ORIGINAL

ROBINSON & COLE LLP

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

**EM-VER-065-080807**

August 7, 2008

***Via Hand Delivery***

S. Derek Phelps
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051



Re: **Notice of Exempt Modification**
**350 Hartland Boulevard, Hartland, Connecticut**

Dear Mr. Phelps:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") intends to install antennas on the existing 120-foot self-supporting monopole owned by AT&T at 350 Hartland Boulevard in Hartland, Connecticut. Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Wade E. Cole, First Selectman of the Town of Hartland. Pursuant to a Council directive, a copy of this letter is also being sent to Marlene D. Jung, the owner of the property on which the tower is located.

The facility consists of a 120-foot self-supporting monopole tower capable of supporting multiple carriers within a fenced compound at 350 Hartland Boulevard in Hartland. AT&T antennas are currently located at the 120-foot level on the tower. Cellco intends to install six (6) LPA 80080/6CF and six (6) LPA 185080/12CF antennas at the 110-foot level on the tower. Equipment associated with the facility, including a diesel fueled back-up generator, will be located within a 12' x 30' shelter located on the ground adjacent to the tower. Attached behind Tab 1 are Project Plans for the proposed Cellco facility.

The planned modifications to the Hartland facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modification will not increase the overall height of the existing tower. Cellco's antennas will be mounted with their centerline at the 110-foot level on the 120-foot tower.

2. The proposed installation of equipment within the shelter will not require an extension of the fenced compound or lease area.

3. The proposed installation will not increase the noise levels at the facility by six decibels or more.

4. The operation of the antennas will not increase radio frequency (RF) power density levels at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. The RF power density calculations for existing and Cellco antennas would be 26.22% of the FCC standard. A cumulative power density calculations table is included behind Tab 2.

Included behind Tab 3, is a Structural Analysis Report confirming that the tower can support the existing and Cellco antennas, and associated equipment.

For the foregoing reasons, Cellco respectfully submits that the proposed antenna installation at the facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Attachments
Copy to:
Wade E. Cole, Hartland First Selectman
Marlene D. Jung
Sandy M. Carter
Michelle Kababik

# Cellco Partnership

## d.b.a. verizon wireless

# WIRELESS COMMUNICATIONS FACILITY

# HARTLAND SE CT
# 350 HARTLAND BOULEVARD
# EAST HARTLAND, CT 06027

### SITE DIRECTIONS

FROM: 89 EAST RIVER DRIVE, EAST HARTFORD, CONNECTICUT  TO: 350 HARTLAND BOULEVARD, EAST HARTLAND, CONNECTICUT

| | |
|---|---|
| 1. START AT 89 E RIVER DR | 0.3 MI. |
| 2. TURN LEFT TO STAY ON E RIVER DR | <0.1 MI. |
| 3. TURN LEFT (WEST) ONTO US-44 [CONNECTICUT BLVD] | 0.2 MI. |
| 4. TAKE RAMP ONTO I-84 [US-44] | 0.3 MI. |
| 5. AT EXIT 50, TAKE RAMP (RIGHT) ONTO I-91 | 9.4 MI. |
| 6. AT EXIT 40, TAKE RAMP (RIGHT) ONTO SR-20 [BRADLEY FIELD CONNECTOR] | 3.5 MI. |
| 7. TAKE RAMP (RIGHT) ONTO SR-20 | 8.0 MI. |
| 8. ROAD NAME CHANGES TO SR-159 [SR-20] | 0.2 MI. |
| 9. BEAR LEFT (WEST) ONTO SR-20 [W GRANBY RD] | 3.4 MI. |
| 10. BEAR RIGHT (NORTH-WEST) ONTO SR-20 [HARTLAND RD] | 2.1 MI. |
| 11. BEAR RIGHT (WEST) ONTO SR-20 [HARTLAND BLVD] | 0.2 MI. |
| 12. ARRIVE AT 350 HARTLAND BLVD | |

### GENERAL NOTES

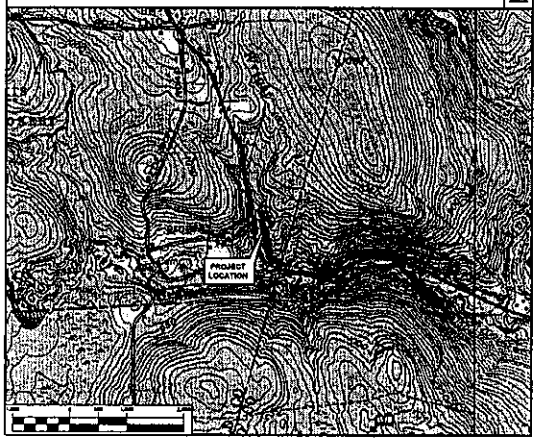
1. PROPOSED ANTENNA LOCATIONS AND HEIGHTS PROVIDED BY CELLCO PARTNERSHIP.

### PROJECT SCOPE

1. THE PROPOSED SCOPE OF WORK GENERALLY INCLUDES THE INSTALLATION OF A 12'x30' PREFABRICATED WIRELESS EQUIPMENT SHELTER ON A CONCRETE FOUNDATION WITHIN THE EXISTING WIRELESS COMMUNICATIONS LEASE AREA.
2. A TOTAL OF TWELVE (12) DIRECTIONAL PANEL ANTENNAS ARE PROPOSED TO BE MOUNTED ON AN PROPOSED 120' TALL MONOPOLE TOWER BY OTHERS AT A RAD CENTER ELEVATION OF 110' ABOVE THE PROPOSED TOWER BASE PLATE.
3. ELECTRIC AND TELCO UTILITIES SHALL BE ROUTED UNDERGROUND TO THE PROPOSED EQUIPMENT SHELTER FROM AN EXISTING UTILITY BACKBOARD LOCATED OUTSIDE THE FENCED COMPOUND.

### VICINITY MAP

SCALE: 1" = 1000'




### PROJECT SUMMARY

| | |
|---|---|
| SITE NAME: | HARTLAND SE CT |
| SITE ADDRESS: | 350 HARTLAND BLVD<br>HARTLAND, CT 06027 |
| LESSEE/ TENANT: | CELLCO PARTNERSHIP<br>d.b.a. VERIZON WIRELESS<br>99 EAST RIVER DRIVE<br>EAST HARTFORD, CT 06108 |
| CONTACT PERSON: | SANDY CARTER<br>CELLCO PARTNERSHIP<br>(860) 803-6210 |
| TOWER COORDINATES: | LATITUDE 41°-56-37.49"<br>LONGITUDE 72°-33'-16.336"<br>GROUND ELEV. 928.2'± (A.M.S.L.)<br>COORDINATES AND ELEVATION ARE BASED ON FAA 2-C SURVEY CERTIFICATION PREPARED BY MARTINEZ, COUCH & ASSOCIATES, LLC DATED AUGUST 27, 2007. |

### SHEET INDEX

| SHT. NO. | DESCRIPTION | REV. NO. |
|---|---|---|
| T-1 | TITLE SHEET | 0 |
| | | |
| C-1 | COMPOUND PLAN AND ELEVATION | 0 |

| REVISIONS | | |
|---|---|---|
| A | 11/20/07 | CSC - REVIEW |
| 0 | 07/15/08 | CT SITING COUNCIL |

Cellco Partnership
d.b.a. verizon wireless

NATCOMM
CONSULTING ENGINEERS
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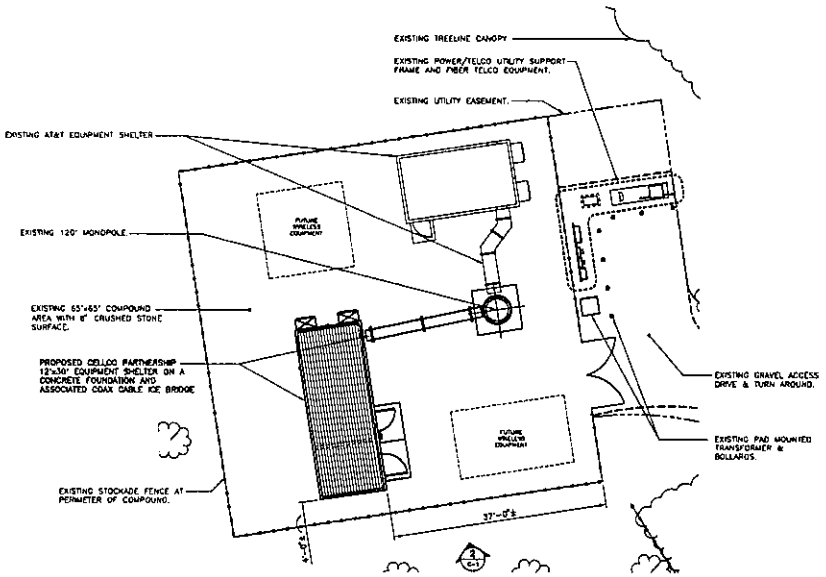
e: info@nat-eng.com
63-2 N. Branford Rd.
Branford, CT 06405

HARTLAND SE CT
350 HARTLAND BLVD.
EAST HARTLAND, CT 06027

| | |
|---|---|
| PROJECT NO: | 07074 |
| DRAWN BY: | DEB |
| CHECKED BY: | CFC |
| SCALE: | AS NOTED |
| DATE: | 10/29/07 |

TITLE SHEET

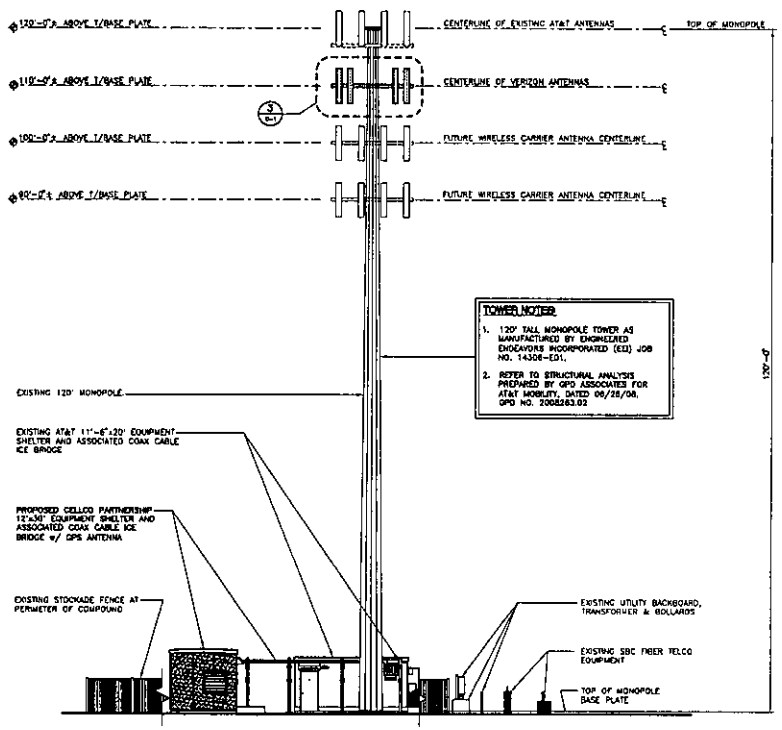
T-1
DWG. 1 OF 2




1 C-1 **COMPOUND PLAN** SCALE: 1" = 10' NORTH

GRAPHIC SCALE

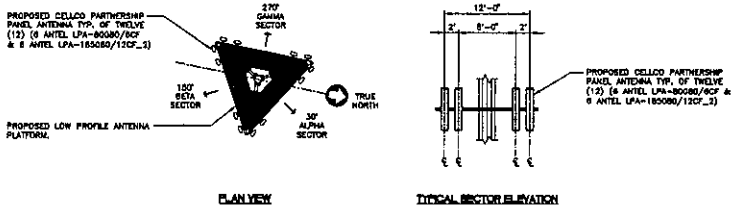
( IN FEET )
1 inch = 10 ft.



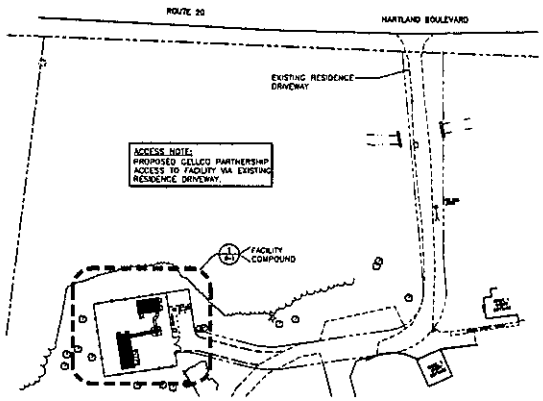

2 C-1 **COMPOUND AND TOWER ELEVATION** SCALE: 1" = 10'

GRAPHIC SCALE

( IN FEET )
1 inch = 10 ft.




3 C-1 **ANTENNA MOUNTING CONFIGURATION** NOT TO SCALE




**SITE KEY PLAN** SCALE: 1" = 150' NORTH

| REVISIONS | | |
|---|---|---|
| A | 11/20/07 | CSC - REVIEW |
| 0 | 01/15/08 | CT SITING COUNCIL |

Cellco Partnership
d.b.a. verizonwireless


NATCOMM
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63-2 N. Branford Rd.
Branford, CT 06405


HARTLAND SE CT

350 HARTLAND BLVD.
EAST HARTLAND, CT 06027

| | |
|---|---|
| PROJECT NO: | 07074 |
| DRAWN BY: | DEB |
| CHECKED BY: | CFC |
| SCALE: | AS NOTED |
| DATE: | 10/29/07 |

COMPOUND PLAN AND ELEVATION

C-1

DWG. 2 OF 2

| | General | Power | Density | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Site Name:** Hartland SE | | | | | | | | |
| **Tower Height:** Verizon @ 110Ft. | | | | | | | | |
| **CARRIER** | **# OF CHAN.** | **WATTS ERP** | **HEIGHT** | **CALC. POWER DENS** | **FREQ.** | **MAX. PERMISS. EXP.** | **FRACTION MPE** | **Total** |
| *Cingular | 6 | 296 | 150 | 0.0284 | 880 | 0.5867 | 4.84% | |
| *Cingular | 3 | 427 | 150 | 0.0205 | 1930 | 1.0000 | 2.05% | |
| **Verizon** | **3** | **342** | **110** | **0.0305** | **1970** | **1.0000** | **3.05%** | |
| **Verizon** | **9** | **355** | **110** | **0.0949** | **875** | **0.583** | **16.29%** | |
| | | | | | | | | **26.22%** |
| * Source: Siting Council | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

at&t
Glynn Walker
AT&T Mobility
5405 Windward Pkwy
Alpharetta GA, 30004
(770) 708-6122

GPD ASSOCIATES
Kevin Clements
520 South Main St., Suite 2531
Akron, Ohio 44311
(330) 572-2195
kclements@gpdgroup.com

GPD# 2008263.02
June 25, 2008

## STRUCTURAL ANALYSIS REPORT

| | | |
|---|---|---|
| AT&T DESIGNATION: | Site USID: | 93099 |
| | Site FA: | 10105847 |
| | Site Name: | Hartland Rd. |
| VERIZON DESIGNATION: | Site Name: | Hartland SE |
| ANALYSIS CRITERIA: | Codes: | TIA/EIA-222-F, 2003 IBC, & Connecticut Building Code<br>80-mph with 0" ice<br>69-mph with 1/2" ice |
| SITE DATA: | | 350 Hartland Rd., East Hartland, CT 06027, Hartford County<br>Latitude 41° 58' 37.493" N, Longitude 72° 53' 16.336" W<br>120' EEI Monopole |

Mr. Walker,

GPD is pleased to submit this Structural Analysis Report to determine the structural integrity of the aforementioned tower. The purpose of the analysis is to determine the suitability of the tower with the addition of the following proposed loading configuration:

| | |
|---|---|
| Elev. 110' | (6) LPA 185080/12CF Antennas on a 12' LP Platform, w/ (6) 1-5/8" internal coax |
| | (6) LPA 80080/CF Antennas on the same Platform, w/ (6) 1-5/8" internal coax |

Based on our analysis we have determined the tower and its foundations are sufficient for the proposed, existing, and reserved loadings as referenced in Appendix A.

We at GPD appreciate the opportunity of providing our continuing professional services to you and AT&T. If you have any questions please do not hesitate to call.

Respectfully submitted,

David B. Granger, P.E.
Connecticut #: 17557

STATE OF CONNECTICUT
DAVID B. GRANGER, P.E.
NO. 17557
LICENSED
PROFESSIONAL ENGINEER

## SUMMARY & RESULTS

The purpose of this analysis was to verify that the existing structure is capable of carrying the proposed loading configuration as specified by Verizon to AT&T. This report was commissioned by Mr. Glynn Walker of AT&T.

No foundation or geotechnical information was available or provided for this report. Therefore, the in place capacity of the foundation could not be verified. However, based on a comparison of the analysis base reactions and the original foundation design reactions, it is our opinion that the foundation will be adequate to support the proposed loading. A more thorough and accurate assessment of foundation capacity will require a site specific geotechnical report and foundation information.

**TOWER SUMMARY AND RESULTS**

| Member | Capacity | Results |
|---|---|---|
| Monopole | 20.0% | Pass |
| Base Plate | 11.3% | Pass |
| Anchor Bolts | 11.7% | Pass |
| | | |
| Foundation | 18.6% of Original Design | Pass |

## ANALYSIS METHOD

RISA Tower (Version 5.1.2.0), a commercially available software program, was used to create a three-dimensional model of the tower and calculate primary member stresses for various dead, live, wind, and ice load cases. Selected output from the analysis is included in Appendix B. The following table details the information provided to complete this structural analysis. This analysis is solely based on this information and being provided without the benefit of a site visit.

**DOCUMENTS PROVIDED**

| Document | Remarks | Source |
|---|---|---|
| Preliminary Tower Summary | Verizon Co-location document | M. Smith |
| Original Tower Drawings | EEI Project #: 14306, dated 8/28/07 | Siterra |

## ASSUMPTIONS

This structural analysis is based on the theoretical capacity of the members and is not a condition assessment of the monopole. This analysis is from information supplied, and therefore, its results are based on and are as accurate as that supplied data. GPD has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural analysis.

1. The monopole shaft sizes and shape are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated in the materials section.
2. The antenna configuration is as supplied and/or as modeled in the analysis. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements
3. Some assumptions are made regarding antennas and mount sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type and industry practice.
4. All mounts, if applicable, are considered adequate to support the loading. No actual analysis of the mount(s) is performed, this analysis is limited to analyzing the tower only.
5. The soil parameters are as per data supplied or as assumed and stated in the calculations. If no data is available, the foundation system is not verified. In the case of absent foundation data, it is the tower owner's responsibility to insure that the foundation system is adequate to support the structure with its new reactions.
6. The tower and structures have been properly maintained in accordance TIA Standard and/or with manufacturer's specifications.
7. All welds and connections are assumed to develop at least the member capacity, unless determined otherwise and explicitly stated in this report.
8. All prior structural modifications, if any, are assumed to be as per data supplied/available, to have been properly installed and to be fully effective.
9. Tower Mounted Amplifiers are assumed to be installed behind antennas.
10. All existing loading was obtained from the provided preliminary tower summary and is assumed to be accurate.
11. All proposed coax is assumed to be internal to the monopole.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and GPD Associates should be allowed to review any new information to determine its effect on the structural integrity of the tower.

## DISCLAIMER OF WARRANTIES

GPD ASSOCIATES has not performed a site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD ASSOCIATES in connection with this Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. All tower components have been assumed to only resist dead loads when no other loads are applied. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

GPD ASSOCIATES does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD ASSOCIATES provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD ASSOCIATES, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

GPD ASSOCIATES makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD ASSOCIATES will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of GPD ASSOCIATES pursuant to this report will be limited to the total fee received for preparation of this report.

# APPENDIX A

## Tower Analysis Summary Form

# Tower Analysis Summary Form

**General Info**

| | |
|---|---|
| Site Name | Hartland Rd. |
| Site Number | 93099 |
| Site FA | 10105847 |
| Date of Analysis | 6/25/2008 |
| Company Performing Analysis | GPD |

**The information contained in this summary report is not to be used independently from the PE stamped tower analysis.**

| Tower Info | Description | Date |
|---|---|---|
| Tower Type (G, SST, MP) | MP | |
| Tower Height (top of steel AGL) | 150 | |
| Tower Manufacturer | EEI | |
| Tower Model | n/a | |
| Manufacturer Drawings | EEI Project #: 14306 | 8/28/2007 |
| Foundation Design | EEI Project #: 14306 | 8/28/2007 |
| Geotech Report | n/a | |
| Tower Mapping | n/a | |
| Foundation Mapping | n/a | |
| Previous Structural | n/a | |

**Steel Yield Strength (ksi)**

| | |
|---|---|
| Pole | 65 |
| Base Plate | 50 |
| Anchor Rods | 75 |

**Design Parameters**

| | |
|---|---|
| Design Code Used | EIA/TIA-222-F |
| Location of Tower (County, State) | Hartford, Connecticut |
| Basic Wind Speed (mph) | 80-fastest |
| Ice Thickness (in) | 0.5" |
| Structure Classification (I, II, III) | |
| Exposure Category (B, C, D) | |
| Topographic Category (1 to 5) | |

**Analysis Results (% Maximum Usage)**

| *Existing Condition* | |
|---|---|
| Tower | 14.4% |
| Foundation | 13.2% |
| Guy Wire | n/a |

Note: Foundation reactions are in comparison to Orginal Design reactions.

| *Proposed Condition* | |
|---|---|
| Tower | 20.0% |
| Foundation | 18.6% |
| Guy Wire | n/a |

Note: Foundation reactions are in comparison to Orginal Design reactions.

**Existing/Reserved**

| Antenna | | | | | | | Mount | | | | Transmission Line | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Antenna Owner | Attachment Height (ft) | Quantity | Type | Model | EPA (ft²) each | Azimuth | Quantity | Type | Model | EPA (ft²) total | Quantity | Size | Attachment Leg/Face |
| AT&T Mobility | 120 | 6 | Panel | 7770.00 | 5.88 | | 1 | 12' LP Platform | | 25 | 12 | 1-5/8" | Internal |
| AT&T Mobility | 120 | 6 | TMA | 1001983 | Shielded | | | on same mount | | | | | |
| | | | | | | | | | | | | | |

**Proposed**

| Antenna | | | | | | | Mount | | | | Transmission Line | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Antenna Owner | Attachment Height (ft) | Quantity | Type | Model | EPA (ft²) each | Azimuth | Quantity | Type | Model | EPA (ft²) total | Quantity | Size | Attachment Leg/Face |
| Verizon | 110 | 6 | Panel | LPA 185080/12CF | 3.53 | | 1 | 12' LP Platform | | 25 | 6 | 1-5/8" | Internal |
| Verizon | 110 | 6 | Panel | LPA 80080/CF | 2.62 | | | on same mount | | 25 | 6 | 1-5/8" | Internal |
| | | | | | | | | | | | | | |

**Future**

| Antenna | | | | | | | Mount | | | | Transmission Line | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Antenna Owner | Attachment Height (ft) | Quantity | Type | Model | EPA (ft²) each | Azimuth | Quantity | Type | Model | EPA (ft²) total | Quantity | Size | Attachment Leg/Face |
| | | | | | | | | | | | | | |

Revision:1.2
Date: 12/15/06

# APPENDIX B

## RISA Tower Output File

| RISATower | Job: 93099 Hartland Rd. | Page: 1 of 2 |
|---|---|---|
| GPD Associates<br>520 South Main Street, Suite 2531<br>Akron, OH 44311<br>Phone: (330) 572-2152<br>FAX: (330) 572-2102 | Project: GPD #: 2008260.94 | Date: 11:52:24 06/25/08 |
| | Client: AT&T | Designed by: croesink |

## Tower Input Data

There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
Basic wind speed of 80 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 69 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

## Feed Line/Linear Appurtenances - Entered As Area

| Description | Face or Leg | Allow Shield | Component Type | Placement ft | Total Number | | $C_AA_A$ $ft^2/ft$ | Weight plf |
|---|---|---|---|---|---|---|---|---|
| LDF7-50A (1-5/8 FOAM) | C | No | Inside Pole | 120.00 - 8.00 | 12 | No Ice | 0.00 | 0.82 |
| | | | | | | 1/2" Ice | 0.00 | 0.82 |
| LDF7-50A (1-5/8 FOAM) | B | No | Inside Pole | 110.00 - 8.00 | 12 | No Ice | 0.00 | 0.82 |
| | | | | | | 1/2" Ice | 0.00 | 0.82 |

## Discrete Tower Loads

| Description | Face or Leg | Offset Type | Offsets: Horz Lateral ft | Vert ft | Azimuth Adjustment ° | Placement ft | | $C_AA_A$ Front $ft^2$ | $C_AA_A$ Side $ft^2$ | Weight K |
|---|---|---|---|---|---|---|---|---|---|---|
| 12' LP Platform | C | None | | | 0.0000 | 120.00 | No Ice | 25.00 | 25.00 | 1.50 |
| | | | | | | | 1/2" Ice | 30.00 | 30.00 | 1.75 |
| (2) 7770.00 | A | From Centroid-Face | 3.46 | 0.00 | 0.0000 | 120.00 | No Ice | 5.88 | 2.93 | 0.04 |
| | | | | 0.00 | | | 1/2" Ice | 6.31 | 3.27 | 0.07 |
| (2) 7770.00 | B | From Centroid-Face | 3.46 | 0.00 | 0.0000 | 120.00 | No Ice | 5.88 | 2.93 | 0.04 |
| | | | | 0.00 | | | 1/2" Ice | 6.31 | 3.27 | 0.07 |
| (2) 7770.00 | C | From Centroid-Face | 3.46 | 0.00 | 0.0000 | 120.00 | No Ice | 5.88 | 2.93 | 0.04 |
| | | | | 0.00 | | | 1/2" Ice | 6.31 | 3.27 | 0.07 |
| (2) TMA | A | From Centroid-Face | 3.46 | 0.00 | 0.0000 | 120.00 | No Ice | 0.00 | 0.12 | 0.00 |
| | | | | 0.00 | | | 1/2" Ice | 0.00 | 0.17 | 0.00 |
| (2) TMA | B | From Centroid-Face | 3.46 | 0.00 | 0.0000 | 120.00 | No Ice | 0.00 | 0.12 | 0.00 |
| | | | | 0.00 | | | 1/2" Ice | 0.00 | 0.17 | 0.00 |

| Description | Face or Leg | Offset Type | Offsets: Horz Lateral Vert<br>ft<br>ft<br>ft | Azimuth Adjustment<br>° | Placement<br>ft | | $C_AA_A$ Front<br>ft² | $C_AA_A$ Side<br>ft² | Weight<br>K |
|---|---|---|---|---|---|---|---|---|---|
| (2) TMA | C | From Centroid-Face | 3.46<br>0.00<br>0.00 | 0.0000 | 120.00 | No Ice<br>1/2" Ice | 0.00<br>0.00 | 0.12<br>0.17 | 0.00<br>0.00 |
| (2) LPA-185080/12CF | A | From Centroid-Face | 3.46<br>0.00<br>0.00 | 0.0000 | 110.00 | No Ice<br>1/2" Ice | 3.53<br>3.96 | 4.57<br>5.01 | 0.01<br>0.04 |
| (2) LPA-185080/12CF | B | From Centroid-Face | 3.46<br>0.00<br>0.00 | 0.0000 | 110.00 | No Ice<br>1/2" Ice | 3.53<br>3.96 | 4.57<br>5.01 | 0.01<br>0.04 |
| (2) LPA-185080/12CF | C | From Centroid-Face | 3.46<br>0.00<br>0.00 | 0.0000 | 110.00 | No Ice<br>1/2" Ice | 3.53<br>3.96 | 4.57<br>5.01 | 0.01<br>0.04 |
| 12' LP Platform | C | None | | 0.0000 | 110.00 | No Ice<br>1/2" Ice | 25.00<br>30.00 | 25.00<br>30.00 | 1.50<br>1.75 |
| (2) LPA-80080/4CF | A | From Centroid-Face | 3.46<br>0.00<br>0.00 | 0.0000 | 110.00 | No Ice<br>1/2" Ice | 2.62<br>2.92 | 6.06<br>6.45 | 0.01<br>0.05 |
| (2) LPA-80080/4CF | B | From Centroid-Face | 3.46<br>0.00<br>0.00 | 0.0000 | 110.00 | No Ice<br>1/2" Ice | 2.62<br>2.92 | 6.06<br>6.45 | 0.01<br>0.05 |
| (2) LPA-80080/4CF | C | From Centroid-Face | 3.46<br>0.00<br>0.00 | 0.0000 | 110.00 | No Ice<br>1/2" Ice | 2.62<br>2.92 | 6.06<br>6.45 | 0.01<br>0.05 |

## Section Capacity Table

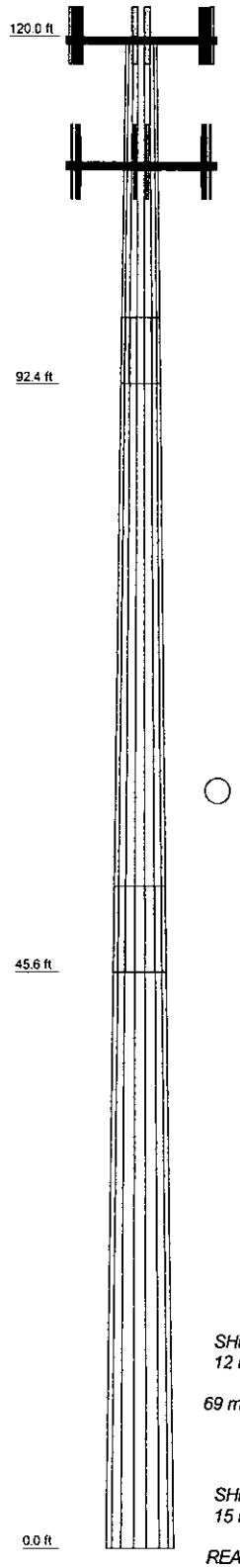
| Section No. | Elevation ft | Component Type | Size | Critical Element | P K | $SF*P_{allow}$ K | % Capacity | Pass Fail |
|---|---|---|---|---|---|---|---|---|
| L1 | 120 - 92.38 | Pole | TP37.4x29.3x0.25 | 1 | -5.60 | 1468.99 | 9.7 | Pass |
| L2 | 92.38 - 45.59 | Pole | TP50.5x35.3604x0.375 | 2 | -14.61 | 2978.66 | 16.7 | Pass |
| L3 | 45.59 - 0 | Pole | TP63x47.763x0.4375 | 3 | -30.52 | 4516.42 | 20.0 | Pass |
| | | | | | | | Summary | |
| | | | | | | Pole (L3) | 20.0 | Pass |
| | | | | | | **RATING =** | **20.0** | **Pass** |

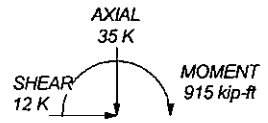
# APPENDIX C

Tower Elevation Drawing

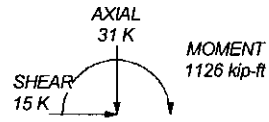
| Section | 1 | 2 | 3 |
|---|---|---|---|
| Length (ft) | 27.62 | 52.04 | 52.42 |
| Number of Sides | 18 | 18 | 18 |
| Thickness (in) | 0.2500 | 0.3750 | 0.4375 |
| Lap Splice (ft) | 5.25 | 6.83 | |
| Top Dia (in) | 29.3000 | 35.3604 | 47.7630 |
| Bot Dia (in) | 37.4000 | 50.5000 | 63.0000 |
| Grade | A572-65 | | |
| Weight (K) | 2.5 | 9.0 | 13.6 |

25.0




*69 mph WIND - 0.5000 in ICE*




*REACTIONS - 80 mph WIND*

## DESIGNED APPURTENANCE LOADING

| TYPE | ELEVATION | TYPE | ELEVATION |
|---|---|---|---|
| 12' LP Platform | 120 | (2) LPA-185080/12CF | 110 |
| (2) 7770.00 | 120 | (2) LPA-185080/12CF | 110 |
| (2) 7770.00 | 120 | (2) LPA-185080/12CF | 110 |
| (2) 7770.00 | 120 | 12' LP Platform | 110 |
| (2) TMA | 120 | (2) LPA-80080/4CF | 110 |
| (2) TMA | 120 | (2) LPA-80080/4CF | 110 |
| (2) TMA | 120 | (2) LPA-80080/4CF | 110 |

## MATERIAL STRENGTH

| GRADE | Fy | Fu | GRADE | Fy | Fu |
|---|---|---|---|---|---|
| A572-65 | 65 ksi | 80 ksi | | | |

## TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 20%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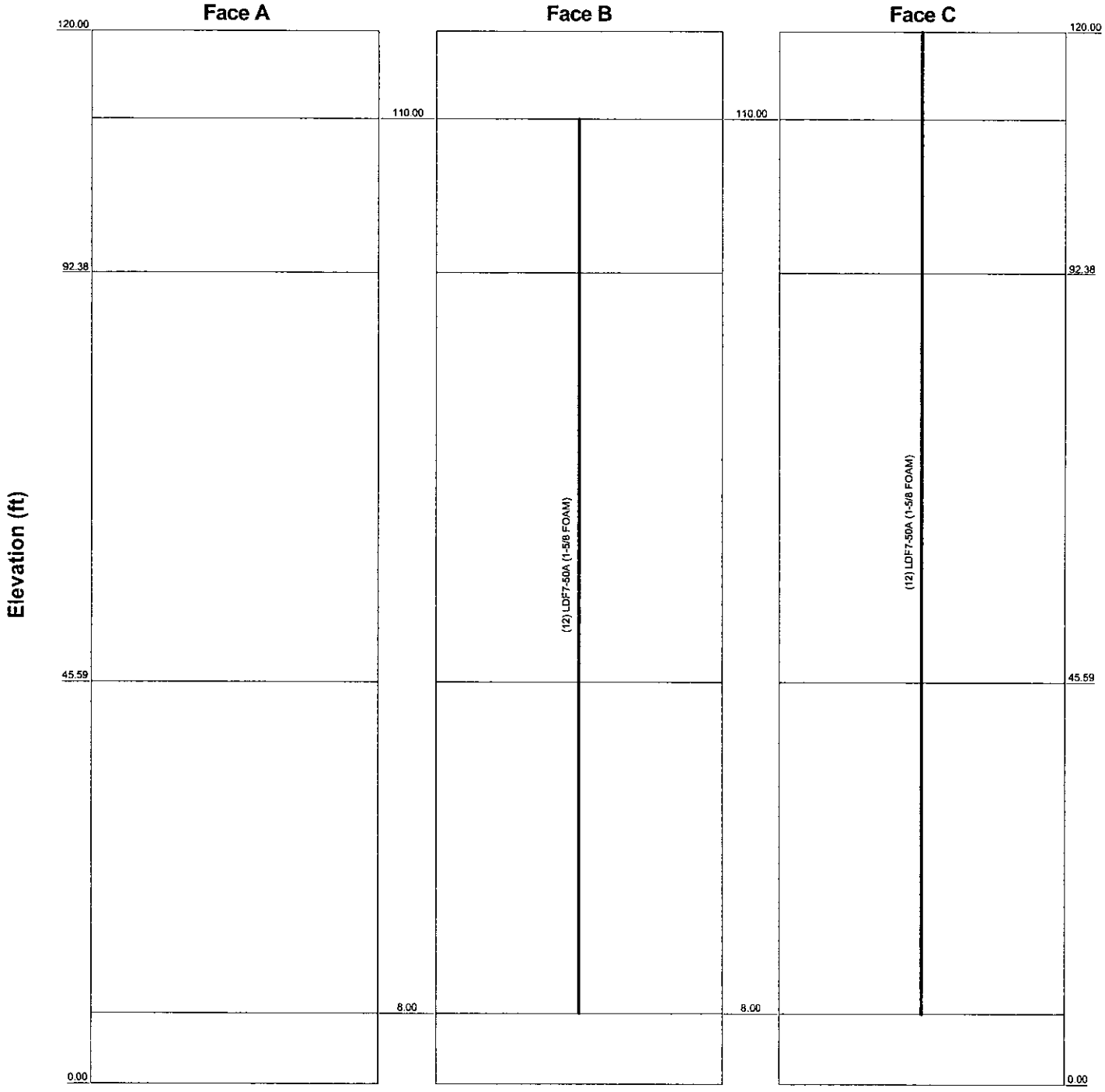
FAX: (330) 572-2102


| | | | |
|---|---|---|---|
| Job: *93099 Hartland Rd.* | | | |
| Project: *GPD #: 2008260.94* | | | |
| Client: AT&T | Drawn by: croesink | App'd: | |
| Code: TIA/EIA-222-F | Date: 06/25/08 | Scale: NTS | |
| Path: G:\Telecom\2008263\02\RISA\93099 Hartland Rd.eri | | Dwg No. E-1 | |

# Feedline Distribution Chart
## 0' - 120'

_____ Round _____ Flat _____ App In Face _____ App Out Face _____ Truss Leg

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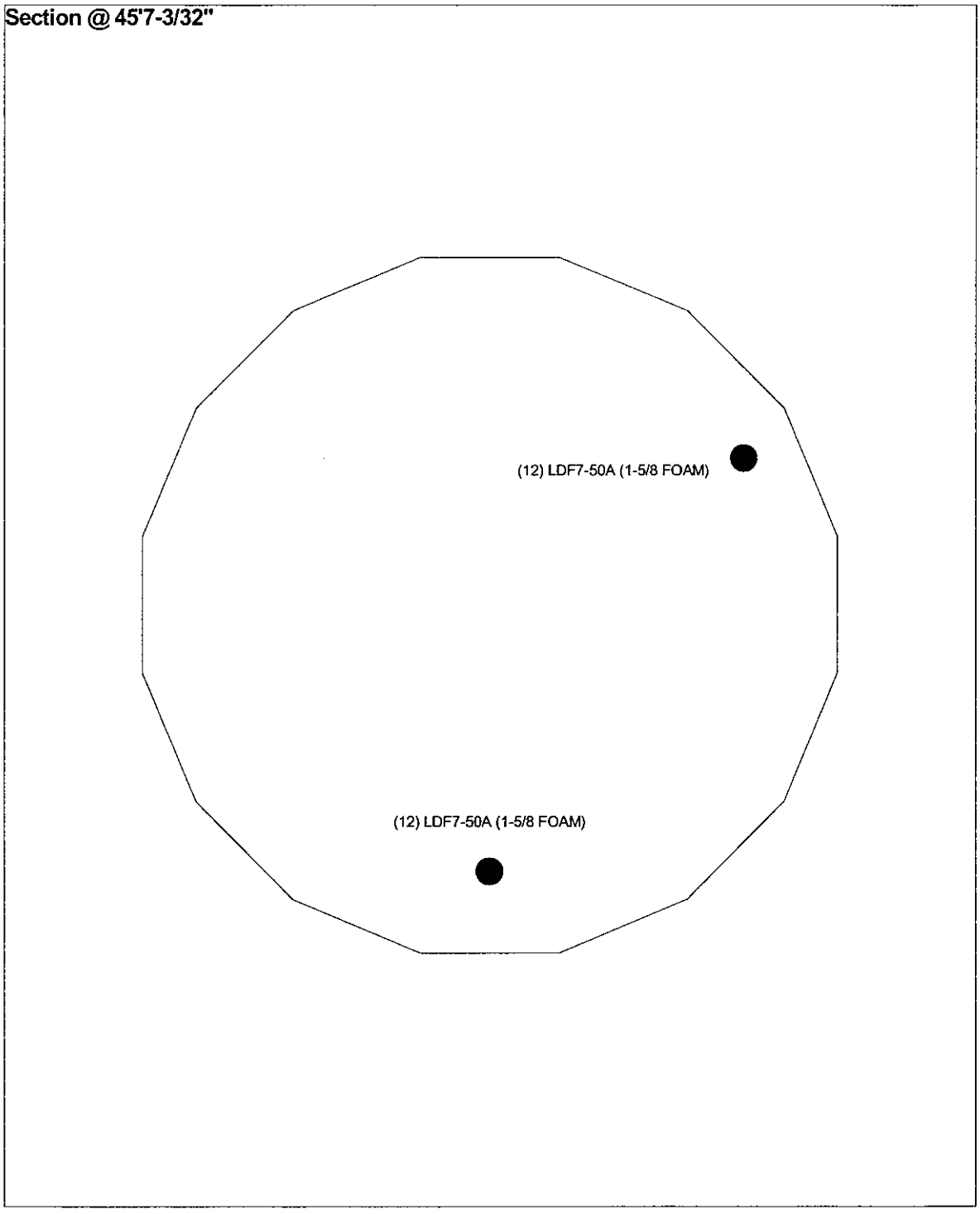
| Code: TIA/EIA-222-F | Date: 06/25/08 | Scale: NTS | |
| Path: G:\Telecom\2008\2630\2\RISA\93099 Hartland Rd.ei | | Dwg No. E-7 | |

# Feedline Plan
## 45'7-3/32"

_____ Round _____ Flat _____ App In Face _____ App Out Face

**Section @ 45'7-3/32"**

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| | | | |
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| Client: AT&T | Drawn by: croesink | App'd: | |
| Code: TIA/EIA-222-F | Date: 06/25/08 | Scale: NTS | |
| Path: G:\Telecom\2008263\02\RISA\93099 Hartland Rd.ei | | Dwg No. E-7 | |

# APPENDIX D

## Anchor Rod & Base Plate Analysis

## Anchor Rod and Base Plate Stresses

**93099 Hartland Rd.**

| | | |
|---|---|---|
| Overturning Moment = | 1126.00 | k*ft |
| Axial Force = | 31.00 | k |
| Shear Force = | 15.00 | k |

| Anchor Rods | | |
|---|---|---|
| Pole Diameter = | 63 | in |
| Number of Rods = | 32 | |
| Rod Grade (Fy) = | 75 | ksi |
| Rod Circle = | 74 | in |
| Rod Diameter = | 2.25 | in |
| Net Tensile Area = | 3.25 | $in^2$ |
| Max Tension on Rod = | 22.82 | kips |
| Max Compression on Rod = | 24.76 | kips |
| Allow. Rod Force = | 195.00 | kips |
| Anchor Rod Capacity = | 11.7% | OK |

| Base Plate | | |
|---|---|---|
| Plate Strength (Fy) = | 50 | ksi |
| Plate Thickness = | 3.5 | in |
| $w_{calc}$ = | 6.19 | in |
| e = | 2.875 | in |
| $w_{max}$ = | 11.5 | in |
| w = | 6.19 | in |
| S = | 12.63 | $in^3$ |
| fb = | 5.64 | ksi |
| Fb = | 50 | ksi |
| Base Plate Capacity = | 11.3% | OK |