



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: [siting.council@ct.gov](mailto:siting.council@ct.gov)

Internet: [ct.gov/csc](http://ct.gov/csc)

Daniel F. Caruso  
Chairman

November 4, 2006

Karina Fournier  
Zoning Department  
T-Mobile  
30 Cold Spring Road  
Rocky Hill, CT 06067

RE: **EM-T-MOBILE-052-061011** - Omnipoint Communications, Inc. notice of intent to modify an existing telecommunications facility located at 130 Birdseye Road, Farmington, Connecticut.

Dear Ms. Fournier:

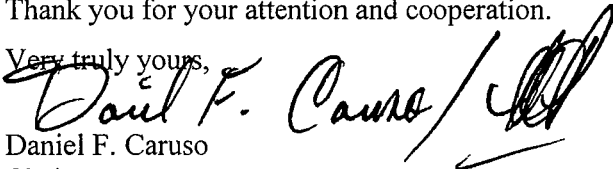
At a public meeting held on October 31, 2006, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated October 11, 2006, 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,

  
Daniel F. Caruso  
Chairman

DFC/MP/laf

c: The Honorable Mike Clark, Chairman Town Council, Town of Farmington  
Jeffrey Ollendorf, Town Planner, Town of Farmington  
Global Signal Acquisitions II LLC  
Thomas J. Regan, Esq., Brown Rudnick Berlack Israels LLP  
Kenneth C. Baldwin, Esq., Robinson & Cole LLP



RECEIVED  
OCT 11 2006

CONNECTICUT  
SITING COUNCIL

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30 Cold Spring Road  
Rocky Hill, CT 06067  
[Karina.Fournier@T-mobile.com](mailto:Karina.Fournier@T-mobile.com)  
860-796-3988

EM-T-MOBILE-052-061011

October 11, 2006

**BY HAND**

Daniel F. Caruso, Chairman and  
Members of the Siting Council  
Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051

RE:                   **Notice of Exempt Modification**  
                          **130 Birdseye Road Farmington, CT**  
                          **Latitude: 41 43 09 / Longitude: 72 48 35**

Dear Chairman Caruso and Members of the Siting Council:

Omnipoint Communications, Inc. a.k.a. T-Mobile (formerly Voicestream Wireless Corp.) hereby requests an order from the Connecticut Siting Council ("Council") to approve the proposed ("Global Signal Farmington"), in Farmington, CT owned Global Signal. T-Mobile and Global have agreed to the shared use of the Global Signal Farmington, as detailed below.

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).

**Global Signal Farmington**

Global Signal Farmington facility consists of a one hundred forty (140') foot monopole ("Tower") owned and operated by Global Signal. T-Mobile proposes to locate antennas at a centerline mounting height of one hundred (100') feet. The equipment will be located within the compound at the base of the tower.

### Global Signal Farmington

As shown on the enclosed plans prepared by including a site plan and tower elevation of the October 4, 2006, annexed hereto as Exhibit 1, T-Mobile proposes a shared use of the Facility by placing antennas on the tower and equipment needed to provide personal communications services ("PCS") within the existing site plan. T-Mobile will install three (3) flush-mounted antennas at the one hundred (100) foot level of the Tower. Three (3) associated unmanned equipment cabinets will be located at the base of the tower.

The proposed modification is structurally feasible. A structural analysis of the tower is attached as Exhibit 2. The structural analysis shows that the tower can safely accommodate the proposed T-Mobile installation.

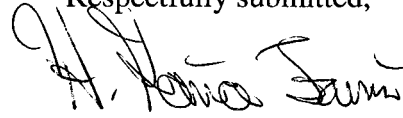
The planned modifications to this facility fall within the activities explicitly provided for in R.C.S.A. §16-50j-72(b)(2).

1. The proposed modification will not result in any increase in the overall height of the existing structure.
2. The proposed modification will not affect ground-mounted equipment and will not require the extension of the site boundaries.
3. The proposed modification will not increase noise levels at the facility by six decibels or more.
4. Operation of T-Mobile's antennas at this site would not exceed the total radio frequency electromagnetic radiation power density level adopted by the FCC and Connecticut Department of Health. The "worst case" exposure calculated for the operation of this facility for T-Mobile would be approximately 23.374% of the standard. See Radio Frequency Memo dated October 5, 2006, annexed hereto as Exhibit 3.

Conclusion

For the foregoing reasons, T-Mobile respectfully submits that the proposed modification to the above referenced telecommunication facility constitute an exempt modification under R.C.S.A §16-50j-72(b)(2).

Respectfully submitted,



Karina Fournier  
Zoning Dept.  
T-Mobile  
30 Cold Spring Road  
Rocky Hill, CT 06067  
(860) 796-3988

cc: Town Manager, Kathleen Eagen  
Town Council Chairman, Michael Clark,

# Exhibit 1

## Exhibit 2

# GLOBAL SIGNAL FARMINGTON

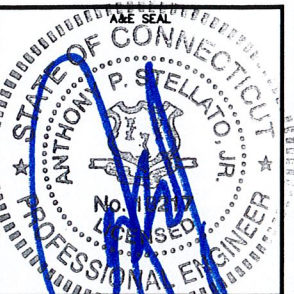
130 BIRDSEYE ROAD  
FARMINGTON, CT 06032

SITE NUMBER: CTHA233B

SITE TYPE: CO-LOCATE

**OMNIPOINT COMMUNICATIONS, INC.**  
A WHOLLY-OWNED SUBSIDIARY OF T-MOBILE USA, INC.  
100 FILLEY STREET  
BLOOMFIELD, CT 06002  
OFFICE: (860)-692-7100  
FAX: (860)-692-7159

**CHA**  
CLOUGH HARBOUR & ASSOCIATES LLP  
2138 State Deane Highway, Suite 212 - Rocky Hill, CT 06067-2138  
Main: (860) 257-4557 - www.cloughharbour.com



APPROVALS

LANDLORD \_\_\_\_\_

LEASING \_\_\_\_\_

R.F. \_\_\_\_\_

ZONING \_\_\_\_\_

CONSTRUCTION \_\_\_\_\_

A/E \_\_\_\_\_

PROJECT NO: 10585-1142

DRAWN BY: PAL

CHECKED BY: FM

SUBMITTALS		
NO.	DATE	DESCRIPTION
1	10/04/06	CONSTRUCTION FINAL
0	09/21/06	CONSTRUCTION

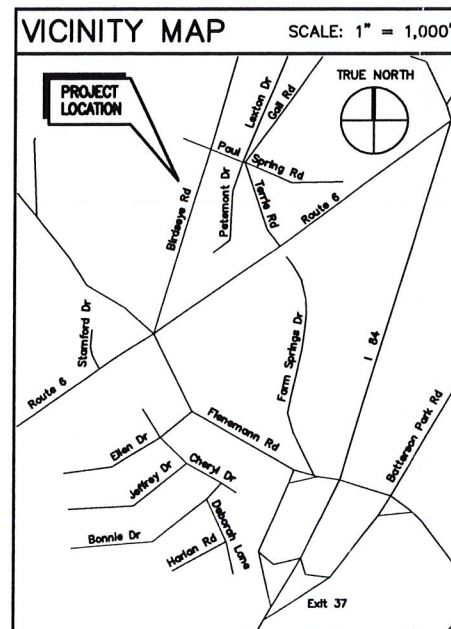
THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF OMNIPOINT COMMUNICATIONS, INC. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.

**CTHA233B**  
**GLOBAL SIGNAL FARMINGTON**  
130 BIRDSEYE ROAD  
FARMINGTON, CT 06032

SHEET TITLE  
**TITLE SHEET**

SHEET NUMBER  
**T-1**

- ### GENERAL NOTES
- THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
  - THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
  - THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE PROJECT OWNER'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
  - THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
  - THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
  - THE CONTRACTOR SHALL OBTAIN AUTHORIZATION FROM THE PROJECT OWNER'S REPRESENTATIVE TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS / CONTRACT DOCUMENTS.
  - THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S / VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
  - THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
  - THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
  - THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS, ESTABLISHING AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS AS SHOWN HEREIN.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
  - THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBSING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
  - THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
  - THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
  - THE CONTRACTOR SHALL NOTIFY THE PROJECT OWNER'S REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE LESSEE/LICENSEE REPRESENTATIVE.
  - THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
  - ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK. CALL THE FOLLOWING FOR ALL PRE-CONSTRUCTION NOTIFICATION 72-HOURS PRIOR TO ANY EXCAVATION ACTIVITY:  
DIG SAFE SYSTEM (MA, ME, NH, RI, VT): 1-888-344-7233  
CALL BEFORE YOU DIG (CT): 1-800-922-4455



**DO NOT SCALE DRAWINGS**

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE LESSEE/LICENSEE REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

### SHEET INDEX

SHT. NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	1
A-1	PLANS, ELEVATION, DETAILS & NOTES	1
S-1	STRUCTURAL NOTES, PLANS, SECTIONS & DETAILS	1
E-1	ELECTRICAL NOTES, RISERS & DETAILS	1
E-2	GROUNDING NOTES, RISERS & DETAILS	1

### PROJECT SUMMARY

SITE NUMBER: CTHA233B

SITE NAME: GLOBAL SIGNAL FARMINGTON

SITE ADDRESS: 130 BIRDSEYE ROAD  
FARMINGTON, CT 06032

ASSESSOR'S PARCEL NO.: MAP: 0119  
LOT: 3A

ZONING DISTRICT: R80

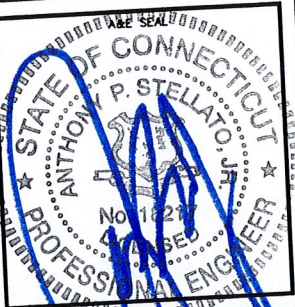
SITE TYPE: CO-LOCATE

STRUCTURE OWNER: GLOBAL SIGNAL  
301 NORTH CATTLEMAN ROAD  
SARASOTA, FL 34232  
CONTACT: CAITLIN WHELTON  
PHONE: (941) 384-8886

PROPERTY OWNER: MEDIA PARK REALTY INC  
130 BIRDSEYE ROAD  
FARMINGTON, CT 06032

APPLICANT, LESSEE/LICENSEE, PROJECT OWNER: OMNIPOINT COMMUNICATIONS, INC.  
100 FILLEY STREET  
BLOOMFIELD, CT 06002

**OMNIPONT COMMUNICATIONS, INC.**  
 A WHOLLY-OWNED SUBSIDIARY  
 OF T-MOBILE USA, INC.  
 100 FILLEY STREET  
 BLOOMFIELD, CT 06002  
 OFFICE: (860)-692-7100  
 FAX: (860)-692-7159



**APPROVALS**

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LEASING \_\_\_\_\_

R.F. \_\_\_\_\_

ZONING \_\_\_\_\_

CONSTRUCTION \_\_\_\_\_

A/E \_\_\_\_\_

PROJECT NO: 10585-1142

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**SUBMITTALS**

NO.	DATE	DESCRIPTION
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**CTHA233B**  
**GLOBAL SIGNAL FARMINGTON**  
 130 BIRDSEYE ROAD  
 FARMINGTON, CT 06032

SHEET TITLE  
**PLANS, ELEVATION, DETAILS & NOTES**

SHEET NUMBER  
**A-1**

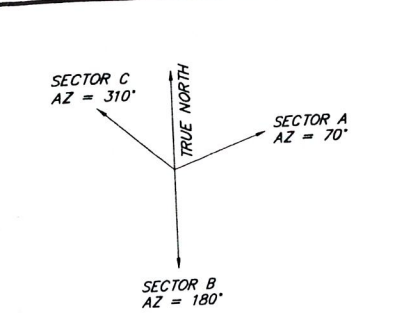
**ABBREVIATIONS**

ADJ	ADJUSTABLE	OC	ON CENTER
AGL	ABOVE GROUND LEVEL	OPP	OPPOSITE
ARL	ABOVE ROOF LEVEL	SF	SQUARE FOOT
APPROX	APPROXIMATE	SHT	SHEET
C	CONDUIT	SIM	SIMILAR
CONC	CONCRETE	STL	STEEL
CONT	CONTINUOUS	TOC	TOP OF CONCRETE
CJ	CONSTRUCTION JOINT	TOM	TOP OF MASONRY
DIA	DIAMETER	TYP	TYPICAL
DWG	DRAWING	VF	VERIFY IN FIELD
EGB	EQUIPMENT GROUND BAR	UG	UNDERGROUND
EA	EACH	UON	UNLESS OTHERWISE NOTED
ELEC	ELECTRICAL	WWF	WELDED WIRE FABRIC
ELEV	ELEVATION	W/	WITH
EQ	EQUAL	BTS	BASE TRANSMISSION STATION
EQUIP	EQUIPMENT	LNA	LOW NOISE AMPLIFIER
(E)	EXISTING	PCS	PERSONAL COMMUNICATIONS SERVICES
EXT	EXTERIOR	A-1	ANTENNA MARK NO.
FCM	FIELD CONSTRUCTION MANAGER	R	PLATE
FF	FINISHED FLOOR	&	AND
FG	FINISHED GRADE	@	AT
GA	GAUGE		
GALV	GALVANIZED		
GC	GENERAL CONTRACTOR		
LG	LONG		
MAX	MAXIMUM		
MECH	MECHANICAL		
MFR	MANUFACTURER		
MGB	MASTER GROUND BAR		
MIN	MINIMUM		
MTL	METAL		
NTC	NOT IN CONTRACT		
NTS	NOT TO SCALE		

**SYMBOLS AND MATERIALS**

[Symbol]	NEW ANTENNA	[Symbol]	GROUT / PLASTER
[Symbol]	EXISTING ANTENNA	[Symbol]	BRICK
[Symbol]	ASPHALT	[Symbol]	MASONRY
[Symbol]	NEW ACCESS EASEMENT	[Symbol]	CONCRETE
[Symbol]	CONCRETE	[Symbol]	EARTH
[Symbol]	ELECTRIC BOX	[Symbol]	GRAVEL
[Symbol]	LIGHT POLE	[Symbol]	PLYWOOD
[Symbol]	FND. MONUMENT	[Symbol]	SAND
[Symbol]	SPOT ELEVATION	[Symbol]	WOOD CONT.
[Symbol]	SET POINT	[Symbol]	WOOD BLOCKING
[Symbol]	REVISION	[Symbol]	STEEL
[Symbol]	GRID REFERENCE	[Symbol]	CENTER LINE
[Symbol]	DETAIL REFERENCE	[Symbol]	PROPERTY LINE
[Symbol]	ELEVATION	[Symbol]	STEPPED FOOTING
[Symbol]	SECTIONS & DETAILS	[Symbol]	MATCH LINE
[Symbol]		[Symbol]	WORK POINT
[Symbol]		[Symbol]	GROUND WIRE
[Symbol]		[Symbol]	COAXIAL CABLE

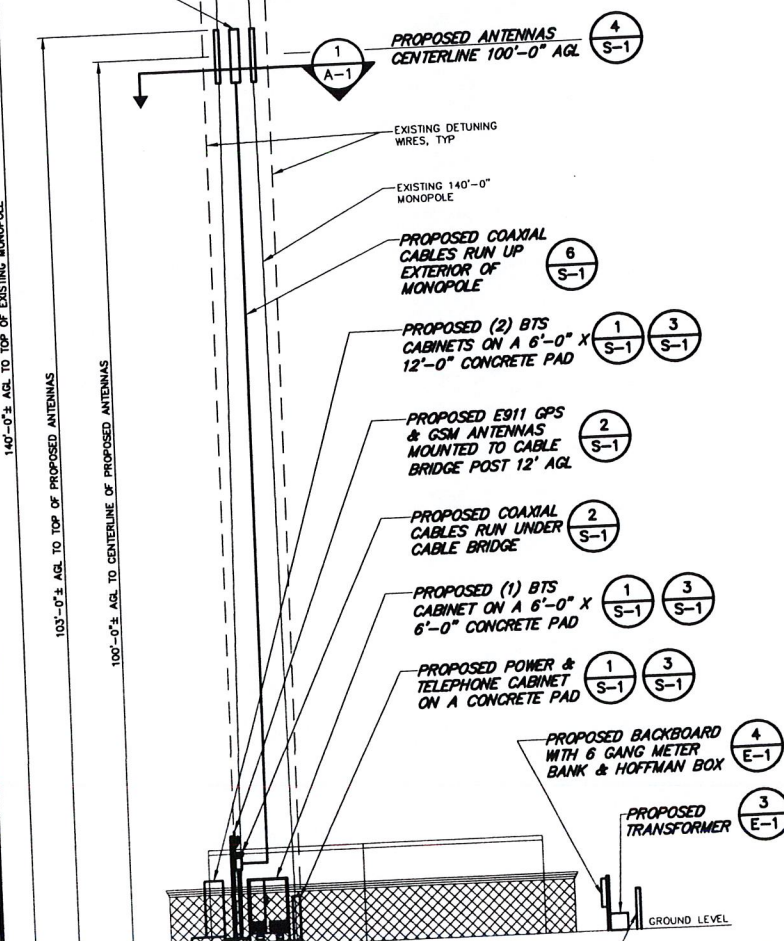
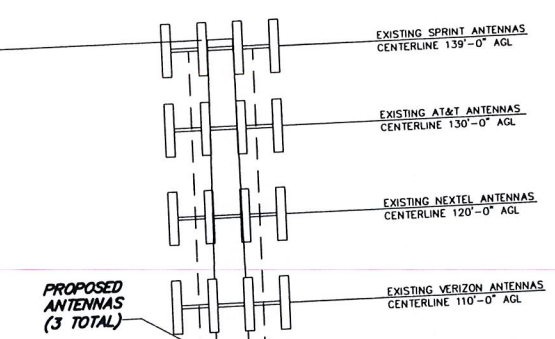
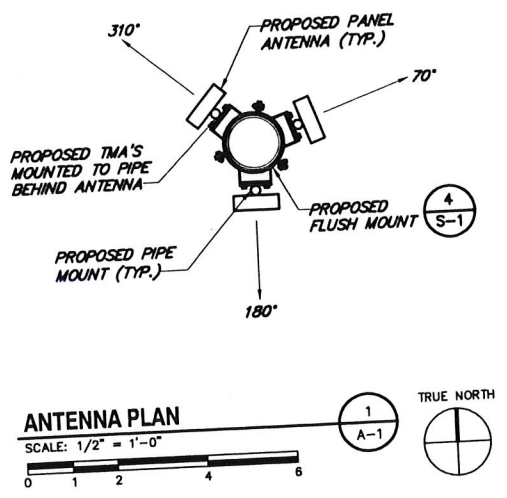
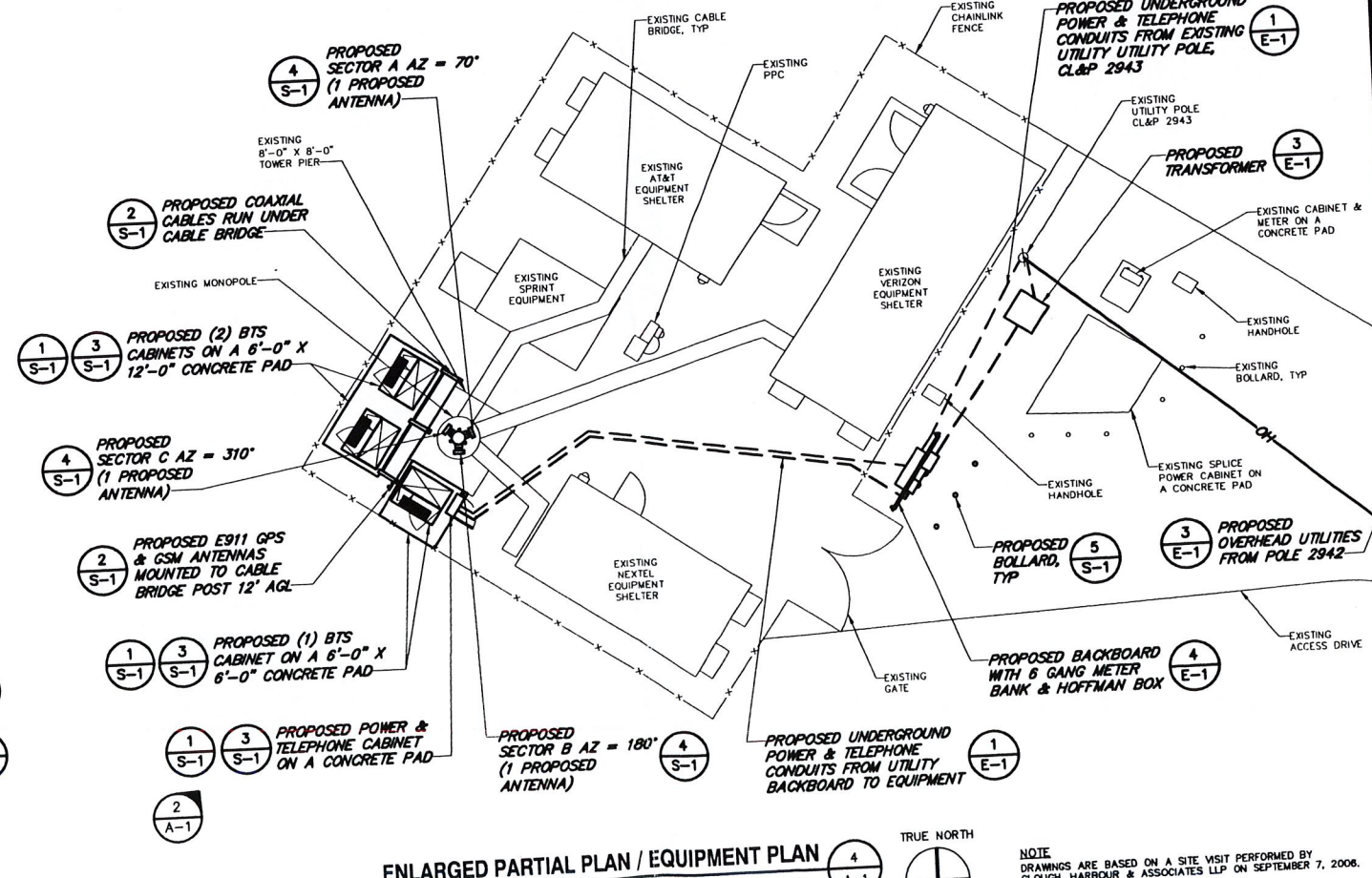
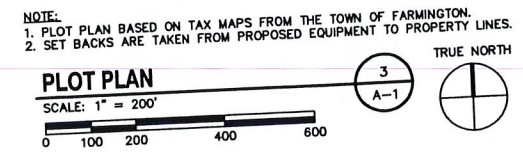
**ANTENNA ORIENTATION KEY**



**NOTES:**

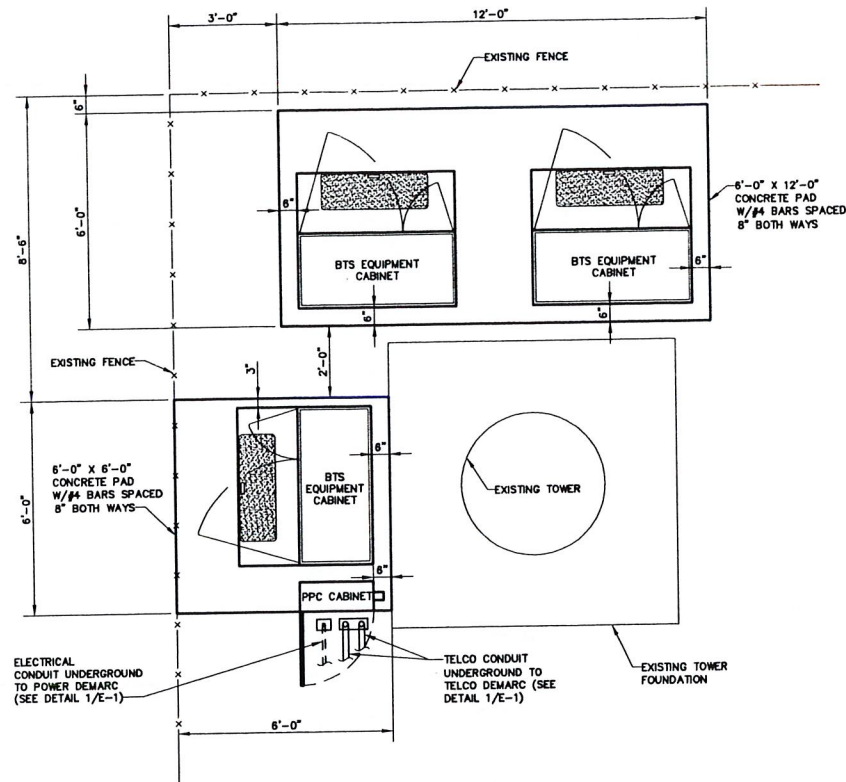
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS SHOWN HEREIN.
- ALL DIMENSIONS SHOWN THUS ± ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS WHICH EFFECT THE CONTRACTORS WORK. CONTRACTOR TO VERIFY ALL DIMENSIONS WITH OWNER PRIOR TO CONSTRUCTION.
- NORTH ARROW SHOWN ON PLANS REFERS TO TRUE NORTH. PRIOR TO THE START OF CONSTRUCTION, ORDERING OR FABRICATION OF ANTENNA MOUNTS, CONTRACTOR SHALL CONSULT WITH PROJECT OWNER'S RF ENGINEER AND FIELD VERIFY ALL ANTENNA SECTOR LOCATIONS AND ANTENNA AZIMUTHS.
- THE CONTRACTOR AND OR HIS SUB CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
- ANTENNA INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF RADIO ANTENNAS, TRANSMISSION LINES AND SUPPORT STRUCTURES.
- COAXIAL CABLE CONNECTORS AND TRANSMITTER EQUIPMENT SHALL BE PROVIDED BY THE OWNER AND IS NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS. A SCHEDULE OF OWNER SUPPLIED MATERIALS IS ATTACHED TO THE BID DOCUMENTS (SEE ATTACHMENT K). ALL OTHER HARDWARE TO BE PROVIDED BY THE CONTRACTOR. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.
- ANTENNAS, SUPPORTS AND CABLE MOUNTS SHALL BE PAINTED TO MATCH EXISTING SURFACES TO WHICH IT IS ATTACHED. PAINT SHALL BE SHERWIN WILLIAMS, COROTHANE II. SURFACE PREPARATION AND APPLICATION SHALL BE IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS AND LESSEE/LICENSEE GUIDELINES.
- COORDINATION, LAYOUT, AND FURNISHING OF CONDUIT, CABLE AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- EQUIPMENT WILL BE INDEPENDENTLY POWERED WITH SEPARATE METER.
- ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
- PRIOR TO EXCAVATION NEAR (E)TOWER, CONTRACTOR TO CONTACT AND COORDINATE WITH PROPERTY OWNER.
- ALL (E)ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW.
- ALL (E)INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF UTILITY COMPANY OR ENGINEERING.
- THE AREAS OF THE PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE EQUIPMENT, DRIVEWAY OR GRAVEL, SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDED AND COVERED WITH MULCH.
- THE CONTRACTOR SHALL ESTABLISH AND MAINTAIN SOIL EROSION AND SEDIMENTATION CONTROLS AT ALL TIMES DURING CONSTRUCTION.
- PER FCC MANDATE, ENHANCED EMERGENCY (E911) SERVICE IS REQUIRED TO MEET NATIONWIDE STANDARDS FOR WIRELESS COMMUNICATIONS SYSTEMS. LESSEE/LICENSEE IMPLEMENTATION REQUIRES DEPLOYMENT OF EQUIPMENT AND ANTENNAS GENERALLY DEPICTED ON THIS PLAN, ATTACHED TO OR MOUNTED IN CLOSE PROXIMITY TO THE BTS RADIO CABINETS. LESSEE/LICENSEE RESERVES THE RIGHT TO MAKE REASONABLE MODIFICATIONS TO E911 EQUIPMENT AND LOCATION AS TECHNOLOGY EVOLVES TO MEET REQUIRED SPECIFICATIONS.

**NOTE:**  
 PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A GLOBAL STRUCTURAL STABILITY ANALYSIS TO DETERMINE CAPACITY AND SUITABILITY OF EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY PROPOSED EQUIPMENT. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ALL REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.

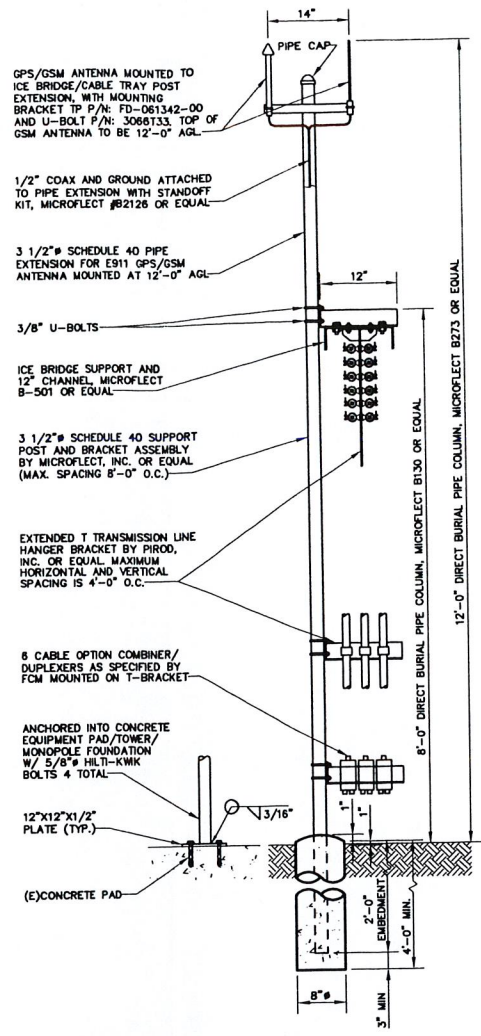


NEW PROJECT: 10/27/2006 11:08:05 AM Plotted: 10/27/2006 10:56:50 AM Scale: 10/27/2006 10:56:50 AM User: Rhea, Kim  
 140'-0" ± AGL TO TOP OF EXISTING MONOPOLE  
 103'-0" ± AGL TO CENTERLINE OF PROPOSED ANTENNAS  
 100'-0" ± AGL TO CENTERLINE OF PROPOSED ANTENNAS





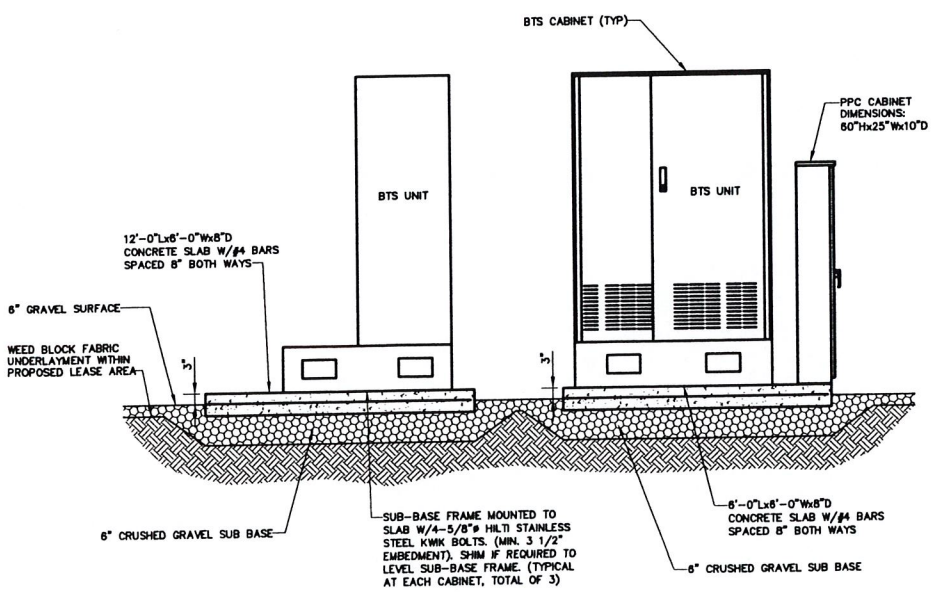
**EQUIPMENT SLAB LAYOUT** 1  
NO SCALE S-1



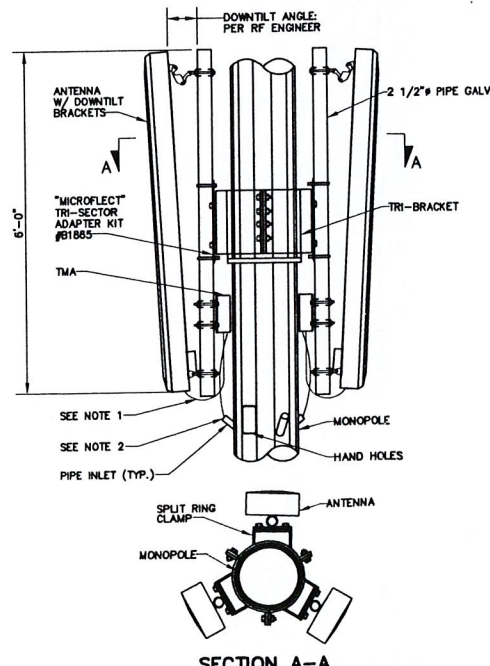
**PROFILE AT CABLE BRIDGE** 2  
NO SCALE S-1

**STRUCTURAL NOTES:**

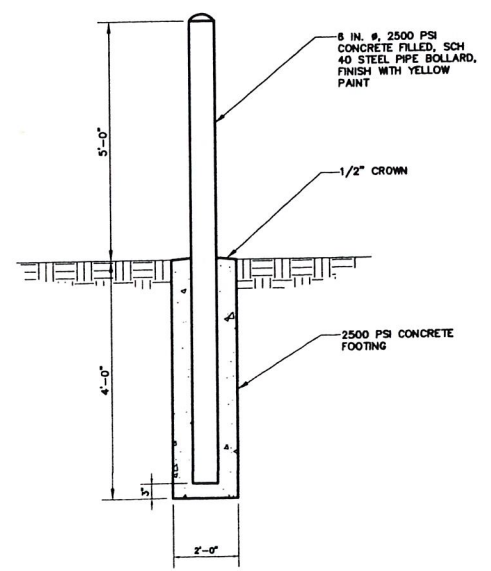
- DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, ANS/ASCE7, EIA/TIA-222-F STRUCTURAL STANDARDS FOR STEEL ANTENNA SUPPORTING STRUCTURES.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER.
- DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
- STRUCTURAL AND MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 STRUCTURAL STEEL UNLESS OTHERWISE NOTED.
- STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE A, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
- STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 5/8" DIA UNLESS OTHERWISE NOTED.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
- FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
- CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AWS AND DILL WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AWS "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION.
- INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
- UNSTRUTS SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
- EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF 1/2" DIAMETER STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS, AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND AN EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HLT-HIT HY-20 AND OR HY-150 SYSTEMS (AS SPECIFIED ON DWG.) OR ENGINEERS APPROVED EQUAL WITH 4-1/4" MIN. EMBEDMENT DEPTH, UNLESS NOTED OTHERWISE.
- EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HLT KWK BOLT II OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MINIMUM EMBEDMENT SHALL BE THREE AND ONE HALF (3 1/2) INCHES.
- GRAVEL SUB BASE AND CONCRETE SHALL BE PLACED AGAINST UNDISTURBED SOIL.
- CONCRETE FOR FENCE AND ICE BRIDGE SUPPORT SHALL BE 3000 PSI AIR ENTRAINED (4X-6X) NORMAL WEIGHT CONCRETE.
- ALL CAST IN PLACE CONCRETE SHALL BE MIXED AND PLACED IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 318 AND ACI 301.
- THE FOLLOWING MINIMUM CONCRETE COVER OVER REINFORCING STEEL SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:  
 CONCRETE CAST AGAINST EARTH ... 3 INCHES.  
 CONCRETE EXPOSED TO EARTH OR WATER  
 #8 AND LARGER ..... 2 INCHES  
 #5 AND SMALLER ..... 1 1/2 INCHES  
 ALL EXPOSED EDGES SHALL BE PROVIDED WITH A 3/4"x3/4" CHAMFER UNLESS OTHERWISE NOTED.
- LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF WOOD CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.



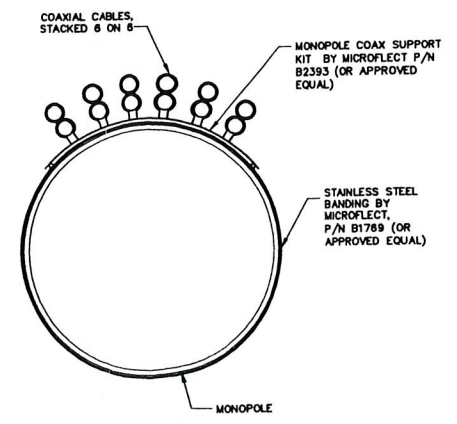
**EQUIPMENT SLAB LAYOUT** 3  
NO SCALE S-1



**SECTION A-A**  
 NOTES:  
 1. SECURE CABLES WITH TIE WRAPS AT 3'-0" O.C.  
 2. PROVIDE KELLOWS GRIP AROUND CABLES AND FASTEN TO EXISTING J-HOOKS INSIDE MONOPOLE.  
 3. ANTENNA MOUNTS TO BE PURCHASED FROM EHRESMANN ENGINEERING R15 WEST 3141 STREET, YANNTON, SD 57078; (605) 685-7532, MONOPOLE MODEL #EEI-3610-97.  
**ANTENNA MOUNTING DETAIL** 4  
 NO SCALE S-1



**BOLLARD DETAIL** 5  
NO SCALE S-1



**MONOPOLE CABLE MOUNT** 6  
NO SCALE S-1

**OMNIPOINT COMMUNICATIONS, INC.**  
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ANTHONY P. STELLATO  
 No. 19217  
 LICENSED PROFESSIONAL ENGINEER  
 STATE OF CONNECTICUT

APPROVALS

LANDLORD \_\_\_\_\_

LEASING \_\_\_\_\_

R.F. \_\_\_\_\_

ZONING \_\_\_\_\_

CONSTRUCTION \_\_\_\_\_

A/E \_\_\_\_\_

PROJECT NO: 10585-1142

DRAWN BY: PAL

CHECKED BY: FM

**SUBMITTALS**

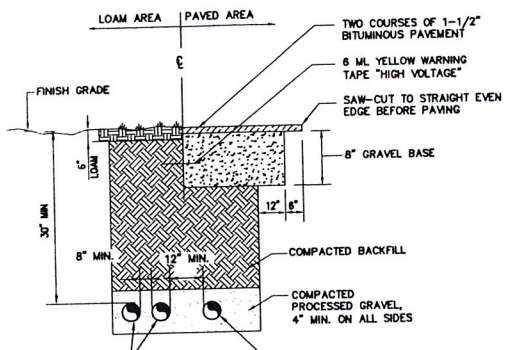
NO.	DATE	DESCRIPTION
1	10/04/06	CONSTRUCTION FINAL
0	09/21/06	CONSTRUCTION

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**CTHA233B**  
**GLOBAL SIGNAL FARMINGTON**  
 130 BIRDSEYE ROAD  
 FARMINGTON, CT 06032

SHEET TITLE  
**STRUCTURAL NOTES, PLANS, SECTIONS & DETAILS**

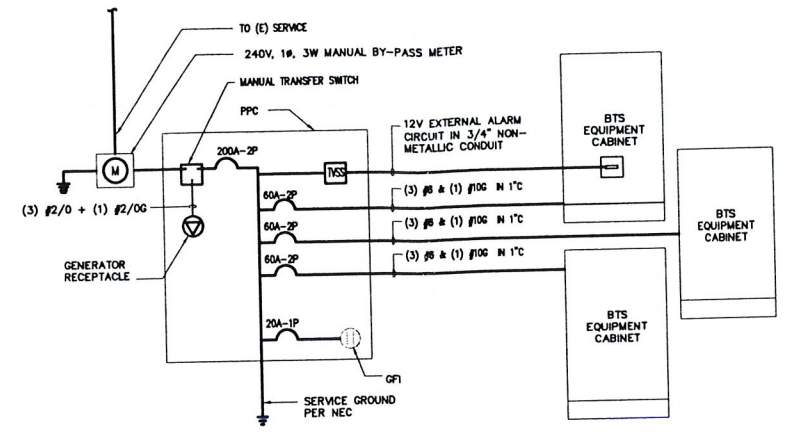
SHEET NUMBER  
**S-1**



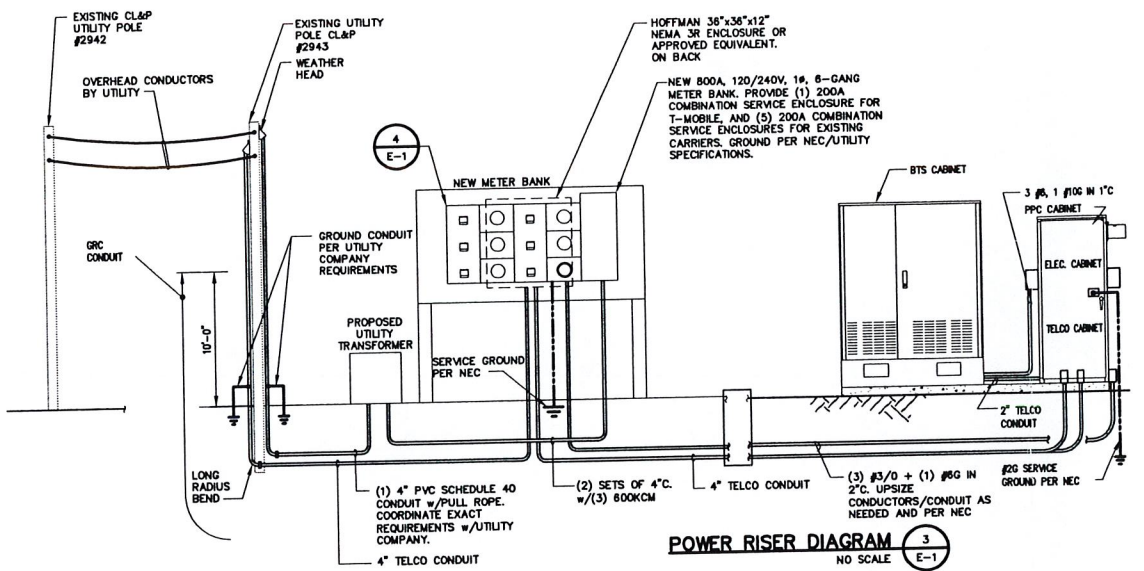
**BURIED CONDUIT DETAIL**  
NO SCALE

SCHEDULE 40 CONDUITS FOR NEW ELECTRICAL AND TELEPHONE SERVICES. SEE UTILITY AND SITE PLANS. PROVIDE APPROVED PULL BOXES AS REQUIRED, AND COORDINATE INSTALLATION w/ ALL UTILITY COMPANIES FOR INTERFACING AT TERMINATION POINTS. PROVIDE FULL LENGTH PULL ROPES (TYP.).

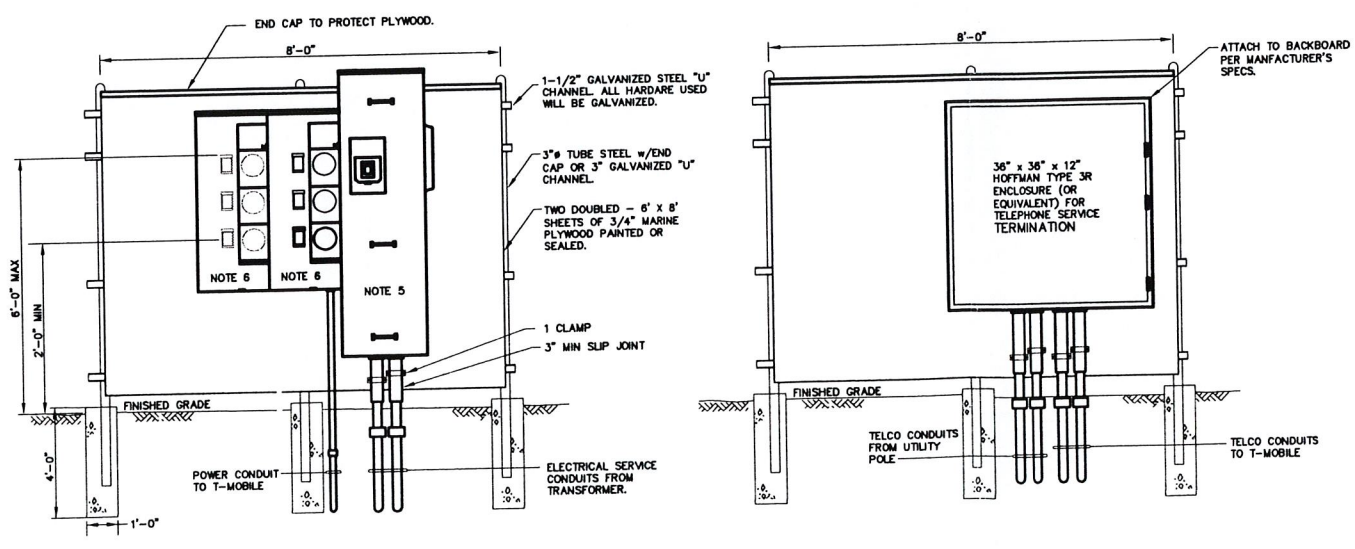
NOTE: DETAIL AS SHOWN IS FOR SECONDARY ELECTRIC SERVICE. PRIMARY HIGH VOLTAGE SERVICE REQUIRES 4\"/>



**ONE LINE DIAGRAM**  
NO SCALE



**POWER RISER DIAGRAM**  
NO SCALE



**FRONT VIEW**

**REAR VIEW**

- NOTES:**
1. ALL UNUSED METERS TO BE BARREL LOCKED BY CL&P.
  2. INDIVIDUAL METER SOCKETS WITH INDIVIDUAL BARRIERS AS WELL AS PROVISIONS FOR SEALS AND BARREL LOCKS.
  3. SINGLE-PHASE, 120/240 VOLT NETWORK, THREE-PHASE 208/120 VOLT NETWORK AND THREE-PHASE 480/277 VOLT SERVICES SHALL BE COLD SEQUENCED.
  4. ALL METERS MUST BE PROPERLY IDENTIFIED UNIT #.
  5. SQUARE D MAIN LUG CATALOG #ZM1800CBU OR APPROVED EQUIVALENT.
  6. SQUARE D METER PACK CATALOG #ZM113225 OR APPROVED EQUIVALENT.

**METERBANK - ELEVATION**  
NO SCALE

**ELECTRICAL LEGEND**

- NEW PANEL BOARD, SURFACE MOUNTED
- EXISTING PANEL BOARD, SURFACE MOUNTED
- DRY TYPE TRANSFORMER
- METER
- CIRCUIT BREAKER
- NON-FUSIBLE DISCONNECT SWITCH, MOUNTED 54\"/>
- FUSIBLE DISCONNECT SWITCH, MOUNTED 54\"/>
- TRANSIENT VOLTAGE SURGE SUPPRESSOR WITH BUILT-IN FUSES, SURFACE MOUNTED
- DUPLEX OUTLET, SURFACE MOUNTED, 20 AMPS, 125 VOLTS, SINGLE PHASE
- JUNCTION BOX, SURFACE MOUNTED 18\"/>
- EXPOSED WIRING
- HOME RUNS, MINIMUM (2)Ø + (1)Ø IN 3/4\"/>
- A.F.F. ABOVE FINISHED FLOOR
- U.O.N. UNLESS OTHERWISE NOTED
- WP WEATHERPROOF
- GFI GROUND FAULT INTERRUPTER
- A AMPERE
- V VOLT
- KWH KILOWATT-HOUR
- C CONDUIT
- GRC GALVANIZED RIGID CONDUIT
- G GROUND
- MGB MASTER GROUND BAR
- EGB EQUIPMENT GROUND BAR
- G GROUND COPPER WIRE, SIZE AS NOTED
- EXPOSED WIRING
- COAXIAL CABLE
- 5/8\"/>
- PPC POWER PROTECTION CABINET
- OMNI-DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL

**ELECTRICAL AND GROUNDING NOTES**

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL LAWS.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATIONS INCLUDING INCIDENTAL WORK TO PROVIDE A COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATERTIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND, WHERE REQUIRED, IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THINSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE INSTALLED IN TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND, USE PVC, SCHEDULE 40 CONDUIT. ABOVE GROUND PORTIONS OF THESE CONDUITS SHALL BE PVC CONDUIT.
11. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE A NEMA 3R ENCLOSURE.
12. PPC PROVIDED BY PROJECT OWNER.
13. GROUNDING SHALL COMPLY WITH NEC ARTICLE 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE DONE IN ACCORDANCE WITH "T-MOBILE BTS SITE GROUNDING STANDARDS".
14. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURER'S COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
15. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THIS DRAWING.
16. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
17. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLES. ALWAYS MAKE AT LEAST 12\"/>
- 18. CONNECTION TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
- 19. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
- 20. CONTRACTOR SHALL PROVIDE AND INSTALL OMNI DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALLS OVER EACH GROUND ROD AND BONDING POINT BETWEEN EXISTING TOWER/ MONOPOLE GROUNDING RING AND EQUIPMENT GROUNDING RING.
- 21. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.
- 22. CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE-OUT.

**OMNIPPOINT COMMUNICATIONS, INC.**  
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**APPROVALS**

LANDLORD \_\_\_\_\_

LEASING \_\_\_\_\_

R.F. \_\_\_\_\_

ZONING \_\_\_\_\_

CONSTRUCTION \_\_\_\_\_

A/E \_\_\_\_\_

PROJECT NO: 10585-1142

DRAWN BY: JRM

CHECKED BY: MJO

**SUBMITTALS**

NO.	DATE	DESCRIPTION
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0	09/21/06	CONSTRUCTION

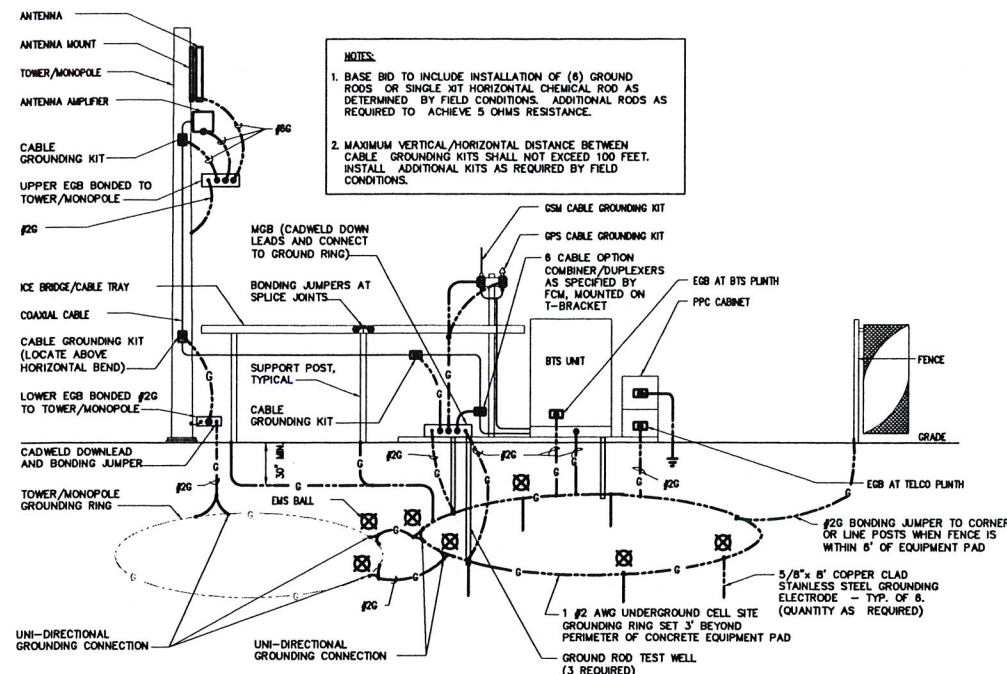
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**CTHA233B**  
**GLOBAL SIGNAL FARMINGTON**  
130 BIRDSEYE ROAD  
FARMINGTON, CT 06032

SHEET TITLE  
**ELECTRICAL NOTES, RISERS & DETAILS**

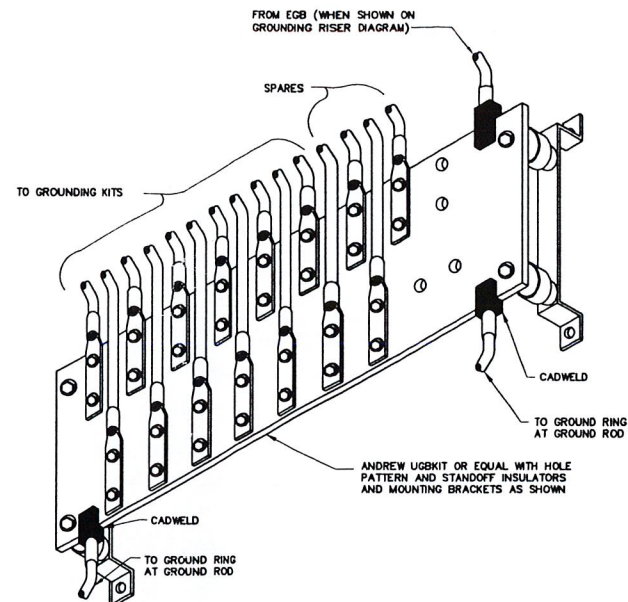
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**E-1**

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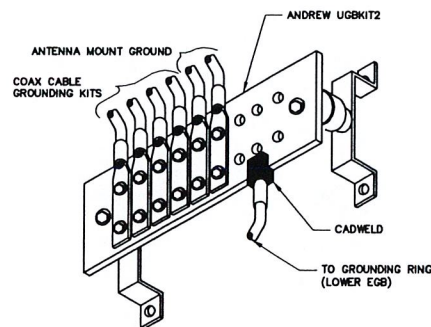
**GROUNDING RISER DIAGRAM**  
NO SCALE

1  
E-2



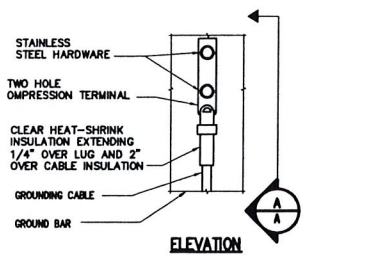
**MASTER GROUND BAR (MGB)**  
NO SCALE

2  
E-2

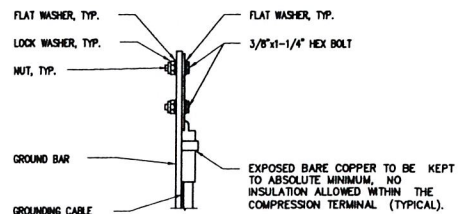


**EQUIPMENT GROUND BAR (EGB)**  
NO SCALE

3  
E-2



**ELEVATION**

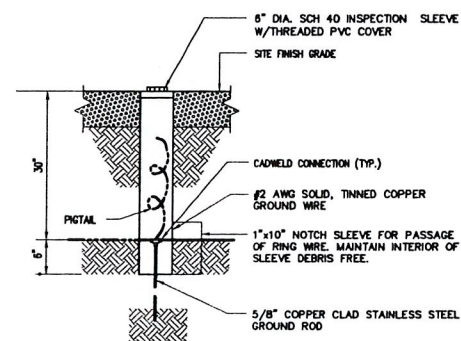


**SECTION A-A**

- NOTES:**
1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
  2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
  3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

**TYPICAL GROUND BAR CONNECTIONS DETAIL**  
NO SCALE

4  
E-2



**GROUND ROD TEST WELL DETAIL**  
NO SCALE

5  
E-2

**ELECTRICAL LEGEND**

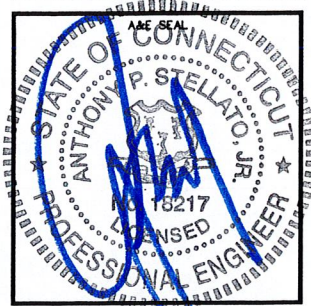
- NEW PANEL BOARD, SURFACE MOUNTED
- EXISTING PANEL BOARD, SURFACE MOUNTED
- DRY TYPE TRANSFORMER
- METER
- CIRCUIT BREAKER
- NON-FUSIBLE DISCONNECT SWITCH, MOUNTED 54" A.F.F.
- FUSIBLE DISCONNECT SWITCH, MOUNTED 54" A.F.F.
- TRANSIENT VOLTAGE SURGE SUPPRESSOR WITH BUILT-IN FUSES, SURFACE MOUNTED
- DUPLEX OUTLET, SURFACE MOUNTED, 20 AMPS, 125 VOLTS, SINGLE PHASE
- JUNCTION BOX, SURFACE MOUNTED 18" A.F.F.
- EXPOSED WIRING
- HOME RUNS, MINIMUM (2)Ø + (1)Ø100 IN 3/4" CONDUIT U.O.N.
- A.F.F. ABOVE FINISHED FLOOR
- U.O.N. UNLESS OTHERWISE NOTED
- WP WEATHERPROOF
- GFI GROUND FAULT INTERRUPTER
- A AMPERE
- V VOLT
- KWH KILOWATT-HOUR
- C CONDUIT
- GRC GALVANIZED RIGID CONDUIT
- GROUND
- GROUND
- MGB MASTER GROUND BAR
- EGB EQUIPMENT GROUND BAR
- GROUND COPPER WIRE, SIZE AS NOTED
- EXPOSED WIRING
- COAXIAL CABLE
- 5/8"x8" COPPER CLAD STEEL GROUND ROD
- EXOTHERMIC (CADWELD) OR MECHANICAL (COMPRESSION TYPE) CONNECTION
- PPC POWER PROTECTION CABINET
- OMNI-DIRECTIONAL ELECTRONICS MARKER SYSTEM (EMS) BALL
- MECHANICAL CONNECTION
- CADWELD CONNECTION
- MECHANICAL CONNECTION
- CADWELD CONNECTION

**ELECTRICAL AND GROUNDING NOTES**

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3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATIONS INCLUDING INCIDENTAL WORK TO PROVIDE A COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER-TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND, WHERE REQUIRED, IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THHN/INSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE INSTALLED IN TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND, USE PVC, SCHEDULE 40 CONDUIT. ABOVE GROUND PORTIONS OF THESE CONDUITS SHALL BE PVC CONDUIT.
11. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE A NEMA 3R ENCLOSURE.
12. PPC PROVIDED BY PROJECT OWNER.
13. GROUNDING SHALL COMPLY WITH NEC ARTICLE 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE DONE IN ACCORDANCE WITH "T-MOBILE BTS SITE GROUNDING STANDARDS".
14. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURER'S COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
15. USE #8 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID THINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THIS DRAWING.
16. ALL GROUND CONNECTIONS TO BE BURNOY HYDRONUT COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
17. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLES. ALWAYS MAKE AT LEAST 12" RADIUS BENDS, #8 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR.
18. CONNECTION TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
19. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
20. CONTRACTOR SHALL PROVIDE AND INSTALL OMNI DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALLS OVER EACH GROUND ROD AND BONDING POINT BETWEEN EXISTING TOWER/ MONOPOLE GROUNDING RING AND EQUIPMENT GROUNDING RING.
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22. CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.

**OMNIPPOINT COMMUNICATIONS, INC.**  
A WHOLLY-OWNED SUBSIDIARY OF T-MOBILE USA, INC.  
100 FILLEY STREET  
BLOOMFIELD, CT 06002  
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FAX: (860)-692-7159

**CHA**  
CLOUGH HARBOUR & ASSOCIATES LLP  
2139 Seaside Highway, Suite 212 - Rocky Hill, CT 06067-2338  
Main: (860) 257-4557 - www.cloughharbour.com



**APPROVALS**

LANDLORD \_\_\_\_\_

LEASING \_\_\_\_\_

R.F. \_\_\_\_\_

ZONING \_\_\_\_\_

CONSTRUCTION \_\_\_\_\_

A/E \_\_\_\_\_

PROJECT NO: 10585-1142

DRAWN BY: JRM

CHECKED BY: MJO

SUBMITTALS		
1	10/04/06	CONSTRUCTION FINAL
0	09/21/06	CONSTRUCTION

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**CTHA233B**  
**GLOBAL SIGNAL FARMINGTON**  
130 BIRDSEYE ROAD  
FARMINGTON, CT 06032

SHEET TITLE  
**GROUNDING NOTES, RISERS & DETAILS**

SHEET NUMBER  
**E-2**

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

# SEMAAN ENGINEERING SOLUTIONS

## 140 ft SUMMIT Monopole Structural Analysis

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

Site: 3017655 / CT03XC100  
For: Omnipoint  
Farmington, CT



September 18, 2006

Mr. Louis Belizaire  
Global Signal  
301 North Cattlemen Road, Suite 300  
Sarasota, FL 34232

**Re: Site Number 3017655 / CT03XC100 – Farmington, CT.**

Dear Mr. Belizaire:

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 TIA/EIA-222 Rev 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 140 ft SUMMIT Monopole.

Refer to SUMMIT drawing 2933-01 dated November 3, 1997 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 **TIA/EIA-222 Rev F and local building codes 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 gust per the IBC 2003. 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:**

The following loads were used in the tower analysis:

Elev (ft)	Qty	Antennas	Mounts	Coax	Carrier
139.0	12	DB980H	Low Profile Platform	(12) 1 5/8	Sprint
130.0	12	Allgon 7262.02			AT&T
120.0	12	ALP 9212	Low Profile Platform	(12) 1 5/8	Nextel
110.0	6	LPD-6513	Low Profile Platform	(12) 1 5/8	Verizon
	6	LPA 185063/8CF			

Proposed Loads:

Elev (ft)	Qty	Antennas	Mounts	Coax	Carrier
100.0	3	APX16PV-16PVL	Flush Mounted	(12) 1 5/8	Omnipoint
	6	S20057A1 TMA			

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 with the exception of those for the proposed loading.

**Results of Analysis:**

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

**Structure:**

The existing pole shaft is slightly overstressed at the 51' elevation (by 1.9%). This amount of overstress is considered acceptable. Therefore, the existing monopole is structurally capable of supporting the proposed antennas.

The maximum structure usage is: 101.9%.

**Foundation:**

Pole Reactions	Original Design Reactions	Current Analysis Reactions	% Of Design
Moment (ft-kips)	2,325.00	2,306.89	99.2
Shear (kips)	25.00	23.45	93.8

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

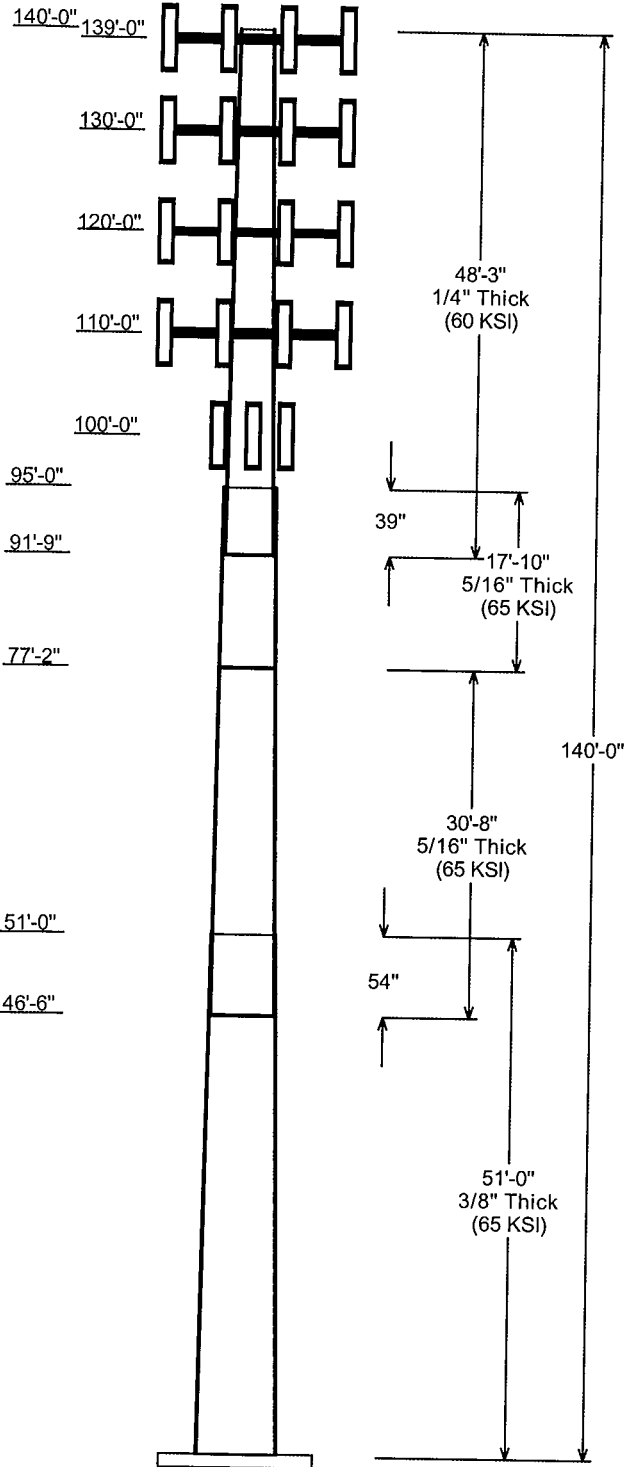
**Review and Recommendations:**

Based on the analysis results, the existing structure meets the requirements per the TIA/EIA-222 Rev F standards for a basic wind speed of 80 mph and 1/2" radial ice with reduced wind speed.

**SEMAAN ENGINEERING SOLUTIONS**

1079 N.204<sup>th</sup> Avenue  
 Elkhorn, NE 68022  
 Phone: 402-289-1888  
 Fax: 402-289-1861

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Job Information			
Pole :	CT03XC100	Code :	TIA/EIA-222 Rev F
Description :	Client : Global Signal		
Location :	3017655 - Farmington, CT		
Shape :	12 Sides	Base Elev (ft):	0.00
Height :	140.00 (ft)	Taper:	0.205000(in/ft)

Sections Properties								
Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Type	Overlap		Steel Grade (ksi)
		Across Top	Flats Bottom			Length (in)	Taper (in/ft)	
1	51.000	33.12	43.58	0.375		0.000	0.205000	65
2	30.667	28.38	34.67	0.313	Slip Joint	54.000	0.205000	65
3	17.833	24.73	28.38	0.313	Butt Joint	0.000	0.205000	65
4	48.250	16.00	25.89	0.250	Slip Joint	39.000	0.205000	60

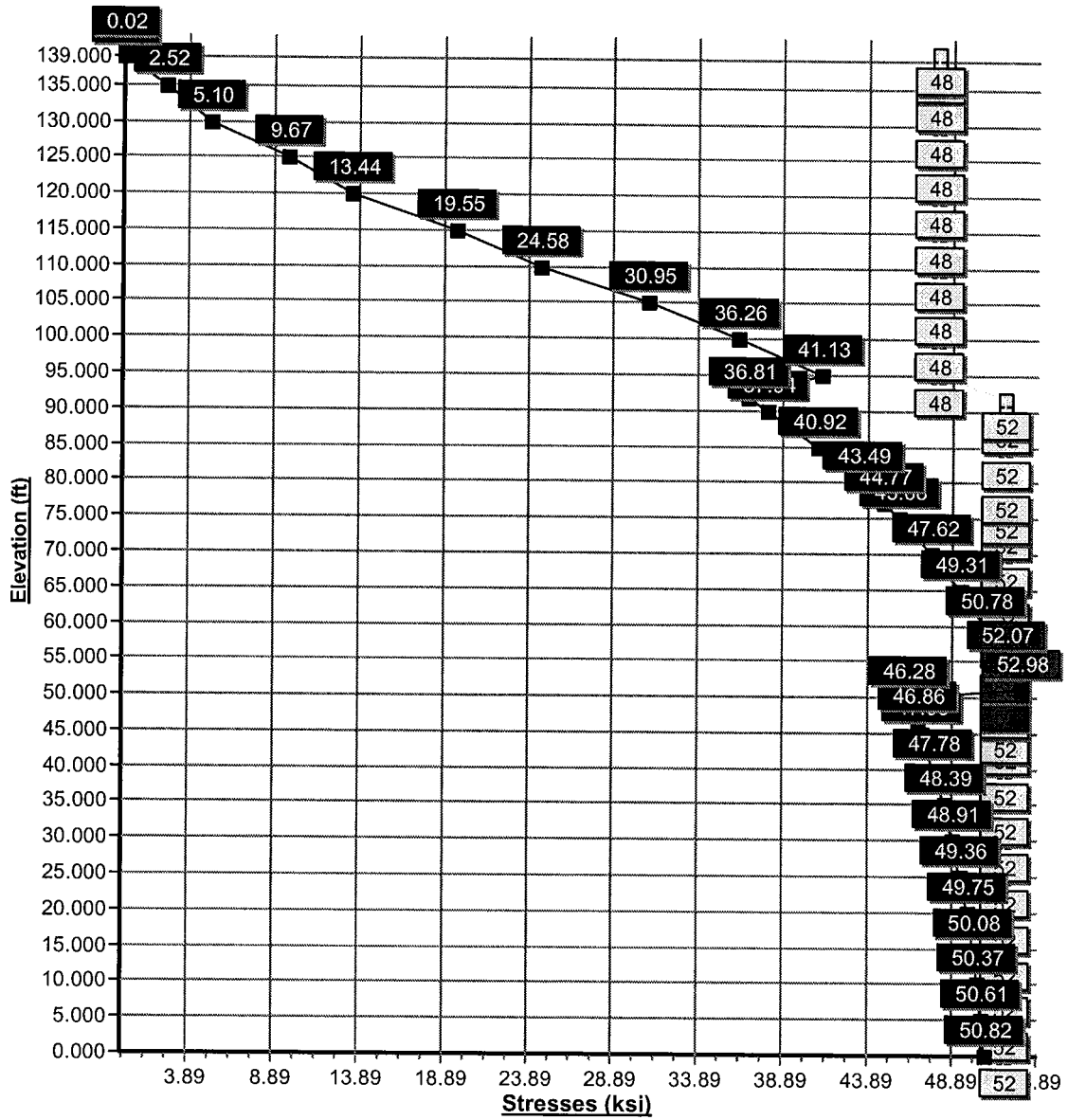
Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
139.000	139.000	12	DB980H
139.000	139.000	1	Low Profile Platform
130.000	130.000	1	Low Profile Platform
130.000	130.000	12	Allgon 7262.02
120.000	120.000	1	Low Profile Platform
120.000	120.000	12	ALP 9212
110.000	110.000	6	LPA 185063/8CF
110.000	110.000	1	Low Profile Platform
110.000	110.000	6	LPD-6513
100.000	100.000	6	S20057A1 TMA
100.000	100.000	3	APX16PV-16PVL

Linear Appurtenance				
Elev (ft)	From	To	Description	Exposed To Wind
0.000	100.0	139.0	1 5/8" Coax	Yes
0.000	110.0	139.0	1 5/8" Coax	No
0.000	110.0	120.0	1 5/8" Coax	No
0.000	120.0	130.0	1 5/8" Coax	No
0.000	130.0	139.0	1 5/8" Coax	No

Load Cases	
No Ice	80.00 mph Wind with No Ice
Ice	69.28 mph Wind with Ice

Reactions			
Load Case	Moment (Kip-ft)	Shear (Kips)	Axial (Kips)
No Ice	2306.89	23.45	28.93
Ice	1929.42	19.03	34.59

**Load Case : No Ice**  
**Max Stress 101.9% at 51.0ft**





Pole : CT03XC100  
 Location : 3017655 - Farmington, CT  
 Height : 140.0 (ft)  
 Shape : 12 Sides  
 Base Dia : 43.58 (in)  
 Top Dia : 16.00 (in)  
 Taper : 0.205000 (in/ft)

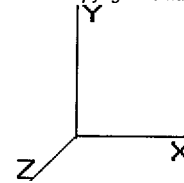
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Page: 1

Base Elev : 0.000 (ft)



**Shaft Section Properties**

Sect Num	Length (ft)	Thick (in)	Fv (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper (in/ft)
1	51.000	0.3750	65		0.00	7,958	43.58	0.000	52.17	12429.9	29.00	116.2	33.12	51.00	39.55	5413.7	21.53	88.33	0.20500
2	30.667	0.3125	65	Slip Joint	54.00	3,278	34.67	46.50	34.57	5210.0	27.59	110.9	28.38	77.16	28.25	2841.5	22.20	90.83	0.20500
3	17.833	0.3125	65	Butt Joint	0.00	1,603	28.38	77.16	28.25	2841.5	22.20	90.83	24.73	95.00	24.57	1869.7	19.06	79.14	0.20500
4	48.250	0.2500	60	Slip Joint	39.00	2,736	25.89	91.75	20.64	1733.1	25.61	103.5	16.00	140.0	12.68	401.8	15.01	64.02	0.20500
Shaft Weight						15,575													

**Discrete Appurtenance Properties**

Attach Elev (ft)	Description	Qty	Weight (lb)	No Ice CaAa (sf)	CaAa Factor	Weight (lb)	Ice CaAa (sf)	CaAa Factor	Distance From Face (ft)	Vert Ecc (ft)
139.0	DB980H	12	9.00	3.280	0.67	28.00	3.850	0.67	0.000	0.000
139.0	Low Profile Platform	1	1600.00	24.000	1.00	2100.00	27.320	1.00	0.000	0.000
130.0	Low Profile Platform	1	1600.00	24.000	1.00	2100.00	27.320	1.00	0.000	0.000
130.0	Allgon 7262.02	12	12.24	2.960	0.82	21.80	3.400	0.82	0.000	0.000
120.0	Low Profile Platform	1	1600.00	24.000	1.00	2100.00	27.320	1.00	0.000	0.000
120.0	ALP 9212	12	27.00	5.460	1.00	48.00	5.990	1.00	0.000	0.000
110.0	LPA 185063/8CF	6	9.00	2.970	0.95	30.93	3.480	0.95	0.000	0.000
110.0	Low Profile Platform	1	1600.00	24.000	1.00	2100.00	27.320	1.00	0.000	0.000
110.0	LPD-6513	6	28.00	6.420	1.00	74.00	7.020	1.00	0.000	0.000
100.0	S20057A1 TMA	6	11.00	0.820	0.74	16.41	1.020	0.74	0.000	0.000
100.0	APX16PV-16PVL	3	18.00	6.760	0.62	49.62	7.420	0.62	0.000	0.000
Totals		61	7320.88			10450.50			Number of Loadings :	11

**Linear Appurtenance Properties**

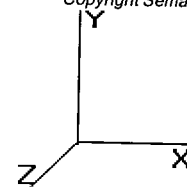
Elev From (ft)	Elev To (ft)	Description	No Ice Weight (lb/ft)	CaAa (sf/ft)	Ice Weight (lb/ft)	CaAa (sf/ft)	Exposed To Wind
0.00	139.00	(12) 1 5/8 Coax	12.00	0.00	12.00	0.00	N
0.00	130.00	(12) 1 5/8 Coax	12.00	0.00	12.00	0.00	N
0.00	120.00	(12) 1 5/8 Coax	12.00	0.00	12.00	0.00	N
0.00	110.00	(6) 1 5/8 Coax	6.00	0.00	6.00	0.00	N
0.00	110.00	(6) 1 5/8 Coax	6.00	0.00	6.00	0.00	N
0.00	100.00	(12) 1 5/8" Coax	1.04	0.00	0.00	0.00	Y
Total Weight			6,091.99 (lb)		5,988.00 (lb)		

Pole : CT03XC100  
 Location : 3017655 - Farmington, CT  
 Height : 140.0 (ft)  
 Shape : 12 Sides  
 Base Dia : 43.58 (in)  
 Top Dia : 16.00 (in)  
 Taper : 0.205000 (in/ft)

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 Page: 2

Base Elev : 0.000 (ft)



**Segment Properties** (Max Len : 5 ft)

Seq Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)
0.00		0.3750	43.580	52.170	12,429.9	29.00	116.21	65	52	0.0
5.00		0.3750	42.555	50.932	11,566.0	28.26	113.48	65	52	877.1
10.00		0.3750	41.530	49.694	10,743.1	27.53	110.75	65	52	856.0
15.00		0.3750	40.505	48.457	9,960.3	26.80	108.01	65	52	835.0
20.00		0.3750	39.480	47.219	9,216.4	26.07	105.28	65	52	813.9
25.00		0.3750	38.455	45.981	8,510.5	25.33	102.55	65	52	792.8
30.00		0.3750	37.430	44.744	7,841.6	24.60	99.81	65	52	771.8
35.00		0.3750	36.405	43.506	7,208.7	23.87	97.08	65	52	750.7
40.00		0.3750	35.380	42.268	6,610.8	23.14	94.35	65	52	729.7
45.00		0.3750	34.355	41.030	6,046.9	22.40	91.61	65	52	708.6
46.50	Bot - Section 2	0.3750	34.047	40.659	5,884.2	22.18	90.79	65	52	208.5
50.00		0.3750	33.330	39.793	5,516.0	21.67	88.88	65	52	886.6
51.00	Top - Section 1	0.3125	33.750	33.646	4,801.5	26.79	108.00	65	52	249.8
55.00		0.3125	32.930	32.821	4,456.9	26.09	105.38	65	52	452.3
60.00		0.3125	31.905	31.790	4,049.8	25.21	102.10	65	52	549.6
65.00		0.3125	30.880	30.758	3,668.2	24.33	98.82	65	52	532.1
70.00		0.3125	29.855	29.727	3,311.5	23.45	95.54	65	52	514.5
75.00		0.3125	28.830	28.695	2,978.6	22.58	92.26	65	52	497.0
77.17	Top - Section 2	0.3125	28.385	28.248	2,841.6	22.20	90.83	65	52	209.9
77.17	Bot - Section 3	0.3125	28.385	28.248	2,841.6	22.20	90.83	65	52	
80.00		0.3125	27.805	27.664	2,668.8	21.70	88.98	65	52	269.5
85.00		0.3125	26.780	26.633	2,381.3	20.82	85.70	65	52	461.9
90.00		0.3125	25.755	25.601	2,115.2	19.94	82.42	65	52	444.4
91.75	Bot - Section 4	0.3125	25.396	25.240	2,027.0	19.63	81.27	65	52	151.4
95.00	Top - Section 3	0.2500	25.230	20.109	1,601.6	24.90	100.92	60	48	500.8
100.0		0.2500	24.205	19.284	1,412.4	23.80	96.82	60	48	335.1
105.0		0.2500	23.180	18.458	1,238.7	22.70	92.72	60	48	321.1
110.0		0.2500	22.155	17.633	1,079.9	21.60	88.62	60	48	307.0
115.0		0.2500	21.130	16.808	935.3	20.50	84.52	60	48	293.0
120.0		0.2500	20.105	15.983	804.2	19.40	80.42	60	48	279.0
125.0		0.2500	19.080	15.158	686.0	18.31	76.32	60	48	264.9
130.0		0.2500	18.055	14.333	579.9	17.21	72.22	60	48	250.9
135.0		0.2500	17.030	13.508	485.4	16.11	68.12	60	48	236.8
139.0		0.2500	16.210	12.848	417.7	15.23	64.84	60	48	179.4
140.0		0.2500	16.005	12.683	401.8	15.01	64.02	60	48	43.4
										15,574.5

Pole : CT03XC100  
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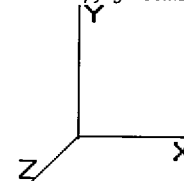
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Page: 3

Base Elev : 0.000 (ft)



**Load Case:** No Ice                      80.00 mph Wind with No Ice                      26 Iterations

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

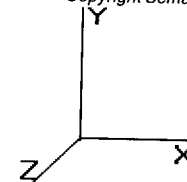
**Shaft Segment Forces**

Seg Top Elev (ft)	Description	Kz	az (psf)	azGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load (lb)	Tot Dead Load (lb)	
0.00		0.00	1.00	16.384	27.68	290.53	1.030	0.00	0.00	0.000	0.00	0.0	0.0	
5.00		0.00	1.00	16.384	27.68	283.69	1.030	0.00	5.00	17.945	18.48	511.8	0.0	877.1
10.00		0.00	1.00	16.384	27.68	276.86	1.030	0.00	5.00	17.518	18.04	499.6	0.0	856.0
15.00		0.00	1.00	16.384	27.68	270.03	1.030	0.00	5.00	17.090	17.60	487.4	0.0	835.0
20.00		0.00	1.00	16.384	27.68	263.19	1.030	0.00	5.00	16.663	17.16	475.2	0.0	813.9
25.00		0.00	1.00	16.384	27.68	256.36	1.030	0.00	5.00	16.236	16.72	463.1	0.0	792.8
30.00		0.00	1.00	16.384	27.68	249.53	1.030	0.00	5.00	15.809	16.28	450.9	0.0	771.8
35.00		0.00	1.01	16.662	28.15	244.74	1.030	0.00	5.00	15.382	15.84	446.1	0.0	750.7
40.00		0.00	1.05	17.310	29.25	242.43	1.030	0.00	5.00	14.955	15.40	450.6	0.0	729.7
45.00		0.00	1.09	17.902	30.25	239.40	1.030	0.00	5.00	14.528	14.96	452.7	0.0	708.6
46.50	Bot - Section 2	0.00	1.10	18.071	30.53	238.37	1.030	0.00	1.50	4.275	4.40	134.5	0.0	208.5
50.00		0.00	1.12	18.449	31.17	235.78	1.030	0.00	3.50	10.008	10.31	321.4	0.0	886.6
51.00	Top - Section 1	0.00	1.13	18.554	31.35	235.00	1.030	0.00	1.00	2.821	2.91	91.1	0.0	249.8
55.00		0.00	1.15	18.959	32.04	236.15	1.030	0.00	4.00	11.113	11.45	366.7	0.0	452.3
60.00		0.00	1.18	19.436	32.84	231.66	1.030	0.00	5.00	13.507	13.91	457.0	0.0	549.6
65.00		0.00	1.21	19.885	33.60	226.79	1.030	0.00	5.00	13.080	13.47	452.8	0.0	532.1
70.00		0.00	1.24	20.311	34.32	221.60	1.030	0.00	5.00	12.653	13.03	447.3	0.0	514.5
75.00		0.00	1.26	20.715	35.00	216.11	1.030	0.00	5.00	12.226	12.59	440.9	0.0	497.0
77.17	Top - Section 2	0.00	1.27	20.885	35.29	213.65	1.030	0.00	2.17	5.166	5.32	187.8	0.0	209.9
80.00		0.00	1.28	21.101	35.66	210.36	1.030	0.00	2.83	6.633	6.83	243.6	0.0	269.5
85.00		0.00	1.31	21.469	36.28	204.36	1.030	0.00	5.00	11.372	11.71	425.0	0.0	461.9
90.00		0.00	1.33	21.823	36.88	198.15	1.030	0.00	5.00	10.945	11.27	415.8	0.0	444.4
91.75	Bot - Section 4	0.00	1.33	21.943	37.08	195.93	1.030	0.00	1.75	3.730	3.84	142.5	0.0	151.4
95.00	Top - Section 3	0.00	1.35	22.163	37.45	191.74	1.030	0.00	3.25	6.923	7.13	267.1	0.0	500.8
100.0	Appertunance(s)	0.00	1.37	22.490	38.00	189.05	1.030	0.00	5.00	10.299	10.61	403.2	0.0	335.1
105.0		0.00	1.39	22.806	38.54	182.31	1.030	0.00	5.00	9.872	10.17	391.9	0.0	321.1
110.0	Appertunance(s)	0.00	1.41	23.111	39.05	175.41	1.030	0.00	5.00	9.445	9.73	379.9	0.0	307.0
115.0		0.00	1.42	23.406	39.55	168.36	1.030	0.00	5.00	9.018	9.29	367.4	0.0	293.0
120.0	Appertunance(s)	0.00	1.44	23.692	40.04	161.17	1.030	0.00	5.00	8.590	8.85	354.3	0.0	279.0
125.0		0.00	1.46	23.970	40.51	153.85	1.030	0.00	5.00	8.163	8.41	340.6	0.0	264.9
130.0	Appertunance(s)	0.00	1.48	24.241	40.96	146.40	1.030	0.00	5.00	7.736	7.97	326.4	0.0	250.9
135.0		0.00	1.49	24.503	41.41	138.84	1.030	0.00	5.00	7.309	7.53	311.8	0.0	236.8
139.0	Appertunance(s)	0.00	1.50	24.709	41.75	132.70	1.030	0.00	4.00	5.540	5.71	238.3	0.0	179.4
140.0		0.00	1.51	24.759	41.84	131.16	1.030	0.00	1.00	1.342	1.38	57.8	0.0	43.4
<b>Totals:</b>								<b>140.00</b>			<b>11,802.5</b>	<b>0.0</b>	<b>15,574.5</b>	

Pole : CT03XC100  
 Location : 3017655 - Farmington, CT  
 Height : 140.0 (ft)  
 Shape : 12 Sides  
 Base Dia : 43.58 (in)  
 Top Dia : 16.00 (in)  
 Taper : 0.205000 (in/ft)

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 9/18/2006 1:36:16 PM  
 Page: 4



Base Elev : 0.000 (ft)

**Load Case:** No Ice                      80.00 mph Wind with No Ice                      26 Iterations  
 Gust Response Factor : 1.69  
 Dead Load Factor : 1.00  
 Wind Load Factor : 1.00

**Discrete Appurtenance Segment Forces**

Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	Dead Load (lb)
100.0	S20057A1 TMA	6	22.490	38.008	0.740	3.64	0.000	0.000	138.38	0.00	0.00	66.00
100.0	APX16PV-16PVL	3	22.490	38.008	0.620	12.57	0.000	0.000	477.90	0.00	0.00	54.00
110.0	LPA 185063/8CF	6	23.111	39.057	0.950	16.93	0.000	0.000	661.20	0.00	0.00	54.00
110.0	Low Profile Platform	1	23.111	39.057	1.000	24.00	0.000	0.000	937.37	0.00	0.00	1,600.00
110.0	LPD-6513	6	23.111	39.057	1.000	38.52	0.000	0.000	1,504.48	0.00	0.00	168.00
120.0	Low Profile Platform	1	23.692	40.040	1.000	24.00	0.000	0.000	960.97	0.00	0.00	1,600.00
120.0	ALP 9212	12	23.692	40.040	1.000	65.52	0.000	0.000	2,623.44	0.00	0.00	324.00
130.0	Low Profile Platform	1	24.241	40.967	1.000	24.00	0.000	0.000	983.20	0.00	0.00	1,600.00
130.0	Allgon 7262.02	12	24.241	40.967	0.820	29.13	0.000	0.000	1,193.21	0.00	0.00	146.88
139.0	DB980H	12	24.709	41.758	0.667	26.25	0.000	0.000	1,096.27	0.00	0.00	108.00
139.0	Low Profile Platform	1	24.709	41.758	1.000	24.00	0.000	0.000	1,002.18	0.00	0.00	1,600.00
									11,578.59			7,320.88

Pole : CT03XC100  
 Location : 3017655 - Farmington, CT  
 Height : 140.0 (ft)  
 Shape : 12 Sides  
 Base Dia : 43.58 (in)  
 Top Dia : 16.00 (in)  
 Taper : 0.205000 (in/ft)

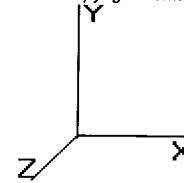
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9/18/2006 1:36:16 PM

Page: 5

Base Elev : 0.000 (ft)



**Load Case:** No Ice                      80.00 mph Wind with No Ice                      26 Iterations

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

**Linear Appurtenance Segment Forces**

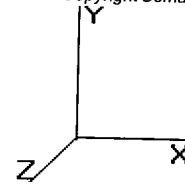
Seg Top Elev (ft)	Description	Exposed To Wind	Length (ft)	Weight (lb/ft)	CaAa (sf/ft)	qz (psf)	FX (lb)	Dead Load (lb)
5.00	(12) 1 5/8" Coax	Yes	5.00	1.04	0.00	16.384	0.00	5.20
10.00	(12) 1 5/8" Coax	Yes	5.00	1.04	0.00	16.384	0.00	5.20
15.00	(12) 1 5/8" Coax	Yes	5.00	1.04	0.00	16.384	0.00	5.20
20.00	(12) 1 5/8" Coax	Yes	5.00	1.04	0.00	16.384	0.00	5.20
25.00	(12) 1 5/8" Coax	Yes	5.00	1.04	0.00	16.384	0.00	5.20
30.00	(12) 1 5/8" Coax	Yes	5.00	1.04	0.00	16.384	0.00	5.20
35.00	(12) 1 5/8" Coax	Yes	5.00	1.04	0.00	16.662	0.00	5.20
40.00	(12) 1 5/8" Coax	Yes	5.00	1.04	0.00	17.310	0.00	5.20
45.00	(12) 1 5/8" Coax	Yes	5.00	1.04	0.00	17.902	0.00	5.20
46.50	(12) 1 5/8" Coax	Yes	1.50	1.04	0.00	18.071	0.00	1.56
50.00	(12) 1 5/8" Coax	Yes	3.50	1.04	0.00	18.449	0.00	3.64
51.00	(12) 1 5/8" Coax	Yes	1.00	1.04	0.00	18.554	0.00	1.04
55.00	(12) 1 5/8" Coax	Yes	4.00	1.04	0.00	18.959	0.00	4.16
60.00	(12) 1 5/8" Coax	Yes	5.00	1.04	0.00	19.436	0.00	5.20
65.00	(12) 1 5/8" Coax	Yes	5.00	1.04	0.00	19.885	0.00	5.20
70.00	(12) 1 5/8" Coax	Yes	5.00	1.04	0.00	20.311	0.00	5.20
75.00	(12) 1 5/8" Coax	Yes	5.00	1.04	0.00	20.715	0.00	5.20
77.17	(12) 1 5/8" Coax	Yes	2.17	1.04	0.00	20.885	0.00	2.25
80.00	(12) 1 5/8" Coax	Yes	2.83	1.04	0.00	21.101	0.00	2.95
85.00	(12) 1 5/8" Coax	Yes	5.00	1.04	0.00	21.469	0.00	5.20
90.00	(12) 1 5/8" Coax	Yes	5.00	1.04	0.00	21.823	0.00	5.20
91.75	(12) 1 5/8" Coax	Yes	1.75	1.04	0.00	21.943	0.00	1.82
95.00	(12) 1 5/8" Coax	Yes	3.25	1.04	0.00	22.163	0.00	3.38
100.0	(12) 1 5/8" Coax	Yes	5.00	1.04	0.00	22.490	0.00	5.20
<b>Totals:</b>							<b>0.00</b>	<b>103.99</b>

Pole : CT03XC100  
 Location : 3017655 - Farmington, CT  
 Height : 140.0 (ft)  
 Shape : 12 Sides  
 Base Dia : 43.58 (in)  
 Top Dia : 16.00 (in)  
 Taper : 0.205000 (in/ft)

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 Page: 6

Base Elev : 0.000 (ft)



**Load Case:** No Ice                      80.00 mph Wind with No Ice                      26 Iterations

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

**Applied Segment Forces Summary**

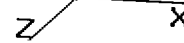
Seg Elev (ft)	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00	0.00	0.00	0.00	0.00
5.00	511.78	1,122.28	0.00	0.00
10.00	499.59	1,101.22	0.00	0.00
15.00	487.41	1,080.16	0.00	0.00
20.00	475.23	1,059.11	0.00	0.00
25.00	463.05	1,038.05	0.00	0.00
30.00	450.87	1,016.99	0.00	0.00
35.00	446.13	995.93	0.00	0.00
40.00	450.61	974.87	0.00	0.00
45.00	452.73	953.82	0.00	0.00
46.50	134.48	282.04	0.00	0.00
50.00	321.41	1,058.19	0.00	0.00
51.00	91.11	298.87	0.00	0.00
55.00	366.75	648.51	0.00	0.00
60.00	456.97	794.84	0.00	0.00
65.00	452.76	777.29	0.00	0.00
70.00	447.35	759.74	0.00	0.00
75.00	440.86	742.19	0.00	0.00
77.17	187.81	316.22	0.00	0.00
80.00	243.62	408.43	0.00	0.00
85.00	424.98	707.10	0.00	0.00
90.00	415.76	689.55	0.00	0.00
91.75	142.46	237.18	0.00	0.00
95.00	267.09	660.15	0.00	0.00
100.0	1,019.46	700.32	0.00	0.00
105.0	391.89	561.07	0.00	0.00
110.0	3,483.00	2,369.03	0.00	0.00
115.0	367.40	472.99	0.00	0.00
120.0	3,938.69	2,382.95	0.00	0.00
125.0	340.62	384.91	0.00	0.00
130.0	2,502.84	2,117.76	0.00	0.00
135.0	311.76	296.84	0.00	0.00
139.0	2,336.72	1,935.36	0.00	0.00
140.0	57.85	43.44	0.00	0.00
<b>Totals:</b>	<b>23,381.05</b>	<b>28,987.40</b>	<b>0.00</b>	<b>0.00</b>

Pole : CT03XC100  
 Location : 3017655 - Farmington, CT  
 Height : 140.0 (ft)  
 Shape : 12 Sides  
 Base Dia : 43.58 (in)  
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 9/18/2006 1:36:16 PM  
 Page: 7

Base Elev : 0.000 (ft)



**Load Case:** No Ice

80.00 mph Wind with No Ice

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

26 Iterations

**Calculated Shaft Forces and Deflections**

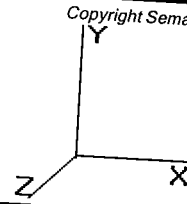
Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-23.447	-28.934	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5.00	-23.059	-27.708	0.000	0.000	0.000	-2.306.893	-0.138	0.000	0.138	-0.257
10.00	-22.674	-26.506	0.000	0.000	0.000	-2.074.369	-0.548	0.000	0.548	-0.520
15.00	-22.294	-25.327	0.000	0.000	0.000	-1,960.999	-1.235	0.000	1.235	-0.787
20.00	-21.918	-24.171	0.000	0.000	0.000	-1,849.531	-2.204	0.000	2.204	-1.059
25.00	-21.546	-23.038	0.000	0.000	0.000	-1,739.943	-3.461	0.000	3.461	-1.336
30.00	-21.178	-21.928	0.000	0.000	0.000	-1,632.216	-5.011	0.000	5.011	-1.618
35.00	-20.807	-20.842	0.000	0.000	0.000	-1,526.328	-6.858	0.000	6.858	-1.904
40.00	-20.423	-19.779	0.000	0.000	0.000	-1,422.297	-9.008	0.000	9.008	-2.195
45.00	-19.995	-18.778	0.000	0.000	0.000	-1,320.184	-11.464	0.000	11.464	-2.490
46.50	-19.897	-18.449	0.000	0.000	0.000	-1,290.193	-12.261	0.000	12.261	-2.582
50.00	-19.568	-17.360	0.000	0.000	0.000	-1,220.554	-14.234	0.000	14.234	-2.795
51.00	-19.508	-17.014	0.000	0.000	0.000	-1,200.987	-14.826	0.000	14.826	-2.857
55.00	-19.192	-16.287	0.000	0.000	0.000	-1,122.956	-17.323	0.000	17.323	-3.101
60.00	-18.783	-15.407	0.000	0.000	0.000	-1,026.997	-20.754	0.000	20.754	-3.444
65.00	-18.370	-14.550	0.000	0.000	0.000	-933.082	-24.544	0.000	24.544	-3.789
70.00	-17.954	-13.715	0.000	0.000	0.000	-841.233	-28.694	0.000	28.694	-4.133
75.00	-17.514	-12.934	0.000	0.000	0.000	-751.465	-33.202	0.000	33.202	-4.475
77.17	-17.340	-12.581	0.000	0.000	0.000	-713.513	-35.267	0.000	35.267	-4.626
80.00	-17.120	-12.114	0.000	0.000	0.000	-664.391	-38.069	0.000	38.069	-4.822
85.00	-16.700	-11.352	0.000	0.000	0.000	-578.793	-43.291	0.000	43.291	-5.153
90.00	-16.262	-10.644	0.000	0.000	0.000	-495.296	-48.855	0.000	48.855	-5.474
91.75	-16.126	-10.377	0.000	0.000	0.000	-466.840	-50.879	0.000	50.879	-5.587
95.00	-15.836	-9.678	0.000	0.000	0.000	-414.432	-54.748	0.000	54.748	-5.788
100.0	-14.796	-9.011	0.000	0.000	0.000	-335.250	-60.955	0.000	60.955	-6.073
105.0	-14.387	-8.426	0.000	0.000	0.000	-261.269	-67.469	0.000	67.469	-6.374
110.0	-10.684	-6.423	0.000	0.000	0.000	-189.334	-74.275	0.000	74.275	-6.633
115.0	-10.284	-5.962	0.000	0.000	0.000	-135.913	-81.325	0.000	81.325	-6.847
120.0	-6.096	-4.058	0.000	0.000	0.000	-84.493	-88.574	0.000	88.574	-7.014
125.0	-5.718	-3.707	0.000	0.000	0.000	-54.012	-95.971	0.000	95.971	-7.137
130.0	-2.972	-1.916	0.000	0.000	0.000	-25.424	-103.475	0.000	103.475	-7.219
135.0	-2.626	-1.660	0.000	0.000	0.000	-10.566	-111.042	0.000	111.042	-7.263
139.0	-0.063	-0.036	0.000	0.000	0.000	-0.063	-117.118	0.000	117.118	-7.276
140.0	-0.058	0.000	0.000	0.000	0.000	0.000	-118.638	0.000	118.638	-7.276

Pole : CT03XC100  
 Location : 3017655 - Farmington, CT  
 Height : 140.0 (ft)  
 Shape : 12 Sides  
 Base Dia : 43.58 (in)  
 Top Dia : 16.00 (in)  
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 Page: 8

Base Elev : 0.000 (ft)



**Load Case:** No Ice

80.00 mph Wind with No Ice

26 Iterations

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

**Calculated Stresses**

Seg Elev (ft)	Applied Stresses				Applied Stresses			Allowable Stress (Fb) (ksi)	Stress Ratio	
	Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)			
0.00	0.55	0.91	0.00	0.00	0.00	50.24	50.82	52.0	0.0	0.977
5.00	0.54	0.92	0.00	0.00	0.00	50.04	50.61	52.0	0.0	0.973
10.00	0.53	0.93	0.00	0.00	0.00	49.81	50.37	52.0	0.0	0.969
15.00	0.52	0.93	0.00	0.00	0.00	49.54	50.08	52.0	0.0	0.963
20.00	0.51	0.94	0.00	0.00	0.00	49.21	49.75	52.0	0.0	0.957
25.00	0.50	0.95	0.00	0.00	0.00	48.84	49.36	52.0	0.0	0.949
30.00	0.49	0.96	0.00	0.00	0.00	48.39	48.91	52.0	0.0	0.941
35.00	0.48	0.97	0.00	0.00	0.00	47.88	48.39	52.0	0.0	0.931
40.00	0.47	0.98	0.00	0.00	0.00	47.28	47.78	52.0	0.0	0.919
45.00	0.46	0.99	0.00	0.00	0.00	46.59	47.08	52.0	0.0	0.905
46.50	0.45	0.99	0.00	0.00	0.00	46.37	46.86	52.0	0.0	0.901
50.00	0.44	1.00	0.00	0.00	0.00	45.81	46.28	52.0	0.0	0.890
51.00	0.51	1.18	0.00	0.00	0.00	52.44	52.98	52.0	0.0	1.019
55.00	0.50	1.19	0.00	0.00	0.00	51.54	52.07	52.0	0.0	1.002
60.00	0.48	1.20	0.00	0.00	0.00	50.26	50.78	52.0	0.0	0.977
65.00	0.47	1.21	0.00	0.00	0.00	48.79	49.31	52.0	0.0	0.948
70.00	0.46	1.23	0.00	0.00	0.00	47.11	47.62	52.0	0.0	0.916
75.00	0.45	1.24	0.00	0.00	0.00	45.18	45.68	52.0	0.0	0.879
77.17	0.45	1.25	0.00	0.00	0.00	44.27	44.77	52.0	0.0	0.861
77.17	0.45	1.25	0.00	0.00	0.00	44.27	44.77	52.0	0.0	0.861
80.00	0.44	1.26	0.00	0.00	0.00	43.00	43.49	52.0	0.0	0.836
85.00	0.43	1.27	0.00	0.00	0.00	40.43	40.92	52.0	0.0	0.787
90.00	0.42	1.29	0.00	0.00	0.00	37.46	37.94	52.0	0.0	0.730
91.75	0.41	1.30	0.00	0.00	0.00	36.33	36.81	52.0	0.0	0.708
95.00	0.48	1.60	0.00	0.00	0.00	40.55	41.13	48.0	0.0	0.857
100.00	0.47	1.56	0.00	0.00	0.00	35.69	36.26	48.0	0.0	0.755
105.00	0.46	1.58	0.00	0.00	0.00	30.37	30.95	48.0	0.0	0.645
110.00	0.36	1.23	0.00	0.00	0.00	24.13	24.58	48.0	0.0	0.512
115.00	0.35	1.24	0.00	0.00	0.00	19.07	19.55	48.0	0.0	0.407
120.00	0.25	0.77	0.00	0.00	0.00	13.12	13.44	48.0	0.0	0.280
125.00	0.24	0.77	0.00	0.00	0.00	9.33	9.67	48.0	0.0	0.201
130.00	0.13	0.42	0.00	0.00	0.00	4.92	5.10	48.0	0.0	0.106
135.00	0.12	0.39	0.00	0.00	0.00	2.30	2.52	48.0	0.0	0.053
139.00	0.00	0.01	0.00	0.00	0.00	0.02	0.02	48.0	0.0	0.001
140.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	48.0	0.0	0.000



Pole : CT03XC100  
 Location : 3017655 - Farmington, CT  
 Height : 140.0 (ft)  
 Shape : 12 Sides  
 Base Dia : 43.58 (in)  
 Top Dia : 16.00 (in)  
 Taper : 0.205000 (in/ft)

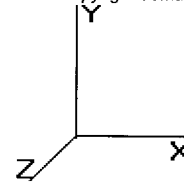
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Page: 9

Base Elev : 0.000 (ft)



**Load Case:** Ice

69.28 mph Wind with Ice

26 Iterations

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

**Shaft Segment Forces**

Seg Top Elev (ft)	Description	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)	
0.00		0.00	1.00	12.287	20.76	251.60	1.030	0.50	0.00	0.000	0.00	0.0	0.0	
5.00		0.00	1.00	12.287	20.76	245.68	1.030	0.50	5.00	18.361	18.91	134.8	1,011.9	
10.00		0.00	1.00	12.287	20.76	239.76	1.030	0.50	5.00	17.934	18.47	131.6	987.6	
15.00		0.00	1.00	12.287	20.76	233.84	1.030	0.50	5.00	17.507	18.03	128.4	963.3	
20.00		0.00	1.00	12.287	20.76	227.92	1.030	0.50	5.00	17.080	17.59	125.2	939.1	
25.00		0.00	1.00	12.287	20.76	222.01	1.030	0.50	5.00	16.653	17.15	121.9	914.8	
30.00		0.00	1.00	12.287	20.76	216.09	1.030	0.50	5.00	16.226	16.71	118.7	890.5	
35.00		0.00	1.01	12.496	21.11	211.95	1.030	0.50	5.00	15.799	16.27	115.5	866.3	
40.00		0.00	1.05	12.982	21.93	209.95	1.030	0.50	5.00	15.372	15.83	112.3	842.0	
45.00		0.00	1.09	13.426	22.69	207.32	1.030	0.50	5.00	14.945	15.39	109.1	817.7	
46.50	Bot - Section 2	0.00	1.10	13.552	22.90	206.43	1.030	0.50	1.50	4.400	4.53	32.4	240.9	
50.00		0.00	1.12	13.836	23.38	204.19	1.030	0.50	3.50	10.300	10.61	75.5	962.1	
51.00	Top - Section 1	0.00	1.13	13.915	23.51	203.51	1.030	0.50	1.00	2.904	2.99	21.4	271.3	
55.00		0.00	1.15	14.218	24.02	204.50	1.030	0.50	4.00	11.447	11.79	83.7	536.1	
60.00		0.00	1.18	14.576	24.63	200.61	1.030	0.50	5.00	13.924	14.34	101.4	651.1	
65.00		0.00	1.21	14.913	25.20	196.40	1.030	0.50	5.00	13.497	13.90	98.2	630.3	
70.00		0.00	1.24	15.232	25.74	191.90	1.030	0.50	5.00	13.070	13.46	95.0	609.6	
75.00		0.00	1.26	15.536	26.25	187.15	1.030	0.50	5.00	12.643	13.02	91.8	588.8	
77.17	Top - Section 2	0.00	1.27	15.662	26.47	185.02	1.030	0.50	2.17	5.347	5.51	39.2	249.1	
80.00		0.00	1.28	15.825	26.74	182.17	1.030	0.50	2.83	6.869	7.07	50.2	319.7	
85.00		0.00	1.31	16.101	27.21	176.98	1.030	0.50	5.00	11.788	12.14	85.4	547.3	
90.00		0.00	1.33	16.366	27.65	171.60	1.030	0.50	5.00	11.361	11.70	82.2	526.5	
91.75	Bot - Section 4	0.00	1.33	16.457	27.81	169.68	1.030	0.50	1.75	3.875	3.99	28.4	179.7	
95.00	Top - Section 3	0.00	1.35	16.621	28.09	166.05	1.030	0.50	3.25	7.194	7.41	52.4	553.1	
100.0	Appertunance(s)	0.00	1.37	16.866	28.50	163.72	1.030	0.50	5.00	10.716	11.04	77.3	412.5	
105.0		0.00	1.39	17.103	28.90	157.88	1.030	0.50	5.00	10.288	10.60	74.1	395.2	
110.0	Appertunance(s)	0.00	1.41	17.332	29.29	151.91	1.030	0.50	5.00	9.861	10.16	70.9	378.0	
115.0		0.00	1.42	17.554	29.66	145.80	1.030	0.50	5.00	9.434	9.72	67.7	360.7	
120.0	Appertunance(s)	0.00	1.44	17.768	30.02	139.57	1.030	0.50	5.00	9.007	9.28	64.5	343.5	
125.0		0.00	1.46	17.977	30.38	133.23	1.030	0.50	5.00	8.580	8.84	61.3	326.2	
130.0	Appertunance(s)	0.00	1.48	18.179	30.72	126.78	1.030	0.50	5.00	8.153	8.40	58.1	309.0	
135.0		0.00	1.49	18.376	31.05	120.23	1.030	0.50	5.00	7.726	7.96	54.9	291.7	
139.0	Appertunance(s)	0.00	1.50	18.530	31.31	114.92	1.030	0.50	4.00	5.873	6.05	41.8	221.2	
140.0		0.00	1.51	18.568	31.38	113.58	1.030	0.50	1.00	1.426	1.47	10.3	53.8	
<b>Totals:</b>								<b>140.00</b>				<b>9,159.8</b>	<b>2,616.0</b>	<b>18,190.5</b>

Pole : CT03XC100  
 Location : 3017655 - Farmington, CT  
 Height : 140.0 (ft)  
 Shape : 12 Sides  
 Base Dia : 43.58 (in)  
 Top Dia : 16.00 (in)  
 Taper : 0.205000 (in/ft)

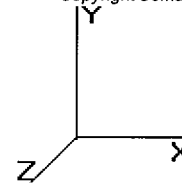
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Page: 10

Base Elev : 0.000 (ft)



**Load Case:** Ice                                  69.28 mph Wind with Ice                                  26 Iterations

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

**Discrete Appurtenance Segment Forces**

Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	Dead Load (lb)
100.0	S20057A1 TMA	6	16.866	28.504	0.740	4.53	0.000	0.000	129.09	0.00	0.00	98.46
100.0	APX16PV-16PVL	3	16.866	28.504	0.620	13.80	0.000	0.000	393.39	0.00	0.00	148.86
110.0	LPA 185063/8CF	6	17.332	29.291	0.950	19.84	0.000	0.000	581.02	0.00	0.00	185.58
110.0	Low Profile Platform	1	17.332	29.291	1.000	27.32	0.000	0.000	800.23	0.00	0.00	2,100.00
110.0	LPD-6513	6	17.332	29.291	1.000	42.12	0.000	0.000	1,233.74	0.00	0.00	444.00
120.0	Low Profile Platform	1	17.768	30.028	1.000	27.32	0.000	0.000	820.37	0.00	0.00	2,100.00
120.0	ALP 9212	12	17.768	30.028	1.000	71.88	0.000	0.000	2,158.45	0.00	0.00	576.00
130.0	Low Profile Platform	1	18.179	30.723	1.000	27.32	0.000	0.000	839.35	0.00	0.00	2,100.00
130.0	Allgon 7262.02	12	18.179	30.723	0.820	33.46	0.000	0.000	1,027.87	0.00	0.00	261.60
139.0	DB980H	12	18.530	31.316	0.667	30.82	0.000	0.000	965.03	0.00	0.00	336.00
139.0	Low Profile Platform	1	18.530	31.316	1.000	27.32	0.000	0.000	855.56	0.00	0.00	2,100.00
									9,804.11			10,450.50

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 Taper : 0.205000 (in/ft)

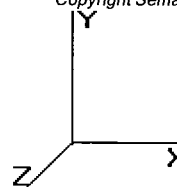
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Page: 11

Base Elev : 0.000 (ft)



**Load Case:** Ice 69.28 mph Wind with Ice 26 Iterations

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

**Linear Appurtenance Segment Forces**

Seg Top Elev (ft)	Description	Exposed To Wind	Length (ft)	Weight (lb/ft)	CaAa (sf/ft)	qz (psf)	FX (lb)	Dead Load (lb)
5.00	(12) 1 5/8" Coax	Yes	5.00	0.00	0.00	12.287	0.00	0.00
10.00	(12) 1 5/8" Coax	Yes	5.00	0.00	0.00	12.287	0.00	0.00
15.00	(12) 1 5/8" Coax	Yes	5.00	0.00	0.00	12.287	0.00	0.00
20.00	(12) 1 5/8" Coax	Yes	5.00	0.00	0.00	12.287	0.00	0.00
25.00	(12) 1 5/8" Coax	Yes	5.00	0.00	0.00	12.287	0.00	0.00
30.00	(12) 1 5/8" Coax	Yes	5.00	0.00	0.00	12.287	0.00	0.00
35.00	(12) 1 5/8" Coax	Yes	5.00	0.00	0.00	12.496	0.00	0.00
40.00	(12) 1 5/8" Coax	Yes	5.00	0.00	0.00	12.982	0.00	0.00
45.00	(12) 1 5/8" Coax	Yes	5.00	0.00	0.00	13.426	0.00	0.00
46.50	(12) 1 5/8" Coax	Yes	1.50	0.00	0.00	13.552	0.00	0.00
50.00	(12) 1 5/8" Coax	Yes	3.50	0.00	0.00	13.836	0.00	0.00
51.00	(12) 1 5/8" Coax	Yes	1.00	0.00	0.00	13.915	0.00	0.00
55.00	(12) 1 5/8" Coax	Yes	4.00	0.00	0.00	14.218	0.00	0.00
60.00	(12) 1 5/8" Coax	Yes	5.00	0.00	0.00	14.576	0.00	0.00
65.00	(12) 1 5/8" Coax	Yes	5.00	0.00	0.00	14.913	0.00	0.00
70.00	(12) 1 5/8" Coax	Yes	5.00	0.00	0.00	15.232	0.00	0.00
75.00	(12) 1 5/8" Coax	Yes	5.00	0.00	0.00	15.536	0.00	0.00
77.17	(12) 1 5/8" Coax	Yes	2.17	0.00	0.00	15.662	0.00	0.00
80.00	(12) 1 5/8" Coax	Yes	2.83	0.00	0.00	15.825	0.00	0.00
85.00	(12) 1 5/8" Coax	Yes	5.00	0.00	0.00	16.101	0.00	0.00
90.00	(12) 1 5/8" Coax	Yes	5.00	0.00	0.00	16.366	0.00	0.00
91.75	(12) 1 5/8" Coax	Yes	1.75	0.00	0.00	16.457	0.00	0.00
95.00	(12) 1 5/8" Coax	Yes	3.25	0.00	0.00	16.621	0.00	0.00
100.0	(12) 1 5/8" Coax	Yes	5.00	0.00	0.00	16.866	0.00	0.00
<b>Totals:</b>							<b>0.00</b>	<b>0.00</b>

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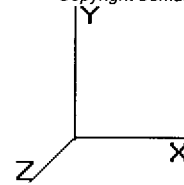
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Page: 12

Base Elev : 0.000 (ft)



**Load Case:** Ice

69.28 mph Wind with Ice

26 Iterations

Gust Response Factor : 1.69

Dead Load Factor : 1.00

Wind Load Factor : 1.00

**Applied Segment Forces Summary**

Seg Elev (ft)	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00	0.00	0.00	0.00	0.00
5.00	392.72	1,251.87	0.00	0.00
10.00	383.59	1,227.60	0.00	0.00
15.00	374.45	1,203.33	0.00	0.00
20.00	365.32	1,179.07	0.00	0.00
25.00	356.18	1,154.80	0.00	0.00
30.00	347.05	1,130.53	0.00	0.00
35.00	343.64	1,106.26	0.00	0.00
40.00	347.35	1,082.00	0.00	0.00
45.00	349.26	1,057.73	0.00	0.00
46.50	103.80	312.92	0.00	0.00
50.00	248.06	1,130.06	0.00	0.00
51.00	70.35	319.27	0.00	0.00
55.00	283.30	728.07	0.00	0.00
60.00	353.28	891.08	0.00	0.00
65.00	350.37	870.33	0.00	0.00
70.00	346.54	849.57	0.00	0.00
75.00	341.89	828.81	0.00	0.00
77.17	145.77	353.15	0.00	0.00
80.00	189.21	455.69	0.00	0.00
85.00	330.40	787.30	0.00	0.00
90.00	323.67	766.54	0.00	0.00
91.75	111.01	263.74	0.00	0.00
95.00	208.14	709.13	0.00	0.00
100.0	837.09	899.78	0.00	0.00
105.0	306.30	635.20	0.00	0.00
110.0	2,912.51	3,347.53	0.00	0.00
115.0	288.27	540.70	0.00	0.00
120.0	3,257.41	3,199.46	0.00	0.00
125.0	268.49	446.21	0.00	0.00
130.0	2,125.22	2,790.56	0.00	0.00
135.0	247.14	351.71	0.00	0.00
139.0	2,010.03	2,705.21	0.00	0.00
140.0	46.08	53.77	0.00	0.00
<b>Totals:</b>	<b>18,963.89</b>	<b>34,628.99</b>	<b>0.00</b>	<b>0.00</b>

Pole : CT03XC100  
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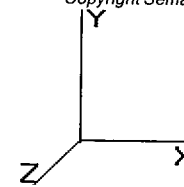
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Page: 13

Base Elev : 0.000 (ft)



**Load Case:** Ice

69.28 mph Wind with Ice

26 Iterations

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

**Calculated Shaft 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	-19.030	-34.592	0.000	0.000	0.000	-1,929.417	0.000	0.000	0.000	0.000
5.00	-18.761	-33.270	0.000	0.000	0.000	-1,834.269	-0.115	0.000	0.115	-0.215
10.00	-18.495	-31.973	0.000	0.000	0.000	-1,740.464	-0.458	0.000	0.458	-0.435
15.00	-18.231	-30.702	0.000	0.000	0.000	-1,647.991	-1.034	0.000	1.034	-0.660
20.00	-17.968	-29.456	0.000	0.000	0.000	-1,556.841	-1.847	0.000	1.847	-0.888
25.00	-17.708	-28.235	0.000	0.000	0.000	-1,467.001	-2.903	0.000	2.903	-1.122
30.00	-17.450	-27.039	0.000	0.000	0.000	-1,378.462	-4.204	0.000	4.204	-1.360
35.00	-17.188	-25.869	0.000	0.000	0.000	-1,291.214	-5.758	0.000	5.758	-1.602
40.00	-16.916	-24.725	0.000	0.000	0.000	-1,205.274	-7.567	0.000	7.567	-1.848
45.00	-16.598	-23.633	0.000	0.000	0.000	-1,120.696	-9.636	0.000	9.636	-2.098
46.50	-16.535	-23.286	0.000	0.000	0.000	-1,095.800	-10.308	0.000	10.308	-2.176
50.00	-16.287	-22.134	0.000	0.000	0.000	-1,037.928	-11.971	0.000	11.971	-2.357
51.00	-16.254	-21.781	0.000	0.000	0.000	-1,021.640	-12.470	0.000	12.470	-2.410
55.00	-16.031	-20.996	0.000	0.000	0.000	-956.626	-14.578	0.000	14.578	-2.618
60.00	-15.738	-20.042	0.000	0.000	0.000	-876.471	-17.476	0.000	17.476	-2.911
65.00	-15.440	-19.113	0.000	0.000	0.000	-797.782	-20.681	0.000	20.681	-3.205
70.00	-15.138	-18.208	0.000	0.000	0.000	-720.582	-24.193	0.000	24.193	-3.499
75.00	-14.808	-17.348	0.000	0.000	0.000	-644.892	-28.013	0.000	28.013	-3.792
77.17	-14.683	-16.967	0.000	0.000	0.000	-612.804	-29.764	0.000	29.764	-3.923
80.00	-14.528	-16.468	0.000	0.000	0.000	-571.208	-32.141	0.000	32.141	-4.090
85.00	-14.218	-15.638	0.000	0.000	0.000	-498.568	-36.575	0.000	36.575	-4.376
90.00	-13.882	-14.855	0.000	0.000	0.000	-427.482	-41.303	0.000	41.303	-4.652
91.75	-13.785	-14.568	0.000	0.000	0.000	-403.190	-43.025	0.000	43.025	-4.750
95.00	-13.569	-13.829	0.000	0.000	0.000	-358.390	-46.316	0.000	46.316	-4.924
100.0	-12.714	-12.950	0.000	0.000	0.000	-290.544	-51.601	0.000	51.601	-5.170
105.0	-12.403	-12.293	0.000	0.000	0.000	-226.976	-57.152	0.000	57.152	-5.431
110.0	-9.213	-9.210	0.000	0.000	0.000	-164.965	-62.957	0.000	62.957	-5.656
115.0	-8.897	-8.675	0.000	0.000	0.000	-118.902	-68.975	0.000	68.975	-5.843
120.0	-5.340	-5.817	0.000	0.000	0.000	-74.417	-75.168	0.000	75.168	-5.990
125.0	-5.034	-5.394	0.000	0.000	0.000	-47.720	-81.491	0.000	81.491	-6.098
130.0	-2.625	-2.844	0.000	0.000	0.000	-22.549	-87.909	0.000	87.909	-6.171
135.0	-2.343	-2.520	0.000	0.000	0.000	-9.423	-94.382	0.000	94.382	-6.210
139.0	-0.052	-0.048	0.000	0.000	0.000	-0.052	-99.581	0.000	99.581	-6.221
140.0	-0.046	0.000	0.000	0.000	0.000	0.000	-100.882	0.000	100.882	-6.221

Pole : CT03XC100  
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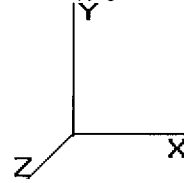
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Page: 14

Base Elev : 0.000 (ft)



**Load Case:** Ice

69.28 mph Wind with Ice

26 Iterations

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

**Calculated Stresses**

Seg Elev (ft)	Applied Stresses							Allowable Stress (Fb) (ksi)	Stress Ratio	
	Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)			
0.00	0.66	0.74	0.00	0.00	0.00	42.02	42.70	52.0	0.0	0.821
5.00	0.65	0.75	0.00	0.00	0.00	41.92	42.59	52.0	0.0	0.819
10.00	0.64	0.76	0.00	0.00	0.00	41.79	42.46	52.0	0.0	0.817
15.00	0.63	0.76	0.00	0.00	0.00	41.63	42.28	52.0	0.0	0.813
20.00	0.62	0.77	0.00	0.00	0.00	41.43	42.07	52.0	0.0	0.809
25.00	0.61	0.78	0.00	0.00	0.00	41.18	41.81	52.0	0.0	0.804
30.00	0.60	0.79	0.00	0.00	0.00	40.87	41.50	52.0	0.0	0.798
35.00	0.59	0.80	0.00	0.00	0.00	40.50	41.12	52.0	0.0	0.791
40.00	0.58	0.81	0.00	0.00	0.00	40.07	40.68	52.0	0.0	0.782
45.00	0.58	0.82	0.00	0.00	0.00	39.55	40.15	52.0	0.0	0.772
46.50	0.57	0.83	0.00	0.00	0.00	39.39	39.98	52.0	0.0	0.769
50.00	0.56	0.83	0.00	0.00	0.00	38.96	39.54	52.0	0.0	0.760
51.00	0.65	0.98	0.00	0.00	0.00	44.61	45.29	52.0	0.0	0.871
55.00	0.64	0.99	0.00	0.00	0.00	43.90	44.58	52.0	0.0	0.857
60.00	0.63	1.01	0.00	0.00	0.00	42.89	43.56	52.0	0.0	0.838
65.00	0.62	1.02	0.00	0.00	0.00	41.72	42.37	52.0	0.0	0.815
70.00	0.61	1.03	0.00	0.00	0.00	40.35	41.01	52.0	0.0	0.789
75.00	0.60	1.05	0.00	0.00	0.00	38.77	39.42	52.0	0.0	0.758
77.17	0.60	1.06	0.00	0.00	0.00	38.02	38.67	52.0	0.0	0.744
77.17	0.60	1.06	0.00	0.00	0.00	38.02	38.67	52.0	0.0	0.744
80.00	0.60	1.07	0.00	0.00	0.00	36.97	37.61	52.0	0.0	0.723
85.00	0.59	1.08	0.00	0.00	0.00	34.83	35.46	52.0	0.0	0.682
90.00	0.58	1.10	0.00	0.00	0.00	32.33	32.97	52.0	0.0	0.634
91.75	0.58	1.11	0.00	0.00	0.00	31.38	32.01	52.0	0.0	0.616
95.00	0.69	1.37	0.00	0.00	0.00	35.07	35.84	48.0	0.0	0.747
100.00	0.67	1.34	0.00	0.00	0.00	30.93	31.69	48.0	0.0	0.660
105.00	0.67	1.37	0.00	0.00	0.00	26.38	27.15	48.0	0.0	0.566
110.00	0.52	1.06	0.00	0.00	0.00	21.02	21.62	48.0	0.0	0.451
115.00	0.52	1.08	0.00	0.00	0.00	16.69	17.30	48.0	0.0	0.360
120.00	0.36	0.68	0.00	0.00	0.00	11.56	11.98	48.0	0.0	0.250
125.00	0.36	0.67	0.00	0.00	0.00	8.24	8.68	48.0	0.0	0.181
130.00	0.20	0.37	0.00	0.00	0.00	4.36	4.60	48.0	0.0	0.096
135.00	0.19	0.35	0.00	0.00	0.00	2.05	2.32	48.0	0.0	0.048
139.00	0.00	0.01	0.00	0.00	0.00	0.01	0.02	48.0	0.0	0.000
140.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	48.0	0.0	0.000

Pole : CT03XC100  
 Location : 3017655 - Farmington, CT  
 Height : 140.0 (ft)  
 Shape : 12 Sides  
 Base Dia : 43.58 (in)  
 Top Dia : 16.00 (in)  
 Taper : 0.205000 (in/ft)

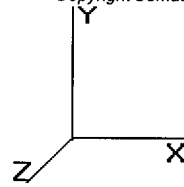
Code: TIA/EIA-222 Rev F

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Page: 15

Base Elev : 0.000 (ft)



### Analysis Summary

Load Case	Reactions						Max Stresses			
	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	23.4	0.00	28.93	0.00	0.00	2306.89	52.98	52.0	51.00	1.019
Ice	19.0	0.00	34.59	0.00	0.00	1929.42	45.29	52.0	51.00	0.871

# Exhibit 3



## Technical Memo

To: Karina Fournier  
From: Anand Rapolu - Radio Frequency Engineer  
cc: Jason Overbey  
Subject: Power Density Report for CTHA233B  
Date: October 5, 2006

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### 1. Introduction:

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the T-Mobile PCS antenna installation on a Monopole at 130 Birdseye Road, Farmington, CT. This study incorporates the most conservative consideration for determining the practical combined worst case power density levels that would be theoretically encountered from locations surrounding the transmitting location.

### 2. Discussion:

The following assumptions were used in the calculations:

- 1) The emissions from T-Mobile transmitters are in the 1935-1945 MHz frequency band.
- 2) The antenna array consists of three sectors, with 1 antennas per sector.
- 3) The model number for each antenna is RFS APX16PV-16PVL-E.
- 4) The antenna center line height is 100 ft.
- 5) The maximum transmit power from any sector is 2482.68 Watts Effective Radiated Power (EiRP) assuming 8 channels per sector.
- 6) All the antennas are simultaneously transmitting and receiving, 24 hours a day.
- 7) Power levels emitting from the antennas are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 8) The average ground level of the studied area does not change significantly with respect to the transmitting location

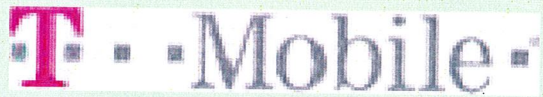
Equations given in "FCC OET Bulletin 65, Edition 97-01" were then used with the above information to perform the calculations.

### 3. Conclusion:

Based on the above worst case assumptions, the power density calculation from the T-Mobile PCS antenna installation on a Monopole at 130 Birdseye Road, Farmington, CT, is 0.06164 mW/cm<sup>2</sup>. This value represents 6.164% of the Maximum Permissible Emission (MPE) standard of 1 milliwatt per square centimeter (mW/cm<sup>2</sup>) set forth in the FCC/ANSI/IEEE C95.1-1991. Furthermore, the proposed antenna location for T-Mobile will not interfere with existing public safety communications, AM or FM radio broadcasts, TV, Police Communications, HAM Radio communications or any other signals in the area.

The combined Power Density from other carriers is 17.21%. The combined Power Density for the site is 23.374% of the M.P.E. standard.

# New England Market



Connecticut

## Worst Case Power Density

<b>Site:</b>	<b>CTHA233B</b>
<b>Site Address:</b>	<b>130 birdseye Road</b>
<b>Town:</b>	<b>Farmington</b>
<b>Tower Height:</b>	<b>140 ft.</b>
<b>Tower Style:</b>	<b>Monopole</b>
<b>Base Station TX output</b>	20 W
<b>Number of channels</b>	8
<b>Antenna Model</b>	RFS APX16PV-16PVL-E
<b>Cable Size</b>	1 5/8 in.
<b>Cable Length</b>	120 ft.
<b>Antenna Height</b>	100.0 ft.
<b>Ground Reflection</b>	1.6
<b>Frequency</b>	1935.0 MHz
<b>Jumper &amp; Connector loss</b>	4.50 dB
<b>Antenna Gain</b>	17.8 dBi
<b>Cable Loss per foot</b>	0.0116 dB
<b>Total Cable Loss</b>	1.3920 dB
<b>Total Attenuation</b>	5.8920 dB
<b>Total EIRP per Channel</b>	54.92 dBm
<b>(In Watts)</b>	310.33 W
<b>Total EIRP per Sector</b>	63.95 dBm
<b>(In Watts)</b>	2482.68 W
<b>nsg</b>	11.9080
<b>Power Density (S) =</b>	<b>0.061643 mW/cm^2</b>
<b>T-Mobile Worst Case % MPE =</b>	<b>6.1643%</b>

Equation Used :

$$S = \frac{(1000(\text{grf})^2 (\text{Power}) 10^{(\text{nsg}/10)})}{4\pi (R)^2}$$

Office of Engineering and Technology (OET) Bulletin 65, Edition 97-01, August 1997

Co-Location Total	
Carrier	% of Standard
Verizon	10.9100 %
Sprint PCS	2.4600 %
Nextel	3.8400 %
<b>Total Excluding T-Mobile</b>	<b>17.2100 %</b>
T-Mobile	6.1643
<b>Total % MPE for Site</b>	<b>23.3743%</b>