# 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@po.state.ct.us
www.ct.gov/csc


January 5, 2006

Steven Levine
Real Estate Consultant
New Cingular Wireless PCS, LLC
500 Enterprise Drive
Rocky Hill, CT 06067-3900

RE: **EM-CING-066-051219** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 64 Hungerford Lane, Harwinton, Connecticut.

Dear Mr. Levine:

At a public meeting held on January 4, 2006, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated December 19, 2005, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

Pamela B. Katz, P.E.
Chairman

PBK/laf

c: The Honorable Frank J. Chiaramonte, First Selectman, Town of Harwinton
William J. Tracy, Jr., Planning Chairman, Town of Harwinton
Global Signal Acquisitions II LLC
Thomas J. Regan, Esq., Brown Rudnick Berlack Israels LLP
Kenneth C. Baldwin, Esq., Robinson & Cole LLP
Christopher B. Fisher, Esq., Cuddy & Feder LLP

G:\EM\CINGULAR\HARWINTO\dc010406.DOC

CSC
CONNECTICUT SITING COUNCIL

# 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@po.state.ct.us
www.ct.gov/csc


December 22, 2005

The Honorable Frank J. Chiaramonte
First Selectman
Town of Harwinton
Town Hall
100 Bentley Drive
Harwinton, CT 06791

RE: **EM-CING-066-051219** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 64 Hungerford Lane, Harwinton, Connecticut.

Dear Ms. Chiaramonte:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

The Council will consider this item at the next meeting scheduled for January 4, 2006 at 1:30 p.m. in Hearing Room One, Ten Franklin Square, New Britain, Connecticut.

If you have any questions or comments regarding this proposal, please call me or inform the council by January 3, 2006.

Thank you for your cooperation and consideration.

Very truly yours,

SDP/RKE

S. Derek Phelps
Executive Director

SDP/ap

Enclosure: Notice of Intent

c: William J. Tracy, Jr., Planning Chairman, Town of Harwinton

EM-CING-066-051219

ORIGINAL

New Cingular Wireless PCS, LLC
500 Enterprise Drive Rocky Hill,
Connecticut 06067-3900
Phone: (860) 513-7636
Fax: (860) 513-7190

RECEIVED
DEC 19 2005
CONNECTICUT
SITING COUNCIL

December 19, 2005

Ms. Pam Katz, Chairman, and
Members of the Council
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

**Notice of Exempt Modification – Existing Global Signal Telecommunications Tower Facility at 64 Hungerford Lane, Harwinton, Connecticut**

Dear Chairman Katz and Members of the Council:

New Cingular Wireless PCS, LLC ("Cingular") intends to install telecommunications antennas and associated equipment at an existing multicarrier telecommunications tower off Hungerford Lane in Harwinton, Connecticut. Please accept this letter as notification to the Council, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter is being sent to the 1st Selectman of Harwinton.

**Existing Facility**

The Harwinton facility is located at 64 Hungerford Lane, which lies approximately 1 mile south of the intersection of CT Route 4 and South Road in Harwinton. Tower coordinates (NAD 83) are N 41° 25' 28" and W 73° 03' 09".

The facility, which is situated on land leased from the Buckley Broadcasting Inc., is controlled and operated by Global Signal Acquisitions II LLC, 301 N. Cattlemen Road, Sarasota, Florida 34222 ("Global Signal").

The Harwinton facility was initially approved by local P&Z authorities under an application by Sprint PCS, which has since subleased the entire site to Global for management. Verizon Wireless co-located on the tower in 2003 under an exempt modification approved by the Council.

The Hungerford Lane facility consists of a 180 foot monopole within a 50' x 50' compound surrounded by a chain link fence. Sprint and Verizon currently operate wireless telecommunications equipment at the facility.

**Proposed Modifications**

Cingular operates under licenses issued by the Federal Communications Commission ("FCC") to provide cellular and PCS mobile telephone service in Litchfield County, which includes the area to be served by Cingular's proposed installation.

As shown on the attached drawings and as further described below, Cingular proposes to install up to six Powerwave 7770 dual band panel antennas or their equivalent, approximately 55 inches in height, with antenna centerlines at 158 feet above ground level. Cingular also proposes to place an 11' 6" x 20' prefabricated concrete equipment shelter inside the existing fence at the base of the tower.

Attached to this Notice are a site location map, a site plan, tower profile, and a structural analysis report that shows the tower will be structurally capable of supporting the proposed Cingular telecommunications equipment.

**Statutory Considerations**

The changes to the Harwinton tower facility do not constitute a modification as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2) because they will not result in any substantial adverse environmental effect.

1. The height of the overall structure will be unaffected.

2. The proposed changes will not affect the property boundaries. All new construction will take place on property leased by Sprint and within the existing fence.

3. The proposed additions will not increase the noise level at the existing facility by six decibels or more.

4. Operation of the additional antennas will not increase the total radio frequency electromagnetic radiation power density, measured at the tower base, to or above the standard adopted by the State of Connecticut and the FCC. The "worst-case" exposure calculation in accordance with FCC OET Bulletin No. 65 (1997) for a point of interest at the base of the tower in relation to the operation of the proposed antenna array is as follows:

| Company | Centerline Height (feet) | Frequency (MHz) | Number of Channels | Power Per Channel (Watts) | Power Density† ($mW/cm^2$) | Standard Limits ($mW/cm^2$) | Percent of Limit |
|---|---|---|---|---|---|---|---|
| Sprint * | 180 | 1962.5 | 11 | 494 | 0.0603 | 1.0000 | 6.03 |
| Verizon * | 170 | 1900 | 3 | 494 | 0.0184 | 1.0000 | 1.84 |
| Cingular | 158 | 880 - 894 | 6 | 296 | 0.0256 | 0.5867 | 4.36 |
| Cingular | 158 | 1930 - 1935 | 3 | 427 | 0.0185 | 1.0000 | 1.85 |
| | | | | | | | |
| **Total** | | | | | | | **14.08%** |

* Power density parameters from Council records.

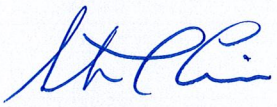
† Please note that the standard power density equation provided by the Council in its memo of January 22, 2001 incorporates a ground reflection factor of 2.56 (i.e., the square of 1.6) as described in FCC OET Bulletin No. 65.

As the table demonstrates, the cumulative "worst-case" exposure would be approximately 14 % of the ANSI/IEEE standard, as calculated for mixed frequency sites. Total power density levels resulting from Cingular's use of the tower facility would thus be within applicable standards.

For the foregoing reasons, Cingular respectfully submits that proposed changes at the Harwinton site constitute an exempt modification under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at (860) 513-7636 or Christopher Fisher, Esq. at (914) 761-1300 with questions concerning this notice. Thank you for your consideration in this matter.

Respectfully yours,

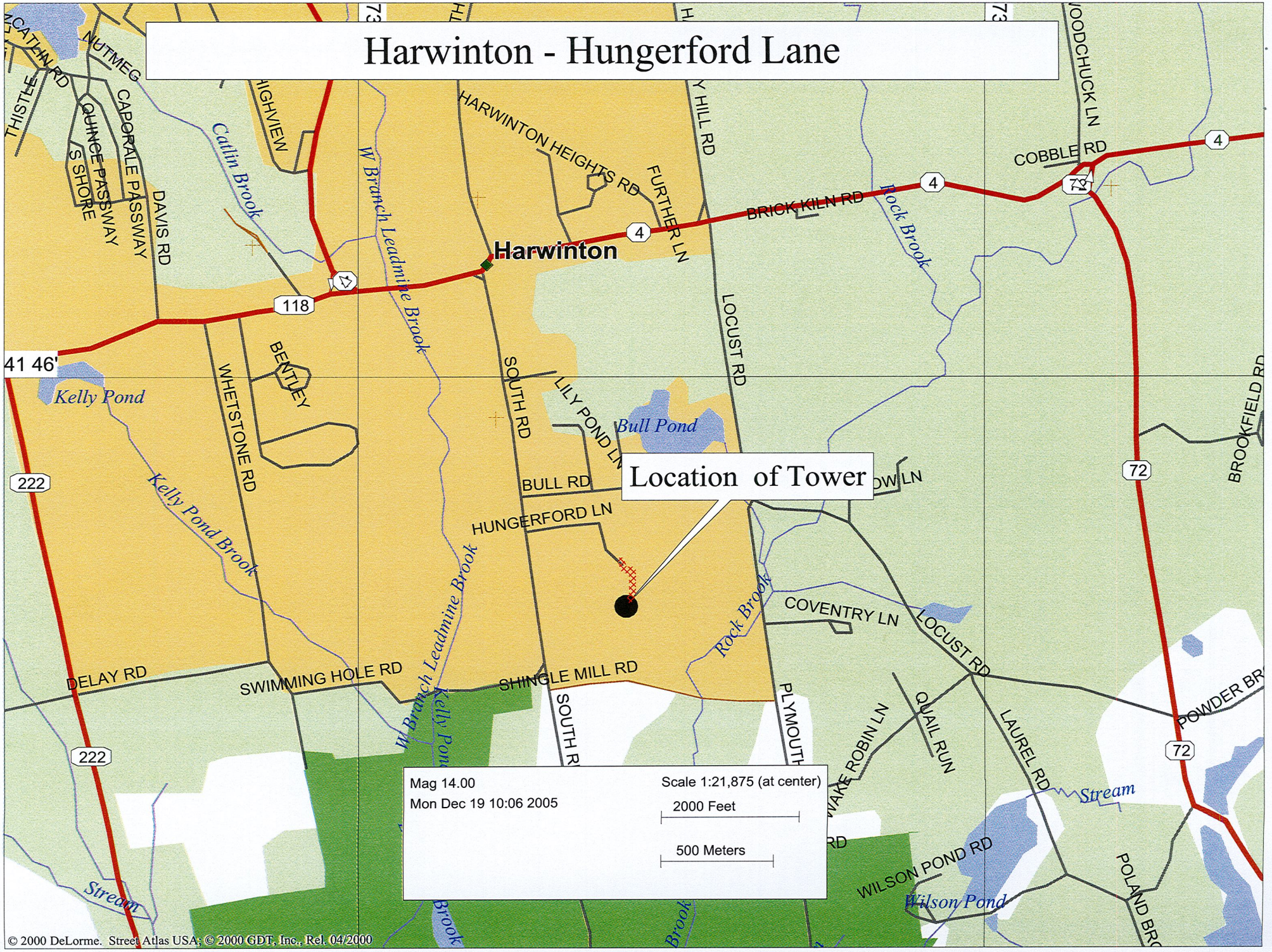


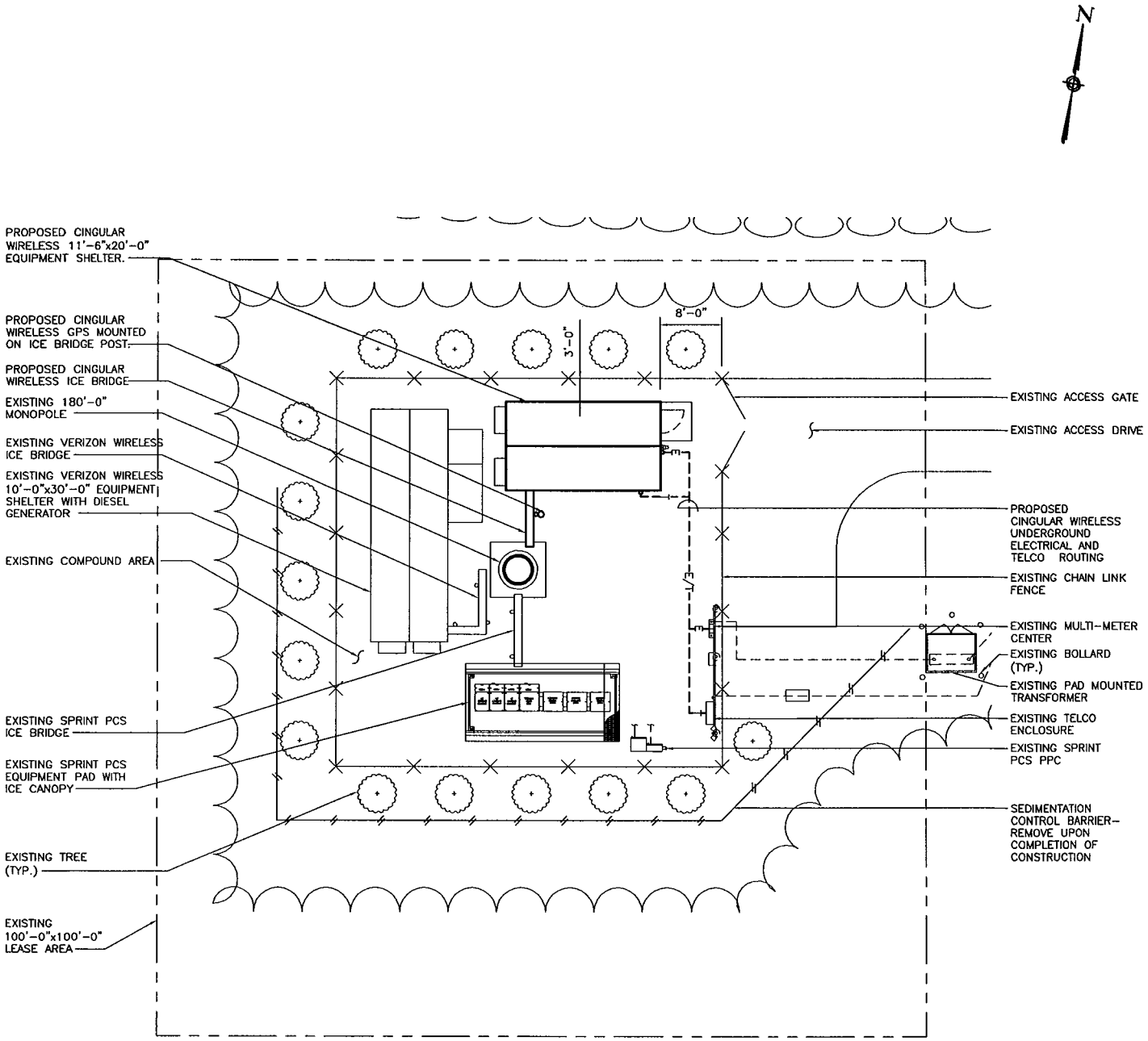
Steven Levine
Real Estate Consultant

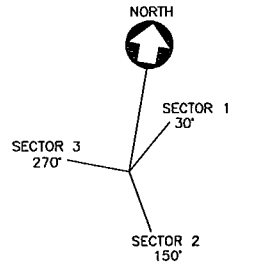
Enclosures

cc: Honorable Frank J. Chiaramonte, 1st Selectman, Town of Harwinton
Michele G. Briggs, Manager of Real Estate
Christopher B. Fisher, Esq.

# Harwinton - Hungerford Lane






ANTENNA ORIENTATION KEY

1 / L-1 **COMPOUND PLAN**

SCALE: 1" = 20'-0"

0 5 10 20 40

| | |
|---|---|
| PROJECT NO. | 36921810 |
| Designed by: | |
| Drawn by: | JES |
| Checked by: | |
| Approved by: | |


**URS CORPORATION**
500 ENTERPRISE DRIVE
SUITE 3B
ROCKY HILL, CONNECTICUT
1-(860)-529-8882


cingular WIRELESS

WIRELESS COMMUNICATIONS FACILITY

HARWINTON

SITE ADDRESS: 64 HUNGERFORD LANE
HARWINTON, CONNECTICUT

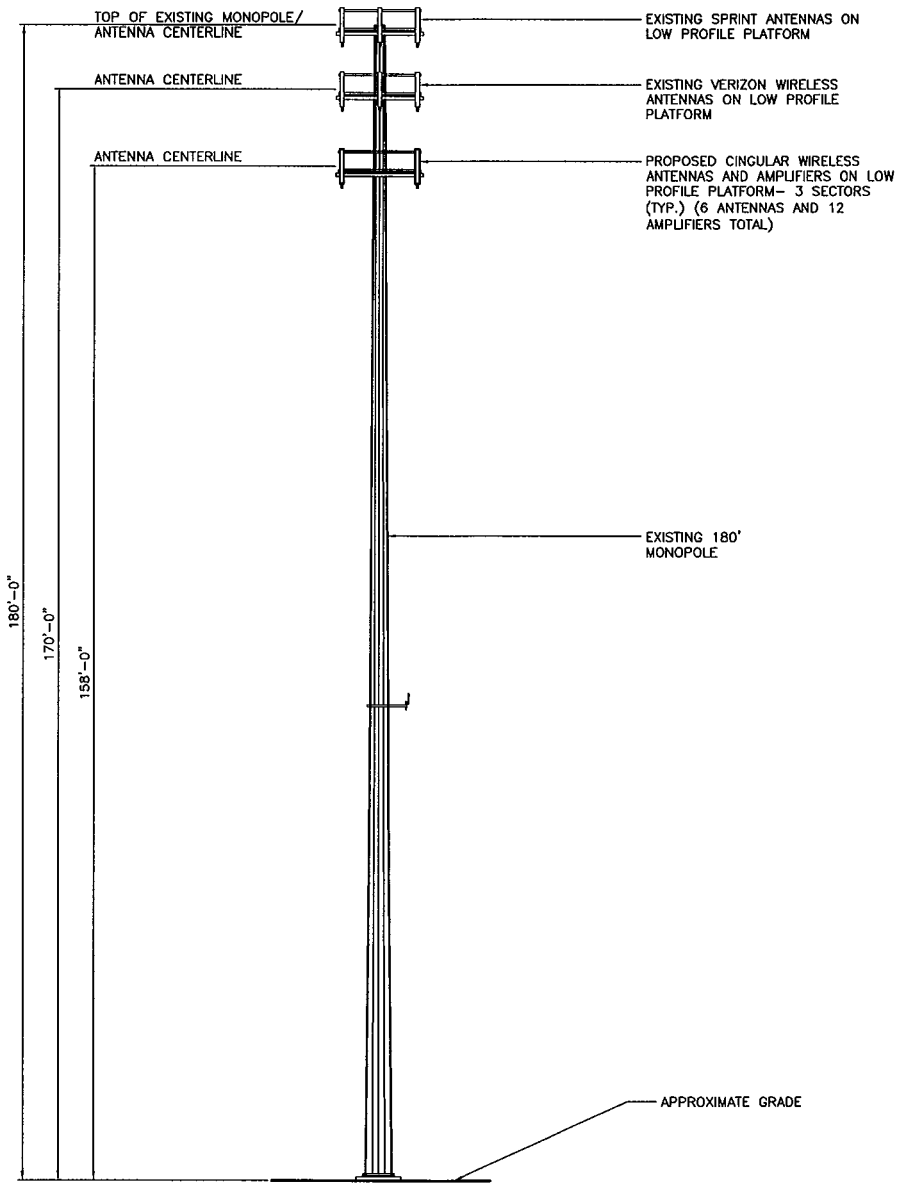
| REV. | DATE: | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |

Scale: AS NOTED | Date: 12-01-05

Job No. CW1 064 | File No.

Dwg. No. L-1

Dwg. 1 of 2




1 / L-2 ELEVATION

SCALE: 1"=30'-0"

0 7.5 15 30 60

| | |
|---|---|
| PROJECT NO. | 36921810 |
| Designed by: | |
| Drawn by: | JES |
| Checked by: | |
| Approved by: | |


**URS CORPORATION**

500 ENTERPRISE DRIVE
SUITE 3B
ROCKY HILL, CONNECTICUT
1-(860)-529-8882


cingular WIRELESS

WIRELESS COMMUNICATIONS FACILITY

HARWINTON

SITE ADDRESS: 64 HUNGERFORD LANE
HARWINTON, CONNECTICUT

| REV. | DATE: | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |

Scale: AS NOTED | Date: 12-01-05

Job No. CW1 064 | File No.

Dwg. No. L-2

Dwg. 2 of 2

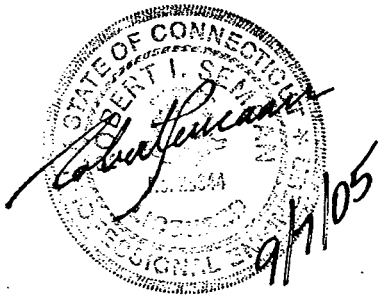
1079 N. 204th Avenue
Elkhorn, NE 68022
Ph: 402-289-1888
Fax: 402-289-1861

**SEMAAN ENGINEERING SOLUTIONS**

# 178 ft EEI Monopole
# Structural Analysis

**Prepared for:**
**Global Signal**
**301 North Cattlemen Road, Suite 300**
**Sarasota, FL 34232**

**Site: 3017688 / CT33XC021**
**New Cingular Wireless**
**Harwinton, CT**




**September 7, 2005**

Ms. Laura Rectenwal
Global Signal
301 North Cattlemen Road, Suite 300
Sarasota, FL 34232

***Re: Site Number 3017688 / CT33XC021 – 3017688 - Harwinton, CT.***

Dear Ms. Rectenwal:

We have completed the structural analysis for the existing monopole, located at the above referenced site. The purpose of this analysis is to determine that the existing monopole design is in conformance with the EIA/TIA-222-F standard and local building codes for the proposed antennae loads installation. Refer to the Review and Recommendations section at the end of this report for the analysis results.

**Description of Structure:**

The structure is a 178 ft EEI Monopole.

Refer to EEI drawing 8428-E02 dated April 16, 2001 for a detailed description of the structure.

**Method of analysis:**

The tower was analyzed using Semaan Engineering Solutions' software suite for communication structures. The structural analysis is performed using the SAPS finite element engine. The method is 3D, non-linear, which accounts for the second order geometric effects due to the displacements. It also treats guys as exact cable elements and therefore is ideal for guyed towers. The analysis was performed in conformance with **EIA/TIA-222-F and local building codes for a basic wind speed of 80 mph and 1/2" radial ice with reduced wind speed (fastest mile)**. This is in conformance with the IBC 2003: Section 1609.1.1, Exception (5) and Section 3108.4. Wind is applied to the structure, accessories and antennas.

**Structure loading:**

Per the loading sheet supplied, the analysis was performed using the following loading: (Proposed loading in bold)

| Elev. (ft) | Qty | Antennas and Mounts | Coax | Owner |
|---|---|---|---|---|
| 180.0 | 9 | DB980H90 On a Low Profile Platform | (9) 1-5/8 | Sprint |
| 170.0 | 12 | DB950G85E-M On a Low Profile Platform | (12) 1-5/8 | Verizon |
| **158.0** | **6** | **Allgon 7770 On a Low Profile Platform** | **(12) 1-5/8** | **New Cingular Wireless** |
| | **12** | **LGP 2140 TMA On Same Low Profile Platform** | | |

**All new access holes shall be reinforced with welded rims that are compatible with the pole and to be sized and supplied by pole manufacturer.**

**All transmission lines are assumed running inside of pole shaft.**

**Results of Analysis:**

Refer to the attached Computer Summary sheets for detailed analysis results.

**Structure:**

The existing monopole is structurally capable of supporting the existing and proposed antennas. The maximum structure usage is: 60.4%.

**Foundation**:

| Pole Reactions | Original Design Reactions | Current Analysis Reactions | % Of Design |
|---|---|---|---|
| Moment (ft-kips) | 4,265.60 | 2,588.82 | 60.7 |
| Shear (kips) | 32.73 | 20.45 | 62.5 |

The analysis reactions are less than the design reactions therefore no foundation modifications are required.

**Review and Recommendations:**

Based on the analysis results, the existing structure meets the requirements per the EIA/TIA-222-F standards for a basic wind speed of 80 mph and 1/2" radial ice with reduced wind speed. This wind speed is equivalent to a 100 mph 3-second wind gust.

**SEMAAN ENGINEERING SOLUTIONS**
1047 N.204th Avenue
Elkhorn, NE 68022
Phone: 402-289-1888
Fax: 402-289-1861



## Job Information

| | |
|---|---|
| Pole : | CT33XC021 |
| Description : | |
| Client : | Global Signal |
| Location : | 3017688 - Harwinton, CT |
| Type : | Round |
| Base Elev (ft): | 0.00 |
| Height :(ft) | 178.00 |
| Taper: | 0.208570 (in/ft) |

## Sections Properties

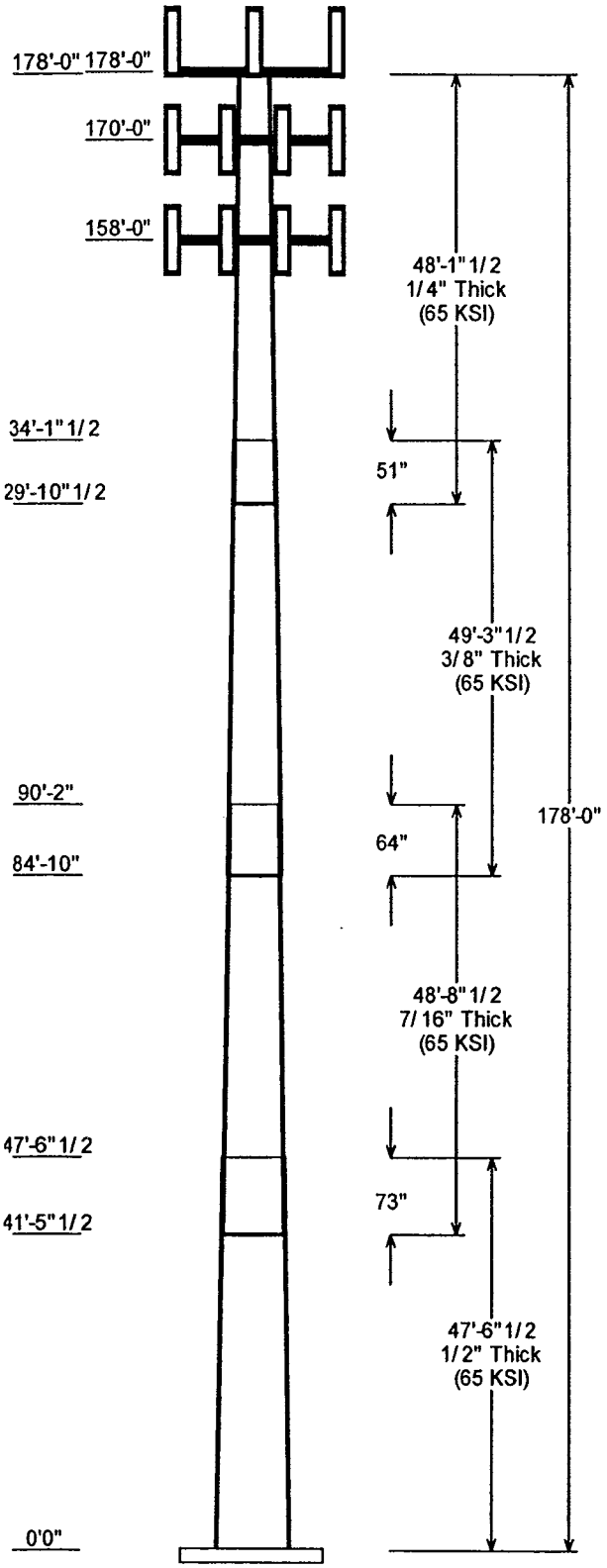
| Shaft Section | Length (ft) | Diameter (in) Accross Flats Top | Bottom | Thick (in) | Joint Type | Overlap Length (in) | Taper (in/ft) | Steel Grade (ksi) |
|---|---|---|---|---|---|---|---|---|
| 1 | 47.540 | 44.58 | 54.50 | 0.500 | | 0.000 | 0.208570 | 65 |
| 2 | 48.710 | 36.56 | 46.72 | 0.438 | Slip Joint | 73.000 | 0.208570 | 65 |
| 3 | 49.290 | 28.15 | 38.43 | 0.375 | Slip Joint | 64.000 | 0.208570 | 65 |
| 4 | 48.127 | 19.50 | 29.53 | 0.250 | Slip Joint | 51.000 | 0.208570 | 65 |

## Discrete Appurtenance

| Attach Elev (ft) | Force Elev (ft) | Qty | Description |
|---|---|---|---|
| 178.000 | 178.000 | 1 | Low Profile Platform |
| 178.000 | 180.000 | 9 | DB980H90 |
| 170.000 | 170.000 | 12 | DB950G85E-M |
| 170.000 | 170.000 | 1 | Low Profile Platform |
| 158.000 | 158.000 | 1 | Low Profile Platform |
| 158.000 | 158.000 | 12 | LGP 2140 TMA |
| 158.000 | 158.000 | 6 | Allgon 7770 |

## Reactions

| Load Case | Moment (Kip-ft) | Shear (Kips) | Axial (Kips) |
|---|---|---|---|
| 80.00 mph Wind w/ No Ice | 2,588.820 | 20.447 | -36.911 |
| 69.28 mph Wind w/ 0.50 in Ice | 2,127.825 | 16.380 | -43.177 |



**New Cingular Wireless PCS, LLC**
500 Enterprise Drive
Rocky Hill, Connecticut 06067-3900
Phone: (860) 513-7636
Fax: (860) 513-7190

December 19, 2005

Honorable Frank J. Chiaramonte
1st Selectman, Town of Harwinton
Town Hall, 100 Bentley Drive
Harwinton, Connecticut 06791

**Re: Notice of Exempt Modification – Existing Global Signal Telecommunications Tower Facility at 64 Hungerford Lane, Harwinton, Connecticut**

Dear Mr. Chiaramonte:

New Cingular Wireless PCS, LLC ("Cingular") intends to install telecommunications antennas and associated equipment at an existing multicarrier telecommunications tower at 64 Hungerford Lane in Harwinton, Connecticut.

The facility, which is situated on land leased from the Buckley Broadcasting Inc., is controlled and operated by Global Signal Acquisitions II LLC, 301 N. Cattlemen Road, Sarasota, Florida 34222.

A Notice of Exempt Modification has been filed with the Connecticut Siting Council as required by Regulations of Connecticut State Agencies ("R.C.S.A.") Section 16-50j-73. Please accept this letter as notification to the Town of Harwinton under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The attached letter fully sets forth the Cingular proposal. However, if you have any questions or require any further information on the plans for the site or the Siting Council's procedures, please contact the undersigned or Mr. Derek Phelps, Executive Director of the Connecticut Siting Council, at (860) 827-2935.

Sincerely,

Steven Levine
Real Estate Consultant

Enclosure

1079 N. 204th Avenue
Elkhorn, NE 68022
Ph: 402-289-1888
Fax: 402-289-1861

**SEMAAN ENGINEERING SOLUTIONS**

EM-CING-066-051219

# 178 ft EEI Monopole
# Structural Analysis



**Prepared for:**
**Global Signal**
**301 North Cattlemen Road, Suite 300**
**Sarasota, FL 34232**

**Site: 3017688 / CT33XC021**
**New Cingular Wireless**
**Harwinton, CT**


**September 7, 2005**

Ms. Laura Rectenwal
Global Signal
301 North Cattlemen Road, Suite 300
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***Re: Site Number 3017688 / CT33XC021 – 3017688 - Harwinton, CT.***

Dear Ms. Rectenwal:

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**Description of Structure:**

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Refer to EEI drawing 8428-E02 dated April 16, 2001 for a detailed description of the structure.

**Method of analysis:**

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**Structure loading:**

Per the loading sheet supplied, the analysis was performed using the following loading: (Proposed loading in bold)

| Elev. (ft) | Qty | Antennas and Mounts | Coax | Owner |
|---|---|---|---|---|
| 180.0 | 9 | DB980H90 On a Low Profile Platform | (9) 1-5/8 | Sprint |
| 170.0 | 12 | DB950G85E-M On a Low Profile Platform | (12) 1-5/8 | Verizon |
| **158.0** | **6** | **Allgon 7770 On a Low Profile Platform** | **(12) 1-5/8** | **New Cingular Wireless** |
| | **12** | **LGP 2140 TMA On Same Low Profile Platform** | | |

**All new access holes shall be reinforced with welded rims that are compatible with the pole and to be sized and supplied by pole manufacturer.**

**All transmission lines are assumed running inside of pole shaft.**

**Results of Analysis:**

Refer to the attached Computer Summary sheets for detailed analysis results.

**Structure:**

The existing monopole is structurally capable of supporting the existing and proposed antennas. The maximum structure usage is: 60.4%.

**Foundation**:

| Pole Reactions | Original Design Reactions | Current Analysis Reactions | % Of Design |
|---|---|---|---|
| Moment (ft-kips) | 4,265.60 | 2,588.82 | 60.7 |
| Shear (kips) | 32.73 | 20.45 | 62.5 |

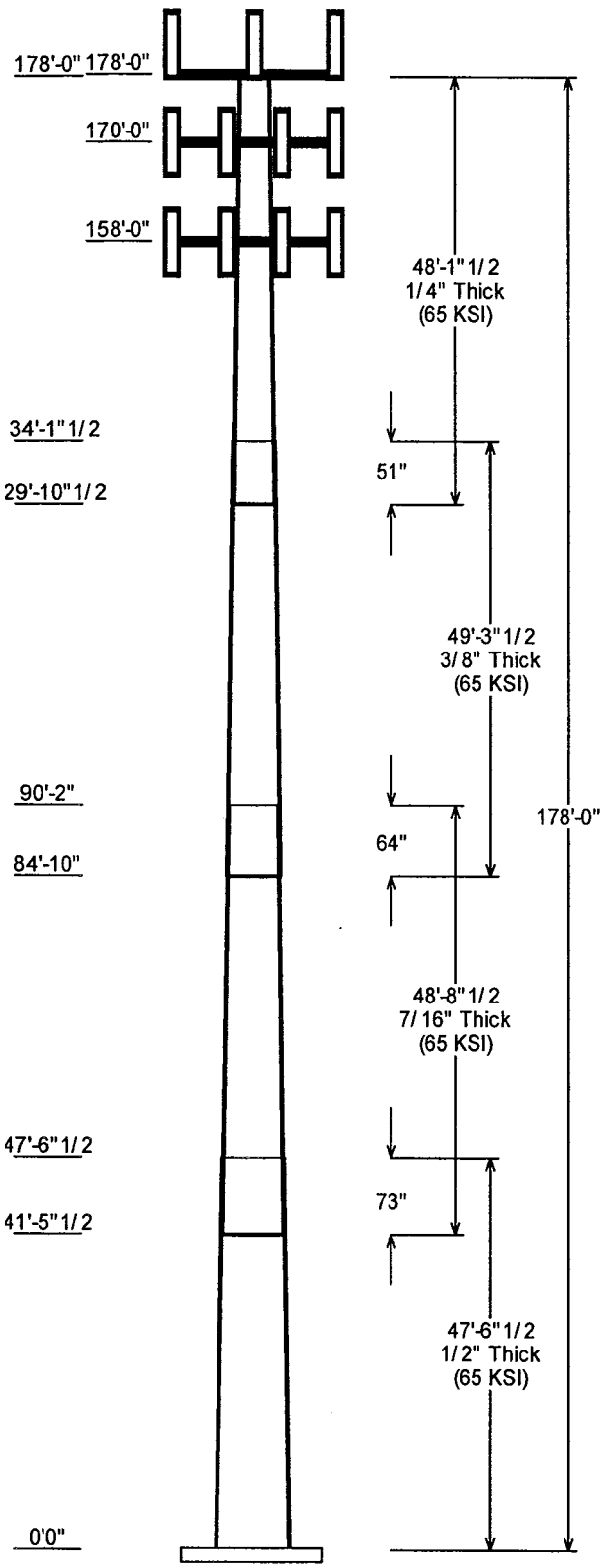
The analysis reactions are less than the design reactions therefore no foundation modifications are required.

**Review and Recommendations:**

Based on the analysis results, the existing structure meets the requirements per the EIA/TIA-222-F standards for a basic wind speed of 80 mph and 1/2" radial ice with reduced wind speed. This wind speed is equivalent to a 100 mph 3-second wind gust.

**SEMAAN ENGINEERING SOLUTIONS**
1047 N.204th Avenue
Elkhorn, NE 68022
Phone: 402-289-1888
Fax: 402-289-1861






## Job Information

| | | | |
|---|---|---|---|
| Pole : | CT33XC021 | | |
| Description : | | | |
| Client : | Global Signal | | |
| Location : | 3017688 - Harwinton, CT | | |
| Type : | Round | Base Elev (ft): | 0.00 |
| Height :(ft) | 178.00 | Taper: | 0.208570 (in/ft) |

## Sections Properties

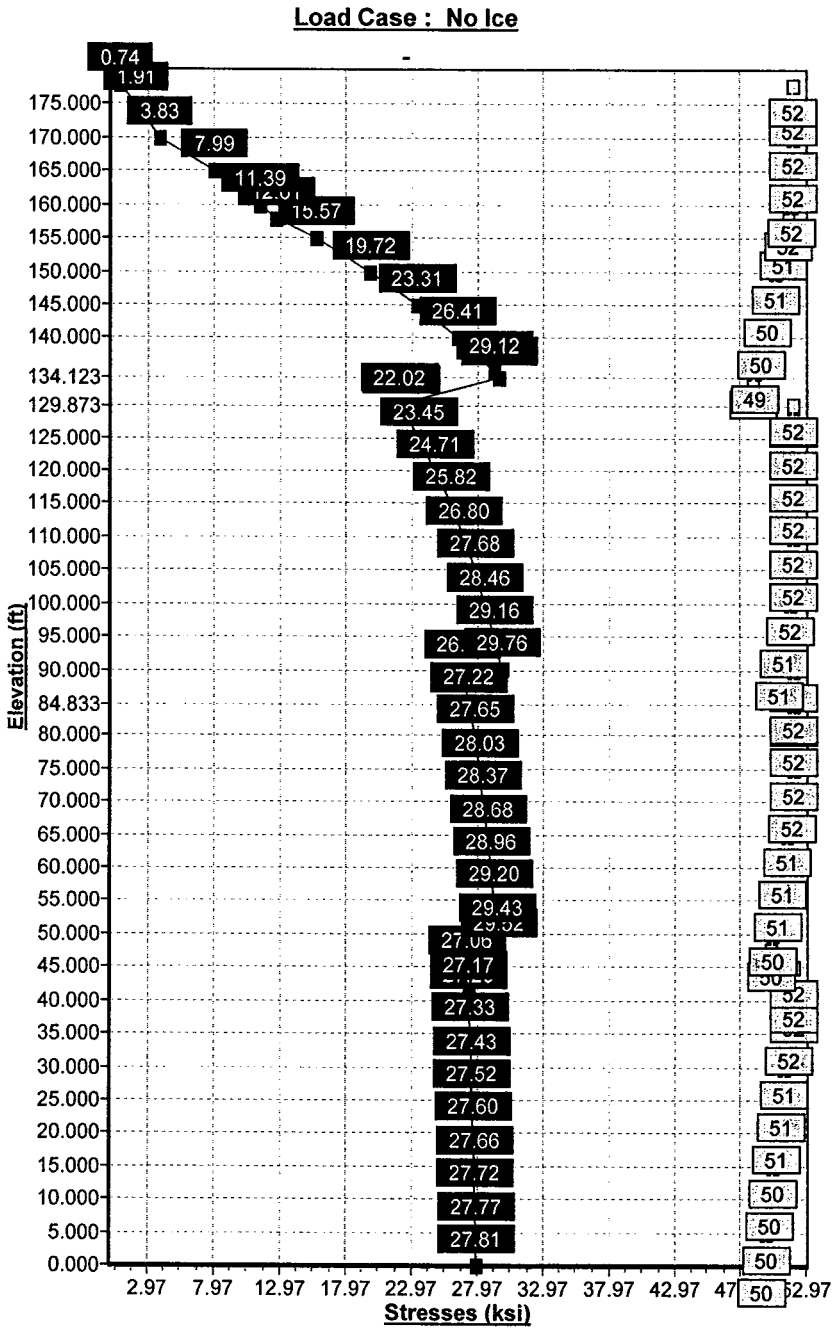
| Shaft Section | Length (ft) | Diameter (in) Accross Flats Top | Bottom | Thick (in) | Joint Type | Overlap Length (in) | Taper (in/ft) | Steel Grade (ksi) |
|---|---|---|---|---|---|---|---|---|
| 1 | 47.540 | 44.58 | 54.50 | 0.500 | | 0.000 | 0.208570 | 65 |
| 2 | 48.710 | 36.56 | 46.72 | 0.438 | Slip Joint | 73.000 | 0.208570 | 65 |
| 3 | 49.290 | 28.15 | 38.43 | 0.375 | Slip Joint | 64.000 | 0.208570 | 65 |
| 4 | 48.127 | 19.50 | 29.53 | 0.250 | Slip Joint | 51.000 | 0.208570 | 65 |

## Discrete Appurtenance

| Attach Elev (ft) | Force Elev (ft) | Qty | Description |
|---|---|---|---|
| 178.000 | 178.000 | 1 | Low Profile Platform |
| 178.000 | 180.000 | 9 | DB980H90 |
| 170.000 | 170.000 | 12 | DB950G85E-M |
| 170.000 | 170.000 | 1 | Low Profile Platform |
| 158.000 | 158.000 | 1 | Low Profile Platform |
| 158.000 | 158.000 | 12 | LGP 2140 TMA |
| 158.000 | 158.000 | 6 | Allgon 7770 |

## Reactions

| Load Case | Moment (Kip-ft) | Shear (Kips) | Axial (Kips) |
|---|---|---|---|
| 80.00 mph Wind w/ No Ice | 2,588.820 | 20.447 | -36.911 |
| 69.28 mph Wind w/ 0.50 in Ice | 2,127.825 | 16.380 | -43.177 |


Load Case : No Ice
Elevation (ft)
Stresses (ksi)
0.74
1.91
3.83
7.99
11.39
15.57
19.72
23.31
26.41
29.12
22.02
23.45
24.71
25.82
26.80
27.68
28.46
29.16
29.76
27.22
27.65
28.03
28.37
28.68
28.96
29.20
29.43
27.17
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27.52
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2.97
7.97
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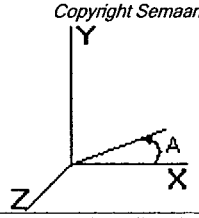
17.97
22.97
27.97
32.97
37.97
42.97
52.97

| | | | |
|---|---|---|---|
| Pole : | CT33XC021 | Global Signal | |
| Location: | 3017688 - Harwinton, CT | | |
| Height : | 178.0 (ft) | Base Elev : 0.000 (ft) | |
| Shape : | Round | | |
| Base Dia : | 54.50 (in) | Top Dia : 19.50 (in) | |
| Taper : | 0.208570 (in/ft) | | |



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## Shaft Section Properties

| ect lum | Length (ft) | Thick (in) | Fy (ksi) | Joint Type | Slip Joint Len (in) | Weight (lb) | Bottom Dia (in) | Bottom Elev (ft) | Bottom Area (sqin) | Bottom Ix (in^4) | Bottom W/t Ratio | Bottom D/t Ratio | Top Dia (in) | Top Elev (ft) | Top Area (sqin) | Top Ix (in^4) | Top W/t Ratio | Top D/t Ratio | Taper (in/ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 47.540 | 0.5000 | 65 | | 0.00 | 12,462 | 54.50 | 0.000 | 84.82 | 30941.7 | 0.00 | 109.0 | 44.58 | 47.54 | 69.25 | 16835.4 | 0.00 | 89.17 | 0.20857 |
| 2 | 48.710 | 0.4375 | 65 | Slip Joint | 73.00 | 9,388 | 46.72 | 41.45 | 63.62 | 17055.2 | 0.00 | 106.8 | 36.56 | 90.16 | 49.66 | 8110.1 | 0.00 | 83.59 | 0.20857 |
| 3 | 49.290 | 0.3750 | 65 | Slip Joint | 64.00 | 6,504 | 38.43 | 84.83 | 44.83 | 8122.8 | 0.00 | 102.4 | 28.15 | 134.1 | 32.72 | 3158.1 | 0.00 | 75.07 | 0.20857 |
| 4 | 48.127 | 0.2500 | 65 | Slip Joint | 51.00 | 3,121 | 29.53 | 129.8 | 23.00 | 2468.2 | 0.00 | 118.1 | 19.50 | 178.0 | 15.12 | 700.8 | 0.00 | 78.00 | 0.20857 |
| | | | | Shaft Weight | | 31,476 | | | | | | | | | | | | | |

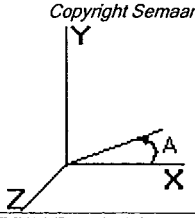
## Discrete Appurtenance Properties

| Attach Elev (ft) | Description | Qty | No Ice Weight (lb) | No Ice CaAa (sf) | No Ice CaAa Factor | Ice Weight (lb) | Ice CaAa (sf) | Ice CaAa Factor | Distance From Face (ft) | X Angle (deg) | Vert Ecc (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 178.0 | Low Profile Platform | 1 | 1600.00 | 25.550 | 1.00 | 2100.00 | 27.320 | 1.00 | 0.000 | 0.00 | 0.000 |
| 178.0 | DB980H90 | 9 | 9.00 | 3.280 | 1.00 | 28.00 | 3.850 | 1.00 | 0.000 | 0.00 | 2.000 |
| 170.0 | DB950G85E-M | 12 | 11.50 | 4.236 | 1.00 | 33.93 | 4.815 | 1.00 | 0.000 | 0.00 | 0.000 |
| 170.0 | Low Profile Platform | 1 | 1600.00 | 25.550 | 1.00 | 2100.00 | 27.320 | 1.00 | 0.000 | 0.00 | 0.000 |
| 158.0 | Low Profile Platform | 1 | 1600.00 | 25.550 | 1.00 | 2100.00 | 27.320 | 1.00 | 0.000 | 0.00 | 0.000 |
| 158.0 | LGP 2140 TMA | 12 | 19.00 | 1.260 | 1.00 | 26.13 | 1.500 | 1.00 | 0.000 | 0.00 | 0.000 |
| 158.0 | Allgon 7770 | 6 | 35.00 | 5.880 | 1.00 | 67.63 | 6.530 | 1.00 | 0.000 | 0.00 | 0.000 |
| | Totals | 42 | 5457.00 | | | 7678.50 | | | Number of Loadings : | | 7 |

| | | | |
|---|---|---|---|
| Pole : | CT33XC021 | Global Signal | |
| Location: | 3017688 - Harwinton, CT | | |
| Height : | 178.0 (ft) | Base Elev : 0.000 (ft) | |
| Shape : | Round | | |
| Base Dia : | 54.50 (in) | Top Dia : 19.50 (in) | |
| Taper : | 0.208570 (in/ft) | | |







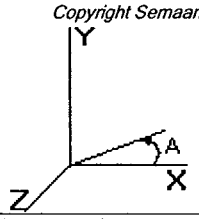

## Segment Properties (Max Len : 5 ft)

| Seg Elev (ft) | Description | Thick (in) | Dia (in) | Area (in^2) | Ix (in^4) | W/t Ratio | D/t Ratio | Fy (ksi) | Fb (ksi) | Fa (ksi) | Weight (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | | 0.5000 | 54.500 | 84.823 | 30,941.7 | 0.00 | 109.00 | 65 | 50 | 0 | 0.0 |
| .00 | | 0.5000 | 53.457 | 83.185 | 29,183.4 | 0.00 | 106.91 | 65 | 50 | 0 | 1,429.2 |
| 0.00 | | 0.5000 | 52.414 | 81.547 | 27,493.1 | 0.00 | 104.83 | 65 | 50 | 0 | 1,401.4 |
| 5.00 | | 0.5000 | 51.371 | 79.909 | 25,869.3 | 0.00 | 102.74 | 65 | 50 | 0 | 1,373.5 |
| 0.00 | | 0.5000 | 50.329 | 78.271 | 24,310.8 | 0.00 | 100.66 | 65 | 51 | 0 | 1,345.6 |
| 5.00 | | 0.5000 | 49.286 | 76.632 | 22,816.1 | 0.00 | 98.57 | 65 | 51 | 0 | 1,317.8 |
| 0.00 | | 0.5000 | 48.243 | 74.994 | 21,384.0 | 0.00 | 96.49 | 65 | 51 | 0 | 1,289.9 |
| 5.00 | | 0.5000 | 47.200 | 73.356 | 20,013.1 | 0.00 | 94.40 | 65 | 52 | 0 | 1,262.0 |
| 0.00 | | 0.5000 | 46.157 | 71.718 | 18,702.1 | 0.00 | 92.31 | 65 | 52 | 0 | 1,234.1 |
| 1.46 | Bot - Section 2 | 0.5000 | 45.853 | 71.241 | 18,331.3 | 0.00 | 91.71 | 65 | 52 | 0 | 354.3 |
| 5.00 | | 0.5000 | 45.114 | 70.080 | 17,449.6 | 0.00 | 90.23 | 65 | 52 | 0 | 1,613.0 |
| 7.54 | Top - Section 1 | 0.4375 | 45.460 | 61.880 | 15,690.9 | 0.00 | 103.91 | 65 | 50 | 0 | 1,140.0 |
| 0.00 | | 0.4375 | 44.947 | 61.175 | 15,160.5 | 0.00 | 102.73 | 65 | 50 | 0 | 515.1 |
| 5.00 | | 0.4375 | 43.904 | 59.742 | 14,119.7 | 0.00 | 100.35 | 65 | 51 | 0 | 1,028.6 |
| 0.00 | | 0.4375 | 42.861 | 58.309 | 13,127.6 | 0.00 | 97.97 | 65 | 51 | 0 | 1,004.2 |
| 5.00 | | 0.4375 | 41.818 | 56.875 | 12,183.1 | 0.00 | 95.58 | 65 | 51 | 0 | 979.9 |
| 0.00 | | 0.4375 | 40.775 | 55.442 | 11,285.0 | 0.00 | 93.20 | 65 | 52 | 0 | 955.5 |
| 5.00 | | 0.4375 | 39.732 | 54.009 | 10,432.2 | 0.00 | 90.82 | 65 | 52 | 0 | 931.1 |
| 0.00 | | 0.4375 | 38.689 | 52.575 | 9,623.4 | 0.00 | 88.43 | 65 | 52 | 0 | 906.7 |
| 4.83 | Bot - Section 3 | 0.4375 | 37.681 | 51.190 | 8,882.5 | 0.00 | 86.13 | 65 | 52 | 0 | 853.3 |
| 5.00 | | 0.4375 | 37.647 | 51.142 | 8,857.6 | 0.00 | 86.05 | 65 | 52 | 0 | 54.5 |
| 0.00 | | 0.4375 | 36.604 | 49.709 | 8,133.5 | 0.00 | 83.67 | 65 | 52 | 0 | 1,609.6 |
| 0.17 | Top - Section 2 | 0.3750 | 37.319 | 43.524 | 7,431.1 | 0.00 | 99.52 | 65 | 51 | 0 | 52.8 |
| 5.00 | | 0.3750 | 36.311 | 42.336 | 6,839.2 | 0.00 | 96.83 | 65 | 51 | 0 | 706.1 |
| 00.00 | | 0.3750 | 35.268 | 41.107 | 6,260.9 | 0.00 | 94.05 | 65 | 52 | 0 | 709.8 |
| 05.00 | | 0.3750 | 34.225 | 39.879 | 5,716.2 | 0.00 | 91.27 | 65 | 52 | 0 | 688.9 |
| 10.00 | | 0.3750 | 33.182 | 38.650 | 5,204.0 | 0.00 | 88.49 | 65 | 52 | 0 | 668.0 |
| 15.00 | | 0.3750 | 32.139 | 37.422 | 4,723.3 | 0.00 | 85.71 | 65 | 52 | 0 | 647.1 |
| 20.00 | | 0.3750 | 31.097 | 36.193 | 4,273.2 | 0.00 | 82.92 | 65 | 52 | 0 | 626.2 |
| 25.00 | | 0.3750 | 30.054 | 34.964 | 3,852.7 | 0.00 | 80.14 | 65 | 52 | 0 | 605.3 |
| 29.87 | Bot - Section 4 | 0.3750 | 29.037 | 33.767 | 3,470.2 | 0.00 | 77.43 | 65 | 52 | 0 | 569.9 |
| 30.00 | | 0.3750 | 29.011 | 33.736 | 3,460.6 | 0.00 | 77.36 | 65 | 52 | 0 | 24.5 |
| 34.12 | Top - Section 3 | 0.2500 | 28.651 | 22.306 | 2,250.8 | 0.00 | 114.60 | 65 | 49 | 0 | 783.9 |
| 35.00 | | 0.2500 | 28.468 | 22.162 | 2,207.6 | 0.00 | 113.87 | 65 | 49 | 0 | 66.3 |
| 40.00 | | 0.2500 | 27.425 | 21.343 | 1,971.7 | 0.00 | 109.70 | 65 | 50 | 0 | 370.1 |
| 45.00 | | 0.2500 | 26.382 | 20.524 | 1,753.3 | 0.00 | 105.53 | 65 | 50 | 0 | 356.2 |
| 50.00 | | 0.2500 | 25.340 | 19.705 | 1,551.7 | 0.00 | 101.36 | 65 | 51 | 0 | 342.2 |
| 55.00 | | 0.2500 | 24.297 | 18.886 | 1,366.1 | 0.00 | 97.19 | 65 | 51 | 0 | 328.3 |
| 58.00 | | 0.2500 | 23.671 | 18.395 | 1,262.3 | 0.00 | 94.68 | 65 | 52 | 0 | 190.3 |
| 60.00 | | 0.2500 | 23.254 | 18.067 | 1,196.0 | 0.00 | 93.02 | 65 | 52 | 0 | 124.1 |
| 65.00 | | 0.2500 | 22.211 | 17.248 | 1,040.6 | 0.00 | 88.84 | 65 | 52 | 0 | 300.4 |
| 70.00 | | 0.2500 | 21.168 | 16.429 | 899.3 | 0.00 | 84.67 | 65 | 52 | 0 | 286.5 |
| 75.00 | | 0.2500 | 20.125 | 15.610 | 771.4 | 0.00 | 80.50 | 65 | 52 | 0 | 272.6 |
| 78.00 | | 0.2500 | 19.500 | 15.119 | 700.8 | 0.00 | 78.00 | 65 | 52 | 0 | 156.8 |
| | | | | | | | | | | | 31,475.8 |

| | | | |
|---|---|---|---|
| Pole : | CT33XC021 | Global Signal | |
| Location: | 3017688 - Harwinton, CT | | |
| Height : | 178.0 (ft) | Base Elev : 0.000 (ft) | |
| Shape : | Round | | |
| Base Dia : | 54.50 (in) | Top Dia : 19.50 (in) | |
| Taper : | 0.208570 (in/ft) | | |








**Load Case:** No Ice — 80 mph - No Ice — 26 Iterations

Gust Response Factor : 1.69 — Effective Wind Speed : 80.00 (mph)

Dead Load Factor : 1.00

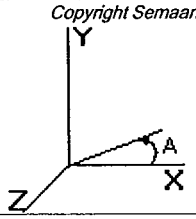
Wind Load Factor : 1.00

## Shaft Forces

| Seg Top Elev (ft) | Description | Kz | qz (psf) | qzGh (psf) | C (mph-ft) | Cf | Tributary (ft) | Aa (sf) | CfAa (sf) | Wind Force X (lb) | Wind Force Z (lb) | Weight (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | | 1.00 | 16.38 | 27.68 | 363.33 | 0.590 | 0.00 | 0.000 | 0.000 | 0.00 | 0.00 | 0.0 |
| 5.00 | | 1.00 | 16.38 | 27.68 | 356.38 | 0.590 | 5.00 | 22.491 | 13.270 | 367.43 | 0.00 | 1,429.2 |
| 10.00 | | 1.00 | 16.38 | 27.68 | 349.43 | 0.590 | 5.00 | 22.057 | 13.013 | 360.33 | 0.00 | 1,401.4 |
| 15.00 | | 1.00 | 16.38 | 27.68 | 342.48 | 0.590 | 5.00 | 21.622 | 12.757 | 353.23 | 0.00 | 1,373.5 |
| 20.00 | | 1.00 | 16.38 | 27.68 | 335.52 | 0.590 | 5.00 | 21.188 | 12.501 | 346.13 | 0.00 | 1,345.6 |
| 25.00 | | 1.00 | 16.38 | 27.68 | 328.57 | 0.590 | 5.00 | 20.753 | 12.244 | 339.03 | 0.00 | 1,317.8 |
| 30.00 | | 1.00 | 16.38 | 27.68 | 321.62 | 0.590 | 5.00 | 20.318 | 11.988 | 331.93 | 0.00 | 1,289.9 |
| 35.00 | | 1.01 | 16.66 | 28.15 | 317.32 | 0.590 | 5.00 | 19.884 | 11.732 | 330.34 | 0.00 | 1,262.0 |
| 40.00 | | 1.05 | 17.31 | 29.25 | 316.29 | 0.590 | 5.00 | 19.449 | 11.475 | 335.69 | 0.00 | 1,234.1 |
| 41.46 | Bot - Section 2 | 1.06 | 17.48 | 29.55 | 315.82 | 0.590 | 1.46 | 5.584 | 3.295 | 97.37 | 0.00 | 354.3 |
| 45.00 | | 1.09 | 17.90 | 30.25 | 314.39 | 0.590 | 3.54 | 13.689 | 8.077 | 244.35 | 0.00 | 1,613.0 |
| 47.54 | Top - Section 1 | 1.11 | 18.18 | 30.73 | 313.14 | 0.590 | 2.54 | 9.678 | 5.710 | 175.49 | 0.00 | 1,140.0 |
| 50.00 | | 1.12 | 18.44 | 31.17 | 317.97 | 0.590 | 2.46 | 9.267 | 5.468 | 170.47 | 0.00 | 515.1 |
| 55.00 | | 1.15 | 18.95 | 32.04 | 314.85 | 0.590 | 5.00 | 18.510 | 10.921 | 349.91 | 0.00 | 1,028.6 |
| 60.00 | | 1.18 | 19.43 | 32.84 | 311.21 | 0.590 | 5.00 | 18.076 | 10.665 | 350.30 | 0.00 | 1,004.2 |
| 65.00 | | 1.21 | 19.88 | 33.60 | 307.13 | 0.590 | 5.00 | 17.641 | 10.408 | 349.79 | 0.00 | 979.9 |
| 70.00 | | 1.24 | 20.31 | 34.32 | 302.66 | 0.590 | 5.00 | 17.207 | 10.152 | 348.47 | 0.00 | 955.5 |
| 75.00 | | 1.26 | 20.71 | 35.00 | 297.84 | 0.590 | 5.00 | 16.772 | 9.896 | 346.44 | 0.00 | 931.1 |
| 80.00 | | 1.28 | 21.10 | 35.66 | 292.71 | 0.590 | 5.00 | 16.338 | 9.639 | 343.74 | 0.00 | 906.7 |
| 84.83 | Bot - Section 3 | 1.31 | 21.45 | 36.26 | 287.48 | 0.590 | 4.83 | 15.380 | 9.074 | 329.06 | 0.00 | 853.3 |
| 85.00 | | 1.31 | 21.46 | 36.28 | 287.30 | 0.590 | 0.17 | 0.534 | 0.315 | 11.43 | 0.00 | 54.5 |
| 90.00 | | 1.33 | 21.82 | 36.88 | 281.63 | 0.590 | 5.00 | 15.781 | 9.311 | 343.40 | 0.00 | 1,609.6 |
| 90.17 | Top - Section 2 | 1.33 | 21.83 | 36.90 | 281.44 | 0.590 | 0.17 | 0.518 | 0.306 | 11.28 | 0.00 | 52.8 |
| 95.00 | | 1.35 | 22.16 | 37.45 | 281.54 | 0.590 | 4.83 | 14.829 | 8.749 | 327.69 | 0.00 | 706.1 |
| 00.00 | | 1.37 | 22.49 | 38.00 | 275.47 | 0.590 | 5.00 | 14.912 | 8.798 | 334.40 | 0.00 | 709.8 |
| 05.00 | | 1.39 | 22.80 | 38.54 | 269.19 | 0.590 | 5.00 | 14.478 | 8.542 | 329.22 | 0.00 | 688.9 |
| 10.00 | | 1.41 | 23.11 | 39.05 | 262.73 | 0.590 | 5.00 | 14.043 | 8.285 | 323.61 | 0.00 | 668.0 |
| 15.00 | | 1.42 | 23.40 | 39.55 | 256.10 | 0.590 | 5.00 | 13.609 | 8.029 | 317.60 | 0.00 | 647.1 |
| 20.00 | | 1.44 | 23.69 | 40.04 | 249.30 | 0.590 | 5.00 | 13.174 | 7.773 | 311.22 | 0.00 | 626.2 |
| 25.00 | | 1.46 | 23.97 | 40.51 | 242.35 | 0.590 | 5.00 | 12.740 | 7.516 | 304.49 | 0.00 | 605.3 |
| 29.87 | Bot - Section 4 | 1.47 | 24.23 | 40.95 | 235.43 | 0.590 | 4.87 | 11.998 | 7.079 | 289.92 | 0.00 | 569.9 |
| 30.00 | | 1.48 | 24.24 | 40.96 | 235.25 | 0.590 | 0.13 | 0.312 | 0.184 | 7.54 | 0.00 | 24.5 |
| 34.12 | Top - Section 3 | 1.49 | 24.45 | 41.33 | 229.30 | 0.590 | 4.12 | 9.992 | 5.895 | 243.67 | 0.00 | 783.9 |
| 35.00 | | 1.49 | 24.50 | 41.41 | 232.10 | 0.590 | 0.88 | 2.087 | 1.231 | 50.99 | 0.00 | 66.3 |
| 40.00 | | 1.51 | 24.75 | 41.84 | 224.76 | 0.590 | 5.00 | 11.644 | 6.870 | 287.47 | 0.00 | 370.1 |
| 45.00 | | 1.52 | 25.00 | 42.26 | 217.30 | 0.590 | 5.00 | 11.210 | 6.614 | 279.53 | 0.00 | 356.2 |
| 50.00 | | 1.54 | 25.25 | 42.67 | 209.72 | 0.590 | 5.00 | 10.775 | 6.357 | 271.31 | 0.00 | 342.2 |
| 55.00 | | 1.55 | 25.49 | 43.07 | 202.04 | 0.590 | 5.00 | 10.341 | 6.101 | 262.82 | 0.00 | 328.3 |
| 58.00 | Appertunance(s) | 1.56 | 25.63 | 43.31 | 197.37 | 0.590 | 3.00 | 5.996 | 3.538 | 153.23 | 0.00 | 190.3 |
| 60.00 | | 1.57 | 25.72 | 43.47 | 194.24 | 0.590 | 2.00 | 3.910 | 2.307 | 100.29 | 0.00 | 124.1 |
| 65.00 | | 1.58 | 25.94 | 43.85 | 186.35 | 0.590 | 5.00 | 9.472 | 5.588 | 245.07 | 0.00 | 300.4 |
| 70.00 | Appertunance(s) | 1.59 | 26.17 | 44.23 | 178.36 | 0.590 | 5.00 | 9.037 | 5.332 | 235.83 | 0.00 | 286.5 |
| 75.00 | | 1.61 | 26.38 | 44.59 | 170.28 | 0.590 | 5.00 | 8.603 | 5.076 | 226.36 | 0.00 | 272.6 |
| 78.00 | Appertunance(s) | 1.61 | 26.51 | 44.81 | 165.38 | 0.590 | 3.00 | 4.953 | 2.922 | 130.96 | 0.00 | 156.8 |
| | | | | | Totals: | | 178.00 | | | 11,268.86 | 0.00 | 31,475.8 |

| | | | | | |
|---|---|---|---|---|---|
| Pole : | CT33XC021 | Global Signal | | | |
| Location: | 3017688 - Harwinton, CT | | | | |
| Height : | 178.0 (ft) | Base Elev : | 0.000 | (ft) | |
| Shape : | Round | | | | |
| Base Dia : | 54.50 (in) | Top Dia : | 19.50 | (in) | |
| Taper : | 0.208570 (in/ft) | | | | |





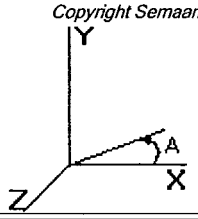

**Load Case:** No Ice — 80 mph - No Ice — 26 Iterations

Gust Response Factor : 1.69 — Effective Wind Speed : 80.00 (mph)
Dead Load Factor : 1.00
Wind Load Factor : 1.00

## Discrete Appurtenance Forces

| Elev (ft) | Description | Qty | qz (psf) | qzGh (psf) | Total CaAa (sf) | CaAa Factor | Horiz Ecc (ft) | Vert Ecc (ft) | X Angle (deg) | Wind Force X (lb) | Wind Force Z (lb) | Mom X (lb-ft) | Mom Y (lb-ft) | Mom Z (lb-ft) | Weight (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 158.00 | Low Profile Platform | 1 | 25.63 | 43.31 | 25.550 | 1.000 | 0.000 | 0.0 | 0.0 | 1106.69 | 0.00 | 0.00 | 0.00 | 0.00 | 1600.0 |
| 158.00 | LGP 2140 TMA | 12 | 25.63 | 43.31 | 15.120 | 1.000 | 0.000 | 0.0 | 0.0 | 654.92 | 0.00 | 0.00 | 0.00 | 0.00 | 228.0 |
| 158.00 | Allgon 7770 | 6 | 25.63 | 43.31 | 35.280 | 1.000 | 0.000 | 0.0 | 0.0 | 1528.14 | 0.00 | 0.00 | 0.00 | 0.00 | 210.0 |
| 170.00 | DB950G85E-M | 12 | 26.17 | 44.23 | 50.832 | 1.000 | 0.000 | 0.0 | 0.0 | 2248.30 | 0.00 | 0.00 | 0.00 | 0.00 | 138.0 |
| 170.00 | Low Profile Platform | 1 | 26.17 | 44.23 | 25.550 | 1.000 | 0.000 | 0.0 | 0.0 | 1130.07 | 0.00 | 0.00 | 0.00 | 0.00 | 1600.0 |
| 178.00 | Low Profile Platform | 1 | 26.51 | 44.81 | 25.550 | 1.000 | 0.000 | 0.0 | 0.0 | 1145.02 | 0.00 | 0.00 | 0.00 | 0.00 | 1600.0 |
| 178.00 | DB980H90 | 9 | 26.60 | 44.95 | 29.520 | 1.000 | 0.000 | 2.0 | 0.0 | 1327.17 | 0.00 | 0.00 | 0.00 | 2654.33 | 81.0 |
| | | | | | | | | | | 9,140.29 | 0.00 | | | | 5,457.0 |

Pole : CT33XC021 Global Signal
Location: 3017688 - Harwinton, CT
Height : 178.0 (ft) Base Elev : 0.000 (ft)
Shape : Round
Base Dia : 54.50 (in) Top Dia : 19.50 (in)
Taper : 0.208570 (in/ft)




**Load Case:** No Ice 80 mph - No Ice 26 Iterations

Gust Response Factor : 1.69 Effective Wind Speed : 80.00 (mph)
Dead Load Factor : 1.00
Wind Load Factor : 1.00

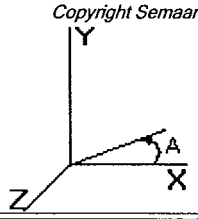
## Applied Forces Summary

| Seg Elev (ft) | X Coord (ft) | Z Coord (ft) | Lateral FX (-) (lb) | Axial FY (-) (lb) | Lateral FZ (lb) | Moment MX (lb-ft) | Torsion MY (lb-ft) | Moment MZ (lb-ft) |
|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | 0.00 | 0.00 | 367.43 | 1,429.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10.00 | 0.00 | 0.00 | 360.33 | 1,401.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15.00 | 0.00 | 0.00 | 353.23 | 1,373.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20.00 | 0.00 | 0.00 | 346.13 | 1,345.62 | 0.00 | 0.00 | 0.00 | 0.00 |
| 25.00 | 0.00 | 0.00 | 339.03 | 1,317.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30.00 | 0.00 | 0.00 | 331.93 | 1,289.88 | 0.00 | 0.00 | 0.00 | 0.00 |
| 35.00 | 0.00 | 0.00 | 330.34 | 1,262.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 40.00 | 0.00 | 0.00 | 335.69 | 1,234.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 41.46 | 0.00 | 0.00 | 97.37 | 354.28 | 0.00 | 0.00 | 0.00 | 0.00 |
| 45.00 | 0.00 | 0.00 | 244.35 | 1,613.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 47.54 | 0.00 | 0.00 | 175.49 | 1,140.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 50.00 | 0.00 | 0.00 | 170.47 | 515.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 55.00 | 0.00 | 0.00 | 349.91 | 1,028.64 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60.00 | 0.00 | 0.00 | 350.30 | 1,004.25 | 0.00 | 0.00 | 0.00 | 0.00 |
| 65.00 | 0.00 | 0.00 | 349.79 | 979.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 70.00 | 0.00 | 0.00 | 348.47 | 955.48 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75.00 | 0.00 | 0.00 | 346.44 | 931.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80.00 | 0.00 | 0.00 | 343.74 | 906.70 | 0.00 | 0.00 | 0.00 | 0.00 |
| 84.83 | 0.00 | 0.00 | 329.06 | 853.28 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85.00 | 0.00 | 0.00 | 11.43 | 54.46 | 0.00 | 0.00 | 0.00 | 0.00 |
| 90.00 | 0.00 | 0.00 | 343.40 | 1,609.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 90.17 | 0.00 | 0.00 | 11.28 | 52.84 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95.00 | 0.00 | 0.00 | 327.69 | 706.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100.00 | 0.00 | 0.00 | 334.40 | 709.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105.00 | 0.00 | 0.00 | 329.22 | 688.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110.00 | 0.00 | 0.00 | 323.61 | 668.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115.00 | 0.00 | 0.00 | 317.60 | 647.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 120.00 | 0.00 | 0.00 | 311.22 | 626.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125.00 | 0.00 | 0.00 | 304.49 | 605.33 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129.87 | 0.00 | 0.00 | 289.92 | 569.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 130.00 | 0.00 | 0.00 | 7.54 | 24.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 134.12 | 0.00 | 0.00 | 243.67 | 783.91 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135.00 | 0.00 | 0.00 | 50.99 | 66.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 140.00 | 0.00 | 0.00 | 287.47 | 370.10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145.00 | 0.00 | 0.00 | 279.53 | 356.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| 150.00 | 0.00 | 0.00 | 271.31 | 342.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 155.00 | 0.00 | 0.00 | 262.82 | 328.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 158.00 | 0.00 | 0.00 | 3,442.97 | 2,228.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 160.00 | 0.00 | 0.00 | 100.29 | 124.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 165.00 | 0.00 | 0.00 | 245.07 | 300.42 | 0.00 | 0.00 | 0.00 | 0.00 |
| 170.00 | 0.00 | 0.00 | 3,614.20 | 2,024.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 175.00 | 0.00 | 0.00 | 226.36 | 272.55 | 0.00 | 0.00 | 0.00 | 0.00 |
| 178.00 | 0.00 | 0.00 | 2,603.15 | 1,837.84 | 0.00 | 0.00 | 0.00 | 2,654.33 |
| | Totals: | | 20,409.15 | 36,932.76 | 0.00 | 0.00 | 0.00 | 2,654.33 |

| | | | |
|---|---|---|---|
| Pole : | CT33XC021 | Global Signal | |
| Location: | 3017688 - Harwinton, CT | | |
| Height : | 178.0 (ft) | Base Elev : 0.000 (ft) | |
| Shape : | Round | | |
| Base Dia : | 54.50 (in) | Top Dia : 19.50 (in) | |
| Taper : | 0.208570 (in/ft) | | |








**Load Case:** No Ice 80 mph - No Ice 26 Iterations

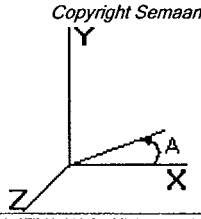
Gust Response Factor : 1.69 Effective Wind Speed : 80.00 (mph)
Dead Load Factor : 1.00
Wind Load Factor : 1.00

## Calculated Forces and Deflections

| Seg Elev (ft) | Lateral FX (-) (kips) | Axial FY (-) (kips) | Lateral FZ (kips) | Moment MX (ft-kips) | Torsion MY (ft-kips) | Moment MZ (ft-kips) | X Deflect (in) | Z Deflect (in) | Total Deflect (in) | Rotation (deg) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 20.447 | 36.911 | 0.000 | 0.000 | 0.000 | 2,588.820 | 0.000 | 0.000 | 0.000 | 0.000 |
| 5.00 | 20.151 | 35.441 | 0.000 | 0.000 | 0.000 | 2,486.586 | -0.062 | 0.000 | 0.062 | -0.117 |
| 10.00 | 19.857 | 34.000 | 0.000 | 0.000 | 0.000 | 2,385.833 | -0.248 | 0.000 | 0.248 | -0.235 |
| 15.00 | 19.567 | 32.586 | 0.000 | 0.000 | 0.000 | 2,286.547 | -0.560 | 0.000 | 0.560 | -0.356 |
| 20.00 | 19.278 | 31.202 | 0.000 | 0.000 | 0.000 | 2,188.715 | -0.999 | 0.000 | 0.999 | -0.479 |
| 25.00 | 18.993 | 29.845 | 0.000 | 0.000 | 0.000 | 2,092.325 | -1.568 | 0.000 | 1.568 | -0.605 |
| 30.00 | 18.710 | 28.517 | 0.000 | 0.000 | 0.000 | 1,997.363 | -2.269 | 0.000 | 2.269 | -0.732 |
| 35.00 | 18.424 | 27.218 | 0.000 | 0.000 | 0.000 | 1,903.816 | -3.105 | 0.000 | 3.105 | -0.862 |
| 40.00 | 18.107 | 25.963 | 0.000 | 0.000 | 0.000 | 1,811.697 | -4.078 | 0.000 | 4.078 | -0.994 |
| 41.46 | 18.034 | 25.589 | 0.000 | 0.000 | 0.000 | 1,785.323 | -4.388 | 0.000 | 4.388 | -1.034 |
| 45.00 | 17.794 | 23.955 | 0.000 | 0.000 | 0.000 | 1,721.421 | -5.192 | 0.000 | 5.192 | -1.130 |
| 47.54 | 17.623 | 22.797 | 0.000 | 0.000 | 0.000 | 1,676.226 | -5.812 | 0.000 | 5.812 | -1.201 |
| 50.00 | 17.484 | 22.252 | 0.000 | 0.000 | 0.000 | 1,632.872 | -6.449 | 0.000 | 6.449 | -1.269 |
| 55.00 | 17.166 | 21.187 | 0.000 | 0.000 | 0.000 | 1,545.452 | -7.858 | 0.000 | 7.858 | -1.418 |
| 60.00 | 16.843 | 20.148 | 0.000 | 0.000 | 0.000 | 1,459.623 | -9.424 | 0.000 | 9.424 | -1.570 |
| 65.00 | 16.517 | 19.134 | 0.000 | 0.000 | 0.000 | 1,375.409 | -11.150 | 0.000 | 11.150 | -1.723 |
| 70.00 | 16.188 | 18.146 | 0.000 | 0.000 | 0.000 | 1,292.824 | -13.038 | 0.000 | 13.038 | -1.879 |
| 75.00 | 15.858 | 17.183 | 0.000 | 0.000 | 0.000 | 1,211.882 | -15.091 | 0.000 | 15.091 | -2.037 |
| 80.00 | 15.526 | 16.247 | 0.000 | 0.000 | 0.000 | 1,132.593 | -17.309 | 0.000 | 17.309 | -2.197 |
| 84.83 | 15.185 | 15.386 | 0.000 | 0.000 | 0.000 | 1,057.553 | -19.614 | 0.000 | 19.614 | -2.353 |
| 85.00 | 15.194 | 15.309 | 0.000 | 0.000 | 0.000 | 1,055.021 | -19.696 | 0.000 | 19.696 | -2.359 |
| 90.00 | 14.802 | 13.694 | 0.000 | 0.000 | 0.000 | 979.051 | -22.253 | 0.000 | 22.253 | -2.522 |
| 90.17 | 14.809 | 13.620 | 0.000 | 0.000 | 0.000 | 976.585 | -22.341 | 0.000 | 22.341 | -2.528 |
| 95.00 | 14.488 | 12.887 | 0.000 | 0.000 | 0.000 | 905.009 | -24.983 | 0.000 | 24.983 | -2.688 |
| 100.00 | 14.158 | 12.150 | 0.000 | 0.000 | 0.000 | 832.572 | -27.893 | 0.000 | 27.893 | -2.868 |
| 105.00 | 13.829 | 11.435 | 0.000 | 0.000 | 0.000 | 761.785 | -30.993 | 0.000 | 30.993 | -3.049 |
| 110.00 | 13.504 | 10.743 | 0.000 | 0.000 | 0.000 | 692.638 | -34.282 | 0.000 | 34.282 | -3.230 |
| 115.00 | 13.181 | 10.074 | 0.000 | 0.000 | 0.000 | 625.121 | -37.760 | 0.000 | 37.760 | -3.410 |
| 120.00 | 12.861 | 9.428 | 0.000 | 0.000 | 0.000 | 559.218 | -41.426 | 0.000 | 41.426 | -3.589 |
| 125.00 | 12.545 | 8.806 | 0.000 | 0.000 | 0.000 | 494.913 | -45.277 | 0.000 | 45.277 | -3.764 |
| 129.87 | 12.229 | 8.239 | 0.000 | 0.000 | 0.000 | 433.782 | -49.204 | 0.000 | 49.204 | -3.931 |
| 130.00 | 12.231 | 8.200 | 0.000 | 0.000 | 0.000 | 432.230 | -49.309 | 0.000 | 49.309 | -3.936 |
| 134.12 | 11.943 | 7.418 | 0.000 | 0.000 | 0.000 | 381.803 | -52.767 | 0.000 | 52.767 | -4.074 |
| 135.00 | 11.904 | 7.329 | 0.000 | 0.000 | 0.000 | 371.330 | -53.517 | 0.000 | 53.517 | -4.104 |
| 140.00 | 11.616 | 6.938 | 0.000 | 0.000 | 0.000 | 311.809 | -57.931 | 0.000 | 57.931 | -4.324 |
| 145.00 | 11.332 | 6.566 | 0.000 | 0.000 | 0.000 | 253.729 | -62.567 | 0.000 | 62.567 | -4.528 |
| 150.00 | 11.053 | 6.214 | 0.000 | 0.000 | 0.000 | 197.068 | -67.405 | 0.000 | 67.405 | -4.711 |
| 155.00 | 10.775 | 5.887 | 0.000 | 0.000 | 0.000 | 141.805 | -72.420 | 0.000 | 72.420 | -4.866 |
| 158.00 | 7.158 | 3.954 | 0.000 | 0.000 | 0.000 | 109.480 | -75.501 | 0.000 | 75.501 | -4.944 |
| 160.00 | 7.053 | 3.830 | 0.000 | 0.000 | 0.000 | 95.164 | -77.580 | 0.000 | 77.580 | -4.990 |
| 165.00 | 6.787 | 3.544 | 0.000 | 0.000 | 0.000 | 59.901 | -82.852 | 0.000 | 82.852 | -5.083 |
| 170.00 | 3.008 | 1.847 | 0.000 | 0.000 | 0.000 | 25.968 | -88.204 | 0.000 | 88.204 | -5.141 |
| 175.00 | 2.758 | 1.596 | 0.000 | 0.000 | 0.000 | 10.929 | -93.599 | 0.000 | 93.599 | -5.171 |
| 178.00 | 2.603 | 0.000 | 0.000 | 0.000 | 0.000 | 2.654 | -96.847 | 0.000 | 96.847 | -5.178 |

| | | | |
|---|---|---|---|
| Pole : | CT33XC021 | Global Signal | |
| Location: | 3017688 - Harwinton, CT | | |
| Height : | 178.0 (ft) | Base Elev : 0.000 (ft) | |
| Shape : | Round | | |
| Base Dia : | 54.50 (in) | Top Dia : 19.50 (in) | |
| Taper : | 0.208570 (in/ft) | | |






**Load Case:** No Ice — 80 mph - No Ice — 26 Iterations

Gust Response Factor : 1.69 — Effective Wind Speed : 80.00 (mph)
Dead Load Factor : 1.00
Wind Load Factor : 1.00

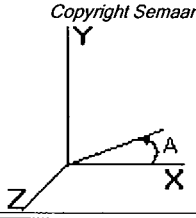
## Calculated Stresses

| Seg Elev (ft) | Applied Stresses: Axial (Y) (ksi) | Shear (X) (ksi) | Shear (Z) (ksi) | Torsion (ksi) | Bending (X) (ksi) | Bending (Z) (ksi) | Combined (ksi) | Allowable Stress (Fb) (ksi) | Allowable Stress (Fa) (ksi) | Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.435 | 0.482 | 0.000 | 0.000 | 0.000 | 27.359 | 27.807 | 49.6 | 0.0 | 0.561 |
| 5.00 | 0.426 | 0.485 | 0.000 | 0.000 | 0.000 | 27.329 | 27.768 | 49.9 | 0.0 | 0.557 |
| 10.00 | 0.417 | 0.487 | 0.000 | 0.000 | 0.000 | 27.291 | 27.721 | 50.1 | 0.0 | 0.553 |
| 15.00 | 0.408 | 0.490 | 0.000 | 0.000 | 0.000 | 27.244 | 27.665 | 50.4 | 0.0 | 0.549 |
| 20.00 | 0.399 | 0.493 | 0.000 | 0.000 | 0.000 | 27.187 | 27.599 | 50.7 | 0.0 | 0.544 |
| 25.00 | 0.389 | 0.496 | 0.000 | 0.000 | 0.000 | 27.118 | 27.521 | 51.0 | 0.0 | 0.540 |
| 30.00 | 0.380 | 0.499 | 0.000 | 0.000 | 0.000 | 27.037 | 27.431 | 51.3 | 0.0 | 0.535 |
| 35.00 | 0.371 | 0.503 | 0.000 | 0.000 | 0.000 | 26.940 | 27.325 | 51.6 | 0.0 | 0.529 |
| 40.00 | 0.362 | 0.505 | 0.000 | 0.000 | 0.000 | 26.828 | 27.204 | 52.0 | 0.0 | 0.523 |
| 41.46 | 0.359 | 0.507 | 0.000 | 0.000 | 0.000 | 26.795 | 27.168 | 52.0 | 0.0 | 0.523 |
| 45.00 | 0.342 | 0.508 | 0.000 | 0.000 | 0.000 | 26.703 | 27.060 | 52.0 | 0.0 | 0.520 |
| 47.54 | 0.368 | 0.570 | 0.000 | 0.000 | 0.000 | 29.138 | 29.523 | 50.3 | 0.0 | 0.587 |
| 50.00 | 0.364 | 0.572 | 0.000 | 0.000 | 0.000 | 29.046 | 29.426 | 50.4 | 0.0 | 0.584 |
| 55.00 | 0.355 | 0.575 | 0.000 | 0.000 | 0.000 | 28.833 | 29.204 | 50.7 | 0.0 | 0.576 |
| 60.00 | 0.346 | 0.578 | 0.000 | 0.000 | 0.000 | 28.594 | 28.956 | 51.1 | 0.0 | 0.567 |
| 65.00 | 0.336 | 0.581 | 0.000 | 0.000 | 0.000 | 28.326 | 28.680 | 51.5 | 0.0 | 0.557 |
| 70.00 | 0.327 | 0.584 | 0.000 | 0.000 | 0.000 | 28.028 | 28.373 | 51.8 | 0.0 | 0.547 |
| 75.00 | 0.318 | 0.588 | 0.000 | 0.000 | 0.000 | 27.694 | 28.030 | 52.0 | 0.0 | 0.539 |
| 80.00 | 0.309 | 0.591 | 0.000 | 0.000 | 0.000 | 27.320 | 27.648 | 52.0 | 0.0 | 0.532 |
| 84.83 | 0.301 | 0.594 | 0.000 | 0.000 | 0.000 | 26.918 | 27.238 | 52.0 | 0.0 | 0.524 |
| 85.00 | 0.299 | 0.595 | 0.000 | 0.000 | 0.000 | 26.904 | 27.223 | 52.0 | 0.0 | 0.524 |
| 90.00 | 0.275 | 0.596 | 0.000 | 0.000 | 0.000 | 26.436 | 26.732 | 52.0 | 0.0 | 0.514 |
| 90.17 | 0.313 | 0.681 | 0.000 | 0.000 | 0.000 | 29.426 | 29.763 | 50.9 | 0.0 | 0.585 |
| 95.00 | 0.304 | 0.685 | 0.000 | 0.000 | 0.000 | 28.829 | 29.158 | 51.3 | 0.0 | 0.569 |
| 100.00 | 0.296 | 0.689 | 0.000 | 0.000 | 0.000 | 28.139 | 28.460 | 51.7 | 0.0 | 0.550 |
| 105.00 | 0.287 | 0.694 | 0.000 | 0.000 | 0.000 | 27.367 | 27.680 | 52.0 | 0.0 | 0.532 |
| 110.00 | 0.278 | 0.699 | 0.000 | 0.000 | 0.000 | 26.499 | 26.804 | 52.0 | 0.0 | 0.516 |
| 115.00 | 0.269 | 0.705 | 0.000 | 0.000 | 0.000 | 25.521 | 25.820 | 52.0 | 0.0 | 0.497 |
| 120.00 | 0.261 | 0.711 | 0.000 | 0.000 | 0.000 | 24.417 | 24.708 | 52.0 | 0.0 | 0.475 |
| 125.00 | 0.252 | 0.718 | 0.000 | 0.000 | 0.000 | 23.164 | 23.449 | 52.0 | 0.0 | 0.451 |
| 129.87 | 0.244 | 0.725 | 0.000 | 0.000 | 0.000 | 21.778 | 22.058 | 52.0 | 0.0 | 0.424 |
| 130.00 | 0.243 | 0.726 | 0.000 | 0.000 | 0.000 | 21.741 | 22.020 | 52.0 | 0.0 | 0.423 |
| 134.12 | 0.333 | 1.072 | 0.000 | 0.000 | 0.000 | 29.161 | 29.552 | 49.0 | 0.0 | 0.604 |
| 135.00 | 0.331 | 1.075 | 0.000 | 0.000 | 0.000 | 28.731 | 29.122 | 49.0 | 0.0 | 0.594 |
| 140.00 | 0.325 | 1.089 | 0.000 | 0.000 | 0.000 | 26.022 | 26.414 | 49.5 | 0.0 | 0.533 |
| 145.00 | 0.320 | 1.105 | 0.000 | 0.000 | 0.000 | 22.907 | 23.306 | 50.0 | 0.0 | 0.466 |
| 150.00 | 0.315 | 1.122 | 0.000 | 0.000 | 0.000 | 19.309 | 19.720 | 50.6 | 0.0 | 0.390 |
| 155.00 | 0.312 | 1.142 | 0.000 | 0.000 | 0.000 | 15.132 | 15.570 | 51.2 | 0.0 | 0.304 |
| 158.00 | 0.215 | 0.779 | 0.000 | 0.000 | 0.000 | 12.318 | 12.606 | 51.6 | 0.0 | 0.244 |
| 160.00 | 0.212 | 0.781 | 0.000 | 0.000 | 0.000 | 11.102 | 11.394 | 51.9 | 0.0 | 0.220 |
| 165.00 | 0.205 | 0.787 | 0.000 | 0.000 | 0.000 | 7.671 | 7.994 | 52.0 | 0.0 | 0.154 |
| 170.00 | 0.112 | 0.366 | 0.000 | 0.000 | 0.000 | 3.667 | 3.833 | 52.0 | 0.0 | 0.074 |
| 175.00 | 0.102 | 0.354 | 0.000 | 0.000 | 0.000 | 1.711 | 1.914 | 52.0 | 0.0 | 0.037 |
| 178.00 | 0.000 | 0.345 | 0.000 | 0.000 | 0.000 | 0.443 | 0.743 | 52.0 | 0.0 | 0.014 |

| | | | |
|---|---|---|---|
| Pole : | CT33XC021 | Global Signal | |
| Location: | 3017688 - Harwinton, CT | | |
| Height : | 178.0 (ft) | Base Elev : 0.000 (ft) | |
| Shape : | Round | | |
| Base Dia : | 54.50 (in) | Top Dia : 19.50 (in) | |
| Taper : | 0.208570 (in/ft) | | |





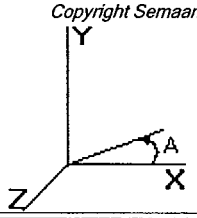



**Load Case:** Ice — 80 mph - With Ice - Ice Thickness = 0.5 in — 26 Iterations

Gust Response Factor : 1.69 — Effective Wind Speed : 69.28 (mph)
Dead Load Factor : 1.00
Wind Load Factor : 1.00

## Shaft Forces

| Seg Top Elev (ft) | Description | Kz | qz (psf) | qzGh (psf) | C (mph-ft) | Cf | Tributary (ft) | Aa (sf) | CfAa (sf) | Wind Force X (lb) | Wind Force Z (lb) | Weight (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | | 1.00 | 12.28 | 20.76 | 314.65 | 0.590 | 0.00 | 0.000 | 0.000 | 0.00 | 0.00 | 0.0 |
| 5.00 | | 1.00 | 12.28 | 20.76 | 308.63 | 0.590 | 5.00 | 22.908 | 13.516 | 280.66 | 0.00 | 1,594.0 |
| 10.00 | | 1.00 | 12.28 | 20.76 | 302.61 | 0.590 | 5.00 | 22.473 | 13.259 | 275.33 | 0.00 | 1,562.9 |
| 15.00 | | 1.00 | 12.28 | 20.76 | 296.58 | 0.590 | 5.00 | 22.039 | 13.003 | 270.01 | 0.00 | 1,531.8 |
| 20.00 | | 1.00 | 12.28 | 20.76 | 290.56 | 0.590 | 5.00 | 21.604 | 12.746 | 264.69 | 0.00 | 1,500.8 |
| 25.00 | | 1.00 | 12.28 | 20.76 | 284.54 | 0.590 | 5.00 | 21.170 | 12.490 | 259.36 | 0.00 | 1,469.7 |
| 30.00 | | 1.00 | 12.28 | 20.76 | 278.52 | 0.590 | 5.00 | 20.735 | 12.234 | 254.04 | 0.00 | 1,438.7 |
| 35.00 | | 1.01 | 12.49 | 21.11 | 274.80 | 0.590 | 5.00 | 20.301 | 11.977 | 252.93 | 0.00 | 1,407.6 |
| 40.00 | | 1.05 | 12.98 | 21.93 | 273.91 | 0.590 | 5.00 | 19.866 | 11.721 | 257.14 | 0.00 | 1,376.6 |
| 41.46 | Bot - Section 2 | 1.06 | 13.11 | 22.16 | 273.50 | 0.590 | 1.46 | 5.706 | 3.366 | 74.61 | 0.00 | 395.5 |
| 45.00 | | 1.09 | 13.42 | 22.69 | 272.26 | 0.590 | 3.54 | 13.984 | 8.251 | 187.21 | 0.00 | 1,713.6 |
| 47.54 | Top - Section 1 | 1.11 | 13.63 | 23.04 | 271.18 | 0.590 | 2.54 | 9.890 | 5.835 | 134.48 | 0.00 | 1,211.3 |
| 50.00 | | 1.12 | 13.83 | 23.38 | 275.36 | 0.590 | 2.46 | 9.472 | 5.588 | 130.68 | 0.00 | 583.3 |
| 55.00 | | 1.15 | 14.21 | 24.02 | 272.66 | 0.590 | 5.00 | 18.927 | 11.167 | 268.33 | 0.00 | 1,164.2 |
| 60.00 | | 1.18 | 14.57 | 24.63 | 269.51 | 0.590 | 5.00 | 18.493 | 10.911 | 268.77 | 0.00 | 1,136.6 |
| 65.00 | | 1.21 | 14.91 | 25.20 | 265.98 | 0.590 | 5.00 | 18.058 | 10.654 | 268.52 | 0.00 | 1,109.0 |
| 70.00 | | 1.24 | 15.23 | 25.74 | 262.11 | 0.590 | 5.00 | 17.624 | 10.398 | 267.67 | 0.00 | 1,081.5 |
| 75.00 | | 1.26 | 15.53 | 26.25 | 257.93 | 0.590 | 5.00 | 17.189 | 10.142 | 266.27 | 0.00 | 1,053.9 |
| 80.00 | | 1.28 | 15.82 | 26.74 | 253.49 | 0.590 | 5.00 | 16.755 | 9.885 | 264.37 | 0.00 | 1,026.3 |
| 84.83 | Bot - Section 3 | 1.31 | 16.09 | 27.19 | 248.96 | 0.590 | 4.83 | 15.783 | 9.312 | 253.24 | 0.00 | 966.0 |
| 85.00 | | 1.31 | 16.10 | 27.21 | 248.80 | 0.590 | 0.17 | 0.548 | 0.323 | 8.79 | 0.00 | 58.4 |
| 90.00 | | 1.33 | 16.36 | 27.65 | 243.89 | 0.590 | 5.00 | 16.198 | 9.557 | 264.33 | 0.00 | 1,725.1 |
| 90.17 | Top - Section 2 | 1.33 | 16.37 | 27.67 | 243.73 | 0.590 | 0.17 | 0.532 | 0.314 | 8.69 | 0.00 | 56.7 |
| 95.00 | | 1.35 | 16.62 | 28.09 | 243.82 | 0.590 | 4.83 | 15.231 | 8.986 | 252.43 | 0.00 | 814.7 |
| 00.00 | | 1.37 | 16.86 | 28.50 | 238.56 | 0.590 | 5.00 | 15.329 | 9.044 | 257.79 | 0.00 | 819.0 |
| 05.00 | | 1.39 | 17.10 | 28.90 | 233.12 | 0.590 | 5.00 | 14.894 | 8.788 | 254.00 | 0.00 | 795.0 |
| 10.00 | | 1.41 | 17.33 | 29.29 | 227.53 | 0.590 | 5.00 | 14.460 | 8.531 | 249.89 | 0.00 | 770.9 |
| 15.00 | | 1.42 | 17.55 | 29.66 | 221.78 | 0.590 | 5.00 | 14.025 | 8.275 | 245.48 | 0.00 | 746.8 |
| 20.00 | | 1.44 | 17.76 | 30.02 | 215.89 | 0.590 | 5.00 | 13.591 | 8.019 | 240.79 | 0.00 | 722.7 |
| 25.00 | | 1.46 | 17.97 | 30.38 | 209.87 | 0.590 | 5.00 | 13.156 | 7.762 | 235.82 | 0.00 | 698.6 |
| 29.87 | Bot - Section 4 | 1.47 | 18.17 | 30.71 | 203.88 | 0.590 | 4.87 | 12.404 | 7.319 | 224.79 | 0.00 | 657.7 |
| 30.00 | | 1.48 | 18.17 | 30.72 | 203.73 | 0.590 | 0.13 | 0.323 | 0.190 | 5.85 | 0.00 | 26.8 |
| 34.12 | Top - Section 3 | 1.49 | 18.34 | 30.99 | 198.57 | 0.590 | 4.12 | 10.336 | 6.098 | 189.03 | 0.00 | 857.3 |
| 35.00 | | 1.49 | 18.37 | 31.05 | 201.00 | 0.590 | 0.88 | 2.160 | 1.274 | 39.58 | 0.00 | 81.9 |
| 40.00 | | 1.51 | 18.56 | 31.38 | 194.64 | 0.590 | 5.00 | 12.061 | 7.116 | 223.31 | 0.00 | 455.4 |
| 45.00 | | 1.52 | 18.75 | 31.69 | 188.18 | 0.590 | 5.00 | 11.627 | 6.860 | 217.43 | 0.00 | 438.2 |
| 50.00 | | 1.54 | 18.93 | 32.00 | 181.62 | 0.590 | 5.00 | 11.192 | 6.603 | 211.34 | 0.00 | 421.1 |
| 55.00 | | 1.55 | 19.11 | 32.30 | 174.96 | 0.590 | 5.00 | 10.758 | 6.347 | 205.05 | 0.00 | 404.0 |
| 58.00 | Appertunance(s) | 1.56 | 19.22 | 32.48 | 170.92 | 0.590 | 3.00 | 6.246 | 3.685 | 119.71 | 0.00 | 234.6 |
| 60.00 | | 1.57 | 19.29 | 32.60 | 168.21 | 0.590 | 2.00 | 4.077 | 2.405 | 78.42 | 0.00 | 153.1 |
| 65.00 | | 1.58 | 19.46 | 32.88 | 161.38 | 0.590 | 5.00 | 9.888 | 5.834 | 191.88 | 0.00 | 369.8 |
| 70.00 | Appertunance(s) | 1.59 | 19.62 | 33.17 | 154.46 | 0.590 | 5.00 | 9.454 | 5.578 | 185.02 | 0.00 | 352.6 |
| 75.00 | | 1.61 | 19.79 | 33.44 | 147.46 | 0.590 | 5.00 | 9.019 | 5.321 | 177.98 | 0.00 | 335.5 |
| 78.00 | Appertunance(s) | 1.61 | 19.88 | 33.60 | 143.22 | 0.590 | 3.00 | 5.203 | 3.070 | 103.17 | 0.00 | 193.5 |
| | | | | | Totals: | | 178.00 | | | 8,688.88 | 0.00 | 35,512.7 |

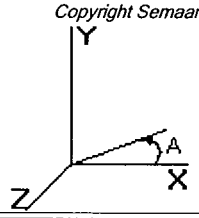



**Load Case:** Ice — 80 mph - With Ice - Ice Thickness = 0.5 in — 26 Iterations

Gust Response Factor : 1.69 Effective Wind Speed : 69.28 (mph)
Dead Load Factor : 1.00
Wind Load Factor : 1.00

## Discrete Appurtenance Forces

| Elev (ft) | Description | Qty | qz (psf) | qzGh (psf) | Total CaAa (sf) | CaAa Factor | Horiz Ecc (ft) | Vert Ecc (ft) | X Angle (deg) | Wind Force X (lb) | Wind Force Z (lb) | Mom X (lb-ft) | Mom Y (lb-ft) | Mom Z (lb-ft) | Weight (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 158.00 | Low Profile Platform | 1 | 19.22 | 32.48 | 27.320 | 1.000 | 0.000 | 0.0 | 0.0 | 887.46 | 0.00 | 0.00 | 0.00 | 0.00 | 2100.0 |
| 158.00 | LGP 2140 TMA | 12 | 19.22 | 32.48 | 18.000 | 1.000 | 0.000 | 0.0 | 0.0 | 584.71 | 0.00 | 0.00 | 0.00 | 0.00 | 313.6 |
| 158.00 | Allgon 7770 | 6 | 19.22 | 32.48 | 39.180 | 1.000 | 0.000 | 0.0 | 0.0 | 1272.72 | 0.00 | 0.00 | 0.00 | 0.00 | 405.8 |
| 170.00 | DB950G85E-M | 12 | 19.62 | 33.17 | 57.780 | 1.000 | 0.000 | 0.0 | 0.0 | 1916.59 | 0.00 | 0.00 | 0.00 | 0.00 | 407.2 |
| 170.00 | Low Profile Platform | 1 | 19.62 | 33.17 | 27.320 | 1.000 | 0.000 | 0.0 | 0.0 | 906.22 | 0.00 | 0.00 | 0.00 | 0.00 | 2100.0 |
| 178.00 | Low Profile Platform | 1 | 19.88 | 33.60 | 27.320 | 1.000 | 0.000 | 0.0 | 0.0 | 918.20 | 0.00 | 0.00 | 0.00 | 0.00 | 2100.0 |
| 178.00 | DB980H90 | 9 | 19.95 | 33.71 | 34.650 | 1.000 | 0.000 | 2.0 | 0.0 | 1168.28 | 0.00 | 0.00 | 0.00 | 2336.57 | 252.0 |
| | | | | | | | | | | 7,654.19 | 0.00 | | | | 7,678.5 |




**Load Case:** Ice — 80 mph - With Ice - Ice Thickness = 0.5 in — 26 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Effective Wind Speed : 69.28 (mph)

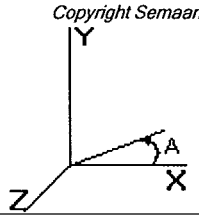
## Applied Forces Summary

| Seg Elev (ft) | X Coord (ft) | Z Coord (ft) | Lateral FX (-) (lb) | Axial FY (-) (lb) | Lateral FZ (lb) | Moment MX (lb-ft) | Torsion MY (lb-ft) | Moment MZ (lb-ft) |
|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | 0.00 | 0.00 | 280.66 | 1,593.95 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10.00 | 0.00 | 0.00 | 275.33 | 1,562.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15.00 | 0.00 | 0.00 | 270.01 | 1,531.84 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20.00 | 0.00 | 0.00 | 264.69 | 1,500.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 25.00 | 0.00 | 0.00 | 259.36 | 1,469.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30.00 | 0.00 | 0.00 | 254.04 | 1,438.68 | 0.00 | 0.00 | 0.00 | 0.00 |
| 35.00 | 0.00 | 0.00 | 252.93 | 1,407.63 | 0.00 | 0.00 | 0.00 | 0.00 |
| 40.00 | 0.00 | 0.00 | 257.14 | 1,376.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| 41.46 | 0.00 | 0.00 | 74.61 | 395.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 45.00 | 0.00 | 0.00 | 187.21 | 1,713.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 47.54 | 0.00 | 0.00 | 134.48 | 1,211.32 | 0.00 | 0.00 | 0.00 | 0.00 |
| 50.00 | 0.00 | 0.00 | 130.68 | 583.32 | 0.00 | 0.00 | 0.00 | 0.00 |
| 55.00 | 0.00 | 0.00 | 268.33 | 1,164.19 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60.00 | 0.00 | 0.00 | 268.77 | 1,136.62 | 0.00 | 0.00 | 0.00 | 0.00 |
| 65.00 | 0.00 | 0.00 | 268.52 | 1,109.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 70.00 | 0.00 | 0.00 | 267.67 | 1,081.48 | 0.00 | 0.00 | 0.00 | 0.00 |
| 75.00 | 0.00 | 0.00 | 266.27 | 1,053.91 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80.00 | 0.00 | 0.00 | 264.37 | 1,026.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 84.83 | 0.00 | 0.00 | 253.24 | 965.95 | 0.00 | 0.00 | 0.00 | 0.00 |
| 85.00 | 0.00 | 0.00 | 8.79 | 58.42 | 0.00 | 0.00 | 0.00 | 0.00 |
| 90.00 | 0.00 | 0.00 | 264.33 | 1,725.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 90.17 | 0.00 | 0.00 | 8.69 | 56.69 | 0.00 | 0.00 | 0.00 | 0.00 |
| 95.00 | 0.00 | 0.00 | 252.43 | 814.70 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100.00 | 0.00 | 0.00 | 257.79 | 819.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| 105.00 | 0.00 | 0.00 | 254.00 | 794.95 | 0.00 | 0.00 | 0.00 | 0.00 |
| 110.00 | 0.00 | 0.00 | 249.89 | 770.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115.00 | 0.00 | 0.00 | 245.48 | 746.78 | 0.00 | 0.00 | 0.00 | 0.00 |
| 120.00 | 0.00 | 0.00 | 240.79 | 722.69 | 0.00 | 0.00 | 0.00 | 0.00 |
| 125.00 | 0.00 | 0.00 | 235.82 | 698.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 129.87 | 0.00 | 0.00 | 224.79 | 657.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| 130.00 | 0.00 | 0.00 | 5.85 | 26.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| 134.12 | 0.00 | 0.00 | 189.03 | 857.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 135.00 | 0.00 | 0.00 | 39.58 | 81.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 140.00 | 0.00 | 0.00 | 223.31 | 455.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| 145.00 | 0.00 | 0.00 | 217.43 | 438.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 150.00 | 0.00 | 0.00 | 211.34 | 421.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 155.00 | 0.00 | 0.00 | 205.05 | 403.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| 158.00 | 0.00 | 0.00 | 2,864.60 | 3,053.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| 160.00 | 0.00 | 0.00 | 78.42 | 153.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 165.00 | 0.00 | 0.00 | 191.88 | 369.76 | 0.00 | 0.00 | 0.00 | 0.00 |
| 170.00 | 0.00 | 0.00 | 3,007.83 | 2,859.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 175.00 | 0.00 | 0.00 | 177.98 | 335.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 178.00 | 0.00 | 0.00 | 2,189.66 | 2,545.48 | 0.00 | 0.00 | 0.00 | 2,336.57 |
| | Totals: | | 16,343.06 | 43,191.20 | 0.00 | 0.00 | 0.00 | 2,336.57 |

| | | | |
|---|---|---|---|
| Pole : | CT33XC021 | Global Signal | |
| Location: | 3017688 - Harwinton, CT | | |
| Height : | 178.0 (ft) | Base Elev : 0.000 (ft) | |
| Shape : | Round | | |
| Base Dia : | 54.50 (in) | Top Dia : 19.50 (in) | |
| Taper : | 0.208570 (in/ft) | | |








**Load Case:** Ice — 80 mph - With Ice - Ice Thickness = 0.5 in — 26 Iterations

Gust Response Factor : 1.69 — Effective Wind Speed : 69.28 (mph)
Dead Load Factor : 1.00
Wind Load Factor : 1.00

## Calculated Forces and Deflections

| Seg Elev (ft) | Lateral FX (-) (kips) | Axial FY (-) (kips) | Lateral FZ (kips) | Moment MX (ft-kips) | Torsion MY (ft-kips) | Moment MZ (ft-kips) | X Deflect (in) | Z Deflect (in) | Total Deflect (in) | Rotation (deg) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 16.380 | 43.177 | 0.000 | 0.000 | 0.000 | 2,127.825 | 0.000 | 0.000 | 0.000 | 0.000 |
| 5.00 | 16.168 | 41.556 | 0.000 | 0.000 | 0.000 | 2,045.929 | -0.051 | 0.000 | 0.051 | -0.096 |
| 10.00 | 15.957 | 39.967 | 0.000 | 0.000 | 0.000 | 1,965.091 | -0.204 | 0.000 | 0.204 | -0.194 |
| 15.00 | 15.748 | 38.408 | 0.000 | 0.000 | 0.000 | 1,885.306 | -0.460 | 0.000 | 0.460 | -0.293 |
| 20.00 | 15.541 | 36.881 | 0.000 | 0.000 | 0.000 | 1,806.566 | -0.822 | 0.000 | 0.822 | -0.395 |
| 25.00 | 15.334 | 35.386 | 0.000 | 0.000 | 0.000 | 1,728.864 | -1.291 | 0.000 | 1.291 | -0.498 |
| 30.00 | 15.129 | 33.922 | 0.000 | 0.000 | 0.000 | 1,652.194 | -1.869 | 0.000 | 1.869 | -0.604 |
| 35.00 | 14.922 | 32.489 | 0.000 | 0.000 | 0.000 | 1,576.548 | -2.558 | 0.000 | 2.558 | -0.711 |
| 40.00 | 14.685 | 31.098 | 0.000 | 0.000 | 0.000 | 1,501.940 | -3.362 | 0.000 | 3.362 | -0.820 |
| 41.46 | 14.635 | 30.689 | 0.000 | 0.000 | 0.000 | 1,480.552 | -3.617 | 0.000 | 3.617 | -0.853 |
| 45.00 | 14.456 | 28.961 | 0.000 | 0.000 | 0.000 | 1,428.695 | -4.281 | 0.000 | 4.281 | -0.933 |
| 47.54 | 14.329 | 27.738 | 0.000 | 0.000 | 0.000 | 1,391.979 | -4.794 | 0.000 | 4.794 | -0.992 |
| 50.00 | 14.231 | 27.134 | 0.000 | 0.000 | 0.000 | 1,356.729 | -5.320 | 0.000 | 5.320 | -1.049 |
| 55.00 | 13.997 | 25.945 | 0.000 | 0.000 | 0.000 | 1,285.576 | -6.485 | 0.000 | 6.485 | -1.173 |
| 60.00 | 13.758 | 24.784 | 0.000 | 0.000 | 0.000 | 1,215.593 | -7.781 | 0.000 | 7.781 | -1.299 |
| 65.00 | 13.517 | 23.651 | 0.000 | 0.000 | 0.000 | 1,146.802 | -9.209 | 0.000 | 9.209 | -1.427 |
| 70.00 | 13.273 | 22.547 | 0.000 | 0.000 | 0.000 | 1,079.218 | -10.773 | 0.000 | 10.773 | -1.557 |
| 75.00 | 13.026 | 21.471 | 0.000 | 0.000 | 0.000 | 1,012.856 | -12.474 | 0.000 | 12.474 | -1.689 |
| 80.00 | 12.778 | 20.424 | 0.000 | 0.000 | 0.000 | 947.724 | -14.314 | 0.000 | 14.314 | -1.822 |
| 84.83 | 12.516 | 19.452 | 0.000 | 0.000 | 0.000 | 885.966 | -16.227 | 0.000 | 16.227 | -1.953 |
| 85.00 | 12.529 | 19.378 | 0.000 | 0.000 | 0.000 | 883.879 | -16.295 | 0.000 | 16.295 | -1.958 |
| 90.00 | 12.226 | 17.648 | 0.000 | 0.000 | 0.000 | 821.233 | -18.419 | 0.000 | 18.419 | -2.095 |
| 90.17 | 12.236 | 17.577 | 0.000 | 0.000 | 0.000 | 819.197 | -18.492 | 0.000 | 18.492 | -2.100 |
| 95.00 | 11.995 | 16.743 | 0.000 | 0.000 | 0.000 | 760.053 | -20.687 | 0.000 | 20.687 | -2.234 |
| 100.00 | 11.747 | 15.903 | 0.000 | 0.000 | 0.000 | 700.078 | -23.107 | 0.000 | 23.107 | -2.386 |
| 105.00 | 11.499 | 15.090 | 0.000 | 0.000 | 0.000 | 641.344 | -25.686 | 0.000 | 25.686 | -2.538 |
| 110.00 | 11.252 | 14.301 | 0.000 | 0.000 | 0.000 | 583.849 | -28.425 | 0.000 | 28.425 | -2.690 |
| 115.00 | 11.007 | 13.538 | 0.000 | 0.000 | 0.000 | 527.587 | -31.324 | 0.000 | 31.324 | -2.842 |
| 120.00 | 10.763 | 12.801 | 0.000 | 0.000 | 0.000 | 472.553 | -34.381 | 0.000 | 34.381 | -2.993 |
| 125.00 | 10.521 | 12.089 | 0.000 | 0.000 | 0.000 | 418.738 | -37.594 | 0.000 | 37.594 | -3.141 |
| 129.87 | 10.274 | 11.432 | 0.000 | 0.000 | 0.000 | 367.468 | -40.873 | 0.000 | 40.873 | -3.283 |
| 130.00 | 10.279 | 11.395 | 0.000 | 0.000 | 0.000 | 366.165 | -40.960 | 0.000 | 40.960 | -3.287 |
| 134.12 | 10.053 | 10.538 | 0.000 | 0.000 | 0.000 | 323.785 | -43.849 | 0.000 | 43.849 | -3.404 |
| 135.00 | 10.028 | 10.439 | 0.000 | 0.000 | 0.000 | 314.970 | -44.477 | 0.000 | 44.477 | -3.429 |
| 140.00 | 9.809 | 9.968 | 0.000 | 0.000 | 0.000 | 264.829 | -48.167 | 0.000 | 48.167 | -3.616 |
| 145.00 | 9.591 | 9.517 | 0.000 | 0.000 | 0.000 | 215.785 | -52.047 | 0.000 | 52.047 | -3.789 |
| 150.00 | 9.375 | 9.087 | 0.000 | 0.000 | 0.000 | 167.831 | -56.098 | 0.000 | 56.098 | -3.945 |
| 155.00 | 9.157 | 8.683 | 0.000 | 0.000 | 0.000 | 120.958 | -60.300 | 0.000 | 60.300 | -4.077 |
| 158.00 | 6.086 | 5.837 | 0.000 | 0.000 | 0.000 | 93.488 | -62.883 | 0.000 | 62.883 | -4.144 |
| 160.00 | 6.002 | 5.684 | 0.000 | 0.000 | 0.000 | 81.317 | -64.626 | 0.000 | 64.626 | -4.183 |
| 165.00 | 5.790 | 5.322 | 0.000 | 0.000 | 0.000 | 51.305 | -69.048 | 0.000 | 69.048 | -4.262 |
| 170.00 | 2.578 | 2.694 | 0.000 | 0.000 | 0.000 | 22.356 | -73.539 | 0.000 | 73.539 | -4.313 |
| 175.00 | 2.376 | 2.372 | 0.000 | 0.000 | 0.000 | 9.465 | -78.066 | 0.000 | 78.066 | -4.338 |
| 178.00 | 2.190 | 0.000 | 0.000 | 0.000 | 0.000 | 2.337 | -80.792 | 0.000 | 80.792 | -4.344 |

Pole : CT33XC021 | Global Signal

Location: 3017688 - Harwinton, CT

Height : 178.0 (ft) | Base Elev : 0.000 (ft)

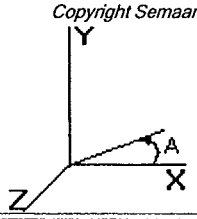
Shape : Round

Base Dia : 54.50 (in) | Top Dia : 19.50 (in)

Taper : 0.208570 (in/ft)








**Load Case:** Ice — 80 mph - With Ice - Ice Thickness = 0.5 in — 26 Iterations

Gust Response Factor : 1.69 — Effective Wind Speed : 69.28 (mph)

Dead Load Factor : 1.00

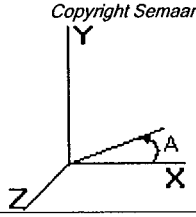
Wind Load Factor : 1.00

## Calculated Stresses

| Seg Elev (ft) | Applied Stresses: Axial (Y) (ksi) | Shear (X) (ksi) | Shear (Z) (ksi) | Torsion (ksi) | Bending (X) (ksi) | Bending (Z) (ksi) | Combined (ksi) | Allowable Stress (Fb) (ksi) | Allowable Stress (Fa) (ksi) | Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.509 | 0.386 | 0.000 | 0.000 | 0.000 | 22.487 | 23.006 | 49.6 | 0.0 | 0.464 |
| 5.00 | 0.500 | 0.389 | 0.000 | 0.000 | 0.000 | 22.486 | 22.995 | 49.9 | 0.0 | 0.461 |
| 10.00 | 0.490 | 0.392 | 0.000 | 0.000 | 0.000 | 22.478 | 22.978 | 50.1 | 0.0 | 0.458 |
| 15.00 | 0.481 | 0.394 | 0.000 | 0.000 | 0.000 | 22.463 | 22.954 | 50.4 | 0.0 | 0.455 |
| 20.00 | 0.471 | 0.397 | 0.000 | 0.000 | 0.000 | 22.440 | 22.921 | 50.7 | 0.0 | 0.452 |
| 25.00 | 0.462 | 0.400 | 0.000 | 0.000 | 0.000 | 22.407 | 22.880 | 51.0 | 0.0 | 0.449 |
| 30.00 | 0.452 | 0.404 | 0.000 | 0.000 | 0.000 | 22.364 | 22.827 | 51.3 | 0.0 | 0.445 |
| 35.00 | 0.443 | 0.407 | 0.000 | 0.000 | 0.000 | 22.309 | 22.763 | 51.6 | 0.0 | 0.441 |
| 40.00 | 0.434 | 0.410 | 0.000 | 0.000 | 0.000 | 22.241 | 22.686 | 52.0 | 0.0 | 0.436 |
| 41.46 | 0.431 | 0.411 | 0.000 | 0.000 | 0.000 | 22.221 | 22.662 | 52.0 | 0.0 | 0.436 |
| 45.00 | 0.413 | 0.413 | 0.000 | 0.000 | 0.000 | 22.163 | 22.587 | 52.0 | 0.0 | 0.434 |
| 47.54 | 0.448 | 0.463 | 0.000 | 0.000 | 0.000 | 24.197 | 24.658 | 50.3 | 0.0 | 0.491 |
| 50.00 | 0.444 | 0.466 | 0.000 | 0.000 | 0.000 | 24.134 | 24.591 | 50.4 | 0.0 | 0.488 |
| 55.00 | 0.434 | 0.469 | 0.000 | 0.000 | 0.000 | 23.984 | 24.432 | 50.7 | 0.0 | 0.481 |
| 60.00 | 0.425 | 0.472 | 0.000 | 0.000 | 0.000 | 23.813 | 24.252 | 51.1 | 0.0 | 0.475 |
| 65.00 | 0.416 | 0.476 | 0.000 | 0.000 | 0.000 | 23.618 | 24.048 | 51.5 | 0.0 | 0.467 |
| 70.00 | 0.407 | 0.479 | 0.000 | 0.000 | 0.000 | 23.397 | 23.818 | 51.8 | 0.0 | 0.459 |
| 75.00 | 0.398 | 0.483 | 0.000 | 0.000 | 0.000 | 23.146 | 23.558 | 52.0 | 0.0 | 0.453 |
| 80.00 | 0.388 | 0.486 | 0.000 | 0.000 | 0.000 | 22.861 | 23.265 | 52.0 | 0.0 | 0.447 |
| 84.83 | 0.380 | 0.489 | 0.000 | 0.000 | 0.000 | 22.551 | 22.946 | 52.0 | 0.0 | 0.441 |
| 85.00 | 0.379 | 0.490 | 0.000 | 0.000 | 0.000 | 22.540 | 22.935 | 52.0 | 0.0 | 0.441 |
| 90.00 | 0.355 | 0.492 | 0.000 | 0.000 | 0.000 | 22.175 | 22.546 | 52.0 | 0.0 | 0.434 |
| 90.17 | 0.404 | 0.563 | 0.000 | 0.000 | 0.000 | 24.684 | 25.107 | 50.9 | 0.0 | 0.494 |
| 95.00 | 0.395 | 0.567 | 0.000 | 0.000 | 0.000 | 24.212 | 24.627 | 51.3 | 0.0 | 0.480 |
| 100.00 | 0.387 | 0.572 | 0.000 | 0.000 | 0.000 | 23.661 | 24.069 | 51.7 | 0.0 | 0.465 |
| 105.00 | 0.378 | 0.577 | 0.000 | 0.000 | 0.000 | 23.040 | 23.440 | 52.0 | 0.0 | 0.451 |
| 110.00 | 0.370 | 0.583 | 0.000 | 0.000 | 0.000 | 22.337 | 22.729 | 52.0 | 0.0 | 0.437 |
| 115.00 | 0.362 | 0.589 | 0.000 | 0.000 | 0.000 | 21.540 | 21.925 | 52.0 | 0.0 | 0.422 |
| 120.00 | 0.354 | 0.595 | 0.000 | 0.000 | 0.000 | 20.633 | 21.012 | 52.0 | 0.0 | 0.404 |
| 125.00 | 0.346 | 0.602 | 0.000 | 0.000 | 0.000 | 19.599 | 19.972 | 52.0 | 0.0 | 0.384 |
| 129.87 | 0.339 | 0.609 | 0.000 | 0.000 | 0.000 | 18.449 | 18.817 | 52.0 | 0.0 | 0.362 |
| 130.00 | 0.338 | 0.610 | 0.000 | 0.000 | 0.000 | 18.418 | 18.785 | 52.0 | 0.0 | 0.361 |
| 134.12 | 0.472 | 0.902 | 0.000 | 0.000 | 0.000 | 24.730 | 25.250 | 49.0 | 0.0 | 0.516 |
| 135.00 | 0.471 | 0.906 | 0.000 | 0.000 | 0.000 | 24.371 | 24.891 | 49.0 | 0.0 | 0.508 |
| 140.00 | 0.467 | 0.920 | 0.000 | 0.000 | 0.000 | 22.101 | 22.624 | 49.5 | 0.0 | 0.457 |
| 145.00 | 0.464 | 0.935 | 0.000 | 0.000 | 0.000 | 19.481 | 20.011 | 50.0 | 0.0 | 0.400 |
| 150.00 | 0.461 | 0.952 | 0.000 | 0.000 | 0.000 | 16.444 | 16.986 | 50.6 | 0.0 | 0.336 |
| 155.00 | 0.460 | 0.970 | 0.000 | 0.000 | 0.000 | 12.907 | 13.472 | 51.2 | 0.0 | 0.263 |
| 158.00 | 0.317 | 0.662 | 0.000 | 0.000 | 0.000 | 10.519 | 10.897 | 51.6 | 0.0 | 0.211 |
| 160.00 | 0.315 | 0.665 | 0.000 | 0.000 | 0.000 | 9.486 | 9.868 | 51.9 | 0.0 | 0.190 |
| 165.00 | 0.309 | 0.672 | 0.000 | 0.000 | 0.000 | 6.570 | 6.977 | 52.0 | 0.0 | 0.134 |
| 170.00 | 0.164 | 0.314 | 0.000 | 0.000 | 0.000 | 3.157 | 3.366 | 52.0 | 0.0 | 0.065 |
| 175.00 | 0.152 | 0.305 | 0.000 | 0.000 | 0.000 | 1.482 | 1.717 | 52.0 | 0.0 | 0.033 |
| 178.00 | 0.000 | 0.290 | 0.000 | 0.000 | 0.000 | 0.390 | 0.636 | 52.0 | 0.0 | 0.012 |

| | | | |
|---|---|---|---|
| Pole : | CT33XC021 | Global Signal | |
| Location: | 3017688 - Harwinton, CT | | |
| Height : | 178.0 (ft) | Base Elev : 0.000 (ft) | |
| Shape : | Round | | |
| Base Dia : | 54.50 (in) | Top Dia : 19.50 (in) | |
| Taper : | 0.208570 (in/ft) | | |






**Load Case:** No Ice — 80 mph - No Ice — 26 Iterations

Gust Response Factor : 1.69 — Effective Wind Speed : 80.00 (mph)
Dead Load Factor : 1.00
Wind Load Factor : 1.00

## Analysis Summary

| | Reactions | | | | | | Max Stresses | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Load Case | Shear FX (kips) | Shear FZ (kips) | Axial FY (kips) | Moment MX (ft-kips) | Moment MY (ft-kips) | Moment MZ (ft-kips) | Combined Stress (ksi) | Allowable Stress (ksi) | Elev (ft) | Stress Ratio |
| No Ice | 20.447 | 0.000 | 36.911 | 0.000 | 0.000 | 2,588.820 | 29.552 | 49.0 | 134.12 | 0.604 |
| ce | 16.380 | 0.000 | 43.177 | 0.000 | 0.000 | 2,127.825 | 25.250 | 49.0 | 134.12 | 0.516 |