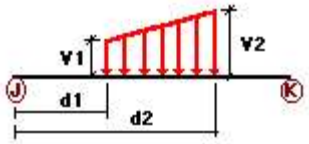
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
W0	Wind Load 0/60/120 deg	No	WIND
W30	Wind Load 30/90/150 deg	No	WIND
Di	Ice Load	No	LL
Wi0	Ice Wind Load 0/60/120 deg	No	WIND
Wi30	Ice Wind Load 30/90/150 deg	No	WIND
WL0	WL 30 mph 0/60/120 deg	No	WIND
WL30	WL 30 mph 30/90/150 deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load End of Mount	No	LL
LLa1	250 lb Live Load Antenna 1	No	LL
LLa3	250 lb Live Load Antenna 3	No	LL

Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
W0	437	z	-0.01	-0.01	0.00	No	100.00	Yes
	438	z	-0.01	-0.01	0.00	No	100.00	Yes
	439	z	-0.01	-0.01	0.00	No	100.00	Yes
	440	z	-0.01	-0.01	0.00	No	100.00	Yes
	441	z	-0.003	-0.003	0.00	No	100.00	Yes
	442	z	-0.003	-0.003	0.00	No	100.00	Yes
	443	z	-0.003	-0.003	0.00	No	100.00	Yes
	444	z	-0.003	-0.003	0.00	No	100.00	Yes
	445	z	-0.003	-0.003	0.00	No	100.00	Yes
	446	z	-0.003	-0.003	0.00	No	100.00	Yes
	447	z	-0.003	-0.003	0.00	No	100.00	Yes
	448	z	-0.003	-0.003	0.00	No	100.00	Yes
	449	z	-0.005	-0.005	0.00	No	100.00	Yes
	450	z	-0.005	-0.005	0.00	No	100.00	Yes
	451	z	-0.005	-0.005	0.00	No	100.00	Yes
	452	z	-0.005	-0.005	0.00	No	100.00	Yes
	453	z	-0.005	-0.005	0.00	No	100.00	Yes
	454	z	-0.005	-0.005	0.00	No	100.00	Yes

455	z	-0.005	-0.005	0.00	No	100.00	Yes
456	z	-0.005	-0.005	0.00	No	100.00	Yes
457	z	-0.005	-0.005	0.00	No	100.00	Yes
458	z	-0.005	-0.005	0.00	No	100.00	Yes
460	z	-0.01	-0.01	0.00	No	100.00	Yes
462	z	-0.02	-0.02	0.00	No	100.00	Yes
463	z	-0.02	-0.02	0.00	No	100.00	Yes
464	z	-0.02	-0.02	0.00	No	100.00	Yes
465	z	-0.013	-0.013	0.00	No	10.00	Yes
	z	-0.013	-0.013	90.00	Yes	100.00	Yes
466	z	-0.013	-0.013	0.00	No	10.00	Yes
	z	-0.013	-0.013	90.00	Yes	100.00	Yes
467	z	-0.013	-0.013	0.00	No	100.00	Yes
468	z	-0.013	-0.013	0.00	No	100.00	Yes
479	z	-0.01	-0.01	0.00	No	100.00	Yes
480	z	-0.01	-0.01	0.00	No	100.00	Yes
481	z	-0.01	-0.01	0.00	No	100.00	Yes
482	z	-0.01	-0.01	0.00	No	100.00	Yes
483	z	-0.003	-0.003	0.00	No	100.00	Yes
484	z	-0.003	-0.003	0.00	No	100.00	Yes
485	z	-0.003	-0.003	0.00	No	100.00	Yes
486	z	-0.003	-0.003	0.00	No	100.00	Yes
487	z	-0.003	-0.003	0.00	No	100.00	Yes
488	z	-0.003	-0.003	0.00	No	100.00	Yes
489	z	-0.003	-0.003	0.00	No	100.00	Yes
490	z	-0.003	-0.003	0.00	No	100.00	Yes
491	z	-0.005	-0.005	0.00	No	100.00	Yes
492	z	-0.005	-0.005	0.00	No	100.00	Yes
493	z	-0.005	-0.005	0.00	No	100.00	Yes
494	z	-0.005	-0.005	0.00	No	100.00	Yes
495	z	-0.005	-0.005	0.00	No	100.00	Yes
496	z	-0.005	-0.005	0.00	No	100.00	Yes
497	z	-0.005	-0.005	0.00	No	100.00	Yes
498	z	-0.005	-0.005	0.00	No	100.00	Yes
499	z	-0.005	-0.005	0.00	No	100.00	Yes
500	z	-0.005	-0.005	0.00	No	100.00	Yes
502	z	-0.01	-0.01	0.00	No	100.00	Yes
504	z	-0.02	-0.02	0.00	No	100.00	Yes
505	z	-0.02	-0.02	0.00	No	100.00	Yes
506	z	-0.02	-0.02	0.00	No	100.00	Yes
507	z	-0.013	-0.013	0.00	No	100.00	Yes
508	z	-0.013	-0.013	0.00	No	100.00	Yes
509	z	-0.013	-0.013	0.00	No	100.00	Yes
510	z	-0.013	-0.013	0.00	No	100.00	Yes
521	z	-0.01	-0.01	0.00	No	100.00	Yes
522	z	-0.01	-0.01	0.00	No	100.00	Yes
523	z	-0.01	-0.01	0.00	No	100.00	Yes
524	z	-0.01	-0.01	0.00	No	100.00	Yes
525	z	-0.003	-0.003	0.00	No	100.00	Yes
526	z	-0.003	-0.003	0.00	No	100.00	Yes
527	z	-0.003	-0.003	0.00	No	100.00	Yes
528	z	-0.003	-0.003	0.00	No	100.00	Yes
529	z	-0.003	-0.003	0.00	No	100.00	Yes
530	z	-0.003	-0.003	0.00	No	100.00	Yes
531	z	-0.003	-0.003	0.00	No	100.00	Yes
532	z	-0.003	-0.003	0.00	No	100.00	Yes
533	z	-0.005	-0.005	0.00	No	100.00	Yes
534	z	-0.005	-0.005	0.00	No	100.00	Yes
535	z	-0.005	-0.005	0.00	No	100.00	Yes
536	z	-0.005	-0.005	0.00	No	100.00	Yes

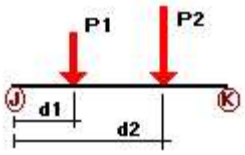
	537	z	-0.005	-0.005	0.00	No	100.00	Yes
	538	z	-0.005	-0.005	0.00	No	100.00	Yes
	539	z	-0.005	-0.005	0.00	No	100.00	Yes
	540	z	-0.005	-0.005	0.00	No	100.00	Yes
	541	z	-0.005	-0.005	0.00	No	100.00	Yes
	542	z	-0.005	-0.005	0.00	No	100.00	Yes
	544	z	-0.01	-0.01	0.00	No	100.00	Yes
	546	z	-0.02	-0.02	0.00	No	100.00	Yes
	547	z	-0.02	-0.02	0.00	No	100.00	Yes
	548	z	-0.02	-0.02	0.00	No	100.00	Yes
	549	z	-0.013	-0.013	0.00	No	100.00	Yes
	550	z	-0.013	-0.013	0.00	No	100.00	Yes
	551	z	-0.013	-0.013	0.00	No	100.00	Yes
	552	z	-0.013	-0.013	0.00	No	100.00	Yes
	563	z	-0.01	-0.01	0.00	No	100.00	Yes
	564	z	-0.01	-0.01	0.00	No	100.00	Yes
	565	z	-0.01	-0.01	0.00	No	100.00	Yes
	566	z	-0.01	-0.01	0.00	No	100.00	Yes
	567	z	-0.01	-0.01	0.00	No	100.00	Yes
	568	z	-0.01	-0.01	0.00	No	100.00	Yes
W30	437	x	-0.01	-0.01	0.00	No	100.00	Yes
	438	x	-0.01	-0.01	0.00	No	100.00	Yes
	439	x	-0.01	-0.01	0.00	No	100.00	Yes
	440	x	-0.01	-0.01	0.00	No	100.00	Yes
	441	x	-0.003	-0.003	0.00	No	100.00	Yes
	442	x	-0.003	-0.003	0.00	No	100.00	Yes
	443	x	-0.003	-0.003	0.00	No	100.00	Yes
	444	x	-0.003	-0.003	0.00	No	100.00	Yes
	445	x	-0.003	-0.003	0.00	No	100.00	Yes
	446	x	-0.003	-0.003	0.00	No	100.00	Yes
	447	x	-0.003	-0.003	0.00	No	100.00	Yes
	448	x	-0.003	-0.003	0.00	No	100.00	Yes
	449	x	-0.005	-0.005	0.00	No	100.00	Yes
	450	x	-0.005	-0.005	0.00	No	100.00	Yes
	451	x	-0.005	-0.005	0.00	No	100.00	Yes
	452	x	-0.005	-0.005	0.00	No	100.00	Yes
	453	x	-0.005	-0.005	0.00	No	100.00	Yes
	454	x	-0.005	-0.005	0.00	No	100.00	Yes
	455	x	-0.005	-0.005	0.00	No	100.00	Yes
	456	x	-0.005	-0.005	0.00	No	100.00	Yes
	457	x	-0.005	-0.005	0.00	No	100.00	Yes
	458	x	-0.005	-0.005	0.00	No	100.00	Yes
	460	x	-0.01	-0.01	0.00	No	100.00	Yes
	462	x	-0.02	-0.02	0.00	No	100.00	Yes
	463	x	-0.02	-0.02	0.00	No	100.00	Yes
	464	x	-0.02	-0.02	0.00	No	100.00	Yes
	465	x	-0.013	-0.013	0.00	No	100.00	Yes
	466	x	-0.013	-0.013	0.00	No	100.00	Yes
	467	x	-0.013	-0.013	0.00	No	100.00	Yes
	468	x	-0.013	-0.013	0.00	No	100.00	Yes
	479	x	-0.01	-0.01	0.00	No	100.00	Yes
	480	x	-0.01	-0.01	0.00	No	100.00	Yes
	481	x	-0.01	-0.01	0.00	No	100.00	Yes
	482	x	-0.01	-0.01	0.00	No	100.00	Yes
	483	x	-0.003	-0.003	0.00	No	100.00	Yes
	484	x	-0.003	-0.003	0.00	No	100.00	Yes
	485	x	-0.003	-0.003	0.00	No	100.00	Yes
	486	x	-0.003	-0.003	0.00	No	100.00	Yes
	487	x	-0.003	-0.003	0.00	No	100.00	Yes
	488	x	-0.003	-0.003	0.00	No	100.00	Yes

	489	x	-0.003	-0.003	0.00	No	100.00	Yes
	490	x	-0.003	-0.003	0.00	No	100.00	Yes
	491	x	-0.005	-0.005	0.00	No	100.00	Yes
	492	x	-0.005	-0.005	0.00	No	100.00	Yes
	493	x	-0.005	-0.005	0.00	No	100.00	Yes
	494	x	-0.005	-0.005	0.00	No	100.00	Yes
	495	x	-0.005	-0.005	0.00	No	100.00	Yes
	496	x	-0.005	-0.005	0.00	No	100.00	Yes
	497	x	-0.005	-0.005	0.00	No	100.00	Yes
	498	x	-0.005	-0.005	0.00	No	100.00	Yes
	499	x	-0.005	-0.005	0.00	No	100.00	Yes
	500	x	-0.005	-0.005	0.00	No	100.00	Yes
	502	x	-0.01	-0.01	0.00	No	100.00	Yes
	504	x	-0.02	-0.02	0.00	No	100.00	Yes
	505	x	-0.02	-0.02	0.00	No	100.00	Yes
	506	x	-0.02	-0.02	0.00	No	100.00	Yes
	507	x	-0.013	-0.013	0.00	No	10.00	Yes
		x	-0.013	-0.013	90.00	Yes	100.00	Yes
	508	x	-0.013	-0.013	0.00	No	10.00	Yes
		x	-0.013	-0.013	90.00	Yes	100.00	Yes
	509	x	-0.013	-0.013	0.00	No	100.00	Yes
	510	x	-0.013	-0.013	0.00	No	100.00	Yes
	521	x	-0.01	-0.01	0.00	No	100.00	Yes
	522	x	-0.01	-0.01	0.00	No	100.00	Yes
	523	x	-0.01	-0.01	0.00	No	100.00	Yes
	524	x	-0.01	-0.01	0.00	No	100.00	Yes
	525	x	-0.003	-0.003	0.00	No	100.00	Yes
	526	x	-0.003	-0.003	0.00	No	100.00	Yes
	527	x	-0.003	-0.003	0.00	No	100.00	Yes
	528	x	-0.003	-0.003	0.00	No	100.00	Yes
	529	x	-0.003	-0.003	0.00	No	100.00	Yes
	530	x	-0.003	-0.003	0.00	No	100.00	Yes
	531	x	-0.003	-0.003	0.00	No	100.00	Yes
	532	x	-0.003	-0.003	0.00	No	100.00	Yes
	533	x	-0.005	-0.005	0.00	No	100.00	Yes
	534	x	-0.005	-0.005	0.00	No	100.00	Yes
	535	x	-0.005	-0.005	0.00	No	100.00	Yes
	536	x	-0.005	-0.005	0.00	No	100.00	Yes
	537	x	-0.005	-0.005	0.00	No	100.00	Yes
	538	x	-0.005	-0.005	0.00	No	100.00	Yes
	539	x	-0.005	-0.005	0.00	No	100.00	Yes
	540	x	-0.005	-0.005	0.00	No	100.00	Yes
	541	x	-0.005	-0.005	0.00	No	100.00	Yes
	542	x	-0.005	-0.005	0.00	No	100.00	Yes
	544	x	-0.01	-0.01	0.00	No	100.00	Yes
	546	x	-0.02	-0.02	0.00	No	100.00	Yes
	547	x	-0.02	-0.02	0.00	No	100.00	Yes
	548	x	-0.02	-0.02	0.00	No	100.00	Yes
	549	x	-0.013	-0.013	0.00	No	100.00	Yes
	550	x	-0.013	-0.013	0.00	No	100.00	Yes
	551	x	-0.013	-0.013	0.00	No	100.00	Yes
	552	x	-0.013	-0.013	0.00	No	100.00	Yes
	563	x	-0.01	-0.01	0.00	No	100.00	Yes
	564	x	-0.01	-0.01	0.00	No	100.00	Yes
	565	x	-0.01	-0.01	0.00	No	100.00	Yes
	566	x	-0.01	-0.01	0.00	No	100.00	Yes
	567	x	-0.01	-0.01	0.00	No	100.00	Yes
	568	x	-0.01	-0.01	0.00	No	100.00	Yes
Di	437	y	-0.005	-0.005	0.00	No	100.00	Yes
	438	y	-0.005	-0.005	0.00	No	100.00	Yes

439	y	-0.005	-0.005	0.00	No	100.00	Yes
440	y	-0.005	-0.005	0.00	No	100.00	Yes
441	y	-0.002	-0.002	0.00	No	100.00	Yes
442	y	-0.002	-0.002	0.00	No	100.00	Yes
443	y	-0.002	-0.002	0.00	No	100.00	Yes
444	y	-0.002	-0.002	0.00	No	100.00	Yes
445	y	-0.003	-0.003	0.00	No	100.00	Yes
446	y	-0.003	-0.003	0.00	No	100.00	Yes
447	y	-0.003	-0.003	0.00	No	100.00	Yes
448	y	-0.003	-0.003	0.00	No	100.00	Yes
449	y	-0.006	-0.006	0.00	No	100.00	Yes
450	y	-0.006	-0.006	0.00	No	100.00	Yes
451	y	-0.006	-0.006	0.00	No	100.00	Yes
452	y	-0.006	-0.006	0.00	No	100.00	Yes
453	y	-0.006	-0.006	0.00	No	100.00	Yes
454	y	-0.006	-0.006	0.00	No	100.00	Yes
455	y	-0.006	-0.006	0.00	No	100.00	Yes
456	y	-0.006	-0.006	0.00	No	100.00	Yes
457	y	-0.017	-0.017	0.00	No	100.00	Yes
458	y	-0.017	-0.017	0.00	No	100.00	Yes
460	y	-0.005	-0.005	0.00	No	100.00	Yes
462	y	-0.008	-0.008	0.00	No	100.00	Yes
463	y	-0.009	-0.009	0.00	No	100.00	Yes
464	y	-0.009	-0.009	0.00	No	100.00	Yes
465	y	-0.005	-0.005	0.00	No	100.00	Yes
466	y	-0.005	-0.005	0.00	No	100.00	Yes
467	y	-0.005	-0.005	0.00	No	100.00	Yes
468	y	-0.005	-0.005	0.00	No	100.00	Yes
479	y	-0.005	-0.005	0.00	No	100.00	Yes
480	y	-0.005	-0.005	0.00	No	100.00	Yes
481	y	-0.005	-0.005	0.00	No	100.00	Yes
482	y	-0.005	-0.005	0.00	No	100.00	Yes
483	y	-0.002	-0.002	0.00	No	100.00	Yes
484	y	-0.002	-0.002	0.00	No	100.00	Yes
485	y	-0.002	-0.002	0.00	No	100.00	Yes
486	y	-0.002	-0.002	0.00	No	100.00	Yes
487	y	-0.003	-0.003	0.00	No	100.00	Yes
488	y	-0.003	-0.003	0.00	No	100.00	Yes
489	y	-0.003	-0.003	0.00	No	100.00	Yes
490	y	-0.003	-0.003	0.00	No	100.00	Yes
491	y	-0.006	-0.006	0.00	No	100.00	Yes
492	y	-0.006	-0.006	0.00	No	100.00	Yes
493	y	-0.006	-0.006	0.00	No	100.00	Yes
494	y	-0.006	-0.006	0.00	No	100.00	Yes
495	y	-0.006	-0.006	0.00	No	100.00	Yes
496	y	-0.006	-0.006	0.00	No	100.00	Yes
497	y	-0.006	-0.006	0.00	No	100.00	Yes
498	y	-0.006	-0.006	0.00	No	100.00	Yes
499	y	-0.017	-0.017	0.00	No	100.00	Yes
500	y	-0.017	-0.017	0.00	No	100.00	Yes
502	y	-0.005	-0.005	0.00	No	100.00	Yes
504	y	-0.008	-0.008	0.00	No	100.00	Yes
505	y	-0.009	-0.009	0.00	No	100.00	Yes
506	y	-0.009	-0.009	0.00	No	100.00	Yes
507	y	-0.005	-0.005	0.00	No	100.00	Yes
508	y	-0.005	-0.005	0.00	No	100.00	Yes
509	y	-0.005	-0.005	0.00	No	100.00	Yes
510	y	-0.005	-0.005	0.00	No	100.00	Yes
521	y	-0.005	-0.005	0.00	No	100.00	Yes
522	y	-0.005	-0.005	0.00	No	100.00	Yes

523	y	-0.005	-0.005	0.00	No	100.00	Yes
524	y	-0.005	-0.005	0.00	No	100.00	Yes
525	y	-0.002	-0.002	0.00	No	100.00	Yes
526	y	-0.002	-0.002	0.00	No	100.00	Yes
527	y	-0.002	-0.002	0.00	No	100.00	Yes
528	y	-0.002	-0.002	0.00	No	100.00	Yes
529	y	-0.003	-0.003	0.00	No	100.00	Yes
530	y	-0.003	-0.003	0.00	No	100.00	Yes
531	y	-0.003	-0.003	0.00	No	100.00	Yes
532	y	-0.003	-0.003	0.00	No	100.00	Yes
533	y	-0.006	-0.006	0.00	No	100.00	Yes
534	y	-0.006	-0.006	0.00	No	100.00	Yes
535	y	-0.006	-0.006	0.00	No	100.00	Yes
536	y	-0.006	-0.006	0.00	No	100.00	Yes
537	y	-0.006	-0.006	0.00	No	100.00	Yes
538	y	-0.006	-0.006	0.00	No	100.00	Yes
539	y	-0.006	-0.006	0.00	No	100.00	Yes
540	y	-0.006	-0.006	0.00	No	100.00	Yes
541	y	-0.017	-0.017	0.00	No	100.00	Yes
542	y	-0.017	-0.017	0.00	No	100.00	Yes
544	y	-0.005	-0.005	0.00	No	100.00	Yes
546	y	-0.008	-0.008	0.00	No	100.00	Yes
547	y	-0.009	-0.009	0.00	No	100.00	Yes
548	y	-0.009	-0.009	0.00	No	100.00	Yes
549	y	-0.005	-0.005	0.00	No	100.00	Yes
550	y	-0.005	-0.005	0.00	No	100.00	Yes
551	y	-0.005	-0.005	0.00	No	100.00	Yes
552	y	-0.005	-0.005	0.00	No	100.00	Yes
563	y	-0.005	-0.005	0.00	No	100.00	Yes
564	y	-0.005	-0.005	0.00	No	100.00	Yes
565	y	-0.005	-0.005	0.00	No	100.00	Yes
566	y	-0.005	-0.005	0.00	No	100.00	Yes
567	y	-0.005	-0.005	0.00	No	100.00	Yes
568	y	-0.005	-0.005	0.00	No	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	460	y	-0.029	1.00	No
		y	-0.068	5.00	No
		y	-0.046	5.00	No
		y	-0.058	9.00	No
		y	-0.068	9.00	No
	465	y	-0.04	1.50	No
		y	-0.04	8.50	No
	466	y	-0.06	1.50	No
		y	-0.06	8.50	No
	502	y	-0.029	1.00	No
		y	-0.068	5.00	No

		y	-0.046	5.00	No
		y	-0.058	9.00	No
		y	-0.068	9.00	No
	507	y	-0.04	1.50	No
		y	-0.04	8.50	No
	508	y	-0.06	1.50	No
		y	-0.06	8.50	No
	544	y	-0.068	5.00	No
		y	-0.046	5.00	No
		y	-0.058	9.00	No
		y	-0.068	9.00	No
	549	y	-0.04	1.50	No
		y	-0.04	8.50	No
	550	y	-0.044	1.50	No
		y	-0.044	8.50	No
W0	460	z	-0.068	1.00	No
		z	-0.096	5.00	No
		z	-0.096	9.00	No
	465	z	-0.388	1.50	No
		z	-0.388	8.50	No
	466	z	-0.388	1.50	No
		z	-0.388	8.50	No
	502	z	-0.068	1.00	No
		z	-0.056	5.00	No
		z	-0.047	5.00	No
		z	-0.051	9.00	No
		z	-0.057	9.00	No
	507	z	-0.23	1.50	No
		z	-0.23	8.50	No
	508	z	-0.23	1.50	No
		z	-0.23	8.50	No
	544	z	-0.056	5.00	No
		z	-0.047	5.00	No
		z	-0.051	9.00	No
		z	-0.057	9.00	No
	549	z	-0.23	1.50	No
		z	-0.23	8.50	No
	550	z	-0.23	1.50	No
		z	-0.23	8.50	No
W30	460	x	-0.068	1.00	No
		x	-0.043	5.00	No
		x	-0.036	5.00	No
		x	-0.036	9.00	No
		x	-0.044	9.00	No
	465	x	-0.177	1.50	No
		x	-0.177	8.50	No
	466	x	-0.177	1.50	No
		x	-0.177	8.50	No
	502	x	-0.068	1.00	No
		x	-0.083	5.00	No
		x	-0.069	5.00	No
		x	-0.081	9.00	No
		x	-0.083	9.00	No
	507	x	-0.335	1.50	No
		x	-0.335	8.50	No
	508	x	-0.335	1.50	No
		x	-0.335	8.50	No
	544	x	-0.083	5.00	No
		x	-0.069	5.00	No
		x	-0.081	9.00	No

		x	-0.083	9.00	No
	549	x	-0.335	1.50	No
		x	-0.335	8.50	No
	550	x	-0.335	1.50	No
		x	-0.335	8.50	No
Di	460	y	-0.041	1.00	No
		y	-0.035	5.00	No
		y	-0.03	5.00	No
		y	-0.034	9.00	No
		y	-0.036	9.00	No
	465	y	-0.127	1.50	No
		y	-0.127	8.50	No
	466	y	-0.127	1.50	No
		y	-0.127	8.50	No
	502	y	-0.041	1.00	No
		y	-0.035	5.00	No
		y	-0.03	5.00	No
		y	-0.034	9.00	No
		y	-0.036	9.00	No
	507	y	-0.127	1.50	No
		y	-0.127	8.50	No
	508	y	-0.127	1.50	No
		y	-0.127	8.50	No
	544	y	-0.035	5.00	No
		y	-0.03	5.00	No
		y	-0.034	9.00	No
		y	-0.036	9.00	No
	549	y	-0.127	1.50	No
		y	-0.127	8.50	No
	550	y	-0.127	1.50	No
		y	-0.127	8.50	No
Wi0	460	z	-0.015	1.00	No
		z	-0.022	5.00	No
		z	-0.022	9.00	No
	465	z	-0.077	1.50	No
		z	-0.077	8.50	No
	466	z	-0.077	1.50	No
		z	-0.077	8.50	No
	502	z	-0.015	1.00	No
		z	-0.014	5.00	No
		z	-0.012	5.00	No
		z	-0.013	9.00	No
		z	-0.014	9.00	No
	507	z	-0.048	1.50	No
		z	-0.048	8.50	No
	508	z	-0.048	1.50	No
		z	-0.048	8.50	No
	544	z	-0.014	5.00	No
		z	-0.012	5.00	No
		z	-0.013	9.00	No
		z	-0.014	9.00	No
	549	z	-0.048	1.50	No
		z	-0.048	8.50	No
	550	z	-0.048	1.50	No
		z	-0.048	8.50	No
Wi30	460	x	-0.015	1.00	No
		x	-0.011	5.00	No
		x	-0.01	5.00	No
		x	-0.01	9.00	No
		x	-0.011	9.00	No

	465	x	-0.039	1.50	No
		x	-0.039	8.50	No
	466	x	-0.039	1.50	No
		x	-0.039	8.50	No
	502	x	-0.015	1.00	No
		x	-0.019	5.00	No
		x	-0.016	5.00	No
		x	-0.019	9.00	No
		x	-0.019	9.00	No
	507	x	-0.066	1.50	No
		x	-0.066	8.50	No
	508	x	-0.066	1.50	No
		x	-0.066	8.50	No
	544	x	-0.019	5.00	No
		x	-0.016	5.00	No
		x	-0.019	9.00	No
		x	-0.019	9.00	No
	549	x	-0.066	1.50	No
		x	-0.066	8.50	No
	550	x	-0.066	1.50	No
		x	-0.066	8.50	No
WL0	460	z	-0.004	1.00	No
		z	-0.006	5.00	No
		z	-0.006	9.00	No
	465	z	-0.025	1.50	No
		z	-0.025	8.50	No
	466	z	-0.025	1.50	No
		z	-0.025	8.50	No
	502	z	-0.004	1.00	No
		z	-0.004	5.00	No
		z	-0.003	5.00	No
		z	-0.003	9.00	No
		z	-0.004	9.00	No
	507	z	-0.015	1.50	No
		z	-0.015	8.50	No
	508	z	-0.015	1.50	No
		z	-0.015	8.50	No
	544	z	-0.004	5.00	No
		z	-0.003	5.00	No
		z	-0.003	9.00	No
		z	-0.004	9.00	No
	549	z	-0.015	1.50	No
		z	-0.015	8.50	No
	550	z	-0.015	1.50	No
		z	-0.015	8.50	No
WL30	460	x	-0.004	1.00	No
		x	-0.003	5.00	No
		x	-0.002	5.00	No
		x	-0.002	9.00	No
		x	-0.003	9.00	No
	465	x	-0.011	1.50	No
		x	-0.011	8.50	No
	466	x	-0.011	1.50	No
		x	-0.011	8.50	No
	502	x	-0.004	1.00	No
		x	-0.005	5.00	No
		x	-0.004	5.00	No
		x	-0.005	9.00	No
		x	-0.005	9.00	No
	507	x	-0.021	1.50	No

		x	-0.021	8.50	No
	508	x	-0.021	1.50	No
		x	-0.021	8.50	No
	544	x	-0.005	5.00	No
		x	-0.004	5.00	No
		x	-0.005	9.00	No
		x	-0.005	9.00	No
	549	x	-0.021	1.50	No
		x	-0.021	8.50	No
	550	x	-0.021	1.50	No
		x	-0.021	8.50	No
LL1	467	y	-0.25	50.00	Yes
LL2	467	y	-0.25	100.00	Yes
LLa1	465	y	-0.25	50.00	Yes
LLa3	466	y	-0.25	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
W0	Wind Load 0/60/120 deg	No	0.00	0.00	0.00
W30	Wind Load 30/90/150 deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wi0	Ice Wind Load 0/60/120 deg	No	0.00	0.00	0.00
Wi30	Ice Wind Load 30/90/150 deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0/60/120 deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30/90/150 deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00

Current Date: 6/17/2024 2:00 PM
Units system: English

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+W0
LC2=1.2DL+W30
LC3=1.2DL-W0
LC4=1.2DL-W30
LC5=0.9DL+W0
LC6=0.9DL+W30
LC7=0.9DL-W0
LC8=0.9DL-W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.4DL
LC14=1.2DL+1.6LL1
LC15=1.2DL+1.6LL2
LC16=1.2DL+WL0+1.6LLa1
LC17=1.2DL+WL30+1.6LLa1
LC18=1.2DL-WL0+1.6LLa1
LC19=1.2DL-WL30+1.6LLa1
LC20=1.2DL+WL0+1.6LLa3
LC21=1.2DL+WL30+1.6LLa3
LC22=1.2DL-WL0+1.6LLa3
LC23=1.2DL-WL30+1.6LLa3

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	**463**	LC4 at 100.00%	0.19	OK	
		464	LC4 at 100.00%	0.22	OK	
		505	LC1 at 100.00%	0.22	OK	
		506	LC1 at 100.00%	0.23	OK	
		547	LC1 at 100.00%	0.21	OK	
		548	LC1 at 100.00%	**0.25**	**OK**	
	PIPE 2-1_2x0.203	**465**	LC3 at 33.33%	0.34	OK	
		466	LC3 at 33.33%	0.34	OK	
		467	LC3 at 17.86%	0.34	OK	
		468	LC3 at 30.00%	**0.43**	**OK**	
		507	LC4 at 33.33%	0.30	OK	
		508	LC2 at 64.58%	0.27	OK	
		509	LC4 at 85.71%	0.28	OK	
		510	LC2 at 30.00%	0.39	OK	
		549	LC4 at 64.58%	0.27	OK	
		550	LC2 at 33.33%	0.32	OK	
		551	LC6 at 17.86%	0.36	OK	
		552	LC4 at 70.00%	0.39	OK	
	PIPE 2x0.154	**437**	LC23 at 93.75%	0.17	OK	
		438	LC20 at 93.75%	0.17	OK	
		439	LC1 at 100.00%	0.17	OK	
		440	LC17 at 93.75%	0.17	OK	
		460	LC3 at 75.00%	0.10	OK	
		479	LC1 at 93.75%	0.16	OK	
		480	LC2 at 93.75%	0.22	OK	

	481	LC3 at 93.75%	0.21	OK
	482	LC12 at 93.75%	0.15	OK
	502	LC4 at 75.00%	0.20	OK
	521	LC2 at 93.75%	0.16	OK
	522	LC3 at 93.75%	0.21	OK
	523	LC4 at 93.75%	**0.26**	**OK**
	524	LC9 at 93.75%	0.16	OK
	544	LC2 at 75.00%	0.20	OK
	563	LC4 at 100.00%	0.09	OK
	564	LC3 at 50.00%	0.08	OK
	565	LC4 at 50.00%	0.07	OK
	566	LC2 at 50.00%	0.08	OK
	567	LC6 at 100.00%	0.07	OK
	568	LC3 at 50.00%	0.08	OK
PIPE 4x0.237	**462**	LC2 at 46.43%	0.10	OK
	504	LC2 at 50.89%	**0.15**	**OK**
	546	LC3 at 50.89%	0.14	OK
PL 11-1/4x5/8	**457**	LC11 at 100.00%	**0.14**	**OK**
	458	LC12 at 100.00%	0.08	OK
	499	LC12 at 100.00%	0.14	OK
	500	LC9 at 100.00%	0.08	OK
	541	LC10 at 100.00%	0.13	OK
	542	LC10 at 100.00%	0.08	OK
PL 3-1/2x5/8	**449**	LC23 at 100.00%	0.21	OK
	450	LC17 at 100.00%	0.19	OK
	451	LC15 at 100.00%	0.19	OK
	452	LC23 at 100.00%	0.20	OK
	453	LC21 at 100.00%	**0.30**	**OK**
	454	LC15 at 0.00%	0.27	OK
	455	LC23 at 100.00%	0.26	OK
	456	LC17 at 0.00%	0.25	OK
	491	LC1 at 100.00%	0.23	OK
	492	LC4 at 100.00%	0.17	OK
	493	LC11 at 100.00%	0.13	OK
	494	LC9 at 100.00%	0.15	OK
	495	LC12 at 100.00%	0.26	OK
	496	LC9 at 0.00%	0.23	OK
	497	LC9 at 100.00%	0.23	OK
	498	LC12 at 0.00%	0.22	OK
	533	LC2 at 100.00%	0.24	OK
	534	LC1 at 100.00%	0.17	OK
	535	LC12 at 100.00%	0.14	OK
	536	LC11 at 100.00%	0.14	OK
	537	LC9 at 100.00%	0.24	OK
	538	LC11 at 0.00%	0.23	OK
	539	LC10 at 100.00%	0.22	OK
	540	LC9 at 0.00%	0.22	OK
RndBar 3_4	**445**	LC15 at 0.00%	0.15	OK
	446	LC15 at 0.00%	0.16	With warnings
	447	LC22 at 100.00%	0.16	OK
	448	LC23 at 100.00%	**0.17**	**With warnings**
	487	LC12 at 100.00%	0.12	With warnings
	488	LC11 at 0.00%	0.11	With warnings
	489	LC12 at 0.00%	0.13	OK
	490	LC1 at 100.00%	0.14	With warnings
	529	LC10 at 100.00%	0.12	OK
	530	LC9 at 0.00%	0.12	With warnings
	531	LC2 at 0.00%	0.14	With warnings
	532	LC2 at 100.00%	0.13	With warnings

RndBar 5_8	**441**	LC22 at 87.50%	**0.33**	**OK**
	442	LC23 at 87.50%	0.29	OK
	443	LC15 at 87.50%	0.27	OK
	444	LC18 at 87.50%	0.31	OK
	483	LC1 at 87.50%	0.29	OK
	484	LC9 at 87.50%	0.18	OK
	485	LC12 at 87.50%	0.16	OK
	486	LC12 at 87.50%	0.26	OK
	525	LC2 at 87.50%	0.32	OK
	526	LC10 at 87.50%	0.17	OK
	527	LC9 at 87.50%	0.16	OK
	528	LC9 at 87.50%	0.26	OK

Current Date: 6/17/2024 2:00 PM
Units system: English

Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
446	0.00	0.00	0.00	0
727	0.00	0.00	3.3333	0
728	-0.6362	0.00	3.8117	0
729	0.00	-3.3333	3.3333	0
730	-0.6362	-3.3333	3.8117	0
731	0.6362	-3.3333	3.8117	0
732	0.6362	0.00	3.8117	0
733	-2.4126	0.00	5.5707	0
734	-2.4126	-3.3333	5.5707	0
735	2.4126	-3.3333	5.5707	0
736	2.4126	0.00	5.5707	0
737	-2.2835	0.00	5.4429	0
738	-2.2835	-3.3333	5.4429	0
739	-0.7653	0.00	3.9395	0
740	-0.7653	-3.3333	3.9395	0
741	0.7653	0.00	3.9395	0
742	0.7653	-3.3333	3.9395	0
743	2.2835	0.00	5.4429	0
744	2.2835	-3.3333	5.4429	0
745	-2.4792	0.00	5.9633	0
746	2.4792	0.00	5.9633	0
747	2.4792	-3.3333	5.9633	0
748	-2.4792	-3.3333	5.9633	0

749	0.00	0.00	3.8117	0
750	0.00	-3.3333	3.8117	0
756	0.25	-6.6667	2.3333	0
758	0.25	3.3333	2.3333	0
765	0.00	-6.6667	3.3333	0
766	0.00	3.3333	3.3333	0
767	0.00	0.8333	3.3333	0
768	0.00	-4.1667	3.3333	0
769	0.00	0.8333	1.3333	0
770	0.00	-4.1667	1.3333	0
771	0.00	-1.25	3.3333	0
772	0.00	-1.75	3.3333	0
773	6.00	-6.6667	6.1633	0
774	6.00	3.3333	6.1633	0
775	6.00	0.00	5.9633	0
776	6.00	-3.3333	5.9633	0
777	6.00	3.33E-06	6.1633	0
778	6.00	-3.3333	6.1633	0
779	4.50	0.00	5.9633	0
780	6.25	0.00	5.9633	0
781	6.25	-3.3333	5.9633	0
782	-6.00	0.00	5.9633	0
783	-6.00	-3.3333	5.9633	0
784	-6.00	-6.6667	6.1633	0
785	-6.00	3.3333	6.1633	0
786	-6.00	3.33E-06	6.1633	0
787	-6.00	-3.3333	6.1633	0
788	-4.00	0.00	5.9633	0
789	-6.25	0.00	5.9633	0
790	-6.25	-3.3333	5.9633	0
791	0.00	0.8333	2.3333	0
792	0.00	-4.1667	2.3333	0
793	0.25	0.8333	2.3333	0
794	0.25	-4.1667	2.3333	0
795	2.8868	0.00	-1.6667	0
796	3.6191	0.00	-1.3549	0
797	2.8868	-3.3333	-1.6667	0
798	3.6191	-3.3333	-1.3549	0
799	2.9829	-3.3333	-2.4568	0
800	2.9829	0.00	-2.4568	0
801	6.0307	0.00	-0.696	0
802	6.0307	-3.3333	-0.696	0
803	3.6181	-3.3333	-4.8747	0
804	3.6181	0.00	-4.8747	0
805	5.8555	0.00	-0.7439	0
806	5.8555	-3.3333	-0.7439	0
807	3.7943	0.00	-1.307	0
808	3.7943	-3.3333	-1.307	0
809	3.0291	0.00	-2.6325	0
810	3.0291	-3.3333	-2.6325	0
811	3.572	0.00	-4.699	0
812	3.572	-3.3333	-4.699	0
813	6.404	0.00	-0.8346	0
814	3.9248	0.00	-5.1287	0
815	3.9248	-3.3333	-5.1287	0
816	6.404	-3.3333	-0.8346	0
817	3.301	0.00	-1.9058	0
818	3.301	-3.3333	-1.9058	0
824	1.8957	-6.6667	-1.3832	0
826	1.8957	3.3333	-1.3832	0

833	2.8867	-6.6667	-1.6667	0
834	2.8867	3.3333	-1.6667	0
835	2.8868	0.8333	-1.6667	0
836	2.8868	-4.1667	-1.6667	0
837	1.1547	0.8333	-0.6667	0
838	1.1547	-4.1667	-0.6667	0
839	2.8868	-1.25	-1.6667	0
840	2.8868	-1.75	-1.6667	0
841	2.3376	-6.6667	-8.2778	0
842	2.3376	3.3333	-8.2778	0
843	2.1644	0.00	-8.1778	0
844	2.1644	-3.3333	-8.1778	0
845	2.3376	3.33E-06	-8.2778	0
846	2.3376	-3.3333	-8.2778	0
847	2.9144	0.00	-6.8788	0
848	2.0394	0.00	-8.3943	0
849	2.0394	-3.3333	-8.3943	0
850	8.1644	0.00	2.2145	0
851	8.1644	-3.3333	2.2145	0
852	8.3376	-6.6667	2.1145	0
853	8.3376	3.3333	2.1145	0
854	8.3376	3.33E-06	2.1145	0
855	8.3376	-3.3333	2.1145	0
856	7.1644	0.00	0.4824	0
857	8.2894	0.00	2.431	0
858	8.2894	-3.3333	2.431	0
859	2.0207	0.8333	-1.1667	0
860	2.0207	-4.1667	-1.1667	0
861	1.8957	0.8333	-1.3832	0
862	1.8957	-4.1667	-1.3832	0
863	-2.8868	0.00	-1.6667	0
864	-2.9829	0.00	-2.4568	0
865	-2.8868	-3.3333	-1.6667	0
866	-2.9829	-3.3333	-2.4568	0
867	-3.6191	-3.3333	-1.3549	0
868	-3.6191	0.00	-1.3549	0
869	-3.6181	0.00	-4.8747	0
870	-3.6181	-3.3333	-4.8747	0
871	-6.0307	-3.3333	-0.696	0
872	-6.0307	0.00	-0.696	0
873	-3.572	0.00	-4.699	0
874	-3.572	-3.3333	-4.699	0
875	-3.0291	0.00	-2.6325	0
876	-3.0291	-3.3333	-2.6325	0
877	-3.7943	0.00	-1.307	0
878	-3.7943	-3.3333	-1.307	0
879	-5.8555	0.00	-0.7439	0
880	-5.8555	-3.3333	-0.7439	0
881	-3.9248	0.00	-5.1287	0
882	-6.404	0.00	-0.8346	0
883	-6.404	-3.3333	-0.8346	0
884	-3.9248	-3.3333	-5.1287	0
885	-3.301	0.00	-1.9058	0
886	-3.301	-3.3333	-1.9058	0
892	-2.1457	-6.6667	-0.9502	0
894	-2.1457	3.3333	-0.9502	0
901	-2.8867	-6.6667	-1.6667	0
902	-2.8867	3.3333	-1.6667	0
903	-2.8868	0.8333	-1.6667	0
904	-2.8868	-4.1667	-1.6667	0

905	-1.1547	0.8333	-0.6667	0
906	-1.1547	-4.1667	-0.6667	0
907	-2.8868	-1.25	-1.6667	0
908	-2.8868	-1.75	-1.6667	0
909	-8.3376	-6.6667	2.1145	0
910	-8.3376	3.3333	2.1145	0
911	-8.1644	0.00	2.2145	0
912	-8.1644	-3.3333	2.2145	0
913	-8.3376	3.33E-06	2.1145	0
914	-8.3376	-3.3333	2.1145	0
915	-7.4144	0.00	0.9154	0
916	-8.2894	0.00	2.431	0
917	-8.2894	-3.3333	2.431	0
918	-2.1644	0.00	-8.1778	0
919	-2.1644	-3.3333	-8.1778	0
920	-2.3376	-6.6667	-8.2778	0
922	-2.3376	3.33E-06	-8.2778	0
923	-2.3376	-3.3333	-8.2778	0
924	-3.1644	0.00	-6.4458	0
925	-2.0394	0.00	-8.3943	0
926	-2.0394	-3.3333	-8.3943	0
927	-2.0207	0.8333	-1.1667	0
928	-2.0207	-4.1667	-1.1667	0
929	-2.1457	0.8333	-0.9502	0
930	-2.1457	-4.1667	-0.9502	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
769	1	1	1	1	1	1
770	1	1	1	1	1	1
837	1	1	1	1	1	1
838	1	1	1	1	1	1
905	1	1	1	1	1	1
906	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
437	733	728		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
438	734	730		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
439	735	731		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
440	736	732		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
441	737	738		RndBar 5_8	A36	0.00	0.00	0.00
442	739	740		RndBar 5_8	A36	0.00	0.00	0.00
443	741	742		RndBar 5_8	A36	0.00	0.00	0.00
444	743	744		RndBar 5_8	A36	0.00	0.00	0.00
445	741	744		RndBar 3_4	A36	0.00	0.00	0.00
446	742	743		RndBar 3_4	A36	0.00	0.00	0.00
447	738	739		RndBar 3_4	A36	0.00	0.00	0.00

448	737	740	RndBar 3_4	A36	0.00	0.00	0.00
449	733	745	PL 3-1/2x5/8	A36	0.00	0.00	0.00
450	736	746	PL 3-1/2x5/8	A36	0.00	0.00	0.00
451	735	747	PL 3-1/2x5/8	A36	0.00	0.00	0.00
452	734	748	PL 3-1/2x5/8	A36	0.00	0.00	0.00
453	728	749	PL 3-1/2x5/8	A36	0.00	0.00	0.00
454	749	732	PL 3-1/2x5/8	A36	0.00	0.00	0.00
455	730	750	PL 3-1/2x5/8	A36	0.00	0.00	0.00
456	750	731	PL 3-1/2x5/8	A36	0.00	0.00	0.00
457	749	727	PL 11-1/4x5/8	A36	11.25	9.25	0.00
458	750	729	PL 11-1/4x5/8	A36	11.25	9.25	0.00
460	758	756	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
462	766	765	PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
463	767	769	HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
464	768	770	HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
465	774	773	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
466	785	784	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
467	789	780	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
468	790	781	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
479	801	796	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
480	802	798	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
481	803	799	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
482	804	800	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
483	805	806	RndBar 5_8	A36	0.00	0.00	0.00
484	807	808	RndBar 5_8	A36	0.00	0.00	0.00
485	809	810	RndBar 5_8	A36	0.00	0.00	0.00
486	811	812	RndBar 5_8	A36	0.00	0.00	0.00
487	809	812	RndBar 3_4	A36	0.00	0.00	0.00
488	810	811	RndBar 3_4	A36	0.00	0.00	0.00
489	806	807	RndBar 3_4	A36	0.00	0.00	0.00
490	805	808	RndBar 3_4	A36	0.00	0.00	0.00
491	801	813	PL 3-1/2x5/8	A36	0.00	0.00	0.00
492	804	814	PL 3-1/2x5/8	A36	0.00	0.00	0.00
493	803	815	PL 3-1/2x5/8	A36	0.00	0.00	0.00
494	802	816	PL 3-1/2x5/8	A36	0.00	0.00	0.00
495	796	817	PL 3-1/2x5/8	A36	0.00	0.00	0.00
496	817	800	PL 3-1/2x5/8	A36	0.00	0.00	0.00
497	798	818	PL 3-1/2x5/8	A36	0.00	0.00	0.00
498	818	799	PL 3-1/2x5/8	A36	0.00	0.00	0.00
499	817	795	PL 11-1/4x5/8	A36	11.25	9.25	0.00
500	818	797	PL 11-1/4x5/8	A36	11.25	9.25	0.00
502	826	824	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
504	834	833	PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
505	835	837	HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
506	836	838	HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
507	842	841	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
508	853	852	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
509	857	848	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
510	858	849	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
521	869	864	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
522	870	866	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
523	871	867	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
524	872	868	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
525	873	874	RndBar 5_8	A36	0.00	0.00	0.00
526	875	876	RndBar 5_8	A36	0.00	0.00	0.00
527	877	878	RndBar 5_8	A36	0.00	0.00	0.00
528	879	880	RndBar 5_8	A36	0.00	0.00	0.00
529	877	880	RndBar 3_4	A36	0.00	0.00	0.00
530	878	879	RndBar 3_4	A36	0.00	0.00	0.00
531	874	875	RndBar 3_4	A36	0.00	0.00	0.00

532	873	876	RndBar 3_4	A36	0.00	0.00	0.00
533	869	881	PL 3-1/2x5/8	A36	0.00	0.00	0.00
534	872	882	PL 3-1/2x5/8	A36	0.00	0.00	0.00
535	871	883	PL 3-1/2x5/8	A36	0.00	0.00	0.00
536	870	884	PL 3-1/2x5/8	A36	0.00	0.00	0.00
537	864	885	PL 3-1/2x5/8	A36	0.00	0.00	0.00
538	885	868	PL 3-1/2x5/8	A36	0.00	0.00	0.00
539	866	886	PL 3-1/2x5/8	A36	0.00	0.00	0.00
540	886	867	PL 3-1/2x5/8	A36	0.00	0.00	0.00
541	885	863	PL 11-1/4x5/8	A36	11.25	9.25	0.00
542	886	865	PL 11-1/4x5/8	A36	11.25	9.25	0.00
544	894	892	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
546	902	901	PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
547	903	905	HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
548	904	906	HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
549	910	909	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
550	921	920	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
551	925	916	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
552	926	917	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
563	924	840	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
564	915	771	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
565	779	839	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
566	788	908	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
567	847	907	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
568	856	772	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
441	0.00	2	0.00	0.00	1.00
442	0.00	2	0.00	0.00	1.00
443	0.00	2	0.00	0.00	1.00
444	0.00	2	0.00	0.00	1.00
449	90.00	0	0.00	0.00	0.00
450	90.00	0	0.00	0.00	0.00
451	90.00	0	0.00	0.00	0.00
452	90.00	0	0.00	0.00	0.00
453	90.00	0	0.00	0.00	0.00
454	90.00	0	0.00	0.00	0.00
455	90.00	0	0.00	0.00	0.00
456	90.00	0	0.00	0.00	0.00
457	90.00	0	0.00	0.00	0.00
458	90.00	0	0.00	0.00	0.00
465	315.00	0	0.00	0.00	0.00
466	315.00	0	0.00	0.00	0.00
483	0.00	2	0.866	0.00	-0.50
484	0.00	2	0.866	0.00	-0.50
485	0.00	2	0.866	0.00	-0.50
486	0.00	2	0.866	0.00	-0.50
491	90.00	0	0.00	0.00	0.00
492	90.00	0	0.00	0.00	0.00
493	90.00	0	0.00	0.00	0.00
494	90.00	0	0.00	0.00	0.00
495	90.00	0	0.00	0.00	0.00
496	90.00	0	0.00	0.00	0.00

497	90.00	0	0.00	0.00	0.00
498	90.00	0	0.00	0.00	0.00
499	90.00	0	0.00	0.00	0.00
500	90.00	0	0.00	0.00	0.00
502	0.00	2	-0.50	0.00	-0.866
504	0.00	2	-0.50	0.00	-0.866
507	0.00	2	-0.9659	0.00	-0.2588
508	0.00	2	-0.9659	0.00	-0.2588
525	0.00	2	-0.866	0.00	-0.50
526	0.00	2	-0.866	0.00	-0.50
527	0.00	2	-0.866	0.00	-0.50
528	0.00	2	-0.866	0.00	-0.50
533	90.00	0	0.00	0.00	0.00
534	90.00	0	0.00	0.00	0.00
535	90.00	0	0.00	0.00	0.00
536	90.00	0	0.00	0.00	0.00
537	90.00	0	0.00	0.00	0.00
538	90.00	0	0.00	0.00	0.00
539	90.00	0	0.00	0.00	0.00
540	90.00	0	0.00	0.00	0.00
541	90.00	0	0.00	0.00	0.00
542	90.00	0	0.00	0.00	0.00
544	0.00	2	-0.50	0.00	0.866
546	0.00	2	-0.50	0.00	0.866
549	0.00	2	0.2588	0.00	0.9659
550	0.00	2	0.2588	0.00	0.9659

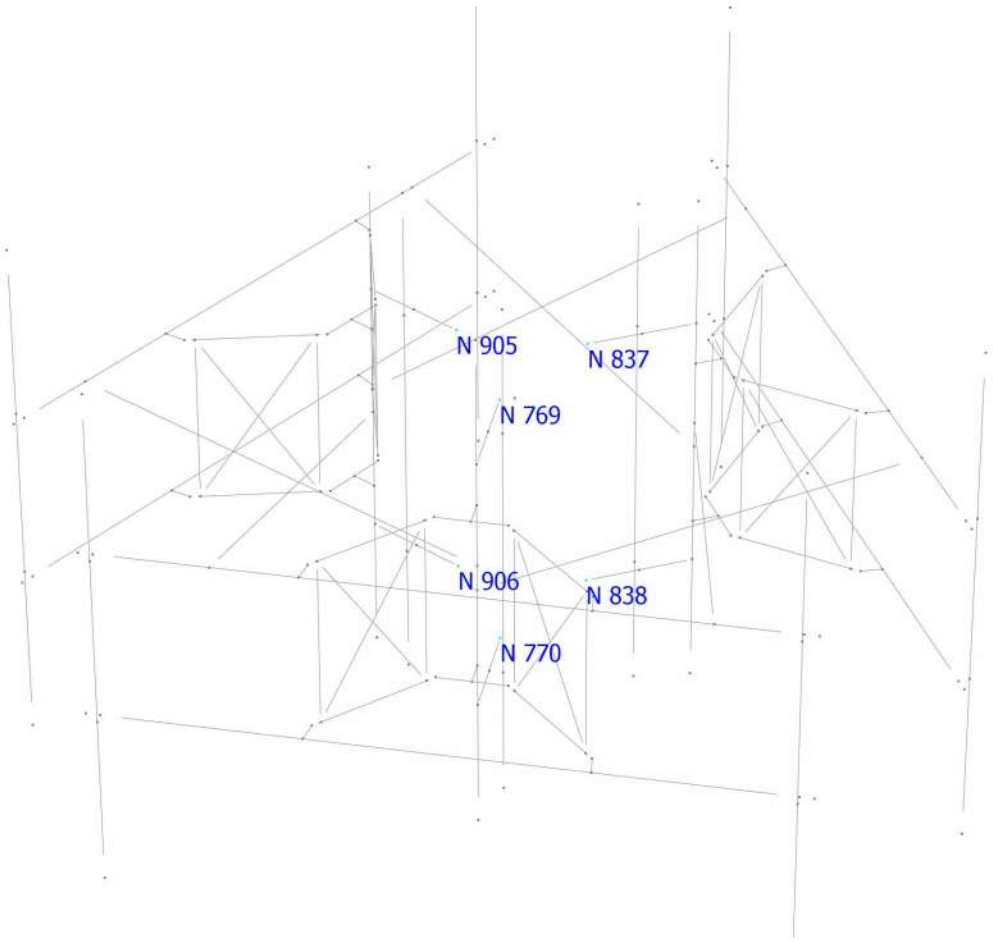
Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
445	0.00	-3.50	0.00	0.00	3.50	0.00
446	0.00	3.50	0.00	0.00	-3.50	0.00
447	0.00	3.50	0.00	0.00	-3.50	0.00
448	0.00	-3.50	0.00	0.00	3.50	0.00
457	0.00	-0.625	0.00	0.00	-0.625	0.00
458	0.00	-0.625	0.00	0.00	-0.625	0.00
487	0.00	-3.50	0.00	0.00	3.50	0.00
488	0.00	3.50	0.00	0.00	-3.50	0.00
489	0.00	3.50	0.00	0.00	-3.50	0.00
490	0.00	-3.50	0.00	0.00	3.50	0.00
499	0.00	-0.625	0.00	0.00	-0.625	0.00
500	0.00	-0.625	0.00	0.00	-0.625	0.00
529	0.00	-3.50	0.00	0.00	3.50	0.00
530	0.00	3.50	0.00	0.00	-3.50	0.00
531	0.00	3.50	0.00	0.00	-3.50	0.00
532	0.00	-3.50	0.00	0.00	3.50	0.00
541	0.00	-0.625	0.00	0.00	-0.625	0.00
542	0.00	-0.625	0.00	0.00	-0.625	0.00

Hinges

	Node-J				Node-K						
Member	**M33**	**M22**	**V3**	**V2**	**M33**	**M22**	**V3**	**V2**	**TOR**	**AXL**	**Axial rigidity**
446	0	0	0	0	0	0	0	0	0	0	Tension only
448	0	0	0	0	0	0	0	0	0	0	Tension only
449	1	1	0	0	0	0	0	0	0	0	Full
450	1	1	0	0	0	0	0	0	0	0	Full
451	1	1	0	0	0	0	0	0	0	0	Full
452	1	1	0	0	0	0	0	0	0	0	Full
488	0	0	0	0	0	0	0	0	0	0	Tension only
490	0	0	0	0	0	0	0	0	0	0	Tension only
491	1	1	0	0	0	0	0	0	0	0	Full
492	1	1	0	0	0	0	0	0	0	0	Full
493	1	1	0	0	0	0	0	0	0	0	Full
494	1	1	0	0	0	0	0	0	0	0	Full
530	0	0	0	0	0	0	0	0	0	0	Tension only
532	0	0	0	0	0	0	0	0	0	0	Tension only
533	1	1	0	0	0	0	0	0	0	0	Full
534	1	1	0	0	0	0	0	0	0	0	Full
535	1	1	0	0	0	0	0	0	0	0	Full
536	1	1	0	0	0	0	0	0	0	0	Full
563	1	1	0	0	1	1	0	0	0	0	Full
564	1	1	0	0	1	1	0	0	0	0	Full
565	1	1	0	0	1	1	0	0	0	0	Full
566	1	1	0	0	1	1	0	0	0	0	Full
567	1	1	0	0	1	1	0	0	0	0	Full
568	1	1	0	0	1	1	0	0	0	0	Full

Connection Check

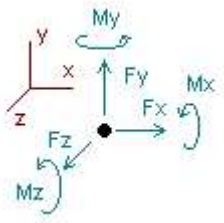

N 905
N 837
N 769
N 906
N 838
N 770
Y
X
Z

Current Date: 6/17/2024 2:00 PM
Units system: English

Analysis result

Envelope for nodal reactions

Note.- **Ic** is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :

LC1=1.2DL+W0
LC2=1.2DL+W30
LC3=1.2DL-W0
LC4=1.2DL-W30
LC5=0.9DL+W0
LC6=0.9DL+W30
LC7=0.9DL-W0
LC8=0.9DL-W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.4DL
LC14=1.2DL+1.6LL1
LC15=1.2DL+1.6LL2
LC16=1.2DL+WL0+1.6LLa1
LC17=1.2DL+WL30+1.6LLa1
LC18=1.2DL-WL0+1.6LLa1
LC19=1.2DL-WL30+1.6LLa1
LC20=1.2DL+WL0+1.6LLa3
LC21=1.2DL+WL30+1.6LLa3
LC22=1.2DL-WL0+1.6LLa3
LC23=1.2DL-WL30+1.6LLa3

		Forces						Moments					
Node		**Fx** [Kip]	**Ic**	**Fy** [Kip]	**Ic**	**Fz** [Kip]	**Ic**	**Mx** [Kip*ft]	**Ic**	**My** [Kip*ft]	**Ic**	**Mz** [Kip*ft]	**Ic**
769	Max	1.441	LC2	1.200	LC11	-0.082	LC5	0.12210	LC5	2.46008	LC2	0.42451	LC2
	Min	-1.356	LC8	0.012	LC5	-1.114	LC9	-1.32478	LC11	-2.35470	LC8	-0.39132	LC8
770	Max	1.409	LC6	1.244	LC11	1.591	LC1	-0.05069	LC5	2.67954	LC6	0.33924	LC4
	Min	-1.467	LC4	0.252	LC5	-0.694	LC7	-1.33887	LC11	-2.82835	LC4	-0.30822	LC6
837	Max	0.601	LC6	1.196	LC9	1.520	LC1	0.89970	LC4	2.53633	LC3	1.13343	LC9
	Min	-1.420	LC4	0.088	LC7	-1.143	LC7	-0.28522	LC6	-2.42908	LC5	-0.12399	LC7
838	Max	2.036	LC2	1.240	LC12	1.295	LC5	0.71114	LC1	2.78548	LC7	1.15046	LC12
	Min	-1.228	LC8	0.216	LC6	-1.689	LC3	-0.08372	LC7	-2.93871	LC1	-0.05287	LC6
905	Max	0.998	LC2	1.156	LC10	1.589	LC1	0.89359	LC2	2.49505	LC1	-0.02646	LC7
	Min	-0.273	LC8	-0.115	LC8	-1.157	LC7	-0.36723	LC8	-2.49980	LC7	-1.09562	LC9

906	Max	1.050	LC6	1.179	LC9	1.520	LC5	0.72330	LC1	3.12861	LC1	-0.04121	LC8
	Min	-1.791	LC4	0.241	LC7	-1.930	LC3	-0.18276	LC7	-3.13991	LC3	-1.11646	LC10

Date: 6/17/2024
Project Name: WOLCOTT CHESTNUT HILL ROAD
Project No.: CT1432
Designed By: KM **Checked By:** MSC

CHECK BOLT CONNECTION CAPACITY → PROPOSED ANCHORS

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Anchor Type = A325 5/8" Bolt

Allowable Tensile Load =

F_{Tall} = 13806 lbs.

Allowable Shear Load =

F_{vall} = 8283 lbs.

CONNECTION PLATE CONFIGURATION (4-BOLTS)

$N_{BOLT\ ROWS}$	=	2	rows	d_Y	=	8	in (Min.)
N_{BOLTS}	=	2	bolts/row	d_X	=	8	in (Min.)

TENSILE FORCES

Moment in X axis:	723	lb-ft.	(See Bentley Output)
Couple Reaction from M_X:	2169	lbs.	
Moment in Y axis:	3140	lb-ft.	(See Bentley Output)
Couple Reaction from M_Y:	9420	lbs.	
Reaction in Z direction:	1930	lbs.	(See Bentley Output)
Resultant per anchor:	6277	lbs.	

SHEAR FORCES

Moment in Z axis:	1116	lb-ft.	(See Bentley Output)
Couple Reaction from M_Z:	3348	lbs.	
Reaction in X direction:	1791	lbs.	(See Bentley Output)
Reaction in Y direction:	1179	lbs.	(See Bentley Output)
Resultant per anchor:	2210	lbs.	

Tension Design Load /Anchors =

f_t= 6277.00 lbs. < 13806 lbs. **Therefore, OK !**

Shear Design Load / Anchors =

f_v= 2210.06 lbs. < 8283.5 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.455	+	0.267	=	0.721	<	1.0	**Therefore, OK !**