STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
www.ct.gov/csc

June 10, 2004

Karina Fournier
Zoning Department
T-Mobile
100 Filley Street
Bloomfield, CT 06002

RE: **EM-T-MOBILE-152-040527** - Omnipoint Communications, Inc. notice of intent to modify an existing telecommunications facility located at 85 Miner Lane, Waterford, Connecticut.

Dear Ms. Fournier:

At a public meeting held on June 9, 2004, 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 with the condition that the modifications recommended by Douglas Pineo, P.E. on drawing CT-0027-M1 of the structural analysis report dated March 9, 2004 be implemented prior to the antenna installation.

The proposed modifications are to be implemented as specified here and in your notice dated May 27, 2004. 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. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

Pamela B. Katz, P.E.
Chairman

PBK/laf

c: Honorable Paul B. Eccard, First Selectman, Town of Waterford
Thomas V. Wagner, Planning Director, Town of Waterford
Eric Rabon, Spectrasite Communications
Michele G. Briggs, Southwestern Bell Mobile Systems, LLC
Christopher B. Fisher, Esq., Cuddy & Feder, LLP

G:em\t-mobile\waterford\dc060904.doc

CSC
CONNECTICUT SITING COUNCIL

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May 28, 2004

Honorable Paul B. Eccard
First Selectman
Town of Waterford
15 Rope Ferry Road
Waterford, CT 06385

RE: **EM-T-MOBILE-152-040527** – Omnipoint Communications, Inc. notice of intent to modify an existing telecommunications facility located at 85 Miner Lane, Waterford, Connecticut.

Dear Mr. Eccard:

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

The Council will consider this item at the next meeting scheduled for June 9, 2004 at 1:30 p.m. in Hearing Room One, Ten Franklin Square, New Britain, Connecticut.

Please call me or inform the Council if you have any questions or comments regarding this proposal.

Thank you for your cooperation and consideration.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/cm

Enclosure: Notice of Intent

c: Thomas V. Wagner, Planning Director, Town of Waterford

EM-T-MOBILE-152-040527

T-Mobile
Get more from life

100 Filley Street, Bloomfield, CT 06002
860-692-7145 fax 860-692-7159

May 27, 2004

Pamela B. Katz, Chairman and
Members of the Siting Council
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: **Exempt Modification – Existing Wireless Telecommunications Facility**
85 Miner Lane, Waterford, Connecticut
Latitude: 41-19-45 /Longitude: 72-7-29

Dear Chairman Katz:

Omnipoint Communications, Inc. a.k.a. T-Mobile (formerly Voicestream Wireless Corp.) intends to co-locate antennas on the existing one hundred fifty three (153) foot SpectraSite monopole located at 85 Miner Lane, Waterford. Currently, the facility consists of Cingular equipment at the 153' level, and AT&T at the 140' level. 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 §16-50j72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to

The tower is owned and operated by SpectraSite Communications, Inc. The facility consists of a 153' monopole tower, capable of supporting multiple carriers. T-Mobile proposes to install six (6) panel-type antennas at the 130' level, three (3) future panel-type antennas at the 130' level on the tower and 3 equipment cabinets within the fenced in compound.

The proposed modifications will not result in any substantial adverse environmental affect and therefore fall squarely within the activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modification will not increase the overall height of the existing tower. T-Mobile's antennas will be mounted with their centerline at the 130' level on the 153' tower. (See Exhibit 1, CD's)
2. The proposed installation of nine (9) antennas (6 current, 3 future) and three (3) equipment cabinets will not require an extension of the site boundaries. (See Exhibit 1, CD's)
3. The proposed antenna modification will not increase the noise levels at the facility by six decibels or more.

4. The operation of the antennas will not increase radio frequency (RF) power density levels at the facility at or above the Federal Communications Commission (FCC) adopted safety standard. The worst-case RF density calculations for a point at the base of the tower for T-Mobile antennas would be 2.4238% of the FCC standard. Pursuant to RF Exposure Analysis prepared by Sumit Nahir, the cumulative worst-case RF power density calculation for all current carriers and T-Mobile would be 39.3238% of the applicable FCC standard. A copy of the report is attached. (See Exhibit 2, Power Density Calculations)

Also attached, please find an engineer's certification, verifying that the tower can support the antennas and associated equipment of T-Mobile, AT&T, and Cingular with tower reinforcements. (See Exhibit 3, Structural Analysis)

For the foregoing reasons, T-Mobile respectfully submits that the proposed antenna installation at 85 Miner Lane, SpectraSite tower in Waterford constitutes an exempt modification under R.C.S.A § 16-50j-72(b)(2).

Very Truly Yours

Karina Fournier
Zoning Dept.
T-Mobile

Attachments

Cc: First Selectman, Paul B. Eccard

Exhibit 1

SPECTRASITE WATERFORD

85 MINER LANE

WATERFORD, CT 06385

SITE NUMBER: CT-11-641-A

CO-LOCATION

GENERAL NOTES

1) THE CONTRACTOR SHALL GIVE ALL NOTICES & COMPLY w/ ALL LAWS, ORDINANCES, RULES, REGULATIONS & LAWFUL ORDERS of ANY PUBLIC AUTHORITY, MUNICIPAL & UTILITY COMPANY SPECIFICATIONS, & LOCAL & STATE JURISDICTIONAL CODES BEARING on THE PERFORMANCE of THE WORK. THE WORK PERFORMED on THE PROJECT & THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE w/ ALL APPLICABLE CODES, REGULATIONS, & ORDINANCES.

2) THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION & 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 & IMPROVEMENTS IN ACCORDANCE w/ THE INTENT of THESE DOCUMENTS.

3) THE CONTRACTOR or BIDDER SHALL BEAR THE RESPONSIBILITY of NOTIFYING (IN WRITING) THE LESSEE/LICENSEE REPRESENTATIVE of ANY CONFLICTS, ERRORS, or OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTORS 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.

4) THE SCOPE of WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR & ALL OTHER MATERIALS & LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT as DESCRIBED HEREIN.

5) THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION of BIDS or PERFORMING WORK TO FAMILIARIZE HIMSELF w/ THE FIELD CONDITIONS & TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED in ACCORDANCE w/ THE CONTRACT DOCUMENTS.

6) THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED w/ CONSTRUCTION PRIOR TO STARTING WORK on ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.

7) THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT & MATERIALS ACCORDING TO THE MANUFACTURERS/VENDORS SPECIFICATIONS UNLESS NOTED OTHERWISE or WHERE LOCAL CODES or ORDINANCES TAKE PRECEDENCE.

8) THE CONTRACTOR SHALL PROVIDE A FULL SET of CONSTRUCTION DOCUMENTS AT THE SITE UPDATED w/ THE LATEST REVISIONS & ADDENDUMS or CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED w/ THE PROJECT.

9) THE CONTRACTOR SHALL SUPERVISE & DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES & PROCEDURES & FOR COORDINATING ALL PORTIONS of THE WORK UNDER THE CONTRACT.

10) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS & ESTABLISHING & MAINTAINING ALL LINES & GRADES REQ'D TO CONSTRUCT ALL IMPROVEMENTS as SHOWN HEREIN

11) THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS & INSPECTIONS WHICH MAY BE REQ'D FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY or LOCAL GOVERNMENT AUTHORITY.

12) THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, 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.

13) THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN & HAZARD FREE DURING CONSTRUCTION & DISPOSE of ALL DIRT, DEBRIS, RUBBISH & REMOVE EQUIPMENT NOT SPECIFIED as REMAINING on THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION & FREE FROM PAINT SPOTS, DUST, or SMUDGES of ANY NATURE.

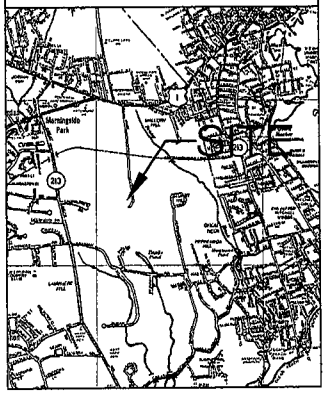
14) THE CONTRACTOR SHALL COMPLY W/ ALL OSHA REQUIREMENTS as THEY APPLY TO THIS PROJECT.

15) THE CONTRACTOR SHALL NOTIFY THE LESSEE/LICENSEE 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.

16) THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. on THE JOB.

17) ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS & 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 72hr 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

VICINITY MAP NTS



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 & INDEX	1
A-1	SITE PLAN & COMPOUND PLAN, ELEVATION & DETAILS	1
S-1	EQUIPMENT LAYOUT, STRUCTURAL NOTES & DETAILS	1
E-1	ELEC. & GROUNDING NOTES, RISER DIAGRAM & DETAILS	1

PROJECT SUMMARY

SITE NUMBER:	CT-11-641-A
SITE NAME:	SPECTRASITE WATERFORD
SITE ADDRESS:	85 MINER LANE WATERFORD, CT 06385
ASSESSORS PARCEL NO.:	MAP: 153, LOT: 85 VOLUME: 259, PAGE: 774
CONSTRUCTION TYPE:	CO-LOCATION
PROPERTY OWNER:	TOWN of WATERFORD 15 ROPE FERRY ROAD WATERFORD, CT 06385
STRUCTURE OWNER:	SPECTRASITE 148 EAGLE ROCK ROAD STOUGHTON, MA 02072
APPLICANT:	OMNIPOINT COMMUNICATIONS, INC. 100 FILLEY STREET BLOOMFIELD, CT 06002

OMNIPOINT COMMUNICATIONS, INC.
A WHOLLY OWNED SUBSIDIARY OF T-MOBILE, USA
100 FILLEY STREET
BLOOMFIELD, CT 06002
OFFICE: (860)-692-7160
FAX: (860)-692-7159

ALL-POINTS TECHNOLOGY CORPORATION, P.C.
3 BADGLEBROOK DRIVE
KILLINGWORTH, CT. 06419
PHONE: (860)-663-1697
FAX: (860)-663-0935
www.allpointstech.com

STATE OF CONNECTICUT
SCOTT M. CRAIG
No. 19736
LICENSED PROFESSIONAL ENGINEER

APPROVALS

LANDLORD _____

LEASING _____

R.F. _____

ZONING _____

CONSTRUCTION _____

A/E _____

PROJECT NO: CT-11-641-A

DRAWN BY: GWA

CHECKED BY: SMC

SUBMITTALS

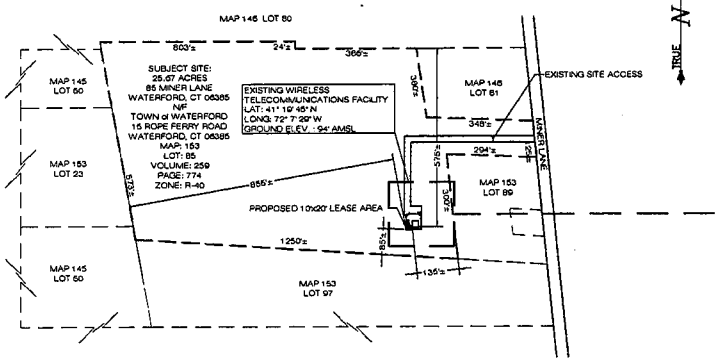
1	03/08/04	CONSTRUCTION FINAL SMC
0	02/19/04	CONSTRUCTION

CT-11-641-A
SPECTRASITE WATERFORD
85 MINER LANE
WATERFORD, CT 06385

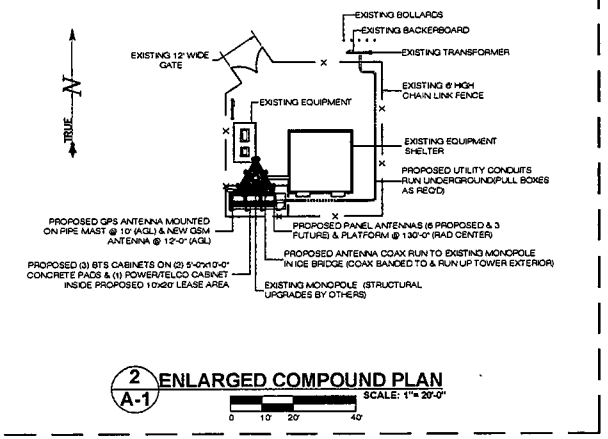
SHEET TITLE
TITLE SHEET & INDEX

SHEET NUMBER
T-1

NOTE:
BASE MAPPING FROM: TOWN OF WATERFORD ACCESSORS MAPS 145, 145, & 153 AND FIELD MEASUREMENTS



1 A-1 **PLOT PLAN** SCALE: 1"= 200'-0"
0 100' 200' 400'



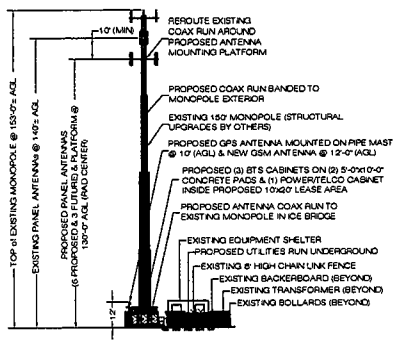
2 A-1 **ENLARGED COMPOUND PLAN** SCALE: 1"= 20'-0"
0 10' 20' 40'

ABBREVIATIONS

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

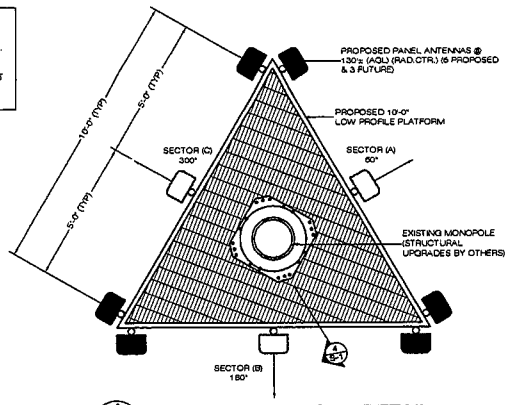
SYMBOLS AND MATERIALS

- NEW ANTENNA
- EXISTING ANTENNA
- ASPHALT
- NEW ACCESS EASEMENT
- CONCRETE
- ELECTRIC BOX
- LIGHT POLE
- FND. MONUMENT
- SPOT ELEVATION
- SET POINT
- REVISION
- GRID REFERENCE
- DETAIL REFERENCE (DET.# SHT.#)
- ELEVATION (# SH)
- GROUT or PLASTER
- BRICK
- MASONRY
- CONCRETE
- EARTH
- GRAVEL
- PLYWOOD
- SAND
- WOOD CONT.
- WOOD BLOCKING
- STEEL
- CENTERLINE
- PROPERTY LINE
- STEPPED FOOTING
- MATCH LINE
- WORK POINT
- GROUND WIRE
- COAXIAL CABLE



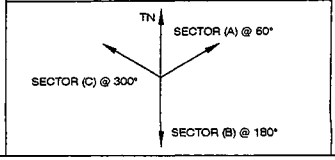
3 A-1 **SOUTHERN ELEVATION** SCALE: 1"= 30'-0"
0 15' 30' 60'

SPECIAL LESSEE/LICENSEE NOTE:
LESSEE/LICENSEE 'FUTURE' PANEL ANTENNAS ARE DEPICTED FOR THE PURPOSES OF DETERMINING TOWER STRUCTURAL CAPACITY, OBTAINING ZONING APPROVALS & BUILDING PERMITS. SUBSEQUENT ENDORSEMENT or ACCEPTANCE of THIS DRAWING BY THE TOWER LESSEE/LICENSEE IS NOT TO BE CONSTRUED as PERMISSION or APPROVAL TO INSTALL 'FUTURE' ANTENNAS THAT EXCEED 'PROPOSED' or ACTUAL EQUIPMENT LISTED IN THE LESSEE/LICENSEE LEASE AGREEMENT.



4 A-1 **ANTENNA PLATFORM DETAIL** SCALE: NTS

ANTENNA ORIENTATION KEY



1) ALL DIMENSIONS SHOWN THUS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS & ELEVATIONS WHICH EFFECTS THE CONTRACTORS WORK. CONTRACTOR TO VERIFY ALL DIMENSIONS w/ LESSEE/LICENSEE PRIOR TO CONSTRUCTION.
2) NORTH ARROW SHOWN ON PLANS REFERS TO TRUE NORTH. CONTRACTOR SHALL VERIFY TRUE NORTH & INFORM CONSTRUCTION MANAGER of ANY DISCREPANCIES BEFORE STARTING CONSTRUCTION.
3) THE GENERAL CONTRACTOR and/or HIS SUB CONSULTANT SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS & INSPECTIONS WHICH MAY BE REQ'D FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY or LOCAL GOVERNMENT AUTHORITY.
4) ANTENNA INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY & ERECTION of RADIO ANTENNAS, TRANSMISSION LINES & SUPPORT STRUCTURES.
5) COAXIAL CABLE CONNECTORS & TRANSMITTER EQUIPMENT SHALL BE PROVIDED BY THE LESSEE/LICENSEE & IS NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS. A SCHEDULE of LESSEE/LICENSEE SUPPLIED MATERIALS IS ATTACHED TO THE BID DOCUMENTS (SEE ATTACHMENT #). ALL OTHER HARDWARE TO BE PROVIDED BY THE CONTRACTOR. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.
6) ANY EQUIPMENT THAT IS TO BE PAINTED SHALL BE PAINTED TO MATCH EXISTING. PAINT SHALL BE SHERWIN WILLIAMS, COROTHANE II. SURFACE PREPARATION & APPLICATION SHALL BE IN ACCORDANCE w/ MANFs SPECIFICATIONS & LESSEE/LICENSEE GUIDELINES.
7) COORDINATION, LAYOUT, & FURNISHING of CONDUIT, CABLE & ALL APPURTENANCES REQ'D FOR PROPER INSTALLATION of ELECTRICAL & TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY of THE CONTRACTOR.
8) EQUIPMENT WILL BE INDEPENDENTLY POWERED w/ SEPARATE METER.
9) PRIOR TO EXCAVATION NEAR TOWER, CONTRACTOR TO CONTACT & COORDINATE w/ PROPERTY LESSEE/LICENSEE.
10) ALL ACTIVE SEWER, WATER, GAS, ELECTRIC, & OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, & WHERE REQ'D 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.
11) ALL INACTIVE SEWER, WATER, GAS, ELECTRIC & OTHER UTILITIES, WHICH INTERFERE w/ THE EXECUTION of THE WORK, SHALL BE REMOVED &/or CAPPED, PLUGGED or OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE w/ THE EXECUTION of THE WORK, SUBJECT TO THE APPROVAL of UTILITY COMPANY.
12) THE AREAS of THE PROPERTY DISTURBED BY THE WORK & NOT COVERED BY THE EQUIPMENT, DRIVEWAY or GRAVEL, SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDED & COVERED w/ MULCH.
13) THE CONTRACTOR SHALL ESTABLISH & MAINTAIN SOIL EROSION & SEDIMENTATION CONTROLS AT ALL TIMES DURING CONSTRUCTION.
14) ALL UTILITY WORK SHALL BE IN ACCORDANCE w/ LOCAL UTILITY COMPANY REQUIREMENTS & SPECIFICATIONS.
15) PER FCC MANDATE, ENHANCED EMERGENCY (E911) SERVICE REQ'D TO MEET NATIONWIDE STANDARDS FOR WIRELESS COMMUNICATIONS SYSTEMS. LESSEE/LICENSEE IMPLEMENTATION REQUIRES DEPLOYMENT of EQUIPMENT & 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 & LOCATION as TECHNOLOGY EVOLVES TO MEET REQ'D SPECIFICATION.

OMNIPOINT COMMUNICATIONS, INC.
A WHOLLY OWNED SUBSIDIARY OF T-MOBILE, USA
100 FILLEY STREET
BLOOMFIELD, CT 06002
OFFICE: (860)-692-7100
FAX: (860)-692-7150

ALL-POINTS TECHNOLOGY CORPORATION, P.C.
3 SADDLEBROOK DRIVE
KILLINGWORTH, CT. 06419
PHONE: (860)-663-1697
FAX: (860)-663-3635
www.allpointstech.com

STATE OF CONNECTICUT
SCOTT M. CHASE
No. 19726
LICENSED PROFESSIONAL ENGINEER

APPROVALS

LANDLORD _____
LEASING _____
R.F. _____
ZONING _____
CONSTRUCTION _____
A/E _____

PROJECT NO: CT-11-641-A

DRAWN BY: GWA

CHECKED BY: SMC

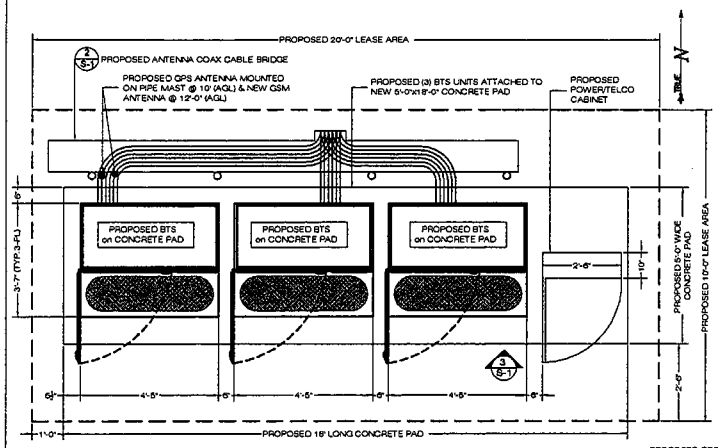
SUBMITTALS

1	03/08/04	CONSTRUCTION FINAL: SMC
0	02/19/04	CONSTRUCTION

CT-11-641-A
SPECTRASITE
WATERFORD
85 MINER LANE
WATERFORD, CT 06385

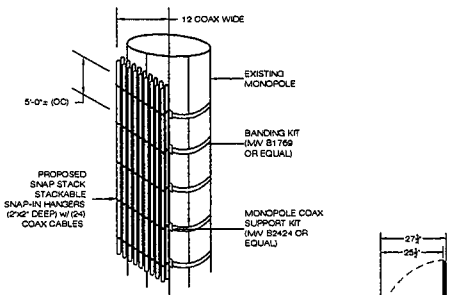
SHEET TITLE
SITE & COMPOUND PLAN, ELEVATION & DETAILS

SHEET NUMBER
A-1

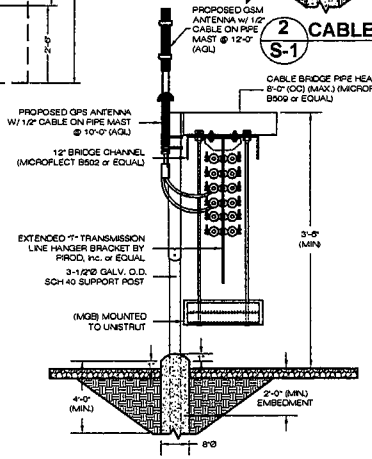


1 S-1 EQUIPMENT PAD LAYOUT
SCALE: 1/2"= 1'-0"

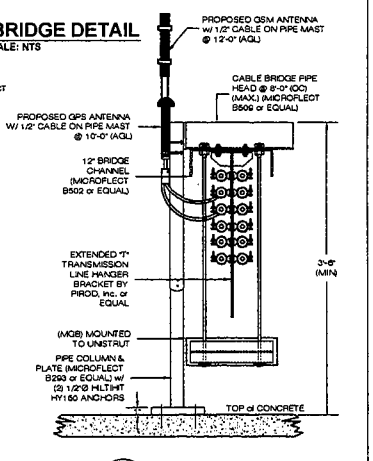
2 S-1 CABLE BRIDGE DETAIL
SCALE: NTS



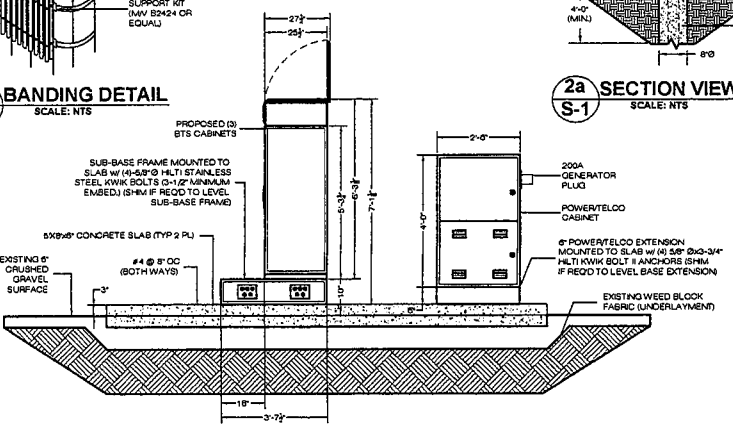
5 S-1 BANDING DETAIL
SCALE: NTS



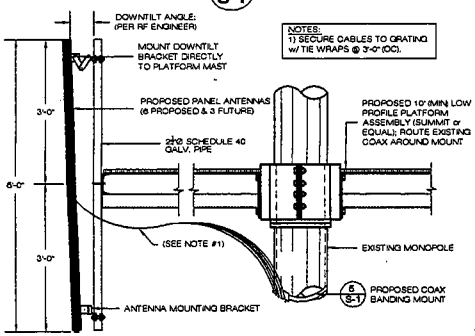
2a S-1 SECTION VIEW
SCALE: NTS



2b S-1 SECTION VIEW
SCALE: NTS



3 S-1 EQUIPMENT SLAB SECTION VIEW
SCALE: NTS



4 S-1 ANTENNA MOUNTING DETAIL
SCALE: NTS

STRUCTURAL NOTES

1) DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE & APPLICABLE SUPPLEMENTS, ANSI/ASCE7, EIA/TIA-222-F STRUCTURAL STANDARDS FOR STEEL ANTENNA SUPPORTING STRUCTURES.

2) CONTRACTOR SHALL VERIFY ALL DIMENSIONS & CONDITIONS IN THE FIELD PRIOR TO FABRICATION & ERECTION of ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION of THE CONSTRUCTION MANAGER.

3) DESIGN & CONSTRUCTION of STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE of STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION & ERECTION of STRUCTURAL STEEL FOR BUILDINGS".

4) STRUCTURAL & MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 STRUCT. STEEL UNLESS OTHERWISE INDICATED.

5) STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE A, or ASTM A53 PIPE STEEL BLACK & HOT-DIPPED ZINC-COATED WELDED & SEAMLESS TYPE E or S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.

6) STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) & CONFORM TO ASTM A325 "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS & PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE Ø5/8" UON.

7) ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE w/ ASTM A123 "ZINC (HOT-DIP GALVANIZED COATINGS on IRON & STEEL PRODUCTS", UNLESS OTHERWISE NOTED.

8) ALL BOLTS, ANCHORS & MISCELLANEOUS HARDWARE SHALL BE GALV. IN ACCORDANCE w/ ASTM A153 "ZINC-COATING (HOT-DIP) on IRON & STEEL HARDWARE", UNLESS OTHERWISE NOTED.

9) FIELD WELDS, DRILL HOLES, SAW CUTS & ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED w/ AN ORGANIC ZINC REPAIR PAINT COMPLYING w/ 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 NOT LESS THAN 4 COATS (ALLOW DRY TIME BETWEEN COATS) w/A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 or A153 as APPLICABLE.

10) CONTRACTOR SHALL COMPLY w/ AWS CODE FOR PROCEDURES, APPEARANCE & QUALITY of WELDS, & FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS & WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE w/ AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES & WELDING SHALL CONFORM TO AISC "8 Dd. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL of STEEL CONSTRUCTION", 9TH EDITION.11.

11) 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.

12) UNISTRUTS SHALL BE FORMED STEEL CHANNEL STRUT FRAMING as MANUFACTURED BY UNISTRUT CORP, WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1-5/8"x 1-5/8"x12GA, UNLESS OTHERWISE NOTED, & SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.

13) EPOXY ANCHOR ASSEMBLY SHALL CONSIST of 1/2" DIAMETER STAINLESS STEEL ANCHOR ROD w/ NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE & A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI HIT HY-20 and/or HY-150 SYSTEMS (as SPECIFIED AN DWG.) or ENGINEERS APPROVED EQUAL w/ 4-1/4" MIN. EMBEDMENT DEPTH.

14) EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT II or APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE w/ THE MANUFACTURER'S RECOMMENDATIONS. MINIMUM EMBEDMENT SHALL BE THREE & ONE HALF (3 1/2) INCHES.

15) GRAVEL SUB BASE & CONCRETE SHALL BE PLACED AGAINST UNDISTURBED SOIL.

16) CONCRETE FOR FENCE & ICE BRIDGE SUPPORT SHALL BE 3000 PSI AIR ENTRAINED (4%-6%) NORMAL WEIGHT CONCRETE.

17) ALL CAST IN PLACE CONCRETE SHALL BE MIXED & PLACED IN ACCORDANCE w/ THE REQUIREMENTS OF ACI 318 & ACI 301.

18) 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
  - #6 & LARGER ..... 2 INCHES
  - #5 & SMALLER ..... 1 1/2 INCHES

ALL EXPOSED EDGES SHALL BE PROVIDED w/ A 3/4"x3/4" CHAMFER UNLESS NOTED OTHERWISE.

19) LUMBER SHALL COMPLY w/ THE REQUIREMENTS of THE AMERICAN INSTITUTE of TIMBER CONSTRUCTION & THE NATIONAL FOREST PRODUCTS ASSOCIATIONS NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED & SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.

20) WHERE ROOF PENETRATIONS ARE REQD, THE CONTRACTOR SHALL CONTACT & COORDINATE RELATED WORK w/ THE BUILDING OWNER & THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER as TO NOT VOID THE EXISTING ROOF WARRANTY.

21) PER FCC MANDATE, ENHANCED EMERGENCY (E911) SERVICE REQD TO MEET NATIONWIDE STANDARDS FOR WIRELESS COMMUNICATIONS SYSTEMS. LESSEE/LICENSEE IMPLEMENTATION REQUIRES DEPLOYMENT of EQUIPMENT & 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 & LOCATION as TECHNOLOGY EVOLVES TO MEET REQD SPECIFICATION.

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STATE OF CONNECTICUT
SCOTT M. CHASE
No. 19726
LICENSED PROFESSIONAL ENGINEER

APPROVALS

LANDLORD _____
LEASING _____
R.F. _____
ZONING _____
CONSTRUCTION _____
A/E _____

PROJECT NO: CT-11-641-A

DRAWN BY: GWA

CHECKED BY: SMC

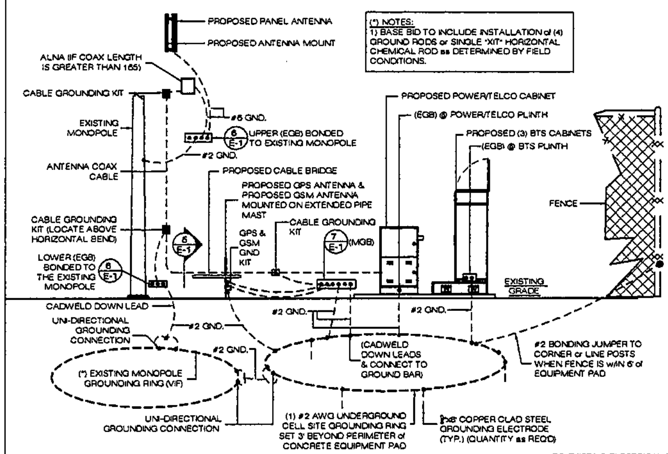
SUBMITTALS

1	03/08/04	CONSTRUCTION FINAL: SMC
0	02/19/04	CONSTRUCTION

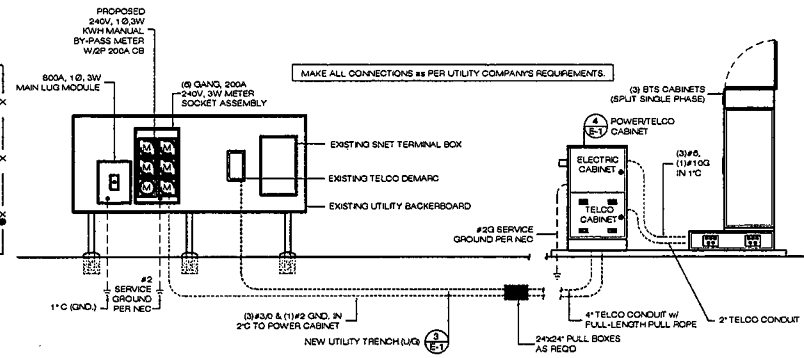
CT-11-641-A
SPECTRASITE WATERFORD
85 MINER LANE
WATERFORD, CT 06385

SHEET TITLE
EQUIPMENT LAYOUT, STRUCTURAL NOTES & DETAILS

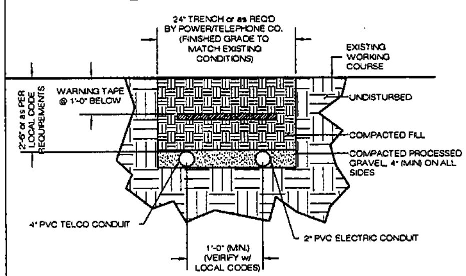
SHEET NUMBER
S-1



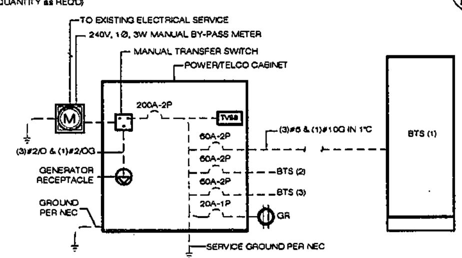
1 E-1 GROUNDING RISER DIAGRAM
SCALE: NTS



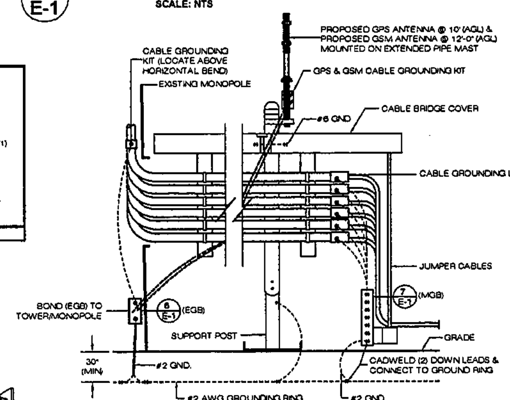
2 E-1 POWER RISER DIAGRAM
SCALE: NTS



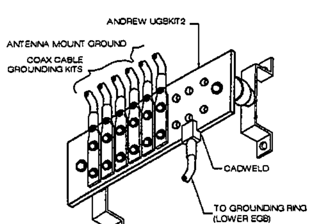
3 E-1 TRENCH DETAIL
SCALE: NTS



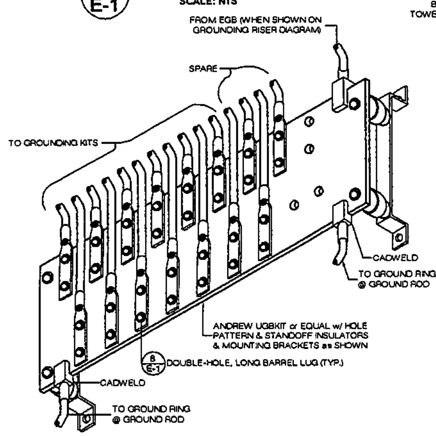
4 E-1 ONE LINE DIAGRAM
SCALE: NTS



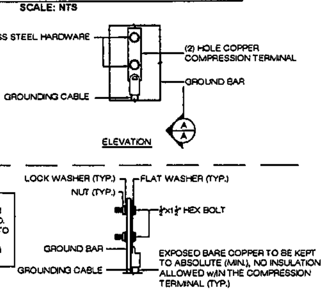
5 E-1 CABLE BRIDGE GROUNDING DETAIL
SCALE: NTS



6 E-1 EQUIPMENT GROUND BAR (EGB)
SCALE: NTS



7 E-1 MASTER GROUND BAR (MGB)
SCALE: NTS



NOTES:
1) "DOUBLING UP" or "STACKING" of CONNECTIONS IS NOT PERMITTED.
2) OXIDE INHIBITING COMPOUND TO BE USED @ ALL LOCATIONS.
3) CADWELD DOWN LEADS FROM UPPER EGB, LOWER EGB & MGB.

8 E-1 GROUND BAR CONNECTION DETAIL
SCALE: NTS

ELECTRICAL LEGEND

U.O.N.	UNLESS OTHERWISE NOTED		NEW PANEL BOARD, SURFACE MOUNTED
WP	WEATHERPROOF		EXISTING PANEL BOARD, SURFACE MOUNTED
GFI	GROUND FAULT INTERRUPTER	T	DRY TYPE TRANSFORMER
A	AMPERE	M	METER
V	VOLT		CIRCUIT BREAKER
KWH	KILOWATT - HOUR		NON-FUSIBLE DISCONNECT SWITCH, MOUNTED 54" A.F.F.
C	CONDUIT		FUSIBLE DISCONNECT SWITCH, MOUNTED 54" A.F.F.
G	GROUND	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER w/ BUILT-IN FUSES, SURFACE MOUNTED
	GROUND		DUPLEX OUTLET, SURFACE MOUNTED, 20 AMPS, 125 VOLTS, SINGLE PHASE
MGB	MASTER GROUND BAR 1/4"x6"x24" COPPER	J	JUNCTION BOX, SURFACE MOUNTED 18" A.F.F.
EGB	EQUIPMENT GROUND BAR 1/4"x4"x12" OR 1/4"x4"x18" COPPER		EXPOSED WIRING
	GROUND COPPER WIRE, SIZE AS NOTED		HOME RUNS, MINIMUM 2#10 +1#10G IN 3/4" CONDUIT U.O.N.
	EXPOSED WIRING	A.F.F.	ABOVE FINISHED FLOOR
	COAXIAL CABLE		
	5/8"x8' COPPER CLAD STEEL GROUND ROD		
	EXOTHERMIC (CADWELD) OR MECHANICAL (COMPRESSION TYPE) CONNECTION		

ELECTRICAL AND GROUNDING NOTES

1) ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS of THE NATIONAL ELECTRICAL CODE (NEC) as WELL as APPLICABLE STATE & LOCAL CODES.
2) ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED & PROCURED PER SPECIFICATION REQUIREMENTS.
3) THE ELECTRICAL WORK INCLUDES ALL LABOR & MATERIAL DESCRIBED BY DRAWINGS & SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING & APPROVED ELECTRICAL SYSTEM.
4) GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, & IS RESPONSIBLE FOR OBTAINING SAID PERMITS & COORDINATION OF INSPECTIONS.
5) ELECTRICAL & TELCO WIRING OUTSIDE A BUILDING & EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS or SCHEDULE 80 PVC (as PERMITTED BY CODE) & WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL or NONMETALLIC CONDUITS.
6) BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
7) ELECTRICAL WIRING SHALL BE COPPER w/ TYPE XHHW, THWN, or THININSULATION.
8) RUN ELECTRICAL CONDUIT or CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT & LESSEE/LICENSEE CELL SITE POWER PEDESTAL as INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION w/ UTILITY COMPANY.
9) RUN TELCO CONDUIT or CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT & LESSEE/LICENSEE CELL SITE TELCO CABINET & BTS CABINET as INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE @ EACH END.
10) WHERE CONDUIT BETWEEN BTS & LESSEE/LICENSEE CELL SITE POWER PEDESTAL & BETWEEN BTS & LESSEE/LICENSEE CELL SITE TELCO SERVICE CABINET ARE U/G USE PVC, SCH.40 CONDUIT. ABOVE THE GROUND PORTION of THESE CONDUITS SHALL BE PVC CONDUIT.
11) ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
12) POWER PEDESTAL SUPPLIED BY LESSE/LICENSEE.
13) GROUNDING SHALL COMPLY w/ NEC ART. 250.
14) GROUND COAXIAL CABLE SHIELDS MINIMUM @ BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY LESSEE/LICENSEE.
15) USE #6 COPPER STRANDED WIRE w/ GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) & #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING as INDICATED ON THE 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 w/ GALVANIZED STEEL.
17) ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST & STRAIGHTEST PATH POSSIBLE, EXCEPT as OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT @ RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT @ 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS w/IN 7 FEET of LESSEE/LICENSEE EQUIPMENT or CABINET TO MASTER GROUND BAR.
18) CONNECTIONS TO GROUND BARS SHALL BE MADE w/ 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) BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, & ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
21) BOND ANTENNA EGB'S & MGB TO GROUND RING.
22) TEST COMPLETED GROUND SYSTEM & RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.

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STATE OF CONNECTICUT · SCOTT M. CHASE · No. 19720 · LICENSED PROFESSIONAL ENGINEER

APPROVALS

LANDLORD ____________
LEASING ____________
R.F. ____________
ZONING ____________
CONSTRUCTION ____________
A/E ____________

PROJECT NO: CT-11-641-A

DRAWN BY: GWA

CHECKED BY: SMC

SUBMITTALS

1	03/05/04	CONSTRUCTION FINAL: SMC
0	02/19/04	CONSTRUCTION

CT-11-641-A
SPECTRASITE
WATERFORD
86 MINER LANE
WATERFORD, CT 06385

SHEET TITLE
ELECTRICAL & GROUNDING NOTES, RISERS & DETAILS

SHEET NUMBER
E-1

Exhibit 2

T-Mobile USA Inc.
100 Filley St, Bloomfield, CT 06002-1853
Phone: (860) 692-7100
Fax: (860) 692-7159

Technical Memo

To: Christine Farrell
From: Sumit Nahar - Radio Frequency Engineer
cc: Jason Overbey
Subject: Power Density Report for CT11641A
Date: February 12, 2004

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 85 Miner Lane, Waterford, 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 3 antennas per sector.
3) The model number for each antenna is EMS RR90-17-02DP.
4) The antenna center line height is 130 ft.
5) The maximum transmit power from any sector is 1698.71 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 85 Miner Lane, Waterford, CT, is 0.02424 mW/cm^2. This value represents 2.424% of the Maximum Permissible Emission (MPE) standard of 1 milliwatt per square centimeter (mW/cm^2) 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 36.9%. The combined Power Density for the site is 39.324% of the M.P.E. standard.

New England Market
Connecticut
Worst Case Power Density

Site:	**CT11641A**
Site Address:	**85 Miner Lane**
Town:	**Waterford**
Tower Height:	**158 ft.**
Tower Style:	**Monopole**
Base Station TX output	20 W
Number of channels	8
Antenna Model	EMS RR90-17-02DP
Cable Size	1 5/8 in.
Cable Length	150 ft.
Antenna Height	130.0 ft.
Ground Reflection	1.6
Frequency	1935.0 MHz
Jumper & Connector loss	4.50 dB
Antenna Gain	16.5 dBi
Cable Loss per foot	0.0116 dB
Total Cable Loss	1.7400 dB
Total Attenuation	6.2400 dB
Total EIRP per Channel	53.27 dBm
(In Watts)	212.34 W
Total EIRP per Sector	62.30 dBm
(In Watts)	1698.71 W
nsg	10.2600
Power Density (S) =	**0.024238 mW/cm^2**
T-Mobile Worst Case % MPE =	**2.4238%**

Equation Used :

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

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

Co-Location Total

Carrier	% of Standard
Verizon	
Cingular	19.4100 %
Sprint PCS	
AT&T Wireless	5.5000 %
Nextel	
Springwich Paging Antenna	9.2500 %
Cingular Yagi	2.7400 %
Total Excluding T-Mobile	**36.9000 %**
T-Mobile	2.4238
Total % MPE for Site	**39.3238%**

Exhibit 3

CT1164 1A

CT-0027
03/09/04

SpectraSite

Level 2 Structural Analysis		
Site Number & Name	**CT 0027 Waterford**	
Site Address	85 Miner Lane Waterford, CT 06385 New London County	
Tower Description	**150 ft ITT Meyer Monopole**	
Standards & Codes	ANSI/TIA/EIA-222-F (1996) **85 mph w/ ½" radial ice**	

Tower Information	
Tower Geometry	Standard ITT Meyer "Type B" Monopole Information
Geotechnical	Geotechnologies Project Number 1-04-0264-EA, dated 03/04/04

Results Summary*	
Tower Structure	***Inadequate***
Flange Bolts @110'	***Inadequate***
Flange @ 110'	***Adequate***
Anchor Bolts	***Adequate***
Base Plate	***Adequate***
Foundation	***Adequate***

** See following pages for detailed analysis results.*

APPROVED

T-Mobile Site No: CT1164 1A
A & E Manager: DONALD MORESE
Date: 4/7/04

Antenna Make: _____ Model No.: _____
Number Antennas: _____ Rad. Center (AGL).: _____ Feet
Coax Cables: Number: _____ ☐ 7/8" ☐ 1-5/8" ☐ 2-1/4"

☐ Tower and Foundation Acceptable: No Upgrades Required
☑ Tower Upgrades Required
☐ Foundation Upgrades Required
☐ Special Coax Placement or Bundling Required

STATE OF CONNECTICUT
DOUGLAS K PINEO
No. 21111
LICENSED PROFESSIONAL ENGINEER

MAR 0 9 2004

Analysis prepared by:
Brenton S. Lockamy, P.E.
Project Engineer
Contact (919) 466-5536 with any questions.

Douglas K. Pineo, P.E.
Senior Design Engineer

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Connecticut.

100 Regency Forest Drive, Suite 400 • Cary, NC 27511 • Tel 919.468.0112 • Fax 919.468.8522

1.0 Introduction

A structural analysis was performed on the above noted tower for the addition of proposed antennas as listed. The analysis consisted of applying the forces caused by the existing and proposed loads, and determining the resulting stresses in the structure and its foundation.

1.1 Existing and Proposed Antennas

HEIGHT *(Ft.)*	ANTENNA	CARRIER	COAX	I/O[a]	NOTES
158.5 156 153	(1) Celwave 3167A (1) 3' Yagi (9) CSS DUO4-8670 - on Platform w/ Handrails	Cingular	(1) 7/8" (1) ½" (9) 1-1/4" (4) 1-5/8"	I	Existing
140	(3) Thales P65Q56NSOB Flush Mounted	AT&T	(12) 7/8"	O	Existing
130	**(9) EMS DR65-19-XXDPQ on T-Arm Mounts**	**T-Mobile**	**(18) 1-5/8"**	**O**	**Proposed**

[a] *I/O denotes coax installed inside or outside of monopole respectively.*

2.0 Detailed Analysis Results

2.1 Monopole Member Stress Levels

HEIGHT *(Ft.)*	STRESS RATIO[a]
110 to 150	*1.20*[c]
Flange Bolts @ 110	*1.15*[c]
Flange @ 110	0.45[d]
73.5 to 110	*1.38*[c]
35.7 to 73.5	*1.37*[c]
0 to 35.7	*1.29*[c]
Anchor Bolts	*1.03*[b]
Base Plate	0.50

[a] *Maximum Stress Ratio: 1.00=Full Allowable*
[b] *Overstressed; considered acceptable.*
[c] *Overstressed; reinforcing required.*
[d] *Includes existing flange reinforcing.*

2.2 Foundation Reactions

BASE REACTIONS	REACTIONS	RESULTS*
Moment *(kip-ft)*	2234.8	*Adequate*
Compression *(kips)*	17.3	*Adequate*
Shear *(kips)*	22.3	*Adequate*

** Based on foundation analysis.*

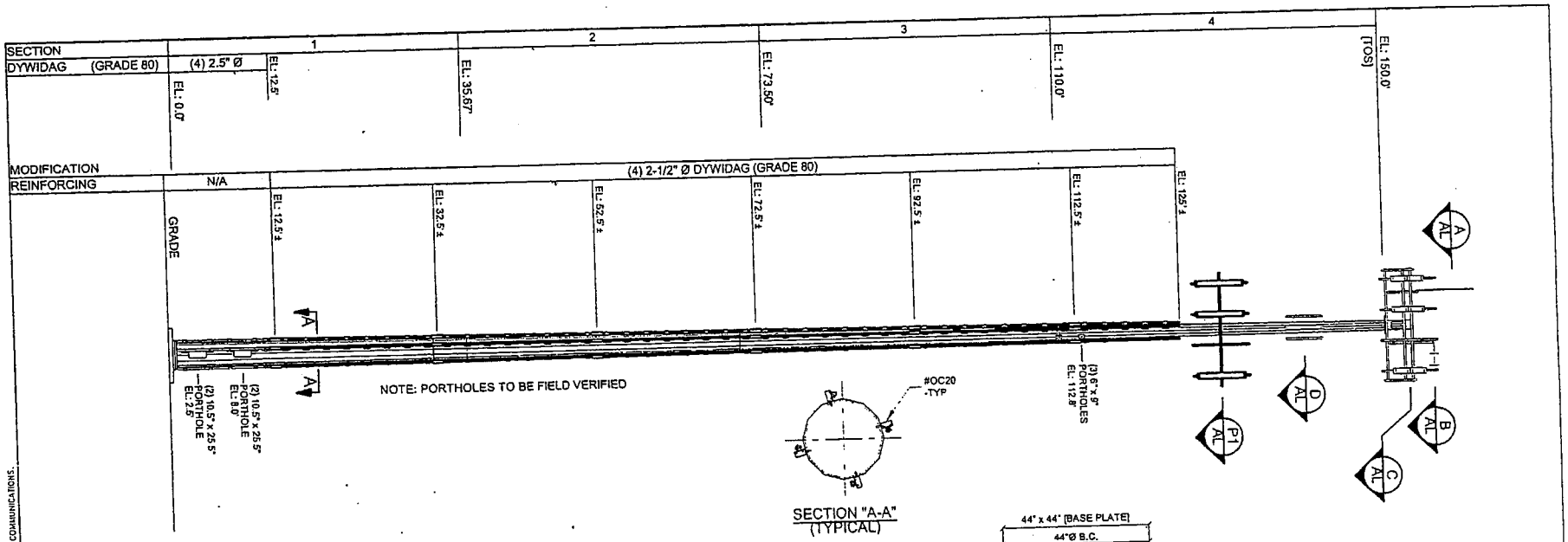
3.0 Conclusions and Recommendations

1. The tower and flange bolts ***are not structurally adequate*** to accommodate the existing and proposed antenna and transmission lines loading used in this analysis.

2. The tower, anchor bolts, base plate, flange and flange bolts ***are structurally adequate*** to accommodate the existing and proposed antenna and transmission lines loading used in this analysis ***after being reinforced*** as per the attached drawing CT-0027-M1.

3. The foundation ***is structurally adequate*** to accommodate the existing and proposed antenna and transmission lines loading used in this analysis.

4. Any future changes in loading must be reviewed by the SpectraSite Engineering Department.



POLE MATERIAL SPECIFICATIONS	
TAPER:	0.155 (IN/FT)
SHAFT STEEL:	65 KSI
BASE PLATE STEEL:	SQUARE PL 2.5" x 44" x 44" 60 KSI
ANCHOR BOLTS:	(8) 2.25"Ø, (ASTM A615, GR. 75) (4) 2.5" Ø DYWIDAG, (GRADE 80) 44.0"Ø B.C.

FLANGE SPECIFICATIONS				
ELEV (FT)	THICKNESS (IN) TOP	BTM	DIA (IN)	KSI
*110.0'	1.0	1.0	28.50	60

* (24) FLANGE STIFFENERS (PL 1/2" X 3" X 0'-4")-TYP

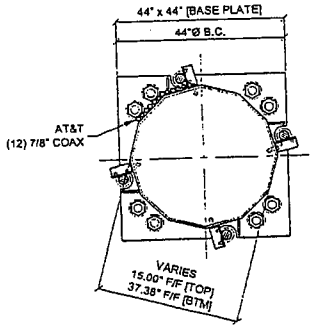
DESIGN SPECIFICATIONS	
CODE:	ANSI/TIA/EIA-222-F
WIND:	85 MPH (NEW LONDON COUNTY)
ICE:	1/2" RADIAL

SHAFT SPECIFICATIONS							
SHAFT SECTION	SECTION LENGTH (FT)	# SIDES	THICKNESS (IN)	GRADE (KSI)	OVERLAP (IN)	DIAMETER ACROSS FLATS (IN) BOTTOM	TOP
1	35.67	12	0.375	65	50	37.38	31.85
2	42.00	12	0.313	65	42	33.10	26.55
3	40.00	12	0.250	65	0	27.61	21.25
4	40.00	12	0.188	65	0	21.25	15.00

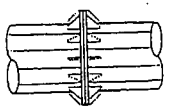
TOWER IDENTIFICATION	
MANUFACTURER:	ITT MEYER
IDENTIFICATION No:	CT-0027

ANTENNA INFORMATION								
NO.	ELEV	ANTENNA TYPE	ANT. DIMS. (LxWxD)	AZIMUTH	MOUNT	TX-LINE*	CUSTOMER	STATUS
A	156.5'	(1) CELWAVE 3167A	7.0'	210°	PLATFORM W/ HANDRAILS	(1) 7/8" [I]	CINGULAR	E
B	156.0'	(1) YAGI	3'	270°	PLATFORM W/ HANDRAILS	(1) 1/2" [I]	CINGULAR	E
C	153.0'	(9) CSS DUO4-8670	48" x 14" x 9"	28°,144°,264°	PLATFORM W/ HANDRAILS	(9) 1-1/4" [I]	CINGULAR	E
D	140.0'	(3) THALES P65QS6NSO8	58" x 10.8" x 3.8"	0°,120°,240°	FLUSH	(12) 7/8" [O]	AT&T	E
P1	130.0'	(9) EMS DR65-19-XXDPQ	72" x 12" x 4"	30°,150°,270°	T-ARM	(18) 1-5/8" [I]	T-MOBILE	P

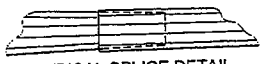
* [I], OR [O] DENOTES COAX INSTALLED INSIDE OR OUTSIDE MONOPOLE RESPECTIVELY.



PLAN VIEW



TYPICAL FLANGE DETAIL



TYPICAL SPLICE DETAIL

MODIFICATIONS PER SPECTRASITE STRUCTURAL ANALYSIS DATED: 02/16/04

SEAL:

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the state of CONNECTICUT

REV	DWN	CHK	DATE	DESCRIPTION

SpectraSite

400 REGENCY FOREST DRIVE
CARY, NORTH CAROLINA 27511
PHONE:(919)468-0112 / FAX:(919)468-0522

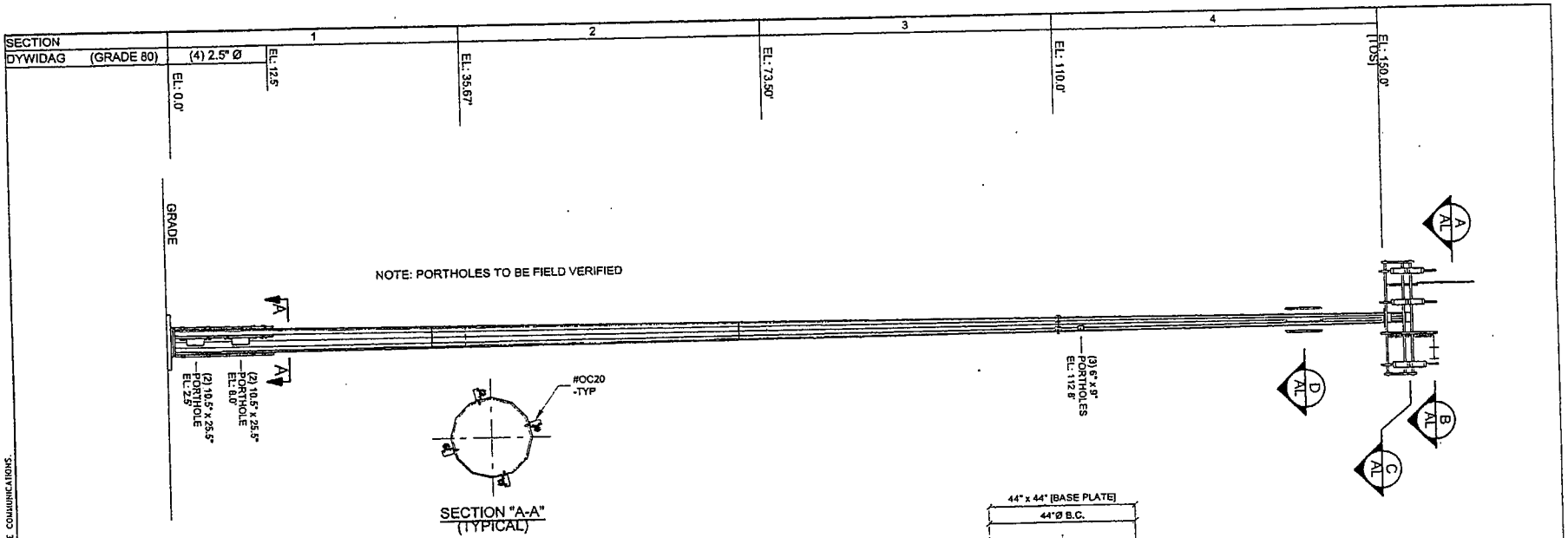
TITLE: MODIFICATION PROFILE

PROJECT: 150.0' ITT MEYER MONOPOLE

SITE: WATERFORD, CT

DATE:	DWN:	CHK:	SITE #:	DWG #:	REV:
02/17/04	KMM		CT-0027	M1	0

EXISTING ELEVATION XXXX.X' (± 3.0') AMSL NAVD88
(ELEVATION REFLECTS HIGHEST POINT OF STRUCTURE AND APPURTENANCES FOR EXISTING MONOPOLE TOWER)



SECTION "A-A"
(TYPICAL)

POLE MATERIAL SPECIFICATIONS	
TAPER:	0.155 (IN/FT)
SHAFT STEEL:	65 KSI
BASE PLATE STEEL:	SQUARE PL 2.5" x 44" x 44" 60 KSI
ANCHOR BOLTS:	(8) 2.25"Ø, (ASTM A615, GR. 75) (4) 2.5" Ø DYWIDAG, (GRADE 80) 44.0"Ø B.C.

SHAFT SPECIFICATIONS							
SHAFT SECTION	SECTION LENGTH (FT)	# SIDES	THICKNESS (IN)	GRADE (KSI)	OVERLAP (IN)	DIAMETER ACROSS FLATS (IN)	
						BOTTOM	TOP
1	35.67	12	0.375	65	50	37.38	31.85
2	42.00	12	0.313	65	42	33.10	26.55
3	40.00	12	0.250	65	0	27.61	21.25
4	40.00	12	0.188	65	0	21.25	15.00

FLANGE SPECIFICATIONS				
ELEV (FT)	THICKNESS (IN)		DIA (IN)	KSI
	TOP	BTM		
*110.0'	1.0	1.0	28.50	60

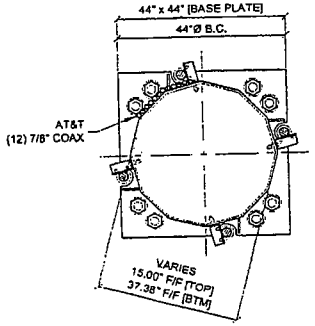
* (24) FLANGE STIFFENERS (PL 1/2" X 3" X 0'-4")-TYP

DESIGN SPECIFICATIONS	
CODE:	ANSI/TIA/EIA-222-F
WIND:	85 MPH [NEW LONDON COUNTY]
ICE:	1/2" RADIAL

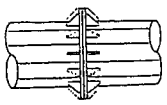
TOWER IDENTIFICATION	
MANUFACTURER:	ITT MEYER
IDENTIFICATION No:	CT-0027

ANTENNA INFORMATION								
NO.	ELEV	ANTENNA TYPE	ANT. DIMS. (LxWxD)	AZIMUTH	MOUNT	TX-LINE*	CUSTOMER	STATUS
A	158.5'	(1) CELWAVE 3167A	7.0'	210°	PLATFORM W/ HANDRAILS	(1) 7/8" [I]	CINGULAR	E
B	156.0'	(1) YAGI	3'	270°	PLATFORM W/ HANDRAILS	(1) 1/2" [I]	CINGULAR	E
C	153.0'	(9) CSS DUO4-8670	48" x 14" x 9"	28°,144°,264°	PLATFORM W/ HANDRAILS	(9) 1-1/4" [I]	CINGULAR	E
D	140.0'	(3) THALES P65Q56NSOB	56" x 10.8" x 3.6"	0°,120°,240°	FLUSH	(12) 7/8" [O]	AT&T	E

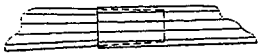
* [I], OR [O] DENOTES COAX INSTALLED INSIDE OR OUTSIDE MONOPOLE RESPECTIVELY.



PLAN VIEW



TYPICAL FLANGE DETAIL



TYPICAL SPLICE DETAIL

EXISTING ELEVATION XXXX.X' (±3.0') AMSL NAVD(X
(ELEVATION REFLECTS HIGHEST POINT OF STRUCTURE
AND APPURTENANCES FOR EXISTING MONOPOLE TOWER)

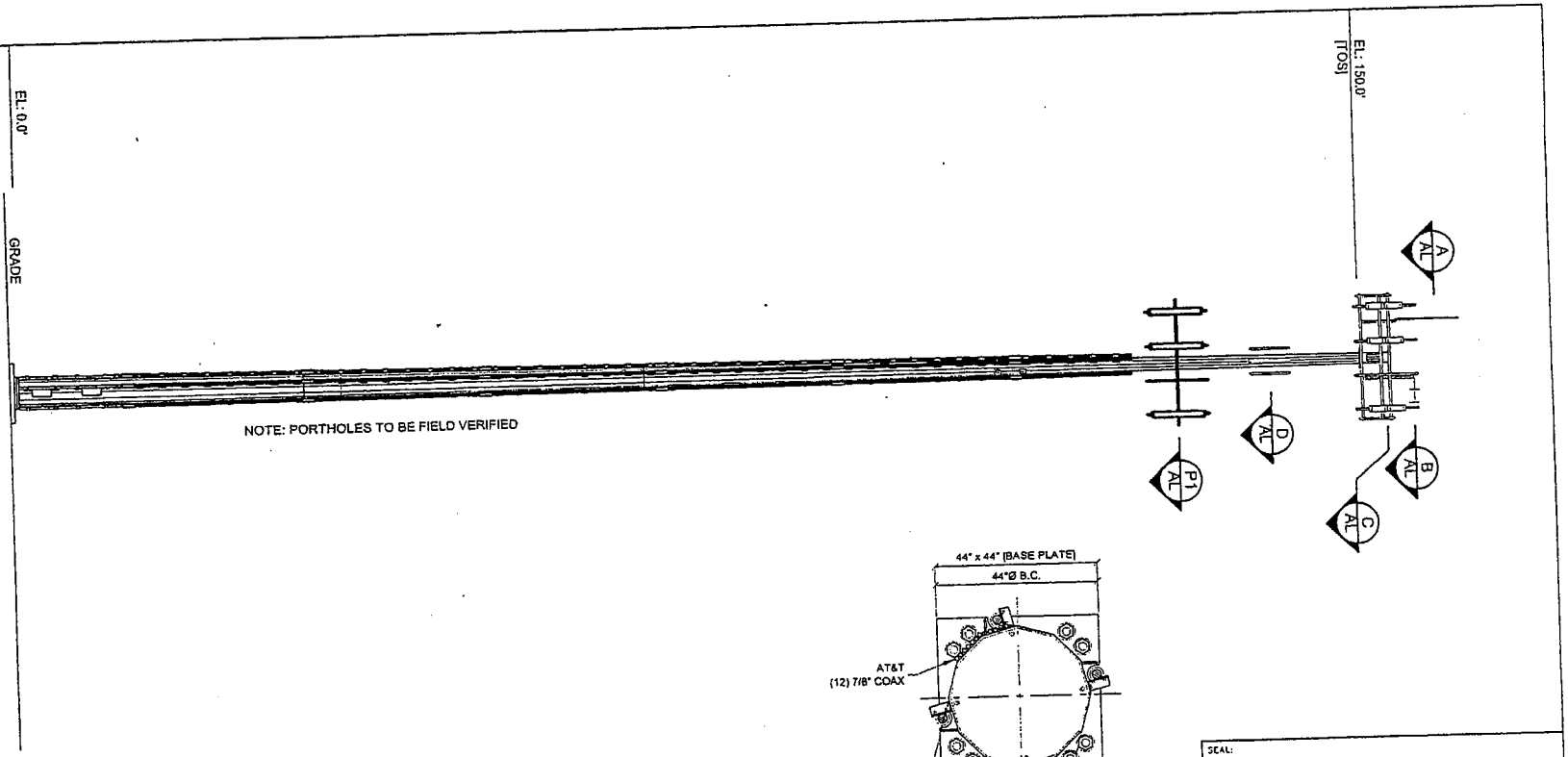
SEAL:

REV	DESCRIPTION	DATE	DWN	CHK
4	RVSD AT&T TO EXISTING	02/13/04	CGG	JRJ

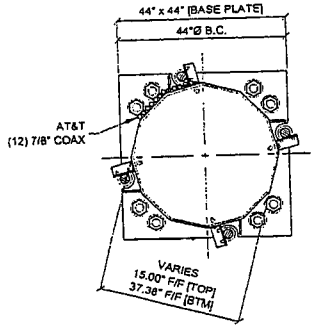
SpectraSite
400 REGENCY FOREST DRIVE
CARY, NORTH CAROLINA 27511
PHONE:(919)468-0112 / FAX:(919)468-8522

TITLE: DESIGN PROFILE
PROJECT: 150.0' ITT MEYER MONOPOLE
SITE: WATERFORD, CT

DATE:	DWN:	CHK:	SITE #:	DWG #:	REV:
9/23/02	CGG	RIM	CT-0027	D1	4

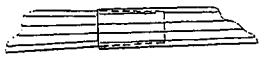


NOTE: PORTHOLES TO BE FIELD VERIFIED



PLAN VIEW

TYPICAL FLANGE DETAIL



TYPICAL SPLICE DETAIL

ANTENNA INFORMATION							
NO.	ELEV	ANTENNA TYPE	ANT. DIMS. (LxWxD)	AZIMUTH	MOUNT	TX-LINE*	CUSTOMER	STATUS
A	159.5'	(1) CELWAVE 3167A	7.0'	210°	PLATFORM W/ HANDRAILS	(1) 7/8" [I]	CINGULAR	E
B	156.0'	(1) YAGI	3'	270°	PLATFORM W/ HANDRAILS	(1) 1/2" [I]	CINGULAR	E
C	153.0'	(9) CSS DUO4-8670	48" x 14" x 8"	28°,144°,264°	PLATFORM W/ HANDRAILS	(9) 1-1/4" [I]	CINGULAR	E
D	140.0'	(3) THALES P65Q56NSOB	58" x 10.8" x 3.8"	0°,120°,240°	FLUSH	(12) 7/8" [O]	AT&T	E
P1	130.0'	(9) EMS DR65-19-XXDPQ	72" x 12" x 4"	30°,150°,270°	T-ARM	(18) 1-5/8" [I]	T-MOBILE	P

* [I], OR [O] DENOTES COAX INSTALLED INSIDE OR OUTSIDE MONOPOLE RESPECTIVELY.

EXISTING ELEVATION XXXX.X' (± 3.0') AMSL NAVD88
(ELEVATION REFLECTS HIGHEST POINT OF STRUCTURE
AND APPURTENANCES FOR EXISTING MONOPOLE TOWER)

SEAL:

REV	DWN	CHK	DATE	DESCRIPTION
B	KMM		02/17/04	ADDED DYWIDAG TO 125' ±

SpectraSite
400 REGENCY FOREST DRIVE
CARY, NORTH CAROLINA 27511
PHONE:(919)468-0112 / FAX:(919)468-8522

TITLE: TOWER PROFILE
PROJECT: 150.0' ITT MEYER MONOPOLE
SITE: WATERFORD, CT

DATE:	DWN:	CHK:	SITE #:	DWG #:	REV:
9/23/02	CGG	RIM	CT-0027	TP	B

STANDARD EIA-222F IMPERIAL UNITS

INPUT INFORMATION

Project Name	tmobile
Job Number	ct-0027
Title	N/A
Designer	bsl

Basic Wind Speed (mph)	85.00
Radial Ice (in)	0.50
Height (ft)	150.00
Number of Sides	12
Yield Stress (ksi)	65.00
Allowable Stress factor	1.33
Operational Wind (mph)	50.00
Iced Wind Speed (mph) optional	

Possible Number of Sides
0 - Round
8 - 8 Sided
12 - 12 Sided
16 - 16 Sided
18 - 18 Sided

Site Specify Wind Only

Pole Section	Top Elev. (ft)	Bott. Elev. (ft)	Top O.D. (in.)	Bott. O.D. (in.)	Inner Bend Rad. / t (in/in)	Thickness (in.)	Dist. Area Appurtenance Bare (ft²/ft)	Dist. Area Appurtenance Iced (ft²/ft)
TOP	>>>>>>>>>>	>>>>>>>>>>	>>>>>>>>>>	>>>>>>>>>>	>>>>>>>>>>	>>>>>>>>>>	>>>>>>>>>>	>>>>>>>>>>
A	150.00	140.00	15.00	16.56		3/16	0.2	0.4
B	140.00	130.00	16.56	18.13		3/16	0.4	0.6
C	130.00	120.00	18.13	19.69		3/16	0.4	0.6
D	120.00	110.01	19.69	21.25		3/16	0.4	0.6
E	110.01	110.00	21.25	21.25		1/4	0.4	0.6
F	110.00	110.00	21.25	21.25		1/4	0.4	0.6
G	110.00	100.00	21.25	22.84		1/4	0.4	0.6
H	100.00	90.00	22.84	24.43		1/4	0.4	0.6
I	90.00	80.00	24.43	26.02		1/4	0.4	0.6
J	80.00	73.51	26.02	27.05		1/4	0.4	0.6
K	73.51	73.50	27.0535	26.55		5/16	0.4	0.6
L	73.50	70.00	26.55	27.10		5/16	0.4	0.6
M	70.00	60.00	27.10	28.66		5/16	0.4	0.6
N	60.00	50.00	28.66	30.22		5/16	0.4	0.6
O	50.00	40.00	30.22	31.77		5/16	0.4	0.6
P	40.00	35.68	31.77	32.45		5/16	0.4	0.6
Q	35.68	35.67	32.45	31.85		3/8	0.4	0.6
R	35.67	30.00	31.85	32.73		3/8	0.4	0.6
S	30.00	20.00	32.73	34.28		3/8	0.4	0.6
T	20.00	10.00	34.28	35.83		3/8	0.4	0.6
U	10.00	0.00	35.83	37.38		3/8		

Individual Appurtenances Table

Elev (ft)	Area Appurt. $C_A A_A$ Bare (ft²)	Area Appurt. $C_A A_A$ Iced (ft²)	Weight Appurt. Bare (kip)	Weight Appurt. Iced (kip)	Description
158.50	2.04	2.77	0.025	0.038	3167A
158.50	0.00	0.00	0.000	0.000	-
156.00	1.99	2.70	0.025	0.038	Yagi
156.00	0.00	0.00	0.000	0.000	-
153.00	39.22	42.90	0.162	0.542	DUO4-8670
153.00	37.50	50.63	2.500	3.250	Platform w/ Handrails
140.00	4.90	6.30	0.078	0.168	P65Q56NSOB
140.00	0.00	0.00	0.050	0.065	Flush
130.00	50.43	55.39	0.270	0.646	DR65-19-xxdpq
130.00	21.00	28.35	1.500	1.950	tarms

ct-0027-tmobile-01.xls
SUMMARY

Weisman Consultants Inc.
3/9/2004

STANDARD EIA-222F IMPERIAL UNITS

ANALYSIS SUMMARY

Project Name	tmobile
Job Number	ct-0027
Title	N/A
Designer	bsl

Basic Wind Speed (mph)	85.00
Radial Ice (in)	0.50
Height (ft)	150.00
Number of Sides	12
Yield Stress (ksi)	65.00
Allowable Stress factor	1.33
Operational Wind (mph)	50.00

Possible Number of Sides
0 - Round
8 - 8 Sided
12 - 12 Sided
16 - 16 Sided
18 - 18 Sided

Iced Wind Speed (mph) optional

Site Specify Wind Only

POLE STRESSES AND DEFLECTIONS

Pole Section	Top Elev. (ft)	Bott. Elev. (ft)	Bare						Iced					
			Working Stress @Bot.				Operational @Top		Working Stress @Bot.				Operational @Top	
			Dead Load (kip)	Shear (klp)	Moment (kip ft)	Stress Ratio	Tilt (deg)	Defl. (ft)	Dead Load (kip)	Shear (klp)	Moment (kip ft)	Stress Ratio	Tilt (deg)	Defl. (ft)
TOP	>>>>>>>>>>>>>>>>		2.71	3.91	12.6	0.09			3.87	3.60	11.6	0.09		
A	150.00	140.00	3.03	4.56	61.4	0.37	4.52	6.10	4.29	4.11	58.4	0.35	4.01	5.38
B	140.00	130.00	3.51	5.58	120.4	0.59	4.40	5.32	4.99	5.03	114.2	0.57	3.91	4.69
C	130.00	120.00	5.67	9.82	223.4	0.93	4.20	4.57	8.09	8.74	209.4	0.88	3.72	4.02
D	120.00	110.01	6.09	10.78	337.3	1.20	3.90	3.86	8.64	9.56	314.7	1.12	3.45	3.39
E	110.01	110.00	6.09	10.79	337.4	0.91	3.52	3.21	8.64	9.56	314.8	0.85	3.11	2.82
F	110.00	110.00	6.09	10.79	337.4	0.91	3.52	3.21	8.64	9.56	314.8	0.85	3.11	2.82
G	110.00	100.00	6.69	11.79	461.1	1.07	3.52	3.21	9.38	10.41	428.2	1.00	3.11	2.82
H	100.00	90.00	7.33	12.82	594.9	1.21	3.19	2.62	10.17	11.27	549.7	1.12	2.81	2.30
I	90.00	80.00	8.01	13.88	738.6	1.32	2.83	2.09	11.02	12.16	679.3	1.21	2.50	1.84
J	80.00	73.51	8.48	14.57	837.2	1.38	2.46	1.63	11.59	12.73	767.6	1.27	2.16	1.43
K	73.51	73.50	8.48	14.57	837.3	1.15	2.22	1.36	11.59	12.73	767.8	1.06	1.95	1.20
L	73.50	70.00	8.80	14.94	892.3	1.18	2.22	1.36	11.97	13.04	816.9	1.08	1.95	1.19
M	70.00	60.00	9.74	16.01	1056.2	1.24	2.10	1.23	13.10	13.92	962.5	1.14	1.85	1.08
N	60.00	50.00	10.74	17.07	1229.9	1.30	1.78	0.89	14.28	14.80	1115.9	1.18	1.56	0.78
O	50.00	40.00	11.79	18.12	1413.2	1.35	1.45	0.61	15.53	15.66	1276.7	1.22	1.27	0.53
P	40.00	35.68	12.26	18.56	1495.2	1.37	1.13	0.39	16.09	16.03	1348.3	1.24	0.98	0.34
Q	35.68	35.67	12.27	18.56	1495.4	1.19	0.99	0.31	16.09	16.03	1348.5	1.08	0.86	0.27
R	35.67	30.00	13.01	19.13	1605.5	1.21	0.99	0.31	16.95	16.49	1444.4	1.09	0.86	0.27
S	30.00	20.00	14.37	20.16	1806.7	1.24	0.83	0.22	18.53	17.33	1618.9	1.12	0.72	0.19
T	20.00	10.00	15.80	21.23	2016.7	1.27	0.54	0.10	20.17	18.20	1800.0	1.13	0.48	0.08
U	10.00	0.00	17.28	22.34	2235.7	1.29	0.27	0.02	21.90	19.10	1987.7	1.15	0.24	0.02

INDIVIDUAL APPURTENANCES ROTATION

Elev. (ft)	Description	Tilt Bare (deg)	Tilt Iced (deg)
158.50	3167A	13.051	11.587
158.50	-	13.051	11.587
156.00	Yagi	13.051	11.587
156.00	-	13.051	11.587
153.00	DUO4-8670	13.051	11.587
153.00	Platform w/ Handrails	12.725	11.289
140.00	P65Q56NSOB	12.725	11.289
140.00	Flush	12.139	10.755
130.00	DR65-19-xxdpq	12.139	10.755
130.00	tarms		

CALCULATION OF SECTION PROPERTIES AND CAPACITIES

Project Name	tmobile
Job Number	ct-0027
Title	N/A
Designer	bsl

Pole Section	Top Elev. (ft)	Bott. Elev. (ft)	Thickness (in)	Bend Radius (in)	r Ratio Bare	r Ratio Iced	w (in)	TOP ELEVATION O. D. (in)	TOP ELEVATION Mean Width (in)	TOP ELEVATION Area (in^2)	TOP ELEVATION Inertia (in^4)	BOTTOM ELEVATION O. D. (in)	BOTTOM ELEVATION Mean Width (in)	BOTTOM ELEVATION Area (in^2)	BOTTOM ELEVATION Inertia (in^4)	BOTTOM ELEVATION S (in^3)	$(Fy)^{1/2}$ w/t	Allowable F_B (ksi)
TOP	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>																	
A	150.00	140.00	3/16	0.000	0.024	0.082	4.13	15.00	14.81	8.97	251.1	16.56	16.38	9.91	339.3	39.6	177.1	51.87
B	140.00	130.00	3/16	0.000	0.022	0.075	4.55	16.56	16.38	9.91	339.3	18.13	17.94	10.86	445.9	47.5	195.0	51.87
C	130.00	120.00	3/16	0.000	0.020	0.069	4.97	18.13	17.94	10.86	445.9	19.69	19.50	11.80	572.9	56.2	213.0	51.87
D	120.00	110.01	3/16	0.000	0.018	0.064	5.38	19.69	19.5	11.80	572.9	21.25	21.06	12.75	721.9	65.6	230.9	51.87
E	110.01	110.00	1/4	0.000	0.024	0.067	5.56	21.25	21.	16.90	951.6	21.25	21.00	16.91	951.6	86.5	179.3	51.87
F	110.00	110.00	1/4	0.000	0.024	0.067	5.56	21.25	21.	16.91	951.6	21.25	21.00	16.91	951.6	86.5	179.3	51.87
G	110.00	100.00	1/4	0.000	0.023	0.065	5.77	21.25	21.	16.91	951.6	22.84	22.59	18.19	1184.6	100.2	186.2	51.87
H	100.00	90.00	1/4	0.000	0.021	0.061	6.20	22.84	22.59	18.19	1184.6	24.43	24.18	19.47	1452.7	114.9	200.0	51.87
I	90.00	80.00	1/4	0.000	0.020	0.057	6.63	24.43	24.18	19.47	1452.7	26.02	25.77	20.75	1758.5	130.6	213.7	51.87
J	80.00	73.51	1/4	0.000	0.019	0.054	6.98	26.02	25.77	20.75	1758.5	27.05	26.80	21.58	1978.6	141.3	225.0	51.87
K	73.51	73.50	5/16	0.000	0.023	0.058	7.02	27.05	26.74	26.95	2459.8	26.55	26.24	26.44	2323.4	169.1	180.7	51.87
L	73.50	70.00	5/16	0.000	0.023	0.058	7.02	26.55	26.24	26.44	2323.4	27.10	26.78	26.99	2471.6	176.2	180.8	51.87
M	70.00	60.00	5/16	0.000	0.022	0.056	7.30	27.10	26.78	26.99	2471.6	28.66	28.34	28.57	2929.0	197.5	188.1	51.87
N	60.00	50.00	5/16	0.000	0.021	0.053	7.72	28.66	28.34	28.57	2929.0	30.22	29.90	30.14	3439.6	219.9	198.9	51.87
O	50.00	40.00	5/16	0.000	0.020	0.051	8.14	30.22	29.9	30.14	3439.6	31.77	31.46	31.71	4006.3	243.6	209.6	51.87
P	40.00	35.68	5/16	0.000	0.019	0.049	8.44	31.77	31.46	31.71	4006.3	32.45	32.14	32.39	4269.8	254.2	217.4	51.87
Q	35.68	35.67	3/8	0.000	0.023	0.053	8.42	32.45	32.08	38.73	5086.1	31.85	31.48	38.01	4805.9	291.5	180.9	51.87
R	35.67	30.00	3/8	0.000	0.023	0.053	8.45	31.85	31.48	38.01	4805.9	32.73	32.35	39.07	5219.9	308.1	181.7	51.87
S	30.00	20.00	3/8	0.000	0.022	0.051	8.78	32.73	32.35	39.07	5219.9	34.28	33.90	40.94	6006.8	338.5	188.7	51.87
T	20.00	10.00	3/8	0.000	0.021	0.049	9.19	34.28	33.9	40.94	6006.8	35.83	35.45	42.81	6869.0	370.4	197.7	51.87
U	10.00	0.00	3/8	0.000	0.020	0.047	9.61	35.83	35.45	42.81	6869.0	37.38	37.01	44.68	7810.1	403.6	206.6	51.87

3/9/2004

ct-0027-tmobile-01.xls
BARE_WIND_FORCE

BARE WIND LOAD FOR POLE + DIST. APPURTENANCES

Project Name	tmobile
Job Number	ct-0027
Title	N/A
Designer	bsl

Pole Section.	Top Elev. (ft)	Bott. Elev. (ft)	Mid-section Height (ft)	Section Length (ft)	Avg. O.D. (in)	Dist. Area Appurtenance (ft^2/ft)	Total Wind Area (ft^2)	r Ratio	Kz (ft)	qz (lb/ft^2)	C (mph ft)	Force Coeff. Cf	Horz. Force (kip)	Shear (kip)	Moment (kip ft)
TOP	>>>>>>>>>>	>>>>>>>>>>	>>>>>>>>>>	>>>>>>>>>>	>>>>>>>>>>	>>>>>>>>>>	>>>>>>>>>>	>>>>>>>>>>	>>>>>>>>>>	>>>>>>>>>>	>>>>>>>>>>	>>>>>>>>>>	>>>>>>>>>>	0.00	0.0
A	150.00	140.00	145.00	10.00	15.78	0.00	13.15	0.024	1.53	28.23	138	1.030	0.646	0.65	3.2
B	140.00	130.00	135.00	10.00	17.34	0.20	16.45	0.022	1.50	27.66	150	1.030	0.792	1.44	13.7
C	130.00	120.00	125.00	10.00	18.91	0.40	19.76	0.020	1.46	27.06	162	1.030	0.931	2.37	32.7
D	120.00	110.01	115.01	9.99	20.47	0.40	21.03	0.018	1.43	26.42	173	1.030	0.967	3.34	61.2
E	110.01	110.00	110.01	0.01	21.25	0.40	0.02	0.024	1.41	26.09	179	1.030	0.001	3.34	61.2
F	110.00	110.00	110.00	0.00	21.25	0.40	0.01	0.024	1.41	26.09	179	1.030	0.000	3.34	61.2
G	110.00	100.00	105.00	10.00	22.05	0.40	22.37	0.023	1.39	25.75	184	1.030	1.003	4.34	99.6
H	100.00	90.00	95.00	10.00	23.64	0.40	23.70	0.021	1.35	25.02	195	1.030	1.032	5.37	148.2
I	90.00	80.00	85.00	10.00	25.23	0.40	25.02	0.020	1.31	24.24	205	1.030	1.056	6.43	207.2
J	80.00	73.51	76.76	6.49	26.54	0.40	16.94	0.019	1.27	23.54	212	1.030	0.694	7.12	251.1
K	73.51	73.50	73.51	0.01	26.80	0.40	0.03	0.023	1.26	23.25	213	1.030	0.001	7.12	251.2
L	73.50	70.00	71.75	3.50	26.82	0.40	9.23	0.023	1.25	23.09	212	1.030	0.371	7.49	276.8
M	70.00	60.00	65.00	10.00	27.88	0.40	27.23	0.022	1.21	22.45	218	1.030	1.064	8.56	357.1
N	60.00	50.00	55.00	10.00	29.44	0.40	28.53	0.021	1.16	21.40	224	1.030	1.063	9.62	448.0
O	50.00	40.00	45.00	10.00	31.00	0.40	29.83	0.020	1.09	20.21	229	1.030	1.049	10.67	549.4
P	40.00	35.68	37.84	4.32	32.11	0.40	13.29	0.019	1.04	19.23	232	1.030	0.445	11.12	596.5
Q	35.68	35.67	35.68	0.01	32.15	0.40	0.03	0.023	1.02	18.91	230	1.030	0.001	11.12	596.6
R	35.67	30.00	32.84	5.67	32.29	0.40	17.52	0.023	1.00	18.50	229	1.030	0.564	11.68	661.2
S	30.00	20.00	25.00	10.00	33.50	0.40	31.92	0.022	1.00	18.50	237	1.030	1.028	12.71	783.2
T	20.00	10.00	15.00	10.00	35.05	0.40	33.21	0.021	1.00	18.50	248	1.030	1.069	13.78	915.6
U	10.00	0.00	5.00	10.00	36.60	0.40	34.50	0.020	1.00	18.50	259	1.030	1.111	14.89	1058.9

3/9/2004

ct-0027-tmobile-01.xls
ICED_WIND_FORCE

ICED WIND LOAD FOR POLE + DIST. APPURTENANCES

Project Name	tmobile
Job Number	ct-0027
Title	N/A
Designer	bsl

Pole Section	Top Elev. (ft)	Bott. Elev. (ft)	Mid-section Height (ft)	Section Length (ft)	Avg. O.D. (in)	Dist. Area Appurtenance (ft^2/ft)	Total Wind Area (ft^2)	r Ratio	Kz (ft)	q_z (lb/ft^2)	C (mph ft)	Force Coeff. Cf	Horz. Force (kip)	Shear (kip)	Moment (kip ft)
TOP	>>>	>>>	>>>	>>>	>>>	>>>	>>>	>>>	>>>	>>>	>>>	>>>	>>>	0.00	0.0
A	150.00	140.00	145.00	10.00	16.78	0.00	13.98	0.082	1.53	21.17	127	1.030	0.515	0.52	2.6
B	140.00	130.00	135.00	10.00	18.34	0.40	19.29	0.075	1.50	20.75	138	1.030	0.697	1.21	11.2
C	130.00	120.00	125.00	10.00	19.91	0.60	22.59	0.069	1.46	20.30	148	1.030	0.798	2.01	27.3
D	120.00	110.01	115.01	9.99	21.47	0.60	23.86	0.064	1.43	19.82	157	1.030	0.823	2.83	51.5
E	110.01	110.00	110.01	0.01	22.25	0.60	0.02	0.067	1.41	19.57	162	1.030	0.001	2.83	51.5
F	110.00	110.00	110.00	0.00	22.25	0.60	0.01	0.067	1.41	19.57	162	1.030	0.000	2.83	51.5
G	110.00	100.00	105.00	10.00	23.05	0.60	25.20	0.065	1.39	19.31	167	1.030	0.847	3.68	84.1
H	100.00	90.00	95.00	10.00	24.64	0.60	26.53	0.061	1.35	18.76	176	1.030	0.867	4.55	125.3
I	90.00	80.00	85.00	10.00	26.23	0.60	27.85	0.057	1.31	18.18	184	1.030	0.881	5.43	175.2
J	80.00	73.51	76.76	6.49	27.54	0.60	18.78	0.054	1.27	17.66	191	1.030	0.577	6.01	212.2
K	73.51	73.50	73.51	0.01	27.80	0.60	0.03	0.058	1.26	17.44	191	1.030	0.001	6.01	212.3
L	73.50	70.00	71.75	3.50	27.82	0.60	10.22	0.058	1.25	17.32	191	1.030	0.308	6.32	233.9
M	70.00	60.00	65.00	10.00	28.88	0.60	30.06	0.056	1.21	16.84	195	1.030	0.881	7.20	301.4
N	60.00	50.00	55.00	10.00	30.44	0.60	31.36	0.053	1.16	16.05	201	1.030	0.876	8.07	377.8
O	50.00	40.00	45.00	10.00	32.00	0.60	32.66	0.051	1.09	15.16	205	1.030	0.862	8.93	462.8
P	40.00	35.68	37.84	4.32	33.11	0.60	14.51	0.049	1.04	14.43	207	1.030	0.364	9.30	502.2
Q	35.68	35.67	35.68	0.01	33.15	0.60	0.03	0.053	1.02	14.18	206	1.030	0.001	9.30	502.3
R	35.67	30.00	32.84	5.67	33.29	0.60	19.13	0.053	1.00	13.87	204	1.030	0.462	9.76	556.4
S	30.00	20.00	25.00	10.00	34.50	0.60	34.75	0.051	1.00	13.87	212	1.030	0.839	10.60	658.2
T	20.00	10.00	15.00	10.00	36.05	0.60	36.05	0.049	1.00	13.87	221	1.030	0.870	11.47	768.5
U	10.00	0.00	5.00	10.00	37.60	0.60	37.34	0.047	1.00	13.87	231	1.030	0.902	12.37	887.8

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IND_APP_FORCE

WIND LOAD FOR INDIVIDUAL APPURTENANCES

Project Name	tmobile
Job Number	ct-0027
Title	N/A
Designer	bsl

Force Calculation

Elev	Bare			Iced		
	q_z	C_AA_A	Horz. Force	q_z	C_AA_A	Horz. Force
(ft)	(lb/ft^2)	(ft^2)	(kip)	(lb/ft^2)	(ft^2)	(kip)
158.50	28.96	2.04	0.10	28.96	2.77	0.10
158.50	28.96	0.00	0.00	28.96	0.00	0.00
156.00	28.83	1.99	0.10	28.83	2.70	0.10
156.00	28.83	0.00	0.00	28.83	0.00	0.00
153.00	28.67	39.22	1.90	28.67	42.90	1.56
153.00	28.67	37.50	1.82	28.67	50.63	1.84
140.00	27.95	4.90	0.23	27.95	6.30	0.22
140.00	27.95	0.00	0.00	27.95	0.00	0.00
130.00	27.37	50.43	2.33	27.37	55.39	1.92
130.00	27.37	21.00	0.97	27.37	28.35	0.98

Shear and Moment

Pole Section	Top Elev.	Bott. Elev.	Bare				Iced			
			Eq. Force	Eq. Elev.	Shear	Moment	Eq. Force	Eq. Elev.	Shear	Moment
	(ft)	(ft)	(kip)	(ft)	(kip)	(kip ft)	(kip)	(ft)	(kip)	(kip ft)
TOP	>>>>>>>>>>>>>>>>>		3.914	153.21	3.91	12.6	3.599	153.24	3.60	11.6
					3.91	51.7			3.60	47.6
A	150.00	140.00			4.15	93.2	0.223	140.00	3.82	85.9
B	140.00	130.00	0.232	140.00	7.45	167.7	2.904	130.00	6.73	153.1
C	130.00	120.00	3.303	130.00	7.45	242.0			6.73	220.3
D	120.00	110.01			7.45	242.1			6.73	220.4
E	110.01	110.00			7.45	242.1			6.73	220.4
F	110.00	110.00			7.45	316.6			6.73	287.6
G	110.00	100.00			7.45	391.1			6.73	354.9
H	100.00	90.00			7.45	465.6			6.73	422.2
I	90.00	80.00			7.45	513.9			6.73	465.8
J	80.00	73.51			7.45	514.0			6.73	465.9
K	73.51	73.50			7.45	540.1			6.73	489.4
L	73.50	70.00			7.45	614.6			6.73	556.7
M	70.00	60.00			7.45	689.0			6.73	624.0
N	60.00	50.00			7.45	763.5			6.73	691.2
O	50.00	40.00			7.45	795.7			6.73	720.3
P	40.00	35.68			7.45	795.8			6.73	720.3
Q	35.68	35.67			7.45	838.0			6.73	758.5
R	35.67	30.00			7.45	912.5			6.73	825.7
S	30.00	20.00			7.45	987.0			6.73	893.0
T	20.00	10.00			7.45	1061.5			6.73	960.3
U	10.00	0.00								

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DEALD_LOAD

CALCULATION OF BARE AND ICED POLE WEIGHT

Project Name	tmobile
Job Number	ct-0027
Title	N/A
Designer	bsl

								Bare			Iced					
Pole Section	Top Elev. (ft)	Bott. Elev. (ft)	Sec. Length (ft)	Avg. Mean Width (in)	Thickness (in)	Avg. Area (in^2)	Pole Sec. Weight (kip)	App. Weight (kip)	Total Weight (kip)	Accum. Weight (kip)	Avg. Ice Area (in^2)	Ice Weight (kip)	Pole Sec. Weight (kip)	App. Weight (kip)	Total Weight (kip)	Accum. Weight (kip)
TOP	>>>>>>>>>>>>>>>>>>>>>>>>>>>>	>>>>>>>>>>>>>>>>>>>>>>>>>>	>>>>>>>>>>>>>>>>>>>>>>>>>	>>>>>>>>>>>>>>>>>>>	>>>>>>>>>>>>>>>>>>	>>>>>>>>>>>>>>>>		2.712	2.71	2.71				3.868	3.87	3.87
A	150.00	140.00	10.00	15.59	3/16	9.44	0.321	0.000	0.32	3.03	26.21	0.102	0.321	0.000	0.42	4.29
B	140.00	130.00	10.00	17.16	3/16	10.39	0.353	0.128	0.48	3.51	28.73	0.112	0.353	0.233	0.70	4.99
C	130.00	120.00	10.00	18.72	3/16	11.33	0.386	1.770	2.16	5.67	31.24	0.122	0.386	2.596	3.10	8.09
D	120.00	110.01	9.99	20.28	3/16	12.28	0.417	0.000	0.42	6.09	33.76	0.131	0.417	0.000	0.55	8.64
E	110.01	110.00	0.01	21.00	1/4	16.90	0.001	0.000	0.00	6.09	35.02	0.000	0.001	0.000	0.00	8.64
F	110.00	110.00	0.00	21.00	1/4	16.91	0.000	0.000	0.00	6.09	35.02	0.000	0.000	0.000	0.00	8.64
G	110.00	100.00	10.00	21.80	1/4	17.55	0.597	0.000	0.60	6.69	36.30	0.141	0.597	0.000	0.74	9.38
H	100.00	90.00	10.00	23.39	1/4	18.83	0.641	0.000	0.64	7.33	38.86	0.151	0.641	0.000	0.79	10.17
I	90.00	80.00	10.00	24.98	1/4	20.11	0.684	0.000	0.68	8.01	41.42	0.161	0.684	0.000	0.85	11.02
J	80.00	73.51	6.49	26.29	1/4	21.16	0.467	0.000	0.47	8.48	43.53	0.110	0.467	0.000	0.58	11.59
K	73.51	73.50	0.01	26.49	5/16	26.70	0.001	0.000	0.00	8.48	43.96	0.000	0.001	0.000	0.00	11.59
L	73.50	70.00	3.50	26.51	5/16	26.72	0.319	0.000	0.32	8.80	43.99	0.060	0.319	0.000	0.38	11.97
M	70.00	60.00	10.00	27.56	5/16	27.78	0.945	0.000	0.95	9.74	45.69	0.178	0.945	0.000	1.12	13.10
N	60.00	50.00	10.00	29.12	5/16	29.35	0.999	0.000	1.00	10.74	48.20	0.187	0.999	0.000	1.19	14.28
O	50.00	40.00	10.00	30.68	5/16	30.92	1.052	0.000	1.05	11.79	50.71	0.197	1.052	0.000	1.25	15.53
P	40.00	35.68	4.32	31.80	5/16	32.05	0.471	0.000	0.47	12.26	52.51	0.088	0.471	0.000	0.56	16.09
Q	35.68	35.67	0.01	31.78	3/8	38.37	0.001	0.000	0.00	12.27	52.57	0.000	0.001	0.000	0.00	16.09
R	35.67	30.00	5.67	31.91	3/8	38.54	0.744	0.000	0.74	13.01	52.79	0.116	0.744	0.000	0.86	16.95
S	30.00	20.00	10.00	33.13	3/8	40.00	1.361	0.000	1.36	14.37	54.75	0.213	1.361	0.000	1.57	18.53
T	20.00	10.00	10.00	34.68	3/8	41.88	1.425	0.000	1.42	15.80	57.24	0.223	1.425	0.000	1.65	20.17
U	10.00	0.00	10.00	36.23	3/8	43.75	1.489	0.000	1.49	17.28	59.74	0.232	1.489	0.000	1.72	21.90

3/9/2004

ct-0027-tmobile-01.xls
BARE_DEFL

CALCULATION OF DEFLECTIONS AND SECONDARY MOMENTS (BARE POLE)

Project Name	tmobile
Job Number	ct-0027
Title	N/A
Designer	bsl

							Working Stress							Operational	
Pole Section	Top Elev. (ft)	Bott. Elev. (ft)	Section Length (ft)	Moment (kip ft)	Inertia at Top of Sec. (in^4)	Inertia at Bot. of Sec. (in^4)	Avg. Moment (kip ft)	Inc. Tilt (deg)	Total Tilt (deg)	Tot. Defl. @top (ft)	Total Weight (kip)	Accum. Weight (kip)	M_2 (kip ft)	Total Tilt @top (ft)	Total Defl. @top (ft)
											2.712	2.712			
TOP	>>>>>>>>>>>>>>>>>>>>>>>>>			12.6	0.0	0.0									
A	150.00	140.00	10.00	54.9	251.1	339.3	33.8	0.325	13.05	17.63	0.321	3.033	6.479	4.52	6.10
B	140.00	130.00	10.00	106.8	339.3	445.9	80.9	0.586	12.73	15.37	0.481	3.515	13.601	4.40	5.32
C	130.00	120.00	10.00	200.3	445.9	572.9	153.6	0.858	12.14	13.20	2.156	5.670	23.023	4.20	4.57
D	120.00	110.01	9.99	303.2	572.9	721.9	251.8	1.105	11.28	11.14	0.417	6.088	34.056	3.90	3.86
E	110.01	110.00	0.01	303.3	951.6	951.6	303.3	0.001	10.18	9.27	0.001	6.088	34.066	3.52	3.21
F	110.00	110.00	0.00	303.4	951.6	951.6	303.3	0.000	10.18	9.27	0.000	6.088	34.070	3.52	3.21
G	110.00	100.00	10.00	416.2	951.6	1184.6	359.8	0.958	10.18	9.27	0.597	6.685	44.906	3.52	3.21
H	100.00	90.00	10.00	539.3	1184.6	1452.7	477.8	1.031	9.22	7.57	0.641	7.326	55.573	3.19	2.62
I	90.00	80.00	10.00	672.8	1452.7	1758.5	606.0	1.074	8.19	6.05	0.684	8.010	65.837	2.83	2.09
J	80.00	73.51	6.49	765.0	1758.5	1978.6	718.9	0.710	7.11	4.71	0.467	8.477	72.150	2.46	1.63
K	73.51	73.50	0.01	765.2	2459.8	2323.4	765.1	0.001	6.40	3.94	0.001	8.478	72.160	2.22	1.36
L	73.50	70.00	3.50	816.9	2323.4	2471.6	791.0	0.329	6.40	3.94	0.319	8.797	75.455	2.22	1.36
M	70.00	60.00	10.00	971.6	2471.6	2929.0	894.3	0.942	6.07	3.56	0.945	9.742	84.539	2.10	1.23
N	60.00	50.00	10.00	1137.0	2929.0	3439.6	1054.3	0.942	5.13	2.58	0.999	10.741	92.889	1.78	0.89
O	50.00	40.00	10.00	1313.0	3439.6	4006.3	1225.0	0.936	4.19	1.76	1.052	11.793	100.227	1.45	0.61
P	40.00	35.68	4.32	1392.2	4006.3	4269.8	1352.6	0.402	3.25	1.11	0.471	12.264	102.996	1.13	0.39
Q	35.68	35.67	0.01	1392.4	5086.1	4805.9	1392.3	0.001	2.85	0.88	0.001	12.265	103.002	0.99	0.31
R	35.67	30.00	5.67	1499.2	4805.9	5219.9	1445.8	0.465	2.85	0.88	0.744	13.009	106.279	0.99	0.31
S	30.00	20.00	10.00	1695.7	5219.9	6006.8	1597.5	0.810	2.38	0.62	1.361	14.370	111.028	0.83	0.22
T	20.00	10.00	10.00	1902.6	6006.8	6869.0	1799.1	0.795	1.57	0.28	1.425	15.795	114.147	0.54	0.10
U	10.00	0.00	10.00	2120.4	6869.0	7810.1	2011.5	0.780	0.78	0.07	1.489	17.284	115.293	0.27	0.02

3/9/2004

ct-0027-tmobile-01.xls
ICED_DEFL

CALCULATION OF DEFLECTIONS AND SECONDARY MOMENTS (ICED POLE)

Project Name	tmobile
Job Number	ct-0027
Title	N/A
Designer	bsl

							Working Stress							Operational	
Pole Section	Top Elev. (ft)	Bott. Elev. (ft)	Section Length (ft)	Moment (kip ft)	Inertia at Top of Sec. (in^4)	Inertia at Bot. of Sec. (in^4)	Avg. Moment (kip ft)	Inc. Tilt (deg)	Total Tilt (deg)	Tot. Defl. @top (ft)	Total Weight (kip)	Accum. Weight (kip)	M_2 (kip ft)	Total Tilt @top (ft)	Total Defl. @top (ft)
TOP	>>>>>>>>>>>>>>>>>>>>>>>>			11.6	0.0	0.0					3.868	3.868			
A	150.00	140.00	10.00	50.2	251.1	339.3	30.9	0.298	11.59	15.55	0.423	4.291	8.166	4.01	5.38
B	140.00	130.00	10.00	97.1	339.3	445.9	73.6	0.534	11.29	13.55	0.699	4.990	17.115	3.91	4.69
C	130.00	120.00	10.00	180.4	445.9	572.9	138.8	0.775	10.76	11.62	3.103	8.093	28.995	3.72	4.02
D	120.00	110.01	9.99	271.8	572.9	721.9	226.1	0.992	9.98	9.81	0.548	8.641	42.875	3.45	3.39
E	110.01	110.00	0.01	271.9	951.6	951.6	271.8	0.001	8.99	8.15	0.001	8.642	42.889	3.11	2.82
F	110.00	110.00	0.00	271.9	951.6	951.6	271.9	0.000	8.99	8.15	0.000	8.642	42.893	3.11	2.82
G	110.00	100.00	10.00	371.8	951.6	1184.6	321.8	0.857	8.99	8.15	0.738	9.380	56.388	3.11	2.82
H	100.00	90.00	10.00	480.2	1184.6	1452.7	426.0	0.919	8.13	6.65	0.792	10.172	69.508	2.81	2.30
I	90.00	80.00	10.00	597.3	1452.7	1758.5	538.7	0.955	7.21	5.31	0.845	11.017	81.990	2.50	1.84
J	80.00	73.51	6.49	678.0	1758.5	1978.6	637.7	0.630	6.26	4.13	0.577	11.594	89.603	2.16	1.43
K	73.51	73.50	0.01	678.2	2459.8	2323.4	678.1	0.001	5.63	3.45	0.001	11.595	89.614	1.95	1.20
L	73.50	70.00	3.50	723.3	2323.4	2471.6	700.7	0.291	5.63	3.45	0.378	11.973	93.564	1.95	1.19
M	70.00	60.00	10.00	858.1	2471.6	2929.0	790.7	0.833	5.33	3.12	1.123	13.096	104.348	1.85	1.08
N	60.00	50.00	10.00	1001.8	2929.0	3439.6	929.9	0.831	4.50	2.26	1.186	14.282	114.135	1.56	0.78
O	50.00	40.00	10.00	1154.1	3439.6	4006.3	1077.9	0.824	3.67	1.54	1.249	15.532	122.638	1.27	0.53
P	40.00	35.68	4.32	1222.5	4006.3	4269.8	1188.3	0.353	2.85	0.97	0.559	16.091	125.823	0.98	0.34
Q	35.68	35.67	0.01	1222.7	5086.1	4805.9	1222.6	0.001	2.49	0.77	0.002	16.093	125.830	0.86	0.27
R	35.67	30.00	5.67	1314.8	4805.9	5219.9	1268.7	0.408	2.49	0.77	0.860	16.953	129.576	0.86	0.27
S	30.00	20.00	10.00	1483.9	5219.9	6006.8	1399.4	0.709	2.08	0.54	1.574	18.527	134.954	0.72	0.19
T	20.00	10.00	10.00	1661.5	6006.8	6869.0	1572.7	0.695	1.38	0.24	1.648	20.174	138.447	0.48	0.08
U	10.00	0.00	10.00	1848.0	6869.0	7810.1	1754.8	0.680	0.68	0.06	1.721	21.895	139.718	0.24	0.02

3/9/2004

ct-0027-tmobile-01.xls
STRESS_RATIO_CAL

SUMMARY OF INTERNAL FORCES AND CAPACITIES

Project Name	tmobile
Job Number	ct-0027
Title	N/A
Designer	bsl

Pole Section	Top Elev.	Bott. Elev.	Area	S	Bare										Iced									
					Dead Load	Shear	Moment	M_2	M_{TOTAL}	f_a	f_b	f_{TOTAL}	F_B	Stress Ratio	Dead Load	Shear	Moment	M_2	M_{TOTAL}	f_a	f_b	f_{TOTAL}	F_B	Stress Ratio
	(ft)	(ft)	(in^2)	(in^3)	(kip)	(kip)	(kip ft)	(kip ft)	(kip ft)	(ksi)	(ksi)	(ksi)	(ksi)		(kip)	(kip)	(kip ft)	(kip ft)	(kip ft)	(ksi)	(ksi)	(ksi)	(ksi)	
TOP	>>>>>>>>>>>>>>>>>		8.97	33.91	2.71	3.91	12.58	0.00	12.6	0.30	4.45	4.75	51.87	0.092	3.87	3.60	11.65	0.00	11.6	0.43	4.12	4.55	51.87	0.088
A	150.00	140.00	9.44	39.57	3.03	4.56	54.9	6.48	61.4	0.32	18.63	18.95	51.87	0.365	4.29	4.11	50.21	8.17	58.4	0.45	17.70	18.16	51.87	0.350
B	140.00	130.00	10.39	47.53	3.51	5.58	106.8	13.60	120.4	0.34	30.40	30.74	51.87	0.593	4.99	5.03	97.07	17.11	114.2	0.48	28.83	29.31	51.87	0.565
C	130.00	120.00	11.33	56.22	5.67	9.82	200.3	23.02	223.4	0.50	47.68	48.18	51.87	0.929	8.09	8.74	180.44	29.00	209.4	0.71	44.70	45.42	51.87	0.876
D	120.00	110.01	12.28	65.63	6.09	10.78	303.2	34.06	337.3	0.50	61.67	62.16	51.87	1.198	8.64	9.56	271.80	42.88	314.7	0.70	57.53	58.24	51.87	1.123
E	110.01	110.00	16.90	86.51	6.09	10.79	303.3	34.07	337.4	0.36	46.80	47.16	51.87	0.909	8.64	9.56	271.89	42.89	314.8	0.51	43.67	44.18	51.87	0.852
F	110.00	110.00	16.91	86.51	6.09	10.79	303.4	34.07	337.4	0.36	46.81	47.17	51.87	0.909	8.64	9.56	271.92	42.89	314.8	0.51	43.67	44.18	51.87	0.852
G	110.00	100.00	17.55	100.19	6.69	11.79	416.2	44.91	461.1	0.38	55.23	55.61	51.87	1.072	9.38	10.41	371.76	56.39	428.2	0.53	51.28	51.81	51.87	0.999
H	100.00	90.00	18.83	114.87	7.33	12.82	539.3	55.57	594.9	0.39	62.14	62.53	51.87	1.206	10.17	11.27	480.17	69.51	549.7	0.54	57.42	57.96	51.87	1.117
I	90.00	80.00	20.11	130.56	8.01	13.88	672.8	65.84	738.6	0.40	67.89	68.29	51.87	1.316	11.02	12.16	597.32	81.99	679.3	0.55	62.44	62.98	51.87	1.214
J	80.00	73.51	21.16	141.29	8.48	14.57	765.0	72.15	837.2	0.40	71.10	71.51	51.87	1.379	11.59	12.73	678.04	89.60	767.6	0.55	65.20	65.75	51.87	1.268
K	73.51	73.50	26.70	169.06	8.48	14.57	765.2	72.16	837.3	0.32	59.44	59.75	51.87	1.152	11.59	12.73	678.17	89.61	767.8	0.43	54.50	54.93	51.87	1.059
L	73.50	70.00	26.72	176.22	8.80	14.94	816.9	75.45	892.3	0.33	60.77	61.10	51.87	1.178	11.97	13.04	723.32	93.56	816.9	0.45	55.63	56.08	51.87	1.081
M	70.00	60.00	27.78	197.46	9.74	16.01	971.6	84.54	1056.2	0.35	64.19	64.54	51.87	1.244	13.10	13.92	858.14	104.35	962.5	0.47	58.49	58.96	51.87	1.137
N	60.00	50.00	29.35	219.91	10.74	17.07	1137.0	92.89	1229.9	0.37	67.11	67.48	51.87	1.301	14.28	14.80	1001.75	114.13	1115.9	0.49	60.89	61.38	51.87	1.183
O	50.00	40.00	30.92	243.57	11.79	18.12	1313.0	100.23	1413.2	0.38	69.62	70.00	51.87	1.350	15.53	15.66	1154.05	122.64	1276.7	0.50	62.90	63.40	51.87	1.222
P	40.00	35.68	32.05	254.19	12.26	18.56	1392.2	103.00	1495.2	0.38	70.58	70.97	51.87	1.368	16.09	16.03	1222.49	125.82	1348.3	0.50	63.65	64.15	51.87	1.237
Q	35.68	35.67	38.37	291.50	12.27	18.56	1392.4	103.00	1495.4	0.32	61.56	61.88	51.87	1.193	16.09	16.03	1222.65	125.83	1348.5	0.42	55.51	55.93	51.87	1.078
R	35.67	30.00	38.54	308.11	13.01	19.13	1499.2	106.28	1605.5	0.34	62.53	62.87	51.87	1.212	16.95	16.49	1314.83	129.58	1444.4	0.44	56.26	56.70	51.87	1.093
S	30.00	20.00	40.00	338.52	14.37	20.16	1695.7	111.03	1806.7	0.36	64.05	64.40	51.87	1.242	18.53	17.33	1483.91	134.95	1618.9	0.46	57.39	57.85	51.87	1.115
T	20.00	10.00	41.88	370.36	15.80	21.23	1902.6	114.15	2016.7	0.38	65.34	65.72	51.87	1.267	20.17	18.20	1661.53	138.45	1800.0	0.48	58.32	58.80	51.87	1.134
U	10.00	0.00	43.75	403.63	17.28	22.34	2120.4	115.29	2235.7	0.40	66.47	66.86	51.87	1.289	21.90	19.10	1848.02	139.72	1987.7	0.50	59.10	59.60	51.87	1.149

Spectrasite Communications
100 Regency Forest Dr, Ste 400
Cary, NC 27511
919-468-0112

Spectrasite Conceptual Estimate Form

SpectraSite

Site ID: CT-0027
Site Name: Waterford
Today's Date: 2/20/2004
Revision #:
Revision Reason:

Carriers: T-Moible
Project Description: 125' of threaded rod on 4 sides of monopole

DESCRIPTION OF SERVICE	ESTIMATED COST	COMMENTS
ASAC Evaluation	$ -	
1A Survey and Certification	$ -	
Phase I	$ -	
SHPO	$ -	
NEPA	$ -	
Geotechincal Report	$ -	
Foundation Design	$ -	
Tower Design	$ -	
Engineering	$ 6,000.00	WesTower
Construction Drawings/As-Builts	$ -	
As-Builts Survey	$ -	
Zoning	NA	
Supervision & Coordination	$ -	
Permit(s)	$ 1,000.00	WesTower
Site Prep & Mobilization	$ -	
Equipment Rental; Crane, C.O.W. , Generator, etc..	$ 1,000.00	Crane
Clearing & Grading	$ -	
Access Road	$ -	
Drainage	$ -	
Tower Modification Labor	$ 15,615.00	
Tower Modification Material	$ 17,810.00	
Tower Foundation Labor	$ -	
Tower Foundation Material	$ -	
Tower Extension Labor	$ -	
Tower Extension Material	$ -	
Tower Replacement Steel	$ -	
Tower Replacement Labor	$ -	
Replacement Mounts	$ -	
Dismantel Existing Tower to include all cost associated with the removal and disposal of the tower and foundation	$ -	
Shipping and Freight	$ -	WesTower
Grounding	$ -	
Power	$ -	
Telco	$ -	
Lighting & Monitoring Installation	$ -	
Retaining Wall	$ -	
Landscaping	$ -	
Relocate existing carriers to include jumpers, connectors, grounding kits, ice bridge and coax (Antenna's supplied by others)	$ -	
Sweep Test	$ -	
Pad/Building Foundation	$ -	
Shelter	$ -	
Inspection & Testing	$ -	
Fencing/Blockwall	$ -	
Site Clean Up and Closeouts	$ 200.00	
Project Management	$ 2,737.00	
Other	$ -	
Other	$ -	
TOTAL ESTIMATED IMPROVEMENT COST	$ 44,362.00	

Miscellaneous

T-Mobile®
Get more from life®

100 Filley Street, Bloomfield, CT 06002
860-692-7145 fax 860-692-7159

May 27, 2004

First Selectman
Paul B. Eccard
Waterford Town Hall
15 Rope Ferry Road
Waterford, CT 06385

RE: **Wireless Telecommunications Facility**
85 Miner Lane, Waterford, Connecticut

Dear First Selectman Eccard:

Omnipoint Communications, Inc. a.k.a. T-Mobile (formerly VoiceStream Corp.) intends to co-locate antennas on the SpectraSite monopole located at 85 Miner Lane, Waterford. Attached, please find a copy of our application to the CT Siting Council.

Of you have any questions or concerns, please feel free to call me at 860-692-7145, or the CT Siting Council.

Very Truly Yours,

Karina Fournier
T-Mobile Zoning Dept.

Attachment- Application

Cc: CSC