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

December 14, 2022

Hollis M. Redding
SAI Communications, LLC
12 Industrial Way
Salem, NH 03079
hredding@saigrp.com

RE: **EM-AT&T-151-221121** – AT&T notice of intent to modify an existing telecommunications facility located at 227 Whitewood Road, Waterbury, Connecticut.

Dear Hollis Redding:

The Connecticut Siting Council (Council) is in receipt of your correspondence of December 9, 2022 submitted in response to the Council's December 1, 2022 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification 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,

Melanie A. Bachman
Executive Director

MAB/RDM/emr

emr

From: Hollis Redding <HRedding@saigrp.com>
Sent: Friday, December 9, 2022 1:37 PM
To: Robidoux, Evan <Evan.Robidoux@ct.gov>
Cc: CSC-DL Siting Council <Siting.Council@ct.gov>
Subject: Council Incomplete Letter for EM-AT&T-151-221121 (227 Whitewood Road, Waterbury)

EXTERNAL EMAIL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Good afternoon-

Attached please find the revised mount analysis, updated with the correct 2022 building code. I apologize for the inconvenience and the added work to the Council. Have a great weekend. Hollis

Hollis M. Redding
Site Acquisition Specialist
860-834-6964
hredding@saigrp.com

December 9, 2022

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

Re: Response to Incomplete Letter EM-AT&T-115-221121
New Cingular Wireless PCS LLC ("AT&T") Site CT2901
227 Whitewood Road, Waterbury, CT 06708

Dear Ms. Bachman:

I am in receipt of your incomplete letter dated December 1, 2022. Attached please find a mount analysis revised using the current 2022 CSBC/2021 IBC, per your request. Please let me know if the revised structural deems the exempt modification complete or if you need further information. Thank you.

Please let me know if you have any questions. I appreciate your time.

Sincerely,

Hollis M. Redding

Hollis M. Redding
SAI Communications, LLC
Mobile: 860-834-6964
hredding@saigrp.com

March 28, 2022
October 17, 2022 (Rev.1)
December 7, 2022 (Rev. 2)

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:	Site Number:	CT2901
	FA Number:	10549309
	PACE Number:	MRCTB054388
	PT Number:	2051A11KTY
	TEP Project Number:	354292
	Site Name:	WATERBURY WHITEWOOD ROAD
	Site Address:	227 Whitewood Road Waterbury, CT 06708

To Whom It May Concern:

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

- (6) TMABPD7823VG12A TMA's (10.7"x11.1"x3.8" – Wt. = 25 lbs. /each) (Pos. 2)
- **(3) DMP65R-BU8DA Antennas (96.0"x20.7"x7.7" – Wt. = 119 lbs. /each)**
- **(3) AIR6419 Antennas (31.1"x16.1"x7.3" – Wt. = 66 lbs. each)**
- **(3) AIR6449 Antennas (30.6"x15.9"x10.6" – Wt. = 82 lbs. /each)**
- **(3) QD8616-7 Antennas (96.0"x22.0"x9.6" – Wt. = 150 lbs. /each)**
- **(6) TMA2124F03V5-2D TMA's (9.7"x10.4"x8.3" – Wt. = 36 lbs. /each) (Pos. 4)**
- **(1) DC6-48-60-18-8C Surge Arrestor (31.4"x10.2"Ø – Wt. = 29 lbs.) (Standoff)**

**Proposed equipment shown in bold.*

Construction drawings prepared by Centek Engineering, dated September 28, 2018, were used to perform this analysis. TEP NE conducted a ground audit of the existing mount on November 18, 2021.

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 B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- 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 mount has been analyzed with load combinations consisting of 500 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 position 2.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The existing mount is 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 existing mount **IS CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing Mount Rating	48	LC2	72%	**PASS**

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 existing mount has been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mount 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

FIELD PHOTOS:











Wind & Ice
Calculations

Date: 12/7/2022
Project Name: WATERBURY WHITEWOOD ROAD
Project No.: CT2901
Designed By: JC **Checked By:** MSC

2.6.5.2 Velocity Pressure Coeff:

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

z=	105	(ft)
z_g=	1200	(ft)
α=	7.0	

K_z= 1.002

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=	0.9	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	105	
z_s=	544	(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=	0.98	(from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness = t_i = 1.00 in
Importance Factor = 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: 12/7/2022
Project Name: WATERBURY WHITEWOOD ROAD
Project No.: CT2901
Designed By: JC 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=	108	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

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

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

		K_z=	1.002	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**34.41**	K_e=	0.98	(from 2.6.8)
$q_{z\ (ice)}$=	**5.97**	K_d=	0.95	(from Table 2-2)
$q_{z\ (30)}$=	**2.15**	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: 12/7/2022
Project Name: WATERBURY WHITEWOOD ROAD
Project No.: CT2901
Designed By: JC 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)
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	4.64	1.30	**615**	**121**	**38**
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.93	1.20	**144**	**30**	**9**
AIR6449 Antenna	30.6	15.9	10.6	3.38	1.92	1.20	**140**	**30**	**9**
QD8616-7 Antenna	96.0	22.0	9.6	14.67	4.36	1.28	**647**	**127**	**40**
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	2.82	1.21	**12**	**4**	**1**
TMA2124F03V5-2D TMA	9.7	8.3	10.4	0.56	1.17	1.20	**23**	**6**	**1**
Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	**54**	**12**	**3**
2" Pipe	2.4	12.0		0.20	0.20	1.20	**8**		
3" Pipe	3.5	12.0		0.29	0.29	1.20	**12**		
HSS 4x4	4.0	12.0		0.33	0.33	1.25	**14**		

Date: 12/7/2022
Project Name: WATERBURY WHITEWOOD ROAD
Project No.: CT2901
Designed By: JC Checked By: MSC

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)	Force (lbs)	Force (lbs)
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	615	279	531
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	144	69	125
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	140	94	128
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	647	330	568
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	0.82	2.82	0.96	1.21	1.20	12	34	17
TMA2124F03V5-2D TMA	9.7	8.3	10.4	0.56	0.70	1.17	0.93	1.20	1.20	23	29	25

WIND LOADS WITH ICE:

DMP65R-BU8DA Antenna	98.2	22.9	9.9	15.65	6.79	4.28	9.88	1.28	1.50	120	61	105
AIR6419 Antenna	33.3	18.3	9.5	4.25	2.21	1.82	3.49	1.20	1.24	30	16	27
AIR6449 Antenna	32.8	18.1	12.8	4.14	2.93	1.81	2.56	1.20	1.20	30	21	28
QD8616-7 Antenna	98.2	24.2	11.8	16.54	8.08	4.05	8.29	1.27	1.44	125	70	111
TMABPD7823VG12A TMA	12.9	6.0	13.3	0.54	1.20	2.14	0.97	1.20	1.20	4	9	5
TMA2124F03V5-2D TMA	11.9	10.5	12.6	0.87	1.05	1.13	0.94	1.20	1.20	6	8	7

WIND LOADS AT 30 MPH:

DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	38	17	33
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	9	4	8
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	8
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	40	21	36
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	0.82	2.82	0.96	1.21	1.20	1	2	1
TMA2124F03V5-2D TMA	9.7	8.3	10.4	0.56	0.70	1.17	0.93	1.20	1.20	1	2	2

Date: 12/7/2022
Project Name: WATERBURY WHITEWOOD ROAD
Project No.: CT2901
Designed By: JC 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)	Force (lbs)	Force (lbs)
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	615	279	363
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	144	69	88
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	140	94	106
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	647	330	410
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	0.82	2.82	0.96	1.21	1.20	12	34	28
TMA2124F03V5-2D TMA	9.7	8.3	10.4	0.56	0.70	1.17	0.93	1.20	1.20	23	29	27

WIND LOADS WITH ICE:

DMP65R-BU8DA Antenna	98.2	22.9	9.9	15.65	6.79	4.28	9.88	1.28	1.50	120	61	75
AIR6419 Antenna	33.3	18.3	9.5	4.25	2.21	1.82	3.49	1.20	1.24	30	16	20
AIR6449 Antenna	32.8	18.1	12.8	4.14	2.93	1.81	2.56	1.20	1.20	30	21	23
QD8616-7 Antenna	98.2	24.2	11.8	16.54	8.08	4.05	8.29	1.27	1.44	125	70	84
TMABPD7823VG12A TMA	12.9	6.0	13.3	0.54	1.20	2.14	0.97	1.20	1.20	4	9	7
TMA2124F03V5-2D TMA	11.9	10.5	12.6	0.87	1.05	1.13	0.94	1.20	1.20	6	8	7

WIND LOADS AT 30 MPH:

DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	38	17	23
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	9	4	5
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	7
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	40	21	26
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	0.82	2.82	0.96	1.21	1.20	1	2	2
TMA2124F03V5-2D TMA	9.7	8.3	10.4	0.56	0.70	1.17	0.93	1.20	1.20	1	2	2

Date: 12/7/2022
Project Name: WATERBURY WHITEWOOD ROAD
Project No.: CT2901
Designed By: JC 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)	Force (lbs)	Force (lbs)
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	615	279	279
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	144	69	69
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	140	94	94
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	647	330	330
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	0.82	2.82	0.96	1.21	1.20	12	34	34
TMA2124F03V5-2D TMA	9.7	8.3	10.4	0.56	0.70	1.17	0.93	1.20	1.20	23	29	29

WIND LOADS WITH ICE:

DMP65R-BU8DA Antenna	98.2	22.9	9.9	15.65	6.79	4.28	9.88	1.28	1.50	120	61	61
AIR6419 Antenna	33.3	18.3	9.5	4.25	2.21	1.82	3.49	1.20	1.24	30	16	16
AIR6449 Antenna	32.8	18.1	12.8	4.14	2.93	1.81	2.56	1.20	1.20	30	21	21
QD8616-7 Antenna	98.2	24.2	11.8	16.54	8.08	4.05	8.29	1.27	1.44	125	70	70
TMABPD7823VG12A TMA	12.9	6.0	13.3	0.54	1.20	2.14	0.97	1.20	1.20	4	9	9
TMA2124F03V5-2D TMA	11.9	10.5	12.6	0.87	1.05	1.13	0.94	1.20	1.20	6	8	8

WIND LOADS AT 30 MPH:

DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	38	17	17
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	9	4	4
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	6
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	40	21	21
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	0.82	2.82	0.96	1.21	1.20	1	2	2
TMA2124F03V5-2D TMA	9.7	8.3	10.4	0.56	0.70	1.17	0.93	1.20	1.20	1	2	2

Date: 12/7/2022
Project Name: WATERBURY WHITEWOOD ROAD
Project No.: CT2901
Designed By: JC 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)	Force (lbs)	Force (lbs)
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	615	279	363
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	144	69	88
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	140	94	106
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	647	330	410
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	0.82	2.82	0.96	1.21	1.20	12	34	28
TMA2124F03V5-2D TMA	9.7	8.3	10.4	0.56	0.70	1.17	0.93	1.20	1.20	23	29	27

WIND LOADS WITH ICE:

DMP65R-BU8DA Antenna	98.2	22.9	9.9	15.65	6.79	4.28	9.88	1.28	1.50	120	61	75
AIR6419 Antenna	33.3	18.3	9.5	4.25	2.21	1.82	3.49	1.20	1.24	30	16	20
AIR6449 Antenna	32.8	18.1	12.8	4.14	2.93	1.81	2.56	1.20	1.20	30	21	23
QD8616-7 Antenna	98.2	24.2	11.8	16.54	8.08	4.05	8.29	1.27	1.44	125	70	84
TMABPD7823VG12A TMA	12.9	6.0	13.3	0.54	1.20	2.14	0.97	1.20	1.20	4	9	7
TMA2124F03V5-2D TMA	11.9	10.5	12.6	0.87	1.05	1.13	0.94	1.20	1.20	6	8	7

WIND LOADS AT 30 MPH:

DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	38	17	23
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	9	4	5
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	7
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	40	21	26
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	0.82	2.82	0.96	1.21	1.20	1	2	2
TMA2124F03V5-2D TMA	9.7	8.3	10.4	0.56	0.70	1.17	0.93	1.20	1.20	1	2	2

Date: 12/7/2022
Project Name: WATERBURY WHITEWOOD ROAD
Project No.: CT2901
Designed By: JC 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)	Force (lbs)	Force (lbs)
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	615	279	531
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	144	69	125
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	140	94	128
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	647	330	568
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	0.82	2.82	0.96	1.21	1.20	12	34	17
TMA2124F03V5-2D TMA	9.7	8.3	10.4	0.56	0.70	1.17	0.93	1.20	1.20	23	29	25

WIND LOADS WITH ICE:

DMP65R-BU8DA Antenna	98.2	22.9	9.9	15.65	6.79	4.28	9.88	1.28	1.50	120	61	105
AIR6419 Antenna	33.3	18.3	9.5	4.25	2.21	1.82	3.49	1.20	1.24	30	16	27
AIR6449 Antenna	32.8	18.1	12.8	4.14	2.93	1.81	2.56	1.20	1.20	30	21	28
QD8616-7 Antenna	98.2	24.2	11.8	16.54	8.08	4.05	8.29	1.27	1.44	125	70	111
TMABPD7823VG12A TMA	12.9	6.0	13.3	0.54	1.20	2.14	0.97	1.20	1.20	4	9	5
TMA2124F03V5-2D TMA	11.9	10.5	12.6	0.87	1.05	1.13	0.94	1.20	1.20	6	8	7

WIND LOADS AT 30 MPH:

DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	38	17	33
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	9	4	8
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	8
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	40	21	36
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	0.82	2.82	0.96	1.21	1.20	1	2	1
TMA2124F03V5-2D TMA	9.7	8.3	10.4	0.56	0.70	1.17	0.93	1.20	1.20	1	2	2

Date: 12/8/2022
Project Name: WATERBURY WHITEWOOD ROAD
Project No.: CT2901
Designed By: JC **Checked By:** MSC

ICE WEIGHT CALCULATIONS

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

DMP65R-BU8DA 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:	119.0	lbs
Combined weight of ice and object:	373	lbs

AIR6419 Antenna

Weight of ice based on total radial SF area:

Height (in):	31.1	
Width (in):	16.1	
Depth (in):	7.3	
Total weight of ice on object:	67	lbs
Weight of object:	66.0	lbs
Combined weight of ice and object:	133	lbs

AIR6449 Antenna

Weight of ice based on total radial SF area:

Height (in):	30.6	
Width (in):	15.9	
Depth (in):	10.6	
Total weight of ice on object:	71	lbs
Weight of object:	82.0	lbs
Combined weight of ice and object:	153	lbs

QD8616-7 Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	22.0	
Depth (in):	9.6	
Total weight of ice on object:	275	lbs
Weight of object:	150.0	lbs
Combined weight of ice and object:	425	lbs

TMABPD7823VG12A TMA

Weight of ice based on total radial SF area:

Height (in):	10.7	
Width (in):	3.8	
Depth (in):	11.1	
Total weight of ice on object:	16	lbs
Weight of object:	25.0	lbs
Combined weight of ice and object:	41	lbs

TMA2124F03V5-2D TMA

Weight of ice based on total radial SF area:

Height (in):	9.7	
Width (in):	8.3	
Depth (in):	10.4	
Total weight of ice on object:	16	lbs
Weight of object:	36.0	lbs
Combined weight of ice and object:	52	lbs

Squid 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

2" pipe

Per foot weight of ice:

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

3" Pipe

Per foot weight of ice:

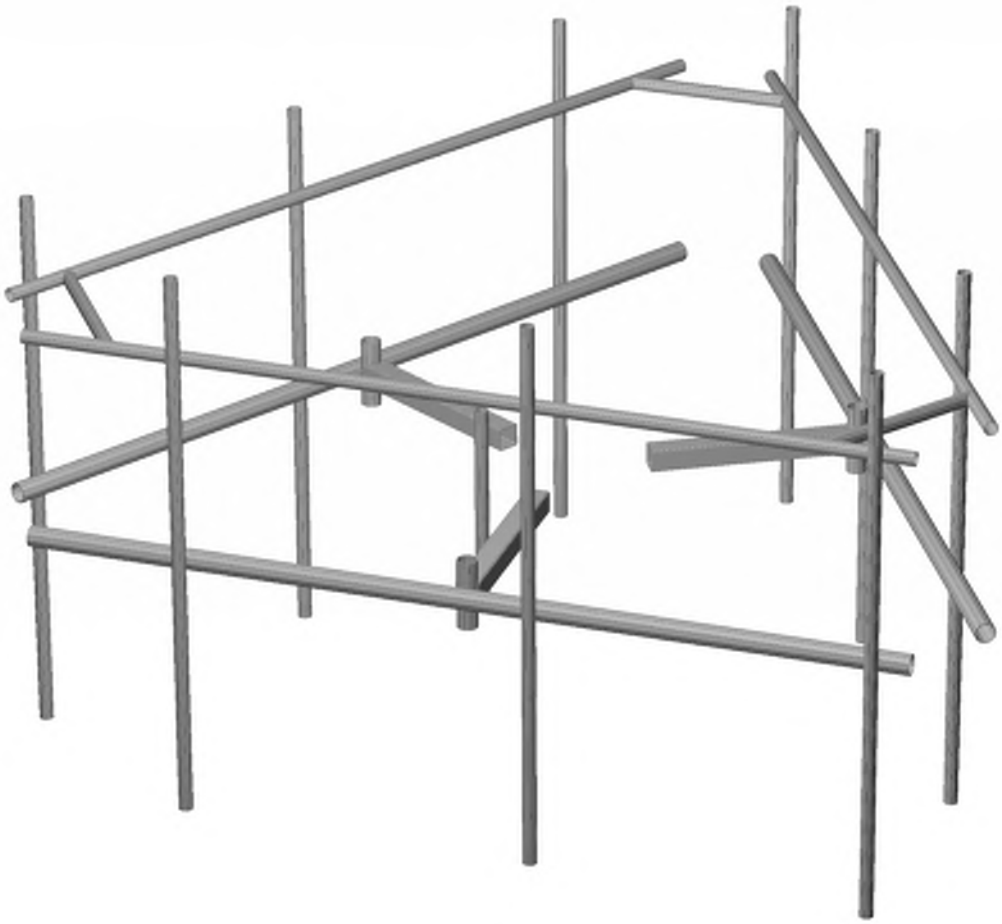
diameter (in):	3.5	
Per foot weight of ice on object:	6	plf

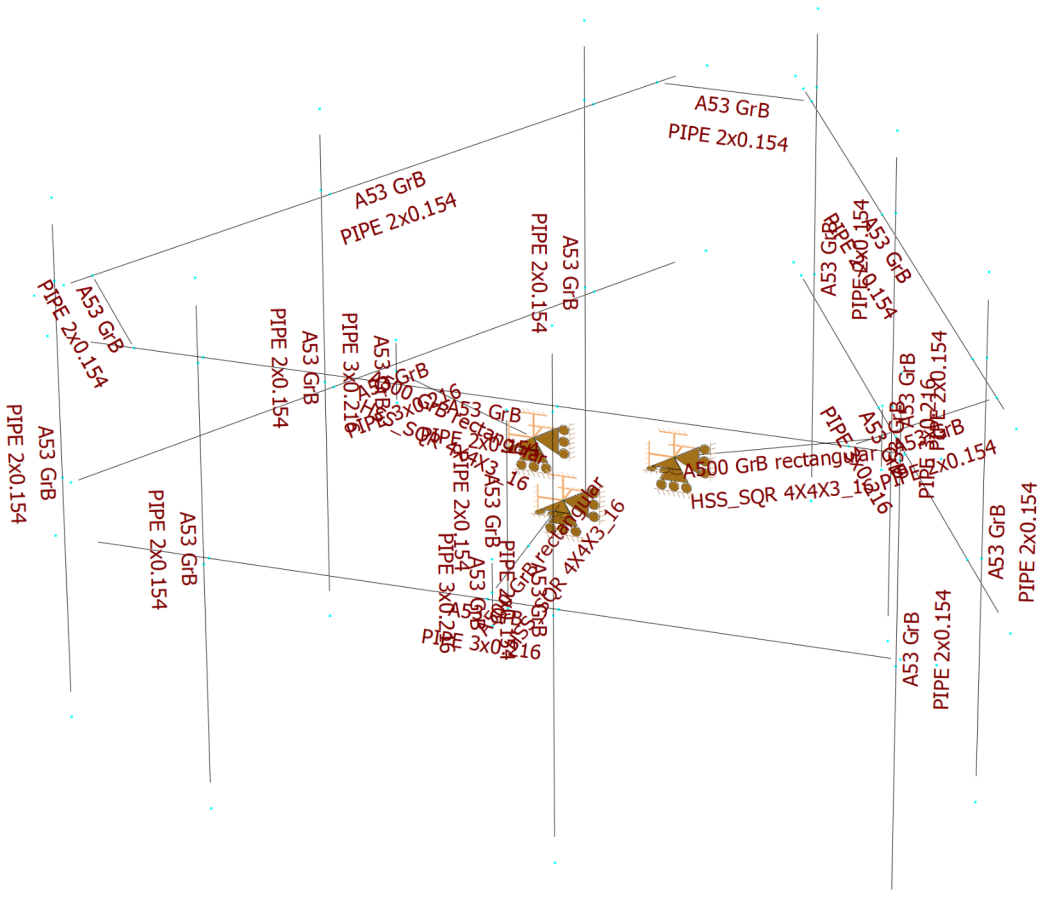
HSS 4x4

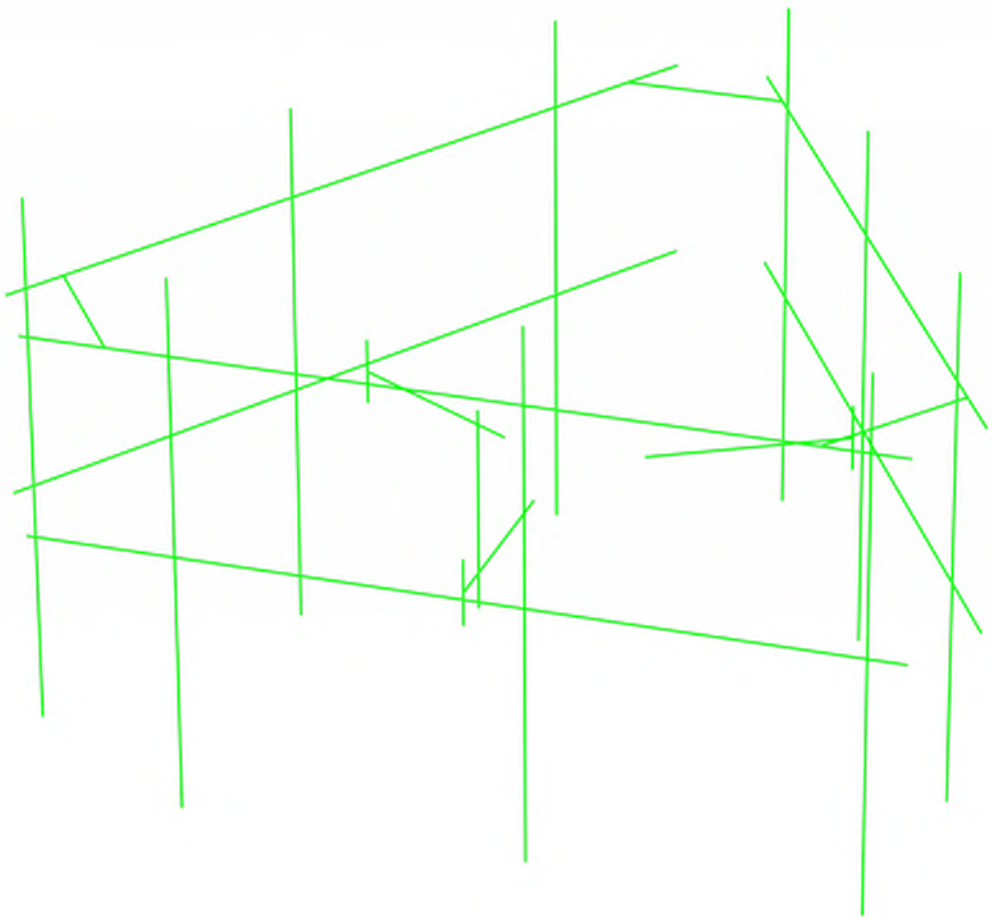
Weight of ice based on total radial SF area:

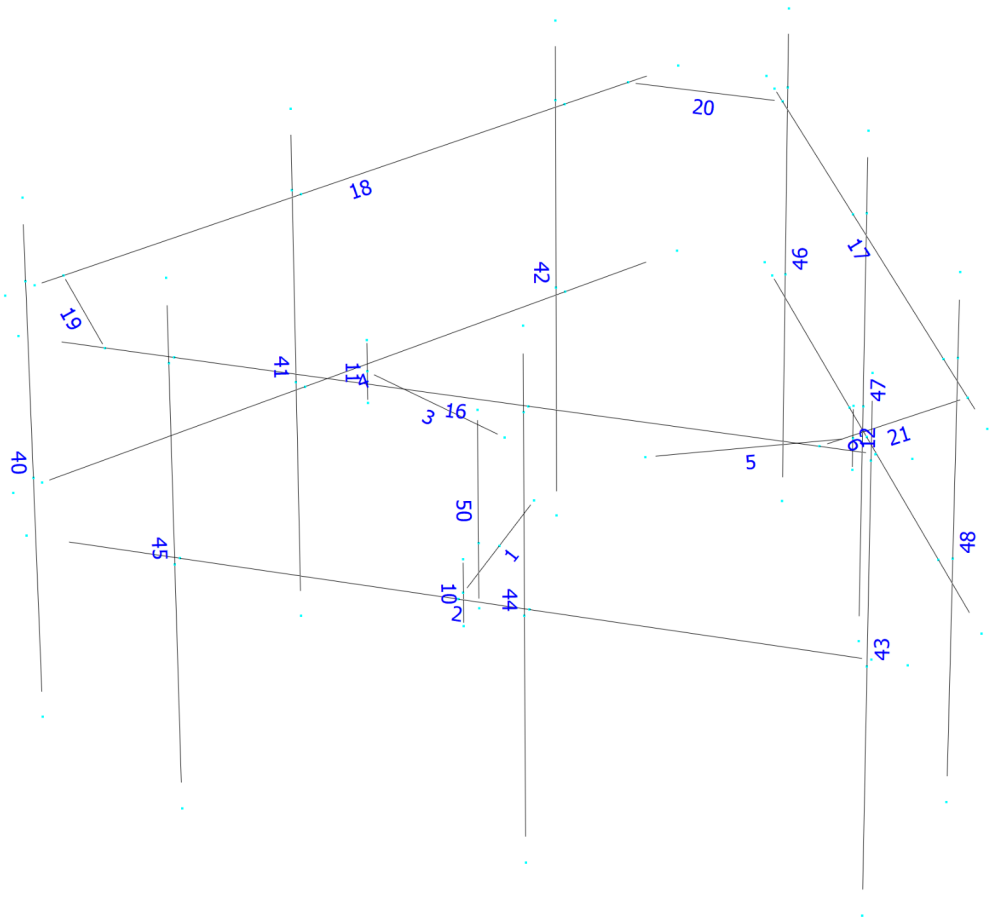
Height (in):	4	
Width (in):	4	
Per foot weight of ice on object:	9	plf

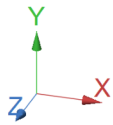
Mount Calculations
(Existing Conditions)


Y
X
Z


A53 GrB
PIPE 2x0.154
A500 GrB rectangular
HSS_SQR 4X4X3_16
Y
X
Z


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


20
18
42
46
17
19
41
11
16
47
21
40
5
50
48
45
44
43


Y
X
Z

RAM Elements
CONNECT Edition

Current Date: 12/8/2022 11:36 AM
Units system: English

Load data

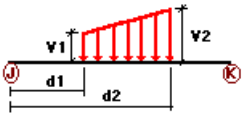
GLOSSARY

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	500 lb Live Load Antenna 1	No	LL
LLa2	500 lb Live Load Antenna 2	No	LL
LLa3	500 lb Live Load Antenna 3	No	LL

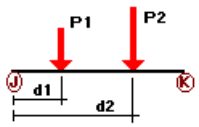
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
W0	2	z	-0.012	0.00	0.00	No	0.00	No
	3	z	-0.014	0.00	0.00	No	0.00	No
	4	z	-0.012	0.00	0.00	No	0.00	No
	5	z	-0.014	0.00	0.00	No	0.00	No
	6	z	-0.012	0.00	0.00	No	0.00	No
	10	z	-0.012	0.00	0.00	No	0.00	No
	11	z	-0.012	0.00	0.00	No	0.00	No
	12	z	-0.012	0.00	0.00	No	0.00	No
	16	z	-0.008	0.00	0.00	No	0.00	No
	17	z	-0.008	0.00	0.00	No	0.00	No
	18	z	-0.008	0.00	0.00	No	0.00	No
	19	z	-0.008	0.00	0.00	No	0.00	No
	20	z	-0.008	0.00	0.00	No	0.00	No
	21	z	-0.008	0.00	0.00	No	0.00	No
	40	z	-0.008	0.00	0.00	No	0.00	No
	41	z	-0.008	0.00	0.00	No	0.00	No
	42	z	-0.008	0.00	0.00	No	0.00	No
	44	z	-0.008	-0.008	3.00	No	5.00	No
	46	z	-0.008	0.00	0.00	No	0.00	No
	47	z	-0.008	0.00	0.00	No	0.00	No
	48	z	-0.008	0.00	0.00	No	0.00	No
W30	1	x	-0.014	0.00	0.00	No	0.00	No
	3	x	-0.014	0.00	0.00	No	0.00	No
	4	x	-0.012	0.00	0.00	No	0.00	No

	5	x	-0.014	0.00	0.00	No	0.00	No
	6	x	-0.012	0.00	0.00	No	0.00	No
	10	x	-0.012	0.00	0.00	No	0.00	No
	11	x	-0.012	0.00	0.00	No	0.00	No
	12	x	-0.012	0.00	0.00	No	0.00	No
	17	x	-0.008	0.00	0.00	No	0.00	No
	18	x	-0.008	0.00	0.00	No	0.00	No
	19	x	-0.008	0.00	0.00	No	0.00	No
	20	x	-0.008	0.00	0.00	No	0.00	No
	21	x	-0.008	0.00	0.00	No	0.00	No
	40	x	-0.008	0.00	0.00	No	0.00	No
	41	x	-0.008	0.00	0.00	No	0.00	No
	42	x	-0.008	0.00	0.00	No	0.00	No
	43	x	-0.008	0.00	0.00	No	0.00	No
	44	x	-0.008	0.00	0.00	No	0.00	No
	45	x	-0.008	0.00	0.00	No	0.00	No
	47	x	-0.008	-0.008	3.00	No	5.00	No
Di	1	y	-0.009	0.00	0.00	No	0.00	No
	2	y	-0.006	0.00	0.00	No	0.00	No
	3	y	-0.009	0.00	0.00	No	0.00	No
	4	y	-0.006	0.00	0.00	No	0.00	No
	5	y	-0.009	0.00	0.00	No	0.00	No
	6	y	-0.006	0.00	0.00	No	0.00	No
	10	y	-0.006	0.00	0.00	No	0.00	No
	11	y	-0.006	0.00	0.00	No	0.00	No
	12	y	-0.006	0.00	0.00	No	0.00	No
	16	y	-0.005	0.00	0.00	No	0.00	No
	17	y	-0.005	0.00	0.00	No	0.00	No
	18	y	-0.005	0.00	0.00	No	0.00	No
	19	y	-0.005	0.00	0.00	No	0.00	No
	20	y	-0.005	0.00	0.00	No	0.00	No
	21	y	-0.005	0.00	0.00	No	0.00	No
	40	y	-0.005	0.00	0.00	No	0.00	No
	41	y	-0.005	0.00	0.00	No	0.00	No
	42	y	-0.005	0.00	0.00	No	0.00	No
	43	y	-0.005	0.00	0.00	No	0.00	No
	44	y	-0.005	0.00	0.00	No	0.00	No
	45	y	-0.005	0.00	0.00	No	0.00	No
	46	y	-0.005	0.00	0.00	No	0.00	No
	47	y	-0.005	0.00	0.00	No	0.00	No
	48	y	-0.005	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	40	y	-0.06	0.50	No
		y	-0.06	7.50	No
		y	-0.025	2.00	No
	41	y	-0.033	1.00	No
		y	-0.033	3.00	No
		y	-0.041	5.00	No
		y	-0.041	7.00	No
	42	y	-0.075	0.50	No
		y	-0.075	7.50	No
		y	-0.036	2.00	No
	43	y	-0.06	0.50	No

		y	-0.06	7.50	No
		y	-0.025	2.00	No
	44	y	-0.033	1.00	No
		y	-0.033	3.00	No
		y	-0.041	5.00	No
		y	-0.041	7.00	No
	45	y	-0.075	0.50	No
		y	-0.075	7.50	No
		y	-0.036	2.00	No
	46	y	-0.06	0.50	No
		y	-0.06	7.50	No
		y	-0.025	2.00	No
	47	y	-0.033	1.00	No
		y	-0.033	3.00	No
		y	-0.041	5.00	No
		y	-0.041	7.00	No
	48	y	-0.075	0.50	No
		y	-0.075	7.50	No
		y	-0.036	2.00	No
	50	y	-0.029	1.50	No
W0	40	z	-0.182	0.50	No
		z	-0.182	7.50	No
		z	-0.028	2.00	No
	41	z	-0.044	1.00	No
		z	-0.044	3.00	No
		z	-0.053	5.00	No
		z	-0.053	7.00	No
	42	z	-0.205	0.50	No
		z	-0.205	7.50	No
		z	-0.027	2.00	No
	43	z	-0.308	0.50	No
		z	-0.308	7.50	No
	44	z	-0.072	1.00	No
		z	-0.072	3.00	No
		z	-0.07	5.00	No
		z	-0.07	7.00	No
	45	z	-0.324	0.50	No
		z	-0.324	7.50	No
	46	z	-0.182	0.50	No
		z	-0.182	7.50	No
		z	-0.028	2.00	No
	47	z	-0.044	1.00	No
		z	-0.044	3.00	No
		z	-0.053	5.00	No
		z	-0.053	7.00	No
	48	z	-0.205	0.50	No
		z	-0.205	7.50	No
		z	-0.027	2.00	No
	50	z	-0.054	1.50	No
W30	40	x	-0.266	0.50	No
		x	-0.266	7.50	No
		x	-0.017	2.00	No
	41	x	-0.063	1.00	No
		x	-0.063	3.00	No
		x	-0.065	5.00	No
		x	-0.065	7.00	No
	42	x	-0.285	0.50	No
		x	-0.285	7.50	No
		x	-0.025	2.00	No
	43	x	-0.14	0.50	No
		x	-0.14	7.50	No
		x	-0.034	2.00	No
	44	x	-0.035	1.00	No
		x	-0.035	3.00	No
		x	-0.048	5.00	No
		x	-0.048	7.00	No

	45	x	-0.166	0.50	No
		x	-0.166	7.50	No
		x	-0.029	2.00	No
	46	x	-0.266	0.50	No
		x	-0.266	7.50	No
	47	x	-0.063	1.00	No
		x	-0.063	3.00	No
		x	-0.065	5.00	No
		x	-0.065	7.00	No
	48	x	-0.285	0.50	No
		x	-0.285	7.50	No
	50	x	-0.054	1.50	No
Di	40	y	-0.127	0.50	No
		y	-0.127	7.50	No
		y	-0.016	2.00	No
	41	y	-0.034	1.00	No
		y	-0.034	3.00	No
		y	-0.036	5.00	No
		y	-0.036	7.00	No
	42	y	-0.138	0.50	No
		y	-0.138	7.50	No
		y	-0.016	2.00	No
	43	y	-0.127	0.50	No
		y	-0.127	7.50	No
		y	-0.016	2.00	No
	44	y	-0.034	1.00	No
		y	-0.034	3.00	No
		y	-0.036	5.00	No
		y	-0.036	7.00	No
	45	y	-0.138	0.50	No
		y	-0.138	7.50	No
		y	-0.016	2.00	No
	46	y	-0.127	0.50	No
		y	-0.127	7.50	No
		y	-0.016	2.00	No
	47	y	-0.034	1.00	No
		y	-0.034	3.00	No
		y	-0.036	5.00	No
		y	-0.036	7.00	No
	48	y	-0.138	0.50	No
		y	-0.138	7.50	No
		y	-0.016	2.00	No
	50	y	-0.041	1.50	No
Wi0	40	z	-0.038	0.50	No
		z	-0.038	7.50	No
		z	-0.007	2.00	No
	41	z	-0.01	1.00	No
		z	-0.01	3.00	No
		z	-0.012	5.00	No
		z	-0.012	7.00	No
	42	z	-0.042	0.50	No
		z	-0.042	7.50	No
		z	-0.007	2.00	No
	43	z	-0.061	0.50	No
		z	-0.061	7.50	No
	44	z	-0.016	1.00	No
		z	-0.016	3.00	No
		z	-0.015	5.00	No
		z	-0.015	7.00	No
	45	z	-0.064	0.50	No
		z	-0.064	7.50	No
	46	z	-0.038	0.50	No
		z	-0.038	7.50	No
		z	-0.007	2.00	No
	47	z	-0.01	1.00	No
		z	-0.01	3.00	No

		z	-0.012	5.00	No
		z	-0.012	7.00	No
	48	z	-0.042	0.50	No
		z	-0.042	7.50	No
		z	-0.007	2.00	No
Wi30	40	x	-0.053	0.50	No
		x	-0.053	7.50	No
		x	-0.005	2.00	No
	41	x	-0.014	1.00	No
		x	-0.014	3.00	No
		x	-0.014	5.00	No
		x	-0.014	7.00	No
	42	x	-0.056	0.50	No
		x	-0.056	7.50	No
		x	-0.007	2.00	No
	43	x	-0.031	0.50	No
		x	-0.031	7.50	No
		x	-0.009	2.00	No
	44	x	-0.009	1.00	No
		x	-0.009	3.00	No
		x	-0.011	5.00	No
		x	-0.011	7.00	No
	45	x	-0.035	0.50	No
		x	-0.035	7.50	No
		x	-0.008	2.00	No
	46	x	-0.053	0.50	No
		x	-0.053	7.50	No
	47	x	-0.014	1.00	No
		x	-0.014	3.00	No
		x	-0.014	5.00	No
		x	-0.014	7.00	No
	48	x	-0.056	0.50	No
		x	-0.056	7.50	No
WL0	40	z	-0.012	0.50	No
		z	-0.012	7.50	No
		z	-0.002	2.00	No
	41	z	-0.003	1.00	No
		z	-0.003	3.00	No
		z	-0.004	5.00	No
		z	-0.004	7.00	No
	42	z	-0.013	0.50	No
		z	-0.013	7.50	No
		z	-0.002	2.00	No
	43	z	-0.02	0.50	No
		z	-0.02	7.50	No
	44	z	-0.005	1.00	No
		z	-0.005	3.00	No
		z	-0.005	5.00	No
		z	-0.005	7.00	No
	45	z	-0.021	0.50	No
		z	-0.021	7.50	No
	46	z	-0.012	0.50	No
		z	-0.012	7.50	No
		z	-0.002	2.00	No
	47	z	-0.003	1.00	No
		z	-0.003	3.00	No
		z	-0.004	5.00	No
		z	-0.004	7.00	No
	48	z	-0.013	0.50	No
		z	-0.013	7.50	No
		z	-0.002	2.00	No
WL30	40	x	-0.017	0.50	No
		x	-0.017	7.50	No
		x	-0.001	2.00	No
	41	x	-0.004	1.00	No
		x	-0.004	3.00	No

		x	-0.005	5.00	No
		x	-0.005	7.00	No
	42	x	-0.018	0.50	No
		x	-0.018	7.50	No
		x	-0.002	2.00	No
	43	x	-0.009	0.50	No
		x	-0.009	7.50	No
		x	-0.002	2.00	No
	44	x	-0.003	1.00	No
		x	-0.003	3.00	No
		x	-0.003	5.00	No
		x	-0.003	7.00	No
	45	x	-0.011	0.50	No
		x	-0.011	7.50	No
		x	-0.002	2.00	No
	46	x	-0.017	0.50	No
		x	-0.017	7.50	No
	47	x	-0.004	1.00	No
		x	-0.004	3.00	No
		x	-0.005	5.00	No
		x	-0.005	7.00	No
	48	x	-0.018	0.50	No
		x	-0.018	7.50	No
LL1	2	y	-0.25	6.25	No
LL2	2	y	-0.25	0.00	No
LLa1	43	y	-0.50	4.00	No
LLa2	44	y	-0.50	4.00	No
LLa3	45	y	-0.50	4.00	No

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	500 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	500 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	500 lb Live Load Antenna 3	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
W0	0.00	0.00	0.00
W30	0.00	0.00	0.00
Di	0.00	0.00	0.00
Wi0	0.00	0.00	0.00
Wi30	0.00	0.00	0.00

WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00

RAM Elements
CONNECT Edition

Current Date: 12/8/2022 11:37 AM
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+1.6LLa2
LC21=1.2DL+WL30+1.6LLa2
LC22=1.2DL-WL0+1.6LLa2
LC23=1.2DL-WL30+1.6LLa2
LC24=1.2DL+WL0+1.6LLa3
LC25=1.2DL+WL30+1.6LLa3
LC26=1.2DL-WL0+1.6LLa3
LC27=1.2DL-WL30+1.6LLa3
LC28=1.2DL+WL0
LC29=1.2DL+WL30
LC30=1.2DL-WL0
LC31=1.2DL-WL30

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X3_16	**1**	LC4 at 0.00%	0.50	OK	
		3	LC1 at 0.00%	0.53	OK	
		5	LC1 at 0.00%	**0.55**	**OK**	
	PIPE 2x0.154	**16**	LC17 at 41.67%	0.37	OK	
		17	LC16 at 82.29%	0.41	OK	
		18	LC2 at 82.29%	0.34	OK	
		19	LC4 at 100.00%	0.30	OK	
		20	LC2 at 0.00%	0.34	OK	
		21	LC18 at 0.00%	0.40	OK	
		40	LC6 at 54.17%	0.68	OK	
		41	LC4 at 52.08%	0.61	OK	
		42	LC6 at 54.17%	0.72	OK	
		43	LC7 at 54.17%	0.52	OK	
		44	LC1 at 52.08%	0.46	OK	
		45	LC4 at 52.08%	0.55	OK	
		46	LC8 at 54.17%	0.64	OK	
		47	LC2 at 52.08%	0.50	OK	
		48	LC2 at 52.08%	**0.72**	**OK**	
		50	LC3 at 65.63%	0.01	OK	
	PIPE 3x0.216	**2**	LC3 at 50.00%	**0.64**	**OK**	
		4	LC2 at 48.75%	0.60	OK	
		6	LC4 at 50.00%	0.55	OK	
		10	LC8 at 50.00%	0.00	OK	

11	LC4 at 50.00%	0.00	OK
12	LC3 at 50.00%	0.00	OK

RAM Elements
CONNECT Edition

Current Date: 12/8/2022 11:37 AM
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
2	0.00	0.00	1.20	0
3	0.00	0.00	4.20	0
4	0.00	0.00	4.40	0
5	6.25	0.00	4.40	0
6	-6.25	0.00	4.40	0
7	-1.0392	0.00	-0.60	0
8	-3.6373	0.00	-2.10	0
9	-3.8105	0.00	-2.20	0
10	-6.9355	0.00	3.2127	0
11	-0.6855	0.00	-7.6127	0
12	1.0392	0.00	-0.60	0
13	3.6373	0.00	-2.10	0
14	3.8105	0.00	-2.20	0
15	0.6855	0.00	-7.6127	0
16	6.9355	0.00	3.2127	0
23	0.00	0.50	4.20	0
24	-3.6373	0.50	-2.10	0
25	3.6373	0.50	-2.10	0
26	0.00	-0.50	4.20	0
27	-3.6373	-0.50	-2.10	0
28	3.6373	-0.50	-2.10	0
29	-6.25	3.00	4.40	0
30	6.25	3.00	4.40	0
31	6.9355	3.00	3.2127	0
32	-0.6855	3.00	-7.6127	0
33	0.6855	3.00	-7.6127	0
34	-6.9355	3.00	3.2127	0
35	-5.00	3.00	4.40	0
36	-6.4355	3.00	2.3466	0

37	1.1855	3.00	-6.7466	0
38	-1.1855	3.00	-6.7466	0
39	5.00	3.00	4.40	0
40	6.4355	3.00	2.3466	0
41	0.9355	3.00	-7.1796	0
42	0.9355	0.00	-7.1796	0
43	3.3105	0.00	-3.066	0
44	3.3105	3.00	-3.066	0
45	5.8105	0.00	1.2641	0
46	5.8105	3.00	1.2641	0
47	3.4837	0.00	-3.166	0
48	3.4837	3.00	-3.166	0
49	5.9837	0.00	1.1641	0
50	5.9837	3.00	1.1641	0
51	1.1087	0.00	-7.2796	0
52	1.1087	3.00	-7.2796	0
53	-4.00	0.00	4.40	0
54	-4.00	3.00	4.40	0
55	-4.00	0.00	4.60	0
56	-4.00	3.00	4.60	0
57	1.00	0.00	4.40	0
58	1.00	3.00	4.40	0
59	1.00	0.00	4.60	0
60	1.00	3.00	4.60	0
61	5.75	0.00	4.40	0
62	5.75	0.00	4.60	0
63	5.75	3.00	4.40	0
64	5.75	3.00	4.60	0
65	-1.8105	0.00	-5.6641	0
66	-1.8105	3.00	-5.6641	0
67	-1.9837	0.00	-5.7641	0
68	-1.9837	3.00	-5.7641	0
69	-4.3105	0.00	-1.334	0
70	-4.3105	3.00	-1.334	0
71	-4.4837	0.00	-1.434	0
72	-4.4837	3.00	-1.434	0
73	-6.6855	0.00	2.7796	0
74	-6.8587	0.00	2.6796	0
75	-6.6855	3.00	2.7796	0
76	-6.8587	3.00	2.6796	0
77	-4.4837	4.25	-1.434	0
78	-6.8587	4.25	2.6797	0
79	5.9837	4.25	1.1641	0
80	3.4837	4.25	-3.166	0
81	1.1087	4.25	-7.2796	0
82	-4.00	4.25	4.60	0
83	1.00	4.25	4.60	0
84	5.75	4.25	4.60	0
86	-1.9837	4.25	-5.7641	0
87	1.00	-3.75	4.60	0
88	5.75	-3.75	4.60	0
89	-1.9837	-3.75	-5.7641	0
90	-4.00	-3.75	4.60	0
91	1.1087	-3.75	-7.2796	0
92	3.4837	-3.75	-3.166	0
93	5.9837	-3.75	1.1641	0
94	-6.8587	-3.75	2.6797	0
95	-4.4837	-3.75	-1.434	0
96	0.00	0.00	2.70	0
97	-0.30	0.00	2.70	0
98	-0.30	2.00	2.70	0
99	-0.30	-1.00	2.70	0

Restraints

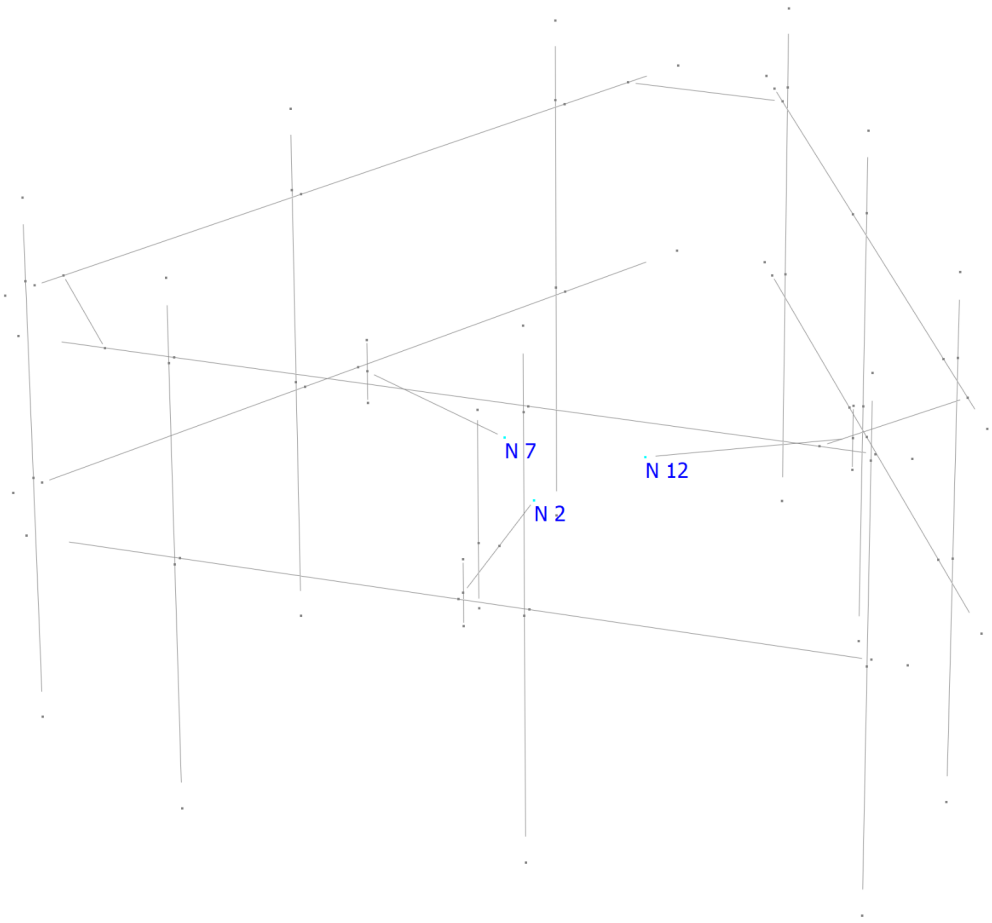
Node	TX	TY	TZ	RX	RY	RZ
2	1	1	1	1	1	1
7	1	1	1	1	1	1
12	1	1	1	1	1	1

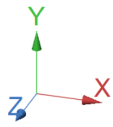
Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	2	3		HSS_SQR 4X4X3_16	A500 GrB rectangular	0.00	0.00	0.00
2	5	6		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
3	7	8		HSS_SQR 4X4X3_16	A500 GrB rectangular	0.00	0.00	0.00
4	10	11		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
5	12	13		HSS_SQR 4X4X3_16	A500 GrB rectangular	0.00	0.00	0.00
6	15	16		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
10	26	23		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
11	27	24		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
12	28	25		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
16	30	29		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
17	33	31		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
18	34	32		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
19	35	36		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
20	37	38		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
21	39	40		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
40	78	94		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
41	77	95		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
42	86	89		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
43	84	88		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
44	83	87		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
45	82	90		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
46	81	91		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
47	80	92		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
48	79	93		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
50	98	99		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
10	0.00	2	-1.00	0.00	0.00
11	0.00	2	-1.00	0.00	0.00
12	0.00	2	-1.00	0.00	0.00
40	315.00	0	0.00	0.00	0.00
41	315.00	0	0.00	0.00	0.00
42	315.00	0	0.00	0.00	0.00
46	315.00	0	0.00	0.00	0.00
47	315.00	0	0.00	0.00	0.00
48	315.00	0	0.00	0.00	0.00


N 7
N 12
N 2

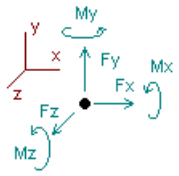

Y
X
Z

RAM Elements
CONNECT Edition

Current Date: 12/8/2022 11:38 AM
Units system: English

Analysis result

Reactions



Direction of positive forces and moments

Node	Forces [Kip] FX	FY	FZ	Moments [Kip*ft] MX	MY	MZ
Condition **LC1=1.2DL+W0**						
12	0.20835	1.00981	1.49063	1.75411	-3.90640	2.48177
2	0.01532	0.67463	1.77765	-2.09771	-0.14718	-0.00538
7	-0.22366	1.02977	1.43041	1.70500	3.73201	-2.47042
SUM	0.00000	2.71421	4.69868	1.36140	-0.32157	0.00597
Condition **LC2=1.2DL+W30**						
12	1.64397	0.66370	0.09020	1.17250	-2.72365	1.73311
2	1.37030	0.94627	0.14026	-2.65423	3.63372	-0.31105
7	1.62460	1.10424	-0.23046	1.41755	-2.83029	-2.76604
SUM	4.63887	2.71421	0.00000	-0.06419	-1.92022	-1.34399
Condition **LC3=1.2DL-W0**						
12	-0.02261	0.76618	-1.62512	0.86454	3.89059	2.03506
2	0.00777	1.20079	-1.54794	-3.26598	0.12027	-0.00858
7	0.01485	0.74724	-1.52561	0.89305	-3.76863	-2.05934
SUM	0.00000	2.71421	-4.69868	-1.50839	0.24223	-0.03285
Condition **LC4=1.2DL-W30**						
12	-1.45551	1.11191	-0.22482	1.44277	2.69090	2.78094
2	-1.34905	0.92948	0.08708	-2.71609	-3.66551	0.29985
7	-1.83430	0.67282	0.13773	1.18062	2.81470	-1.76184
SUM	-4.63887	2.71421	0.00000	-0.09269	1.84010	1.31895
Condition **LC5=0.9DL+W0**						
12	0.18494	0.78777	1.50719	1.42680	-3.90226	1.91701
2	0.01253	0.44035	1.74953	-1.42611	-0.14345	-0.00375
7	-0.19747	0.80753	1.44196	1.38003	3.73461	-1.90369
SUM	0.00000	2.03566	4.69868	1.38072	-0.31109	0.00957
Condition **LC6=0.9DL+W30**						
12	1.62091	0.44198	0.10673	0.84521	-2.72004	1.16842
2	1.36717	0.71177	0.11180	-1.98273	3.63594	-0.30942
7	1.65078	0.88191	-0.21853	1.09273	-2.82597	-2.19964
SUM	4.63887	2.03566	0.00000	-0.04480	-1.91007	-1.34064

Condition	**LC7=0.9DL-W0**					
12	-0.04562	0.54437	-1.60821	0.53717	3.89237	1.47031
2	0.00497	0.96606	-1.57676	-2.59474	0.12385	-0.00698
7	0.04065	0.52524	-1.51372	0.56820	-3.76366	-1.49298
SUM	0.00000	2.03566	-4.69868	-1.48937	0.25255	-0.02965
Condition	**LC8=0.9DL-W30**					
12	-1.47887	0.88978	-0.20787	1.11536	2.69321	2.21609
2	-1.35151	0.69497	0.05862	-2.04475	-3.66040	0.30144
7	-1.80849	0.45090	0.14925	0.85564	2.81794	-1.19516
SUM	-4.63887	2.03566	0.00000	-0.07375	1.85074	1.32237
Condition	**LC9=1.2DL+Di+Wi0**					
12	0.20847	1.78390	0.10761	2.66890	-0.65675	4.53163
2	0.02521	1.81868	0.50453	-5.29691	-0.06843	-0.01363
7	-0.23367	1.78904	0.13586	2.64835	0.55407	-4.53951
SUM	0.00000	5.39162	0.74800	0.02033	-0.17111	-0.02151
Condition	**LC10=1.2DL+Di+Wi30**					
12	0.44758	1.72992	-0.11192	2.59721	-0.48893	4.44555
2	0.24428	1.86067	0.23657	-5.33905	0.57425	-0.05805
7	0.05715	1.80103	-0.12465	2.60370	-0.48173	-4.58022
SUM	0.74900	5.39162	0.00000	-0.13815	-0.39641	-0.19272
Condition	**LC11=1.2DL+Di-Wi0**					
12	0.16710	1.74756	-0.38514	2.54574	0.60054	4.47842
2	0.02614	1.89850	-0.04077	-5.38898	0.00233	-0.01558
7	-0.19324	1.74556	-0.32209	2.53985	-0.62291	-4.49125
SUM	0.00000	5.39162	-0.74800	-0.30339	-0.02004	-0.02841
Condition	**LC12=1.2DL+Di-Wi30**					
12	-0.07193	1.80153	-0.16562	2.61736	0.43231	4.56445
2	-0.19298	1.85651	0.22713	-5.34691	-0.64044	0.02892
7	-0.48409	1.73358	-0.06151	2.58453	0.41343	-4.45050
SUM	-0.74900	5.39162	0.00000	-0.14502	0.20531	0.14287
Condition	**LC13=1.4DL**					
12	0.10829	1.03566	-0.07810	1.52743	-0.01373	2.63532
2	0.01302	1.09434	0.13279	-3.13293	-0.01699	-0.00756
7	-0.12131	1.03657	-0.05469	1.51613	-0.01756	-2.64360
SUM	0.00000	3.16658	0.00000	-0.08937	-0.04828	-0.01584
Condition	**LC14=1.2DL+1.6LL1**					
12	0.09557	0.88863	-0.07709	1.26968	0.01158	2.25977
2	0.01144	1.33570	0.13337	-3.89152	-0.01737	-0.00541
7	-0.10701	0.88989	-0.05629	1.26021	-0.03680	-2.26744
SUM	0.00000	3.11421	0.00000	-1.36163	-0.04259	-0.01308
Condition	**LC15=1.2DL+1.6LL2**					
12	0.06102	1.14714	-0.02267	1.44557	-0.09151	3.11422
2	0.10858	1.29165	0.13824	-3.83832	0.16352	0.46277
7	-0.16960	0.67542	-0.11557	0.95258	-0.17287	-1.57847
SUM	0.00000	3.11421	0.00000	-1.44017	-0.10086	1.99852

Condition **LC16=1.2DL+WL0+1.6LLa1**

12	0.04058	1.36314	0.07792	1.55099	-0.31419	3.81200
2	0.19190	1.65082	0.27131	-5.09439	0.27344	0.87898
7	-0.23249	0.50025	-0.11123	0.65785	-0.14522	-0.99582
SUM	0.00000	3.51421	0.23800	-2.88555	-0.18598	3.69516

Condition **LC17=1.2DL+WL30+1.6LLa1**

12	0.11746	1.34703	0.00899	1.53171	-0.26488	3.79026
2	0.25724	1.66366	0.18418	-5.10358	0.46491	0.86574
7	-0.13969	0.50352	-0.19317	0.64258	-0.47314	-1.00450
SUM	0.23500	3.51421	0.00000	-2.92928	-0.27311	3.65151

Condition **LC18=1.2DL-WL0+1.6LLa1**

12	0.02762	1.35224	-0.07731	1.51392	0.08140	3.79686
2	0.19251	1.67526	0.09417	-5.11487	0.29707	0.87827
7	-0.22014	0.48671	-0.25485	0.62482	-0.51390	-0.98092
SUM	0.00000	3.51421	-0.23800	-2.97613	-0.13543	3.69421

Condition **LC19=1.2DL-WL30+1.6LLa1**

12	-0.04924	1.36834	-0.00839	1.53319	0.03204	3.81860
2	0.12718	1.66242	0.18129	-5.10569	0.10559	0.89151
7	-0.31293	0.48345	-0.17291	0.64009	-0.18592	-0.97223
SUM	-0.23500	3.51421	0.00000	-2.93240	-0.04829	3.73788

Condition **LC20=1.2DL+WL0+1.6LLa2**

12	0.09290	0.96191	-0.00319	1.29486	-0.16086	2.48076
2	0.03990	1.72316	0.26043	-5.20180	0.01357	0.21634
7	-0.13280	0.82914	-0.01924	1.14789	0.06066	-2.04865
SUM	0.00000	3.51421	0.23800	-2.75906	-0.08663	0.64845

Condition **LC21=1.2DL+WL30+1.6LLa2**

12	0.16986	0.94568	-0.07199	1.27530	-0.11198	2.45843
2	0.10508	1.73604	0.17314	-5.21085	0.20467	0.20300
7	-0.03994	0.83249	-0.10115	1.13271	-0.26737	-2.05753
SUM	0.23500	3.51421	0.00000	-2.80284	-0.17467	0.60390

Condition **LC22=1.2DL-WL0+1.6LLa2**

12	0.08003	0.95088	-0.15823	1.25760	0.23387	2.46515
2	0.04028	1.74760	0.08305	-5.22196	0.03659	0.21558
7	-0.12031	0.81573	-0.16282	1.11526	-0.30831	-2.03437
SUM	0.00000	3.51421	-0.23800	-2.84910	-0.03785	0.64635

Condition **LC23=1.2DL-WL30+1.6LLa2**

12	0.00307	0.96711	-0.08943	1.27715	0.18495	2.48748
2	-0.02490	1.73472	0.17034	-5.21291	-0.15452	0.22892
7	-0.21318	0.81238	-0.08090	1.13044	0.01977	-2.02549
SUM	-0.23500	3.51421	0.00000	-2.80533	0.05020	0.69092

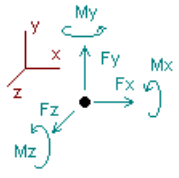
Condition **LC24=1.2DL+WL0+1.6LLa3**

12	0.17873	0.61597	-0.08111	0.87179	-0.07519	1.38391
2	-0.11235	1.69401	0.24022	-5.12146	-0.25049	-0.71568
7	-0.06638	1.20422	0.07889	1.43793	0.33436	-3.27441
SUM	0.00000	3.51421	0.23800	-2.81175	0.00868	-2.60618

Condition	**LC25=1.2DL+WL30+1.6LLa3**					
12	0.25574	0.59974	-0.14989	0.85203	-0.02642	1.36131
2	-0.04725	1.70688	0.15288	-5.13039	-0.05955	-0.72891
7	0.02651	1.20759	-0.00299	1.42278	0.00623	-3.28323
SUM	0.23500	3.51421	0.00000	-2.85558	-0.07974	-2.65083
Condition	**LC26=1.2DL-WL0+1.6LLa3**					
12	0.16594	0.60486	-0.23613	0.83432	0.31921	1.36786
2	-0.11216	1.71839	0.06282	-5.14143	-0.22798	-0.71653
7	-0.05378	1.19096	-0.06469	1.40566	-0.03498	-3.26074
SUM	0.00000	3.51421	-0.23800	-2.90146	0.05626	-2.60940
Condition	**LC27=1.2DL-WL30+1.6LLa3**					
12	0.08894	0.62110	-0.16736	0.85407	0.27039	1.39046
2	-0.17727	1.70552	0.15015	-5.13250	-0.41893	-0.70329
7	-0.14667	1.18760	0.01721	1.42081	0.29321	-3.25191
SUM	-0.23500	3.51421	0.00000	-2.85762	0.14468	-2.56474
Condition	**LC28=1.2DL+WL0**					
12	0.09924	0.89325	0.01057	1.32787	-0.20905	2.26664
2	0.01099	0.92578	0.20252	-2.67461	-0.02600	-0.00610
7	-0.11023	0.89519	0.02491	1.31582	0.16946	-2.27294
SUM	0.00000	2.71421	0.23800	-0.03092	-0.06559	-0.01241
Condition	**LC29=1.2DL+WL30**					
12	0.17621	0.87701	-0.05822	1.30824	-0.16021	2.24426
2	0.07616	0.93868	0.11521	-2.68426	0.16508	-0.01944
7	-0.01737	0.89852	-0.05699	1.30060	-0.15856	-2.28179
SUM	0.23500	2.71421	0.00000	-0.07542	-0.15369	-0.05697
Condition	**LC30=1.2DL-WL0**					
12	0.08639	0.88218	-0.14445	1.29049	0.18556	2.25093
2	0.01134	0.95024	0.02512	-2.69594	-0.00307	-0.00688
7	-0.09773	0.88180	-0.11866	1.28320	-0.19954	-2.25880
SUM	0.00000	2.71421	-0.23800	-0.12225	-0.01706	-0.01475
Condition	**LC31=1.2DL-WL30**					
12	0.00943	0.89841	-0.07566	1.31011	0.13668	2.27330
2	-0.05383	0.93734	0.11242	-2.68629	-0.19416	0.00647
7	-0.19059	0.87846	-0.03675	1.29843	0.12853	-2.24995
SUM	-0.23500	2.71421	0.00000	-0.07775	0.07105	0.02982

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+1.6LLa2
LC21=1.2DL+WL30+1.6LLa2
LC22=1.2DL-WL0+1.6LLa2
LC23=1.2DL-WL30+1.6LLa2
LC24=1.2DL+WL0+1.6LLa3
LC25=1.2DL+WL30+1.6LLa3
LC26=1.2DL-WL0+1.6LLa3
LC27=1.2DL-WL30+1.6LLa3
LC28=1.2DL+WL0
LC29=1.2DL+WL30
LC30=1.2DL-WL0
LC31=1.2DL-WL30

		Forces						Moments					
Node		**Fx** [Kip]	**lc**	**Fy** [Kip]	**lc**	**Fz** [Kip]	**lc**	**Mx** [Kip*ft]	**lc**	**My** [Kip*ft]	**lc**	**Mz** [Kip*ft]	**lc**
12	Max	1.644	LC2	1.802	LC12	1.507	LC5	2.66890	LC9	3.89237	LC7	4.56445	LC12
	Min	-1.479	LC8	0.442	LC6	-1.625	LC3	0.53717	LC7	-3.90640	LC1	1.16842	LC6
2	Max	1.370	LC2	1.898	LC11	1.778	LC1	-1.42611	LC5	3.63594	LC6	0.89151	LC19
	Min	-1.352	LC8	0.440	LC5	-1.577	LC7	-5.38898	LC11	-3.66551	LC4	-0.72891	LC25
7	Max	1.651	LC6	1.801	LC10	1.442	LC5	2.64835	LC9	3.73461	LC5	-0.97223	LC19
	Min	-1.834	LC4	0.451	LC8	-1.526	LC3	0.56820	LC7	-3.76863	LC3	-4.58022	LC10

Connection Check

Date: 12/8/2022
Project Name: WATERBURY WHITEWOOD ROAD
Project No.: CT2901
Designed By: JC **Checked By:** MSC

CHECK CONNECTION CAPACITY (Worst Case)

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

Bolt Type = A36 5/8" Threaded Rod

Allowable Tensile Load =

F_{Tall} = 6673 lbs.

Allowable Shear Load =

F_{Vall} = 4004 lbs.

TENSILE FORCES

Reaction **F =** 1625 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 1644 lbs. (See Bentley Output)
Reactions in Y direction: 1802 lbs. (See Bentley Output)

Resultant: 2439 lbs.

No. of Supports = 1
No. of Bolts / Support = 3

Tension Design Load /Bolts =

f_t = 541.67 lbs. < 6673 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v = 813.08 lbs. < 4004 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.081	+	0.203	=	0.284	<	1.0	**Therefore, OK !**